

National Park Service
U.S. Department of the Interior

Division of Facilities Management, Historic Preservation Projects
Intermountain Support Office – Santa Fe, New Mexico
National Park Service



Point Pinos Lighthouse

Historic Preservation Report

Documentation and Treatment Planning

2004



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**Point Pinos Lighthouse
Pacific Grove Museum of Natural History
City of Pacific Grove
California**

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**U.S. Department of the Interior
Washington, DC**

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Executive Summary

In September of 2004, Supervisory Exhibit Specialist, Glenn D. Simpson from the National Park Service's Division of Facilities Management, Historic Preservation Projects program (NPS-IMR-DFM-HPP) made a site visit to the Point Pinos Lighthouse at the request of City of Pacific Grove, California. The purpose of the site visit was to make an initial survey of the exterior of the lighthouse in order to advise the City of Pacific Grove on the best possible courses of action that may be taken to preserve the lighthouse as it is officially conveyed from the United States Coast Guard to the City.

The Point Pinos Lighthouse is the oldest continuously operating lighthouse on the West Coast. Since February 1, 1855, its beacon has flashed nightly as a guide and warning to shipping off the rocky California coast. Alcatraz Island Lighthouse preceded Point Pinos by 8 months, but was replaced in 1909 by the expanding military prison. The light is a third order Fresnel with lenses, prisms and mechanism manufactured in France in 1853. A larger, second order light had been planned, but delay in shipment caused the present light, originally destined for the Fort Point Lighthouse in San Francisco, to be installed instead. This report is also being produced in preparation for celebrations marking 150 years of continuous operation of the light.

The results of the preliminary survey show that the lighthouse is an exceptionally significant historic structure and should be regarded with extraordinary care in its upkeep. In general, it is in good condition and retains an extremely high level of historic integrity; however, some immediate problems were observed which should be addressed in the near future. The survey also identified the extremely important need for the City of Pacific Grove to have a comprehensive plan for preservation of the lighthouse, as well as thorough and detailed documentation of its present condition.

The National Historic Lighthouse Preservation Act of 2000 (NHLPA), 16 U.S.C. § 470w-7, an amendment to the National Historic Preservation Act of 1966, requires that the entity to which the lighthouse is conveyed "shall at its own cost and expense, use and maintain the historic light station in accordance with this Act, the Secretary of the Interior's Standards for the Treatment of Historic Properties, 36 CFR part 68, and other applicable laws, and any proposed changes to the historic light station shall be reviewed and approved by the Secretary in consultation with the State Historic Preservation Officer of the State in which the historic light station is located, for consistency with 36 CFR part 800.5(a)(2)(vii), and the Secretary of the Interior's Standards for Rehabilitation, 36 CFR part 67.7."

Historic structures are non-renewable cultural resources. Subsequently, historic preservation work differs in many ways from new construction and non-historic facility maintenance because great effort is required to preserve as much of the original historic fabric as is possible. Completion of cyclic maintenance, routine repairs, and large-scale restorative work on historic structures often requires more extensive planning, specialized materials and techniques, and trained historic preservation craftspersons, and because of this, historic preservation projects often cost fifty percent or more to complete than new construction and non-historic facility maintenance. This document is not intended to be used as a substitute for

formal scopes of work, but rather as a management tool to assist the City in understanding some of the challenges it faces as stewards of this important resource.

The recommendations presented by the National Park Service (NPS) in this document are for both treatment and documentation. Four different treatments were identified for exterior elements of the light: cedar shingle and flashing replacement, exterior finishes restoration, window and door rehabilitation, and lantern room metals conservation. Should the City of Pacific Grove choose to implement any of these treatment recommendations without NPS assistance, a highly-detailed scope of work should be prepared well in advance by a qualified historical architect. The scope of work should at the very least exactly specify which part(s) of the lighthouse are to be treated, the methods of treatment(s), the materials to be used, project documentation, and how historic fabric samples will be gathered for curation in the museum.

NPS also highly recommends that a Historic Structures Report (HSR) be completed along with baseline photographic and architectural drawings of the lighthouse. The HSR should be prepared for the NPS guidelines and the photographic and architectural drawings should be prepared using *Secretary of the Interior's Standards for Architectural and Engineering Documentation* and the *Secretary of the Interior's Guidelines for Architectural and Engineering Documentation*. These standards and guidelines will provide baseline information that will enable consistent and quality preservation of the lighthouse. The photographs and drawings will also be suitable for inclusion in the Historic American Building Survey (HABS) and the Historic American Engineering Record (HAER) Collections in the Library of Congress.

NPS recommends the City of Pacific Grove complete the HSR for the lighthouse prior to implementing any of the treatments recommended above except for the cedar shingle and flashing replacement. The existing cedar shingle roof and flashings are non-historic and therefore there is less potential for inappropriate treatment and significant and irreversible damage to historic fabric. The remaining treatments are more complex and require the type of analysis and planning that is integral to the HSR and HABS/HAER documentation.

Appendices B and C offer Class C (+/- 10%) cost estimates for undertaking all recommendations presented here except for the costs of the specialized conservation of the Lantern Room metals. The costs of Lantern Room metals conservation would be developed in consultation with a metals conservator. These cost estimates are based on NPS preservation specialists implementing the proposed documentation and treatment. For the proposed treatments, NPS would develop its own scope of work, provide its own preservation craftspersons and project management, perform all documentation related to the project, and also prepare and distribute a site bulletin which describes the lighthouse and the treatment process. For the proposed HSR and HABS/HAER documentation, NPS would assemble a team composed of a qualified historical architect, a cultural resources specialist, and an architectural technician that would be able to accomplish both task concurrently or individually as is requested by the City of Pacific Grove.

The Historic Preservation Projects program is located in Santa Fe, New Mexico, and is part of the Division of Facilities Management of the National Park Service's Intermountain Support Office. Historic Preservation Projects has on staff architects, carpenters, exhibit specialists, and masons who work in partnership with parks, other agencies, partners, and contractors, to help preserve the important buildings and structures located throughout the United States. Questions regarding this document or other projects may be directed to:

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Why Should the Point Pinos Lighthouse Be Preserved?

LIGHTHOUSES AND OUR NATIONAL HERITAGE

Nothing indicates the liberality, prosperity or intelligence of a nation more clearly than the facilities which it affords for the safe approach of the mariner to its shores.

—*Report of the Lighthouse Board, 1868*

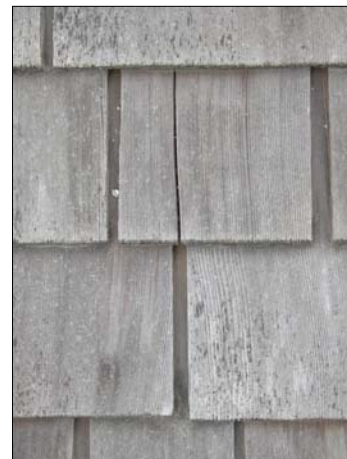
Lighthouses have been a part of our nation from its inception. In 1789, after adopting the Constitution and the Bill of Rights, the First Congress of the United States created the Lighthouse Establishment (in the ninth law passed) to take over the operation of the 12 colonial lighthouses, (including Boston Harbor Lighthouse built in 1716, the first lighthouse established in what today is the United States), as well as to oversee the construction and operation of new lighthouses. The first public works project in the United States was the building of Cape Henry Lighthouse, lighted in 1792. President George Washington took a personal interest in the Cape Henry Lighthouse, approving the construction contracts and the appointment of its first keeper. Similarly, John Adams and Thomas Jefferson attended to similar lighthouse duties during their presidencies. The First Congress placed responsibility for aids to navigation within the Treasury Department, where Alexander Hamilton personally administered them for several years. The high level of attention given to lighthouses by the newly created nation was tied directly to its need for commerce and its desire to compete with other world powers. Lighthouses helped to instill confidence in ship captains as well as foreign governments, symbolically implying that the United States was a responsible world power worthy of due recognition. Today the United States has the largest number of lighthouses as well as the most architecturally diverse, of any country in the world.

By preserving light stations, we preserve for everyone a symbol of that chapter in American history when maritime traffic was the lifeblood of the nation, tying isolated coastal towns and headlands through trade to distant ports of the world. Historic and cultural resources represent our nation's patrimony. The federal government has been turning over many lighthouses by lease, license, or sale to federally recognized non-profit organizations whose mission, at least in part, is to preserve the lighthouse. As stewards for their lighthouses, these organizations have certain responsibilities for proper maintenance and preservation and are expected to carry out these duties for the benefit of citizens both at local and national levels. The continued use and appreciation of these historic light stations is not merely in the interest of historic preservation groups but of the public at large. Each lighthouse is unique in the context of its geographic location, architectural style, and history. Even lighthouses which were sold by the government into private hands will benefit by good stewardship if for no other reason than to maintain their resale value. Where the historic integrity of the light station remains intact, the visitor can experience an important aspect of our maritime heritage (GPO 1997: part 1, pp. 2-3). The Point Pinos Lighthouse, because of its historic integrity and operational history, remains one of the most significant lighthouses on the Pacific Coast. It reflects the social and commercial development of the United States into the sphere of the Pacific Rim. Visitors to Point Pinos will benefit from the opportunity the lighthouse affords to appreciate this vital aspect of our national heritage.

Cedar Shingle Replacement

Condition Description

During the preliminary survey the current cedar shingle roof was inspected and found to be in marginal condition with many of the shingles cracked above the spaces between the shingles below. This condition allows for possible moisture penetration into the building that could result in costly repairs and a loss of historic fabric. In addition, some shingles were missing from the ridges and others showed signs of fungus damage. The roof appears to have been installed using steel staples. Some of the staples were noted to be partially corroded. The staples will continue to corrode and ultimately lose their fastening strength, a condition that could result in catastrophic loss of shingles during a significant weather event, and subsequent damage to or loss of historic fabric.



The flashings details of the roof system were also inspected and found to be in stable condition, but in the areas around the chimneys and the dormers, and at the transition between the original structure and the addition, stainless steel was used. Besides being susceptible to corrosion, stainless steel even when painted is historically inaccurate. The lead flashing at the base of the lantern tower is in good condition; however, cracks were observed at several of the soldered joints that bond together individual pieces.



Recommendations

It is recommended that the cedar shingle roof be replaced as soon as possible.

The first step in reroofing is to strip and dispose of the existing roof system. During this process care should be taken not to damage the roof sheathing boards. Once all of the roofing and underlayment, if present, is removed the sheathing and fascias should be carefully inspected. If any deteriorated wood is discovered, it should be repaired in a manner consistent with the methods established in a formal scope of work or design specifications. In addition, any new material introduced should be date stamped with the current date such as "10-2004" to indicate the material was installed in October of 2004.

Historically, the lighthouse may have been roofed with redwood or cedar shakes or shingles. Research conducted during the preparation of an HSR may identify the original material used; however, new Centigrade No. 1 Blue Label 16-inch red cedar shingles (www.cedarbureau.org) should be used along with 316-grade stainless steel shake-and-shingle fasteners (www.stainless-fasteners.com). The shingle exposure of the existing roof should be duplicated on the new roof. A specialized product called Cedar-Breather may need to be installed beneath the new shingles if solid sheathing is present (<http://www.benjaminobdyke.com>).

New flashing should be installed during the roof replacement and should be 16 ounce (per square foot) cold rolled copper. Flashing replacement should follow standard practice as illustrated in *Standard Practice in Sheet Metal Work* (NASMC 1929; <http://www.smacna.org>). Where the stainless steel flashing has been integrated into the historic masonry of the chimneys and walls, it must be removed gently with care taken not to further disturb the masonry. Once the flashing is removed, any areas where the masonry has deteriorated, such as at the transition between the main structure and the addition, should be repaired using appropriate materials. Once the repairs are completed, the reglets should be recut to a depth of 1 to 1-1/2 inches and no wider than the existing mortar joints.

During the inspection of the roof some damage was noted to the cedar shingle vertical siding at the bottom distal corners of the east elevation dormers. This condition should be remedied during the roof replacement by carefully lacing in new shingles and following the fastening instructions for the rest of the roof surfaces. Once the new shingles have been installed they should be primed with a good quality oil-base primer and given a color coat to match the existing color.



Exterior Finishes Restoration

All of the exterior surfaces of the lighthouse, except the cedar shingle roof, have been painted many times over the years. Many of the windows are painted shut and it is unknown if the sash pulley, ropes, and weights still function correctly; these issues are discussed in the next section, *Window and Door Rehabilitation*. The treatment of the exterior finishes should be separated into two distinct treatment actions based on the substrates. The main structure and addition have both wood and stones substrates, while the Lantern Room has iron and brass/bronze substrates. The recommendations presented in this section apply only to the exterior painted surfaces with wood and stone substrates. The substrates and painted surfaces of the Lantern Room require special conservation and treatment and are discussed in the *Lantern Room Metals Conservation* section below.

Prior to the restoration of any of the finishes, it is recommended that a study of the finishes history or chromochronology of the structure be developed. The purpose of this study is to determine the types of finishes and/or paints and the colors used during different periods of the building's history. If the exterior finish restoration is completed in the absence of an HSR for the structure, the finishes study would help guide the restoration of the finishes and could later be easily incorporated into an HSR.

Condition Description

During the inspection, paint failure was noted on all of the windows and in some case there were areas of exposed wood on the sashes. Some paint failure was also noted at the base of the north elevation stone wall of the main part of the building. This failure appears to be occurring at the interface between the accumulated layers of paint and what initially appears to be a lime wash. The exact cause of the paint separation has not been determined.

As the main part of the structure was constructed primarily of what appears to be local granite, the historic finish was likely a form of lime wash or lime plaster. The finishes study would answer this question. Granite walls appear to extend below grade forming the basement of the structure. It is unknown if there is any type of finish on the stonework extending below grade; however it is very unlikely. Depending on the composition and porosity of the stone, there is a high potential for moisture to be absorbed by the stone and for the moisture to migrate into the interior of the building. This condition may cause two affects: the stone itself may be subject to accelerated decomposition, and the moisture levels in the interior of the building might also be increased. The latter possibility might help to explain the increased moisture levels observed during the inspection of the building by the Facility Management Team of the United States Coast Guard on January 11, 2003 (USCG 2003:2-3). Similar problems have also been observed at a sister lighthouse, the Old Point Loma Lighthouse at Cabrillo National Monument in San Diego, California (NPS 1981:174). This building, however, was constructed primarily of sandstone, which is generally more susceptible to an increased rate of deterioration caused by migrating moisture trapped within painted walls. Prior to any restoration of the finishes, these conditions should be thoroughly investigated.



Also during the inspection, rust spots were observed on nearly all areas of the wood siding. This is caused by the corrosion of fasteners in the substrate bleeding through the paint. While the ubiquitous deterioration of the historic steel fasteners presents a long-term problem that will eventually result in decreased fastening strength and then complete failure, this condition may be slowed through the restoration of the finishes. Further investigation of the extent of fastener deterioration should be undertaken to determine whether the fasteners should be supplemented or replaced prior to treatment.

Another condition that was observed that must be corrected prior to restoration of the finishes is the documentation, removal, and replacement of the cornice flashing on the west wall of the enclosed west porch. Here the flashing appears to be plain steel or galvanized steel, and the flashing is even corroded entirely away in one area.

It should be assumed lead-based paint is present on all exterior surfaces.

Recommendations

Based on the conditions observed, NPS recommends the exterior finishes be restored as soon as possible, but after an HSR has been completed for the lighthouse. Deterioration of the window sashes is increasing as the finishes fail. Similarly, the steel fasteners will continue to deteriorate at a rapid rate until the finishes can be restored. The deteriorated cornice flashing on the west wall of the west porch should be replaced with a piece of 16 ounce (per square foot) cold rolled copper fabricated to match the existing steel flashing.

The restoration of the exterior finishes is a complex process that requires the type of research typically conducted as part of an HSR. The research would more exactly identify the causes of the problems and the most appropriate solutions. Whether or not an HSR is prepared prior to the restoration of the finishes, the restoration must be conducted concurrently with the rehabilitation of the windows and doors.



Window and Door Rehabilitation

Condition Description



All of the windows inspected exhibited various levels and types of deterioration. Most windows appear to be painted shut and it is unknown if the hardware and counterweight systems are functioning. The paint finishes on the window sashes and frames are failing in many areas and the wood beneath is exposed to the elements. This condition is causing irreparable deterioration of the sashes and frames. Over the years the window glazing has been repaired in many areas and some of these efforts were poorly accomplished. In general, the glazing is breaking down; in many areas it has entirely separated from the muntins and glass. In many areas sections of glazing are also missing. These conditions are points of entry for moisture which will cause further and accelerated deterioration of the historic fabric.

As the structure has two distinct temporal components, the original or main part of the lighthouse built in the mid-19th century, and the addition added in the early part of the 20th century, the windows and glass should be reflective of those periods; however, window replacement in the main part of the lighthouse has changed both the configuration of the sashes and the type of glass. The existing one-over-one double hung windows on the first floor west elevation and the second floor north and south elevations were probably originally six-over-six. The two original basement six light casement windows in the west elevation have been removed and replaced with plywood. The survey also identified several glass fractured glass panes and several replacement panes that do not match the existing historic glass. It should be assumed that lead-based paint and glazing is present on all windows.

Recommendations

The rehabilitation of the windows and exterior doors is a complex process that requires the type of analysis typically conducted as part of an HSR before it can be undertaken. The analysis would more exactly identify the original configuration of the sashes, the causes of the conditions, and the most appropriate solutions. Whether or not an HSR is prepared prior to the rehabilitation of the windows and exterior doors, the rehabilitation must be conducted concurrently with the restoration of the other exterior finishes. Also, a study of the finishes history or chromochronology of the structure should be developed prior to the rehabilitation. The purpose of this study is to determine the types of finishes and/or paints and the colors used during different periods of the building's history.

The key to successful planning for window treatments is a careful evaluation of existing physical conditions on a unit-by-unit basis. A graphic or photographic system may be devised to record existing conditions and illustrate the scope of any necessary repairs. Another effective tool is a window schedule which lists all of the parts of each window unit. Spaces by each part allow notes on existing conditions and repair instructions. When such a schedule is completed, it indicates the precise tasks to be performed in the repair of each unit and becomes a part of the specifications. Time did not permit the development of a fenestration schedule for the lighthouse during the initial site visit, however, a fenestration condition and repair schedule would typically be developed as part of an HSR.

Lantern Room Metals Conservation

Condition Description

The preliminary survey focused on the exterior glass, steel, iron, and brass components of the balcony, railings, access door, windows, and walls of the lantern room. Access to the metal domed roof was unavailable and no detailed inspection of it was performed. In general, the lantern room appears to be in good condition; however, the beginnings of some very serious problems with the balcony, the access door, and walls were identified, and left unchecked these problems will lead to significant loss of historic fabric and increased conservation costs. The glass enclosing the lantern room was inspected and found to have no deficiencies.

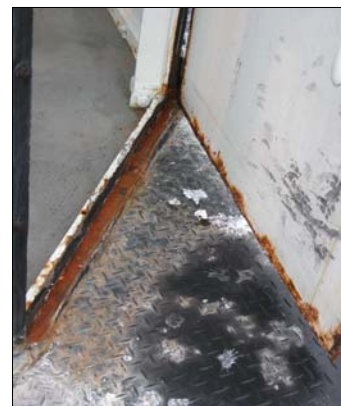
The two most significant conditions observed were the breakdown of the finishes to the iron plates which form the walls of the lantern room, and the corrosion and expansion of the steel brackets and plates that support and compose the balcony floor.

The walls of the lantern room are made from sheet iron and are held in place by brass astragals. The exterior paint finishes are breaking down and in some areas the iron is exposed and corroding. The access door through the lantern room wall to the balcony exhibits the most deterioration, particularly at the bottom where, due to scragging at the hinges, it is scragging the base of the opening.

The most curious condition observed was that of the interface between the diamond steel balcony floor plates and the support brackets. The floor plates and support brackets appear to be non-historic reconstructions probably installed by the USCG within the last 20 years. At the butt joints of the floor plates directly above the brackets, the plates are buckling upward from what appears to be corrosive expansion or 'rust-jacking'; however, on inspection of the brackets, no rust streaks were observed below areas where they would be expected such as at fastener holes and joints in the steel. Rather, in these areas, there were moist pasty deposits at the fastener holes that were possibly damp salt formations or the residue from galvanic corrosion resulting from a breakdown in the non-reactive material that isolates the sheet iron wall plates from the brass astragals. More likely it is the former condition, but has not yet advanced to the point where corrosion is visible. In either case it appears that water is penetrating through joints between the steel balcony floor plates is causing some sort of expansive corrosion. Further inspection of these joints is required to determine the exact cause of the condition observed.

Recommendations

NPS recommends that the metal domed roof of the lantern room be thoroughly inspected to identify any additional areas of metals deterioration. Further, the metals that were inspected and found to exhibit varying signs of corrosion should be stripped, conserved and recoated with an appropriate coating. As the lantern room was designed and built as a package, many of its historic components were numbered at each joint or corner to assist in rapid assembly. The process of correcting the moisture penetration and finish failure will require careful and systematic



disassembly of constituent components. The balcony floor plates and support brackets, railings, access door, and walls of the lantern room should not be surface painted without first being removed and conserved, and individually finished. Once individually conserved and refinished, they could be reinstalled and then surface painted with a final coat. This work is best defined as part of the HSR, which would provide a thorough study of the conditions and their causes, and define the best method for conservation. Any metals restoration work should be completed by or in consultation with a qualified historic metals conservation specialist.

Treatment Documentation

Treatment documentation is one of the most important aspects of any historic preservation project and is often the most overlooked part of the treatment of historic structures. Guidance for documentation related to treatment may also be found in *NPS 28, Cultural Resource Management Guideline* (NPS 1997).

Documentation should include any information that is relevant to the project and which may be referenced to understand how decisions regarding treatment were made, to evaluate the success or failure of treatment, what was treated, and when it was treated. A simple rule of thumb for deciding what to include in the documentation is to ask what information will be needed when the project area is treated again in the future.

There are three main components to treatment documentation and these components must be included in any treatment of the Point Pinos Lighthouse:

Pre-Treatment Documentation – The area for which treatment is planned should be photographed and described in detail so that accurate comparisons may be made when analyzing the effectiveness of the treatment, and so that the area does not receive redundant treatment.

Treatment Documentation – During all phases treatment, the area being treated and any materials that were prepared away from the area as part of the treatment should also be photographed and described in detail so that the success or failure of the treatment may be attributed to the materials and methods used in the treatment. Documentation should focus on the materials used, the method of their employment, and the environmental factors present during treatment.

Post-Treatment Documentation – After treatment has been completed, all information related to the treatment should be gathered together into one place such as a paper file or digital data. This information should then be compiled into a formal *Record of Treatment*. The *Record of Treatment* may be as little as memorandum or as large as a multi-volume report. The contents of the *Record of Treatment* must include a photographic and written narrative of the treatment process, steps taken to be in compliance with the National Historic Preservation Act if required, project correspondence if there was any, weekly or daily work reports, the safety plan, materials data such as product information and Materials Safety Data Sheets (MSDS), a vendor list including contact addresses and telephone numbers, any drawings and notes prepared as part of the treatment, and any other relevant information that might help understand and evaluate the treatment in the future.

PHOTOGRAPHIC DOCUMENTATION

Because of advances in digital imaging technology the format standards for treatment documentation are changing. Digital imaging is a far superior method for capturing the details of treatment as high resolution images can be made much more practically than traditional film images, however, the longevity of image storage methods such as CD-ROM and DVD-ROM are in question as are also the availability of the software and hardware required to read these storage mediums in the distant future. Though this is a concern, digital photography may still be used for documentation. The best

film alternative is high-resolution black-and-white 35mm film photography, though this takes more skill to use. The benefit of black-and-white 35mm film photography is that its long history of use has shown that it is stable storage medium is stored in an equally stable environment such as a museum/curatorial facility.

Regardless of which photographic format is used, the photographer should seek to fill the frame of each image with as much of the subject as possible. Consideration of lighting conditions is also important, because the presence or absence of shadows may be needed to convey the meaning of the image. In addition, a photo log should be kept during treatment and should at minimum include the project name, image number, photographer, date, perspective, and a description of the subject.

WRITTEN DOCUMENTATION

Written documentation supplements the photographic description of treatment by including information that can not be determined from photographic images alone. The written description should also tie together all of the aspects of the project together and may include selected photographs for further illustration. Written documentation should include a description of the sequences of specific tasks such as when and how tools and materials were used to perform an area-specific wood treatment. The written documentation is where specific names of materials, quantities, dimensions, tools types and sizes, and other information should be provided. For example, a photograph may show a piece of exterior wood being cleaned with a liquid and a brush. The written description is where one would specify that the liquid being used is a mild 10:1 solution of purified water and Clorox bleach and that the brush is soft brass 1-3/8 x 7-3/4-inch plater's brush with 1/2-inch bristles from the GSA Supply Catalog.

Regardless of whether a memorandum or a multi-volume *Record of Treatment* is prepared at the end of a treatment project, multiple copies of the documentation should be made and at the very least distributed to the museum curator along with original film prints and negatives.

The Historic Structure Report

As a rule, research about a historic structure should complement existing information and strive to produce a comprehensive understanding of the structure in order to adequately address management objectives. Research effort should be proportional to the significance of the structure and the range of effects associated with the objectives. Although individual features, areas, or systems may be emphasized, research should approach the structure as a whole.

Research needed to supply missing information should be defined in terms of subject, scope, and level of investigation. The subject may range from one feature on a single historic structure to a complex of structures. Scope includes but is not limited to thematic context, physical documentation, temporal associations, developmental history, scientific value, and material analysis. Level of investigation describes the nature and location of sources to be consulted and the degree to which extant material will be disturbed or destroyed during research. These considerations are described in the task directive and research design for every substantial research effort. (See "Research Methodology" in Chapter 2.)

Destructive techniques, such as archeological excavation and selective demolition, should be used only when alternatives are inadequate to provide information essential for evaluating, planning for, treating, or interpreting a historic structure. Any research that would directly impact a cultural resource must be reviewed in advance through the compliance process.

The historic structure report (HSR) is the primary guide to treatment and use of a historic structure and may also be used in managing a prehistoric structure. A separate HSR should be prepared for every major structure managed as a cultural resource. Groups of similar structures or ensembles of small, simple structures may be addressed in a single report. In no case should restoration, reconstruction, or extensive rehabilitation of any structure be undertaken without an approved HSR, Parts 1 and 2.

An HSR includes the following:

Management Summary. This is a concise account of research done to produce the HSR, major research findings, major issues identified in the task directive, and recommendations for treatment and use. Administrative data on the structure and related studies are included.

Part 1, Developmental History, is a scholarly report documenting the evolution of a historic structure, its current condition, and the causes of its deterioration. It is based on documentary research and physical examination. The scope of documentary research may extend beyond the physical development of the structure if needed to clarify the significance of the resource or to refine contextual associations. If the

Part 2, Treatment and Use, presents and evaluates alternative uses and treatments for a historic structure. Emphasis is on preserving extant historic material and resolving conflicts that might result from a structure's "ultimate treatment." Part 2 concludes

by recommending a treatment and use responding to objectives identified by park management. In most cases, design work does not go beyond schematics.

Part 3, Record of Treatment, is a compilation of information documenting actual treatment. It includes accounting data, photographs, sketches, and narratives outlining the course of work, conditions encountered, and materials used.

All aspects of a historic structure and its immediate grounds should be addressed in an HSR. Potential overlaps with other cultural resource types and natural resource issues should be identified, and applicable studies and reports should be called for or referenced. An HSR and analogous reports (e.g., a cultural landscape report) may be combined to address multiple resource types at a single property or area.

MODEL HSR CONTENTS

- i. i. Cover Page
- ii. ii. Table of Contents
- iii. iii. Executive Summary. This introductory text provides a concise account of (a) research done to produce the HSR, (b) major research findings, (c) major issues identified in the task directive, and (d) recommendations for treatment or use. Deviations from general planning documents should be identified here and discussed more fully in the body of the report.
- iv. iv. Administrative Data. This section contains (a) names, numbers, and location data used to refer to the historic structure, (b) the proposed treatment of the structure including the source document, (c) related studies, (d) cultural resource data including date listed in the National Register, period of significance, and context of significance, and (e) recommendations for documentation, cataloging, and storage of materials generated by the HSR.

PART 1. DEVELOPMENTAL HISTORY

- A. A. Historical Background and Context. This section briefly describes the people and events associated with the structure. The section should establish a recommended period or periods of significance if this has not been done in the National Register nomination or other historic resource study.
- B. B. Chronology of Development and Use. Physical construction, modification, and use of the structure is summarized in this section. The text should be based on historical documentation with corroboration from first-hand observation and materials analysis.
- C. C. Physical Description. This section contains a systematic accounting of all features, materials, and spaces according to age, significance, and condition. Copies of computer-generated inspection reports should be included in the appendix but summarized in the body of the chapter. The text should also discuss causes of deterioration and structural adequacy.

PART 2. TREATMENT AND USE

- A. A. Ultimate Treatment and Use. This narrative discusses and analyzes the ultimate treatment and use of the structure as defined in park planning documents. If they have not been defined, this section may recommend an ultimate treatment and use. If analysis of the structure suggests that a planned treatment or use would adversely affect it, the text may present an alternative approach.
- B. B. Requirements for Treatment. In concise terms, this text outlines applicable laws, regulations, and functional requirements. Specific attention should be given to issues of human safety, fire protection, energy conservation, abatement of hazardous materials, and handicapped accessibility.
- C. C. Alternatives for Treatment. This section presents and evaluates alternative approaches to realization of the ultimate treatment. Alternatives are presented in both text and graphic form. Analysis addresses the adequacy of each solution in terms of impact on historic materials, effect on historic character, compliance with NPS policy, and other management objectives. The section concludes with elaboration on the recommended course of action and specific recommendations for preservation treatments.

PART 3. RECORD OF TREATMENT

- A. A. *Record of Treatment*. This section summarizes (a) the intent of the work, (b) the way in which the work was approached and accomplished, (c) the time required to do the work, and (d) the cost of the work. It also describes any information about the history of the structure based on physical evidence discovered during construction, and (e) the technical data such as copies of field reports, material data sheets, field notes, correspondence, accounting spread sheets, and contract summaries.

APPENDIX

- Bibliography
- Drawings
- Photographs
- Materials Analysis

Parts 1 and 2 of an HSR should be prepared jointly as part of a comprehensive effort soon after acquisition of a structure or recognition of its status as a cultural resource. In no case should a Part 2 be prepared without a Part 1.

The scope, level of investigation, and extent of schematic development are outlined in a task directive that is based on the recommendations of a historical architect in consultation with other cultural resource specialists. Major factors considered in developing the task directive include the structure's significance, condition, and intended use. The task directive should also address participation of other cultural resource specialists and publication of the document.

The following standards apply:

- A historic structure report (HSR) is prepared to minimize loss of character-defining features and materials whenever existing information about the developmental history and condition of the historic structure does not provide an adequate basis upon which to address anticipated management objectives, whenever alternative courses of action for impending treatment and use could have adverse effects, or to record treatment.
- Architectural, landscape, and archeological investigations supporting an HSR have the least possible impact on the property studied and employ nondestructive methods to the maximum extent possible; they are prescribed and justified in a task directive that includes a research design and impact analysis.

The National Park Service recommends the Point Pinos Lighthouse be fully documented in conjunction with the preparation of a historic structure report. The documentation should adhere to the *Secretary of the Interior's Standards for Architectural and Engineering Documentation* and the *Secretary of the Interior's Guidelines for Architectural and Engineering Documentation* provided below.

Resource Documentation

SECRETARY OF THE INTERIOR'S STANDARDS FOR ARCHITECTURAL AND ENGINEERING DOCUMENTATION

These standards concern the development of documentation for historic buildings, sites, structures and objects. This documentation, which usually consists of measured drawings, photographs and written data, provides important information on a property's significance for use by scholars, researchers, preservationists, architects, engineers and others interested in preserving and understanding historic properties. Documentation permits accurate repair or reconstruction of parts of a property, records existing conditions for easements, or may preserve information about a property that is to be demolished.

These Standards are intended for use in developing documentation to be included in the Historic American Building Survey (HABS) and the Historic American Engineering Record (HAER) Collections in the Library of Congress. HABS/HAER, in the National Park Service, have defined specific requirements for meeting these Standards for their collections. The HABS/HAER requirements include information important to development of documentation for other purposes such as State or local archives.

Standard I. Documentation Shall Adequately Explicate and Illustrate What is Significant or Valuable About the Historic Building, Site, Structure or Object Being Documented.

The historic significance of the building, site, structure or object identified in the evaluation process should be conveyed by the drawings, photographs and other materials that comprise documentation. The historical, architectural, engineering or cultural values of the property together with the purpose of the documentation activity determine the level and methods of documentation. Documentation prepared for submission to the Library of Congress must meet the HABS/HAER Guidelines.

Standard II. Documentation Shall be Prepared Accurately From Reliable Sources With Limitations Clearly Stated to Permit Independent Verification of the Information.

The purpose of documentation is to preserve an accurate record of historic properties that can be used in research and other preservation activities. To serve these purposes, the documentation must include information that permits assessment of its reliability.

Standard III. Documentation Shall be Prepared on Materials That are Readily Reproducible, Durable and in Standard Sizes.

The size and quality of documentation materials are important factors in the preservation of information for future use. Selection of materials should be based on the length of time expected for storage, the anticipated frequency of use and a size convenient for storage.

Standard IV. Documentation Shall be Clearly and Concisely Produced.

In order for documentation to be useful for future research, written materials must be legible and understandable, and graphic materials must contain scale information and location references.

SECRETARY OF THE INTERIOR'S GUIDELINES FOR ARCHITECTURAL AND ENGINEERING DOCUMENTATION

Introduction

These Guidelines link the Standards for Architectural and Engineering Documentation with more specific guidance and technical information. They describe one approach to meeting the Standards for Architectural Engineering Documentation. Agencies, organizations or individuals proposing to approach documentation differently may wish to review their approaches with the National Park Service.

The Guidelines are organized as follows:

Definitions

Goal of Documentation

The HABS/HAER Collections

Standard I: Content

Standard II: Quality

Standard III: Materials

Standard IV: Presentation

Architectural and Engineering Documentation Prepared for Other Purposes

Recommended Sources of Technical Information

Definitions

These definitions are used in conjunction with these Guidelines:

Architectural Data Form—a one page HABS form intended to provide identifying information for accompanying HABS documentation.

Documentation—measured drawings, photographs, histories, inventory cards or other media that depict historic buildings, sites, structures or objects.

Field Photography—photography, other than large-format photography, intended for the purpose of producing documentation, usually 35mm.

Field Records—notes of measurements taken, field photographs and other recorded information intended for the purpose of producing documentation.

Inventory Card—a one page form which includes written data, a sketched site plan and a 35mm contact print dry-mounted on the form. The negative, with a separate contact sheet and index should be included with the inventory card.

Large Format Photographs—photographs taken of historic buildings, sites, structures or objects where the negative is a 4 X 5", 5 X 7" or 8 X 10" size and where the photograph is taken with appropriate means to correct perspective distortion.

Measured Drawings—drawings produced on HABS or HAER formats depicting existing conditions or other relevant features of historic buildings, sites, structures or objects. Measured drawings are usually produced in ink on archivally stable material, such as mylar.

Photocopy—A photograph, with large format negative, of a photograph or drawing.

Select Existing Drawings—drawings of historic buildings, sites, structures or objects, whether original construction or later alteration drawings that portray or depict the historic value or significance.

Sketch Plan—a floor plan, generally not to exact scale although often drawn from measurements, where the features are shown improper relation and proportion to one another.

Goal of Documentation

The Historic American Buildings Survey (HABS) and Historic American Engineering Record (HAER) are the national historical architectural and engineering documentation programs of the National Park Service that promote documentation incorporated into the HABS/HAER collections in the Library of Congress. The goal of the collections is to provide architects, engineers, scholars, and interested members of the public with comprehensive documentation of buildings, sites, structures and objects significant in American history and the growth and development of the built environment.

The HABS/HAER Collections

HABS/HAER documentation usually consists of measured drawings, photographs and written data that provide a detailed record which reflects a property's significance. Measured drawings and properly executed photographs act as a form of insurance against fires and natural disasters by permitting the repair and, if necessary, reconstruction of historic structures damaged by such disasters. Documentation is used to provide the basis for enforcing preservation easement. In addition, documentation is often the last means of preservation of a property; when a property is to be demolished, its documentation provides future researchers access to valuable information that otherwise would be lost.

HABS/HAER documentation is developed in a number of ways. First and most usually, the National Park Service employs summer teams of student architects, engineers, historians and architectural historians to develop HABS/HAER documentation under the supervision of National Park Service professionals. Second, the National Park Service produces HABS/HAER documentation, in conjunction with restoration or other preservation treatment, of historic buildings managed by the National Park Service. Third, Federal agencies, pursuant to Section 110(b) of the National Historic Preservation Act, as amended, record those historic properties to be demolished or substantially altered as a result of agency action or assisted action (referred to as mitigation projects). Fourth, individuals and organizations prepare documentation to HABS/HAER standards and donate that documentation to the HABS/HAER collections. For each of these programs, different Documentation Levels will be set.

The Standards describe the fundamental principles of HABS/HAER documentation. They are supplemented by other material describing more specific guidelines, such as line weights for drawings, preferred techniques for architectural photography, and formats for written data. This technical information is found in the HABS/HAER Procedures Manual.

These Guidelines include important information about developing documentation for State or local archives. The State Historic Preservation Officer or the State library should be consulted regarding archival requirements if the documentation will become part of their collections. In establishing archives, the important questions of durability and reproducibility should be considered in relation to the purposes of the collection.

Documentation prepared for the purpose of inclusion in the HABS/HAER collections must meet the requirements below. The HABS/HAER office of the National Park Service retains the right to refuse to accept documentation for inclusion in the HABS/HAER collections when that documentation does not meet HABS/HAER requirements, as specified below.

Standard I: Content

1. *Requirement:* Documentation shall adequately explicate and illustrate what is significant or valuable about the historic building, site, structure or object being documented.

2. *Criteria:* Documentation shall meet one of the following documentation levels to be considered adequate for inclusion in the HABS/HAER collections.

a. Documentation Level I:

(1) Drawings: a full set of measured drawings depicting existing or historic conditions.

(2) Photographs: photographs with large-format negatives of exterior and interior views; photocopies with large format negatives of select existing drawings or historic views where available.

(3) Written data: history and description.

b. Documentation Level II:

(1) Drawings: select existing drawings, where available, should be photographed with large-format negatives or photographically reproduced on mylar.

(2) Photographs: photographs with large-format negatives of exterior and interior views, or historic views, where available.

(3) Written data: history and description.

c. Documentation Level III:

(1) Drawings: sketch plan.

(2) Photographs: photographs with large-format negatives of exterior and interior views.

(3) Written data: architectural data form.

d. Documentation Level IV: HABS/HAER inventory card.

3. *Test*: Inspection of the documentation by HABS/HAER staff.

4. *Commentary*: The HABS/HAER office retains the right to refuse to accept any documentation on buildings, sites, structures or objects lacking historical significance. Generally, buildings, sites, structures or objects must be listed in, or eligible for listing in the National Register of Historic Places to be considered for inclusion in the HABS/HAER collections.

The kind and amount of documentation should be appropriate to the nature and significance of the buildings, site, structure or object being documented. For example, Documentation Level I would be inappropriate for a building that is a minor element of a historic district, notable only for streetscape context and scale. A full set of measured drawings for such a minor building would be expensive and would add little, if any, information to the HABS/HAER collections. Large format photography (Documentation Level III) would usually be adequate to record the significance of this type of building.

Similarly, the aspect of the property that is being documented should reflect the nature and significance of the building, site, structure or object being documented. For example, measured drawings of Dankmar Adler and Louis Sullivan's Auditorium

Building in Chicago should indicate not only facades, floor plans and sections, but also the innovative structural and mechanical systems that were incorporated in that building. Large format photography of Gunston Hall in Fairfax County, Virginia, to take another example, should clearly show William Buckland's hand-carved moldings in the Palladian Room, as well as other views.

HABS/HAER documentation is usually in the form of measured drawings, photographs, and written data. While the criteria in this section have addressed only these media, documentation need not be limited to them. Other media, such as films of industrial processes, can and have been used to document historic buildings, sites, structures or objects. If other media are to be used, the HABS/HAER office should be contacted before recording.

The actual selection of the appropriate documentation level will vary, as discussed above. For mitigation documentation projects, this level will be selected by the National Park Service Regional Office and communicated to the agency responsible for completing the documentation. Generally, Level I documentation is required for nationally significant buildings and structures, defined as National Historic Landmarks and the primary historic units of the National Park System.

On occasion, factors other than significance will dictate the selection of another level of documentation. For example, if a rehabilitation of a property is planned, the owner may wish to have a full set of as-built drawings, even though the significance may indicate Level II documentation.

HABS Level I measured drawings usually depict existing conditions through the use of a site plan, floor plans, elevations, sections and construction details. HAER Level I measured drawings will frequently depict original conditions where adequate historical material exists, so as to illustrate manufacturing or engineering processes.

Level II documentation differs from Level I by substituting copies of existing drawings, either original or alteration drawings, for recently executed measured drawings. If this is done, the drawings must meet HABS/HAER requirements outlined below. While existing drawings are rarely as suitable as as-built drawings, they are adequate in many cases for documentation purposes. Only when the desirability of having as-built drawings is clear are Level I measured drawings required in addition to existing drawings. If existing drawings are housed in an accessible collection and cared for archivally, their reproduction for HABS/HAER may not be necessary. In other cases, Level I measured drawings are required in the absence of existing drawings.

Level III documentation requires a sketch plan if it helps to explain the structure. The architectural data form should supplement the photographs by explaining what is not readily visible.

Level IV documentation consists of completed HABS/HAER inventory cards. This level of documentation, unlike the other three levels, is rarely considered adequate

documentation for the HABS/HAER collections but is undertaken to identify historic resources in a given area prior to additional, more comprehensive documentation.

Standard II: Quality

1. *Requirement:* HABS and HAER documentation shall be prepared accurately from reliable sources with limitations clearly stated to permit independent verification of information.

2. *Criteria:* For all levels of documentation, the following quality standards shall be met:

a. *Measured drawings:* Measured drawings shall be produced from recorded, accurate measurements. Portions of the building that were not accessible for measurement should not be drawn on the measured drawings, but clearly labeled as not accessible or drawn from available construction drawings and other sources and so identified. No part of the measured drawings shall be produced from hypothesis or non-measurement related activities. Documentation Level I measured drawings shall be accompanied by a set of field notebooks in which the measurements were first recorded. Other drawings, prepared for Documentation Levels II and III, shall include a statement describing where the original drawings are located.

b. *Large format photographs:* Large format photographs shall clearly depict the appearance of the property and areas of significance of the recorded building, site, structure or object. Each view shall be perspective-corrected and fully captioned.

c. *Written history:* Written history and description for Documentation Levels I and II shall be based on primary sources to the greatest extent possible. For Levels III and IV, secondary sources may provide adequate information; if not primary research will be necessary. A frank assessment of the reliability and limitations of sources shall be included. Within the written history, statements shall be footnoted as to their sources, where appropriate. The written data shall include a methodology section specifying name of researcher, date of research, sources searched, and limitations of the project.

3. *Test:* Inspection of the documentation by HABS/HAER staff.

4. *Commentary:* The reliability of the HABS/HAER collections depends on documentation of high quality. Quality is not something that can be easily prescribed or quantified, but it derives from a process in which thoroughness and accuracy play a large part. The principle of independent verification of HABS/HAER documentation is critical to the HABS/HAER collections.

Standard III: Materials

1. *Requirement:* HABS and HAER documentation shall be prepared on materials that are readily reproducible for ease of access; durable for long storage; and in standard sizes for ease of handling.

2. *Criteria:* For all levels of documentation, the following material standards shall be met:

a. Measured Drawings:

- Readily Reproducible: Ink on translucent material.
- Durable: Ink on archivally stable materials.
- Standard Sizes: Two sizes: 19 x 24" or 24 x 36".

b. Large Format Photographs:

- Readily Reproducible: Prints shall accompany all negatives.
- Durable: Photography must be archivally processed and stored.
- Negatives are required on safety film only. Resin-coated paper is not accepted. Color photography is not acceptable.
- Standard Sizes: Three sizes: 4 x 5", 5 x 7", 8 x 10".

c. Written History and Description:

- Readily Reproducible: Clean copy for xeroxing.
- Durable: Archival bond required.
- Standard Sizes: 8 1/2 x 11".

d. Field Records:

- Readily Reproducible: Field notebooks may be xeroxed. Photo identification sheet will accompany 35mm negatives and contact sheets.
- Durable: No requirement.
- Standard Sizes: Only requirement is that they can be made to fit into a 9 1/2 x 12" archival folding file.

3. *Test:* Inspection of the documentation by HABS/HAER staff.

4. *Commentary:* All HABS/HAER records are intended for reproduction; some 20,000 HABS/HAER records are reproduced each year by the Library of Congress. Although field records are not intended for quality reproduction, it is intended that they be used to supplement the formal documentation. The basic durability performance standard for HABS/HAER records is 500 years. Ink on mylar is believed to meet this standard, while color photography, for example, does not. Field records do not meet this archival standard, but are maintained in the HABS/HAER collections as a courtesy to the collection user.

Standard IV: Presentation

1. *Requirement:* HABS and HAER documentation shall be clearly and concisely produced.

2. *Criteria:* For levels of documentation as indicated below, the following standards for presentation will be used:

a. *Measured Drawings:* Level I measured drawings will be lettered mechanically (i.e., Leroy or similar) or in a handprinted equivalent style. Adequate dimensions shall be included on all sheets. Level III sketch plans should be neat and orderly.

b. *Large format photographs:* Level I photographs shall include duplicate photographs that include a scale. Level II and III photographs shall include, at a minimum, at least one photograph with a scale, usually of the principal facade.

c. *Written history and description:* Data shall be typewritten on bond, following accepted rules of grammar.

3. *Test:* Inspection of the documentation by HABS/HAER staff.

Architectural and Engineering Documentation Prepared for Other Purposes

Where a preservation planning process is in use, architectural and engineering documentation, like other treatment activities, are undertaken to achieve the goals identified by the preservation planning process. Documentation is deliberately selected as a treatment for properties evaluated as significant, and the development of the documentation program for a property follows from the planning objectives. Documentation efforts focus on the significant characteristics of the property, as defined in the previously completed evaluation. The selection of a level of documentation and the documentation techniques (measured drawings, photography, etc.) is based on the significance of the property and the management needs for which the documentation is being performed. For example, the kind and level of documentation required to record a historic property for easement purposes may be less detailed than that required as mitigation prior to destruction of the property. In the former case, essential documentation might be limited to the portions of the property controlled by the easement, for example, exterior facades; while in the latter case, significant interior architectural features and non-visible structural details would also be documented.

The principles and content of the HABS/HAER criteria may be used for guidance in creating documentation requirements for other archives. Levels of documentation and the durability and sizes of documentation may vary depending on the intended use and the repository. Accuracy of documentation should be controlled by assessing the reliability of all sources and making that assessment available in the archival record; by describing the limitations of the information available from research and physical examination of the property; and by retaining the primary data (field measurements and notebooks) from which the archival record was produced. Usefulness of the documentation products depends on preparing the documentation

on durable materials that are able to withstand handling and reproduction, and in sizes that can be stored and reproduced without damage.

Recommended Sources of Technical Information

Recording Historic Buildings. Harley J. McKee. Government Printing Office, 1970. Washington, D.C.

HABS/HAER Procedures Manual. Historic American Buildings Survey/Historic American Engineering Record, National Park Service, 1980. Washington, D.C.

Photogrammetric Recording of Cultural Resources. Terry E. Borchers. Technical Preservation Services, U.S. Department of the Interior, 1977. Washington, D.C.

Rectified Photography and Photo Drawings for Historic Preservation. J. Henry Chambers. Technical Preservation Services, U.S. Department of the Interior, 1975. Washington, D.C.

Bibliography

National Association of Sheet Metal Contractors (NMASC)

- 1929 *Standard Practice in Sheet Metal Work*. National Association of Sheet Metal Contractors, Pittsburgh, Pennsylvania.

National Park Service (NPS)

- 1981 *Historic Structure Report: The Old Point Loma Lighthouse, Cabrillo National Monument, San Diego, California*. U.S. Department of the Interior, National Park Service, Denver Service Center, Denver, Colorado.
- 1983 The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, 48 FR 44716, in *National Park Service Cultural Resource Guideline*. Release No. 5, U.S. Department of the Interior, National Park Service, Washington, D.C. (1997).
- 1995 *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings*. U.S. Department of the Interior, National Park Service, Washington, D.C.
- 1997 *National Park Service Cultural Resource Guideline*. Release No. 5, U.S. Department of the Interior, National Park Service, Washington, D.C.

United States Coast Guard (USCG)

- 2003 *FY03 Biennial Facility Assessment, Point Pinos Lighthouse*. Civil Engineering Unit, United States Coast Guard, Oakland, California.



Appendix A – *Links to Historic Preservation Laws, Standards and Guidelines, and Technical Briefs*

[Annotated - National Historic Preservation Act of 1966, as amended through 2000 \(16 U.S.C. § 470 et seq.\) \(http://www2.cr.nps.gov/laws/NHPA1966.htm\)](http://www2.cr.nps.gov/laws/NHPA1966.htm)

[The Secretary of the Interior's Standards for the Treatment of Historic Properties, 1995 \(http://www.cr.nps.gov/local-law/arch_stnds_o.htm\)](http://www.cr.nps.gov/local-law/arch_stnds_o.htm).

[The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation](http://www.cr.nps.gov/local-law/arch_stnds_o.htm) , as amended and annotated by the National Park Service (http://www.cr.nps.gov/local-law/arch_stnds_o.htm).

Historic Preservation Technical Briefs
(<http://www2.cr.nps.gov/tps/briefs/presbhom.htm>)

Appendix B – Cost Estimates for Treatment Recommendations

National Park Service
 U.S. Department of the Interior
 Intermountain Support Office - Santa Fe
 Division of Facility Management
 Historic Preservation Projects



Project Estimate

Project ID	POPI Light Windows
Project Name	Point Pinos Lighthouse Windows Rehabilitation

Cost of Labor				
Employee	Description	Quantity	Hourly Wage	Total
Clark, Kelly		200	\$27.99	\$5,598.16
Dorman, Dennis		200	\$27.86	\$5,572.64
Halverson, Richard		200	\$32.89	\$6,577.20
Hartzler, Robert	Conservator for paint color analysis	100	\$37.26	\$3,725.92
Hruza, Robert		200	\$39.86	\$7,971.52
Quinn, Deborah		113	\$30.31	\$3,425.12
Simpson, Glenn		230	\$45.53	\$10,471.90
Total				\$43,342.46

Cost of Travel					
Employee	Description	Quantity	Cost Each	Unit	Total
Clark, Kelly		1	\$450.00	Round Trip	\$450.00
Clark, Kelly		25	\$94.00	Day	\$2,350.00
Clark, Kelly		26	\$47.00	Day	\$1,222.00
Clark, Kelly		1	\$100.00	Total	\$100.00
Dorman, Dennis		27	\$94.00	Day	\$2,538.00
Dorman, Dennis		28	\$47.00	Day	\$1,316.00
Dorman, Dennis		1	\$100.00	Total	\$100.00
Halverson, Richard		1	\$450.00	Round Trip	\$450.00
Halverson, Richard		25	\$94.00	Day	\$2,350.00
Halverson, Richard		26	\$47.00	Day	\$1,222.00
Halverson, Richard		1	\$100.00	Total	\$100.00
Hartzler, Robert		1	\$450.00	Round Trip	\$450.00
Hartzler, Robert		2	\$94.00	Day	\$188.00
Hartzler, Robert		3	\$47.00	Day	\$141.00
Hartzler, Robert		1	\$100.00	Total	\$100.00

Hruza, Robert		1	\$450.00	Round Trip	\$450.00
Hruza, Robert		25	\$94.00	Day	\$2,350.00
Hruza, Robert		26	\$47.00	Day	\$1,222.00
Hruza, Robert		1	\$100.00	Total	\$100.00
Simpson, Glenn		2	\$450.00	Round Trip	\$900.00
Simpson, Glenn		2	\$25.00	Total	\$50.00
Simpson, Glenn		4	\$94.00	Day	\$376.00
Simpson, Glenn		6	\$47.00	Day	\$282.00
Simpson, Glenn		6	\$45.00	Day	\$270.00
Total					\$19,077.00

Cost of Equipment				
Description	Quantity	Cost Each	Unit	Total
Equipment Fees-Scaffolding	1	\$1,000.00	Total	\$1,000.00
Vehicle Costs-Ford-green 4x4 Gas	3500	\$0.21	Mile	\$717.50
Vehicle Costs-Ford-green 4x4 Gas	1	\$350.00	Month	\$350.00
Total				\$2,067.50

Cost of Materials					
Vendor	Description	Quantity	Cost Each	Unit	Total
Lab Safety		1	\$500.00	Total	\$500.00
Songs from the Wood	Paint Stripping of Window Sashes (subcontract)	24	\$200.00	Each	\$4,800.00
Unidentified Vendor	Miscellaneous materials for sash repair	1	\$1,250.00	Total	\$1,250.00
Total					\$6,550.00

Cost of Miscellaneous					
Vendor	Description	Quantity	Cost Each	Unit	Total
DFM-HPP	Record of Treatment Printing and Binding	1	\$750.00	Total	\$750.00
Total					\$750.00

SubTotal	\$71,786.96
Admin Fee	\$14,357.39
Estimate Total	\$86,144.35

National Park Service
 U.S. Department of the Interior
 Intermountain Support Office - Santa Fe
 Division of Facility Management
 Historic Preservation Projects



Project Estimate

Project ID	POPI Light Reroof
Project Name	Point Pinos Lighthouse Reroofing

Cost of Labor				
Employee	Description	Quantity	Hourly Wage	Total
Clark, Kelly		100	\$27.99	\$2,799.08
Dorman, Dennis		100	\$27.86	\$2,786.32
Halverson, Richard		100	\$32.89	\$3,288.60
Hruza, Robert		100	\$39.86	\$3,985.76
Quinn, Deborah		55	\$30.31	\$1,667.09
Simpson, Glenn		150	\$45.53	\$6,829.50
Total				\$21,356.35

Cost of Travel					
Employee	Description	Quantity	Cost Each	Unit	Total
Clark, Kelly		1	\$450.00	Round Trip	\$450.00
Clark, Kelly		11	\$94.00	Day	\$1,034.00
Clark, Kelly		12	\$47.00	Day	\$564.00
Clark, Kelly		1	\$100.00	Total	\$100.00
Dorman, Dennis		16	\$94.00	Day	\$1,504.00
Dorman, Dennis		17	\$47.00	Day	\$799.00
Dorman, Dennis		1	\$100.00	Total	\$100.00
Halverson, Richard		1	\$450.00	Round Trip	\$450.00
Halverson, Richard		11	\$94.00	Day	\$1,034.00
Halverson, Richard		12	\$47.00	Day	\$564.00
Halverson, Richard		1	\$100.00	Total	\$100.00
Hruza, Robert		1	\$450.00	Round Trip	\$450.00
Hruza, Robert		11	\$94.00	Day	\$1,034.00
Hruza, Robert		12	\$47.00	Day	\$564.00
Hruza, Robert		1	\$100.00	Total	\$100.00
Simpson, Glenn		2	\$450.00	Round Trip	\$900.00
Simpson, Glenn		2	\$25.00	Total	\$50.00
Simpson, Glenn		4	\$94.00	Day	\$376.00
Simpson, Glenn		6	\$47.00	Day	\$282.00

Simpson, Glenn		2	\$100.00	Total	\$200.00
Simpson, Glenn		6	\$45.00	Day	\$270.00
Total					\$10,925.00

Cost of Equipment					
Description	Quantity	Cost Each	Unit	Total	
Equipment Fees-Scaffolding	1	\$1,000.00	Total	\$1,000.00	
Vehicle Costs-Ford-green 4x4 Gas	3000	\$0.21	Mile	\$615.00	
Vehicle Costs-Ford-green 4x4 Gas	17	\$12.00	Day	\$204.00	
Total				\$1,819.00	

Cost of Materials					
Vendor	Description	Quantity	Cost Each	Unit	Total
Contractor Depot	Stainless Steel Fasteners	1	\$1,000.00	Total	\$1,000.00
Lab Safety		1	\$500.00	Each	\$500.00
Miscellaneous	Roofing Felt and sheathing repair	1	\$500.00	Total	\$500.00
Pace Metals	Replacement Copper Flashing	1	\$3,000.00	Total	\$3,000.00
Unidentified Vendor	Cedar Shingles per square	22.5	\$60.00	Each	\$1,350.00
Total					\$6,350.00

Cost of Miscellaneous					
Vendor	Description	Quantity	Cost Each	Unit	Total
DFM-HPP	Recort of Treatment Printing and Binding	1	\$750.00	Total	\$750.00
Total					\$750.00

SubTotal	\$41,200.35
Admin Fee	\$8,240.07
Estimate Total	\$49440.42

National Park Service
 U.S. Department of the Interior
 Intermountain Support Office - Santa Fe
 Division of Facility Management
 Historic Preservation Projects



Project Estimate

Project ID	POPI Light Repair
Project Name	Point Pinos Lighthouse Repainting (excluding lanternroom)

Cost of Labor				
Employee	Description	Quantity	Hourly Wage	Total
Clark, Kelly		200	\$27.99	\$5,598.16
Dorman, Dennis		200	\$27.86	\$5,572.64
Halverson, Richard		200	\$32.89	\$6,577.20
Hartzler, Robert	Conservator for paint color analysis	100	\$37.26	\$3,725.92
Hruza, Robert		200	\$39.86	\$7,971.52
Quinn, Deborah		113	\$30.31	\$3,425.12
Simpson, Glenn		230	\$45.53	\$10,471.90
Total				\$43,342.46

Cost of Travel					
Employee	Description	Quantity	Cost Each	Unit	Total
Clark, Kelly		1	\$450.00	Round Trip	\$450.00
Clark, Kelly		25	\$94.00	Day	\$2,350.00
Clark, Kelly		26	\$47.00	Day	\$1,222.00
Clark, Kelly		1	\$100.00	Total	\$100.00
Dorman, Dennis		27	\$94.00	Day	\$2,538.00
Dorman, Dennis		28	\$47.00	Day	\$1,316.00
Dorman, Dennis		1	\$100.00	Total	\$100.00
Halverson, Richard		1	\$450.00	Round Trip	\$450.00
Halverson, Richard		25	\$94.00	Day	\$2,350.00
Halverson, Richard		26	\$47.00	Day	\$1,222.00
Halverson, Richard		1	\$100.00	Total	\$100.00
Hartzler, Robert		1	\$450.00	Round Trip	\$450.00
Hartzler, Robert		2	\$94.00	Day	\$188.00
Hartzler, Robert		3	\$47.00	Day	\$141.00
Hartzler, Robert		1	\$100.00	Total	\$100.00

Hruza, Robert		1	\$450.00	Round Trip	\$450.00
Hruza, Robert		25	\$94.00	Day	\$2,350.00
Hruza, Robert		26	\$47.00	Day	\$1,222.00
Hruza, Robert		1	\$100.00	Total	\$100.00
Simpson, Glenn		2	\$450.00	Round Trip	\$900.00
Simpson, Glenn		2	\$25.00	Total	\$50.00
Simpson, Glenn		4	\$94.00	Day	\$376.00
Simpson, Glenn		6	\$47.00	Day	\$282.00
Simpson, Glenn		6	\$45.00	Day	\$270.00
Total					\$19,077.00

Cost of Equipment				
Description	Quantity	Cost Each	Unit	Total
Equipment Fees-Scaffolding	1	\$1,000.00	Total	\$1,000.00
Vehicle Costs-Ford-green 4x4 Gas	3500	\$0.21	Mile	\$717.50
Vehicle Costs-Ford-green 4x4 Gas	1	\$350.00	Month	\$350.00
Total				\$2,067.50

Cost of Materials					
Vendor	Description	Quantity	Cost Each	Unit	Total
Lab Safety		1	\$500.00	Total	\$500.00
Sherwin Williams	Paint	60	\$50.00	Gal	\$3,000.00
Unidentified Vendor	Misc. materials for window frame repair	1	\$1,250.00	Total	\$1,250.00
Unidentified Vendor	Paint Remover for Stone	50	\$60	Gal	\$3,000.00
Unidentified Vendor	Miscellaneous materials for stripping and repainting	1	\$2000.00	Total	\$2,000.00
Total					\$9,250.00

Cost of Miscellaneous					
Vendor	Description	Quantity	Cost Each	Unit	Total
DFM-HPP	Recort of Treatment Printing and Binding	1	\$750.00	Total	\$750.00
Total					\$750.00

SubTotal	\$74,486.96
Admin Fee	\$14,897.39
Estimate Total	\$89,384.35

Appendix C – Cost Estimates for Documentation Recommendations

National Park Service
 U.S. Department of the Interior
 Intermountain Support Office - Santa Fe
 Division of Facility Management
 Historic Preservation Projects



Project Estimate

Project ID	POPI Lighthouse HSR
Project Name	Point Pinos Lighthouse HSR

Cost of Labor

<i>Employee</i>	<i>Description</i>	<i>Qty</i>	<i>Hourly Wage</i>	<i>Total</i>
Drake, Tony	Architectural Technician Services	250	\$32.26	\$8,064.90
Mortier, Mark	Historical Architectural Services	500	\$48.21	\$24,104.80
Quinn, Deborah	Project Assistance	120	\$30.31	\$3,637.30
Simpson, Glenn	Project and Cultural Resources Management Services	400	\$45.53	\$18,212.00
Total				\$54,019.00

Cost of Travel

<i>Employee</i>	<i>Description</i>	<i>QTY</i>	<i>Cost Each</i>	<i>Unit</i>	<i>Total</i>
Drake, Tony	Airfare-Field Documentation	1	\$450.00	Round Trip	\$450.00
Drake, Tony	Lodging-Field Documentation	5	\$94.00	Total	\$470.00
Drake, Tony	M&IE-Field Documentation	6	\$47.00	Total	\$282.00
Drake, Tony	Miscellaneous-Field Documentation	1	\$100.00	Total	\$100.00
Mortier, Mark	Airfare-Field Documentation	1	\$450.00	Round Trip	\$450.00
Mortier, Mark	Lodging-Field Documentation	5	\$94.00	Day	\$470.00
Mortier, Mark	M&IE-Field Documentation	6	\$47.00	Day	\$282.00
Mortier, Mark	Miscellaneous-Field Documentation	1	\$100.00	Total	\$100.00
Simpson, Glenn	Airfare-Field Documentation	1	\$450.00	Round Trip	\$450.00
Simpson, Glenn	Auto/Gas-Field Documentation	1	\$30.00	Total	\$30.00
Simpson, Glenn	Lodging-Field Documentation	5	\$94.00	Day	\$470.00
Simpson, Glenn	M&IE-Field Documentation	6	\$47.00	Day	\$282.00
Simpson, Glenn	Miscellaneous-Field Documentation	1	\$100.00	Total	\$100.00
Simpson, Glenn	Rental-Field Documentation	6	\$45.00	Day	\$270.00

Cost of Travel					
<i>Employee</i>	<i>Description</i>	<i>QTY</i>	<i>Cost Each</i>	<i>Unit</i>	<i>Total</i>
Total					\$4,206.00

Cost of Materials					
<i>Vendor</i>	<i>Description</i>	<i>Qty</i>	<i>Cost Each</i>	<i>Unit</i>	<i>Total</i>
Assagai Lab		4	\$250.00	Total	\$1,000.00
Technigraph	Drawing Reproduction	1	\$500.00	Total	\$500.00
Total					\$1,500.00

Cost of Miscellaneous					
<i>Vendor</i>	<i>Description</i>	<i>Quantity</i>	<i>Cost Each</i>	<i>Unit</i>	<i>Total</i>
Unidentified Vendor	HSR Printing, Binding, and Shipping	1	\$750.00	Total	\$750.00
Total					\$750.00

SubTotal	\$60,475.00
Admin Fee	\$10,803.80
Estimate Total	\$71,278.80

National Park Service
 U.S. Department of the Interior
 Intermountain Support Office - Santa Fe
 Division of Facility Management
 Historic Preservation Projects



Project Estimate

Project ID	POPI Lighthouse HABS
Project Name	Point Pinos Lighthouse HABS/HAER Documentation

Cost of Labor				
<i>Employee</i>	<i>Description</i>	<i>Qty</i>	<i>Hourly Wage</i>	<i>Total</i>
Drake, Tony	Architectural Technician Services	400	\$32.26	\$12,903.84
Mortier, Mark	Historical Architectural Services	280	\$48.21	\$13,498.69
Quinn, Deborah	Project Assistance	80	\$30.31	\$2,424.86
Simpson, Glenn	Project Management	150	\$45.53	\$6,829.50
Total				\$35,656.89

Cost of Travel					
<i>Employee</i>	<i>Description</i>	<i>Qty</i>	<i>Cost Each</i>	<i>Unit</i>	<i>Total</i>
Drake, Tony	Airfare-Field Documentation	1	\$450.00	Round Trip	\$450.00
Drake, Tony	Lodging-Field Documentation	11	\$94.00	Day	\$1,034.00
Drake, Tony	M&IE-Field Documentation	12	\$47.00	Day	\$564.00
Mortier, Mark	Airfare-Field Documentation	1	\$450.00	Round Trip	\$450.00
Mortier, Mark	Lodging-Field Documentation	11	\$94.00	Day	\$1,034.00
Mortier, Mark	M&IE-Field Documentation	12	\$47.00	Day	\$564.00
Mortier, Mark	Miscellaneous-Field Documentation	1	\$100.00	Total	\$100.00
Simpson, Glenn	Airfare-Field Documentation	1	\$450.00	Round Trip	\$450.00
Simpson, Glenn	Auto/Gas-Field Documentation	2	\$30.00	Day	\$60.00
Simpson, Glenn	Lodging-Field Documentation	12	\$47.00	Day	\$564.00
Simpson, Glenn	Lodging-Field Documentation	11	\$94.00	Day	\$1,034.00
Simpson, Glenn	Miscellaneous-Field Documentation	1	\$100.00	Total	\$100.00
Simpson, Glenn	Rental-Field Documentation	12	\$45.00	Day	\$540.00
Total					\$6,944.00

Cost of Materials					
<i>Vendor</i>	<i>Description</i>	<i>Quantity</i>	<i>Cost Each</i>	<i>Unit</i>	<i>Total</i>
Technigraph	Drawing Reproduction	3	\$250.00	Total	\$750.00
Total					\$750.00
SubTotal					\$43,350.89
Admin Fee					\$8,670.18
Estimate Total					\$52,021.07





As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

National Park Service
U.S. Department of the Interior

Division of Facilities Management, Historic Preservation Projects
Intermountain Support Office
Santa Fe, New Mexico



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