

ASSISTANT KEEPERS QUARTERS AND WORKSHOP

Chronology of Alterations and Use

Original Construction

The Michigan Island Assistant Keepers Quarters and Workshop was likely built in 1927, though documentation varies. It was built as the living quarters for the assistant keeper and his family (most likely the second assistant as the first assistant would have lived in the Old Michigan Island Lighthouse) and as a workshop and storage building.⁴⁴

Though the plans date to 1929, keeper's logs in 1927 and 1928 reference work on the building. The construction plans show the same style and types of windows and doors that exist on the exterior today. It can be assumed that the windows and doors are original to the building. The original roofing is also still on the building (Historic Drawing MI-11).

Significant Alterations / Current Condition

There are no known significant alterations to the Assistant Keepers Quarters and Workshop.

The Assistant Keepers Quarters and Workshop are currently in stable condition. The workshop area (the first floor) is used by the Park Service as a maintenance and storage shed.

There is currently a hole in the roof in the northwest section and there are no active mechanical systems in the building.

The current electrical wiring and equipment was installed when the building was built. Generally, no observable upgrades to the equipment have been made.

General Physical Description

The building is a 1½-story wood-framed residential and utilitarian structure that has a gable roof, lap siding and corner boards, concrete foundation, three-over-one lite double-hung windows, shed wall dormer on the south and north, wood panel double doors, six-lite, centered on the south façade, single door on the east, and an interior brick chimney.

This building's first floor is currently in-use as a storage building. The second floor bedroom closet is storing storm windows and vertical wood panel doors. It is unknown from which building they originated.

Physical Description – Architecture

Architecture – Roof

The existing roofing is asbestos roof shingles 9" wide × 7" exposure. There is a hole in the roof (northwest), perhaps due to a tree fall. The ridge trim is missing at the west end (likely due to the same damages that caused the hole at the roof) and has been repaired with wood. There does not appear to be any extant flashing. The roof appears to be original to the structure as it is consistent with the notes on the original construction drawings (MI-AKQ-07). The eave consists of exposed rafter tails and tongue and

⁴⁴ List of Classified Structures, National Park Service, 2009.

groove soffit which extends 2'0". The fascia at the gable end matches the Keepers Quarters and is painted white. There is no fascia trim at the eave of the main roof or shed dormers.

Architecture – Gutters and Downspouts

There is a half-round gutter hung with wire ties to the roof. The downspouts are fluted, 3" diameter round shape. There is no underdrain system on this building. The original construction plans do not show the gutters and downspouts, so it is not known if they are original to the building. They are seen in photos as early as 1935 (MI-AKQ-08 and 09).

Architecture – Chimney

The chimney is exposed on the interior and is blond brick. The exterior portion of the chimney is red brick with a sloped cast concrete cap and clay flue. The chimney has a metal clean-out on the first floor. The chimney is 1'4¼" wide and 1'1" deep from its western face to the wall (MI-AKQ-15).

A mortar sample taken from the chimney at the interior indicated that the mortar is equal parts lime and sand by volume. The sand is very fine.

Architecture – Exterior Walls

The exterior walls consist of 2x4 framing at 16" on center, sheathing and wood drop siding with a concave, shaped top and 5" exposure, painted white.

A material sample from the siding revealed that there are three layers of white paint over extremely weathered wood.

Architecture – Windows

All but one window in the building are three-over-one (one window is two-over-one), double hung. Each window has a thumb turn latch, no lift hardware, sash cord and pulleys intact, and extant roller shade hanger hardware. The interior trim is ¾" × 4½" painted wood with a rounded edge, a sill and a skirt. The muntins have an inset, rounded profile. The exterior trim is 1" × 4½" painted white with a simple 2x sill. One window has a two-lite screen, painted black, and held in place with spring clips at the perimeter. The typical dimensions for these windows are 2'10" × 5'7" with the façade window slightly shorter. These windows are original (MI-AKQ-21).

Architecture – Exterior Doors

The exterior doors are six-lites over two vertical panels, made of wood, and are original to the building, similar to the Keepers Quarters exterior doors. The muntins have an inset, rounded profile. The south elevation has double doors with wood astragal, painted white (MI-AKQ-11 and 13). The east elevation is a single door painted white (MI-AKQ-10 and 14). Each door has a padlock, two ball-tipped hinges, and 2x wood sills. The east leaf of the double doors has a surface-mounted throw bolt. The double door is 2'6" × 7'0" × 1¾" and the single door is 3'0" × 7'0" × 1¾".

Architecture – Exterior Trim

The exterior trim consists of base trim and corner boards all painted white. The corner trim is 1" × 4½". The base trim is 1" × 5½" with a canted 1½" 'drip' trim member which protrudes past the siding 1". The siding and trim match that of the adjacent wood-framed Keepers Quarters northeast corner.

A material sample taken at the exterior trim around a door revealed there are three layers of paint, but unlike the sample taken of the siding, the wood beneath is unweathered.

Architecture – Interior Doors

These original doors are five panel, wood doors with raised panels and are painted. The wood trim matches the interior window trim. Each door has knob hardware with mortise plates on both faces and two hinges. The typical door dimension for this type of door on the first floor is 2'8" × 7'0" × 1¼" and on the second floor is 2'0" to 2'8" × 6'8" × 1¼" (MI-AKQ-20).

Architecture – Wall Finishes

There are two types of wall finishes in this building. The first floor rooms have 7" wide wood planks, painted, running horizontally on the walls (the Paint Closet walls are unpainted). This wall treatment is original to the building. The second floor and stairwell have painted beadboard running horizontally as the wall finish. The beadboard is 2½" wide except in the living room closet (on the north and west walls) and in the bedroom closet (on the north and east walls) which is 1⅝" wide.

Architecture – Ceiling Finishes

The first floor has 7" wood boards, running east to west, painted blue-gray as the ceiling finish. The paint closet ceiling also shows the stair sheathing, which is unpainted vertical boards. The second floor has 2½" beadboard, painted white, also running east to west, as the ceiling finish.

Architecture – Interior Trim

The living room and the kitchen are the only two rooms that have typical wood base shoes, painted, while the bedroom's walls have a different paint color exposed at the level where a base shoe most likely existed at some point in time.

Architecture – Floor

The first floor's flooring is concrete slab-on-ground as it was built as a workshop. The second floor's flooring is 3" wood board planking, painted blue-gray. There is also a rectangle of resilient flooring covering most of the kitchen's wood floor.

Architecture – Stairs

First Floor to Second Floor Stairs. These stairs are painted wood with rubber tread mat glue residues remaining. There are nine risers to the landing and then five more risers. The riser height is 8" and the treads are 10" deep and 3'2" wide. There is a simple wood board railing, painted, on the upper set of stairs after the landing. The rail is 4" × 1½" and the distance from the nosing to the rail is 3'0" on center. These stairs are original to the building (MI-AKQ-18).

Architecture – Casework

Paint Closet. This room has two wood planks lining the length of the north wall (2½" thick), one wood shelf that is ¾" thick × 2'7" deep on the south wall, and one wood shelf that is ¾" wide × 1'4" deep on the south wall above the deeper shelf. There are three stacked rough wood cabinets (no front faces or doors) on top of the shallower wood shelf. The shelving in this room may be historic.

Second Floor Bedroom. This bedroom has a free-standing wood cabinet with 1 $\frac{5}{8}$ " beadboard door, painted blue-gray. The cabinet has a modern handle and latch and two surface-mounted butterfly hinges (same hinges as the kitchen cabinets in this building, the Keepers Quarters, and the Old Michigan Island Lighthouse). There are three interior, unpainted, wood shelves. The top of the cabinet is decorated with an ogee profile, crown molding style trim. The base has rounded vee profiles on the side faces. There is no trim on the front or back faces. The cabinet is 5'0" tall \times 2'10 $\frac{3}{8}$ " wide \times 12 $\frac{1}{4}$ " deep. The door dimensions are 1'10 $\frac{3}{4}$ " wide \times 4'6" tall \times $\frac{3}{4}$ " thick (MI-AKQ-21 and 22).

Kitchen Cabinet. The kitchen has a built-in wood cabinet made of 1 $\frac{5}{8}$ " beadboard, painted white, with one two-door cabinet in the upper portion, one two-door cabinet in the lower portion, and two drawers in the lower portion above the doors. The hardware are slide latches and butterfly hinges. The hinges are seen in the other cabinets in the Keepers Quarters and the Old Michigan Island Lighthouse, but the latch type is not. The cabinet sits directly on the ground and has a blue-gray painted base shoe on the south elevation (MI-AKQ-27).

Kitchen Counter. The kitchen also has a built-in wood kitchen counter with sink cut-out and pull out wood drawer with metal pull. There is base shoe molding attached around the counter where it meets the wall. All of the wood and the metal drawer pulls are painted white (MI-AKQ-25). The kitchen sink was removed in 2005 and installed in Raspberry Island Lighthouse during the Raspberry Restoration Project.

Second Floor Bedroom Closet (Stored Items). This closet is currently storing a collection of vertical panel doors/hatches with latch locks, painted white, and three glazed windows with blue-gray painted frames nailed together and protected by wine box wood ("California" stamped on one face) (MI-AKQ-23).

Architecture – Accessibility

The first floor of the building is currently not accessible. The primary entry door opening on the south elevation is 5' clear (but neither leaf meets ABAAS) with a grade to finished floor elevation change of less than 8". Currently, there is a wood board ramp to grade but there is an insufficient landing and the ramp exceeds the allowable slope (MI-AKQ-12). The east entry door opening is 3' clear with a grade to finish floor elevation change of more than 6". Once inside the building, there have been no accessibility upgrades. Neither the bathroom on the first floor nor the upper level is accessible.

Physical Description – Structural

Structural – Foundation

The perimeter foundation system consists of concrete stem walls on continuous concrete footings based on information in the 1929 drawings (Historic Drawing MI-04).

Structural – Floor Framing

The first floor is concrete slab-on-grade.

The second floor framing consists of 2x10 joists at about 16" based on information in the 1929 drawings (Historic Drawing MI-04). The joists span approximately 16'. The joists are supported on wood-framed partition walls and the exterior wood-framed walls.

Structural – Roof Framing

The roof framing consists of 2x6 rafters spaced at about 16" based on information in the 1929 drawings (Historic Drawing MI-04). The rafters span approximately 9'. The rafters are supported on the exterior

wood-framed walls. The rafters are sheathed with solid wood underlayment.

Structural – Wall Framing

The exterior walls are constructed of 2x4 studs spaced at about 16” based on information in the 1929 drawings (Historic Drawing MI-04). The interior walls are also framed with 2x4 studs.

Structural – Lateral System

Lateral stability for the building is provided by the exterior wood-framed walls that are sheathed on both sides with solid wood siding.

Structural – Load Requirements

The required floor load capacity is 40 psf and the required roof snow load is 50 psf.

Physical Description – Mechanical

Mechanical – Plumbing Systems

Domestic water originally served the first floor toilet and a sink on the second floor. There is nonpotable water service to the building.

A buried clay sewer pipe originally served the building and is likely still in place. Plumbing fixture drains have been disconnected.

The toilet on the first floor is still in place, although not functional. The toilet operated with an elevated tank and an A.M. Vogel Company seat activated flush valve (MI-AKQ-29 and 30). The second floor sink has been removed.

Mechanical – HVAC

There are no active heating or ventilation systems remaining in the building. There is an 8”x8” chimney stack which would have likely served to vent wood stoves on the first and second floor. There is a nonfunctioning cast iron wood stove located on the first floor.

Mechanical – Fire Suppression

None in the building.

Physical Description – Electrical

Electrical – System Configuration

Power to the building originally came from the Keepers Quarters via underground cable.

Electrical – Conductor Insulation

Conductors and cable within the building are generally of corrugated armor, rubber insulated conductor, type BX. BX cable is concealed in walls and ceilings of the building. Several lighting fixtures have been removed. Receptacles are of the two wire ungrounded type.

Electrical – Overcurrent Protection

Overcurrent protection was originally provided via a two pole 20 amp disconnect with integral two circuit screw-in fuse assembly located on the first floor. Fuses are missing, but the connections to the building's circuits are still in place.

Electrical – Lighting Systems

Lighting systems inside of the building are incandescent lamp type. Many lighting fixtures were suspended from their outlet boxes via cords and switching was at the lighting head via pull string or switch.

Electrical – Telecommunications

None in the building.

Electrical – Fire Alarm System

None in the building.

Electrical – Lightning Protection

None on the building.

Physical Description – Hazardous Materials

Landmark Environmental collected 12 bulk samples from a total of 12 different types of suspected Asbestos Containing Materials (ACMs) at Michigan Island. Of the 12 suspect ACMs that were sampled and analyzed, a total of 2 samples collected from 2 suspect ACMs resulted in concentrations of greater than 1% (positive for asbestos).

Hazardous Materials – Asbestos

The following suspected ACMs were not sampled due to inaccessibility or park limitations regarding potential for damage to structures. Asbestos is assumed to be present at the following locations:

1. Wall and Ceiling Interiors (Gray granular plaster was observed in exposed wall interiors between wood slats. This suspect ACM is similar in appearance to confirmed ACM identified in the Keepers Quarters),
2. Ceiling Insulation (Black matting or felt paper observed above ceilings, this suspect ACM may also be present in wall interiors),
3. Adhesives (Multiple varieties of miscellaneous adhesives were seen on heater components, under remnant flooring applications, and around windows),
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. Roofing Materials (Roofing felt, tar, and shingles were identified),
6. Caulk (Caulking was observed around window and door penetrations, which can also include gasket applications between the window assembly and the structure), and,
7. 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 ACM was observed to be in fair condition.

Hazardous Materials – Lead Containing Paint

The LCP inspection included a visual inspection of the structure. A previous inspection of and testing for LCP was conducted using an XRF detector. The XRF inspection was conducted by NPS staff in 1993. The findings of this study are incorporated into this report by reference.

Detectable lead in paint was confirmed for the following testing combinations:

1. Window Sash (Wood substrate of various colors),
2. Window Trims – Wood substrate of various colors,
3. Doors – Wood and metal substrate of various colors,
4. Door Trims – Wood and metal of various colors,
5. Walls – Various substrates and colors, and,
6. Ceilings - Various substrates and colors.

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

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

Based on the estimated dates of construction of the various structures and the available testing data, 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 lead-based paint (LBP) is identified on the exterior walls of the structure. Paint chip debris was noted on localized areas of surface soils surrounding the Assistant Keepers Quarters and Workshop.

Hazardous Materials – Lead Dust

Surface wipe-sampling for lead dust analysis was not conducted in the Assistant Keepers Quarters and Workshop because lead dust was assumed to be present in concentrations above applicable standards due to the poor condition of confirmed and 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 observed to have LCP debris and additional areas may exhibit LCP debris or lead-contaminated soils, but are not observable due to vegetative cover surrounding the structure. 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 Assistant Keepers Quarters and Workshop.

Hazardous Materials – Mold

Inspections of the structure were performed to identify the readily ascertainable visual extent of 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. Areas of water damage were observed and mold is assumed to be present around water damaged areas.

Character-Defining Features

Mass/Form. A simple one-and-a-half story gable structure with a brick chimney and shed dormers on either side.

Layout of Space. The utilitarian function and the quarters/residential function are separated by a floor. The small quarters has a contemporary layout of an open kitchen, living area and a separate bedroom.

Exterior Materials. Wood siding painted white, exposed rafters, painted wood trim.

Openings. One pair of doors and one single door with six lites over two panels each; Wood double-hung windows with typically three- over one-lites, all painted white.

Interior Materials. Painted wood board paneling at walls and ceiling and a concrete floor on the first floor; linoleum in the kitchen; painted beadboard at walls and ceiling and painted wood tongue and groove flooring at the second floor.

General Condition Assessment

In general, the Michigan Island Assistant Keepers Quarters and Workshop is in good condition on the exterior with the exception of the hole in the roof at the northwest area and fair condition on the interior. The original interior finishes are in fair condition with some separation of beadboard paneling and water stains and possible damage in the kitchen. The original windows and doors are also in fair condition, as is the historic casework. The kitchen has a metal range with coffee pots used as burners (MI-AKQ-26).

Structurally, the Assistant Keepers Quarters and Workshop is in good condition, although the hole in the roof needs attention.

Mechanically, the original systems have either been removed or abandoned in place.

Electrically, the equipment in the building is in poor condition as it does not meet current installation codes. This system is not salvageable.

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: *Poor*

The roof shingles are in poor condition and at the end of their serviceable life.

Architecture – Gutters and Downspouts

Condition: *Poor*

The gutters and downspouts are in poor condition. There is no underdrain system. The gutters are rusted and have paint peeling.

1 *Architecture – Chimney*

2 Condition: *Good*

3 This chimney is in good condition. The chimney appears to have been recently repointed at the interior.

6 *Architecture – Exterior Walls*

7 Condition: *Good*

8 The exterior walls are in good condition with the exception of peeling paint.

11 *Architecture – Windows*

12 Condition: *Fair*

13 These windows are generally in fair condition as there is peeling paint, loose and missing glazing putty, a
14 few windows sealed shut by paint, a torn screen, and a broken screen stop. Some screens are also missing
15 although screen hardware is extant.

18 *Architecture – Exterior Doors*

19 Condition: *Fair*

20 These doors are in fair condition as they have peeling paint, missing door hardware, gapped and brittle
21 glazing compound, and a broken wood sill on the south doors.

24 *Architecture – Exterior Trim*

25 Condition: *Good*

26 The exterior trim overall appears to be in good condition with the exception of peeling paint.

29 *Architecture – Interior Doors*

30 Condition: *Fair*

31 These doors are in fair condition as most of their knobs are missing on the second floor doors and are loose
32 on the first floor doors.

35 *Architecture – Wall Finishes*

36 Condition: *Good*

37 The 7" wood board paneling is in good condition. The beadboard is also in good condition although there
38 are some instances of board separation.

41 *Architecture – Ceiling Finishes*

42 Condition: *Fair*

43 The first floor's ceiling finish is in good condition. The second floor and stairwell's beadboard ceiling
44 finishes are in fair condition as there is separation of the boards at the joints. The kitchen ceiling has a large
45 number of separated boards at the northwest corner. Debris from the attic is falling into the kitchen. The
46 water issues have developed from the poor roof condition resulting in the high moisture content in the attic.

49 *Architecture – Interior Trim*

50 Condition: *Fair*

51 The existing base shoe trim is in fair condition. In the kitchen, the base shoe at the northeast corner (under
52 the sink) is deteriorated due to water damage, most likely from past sink issues or the poor roof condition.

*Architecture – Floor*Condition: *Fair*

The concrete floors on the first floor are in fair condition and are typical of a work space. There are water stains on the floor in the bath, in the hall along the north wall, and in the paint closet at the south corner.

The second floor wood planking is in fair condition as the paint is faded, the wood is worn and scratched (especially in the bedroom), and there are water stains under the sink in the kitchen. Also in the kitchen, the wood boards are pushing up at the northeast corner and the resilient flooring is in deteriorated condition as it has worn away in areas to show the wood beneath.

*Architecture – Stairs*Condition: *Fair*

First Floor to Second Floor Stairs. These stairs are in fair condition as the upper set of stairs has an inadequate 2x4 wood railing and the bottom portion of the stairs has no railing. Also, the glue adhesive remains from the rubber tread mats and there are water stains on the landing.

*Architecture – Casework*Condition: *Fair*

The paint closet's shelving is in good condition. The second floor bedroom's free-standing cabinet is in good condition except for the modern metal handle that is duct-taped together. The kitchen's cabinet is in good condition, while the kitchen counter is in poor condition as the base shoe molding has detached on the northeast corner and the wood is splitting at the south end with areas of peeling paint.

*Architecture – Accessibility*Condition: *Poor*

This building is not accessible as the ramp does not meet ADA.

Condition Assessment – Structural*Structural – Foundation*Condition: *Good*

The visible portion of the foundation system appears to be in good condition.

*Structural – Floor Framing*Condition: *Good*

The concrete slab-on-grade is in good condition. The second floor framing could not be observed, thus its condition is unknown. No obvious signs of distress or damage were observed.

*Structural – Roof Framing*Condition: *Unknown*

The roof framing could not be observed, thus its condition is unknown. No obvious signs of distress or damage were observed with the exception of a small hole in the roof from falling tree branches (MI-AKQ-28).

Structural – Wall Framing

Condition: *Unknown*

The exterior wall framing could not be observed, thus its condition is unknown. No obvious signs of distress or damage were observed.

Structural – Lateral System

Condition: *Good*

Lateral stability of the building is provided by the exterior wood-framed walls and appears to be good. The framing could not be observed but there are no obvious signs of distress or damage.

Structural – Load Requirements

Condition: *Good*

The roof and floor framing have adequate capacity to support the required loads.

Condition Assessment – Mechanical

Mechanical – Plumbing Systems

Condition: *Poor*

There is currently no active water service to the building.

A buried clay sewer pipe that originally served the building is likely still in place. Plumbing fixture drains have been disconnected. The condition of the buried clay sewer pipe could not be determined.

The toilet on the first floor is still in place, although not functional and in poor condition. The second floor sink has been removed.

Mechanical – HVAC

Condition: *Poor*

There are no active heating or ventilation systems remaining in the building. The cast iron wood stove located on the first floor is in poor condition.

Mechanical – Fire Suppression

Condition: *N/A*

Condition Assessment – Electrical

Electrical – System Configuration

Condition: *Poor*

The underground cable feeding the building has been installed underground for over 70 years and is well beyond its useful serviceable life.

Electrical – Conductor Insulation

Condition: *Poor*

Branch circuit wiring within the building is past its useful life. Type BX branch circuit cable is in poor condition. At 70 years old, insulation is suspect and potentially very fragile. Existing cables are two wire

only and do not contain a separate ground wire. The integrity of remaining connections is suspect. Receptacles are of the two wire ungrounded type, do not meet code, and are no longer usable.

Electrical – Overcurrent Protection

Condition: *Poor*

The existing power disconnect switch and fusing are beyond their serviceable life. The building is not connected to power at present.

Electrical – Lighting Systems

Condition: *Poor*

Lighting systems inside of the building date back to 1929 and do not meet present codes. Many fixtures have been removed.

Electrical – Telecommunications, Fire Alarm System, and 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

This building operated as both the second Assistant Keepers Quarters on the second floor and as a workshop and storage area on the first floor. It was constructed in 1929 and stopped functioning as living quarters in 1943, when the light was automated and habitation on the island was no longer needed.

The building is currently a storage facility for the Park Service with no visitor access. The proposed use for the building is to maintain this use and preserve the historic building.

Preservation is the recommended treatment for the building.

Requirements for Treatment

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the Park Service 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 preservation of the building. Refer to Volume I, Chapter 2: Methodology for the priority rating definitions.

Treatment Recommendations – Architecture

Architecture – Roof

Priority: *Severe*

Remove the existing asbestos shingle roof and replace with an asphalt shingle roof of 9” wide × 7” high exposure to match the dimensions of the 1927–1929 era. Repair the hole in the roof substrate at the eave. Verify/provide proper underlayment and flashings at all eaves, rakes, valleys and intersections. Scrape, sand, and repaint the wood trim at the eave, exposed rafter tails, exposed underside of the roof sheathing, fascia, and frieze using the paint analysis to guide the color selection.

Architecture – Gutters and Downspouts

Priority: *Moderate*

Replace the existing ½ round gutters in kind. Reuse the existing fluted downspouts and provide extensions to direct water away from the foundation. Add splash stones at each downspout. Coordinate gutter replacement with roofing work to allow for proper attachment of gutters.

Architecture – Chimney

Priority: *Low*

No recommendations at this time.

Architecture – Exterior Walls

Priority: *Low*

Scrape, sand, and paint siding.

1 *Architecture – Windows*

2 Priority: *Low*

3 Repair select windows with missing glazing putty and paint-sealed sashes. Replace missing screens.
4 Scrape, sand, and repaint exterior and interior of windows and frames.
5
6

7 *Architecture – Exterior Doors*

8 Priority: *Moderate*

9 Repair broken wood sill on the south doors and replace failing glazing compound where needed. Scrape,
10 sand, and repaint the doors. Repair existing hardware as required to allow smooth operation.
11
12

13 *Architecture – Exterior Trim*

14 Priority: *Low*

15 Scrape, sand, and repaint the areas of wood trim at siding using the paint analysis to guide the color
16 selection.
17
18

19 *Architecture – Interior Doors*

20 Priority: *Low*

21 Scrape, sand, and repaint interior doors where needed. Replace missing knobs with finish to match original
22 and tighten existing hardware to allow smooth operation.
23
24

25 *Architecture – Wall Finishes*

26 Priority: *Low*

27 Monitor second floor closets' walls and ceilings for mold/algae development and appropriately mitigate if
28 needed.
29
30

31 *Architecture – Ceiling Finishes*

32 Priority: *Moderate*

33 Repair/in-fill separated board joints in the beadboard ceilings on the second floor, particularly in the
34 kitchen area where debris from the attic is falling into the interior space.
35
36

37 *Architecture – Interior Trim*

38 Priority: *Low*

39 Replace base shoe trim in-kind under the kitchen sink where it has deteriorated due to water damage.
40
41

42 *Architecture – Floor*

43 Priority: *Low*

44 Refinish existing wood floor on the second floor.
45
46

47 *Architecture – Stairs*

48 Priority: *Low*

49 Add code compliant handrails to the stairs from the first floor to the second floor.
50
51

Architecture – Casework

Priority: *Low*

No recommendations at this time.

Architecture – Accessibility

Priority: *Low*

Provide program access through interpretive wayside exhibits.

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 should be repaired where it has been damaged.

Structural – Wall Framing

Priority: *Low*

No recommendations at this time.

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. It is recommended that the plumbing piping be removed or capped. The clay sewer pipe serving the building should be capped below grade.

Mechanical – HVAC

Priority: *Moderate*

There are no functional HVAC systems in the building. The addition of mechanical and passive ventilation is recommended for moisture control.

Mechanical – Fire Suppression

Priority: N/A

Treatment Recommendations – Electrical

Electrical – System Configuration

Priority: Moderate

Electrical devices, lighting and wiring dating to the original 1929 installation is no longer connected to a source of power. These items should remain in place for historical context. A new, National Electrical Code, NPS and Federal Standards and Regulations compliant electrical distribution system for PV power for new ventilation equipment should be installed.

Electrical – Conductor Insulation

Priority: Moderate

It is recommended that new conductor insulation be consistent with wiring methods for proposed PV systems. Conductor insulation shall be in accordance with the National Electrical Code, NPS and Federal Standards and Regulations.

Electrical – Overcurrent Protection

Priority: Moderate

It is recommended that overcurrent protection for new PV system wiring be in accordance with the National Electrical Code, NPS and Federal Standards and Regulations.

Electrical – Lighting Systems

Priority: Low

No recommendations at this time.

Electrical – Telecommunications, Fire Alarm System, and Lightning Protection

Priority: N/A

Treatment Recommendations – Hazardous Materials

Hazardous Materials – Asbestos

Priority: Low

Recommend sampling of suspect asbestos containing materials, including wall and ceiling interiors, ceiling insulation, adhesives, TSI, roofing materials, caulking, and asbestos cement. Removal and replacement of asbestos roofing is recommended.

Hazardous Materials – Lead-Containing Paint and Lead Dusts

Priority: Low

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

Hazardous Materials – Lead In Soils

Priority: *Low*

Recommend further soils characterization to confirm applicable regulatory requirements.

Hazardous Materials – Mold/Biological

Priority: *Low*

Recommend water intrusion and mold mitigation.

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. One alternative considered and dismissed by the team was to introduce visitors into the building, possibly including accessible restrooms on the first level and visitor tours to the upper level. The restroom use required a more substantial plumbing and septic system than currently exists on the island. Because there are two other quarters on the site that are to be open to visitor tours, the introduction of a third was not deemed a high priority, though maintenance storage, the current use of the lower level was an identified need.

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. 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
2. Replace existing roof with new asphalt shingle	Removes original material.	Roof is at end of serviceable life. New exposure of shingles and coloration shall match original.	- Abates a hazardous material - New roof will aid in the preservation of the structure
3. Add splash stones	Adds a new element to the structure.	Using a stone (versus precast) will be less visually disruptive to the historic fabric.	- Improves existing drainage to flow away from the building

1 *Assistant Keepers Quarters and Workshop Photographs, 2009*



MI-AKQ-01: Aerial, 2009 (A&A DSC00610)

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MI-AKQ-02: South elevation, 2009 (Source: A&A IMG2830)



MI-AKQ-03: East elevation, 2009 (Source: A&A DSC00665)

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2



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MI-AKQ-04 & 05: North elevation, 2009 (Source: A&A DSC00670 and DSC00669)



MI-AKQ-06: West elevation, 2009 (Source: A&A DSC00663)

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MI-AKQ-07: West eave, trim, and roof (Source: A&A IMGP2832)



MI-AKQ-08: Northwest corner downspout and foundation (Source: A&A IMGP2833)



MI-AKQ-09: North elevation eave, roof, and gutter (Source: A&A IMGP2834)



MI-AKQ-10: East entry door (Source: A&A 100_9625)



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2 *MI-AKQ-11: South entry (primary) doors (Source: A&A 100_9622)*
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5 *MI-AKQ-12: South entry ramp (Source: A&A DSC00852)*



MI-AKQ-13: Storage room south entry doors, interior view (Source: A&A CIMG3449)



MI-AKQ-14: Storage room, looking east to east entry (Source: A&A CIMG3466)



MI-AKQ-15: Storage room, looking northeast (Source: A&A CIMG3444)



MI-AKQ-16: Stove at chimney (Source: A&A CIMG3450)



MI-AKQ-17: Water closet, looking east (Source: A&A CIMG3486)



MI-AKQ-18: Stairs to second floor living quarters, looking down (Source: A&A DSC00846)



MI-AKQ-19: Living room, west elevation (Source: A&A CIMG3504)



MI-AKQ-20: Living room door to bedroom (Source: A&A 100_9621)



MI-AKQ-21: Bedroom, west elevation (Source: A&A CIMG3520)



MI-AKQ-22: Bedroom, cabinet detail and floor (Source: A&A CIMG3535)



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MI-AKQ-23: South bedroom closet with windows and doors stored (Source: A&A CIMG3540)



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MI-AKQ-24: Kitchen, north elevation (Source: A&A CIMG3505)



MI-AKQ-25: Kitchen, looking east (Source: A&A CIMG3553)



MI-AKQ-26: Kitchen stove with coffee pot burners (Source: A&A CIMG3556)



MI-AKQ-27: Built-in kitchen cabinet (Source: A&A CIMG3555)



MI-AKQ-28: Roof damage detail (Source: Martin/Martin)



MI-AKQ-29: Vogel seat activated toilet flush valve, in water closet (Source: RMH)



MI-AKQ-30: Vogel toilet detail (Source: RMH)

CHAPTER 4: HISTORIC STRUCTURE REPORT

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