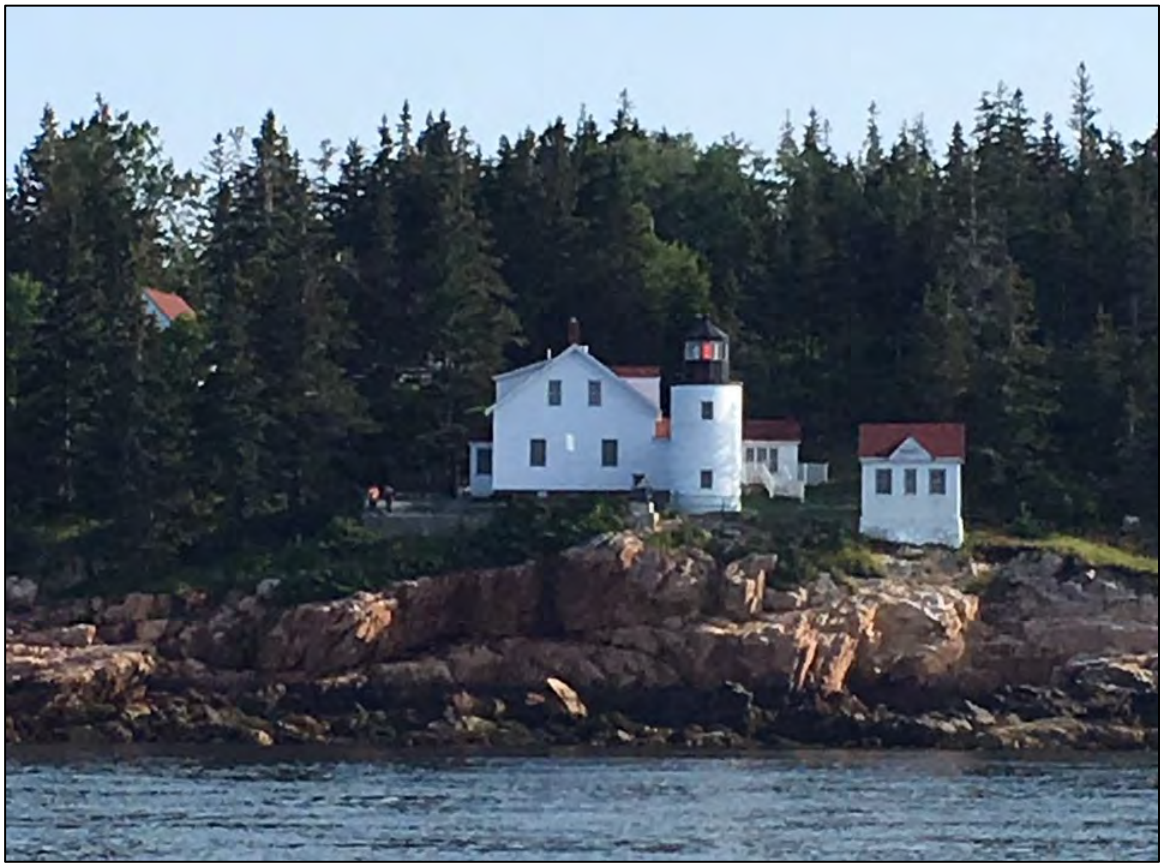
National Park Service
Department of the Interior

Acadia National Park
Bar Harbor, ME

FRIENDS OF ACADIA

Bass Harbor Head Light Station

Historic Structure Report





The historic structure report presented here exists in two formats. A traditional, printed version is available for study at Acadia National Park, the Northeast Regional Office of the NPS, Denver Service Center of the NPS, and at a variety of other repositories. For more widespread access, the historic structure report also exists in a web-based format through ParkNet, the website of the National Park Service. Please visit www.nps.gov for more information.

Acadia National Park

Bass Harbor Head Light Station

Historic Structure Report

February 2020

for

Acadia National Park
Bar Harbor, ME

PMIS 253831

ACAD 123 167041

by

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National Park Service

FRIENDS OF ACADIA

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Acadia National Park

Bass Harbor Head Light Station

Historic Structure Report

Approved: 2/27/20

Superintendent, Acadia National Park Date

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Executive Summary

This Historic Structure Report (HSR) was produced for Acadia National Park to determine the best treatment and use for the Bass Harbor Head Light Station. Use of the structure is preferred as per National Park Service policies and guidelines for Cultural Resource Management and *Executive Order 130006: Locating Federal Facilities on Historic Properties*. This HSR will guide future rehabilitation and repair work on the structure.

The project was conducted under a project agreement between the Historic Preservation Training Center (HPTC) and Acadia National Park (ACAD) entitled: "Prepare Historic Structure Report for Bass Harbor Head Light Station" as part of PMIS 253831. Funding was allocated through ACAD with funds generously donated by The Friends of Acadia.[1] Project management was also provided by ACAD. HPTC and ACAD are units of the National Park Service (NPS), U.S. Department of the Interior. NPS policies and guidelines were adhered to in the production and distribution of this HSR.

A Historic Structure Report is the National Park Service's primary guide to treatment and use of a historic structure and is required by NPS-28: *Cultural Resource Management Guideline*. It is prepared to identify and minimize the loss of character-defining features and materials and provides a basis upon which to address anticipated management objectives. This HSR aims to provide a current understanding of the historic Bass Harbor Head Light Station—including the 1858 Lighthouse, the 1858 Keeper's Dwelling, the 1897 Bell House, the 1902 Oil House, and the 1905 Garage.

The historical background, context, building chronology, and technical evaluations provide an understanding of the historical integrity of each light station structure. This information is valuable for guiding sustainable development of the Bass Harbor Head Light Station by offering research and insight to park management and directing planning and construction alternatives. The contents are used by the park when scoping new projects. These new projects contain parameters for reuse functions and physical modifications that complement resource protection and preservation goals.

The Historical Background and Context section provides information on general themes associated with the structures described in the HSR. Included is this report are the Administration of Lighthouses from the Colonial era, through formal government oversight—provided by the United States Light House Establishment 1789-1852, the United States Light-House Board 1852-1910, the United States Light House Service 1910-1939, and the United States Coast Guard 1939-present. The progression of lighthouse lamp technology from the early lamps in 1790 through the development and worldwide adaption of Fresnel lenses, of differing sizes, is a fascinating and often devastating story. Those lamps were powered by a wide array of fuels throughout time, including whale oil (spermaceti), porpoise oil, rapeseed oil, lard oil, kerosene, and ultimately electricity. The lighthouses and their reservations were tended by Keepers. The job of a Keeper varied somewhat under the different governmental agencies, but they ultimately all required unrelenting commitment to tend the light, through all weather, adversity, and various other circumstances.

[1] This HSR would not have been possible without the generous financial support of The Friends of Acadia. The project was funded by individual contributions from members who are passionate about the care of this significant historic resource at Acadia National Park.

The Chronology of Development and Use section includes a thorough history of the Bass Harbor Head Light Station from the time the area was identified as treacherous (1837) through the present. The construction of the Light Station was completed in 1858—the start date of the Period of Significance—and included the extant Lighthouse and Keeper's Dwelling, the since-altered Covered Way connecting the two structures, and a long-demolished privy. A standalone fog bell, struck by hand, was established in 1876. A Boat House and slip were constructed in 1893. A brick Bell House was constructed in 1897 and included a two-ton machine-struck bell hanging from the south elevation (cliff side). A ten-foot addition was added to the kitchen ell of the Keeper's Dwelling in 1900, and within a year or two, the interior of the main block was reconfigured with a new stair and three bedrooms on the second floor. About the same time, a Stephens striking machine and weight tower were installed for the automated striking of the bell at the Bell House, and a brick Oil House was constructed. In 1905, a wood-frame Barn was constructed on the hill above the other station buildings. For several decades, the Light Station was simply maintained with few changes noted.

In 1949, the station was completely modernized to include indoor plumbing and electricity. This made many of the buildings at the station obsolete, including the Bell House and associated Weight Tower (due to a new electric bell striker and bell) and the Oil House (as the Lighthouse lantern was made electric). The Boat House and slip were removed about this time. This year also saw the start of numerous alterations to the retained buildings, including a modern kitchen and indoor bathroom in the Keeper's Dwelling (1950), installation of asphalt roof shingles on all buildings (1956), replacement of the sliding barn doors with swinging doors at the Barn (1956), removal of the Weight Tower (1956), replacement of the rubble retaining wall along cliff with concrete (1956), automation of the Lighthouse (1972), paving of the roadway for visitors and removal of the kitchen chimney (ca. 1975), replacement of the early doghouse dormer on the front elevation of the Keeper's Dwelling with a shed dormer (1980), and replacement of windows and addition of vinyl siding at the Keeper's Dwelling (by 1987). Due to the many unsympathetic alterations starting in early 1949, the proposed end date of the Period of Significance is 1948, before modernization began.

Research Conducted to Produce HSR

The following activities were conducted to gain a thorough understanding of the Bass Harbor Head Light Station at Acadia National Park:

- Primary and secondary historic research into the sequence of changes and evolution of construction by the NPS:
    - Acadia National Park, Bar Harbor, ME
    - Library of Congress
    - National Archives and Records Administration, Washington, DC, and Boston, MA
    - Southwest Harbor Library digital photographs
- Condition assessments by HPTC
- Recommended treatments by HPTC
- Documentation drawings by HPTC

Condition Assessment Summary

After HPTC's visit and individual documentation and assessment of each structure, investigation revealed modest maintenance deficiencies, resulting in an overall condition assessment rating of fair, for all of the buildings at Bass Harbor Head Light Station. The results of these investigations provide

a more fully-integrated narrative of developmental history of the extant buildings, including changes made over the years by former owners and the NPS. It also will educate users of the buildings about the integrity of the historic fabric and the character-defining features so that they may be uncovered, interpreted, and preserved for future generations.

It should be noted that these are a high-quality and historically significant buildings that cannot be replicated in today's economic environment. The maintenance deficiencies described herein, while needing to be addressed, are superficial and in no way signify justification for any treatment other than full restoration of the buildings and continued use. Reversal of recent out-of-character modifications is easily incorporated into any design or planning work and represents a return to the sustainable management of these historic structures.

Generally, the exteriors and interiors retain a high level of historic integrity dating to and/or sympathetic to the original date of construction and the proposed Period of Significance for this HSR (1858-1948). This excludes the Keeper's Dwelling, as a large amount of modern systems and materials have been added or cover up historic materials.

The Lighthouse is in overall **fair** condition with **serious** maintenance deficiencies. The features with the most serious or critical maintenance deficiencies include:

- Deteriorated paint and rust on cast iron gallery and lantern floor decks.
- Deformed metal components, deteriorated paint, and rust on cast iron gallery railing.
- Horizontal cracking, brick spalling, Portland cement-based mortar, and exterior latex-based paint on tower brick walls.
- Deteriorated paint, rust, and staining on cast iron exterior of lantern walls.
- Deteriorated paint and rust on cast iron window components.
- Deteriorated paint and rust on cast iron roof panels.
- Broken roof ventilator.
- Paint deterioration and rust on cast iron interior stair.

The Keeper's Dwelling is in overall **fair** condition with **minor** maintenance deficiencies. The features with the most serious or critical maintenance deficiencies include:

- Lack of fire extinguisher or lightning protection system.
- Neutral site drainage around the perimeter of the building.
- Water infiltration into the Main Block basement, especially at utility penetrations.
- Peeling paint on exterior wood eaves and fascia.
- Uneven trail surfaces for visitors.
- Deteriorated exterior metal components, like fences and bells.

It must be noted that the reason for limited maintenance deficiencies at the Keeper's Dwelling is due to much of the historic materials and systems having been removed or covered by modern materials and systems. In assessment terms, the structure has **critical** integrity concerns, which should not be ignored when treating the historic, National Register-listed building.

The Bell House is in overall **fair** condition with **minor** maintenance deficiencies. The features with the most serious or critical maintenance deficiencies, taken from Table 4 below, include:

- Lack of a fire extinguisher or lightning protection system.
- Site drainage on the north elevation due to water runoff from sloped concrete sidewalk and neutral drainage adjacent the foundation.
- Water infiltration into the masonry foundation and exterior walls affecting paint coatings, mortar, first-floor structural floor frame, interior trim, and finish floor.
- Peeling paint on exterior wood components, like trim, siding, and windows.
- Latex paint used on masonry surfaces.
- Mortar joints repointed with Portland cement-based mortar (especially in brick).

The Oil House is in overall **fair** condition with **minor** maintenance deficiencies. The features with the most serious or critical maintenance deficiencies include:

- Lack of a fire extinguisher or lightning protection system.
- Site drainage on the north elevation due to water runoff from asphalt walkway, affecting wood sill and interior finish floor.
- Lack of insect or rodent screening on the interior of the gable-wall louvers.

The Garage is in overall **fair** condition with **minor** maintenance deficiencies. The features with the most serious or critical maintenance deficiencies include:

- Lack of a lightning protection system.
- Site drainage on the north elevation due to water runoff from asphalt driveway, affecting interior finish floor.
- Missing center foundation pier on south elevation.
- Missing sill plate along east elevation.
- Missing shingles on south elevation.
- Loose stud at interior stair.

Recommendations for Treatment and Use Summary

The recommended ultimate treatments and use for the Bass Harbor Head Light Station, as determined through research for this HSR, are as follows:

Exterior Restoration of all buildings to depict the form, features, and character of the Light Station during the proposed Period of Significance—construction of the Light Station by the United States government in 1858, through 1948, the year before the Light Station was modernized. This includes the removal of non-sympathetic modern accretions, preservation of character-defining features, and reconstruction of missing features.

Interior Rehabilitation of all buildings to allow for a compatible and adaptive use. This can include repair, alterations, and additions, but attempts to preserve character-defining features and eliminate non-sympathetic modern accretions.

The treatment and use recommendations provided are meant to guide the final scope and description of the funded project and do not provide a construction or architectural program.

Administrative Data

Project Identification

PMIS Number:	253831
Project Title:	Prepare Historic Structure Report for Bass Harbor Head Light Station
Project Location:	Acadia National Park, Bar Harbor, ME

Names and Location Data

Preferred Structure Names:		to be determined
Other Structure Names:		to be determined
Structure Numbers:		to be determined
LCS IDs:		to be determined
Park:		Acadia National Park
Park District:		to be determined
Structures' County:		Hancock
Structures' State:		Maine
NPS Region:		Northeast
Cluster:		to be determined
Administrative Unit:		Acadia National Park
GPS:	Longitude:	to be determined
	Latitude:	to be determined

Note: The above data is typically included on a structure's NPS List of Classified Structures (LCS) entry. Because the Bass Harbor Head Light Station structures are not yet NPS-owned assets, they have not been added to the LCS, and the above data is not known.

Related Studies

Historic American Building Survey. "Bass Harbor Head Light Station." *Set of 10 photographs.* September 1990. Source: Library of Congress.

Mohney, Kirk F. (Main Historic Preservation Commission). "Bass Harbor Head Light Station." *National Register of Historic Places Registration Form.* October 1987. Entered January 21, 1988.

Cultural Resource Data

National Register of Historic Places

National Register Status:	Entered
National Register Date:	January 21, 1988
National Historic Landmark:	No
Significance:	The Bass Harbor Head Light Station is significant under NR Criteria A and C. "Criteria A is satisfied by the association of the complex with Maine's critical reliance on maritime transportation and the aids that made navigation possible. Criteria C is met by the station's distinctive character that is primarily of mid-nineteenth century design and construction, although it also features components from the later nineteenth and early twentieth centuries."
NR Information System No.:	87002273

Period of Significance

The Bass Harbor Head Light Station Registration Form for the National Register of Historic Places (NRHP) establishes the Period of Significance as 1858—the year the Station was completed and Lighthouse lit—to 1937. The latter was arbitrary and was fifty years prior to the date of the NRHP listing (1987).

Discussions between Acadia National Park and HPTC staff have determined a more appropriate end date to the Period of Significance to be 1948, the year before planning and execution began on the modernization of the Light Station. Thereafter, unsympathetic alterations to the site and structures occurred at a rapid pace.

Throughout this document, 1858-1948 will be referred to as the "proposed Period of Significance," as it has not been formally approved by the Keeper of the NRHP.

Recommended Treatment & Use

The recommended treatments for the structures located at Bass Harbor Head Light Station are exterior restoration and interior rehabilitation.

Multiple options for recommended use are being considered by the park and have not yet been determined. Alternatives will be considered and evaluated during a separate Value Analysis process. Regardless of the final use, the lens will be retained by the U.S. Coast Guard as an active Aid to Navigation (ATON).

Recommendations for Cataloguing & Storage of Materials Generated by HSR

All project materials will be turned over from HPTC to the Acadia National Park's Archives. Electronic files of the HSR will be distributed to DSC TIC through electronic transfer and perpetually stored at the Technical Information Center. A copy of the HSR files will also be retained at HPTC.

Recommendations for Future Research

The United States Coast Guard Historian's Office located in Washington, DC is currently closed for mold remediation. Archives are held offsite and were inaccessible to the HSR team. When reopened, research should occur at this repository.

The following future research on site would aid in the knowledge of how the buildings are structurally assembled and how they perform from a building science standpoint.

- Thermal scanning of the exteriors of heated and cooled buildings (e.g. the Keeper's Dwelling) to determine voids in walls and the location of (if any) wet wall insulation within the wood frame wall cavities.
- Detailed observations of wood floor framing systems and structural roof frame in the Keeper's Dwelling will further inform the load capacities of the building. Load capacity may be increased if the identification of the wood species and grade are determined.
- Documentation of frame connections will permit engineers to determine if strengthened connections (tie-downs, hurricane clips, etc.) are required to improve the weather-resistance of the structural systems in all the buildings against uplift, shifting, etc. Removal of selected exterior coverings and/or interior finishes may be required to observe the structural connections and members.
- Identification of wood species and grade on any significant exterior historic fabric (siding, substantial trim, window, doors, etc.).
- Selective mortar analysis to determine appropriate repointing mortar for foundations, wall, chimneys, etc. in all buildings.
- Completion of a finishes analysis and/or paint analysis to determine, using modern techniques, the appropriate exterior color palette for each building.
- Conduct a survey and limited, selective destructive investigation to identify remaining historic fabric at the exterior and interior of the Keeper's Dwelling, including siding, exterior trim, and interior plaster; the Lighthouse, including concrete slab and foundation area, and Bell House, including the original floor.

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List of Abbreviations

ABAAS Architectural Barriers Act Accessibility Standard

ACAD Acadia National Park, Bar Harbor, ME (NPS)

ACHP Advisory Council for Historic Preservation

AMP Asset Management Process (NPS PFMD)

BFML Building Feature Master List (NPS)

BHHLS Bass Harbor Head Light Station

CDF character-defining feature

CIP cast in place

D### Door number

DOI Department of the Interior

DSC Denver Service Center (NPS)

FCAS Facility Condition Assessment Survey (NPS PFMD)

FMSS Facility Management Software System (NPS PFMD)

FY Fiscal Year

GMP General Management Plan

HABS Historic American Building Survey (NPS)

HPTC Historic Preservation Training Center, Frederick, MD (NPS)

HSR Historic Structure Report

IBC International Building Code

LOC Library of Congress

NARA National Archives and Records Administration

NERO Northeast Regional Office (NPS)

NFPA National Fire Protection Association

NPS National Park Service

NRHP National Register of Historic Places (NPS)

PFMD Park Facility Management Division (NPS)

PMIS Project Management Information System (NPS)

SHPO State Historic Preservation Office

SWHPL Southwest Harbor Public Library

TIC Technical Information Center (DSC)

USCG United States Coast Guard

USLHB United States Light-House Board

USLHE United States Light House Establishment

USLHS United States Light House Service (government entity)
United States Light House Society (modern advocacy group)

VCT vinyl composition tile

W### Window number

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Part 1 | Developmental History

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Historical Background and Context

The Administration of Lighthouses

The Lighthouse Act of 1789

Prior to 1789, each of the original thirteen colonies was responsible for their own navigational aids. The colonies constructed lighthouses to satisfy their own needs, particularly near large ports of trade, and worried little about other lighthouses on the Atlantic Coast.[1] The only extant colonial-era lighthouse is located at Sandy Hook, NJ, part of Gateway National Recreation Area Fort Hancock unit; it was constructed in 1764 (fig. 1).



Figure 1. The 1764 Sandy Hook Lighthouse as it looked in 1937. Photo: Library of Congress, Historic American Buildings Survey, NJ-326.

On April 8, 1789, discussions began in the House of Representatives regarding several bills, including a 'Lighthouses Bill.' After much debate on taxes for the maintenance of the lighthouses, the House passed its version of the bill on July 20 of that year. The Senate, and the first-ever special-interest group of Philadelphia merchants, debated the bill soon thereafter. The Senate's revised bill was passed on July 31. The House accepted all of the amendments, and passed the revised bill on August 3. President George Washington signed *An Act for the Establishment and Support of Light-Houses, Beacons, Buoys, and Public Piers* on August 7, 1789.[2]

The Act "provided for the acceptance of and jurisdiction over all pre-existing aids to navigation in the United States. It also arranged for the maintenance of aids and payment of keepers."[3] Due to the link with revenue and customs, both part of the Department of the Treasury, the newly established United States Light House Establishment (USLHE) was aligned under that department.[4]

[1] Holland, Jr., Francis Ross. "America's Lighthouses: An Illustrated History." Dover Publications: New York, 1972. pp. 8, 26.
[2] "The Lighthouses Act of 1789." Prepared under the direction of Walter J. Steward, Secretary of the Senate. U.S. Senate Historical Office: 1991. Accessed at https://www.uscg.mil/history/docs/1789_LH_Act.pdf on October 19, 2015.
[3] Marshall, Amy K. "Frequently Close to the Point of Peril: A history of Buoys and Tenders in U.S. Coastal Waters, 1789-1939." *A Thesis Presented to the Faculty of the Department of History, East Carolina University, in Partial Fulfillment of the Requirements for the Degree Master of Arts in Maritime History/Nautical Archaeology.* April 1997. Accessed at http://www.uscg.mil/history/weblighthouses/docs/Amy_Marshall_Thesis.pdf on October 19, 2015.
[4] Holland, Jr., "America's Lighthouses: An Illustrated History," p. 26.

Consequently, the USLHE was responsible for the twelve lighthouses which were already constructed and in operation, and the four under construction at that time. The four under construction, and therefore the first completed under direction of the federal government were Cape Henry, VA in 1791 (fig. 2), Tybee, GA in 1791, Portland Head, ME in 1791 (fig. 3), and Bald Head at Cape Fear River, NC in 1796. It was not until 1797 that all twelve of the previously constructed lighthouses were turned over to the federal government.[5]



Figure 2. The 1791 Cape Henry Lighthouse, right, next to its replacement, as they looked in ca. 1905. Photo: Library of Congress, Detroit Publishing Co. No. 018400.



Figure 3. The 1791 Portland Head Light as it looked in 1965. Photo: Library of Congress, Historic American Buildings Survey, ME-123.



Figure 4. Winslow Lewis. Source: United States Light House Society website.

United States Light House Establishment

For the first several years, the lighthouses were personally managed by Treasury Secretary Alexander Hamilton. At a local level, the lighthouses were assigned to the Collector of Customs of a port.[6] In 1792, responsibility was assigned to the Commissioner of Revenue, Tench Coxe. A decade later, in 1802, the responsibility was reassigned to Treasury Secretary Albert Gallatin. In 1813, the responsibility once again returned to the Commissioner of Revenue.[7] Despite the changes, approximately forty lighthouses were constructed by the federal government between 1791 and 1820.[8]

In 1812, the federal government purchased the patent rights for a "new and improved method of lighting Lighthouses" from Winslow Lewis, an ex-ship captain from Massachusetts (fig. 4). The Congressional Act purchased Lewis's "patent right to the plan of lighting lighthouses, by reflecting

[5] United States Lighthouse Society. "History of the Administration of the Lighthouses in America." Accessed at http://uslhs.org/history-administration-lighthouses-america on October 19, 2015.
[6] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[7] Holland, Jr., "America's Lighthouses: An Illustrated History," pp. 26-27.
[8] National Park Service and United States Lighthouse Society. "Historic Lighthouse Preservation Handbook." 1997. Accessed at http://www.nps.gov/maritime/nhlpa/handbook/HistoricLighthousePreservationHandbook_04_Part2.pdf on October 19, 2015.

and magnifying lanterns" and contracted with Lewis "for fitting up and keeping in repair, any or all the lighthouses in the United States or the territories thereof, upon the new and improved plan of the reflecting and magnifying lanterns." The contract was set for seven years and was not to exceed $60,000 (approximately $895,000 in 2018).[9]

Lewis's "reflecting and magnifying lantern" borrowed heavily from the Swiss Argand-style lamp and parabolic reflector. Unfortunately, he also added green-tinted glass lenses to the front of the lamps which cut the range of the light drastically. Nevertheless, all of the lighthouses were outfitted in this manner by 1815. It took the federal government until 1840 to remove all of the green lenses.[10]

In 1815, Lewis began another contract which gave him "a monopoly over the provision of winter pressed Spermaceti oil for lighthouses throughout the eastern seaboard." This contract continued past 1820.[11]

On August 1, 1820, the responsibility of navigational aids was once again reassigned to the Treasury Department, this time under the Fifth Auditor of the Treasury, Stephen Pleasonton (fig. 5) who became known as the "general superintendent of lights." Directly under Pleasonton were the Collectors of Customs of each port. These collectors gained the title of "superintendents of lights." The Superintendents were responsible for all aspects of the lighthouses, including personnel matters, construction and/or repair of the lighthouses or related structures, and conducted annual site visits to each of the lighthouses; however, the Superintendents could only make minor decisions without the permission of the General Superintendent. Prior to 1822, Pleasonton had to approve all expenses, large and small. Following 1822, the Superintendents were permitted to spend up to $100 without Pleasonton's permission. Additionally, Pleasonton relied heavily on the Superintendents to inform him of problems and carry out complaint investigations for individual lighthouses.[12]

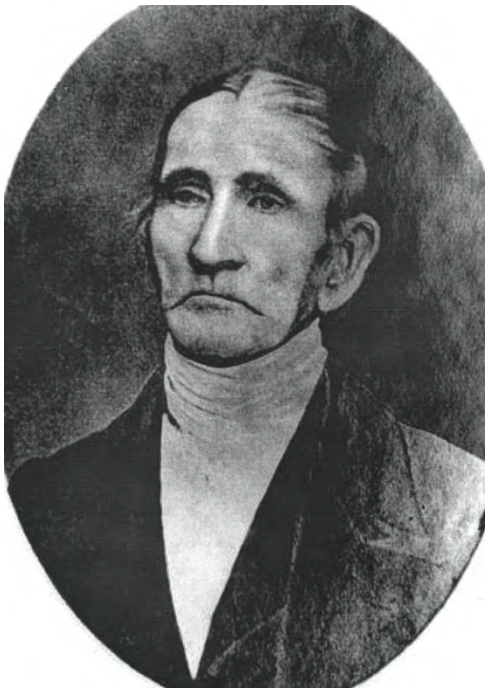


Figure 5. Stephen Pleasonton. Source: United States Light House Society website.

At the beginning of Pleasonton's tenure, new construction and repairs were handled through individual contracts. As the number of light stations increased, it became very difficult to adequately manage the individual contracts. Therefore, Pleasonton contracted with one supplier who would furnish supplies for all of the USLHE to keep the apparatuses at each lighthouse in complete repair.

[9] Twelfth Congress, Session I. "An Act to authorize the Secretary of the Treasury, under the direction of the President of the United States, to purchase of Winslow Lewis, his patent right to the new and improved method of lighting Lighthouses, and for other purposes." *Chapter XXXIV.* March 2, 1812. Accessed at https://www.loc.gov/law/help/statutes-at-large/12th-congress/session-1/c12s1ch34.pdf on November 4, 2019.
[10] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[11] Marshall, "Frequently Close to the Point of Peril: A history of Buoys and Tenders in U.S. Coastal Waters, 1789-1939."
[12] Holland, Jr., "America's Lighthouses: An Illustrated History," p. 27.

The winning bid, by Winslow Lewis, was $35.87 per lamp per year. At that time, a single lighthouse could have as many as thirty lamps.[13]

This was the beginning of Pleasonton's relationship with Lewis. He had faith in Lewis and relied greatly on his professional ability and experience. Lewis also had nautical experience which Pleasonton lacked. Many historians believe that because of this reliance/relationship there was little technical progress under the Pleasonton administration. Particularly damning is Pleasonton's refusal to support the installation of Fresnel lenses after their perfection in 1822. Lewis's financial interest with his own patented lenses is likely to blame.[14] The higher cost—$5,000 for a First Order Fresnel lens—may have had something to do with it as well.[15]

As sea trade increased and American ship captains began comparing Europe's lighthouses to those of the United States, complaints began to arise. I.W.P Lewis, nephew of Winslow, as well as a civil engineer and lighthouse inspector, was extremely critical of his uncle, accusing Winslow of gross negligence and plagiarism. In addition, Edmund and George W. Blunt, publishers of the *American Coast Pilot,* corresponded frequently with Pleasonton about the terrible state of the country's aids to navigation.[16] The Blunt brothers also wrote to the Secretary of the Treasury in 1830 stating that the appropriated money was not being used adequately. When they received no response, they wrote to Congress in 1837 stating the USLHE was badly managed, the lighthouses were inadequately constructed, and Lewis's lamps were useless.[17]

Congress responded the same year by authorizing an appropriation for the construction of a large number of new lighthouses and other navigational aids, contingent upon a study by the newly formed Board of Navy Commissioners. The Department of the Navy detailed twenty-two officers for the study who would report directly to Congress. The study determined that thirty-one of the proposed new lighthouses were not needed, that the current USLHE was the most economical agency and effective, and that a new office, known as The Auditor of the Department of State and General Superintendent of the Lighthouse Establishment, should take the place of the Fifth Auditor. The last recommendation was never realized.[18]

As a result of the study, Congress passed an act on June 7, 1838, which divided the Atlantic Coast into six districts (the Great Lakes were divided into two). The extant superintendents were replaced with a naval officer, one for each of the new districts. The officer would be required to report on the condition of the aids to navigation in his own district and choose and acquire sites for new aids. The resulting reports varied in quality and thoroughness. Some reports were extremely detailed, while others lacked specifics. Overall, the officers found the lighthouses varied from very bad to very good condition and, overwhelmingly, the most consistently noted defect centered on the quality of the light. Unfortunately, the combined report did little to spur Congress into action and the aids continued to operate as they had for another decade.[19]

[13] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[14] Holland, Jr., "America's Lighthouses: An Illustrated History," p. 27.
[15] Marshall, "Frequently Close to the Point of Peril: A history of Buoys and Tenders in U.S. Coastal Waters, 1789-1939."
[16] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[17] Levitt, Theresa. "A Short, Bright Flash." W.W. Norton & Company: New York, 2013. pp. 139-140.
[18] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[19] Holland, Jr., "America's Lighthouses: An Illustrated History," pp. 28-30.

Also in 1838, Congress asked the Commerce Committee to conduct a comparison test of the Fresnel lenses being used in Europe to the existing reflector lamps found in American lighthouses. Senator John Davis, head of the committee, was assigned to oversee the test at Sandy Hook, NJ. Captain Matthew C. Perry was sent to Europe to investigate the lighthouses of Britain and France. While there, he purchased a First Order fixed lens and a Second Order revolving lens. He met Léonor Fresnel, younger brother of deceased lens developer Augustin-Jean Fresnel, and placed an order with Henry Lepaute. Having gone behind Pleasonton's back to order the Fresnel lenses, Pleasonton stalled when asked to authorize payment. After additional issues, the lenses were finally installed in December 1840 at the twin towers of the Navesink Highlands, a bluff overlooking New York Harbor and close to the originally planned Sandy Hook location. The test was deemed a success by all those who used the lighthouses for navigation. However, Pleasonton was not impressed by the outcome, particularly its price tag, and still remained in control of the USLHE.[20]

In 1842, the House of Representatives Commerce Committee investigated better regulations for the USLHE and the idea that it be realigned under the Corps of Topographic Engineers. The Committee submitted their report in May. The same day they submitted their report, I.W.P. Lewis was appointed to inspect seventy lighthouses in Maine, New Hampshire, and Massachusetts (one-third of all the lighthouses in the country at the time). His report, submitted to Congress in February 1843, condemned the extant USLHE and recommended that engineers be in charge of lighthouse operations. Ultimately the report did little to change anything and I.W.P. moved to France for two years to study their lenses, of his own volition.[21]

When I.W.P. returned to the United States in 1845, he made it his mission to integrate Fresnel lenses into U.S. lighthouses. Using sample lenses, he rallied the support of the Merchants and Underwriters Associations in Boston and New York, as well as two Harvard physics professors, all of whom wrote to the Secretary of the Treasury Robert J. Walker.[22]

In 1845, Secretary Walker sent Lieutenant Thornton A. Jenkins of the Coast Survey and naval officer Richard Bache to Europe to study the far-advanced lighthouse establishments there. They submitted a report in June 1846. It recommended that the USLHE be reorganized "by the appointment of an engineer and optician and number of District Superintendents under the Secretary of the Treasury." The engineer would complete the drawings and specifications for all construction work and inspect all of the lighthouses once a year. The coast would be divided into ten districts overseen by Navy officers who would inspect all of their district's lighthouses monthly. Congress again took no immediate action.[23]

In 1847, Congress removed the responsibility for the construction of new light stations from the Fifth Auditor and transferred it to the Corps of Topographical Engineers, another suggestion by I.W.P. [24]

Finally, on March 3, 1851, Congress approved *An Act Making Appropriations for Light House, Light Boats, Buoys, &c.* The act required the Secretary of Treasury to create the United States Lighthouse

[20] Levitt, "A Short, Bright Flash," pp. 140-144.
[21] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
Levitt, "A Short, Bright Flash," pp. 144-146.
[22] Levitt, "A Short, Bright Flash," p. 147.
[23] Marshall, "Frequently Close to the Point of Peril: A history of Buoys and Tenders in U.S. Coastal Waters, 1789-1939."
United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[24] Marshall, "Frequently Close to the Point of Peril: A history of Buoys and Tenders in U.S. Coastal Waters, 1789-1939."

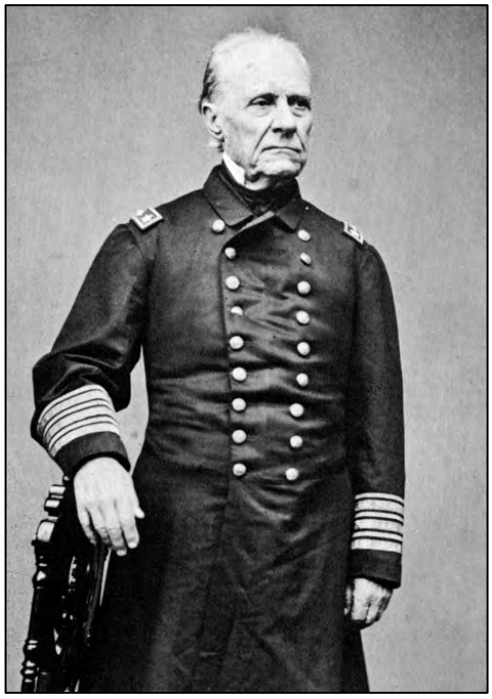


Figure 6. Commodore William B. Shubrick in a photograph taken during the Civil War, after his leadership with the USLHB. Photo: Library of Congress, LC-DIG-cwpb-05306.

Board, consisting of two high-ranking naval officers, two army engineering officers, a civilian "of high scientific attainment," and a junior navy officer as secretary. On May 21 of the same year, Secretary Thomas Corwin appointed Commodore William B. Shubrick (president of the board) (fig. 6), Commander Samuel F. Du Pont, Brevet Brigadier General Joseph G. Totten, Lieutenant Colonel James Kearney, Professor Alexander D. Bache, and Lieutenant Thornton A. Jenkins, respectively. The board was asked to "look into every aspect of the lighthouse establishment, including methods of lighting, all phases of construction, management of the system, effectiveness of the lights, procuring of supplies, the way the lighthouses were operated, and efficiency and economy of operation." The board completed their assignment and submitted a 760-page report which included forty plates. [25] A summary:

> The report detailed construction of towers and dwellings, instructions as to how keepers were to perform their duties, ability and fidelity of the inspectors, mode of procuring and furnishing oil and other stores to the light stations, methods of testing supplies and types of reports to be placed into the new system. The report recommended that Fresnel lenses be placed in all of [the] lighthouses and that they be classed by Order, like the French (1st Order being the largest and 6th the smallest). Every aspect of construction, inspection and administration was laid out in fine detail. The report also recognized Mr. Pleasonton, who had administered the lighthouse service for over 30 years, a period in which the number of lighthouses had grown from 25 to well over 300. They said "great credit is due to the zeal and faithfulness of the General Superintendent and to the spirit of economy which he has shown,) which spirit, perhaps, accounted for the "lack of zeal exhibited for the adoption of modern improvements;" and went on to say that, really, it was too much to expect that one person had the ability to manage such a vast organization and to stay on top of all the new developments, as well as ensure that all aspects of the service were running smoothly.[26]

On October 9, 1852, Congress created the nine-member United States Light-House Board (USLHB). The board members included all the original members as well as the addition of physicist Joseph Henry and Captain E.L.F. Hardcastle. The Secretary of the Treasury was president *ex officio* and Commodore Shubrick was the chairman.[27]

Despite his faults and unwavering obstruction of technological progress, whether knowingly or unknowingly, Pleasonton thriftily expanded the number of navigational aids in the United States from fifty-five lighthouses and a few buoys at the beginning of his tenure to 325 lighthouses and

[25] Holland, Jr., "America's Lighthouses: An Illustrated History," pp. 33-34.
[26] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[27] Holland, Jr., "America's Lighthouses: An Illustrated History," p. 35.

lightships and many other buoys, daymarks, range lights, etc. to firmly establish a navigational aid system for the United States.[28]

United States Light-House Board

The USLHB took up their duties immediately upon organization in 1852. The country was divided into twelve new lighthouse districts. A centralized work and supply depot was located at Staten Island, NY initially, but a district depot was eventually added for each district.[29]

First District:	Coasts of Maine and New Hampshire (fig. 7). Depot at Portland, ME (fig. 8).
Second District:	Coast of Massachusetts. Depot at Boston Harbor.
Third District:	Coasts of Rhode Island, Connecticut, and New York, the Narragansett and New York Bays, the Providence and Hudson Rivers, the Whitehall Narrows, and Lake Champlain. Depots located at Staten Island, NY and New London, CT.
Fourth District:	Navesink Highlands of New Jersey south to Metomkin Inlet, VA, including all bays. Depot in Christiana, DE.
Fifth District:	Metomkin Inlet, VA south to New River, NC, including the sounds of North Carolina, the Chesapeake Bay, and the James and Potomac Rivers. Depots at Lazaretto Point in Baltimore, MD, Portsmouth, VA, and Washington, NC.
Sixth District:	New River Inlet, NC south to Cape Canaveral, FL. Depot at Charleston, SC.
Seventh District:	Cape Canaveral south to Cedar Keys, FL.
Eighth District:	Cedar Keys, FL through the coasts of Alabama, Mississippi, Louisiana, and Texas. Depots at Mobile Bay, AL and Southwest Pass, LA.
Ninth District:	Unknown
Tenth District:	American shores of Lake Erie, Lake Ontario, and the St. Lawrence River. Depot location unknown.
Eleventh District:	American shores of Lake St. Clair, Lake Huron, Lake Michigan, and Lake Superior. Depot in Detroit, MI.
Twelfth District:	Pacific coast. Depot at San Francisco, CA.[30]

An inspector—an Army or Navy officer—was placed in charge of each district and had the responsibility of building lighthouses; keeping the lighthouses in repair; and purchasing, installation, and repairing the illuminating apparatuses. Within a few years, the board realized that the inspectors needed assistance, and assigned an engineer to each district. The inspector, still a Navy officer, was the general superintendent of the lighthouses in his district and was responsible for disbursing funds for salaries and supplies and ensuring the keepers performed their duties adequately. He also inspected each light station every three months and reported on its condition and if any repairs were needed. The engineer, an Army officer, was responsible for the construction of new light stations and the repair of old ones. The local collectors of customs, the original superintendents of lights, were retained for some time, but they had reduced responsibilities, which were mostly financial and administrative.[31]

[28] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[29] Holland, Jr., "America's Lighthouses: An Illustrated History," p. 36.
[30] United States Light-House Board. *Annual Report of the Light-House Board of the United States to the Secretary of the Treasury for the Fiscal Year Ended June 30, 1872.* Washington: Government Printing Office, 1872. Accessed at https://books.google.com/books?id=0Dw5AQAAMAAJ&pg=PA2#v=onepage&q&f=false on October 21, 2015.
United States Light-House Board. *Annual Report of the Light-House Board of the United States to the Secretary of the Treasury for the Fiscal Year Ended June 30, 1874.* Washington: Government Printing Office, 1874. Accessed at https://books.google.com/books?id=pZdIAQAAIAAJ&pg=PP12#v=onepage&q&f=true on October 21, 2015.
[31] Holland, Jr., "America's Lighthouses: An Illustrated History," p. 36.

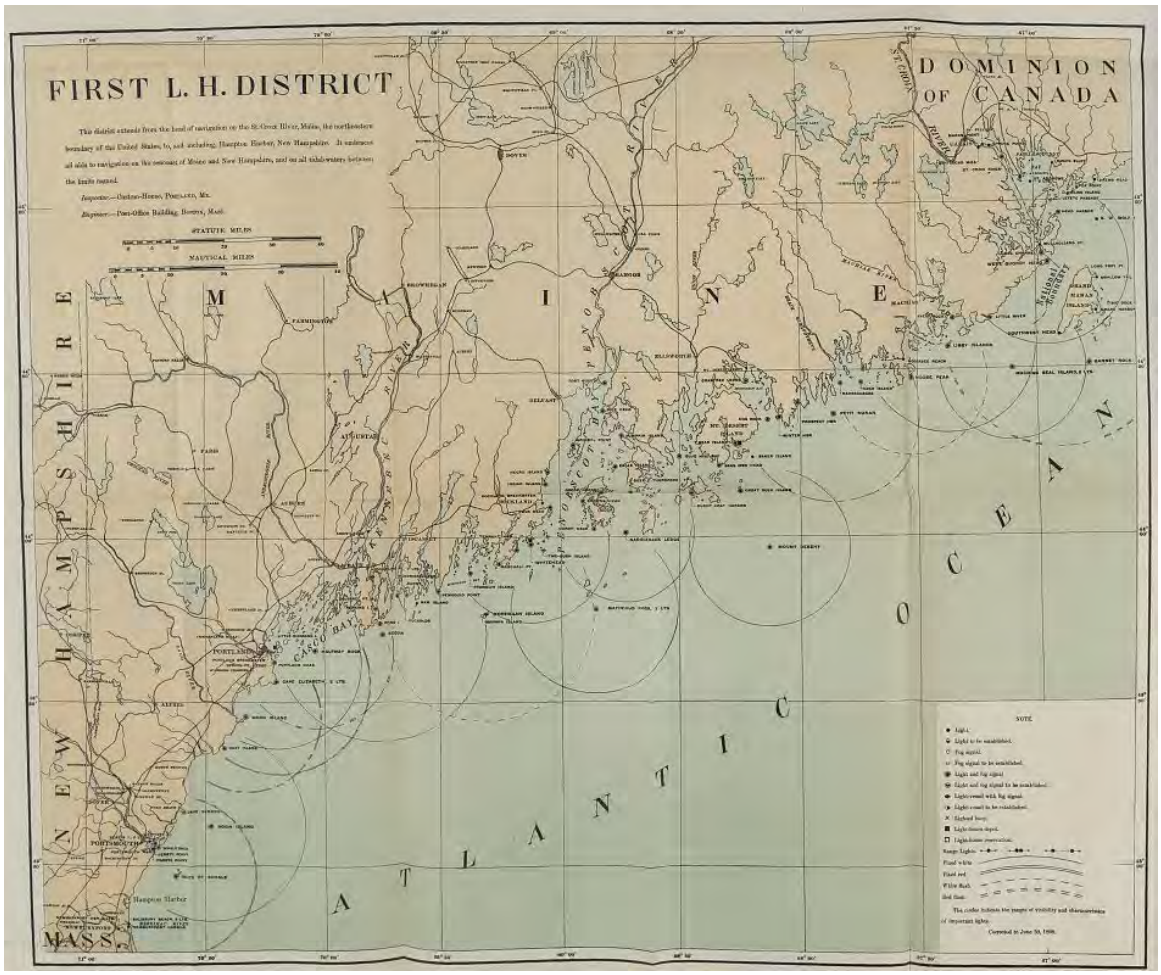


Figure 7. First Light-House District map dating to 1896, by the USLHB. Map: Library of Congress, 2005688369.



Figure 8. The First District Lighthouse Depot located at Little Diamond Island, Portland, ME in 1925. Photo: NARA, 26-LG-3-2B.

The USLHB divided its function among five committees in order to direct correspondence pertaining to the subjects to those committees: Finance, Engineering, Light Vessels (and Buoys), Lighting, and Experiments. The board could then concentrate its efforts more broadly.[32]

The USLHB took immediate steps to replace all of the extant, unsuitable lenses and reflector systems in the lighthouses with Fresnel lenses. The first step was to determine which lenses would go where. Alexander A. Bartlett was sent to France as a special agent to mend relations with the lens makers, which had gone sour due to complications with Pleasonton, and order new lenses. Eight lenses would be sent to California, the ninth would be used at Cape Hatteras, after a short stint on display at the Exhibition of the Industry of All Nations in New York in 1853. All further lens orders for the United States would be split between manufacturers Lepaute and Sautter. The Board, in turn, prioritized which lighthouses received new lenses first.[33] By 1859, Fresnel lenses had been installed in all extant American lighthouses.[34] This accomplishment prompted Board President Commodore Shubrick and Board Secretary Thornton Jenkins to leave the USLHB.[35]

Prior to the Civil War, the USLHB was nearing its heyday. Lens modernization neared completion; inefficient lightships had been replaced by screw-pile lighthouses; and where possible, new taller first-order lighthouses had been constructed with others planned.[36]

The Civil War began on April 12, 1861. Seven days later, President Abraham Lincoln enacted a blockade of the Southern coast in order to hinder the Confederacy from importing "arms, munitions, iron plating for armored ships, ship engines and machinery, rail iron, railroad locomotives and cars, boots, cloth, niter, and other manufactured goods" and exporting cotton, their chief source of revenue, to northern states and Europe. In response, the Confederacy extinguished all the lights in its lighthouses by April 24. This caused the blockade to flounder early on as the Union scrambled to assemble a fleet and the Confederates, familiar with the hidden hazards of the coast, slipped easily through the blockade.[37]

A Confederate States Lighthouse Bureau (CSLB) was developed and headed by Raphael Semmes, the man who had succeeded Shubrick at the USLHB. The CSLB was short-lived, with Semmes' only legitimate action being the organization of the Confederacy into four lighthouse districts. Semmes held office April 4-18, before returning to active service. The Board would continue on through the end of the war only administratively.[38]

The following is a summary of the result of the Civil War on southern lighthouses:

> Lighthouses in the southern states suffered badly during the Civil War. A great many were partially or totally destroyed. In some cases the Confederates removed the lenses from the towers, hiding them until after the war was over. Nearly all the lightships in the Chesapeake were taken or sunk to obstruct various channels. Some 164 lighthouses were, in one way or another, placed out of commission during the hostilities. The management of the service also suffered as naval and army

[32] Marshall, "Frequently Close to the Point of Peril: A history of Buoys and Tenders in U.S. Coastal Waters, 1789-1939."
[33] Levitt, "A Short, Bright Flash," pp. 164-171.
[34] United States Lighthouse Society. "History of the Administration of the Lighthouses in America."
[35] Levitt, "A Short, Bright Flash," p. 183.
[36] Cipra, David. "The Confederate States Lighthouse Bureau." United States Lighthouse Society. Accessed at http://uslhs.org/confederate-states-lighthouse-bureau-david-cipra on October 21, 2015.
[37] Levitt, "A Short, Bright Flash," p. 183.
[38] Cipra, "The Confederate States Lighthouse Bureau."

officers were reassigned to military duties. The board tried to cooperate with the naval forces by relighting as many towers as was possible.[39]

After the war ended, the USLHB started the process of reestablishing the 164 lighthouses which had been darkened or destroyed by the Confederates. This included finding lenses which had been removed and hidden during the war.[40]

Attempts were made at reorganizing the USLHB during the latter half of the nineteenth century. In 1862, a bill was introduced in the Senate which would transfer the Board to the Department of the Navy. Admiral Shubrick made it quite clear that idea was unfounded and the bill failed. Between 1882 and 1885 an attempt was made to combine the USLHB, the Life Saving Service, and the Coast Survey into one entity in the Department of the Navy. This too was thwarted.[41]

The number of lighthouse districts expanded as more navigational aids were added and land was developed. Congress expanded the USLHB's jurisdiction over the Mississippi, Ohio, and Missouri Rivers in 1874, which included two new districts, for a total of fourteen. In 1886, the number of lighthouse districts was increased to sixteen (fig. 9).[42]



Figure 9. An 1896 map showing the division of the sixteen lighthouse districts at that time. Map: Library of Congress, 2006678401.

[39] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[40] Levitt, "A Short, Bright Flash," pp. 210-213.
[41] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[42] Ibid.

The Board continued under the Department of the Treasury until 1903, when it was transferred to the Department of Commerce.[43]

Another reorganization occurred in June 1910 when the United States Light House Service, also known as the Bureau of Lighthouses, was formed under the Department of Commerce. Congress believed a pyramid organizational structure would be more efficient than the extant nine-member USLHB. Additionally, they believed that having military officers serve as district inspectors and engineers caused a "loss of continuity." A civilian inspector could provide continuity if able to serve for many years.[44]

Although some historians disagree on the exact cause of the reorganization, it is easily recognized that the United States Light-House Board accomplished a significant amount of work. Between 1852 and 1910, the total number of lighted aids increased from 335 to nearly 4,000 (including minor lights and light buoys); the number of fog signals increased from 49 to 457; and the number of buoys had increased from 1,000 to 5,300.[45]

United States Light House Service

George R. Putman was chosen to head the new bureau as the "Commissioner of Lighthouses." A non-military man, he had spent his professional career with the U.S. Coast and Geodetic Survey. At the same time, the USLHS established new districts in Puerto Rico, Alaska, and Hawaii (eighteen total districts). Each of the districts was managed by a single District Inspector (changed to District Superintendent in 1918). Each district also had an assistant, clerk, and engineer.[47]



Figure 10. The seal of the USLHS. Source: United States Coast Guard.[46]

As the United States prepared to enter World War I, arrangements were made to transfer the Light House Service to the War Department and the Navy. An April 1, 1917 executive order mandated that thirty tenders and the people associated with them be transferred to the War Department, as well as fifteen tenders, twenty-one light stations, four light vessels and the people associated with them be transferred to the Navy. The Navy required that USLHS personnel at light stations report any submarine and surface vessel sightings on a continual basis.[48]

Commissioner Putman retired on May 31, 1935. During his highly successful tenure, the number of navigational aids more than doubled and the number of employees decreased by nearly twenty percent due to adoption of automatic navigational aids and other technological advancements. These advancements included the introduction of radio beacons, use of electric buoys, and application of electricity to fog signals. In addition, Putnam was instrumental in having a retirement system for USLHS field and lightship employees enacted by Congress in 1918.[49]

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[43] Marshall, "Frequently Close to the Point of Peril: A history of Buoys and Tenders in U.S. Coastal Waters, 1789-1939."
[44] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[45] Marshall, "Frequently Close to the Point of Peril: A history of Buoys and Tenders in U.S. Coastal Waters, 1789-1939." Holland, Jr., "America's Lighthouses: An Illustrated History." p. 36.
[46] Accessed at http://www.uscg.mil/history/gifs/USLHSseal.jpg on October 21, 2015.
[47] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[48] Marshall, "Frequently Close to the Point of Peril: A history of Buoys and Tenders in U.S. Coastal Waters, 1789-1939."
[49] Holland, Jr., "America's Lighthouses: An Illustrated History." p. 38.

Putnam was replaced by H.D. King, a former district superintendent, who would serve as Commissioner until the Presidential Reorganization Act of 1939.[50] The USLHS was transferred to and consolidated with the United States Coast Guard (USCG), again under the Department of the Treasury, on July 1, 1939.[51]

United States Coast Guard Management

After the reorganization, former USLHS employees were given the choice to either remain in civilian status or transfer to a military position in the USCG, with no loss of pay.[52] Keepers who transferred were given petty officer rank. Those who remained in civilian status were eligible for the draft in the ensuing World War II.[53]

Automation of the light stations was in full swing during the 1960s. During the 1970s, all but one civilian keeper had retired and most of the light stations were unmanned. Soon after 1989, all light stations were unmanned.[54] Despite automation and the departure from the traditional use of the lighthouses, historians agree that the Coast Guard has maintained the light stations effectively and efficiently.

[50] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[51] Holland, Jr., "America's Lighthouses: An Illustrated History." p. 38.
[52] Ibid.
[53] United States Lighthouse Society, "History of the Administration of the Lighthouses in America."
[54] Ibid.

Lighthouse Light Apparatuses

The history of lighthouse lights can be traced back to Alexandria, Egypt and the lighthouse built there in 280 BC. Its light was an open flame. This report will fast forward to a more modern era and the introduction of lamps which coincides with the development of the Lighthouse Establishment in the United States.

Early Lamps

Early lighthouse lamps used solid, circular wicks or flat wicks, which caused smoke to dirty the interior of the lantern glass. In 1790, a new lamp was introduced which had a pan of oil with four wicks protruding from it (first placed at the Boston Light). Because of acrid fumes which burned a keeper's eyes and nose, keepers could not stay in the lantern room for long. Unfortunately these lamps would continue to be used until 1812, at which time they were replaced by Winslow Lewis's lamps.[55]

Meanwhile in Switzerland, Francois Pierre Ami Argand invented a lamp which had a hollow cylindrical wick (fig. 11). Because oxygen could pass along the inside and outside of the wick, the flame burned more intensely, brighter (one wick was equivalent to seven candles), and without smoke. England began installing Argand lamps, outfitted with fifteen- to twenty-inch parabolic reflectors, in their lighthouses in 1789.[56]

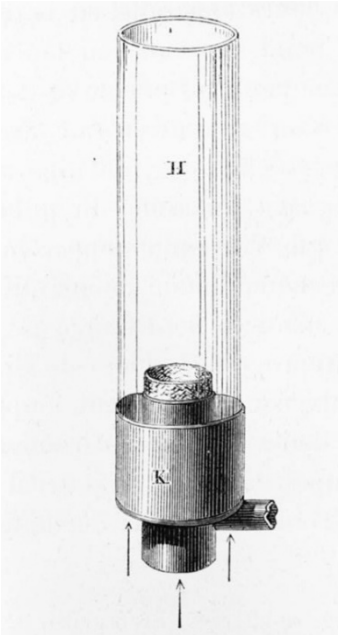


Figure 11. Argand's lamp included a hollow wick. Photo: Library of Congress, LC-USZ62-110395.

Winslow Lewis' Parabolic Reflector

In 1810, after several years of independent research and experimentation, Winslow Lewis revealed his version of the Argand lamp with parabolic reflector which he claimed was superior to and used half as much oil as the older four-wick pan lamps. After he patented his design, he offered to sell the patent to the United States government. Henry Dearborn, the collector of customs in Boston, after seeing a demonstration of the Lewis lamp, urged Secretary of the Treasury Albert Gallatin to purchase the patent. In 1812, Congress appropriated $60,000 to pay Lewis for his patent and other services. The appropriation also called for Lewis to outfit the nation's forty-nine lighthouses with his lamps and maintain them for seven years.[57]

Lewis completed forty of the lighthouses prior to the beginning of the War of 1812. The remaining nine were completed by the fall of 1815. Upon installation, Lewis also fitted a glass lens to the front of each lamp (fig. 12). The lens had a greenish tint which diminished the light. It would take until 1840 to remove all of the defective "green" lenses. Lewis's installed reflectors were also a problem. Intended to be parabolic, most were reported not to be; in addition, they were so thin so as to be

[55] Holland, Jr., "America's Lighthouses: An Illustrated History." pp. 13-14.
[56] Holland, Jr., "America's Lighthouses: An Illustrated History." p. 14.
[57] Holland, Jr., "America's Lighthouses: An Illustrated History." pp. 14-15.

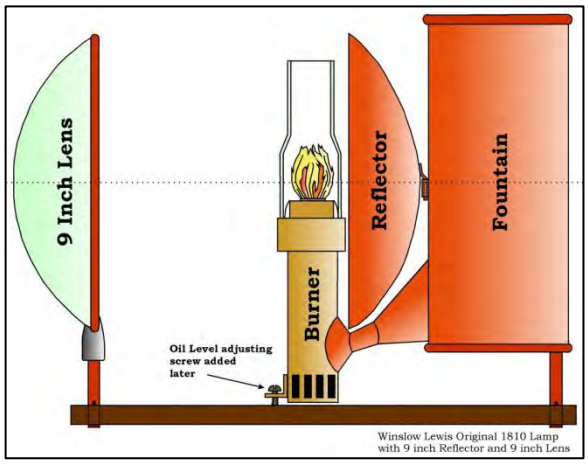


Figure 12. A diagram showing Winslow Lewis's parabolic reflector, Argand-style lamp, and glass lens. Source: United States Lighthouse Society website.[59]

easily warped from regular use and cleaning.[58] Despite these issues, the Lewis lamps would stay in federal lighthouses through at least 1852 when Congress mandated that the U.S. Light-House Establishment be replaced by the U.S. Light-House Service and significant reforms occurred.

Historians disagree and hold their own hypotheses on the reason why Winslow Lewis held so much sway with the leadership at the USLHE, particularly Fifth Auditor Stephen Pleasonton. What is clear, unlike Lewis's lenses, is that this relationship deterred the integration of significant technological advances to lighthouses in the United States, particularly the use of Fresnel lenses.



Figure 13. Monsieur Fresnel.[60]

The Fresnel Lens

From an early age, Augustin-Jean Fresnel, born in France in 1788, was an experimenter and labelled a genius by childhood friends (fig. 13). After graduation from the *Ecole nationale des ponts et chausses* (National School of Bridges and Highways) in 1809, he became an engineer for France. His interest in optics began when he met Francois Arago, a French mathematician and physicist who worked for the *Academie des sciences*. After the meeting, Fresnel began experiments on optics, wave theory, and diffraction, and made significant discoveries. These discoveries won Arago's support, and an inside route to the *Academie*, resulting in Fresnel winning the Grand Prize in diffraction from the *Academie* in 1819. As an outcome of his success, Fresnel was assigned to the *Commission des phares,* or the French Lighthouse Commission. [61]

Fresnel's first big innovation soon followed. He quickly determined that the reflectors used in lighthouses should be removed for several reasons: mirrors were never perfectly reflective, a parabolic form was hard to perfect, a reflector required a hole through it for the lamp, and half of the light source was lost by absorption. Alternatively, Fresnel placed a lens in front of a single light source. Refraction caused all the light from a source to be directed into a beam. The main problem was that in order to get enough light, the lenses would have to be composed of angled, prism glass.

[58] Ibid, pp. 15-16.
[59] Accessed at http://uslhs.org/american-lighthouse-lamp-identification-document on October 21, 2015.
[60] Accessed at https://en.wikipedia.org/wiki/Augustin-Jean_Fresnel#/media/File:Augustin_Fresnel.jpg on October 22, 2015.
[61] Levitt, "A Short, Bright Flash," pp. 21-47.

This type of glass was rare and was Fresnel's first hurdle in building a large prototype. It would take him over a year to construct a sufficient prototype, but in 1821, Fresnel unveiled his dioptric lens for display (fig. 14). That night, witnesses could not deny that the new lens caused a much brighter light which was far superior to the former technology.[64]

The French Lighthouse Commission chose the lighthouse at Cordouan to be the first to receive a Fresnel lens. For this, Fresnel completed a second prototype, one with annular glass (stepped rings) that rotated (fig. 15). An official test of the dioptric apparatus was executed in 1822, and installation in the lighthouse was completed the next year.[65]

After this, Fresnel continued to experiment and test new ideas, including the development of the catadioptric apparatus (fig. 16). This apparatus retained the refracting dioptric lenses of his second prototype and added reflecting catoptric lenses (prisms). Together, the lenses used every portion of the radiating light source. By 1827, eight employees worked in Fresnel's workshop, with their main goal to develop the perfect catadioptric lens. Glass production remained the key problem.[66]

In July 1827, Fresnel died of tuberculosis, at age thirty-nine. Prior to his death, Augustin had his brother, Leonor, transferred to the Lighthouse Commission. After Augustin's death, Leonor was appointed to his brother's former position as Secretary of the *Commission des phares*. Leonor would continue to honor his brother's memory, ambition, and desires for the next twenty years.[67]

Despite his life cut short, Augustin Fresnel was able to completely revolutionize lighthouse lens technology. Soon after his death, his lenses spread throughout the world, particularly once the glass prisms required to make a perfect catadioptric lens could be made using steam power.

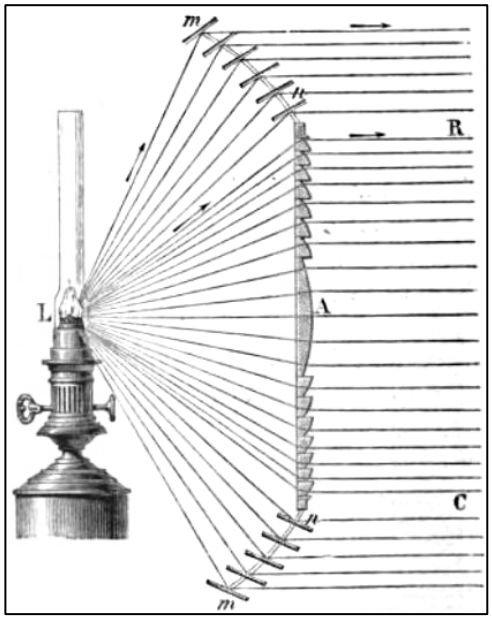


Figure 14. Fresnel placed a dioptric lens in front of a light source which refracted the light into beams.[62]

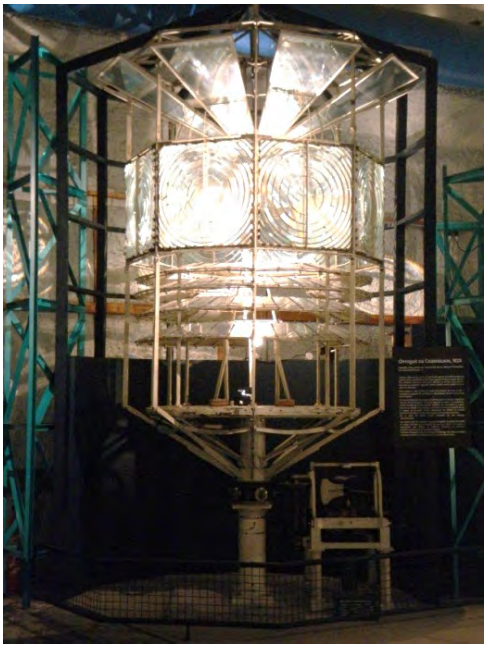


Figure 15. The first Fresnel lens used at Cordouan Lighthouse. Photo: Musee des Phares et Balises de Ouessant, Phare du Creac'h.[63]

[62] Ganot, Adolphe. "Natural Philosophy for General Readers and Young Persons." New York: Appleton & Co., 1872, p. 328. Accessed at https://en.wikipedia.org/wiki/Fresnel_lens#/media/File:Fresnel_lighthouse_lens_diagram.png on October 22, 2015.
[63] Accessed at http://www.cordouan.culture.fr/accessible/en/uc/04_02_04-Cordouan's%20first%20lens on October 22, 2015.
[64] Ibid, pp. 49-66.
[65] Ibid, pp. 67-77.
[66] Ibid, pp. 80-95.
[67] Ibid, pp. 97-99.

Fresnel had devised six orders, or sizes, of lenses for lighthouses, depending upon the amount of light that was needed (figs. 17-18). First-Order lenses were used in the largest, seacoast lighthouses; the smallest, Sixth-Order lenses were used in harbors.[68]

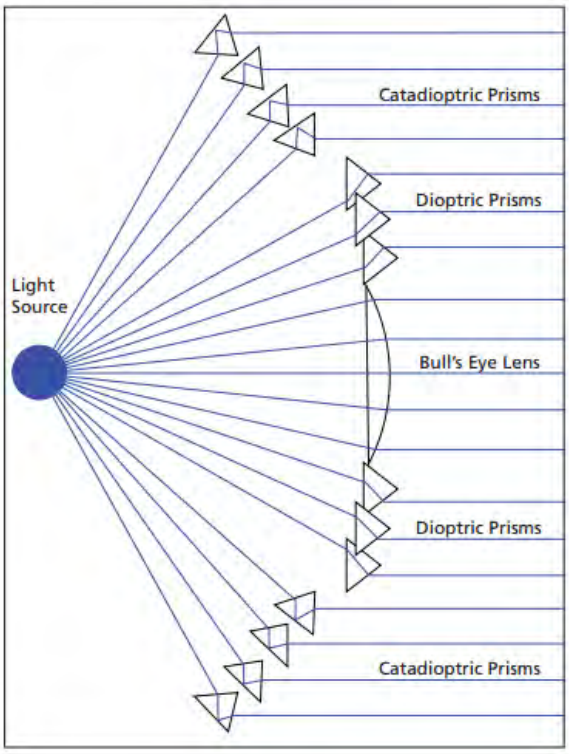


Figure 16. Rendering of how a Fresnel lens works. Fresnel developed the technology to bend light from the source into perfectly parallel beams through prisms. Dioptric prisms bend the light once. Catadioptic prisms bend the light twice. Drawing: NPS, "The Historic Point Reyes Lighthouse."[69]

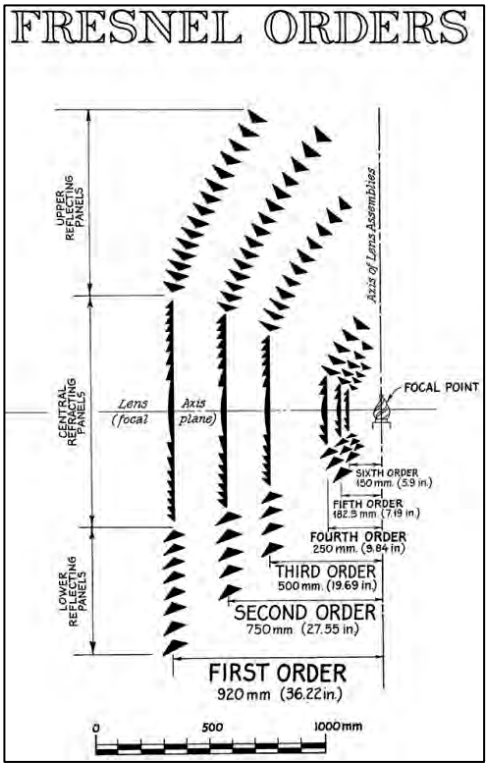


Figure 17. The six Fresnel lens sizes. The dioptric lens is labeled as the central refracting panels. The catoptric lenses are labeled as the upper and lower reflecting panels. Source: Spring Point Ledge Lighthouse.[70]

COMPARATIVE TABLE OF LENS ORDERS

ORIGINAL FRESNEL ORDERS			OIL CONSUMPTION PER HOUR		RELATIVE BRIGHTNESS (6TH ORDER=1)	MODERN LENS ORDERS (U.S.A.)	FOCAL LENGTH		HEIGHT OF COMPONENTS								APPROXIMATE WEIGHT OF ASSEMBLED LENS		USE
ORDER		Nº OF LAMP WICKS							LOWER REFLECTOR		CENTRAL REFRACTOR		UPPER REFLECTOR		TOTAL				
			gm.	oz.			mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm	in.	kg.	lbs.	
1ST		4	750	26.25	17.69	1ST	920	36.22	539	21.22	980	38.58	1001	39.40	2590	101.97	5800	12,800	LARGEST SEACOAST LIGHTS
2ND		3	500	17.5	11.54	2ND	750	27.55	378	14.88	854	33.62	810	31.89	2069	81.46	1600	3,530	GREAT LAKES LIGHTHOUSES, SEACOASTS ISLANDS, SOUNDS
3RD	LARGE	2	200	7	3.85	3RD	500	19.69	278	10.94	660	25.98	593	23.35	1576	62.05	900	1,985	SEACOAST, SOUNDS RIVER ENTRY, BAYS CHANNELS, RANGE LIGHTS
	SMALL	1	150	5.25	2.31	4TH	250	9.84	144	5.67	300	11.81	358	14.09	722	28.43	200 TO 300	440 TO 660	SHOALS, REEFS, HARBOR LIGHTS, ISLANDS IN RIVERS AND HARBORS
4TH	LARGE	2	90	3.15	1.23	5TH	182.5	7.19	105	4.13	226	8.90	196	7.72	541	21.30	120 TO 200	265 TO 440	BREAKWATERS RIVER LIGHTS CHANNEL, SMALL ISLANDS IN SOUNDS.
	SMALL	1	90	3.15	1	6TH	150	5.9	84	3.31	180	7.09	157	6.18	433	17.05	100	220	PIER OR BREAKWATER LIGHTS IN HARBORS.

Figure 18. A comparison of Fresnel lens orders. Source: Spring Point Ledge Lighthouse.[71]

[68] Holland, Jr., "America's Lighthouses: An Illustrated History," p. 18.
[69] Accessed at http://www.nps.gov/pore/planyourvisit/upload/brochure_lighthouse.pdf on August 26, 2015.
[70] Accessed at http://springpointlight.org/explore/lenses/ on October 22, 2015.
[71] Ibid.

In 1838, Pleasonton relented to Congress when they sent Commodore Perry to Europe to procure two Fresnel lenses (a first-order fixed lens, and a second-order revolving lens) for experimentation purposes. The lenses were installed at the twin towers at the Navesink Highlands in New Jersey in 1840 and proved to be far superior to the lighthouses outfitted with Lewis lamps. Still, Pleasonton was not convinced. It would take two more acts of Congress to install two more Fresnel lenses in American lighthouses during Pleasonton's tenure. These were the 1850 Sankaty Head Light Station on Nantucket Island, MA and the 1850 Brandywine lighthouse in Delaware Bay.[72]

In 1851, Congress asked an interim board to investigate all aspects of the extant USLHE and the board made several recommendations. Regarding lighthouse lenses, the board, found the extant system to be "of a description now nearly obsolete throughout all maritime countries, where the best apparatus of that description was employed, prior to the introduction of the Fresnel lens, as substitutes." They recommended that Fresnel lenses be used as they were "greatly superior to any other mode of light-house illumination, and in point of economy is nearly four times as advantageous as the best system of reflectors and Argand lamps." After this report, Congress made the interim board the permanent United States Light-House Board and stipulated that Fresnel lenses be used in all new lighthouses and any lighthouses where new apparatuses were needed.[73]

[72] Holland, Jr., "America's Lighthouses: An Illustrated History," p. 18.
[73] Ibid, p. 19.

Lighthouse Fuels

Whale-Derived Fuels

Whale-derived oils, including sperm oil, spermaceti, and whale oil, surpassed any other lighting fuels (i.e. candles) as the preferred option for lighthouse fuels by the beginning of the nineteenth century.[76]

There are differences between the three types of oils. Sperm oil, or body oil, is from sperm whale blubber and is a light straw color (fig. 19). It burns clearly and brightly, without smoke or odor, and is a great illuminant. Large quantities of sperm oil were used in public and private lighting, and lighthouses.



Figure 19. A sperm whale. Spermaceti is found in its massive head cavity. Photo: New Bedford Whaling Museum website.[74]

Spermaceti is a liquid wax found in the heads of sperm whales (up to twenty-three gallons per whale). In the whale head, the wax is a rose-tinted, semi-transparent liquid; upon contact with air, the wax crystallizes (fig. 20). Due to its high melting point, burning cleanly and brightly without odor, and high illuminating power, spermaceti was the most valuable product of the New England whaling industry (fig. 21). Due to its cost, it was used only in wealthier private homes and almost exclusively in lighthouses.



Figure 20. Blocks of spermaceti (stacked in background) await refinement, or boiling, after pressing. Photo: New Bedford Whaling Museum photo archives, 2001.101.64.3.[75]

Whale oil, or train oil, is varying shades of brown in color, and typically came from right whales, bowhead whales, and humpback whales. Among other uses, whale oil has always been used as an illuminant, particularly in miners' headlamps. Whale oil was a poor substitute for the other two oils and was typically not used in lighthouses.[77]

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[74] Accessed at https://www.whalingmuseum.org/learn/about-cetaceans/sperm-whales-and-monodonts on June 12, 2019.
[75] Accessed at http://75.150.122.156/newbedphoto/ on August 29, 2016.
[76] Dolin, Eric Jay. "Brilliant Beacons: A History of the American Lighthouse." New York: Liveright Publishing Corporation, 2016. p. 64.
[77] New Bedford Whaling Museum. "Whales and Hunting." Accessed at https://www.whalingmuseum.org/learn/research-topics/overview-of-north-american-whaling/whales-hunting on August 29, 2016.
Vogel, Mike. "The Light from the Whale." *The Keeper's Log. Volume XXX, No. 4.* Fall 2014. Accessed at http://www.mysticseaport.org/voyage/boston-to-mma/mike-vogel-the-light-from-the-whale/ on August 29, 2016.



Figure 21. Left to right: spermaceti wax (in its raw form), spermaceti candle, and spermaceti oil. Photo: Genny Anderson.[78]

American whaling became widespread during the 1760s and 1770s. Between 1770 and 1775, ships returned an estimated 45,000 barrels of oil a year; at the standard 31.5 gallons per barrel, this equals 1,417,500 gallons of spermaceti per year during this time period. This greatly impacted lighthouse illumination. When Ami Argand developed a new lamp in the 1780s which operated best with whale oils, whaling received a further boost. American Winslow Lewis developed a similar Argand-style lamp in 1810, which claimed to use half the oil as those it would replace. The United States Light-House Establishment (USLHE) inserted these oil-saving lamps into all American lighthouses.[79]

Spermaceti "was the illuminant of choice" for the USLHE until after the Civil War. But prices would rapidly rise. In 1831, a gallon cost $0.62 ($15.06 in 2019). In 1843, a gallon cost $1.26 ($35.04 in 2019). Between 1845 and 1855, the average cost was $1.77 per gallon ($49.19 in 2019). As demand rose and supply declined, sharp price increases were noted: at one time in 1854, a gallon reached $3.84 ($110.68 in 2019), and for a time in 1866 a gallon reached $2.56 ($45.28 in 2019), a lot of money after the Civil War. Due to these price increases, the newly established United States Light-House Board (USLHB) looked to decrease costs, despite the new Fresnel lenses using far less oil than the Winslow lamps; this would include processing their own spermaceti[80] (and eventually lard oil and mineral oil) required for its lighthouses. Between 1867 and 1869, the USLHB built several large, underground vaults into the hillside at the General Light-House Depot at Staten Island. This "centralized control of the oil procurement process, . . .let the penny-pinching bureaucrats. . .dole out amounts calculated from the specified usage rates of the lamps and lens arrangements at each lighthouse in a given district, and. . .allowed for a laboratory to test the quality of the oil purchased form merchants. . . ." The still-extant vaults, five of which are 51'-0" deep and one which is half size, have 13'-0"-high arched ceilings. Large iron storage casks lined with tin were located in the vaults, as were barrel-

[78] Accessed at http://www.marinebio.net/marinescience/06future/wham.htm on August 29, 2016.
[79] Vogel, "The Light from the Whale."
[80] Spermaceti was divided into two types of oil: winter pressed and summer pressed. Thicker, winter-pressed spermaceti was a higher-quality fuel.
"In the fall the spermaceti would be boiled in kettles to eliminate water and impurities; the thick liquid remaining was drained into casks, which were placed in storehouses for the winter, where cold temperatures transformed the liquid into a semisolid granular mass. When the temperature rose enough during the winter to soften the mass, the casks were opened and the contents transferred into woolen sacks that were tied off and squeezed in a large wooden screw press capable of exerting hundreds of tons of pressure. The…oil that drained out of the sacks…was the most expensive and cleanest burning of all whale oils. Because it stayed liquid at low temperatures, lighthouses used it mainly during the winter months, but even then, if the mercury dropped too far, keepers had to heat the oil on stoves before adding it to the lamps."
Thinner, summer-pressed spermaceti was of lesser quality, but a good price could still be received. After the winter pressing, the "material that remained in the sacks was reheated and drained into casks to be stored until the warm weather returned in early summer, when the contents of the casks were shoveled into cotton bags and again set upon the press. … And since it congealed at lower temperatures it was used in lighthouse during the warmer months."
Dolin, "Brilliant Beacons: A History of the American Lighthouse," p. 65.

storage platforms equipped with trays. Altogether, this setup allowed for the storage of 85,000 gallons of oil; 35,000 gallons were stored in the barrels, ready for shipment to lighthouses.[81]

Simultaneous with self-producing, the USLHE looked to alternative fuels in a quest to reduce costs.

Experiments in Alternative Fuels

Porpoise Oil

This oil is a pale yellow, fatty oil obtained from the body, head, or jaw of a porpoise and used especially as a lubricant (fig. 23). It was also tried as a fuel in the Shell Castle (Ocracoke) and Cape Hatteras lighthouses early on (ca. 1805). Historian F. Ross Holland, Jr. summarized the experiments:



Figure 22. A Dall's porpoise, one source of porpoise oil. Source: New Bedford Whaling Museum website.[82]

> As the lights at Shell Castle and Cape Hatteras neared completion and preparations were being made to light them, someone proposed using porpoise oil in the lamps of the lighthouses rather than sperm oil as was commonly used in lighthouses of that period. A factor, undoubtedly, in this recommendation was the presence of a supply of porpoise oil. [John] Wallace, one of the owners of Shell Castle Island, had an adequate quantity on hand and was more than willing to sell it to the [USLHE]. Intrigued with the prospects of porpoise oil being equal to sperm oil in southern latitudes, the Commissioner of Revenue instructed [Collector Samuel] Tredwell to experiment with the use of the oil. In the meantime, the Commissioner had a thousand gallons of sperm oil shipped to the Outer Banks for immediate use at Cape Hatteras and Shell Island.
>
> From the beginning it appears that the experiments with porpoise oil did not go well, but Tredwell continued experiments into 1804 and purchased 158 gallons of the oil for the Cape Hatteras light. In the spring of 1804 Tredwell reported that for about four months the Cape Hatteras light had used virtually nothing but porpoise oil and it seemed to work quite well. The success they had may have been enhanced in their minds by the fact they were having considerable difficulty receiving sperm oil in good condition. Tredwell then approached Wallace to see whether he could supply consistently a sufficient quantity of the oil for the Cape Hatteras light. Wallace, a businessman who believed in obtaining every cent the market would bear for any item, said he would furnish all the porpoise oil needed provided he received a written contract and obtained the same price paid in Nantucket for sperm oil. The contract would have been a tidy one since Cape Hatteras consumed, according to estimates, 1,400 gallons of oil annually. The tests thereafter went badly, and the Cape Hatteras light returned to the use of sperm oil only. Several years later one Caleb Ballance, a porpoise-fisher, requested permission to experiment with the use of porpoise oil in lighthouses, but on the basis of the previous unsatisfactory tests at Cape Hatteras, Tredwell recommended against it.
>
> Although in 1810 Tredwell reported that the keeper of the Cape Hatteras light "has made a full Trial of the Porpoise Oil the result of which is altogether unfavorable to the use of it in the Light House," he nevertheless recommended three years later using porpoise oil as an emergency substitute when the ship carrying regular oil for Cape Hatteras was captured by the British *Dash*.[83]

[81] Vogel, "The Light from the Whale."
[82] Accessed at https://www.whalingmuseum.org/learn/about-cetaceans/phocoenidae on August 29, 2016.
[83] Holland, Jr., F. Ross. "A History of the Cape Hatteras Light Station, Cape Hatteras National Seashore, N. Car." Division of History, Office of Archeology and Historic Preservation, National Park Service, U.S. Department of the Interior. September 30, 1868. pp. 16-18.

Rapeseed Oil



Figure 23. A field of rapeseed in France. Photo: Myrabella / Wikimedia Commons, CC BY-SA 4.0.

Upon consulting the French regarding that country's illumination fuel, the USLHB was told that rapeseed, or cola, oil, from a wild cabbage which grew in Europe (fig. 23), was just as good as spermaceti, but was only half the cost. Because the cabbage did not grow abundantly in the United States, in the late 1850s and early 1860s the USLHB encouraged American farmers to cultivate the crop, and even distributed seeds; this was unsuccessful. Despite this, in the late 1850s, the Board began introducing rapeseed oil into lighthouses. Soon, though, it became clear that there was insufficient supply to light all of the lighthouses.[84]

Lard Oil

The Light-House Board had tested lard oil, from rendered hogs, several times throughout its tenure, resulting in failure (lard oil burned poorly), but the Board's committee on experiments, headed by the Smithsonian's Joseph Henry, resumed these tests. With the new experiments Henry found that if the lard oil was heated to a high-enough temperature, the oil burned well. Because the oil was inexpensive and plentiful, the USLHB quickly adopted its use, becoming the exclusive fuel of larger lighthouse lamps by 1867.[85]

Kerosene

Simultaneous with experiments and use of lard oil, the Board began exploring kerosene, or mineral oil, derived from coal. Throughout the 1850s, kerosene was in limited supply, but in 1859, after oil drilling was revolutionized, bountiful and cheap kerosene flooded the market. However, the USLHB "was reluctant to switch to kerosene, claiming that its quality at this early date of introduction was 'too volatile and combustible to be safely employed for lighthouse purposes.'" When the price of lard oil skyrocketed, the Board resumed consideration of kerosene.

> By the 1870s, however, kerosene was getting progressively cheaper, and the distillation process had improved to the point that the quality of the kerosene was much higher and less volatile than had been the case in earlier years. Although the board still considered lard oil the better illuminant, it slowly shifted to kerosene for economic reasons, since it was roughly half the cost. At first only the smaller-order lenses made the switch, but over time, and with the use of improved lamp designs, the use of kerosene expanded to larger lenses, to the point that by 1885 the transition from lard oil to kerosene was complete.[86]

[84] Holland, Jr., Francis Ross. "America's Lighthouses: An Illustrated History," p. 23.
Dolin, "Brilliant Beacons: A History of the American Lighthouse," p. 188.
[85] Holland, Jr., "America's Lighthouses: An Illustrated History," p. 23.
Dolin, "Brilliant Beacons: A History of the American Lighthouse," pp. 188-9.
[86] Dolin, "Brilliant Beacons: A History of the American Lighthouse," pp. 188-9.

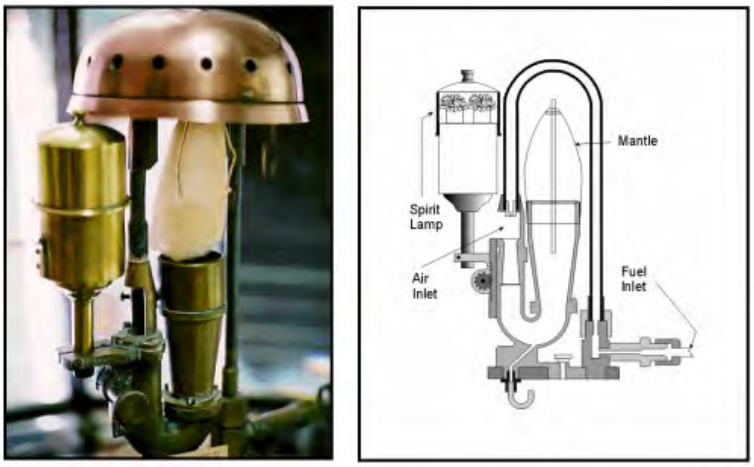


Figure 24. A Luchaire IOV lamp, left, and a sectional diagram of the lamp, right. Source: The ALCC American Lighthouse Lamp Identification and Description Listing, United States Lighthouse Society website.

The year kerosene arrived at Bass Harbor Head Light Station is unknown. However, the 1935 *Description of Bass Harbor Head Light Station* noted that the Oil House was outfitted with a pair of 139-gallon kerosene tanks.[87]

Further refinements to kerosene-burning technology included the development of the incandescent oil vapor lamp (IOV). The process, which is similar to a Coleman lamp used by campers, included heating and vaporizing kerosene (fig. 24). When the gas was mixed with air and ignited by a burner under a mantle, a brilliant white light was produced. "IOV lamps were eight times brighter than traditional kerosene lamps, and better yet, they used much less fuel to generate the same amount of light." After the first IOV was installed in the North Hook Beacon at Sandy Hook, NJ in 1904, the technology spread to other lighthouses.[88]

One further advancement in gas burning came with use of acetylene gas around 1910. The gas was fed to the lamp from a pressurized tank where it mixed with air and burned under a mantle, much as kerosene did in an IOV lamp. To increase automation, a sun valve was added. When combined with acetylene tanks and automatic mantle chargers, sun valves opened when the sun went down in the evening, allowing the gas to ignite and light to shine, and closed with the sun rose in the morning, stopping the gas from entering the mantle. Sun valves were used particularly at lighthouses that could not be easily supplied with electricity.[89]

Electricity

At about the same time that kerosene fully replaced lard oil (1885), the USLHB started experiments with electricity. At this early date, carbon arc lamps were being used in commercial settings. Because of their intense brilliance, the lamps were only used outdoors, as streetlamps, and in industrial settings. As a test, the Board installed a carbon arc lamp in the Navesink Highlands, NJ lighthouse (the same site which tested the first Fresnel lens in the United States in 1841). The new lamp, equipped inside a new Fresnel bivalve lens, emitted a flash estimated at 25,000,000 candlepower! Because of the intense light, nearby residents complained and the lantern room's landward-facing panels were blackened.[90]

[87] Sampson, Thomas (Assistant Superintendent). *Description of Bass Harbor Light Station*. Form 60. Corrected to May 1, 1935. Accessed at https://uslhs.org/inventory/light_station_report.php?id=62 on June 17, 2019.
[88] Dolin, "Brilliant Beacons: A History of the American Lighthouse," pp. 192-3.
Holland, Jr., "America's Lighthouses: An Illustrated History," p. 23.
[89] Dolin, "Brilliant Beacons: A History of the American Lighthouse," pp. 221-2.
[90] Dolin, "Brilliant Beacons: A History of the American Lighthouse," pp. 189-92.

Around the turn of the twentieth century, the USLHB began testing electricity as a light source and then tentatively began converting lighthouses to electricity, which could not be done quickly, as many lighthouses were not near power lines. Therefore, lighthouses had to await the installation of generators, which were only added where power lines were not extant.[91]

When the Board was reestablished as the United States Light House Service (USLHS) in 1910, the new commissioner of lighthouses, George Putnam, an advocate for electrification, accelerated the process of outfitting lighthouses with incandescent lamps, instead of the earlier carbon arc lamps. "Relying on generators, batteries, and an expanding network of power lines, an ever-growing number of lighthouses were electrified, and by the 1930s the majority of them were lit with electric lamps using incandescent bulbs that were considerably brighter than the lights they replaced.[92]

During the 1920s and 1930s, the USLHS converted most of their lighthouses to electricity. With electricity came the elimination of many lighthouse keepers. The electric bulb required little attention and did not dirty the lenses and lantern panes.[93] In Putnam's quest to reduce costs, electrification helped him move toward complete lighthouse automation. "Innovative timers that turned lights on and off according to a preset schedule, along with electric devices for operating smaller fog signals, made it possible for many lighthouses to run on their own, a process that was facilitated by the use of lightbulb changers that automatically replaced burned-out bulbs with new ones."[94]

The Bass Harbor Light Station was not electrified until 1949.[95] It is assumed that at this time the Lighthouse was transitioned from kerosene to electricity.

[91] Holland, Jr., "America's Lighthouses: An Illustrated History," pp. 23-24.
[92] Dolin, "Brilliant Beacons: A History of the American Lighthouse," p. 221.
[93] Holland, Jr., "America's Lighthouses: An Illustrated History," p. 24.
[94] Dolin, "Brilliant Beacons: A History of the American Lighthouse," p. 221.
[95] U.S. Coast Guard, First District, Boston, Mass., Civil Engineering. "Bass Harbor Head Lt. Sta., Bass Harbor, Maine. Electrification of Station." USCG Drawing 4355. March 14, 1949. USCG files transferred to ACAD Cultural Resources Program Manager (Gail Gladstone).

Lighthouse Keepers

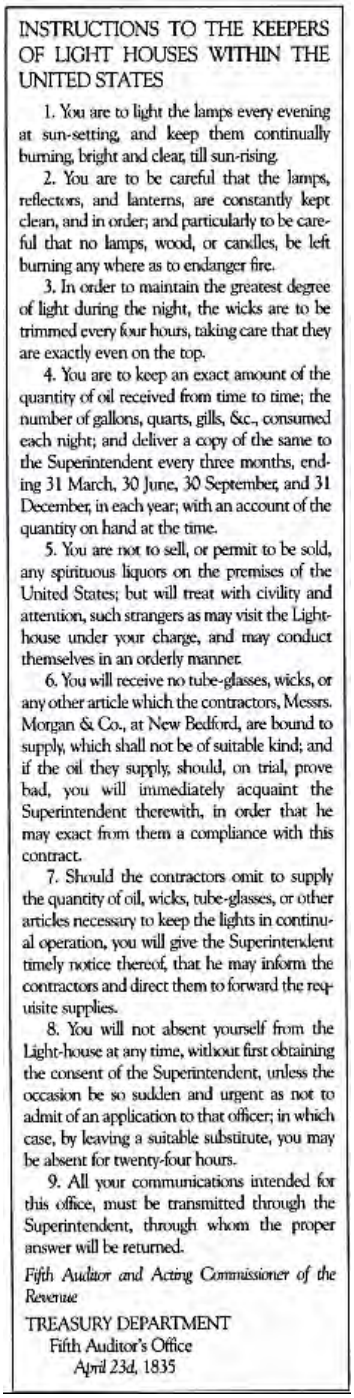
A Keeper's Job

Under the United States Light House Establishment, 1797-1852

A keeper's ultimate task was to maintain a good light a mariner could see and, if applicable, a fog signal a mariner could hear. During the earliest years of the United States Light House Establishment (USLHE), a spider lamp required "keeping the oil reservoirs full, the wicks lighted, and the panes of the lantern freed of the smoke that inevitably resulted from such primitive lamps." After the introduction of Winslow Lewis's Argand-style lamp and parabolic reflectors, duties likely increased, to include tending a dozen or more lamps and keeping the reflectors clean—not an easy task with shortened chimneys that rapidly blackened the reflectors. An in-depth inspection of the system in 1838 determined that "poorly kept lights apparently outnumbered good ones." The reasons for so many poorly kept lights are conjectured to include the type of lighting system used at the time, the lack of instruction to keepers at the time, and as political appointees, the quality of keepers left much to be desired. It is unknown exactly how keepers were trained during this time period, as very little formal instruction was provided; it is likely that instructions came word of mouth from outgoing keepers, the Collectors of Customs, or even from oil supply ships.[96]

Under the USLHE, lighthouse keepers were assigned via appointment, sometimes politically, not through the civil service system. Which political party a person backed mattered more than their competence for the job at hand.

The salary rate for a keeper at that time ranged between $200 and $350 per year. This varied based on a number of factors including the light station's location and the amount of work required at that station to maintain the light. Complaints by keepers were numerous, particularly regarding low pay, rare raises, the inability to support a family on their salary, etc. The federal government countered that keepers received free lodging and could supplement their income in other ways, e.g. working an additional job, gardening, and fishing. Despite the complaints, competition for nomination as a keeper was stiff.[97] Usurpation of a keeper was also common.



INSTRUCTIONS TO THE KEEPERS OF LIGHT HOUSES WITHIN THE UNITED STATES

1. You are to light the lamps every evening at sun-setting, and keep them continually burning, bright and clear, till sun-rising.

2. You are to be careful that the lamps, reflectors, and lanterns, are constantly kept clean, and in order; and particularly to be careful that no lamps, wood, or candles, be left burning any where as to endanger fire.

3. In order to maintain the greatest degree of light during the night, the wicks are to be trimmed every four hours, taking care that they are exactly even on the top.

4. You are to keep an exact amount of the quantity of oil received from time to time; the number of gallons, quarts, gills, &c., consumed each night; and deliver a copy of the same to the Superintendent every three months, ending 31 March, 30 June, 30 September, and 31 December, in each year; with an account of the quantity on hand at the time.

5. You are not to sell, or permit to be sold, any spirituous liquors on the premises of the United States; but will treat with civility and attention, such strangers as may visit the Light-house under your charge, and may conduct themselves in an orderly manner.

6. You will receive no tube-glasses, wicks, or any other article which the contractors, Messrs. Morgan & Co., at New Bedford, are bound to supply, which shall not be of suitable kind; and if the oil they supply, should, on trial, prove bad, you will immediately acquaint the Superintendent therewith, in order that he may exact from them a compliance with this contract.

7. Should the contractors omit to supply the quantity of oil, wicks, tube-glasses, or other articles necessary to keep the lights in continual operation, you will give the Superintendent timely notice thereof, that he may inform the contractors and direct them to forward the requisite supplies.

8. You will not absent yourself from the Light-house at any time, without first obtaining the consent of the Superintendent, unless the occasion be so sudden and urgent as not to admit of an application to that officer; in which case, by leaving a suitable substitute, you may be absent for twenty-four hours.

9. All your communications intended for this office, must be transmitted through the Superintendent, through whom the proper answer will be returned.

Fifth Auditor and Acting Commissioner of the Revenue

TREASURY DEPARTMENT
Fifth Auditor's Office
April 23d, 1835

Figure 25. The first instructions for keepers were distributed in 1835. Source: United States Light House Society website.

[96] Holland, Jr., "America's Lighthouses: An Illustrated History," pp. 43-44.
[97] Dolin, "Brilliant Beacon," pp. 63-4.

In 1816, Winslow Lewis, the government contractor responsible for the early Argand lamp and construction and maintenance of early lighthouses, surveyed all of the extant light stations at that time to determine an accurate keeper's salary at each. His results varied from $250 to $500 per year ($3,809 to $7,618 in 2019).[98]

Fifth Auditor Stephen Pleasonton, in charge of the USLHE issued the first *Instructions to the Keepers of Light Houses within the United States* on April 23, 1835. The instructions were short and included nine bullet points (fig. 25).[99]

Under the United States Light-House Board, 1852-1910

The 1851 *Act Making Appropriations for Light House, Light Boats, Buoys, &c* appointed a board to study every aspect of the troubled USLHE.[100] The resulting 760-page report "found the interest and ability of keepers 'was very various' and advocated testing keepers prior to their selection." A year later, when the United States Light-House Board (USLHB) assumed control of the system, the Board "did all it could do to minimize the effect of politics on appointment of keepers."[101] This included "requiring prospective keepers to meet certain standards, placing keepers on probation for three months, and at the end of that period testing their skills and firing those who didn't pass. [They also stripped]... custom collectors of their power to nominate keepers, transferring the task instead to lighthouse inspectors."[102]

A major goal of the USLHB was to have men make a career of being a keeper, rising from lesser positions to that of head keeper.[103] This happened several times at Bass Harbor Head Light Station as keepers transferred from other light stations as assistant keepers to being the sole, head keeper at Bass Harbor.

Another way the Board assumed control was by issuing a new and more in-depth *Instructions for Light-Keepers of the United States* in 1852. This described when to light (sunset) and extinguish (sunrise) the lamps, when and how to clean the lighting apparatus, when and how to clean the lantern room, instructions on noting weather conditions and shipwrecks, and updating the station's store book, among other things. Of interesting note, the use and presence of alcohol at the light stations was especially frowned upon:

> The light keepers are required to be sober and industrious, and orderly in their families. They are expected to be polite to strangers, in showing the premises at such hours as do not interfere with the proper duties of their office; it being expressly understood that strangers shall not be admitted to the light-room after sunset. ... The light-keepers must not, on any pretext, admit persons in a state of intoxication into the light-house.

[98] Lewis, Winslow. "Light House Keeper's Salary." 1816. Accessed at http://uslhs.org/1816-winslow-lewis-lighthouse-keeper-salaries on September 26, 2016.
[99] "Instruction to the Keepers of Light Houses within the United States." Accessed at http://uslhs.org/1835-instructions-keepers on September 26, 2016.
[100] Cybularz, Rebecca (NPS HPTC). "Cape Hatteras Lighthouse." *Historic Structure Report.* 2016. p. 29.
[101] Holland, Jr., "America's Lighthouses," p. 40.
[102] Dolin, "Brilliant Beacons, pp. 208-9.
[103] Holland, Jr., "America's Lighthouses," p. 103.

Additionally, it was noted that the "principal light-keeper is prohibited from selling any malt or spirituous liquors, and from allowing any to be sold on the premises under his charge."[104]

Around this same time the USLHB began training its keepers and made literacy a job requirement so that keepers could accurately fill out their required reports and read the numerous instructions circulated to them.[105] Some of the publications the Board circulated included: *Lighthouse Establishment Instructions*; *Instructions and Directions for the Management of Lenses, Lights, and Beacons*; *List of Illuminating Apparatuses, Fixtures, Implements, and Supplies in general use in the U.S. Lighthouses, Lighted Beacons and Light-Vessels…*; *Instructions and Directions to Guide Lighthouse Keepers and others Belonging to the Lighthouse Establishment*; and *Management of Lens Apparatus and Lamps.* Annually, keepers also received an updated *Light List.*[106]

The number of keepers present at a light station increased during the Board's oversight. The number coincided with how large the lenses were. The head keeper was in charge and the assistants ranked in descending order depending on their time in service and experience.[107]

At light stations with two or more keepers, work was divided between two "departments." The keeper performing the duties of the first department "had to clean and polish the lens, clean and fill the lamp, dust the framework of the apparatus, trim carefully the wicks of the lens lamp, and, if required, put new ones in, and see that everything connected with the apparatus and lamp in general was perfectly clean and the lamp ready for lighting in the evening." The keeper performing the duties of the second department "had to clean the copper and brass fixtures of the apparatus as well as the utensils used in the lantern and watchroom; clean the walls, floors, and balconies, or galleries, of the lantern; and sweep and dust the tower stairways, landing, floors, windows, window recesses, and passageways from the lantern to the oil storage area."[108] All of these tasks were to be completed between sunrise and 10am, so that the lighthouse would be ready for lighting at sunset. At night, "watches were established, usually of four to six hours, when the keeper on duty would stay awake in the watch room below the lantern room, and tend the light as necessary." If only one keeper was assigned to a station, the keeper was required to check on the light at least twice between 8pm and sunrise.[109] Sleeping on the job was not tolerated.[110] As stated in *Lighthouse of the Maine Coast*: "A lightkeeper's work is from sunset to sunrise and sunrise to sunset."[111]

In addition to the tasks at the lighthouse and tending the lights, the keepers were also responsible for many other duties, including repairing the lighthouse boats, replacing broken glass, repairing and repainting all lighthouse buildings, and completing reports. Larger construction jobs were completed by working parties from the district office[112]

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[104] United States Light-House Board. "Instructions for Light-Keepers of the United States." 1852. Accessed at http://uslhs.org/1852-instructions-light-keepers on September 26, 2016.
[105] Dolin, "Brilliant Beacons," pp. 133-4.
[106] Holland, Jr., "America's Lighthouses," pp. 44-45.
[107] Dolin, "Brilliant Beacons," p. 232.
[108] Holland, Jr., "America's Lighthouses," p. 45.
[109] Dolin, "Brilliant Beacons," p. 235.
[110] Holland, Jr., "America's Lighthouses," p. 46.
[111] Sterling, Robert Thayer. "Lighthouses of the Maine Coast and the Men Who Keep Them." Stephen Day Press: Brattleboro, VT, 1935, p. 44.
[112] Dolin, "Brilliant Beacons," p. 238.

In 1871 and 1881, new "Instructions" were issued. These sets were far more detailed than any of the previous iterations and further explained the daily, monthly, quarterly, annual, and other reports the keepers had to write, the different operating instructions for the numerous lighting apparatuses, and various other day-to-day tasks.[113]

In 1884 the Board required all lighthouse keepers to wear a uniform. The dress uniform (see fig. 50) consisted of "coat, vest, trousers, and cap, all of 'suitable dark indigo-blue jersey or flannel.' A double row of five yellow metal buttons ran down the front of the double-breasted coat and a yellow metal lighthouse badge perched on the cap just above the visor. There was an optional canvas helmet for warm weather."[114] When cleaning the lens, they were to wear an apron so the coat buttons would not damage the precious prisms. When working outside, they were allowed to exchange the dress uniform for a brown working suit.[115]

The Board also set up a twice yearly (at least) inspection of each light station. The inspections were intended to be unannounced, but the keepers were seldom completely surprised. "As the tender with the inspector on board approached the lighthouse, it would raise the inspector's ensign and sound the ship's horn to alert the keepers to his impending arrival, giving them enough time to quickly don their uniforms and put things in their proper place." The inspector scrutinized everything, including cleanliness and orderliness of the light station, review of the keeper's logbooks and other records, and inspection of the lantern room, lighting apparatus, storage areas, and even the living quarters.[116]

Despite the momentous efforts of the Board to rid the service of nepotism and make it a professional organization, keepers' positions were not included in the two Civil Service Reform Acts in 1871 and 1883. It was not until Grover Cleveland's executive order on May 1896 that keepers would finally be included in the classified civil service.[117] Applicants were now required to be qualified for the job and pass written and oral exams; political affiliation was not considered in any way. Further, once hired, the new employee was required to complete a six-month probationary period.[118]

Under the United States Lighthouse Service, 1910-1939

In 1910, the Light-House Board was replaced by the United States Light House Service (USLHS) under the direction of George R. Putnam.[119]

Putnam believed that the keepers were the backbone of the Service and believed that they deserved rights not previously privy to them, despite their employment with the federal government, like a pension. Lighthouse keepers were not eligible for pensions because there was no retirement system. Without a pension, most elderly lighthouse keepers were financially unable to retire. Those who still worked were becoming too feeble to properly perform the job. It took Putnam eight years to lobby Congress and on June 20, 1918, "President Woodrow Wilson signed legislation enabling keepers to

[113] United States Light-House Board. "United States Light-House Establishment, Instructions and Directions to Light Keepers." 1871. Washington: Government Printing Office. Accessed at http://uslhs.org/1871-instructions-light-keepers on September 26, 2016. United States Light-House Board. "United States Light-House Establishment, Instructions to Light-Keepers." July 1881. Washington: Government Printing Office. Accessed at http://uslhs.org/1881-instructions-lightkeepers on September 26, 2016.
[114] Holland, Jr. "America's Lighthouses," p. 41.
[115] Dolin, "Brilliant Beacons," p. 206.
[116] Ibid, p. 248.
[117] Holland, Jr. "America's Lighthouses," p. 40.
[118] Dolin, "Brilliant Beacons," pp. 209-10.
[119] Cybularz, HSR, p. 34.

retire after thirty years of service at age sixty-five, and to collect a generous pension (the mandatory retirement age was seventy). Soon after, not unpredictably, a large number of keepers who had been hoping that this day would arrive cheerfully submitted their resignations."[120]

Similarly, Putnam also fought to provide disability benefits to keepers and survivors benefits to families of keepers who died while on duty. He also rallied for increased salary. In 1867 the average salary was raised to $600 ($10,885 in 2018), where it remarkably stayed for fifty years. "Putnam believed keepers should be paid more, not only to benefit those already in the service but also to ensure that salaries remained competitive enough to hire competent people." In 1918, Congress raised the average salary to $840 ($14,202 in 2018). By the early 1930s, keepers' salaries ranged from $1,080 to $2,100 ($20,111 to $39,105 in 2018).[121]

Under the United States Coast Guard, 1939 and on

The United States Coast Guard (USCG) gained control of the lighthouse service on July 1, 1939, "paradoxically, just as they were preparing to celebrate the service's illustrious [150-year] history." Some keepers resigned due to the shift. Others had to decide between retaining their civilian status or converting to the military hierarchy of the Coast Guard; about fifty percent chose the latter, becoming chief or first-class petty officers. Grumblings did occur, but the transition was smooth. Eventually, as older keepers did retire, they were replaced by USCG "servicemen who were usually stationed at lighthouses for relatively short stints, often just a couple of years…. Thus, slowly over time, temporary keepers replaced those who had chosen to make a career of lighthouse work."[122]

A Note on Diversity

African Americans and American Indians were sometimes employed in the early days of the USLHE. However several historians note that the Establishment was mostly Caucasian. After the Civil War, the USLHB did, from time to time, appoint African Americans into service, but this was infrequent.[123]

Women were more frequently employed as lighthouse keepers. Women often began as assistant keepers at lighthouses where their husbands or fathers were head keepers. If her husband or father died while still a keeper, the female assistant was sometimes promoted to fill the place of the deceased.[124] An estimated 240 women officially served as assistant keepers and 140 became principal keepers. All were typically paid the same as their male counterparts.[125] Records indicate that no female keepers, of any rank, were officially stationed at Bass Harbor Head Light Station. However, because there was only one keeper at this station, it is likely that the wife of the keeper would tend the light if her husband was incapacitated or away to town.

[120] Dolin, "Brilliant Beacons," p. 223-4.
[121] Ibid, pp. 224-226.
[122] Ibid, p. 385.
[123] Holland, Jr. "America's Lighthouses," p. 41.
[124] Ibid, pp. 41-42.
[125] Dolin, "Brilliant Beacons," p. 266.

The Personal Life of a Keeper and His Family

Keeping a lighthouse is often thought of as isolated, lonely, and monotonous. One telling example is of Joseph Gray, lightkeeper at Bass Harbor 1921-1938, when he was stationed at Mt. Desert Island in 1901. During a particularly bad storm, Gray, his family, and other families at that Light Station were isolated for six weeks. "Just before the storm abated, [Gray] managed to get aboard a Nova Scotia schooner where he was shocked to learn that during his isolation his father had died and been buried and President McKinley had been assassinated."[126]

The education of children was particularly important. In isolated areas, keepers made their own accommodations for the education of their children. Some transferred to different stations when their kids were old enough for school, some boarded their children in a nearby town with a school, some trekked their children back and forth to school every day, and some hired tutors to spend time with their children periodically throughout the year. In locations with a town/school nearby, children more easily obtained their education.[127] Keeper Joseph Gray noted that when stationed at Great Duck Island Light Station, there "was a schoolhouse for the children, and the attendance at the school ranged from six to ten youngsters."[128]

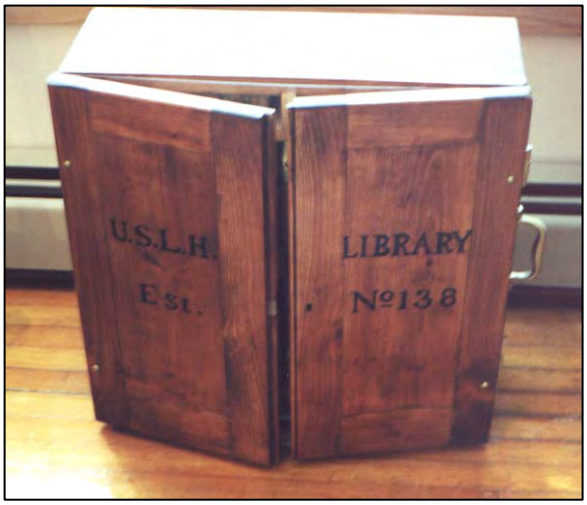


Figure 26. A travelling minilibrary of the United States Light House Establishment. Source: Michigan Lighthouse Conservancy.[129]

To assist in reaching more remote areas, the USLHB began rotating minilibraries throughout the more isolated light stations in 1876 (fig. 26). They began with "fifty minilibraries, each containing about forty books, housed in an attractive, sturdy, and portable wooden box." A minilibrary would stay at one light station for six months and then would rotate to the next while being replaced with another. "Donated by private individuals or purchased by the board, the books included the obligatory Bible and hymnbooks, along with a great variety of fiction and nonfiction—everything from novels to poetry and books on science." Within five decades, the number of minilibraries in circulation increased to five hundred.[130]

The USLHB provided various domestic food and supplies to each light station. For example, the 1881 food allowances per man included:

Pork: 200 pounds	Coffee (green grain): 24 pounds	Rice: 50 pounds
Beef: 100 pounds	Beans or pease [sic]: 10 gallons	Brown Sugar: 50 pounds
Flour: 2 barrels	Vinegar: 4 gallons	Potatoes: 2 barrels[131]

[126] "Capt. Joseph M. Gray: Memories of a Maine Lighthouse Keeper." *Lighthouse Digest*, May 2005. Accessed at www.lhdigest.com/Digest/StoryPage.cfm?StoryKey=2220 on June 13, 2019.
[127] Holland, Jr. "America's Lighthouses," p. 47.
[128] "Capt. Joseph M. Gray," *Lighthouse Digest.*
[129] Accessed at http://www.michiganlights.com/lhlibrary.htm on September 3, 2019.
[130] Dolin, "Brilliant Beacons," pp. 205-6.
[131] United States Light-House Board. "United States Light-House Establishment, Instructions to Light-Keepers." July 1881.

To offset further food costs, those with access to fertile soil farmed and raised animals; others "farmed" the sea.[132] When at Mount Desert Rock Light Station—a barren island with no soil—keeper Joseph Gray noted that the wife of the head keeper, Mrs. Mylan, "had some barrels of earth brought from the mainland and each spring she planted a garden, raising lettuce and other garden greens and many beautiful flowers." Later, when himself the head keeper of Great Duck Island, Gray "planted a garden every spring, and there were plenty of berries for canning on the island." [133]

Pets, like dogs and cats, were quite common at light stations. Bass Harbor Head Light Station Keeper (between 1950 and likely 1955) Eugene Coleman, and wife Amanda, had a dog named Posey (see fig. 61).[134]

The Board and Service also supplied a medicine chest to every light station acknowledging that when living in an isolated location illness and injury could quickly become life-threatening.[135]

During the 1920s USLHS commissioner Putnam believed that bringing a radio to each light station would aid in the quality of a secluded life. Putnam did not have the funding available to directly buy radios for each station, but in 1925 a New York woman purchased twenty-five radios and donated them to various light stations. A year later, Secretary of Commerce Herbert Hoover appealed the public to donate radios to the service. Nearly three hundred radios were donated and distributed nationwide as a result of Hoover's appeal.[136]

[132] Holland, Jr., "America's Lighthouses," p. 49.
[133] "Capt. Joseph M. Gray."
[134] "Bass Harbor Head Light Keeper and Wife, Eugene Leslie Coleman and Amanda (Varner) Coleman with Posey." Item 7435. Southwest Harbor Public Library. Accessed at https://swhplibrary.net/digital archive/items/show/6479 on June 14, 2019.
[135] Dolin, "Brilliant Beacons," p. 282.
[136] Dolin, "Brilliant Beacons," pp. 287-8.

Chronology of Development and Use

Development of the Light Station

The perilous condition of the entrance to Bass Harbor was identified by 1837. Navy Commissioners were responsible for making recommendations for appropriations for lighthouses and associated navigational equipment. A December 1837 letter from the Secretary of the Navy included testimony from U.S. Navy Captain Edward S. Jarvis. He had sent a revenue boat captain "to examine the different sites which had been recommended for a light or a buoy." Bass Harbor Head was one of six locations on Mount Desert Island which were determined "*most* suitable." At that time, it appears only a buoy or two was recommended for addition to the "large and dangerous reef in the middle of Bass harbor [sic]."[2] The same was recommended in 1839,[3] but was not realized until 1842/3.[4]

Over a decade later, in 1855, W.B. Franklin, Light-house Inspector of the First District, recommended the establishment of a light station at Bass Harbor, Maine (fig. 27): "A light is necessary to assist vessels in entering [the harbor]; and I recommend that $5,000 be appropriated for a light-house on Bass Harbor Head."[5] On August 18, 1856, $5,000 was appropriated through an act of Congress.[6]

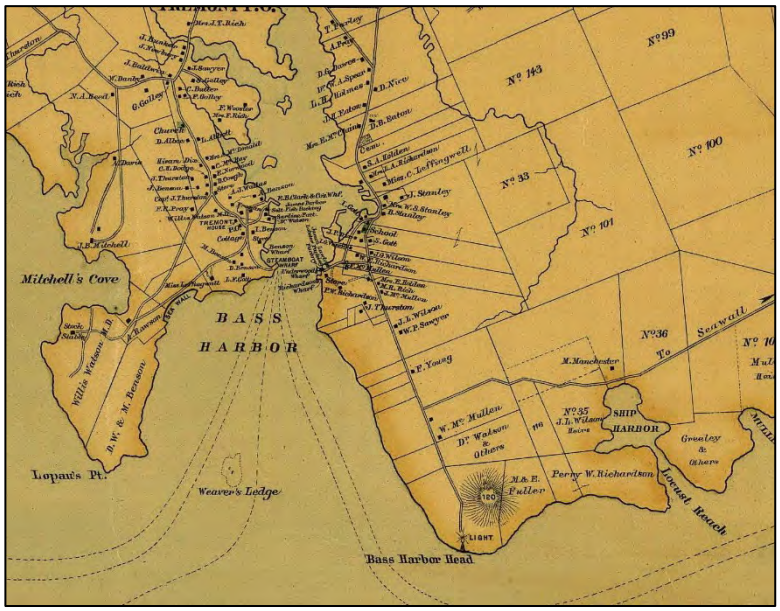


Figure 27. Bass Harbor Head Light Station was purposely located at the mouth of Bass Harbor "to assist vessels in entering." Source: Southwest Harbor Public Library Digital Archive.[1] Cropped by author.

[1] "Bass Harbor," Item 2159. *Southwest Harbor Public Library.* Accessed at https://swhplibrary.net/digitalarchive/items/show/7835 on June 14, 2019.
[2] "Letter from the Secretary of the Navy transmitting a report of the Navy Commissioners of their proceedings under the act of 3d Marc, 1837, making appropriations for Light-houses, &c. &c." December 22, 1837. 25th Congress, 2nd Session, House of Representatives, Navy Department, pp. 17, 26-27. Accessed at https://congressional.proquest.com/congressional/docview/t47.d48.322_h.doc.41?accountid=33707 on June 12, 2019.
[3] "Building Light-Houses, Light-Boats, Beacons, &c." February 6, 1839. 25th Congress, 3rd Session, House of Representatives. Accessed at https://congressional.proquest.com/congressional/docview/t47.d48.347_h.doc.158?accountid=33707 on June 12, 2019.
[4] "Examination—Light-House Establishment. Letter from the Secretary of the Treasury, transmitting a report from I. W.P. Lewis, civil engineer, upon the condition of the light-houses, beacons, buoys, and navigation, upon the coasts of Maine, New Hampshire, and Massachusetts." February 25, 1843. 27th Congress, 3rd Session, House of Representatives, Treasury Department, p. 65. Accessed at https://congressional.proquest.com/congressional/docview/t47.d48.422_h.doc.183?accountid=33707 on June 12, 2019.
[5] "Report of the Secretary of the Treasure, on the State of the Finances for the Year Ending June 30, 1855." Washington: Printed by Beverley Tucker, 1856, p. 292. Accessed at https://congressional.proquest.com/congressional/docview/t47.d48.814_s.exdoc.2?accountid=33707on June 12, 2019.
[6] "Statement of Appropriations and Expenditures for Public Buildings, Rivers and Harbors, Forts, Arsenals, Armories, and Other Public Works from March 4, 1789, to June 30, 1882." 47th Congress, 1st Session, Senate, Ex. Doc. No. 196. July 26, 1882. Washington:

The title to the site for Bass Harbor Head Light Station was conveyed on June 10, 1857 from land owned by James S. Gott. The Office of the Attorney of the United States for the Main District approved the title by the end of the same month. The chain of title included the following names (reverse chronological order): Ambrose Thurston, John M. Gott, James Gott, Moses Richardson, and Salem Towne, the attorney for John Quincy Adams, Nathanial Curtis, and Alicia Boylston, Executors of the last will and testament of Ward Boylston.[7] Due to a delayed approval of the title however, construction of the light station could not be started that "season" and would "be built early [the] next season."[8] The light station was "finished and lighted" during the next fiscal year.[9]

Of the original $5,000 appropriation, $1,200 was expended during Fiscal Year (FY) 1857 and $3,783.35 was expended in FY1858. The remaining $16.65 was returned to the surplus fund in FY1859.[10] Note: Until 1976, Federal fiscal years ended June 30.

The new lighthouse at Bass Harbor Head was described in a May 1858 "Notice to Mariners":

> A new light-house is now in course of construction on BASS HARBOR HEAD, the eastern side of the entrance to BASS HARBOR, MOUNT DESERT ISLAND, MAINE. The tower is cylindrical, built of brick, is 21 feet high, will be painted *white*, and the lantern will be painted *black*.
>
> The dwelling house will be of wood, and with the walk connecting it with the work-room of the tower will be painted *brown*.
>
> The illuminating apparatus will be a catadioptric lens of the 5th order of the system of Fresnel, showing a *fixed red* light.
>
> The focal place will be 26 feet above the ground, and 56 feet above the level of the sea, and the light should be seen in ordinary states of the atmosphere, from the deck of a vessel, 13 nautical miles.
>
> The approximate position as given by the best authorities that can be obtained is—
>
> Latitude, 44° 14' 30" North.
> Longitude, 68° 23' 10" West of Greenwich.
>
> The following magnetic bearings and distances have been taken from the light-house:
>
> York's Narrows, W. ½ S., 7 miles
> Little Duck Island, S. E. ¼ S., 5 miles.
> Long Ledge Buoy, E. by S., 3 miles.
> Edgemoggin Light-house, N. W. ¾ W., 10 miles.
>
> The light will be lighted for the first time at sunset on Wednesday, the 1st of September next, and will be kept burning during every night thereafter from sunset to sunrise.
>
> By order of the Light-house Board:
> W.B. Franklin, Secretary[11]

Government Printing Office, 1882, p. 379. Accessed at https://congressional.proquest.com/congressional/docview/t47.d48.1992_s.exdoc.196?accountid=33707 on June 12, 2019.

[7] "Abstract of Title to Lot of Land in Mount Desert, Hancock County, Maine, being site for Light House at "Bass Harbor"." National Archives and Record Administration, Washington, DC. Series: Coast Guard, Record Group 26, Entry 66, Box 63.

[8] "Report of the Secretary of the Treasury, on the States of the Finances for the Year Ending June 30, 1857." 35th Congress, 1st Session, House of Representatives, Ex. Doc. No. 3. Washington: Cornelius Wendell, Printer, 1857, p. 237. Accessed at https://congressional.proquest.com/congressional/docview/t47.d48.941_h.exdoc.3?accountid=33707 on June 12, 2019.

[9] "Report of the Secretary of the Treasury, on the State of the Finances, for the Year Ending June 30, 1858. 35th Congress, 2nd Session, House of Representatives, Ex. Doc. 3. Washington: James B. Steedman, Printer, p. 281. Accessed at https://congressional.proquest.com/congressional/docview/t47.d48.996_h.exdoc.3?accountid=33707 on June 12, 2019.

[10] "Statement of Appropriations and Expenditures for Public Buildings, Rivers and Harbors, Forts, Arsenals, Armories, and Other Public Works from March 4, 1789, to June 30, 1882."

[11] Franklin, W.B. (Secretary, United States Light-House Board). "Notice to Mariners." Treasury Department, Office of the L.H. Board, May 20, 1858. Source: Framed on wall in Keeper's Dwelling.

The Bass Harbor Head Light Station appeared on the United States Light-House Board (USLHB) Light List in 1860, which confirmed the information provided in the "Notice to Mariners." It also noted no audible fog signal was present.[12]

The first keeper was John Thurston, who served from first lighting in 1858 to 1861 and earned a $350 salary.[13] (For more information, refer to John Thurston sidebar.)

John Thurston, BHHLS keeper 1858-1861

John Thurston was born on Gott's Island, ME about 1830 to John and Nancy (Gott) Thurston. In 1850 they lived in Tremont (town adjacent light station) where father John was a laborer. Son John, 20, the oldest of several children at home, had no listed occupation.

From 1858 to 1861 son John was the lightkeeper at Bass Harbor Head Light Station.

By 1860, son John, 31, had married Delia, 28, and they had two children, Charles, 8, and Susan, 3. John still had no occupation listed, and he and his family lived in Tremont with his father and mother and two siblings. The elder John was a seaman. The younger John's 1861 Civil War Draft Record also listed him as a seaman.

In 1870, John and Delia and their three children lived in Tremont. Both John and his eldest child, William, 17, were sailors. The same was true in 1880.

In 1900 John, 71, and Delia, 68, lived with daughter Susan in Tremont. At this time, John was a fisherman.

In 1910 John, 82, with no occupation, lived with daughter Vandalia and her husband Casper Tanner. Casper was a traveling fisherman. It is not clear where wife Delia lived.

John died in October 1911 of a stroke. Delia died in January 1913. Both are buried at McKinley Cemetery in Tremont.[14]

The Light Station is depicted in an early, but undated photograph (fig. 28) which shows the original exterior of the Keeper's Dwelling, the Lighthouse, and the Work Room between (since replaced with the Covered Way). The Keeper's Dwelling was clad with vertical board-and-batten siding painted dark (portion extant in attic of Covered Way) with unpainted brick foundation walls above grade, and a wood-shingle roof with no extant dormers and a brick chimney slightly south of center. The Lighthouse is whitewashed with no railing surrounding the black-painted lantern. The Work Room appears to have the same finishes as the Dwelling, but this connector is lower than that of the extant Covered Way (evidence of the former opening into the Lighthouse is located in the Covered Way crawlspace). The wood-shingle roof of the Privy is also detectable to the right of the Lighthouse.

The second keeper was John Rick, who served from 1861 to 1865 and earned $350 a year.[15] (No additional information could be found on this keeper due to gaps in the Federal Census.) The third keeper was John Wilson, who served from 1865 to 1869.[16] In 1865 he earned $350 a year and in 1869 he earned $540 in salary.[17] (For more information on this keeper, refer to John G. Wilson sidebar.) His brother, James, would later serve as keeper.

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[12] "Bass Harbor Head (Maine)." *United States Lighthouse Society website.* Accessed at https://uslhs.org/light_lists/lighthouse_list.php?id=35 on June 5, 2019.
[13] "Letter from the Secretary of the Treasury, transmitting Estimates of Appropriations required for the Service of the Fiscal Year Ending June 30, 1861." 36th Congress, 1st Session, House of Representatives, Ex. Doc. No. 1. Washington, 1859, p. 115. Accessed at https://congressional.proquest.com/congressional/docview/t47.d48.1043_h.exdoc.1?accountid=33707 on June 12, 2019.
[14] Gloucester, Mass, Town and Vital Records, Births, Marriages, and Death, 1772 to 1807 register. Ancestry.com
1850, 1860, 1870, 1880, 1900, and 1910 United States Federal Censuses. Ancestry.com
Civil War Draft Registrations Records, Maine, 5th Congressional District, Volume 3. Ancestry.com
Maine Death Records, Hancock, 1911. Ancestry.com
"Captain John Thurston." "Nacy F. Gott Thurston." "John Thurston." "Delia C. Putnam Thurston." Findagrave.com
[15] "Bass Harbor" binder located in Bass Harbor Head Light Station Keeper's House.
"Register of Officers and Agents, Civil, Military, and Naval, in the Service of the United States, on the Thirtieth of September, 1863…" Washington: Government Printing Office, 1864, p. 49. Ancestry.com
[16] "Bass Harbor" binder located in Bass Harbor Head Light Station Keeper's House.
[17] "Register of Officers and Agents, Civil, Military, and Naval, in the Service of the United States, on the Thirtieth of September, 1865…" Washington: Government Printing Office, 1866, p. 73.; "Register of Officers and Agents, Civil, Military, and Naval, in the Service of the United States, on the Thirtieth of September, 1869…" Washington: Government Printing Office, 1870, p. 67. Ancestry.com

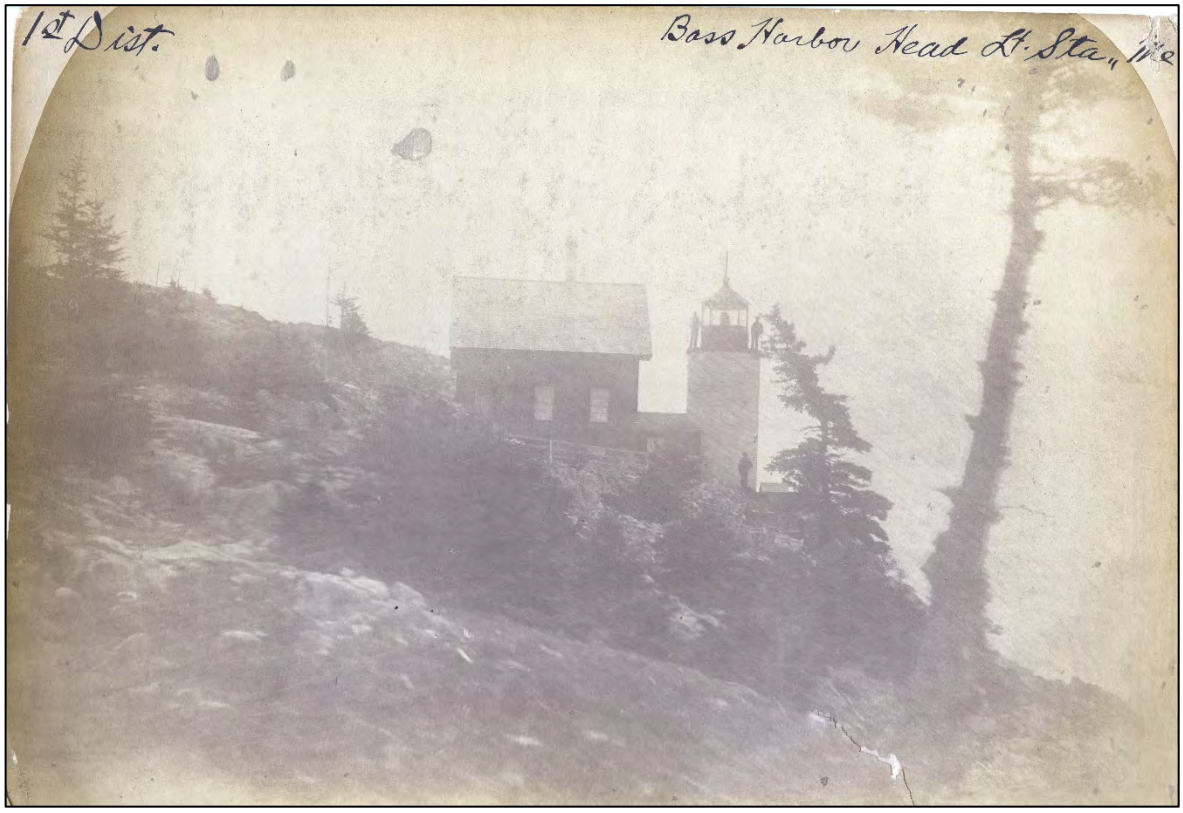


Figure 28. The earliest-known photograph of Bass Harbor Head Light Station, however the date is unknown. Seen are the Keeper's Dwelling, Covered Way in its original configuration, Lighthouse, and what may be a privy roof just below the Lighthouse. Photo: NARA, 26-LG-1-26. A larger version of this photograph can be found in Appendix B.

John G. Wilson, BHHLS Keeper 1865-1869

John Wilson was born in July 1829 in Tremont, ME to John and Ann (Kelley) Wilson. By 1850, the elder John had died, and his wife Ann lived with three children in Tremont. John G., 21, and brother James L., 19, (both eventual keepers of Bass Harbor Head Light Station) were listed as mariners.

By 1860 John had married Sally Ann Milliken. They lived with their three children, aged 2-8, and Sally's mother in Tremont. John was a caulker and owned his house. John's Civil War Draft Registration Card confirms this information.

John served as the third lightkeeper of Bass Harbor Head Light Station between 1865 and 1869.

In 1870, John and Sally and five children, aged 3-17, continued to live in Tremont. John was again listed as a caulker. The same was true in 1880, but Sally's mother again lived with them and son Fred, 25, was also a caulker.

In 1900, John, now a postmaster and 70, and Sally (married 48 years), lived with three children. Daughter Myra was a school teacher and son Leon was a sailor.

Sally preceded John in death; in July 1907. John died in Southwest Harbor in November 1915 from hemiplegia (paralysis). He was 86. At the time he was working as a carpenter, despite his age. Both were buried at McKinley Cemetery in Tremont.[18]

[18] 1850, 1860, 1870, 1880, and 1900 United States Federal Censuses; Civil War Draft Registration Records, Maine, 5th Congressional District, Volume 2; Maine Death Records, Hancock, 1915. Ancestry.com
"John G. Wilson" and "Sarah Ann "Sally" Milliken Wilson." Findagrave.com

In 1867 and 1868, the Keeper's Dwelling was repainted. The latter year, a chimney cap was placed on the kitchen chimney, a cistern pump and cooking stove fixtures were supplied, and the illuminating apparatus was "examined and burner retubed."[19]

In 1869, Bass Harbor Head Light Station was reported in good condition.[20]

A new keeper (the fourth) was appointed in 1869: Charles Gilley. He would serve until 1872 and earned $540 a year.[21] (For more information on this keeper, refer to Charles B. Gilley sidebar.)

The 1870 USLHB Light List described the Light Station: "Tower of brick, whitewashed, connected with dwelling by wooden porch. Dwelling a story and a half wooden building, painted brown."[22]

Charles B. Gilley, BHHLS Keeper 1869-1872

Charles B. Gilley was born in December 1841 in Tremont, ME to Benjamin and Abigail C. (Manchester) Gilley. In 1850, Charles, 9, lived with his parents and several siblings in Tremont. His father, then 52, was a carpenter.

By 1860, Charles, 18, had married Delphina, 17, and the pair lived with his parents in Tremont. Charles had no listed occupation, but his father was a farmer. Delphina would have one child prior to her death the next year.

Charles was a two-time veteran of the Civil War. From September 1861 to November 1862 he was a Private in Company D of the First Regiment Calvary and incurred a gunshot wound to his left forearm. He reenlisted in February 1863 for the next two years as a Private in Company G of the First Regiment Artillery.

Charles began his tenure tending light at Bass Harbor in 1869. By the next year, Charles, 28, had married Carrie, 18. Charles was listed as a light keeper in the Federal Census. His parents resided with them. His father was a ship carpenter.

Carrie died in 1879 and the next year Charles, 38, lived in Tremont with no listed occupation, with his young children and mother. An added Schedule to the 1880 Census noted that Charles was blind due to an unknown cause.

In about 1890 Charles married his third wife, Alice In 1900, the couple, 58 and 44, lived in Tremont.

Charles died in November 1901 due to diabetes. He was buried at the Gilley Burial Ground in Southwest Harbor next to his two former wives. His widow Alice would join him in 1938.

[19] "Bass Harbor" binder located in Bass Harbor Head Light Station Keeper's House.
[20] Ibid.
[21] Ibid.
"Register of Officers and Agents, Civil, Military, and Naval, in the Service of the United States, on the Thirtieth of September, 1871…" Washington: Government Printing Office, 1872, p. 67. Ancestry.com
[22] "Bass Harbor Head (Maine)." *United States Lighthouse Society website.*

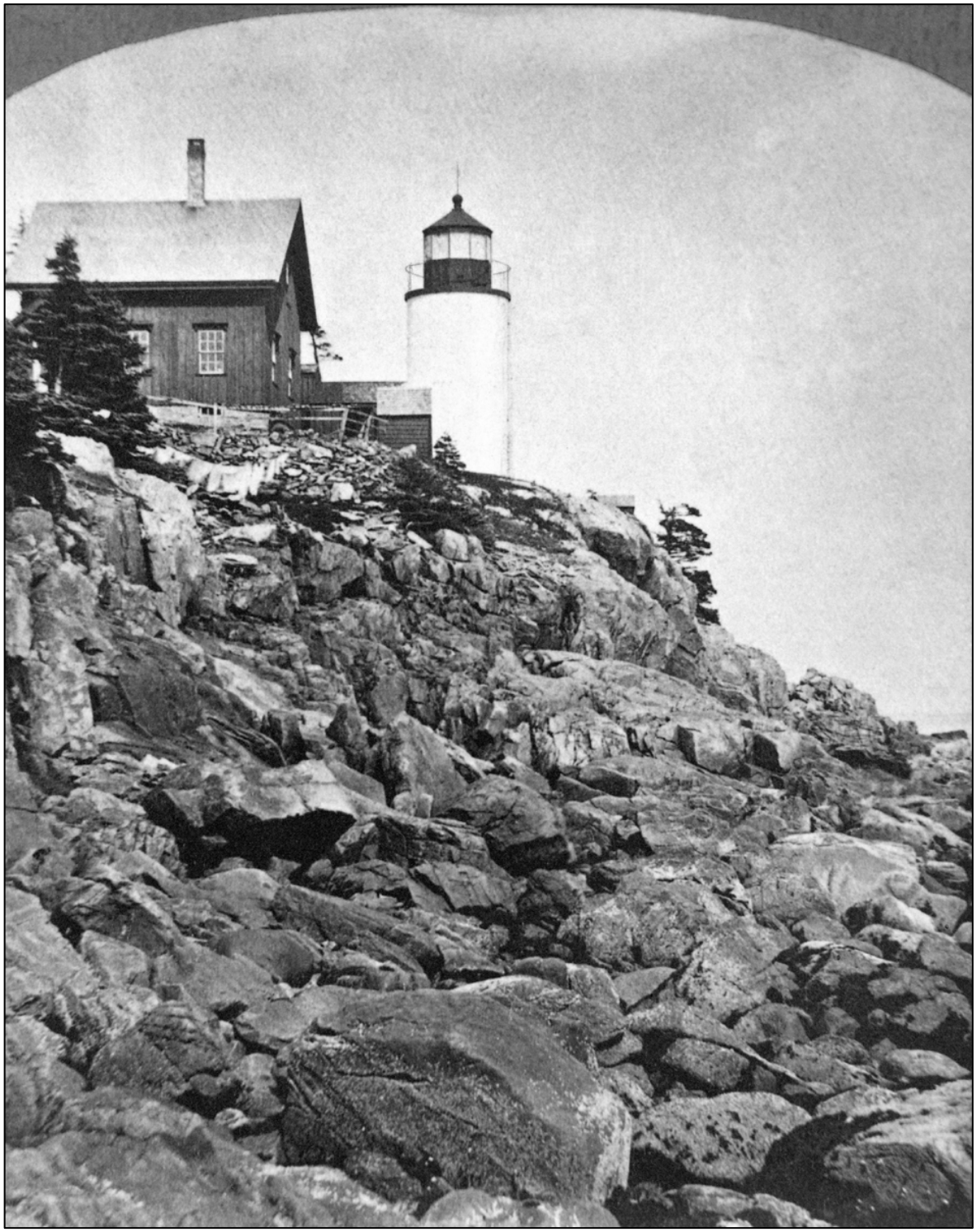


Figure 29. Bass Harbor Head Light Station, 1875. This photo clearly shows the 6/6 windows, the vertical board-and-batten siding painted brown, the lower roof line of the Work Room attached to the Lighthouse, and a split rail fence along the cliff. Source: Southwest Harbor Public Library Digital Archive.[23]

[23] Bradley, Bryant. "Bass Harbor Head Light from the West." Item 5655. *Southwest Harbor Public Library*. Accessed at https://swhplibrary.net/digitalarchive/items/show/4621 on June 14, 2019.

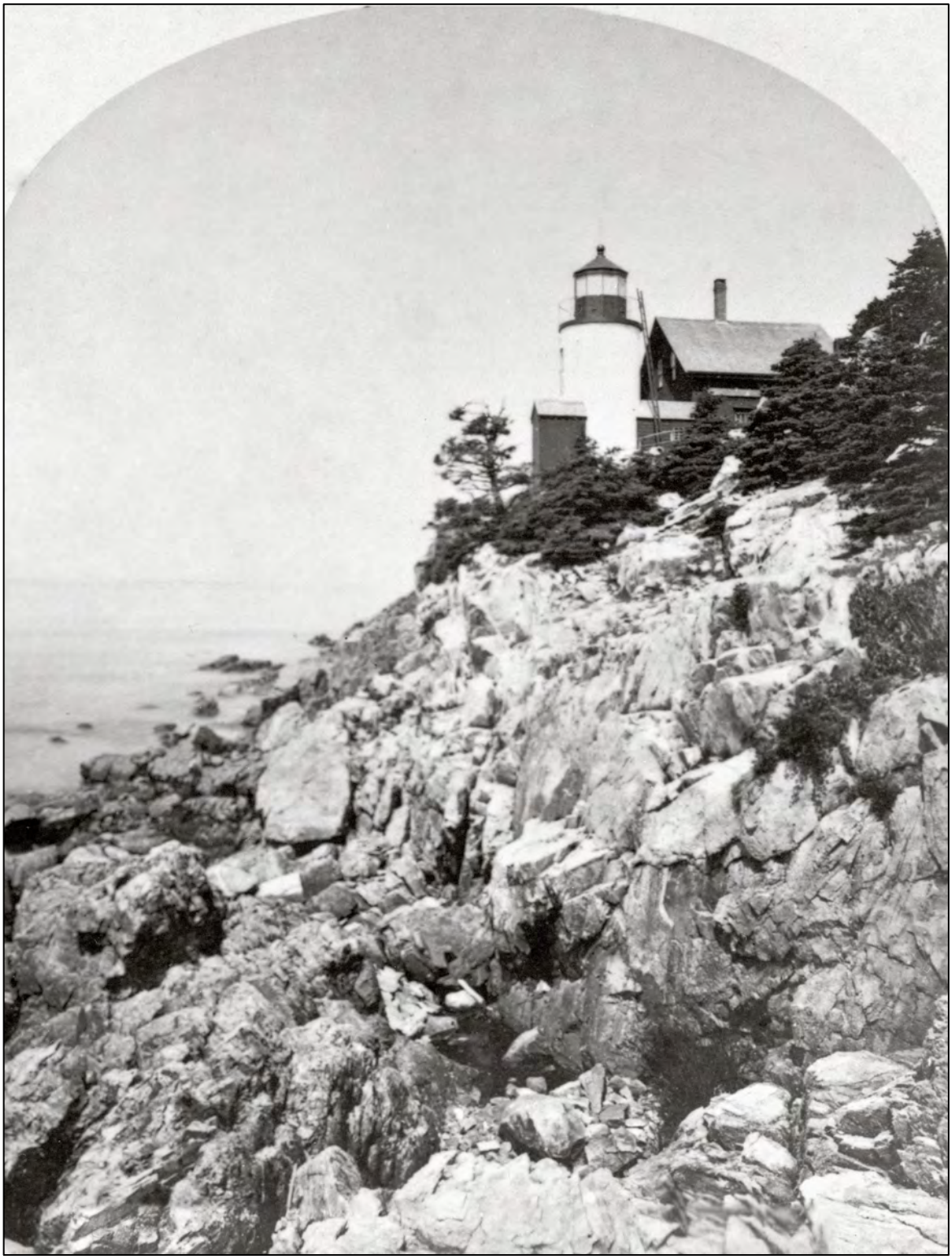


Figure 30. Bass Harbor Head Light Station, likely 1875. Note the curtains drawn in the lantern to protect the Fresnel lens inside. The Work Room is two levels. Note also the privy at the edge of the cliff (left of the Lighthouse in the photo). Source: Southwest Harbor Public Library Digital Archive.[24]

[24] "Bass Harbor Head Light." Item 13207. *Southwest Harbor Public Library.* Accessed at https://swhplibrary.net/digitalarchive/items/show/9194 on June 13, 2019.

James L. Wilson, BHHLS Keeper 1872-1880

James L. Wilson was born in May 1831 in Tremont, ME to John and Ann (Kelley) Wilson.

By 1850, father John had died, and his wife Ann lived with three children in Tremont. James L., 19, and brother John G., 21, (both keepers of Bass Harbor Head Light Station) were listed as mariners.

By 1860 James, 29, had married Lydia Thurston, 21. They lived with their baby, James's mother Ann, and other relatives, in Tremont. John had no listed occupation on the census. James's Civil War Draft Registration Card stated he was a carpenter and was trying to find a substitute for service.

In 1870, James and Lydia lived with their five children in Tremont. James's mother continued to live with them. James was a house carpenter.

James would serve as lightkeeper of Bass Harbor Head Light Station in 1872 through 1880. The census that latter year confirms this. He, 48, and Lydia, 41, lived in the keeper's dwelling with six children, aged 0-15. In August of the same year, James died and was buried in McKinley Cemetery in Tremont.[25]

The next keeper, James L. Wilson, served 1872 to 1880 and earned $540 a year.[26] (For more information on this keeper, refer to James L. Wilson sidebar.) He was the brother of former keeper John Wilson.

The *Annual Report of the Light-House Board* for the fiscal year ending June 30, 1876 stated Bass Harbor Head Light Station had general repairs to place it in good condition and a fog bell was established.[27]

The *Annual Report of the Light-House Board* two years later (1878) noted substantial changes to Bass Harbor Head. These included raising the Keeper's Dwelling ten inches, finishing the basement floor with cement, and applying clapboards to and painting the exterior. In addition, the "tower floor was raised, and the work-room and porch rebuilt" between the Dwelling and the Lighthouse.[28]

The USLHB Light List for the fiscal year ending June 30, 1879 described the Light Station: Tower of brick, whitewashed, connected with a story and a half dwelling by a wooden porch, all painted white." In addition, the 1876 fog bell was noted as being struck by hand. A similar listing was included in the 1886 Light List. The 1888 Light List noted that the Fixed Red Light Characteristic had changed to a range of 8½ miles and the fog bell was "struck by hand in answers to signals."[29]

[25] 1850, 1860, 1870, 1880, and 1900 United States Federal Censuses; Civil War Draft Registration Records, Maine, 5th Congressional District, Volume 2; Maine Death Records, Hancock, 1912. Ancestry.com
"James L. Wilson" and "Lydia Wilson (Thurston) Rich." Findagrave.com
[26] "Bass Harbor" binder located in Bass Harbor Head Light Station Keeper's House.
"Register of Officers and Agents, Civil, Military, and Naval, in the Service of the United States, on the Thirtieth of September, 1873…" Washington: Government Printing Office, 1874, p. 79; "Register…1875…," 1876, p. 209; "Register…1877…," 1878; "Official Register…1879…," 1879. Ancestry.com
[27] "Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year Ending June 30, 1876. Washington: Government Printing Office, 1877, p. 12. Accessed at https://babel.hathitrust.org/cgi/pt?id=njp.32101050591740&view=1up&seq=24 on June 5, 2019.
[28] "Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year Ending June 30, 1878. Washington: Government Printing Office, 1878, p. 11. Accessed at https://babel.hathitrust.org/cgi/pt?id=mdp.39015034794316&view=1up&seq=3 on June 5, 2019.
[29] "Bass Harbor Head (Maine)." *United States Lighthouse Society website.*

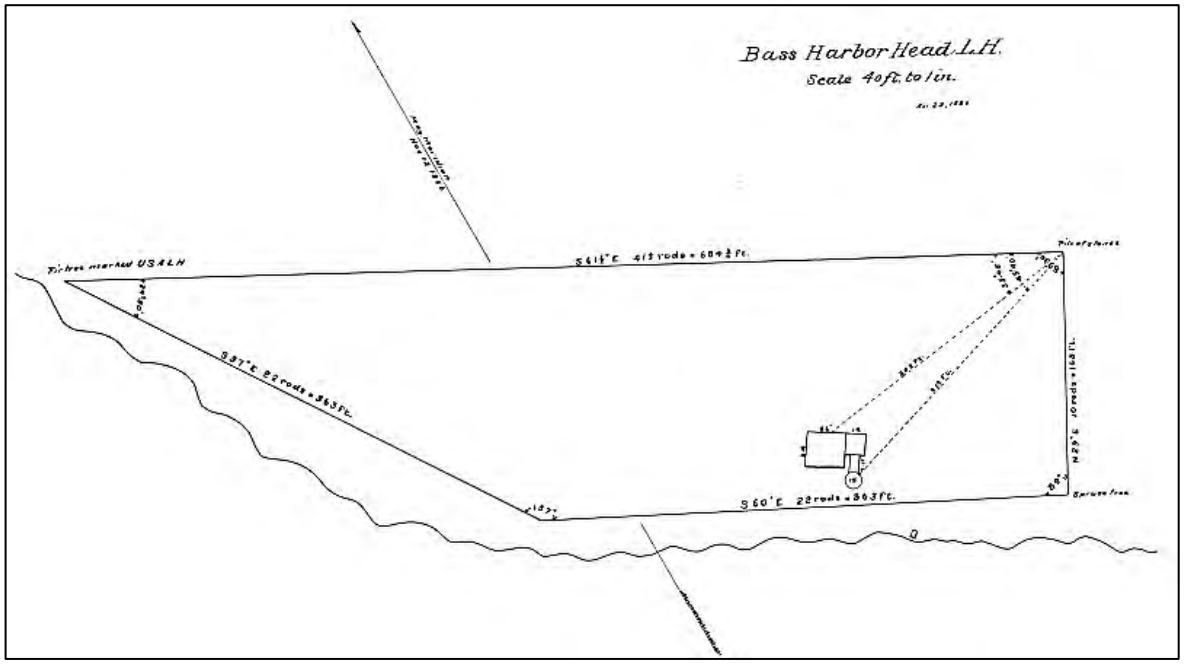


Figure 31. Reservation site plan dated April 23, 1880. The northwest corner of the site is denoted by a "Fir tree marked USALH", the northeast corner by a pile of rocks, and the southeast corner by spruce tree. Source: USCG files transferred to ACAD Cultural Resources Program Manager, Gail Gladstone; File P(No5) D7 D. An 11x17 version of this drawing can be found in Appendic C.

An 1880 site plan of the Light Station showed the quadrilateral lot and the position of the Keeper's Dwelling and attached Lighthouse on the lot (fig. 31).

A new keeper, C.F. Chase, served from 1880 to 1890 and earned $540 in 1881 and $500 in subsequent years.[31] (Refer to Charles F. Chase sidebar for more information on this keeper.)

The next keeper, William Holbrook, served 1890 to 1894 and made $500 in salary.[32] (Refer to William T. Holbrook sidebar for more information on this keeper.)

Charles F. Chase, BHHLS Keeper 1880-1890

Charles Chase was born in 1813 in East Machias, ME to Levi and Ruth (Foster) Chase.

By 1850 Charles, 37, had married Susan, 29, and they lived in East Machias in their own home. He was a sea caption. Ten years later they were in the same location and Charles was a master mariner. In 1870, Charles, 57 and still a master mariner, and Susan, 53, continued to live in the same location with Charles's dad, Levi, 83.

By 1875 Charles was the lightkeeper at Avery's Rock Light Station; the 1880 Census confirms this. That same year he would move to Bass Harbor Head Light Station and tend the light there until 1890.

Charles died in April 1892 in East Machias of senile gangrene. He is buried next to his wife Susan, who died in December 1897, at East Machias Village Cemetery.[30]

[30] 1850, 1860, 1870 and 1880 United States Federal Censuses; "Register of Officers and Agents, Civil, Military, and Naval, in the Service of the United States, on the Thirtieth of September 1875…" Washington: GPO, 1876. Ancestry.com "Captain Charles F. Chase." "Susan Chase." Findagrave.com

[31] "Official Register of the United States, containing a list of Officers and Employees in the Civil, Military, and Naval Service on the First of July, 1881…," Volume I. Legislative, Executive, Judicial. Washington: Government Printing Office, 1881; "Official Register… 1883…"; "Official Register…1885…"; "Official Register…1887…"; "Official Register…1889…." Ancestry.com

[32] "Official Register of the United States, containing a list of Officers and Employees in the Civil, Military, and Naval Service on the First of July, 1891…," Volume I. Legislative, Executive, Judicial. Washington: Government Printing Office, 1892. Ancestry.com

William T. Holbrook, BHHLS Keeper 1890-1894

William Tarlton Holbrook was born January 1844 in New Castle, NH to Elias and Almira (Coggins) Holbrook.

In 1850, William, 6, lived with his parents and several siblings, still in New Castle, NH. His father was a sailor. Ten years later, they were in the same location. Father Elias, 52, William, 16, and brother John, 17, were fishermen.

William served in the Civil War, enlisting twice. His first term was with Company C, Regiment 13, of the New Hampshire Infantry from August 1862 to January 1863 when he was discharged on doctor's orders for chills and fever. His second term was as a sailor on the Sloop of War *Vandalia* between September 1864 and August 1865.

In 1870, William was again at home with his parents, and was a mariner.

In January 1873, William (fig. 32) married Eva L. Clark (fig. 33) in Portland, ME, where they both lived. In 1880, the couple still lived in Portland, now with their daughter, 7. William was a laborer.

By 1883, William was the assistant keeper at Halfway Rock. By 1885, he was made head keeper there where he would serve through 1890. That year, he transitioned to Bass Harbor Head Light Station and would continue there through 1894. He then would transition to Burnt Island as keeper there though at least 1899. In 1900 he was a keeper in Southport, ME. Son Elias was a day laborer.

Wife Evelyn died in 1917 in South Portland, ME and was buried at Riverside Cemetery in New Castle, NH. William died ten years later in November 1927 in the same city and is buried in the same cemetery as his wife.[33]



Figure 32. William T. Holbrook. Source: Findagrave.com, user jhkell.



Figure 33. Evelyn L. Holbrook. Source: Findagrave.com, user jhkell.

[33] 1850, 1860, 1870, 1880, and 1900 United States Federal Censuses; Maine Marriage Records, Cumberland County, 1873; Veterans Schedules, Maine, Cumberland, Peaks Island, 1890. Ancestry.com
"Official Register of the United States, containing a list of Officers and Employees in the Civil, Military, and Naval Service on the First of July, 1883…," Volume I. Legislative, Executive, Judicial. Washington: Government Printing Office, 1883; "Official Register…1885…"; "Official Register…1887…"; "Official Register…1887…"; "Official Register…1889…"; "Official Register…1891…"; "Official Register…1895…." Ancestry.com
"William Tarlton Holbrook" and "Evelyn Louise Clark Holbrook." Finadagrave.com

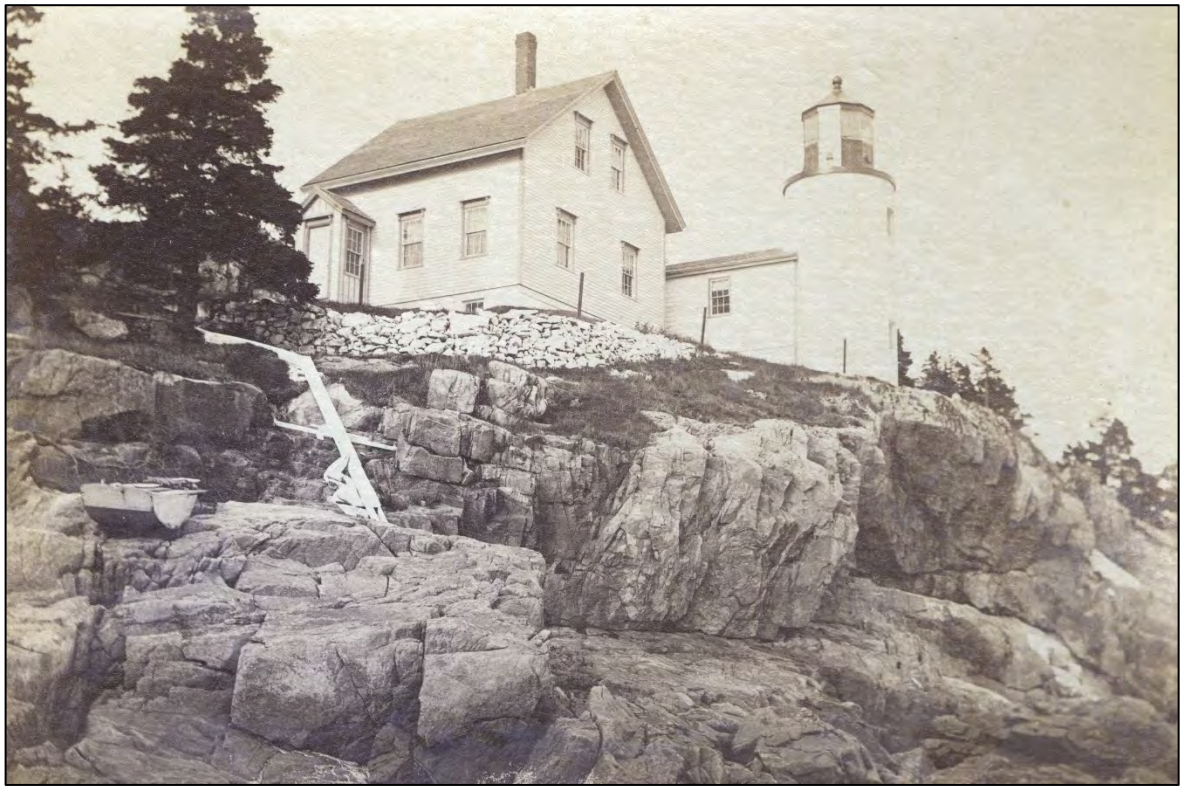


Figure 34. The Light Station prior to November 1893 (when the Boathouse was constructed). Details of Keeper's Dwelling can clearly be seen, like the 6/6 wood windows, horizontal wood clapboards, and wood shingle roofs. The front vestibule is clad with vertical board-and-batten siding. The foundation is whitewashed. Photo: NARA, 26-LG-1-27A. A larger version of this photograph can be found in Appendix B.



Figure 35. The Light Station prior to November 1893 (when the Boathouse was constructed). Note the door opening on the west elevation of the Covered Way facing the Main Block of the Keeper's Dwelling (arrow). A standalone hand-struck fog bell is located east of the lighthouse, as is a privy perched on the edge of the cliff. Photo: "Bass Harbor" binder located in Bass Harbor Head Light Station Keeper's House. Cropped by author. A larger version of this photograph can be found in Appendix B.

The *Annual Report of the Light-House Board* for the fiscal year ending June 30, 1892 stated that various repairs had been conducted at Bass Harbor Head Light Station and approximately ninety-three feet of wire fence was constructed "along the edge of the bluff from the tower to the road."[34]



Figure 36. A rare view of the east side of the Lighthouse and Keeper's Dwelling, prior to 1897, when the adjacent Bell House was constructed. Note the privy on the edge of the cliff. Photo: NARA, 26-LG-1-25. A larger version of this photograph can be found in Appendix B.

A survey of Bass Harbor Head Light Station was conducted September 1-24, 1892 by First and Second Light House District Surveyor E.P. Adams, C.E. (fig. 37).[35] The station's "boundaries were marked with stone posts or copper bolts, contours were located by plane table, and the buildings were measured for ground plans."[36] The survey map has a publish date of July 31, 1894 and includes the presence of a boat house and boat slip which are known to have been constructed in November 1893.[37] Confirmation of this is in the *Annual Report of the Light-House Board* for the fiscal year ending June 30, 1894, which stated that "a boathouse 12 by 24 feet in plan and a boat slip 100 feet in length were built" at Bass Harbor Head.[38]

The slope of the slip proved too steep for hauling boats by hand and a winch was furnished in the fiscal year ending June 30, 1895. Other minor repairs were also completed that year, according to the *Annual Report of the Light-House Board*.[39]

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[34] "Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year Ending June 30, 1892. Washington: Government Printing Office, 1892, p. 43. Accessed at https://babel.hathitrust.org/cgi/pt?id=mdp.39015073485024&view=2up&seq=1 on June 5, 2019.

[35] Adams, E.P. (L.H. Surveyor, 1st&2nd Districts). "Bass Harbor Head Light Station, ME." *Reservation Survey.* Office of the L.H. Engr., Post Office Bldg., Boston, Mass., July 31, 1894. USCG files transferred to ACAD Cultural Resources Program Manager (Gail Gladstone); File P BassHbrHd D.

[36] "Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year Ended June 30, 1893." Washington: Government Printing Office, 1893, p. 49. Accessed at https://babel.hathitrust.org/cgi/pt?id=njp.32101050591658&view=2up&seq=4 on June 5, 2019.

[37] "Bass Harbor Head." USCG Drawing P(No3) D7 D. September 1892. USCG files transferred to ACAD Cultural Resources Program Manager (Gail Gladstone).

[38] "Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year Ended June 30, 1894." Washington: Government Printing Office, 1894, p. 41. Accessed at https://babel.hathitrust.org/cgi/pt?id=njp.32101050591658&view=2up&seq=340 on June 5, 2019.

[39] "Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year Ended June 30, 1895." Washington: Government Printing Office, 1895, 9. 45. Accessed at https://babel.hathitrust.org/cgi/pt?id=hvd.hn4lnj&view=2up&seq=98 on June 5, 2019.

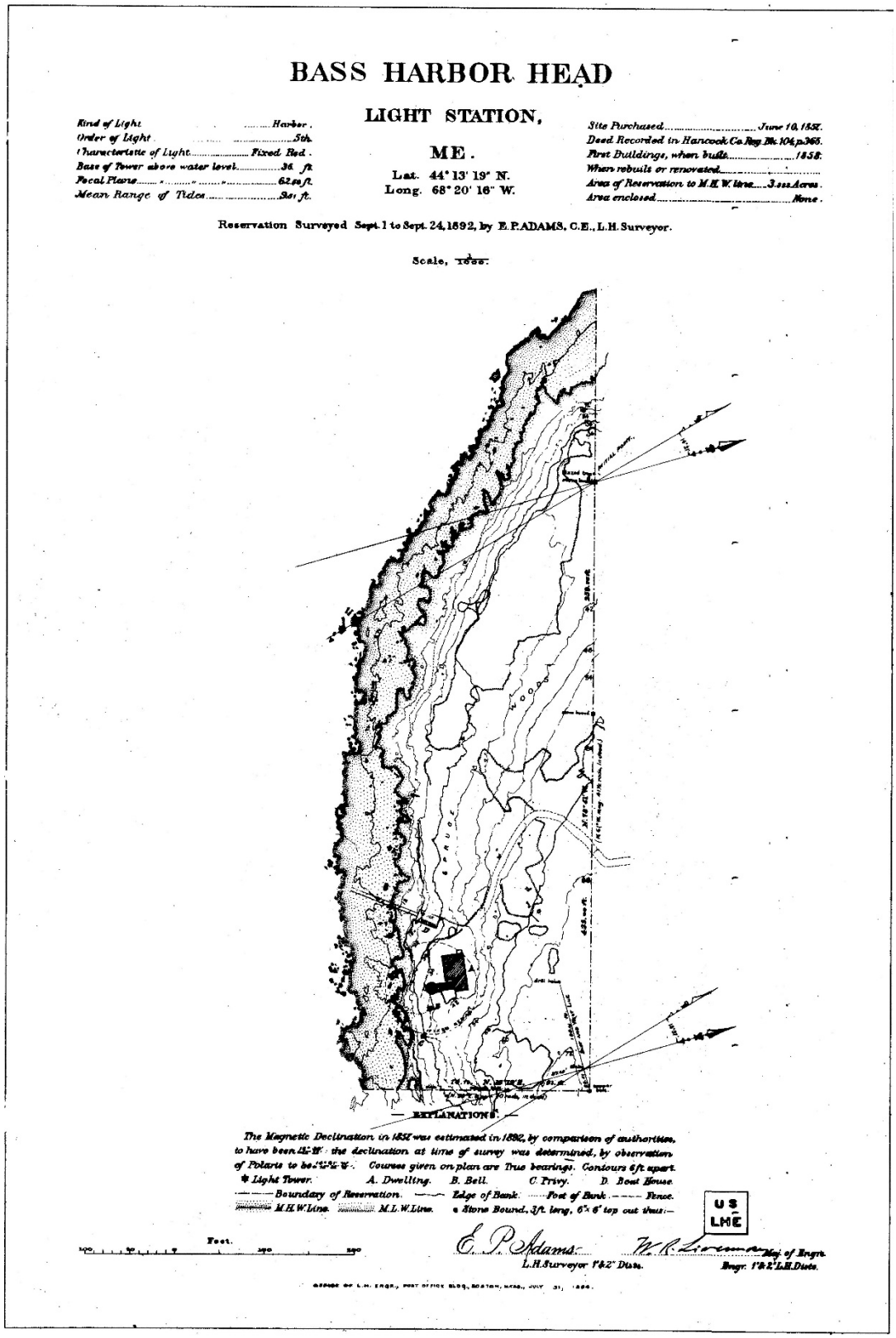


Figure 37. The Light Station was surveyed between September 1 and 24, 1892 by First and Second District Lighthouse Surveyor E.P. Adams, C.E. Source: USCG files transferred to ACAD Cultural Resources Program Manager (Gail Gladstone); File P BassHbrHd D. An 11x17 version of this drawing can be found in Appendix C.

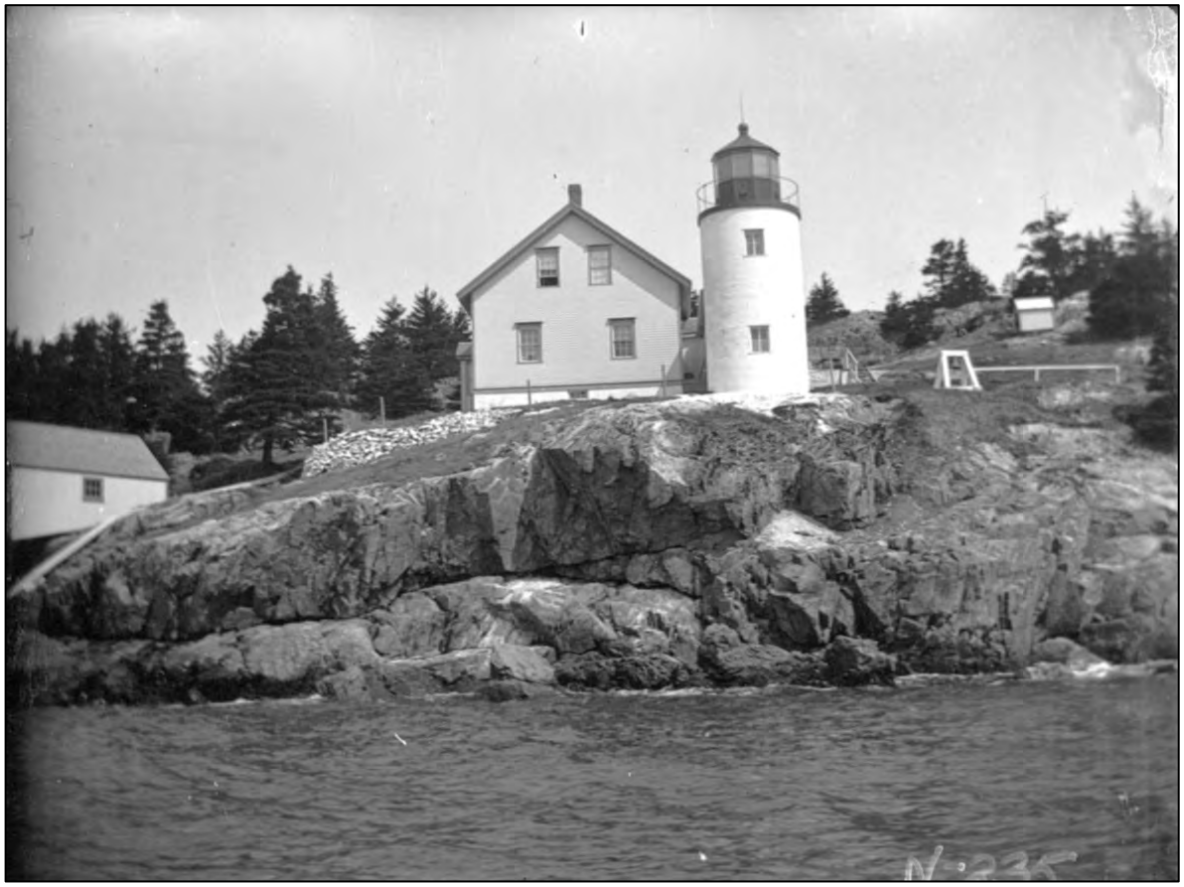


Figure 38. The Light Station sometime between November 1893 (when the Boathouse, at left, was constructed) and 1896/7 (when the Bell House was constructed—still missing from this picture). Note the wire fence along the cliff adjacent the Keeper's Dwelling, the small freestanding bell, and a small unknown building up the hill. Source: Southwest Harbor Public Library Digital Archives.[40] A larger version of this photograph can be found in Appendix B.

[40] Neal, George Arthur. "Bass Harbor Head Light." Item 6165. *Southwest Harbor Public Library.* Accessed at https://swhplibrary.net/digitalarchive/items/show/4980 on June 14, 2019.

Another keeper was appointed in 1894. Willis Dolliver would serve until 1920/1 and earned $500 a year through 1907 and $552 a year thereafter.[41] He was the longest-serving keeper at Bass Harbor Light Station (about twenty-six years). (Refer to Willis Dolliver sidebar for more information on this keeper.)

Willis Dolliver, BHHLS Keeper 1894-1920/1

Willis Dolliver was born in 1850 in Tremont, ME to John and Fannie Dolliver. In 1860, Willis lived with his parents and several siblings in Tremont. Father John was a fisherman and owned his home.

By 1880, Willis had married Clara, and they had one child, 3. Willis was a sailor in Tremont.

In 1889, Willis was the third keeper at Mount Desert Rock. In 1891, he was the second keeper at Great Duck Island. He was appointed keeper at Bass Harbor in 1894.

In 1900, Willis, 48, and his wife, 45 lived at Bass Harbor Head Light Station with their son, daughter-in-law, and grandson. Son Clifford was a fisherman.

Wife Clara died in 1906 and was buried at Mount Height Cemetery in Southwest Harbor, ME.

In 1910, Willis (now widowed) was accompanied by his son (now divorced), grandson, granddaughter, and a housekeeper at the light station. Clifford was a lobster fisherman. The same was true in 1920. Willis left the service of keeper that year or the next.

In 1930, Willis (no occupation) and son Clifford, a laborer at a fish company, lived with a housekeeper in Clifford's home in McKinley (now Bass Harbor), ME.

In 1940, Wlllis, 88, lived in Gouldsboro, ME in the home of his former housekeeper and her husband. Willis died the next year and was laid to rest next to his wife.[42]

The *Annual Report of the Light-House Board* for the fiscal year ending June 30, 1897 noted "a brick fog-signal house" was constructed and other minor repairs were made at Bass Harbor Head Light Station.[43]

Original drawings (figs. 39-40) of the Fog-Signal or Bell House show the interior floor consisting of two wooden platforms at the east and west ends and the bell mechanism occupying the south and center portion of the floor. The exterior has 6/6 double-hung windows under brick jack arches and a traditional pedimented gable-end wall. On the south elevation (water side), the two outer windows are 6/6 and the center window, while a thinner opening, is not detailed. Two brick ledges under the outer windows support 4x4 buttresses (wood?), which in turn support a 12x12 wood beam projecting from the front-facing gable-roof projection. This beam supports the large fog bell.

[41] "Official Register of the United States, containing a list of Officers and Employees in the Civil, Military, and Naval Service on the First of July, 1895…," Volume I. Legislative, Executive, Judicial. Washington: Government Printing Office, 1895. "Official Register…1897…"; "Official Register…1899…"; "Official Register…1901…"; "Official Register…1903…"; "Official Register…1905…"; "Official Register…," 1907; "Official Register…," 1909; "Official Register…," 1911; "Official Register…," 1913. Ancestry.com

[42] "Official Register of the United States, containing a list of Officers and Employees in the Civil, Military, and Naval Service on the First of July, 1889…," Volume I. Legislative, Executive, Judicial. Washington: Government Printing Office, 1889; "Official Register…1891." Ancestry.com
1860, 1880, 1900, 1910, 1920, 1930, and 1940 United States Federal Censuses. Ancestry.com
"Willis Dolliver." "Clara Dolliver." Findagrave.com

[43] "Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year Ended June 30, 1897." Washington: Government Printing Office, 1897, p. 40. Accessed at https://babel.hathitrust.org/cgi/pt?id=njp.32101050591633&view=2up&seq=50 on June 5, 2019.

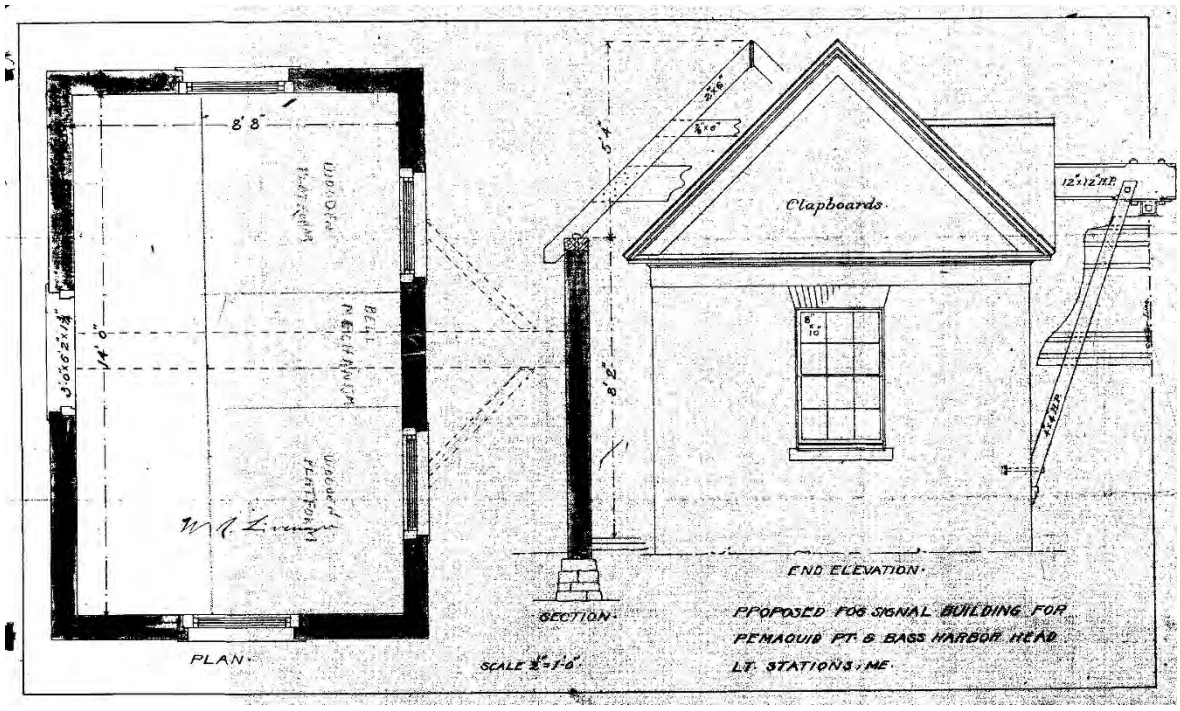


Figure 39. Plan and gable-end wall (west) elevation of the Bell House, undated. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; File P(No8)I17 D1. An 11x17 version of this drawing can be found in Appendix C.

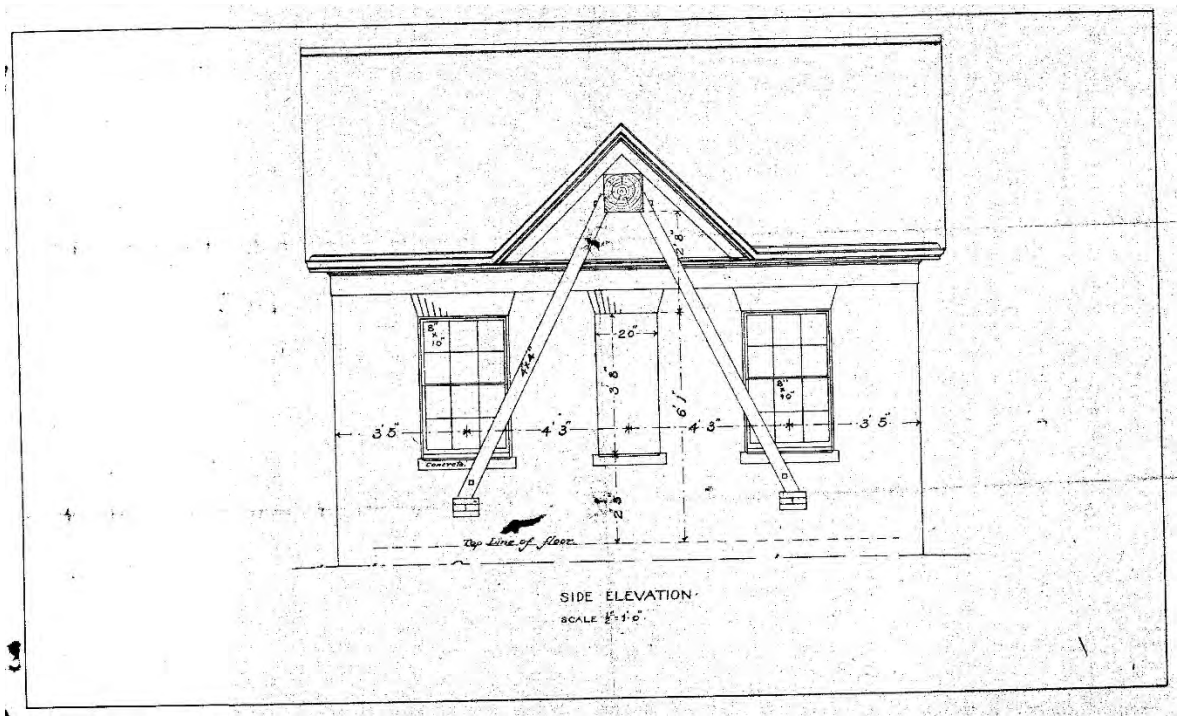


Figure 40. The water-side (south) elevation of the Bell House with details on the support structure for the bell. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; File P(No8)I17 D2. An 11x17 version of this drawing can be found in Appendix C.

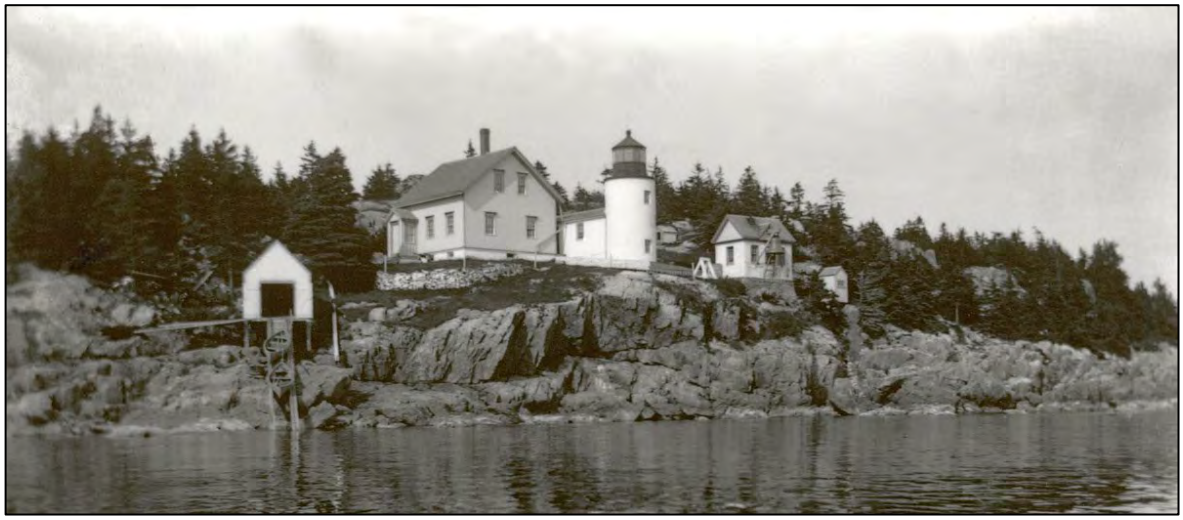


Figure 41. The Light Station sometime between October 1897 (when the large bell was hung on the Bell House) and 1900/1 (when the pyramidal tower was constructed). Source: Southwest Harbor Public Library Digital Archive.[44] Cropped by author. A larger version of this photograph can be found in Appendix B.

In late October 1897, the small hand-struck bell was replaced with a machine-struck 4,000-pound bell (fig. 41).[45]

The USLHB Light List for the fiscal year ending June 30, 1899 provided a description of the changes to the Light Station: "White tower and dwelling, connected by porch. White boathouse, 64 feet Nw. by W. ½ W., and small red brick fog-signal house, near edge of bank, 19 feet SE. 3/8 E. from tower." In addition, the fog bell was "struck by machinery every 10 sec."[46] Note: The Bell House had been painted white by this time.

The *Annual Report of the Light-House Board* for the fiscal year ending June 30, 1900 reported the kitchen ell of the Keeper's Dwelling was extended ten feet. At the lighthouse, the "entrance to the lantern, through the iron deck, was enlarged." The boat slip received extensive repairs and "some rocks were removed from its approach." Other various repairs were also made.[47]

The *Annual Report* for the next fiscal year (1900-1901) noted that a "Stevens striking machine was installed in place of the Shipman oil engines; a weight shaft and 100 feet of wire fence along the crest of the bluff were built, and 45 feet of tile drain was laid."[48]
According to the United States Lighthouse Society's article *Fog Bells*, clockwork-driven bell strikers, installed at Bass Harbor in 1900-1901, operated as follows:

[44] Neal, George Arthur. "Bass Harbor Head Light." Item 6166. Southwest Harbor Public Library. Accessed at https://swhplibrary.net/digitalarchive/items/show/4981 on June 14, 2019.
[45] "Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year Ended June 30, 1898." Washington: Government Printing Office, 1898, pp. 16, 51. Accessed at https://babel.hathitrust.org/cgi/pt?id=njp.32101050591633&view=2up&seq=356 on June 5, 2019.
[46] "Bass Harbor Head (Maine)." *United States Lighthouse Society website.*
[47] "Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year Ended June 30, 1900." Washington: Government Printing Office, 1900, p. 39. Accessed at https://babel.hathitrust.org/cgi/pt?id=mdp.39015034800642&view=2up&seq=44 on June 5, 2019.
[48] "Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year Ended June 30, 1901." Washington: Government Printing Office, 1901, p. 48. Accessed at https://babel.hathitrust.org/cgi/pt?id=mdp.39015073474929&view=2up&seq=62 on June 5, 2019.

Mechanical clockwork driven bell strikers (about the size of a pedestal sewing machine) were powered by a descending weight with their speed usually regulated by a governor. When a cam dictated, a heavy spring released a sledgehammer that struck the bell.

Sometimes the automatic striking machinery was incorporated into the tower of the lighthouse and more often in a separate bell house. However, this placed the weight and attendant wire rope in proximity to salt spray, which rapidly deteriorated the wire rope causing it to part, dropping the weights into the water. The Lighthouse Service remedied this by building a tall weight tower behind the bell house or constructing a pyramidal tower that was tall enough for a sufficient weight drop [as at Bass Harbor]. The striking machinery was located inside the bell house. Some bell houses have a panel in the wall through which the hammer passed to strike the surface of the bell located outside. In other bell houses, the striker operated a linkage to an external hammer and bell.

The weights were wound by hand. The frequency of winding depended on the characteristic of the signal established for that station; one winding a day for a characteristic of 2 blows every 15 second or every four days at a station that a one [sic] blow every 30 second signal. Some of the automatic bell strikers were good for up to 10,000 strikes of the bell on one winding.[49]

The same article provides the following information on Stevens Fog Bell Striking machines, known to have been in place at Bass Harbor Head Light Station:

George M. Stevens and Co. was a maker of tower clocks in Boston, in business from about 1864 to about 1915. Four distinct styles of Stevens bell strikers have been identified, which we will call types "A" through "D". All types were generally alike in their design. Type "A" was the first Stevens bell striker designed in 1869. It was less efficient because it extended part of its energy with a fan-blade regulator…. In the later Stevens designs a pendulum regulator was used allowing most of the energy from the falling weight to be applied directly to the bell hammer [as at Bass Harbor].

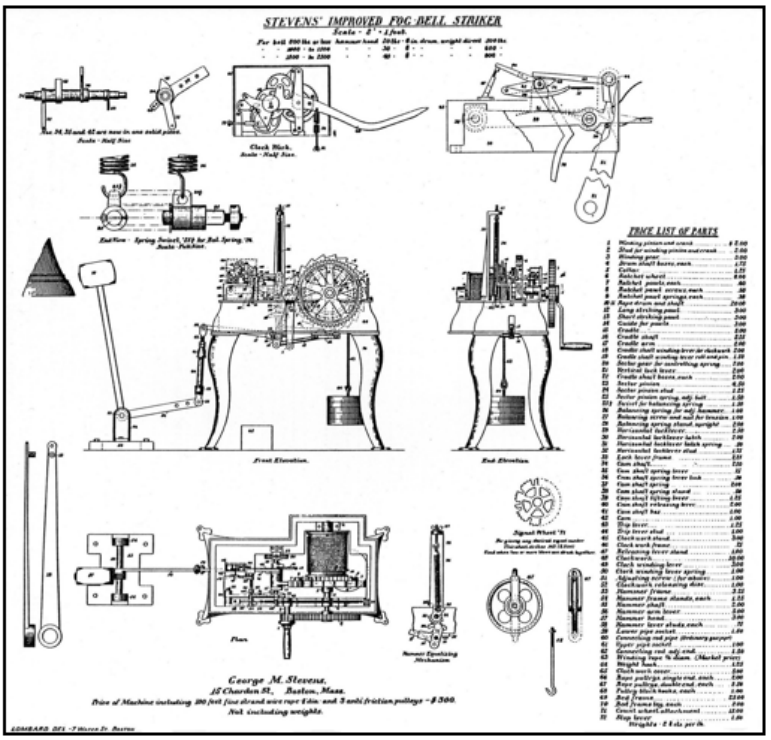


Figure 42. "Improved" Stevens Fog-Bell Striker (referred to as Type "D" by the U.S. Lighthouse Society). Drawing: United States Lighthouse Society.[50]

Steven's second and much improved design was the Type "B". … Timing of the strokes is done by a pendulum clock that is part of the machine and is powered by a small weight that is raised by each stroke of the bell hammer. The timer has a cam that is shaped to release the bell hammer on a schedule unique to that particular lighthouse. This gave the bell-fog signal the ability to have a "character" just as the lens had. …

…Type "C" [was] probably their third design. It differs from Type "B" in several ways. It has a timing clock that employs a foliot regulator rather than a pendulum. It would not be as accurate

[49] Tag, Thomas. "Fog Bells." *United States Lighthouse Society website.* Accessed at https://uslhs.org/fog-bells on June 5, 2019.
[50] Ibid.

as a pendulum. It is compact, self-starting, and sufficiently accurate for the purpose. Type "C" has its weight on a chain rather than a cable. The hammer spring is on the bell machine rather than the hammer. This places it out of the weather and more accessible for adjustment.

The bible of a lighthouse keeper was *Instructions to Light-keepers* published by the United States Lighthouse Establishment. The 1871 edition mentions…Custer and Stevens' striker machines. The 1881 edition has instruction for the Stevens' bell striker machine [only]…. By 1881, the Steven's machine had made the other[s]…obsolete.

The 1902 Edition of *Instructions to the Lightkeepers* shows Type "B" that it calls "old style" and another that it calls "improved", which we will call Type "D". We do not have a specific date when the "improved" machine was introduced. It can be assumed to have occurred around 1895 [and was likely the type installed at Bass Harbor in 1901 (fig. 42)].

Though the Type "D" differs somewhat in appearance, it has the same timer as Type "C" and the hammer-spring is on the machine. The Type "D" design appears to have a number of small simplifications in specific parts and was the final George M. Stevens Company bell striker.

By 1905, Stevens was nearly out of the fog-bell striker business having only two known sales that year and no recorded sales after that time.

In August 1901, alterations to the layout of the interior were planned. A plan of the extant first floor (fig. 43) shows entrance into a stair hall with access to a living room with closet and dining room with closet. A Kitchen Ell extends off the back with access to a pantry in the Main Block and the Covered Way to the Lighthouse. A separate entrance is located at the Covered Way. Interestingly, an Addition off the Ell is known to have been constructed in 1900 and is not depicted here, despite the later date of the drawing. A plan of the extant second floor (fig. 43) shows a stair hall with access to two bedrooms, each with a closet.

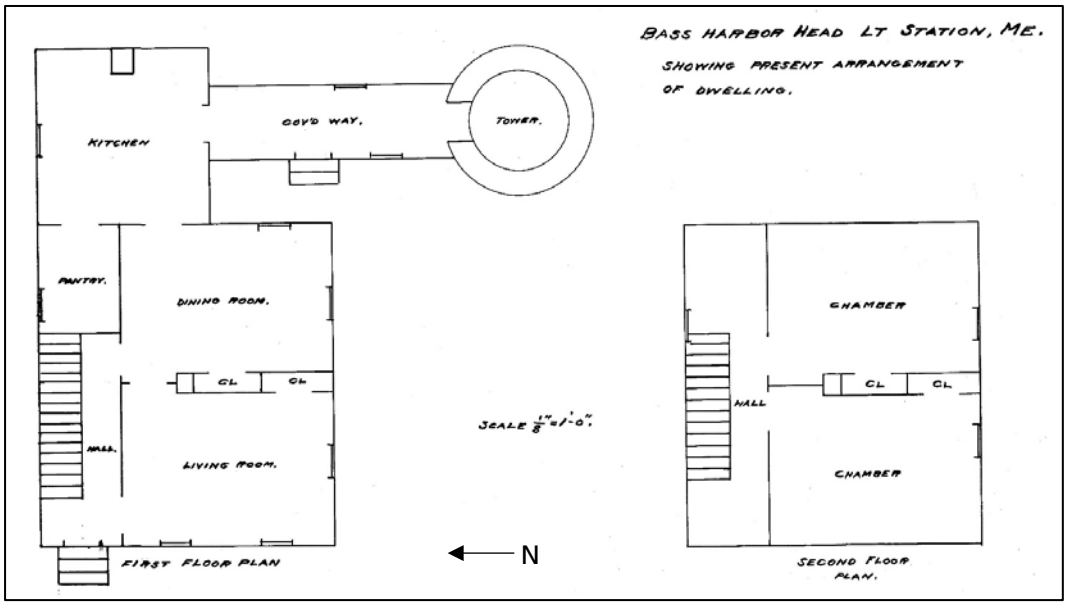


Figure 43. First- and second-floor plans of the Keeper's Dwelling. The plan is dated August 1901, but it does not show the Addition constructed in 1900 off the kitchen. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; File P(No6)D9 D. Cropped by author. An 11x17 version of this drawing can be found in Appendix C.

Accompanying proposed alterations to the first floor include rearranging the stair to be a winder stair around a new closet, accessed now from the living room, and adding an exterior door on the east elevation of the Covered Way (fig. 44). The second floor was to be altered much more than the first floor. With the new layout of the stair into a winder configuration, the east bedroom and eastern portion of the stair hall could be divided into two separate bedrooms, with a new angled hallway. In the west and southeast bedrooms, a dormer window was added along the west and east walls, respectively (fig. 45). Throughout the entire dwelling, it appears radiators were added.

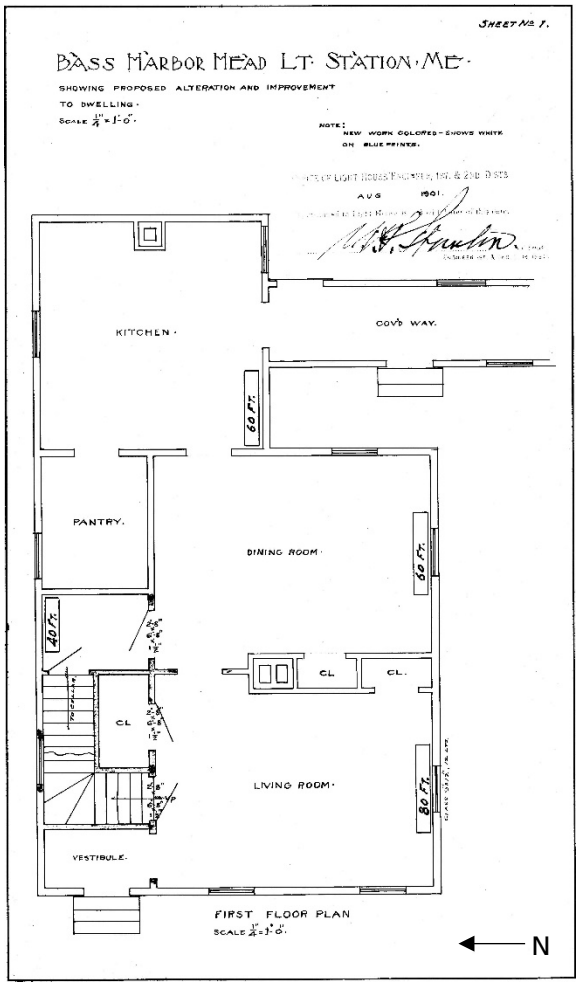


Figure 44. The proposed first-floor plan, August 1901. Major alterations occurred to the stair to the second floor. It does not show the already-in-place Addition to the rear of the kitchen. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; File P(No6)D7 D. An 11x17 version of this drawing can be found in Appendix C.

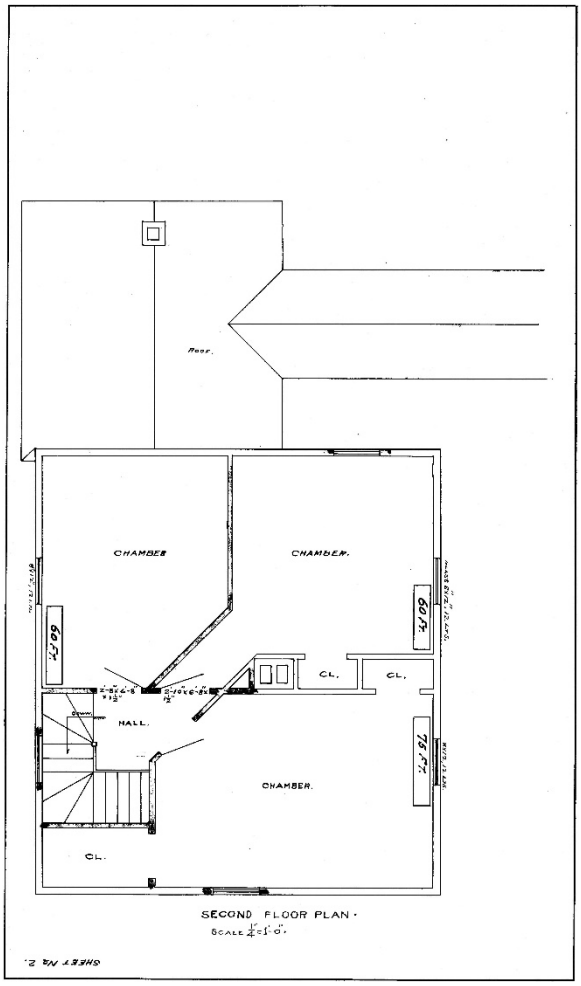


Figure 45. The proposed second-floor plan, August 1901. Major alterations occurred to the stair and reconfiguration of the bedrooms from two to three in number. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; File P(No6)D8 D. An 11x17 version of this drawing can be found in Appendix C.

It is assumed the alterations to the Keeper's Dwelling were made to accommodate larger families, like the three-generation Dolliver family living in the house at the time. It is also assumed these changes were made soon after the drawings were completed (perhaps late 1901/early 1902). The multiple changes to the Light Station, including the construction of the Bell House and pyramidal weight tower, and changes to the Keeper's Dwelling can be seen in a contemporary photograph (fig. 46).

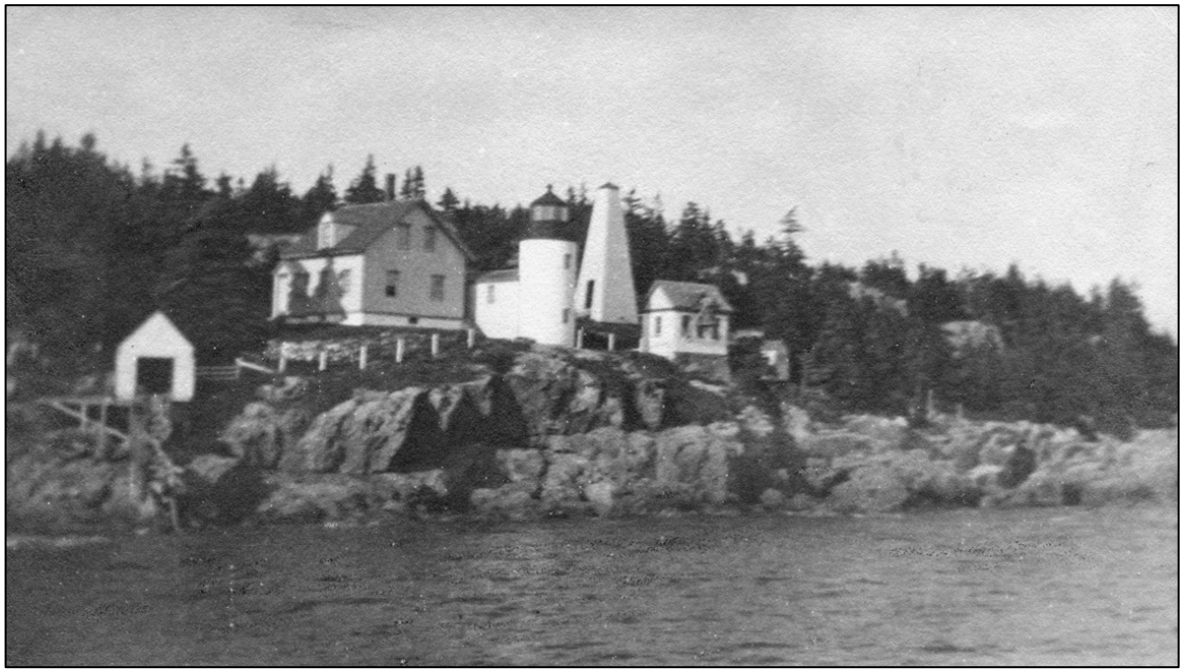


Figure 46. This ca. 1902 shows the new pyramidal tower constructed to house the weights for the bell-striking machine) and two new dormers at the Keeper's Dwelling roof suggesting interior modifications had been completed. Source: Southwest Harbor Public Library Digital Archive.[51] A larger version of this photograph can be found in Appendix B.

The *Annual Report of the Light-House Board* for the FY ending June 30, 1902 noted that in mid-November 1901 the intensity of the light was increased by changing the Fifth Order lens out for a larger Fourth Order lens. A brick Oil House was constructed and various other repairs were made.[52]

The new Oil House utilized standardized plans for the First and Second Lighthouse Districts dated 1895 (fig. 47). The drawings detail a small building measuring 10'-0" wide and 12'-0" long with 8"-thick brick walls. A single door opening was located one of the shorter sides and the interior floor was paved with bricks laid in cement mortar. The front (door) elevation shows a 12-lite/2-panel wood door under a brick jack arch. Above is a simple louvered opening under a smaller brick jack arch and a steeply-pitched roof.

The *Annual Report of the Light-House Board* for the FY ending June 30, 1905 noted that a "barn was built and various repairs were made."[53] (No drawings of this structure could be located.) The USLHB Light List from the same year noted the Fixed Red light characteristic had changed to a range of 11¼ miles and the optic was now listed as a Fourth Order lens. The accompanying Light Station description: "White tower and dwelling, connected by porch, White boathouse, 64 feet NW. by W ½ W., and small red-brick fog-signal house [sic-actually painted], near edge of bank, 19 feet SE. 3/8 E.; and red-brick oilhouse 205 feet northwesterly from tower."[54]

[51] "Bass Harbor Head Light." Item 7775. *Southwest Harbor Public Library*. Accessed at https://swhplibrary.net/digitalarchive/items/show/6515 on June 14, 2019.
[52] "Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year Ended June 30, 1902." Washington: Government Printing Office, 1902, pp. 16, 39, 49. Accessed at https://babel.hathitrust.org/cgi/pt?id=osu.32435062861570&view=2up&seq=60 on June 5, 2019.
[53] "Annual Report of the Light-House Board to the Secretary of Commerce and Labor, June 30, 1905." Washington: Government Printing Office, 1902, p. 28. Accessed at https://babel.hathitrust.org/cgi/pt?id=osu.32435062869029&view=2up&seq=6 on June 5, 2019.
[54] "Bass Harbor Head (Maine)." *United States Lighthouse Society website*.

The 1915 USLHB Light List notes the Fixed Red light characteristic had again changed to a range of nine miles.[55] Between this time and 1935 little information is known about the Light Station.

In 1921, a new lightkeeper was appointed: Joseph M. Gray. He would serve there until his retirement in 1938. (Refer to Joseph M. Gray sidebar for more information on this keeper.)

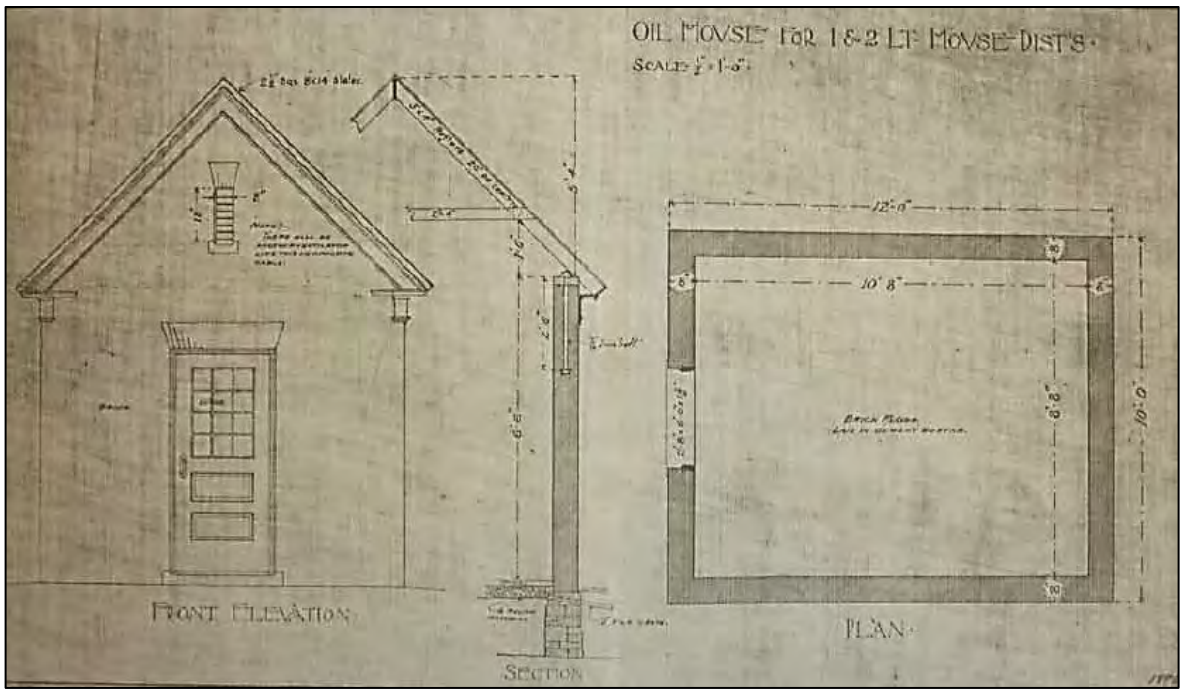


Figure 47. Detail drawings of the "Oil House for 1 & 2 Lt. House Dis'ts." dated 1895, seven years before the one at Bass Harbor was constructed. Source: Yocum, Barbara A. "Baker Island Light Station." *Historic Structure Report,* p. 41.

[55] Ibid.

Joseph M. Gray, BHHLS Keeper 1921-1938

Joseph M. Gray was born in 1866 in Brooksville, ME to Jesse and Betsy (Howard) Gray. In 1880, he lived with his parents and several siblings in his birth town; his father was a farmer.

In 1898, Joseph, a fisherman in Tremont, ME, married Phebe F. Wilson, a teacher in Tremont. Phebe's father James L. Wilson was a former lightkeeper at Bass Harbor Head Light Station (1872-1880).

In 1898, Joseph was first appointed to the Lighthouse Service as assistant keeper at Crabtree Ledge. Two years later, he was transferred to Mount Desert Light Station as assistant keeper. (In 1900, Joseph, Phebe, their young daughter, and Phebe's sister and mother, lived there). A year later (1901), he was transferred to Great Duck Island Light as an assistant keeper. After three years there, he was made head keeper (fig. 48). He remained there for eighteen years total (until about 1919).

By 1920, he was transferred to Marshall Point, near Saint George, ME. In 1921, he became the keeper at Bass Harbor Head Light Station.

Phebe died in 1926 and was buried at Mount Height Cemetery in Southwest Harbor, ME. Joseph continued as keeper at Bass Harbor through his retirement in 1938, and lived with a housekeeper. In 1944, Joseph died and is buried next to his wife.[56]

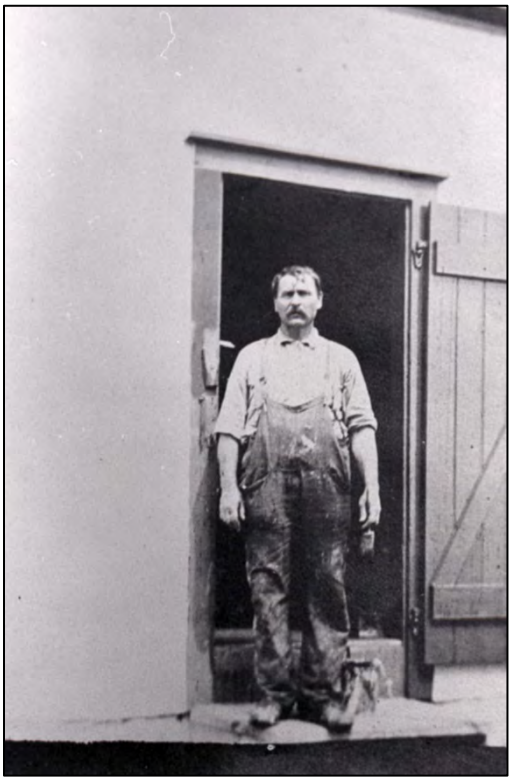


Figure 48. Joseph Gray at Great Duck Island Lighthouse, ca. 1915. He was keeper at Bass Harbor 1921-1938. Source: Southwest Harbor Public Library Digital Archives.[57] A larger version of this photograph can be found in Appendix B.

[56] "Official Register of the United States, Containing a List of the Officers and Employees in the Civil, Military, and Naval Service…, July 1, 1899." Volume I. Legislative, Executive and Judicial. Washington: Government Printing Office, 1899.
"Official Register…1901"; "Official Register…1903"; "Official Register…1905." Ancestry.com
1880, 1900, 1910, 1920, 1930, and 1940 United States Federal Censuses; Maine Marriage Records, Hancock Country, 1898. Ancestry.com
"Joseph M. Gray" and Phoebe F. Wilson Gray." Findagrave.com
Lighthouse Digest. "Capt. Joseph M. Gray, Memories of a Maine Lighthouse Keeper." May 2005. Accessed at www.lhdigest.com/Digest/StoryPage.cfm?StoryKey=2220 on June 13, 2019.

[57] "Great Duck Island Lighthouse Keeper Joseph M. Gray." Item 6652. *Southwest Harbor Public Library.* Accessed at https://swhplibrary.net/digitalarchive/items/show/6316 on June 13, 2019.



Figure 49. Bass Harbor Head Light Station from the water in 1925. At this time, the Light Station has all of its historic core buildings, including (L to R): the 1894 Boat House and 1895 Boat Slip, the 1858 Keeper's Dwelling and Lighthouse with Covered Way between, the 1897 Bell House with 1898 Bell (note the angled support braces have been removed by this time), the 1901 Weight Tower, and the early Privy. Photo: NARA, 26-LG-1-28A. Cropped by author. A larger version of this photograph can be found in Appendix B.

A *Description of Bass Harbor Head Light Station* was completed on May 1, 1935 by Thomas Sampson, Assistant Superintendent for the Department of Commerce, Lighthouse Service. The following provides an overview of the facilities:

- Lighthouse: The focal point of the lantern was 56 feet above mean high water. The forest background allowed the whitewashed tower to standout. The Lighthouse was connected to the Keeper's Dwelling via a Covered Way. The Fourth Order lens was polygonal with ten sides and vertical bars. The cast iron lantern had a cast iron roof in ten sections, was bolted on the inside, and lined with zinc. A cast iron ventilator ball was located atop the lantern roof with a wrought iron and copper lightning-conductor spindle. The outside gallery had a single rail supported by eight posts. The single lantern door was fitted with brass hinges. The lantern floor was cast iron. A wooden door was fit into the lantern deck to separate the lantern from the tower below. Ventilators were located in the parapet walls. No ladders were attached to the exterior of the lantern for cleaning the exterior of the lantern glass. Spring roller curtains were attached to the interior of the lantern glass. The Fourth Order illuminating apparatus, with an interior diameter of 19¼", was made by Henry-Lepaute of 11 Rue Deanouettes, Paris. The four lenses were fixed in a 90° arc. Each panel of the central drum had five elements, each panel above the central drum had six prisms, and each panel below the central drum had three prisms. The illuminating apparatus was set on a pedestal with four posts supporting a circular top and base and center table. A red chimney was located around the illuminating apparatus. Two spare lamps and lamp burners were located at the station. The closet in the covered way was used to store lamp materials.
- Oil House: The red brick building had interior dimensions of 8'-8" x 10'-8" and was located 205'-0" northwest of the tower. It was fitted with a pair of 139-gallon kerosene tanks.
- Bell House: The fog signal, located via a plank walk 19'-0" southeast of the tower, was a bell struck by machinery, one blow every ten seconds. Spare parts for the fog-signal machinery were available from the Lighthouse Storehouse in South Portland, ME. The fog signal was located on the harbor side (south) of the whitewashed brick Bell House. The bronze bell weighed 4,017 pounds and measured 5'-0" in diameter and 4'-0" tall. The bell was made by G. M. Stevens of Boston, MA. Adjacent (north) was a pyramidal wooden weight tower, painted white and fitted with lead trimmings. With one winding, the clockwork ran for five hours.

- Keeper's Dwelling: The wood house was connected to the tower via a porch and was painted white with lead trimmings. The single keeper and his family used six rooms and one outhouse, which was also painted white with lead trimmings. An ample supply and good quality water was collected from rain on the dwelling roof. The 1,800-gallon brick cistern, located in the basement of the house, was frequently cleaned to ensure purity.
- Boathouse & Boatslip: Located 55'-0" west of the lighthouse. A handwinch was used for raising boats along the slip to the boathouse.[58]

Upon Keeper Joseph Gray's retirement in 1938, Elmer Reed was assigned to Bass Harbor Light Station; he would remain there until 1940. (Refer to Elmer Reed sidebar for more information on this keeper.)

Leverett S. Stanley was assigned to the light station in 1940 and would remain there until 1950. (Refer to Leverett S. Stanley sidebar for more information on this keeper.) During Leverett's tenure, an article was written entitled "Steam-Operated Striker Bashed in Bell at Bass Harbor Light." Apparently, "The weight cable…parted recently and dropped the 1,800 pound load with a tremendous crash but did no great damage."[59]

Elmer Reed, BHHLS Keeper 1938-1940

Elmer Staples Reed was born in 1872 in Tremont, ME to George, a sea captain, and Eunice (Dix) Reed. In 1898 Elmer married Inez D. Genn in Bangor, ME. Elmer was a coachman.

In 1900, Elmer and Inez lost their first son to cholera in Southwest Harbor, where Elmer was a boatman. Another son was born the next year in Bangor, ME. At that time, Elmer was second assistant lightkeeper at Great Duck Island Light Station. In 1903 and 1905, he was first assistant keeper at Whitehead Light. In 1910, the family of three lived in St. George, ME, where Elmer was a lightkeeper (likely still at Whitehead). In 1920, 1930, and 1935 the family was in Camden, ME, where Elmer was a keeper (likely at Curtis Island Lighthouse).

In 1938, Elmer was transferred to Bass Harbor Head Light Station. The 1940 census notes Elmer and Inez still there, where Elmer made $1,440 a year. However, Inez died that year and was buried at Mount Hope Cemetery in Bangor. Elmer left Bass Harbor Head Light Station after her death. Elmer was laid to rest next to his wife in 1945.[60]



Figure 50, right. Elmer Reed, ca. 1938, in his USLHB uniform. Source: Southwest Harbor Public Library Digital Archive.[61] A larger version of this photograph can be found in Appendix B.

[58] Sampson, Thomas (Assistant Superintendent). *Description of Bass Harbor Light Station.* Form 60. Corrected to May 1, 1935. Accessed at https://uslhs.org/inventory/light_station_report.php?id=62 on June 17, 2019.
[59] Ballard, W.H. "Steam-Operated Striker Bashed in Bell at Bass Harbor Light." Source unknown. Found framed on wall of the Keeper's Dwelling.
[60] "Official Register of the United States, Containing a List of the Officers and Employees in the Civil, Military, and Naval Service…, July 1, 1901." Volume I. Legislative, Executive and Judicial. Washington: Government Printing Office, 1901. Ancestry.com
Maine Marriage Records, Penobscot County, 1898; Maine Death Records, Washington County, 1900; Maine Birth Records, Penobscot County, 1901; 1910, 1920, 1930, and 1940 United States Federal Censuses. Ancestry.com
"Captain Elmer Reed" and "Inez D. Genn". Findagrave.com
[61] "Lighthouse Keeper Elmer Staples Reed." Item 6649. Southwest Harbor Public Library. Accessed at https://swhplibrary.net/digitalarchive/items/show/6315 June 14, 2019.



Figure 51. Bass Harbor Head Light Station from the southeast, 1940. Note the lantern is fitted with interior roller shades to protect the Fresnel lens. Source: Southwest Harbor Public Library Digital Archive. Cropped by author.[62] A larger version of this photograph can be found in Appendix B.

Leverett S. Stanley, BHHLS Keeper 1940-1950

Leverett Sherman Stanley was born in August 1894 in Manset, ME to Lyman and Vera (Rich) Stanley. In 1900, Leverett and his parents lived in Tremont where Lyman was a fisherman. Ten years later, they lived in Southwest Harbor. By 1920, mother Vera had died, and Lyman, still a fisherman, and Leverett, third mate on the SS *Conchs*, still resided in Southwest Harbor.

Leverett married Albra Marion Staples in October 1920 in Rockland, ME. Birth records of two children show the family on Swan's Island in 1921 and 1922, where Leverett was a fisherman.

By 1930, Leverett was a lightkeeper on Long Island, where he lived with his wife and four children. In 1940, he was a lightkeeper on Great Duck Island Lighthouse where he made $1,440 a year. He served at Bass Harbor Head Light Station from 1940 to 1950.

Albra died in 1965 in Bangor and is buried at Mount Height Cemetery in Southwest Harbor. Leverett died in 1968 in Bar Harbor and is buried next to his wife.[63]

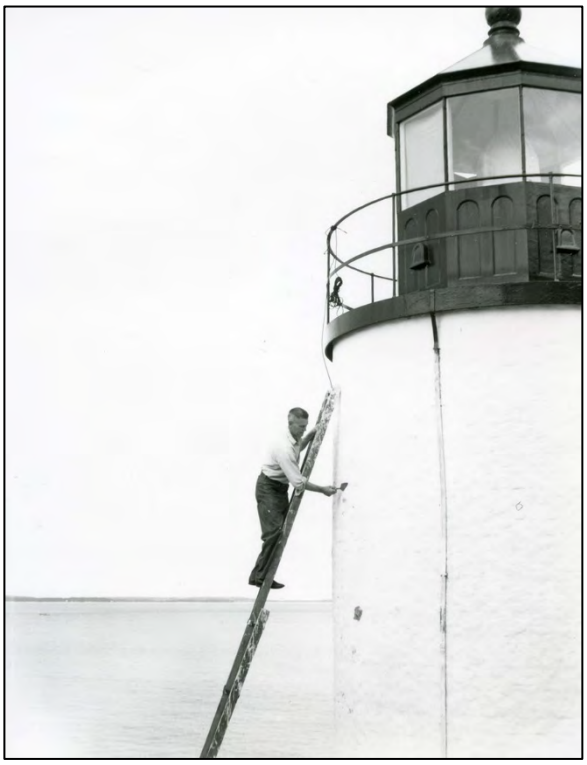


Figure 52, right. Leverett Stanley painting Bass Harbor Head Lighthouse, 1949. Source: Southwest Harbor Public Library Digital Archive.[64] A larger version of this photograph can be found in Appendix B.

[62] Ballard, Willis Humphreys. "Bass Harbor Head Light." Item 7815. Southwest Harbor Public Library. Accessed at https://swhplibrary.net/digitalarchive/items/show/4378 on June 14, 2019.
[63] "Official Register of the United States, Containing a List of the Officers and Employees in the Civil, Military, and Naval Service…, July 1, 1903." Volume I. Legislative, Executive and Judicial. Washington: Government Printing Office, 1903.
"Official Register…1905." Ancestry.com
1900, 1910, 1920, 1930, and 1940 United States Federal Censuses; 1921 and 1922 Main Birth Records, Hancock County. Ancestry.com
"Leverett Sherman Stanley" and "Albra Marion Staples Stanley." Findagrave.com
[64] Ballard, Willis Humphreys. "Keeper Leverett Sherman Stanley Painting the Tower at Bass Harbor Head Light." Item 7856. *Southwest Harbor Public Library*. Accessed at https://swhplibrary.net/digitalarchive/items/show/4403 on June 14, 2019.

A Work Order was prepared in July 1947 and included removing the cantilevered beam supporting the fog bell on the Bell House and replacing it "with a 12" I beam, section GB 124, 12" x 12" at 65 lbs." with stiffening gussets added between the flanges where the bell bolts penetrate, and painted with red lead primer for the Keeper to finish with black color coat later. Additionally, the walkways needed to be repaired; lumber was to be delivered for the Keeper to complete.[65] In December of the same year, repairs to the way the striker hit the rehung bell were required.[66]

The boathouse and launchway were still present in February 1948, when a survey was required of both.[67] They remained standing in a photograph dated July of that year (fig. 52) and were mentioned in daily log books in December of that year.[68] The structures were removed by 1951 (see fig. 62).



Figure 52. The Light Station from the southwest on July 7, 1948, showing a clear view of the Boathouse, front elevation of the Keeper's Dwelling and Lighthouse, and Bell House with new beam supporting the bell and pyramydial weight tower in the background. Note the darker paint color of the exterior trim to the lighter bodies of the buildings. Source: Southwest Harbor Public Library Digital Archive.[69] A larger version of this photograph can be found in Appendix B.

[65] District Coast Guard Officer, First Coast Guard District, Boston 9, Mass. "Bass Harbor Head L/S, Repair walkways and renew." *Work Order and Completion Report to District Working Party.* July 8, 1947. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Station (1 July 1947-1 May 1952).
[66] Commander, 1st Coast Guard District, Boston 9, Mass. "Bass Harbor Head Light Station, Bell Striker Repaired." *Work Order and Completion Report OC CG Depot, South Portland, Me.* December 1, 1947. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Station (1 July 1947-1 May 1952).
[67] Commander, First Coast Guard District. "Bass Harbor Head Light Station, Main; survey of boathouse and launchway at." *To Lieutenant Commander Jospeh A. Ciocolella, U.S. Coast Guard.* February 17, 1948. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Station (1 July 1947-1 May 1952).
[68] National Archives and Records Administration, Washington, DC. Series: Coast Guard, Record Group 26, Entry 66, Box 63.
[69] Ballard, Willis Humphreys. "Bass Harbor Head Light." Item 12180. *Southwest Harbor Public Library*. Accessed at https://swhplibrary.net/digitalarchive/items/show/4584 on June 14, 2019.

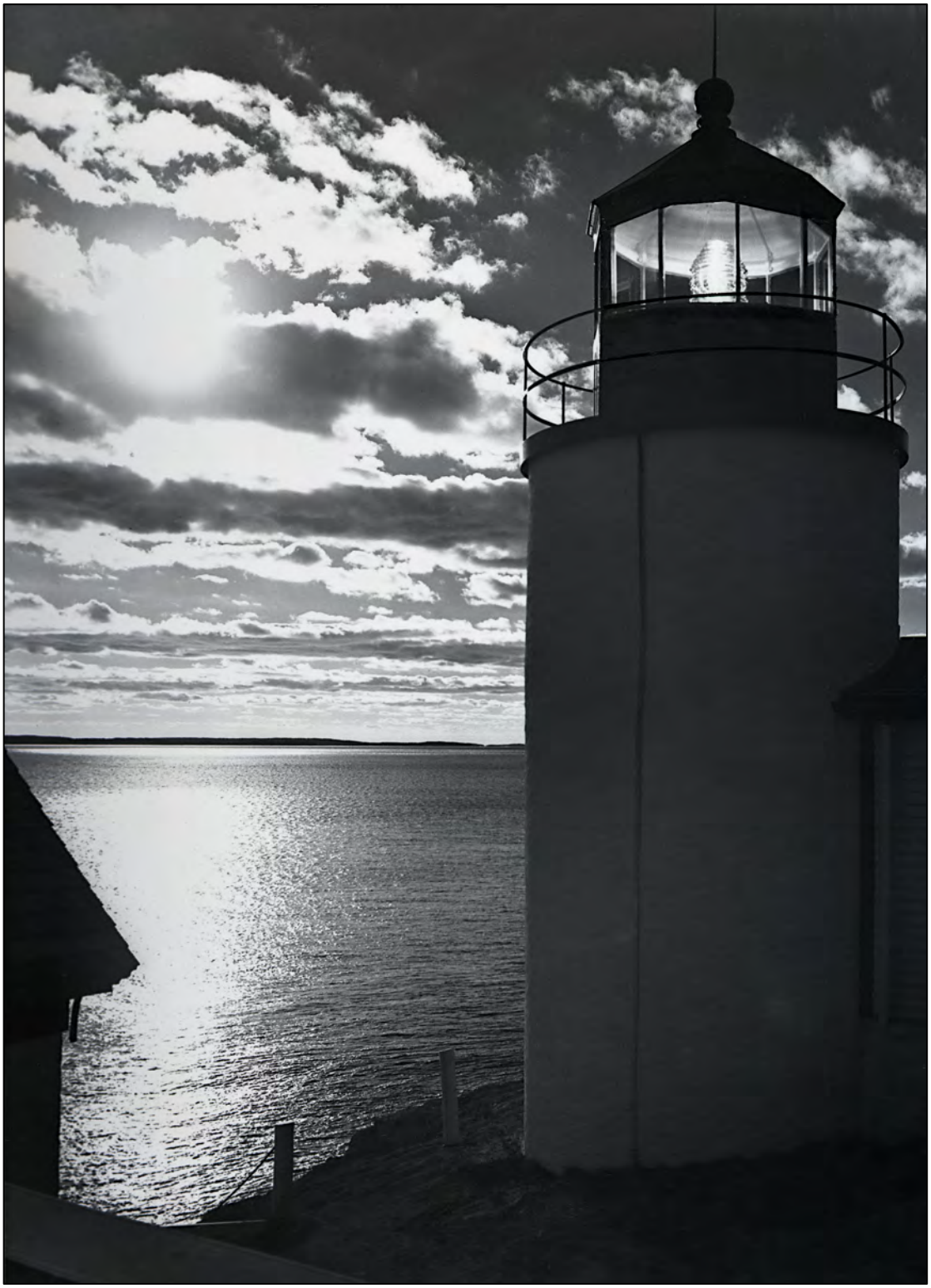


Figure 53. The Lighthouse from the north overlooking the water showcasing the beauty of the Fresnel lens within the lantern, October 19, 1948. Source: Southwest Harbor Public Library Digital Archive.[70] A larger version of this photograph can be found in Appendix B.

[70] Ballard, Willis Humphreys. "Bass Harbor Head Light - In the Moonlight." Item 12181. *Southwest Harbor Public Library.* Accessed at https://swhplibrary.net/digitalarchive/items/show/4585 on June 14, 2019.

On the last day of the year 1948, the First Coast Guard District Commander requested the authority to electrify the Bass Harbor Head Light Station, "as commercial electric power has recently been extended to this site for supplying the new Navy Radio Transmitting Station now under construction."

> In this [illegible], the Navy has advised that a [illegible] standby generator will be installed to provide for commercial power failure. The Navy has supplied sufficient 3 conductor #6 primary cable for installation to the lighthouse dwelling.
>
> This project will include the electrification of the main light, domestic lighting of the dwelling, garage and fog signal house and the installation of a Type A Electric Fog Bell Striker.
>
> The present illuminating apparatus consists of a fixed 4th order 360°, 4 panel lens giving a red light. . . . The present light source is furnished by an Aladdin lamp and a red shade.
>
> I propose (1) to install in the present lens a 100 watt, 115 volt 1F, C-5 filament, F-25, medium screw base lamp to produce a light to be listed at 900 c.p. red; (2) install in front of the present light tower on a new concrete foundation a Type A Electric motor driven Fog Bell Striker. The present Aladdin lamp and mechanical bell striker will be retained as standby equipment.
>
> I further propose to install the necessary wiring, outlets, and fixtures for domestic lighting of the dwelling garage and fog signal house.
>
> The type A electric motor driven bell striker, 1000 pound bell and bell stand is now in Aids to Navigation stock at South Portland. The characteristic of the fog signal will be retained.
>
> The above action is in accordance with Headquarters policy to modernize light station equipment when commercial power has been made available. Since this is an improvement to an aid to navigation, funds to cover this project are requested.[71]

The year 1949 saw the beginning of the complete modernization of the Bass Harbor Head Light Station, to include electricity and indoor plumbing. Until that point there was no holistic indoor plumbing or electrical light system. Due to the massive changes which occurred from 1949 through 1959, the proposed end date for the Period of Significance is 1948.

Light Station Modernized

Drawings dated March 1949 show details of the proposed electrical upgrades to the reservation (fig. 55).[72] The plot shows an existing telephone line and an existing Navy Transmit Station with generator and transformer rooms connected to the dwelling through an existing cable. It is not known how thoroughly wired the Keeper's Dwelling was until this point, as plans included on the drawing show the implementation of wall outlets and switches and overhead lights throughout the basement, first floor, and second floor. Power was also run to the Garage up the hill from the Keeper's Dwelling and Lighthouse. In addition, a new electrical bell striker is detailed to be installed to the southwest of the Lighthouse, which likely made the Bell House and associated Weight Tower obsolete.

[71] Sexton, F.J. (Commander, 1CGRD). "Bass Harbor Head Light Station, Mount Desert Island, Maine." December 31, 1948. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Station (1 July 1947-1 May 1952).
[72] U.S. Coast Guard, First District, Boston, Mass., Civil Engineering. "Bass Harbor Head Lt. Sta., Bass Harbor, Maine. Electrification of Station." USCG Drawing 4355. March 14, 1949. USCG files transferred to ACAD Cultural Resources Program Manager (Gail Gladstone).

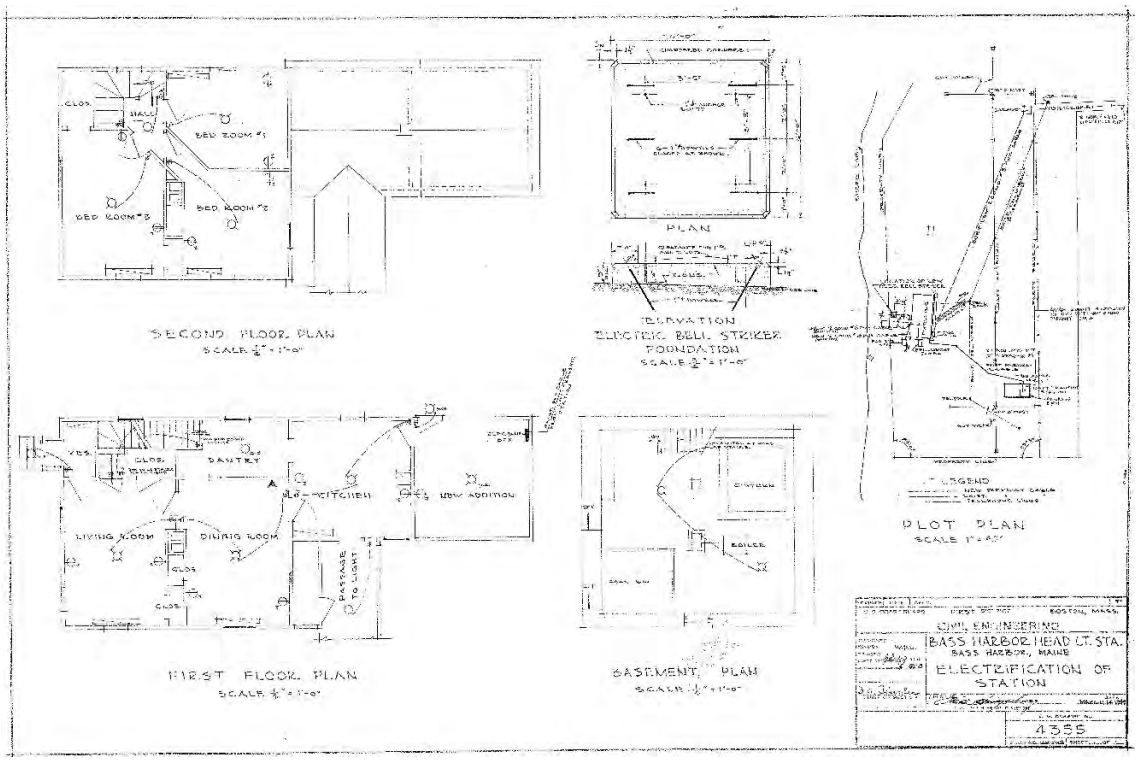


Figure 55. "Electrification of Station" dated March 1949 details site power generation and transmission, upgrades to the Keeper's Dwelling, and the installation of a electrified bell striker in front of the Lighthouse. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG File P4355. An 11x17 version of this drawing can be found in Appendix C.

A July 25, 1949 Notice to Mariners stated, "On 25 July, 1949, BASS HARBOR HEAD LIGHT was electrified and the intensity increased to 900 candlepower."[73] It was visible for thirteen miles. Additionally, "fog signal, consisting of a bell with one stroke every 10 seconds, is sounded during periods of low visibility. Resident personnel are in attendance."[74]

A holistic indoor plumbing system was first proposed in December 1949. Sheet 1 of a drawing set from that date shows a proposed well just north of the Keeper's Dwelling and a cess pool just south (fig. 57). The second sheet of the drawing set appears to propose a location for a new bathroom, i.e. the closet between the dining room and the Covered Way to the Lighthouse (fig. 58).

Several interesting things are found on Sheet 2: the doorway to the closet between the dining room and Covered Way enters into the dining room, not the Covered Way as it is now; the Addition is noted to have unfinished walls and ceiling; and the kitchen includes a Queen Atlantic 408 stove (fig. 56).[75]

[73] Treasury Department, United States Coast Guard, Commander, First Coast Guard District. *Notice to Mariners.* Notice No. 41. July 25, 1949. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Station (1 July 1947-1 May 1952).
[74] Shields, W.D. (Captain, U.S. Coast Guard, Chief, Operations Division, by direction of District Commander). *Letter to Brown & Bigelow.* March 18, 1960. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.
[75] First C.G. District. "Bass Harbor Hd. L.S., Bass Harbor, ME, Keeper's Dwelling." 2 Sheets. December 1949. USCG Drawing 4459 D1/D2. Source: USCG files transferred to ACAD Cultural Resources Program Manager (Gal Gladstone).



Figure 56. A 408 Queen Atantic stove by Portland Stove Foundry Co. A similar stove was located in the keeper's dwelling. Photo: Pinterest.com, user Barbara Bashaw.

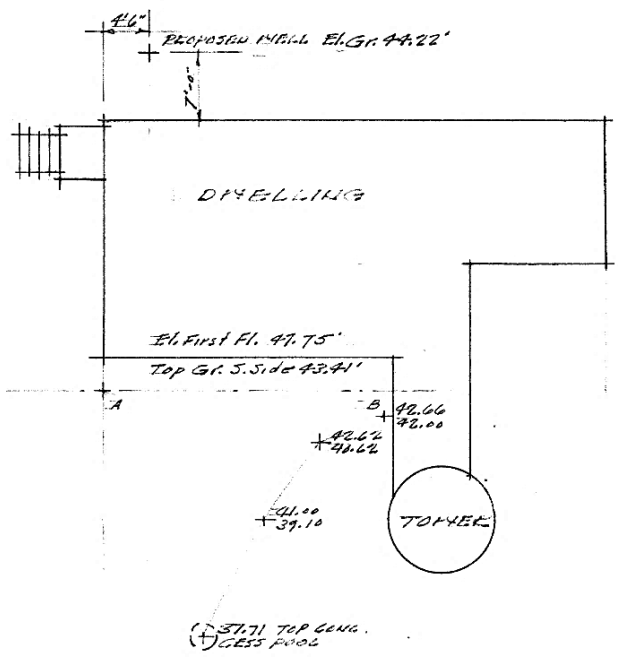


Figure 57. December 1949 site plan with location of a proposed well head to the north of the Keeper's Dwelling and cess pool to the south of the Dwelling. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG File P4459. Cropped by author. An 11x17 version of this drawing can be found in Appendix C.

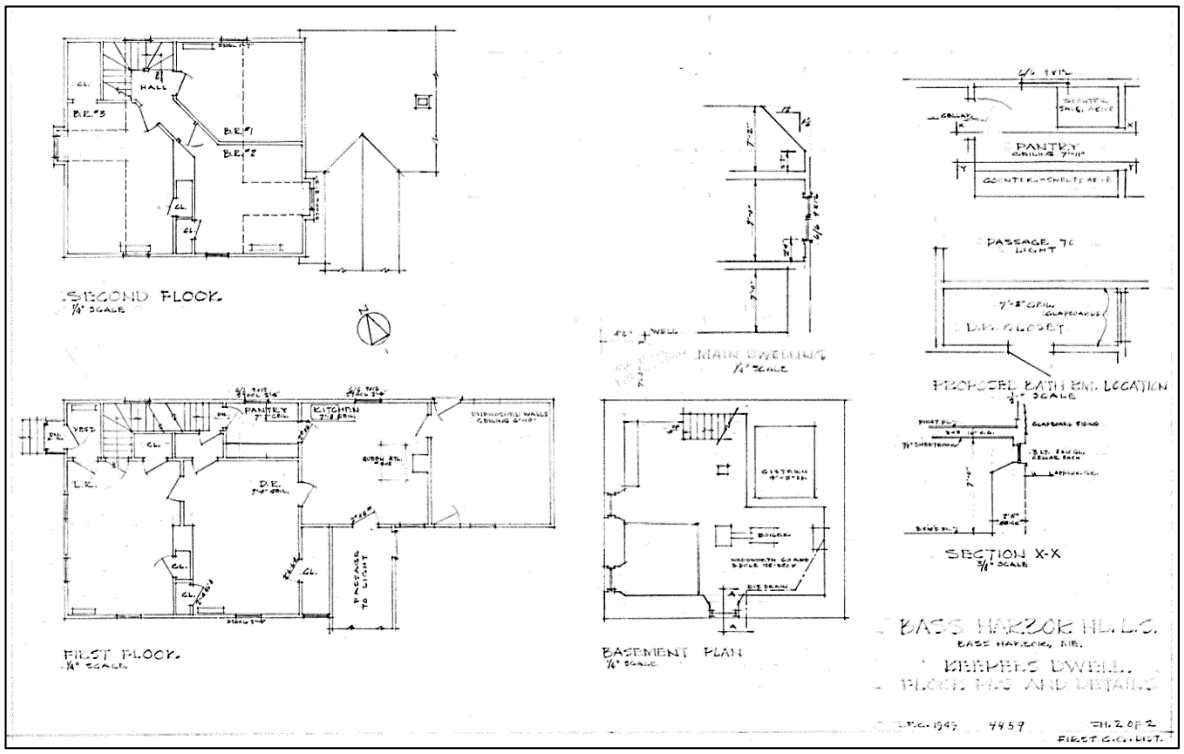


Figure 58. December 1949 drawing with existing floor plans of each floor, a section through the three floors, a detail of the pantry plan, the proposed location of a new bathroom (between dining room and lighthouse), and a section of the basement wall. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG File P4459. Cropped by author. An 11x17 version of this drawing can be found in Appendix C.

Plans for the new plumbing and sanitary systems were finalized in May 1950.[76]

Sheet 1 (fig. 59) includes a site plan with existing well to the north of the Dwelling, a new trench connecting the well head to the dwelling, and a septic system located to the south of the Dwelling. A four-inch-diameter cast iron pipe, likely from the new bathroom would connect to a septic tank. A two-inch-diameter cast iron pipe, likely from the kitchen sink would bypass the septic tank and flow directly to a concrete headwall and fall out onto the cliffs and ocean beyond. It is assumed that septic tank overflow would do the same. Removal of the extant outhouse and infill of the ground below was also noted. Sheet 1 also included floor plans of the first and second floors with alterations to each, and a diagrammatic sketch of the soil, waste, and vent piping. Alterations to the first floor included dropping the ceiling of the living room to accommodate new bathroom piping for the second-floor bathroom above, furring out a space adjacent the chimney in the living room for water pipes and a waste-vent pipe stack, installing new shelves at the basement stair entrance, moving the wall between the basement stair entrance and the adjacent pantry, moving the door between the Ell and Addition to accommodate new cabinets along the north wall of the kitchen, installing two windows above the new kitchen sink, slightly moving the existing range, and installing a new thirty-two-gallon water heater adjacent the range. Alterations to the second floor included moving the closet door in the west bedroom, and carving out a new bathroom space from the west bedroom, to include a bathtub, lavatory, and toilet.

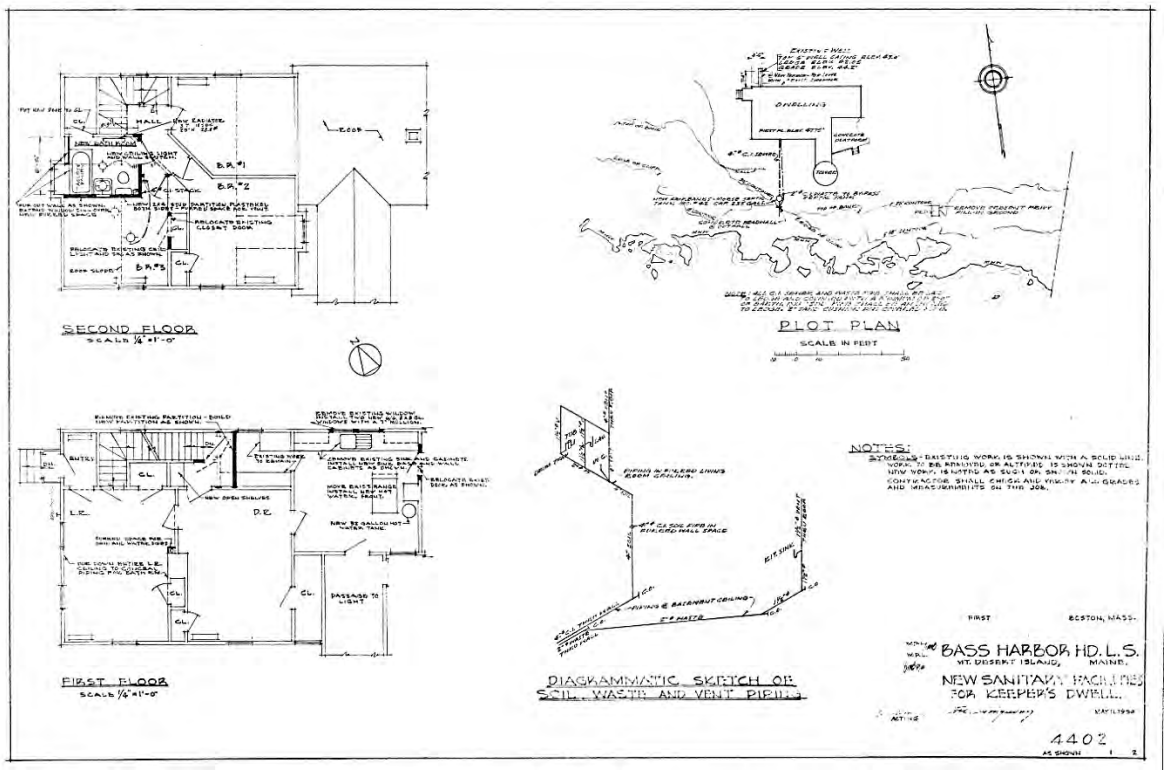


Figure 59. Sheet 1 of "New Sanitary Facilites" shows alterations to first floor and second floor, site plan, and diagrammatic sketch of soil, waste, and vent system, dated May 1950. (Note: "Sea Cliff Mo #K-6616-A is a Kohler sink.[77]) Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG File P4402. An 11x17 version of this drawing can be found in Appendix C.

[76] U.S. Coast Guard, First District, Boston, Mass. "Bass Harbor Hd. L.S., Mt. Desert Island, Maine. New Sanitary Facilities for Keeper's Dwell." 2 Sheets. May 11, 1950. USCG Drawing 4402 D1/D2. USCG files transferred to ACAD Cultural Resources Program Manager (Gail Gladstone).

[77] Kohler Company. "Kohler Plumbing Fixtures of First Quality." *Trade Catalog.* Copyrighted 1950. Accessed at https://archive.org/details/KohlerPlumbingFixturesOfFirstQuality on May 14, 2019.

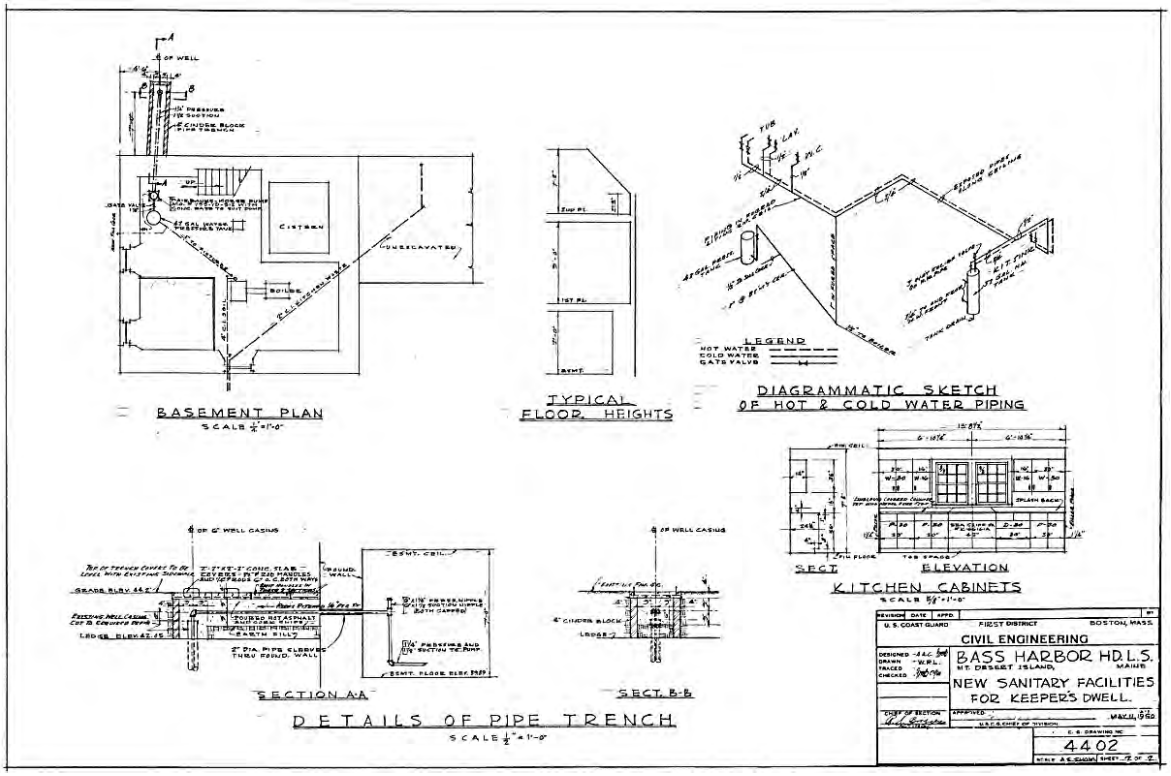


Figure 60. Sheet 2 of "New Sanitary Facilites" shows alterations well and septic additions to the basement, well details, a digrammatic sketch of hot and cold-water piping, and new kitchen cabinets, dated May 1950. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG File P4402. An 11x17 version of this drawing can be found in Appendix C.

Sheet 2 (fig. 60) details the new well with associated equipment in the basement (pump, pressure tank, etc.), a diagrammatic sketch of hot and cold water piping, and an elevation and section of the new kitchen cabinets along the north wall, with linoleum-covered countertop with metal edge strip (very 1950!).

The Light Station was inspected in June 1950 and found in good condition with a few minor discrepancies. Of interesting note was a chemical toilet located in the basement of the Keeper's Dwelling, in addition to the Outhouse located east of the Bell House, evidence the new plumbing had not been installed in the house. The cistern in the basement was in use.[78]

An undated assessment (likely dating to about 1950 due to lack of plumbing in the house), included the following comments:

> The dwelling walls, foundation, chimney, heating system, galley range and sink are in good condition.
> The roof has no leaks but one half is old while the other half has been reshingled within the last two years.
> Most of the framing in the cellar is not accessible for inspection; what was inspected proved to be sound.

[78] CDR R. W. Thresher, USCG – Asst. Inspector. "Bass Harbor Head Light Station, McKinley, Maine; inspection report of." *To Eastern Inspector.* June 16, 1950. District Coast Guard Officer, First Coast Guard District, Boston 9, Mass. "Bass Harbor Head L/S, Repair walkways and renew." *Work Order and Completion Report to District Working Party.* July 8, 1947. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light Station (Inspections).

Some windows leak between the meeting rails during driving rains. However this leakage is slight and corrective action is not considered necessary.
One galley window sill is getting soft in the corner but it is not bad enough to require immediate replacement.
The living room wall plaster required patching in two places, under the window on the sea side and alongside the mantelpiece.
The plaster on the north bedroom ceiling and on the sloping wall of the southeast bedroom is working loose from the lath but is otherwise sound and should last for another two to three years.
The southwest bedroom has one window sill that is getting soft but does not require immediate replacement.
One tread is broken and several are loose on the stairway to the second floor.

LIGHT TOWER: Lantern and lens are in good condition. The small paved area alongside the walkway to the tower has broken up and will be repaired by the Officer in Charge.

BELL WEIGHT TOWER: Shingles are in poor condition on the sea side of the tower.
One sill is rotten as is the attached furring strip holding the sheathing. One other sill was examined and is sound. The others were not accessible.
The Officer in Charge stated that when the floor was replaced in the last few years the rotten sill referred to above was the only defective one apparent at the time.

BELL HOUSE: The structure is in good condition except the corners of the trim which should be filled with putty. The Framing of the platform under the bell striker is in bad condition due to dry rot.

PRIVY: Needs repairs to the floor, studs and siding all of which are partially rotten.

OIL HOUSE: Is in good condition except some trim which is split under one eave.

BARN: The roof shingles are old and somewhat warped but do not leak. Walls are in the same condition.
The sill are rotten in the back and in the front corners.
The plank floor is in poor condition and if replaced should be raised about six inches as the ground slopes down to it causing water to gather in front which makes opening the doors difficult during freezing weather.
The doors are in fair condition.[79]

Interestingly the Boat House is not mentioned suggesting it had been removed by 1950 (known to be still be standing December 1948).

Work on the new bathroom started in July 1950. Digging for the water pipes began in November of the same year.[80]

Starting in 1950, Eugene Coleman served as the lightkeeper at Bass Harbor Head Light Station. (Refer to Eugene L. Coleman sidebar for more information on this keeper.) The end date of Eugene's tenure is unknown, but may be 1955 when the next keeper was appointed.

[79] "Bass Harbor Head." n.d. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light Station (Inspections).
[80] National Archives and Record Administration, Washington, DC. Series: Coast Guard, Record Group 26, Entry 66, Box 63.

Eugene L. Coleman, BHHLS Keeper 1950-ca.1955

Eugene Leslie Coleman was born in 1888 to Joseph and Ella A. (McMahon) Coleman, in Georgetown, ME. In 1900 and 1910, Eugene lived in Georgetown with his parents and siblings. Father Joseph was a sailor/seaman; the latter year Eugene was too.

In 1917, Eugene, 29, a driller at Bath Iron Works, registered for World War I. Two years later, he married Amanda Varner in Bath. At that time Eugene was a molder.

In 1920, Eugene, 31, and Amanda, 27, lived with her parents, Irwin and Mary in Bath. Eugene was still a molder at a foundry.

By 1935, Eugene was the lightkeeper at Cape Neddick Light Station in York, ME. In 1940, he made $1,472 annually.

Starting in 1950, Eugene was the lightkeeper at Bass Harbor Head Light Station (fig. 61). The end date of his tenure may be 1955, when the next known keeper was at the site.

Eugene and Amanda both died in 1966 and were buried at Oak Grove Cemetery in Bath. ME.[81]



Figure 61, right. Bass Harbor Head Light Keeper Eugene Coleman and wife Amanda, with dog, Posey, ca. 1953. Source: Southwest Harbor Public Library Digital Archive.[82] A larger version of this photograph can be found in Appendix B.

In August 1951, the Light Station was again inspected and again found in good condition with a few minor issues. An interesting note is evidence interior plumbing had been added to the Keeper's Dwelling by this time: "The open end of the soil pipe does not project far enough out over the rocks to carry sewage clear in southerly winds; the sewage blows onto the rock face and dries their [sic], creating an unsanitary nuisance."[83]

A photograph shows the modernized Light Station with the abovementioned features (fig. 62). The image shows the Keeper's Dwelling in the center with stone rubble wall to the front (west) and a path leading up to the top of the hill (and out-of-picture Oil house and Garage). A boardwalk with railing leads to the former location of the Boathouse, evidence this structure had been recently razed. A wire fence with wood posts lines the cliff. Just down from the Dwelling is a concrete headwall for overflow of septic refuse over the cliff. The Dwelling is connected to the Lighthouse via the Covered Way and the area between the Dwelling and Covered Way has been infilled with a small window opening occupying the wall. The kitchen Ell can be seen beyond (above) the Covered Way. In front of the Lighthouse is the 1949 electrified signal bell, and still extant, though likely obsolete, are the 1897 Bell House with bell still attached and the 1898 Weight Tower. A stairway is barely noticeable on the cliff

[81] 1900, 1910, 1920, and 1940 United States Federal Censuses; 1917-1918 U.S. World War I Draft Registration Cards; Maine Marriage Records, Sagadahoc County, 1919. Ancestry.com
"Eugene L. Coleman" and "Amanda V. Coleman." Findagrave.com.
[82] "Bass Harbor Head Light Keeper and Wife, Eugene Leslie Coleman and Amanda (Varner) Coleman with Posey," Item 7435. Southwest Harbor Public Library. Accessed at https://swhplibrary.net/digitalarchive/items/show/6479 on June 14, 2019.
[83] Commander, 1st CG District. "Bass Harbor Head Light Station; inspection of." *Memorandum for Chief, Aids to Navigation Section.* August 13, 1951. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light Station (Inspections).

behind the house and at the top of the hill is the Navy Transmit Station, which also included a generator and transformer equipment.

The photograph is undated in the archive, but study of the sewage pipe overhanging the cliff in this photograph and those from 1962 clearly show the pipe had been extended. The August 1951 inspection noted that the pipe did not hang over the cliff far enough to carry sewage away. It is assumed this unfortunate detail would have been corrected as quickly as possible. Therefore, the below photograph confidently dates to 1951.



Figure 62. The Light Station from the air, 1951 (the area between the Dwelling and the cliff has been dug up for the new septic system installed between July 1950 and August 1951). The Boat House and slip have been removed (occurred between 1948 and 1950), however a boardwalk and stair lead to its former location. The Light Station includes the Keeper's Dwelling, now modernized with electricity and plumbing/septic, the Ell and Addition, Covered Way with infill, the Lighthouse with electrically struck bell to its foreground (added in 1949), and the obsolete Weight Tower connected to the Bell House. A stairway is located behind the house scaling the hill and a gravel road leads off to the right up to the Oil house and Garage (not in photo). A dark-painted structure is located in the top center of the photograph; this structure is the Navy Transmit Station which also included a generator room for the Light Station. Source: USCG, 170602-G-XX000-434. A larger version of this photograph can be found in Appendix B.

Morton M. Dyer, BHHLS Keeper 1955-1957

Morton Mortenson Dyer was born in November 1887 in Yarmouth, ME to Charles Raymond and Annie M. Dyer.

In 1900, Morton lived with his parents, a sister, several boarders, and a servant in Yarmouth. His father Charles was listed as a "Vet." Surgeon

Morton's 1917 World War I Draft Registration Card placed him in Portland, ME where he was a jobber for the Portland Gas Co. He claimed his mother as a dependent.

Morton married Lulu Bertha Richards (born 1889) in April 1918 in Portland, ME. The next month, he began his service in World War I. Between July 1918 and July 1919, he was located in France. He was honorably discharged in July 1919.

In 1920, Morton and Lulu lived in Portland, ME with Lulu's parents Henry and Mary Richards. Morton owned their house on Stevens Avenue. Morton was a chauffer for the gas company. His father-in-law was a millman at a factory and his mother-in-law was a dressmaker at home.

By 1930, Morton and Lulu had moved to Ecorse, MI where he was a pipefitter for the shipyards. By 1940, Morton and Lulu had returned to Portland, ME and lived with Lulu's mother. Morton was a seaman for "N.S. Lighthouse."

Morton reported to Bass Harbor Head Light Station in October 1955 to serve as Keeper there. Lulu died there in February 1957 and was buried at Woodlawn Cemetery in Westbrook, Maine. On August 31, 1957, Morton retired. In December 1970 he died and was buried next to his wife.[84]

A new lightkeeper was appointed in 1955, Morton Dyer. He would serve at Bass Harbor Head Light Station through 1957. (Refer to Morton M. Dyer sidebar for more information on this keeper.)

A request for work at Bass Harbor was compiled in November 1955. Required repairs included:

1. Replace rotted fence posts along the edge of cliff.
2. Install section of fence east of old Bell Tower.
3. Replace ridge boards on dwelling.
4. Replace rotted beam over garage door.[85]

It is unknown when these repairs were completed.

An inspection of the Bass Harbor Head Light Station occurred in August 1956 and assessed the Complement, the Operational Mission, Organization, Material, Personnel, Administration (including Finance and Supply), and Operational Readiness. Most categories were rated "normal" or "sufficient." In the Material category, comments were provided on the inadequacies of the wall along the cliff:

> This station is located approximately 100 feet from a public road and is considered a sight seeing attraction by civilian visitors. The station buildings are near cliffs and sheer drops which are not

[84] "Lulu B Dyer" and Morton M Dyer". Findagrave.com
1900, 1920, 1930 and 1940 United States Federal Censuses; Maine, Military Index, 1917-1920; U.S., World War I Draft Registration Cards, 1917-1918, Maine Portland City, 2, Draft Card D; Maine, Marriage Index, 1892-1996; Maine, Marriage Records, 1713-1922. Ancestry.com
Eastern Inspector. "Bass Harbor Head Light Station, USCG, McKinley, ME.; report of Inspection." *To Commandant (CI) via Commander, 1st CG District.* August 24, 1956. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.
GRUCOM SOWEST HARBOR. *Telegram to CCGDONE.* September 3, 1957. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.
[85] Donnell, K.W. (Chief, Civil Engineering Section). "Bass Harbor Head Light Station." *To CO CG Base, Boston, Mass.* November 22, 1955. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.

protected by adequate fencing, although a work order, dated April 1956, is in effect for the construction of a stone wall fence topped with an iron pipe railing.

In view of the station being easily accessible for civilian visitors, it is recommended that the work order for the construction of the stone fence be expedited.

For the Personnel category, Keeper Dyer was noted as a capable man for carrying out the duties of the station, but being 69 limited his ability to carry out "heavy maintenance work." There were no recommendations for this note. In the Administration category, the Station was noted to have been drastically improved since the inspection two years prior. Mrs. Dyer was credited for bringing about these improvements. Additional comments were provided regarding the one keeper's inability for controlling visitors at the site (not blame).[86]

A separate report of minor deficiencies noted during the inspection (unrelated notes have not been transcribed).

1. There is no directive or operating instruction specifying the exact description of the lamp bulb to be used in the main light.
3. Two fuel storage tanks near dwelling are not marked as to contents. . . .
4. High grass and weeds not cut back 10 feet away from buildings.
5. Soda-acid and foam fire extinguishers not tested annually.
6. No fire extinguishers located upstairs.
7. Identification, trespass, cautionary, and warning signs are not conspicuously posted as required. . . .
8. Highway guide signs are not posted.
9. Garage used to house the station keeper's private automobile is in need of a general housecleaning. The overhead section is stowed with rags, paper, cardboard cartons and other materials of a combustible nature. Two cases of closed cans of paint are stored in this building. A paint locker constructed of bricks is located on the station property.[87]

Some of these deficiencies were corrected by September 1956. Others were in process.[88]

An undated (but likely 1956) "Allowance List" provides insight into the equipment located at the Light Station. The summary follows.

Lens and Illuminant
- Lens: 4th Order; Mfg. Henry LePaute, Paris, France
- Lens Cover
- Storm Panes: 36" x 26½" x ¼"
- Color shades: red, 4 section, cylindrical, 35mm, 10 v shade
- Main Illuminant: Electric Lamp; 100 watt, 115 volt, C-5 filament, 1F A-21, spot medium screw base
- Standby Illuminant: Kerosene mantle lamp; Alladin Model 12
- Wicks: Model 12
- Chimney: lox-on type
- Mantle: lox-on type

[86] Eastern Inspector. "Bass Harbor Head Light Station, USCG, McKinley, ME.; report of Inspection." *To Commandant (CI) via Commander, 1st CG District.* August 24, 1956. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.
[87] Eastern Inspector. "Minor deficiencies; report of." *To Officer-In-Charge, Bass Harbor Head Light Station, USCG, McKinley, Maine.* August 24, 1956. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.
[88] Morton M. Dyer Kpr., Bass Harbor Head Light Station, McKinley, Maine. "Minor deficiencies; report of corrections." *To Commander, First Coast Guard District.* September 24, 1956. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.

Time Relay: Struthers Dunn, Series Model 20XXH5H3
Fog Signal Equipment
Fog Signal: Bell, 4017 lb.
Bell Striker: electric, Type A; Mfg. Diehl-Singer; Type: DH16, 115 volt AC
Bell Striker: mechanical, Type C
Spare Parts for Mechanical Striker: Cod Cam, Trip Lever, Releasing Lever Stand, Clock Work, Clock Winding Lever Spring, 150' Winding Cable, ⅜" diameter
Pumps
Fresh water pump, ejector type, electric motor, Fairbanks Norse Model C356X8, ¾ hp, 3450 rpm, 115 volt, 8.5 amp. And Fairbanks Norse Model 750VD-JEW
Dwelling Equipment
Heating System: hot water, Mfg. National Radiator Co., size: 2-S-51, serial 8513, Fuel: Nut coal
Cooking Range: Queen Atlantic No. 868, Gas and Oil Combination
Refrigerator: Electric model ML-77, 110 volt AC, Navy Stock No. 26-R-5058
Miscellaneous
3 Fire Extinguishers, CO_2, 15 pound
4 Fire Extinguishers, Soda and Acid, 2½ gallon
Extension Ladder, 30 feet[89]

Modifications to the exterior of the Light Station buildings were specified in July 1956, which would holistically change the "look" of the reservation from a facility caught in the 1800s to one thrust into typical 1950s suburban America:

1. Remove wood shingles, paper, nails, etc., from main dwelling, barn and oil house [not done] roofs. Renail and replace any badly split of cracked roof boards. Cover roof with 15# asphalt saturated felt underlay lapped 3 inches. Shingles shall be RUBEROID tile red asphalt weighing no less than 270#/sq. Cement butt ends of shingles the full width of the butts with quick set cement, as manufactured by RUBEROID Co. Lay shingles not more than 5 inches to the weather.
2. Remove small slide door in barn, replace with swing type door. Repair or replace trim around door.
3. Install suitable shelves in oil house for use as paint locker.
4. Dismantle and remove old wooden bell tower. The present standby bell striking mechanism, including clock and stand, shall be removed and be delivered to A/N Shop, CG Base, Boston. The remaining equipment and standby bell shall be removed and delivered to CG Base, S. Portland, for future use and/or disposition as required.
5. Remove and replace rotted frame posts along edge of cliff. Treat new post with 2 coats of copper nephthenate preservative before installation. Remove old wire strung along posts and replace with new galvanized twisted barbless wire.
6. Remove existing rubble retaining wall and replace with a reinforced concrete retaining wall.... Install 1½" galvanized pipe railing along top of wall.... Assemble all form work to be true line and grade. Brace and tie forms well to insure against sagging and bulging. Provide one keyed expansion joint near center of wall length. Use ¾" thick premoulded expansion joint material as manufactured by the Philip Carey Co., or approved equal. Seal top of expansion joint with poured asphalt joint cement. Do Not place expansion or construction joint at or near any angle in wall. Provide at angles in wall an extra horizontal #3 (⅜" [diameter]) deformed bar, bent to shape, for each foot of height vertically. These extra bars shall extend 3' each side of wall angle. Extend reinforcing bars 12 inches at points of splicing. Place template holding required galvanized bolts in correct position for connecting pipe post flange to. Pipe post shall be 8' O.C.

[89] "Bass Harbor Head Light Station." *Allowance List.* n.d. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.

> Backfill minimum of 1' adjacent to back of wall with clean gravel or broken stone. Provide 2" weep holes through wall every 15' of length and at a height so that water will drain onto surface at front of wall.
>
> [Officer in Charge] of subject light station shall provide labor necessary to paint galvanized pipe railing along top of wall as follows: Prepare surface, and apply 1 liberal coat of Pretreatment Wash Primer. Apply 1 coat of Quick Drying Red Lead Primer and 2 coats of Exterior Gloss Enamel No. 12 in Spruce Green.[90]

In October 1956, additional funding was supplied to complete additional work while a working party was already at the Light Station. The additional work included the following:

> Construct 25 feet of concrete wall from the light tower to the old bell house. Install 1½" galvanized pipe railing along top of wall.
>
> Add… depth of excavation and wall to reach ledge foundation which was not anticipated under original work order.
>
> Replace dwelling roofers, wood gutters and jets which were found rotted and deteriorated when reshingling the dwelling roof.
>
> Replace the platform and steps of the old bell tower which were rotted and deteriorated.
>
> Repair wood stairs on banking as required.
>
> Place and grade new fill between dwelling and back of new wall.[91]

Miscommunication seems to have affected the project because by the end of November a report stated "the construction of the stone wall [had] been completed. The wooden fence with twisted strands along the cliff [was] being replaced. In addition, signs [were to] be erected warning visitors of dangerous conditions beyond the fence."[92] It is unknown when the other updates were finished (assumed 1957).

In late September 1956 instructions were transmitted for repair to the Lighthouse.

> Remove all existing paint and foreign material from the exterior surfaces of the brick masonry tower and the brick masonry bell house by use of a portable sandblasting unit. Cut and rake out all loose mortar joints. After the surface is thoroughly cleaned, repoint using EASY PATCH manufactured by Silibond Products, Inc…. Mix EASY PATCH with clean water to bread dough consistency. Dampen and cool the surface and apply EASY PATCH with a trowel or a stiff brush to fill all cracks and voids.
>
> Apply two (2) coats of EASY MIX (color white) manufactured by Silibond Products, Inc. Mix EASY MIX with clean water in a clean mixing pail until the mix is free of lumps and is like pancake batter. Let mix set 10 to 15 minutes before using. Dampen masonry surface with clean water and apply two (2) coats of EASY MIX by brushing. Apply sufficient material to fill all voids and pores. Be sure surface is damp before applying material. … Use a heavy fibre brush for application of EASY MIX.

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[90] Donnell, K.W. (Chief, Civil Engineering Section). "Bass Harbor Head Light Station." *Note to CO CG Base, S. Portland, ME*. July 3, 1956. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.
[91] Donnell, K.W. (Chief, Civil Engineering Section). "Bass Harbor Head Light Station." *Note to CO CG Base, S. Portland, ME*. October 9, 1956. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.
[92] Commander, First Coast Guard District. "Bass Harbor Head Light Station, USCG, McKinley, Me.; report of inspection." *Memorandum to Commandant (CI)*. November 30, 1956. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.

> Remove all scale and rust from the exterior metal surfaces on the light platform of the tower as required, by chipping, scraping and wire brushing. (Use care so as not to damage glass in light tower). After surface has been thoroughly cleaned, touch up with one (1) liberal coat of Pretreatment Wash Primer and two (2) coats of Quick Drying Red Lead Primer. Do not use Pretreatment Wash Primer which has been mixed longer than eight (8) hours. Finish metal surfaces on light platform with two (2) coats of Black Exterior Gloss Enamel.
>
> Caulk all cracks and holes around the doors and windows in the tower and bell house to make weather-tight. Sand and clean all wood surfaces and apply two (2) coats of Exterior Oil Paint.
>
> No painting shall be done during extremely cold, frosty, misty or damp weather or when the temperature is below 50°F. Sufficient time shall be allowed between applications of paint for adequate drying.[93]

It is not clear when this work was completed.

Another inspection was completed at the Light Station in July 1957. While everything inspected appeared to be in good condition, the inspector noted, "It is the belief of this command that this unit would be more effective if the light were made unattended and Bass Harbor Head Bay Buoy was converted to an unlighted bell." Interestingly, handwritten under this opinion is "I Do not Agree." (The author of that handwritten note is unknown, but the station would stay operational.)[94]

Civilian Keeper Morton M. Dyer retired from service on August 31, 1957 and vacated the Keeper's Dwelling three days later.[95] With the retirement of the last civilian keeper, who personally owned many of the furnishings inside the house, the Coast Guard determined that a new refrigerator (later rescinded), vacuum cleaner, and washing machine would be supplied to the military personnel (and family) stationed at the Light Station (interestingly a dishwasher, curtains, clothes dryer, and iron were disapproved as "luxury items" due to reasons of economy).[96]

Starting in 1956, permits were issued from the Navy to the Coast Guard for the use of the Radio Facility Building, an underground electrical power cable, and main electrical power transmission line. Discussions occurred in 1957 about removing the radio building entirely which would require installing a new utility service from town to the Light Station.[97] In April 1958, the Coast Guard requested the formal transfer of the facilities from the Navy as there was an "urgent continuing need for the facilities covered by the license, and more particularly for the main electrical power transmission line running from the Light Station reservation back to power source in the town of McKinley, Maine. The above facilities are the source of commercial power required for the operation

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[93] Donnell, K.W. (Chief, Civil Engineering Sect.) "Bass Harbor Head Light Station." *Note to CO CG Base, S. Portland, Maine.* September 21, 1956. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.

[94] Treasury Department, U.S. Coast Guard. "Bass Harbor Head Light Station." *First Coast Guard District Light and Loran Station Inspection Check-Off List.* Inspected 26 July 1957. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.

[95] GRUCOM SOWEST HARBOR. *Telegram to CCGDONE.* September 3, 1957. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.

[96] Commander, First Coast Guard District. "Bass Harbor Head Light Station; allowance for accessory items." *Memorandum to Group Commander, Southwest Harbor, Maine*. August 9, 1957.
Commander, CG Group, Southwest Harbor, Maine. "Bass Harbor Head Light Station; Allowances for accessory items; request for." *Memorandum to Commandant (OSU) via Commander, 1st CG District (osu).* July 30, 1957.
National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.

[97] Commander, First Coast Guard District. "Naval Radio Facility, Bass Harbor, Maine; re discontinuance of." *Memorandum to Commandant, First Naval District, Navy Building, 495 Summer Street, Boston, Mass.* April 10, 1957. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.

of the Aids to Navigation equipment of the Bass Harbor Head Light Station."[98] In December 1958, the Coast Guard assumed "jurisdiction, administration, custody and control of the" Radio Facility Building (finished in 1949), the underground electrical power cable, and main electrical power transmission line at Bass Harbor Head Light Station. An "underground electric power cable" consisting of "a 3-conductor, Number 6, 208/120 volt, power cable installed in 1948 at a total cost of $7,052" extended from the Radio Facility Building to the Lighthouse.[99]

In October 1959, instructions were distributed for alterations to the Lighthouse lamp:

1. Remove the lampchanger with color screens…and replace with a standard adjustable lamp stand modified to accept a red color screen. It is recommended that a red shade similar to AGA #305-20 be used for this purpose. When designing the shade support, allow maximum opening in the supporting member to provide sufficient air movement for lamp cooling.
2. If a "lamp-out" alarm system is presently installed at subject station (for use of the original 100 watt main lamp), install a suitable current operated relay for the new 1000 watt lamp. If no alarm circuit has been previously installed, furnish all materials and services (including current operated relay, battery, battery operated warning bell and cut-off switch) to install a new alarm circuit. Note that the cut-off switch and bell shall be located in a suitable position in the Dwelling to attract attention of the Officer-in-Charge.[100]

According to a USCG Local Notice to Mariners, "On 10 November 1958, the intensity of BASS HARBOR HEAD LIGHT was temporarily increased from 900 to 1,600 candlepower."[101] It appears that the original 900-candlepower lamp type was no longer being manufactured and a replacement was necessary.[102] Shortly thereafter, another Local Notice to Mariners noted, "On July 10, 1959, the intensity of BASS HARBOR HEAD LIGHT was changed from 1,600 to 3,500 candlepower."[103]

In 1959, the 4,000-pound McShane bell located on the south elevation of the Bell House was removed to the "Coast Guard Yard."[104]

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[98] Commander, First Coast Guard District. "Former Naval Radio Facility, Bass Harbor Head, Maine, transfer of Building, underground electrical power cable, and main electrical power transmission line to U.S. Coast Guard." *Memorandum to Commandant, First Naval District, Navy Building, 495 Summer Street, Boston, Massachusetts.* April 8, 1958. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.
[99] Commander, First Coast Guard District. "Former Bass Harbor Head Trans. Sta., Bass Harbor, Maine; transfer of Radio Facility Utility Building, underground electrical power cable, and main electrical power transmission line; acceptance of." *Memorandum to District Public Works Officer, First Naval District, Boston, Mass.* December 3, 1958. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.
[100] By Direction of Commander, First Coast Guard District). "Bass Harbor Head LS; revision to main lamp installation." *Memorandum to Commanding Officer, CG Depot, Southwest Harbor, Me.* October 1, 1959. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.
[101] Treasury Department, United States Coast Guard, Commander, First Coast Guard District. *Local Notice to Mariners.* Notice No. 84. November 14, 1958. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head (Inspections).
[102] "Bass Harbor, Blue Hill Bay, Gulf of Maine, Maine." *To Commander, 1st CG District.* n.d. Treasury Department, United States Coast Guard, Commander, First Coast Guard District. *Local Notice to Mariners.* Notice No. 55. July 14, 1959. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head (Inspections).
[103] Treasury Department, United States Coast Guard, Commander, First Coast Guard District. *Local Notice to Mariners.* Notice No. 55. July 14, 1959. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head (Inspections).
[104] Commander, First Coast Guard District. "Fog bells, history of." *Letter to Commandant (CPI).* January 29, 1962. Treasury Department, United States Coast Guard, Commander, First Coast Guard District. *Local Notice to Mariners.* Notice No. 55. July 14, 1959. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head (Inspections).



Figure 63. A Summer 1962 periodical published this photograph which clearly shows the red asphalt shingles extant on the Keeper's Dwelling and Covered Way. Wood windows and trim are located in a field of painted wood siding. Gutters and downspouts are clearly in place. The chimney includes a cap, and the front-facing doghouse dormer is peeking through the trees. In the foreground, the retaining wall is composed of reinforced cast-in-place concrete with metal pipe railing above. The extended sewage ejection pipe is located at the right. The newer (1949) signal bell is located to the right (south) of the Lighthouse. Between the two features, in the background, is the projecting I-beam from the south-facing cross gable of the Bell House. The bell has been removed from the beam. Source: *Food Marketing in New England.* Vol. 23, No. 1, Summer 1962. NARA Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light. Cropped by author. A larger version of this photograph can be seen in Appendix B.



Figure 64. This photo is likely contemporary with Fig. 63: 1962. All of the buildings (except the Lighthouse) had red asphalt shingles added to the roofs after 1956. The kitchen chimney is extant and the bell has been removed from the Bell House. The Weight Tower was removed in 1959. A concrete retaining wall has been added along the cliff. Source: Southwest Harbor Public Library Digital Archives.[105] Cropped by author. A larger version of this photograph can be found in Appendix B.

A June 1962 report noted that a recent inspection of the Light Station determined "the new 1000 watt lamps have an average life of 422 hours instead of the rated 1000 hours. It appears that due to the small red screen inside the lamps the heat is not being dissipated fast enough. It is requested that a large circular plastic screen be mounted outside the lens."[106]

A June 1963 Work Order detailed the fabrication of a flagpole and its hardware: "All pipe and hardware (except bronze cleats and bronze halyard top) shall be of hot dip-galvanized" and finished in white.[107] The 35-foot-tall pole was to be installed by the Southwest Harbor Depot. Depending on the soil conditions found at the site (ledge versus earth), the foundation details differed.[108] (It is assumed construction occurred later in 1963.)

[105] Knaut, Jr., Paul A. "Bass Harbor Head Light." Item 6886. Southwest Harbor Public Library. Accessed at https://swhplibrary.net/digitalarchive/items/show/4846 on June 14, 2019.
[106] Chief, Civil Engineering Branch. "Bass Harbor Head Light Station, color screen." *To Chief, Aids to Navigation Branch.* June 25, 1962. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head (Inspections).
[107] Treasury Department, U.S. Coast Guard. "Fabricate and Deliver 35' Flagpole." *Work Order P488-63.* Approved June 10, 1963. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.
[108] Commander, Southwest Harbor Group. "Install Flagpole." *Job Order.* June 12, 1963. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head Light.

The well water was tested in December 1963. The resulting bacteriological water report noted "serious contamination present." A "water purification unit [was] approved for [the] next quarter."[109]

The final lightkeepers at the station could not be confirmed, but may include: Allan Carter, 1960-?; Clifford Meadows, 1964-?; and Gerry Moores, ?-1974.

The 1964-65 Light List noted the Light Characteristic had been changed to be Occulting where it shone red for five seconds and eclipsed for 1 second. The range was still thirteen miles.[110]

In December 1969, it was reported that trees partially obscured the light as one approached from the southeast.[111] By the next month, the trees had been cut and the Lighthouse was "now clearly visible."[112]

Light Station Automated

By late 1972, the Bass Harbor Head Light Station was scheduled for "Automation, Modernization and Unmanning." Acadia National Park Superintendent, Keith Miller, wrote to the Commander of the First Coast Guard District (Boston, MA) in December of that year with the understanding that the excess light station, excluding access to the automated light and the antenna site, could be transferred to the park. Miller had already "received the approval of Director Brooks, Northeast Region, National Park Service to proceed with a request that all excess Coast Guard Property at Bass Harbor be transferred…to Acadia National Park when no longer needed for Coast Guard purposes."[113] In 1974, the land (approximately two acres) was transferred to the National Park Service. The USCG retained all the structures "to be used as family housing and as an active, major aid to navigation."[114] The light was automated in July 1974 (although it was still used as USCG housing).

In 1973 or 1974, the Light Station was closed to visitors due to the rough roadway down from the parking lot to the Lighthouse. By September of that year, the Coast Guard felt the pressure from disappointed visitors and nearby businesses who relied on tourism, and planned to reopen the Light Station to visitors. At that time that Commander of the Coast Guard Group at Southwest Harbor

[109] CCGDONE. "Bacterial Water Report of 13 Dec 62." *To SH/Bass Harbor Head L/S.* December 19, 1962. National Archives and Records Administration at Boston, RG 26: U.S. Coast Guard Region I Major Aids to Navigation 1900-1962, Box 1: Main A-Br, Folder: Bass Harbor Head (Inspections).
[110] "Bass Harbor Head (Maine)." *United States Lighthouse Society website.* Accessed at https://uslhs.org/light_lists/lighthouse_list.php?id=35 on June 5, 2019.
[111] Unlabeled note. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Historic, Inspections, SSMRs.
[112] R.T. Young (Commander, Coast Guard Group Southwest Harbor). "Bass Harbor Head Light L/S Nr. 330, obscured by trees…" *Letter* to Commander, First Coast Guard District. January 21, 1970. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Historic, Inspections, SSMRs.
[113] Miller, Keith L. (Superintendent, Acadia National Park). *Letter to Commander, First Coast Guard District (F).* December 14, 1972. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Historic, Inspections, SSMRs.
[114] *Certificate of Annual review for Real Property Holdings.* August 21, 1984. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.

recommended, "in order of desirability" to make the visitor roadway usable, safer, or kept as is, but reopened regardless.[115] Plans for an asphalt roadway were finalized in August 1975 (fig. 65).[116]

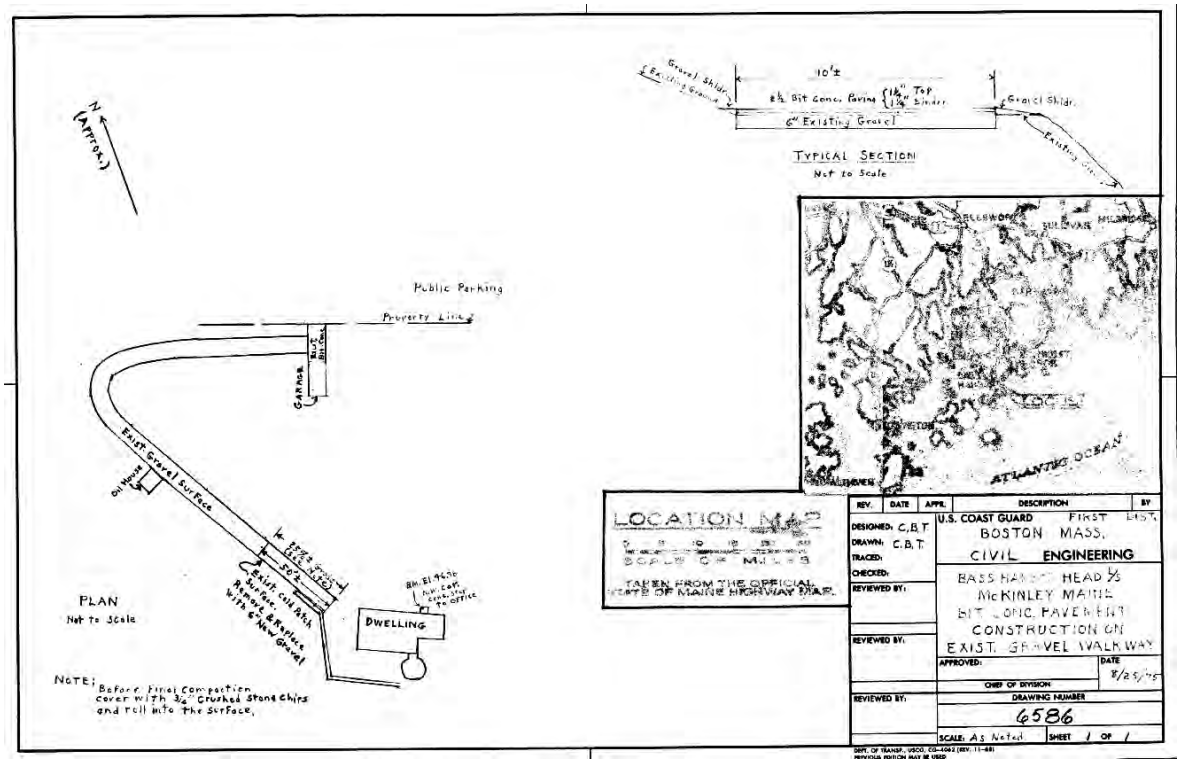


Figure 65. Drawing of the new bituminous concrete paving at the roadway, August 1975. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG File P6375. An 11x17 version of this drawing can be found in Appendix C.

The 1974-79 Light List noted the Light Characteristic as Occulting—red for four seconds and eclipsed for one second—with a range of thirteen miles. The Light Station no longer had a fog bell.[117]

A September 1975 Work Order proposed several changes to the Keeper's Dwelling:

1. Remove unused chimney leading from kitchen to below the roofline.
2. Repair openings under eaves.
3. Repair valley flashing where deteriorated.[118]

It is unknown when these repairs were completed, however the kitchen chimney is currently no longer present above the roofline, so this change did occur at some point.

[115] Howland, D.G. (Commander, Coast Guard Group Southwest Harbor). "Bass Harbor Head Light." *Letter to Commander, First Coast Guard District.* September 6, 1974. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Historic, Inspections, SSMRs.
[116] Donahue, J.H. (By Direction of Commander, First Coast Guard District). "Bass Harbor Head Light walkway repairs." *Letter to Commander, CG Group, Southwest Harbor.* May 19, 1975. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Historic, Inspections, SSMRs.
"Bass Harbor Head L/S. McKinley Maine. Bit. Conc. Pavement Construction on Exist. Gravel Walkway." *Drawing.* August 25, 1975. USCG Drawing P6586. USCG files transferred to ACAD Cultural Resources Program Manager (Gail Gladstone).
[117] "Bass Harbor Head (Maine)." *United States Lighthouse Society website.*
[118] "Bass Harbor L/S." *Work Order.* No. S-618-76. September 30, 1975. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Historic, Inspections, SSMRs.

A sewage treatment system was installed in 1975 totaling $15,000.[119] A drawing (fig. 66) shows the existing tank located just south of the dwelling was to be "pumped out, inlet & outlet openings capped off, & tank filled with gravel." The existing outfall drainline was "to be removed to face of retaining wall and plugged." (It is assumed the tank is still in situ.) The new system, extending southwest from the south elevation of the Keeper's Dwelling, was to include a cast iron pipe connecting to a treatment unit, then a chlorinator, and then ejecting at the southwest corner of the concrete retaining wall over the cliff and into the water.[120]

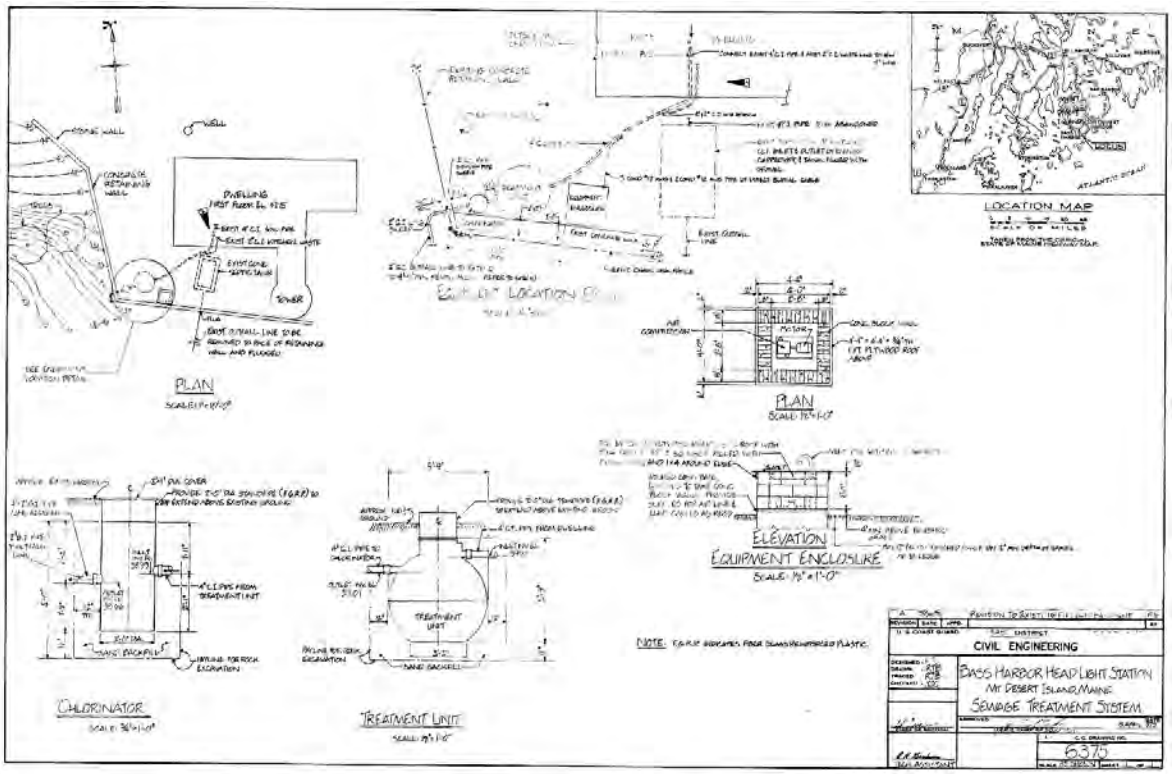


Figure 66. April 1975 drawing of the sewage treatment system, with abandonment of an old septic tank. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG File P6375. An 11x17 version of this drawing can be found in Appendix C.

Plans for a bathroom renovation were completed in December 1976 and included:

1. Remove existing [west] gable dormer and roofing as necessary to construct a shed dormer. The shed dormer shall extend for the full width of the existing bathroom. Provide a minimum six (6) foot height clearance at the exterior wall of the dormer. Dormer rafters shall match existing roof rafters in size and spacing. Studs shall be spaced not more than sixteen (16) inches o.c. and doubled up around all openings. Roof wall sheathing shall match existing.
2. Install the following new items:
   a. Bathtub with fixtures.
   b. Lavatory with fixtures and base cabinet.
   c. Medicine cabinet with lights.
   d. Vinyl flooring.
   e. Marlite wall panel.

[119] Kane, G.E. (Chief Gen Acctg & Rec Section, USCG). "Installation of Sewage Treatment System." *Report of Changes to Federal Real Property.* December 9, 1975. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.
[120] "Bass Harbor Head Light Station, Mt. Desert Island, Maine. Sewage Treatment System." *Drawing.* April 15, 1975 with September 25, 1975 revisions. USCG Drawing P6375. USCG files transferred to ACAD Cultural Resources Program Manager (Gail Gladstone).

3. Provide four (4) inch insulation for exterior walls and six (6) inches for dormer roof. Exterior wall and roof surfaces shall be finished to match existing. Interior walls shall be finished with Marlite Paneling installed in accordance with the manufacturer's instructions. Replace existing tile deck with vinyl floor tile. Existing window may be reinstalled so as to be centered in the width of the dormer. Clear panes of glass shall be replaced with obscure panes. Relocate existing radiator as may be required to accommodate new arrangement.
4. The new bathtub shall be a contour corner bath . . . as manufactured by American Standard, or equal.
5. The new vanity cabinet shall be 30" x 20" . . . as manufactured by American Standard, or equal.
6. The medicine cabinet shall be . . . manufactured by Ketcham, or equal [and] shall be recessed in the wall above the lavatory. Wiring shall conform to The National Electric Code. . . .[121]

The bathroom renovations had not been completed by July 1979 due to occupation of the dwelling since initial plans were developed. The quarters were to be vacated during the third quarter of FY80 with plans to complete the renovations then.[122]

In 1985, it was noted that ground water seeped into the basement of the Keeper's Dwelling from the wall and deck above. Recommended repairs were to match those completed at West Quoddy Head Light Station (details unknown).[123]

The 1985 Biennial Civil Engineering Inspection of Bass Harbor Head Light Station provided the following details on the condition of the station:[124]

Feature	Condition	Notes
Grounds Appearance	Good	
Security	Good	
Drainage/Erosion	Good	
Tower Walkway	Good	
Tower Ladder	Good	
Tower Stairs	Good	
Tower	Good	Conical Brick Tower
Tower Foundation	Good	Brick
Tower Exterior Walls	Satisfactory	
Tower Exterior Doors	Good	
Tower Exterior Windows	Unsatisfactory	A number of lantern… window panes are chipped or cracked. Inspect all of the lantern… windows and replace all chipped or cracked panes. A number of lantern… astragals are damaged or missing. Inspect the lantern… windows and replace all damaged or missing astragals.
Tower Exterior Catwalk	Good	Scrape and paint the rusty areas of the catwalk.
Tower Exterior Railings	Good	
Tower Roofing	Good	
Tower Lightning Protection	Unsatisfactory	The lightning grounding strap does not extend to the lightning spike. Extend the grounding strap from the catwalk to the lightning spike.
Tower Interior Walls	Satisfactory	Remove paint from bricks on inside of tower.
Tower Interior Decking	Good	

[121] "Bathroom Renovation." *Form CGD1-133.* Job Order Number: ecy-3-77. December 1, 1976. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Historic, Inspections, SSMRs.
[122] Castello, C.J. (Commander, Coast Guard Group Southwest Harbor, ME). "Bass Harbor Head Light." *Letter to Commander, First Coast Guard District.* July 6, 1979. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.
[123] Bass Harbor Head Light. *Shore Station Maintenance Record.* December 5, 1985. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.
[124] "Bass Harbor Head Lt." *Report of Biennial Civil Engineering Inspection, Unmanned Former Light Station.* July 16, 1985. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.

Tower Interior Ceilings	Good	
Tower Interior Doors	Good	
Tower Interior Stairs	Good	
Tower Vents	Unsatisfactory	The vent ball is clogged and vents are not installed in the lower glass block windows. Clear the vent ball and install one vent in each glass blocked window.
Old Fog Signal Building	Good	

Bass Harbor Head Light Station was listed on the National Register of Historic Places in 1987, as it retained "integrity of design, setting and association, and [met] the requirements for registration as set forth in the multiple property submission 'Light Stations of Maine'," within "the associated historic contexts Maritime Transportation in Maine: ca. 1600-1917 and Federal Lighthouse Management: 1789-1939." The Period of Significance was identified as 1858 (the year the Lighthouse was put into service) to 1937 (fifty years prior to 1987, the year of the nomination form). The Lighthouse and Keeper's Dwelling, Bell House, Oil House, and Garage (Barn) were all contributing structures to the Light Station.[125] Accompanying photographs are included below (figs. 67-69).



Figure 67. Bass Harbor Bead Light Station from the water, June 1987. Source: Bass Harbor Head Light Station NRHP 87002273.

[125] Mohney, Kirk F. (Architectural Historian, Maine Historic Preservation Commission). "Bass Harbor Head Light Station." *National Register of Historic Places Registration Form.* October 1987. NRHP # 87002273. Entered January 21, 1988.



Figure 68. The front (west) elevation of the Keeper's Dwelling, July 1987. Note the modern vinyl siding and asphalt roof covering, but the retention of the 6/6 wood windows. Source: Bass Harbor Head Light Station NRHP 87002273.



Figure 69, right. The front (north) elevation of the Oil House, with brick exterior walls and slate roof, July 1987. Source: Bass Harbor Head Light Station NRHP 87002273.

In June 1986, a directive was released regarding new (May 1984) EPA sewage discharge requirements into the Atlantic Ocean, which had been occurring at Bass Harbor Head Light Station. All Coast Guard facilities were "to conform with the environmental pollution control standards as set forth in Executive Order 12088" of 1978: *Federal Compliance with Pollution Control Standards*. In addition, "strict compliance with waste water testing, monitoring and reporting requirements" was required. The housing unit at Bass Harbor Head Light Station was required to test for biochemical oxygen demand (BOD), suspended solids, fecal coliforms, and residual chlorine, and meet expected levels for each.[126] The next month the wastewater was tested and found to fail all of the required levels.[127] In February 1987, it was reported that the Coast Guard was taking action to correct the analysis results, but was also reapplying to the EPA for a National Pollutant Discharge Elimination System Permit to continue to discharge the waste into the Atlantic Ocean (as they had permits to do the same thing between May 1974 and April 1979) and requesting "a waiver from testing for four pollutants in the effluent discharged from the housing unit's sewage treatment system" also from the EPA.[128]

[126] Bandzak, D.G. (B Direction of Commander, First Coast Guard District). "EPA Discharge Permit Requirements; Housing, Bass Harbor Head Light." *Letter to Commander, Coast Guard Group Southwest Harbor.* June 16, 1986. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.
[127] Belfast Technical Service Laboratories. "Sample of Wastewater." *Certificate of Analysis.* July 25, 1986. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.
[128] Bandzak, D.G. "U.S. Coast Guard Housing Bass Harbor Head Light, Tremont, ME; Discharge of Sanitary Waste Water into the Atlantic Ocean." *Memorandum to Chief, Comptroller Division.* February 2, 1987.
Boudreau, Lauren T. (Realty Specialist, By Direction of the District Commander). *Letter to Edward K. Sweeney, Chief, Comptroller Branch, Environmental Protection Agency, Region 1.* February 18, 1967.
Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.

To add insult to injury, the sewage treatment plant drain pipe froze in January 1988, and emergency repairs were required to the submersible sewage pump, sump drain hose, float swith, and timer switch.[129]

By May 1988, "a Cromaglass packaged treatment plant and chlorinator were installed, and the use of the existing septic tank was discontinued." Additionally, the State Department of Environmental Protection found the USCG's application for permit to continue discharge into the ocean to be insufficient and required "a site evaluation by a State Licensed Site Evaluator to determine if a subsurface wastewater disposal system could be designed and used in place of the overboard system." The investigation occurred in May 1988 by a certified professional soil scientist, Allen Ott, who determined "there is no area available in the vicinity of these buildings on which even the smallest of subsurface wastewater systems could be sited."[130] An accompanying site plan detailed the complex Light Station topography (fig. 70).

By February 1989, the Maine Department of Environmental Protection had indicated they would "under no circumstances allow the USCG to continue its overboard discharge of treated effluent from the living quarters at the light station." Accordingly, other options for this disposal needed to be explored. Ott proposed exploration of the area west of the paved driveway for a suitable location for a leachfield.[131] He resurveyed the site in April 1989. He examined two test pits to the west of the top of the driveway, as this areaway was "the only relatively level area on which to site a leachfield; also, it is greater than 100 feet from the existing drilled well. Additionally, it is one of the few areas on the property without obvious ledge outcrops." Despite problematic test returns, Ott was confident an appropriate leachfield meeting the State's Plumbing Code could be designed for the area. Ott recommended "a 1000 gallon septic tank and lift chamber with dual-alternating pumps to be located near the residence (after removal of the existing overboard treatment plant), with a pump line running adjacent to the driveway and to a 16' wide x 28' long leachfield in the area of Test Pits #1 & #2 (leachfield to consist of 14 "Flowdiffusor 4' x 8' low profile" concrete leaching chambers.)"[132]

[129] Housing Southwest Harbor Bass Harbor Qtrs. "Repair Sewage Treatment Plant. *Work Order.* January 11, 1988. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.
[130] Ott, Allan E. (Certified Professional Soil Scientist). *Statement of Site Suitability.* May 19, 1988. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.
[131] Ott, Allan E. (Certified Professional Soil Scientist). "Bass Harbor Head Light Station, Tremont, ME." *Letter to Richard E. Martin, USCG Group Eng.* February 16, 1989. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Sewage.
[132] Ott, Allan E. (Certified Professional Soil Scientist). *Report of On-Site Investigation.* April 26, 1989. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Sewage.

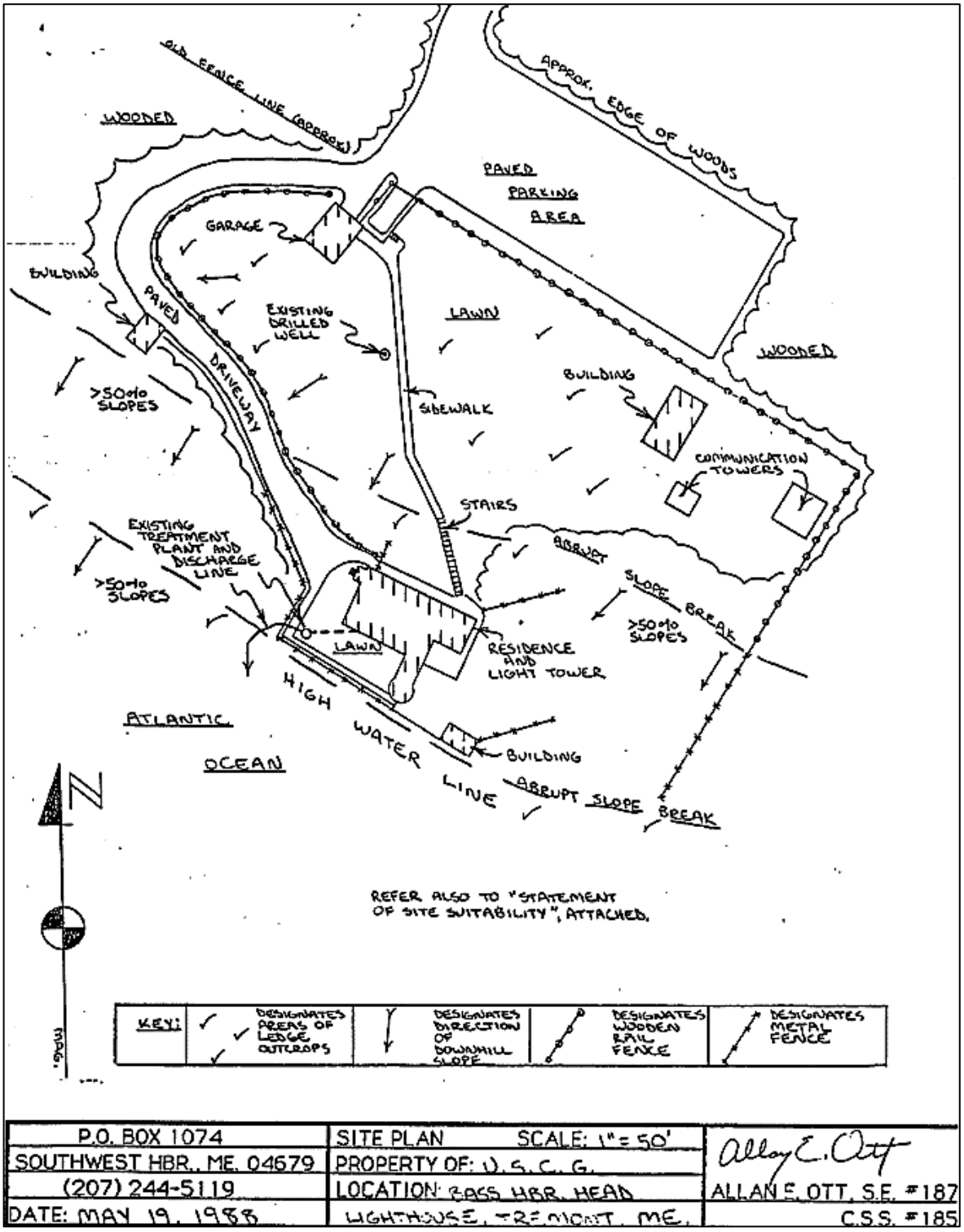


Figure 70. May 1988 site plan showing the complex topography of Bass Harbor Head Light Station with no areas available for a wastewater treatment facility. Source: See footnote 130.

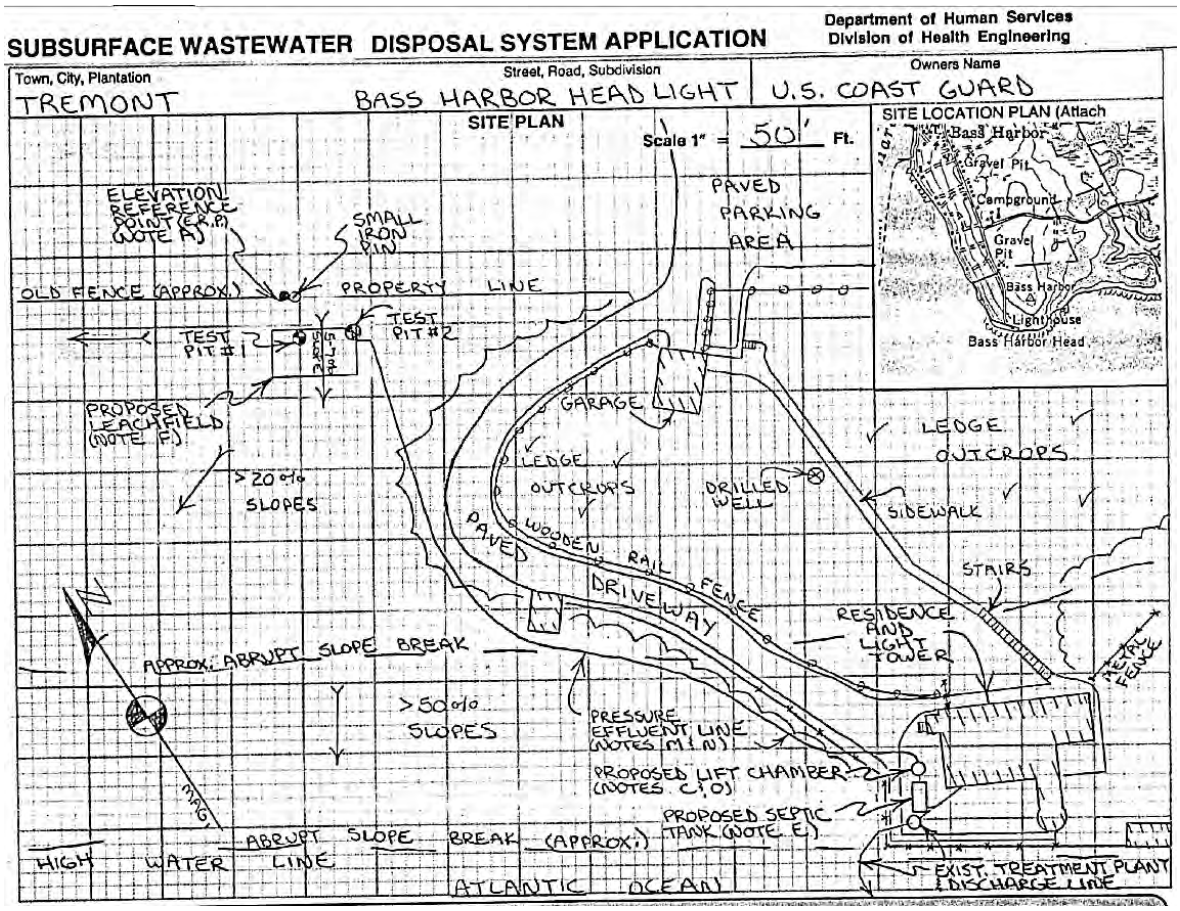


Figure 71. June 1989 site plan showing the location of the proposed septic tank, lift chamber, pressure effluent line, and leachfield. Source: See footnote 133. Cropped by author.

Ott submitted an application to the state in June 1989 which included a site plan of the new system: a septic tank and lift chamber in the front yard (west) of the Keeper's Dwelling, a "pressure effluent line" running to the northwest to a leachfield (fig. 71).[133]

In August 1989, the Coast Guard proposed to the Maine SHPO to install a "new subsurface septic tank and lift chamber…below the lawn on the northwest side of the house… connected via a buried effluent line to a leachfield located at the north edge of the property and west of the driveway." Removal of the extant system was also to be completed. The following month, the SHPO found the action to have no effect to the Bass Harbor Light Station.[134]

[133] Ott, Allan E. *Subsurface Wastewater Disposal System Application.* June 7, 1989. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Sewage.
[134] Martin, R.E. (Chief Warrant Officer, U.S. Coast Guard, Group Engineer/Industrial Manager, by Direction of the Group Commander). *Letter to Maine Historic Preservation Commission.* August 24, 1989. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Sewage.
Shettleworth, Jr., Earle G. (Maine State Historic Preservation Officer). *Letter to Captain John Williams, Commander, U.S. Boast Guard, Southwest Harbor.* September 7, 1989. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.

A contract for the removal of the old system and installation of the new system was awarded in August 1989 to a local contractor, Doug Gott & Sons, Inc., for $23,490.[135] The scope:

> The work includes a 16' wide x 28' long leachfield with concrete leaching chambers and clean fill, approximately 275 LF of effluent line, septic tank, approximately 140 LF of upslope curtain drain, lift chamber, and other items, all as shown in the Subsurface Wastewater Disposal System Application attached herewith. The work includes connection of the existing house sewer to the new system, installation of electrical wiring and controls to make the new system operational, and removal of the existing package treatment unit and chlorinator of the existing sewage treatment system. . . .[136]

Supplemental work (totaling $1,800) was added in November to include three rock swales to cross the effluent line from the pump station to the filter bed (leachfield) due to "substantial erosion of the fill over the" pipe in three areas.[137] It is assumed all work was completed in 1989 or early 1990.

Complications also arose in the 1980s regarding the well water system and the presence of radon.

In September 1986, the well water was tested at the Light Station. Water from the drilled well (45 to 65 feet deep) was found to be "unsatisfactory for drinking purposes due to the presence of coliform bacteria." It was advised that the water supply be disinfected with a bleach solution, according to supplied literature by Northeast Laboratory Services. Two months later, the water was again tested; it was found to still contain coliform bacteria and determined unsatisfactory for drinking.[138]

A USCG directive dated March 1987 required Radon Gas sampling in all Coast Guard Housing Units between Connecticut and Maine due to "recent media coverage and dissemination of the latest health concern, i.e., "RADON Gas Within Houses."[139]

In April 1987, a water sample was tested for radon and found to be over three times (65,810 ± 5350 picocuries of radon per liter of air (pCi/L)) the level at which action should be taken (20,000 pCi/L). Additionally, an air sample was tested for radon and found to contain 22.4 ± 1.4 pCi/L, far exceeding the United States Environmental Protections Agency's recommended level of 4.0 pCi/L. The Maine Department of Human Services recommended the USCG assess the situation to determine the next steps.[140]

Well water was again tested in March 1988 for potability and radon concentration. The water was found to be satisfactory for drinking, but with an elevated radon level of 27,228 ± 296 pCi/L. At that

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[135] Contracting Officer, USCG Shore Maintenance Detachment NY. *Order for Supplies or Services.* September 13, 1989. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.
[136] United States Coast Guard, Shore Maintenance Detachment, New York. "Specification for Construction of Replacement Subsurface Waste Water Disposal System at U.S. Coast Guard Facility Housing Dwelling, Bass Harbor Head Light, Town of Tremont, Maine." *Specification SMD-0129.* Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.
[137] Contracting Officer, USCG Shore Maintenance Detachment NY. *Announcement of Solicitation of Contract.* November 15, 1989. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.
[138] Northeast laboratory Services. "Water Test." *Certificate of Analysis.* September 15, 1986.
Northeast Laboratory Services. "Water Test." *Certificate of Analysis.* November 6, 1986.
Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.
[139] Childs, Jr., M.G., By direction of Commander, First Coast Guard District. "Sampling for Radon Gas in Selected Govt Qtrs (Housing)." *Memorandum to Commander, U.S. Coast Guard Group Southwest Harbor."* March 25, 1987. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.
[140] Baker, Cheryl (State of Maine Department of Human Services). "Sample No. 65556, Radon Water Analysis." *Letter to Commander, US Coast Guard Group, Southwest Harbor.* April 8, 1987.
Baker, Cheryl (Radiation Chemist, Public Health Laboratory). "Sample No. 65936 – First Floor, Radon Air Analysis." *Letter to Capt. J.R. Sproat,* April 27, 1987.
Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.

time, because the radon concentration had been consistently over the recommended level, the Northeast Laboratory "recommended that action be taken to reduce this level to below 20,000 pCi/L within one year."[141]

In January 1989, a water sample was again tested for radon and found to have a concentration of 29,817 pCi/L, far exceeding the average concentration in the State of Maine (3,000 pCi/L) and the Department of Human Services recommended limit (20,000 pCI/L).[142]

A radon air analysis was completed in December 1993. The test found the Radon-222 concentration to be 3.4 ± 0.8 pCi/L. Based on the results, the Maine Health and Environmental Testing Laboratory, through the United States Environmental Protection Agency, recommended "that corrective action be taken when the radon concentration in air equals or exceeds 4pCi/L."[143] It is assumed that the radon elimination system still extant in the dwelling today was installed soon after this recommendation, as regular testing of air and water stopped.

In December 1987, repairs were required to the Garage including replacing the windows, replacing the small personnel door with a pre-hung solid-core wood door, constructing a walkway between the garage and sidewalk, and repairing the rotted sill on the east elevation. This was completed in January 1988.[144] In October 1988, it was recommended that a new gate be constructed from the Garage to the existing fence line in order to secure the front of the house during nighttime hours.[145] In April 1989, it was recommended that the front sill and floorboards of the Garage be replaced due to age and moisture and that the front walkway fence needed to be enclosed with chain-link fencing.[146] It is unknown if and when this work was completed.

The Light Station was documented by the Historic American Building Survey (HABS) in September 1990 (photographs only) (figs. 72-80).

[141] Northeast Laboratory Services. "Water Test." *Certificate of Analysis.* March 18, 1988. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.
[142] Brown, Warren (University of Maine, Department of Physics and Astronomy). *Letter to Gerald Sweet, Bass Harbor Lighthouse.* January 11, 1989. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.
[143] Baker, Cheryl (Radiation Chemist, State of Maine, Health and Environmental Testing Laboratory). "Radon Air Analysis, Sample No. 93E-RAD-01067 (Bass Harbor Light House)." Memorandum to US Coast Guard. December 20, 1993. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.
[144] Housing Southwest Harbor. "Garage Repairs." *Work Order.* December 7, 1987. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.
[145] USBG Southwest Harbor. *Shore Station Maintenance Record.* October 7, 1988. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.
[146] Bass Harbor Head Lighthouse. *Shore Station Maintenance Record.* April 10, 1989. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.



Figure 72. Lighthouse and Bell House from the southeast, 09/1990. Source: HABS, ME-197.



Figure 73. Keeper's Dwelling, Lighthouse, and Bell House from the southwest, 09/1990. Source: HABS, ME-197.



Figure 74. Keeper's Dwelling from the northwest, 09/1990. Source: HABS, ME-197.



Figure 75. Keeper's Dwelling, Lighthouse, and Bell House from the north, 09/1990. Source: HABS, ME-197.



Figure 76. Keeper's Dwelling and Lighthouse from the east, 09/1990. Source: HABS, ME-197.



Figure 77, right. Stair on the interior of the Lighthouse, 09/1990. Source: HABS, ME-197.



Figure 78. Bell House from the northwest, 09/1990. Source: HABS, ME-197.





Figure 80, above. The Oil House from the northeast, 09/1990. Source: HABS, ME-197.

Figure 79, left. The Garage (Barn) from the northeast, 09/1990. Source: HABS, ME-197.

The Light Station was evaluated by United States Coast Guard personnel in May 1993 and found to be in overall excellent condition.[147] The following is a breakdown of the conditions of many individual features.

Feature	Condition	Notes
Grounds Appearance	Excellent	
Security	Excellent	
Drainage/Erosion	Excellent	
Tower Walkway	Excellent	
Tower Stairs	Excellent	
Tower	Excellent	Brick Conical [sic] Tower
Tower Foundation	Excellent	Concrete [sic]
Tower Exterior Walls	Excellent	
Tower Exterior Doors	Excellent	
Tower Exterior Windows	Satisfactory	Windows in the lanternhouse have silicone caulk on the exterior. This is not a proper repair. All windows should be removed, the sills scraped and painted, the astragals scraped and painted, and the windows reset in a glaze bed.
Tower Exterior Catwalk	Excellent	
Tower Exterior Railings	Excellent	
Tower Roofing	Excellent	
Tower Lightning Protection	Excellent	
Tower Misc. Hardware	Good	
Tower Interior Walls	Satisfactory	The interior walls of the tower have been painted, and the paint is now flaking off. Scrape the loose paint off the walls, but do not repaint.
Tower Interior Decking	Good	This light attracts flies as do many lighthouses. Institute a preventative maintenance program for weekly sweep down of this tower.
Tower Interior Ceilings	Good	
Tower Interior Doors	Good	
Tower Interior Stairs	Excellent	
Tower Vents	Satisfactory	All vent screens are missing or need repair. Repair/replace as necessary.

Issues were found with the two diesel fuel tanks at the station in October 1993. At that time a 275-gallon tank supplied fuel to an emergency generator, likely in the generator building, which had no containment, and a 500-gallon tank supplied fuel to the furnace of the dwelling which was badly corroded. Each were proposed for replacement to their respective size to include self-contained dike tanks.[148]

The Light Station was again evaluated by USCG personnel in April 1995 (part of a biennial review) and found to be in overall excellent condition.[149] The following is a breakdown of the conditions of many individual features.

[147] "Bass Harbor Head Light." Report of Civil Engineering Evaluation Automated Lighthouses. April 27, 1995. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Historic, Inspections, SSMRs.
[148] C.G. Base Southwest Harbor. *Shore Station Maintenance Record.* October 14, 1993. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.
[149] "Bass Harbor Head Light." Report of Civil Engineering Evaluation Automated Lighthouses. April 27, 1995.

Feature	Condition	Notes
Grounds Appearance	Excellent	
Security	Excellent	
Drainage/Erosion	Good	
Tower Walkway	Excellent	
Tower Stairs	Excellent	
Tower	Good	Cylindrical Brick, Painted White
Tower Foundation	Good	Natural Ledge
Tower Exterior Walls	Excellent	
Tower Exterior Doors	Excellent	
Tower Exterior Windows	Excellent	
Tower Exterior Catwalk	Satisfactory	Scrape and paint the rusty areas of the catwalk.
Tower Exterior Railings	Good	
Tower Roofing	Excellent	
Tower Lightning Protection	Excellent	
Tower Misc. Hardware	Good	
Tower Interior Walls	Satisfactory	Continue to sweep down the paint flaking off the interior tower brick walls at each visit until all paint is removed. Do no repaint.
Tower Interior Decking	Satisfactory	This light attracts flies as do many lighthouses. Institute a preventative maintenance program for weekly sweep down of this tower.
Tower Interior Ceilings	Good	
Tower Interior Doors	Good	
Tower Interior Stairs	Excellent	
Tower Vents	Good	
Dwelling	Good	Replace the missing bricks from the cap course of the chimney. Install a metal chimney cap. Water trapped above the natural ledge outside the foundation of the swelling runs through the basement each time it rains. Remove white paint from the brick wall as it is holding moisture. Divert the water around the outside of the foundation prior to entry, or channel water to a drain. Repair the cracked vinyl siding by the lighthouse entrance to the dwelling. Mold/mildew at the base of the exterior walls may be removed using a TSP/bleach mixture in the strength recommended by the manufacturer. Repair the cracked ceiling in the dwelling dining room and the stained ceiling in the living room by the stairway. Main electrical boxes and electric water heater are inaccessible due to packing boxes. Provide shelving for basement storage so that the NEC required three foot clearance may be maintained around the electric panels.
Oil House	Excellent	
Garage	Good	
Guest Quarters [Bell House]	Satisfactory	Remove lichen and other growth from slate roof and then inspect the slate, sheathing, and rafters.

An associated "Shore Station Maintenance Record" was completed in 1995 for the emergency replacement of the generator at Bass Harbor Head Light Station, and to "Eliminate Wet Basement in the Dwelling" by diverting the water around the foundation "if possible."[150] It is unknown if or when this was completed.

In January 1997, the well water was again tested. Water from the drilled well (sixty feet deep) was found to be "unsatisfactory for drinking" due to coliform bacteria present.[151]

Planning for the upgrade to the heating system at the Keeper's Dwelling was completed in October 1997 (fig. 81) and replacement was made by January 1998. The system included replacing the fuel line, and constructing a new parged-CMU containment wall in the basement around the boiler.[152]

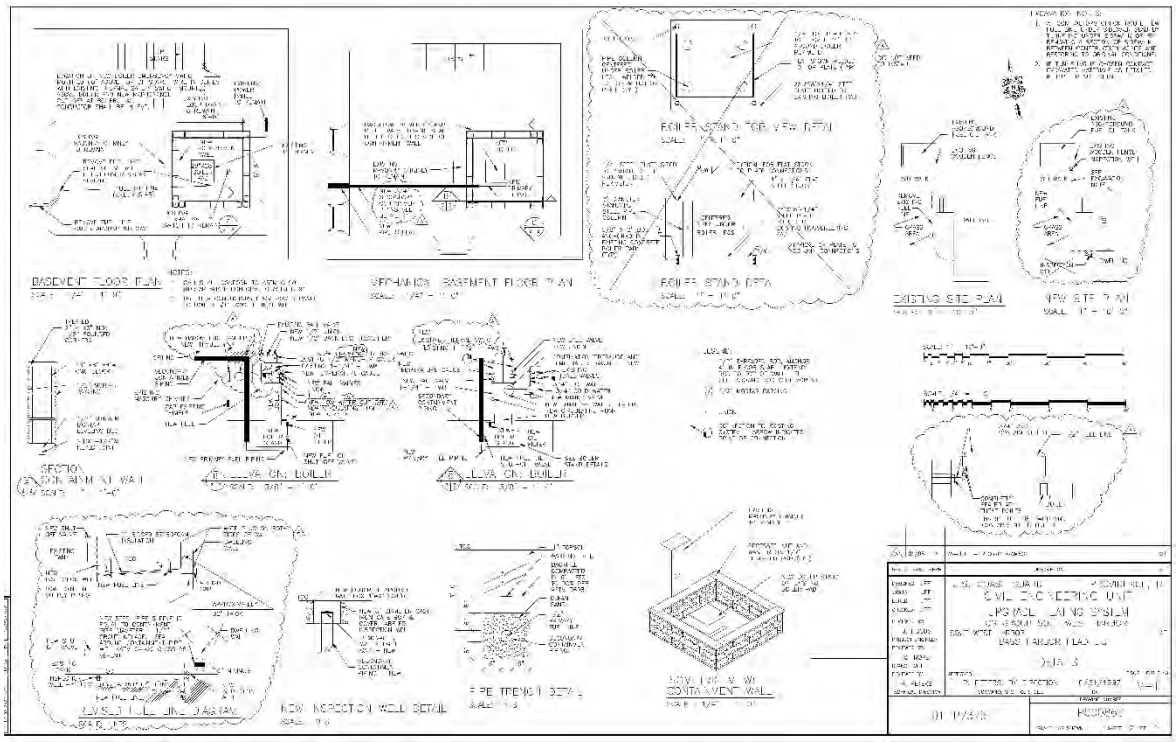


Figure 81. Details of the new heating system installed in November or December 1997. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; File P0863. An 11x17 version of this drawing can be found in Appendix C.

A biennial evaluation was completed in September 1999 for Bass Harbor Head Light Station. Apparently issues were found to the exterior walls, walkways, windows, vents, lighting, fences, and an interior door, however the details of these issues are unknown.[153]

[150] "Eliminate Wet Basement in the Dwelling at Bass Harbor Head Light." *Shore Station Maintenance Record.* Created from 1995 Biennial Evaluation. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Historic, Inspections, SSMRs.
[151] Northeast Laboratory Services. "Water Potability." *Analysis Report.* January 23, 1997. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.
[152] U.S. Coast Guard, Providence, RI, Civil Engineering Unit. "Upgrade Heating System, CG Group Southwest Harbor, Bass Harbor Head Light." *Drawing Set.* October 31, 1997, with as-built records January 1998. USCG Drawing P0863. USCG files transferred to ACAD Cultural Resources Program Manager (Gail Gladstone).
[153] Logan, P.O. (Officer in Charge, USCG Aids to Navigation Team Southwest Harbor, ME via Commander, US Coast Guard Croup Southwest Harbor, ME). "Civil Engineering Evaluation Biennial Visit to Owls Head Light and Bass Harbor Light." *Memorandum to*

Planning for lead paint remediation of the Keeper's Dwelling and Bell House began in 2000. The USCG sent a scope of work to the Maine State Historic Preservation Office (SHPO) in January 2001. At that time, the Coast Guard was in the process of remediating lead paint from all of its housing facilities. For Bass Harbor, "excessive levels of lead paint" had been found in the Keeper's Dwelling ("All interior doors, jambs, flat stock wood door casing trim and baseboard, basement stairs and the brick chimney in basement") and the Bell House ("The wood 1" x 8" soffit and fascia trim below the roof overhang, the wood clapboard siding above the brick façade end walls and the entrance door jamb"). The USCG's "intention [was] to chemically remove all lead paint from the above mentioned areas…in order to preserve the appearance and integrity of the original wood." The wood soffits and fascias of the Bell House were to be completely replaced due to deterioration beyond repair.[154] Photographs were provided to illustrate areas of concern (figs. 82-89).

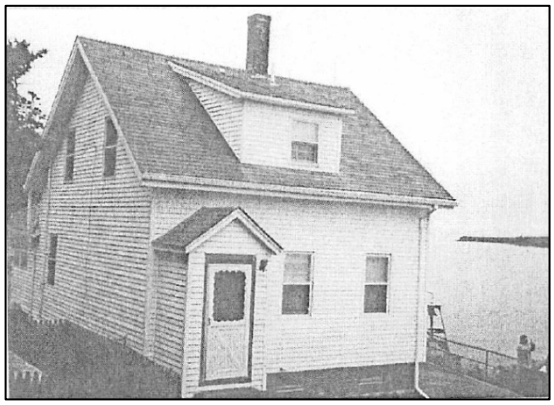


Figure 82. West (front) and north (side) elevations of the Keeper's Dwelling, 2001. Photo: See footnote 152.

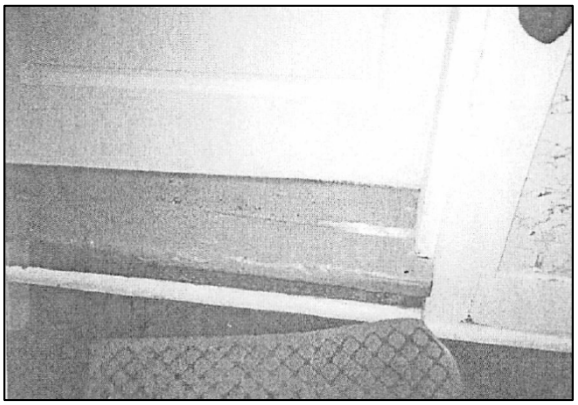


Figure 83. Lead paint on a door, jamb, and threshold of the Keeper's Dwelling, 2001. Photo: See footnote 152.

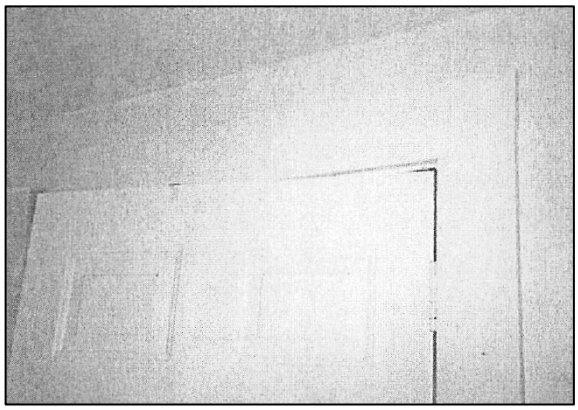


Figure 84. Lead paint on a door and casing of the Keeper's Dwelling, 2001. Photo: See footnote 152.

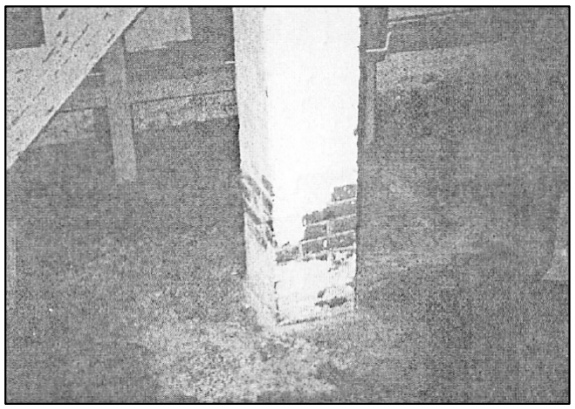


Figure 85. Lead paint on the base of the brick pier in the basement of the Keeper's Dwelling, 2001. Photo: See footnote 152.

Commanding Officer, Civil Engineering Unit Providence, RI. December 2, 1999. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.

[154] Glass, Dave (Design 2 Team Leader, by Direction of the Commanding Officer, United States Coast Guard, CEU Providence). *Letter to Earle Shettleworth, Maine Historic Commission.* January 16, 2001. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.

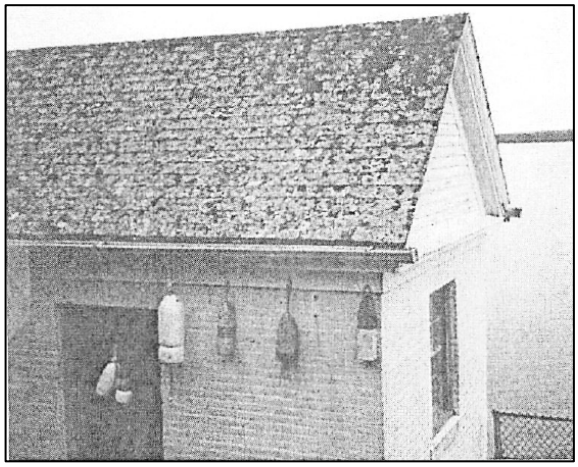


Figure 86. North (front) and west (side) elevations of the Bell House, 2001. Note the lichen-covered roof. Photo: See footnote 152. Cropped by author.

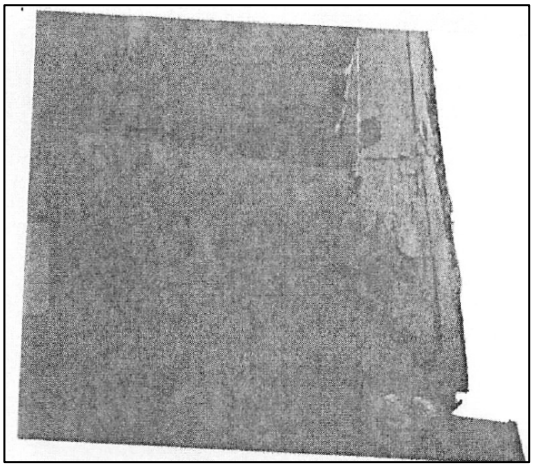


Figure 87. Deteriorated soffit of the Bell House, 2001. Photo: See footnote 152.

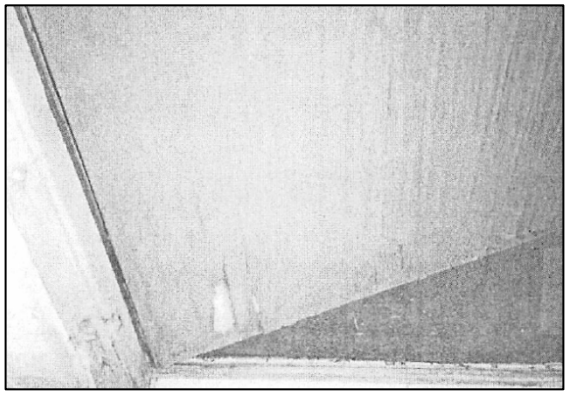


Figure 88. Entrance door to the Bell House, 2001. Photo: See footnote 151.

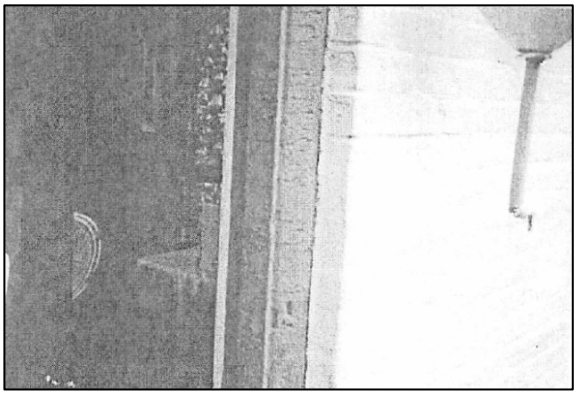


Figure 89. Jamb of the entrance door to the Bell House, 2001. Photo: See footnote 152.

In January 2001, the Maine State Historic Preservation Office found the project would have a "conditional no adverse effect provided that the [SHPO had] the opportunity to review and approve the construction bidding documents for this project."[155]

Contract drawings were completed and approved in August 2001.[156] The scope of work for the Keeper's Dwelling was as follows:

1. Chemically remove lead paint from door, jamb, casing trim down to wood substrate. After lead paint removal, lightly sand deleaded wood surfaces. Repair and glue any separated sections of door. Prime and paint color to match existing. [all doors except door between kitchen and addition, addition exterior door, and door between front vestibule and living room]
2. Chemically remove lead paint from 1"x6" wood baseboard, including closets. Prime and paint. [all interior rooms except bathroom, pantry, covered way, and addition]

[155] Shettleworth, Jr., Earle G. (Maine State Historic Preservation Officer). "MHPC #0134, Bass Harbor Light Station." *Letter to David Glass (Design 2 Team Leader, ISCG CEU Providence).* January 29, 2001. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.
[156] United States Coast Guard, Civil Engineering Unit Providence. "Lead Paint Remediation, U.S. Coast Guard Bass Harbor Lighthouse, Keepers Quarters, Storage Shed, Bass Harbor, Maine." *Drawing Set.* August 2001. USCG Drawing P01314. USCG files transferred to ACAD Cultural Resources Program Manager (Gail Gladstone).

3. Chemically remove lead paint from cased opening [at door openings between vestibule and living room, dining room and kitchen, and kitchen and pantry].
4. Furr [sic] out brick chimney [in basement] with 2"x3" wood studs and ½" gypsum drywall. Provide metal hinged access door as required. Verify size in field. Assume 12" x12".
5. Remove lead painted wood [basement] stairs completely. Replace with new wood stairs and railing to match existing in riser height, width, tread depth and thickness and stringer size. Paint color to match existing stair.
6. Chemically remove lead paint from interior cellar rubble foundation walls…. [exposed foundation walls are brick]
7. New plaster skim coat over all rubble foundation walls after deleading. [exposed foundation walls are brick]
8. Remove carpeting and tack strips. Install new wall to wall carpet…. [living room, dining room, addition, first-floor basement stair landing, second-floor stair and landing, and three second-floor bedrooms]
9. Remove lead painted clamshell baseboard. Install new ½"x3½" clamshell pine wood baseboard. Prime and paint color to match existing. [Covered Way only]
10. Remove 5/4"x8" lead painted threshold. Install new matching wood threshold. Prime and paint color to match. [door between kitchen and covered way, and covered way exterior door]
11. Furr [sic] out lighthouse wall with 2"x3" wood studs and ½" gypsum drywall. Prime and paint color to match adjacent walls.
12. Install new ⅜" gypsum drywall over all covered walkway walls and ceiling.
13. Prime and paint both sides of metal lighthouse door.
14. New 12"x12"x⅛" vinyl composition floor tiles. [covered way, kitchen, vestibule, and entryway]

The scope of work for the Bell House was as follows:

- Chemically strip lead paint from existing door jamb. Paint color to match.
- Remove wood door. Install new 3'-0" wide x 6'-1½" ± high (verify) flush ponderosa solid pine, paint grade door, new stainless steel hinges and stainless lockset hardware. New aluminum threshold.
- Chemically remove lead paint from wood clapboard siding and 1"x6" rake boards. After paint removal, lightly sand, prime and paint white to match existing color.
- Remove lead painted wood D.H. window and replace with new white vinyl clad 6/6 wood D.H. windows. Typical for all five windows.
- Chemically strip lead paint from 1"x8" wood fascia, wood gutter, cover molding and 1"x10" ± overhang soffit. Any deteriorated portions of gutter, fascia, or soffit shall be carefully removed and replaced in kind….

It is unknown of the SHPO was asked to comment on the contract drawings. It also appears the work did not occur at this time (see separate 2004 project below).

About the same time, a drawing was developed for the "repair" (actually replacement) of the Keeper's Dwelling windows.[157] The scope of work was as follows:

1. Window repair shall consist of Anderson 400 Series Tilt-Wash sash conversion kits, sized to fit in existing Anderson Narroline frames. New Tilt-Wash Sash shall have Anderson full divided light grilles in a 6 over 6 pattern. The full divided light grille system shall have a ¾" grille width, with interior grilles, and aluminum divider with the airspace of the insulating glass, and a permanently applied exterior grille. Glazing shall be Northern Low E (Anderson High Performance) clear insulating glass.
2. Remove existing "picture window" [in the south elevation of the addition], and provide a new double hung unit with flanking double hung units on each side in the same rough opening. New unit shall be constructed with Anderson Tilt-Wash units with full divided light grilles.

[157] U.S. Coast Guard, Civil Engineering Unit, Providence. "Window Repairs, Bass Harbor Head Light, Dwelling." *Drawing.* N.D. USCG Drawing P1611. USCG files transferred to ACAD Cultural Resources Program Manager (Gail Gladstone).

Center double hung unit shall have a 6 over 6 pattern; flanking units shall have a 4 over 4 pattern. Glazing shall be Northern Low E (Anderson High Performance) clear insulating glass.
3. New sash and windows shall be factory finished with Anderson Perma-Shield white.
4. Provide new interior and exterior trim to match existing trim at new triple window. Install self-adhering flexible flashing around opening at exterior of new window. Lap flexible flashing over vinyl nailing flanges.

The exact date of replacement is unknown, but did occur.

The water was tested in November 2002 and found to be satisfactory with no Coliform or E.coli.[158]

In May 2004, the USCG assembled another project for lead paint remediation at the Keeper's Dwelling, Garage, and Bell House. Much of the paint was in good condition, but where paint was cracked or chipped, some remediation was necessary to make the dwelling "lead safe" for occupants.

> Work will range from chemical stripping to wet scraping then all areas worked will receive primer and top coated with paint. Specifically the scope of work will include but not be limited to friction surfaces like door jambs, thresholds and various interior wall and ceiling surfaces. On the exterior of the dwelling the soffits and fascia will be scrapped [sic], primed and repainted. Several areas in the garage and [Bell House] also have areas of lead paint in poor condition that will be stripped, primed and repainted. The [Bell House] ceiling and door casing and in the garage the interior walls and the exterior skirt board will all be remediated.[159]

Some photographs were again attached (figs. 90-95). The SHPO found the project to have no adverse effect.

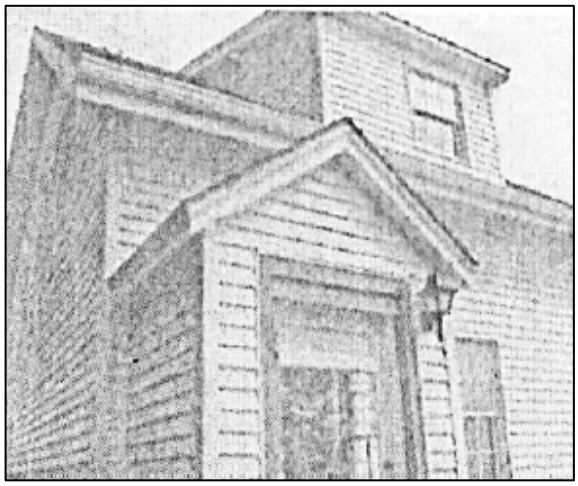


Figure 90. Front (west) elevation of the Keeper's Dwelling, 2004. Photo: See footnote 159.

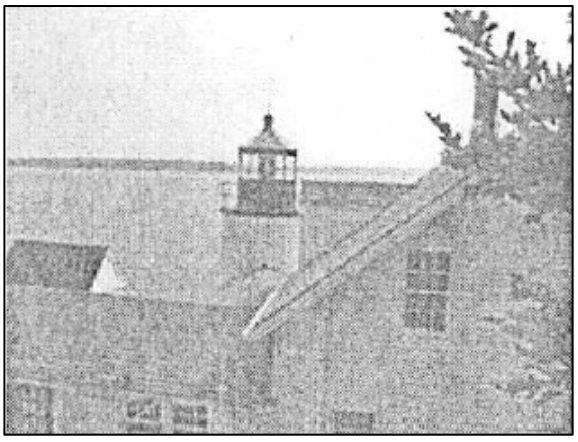


Figure 91. Side (north) elevation of the Keeper's Dwelling, 2004. Photo: See footnote 159.

[158] A&L Laboratory, Inc. *Certificate of Analysis.* December 2, 2002. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.
[159] Glass, David (Design Team Leader, USCG). "Lead Paint Remediation of Bass Harbor Head Light Keeper's Quarters." *Letter to Earle G. Shettleworth, Jr., SHPO, Maine Historic Preservation Commission.* May 6, 2004. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Light House.

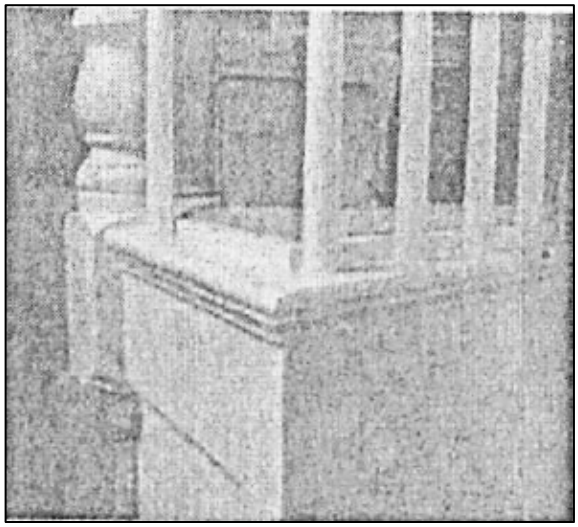


Figure 92. Second-floor stair balustrade on the interior of the Dwelling, 2004. Photo: See footnote 159.

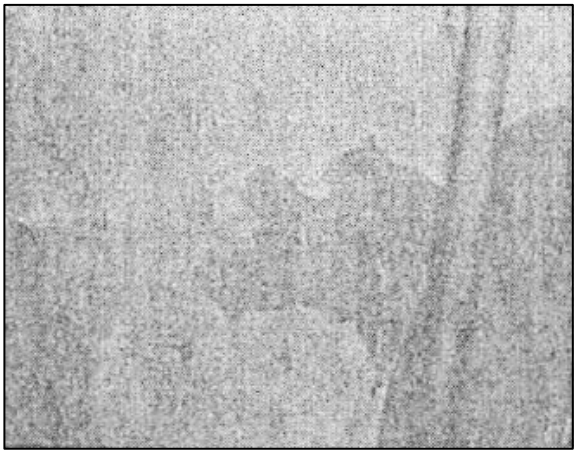


Figure 93. Deteriorated painted wall finishes in the Dwelling, 2004. Photo: See footnote 159.

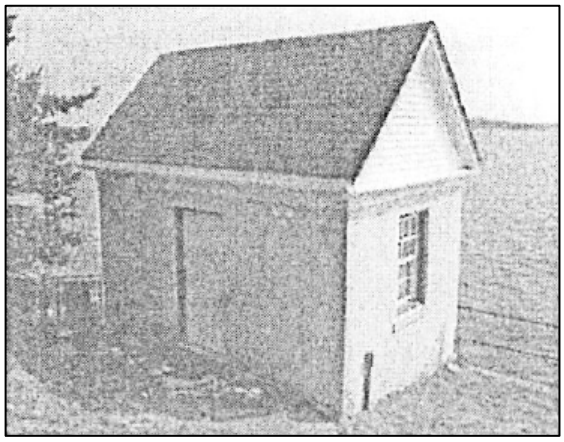


Figure 94. North (front) and west (side) elevations of the Bell House, 2004. Photo: See footnote 159.

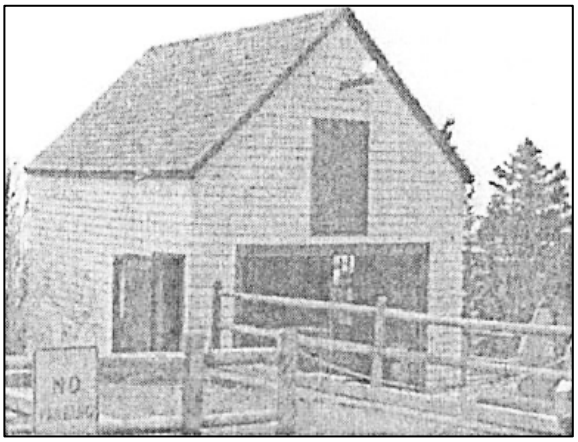
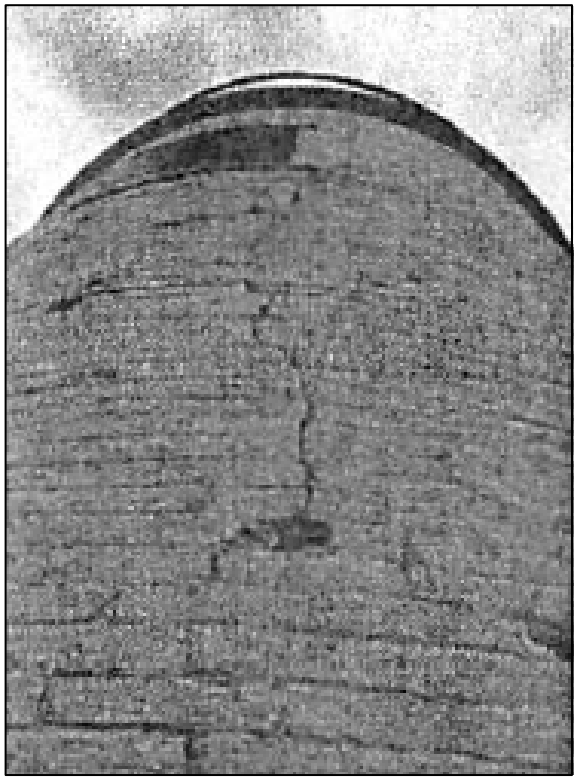


Figure 95. North (front) and east (side) elevations of the Garage, 2004. Photo: See footnote 159.

A triennial evaluation of Southwest Harbor Lighthouses was completed by the USCG in mid-August 2007. The following summary of condition was provided:

> Bass Harbor Light is in fair condition with deteriorating masonry [fig. 96] and rusting window frames [fig. 97]. The exterior of the brick tower is cracked and in need of repointing. The window frames and other interior metal surfaces are rusting and are in need of paint. The interior masonry surfaces are in good condition with most of the old coating gone.[160]

[160] Carosotto, M.P. (CDR, CG CEU Providence). "Triennial Civil Engineering Evaluation Report." *Memorandum to CG ANT Southwest Harbor.* September 12, 2007. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.



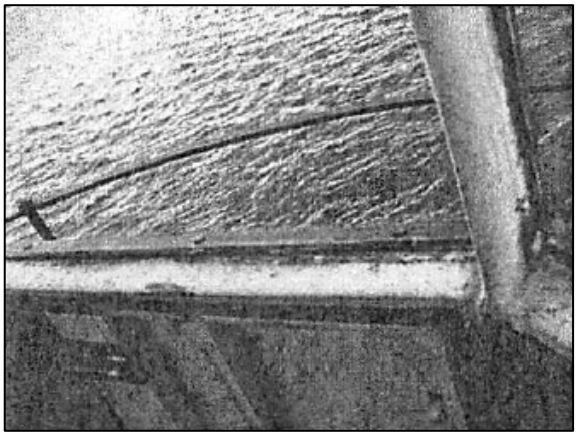


Figure 97, above. Rusting window frames, 2007. Photo: See footnote 160.

Figure 96, left. Crack extending nearly the full height of the tower, south elevation, 2007. Photo: See footnote 160.

In February 2011, it was reported that the interior and exterior of the lighthouse required repointing due to "large cracks in the mortar and deteriorated bricks." Once repointing was completed, the tower was to be painted.[161] It is unknown when this work was completed.

Conjecture places the last tenant residing in the Keeper's Dwelling through about 2012.

Talks of transferring the buildings of the Bass Harbor Head Light Station from the United States Coast Guard to the National Park Service (Acadia National Park) continued 2017-2020.

The 2019 United States Coast Guard Light List shows the light as being Occulting with red for four seconds. The light was fifty-six feet in height with a range of thirteen miles.[162]

[161] USCG Aids to Navigation Team Southwest Harbor, Maine. *Shore Maintenance Record.* February 9, 2011. Files from USCG to ACAD Chief of Facilities (Keith Johnston). Folder: Bass Harbor: Miscellaneous.
[162] U.S. Department of Homeland Security, United States Coast Guard. "Light List." *Volume I: Atlantic Coast, St. Croix River, Maine to Shrewsbury River, New Jersey.* 2019, p. 23. Accessed at https://www.navcen.uscg.gov/pdf/lightLists/LightList_V1_2019.pdf on June 5, 2019.

Table 1. Summary timeline of Bass Harbor Head Light Station	
1857	Bass Harbor Head Light Station established
1858	Original buildings (Lighthouse, Keeper's Dwelling, Covered Way, and Privy) completed Lighthouse lighted Keeper John Thurston begins tenure Start of proposed Period of Significance
1861	Keeper John Rick begins tenure
1865	Keeper John Wilson begins tenure
1869	Keeper Charles Gilley begins tenure
1872	Keeper James Wilson begins tenure
1876	First standalone, hand-struck fog bell established
1878	Keeper's Dwelling raised ten inches, clapboards installed on exterior Lighthouse floor raised Covered Way rebuilt with floor raised
1880	Keeper Charles Chase begins tenure
1890	Keeper William Holbrook begins tenure
1893	Boathouse and slip constructed
1894	Keeper Willis Dolliver begins tenure
1897	Brick Bell House constructed and bell hung from south elevation
1900	Keeper's Dwelling Ell is extended ten feet east
1901	Stevens striking machine added to interior of Bell House Weight Tower constructed north of Bell House Keeper's Dwelling interior stair rearranged to accommodate three bedrooms on second floor; hot water radiator system added Fifth Order lens replaced with Fourth Order lens
1902	Oil House constructed
1905	Barn constructed
1921	Keeper Joseph Gray begins tenure
1938	Keeper Elmer Reed begins tenure
1940	Keeper Leverett Stanley begins tenure
1947	Bell House beam and support structure replaced with I beam
1948	Infill between Keeper's Dwelling and Covered Way likely constructed Modernization plans begin End of proposed Period of Significance
1949	Navy Radio Transmitting Station completed above Light Station Boathouse and slip likely demolished July: Lighthouse and other Station buildings electrified
1950	Keeper Eugene Coleman begins tenure Indoor plumbing added to Keeper's Dwelling, including kitchen sink and second-floor bathroom, and cess pool ejecting over cliff into water
1955	Keeper Morton Dyer begins tenure
1956	Asphalt roof shingles added to Keeper's Dwelling, Covered Way, Garage, and Bell House Barn side sliding door replaced with swing door Oil House used as paint locker Weight Tower demolished Stone retaining wall replaced with concrete retaining wall with pipe railing above Lighthouse sandblasted to remove paint and covered with modern coating
1959	Bell House bell removed
1960	USCG Keeper Allan Carter begins tenure
1963	Flagpole constructed above Light Station
1964	USCG Keeper Clifford Meadows begins tenure
1970s	USCG Keeper Gerry Moores serves
1974	July: Lighthouse automated Land transferred to NPS; USCG retained all structures for housing

(Table 1 continued)

1975	Asphalt roadway finished from public parking lot to Light Station Kitchen chimney demolished Sewage treatment system added (still ejects into water)
1980	Bathroom renovation to include removal of doghouse dormer and construction of shed dormer on west elevation
1987	Bass Harbor Head Light Station listed on National Register of Historic Places Keeper's Dwelling windows replaced by this time
1989	Septic system added to Keeper's Dwelling (no longer ejecting into water)
1990	Bass Harbor Head Light Station documented by HABS photographer
1994	Radon elimination system likely added to Keeper's Dwelling
1997	Keeper's Dwelling heating system upgraded and containment system constructed in basement
ca. 2001	Keeper's Dwelling windows replaced for the second time
2004	Lead-based paint removed from assorted areas of the Light Station buildings
ca. 2012	Last tenant vacated the Light Station buildings; USCG continues to maintain buildings

Architectural Description

The NPS Historic Preservation Training Center visited the Bass Harbor Head Light Station several times over a two-week period—May 8-17, 2019—for the development of this Historic Structure Report. A large collection of field photographs, notes, and drawings were compiled during the visit. Through this work, detailed physical descriptions of features, condition assessments, and a compilation of character-defining and non-character-defining features were completed for the 1858 Keeper's Dwelling and Lighthouse, 1897 Bell House, 1902 Oil House, and 1905 Garage (Barn). Logistical assistance was provided by Acadia National Park.

Building Feature Master List

The Building Feature Master List (BFML) is an overall outline-format checklist used for creating a physical description of the Light Station buildings. The BFML describes features using a hierarchal structure based on industry standards adopted by the federal government—the UNIFORMAT II (ASTM E1557 Standard, 2008) used by many facility management industry leaders, including the National Park Service's Park Facility Management Division (PFMD). The BFML uses headings and sub-headings to divide architectural components, structural systems, mechanical systems, etc. into a simple organizational tool (Table 2).

A	Substructure	
	A10	Foundations
B	Shell	
	B10	Superstructure
	B20	Exterior Enclosure
	B30	Roof Closure
C	Interiors	
	C10	Interior Construction
	C20	Stairs
	C30	Interior Finishes
D	Services	
	D20	Plumbing
	D30	HVAC
	D40	Fire Protection Services
	D50	Electrical
G	Building Sitework	
	G20	Site Improvements
	G90	Other Site Work

Table 2. The basic UNIFORMAT II Building Feature Master List includes the above headings and subheadings.

Physical Description Summary

The Bass Harbor Head Light Station has undergone several alterations and seen nearly constant use since its establishment in 1858. That year, the Keeper's Dwelling and Lighthouse were constructed. The original design and construction methodology are apparent in the Lighthouse, but modernization has covered many of the character-defining features of the dwelling, interior and exterior.

A Boat House was constructed in 1893, but was removed in ca. 1949. A Bell House was constructed in 1897, and still stands to the east of the Lighthouse; it retains many of its character-defining features, but no longer retains the bell or any of the mechanisms that associate the building with its original use. A Weight Tower for automatic striking of the bell was constructed in 1901 and removed after 1950 (when a separate bell striker was electrified). An Oil House was constructed in 1902, and still stands to the west of and up the hill from the Keeper's Dwelling; it retains a large portion of its original, character-defining materials. A Garage (Barn) was constructed in 1905 and is still located to the northwest of the Keeper's Dwelling; it retains a large portion of its character-defining features.

Future care of the Bass Harbor Head Light Station structures should be based on the sustainable preservation maintenance of the traditional construction materials and methodologies, not on covering or replacing historic materials with inferior imitations. Significant character-defining features which have been removed should be installed as part of any future treatment of these structures; similarly, any features covered over by modern materials should be uncovered and preserved.

Bass Harbor Head Light Station Physical Description

Site

Acadia National Park (ACAD), the first national park east of the Mississippi River, is largely located on Mount Desert Island (fig. 98) on the coast of Maine (other portions are located on Isle au Haut and the Schoodic Peninsula of the mainland). The park currently oversees the care of one light station: Baker Island Light Station. The Bass Harbor Head Light Station, located at the southernmost tip of the Mount Desert Island, is still owned and maintained by the United States Coast Guard; plans are in process to transfer the Bass Harbor Head Light Station to the NPS and Acadia National Park. A third light station—Bear Island—is owned by the park, but the lessee is responsible for upkeep and maintenance.



Figure 98. Acadia National Park, represented by green overlay, is largely situated on Mount Desert Island on the coast of Maine. Bass Harbor Head Light Station is located at the southernmost tip of the island (arrow). Map: Harpers Ferry Center, 2018.

Bass Harbor Head Light Station was established in 1858 and retains the original Keeper's Dwelling and Lighthouse (attached via an altered Covered Way) along the rocky coast (fig. 99). Other retained buildings at the site are an 1897 Bell House to the southeast, a 1902 Oil House to the northwest, and a 1905 Garage to the northwest. A public parking lot with associated restroom building, both maintained by the NPS, are located above the Light Station (north) and an asphalt walking path joins the parking lot down to the light station. A Generator Building (originally a Navy Radio Transmitting station) and antenna are located at the southeast corner of the parking lot; these buildings are not included in the scope of work for this HSR. A maintained hiking trail leads from the southeast corner of the parking lot down to the rocky coast.



Figure 99. A Google Earth aerial view of the Light Station. The main road enters the parking lot at top left (northwest corner). A winding asphalt walkway leads from the parking lot (southwest corner) near the 1905 Garage, past the 1902 Bell House, down to the 1858 Keeper's Dwelling and Lighthouse and 1897 Bell House. A restroom and trailhead area located on the east end or the parking lot (right), as is the 1949 Navy Radio Transmitting Station and antenna. Photo: © Google, 2015.

Lighthouse Physical Description

Exterior Overall

The 1858 Lighthouse appears to sit directly on grade, with no exposed foundation of any kind. The cylindrical brick tower rises 21'-10" (about two floor levels) to just below the painted metal exterior gallery (fig. 100). The brick tower is 11'-6" in diameter. The gallery deck sits directly on the brick masonry wall rather than projecting from the exterior of the wall. The gallery is surrounded by a simple painted metal railing. The gallery surrounds the glass and painted metal lantern. From the deck of the gallery, the lantern, including conical roof, ventilator ball, and lightning rod, measures approximately 37'-0".

Because the Lighthouse is cylindrical, the tower changes little from elevation to elevation. The main differences are the two stacked window penetrations on the south elevation, the decagonal door in the southwest facet of the lantern, and the one-story covered way connecting the Lighthouse to the Keeper's Dwelling on the north side. The entrance into the Lighthouse is on the interior through the Covered Way.



Figure 100. East side of the Lighthouse. Note the two window penetrations on the south (water) side and Covered Way to the Keeper's Dwelling on the north side. Photo: HPTC, 05/08/19.

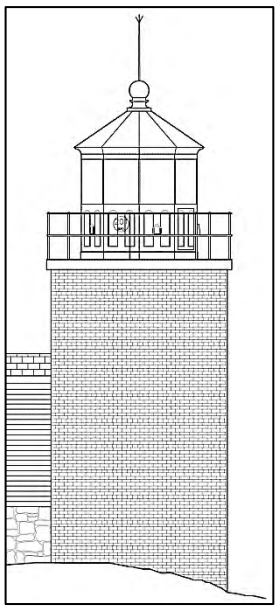


Figure 101. West elevation. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

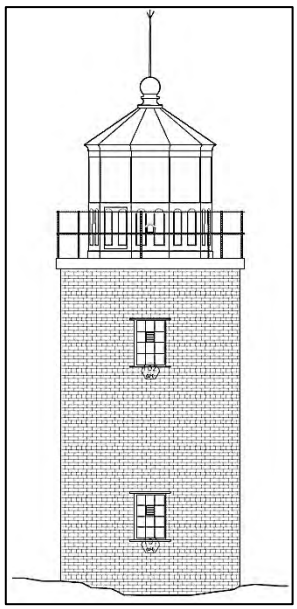


Figure 102. South elevation. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

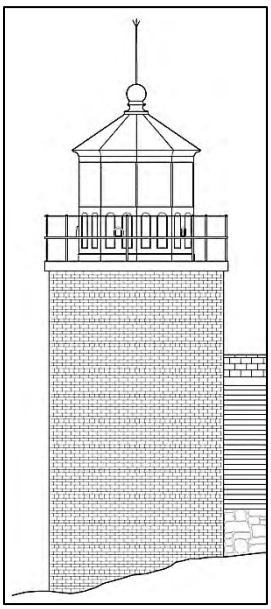


Figure 103. East elevation. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

Interior Organization

The interior is comprised of a single vertical, cylindrical shaft (no batter). The shaft is 11'-6" in diameter. The only defined floor levels are at the base of the cylindrical stair and at the top of the stair within the lantern; no intermediate balconies are located within the shaft.

Foundation Level

An enclosed area is located within the brick exterior walls and topped with the cast-in-place (CIP) concrete floor of the main level. Entrance into the enclosed area could not be obtained. A former door opening can be seen from the crawlspace area under the connecting Covered Way and the lower exterior window (W101) partially extends down into the space and is bisected by the CIP concrete floor.

Main Level (fig. 104)

The main level, or entrance level, is accessed from the large, curved metal door (D101) between the connected Covered Way and the Lighthouse tower. The door is located on the north side of the tower. A window (W101) is located on the south side of the tower and bisected by the CIP concrete floor (fig. 105). The top portion of three brick niches can be seen on the west side. From this concrete floor, the metal spiral stair (fig. 106)—with decorative treads and support brackets—makes one full revolution (360°) to rise 15'-9" to the lantern level (22 treads, 23 risers). A second window (W102) is located directly above the lower on the south elevation, but on the underside of the lantern floor.

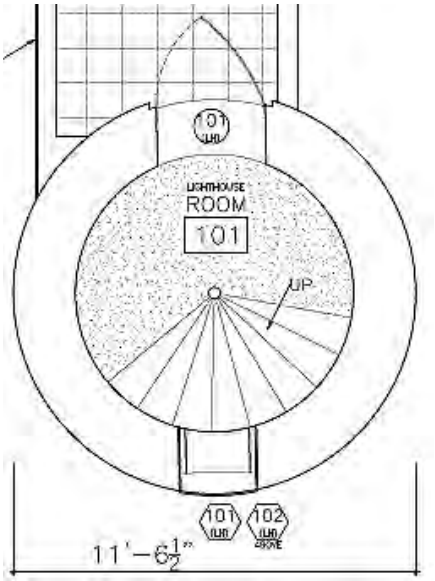


Figure 104. Main Level plan. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.



Figure 105. The CIP concrete main level floor bisects the original window opening (W101) on the south elevation. The top of a niche can be seen at right (arrow). Photo: HPTC, 05/16/19.

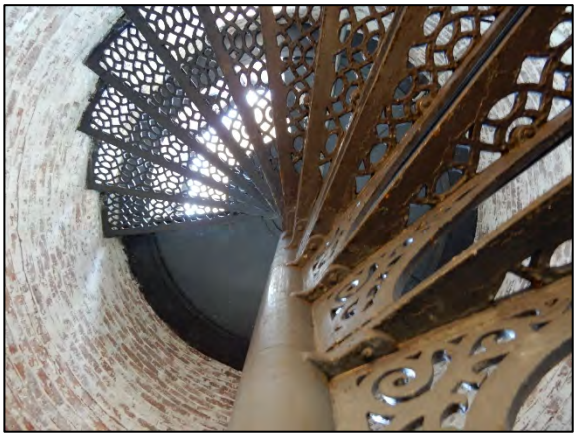


Figure 106. The interior decorative spiral stair connects the main level to the lantern level. Photo: HPTC, 05/16/19.

Lantern Level (fig. 107)

The spiral stair culminates at an access door in the metal lantern floor. The exterior walls of the lantern are composed of painted metal below and glass panes above. In the center of the lantern is the 1901 Fourth Order lens (fig. 108). It is shrouded with a transparent red chimney and supported by a painted metal base. A small metal door (D201) is located at the southwest facet of the decagonal lantern; it accesses the exterior gallery (fig. 109).

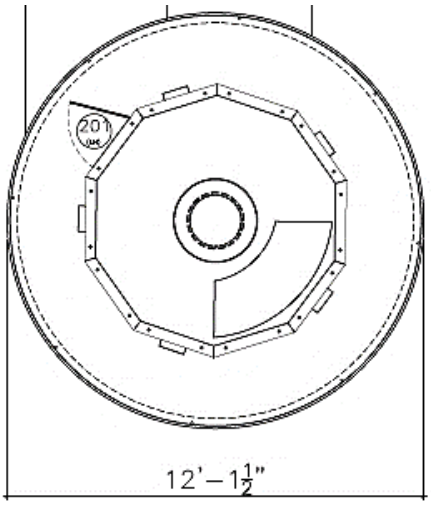


Figure 107. Lantern plan. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.



Figure 108. The elevated Fresnel lens is located in the center of the lantern. Photo: HPTC, 05/16/19.



Figure 109. Metal door (D201) from inside the lantern to the exterior gallery. Photo: HPTC, 05/16/19.

Building Feature Master List Descriptions

A	SUBSTRUCTURE
A10	FOUNDATIONS
A1010	Standard Foundation

Details of the foundation are unknown, as the system cannot be seen on site, and archival records do not provide any information on the system. Based on geology of the site, it could be assumed that the brick tower walls rest directly on top of granite bedrock. Access into the interior of the foundation level (under the CIP concrete floor of the main level) could provide additional details.

The foundation walls of the adjacent Covered Way will be discussed as part of the separate Keeper's Dwelling Physical Description below.

B	SHELL
B10	SUPERSTRUCTURE
B1010	Floor Construction
B101003	Floor Decks and Slabs

Main Level Floor Slab

The original main level floor was located several feet below the current cast-in-place (CIP) concrete floor slab.

Archival photographs show the original Covered Way at a lower elevation in the area next to the Lighthouse (stepped down from the portion adjacent the house) (figs. 110-111). This lower area was referred to as the "Work Room" in early annual reports to the United States Light-House Board, and was likely accessed via a short run of stairs from the upper dwelling level. On the north side of the Lighthouse, within the crawlspace under the current Covered Way, is evidence of an original door opening from the original Work Room into the Lighthouse (fig. 112). Adjacent in the stone foundation walls of the Covered Way is a cold joint, further evidence of the two levels of the original form. All of this evidence points to a former main level tower floor slab at a lower level. Without access to this lower space of the Lighthouse, conditions are unknown. Based on evidence at other area lighthouses of the same timeframe, the original floor was likely composed of brick.

Note: For the purposes of this HSR, the Covered Way is considered an element contributing to the Keeper's Dwelling, and its components will be discussed as part of the separate Keeper's Dwelling Physical Description below.

The *Annual Report of the Light-House Board* for 1878 noted that the "tower floor was raised, and the work-room and porch rebuilt" between the Keeper's Dwelling and Lighthouse. [1] Archival photographs from the 1890s show the Covered Way at one consistent level, with a single roof line across. Details of this new raised floor in the tower are unknown. It could have originally been constructed of wood framing and decking materials. It is not likely that CIP concrete was used, as this was not a readily available building technology at the time.

[1] "Annual Report of the Light-House Board to the Secretary of the Treasury for the Fiscal Year Ending June 30, 1878," 1878, p. 11.

The date of the extant CIP concrete floor slab is unknown, but is assumed to date to the Coast Guard modernization of 1949. The concrete is currently painted (fig. 113). It encapsulates the center support pole of the spiral stair and a cast iron tread. At the west side the concrete was poured to infill three brick niches within the brick wall. Where the slab bisects the lower window (W101), the concrete stops short of entering the window opening and is instead supported by a slightly curved concrete wall below (fig. 114).



Figure 110. The Lighthouse from the west in 1875. The Covered Way is lower adjacent the Lighthouse and was referred to as the "Work Room." Source: Southwest Harbor Public Library Digital Archives.[2] Copped by author.



Figure 111. The Lighthouse from the east in ca. 1875. Note the Covered Way was originally two levels; the arrow shows the change in roof level. Source: Southwest Harbor Public Library Digital Archives.[3] Copped by author.

[2] "Bass Harbor Head Light." Item 5655. *Southwest Harbor Public Library.*
[3] "Bass Harbor Head Light." Item 13207. *Southwest Harbor Public Library.*



Figure 112. The crawlspace under the Covered Way reveals an old door opening (arrow) on the north side of the lighthouse (brick). A cold joint in the east stone foundation wall is likely the extent of the original lower Work Room for the Lighthouse (dashed line). Photo: HPTC, 05/15/19.



Figure 113, left. The CIP main level slab is painted and encapsulates a stair tread (arrow) and center support post. 05/16/19.



Figure 114, above. The CIP concrete slab stops short of the W101 opening and is supported by a concrete wall below. Photo: HPTC, 05/15/19.

Lantern & Gallery Floor Deck

The metal floor deck of the lantern and gallery (one continuous level) is composed of five cast iron wedge-shaped plates radiating out from the center support post (figs. 115-116). These plates are supported by a central disc at the center post. The five segmented gallery floor plates wrap over and across the thick exterior brick wall (1'-9" thick) and under the lantern walls (decagonal in plan) (figs. 117-118). All metal components are painted.



Figure 115. The lantern deck is composed of five wedge-shaped plates supported by the post in the center and gallery deck plates at the brick wall. Photo: HPTC, 05/16/19.

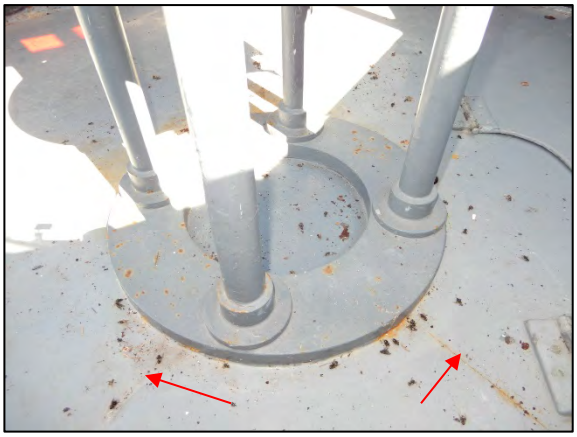


Figure 116. Plate seams seen on the floor of the lantern. Photo: HPTC, 05/16/19.



Figure 117, above, and 118, below. The gallery floor is composed of cast and segmented plates supported by the brick exterior wall (above). Where the plates join, brackets project through the wall to support the interior lantern deck (below). Photo: HPTC, 05/16/19.





Figure 119, above. At the lantern door, seams between the exterior gallery floor plates and the interior lantern floor plates can be seen and appear continuous. However the exterior plates are supported entirely by the exterior brick wall. The interior plates rest on the exterior plates projecting into the interior, as seen in fig. 118 at left. The added lines attempt to show the structure in section. Photo: HPTC, 05/16/19.

B101004	Balcony Construction – Gallery Railing

Archival photographs from 1875 show the gallery perimeter railing was originally composed of upright posts and a single top rail. By 1948 a second railing was added between the top railing and the floor of the gallery. This is the current configuration of the railing.



Figure 120. The posts and top rail of the gallery railing system are smaller proportionally to the midrail and may be original components to 1858. Photo: HPTC, 05/16/19.

It is unknown if this is the original railing altered or a new railing, but based on the smaller proportions of the posts and upper railing compared to the midrail (fig. 120), those daintier components may actually be original with a twentieth century midrail added.

B1020	Roof Construction
B102001	Structural Roof Frame

The roof frame consists of the "spider frame" common in many lighthouses. The frame is composed of ten slender iron rafters arranged like the spokes of a wheel (decagon) and span from the eave (lower end) to the peak of the conical roof. The tops of the rafters are joined at an iron compression ring (fig. 121). The bottoms are connected to horizontal tie bars above the windows (fig. 122). (Larger lighthouses sometimes had horizontal tension members and a center ring at this level, but there is no evidence of that here (fig. 123). At the peak of the roof is an added electric fan to exhaust the hot air from the lantern. Originally a vent pipe (unknown size) from the heat-inducing lantern would have exhausted up through the center of the exterior ventilator ball (fig. 124). All of metal roof frame components are painted.



Figure 121. Metal roof rafters meet at a compression ring at the peak of the conical roof. A modern electric exhaust fan is located where a vent pipe from the lens below was originally. Photo: HPTC, 05/16/19.



Figure 122, right. The bottoms of the rafters are connected via horizontal beams above the lantern windows. Photo: HPTC, 05/16/19.



Figure 123. The illuminated Fresnel lens shows details of the roof structure on the night of October 19, 1948. The roof structure is identical to what is seen today. Source: Southwest Harbor Public Library Digital Archive.[4]



Figure 124, right. The ventilator ball at the peak of the roof exhausted hot and acrid air from the lantern below. A lightning rod has always been located on top. Photo: HPTC, 05/16/19.

[4] Ballard, Willis Humphreys. "Bass Harbor Head Light – In the Moonlight." Item 12181. *Southwest Harbor Public Library*.

B20	EXTERIOR ENCLOSURE
B2010	Exterior Walls

Tower Exterior Walls

The exterior brick walls of the cylindrical tower are composed of approximately seven wythes of brick and total 1'-9" thick. The exterior wythe of brick is laid in 7:1 common bond (seven running bond courses to one header course) and is entirely painted, likely with a latex-based paint (fig. 125). The interior wythe of brick is laid entirely in running bond (fig. 126). Peeling paint was swept from the interior by the USCG throughout the 1990s and no new paint has been applied since that time. It is assumed that interior paint includes layers of whitewash and lead-based paint.

The portion of exterior wall facing into the Covered Way has been firred out and covered with painted drywall. An area was already disturbed prior to the HPTC assessment. The hole in the drywall exposed brick with little paint left on the surface and Portland cement-based mortar (fig. 127), an unsympathetic alteration to the historic structure. The brick is this location was very damp.



Figure 125. The exterior wythe of bricks is laid in a 7:1 common bond and completely painted. Photo: HPTC, 05/16/19.



Figure 126. The interior wythe of bricks is laid in a running bond. Paint has been partially removed from the interior. Photo: HPTC, 05/16/19.



Figure 127, right. Damaged drywall on brick tower facing into the Covered Way shows Portland cement-based mortar and damp materials. Photo: 05/16/19.

Lantern Exterior Walls

The lantern exterior walls are composed of cast iron panels below and glass panels above (fig. 128).

The lower portion is constructed of ten cast iron wall segments connected in a decagonal plan. Each segment has two cast embossed arched "panels." Every other wall segment has an interior circular vent complete with an operable brass plate (fig. 129). The exterior includes a cast iron bell-shaped projection to allow air flow, but limit water infiltration; a screen is located between (fig. 130). The wall segments are bolted to one another through side flanges and to the lantern and gallery deck floor layers through a bottom flange (see fig. 129).

The southwest panel includes a door opening (D201) between the interior and exterior. The outswing door matches a wall segment with embossed arched "panels" but is hung from a metal frame with a pair of exterior hinges (fig. 131). An exterior latch is operated with a brass handle. A modern slide bolt has been added to the interior (fig. 132). A metal drip edge is located above the door opening on the exterior and a built-up metal threshold is located at the bottom of the opening.

At the upper end of the wall segment, side flanges and a cast U-shape piece accept the metal muntins separating the glass panels of the lanterns (fig. 133). A similar U-shape piece is located at the bottom of the roof rafters (fig. 134). Metal muntins span from the lower U to the upper U and support the glass panels. Exterior bronze glazing strips hold the glass in place at each muntin through bolts (fig. 135).

Interior roller shades covered the interior of the glass walls through at least 1949 (by 1961 a shroud was instead used to cover the lens only), a typical feature of lighthouse to protect the irreplaceable Fresnel lens stored inside and eliminate any fire hazard of sun shining through the prisms. The roller shades were attached to the top of the vertical muntins (see fig. 134).



Figure 128. The lantern walls with panels below and glass above. Photo: HPTC, 05/16/19.



Figure 129, right. The lower cast iron wall segments with embossed panels in each segment and circular brass vent in every other segment. Note the bolts holding the panels together and attaching them to the floor. Photo: HPTC, 05/16/19.



Figure 130. A bell-shaped projection covers the vent to deter water infiltration. An added screen inhibits insect intrusion. Photo: HPTC, 05/16/19.



Figure 131, right. The exterior of the lantern door. The door matches the other wall segments, but is marked by hinges, latch, and drip edge above. Photo: HPTC, 05/16/19.





Figure 133, above. The side flanges of the wall segments form a U to accept the window muntin. Photo: HPTC, 05/16/19.

Figure 132, left. The interior face of the lantern door. Note the raised threshold and modern slide bolt. Photo: HPTC, 05/16/19.

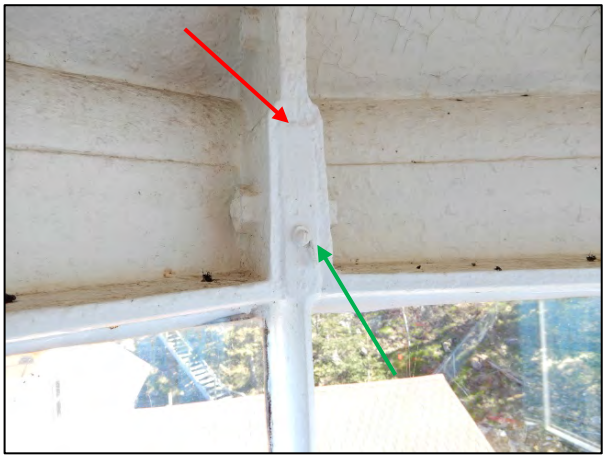


Figure 134. The U-shaped lower end of the roof rafters also accept the window muntins (red arrow). The original roller shades attached to the top of the muntins (green arrow). Photo: HPTC, 05/16/19.



Figure 135, right. A bronze glazing strip bolted to the cast iron muntin behind holds the glass units in place. Photo: HPTC, 05/16/19.

B2020	Exterior Windows

Two window openings are located on this structure, both on the south elevation. W101 is bisected by the interior concrete floor slab. W102 is located higher in the tower, directly above W101.

Archival photographs are blurry at this level of detail, but generally show both openings with pairs of two-lite casement sash (fig. 136). It is unknown if these windows were composed of wood (less likely) or cast iron (more likely). It appears these sash were retained through at least ca. 1962 as evidenced by an archival photograph from that time period (see fig. 64).

Currently, the window openings retain their original cast iron exterior sills, frames, and lintels (fig. 137); all are painted. Glass block, laid in Portland cement-based mortar, has been placed just to the interior of the metal frames. One block of W101 has been replaced with a screened louver (fig. 138). Painted wood trim is located on the interior portions of the openings and retains hinge mortises for inswing casement sash and bolt mortise for a sash stay at the sill (fig. 139); these could have been for interior storm windows.



Figure 136. South elevation of tower, in the 1890s, with original two-lite paired casement windows in place. Source: SWHPL Digital Archives. [5] Cropped by author.

[5] Neal, George Arthur. "Bass Harbor Head Light." Item 6165. *Southwest Harbor Public Library.*





Figure 138. The interior of W101 above the floor slab. Note the louver and remnant hinge mortises. Photo: HPTC, 05/16/19.

Figure 137. Painted cast iron window sill, frame, and lintel are retained at W101. Glass block is located just to the interior of the metal frame. Photo: HPTC, 05/16/19.



Figure 139. The interior of W101 below the floor slab. Photo: HPTC, 05/16/19.



Figure 140, right. The interior of W102. Note the wood trim with remnant hinge mortises for inswing casement storm windows. Photo: HPTC, 05/16/19.

B30	ROOFING
B3010	Roof Coverings
B301001	Roof Finishes

The lantern roof is composed of ten wedge-shaped pieces of a ferrous metal (likely cast iron). Attachment and joint details are unknown. The entire assembly is painted (fig. 141).



Figure 141, right. The painted metal roof panels atop the lantern. Photo: HPTC, 05/16/19.

B301004	Flashings & Trim

Metal step flashing is located where the Covered Way roof abuts the brick exterior tower walls on the north elevation (fig. 142). The type of metal is unknown and is painted.



Figure 142, right. Painted metal step flashing where the east gable slope of the Covered Way abuts the Lighthouse. The opposite slope is identical. Photo: HPTC, 05/16/19.

C	INTERIORS
C10	INTERIOR CONSTRUCTION
C1020	Interior Doors

An interior door (D101) is located on the main level and provides access to the Lighthouse from the attached Covered Way (fig. 143). It is composed of metal (steel?) and is curved in the same arc as the lighthouse exterior walls. The sill, lintel, and frame are all composed of painted cast iron (fig. 144). The door is hung with strap hinges on pintles embedded in the adjacent masonry wall. An exterior latch is operated with a brass handle (fig. 145). The exterior of the door is painted with "Shelter Area Here" of an unknown date.

At the top of the interior stair a semicircular area of the lantern floor deck is cut out for access between the two spaces. A two-piece steel hatch covers the opening (fig. 146); it is not original (date unknown). The two pieces are hinged together, and the larger piece is hinged to the lantern floor deck. A brass spring-loaded hasp is located along the exterior wall.



Figure 143, left. The main entrance to the Lighthouse interior is through the Covered Way. The curved door is hung on strap hinges and pintles. Photo: HPTC, 05/16/19.

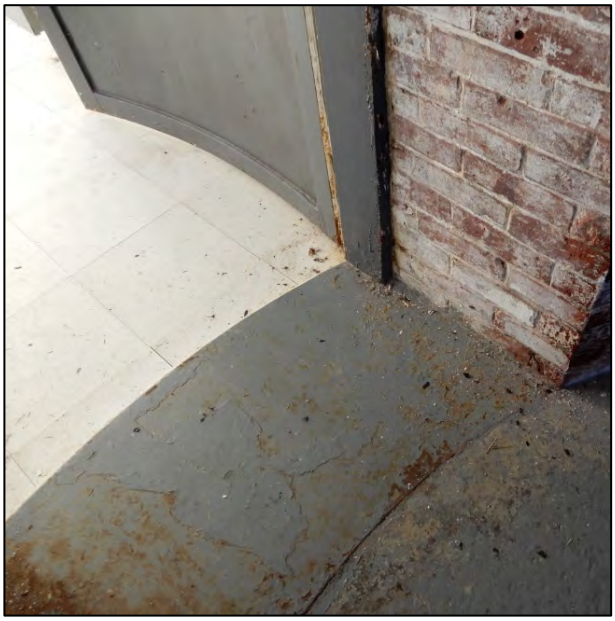


Figure 144, above. The metal threshold and frame are painted. Photo: HPTC, 05/16/19.

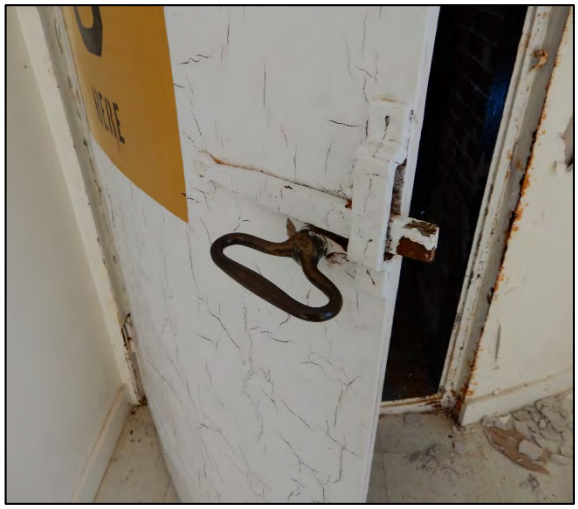


Figure 145. The latch of D101 with brass handle. Photo: HPTC, 05/16/19.



Figure 146, right. The hinged two-piece steel hatch covering the opening in the lantern floor deck. Photo: HPTC, 05/16/19.

C1030	Fittings

The original Fifth Order lens was replaced with a Fourth Order lens in 1901. This latter lens is extant in the lantern and surrounded by a red chimney to the give the light its characteristic (fig. 147). The chimney is not original and does not appear in the October 19, 1948 archival photograph of the lantern (see fig. 123 above). It is unknown how the light—always known to be red in color—was historically made to be that color. The lens is supported by a two-tier painted metal stand in the center of the lantern (fig. 148). This feature does not match the detailing of other metal lantern components and may not be original.



Figure 147. The 1901 Fourth Order Fresnel lens is surrounded by a red chimney of an unknown date. Photo: HPTC, 05/16/19.



Figure 148. The two-tier metal stand (likely not original) supporting the lens. Photo: HPTC, 05/16/19.

C20	STAIRS
C2010	Stair Construction
C201001	Interior Stair Construction

Circulation through the interior of the lighthouse tower is accomplished via a painted cast iron circular stair (fig. 149). The stair is composed of few items which are repeated to form the entire assembly.

The decorative risers with arched opening are stacked at the center of the tower to create a four-inch-wide loadbearing support post (fig. 150). From the "post" the risers span the radius of the tower to the exterior brick wall (about 3'-10"). Attached to the top of each riser is a decorative tread which is let into the exterior brick wall (fig. 151). A small angle bracket further connects each tread unit to the related riser unit at the exterior wall (fig. 152).

The lowest tread is embedded into the main floor CIP concrete floor slab (see fig. 149) suggesting the stair continues farther down to the original floor height (discussed in B101003 Floor Decks and Slabs above).



Figure 149. The interior circular stair. Note the first tread is embedded into the concrete floor slab. Photo: HPTC, 05/16/19.

A rope handrail is located along the exterior wall and is attached to the brick with eye hooks embedded into the masonry (fig. 153).



Figure 150. Riser units stack to form the support "post" which runs up the center of the tower. Seams at the center post indicate the individual riser units (arrow). They then span out 3'-10" to the exterior wall. Photo: HPTC, 05/16/19.

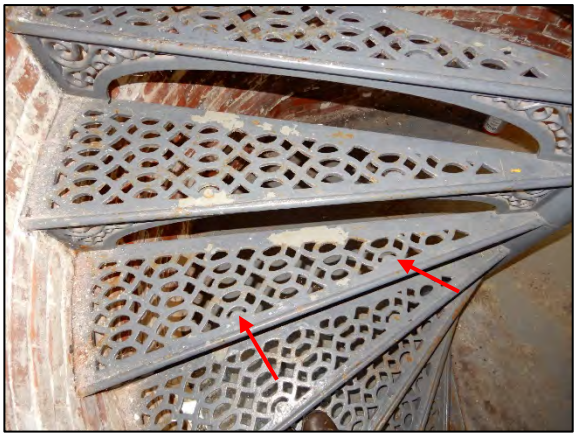


Figure 151. Tread units are attached to the top of the riser units below with two bolts (arrows). Photo: HPTC, 05/16/19.





Figure 153, above. The rope handrail along the exterior wall is attached to the brick with eye screws let into the masonry. Photo: HPTC, 05/16/19.

Figure 152, left. Small angle brackets further connect the tread and riser pairs together at the wall, where the treads are let into the brick. Photo: HPTC, 05/16/19.

D	SERVICES
D20	PLUMBING

No plumbing system is currently extant within the Lighthouse.

D30	HVAC

No HVAC system is currently extant within the Lighthouse.

D40	FIRE PROTECTION SYSTEMS
D4010	Sprinklers

No sprinkler system is currently extant within the Lighthouse.

D4030	Fire Protection Specialties
D403001	Fire Extinguishers

A fire extinguisher is located on the concrete floor slab of the main level. Its last date of service is unknown.

D50	ELECTRICAL
D5010	Electrical Service & Distribution
D5020	Lighting & Branch Wiring

An electrical junction box for serving the Lighthouse is located in the Covered Way outside D101. A breaker box is located just within D101 on the wall (fig. 154). Electrical conduit runs up the interior wall of the tower to service an "AC Flash Controller," located on the metal stand of the lens (fig. 155). An electrical map/diagram could not be found to detail the system.



Figure 154. Modern breaker box located inside the tower adjacent D101. Photo: HPTC, 05/16/19.



Figure 155. Modern "AC Flash Controller" at the lens in the lantern. Photo: HPTC, 05/16/19.

D5030	COMMUNICATIONS & SECURITY
D503001	Fire Alarm Systems

No fire alarm system is currently extant within the Lighthouse.

D503008	Security Alarm Systems

No security alarm system is currently extant within the Lighthouse.

D5090	OTHER ELECTRICAL SYSTEMS
D509004	Lightning Protection System

According to archival photographs, a lightning protection system has been in place at the lighthouse since at least 1875, but likely since original construction (earliest photograph is not dated). The current system includes a single rod at the pinnacle of the ventilator ball atop the lantern roof (fig. 156). The downlead cable runs from the rod, down the side of the lantern, across the gallery floor deck (fig. 157), and down the exterior of the brick tower on the east elevation where it grounds at grade (fig. 158). The cable is painted to match its underlying material as it progresses down the lighthouse.



Figure 156. The lightning rod at the top of the lighthouse roof. Photo: HPTC, 05/16/19.

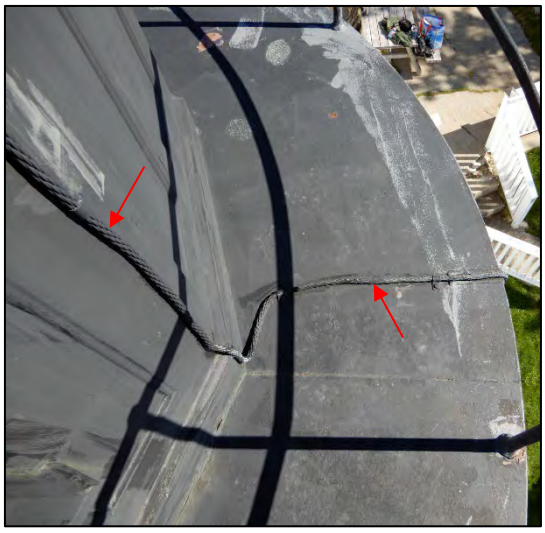


Figure 157. The downlead cable runs along the outside of the lantern and across the gallery floor deck. Photo: HPTC, 05/16/19.



Figure 158. The cable is located on the east elevation of the tower and painted to blend with the painted brick underneath. Photo: HPTC, 05/16/19.

G	BUILDING SITEWORK
G20	SITE IMPROVEMENTS
G2050	Maintained Landscapes

Grass and soil abut the Lighthouse exterior walls and foundations on all four elevations.

G90	OTHER SITE WORK
G9087	Overall Building Site Drainage

The site drainage on the west, south, and east elevations of the Lighthouse is positive, meaning water drains away from the base of the structure. The base of the north elevation is encapsulated in the crawlspace of the connected Covered Way.

Keeper's Dwelling Physical Description

Exterior Overall

The prominent overall visual aspects of the 1858 Main Block of the Keeper's Dwelling are its one-and-one-half-story square massing facing west, with granite and brick foundation walls, vinyl-sided exterior walls, and fiberglass-shingle-clad side-gable roof with central unpainted brick chimney, front-facing shed dormer (1977), and rear-facing doghouse dormer (1901). A small one-story vestibule projects from the front (west) elevation at the main entrance. An original (1858) one-story square Kitchen Ell is located on the east elevation. In 1900, the Ell was extended ten feet to the east to create an office. An 1878-altered one-story rectangular Covered Way connects the south elevation of the Ell to the north elevation of the adjacent Lighthouse. Originally this Covered Way stood off the east elevation of the Main Block by approximately three feet, but by 1948, this area was infilled.



Figure 159. From the southwest: 1858 Main Block, 1878 Covered Way, and attached 1858 Lighthouse. Photo: HPTC, 05/15/19.



Figure 160. Northwest corner of the one-and-one-half-story 1858 Main Block. Note the original one-story vestibule projecting at the front entrance and the 1977 shed dormer at the roof. Photo: HPTC, 05/16/19.



Figure 161. From the northeast: the one-and-one-half-story 1858 Main Block (background) with original chimney and 1901 doghouse dormer, the one-story kitchen ell (1858) and addition (1900), the 1878 one-story Covered Way, and the attached 1858 Lighthouse. Photo: HPTC, 05/16/19.



Figure 162. Southeast corner of the attached 1858 Lighthouse, 1878 Covered Way, 1900 Addition, and 1858 Main Block beyond. Photo: HPTC, 05/15/19.

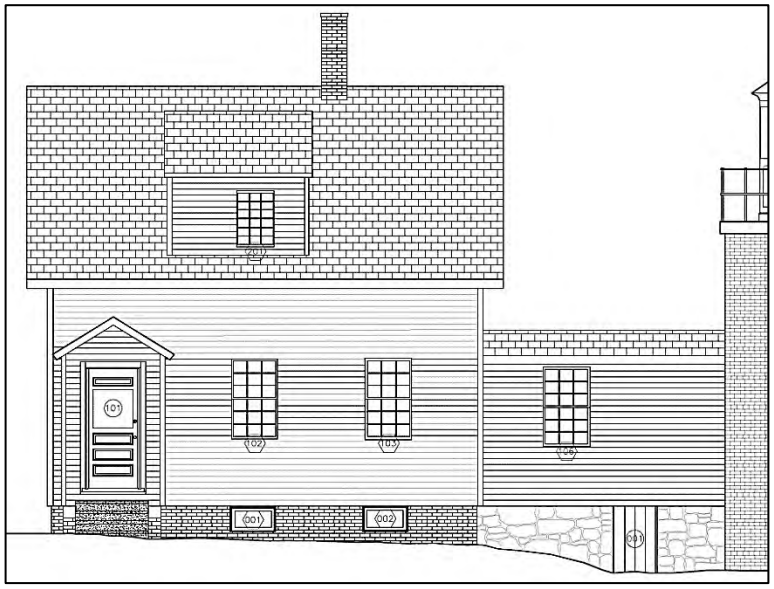


Figure 163. West elevation with one-and-one-half-story Main Block and recessed Covered Way and attached Lighthouse. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

West Elevation

The west (front) elevation of the Main Block is three bays (two rooms) wide (24'-5") and one-and-one-half stories tall (approximately 25'-0") with modern vinyl-sided walls, brick foundation walls, and side-facing gable roof clad with modern fiberglass shingles (fig. 163). First-floor windows are located at approximate center and right third. Foundation windows are aligned underneath. A one-story, 5'-10"-wide enclosed vestibule projects 4'-4" from the front wall. It has vinyl siding, a stone foundation, and a front-facing gable roof. A single door is centered in its elevation. At roof level of the Main Block an unpainted brick chimney projects from the peak of the roof just south of center at the ridge. An 8'-7"-wide shed dormer is located just north of center and includes an off-centered window aligned with the center window below.

The 1878 Covered Way is recessed from the west elevation of the Main Block by approximately 33'-6". The portion of the west elevation of the Covered Way is one bay wide (13'-10") and one-story tall, and sits on a stone foundation under a side-facing gable roof. A single window is located left of center on the first floor and a small access door is located right of center in the foundation. At the south end of the Covered Way is the 1858 brick Lighthouse (discussed elsewhere is this report).

North Elevation

The north elevation of the Main block is two rooms wide (26'-2") and one-and-one-half stories tall and sits on a mostly hidden brick foundation under a front-facing gable roof (fig. 164). An off-center window is located on the first floor and a pair of windows are arranged symmetrically on the second floor. The one-story front vestibule is recessed 0'-8" from the north elevation. The front shed dormer is recessed about 6'-10". The rear doghouse dormer is recessed about 15'-6". A thin brick chimney rises from the peak of the gable roof.

The north elevation of the original Kitchen Ell extends in plane with the Main Block north elevation. The Ell is one room wide (14'-4") and one-story tall and sits on a stone foundation under a side-facing gable roof. A pair of windows is located in the center of the Ell. (A chimney was once located at the north end of the Ell, but was removed after 1974.) The Lighthouse looms above the roof ridgeline.

The north elevation of the 1900 Kitchen Addition extends in plane with the north elevation of the Main Block and Ell. The Addition is one room wide (10'-0") and one-story tall, and sits on a parged

foundation under a side-facing gable roof which is an extension of the Ell roof. A door opening is located against the former exterior wall of the Ell and a window is located just to the left.

All exterior walls of the north elevation are clad with modern vinyl siding. All roofs are clad with modern fiberglass shingles.

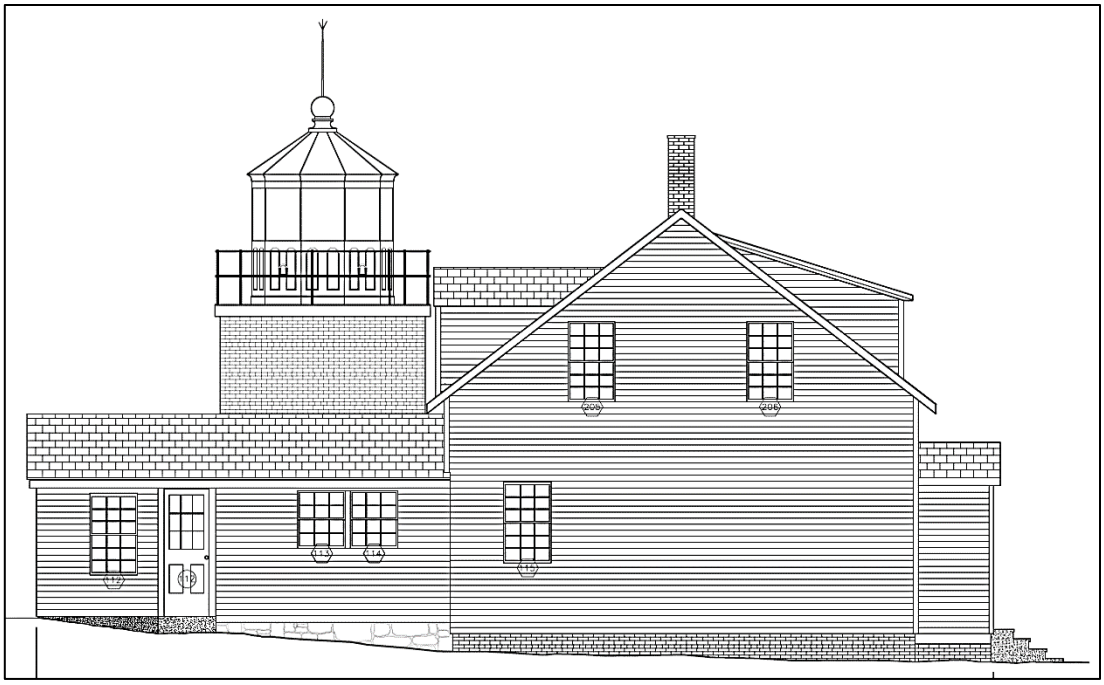


Figure 164. North elevation with Main Block at right, and Kitchen Ell and Addition at left. The door in the Addition abuts the original exterior wall of the Ell. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

East Elevation

The east elevation of the Main Block is three bays wide (24'-5") and one-and-one-half stories tall (approximately 25'-0") with modern vinyl-sided walls and a side-facing gable roof clad with modern fiberglass shingles (fig. 165). An unpainted brick chimney projects from the peak of the roof just south of center. A 4'-6"-wide doghouse dormer is located south of center and includes a single centered window opening.

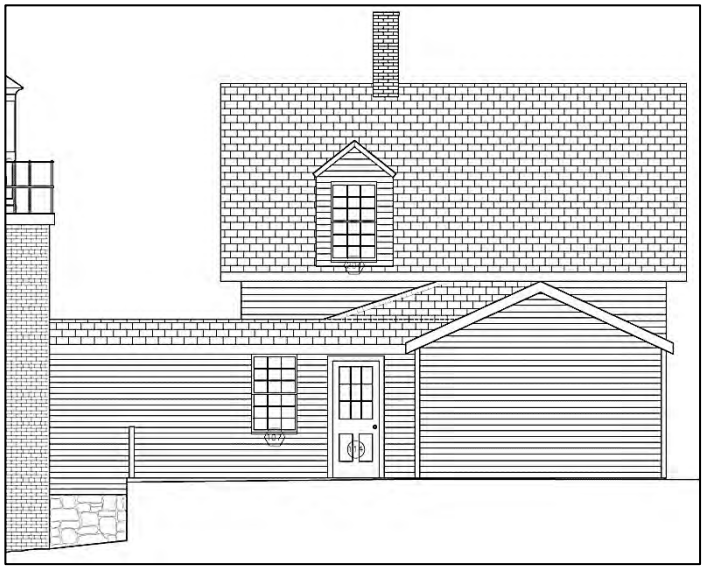


Figure 165. East elevation with Main Block at rear, projecting Ell and Addition, and Covered Way connecting to Lighthouse (left). Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

The one-story Kitchen Ell and Addition project from the east

elevation of the Main Block by 24'-4". The Ell/Addition is one room wide (14'-5"), is sided with vinyl and has a front-facing gable roof. No openings are located on this elevation of the Addition.

The 21'-0"-wide one-story Covered Way is located in front of the Main Block east elevation wall between the south elevation of the Kitchen Ell and north elevation of the Lighthouse. A door is located adjacent the Ell with a window to the south.

South Elevation

The south elevation of the Main Block is two rooms wide (26'-2") and one-and-one-half stories tall and sits on a brick foundation under a front-facing gable roof (fig. 166). Pairs of windows are placed symmetrically on each floor, but do not align vertically (first floor are set wider than the second floor). A single foundation window is located in the center. The one-story vestibule is recessed about 18'-1" from the south elevation; it includes a window on this elevation. The front shed dormer is recessed about 9'-0". The rear doghouse dormer is recessed about 4'-5". A thin brick chimney rises from the peak of the gable roof.

Just east of the Main Block and aligned with the south elevation wall is a pre-1948 infill (3'-3" wide) between the Main Block and the one-story Covered Way. The 7'-8"-wide Covered Way projects from the south elevation of the Main Block and infill by 12'-0" (and Kitchen Ell by 20'-0"). The Lighthouse is attached to the south end of the Covered Way (and is discussed elsewhere in this report).

Behind the Covered Way, the one-story Kitchen Ell and Addition project from the east elevation of Main Block 24'-4". A single window in the original Ell is located against the east wall of the Covered Way. A triplet of windows is located in the center of the 1901 Addition.

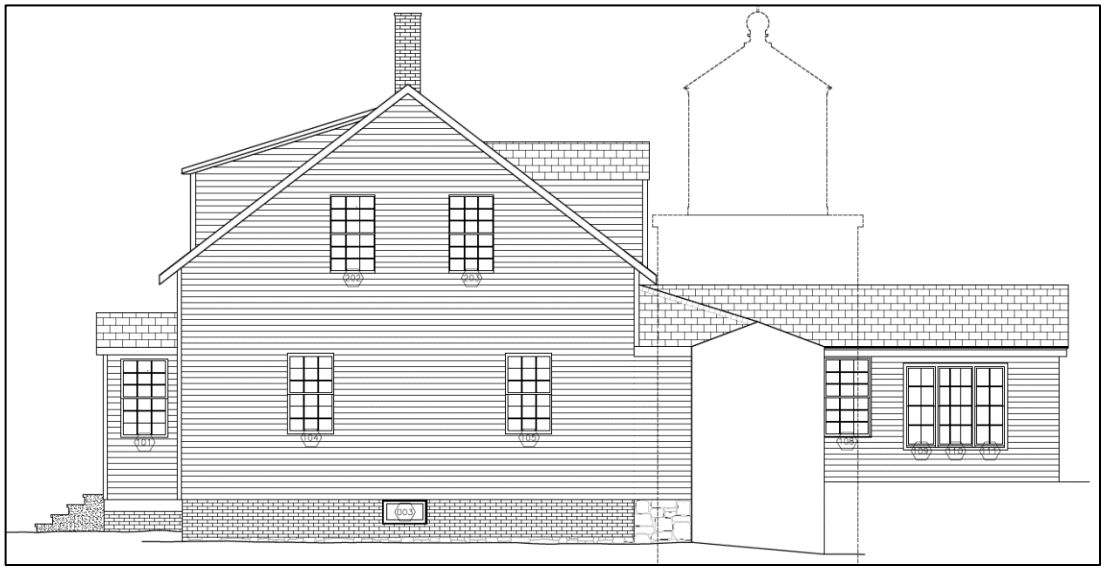


Figure 166. South elevation with one-story front vestibule, one-and-one-half-story Main Block, one-story Covered Way, and one-story Kitchen Ell and Addition. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

Interior Organization

Basement

A full basement is located under the Main Block only and consists of one room (fig. 167). It is only accessible from an interior stair (likely in its original 1858 location). The basement contains a modern containment area for the boiler, a chimney, two windows on the west elevation, one window on the south elevation, and a hatch opening to the crawlspace under the Kitchen Ell (D002).

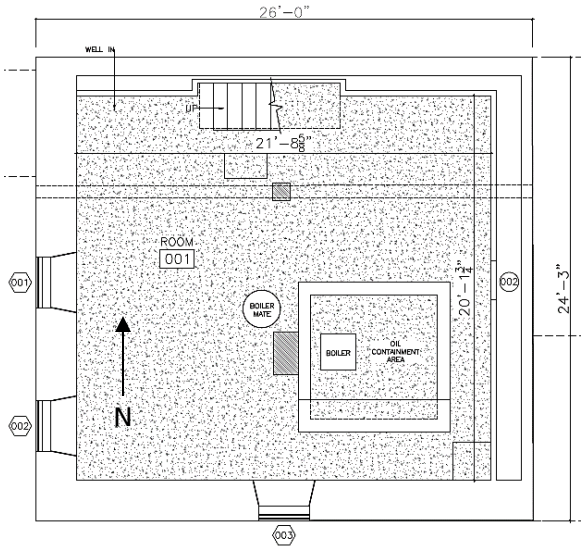


Figure 167. Basement plan. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

First Floor

The first-floor plan can be used to explain the evolution of the building as it exists today. The 1858 Main Block (blue overlay in fig. 168) includes an entrance vestibule at the north end of the west elevation. The vestibule allows access to a foyer which originally was an entrance hall and stair. Now the foyer accesses the living room to the south (through D103). The stair was altered in 1901 to its current winder-dogleg configuration to accommodate changes on the second floor. The living and dining rooms with chimney and closet core between remain relatively unchanged from their original configuration. A door in the north wall of the dining room (D109) originally accessed the stair hall, but now allows access to the basement stair.

A door in the east wall of the dining room (D108) accesses the 1858 Kitchen Ell (also blue overlay in fig. 168). A Main Block half bathroom accessed from the northwest corner of the kitchen (D110) was originally a pantry. In 1900 a single-room Addition was constructed to the east end of the Kitchen Ell (purple overlay in fig. 168).

A door in the south wall of the kitchen (D113) accesses the Covered Way altered to its current configuration in 1878 (yellow overlay in fig. 168). The Covered Way provided interior space between the Keeper's Dwelling and the Lighthouse, likely for inclement weather for the lightkeeper and protected storage.

Between ca. 1902 and 1948, a porch between the east elevation of the Main Block and the west elevation of the Covered Way was infilled to create a closet (green overlay in fig. 168). First accessible from the dining room, it is now accessible from the Covered Way (D115).

Second Floor

A second floor is in the Main Block only and was reconfigured from its original arrangement (north-side stair hall and two bedrooms) to something like its current arrangement in 1901 (fig. 169). The current configuration includes the winder-dogleg stair from the first floor at the northwest corner, a bedroom in the northeast corner, southeast corner (with doghouse dormer), and southwest corner,

and a bathroom added in 1950 with current shed dormer added in 1977 in the center of the west elevation. The chimney and closet core between the bedrooms at the southwest and southeast corners is original.

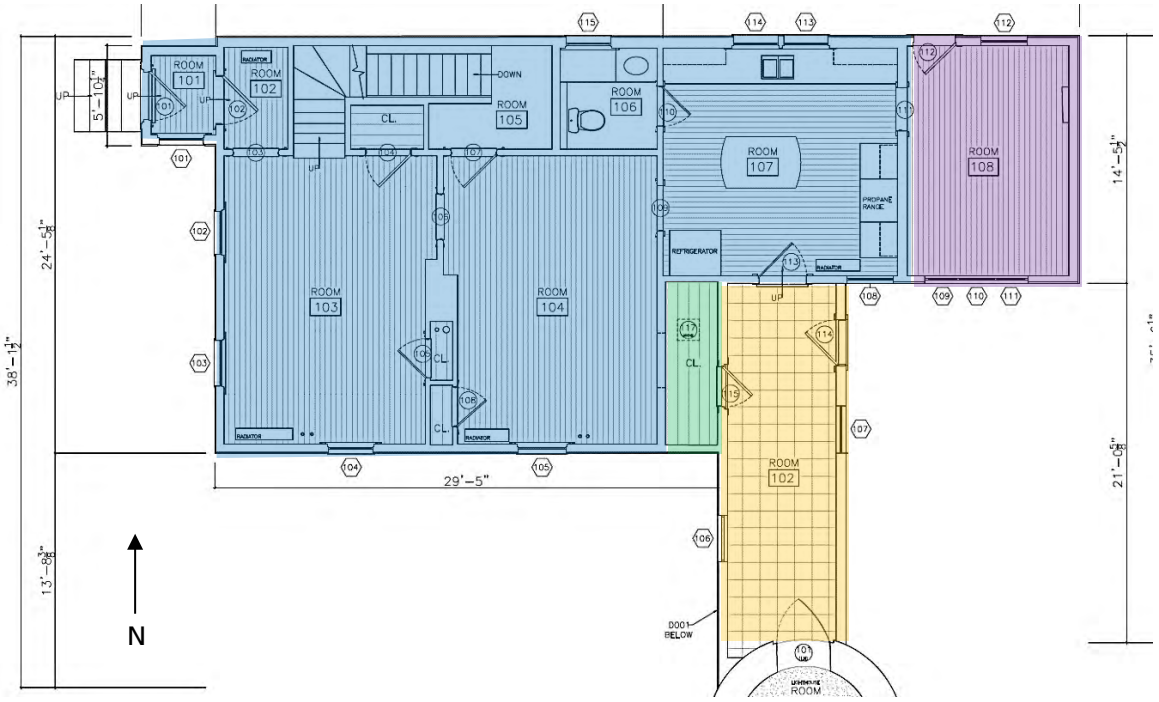


Figure 168. First-floor plan. Blue denotes the 1858 Main Block with vestibule and Ell. Purple denotes the 1900 Addition east of the Ell. Yellow denotes the 1878-altered Covered Way. Green denotes the ca. 1902-1948 infill. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

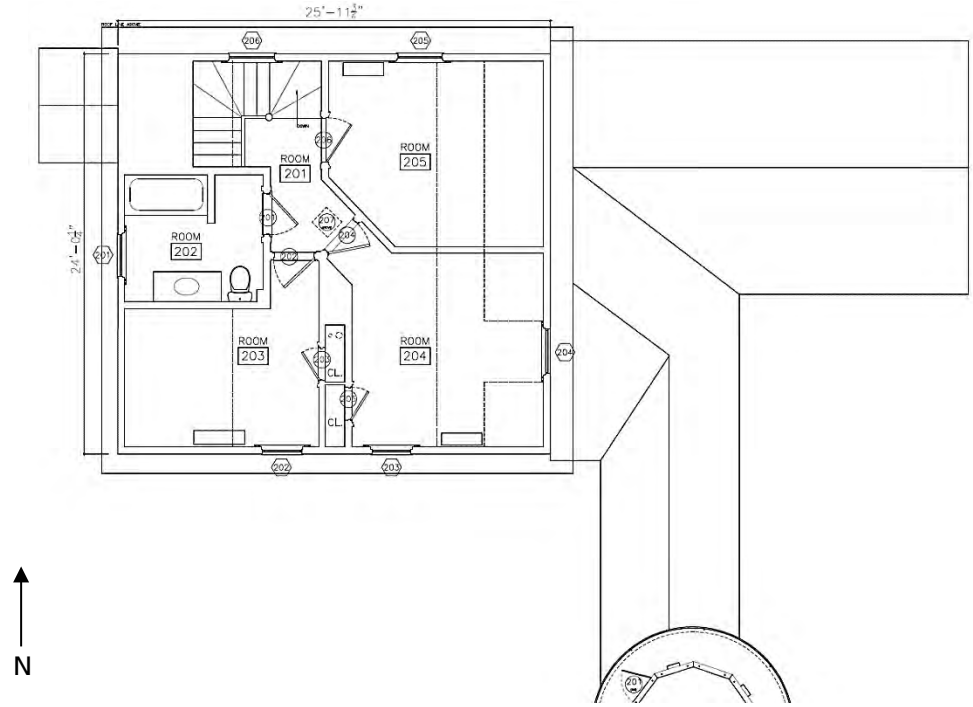


Figure 169. The second-floor configuration dates to 1901 with the bathroom added in 1950 and the dormer of the bathroom changed in 1977 from to shed in form. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

Building Feature Master List Descriptions

A	SUBSTRUCTURE
A10	FOUNDATIONS
A1010	Standard Foundations

Main Block Foundation

The Main Block foundation walls are partially exposed above grade on the south, west, and north elevations (figs. 170-171). This includes a few inches of exposed granite supporting about 2'-2" of unpainted brick laid in a 4:1 common bond (four running courses to one header course).

Archival photographs through 1951 clearly show the exterior faces of the foundation walls painted white or whitewashed (fig. 172). Evidence of this coating can be seen on a portion of the brick foundation wall originally exposed on the east elevation (facing the Covered Way), now located in the crawlspace under the Infill (fig. 173).



Figure 170. Brick foundation walls laid in a 4:1 common bond on the exterior of the Main Block are supported by stone sub-grade walls and sit about 3" back from the outer plane. This is the southwest corner of the building. Photo: HPTC, 05/16/19.



Figure 171. Brick foundation walls of the Main Block on the north elevation. Photo: HPTC, 05/16/19.



Figure 172. A 1951 photograph shows the white coating on all exterior faces of the Keeper's Dwelling. Source: USCG Historian's Office, 170602-G-XX000-434.



Figure 173, right. White coating on the former exterior face of the Main Block east elevation above-grade brick foundation wall. Photo: HPTC, 05/15/19.

The foundation walls are not readily exposed on the interior of the basement and are instead covered by a one-wythe-thick brick wall (refer to A2020 Basement Walls below for more information). An access panel (D001) in the east wall of this brick wall allows some access to the original foundation wall along the east side of the Main Block (fig. 16).

The foundation walls are composed of stone below grade approximately 22" thick (fig. 17). On top of the stone walls are brick walls two wythes thick (8") which are positioned about 3" from the outside plane of the stone below. The distance between the backside of the interior brick wall and the stone below-grade foundation wall is about 5". The distance between the backside of the interior brick wall and the interior face of the above-grade brick foundation wall is about 16".

The areas between the stone below and brick interior wall is filled with debris. The exact details of the north, west, and south foundation walls are unknown, but are assumed to be similar to the details seen at the east wall. The area behind the stair includes only 2½" between the backside of the interior brick wall and interior face of the above-grade brick wall, suggesting the below-grade stone portion is not as thick in this location.



Figure 174. An access panel in the interior basement brick wall exposes the real brick and stone foundation. Photo: HPTC, 05/15/19.



Figure 175. The single-wythe brick basement wall is at left. The space between it and the below-grade stone foundation at right is filled with debris. The above-grade brick foundation wall sits on the stone wall and is justified toward the exterior. Photo: HPTC, 05/15/19.

Entrance Vestibule Foundation

The entrance vestibule foundation walls are partially exposed above grade on the south, west, and north elevations and consist of unpainted brick laid in a running bond pattern with some headers interspersed (fig. 176). The thickness of brick and subgrade condition are unknown, and the crawlspace was inaccessible.

On the west elevation, the brick is covered with a modern concrete stair. Stone is piled up on either side of the stair.



Figure 176. Above-grade brick foundation walls at the entrance vestibule. Photo: HPTC, 05/16/19.

Archival photographs through 1951 clearly show the exterior faces of the foundation walls painted white or whitewashed (see fig. 172). This coating is no longer extant.

Kitchen Ell Foundation

The Kitchen Ell foundation walls are partially exposed above grade on the north elevation and consist of randomly laid granite (fig. 177). The thickness of the walls and the subgrade condition are unknown, and the crawlspace was inaccessible.

Archival photographs through 1951 clearly show the exterior faces of the foundations walls painted white or whitewashed (see fig. 172). Evidence of this coating is seen in the crawlspace under the Covered Way and adjacent infill on what is the south foundation wall of the Kitchen Ell (fig. 178).



Figure 177. Randomly laid granite foundation walls on the north elevation of the Kitchen Ell. Photo: HPTC, 05/16/19.



Figure 178. Historic white coating located on the south foundation wall of the Kitchen Ell now in the crawlspace under the Covered Way and adjacent infill. Photo: HPTC, 05/15/19.

Addition Foundation

The foundation walls of the Addition at the east end of the Kitchen Ell are partially exposed above grade on the north elevation and consist of stone with a cementitious parging. The thickness of the walls, subgrade condition, and details of the walls on the east and south elevations are unknown, and the crawlspace was inaccessible.

Covered Way Foundation

The foundation walls of the Covered Way are partially exposed above grade on the west elevation and consist of randomly laid stone (fig. 179). The walls are about 1'-0" thick. A small door on the west elevation allows access to the crawlspace under the Covered Way and adjacent infill. Details of the below-grade portions of the foundation walls are unknown.

The northern two-thirds of the Covered Way foundation walls date to 1858. The southern third, closest to the Lighthouse, dates to 1878 when the Covered Way, formerly two levels, was made one consistent level, as it is seen today. Evidence of this change can be seen in its crawlspace below, particularly with a cold joint in the stone work on the east side and the corresponding location of the access door on the west side (figs. 180-181).



Figure 179. Stone foundation wall on the west elevation of the Covered Way. Note the small amount of stone of the infill foundation at left. Photo: HPTC, 05/16/19.



Figure 180. Interior of the Covered Way foundation walls as seen from its crawlspace looking toward the brick of the Lighthouse tower. The access door at right and a cold joint at left mark where the Covered Way stepped down (two levels from 1858 to 1878). Photo: HPTC, 05/16/19.



Figure 181. A cold joint in the east wall of the Covered Way foundation wall. The left portion is original to 1858. The right portion was added in 1878 to raise the southern third of the structure and make it one level. Photo: HPTC, 05/13/19.

Infill Foundation

The space between the east elevation of the Main block and the west elevation of the Covered Way was originally a wood porch. By 1948, the area was enclosed along the south elevation and a roof was added. A small area of new foundation wall was required on the south elevation (see fig. 179). It consists of randomly laid stone. Originally the stone was painted white to match the surrounding foundations (see fig. 172).

A1030	Slab On Grade

A concrete slab is located in the basement of the Main Block (fig. 182). The thickness and date of installation are unknown.

Archival drawings from 1949/50 of the basement show coal storage and a cistern extant. Evidence of these do not exist in the floor suggesting the extant slab postdates their removal (conclusively by 1997, but likely earlier).



Figure 182. Concrete slab basement floor. Photo: HPTC, 05/15/19.

A20	BASEMENT CONSTRUCTION
A2020	Basement Walls

A single-wythe brick wall, laid in a running bond pattern, has been added to the perimeter of the Main Block basement, inboard of the stone below-grade foundation walls (fig. 183). The reason and date of this addition is unknown. At the stair, the bricks are laid on edge to be thinner and accommodate the stair (fig. 184). At the three window openings, the brick is brought up at an incline to meet the modern concrete sill in place under the window units and the sides are splayed out (fig. 185).

Archival drawings from 1949/50 of the basement show coal storage and a cistern extant. Evidence of these do not exist in the added brick walls suggesting the extant brick walls postdate their removal (conclusively by 1997, but likely earlier).

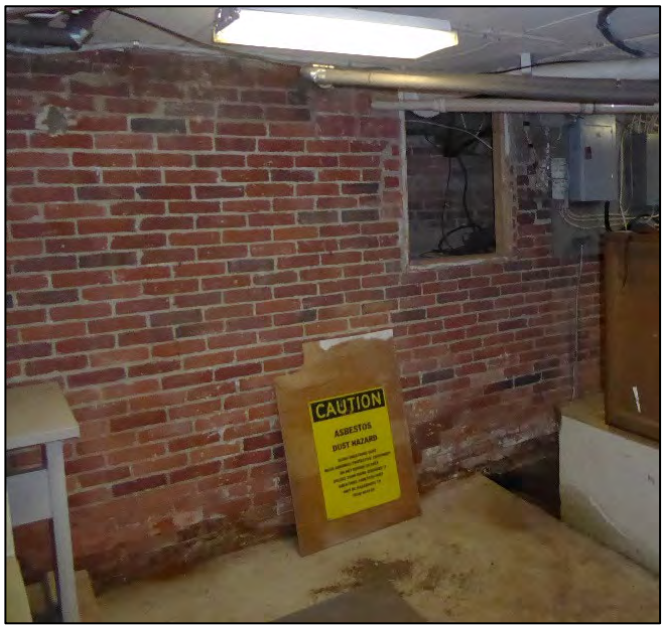


Figure 183. Single-wythe brick wall laid on the interior of the foundation wall in the Main Block. The above-grade brick portion of the foundation wall can be seen through the access door in the east wall. Photo: HPTC, 05/15/19.



Figure 184. The brick at the stair is laid on edge be thinner. Photo: HPTC, 05/15/19.



Figure 185, right. Splayed sides and inclined sill meet the modern concrete frame of the basement window openings. Photo: HPTC, 05/15/19.

B	SHELL
B10	SUPERSTRUCTURE
B1010	Floor Construction
B101001	Structural Floor Frame

Main Block Structural Floor Frames

In 1878, the Main Block was raised ten inches (reason unknown). It appears this was completed by raising the structure and simply adding 10x10 sill plates below the original 9x9 sill plates around the perimeter of the building (fig. 186).

A girder runs E-W from the east original sill plate to the west original sill plate about one-quarter of the way from the north wall to support the wall in the same location above, originally separating the stair hall from the living/dining rooms (fig. 187). This girder is supported at the approximate center by an eleven-inch-square brick column (shimmed ten inches at the top to accommodate raising the structure) (fig. 188). Floor joists, composed of 3"x7½" joists at 19" on center, run N-S from the north original sill plate (notched) to the girder, and from the girder to the south original sill plate (fig. 189). Above the joists is random-width plank sheathing measuring ¾" thick. Much of the underside of the first-floor structural floor frame is covered with tongue-and-groove beadboard. Because of this and the addition of the interior brick basement walls, all details of the framing system cannot be entirely seen.



Figure 186. A 10x10 sill plate was inserted underneath the original 9x9 sill plate (arrow) and on top of the exterior brick foundation wall (shimmed to level in this location). Photo: HPTC, 05/15/19.

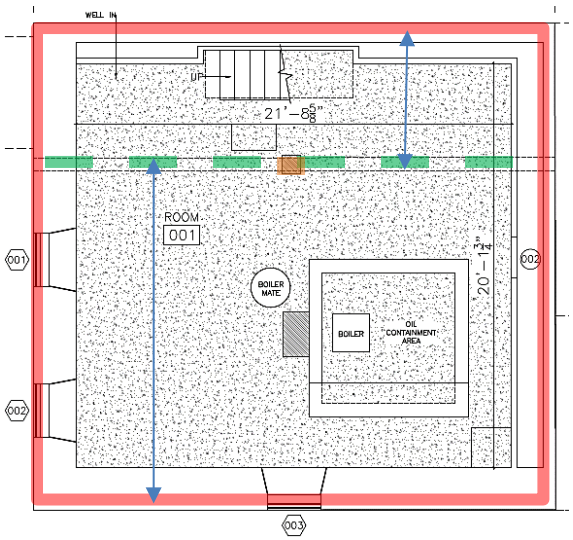


Figure 187. The red lines represent the perimeter sill plates. The green line represents the girder spanning E-W. The orange square marks the brick column supporting the girder at midspan. The blue arrowed lines show the spans and directions of the joists. Drawing: HPTC, 2020.

The second-floor structural floor frame of the Main Block is not accessible for assessment. Details of its construction are assumed to be like those of the first floor.

The attic structural floor frame of the Main Block is partially obscured by fiberglass batt insulation between the joists (fig. 190). The joists are composed of 2"x6" wood members running E-W at 30" on center. One joist is aligned at the base of every rafter pair (fig. 191).



Figure 188. Brick column supports the girder at its center point. Wood blocking was added at the top when the building was raised ten inches in 1878. Photo: HPTC, 05/15/19.



Figure 189. Floor joists are notched into the original (upper) sill plate at the north (seen here) and south walls. Photo: HPTC, 05/15/19.



Figure 190. Looking north in the attic: the joists run E-W and are filled in between with fiberglass batt insulation. Photo: HPTC, 05/15/19.



Figure 191. The joists align with the base of each rafter pair, as seen here along the south end of the east exterior wall. Photo: HPTC, 0515/19.

Entrance Vestibule Structural Floor Frames

The first-floor and attic structural floor frames of the entrance vestibule were not accessible for assessment. Details of these systems are unknown.

Ell Structural Floor Frames

The first-floor structural floor frame of the 1858 Ell was not accessible for assessment. Details of this system are unknown.

The attic structural floor frame of the 1858 Ell is partially accessible through the attic hatch in the Infill closet adjacent the Covered Way (fig. 192). Exact measurements could not be compiled, but the joists run N-S and are supported by the north and south exterior walls and are paired with rafters above, much as they are at the Main Block roof.



Figure 192. Partially exposed Ell attic structural floor frame from the south. Photo: HPTC, 05/13/19.

Addition Structural Floor Frames

The first-floor and attic structural floor frames of the Addition were not accessible for assessment. Details of these systems are unknown.

Covered Way Structural Floor Frames

The first-floor structural floor frame of the 1878 Covered Way is accessible from the crawlspace (fig. 193). Sill plates are located atop the west and east stone foundation walls. At the east wall, the plate measures 6" square (fig. 194). At the west wall, the plate measures 7¼" square (fig. 195). Where the Infill abuts the Covered Way, the stone wall no longer exists under the west plate. The sill plates support 3"x4" joists running E-W at 25" on center. Above and perpendicular to the floor joists is sheathing measuring ¾"x9".

The attic structural floor frame of the 1878 Covered Way is partially accessible through the attic hatch in the Infill closet adjacent the Covered Way (fig. 196). Exact measurements could not be compiled, but the joists run E-W and are supported by the east and west exterior walls.



Figure 193. The first-floor structural frame of the Covered Way is exposed in the crawlspace. Photo: HPTC, 05/13/19.



Figure 194. At the Covered Wall east foundation wall, joists are supported by a 6"x6" sill plate. Note the scarf joint (arrow). Photo: HPTC, 05/13/19.



Figure 195. At the west side, joists are supported by a 7¼"x 7¼" sill plate. The sill plate at the Infill (left) is not supported by a foundation wall. Photo: HPTC, 05/13/19.



Figure 196. Partially exposed Covered Way attic structural floor frame from the west. Photo: HPTC, 05/1/19.

Infill Structural Floor Frames

The first-floor structural floor frame of the ca. 1948 Infill between the east wall of the Main Block and the west wall of the Covered Way is accessible from the crawlspace below (fig. 197). The E-W joists measuring 1½"x8½" are toenailed to the upper (original) sill plate of the east wall of the Main Block and the west wall sill plate of the Covered Way.



Figure 197. Joists added in ca. 1948 for the floor of the Infill between the east wall of the Main Block (left) and Covered Way (right). Photo: HPTC, 05/13/19.

The attic structural frame of the ca. 1948 Infill is accessible through the attic hatch in the Infill closet. The E-W joists measure 1½"x8½" are toenailed to the exterior siding of the east wall of the Main Block and rest on top of the west wall top plate of the Covered Way.

B101002	Structural Interior Walls

The only structural interior wall in the basement is the painted brick chimney foundation (likely original to 1858). Modern firring strips have been attached for the addition of drywall, likely with the intention to encapsulate lead paint (fig. 198).



Figure 198. The painted brick chimney foundation in the basement of the Main Block. Photo: HPTC, 05/13/19.

On the first floor, structural interior walls include portions of exterior walls encapsulated on the interior (highlighted red in fig. 199), the wall dividing the living room/dining room from the original stair hall (now vestibule, stair, and pantry (highlighted green in fig. 199), the brick chimney located between the living and dining rooms (highlighted blue in fig. 199), and the walls supporting the 1901 stair (yellow in fig. 199).

On the second floor, the dormer side walls of the west elevation shed dormer are considered structural interior walls to support the shed roof above, and the brick chimney continues up through the floor between the southeast and southwest walls.

The brick chimney continues up through the attic of the Main Block, punctures the roof, and continues above the roof. It is unpainted in the attic and above roofline. Archival photographs confirm the chimney was never painted white above roofline.

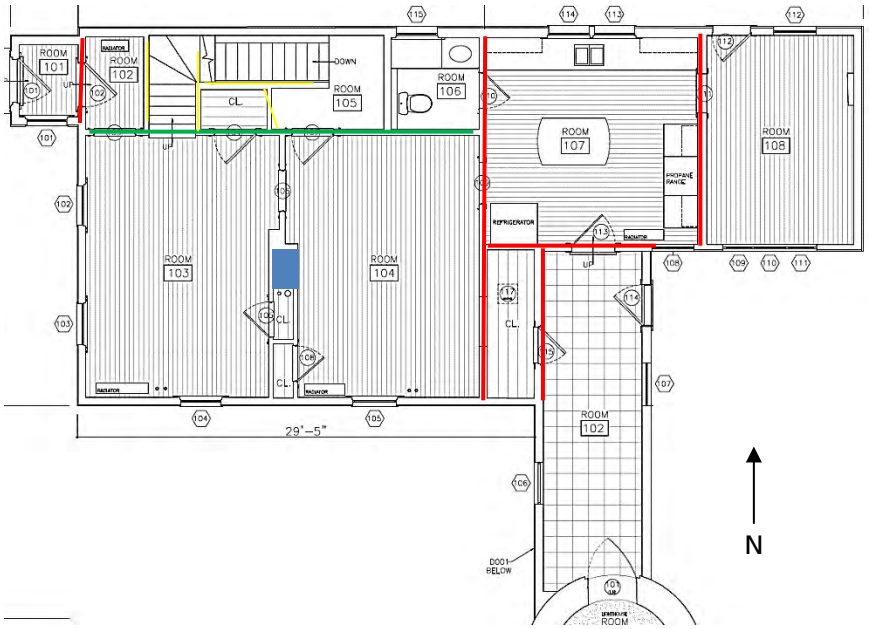
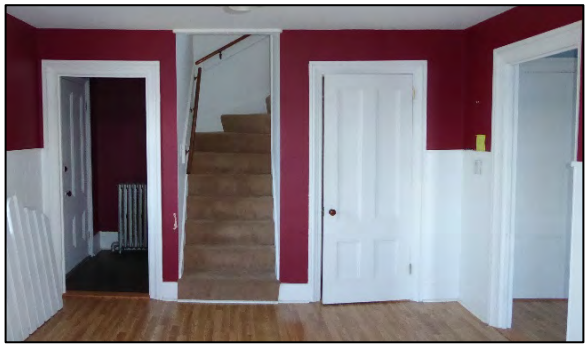


Figure 199, right. First-floor plan. Walls highlighted in red are exterior walls encapsulated to the interior. The green wall once separated the living and dining rooms from the stair hall but retains its loadbearing capacity despite changes to the interior. The blue square denotes the location of the chimney on the first floor. Yellow lines mark the loadbearing walls of the 1901 stair. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.





Figures 200, left, and 201, right. The north wall of the living room, left, and dining room, right, is loadbearing. It originally divided these rooms from the main stair and is assumed to support a girder above which supports the floor joists of the second floor. Additionally, the walls around the 1901 stair support that structure and are loadbearing. Photos: HPTC, 05/16/19.



Figure 202. The brick chimney, as seen in the Main Block attic. Photo: HPTC, 05/13/19.



Figure 203. The brick chimney above roofline. Photo: HPTC, 05/13/19.

B1020	Roof Construction
B102001	Structural Roof Frame

Main Block Structural Roof Frame

The structural roof frame of the 1858 Main Block gable roof is partially accessible is the attic. The frame consists of 3"x5" rafters at 30" on center (fig. 204). There is no ridge beam. The attic floor structural floor joists, described above, are considered collar ties and therefore hold a dual function for the structural floor frame and structural roof frame of the main block; similarly, the joists of the second-floor structural floor frame could be considered the rafter ties. About 15" in from the outside wall, 3"x5" cripples span from the floor joists to the roof rafters above (fig. 205). Wood sheathing planks (1" thick) are located above the rafters to support the roof covering.

The structural roof frames of the west elevation 1977 shed dormer shed roof and the east elevation 1901 doghouse dormer gable roof were not accessible for assessment.



Figure 204. 3"x5" wood rafters at 30" on center of the Main Block gable roof. Note the lack of ridge board. Photo: HPTC, 05/13/19.



Figure 205. Cripples between the roof rafters and floor joists (also considered the collar ties). Photo: HPTC, 05/13/19.

Entrance Vestibule Structural Roof Frame

The structural roof frame of the 1858 entrance vestibule gable roof was not accessible for assessment.

Ell Structural Roof Frame

The structural roof frame of the 1858 Ell gable roof is partially accessible through the attic hatch in the Infill closet adjacent the Covered Way (fig. 206). Exact measurements could not be compiled, but the paired rafters sit on rafter plates on the north and south exterior walls of the Ell and meet at the ridge.

Addition Structural Roof Frame

The structural roof frame of the 1900 Addition gable roof was not accessible for assessment but is assumed to be like that of the Ell structural roof frame.

Covered Way Structural Roof Frame

The structural roof frame of the 1878 Covered Way gable roof is partially accessible through the attic hatch in the Infill closet adjacent the Covered Way. The frame consists of 3”x4” rafters at 26” on center (fig. 207). There is no ridge beam (fig. 208). The lower ends of the rafters sit on the 3”x4” rafter plates of the west and east Covered Way exterior walls (fig. 209). Sheathing above the rafters measures 1”x9”. The rafters and sheathing boards are whitewashed/painted suggesting that no finish plaster ceiling (now extant) was originally in place when constructed in 1858.



Figure 206. Partially exposed Ell structural roof frame from the south. Photo: HPTC, 05/13/19.



Figure 207. Attic space of Covered Way looking north toward the Kitchen Ell roof. Photo: HPTC, 05/13/19.



Figure 208. Attic space of the Covered Way looking south toward the Lighthouse. Photo: HPTC, 05/13/19.



Figure 209. The Covered Way roof rafters (marked with X) are supported at the lower end by the rafter plate atop the exterior walls. Photo: HPTC, 05/13/19.

Infill Structural Roof Frame

When the space between the east exterior wall of the Main Block and west exterior wall of the Covered Way was infilled (ca. 1948), a roof was added over the space and also covered a portion of the south slope of the Ell gable roof and a portion of the west slope of the Covered Way gable roof (fig. 210). This newer roof encapsulates historic wood roof shingles from the Ell and Covered Way (fig. 211).

The ca. 1948 roof frame consists of 2x4 rafters at 24" on center with some ¾" x 4" historic sheathing and some ¾" x 6" newer sheathing above (fig. 212). The hip rafter also measures 2x4. At the upper end of the rafters, the rafters are toe nailed into the exterior wall of the Main Block. This newer roof encapsulates older wood siding and original (1858) board-and-batten siding on the north former exterior wall of the Main Block.



Figure 210. The demarcated area was added in ca. 1948 when the area between the Main Block and Covered Way was infilled. Photo: HPTC, 05/15/19.



Figure 211. The ca. 1948 roof covers the south slope of the Ell roof encapsulating historic wood shingles. Photo: HPTC, 05/13/19.



Figure 212, right. Underside of the Infill roof frame at the hip. The historic wood shingles of the Covered Way are encapsulated below. Photo: HPTC, 05/13/19.

B20	EXTERIOR ENCLOSURE
B2010	Exterior Walls
B201001	Exterior Skin

Main Block Exterior Walls

The exterior walls of the Main Block are composed of wood studs. No portion of the studs was accessible for assessment. Based on wall thicknesses, it is assumed the studs are about 3½" thick. It is also assumed the studs run continuously from the original sill plates to the rafter plates and do not stop at the second-floor floor level (pseudo-balloon frame or timber frame).

The exterior faces of the walls were originally covered with vertical board-and-batten siding painted brown. Portions of this siding have been encapsulated in the attic above the Infill adjacent the Covered Way (fig. 213); the vertical boards measure ¾" thick and 9½" wide. This siding was extant from original construction in 1858 (fig. 214) through 1878 when horizontal wood siding was installed over the original vertical boards (battens removed) and painted white (figs. 215-216). Portions of this siding are encapsulated in the attic above the Infill and in the Infill closet (fig. 217); the wood siding has a 4" exposure and is ½" thick at the butt end.

Currently, vinyl siding is extant on the exterior of the Main Block (fig. 218). Installation occurred between 1962 and 1987, after the proposed end of the Period of Significance (1948).



Figure 213. Remnants of the original vertical boards (9½" wide) of the Main Block are encapsulated in the attic above the Infill. Note the ghostlines of the original battens which covered the joints. The next layer, wood clapboards are above. Photo: HPTC, 05/13/19.

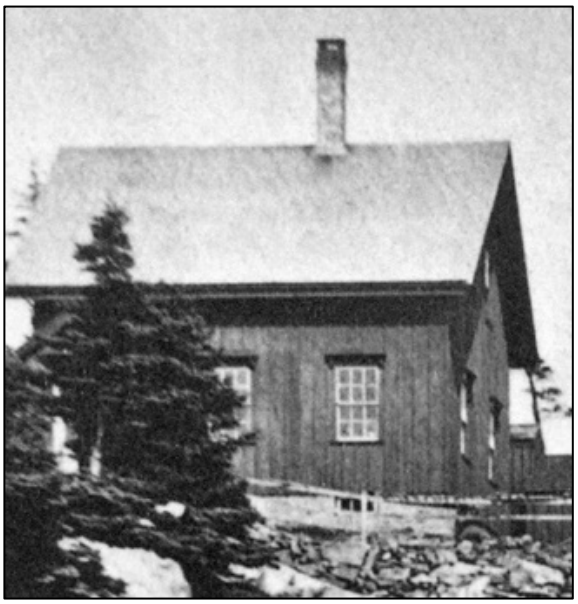


Figure 214, right. An 1875 photograph shows the original board-and-batten siding in place on the west and south elevations of the Main Block. Photo: SWHPL Digital Archive.[1] Cropped by author.

[1] Bradley, Bryant. "Bass Harbor Head Light from the West." Item 5655. *Southwest Harbor Public Library.*



Figure 215. The west and south elevations of the Main Block in October 1897. Note the trim around the windows, the corner boards, and soffits and rakes were painted a darker color. Also, the Entrance Vestibule retains its board-and-batten siding, but has been painted white. Photo: SWHPL Digital Archive.[2] Cropped by author.



Figure 216, right. A December 1961 photograph shows horizontal wood siding extant on the west elevation of the Main Block and 1900 doghouse dormer (now shed). The window surrounds are still painted dark in this picture, but the soffit is white. Photo: SWHPL Digital Archive.[3] Cropped by author.

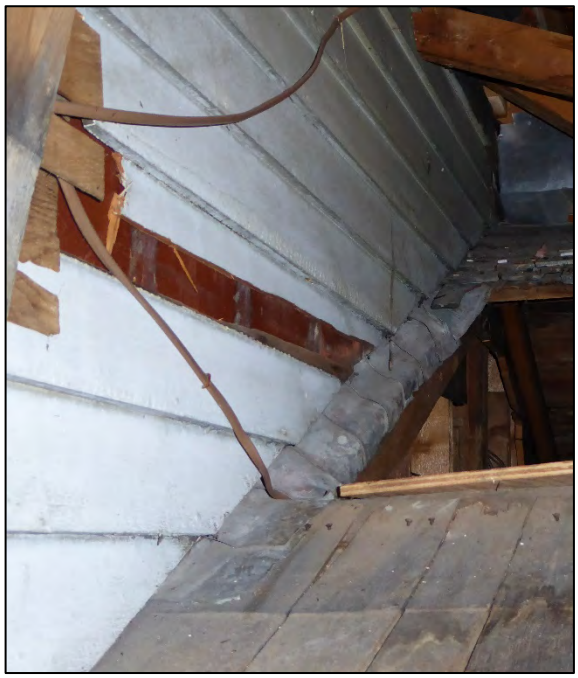


Figure 217. Horizontal wood siding encapsulated in the attic above the Infill. Photo: HPTC, 05/13/19.

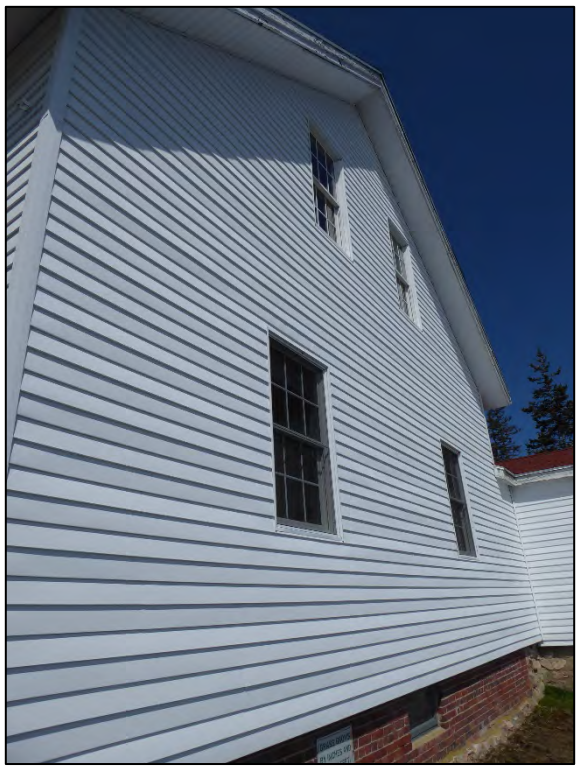


Figure 218. Modern vinyl siding was in place on the Main Block by 1987, as seen here on the south elevation. Photo: HPTC, 05/15/19.

[2] Neale, George Arthur. "Bass Harbor Head Light from the West." Item 6166. *Southwest Harbor Public Library.*
[3] Allard, Willis Humphreys. "Bass Harbor Head Light from the West." Item 12146. *Southwest Harbor Public Library.*

Entrance Vestibule Exterior Walls

The exterior walls of the 1858 entrance vestibule are composed of wood studs. No portion of the studs was accessible for assessment. Based on wall thicknesses, it is assumed the studs are about 3½" thick.

The exterior faces of the walls were originally covered with vertical board-and-batten siding painted brown. When the rest of the Keeper's Dwelling was resided with clapboards in 1878, the vestibule retained its board-and-batten siding but was painted white to match the clapboards (see fig. 215).

Currently, vinyl siding is extant on the exterior of the entrance vestibule (fig. 219). Installation occurred between 1962 and 1987, after the proposed end of the Period of Significance (1948).



Figure 219. Modern vinyl siding on the entrance vestibule Photo: HPTC, 05/15/19.

Ell Exterior Walls

The exterior walls of the 1858 Ell are composed of wood studs. No portion of the studs was accessible for assessment. Based on the wall thicknesses of the exterior walls, it is assumed the studs are about 3½" thick.

No archival photographs were found of the exterior of the Ell with its original coverings; however, a remnant of the vertical boards of the original board-and-batten siding can be seen in the Infill closet adjacent the original south exterior wall of Ell (fig. 220). It has been painted white over the original coating. This vertical siding was extant from original construction in 1858 through 1878 when horizontal wood siding was installed over the original vertical boards (battens removed) and painted white.

Currently, vinyl siding is extant on the exterior of the Ell (fig. 221). Installation occurred between 1962 and 1987, after the proposed end of the Period of Significance (1948).

Addition Exterior Walls

The exterior walls of the Addition are composed of wood studs. No portion of the studs was accessible for assessment. Based on wall thicknesses, it is assumed the studs are about 4" thick.

The 1900 Addition was constructed after the exterior coverings of the rest of the Keeper's Dwelling were changed to horizontal wood siding painted white (1878). Currently, vinyl siding is extant on the exterior of the Addition (fig. 222). Installation occurred between 1962 and 1987, after the proposed end of the Period of Significance (1948).

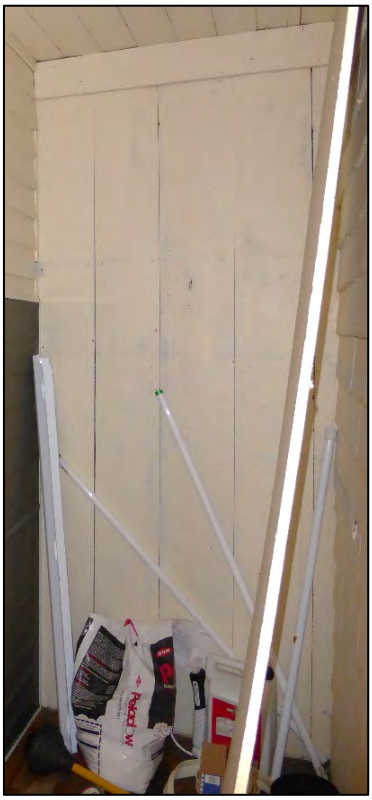


Figure 220, left. Original siding on what was the south exterior elevation wall of the Ell is painted over but encapsulated in the Infill closet. Photo: HPTC, 05/15/19.



Figure 221. Modern vinyl siding on the north elevation of the Ell. Photo: HPTC, 05/15/19.



Figure 222, right. Modern vinyl siding on the east elevation of the Addition. Photo: HPTC, 05/15/19.

Covered Way Exterior Walls

The exterior walls of the 1878 Covered Way are composed of wood studs. A small portion of the studs can be seen in the crawlspace of the structure resting directly on the sill plates of the west and east foundation walls (fig. 223). These studs measure about 4" thick.

The exterior faces of the walls were originally covered with vertical board-and-batten siding painted brown. This siding was extant from original construction of the Covered Way in 1858 (see fig. 214) through 1878 when the Covered Way was altered to be one level and horizontal wood siding was installed over the original vertical boards (battens removed) and painted white (see fig. 215). Portions of a different siding are encapsulated in the Infill closet; it is composed of painted wood shingles (fig. 224). Currently, vinyl siding is extant on the exterior of the Covered Way (fig. 225). Installation occurred between 1962 and 1987, after the proposed end of the Period of Significance (1948).

Infill Exterior Walls

The exterior wall of the Infill is composed of wood studs. No portion of the studs was accessible for assessment. The ca. 1948 Infill was constructed after the exterior coverings of the rest of the Keeper's Dwelling were changed to horizontal wood siding painted white (1878). Currently, vinyl siding is extant on the exterior of the Infill (see fig. 223). Installation occurred between 1962 and 1987, after the end of the proposed Period of Significance (1948).



Figure 223. The bottoms of the studs of the Covered Way exterior walls are supported by the sill plates seen in the crawlspace. Photo: HPTC, 05/13/19.





Figure 224, above. Painted wood shingles extant in the Infill closet on what was an exterior portion of the Covered Way west elevation wall. Photo: HPTC, 05/15/19.

Figure 225, left. Modern vinyl siding on the west elevation of the Covered Way and Infill at left. Photo: HPTC, 05/15/19.

B201008	Exterior Soffits

The exterior soffits of the 1858 Main Block project from the face of the exterior walls by about 14" (fig. 226). The eaves and fascia are boxed out. The eaves are clad with vinyl meant to mimic tongue-and-groove boards. Simple flat stock molding has been added to the top of the rake and fascia under the roof covering overhang. All components except the eaves are wood painted white.

The 1900 doghouse dormer on the east elevation of the Main Block has soffits composed of wood painted white. The soffits have very little overhang, but project slightly from simple, built-up moldings (fig. 227). The exterior soffits of the 1977 shed dormer on the west elevation of the Main Block project from the face of the exterior walls by about 8" (fig. 228). The eaves and fascia are boxed out. All components are composed of wood painted white.

The exterior soffits of the 1858 entrance vestibule project 3¼" from the sides and 4½" from the front (fig. 229). The eaves and fascia are boxed out. Simple *cyma reversa* molding is located at the top of the rake and fascia under the roof covering overhang. All components are wood painted white.

The exterior soffits of the 1858 Kitchen Ell and 1900 Addition project about 5" on all sides. The eaves and fascia are boxed out. Simple molding is located along the rakes under the roof covering overhang (fig. 230). All components are wood painted white.

The exterior soffits of the 1878 Covered Way project about 5" on each side (west and east) and the exterior soffits of the ca. 1948 Infill project about 3" from the south elevation wall (fig. 231). The eaves and fascia are boxed out. All components are wood painted white.

In the 1940s, at the end of the proposed Period of Significance, photographs show the exterior soffits of the entire Keeper's Dwelling complex had been painted darker (fig. 232).



Figure 226. Boxed out eaves and rakes at the northwest corner of the Main Block. Note the vinyl eaves and wood board added at the fascia and rake. Photo: HPTC, 05/16/19.



Figure 227. Soffits on the doghouse dormer do not project far from the walls below but are instead composed of built-up moldings. Photo: HPTC, 05/15/19.



Figure 228, right. The projecting soffits of the shed dormer. Photo: HPTC, 05/16/19.



Figure 229. Boxed out eaves and rakes at the southwest corner of the entrance vestibule. Note the added *cyma reversa* at the fascia and rake. Photo: HPTC, 05/15/19.



Figure 230. Simple trim has been added to the upper side of the rakes under the roof covering overhang at the gable-end wall (east) of the Addition. Photo: HPTC, 05/15/19.



Figure 231. Projecting soffits of the Covered Way, right, and Infill, left. Photo: HPTC, 05/15/19.



Figure 232. The soffits and other exterior trim of the Keeper's Dwelling complex were painted dark in 1951. Photo: USCG Historian's Office, 170602-G-XX000-434.

B2020	Exterior Windows

The extant window openings are filled with Anderson retrofit units installed in the 2000s (exact date unknown). These windows replaced former Anderson window sash but kept existing Anderson Narroline frames. The first retrofit window units were installed by 1987, according to archival photographs. Dates of window alterations prior to this are unknown, but earlier historic photographs clearly depict 6/6 wood windows with exterior aluminum triple-track storm windows through 1961 (figs. 233-236), meaning historic divided-lite wood windows existed through the end of the proposed Period of Significance (1948).



Figure 233. An 1875 photograph depicts original windows of the Main Block as 6/6 window sash under simple hoods. Source: SWHPL Digital Archive.[4] Cropped by author.



Figure 234. The Dwelling prior to November 1893 with 6/6 window sash and distinct trim and hoods above. Photo: NARA, 26-LG-1-27A.





Figure 236, above. This July 1987 photograph shows the first Anderson retrofit units in place. Source: Bass Harbor Head Light Station NRHP 87002273.

Figure 235, left. Exterior aluminum storm windows were added by December 1961. Source: SWHPL Digital Archive.[5] Cropped by author.

[4] Bradley, Bryant. "Bass Harbor Head Light from the West." Item 5655. *Southwest Harbor Public Library.*
[5] Ballard, Willis Humphreys. "Bass Harbor Head Light in the Snow." Item 12146. *Southwest Harbor Public Library.*

Basement

The following chart provides details of each of the basement window openings, only located in the Main Block. Reference the drawing for locations of windows (fig. 237). The following photographs provide an opening-by-opening survey of the basement windows (figs. 238-243).

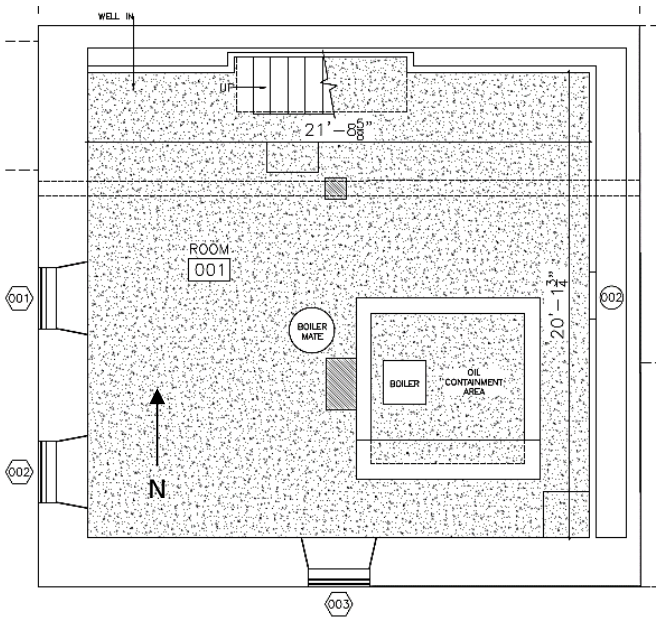


Figure 237. Basement plan with labeled window openings. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

W #	Area	Age of opening	Age of window	Type	Hardware
001	MB	1858	2000s	Replacement outswing hopper w/int. screen	Modern
002	MB	1858	2000s	Replacement outswing hopper w/int. screen	Modern
003	MB	1858	2000s	Replacement outswing hopper w/int. screen	Modern



Figure 238. W001 interior: a modern outswing hopper window with interior screen. The flared brick walls are part of the interior basement wall. A concrete sill, frame, and lintel support the window opening. Photo: HPTC, 05/13/19.



Figure 239. W001 exterior, painted green unlike any other exterior components. Photo: HPTC, 05/15/19.



Figure 240. W002 interior: a modern outswing hopper window with interior screen. The flared brick walls are part of the interior basement wall. A concrete sill, frame, and lintel support the window opening. Photo: HPTC, 05/13/19.



Figure 241. W002 exterior. Note the condensation on the interior side of the glass. Photo: HPTC, 05/15/19.



Figure 242. W003 interior: a modern outswing hopper window with interior screen. The flared brick walls are part of the interior basement wall. A concrete sill, frame, and lintel support the window opening. Photo: HPTC, 05/13/19.



Figure 243. W003 exterior. Note the condensation on the interior side of the glass. Photo: HPTC, 05/15/19.

First-Floor Windows

The following chart provides details of each of the first-floor window openings throughout the Keeper's Dwelling. Reference the drawing for locations of windows (fig. 244). The following photographs provide an opening-by-opening survey of the first-floor windows (figs. 245-265).

W #	Area	Age of opening	Age of window	Type	Hardware
101	Ent.	1858	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
102	MB	1858	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
103	MB	1858	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
104	MB	1858	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
105	MB	1858	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
106	CW	1878	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
107	CW	1878	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
108	Ell	1858?	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
109	Add.	2000s	2000s	Replacement 4/4 DH window unit w/true-divided lites	Modern
110	Add.	2000s	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
111	Add.	2000s	2000s	Replacement 4/4 DH window unit w/true-divided lites	Modern
112	Add.	1900?	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
113	Ell	1950	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
114	Ell	1950	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
115	MB	1858	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern

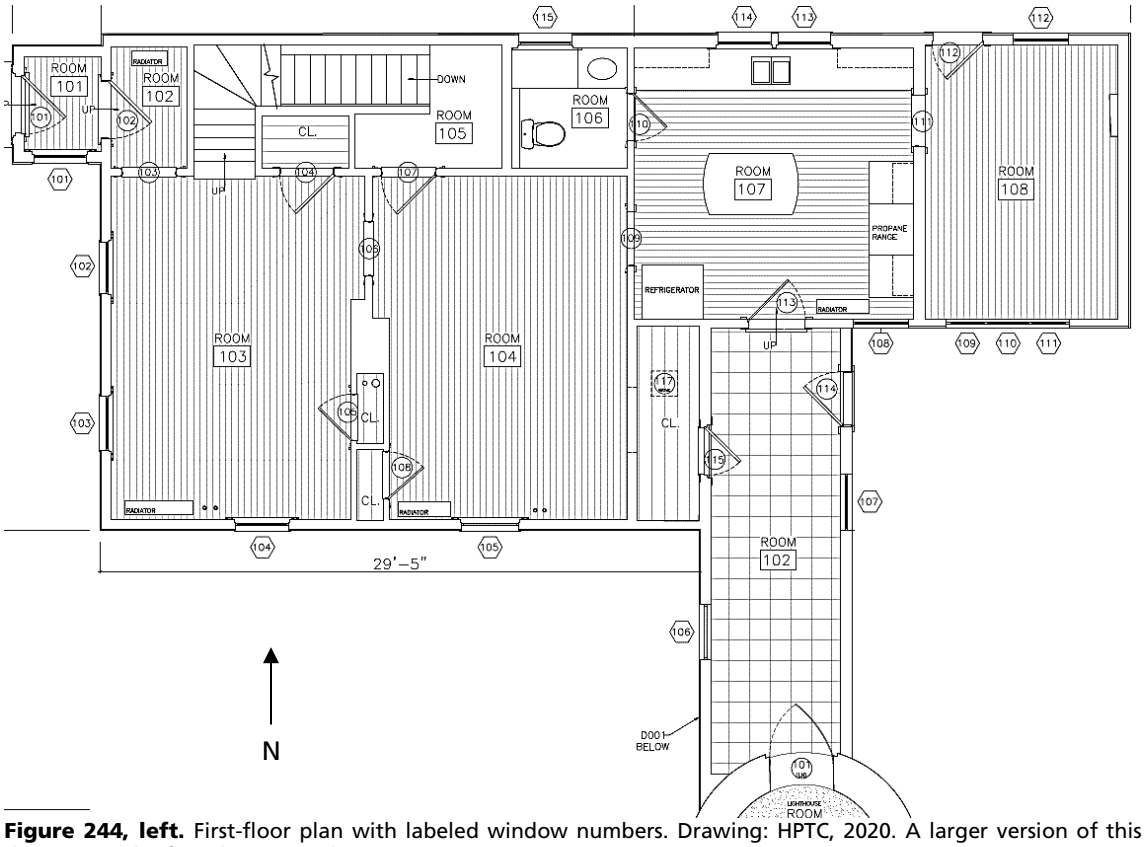


Figure 244, left. First-floor plan with labeled window numbers. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.



Figure 245. W101 interior, south elevation of the entrance vestibule. Photo: HPTC, 05/13/19.

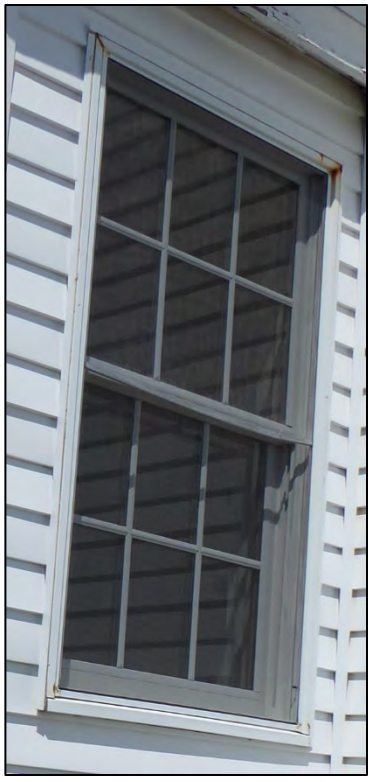


Figure 246. W101 exterior with exterior screen and modern trim. Photo: HPTC, 05/15/19.



Figure 247. The interior of W102, right, and W103, left, west wall of Main Block living room. Photo: HPTC, 05/13/19.



Figure 248, right. W102 exterior; W013 is identical. Photo: HPTC, 05/15/19.



Figure 249. W104 interior, south wall of Main Block living room. Photo: HPTC, 05/13/19.



Figure 250. W105 interior, south wall of Main Block dining room. Photo: HPTC, 05/13/19.



Figure 251. W106 interior, west wall of Covered Way. Photo: HPTC, 05/13/19.



Figure 252. Exterior of W104, left, and W105, right, on Main Block south elevation. Note how plain the openings look without any exterior trim. A window opening was located in the ca. 1948 Infill (red outline); date of removal is unknown. Photo: HPTC, 05/15/19.

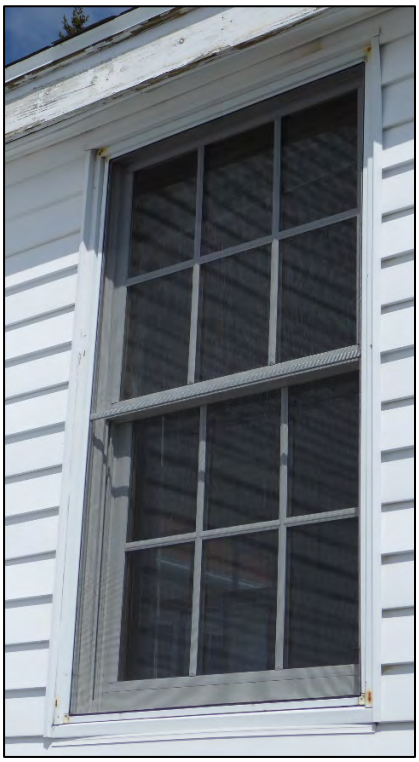


Figure 253, right. Exterior of W106, west elevation of Covered Way. Photo: HPTC, 05/15/19.



Figure 254. W107 interior, east wall of Covered Way. Photo: HPTC, 05/13/19.



Figure 255. W107 exterior, east elevation of Covered Way. Photo: HPTC, 05/15/19.



Figure 256. W108 interior, south wall of Ell. Photo: HPTC, 05/13/19.



Figure 257. Left to right: W111, W110, W109, south wall of Addition, a modern configuration of windows (see fig. 259 for more information). Photo: HPTC, 05/13/19.



Figure 258, right. W108, left, is the limit of the Ell. W109-111 of the Addition is a modern configuration. Originally a door and single window occupied the opening. Photo: HPTC, 05/15/19.



Figure 259. W112 interior, north wall of Addition. This wall configuration was also present on the south wall of the Addition originally, but mirrored. Photo: HPTC, 05/13/19.



Figure 260. W112 exterior, north elevation of Addition. Photo: HPTC, 05/15/19.



Figure 261. W114, left, and W113, right, north wall of Ell. These openings were added in 1950 when the kitchen was remodeled. Prior to that time there was only one window, likely identical to W108 (taller), and centered on the wall. Photo: HPTC, 05/13/19.



Figure 262. Exterior of W113 and W114, north elevation of Ell. Photo: HPTC, 05/15/19.

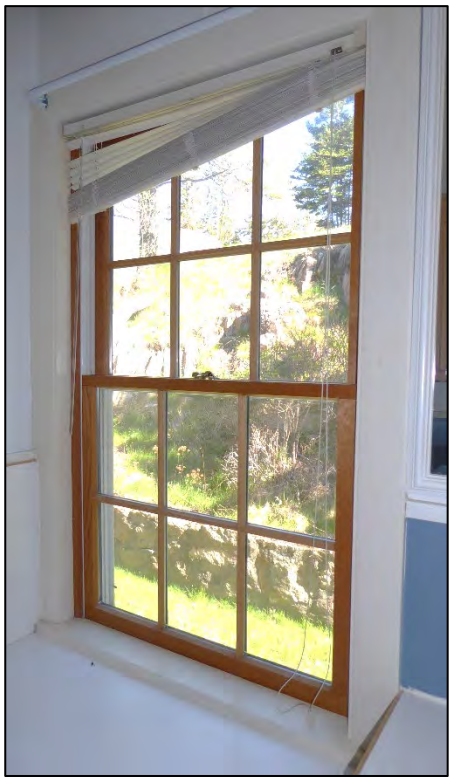


Figure 263. W115 interior, north wall of Main Block pantry (now half bath). Photo: HPTC, 05/13/19.



Figure 264. Exterior of W115, north elevation of Main Block. Photo: HPTC, 05/13/19.

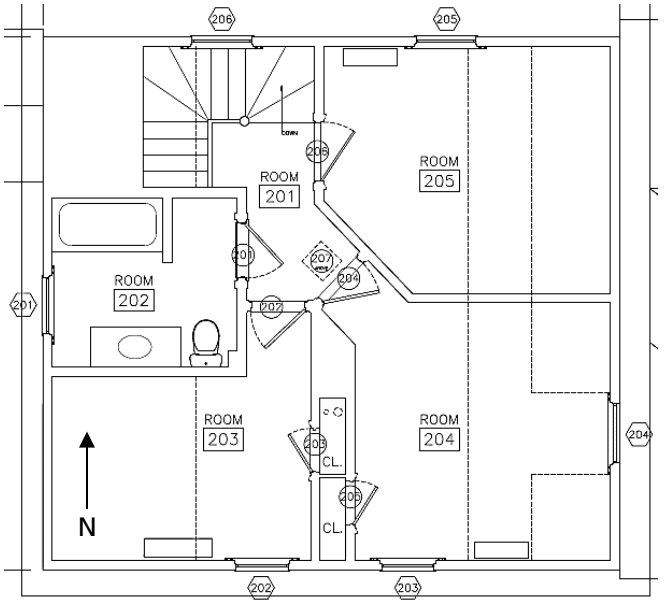


Figure 265. Second-floor plan with labeled window openings. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

Second-Floor Windows

The following chart provides details of each of the second-floor window openings, all located in the Main Block. Reference the drawing for locations of windows (fig. 265). The following photographs provide an opening-by-opening survey of the second-floor windows (figs. 266-275).

W #	Area	Age of opening	Age of window	Type	Hardware
201	MB	1977	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
202	MB	1858	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
203	MB	1858	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
204	MB	1900	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
205	MB	1858	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern
206	MB	1900	2000s	Replacement 6/6 DH window unit w/true-divided lites	Modern



Figure 266. W201 interior, west wall of bathroom. Photo: HPTC, 05/09/19.



Figure 267. Exterior of W201. The shed dormer was added in 1977 to accommodate interior bathroom changes. Prior to this dormer, a 1900 doghouse dormer was extant, identical to the one on the east elevation (fig. 272). Photo: HPTC, 05/13/19.



Figure 268, right. Exterior of W202, left, and W203, right, south elevation of Main Block. Both are original openings to 1858 but are missing their trim and hoods seen in archival photographs. Photo: HPTC, 0515/19.

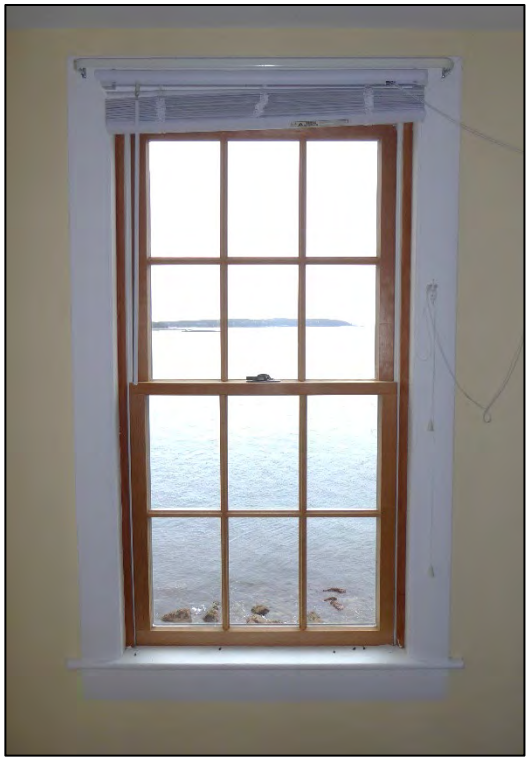


Figure 269. W202 interior, south wall of southwest bedroom. Photo: HPTC, 05/09/19.



Figure 270. W203 interior, south wall of southeast bedroom. Photo: HPTC, 05/09/1.



Figure 271. Interior of W204, east wall dormer of southeast bedroom. Photo: HPTC, 05/09/19.



Figure 272. The exterior of the doghouse dormer on the east elevation of the Main Block. This dormer dates to 1900 when the interior of the second floor was reconfigured into three bedrooms. A matching dormer was also located on the west elevation, where the shed dormer is now located. Photo: HPTC, 05/15/19.



Figure 273. W205 interior, north wall of northeast bedroom of Main Block. Photo: HPTC, 05/09/19.



Figure 274. W206 interior, north wall overlooking stair. This window was added in 1900 when the stair was reconfigured. Photo: HPTC, 05/09/19.



Figure 275. W205, left, is an original opening to 1858. W206, right, was added in 1900. Photo: HPTC, 05/15/19.

B2030	Exterior Doors

The following chart provides details of each of the exterior door openings located throughout the Keeper's Dwelling. Reference the drawing for locations of doors (fig. 276). The following photographs provide an opening-by-opening survey of the exterior door openings (figs. 277-284).

D #	Area	Age of opening	Age of door	Type	Hardware
001	CW	1878	Unknown	Historic board-and-batten (X), painted wood	Hist. thumb latch, mod. strap hinges
101	Entr.	1858	ca. 1950s	1 horiz. panel/1 lite/3 horiz. panels; no storm or screen	Mod. knob, deadbolt, hinges, sweep weatherstripping
112	Add.	1900	2000s	Mod. 6-lite/2 vert. panels; metal; wood grain embossed on ext. side	Modern knob & deadbolt, hinges, int. sweep, kerf weatherstripping
114	CW	1878	2000s	Mod. 6-lite/2 vert. panels; metal; wood grain embossed on ext. side	Modern keycode lever lock, hinges, int. sweep, kerf weatherstripping

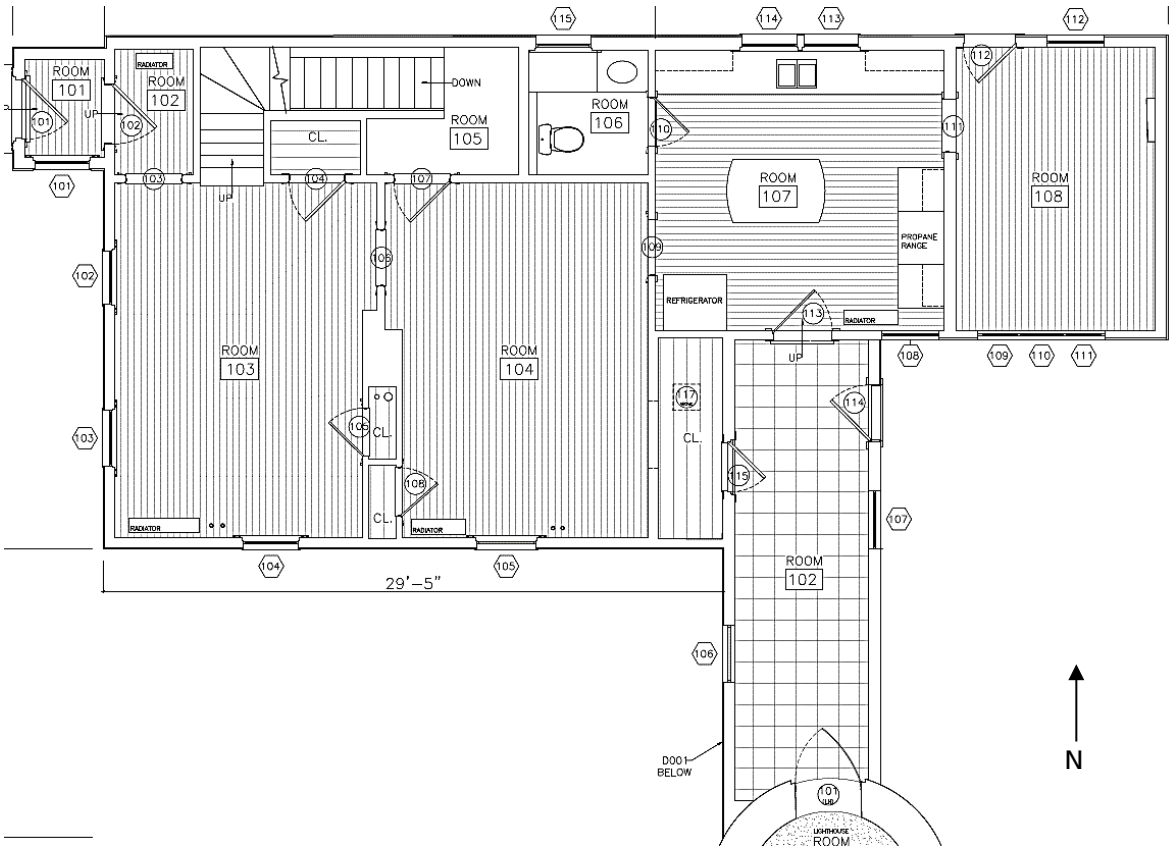


Figure 276. First-floor plan with labeled exterior doors. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.



Figure 277. D001 exterior with vertical boards, historic thumb latch, and modern strap hinges. This opening likely dates to 1878, with modifications since then, including the metal barrier to deter water into the opening. Archival photographs show this door painted white to match surrounding painted foundation stone. Photo: HPTC, 05/15/19.



Figure 278. The back (interior) of the door includes a frame and X-bracing for stabilization of the vertical boards. Note the concrete sill. Because it is located between the jambs and not underneath, this is a modern addition, likely an attempt to deter water into the opening. Photo: HPTC, 05/15/19.



Figure 279. Exterior of D101, west elevation of Entrance Vestibule. This is not the original door, but likely dates to the 1950s (according to style). Archival photographs show a 4-panel door. Photo: HPTC, 05/15/19.



Figure 280. Interior of D101, west wall of Entrance Vestibule The ca. 1950s door has modern hinges, knob, deadbolt, and sweep weatherstripping. Photo: HPTC, 05/13/19.



Figure 281. D112 exterior, north elevation of Addition. The metal door has embossed wood grain on the exterior. Photo: HPTC, 05/15/19.

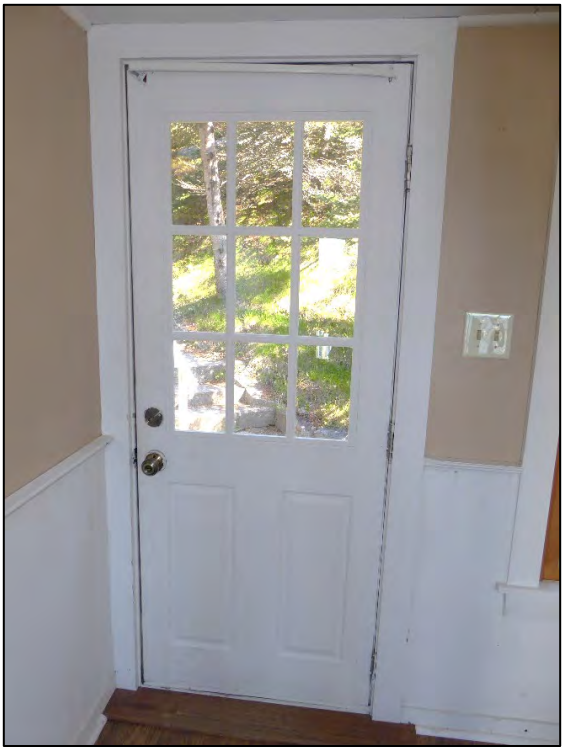


Figure 282. D112 interior with modern handset, deadbolt, hinges, and interior sweep. Muntins have been applied on the interior. Photo: HPTC, 05/13/19.



Figure 283. D114 exterior, east elevation of Covered Way. The metal door has embossed wood grain on the exterior. Note the modern lever lock with key code capabilities. Photo: HPTC, 05/15/19.

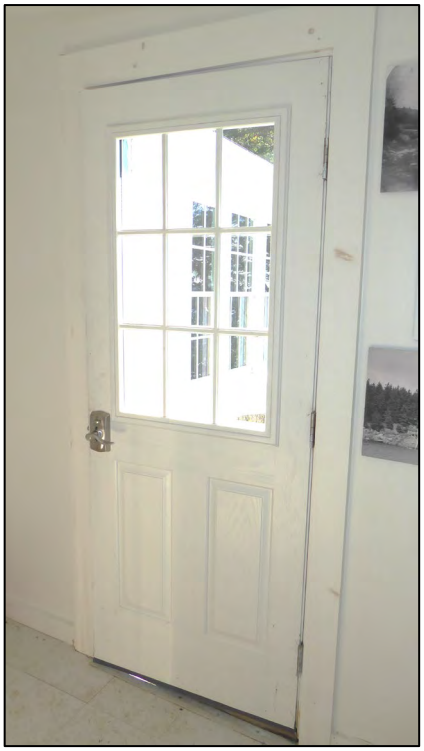


Figure 284. D114 interior with modern keycode lever lock, hinges, and interior sweep. Muntins have been applied on the interior. Photo: HPTC, 05/13/19.

B30	ROOFING
B3010	Roof Coverings
B301001	Roof Finishes

All roofs are finished with modern four-tab fiberglass shingles (fig. 285-286). A galvanized drip edge is located at the edge of the shingles on all elevations.

Originally, this building had a wood shingle roof. Portions of early wood shingles are encapsulated in the attic space above the Covered Way (fig. 287); the 16"-long shingles are nailed to the sheathing below with cut nails.

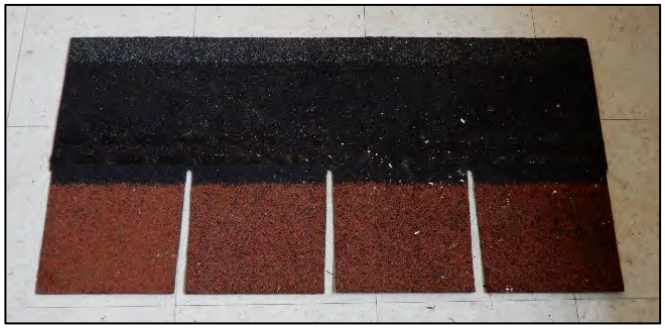


Figure 285. Extra four-tab shingles are located in the Infill closet. Photo: HPTC, 05/13/19.

Modern fiberglass or asphalt shingles were first proposed for all buildings at the station in 1956. It is assumed that replacement occurred soon after (except the Oil House). Photographs from 1961 and 1962 confirm the change.



Figure 286. All component roofs of the Keeper's Dwelling are covered with four-tab fiberglass shingles. Photo: HPTC, 05/13/19.



Figure 287. Wood shingles on the Ell and Covered Way roofs were encapsulated when the Infill roof was added in ca. 1950. Photo: HPTC, 05/13/19.

B301004	Flashings & Trim

Flashing at the junction between the entrance vestibule gable roof and the west exterior wall of the Main Block is inaccessible for assessment (fig. 288).

Flashing at the junction of the Ell and Infill roofs and the east exterior wall of the Main Block includes modern galvanized metal at the fascia and is inaccessible for assessment at the vinyl siding (fig. 289).

Flashing at the junction between the dormer walls (both dormers) and the Main Block gable roof is inaccessible for assessment (figs. 290-291).



Figure 288. Flashing at the Entrance Vestibule roof and side wall cannot be seen. Photo: HPTC, 05/15/19.



Figure 289. Galvanized flashing can be seen where the Infill roof abuts the Main Block soffit (arrow), but cannot be seen where it abuts the vinyl siding of the side wall. Photo: HPTC, 05/15/19.



Figure 290. Flashing at the west elevation dormer walls and Main Block roof cannot be seen. Photo: HPTC, 05/15/19.



Figure 291, right. Flashing at the east elevation dormer walls and Main Block roof cannot be seen. Additional the valley of the dormer roof and Main Block roof is closed with no visible flashing. Photo: HPTC, 05/15/19.

The "closed" valleys of intersecting roofs do not have any visible flashing (fig. 292).

Pipes penetrating through the various roofs are flashed with modern neoprene boots (fig. 293).

Flashing around the base of the chimney penetrating through the Main Block roof has several layers of paint obscuring the metal (fig. 294). It is assumed to be composed of lead or lead-coated copper with caulk applied to the counterflashing joints (evidence of a former leak).



Figure 292. Closed valleys, formed by intersction of the Covered Way roof with the roofs of the Infill and Ell roofs, have no visible flashing (arrows). Photo: HPTC, 05/15/19.



Figure 293, left. Modern neoprene boots flash modern pipe penetrations at the Main Block roof. Photo: HPTC, 05/15/19.



Figure 294, above. Metal flashing at the base of the chimney is painted and seams have been sealed with modern caulk. Photo: HPTC, 05/13/19.

B301005	Gutters & Downspouts

The only portions of the Keeper's Dwelling roof with an extant roof drainage system is the north elevation of the Ell and Addition and the reverse ell portion at the patio formed by the Ell, Addition, and Covered Way. The K-style gutters are composed of vinyl. Along the north elevation, a vinyl downspout is located at the west end of the run and drains to grade (fig. 295). Along the south and east elevations, a vinyl downspout is missing at the south end of the run, but would drain to grade (fig. 296).

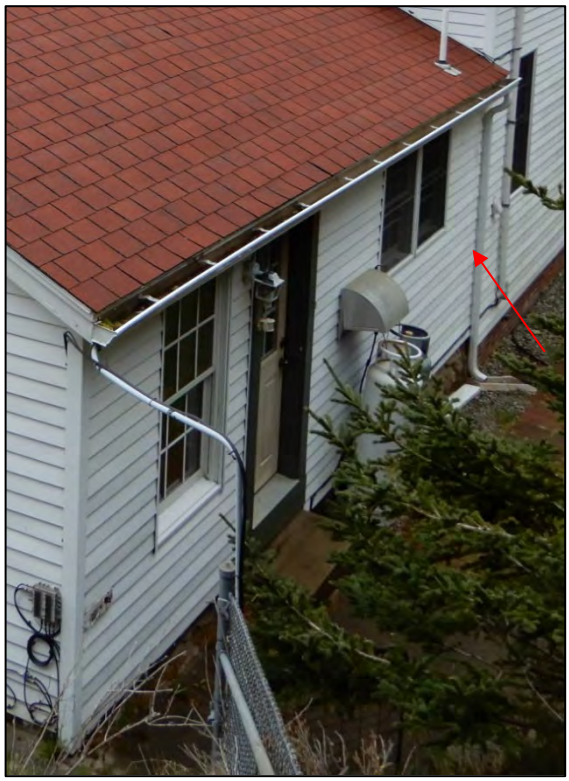


Figure 295, left. A gutter runs along the north elevation of the Ell and Addition. At the west end, a single downspout (arrow) drains the system to grade. Photo: HPTC, 05/15/19.



Figure 296, above. A gutter runs along the ell formed by the Addition, Ell, and Covered Way. At the south end, at the Lighthouse, the continuous gutter system drains via one downspout (missing) to grade (arrow). Photo: HPTC, 05/15/19.

C	INTERIORS
C10	INTERIOR CONSTRUCTION
C1010	Partitions

Non-loadbearing basement partitions include the one-wythe-thick basement walls to the interior of the foundation walls. See A2020 Basement Walls above for more information.

Non-loadbearing partition walls on the first floor include closets and a couple dividing walls (fig. 297). All of the interior walls on the second floor are considered non-loadbearing (fig. 298) and date to 1900 (reconfiguration of stair and two bedrooms to three bedrooms), 1950 (installation of the bathroom at former west elevation dogshed dormer, outside the proposed Period of Significance), and 1977 (associated with shed dormer installed that year, outside the proposed Period of Significance).

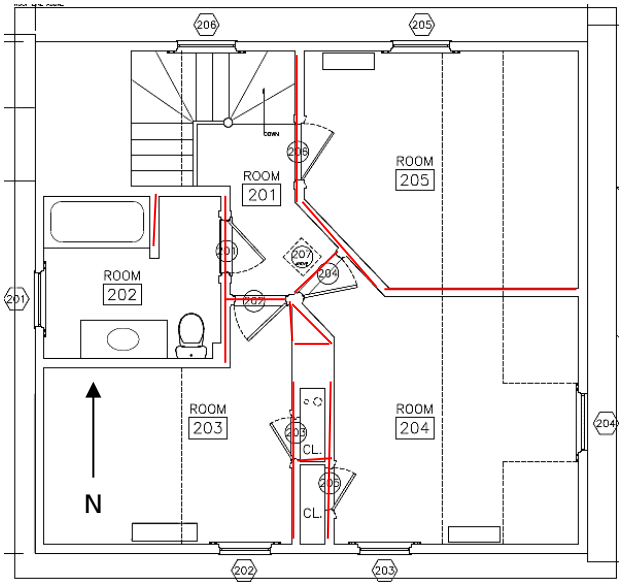


Figure 298. Second-floor plan with partition walls highlighted in red. Drawing: HPTC, 2020. A larger version can be found in Appendix D.

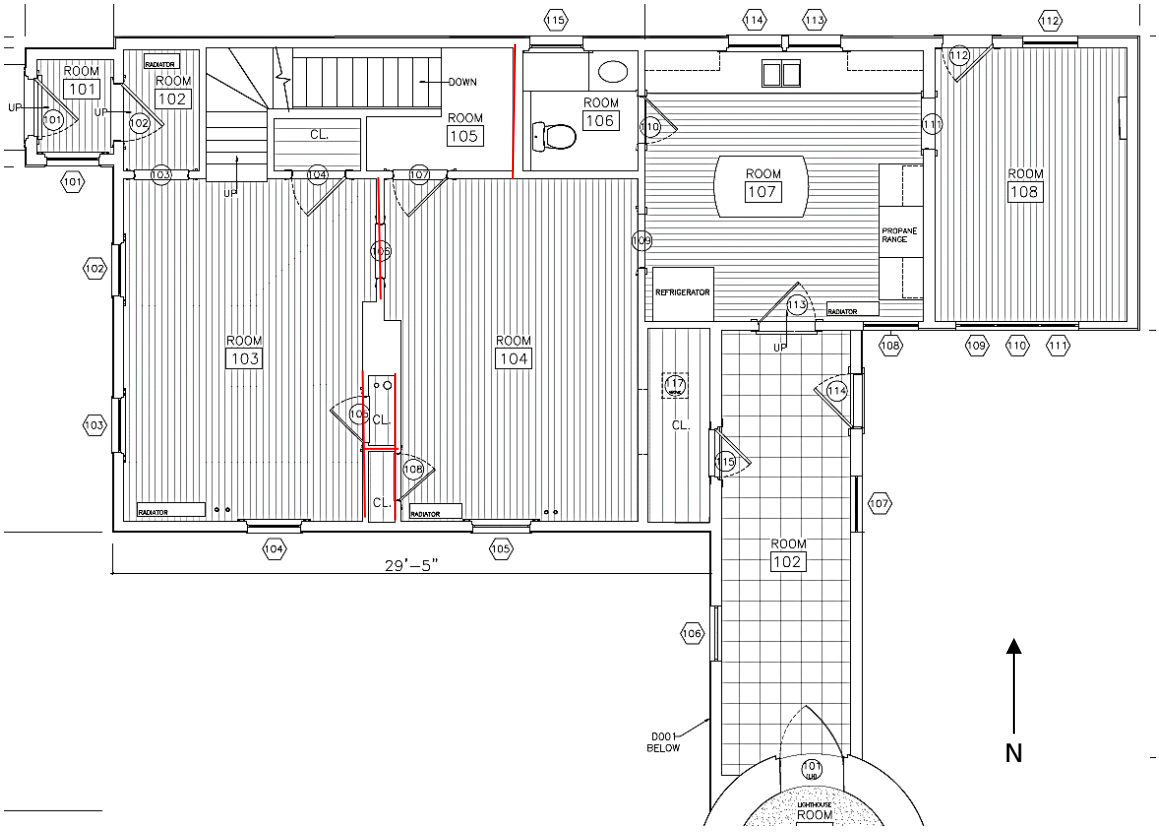


Figure 297. First-floor plan with non-loadbearing interior partition walls highlighted in red. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

C1020	Interior Doors

The following chart provides details of each of the interior door openings located throughout the Keeper's Dwelling, including basement, first floor, and second floor. Reference the drawings for locations of doors and door numbers (figs. 299-301). The following photographs provide an opening-by-opening survey of the interior door openings (figs. 302-322).

D #	Area	Age of Opening	Age of Door	Type	Hardware
002	MB	Unknown	Unknown	Plywood	Nails
102	MB	1858	1858?	Hist. 4-panel painted wood in hist. wood jamb w/sill	Hist. porcelain knob, mortise lock & escutcheon; mod. deadbolt & hinges, foam weatherstripping & sweep
103	MB	1858	N/A	No door; historic jamb w/mod. laminate threshold	Hist. strike plate extant at jamb; hinge mortises extant
104	MB	1900	1858? (reused)	Hist. 4-panel painted wood in hist. jamb w/mod. laminate threshold	Hist. porcelain knob, brass mortise lock (non-locking); mod. hinges
105	MB	1858	1858?	Hist. 4-panel painted wood in hist. jamb w/mod. laminate threshold	Hist. porcelain knob, brass escutcheon & mortise lock (locking); mod. hinges
106	MB	1858	N/A	No door; hist. jamb w/mod. laminate threshold	Hist. strike plate extant at jamb; hinge mortises extant
107	MB	1858	1858?	Hist. 4-panel painted wood in hist. jamb w/mod. laminate threshold	Hist. porcelain knob, brass strike plate, brass mortise lock (non-locking); mod. hinges
108	MB	1858	1858?	Hist. 4-panel painted wood in hist. jamb w/mod. laminate threshold	Hist. porcelain knob, brass strike plate, brass mortise lock (non-locking); modern hinges
109	MB-Ell	1858	N/A	No door; hist. jamb w/mod. laminate threshold	Hist. strike plate extant at jamb
110	MB-Ell	1858	1980s?	Mod. 4-panel painted wood in mod. jamb w/hist. painted wood threshold	Mod. knob, hinges & strike plate
111	Ell-Add.	1900?	N/A	No door; hist. jamb. w/mod. laminate threshold	Strike plate and hinge mortises extant in jambs
113	Ell-CW	1858	ca. 1950s	1 horiz. panel/1 lite/3 horiz. panels in hist. jamb w/hist. wood threshold	Mod. knob & hinges
115	CW-Infill	1878?	1878?	Hist. 4-panel painted wood in hist. jamb w/hist. wood threshold	Hist. brass knob, escutcheon plate, mortise lock (lockable) & strike plate; mod. brass hinges
116	Infill-MB	1900?	N/A	No door; hist. casing on Infill closet side	N/A
117	Infill	ca. 1948	ca. 1948	Attic hatch	N/A
201	MB	1950	1900?	Hist. 4-panel painted wood in mod. jamb	Hist. brass knob & mortise lock
202	MB	1950	1900?	Hist. 4-panel painted wood in mod. jamb	Hist. brass knob & mortise lock
203	MB	1858	1858?	Hist. 4-panel painted wood in mod. jamb	Hist. brass knob & mortise lock
204	MB	1900	1900?	Hist. 4-panel painted wood in mod. jamb	Hist. brass knob & mortise lock
205	MB	1858	1858?	Hist. 4-panel painted wood in mod. jamb	Hist. brass knob & mortise lock
206	MB	1900	1900?	Hist. 4-panel painted wood in mod. jamb	Hist. brass knob & mortise lock
207	MB	Unknown	Unknown	Attic Hatch	N/A

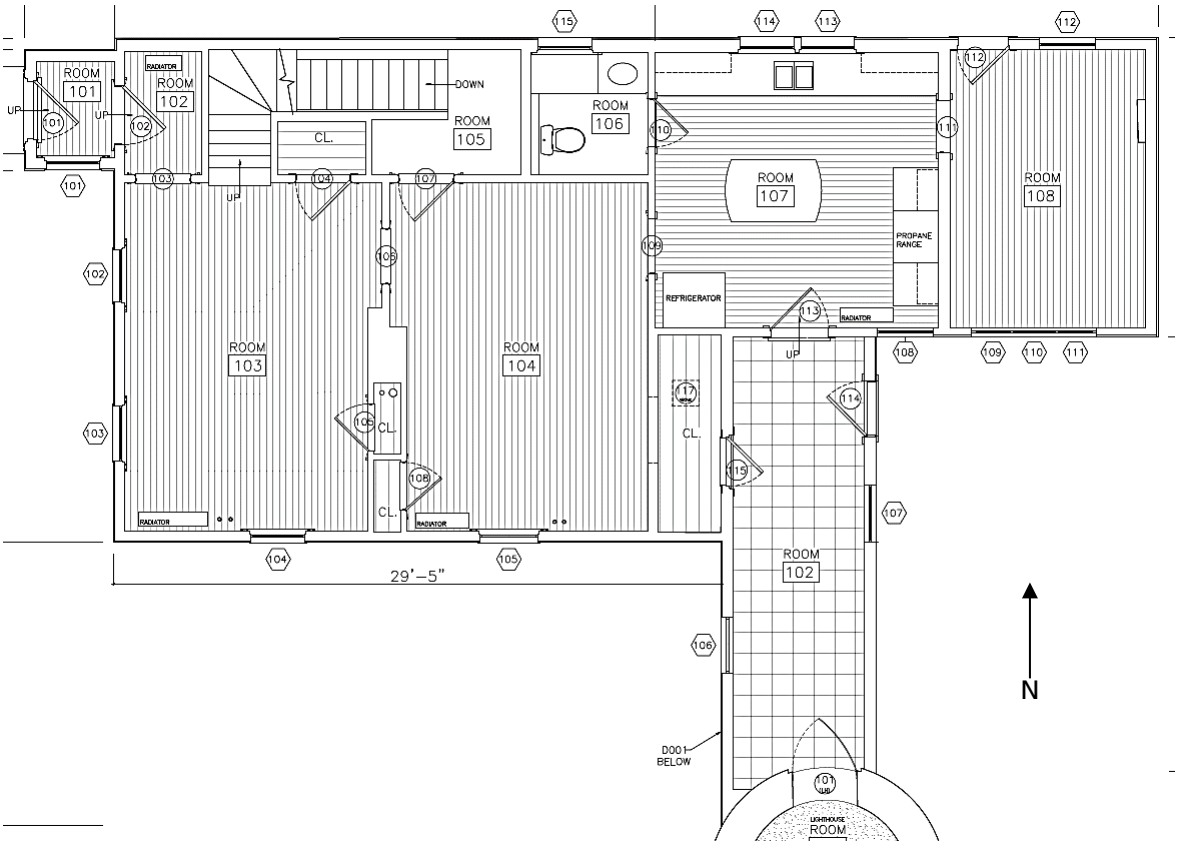


Figure 299. First-floor plan with labeled interior doors, including attic hatch. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

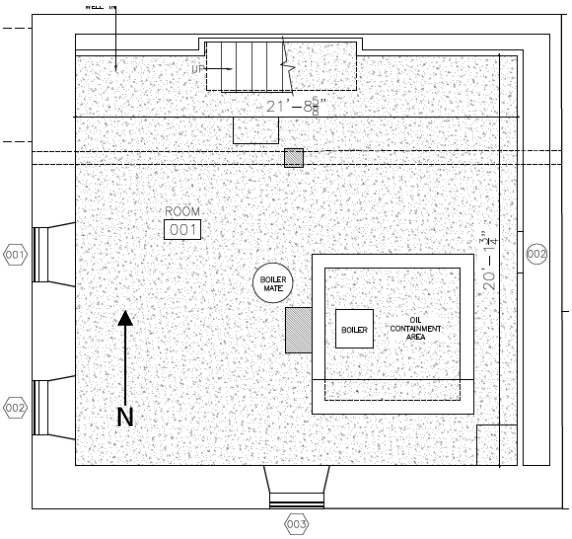


Figure 300. Basement floor plan with labeled interior door. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

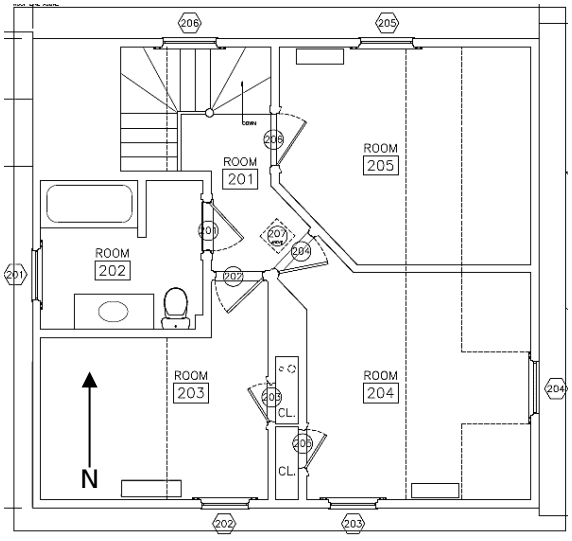


Figure 301. Second-floor plan with labeled interior doors, including attic hatch. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.



Figure 302. D002 on the east basement interior wall allows access to the foundation walls of the Main Block beyond. The age of the access is unknown. A plywood panel is set in the opening and held in place with nails. Photo: HPTC, 05/13/19.

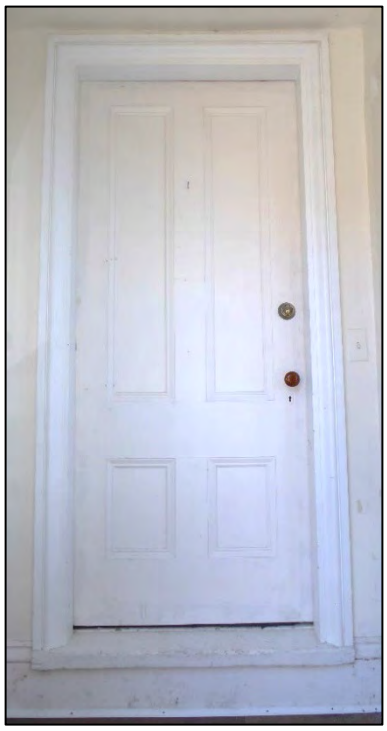


Figure 303. Historic 4-panel wood door at D102 with historic porcelain knob in mortise lock and modern deadbolt. Photo: HPTC, 05/13/19.



Figure 304. No door is extant within D103; hinge mortises and a strike plate are extant in the 1858 jamb. Photo: HPTC, 05/15/19.

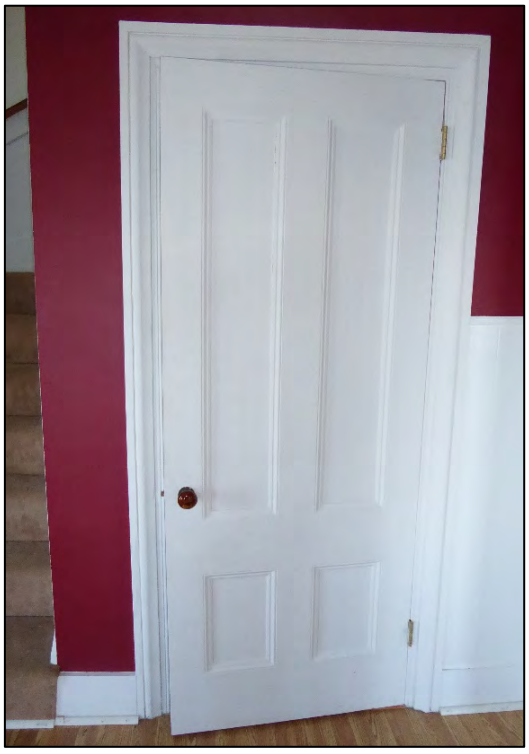


Figure 305. Historic 4-panel wood door at D104. The opening dates to 1900 when the stair was reconfigured. The door was likely reused and may date from 1858. It retains historic hardware. Photo: HPTC, 05/15/19.



Figure 306. D105 is a 4-panel wood closet door dating to 1858. The hardware (except hinges) are likely original. Photo: HPTC, 05/15/19.



Figure 307. No door is extant within D106; hinge mortises and a strike plate are extant in the 1858 jamb. Photo: HPTC, 05/15/19.

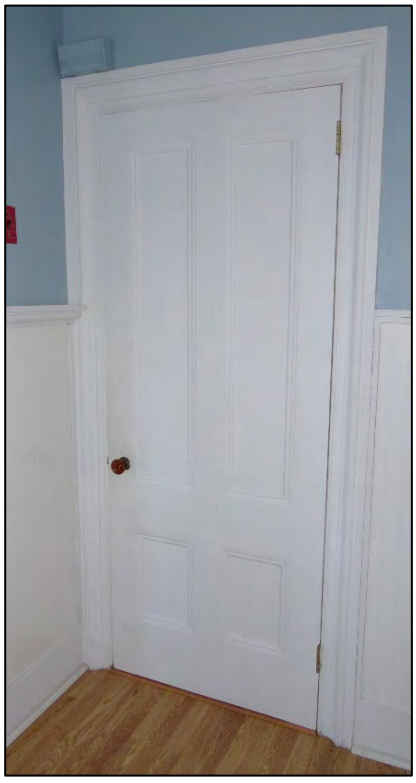


Figure 308, left. D107 is a 4-panel door dating to 1858. The lockset and knob may also be original; the hinges are modern. Photo: HPTC, 05/15/19.

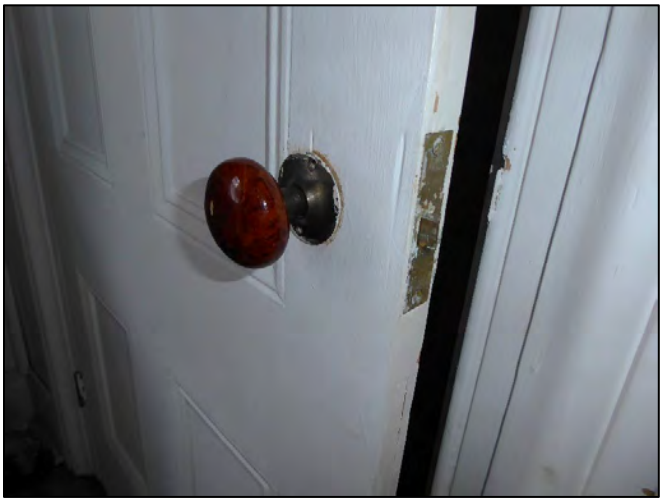


Figure 309, above. The historic brown marble porcelain knob of D108 is common throughout the dwelling, as is the brass mortise lock, here non-locking. Photo: HPTC, 05/15/19.

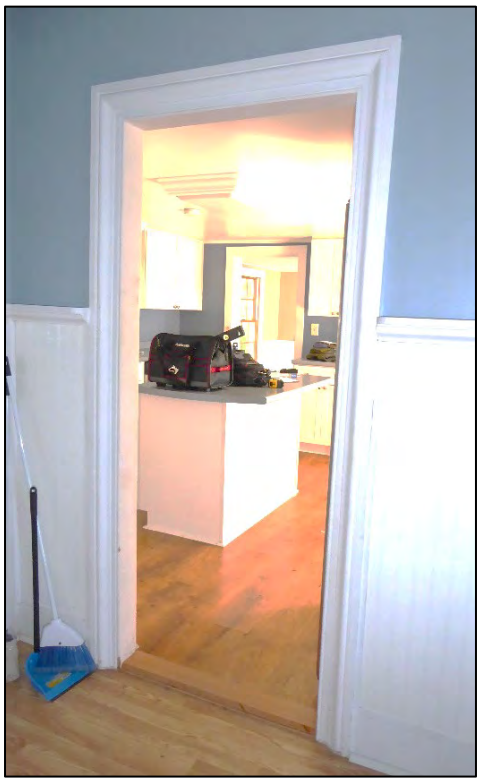




Figure 311, above. The 4-panel wood door at D110 is modern but is sympathetic to the other doors due to detailing and material. The hardware is modern. Photo: HPTC, 05/15/19.

Figure 310, left. No door is extant within D109; a strike plate is extant in the 1858 jamb. Photo: HPTC, 05/15/19.



Figure 312. No door is extant within D111; hinge and strike plate mortises are extant in the historic jambs. Photo: HPTC, 05/15/19.

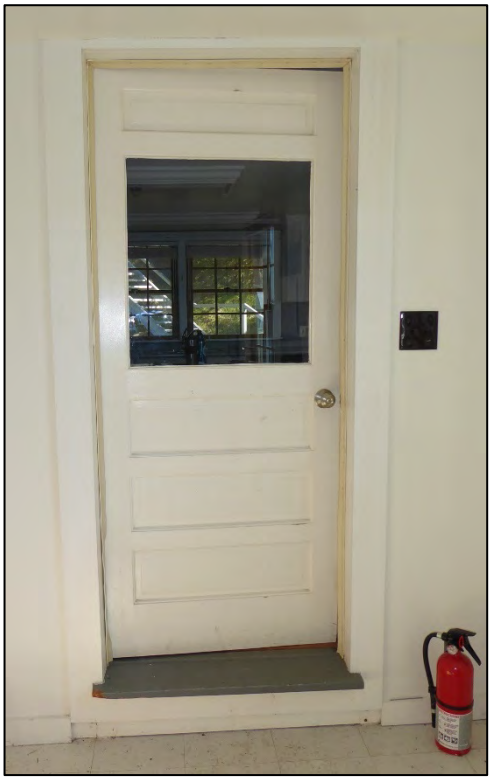


Figure 313. D113, seen from the Covered Way, matches D101, the exterior entrance vestibule door. The ca. 1950s door has modern hardware. Photo: HPTC, 05/15/19.

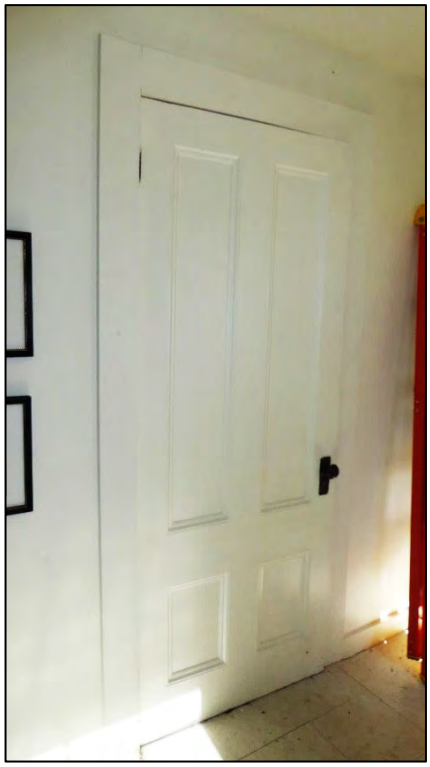


Figure 314. D115 is a 4-panel door likely installed after the others on the first floor (1878?) and has historic hardware (except hinges). Photo: HPTC, 05/15/19.



Figure 315. D116 is a former opening between the Main Block dining room east wall and the adjacent ca. 1950 Infill. The opening may originally have been a window but was a door by 1949. It is unclear when the opening was abandoned. Photo: HPTC, 05/15/19.



Figure 316. The attic hatch (D117) in the Infill with access to the attic space above was likely added in ca. 1948 when the Infill was completed. Photo: HPTC, 05/13/19.

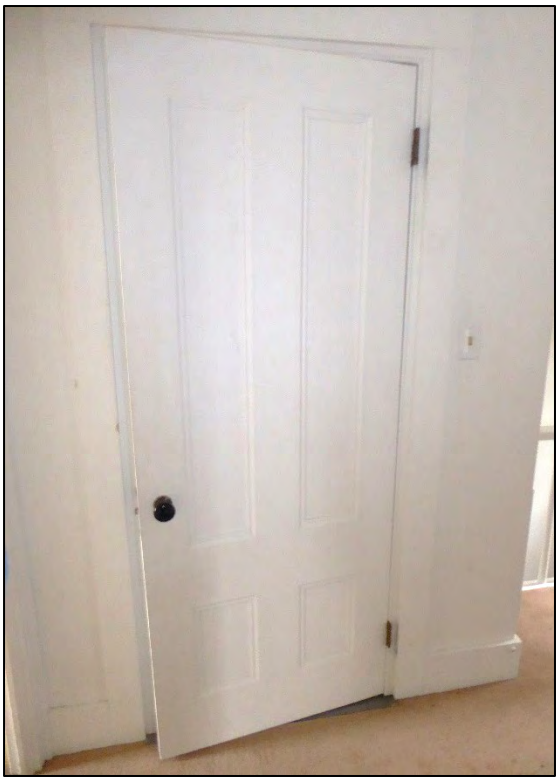


Figure 317, right. D201 dates to 1950 when the second-floor bathroom was added, however the door was likely reused from another opening, as the handset predates this time period. Photo: HPTC, 05/13/19.

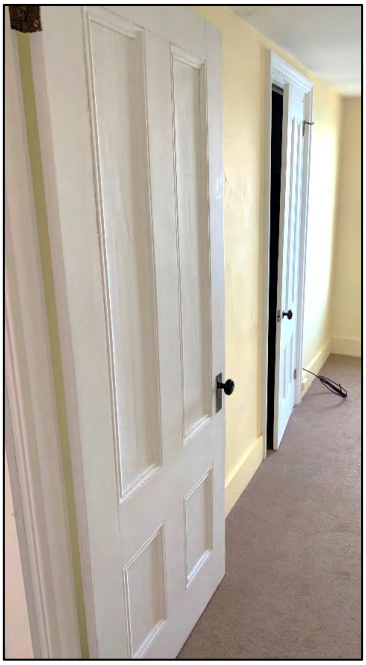


Figure 318. D202, foreground, opening added in 1977, but door likely predates this. D203 in background is an original closet door (1858). Photo: HPTC, 05/13/19.



Figure 319. D204 opening dates to 1900; the door could date to then or earlier. Photo: HPTC, 05/13/19.



Figure 320. D205 is an original closet door (1858). Photo: HPTC, 05/13/19.



Figure 321, left. D206 opening dates to 1900; the door could date to then or earlier. Photo: HPTC, 05/13/19.



Figure 322, above. D207 accesses the attic space of the Main Block. Date of installation is unknown, but could date to 1900 when the second-floor plan was altered. Photo: HPTC, 05/13/19.

C1030	Fittings
C103006	Shelving

Modern shelving is located along the west wall of the basement. It is composed of unpainted dimensional lumber and plywood (fig. 323).

Shelving has been added to the underside of the main stair between the first floor and second floor. It consists of painted dimensional wood (fig. 324). The stairs were altered to the current form in 1900. Based on detailing along the outer edge of the shelves, these elements were likely added in the 1930s.



Figure 323. Modern wood shelving in the basement. Photo: HPTC, 05/13/19.



Figure 324, right. 1930s-era shelving added to the underside of the main stair. Photo: HPTC, 05/13/19.

C103008	Counters
C103009	Cabinets

A modern wood base cabinet with formica-type counter is located in the basement at the northeast corner (fig. 325). Several wall cabinets are set on top of the containment area within the basement (fig. 326). All of these cabinets were likely salvaged from the former kitchen cabinets after the most-recent kitchen renovation.

Modern Kraftmaid base and wall cabinets (thermofoil finish) are located in the kitchen on the north and east walls and as an island (figs. 327-328). Counters are laminate.

Modern wood base cabinets are located along the north wall of the first-floor half bathroom (fig. 329). Counters are laminate. Modern wood wall cabinets are located along the south wall.

A modern base cabinet (thermofoil finish) is located in the second-floor full bathroom on the east wall (fig. 330). The counter and sink are a pre-formed fiberglass unit.



Figure 325. Reused kitchen base cabinet and counter in the basement. Photo: HPTC, 05/13/19.



Figure 326, right. Reused kitchen wall cabinets set on top of the containment area in the basement. Photo: HPTC, 05/13/19



Figure 327. Modern base and wall cabinets with laminate counter on the north wall of the kitchen. Photo: HPTC, 05/15/19.



Figure 328, right. Modern island in the kitchen with base and wall cabinets along the east wall beyond. Photo: HPTC, 05/15/19.





Figure 330, above. Modern base cabinet in the second-floor full bathroom with fiberglass counter/sink above. Photo: HPTC, 05/13/19.

Figure 329, left. Modern base cabinets and laminate counter along the north wall of the first-floor bathroom and wall cabinets on the south wall. Photo: HPTC, 05/15/19.

C103010	Closets

Four closets in the Main Block are original to 1858. These include the living room, dining room, and the closets in the southwest and southeast second-floor bedrooms (figs. 331-334). These closets have various modern shelves and hanging rods.

Additional closets were added off the living room and dining room when the stair was reconfigured in 1900 (figs. 335-336). These closets have various modern shelves and hanging rods.

In ca. 1948 the area between the east wall of the Main Block and the west wall of the Covered Way was infilled. As a result, a closet was formed. Originally the closet was accessed from the Main Block dining room (west), but at some point was switched to be accessed from the Covered Way (east) as it is now (fig. 337). The space is used for storage and does not contain any modern closet accessories.



Figure 331. The east wall closet in the living room is original to 1858. It has a modern shelf. Photo: HPTC, 05/15/19.



Figure 332. The west wall closet in the dining room is original to 1858. It has modern shelves. Photo: HPTC, 05/15/19.



Figure 333. The southwest bedroom closet is original to 1858. A modern shelf and hanging rod have been added. Photo: HPTC, 05/13/19.



Figure 334. The southeast bedroom closet is original to 1858. Modern shelves have been added. Photo: HPTC, 05/13/19.



Figure 335. The closet in the north wall of the living room was added when the stair was reconfigured in 1900. It now contains a modern shelf and hanging rod. Photo: HPTC, 05/15/19.



Figure 336. The area at the top of the basement stair was enclosed in 1900 when the stair was reconfigured. Modern closet components were added to the east wall. Photo: HPTC, 05/15/19.

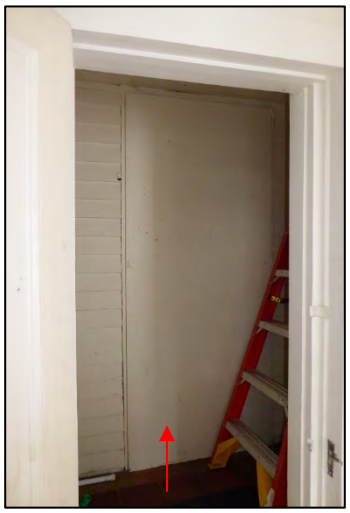


Figure 337. The Infill closet accessed from the Covered Way. The panel on the interior (arrow) covers the former opening to the space from the dining room adjacent. Photo: HPTC, 05/13/19.

C103098	Other Casework – Trim

An assortment of trim can be found throughout the Keeper's Dwelling. Generally, it appears to be historic (dating to within the proposed Period of Significance), with some modern alterations due to window replacement, lead abatement, etc.

The oldest, and perhaps original (1858), trim can be found in the Main Block entry, living room, and dining room. The baseboard and casing in these rooms, particularly at original door openings and closets, is more substantial with fancier moldings. Areas around the 1900 stair configuration are also fancier, but smaller in scale (fig. 338). The window openings in the living room have casing dating to the ca. 1980s, evidence of when the original windows may have been replaced (fig. 339). Modern chair rail and crown molding has been added to the dining room (fig. 340). Much of the baseboard throughout the first floor have been replaced, as evidenced by knots telescoping through the latex paint coating due to poor paint preparation.

The simple flat stock trim located in the Ell, Addition, and Covered Way likely dates to 1950 when the Keeper's Dwelling was modernized, including the kitchen (fig. 341).

On the second floor, remnants of more historic trim, likely dating to the 1900 reconfiguration of the second floor are retained around the bedroom and closet door openings (fig. 342). The flat stock trim present at baseboards is more modern. Furthermore, the slightly curved window casing dates to the ca. 1980s, evidence of when the original windows may have been replaced (fig. 343).

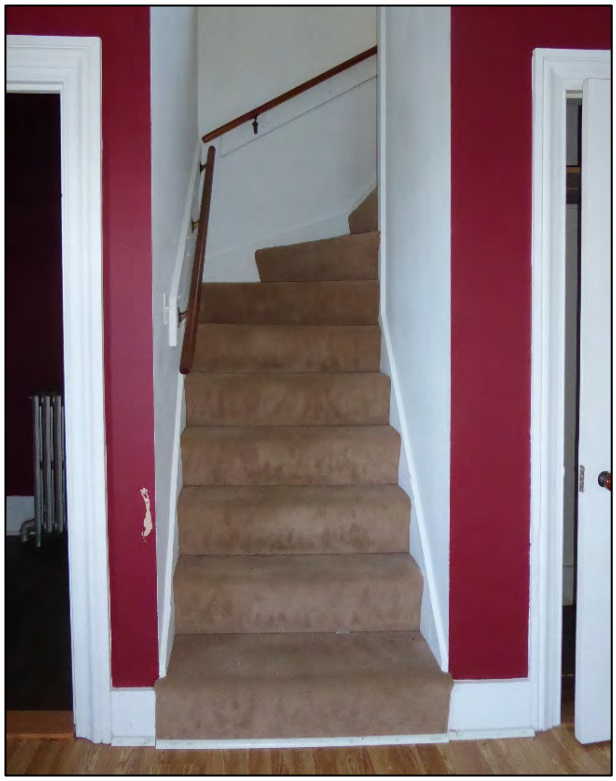


Figure 338. Casing around D103, left, is original to 1858 and is wider than that at D104, right, added in 1900 when the stair was reconfigured. Photo: HPTC, 05/15/19.



Figure 339. 1980s-era trim around the window in the living room. Photo: HPTC, 05/13/19.



Figure 340. Historic window trim, modern chair rail and crown molding in the dining room. Photo: HPTC, 05/13/19.

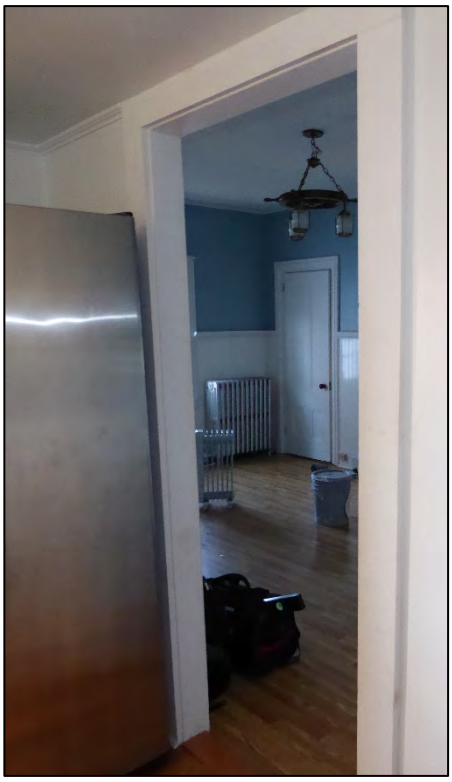


Figure 341. Flat stock trim in the Ell likely dates to the 1950 kitchen modernization. Photo: HPTC, 05/15/19.



Figure 342. Historic trim at a second-floor closet door next to more modern flat stock baseboard. Photo: HPTC, 05/15/19.



Figure 343, right. Modern second-floor window trim likely dates to the 1980s. Photo: HPTC, 05/15/19.

C20	STAIRS	
	C2010	Stair Construction
		C201001 Interior Stair Construction

A straight-run staircase is located along the north wall of the basement (fig. 344). It is composed of modern dimensional lumber painted. Nine treads (ten risers) rise from the basement to the first floor. The stair was completely replaced in ca. 2001. A newer handrail of unpainted dimensional lumber has been added to the open side.



Figure 344. The ca. 2001 basement stair of painted dimensional lumber. Photo: HPTC, 05/15/19.

A dogleg staircase is located at the north wall of the living room and rises to the second floor. This stair configuration dates to 1900 (originally a straight-run stair in a side hall). Currently, five treads (six risers) lead to three winder treads (two risers) (fig. 345). Another straight run of two treads (three risers) leads to two winder treads (two risers) to the second-floor landing (fig. 346). The risers and treads are covered with modern carpet. All exposed wood components are painted. An unpainted handrail is located along the outside perimeter of the stair. At the landing, the stair opening is marked by a historic painted newel post and balustrade. These components likely date to 1900 but could have been reconfigured from the original 1858 stair components.





Figure 346, above. At the second floor the stair opening is marked by a painted wood newel post and balustrade, dating to 1900 or 1858. Photo: HPTC, 05/13/19.

Figure 345, left. Dogleg stair at the bottom from the living room. The treads and risers are covered with modern carpet. Photo: HPTC, 05/13/19.

C201002	Exterior Stair Construction

A modern cast concrete stair unit is located at the front entrance vestibule (fig. 347); date of installation is unknown but was in place by 1990. During the proposed Period of Significance (1858-1948), these stairs were likely composed of wood.

A single cast concrete stair is located at the Addition exterior door (fig. 348); date of its installation is also unknown.



Figure 347. Modern cast concrete stair at the front entrance vestibule. Photo: HPTC, 05/15/19.



Figure 348. Modern cast concrete stair at the Addition exterior entrance. Photo: HPTC, 05/15/19.

C30	INTERIOR FINISHES
C3010	Wall Finishes

There are no formal wall finishes in the basement. The interior brick basement walls are further described at A2020 Basement Walls.

Room 101 (vestibule) and Room 102 (entry) have painted plaster likely over wood lath (figs. 349-350).

Room 103 (living room) walls are composed of painted wallboard above and painted faux paneling below over an unknown substrate (fig. 351). The two closets in the living room have painted plaster, likely over wood lath.

Room 104 (dining room) has painted plaster (likely over wood lath). Modern laminate "beadboard" covers the lower half (fig. 352). At the former opening to the Infill, the wall was patched with drywall and painted. The original closet in the dining room also has plaster walls.

Room 105 (basement access) has portions of historic plaster (south wall) and drywall (around basement stair and moved wall between this room and the adjacent half bathroom) (fig. 353). All walls are painted.

Room 106 (half bathroom) has painted plasterboard with batten strips at edges, suggesting the plaster is not over lath, but instead a board (precursor to drywall) (fig. 354). On the lower half of the walls, modern painted smooth panels are in place (melamine?).



Figure 349. Painted plaster in Room 101. Photo: HPTC, 05/15/19.



Figure 350. Painted plaster in Room 102. Photo: HPTC, 05/15/19.



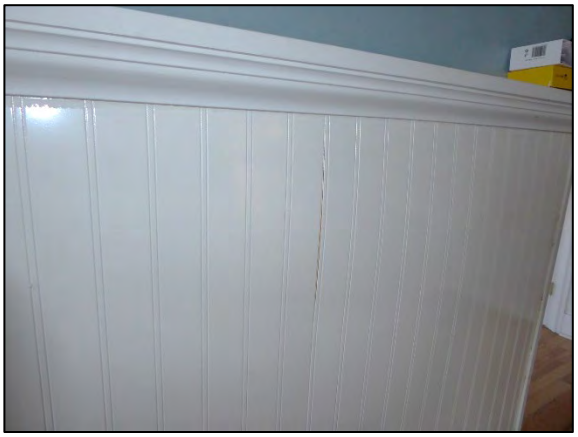


Figure 352, above. Historic plaster walls of the dining room above modern laminate "beadboard" below. Photo: HPTC, 05/15/19.

Figure 351, left. Modern wallbaord of the living room above faux wood paneling below, all likely from the 1970s. Photo: HPTC, 05/15/19.



Figure 353. Modern drywall on the walls of Room 105. The south wall (not seen) has plaster. Photo: HPTC, 05/15/19.

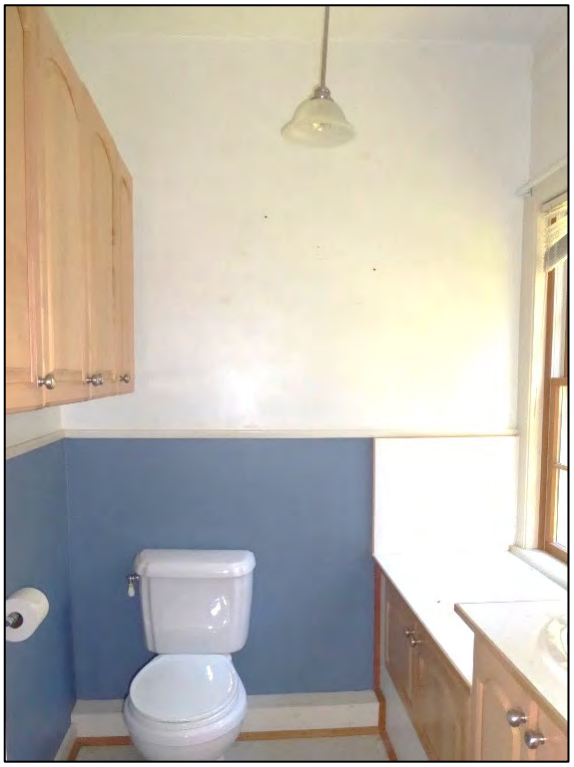


Figure 354. Plaster wallboard with batten strips over smooth lower panels in the half bathroom. Photo: HPTC, 05/15/19.

Room 107 (kitchen) walls are composed of painted drywall, likely dating to a previous (1980s?) kitchen renovation (fig. 355).

Room 108 (Addition) walls include painted drywall on the upper half and painted beadboard paneling on the lower half over unknown substrate (fig. 356).

Room 108 (Covered Way) walls are covered with painted drywall (fig. 357). The Infill closet off the Covered Way includes various wall coverings which are former exterior wall coverings including, painted cedar shingles (east wall), painted vertical boards (north wall), painted horizontal wood siding (west wall) (fig. 358). The south wall added ca. 1948 is covered with an unpainted melamine panel (south wall) (see fig. 358).

Second-floor stair landing/hallway and bedrooms (Rooms 201, 203, 204, and 205) retain plaster walls likely from the second-floor reconfiguration in 1900 (figs. 359-362). Plaster walls around the central closets/chimney date to 1858.

Room 209 (full bathroom) walls are composed of painted drywall likely dating to the most recent bathroom renovation (2000s?) (figs. 363-364).



Figure 355, left. Modern drywall in the kitchen. Photo: HPTC, 05/15/19.



Figure 356, above. Painted drywall above painted beadboard in the Addition. Photo: HPTC, 05/15/19.



Figure 357. Painted drywall in the Covered Way. Photo: HPTC, 05/15/19.



Figure 358. Unpainted melamine on the south wall of the Infill closet. The horizontal siding was originally an exterior wall (east wall of Main Block). Photo: HPTC, 05/15/19.

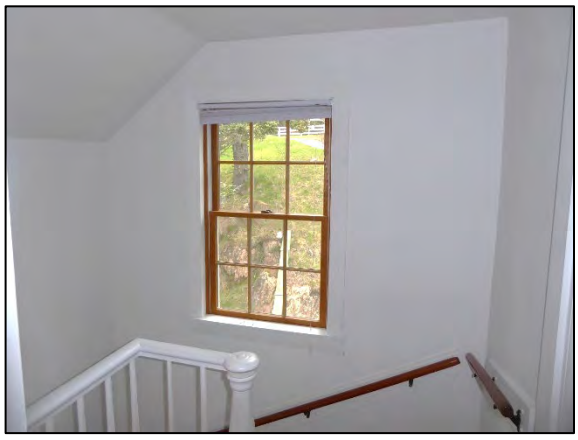


Figure 359. Historic painted plaster in the stair hall of the second floor. Photo: HPTC, 05/13/19.



Figure 360. Original (1858) plaster wall of the southwest bedroom closet wall. Photo: HPTC, 05/13/19.



Figure 361. Original (1858) plaster wall of the southeast bedroom closet wall. Photo: HPTC, 05/13/19.

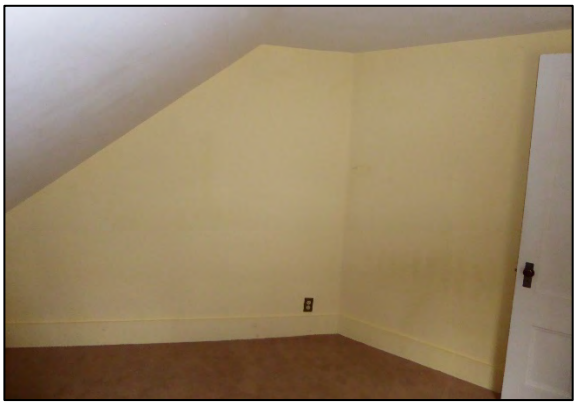


Figure 362. Painted plaster wall in second floor dating to the 1900 reconfiguration. Photo: HPTC, 05/13/19.



Figure 363. Painted wallboard 1950 walls surrounding the second-floor bathroom in the southwest bedroom. Photo: HPTC, 05/13/19.



Figure 364, right. Drywall in the bathroom. Photo: HPTC, 05/13/19.

C3020	Floor Finishes

The basement floor is composed of a concrete slab and is discussed further in A1020 Slab on Grade above. At the northeast corner of the basement a wood platform has been added above the concrete slab. The modern platform is composed of dimensional lumber sleepers supporting unpainted plywood (fig. 365).

Room 101 (vestibule), Room 102 (entry), Room 103 (living room), Room 104 (dining room), Room 107 (kitchen), and Room 108 (Addition) have faux-wood laminate floors (figs. 70-71). Closets in the living and dining room have exposed original tongue-and-groove wood flooring (running N-S) over which the laminate is applied in the main rooms (fig. 368).

Room106 (half bathroom) and Room 202 (full bathroom) have modern vinyl sheet flooring glued to the floor (figs. 369-370).



Figure 365. Modern wood platform at northeast corner of the basement. Photo: HPTC, 05/13/19.

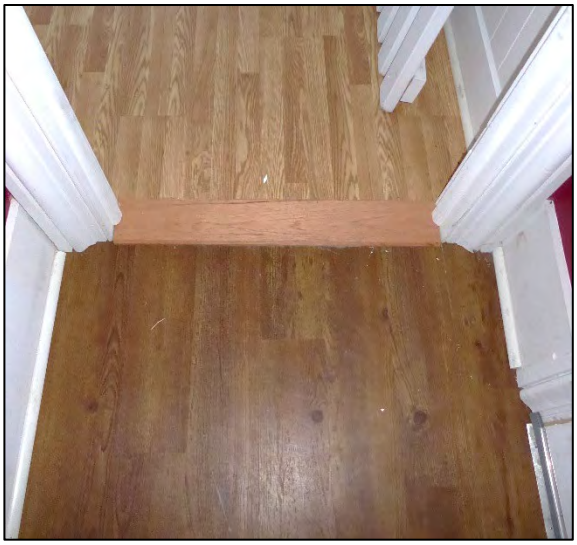


Figure 366, right. Modern laminate floor and threshold from the entry (Room 102) into the living room (Room 103). Photo: HPTC, 05/15/19.

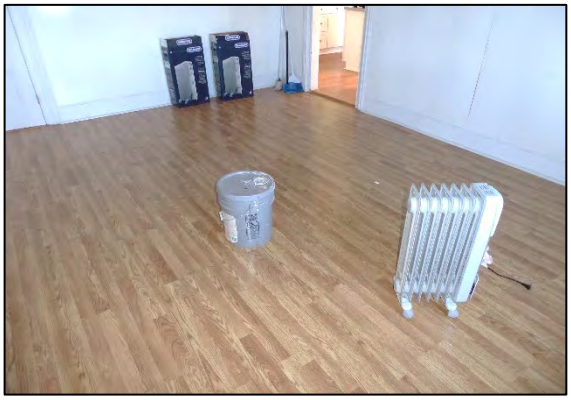


Figure 367. Modern laminate floor in the dining room (Room 104) and kitchen beyond. Photo: HPTC, 05/15/19.



Figure 368. Original floor boards exposed in the dining room closet adjacent modern laminate threshold and flooring in the main room. Photo: HPTC, 05/15/19.

Room 108 (Covered Way) has modern vinyl composition tile (VCT) glued to the floor (fig. 371).

Room 109 (Infill) has a tongue-and-groove wood floor with 4”-wide boards likely dating to ca. 1948 (date of enclosure).

Room 105 (basement access), the second-floor stair hall (Rooms 201) and bedrooms (Rooms 203, 204, and 205) have modern wall-to-wall carpet (fig. 372).

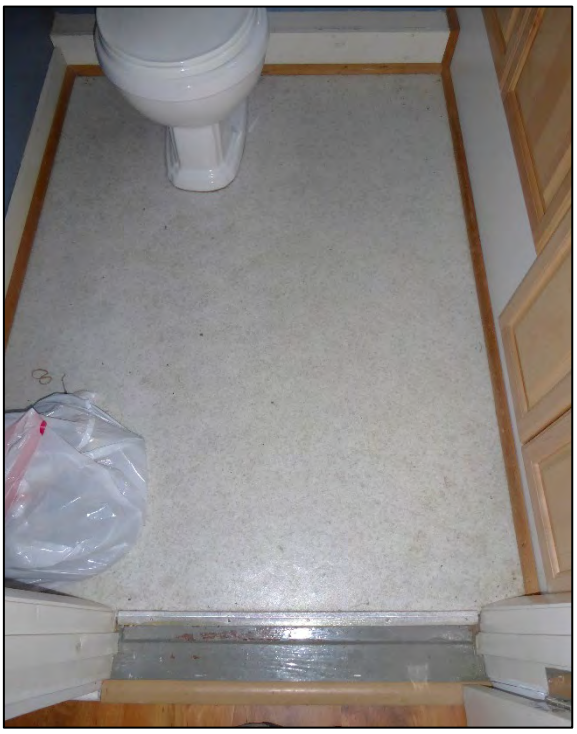




Figure 370, above. Modern vinyl sheeting on the floor of Room 202. Note the historic painted wood threshold (1950) seperating it from the carpeting of the adjacent hall. Photo: HPTC, 05/13/19.

Figure 369, left. Modern vinyl sheeting on the floor of Room 106. Note the historic painted wood threshold (1858?) seperating it from the modern laminate flooring of the kitchen adjacent. Photo: HPTC, 05/15/19.



Figure 371, left. Modern VCT tile on the floor of the Covered Way. Photo: HPTC, 05/15/19.

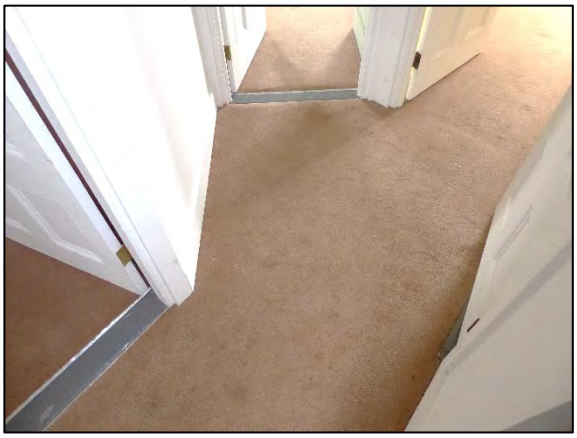


Figure 372. Modern wall-to-wall carpeting in the second-floor hall and bedrooms. Note the historic painted wood thresholds at the door openings dating to 1900. Photo: HPTC, 05/13/19.

C3030	Ceiling Finishes

The basement ceiling is covered with 1"x5½" tongue-and-groove painted beadboard (fig. 373). The date of the beadboard is unknown, but does predate the interior brick walls as the boards span over (and are unpainted); however, the date of those brick walls is also unknown.

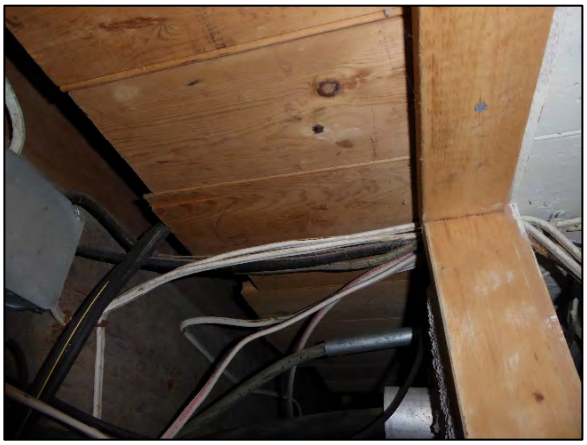


Figure 373. Beadboard ceiling of the basement predates the interior brick wall. It is unpainted behind the wall and painted within the basement. Photo: HPTC, 05/13/19.

Room 101 (vestibule), Room 102 (entry), Room 105 (basement access) have painted plaster ceilings likely over wood lath (fig. 374).

Room 103 (living room) ceiling was dropped in 1950 to accommodate the piping for the new bathroom above (fig. 375). It is assumed portions of the original plaster ceiling are concealed behind the newer wallboard ceiling seen in the living room. Trim at the stair "hides" the lowered ceiling (fig. 376).

Rooms 104 (dining room) and 108 (Addition) ceiling is covered with asbestos-type acoustic ceiling squares adhered either to firring strips or directly to original plaster ceiling above (figs. 377-378).

Room 106 (half bathroom) has painted plasterboard with batten strips at edges, suggesting the plaster is not over lath but is a board (precursor to drywall) (fig. 379). Rooms 107 (kitchen) and 108 (Covered Way) have modern painted drywall ceilings (fig. 380).

The ceiling of the Infill closet is covered with painted 4"-wide wood boards running N-S (fig. 381).

The ceilings of the second-floor stair hall and bedrooms are all painted plaster, including the sloped ceilings following the roof slope (fig. 382). The second-floor full bathroom has a painted drywall ceiling (fig. 383).

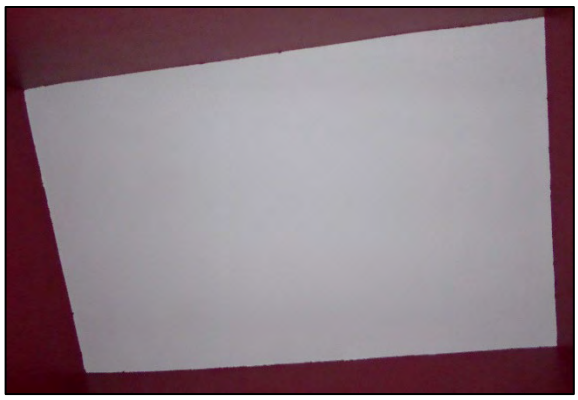


Figure 374. Historic painted plaster ceiling in the entry. Photo: HPTC, 05/15/19.

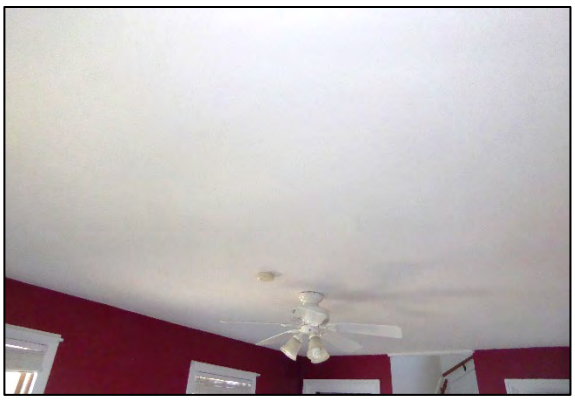


Figure 375. The living room ceiling was dropped down in 1950 to accommodate the bathroom piping above. Photo: HPTC, 05/15/19.



Figure 376. Added trim above the main stair opening is evidence that the ceiling in the living room was lowered. Photo: HPTC, 05/15/19.



Figure 377. Acoustic ceiling tiles on the ceiling of the dining room. Photo: HPTC, 05/15/19.



Figure 378. Acoustic ceiling tiles on the ceiling of the Addition. Photo: HPTC, 05/15/19.

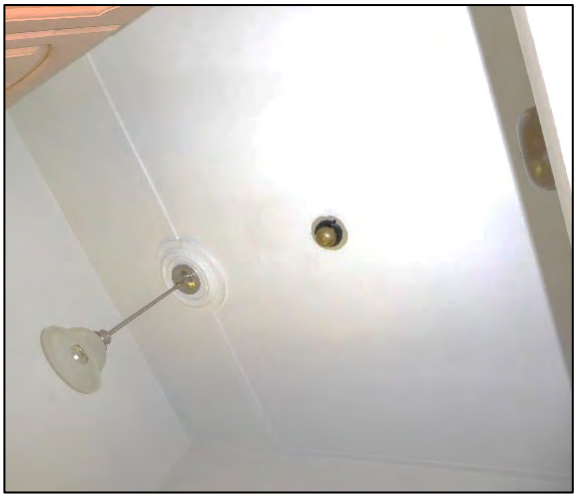


Figure 379. Wallboard and batten ceiling of the half bathroom. Photo: HPTC, 05/15/19.



Figure 380. Painted drywall ceiling in the kitchen. Photo: HPTC, 05/15/19.



Figure 381, right. Painted wood boards on the ceiling of the Infill closet. Photo: HPTC, 05/15/19.



Figure 382. Historic plaster ceiling in the southeast second-floor bedroom. Photo: HPTC, 05/13/19.



Figure 383. Drywall ceiling of the second-floor full bathroom. Photo: HPTC, 05/13/19.

D		SERVICES
	D20	PLUMBING
		D2010 Plumbing Fixtures

The Keeper's Dwelling was modernized for indoor plumbing rather late: 1950 (after the proposed Period of Significance). At that time, a bathroom was added to the second floor and the kitchen was modernized and outfitted with a new sink and cabinets along the north wall (fig. 384). The original stove was retained during that modernization.

All plumbing fixtures within the Keeper's Dwelling are modern and have been replaced within the last twenty years. The first-floor half bathroom includes a porcelain toilet and sink (fig. 385). The kitchen includes a stainless steel sink (fig. 386) and propane gas range (fig. 387). The second-floor bathroom includes a porcelain toilet, fiberglass sink/counter unit, and fiberglass shower-tub combination unit (figs. 388-389).

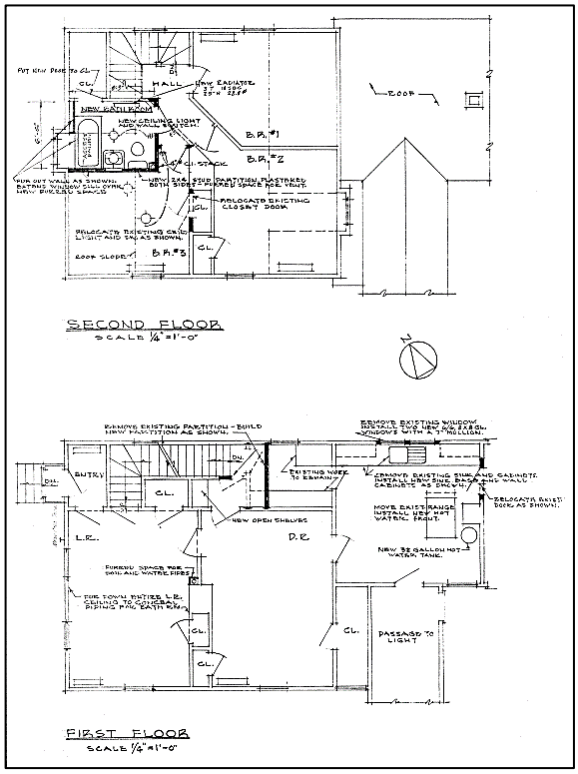


Figure 384. left. Modern plumbing fixtures were added in 1950, and are detailed in this May 1950 drawing, showing a new sink and cabinets to the kitchen and a full bathroom added to the second floor. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG Drawing P4402. Cropped by author.

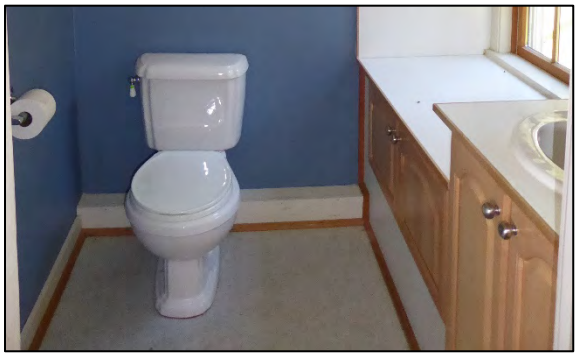


Figure 385, above. Modern porcelain toilet and sink in the first-floor half bathroom. Photo: HPTC, 05/15/19.



Figure 386. Modern stainless steel kitchen sink. Photo: HPTC, 05/15/19.



Figure 387, right. Modern gas stove on the east wall of the Kitchen. Photo: HPTC, 05/15/19.



Figure 388. Modern porcelain toilet and fiberglass sink/counter unit in the second-floor bathroom. Photo: HPTC, 05/13/19.



Figure 389, right. Modern fiberglass shower-tub unit in the second-floor bathroom. Photo: HPTC, 05/13/19.

Originally, domestic water was collected from the roof and stored in a 1,800-gallon brick cistern located at the northeast corner of the basement (i.e. 240 cu. ft. or a container 5'x6'x8'). According to archival drawings, the cistern was still in place in 1950 when the Dwelling was modernized, but had been removed by 1997. There is no evidence of this cistern in the basement, on the walls or the floor (suggesting the interior brick walls and concrete slab were added after the cistern's removal).

According to archival drawings from the 1950 modernization (after the proposed Period of Signifiance), a well was already extant just north of the Main Block (fig. 390), but alterations to it were required for bringing the water to the interior of the Dwelling. The location of this original well head is marked by a concrete cover and the modern system still utilizes the trench (fig. 391). Inside the basement, a new well pump and pressure tank were to be located at the northwest corner and new piping from that equipment was to connect to the second-floor bathroom (via a new chase north of the chimney), first-floor kitchen, and basement boiler.

Currently, water is supplied to the Keeper's Dwelling via a well at the top of the hill (north) and transported via insulated pipe down the hill and into the basement (figs. 392-393). Domestic water enters the Keeper's Dwelling at the west end of the north basement wall (fig. 394). From this point, the water may be filtered through the radon system, as testing throughout the 1980s and 1990s showed elevated levels of radon in the water. Additional well equipment, including pressure and filtration tanks are located atop the containment walls at the southeast corner of the basement (fig. 395).

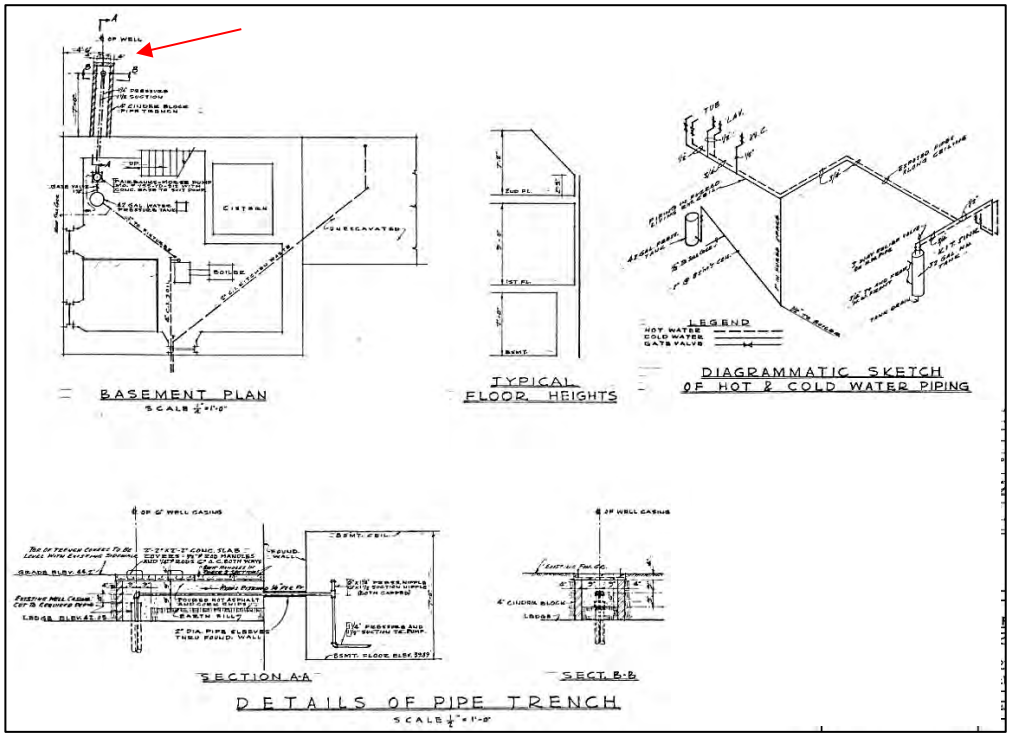


Figure 390. This May 1950 drawing shows a well head extant north of the Main Block (arrow). Note the location of the since-removed cistern at the northeast corner of the basement. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG Drawing P4402. Cropped by author.



Figure 391. A broken concrete cover locates the original well head for the site. The modern system utilizes the original trench to the basement (box structure). Photo: HPTC, 05/15/19.



Figure 392, left. An insulated box protects the water supply pipe from the well to the basement of the Keeper's Dwelling. Photo: HPTC, 05/13/19.

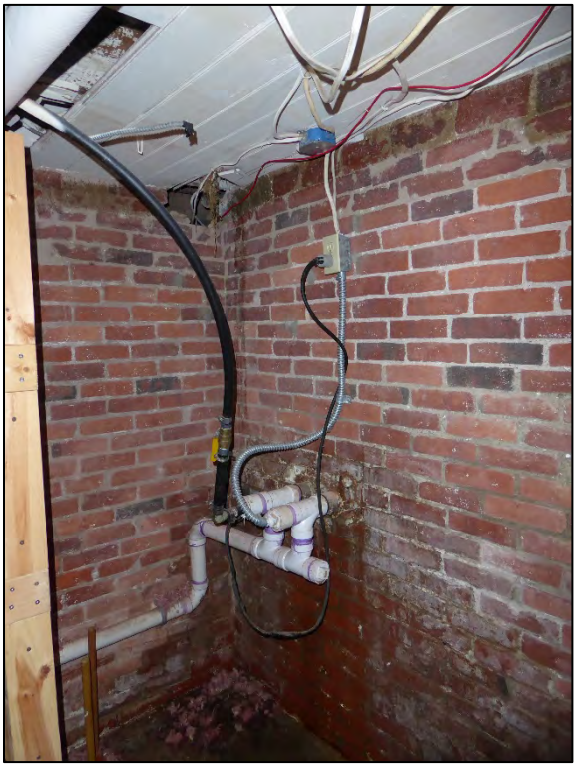


Figure 394, left. Water enters the basement at the northwest corner. Photo: HPTC, 05/13/19.



Figure 393, above. A well head is located at the top of the hill near the Garage and next to the flagpole. Photo: HPTC, 05/15/19.



Figure 395, above. Well pressure tanks and filtration equipment sit atop the containment walls at the southeast corner of the basement. Photo: HPTC, 05/13/19.

D2030	Sanitary Waste

A modern sanitary system was first installed at the Dwelling in 1950 (after the proposed Period of Significance). Until this point, residents continued to use a privy perched on the side of the cliff (removed at the time of modernization) or a chemical toilet located in the basement.

In 1950, the new system included a 2" cast iron pipe from the kitchen sink down through the basement, underground, through a headwall at the cliff, and into the ocean. For the second-floor bathroom, a 4" cast iron pipe carried waste to a new underground septic tank located at the cliff. Outflow occurred through the concrete headwall into the ocean. This system is detailed in archival drawings and a 1951 photograph shows the headwall in place (figs. 396-397).

Another septic system was installed in 1975. Work included capping the 1950 tank and filling it with gravel, removing the original outfall drainline and plugging the hole in the concrete headwall, installing a new cast iron pipe from the building to a treatment unit and chlorinator, with ejection of the treated sewage at the southwest corner of the new concrete retaining wall over the cliff and into the ocean. An archival drawing details the new system (fig. 398).

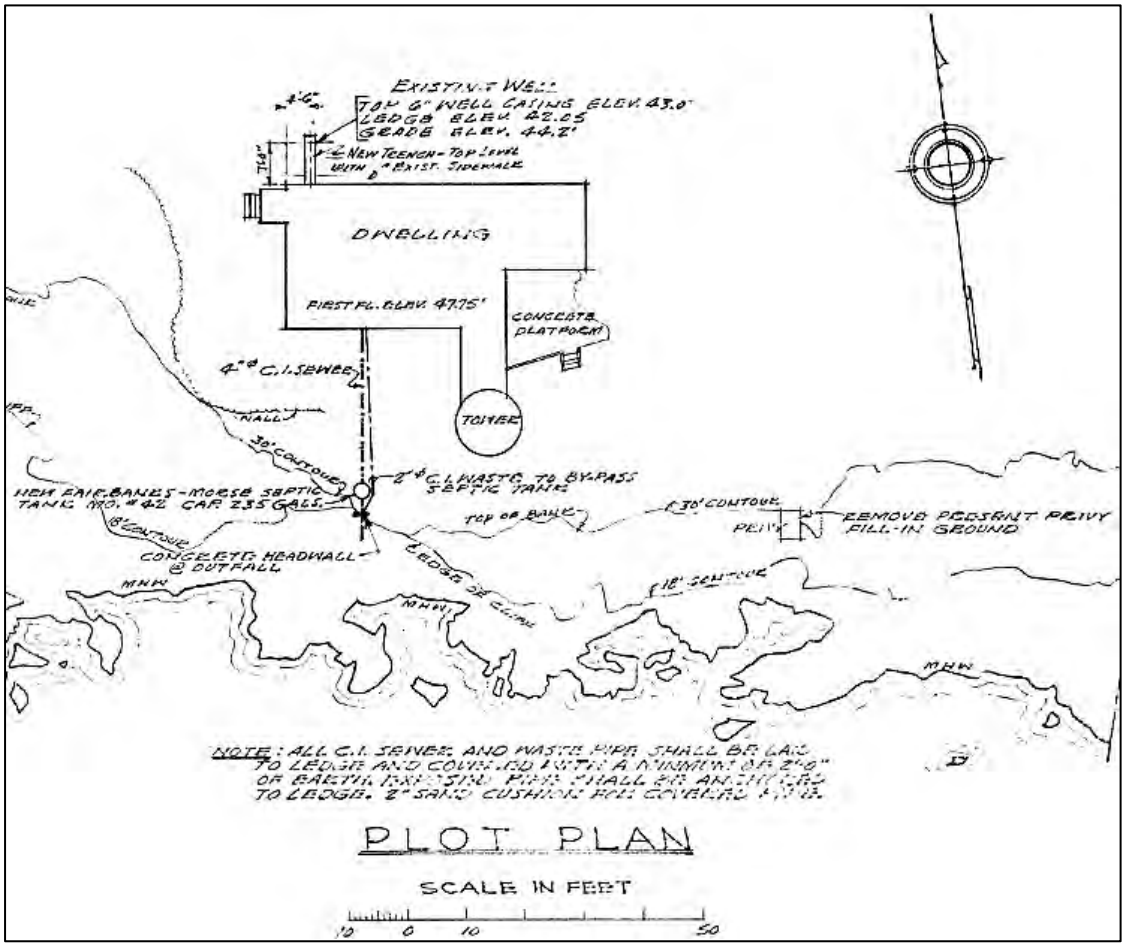


Figure 396. A May 1950 site plan with plans for the new septic system to the south of the Dwelling. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG Drawing P4402. Cropped by author.



Figure 397. This 1951 photograph shows an area of ground disturbance to the south of the Dwelling, evidence the new septic system was installed recently. The concrete headwall in the cliff is also in place (arrow). The pipe was not long enough, an unfortunate detail known to have been an issue in 1951. The privy to the right of the Bell House has been removed. Source: USCG Historian's Office, 170602-G-XX0000-434. Cropped by author.

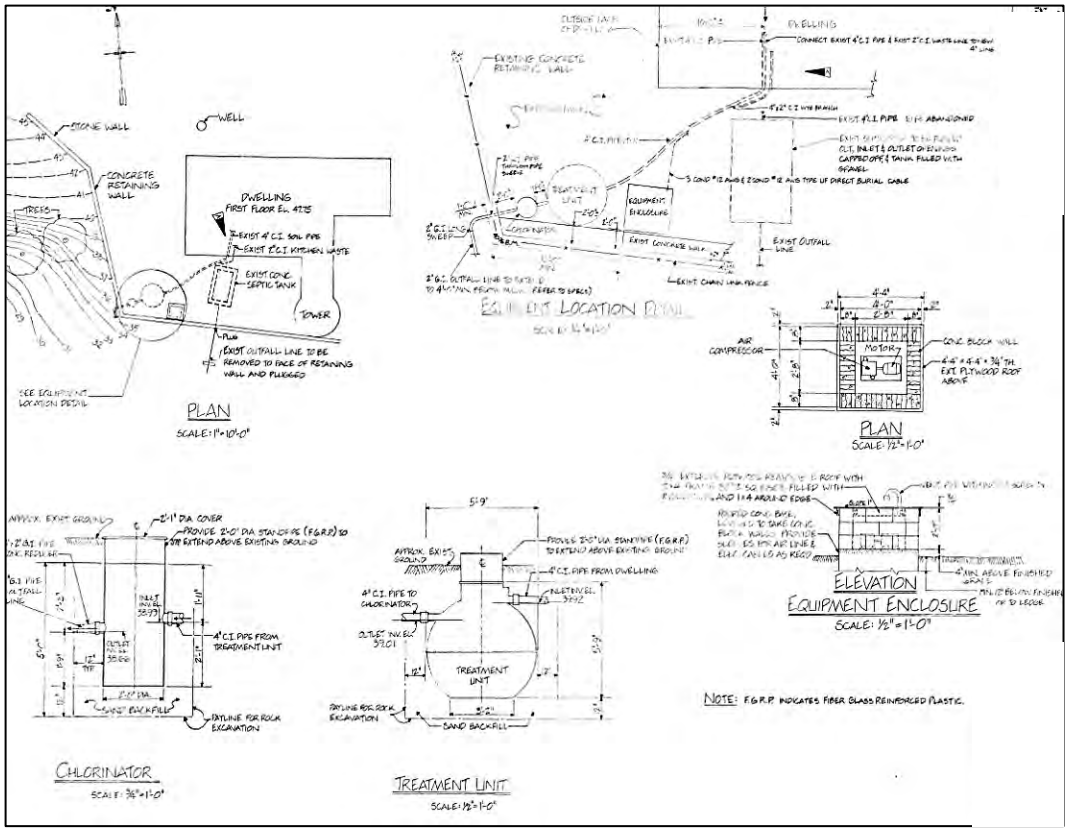


Figure 398. An April 1975 drawing details a new sewage system at the Keeper's Dwelling. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG Drawing P6375. Cropped by author.

In May 1984, the Environmental Protection Agency released a directive regarding sewage discharge into the Atlantic Ocean. All United States Coast Guard Facilities were required to conform to Executive Order 12088 (1978). Wastewater testing was required and subsequently failed at Bass Harbor Head Light Station. In 1987, the USCG applied for a permit to continue discharging waste into the ocean. By 1988, the State Department of Environmental Protection required the USCG to determine if a waste system could be designed so that the overboard system could be abandoned. An initial evaluation that year concluded no area was available for a subsurface waste system. By 1989, the state indicated that overboard discharge would by no means be allowed at Bass Harbor. Another evaluation that year provided a solution (fig. 399): "a 1000 gallon septic tank and lift chamber with dual-alternating pump to be located near the residence (after removal of the existing overboard treatment plant), with a pump line running adjacent to the driveway to a 16" wide x 28" long leachfield in the area of Test Pits #1 & #2 (leachfield to consist of 14 "Flowdiffuser 4' x 8' low profile" concrete leaching chambers."[1] A contract was awarded the same year.

No other archival information could be found on changes to the 1989 system or a different system being designed or installed, so it is assumed that the 1989 system is still in place and technically operational (through last resident in ca. 2012).

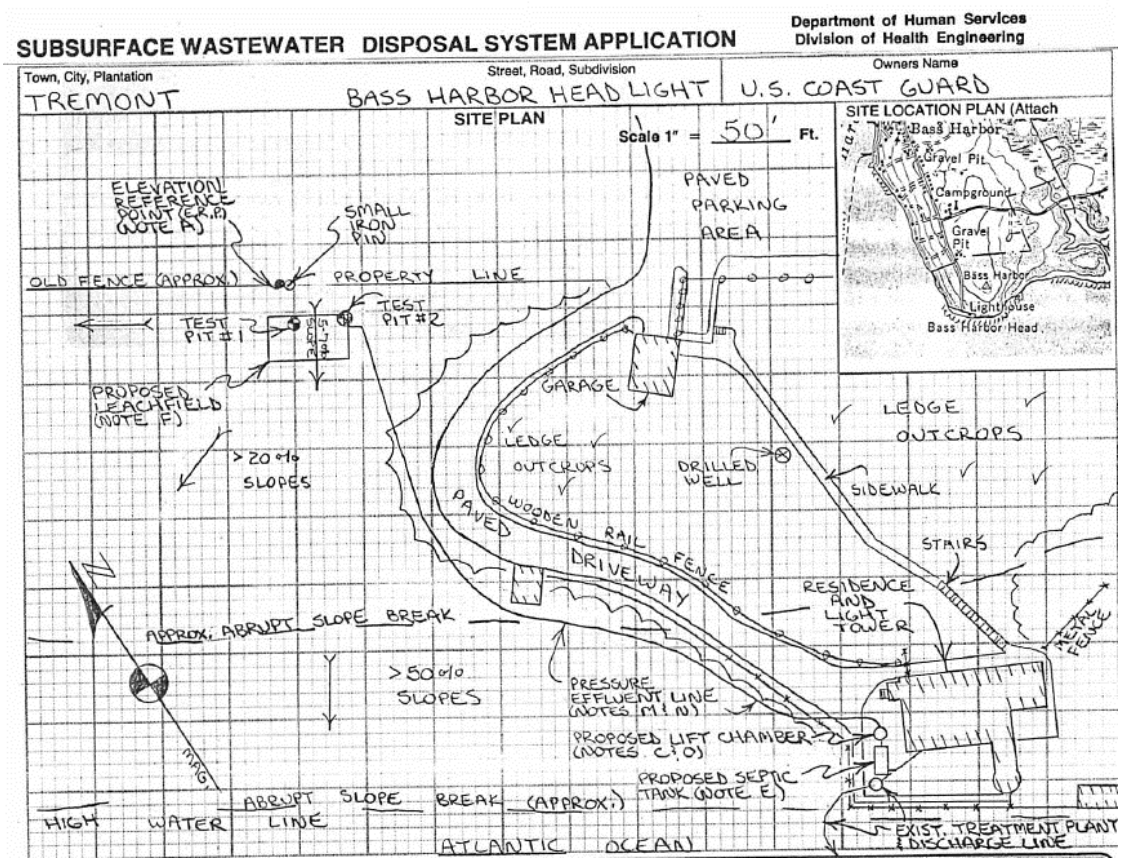


Figure 399. A June 1989 site plan showing the location of the proposed septic system. Source: Files from USCG to ACAD Chief of Facilities, Keith Johnston. Folder: Bass Harbor: Sewage. Cropped by author.

[1] Ott, Allan E. (Certified Professional Soil Scientist.) *Report of On-Site Investigation.* April 26, 1989. Source: Files from USCG to ACAD Chief of Facilities, Keith Johnston. Folder: Bass Harbor: Sewage.

In the basement, much of the cast iron waste pipe has been replaced with PVC and a modern sump pump has been added for the basement laundry facilities (fig. 400). A section of cast iron has been retained at the south wall which penetrates the wall (fig. 401) to drain to the septic tank to the southwest. To the southwest outside of the Dwelling are three manhole covers associated with the septic system (fig. 402). Piping up the hill and evidence of the leachfield west of the Garage and driveway were not sought out by the assessment team.



Figure 400. Modern PVC drain pipes are seen throughout the basement, including at the sump pump by the laundry hookups. Photo: HPTC, 05/13/19.



Figure 401. 1950-era cast iron pipe retained at the south wall for connection to the exterior septic tank. Photo: HPTC, 05/13/19.

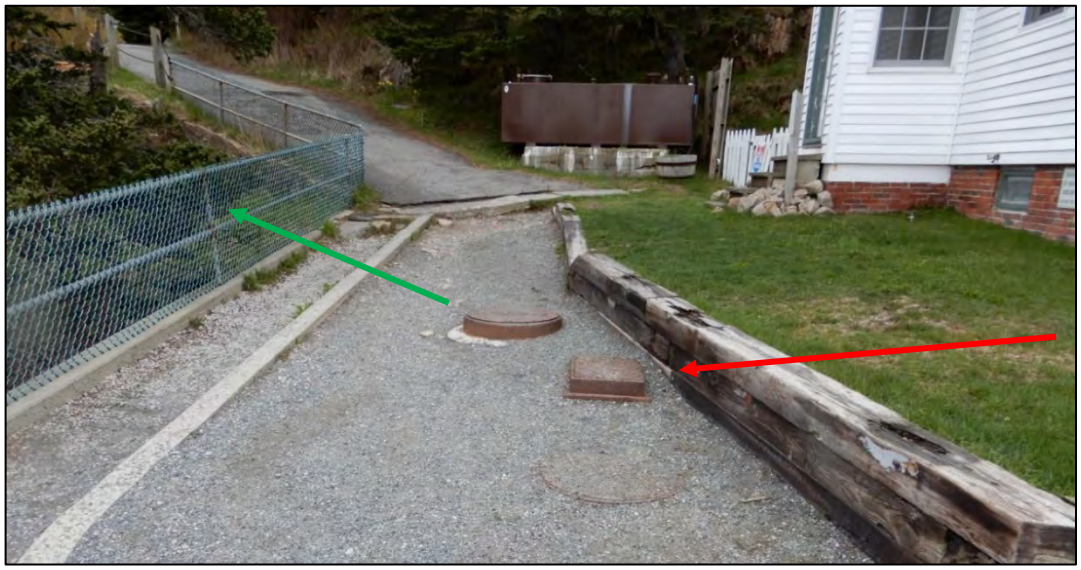


Figure 402. Waste from the Keeper's Dwelling leaves the building at the south elevation (red line) and flows to the septic tank and lift chamber located west of the house. From these units, a pressure effluent line (green arrow) pumps the waste to the top of the hill (west of the Garage and driveway) to a leachfield. Photo: HPTC, 11/15/19.

D30	HVAC
D3020	Heat Generating Systems

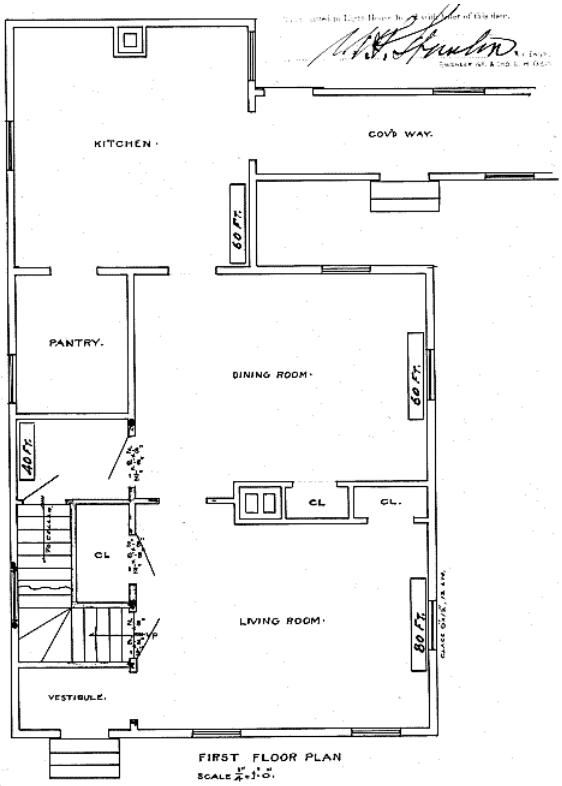


Figure 403. First-floor plan dated August 1901 shows the addition of radiators to the living room, dining room, top of basement stair, and kitchen. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG Drawing P(No6)D7 D. Cropped by author.

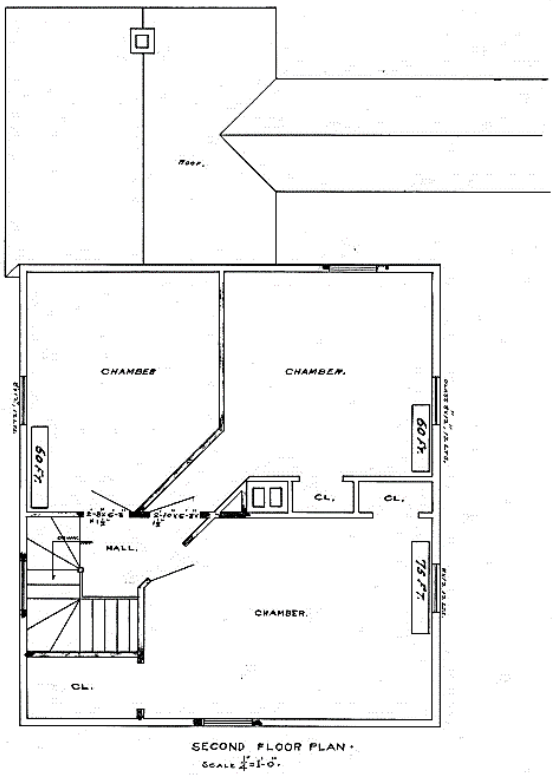


Figure 404. Second-floor plan dated August 1901 shows the addition of radiators to the newly formed bedrooms (two to three). Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG Drawing P(No6)D8 D. Cropped by author.

Originally, the Keeper's Dwelling was likely heated with interior stoves connected to the single chimney in the Main Block (the kitchen cooking stove had its own chimney). It is assumed this was the extant heating method until 1901, when radiators first appear on drawings in the living room, dining room, top of the basement stair, kitchen, and three second-floor bedrooms (figs. 403-404).

A March 1949 drawing (outside the proposed Period of Significance) shows the location of the boiler (to the east of and exhausting through the chimney) and coal room at the southeast corner of the basement (fig. 405). Drawings from May 1950 show the same configuration in the basement and radiators throughout the house but does show an additional radiator added to the north wall of the new second-floor bathroom. No evidence of the coal bin can be seen in the basement on the walls or the floor.

A 1987 National Register nomination photograph shows the presence of the fuel-oil tank within a walled containment area to the northwest of the dwelling; date of installation is unknown. In 1993 the corroded 500-gallon tank was replaced with a self-contained dike tank of the same size. This is still extant on site (fig. 406).

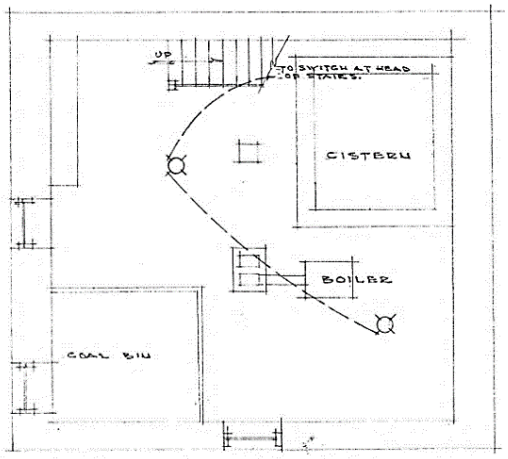


Figure 405. March 1949 floor plan of the basement with the location of the boiler venting through the chimney, and a coal bin at the southeast corner. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; USCG Drawing 4355. Cropped by author.



Figure 406. The fuel-oil tank at the northwest corner of the house dates to 1993. Photo: HPTC, 05/13/19.

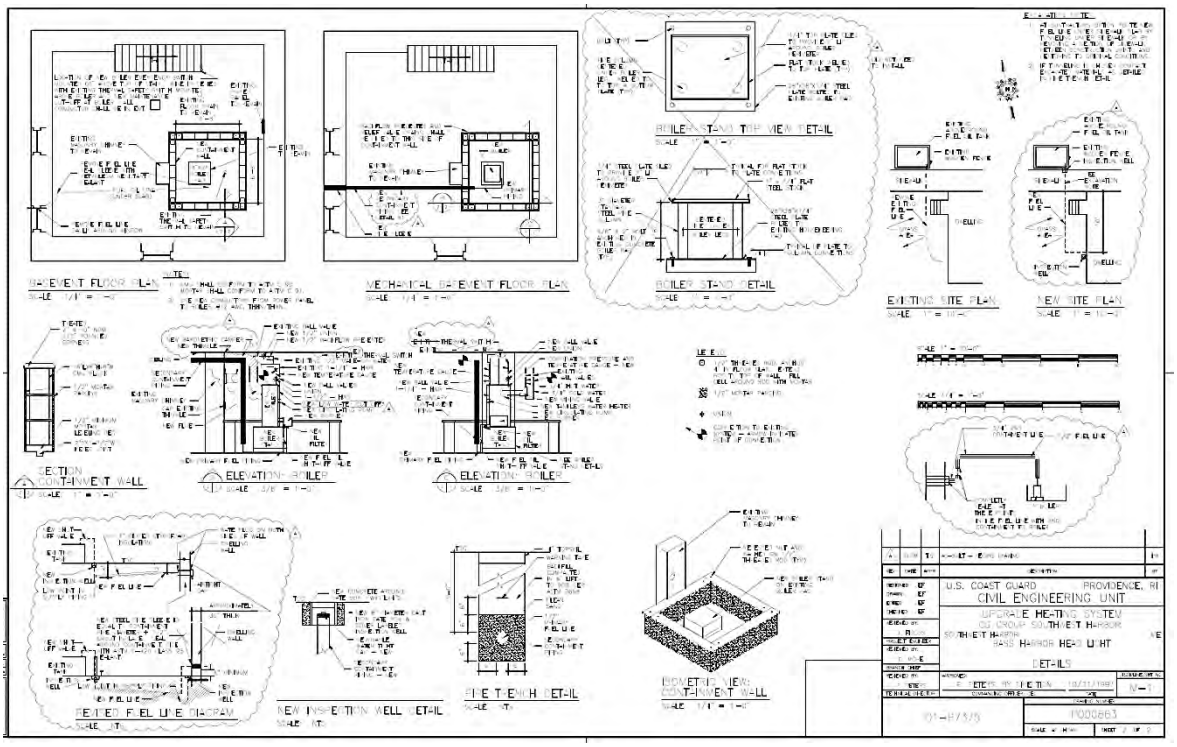


Figure 407. October 1997 drawing of updates to the heating system, including new fuel supply piping, boiler, and basement containment area. Source: USCG files transferred to ACAD Cultural Resources Program Manager Gail Gladstone; Files P0863.

Alterations to the heating system occurred in late 1997 including replacing the fuel-oil supply line running underground from the exterior tank to the interior and the construction of a parged concrete block containment around a new hot water boiler with tankless water heater (fig. 407). This containment is still extant (fig. 408).

Currently, the hot water boiler—likely replaced again since 1997—is located within the containment area (fig. 409). The boiler exhausts through the extant chimney to the east. Outside the containment area is a Boiler Mate indirect-fired water heater (fig. 410). Metal radiator pipes are seen throughout the ceiling of the basement (fig. 411). The supply pipes typically have pipe insulation extant whereas return pipes typically do not have pipe insulation. Asbestos content of insulation is unknown.



Figure 408. The boiler containment area dates to 1997. Photo: HPTC, 05/13/19.



Figure 409, right. Newer boiler within the containment area with copper water supply pipes and insulated hot water pipes radiating away from the boiler to the various radiators in the floors above. Photo: HPTC, 05/13/19.



Figure 410, left. Newer Boilermate indirect-fired water heater outside of the containment area. Photo: HPTC, 05/13/19.



Figure 411, above. Insulated hot water supply pipes and uninsulated return pipes to and from radiators above. Photo: HPTC, 05/13/19.

Hot-water radiators are located throughout the first and second floor of the dwelling:

- Room 102 (entry): 8-fin, 3-tube, by AERO, north wall (fig. 412)
- Room 103 (living room): 16-fin, 5-tube, by AERO, south wall (fig. 413)
- Room 104 (dining room): 12-fin, 5-tube, by AERO, south wall (fig. 414)
- Room 107 (kitchen): 12-fin, 5-tube, by AERO, south wall (fig. 415)
- Room 203 (southwest bedroom): 15-fin, 5-tube, by AERO, south wall
- Room 204 (southeast bedroom): 12-fin, 5-tube, by AERO, south wall (fig. 416)
- Room 205 (northeast bedroom): 12-fin, 5-tube, by AERO, north wall (fig. 417)

The thermostat is located in the northeast corner of the first-floor living room. Emergency shutoff switches for the boiler are located at the northwest corner of first-floor dining room and in basement access room (neither verified by assessment team).

An electric wall heater has been added to the east wall of the Addition (fig. 418) and in the second-floor bathroom; dates of these heaters are unknown.



Figure 412. Smaller radiator in the entry. Photo: HPTC, 05/15/19.



Figure 413. The largest radiator in the house: the living room. Note the supply and return pipes to the radiator in the bedroom above. Photo: HPTC, 05/15/19.



Figure 414. The radiator at the southwest corner of the dining room. Photo: HPTC, 05/15/19.



Figure 415. The kitchen radiator. Photo: HPTC, 05/15/19.



Figure 416. Radiator of the southeast bedroom. Photo: HPTC, 05/15/19.



Figure 417, left. Radiator of the northeast bedroom. Photo: HPTC, 05/15/19.



Figure 418, above. Electric wall heather at the east wall of the Addition. Photo: HPTC, 05/15/19.

D3060	Controls & Instrumentation
D306004	Gas Purging Systems

Consistent testing of the well water and air sampling within the Keeper's Dwelling in the late 1980s and early 1990s showed very elevated amounts of radon in the well water and air. Testing stopped in December 1993, so it is assumed that the radon reduction system in place at the Dwelling was installed around that time. Complete details of the system installed at that time are unknown.

Currently, radon reduction system components are scattered throughout the Dwelling. In the crawlspace under the Covered Way, poly covers the ground and a PVC pipe runs the length and through the north wall into the Ell crawlspace (fig. 419). Details in that crawlspace are unknown, but a pipe from that crawlspace enters the Main Block basement at the northeast corner and is labelled "Radon Reduction System" (fig. 420). This runs across the ceiling to join with a sub-slab exhaust pipe located south of the chimney (fig. 421). These are vented through a single pipe through the house (stacked closets; fig. 422) and out through the attic and roof (fig. 423). A blower is located in the attic (fig. 424).

A separate radon reduction system is in place for the well water. This includes running the unfiltered well water through an aerator system (black box in fig. 421) prior to being filtered and treated for potability. Exhaust from the aerator is force vented through a single pipe through the house (stacked closets; see fig. 422) and out through the attic and roof (fig. 423).



Figure 419. Poly covers the ground of the Covered Way crawlspace to create a semi-vacuum for the radon reduction pipe running through the space. Photo: HPTC, 05/13/19.



Figure 420. A PVC exhaust pipe exits the Kitchen crawlspace and enters the Main Block basement. Photo: HPTC, 05/13/19.



Figure 421. Sub-slab exhaust pipe south of the chimney. Photo: HPTC, 05/13/19.



Figure 422. "Radon Reduction System" pipes in the living room closet. The large pipe is for radon in the air. The small pipe is for radon in the water. Photo: HPTC, 05/13/19.



Figure 423. Radon pipes exit the house at the north end of the Main Block gable roof. The large pipe is for radon in the air. The small pipe is for radon in the water. Photo: HPTC, 05/15/19.



Figure 424. A blower is located in the attic to pull the air from the crawlspaces and sub-slab area of the Main Block. The smaller pipe is from the radon aerator system. Photo: HPTC, 05/13/19.

D40	FIRE PROTECTION SYSTEMS
D4010	Sprinklers

No sprinkler system is currently extant within the Keeper's Dwelling.

D4030	Fire Protection Specialties
D403001	Fire Extinguishers

No fire extinguishers are located in the basement or on the second floor.

Wall hooks for fire extinguishers are located in the first-floor entry, the landing at the top of the basement stair, and the second-floor landing at the top of the main stair, though no extinguishers are in place (figs. 425-426).

A fire extinguisher has been placed on the interior of the Covered Way just inside the exterior door (fig. 427).



Figure 425. Missing fire extinguisher in the entry. Photo: HPTC, 05/15/19.



Figure 426. Missing fire extinguisher at the top of the basement stair. Photo: HPTC, 05/15/19.

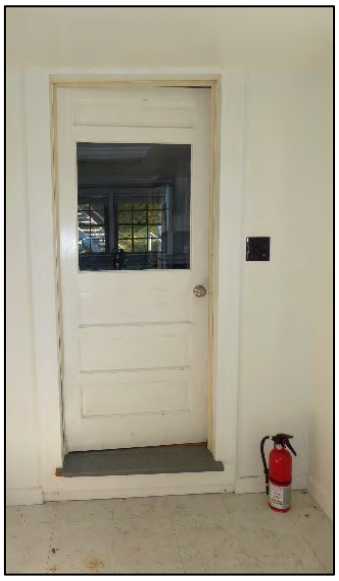


Figure 427. Fire extinguisher placed just inside the exterior door of the Covered Way. Photo: HPTC, 05/15/19.

D50	ELECTRICAL
D5010	Electrical Service & Distribution
D5020	Lighting & Branch Wiring

Electricity was first introduced to the Keeper's Dwelling in 1949 (outside the proposed Period of Significance). Archival drawings show the electrical panel box to be located at the east wall of the Addition; a panel is still located there (fig. 428).

Based on archival drawings and the very limited number of switches and receptacles, the extant system is likely largely original to 1949 with some alterations made in 1950 for the new bathroom and kitchen upgrades, and various other updating to light fixtures and switches throughout the dwelling.

An extensive panel system is located in the basement of the Main Block with subpanels and distribution to the electrified Lighthouse, Bell House, and Garage located elsewhere at the Light Station (fig. 429).

An up-to-date electrical plan or wiring diagram has not been located or supplied by the USCG for the Keeper's Dwelling or the Light Station as a whole.





Figure 429. Panels and subpanels and breaker boxes in the basement. Photo: HPTC, 05/13/19.

Figure 428, left. Original (1949) electrical panel located on the east wall of the Addition. Photo: HPTC, 05/15/19.

D5030	Communications & Security
D503001	Fire Alarm Systems

Hardwired smoke detectors with integrated battery backup are located in the basement, living room, kitchen, and second-floor landing (figs. 430-433). Holes in the ceilings of the three second-floor bedrooms have been filled in with spray foam. It is assumed these were locations of former smoke detectors.

Historic audible fire-alarm bells are located in first-floor half bathroom and at the second-floor stair landing (figs. 433, 435). Historic rate-of-rise heat detectors (Simplex thermodetectors) are located in basement, first-floor half bathroom, kitchen, Addition, Covered Way (figs. 432, 434-437). These archaic features were a holistic fire detection system for the Dwelling. The date of installation is unknown and it is unlikely these units still function to their original/intended capacity. However, it is unusual to see antiquated systems like this retained in a house—especially one owned by the Federal government—that has been modernized and updated several times.

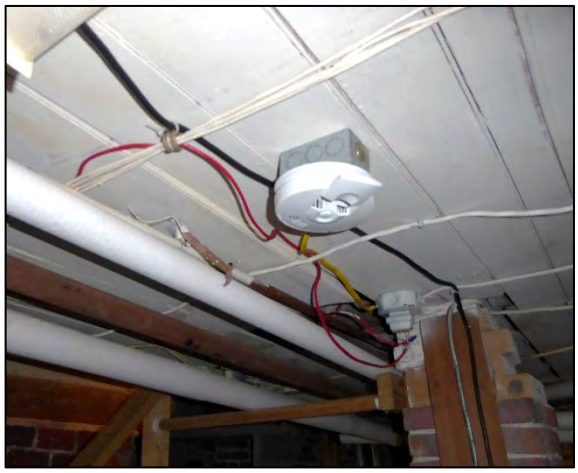


Figure 430. Modern hardwired smoke detector at the ceiling of the basement. Photo: HPTC, 05/13/19.

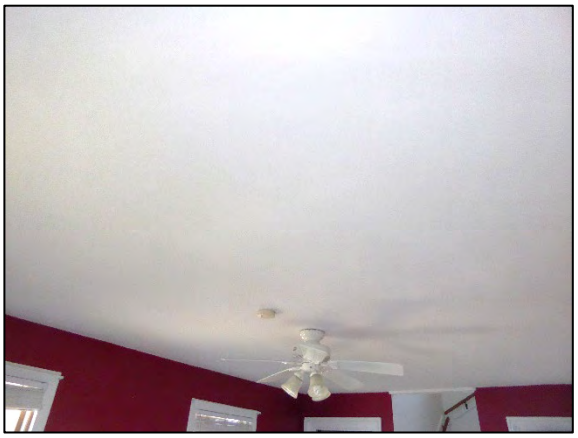


Figure 431. Modern smoke detector at the ceiling of the living room. Photo: HPTC, 05/15/19.



Figure 432. Modern smoke detector at the ceiling of the kitchen, Note the historic thermodetector (heat detector) at right. Photo: HPTC, 05/15/19.



Figure 433, right. Modern smoke detector at the ceiling of the second-floor landing. Note the historic fire alarm bell on the wall below. Photo: HPTC, 05/13/19.

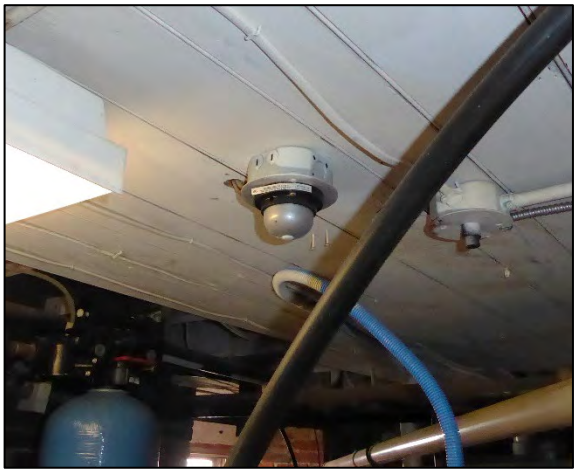


Figure 434. Historic thermodetector (heat detector) at the basement ceiling. Photo: HPTC, 05/13/19.



Figure 435, right. Historic thermodetector (heat detector) at the half bathroom ceiling and fire alarm bell below. Photo: HPTC, 05/15/19.



Figure 436. Historic thermodetector (heat detector) on the ceiling of the Addition. Photo: HPTC, 05/15/19.



Figure 437. Historic thermodetector (heat detector) on the ceiling of the Covered Way. Photo: HPTC, 05/13/19.

D503008	Security Alarm Systems

No security alarm system is currently extant within the Keeper's Dwelling.

D5090	Other Electrical Systems
D509004	Lightning Protection System

No lightning protection system is currently extant at the Keeper's Dwelling.

G	BUILDING SITEWORK
G20	SITE IMPROVEMENTS
G2030	Trail (Pedestrian Paving)

A paved asphalt walkway leads from the parking lot above (north) past the Garage and down past the Oil House to the front of the Keeper's Dwelling (fig. 438). This asphalt drive was completed in 1975 to accommodate visitors to the site. It is unknown when it was last paved.

Visitors then utilize a gravel area on the west and south sides of the Dwelling for access to the water side and a view of the Lighthouse (figs. 439-440). According to an unrelated 1988 site plan, the original visitor walkway was the section between the concrete curb adjacent the fence and concrete retaining wall and the remainder was lawn (fig. 441). HABS photographs from 1990 confirm this, but worn spots in the lawn can be seen in the front (west) lawn in front of the Dwelling (fig. 442). Signs on the foundation wall likely harken back to this time. Since 1990, an additional portion of the front and side (west and south) have been removed and gravel was added. A low timber wall separates the additional gravel area from the now-smaller lawn (fig. 443).



Figure 438. Asphalt walkway leads visitors down to the Keeper's Dwelling and Lighthouse. Photo: HPTC, 05/13/19.



Figure 439, left. The front of the Dwelling includes the original visitor gravel path close to the fence and marked by the concrete curbs. An additional gravel area was added after 1990. The low timber wall separates it from the lawn. Photo: HPTC, 05/13/19.



Figure 440, above. The side of the Dwelling includes same detailing as the front. Additional visitor space was carved out of the lawn area. Photo: HPTC, 05/13/19.

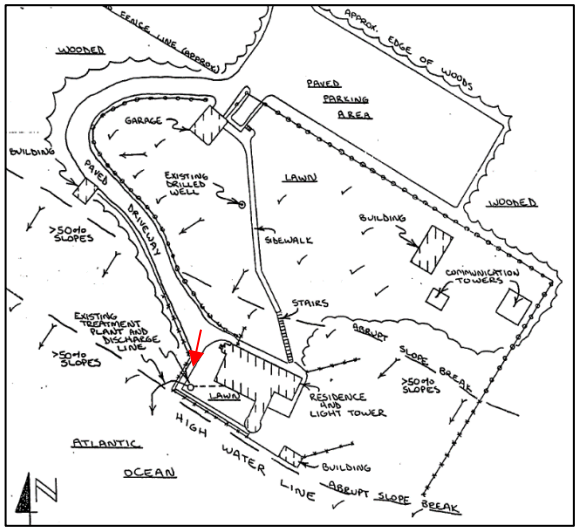


Figure 441. A May 1988 site plan shows the paved walkway from the parking area to the Keeper's Dwelling and Lighthouse. At that time, only a small walkway adjacent the retaining wall was for visitors (arrow). Source: USCG files transferred to ACAD Chief of Facilities, Keith Johnston. Folder: Bass Harbor: Light House. Cropped by author.



Figure 442. The asphalt walkway ends at the lawn in front of the Keeper's Dwelling in 1990. The narrow visitor sidewalk can just be seen at the right (arrow). Source: HABS, ME-197.



Figure 443. Timber walls separate the gravel visitor area and the lawn. Signs on the foundation ("Grass grows by inches and dies by feet. Stay off the grass.") are evidence of a foot traffic problem to the original portions of grass. Photo: HPTC, 05/15/19.

At the base of the asphalt visitor walkway, a concrete sidewalk leads to a small gate in a wood fence meant to divide the private residence areas from the visitor use areas (fig. 444). Behind the fence, on the north side of the Dwelling is a walk composed of dyed concrete pavers (fig. 445). This walk leads to a concrete area in front of the Addition exterior door (fig. 446). A metal gate at the east end leads to a concrete sidewalk abutting the east elevation of the Addition (fig. 447) and to the concrete patio on the south elevation (discussed in G203099 below).



Figure 444. A concrete sidewalk at the base of the asphalt visitor walkway leads to a small fence separating the residence area. Photo: HPTC, 05/13/19.

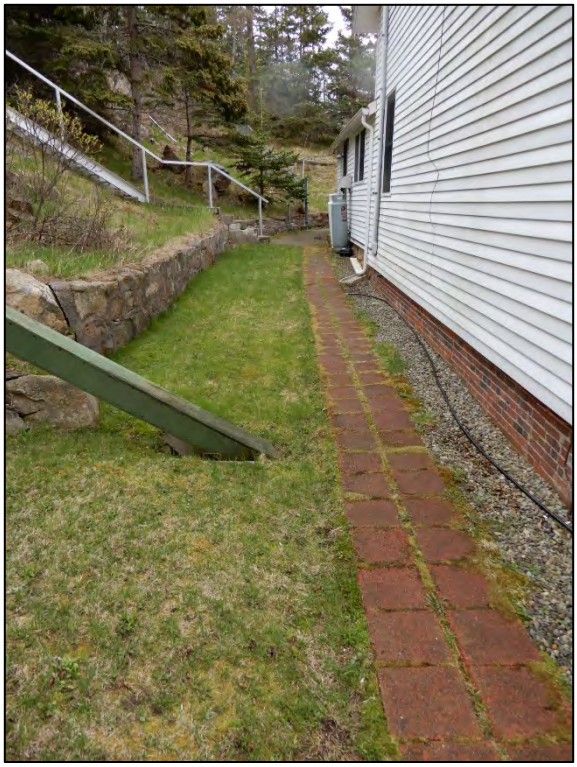


Figure 445. Dyed concrete pavers run along the north elevation of the Keeper's Dwelling. Note the rough-cut, mortared stone retaining wall to the north (left). Photo: HPTC, 05/13/19.



Figure 446. Concrete paving is located in front of the Addiiton exterior entrance. Photo: HPTC, 05/15/19.



Figure 447, right. A concrete sidewalk on the east elevaiton of the Addition. Note the rough-cut, mortared stone retaining wall to the east (right). Photo: HPTC, 05/15/19.

G203099	Other Walks, Steps & Terraces

A modern aluminum stair leads from the hill above down to the north elevation of the Keeper's Dwelling and lands at the patio outside the Addition north elevation exterior entrance (figs. 448-449). A 1990 HABS photographs shows the stair composed of wood (fig. 450); since that time, the aluminum stair has been added. At the base of the stair is a concrete landing and a set of four concrete stairs (fig. 451).



Figure 448. The modern aluminum stair down from the hill above the Keeper's Dwelling. Photo: HPTC, 05/15/19.



Figure 449. The aluminum stair was added sometime after 1990. Photo: HPTC, 05/15/19.



Figure 450. The wood stair in place in 1990. Source: HABS, ME-197.



Figure 451, right. The modern stair is supported by a concrete landing at the bottom, with a set of four concrete steps. Photo: HPTC, 05/15/19.

At the south elevation of the Addition is a raised terrace with a stair down to the Bell House. Archival photographs and drawings do not detail this area well. A 1950 drawing (outside the proposed Period of Significance) shows the concrete terrace in place. In ca. 1974, a wood railing ran along the south edge of the terrace. A 1990 HABS photograph shows the area has been built up with a concrete terrace replete with period 1970s railing (fig. 452).



Figure 452. The concrete terrace was added to the south elevation of the Addition by 1990. Source: HABS, ME-197.

Currently, the terrace consists of a rubble stone wall topped with a brick course on the south elevation (fig. 453). It is assumed the area was backfilled before a concrete patio was poured on top (fig. 454). The 1970s-era railing has been replaced with a more traditional painted wood balustrade system. A concrete stair is located off the center of the patio and leads to the concrete sidewalk to the Bell House. The stair is flanked by more painted wood balustrade.



Figure 453. A stone wall supports the south side of the terrace. A balustrade marks the edge. Photo: HPTC, 05/13/19.



Figure 454. The concrete patio is abutted by the Addition on the north, the Covered Way on the west, a balustrade on the south, and the rising topography on the east. Photo: HPTC, 05/13/19.

G2040	Site Development
G204001	Fencing & Gates

The existence of the Light Station directly along the rocky Maine coast obviously posed a safety issue from early on. Photographs from 1875 show a wood rail fence along the cliff atop a piled stone retaining wall (fig. 455). By 1895 the wood rail fence had been replaced with fence composed of wood posts and wire strung along the posts (fig. 456). Around the turn of the twentieth century the fence was moved to below the retaining wall and used more substantial wood posts (fig. 457). This fence and retaining wall appear to have remained in place through at least 1951 (fig. 458)—through and after the end of the proposed Period of Significance. An archival photograph from ca. 1962 shows the modern concrete retaining wall in place with a painted metal tube railing above (fig. 459). This tube railing is still extant at the Light Station. Further archival photographs show that chain-link fencing was installed between July 1987 and September 1990 along the length of the railing (figs. 460-461).

At the northwest corner of the Keeper's Dwelling, a modern painted wood low picket fence is intended to separate the visitor area from the private, residence area (fig. 462). Just north of this fence is a taller board fence meant to hide the fuel oil tank from the Dwelling windows.

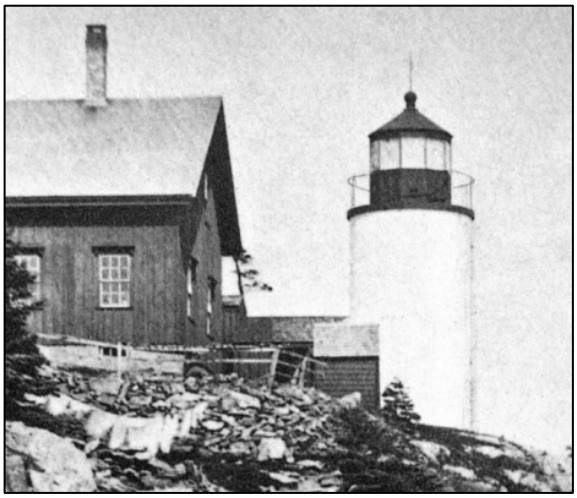




Figure 456, above. Stacked stone wall with fence above composed of wood posts and strung wire in 1893. Source: NARA, 26-LG-1-27A. Cropped by author.

Figure 455, left. Wood rail fence atop a stacked stone retaining wall at the southwest corner of the Dwelling in 1875. Source: SWHPL Digital Archive.[2] Cropped by author.



Figure 457. By ca. 1902 the fence along the cliff had been moved to below the retaining wall. Source: SWHPL Digital Archive.[3] Cropped by author.



Figure 458. In 1951, the fence was similar to that in ca. 1902. Source: USCG Historian's Office, 170602-G-XX000-434. Cropped by author.

[2] Bradley, Bryant. "Bass Harbor Head Light from the West." Item 5655. *Southwest Harbor Public Library.*
[3] "Bass Harbor Head Light." Item 7775. *Southwest Harbor Public Library.*



Figure 459. By ca. 1962, the modern concrete retaining wall and painted metal tube railing above had been constructed. Source: SWHPL Digital Archive.[4]



Figure 460. Modern chain-link fencing applied to the ca. 1974 tube railing to the west of the Keeper's Dwelling. Photo: HPTC, 05/13/19.



Figure 461. Modern chain-link fencing applied to the ca. 1974 tube railing to the south of the Keeper's Dwelling and Lighthouse. Photo: HPTC, 05/13/19.



Figure 462, right. Modern picket and board fence at the northwest corner of the Keeper's Dwelling. Photo: HPTC, 05/13/19.

[4] Kanut, Jr., Paul A. "Bass Harbor Head Light." Item 6886. *Southwest Harbor Public Library.*

G204002	Retaining Walls

The existence of the Light Station directly along the rocky Maine coast obviously posed a safety issue from early on. Photographs from 1875 show a wood rail fence along the cliff atop a piled stone retaining wall (see fig. 455). This retaining wall appears to have remained in place through at least 1951 (see fig. 458)—through and after the end of the proposed Period of Significance. An archival photograph from ca. 1962 shows the modern concrete retaining wall in place with a painted metal tube railing above (see fig. 459). This concrete retaining wall is still extant at the Light Station. Oceanside elevations of the retaining walls were not accessible for assessment.

A rough-cut, mortared stone retaining wall is located along the north elevation of the Keeper's Dwelling (fig. 463). Date of installation is unknown.



Figure 463. Rough-cut, mortared stone retaining wall north of the Keeper's Dwelling. The wall continues along the east elevation of the Addition. Photo: HPTC, 05/13/19.

G204099	Miscellaneous Structures – Bells

The Light Station was electrified in 1949 (the year after the end of the proposed Period of Significance). At that time, an electric bell striker and bell were added to metal framework atop a new concrete foundation (measuring 6'-0" square in plan) to the south of the Keeper's Dwelling. A 1951 photograph shows the new bell in place and the old bell on the Bell House also extant (fig. 464). By ca. 1962, the bell on the Bell House had been removed, having been made obsolete from the electrified bell (fig. 465).

By 1987, the 1949 bell and metal framework were replaced by a much smaller bell and similar, but smaller stand. These are still extant at the Light Station (fig. 466), though do not operate in any signaling capacity.

Adjacent (north of) the modern bell, a historic bell is located along the west elevation of the Lighthouse. It is supported by a metal framework on a concrete slab (fig. 467). Its date of installation here is unknown but occurred after the ca. 1962 postcard. It does not appear to be large enough to be the original bell from the Bell House but is more likely to be the bell that was part of the electrified striking machine in 1949. Curiously the bell is stamped with "Blake Bell Co. Boston Mass 1891" and "U.S. Lighthouse Establishment 1891." It is thought this perfectly good bell was reused from another location before being electrified in 1949 at Bass Harbor.



Figure 464. The electrified bell, left, and Bell House bell, right, both extant in 1951. Source: USCG Historian's Office, 170602-G-XX000-434. Cropped by author.



Figure 465. The electrified bell in place, left, and the Bell House bell removed by ca. 1962, right. Source: SWHPL Digital Archives.[5] Cropped by author.



Figure 466. The smaller bell and stand were added by 1987 but utilize the 1949 concrete foundation (arrow). Photo: HPTC, 05/13/19.



Figure 467. An 1891 bell hangs by the newer bell and the Lighthouse. It is believed this bell was part of the 1949 electrified bell system and not the original bell from the Bell House. Photo: HPTC, 05/15/19.

G2050	Maintained Landscapes

Maintained sodded areas abut the exterior of the Keeper's Dwelling on the south and west elevations (fig. 468) and a portion of the east elevation. Gravel abuts the north elevation (fig. 469). The east elevation is abutted by a concrete sidewalk and terrace (see figs. 447, 454).

[5] Kanut, Jr., Paul A. "Bass Harbor Head Light." Item 6886. *Southwest Harbor Public Library.*



Figure 468. Sod along the south and west elevations. Note a fairly neutral grade. Photo: HPTC, 05/13/19.



Figure 469. Gravel along the north elevation. Note the neutral grade. Photo: HPTC, 05/15/19.

G30	SITE MECHANICAL UTILITIES
G3060	Fuel System (Fuel Distribution)
G306006	Gas Storage Tanks

A pair of propane tanks for the gas kitchen range are located along the north wall of the Kitchen Ell (fig. 470). A galvanized metal hood protects the connections to the building.



Figure 470, right. Propane storage tanks are located on the north elevation. Photo: HPTC, 05/15/19.

G90	OTHER SITE WORK
G9087	Overall Building Site Drainage

Site drainage around the entire Keeper's Dwelling is neutral, meaning water does not inherently move away or toward the building. Unfortunately, this means water can pond around the building foundation and allow water to find its way into crawlspaces and basements (see figs. 468-469). Water infiltration is evident in the crawlspaces and basement of the Keeper's Dwelling.

Bell House Physical Description

Exterior Overall

The prominent overall visual aspects of the 1897 Bell House are its one-story rectangular massing with painted brick exterior walls and a 12:12 pitch gable roof covered with fiberglass shingles (figs. 471-472). A concrete sidewalk leads down from the Keeper's Dwelling to the Bell House and terminates with cobblestone pavers at the door. The south elevation is built in line with the cliff below.



Figure 471. North (left) and west (right) elevations of the one-story Bell House. Photo: HPTC, 05/13/19.



Figure 472. The Bell House from the east. The south elevation sits on the cliff. The Lighthouse and Keeper's Dwelling are located behind the Bell House. Photo: HPTC, 05/13/19.

North Elevation

The north (front) elevation is one room wide (15'-4") and one-story tall with painted brick exterior walls and sits on a painted stone foundation under a side-facing, 12:12 fiberglass shingle gable roof (fig. 473). A wood box eave runs the length of the roof upon which a K-style aluminum gutter is attached. A corrugated aluminum downspout is located at the east corner. A single door is centered in the brick exterior wall under a brick jack arch.

East Elevation

The east elevation is one room wide (10'-1") and one-story tall (14'-5") with painted brick exterior walls and sits on a painted stone foundation under a front-facing, 12:12 gable roof (fig. 474). The

gable-end wall is clad with painted wood siding and detailed with built-out trim and return eaves. A 6/6 modern vinyl-clad window is centered in the brick exterior wall under a brick jack arch.

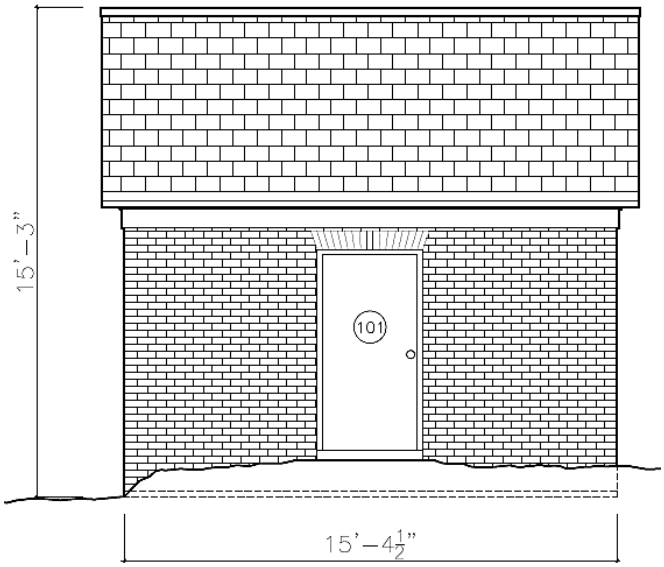


Figure 473. North elevation of Bell House. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

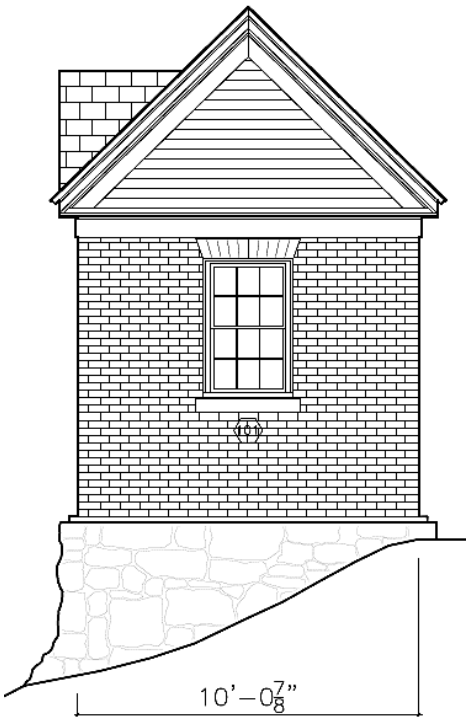


Figure 474, right. East elevation of Bell House. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

South Elevation

The south elevation is one room wide (15'-4") and one-story tall with painted brick exterior walls and sits on a painted stone foundation under a side-facing, 12:12 fiberglass-shingle gable roof (fig. 475). No gutter is located on this elevation. A front-facing cross-gable roof is centered in the elevation and is finished with painted wood siding and wood trim; a timber beam originally projected through the gable wall and supported a bell. Three modern vinyl-clad windows are symmetrically spaced across the elevation under brick jack arches. The center window has a 4/4 configuration and the flanking windows have a 6/6 configuration. Beneath the two end windows are brick corbels which originally supported a timber frame (diagonal braces) for the former bell.

West Elevation

The west elevation is one room wide (10'-1") and one-story tall (14'-5") with painted brick exterior walls and sits on a painted stone foundation under a front-facing, 12:12 gable roof (fig. 476). The gable-end wall is clad with painted wood siding and detailed with built-out trim and return eaves. A 6/6 modern vinyl-clad window is centered in the brick exterior wall under a brick jack arch.

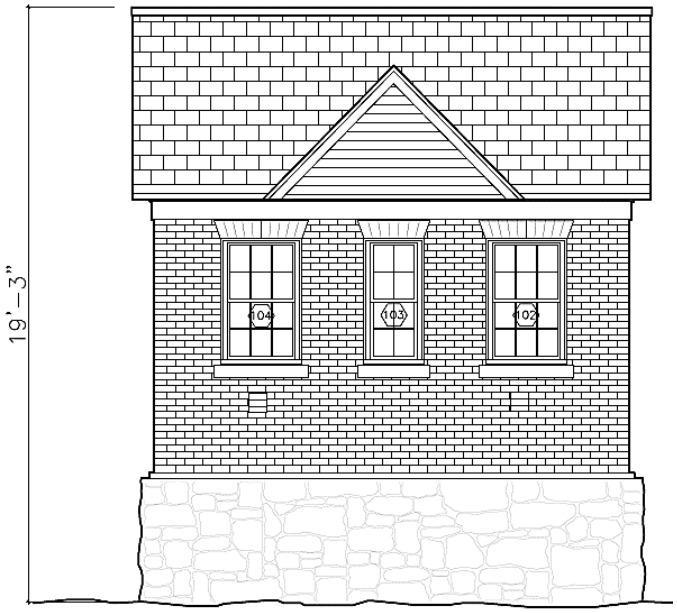


Figure 475. South elevation of Bell House. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

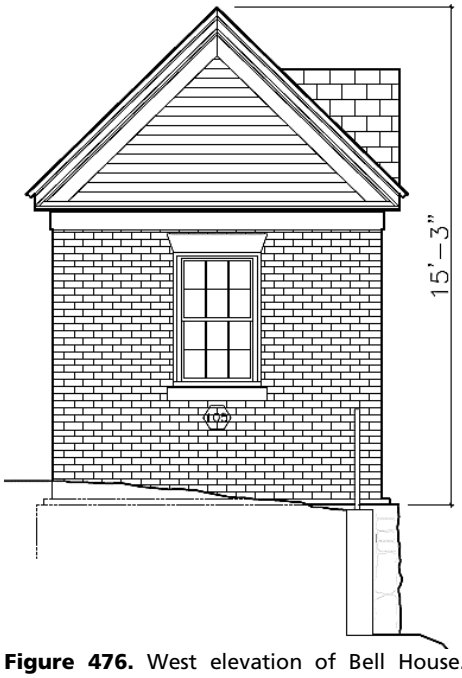


Figure 476. West elevation of Bell House. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

Interior Organization

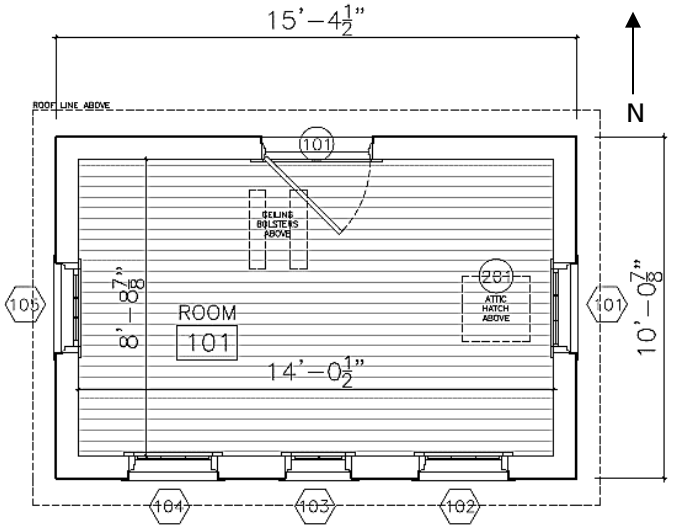


Figure 477. Bell House first-floor plan. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

The Bell House has one interior room (Room 101) on the first floor and a corresponding attic space above (Room 201) (fig. 477). The original exterior door opening (D101) is located on the north elevation; however the door and sill have been replaced. Single original window openings are located in the west and east elevations (W101 and W105); the window units have been replaced. Three original openings are symmetrically located on south elevation (W102-W104). The center opening was originally used for pass through of the striking equipment for the bell hanging outside, but has been infilled with a modern window unit. The two flanking openings were originally windows; the units have been replaced. The floor is covered with modern laminate wood. The walls are painted brick and the ceiling is historic tongue-and-groove bead board. The attic hatch (D201) is located at the east end of the ceiling and is made of the same tongue-and-groove bead boards as the ceiling. Painted wood bolsters are located at the ceiling adjacent the main exterior door; these likely had a purpose related to the bell-striking equipment.

The attic space (Room 201) is unfinished with exposed fiberglass insulation within the floor frame and an exposed structural roof framing system.

Building Feature Master List Descriptions

A	SUBSTRUCTURE
A10	FOUNDATIONS
A1010	Standard Foundation

Due to the extreme cross slope of the building site, the stone foundation is exposed on the west, south, and east elevations (fig. 478). The south elevation is located directly on the edge of the cliff. On this elevation, the foundation wall is slightly battered (inclined) to account for the adjacent steep slope.

The foundation is composed of stone and painted. The stone projects from the brick exterior wall above and the resulting ledge has been covered with concrete and painted (fig. 479). Below-grade conditions are unknown.

There is no interior slab on grade. The finish floor is described below (see B101001 Structural Floor Frame and C3020 Floor Finishes for more information).



Figure 478. Painted stone foundation walls of the east elevation. Note the battered south end to compensate for the adjacent cliff. Photo: HPTC, 05/13/19.



Figure 479, right. A concrete sill has been added to the top of the stone just under the brick exterior walls of the first floor. Photo: HPTC, 05/13/19.

B	SHELL
B10	SUPERSTRUCTURE
B1010	Floor Construction
B101001	Structural Floor Frame

The first-floor structural floor frame, if there is one, could not be accessed. It is assumed that below the modern floor finish is a brick floor laid directly on compacted fill.

The attic structural floor frame is partially accessible, but largely covered with fiberglass insulation. The area around the attic hatch has 3"x4" joists. The spacing across the attic floor is unknown but likely 28" on center to correspond with the spacing of the roof rafters above. Sheathing (3½" wide x 1" thick tongue-and-groove wood with bead on reverse side) is located on the underside of the joists, to which the finish ceiling is applied (discussed below in C3030 Ceiling Finishes).

B1020	Roof Construction
B102001	Structural Roof Frame

The roof frame is accessible in the attic and appears to be original (fig. 480). The 2x5 (nominal) rafters are located at approximately 28" on center with a 2x4 board at the ridge and 1x6 rafter ties at the midpoint of each pair of rafters. Random-width sheathing boards are located atop the rafters. All wood components are unpainted.



Figure 480. The wood structural roof frame is exposed in the attic. A steel I beam once supported the bell on the south elevation. Photo: HPTC, 05/13/19.

The cross-gable roof projecting on the south elevation is composed of similar framing members. A painted steel I beam runs north-south through the main attic space into the space below the cross gable, and is likely supported on the north and south exterior walls.

Originally, the beam was a wood timber supported on the exterior by wood diagonal braces. In 1947 the diagonal braces were removed and the wood beam was replaced with the extant I beam (within the proposed Period of Significance). The bell was removed between 1951 and 1962 (after the proposed Period of Significance). The I beam was cut flush behind the cross-gable roof south-facing wall by 1990. For photographs of this, refer to Bell House Character-Defining Features section below and the Chronology section above.

B20	EXTERIOR ENCLOSURE
B2010	Exterior Walls

The loadbearing, painted brick exterior walls of the first floor are 0'-7½" thick (two wythes) and laid in running bond with header bricks interspersed throughout the wall in no regular pattern (fig. 481). The brick is exposed on the interior and painted (fig. 482). Brick jack arches are located above each opening and brick sills below each opening.

The gable end walls of the second floor are framed with 2x4 studs at approximately 24" on center (fig. 483). The exterior is clad with painted wood horizontal siding (fig. 484).



Figure 481. The first-floor exterior walls of the Bell House are constructed of brick in a running bond and painted. Photo: HPTC, 05/13/19.



Figure 482, right. The interior face of the exterior wall is exposed and painted. Photo: HPTC, 05/13/19.



Figure 483. Gable-end walls are stick framed. Photo: HPTC, 05/13/19.



Figure 484. The gable-end walls are covered with painted wood siding on the exterior. Photo: 05/13/19.

B2020	Exterior Windows

Five windows are located in this structure: one on the east elevation (W101), three along the south elevation (W102-W104), and one on the west elevation (W105) (fig. 485).

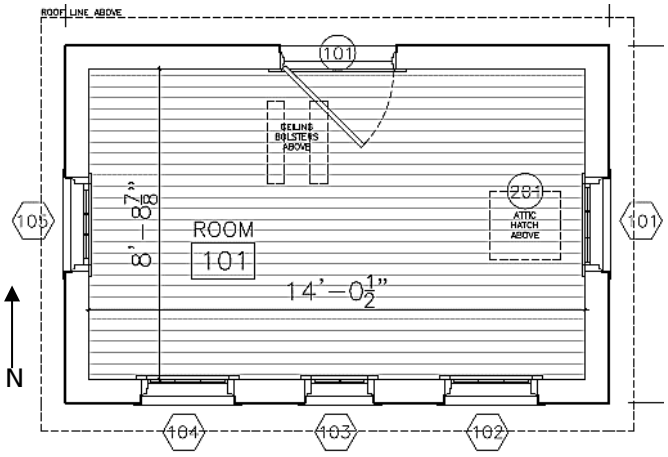


Figure 485. Bell House first-floor plan. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

Originally all the window openings, excluding W103, included 6/6 double-hung wood sash. Details for what was originally located in W103 are not included in archival drawings, but no divided lites are included. It is assumed this opening included a removable or hinged panel to allow the bell-striking machinery to access the bell located just outside. Archival photographs are not clear enough at this level of detail to lend any additional information.

Sometime after 2001, the windows were replaced with the extant units composed of wood double-hung sash set in vinyl tracks, with modern sash locks (figs. 486-488).



Figure 486. Exterior of W101. Other window exteriors are similar with brick jack arches and sills and wood surrounds and subsills, and replacement window unit. Photo: HPTC, 05/13/19.



Figure 487. L to R: W101, W102, W103. Photo: HPTC, 05/13/19.



Figure 488. L to R: W103, W104, W105. Photo: HPTC, 05/13/19.

B2030	Exterior Doors

One exterior door (D101) is located at the Bell House, on the north elevation (fig. 489). The door itself is modern and composed of painted metal with heavy-duty hinges and locking knob. The wood jamb is likely original with mortises from former hardware, as is the brick jack arch above the opening. The sill has been replaced with concrete.



Figure 489, right. D101 with modern metal door and concrete sill and original wood jamb and brick jack arch. Photo: HPTC, 05/13/19.

B30	ROOFING	
	B3010	Roof Coverings
		B301001 Roof Finishes

The Bell House gable roof and cross-gable roof are finished with modern three-tab fiberglass shingles (fig. 490). A galvanized drip edge is located at the edge of the shingles on all elevations.

Originally, this roof had a wood shingle roof (as seen in archival photographs in the Chronology section). Modern fiberglass or asphalt shingles were added after 1956 (after the proposed Period of Significance).



Figure 490, right. The red fiberglass shingle roof as seen from the Lighthouse. Photo: HPTC, 05/16/19.

B301004	Flashings & Trim

Simple, painted wood trim is located at the rakes and eaves; it is all original or very good replacement. At the west and east (side) elevations and cross-gable roof end, the trim includes boxed out rakes and continuous frieze (fig. 491). On the north (front) and south (rear) elevations, the trim includes boxed-out soffits and fascia and a frieze attached to the brick below (fig. 492). Modern metal circular vents have been added along the lengths of both soffits.



Figure 491. The northwest corner shows the gable-end wall of the west elevation with frieze board and boxed-out eave and rakes. The north elevation has a boxed eave. Photo: HPTC, 05/08/19.



Figure 492, right. The south elevation with projecting cross-gable roof and associated trim. The boxed-out eave is historic. Photo: HPTC, 05/08/19.

B301005	Gutters & Downspouts

A modern five-inch K-Style gutter is located on the north elevation of the structure with a three-inch corrugated metal downspout on the east corner which drains to grade (fig. 493). No gutter is located on the south elevation, as any water falling off this roof slope will fall quickly away off the cliff.



Figure 493. K-style gutter along the north elevation eave with gutter at the east corner. Photo: HPTC, 05/08/19.

C	INTERIORS
C10	INTERIOR CONSTRUCTION
C1030	Fittings

The interior of the structure is empty of most elements related to its original use, which would have included the striking machine. This equipment was likely removed about the same time the bell was removed from the south elevation (1951-1962).

The only remaining elements from the building's use as a Bell House is a pair of wood bolsters mounted to the ceiling adjacent the exterior door (fig. 494) and a cast iron bolt through the exterior wall which originally attached the wood truss system supporting the bell to the south exterior wall (fig. 495).



Figure 494. Wood bolsters associated with the former bell-striking machine. Photo: HPTC, 05/13/19.



Figure 495, right. A cast iron bolt under W104 is a remnant of attachment for the wood exterior truss to the south exterior wall. Photo: HPTC, 05/13/19.

C103098	Other Casework

Simple, flat-stock painted wood trim is located around all window and door openings (fig. 496) and is all modern, as is the painted wood baseboard (fig. 497). Historic painted wood built-up crown molding surrounds the room at the historic wood ceiling (fig. 498).



Figure 496. Simple flat-stock wood casing at W104, present at all window and door openings. Photo: HPTC, 05/13/19.



Figure 497. Modern baseboard in disarray around the room. Photo: HPTC, 05/13/19.



Figure 498. Built-up historic crown molding. Photo: HPTC, 05/13/19.

C30	INTERIOR FINISHES
C3020	Floor Finishes

The floor is finished with modern wood laminate over a plywood subfloor (fig. 499). The plywood is likely laid on wood sleepers atop an original brick floor over compacted earth.

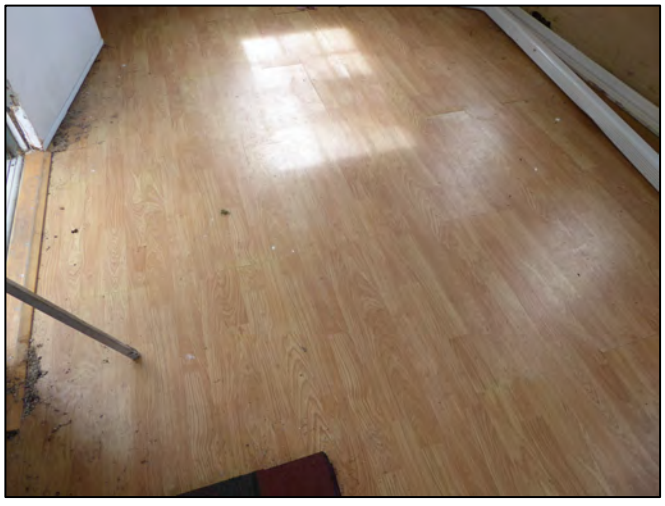


Figure 499, right. Modern wood laminate finish floor. Photo: HPTC, 05/13/19.

C30	INTERIOR FINISHES
C3030	Ceiling Finishes

The ceiling is finished with historic painted wood tongue-and-groove beadboard (1" thick and 3½" wide) over a similar unpainted sheathing layer (fig. 500). The attic hatch at the east end of the structure is constructed of the same material.



Figure 500, right. Painted beadboard ceiling. Photo: HPTC, 05/13/19.

D	SERVICES
D20	PLUMBING

No plumbing system is currently extant within the Bell House.

D30	HVAC

No HVAC system is currently extant within the Bell House.

D40	FIRE PROTECTION SYSTEMS
D4010	Sprinklers

No sprinkler system is currently extant within the Bell House.

D4030	Fire Protection Specialties
D403001	Fire Extinguishers

No fire extinguisher is currently extant within the Bell House.

D50	ELECTRICAL
D5010	Electrical Service & Distribution
D5020	Lighting & Branch Wiring

An electrical system is currently extant within the Bell House with a 125-amp panel located at the north corner of the west wall (fig. 501). Electrical conduit is painted metal and all outlets and switches are surface mounted. Two fluorescent surface-mounted lights are mounted to the ceiling (fig. 502).





Figure 502, above. Modern surface-mounted fluorescent light fixtures at the ceiling of the Bell House. Photo: HPTC, 05/13/19.

Figure 501, left. Modern 125-amp panel box and surface-mounted receptacle and conduit at the northwest corner. Photo: HPTC, 05/13/19.

D5030	Communications & Security
D503001	Fire Alarm Systems

No fire alarm system is currently extant within the Bell House.

D503008	Security Alarm Systems

No security alarm system is currently extant within the Bell House.

D5090	Other Electrical Systems
D509004	Lightning Protection System

No lightning protection system is currently extant at the Bell House.

G	BUILDING SITEWORK
G20	SITE IMPROVEMENTS
G2030	Trail (Pedestrian Paving)

A modern concrete sidewalk leads from the Keeper's Dwelling to the cobblestone pad in front of the exterior door of the Bell House (fig. 503).

A modern metal gate is located at the northeast corner to deter visitors from accessing the steep ledge beyond.



Figure 503, right. The modern concrete sidewalk leading to the Bell House and cobblestone pavers located at the exterior door. Note the modern metal gate at the northeast corner. Photo: HPTC, 05/13/19.

G2050	Maintained Landscapes

Grass, soil, and granite bedrock abut the Bell House exterior on all four elevations.

G90	OTHER SITE WORK
G9087	Overall Building Site Drainage

The site drainage on the west, south, and east elevations of the Bell House is positive, meaning water drains away from the building. Due to the steep cross slope on the east and south elevations, the water drains quickly away from the building to the ocean.



Figure 504. Negative and neutral drainage from the north (left) to the front door of the building. Photo: HPTC, 05/13/19.

On the north (front) elevation, the modern concrete sidewalk directs water down the hill directly to the front door of the structure (fig. 504). Furthermore, the grade on either side of the door is neutral, where water could pond in these areas. Steep topography further to the north could compound this issue. Water is getting into the foundation of the building as moist conditions and biological growth are noticeable on the interior of the structure.

Oil House Physical Description

Exterior Overall

The prominent overall visual aspects of the 1902 Oil House are its small, one-story square massing (one room) with brick exterior walls and a steeply sloped, slate gable roof (figs. 505-506). The only exterior entrance is located along an asphalt path from the parking lot above to the Keeper's Dwelling and Lighthouse below. Two small vents are located just below the gable roof peak.



Figure 505. The Oil House from the northeast. The asphalt path leads up to the parking lot. Photo: HPTC, 05/08/19.



Figure 506. West elevation of the Oil House, looking east down the path toward the Keeper's Dwelling. Photo: HPTC, 05/08/19.

North Elevation

The north (front) elevation is one room wide (12'-0") and one-story tall with brick exterior walls and sits on a stone foundation under a front-facing, 12:12-pitch gable roof (fig. 507). Boxed-out wood rakes and return cornices are located along the roofline. A vertical tongue-and-groove board door (D101) is centered in this elevation. A small, rectangular wood louvered opening is located just below the peak of the roof (W101).

East Elevation

The east elevation is one room wide (10'-0") and one-story tall with brick exterior walls and sits on a steeply sloped site with a stone (below grade) and brick (above grade) foundation under a side-facing, slate gable roof (fig. 508). A decorative cornice and boxed eave (with soffit and fascia) are located at the base of the roof. There are no openings on this elevation.

South Elevation

The south (rear) elevation is one room wide (12'-0") and one-story tall with brick exterior walls and sits on a stone (below grade) and brick (above grade) foundation under a front-facing, 12:12-pitch gable roof (fig. 509). Boxed-out wood rakes and return cornices are located along the roofline. A small, rectangular wood louvered opening is located just below the peak of the roof (W102).

West Elevation

The west elevation is one room wide (10'-0") and one-story tall with brick exterior walls and sits on a steeply sloped stone (below grade) and brick (above grade) foundation under a side-facing, slate gable roof (fig. 510). A decorative cornice and boxed eave (with soffit and fascia) are located at the base of the roof. There are no openings on this elevation.

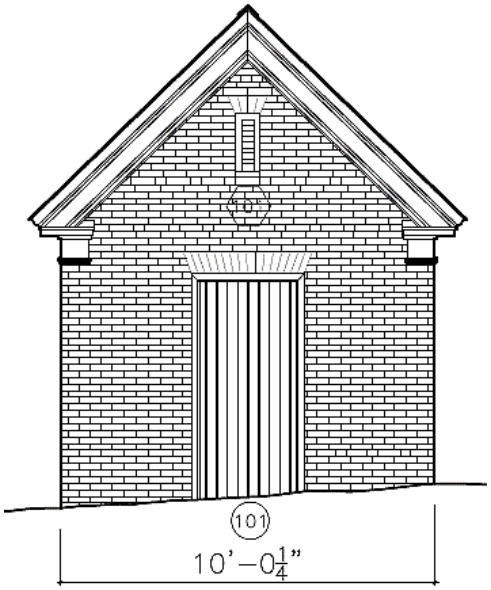


Figure 507. North elevation. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

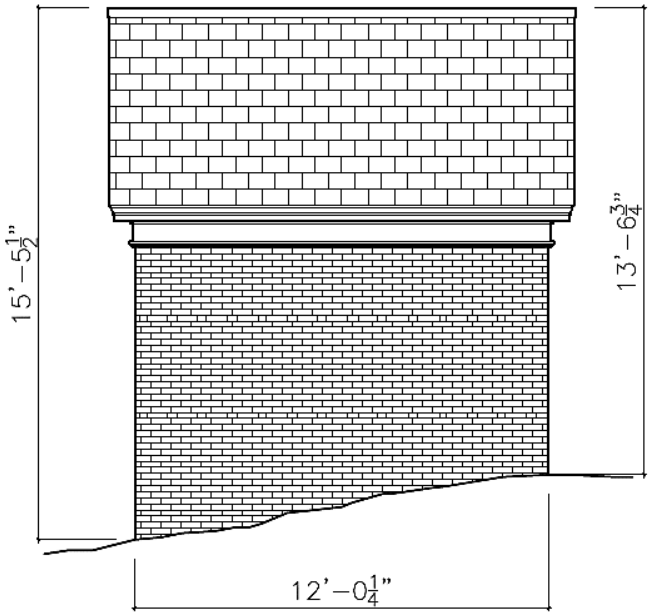


Figure 508. East elevation. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

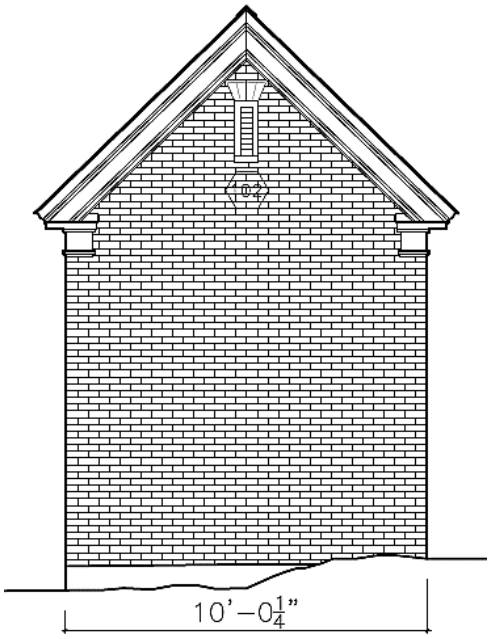


Figure 509. South elevation. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

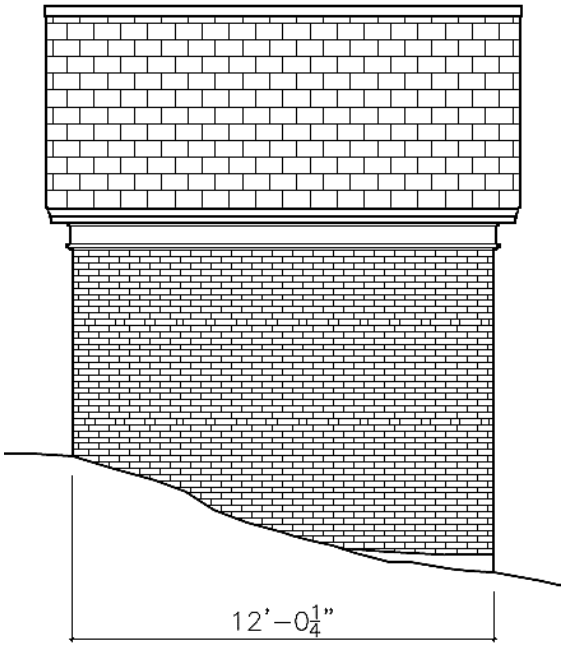


Figure 510. West elevation. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

Interior Organization

The Oil House is composed of a single interior room (Room 101) (fig. 511). The original exterior door opening is located on the north elevation (D101). Two small rectangular wood louvered openings are located near the peaks of the north and south elevations, one centered in each (W101 and W102). A modern cabinet is located in the southeast corner of the structure.

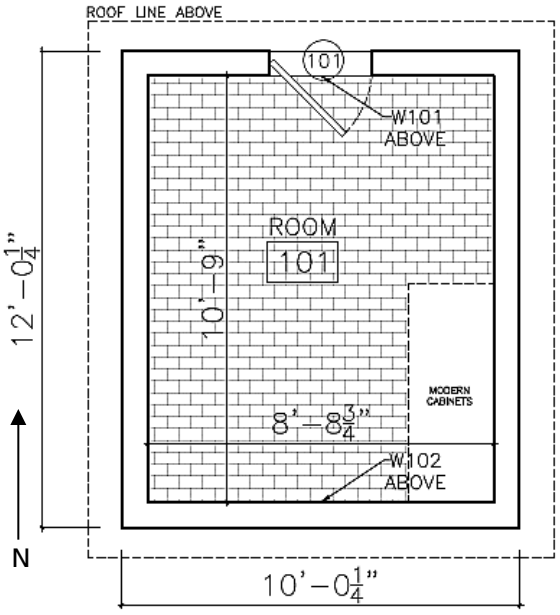


Figure 511. Floor plan of the Oil House. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

Building Feature Master List Descriptions

A	SUBSTRUCTURE
A10	FOUNDATIONS
A1010	Standard Foundation

Due to the extreme cross slope of the building site, the foundation is composed of two materials.

Below grade, the foundation is composed of stone (with a small portion exposed above grade and parged with a cementitious material; fig. 512). Below-grade conditions are unknown.



Figure 512. Parged stone foundation walls located above grade at the southwest corner of the structure. Photo: HPTC, 05/08/19.

Above grade, the foundation is composed of brick. This is seen on the north (rear) and east and west (side) elevations. The brick of the foundation is a different than that of the first-floor exterior walls above (fig. 513). The foundation brick is softer and more porous; the first-floor finish brick is harder and "glazed" (fig. 514).

There is no interior slab on grade. The interior floor is brick and is likely supported by compacted fill within the brick foundation walls. The brick floor is discussed below (see C3020 Floor Finishes).





Figure 514, above. The softer, more porous brick of the foundation below the harder, "glazed" brick of the exterior walls above. Photo: HPTC, 05/08/19.

Figure 513, left. On the rear elevation, the foundation brick visually different than that of the exterior walls above. Photo: HPTC, 05/08/19.

B	SHELL
B10	SUPERSTRUCTURE
B1020	Roof Construction
B102001	Structural Roof Frame

The structural roof frame, exposed on the interior of the building, is composed of 2x4 (nominal) rafters at approximately 20" on center (fig. 515) with a 1x6 ridge board. At the bottom of the roof slope, the rafters sit on a 4x4 (nominal) wood sill plates, one each on the east and west walls. 2x4 rafter ties are located at the midpoint of each pair of rafters. Random-width wood sheathing boards are located atop the rafters. All wood components of the structural roof frame are painted.



Figure 515. The roof frame is exposed on the interior of the Oil House. Photo: HPTC, 05/13/19.

B20	EXTERIOR ENCLOSURE
B2010	Exterior Walls

The brick exterior walls of the Oil House are original. The walls are 0'-7½" thick (two wythes). The brick is laid in an unusual bond pattern, with fifteen rows of running bond to one row of Flemish bond. The walls are unpainted on the exterior (fig. 516). The interior faces of the walls exhibit several layers of whitewash (fig. 517). The exterior and exposed interior mortar joints have been repointed with a Portland cement-based mortar.

Brick jack arches are located over the exterior door opening and the two gable vent openings (fig. 518).

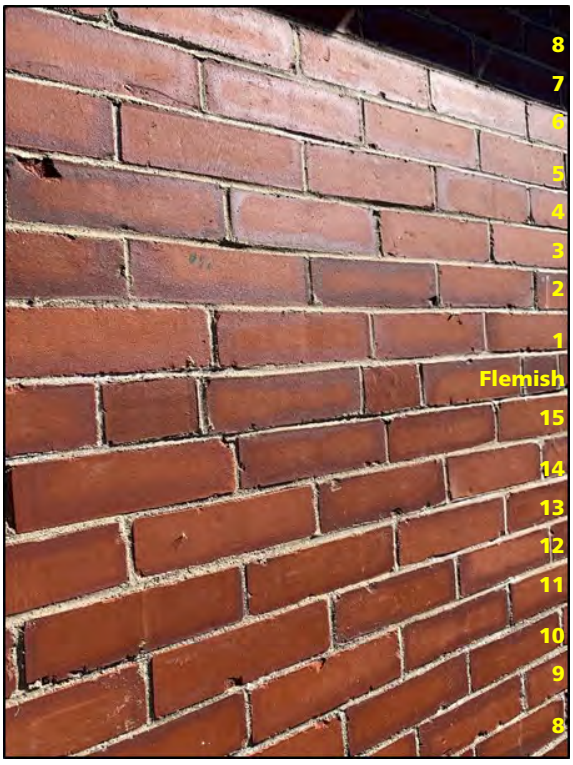


Figure 516, right. The exterior walls of the Oil House are constructed of unpainted brick laid in an unusual bond of fifteen courses of running bond to one course of Flemish bond. Photo: HPTC, 05/08/19.



Figure 517. The whitewashed interior surfaces of the exterior brick walls. Photo: HPTC, 05/13/19.



Figure 518, right. Brick jack arches are located above the door and vent openings. Photo: HPTC, 05/08/19.

B201005	Exterior Louvers & Screens

There are small louvered openings near the peak of the roof, one each on the north (front) and south (rear) elevations (figs. 519-520). The sills are thick wood that extend past the face of exterior wall. The rounded trim matches that of the door on the east elevation. The louvers are also wood. Above the openings are brick jack arches. All wood elements are painted.



Figure 519. W101, the louver on the north elevation. Photo: HPTC, 05/08/19.



Figure 520. W102, the louver on the south elevation. Photo: HPTC, 05/08/19.

B2030	Exterior Doors

The extant exterior door (D101) is composed of vertical tongue-and-groove bead boards with rounded wood trim and a wood sill (fig. 521). The interior face of this door has the same tongue-and-groove beaded boards, but in a horizontal configuration. It is unknown if this door is original, as many oil houses were outfitted with metal doors for security purposes (oil was an expensive commodity). This door could date to the 1930s (USCG era) as it stylistically matches that time, but no records have been found to confirm this.

Original (1895) specification drawings for Oil Houses show the door was originally intended to be a twelve-lite/two-panel wood door. It is unknown if the specified door was ever installed at this Oil House.

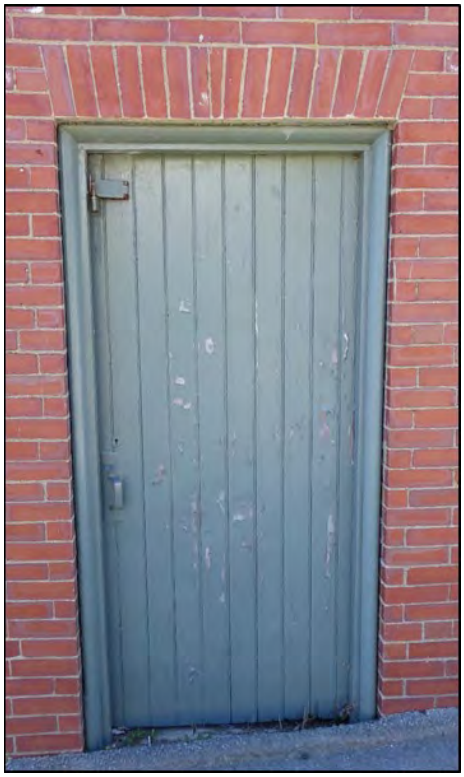


Figure 521, right. D101 with tongue-and-groove bead board. Photo: HPTC, 05/08/19.

B30	ROOFING
B3010	Roof Coverings
B301001	Roof Finishes

The Oil House gable roof is finished with slate, likely original to the 1902 construction of the buildings (fig. 522). The modern ridge cap is painted wood.



Figure 522, right. Original slate roof with modern wood ridge cap. Photo: HPTC, 05/08/19.

B301004	Flashings & Trim

Stylistic painted wood trim is located at the rakes and eaves; it is all original or very good replacement. At the north (front) and south (rear) elevations, the trim includes boxed-out rakes and frieze cornices attached to the brick below. On the west and east (side) elevations, the trim includes boxed-out soffits and fascia and frieze cornices attached to the brick below. Eave and cornice returns round the corners to the north and south elevations (fig. 523).



Figure 523. Boxed-out rake and eaves with frieze cornices below. Return eaves and cornices wrap around the corners. Photo: HPTC, 05/08/19.

B301005	Gutters & Downspouts

No roof drainage system is located on the Oil House and no evidence exists that there ever was such a system installed historically. The original (1895) specification drawings do not detail a roof drainage system.

C	INTERIORS
C10	INTERIOR CONSTRUCTION
C1030	Fittings

The interior of the structure is empty of all elements related to its original use, which would have included an assortment of oil storage containers and transfer vessels. It is known that there were a pair of 139-gallon tanks in the building used to store kerosene. This historic equipment could have been removed in 1956 when it was recommended shelves be added to the interior for the building's use as a paint locker.

Of modern addition are a base cabinet with countertop—salvaged from a Keeper's Dwelling kitchen remodel—in the southeast corner (fig. 524) and plywood shelves hung from the roof collar ties at the south end (fig. 525).



Figure 524. Modern base cabinet and countertop in the southeast corner. Photo: HPTC, 05/13/19.



Figure 525. Modern plywood shelves hung from the roof frame. Photo: HPTC, 05/13/19.

C103098	Other Casework

Simple, flat-stock painted wood trim is located around all openings (fig. 526). The door trim is not flush with the brick wall suggesting the jamb and trim were altered.



Figure 526, right. Simple interior wood trim around the door and one of the gable vents. Photo: HPTC, 05/13/19.

C30	INTERIOR FINISHES
C3020	Floor Finishes

The interior finish floor is composed of brick laid in running bond (east to west) (fig. 527). The condition under the brick is unknown, but is likely compacted fill (earth).



Figure 527, right. Historic bricks laid in running bond. Note the wood sill of the door and the brick floor are lower than the exterior elevation. Dirt collected on the floor is evidence that water is collecting on the interior. Photo: HPTC, 05/13/19.

D	SERVICES
D20	PLUMBING

No plumbing system is currently extant within the Oil House.

D30	HVAC

No HVAC system is currently extant within the Oil House.

D40	FIRE PROTECTION SYSTEMS
D4010	Sprinklers

No sprinkler system is currently extant within the Oil House.

D4030	Fire Protection Specialties
D403001	Fire Extinguishers

No fire extinguishers are currently extant within Oil House.

D50	ELECTRICAL
D5010	Electrical Service & Distribution
D5020	Lighting & Branch Wiring

No electrical system is currently extant within the Oil House.

D5030	Communications & Security
D503001	Fire Alarm Systems

No fire alarm system is currently extant within the Oil House.

D503008	Security Alarm Systems

No security alarm system is currently extant within the Oil House.

D5090	Other Electrical Systems
D509004	Lightning Protection System

No lightning protection system is currently extant at the Oil House.

G	BUILDING SITEWORK
G20	SITE IMPROVEMENTS
G2030	Trails (Pedestrian Paving)

A modern paved asphalt walkway leads past the exterior door on the north side of the Oil House. It abuts the brick exterior wall (fig. 528) and is higher than the wood door sill and interior finish floor.



Figure 528, right. The modern asphalt walkway leading to and past the exterior door of the Oil House and down to the Keeper's House. The asphalt abuts the brick exterior wall. Photo: HPTC, 05/08/19.

G2050	Maintained Landscapes

Overgrown vegetation abuts and in some instances appears to grow out of the Oil House foundation on the east, south, and west elevations (fig. 529).



Figure 529, right. Overgrown vegetation on the east elevation appears to grow out of the foundation. The white building in the background is the 1905 Garage. Photo: HPTC, 05/08/19.

G90	OTHER SITE WORK
G9087	Overall Building Site Drainage

The site drainage on the west, south, and east elevations of the Oil House is positive, meaning water drains away from the building. Due to the steep cross slope, the water drains quickly away from the building to the water (fig. 530).

On the north (front) elevation, the modern asphalt walkway was laid at a higher elevation than the interior floor. An asphalt curb is located across the door opening suggesting that water infiltration into the building has occurred and the curb was meant to rectify the problem (see fig. 528). Due to dirt on the interior of the building (see fig. 527), this curb is not deflecting all of the water and negative drainage effects the north elevation.



Figure 530. The steep slope along the west, south, and east elevations allows water to drain away from the building (positive). The asphalt walkway adjacent the north elevation causes problems (negative drainage). Photo: HPTC, 05/08/19.

Garage Physical Description

Exterior Overall

The prominent overall visual aspects of the 1905 Garage are its one-and-one-half-story rectangular massing (one room on each level) with wood clapboard exterior walls and a 12:12 pitch gable roof covered with modern fiberglass shingles (figs. 531-532). An asphalt driveway leads to the front elevation and continues down the hill as a walkway to the remaining buildings at the Light Station.



Figure 531. Garage from the north. Photo: HPTC, 05/13/19.



Figure 532. Southwest corner of the Garage. Photo: HPTC, 05/13/19.

North Elevation

The north (front) elevation is one room wide (15'-0") and one-and-one-half stories tall (18'-3") with painted wood-shingled walls, and sits on stone piers at the corners and midpoint under a front-facing, 12:12-pitch gable roof (fig. 533). A paneled overhead garage door (D101) is centered on the first floor; a vertical beadboard door is centered on the second floor (D201). A hoist beam projects from the elevation above the second-floor door.

East Elevation

The east (side) elevation is one room wide (19'-5") and one-and-one-half stories tall with painted wood-shingled walls and sits on stone corner piers under a side-facing, fiberglass-shingle gable roof (fig. 534). Rafter tails are exposed at the eave and finished with a flat-stock fascia board. A vertical tongue-and-groove beadboard door (D102) is located at the east corner with a 6/6 double-hung wood window directly to the west of the door (W103).

South Elevation

The south (rear) elevation is one room wide (15'-0") and one-and-one-half stories tall (18'-3") with painted wood-shingled walls, and sits on stone piers at the corners and midpoint under a front-facing, 12:12-pitch gable roof (fig. 535). A small opening is located at the east corner of the first floor and is covered with a vertical beadboard panel (W102). A 1/1 modern vinyl double-hung window is located in the center of the second floor (W201).

West Elevation

The west (side) elevation is one room wide (19'-5") and one-and-one-half stories tall with painted wood-shingled walls and sits on stone piers at the corners and midpoint under a side-facing, fiberglass-shingle gable roof (fig. 536). Rafter tails are exposed and finished with a flat-stock fascia board. A 6/6 double-hung wood window is centered on the first floor (W101).

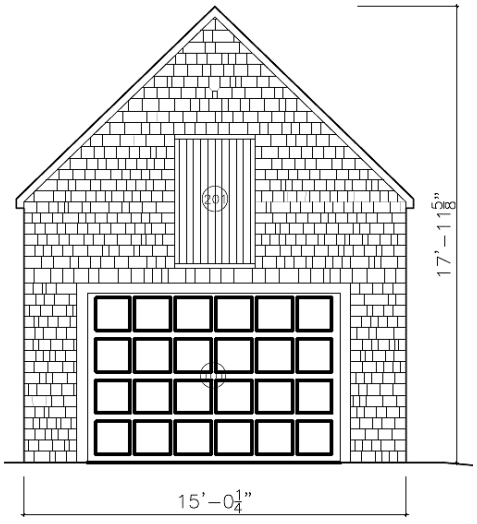


Figure 533. North elevation. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

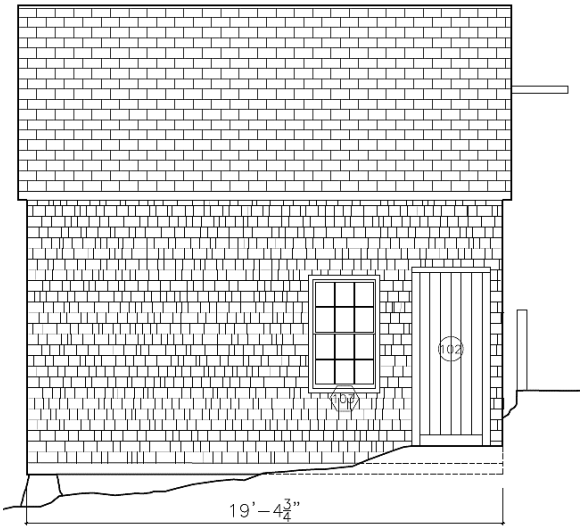


Figure 534. East elevation. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

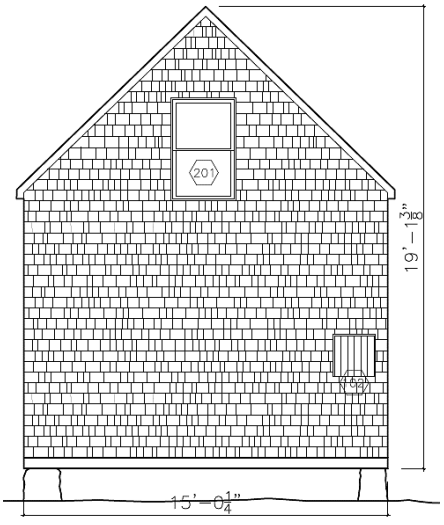


Figure 535. South elevation. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

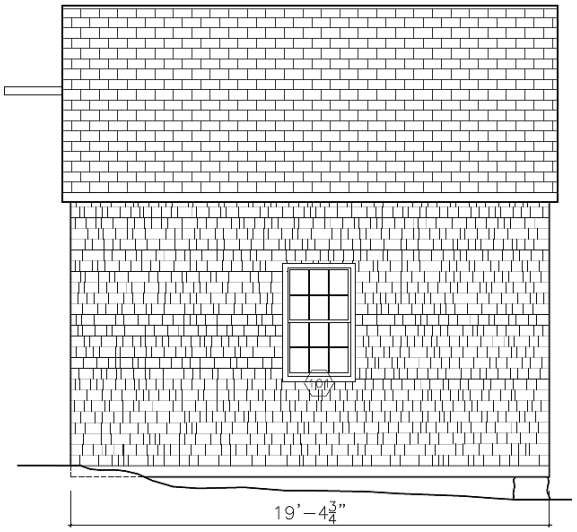


Figure 536. West elevation. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

Interior Organization

First Floor

The first floor (fig. 537) has two exterior door openings, an electric garage door on the north elevation (D101) and a tongue-and-groove beadboard door located on the east elevation (D102). A 6/6 double-hung window is located in each of the east (W101) and west (W103) elevations. A small stable window opening is located at the south elevation (W102). A dogleg stair is located in the southwest corner which leads to the second floor. The floor is finished with tongue-and-groove floorboards; the walls and ceilings are unfinished with exposed framing members.

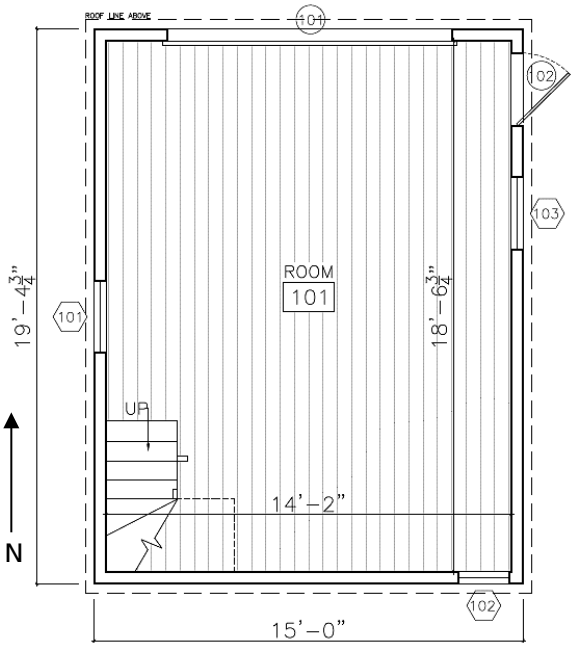


Figure 537. First-floor plan of the Garage. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

Second Floor

The second floor (fig. 538) has one exterior door opening on the north elevation with a random-width beadboard door in the center (D201). A modern 1/1 vinyl window is located in the center of the south elevation (W201). The stair at the southwest corner surrounds an opening in the floor, used historically to move hay/straw from loft above to stable below. The floor is finished with tongue-and-groove floorboards; the walls and ceilings are unfinished with exposed framing members.

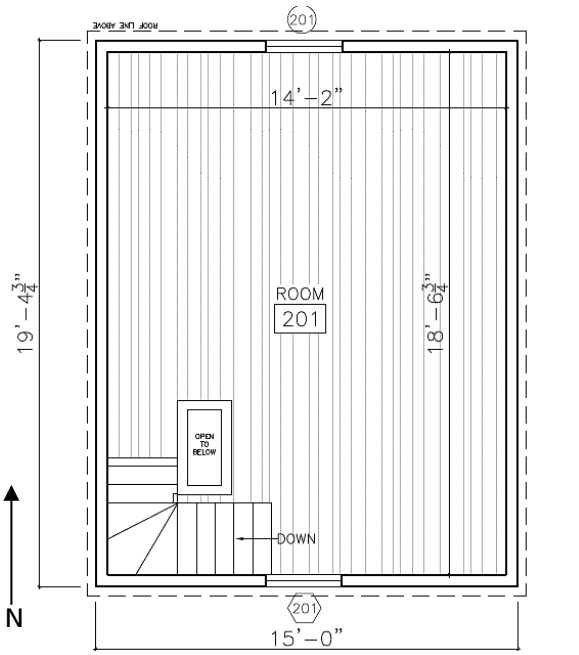


Figure 538. Second-floor plan of the Garage. Drawing: HPTC, 2020. A larger version of this drawing can be found in Appendix D.

Building Feature Master List Descriptions

A	SUBSTRUCTURE
A10	FOUNDATIONS
A1010	Standard Foundation
A101002	Foundation Piers

The foundation is composed of stone piers located at the four corners and midpoints of each elevation (figs. 539-540). Each pier has been parged with concrete. Due to the shallow cross slope at the building site, the piers are of varying height to ensure the garage is level; no piers are visible at the north elevation as the first floor of the garage is level with the exterior grade.



Figure 539. Parged stone foundation pier at the southeast corner of the Garage. Note the missing sill plate along the east elevation. Photo: HPTC, 05/13/19.



Figure 540. Parged stone foundation pier at the northwest corner of the Garage. Note the half-lapped sill plates. Photo: HPTC, 05/13/19.

B	SHELL
B10	SUPERSTRUCTURE
B1010	Floor Construction
B101001	Structural Floor Frame

The structural floor frame of the first floor could not be completely accessed. Sill plates are located around the exterior perimeter. The 6x6 (nominal) plates are half-lapped at the corners (see fig. 540). An additional plate is located between the east and west wall midpoint piers. Joist locations are unknown, but likely span east-west across the shorter dimension of the building and are composed of 2x10 joists at approximately 19" on center, as seen at the second-floor structural floor frame.



Figure 541. Second-floor structural floor frame composed of 2x10 joists running E-W. Photo: HPTC, 05/13/19.

The structural floor frame of the second floor is exposed at the first-floor ceiling (fig. 541). The

2x10 joists spaced approximately 19” on center span east-west across the shorter dimension of the building.

B1020	Roof Construction
B102001	Structural Roof Frame

The roof frame is accessible in the attic and appears to be original (fig. 542). The 2x4 rafters are located at approximately 23” on center with 2x4 rafter ties at the midpoint of each rafter pair; no ridge board is present. At the bottom of the roof slope, the rafters sit on two stacked 2x4s that act as the rafter plate. Modern plywood sheathing is located atop the rafters. All wood components are unpainted.



Figure 542, right. The wood structural roof frame is exposed on the second floor. Photo: HPTC, 05/13/19.

B20	EXTERIOR ENCLOSURE
B2010	Exterior Walls

The exterior walls are framed with 2x4 and 3x4 studs from the sill plates to joist plates on the first floor (fig. 543) and joist plates to rafter plates on the second floor (fig. 544). The exterior is finished with painted wood shingles with a five-inch exposure (fig. 545) over horizontal random-width wood sheathing boards (1” thick). The framing is exposed on the interior and is painted on the first floor and unpainted on the second floor.

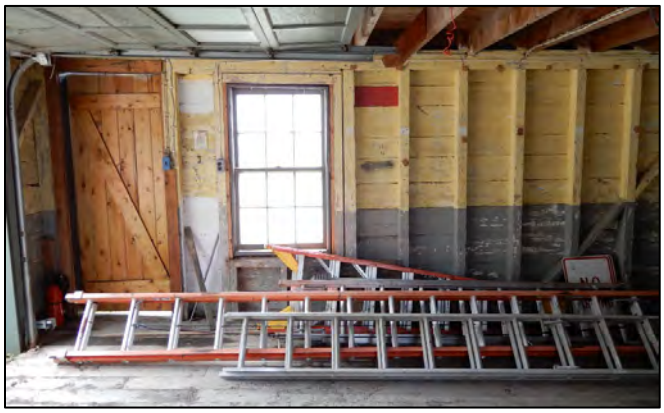


Figure 543. Painted wood stud wall on the first floor, east wall. Photo: HPTC, 05/13/19.

A special feature of the north wall is a hoist beam used to move material, e.g. hay and straw, from grade outside into storage on the second floor. The painted wood beam projects 28” from the north wall (fig. 546). The block and tackle are missing. On the interior, the beam is supported by a horizontal framing member in the wall and is carried back and supported by the first horizontal rafter tie (fig. 547).





Figure 545, above. Exterior walls of the Garage are clad with painted wood shingles with a 5-inch exposure. Photo: HPTC, 05/13/19.

Figure 544, left. Unpainted wood stud wall on the second floor, northeast corner. Note the horizontal sheathing boards under the exterior wood wall shingles. Photo: HPTC, 05/13/19.



Figure 546. A painted wood hoist beam projects from the north elevation. The historic block and tackle are missing. It is now used as a mount for a modern floodlight. Photo: HPTC, 05/13/19.



Figure 547, right. The hoist beam is supported by the exterior wall framing and structural roof framing. Photo: HPTC, 05/13/19.

B2020	Exterior Windows

W101 (east wall) and W103 (west wall) are identical with 6/6 double-hung historic painted wood sash modified to run on modern aluminum tracks (figs. 548-549). A coating has been applied to the interior of the glass to appear frosted.

W102, on the south elevation of the first floor, is a small opening covered with a vertical beadboard panel (fig. 550). This opening was probably originally associated with an interior horse stable.

W201, on the south elevation of the second floor, has been modified from a former door opening (likely similar to extant D201), and fit with a modern 1/1 vinyl window with exterior screen (fig. 551).



Figure 548. W101 exterior, first-floor east elevation. Note the frosted glass. Photo: HPTC, 05/13/19.



Figure 549. W103 interior, first-floor west elevation. Note the frosted glass and modern aluminum track. Photo: HPTC, 05/13/19.



Figure 550. W102 exterior, first-floor south elevation, with beadboard panel. Photo: HPTC, 05/13/19.



Figure 551, right. W201 exterior, second-floor south elevation: a former door opening infilled with a modern vinyl window. Photo: HPTC, 05/13/19.

B2030	Exterior Doors

D101, on the north elevation of the first floor, is an overhead painted wood garage door powered by an electric motor, consisting of four leafs of six panels each (fig. 552). The second leaf from the top includes frosted glass lites. The door likely dates to the 1960s or 70s, based on style. Originally the opening likely had a pair of sliding or swinging beadboard-and-batten wood doors.



Figure 552. D101, an overhead painted wood garage door. Note row of frosted glass. Photo: HPTC, 05/13/19.

D102, on the east elevation of the first floor, is a painted wood man door composed of vertical V-groove boards and battens with modern surface-mounted hinges (fig. 553). The door is a modern replacement and likely originally was similar to D201. Originally the opening may have had sliding door, replaced around 1956.

D201, on the north elevation of the second floor, is a painted wood man door composed of vertical beadboard and battens and strap hinges (fig. 554). The door and hardware are historic.



Figure 553. Modern board-and-batten door at D102 with modern hinges and lock. Photo: HPTC, 05/13/19.



Figure 554. Historic beadboard-and-batten door at D201, with historic strap hinges. Photo: HPTC, 05/13/19.

B30	ROOFING
B3010	Roof Coverings
B301001	Roof Finishes

The Garage gable roof is finished in modern four-tab fiberglass shingles (fig. 555). A galvanized drip edge is located at the edge of the shingles on all elevations.

Originally, this building had a wood shingle roof. Modern fiberglass or asphalt shingles were added in 1956 or soon after (after the proposed Period of Significance).



Figure 555. The red fiberglass shingle roof on the Garage. Photo: HPTC, 05/13/19.

B301004	Flashings & Trim

Simple wood trim is located at the boxed-out rakes and eaves (fig. 556); it is all original or very good replacement.



Figure 556. The boxed-out wood soffit and rake at the northeast corner. Note the metal drip edge along the rake. Photo: HPTC, 05/13/19.

B301005	Gutters & Downspouts

No roof drainage system is located on the Garage and no evidence exists that such a system was ever present.

C	INTERIORS
C10	INTERIOR CONSTRUCTION
C1030	Fittings

The interior of the structure is empty of most elements related to its original use, which would have included a horse stable in the southwest corner (adjacent W102). A hay chute exists adjacent the dogleg stair (fig. 557).

Modern fittings include a wood workbench along the south wall of the first floor (fig. 558).



Figure 557. Enclosed hay chute in the second floor at the stair. Photo: HPTC, 05/13/19.



Figure 558. A modern wood workbench along the south wall. The hay chute from the second floor empties adjacent the stair (arrow), which would have been in very close proximity to a horse stable or two in the opposite corner (near W102; X). Photo: HPTC, 05/13/19.

C20	STAIRS
C2010	Stair Construction

A dogleg staircase is located in the southwest corner of the building (fig. 559). Four straight-run treads (five risers) lead to three winder treads and another straight run of four treads (five risers) (fig. 560). The treads are 5/8" thick and are laid on two-inch-wide stringers. All wood surfaces are painted. No handrail is located at the stair.



Figure 559. Dogleg stair in the southwest corner of the building. Photo: HPTC, 05/13/19.



Figure 560. The wood stair components are painted. No handrail is located at the opening. Photo: HPTC, 05/13/19.

C30	INTERIOR FINISHES
C3020	Floor Finishes

The finish floor of the first floor is composed of unfinished 2x6s running north-south (fig. 561). These are replacement boards. Originally the first-floor finish floor would have matched that extant on the second floor.

The finish floor of the second floor is composed of one-inch-thick unfinished wood boards which vary in width and run north-south, perpendicular to the joists below (fig. 562). These are historic.



Figure 561. Replacement unfinished wood 2x6s used as a finish floor on the first floor. Photo: HPTC, 05/13/19.



Figure 562. Historic unfinished wood random-width boards as a finish floor on the second floor. Photo: HPTC, 05/13/19.

D	SERVICES
D20	PLUMBING

No plumbing system is currently extant within the Garage.

D30	HVAC

No HVAC system is currently extant within the Garage.

D40	FIRE PROTECTION SYSTEMS
D4010	Sprinklers

No sprinkler system is currently extant within the Garage.

D4030	Fire Protection Specialties
D403001	Fire Extinguishers

A fire extinguisher is located in the northeast corner of the first floor and is charged. The last inspection date is unknown.

D50	ELECTRICAL
D5010	Electrical Service & Distribution
D5020	Lighting & Branch Wiring

An electrical system is functional within the Garage. No panel is extant; however, a single breaker is located in the southeast corner (fig. 563), suggesting the entire Garage electrical system is on one circuit off the main panel box in the Keeper's Dwelling. Modern wiring, not in conduit, is surface mounted throughout the interior of the Garage. Receptacles (interior only), switches (interior only), light fixtures (interior and exterior), and the interior electric garage-door opener are modern.



Figure 563. A modern single-breaker box is located at the southeast corner of the first floor. Note the wiring (no conduit) and modern receptacle adjacent. Photo: HPTC, 05/13/19.

D5030	COMMUNICATIONS & SECURITY
D503001	Fire Alarm Systems

No fire alarm system is currently extant within the Garage.

D503008	Security Alarm Systems

No security alarm system is currently extant within the Garage.

D5090	OTHER ELECTRICAL SYSTEMS
D509004	Lightning Protection System

No lightning protection system is currently extant at the Garage.

G	BUILDING SITEWORK
G20	SITE IMPROVEMENTS
G2020	Parking Areas (Lots)

A modern asphalt-paved driveway is located at the north elevation. It slopes down toward the garage door. It continues as a walkway away and down to the west to the remaining buildings of the Light Station (fig. 564).

A built-up parking pad is located adjacent the Garage at the northeast corner. Land is retained on the east, south, and west sides (refer to G204002 Retaining Walls below for more information.



Figure 564. Modern asphalt sidewalk and elevated parking pad. Photo: HPTC, 05/13/19.

All of these features are believed to be modern and postdate the proposed Period of Significance.

G2030	Trail (Pedestrian Paving)

A modern concrete sidewalk leads from the east exterior door (D102) (fig. 565) to a main concrete sidewalk which leads from the built-up parking pad to the aluminum stair down to the Keeper's Dwelling (discussed in Keeper's Dwelling Physical Description section).



Figure 565, right. A concrete sidewalk leads to D102 on the east elevation of the Garage. Photo: HPTC, 05/13/19.

G2040	Site Development
G204001	Fences & Gates

A modern painted wood fence is located above the concrete retaining wall between the asphalt driveway and built-up parking pad (fig. 566). The fence turns the corner to run across the north side of the Light Station. A modern aluminum swing gate is located across the parking pad.

All of these features are believed to be modern and postdate the proposed Period of Significance.



Figure 566. Modern wood fence. Photo: HPTC, 05/13/19.

G204002	Retaining Walls

A built-up parking pad is located adjacent the Garage at the northeast corner. Land is retained on the west side by a short cast-in-place concrete wall (fig. 567). On the south and east sides, the land is retained by timber, stone, and earth. A concrete stair is located on the east side to link the pad to a concrete sidewalk below (fig. 568).

All of these features are believed to be modern and postdate the proposed Period of Significance.





Figure 568, above. The south and east sides of the parking pad are retained by timber, stone, and earth. Photo: HPTC, 05/13/19.

Figure 567, left. Concrete retaining wall on the west side of the parking pad. Photo: HPTC, 05/13/19.

G2050	Maintained Landscapes

Maintained sodded areas abut the exterior of the Garage at the west, south, and east elevations. Unmaintained vegetation is located along the south elevation of the Garage (fig. 569).



Figure 569, right. Vegetation abuts the south elevation of the Garage. Photo: HPTC, 05/13/19.

G90	OTHER SITE WORK
G9087	Overall Building Site Drainage

The site drainage on the west, south, and east elevations of the Garage is positive, meaning water drains away from the building. Due to the steep cross slope, the water drains quickly away from the building down the hill.

On the north (front) elevation, the modern asphalt driveway was laid directly up to and sloping down into the Garage and garage door (fig. 570). Due to dirt and vegetative debris collected on the interior and exterior of the garage door, water is collecting in this area during rain and melting snow events and could cause deterioration to interior features and structural floor members.



Figure 570. Positive drainage around the Garage, except at the garage door where negative drainage collects water, dirt, and debris on the exterior and interior. Photo: HPTC, 05/13/19.

Character-Defining Features

Each historic building is unique, with its own identity and its own distinctive character. Character refers to the visual aspects and physical features that comprise the appearance of historic buildings. Character-defining features include the overall shape of the building, its materials, craftsmanship, decorative details, interior spaces and features, as well as the various aspects of its site and environment. Identifying and preserving a building's character-defining features is essential.

A character-defining feature (CDF) is defined in Director's Order 28, *Cultural Resources Management Guidelines* as:

> A prominent or distinctive aspect, quality, or characteristic of a historic property that contributes significantly to its physical character. Structures, objects, vegetation, spatial relationships, view, furnishings, decorative details, and materials may be such features.[1]

In order to ascertain the important aspects of a building for future reference and analysis, character-defining features must be recorded. The process used in this assessment for determining the character-defining features was adapted from the NPS *Preservation Brief 17: Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character,*[2] and are in accordance with *The Secretary of the Interior's Standards for the Treatment of Historic Properties*[3] and NPS Management Policies and Guidelines, specifically Director's Order 28, *Cultural Resource Management Guidelines*.

Preservation Brief 17 divides the assessment of character-defining features into three steps:

1. Identify the Overall Visual Aspects,
2. Identify the Visual Character at Close Range,
3. Identify the Visual Character of Interior Spaces, Features, and Finishes.

The purpose of *Preservation Brief 17* is to help the owner or the architect identify those features or elements that give the building its visual character and that should be taken into account in order to preserve them to the maximum extent possible. The Brief states:

> There are different ways of understanding old buildings. They can be seen as examples of specific building types, which are usually related to a building's function.... Buildings can be studied as examples of using specific materials....They can also be considered as examples of an historical period, which is often related to a specific architectural style....
>
> There are many other facets of an historic building besides its functional type, its materials, or construction or style that contribute to its historic qualities or significance. Some of these qualities are feelings conveyed by the sense of time and place or in buildings associated with events or people. A complete understanding of any property may require documentary research about its style, construction, function, its furnishings or contents; knowledge about the original builder, owners, and later occupants; and knowledge about the evolutionary history of the building. Even though buildings may be of historic, rather than architectural significance, it is

[1] Stanton, Robert. *Director's Order 38: Cultural Resource Management.* National Park Service, Washington, DC, 1998.
[2] Nelson, Lee H. *Preservation Brief 17: Architectural Character – Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character.* U.S. Department of the Interior, National Park Service, Technical Preservation Services, Washington, DC, 1988.
[3] Grimmer, Anne E. (revised). *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings.* U.S. Department of the Interior, National Park Service, Technical Preservation Services, Washington, DC, 2017.

their tangible elements that embody its significance for association with specific events or persons and it is those *tangible elements* both on the exterior and interior that should be preserved.

Therefore, the approach taken in this Brief is limited to identifying those visual and tangible aspects of the historic building. While this may aid in the planning process for carrying out any ongoing or new use or restoration of the building, this approach is not a substitute for developing an understanding about the significance of an historic building and the district in which it is located.

If the various materials, features, and spaces that give a building its visual character are not recognized and preserved, then essential aspects of its character may be damaged in the process of change.

A building's character can be irreversibly damaged or changed in many ways, for example, by inappropriate repointing of the brickwork, by removal of a distinctive side porch, by changes to the window sash, by changes to the setting around the building, by changes to the major room arrangements, by the introduction of an atrium, by painting previously unpainted woodwork, etc.

In summary, the *Secretary of the Interior's Standards for the Treatment of Historic Properties* embody two important goals:

1. Preservation of historic materials.
2. Preservation of a building's distinguishing character.

By succeeding at these two goals, it is likely that a building's historic integrity will be preserved.

Period of Significance

Character-defining features are often linked to an established Period of Significance for a building or site. The Bass Harbor Head Light Station Registration Form for the National Register of Historic Places establishes the Period of Significance as 1858—the year the Station was completed and the Lighthouse lit—to 1937. The latter was arbitrary and was fifty years prior to the date of the NRHP listing (1987).

Discussions between Acadia National Park and HPTC staff have determined a more appropriate end date to the Period of Significance to be 1948, the year planning and execution began on the modernization of the Light Station and before any modernization and changes were made. Thereafter, unsympathetic alterations to the site and structures occurred at a rapid pace. Throughout this document, 1858-1948 will be referred to as the proposed Period of Significance, as it has not been formally approved by the Keeper of the NRHP.

An archival photograph from 1951 shows the Light Station just after the end of the proposed Period of Significance (fig. 571) and shows many character-defining features of buildings and site, including those removed, which should be restored. Conversely, an archival postcard from ca. 1962 shows the Light Station after significant modernization, removal of historic features, and addition of several modern exterior materials (fig. 572). Comparison of the two images clearly shows the character-defining features (even buildings) which were removed or covered up by modern accretions and materials. Restoration of lost character-defining features, especially on the exterior, is the ultimate recommended treatment.



Figure 571. The main complex of buildings in 1951, soon after the end of the proposed Period of Significance, shows a majority of the original buildings, features, and materials in place. The Boat House and slip had been removed by this time. Photo: USCG Historian's Office, 170602-G-XX000-434. Cropped by author. A larger version of this photograph can be found in Appendix B.



Figure 572. The main complex of buildings, ca. 1962. The stone retaining wall has been replaced with a concrete wall. All of the roofs have been clad with asphalt shingles. The bell has been removed from the Bell House and an electrified bell has been placed near the Lighthouse. The Weight Tower behind the Bell House has been removed. Photo: SWHPL Digital Archives.[4] Cropped by author.

[4] Kaunt, Jr., Paul A. "Bass Harbor Head Light." Item 6886. Southwest Harbor Public Library.

Lighthouse Character-Defining Features

Overall Visual Aspects

Shape and Mass

The 1858 Lighthouse is a thin and cylindrical brick tower two stories tall, with a recessed and decagonal cast iron and glass one-story lantern under a conical roof (fig. 573). It is connected to the Keeper's Dwelling through a Covered Way (discussed as part of the Keeper's Dwelling).

Roof and Related Features

The roof is deca-conical with ten cast iron pie-shaped pieces culminating with a ventilator ball and lightning rod (see fig. 573). All components are character defining.

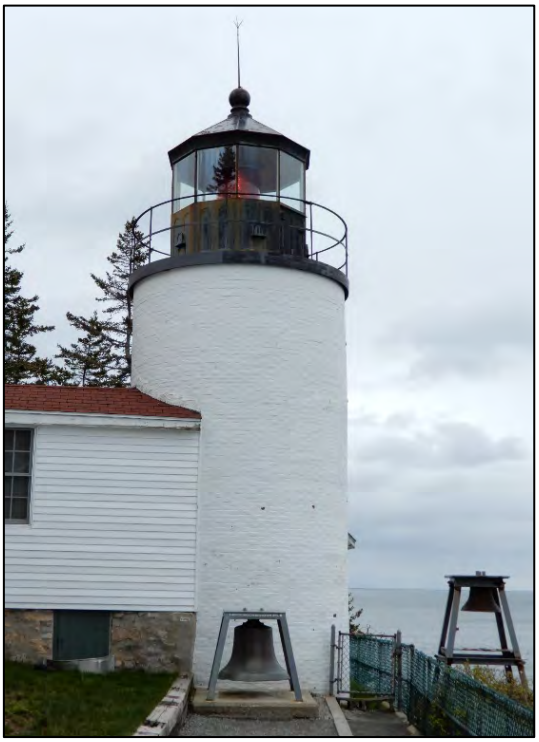


Figure 573. The three-story tall Lighthouse with cylindrical painted brick tower and decagonal lantern. Note the decagonal and conical roof with ventilator ball and lightning rod. The Covered Way is attached at left. Photo: HPTC, 05/15/19.

Openings

A single original door opening has been retained on the southwest elevation of the lantern allowing access between the interior and the exterior gallery (fig. 574); it is original.



Figure 574. The original door opening in the lantern for access to the exterior gallery. Photo: HPTC, 05/16/19.

Two original window openings are located on the south elevation. They retain their original cast iron sills, lintels, and casings, but the openings have been infilled with modern, unsympathetic glass block (fig. 575).



Figure 575. W101 is an original opening with character-defining cast iron sill, lintel, and frame. Modern glass block is an intrusion in this historic structure. Photo: HPTC, 05/15/19.

Projections

The Lighthouse itself is a large projection along the coast with the original sole purpose of providing direction and wayfinding for seafarers. Smaller-scale projections include the gallery railing projecting from the top of the brick tower walls, the lantern



Figure 576. Projections include the gallery railing, lantern, roof, and lightning rod. Photo: HPTC, 05/15/19.

(recessed from the brick tower walls) projecting up from the tower, the conical lantern roof with ventilator ball, and the projecting lightning rod and the peak of the roof (fig. 576).

Trim and Secondary Features

Exterior trim components are all composed of metal and include the original cast iron window sills, lintels, and frames (see fig. 575), the five pie-shaped painted cast iron gallery floor plates (fig. 577), the ten lower lantern cast iron wall segments with embossed "panels" (every other panel includes a through vent with a bell-shaped hood on the exterior) (fig. 578), the upper lantern glass panels (fig. 579), the gallery railing (see fig. 577), the cast iron roof components, the ventilator ball, and the lightning rod (fig. 580).

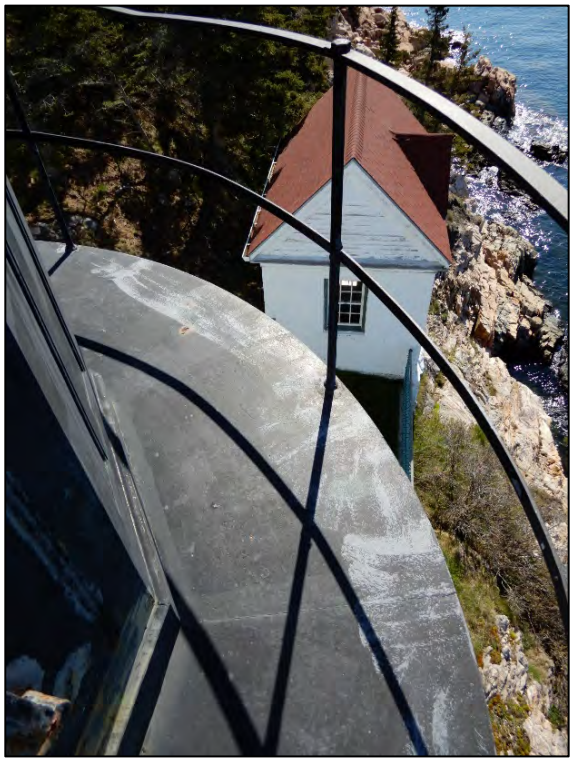


Figure 577. The painted cast iron exterior gallery floor plates are shaped in an arc. Five encircle the gallery. The metal railing encircling the gallery is also character defining. Photo: HPTC, 05/16/19.



Figure 578. Ten cast iron wall segments with embossed "panels" compose the panel walls. Every other segment includes a through vent. Photo: HPTC, 05/16/19.

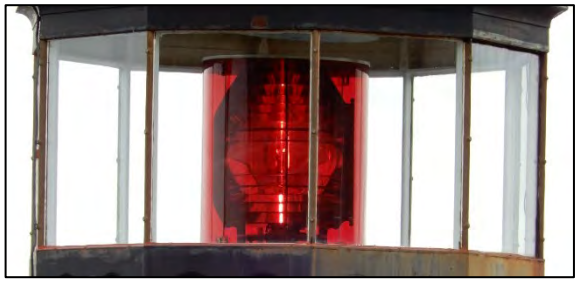


Figure 579. Brass glazing bars hold the glass in place in the lantern. Photo: HPTC, 05/15/19.



Figure 580, right. The lantern roof is composed of ten pie-shaped plates and culminates with a ventilator ball and lightning rod. Photo: HPTC, 05/16/19.

Setting

The Lighthouse is located within the historic Bass Harbor Head Light Station, to the southeast of the Keeper's Dwelling (attached via a Covered Way) and just west of the Bell House, directly adjacent the rugged cliff overlooking the water (fig. 581).



Figure 581. The Lighthouse sits directly adjacent the rugged cliff overlooking the water, next to the Keeper's Dwelling, left, and Bell House, right. Photo: ACAD Chief of Facilities Keith Johnston, 2019. Cropped by author.

Character, Materials & Craft Details at Close Range

The Lighthouse foundation is not exposed, and details are not known; however the foundation could simply be the brick tower walls supported on granite bedrock.

The tower is composed of painted multi-wythe brick. The exterior wythe is laid in 7:1 common bond (seven running bond courses to one header course) (fig. 582). The interior wythe is laid entirely in running bond. According to archival *Light Lists*, the exterior has always been painted white. In areas where paint has been removed or is failing, unsympathetic Portland cement-based mortar can be seen.

Two original window openings are framed with original cast iron sills, lintels, and frames (modern glass block is not character defining) (see fig. 575).

The lantern and exterior gallery are composed primarily of cast iron pieces assembled on site in 1854 (fig. 583). According to archival *Light Lists,* the lantern and gallery have always been painted blank.





Figure 583, above. The cast iron components of the lantern have always been painted black. Photo: HPTC, 05/15/19.

Figure 582, left. The exterior wythe is laid in 7:1 common bond. The brick tower walls have always been painted white. Photo: HPTC, 05/15/19.



Figure 584. The Lighthouse entrance door is located in the connected Covered Way. Photo: HPTC, 05/16/19.

Interior Visual Character

Individual Spaces, Related Spaces & Sequence of Spaces

The Lighthouse is entered via the single door opening in the attached Covered Way (fig. 584). The door accesses the interior of the brick tower where a cast iron circular stairway makes one full revolution up to the lantern level (fig. 584). A hatch in the floor of the lantern provides access between the tower and the lantern (fig. 586), where the historic Fourth Order Fresnel lens is located. A small doorway in the lower metal portion of the lantern exterior wall accesses the exterior gallery.



Figure 585. The cast iron spiral stair provides vertical access within the tower. Photo: HPTC, 05/16/19.



Figure 586. A hatch in the lantern floor deck accesses the spiral stair of the tower below. Photo: HPTC, 05/16/19.

Interior Features

Special interior features include the painted cast iron spiral staircase in the tower (fig. 587), remnants of the three niches (now below the main level floor slab) (fig. 588), the window openings (glass block is not character defining) (fig. 589), the 1901 Fourth Order Fresnel lens in the lantern (fig. 590), and cast iron lantern components (figs. 591-592).





Figure 588, above. The tops of original niches can be seen above the ca. 1948 concrete floor slab. The original floor is approximately five feet below. Photo: HPTC, 05/16/19.

Figure 587, left. Looking up at the underside of the cast iron spiral stair. Photo: HPTC, 05/16/19.



Figure 589. Original window opening in tower with modern (non-character-defining) glass block infill. Wood trim may not be original, but is character defining. Photo: HPTC, 05/16/19.



Figure 590. The 1901 Fourth Order Fresnel lens is surrounded by a modern red chimney to give the light its characteristic. Photo: HPTC, 05/16/19.



Figure 591. The lower wall portion of the lantern are composed of ten cast iron segments with embossed "panels." A brass vent is located in every other segment. Photo: HPTC, 05/16/19.



Figure 592. The exposed cast iron roof frame of the lantern roof is painted. Photo: HPTC, 05/16/19.

The curved main entrance door is composed of iron and painted (fig. 593). The main level slab is composed of concrete poured several feet above the original floor (see Physical Description section for more information regarding lack of information to date concrete slab) (fig. 594). The tower walls are exposed brick with some remnant paint (fig. 595). The central spiral stair is composed of cast iron and painted (fig. 24) and has a rope handrail along the brick wall (see fig. 595). The lantern room floor deck is composed of cast iron and painted (fig. 597). The lantern exterior walls are painted cast iron on the lower half (including door to gallery) and glass panes on the upper half (see fig. 591). The underside of the lantern roof is painted cast iron (see fig. 592). The lens stand, likely not original, is painted cast iron (fig. 598) and supports the 1901 Fourth Order Fresnel lens surrounded by a modern red chimney (see fig. 590).



Figure 593, left. The curved iron door between the attached Covered Way and the Lighthouse tower. Photo: HPTC, 05/16/19.



Figure 594, above. The concrete floor slab of the tower is higher than it was originally, as evidenced by the bisected window and niches, and lowest stair tread embedded in concrete. The floor was raised in 1878. The date of the concrete is unknown. Photo: HPTC, 05/16/19.



Figure 595. The brick tower walls exposed on the interior. The paint has been swept from the surface. Originally, the walls were whitewashed. Photo: HPTC, 05/16/19.



Figure 596. Painted cast iron riser and tread units stack to complete the spiral stair. Photo: HPTC, 05/16/19.



Figure 597. The lantern floor deck is composed of five pie-shaped plates supported at the center by the stair post and at the tower walls by the gallery plates. Photo: HPTC, 05/16/19.



Figure 598, right. The two-tier metal stand holding the Fresnel lens in the lantern. Photo: HPTC, 05/16/19.

Exposed Structure

The inherent structure of the Lighthouse is exposed throughout, including the brick tower walls and the various cast iron components.

Non-Character Defining Features

The following items are not considered character defining as they were added or altered after the proposed Period of Significance. The items should be removed during future phases of treatment.

- Glass block in window openings.
- Drywall covering the brick tower walls in the Covered Way.
- Interior electrical conduit (should be better integrated).

Missing Character-Defining Features

The following items are considered missing character-defining features as they were removed or altered after the proposed Period of Significance. The items should be restored during future phases of treatment.

- Cast iron paired two-lite casement sash at two south-facing windows.
- Lantern roller shades and/or Fresnel lens cover.

Keeper's Dwelling Character-Defining Features

Overall Visual Aspects

Shape and Mass

The 1858 Main Block has a rectangular shape and massing of one-and-one-half stories with a side-facing gable roof and slender chimney at center (fig. 599). The shed roof dormer on the front (west) elevation was added in 1977 (after the proposed Period of Significance); formerly this dormer matched the one seen on the east elevation: a doghouse dormer added in 1901. The Main Block also has an original small, one-story entrance vestibule projecting from the front (west) elevation. From the rear (east) of the Main Block is the original rectangular, one-story kitchen Ell with gable roof. In 1900, the Ell was extended ten feet; this Addition matches the Ell in shape and mass (fig. 600). From the south elevation of the Ell an 1878-altered Covered Way—narrow, one-story hall—extends to the north elevation of the Lighthouse (discussed separately).



Figure 599. From the southwest corner: the one-and-one-half-story 1858 Main Block with non-CDF 1977 shed dormer, and original one-story entrance vestibule. Photo: HPTC, 05/16/19.



Figure 600. From the northeast: the one-and-one-half-story Main Block in the back with character-defining doghouse dormer. The original one-story kitchen Ell extends from the rear elevation of the Main Block. An Addition was constructed in 1900. A one-story Covered Way connects the south wall of the Ell to the Lighthouse. Photo: HPTC, 05/15/19.

Roof and Related Features

The gable roof of the Main Block—the original roof form—is side facing to the front (west) elevation (fig. 601). A doghouse dormer was added to the west and east slopes of the roof in 1901; however the west dormer was altered to the current shed form in 1977 (after the proposed Period of Significance) and therefore is considered not character defining. A slender original chimney extends from the center of the ridge line. No roof drainage system is located on either slope; however, one did exist historically on the east slope to collect water for the basement cistern. The front-facing gable roof of the entrance vestibule is the original roof form for this structure. No roof drainage system is extant, nor was there one historically.

The gable roof of the Ell and Addition is the original roof form on these portions of the Dwelling and projects from the east exterior wall of the Main Block (fig. 602). A modern, vinyl roof drainage system is located on the north and south elevations. Historically this system would have been composed of

half-round metal gutters and round metal downspouts and would be more appropriate for this historic building. A brick chimney was located at the east end of the Ell through at least September 1975, and therefore was removed after the proposed Period of Significance.

The gable roof of the Covered Way is the original roof form on this portion of the Dwelling and projects from the south exterior wall of the Ell (fig. 603). The small area between the east wall of the Main Block and the west wall of the Covered Way was infilled in ca. 1948. At that time a roof was added over the space and also covered a portion of the south slope of the Ell gable roof and a portion of the west slope of the Covered Way gable roof.

All of the roofs are clad with modern four-tab fiberglass shingles which are not a character-defining feature. During the proposed Period of Significance, the roofs were clad with wood shingles and would be more appropriate for this historic building.



Figure 601. The 1858 gable roof of the Keeper's Dwelling, with 1900 doghouse dormer at the rear, and 1977 non-CDF shed dormer at front. The 1858 gable roof of the entrance vestibule at lower right. The modern shingles are not character defining. Photo: HPTC, 05/16/19.



Figure 602. The Ell and Addition gable roof projecting from the east wall of the Main Block. The modern shingles are not character defining. Photo: HPTC, 05/16/19.



Figure 603. The gable roof of the Covered Way projects from the south elevation of the Ell. The demarcated area was added in ca. 1948 when the area between the Main Block and Covered way was infilled. The modern shingles are not character defining. Photo: HPTC, 05/15/19.

Openings

Many of the exterior openings date to the proposed Period of Significance (1858-1948); however the locations themselves may be the only character-defining features of the openings (fig. 604).

Those openings which are known to have been altered after the proposed Period of Significance are: three windows on the south elevation of Addition (historically a single window and exterior door)

(fig. 605); removal of the Infill window and covering of the opening with siding; modification of the west dormer from doghouse to shed also required a different window opening (as mentioned above and seen if fig. 599).

All of the window sash and frames have been replaced with retrofit units (fig. 606). These are not character defining. Furthermore, the exterior doors in the Covered Way and Addition have been replaced with unsympathetic doors (fig. 606). The front door of the main block was installed in the ca. 1950s and also post-dates the proposed Period of Significance (see fig. 608).

With the installation of the modern vinyl siding on the exterior walls of all buildings, historic wood casing and opening hoods have been lost (fig. 607). These were very important character-defining features.



Figure 604. Window and door opening locations are character defining, but are missing historic casing and hoods. The arrow notes the location of the former Infill window removed after the propoesed Period of Significance. Photo: HPTC, 05/16/19.



Figure 605. The three-window opening of the Addition south elevation was original a door and single window and was altered after the proposed Period of Significance. Photo: HPTC, 05/16/19.



Figure 606. All of the windows have been replaced with modern retrofit units. The exteiror doors of the Covered Way (seen here) and Addition have also been replaced with modern retrofit units. Photo: HPTC, 05/16/19.

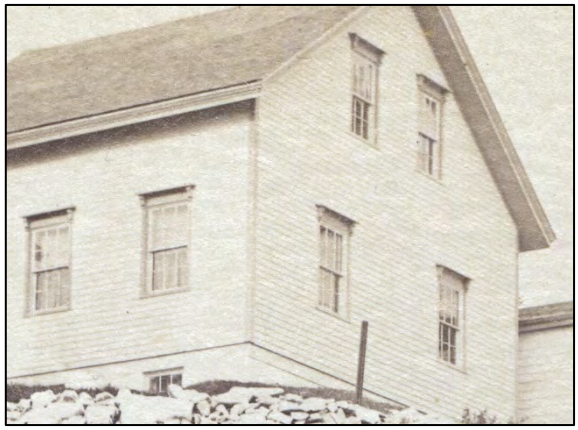


Figure 607. Archival photographs show the original wood casing and hoods of the exterior openings, like this one dating to before 1893. Source: NARA, 26-LG-1-27A. Cropped by author.

Projections

From the Main Block, the original entrance vestibule projects from the west (front) elevation (fig. 608) and the Ell and Addition project from the east elevation. Similarly, the Covered Way projects from the south elevation of the Ell.

At roof level, the eaves project from all elevations of the assorted building areas of the Keeper's Dwelling (fig. 609). At the Main Block, an original chimney projects from the center of the gable roof ridgeline (fig. 608). The doghouse dormer projecting from the east slope of the Main Block roof is historic and character defining (fig. 610). The shed roof projecting from the west slope of the Main Block roof postdates the proposed Period of Significance and is not considered character defining (fig. 608). A brick chimney once projected from the north end of the Ell, but was removed after the proposed Period of Significance.



Figure 608. The entrance vestibule projects from the front elevation of the Main Block. The door was installed in the ca. 1950s, which postdates the proposed Period of Significance. An original chimney projects from the center of the roof. The shed dormer is not character defining. Photo: HPTC, 05/16/19.



Figure 609. The eaves project from the gable-end wall of the Main Block. Photo: HPTC, 05/16/19.



Figure 610, right. The 1901 doghouse dormer projecting from the east slope of the Main Block roof is a character-defining feature. Photo: HPTC, 05/16/19.

Trim and Secondary Features

Very little trim remains on the exterior of the Keeper's Dwelling. Historically, this trim would have been composed of wood and painted. Most of the exterior trim is now covered with vinyl siding and related components (see fig. 609). Painted wood has remained at many eaves and rakes and is noticeable as it has not been painted in many years (see fig. 608). Wood window and door casings and hoods existed at the exteriors of all openings historically (see fig. 607), and have all been removed or covered with modern vinyl siding (see fig. 604). These are important missing character-defining features.



Figure 611. The Keeper's Dwelling near the Lighthouse and Bell House adjacent the cliff over the water. Photo: ACAD Chief of Facilities Keith Johnston, 2019. Cropped by author.

Setting

The Keeper's Dwelling is located within the historic Bass Harbor Head Light Station, to the north of the Lighthouse and west of the Bell House, adjacent the rugged cliff overlooking the water (fig. 611).

Character, Materials & Craft Details at Close Range

The Main Block foundation is composed of stone and brick (fig. 612). Archival photographs show the building's foundation was always whitewashed.



Figure 612. The unpainted brick and stone foundation walls; historically these surfaces were whitewashed. Photo: HPTC, 05/15/19.

All of the exterior walls above foundation level are clad with modern vinyl siding (fig. 613). From 1858 to 1878 the walls were clad in vertical board-and-batten wood siding painted brown. From 1878 to at least 1962, the walls were clad with horizontal wood siding painted white and wood corner boards and roof trimmings painted various colors throughout time. This latter covering is the most appropriate exterior wall covering for the Keeper's Dwelling and an important missing character-defining feature.

The roof was originally clad with wood shingles and are an important missing character-defining feature. The modern fiberglass shingles present on the various roofs of the Dwelling are not character defining and were introduced in 1956 or soon after (fig. 614).



Figure 613. Modern (not character defining) vinyl siding covers the exterior of the Dwelling. Historically wood horizontal siding painted white covered the exterior. Photo: HPTC, 05/08/19.



Figure 614. The roofs are clad with modern fiberglass shingles (not character defining). Originally the roofs were covered with wood shingles. Photo: HPTC, 05/16/19.

Interior Visual Character

Individual Spaces, Related Spaces & Sequence of Spaces

The interior of the Keeper's Dwelling has been altered several times throughout the history of the Light Station, much of it occurring within the proposed Period of Significance.

Upon original construction in 1858, the Dwelling consisted of the entrance vestibule into the Main Block, which was laid-out in a traditional side-hall plan with stair to the second floor and two large rooms off the hall on the first and second floors. A kitchen Ell extended off the rear (east). A pantry was located within the Main Block (northeast corner) but accessed from the Ell. A Covered Way connected the Ell to the Lighthouse.

In 1878, the Covered Way was rebuilt at one consistent level.

In 1900, an Addition was added to the east end of the Ell for an office.

In 1901, major changes to the interior occurred. This included reconfiguration of the interior stair to a winder-dogleg stair accessed from the Living Room (instead of the side hall), and reconfiguration of the two second-floor bedrooms into three bedrooms. The west bedroom and southeast bedrooms each received a new doghouse dormer (east dormer still extant).

In ca. 1948, the area between the west wall of the Covered Way and the east wall of the Main Block was infilled. Formerly, this had been an exterior porch from the Covered Way to the west. After enclosure, the area became either a half bathroom or closet accessed from the dining room (Main Block). The closet is now accessed from the Covered Way (date of change unknown).

In 1950, after the proposed Period of Significance, alterations were made to the kitchen to modernize it and the adjacent Main Block pantry. On the second floor, a portion of the west bedroom was taken over for the installation of a new full bathroom (until this time an outdoor privy and basement chemical toilet were used).

In 1977, after the proposed Period of Significance, the second-floor bathroom was renovated. The historic doghouse dormer was removed and the extant shed dormer was constructed in its place. This was a major change to the historic appearance to the front elevation of the exterior and individual space on the interior.

Since then, alterations to individual spaces, related spaces, and sequence of spaces has not been altered. The current floor plans for the first and second floor are included below (figs. 615-616).

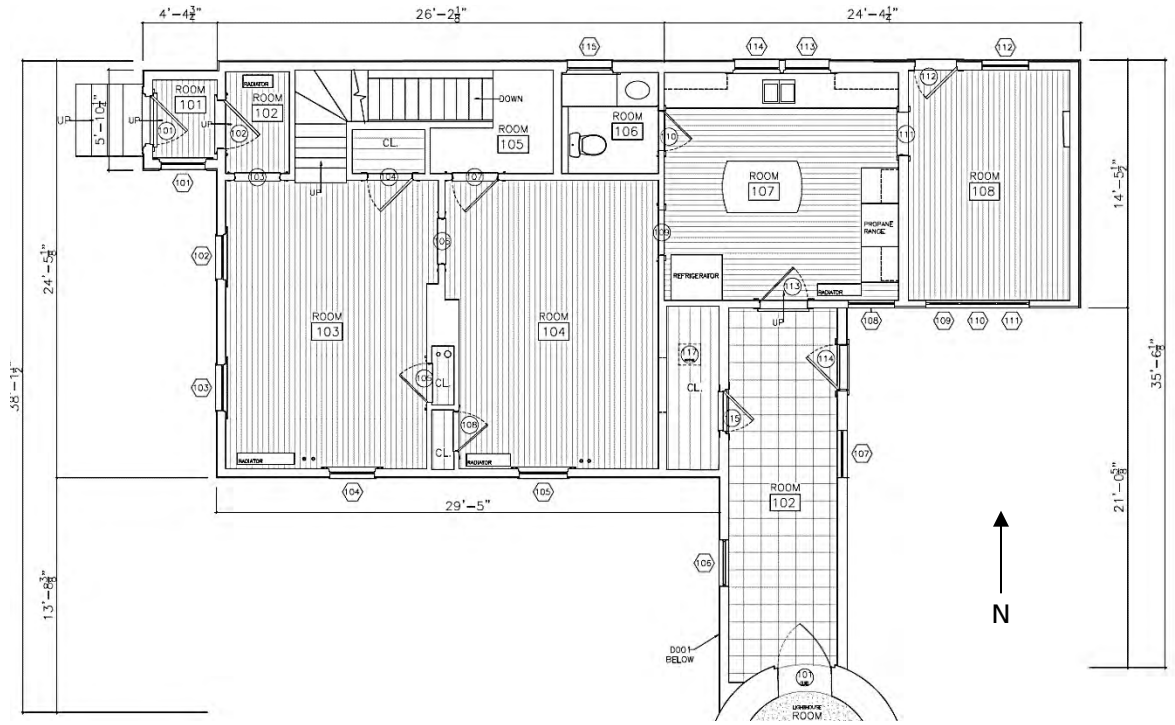


Figure 615, above. First-floor plan. The interior of this level has had little alteration since the end of the proposed Period of Significance. Drawing: HPTC, 2020.

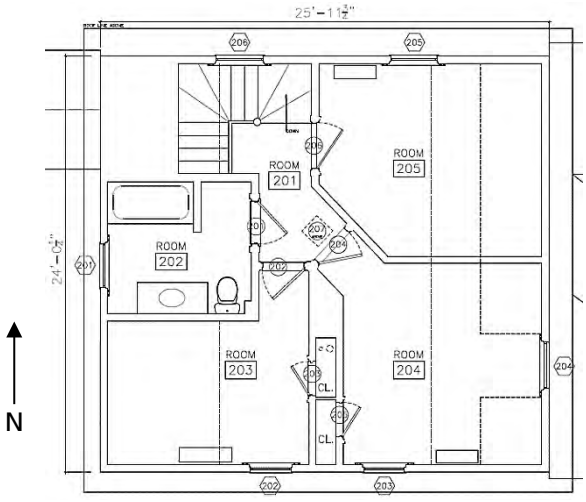


Figure 616, left. Second-floor plan. The interior of this level has been altered since the end of the proposed Period of Significance, including modification of the bathroom with new shed dormer in 1977. Drawing: HPTC, 2020.

Interior Features

The main stair, interior closets, and internal chimney stack are historic, character-defining features and represent original features or features altered during the proposed Period of Significance (figs. 617-618).

All of the interior kitchen and bathroom cabinets and fixtures, including appliances are modern and are not considered character-defining features (fig. 619-620).



Figure 617. The main stair is a winder and was constructed in 1901, during the proposed Period of Significance. The balustrade and newel post may have been reused from the 1858 stair. Photo: HPTC, 05/13/19.



Figure 618. The closet and chimney wall between the living and dining rooms is original and a CDF. The wall above between bedrooms is the same. Photo: HPTC, 05/15/19.



Figure 619. Modern full bathroom on the second floor is not a CDF. Photo: HPTC, 05/13/19.



Figure 620. Modern kitchen in the Ell is not a CDF. Photo: HPTC, 05/15/19.

Surface Materials and Finishes

The floors are covered in an array of modern finishes, including carpet, laminate, and vinyl. Historically, all of the floors would have been wood. Portions of the original wood flooring have been retained in original closets in the Main Block and is assumed to exist under modern floor coverings (fig. 621).

The walls are covered in an array of modern finishes, including drywall, laminate, and wood paneling. Historically, the walls would have been plaster over wood lath, or plasterboard on later alterations. Much of this original material is found throughout the interior but has been partially covered with modern materials (fig. 622).

The ceilings consist of mostly plaster over lath or plasterboard (fig. 623), with some instances of modern drywall and acoustic tiles.

Interior trim is a mix of original, historic (fig. 624), and modern. Most of the modern trim is located at window openings and date to when the windows were retrofit with new sash units.



Figure 621. Historic wood flooring exposed in a first-floor closet is a CDF. Modern laminate adjacent is not. Photo: HPTC, 05/15/19.



Figure 622. Painted plaster walls, seen here on the second floor, are CDFs. Photo: HPTC, 05/13/19.



Figure 623. Painted plaster ceilings, seen here on the second floor, are CDFs. Photo: HPTC, 05/13/19.



Figure 624, right. Original trim seen around the door opening between the entry and living room. Photo: HPTC, 05/13/19.

Exposed Structure

Exposed structure is found in secondary, utilitarian spaces, like the basement, crawlspaces, and attics, and is not considered a decided design element that should be considered character-defining features.

Non-Character Defining Features

The following items are not considered character defining as they were added or altered after the proposed Period of Significance. The items should be removed during future phases of treatment.

- Shed dormer added in 1977.
- Fiberglass shingles on all roofs added in 1956 or soon after.
- PVC roof drainage system on the Ell, Addition, and Covered Way.
- Three-window opening of the Addition south elevation added after ca. 1962.
- Modern retrofit window units in all openings (first added between 1987 and 1990).
- Modern metal exterior door units in Covered Way and Addition.
- Painted wood exterior door west elevation of Main Block, added ca. 1950s.
- Concrete steps at entrance vestibule and Addition entrance.
- Vinyl siding and soffits.
- Modern interior finishes: drywall, laminate beadboard, faux-wood paneling, acoustic ceiling tiles, laminate flooring, vinyl flooring, carpet.

Missing Character-Defining Features

The following items are considered missing character-defining features as they were removed or altered after the proposed Period of Significance. The items should be restored during future phases of treatment.

- Doghouse dormer on west elevation (changed to shed dormer in 1977).
- Ell chimney (removed after 1975).
- Wood shingles on all roofs (removed in 1956 or soon after).
- Metal roof drainage system with halfround gutters and round downspouts.
- Window and door openings in Addition south elevation.
- Infill window opening (still extant in 1951).
- Wood double-hung 6/6 windows in all openings, with wood casing, jambs, and hoods.
- Wood paneled exterior doors at Main Block, Covered Way and Addition, and wood casing, and hoods at all openings.
- Wood horizontal siding on all exterior walls painted white and corner boards (various colors through time).
- Whitewashed foundation.
- Traditional interior finishes, like wood floors and plaster walls and ceilings.

Bell House Character-Defining Features

Overall Visual Aspects

Shape and Mass

The 1897 Bell House has a rectangular shape and massing of one story with a side-facing gable roof and side-facing cross-gable roof (fig. 625).

Roof and Related Features

The gable roof—the original roof form—is side facing to the front (north) elevation (see fig. 625). A smaller cross-gable roof projects from the south elevation roof (fig. 626); originally, a beam, supported by diagonal braces, projected from the end wall and a bell hung there.

The modern fiberglass shingles are not character defining; historically this roof was covered with wood shingles.

The modern K-style aluminum gutter and corrugated downspout on the north elevation are not character defining. It is unlikely a roof drainage system was in place historically.



Figure 625. The Bell House retains its character-defining rectangular shape and one-story mass with side-gable roof. The gutter and downspout on this elevation are not character-defining features. Photo: HPTC, 05/08/19.



Figure 626, right. The Bell House main gable roof has a projecting cross-gable on the south elevation from which a bell hung from a projecting beam. Photo: HPTC, 05/08/19.

Openings

A single original door opening has been retained on the north elevation (fig. 627). The original door (likely wood) has been removed and replaced with a modern non-character-defining metal door, however the original wood jamb has been retained (a CDF). The brick jack arch above the opening is original, but the concrete sill is modern.

Five original window openings have also been retained (fig. 628). The brick sills and jack arches are original, but the double-hung window units are modern replacements, as are, likely, many of the wood jamb components. The center window on the north elevation is narrower than the flanking windows of that elevation. This center opening was originally utilized as access between the striking equipment located on the interior of the building (no longer extant) and the bell hanging from the cross-gable end wall above (also no longer extant). Details of the panel or window in place during the proposed Period of Significance are unknown.



Figure 627. Original north elevation door opening with original wood jamb and brick jack arch. The metal door and concrete sill are modern alterations. Photo: HPTC, 05/08/19.



Figure 628. Original east elevation window opening with original brick sill and jack arch. The double-hung window unit is a modern replacement, as are likely the wood jamb components. Photo: HPTC, 05/08/19.

Projections

At roof level, the eave projects on the north and south elevations, and returns along the east and west elevations to project from the face of the brick walls below. Also on the end walls, the boxed-out rake projects from the gable ends along the roof line (fig. 629).

The cross-gable roof projects from the south elevation (see fig. 626). It is missing the original beam that projected from the end wall, from which the fog bell hung (see figs. 631-632). The beam was originally supported on the exterior by a diagonal wood braces (removed by 1925). The diagonal braces were supported at the lower ends by brick corbels (fig. 630) which still project from the south elevation exterior brick wall.



Figure 629. The eave returns and rakes are boxed out and project from the end elevations. Photo: HPTC, 05/08/19.



Figure 630, right. Projecting brick corbels on the south elevation are character defining and once supported wood diagonal braces, part of the bell-support system. Photo: HPTC, 05/08/19.



Figure 631. The Bell House from the southwest, between October 1897 and 1900/1. Note the center window is obscured, so it is unknown what originally occupied this opening. The original timber beam projects from the cross-gable roof and is supported by diagonal exterior braces supported by brick projections still extant on the south wall. Source: SWHPL Digital Archive.[1] Cropped by author.



Figure 632. The Bell House from the southeast, in 1925. By this time the wood diagonal braces had been removed and the projecting wood beam had been removed and replaced with the steel I beam still seen in the attic of the structure. The center opening is occupied by a panel, details of which are unknown. Source: NARA 26-LG-1-28A. Cropped by author.

[1] Neal, George Arthur. "Bass Harbor Head Light." Item 6166. Southwest Harbor Public Library.

Trim and Secondary Features

The painted wood jamb around the exterior door is original and includes mortises from original hinges and latches (fig. 633). The painted wood jambs around the window openings are likely modern replacement (fig. 634). The simple components are composed of dimensional flat-stock lumber. Gaps around the makeshift brick mold are covered with quarterround. Painted wood sills are located above the brick sills; it is unknown if these are original or replacement.

The painted wood fascia boards, boxed-out eaves, and boxed-out rakes are either original or very good replacements (see fig. 629).



Figure 633. Hinge mortise retained in the original wood door jamb. Photo: HPTC, 05/08/19.



Figure 634. Replacement wood trim is located at all window openings. Photo: HPTC, 05/08/19.

Setting

The Bell House is located within the historic Bass Harbor Head Light Station, to the southeast of the Keeper's Dwelling and just east of the Lighthouse, directly adjacent the rugged cliff overlooking the water (fig. 635).

A few years after the 1897 Bell House was constructed, an associated building—a pyramidal Weight Tower—was constructed (fig. 636). The Weight Tower held weights which automatically powered the striking machine located inside the Bell House.

The Weight Tower was removed in 1956 or soon after and the bell hanging from the Bell House was removed in 1959 (both after the proposed Period of Significance).

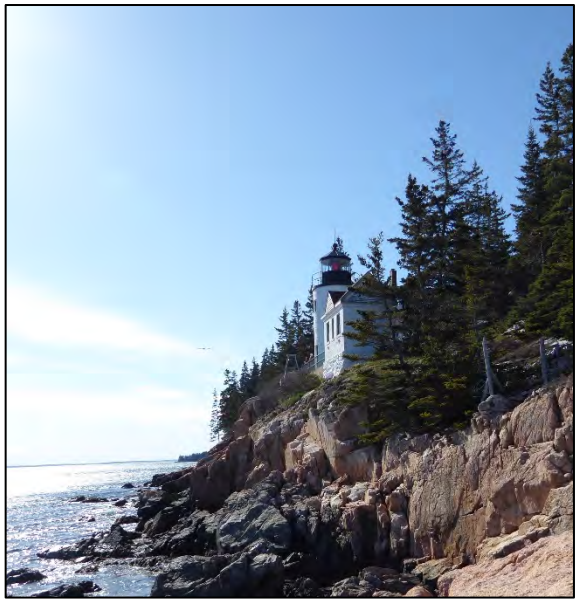


Figure 635. The Bell House is located directly adjacent the cliff over the water, to the east of the Lighthouse. Photo: HPTC, 05/08/19.



Figure 636, right. The 1897 Bell House and associated 1900/1 Weight Tower in 1951. The Weight Tower was removed in ca. 1956; the bell in 1959. Source: USCG Historian's Office, 170602-G-XX000-434. Cropped by author.

Character, Materials & Craft Details at Close Range

The foundation is composed of painted stone (fig. 637). Archival photographs show the building's foundation was always painted, though the colored varied. A modern concrete sill has been added to the top of the stone. The foundation has been repointed with unsympathetic Portland cement-based mortar.

The first-floor walls are composed of painted brick laid in running bond (fig. 638). Originally, the brick was unpainted, but early archival photographs show the brick was painted within a year of construction. Brick jack arches denote window and door openings. The walls have been repointed with unsympathetic Portland cement-based mortar.

The gable-end walls are clad with painted wood siding and detailed with boxed-out eaves and rakes (fig. 639). These components were always painted, but archival photographs show an array of color schemes.

The roof was originally clad with wood shingles. The modern fiberglass shingles present on the building are not character defining and were introduced in 1956 or soon after (fig. 640).



Figure 637. The stone foundation walls have always been painted. Photo: HPTC, 05/08/19.



Figure 638. The painted brick exterior walls are character-defining features. Photo: HPTC, 05/08/19.



Figure 639. The painted wood siding on the gable-end walls with painted wood trim are character defining. Photo: HPTC, 05/08/19.



Figure 640, right. The fiberglass shingle roof is modern and not character defining. Wood shingles are the only appropriate covering. Photo: HPTC, 05/08/19.

Interior Visual Character

Individual Spaces, Related Spaces & Sequence of Spaces

There is only one interior room within the Bell House. Originally it housed the equipment used to strike the bell hung on the north elevation. The interior does not portray this original use in any way.

Interior Features

Special interior features include painted wood bolsters at the ceiling used for some purpose related to the bell-striking equipment (fig. 641).



Figure 641. Character-defining wood bolsters at the ceiling had an unknown function related to the bell-striking equipment. Photo: HPTC, 05/13/19.

Surface Materials and Finishes

The floor is covered with modern wood laminate (fig. 642). It is assumed that a historic brick floor—similar to what is present in the Oil House—is located below the modern finish floor.

The walls are composed of painted brick walls (fig. 643). Historically, the brick was likely whitewashed.

The ceiling is covered with original painted wood beadboard (fig. 644).

Trim around windows and doors is composed of flat stock painted wood (fig. 645). It is not original, but is likely similar to what was in place historically. Painted wood baseboard trim is also modern, but does not mimic anything historic. Painted wood crown molding is original (see fig. 644).

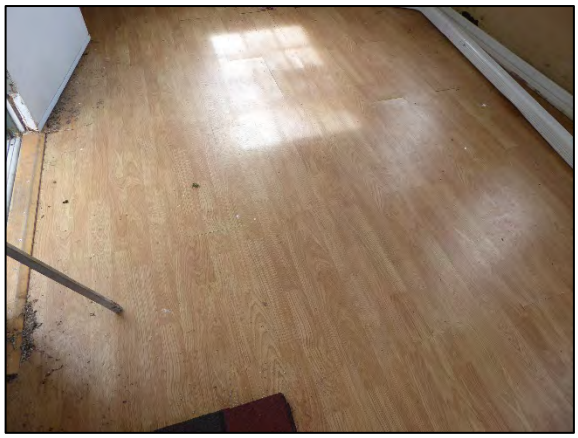


Figure 642. The modern wood laminate is not a character-defining feature. Photo: HPTC, 05/13/19.



Figure 643. Painted brick interior wall is not character defining. Photo: HPTC, 05/13/19.



Figure 644. Painted wood beadboard ceiling is character defining. Photo: HPTC, 05/13/19.



Figure 645, right. Typical flat trim around the windows and door is not original. Photo: HPTC, 05/13/19.

Exposed Structure

Exposed structural frames are seen in the attic and are not considered decided design elements that should be considered character-defining features fig. 646).



Figure 646. Exposed roof framing in the attic of the Bell House. Photo: HPTC, 05/13/19.

Non-Character Defining Features

The following items are not considered character defining as they were added or altered after the proposed Period of Significance. The items should be removed during future phases of treatment.

- Laminate flooring, and associated underlayment and sleepers.
- Metal door.
- Retrofit double-hung window units and related modern trim.
- Fiberglass roof shingles added in 1956 or soon after.
- K-style gutter and corrugated downspout.

Missing Character-Defining Features

The following items are considered missing character-defining features as they were removed or altered after the proposed Period of Significance. The items should be restored during future phases of treatment.

- Various striking and mechanical equipment used in operating the bell.
- Operable panel at center window.
- Bell hung from projecting steel I beam on the south elevation.
- Associated Weight Tower to the north.
- Wood strip flooring or brick pavers (to be determined through destructive investigation below modern flooring).
- Wood entrance door.
- True double-hung windows hung on rope, with appropriate related trim.
- Wood roof shingles.

Oil House Character-Defining Features

Overall Visual Aspects

Shape and Mass

The 1902 Oil House has a square shape and massing of one floor with a front-facing gable roof (fig. 647).



Figure 647. The Oil House retains its character-defining square shape and one-story mass with front-gable roof. The roof is clad in original slate. No roof drainage system is extant, a character-defining detail. Photo: HPTC, 05/08/19.

Roof and Related Features

The gable roof—the original roof form—is front facing to the north (front) elevation (see fig. 647). The roof is covered with original slate with wood ridge boards. No roof drainage system is extant, nor was one historically.

Openings

A single original door opening has been retained on the north elevation (fig. 648). The extant beadboard-and-batten painted wood door is replacement, but likely dates to within the proposed Period of Significance. The painted wood brick mold and jamb, unpainted wood sill, and brick jack arch are also character-defining features.



Figure 648. The character-defining door and vent openings. Photo: HPTC, 05/08/19.

Two original louvered vent openings have been retained, one in each gable-end wall. The painted wood sills, brick mold, louvers, and brick jack arches are character-defining features of the element (see fig. 648).

Projections

At the roof level, the eave projects on the east and west elevations, and has short returns on the north and south elevations to project from the brick walls below (fig. 649). Also on the end walls, the boxed-out rake projects from the gable ends along the roof line.

Trim and Secondary Features

The painted wood brick mold and jamb around the wood door and two vent openings is original (fig. 650). The painted wood fascia boards, boxed-out eaves, and boxed-out rakes are original (see fig. 649).

Setting

The Oil House is located within the Bass Harbor Head Light Station, partially up the hill to the northwest of the main complex (Keeper's Dwelling, Lighthouse, and Bell House). The building sits

along a modern asphalt walkway and is surrounded by vegetation with a backdrop of mature evergreen trees (fig. 651).



Figure 649. Projecting brick eave returns and rakes along the north elevation. A return fascia is located below. Photo: HPTC, 05/08/19.





Figure 650, above. Rounded wood brick mold and jamb are original at the door opening, which includes a historic, but not original, beadboard-and-batten door. Photo: HPTC, 05/08/19.

Figure 651, left. The Oil House sits to the northwest of the Keeper's Dwelling, seen in the background. Photo: HPTC, 05/08/19.

Character, Materials & Craft Details at Close Range

The below-grade foundation is composed of unpainted stone. The above-grade foundation walls are composed of unpainted brick (fig. 652).

The exterior walls are composed of unpainted brick laid in an unusual bond pattern of fifteen rows of running bond (all stretchers) to one row of Flemish bond (alternating headers and stretchers) (fig. 652).

The bricks of the foundation walls and the bricks of the exterior walls differ in hardness (fig. 653). The foundation bricks are softer and more porous. The upper bricks are harder, glazed brick, very dense and less porous. Portland cement-based mortar has been used to repoint the entire exterior; this is not character defining.

The roof is clad with the original slate with replacement wood ridge boards (fig. 654).



Figure 652. The south elevation shows the major craft details of the building, including mostly hidden stone foundation (below grade), softer brick foundation walls, harder brick exterior walls with jack arch above opening, and wood details at eave and rake. Photo: HPTC, 05/08/19.



Figure 653. Softer foundation brick and harder brick of the exterior walls (above) have been repointed with Portland cement-based mortar, not an appropriate feature for the original brick. Photo: HPTC, 05/08/19.



Figure 654. The slate on the gable roof is original. The wood ridge boards are replacement. The entire system is are character defining. Photo: HPTC, 05/08/19.

Interior Visual Character

Individual Spaces, Related Spaces & Sequence of Spaces

There is only one interior room within the Oil House. Originally it housed surplus quantities of fuel oil used to light the lens. The interior does not portray this original use in any way.

Interior Features

There are no special interior features. All traces of the original use have been removed from the interior.

Surface Materials and Finishes & Exposed Structure

The floor is composed of original unpainted brick pavers (fig. 655). The walls are composed of whitewashed brick walls (fig. 655). This is the historic finish. The ceiling is open to expose the original painted wood structural roof frame (fig. 656). Interior trim is only located at the door and two vent openings and consists of flat-stock painted wood trim.



Figure 655. Character-defining brick paver floor is covered with dirt due to an exterior drainage issue. The brick walls are whitewashed, a CDF. Photo: HPTC, 05/13/19.



Figure 656. Character-defining roof framing exposed on the interior of the building. Photo: HPTC, 05/13/19.

Non-Character Defining Features

The following items are not considered character defining as they were added or altered after the proposed Period of Significance. The items should be removed during future phases of treatment.

- Plywood shelving in roof framing.
- Cabinet and countertop.
- Asphalt curb at exterior of door.

Missing Character-Defining Features

The following items are considered character-defining features as they were removed or altered after the proposed Period of Significance. The items should be restored during future phases of treatment.

- Various fuel oil-storage tanks and related support structure.

Garage Character-Defining Features

Overall Visual Aspects

Shape and Mass

The 1905 Garage has a rectangular shape and massing of one-and-one-half stories with a front-facing gable roof (fig. 657).

Roof and Related Features

The gable roof—the original roof form—is front facing to the north (front) elevation (fig. 657). The fiberglass shingles are not character defining; originally this roof was covered with wood shingles. No roof drainage system is extant, nor was one historically.

Openings

A large, wood-panel garage door opening is located on the north elevation (fig. 658). It likely dates to the 1960s/70s, based on style. As such, it is not character defining (outside the proposed Period of Significance). Originally, the opening likely had a pair of swinging beadboard-and-batten wood doors more in keeping with a barn (its original use).

A smaller man door is located around the corner on the east elevation (fig. 659). It is a modern board-and-batten door made to replicate a historic door, hung on modern strap hinges. During the proposed Period of Significance, this door was a sliding door (removed in 1956 or soon after).



Figure 657. The Garage retains its character-defining shape and mass. Photo: HPTC, 05/13/19.



Figure 658. The north elevation of the Garage with 1960s/70s overhead garage door and second-floor board-and-batten loading door under an original hoist beam. This elevation is wholly character defining. Photo: HPTC, 05/13/19.

A pair of original 6/6 double-hung wood window openings are located on the first floor, one each on the east and west elevations (fig. 659). These openings include original wood frames, jambs, and sash. Frosted glass is not character defining.

A former stable window opening is located on the south elevation (fig. 660). It is enclosed with a vertically sliding board-and-batten painted wood door in a track.

On the second floor, a door is located on the north elevation underneath the hoist beam (see fig. 658). This door would have been used for loading supplies, like hay/straw for a horse, for storage on the second floor. A similar door was originally located on the south elevation, but has been infilled with a modern vinyl window unit (not character defining).



Figure 659. An original 6/6 double-hung window opening with non-CDF opaque glass, and non-CDF replacement swinging door on the east elevation. A matching window is located on the west elevation. Photo: HPTC, 05/08/19.



Figure 660, right. A former opening on the south elevation for an interior stable has a board-and-batten vertically sliding door. Photo: HPTC, 05/08/19.



Figure 661. A character-defining hoist beam projects from the north elevation; the light is not character defining. Photo: HPTC, 05/08/19.

Projections

Slightly projecting eaves extend past the exterior walls on all four elevation (see figs. 657-658).

An original hoist beam projects from the north elevation over the second-floor loading door; it is missing a block and tackle for hoisting material to the second floor (fig. 661). The modern light atop the beam is not a CDF.

Trim and Secondary Features

Painted wood trim around door and window openings and at projecting eaves and rakes consist of simple flat stock. Much of it is likely historic.

Setting

The Garage is located within the Bass Harbor Head Light Station, on top of the hill to the northwest overlooking the main complex (Keeper's Dwelling, Lighthouse, and Bell House). The building sits adjacent a small driveway and at the start of a long asphalt walkway down to the Oil House and Keeper's Dwelling/Lighthouse complex (fig. 662). An elevated parking pad and fence abut the building.



Figure 662. The Garage sits at the top of the hill overlooking the rest of the Light Station. The Oil House is just to the right and south and the Keeper's Dwelling/Lighthouse complex is located behind the pine trees to the left. The driveway in front of the Garage starts an asphalt path down to the other buildings. A modern elevated parking pad is at left. Photo: HPTC, 05/13/19.

Character, Materials & Craft Details at Close Range

The foundation is composed of original stone piers at corners and midpoints of the side elevations.

The exterior walls are covered with painted wood shingles with a five-inch exposure (fig. 663). Trim is simple, flatstock material at all openings and the rooflines. These are character-defining materials.

The roof was originally clad with wood shingles. The modern fiberglass shingles extant on the building are not character defining and were introduced in 1956 or soon after (fig. 664).





Figure 664, above. Modern fiberglass shingles are not CDFs. Simple trim is a CDF. Photo: HPTC, 05/13/19.

Figure 663, left. The painted wood shingles are a CDF. Photo: HPTC, 05/13/19.

Interior Visual Character

Individual Spaces, Related Spaces & Sequence of Spaces

There is one interior room per floor within the Garage. The first floor originally had a stable for one horse in the southeast corner, the rest of the space was likely used for a carriage and tack storage. Now the first floor is a garage. The second floor was used for hay and straw and other storage. The floors are connected via a dogleg winder stair in the southwest corner. A chute, likely for hay/straw, is located adjacent.

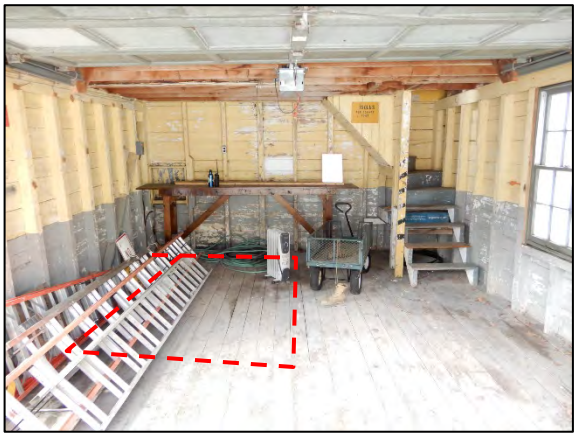


Figure 665. The first floor is one room. The stair to the second floor is in the southwest corner. A stable was originally located in the southeast corner (dotted line shows approximate size). Photo: HPTC, 05/13/19.



Figure 666. The second floor is one room. The stair to the first floor is in the southwest corner. Photo: HPTC, 05/13/19.

Interior Features

A dogleg winder stair is located in the southwest corner of the Garage connecting the first floor and second floor (fig. 667). It wraps around an enclosed chute on the second floor which originally allowed for passing of hay/straw from storage above for use on the first floor.



Figure 667. The wood chute on the second floor is a CDF. The CDF stair wraps around it. Photo: HPTC, 05/13/19.

Surface Materials and Finishes & Exposed Structure

The first-floor finish floor is replacement wood 2x6 boards (fig. 668). The second-floor finish floor is historic random-width boards (fig. 669). Both are character defining despite any replacement.

The walls are exposed stud walls with horizontal wood sheathing on the exterior side, as it was historically (fig. 669).

The first-floor ceiling is exposed second-floor structural floor joists. The second-floor ceiling is exposed structural roof framing including rafters, rafter ties, and horizontal sheathing (fig. 669). This is its historic appearance.



Figure 668. Unfinished wood plank flooring on the first floor is character defining despite being a replacement material. Photo: HPTC, 05/13/19.



Figure 669. The unpainted roof framing and wall framing is exposed on the second floor of the building. Photo: HPTC, 05/13/19.

Non-Character-Defining Features of the Garage

The following items are not considered character defining as they were added or altered after the proposed Period of Significance. The items should be removed during future phases of treatment.

- Fiberglass roof shingles, added in 1956 or soon after.
- Modern retrofit vinyl window in second-floor south elevation door opening.
- Opaque window glass on first floor.
- Overhead garage door, added in the 1960s/70s.
- Parking pad, retaining walls, and fence.

Missing Character-Defining Features

The following items are considered missing character-defining features as they were removed or altered after the proposed Period of Significance. The items should be restored during future phases of treatment.

- Block and tackle at hoist beam.
- Sliding wood door at first-floor east elevation door opening.
- Swinging wood door at second-floor south elevation door opening (to match the north elevation door).
- Sliding wood barn doors at first-floor north elevation door opening.
- Wood shingle roof.

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Condition Assessment

The condition assessment definitions used for this HSR are based on those outlined in the NPS PFMD's Asset Management Process (AMP), the Facilities Management Software System (FMSS), and the Facility Condition Assessment Survey (FCAS) and adapted for use by HPTC. For the purpose of this report, these definitions were strictly adhered to as a way to qualitatively assess the current condition of the Lighthouse, Keeper's Dwelling, Bell House, Oil House, and Garage at Bass Harbor Head Light Station.

Qualitative Condition Ratings

Good

- Routine maintenance should be sufficient to maintain the current condition; and/or
- A cyclic maintenance or repair/rehabilitation project is not specifically required to maintain the current condition or correct deficiencies.

Fair

- The feature generally provides an adequate level of service to operations, but
- The feature requires more than routine maintenance, and
- Cyclic maintenance or repair/rehabilitation work may be required in the future.

Poor

- Feature requires immediate attention;
- Routine maintenance is needed at a much higher level of effort to meet significant safety and legal requirements;
- Cyclic maintenance should be scheduled for the current year; and/or
- A special repair/rehabilitation project should be requested consistent with park requirements, priorities, and long-term management objectives.

Maintenance Deficiency Priority Ratings (10-Year Rating Period)

Minor (Long-Term Priority)

- This rating indicates standard preventative maintenance priorities and preservation methods have not been followed; or
- There is reduced life expectancy of affected adjacent or related materials and/or systems within five to ten years and beyond; or
- There is condition with a long-term impact within five to ten years and beyond.

Serious (Short-Term Priority)

- This rating defines a deteriorated condition that if not corrected within one to five years will result in the failure of the feature; or
- A threat to the health and/or safety of the user may occur within one to five years if the ongoing deterioration is not corrected; or
- There is ongoing deterioration of adjacent or related materials and/or features as a result of the feature's deficiency.

Critical (Immediate Priority)

- This rating defines an advanced state of deterioration which has resulted in the failure of a feature or will result in the failure of a feature if not corrected within one year; or
- There is accelerated deterioration of adjacent or related materials or systems as a result of the feature's deficiencies if not corrected within one year; or
- There is immediate threat to the health and/or safety of the user; or
- There is failure to meet a legislated requirement.

Not Rated

The feature was not rated as it was not extant at the time of the report or is non-contributing, removed, and not planned to be replaced.

Code Compliance

Both NPS policies and federal regulations stipulate that when an historic structure is preserved and/or rehabilitated, attempts should be made to meet applicable nationally accepted model building codes to the maximum extent feasible. Compliance with nationally accepted codes does not automatically trigger a complete code-based upgrade. Alternative criteria exist for alterations to historic structures; these typically encourage flexibility in the literal application of the code intent.

The *Public Buildings Amendment of 1988* instructs Federal agencies to follow "to the maximum extent feasible," as determined by the administrator or head of the agency, the "…nationally recognized model building codes and other applicable nationally recognized codes such as electrical codes, and fire and life safety codes." The National Park Service intends to consult pertinent national, state, and local codes, and typically applies to most strident code requirements. The Northeast Regional Office (NPS) Structural Fire Safety leader will be the Authority Having Jurisdiction (AHJ) for final determination of code applications for these structures.

The National Park Service has prepared Design Standards for all construction projects, including those affecting historic structures.[1] The design standard presents all codes that should be reviewed and includes the most recent copies of the following major codes and applicable laws, policies, codes, directives, standards, and NPS guidelines. The design standards present requirements for accessibility, civil, and environmental engineering, landscape architecture, architecture, including

[1] Denver Service Center. "Design Standards." *Denver Service Center Workflows.* National Park Service, Department of the Interior. 2009. Accessed at http://www.nps.gov/dscw/dstandards.htm on March 6, 2012.

roofing and waterproofing, structural, mechanical, safety and fire protection, electrical, lighting, and sustainability disciplines.

Major codes, laws, standards, and guidelines that are part of the NPS Design Standards include:

- *Architectural Barriers Act Accessibility Standard* (ABAAS) for Federal Facilities, 2004
- *International Building Code* (IBC), 2009
- *International Existing Building Code* (IEBC), 2009
- *National Fire Protection Association 101* (NFPA 101), Life Safety Code
- *National Historic Preservation Act of 1966* (NHPA), amended
- *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (36 CFR 68), 1995
- *The Secretary of the Interior's Standards for the Treatment of Historic Properties and the Guidelines for the Treatment of Cultural Landscapes*
- *The Secretary of the Interior's Standards and Guidelines for Archeological Documentation*
- *Uniform Code for Building Conservation*
- *Building Construction and Safety Code* (NFPA 5000)
- *National Fire Protection Association 70* (NFPA 70), National Electrical Code
- *Installation of Lightning Protection Systems* (NFPA 780)
- *Code for the Protection of Cultural Resource Properties* (NFPA 909)
- *Code for the Fire Protection of Historic Structures* (NFPA 914)
- *Safeguarding Construction, Alteration, and Demolition Operations* (NFPA 241)
- *Director's Order (DO) 5oB, Risk Management* (Manual 50B)
- *Director's Order (DO) 58, Structural Fire Management* (Manual 58)
- *5 U.S.C § 7902* (Safety Program)
- *15 U.S.C § 2225* (Fire Prevention and Control)
- *29 U.S.C § 668* (Occupational Safety and Health)
- *40 U.S.C § 619* (Construction, Alteration, and Acquisition of Public Buildings)

Accessibility Assessment

No accessibility improvements have been made to the five buildings situated throughout the large and rugged Bass Harbor Head Light Station site. The buildings and their sites generally do not comply with the Architectural Barriers Act Accessibility Standards (ABAAS).[2]

It should be noted, alterations to historic building elements or spaces shall comply with ABAAS, except "where the State Historic Preservation Officer or Advisory Council on Historic Preservation determines that compliance with the requirements for accessible routes, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the exceptions for alterations to qualified historic buildings or facilities for that element shall be permitted to apply."

[2] United States Access Board. "ABA Accessibility Standards." Accessed at https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-aba-standards/aba-standards/single-file-version on November 13, 2019.

These alteration exclusions include those to accessible routes, entrances, and toilet facilities; however, alterations are still required for these categories.[3]

For this HSR, observations about each building and its site and documentation of current accessibility, according to the ABAAS, follow. Only the most apparent code deficiencies are noted. The public parking lot will not be assessed or discussed below. Once a design intent (Ultimate Treatment and Use) is finalized for each building and the entire complex, a holistic accessibility analysis and study should be completed.

Site Accessibility

Currently, no accessible path connects the individual buildings to each other and the public parking lot at the top of the hill. ABAAS requires at least one accessible route within the site from accessible parking spaces. At Bass Harbor, the parking lot at the top of the hill is this location. For the purposes of this HSR, the extant parking area was not assessed for conformity with Accessibility Standards.

When historic buildings are involved, only one accessible route is required from a site arrival point to an accessible entrance.[4] Further, at least one accessible route connecting accessible buildings, facilities, elements, and spaces is required within the same site. At Bass Harbor, this could include the Garage, Oil House, Keeper's Dwelling, Lighthouse, and Bell House, if all are made accessible to the general public.[5]

Generally, accessible routes must "coincide with or be located in the same area as general circulation paths. Where circulation paths are interior, required accessible routes shall also be interior."[6]

At Bass Harbor, the accessible route from the parking area down to the front (west) elevation of the Keeper's Dwelling, past the Garage and Oil House does not comply with ABAAS. The walkway could be viewed as several entities within the Standards, such as a ramp or trail. For the purposes of this HSR, "Outdoor Recreation Access Routes" will be used.[7]

- For an Outdoor Recreation Access Route, the surface "shall be firm and stable." The current asphalt meets this requirement.
- Routes narrower than 60" must provide passing spaces at least 60" square at intervals of 200'-0" maximum. The current route appears to be at least 60" the entire length and meets this requirement. There are no passing spaces.
- The maximum running slope may not be greater than 1:10 (10%). Different running slopes require different segment lengths. Based on archival topographic maps and site plans for Bass Harbor, the Route changes 27'-0" in elevation and the current asphalt path is approximately 250'-0" long. This equates to 1:6.75 (14.8% grade). The current slope is too steep and would need to be reduced to at least 10% to meet ABAAS.
- The cross slope must not exceed 1:48. This was not verified on site.

[3] Ibid. Chapter 2: Scoping Requirements. F202.5 Alterations to Qualified Historic Buildings and Facilities, including Exception and Advisory F202.5.
[4] Ibid. Chapter 2: Scoping Requirements. F206.2.1 Site Arrival Points.
[5] Ibid. Chapter 2: Scoping Requirements. F206.2.2 Within a Site.
[6] Ibid. Chapter 2: Scoping Requirements. F206.3 Location.
[7] Ibid. Chapter 10: Recreation Facilities. F1016 Outdoor Recreation Routes.

- Flat, resting intervals (36" x 60") should be provided along the Route. There are no resting intervals along the current Walkway. One could be easily integrated at the front of the Oil House for viewing of/access to the historic building.

Upon reaching the bottom of the path/hill, accessibility along the west and south elevations of the house could be made even and flat, including the area adjacent (west of) the Lighthouse. Forming an accessible path along the north elevation of the Keeper's Dwelling Main Block, Ell, and Addition would be relatively simple. Continuing an accessible route around to the east side of the Addition would require removing some stone as the area between the Addition exterior wall and adjacent retaining wall is too narrow. If pursued, this route would end at the raised terrace within the Covered Way and Addition ell. Access down to the Bell House from the terrace would require a significant ramp (approximately 50'-0" excluding landings) of which the site cannot afford.

Lighthouse Accessibility

Depending on the chosen Ultimate Use of the Lighthouse, the interior may or may not be accessible to the general public. The lantern would likely not need to be made accessible, as spaces "frequented only by service personnel for maintenance, repair, or occasional monitoring of equipment shall not be required to comply with these requirements or to be on an accessible route."[8]

An accessible route to the interior of the lower level of the Lighthouse would most easily be made by entering the Covered Way. If an accessible route is made to the concrete terrace within the Covered Way and Addition ell, D104 (east exterior entrance of Covered Way) could be made 2" wider and access to the Lighthouse could then proceed through the interior of the Covered Way. This is ideal as the current general circulation path to the Lighthouse is through D104 and the Covered Way.[9]

The main entrance door into the Lighthouse (D101) is wide enough (38") to meet the Standards (32"). A slight modification to the door sill would be required to allow for a beveled threshold.[10] Within the Lighthouse, there is enough space for a T-shaped Turning Space at the base of the stair for view up through the Lighthouse toward the lantern.[11]

Keeper's Dwelling Accessibility

Depending on the chosen Ultimate Use of the Keeper's Dwelling, the ABBAS requirements could differ slightly. For instance, use as a residence versus use as an office versus use as a bookstore/ exhibit. The following assessment is general in scope. Ultimate Use will dictate a refined accessibility scope of work.

Only one accessible public entrance is required in a historic building.[12] An accessible route to the interior of the lower level of the Keeper's Dwelling could not occur at D101 (front door). The rise to D101 from grade is approximately 24", which would require a 24'-0"-long ramp with handrails. This would greatly impact the view of the front of the house. Furthermore, D102, just to the interior of

[8] Ibid. Chapter 2: Scoping Requirements. F203.6 Machinery Spaces.
[9] Ibid. Chapter 2: Scoping Requirements. F206.3 Location.
[10] Ibid. Chapter 4: Accessible Routes. F404 Doors, Doorways, and Gates.
[11] Ibid. Chapter 3: Building Blocks. F304 Turning Space.
[12] Ibid. Chapter 2: Scoping Requirements. F206.4 Entrances.

D101, has an additional 8" step up from the Entrance Vestibule into the Main Block. This would require an 8'-0"-long ramp which cannot be accommodated in the small Vestibule.

An accessible route to the interior of the Keeper's Dwelling could occur at D112 (Addition north elevation). The rise to D112 from grade is approximately 20", which would require a 20'-0"-long and approximately 52"-wide ramp along the north elevation of the Dwelling, with handrails on each side. A landing (52" x72") would be required at D112. Note: adding a ramp at this location would greatly inhibit circulation around the Addition to the east elevation.

The opening at D112 would need to be altered to be 4" wider and the door swing reversed to more easily accommodate entry. Note: If D112 is used as an accessible entrance, Room 108 cannot be reconfigured for use as an accessible bedroom or bathroom.[13]

Movement throughout the first floor would require careful placement of furniture to allow 36"-wide paths and sufficient turning radiuses (60" diameter).[14] Modifications would also need to be made to many interior door openings to allow them to have a clear width of 32", and meet threshold requirements:

- D101: This door was discussed above. Although it is of sufficient width, it would require a significant exterior ramp.
- D102: This door was also discussed above. Although it is of sufficient width, it would require a larger interior ramp than cannot fit within the Vestibule.
- D103: Sufficient width (32") without door. Threshold may require modification to provide beveled edges. Provides access between foyer and living room.
- D104: Insufficient width with door in place (30"); however, this accesses the north living room closet and could potentially be outfitted with proper equipment to meet Reach requirements. Threshold may require modification to provide beveled edge.
- D105: Insufficient width (26"); however, this accesses the east living room closet and could potentially be outfitted with proper equipment to meet Reach requirements. Threshold may require modification to provide beveled edge.
- D106: Sufficient width (32") without door. Threshold may require modification to provide beveled edge. Provides access between living room and dining room.
- D107: Insufficient width (30"); however, this accesses the basement stair. Emergency boiler shutoff switch and emergency power shutoff could be placed on wall of dining room, so access to this space (Room 105) and basement beyond would not be required.
- D108: Insufficient width (26"); however, this accesses the dining room closet and could potentially be outfitted with proper equipment to meet Reach requirements. Threshold may require modification to provide beveled edge.
- D109: Sufficient width (32") without door. Threshold requires modification to provide beveled edge. Provides access between dining room and kitchen.
- D110: Insufficient width (27"). Threshold requires modification to provide beveled edge. Inhibits access between the kitchen and half bathroom.
- D111: Insufficient width (30"). This door would need to be widened by 2" to accommodate movement between the Addition and kitchen. Threshold requires modification to provide beveled edge.
- D112: This door was discussed above. Its width would need to be widened by 6" and its swing reversed.

[13] Ibid. Chapter 2: Scoping Requirements. F206.5.2 Rooms and Spaces.
[14] Ibid. Chapter 3: Building Blocks. F304 Turning Space.
Chapter 4: Accessible Routes. 403 Walking Surfaces.

- D113: Sufficient width (33") with door in place; however, it would require an 8'-0"-long ramp from the kitchen down to the Covered Way. The ramp would inhibit movement to the closet D115 and D114.
- D114: Insufficient width (31") with door in place; would need to be made wider to accommodate access between Covered Way and exterior terrace. This opening was discussed earlier for an accessible route to the base of the Lighthouse.
- D115: Insufficient width (30") with door in place; however, this accesses a raised closet and could potentially be outfitted with proper equipment to meet Reach requirements.[15]

Access to the basement and second floor from the first floor is currently accomplished via interior stairs; neither meet current building code or ABAAS. While building code is not a concern for historic buildings in general (unless major alterations occur), this could be problematic when applying accessibility standards to a building. If pursuing access to the basement or second floor via interior stairs, both sets of stairs would need to be completely reconfigured and reconstructed. The stair to the second floor is historic; the stair to the basement is modern.

ABAAS states that access to other levels from the main accessible level is not required, especially in historic buildings, if all accessible amenities are included on the first floor.[16] For example, fully accessible bath and laundry facilities would be required on the first floor if the second floor and basement are eliminated from the accessible areas. This could greatly impact space-use on the first floor of the Keeper's Dwelling.

Bathrooms are another important planning component. ABAAS has many requirements, and all of Chapter 6 is devoted to the topic. It would be premature to provide any specific recommendations at this time. It should be known that the current first-floor half bathroom does not meet ABAAS requirements in clearance, size, turning radius, fixtures, etc. This room would need to be completely reconfigured and reconstructed to be larger. The second-floor full bathroom is identical. If access is provided to the second floor, the full bathroom would need to be completely reconfigured and reconstructed to be larger. If the second floor is not made accessible, a full bathroom would be required on the first floor—the accessible level.[17]

Kitchens are similar to bathrooms regarding ABAAS, which has requirements for clearances, configuration, work surfaces, clear floor spaces, cabinetry, sinks, storage, appliances, etc. It would be premature to provide any specific recommendations at this time.[18]

Overall, the Keeper's Dwelling would require extensive alterations to be made accessible, including ramps, interior doors, bathrooms, kitchen, controls, communication, etc. This should be kept in mind when deciding Ultimate Use for the building and planning for future work.

[15] Ibid. Chapter 4: Accessible Routes. F404 Doors, Doorways, and Gates.
Chapter 3: Building Blocks. F303 Changes in Level.
[16] Ibid. Chapter 2: Scoping Requirements. F206.2.3 Multi-Story Buildings and Facilities, including Exceptions.
Chapter 2: Scoping Requirements. F206.2.4 Spaces and Elements.
[17] Ibid. Chapter 6: Plumbing Elements and Facilities.
[18] Ibid. Chapter 8: Special Rooms, Spaces, and Elements. F804 Kitchens and Kitchenettes.

Bell House Accessibility

Depending on the chosen Ultimate Use for the Bell House, the interior may or may not be accessible to the general public. An accessible route to the exterior door of the building would be the most challenging aspect. If an accessible route is made to the concrete terrace within the Covered Way and Addition ell of the Keeper's Dwelling, a ramp would then be required from the terrace to the front door of the Bell House. This approximately 50" drop would require a 50'-0" long ramp with multiple landings and handrails. The space between the terrace and Bell House is spatially insufficient to accommodate this ramp.[19]

The main entrance door into the Bell House (D101) is wide enough (34") to meet the Standards (32"). A slight modification to the door sill will likely be required to allow for a ramp up to a beveled threshold.[20] Within the Bell House, there is sufficient space for view out of the windows and Turning Space to leave the building.[21]

Oil House Accessibility

Depending on the chosen Ultimate Use of the Oil House, the interior may or may not be accessible to the general public. If the asphalt walkway running past the front of the Oil House is made into an Outdoor Recreation Access Route, a landing site could be planned for the entrance of the Oil House to most easily make the front entrance accessible. This could include modest alterations to the door sill. D101 is not wide enough (31") to meet the Standards (32"). A slight modification to the door jamb would be required to allow sufficient access through the door.[22] Within the Oil House, there is sufficient Turning Space to maneuver within the building.[23]

Garage Accessibility

Depending on the chosen Ultimate Use of the Garage, the interior may or may not be accessible to the general public.

An accessible route to the interior of the lower level of the Garage would occur at D102 (east elevation). The door opening is not wide enough (29") to meet the Standards (32") and would need to be widened to be made accessible. Additionally, a modest ramp would be required from grade to the door sill.[24]

Access to the second floor from the first floor is currently accomplished via an interior stair which does not meet current building code or ABAAS. While building code is not a concern for historic buildings in general (unless major alterations occur), this could be problematic when applying accessibility standards to a building. If pursuing access to the second floor via the interior stair, the historic stair would need to be completely reconfigured and reconstructed.

[19] Ibid. Chapter 2: Scoping Requirements. F206.3 Location.
[20] Ibid. Chapter 4: Accessible Routes. F404 Doors, Doorways, and Gates.
[21] Ibid. Chapter 3: Building Blocks. F304 Turning Space.
[22] Ibid. Chapter 4: Accessible Routes. F404 Doors, Doorways, and Gates.
[23] Ibid. Chapter 3: Building Blocks. F304 Turning Space.
[24] Ibid. Chapter 4: Accessible Routes. F404 Doors, Doorways, and Gates.

ABAAS states that access to other levels from the main accessible level is not required, especially in historic buildings, if all accessibility amenities are included on the first floor, i.e. all amenities located in the Garage would need to be located on the first floor.[25]

Summary of Conditions

Lighthouse

Overall the Lighthouse is in **fair** condition with **serious** maintenance deficiencies. The features with the most serious or critical maintenance deficiencies include:

- Deteriorated paint and rust on cast iron gallery and lantern floor decks.
- Deformed metal components, deteriorated paint, and rust on cast iron gallery railing.
- Horizontal cracking, brick spalling, Portland cement-based mortar, and exterior latex-based paint on tower brick walls.
- Deteriorated paint, rust, and staining on cast iron exterior of lantern walls.
- Deteriorated paint and rust on cast iron window components.
- Deteriorated paint and rust on cast iron roof panels.
- Broken roof ventilator.
- Paint deterioration and rust on cast iron interior stair.

Condition assessment rating justifications for the Lighthouse, including photographs, can be found on pp. 357-368.

Table 3. Bass Harbor Head Lighthouse Summary of Conditions Table

UNIFORMAT II Outline Data		Condition Rating	Deficiency Rating
A	SUBSTRUCTURE		
A10	FOUNDATIONS		
A1010	Standard Foundations	Unknown	Unknown
B	SHELL		
B10	SUPERSTRUCTURE		
B1010	Floor Construction		
B101003	Floor Decks and Slabs	Fair	Serious
B101004	Balcony Construction	Poor	Critical
B1020	Roof Construction		
B102001	Structural Roof Frame	Fair	Minor
B20	EXTERIOR ENCLOSURE		
B2010	Exterior Walls	Poor	Critical
B2020	Exterior Windows	Fair	Serious
B30	ROOFING		
B3010	Roof Coverings		
B301001	Roof Finishes	Poor	Critical
B301004	Flashings & Trim	Good	Minor
C	INTERIORS		
C10	INTERIOR CONSTRUCTION		
C1020	Interior Doors	Good	Minor
C1030	Fittings	Good	Minor

[25] Ibid. Chapter 2: Scoping Requirements. F206.2.3 Multi-Story Buildings and Facilities, including Exceptions. Chapter 2: Scoping Requirements. F206.2.4 Spaces and Elements.

(Table 3 continued)

C20	STAIRS			
C2010	Stair Construction			
C201001	Interior Stair Construction		Fair	Serious
D	SERVICES			
D40	FIRE PROTECTION SYSTEMS			
D4010	Sprinklers		Not Rated	Not Rated
D4030	Fire Protection Specialties			
D403001	Fire Extinguishers		Fair	Minor
D50	ELECTRICAL			
D5010	Electrical Service & Distribution		Fair	Minor
D5020	Lighting & Branch Wiring			
D5030	Communications & Security Systems			
D503001	Fire Alarm Systems		Not Rated	Not Rated
D503002	Security Alarm Systems		Not Rated	Not Rated
D5090	Other Electrical Systems			
D509004	Lightning Protection System		Fair	Minor
G	BUILDING SITEWORK			
G20	SITE IMPROVEMENTS			
G2050	Maintained Landscapes		Good	Minor
G90	OTHER SITE WORK			
G9087	Overall Building Site Drainage		Good	Minor
End of Table.				

Keeper's Dwelling

Overall the Keeper's Dwelling is in **fair** condition with **minor** maintenance deficiencies. The features with the most serious or critical maintenance deficiencies include:

- Lack of fire extinguisher or lightning protection system.
- Neutral site drainage around the perimeter of the building.
- Water infiltration into the Main Block basement, especially at utility penetrations.
- Deteriorated flashing around Main Block chimney, allowing water infiltration.
- Peeling paint on exterior wood eaves and fascia.
- Uneven trail surfaces for visitors.
- Deteriorated exterior metal components, like fences and bells.

It must be noted that the reason for limited maintenance deficiencies at the Keeper's Dwelling is due to much of the historic materials and systems having been removed or covered by modern materials and systems. In assessment terms, the structure has **critical** integrity concerns, which should not be ignored when treating the historic, National Register-listed building.

Condition assessment rating justifications for the Keeper's Dwelling, including photographs, can be found on pp. 369-388.

Table 4. Bass Harbor Head Keeper's Dwelling Summary of Conditions Table

UNIFORMAT II Outline Data				Condition Rating	Deficiency Rating
A	SUBSTRUCTURE				
	A10	FOUNDATIONS			
		A1010	Standard Foundations	Fair	Serious
		A1030	Slab On Grade	Fair	Minor
	A20	BASEMENT CONSTRUCTION			
		A2020	Basement Walls	Fair	Serious
B	SHELL				
	B10	SUPERSTRUCTURE			
		B1010	Floor Construction		
		B101001	Structural Floor Frame	Fair	Serious
		B101002	Structural Interior Walls	Good	Minor
		B101099	Other Floor Construction - Chimneys	Poor	Serious
		B1020	Roof Construction		
		B102001	Structural Roof Frame	Good	Minor
	B20	EXTERIOR ENCLOSURE			
		B2010	Exterior Walls		
		B201001	Exterior Skin	Fair	Minor
		B201008	Exterior Soffits	Fair	Serious
		B2020	Exterior Windows	Good	Minor
		B2030	Exterior Doors	Good	Minor
	B30	ROOFING			
		B3010	Roof Coverings		
		B301001	Roof Finishes	Good	Minor
		B301004	Flashings & Trim	Poor	Critical
		B301005	Gutters & Downspouts	Poor	Serious
C	INTERIORS				
	C10	INTERIOR CONSTRUCTION			
		C1010	Partitions	Good	Minor
		C1020	Interior Doors	Good	Minor
		C1030	Fittings		
		C103006	Shelving	Good	Minor
		C103008	Counters	Good	Minor
		C103009	Cabinets		
		C103010	Closets	Good	Minor
		C103098	Other Casework – Trim	Good	Minor
	C20	STAIRS			
		C2010	Stair Construction		
		C201001	Interior Stair Construction	Good	Serious
		C201002	Exterior Stair Construction	Good	Minor
	C30	INTERIOR FINISHES			
		C3010	Wall Finishes	Good	Minor
		C3020	Floor Finishes	Good	Minor
		C3030	Ceiling Finishes	Good	Minor
D	SERVICES				
	D20	PLUMBING			
		D2010	Plumbing Fixtures	Unknown	Unknown
		D2020	Domestic Water Distribution	Unknown	Unknown
		D2030	Sanitary Waste	Unknown	Unknown
	D30	HVAC			
		D3020	Heat Generating Systems	Unknown	Unknown
		D3060	Controls & Instrumentation		
		D306004	Gas Purging Systems	Unknown	Unknown
	D40	FIRE PROTECTION SYSTEMS			
		D4010	Sprinklers	Not Rated	Not Rated

(Table 4 continued)

	D4030	Fire Protection Specialties		
		D403001 Fire Extinguishers	Poor	Critical
D50	ELECTRICAL			
	D5010	Electrical Service & Distribution	Unknown	Unknown
	D5020	Lighting & Branch Wiring		
	D5030	Communications & Security Systems		
		D503001 Fire Alarm Systems	Poor	Critical
		D503008 Security Alarm Systems	Not Rated	Not Rated
	D5090	Other Electrical Systems		
		D509004 Lightning Protection System	Poor	Critical
G	BUILDING SITEWORK			
G20	SITE IMPROVEMENTS			
	G2030	Trail (Pedestrian Paving)	Fair	Serious
		G203099 Other Walks, Steps & Terraces	Fair	Serious
	G2040	Site Development		
		G204001 Fencing & Gates	Fair	Serious
		G204002 Retaining Walls	Fair	Serious
		G204099 Miscellaneous Structures – Bells	Fair	Serious
	G2050	Maintained Landscapes	Good	Minor
G30	SITE MECHANICAL UTILITIES			
	G3060	Fuel System (Fuel Distribution)		
		G306006 Gas Storage Tanks	Unknown	Unknown
G90	OTHER SITE WORK			
	G9087	Overall Building Site Drainage	Poor	Serious
End of Table.				

Bell House

Overall the Bell House is in **fair** condition with **minor** maintenance deficiencies. The features with the most serious or critical maintenance deficiencies include:

- Lack of a fire extinguisher or lightning protection system.
- Site drainage on the north elevation due to water runoff from sloped concrete sidewalk and neutral drainage adjacent the foundation.
- Water infiltration into the masonry foundation and exterior walls affecting paint coatings, mortar, first-floor structural floor frame, interior trim, and finish floor.
- Peeling paint on exterior wood components, like trim, siding, and windows.
- Latex paint used on masonry surfaces.
- Mortar joints repointed with Portland cement-based mortar.

Condition assessment rating justifications for the Bell House, including photographs, can be found on pp. 389-397.

Table 5. Bass Harbor Head Bell House Summary of Conditions Table

UNIFORMAT II Outline Data			Condition Rating	Deficiency Rating
A	SUBSTRUCTURE			
A10	FOUNDATIONS			
A1010	Standard Foundations		Poor	Serious
B	SHELL			
B10	SUPERSTRUCTURE			
B1010	Floor Construction			
B101001	Structural Floor Frame		Poor	Serious
B1020	Roof Construction			
B102001	Structural Roof Frame		Good	Minor
B20	EXTERIOR ENCLOSURE			
B2010	Exterior Walls		Poor	Serious
B2020	Exterior Windows		Poor	Serious
B2030	Exterior Doors		Good	Minor
B30	ROOFING			
B3010	Roof Coverings			
B301001	Roof Finishes		Good	Minor
B301004	Flashings & Trim		Poor	Serious
B301005	Gutters & Downspouts		Fair	Minor
C	INTERIORS			
C10	INTERIOR CONSTRUCTION			
C1030	Fittings		Fair	Minor
C103098	Other Casework		Poor	Minor
C30	INTERIOR FINISHES			
C3020	Floor Finishes		Poor	Serious
C3030	Ceiling Finishes		Good	Minor
D	SERVICES			
D20	PLUMBING		Not Rated	Not Rated
D30	HVAC		Not Rated	Not Rated
D40	FIRE PROTECTION SYSTEMS			
D4010	Sprinklers		Not Rated	Not Rated
D4030	Fire Protection Specialties			
D403001	Fire Extinguishers		Poor	Critical
D50	ELECTRICAL			
D5010	Electrical Service & Distribution		Fair	Minor
D5020	Lighting & Branch Wiring			
D5030	Communications & Security Systems			
D503001	Fire Alarm Systems		Not Rated	Not Rated
D503008	Security Alarm Systems		Not Rated	Not Rated
D5090	Other Electrical Systems			
D509004	Lightning Protection System		Poor	Critical
G	BUILDING SITEWORK			
G20	SITE IMPROVEMENTS			
G2030	Trail (Pedestrian Paving)		Fair	Serious
G2050	Maintained Landscapes		Good	Minor
G90	OTHER SITE WORK			
G9087	Overall Building Site Drainage		Poor	Serious

End of Table.

Oil House

Overall the Oil House is in **fair** condition with **minor** maintenance deficiencies. The features with the most serious or critical maintenance deficiencies include:

- Lack of a fire extinguisher or lightning protection system.
- Site drainage on the north elevation due to water runoff from asphalt walkway, affecting wood sill and interior finish floor.
- Lack of insect or rodent screening on the interior of the gable-wall louvers.

Condition assessment rating justifications for the Oil House, including photographs, can be found on pp. 398-404.

Table 6. Bass Harbor Head Oil House Summary of Conditions Table

UNIFORMAT II Outline Data		Condition Rating	Deficiency Rating
A	SUBSTRUCTURE		
A10	FOUNDATIONS		
A1010	Standard Foundations	Fair	Minor
B	SHELL		
B10	SUPERSTRUCTURE		
B1020	Roof Construction		
B102001	Structural Roof Frame	Fair	Minor
B20	EXTERIOR ENCLOSURE		
B2010	Exterior Walls	Poor	Minor
B201005	Exterior Louvers & Screens	Good	Serious
B2030	Exterior Doors	Fair	Minor
B30	ROOFING		
B3010	Roof Coverings		
B301001	Roof Finishes	Fair	Serious
B301004	Flashings & Trim	Good	Minor
B301005	Gutters & Downspouts	Not Rated	Not Rated
C	INTERIORS		
C10	INTERIOR CONSTRUCTION		
C1030	Fittings	Poor	Minor
C103098	Other Casework	Good	Minor
C30	INTERIOR FINISHES		
C3020	Floor Finishes	Fair	Minor
D	SERVICES		
D20	PLUMBING	Not Rated	Not Rated
D30	HVAC	Not Rated	Not Rated
D40	FIRE PROTECTION SYSTEMS		
D4010	Sprinklers	Not Rated	Not Rated
D4030	Fire Protection Specialties		
D403001	Fire Extinguishers	Poor	Critical
D50	ELECTRICAL		
D5010	Electrical Service & Distribution	Not Rated	Not Rated
D5020	Lighting & Branch Wiring		
D5030	Communications & Security Systems		
D503001	Fire Alarm Systems	Not Rated	Not Rated
D503008	Security Alarm Systems	Not Rated	Not Rated
D5090	Other Electrical Systems		
D509004	Lightning Protection System	Poor	Critical

(Table 6 continued)

G	BUILDING SITEWORK			
	G20	SITE IMPROVEMENTS		
		G2030 Trail (Pedestrian Paving)	Poor	Critical
		G2050 Maintained Landscapes	Poor	Serious
	G90	OTHER SITE WORK		
		G9087 Overall Building Site Drainage	Poor	Serious
End of Table.				

Garage

Overall the Garage is in **fair** condition with **minor** maintenance deficiencies. The features with the most serious or critical maintenance deficiencies include:

- Lack of a lightning protection system.
- Site drainage on the north elevation due to water runoff from asphalt driveway, affecting interior finish floor.
- Missing center foundation pier on south elevation.
- Missing sill plate along east elevation.
- Missing wall shingles on south elevation.
- Loose stud at interior stair.

Condition assessment rating justifications for the Garage, including photographs, can be found on pp. 405-412.

Table 7. Bass Harbor Head Garage Summary of Conditions Table

UNIFORMAT II Outline Data			Condition Rating	Deficiency Rating
A	SUBSTRUCTURE			
	A10	FOUNDATIONS		
		A1010 Standard Foundations		
		A101002 Foundation Piers	Fair	Serious
B	SHELL			
	B10	SUPERSTRUCTURE		
		B1010 Floor Construction		
		B101001 Structural Floor Frame	Poor	Critical
		B1020 Roof Construction		
		B102001 Structural Roof Frame	Good	Minor
	B20	EXTERIOR ENCLOSURE		
		B2010 Exterior Walls	Good	Serious
		B2020 Exterior Windows	Fair	Minor
		B2030 Exterior Doors	Good	Minor
	B30	ROOFING		
		B3010 Roof Coverings		
		B301001 Roof Finishes	Good	Minor
		B301004 Flashings & Trim	Fair	Minor
		B301005 Gutters & Downspouts	Not Rated	Not Rated
C	INTERIORS			
	C10	INTERIOR CONSTRUCTION		
		C1030 Fittings	Good	Minor
	C20	STAIRS		
		C2010 Stair Construction	Good	Serious

(Table 7 continued)

C30	INTERIOR FINISHES			
C3020	Floor Finishes		Poor	Serious
D	SERVICES			
D20	PLUMBING		Not Rated	Not Rated
D30	HVAC		Not Rated	Not Rated
D40	FIRE PROTECTION SYSTEMS			
D4010	Sprinklers		Not Rated	Not Rated
D4030	Fire Protection Specialties			
D403001	Fire Extinguishers		Fair	Serious
D50	ELECTRICAL			
D5010	Electrical Service & Distribution		Fair	Minor
D5020	Lighting & Branch Wiring			
D5030	Communications & Security Systems			
D503001	Fire Alarm Systems		Not Rated	Not Rated
D503008	Security Alarm Systems		Not Rated	Not Rated
D5090	Other Electrical Systems			
D509004	Lightning Protection System		Poor	Critical
G	BUILDING SITEWORK			
G20	SITE IMPROVEMENTS			
G2020	Parking Areas (Lots)		Poor	Critical
G2030	Trail (Pedestrian Paving)		Good	Minor
G2040	Site Development			
G204001	Fences & Gates		Good	Minor
G204002	Retaining Walls		Fair	Minor
G2050	Maintained Landscapes		Poor	Minor
G90	OTHER SITE WORK			
G9087	Overall Building Site Drainage		Poor	Serious
End of Table.				

Lighthouse Condition Assessment

Additional photographs of all building features are found in the Lighthouse Physical Description section.

A	SUBSTRUCTURE
A10	FOUNDATIONS
A1010	Standard Foundations

Details of the foundation are unknown and could not be assessed by the HPTC team.

Condition Rating: Unknown
Deficiency Rating: Unknown

B	SHELL
B10	SUPERSTRUCTURE
B1010	Floor Construction
B101003	Floor Decks and Slabs

The main level CIP concrete floor slab is in fair condition and exhibits peeling and flaking paint across the surface (fig. 670).

The original lantern and gallery cast iron floor deck components are in fair condition with areas of rust and paint wear/failure, especially on the exterior components (figs. 671-673).

Condition Rating: Fair
Deficiency Rating: Serious



Figure 670. Peeling and flaking paint on the concrete floor slab of the main level. Photo: HPTC, 05/16/19.



Figure 671, right. Peeling paint on the underside of the lantern metal deck. Rust can be seen on the outer ring of metal components, part of the exterior gallery deck plates which project over the brick walls and into the interior to support the lantern deck plates. Photo: HPTC, 05/16/19.



Figure 672. Lantern/gallery deck plates come together at seams. At their letting into the brick, rust can be seen. Photo: HPTC, 05/16/19.



Figure 673, right. Paint degradation on the gallery deck with areas of rust. Photo: HPTC, 05/16/19.

B101004	Balcony Construction

The exterior railing surrounding the gallery is in poor condition with deformed metal components at the original upper rail (fig. 674), and significant areas of rust, paint failure, and metal delamination (figs. 675-676).

Condition Rating: Poor
Deficiency Rating: Critical

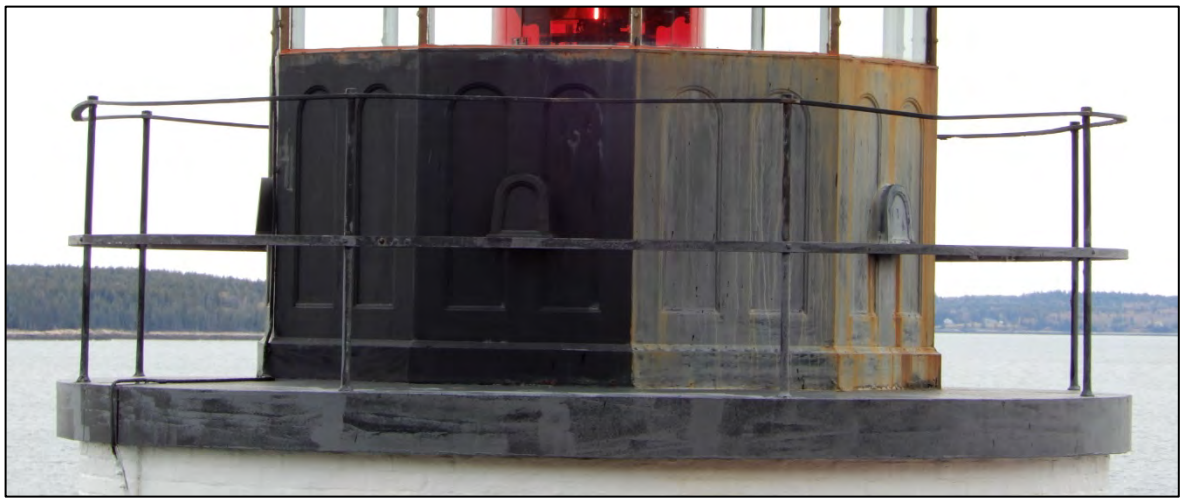


Figure 674. The metal upper rail of the railing around the gallery is deformed in several areas. Photo: HPTC, 05/16/19.



Figure 675. Rust and metal delamination on the underside of the original upper rail. Photo: HPTC, 05/16/19.



Figure 676, right. Deteriorated paint on the exterior lower gallery railing, not original, but still a historic feature. Photo: HPTC, 05/16/19.

B1020	Roof Construction
B102001	Structural Roof Frame

The original structural roof frame is in fair condition with extensive peeling and deteriorated paint throughout the interior (fig. 677). The paint is likely lead based.

Condition Rating: Fair
Deficiency Rating: Minor



Figure 677, right. Peeling/deteriorated paint on the structural roof frame in the lantern. Photo: HPTC, 05/16/19.

B20	EXTERIOR ENCLOSURE
B2010	Exterior Walls

The original brick exterior walls of the tower are in fair condition with several large horizontal cracks with missing mortar noticeable on the interior between the top of the upper window and the lantern floor deck (figs. 678-679), flaking interior paint finish, interior efflorescence, evidence of Portland cement-based mortar in joints on the exterior face and excessive moisture in the area of the Covered Way with disturbed drywall wall finish (fig. 680), deteriorated exterior paint finish (fig. 681), and brick spall on the interior due to cement-based mortar and latex paint covering (fig. 682).

The lantern walls are in poor condition. On the interior, the brass vents do not freely operate and are stuck in the open position, and minor paint failure and rust can be seen on the interior face of the door to the exterior gallery (fig. 683). On the exterior, there is significant paint failure and as a result significant rust and staining on the lower wall segments (figs. 684-685) and cornice above the glass panes (fig. 686). The brass glazing bars at the glass panes are in good condition with minor overpaint.

Condition Rating: Poor
Deficiency Rating: Critical



Figure 678. Horizontal cracks along mortar beds are in line with top of upper window metal window, suggesting rust jacking. Deteriorated interior paint was periodically swept off during USCG tenancy. Photo: HPTC, 05/16/19.



Figure 679, left. Stepped cracking along mortar joints near through-wall gallery floor plates, suggests rust jacking from the cast iron wall plates. Photo: HPTC, 05/16/19.



Figure 680, above. Disturbed drywall covering the exterior brick tower wall in the Covered Way exposes an exterior face of brick with Portland cement-based mortar. The area is damp, as evidenced by the rust on the corner bead and door (left). Photo: HPTC, 05/16//19.



Figure 681. The area around W101 (lower window) shows peeling paint, brick spalling due to Portland cement-based mortar (red arrow), and missing mortar (green arrow). Photo: HPTC, 05/16/19.



Figure 682. Areas of spalled brick can be seen across the exterior (dark spots). The paint is latex based and does not allow the brick wall to readily breathe. Photo: HPTC, 05/16/19.



Figure 683. Peeling paint and rust on the interior of the lantern door. Photo: HPTC, 05/16/19.



Figure 684. Area of rust at the top of a lantern wall segment. Note also the deteriorated paint coating. Photo: HPTC, 05/16/19.





Figure 686, above. Deteriorated paint, rust, and staining from above on the cornice area above the glass panes of the lantern. Photo: HPTC, 05/16/19.

Figure 685, left. Significant rust and staining on one of the wall segments, including the bell-shaped vent cover. The segments on the west elevation are especially deteriorated. Photo: HPTC, 05/16/19.

B2020	Exterior Windows

The original cast iron window sills, lintels, and frames are in fair condition with rust and deteriorated paint (fig. 687). The modern glass block added to the openings is also in fair condition but is not a sympathetic alteration to the historic structure (fig. 688). Due to the added raised concrete floor slab of the main level, the bisected W101 has deteriorated interior wood trim, which is historic (see fig. 688).

Condition Rating: Fair
Deficiency Rating: Serious



Figure 687. Rusty original exterior cast iron components of W101. The modern glass block is an unsympathetic alteration. Photo: HPTC, 05/16/19.



Figure 688. Deteriorated wood trim at W101 due to adjacent concrete floor slab and parged brick wall. Photo: HPTC, 05/16/19.

B30	ROOFING
B3010	Roof Coverings
B103001	Roof Finishes

The roof is in poor condition with peeling paint on the underside (interior) components (see fig. 677), and significant areas of rust and paint failure on the exterior roof panels (fig. 689). The ventilator ball at the peak of the roof is broken along the vent holes (fig. 690).

Condition Rating: Poor
Deficiency Rating: Critical



Figure 689. Deteriorated paint and rust on the roof panels. Photo: HPTC, 05/16/19.

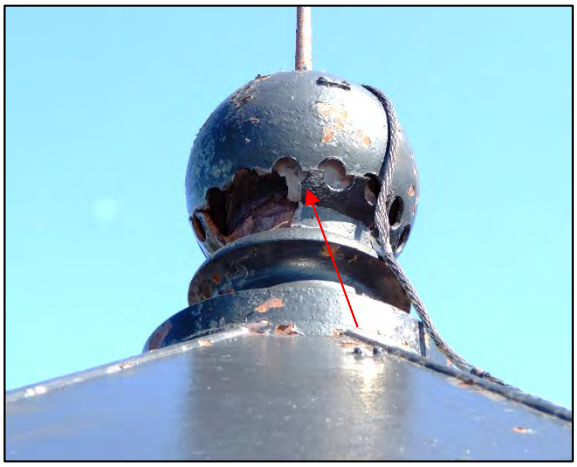


Figure 690, right. The ventilator ball is broken along the vent holes. Paint is missing and the metal is rusty. Photo: HPTC, 05/16/19.

B103004	Flashings & Trim

The painted metal flashing at the junction between the Covered Way roof and tower side wall appears in good condition. The only noted deficiency is the heavy buildup of paint on the flashing which obscures the true condition of the metal underneath.

Condition Rating: Good
Deficiency Rating: Minor

C	INTERIORS
C10	INTERIOR CONSTRUCTION
C1020	Interior Doors

The main entrance door (D101) is in good condition with minor peeling paint and rust on the frame and hinges. The hatch in the lantern floor deck is also in good condition, but the brass door pull is broken.

Condition Rating: Good
Deficiency Rating: Minor

C1030	Fittings

The 1901 Fourth Order Fresnel lens, historic stand, and modern red chimney are in good condition with no noted deficiencies.

Condition Rating: Good
Deficiency Rating: Minor

C20	STAIRS	
C2010	Stair Construction	
C201001	Interior Stair Construction	

The painted cast iron spiral stair in the tower is in fair condition with heavy paint buildup and some peeling, and rust where the metal components abut the exterior brick wall (figs. 691-692).

Condition Rating: Fair
Deficiency Rating: Serious



Figure 691. Peeling paint and some rust on the stair treads. Photo: HPTC, 05/16/19.



Figure 692, right. Rust can be seen where the metal abuts the brick tower walls. Photo: HPTC, 05/16/19.

D	SERVICES
D40	FIRE PROTECTION SYSTEMS
D4010	Sprinklers

No sprinkler system is currently extant within the Lighthouse.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D4030	Fire Protection Specialties
D403001	Fire Extinguishers

One fire extinguisher is located in the Lighthouse, on the main level floor slab. Its last date of service is unknown.

Condition Rating: Fair
Deficiency Rating: Minor

D50	ELECTRICAL
D5010	Electrical Service & Distribution
D5020	Lighting & Branch Wiring

The modern electrical equipment appears in fair condition. The date of last inspection is unknown.

Condition Rating: Fair
Deficiency Rating: Minor

D5030	Communications & Security Systems
D503001	Fire Alarm Systems

No fire alarm system is currently extant within the Lighthouse.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D503002	Security Alarm Systems

No security alarm system is currently extant within the Lighthouse.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D5090	Other Electrical Systems
D509004	Lightning Protection System

A lightning protection system is located on the Lighthouse. Its last date of inspection is unknown.

Condition Rating: Fair
Deficiency Rating: Minor

G	BUILDING SITEWORK
G20	SITE IMPROVEMENTS
G2050	Maintained Landscape

Grass and soil located around the Lighthouse are maintained in good condition.

Condition Rating: Good
Deficiency Rating: Minor

G90	OTHER SITE WORK
G9087	Overall Building Site Drainage

All areas around the Lighthouse have positive drainage and are in good condition.

Condition Rating: Good
Deficiency Rating: Minor

Keeper's Dwelling Condition Assessment

Additional photographs of all building features are found in the Keeper's Dwelling Physical Description section.

A	SUBSTRUCTURE
A10	FOUNDATIONS
A1010	Standard Foundations

The brick and stone foundations of the Main Block, Entrance Vestibule, Ell, Addition, Covered Way, and Infill are in good condition with minimal mortar deterioration and cracking. Penetrations through the basement foundation walls are not watertight and water infiltration near these penetrations is obvious (see figs. 695-696). Below-grade portions and hidden interior faces could not be assessed for condition. Additionally, it is believed that access to the interior by rodents (read: squirrel) is through the Entrance Vestibule foundation behind the modern concrete stair (fig. 693).

Historically, all of the exterior faces of the foundations were whitewashed which has not been retained (fig. 694).

Condition Rating: Fair
Deficiency Rating: Serious





Figure 694, above. Whitewash on all exterior faces of the Keeper's Dwelling foundations in 1951. Source: USCG Historian's Office.

Figure 693, left. A squirrel is accessing the interior of the Keeper's Dwelling through the Entrance Vestibule foundation, behind the front stair. Photo: HPTC, 05/16/19.

A1030	Slab On Grade

The concrete slab in the basement is in good condition. Minor staining can be seen across the surface from water infiltration at foundation penetrations (figs. 695-696).

Condition Rating: Fair
Deficiency Rating: Minor



Figure 695. Concrete slab basement floor stained from water infiltration at utility penetrations through the foundation walls and interior brick basement walls. Photo: HPTC, 05/13/19.



Figure 696. Concrete slab basement floor stained from water infiltration at utility penetrations through the foundation walls and interior brick basement walls. Photo: HPTC, 05/13/19.

A20	BASEMENT CONSTRUCTION
A2020	Basement Walls

The interior brick basement walls are in good condition with minimal deterioration and cracking. Penetrations though these walls and foundation walls behind are not watertight and water infiltration near these penetrations is obvious (see figs. 695-696).

Condition Rating: Fair
Deficiency Rating: Serious

B	SHELL
B10	SUPERSTRUCTURE
B1010	Floor Construction
B101001	Structural Floor Frame

The structural floor frames throughout the Keeper's Dwelling are in good structural condition based on portions that could be visually assessed and for portions inaccessible, based on the conditions of associated systems and materials. The attic floor framing of the Main Block is nearly completely obscured by fiberglass insulation which is damp which severely limits the insulative value and has evidence of mice (fig. 697).

Condition Rating: Fair
Deficiency Rating: Serious



Figure 697. Looking north in the attic: the joists are filled in between with fiberglass batt insulation with evidence of mice. Photo: HPTC, 05/13/19.

B101002	Structural Interior Walls

Based on the condition of associated systems and materials, the interior structural walls are in good structural condition.

Condition Rating: Good
Deficiency Rating: Minor

B101099	Other Floor Construction – Chimneys

The portion of the chimney seen in the Main Block attic shows deteriorated mortar and water staining from inferior flashing at the roof level (fig. 698).

Condition Rating: Poor
Deficiency Rating: Serious



Figure 698, right. The brick chimney, as seen in the Main Block attic, with deteriorated mortar and water staining. Photo: HPTC, 05/13/19.

B1020	Roof Construction
B102001	Structural Roof Frame

The structural roof frames throughout the Keeper's Dwelling are in good structural condition based on portions that could be visually assessed and for portions inaccessible, based on the conditions of associated systems and materials.

Condition Rating: Good
Deficiency Rating: Minor

B20	EXTERIOR ENCLOSURE
B2010	Exterior Walls
B201001	Exterior Skin

Based on the condition of associated systems and materials, the exterior walls are in good structural condition.

The west elevation shed dormer was constructed in 1977 and replaced a 1901 dogshed dormer (to match the one on the east elevation). The shed dormer is not a sympathetic alteration to the historic structure.

The modern vinyl siding covering the exterior faces of the walls is in fair condition; however this siding is an unsympathetic alteration to the historic building. Historically the exterior faces of the walls were covered horizontal wood siding painted white. The condition of any historic siding encapsulated under the vinyl siding is unknown.

Condition Rating: Fair
Deficiency Rating: Minor

B201008	Exterior Soffits

The wood eaves and fascia are in fair condition with extensive peeling paint due to lack of maintenance (fig. 699).

Modern vinyl covering the eaves of the Main Block is in good condition; however this is an unsympathetic alteration to the historic building (fig. 700). The condition of the wood soffits underneath is unknown.

Historically, the soffit components were painted an assortment of colors through time.

Condition Rating: Fair
Deficiency Rating: Serious



Figure 699. Exterior wood elements, like the rakes on the Addition have peeling paint. Photo: HPTC, 05/15/19.



Figure 700, right. Vinyl soffit on the Main Block is an unsympathetic covering. Note deteriorated paint on wood components. Photo: HPTC, 05/16/19.

B2020	Exterior Windows

The modern retrofit windows are in good condition; however these windows are an unsympathetic alteration to the historic building (fig. 701). Historically, the windows were wood 6/6 double-hung windows with distinct trim and hoods (fig. 702). All window components were painted an assortment of colors through time. It is unknown if any of the historic window trim is extant under the modern vinyl siding.

The three-window unit located on the south elevation of the Addition is a further unsympathetic alteration (fig. 703). Historically, this elevation included a door and single window instead (fig. 704). The window in the Infill has been removed (fig. 705).

Condition Rating: Good
Deficiency Rating: Minor



Figure 701. Modern retrofit window units located in historic first-floor openings. The historic trim and hoods have been removed. The shed dormer at the roof is modern. Photo: HPTC, 05/13/19.



Figure 702. A December 1961 photograph shows the historic dogshed dormer on the west elevation and original window trim and hoods since lost. Source: SWHPL Digital Archive. Cropped by author.



Figure 703. The window openings on the south elevation of the Addition are modern and do not represent any historic appearance. Photo: HPTC, 05/15/19.



Figure 704. The original configuration of the south elevation of the Addition, seen in a ca. 1962 postcard. Source: SWHPL Digital Archive. Cropped by author.



Figure 705. Note how plain the openings look without any exterior trim. A window opening was originally located in the ca. 1948 infill section (red outline); date of removal is unknown. Photo: HPTC, 05/15/19.

B2030	Exterior Doors

The crawlspace door (D101) is in good condition, however the modern concrete sill is cracked and causing rot to the wood jambs it sits between (fig. 706).

The historic main entrance door is in good condition.

The modern retrofit doors at the Addition north wall and Covered Way east wall are in good condition; however, these door units are an unsympathetic alteration to the historic building.



Figure 706. The concrete sill at D101 is located between the jambs, evidence it is a later addition. Concrete holds water and is rotting the wood jambs. A vertical crack is located at the center of the sill. Photo: HPTC, 05/15/19.

The three-window unit located on the south elevation of the Addition is a further unsympathetic alteration (see fig. 703). Historically, this elevation included a door and single window instead (see fig. 704).

Condition Rating: Good
Deficiency Rating: Minor

B30	ROOFING	
	B3010	Roof Coverings
		B301001 Roof Finishes

The modern four-tab roof shingles are in good condition, but are an unsympathetic alteration to the historic building. Historically, the roofs were covered with wood shingles.

Condition Rating: Good
Deficiency Rating: Minor

B301004	Flashings & Trim

Most of the flashing extant on the building was inaccessible for assessment.

The flashing located at the base of the Main Block chimney is in poor condition. The joints of the metal counterflashing have been covered with mastic or caulk (fig. 707), evidence of a leak. In the attic, the chimney exhibits water infiltration from the flashing (see fig. 698). Furthermore, water staining is seen on the plaster ceiling and walls of the second-floor bedrooms near the chimney (see fig. 717).



Figure 707. Metal flashing at the base of the chimney is painted and seams have been sealed with modern caulk, an inappropriate maintenance treatment. Photo: HPTC, 05/13/19.

Condition Rating: Poor
Deficiency Rating: Critical

B301005	Gutters & Downspouts

Currently, a roof drainage system is only extant on the Ell, Addition, and Covered Way; though the downspout is missing from the Covered Way gutter. The vinyl gutters and downspouts on the Ell, Addition, and Covered Way are an unsympathetic alteration to the historic building.

One archival photograph shows a gutter and a downspout on the east slope of the Main Block, but not on other portions of the building until after the proposed Period of Significance ended. It is known that the former basement cistern was filled with water collected from a roof drainage system, but further details on this system are not known. Any system historically would have used metal halfround gutters and round downspouts.

A roof drainage system is needed at the Dwelling due to neutral drainage around the perimeter of the building, areas of hardscape directly adjacent the building, and obvious water infiltration into the basement.

Condition Rating: Poor
Deficiency Rating: Serious

C	INTERIORS
C10	INTERIOR CONSTRUCTION
C1010	Partitions

Based on the condition of associated systems and materials, the interior partition walls are in good structural condition.

Condition Rating: Good
Deficiency Rating: Minor

C1020	Interior Doors

The interior doors are in good condition.

Condition Rating: Good
Deficiency Rating: Minor

C1030	Fittings
C103006	Shelving

The interior shelving is in good condition.

Condition Rating: Good
Deficiency Rating: Minor

C103008	Counters
C103009	Cabinets

The modern interior counters and cabinets are in good condition.

Condition Rating: Good
Deficiency Rating: Minor

C103010	Closets

The interior closets with associated features are in good condition.

Condition Rating: Good
Deficiency Rating: Minor

C103098	Other Casework – Trim

The interior trim is in good condition. Modern trim is unsympathetic to the historic building.

Condition Rating: Good
Deficiency Rating: Minor

C20	STAIRS
C2010	Stair Construction
C201001	Interior Stair Construction

The modern basement stair and historic main stair are in good structural condition. The modern carpet on the main stair is slippery and an unsympathetic modern covering to the historic system. Despite being historic, the main stair has inconsistent tread depths and riser heights which causes the stair to be treacherous to ascend and, especially, to descend (fig. 708).

Condition Rating: Good
Deficiency Rating: Serious



Figure 708, right. The main stair is dangerous due to slippery carpet and inconsistent treads and risers. Photo: HPTC, 05/13/19.

C201002	Exterior Stair Construction

The exterior cast concrete stair unit at the main entrance and the Addition exterior door are in good condition, but unsympathetic additions to the historic structure.

Condition Rating: Good
Deficiency Rating: Minor

C30	INTERIOR FINISHES
C3010	Wall Finishes

All of the interior wall finishes are in good condition. Some water staining can be seen around the chimney on the second floor (fig. 709). Superficial cracking is located in the historic plaster walls.

A couple wall finishes are modern and detract from the historic building. These include faux paneling in the living room (fig. 710), laminate beadboard in the dining room (fig. 711), and melamine panels in the half bathroom (fig. 712).

Condition Rating: Good
Deficiency Rating: Minor



Figure 709. Plaster water stains associated with the chimney. Photo: HPTC, 05/13/19.



Figure 710, right. Modern wallbaord of the living room above faux wood paneling below, all likely from the 1970s and are unsympathetic alterations to the historic building. Photo: HPTC, 05/15/19.



Figure 711. Modern laminate "beadboard" in dining room is unsympathetic to the historic building. Photo: HPTC, 05/15/19.



Figure 712. Smooth lower panels in the half bathroom are unsympathetic to the historic building. Photo: HPTC, 05/15/19.

C3020	Floor Finishes

All of the interior floor finishes are in good condition. Most of the floor finishes are modern and detract from the historic building. These include the wood platform in the basement, the faux-wood laminate floors throughout the first floor (fig. 713), modern vinyl sheet flooring in the bathrooms (fig. 714), and vinyl composition tile in the Covered Way (fig. 715), and wall-to-wall carpet throughout the second floor (fig. 716).

Condition Rating: Good
Deficiency Rating: Minor

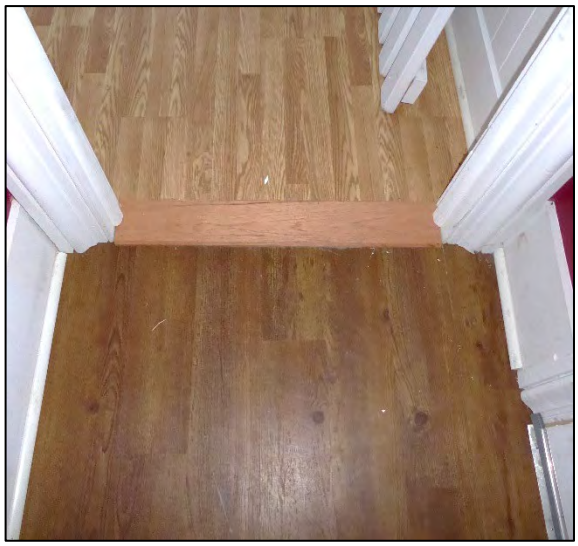


Figure 713. Modern laminate floor and threshold from the entry (Room 102) into the living room (Room 103), an unsympathetic addition to the historic building. Photo: HPTC, 05/15/19.



Figure 714. Modern vinyl sheet flooring in Room 202, an unsympathetic addition to the historic building. Photo: HPTC, 05/13/19.



Figure 715, left. Modern VCT tile on the floor of the Covered Way is an unsympathetic addition to the historic buidling. Photo: HPTC, 05/15/19.

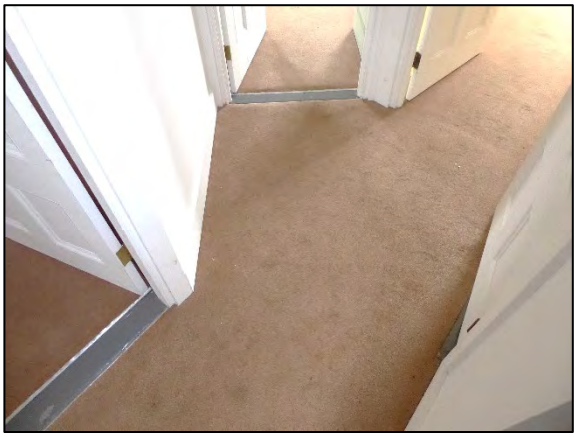


Figure 716, above. Modern wall-to-wall carpet in the second-floor hall and bedrooms is an unsympathetic alteration to the historic building. Photo: HPTC, 05/13/19.

C3030	Ceiling Finishes

All of the interior ceiling finishes are in good condition. Some water staining can be seen around the chimney on the second floor (fig. 717). Superficial cracking is located in the historic plaster ceilings.

Modern acoustic ceiling tiles in the dining room (fig. 718) and Addition are modern and detract from the historic building.

Condition Rating: Good
Deficiency Rating: Minor



Figure 717. Minor water damage and staining to the plaster ceiling on the second floor from the chimney. Photo: HPTC, 05/13/19.



Figure 718, right. Acoustic ceiling tiles on the ceiling of the dining room are an unsympathetic alteration to the historic building. Photo: HPTC, 05/15/19.

D	SERVICES
D20	PLUMBING
D2010	Plumbing Fixtures

The condition of the modern plumbing fixtures is unknown.

Condition Rating: Unknown
Deficiency Rating: Unknown

D2020	Domestic Water Distribution

The condition of the modern well system is unknown.

Condition Rating: Unknown
Deficiency Rating: Unknown

D2030	Sanitary Waste

The condition of the septic system is unknown.

Condition Rating: Unknown
Deficiency Rating: Unknown

D30	HVAC
D3020	Heat Generating Systems

The condition of the hot water heating and separate electric heaters are unknown.

Condition Rating: Unknown
Deficiency Rating: Unknown

D3060	Controls & Instrumentation
D306004	Gas Purging Systems

The condition of the radon system is unknown.

Condition Rating: Unknown
Deficiency Rating: Unknown

D40	FIRE PROTECTION SYSTEMS
D4010	Sprinklers

No sprinkler system is currently extant within the Keeper's Dwelling.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D4030	Fire Protection Specialties
D403001	Fire Extinguishers

A single fire extinguisher is located in the Keeper's Dwelling. This is likely insufficient for the size of the building.

Condition Rating: Poor
Deficiency Rating: Critical

D50	ELECTRICAL
D5010	Electrical Service & Distribution
D5020	Lighting & Branch Wiring

The condition of the electrical system, including panels, wiring, lighting, switches, and outlets, is unknown.

Condition Rating: Unknown
Deficiency Rating: Unknown

D5030	COMMUNICATIONS & SECURITY
D503001	Fire Alarm Systems

Hardwired smoke detectors with integrated battery backups are located throughout the Keeper's Dwelling. There is no automatic callout feature to alert anyone of a fire in the vacant building should one occur.

Condition Rating: Poor
Deficiency Rating: Critical

D503008	Security Alarm Systems

No security alarm system is currently extant within the Keeper's Dwelling.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D5090	OTHER ELECTRICAL SYSTEMS
D509004	Lightning Protection System

No lightning protection system is currently extant at the Keeper's Dwelling.

Condition Rating: Poor
Deficiency Rating: Critical

G	BUILDING SITEWORK
G20	SITE IMPROVEMENTS
G2030	Trail (Pedestrian Paving)

The asphalt walkway from the parking lot postdates the proposed Period of Significance (1975), however a gravel path did exist prior to the walkway. The current gravel areas to the west and south of the Keeper's Dwelling are not historic and include several levels which create an uneven walking surface (fig. 719). The different components are not unified and create an unkempt appearance.

Condition Rating: Fair
Deficiency Rating: Serious



Figure 719. The front of the Dwelling includes the original visitor gravel path close to the fence and marked by the concrete curbs. An additional gravel area was added after 1990. The low timber wall separates it from the lawn. All of the components are not unified visually and different levels and surfaces create a walking hazard for visitors. Photo: HPTC, 05/13/19.

G203099	Other Walks, Steps & Terraces

The modern aluminum stair from the Garage to the Addition entrance is in good condition.

Portions of the historic concrete terrace on the south elevation of the Addition are spalling. Cracking can be seen across the top surface and vegetation is growing in the cracks (fig. 720). The modern railing along the stair wobbles and does not provide adequate support.

Condition Rating: Fair
Deficiency Rating: Serious



Figure 720, right. The concrete terrace exhibits cracks and spalling along the edge. Note the vegetation growing in the cracks. Photo: HPTC, 05/13/19.

G2040	Site Development
G204001	Fencing & Gates

The tube railing atop the retaining walls is considered modern having been constructed after the proposed Period of Significance (1950s). Chainlink fencing was added to the railing in the late 1980s. Both the railing and fencing have not been painted or maintained and exhibit a fair amount of rust, especially at joints (fig. 721).

The gate at the low, white-picket fence at the northwest corner of the Keeper's Dwelling is broken from its hinges (fig. 722). This component is modern and not character defining,

Condition Rating: Fair
Deficiency Rating: Serious





Figure 722, above. The gate is off its hinges at the low fence at the northwest corner of the Dwelling. Photo: HPTC, 05/16/19.

Figure 721, left. Rust can be seen across much of the metal pipe railing and chainlink, especially at joints. Photo: HPTC, 05/16/19.

G204002	Retaining Walls

The historic stone retaining wall to the north of the Keeper's Dwelling is in fair condition, with areas of missing mortar, mismatched mortar repointing, including Portland cement based mortar, and biological growth.

The outer faces of the modern concrete retaining wall (postdates proposed Period of Significance) to the south and west of the Dwelling were inaccessible for inspection. The condition of these modern walls is unknown.

Condition Rating: Fair
Deficiency Rating: Serious

G204099	Miscellaneous Structures – Bells

The two bells to the south of the Keeper's Dwelling include modern and historic components. The modern metal stands exhibit peeling paint and rust (figs. 723-724). The concrete foundations exhibit spall and rusting embedded metal components. Neither of these bell structures are considered character defining to the proposed Period of Significance.

Condition Rating: Fair
Deficiency Rating: Serious



Figure 723. The smaller bell and stand added by 1987 show a lot of rust and concrete deterioration. Photo: HPTC, 05/13/19.



Figure 724. The 1891 bell from the 1950 automatic bell striker and modern support frame are in fair condition. Rust can be seen. Photo: HPTC, 05/15/19.

G2050	Maintained Landscapes

Maintained areas around the building are in good condition.

Condition Rating: Good
Deficiency Rating: Minor

G30	SITE MECHANICAL UTILITIES
G3060	Fuel System (Fuel Distribution)
G306006	Gas Storage Tanks

The condition of the propane tanks is unknown.

Condition Rating: Unknown
Deficiency Rating: Unknown

G90	OTHER SITE WORK
G9087	Overall Building Site Drainage

Site drainage around the entire Keeper's Dwelling is neutral, meaning water does not inherently move away or toward the building. This means water can pond around the building foundation and allow water to find its way into crawlspaces and basements.

Condition Rating: Poor
Deficiency Rating: Serious

Bell House Condition Assessment

Additional photographs of all building features are found in the Bell House Physical Description section.

A	SUBSTRUCTURE
A10	FOUNDATIONS
A1010	Standard Foundations

The granite foundation displays deteriorated paint and mortar joints (fig. 725), which is visually distracting and can allow water into the interior of the foundation.

The mortar joints were repointed with a Portland cement-based mortar. Though appropriate in new applications with granite, it is not appropriate in this historic building. Furthermore, the latex paint used to coat the exterior is not sympathetic to the historic building and can also contribute to moisture retention within masonry building systems.

Condition Rating: Poor
Deficiency Rating: Serious



Figure 725. Deteriorated paint and mortar joints of the east elevation stone foundation wall. Photo: HPTC, 05/08/19.

B	SHELL
B10	SUPERSTRUCTURE
B1010	Floor Construction
B101001	Structural Floor Frame

The first-floor structural floor frame, if there is one, could not be accessed. It is more likely that underneath the modern floor covering is a brick floor atop fill, as seen in the Oil House.

The attic structural floor frame is partially accessible. Most of the frame is covered with fiberglass batt insulation (fig. 726). The insulation is loose and displaced in many locations. Evidence of mouse infestation is seen. Because a vapor barrier is not present, the insulation is of limited value due to a high moisture content and has lost its insulative value.



Figure 726. Insulation obscures the attic structural floor frame. Evidence of mouse infestation was found. Photo: HPTC, 05/13/19.

Condition Rating: Poor
Deficiency Rating: Serious

B1020	Roof Construction
B102001	Structural Roof Frame

The structural roof frame is in good condition. Areas of historic water infiltration and minor damage can be seen but does not affect the structural capacity of the frame at this time.

Condition Rating: Good
Deficiency Rating: Minor

B20	EXTERIOR ENCLOSURE
B2010	Exterior Walls

The painted brick walls display deteriorated paint and mortar joints, which is visibly distracting and has already allowed water into the interior of the building (fig. 727).



Figure 727. Deteriorated paint and mortar joints on the east elevation. Photo: HPTC, 05/08/19.

The mortar joints were repointed with a Portland cement-based mortar (fig. 728). This is an inappropriate treatment to relatively softer historic brick. Furthermore, the latex paint used to coat the exterior and interior is not sympathetic to the historic building and can also contribute to moisture retention within masonry building systems (fig. 729).

The wood framing components of the gable-end walls appear in good condition. Areas of historic water infiltration and minor damage can be seen but does not affect the structural capacity of the frame at this time.

Wood siding on the exterior of the gable-end walls exhibit significant paint loss and peeling due to the proximity to the water (salt spray). The east elevation is worse than the west elevation due to exposure (figs. 730-731).

Condition Rating: Poor
Deficiency Rating: Serious



Figure 728. Mortar joints have been repointed with Portland cement-based mortar, an unsympathetic material for the historic building. Photo: HPTC, 05/08/19.



Figure 729. Peeling paint and biological growth on the interior surface of the brick exterior walls is evidence of water retention within the wall and behind the inappropriate latex paint. Photo: HPTC, 05/13/19.



Figure 730. The east elevation gable-end wall exhibits significant peeling paint on the wood siding. Photo: HPTC, 05/08/19.



Figure 731. The west elevation of the Bell House exhibits less deteriorated paint due to less exposure to salt spray from the water. Photo: HPTC, 05/08/19.

B2020	Exterior Windows

The exterior windows are in poor condition due to deteriorated paint on wood sash and wood surrounds (fig. 732). The windows on the east and south elevations are more deteriorated than the one on the west elevation due to exposure to the water (salt spray). All windows are operable.

The windows are not entirely appropriate for the building due to the vinyl tracks in which the wood sash run. Additionally, W103 currently includes a window in the opening, but historically likely had a panel or hinged door to accommodate equipment on the interior of the building to strike the bell hanging from the south elevation.

Condition Rating: Poor
Deficiency Rating: Serious



Figure 732, right. W101 on the east elevation with deteriorated paint coating and modern vinyl tracks. Photo: HPTC, 05/08/19.

B2030	Exterior Doors

The modern metal door is in good condition; however, the modern door is not appropriate for the historic building. A wood paneled door hung on strap hinges coordinating with hinge mortises would be most appropriate.

Condition Rating: Good
Deficiency Rating: Minor

B30	ROOFING
B3010	Roof Coverings
B301001	Roof Finishes

The four-tab fiberglass shingles and associated metal drip edges are in good condition; however, the shingles are not appropriate for the historic building. A wood shingle roof would be most appropriate and existed on the building historically.

Condition Rating: Good
Deficiency Rating: Minor

B301004	Flashings & Trim

Painted wood trim at roof level exhibits paint loss and peeling due to the proximity to the ocean (salt spray). The east and south elevations are worse than the west elevation due to exposure (fig. 733). Nail heads are rusting due to poor paint preparation and exposure to moisture and salt spray.

Condition Rating: Poor
Deficiency Rating: Serious



Figure 733. Deteriorated paint on wood roof trimmings and rusted fasteners, seen here on the east elevation. Photo: HPTC, 05/08/19.

B301005	Gutters & Downspouts

The modern K-style aluminum gutter and corrugated downspout on the north elevation are in fair condition, due to standing water at the west end of the gutter suggesting inaccurate pitch. The system is inappropriate for the historic building; it is thought that no roof drainage system existed on the building historically and was only added to this elevation to assist in directing water away from the foundation.

Condition Rating: Fair
Deficiency Rating: Minor

C	INTERIORS
C10	INTERIOR CONSTRUCTION
C1030	Fittings

Missing interior fittings (bell striking equipment) detract from the interpretation of the space. The extant wood bolsters at the ceiling are in good condition and should be retained. The cast iron bolt under W104 is deteriorated with exfoliated metal due to missing paint and exposure to moisture and salt spray.

Condition Rating: Fair
Deficiency Rating: Minor

C103098	Other Casework

The historic trim (crown molding) is in good condition. The modern trim (door and window casing and baseboard) is in poor condition. Fasteners are rusting at casing due to water infiltration suggesting windows are not watertight (fig. 734). Biological growth is located across all modern trim. Baseboard has been removed in several locations and is lying on the floor (fig. 735).

Condition Rating: Poor
Deficiency Rating: Minor



Figure 734, left. Rusted fasteners at window casing due to water infiltration through the brick exterior walls. Photo: HPTC, 05/13/19.



Figure 735, above. Baseboard is detached in some locations. Biological growth is seen across the surfaces. Note the rusting historic bolt. Photo: HPTC, 05/13/19.

C30	INTERIOR FINISHES
C3020	Floor Finishes

The interior laminate finish floor and plywood subfloor are peeling and delaminating where the floor meets the exterior wall due to water infiltration through the brick (fig. 736). Related biological growth is located in the same areas.

The condition of the original brick floor assumed to be underneath is unknown.

Condition Rating: Poor
Deficiency Rating: Serious



Figure 736. Delaminating laminated flooring at the exterior wall due to water infiltration through the brick. HPTC removed some flooring in an attempt to gain access to the structural frame below. Photo: HPTC, 05/13/19.

C3030	Ceiling Finishes

The historic beadboard ceiling is in good condition with no deficiencies.

Condition Rating: Good
Deficiency Rating: Minor

D	SERVICES
D20	PLUMBING

No plumbing system is currently extant within the Bell House.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D30	HVAC

No HVAC system is currently extant within the Bell House.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D40	FIRE PROTECTION SYSTEMS
D4010	Sprinklers

No sprinkler system is currently extant within the Bell House.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D4030	Fire Protection Specialties
D403001	Fire Extinguishers

No fire extinguisher is currently extant within the Bell House.

Condition Rating: Poor
Deficiency Rating: Critical

D50	ELECTRICAL
D5010	Electrical Service & Distribution
D5020	Lighting & Branch Wiring

The modern electrical equipment appears in fair condition. The date of last inspection is unknown.

Condition Rating: Fair
Deficiency Rating: Minor

D5030	Communications & Security Systems
D503001	Fire Alarm Systems

No fire alarm system is currently extant within the Bell House.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D503008	Security Alarm Systems

No security alarm system is currently extant within the Bell House.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D5090	Other Electrical Systems
D509004	Lightning Protection System

No lightning protection system is currently extant at the Bell House.

Condition Rating: Poor
Deficiency Rating: Critical

G	BUILDING SITEWORK
G20	SITE IMPROVEMENTS
G2030	Trail (Pedestrian Paving)

The modern concrete sidewalk directs water directly to the door opening. While no water infiltration is seen directly at the doorway, it is known that water is entering the building through the foundation and the sidewalk could direct water from up the hill directly into the foundation under the door (fig. 737). The modern cobblestone pavers are in fair condition but are not historically appropriate.

Condition Rating: Fair
Deficiency Rating: Serious



Figure 737. The concrete walk and the steep hill to the left funnels water directly to the main entrance door of the Bell House. Photo: HPTC, 05/08/19.

G2050	Maintained Landscapes

Grass, soil, and bedrock located around the Bell House foundation are maintained in good condition.

Condition Rating: Good
Deficiency Rating: Minor

G90	OTHER SITE WORK
G9087	Overall Building Site Drainage

The modern concrete sidewalk directs water directly to the door opening. It is known that water is entering the building through the foundation and the sidewalk could direct water from up the hill directly into the foundation under the door. Neutral drainage on either side of the door allows water to pond in this area and not immediately drain away (see fig. 737).

Condition Rating: Poor
Deficiency Rating: Serious

Oil House Condition Assessment

Additional photographs of all building features are found in the Oil House Physical Description section.

A	SUBSTRUCTURE
A10	FOUNDATIONS
A1010	Standard Foundations

The below-grade granite foundation is parged with a cementitious material. Granite is inherently stronger than concrete and therefore will not be negatively impacted by this unsympathetic alteration. Fortunately, most of the granite is not easily seen by visitors to the site.

The above-grade brick foundation walls were repointed with a Portland-cement based mortar. This is an inappropriate treatment to relatively softer historic brick and can cause the brick to be sacrificial and prone to cracking when the building settles or spall during freeze-thaw cycles.

Condition Rating: Fair
Deficiency Rating: Minor

B	SHELL
B10	SUPERSTRUCTURE
B1020	Roof Construction
B102001	Structural Roof Frame

The structural roof frame is in fair condition. Minor paint deterioration can be seen across the roof components.

Areas of historic water infiltration and damage to the sheathing at the ridge can be seen (fig. 738) but does not affect the structural capacity of the frame at this time. Additionally, the exterior ridge cap has been recently replaced and it appears the water leak at the ridge has been eliminated.

Condition Rating: Fair
Deficiency Rating: Minor



Figure 738. An area of historic water damage to the sheathing near the ridge. Note minor degradation of painted surfaces due to age. Photo: HPTC, 05/13/19.

B20	EXTERIOR ENCLOSURE
B2010	Exterior Walls

The brick exterior walls were repointed with a Portland-cement based mortar. This is an inappropriate treatment to relatively softer historic brick. Despite these bricks being glazed and relatively harder compared to those of the foundation, through-brick cracking can be seen due to building settlement (fig. 739) and spall and efflorescence are located throughout the wall field due to freeze-thaw cycles (fig. 740). Lichen is growing on the south elevation only (see fig. 739). The bricks have become sacrificial versus the mortar between.

On the interior, the whitewash coating is deteriorating, and efflorescence is present (fig. 741).

Condition Rating: Poor
Deficiency Rating: Minor

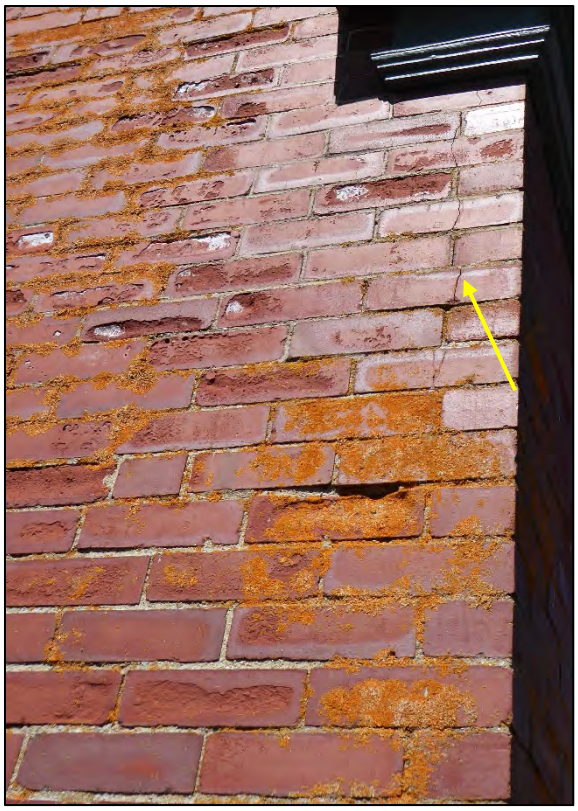


Figure 739. A through-crack in the harder glazed brick is located below the return cornice at the southeast corner (arrow). Lichen is present across the south elevation. Photo: HPTC, 05/08/19.



Figure 740. Spalled brick and efflorescence due to water retention in the bricks. Note the Portland cement-based mortar in the joints (not original). The bricks have been made sacrificial to the harder mortar. Photo: HPTC, 05/08/19.



Figure 741, right. The whitewash on the interior is deteriorated due to age. Photo: HPTC, 05/08/19.

B201005	Exterior Louvers & Screens

The louvers located in the peak of the gable-end walls are in good condition. One deficiency is the lack of insect or rodent screen on the interior.

Condition Rating: Good
Deficiency Rating: Serious

B2030	Exterior Doors

The beadboard door is in fair condition with minor paint failure to the exterior and interior. The wood sill exhibits water damage from water infiltration (the sill is located below outside grade), despite the presence of the asphalt curb to deter this (fig. 742).

Condition Rating: Fair
Deficiency Rating: Minor



Figure 742. The wood sill of the exterior door is lower than the exterior grade. Water infiltration has caused damage to the wood. Note failing paint on door and surround. Photo: HPTC, 05/13/19.

B30	ROOFING
B3010	Roof Coverings
B301001	Roof Finishes

The slate roof is in fair condition due to damaged, slipped, and loose slates, and widespread lichen growth. This 118-year-old roof likely has a few more decades of service life, if properly maintained.

Condition Rating: Fair
Deficiency Rating: Serious

B301004	Flashings & Trim

Painted wood trim at roof level exhibits very limited paint loss.

Condition Rating: Good
Deficiency Rating: Minor

B301005	Gutters & Downspouts

No roof drainage system is located at the Oil House, nor was there one historically.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

C	INTERIORS
C10	INTERIOR CONSTRUCTION
C1030	Fittings

Missing interior fittings (oil storage containers) detract from the interpretation of the space.

Modern interior fittings, including cabinets, countertops, and plywood shelving hung from the structural roof system is unsympathetic to the historic structure (fig. 743).

Condition Rating: Poor
Deficiency Rating: Minor



Figure 743, right. Historic fittings have been removed. Modern cabinets and plywood shelving have been added. Photo: HPTC, 05/13/19.

C103098	Other Casework

Interior trim is in good condition with only minor paint degradation.

Condition Rating: Good
Deficiency Rating: Minor

C30	INTERIOR FINISHES
C3020	Floor Finishes

The historic brick interior floor finish is in fair condition due to significant dirt and debris accumulation from water infiltration through the front door (fig. 744).

Condition Rating: Fair
Deficiency Rating: Minor



Figure 744, right. Brick interior floor is covered with dirt and debris. The floor is level. Photo: HPTC, 05/13/19.

D	SERVICES
D20	PLUMBING

No plumbing system is currently extant within the Oil House.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D30	HVAC

No HVAC system is currently extant within the Oil House.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D40	FIRE PROTECTION SYSTEMS
D4010	Sprinklers

No sprinkler system is currently extant within the Oil House.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D4030	Fire Protection Specialties
D403001	Fire Extinguishers

No fire extinguishers are currently extant within the Oil House.

Condition Rating: Poor
Deficiency Rating: Critical

D50	ELECTRICAL
D5010	Electrical Service & Distribution
D5020	Lighting & Branch Wiring

No electrical system is currently extant within the Oil House.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D5030	Communications & Security Systems
D503001	Fire Alarm Systems

No fire alarm system is currently extant within the Oil House.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D503008	Security Alarm Systems

No security alarm system is currently extant within the Oil House.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D5090	Other Electrical Systems
D509004	Lightning Protection System

No lightning protection system is currently extant at the Oil House.

Condition Rating: Poor
Deficiency Rating: Critical

G	BUILDING SITEWORK
G20	SITE IMPROVEMENTS
G2030	Trails (Pedestrian Paving)

The modern asphalt walkway abutting the north elevation is located higher than the interior floor. Water is known to enter the door on this elevation, due to dirt and debris across the interior floor. Therefore, the asphalt curb located across the doorway is insufficient to deter water sweeping down the steep walkway from entering the building (fig. 745).

Condition Rating: Poor
Deficiency Rating: Critical



Figure 745. Asphalt curb at door is insufficient from keeping water out of the interior of the building. Note the wood sill below grade of walkway. Photo: HPTC, 05/08/19.

G2050	Maintained Landscapes

Overgrown vegetation abuts and, in some instances, appears to grow out of the Oil House foundation on the east, south, and west elevations (fig. 746). Vegetation this close to a building allows retention of water at the building's foundation.

Condition Rating: Poor
Deficiency Rating: Serious



Figure 746, right. Overgrown vegetation at the base of the foundation. Photo: HPTC, 05/08/19.

G90	OTHER SITE WORK
G9087	Overall Building Site Drainage

Positive drainage on the east, south, and north elevations is good. The drainage on the north elevation is in poor condition, as discussed in D2030 Trails (Pedestrian Paving) above.

Condition Rating: Poor
Deficiency Rating: Serious

Garage Condition Assessment

Additional photographs of all building features are found in the Garage Physical Description section.

A	SUBSTRUCTURE
A10	FOUNDATIONS
A1010	Standard Foundations
A101002	Foundation Piers

The parged stone piers appear to be structurally sound. The center pier on the south elevation is missing.

Condition Rating: Fair
Deficiency Rating: Serious

B	SHELL
B10	SUPERSTRUCTURE
B1010	Floor Construction
B101001	Structural Floor Frame

The structural floor frame of the first floor could not be completely accessed. The south end of the central N-S beam is rotted. The sill plate running along the east elevation is completely missing (fig. 747).

Condition Rating: Poor
Deficiency Rating: Critical



Figure 747, right. The sill plate on the east elevation is missing. Photo: HPTC, 05/13/19.

B1020	Roof Construction
B102001	Structural Roof Frame

The structural roof frame is in good condition.

Condition Rating: Good
Deficiency Rating: Minor

B20	EXTERIOR ENCLOSURE
B2010	Exterior Walls

The wood framing components of the exterior walls appear in good condition. Areas of historic water infiltration can be seen but does not affect the structural capacity of the frame at this time. Painted wood shingles on the exterior are also in good condition, with a few areas of missing shingles on the south elevation (fig. 748).

Condition Rating: Good
Deficiency Rating: Serious



Figure 748. Several wood shingles missing from the south elevation. Photo: HPTC, 05/13/19.

B2020	Exterior Windows

The exterior windows are in fair condition due to some deteriorated glazing, a damaged muntin, and some degraded paint. The windows are not entirely appropriate for the building due to the aluminum tracks in which the historic wood sash sit (fig. 749), nor is the opaque film applied to the first-floor window glass.

The south elevation second-floor opening was formerly a door and has been infilled with a modern vinyl window unit, an inappropriate change.

Condition Rating: Fair
Deficiency Rating: Minor



Figure 749. An aluminum track has been added to the historic window opening for operation of the historic sash. Photo: HPTC, 05/13/19.

B2030	Exterior Doors

The beadboard man doors and the overhead garage door are in good condition. The garage door is missing the bottom seal and was installed after the proposed Period of Significance. The door on the east elevation has unsympathetic modern hinges; during the proposed Period of Significance, this door was a sliding door. The south elevation second-floor opening was formerly a door and has been infilled with a modern window unit, an inappropriate change. Originally the door likely matched the one seen on the north elevation second floor.

Condition Rating: Good
Deficiency Rating: Minor

B30	ROOFING	
B3010	Roof Coverings	
	B301001	Roof Finishes

The four-tab fiberglass shingles and associated metal drip edges are in good condition; however, the shingles are not appropriate for the historic building. A wood shingle roof would be most appropriate, as this roof covering was in place during the proposed Period of Significance.

Condition Rating: Good
Deficiency Rating: Minor

B301004	Flashings & Trim

Painted wood trim at roof level is in fair condition. A hole is located at the southeast corner with some missing paint, and a piece of trim is missing at the northeast corner.

Condition Rating: Fair
Deficiency Rating: Minor

B301005	Gutters & Downspouts

No roof drainage system is located at the Garage, nor was there one historically.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

C	INTERIORS
C10	INTERIOR CONSTRUCTION
C10230	Fittings

The historic hay chute located at the interior stair is in good condition. The modern work bench is also in good condition.

Condition Rating: Good
Deficiency Rating: Minor

C20	STAIRS
C2010	Stair Construction

The interior stairs are in good condition, with minor wear to the painted treads. A stud is loose as the bottom run of the stair.

Condition Rating: Good
Deficiency Rating: Serious

C30	INTERIOR FINISHES
C3020	Floor Finishes

The interior wood floor of the first floor is in poor condition due to dirt and debris accumulation from water infiltration under the garage door. Moss has formed on the wood adjacent the opening, suggesting that once it becomes damp the flooring remains damp (fig. 750). A few holes through the flooring can be seen across the floor.

The historic interior wood floor of the second floor is in good condition.

Condition Rating: Poor
Deficiency Rating: Serious



Figure 750. Dirt and moss cover the wood floor at the garage door due to consistent water infiltration from runoff at the exterior. Photo: HPTC, 05/13/19.

D	SERVICES
D20	PLUMBING

No plumbing system is currently extant within the Garage.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D30	HVAC

No HVAC system is currently extant within the Garage.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D40	FIRE PROTECTION SYSTEMS
D4010	Sprinklers

No sprinkler system is currently extant within the Garage.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D4030	Fire Protection Specialties
D403001	Fire Extinguishers

One fire extinguisher is currently extant within the Garage. The last inspection date is unknown, but it is fully charged.

Condition Rating: Fair
Deficiency Rating: Serious

D50	ELECTRICAL
D5010	Electrical Service & Distribution
D5020	Lighting & Branch Wiring

The modern electrical equipment appears in fair condition. The date of last inspection is unknown.

Condition Rating: Fair
Deficiency Rating: Minor

D5030	Communications & Security Systems
D503001	Fire Alarm Systems

No fire alarm system is currently extant within the Garage.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D503008	Security Alarm Systems

No security alarm system is currently extant within the Garage.

Condition Rating: Not Rated
Deficiency Rating: Not Rated

D5090	Other Electrical Systems
D509004	Lightning Protection System

No lightning protection system is currently extant at the Garage.

Condition Rating: Poor
Deficiency Rating: Critical

G	BUILDING SITEWORK
G20	SITE IMPROVEMENTS
G2020	Parking Areas (Lots)

The asphalt parking area on the south elevation slopes down into the Garage and is known to cause water infiltration onto the interior of the building and is affecting building systems and allows for the accumulation of dirt and debris along the north elevation (fig. 751).

The modern elevated parking pad at the northeast corner is in fair condition with minor cracks across its uneven/settling surface.

Condition Rating: Poor
Deficiency Rating: Critical



Figure 751. Sloping asphalt driveway in front (north) of the garage door carries water, dirt, and debris up to and into the garage. Photo: HPTC, 05/13/19.

G2030	Trail (Pedestrian Paving)

The concrete sidewalk on the east elevation is in good condition with minor grass overgrowth in cracks between sections.

Condition Rating: Good
Deficiency Rating: Minor

G2040	Site Development
G204001	Fences & Gates

The modern wood fences and metal gates are in good condition.

Condition Rating: Good
Deficiency Rating: Minor

G204002	Retaining Walls

The modern short concrete retaining wall on the west side of the parking pad is in good condition. The retained portions of the south and east side are maintained but appear to be constructed in a haphazard fashion.

Condition Rating: Fair
Deficiency Rating: Minor

G2050	Maintained Landscapes

Overgrown vegetation abuts the south elevation of the Garage which allows retention of water at the building's foundation.

Condition Rating: Poor
Deficiency Rating: Minor

G90	OTHER SITE WORK
G9087	Overall Building Site Drainage

Positive drainage on the west, south, and east elevations is good. The drainage on the north elevation is in poor condition, as discussed in G2020 Parking Areas (Lots) above.

Condition Rating: Poor
Deficiency Rating: Serious

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Part 2 | Treatment and Use

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Requirements for Treatment and Use

The treatment and use of the Bass Harbor Head Light Station must be considered within a framework of applicable laws, agreements, and policies. These mandates govern a wide range of management issues beyond the preservation, protection, and interpretation of Acadia National Park's cultural resources. They extend to issues of visitor and staff use, agricultural lease, safety, and universal accessibility, among others.

Acadia National Park Foundation Document

The 2016 Acadia National Park Foundation Document is used "to provide basic guidance for planning and management decisions—a foundation for planning and management." The document includes a short description of the park, a definition of the park purpose, park significance statements, identification of primary interpretive themes, fundamental resources and values, special mandates and administrative commitments, and identification of future planning needs.[1]

Park Purpose:

> Acadia National Park protects ecological integrity, cultural history, scenic beauty, and scientific values within the Acadia archipelago and Schoodic Peninsula and offers visitors a broad range of transformative and inspiring experiences among the park's diverse habitats, glacially sculpted mountains, and bold, rocky coastline.[2]

Park Significance: This section identifies seven reasons why the park's resources and values are significant enough to warrant national park designation. One directly relates to the Bass Harbor Head Light Station: "4. Acadia National Park contains designed landscapes composed of nationally significant cultural resources. . . ."[3] Bass Harbor Head Light Station is listed on the National Register of Historic Places.

Fundamental Resources and Values: These are attributes which "warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance."[4] The Bass Harbor Head Light Station is not considered to be one of the fundamental attributes, but instead is part of *Other Important Resources and Values* (OIRV) which "are not fundamental to the purpose of the park and may be unrelated to its significance, but are important to consider in planning processes." The Light Station could be included as part of the *Historic Architecture* and *Maritime Heritage* OIRVs.[5]

[1] National Park Service. "Foundation Document: Acadia National Park, Maine." September 2016, p. 2.
[2] Ibid, p. 5.
[3] Ibid, p. 6.
[4] Ibid, pp. 7-9.
[5] Ibid, p. 10.

Interpretive Themes: This section is based on the stated park purpose and significance and "are often described as the key stories or concepts that visitors should understand after visiting a park…." One theme directly relates to the Bass Harbor Head Light Station:

> The lure of the diverse resources of the Acadian archipelago has resulted in thousands of years of human interactions with these landscapes—today providing opportunities to imagine and appreciate local lifestyles and values, to gain a sense of place in these rugged coastal habitats, and to choose our roles in Acadia's continuing story.[6]

Planning Needs are also assessed in order to protect fundamental resources and values and the park significance and purpose. Two planning needs, both of medium priority, were identified:

- Treatment plans for several cultural landscapes and historic structures
- Historic structure reports

Although not specifically called out in either "need"—it was not a park asset at the time of publication of the *Foundation Document* nor at the time of this writing—the Bass Harbor Head Light Station should be included in these needs, as "Treatment plans are needed to prescribe specific techniques and methods for regular maintenance of historic structures and cultural landscapes throughout the park" and Historic Structure Reports were needed for the other light stations managed by Acadia National Park.[7]

National Historic Preservation Act

Section 106 of the *National Historic Preservation Act* (NHPA) mandates that federal agencies, like the National Park Service, take into account the effects of their actions on properties listed or eligible for listing on the National Register of Historic Places (NRHP) and gives the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment.[8] The Bass Harbor Head Light Station is listed on the NRHP and any undertakings (typically expenditure of federal funds) will be reviewed in accordance to NPS policy and federal historic preservation laws including the *Programmatic Agreement Among the National Park Service (U.S. Department of the Interior), the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers for Compliance with Section 106 of the National Historic Preservation Act* (2008).[9]

Section 110 of the NHPA clarifies the broad historic preservation responsibilities of Federal agencies with the intention of ensuring that historic preservation is fully integrated into the ongoing programs of all Federal agencies by identifying, protecting, and avoiding unnecessary damage to historic properties. Additionally, each agency is required to use historic properties available to it and when managing these properties, must consider preservation of their historic, archaeological, architectural, and cultural values.[10]

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[6] Ibid, p. 11.
[7] Ibid, pp. 17-18.
[8] The NHPA of 1966 was last amended in 2006. A downloadable copy is located at http://www.achp.gov/nhpa.html.
[9] A copy of this agreement can be found on the NPS's website at http://www.nps.gov/policy/106agreement.pdf.
[10] More information on Section 110 can be found on the NPS's website at http://www.nps.gov/hps/fapa_110.htm.

Executive Order 11593

Executive Order 11593: Protection and Enhancement of the Cultural Environment (1971) mandates that "the Federal Government shall provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the Nation."[11] Responsibilities of federal agencies include:

- Nominating "...to the Secretary of the Interior all sites, buildings, districts, and objects under their jurisdiction of the control that appear to qualify for listing on the National Register of Historic Places."
- Exert caution "...during the interim period until inventories and evaluation...are completed to assure that any federally owned property that might qualify for nomination is not inadvertently transferred, sold, demolished, or substantially altered."
- "Initiate measures to assure that where as a result of Federal action or assistance a property listed on the National Register of Historic Places is to be substantially altered or demolished, timely steps be taken to make or have made records, including measured drawings, photographs, and maps, of the property, and that copy of such records then be deposited in the Library of Congress as part of the Historic American Buildings Survey or Historic American Engineering Record for future use and reference."
- "Initiate measures and procedures to provide for the maintenance, through preservation, rehabilitation, or restoration, of federally owned and registered sites professional standards prescribed by the Secretary of the Interior."

Executive Order 13006

Executive Order 13006: Locating Federal Facilities on Historic Properties (1996) mandates that "the Federal Government shall utilize and maintain, wherever operationally appropriate and economically prudent, historic properties and districts...." Furthermore, "any rehabilitation or construction that is undertaken pursuant to this order must be architecturally compatible with the character of the surrounding historic district or properties."[12]

The Secretary of the Interior's Standards for the Treatment of Historic Properties

Treatment to the Bass Harbor Head Light Station is to be guided by *The Secretary of the Interior's Standards for Treatment of Historic Properties* (rev. 2017).[13] Descriptions of the four standards are as follows:

> Preservation is "the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project."

[11] A copy of this E.O. can be found on the NPS's website at http://www.nps.gov/history/history/online_books/anps/anps_7b.htm.
[12] A copy of this agreement is located on the ACHP's website at http://www.achp.gov/EO13006.html.
[13] Grimmer, Anne E. (revised). *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings.* U.S. Department of the Interior, National Park Service, Technical Preservation Services, Washington, DC, 2017.

Rehabilitation is "the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values."

Restoration is "the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project."

Reconstruction is "the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location."

Generally, the treatment philosophy integrated into this HSR is best represented by the following:

> Better to preserve than to repair, better repair than restore, better restore than [re]construct. It is ordinarily better to retain genuine old work of several periods, rather than arbitrarily to 'restore' the whole, by new work, to its aspect at a single period.[14]

Director's Order 28

DO-28 Cultural Resource Management Guideline is intended to guide the National Park Service through successful cultural resource management through three steps[15]:

- Research: "identify, evaluate, document, register, and establish other basic information about cultural resources."
- Planning: "ensure that this information is well integrated into management processes for making decisions and setting priorities."
- Stewardship: "planning decisions are carried out and resources are preserved, protected, and interpreted to the public."[16]

Through the development of this HSR, the research and planning (for treatment and use) steps outline by *DO-28* for Bass Harbor Head Light Station are addressed.

The final step—stewardship—can be executed through the recommended treatments included within this HSR. Decisions for the future stewardship of the Bass Harbor Head Light Station are under the purview of Acadia National Park. As part of NPS-28, stewardship underlines five activities:

- Control of treatment and use,
- Monitoring conditions of deterioration and structural failure,
- Protecting from human and environmental threats,
- Retaining or delegating responsibility for structures, and
- Developing the skills, knowledge, and attitudes needed to support the program."[17]

[14] The Advisory Board on National Parks, Historic Sites, Buildings, and Monuments policy statement (1936). NPS-28, p. 2.
[15] A copy of NPS-28 can be found at http://www.nps.gov/history/history/online_books/nps28/28contents.htm.
[16] NPS-28, p. 1.
[17] NPS-28, p. 127.

International Building Code

According to the 1988 Amendment to the Public Buildings Act, any building constructed or altered by a Federal agency must, "to the maximum extent feasible, be in compliance with one of the nationally recognized model building codes and with other applicable nationally recognized codes."[18] The International Building Code (IBC) is one of the allowable recognized model building codes.

Treatments of the structure and its site are to be guided by the International Building Code (IBC).[19] Threats to public life, safety, and welfare are to be addressed; however, because the Bass Harbor Head Light Station is historic, alternatives to full legislative and code compliance are recommended where compliance would needlessly compromise the integrity of the historic building with the removal of character-defining features or infringement upon the NRHP-listed characteristics of the site and/or structures.

Accessibility

With no construction activity to initiate changes, it is premature to recommend accessibility design modifications to the Bass Harbor Bead Light Station site and buildings. An accessibility assessment is included as part of the Condition Assessment section of this HSR to begin the thought process on this subject; however recommended accessibility treatments will not be provided. It should be noted that modifications may be likely as property use evolves and rehabilitation work commences. The most appropriate response will consider scoping and technical design requirements of the Architectural Barrier Act Accessibility Standards and skillful application of preservation principles to preserve the historic character and historical integrity of this property.[20] Refer to *NPS Preservation Brief 32: Making Historic Properties Accessible* for more information.[21]

[18] The General Services Administration had more information on this amendment and other accepted building codes at http://www.gsa.gov/portal/content/101288.
[19] IBC is overseen by the International Code Council. More information is located at http://www.iccsafe.org/CS/Pages/default.aspx.
[20] The Architectural Barrier Act Accessibility Standards are under the authorization of the United States Access Board. More information can be found through Access Board's website at http://www.access-board.gov/aba/.
[21] Jester, Thomas C. and Sharon C. Park. *Making Historic Properties Accessible*. Preservation Brief 32. Washington, DC, September 1993. Accessible at http://www.nps.gov/hps/tps/briefs/brief32.htm.

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Preferred Ultimate Treatment and Use

The Bass Harbor Head Light Station retained its original use since establishment in 1858 through planning for modification in 1948 (the end of the proposed Period of Significance) and automation in 1974. The following dates outline construction dates for the Light Station buildings (those in italics have been demolished, with dates of demolition included in parentheses):

1858: Lighthouse and Keeper's Dwelling
1893: *Boathouse (ca. 1949)*
1897: Bell House
1901: *Weight Tower (ca. 1956)*
1902: Oil House
1905: Garage

Starting in 1949 through automation in 1974, significant alterations occurred to the Light Station buildings, including removal of the Boathouse and slip and the Weight Tower, and numerous modifications to the Keeper's Dwelling. Since automation of the lighthouse in 1974 through about 2012, the surviving structures were used by the United States Coast Guard (USCG) as family housing with no official treatment of the structures, besides maintenance (*not* preservation maintenance). Since 2012, the complex has been vacant with minimal maintenance and no official treatment of the structures.

With the transfer of the Light Station to the National Park Service, Acadia National Park, the Ultimate Treatment and Use must be identified. Considering the applicable laws, agreements, and policies discussed above, the Preferred Ultimate Treatment for the Bass Harbor Head Light Station site and buildings is as follows:

Exterior Restoration of all buildings to depict the form, features, and character of the Light Station during the proposed Period of Significance—construction of the Light Station by the United States government in 1858, through 1948, the year before the Light Station was modernized. This includes the removal of non-sympathetic modern accretions, preservation of character-defining features, and reconstruction of missing features.

Interior Rehabilitation of all buildings to allow for a compatible and adaptive use. This can include repair, alterations, and additions, but attempts to preserve character-defining features and eliminate or limit non-sympathetic modern accretions.

Note: Ideally, the two buildings removed after the proposed Period of Significance (Boat House and slip and Weight Tower) would be *reconstructed* to most accurately depict the Light Station during that time.

The Preferred Ultimate Use of the Bass Harbor Head Light Station site and buildings have not yet been determined as of the time of this writing. Multiple options for recommended use are being considered by the park. Alternatives will be considered and evaluated during a separate Value Analysis process (see Value Analysis in Alternatives for Treatment and Use section below). Regardless of

the final use, the Lighthouse lens will be retained by the U.S. Coast Guard as an active Aid to Navigation (ATON).

The ultimate treatment and use recommendations provided in this HSR are meant to guide the future work, but do not provide a construction or architectural program. The identification of resource impacts should be fully assessed once a construction or architectural program is finalized.

Alternatives for Treatment and Use

Value Analysis

Several alternatives for use are being considered by the park for the Bass Harbor Head Light Station site and buildings. The National Park Service uses the Value Analysis (VA) process to arrive "at an optimal solution to a complex issue through a structured and reasoned analysis of the factors and functions related to the issue." In this case, the issue is the ultimate use for the site and buildings.[22]

As of this writing, the Value Analysis has not yet been started. Upon final transfer of the Light Station building, the NPS will begin the VA process.

Interim Mothballing

In the interim, as planning occurs at the park and regional levels of the National Park Service, park staff has identified the need to temporarily stabilize, or mothball, the vacant buildings; this treatment falls under "preservation" and is effective in protection of buildings while planning and development of funding is established. Typically, mothballing is sustainable at a building for ten years (and no more than twenty years).

National Park Service *Preservation Brief 31: Mothballing Historic Buildings* provides excellent information on the stabilization process, and divides it into three well-defined steps: documentation, stabilization, and mothballing.[23]

Documentation

The first step in the process is Documentation, which includes a condition assessment of the structures. This HSR can be considered the first step and provides recommendations for the stabilization and mothballing steps.

Stabilization

The second step is Stabilization and is meant to slow deterioration of the buildings as they sit vacant. Action items include structurally stabilizing the buildings; exterminating and controlling pest intrusion; and protecting the building from risk of fire and moisture infiltration. Note: Many of these actions may also be required for long-term treatment in the future and should not be considered a waste of time or money.

[22] Denver Service Center, "Value Analysis in the NPS." June 4, 1998. Accessed at https://www.nps.gov/dscw/upload/VA-Summary.doc on November 5, 2019.
[23] Park, Sharon C. *Preservation Brief 31: Mothballing Historic Buildings*. U.S. Department of the Interior, National Park Service, Cultural Resources, Heritage Preservation Services, September 1993.

Structural Stabilization

Compromised structural members should be braced and reinforced by qualified individuals under the direction of a structural engineer or other preservation professional. Care should be taken to ensure that the new elements do not negatively impact historic features and that the building can support the added elements.

Fortunately, the buildings at the Bass Harbor Head Light Station appear to be structurally sound and no structural intervention is required at this time.

Pest Control

Insects and other pests/rodents should be removed and discouraged from returning. These pests can be numerous and diverse, which underlines the importance of removal and sealing off their access so they cannot return.

At Bass Harbor Head Light Station, evidence of mouse infestation was noticeable throughout the Keeper's Dwelling and in the attic insulation of the Bell House. Furthermore, at least one squirrel has made its home in the basement of the Keeper's Dwelling (and rudely frightened a member of the HPTC team).

Moisture Control

The building should be protected from moisture damage by weatherizing the exterior envelope and managing water runoff around the building site. Any serious deficiencies must be addressed at this stage to eliminate of the chance of long-term damage later. Most importantly, any actions should not harm or disturb historic materials and added modern materials should be fully reversible in the future. Temporary modifications should be as non-intrusive as possible.

The major moisture issues at Bass Harbor Head Light Station are with site drainage around the buildings. The exterior envelopes of most of the buildings require only minimal repairs to be completely sufficient for the stabilization period, including the roofs.

Mothballing

The third step is Mothballing, which includes securing the building and its features from vandalism or break-ins; providing adequate ventilation to the interior; securing/modifying utility systems; and developing and implementing a maintenance and monitoring plan for the buildings' protection.

Protection from Human Intrusion & Natural Disaster

General building security is an important point to consider in the mothballing of a structure. Ensuring security is more significant at building sites that are vacant and not staffed. Typical actions to implement include:

- To give the buildings a "used" look, attention should be paid to be appearance of the interior window treatments from the exterior. All interior window treatments should be in working

order and kept in a position that allows light into the building, but discourages unwarranted entry.

- Where electricity is available, several interior lights should be placed on seven-day timers to alternate the interior lighting pattern after dark. This is especially true in winter when days are shorter, and a dark building suggests an unoccupied building.
- Exterior motion-sensitive security lighting set on a daylight-sensing device will also assist in the deterrence of vandalism and breaking-and-entering attempts. Such devices should not be mounted directly to the building but placed on free-standing light poles or in nearby trees. All wiring should be protected and tamper resistant.
- A holistic fire protection system is not suggested at this time, but simple additions of fire extinguishers, battery-operated smoke detectors with integrated callout to park dispatch, and lightning protection systems can be extremely beneficial. Nothing causes destruction as quickly and indiscriminately as structure fire: a devastating event to occur to a culturally significant historic building or structure.

Interior Ventilation

It is essential to provide adequate air exchanges to the interior of a building. Each building is different (wood-framed vs. masonry, slab vs. basement, location, etc.) and each requires a different ventilation plan. Identification of the climate zones are critical, especially for buildings that will be unheated. In the cold and damp northeast, one air exchange per hour is required during the winter and two to three per hour are required during the summer.

At Bass Harbor Head Light Station, it is recommended that the Keeper's Dwelling continue to be minimally heated during the winter and passive ventilation added to the frame building in the summer, to include the installation of louvers in 10% of openings. The Lighthouse and Bell House will certainly benefit from passive ventilation, as they are both known to be damp structures inherently. Both masonry structures should include louvers. At the lighthouse, removal of the unsympathetic glass block and addition of louvered storm shutters in both openings is recommended. At the Bell House, two of the more protected openings should be altered to include louvers. The Oil House is relatively dry and already includes gable vents. The Garage is also relatively dry and is an inherently "leaky" building due to original design and construction. No alterations are required for either at this time.

All modern interior materials which are prone to holding moisture should be removed. This is especially true in the Keeper's Dwelling. Finishes like faux-wood paneling, carpeting, acoustical ceiling tile, fiberglass insulation, and modern drywall are more porous and inherently hold moisture within their materials and should be removed when the building is mothballed.

Note: The installation of louvers in buildings and new presence of air exchanges will cause sacrificial interior finishes, like paint, to deteriorate. If louvers are installed during the mothballing phase, planning for future treatments should include repairs to interior finishes.

Securing Utility Systems

Determining which utilities and services will be kept live and those that will be cut off is an important step. Services which could cause a fire are generally eliminated. Sometimes it is advisable to add a temporary new electrical panel with exposed, new wiring, in the absence of inspecting and repairing the extant electrical system. This can also be applied to security and fire alarm systems. A decision on

whether or not to keep a heating system running during the winter is also important, especially for a hydronic system, which upon failure could cause catastrophic water damage to the interior of a historic building.

The Oil House has no utilities run to it and therefore requires no alterations. The Bell House and Garage only have electrical. At this time, power could be eliminated to both without any repercussions. The Keeper's Dwelling and Lighthouse should retain electrical power (at the lighthouse it is required). The Keeper's Dwelling should be heated during the winter and the oil-burning hot water system prepared appropriately for that. Plumbing and sewage systems should be mothballed appropriately.

Plan for Monitoring and Maintenance

Once the previous action items are fully executed, a plan for periodic maintenance and surveillance monitoring should be established. Even the best-laid mothballing plan can be foiled by material deterioration, natural disasters and storms, leaks, and unwanted intrusion. The local fire and police department should be notified that the buildings will be vacant for an extended period of time. The following monitoring plan is a suggestion:

Periodically:

- Regular drive-by surveillance
- Check attics directly after large storm events

Monthly:

- Check entrances
- Check windows for breakage
- Mow, as required
- Check for graffiti or vandalism

Enter every 3 months:

- Check for musty air
- Check for moisture damage
- Check battery packs and monitoring equipment
- Check light bulbs
- Check for evidence of pest intrusion

Every 6 months (spring and fall):

- Site cleanup, pruning, and trimming
- Clean out gutters and downspouts
- Check attics, basements, and crawlspaces for pests

Every 12 months:

- Maintenance contract inspections for equipment/utilities
- Check roof for missing or loose shingles
- Pest inspection/treatment
- Spot repair exterior materials and touch up painting

Recommended Treatments by Feature

Treatment Timeframes

As part of the planning process required by NPS-28, the recommended treatments for each feature have been divided into different timeframes.

The "Short-Term" timeframe is for features that must be repaired or replaced in the immediate future (within two years) and are often the items in the worst condition (poor condition with critical or serious maintenance deficiencies). This timeframe will also include mothballing treatment recommendations discussed in the Alternatives for Treatment and Use section above. For the purposes of this HSR and to incorporate the mothball stage of treatment, this timeframe will incorporate work required in the next ten years (the recommended time frame of any mothball project).

The "Long-Term" timeframe is for features which should be addressed in the final treatment phase (likely exterior restoration and interior rehabilitation), after the interim ten-year mothball phase. Repair or replacement of features that are in fair or good condition with minor maintenance deficiencies are included in this timeframe. Typically, these features currently require routine maintenance to sustain their current condition employing preventative maintenance methodologies.

Prioritized Treatment List Tables

The following tables place in priority order those building features with the highest level of maintenance deficiency. Starting with the rating of Poor/Critical and following through to Good/ Minor, the tables provide a path to good condition and lessening of the maintenance burden for each building.

The hierarchical list divides the recommended treatments into three basic groups based on maintenance deficiency ratings of Critical, Serious, and Minor (definitions of these are found in the introduction to the Condition Assessment section). The associated maintenance deficiency rating is based on the existing condition of the feature and its predicted remaining service life based on rates of deterioration.

Following the Tables are detailed recommended treatment sections divided first by building and second by building element in the same order as that building's Table.

Lighthouse

The Lighthouse is in **fair** condition with **serious** maintenance deficiencies. A prioritized list of building elements, based on maintenance deficiency rating, is found in Table 8 below. Recommended treatments for individual building components can be found on pp. 435-448.

Table 8. Bass Harbor Head Lighthouse Prioritized Treatment List					
Major Group Element	Group Element	Individual Element	Specific Element	Condition Rating	Deficiency Rating
CRITICAL					
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301001 Roof Finishes	Poor	Critical
B SHELL	B10 SUPERSTRUCTURE	B1010 Floor Construction	B101004 Balcony Construction	Poor	Critical
B SHELL	B20 EXTERIOR ENCLOSURE	B2010 Exterior Walls		Poor	Critical
SERIOUS					
B SHELL	B20 EXTERIOR ENCLOSURE	B2020 Exterior Windows		Fair	Serious
B SHELL	B10 SUPERSTRUCTURE	B1010 Floor Construction	B101003 Floor Decks & Slabs	Fair	Serious
C INTERIORS	C20 STAIRS	C2010 Stair Construction	C201001 Interior Stair Construction	Fair	Serious
D SERVICES	D50 ELECTRICAL	D5090 Other Electrical Systems	D509004 Lightning Protection System	Fair	Minor
D SERVICES	D50 ELECTRICAL	D5010 Electrical Service & Distribution D5020 Lighting & Branch Wiring		Fair	Minor
D SERVICES	D40 FIRE PROTECTION SYSTEMS	D4030 Fire Protection Specialties	D403001 Fire Extinguishers	Fair	Minor
B SHELL	B10 SUPERSTRUCTURE	B1020 Roof Construction	B102001 Structural Roof Frame	Fair	Minor
MINOR					
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301004 Flashings & Trim	Good	Minor
C INTERIORS	C10 INTERIOR CONSTRUCTION	C1020 Interior Doors		Good	Minor
C INTERIORS	C10 INTERIOR CONSTRUCTION	C1030 Fittings		Good	Minor
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2050 Maintained Landscapes		Good	Minor
G BUILDING SITEWORK	G90 OTHER SITE WORK	G9087 Overall Building Site Drainage		Good	Minor
UNKNOWN & NOT RATED					
A SUBSTRUCTURE	A10 FOUNDATIONS	A1010 Standard Foundations		Unknown	Unknown
D SERVICES	D40 FIRE PROTECTION SYSTEMS	D4010 Sprinklers		Not Rated	Not Rated
D SERVICES	D50 ELECTRICAL	D5030 Communications & Security Systems	D503001 Fire Alarm Systems	Not Rated	Not Rated
D SERVICES	D50 ELECTRICAL	D5030 Communications & Security Systems	D503002 Security Alarm Systems	Not Rated	Not Rated
End of Table.					

Keeper's Dwelling

The Keeper's Dwelling is in **fair** condition with **minor** maintenance deficiencies. A prioritized list of building elements, based on maintenance deficiency rating, is found in Table 9 below. Recommended treatments for individual building components can be found on pp. 449-166.

Table 9. Bass Harbor Head Keeper's Dwelling Prioritized Treatment List

Major Group Element	Group Element	Individual Element	Specific Element	Condition Rating	Deficiency Rating
CRITICAL					
D SERVICES	D50 ELECTRICAL	D5090 Other Electrical Systems	D509004 Lightning Protection System	Poor	Critical
D SERVICES	D50 ELECTRICAL	D5030 Communications & Security	D503001 Fire Alarm Systems	Poor	Critical
D SERVICES	D40 FIRE PROTECTION SYSTEMS	D4030 Fire Protection Specialties	D403001 Fire Extinguishers	Poor	Critical
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301004 Flashings & Trim	Poor	Critical
SERIOUS					
G BUILDING SITEWORK	G90 OTHER SITE WORK	G9087 Overall Site Building Drainage		Poor	Serious
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301005 Gutters & Downspouts	Poor	Serious
B SHELL	B10 SUPERSTRUCTURE	B1010 Floor Construction	B101099 Other Floor Construction – Chimneys	Poor	Serious
A SUBSTRUCTURE	A10 FOUNDATIONS	A1010 Standard Foundations		Fair	Serious
A SUBSTRUCTURE	A20 BASEMENT CONSTRUCTION	A2020 Basement Walls		Fair	Serious
B SHELL	B10 SUPERSTRUCTURE	B1010 Floor Construction	B101001 Structural Floor Frame	Fair	Serious
B SHELL	B20 EXTERIOR ENCLOSURE	B2010 Exterior Walls	B201008 Exterior Soffits	Fair	Serious
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2030 Trail (Pedestrian Paving)		Fair	Serious
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2030 Trail (Pedestrian Paving)	G203099 Other Walks, Steps & Terraces	Fair	Serious
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2040 Site Development	G204001 Fencing & Gates	Fair	Serious
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2040 Site Development	G204002 Retaining Walls	Fair	Serious
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2040 Site Development	G204099 Miscellaneous Structures – Bells	Fair	Serious
C INTERIORS	C20 STAIRS	C2010 Stair Construction	C201001 Interior Stair Construction	Good	Serious

(Table 9 continued)

MINOR					
A SUBSTRUCTURE	A10 FOUNDATIONS	A1030 Slab On Grade		Fair	Minor
B SHELL	B20 EXTERIOR ENCLOSURE	B2010 Exterior Walls	B201001 Exterior Skin	Fair	Minor
B SHELL	B10 SUPERSTRUCTURE	B1010 Floor Construction	B101002 Structural Interior Walls	Good	Minor
B SHELL	B10 SUPERSTRUCTURE	B1020 Roof Construction	B102001 Structural Roof Frame	Good	Minor
B SHELL	B20 EXTERIOR ENCLOSURE	B2020 Exterior Windows		Good	Minor
B SHELL	B20 EXTERIOR ENCLOSURE	B2030 Exterior Doors		Good	Minor
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301001 Roof Finishes	Good	Minor
C INTERIORS	C10 INTERIOR CONSTRUCTION	C1010 Partitions		Good	Minor
C INTERIORS	C10 INTERIOR CONSTRUCTION	C1020 Interior Doors		Good	Minor
C INTERIORS	C10 INTERIOR CONSTRUCTION	C1020 Fittings	C103006 Shelving	Good	Minor
C INTERIORS	C10 INTERIOR CONSTRUCTION	C1020 Fittings	C103008 Counters C103009 Cabinets	Good	Minor
C INTERIORS	C10 INTERIOR CONSTRUCTION	C1020 Fittings	C103010 Closets	Good	Minor
C INTERIORS	C10 INTERIOR CONSTRUCTION	C1020 Fittings	C103098 Other Casework – Trim	Good	Minor
C INTERIORS	C20 STAIRS	C2010 Stair Construction	C201002 Exterior Stair Construction	Good	Minor
C INTERIORS	C30 INTERIORS	C3010 Wall Finishes		Good	Minor
C INTERIORS	C30 INTERIORS	C3020 Floor Finishes		Good	Minor
C INTERIORS	C30 INTERIORS	C3030 Ceiling Finishes		Good	Minor
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2050 Maintained Landscapes		Good	Minor
UNKNOWN & NOT RATED					
D SERVICES	D20 PLUMBING	D2010 Plumbing Fixtures		Unknown	Unknown
D SERVICES	D20 PLUMBING	D2020 Domestic Water Distribution		Unknown	Unknown
D SERVICES	D20 PLUMBING	D2030 Sanitary Waste		Unknown	Unknown
D SERVICES	D30 HVAC	D3020 Heat Generating Systems		Unknown	Unknown
D SERVICES	D30 HVAC	D3060 Controls & Instrumentation	D306004 Gas Purging Systems	Unknown	Unknown
D SERVICES	D50 ELECTRICAL	D5010 Electrical Service & Distribution D5020 Lighting & Branch Wiring		Unknown	Unknown
G BUILDING SITEWORK	G30 SITE MECHANICAL UTILITIES	G3060 Fuel System (Fuel Distribution)	G306006 Gas Storage Tanks	Unknown	Unknown
D SERVICES	D40 FIRE PROTECTION SYSTEMS	D4010 Sprinklers		Not Rated	Not Rated
D SERVICES	D50 ELECTRICAL	D5030 Communications & Security Systems	D503008 Security Alarm Systems	Not Rated	Not Rated
End of Table.					

Bell House

Overall the Bell House is in **fair** condition with **minor** maintenance deficiencies. A prioritized list of building elements, based on maintenance deficiency rating, is found in Table 10 below. Recommended treatments for individual building components can be found on pp. 467-477.

Table 10. Bass Harbor Head Bell House Prioritized Treatment List

Major Group Element	Group Element	Individual Element	Specific Element	Condition Rating	Deficiency Rating
CRITICAL					
D SERVICES	D50 ELECTRICAL	D5090 Other Electrical Systems	D509004 Lightning Protection System	Poor	Critical
D SERVICES	D40 FIRE PROTECTION SYSTEMS	D4030 Fire Protection Specialties	D403001 Fire Extinguishers	Poor	Critical
SERIOUS					
G BUILDING SITEWORK	G90 OTHER SITE WORK	G9087 Overall Building Site Drainage		Poor	Serious
A SUBSTRUCTURE	A10 FOUNDATIONS	A1010 Standard Foundations		Poor	Serious
B SHELL	B20 EXTERIOR ENCLOSURE	B2010 Exterior Walls		Poor	Serious
B SHELL	B20 EXTERIOR ENCLOSURE	B2020 Exterior Windows		Poor	Serious
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301001 Flashings & Trim	Poor	Serious
B SHELL	B10 SUPERSTRUCTURE	B1010 Floor Construction	B101001 Structural Floor Frame	Poor	Serious
C INTERIORS	C30 INTERIOR FINISHES	C3020 Floor Finishes		Poor	Serious
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2030 Trail (Pedestrian Paving)		Fair	Serious
MINOR					
C INTERIORS	C10 INTERIOR CONSTRUCTION	C1030 Fittings	C103098 Other Casework	Poor	Minor
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301005 Gutters & Downspouts	Fair	Minor
D SERVICES	D50 ELECTRICAL	D5010 Electrical Service & Distribution		Fair	Minor
		D5020 Lighting & Branch Wiring			
C INTERIORS	C10 INTERIOR CONSTRUCTION	C1030 Fittings		Fair	Minor
B SHELL	B10 SUPERSTRUCTURE	B1020 Roof Construction	B102001 Structural Roof Frame	Good	Minor
B SHELL	B20 EXTERIOR ENCLOSURE	B2030 Exterior Doors		Good	Minor
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301001 Roof Finishes	Good	Minor
C INTERIORS	C30 INTERIOR CONSTRUCTION	C3030 Ceiling Finishes		Good	Minor
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2050 Maintained Landscapes		Good	Minor

(Table 10 continued)

NOT RATED					
D SERVICES	D20 PLUMBING			Not Rated	Not Rated
D SERVICES	D30 HVAC			Not Rated	Not Rated
D SERVICES	D40 FIRE PROTECTION SYSTEMS	D4010 Sprinklers		Not Rated	Not Rated
D SERVICES	D50 ELECTRICAL	D5030 Communications & Security Systems	D503001 Fire Alarm Systems	Not Rated	Not Rated
D SERVICES	D50 ELECTRICAL	D5030 Communications & Security Systems	D503008 Security Alarm Systems	Not Rated	Not Rated
End of Table.					

Oil House

Overall the Oil House is in **fair** condition with **minor** maintenance deficiencies. A prioritized list of building elements, based on maintenance deficiency rating, is found in Table 11 below. Recommended treatments for individual building components can be found on pp. 478-483.

Table 11. Bass Harbor Head Oil House Prioritized Treatment List

Major Group Element	Group Element	Individual Element	Specific Element	Condition Rating	Deficiency Rating
CRITICAL					
D SERVICES	D50 ELECTRICAL	D5090 Other Electrical Systems	D509004 Lightning Protection System	Poor	Critical
D SERVICES	D40 FIRE PROTECTION SYSTEMS	D4030 Fire Protection Specialties	D403001 Fire Extinguishers	Poor	Critical
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2030 Trail (Pedestrian Paving)		Poor	Critical
SERIOUS					
G BUILDING SITEWORK	G90 OTHER SITE WORK	G9087 Overall Building Site Drainage		Poor	Serious
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2050 Maintained Landscapes		Poor	Serious
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301001 Roof Finishes	Fair	Serious
B SHELL	B20 EXTERIOR ENCLOSURE	B2010 Exterior Walls	B201005 Exterior Louvers & Screens	Good	Serious
MINOR					
B SHELL	B20 EXTERIOR ENCLOSURE	B2010 Exterior Walls		Poor	Minor
C INTERIORS	C10 INTERIOR CONSTRUCTION	C1030 Fittings		Poor	Minor
A SUBSTRUCTURE	A10 FOUNDATIONS	A1010 Standard Foundations		Fair	Minor
B SHELL	B10 SUPERSTRUCTURE	B1020 Roof Construction	B102001 Structural Roof Frame	Fair	Minor
B SHELL	B20 EXTERIOR ENCLOSURE	B2030 Exterior Doors		Fair	Minor

(Table 11 continued)

C INTERIORS	C30 INTERIOR FINISHES	C3020 Floor Finishes		Fair	Minor
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301001 Flashings & Trim	Good	Minor
C INTERIORS	C10 INTERIOR CONSTRUCTION	C1030 Fittings	C103098 Other Casework	Good	Minor
NOT RATED					
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301005 Gutters & Downspouts	Not Rated	Not Rated
D SERVICES	D20 PLUMBING			Not Rated	Not Rated
D SERVICES	D30 HVAC			Not Rated	Not Rated
D SERVICES	D40 FIRE PROTECTION SYSTEMS	D4010 Sprinklers		Not Rated	Not Rated
D SERVICES	D50 ELECTRICAL	D5010 Electrical Service & Distribution		Not Rated	Not Rated
		D5020 Lighting & Branch Wiring			
D SERVICES	D50 ELECTRICAL	D5030 Communications & Security Systems	D503001 Fire Alarm Systems	Not Rated	Not Rated
D SERVICES	D50 ELECTRICAL	D5030 Communications & Security Systems	D503008 Security Alarm Systems	Not Rated	Not Rated
End of Table.					

Garage

Overall the Garage is in **fair** condition with **minor** maintenance deficiencies. A prioritized list of building elements, based on maintenance deficiency rating, is found in Table 12 below. Recommended treatments for individual building components can be found on pp. 484-491.

Table 12. Bass Harbor Head Garage Prioritized Treatment List

Major Group Element	Group Element	Individual Element	Specific Element	Condition Rating	Deficiency Rating
CRITICAL					
D SERVICES	D50 ELECTRICAL	D5090 Other Electrical Systems	D509004 Lightning Protection System	Poor	Critical
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2020 Parking Areas (Lots)		Poor	Critical
B SHELL	B10 SUPERSTRUCTURE	B1010 Floor Construction	B101001 Structural Floor Frame	Poor	Critical
SERIOUS					
G BUILDING SITEWORK	G90 OTHER SITE WORK	G9087 Overall Building Site Drainage		Poor	Serious
C INTERIORS	C30 INTERIOR FINISHES	C3020 Floor Finishes		Poor	Serious
D SERVICES	D40 FIRE PROTECTION SYSTEMS	D4030 Fire Protection Specialties	D403001 Fire Extinguishers	Fair	Serious
A SUBSTRUCTURE	A10 FOUNDATIONS	A1010 Standard Foundations	A101002 Foundation Piers	Fair	Serious

(Table 12 continued)

B SHELL	B20 EXTERIOR ENCLOSURE	B2010 Exterior Walls		Good	Serious
C INTERIORS	C20 STAIRS	C2010 Stair Construction		Good	Serious
MINOR					
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2050 Maintained Landscapes		Poor	Minor
B SHELL	B20 EXTERIOR ENCLOSURE	B2020 Exterior Windows		Fair	Minor
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301001 Flashings & Trim	Fair	Minor
D SERVICES	D50 ELECTRICAL	D5010 Electrical Service & Distribution		Fair	Minor
		D5020 Lighting & Branch Wiring			
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2040 Site Development	G204002 Retaining Walls	Fair	Minor
B SHELL	B10 SUPERSTRUCTURE	B1020 Roof Construction	B102001 Structural Roof Frame	Good	Minor
B SHELL	B20 EXTERIOR ENCLOSURE	B2030 Exterior Doors		Good	Minor
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301001 Roof Finishes	Good	Minor
C INTERIORS	C10 INTERIOR CONSTRUCTION	C1030 Fittings		Good	Minor
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2030 Trail (Pedestrian Paving)		Good	Minor
G BUILDING SITEWORK	G20 SITE IMPROVEMENTS	G2040 Site Development	G204001 Fences & Gates	Good	Minor
NOT RATED					
B SHELL	B30 ROOFING	B3010 Roof Coverings	B301005 Gutters & Downspouts	Not Rated	Not Rated
D SERVICES	D20 PLUMBING			Not Rated	Not Rated
D SERVICES	D30 HVAC			Not Rated	Not Rated
D SERVICES	D40 FIRE PROTECTION SYSTEMS	D4010 Sprinklers		Not Rated	Not Rated
D SERVICES	D50 ELECTRICAL	D5030 Communications & Security Systems	D503001 Fire Alarm Systems	Not Rated	Not Rated
D SERVICES	D50 ELECTRICAL	D5030 Communications & Security Systems	D503008 Security Alarm Systems	Not Rated	Not Rated
End of Table.					

Lighthouse Recommended Treatments

General Comments

It is recommended that a historic paint survey be undertaken to determine if any remnants of historic coatings are extant. The study should include developing the most historic paint scheme. Historic paint colors should then be used when recoating all painted surfaces on the interior and exterior of the lighthouse. A "paint window" should be retained in case the need arises for future study.

A long-term solution for protecting all metal (primarily iron) components of the lighthouse is the installation of an Impressed Current Cathodic Protection System. The system is based on the principle that anodes corrode and cathodes do not corrode. If a building element is made a cathode through an applied direct current, no corrosion would occur on that element. Therefore, an applied anode (of a sacrificial metal) would corrode instead of the cathodic element.[1] The system has been applied to the Middle Bay Lighthouse in Mobile Bay of Alabama, and Point Arena Lighthouse, California. It is planned for the Thomas Point Shoal Lighthouse in the Chesapeake Bay of Maryland.[2]

When developing a construction or architectural program, the original specifications and drawings and archival photographs should be consulted to provide the closest replication of original design intent for the lighthouse.

Before opening the Lighthouse to climbing, a study may be warranted to determine the maximum number of climbers per day. Extra stresses on the structure could be caused by daily visitors, especially on a structure which historically accommodated only one man at one time.

Ventilation

The following information regarding ventilation and minimizing condensation buildup within a lighthouse is located in the 1997 *Historic Lighthouse Preservation Handbook*.[3] It has been edited and reduced to only include information relevant to the Bass Harbor Head Lighthouse. Refer to the handbook for more information.

> As humidity levels increase in a lighthouse, the plaster, wood, iron components, and masonry are affected. Increased moisture content in the porous materials—wood, plaster, and mortar joints—causes significant damage. ... Increased moisture content in the mortar joints will cause the leaching of the lime from the mortar, which results in the failure of the joint. Increased moisture will cause any exposed iron to corrode or rust. These conditions are easily avoided if the lighthouse is adequately ventilated.
>
> Once the exterior has been made weathertight, adequate air exchange is essential throughout the lighthouse. The needs of each historic lighthouse must be individually evaluated because there are

[1] For more information on the Impressed Current Cathodic Protection System, refer to Appalachian Underground Corrosion Short Course, *Fundamentals Course*, West Virginia University, 2015. Accessed at http://www.aucsc.com/bia/AUCSCFundamentalsText041715.pdf on October 15, 2015.
[2] For more information on these projects, refer to the following websites accessed on October 15, 2015: http://preserveala.org/pdfs/sites/MIDDLE%20BAY%202%20PAGE%20FACTS.pdf, http://usa.sika.com/dms/getdocument.get/3b4f9d7d-a9d2-3066-9c6c-f678077d6b21/cs-cpd-Point-Arena-Lighthouse-us.pdf, and http://keasthood.com/projects/thomas-point-shoal-lighthouse/ .
[3] NPS, USLS. *Historic Lighthouse Preservation Handbook*. 1997. Accessed at http://www.nps.gov/maritime/nhlpa/handbook.htm. Part IV. H. pp. 3-4.

so many variables that affect the performance of each interior space once the lighthouse has been made weathertight. A mechanical engineer or a specialist in interior climates should be consulted, particularly for lighthouses.

When looking at the type and amount of interior ventilation needed for a. . .lighthouse, there are four critical climate zones: cold and damp (Pacific northwest and northeastern states); temperate and humid (Mid-Atlantic States, coastal areas); hot and humid (southern states), and the extremely cold (freezing) and seasonably damp (Great Lakes). Each climate zone has special ventilation considerations.

The absolute minimum air exchange for most. . .lighthouses consists of one to four air exchanges every hour; one or two air exchanges per hour in winter and often twice that amount in summer. Even this minimal exchange may permit mold and mildew in damp climates. Monitoring the lighthouse for approximately six months during the initial ventilation period will provide useful information on the effectiveness of the ventilation solution.

There is no exact science for how much ventilation should be provided for each lighthouse. There are, however, some general rules of thumb:

- During months of high humidity, it is important to keep the air within the tower moving at all times.
- The most difficult lighthouses to adequately ventilate without resorting to extensive louvering and/or mechanical exhaust fan systems are masonry lighthouses in humid climates. For this lighthouse type nearly every window will need to be fitted with a louver that occupies at least 50 percent of the window opening [or having operable windows which can be mechanically opened during the day and closed during inclement weather and at night].
- Take advantage of prevailing winds during the installation of louvers. This will provide the maximum amount of natural passive (non-mechanical) ventilation.
- The natural chimney effect in most lighthouses is best utilized by installation of vents at the top and bottom of the lighthouse only. Consider vandalism when locating the lower vent.
- Be sure the built-in lantern vents are open and screened. This will also capitalize on the chimney effect that will naturally draw the air up and out of the lighthouse as the hot air in the tower rises.
- In lighthouses with AC power, fans controlled by thermostats and timers provide effective ventilation that can be tuned to operate in reaction to day-to-day climatic change. One fan in a small- to medium-sized lighthouse can reduce the amount of louvering substantially.
- If electric fans are used, study the environmental conditions of the lighthouse to determine whether the fans should be controlled by thermostats or automatic timers. Humidistats, designed for enclosed climate-control systems, generally are difficult to adapt for open. . . conditions. How the system will draw in or exhaust air is also important. It may be best to bring dry air in from the lantern or upper levels and force it out through lower tower windows. Additionally, less humid dry air is preferred to damper night air; this can be controlled with a timer switch mounted to the fan.
- In some extreme circumstances, heat will be needed during the winter, even at a minimal 45° Fahrenheit. . ., and using forced-fan ventilation in summer and will require retaining electrical service. For masonry lighthouses the interior temperature should be kept above the spring dew point to avoid damaging condensation. In most lighthouses the need for summer ventilation outweighs the winter requirements.

[End of quoted material.]

The following is based on the Uniformat II BFML (refer to p. 131, Table 2) and is listed in prioritized order based and condition and deficiency ratings (refer to p. 428, Table 8).

B301001 Roof Finishes	Poor	Critical

Short Term (Critical Components & Mothball Actions)

All exterior surfaces of the metal roof should be painted to match the extant paint color to protect the metal from further deterioration and create a clean appearance.

Long Term (Interior & Exterior Restoration)

All metal components should be painted to match the results of the historic paint study. In the absence of early paint layers, the roof framing should be painted white to match the specifications of the 1927 *Instructions to Employees of the United States Lighthouse Service*.[4]

After study of the extant paint, the paint should be removed using a non-abrasive method. Refer to the PROSOCO catalog for examples of non-abrasive, environmentally responsible paint removal products.[5] Early paint layers should be retained in the form of a paint window for future study.

The material should be tested for lead-based paint before any work is completed. If lead-based paint is found, all precautions should be taken to protect workers from exposure. Refer to OSHA's *Lead in Construction* for more information.[6]

The following information regarding treatment recommendations to metal is located in the 1997 *Historic Lighthouse Preservation Handbook*. Refer to this document for additional information.

> Following paint removal, the newly cleaned iron should be painted immediately with a corrosion-inhibiting primer to prevent 'flash rust.' Any buildup of salt or chloride residue on the bare metal will affect paint/coating adherence. If priming is delayed, rust should be removed with a clean wire brush just before priming.
>
> Traditionally, red lead was used as an anti-corrosive coating for priming iron. It was then coated with at least two coats of linseed-oil-based finish coats. This system is no longer regularly used due to toxicity. Instead, alkyd paints can and should be used, particularly with two coats of a rust-prohibitive alkyd primer. Latex and other water-based paints should not be used because their water content causes immediate metal oxidation (rust) upon contact of the paint. Epoxy coatings have also been successful in application to clean iron surfaces.
>
> The best and most effective way to preserve metal in a marine environment is to maintain a protective paint or coating on the metal (preservation maintenance). The effective protective life span of an existing paint system can be greatly extended by routine touchups of deteriorating areas. Any damaged areas should be repaired before repainting, including paint and rust removal.[7]

In addition, HPTC recommends the installation of shades on the interior of the Lantern, to match historic shades, will cut down on UV levels during the day (and protect the Fresnel lens).

[4] Department of Commerce, Lighthouse Service. *Instructions to Employees of the United States Lighthouse Service.* 1927. Government Printing Office: Washington, DC. pp. 63-64. Accessed at https://uslhs.org/sites/default/files/attached-files/1927%20Instructions%20to%20Employees%20of%20the%20Lighthouse%20Service.pdf on November 5, 2019.
[5] Available at https://www.prosoco.com/.
[6] Occupational Safety & Health Administration (OSHA). "Lead in Construction." *OSHA 3142 12R.* 2004. Accessed at https://www.osha.gov/Publications/osha3142.pdf on December 9, 2019.
[7] NPS, USLS. *Historic Lighthouse Preservation Handbook.* Part IV. B, pp. 18-25.

Investigation into the repair of the cracked ventilator ball should occur. This feature was an integral part of the ventilation of the interior of the Lighthouse when it was constructed, and every effort should be taken to restore that original feature.

B101004 Balcony Construction	Poor	Critical

Short Term (Critical Components & Mothball Actions)

The upper rail of the exterior gallery railing should be completely replaced. The in-kind replacement of cast-iron components is often the only practical solution when the feature is severely corroded beyond feasible repair, as is the upper handrail. The handrail is thought to be historic, if not original, and should be replaced in kind. The new components should be painted (black) prior to installation, with any touchup painting occurring after installation. Upon installation, care should be taken to protect the surrounding historic components from damage.

Long Term (Interior & Exterior Restoration)

All metal components should be painted to match the results of the historic paint study, or in the absence of early paint layers, painted black to match the specifications of the 1927 *Instructions to Employees of the United States Lighthouse Service*.[8]

After study of the extant paint, the paint should be removed using a non-abrasive method. Refer to the PROSOCO catalog for examples of non-abrasive, environmentally responsible paint removal products.[9] Early paint layers should be retained in the form of a paint window for future study.

The material should be tested for lead-based paint before any work is completed. If lead-based paint is found, all precautions should be taken to protect workers from exposure. Refer to OSHA's *Lead in Construction* for more information.[10]

The following information regarding treatment recommendations to metal is located in the 1997 *Historic Lighthouse Preservation Handbook*. Refer to this document for additional information.

> Following paint removal, the newly cleaned iron should be painted immediately with a corrosion-inhibiting primer to prevent 'flash rust.' Any buildup of salt or chloride residue on the bare metal will affect paint/coating adherence. If priming is delayed, rust should be removed with a clean wire brush just before priming.
>
> Traditionally, red lead was used as an anti-corrosive coating for priming iron. It was then coated with at least two coats of linseed-oil-based finish coats. This system is no longer regularly used due to toxicity. Instead, alkyd paints can and should be used, particularly with two coasts of a rust-prohibitive alkyd primer. Latex and other water-based paints should not be used because their water content causes immediate metal oxidation (rust) upon contact of the paint. Epoxy coatings have also been successful in application to clean iron surfaces.
>
> For further information, consult NPS *Preservation Brief 27: The Maintenance and Repair of Architectural Cast Iron*.

[8] Department of Commerce, Lighthouse Service, *Instructions to Employees of the United States Lighthouse Service,* pp. 63-64.
[9] Available at https://www.prosoco.com/.
[10] Available at https://www.osha.gov/Publications/osha3142.pdf.

The best and most effective way to preserve metal in a marine environment is to maintain a protective paint or coating on the metal (preservation maintenance). The effective protective life span of an existing paint system can be greatly extended by routine touchups of deteriorating areas. Any damaged areas should be repaired before repainting, including paint and rust removal.[11]

B2010 Exterior Walls	Poor	Critical

Short Term (Critical Components & Mothball Actions)

Repairs are needed to the mortar joints of the brick tower walls: above the upper window on the interior and above the lower window on the exterior. The following information regarding treatment recommendations to repointing masonry is located in the 1997 *Historic Lighthouse Preservation Handbook.* Refer to this document for additional information.

- Remove deteriorated mortar by carefully hand raking the joints to avoid damaging the masonry.
- Duplicate the historic mortar in strength, composition, color, and texture. A mortar analysis can be performed by most preservation professionals.
- Duplicate old mortar joints in width and in joint profile.
- Do not remove non-deteriorated mortar from sound joints for purely cosmetic reasons.
- Do not use electric saws and hammers rather than hand tools to remove deteriorated mortar from joints prior to repointing.
- Do not repoint with mortar of high Portland-cement content (unless it is the same content of the historic mortar). This can often create a bond that is stronger than the historic material and cause damage resulting from the differing coefficient of expansion and the differing porosity of the material and the mortar.
- Do no repoint with a synthetic caulking compound.[12]

For further information, consult NPS *Preservation Brief 2: Repointing Mortar Joints in Historic Masonry Buildings* for more information.

All exterior surfaces of the metal lantern walls should be painted to match the extant paint color to protect the metal from further deterioration and create a clean appearance.

Long Term (Interior & Exterior Restoration)

Once repairs are made to the brick tower walls, including repointing where necessary, the exterior should be painted to match the results of the historic paint study. In the absence of early paint layers, the brick should be painted white to match the specifications of the 1927 *Instructions to Employees of the United States Lighthouse Service.*[13]
After study of the extant paint, the paint should be removed using a non-abrasive method. Refer to the PROSOCO catalog for examples of non-abrasive, environmentally responsible paint removal products.[14] Early paint layers should be retained in the form of a paint window for future study.

[11] NPS, USLS. *Historic Lighthouse Preservation Handbook.* Part IV. B, pp. 18-25.
[12] NPS, USLS. *Historic Lighthouse Preservation Handbook,* Part IV. A, p. 19.
[13] Department of Commerce, Lighthouse Service, *Instructions to Employees of the United States Lighthouse Service,* pp. 63-64.
[14] Available at https://www.prosoco.com/.

The paint used to re-coat the brick should be a breathable, exterior masonry paint. Keim Mineral Coatings of America, Inc. offers several options for vapor-permeable paints and coatings for historic masonry structure preservation projects. The paint has an extended life. A product representative will be able to provide technical assistance on appropriate treatments and products.[15]

In addition, the 1997 *Historic Lighthouse Preservation Handbook* provides the following guidance regarding recoating historic masonry in lighthouses:

- Before recoating, inspect all masonry surfaces to determine whether repainting is necessary. If painting is the determined treatment, a schedule of colors, locations, and quantities should be developed.
- Remove damaged or deteriorated material only to the next sound layer, using the gentlest method possible (e.g., hand scraping) before recoating.
- Recoat surfaces with a system designed for the masonry substrate—brick, stone, or stucco. The system should be designed to 'breathe' so that moisture trapped within the masonry units can escape. This quality is referred to as the permeability of the coating system.
- Use colors that are historically appropriate to the lighthouse or that maintain the character-defining features of the daymark.
- Do not remove any coating that is firmly adhering to, and thus protecting, masonry surfaces.
- Do not use methods of removing coatings which are destructive to masonry, such as sandblasting, application of caustic solutions, or high-pressure water blasting.
- Do not apply coatings such as stucco to masonry that historically has been painted or uncoated.
- Do not remove historic masonry coatings and leave the underlying layer exposed to the elements.
- Do not apply a sealing type paint to the interior of a lighthouse. This will potentially trap moisture in the wall which will cause the wall to deteriorate.[16]

All exterior and interior metal wall components of the lantern cast iron exterior walls should be painted to match the results of the historic paint study. In the absence of early paint layers, the metal surfaces should be painted black to match the specifications of the 1927 *Instructions to Employees of the United States Lighthouse Service*.[17]

After study of the extant paint, the paint should be removed using a non-abrasive method. Refer to the PROSOCO catalog for examples of non-abrasive, environmentally responsible paint removal products.[18] Early paint layers should be retained in the form of a paint window for future study.

The following information regarding treatment recommendations to metal is located in the 1997 *Historic Lighthouse Preservation Handbook*.

> Following paint removal, the newly cleaned iron should be painted immediately with a corrosion-inhibiting primer to prevent 'flash rust.' Any buildup of salt or chloride residue on the bare metal will affect paint/coating adherence. If priming is delayed, rust should be removed with a clean wire brush just before priming.
>
> Traditionally, red lead was used as an anti-corrosive coating for priming iron. It was then coated with at least two coats of linseed-oil-based finish coats. This system is no longer regularly used due to toxicity. Instead, alkyd paints can and should be used, particularly with two coasts of a rust-

[15] Available at http://www.keim/com.
[16] NPS, USLS. *Historic Lighthouse Preservation Handbook*. Part IV. A, pp. 16-17.
[17] Department of Commerce, Lighthouse Service, *Instructions to Employees of the United States Lighthouse Service,* pp. 63-64.
[18] Available at https://www.prosoco.com/.

prohibitive alkyd primer. Latex and other water-based paints should not be used because their water content causes immediate metal oxidation (rust) upon contact of the paint. Epoxy coatings have also been successful in application to clean iron surfaces.

The best and most effective way to preserve metal in a marine environment is to maintain a protective paint or coating on the metal (preservation maintenance). The effective protective life span of an existing paint system can be greatly extended by routine touchups of deteriorating areas. Any damaged areas should be repaired before repainting, including paint and rust removal.[19]

B2020 Exterior Windows	Fair	Serious

Short Term (Critical Components & Mothball Actions)

All exterior surfaces of the cast window components should be painted to match the extant paint color to protect the metal from further deterioration and create a clean appearance.

Long Term (Interior & Exterior Restoration)

All glass block should be removed from the two original window openings. Care should be taken to retain the historic cast iron components in which the glass block sits.

Paint and rust should be removed from the cast iron components by hand scraping. Sandblasting, heat, and chemical-dipping paint removal processes should not be used. Rust should be removed using a clean wire brush. The material should be tested for lead-based paint before any work is completed. If lead-based paint is found, all precautions should be taken to protect workers from exposure. Refer to OSHA's *Lead in Construction* for more information.[20] Frames, sills, and lintels should be repaired with patches, splices, consolidation, or reinforcement. When possible, remove earlier repairs that were done insensitively and repair appropriately.

For further information, consult NPS *Preservation Brief 13: The Repair and Thermal Upgrading of Historic Steel Windows*.

The following information regarding treatment recommendations for metal window components is located in the 1997 *Historic Lighthouse Preservation Handbook*. Refer to this document for additional information.

Following paint removal, the newly cleaned iron should be painted immediately with a corrosion-inhibiting primer to prevent 'flash rust.' Any buildup of salt or chloride residue on the bare metal will affect paint/coating adherence. If priming is delayed, rust should be removed with a clean wire brush just before priming.

Traditionally, red lead was used as an anti-corrosive coating for priming iron. It was then coated with at least two coats of linseed-oil-based finish coats. This system is no longer regularly used due to toxicity. Instead, alkyd paints can and should be used, particularly with two coasts of a rust-prohibitive alkyd primer. Latex and other water-based paints should not be used because their water content causes immediate metal oxidation (rust) upon contact of the paint. Epoxy coatings have also been successful in application to clean iron surfaces.

[19] NPS, USLS. *Historic Lighthouse Preservation Handbook.* Part IV. B, pp. 18-25.
[20] OSHA, "Lead in Construction."

> The best and most effective way to preserve metal in a marine environment is to maintain a protective paint or coating on the metal (preservation maintenance). The effective protective life span of an existing paint system can be greatly extended by routine touchups of deteriorating areas. Any damaged areas should be repaired before repainting, including paint and rust removal.[21]

HPTC also recommends the cast iron casement windows be restored to the openings using surviving prototypes, if available, or historic drawings and photographs. The windows should be painted red, green, or brown on the exterior and brown on the interior, to match the specifications of the 1927 *Instructions to Employees of the United States Lighthouse Service.*[22] Historic hardware should be replicated and installed. Well-maintained, operable windows are important in protecting the lighthouse and creating efficient passive ventilation during warm and humid weather.

B101003 Floor Decks & Slabs	Fair	Serious

Short Term (Critical Components & Mothball Actions)

All exterior surfaces of the cast iron floor decks should be painted to match the extant paint color to protect the metal from further deterioration and create a clean appearance. The interior surfaces of the cast iron floor decks and the concrete slab require no work in the short term.

Long Term (Interior & Exterior Restoration)

All metal components should be painted to match the results of the historic paint study. In the absence of early paint layers, the cast iron floor decks (interior and exterior) should be painted brown to match the specifications of the 1927 *Instructions to Employees of the United States Lighthouse Service.*[23]

After study of the extant paint, the paint should be removed using a non-abrasive method. Refer to the PROSOCO catalog for examples of non-abrasive, environmentally responsible paint removal products.[24] Early paint layers should be retained in the form of a paint window for future study.

The material should be tested for lead-based paint before any work is completed. If lead-based paint is found, all precautions should be taken to protect workers from exposure. Refer to OSHA's *Lead in Construction* for more information.[25]

The following information regarding treatment recommendations to metal is located in the 1997 *Historic Lighthouse Preservation Handbook*. Refer to this document for additional information.

> Following paint removal, the newly cleaned iron should be painted immediately with a corrosion-inhibiting primer to prevent 'flash rust.' Any buildup of salt or chloride residue on the bare metal will affect paint/coating adherence. If priming is delayed, rust should be removed with a clean wire brush just before priming.

[21] NPS, USLS. *Historic Lighthouse Preservation Handbook.* Part IV. B, pp. 18-25.
[22] Department of Commerce, Lighthouse Service, *Instructions to Employees of the United States Lighthouse Service,* pp. 63-64.
[23] Department of Commerce, Lighthouse Service, *Instructions to Employees of the United States Lighthouse Service,* pp. 63-64.
[24] Available at https://www.prosoco.com/.
[25] OHSA, "Lead in Construction."

> Traditionally, red lead was used as an anti-corrosive coating for priming iron. It was then coated with at least two coats of linseed-oil-based finish coats. This system is no longer regularly used due to toxicity. Instead, alkyd paints can and should be used, particularly with two coats of a rust-prohibitive alkyd primer. Latex and other water-based paints should not be used because their water content causes immediate metal oxidation (rust) upon contact of the paint. Epoxy coatings have also been successful in application to clean iron surfaces.
>
> The best and most effective way to preserve metal in a marine environment is to maintain a protective paint or coating on the metal (preservation maintenance). The effective protective life span of an existing paint system can be greatly extended by routine touchups of deteriorating areas. Any damaged areas should be repaired before repainting, including paint and rust removal.[26]

[End of quoted material.]

The concrete slab should be prepared, primed, and painted with an anti-slip paint intended for use on concrete floors.

Investigation into the under-slab condition should be undertaken to determine the condition and structural details of the slab, and condition and details of the brick walls thought to be exposed underneath.

C201001 Interior Stair Construction	Fair	Serious

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term. Plan for Long-Term work below.

Long Term (Interior & Exterior Restoration)

All metal stair components should be painted to match the results of the historic paint study, or in the absence of early paint layers, painted brown to match the specifications of the 1927 *Instructions to Employees of the United States Lighthouse Service.*[27]

After study of the extant paint, the paint should be removed using a non-abrasive method. Refer to the PROSOCO catalog for examples of non-abrasive, environmentally responsible paint removal products.[28] Early paint layers should be retained in the form of a paint window for future study.

The following information regarding treatment recommendations to metal is located in the 1997 *Historic Lighthouse Preservation Handbook*. Refer to this document for additional information.

> Following paint removal, the newly cleaned iron should be painted immediately with a corrosion-inhibiting primer to prevent 'flash rust.' Any buildup of salt or chloride residue on the bare metal will affect paint/coating adherence. If priming is delayed, rust should be removed with a clean wire brush just before priming.
>
> Traditionally, red lead was used as an anti-corrosive coating for priming iron. It was then coated with at least two coats of linseed-oil-based finish coats. This system is no longer regularly used

[26] NPS, USLS. *Historic Lighthouse Preservation Handbook*. Part IV. B, pp. 18-25.
[27] Department of Commerce, Lighthouse Service, *Instructions to Employees of the United States Lighthouse Service,* pp. 63-64.
[28] Available at https://www.prosoco.com/.

due to toxicity. Instead, alkyd paints can and should be used, particularly with two coasts of a rust-prohibitive alkyd primer. Latex and other water-based paints should not be used because their water content causes immediate metal oxidation (rust) upon contact of the paint. Epoxy coatings have also been successful in application to clean iron surfaces.

For further information, consult *NPS Preservation Brief 27: The Maintenance and Repair of Architectural Cast Iron*.

The best and most effective way to preserve metal in a marine environment is to maintain a protective paint or coating on the metal (preservation maintenance). The effective protective life span of an existing paint system can be greatly extended by routine touchups of deteriorating areas. Any damaged areas should be repaired before repainting, including paint and rust removal.[29]

D509004 Lightning Protection System	Fair	Minor

Short Term (Critical Components & Mothball Actions)

The extant lightning protection system should be inspected to ensure safety, system continuity, and proper maintenance.

Long Term (Interior & Exterior Restoration)

If not completed in the Short Term, same as above.

D5010 Electrical Service & Distribution D5020 Lighting & Branch Wiring	Fair	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term. Plan for Long-Term work below.

Long Term (Interior & Exterior Restoration)

All electrical service components should be inspected to ensure each component is necessary. System components which are redundant and can, should be consolidated or removed. As part of the interior restoration, the electrical conduit on the interior should be painted to better blend in with the interior wall color (whether repainted white or left natural brick).

D403001 Fire Extinguishers	Fair	Minor

Short Term (Critical Components & Mothball Actions)

The local fire marshal, representative from the fire department, or fire protection engineer should be consulted for recommendations on size and placement of the fire extinguisher. This component should meet building codes and emergency training should be provided to NPS staff. Fire extinguishers should be periodically inspected.

[29] NPS, USLS. *Historic Lighthouse Preservation Handbook.* Part IV. B, pp. 18-25.

Long Term (Interior & Exterior Restoration)

If not completed in the Short Term, same as above.

B102001 Structural Roof Frame	Fair	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term. Plan for Long-Term work below.

Long Term (Interior & Exterior Restoration)

All metal components should be painted to match the results of the historic paint study. In the absence of early paint layers, the roof framing should be painted white to match the specifications of the 1927 *Instructions to Employees of the United States Lighthouse Service.*[30]

After study of the extant paint, the paint should be removed using a non-abrasive method. Refer to the PROSOCO catalog for examples of non-abrasive, environmentally responsible paint removal products.[31] Early paint layers should be retained in the form of a paint window for future study.

The following information regarding treatment recommendations to metal is located in the 1997 *Historic Lighthouse Preservation Handbook*. Refer to this document for additional information.

> Following paint removal, the newly cleaned iron should be painted immediately with a corrosion-inhibiting primer to prevent 'flash rust.' Any buildup of salt or chloride residue on the bare metal will affect paint/coating adherence. If priming is delayed, rust should be removed with a clean wire brush just before priming.
>
> Traditionally, red lead was used as an anti-corrosive coating for priming iron. It was then coated with at least two coats of linseed-oil-based finish coats. This system is no longer regularly used due to toxicity. Instead, alkyd paints can and should be used, particularly with two coats of a rust-prohibitive alkyd primer. Latex and other water-based paints should not be used because their water content causes immediate metal oxidation (rust) upon contact of the paint. Epoxy coatings have also been successful in application to clean iron surfaces.
>
> The best and most effective way to preserve metal in a marine environment is to maintain a protective paint or coating on the metal (preservation maintenance). The effective protective life span of an existing paint system can be greatly extended by routine touchups of deteriorating areas. Any damaged areas should be repaired before repainting, including paint and rust removal.[32]

[30] Department of Commerce, Lighthouse Service, *Instructions to Employees of the United States Lighthouse Service,* pp. 63-64.
[31] Available at https://www.prosoco.com/.
[32] NPS, USLS. *Historic Lighthouse Preservation Handbook.* Part IV. B, pp. 18-25.

B301004 Flashings & Trim	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term. Plan for Long-Term work below.

Long Term (Interior & Exterior Restoration)

The step flashing located at the junction of the Covered Way gable roof and tower brick wall is in good condition with extensive paint coatings. When the exterior of the tower is repainted, the extant flashings should be scraped and repainted to match the tower. Once exposed, the flashing can be inspected for repairs. Repairs should use traditional techniques.

C1020 Interior Doors	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term. Plan for Long-Term work below.

Long Term (Interior & Exterior Restoration)

All metal door components should be painted to match the results of the historic paint study, or in the absence of early paint layers, painted red, green, or brown to match the specifications of the 1927 *Instructions to Employees of the United States Lighthouse Service.*[33]

After study of the extant paint, the paint should be removed using a non-abrasive method. Refer to the PROSOCO catalog for examples of non-abrasive, environmentally responsible paint removal products.[34] Early paint layers should be retained in the form of a paint window for future study. The "Shelter" sign should be retained on D101.

The following information regarding treatment recommendations to metal is located in the 1997 *Historic Lighthouse Preservation Handbook*. Refer to this document for additional information.

> Following paint removal, the newly cleaned iron should be painted immediately with a corrosion-inhibiting primer to prevent 'flash rust.' Any buildup of salt or chloride residue on the bare metal will affect paint/coating adherence. If priming is delayed, rust should be removed with a clean wire brush just before priming.
>
> Traditionally, red lead was used as an anti-corrosive coating for priming iron. It was then coated with at least two coats of linseed-oil-based finish coats. This system is no longer regularly used due to toxicity. Instead, alkyd paints can and should be used, particularly with two coasts of a rust-prohibitive alkyd primer. Latex and other water-based paints should not be used because their water content causes immediate metal oxidation (rust) upon contact of the paint. Epoxy coatings have also been successful in application to clean iron surfaces.
>
> For further information, consult NPS *Preservation Brief 27: The Maintenance and Repair of Architectural Cast Iron.*

[33] Department of Commerce, Lighthouse Service, *Instructions to Employees of the United States Lighthouse Service,* pp. 63-64.
[34] Available at https://www.prosoco.com/.

> The best and most effective way to preserve metal in a marine environment is to maintain a protective paint or coating on the metal (preservation maintenance). The effective protective life span of an existing paint system can be greatly extended by routine touchups of deteriorating areas. Any damaged areas should be repaired before repainting, including paint and rust removal.[35]

The floor hatch should be maintained in an open position to encourage passive ventilation throughout the Lighthouse, important during warm and humid months. The brass latch of the lantern floor hatch should also be repaired.

C1030 Fittings	Good	Minor

Continue periodic maintenance of the Fresnel lens, stand, and chimney. The stand should be painted brown to match the specifications of the 1927 *Instructions to Employees of the United States Lighthouse Service.*[36]

G2050 Maintained Landscapes	Good	Minor

Continue periodic maintenance of the exterior maintained landscape adjacent the Lighthouse.

G9087 Overall Building Site Drainage	Good	Minor

Continue periodic maintenance of overall building site drainage to ensure water is running away from the base of the building.

A1010 Standard Foundations	Unknown	Unknown

Short Term (Critical Components & Mothball Actions)

Details on the Lighthouse foundation are unknown. An investigation into the condition of the subgrade foundation should occur to determine the details of this critical structural system. This task should be coordinated with the investigation of the concrete slab.

Long Term (Interior & Exterior Restoration)

If not completed in the Short Term, same as above.

D4010 Sprinklers	Not Rated	Not Rated

According to NPS *Reference Manual 58: Structural Fire* "Historic Property Assessment Matrix", the park may want to install a fire suppression (sprinkler) system in the Lighthouse, as it has high significance, good integrity, and is located in a rural location. Despite being built of non-combustible

[35] NPS, USLS. *Historic Lighthouse Preservation Handbook.* Part IV. B, pp. 18-25.
[36] Department of Commerce, Lighthouse Service, *Instructions to Employees of the United States Lighthouse Service,* pp. 63-64.

construction with adequate proximity to a fuel load, if the park decides to not install a system, a variance would be required by the Regional Authority Having Jurisdiction (AHJ).[37]

D503001 Fire Alarm Systems	Not Rated	Not Rated

According to NPS *Reference Manual 58: Structural Fire* "Historic Property Assessment Matrix", a fire alarm system is required in the Lighthouse, as it has high significance, good integrity, and is located in a rural location. Despite being built of non-combustible construction with adequate proximity to a fuel load, if the park decides to not install a system, a variance would be required by the Regional Authority Having Jurisdiction (AHJ).[38]

D503002 Security Alarm Systems	Not Rated	Not Rated

A security alarm system, with integrated battery backup, may be warranted for the Lighthouse, especially if the Lighthouse is considered off-limits when other buildings are in use.

[37] National Park Service, Division of Fire and Aviation. *Reference Manual 58: Structural Fire.* 2015. Accessed at https://www.nps.gov/subjects/fire/upload/reference-manual-58.pdf on February 27, 2020.
[38] Ibid.

Keeper's Dwelling Recommended Treatments

The following is based on the Uniformat II BFML (refer to p. 131, Table 2) and is listed in prioritized order based and condition and deficiency ratings (refer to p. 429, Table 9).

D509004 Lightning Protection System	Poor	Critical

Short Term (Critical Components & Mothball Actions)

A permanent, UL-rated lightning protection system should be installed. It should be designed to be demountable in the event of future roof replacements. Design features should include exposed downlead cables and the use of minimally-sized aerial terminals (government points). Attention should be paid to the selection of fasteners for the downlead cables. Penetrations through the roof should not be allowed. Require submittals from installers including layout of installation. Chimneys require a minimum of one point per chimney.

A lightning risk assessment is part of the project evaluation checklist found in Denver Service Center's Fire Protection Standards for properties undergoing rehabilitation work. Installing lightning protection is consistent with *Director's Order 58: Structural Fire Management,* requiring NPS construction to have safeguards assuring life-safety design and minimizing the chances of catastrophic loss of property.[39]

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

D503001 Fire Alarm Systems	Poor	Critical

Short Term (Critical Components & Mothball Actions)

An automatic call-out feature should be added to the extant hardwired fire alarm system present in the Keeper's Dwelling. The callout system should alert park dispatch or the local fire department to alert anyone of fire in the vacant building should one occur.

Long Term (Interior & Exterior Restoration)

According to NPS *Reference Manual 58: Structural Fire* "Historic Property Assessment Matrix", a fire alarm system is required in the Keeper's Dwelling, as it has high significance, fair integrity, will likely have a mixed use, is located in a rural location, and is built of combustible construction (wood frame).[40]

A fire protection engineer shall inspect the building to determine the appropriate type, quantity, and locations of smoke and heat (rate-of-rise) detectors for the approved use and occupancy of the building. New detectors will replace the existing detectors and will be installed as part of the fire

[39] National Park Service, Division of Fire and Aviation. *Reference Manual 58: Structural Fire.* 2015. Accessed at https://www.nps.gov/subjects/fire/upload/reference-manual-58.pdf on February 27, 2020.
[40] Ibid.

alarm system connected to the local emergency response unit or park/regional dispatch. Refer to NPS *Director's Order 58: Structural Fire Management, NFPA 914 Code for Fire Protection of Historic Resources*, and local codes for more information.

D403001 Fire Extinguishers	Poor	Critical

Short Term (Critical Components & Mothball Actions)

The local fire marshal, representative from the fire department, or fire protection engineer should be consulted for recommendations on size and placement of the fire extinguisher. This component should meet building codes and emergency training should be provided to NPS staff. Fire extinguishers should be periodically inspected.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

B301004 Flashings & Trim	Poor	Critical

Short Term (Critical Components & Mothball Actions)

In the Short Term, the flashing around the base of the chimney should be temporarily repaired. All mastic and caulk should be removed and traditional repairs using metal flashing and counterflashing be completed. Mastic and caulk should never be the sole solution for keeping water out of a critical joint. (See B101099 Other Floor Construction-Chimneys for associated recommendations.)

Long Term (Interior & Exterior Restoration)

During Long-Term Exterior Restoration, it is recommended that all modern fiberglass roof coverings and vinyl siding on the exterior walls be removed. At that time, an assessment should be completed on the critical flashing junctures between roofs and chimneys, other roofs, and side walls. It is assumed that no traditional flashing has been retained with the modern roof and exterior wall coverings.

Replacement of the roof coverings with traditional wood shingles and the vinyl siding with painted wood siding is also recommended (see B201001 Exterior Skin and B301001 Roof Finishes for additional information). Therefore, flashing recommendations from the Cedar Shake and Shingle Bureau (CSSB) should be followed. Refer to details in CSSB's *New Roof Construction Manual* for more details.

> Different flashing metals are available in different areas depending on climatic variations. It is good practice to use metals that have proven their reliability under the specific conditions to be encountered. It is important that metal flashing have the same longevity as Western Red Cedar.[41]

For valley flashing, CSSB recommends (fig. 752):

[41] Cedar Shake & Shingle Bureau. "New Roof Construction Manual." June 2014. p. 9. Accessed at http://www.cedarbureau.org/cms-assets/documents/roof-manual-full-09-2014.pdf on November 6, 2019.

> For roof slopes less than 12:12, [valley] flashing should extend not less than 11" each side [of the valley centerline]. Valley metal should be underlayed with No. 30 ASTM D226 Type II or No. 30 ASTM D4869 Type IV roofing felt. Shingles should not be applied with their grain parallel to the valley centerline and those extending into the valley should be cut at the correct angle.[42]

At saddle locations (i.e. where dormer gable roof meets main block roof plane), CSSB recommends 36"-wide felt on all sides, W valley metal lapped at ridge (2" lap), and ½" folded-back trim (fig. 753).[43]

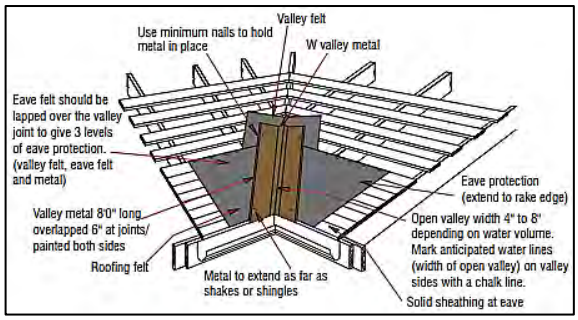


Figure 752. Roof valley flashing details as specified by CSSB. Source: *New Roof Construction Manual*, p. 9.

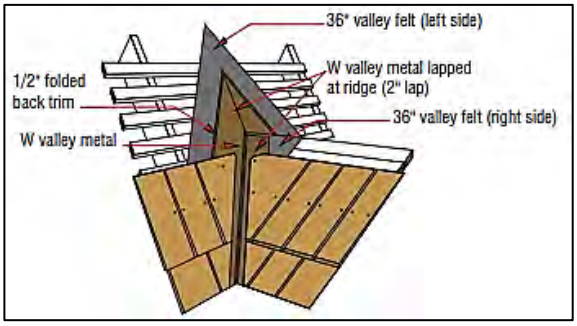


Figure 753. Saddle flashing details, as specified by CSSB. Source: *New Roof Construction Manual*, p. 10.

For chimney flashing and roof-side wall junction flashing (i.e. at dormers and exterior walls), CSSB recommends (fig. 754):

> Step flashing should extend under the [certified shingles], up the vertical surface, (one flashing installed on each course concealed under the covering course) and should be covered by a second layer of flashing (counter-flashing).[44]

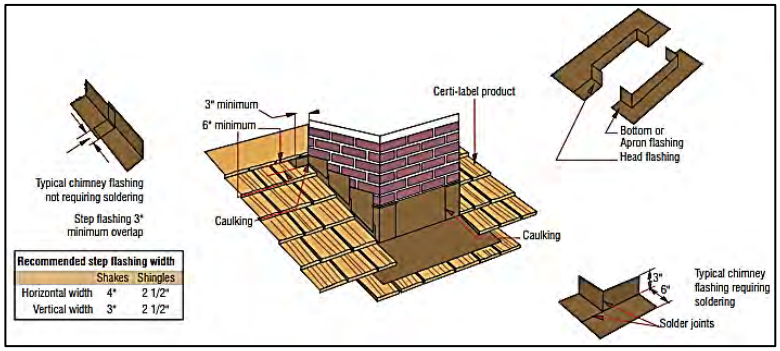


Figure 754. Chimney and other roof-side wall flashing details as specified by CSSB. Source: *New Roof Construction Manual*, p. 11.

For roof projection flashing, CSSB recommends a 1" minimum clearance around a projection, no nails penetrating through the flashing flange underneath the shingles, and keeping the edge of the flashing flange 2" from the edge of a shingle joint (fig. 755).[45]

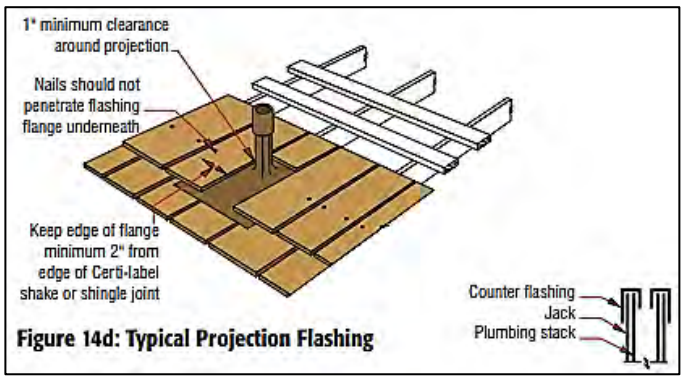


Figure 755. Typical roof penetration flashing details, as specified by CSSB. Source: *New Roof Construction Manual*, p. 11.

[42] Ibid, p. 10.
[43] Ibid, p. 10.
[44] Ibid, p. 9.
[45] Ibid, p. 11.

G9087 Overall Building Site Drainage	Poor	Serious

Short Term (Critical Components & Mothball Actions)

Neutral drainage along all elevations should be corrected immediately. Due to the complicated site, minor regrading of soil to create positive drainage (away from building foundations) should be completed. Every effort should be made to ensure water is running away from the building.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

B301005 Gutters & Downspouts	Poor	Serious

Short Term (Critical Components & Mothball Actions)

The extant roof gutters and downspouts located on the Ell, Addition, and Covered Way should be retained. Short-Term repairs should include ensuring gutters are pitched properly to drain toward downspouts, reinstalling a downspout missing at the Covered Way east elevation, and periodic cleaning of gutters and downspouts to eliminate clogs.

Long Term (Interior & Exterior Restoration)

One archival photograph shows a gutter and a downspout on the east slope of the Main Block, but not on other portions of the building until after the proposed Period of Significance. It is known that the former basement cistern was filled with water collected from a roof drainage system, but further details on this system are not known.

Due to the neutral drainage around the perimeter of the building, areas of hardscape directly adjacent the building, and obvious water infiltration into the basement, a holistic roof drainage system is recommended for installation on the Keeper's Dwelling.

Installation of new features not in place during the proposed Period of Significance is only recommended when the feature will not detract from the structure, can easily be reversible, and benefits outweigh drawbacks from the addition of the feature.

Based on roof slopes, square footage, and the area's rain intensity, 5"-wide halfround galvanized gutters should be installed on each slope, except the front vestibule roof and dormer roofs. Each downspout should utilize a single 3"-diameter round galvanized downspout. See drawing below for the recommended locations of downspouts (fig. 756).

Ideally the downspouts should empty into an underground drainage system to be carried away from the base of the building and the basement/crawlspaces. This may not be possible in areas where granite bedrock is located at grade. As stated before, every effort should be made to ensure water is running away from the base of the building.

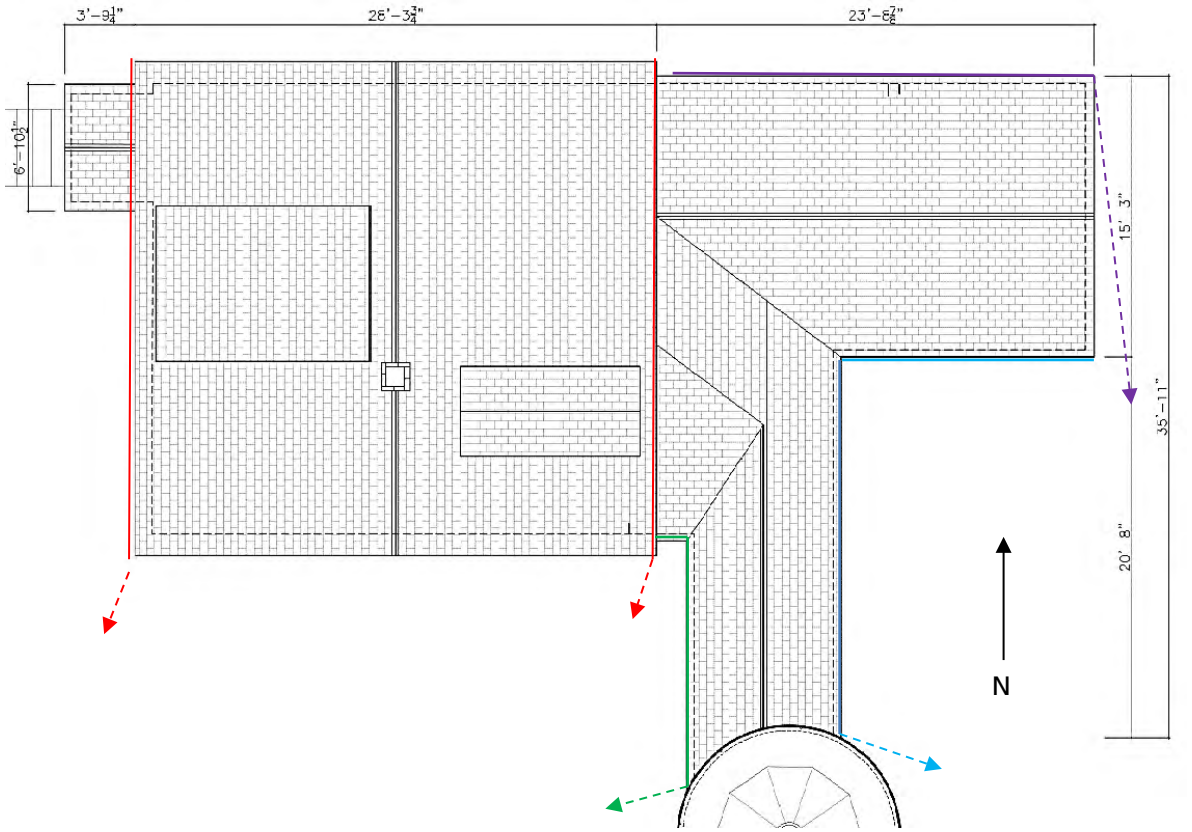


Figure 756. Keeper's Dwelling roof plan. Red lines denote gutters on the Main Block and arrows denote location of downspouts (one each). Green lines denote gutters on the south side of the Infill and west elevation of the Covered Way; a single downspout is located at the south end and should be directed around the Lighthouse. Blue lines denote gutters on the east elevation of the Covered Way and south elevation of the Addition; a single downspout is located at the south end and should be directed around the Lighthouse. The purple line denotes a gutter on the north elevation of the Ell and Addition; a single downspout should be directed along the east elevation of the Addition and drain to the south. There are no gutters recommended for the Entrance Vestibule or dormers at this time. Drawing: HPTC, 2020.

B101099 Other Floor Construction – Chimneys	Poor	Serious

Short Term (Critical Components & Mothball Actions)

The exterior and interior of the Main Block chimney should be inspected and repointed using a traditional lime-based mortar. Refer to NPS *Preservation Brief 2: Repointing Mortar Joints in Historic Masonry Buildings* for more information. Additional repairs are likely required to the flashing and roof (see B301004 Flashings & Trim for more information).

Long Term (Interior & Exterior Restoration)

For Exterior Restoration purposes the kitchen chimney should be reconstructed at the north end of the Ell (known to have been removed after the end of the proposed Period of Significance). Archival photographs and drawings exist showing the general height, dimensions, and location of the chimney. Depending on the Ultimate Use of the interior of the Keeper's Dwelling the chimney could penetrate down through the first floor or stop and be supported in the attic.

A1010 Standard Foundations	Fair	Serious

Short Term (Critical Components & Mothball Actions)

In the Short Term, rodent access should be eliminated at the Entrance Vestibule. The concrete stair unit will likely need to be temporarily moved and any hole behind in the brick foundation walls infilled, ideally with in-kind brick and/or mortar (not caulk).

Long Term (Interior & Exterior Restoration)

For Exterior Restoration purposes, the above-grade exterior faces of the foundation walls should be whitewashed to match archival photographs clearly showing this feature. Instead of whitewash, a breathable, exterior masonry paint could also be used. Keim Mineral Coatings of America, Inc. offers several options for vapor-permeable paints and coatings for historic masonry preservation projects. The paint also has an extended life and is formulated to withstand harsh, coastal conditions well.[46]

Below-grade stone foundation wall penetrations by water supply piping and waste piping should be sealed around their openings to resist water penetration through the foundation wall. Traditional repair would require oakum and lead. A modern product for this repair is Link-Seal, "a modular, elastomer sealing system that creates a permanent hydrostatic seal for nearly any cylindrical object as it passes through a barrier."[47]

A2020 Basement Walls	Fair	Serious

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

Below-grade stone foundation wall penetrations by water supply piping and waste piping should be sealed around their openings to resist water penetration through the foundation wall. Repairs outlined above in A1010 Standard Foundations should solve the water infiltration issue, and no additional repairs will be needed at the inner brick basement wall location.

B101001 Structural Floor Frame	Fair	Serious

Short Term (Critical Components & Mothball Actions)

The modern fiberglass insulation within the attic structural floor frame should be removed, as it delivers no insulative value to the unheated building and only retains moisture and allows for insect or rodent infestation. Once removed, the structural frame can be assessed more in-depth.

[46] For more information, refer to https://www.keim-usa.com/.
[47] For more information, refer to https://www.gptindustries.com/en/products/link-seal.

Long Term (Interior & Exterior Restoration)

If not completed in the Short Term, same as above.

Upon decision of Ultimate Use, the interior of the Keeper's Dwelling will likely be used and heated. At that time, new insulation should be added to the attic floor. Better materials for attic insulation include Rockwool Roxul products, e.g. Comfortbatt, a stone wool semi-rigid batt insulation product meant for attics, walls, ceilings, and floor frames and is non-combustible, does not rot or promote growth of mildew, has low moisture sorption, and is water and moisture resistant.[48]

According to U.S. Department of Energy 2018 Building Energy Codes, Maine is in Climate Zone 6 and requires an R-value of 48 in ceilings (between heated spaces and non-heated spaces)[49], as at the attic floor and the basement ceiling of the Keeper's Dwelling. If using Roxul, this would equate to two layers of 5.5"-thick insulation. In the attic, the first layer would run parallel to and in between the floor joists, the second layer in the opposite direction.

B201008 Exterior Soffits	Fair	Serious

Short Term (Critical Components & Mothball Actions)

All deteriorated paint on the exterior wood soffits should be lightly scraped and sanded, primed with an oil-based primer, and painted with two coats of premium-quality latex paint. The paint color should match existing. Early paint layers should be retained in the form of a paint window for future study. The extant paint likely retains lead-based paint, and prior to any work, the paint should be tested.

A paint study should be completed on the exterior of the building to determine historic paint layers and schemes through time. This should include the areas hidden by vinyl soffit material on the Main Block.

Long Term (Interior & Exterior Restoration)

Vinyl soffit material should be removed from the Main Block soffits. Repairs to the historic wood soffits underneath will likely be required and should use traditional repair techniques, such as Dutchman, prior to consolidation and filling. The extant paint likely retains lead-based paint, and prior to any work, the paint should be tested. Early paint layers should be retained in the form of a paint window for future study. All deteriorated paint on the exterior wood soffits should be lightly scraped and sanded, primed with an oil-based primer, and painted with two coats of premium-quality latex paint. The paint color should match existing.

[48] See https://www.rockwool.com/products/comfortbatt/?selectedCat=comfortbatt%C2%AE%20downloads for more information.
[49] See https://www.energycodes.gov/sites/default/files/becu/2018_IECC_residential.pdf for more information.

G2030 Trail (Pedestrian Paving)	Fair	Serious

Short Term (Critical Components & Mothball Actions)

Periodic maintenance for visitor safety should continue through the Short Term.

Visitor use site planning should occur while the Keeper's Dwelling is mothballed. Decision of Ultimate Use for the entire site and buildings may dictate specific needs for the visitor walkway areas to the west and south of the Keeper's Dwelling. Currently, the visitor use areas are not adequate for the safety of visitors and the different components in this area create an unkempt appearance.

The proposed Period of Significance (1858-1948) does dictate an exterior restoration period. Every effort should be made to represent the Light Station at the end of the proposed Period of Significance. This would limit the visitor areas around the Keeper's Dwelling. A Cultural Landscape Report could clearly define landscape elements missing and those which have been added in the modern era.

Long Term (Interior & Exterior Restoration)

If not completed in the Short Term, same as above.

G203099 Other Walks, Steps & Terraces	Fair	Serious

Short Term (Critical Components & Mothball Actions)

Visitor use site planning should occur while the Keeper's Dwelling is mothballed. Decision of Ultimate Use for the entire site and buildings may dictate specific needs for the historic concrete terrace on the south elevation of the Addition, which has some maintenance deficiencies (spalling concrete, unstable railing, inadequate drainage).

The proposed Period of Significance (1858-1948) does dictate an exterior restoration period. Every effort should be made to represent the Light Station at the end of the proposed Period of Significance. This would include changes to the concrete terrace. A Cultural Landscape Report could clearly define landscape elements missing and those which have been added in the modern era.

Long Term (Interior & Exterior Restoration)

Although modern, the aluminum stair from the Garage to the Addition is in good condition and is relatively hidden from the historic view shed. It should not be removed at this time.

If not completed in the Short Term, same as above.

G204001 Fencing & Gates	Fair	Serious

Short Term (Critical Components & Mothball Actions)

Periodic maintenance for visitor safety should continue through the Short Term.

Visitor use site planning should occur while the Keeper's Dwelling is mothballed. Decision of Ultimate Use for the entire site and buildings may dictate specific needs for the visitor areas to the west and south of the Keeper's Dwelling, this includes the tube railing and added chainlink fence atop the concrete retaining wall.

The proposed Period of Significance (1858-1948) does dictate an exterior restoration period. Every effort should be made to represent the Light Station at the end of the proposed Period of Significance. This would limit the visitor areas around the Keeper's Dwelling and could drastically change the appearance of the site. This would include removal of the railing and fencing above the retaining wall. A Cultural Landscape Report could clearly define landscape elements missing and those which have been added in the modern era.

Long Term (Interior & Exterior Restoration)

If not completed in the Short Term, same as above.

G204002 Retaining Walls	Fair	Serious

Short Term (Critical Components & Mothball Actions)

Periodic maintenance for visitor safety should continue through the Short Term.

Visitor use site planning should occur while the Keeper's Dwelling is mothballed. Decision of Ultimate Use for the entire site and buildings may dictate specific needs for the visitor areas to the west and south of the Keeper's Dwelling, this includes the concrete retaining wall.

The proposed Period of Significance (1858-1948) does dictate an exterior restoration period. Every effort should be made to represent the Light Station at the end of the proposed Period of Significance. This would limit the visitor areas around the Keeper's Dwelling and could drastically change the appearance of the site. This would include removal of the concrete retaining wall. A Cultural Landscape Report could clearly define landscape elements missing and those which have been added in the modern era.

Long Term (Interior & Exterior Restoration)

If not completed in the Short Term, same as above.

G204099 Miscellaneous Structures – Bells	Fair	Serious

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Visitor use site planning should occur while the Keeper's Dwelling is mothballed. Decision of Ultimate Use for the entire site and buildings may dictate specific needs for the visitor areas to the west and south of the Keeper's Dwelling, this includes the bells and support frames.

The proposed Period of Significance (1858-1948) does dictate an exterior restoration period. Every effort should be made to represent the Light Station at the end of the proposed Period of Significance. This would limit the visitor areas around the Keeper's Dwelling and could drastically change the appearance of the site. This would include removal of the bells and support frames. A Cultural Landscape Report could clearly define landscape elements missing and those which have been added in the modern era.

Long Term (Interior & Exterior Restoration)

If not completed in the Short Term, same as above.

C201001 Interior Stair Construction	Good	Serious

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

Depending on the Ultimate Use for the interior of the building, the stair may need to be reconstructed. While historic, the stairs are not safe, due to slippery carpet and uneven tread depths and riser heights. At a minimum, the slippery carpet should be removed from the stairs. The condition of the risers and treads underneath is unknown and may require refinishing and/or new paint.

A1030 Slab On Grade	Fair	Minor

No work is required at this time. Staining is minor and is not a maintenance deficiency.

B201001 Exterior Skin	Fair	Minor

Short Term (Critical Components & Mothball Actions)

Investigation into the condition of the extant wood siding and any character-defining wood trim located behind the modern vinyl siding is recommended. When the vinyl siding was added, it is unknown if the siding and associated trim were removed or simply covered.

Long Term (Interior & Exterior Restoration)

All vinyl siding from the exterior of the Keeper's Dwelling should be removed. Depending on the condition of the underlying siding and trim, the extant siding and trim should be reused or new installed in-kind. Several archival photographs detail the original clapboard siding and cornerboards, and trim around doors and windows.

The second-floor west elevation shed dormer (constructed after the proposed Period of Significance) should be demolished and the historic doghouse dormer reconstructed to match the details of the original doghouse dormer located on the east elevation. The interior bathroom would require modification to its layout with a smaller dormer.

Refer to Chronology and Condition Assessment sections for additional photographs of these character-defining details. Every effort should be made to restore these character-defining features to the exterior of the building.

Upon decision of Ultimate Use, the interior of the Keeper's Dwelling will likely be used and heated. At that time, insulation should be added to the exterior walls. Good materials for wall insulation include Rockwool Roxul products, e.g. Comfortbatt, a stone wool semi-rigid batt insulation product meant for attics, walls, ceilings, and floor frames and is non-combustible, does not rot or promote growth of mildew, has low moisture sorption, and is water and moisture resistant.[50]

According to U.S. Department of Energy 2018 Building Energy Codes, Maine is in Climate Zone 6 and requires an R-value of 20+5 or 13+10 in wood-frame walls (first number is cavity insulation, the second number is continuous insulation).[51]

B101002 Structural Interior Walls	Good	Minor

No work is required at this time.

B102001 Structural Roof Frame	Good	Minor

No work is required at this time.

B2020 Exterior Windows	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

The modern window units are in good condition but are not sympathetic to the historic building. Wood double-hung 6/6 window units should be restored to each of the window openings. The

[50] See https://www.rockwool.com/products/comfortbatt/?selectedCat=comfortbatt%C2%AE%20downloads for more information.
[51] See https://www.energycodes.gov/sites/default/files/becu/2018_IECC_residential.pdf for more information.

windows should use traditional methods and be hung from ropes. In addition, the covered-over Infill window should be restored to the south elevation and the south elevation windows in the Addition should be removed and returned to their historic door-window configuration. The restored windows should utilize insulation, weatherstripping, and storm windows (interior or exterior) for energy benefits.

Refer to Chronology and Condition Assessment sections for additional photographs of these character-defining details. Every effort should be made to restore these character-defining features to the exterior of the building.

B2030 Exterior Doors	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

All exterior doors postdate the proposed Period of Significance. D101 should be restored to a painted wood four-panel door as seen in several archival photographs (see figs. 51, 62 in Chronology section) and which is extant in the interior of the Main Block. Similarly, the Addition south elevation windows should be restored to their original door-window configuration, as seen in a ca. 1962 photograph (see fig. 64 in Chronology section). No photographs exist for D112, but it is assumed that it originally matched the one seen on the south elevation of the Addition (see fig. 64). No photographs exist for D116; a door like the restored unit at D112 would be appropriate (see fig. 64).

The modern concrete sill located between the historic wood jambs at D001 should be removed. Repairs should be made to the lower ends of the wood jamb. To deter water from entering the door opening and crawlspace beyond, the exterior ground should be regraded to have positive drainage away from the door opening and crawlspace.

B301001 Roof Finishes	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

The fiberglass roof shingles are modern and unsympathetic to the historic building. Wood shingles are known to have been in place at the end of the proposed Period of Significance and should be restored to the building. Recommendations from the Cedar Shake and Shingle Bureau (CSSB) should be followed. Refer to details in CSSB's *New Roof Construction Manual* for more details.[52]

[52] Cedar Shake & Shingle Bureau. "New Roof Construction Manual." June 2014. p. 9.

The new wood shingle roof should be completed with CSSB-certified No. 1 Blue Label clear cedar shingles. Preservative-treated singles (Certi-Last) are an option and should be considered for the coastal location. The shingles should be applied over the extant solid sheathing boards exposed in all attics (acceptable in areas prone to wind-driven snow) with either nailing strips or a continuous ventilation product applied to the top side of the sheathing.

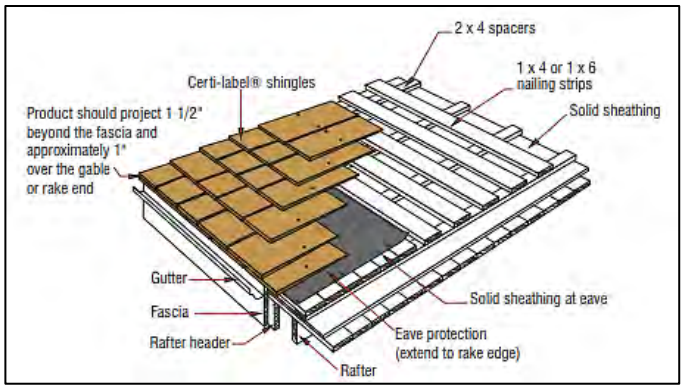


Figure 757. Details for wood shingles applied over solid sheathing. Drawing: CSSB, *New Roof Construction Manual,* p. 3.

According to CSSB, the following shingle application should be followed (fig. 757):

1. Shingles must be double or tripled at all eaves.
2. Butts of first course shingles should project 1½" beyond the fascia and approximately 1" over the gable or rake end.
3. Spacing between adjacent shingles (joints) should be a minimum of ¼" and a maximum of ⅜".
4. Certi-label shingles shall be laid with a side lap not less than 1½" between joints in adjacent courses, and not more than 10% shall be in direct alignment in alternate courses. Check with your local building official in your area.
5. In lesser grade shingles containing both flat and vertical grain, joints should not be aligned with centerline of heart.
6. Flat grain shingles wider than 8" should be split in two before nailing. Knots and similar defects should be treated as the edge of the shingle and the joint in the course above placed 1½" from the edge of the defect.[53]

Ring-shank stainless steel "Type 316" nails, probably 4d, should be used. They should not be overdriven or underdriven and should not be hot-dipped or electro-galvanized.

Zinc or copper strips are helpful at the ridge cap/vent and approximately every 6'-0" down the slope to deter biological growth.

Concurrent with roof replacement, a continuous ridge vent should be added to the ridges of all roofs (fig. 758).

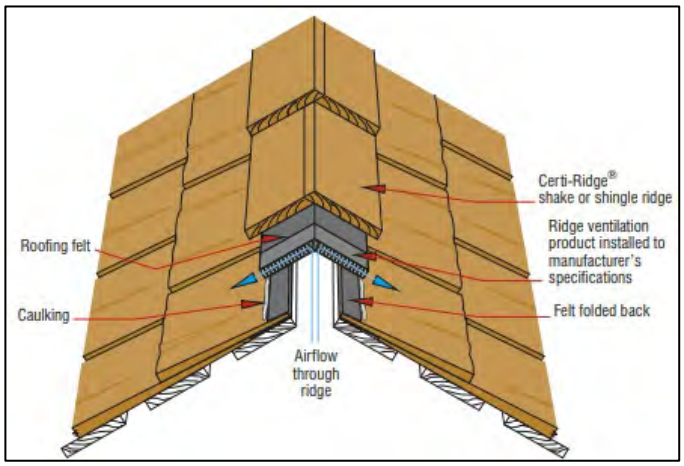


Figure 758. A ridge vent allows air flow through the ridge and is hidden by cedar shingles. Drawing: CSSB, *New Roof Construction Manual,* 14.

For further information, consult NPS *Preservation Brief 19: The Repair and Replacement of Historic Wooden Shingle Roofs.*

[53] Ibid.

C1010 Partitions	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

Depending on the determined Ultimate Use for the interior of the Keeper's Dwelling, some interior partition walls may need to be modified for the new use. This is allowed during Rehabilitation; however, alterations should be kept to a minimum. The second-floor bathroom enclosure walls (not historic) will need to be modified when the west elevation dormer is returned to its doghouse form.

C1020 Interior Doors	Good	Minor

No work is required at this time.

C103006 Shelving	Good	Minor

No work is required at this time.

C103008 Counters	Good	Minor
C103009 Cabinets	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

The modern kitchen and bathroom cabinets and counters are in good condition but are unsympathetic to the historic building. Because an Ultimate Use for the interior of the Keeper's Dwelling has not yet been determined, it is premature to provide any recommendations for the interior cabinets and counters.

C103010 Closets	Good	Minor

No work is required at this time.

C103098 Other Casework – Trim	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required at this time.

Long Term (Interior & Exterior Restoration)

Modern trim located around the modern window units should be replaced to match more historic trim located within the Keeper's Dwelling when exterior windows are replaced.

C201002 Exterior Stair Construction	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

Modern concrete stairs located at both exterior entrances should be removed and replaced with more sympathetic wood counterparts. Use of archival photographs should be used to design new stairs, if possible (see Chronology section).

C3010 Wall Finishes	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

Modern interior wall coverings should be removed, including laminate beadboard and wood paneling. The interior walls should be plaster or replicate plaster (using plaster "blueboard" or drywall). Areas affected by water infiltration around the chimney should be repaired and repainted.

C3020 Floor Finishes	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

Modern interior floor coverings should be removed, including all laminate flooring, VCT, vinyl sheet flooring, and carpet. Wood floors beneath any of the modern coverings should be refinished, as needed. A suggested coating is Waterlox, a resin-modified Tung oil.[54]

[54] See https://waterlox.com/project-help for more information.

C3030 Ceiling Finishes	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

Modern interior ceiling finishes should be removed, including acoustic tile and the dropped living room ceiling. The interior ceilings should be plaster or replicate plaster (with the use of plaster "blueboard" or drywall). Areas affected by water infiltration around the chimney should be repaired and repainted, as needed.

G2050 Maintained Landscapes	Good	Minor

Exterior landscapes should continue to be maintained.

D2010 Plumbing Fixtures	Unknown	Unknown
D2020 Domestic Water Distribution	Unknown	Unknown
D2030 Sanitary Waste	Unknown	Unknown

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

Until an Ultimate Use is determined for the interior of the Keeper's Dwelling, it would premature to recommend treatments to the plumbing fixtures, domestic water distribution system, and sanitary waste system.

D3020 Heat Generating Systems	Unknown	Unknown

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

Until an Ultimate Use is determined for the interior of the Keeper's Dwelling, it would premature to recommend treatments to the heating system.

D306004 Gas Purging Systems	Unknown	Unknown

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

Until an Ultimate Use is determined for the interior of the Keeper's Dwelling, it would premature to recommend treatments to the radon system.

D5010 Electrical Service & Distribution D5020 Lighting & Branch Wiring	Unknown	Unknown

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

Until an Ultimate Use is determined for the interior of the Keeper's Dwelling, it would premature to recommend treatments to the electrical system.

G306006 Gas Storage Tanks	Unknown	Unknown

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

Until an Ultimate Use is determined for the interior of the Keeper's Dwelling, it would premature to recommend treatments to the gas tanks supplying the kitchen range.

D4010 Sprinklers	Not Rated	Not Rated

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Interior & Exterior Restoration)

According to NPS *Reference Manual 58: Structural Fire* "Historic Property Assessment Matrix", a fire suppression (sprinkler) system is required in the Keeper's Dwelling, as it has high significance, fair integrity, will likely have a mixed use, is located in a rural location, and is built of combustible

construction (wood frame). If the park decides to not install a system, a variance would be required by the Regional Authority Having Jurisdiction (AHJ).[55]

D503008 Security Alarm Systems	Not Rated	Not Rated

Short Term (Critical Components & Mothball Actions)

Consideration should be given on installing a temporary security alarm system to the Keeper's Dwelling while mothballed. Callout should be directed to park dispatch or local emergency services.

Long Term (Interior & Exterior Restoration)

A permanent security alarm should be installed in the Keeper's Dwelling. A new, modern security system should be designed and installed by a professional security system contractor. The new system should meet the needs and uses of the building and be zoned accordingly. Coordinate with park law enforcement officials and local responders.

[55] National Park Service, Division of Fire and Aviation. *Reference Manual 58: Structural Fire.*

Bell House Recommended Treatments

The following is based on the Uniformat II BFML (refer to p. 131, Table 2) and is listed in prioritized order based on condition and deficiency ratings (refer to p. 431, Table 10).

D509004 Lightning Protection System	Poor	Critical

Short Term (Critical Components & Mothball Actions)

A permanent, UL-rated lightning protection system should be installed. It should be designed to be demountable in the event of future roof replacements. Design features should include exposed downlead cables and the use of minimally sized aerial terminals (government points). Attention should be paid to the selection of fasteners for the downlead cables. Penetrations through the roof should not be allowed. Require submittals from installers including layout of installation.

A lightning risk assessment is part of the project evaluation checklist found in Denver Service Center's Fire Protection Standards for properties undergoing rehabilitation work. Installing lightning protection is consistent with *Director's Order 58: Structural Fire Management,* requiring NPS construction to have safeguards assuring life-safety design and minimizing the chances of catastrophic loss of property.[56]

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

D403001 Fire Extinguishers	Poor	Critical

Short Term (Critical Components & Mothball Actions)

A fire extinguisher should be located in the building. The local fire marshal, representative from the fire department, or fire protection engineer should be consulted for recommendations on size and placement of the fire extinguisher. This component should meet building codes and emergency training should be provided to NPS staff. Fire extinguishers should be periodically inspected.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

G9087 Overall Building Site Drainage	Poor	Serious

Short Term (Critical Components & Mothball Actions)

Neutral drainage along the north elevation should be corrected immediately. Due to the complicated site, minor regrading of soil to create a small swale in front of the door and positive drainage toward

[56] Refer to Structural Fire Reference Manual 58 at https://www.nps.gov/fire/structural-fire/resources/documents/reference-manual-58.pdf for more information.

the east and west elevations should be completed. Every effort should be made to ensure water is running away from the building.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

A1010 Standard Foundations	Poor	Serious

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Exterior Restoration & Interior Rehabilitation)

Portland cement-based mortar can be retained at this historic foundation in this instance because the foundation is composed of granite, a material inherently stronger than concrete, and the foundation will ultimately be completely painted, hiding the unsympathetic mortar.

All paint should be removed from the exterior surfaces of the stone foundation in order to remove the incompatible latex paint. A paint window should be retained if ever the need arises for a paint study.

The stone should then be repainted using a breathable, exterior masonry paint to match the extant colors, or historic colors if a paint study precedes repainting. Keim Mineral Coatings of America, Inc. offers several options for vapor-permeable paints and coatings for historic masonry preservation projects. The paint also has an extended life and is formulated to withstand harsh, coastal conditions well.[57]

B2010 Exterior Walls	Poor	Serious

Short Term (Critical Components & Mothball Actions)

All deteriorated paint on the exterior wood siding should be scraped and sanded, primed with an oil-based primer, and painted with two coats of premium-quality latex paint. The paint color should match existing. The siding is not original and likely does not contain any evidence of historic paint colors, but if early layers are detected a paint window should be retained for future study. The extant paint is supposed to have been abated of lead-based paint, but prior to any work, the paint should be tested.

All paint should be removed from the exterior and interior surfaces of the brick exterior walls in order to remove the incompatible latex paint. A paint window should be retained if ever the need arises for a paint study.

[57] For more information, refer to https://www.keim-usa.com/.

Once the paint is removed, an assessment of the brick and modern Portland cement-based mortar can be completed. It is likely that removal of the modern, harder mortar would be too detrimental to the historic, soft brick to warrant the work. Therefore, localized repointing of deteriorated mortar locations, which can be removed with hand tools (no power tools), should be conducted using traditional lime-based mortar.

The exterior of the brick should then be repainted using a breathable, exterior masonry paint to match the extant colors, or historic colors if a paint study precedes repainting. Keim Mineral Coatings of America, Inc. offers several options for vapor-permeable paints and coatings for historic masonry preservation projects. The paint also has an extended life and is formulated to withstand harsh, coastal conditions well.[58]

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

B2020 Exterior Windows	Poor	Serious

Short Term (Critical Components & Mothball Actions)

All deteriorated exterior paint at the windows should be scraped and sanded, primed with an oil-based primer, and painted with two coats of premium-quality latex paint. The paint color should match existing. The windows are not original and will not contain any evidence of historic paint colors, so a paint window should not be necessary. The extant wood features were supposed to have been abated of lead-based paint, but prior to any work, the paint should be tested.

Long Term (Exterior Restoration & Interior Rehabilitation)

All modern replacement window units and modern trim components should be removed from the Bell House.

Traditional 6/6 double-hung wood windows should be replicated and installed at W101, W102, W104, and W105. Components will include new wood sills, brick moulds, jambs, six-lite sash, and interior trim, as the openings would have appeared when installed during the Bell House's 1897 construction.

At W103, a wood panel or hinged wood door should be installed in the opening to replicate the historic view from 1897-1959 when a bell hung from the exterior and a striking machine was on the interior to strike the bell through W103. Similar striker panels/windows can be seen at the reconstructed Choptank River Lighthouse in Cambridge, MD (fig. 759), and the contemporary (to Bass Harbor) Pemaquid Point Light Station Bell House in New Harbor, ME (fig. 760).

[58] For more information, refer to https://www.keim-usa.com/.



Figure 759. An exhibit in the reconstructed Choptank River Lighthouse in Cambridge, MD shows a restored striking machine on the interior. A sliding panel in the closed position could be raised along wood tracks and secured with a hook for when the bell, hanging on the exterior, required striking. Photo: HPTC, 10/26/19.



Figure 760. At Pemaquid Point Light Station in New Harbor, ME, the Bell House—a twin to the Bell House at Bass Harbor--retains its exterior support system and bell. The center window opening is outfitted with a painted wood panel. Photo: HPTC, 05/20/19.

B301001 Flashings & Trim	Poor	Serious

Short Term (Critical Components & Mothball Actions)

All deteriorated paint at the roof-level wood trim should be scraped and sanded, primed with an oil-based primer, and painted with two coats of premium-quality latex paint. The paint color should match existing. The trim is not original and likely does not contain any evidence of historic paint colors, but if early layers are detected a paint window should be retained for future study. The extant paint is supposed to have been abated of lead-based paint, but prior to any work, the paint should be tested.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

B101001 Structural Floor Frame	Poor	Serious

Short Term (Critical Components & Mothball Actions)

The modern interior finish floor should be removed in order to investigate the floor system below. No coverings should be reinstalled during the interim to allow the brick floor or structural floor system below to air out/stabilize.

The modern fiberglass insulation within the attic structural floor frame should be removed, as it delivers no insulative value to the unheated building and only retains moisture and allows for insect or rodent infestation. Once removed, the structural frame can be assessed.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

C3020 Floor Finishes	Poor	Serious

Short Term (Critical Components & Mothball Actions)

The modern interior finish floor should be removed in order to investigate the floor system below. No coverings should be reinstalled during the interim to allow the brick floor or structural floor system below to air out/stabilize.

Long Term (Exterior Restoration & Interior Rehabilitation)

It is assumed that a brick floor exists under the modern laminate finish floor. In the long-term, preservation of the historic brick floor is recommended. Due to the unknown condition of the brick (or even if such a treatment is extant), future recommendations should be developed once the modern floor covering is removed.

G2030 Trail (Pedestrian Paving)	Fair	Serious

Short Term (Critical Components & Mothball Actions)

A determination should be made on whether to retain the modern concrete sidewalk leading to the Bell House front door. If retained, a swale should be created at the base of the front door to allow water to be swept away to the east. If removed, the site can be slightly regraded to allow for positive drainage away from the north elevation to the east and west.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

C103098 Other Casework	Poor	Minor

Short Term (Critical Components & Mothball Actions)

Modern wood baseboard will be removed during the removal of the modern laminate finish floor.

Long Term (Exterior Restoration & Interior Rehabilitation)

Historic wood crown molding should be retained and maintained.

Modern interior wood window and door casing should be removed as part of the holistic window and door restoration project. Replacement trim will replicate historic trim and be painted.

B301005 Gutters & Downspouts	Fair	Minor

Short Term (Critical Components & Mothball Actions)

To encourage roof drainage from the north slope of the roof to fall away to the east elevation, the extant gutter and downspout should be retained on the north elevation during the interim mothballing period.

Long Term (Exterior Restoration & Interior Rehabilitation)

The extant modern gutter and downspout on the north elevation should be removed as there is no indication that a roof drainage system was extant on the building during the period of significance. If the recommended regrading occurs at the north elevation, there should be no need for the gutter and downspout on this elevation, as water off the roof will be encouraged to drain to the east and west elevations and away from the foundation.

D5010 Electrical Service & Distribution D5020 Lighting & Branch Wiring	Fair	Minor

Short Term (Critical Components & Mothball Actions)

Electrical service is not required to the Bell House during the interim mothballing period. The subpanel should be disconnected from the main panel, or the main breaker of the subpanel should be flipped to off and proper lock-out/tag-out procedures should be implemented.

Long Term (Exterior Restoration & Interior Rehabilitation)

Prior to reengaging the electrical system, the system should be inspected by a licensed electrician. Recommendations for an updated electrical system will be dependent on the ultimate use of the building interior.

C1030 Fittings	Fair	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Exterior Restoration & Interior Rehabilitation)

The extant historic cast iron bolt located under W104 should be conserved to the best ability as can be expected for historic cast iron embedded in masonry in a coastal environment. The bolt (and exterior brick ledges) are the only remaining elements from the original exterior support system for the bell.

If the Ultimate Use of the Bell House is determined as an exhibit showcasing the original use of the building, a Stevens Striking Machine should be restored to the interior of the structure with accessories and signage to explain how the system worked. Similar exhibits can be seen at the 1878 Hooper Strait Lighthouse relocated to the Chesapeake Bay Maritime Museum in St. Michael's, MD (fig. 761) and the reconstructed Choptank River Lighthouse in Cambridge, MD (see fig. 759).



Figure 761. An exhibit in the relocated Hooper Strait Lighthouse in St. Michael's, MD shows a Stevens striking machine and other accessories on the interior. Photo: HPTC, 10/25/19.

Additionally, the associated Weight Tower was removed after the proposed Period of Significance. Though no original drawings could be found, several archival photographs exist of the structure (fig. 763) and at least one Weight Tower could be found by the HSR team, at Pemaquid Point Light Station in New Harbor, ME (fig. 762). Though smaller than the one at Bass Harbor, the extant structure could lend construction and other details for the reconstruction of the structure at Bass Harbor.



Figure 762. The Bell House at Pemaquid Point Light Station in New Harbor, ME is a twin to the Bell House at Bass Harbor. A Weight Tower has been retained at Pemaquid Point; it is smaller than the one originally at Bass Harbor. Photo: HPTC, 05/20/19.



Figure 763. This 1951 photograph clearly shows the Weight Tower north of the Bell House. Many of its details can be discerned from this and other archival images. Source: USCG Historian's Office, 170602-G-XX000-434. Cropped by author.

B102001 Structural Roof Frame	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Exterior Restoration & Interior Rehabilitation)

For proper restoration of the exterior, every effort should be made to rehang the original, or a lighter replica, bell from the south-facing gable. This would require altering the steel I beam or installing a new structural beam to again protrude from the cross gable. A structural engineer should be involved when altering any structural frame. Several archival photographs exist of the structure with the bell hung from the protruding steel beam (see Chronology section).

B2030 Exterior Doors	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Exterior Restoration & Interior Rehabilitation)

The modern metal exterior door and concrete sill should be removed from the opening. A brick sill should be reinstalled or may be extant under the concrete. A four-panel wood door, designed to replicate the historic door, with strap hinges utilizing the extant historic hinge mortises and lock utilizing the extant latch mortise, should be installed in the retained historic wood jambs.

B301001 Roof Finishes	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Exterior Restoration & Interior Rehabilitation)

The fiberglass roof shingles are modern and unsympathetic to the historic building. Wood shingles are known to have been in place at the end of the proposed Period of Significance and should be restored to the building. Recommendations from the Cedar Shake and Shingle Bureau (CSSB) should be followed. Refer to details in CSSB's *New Roof Construction Manual* for more details.[59]

The new wood shingle roof should be completed with CSSB-certified No. 1 Blue Label clear cedar shingles. Preservative-treated singles (Certi-Last) are an option and should be considered for the coastal location. The shingles should be applied over the extant solid sheathing boards exposed in all attics (acceptable in areas prone to wind-driven snow) with either nailing strips or a continuous ventilation product applied to the top side of the sheathing.

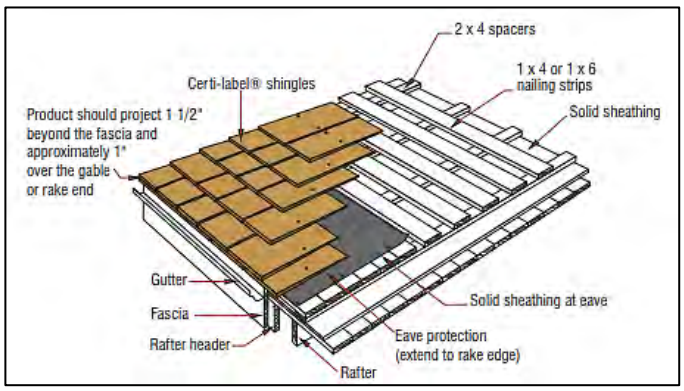


Figure 764. Details for wood shingles applied over solid sheathing. Drawing: CSSB, *New Roof Construction Manual,* p. 3.

According to CSSB, the following shingle application should be followed (fig. 764):

1. Shingles must be double or tripled at all eaves.
2. Butts of first course shingles should project 1½" beyond the fascia and approximately 1" over the gable or rake end.
3. Spacing between adjacent shingles (joints) should be a minimum of ¼" and a maximum of ⅜".

[59] Cedar Shake & Shingle Bureau. "New Roof Construction Manual." June 2014. p. 9.

4. Certi-label shingles shall be laid with a side lap not less than 1½" between joints in adjacent courses, and not more than 10% shall be in direct alignment in alternate courses. Check with your local building official in your area.
5. In lesser grade shingles containing both flat and vertical grain, joints should not be aligned with centerline of heart.
6. Flat grain shingles wider than 8" should be split in two before nailing. Knots and similar defects should be treated as the edge of the shingle and the joint in the course above placed 1½" from the edge of the defect.[60]

Ring-shank stainless steel "Type 316" nails, probably 4d, should be used. They should not be overdriven or underdriven and should be hot-dipped or electro-galvanized.

Zinc or copper strips are helpful at the ridge cap/vent and approximately every 6'-0" down the slope to deter biological growth.

Refer to the CSSB's website and technical publications for more information on the best practices for installing and maintaining cedar shingles roofs.

For further information, consult NPS *Preservation Brief 19: The Repair and Replacement of Historic Wooden Shingle Roofs.*

C3030 Ceiling Finishes	Good	Minor

No work is required at this time.

G2050 Maintained Landscapes	Good	Minor

Continue periodic maintenance of the exterior maintained landscape adjacent the Bell House.

D20 Plumbing	Not Rated	Not Rated

The ultimate use of the interior of the Bell House will likely not require the addition of plumbing to the structure.

D30 HVAC	Not Rated	Not Rated

The ultimate use of the interior of the Bell House does not require the addition of an HVAC system to the structure.

[60] Cedar Shake & Shingle Bureau. "New Roof Construction Manual."

D4010 Sprinklers	Not Rated	Not Rated

According to NPS *Reference Manual 58: Structural Fire* "Historic Property Assessment Matrix", a fire suppression (sprinkler) system is required in the Bell House, as it has high significance, good integrity, is located in a rural location, and is built of partially combustible construction (wood roof) frame. If the park decides to not install a system, a variance would be required by the Regional Authority Having Jurisdiction (AHJ).[61]

D503001 Fire Alarm Systems	Not Rated	Not Rated

According to NPS *Reference Manual 58: Structural Fire* "Historic Property Assessment Matrix", a fire alarm system is required in the Bell House, as it has high significance, good integrity, is located in a rural location, and is built of partially combustible construction (wood roof frame).[62]

A fire protection engineer shall inspect the building to determine the appropriate type, quantity, and locations of smoke and heat (rate-of-rise) detectors for the approved use and occupancy of the building. New detectors will replace the existing detectors and will be installed as part of the fire alarm system connected to the local emergency response unit or park/regional dispatch. Refer to NPS *Director's Order 58: Structural Fire Management, NFPA 914 Code for Fire Protection of Historic Resources*, and local codes for more information.

D503008 Security Alarm Systems	Not Rated	Not Rated

Based on the ultimate use determined for the Bell House, a security system, with integrated battery backup, may be required.

[61] National Park Service, Division of Fire and Aviation. *Reference Manual 58: Structural Fire.* 2015. Accessed at https://www.nps.gov/subjects/fire/upload/reference-manual-58.pdf on February 27, 2020.
[62] Ibid.

Oil House Recommended Treatments

The following is based on the Uniformat II BFML (refer to p. 131, Table 2) and is listed in prioritized order based on condition and deficiency ratings (refer to p. 432, Table 11).

D509004 Lightning Protection System	Poor	Critical

Short Term (Critical Components & Mothball Actions)

A permanent, UL-rated lightning protection system should be installed. It should be designed to be demountable in the event of future roof replacements. Design features should include exposed downlead cables and the use of minimally sized aerial terminals (government points). Attention should be paid to the selection of fasteners for the downlead cables. Penetrations through the roof should not be allowed. Require submittals from installers including layout of installation.

A lightning risk assessment is part of the project evaluation checklist found in Denver Service Center's Fire Protection Standards for properties undergoing rehabilitation work. Installing lightning protection is consistent with *Director's Order 58: Structural Fire Management,* requiring NPS construction to have safeguards assuring life-safety design and minimizing the chances of catastrophic loss of property.[63]

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

D403001 Fire Extinguishers	Poor	Critical

Short Term (Critical Components & Mothball Actions)

A fire extinguisher should be located in the building. The local fire marshal, representative from the fire department, or fire protection engineer should be consulted for recommendations on size and placement of the fire extinguisher. This component should meet building codes and emergency training should be provided to NPS staff. Fire extinguishers should be periodically inspected.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

[63] Refer to Structural Fire Reference Manual 58 at https://www.nps.gov/fire/structural-fire/resources/documents/reference-manual-58.pdf for more information.

G2030 Trail (Pedestrian Paving)	Poor	Critical
G9087 Overall Building Site Drainage	Poor	Serious

Short Term (Critical Components & Mothball Actions)

The asphalt walkway in front of the building should be altered to be lower than the interior floor of the Oil House. In addition, the walkway should have a cross slope down and away from the front elevation to encourage water to flow to the other side of the walkway from the Oil House. Every effort should be made to ensure water is running away from the building.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in Short Term, same as above.

G2050 Maintained Landscapes	Poor	Serious

Short Term (Critical Components & Mothball Actions)

Vegetation growing within 5'-0" of the building should be removed to deter moisture from collecting in these areas. The area around the building should be maintained on a regular basis.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in Short Term, same as above.

B301001 Roof Finishes	Fair	Serious

Short Term (Critical Components & Mothball Actions)

Damaged, slipped, or loose slates should be replaced by an experienced slater to ensure a watertight building envelope during the interim Mothballing period. Refer to NPS *Preservation Brief 29: The Repair, Replacement, and Maintenance of Historic Slate Roofs* for more information.

Lichens on a slate roof are not a cause for alarm. In fact, removing lichen from a surface can be more detrimental to the surface than leaving the lichen in place.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

B201005 Exterior Louvers & Screens	Good	Serious

Short Term (Critical Components & Mothball Actions)

Screens should be added to the interior of the two louvered vents to deter insects or rodents from nesting on the interior of the building.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in Short Term, same as above.

B2010 Exterior Walls	Poor	Minor

Short Term (Critical Components & Mothball Actions)

The extant Portland cement-based repointing mortar is an unsympathetic alteration to this historic building. Fortunately, the bricks to which the mortar is been applied are harder as they are glazed bricks, however the mortar is still harder than the bricks, as seen with the settling crack, spalling, and efflorescence. Removal of this type of mortar from a softer brick can be detrimental to the brick and therefore it is recommended that no work be completed in the interim Mothballing period. During the interim period, the noted issue areas should be watched to see if changes occur or new areas form. No work is required in the Short Term for the interior surfaces of the walls.

Long Term (Exterior Restoration & Interior Rehabilitation)

Changes which occur to the problem areas during the interim Mothballing period will dictate future restoration work. If these areas do not change and no additional areas form, the brick and mortar are stable and no action is needed. If these areas do change (get worse) or new areas form, it is recommended the Portland cement-based mortar be removed, using the most delicate means possible (hand tools first, light-duty power tools second, and heavy-duty power tools as a last resort), and the walls repointed with a more sympathetic lime-based mortar. Refer to NPS *Preservation Brief 2: Repointing Mortar Joints in Historic Masonry Buildings* for more information.

The interior surfaces of the walls should be tested for lead. Any loose paint and coatings can then be lightly scraped to remove those which are not firmly attached to the brick. A paint window should be retained if ever the need arises for a paint study. The walls should not be repainted until a final use is determined for the structure, as this might dictate any action to be taken (painted or left as is).

C1030 Fittings	Poor	Minor

Short Term (Critical Components & Mothball Actions)

Modern cabinets and plywood shelving at the roof are not historic and likely not reusable. These features should be removed and not replaced as they only retain moisture.

Long Term (Exterior Restoration & Interior Rehabilitation)

Once the ultimate use is determined for the Oil House, planning can occur for interior rehabilitation.

A1010 Standard Foundations	Fair	Minor

Short Term (Critical Components & Mothball Actions)

The extant Portland cement-based repointing mortar is an unsympathetic alteration to this historic building. The mortar is harder than the soft, historic bricks; fortunately, no common issues can be seen in these foundation bricks (brick cracking, spalling, or efflorescence). Removal of this type of mortar from a softer brick can be detrimental to the brick and therefore it is recommended that no work be completed in the interim Mothballing period. During the interim period, the bricks should be watched to see if changes occur or problem areas form.

Long Term (Exterior Restoration & Interior Rehabilitation)

Changes or formation of new problems which occur during the interim Mothballing period will dictate future restoration work. If the brick foundation walls do not change and no problem areas form, the brick and mortar are stable, and no action is needed. If these areas do change or new problem areas form, it is recommended the Portland cement-based mortar be removed, using the most delicate means possible (hand tools first, light-duty power tools second, and heavy-duty power tools as a last resort), and the walls repointed with a more sympathetic lime-based mortar. Refer to NPS *Preservation Brief 2: Repointing Mortar Joints in Historic Masonry Buildings* for more information.

B102001 Structural Roof Frame	Fair	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Exterior Restoration & Interior Rehabilitation)

Based upon the ultimate use of the building, the structural roof frame may need to be repainted. Prior to any work, the paint should be tested for lead. Proper paint preparation includes scraping, sanding, and washing the surfaces to be painted. A paint window should be retained if ever the need arises for a paint study. The frame should then be primed with an oil-based primer and painted with two coats of premium-quality latex paint. The paint color should match existing.

B2030 Exterior Doors	Fair	Minor

Short Term (Critical Components & Mothball Actions)

Upon regrading of the exterior path and redirection of the site drainage away from the building, the wood sill can be repaired (preferred) using consolidation or Dutchman techniques, or replaced, depending upon the extent of damage found.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in Short Term, same as above.

C3020 Floor Finishes	Fair	Minor

Short Term (Critical Components & Mothball Actions)

Upon regrading of the exterior path and redirection of the site drainage away from the building, the brick floor can be cleaned of dirt and debris.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in Short Term, same as above.

B301001 Flashings & Trim	Good	Minor

No work is required at this time.

C103098 Other Casework	Good	Minor

No work is required at this time.

B301005 Gutters & Downspouts	Not Rated	Not Rated

No gutters are required on the building, as there were none located on the building historically.

D20 Plumbing	Not Rated	Not Rated

The ultimate use of the Oil House does not require the addition of plumbing to the structure.

D30 HVAC	Not Rated	Not Rated

The ultimate use of the Oil House does not require the addition of HVAC to the structure.

D4010 Sprinklers	Not Rated	Not Rated

According to NPS *Reference Manual 58: Structural Fire* "Historic Property Assessment Matrix", a fire suppression (sprinkler) system is required in the Oil House, as it has high significance, good integrity, is located in a rural location, and is built of partially combustible construction (wood roof) frame. If the park decides to not install a system, a variance would be required by the Regional Authority Having Jurisdiction (AHJ).[64]

[64] National Park Service, Division of Fire and Aviation. *Reference Manual 58: Structural Fire.* 2015. Accessed at https://www.nps.gov/subjects/fire/upload/reference-manual-58.pdf on February 27, 2020.

D5010 Electrical Service & Distribution D5020 Lighting & Branch Wiring	Not Rated	Not Rated

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Exterior Restoration & Interior Rehabilitation)

Based on the ultimate use determined for the Oil House, an electrical system may be required.

D503001 Fire Alarm Systems	Not Rated	Not Rated

According to NPS *Reference Manual 58: Structural Fire* "Historic Property Assessment Matrix", a fire alarm system is required in the Oil House, as it has high significance, good integrity, is located in a rural location, and is built of partially combustible construction (wood roof frame).[65]

A fire protection engineer shall inspect the building to determine the appropriate type, quantity, and locations of smoke and heat (rate-of-rise) detectors for the approved use and occupancy of the building. New detectors will replace the existing detectors and will be installed as part of the fire alarm system connected to the local emergency response unit or park/regional dispatch. Refer to NPS *Director's Order 58: Structural Fire Management, NFPA 914 Code for Fire Protection of Historic Resources*, and local codes for more information.

D503008 Security Alarm Systems	Not Rated	Not Rated

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Exterior Restoration & Interior Rehabilitation)

Based on the ultimate use determined for the Oil House, a security system, with integrated battery backup, may be required.

[65] Ibid.

Garage Recommended Treatments

The following is based on the Uniformat II BFML (refer to p. 131, Table 2) and is listed in prioritized order based and condition and deficiency ratings (refer to p. 433, Table 12).

D509004 Lightning Protection System	Poor	Critical

Short Term (Critical Components & Mothball Actions)

A permanent, UL-rated lightning protection system should be installed. It should be designed to be demountable in the event of future roof replacements. Design features should include exposed downlead cables and the use of minimally sized aerial terminals (government points). Attention should be paid to the selection of fasteners for the downlead cables. Penetrations through the roof should not be allowed. Require submittals from installers including layout of installation.

A lightning risk assessment is part of the project evaluation checklist found in Denver Service Center's Fire Protection Standards for properties undergoing rehabilitation work. Installing lightning protection is consistent with *Director's Order 58: Structural Fire Management*, requiring NPS construction to have safeguards assuring life-safety design and minimizing the chances of catastrophic loss of property.[66]

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

G2020 Parking Areas (Lots)	Poor	Critical

Short Term (Critical Components & Mothball Actions)

The asphalt driveway in front of the building should be altered to be lower than the interior floor of the Garage, or have a drain added at the base in front of the garage door to encourage water to flow to the west. Every effort should be made to ensure water is running away from and not into the building.

Long Term (Exterior Restoration & Interior Rehabilitation)

Removal of the non-historic raised parking pad and associated stone, timber, earth, and concrete retaining walls is recommended. It is not needed, nor is it sympathetic to the cultural landscape.

[66] Refer to Structural Fire Reference Manual 58 at https://www.nps.gov/fire/structural-fire/resources/documents/reference-manual-58.pdf for more information.

B101001 Structural Floor Frame	Poor	Critical

Short Term (Critical Components & Mothball Actions)

Upon regrading of the driveway and redirection of the site drainage away from the building, the area of the first-floor structural floor frame near the north elevation garage door should be inspected for water damage and rot. The sill plate and floor joists are likely both affected and should be repaired (preferred) using consolidation or Dutchman techniques or replaced. The rotted area of the central N-S beam should be repaired in the same way. The missing east elevation sill plate should be completely replaced in kind and painted to match the other sill plates.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

G9087 Overall Building Site Drainage	Poor	Serious

Short Term (Critical Components & Mothball Actions)

The asphalt driveway in front of the building should be altered to be lower than the interior floor of the Garage, or have a drain added at the base in front of the garage door to encourage water to flow to the west. Every effort should be made to ensure water is running away from the building.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in Short Term, same as above.

C3020 Floor Finishes	Poor	Serious

Short Term (Critical Components & Mothball Actions)

Upon regrading of the driveway and redirection of the site drainage away from the building, the area of the first-floor finish flor near the north elevation garage door should be cleaned of moss, dirt, and debris and inspected for water damage and rot. The non-historic floor can be replaced in kind, as needed.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in Short Term, same as above.

D403001 Fire Extinguishers	Fair	Serious

Short Term (Critical Components & Mothball Actions)

The local fire marshal, representative from the fire department, or fire protection engineer should be consulted for recommendations on size and placement of the fire extinguisher. This component should meet building codes and emergency training should be provided to NPS staff. Fire extinguishers should be periodically inspected.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

A101002 Foundation Piers	Fair	Serious

Short Term (Critical Components & Mothball Actions)

A stone pier should be reconstructed at the center of the south elevation to match those seen throughout the rest of the foundation.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

B2010 Exterior Walls	Good	Serious

Short Term (Critical Components & Mothball Actions)

Missing wood shingles on the south elevation should be replaced in kind and painted to match surrounding shingles.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

C2010 Stair Construction	Good	Serious

Short Term (Critical Components & Mothball Actions)

The loose stud in the bottom run of the stairs should be resecured.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

G2050 Maintained Landscapes	Poor	Minor

Short Term (Critical Components & Mothball Actions)

Vegetation growing within 5'-0" of the building should be removed to deter moisture from collecting in these areas. The area around the building should be maintained on a regular basis.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in Short Term, same as above.

B2020 Exterior Windows	Fair	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Exterior Restoration & Interior Rehabilitation)

The aluminum tracks in which the historic sash are set should be removed as they are unsympathetic to the historic building. The sash should be re-hung on sash cords as they would have historically. Opaque film/glass from the sash should be removed and replaced with clear glass. For privacy, simple roller blinds can be added to the interior of the window openings. The modern vinyl window located in the former door opening on the second-floor south elevation should be removed and replaced with a door to match that seen on the second-floor north elevation.

B301001 Flashings & Trim	Fair	Minor

Short Term (Critical Components & Mothball Actions)

Missing trim at the northeast corner should be replaced in kind and painted to match the surrounding trim. The hole at the southeast corner should be repaired using a Dutchman and painted to match the surrounding trim.

Long Term (Exterior Restoration & Interior Rehabilitation)

If not completed in the Short Term, same as above.

D5010 Electrical Service & Distribution D5020 Lighting & Branch Wiring	Fair	Minor

Short Term (Critical Components & Mothball Actions)

Electrical service is not required to the Garage during the interim mothballing period. The breaker should be disconnected from the main panel (located in the Keeper's Dwelling?) and proper lock-out/tag-out procedures should be implemented.

Long Term (Exterior Restoration & Interior Rehabilitation)

Prior to reengaging the electrical system, the system should be inspected by a licensed electrician. Recommendations for an updated electrical system will be dependent on the Ultimate Use of the building interior.

G204002 Retaining Walls	Fair	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Exterior Restoration & Interior Rehabilitation)

Removal of the non-historic raised parking pad and associated stone, timber, earth, and concrete retaining walls is recommended. It is not needed, nor is it sympathetic to the cultural landscape.

B102001 Structural Roof Frame	Good	Minor

No work is required at this time.

B2030 Exterior Doors	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Exterior Restoration & Interior Rehabilitation)

The modern swing door at the east elevation should be replaced with a historically appropriate sliding door with appropriate period hardware.

The overhead garage door on the north elevation should be replaced with historically appropriate swinging board-and-batten doors with appropriate strap hinges and clasp. Similar doors can be seen at Acadia National Park Baker Island Light Station Barn.

The second-floor south elevation window should be removed, and the opening restored to a door to match the second-floor north elevation board-and-batten door with appropriate period hardware.

B301001 Roof Finishes	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Exterior Restoration & Interior Rehabilitation)

The fiberglass roof shingles are modern and unsympathetic to the historic building. Wood shingles are known to have been in place at the end of the proposed Period of Significance and should be restored to the building. Recommendations from the Cedar Shake and Shingle Bureau (CSSB) should be followed. Refer to details in CSSB's *New Roof Construction Manual* for more details.[67]

The new wood shingle roof should be completed with CSSB-certified No. 1 Blue Label clear cedar shingles. Preservative-treated singles (Certi-Last) are an option and should be considered for the coastal location. The shingles should be applied over the extant solid sheathing boards exposed in all attics (okay in areas prone to wind-driven snow) with either nailing strips or a continuous ventilation product applied to the top side of the sheathing.

According to CSSB, the following shingle application should be followed (fig. 757):

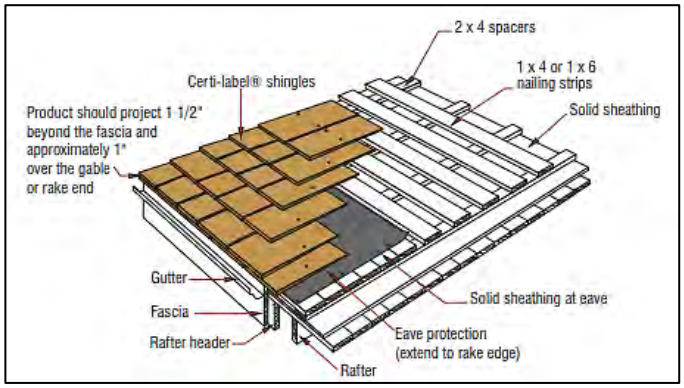


Figure 765. Details for wood shingles applied over solid sheathing. Drawing: CSSB, *New Roof Construction Manual,* p. 3.

7. Shingles must be double or tripled at all eaves.
8. Butts of first course shingles should project 1½" beyond the fascia and approximately 1" over the gable or rake end.
9. Spacing between adjacent shingles (joints) should be a minimum of ¼" and a maximum of ⅜".
10. Certi-label shingles shall be laid with a side lap not less than 1½" between joints in adjacent courses, and not more than 10% shall be in direct alignment in alternate courses. Check with your local building official in your area.
11. In lesser grade shingles containing both flat and vertical grain, joints should not be aligned with centerline of heart.
12. Flat grain shingles wider than 8" should be split in two before nailing. Knots and similar defects should be treated as the edge of the shingle and the joint in the course above placed 1½" from the edge of the defect.[68]

Ring-shank stainless steel "Type 316" nails, probably 4d, should be used. They should not be overdriven or underdriven and should be hot-dipped or electro-galvanized.

Zinc or copper strips are helpful at the ridge cap/vent and approximately every 6'-0" down the slope to deter biological growth.

Refer to the CSSB's website and technical publications for more information on the best practices for installing and maintaining cedar shingles roofs.

Consult NPS *Preservation Brief 19: The Repair and Replacement of Historic Wooden Shingle Roofs* for additional information.

[67] Cedar Shake & Shingle Bureau. "New Roof Construction Manual." June 2014. p. 9. Accessed at http://www.cedarbureau.org/cms-assets/documents/roof-manual-full-09-2014.pdf on November 6, 2019.
[68] Ibid.

C1030 Fittings	Good	Minor

No work is required at this time.

G2030 Trail (Pedestrian Paving)	Good	Minor

No work is required at this time.

G204001 Fences & Gates	Good	Minor

Short Term (Critical Components & Mothball Actions)

No work is required in the Short Term.

Long Term (Exterior Restoration & Interior Rehabilitation)

With the planned long-term removal of the elevated parking pad and related retaining walls, the wooden fence on the concrete retaining wall and the modern aluminum gate will also be removed. A resulting landscape will have to be planned.

B301005 Gutters & Downspouts	Not Rated	Not Rated

No gutters are required on the building, as there were none located on the building historically.

D20 Plumbing	Not Rated	Not Rated

The ultimate use of the Garage does not require the addition of plumbing to the structure.

D30 HVAC	Not Rated	Not Rated

The ultimate use of the Garage does not require the addition of an HVAC system to the structure.

D4010 Sprinklers	Not Rated	Not Rated

According to NPS *Reference Manual 58: Structural Fire* "Historic Property Assessment Matrix", a fire suppression (sprinkler) system is required in the Garage, as it has high significance, good integrity, is located in a rural location, and is built of combustible construction (wood frame). If the park decides to not install a system, a variance would be required by the Regional Authority Having Jurisdiction (AHJ).[69]

[69] National Park Service, Division of Fire and Aviation. *Reference Manual 58: Structural Fire.*

D503001 Fire Alarm Systems	Not Rated	Not Rated

According to NPS *Reference Manual 58: Structural Fire* "Historic Property Assessment Matrix", a fire alarm system is required in the Garage, as it has high significance, fair integrity, is located in a rural location, and is built of combustible construction (wood frame).[70]

A fire protection engineer shall inspect the building to determine the appropriate type, quantity, and locations of smoke and heat (rate-of-rise) detectors for the approved use and occupancy of the building. New detectors will replace the existing detectors and will be installed as part of the fire alarm system connected to the local emergency response unit or park/regional dispatch. Refer to NPS *Director's Order 58: Structural Fire Management, NFPA 914 Code for Fire Protection of Historic Resources*, and local codes for more information.

D503008 Security Alarm Systems	Not Rated	Not Rated

Based on the ultimate use determined for the Garage, a security system, with integrated battery backup, may be required.

[70] Ibid.

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Effects of Recommended Treatments

The potential effects of the recommended treatments for exterior restoration and interior rehabilitation of the five buildings at Bass Harbor Head Light Station—Lighthouse, Keeper's Dwelling, Bell House, Oil House, and Garage—are outlined in Tables 13-17, respectively.

The tables are ordered by maintenance deficiency rating and appear in the same order as the Prioritized Treatment List tables for each building.

Effects to historic fabric, recommended mitigating measures, and beneficial outcomes are examined. Treatment recommendations which include periodic housekeeping and maintenance, reassessment, or are in good and minor conditions, are not discussed.

Note: Effects of Recommendations of D Services for those assets with Not Rated or Unknown ratings are not included below. These recommendations will be subject to change based on the Ultimate Treatment and Use of each of the buildings. Furthermore, for assets which require further planning (site, use, etc.), Effects have not been included.

Table 13. Bass Harbor Head Lighthouse Recommended Treatment Effects			
Recommended Treatment	Potential Effect on Historic Fabric	Mitigating Measures	Beneficial Effects
CRITICAL			
B301001: Conduct paint study on roof finishes. Refinish original metal roof covering.	No effect.	N/A	Historic components returned to good condition.
B101004: Replace upper railing of exterior gallery. Refinish metal railings.	No adverse effect. No effect.	Historic component replaced in kind. N/A	Life-safety component updated. Historic components returned to good condition.
B2010: Remove deteriorated mortar; repoint. Conduct paint study on exterior brick and metal wall components. Recoat brick walks. Repaint metal wall components.	No adverse effect. No effect. No effect. No effect.	Unsympathetic and deteriorated mortar replaced with traditional material. N/A N/A N/A	Historic components returned to good condition.
SERIOUS			
B2020: Remove modern glass block. Restore cast metal window components. Install new casement windows in windows	No adverse effect. No effect. No adverse effect.	Unsympathetic glass block removed. N/A CDF restored to building.	Historic components returned to good condition.
B101003: Conduct paint study on metal floor decks (including hatch). Refinish original metal roof covering. Recoat concrete slab. Investigate area under concrete slab (also A1010).	No effect.	N/A	Historic components returned to good condition. Preservation maintenance. Investigation to sub-slab foundations.
C201001: Conduct paint study on interior metal stair finishes. Refinish original metal stair components.	No effect.	N/A	Historic components returned to good condition.
D403001: Install fire extinguisher.	No adverse effect.	Building protected from fire.	Life-safety component updated.
B102001: Conduct paint study on structural roof frame finishes. Refinish original metal roof frame.	No effect.	N/A	Historic components returned to good condition.
End of Table.			

Table 14. Bass Harbor Head Keeper's Dwelling Recommended Treatment Effects			
Recommended Treatment	Potential Effect on Historic Fabric	Mitigating Measures	Beneficial Effects
CRITICAL			
D509004: Install lightning protection system.	No adverse effect.	Building is protected from lightning strikes.	Life-safety component updated.
D503001: Install fire alarm system.	No adverse effect.	Building is protected from fire.	Life-safety component updated.
D403001: Install fire extinguishers.	No adverse effect.	Building protected from fire.	Life-safety component updated.
B301004: Restore all flashings to meet traditional/approved flashing details.	No adverse effect.	Water infiltration eliminated.	Return components to good condition.
SERIOUS			
G9087: Regrade areas of negative and neutral drainage.	No adverse effect.	Future preservation of historic materials.	Water infiltration issue mitigated.
B301005: Install gutters and downspouts.	No adverse effect.	Future preservation of historic materials.	Water infiltration issue mitigated.
B101099: Remove deteriorated mortar; repoint. Reconstruct kitchen chimney.	No adverse effect.	Unsympathetic and deteriorated mortar replaced with traditional material. Missing historic component restored to structure.	Historic components returned to good condition.
A1010: Recoat exterior faces of foundation walls. Repair foundation wall penetrations (also A2020)	No adverse effect.	CDF restored to building. Water infiltration eliminated.	Historic components returned to good condition.
B101001: Remove modern insulation in attic floor frame. Install new insulation in attic floor frame and basement ceiling.	No adverse effect.	Degraded material removed from building. New insulation meets modern energy codes.	Return components to good condition.
B201008 & 201001: Remove vinyl siding and soffit materials; repair underlying wood components. Repaint wood siding and soffits. Install new insulation in exterior walls.	No adverse effect.	Unsympathetic materials removed from building. CDFs restored to building. New insulation meets modern energy cods.	Historic components returned to good condition.
MINOR			
C102001: Remove carpet from interior stair.	No effect.	Unsympathetic component removed from building.	Life-safety component updated.

(Table 14 continued)

B2020: Remove modern windows. Restore wood window sash, jambs, frames, and trim.	No adverse effect.	Unsympathetic components removed from building. CDFs restored to building.	Historic components returned to good condition.
B2030: Remove modern exterior doors. Restore wood doors, jambs, frames, and trim.	No adverse effect.	Unsympathetic components removed from building. CDFs restored to building.	Historic components returned to good condition.
B301001: Remove modern fiberglass shingles. Restore wood shingles to roof.	No adverse effect.	Restoration of missing historic features.	Restoration of exterior to proposed Period of Significance.
C201002: Remove modern concrete exterior stair units. Restore wood stair units.	No adverse effect.	Unsympathetic components removed from building. CDFs restored to building.	Historic components returned to good condition.
C3010, C3020 & C3030: Remove modern wall, floor, and ceiling finishes. Restore historic finishes.	No adverse effect.	Unsympathetic components removed from building. CDFs restored to building.	Historic components returned to good condition.
End of Table.			

Table 15. Bass Harbor Head Bell House Recommended Treatment Effects			
Recommended Treatment	Potential Effect on Historic Fabric	Mitigating Measures	Beneficial Effects
CRITICAL			
D509004: Install lightning protection system.	No adverse effect.	Building is protected from lightning strikes.	Life-safety component updated.
D403001: Install fire extinguisher.	No adverse effect.	Building protected from fire.	Life-safety component updated.
SERIOUS			
G9087: Regrade area at north elevation; create small swale at door.	No adverse effect.	Future preservation of historic materials.	Water infiltration issue mitigated.
A1010 & B2010: Remove modern paint from stone foundation and brick walls. Repaint with sensitive coating. Spot repoint with lime-based mortar, as needed.	No adverse effect.	Retain paint windows for future paint study.	Return components to good condition.
B1010 & B301001: Prepare, prime, and repaint wood-sided walls and roof-level trim. Repairs in kind, as needed.	No effect.	Retain paint window for future paint study.	Preservation maintenance.
B2020: Remove modern windows. Install restoration windows and associated trim. Restore wood panel/door to W103.	No adverse effect.	Removal of unsympathetic, modern alterations.	Restoration of exterior to proposed Period of Significance.
B101001, C3020 & C103098: Remove modern floor covering and baseboard on first floor. Remove modern fiberglass insulation on second floor.	No effect.	Removal of unsympathetic, modern materials.	Building can breathe; moisture can dissipate.
G2030: Remove modern concrete sidewalk.	No adverse effect.	Removal of unsympathetic, modern alterations.	Restoration of exterior to proposed Period of Significance.
MINOR			
B301005: Remove modern gutter and downspout.	No adverse effect.	Removal of unsympathetic, modern alterations.	Restoration of exterior to proposed Period of Significance.
C1030: Conserve cast iron bolt.	No effect.	Historic material saved for future interpretation.	Preservation maintenance.
B102001: Restore bell and support beam.	No adverse effect.	Restoration of missing historic features.	Restoration of exterior to proposed Period of Significance.

(Table 15 continued)

B2030: Remove modern exterior door and sill. Install traditional door in historic trim on historic sill.	No adverse effect.	Restoration of missing historic features.	Restoration of exterior to proposed Period of Significance.
B301001: Remove modern fiberglass shingles. Restore wood shingles to roof.	No adverse effect.	Restoration of missing historic features.	Restoration of exterior to proposed Period of Significance.
End of Table.			

Table 16. Bass Harbor Head Oil House Recommended Treatment Effects			
Recommended Treatment	Potential Effect on Historic Fabric	Mitigating Measures	Beneficial Effects
CRITICAL			
D509004: Install lightning protection system.	No adverse effect.	Building is protected from lightning strikes.	Building is protected from lightning strikes.
D403001: Install fire extinguisher.	No effect.	N/A	Life-safety component updated.
G2030 & G9087: Regrade asphalt walkway at north elevation.	No effect; modern material.	N/A	Water infiltration issue mitigated.
SERIOUS			
G2050: Remove overgrown vegetation on east, south, and west elevations.	No effect; volunteer plantings.	N/A	Water infiltration issue mitigated.
B301001: Repair slate roof.	No adverse effect.	Repair of historic slate roof.	Roof made weatherproof.
B201005: Add screens to interior of louvered vents.	No adverse effect.	No damage to historic fabric.	Deterrence of insects and rodents to interior.
MINOR			
B2010: Stabilize interior brick wall coatings.	No adverse effect.	Retain paint window for future paint study.	Historic material stabilized.
C1030: Remove modern cabinets and shelving.	No effect; modern material.	N/A	Modern materials removed.
B102001: Prepare, prime, and repaint structural roof frame (interior). Repairs in kind, as needed.	No adverse effect.	Retain paint window for future study.	Historic material stabilized.
B2030: Repair or replacement of deteriorated wood door sill.	No adverse effect.	Historic component beyond practical repair.	Return component to good condition.
End of Table.			

Table 17. Bass Harbor Head Garage Recommended Treatment Effects			
Recommended Treatment	Potential Effect on Historic Fabric	Mitigating Measures	Beneficial Effects
CRITICAL			
D509004: Install lightning protection system.	No adverse effect.	Building is protected from lightning strikes.	Building is protected from lightning strikes.
G2020 & G9087: Regrade asphalt driveway at north elevation.	No effect; modern material.	N/A	Water infiltration issue mitigated.
B101001, B2030 & C3020: Repair/replace deteriorated wood floor and floor frame (first floor, north wall).	No adverse effect.	Floor is modern. Historic framing components beyond practical repair.	Building components returned to good condition.
SERIOUS			
G2050: Remove overgrown vegetation.	No effect; volunteer plantings.	N/A	Water infiltration issue mitigated.
D403001: Install fire extinguisher.	No effect.	N/A	Life-safety component updated.
A101002: Reconstruct missing stone foundation pier.	No adverse effect.	Restoration of missing historic features.	Restoration of exterior to proposed Period of Significance.
B2010: Repair missing wood wall shingles.	No effect; preservation maintenance.	N/A	Return component to good condition.
MINOR			
B2020: Remove modern aluminum window tracks. Restore sash cords.	No adverse effect.	Restoration of missing historic features. Removal of modern material.	Restoration of exterior to proposed Period of Significance.
B2020 & B2030: Remove vinyl infill window (2nd floor). Restore traditional door to opening.	No adverse effect.	Restoration of missing historic features. Removal of modern material.	Restoration of exterior to proposed Period of Significance.
G2020 & G204002: Remove modern elevated parking pad, associated retaining walls, and associated fences and gates.	No effect; modern material.	N/A	Restoration of exterior to proposed Period of Significance.
B301001: Replace missing trim in kind. Repair deteriorated trim.	No adverse effect.	Restoration of historic materials.	Return components to good condition.
B2030: Replace unsympathetic door hinges with historic strap hinges (E elev.).	No adverse effect.	Restoration of missing historic features. Removal of modern material.	Restoration of exterior to proposed Period of Significance.
B301001: Remove modern fiberglass shingles. Restore wood shingles to roof.	No adverse effect.	Restoration of missing historic features.	Restoration of exterior to proposed Period of Significance.
End of Table.			

Appendix A

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Captain Charles F. Chase
Susan Chase
William Tarlton Holbrook
Evelyn Louise Clark Holbrook
Willis Dolliver
Clara Dolliver
Joseph M. Gray
Phoebe F. Wilson Gray
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Inez D. Genn
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Appendix B

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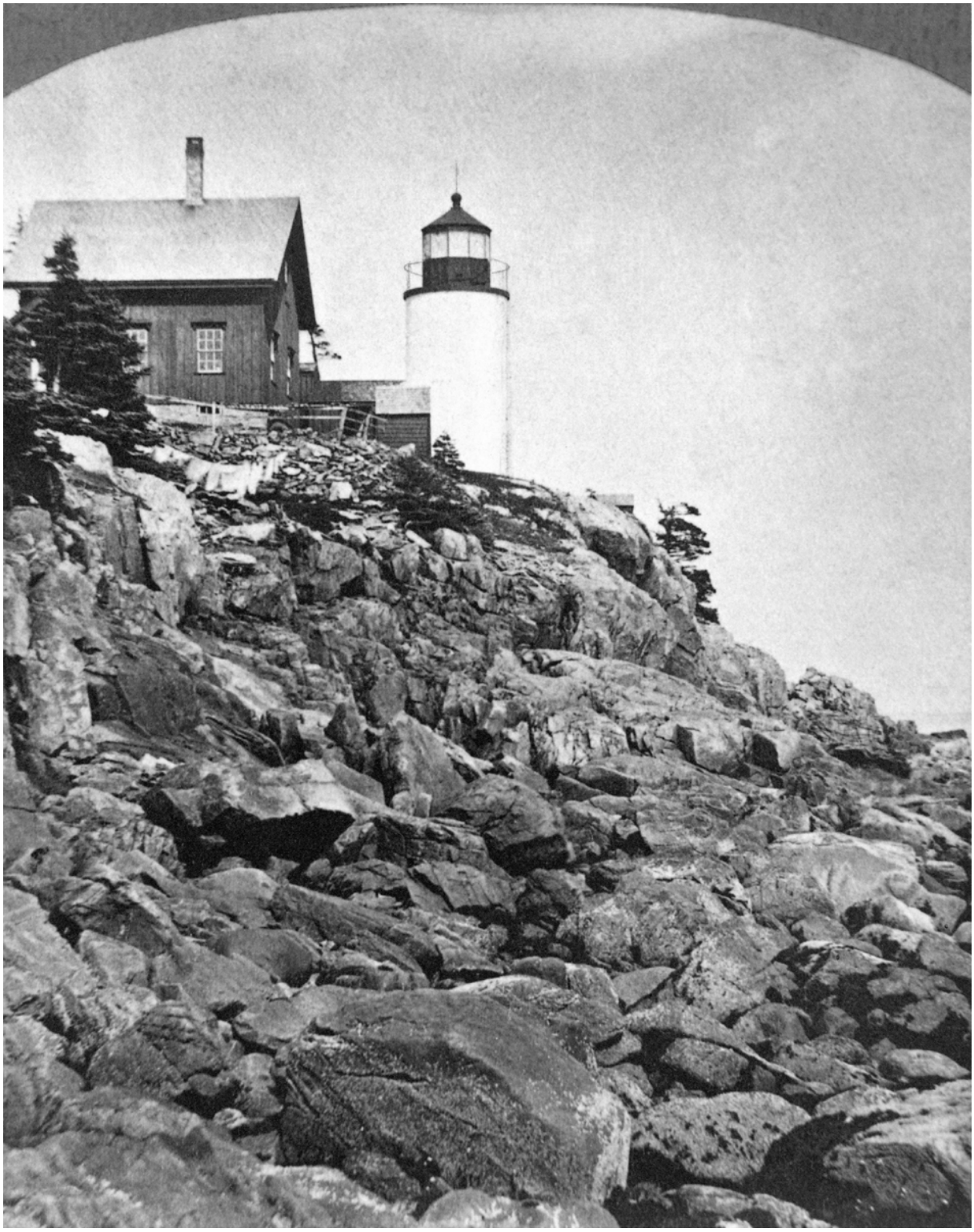
Appendix B: Archival Photographs

Archival photographs were found at the following repositories:

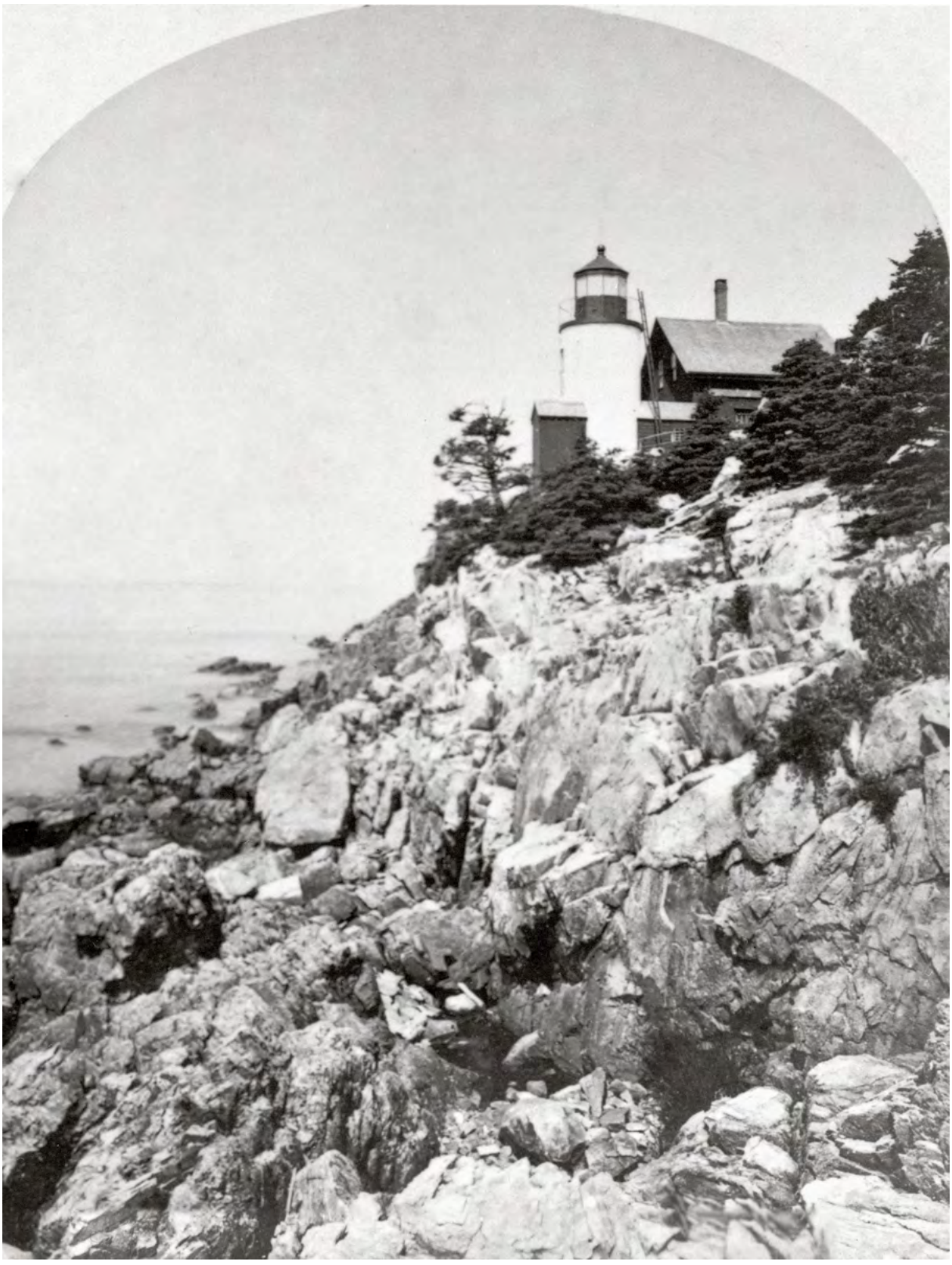
- National Archives and Records Administration
    - Digitized Catalog (website)
    - Boston, MA
- Southwest Harbor Public Library Digital Archives
- United States Coast Guard
    - Historian's Office website
    - Binder located in Keeper's Dwelling



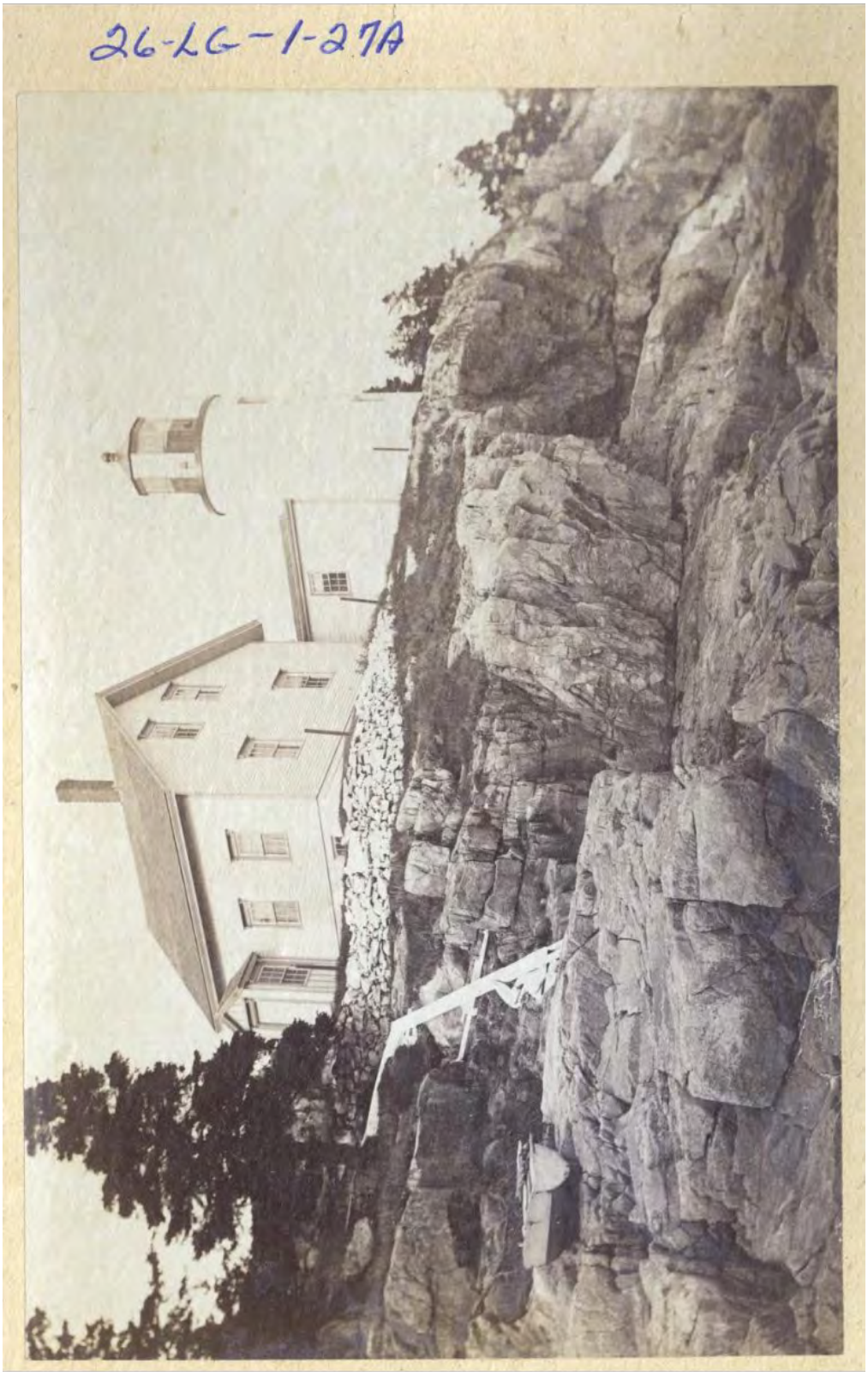
National Archives and Records Administration
26-LG-1-26, n.d,
Accessed at https://catalog.archives.gov/id/18237309 on December 9, 2019



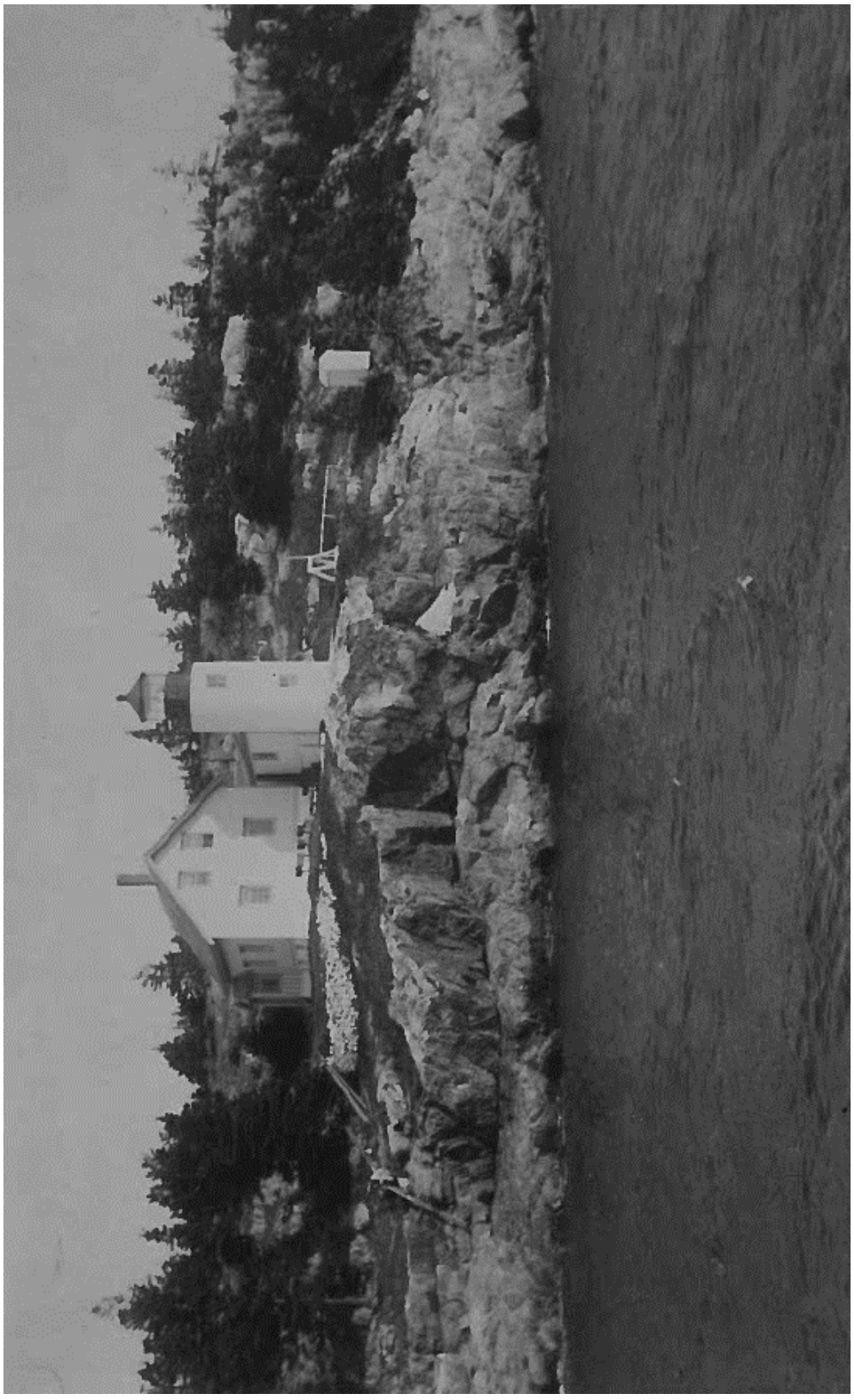
Southwest Harbor Public Library Digital Archive
Item 5655: "Bass Harbor Head Light from the West" by Bryant Bradley, 1875
Accessed at https://swhplibrary.net/digitalarchive/items/show/4621 on December 9, 2019



Southwest Harbor Public Library Digital Archive
Item 13207: "Bass Harbor Head Light", n.d.
Accessed at https://swhplibrary.net/digitalarchive/items/show/9194 on December 9, 2019



National Archives and Records Administration
26-LG-1-27A, n.d.
Accessed at https://catalog.archives.gov/id/18237309 on December 9, 2019.



United States Coast Guard
n.d.
Binder located within the Bass Harbor Head Light Station Keeper's Dwelling



National Archives and Records Administration
26-LG-1-25, n.d.
Accessed at https://catalog.archives.gov/id/18237307 on December 9, 2019



Southwest Harbor Public Library Digital Archive
Item 6165: "Bass Harbor Head Light" by George Arthur Neal, n.d.
Accessed at https://swhplibrary.net/digitalarchive/items/show/4980 on December 9, 2019



Southwest Harbor Public Library Digital Archive
Item 6166: "Bass Harbor Head Light" by George Arthur Neal, n.d.
Accessed at https://swhplibrary.net/digitalarchive/items/show/4981 on December 9, 2019



Southwest Harbor Public Library Digital Archive
Item 7775: "Bass Harbor Head Light", n.d.
Accessed at https://swhplibrary.net/digitalarchive/items/show/6515 on December 9, 2019



Southwest Harbor Public Library Digital Archive
Item 6166: "Bass Harbor Head Light" by George Arthur Neal, n.d.
Accessed at https://swhplibrary.net/digitalarchive/items/show/4981 on December 9, 2019



National Archives and Records Administration
26-LG-1-28A, "Bass Harbor Head Light Station, Maine," 1925
Accessed at https://catalog.archives.gov/id/18237315 on December 9, 2019



Southwest Harbor Public Library Digital Archive
Item 6649: "Lighthouse Keeper Elmer Staples Reed", n.d.
Accessed at https://swhplibrary.net/digitalarchive/items/show/6315 on December 9, 2019



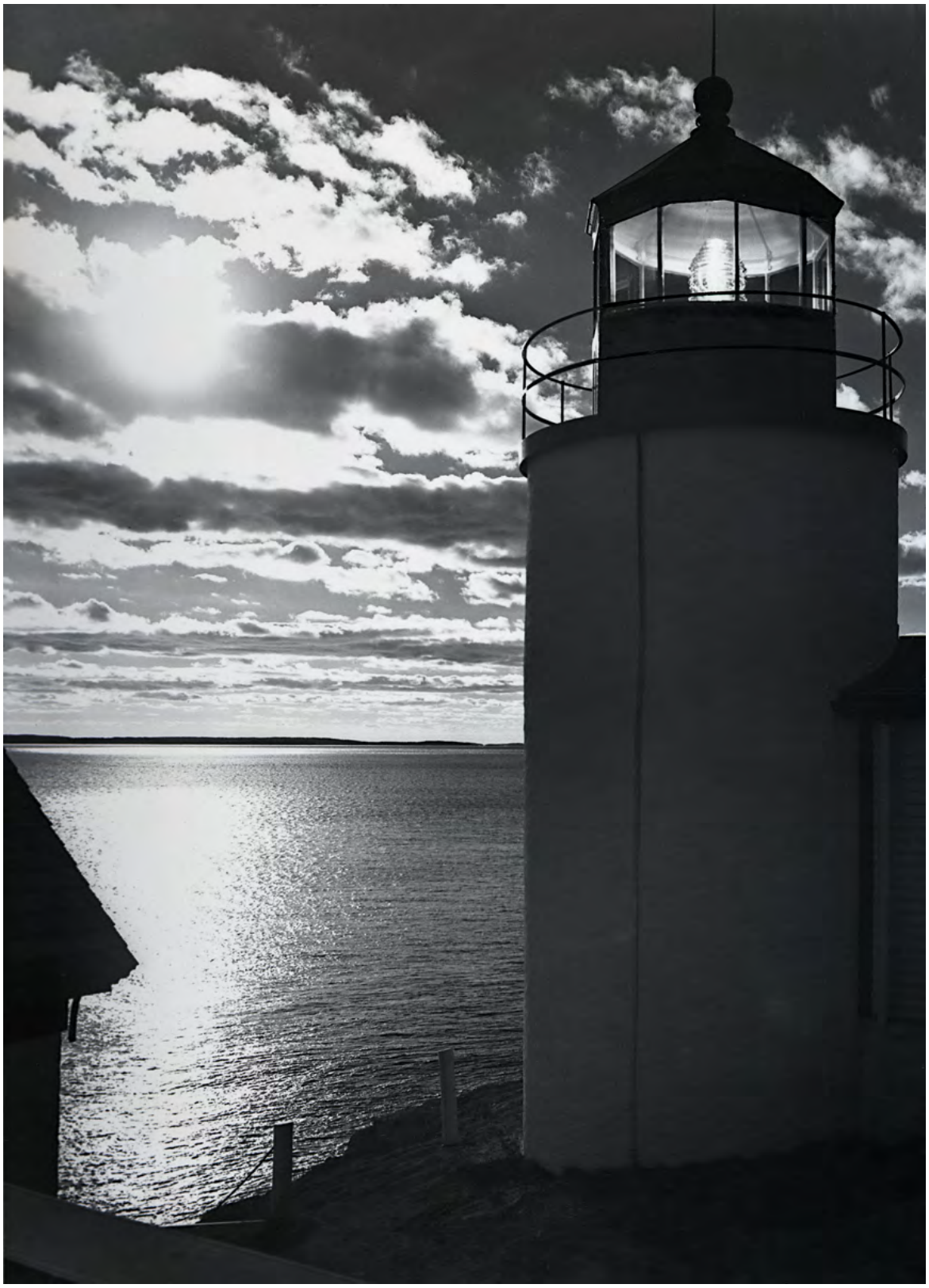
Southwest Harbor Public Library Digital Archive
Item 7815: Bass Harbor Head Light" by Willis Humphreys Ballard, 1940
Accessed at https://swhplibrary.net/digitalarchive/items/show/4378 on December 9, 2019



Southwest Harbor Public Library Digital Archive
Item 7856: "Keeper Leverett Sherman Stanley Painting the Tower at Bass Harbor Head Light" by Willis Humphreys Ballard, May 1949
Accessed at https://swhplibrary.net/digitalarchive/items/show/4403 on December 9, 2019



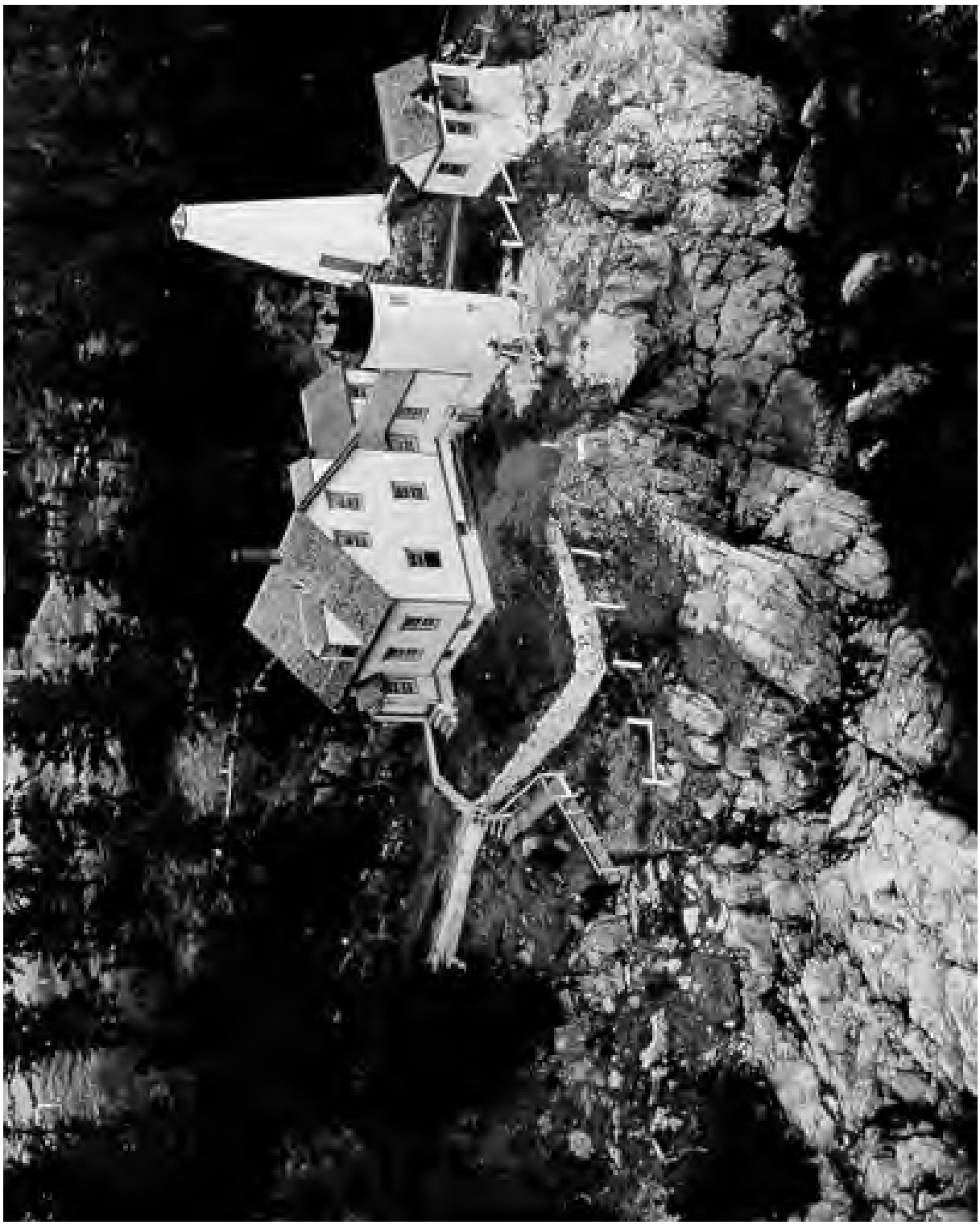
Southwest Harbor Public Library Digital Archive
Item 12180: "Bass Harbor Head Light" by Willis Humphreys Ballard, July 7, 1948
Accessed at https://swhplibrary.net/digitalarchive/items/show/4584 on December 9, 2019



Southwest Harbor Public Library Digital Archive
Item 12181: "Bass Harbor Head Light – In the Moonlight" by Willis Humphreys Ballard, October 19, 1948
Accessed at https://swhplibrary.net/digitalarchive/items/show/4585 on December 9, 2019



Southwest Harbor Public Library Digital Archive
Item 7435: "Bass Harbor Head Light Keeper and Wife, Eugene Leslie Coleman and Amanda (Varner) Coleman with Posey"
Accessed at https://swhplibrary.net/digitalarchive/items/show/6479 on December 9, 2019



United States Coast Guard Historian's Office
170602-G-XX000-434: "Bass Harbor Head Lighthouse, Maine", n.d.
Accessed at https://www.history.uscg.mil/Our-Collections/Photos/igphoto/2001760514/ on December 9, 2019



National Archives and Records Administration, Boston, MA
Record Group 26: U.S. Coast Guard Region I Major Aids to Navigation, 1900-1962, Box 1: Maine A-Br, Folder: Bass Harbor Head Light.
Food Marketing in New England, Volume 23, Number 1, Summer 1962



Southwest Harbor Public Library Digital Archive
Item 6886: "Bass Harbor Head Light" by Paul A. Knaut, Jr., n.d.
Accessed at https://swhplibrary.net/digitalarchive/items/show/4846 on December 9, 2019

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Appendix C

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Appendix C: Archival Drawings

The following drawings are part of a USCG drawing collection transferred to Acadia National Park Cultural Resources Program Manager (Gail Gladstone). See also Appendix C. The following are listed in chronological order:

- "Bass Harbor Head." September 1892. USCG Drawing # P(No3) D7.
- Adams, E.P. (L.H. Surveyor, 1st & 2nd Distritcs). "Bass Harbor Head Light Station, ME." *Reservation Survey.* Office of the L.H. Engr., Post Office Bldg., Boston, Mass., July 31, 1894. USCG Drawing # BassHrbrHd.
- "Bass Harbor Hd. Lt. Site Plan." April 23, 1880. USCG Drawing # P(No5) D7.
- "Proposed Fog Signal Building for Pemaquid Pt. & Bass Harbor Head Lt. Stations, ME." n.d. USCG Drawing # (No8)I17 D1/D2.
- "Bass Harbor Head, Location of Fog Signal House." n.d. USCG Drawing # P(No8)D7.
- "Bass Harbor Head Lt. Station, ME. Showing Proposed Alteration and Improvement to Dwelling." August 1901. USCG Drawing # P(No6)D7/D8.
- "Bass Harbor Head Lt. Station, ME. Showing Present Arrangement of Dwelling." n.d. USCG Drawing # P(No6)D9.
- U.S. Coast Guard, First District, Boston, Mass., Civil Engineering. "Bass Harbor Head Lt. Sta., Bass Harbor, Maine. Electrification of Station." USCG Drawing # P4355. March 14, 1949.
- First C.G. District. "Bass Harbor Hd. L.S., Bass Harbor, ME, Keeper's Dwelling." 2 Sheets. December 1949. USCG Drawing # P4459 D1/D2.
- U.S. Coast Guard, First District, Boston, Mass. "Bass Harbor Hd. L.S., Mt. Desert Island, Maine. New Sanitary Facilities for Keeper's Dwell." 2 Sheets. May 11, 1950. USCG Drawing # P4402 D1/D2.
- "Bass Harbor Head L/S. McKinley Maine. Bit. Conc. Pavement Construction on Exist. Gravel Walkway." 1 Sheet. August 25, 1975. USCG Drawing # P6586.
- "Bass Harbor Head Light Station, Mt. Desert Island, Maine. Sewage Treatment System." *Drawing.* April 15, 1975 with September 25, 1975 revisions. USCG Drawing # P6375 D/D2.
- U.S. Coast Guard, Providence, RI, Civil Engineering Unit. "Upgrade Heating System, CG Group Southwest Harbor, Bass Harbor Head Light." *Drawing Set.* October 31, 1997, with as-built records January 1998. USCG Drawing # P0863 D1/D2.
- United States Coast Guard, Civil Engineering Unit Providence. "Lead Paint Remediation, U.S. Coast Guard Bass Harbor Lighthouse, Keepers Quarters, Storage Shed, Bass Harbor, Maine." *Drawing Set.* August 2001. USCG Drawing # P01314 D1/D2/D3.
- U.S. Coast Guard, Civil Engineering Unit, Providence. "Window Repairs, Bass Harbor Head Light, Dwelling." *Drawing.* N.D. USCG Drawing # P1611.

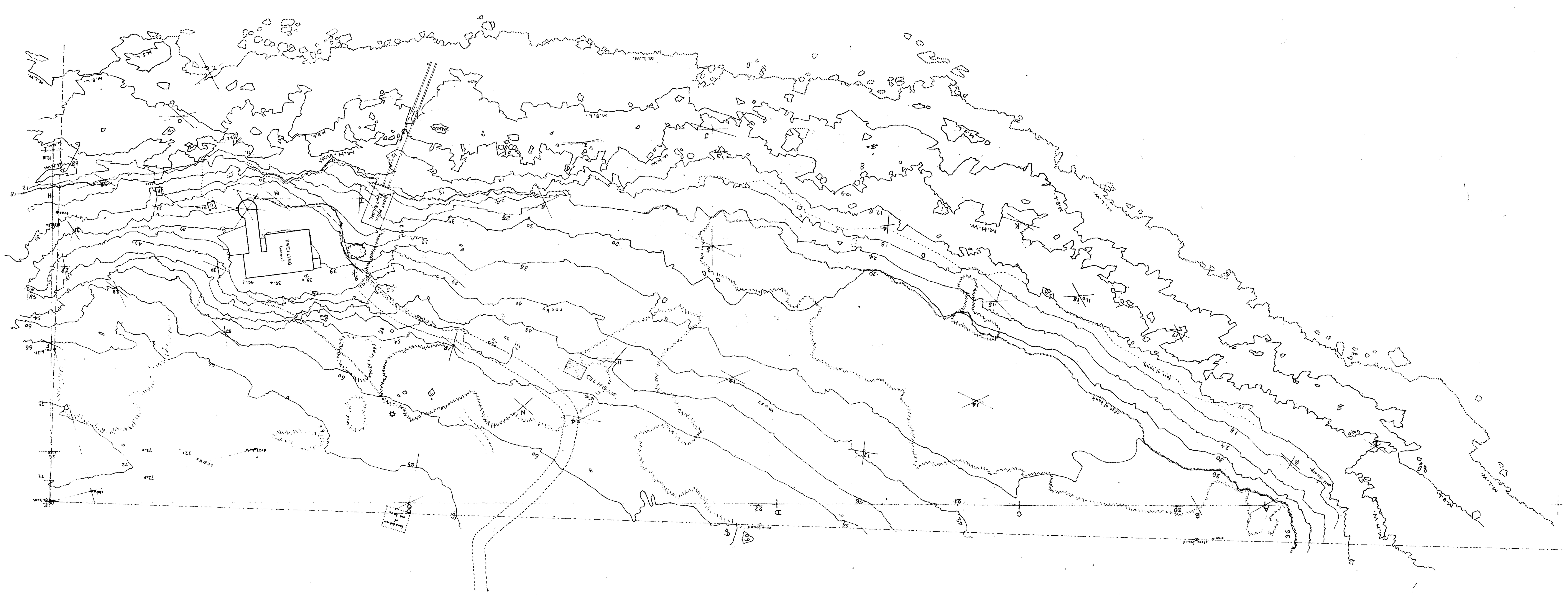
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BASS HARBOR HEAD.

SEPT., 1892.

SCALE OF FEET

100 0 50 100



SEPT., 1892.

BASS HARBOR HEAD.

E (No3) D. 7

BASS HARBOR HEAD

LIGHT STATION,

ME.

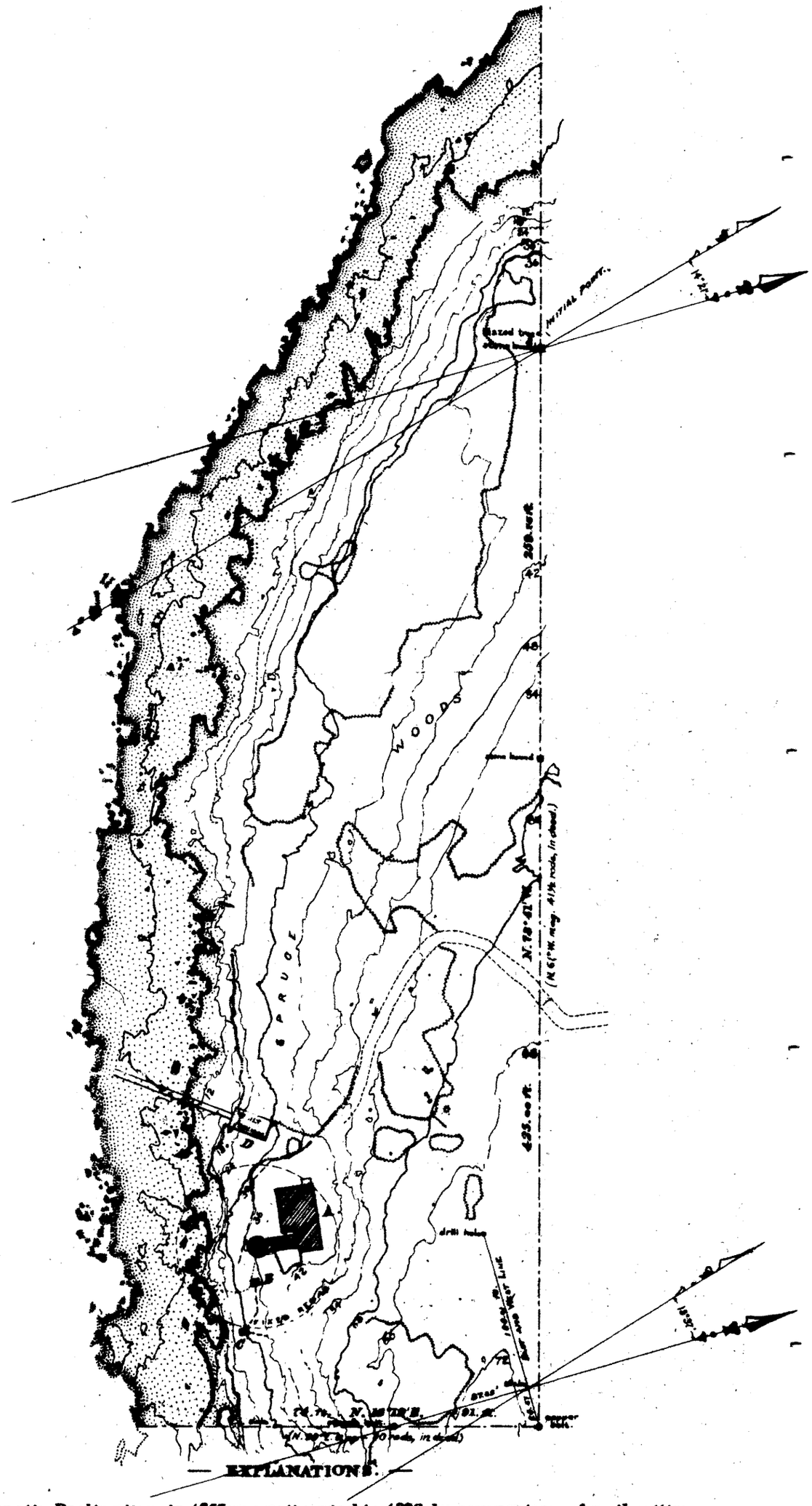
Lat. 44° 13' 19" N.
Long. 68° 20' 16" W.

Kind of Light	*Harbor.*
Order of Light	*5th.*
Characteristic of Light	*Fixed Red.*
Base of Tower above water level	*36 ft.*
Focal Plane	*62.5 ft.*
Mean Range of Tides	*9.1 ft.*

Site Purchased	*June 10, 1857.*
Deed Recorded in Hancock Co. Reg. Bk. 104, p. 365.	
First Buildings, when built	*1858.*
When rebuilt or renovated	
Area of Reservation to M.H.W. line	*3.512 Acres.*
Area enclosed	*None.*

Reservation Surveyed Sept. 1 to Sept. 24, 1892, by E.P. ADAMS, C.E., L.H. Surveyor.

Scale, ~~1/1000~~.



— EXPLANATIONS. —

The Magnetic Declination in 1857 was estimated in 1892, by comparison of authorities, to have been 17° W. the declination at time of survey was determined, by observation of Polaris to be 17° 30' W. Courses given on plan are True bearings. Contours 6 ft apart.

** Light Tower. A. Dwelling. B. Bell. C. Privy. D. Boat House.*

——— Boundary of Reservation. ——— Edge of Bank. ····· Foot of Bank. - - - - - Fence.

——— M.H.W. Line. ····· M.L.W. Line. ● Stone Bound, 3 ft. long, 6" × 6" top cut thus:—

Feet. 100 50 0 100 200

E. P. Adams
L.H. Surveyor 1st & 2nd Dists.

W. R. Livermore, Maj. of Engrs.
Engr. 1st & 2nd L.H. Dists.

US LHE

OFFICE OF L.H. ENGR., POST OFFICE BLDG., BOSTON, MASS., JULY 31, 1894.

EAGLE FILE CORP. IRVINE, CA EFH 24

Bass Harbor Hd. LT
Site Plan
(N05)D7 23 APR 1880

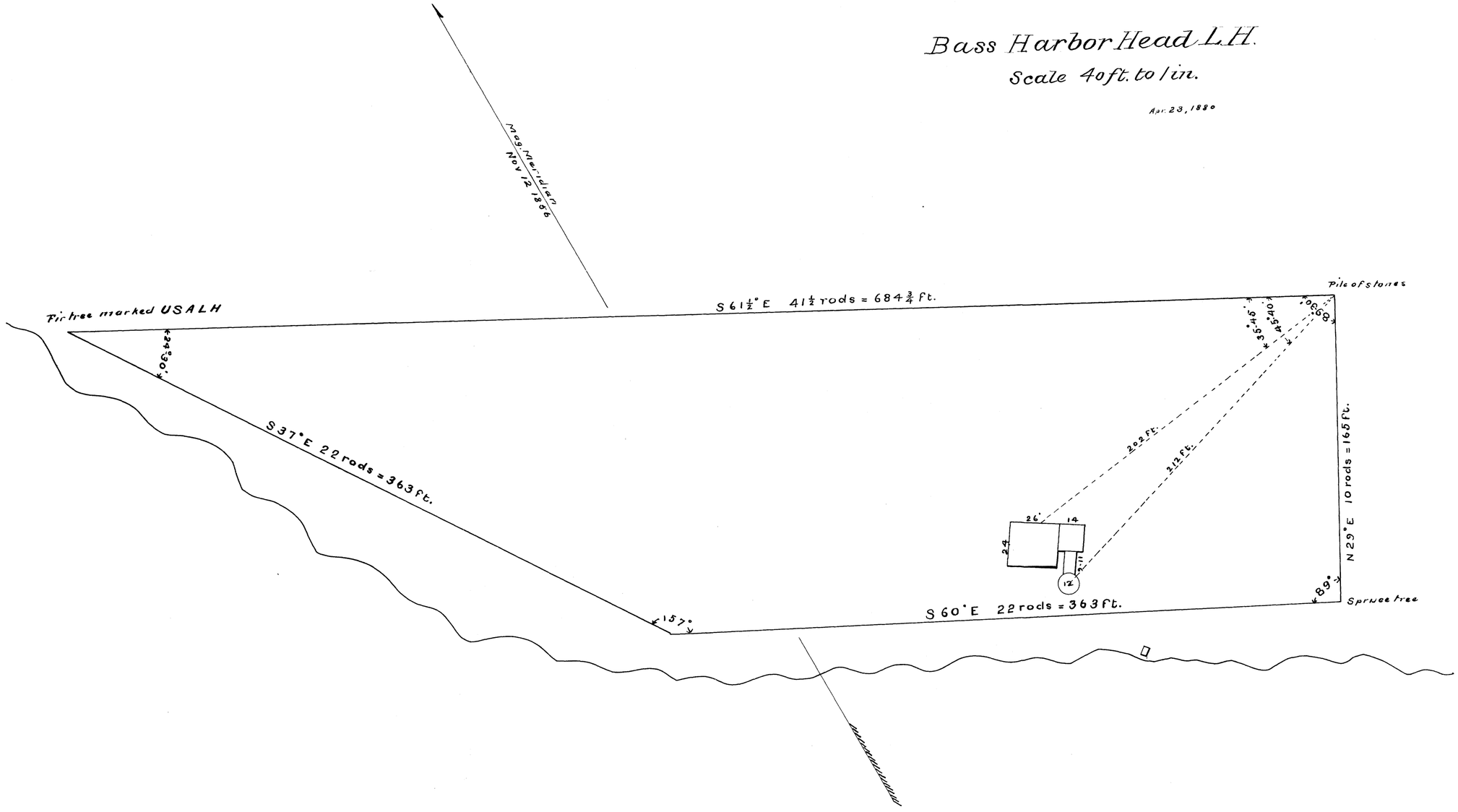
EASI FILE CORP. IRVINE, CA EFH 24

E

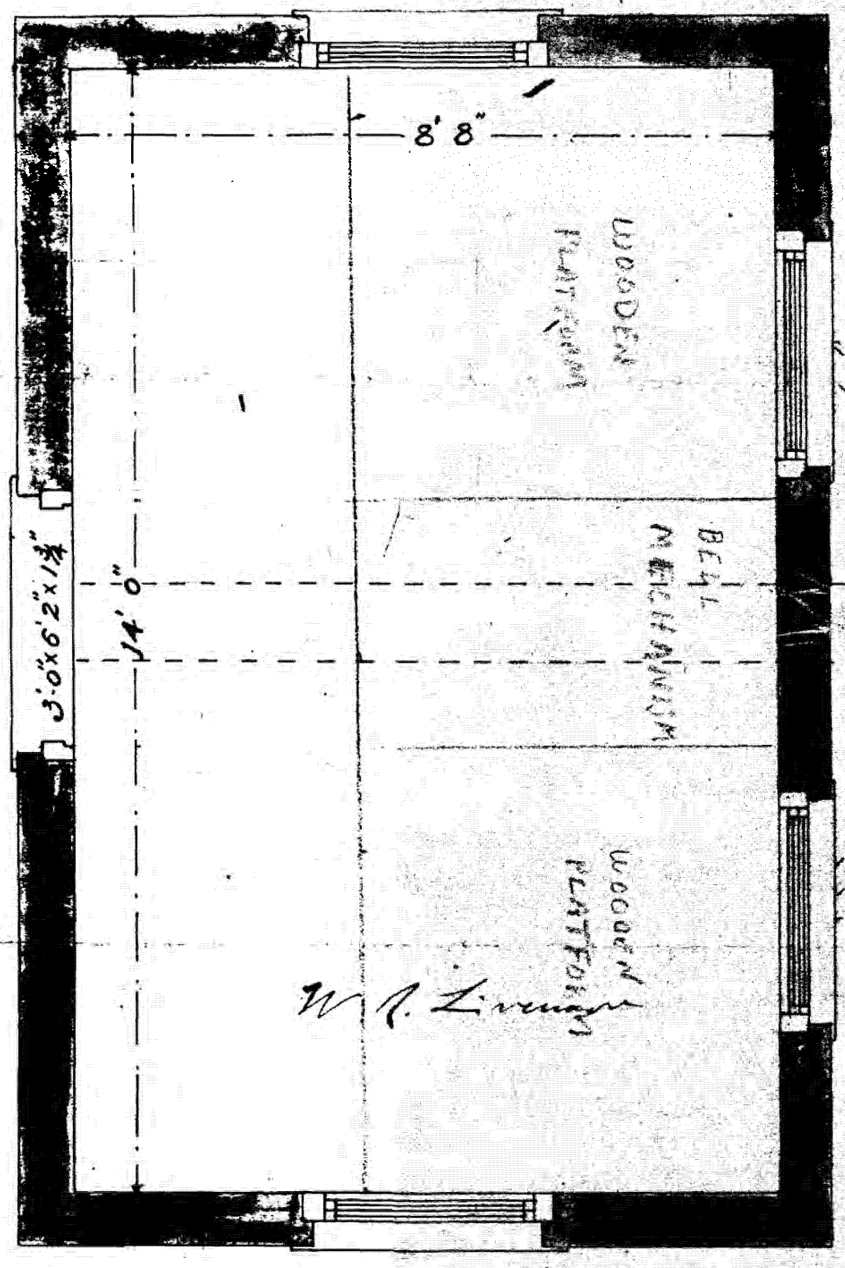
Bass Harbor Head L.H.

Scale 40 ft. to 1 in.

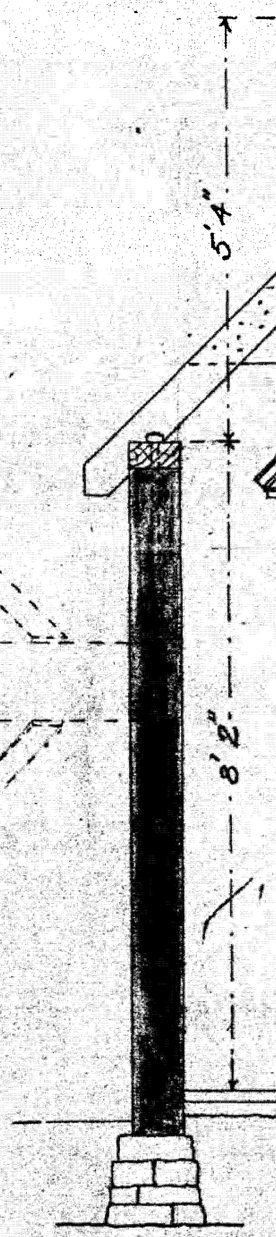
Apr. 23, 1880



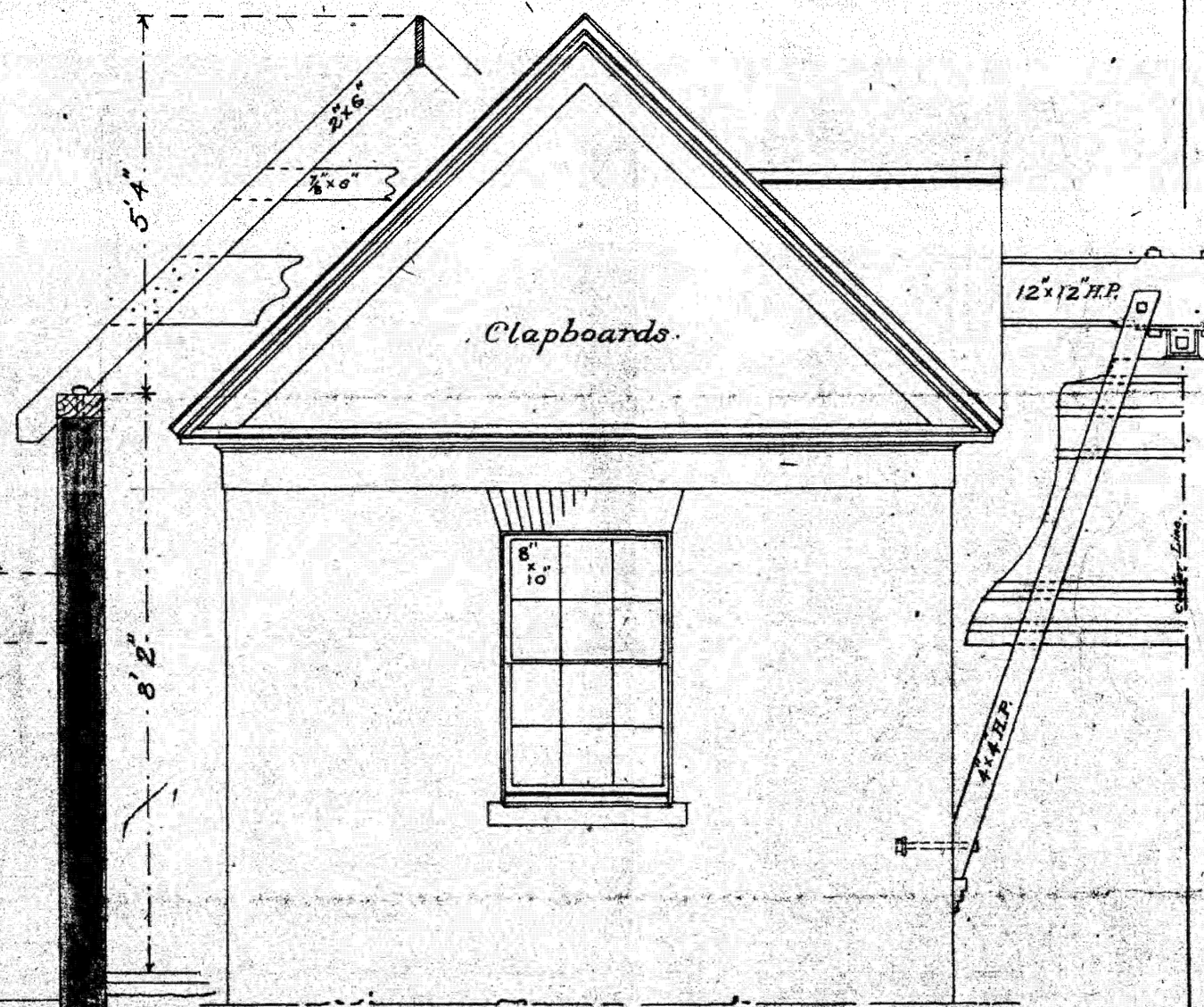
F



PLAN.



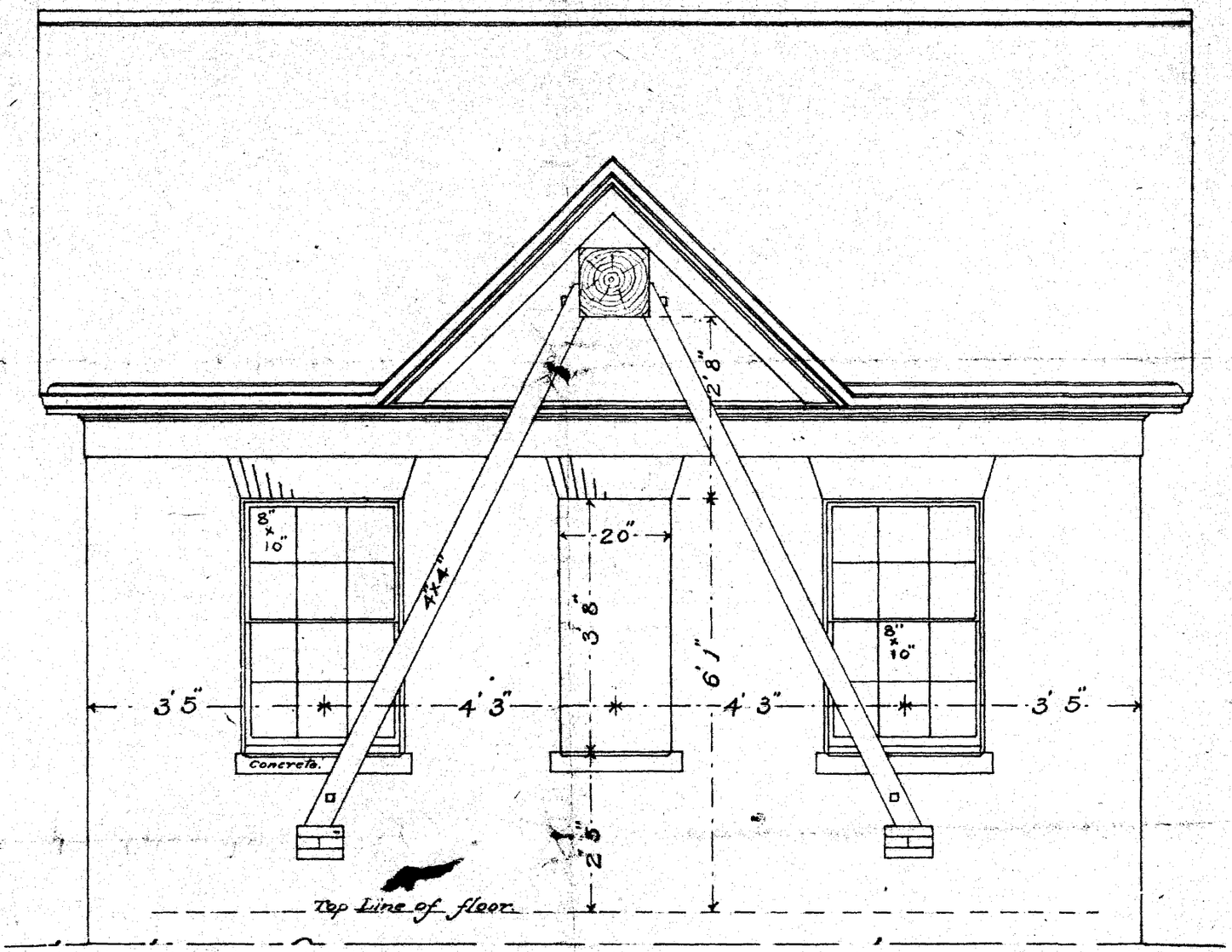
SECTION.



END ELEVATION.

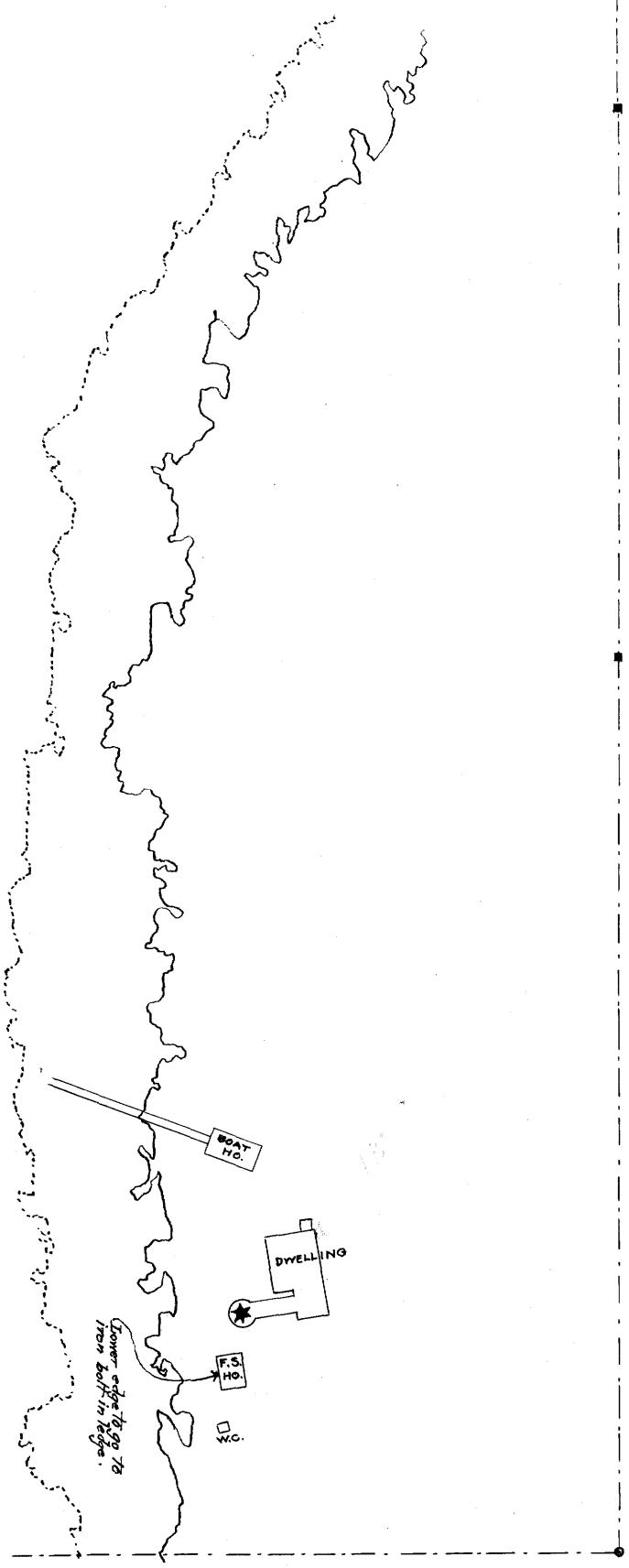
SCALE 1"=1'-0".

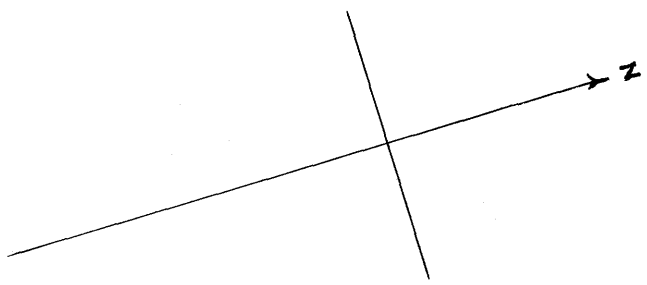
PROPOSED FOG SIGNAL BUILDING FOR
PEMAQUID PT. & BASS HARBOR HEAD
LT. STATIONS, ME.



SIDE ELEVATION

SCALE $\frac{1}{2}$" = 1'-0"





BASS HARBOR HEAD.

LOCATION OF FOG SIGNAL HOUSE

100' 50' 0 100'

SCALE.

E (No 8) D. 7

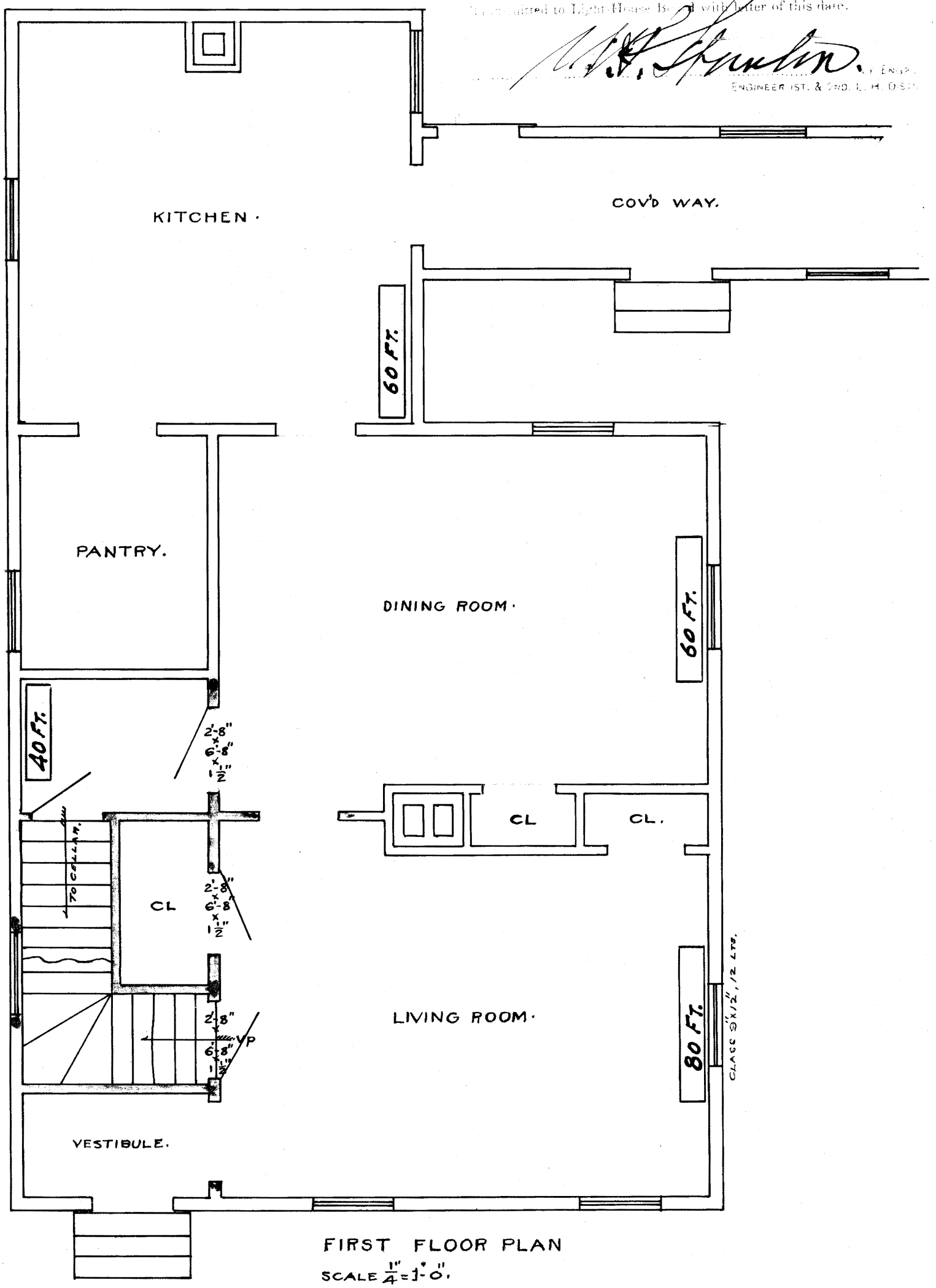
2212

BASS HARBOR HEAD LT. STATION, ME.

SHOWING PROPOSED ALTERATION AND IMPROVEMENT
TO DWELLING.
SCALE $\frac{1}{4}$" = 1'-0".

NOTE:
NEW WORK COLORED - SHOWS WHITE
ON BLUE PRINTS.

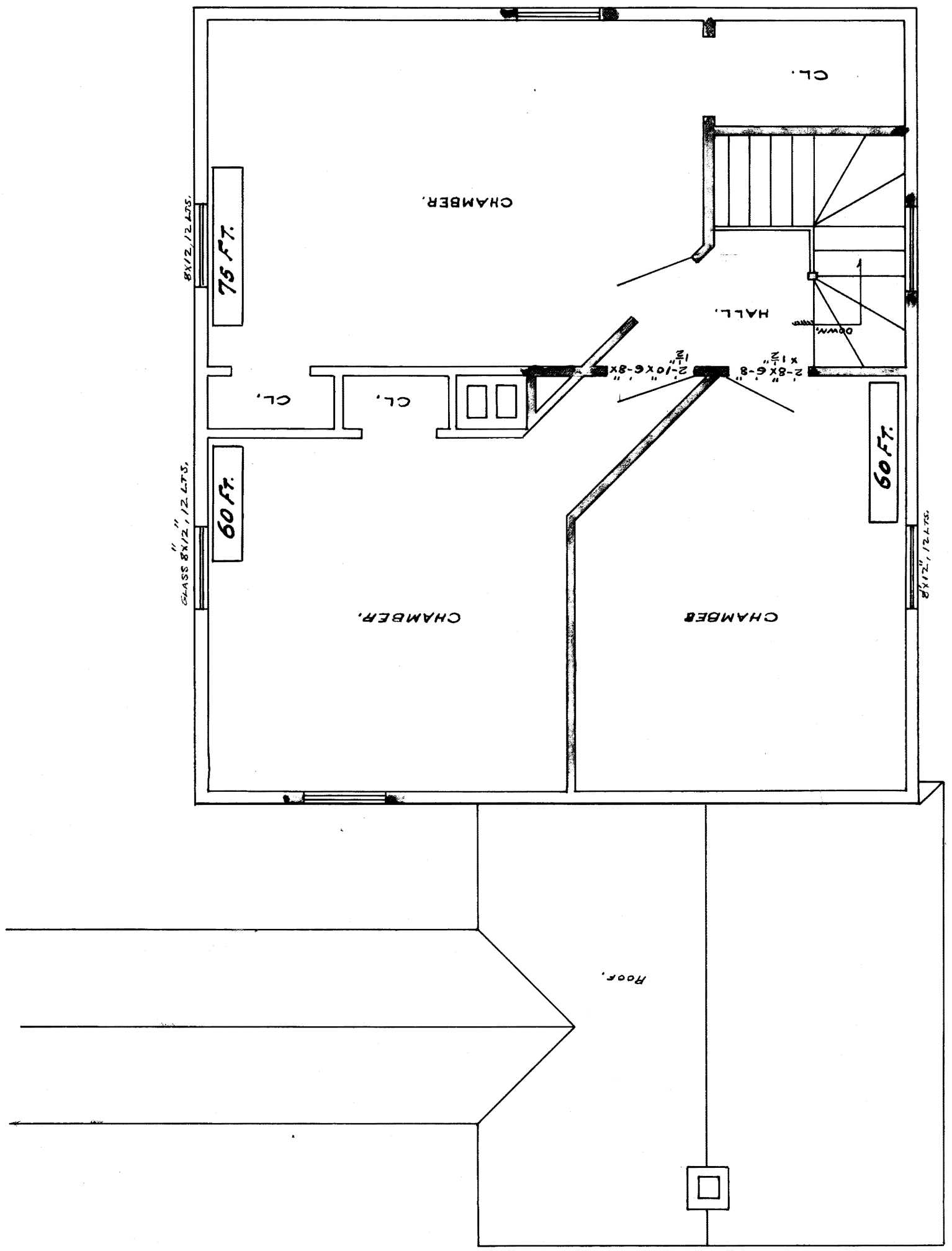
OFFICE OF LIGHT HOUSE ENGINEER, 1ST. & 2ND. DISTS.
AUG 1901.
Submitted to Light House Board with letter of this date.
[signature]
ENGINEER 1ST. & 2ND. L. H. DISTS.



FIRST FLOOR PLAN
SCALE $\frac{1}{4}$" = 1'-0".

(No 6) D. 7.

SECOND FLOOR PLAN.
SCALE $\frac{1}{4}$"=1'-0".

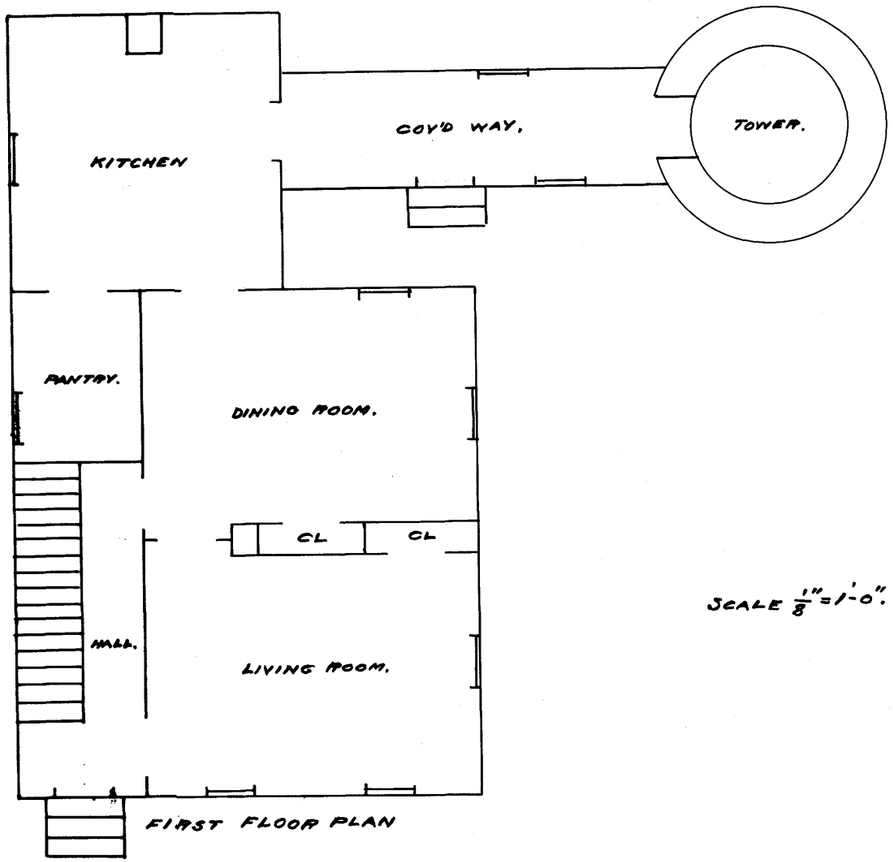


(No 4) D. P

SHEET NO. 3.

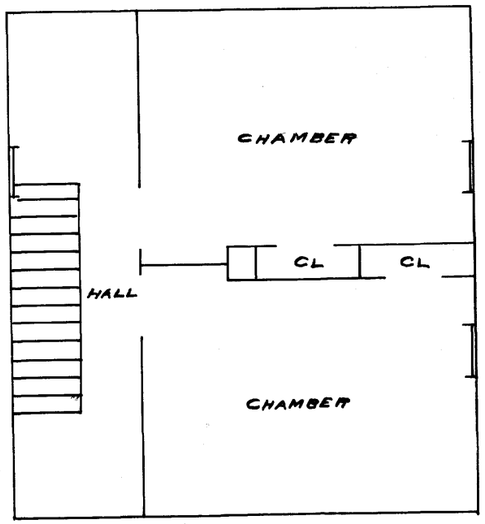
BASS HARBOR HEAD LT STATION, ME.

SHOWING PRESENT ARRANGEMENT OF DWELLING.



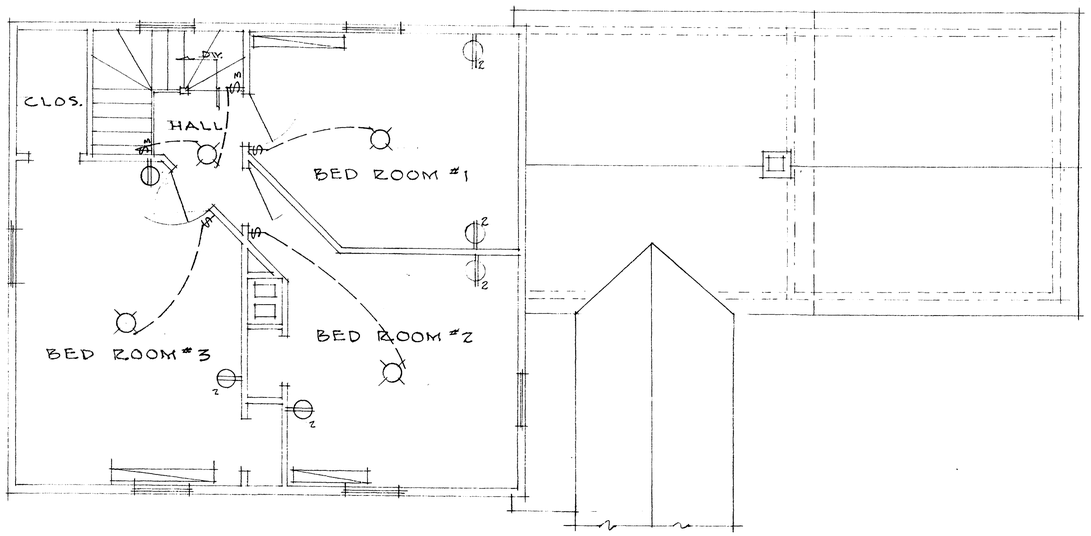
FIRST FLOOR PLAN

SCALE $\frac{1}{8}$"=1'-0".



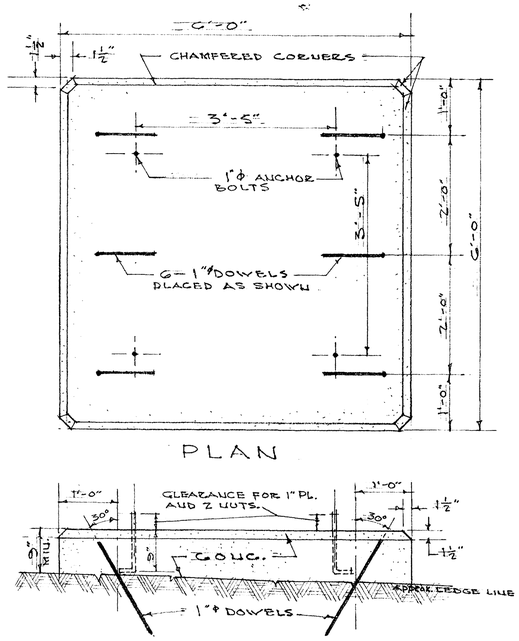
SECOND FLOOR PLAN.

(NO. 6) D. 9



SECOND FLOOR PLAN

SCALE $\frac{1}{4}$" = 1'-0"

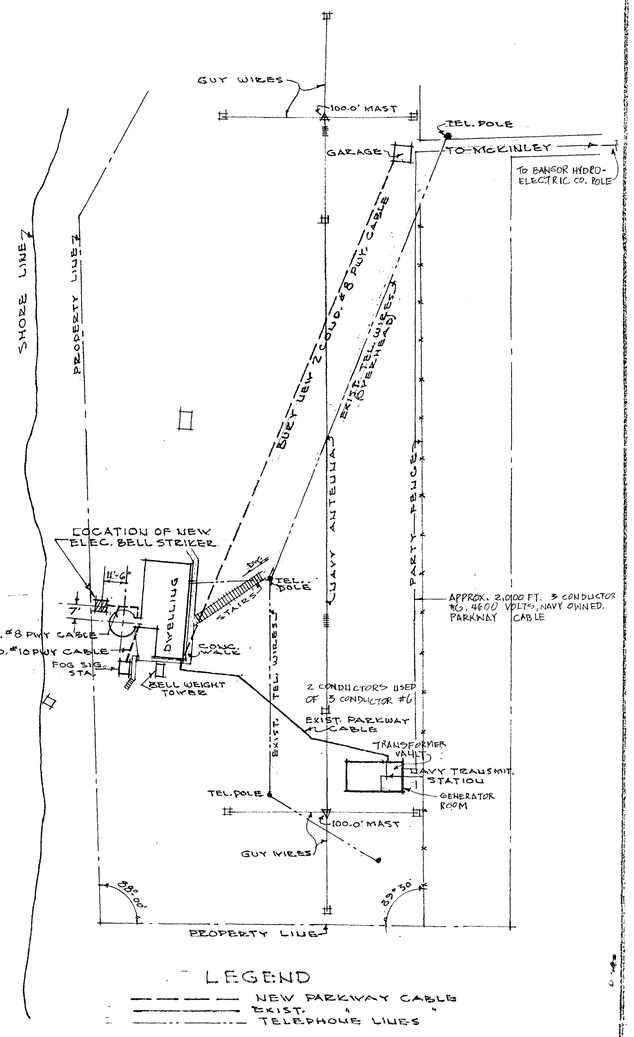


PLAN

ELEVATION

ELECTRIC BELL STRIKER FOUNDATION

SCALE $\frac{3}{4}$" = 1'-0"



LEGEND

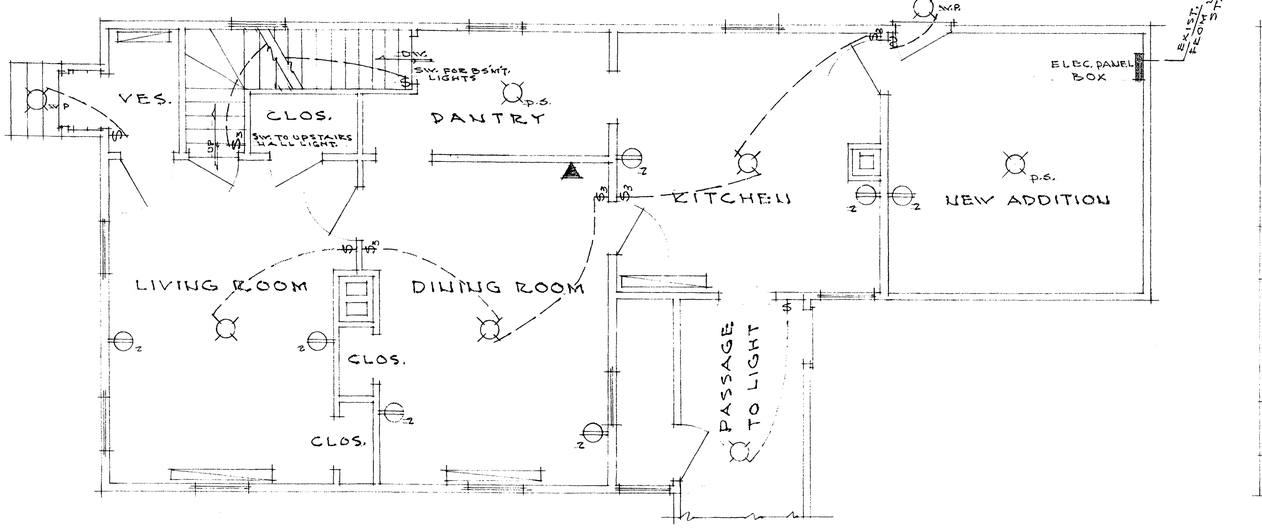
NEW PARKWAY CABLES

EXIST. "

TELEPHONE LINES

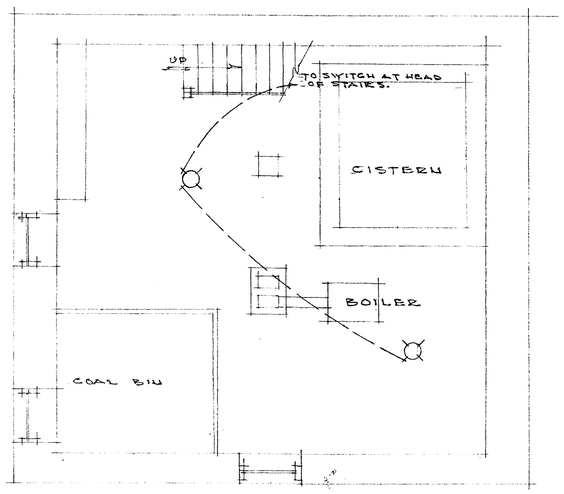
PLOT PLAN

SCALE 1" = 40'



FIRST FLOOR PLAN

SCALE $\frac{1}{4}$" = 1'-0"



BASEMENT PLAN

SCALE $\frac{1}{4}$" = 1'-0"

REVISION	DATE	APP'D.	BY

U. S. COAST GUARD — FIRST DISTRICT — BOSTON, MASS.

CIVIL ENGINEERING

DESIGNED
DRAWN W.P.L.
TRACED
CHECKED

J. A. Tinsley
CHIEF OF SECTION

BASS HARBOR HEAD LT. STA.
BASS HARBOR, MAINE

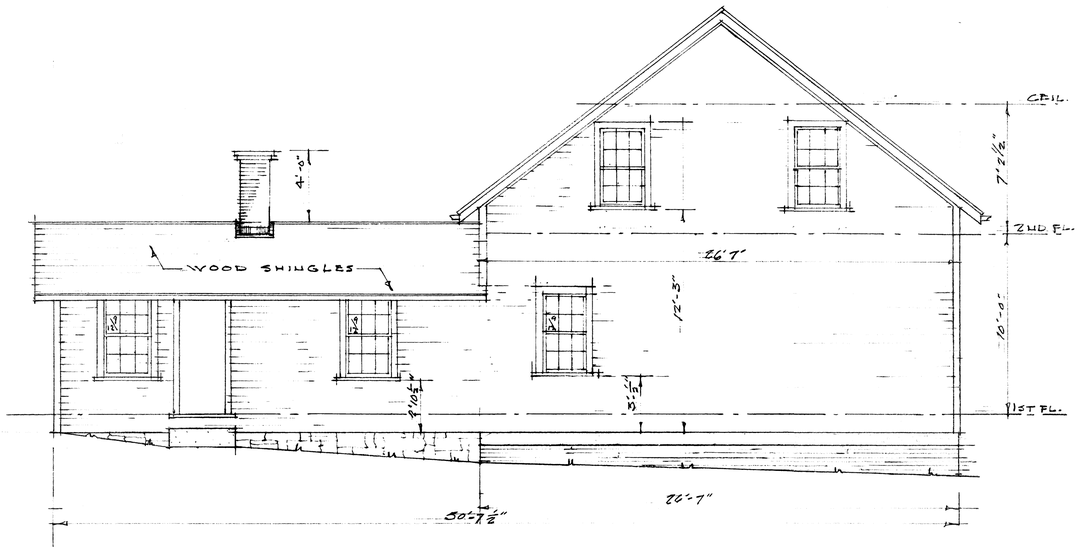
ELECTRIFICATION OF STATION

APPROVED: [signature]
U.S. ENGINEER OFFICER

DATE MARCH 14, 1949

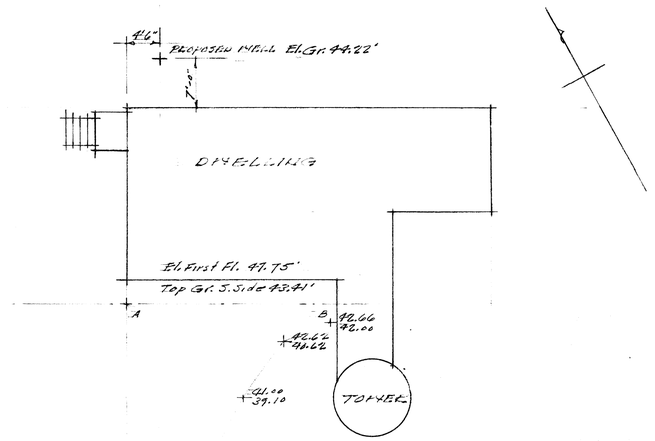
C. G. DRAWING NO.
4355

SCALE AS SHOWN | SHEET 1 OF 1



NORTH ELEVATION

SCALE $\frac{1}{4}$" = 1'-0"



PLOT PLAN

1" = 10'

BASS HARBOR HD. L.S.

BASS HARBOR, ME.

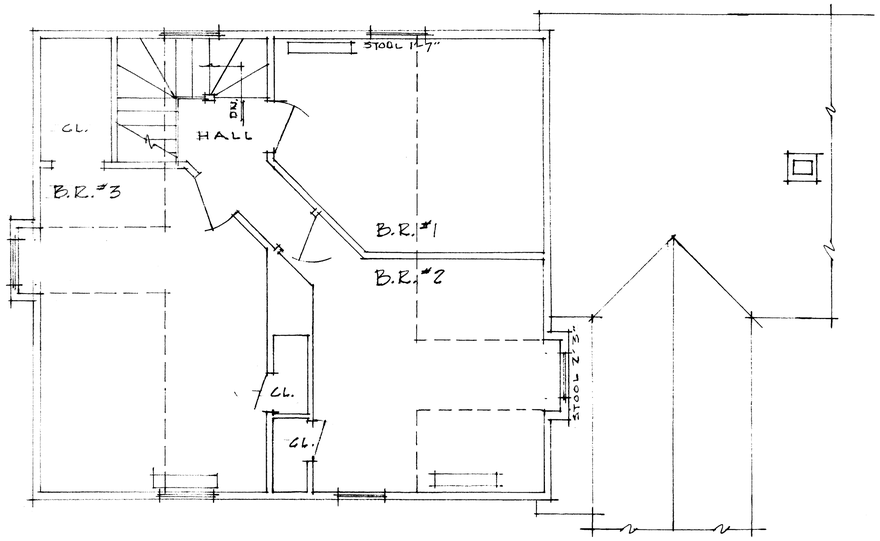
PLOT PLAN AND DETAILS OF KEROSENE PUMP

DEC. 1949 4459 SHT. 1 OF 2 SHTS.

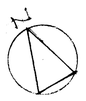
FIRST DISTRICT.

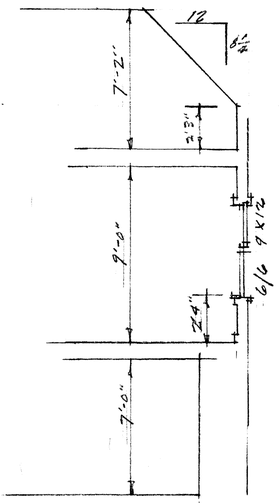
EAS FILE CORP IRVINE CA

EFH-24

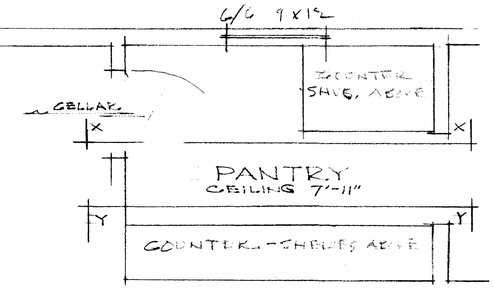


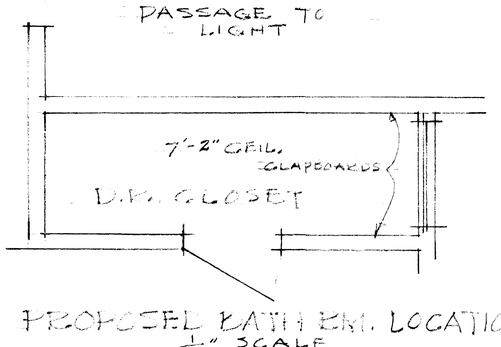
SECOND FLOOR
1/4" SCALE

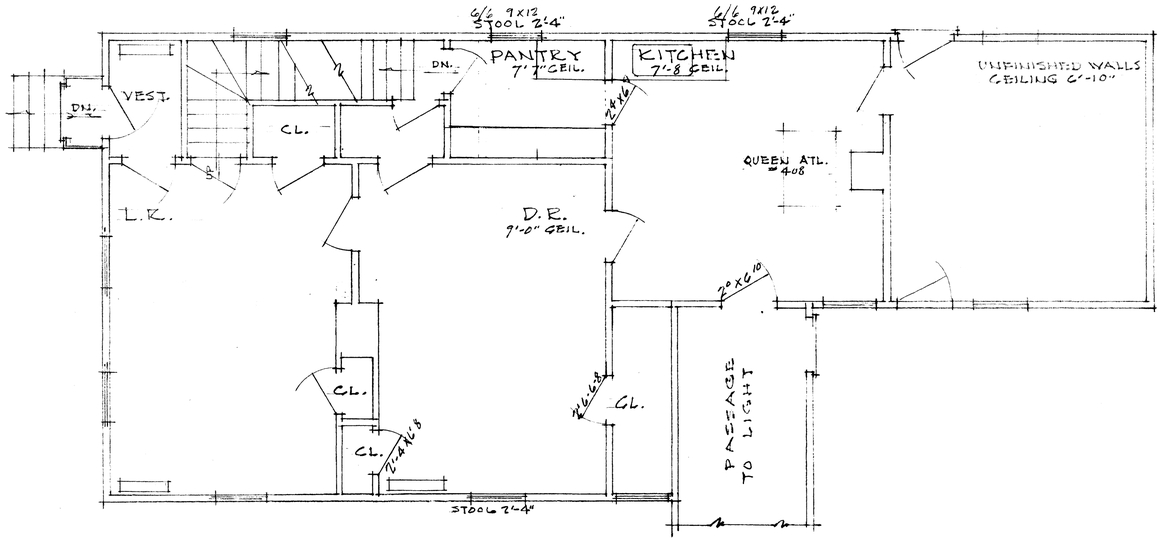




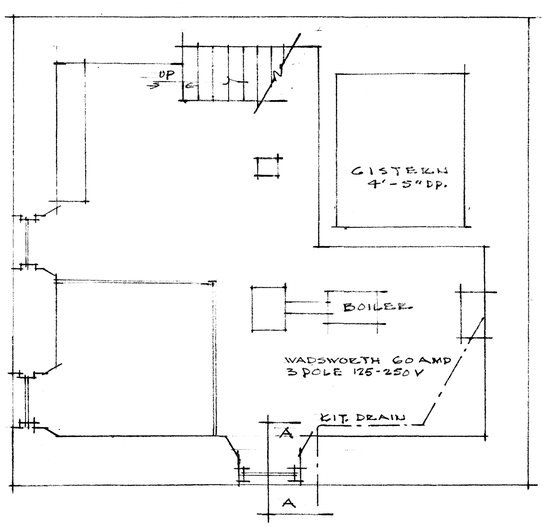
MAIN DWELLING
1/4" SCALE





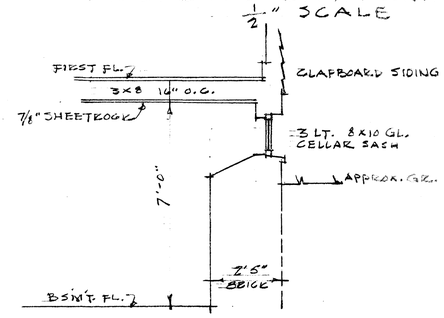


FIRST FLOOR
1/4" SCALE



BASEMENT PLAN
1/4" SCALE

PROPOSED BATH ROOM LOCATION
1/2" SCALE



SECTION X-X
3/8" SCALE

BASS HARBOR HD. L.S.

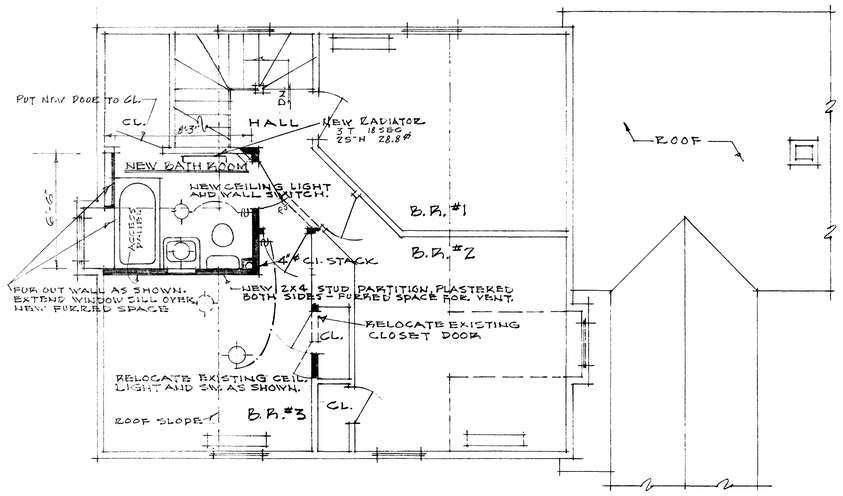
BASS HARBOR, ME.

KEEPER'S DWELL.

PLOT PLAN AND DETAILS

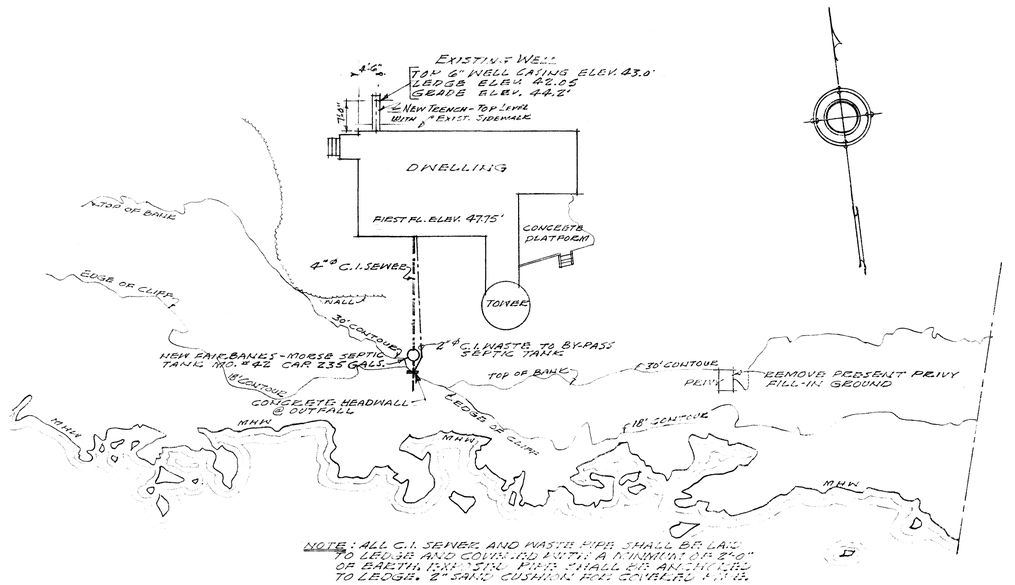
DEC. 1949 4459 SH. 2 OF 2

FIRST C.G. DIST.



SECOND FLOOR

SCALE 1/4" = 1'-0"

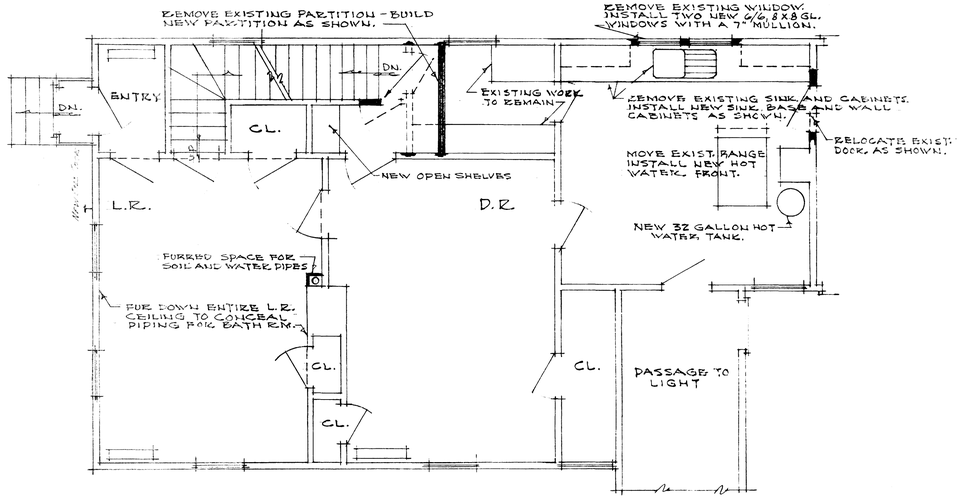


NOTE: ALL C.I. SEWER AND WASTE PIPE SHALL BE LAID TO LEDGE AND COVERED WITH A MINIMUM OF 2'-0" OF EARTH. EXPOSED PIPE SHALL BE ANCHORED TO LEDGE. 2" SAND CUSHION ALL COVERED WITH.

PLOT PLAN

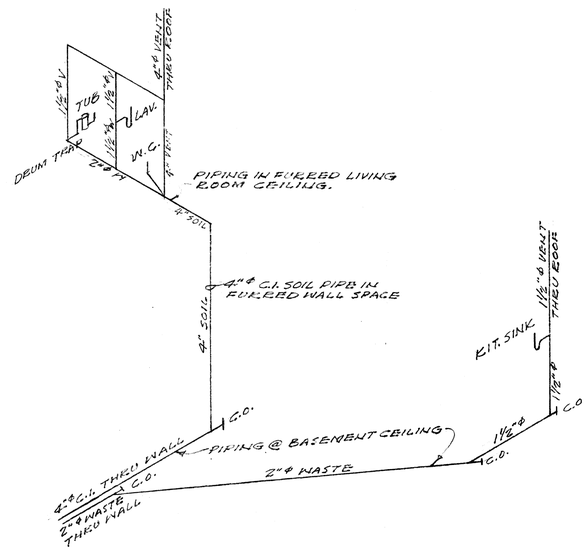
SCALE IN FEET

10 0 10 50



FIRST FLOOR

SCALE 1/4" = 1'-0"



DIAGRAMMATIC SKETCH OF SOIL, WASTE AND VENT PIPING

NOTES:

SYMBOLS - EXISTING WORK IS SHOWN WITH A SOLID LINE. WORK TO BE REMOVED, OR ALTERED IS SHOWN DOTTED. NEW WORK IS NOTED AS SUCH OR SHOWN SOLID.

CONTRACTOR SHALL CHECK AND VERIFY ALL GRADES AND MEASUREMENTS ON THE JOB.

FIRST BOSTON, MASS.

W.P.L. W.P.L.

BASS HARBOR HD. L.S.

MT. DESERT ISLAND, MAINE.

NEW SANITARY FACILITIES FOR KEEPER'S DWELL.

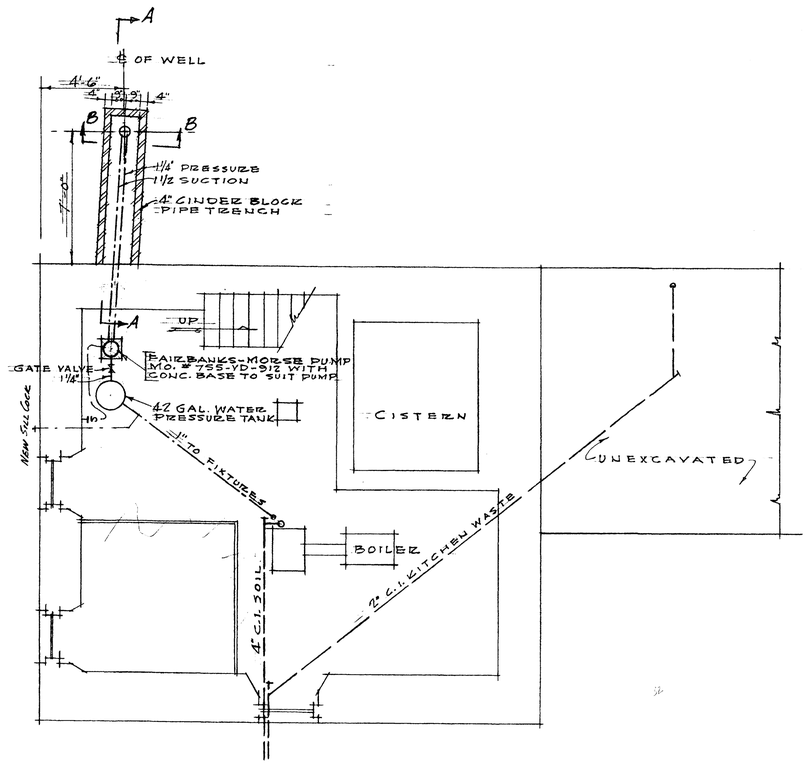
ACTING

MAY 11, 1950

4402

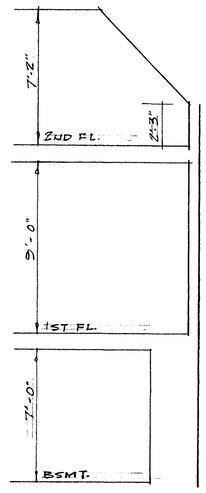
AS SHOWN 1 2

EAS FILE CORP. IRVINE CA
EFH-24

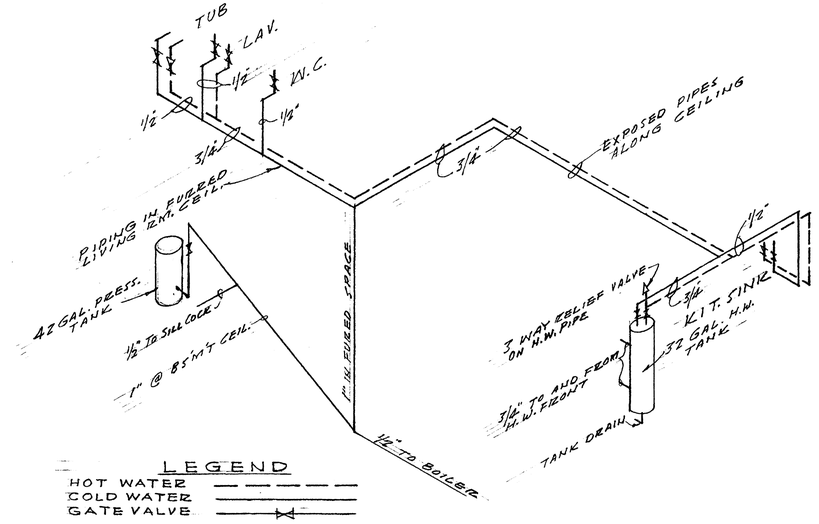


BASEMENT PLAN

SCALE $\frac{1}{4}$"=1'-0"



TYPICAL FLOOR HEIGHTS



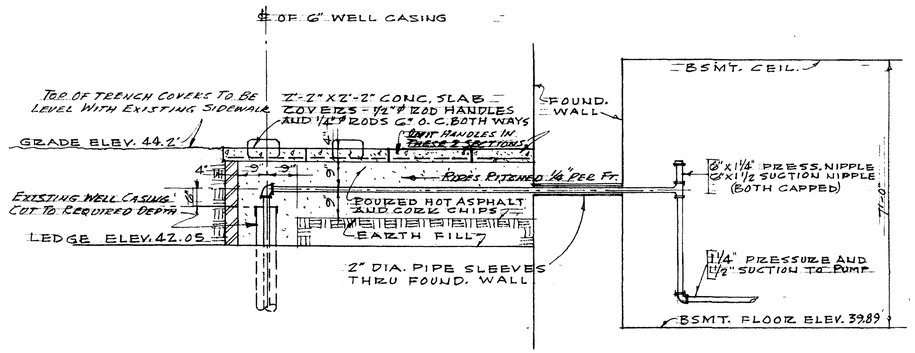
LEGEND

HOT WATER

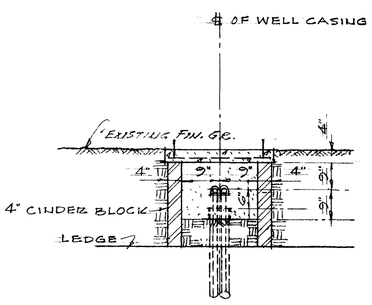
COLD WATER

GATE VALVE

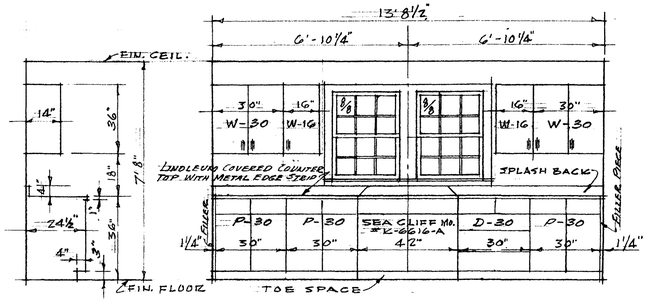
DIAGRAMMATIC SKETCH OF HOT & COLD WATER PIPING



SECTION A-A



SECT. B-B



SECT. ELEVATION

KITCHEN CABINETS

SCALE ⅜"=1'-0"

DETAILS OF PIPE TRENCH

SCALE $\frac{1}{2}$"=1'-0"

REVISION	DATE	APPD.	BY

U. S. COAST GUARD — FIRST DISTRICT — BOSTON, MASS.

CIVIL ENGINEERING

DESIGNED - A.A.C.
DRAWN - W.P.L.
TRACED
CHECKED

BASS HARBOR HD. L.S.
MT. DESERT ISLAND, MAINE

NEW SANITARY FACILITIES FOR KEEPER'S DWELL.

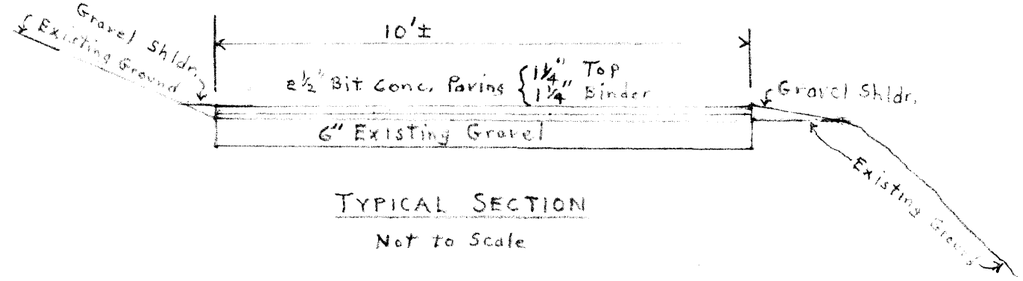
CHIEF OF SECTION
R. L. Bridges ACTING

APPROVED
U.S.C.G. CHIEF OF DIVISION

DATE MAY 11, 1950

C. G. DRAWING NO.
4402

SCALE: AS SHOWN SHEET 2 OF 2



TYPICAL SECTION

Not to Scale

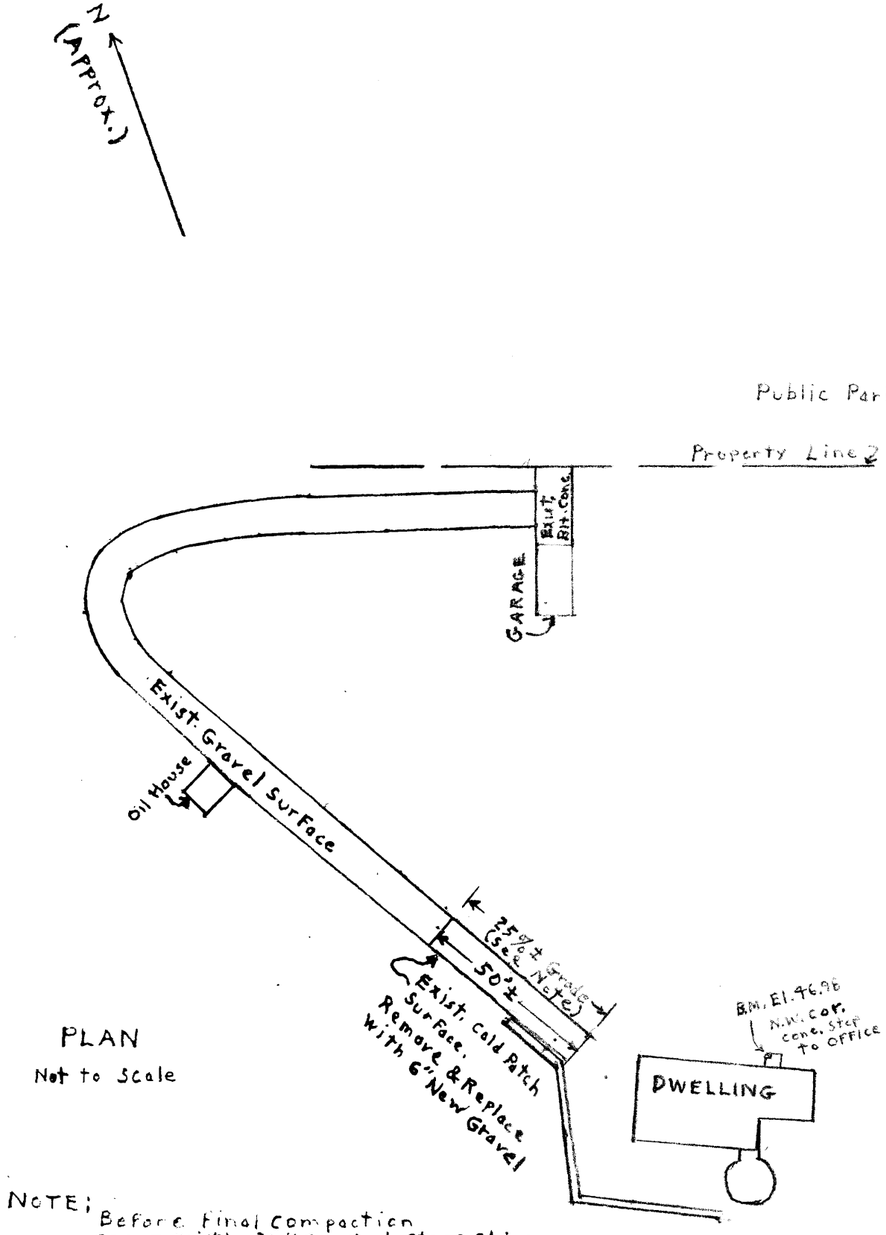


LOCATION MAP

0 5 10 15 20 25

SCALE OF MILES

TAKEN FROM THE OFFICIAL STATE OF MAINE HIGHWAY MAP.



PLAN

Not to Scale

NOTE;
Before final compaction cover with 3/4" Crushed stone chips and roll into the surface.

REV.	DATE	APPR.	DESCRIPTION	BY

DESIGNED: C.B.T.
DRAWN: C.B.T.
TRACED:
CHECKED:
REVIEWED BY:
REVIEWED BY:
REVIEWED BY:

U.S. COAST GUARD FIRST DIST.
BOSTON MASS.
CIVIL ENGINEERING

BASS HARBOR HEAD L/S
McKINLEY MAINE
BIT. CONC. PAVEMENT
CONSTRUCTION ON
EXIST. GRAVEL WALKWAY

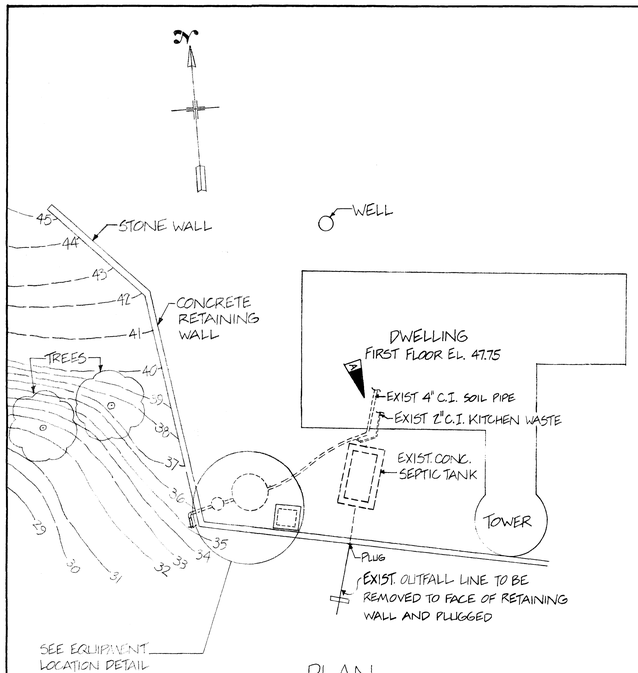
APPROVED: DATE 8/25/75
CHIEF OF DIVISION

DRAWING NUMBER
6586

SCALE: As Noted SHEET 1 OF 1

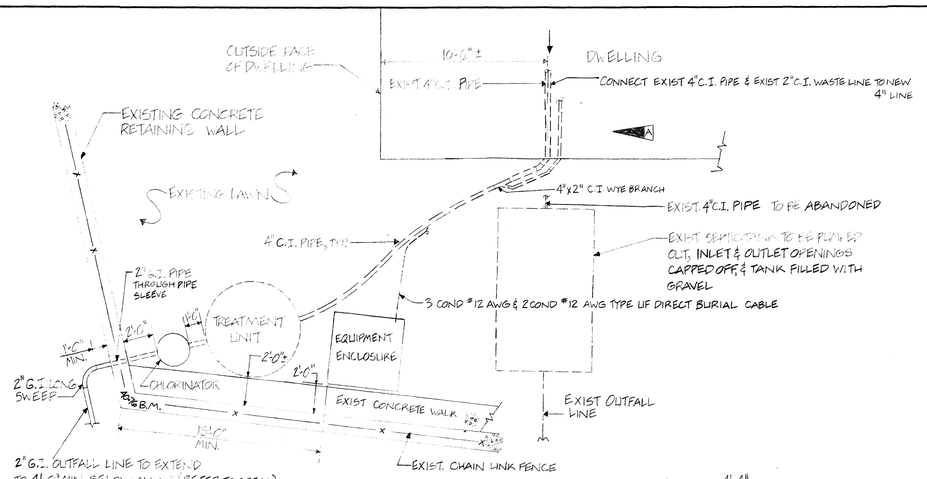
DEPT. OF TRANSP., USCG, CG-4062 (REV. 11-68)
PREVIOUS EDITION MAY BE USED

☆ U. S. GOVERNMENT PRINTING OFFICE : 1972 O - 456-867



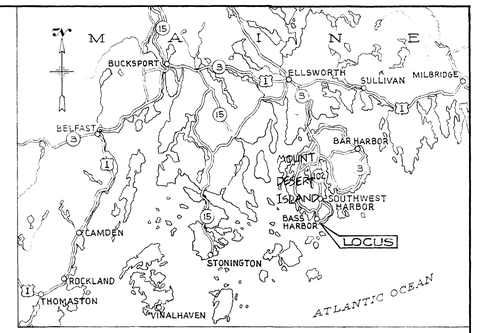
PLAN

SCALE: 1" = 10'-0"



EQUIPMENT LOCATION DETAIL

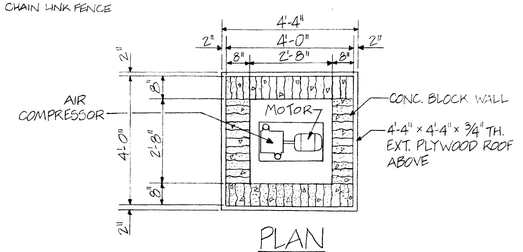
SCALE: ¼" = 1'-0"



LOCATION MAP

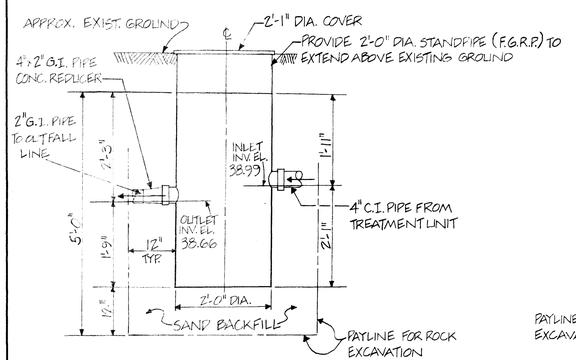
0 5 10 15 20 25
SCALE OF MILES

TAKEN FROM THE OFFICIAL STATE OF MAINE HIGHWAY MAP.



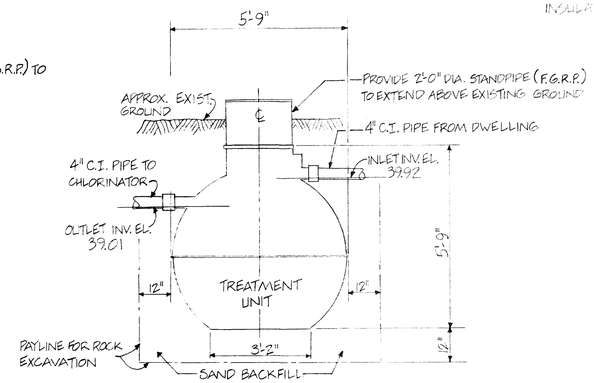
PLAN

SCALE: ½" = 1'-0"



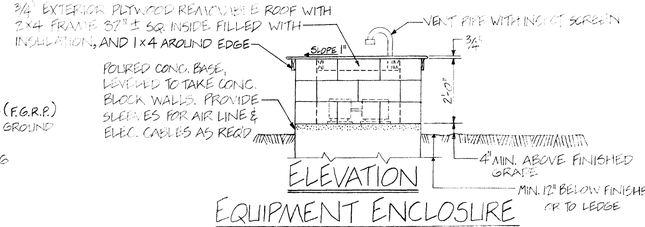
CHLORINATOR

SCALE: ¾" = 1'-0"



TREATMENT UNIT

SCALE: ½" = 1'-0"



ELEVATION

EQUIPMENT ENCLOSURE

SCALE: ½" = 1'-0"

NOTE: F.G.R.P. INDICATES FIBER GLASS REINFORCED PLASTIC.

REVISION	DATE	APPD.	BY
A	25 SEPTE	REVISION TO EXISTING PIPING IN BASEMENT	RJB

U. S. COAST GUARD — FIRST DISTRICT

CIVIL ENGINEERING

DESIGNED · RJB
DRAWN · RJB
TRACED · RJB
CHECKED · JJC,

CHIEF OF SECTION

TECH. ASSISTANT

BASS HARBOR HEAD LIGHT STATION
MT. DESERT ISLAND, MAINE
SEWAGE TREATMENT SYSTEM

APPROVED 15 APRIL 1975 DATE

U.S.C.G. CHIEF OF BRANCH

C. G. DRAWING NO.

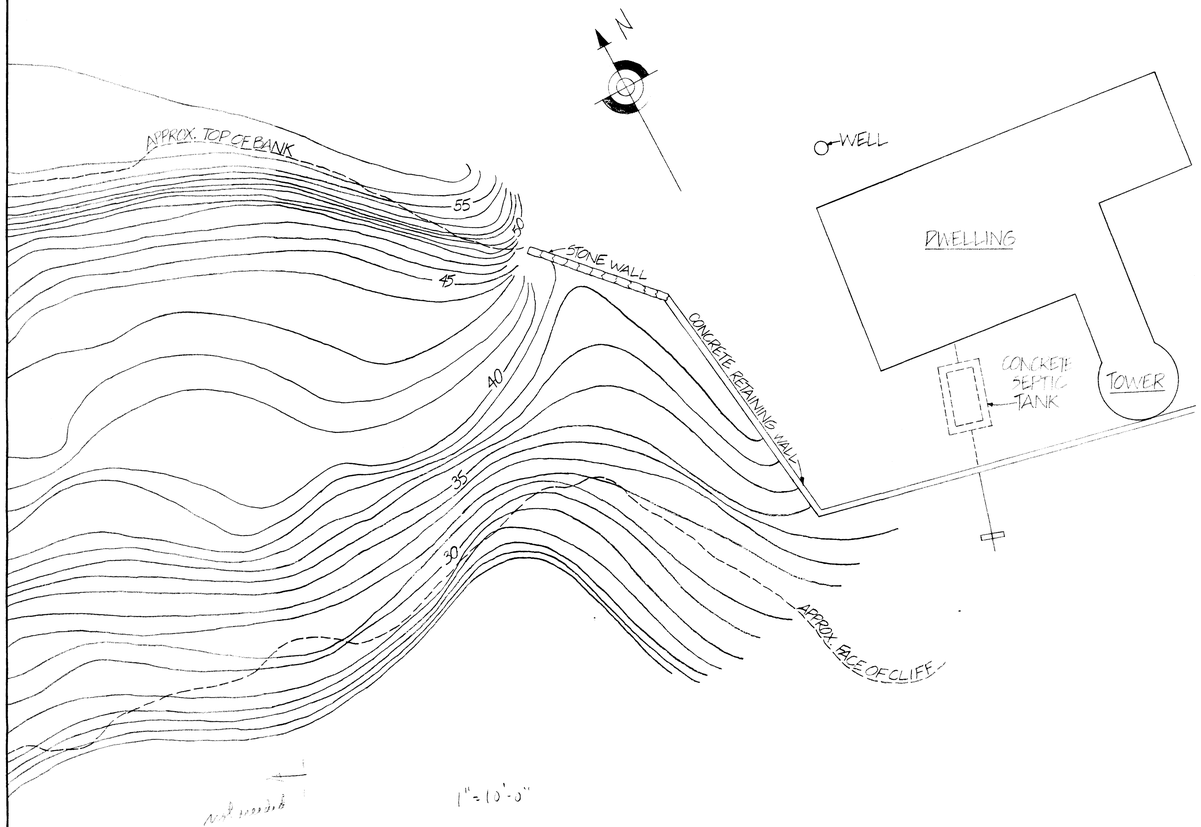
6375

SCALE AS SHOWN SHEET 1 OF 1

EAST FILE COPY IRVINE CA EPH-24

TREAS. DEPT., U. S. COAST GUARD CG-3749 (6-57)

U.S. GOVERNMENT PRINTING OFFICE: 1960 O - 560378



REVISION	DATE	APPD.		BY

U. S. COAST GUARD — FIRST DISTRICT — WASHINGTON 25, D. C.

CIVIL ENGINEERING

DESIGNED -
DRAWN - RJB
TRACED - RJB
CHECKED -

CHIEF OF SECTION

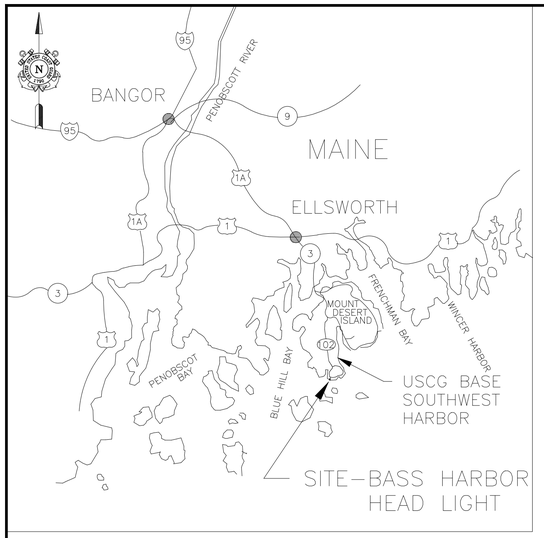
APPROVED _____ DATE _____
U.S.C.G. CHIEF OF DIVISION

C. G. DRAWING NO.
6375

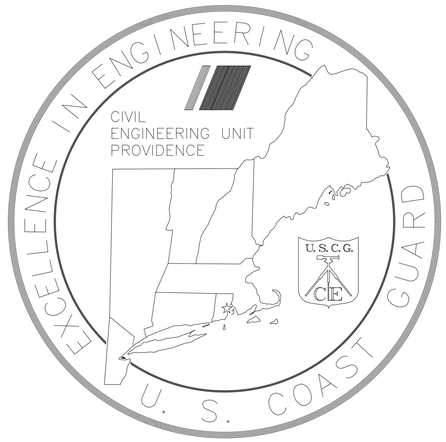
SCALE AS SHOWN | SHEET 2 OF 2

TREAS. DEPT., U. S. COAST GUARD CG-3749 (6-57)

U.S. GOVERNMENT PRINTING OFFICE: 1960 O - 560378

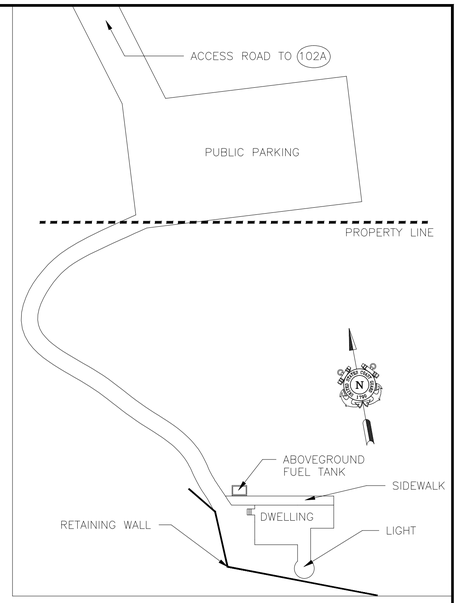


VICINTY MAP
SCALE: NONE



UNITED STATES COAST GUARD
CIVIL ENGINEERING UNIT PROVIDENCE

UPGRADE HEATING SYSTEM
AT
BASS HARBOR HEAD LIGHT
BASS HARBOR, MAINE

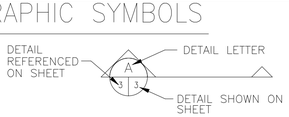


SITE PLAN
SCALE: NTS

ABBREVIATIONS

CONCRETE MASONRY UNIT	CMU
ELECTRICAL METALLIC TUBING	EMT
DEPTH	D
HEIGHT	H
HOT WATER RETURN	HWR
HOT WATER SUPPLY	HWS
INTERNAL DIAMETER	ID
LENGTH	L
NOMINAL	NOM
NOT TO SCALE	NTS
TOP OF GRADE	TOG
TYPICAL	TYP
WIDTH	W

GRAPHIC SYMBOLS



SECTION SYMBOLS

DRAWING INDEX

SHEET	TITLE
T–1	TITLE SHEET
M–1	DETAILS

REV.	DATE	APPR.	DESCRIPTION	BY
A	01/98	TS	AS–BUILT – RECORD DRAWING	IYB

DESIGNED JEF
DRAWN JEF
EDITED JEF
CHECKED JEF
REVIEWED BY: J. FISCUS
PROJECT ENGINEER
REVIEWED BY: C. MORE
BRANCH CHIEF
REVIEWED BY: P. PETERS
TECHNICAL DIRECTOR

U.S. COAST GUARD PROVIDENCE, RI
CIVIL ENGINEERING UNIT
UPGRADE HEATING SYSTEM
CG GROUP SOUTHWEST HARBOR
SOUTHWEST HARBOR ME
BASS HARBOR HEAD LIGHT
TITLE SHEET

APPROVED: P. PETERS, BY DIRECTION 10/31/1997
COMMANDING OFFICER, CEU DATE

DISCIPLINE/SHT NO T–1

01–P7375

DRAWING NUMBER P000863

SCALE: AS SHOWN SHEET 1 OF 2

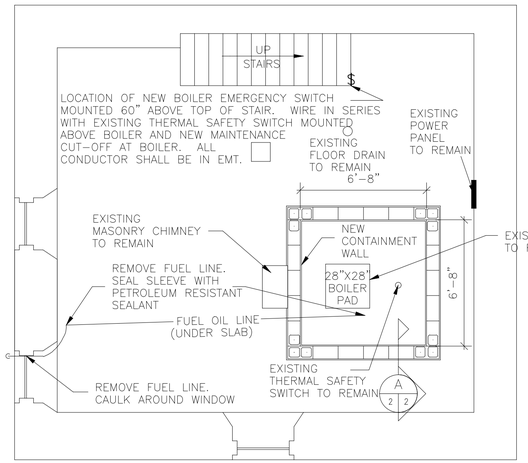
CONTRACT NO.: 98–N–3WK042
CONTRACTOR NAME: J.D. CONSTRUCTION
ADDRESS: P.O. BOX 981/ ELLSWORTH, ME 04605
CONST. PM: TIM SHEA

COMPLETION DATE: 1/30/98
PHONE NO.: 207–667–7271
INSPECTOR: –

PLANNED ENVIRONMENTAL ASSOCIATES, INC. (216) 797–1081

P	E	135	01	031699
D	C	IYB		P0863001

PLOTTING SCALE: 1" = 1'–0"

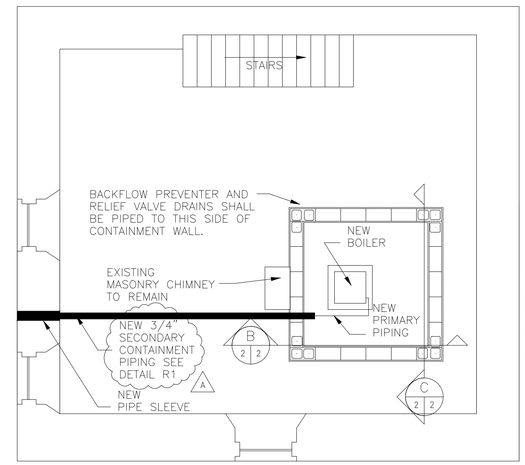


BASEMENT FLOOR PLAN

SCALE: 1/4" = 1'-0"

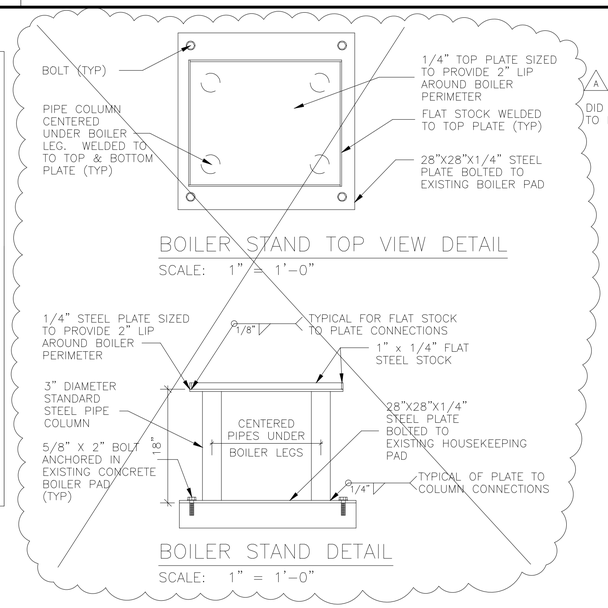
NOTES:

1. CMU SHALL CONFORM TO ASTM C 90. MORTAR SHALL CONFORM TO ASTM C 91.
2. USE NEW CONDUCTORS FROM POWER PANEL TO BOILER, #12 AWG, THHN/THWN.



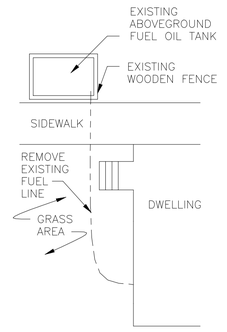
MECHANICAL BASEMENT FLOOR PLAN

SCALE: 1/4" = 1'-0"



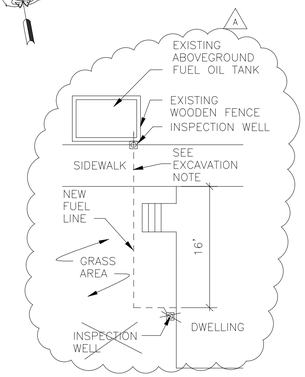
EXCAVATION NOTES:

1. AT CONTRACTORS OPTION ROUTE NEW FUEL LINE UNDER SIDEWALK SLAB BY TUNNELING UNDER SIDEWALK OR BY REMOVING A SECTION OF SIDEWALK BETWEEN CONSTRUCTION JOINTS AND RESTORING TO ORIGINAL CONDITIONS.
2. IF TUNNELING IS CHOSEN COMPACT EXCAVATED MATERIALS AS DETAILED IN PIPE TRENCH DETAIL.



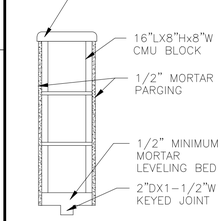
EXISTING SITE PLAN

SCALE: 1" = 10'-0"



NEW SITE PLAN

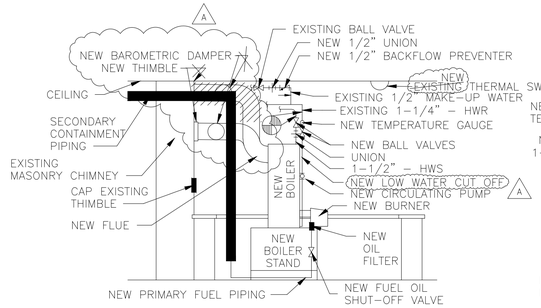
SCALE: 1" = 10'-0"



SECTION CONTAINMENT WALL

A 2 2

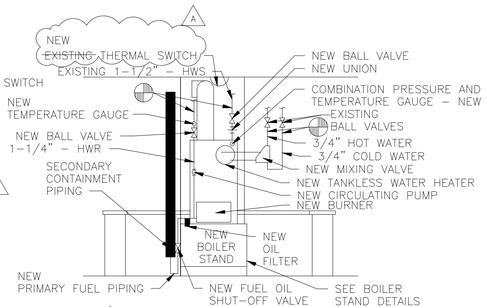
SCALE: 1" = 1'-0"



ELEVATION: BOILER

B 2 2

SCALE: 3/8" = 1'-0"



ELEVATION: BOILER

C 2 2

SCALE: 3/8" = 1'-0"

LEGEND:

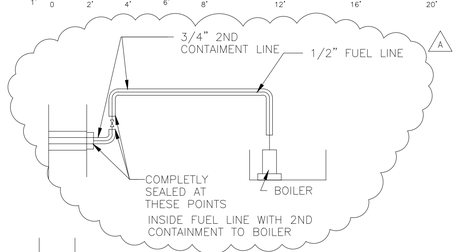
- 1/2" THREADED ROD, ANCHOR 4" IN FLOOR SLAB. EXTEND ROD TO TOP OF WALL. FILL CELL AROUND ROD WITH MORTAR
- 1/2" MORTAR PARGING
- UNION
- CONNECTION TO EXISTING SYSTEM - ARROW INDICATES POINT OF CONNECTION

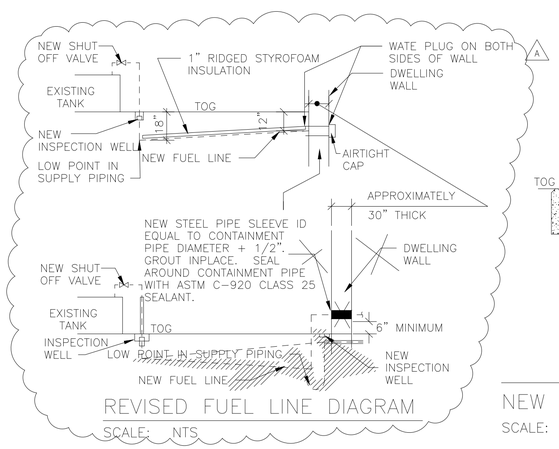
SCALE: 1" = 10'-0"

2' 0 2' 4' 6' 8' 10' 15' 20' 30' 40' 50'

SCALE: 1/4" = 1'-0"

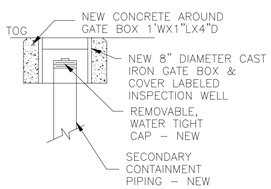
1' 0 2' 4' 6' 8' 12' 16' 20'





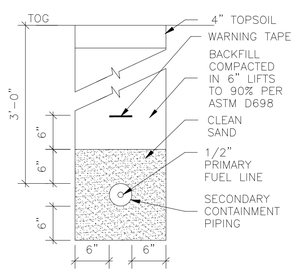
REVISED FUEL LINE DIAGRAM

SCALE: NTS



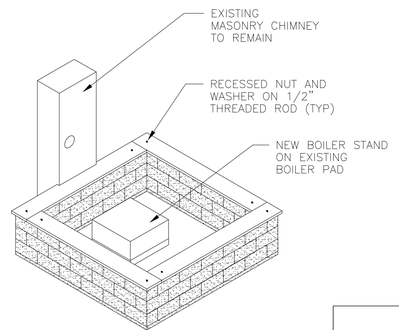
NEW INSPECTION WELL DETAIL

SCALE: NTS



PIPE TRENCH DETAIL

SCALE: NTS



ISOMETRIC VIEW: CONTAINMENT WALL

SCALE: 1/4" = 1'-0"

REV.	DATE	APPR.	DESCRIPTION	BY
A	01/98	T.S.	AS-BUILT - RECORD DRAWING	IYB

DESIGNED JEF
DRAWN JEF
EDITED JEF
CHECKED JEF
REVIEWED BY: J. FISCUS
PROJECT ENGINEER
REVIEWED BY: C. MORE
BRANCH CHIEF
REVIEWED BY: P. PETERS
TECHNICAL DIRECTOR

U.S. COAST GUARD PROVIDENCE, RI
CIVIL ENGINEERING UNIT

UPGRADE HEATING SYSTEM
CG GROUP SOUTHWEST HARBOR
SOUTHWEST HARBOR ME
BASS HARBOR HEAD LIGHT

DETAILS

APPROVED: P. PETERS, BY DIRECTION 10/31/1997
COMMANDING OFFICER, CEU DATE

DISCIPLINE/SHT NO: M-1

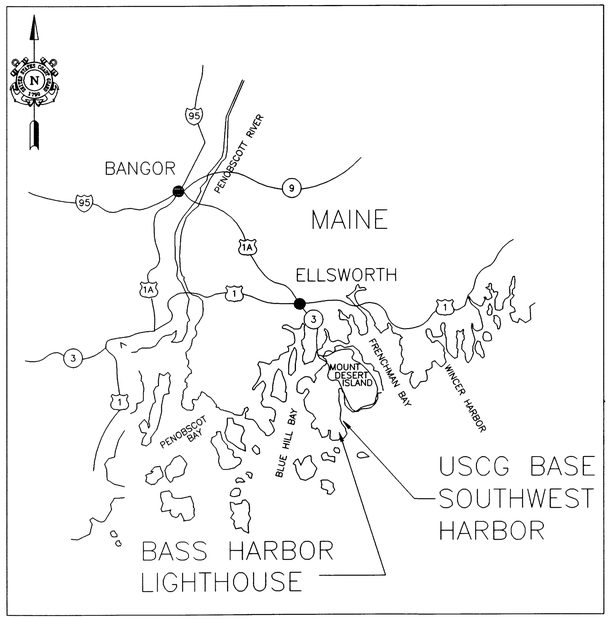
01-P7375

DRAWING NUMBER: P000863

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PLANNED ENVIRONMENTAL CONSULTANTS (216) 797-1081 P E 135 01 03699 D C IYB P0863002

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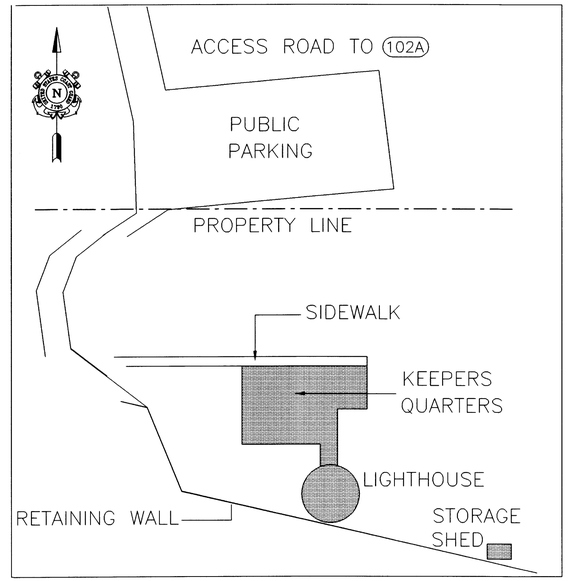
VICINITY MAP

SCALE: NONE

EXCELLENCE IN ENGINEERING

CIVIL
ENGINEERING UNIT
PROVIDENCE

U. S. COAST GUARD



LOCATION MAP

SCALE: NONE

UNITED STATES COAST GUARD

CIVIL ENGINEERING UNIT PROVIDENCE

LEAD PAINT REMEDIATION

U.S. COAST GUARD BASS HARBOR LIGHTHOUSE
KEEPERS QUARTERS, STORAGE SHED
BASS HARBOR, MAINE

DRAWING INDEX	
SHEET	TITLE
1 OF 3	TITLE
2 OF 3	CELLAR, FIRST, SECOND FLOOR PLAN
3 OF 3	STORAGE SHED PLAN AND ELEVATIONS

CONSULTANTS

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PROVIDENCE

USCG, CEUPROVIDENCE
300 METRO CENTER BOULEVARD
WARWICK, RI 02886

ISSUE		
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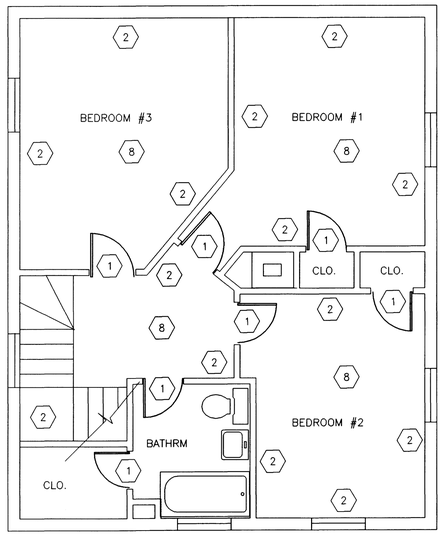
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CHECKED BY:	
SCALE:	PLOT SCALE:

SHEET TITLE

LEAD PAINT REMEDIATION
USCG GROUP SOUTHWEST HARBOR
BASS HARBOR MAINE
STORAGE SHED AND
KEEPERS QUARTERS
TITLE SHEET

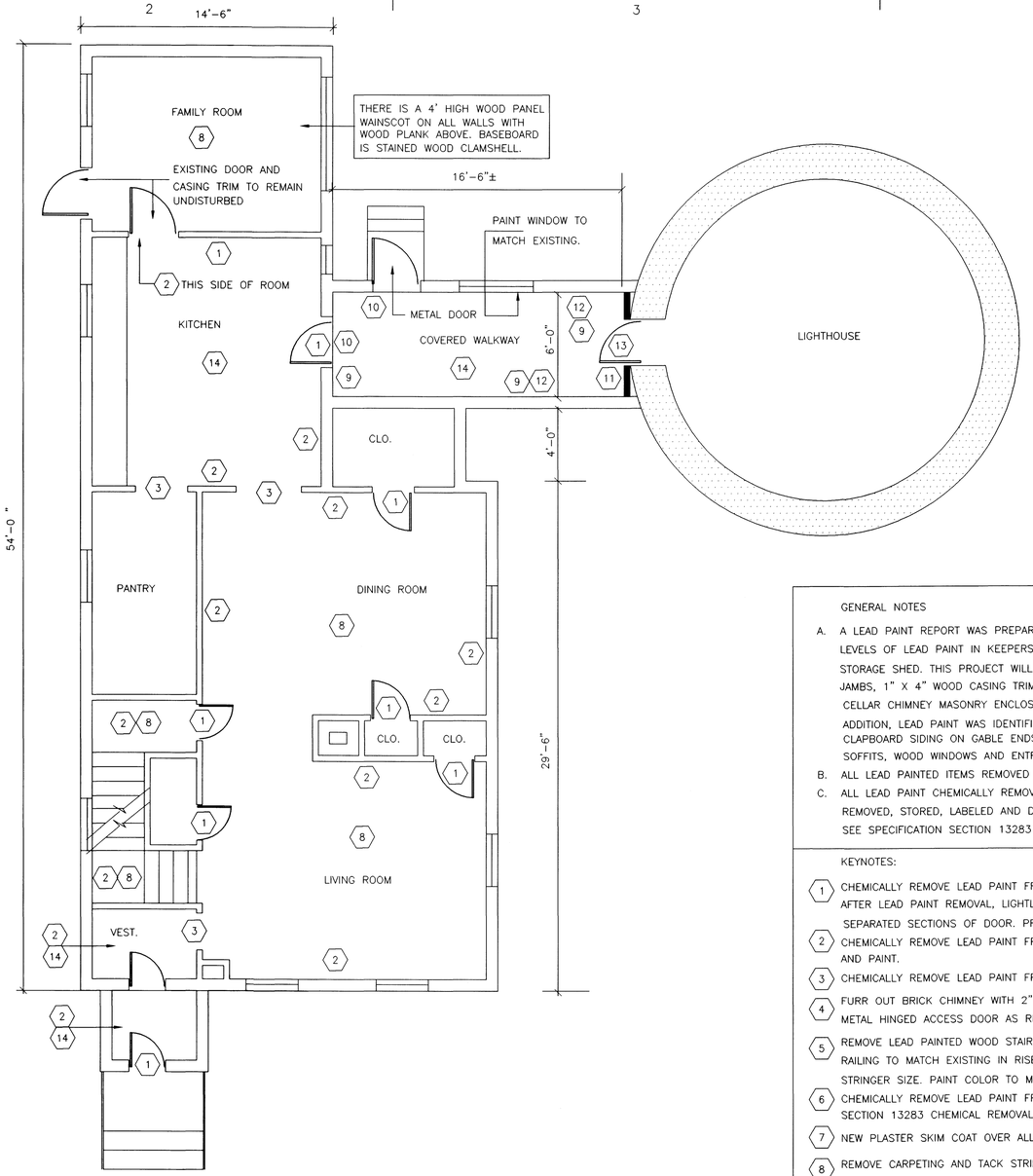
REVIEWED BY:	REVIEWED BY:	REVIEWED BY:
DAL	DG	AJ
PROJECT ENG	BRANCH CHIEF	TECH. DIRECTOR
AL JACOBS, BY DIR.		
APPROVING OFFICER		DATE

PROJECT NUMBER	DRAWING NUMBER
01-P7101	P001314
DISCIPLINE/SHT NO	SHEET 1 OF 3



SECOND FLOOR PLAN

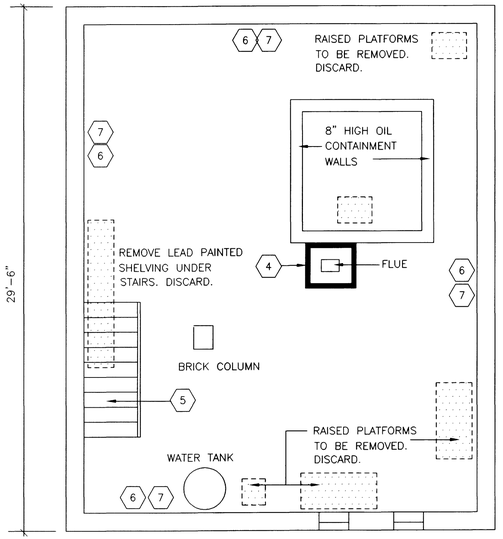
SCALE: 1/4" = 1'-0"



FIRST FLOOR/LIGHTHOUSE PLAN

SCALE: 1/4" = 1'-0"

NOTE: ALL DIMENSIONS ARE APPROXIMATE AND MUST BE FIELD VERIFIED.



CELLAR FLOOR PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES

A. A LEAD PAINT REPORT WAS PREPARED FOR THE COAST GUARD THAT INDICATED EXCESSIVE LEVELS OF LEAD PAINT IN KEEPERS QUARTERS, COVERED WALKWAY AND ADJACENT BRICK STORAGE SHED. THIS PROJECT WILL INVOLVE LEAD PAINT REMOVAL ON DWELLING DOORS, JAMBS, 1" X 4" WOOD CASING TRIM, 1" X 6" WOOD BASEBOARDS, CELLAR WOOD STAIRS, CELLAR CHIMNEY MASONRY ENCLOSURE AND CELLAR RUBBLE FOUNDATION WALLS. IN ADDITION, LEAD PAINT WAS IDENTIFIED ON THE EXTERIOR BRICK STORAGE SHED WOOD CLAPBOARD SIDING ON GABLE ENDS ABOVE BRICK, GUTTERS, ROOF OVERHANG FASCIAS, SOFFITS, WOOD WINDOWS AND ENTRANCE DOOR JAMB.

B. ALL LEAD PAINTED ITEMS REMOVED INTACT CAN BE DISPOSED OF AS CONSTRUCTION DEBRIS.

C. ALL LEAD PAINT CHEMICALLY REMOVED IS CONSIDERED HAZARDOUS WASTE AND MUST BE REMOVED, STORED, LABELED AND DISSPOSED OF IN AN APPROVED HAZARDOUS WASTE FACILITY. SEE SPECIFICATION SECTION 13283 CHEMICAL LEAD PAINT REMOVAL.

KEYNOTES:

1. CHEMICALLY REMOVE LEAD PAINT FROM DOOR, JAMB, CASING TRIM DOWN TO WOOD SUBSTRATE. AFTER LEAD PAINT REMOVAL, LIGHTLY SAND DELEADED WOOD SURFACES. REPAIR AND GLUE ANY SEPARATED SECTIONS OF DOOR. PRIME AND PAINT COLOR TO MATCH EXISTING.
2. CHEMICALLY REMOVE LEAD PAINT FROM 1" X 6" WOOD BASEBOARD, INCLUDING CLOSETS. PRIME AND PAINT.
3. CHEMICALLY REMOVE LEAD PAINT FROM CASED OPENING. PRIME AND PAINT.
4. FURR OUT BRICK CHIMNEY WITH 2" X 3" WOOD STUDS AND 1/2" GYPSUM DRYWALL. PROVIDE METAL HINGED ACCESS DOOR AS REQUIRED. VERIFY SIZE IN FIELD. ASSUME 12" X 12" .
5. REMOVE LEAD PAINTED WOOD STAIRS COMPLETELY. REPLACE WITH NEW WOOD STAIRS AND RAILING TO MATCH EXISTING IN RISER HEIGHT, WIDTH, TREAD DEPTH AND THICKNESS AND STRINGER SIZE. PAINT COLOR TO MATCH EXISTING STAIR.
6. CHEMICALLY REMOVE LEAD PAINT FROM INTERIOR CELLAR RUBBLE FOUNDATION WALLS. SEE SECTION 13283 CHEMICAL REMOVAL OF LEAD PAINT.
7. NEW PLASTER SKIM COAT OVER ALL RUBBLE FOUNDATION WALLS AFTER DELEADING.
8. REMOVE CARPETING AND TACK STRIPS. INSTALL NEW WALL TO WALL CARPET. SEE CARPET SPECIFICATION SECTION 09680. UNDERCUT DOOR TO CLEAR CARPET.
9. REMOVE LEAD PAINTED CLAMSHELL BASEDOARD. INSTALL NEW 1/2" X 3 1/2" CLAMSHELL PINE WOOD BASEBOARD. PRIME AND PAINT COLOR TO MATCH EXISTING.
10. REMOVE 5/4" X 8" LEAD PAINTED THRESHOLD. INSTALL NEW MATCHING WOOD THRESHOLD. PRIME AND PAINT COLOR TO MATCH.
11. FURR OUT LIGHTHOUSE WALL WITH 2" X 3" WOOD STUDS AND 1/2" GYPSUM DRYWALL. PRIME AND PAINT COLOR TO MATCH ADJACENT WALLS.
12. INSTALL NEW 3/8" GYPSUM DRYWALL OVER ALL COVERED WALKWAY WALLS AND CEILING.
13. PRIME AND PAINT BOTH SIDES OF METAL LIGHTHOUSE DOOR.
14. NEW 12" X 12" X 1/8" VINYL COMPOSITION FLOOR TILES.

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300 METRO CENTER BLVD
WARWICK, RI 02886

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MARK	DATE	DESCRIPTION

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DRAWN BY:	
EDITED BY:	
CHECKED BY:	
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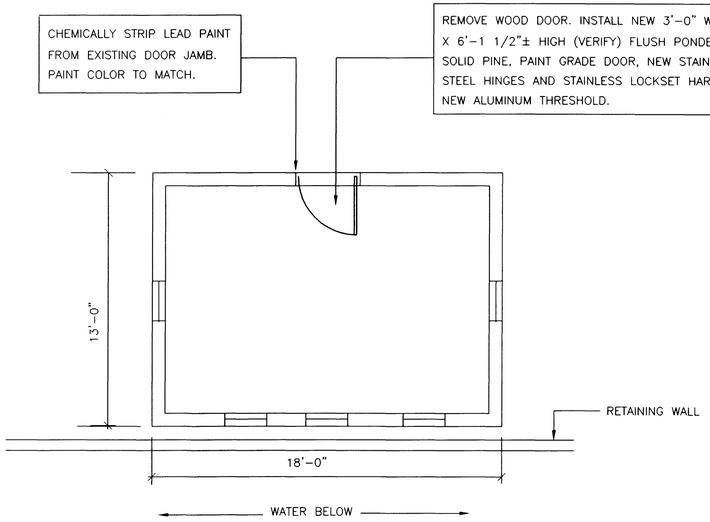
SHEET TITLE

LEAD PAINT REMEDIATION
USCG GROUP SOUTHWEST HARBOR
BASS HARBOR MAINE

KEEPERS QUARTERS, STO. SHED
CELLAR, FIRST, SECOND FL.

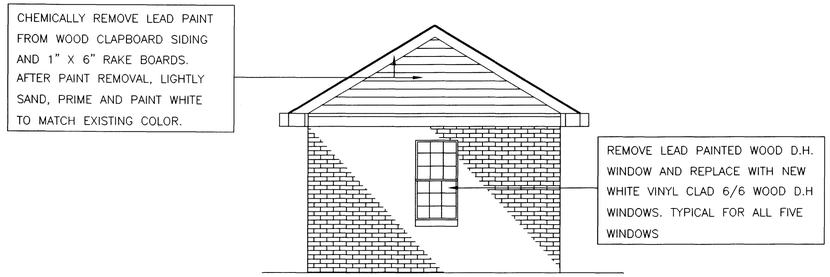
REVIEWED BY:	REVIEWED BY:	REVIEWED BY:
DAL		AJ
PROJECT ENG.	BRANCH CHIEF	TECH. DIRECTOR
A. JACOBS, BY DIR.		
APPROVING OFFICER		DATE

PROJECT NUMBER	DRAWING NUMBER
01-P7101	P001314
DISCIPLINE/SHT NO	
	SHEET 2 OF 3



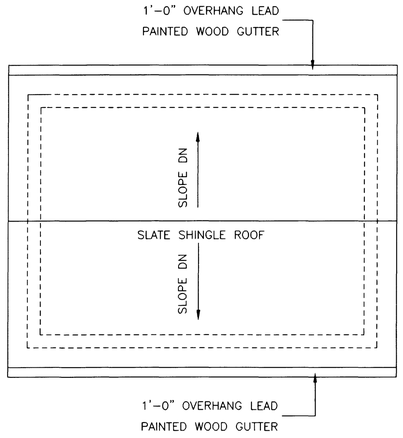
BRICK STORAGE SHED FLOOR PLAN

SCALE: 1/4" = 1'-0"



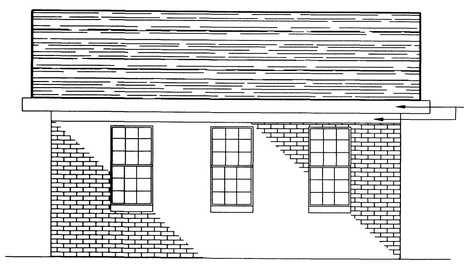
SIDE ELEVATIONS – (BOTH TYPICAL)

SCALE: 1/4" = 1'-0"



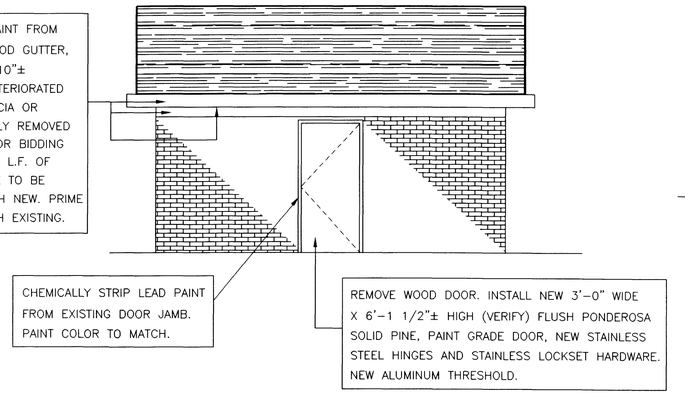
STORAGE SHED ROOF PLAN

SCALE: 1/4" = 1'-0"



REAR ELEVATION – WATER SIDE

SCALE: 1/4" = 1'-0"



FRONT ELEVATION

SCALE: 1/4" = 1'-0"

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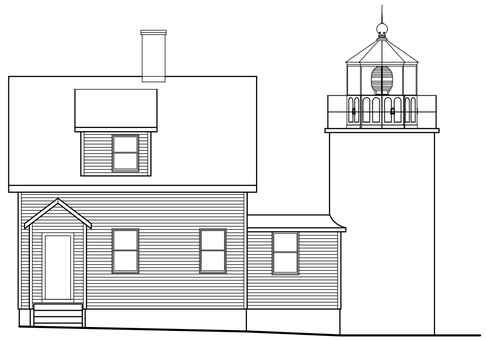
SHEET TITLE

LEAD PAINT REMEDIATION
USCG GROUP SOUTHWEST HARBOR
BASS HARBOR MAINE

BRICK STORAGE SHED
FLOOR PLAN, ELEVATIONS

REVIEWED BY:	REVIEWED BY:	REVIEWED BY:
DAL	DG	AJ
PROJECT ENG.	BRANCH CHIEF	TECH. DIRECTOR
A. JACOBS, BY DIR.		
APPROVING OFFICER		DATE

PROJECT NUMBER	DRAWING NUMBER
01–P7101	P001314
DISCIPLINE/SHT NO	
	SHEET 3 OF 3



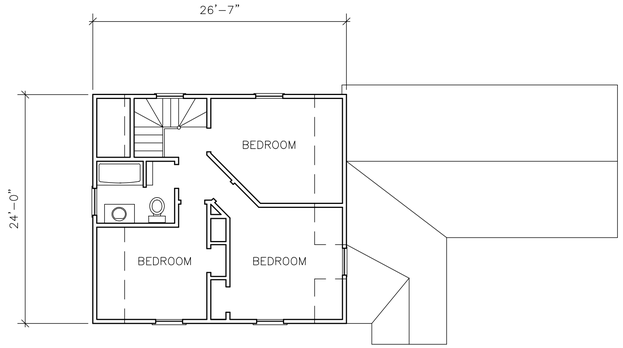
NORTHWEST ELEVATION

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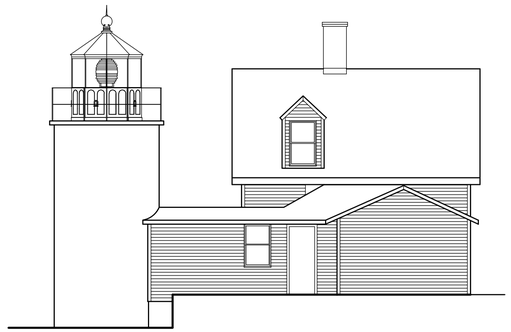
SOUTHWEST ELEVATION

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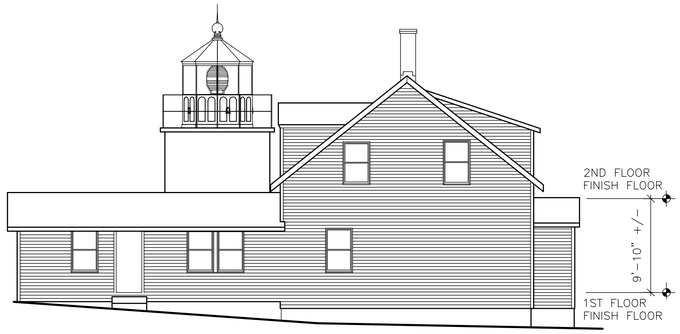
2ND FLOOR PLAN

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



SOUTHEAST ELEVATION

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

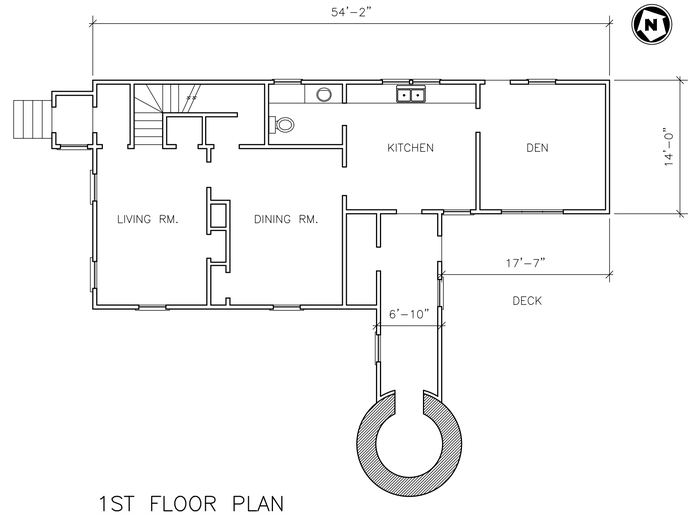


NORTHEAST ELEVATION

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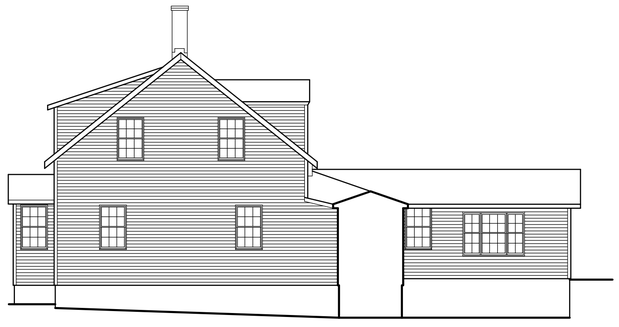
EXISTING ELEVATIONS





1ST FLOOR PLAN

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



NEW SOUTHWEST ELEVATION

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

NOTE: NEW WINDOWS AND SASH SHOWN ON THIS ELEVATION ARE SIMILAR TO THOSE ON OTHER ELEVATIONS.

WINDOW NOTES

1. WINDOW REPAIR SHALL CONSIST OF ANDERSEN 400 SERIES TILT-WASH SASH CONVERSION KITS, SIZED TO FIT IN EXISTING ANDERSEN NARROLINE FRAMES. NEW TILT-WASH SASH SHALL HAVE ANDERSEN FULL DIVIDED LIGHT GRILLES IN A 6 OVER 6 PATTERN. THE FULL DIVIDED LIGHT GRILLE SYSTEM SHALL HAVE A 3/4" GRILLE WIDTH, WITH INTERIOR GRILLES, AN ALUMINUM DIVIDER WITHIN THE AIRSPACE OF THE INSULATING GLASS, AND A PERMANENTLY APPLIED EXTERIOR GRILLE. GLAZING SHALL BE NORTHERN LOW E (ANDERSEN HIGH PERFORMANCE) CLEAR INSULATING GLASS.

2. REMOVE EXISTING "PICTURE WINDOW" SHOWN ON SOUTHWEST ELEVATION, AND PROVIDE A NEW DOUBLE HUNG UNIT WITH FLANKING DOUBLE HUNG UNITS ON EACH SIDE IN THE SAME ROUGH OPENING. NEW UNIT SHALL BE CONSTRUCTED WITH ANDERSEN TILT-WASH UNITS WITH FULL DIVIDED LIGHT GRILLES. CENTER DOUBLE HUNG UNIT SHALL HAVE A 6 OVER 6 PATTERN; FLANKING UNITS SHALL HAVE A 4 OVER 4 PATTERN. GLAZING SHALL BE NORTHERN LOW E (ANDERSEN HIGH PERFORMANCE) CLEAR INSULATING GLASS.

3. NEW SASH AND WINDOWS SHALL BE FACTORY FINISHED WITH ANDERSEN PERMA-SHIELD WHITE.

4. PROVIDE NEW INTERIOR AND EXTERIOR TRIM TO MATCH EXISTING TRIM AT NEW TRIPLE WINDOW. INSTALL SELF-ADHERING FLEXIBLE FLASHING AROUND OPENING AT EXTERIOR OF NEW WINDOW. LAP FLEXIBLE FLASHING OVER VINYL NAILING FLANGES.

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DESIGNED BY:	
DRAWN BY:	
EDITED BY:	
CHECKED BY:	
SCALE:	PLOT SCALE:

SHEET TITLE

WINDOW REPAIRS
BASS HARBOR HEAD LIGHT
BASS HARBOR ME
DWELLING

PLANS & ELEVATIONS

REVIEWED BY:	REVIEWED BY:	REVIEWED BY:
M. LEVY	C. W. MORE	
PROJECT ENG.	BRANCH CHIEF	TECH. DIRECTOR

APPROVING OFFICER — DATE

PROJECT NUMBER	DRAWING NUMBER
P00038	P001611

DISCIPLINE/SHT NO

SHEET 1 OF 1

Appendix D

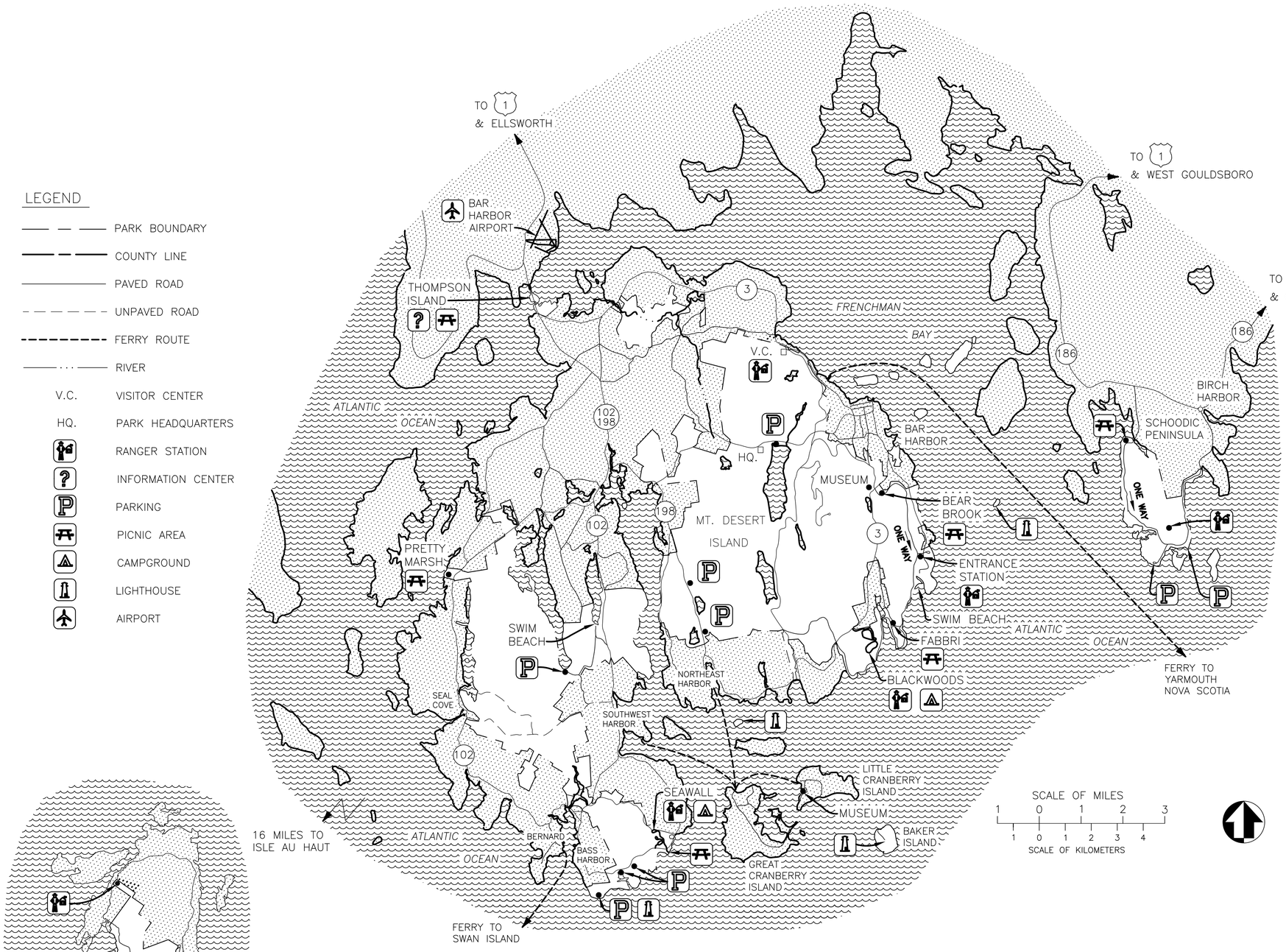
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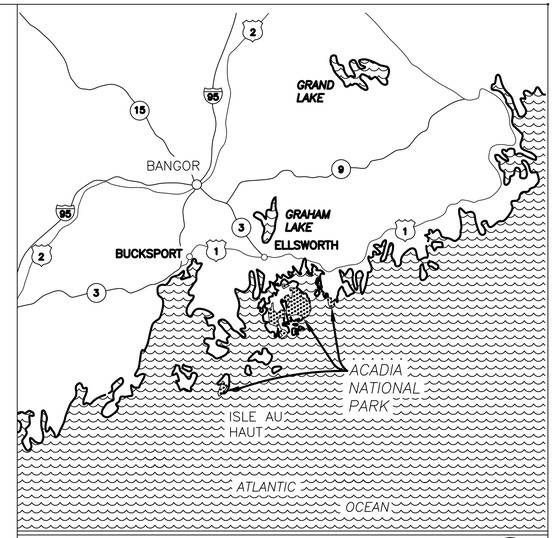
Appendix D: Documentation Drawings

Historic Preservation Training Center, National Park Service, United States Department of the Interior. "Bass Harbor Head Light Station, Acadia National Park, Hancock County, Maine." *8 Sheet Drawing Set.* 2020.

Sheet 1: Cover Sheet
Sheet 2 (A1): Keeper's Dwelling & Lighthouse Basement & First-Floor Plans
Sheet 3 (A2): Keeper's Dwelling & Lighthouse Second-Floor, Lantern, and Roof Plans
Sheet 4 (A3): Keeper's Dwelling & Lighthouse South & West Elevations
Sheet 5 (A4): Keeper's Dwelling & Lighthouse North & East Elevation
Sheet 6 (A5): Bell House Plans & Elevations
Sheet 7 (A6): Oil House Plans & Elevations
Sheet 8 (A7): Garage (Barn) Plans & Elevations

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DRAWING INDEX

SHEET	SUB SHEET	TITLE
1		COVER SHEET
2	A1	KEEPER'S DWELLING & LIGHTHOUSE BASEMENT & FIRST-FLOOR PLANS
3	A2	KEEPER'S DWELLING & LIGHTHOUSE SECOND-FLOOR, LANTERN & ROOF PLANS
4	A3	KEEPER'S DWELLING & LIGHTHOUSE SOUTH & WEST ELEVATIONS
5	A4	KEEPER'S DWELLING & LIGHTHOUSE NORTH & EAST ELEVATIONS
6	A5	BELL HOUSE PLANS & ELEVATIONS
7	A6	OIL HOUSE PLANS & ELEVATIONS
8	A7	GARAGE (BARN) PLANS & ELEVATIONS

BASIC DATA:

DOCUMENTATION DRAWINGS

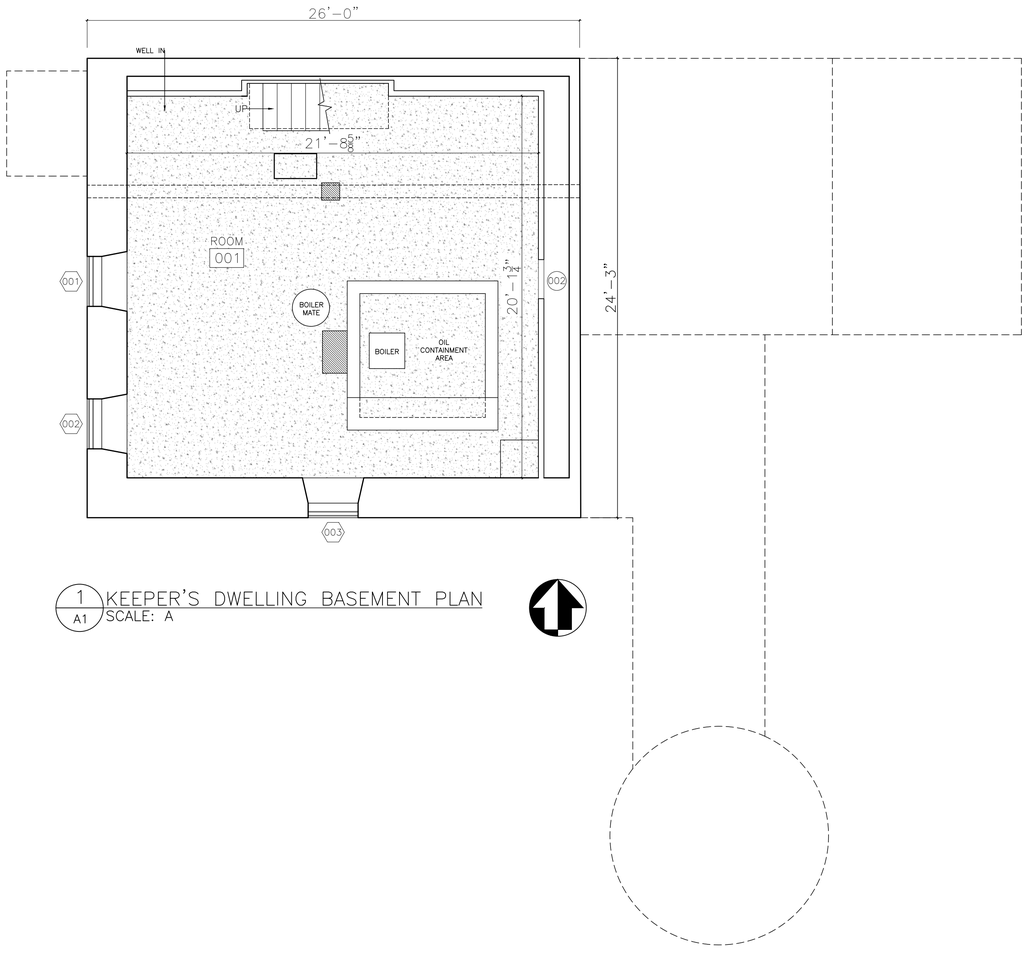
UNITED STATES
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE
HISTORIC PRESERVATION TRAINING CENTER

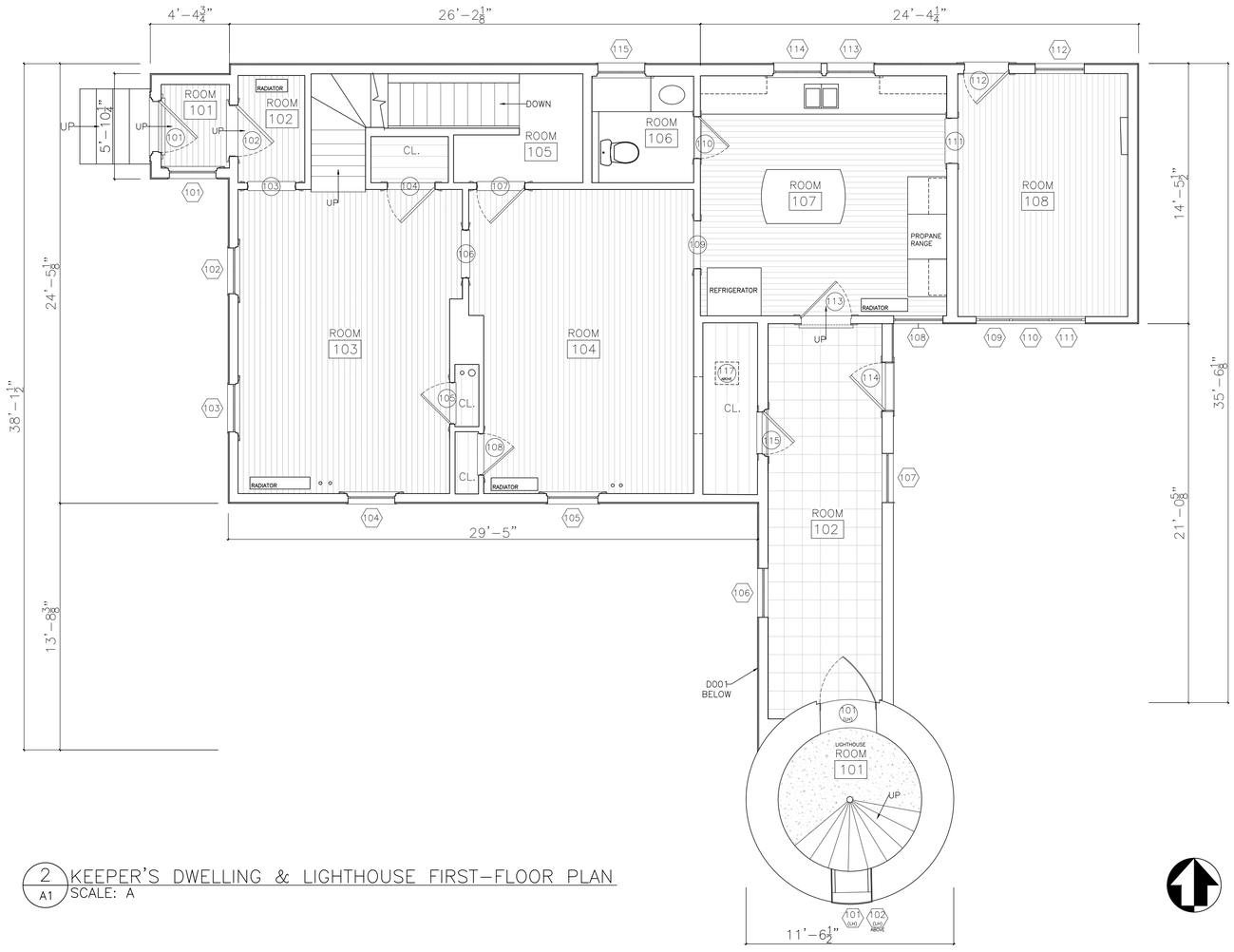
TITLE OF PROJECT
HISTORIC STRUCTURE REPORT
LOCATION WITHIN PARK
BASS HARBOR HEAD LIGHT STATION
NAME OF PARK
ACADIA NATIONAL PARK

REGION	COUNTY	STATE
NORTHEAST	HANCOCK	MAINE

DRAWING NO. 123 167041
PMIS/PKG NO. 253831
SHEET 1 OF 8



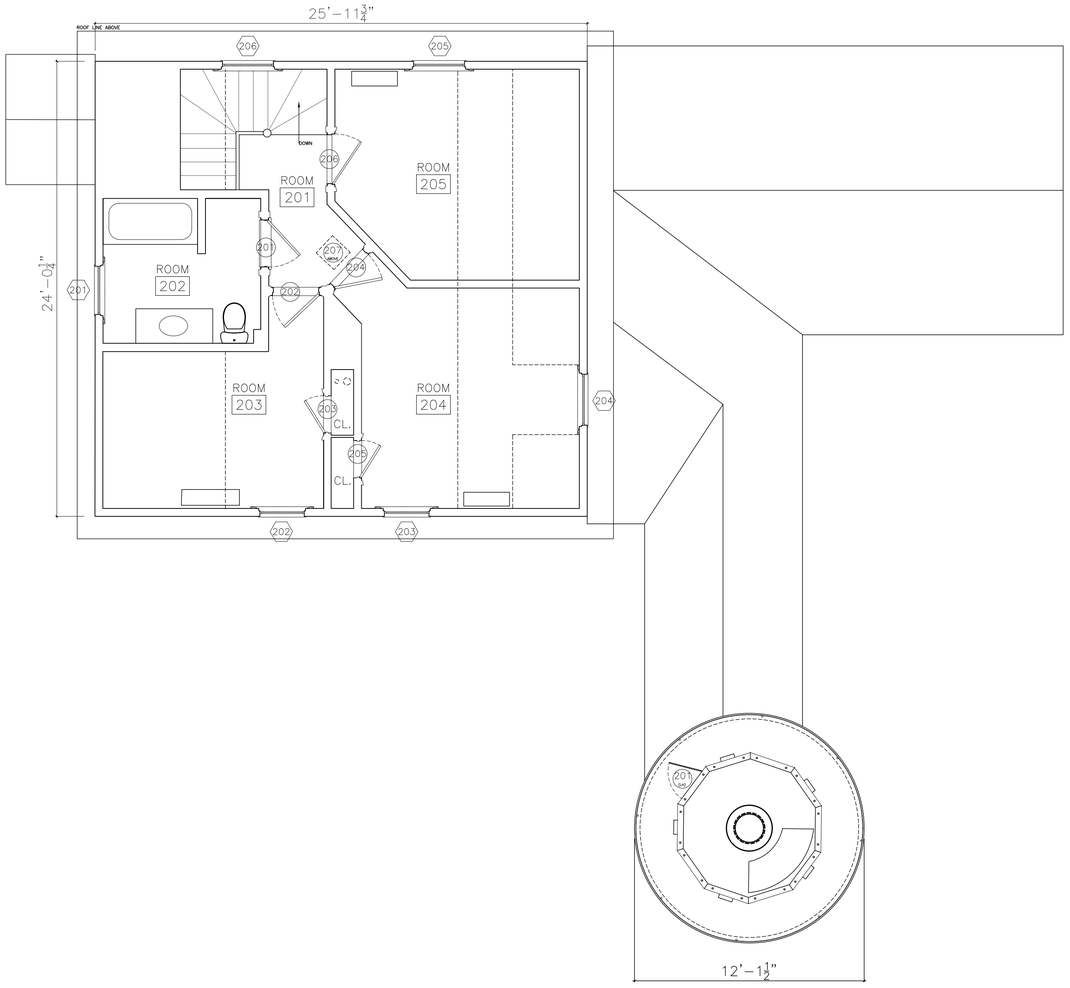
1 A1 KEEPER'S DWELLING BASEMENT PLAN
SCALE: A



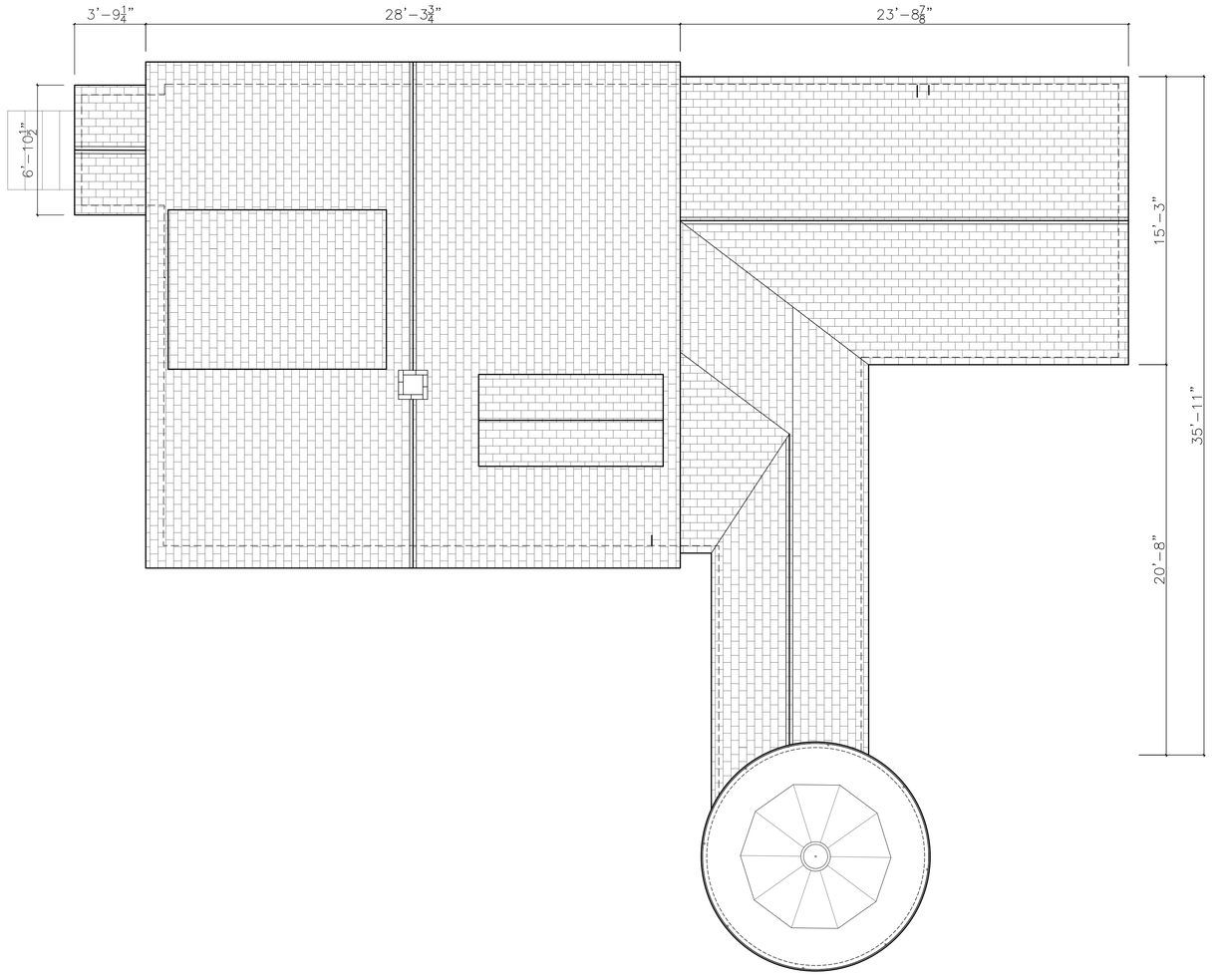
2 A1 KEEPER'S DWELLING & LIGHTHOUSE FIRST-FLOOR PLAN
SCALE: A

SCALE A 4 0 4 8 1/4" = 1'-0"
SCALE OF FEET

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1 / A2 KEEPER'S DWELLING SECOND-FLOOR PLAN & LIGHTHOUSE LANTERN PLAN
SCALE: A



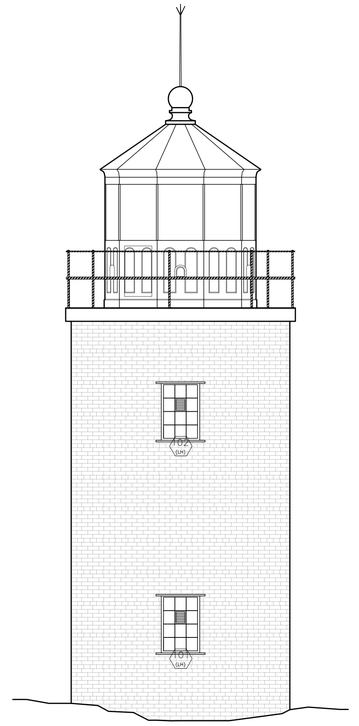
2 / A2 KEEPER'S DWELLING & LIGHTHOUSE ROOF PLAN
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SCALE OF FEET

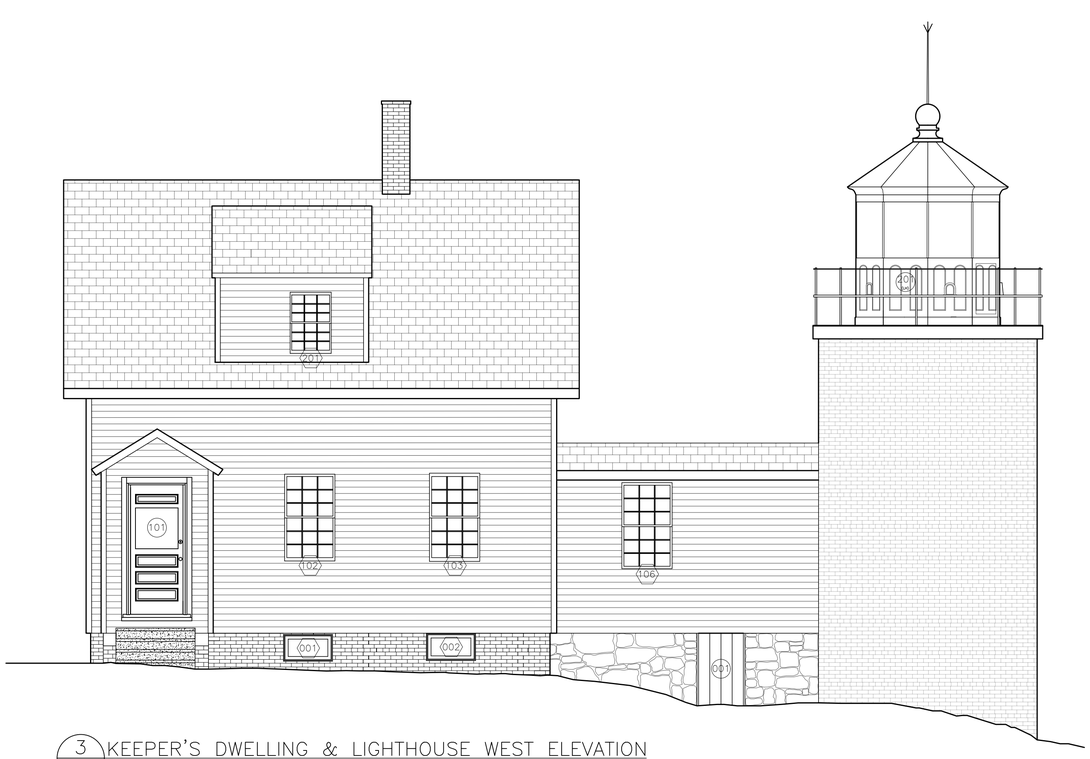
DESIGNED: N/A CADD: EAB TECH. REVIEW: HPTC DATE: 02/28/20	SUB SHEET NO. A2	TITLE OF SHEET KEEPER'S DWELLING & LIGHTHOUSE: SECOND-FLOOR LANTERN & ROOF PLANS ACADIA NATIONAL PARK BASS HARBOR HEAD LIGHT STATION	DRAWING NO. 123 167041 PMIS/PKG NO. 253831 SHEET 3 OF 8



1 A3 KEEPER'S DWELLING SOUTH ELEVATION
SCALE: A



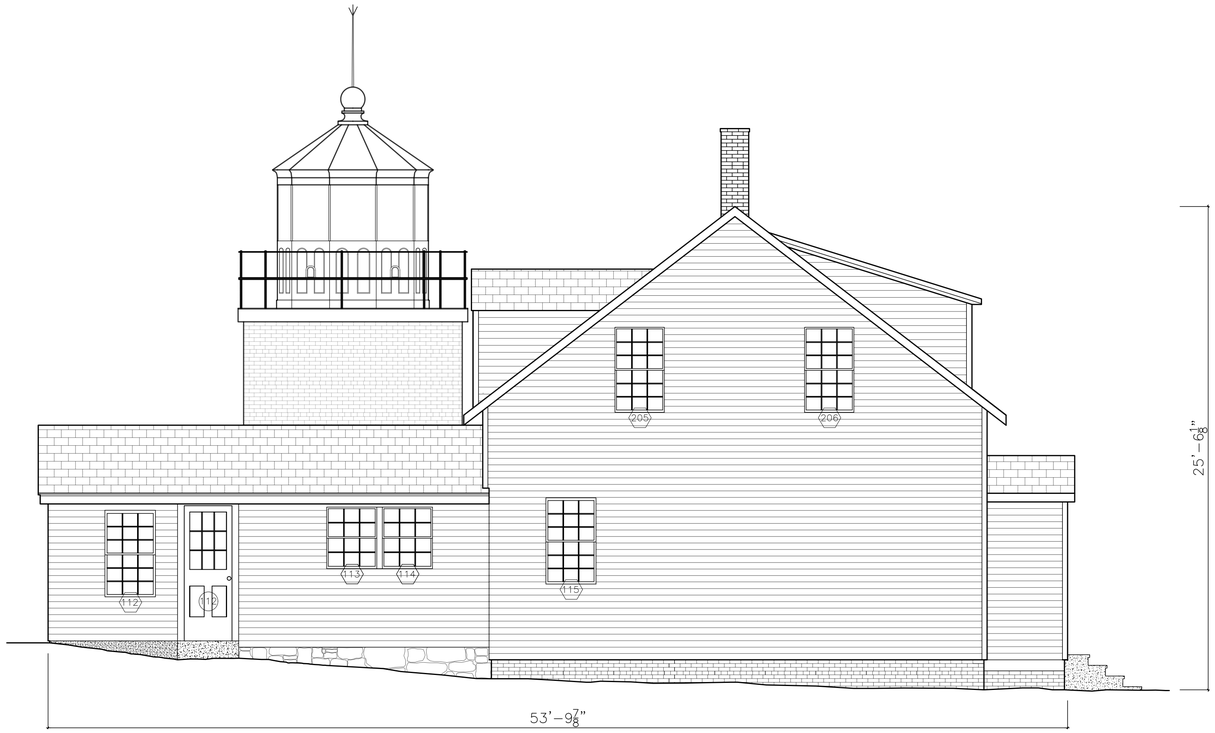
2 A3 LIGHTHOUSE SOUTH ELEVATION
SCALE: A



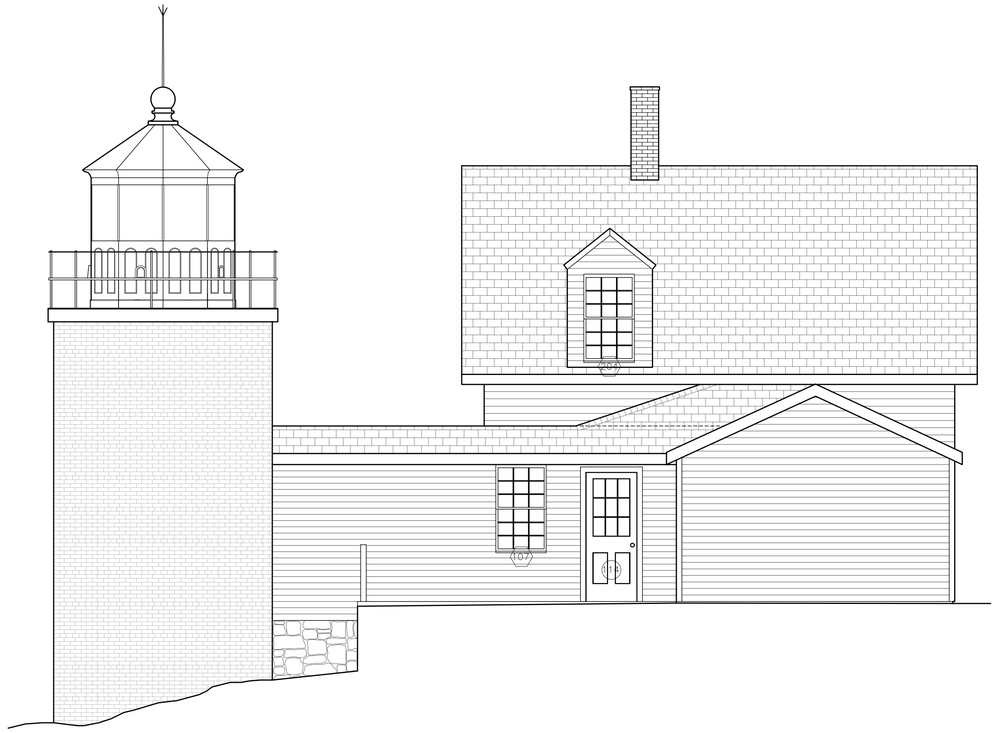
3 A3 KEEPER'S DWELLING & LIGHTHOUSE WEST ELEVATION
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SCALE (A) 4 0 4 8 1/4" = 1'-0"
SCALE OF FEET

DESIGNED: N/A CADD EAB TECH. REVIEW: HPTC DATE: 02/28/20	SUB SHEET NO. A3	TITLE OF SHEET KEEPER'S DWELLING & LIGHTHOUSE: SOUTH & WEST ELEVATIONS ACADIA NATIONAL PARK BASS HARBOR HEAD LIGHT STATION	DRAWING NO. 123 167041 PMIS/PKG NO. 253831 SHEET 4 OF 8



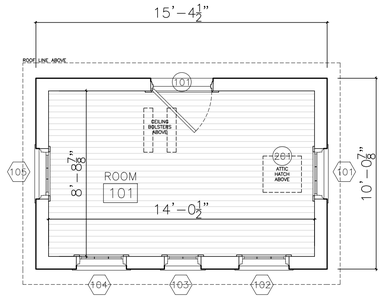
1 / A4 KEEPER'S DWELLING & LIGHTHOUSE NORTH ELEVATION
SCALE: A



2 / A4 KEEPER'S DWELLING & LIGHTHOUSE EAST ELEVATION
SCALE: A

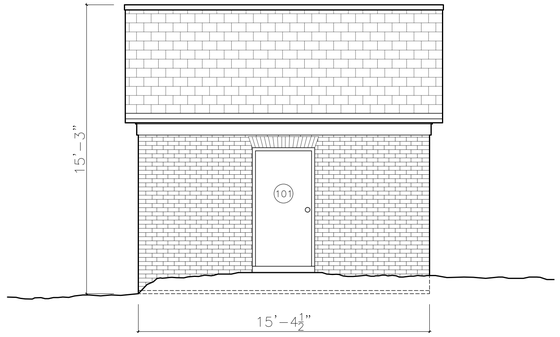
SCALE (A) 4 0 4 8 SCALE OF FEET 1/4" = 1'-0"

DESIGNED: N/A CADD: EAB TECH. REVIEW: HPTC DATE: 02/28/20	SUB SHEET NO. A4	TITLE OF SHEET KEEPER'S DWELLING & LIGHTHOUSE: NORTH & EAST ELEVATIONS ACADIA NATIONAL PARK BASS HARBOR HEAD LIGHT STATION	DRAWING NO. 123 167041 PMIS/PKG NO. 253831 SHEET 5 OF 8

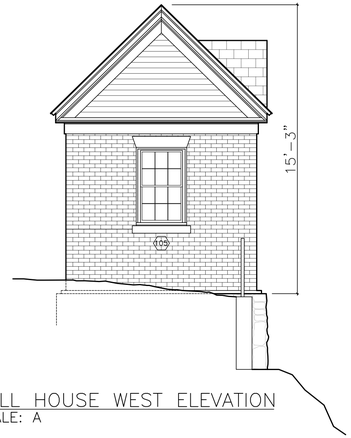


1 A5 BELL HOUSE FLOOR PLAN
SCALE: A

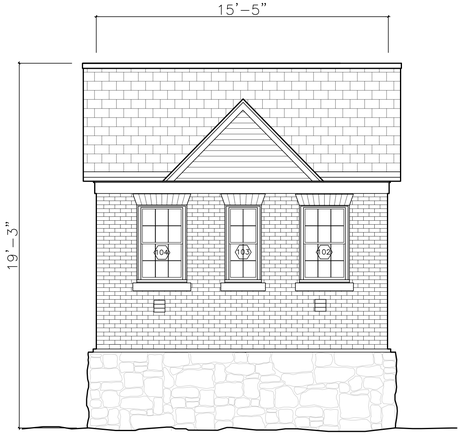
2 A5 BELL HOUSE ROOF PLAN
SCALE: A



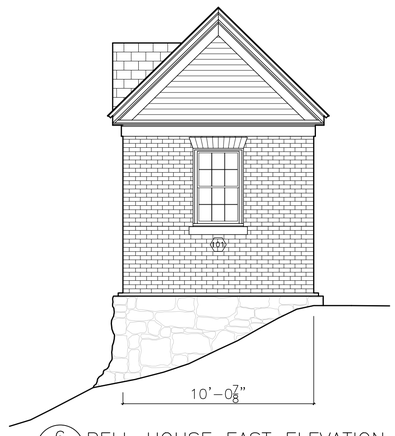
3 A5 BELL HOUSE NORTH ELEVATION
SCALE: A



4 A5 BELL HOUSE WEST ELEVATION
SCALE: A



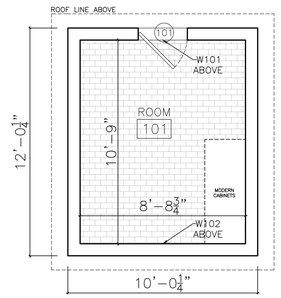
5 A5 BELL HOUSE SOUTH ELEVATION
SCALE: A



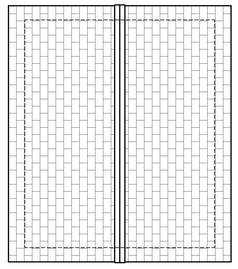
6 A5 BELL HOUSE EAST ELEVATION
SCALE: A

SCALE A 4 0 4 8 1/4" = 1'-0"
SCALE OF FEET

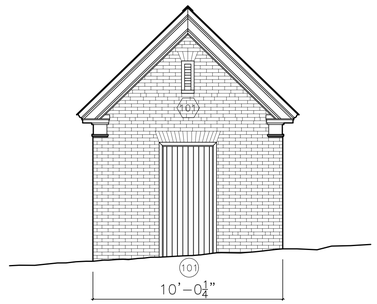
DESIGNED: N/A CADD: EAB TECH. REVIEW: HPTC DATE: 02/28/20	SUB SHEET NO. A5	TITLE OF SHEET BELL HOUSE PLANS & ELEVATIONS ACADIA NATIONAL PARK BASS HARBOR HEAD LIGHT STATION	DRAWING NO. 123 167041 PMIS/PKG NO. 253831 SHEET 6 OF 8



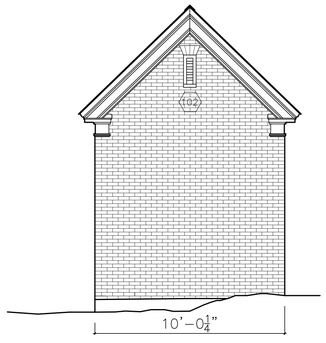
1 / A6 OIL HOUSE FLOOR PLAN
SCALE: A



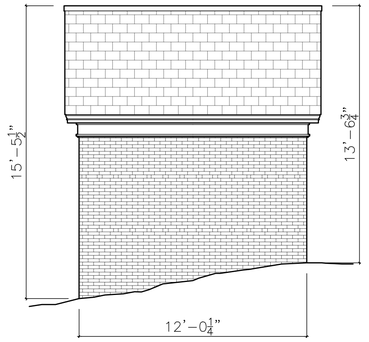
2 / A6 OIL HOUSE ROOF PLAN
SCALE: A



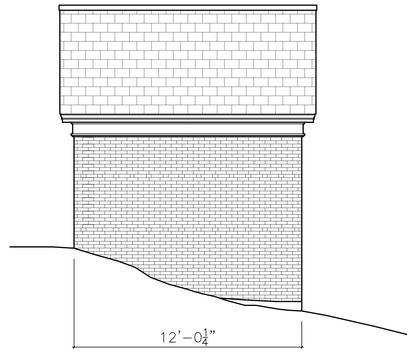
3 / A6 OIL HOUSE NORTH ELEVATION
SCALE: A



5 / A6 OIL HOUSE SOUTH ELEVATION
SCALE: A



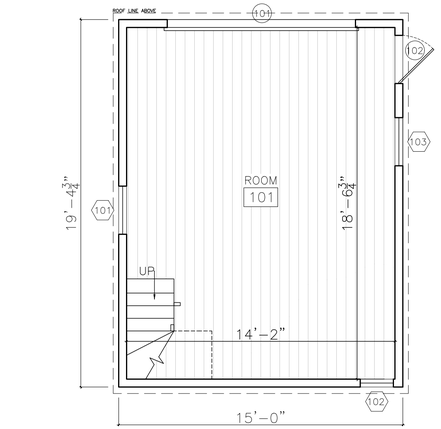
4 / A6 OIL HOUSE EAST ELEVATION
SCALE: A



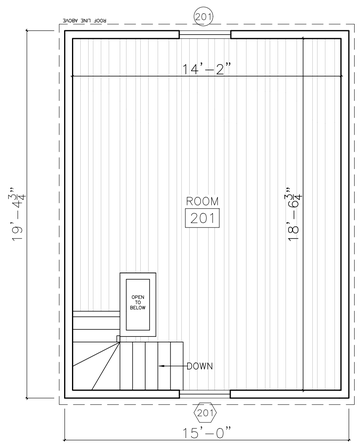
6 / A6 OIL HOUSE WEST ELEVATION
SCALE: A

SCALE Ⓐ 4 0 4 8 — SCALE OF FEET — 1/4" = 1'-0"

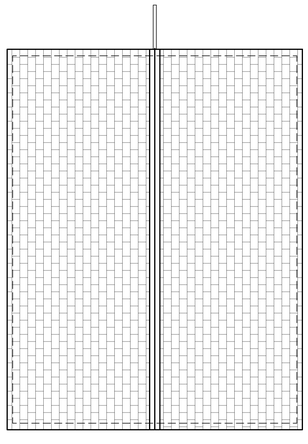
DESIGNED: N/A CADD: EAB TECH. REVIEW: HPTC DATE: 02/28/20	SUB SHEET NO. A6	TITLE OF SHEET OIL HOUSE PLANS & ELEVATIONS ACADIA NATIONAL PARK BASS HARBOR HEAD LIGHT STATION	DRAWING NO. 123 167041 PMIS/PKG NO. 253831 SHEET 7 OF 8



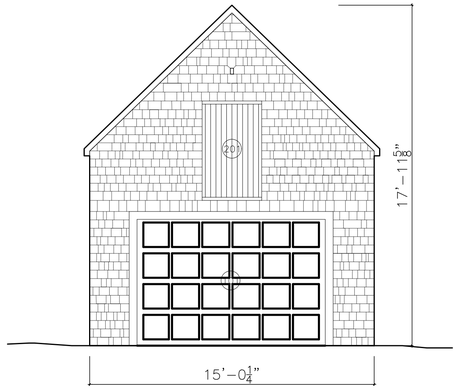
1 / A7 GARAGE (BARN) FIRST-FLOOR PLAN
SCALE: A



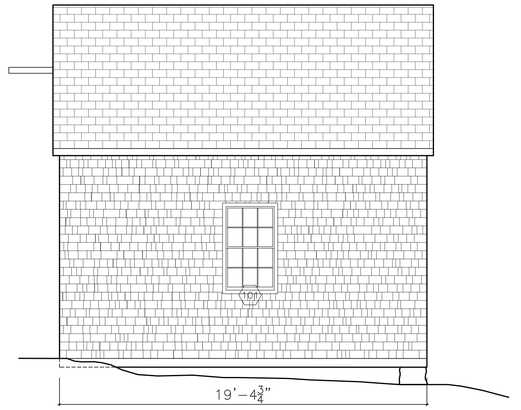
2 / A7 GARAGE (BARN) SECOND-FLOOR PLAN
SCALE: A



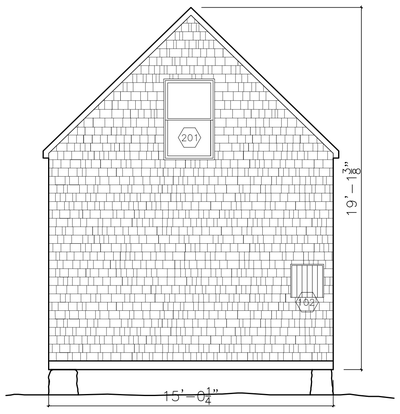
3 / A7 GARAGE (BARN) ROOF PLAN
SCALE: A



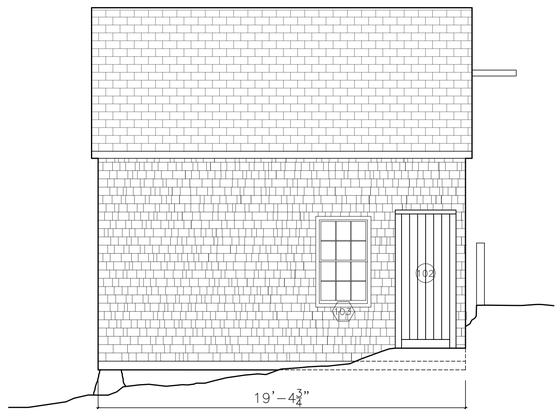
4 / A7 GARAGE (BARN) NORTH ELEVATION
SCALE: A



5 / A7 GARAGE (BARN) WEST ELEVATION
SCALE: A



6 / A7 GARAGE (BARN) SOUTH ELEVATION
SCALE: A



7 / A7 GARAGE (BARN) EAST ELEVATION
SCALE: A

SCALE (A) 4 0 4 8 SCALE OF FEET 1/4" = 1'-0"

DESIGNED: N/A	SUB SHEET NO. A7	TITLE OF SHEET: GARAGE (BARN) PLANS & ELEVATIONS	DRAWING NO. 123 167041
CADD: EAB		ACADIA NATIONAL PARK BASS HARBOR HEAD LIGHT STATION	PMIS/PKG NO. 253831
TECH. REVIEW: HPTC			SHEET 8 OF 8
DATE: 02/28/20			





As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. Administration.

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