

1 ASSISTANT KEEPERS QUARTERS

2 Chronology of Alterations and Use

3 *Original Construction*

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5 The building was constructed in 1897 as a two-story, single family brick residence in a simplified form of
6 the Shingle style. In the second half of the 20th century, it was remodeled to serve as a USCG “crew’s
7 quarters.”³⁰
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10 *Significant Alterations / Current condition*

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12 Similarly to the Keepers Quarters, the Assistant Keepers Quarters underwent a number of interior and
13 exterior alterations to accommodate its ongoing and long term use. Many of the changes affected the
14 building’s original character, although not to the same extent as the Keepers Quarters. At the exterior, the
15 character defining roof cresting was removed as was the yankee gutter system – both of which are evident
16 in historic photos and original construction details but no longer exist. (Historic Image DI-13). A 1980
17 image of the rear of the Quarters shows that there are three windows, two on the first floor, and one on the
18 second floor, which are boarded-up. (Historic Image DI-22) These have since been repaired or replaced as
19 they are visible today.
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21 Construction drawings approved August 10, 1896 for the Assistant Keepers Quarters include details of the
22 main staircase, exterior trim, cut-stonework, windows, and doors, much of which exists today. (Historic
23 Drawings DI-03 to 09)
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25 Other alterations consist of the modifications to include indoor bathrooms on both floors, the replacement
26 of some windows and the rehabilitation work that was performed in the past eleven years by the Historic
27 Structure Preservation Team at the NPS. Other recent work includes a cedar shingle reroofing in 2001,
28 painting of the exterior, and repointing of the brick mortar.
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30 The majority of the mechanical systems in the building have either been removed or left in disrepair. There
31 is no functional heat in the building and much of the plumbing system has been disconnected.
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33 The Assistant Keepers Quarters was rehabilitated, including the electrical systems, in 1928. The majority of
34 the electrical equipment in the Assistant Keepers Quarters building has been removed.
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36 Currently, the building is fair to good condition.
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³⁰ List of Classified Structures, National Park Service, 2009.

1 Summary of Documented Work on the Building

Date	Work Described	Source of Information
Annual Report for 1891	<i>“Devils Island, Apostle Group, Lake Superior, Wisconsin. - The act approved March 2, 1889, appropriated \$15,000 for building a light station...”</i> Repeated in 1892.	“1891 Annual Report of the Lighthouse Board,” Devils Island listings in Lighthouse Establishment Annual Reports 1890-1914
Annual Report of 1895	<i>“Devil’s Island, Apostle Group, Lake Superior, Wisconsin... The completing of this light station, at a cost not to exceed \$22,000, was authorized by the act approved February 15, 1893, but no appropriation was then made. Then act approved March 2, 1895, appropriated \$22,000 “for constructing a permanent tower.” As the completion of the station demands, in addition to the permanent tower, the building of additional quarters for keepers, and the purchase of a third-order lens to fully carry out the design, it is feared that under the wording of the act the work can not be done, as in order to do it economically the tower and dwelling should be built at one time. Recommendation is therefor made that the appropriation available for the completion of the station be made to include the erection of an additional keeper’s dwelling.”</i>	“1895 Annual Report of the Lighthouse Board,” Devils Island listings in Lighthouse Establishment Annual Reports 1890-1914
Annual Report of 1896	<i>“Devils Island, Lake Superior, Wisconsin. – The amount of the award for this island, \$1,600, was paid in August, 1895... A design was made for an iron tower. By the sundry civil appropriation act approved June 11, 1896, authority was given that \$4,000 of the unexpected balance, or the appropriation of \$22,000, made in the act approved March 20, 1895, for constructing a tower at Devil’s Island light station, be applied to the construction of a light-keeper’s dwelling at Devil’s Island light and fog signal station. This will be done as soon as practicable.”</i>	“1896 Annual Report of the Lighthouse Board,” Devils Island listings in Lighthouse Establishment Annual Reports 1890-1914
Annual Report of 1897	<i>“Devils Island, Lake Superior, Wisconsin. – Material for the construction of a keeper’s dwelling was obtained and transported by the tender Amaranth to the station.”</i>	“1897 Annual Report of the Lighthouse Board,” Devils Island listings in Lighthouse Establishment Annual Reports 1890-1914
1901	5’x10’ cistern built	Mechanical Plan
1928	Rehabilitated, including new electrical systems	Electrical Plan
1950	New indoor baths installed	Historic Drawings, Plans by USCG
1952, May 30	May 30: “Installed gas propane stove in crew’s quarters replacing kerosene stove which cracked open and leaked fuel on deck.” (‘Crew’s quarters = Assistant Keepers Quarters)	USCG Log, summarized by Bob Mackreth, 2004
1952, September 30	“Repaired and painted porch on crew’s dwelling.”	USCG Log, summarized by Bob Mackreth, 2004
1953, May - June	May 1: “Painted hallway and dayroom in buff.” (Assume Keepers Quarters) June 16: “Installed telephone communication system between dwellings and signal.”	USCG Log, summarized by Bob Mackreth, 2004
1953, November 10	“Installed new stair treads in barracks.”	USCG Log, summarized by Bob Mackreth, 2004
1979	Repainted, repointed and reroofed with cedar shingles	Photo c.1979 and APIS/NPS Business Office File # D3423 – Devils
1981	Fire retardant installed on the roofs of the Keepers and Assistant Keepers Quarters	APIS/NPS Business Office File # D3423 – Devils

Date	Work Described	Source of Information
1984	Cyclic maintenance of seven buildings including repointing brickwork, painting trim, and reglazing windows; replastered interior walls of Assistant Keepers Quarters	APIS/NPS Business Office File # D3423 – Devils
1991	Stabilization of Keepers and Assistant Keepers Quarters by Williamsport Preservation Training Center	APIS/NPS Business Office File # D3423 – Devils
1993	Door knobs and locks installed on both the Keepers Quarters and Assistant Keepers Quarters	APIS/NPS Business Office File # D3423 – Devils
2001	Reroofed with cedar shingles	HSPT Reports, 2009

Other Documented Work on the Building

Date Range	Work Described
1934-1943	Cresting and wood shingles removed and replaced with wood shingles
Pre-1979	Red asphalt shingles at roof
1998-2009	Painted exterior
1998-2009	Repointed brick mortar

General Physical Description

This building is a two-story residence with a brick foundation, masonry exterior walls at the first floor and framed exterior walls at the second level, sided with decorative wood shingles. Its cross gable roof has boxed eaves and two brick chimneys. There is a second story bow window on the north elevation. It is essentially rectangular in plan, facing north similar to the adjacent Keepers Quarters, and has three rooms on each floor.

Physical Description -- Architecture

Architecture – Roof

This roof is comprised of cedar shingles with wood ridge caps and is reported to have been reroofed in 2001. The shingles have a 5” exposure and the roof has tie-off rings installed at the ridge, though they do not appear to comply with OSHA requirements. There is 1x open sheathing (consistent with wood shingle applications) that has about a 2” gap every third row. Historic photos and drawings indicate a ridge cresting detail and Yankee gutter that are not in situ today. (Historic Image DI-06, 08 and 13)

The eave consists of a boxed soffit with ogee trim at the frieze board and fascia and extends 1’-6” at the main roof, all wood painted. There are portions of soffit which are painted tongue and groove at the north gable.

Architecture – Gutters and Downspouts

There is no existing gutter at the porch’s north eave, though a visible previous patch indicates a downspout to a yankee gutter. There is a new galvanized 6” half-round gutter at the northwest corner and a 3” fluted downspout. The downspout has portions which are reused and the soffit at this location also has a patch indicating a yankee/integral gutter. The south elevation has a new 6” half-round galvanized gutter connected to a 3” diameter fluted downspout which appears to be new. The details of the original construction drawings show a tin-lined yankee gutter connecting to a conductor through the soffit. The roof plan shows three locations for conductors which are generally where the current two downspouts remain and the porch downspout is missing. Note that there is a stack of gutter downspout pieces located in the basement. (DI-AKQ-05)

Architecture – Chimneys

There are two brick chimneys matching the exterior walls, one on the west façade and the other on the south. Each chimney has a stone cap piece that is original to the chimneys and detailed on the original construction drawing set. (Historic Drawing DI-08 and DI-AKQ-07)

Architecture – Exterior Walls

The exterior wall consists of red brick, simple running bond on the first floor level. Window openings have a brownstone sill and header flush with the face of the brick. There is also a rowlock course at the approximate grade level. The second floor level walls are finished in a recently-installed chamfered-shape wood shingle. The original construction drawings show radiating shingles at the apex of the gable and irregular coursing at the remainder of the gable end. It is difficult to decipher if this was the actual installation design from historic photos though it does not appear so. The second floor north projection features a bowed, shingled wall and tripartite window below the shingled gable. The wall projects slightly from a rectangular, shingled dormer. The wall extends approximately 2-feet from the first floor exterior wall and features five decorative wood brackets beneath. The wood shingles flare at approximately 3" at the transition with a wood ogee closer trim piece. There is a cementitious parge coat at the base of the wall +/- 4'-8" above grade and below the rowlock course. On the south elevation, a former door opening was infilled with a substitute brick and mortar. A new window was installed in the opening, with a precast concrete sill. Historic photos indicate a privy was located directly south of this door opening.

A mortar sample taken at the exterior west wall indicates that the mortar was soft, composed of very fine sand, and has a sand to lime composition of 3:1, by volume.

Architecture – Windows

Basement Windows. The basement has two types of windows: wood slat vents (two) and cast iron vents (two). The wood slat vents measure 2'-8" x 1'-6", and the cast iron vents measure 1'-4" x 1'-2". (DI-AKQ-14)

Top of Stairs/Second Floor Hall Window. This window is nine- over nine-lite, double-hung. The window is 1'-10" x 3'-6".

Second Floor Bath. This window is a six- over six-lite, double-hung. Operation is by a spring tape set into the jamb. The window is 2'-6" x 3'-8". The window appears to have been added at the time of the addition of the interior baths. (DI-AKQ-25)

Tripartite Bow Window. This unique, curved window has diagonal wood lattice and one fixed sash over one fixed sash. The upper section of the three identical windows is 1'-10" x 1'-11", and the lower section is 1'-10" x 2'-10". (DI-AKQ-26 and 27)

Predominant Windows. This type of window is a two- over two-lite, double-hung, with a four-lite storm window. The storm window aligns with the two-over-two pattern and is screwed to the wood frame. The windows are painted on the exterior and natural or varnished on the interior. The windows on the first floor are trimmed with brick molding and have a stone header and sill. The hardware is modern – a brass thumb turn lock - and sash chords appear recent but the pulley is original. The glass also appears to be original because it is wavy. The second floor windows are trimmed with painted wood. The interior trim is typically 5" wide varnished, shaped, and decorative oak with a crown molding. Roller shade brackets are extant. The typical dimension for the predominant window is 2'-9" x 5'-6". (DI-AKQ-20, 21 and 22)

Attic Window. There is an arched-top, two-lite, fixed sash window in the attic. It is wood framed and nonhistoric. (DI-AKQ-30)

Architecture – Exterior Doors

Main Entry Door. This door is nine-lite over six raised wood panels and is nonhistoric. The knob hardware is a period replica with a keyed deadbolt, likely installed by the park in 1993. The exterior face is painted while the interior is varnished. The door is 2'11 ½" x 6' 11 ½" x 1 ¾". (DI-AKQ-11 and 12)

East Entry Door. This door is nine-lite (half lite) over three raised horizontal panels and is nonhistoric. It has a stone sill and a stone header, three hinges, replica knob hardware the same as the main entry door, and a keyed deadbolt, likely installed by the park in 1993. The door is 2'7 ½" x 6'11 ½" x 1 ¾".

Basement Coal Chute at West Elevation. This coal chute is made of cast iron, painted white. Its dimensions are 1'8" x 10" x ½".

Architecture – Exterior Trim

The exterior trim consists of the ogee transition trim at the top of the brick, soffit, two wood brackets each at the east, west, and north gables, shingle detailing at the gables' fascia, and five shaped wood corbels at the bow tripartite window. (DI-AKQ-06)

Architecture – Exterior Entry Porch

The porch floor is contemporary. The columns and beam are built-up of 1x and appear to be replicated from newer material. The porch was screened-in as seen in a post-1915 historic photo. (DI-AKQ-08 and 09)

Architecture – Interior Doors

First Floor Historic Doors. This type of door has a typical opening size of 2'8" x 7' x 1 ¼" with two hinges. The doors and trim appear to be made from oak or ash. The trim is typically 5" wide varnished, shaped, and decorative oak with a crown molding (same as interior window trim). The extant door type is five panel, varnished, with dimensions of 2'4 ½" x 7' x 1 ¼".

Second Floor Historic Doors. This type of door's typical opening size is 2'4" to 2'8" x 6'7" x 1 ¼" with a 1' transom. The doors and trim appear to be made from oak or ash. The doors each have a transom light without glass. The trim is continuous, framing the door and transom. The trim is typically 5" wide varnished, shaped, and decorative oak with a crown molding (same as interior window trim). These doors also have knob hardware, are varnished, and have two ball-tipped hinges. The extant door type is five panel with a 5" raised, decorated trim.

Architecture – Wall Finishes

Basement. The basement has exposed common bond brick walls.

Entry, Kitchen, Dining Room, Sitting Room, Second Floor Hall, Second Floor Bedrooms and Second Floor Sitting Room. These eight rooms have original plaster over lath wall finishes. The entry and kitchen also have sections of 3 ½" wood beadboard wainscot, stained dark, with partial cap rail. A paint sample taken in the first floor sitting room reveals that the original paint color for this room was green. The original color of the entry was yellow. A material sample of the entry also revealed that the original plaster is lime based and composed of much coarser sand and a different composition than the plaster sample from the Keepers Quarters, due to the differences in construction timeframes.

First Floor and Second Floor Baths. Both baths have plaster over lath wall finishes, despite that these rooms were originally a vestibule and closet.

Architecture – Ceiling Finishes

Basement. The basement does not have a finished ceiling; the first floor flooring system is exposed.

Entry, Kitchen, Dining Room, Sitting Room, Second Floor Hall, Second Floor Bedrooms and Second Floor Sitting Room. These eight rooms have original plaster over lath ceiling finishes.

First Floor and Second Floor Baths. Both baths have plaster over lath ceiling finishes, though the first floor maybe newer plaster after the plumbing above was installed.

Architecture – Interior Trim

Entry, Dining Room, Sitting Room, Second Floor Hall, Second Floor Bedrooms and Second Floor Sitting Room and Associated Closet. These rooms have an elaborate base, 10” high with a top 2” ogee profile design and a lower shaped portion (about 4” from the top, half-way from the top to the bottom). It also has an elaborate base shoe with an ogee profile. The wood base and shoe are both dark stained or painted. The dining room and the second floor southeast bedroom also have wood, 2” wide picture rails on the walls. The picture rails for both rooms are stained dark. Both the base trim and the picture rail are original to the building.

Kitchen. The kitchen has a very simple wood base shoe at the bottom of the wainscot, stained dark. This is original to the building.

Dining Room Closet. This closet has a simple wood base trim, stained dark, with no base shoe. It is unknown if the base trim is original to the building.

First and Second Floor Baths and Second Floor Southwest Bedroom Closet. These rooms have a less elaborate base and shoe than the entry and other rooms as the trim has a basic ogee profile 1” wide at the top. The base and shoe are both stained dark. These base trims are original to the building.

Architecture – Floor

Basement. The accessible room in the basement has a concrete slab-on-grade floor that is original to the building.

Entry, Dining Room and Associated Closet, Sitting Room. These four rooms have the original wood flooring (3 ½” wide boards), stained.

Kitchen, First and Second Floor Baths, Second Floor Southeast Bedroom. These four bedrooms have modern resilient sheet flooring.

Second Floor Hall and Closet, Second Floor Southwest Bedroom and Associated Closet, Second Floor Sitting Room and Associated Closet. These six rooms have the same wood flooring as the entry, dining room and closet, and sitting room, except the wood is painted blue-gray.

Architecture – Stairs

Exterior Entry Porch Stairs. The stairs are made of 2x12 treads, six risers (including concrete base) with riser heights between 7 ¼” to 7 ¾”, and no handrails. (DI-AKQ-08 and 10)

Basement to First Floor Stairs. These stairs are open wood stairs painted blue-gray. There are five risers (8” high) to a landing and then another five risers to the basement. The treads are 10 ½” deep with a 1”

nosing. The stairs have a partial handrail at the bottom portion of stairs made from one 2x4 painted yellow. The stairs are original to the building. (DI-AKQ-13)

First Floor to Second Floor Stairs. These stairs are stained wood with only the newels remaining in the balustrade. A rope is acting as the handrail. There are seven risers (8" high) to a landing and then another eight risers. The treads are 10 3/4" deep with a 1" nosing. The stairs and newels are original to the building. (DI-AKQ-16)

Architecture – Casework

Dining Room Closet. This closet has segments of base seen elsewhere in the house used as supports for a metal shelving bar but were possibly used historically for hooks or nails. The wood is original to the building.

Second Floor Hall's Closet. This closet has a piece of 3" wide simple wood board and may be original to the building.

Second Floor Sitting Room's Closet. This closet has a dark stained wood built-in shelving unit and is not original to the structure but is historic.

Architecture – Accessibility

The building is currently not accessible. The north primary entry door opening is 2'11 1/2" clear with a grade to finished floor elevation change of 4'3 3/4". The threshold step is 8" tall. The east entry door opening is 2'7 1/2" clear with a grade to finished floor elevation change of 8" tall or greater. This door has a stone sill. Within the building, there have been no accessibility upgrades.

Physical Description -- Structural

Structural – Foundation

The perimeter foundation system consists of brick masonry. The interior foundations are below interior brick masonry walls and could not be observed.

Structural – Floor Framing

The basement floor is a concrete slab-on-grade.

Framing for the front porch was measured to be 2x8 joists spaced at about 18". The joists span approximately 11'. The joists are supported on the brick perimeter walls. The porch is sheathed with 1x4 tongue and groove sheathing.

The first floor framing was measured to be FS 2x10 joists spaced at about 16". The joists span approximately 14' to 16'. The joists are supported on the perimeter foundation walls and interior brick masonry walls. The floor is sheathed with diagonal solid wood subflooring.

The second floor framing was not accessible and could not be measured. The joists span approximately 14' to 16'. The joists are supported on wood-framed partition walls and the exterior masonry walls.

Structural – Roof Framing

The roof framing was measured to be FS 2x6 rafters spaced at about 16". The rafters span approximately 9' and 10.5'. The rafters are supported on the exterior wood-framed walls. The rafters are sheathed with spaced solid wood underlayment.

Structural – Ceiling Framing

The second floor ceiling framing was measured to be FS 2x6 joists spaced at about 16". The joists span approximately 11' to 16'. The ceiling joists are supported on the exterior wood framed walls and wood-framed partition walls.

Structural – Wall Framing

The exterior walls are constructed of brick masonry up to the second floor and wood-framed above that. The second floor wood framing was not accessible and could not be measured. The framing of the interior walls, where it was accessible, was measured to be FS 2x4 studs spaced at about 16".

Structural – Lateral System

Lateral stability for the building is provided by the exterior masonry and wood-framed walls.

Structural – Load Requirements

The required floor load capacity is 40 psf, the required snow load capacity of the porch is 60 psf and the required roof snow load capacity is 50 psf. The required ceiling live load capacity is 10 psf (no storage is allowed).

Physical Description -- Mechanical

Mechanical – Plumbing Systems

The original water source for the building was a 5'x10' cistern built in 1901 and located in the cellar of the building. There is currently no active domestic water service to the building. Only small sections of galvanized steel water piping remain.

The sanitary sewer serving the building has been disconnected. Portions of the cast iron waste piping remains in place from the first and second floor bathrooms to the basement. The 4" cast iron waste main terminates with an open pipe in the basement. It is not connected to the building sewer main that originally extended south from the building.

The only plumbing fixtures that remain in place are the bathtubs in the first and second floor bathrooms and a laundry tub in the basement. The second floor toilet and lavatory are loose on the floor of the room. The remaining plumbing fixtures have been removed and all the fixtures have been disconnected from the plumbing systems. All faucets have been removed.

Mechanical – HVAC

The original heating for the building would have been coal burning stoves. The original brick chimney stacks still remain from the basement up through the roof. At one time there was a boiler located in the basement with cast iron radiators. Only one of the radiators remains and the boiler has been removed.

Basement ventilation consists of two 32"x18" ground level wood slat louvers with wire mesh screen and operable windows on the inside, one on the east side of the building and one on the south side. There are

also two 16"x12" ground level openings on the west side of the building covered with an open metal grating.

Mechanical – Fire Suppression

None in the building.

Physical Description -- Electrical

Electrical – System Configuration

Power for the Assistant Keepers Quarters comes from the service panel in the basement of the Keepers Quarters. The power for the building is currently off. The majority of the electrical equipment in the Assistant Keepers Quarters building has been removed. Remaining items consist of disconnected wiring and boxes.

Electrical – Conductor Insulation

Wiring in the Assistant Keepers Quarters is generally "Romex" construction with rubber insulated conductors in an overall sheath of braided cotton fiber. Romex cable is exposed in the basement and is concealed in walls and ceilings in the upper levels of the building. None of the wiring includes a separate ground conductor and receptacles within the building are of the two prong, nongrounded type. Much of the wiring is exposed and is not terminated at outlet and lighting junction boxes.

Electrical – Overcurrent Protection

Overcurrent protection for the building is located in the panel board in the basement of the Keepers Quarters. There is no individual main disconnect switch for the Assistant Keepers Quarters.

Electrical – Lighting Systems

Lighting in the building has been removed.

Electrical – Telecommunications

None in the building.

Electrical – Fire Alarm System

None in the building.

Electrical – Lightning Protection

Lightning protection consists of brass air terminals and brass or copper down- cables that appear to be terminated on buried ground rods. Air terminals are located along the peak of the roof, on the peak of each dormer, and on each chimney.

Physical Description -- Hazardous Materials

Landmark Environmental collected 12 bulk samples from a total of 12 different types of suspected asbestos containing materials (ACMs) at Devils Island. Of the 12 suspect ACMs that were sampled and analyzed, a total of three suspect ACMs resulted in concentration of greater than one percent (positive for asbestos).

Hazardous Materials – Asbestos

The following suspect ACMs were not sampled due to inaccessibility or park limitation regarding potential for damage to structures. Asbestos is assumed to be present in:

1. Adhesives (Multiple varieties of miscellaneous adhesives were seen on heater components, under remnant flooring applications, and around windows,
2. Plaster,
3. Drywall,
4. Thermal System Insulation (TSI) (Was not observed and asbestos is commonly present in insulation on water pipes, metal ducting for heating systems, behind floor registers, steam piping, etc.,
5. Sub-Flooring (Suspect ACMs in flooring applications were not observed and asbestos is commonly present in vapor barrier felts and tar-papers used in sub-flooring applications. Roofing Materials),
6. Brick and Block Filler (The exterior of the structure is brick and has the potential to have a block filler or grout that is potentially asbestos containing),
7. Caulk (Caulking was observed around window and door penetrations, which can also include gasket applications between the window assembly and the structure, and,
8. Asbestos-cement (Piping, wall-board, wall interior panels, roof flashing and roofing applications can be constructed of asbestos-cement. This type of application was not observed at the structure but may be present).

The assumed ACMs were observed to be in poor condition.

Hazardous Materials – Lead Containing Paint

Detectable lead is assumed to be present at the following locations:

1. Interior Painted Surfaces, and,
2. Exterior Painted Surfaces.

Based on the estimated dates of construction of the various structures, LCP is assumed to be present throughout the structure. The confirmed LCP was observed to be in poor condition and the assumed LCP was observed to be in poor condition.

Loose/flaking LCP is identified on the exterior painted walls of the structure. Paint chip debris is not noted on localized areas of surface soils surrounding the Assistant Keepers Quarters.

Hazardous Materials – Lead Dust

Surface wipe-sampling for lead dust was not conducted in the Assistant Keepers Quarters because lead dust was assumed to be present due to the poor condition of assumed LCP.

Hazardous Materials – Lead in Soils

Historical paint maintenance activities such as manual scraping, power-washing, sanding, abrasive blasting or the general poor and peeling condition of exterior LCP may have created the potential to impact the surrounding soil. Areas of the surface soils adjacent to the structure were not observed to have LCP debris and additional areas may exhibit LCP debris or lead-contaminated soils, but are not observable due to

1 vegetative cover surrounding the structure. Preliminary lead-in-soil sampling was not performed to assess
2 whether these near-structure soils contain lead concentrations above applicable soil standards.

3
4 Soil Sampling was not conducted around the Assistant Keepers Quarters.
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7 *Hazardous Materials – Mold*

8 Inspections of the structure were performed to identify the readily ascertainable visual extent of the mold
9 growth. Moisture testing in building materials was not performed nor was sampling of building materials
10 performed for microbial analysis. Mold was visually identified in the Assistant Keepers Quarters
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12
13

Character Defining Features

Mass/Form. A two-story masonry Queen Anne style residence with asymmetrical form, a main gable roof with a front gable dormer with bow window, a recessed porch, and two brick chimneys.

Layout of Space. The separate discrete rooms are arranged off of a central hall/stair for all levels. The rooms do not open to one another.

Exterior Materials. Lower level is red brick, upper level is painted wood wall shingles. Painted wood trim detailing includes corbels, ogee cornice at the soffits and an ogee drip edge trim at the masonry to wood shingle transition. The wood trim is painted both green and white.

Openings. The openings consist of a mix of wood double hung and casement windows, all painted dark green. The doors are six- (or nine-) lite over three panel painted wood.

Interior Materials. The interior materials are fairly intact and consist of painted plaster, stained woodwork, doors and floors, with the exception of some missing elements at the entry area (balusters, wainscot and base trim.)

General Condition Assessment

In general, the Devils Island Assistant Keepers Quarters is in good condition on the exterior and in poor condition on the interior. The historic ceilings are deteriorating and the wood floors are worn. The wood base and balustrade of the main stairs have been partially removed. However, overall, the Assistant Keepers Quarters reflects much better the historic qualities and character of the original construction than the Keepers Quarters.

Structurally, the Assistants Keepers Quarters is in good condition with the exception of the front porch. The front porch framing and decking are in poor condition.

Mechanically, the majority of the systems in the building has either been removed or is in poor condition.

Electrically, the systems within the Assistant Keepers Quarters have largely been removed. Boxes, wiring and equipment that remain are in poor condition

The following section is a discipline-by-discipline, component-by-component condition assessment of the building. Refer to Volume I, Chapter 2: Methodology for definitions of the condition ratings.

Condition Assessment -- Architecture

Architecture – Roof

Condition: *Good*

This roof eaves and soffits are in good condition. The tie offs on the roof should not be used for life safety anchors until they can be certified as meeting OSHA requirements.

Architecture – Gutters and Downspouts

Condition: *Good*

The existing gutters and downspouts are in good condition as both downspouts extend 12'-0" away from the foundation. There is no gutter and downspout at the entry porch.

1 *Architecture – Chimneys*

2 Condition: *Good*

3 Both chimneys are in good condition.

6 *Architecture – Exterior Walls*

7 Condition: *Good*

8 The exterior walls are generally in good condition with a few exceptions. These include eroded mortar at
9 the west edge of the entry porch where a downspout existed, historically. Also, the masonry at the porch
10 appears to be stressed at the intersection of the stringer support beam and the northwest column bearing
11 point. The shingles, though weathered with peeling paint, are in fairly good condition.

14 *Architecture – Windows*

15 Condition: *Good to Fair*

16 **Basement Windows.** The two different types of basement windows are both in fair condition. The
17 louvered wood slat vents have paint peeling and the cast iron vents have rust issues.

19 **Top of Stairs/Second Floor Hall Window.** This window has no lifting hardware, so it's very difficult to
20 operate, and the interior varnish is fading. Overall, it is in good to fair condition.

22 **Second Floor Bath.** This window's frame is painted white while the trim is varnished oak. Also, it has no
23 lifting hardware, so it's very difficult to operate. Overall, however, it is in good to fair condition.

25 **Tripartite Bow Window.** The three windows are overall in good condition. The only issues observed were
26 that the interior finish does not match the trim and the crown molding trim has some chips in the wood.

28 **Predominant Windows.** The predominant windows have no lifting hardware and so are difficult to operate
29 and have inconsistent finishes on the interior faces. Also, some of the wood storm windows are
30 deteriorating (particularly the bottom rail), and the glazing compound is failing on some of the storm
31 windows. The glazing compound could not be observed at windows. Overall, however, the windows are in
32 good to fair condition.

34 **Attic Window.** The arched attic window is in good condition.

37 *Architecture – Exterior Doors*

38 Condition: *Fair*

39 **Main Entry Door.** This door is in fair condition as it has replica hardware and peeling paint.

41 **East Entry Door.** This door is in fair condition as it has replica hardware and peeling paint.

43 **Basement Coal Chute at West Elevation.** This coal chute is in fair condition with some rust issues.

46 *Architecture – Exterior Trim*

47 Condition: *Good*

48 The wood trim appears to be in good condition, though with peeling paint.

Architecture – Exterior Entry Porch

Condition: *Poor*

The existing porch is in poor condition and is exhibiting signs of stress. The base of the columns is wicking up moisture from the stone. The masonry knee wall at the northeast corner is pulling away from the stair stringer beam and the porch floor and the northeast column is out of plumb.

Architecture – Interior Doors

Condition: *Fair to Poor*

First Floor Historic Doors. Most interior doors and some trim have been removed from the building, most likely pilfered. Three doors on the first floor have been removed. Extant doors have blistered varnish and are missing knob hardware.

Second Floor Historic Doors. Most interior doors and some trim have been removed from the building, most likely pilfered. Five doors on the second floor have been removed. Extant doors have blistered varnish and are missing knob hardware.

Architecture – Wall Finishes

Condition: *Good (Masonry) to Fair (Wainscot) to Poor (Plaster)*

The basement's exposed brick walls are in good condition. Overall, the plaster is in poor condition with cracks, holes, and staining. The wainscot is generally in fair condition, though some pieces are missing. The sitting room's walls appear to have been sealed with some form of sealant to prevent further deterioration.

Architecture – Ceiling Finishes

Condition: *Good and Poor*

Overall, the condition of the ceiling finishes is poor though the entry, kitchen, and dining room ceiling finishes are in good condition. The first floor sitting room is in poor condition as paint and plaster have fallen to reveal lath. The second floor hall, second floor sitting room, and both bedrooms all have large sections of the ceiling finishes missing, revealing the lath above the plaster. (DI-AKQ-29) The first floor and second floor baths' ceiling finishes are in good condition, with only minor gouges on the south end of the second floor bath's plaster ceiling.

Architecture – Interior Trim

Condition: *Fair*

Overall, where the trim is intact, it is in fair condition with some staining, wear and irregular joint issues.

Architecture – Floor

Condition: *Good (Concrete) and Poor (Wood and Resilient)*

The basement slab has minor cracks and stains typical for its use and age and is in good condition. In general, the wood flooring is in poor condition due to some warping, poorly applied stain or peeling paint. The resilient flooring is in poor condition due to scarring and wearing.

Architecture – Stairs

Condition: *Fair to Poor*

Exterior Entry Porch Stairs. These stairs are in poor condition as they are uneven, have peeling paint, and no handrail.

1 **Basement to First Floor Stairs.** These stairs have a partial handrail, but the handrail is inadequate and not
2 code compliant. Also, the blue-gray paint is peeling heavily. The stairs are in fair condition.

3
4 **First Floor to Second Floor Stairs.** These stairs are missing most of the balustrade, only the newel posts
5 remain. Stain is faded and worn. Overall, the stairs are in poor condition.

6
7
8 *Architecture – Casework*

9 Condition: Fair

10 Overall, the casework is in fair condition with pieces that are damaged, warped, or missing.

11
12
13 *Architecture – Accessibility*

14 Condition: Poor

15 This building is not accessible.

16
17
18 **Condition Assessment -- Structural**

19 *Structural – Foundation*

20 Condition: Good

21 The visible portion of the perimeter foundation system is in good condition. The interior foundations could
22 not be observed, thus their condition is unknown. No obvious signs of distress or damage were observed.

23
24
25 *Structural – Floor Framing*

26 Condition: Fair

27 The basement floor is in good condition. The framing for the first floor is in fair condition. Floor joists that
28 are headered off above doors and windows are not properly supported (DI-AKQ-31). One floor joist has
29 been cut for plumbing work and another joist is damaged (DI-AKQ-32). The base of four posts that support
30 the stair and first floor are rotten. (DI-AKQ-33)

31
32 Framing for the front porch is in poor condition. The east ends of the joists are rotten. The east edge of the
33 tongue and groove decking is also rotten (DI-AKQ-34).

34
35 The second floor framing could not be observed and its condition is unknown. No obvious signs of distress
36 or damage were observed.

37
38
39 *Structural – Roof Framing*

40 Condition: Good

41 The roof framing is in good condition.

42
43
44 *Structural – Ceiling Framing*

45 Condition: Good

46 The second floor ceiling is in good condition.

*Structural – Wall Framing*Condition: *Good*

The exterior masonry walls are in fair condition. There are numerous cracks in the north and east walls of the front porch that indicate settlement of the foundation (DI-AKQ-35 and 36). The framing of the interior walls, where it was accessible, is in good condition. The condition of the remainder of the walls is unknown. No obvious signs of distress or damage were observed.

*Structural – Lateral System*Condition: *Good*

Lateral stability of the building is good.

*Structural – Load Requirements*Condition: *Good*

The roof, ceiling and first floor framing have adequate capacity to support the required loads. The capacity of the second floor framing is unknown.

Condition Assessment -- Mechanical*Mechanical – Plumbing Systems*Condition: *Poor*

There is currently no active domestic water service to the building. Only small sections of galvanized steel water piping remain.

The sanitary sewer serving the building has been disconnected. The sections of cast iron sewer piping left in place from the first and second floor bathrooms to the basement are in poor condition.

The plumbing fixtures that remain in place are in poor condition. These include bathtubs in the first and second floor bathrooms and a laundry tub in the basement. The second floor toilet and lavatory are loose on the floor of the room and are in poor condition. The remaining plumbing fixtures have been removed and all the fixtures have been disconnected from the plumbing systems.

*Mechanical – HVAC*Condition: *Fair to Poor*

All heating systems have been removed from the building. The remaining radiator is in poor condition. The basement ventilation louver is in fair condition. The metal ventilation grilles are in fair to poor condition. The total square footage of the basement louver openings exceeds code requirements for nonmechanical basement ventilation if the windows on the inside of the louvers are left open.

*Mechanical – Fire Suppression*Condition: *N/A*

Condition Assessment -- Electrical

Electrical – System Configuration

Condition: *Poor*

The underground feed from the Keepers Quarters has been in place for at least 45 years and has exceeded its expected life.

Electrical – Conductor Insulation

Condition: *Poor*

Wiring within the building is in poor condition and no longer meets NEC requirements.

Electrical – Overcurrent Protection

Condition: *Poor*

Overcurrent protection for the Assistant Keepers Quarters does not meet NEC requirements.

Electrical – Lighting Systems

Condition: *Poor*

Lighting fixtures have been removed.

Electrical – Telecommunications and Fire Alarm System

Condition: *N/A*

Electrical – Lightning Protection

Condition: *Fair to Poor*

Lightning protection systems are intact and appear to be in fair condition, however over time, connections deteriorate and components corrode. The integrity of the system cannot be assured.

Condition Assessment -- Hazardous Materials

Refer to 'Physical Description -- Hazardous Materials' for detailed descriptions of locations and conditions of hazardous materials.

Ultimate Treatment and Use

The Assistant Keepers Quarters was constructed in 1897 as the residence for the assistant keeper and his family. During the USCG period (1939-1969), the residence was used as a storage, and possibly a residential, facility.

The Assistant Keepers Quarters is currently vacant and has no public access. The proposed use for the building is to rehabilitate it for self-guided visitor tours.

Rehabilitation is the recommended treatment for the building.

Requirements for Treatment

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS and listed in Volume I, Administrative Data section of this report.

The recommended treatments are tailored to the Preferred Alternative as the outcome of the Value Analysis/CBA for the project. As individual buildings are rehabilitated, specific alternatives will present themselves during design and construction. The following section is a discipline-by-discipline, component-by-component description of the treatments proposed for the rehabilitation of the building. Refer to Volume I, Chapter 2: Methodology for the priority rating definitions.

Treatment Recommendations -- Architecture

Architecture – Roof

Priority: Low

Verify/provide proper blocking for roof tie offs. Scrape, sand and repaint the soffit, fascia and frieze board.

Architecture – Gutters and Downspouts

Priority: Low

Add a gutter and downspout at the porch where one previously existed.

Architecture – Chimneys

Priority: Low

No recommendations at this time.

Architecture – Exterior Walls

Priority: Moderate

Scrape, sand and repaint the wood shingles. Coordinate masonry work at the porch with foundation/floor framing work. Repoint the masonry at the west edge of the porch.

Architecture – Windows

Priority: Moderate

Provide missing hardware at the windows. Scrape, sand and repaint the windows and storms where they are currently painted. Reglaze the storm windows and repair the bottom stiles.

1 *Architecture – Exterior Doors*

2 Priority: *Moderate*

3 Scrape, sand and repaint the doors using the paint analysis to guide the color selection. Apply a rust
4 inhibitor to the coal chute's susceptible components to prevent further rusting.

7 *Architecture – Exterior Trim*

8 Priority: *Low*

9 Scrape, sand and repaint the trim using the paint analysis to guide the color selection.

12 *Architecture – Exterior Entry Porch*

13 Priority: *Severe*

14 Coordinate porch work with foundation and framing work. Scrape, sand and repaint. Consider adding a
15 code compliant guardrail at the porch due to unsupervised public access.

18 *Architecture – Interior Doors*

19 Priority: *Low*

20 Scrape, sand and refinish the extant doors. Provide missing hardware in kind. Provide missing trim
21 elements to match existing and refinish.

24 *Architecture – Wall Finishes*

25 Priority: *Moderate*

26 Patch and repair areas of damaged plaster. Prepare and repaint. Provide portions of missing wainscot to
27 match existing. Scrape, sand and refinish wainscot.

30 *Architecture – Ceiling Finishes*

31 Priority: *Severe*

32 Patch and repair areas of damaged plaster. Prepare and repaint.

35 *Architecture – Interior Trim*

36 Priority: *Low*

37 Provide missing trim in-kind and match existing profile and finish.

40 *Architecture – Floor*

41 Priority: *Moderate*

42 Refinish the existing wood floor. Repair the resilient flooring or remove and replace it with a similar
43 pattern and color. Salvage small sections of resilient flooring for future interpretive use.

46 *Architecture – Stairs*

47 Priority: *Severe*

48 Install code compliant handrails at all stairs. Replace the missing balustrade in-kind and match the existing
49 finish. Replace porch stair stringers to provide even riser depths and repaint. Refinish stair to second level.

Architecture – Casework

Priority: *Low*

Repair or replace damaged or missing pieces in-kind.

Architecture – Accessibility

Priority: *Low*

Provide program access through interpretive exhibits and waysides at the Visitor Center.

Treatment Recommendations -- Structural

Structural – Foundation

Priority: *Low*

No recommendations at this time.

Structural – Floor Framing

Priority: *Severe; Low*

The deteriorated decking and framing at the front porch should be repaired.

The framing of headers for the first floor joists above doors and windows should be strengthened to meet IEBC and NPS requirements. The damaged first floor joists should be repaired. The deteriorated portions of the posts in the basement should be repaired.

Structural – Roof Framing

Priority: *Low*

No recommendations at this time.

Structural – Ceiling Framing

Priority: *Low*

No recommendations at this time.

Structural – Wall Framing

Priority: *Low*

The cracking in the north and east walls of the front porch should be repaired. The cause for the settlement of the walls should be investigated further.

Structural – Lateral System

Priority: *Low*

No recommendations at this time.

Treatment Recommendations -- Mechanical

Mechanical – Plumbing Systems

Priority: Low

The existing plumbing fixtures and plumbing piping are no longer functional. Unattached plumbing fixtures should be removed. It is recommended that the plumbing piping be removed or capped. The sewer pipe serving the building should be capped below grade.

Mechanical – HVAC

Priority: Moderate (Ventilation); Low (Radiators)

While the total square footage of the existing basement ventilation louvers meets code requirements, additional passive ventilation is recommended to prevent condensation and high humidity levels in the basement.

It is recommended that the cast iron radiators be cleaned and restored for historic preservation.

Mechanical – Fire Suppression

Priority: N/A

Treatment Recommendations -- Electrical

Electrical – System Configuration

Priority: Moderate

Existing electrical systems in the building are nonfunctional and there is no source of ac power for the building. It is recommended to remove all exposed existing electrical equipment and wiring

Electrical – Conductor Insulation

Priority: Low

No recommendations.

Electrical – Overcurrent Protection

Priority: Low

No recommendations.

Electrical – Lighting Systems

Priority: Moderate

Lighting within the building has been removed. It is recommended that associated boxes and wiring be removed.

Electrical – Telecommunications and Fire Alarm System

Priority: N/A

Electrical – Lightning Protection

Priority: *Moderate*

Existing lightning protection is old and its effectiveness has not been established. It is recommended that a LPI (Lightning Protection Institute) certified inspector perform an inspection of the lightning system and provide findings and recommendations in accordance with LPI-175.

Treatment Recommendations -- Hazardous Materials

Hazardous Materials – Asbestos

Priority: *Moderate*

Recommend sampling of suspect asbestos containing materials, including: brick and block filler, plaster, Thermal Systems Insulation, adhesives, wall and ceiling interiors, lay in ceiling panels, sub-flooring, and asbestos-cement.

Hazardous Materials – Lead-Containing Paint and Lead Dust

Priority: *Moderate*

Recommend stabilization or abatement of Lead Containing Paint. Lead dust wipe sampling not recommended.

Hazardous Materials – Lead In Soils

Priority: *Moderate*

Recommend further soils characterization to confirm applicable regulatory requirements.

Hazardous Materials – Mold/Biological

Priority: *Low*

No recommendations at this time.

Hazardous Materials – Petroleum Hydrocarbons

Priority: *Low*

No recommendations at this time.

Alternatives for Treatment

The following are several considerations of alternatives for the proposed treatments:

1. Add a code compliant guardrail (42”) at the porch due to risk of unsupervised public tours at this building.
2. Consider retaining areas of plumbing, heating and electrical for interpretive purposes.

Assessment of Effects for Recommended Treatments

The following table includes an analysis of the major treatment recommendations which affect Section 106 Compliance:

Recommended Treatment	Potential Effects	Mitigating Measures	Beneficial Effects
1. Visitor access into former residence	Change in Use: Upgrades for code and safety may be required and may alter the historic fabric.	Integrate upgrades to minimize damage to historic fabric.	- Allows visitors to experience the cultural resource first hand - Improves safety for visitors and staff
2. Self-guided component of visitor tours	Places the building at further risk of vandalism.	Study historic elements present in proposed self-guided area and determine protection methods against possible vandalism.	-Allows visitors a greater freedom to experience the cultural resource first hand -Staff does not need to be present for visitors to enjoy resource
3. Add code compliant guardrail and handrail at porch and stair	Modern code upgrade could be visually disruptive to the historic integrity of the building.	Design a guardrail and handrail as discretely as possible.	- Improves safety for visitors and staff
4. Additional Hazardous testing and mitigation	Mitigation of hazardous material may require removal of historic materials.	Any mitigation will need to be evaluated for benefit and implemented sensitively to minimize damage to the resource.	- Improves safety for visitors and staff - Removes hazards from the cultural resource

1 *Assistant Keepers Quarters Photographs, 2009*



DL-AKQ-01: North elevation, 2009 (Source: A&A IMG2896)

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DI-AKQ-02: East elevation, 2009 (Source: A&A IMGP2895)

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DI-AKQ-03: South elevation, 2009 (Source: A&A IMG2900)



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DI-AKQ-04: West elevation, 2009 (Source: A&A IMGP2898)



DI-AKQ-05: West elevation gutters and downspout (Source: A&A IMGP2899)



DI-AKQ-06: East elevation trim and wall shingles (Source: A&A IMGP2912)



DI-AKQ-07: South chimney (Source: A&A IMGP2885)



DI-AKQ-08: East elevation of entry porch and stair (Source: A&A IMGP2914)



DI-AKQ-09: Entry porch eave detail (Source: A&A IMGP2901)



DI-AKQ-10: Entry porch and stair (Source: A&A IMGP2915)



DI-AKQ-11: Main entry door (Source: A&A 100_9747)



DI-AKQ-12: Main entry door, interior (Source: A&A CIMG3844)



DI-AKQ-13: Basement stair to east entry door and first floor (Source: A&A CIMG3910)



DI-AKQ-14: Basement, west elevation (Source: A&A CIMG3905)



DI-AKQ-15: Basement (Source: A&A IMGP2906)



DI-AKQ-16: Stairs to second floor, east elevation, looking up (Source: A&A CIMG3845)



DI-AKQ-17: Entry hall, looking northwest (Source: A&A CIMG3843)



DI-AKQ-18: Kitchen, south elevation (Source: A&A CIMG3848-A)



DI-AKQ-19: First floor bath and window (Source: A&A CIMG3855)



DI-AKQ-20: Dining room, west elevation (Source: A&A CIMG3860)



DI-AKQ-21: Sitting room, north elevation (Source: A&A CIMG3869)



DI-AKQ-22: Sitting room window detail (Source: A&A 100_9742)



DI-AKQ-23: Second floor hall with attic access hatch, looking west (Source: A&A CIMG3870)



DI-AKQ-24: Southeast bedroom, looking northeast (Source: A&A CIMG3876)



DI-AKQ-25: Second floor bath, south elevation (Source: A&A CIMG3881)



DI-AKQ-26: Second floor sitting room, north elevation (Source: A&A CIMG3891)



DI-AKQ-27: Second floor sitting room, bow window sash detail (Source: A&A 100_9745)



DI-AKQ-28: Second floor sitting room, looking southeast (Source: A&A CIMG3894)



DI-AKQ-29: Second floor sitting room closet ceiling (Source: A&A CIMG3896)



DI-AKQ-30: Attic window, chimney and roof framing, west elevation (Source: A&A IMGP2904)



DI-AKQ-31: Joist header above basement window (Source: Martin/Martin)



DI-AKQ-32: Damaged floor joist (Source: Martin/Martin)



DI-AKQ-33: Deterioration at base of post at basement (Source: Martin/Martin)



DI-AKQ-34: Deterioration at front porch (Source: Martin/Martin)



DI-AKQ-35: Cracked masonry at front porch (Source: Martin/Martin)



DI-AKQ-36: Cracked masonry at front porch (Source: Martin/Martin)

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FOG SIGNAL BUILDING

Chronology of Alterations and Use

Original Construction

The Devils Island Fog Signal Building was constructed in 1891, the same year that the temporary wood tower was put into use. In 1925, one of the first radio beacons on the Great Lakes was installed in the Fog Signal Building. The radio beacon replaced the compressed air diaphone, which in its turn, had replaced the original fog whistle.³¹ In the latter half of the 20th century, the building was used as a United States Coast Guard (USCG) facility.³²

Significant Alterations / Current condition

Perhaps more than any other building on the light station, the Fog Signal Building evolved, reflecting architectural responses to changing technology. An 1893 photo of the Fog Signal Building looks very different from its current version. The exterior was originally a simple gable form with corrugated roofing and siding per an 1894 site plan. The east elevation's window was a six-over-six double hung, not the one-over-one double-hung that it is today. Each exterior door had eight lites over one panel where the current doors each have four lites over four panels. The 1893 photo also shows how the tramway's tracks lead directly from the shore to the building. Two large stacks/pipes were connected to the two fog signals and their equipment. (Historic Image DI-02) The stacks were removed from the building by 1904 when a tall masonry chimney appears in their place. (Historic Image DI-09) By 1905 to 1910, a west shed addition is visible in a photo from the Lee Benton Collection. (Historic Image DI-11) By 1930, the clipped gable on the north end of the roof is evident as is the west shed addition. (Historic Image DI-15) A photo from the 1940s depicts a double exterior door, each leaf constructed of two glass or screen panels in a wood frame, with the original doors behind them. (Historic Image DI-17)

Historic drawings include the USCG-era Fog Signal installation, plans, sections, elevations, and details (possibly original and reused for rehabilitation study, approved October 16, 1944 with drawing revision tags noted through 1955); and, the south shed addition, plans, sections, elevations, and details (approved September 12, 1962). (Historic Drawing DI-19) The USCG drawings of 1944 show plans for rehabilitation, specifically replacing the air compressor and the chimney cap. APIS documents also indicate that the Radio Room was constructed in 1944. (Historic Drawing DI-17) The 1962 construction drawings depict open framing for the south shed which was walled in by 1979. They also include the exhaust vent at the south elevation above the shed. (Historic Drawing DI-19)

Both the original 1891 steam whistle fog signal equipment and the 1926 compressed air diaphone fog signal equipment have been removed from the building. Currently, the two horns and some supporting equipment are stored in the Hokenson Fishery Ice House loft.³³ Very little mechanical equipment remains in the building.

Presently, there is no electrical generator in the building, so there is no source of alternating current power for the building or for other buildings on the island. In 1962, the USCG installed newer radio equipment at the south shed. At that time, some of the electrical distribution was updated.

The building is currently in fair condition.

³¹ Busch, Jane C. "People and Places: A Human History of the Apostle Islands; Historic Resource Study of Apostle Islands National Lakeshore" Bayfield: Apostle Islands National Lakeshore. 2008.

³² List of Classified Structures, National Park Service, 2009.

³³ From S. Mackreth, January 2010

1 Summary of Documented Work on the Building

Date	Work Described	Source of Information
Annual Report for 1890	<i>“Devil’s Island, Apostle Group, Lake Superior, Wisconsin. – As appropriation of \$15,000 was made for a light on Devil’s Island, and the station will be built as soon as title to the site can be procured. A fog-signal is as necessary as the light. It can be built at an estimated cost of \$5,500. The Board recommends that an appropriation of that amount be made therefor.”</i>	“1890 Annual Report of the Lighthouse Board,” Devils Island listings in Lighthouse Establishment Annual Reports 1890-1914
Annual Report for 1891	<i>“Devils Island, Apostle Group, Lake Superior, Wisconsin. - The act approved March 2, 1889, appropriated \$15,000 for building a light station, and the act approved March 3, 1890, appropriated \$5,500 for establishing a fog signal to complete the station to be erected on Devils Island... The building of the duplicate fog signal boilers and machinery was in progress under contract at the end of the year.”</i>	“1891 Annual Report of the Lighthouse Board,” Devils Island listings in Lighthouse Establishment Annual Reports 1890-1914
Annual Report of 1896	<i>“Devils Island, Lake Superior, Wisconsin. – The amount of the award for this island, \$1,600, was paid in August, 1895... By the sundry civil appropriation act approved June 11, 1896, authority was given that \$4,000 of the unexpected balance, or the appropriation of \$22,000, made in the act approved March 20, 1895, for constructing a tower at Devil’s Island light station, be applied to the construction of a light-keeper’s dwelling at Devil’s Island light and fog signal station. This will be done as soon as practicable.”</i>	“1896 Annual Report of the Lighthouse Board,” Devils Island listings in Lighthouse Establishment Annual Reports 1890-1914
Annual Report of 1897	<i>“Devils Island, Lake Superior, Wisconsin... Boiler tubes and pipes and fittings were purchased for making repairs to the fog-signal plant...”</i>	“1897 Annual Report of the Lighthouse Board,” Devils Island listings in Lighthouse Establishment Annual Reports 1890-1914
By 1904	Stacks for fog signals replaced by masonry chimney	Historic Photo, 1904, APIS Archives
By 1905-1910	West Shed addition constructed	Lee Benton Historic Photo Collection, APIS Archives
1925	Radio beacon installed in Fog Signal Building	J. Busch, 2008
1926	Compressed air diaphone fog signal installed	J. Busch, 2008
1944	Radio Room added to Fog Signal Building	APIS/NPS Business Office File # D3423 – Devils
1947	Compressor replaced	1944 Historic Drawings, Plans by USCG
1952, April - May	April 5: Description of Fog Signal Building specifically and general site condition: “Dry-rotted, buildings need painting.” April 15: Replaced 5kw Kohler generator with 2kw Kohler generator May 15: “Installed washbowl at fog signal.” May 23-28: Installation of new fresh water pump	USCG Log, summarized by Bob Mackreth, 2004
1952, August - October	August 15: “Painted light tower, paint locker, and inside of fog signal.” August 22: “Painting in fog signal.” September: “Buildings good except for fog signal.”	USCG Log, summarized by Bob Mackreth, 2004

Date	Work Described	Source of Information
	October 6: "Covered workbench with sheet metal." (workbench in Fog Signal Building) October 17: "Repaired leaks in roof of fog signal."	
1953, April 22	"Dug hole for new 300 gal gasoline tank on east side of fog signal. New tanks placed in ground and connected up."	USCG Log, summarized by Bob Mackreth, 2004
1953, June	June 12: "Removed wood shelters and dug up old fuel tanks outside fog signal." June 16: "Installed telephone communication system between dwellings and signal."	USCG Log, summarized by Bob Mackreth, 2004
1953, October 13	"Dismantled old coal furnace in signal."	USCG Log, summarized by Bob Mackreth, 2004
1954	Changes to ventilation and chimney	1944 Historic Drawings with 1955 Revisions, Plans by USCG
1954, September	Monthly report – "new roof on fog signal building." September 20: "Filled old well on side of signal."	USCG Log, summarized by Bob Mackreth, 2004
1954, November	Monthly report – "Outside of fog signal building in poor condition. Siding will have to be replaced where bad spots exist and the rest chipped and repainted. Work has started but will not be done until next season."	USCG Log, summarized by Bob Mackreth, 2004
1955, May	May 13: "Installed new windows in barracks #1 and signal building." May 24: "Painted inside of FS gray."	USCG Log, summarized by Bob Mackreth, 2004
1955, July - August	July: Monthly report – "Fog signal is in unsatisfactory condition due to old corrugated sheet metal siding: rusted out and deteriorated in places. All other siding has 'coats and coats of paint accumulated throughout the years that would take years to remove.' Recommends installation of white asbestos shingles; if approved they could be installed by station personnel. Attempts to remove paint have ceased." August: Removal of old siding and installation of new asbestos siding on Fog Signal Building.	USCG Log, summarized by Bob Mackreth, 2004
1955, October 5	"Bulldozed old corrugated steel siding into woods away from fog signal."	USCG Log, summarized by Bob Mackreth, 2004
1956, October 25	"Planted trees behind signal building..."	USCG Log, summarized by Bob Mackreth, 2004
1956	Associated wood shed demolished	Historic Drawings, Plans by USCG
1961	Two generators installed	Mechanical Plan
1962	Shed addition to the south side of the Fog Signal Building constructed - built open sided, enclosed by 1994	1962 Historic Drawing and Park Admin. Files D3423
1979	Garage door installed in south shed of Fog Signal Building	Park Admin. Files D3423
1992	Fog Signal equipment discontinued	Park Admin. Files D3423
2001	Reroofed main roof with interlocking asphalt shingles (green)	HSPT Reports, 2009
2001	Exterior repainted	HSPT Reports, 2009
2001	Reroofed South Shed with corrugated diamond aluminum	HSPT Reports, 2009

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Other Documented Work on the Building

Date Range	Work Described
1901-1904	Removal of two metal smoke stacks, new masonry chimney built (c.1904 historic photos)
1906-1930	North end of gable clipped, West Shed addition (Radio Room) constructed (c.1930 historic photos)
1962-1979	South Shed enclosed, asbestos siding and metal siding installed, chimney shortened (c.1979 photos)

General Physical Description

This building is a one-story utilitarian wood frame structure with a brick foundation. It has a gable roof with one end clipped, boxed rafter tails and one brick chimney. There are two shed additions, one on the west and one on the south elevation.

Physical Description -- Architecture

Architecture – Roof

There are three types of roofing on this structure. The main roof has a modern green three-tab asphalt shingle roof c. 2000. There is a stock of the green shingles in the building. The west shed has red asphalt roll roofing. The south shed has corrugated metal with no closure piece at the eave, c. 2001. There are tie off rings installed at the ridge, though they do not appear to comply with OSHA requirements. A site plan dated 1894 notes that the original roof has “corrugated iron”. It is no longer in situ. The sheathing is solid, (i.e. not spaced) which is consistent with the original noted material of corrugated iron.

The eave varies from one portion of the building to another. The eave of the main roof and the west shed consist of a closed raked soffit covered with galvanized sheet metal. The south shed has an open eave, with rafters exposed (no soffit material) though with a 1x painted fascia and a closed rake of just a painted 1x.

Architecture – Chimney and Ventilator

The running bond brick chimney has a rowlock course at every eighth course and a parge coat at the top. (DI-FSB-09 and 10) 1989 photos show a thicker concrete chimney cap which is no longer in situ. Previous repointing is evident at the chimney. Historic photos indicate that the chimney was significantly taller previously. The ventilator is galvanized sheet metal located at the ridge of the main roof.

Architecture – Exterior Walls

The exterior walls are of frame construction (noted as 4x4 per 1962 remodel drawings) and have asbestos shingles painted white (10” wide x 24” long) at the main portion of the building and the west shed portion. Per historic photos, the exterior walls were a corrugated sheet metal. The south shed addition consists of three types of corrugated metal panels running horizontal except at the shed’s half-gable end where it runs vertically. Wood 1x and 2x trim separates the various types of corrugated metal siding. The brick foundation is visible at the base of the walls in some areas. (DI-FSB-06)

Architecture – Windows

Typical Window. This type of window is a one- over one-lite, double-hung, and is original to the building. There are five of these windows around the building. Each window has a thumb turn latch, ogee profile at the sash members, and a handle lift (varies at each window). The interior trim is 2 ½” Anderson style and

the exterior trim is 1" x 3 1/2". The sill is 3 1/2" wide. There is no skirt around the sill on the exterior. All wood members are painted. This type of window is 3'-0" x 5'- 11 1/2".

Fixed Lite Window. This window is a one- over one-, fixed lite sash, and is original to the garage addition (when it was enclosed). It is located on the south end of the garage addition. There is no interior trim except the natural wood frame, and the exterior trim is 3 1/2" wide with a 1 1/2" wide sill. The exterior is painted. This window is 1'-8 1/2" x 2'-5".

Awning Window. This window type has three-lites, is fixed, and is original to the west shed addition. There are two of these windows located on the west side of the building. Each window has a thumb turn latch and quarter round stop. The interior trim is wood 3/4" x 3 3/4" and the exterior trim is 1" x 3 1/2". The sill is 3 1/2" wide. There is no skirt around the sill on the exterior. All wood members are painted. This window type is 5'-5" x 2'-5".

North Double-Hung Window. This window is a one- over one-lite, double-hung, and is original to the building. The window is located on the north wall. It has a lift handle only (no latch) and an ogee profile. The interior trim is 3/4" x 3 1/2" and the exterior trim is 1" x 3 1/2". The sill is 3". There is no skirt around the sill on the exterior. All wood members are painted. The window is 2'-6" x 4'-11".

North Gable Window. This window is a one- over one-lite, double-hung, and is original to the building. The window is located on the north gable above two typical windows. The window has an ogee profile and an exterior metal screen. The interior trim is 3/4" x 3 1/2" and the exterior trim is 1" x 3 1/2". All wood members are painted. The window is 1'-4" x 2'-9".

Vent Opening. This opening on the south elevation is currently covered by sheet metal. In the 1962 remodel drawings, it is labeled as a new exhaust fan. The opening is 1'- 4 1/2" x 1'- 4 1/2".

Architecture – Exterior Doors

Main Entry Door (into Machinery Room). This is a double door; each door has four-lites over four wood flat panels, and is not original to the building but an early modification. The doors have a concrete sill, keyed knob, padlock, and three ball-tipped hinges. The exterior trim is 7/8" x 3 1/2" and the interior trim is 2 1/2" Anderson style. The muntins and rails have inset quarter round stops, and profiles. All wood members are painted. Each door is 2'-3 1/2" x 7'- 0" x 1 3/4". Historic photos also show a double screen door. (Historic Image DI-18 and DI-FSB-12)

South Shed/Storage Door. This door is made of plywood and is not original to the building. On the interior face, the door is a five panel wood. The wood trim is 3/4" x 3 1/2", painted green. The door is 2'-6" x 6'-6" x 1 1/4".

Garage Door. This door is contemporary, made of aluminum siding. The door is 8'-10" x 8'-0".

Radio Room Entry Door. This door is wood, has three horizontal lites over two horizontal raised wood panels, and appears to be original to the west shed. The door has a metal threshold, knob handle, padlock, and two ball-tipped hinges. Wood trim is 3/4" x 3 1/2", painted green, with quarter round stops. All wood members are painted. The door is 2'-6" x 6'-7" x 1 1/4". (DI-FSB-11 and 17)

Architecture – Exterior Trim

The exterior trim consists of various 1x and 2x trim separating the different types of siding at the south shed. There is a 1x1 angle corner trim piece at the exterior corners of the asbestos siding. (DI-FSB-08 and 09)

Architecture – Interior Doors

Machinery Room Door to Radio Room. This door is a half-lite wood door, and was installed in 1962 per the remodel drawings. It is labeled as an “Acoustical Door.” It has a routed groove detail in the field of the door panel, modern knob lockset, and three ball-tipped hinges. The trim is 2 ½” Anderson style on both sides of door. This door also has weather-stripping. All wood members are painted. The door is 3’-0” x 7’-2” x 2 ½”. (DI-FSB-15)

Radio Room Door to Battery Room. This door is the far west interior door. It is a stile and rail door with a flat wood panel and its unknown if it’s original to the west shed addition. There is a vent cut into the lower part of the door. Hardware is knob style and it has two hinges. The southern facing trim is ¾” x 3 ½”, and the northern facing trim is ¾” x 2 ½”. All wood members are painted. The door is 2’-0” x 6’-7” x 1 ¼”. (DI-FSB-16)

Architecture – Wall Finishes

Machinery Room. This room’s wall finish is sheet metal with rivets. The walls are painted white over gray. This finish is original to the building.

South Shed/Storage. This room’s north, south, and east walls are corrugated aluminum sheeting with wood studs (the inside of the exterior walls and siding). The west wall is asbestos shingle siding.

Radio Room. This room’s north, south and west walls are plaster over lath, which is original to the west shed addition. The east wall is white peg board, which is not original to the shed (labeled on the 1962 remodel drawings as “1/4” perforated tempered hardboard”).

Battery Room. The room’s east wall has peg board as the wall finish, which is not original to the building (labeled on the 1962 remodel drawings as “1/4” perforated tempered hardboard”). The north, south, and west walls are horizontal wood planking, painted white, and which is original to the shed addition. Part of the north wall (the eastern section) has masonite covering an old opening. The north, south, and west walls have masonite wainscot with a beveled wood cap acting as the top rail. The masonite covering and wainscot and wood cap top rail are not original to the building.

Architecture – Ceiling Finishes

Machinery Room. This room’s ceiling finish is sheet metal with rivets, painted white. This ceiling is original to the building.

South Shed/Storage. This room’s ceiling is composed of corrugated aluminum with wood beams and plywood sheathing. The ceiling finish is not original to the building.

Radio Room. This room’s ceiling finish is multi-layered. The current finish is a dropped ceiling composed of acoustical tiles. Above the acoustical tiles is a layer of masonite. Above the masonite there are wood boards painted beige. The wood boards are original to the west shed addition but the masonite and acoustical tiles are not. (DI-FSB-18)

Battery Room. This room’s ceiling finish is wood boards painted white, which are original to the west shed addition.

Architecture – Interior Trim

Machinery Room. The machinery room’s concrete floor is angled up (about 60°) to form a perimeter curb.

South Shed/Storage. Along the northern wall, the brick foundation of the original structure acts as base trim for the addition.

Radio Room. This room's base is a simple wood board painted white and black. The base is not original to the west shed addition.

Battery Room. This room has a simple wood board base with black vinyl glued onto the western wall. The north, south, and east walls are partially trimmed in black vinyl base.

Architecture – Floor

Machinery Room. The machinery room has a concrete floor painted red.

South Shed/Storage. The south shed/storage has concrete blocks supporting plywood sheeting covering most of the floor. This floor is not original to the building.

Radio Room. This room's floor is concrete covered by rubber tread mats.

Battery Room. This room's floor is multi-layered. The most recent flooring is the grooved rubber mats above pale resilient tiles. The older concrete flooring is visible in small sections.

Architecture – Stairs

Interior Stairs from Machinery Room to Radio Room. These stairs are painted concrete. There is no handrail. There are two risers (6" high), painted bright yellow, and the widest tread is 4'-10" wide. These stairs are most likely original to the west shed addition.

There is also a metal ladder to the fog signal mezzanine.

Architecture – Accessibility

The building is currently not accessible. The east primary entry double door opening is 2'4" clear, per door, with a grade to finished floor elevation change of 11 1/2". The south shed/storage entry door is 2'6" clear with a grade to finished floor elevation change of less than 4". The radio room's entry door opening is 2'6" clear with a grade to finished floor elevation change of 1". There is a flush, 1" tall stone sill to the metal threshold. Within the building, there have been no accessibility upgrades.

Physical Description -- Structural

Structural – Foundation

The perimeter foundation system of the original building consists of brick masonry walls. The foundation of the west addition could not be observed and is unknown. The foundation for the south addition was measured to be an 8" wide concrete stem wall with four pilasters along the south wall at the column locations. The foundation below the stem wall could not be observed.

Structural – Floor Framing

The floor of the original building and the west addition is a concrete slab-on-grade. The floor of the south addition is 3 1/2" thick precast concrete planks placed on-grade. The floor framing for the elevated platform was measured to be 2x6 joists spaced at about 15".

Structural – Roof Framing

The roof framing of the original building was measured to be FS 2x6 rafters spaced at about 18". The rafters span approximately 10.5'. The rafters are supported on the exterior wood-framed walls. The rafters are sheathed solid wood underlayment.

The roof framing of the west addition was measured to be FS 2x6 rafters spaced at about 22". The rafters span approximately 14'. The rafters are supported on the exterior wood frame walls. The rafters are sheathed with solid wood underlayment.

The roof framing of the south addition was measured to be 2x6 rafters spaced at about 16". The rafters span approximately 12' and are sheathed with plywood sheathing. The rafters are supported on the south wall of the original building and by a 4x6 wood beam along the south wall. The wood beam is supported by four steel columns. The outside diameter of the columns was measured to be approximately 3 3/8". The columns are spaced at approximately 6'8". The columns bear on the concrete foundation.

Structural – Wall Framing

The exterior wall framing of the original building and west addition was not accessible and could not be measured. The interior wall framing of the west addition was also not accessible and could not be measured.

The exterior wall framing of the south addition was measured to be 2x4 studs spaced at about 18".

Structural – Lateral System

Lateral stability for the original building and west addition is provided by the exterior wood-framed walls that are sheathed on both sides with solid wood siding. Lateral stability for the south addition is provided by the south wall of the original building, the steel columns along the south wall and the wood framed walls that are sheathed with metal siding.

Structural – Load Requirements

The required floor load capacity is 125 psf for light storage on the slab-on-grade and the elevated floor framing. The required ceiling live load capacity is 10 psf (no storage is allowed). The required roof snow load capacity is 36 psf.

Physical Description -- Mechanical

Mechanical – Plumbing Systems

Water for the Fog Signal Building was originally supplied from a pump house near the shore of the lake to the north of the building. This water supply would have been primarily for the steam powered fog signal. The pump house has been abandoned. The current domestic water system in the building consists of an elevated 500 gallon plastic nonpotable water storage tank that supplies water to a wall-hung hand sink at the north end of the building. A fill pipe connection with an exterior shut-off valve is located on the east side of the building. A 1 1/2" steel piping runs from the fill pipe connection to the tank location.

There are no active sewer lines serving the building. The 2" steel gray water drain from the hand sink exits the building through the north wall and discharges above grade.

The only plumbing fixture in the building is an enameled cast iron hand sink on the north wall with hot and

1 cold faucets. Only the cold water faucet is connected to the nonpotable water supply. There is no hot water
2 connection.

3
4
5 *Mechanical – HVAC*

6 The original coal burning heaters have been removed. A brick vent stack remains at the southwest corner of
7 the building.

8
9 An 8” metal turbine vent for attic ventilation is still place at the north end of the roof. A motorized exhaust
10 fan was installed through the south wall of the building. The fan is not functional and the outside wall
11 opening has been sealed off with a sheet metal cover plate.

12
13
14 *Mechanical – Fire Suppression*

15 None in the building.

16
17
18 *Mechanical – Other*

19 A large steel fuel tank (approximately 1,000 gallons) remains at the south end of the building. This served
20 the generators that powered a large air compressor installed in 1947 for an air diaphone fog signal. A floor
21 trench covered with metal plate contained a 6” compressor exhaust pipe that discharged into an exhaust
22 tunnel extending to the west of the building. This tunnel has been filled and is no longer visible outside the
23 building. The covered trench is still intact inside the building although the generator and associated
24 equipment have been removed. A pair of 2” exhaust pipes and mufflers associated with two generators
25 installed in 1961 remain in place near the south end of the main building with the exhaust pipes extending
26 through the east wall of the building about 7’ above grade. The generators have been removed. An
27 abandoned 2” galvanized steel fuel line enters the building from below grade near the southeast corner of
28 the main building.

29
30
31 *Physical Description -- Electrical*

32 *Electrical – System Configuration*

33 Wiring within the building is wire in conduit.

34
35
36 *Electrical – Conductor Insulation*

37 Building wiring is routed in conduit. Conduit is galvanized rigid steel, or electro-metallic
38 tubing. Conductors remaining from the 1926 installation are rubber insulated copper. Conductors installed
39 in 1962 or later are thermoplastic insulated copper.

40
41
42 *Electrical – Overcurrent Protection*

43 Overcurrent protection consists of a 200 ampere 240/120 volt single phase disconnect that feeds a wiring
44 trough from which all building disconnects are fed. The 200 ampere disconnect originally connected to an
45 on-site generator, however the generator has been removed. Therefore, there is no source of power for the
46 building. A 200 ampere, 12 space, panel board for the building contains seven one- or two-pole circuit
47 breakers.

Electrical – Lighting Systems

Lighting in the building is via incandescent lamp sources including porcelain keyless lamp holders and RLM (industrial stem mounted pendant) type fixtures.

Electrical – Telecommunications

There is a phone in the building that originally communicated with the Keepers Quarters. This phone is no longer operational.

Electrical – Fire Alarm System

Heat detectors in this building and manual pull stations form one zone of the main fire alarm panel located in the Keepers Quarters.

Electrical – Lightning Protection

This building does not have lightning protection.

Physical Description -- Hazardous Materials

Landmark Environmental collected 12 bulk samples from a total of 12 different types of suspected asbestos containing materials (ACMs) at Devils Island. Of the 12 suspect ACMs that were sampled and analyzed, a total of three suspect ACMs resulted in concentration of greater than one percent (positive for asbestos).

Hazardous Materials – Asbestos

The following suspect ACMs were not sampled due to inaccessibility or park limitation regarding potential for damage to structures. Asbestos is assumed to be present in:

1. Adhesives (Multiple varieties of miscellaneous adhesives were seen on heater components, under remnant flooring applications, and around windows),
2. Caulk (Caulking was observed around window and door penetrations, which can also include gasket applications between the window assembly and the structure), and,
3. Asbestos-cement (Siding and chimney were observed to be asbestos cement. Piping, wall-board, wall interior panels, roof flashing and roofing applications can be constructed of asbestos cement. This application was not observed at the structure but may be present).

The assumed ACMs were observed to be in good condition.

Hazardous Materials – Lead Containing Paint

Detectable lead is assumed to be present at the following locations:

1. Interior Painted Surfaces, and,
2. Exterior Painted Surfaces.

Based on the estimated dates of construction of the various structures, LCP is assumed to be present throughout the structure. The confirmed LCP was observed to be in poor condition and the assumed LCP was observed to be in poor condition.

Loose/flaking LCP is identified on the exterior painted walls of the structure. Paint chip debris is not noted on localized areas of surface soils surrounding the Fog Signal Building.

Hazardous Materials – Lead Dust

Surface wipe-sampling for lead dust was not conducted in the Fog Signal Building because it is a noninhabited structure.

Hazardous Materials – Lead in Soils

Historical paint maintenance activities such as manual scraping, power-washing, sanding, abrasive blasting or the general poor and peeling condition of exterior LCP may have created the potential to impact the surrounding soil. Areas of the surface soils adjacent to the structure were not observed to have LCP debris and additional areas may exhibit LCP debris or lead-contaminated soils. Preliminary lead-in-soil sampling was not performed to assess whether these near-structure soils contain lead concentrations above applicable soil standards.

Soil Sampling was not conducted around the Fog Signal Building.

Hazardous Materials – Mold

Inspections of the structure were performed to identify the readily ascertainable visual extent of the mold growth. Moisture testing in building materials was not performed nor was sampling of building materials performed for microbial analysis. Mold was not visually identified in the Fog Signal Building.

Hazardous Materials – Petroleum Hydrocarbons

Localized areas of staining were observed on concrete floors in the Oil Houses. Stained areas are likely associated with fuel oil, diesel or other petroleum hydrocarbons. Tank and piping systems may also contain petroleum hydrocarbons.

Character Defining Features

Mass/Form. The main mass is a simple gable which is clipped on the west end, a red brick chimney and two shed roof additions.

Exterior Materials. A mix of asbestos shingles and corrugated metal shingles and roof mixed of green asphalt shingles, roll roofing and corrugated roofing.

Openings. Typically wood double-hung single-lite sashes.

Interior Materials. The interior materials are a mix of materials due to the various additions and are painted sheet metal panels, plaster, masonite and exposed exterior siding materials. The floor is a concrete slab.

General Condition Assessment

In general, the Devils Island Fog Signal Building is in fair condition.

Structurally, the original Fog Signal Building and west addition are in good condition. The south addition is in poor condition.

Mechanically, very little equipment remains in the building.

Electrically, systems in the Fog Signal Building are all beyond their expected life.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building. Refer to Volume I, Chapter 2: Methodology for definitions of the condition ratings.

Condition Assessment -- Architecture

Architecture – Roof

Condition: Good

All roofs appear in good condition at this time, with the exception of the missing closure piece at the eave of the south shed. The tie offs on the roof should not be used for life safety anchors until they can be certified as meeting OSHA requirements.

Architecture – Chimney and Ventilator

Condition: Good

The chimney appears to be in good condition, however, many of the mortar joints at the southwest corner appear to be weathered. The ventilator is also in good condition.

Architecture – Exterior Walls

Condition: Good (Shingles) and Poor (Foundation Brick)

The walls are overall in good condition except for these instances: there are several shingles that have chipped edges and there is no trim piece separating the alternating metal siding on the west face of the south shed. However, the walls appear to shed water adequately. The east face of the south shed has several edges of metal panels which allow weather infiltration. The exposed brick at the base of the main building is in poor condition. Refer to structural assessment for exterior wall framing issues.

1 *Architecture – Windows*

2 Condition: *Fair to Poor*

3 **Typical Window.** In general, the paint is weathered and not all windows are operable. Also, the hardware
4 is rusted, the glazing compound is loose, and metal capped sills along the west side are badly rotted.

5
6 **Fixed Lite Window.** In general, the paint is weathered, the hardware is rusted, and the glazing compound
7 is loose.

8
9 **Awning Window.** In general, the paint is weathered, the hardware is rusted, the glazing compound is loose,
10 and the capped sills along the west side are badly rotted.

11
12 **North Double-Hung Window.** In general, the paint is weathered, the hardware is rusted, and the glazing
13 compound is loose.

14
15 **North Gable Window.** In general, the paint is weathered, the hardware is rusted, and the glazing
16 compound is loose.

17
18 **Vent Opening.** This opening is covered by sheet metal, so its condition is unknown, but it no longer acts as
19 a vent nor contains an exhaust fan.

20
21
22 *Architecture – Exterior Doors*

23 Condition: *Good to Fair to Poor*

24 **Main Entry Door.** The main entry door has missing stops and peeling paint. Overall, the double doors are
25 in fair condition.

26
27 **South Shed/Storage Door.** The exterior of the south shed/storage door has peeling paint and deteriorating
28 and chipped trim. The interior, however, has a natural finish and is in good condition.

29
30 **Garage Door.** The garage door is contemporary and is in good condition.

31
32 **Radio Room Entry Door.** The radio room door is in poor condition as the stile is broken, the stops are
33 loose, and the door handle is missing its core.

34
35
36 *Architecture – Exterior Trim*

37 Condition: *Good*

38 Overall, the exterior wood trim is in good condition; however, several of the wood trim members have
39 peeling paint. The sheet metal trim is in good condition. The “L” corner trim is in fair condition and
40 appears to be generally serviceable.

41
42
43 *Architecture – Interior Doors*

44 Condition: *Fair*

45 **Machinery Room Door to Radio Room.** The machinery room door is in fair condition. The lockset is too
46 shallow for the door thickness and there is paint peeling at the trim and edges of the door. Also, the
47 weather-stripping is brittle.

48
49 **Radio Room Door to Battery Room.** The radio room door does not operate due to the floor deformation.
50 The screen on the vent is torn.

1 *Architecture – Wall Finishes*

2 Condition: *Good to Fair*

3 The machinery room's paint on the sheet metal is peeling extensively; otherwise, the finishes are in good
4 condition. The south shed/storage's wall finishes are in good condition. The radio room's peg board along
5 the eastern wall is in good condition. The other walls have plaster over lath with cracks along the western
6 wall and stains throughout. The battery room's peg board along the eastern wall is in good condition. The
7 painted horizontal wood planking along the other walls is in fair condition as the boards are clearly visible
8 through the paint. The masonite covering the old opening and acting as the wainscot is in fair condition
9 with some paint and patching issues.

12 *Architecture – Ceiling Finishes*

13 Condition: *Good to Fair*

14 The machinery room's painted sheet metal is peeling everywhere; otherwise, the room is in good condition.
15 The south shed/storage's ceiling is in fair condition. The radio room's acoustical tiles are in fair condition
16 as they are missing in a few locations. The masonite is in fair condition as the visible sections show the
17 ceiling finish is mostly intact. The original wood board is also in fair condition as the visible areas show
18 some missing boards and large separations between boards. The original board ceiling finish in the battery
19 room is in fair condition. The paint is peeling, there are noticeable separations between boards, and there is
20 some deflection occurring in the center of the ceiling.

23 *Architecture – Interior Trim*

24 Condition: *Fair to Poor*

25 The machinery room's angled concrete base trim is in fair condition; there are areas of missing paint along
26 the north, south, and west walls. The radio room's simple wood board base is in fair condition. There is
27 some wear and tear visible. The black vinyl base and wood board with vinyl attached are in poor condition
28 in the battery room. Most of the missing vinyl has fallen off; there are some areas where the adhesive has
29 weakened and the vinyl is separating from the wall.

32 *Architecture – Floor*

33 Condition: *Fair to Poor (Resilient Tiles and Concrete Floor)*

34 The machinery room's concrete floor is in fair condition due to peeling paint, especially in heavy-wear
35 areas and around the brick chimney, and general wear attributed to equipment storage. The south
36 shed/storage's nonhistoric concrete blocks and plywood are in fair condition. The radio room's rubber tread
37 mats are in fair condition as is the original concrete flooring (where visible). The grooved rubber mats in
38 the battery room are in fair condition, yet the resilient tiles beneath are in poor condition. The original
39 concrete flooring that is visible appears to be in fair to good condition.

42 *Architecture – Stairs*

43 Condition: *Good*

44 **Interior Stairs from Machinery Room to Radio Room.** These stairs are in good condition though they
45 are not code compliant. There are minor chips in the concrete and there is no handrail.

47 The metal ladder to the mezzanine is in good condition.

50 *Architecture – Accessibility*

51 Condition: *Poor*

52 This building is not accessible.

1 **Condition Assessment -- Structural**

2 *Structural – Foundation*

3 Condition: *Good*

4 The visible portion of the perimeter foundation system of the original building appears to be in good
5 condition. The foundation of the west addition could not be observed, thus its condition is unknown. No
6 obvious signs of distress or damage were observed. The visible portion of the concrete foundation for the
7 south addition appears to be in good condition.

10 *Structural – Floor Framing*

11 Condition: *Good*

12 The concrete slab-on-grade floors in the original building and the west addition are in good condition. The
13 radio room door drags on the slab in the west addition. This may be due to settlement of the slab but it is
14 not of structural concern. The precast concrete plank floor of the south addition is in good condition. The
15 floor framing for the elevated platform is in good condition; however, the platform does not have the
16 minimum required live load capacity. The edge of the platform toward the center of the building is only
17 supported by one column that is not located at the midspan of the header beam but is centered on the
18 existing storage tank (DI-FSB-21).

21 *Structural – Roof Framing*

22 Condition: *Good*

23 The roof framing of the original building and the west addition is in good condition. The roof framing of
24 the west addition does not have the minimum required snow load capacity.

26 The roof framing of the south addition is in good condition. However, the notching of the joists at both
27 ends is a poor detail that will affect their strength (DI-FSB-22 and 23). The joist support on the south wall
28 of the original building is not properly attached.

31 *Structural – Ceiling Framing*

32 Condition: *Good*

33 The ceiling framing of the original building and the west addition is in good condition. The ceiling framing
34 of the west addition does not have the minimum required live load capacity.

37 *Structural – Wall Framing*

38 Condition: *Good*

39 The exterior wall framing of the original building and west addition could not be observed, thus its
40 condition is unknown. The interior wall framing of the west addition could not be observed, thus its
41 condition is unknown. No obvious signs of distress or damage were observed.

43 The exterior wall framing of the south addition is in poor condition. The sill plate was not treated with
44 preservatives and is rotten along the entire east wall (DI-FSB-24). Only two anchor bolts were holding the
45 south wall to the foundation. The number of wall studs had not been increased on each side of door and
46 window openings to account for the studs that were interrupted by the openings. The east and west walls
47 are nailed to the south wall of the original building in only a few locations.

Structural – Lateral System

Condition: *Good*

Lateral stability of the original building and west addition is good. Lateral stability of the south addition is poor. The roof and walls are not properly attached to the original building and the walls are not properly attached to the concrete foundation.

Structural – Load Requirements

Condition: *Poor*

The roof and ceiling framing of the original building have adequate capacity to support the required loads. The roof framing of the west addition does not have adequate capacity to support the required loads. The capacity of the roof is approximately 28 psf. The ceiling framing of the west addition has adequate capacity to support the required loads. The roof and wall framing of the south addition do not have adequate capacity to support the required loads. The floor framing of the elevated floor in the original Fog Signal Building has a capacity of approximately 70 psf which is not adequate for light storage loads.

Condition Assessment -- Mechanical

Mechanical – Plumbing Systems

Condition: *Fair to Poor*

The elevated plastic nonpotable water storage tank is in fair condition. The galvanized steel piping that supplies water to the hand sink is in poor condition. The fill piping to the tank is in fair condition.

There are no active sewer lines serving the building. The drain from the hand sink is in poor condition. This drain exits the building through the north wall and discharges above grade. Although the waste from the sink would be considered gray water, the direct discharge is in violation of current plumbing code.

The enameled cast iron hand sink on the north wall is in fair condition. The associated nonpotable cold water faucet is also in fair condition.

Mechanical – HVAC

Condition: *Fair to Poor*

The original coal heaters have been removed. A brick vent stack remains at the southwest corner of the building.

The turbine attic vent is in fair condition. The exhaust fan through the south wall of the building is in poor condition and the wall opening has been sealed off.

Mechanical – Fire Suppression

Condition: *N/A*

Mechanical – Other

Condition: *Fair*

The 1,000 gallon fuel tank at the south end of the building is in fair condition.

Condition Assessment -- Electrical

Electrical – System Configuration

Condition: Poor

The diesel engine generator for the building has been removed and power feeds to the building service disconnect have been cut.

Electrical – Conductor Insulation

Condition: Poor

Wiring within the building is in poor condition; it is over 50 years old and is beyond its expected serviceable life.

Electrical – Overcurrent Protection

Condition: Poor

Overcurrent protection for the building, including fused disconnects, circuit breakers etc. are in poor condition and are beyond their expected serviceable life.

Electrical – Lighting Systems

Condition: Poor

Lighting in the building is old, and if it were operational, would not meet present codes.

Electrical – Telecommunications

Condition: Poor

Telecommunications equipment within the building is no longer operational.

Electrical – Fire Alarm System

Condition: Poor

Fire alarms within the building, including heat detectors and pull stations, are no longer serviceable.

Electrical – Lightning Protection

Condition: N/A

Condition Assessment -- Hazardous Materials

Refer to 'Physical Description -- Hazardous Materials' for detailed descriptions of locations and conditions of hazardous materials.

Ultimate Treatment and Use

The Fog Signal Building was constructed in 1891 as a support building for the temporary wood light tower. Even after the automation of the cast iron tower, the Fog Signal Building maintained its use as a support and systems building.

The Fog Signal Building is currently used for storage by the NPS. The proposed use for the Fog Signal Building is to rehabilitate the building for self-guided visitor tours to highlight the technology aspects of a light station. The fog horns are currently stored elsewhere on NPS property and are intended to be returned to this building.

Rehabilitation is the recommended treatment for the building.

Requirements for Treatment

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS and listed in Volume I, Administrative Data section of this report.

The recommended treatments are tailored to the Preferred Alternative as the outcome of the Value Analysis/CBA for the project. As individual buildings are rehabilitated, specific alternatives will present themselves during design and construction. The following section is a discipline-by-discipline, component-by-component description of the treatments proposed for the rehabilitation of the building. Refer to Volume I, Chapter 2: Methodology for the priority rating definitions.

Treatment Recommendations -- Architecture

Architecture – Roof

Priority: Low

Verify/provide proper blocking for roof tie offs. Install the missing closure piece in-kind at the eave of the south shed.

Architecture – Chimney and Ventilator

Priority: Low

Monitor mortar joints for future repointing.

Architecture – Exterior Walls

Priority: Low

Repair or replace chipped shingles with similarly sized replacement shingle. Install a trim piece separating the alternating orientation of the metal siding on the west face of the south shed. Repair or replace the deteriorating exposed brick at the base of the main building.

Architecture – Windows

Priority: Moderate

Remove glazing compound for replacement. Epoxy stabilize deteriorated sills. Scrape, sand and repaint windows. Remove hardware and clean and repair as needed. Verify smooth operation of all windows.

1 *Architecture – Exterior Doors*

2 Priority: *Moderate*

3 Replace missing stops. Epoxy stabilize deteriorated trim. Scrape, sand and repaint (only where previously
4 painted) doors and trim. Provide and install missing hardware.

7 *Architecture – Exterior Trim*

8 Priority: *Low*

9 Scrape, sand and repaint the wood trim using the paint analysis to guide the color selection.

12 *Architecture – Interior Doors*

13 Priority: *Low*

14 Replace the lockset and weather-stripping in the machine room door. Repaint the door and door trim. Trim
15 the radio room door as it does not function currently due to the floor deformation. Replace the torn vent
16 screen.

19 *Architecture – Wall Finishes*

20 Priority: *Moderate*

21 Scrape, sand and repaint all the sheet metal of the machine room.

24 *Architecture – Ceiling Finishes*

25 Priority: *Moderate*

26 Scrape, sand and repaint all the sheet metal of the machine room and the beadboard in the battery room.
27 Install missing acoustical tiles at the radio room. Consider removing the acoustical tiles but retaining the
28 grid to help inform the room's interpretation and the USCG alterations.

31 *Architecture – Interior Trim*

32 Priority: *Low*

33 Reattach the vinyl base in the battery room.

36 *Architecture – Floor*

37 Priority: *Low*

38 Repaint the machinery room concrete floor. Verify flush floor conditions to minimize risk of trip hazards as
39 this building is planned to be open to the public, unsupervised.

42 *Architecture – Stairs*

43 Priority: *Moderate*

44 Access by the public to these areas should be evaluated with the associated risk of this floor elevation
45 change.

48 *Architecture – Accessibility*

49 Priority: *Low*

50 Provide program access through interpretive exhibits and waysides at the Visitor Center.

Treatment Recommendations -- Structural

Structural – Foundation

Priority: *Low*

No recommendations at this time.

Structural – Floor Framing

Priority: *Low*

No recommendations at this time.

Structural – Roof Framing

Priority: *Moderate*

The roof framing of the south addition should be investigated further because of the notching of the rafters at both ends and the attachment of the rafter support to the south wall of the original building.

Priority: *Low*

The roof framing of the west addition should be investigated further and if needed, upgraded to meet IEBC and NPS requirements.

Structural – Ceiling Framing

Priority: *Low*

The ceiling framing of the west addition should be investigated further and if needed, upgraded to meet IEBC and NPS requirements. The calculated capacity is 4 psf and the required capacity is 10 psf.

Structural – Wall Framing

Priority: *Moderate*

The exterior wall framing of the south addition should be replaced with construction that will meet IBC and NPS requirements.

Structural – Lateral System

Priority: *Moderate*

The lateral load resisting system for the south addition should be replaced with construction that will meet IBC and NPS requirements.

Treatment Recommendations -- Mechanical

Mechanical – Plumbing Systems

Priority: *Low*

No recommendations at this time.

Mechanical – HVAC

Priority: *Low*

No recommendations at this time.

Mechanical – Fire Suppression

Priority: Low

No recommendations at this time.

Treatment Recommendations -- Electrical

Electrical – System Configuration

Priority: Low

Electrical systems in the building are nonfunctional. Diesel generator sets have previously been removed. Existing electrical devices and wiring should remain in place for historical context.

Electrical – Conductor Insulation

Priority: Low

No recommendations at this time.

Electrical – Overcurrent Protection

Priority: Low

No recommendations at this time.

Electrical – Lighting Systems

Priority: Moderate

Many lighting fixtures are broken. It is recommended that broken fixtures be replaced with similar period fixtures or removed.

Electrical – Telecommunications

Priority: Low

No recommendations at this time.

Electrical – Fire Alarm System

Priority: Low

No recommendations at this time.

Electrical – Lightning Protection

Priority: N/A

Treatment Recommendations -- Hazardous Materials

Hazardous Materials – Asbestos

Priority: Moderate

Recommend sampling of suspect asbestos containing materials, including adhesives, caulk, and asbestos-cement.

Hazardous Materials – Lead-Containing Paint and Lead Dust

Priority: *Moderate*

Recommend stabilization or abatement of Lead Containing Paint. Lead dust wipe sampling not recommended.

Hazardous Materials – Lead In Soils

Priority: *Moderate*

Recommend further soils characterization to confirm applicable regulatory requirements.

Hazardous Materials – Mold/Biological

Priority: *Low*

No recommendations at this time.

Hazardous Materials – Petroleum Hydrocarbons

Priority: *Moderate*

Further investigation and sampling is recommended.

Alternatives for Treatment

1. One alternative treatment for consideration would be to remove the south shed addition. The garage door was added a year after the period of significance of this island. It was later enclosed in 1994.
2. Consider removal of asbestos shingles to prevent long term hazardous materials issue due to continued chipping and difficulty of finding a similar sized replacement shingle.

Assessment of Effects for Recommended Treatments

The following table includes an analysis of the major treatment recommendations which affect Section 106 Compliance:

Recommended Treatment	Potential Effects	Mitigating Measures	Beneficial Effects
1. Visitor access into former utilitarian building	Change in Use: Upgrades for code and safety may be required and may alter the historic fabric.	Integrate upgrades to minimize damage to historic fabric.	- Allows visitors to experience the cultural resource first hand - Improves safety for visitors and staff
2. Self guided component of visitor tours	Places the building at further risk of vandalism.	Study historic elements present in proposed self guided area and determine protection methods against possible vandalism.	-Allows visitors a greater freedom to experience the cultural resource first hand -Staff does not need to be present for visitors to enjoy resource
3. Additional Hazardous Testing and Mitigation	Mitigation of hazardous material may require removal of historic materials.	Any mitigation will need to be evaluated for benefit and implemented sensitively to minimize damage to the resource.	- Improves safety for visitors and staff - Removes hazards from the cultural resource
4. Reinforce south addition roof framing	Roof framing reinforcement may disturb the resource's existing roofing and/or ceiling materials.	Any reinforcement will need to be evaluated for benefit and implemented sensitively to minimize damage to the historic fabric.	- Improves safety for visitors and staff - Reinforcement will aid in protecting the resource

1 ***Fog Signal Building Photographs, 2009***



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3 *DI-FSB-01: Aerial from Light Station Tower, 2009 (Source: A&A DSC00854)*
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DI-FSB-02: South elevation, 2009 (Source: A&A DSC00869)

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DI-FSB-03: East elevation, 2009 (Source: A&A DSC00870)

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DI-FSB-04: North elevation, 2009 (Source: A&A IMGP2927)

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DI-FSB-05: West elevation, 2009 (Source: A&A IMG2926)

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DI-FSB-06: West elevation siding and foundation detail (Source: A&A IMGP2933)



DI-FSB-07: East elevation siding and foundation detail, hose bib and piping (Source: A&A IMGP2937)



DI-FSB-08: East elevation siding and trim (Source: A&A IMGP2935)



DI-FSB-09: South elevation trim, roofs and chimney (Source: A&A IMGP2931)



DI-FSB-10: Southwest roofing, trim, siding and chimney (Source: A&A IMGP2940)



DI-FSB-11: Radio room entry door (Source: A&A 100_9693)



DI-FSB-12: East entry (main) door and ramp (Source: A&A 100_9690)



DI-FSB-13: Machinery room, south elevation (Source: A&A CIMG3644)



DI-FSB-14: Machinery room and loft, north elevation (Source: A&A CIMG3648)



DI-FSB-15: Machinery room door to radio room (Source: A&A 100_9697)



DI-FSB-16: Radio room, west elevation (Source: A&A CIMG3680)



DI-FSB-17: Radio room and west entry door, looking southwest (Source: A&A CIMG3683)



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2 *DI-FSB-18: Radio room, southeast ceiling (Source: A&A CIMG3689)*
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5 *DI-FSB-19: Battery room, looking southwest (Source: A&A CIMG3693)*



DI-FSB-20: South shed/storage, east elevation (Source: A&A CIMG3652)



DI-FSB-21: Offset column at loft header beam (Source: Martin/Martin)



DI-FSB-22: Notched joist at eave (Source: Martin/Martin)



DI-FSB-23: Notched joist at rafter bearing (Source: Martin/Martin)



DI-FSB-24: Deteriorated sill plate (Source: Martin/Martin)