

## SHED

### Chronology of Alterations and Use

#### *Original Construction*

The Michigan Island Shed was originally built in 1869. It was used as a storage and barn space.<sup>47</sup> It was rebuilt in 1901 or 1902 according to Light House Board records.<sup>48</sup>

A photo from c. 1910 shows what appears to be the existing structure in relation to the Old Michigan Island Lighthouse (Historic Image MI-02). The Shed is also seen in a photo from 1975 that shows the building with boarded-up windows (Historic Image MI-13). A photo from 1978 of the Shed shows that the windows were no longer boarded, but otherwise the structure is in similar condition (Historic Image MI-17). Both the 1975 and 1978 photos show the Shed without signs of having an interior floor, while currently the interior floor is raised 1'8" from grade. Besides this addition of a floor, new paint and properly fitting wood boards over windows have been achieved since then.

There are no available historic drawings for this building.

#### *Significant Alterations / Current Condition*

There may have been significant alterations to the Shed. Keeper Robert Carlson, who lived on Michigan Island from 1893 to 1898, kept a cow which would have required a stall or manger or a door through which a cow could pass.<sup>49</sup> Also, there is a noticeable change in grade from the 1978 photo to present day but exactly when and why it occurred is unknown (Historic Image MI-17). It has no mechanical or electrical systems.

The Shed is currently in poor condition.

<sup>47</sup> List of Classified Structures, National Park Service, 2009.

<sup>48</sup> Light House Board records show approval of rebuilding the barn in 1901, Terry Pepper's research at [www.terrypepper.com/lights/superior/michigan\\_old/index.htm](http://www.terrypepper.com/lights/superior/michigan_old/index.htm) indicates a new barn was built in 1902.

<sup>49</sup> S. Mackreth.

## Summary of Documented Work on the Building

Date	Work Described	Source of Information
1901-1902	Shed rebuilt	Light House Board Records
1975	Stabilization of Shed	APIS/NPS Business Office File D3423
1979	Repair foundation and paint exterior walls of Shed	APIS/NPS Business Office File D3423

## Notable Actions with Unknown Dates

Date Range	Work Described
1978–2009	Grade change

## General Physical Description

This building is a one-story, wood-framed rectangular utilitarian structure with a gable roof, board and batten walls, boxed rafter tails, and doors at the north and south elevations. There is a boarded-up window on the façade, and a second on the north elevation; plus a door on the north elevation (board and batten) and the hatch opening, on the west elevation.

### *Physical Description – Architecture*

#### *Architecture – Roof*

Unlike any of the other structures at the light station, the Shed has wood shingle roofing. There is algae growth pervasive. The eave consists of a simple raked soffit of built up 1x trim for the fascia and frieze, extending ±6" (MI-S-06 and MI-S-07).

#### *Architecture – Gutters and Downspouts*

There is no gutter and downspout system.

#### *Architecture – Exterior Walls*

The exterior walls for the east and west elevations are 4x4 wood post framing at 38" on center. The north and south elevations are framed vertically and horizontally with 2x4 stud framing. All elevations are sheathed with board and batten vertical siding. There is a joint at the approximate floor line from alterations since 1978.

#### *Architecture – Windows*

**Main (South) Elevation Window.** This wood window is a six- over six-lite, double hung. It has a shaped profile at the muntins, no evidence of hardware, and is currently boarded over. The interior is natural wood and the exterior trim is 1" × 3¼". This window is 2'7" × 4'6" and is original to the building (MI-S-12).

**Rear (North) Elevation Window.** This window is six lite, fixed, and is wood. The window appears to have been a salvaged upper sash that was fixed and is currently boarded over. The interior is natural wood while the exterior is painted white. The exterior trim is 1" × 3¼". This window is 2'7" × 2'7" and may be original to the building (MI-S-13).

**Side (West) Elevation Hatch.** This hatch is painted wood boards with metal hinges at the bottom and a wood latch at the top. It is currently nailed shut.

*Architecture – Exterior Doors*

**Main (South) Entry.** This original door has four vertical panels with one horizontal panel at the center; all panels are raised and painted wood. The original hardware is a knob with mortise plate on one face. The interior frame is natural wood and the exterior frame is painted wood. This door is 2'8" × 6'7" × 1⅜" (MI-S-08 and 09).

**Rear (North) Door.** This original door is 1x plank with diagonal and horizontal bracing and 1x battens with bevels. The original hardware is a knob with mortise plate on one face. The door is natural wood on the interior and painted on the exterior, has two ball-tipped hinges, and a padlock. The only trim is on the exterior, which is ⅞" × 3½" with a 2x wood sill (MI-S-10).

*Architecture – Exterior Trim*

Refer to roof section.

*Architecture – Wall Finishes*

The original wall finish for this Shed is the interior face of the exterior wood board planking. The boards are 12" wide and are natural wood on the interior face (painted white on the exterior face) with natural wood bracing. There are also a variety of stamps and markings on the wood walls. The stamps say "Michigan Island," and the markings appear to be in chalk and say, "Oil, 1080-40, 3065-30, 3050-20, 1065-3." The stamps are original to the building but the chalk markings are most likely more recent.

*Architecture – Ceiling Finishes*

There is no ceiling just the underside of the wood gable roof. Wood sheathing, rafters, and a truss system are visible, all unpainted. The rafters are located on 3'0" centers (MI-S-15).

*Architecture – Interior Trim*

None in the building.

*Architecture – Floor*

The original underlying floor is wood plank, varying in widths from 5½" to 12," with contemporary plywood covering the east half and part of the south area.

*Architecture – Casework*

None in the building.

*Architecture – Accessibility*

The building is currently not accessible. The south elevation primary entry door opening is 2'8" clear with a grade to finished floor elevation change of 1'8" with one 3½" tall step. The north entry door opening is 2'6" clear with a grade to finish floor elevation change of about 1'8". Within the building, it is open and accessible.

***Physical Description – Structural***

***Structural – Foundation***

The floor framing of the shed is supported by wood beams that rest directly on the ground or are supported by concrete masonry blocks placed on the ground. The beams are not accessible and could not be measured.

***Structural – Floor Framing***

The floor is framed with FS 4 by 8 joists spaced at about 38.” The joists are supported on wood beams at the perimeter. The floor is sheathed with 2x planks.

***Structural – Roof Framing***

The roof framing consists of FS 2x4rafters spaced at about 38”. The rafters span approximately 8’. The rafters are supported on the exterior wood-framed walls. The rafters are sheathed with solid wood underlayment.

***Structural – Wall Framing***

The east and west walls are constructed of FS 4x4 posts spaced at about 38” with FS 2x4 girts at the top, bottom and middle of the wall. The north and south walls are framed vertically and horizontally with FS 2x4 studs. The walls are sheathed with vertical FS 1x sheathing.

***Structural – Lateral System***

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

***Structural – Load Requirements***

The required floor load capacity for the shed is 125 psf if it is used for light storage. The required snow load capacity for the shed is 40 psf.

***Physical Description – Mechanical***

***Mechanical – Plumbing, Systems, HVAC, and Fire Suppression***

None in the building.

***Physical Description – Electrical***

***Electrical – System, Telecommunications, Fire Alarm System, and Lightning Protection***

None in 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. Adhesives – Varieties of miscellaneous adhesives were seen around windows doors and to seal penetrations Roofing Materials.
2. Roofing Materials – Tars, sealants, and patching materials could be present (This type of application was not seen but could be present).

#### *Hazardous Materials – Lead Containing Paint*

The LCP inspection included a visual inspection of the structure. A previous inspection of LCP was conducted using XRF meter. The XRF inspection was conducted by NPS staff in 1993.

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

1. 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 exterior of the structure. The assumed LCP was observed to be in fair condition.

Paint chip debris was noted on localized areas of surface soils surrounding the Shed.

#### *Hazardous Materials – Lead Dust*

Surface wipe-sampling for lead dust analysis was not conducted in the Shed because it is a uninhabited 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 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 Shed.

#### *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.

## Character-Defining Features

**Mass/Form.** A simple rectangular, gable-roof utilitarian structure.

**Exterior Materials.** Painted wood vertical board and batten siding and wood shingle roof.

**Openings.** Covered window openings, a five panel door and a board and batten door.

**Interior Materials.** Exposed framing at walls and roof.

## General Condition Assessment

In general, the Michigan Island Shed is in fair condition on the exterior and the interior. The original interior finishes are in fair condition with water stains and possible water infiltration at the floor level. The original windows are in poor condition as they are boarded up and missing their glazing and muntins (except for the main north window). The doors are in fair condition with rusty hardware, rotting around the base at the rear door, and overall peeling paint.

Structurally, the Shed is in poor condition. The framing for the entire building is inadequate. The building is not attached to an adequate foundation system for lateral and gravity loads. The entire building needs to be strengthened and placed on a proper foundation.

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 existing wood shingles with moss growth are in poor condition.

#### *Architecture – Exterior Walls*

Condition: *Fair*

The exterior walls are in fair condition due to the peeling paint and lack of proper foundation.

#### *Architecture – Windows*

Condition: *Poor*

**Main (South) Elevation Window.** This window is in poor condition as the upper sash has two broken panes and the lower sash is missing all of its glass and muntins.

**Rear (North) Elevation Window.** This window is in poor condition as all muntins and glazing are missing, the bottom rail is also missing, and the bottom part of the stiles is rotting.

**Side (West) Elevation Hatch.** The hatch is in good condition, though it is inoperable.

1 *Architecture – Exterior Doors*

2 Condition: *Fair*

3 **Main (South) Entry.** This main door is in fair to poor condition as the hinge-side stile and the bottom rail  
4 are broken, the paint is alligatored and peeling, and the knob is loose.

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6 **Rear (North) Door.** This door is in fair condition as the frame is rotting at the base, the knob is loose and  
7 rusted, and the paint is peeling.

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10 *Architecture – Exterior Trim*

11 Condition: *Fair*

12 The exterior trim is in fair condition with peeling paint.

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15 *Architecture – Wall Finishes*

16 Condition: *Fair*

17 The interior face of the exterior wood board is in fair condition with instances of water stains, gaps between  
18 boards, and paint stains.

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21 *Architecture – Ceiling Finishes*

22 Condition: *N/A*

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25 *Architecture – Interior Trim*

26 Condition: *N/A*

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29 *Architecture – Floor*

30 Condition: *Fair*

31 The visible wood planking is in fair condition with water stains and typical wear for the utility function of  
32 this building. The contemporary plywood is in poor to deteriorated condition.

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35 *Architecture – Casework*

36 Condition: *N/A*

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39 *Architecture – Accessibility*

40 Condition: *Poor*

41 This building is not accessible.

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44 ***Condition Assessment – Structural***

45 *Structural – Foundation*

46 Condition: *Poor*

47 The foundation is in poor condition. The accessible portions of the foundation are concrete masonry blocks.  
48 In some locations, the floor framing rests directly on the ground. There are no connections between the  
49 floor framing and the blocks (MI-S-17). The wood beams that support the floor framing could not be  
50 observed, thus their condition is unknown.

*Structural – Floor Framing*

Condition: *Poor*

The floor framing is in poor condition. Much of the framing and planks could not be observed, thus their condition is unknown. The floor framing was uneven and not supported on an adequate foundation. The framing requires further investigation.

*Structural – Roof Framing*

Condition: *Fair*

The roof framing is in fair condition. However, the framing is not adequate to resist the required lateral and gravity loads.

*Structural – Wall Framing*

Condition: *Fair*

The wall framing is in fair condition. However, the framing is not adequate to resist the required lateral and gravity loads.

*Structural – Lateral System*

Condition: *Poor*

Lateral stability of the Shed is poor due to an inadequate foundation and wall framing.

*Structural – Load Requirements*

Condition: *Poor*

The roof and floor framing do not have adequate capacity to support the required loads.

***Condition Assessment – Mechanical***

N/A

***Condition Assessment – Electrical***

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 is a shed that was originally built in 1869 and rebuilt between 1901 and 1902.

This building is currently a storage area for the Park Service with no visitor access. The proposed use for the Shed is to preserve the historic structure and install a Plexiglas panel (or similar product) at the door to allow for visitor visual access.

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 existing wood shingle roof and replace in kind matching exposure. Verify/ provide proper flashings and replace any damaged open sheathing as needed in course of reroofing.

Scrape, sand, and repaint soffit, fascia, and trim.

#### *Architecture – Exterior Walls*

Priority:        *Moderate*

Repair walls as needed after foundation work. Scrape, sand board, and batten vertical siding.

#### *Architecture – Windows*

Priority:        *Moderate*

Remove boards over windows. Replace broken or missing panes and muntins in the windows. On the north elevation window, epoxy stabilize existing sash damage. Scrape, sand, and repaint the window sash and frames.

#### *Architecture – Exterior Doors*

Priority:        *Moderate*

Repair broken stiles and rails and epoxy stabilize areas of rotting wood components. Scrape, sand, and repaint doors. Repair existing hardware as required to allow smooth operation. Investigate the installation of a Plexiglas (or similar product) panel at the south entry for visitor viewing.

*Architecture – Exterior Trim*

Priority: *Low*

Scrape, sand, and repaint.

*Architecture – Wall Finishes*

Priority: *Low*

No recommendations at this time.

*Architecture – Ceiling Finishes*

Priority: *N/A*

*Architecture – Interior Trim*

Priority: *N/A*

*Architecture – Floor*

Priority: *Moderate*

Remove existing plywood covering areas of deterioration and repair floor with wood boards that match the original portion of the flooring. Coordinate work with the foundation repair.

*Architecture – Accessibility*

Priority: *Low*

Provide program access through interpretive wayside exhibits.

***Treatment Recommendations – Structural***

*Structural – Foundation*

Priority: *Low*

A new foundation in compliance with the IEBC and NPS requirements should be provided for the support of the shed.

*Structural – Floor Framing*

Priority: *Low*

The floor framing will require substantial strengthening and selective replacement to be in compliance with the IEBC and NPS requirements. The addition of new floor joists spaced at no more than 12” is needed. Replacement with a slab-on-grade may be a better long-term solution considering the lack of crawlspace depth and the need to provide a suitable foundation.

*Structural – Roof Framing*

Priority: *Low*

The roof framing will require substantial strengthening to be in compliance with the IEBC and NPS requirements. The addition of new roof joists spaced at no more than 12” is needed. Additional collar ties will be needed at every third joist, not to exceed 4’ on center. Replacement with a new roof system may be a better long-term solution.

*Structural – Wall Framing*

Priority: Low

The wall framing will require substantial strengthening to be in compliance with the IEBC and NPS requirements. The addition of new wall studs, spaced to match the roof joist spacing, and two rows of horizontal bracing will be needed. Replacement with a new framing system may be a better long-term solution.

*Structural – Lateral System*

Priority: Low

The lateral load resisting systems should be checked for compliance with the IEBC and NPS requirements.

***Treatment Recommendations – Mechanical***

N/A

***Treatment Recommendations – Electrical***

N/A

***Treatment Recommendations – Hazardous Materials***

*Hazardous Materials – Asbestos*

Priority: Low

Recommend Sampling of suspect asbestos containing materials, including adhesives and roofing materials.

*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

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. Although a secondary interior door (Plexiglas panel or similar product) has been proposed, consideration should be given if a physical barrier is required in allowing the Shed to be open to the public during the time of guided use at the light station. Such an addition might be more of a maintenance burden than the risk of the public entering the Shed.
2. Another alternative could be for the public to only experience the Shed from the exterior.
3. A third alternative for park consideration would be to retain the current function as NPS storage.

## 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. Introduce a Plexiglas panel or similar product for visual access by visitors.	- Creates a false atmospheric division at structure. - Installation methods may damage historic fabric.	Study alternative methods for allowing visitors visual access to the structure.	- Improves visitor experience
3. Add a new foundation	A new foundation will disturb existing materials.	Design a new foundation that will be as unobtrusive as possible. Provide archeological monitoring during excavations.	- Improves staff safety - Protects the resource

1 *Shed Photographs, 2009*



*MI-S-01: Aerial, 2009 (Source: A&A DSC00581)*



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*MI-S-02: South elevation, 2009 (Source: A&A CIMG3241)*



MI-S-03: West elevation, 2009 (Source: A&A CIMG3240)



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2

*MI-S-04: North elevation, 2009 (Source: A&A CIMG3243)*



MI-S-05: East elevation, 2009 (Source: A&A CIMG3242)



MI-S-06: South elevation roof and trim detail (Source: A&A CIMG3252)



MI-S-07: Detail of roofing shingles (Source: A&A CIMG3255)



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2 *MI-S-08: South elevation entry (primary) door (Source: A&A CIMG3248)*  
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5 *MI-S-09: South elevation door, detail of lockset (Source: A&A CIMG3269)*



MI-S-10: North elevation entry door (Source: A&A CIMG3250)



MI-S-11: West elevation hatch opening (currently inoperable) (Source: A&A CIMG3246)



MI-S-12: South elevation of interior (Source: A&A CIMG3263)



MI-S-13: North elevation of interior (Source: A&A CIMG3260)



MI-S-14: West elevation of interior (Source: A&A CIMG3258)



MI-S-15: North roof structure interior view, historic door storage (Source: A&A CIMG3265)



*MI-S-16: Roof structure interior, historic headboard storage (Source: A&A CIMG3267)*



*MI-S-17: Foundation blocks (Source: Martin/Martin)*

## CHAPTER 4: HISTORIC STRUCTURE REPORT

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**PRIVY**

**Chronology of Alterations and Use**

***Original Construction***

The Michigan Island Privy was originally built in 1869 as a brick structure and then replaced between 1901 and 1912 with a Detroit built two-holer wood-framed privy with a casement window.<sup>50</sup>

There are no available historic drawings or photographs of this building.

***Significant Alterations / Current Condition***

There are no significant alterations to the Privy. It has no electrical system and its only mechanical attributes are a gravity vent on the roof and a vault vent at grade.

The Privy is currently in fair condition with the exception of its foundation which is in poor condition.

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<sup>50</sup> Edna Lane Sauer Letter, 1978.

## Summary of Documented Work on the Building

Date	Work Described	Source of Information
1901–1912	Keeper Lane's daughter writes about new wood-framed Privy with casement window delivered to the island from Detroit	1978 Letter from Edna Lane Sauer, from Mannikko, Nancy Farm and Robert W. Mackreth. "Apostle Islands Light Stations," National Historic Landmark Nomination—Draft. Bayfield, WI.: Apostle Islands National Lakeshore, n.d.
1931–1936	Documented painting of the roof of Privy three times.	E. Lane, MI Log, Nov 23, 1926–Aug 19, 1936
1975	Stabilization of Privy	APIS/NPS Business Office File D3423

## General Physical Description

This building is a one-story rectangular utilitarian structure with clapboard siding and corner boards. The simple gable roof is made of stamped metal shingles with boxed rafter tails. The Privy has a concrete vault and pier foundation. The vault has a clean-out access to the north, covered by a wooden hatch.

### *Physical Description – Architecture*

#### *Architecture – Roof*

The roof is a metal shingle roof with a stamped scalloped detail on the panel and an approximate exposure of 9" wide by 12" high. There is a curved ridge trim piece.

The eave consists of a raked soffit of 1x fascia and frieze, extending ±6". The sheathing is solid 1x boards as seen from the joints at the edge.

A paint sample from the metal roof reveals three finish layers of green paint over the oldest maroon layer that was probably a red lead prime coat.

#### *Architecture – Exterior Walls*

The exterior walls are made from 2x4 construction with sheathing and painted clapboard siding.

A paint sample taken from the exterior of the walls reveals three layers of white paint over weathered wood.

#### *Architecture – Window*

This wood window is a single-lite casement. The interior and exterior trim is 1½" × 4," painted white on both interior and exterior. There is a wood sill and a center latch. The window is 1'3" × 2'5" and is original to the building (MI-P-09).

#### *Architecture – Exterior Door*

This original door has four vertical panels with one horizontal panel at the center; all panels are raised and painted wood. The original hardware is knob type and the door also has a modern padlock. The painted wood trim is 1½" × 4" on the interior and exterior. The wood sill is 2x. This door is 2'6" × 6'2" × 1¼".

### *Architecture – Exterior Trim*

The exterior trim consists of corner boards, 1x casing at openings and a water table with 1x flat trim below, all painted white.

### *Architecture – Wall Finishes*

The original wall finish for this Privy is 3½” wide beadboard, horizontal, painted white. A paint sample taken of the interior wall reveals multiple layers of oil-based white paint over silver paint (the oldest layer). Silver paint was made from powdered aluminum, and since aluminum was not commercially produced until the 1930s, the paint cannot predate the 1930s.

### *Architecture – Ceiling Finishes*

The ceiling finish is 3½” wide beadboard, painted white, running north-south.

### *Architecture – Floor*

The original floor is 2” wide wood board flooring, painted blue-gray. The boards are not interlocking.

### *Architecture – Casework*

The north side of the Privy has a two-seater made of wood, painted white. There is a metal, circular, vent pipe between the two seats along the north wall (MI-P-07 and 08).

There is also a small wood basket painted white attached to the west wall, south of the window. This basket appears to be historic and possibly original to the building (MI-P-10).

### *Architecture – Accessibility*

The building is currently not accessible. The south elevation entry door opening is 2’5” clear with a grade to finished floor elevation change of 2’¼”. The interior will not accommodate a 5’0” turning diameter.

## ***Physical Description – Structural***

### *Structural – Foundation*

The rear of the Privy is supported on an unreinforced concrete vault with 8” thick walls. The front of the Privy is supported on a 10” by 12” pad footing at each corner.

### *Structural – Floor Framing*

The floor is framed with FS 2x4 joists spaced at about 16”. The floor is sheathed with solid wood subflooring.

### *Structural – Roof Framing*

The roof framing could not be observed but is believed to be wood framing. The rafters span approximately 2½’. The rafters are supported on the exterior wood-framed walls. The rafters are sheathed solid wood underlayment.

*Structural – Wall Framing*

The wall framing could not be observed but is believed to be wood framing. The walls are sheathed on both sides with solid wood siding.

*Structural – Lateral System*

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

*Structural – Load Requirements*

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

***Physical Description – Mechanical***

*Mechanical – Plumbing, Systems, HVAC, and Fire Suppression*

None in the building.

*Mechanical – Other*

The original gravity vent for the Privy vault remains from below the seating area up through the roof. A grade level clay pipe at the northwest corner of the structure likely served as intake vent for the vault below the Privy (MI-P-06).

***Physical Description – Electrical***

*Electrical – System, Telecommunications, Fire Alarm System, and Lightning Protection*

None in 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. Ceiling Insulation (Black matting or felt paper observed above ceilings, this suspect ACM may also be present in wall interiors),
2. Plaster,
3. Adhesives (Varieties of miscellaneous adhesives were seen around windows doors and to seal penetrations), and,
4. Roofing Materials.

The assumed ACMs were observed to be in fair condition.

1 *Hazardous Materials – Lead Containing Paint*

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

- 3 1. Interior Painted Surfaces, and
- 4 2. Exterior Painted Surfaces.

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

8  
9 *Hazardous Materials – Lead Dust*

10 Surface wipe-sampling for lead dust analysis was not conducted in the Privy because it is a uninhabited  
11 structure.

12  
13  
14 *Hazardous Materials – Lead in Soils*

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

21  
22 Soil sampling was not conducted around the Privy.

23  
24  
25 *Hazardous Materials – Mold*

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

## Character-Defining Features

**Mass/Form.** A simple small rectangular, gable-roof utilitarian structure.

**Exterior Materials.** Painted white wood clapboard siding; metal roof shingles and metal vent painted green.

**Openings.** One wood single lite casement window and one wood 5 panel door both painted white.

**Interior Materials.** Beadboard paneling at walls and ceiling painted white and wood tongue and groove flooring painted grey.

## General Condition Assessment

In general, the Michigan Island Privy is in fair condition. The original interior finishes are in good to fair condition with peeling paint and some mold growth on the beadboard ceiling. The original window is in good condition and the door is in fair condition with a loose bottom rail and original knob. The two-seater is in fair condition with missing and peeling paint and rusty hinges. The metal roof is in fair condition while the exterior walls and trim are in good condition.

Structurally, the Privy is in fair condition. Deterioration of the foundations needs attention. The building needs to be attached to adequate foundations for lateral loads.

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: Fair

The roof is in fair condition with paint peeling from the shingles, exposing bare metal.

#### *Architecture – Exterior Walls*

Condition: Good

The exterior walls are in good condition with the exception of the foundation (see structural assessment).

#### *Architecture – Window*

Condition: Good

This window is in good condition with peeling paint.

#### *Architecture – Exterior Door*

Condition: Fair

This door is in fair condition as the bottom rail is loose, the knob is loose, and there is peeling paint.

1 *Architecture – Exterior Trim*

2 Condition: *Good*

3 The exterior trim is in good condition.

6 *Architecture – Wall Finishes*

7 Condition: *Good*

8 The beadboard is in good condition with peeling paint and minor separation of boards.

11 *Architecture – Ceiling Finishes*

12 Condition: *Fair*

13 The beadboard ceiling finish is in fair condition as the paint is badly peeling and there is some mold  
14 growth.

17 *Architecture – Floor*

18 Condition: *Good*

19 The wood board floor is in good condition.

22 *Architecture – Casework*

23 Condition: *Fair*

24 The two-seater is in fair condition with peeling paint, missing paint, and rusty hinges. The vent pipe is also  
25 in fair condition with badly peeling paint.

27 The small wood basket is in fair condition as it is warped and has peeling paint.

30 *Architecture – Accessibility*

31 Condition: *Poor*

32 This building is not accessible.

35 ***Condition Assessment – Structural***

36 *Structural – Foundation*

37 Condition: *Poor*

38 The walls of the concrete vault at the rear of the Privy are in poor condition. The original concrete has  
39 freeze/thaw deterioration and previous repairs to the tops of the walls are failing. The original concrete is  
40 continuing to deteriorate below the repair (MI-P-11). The footings at the front of the Privy are in poor  
41 condition. They have been undermined and are rotating out from under the Privy (MI-P-12).

44 *Structural – Floor Framing*

45 Condition: *Good*

46 The floor framing is in good condition.

*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.

*Structural – Wall Framing*

Condition:      *Unknown*

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

*Structural – Lateral System*

Condition:      *Poor*

Lateral stability of the Privy is poor because the building is not physically attached to the foundations. No obvious signs of distress or damage were observed.

*Structural – Load Requirements*

Condition:      *Good*

By inspection, the roof and floor framing have adequate capacity to support the required loads.

***Condition Assessment – Mechanical***

*Mechanical – Plumbing, Systems, HVAC, and Fire Suppression*

Condition:      *N/A*

*Mechanical – Other*

Condition:      *Fair and Poor*

The gravity vent on the roof of the Privy is in fair condition. The Privy vault vent at grade is in poor condition.

***Condition Assessment – Electrical***

*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 Privy was originally built in 1869 as a brick structure but was replaced between 1901 and 1912 with the existing wood-framed structure. It can be assumed that the Privy was infrequently used after the installation of plumbing in the early 1930s to the Old Lighthouse Quarters.

The building is currently vacant and has no public access. The use of the Privy is proposed as passive visitor access by means of visual access only to the interior as seen from the exterior. Various methods of allowing this could be studied and may include a Plexiglas or view panel that can be in place when the exterior door is open.

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 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 rehabilitation of the building. Refer to Volume I, Chapter 2: Methodology for the priority rating definitions.

### *Treatment Recommendations – Architecture*

#### *Architecture – Roof*

Priority:        *Severe*

Repair existing metal shingle roof. Scrape, sand, and repaint.

#### *Architecture – Exterior Walls*

Priority:        *Moderate*

Scrape, sand, and repaint clapboard siding.

#### *Architecture – Window*

Priority:        *Moderate*

Scrape, sand, and repaint the window sash and frame.

#### *Architecture – Exterior Door*

Priority:        *Moderate*

Repair bottom rail, reattach knob and scrape, sand, and repaint the door. Investigate a Plexiglas (or similar product) panel inside the door.

#### *Architecture – Exterior Trim*

Priority:        *Moderate*

Scrape, sand, and repaint trim.

*Architecture – Wall Finishes*

Priority:            *Low*

Scrape, sand, and repaint the beadboard.

*Architecture – Ceiling Finishes*

Priority:            *Low*

Scrape, sand, and repaint the beadboard ceiling.

*Architecture – Floor*

Priority:            *Low*

Scrape, sand, and repaint the wood floor.

*Architecture – Casework*

Priority:            *Low*

Scrape, sand, and repaint the casework.

*Architecture – Accessibility*

Priority:            *Low*

Provide program access through interpretive wayside exhibits.

***Treatment Recommendations – Structural***

*Structural – Foundation*

Priority:            *Low*

The walls of the concrete vault should be repaired or replaced. The spot footings should be replaced with new footings that bear at the same elevation as the concrete vault.

*Structural – Floor Framing*

Priority:            *Low*

No recommendations at this time.

*Structural – Roof Framing*

Priority:            *Low*

No recommendations at this time.

*Structural – Wall Framing*

Priority:            *Low*

No recommendations at this time.

*Structural – Lateral System*

Priority:            *Low*

The lateral load resisting system should be checked for compliance with the IEBC and NPS requirements.

***Treatment Recommendations – Mechanical***

*Electrical – System, Telecommunications, Fire Alarm System, and Lightning Protection*

Priority: N/A

*Mechanical – Other*

Priority: Low

No recommendations at this time.

***Treatment Recommendations – Electrical***

N/A

***Treatment Recommendations – Hazardous Materials***

*Hazardous Materials – Asbestos*

Priority: Low

Recommend Sampling of suspect asbestos containing materials, including adhesives, roofing materials, ceiling insulation, and plaster.

*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

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. Although a secondary interior door (Plexiglas panel or similar product) has been proposed, consideration should be given if a physical barrier is required in allowing the Privy to be open to the public during the time of guided use at the light station. Such an addition might be more of a maintenance burden than the risk of the public entering the Privy.
2. Another alternative could be for the public to only experience the Privy from the exterior.
3. Consideration could be given to replacing the existing metal shingles which appear to be nearing their useful lifespan.

## 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. Introduce a Plexiglas panel or similar product for visual access by visitors	- Creates a false atmospheric division at structure. - Installation methods may damage historic fabric.	Study alternative methods for allowing visitors visual access to the structure.	- Improves visitor experience

1 *Privy Photographs, 2009*



MI-P-01: Aerial, 2009 (Source: A&A DSC00580)

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*MI-P-02: South elevation, 2009 (Source: A&A DSC00538)*



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2 *MI-P-03: East elevation, 2009 (Source: A&A DSC00539)*



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2

*MI-P-04: North elevation, 2009 (Source: A&A DSC00541)*



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*MI-P-05: West elevation, 2009 (Source: A&A DSC00536)*



MI-P-06: North roof vent (Source: A&A DSC00597)



MI-P-07: North elevation (Source: A&A CIMG3271)



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2 MI-P-08: Seat detail (Source: A&A CIMG3287)  
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5 MI-P-09: Window (Source: A&A CIMG3278)



MI-P-10: Window and built-in box (Source: A&A CIMG3282)



MI-P-11: Concrete wall deterioration (Source: Martin/Martin)



MI-P-12: Footing rotation (Source: Martin/Martin)

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