Vegetation

Existing Conditions. Sand Island's vegetation includes forested areas, cleared and maintained areas, and domestic plantings. The forest area is a mixed northern hardwood forest and is the predominant vegetation of the island. The light station grounds include historically cleared areas that are now predominantly brush, with some areas that have encroaching forest vegetation (trees). The grounds immediately surrounding the Light Station Quarters is a maintained lawn of mown grasses.

Very few remnants of landscape and garden plantings exist on the site. Purple and white lilac (*Syringa* sp.) exist at the southwest corner of the Light Station Quarters and northwest of the Oil Building, respectively. A small Mountain Ash (*Sorbus* sp.) exists between the Oil Building and Privy and a Balsam Fir (*Abies balsamea*) tree west of the Light Station Quarters. Sweet William (*Dianthus* sp.) exists between the Quarters and Privy.

Domestic plantings, including Periwinkle (*Vinca minor*), were introduced to the island (likely during the period of significance) and have the potential to encroach into the forest area. Periwinkle is an invasive plant species. Research indicates that Periwinkle (*Vinca minor*), was planted along the north, south and east fence lines enclosing the garden. Today, it exists along the concrete walk to the nonextant Tool Shed.

The condition of the vegetation on the light station grounds is fair. The cleared area of the light station is in poor condition.

Analysis: Reservation. Historic drawings and photographs indicate that a larger cleared area existed on the north edge of the reservation than that which exists today. The cleared area has continued to reduce from approximately 3.7 acres at the end of the period of significance to approximately 1.8 acres in 2009. During the Light Station period the light station grounds were maintained as low vegetation. The original larger clearing provided the necessary openness to allow for the light to be seen from Lake Superior. The clearing also provided a protected area south of the Light Station Quarters for livestock and a garden. The area south of the Light Station Quarters was maintained as an open clearing and contained a fenced garden area and two sheds. Today, the majority of this clearing has been filled by encroaching forest and the garden area is nonextant. Clearing work done during the NPS period has reduced the amount of forest encroachment from its peak in the 1960s. Brush piles remain from this work. The cleared area of the light station is a contributing feature. The relationship between the extent of the cleared area and forest vegetation on the reservation has changed since the period of significance. Vegetation in the former boathouse area has also encroached into the historic clearing at that location. The extensive encroachment of forest vegetation diminishes the integrity of the light station.

Analysis: Light Station Grounds. Sand Island has a history of landscape and garden planting installed by the lighthouse keepers and their families during the period of significance. Historic photographs indicate the light station included a garden area south of the Light Station Quarters and Keeper Luick was known for growing vegetables. This area is discernable on-site but no remnant features remain. Common vegetables grown at the light stations include onion, lettuce, cucumber, beans, squash, peas, rutabaga, pumpkin, asparagus, tomato, cabbage, beets and potatoes.

Historic photographs indicate that lilacs were a prevalent landscape planting at the Sand Island Light Station. Lilacs grew along the north, south, and east sides of the fence line enclosing the garden area. Bordering the lilacs was Periwinkle (*Vinca minor*). Historic photographs indicate two additional lilacs existed northwest of the Light Station Quarters as well as a small planting bed located southwest of the Light Station Quarters, none of which remain today. The extant white lilacs northwest of the Oil Building and the purple lilac growing along the south wall of the Light Station Quarters are contributing features. Vegetation features present on the site are described and analyzed in table SI-2.

Table SI-2: Vegetation

Feature	Site Image #	Description	Condition	Contributing? /Rationale
Cleared Area		Areas of forest vegetation cleared for reservation and light station	Fair	Contributing; present during period of significance
Lawn Area	SI-58	Maintained lawn area of light station grounds-mown grass landscape	Fair	Contributing; present during the period of significance
Purple Lilacs (*Syringa sp.*)	SI-59	Purple lilac growing at southwest corner of Light Station Quarters, west of Solar Panel	Fair	Contributing; planted during period of significance
White Lilac (*Syringa sp.*)	SI-60, SI-61	White lilac growing northwest of the Oil Building	Fair	Contributing; planted during period of significance
Mountain Ash (*Sorbus sp.*)	SI-61	On Light Station grounds between Privy and Oil Building	Fair	Noncontributing; planted after period of significance
Deciduous Tree	SI-61	Deciduous tree south of Mountain Ash between Oil Building and Privy	Fair	Noncontributing; encroaching forest vegetation
Evergreen	SI-51	Evergreen (Balsam Fir) tree west of light station	Good	Noncontributing; planted after period of significance
Boathouse Cleared Area		Areas of forest vegetation cleared for reservation and light station	Poor	Contributing; present during period of significance

Vegetation Photographs

Site Image SI-58: Lawn area; evergreen tree at right, 2009 (Source: MBD DSC_0265.JPG)

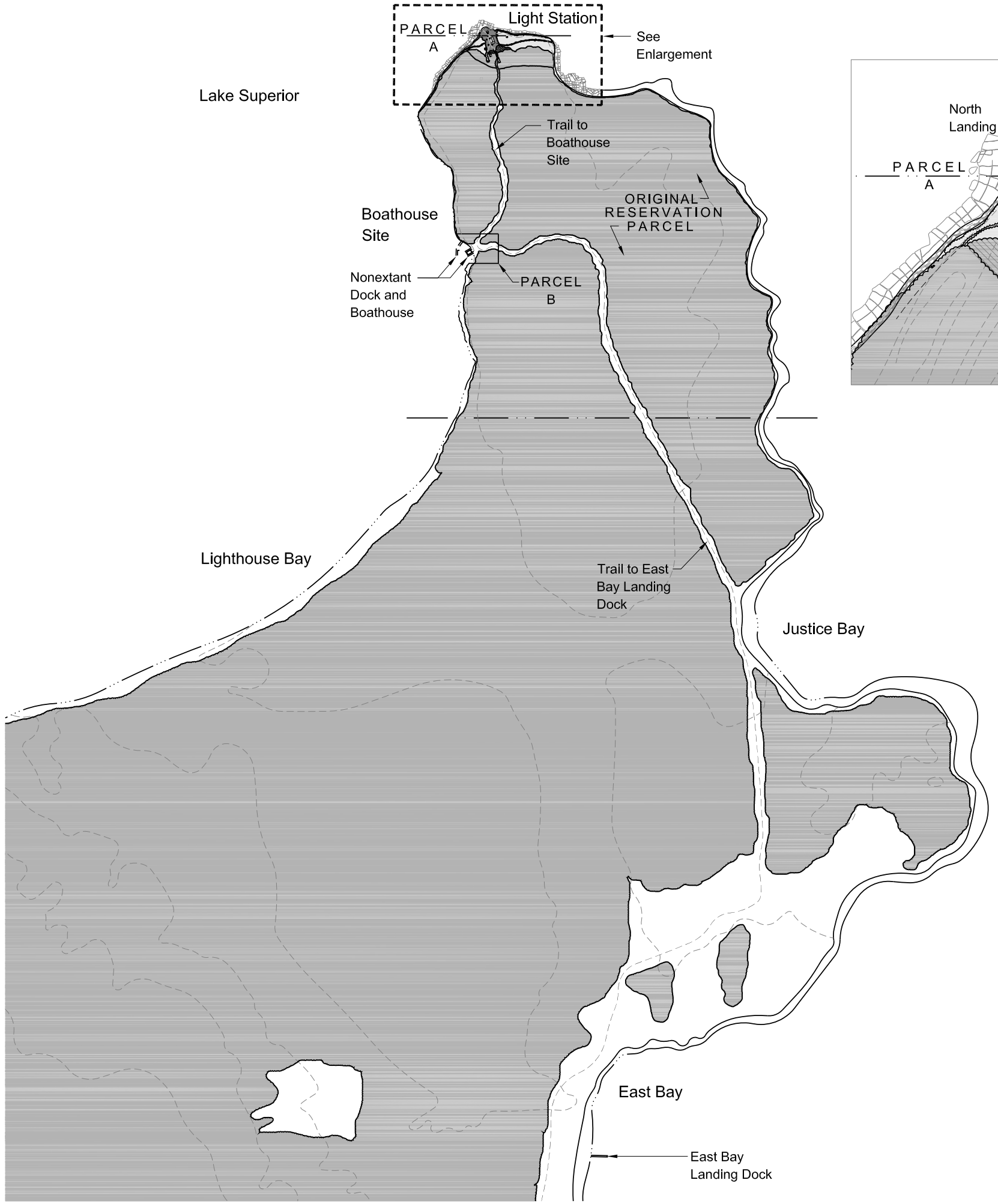
Site Image SI-59: Purple lilac at southwest corner of Light Station Quarters, 2005 (Source: Photo courtesy of Susan Mackreth)

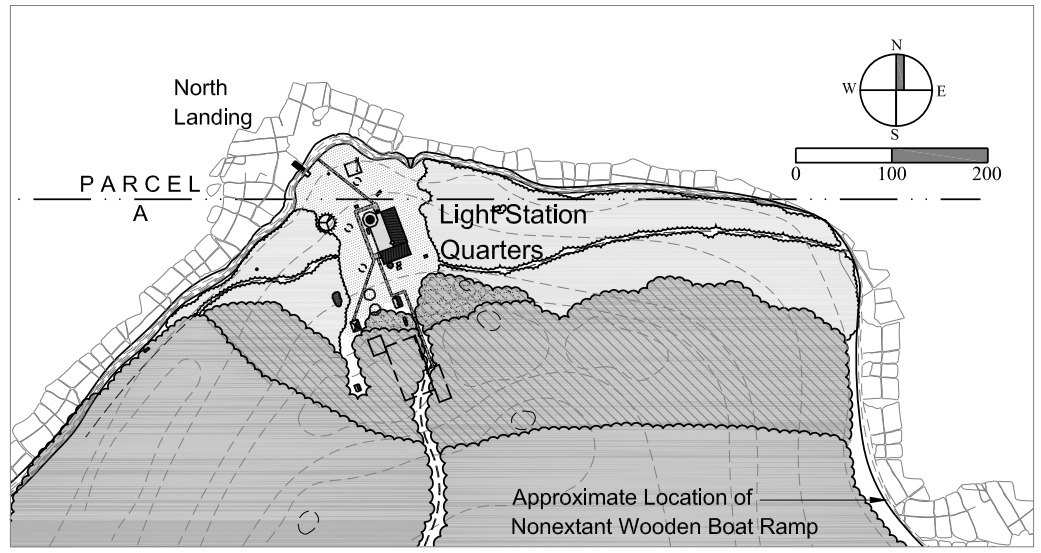
Site Image SI-60: White lilac at northwest of Oil Building, 2005 (Source: Photo courtesy of Susan Mackreth)

Site Image SI-61: Mountain Ash, deciduous tree and white lilac viewed from Light Station Quarters Tower looking southwest, 2009 (Source: MBD P1020418.JPG)

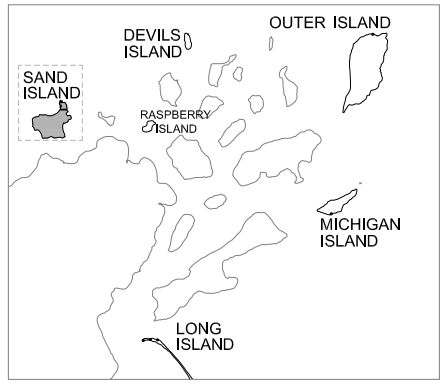
Site Image SI-62: Forest encroachment into former garden area, 2009 (Source: MBD DSC01436.JPG)

Site Image SI-63: Older trees at historic clearing line, 2009 (Source: MBD DSC_0299.JPG)

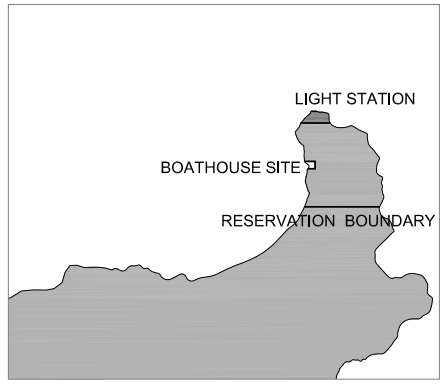




ENLARGEMENT



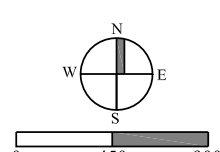
ISLAND KEY



SAND ISLAND

LEGEND

- Forest
- Encroaching Forest
- Newest Growth / Encroaching Forest
- Brush
- Lawn
- Cliff
- Nonextant Building or Landscape Feature
- Reservation Boundary



SITE IMAGE SI-64

UNITED STATES
DEPARTMENT OF THE INTERIOR
APOSTLE ISLANDS NATIONAL LAKESHORE

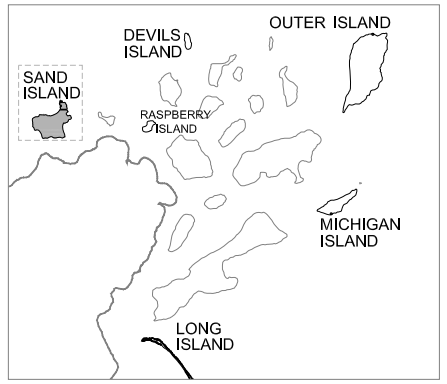
TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
EXISTING CONDITIONS

TITLE OF DRAWING
SAND ISLAND - RESERVATION BOUNDARY

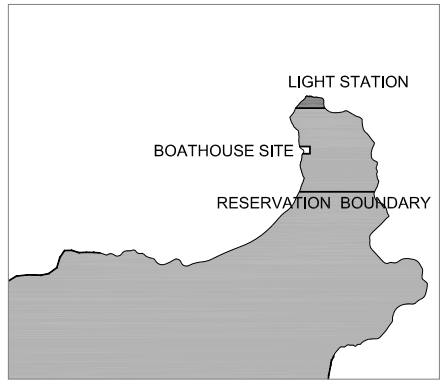
NAME OF PARK
APOSTLE ISLANDS NATIONAL LAKESHORE

REGION	COUNTY	STATE
MIDWEST	BAYFIELD	WISCONSIN

North Landing
Headwall
Nonextant Tower
Stone Arrow
Stairway
Flagpole
Nonextant Lilac
Interpretive Sign
Concrete Slabs
Light Station Quarters
Foundation
Yew
Balsam Fir
Nonextant Lilac
Purple Lilac
Concrete Slab
Footpath
Fire Pit
Nonextant Bed
Solar Panel
Battery Storage Unit
Mountain Ash
White Lilac
Privy
Brick Rubble
Fuel Tank
Dump Site - 1
Oil Building
Nonextant Fence
Nonextant Wood Shed
Former Garden Site
Nonextant Tool Shed
Bench
Footpath
NPS Vault Toilet
Dump Site - 3
Boardwalk / Trail
Dump Site - 2



ISLAND KEY



SAND ISLAND

LEGEND

- Forest
- Encroaching Forest
- Newest Growth / Encroaching Forest
- Brush
- Lawn
- Cliff
- Deciduous Tree
- Evergreen Tree
- Nonextant Building or Landscape Feature

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UNITED STATES
DEPARTMENT OF THE INTERIOR
APOSTLE ISLANDS NATIONAL LAKESHORE

SITE IMAGE SI-65

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
EXISTING CONDITIONS

TITLE OF DRAWING
SAND ISLAND LIGHT STATION

NAME OF PARK
APOSTLE ISLANDS NATIONAL LAKESHORE

REGION	COUNTY	STATE
MIDWEST	BAYFIELD	WISCONSIN

SAND ISLAND CLR TREATMENT

Introduction

In conjunction with the HSR the treatment section of the CLR recommends a strategy for the long-term management of the cultural landscape and historic structures of the Sand Island Light Station. The strategy is based on the analysis of the cultural landscape's characteristics, the history and period of significance for the light station, the existing condition of the historic features, and contemporary use of the light station.

A general management philosophy of rehabilitation has been identified as the appropriate approach for the treatment of the cultural landscape. Rehabilitation will allow for repairs, alterations, and additions that will be necessary for the compatible use of the light station, and will preserve the characteristics and features that convey the light station's historical, cultural and architectural values.[34] The recommended treatment will enable the park to preserve the contributing features of the cultural landscape, while allowing for specific alterations to accommodate contemporary use and interpretation of its history.

TREATMENT GOALS

- Preserve extant contributing cultural resources
- Reestablish missing resources
- Reveal the cultural landscape by representing the important characteristics from the period of significance
- Improve the understanding of the overall system of light stations in the Apostle Islands for both visitors and park staff by incorporating interpretation of landscape resources that have been repaired or reestablished
- Aid in the preserving the natural resources of the light station reservation by monitoring and controlling invasive plant material and directing visitor use

TREATMENT TERMINOLOGY

The following terms are used frequently in the CLR for actions that address the cultural landscape and its features, and are defined below. A more detailed glossary is presented in the Glossary of Terms at the end of this volume.

Maintain. Maintain includes the standard maintenance practices (mowing, pruning, thinning of vegetation, painting and cleaning of small scale features) that are necessary to retain a features or area as a contributing resource. Maintenance activities are usually not classified as repair, however minor repair such as replacement of posts or railings or segments of paving are included.

Plant. Plant or planting includes the planting or removal and replanting of landscape material and vegetation as part of maintenance activities, or the restoration of missing landscape planting features.

Reestablish. The measures necessary to depict a feature or area as it occurred historically. Reestablish may include replacement of missing features (such as replacement of a pattern of planting) or a missing quality (e.g., reestablishment of a view).

[34] Landscape Lines.

Relocate. Relocate includes the removal and resetting of features in new locations. This is usually associated with noncontributing features.

Remove. The actions required to remove nonhistoric or noncontributing features. This is usually associated with noncompatible features in the landscape.

Repair. Repair includes the measures necessary to maintain features, components of features, and materials that require additional work. These may include repairing declining structures, small scale features (e.g., repair of a railing) or landscape plantings (e.g., repair mass planting by adding infill plantings). Features that are repaired shall match the original in design, color, texture, and where possible, material.

Restore. The measures necessary to depict a feature or area as it occurred historically. Restoration may include repair of a feature so that it appears as it did historically.

Retain. These are actions that are necessary to allow for a feature (contributing or noncontributing) to remain in place in its current configuration and condition.

Stabilize. Stabilize refers to immediate measures (more extensive than standard maintenance practices) that are needed to prevent deterioration, failure, or loss of features.

PREFERRED TREATMENT ALTERNATIVE

Three treatment alternatives were considered during the development of the CLR/HSR. The CLR/HSR presents only the Preferred Treatment Alternative. The other treatment alternatives considered are presented in the Environmental Assessment.

Intent of Preferred Treatment Alternative

The Sand Island Light Station is significant to the Apostle Islands system of light stations because of 1) its representation of the development of navigational aids along the outer shipping route to Duluth; 2) its clear depiction of improvements in navigational and light station technology; and 3) its status as the first automated light station in the archipelago. The lives of the keepers and their families were impacted by the progression of new navigational technologies, made evident by the historic features of the cultural landscape. By preserving, rehabilitating, or restoring these features, the treatment approach of the CLR/HSR strives to clearly depict the story of the Sand Island Light Station.

The intent of the preferred treatment is to rehabilitate the cultural landscape of the Sand Island Light Station to portray the period of navigational history that the light station best represents within the Apostle Island system. The period of significance for the Sand Island Light Station (1881 –1921) begins with the establishment of the Light Station Quarters, and ends with automation of its Light Tower. The treatment approach for extant contributing features emphasizes this period when the light station was in its most vibrant state. Recommendations also include the restoration of landscape features lost since the period of significance.

Preferred Treatment Alternative (Site Image SI-50, Site Image SI-51)

The treatment measures are intended to preserve and rehabilitate the cultural landscape features. This requires a variety of actions that may be accomplished by either a series of preservation steps implemented over time or as a one-time action paired with future maintenance. Emphasis should be placed on the

preservation and/or rehabilitation of the contributing features that most strongly define the character of the landscape as outlined above.

Specific treatment measures are depicted in a series of plan drawings and are accompanied by detailed narrative descriptions, organized by landscape characteristics and presented as follows.

SPATIAL ORGANIZATION/VIEWS AND VISTAS

Spatial organization is the relationship between light station grounds and Lake Superior; and the relationship between the buildings, structures, circulation features and the cleared area of the light station grounds. The arrangement of buildings, structures and circulation features have remained intact, the cleared area of the light station grounds and the larger reservation has been substantially reduced from the period of significance. The incremental encroachment of forest vegetation into the historically cleared areas of the reservation has reduced the cleared area immediately around the light station grounds and changed the open character of the light station. Views from the waters of Lake Superior to the light station are also an important component of the cultural landscape. The growth and encroachment of forest vegetation, specifically trees, if not cleared has the potential to impact views from the lake to the light station. This encroachment of forest vegetation has diminished the integrity of the cultural landscape.

Additional information regarding the means and methods of clearing forest vegetation are included in Volume I, Chapter 5: Management Issues.

The treatment recommendations include: 1) preserving the existing organization of buildings, structures, and site features; 2) restoring the cleared area of the landscape to better depict its condition during the period of significance; and 3) maintaining views from the lake to the light station by removal of trees along the shoreline banks. Individual treatment measures are presented as follows:

Light Station Clearing (General)

This measure is intended to reestablish the cleared area of the light station to a condition that better represents the period of significance, specifically the Light Station period (1881-1921). Clearing to reestablish portions of the historic cleared area may be undertaken on an incremental approach addressing the most critical and beneficial areas of clearing areas first. Emphasis should be placed areas that most strongly define the character of the landscape listed below in order of priority:

- Clearing for fire protection adjacent to existing buildings and structures;
- Clearing to reestablish the spatial qualities of the garden area;
- Clearing to reestablish historic cleared area of the light station;

Light Station Clearing (Low Brush)

The cleared area of the light station will be restored to a condition that represents the period of significance. Clearing includes the removal of forest trees and shrubs in historically cleared areas and the establishment of a low brush ecotype similar to that which exists east of the Light Station Quarters. The clearing will open views towards light station from the water. Cleared areas shall be maintained as low brush vegetation by mechanical brushing or manual removal of trees and large shrubs on a three to five year schedule.

Light Station Clearing (Garden Area)

The cleared area south of the Light Station Quarters will be restored to a condition that represents the period of significance. The existing cleared lawn area will be moderately expanded into non-extant garden area to the south of the Sand Island Lighthouse. The measure includes clearing of forest trees, shrubs and ground covers. Lawn grasses and a garden will be established in the newly cleared area.

CIRCULATION/ SITE ACCESSIBILITY/STRUCTURES

The circulation patterns and features on the site remain and are important elements of the cultural landscape. The circulation patterns on the site were significantly changed during the Light Station Period (1881-1921) with the addition of the Boathouse and dock, trail to the light station, and concrete walks. All of these improvements were installed to support the navigational and day-to-day operations of the light station. The trail and concrete walks remain in much the same as they were during the Light Station period (1881–1921). The Boathouse and dock are no longer extant. The circulation features help to define the arrangement of the site and are important to the integrity of the cultural landscape. The treatment measures focus on retaining the circulation patterns and rehabilitating or preserving the circulation features. Features important to maintaining the integrity of the light station include the retention of the Boathouse site, trail, and concrete walks.

Boathouse Site

The area of the nonextant boathouse and dock, south of the light station should be maintained as a cleared opening on the trail so that the potential to interpret this area remains. Any stone remnants from the dock and boathouse should remain in place and the trail should be maintained to allow visitor access. This site was a primary landing point for the light station during the period of significance and remains an important part of the history of the light station.

Concrete Walks

Repair and maintain all concrete walks in the current, historic locations. A detailed description of treatment measures for concrete walks can be found in small scale features.

Wooden Staircase

Repair the wooden staircase leading down the rock outcrop north of the Light Station Quarters. Alter the staircase to meet current ABAAS standards.

Trails and Paths

Maintain the trail corridor from the East Bay Landing Dock to the Light Station at a width of 10’.

Accessibility (ABAAS)

An accessibility analysis separate from the CLR/HSR is being developed to provide an overall plan for the six light stations in the Apostle Islands – Raspberry, Michigan, Outer, Devils, Long, and Sand islands. This work is intended to address the light station system as a whole and the accessibility requirements to be achieved at each individual light station. At the time of this report publication of the final accessibility report is in progress. The CLR/HSR incorporates several standard recommendations into each of the light station's plans. Recommendations for the Sand Island Light Station are:

- Provide an outdoor accessible route (minimum 36" width) to a new accessible NPS restroom (location to be determined by the Park Service)
- Provide an accessible entrance to the west entry of the Light Station Quarters (see HSR)
- Widen concrete walks on the light station to minimum width of 36" in the areas indicated on the drawings. Widening shall be accomplished by adding new, precast concrete stones (18" wide), installed adjacent to the historic material. New materials shall match existing materials in form, texture and color.

Outdoor accessible routes shall meet the requirements of the ABAAS for width (36" minimum), slopes (less than 4.75%), and include passing areas. These requirements are readily achievable on the light station. Further discussion regarding the overall accessibility approach for the system of light stations is included in Volume I, Chapter 5: Management Issues. Additional information regarding accessibility for individual buildings on the light station is included in the HSR.

SMALL SCALE FEATURES

The small scale features on the light station provide a human scale while conveying important details regarding the history and use of the light station. Treatment recommendations are described in detail for contributing small scale features, and noncontributing features are presented in Table SI-3. In general the recommendations for these features are focused on preservation and include:

- Retain all contributing small scale features.
- Retain noncontributing, compatible features including park and trail signs.
- Remove noncontributing, noncompatible features

Concrete Walks

Repair and maintain all concrete walks in the current, historic locations. Repair includes the removal and replacement of several severely cracked sections. Replacement of damaged sections shall be completed with precast units matching the various dimensions of the existing concrete slabs, poured and finished prior to installation. The mix, aggregate size and finish of the replacement sections should match the finish of the historic material including aggregate size and tooling. Maintenance includes vegetation removal and minor leveling to eliminate trip hazards.

Dump Sites

Retain and protect all dump sites. See Areas of Further Investigation - Archeological Features for additional information.

Boathouse Site

Retain area of former boathouse and dock.

Fencing at Garden Area

Reestablish wood fencing at Garden Area. Paint white. Coordinate this work with interpretive planning work undertaken by the Park Service.

Drainage System

Maintain the sub-drainage system from the Sand Island Lighthouse north to the headwall.

Wooden Headwall

Remove the wooden headwall and replace with a compatible material (concrete or stone).

Flagpole

Maintain the flagpole by repainting (white) and replacing the hardware and halyard as necessary.

Park and Interpretive Signs

Measures related to park signage is not included in the CLR. Interpretive signage on the light station is addressed under the *Parks Long Range Interpretive Plan* and other studies. Additional discussion regarding interpretation is included in Volume I, Chapter 5: Management Issues.

The following table (Table SI-3) provides recommendations for small scale features identified as noncontributing.

Table SI-3. Small Scale Features (Noncontributing)

Feature	Compatible?	Status
Park Sign	Noncontributing Compatible	Not addressed in CLR
Propane Tank	Noncontributing Compatible	Remove propane tank
Fire Pit	Noncontributing Noncompatible	Relocate fire pit
Stone North Arrow	Noncontributing Compatible	Remove stone north arrow
Solar Panel and Battery Unit	Noncontributing Compatible	Relocate solar panel and battery unit

VEGETATION

Reservation Vegetation

As previously presented under Spatial Organization the cleared area of the light station reservation and immediate light station grounds has been substantially reduced from the period of significance. This action includes the removal of forest vegetation (approximately 1 acre) that has encroached into the historic cleared area of the light station, specifically the historically cleared area south of the Light Station Quarters. Further discussion on means and methods of clearing are discussed in Volume I, Chapter 5: Management Issues. Maintain newly cleared areas as meadow vegetation at a 12”- 24” height by mowing on a regular basis.

Areas of the light station reservation that are to remain forested should be monitored for invasive plants. The most apparent invasive plant is Periwinkle (*Vinca minor*). This plant was introduced as a domestic landscape plant on the light station grounds. Care should be taken when using this plant in the area it existed historically, near the garden area. Do not introduce potentially invasive plant material into the light station reservation.

Station Vegetation

Historically domestic landscape and garden plantings played a significant role in the cultural landscape of the Sand Island Light Station. Many of these features have been lost and under this treatment are recommended to be reestablished. The intent of this treatment is to rehabilitate the landscape by restoring missing features of the landscape and maintaining extant features to better depict the landscape during the period of significance, specifically the Light Station period (1881-1921), when the landscape planting features were most intact.

Tree and Shrub Plantings

The light station grounds historically contained several types of domestic tree and shrub plantings that were planted and maintained by the lighthouse keepers and their families. This treatment measure includes restoring missing lilac (*Syringa sp*.) plantings near the Light Station Quarters, and the removal of noncontributing trees in cleared area of the light station.

Garden Plantings

The light station grounds historically contained a fenced vegetable garden to the south of the Light Station Quarters planted and maintained by the lighthouse keepers and other residents. This treatment measure includes restoring the garden area including fencing and plantings in the landscape.

AREAS OF FURTHER INVESTIGATION

Archeological Investigations

Complete an archeological survey for all known resources in the light station (including dump sites described earlier in this section) using non-destructive investigations to document the extent of buried or non-visible cultural resources that exist across the island. Consider using ground penetrating radar and other non-invasive measures to assist in locating resources. If a comprehensive survey for the entire Island is not possible, complete archeological investigations for proposed projects in advance of any other work on the project, including demolition. In compliance with the National Historic Preservation Act, and in consultation with the NPS Midwest Archeological Center, undertake archeological investigations for all projects, as appropriate to their scale, impacts, and extent of ground disturbance.

Areas of Further Investigation Photographs

Site Image SI-66: Historic view of the Sand Island Light Station showing the low brush clearing, c. 1913 (Source: NPS APIS Archives)

Site Image SI-67: ABAAS Option - Widen walks by retaining existing historic walks in place and installing new precast concrete material to achieve an accessible width. (Source: MBD P1020420_annotated.JPG)

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