001461

HISTORIC STRUCTURES REPORT

PART III

Restoration of Greenhouse

ADAMS NATIONAL HISTORIC SITE

by

George L. Wrenn

February 4, 1965

001461

E. O. D. C.
MAR 15 1965
Chief
Adm.
Engr.
Land. Arch.
Coord.
Br.
Engr.
Coord.
Br.
Contr. & Spec.
Action Taken:
PCP attached

MAR 11 1965

D2621-APC

Memorandum

To: Director

From: Acting Regional Director, Northeast Region

Subject: Completion Report - Adams National Historic Site

We are enclosing the original copy of Completion Report, Forms 10-174 and 10-174A, covering the following completed construction project at Adams National Historic Site:

Account Number	Project Title
B-4	Restoration of Greenhouse

George A. Palmer

Enclosure

cc: ✓ Chief, EODC w/copy encl.
Supt., Adams w/copy encl.

EFCMontelcone/phn

General
Daily
Area
Program Coordination

001461
ADAM 3

NARRATIVE

Restoration work on the Greenhouse began in July, 1964, and was completed in November, 1964. The Greenhouse is used by the park maintenance staff in their preparation of the formal gardens, and having been built and used by the Adams family, is part of the historic scene. This structure consists of glazed sashes, fixed and hinged, on both sides of a peaked wooden frame which rests on a concrete foundation (Illustration No. 1). A detailed description of the restoration work and other pertinent data are included in this narrative.

a. Rehabilitation of the Sash

Activity for the first few weeks in July and August involved only the north side of the Greenhouse because the planting beds on the south side were being used (Illustration No. 2). Exterior wire screens, installed on the north side during the 1950's to protect the glass from stone-throwing vandals, were removed to the carriage house basement for storage (Illustration No. 3). Shrubbery now hides the Greenhouse from the street and it is hoped that further protective measures will not be necessary.

The window sashes on the north side were taken to the carriage house work area where the 10" x 14" panes of glass were removed. After disjointing the sashes and noting their condition, it was decided to re-use the stiles and the muntins, and replace the rails. Design of the restored sash was determined from photographs (Illustration Nos. 4, 5, & 6)

and the discovery of the earlier 6" x 8" panes of glass by Gardener (Landscape) John Iacovelli. New top and bottom rails were milled by the Quincy Lumber Company. The existing muntins, and forty new ones, were milled and hand-dressed by Exhibit Specialist Warren Dungan. Existing muntins were reduced 5/16" in width. The restored muntins retain the 5/16" rabbits on the exterior side and the hand-planed rounded edges on the interior. Tenons were cut on both ends of the top and bottom rails to fit mortises in the salvaged stiles.

In September, the north sashes were assembled, with the assistance of Exhibit Specialist Harry V. Martin, and painted with two coats of Dutch Boy White Lead Primer. The sashes on the south side were restored in like manner several weeks later. The steel support bars were painted and put back in their position midway between top and bottom rails. These 1/8" x 3/4" steel bars fit indentures on the interior side of the sash members and are screwed to the stiles. They serve to keep the muntins rigid against the weight of the glass and the pressures of wind and snow.

b. Reglazing the Sash

The vertical spacing of glass in the sash was determined from the inspection of older 6" x 8" panes of glass. Dirt lines at the edges revealed those portions of the glass which had been protected by overlapping to be approximately 1/4 of an inch. Twenty-seven pieces of the older glass were found and used in the glazing of the first sash which

was later installed on the east end of the south side of the Greenhouse.

Non-rust greenhouse glazing nails are used to keep the glass from sliding, and glazier's points securely bed each piece in glazing compound (Illustration No. 7). Mr. Palmas, a glazier, was hired to expedite the Greenhouse restoration and glazed 19 of the 20 sash units. Each sash contains forty 6" x 8" panes and five 6" x 4" panes. There are five rows of glass with eight and one-half panes per row. All the existing (re-used) and new glass was cut by Exhibit Specialist Warren Dungan.

c. Installation of the Sash

The pattern of hinged sash on the north side of the Greenhouse follows the existing arrangement, east to west they alternate fixed and hinged except for the second and third sashes from the west end which are both hinged (Illustration No. 8). All but the end sashes on the south side are hinged. The sashes are fixed with wood screws and hinged at the top with the existing 'T' hinges. The bottom rail of each hinged sash has a 1" hole drilled 1/4" deep to receive a 3/4" wood prop.

d. Pest Control

The Bruce Terminix Company of Cambridge, Massachusetts, treated the interior and exterior of the Greenhouse for termite control. A chloradene and water solution was used throughout, including the floor (Illustration No. 9). This company has an agreement (five year policy) with Adams National Historic Site to inspect the Greenhouse each year and provide any necessary treatment.

e. Rebuilding the Interior Shelving (Planting Beds)

All wood used in the construction of the planting beds, including the supporting posts and the re-used side boards, were soaked in pentachlorophenol for protection against termites, and treated with Hydrozo for protection against moisture. The new cedar posts were set on bricks, not into the dirt as were those of the south bed during the 1953 rehabilitation (Illustration No. 10). The south planting bed was not rebuilt but, because it showed signs of dry rot, was treated with Hydrozo.

f. Patching the Concrete Foundation

The concrete foundation was patched, as there were many cracks due to settlement and several holes of undetermined origin and purpose. The patches blend very well with the existing work.

g. Painting

The general contractor, Arthur King, of Milton, Massachusetts, painted the Greenhouse framework and exposed concrete foundation in late October. The framework required three coats of paint. The first two coats were a white lead primer. The finish coat was Hancock Exterior House Paint containing 80% white lead carbonate and 20% titanium dioxide. The same finish coat was also applied to the glazed sashes. The foundation was painted with two coats of buff colored Luminall Concrete Paint. Buff was chosen by Architect George Wrenn after careful investigation of existing layers of paint. This color matches the layer first applied to

the concrete and is thought to have been that in use during the historic period. The door was given two coats of lead primer and one finish coat of green, the color chosen by the Adams family for use on the shutters of the Old House. Also, traces of green paint were found on what remained of an earlier door.

h. Replacement of Floor Boards

In November, after being treated with Penta and Hydrozo, the wood sleepers and floor boards were installed directly on the dirt floor (Illustration No. 11).

i. Installation of the Stove

With the installation of the new pot-bellied stove at the east end of the Greenhouse, a piece of 3/16" asbestos was nailed to the side of the north planting bed to protect it from the heat. The excavated area under the new stove was filled with dry sand, cement, and stone. After settlement had taken place, used bricks were then set in sand, the broad sides level with the wood floor boards.

j. Recommendations for Maintenance

As the Greenhouse will continue to be used, it is recommended that the soil be removed from the planting beds and the wood be treated with Hydrozo at the end of each planting season. The Greenhouse should also be inspected each year for termite activity and dry rot and the necessary steps taken to check their occurrence.

k. Additional Historical and Archeological Data

It is known that a Greenhouse existed in the present location and was probably built by Charles Francis Adams before 1886 (Illustration No. 12). The existing structure was given its present form before 1920 by Brooks Adams, who was the last occupant of the house during the historic period (Illustration Nos. 4 & 5). In the 1950's, the Greenhouse was rehabilitated and it was at this time that the 6" x 8" panes of glass were changed to the larger 10" x 14" size (Illustration No. 6). Also the park maintenance staff moved the stove from the east end to the west end of the Greenhouse.

While examining the cedar posts of the south planting bed, a thin layer of mortar, overlaid with flat stones, was unearthed 12" below the surface of the present dirt floor. This probably was part of an earlier floor pre-dating the work of Brooks Adams (Illustration No. 13).

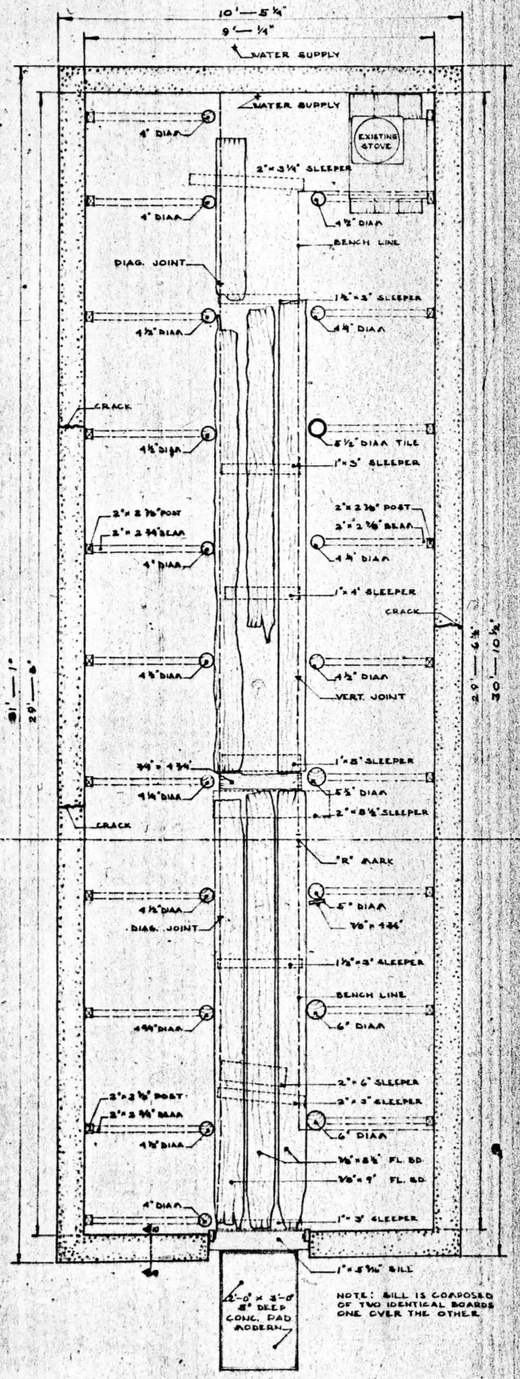
Restoration completed, the strong pattern set by many vertical muntin lines is again established; the prerequisite to its historic character. Together with the recently restored Duck Pond, the Greenhouse greatly enhances the interpretive program and restoration cause at Adams National Historic Site (Illustration No. 14).

Walton D. Stowell
Architect

ILLUSTRATION NO. 1

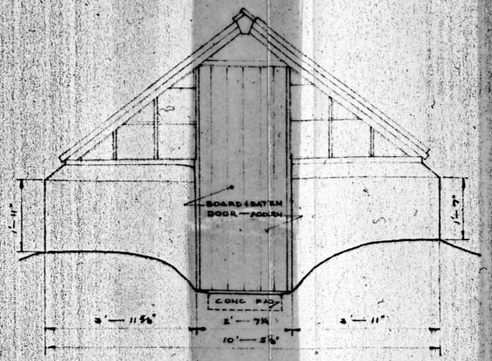
Plans, sections, and elevations of Greenhouse. Evidence recorded prior to restoration.

Drawing: National Park Service
C. G. Spurgeon, Del.
ADA 3007. August 19, 1964



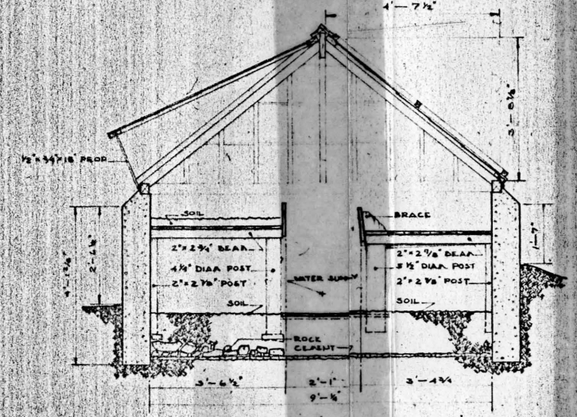
PLAN OF GREENHOUSE

SCALE ½"=1'-0"



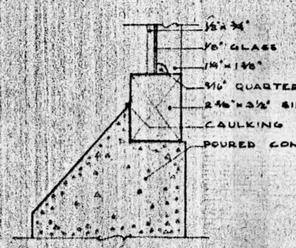
ELEVATION EAST

SCALE ½"=1'-0"



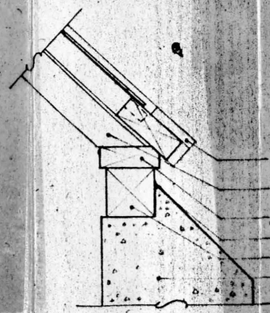
SECTION A-A

SCALE ½"=1'-0"



SECTION a-a

SCALE 3"=1'-0"

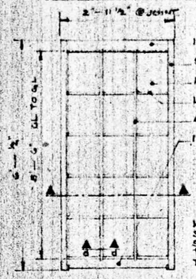


SECTION b'-b'

SCALE 3"=1'-0"

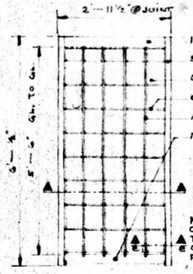
GREENHOUSE CONSTRUCTION PRIOR TO REMODELING IN THE EARLY 1950's FROM FRAGMENT FOUND AT THE SITE.

EXISTING SASH



NOTE: THE EXISTING SASH FRAME & EXISTING SUPERSTRUCTURE OF THE GREENHOUSE ARE TO BE REUSED.

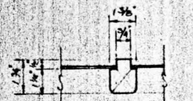
RESTORED SASH



NOTE: THE RESTORED GLASS ARRANGEMENT WAS TAKEN FROM PHOTOS OF THE ORIG. STRUCT. & FROM EXIST PANES OF THE ORIG GLASS.

PLAN & SECTION

SCALE ½"=1'-0"

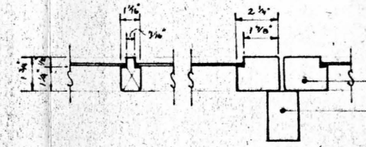


SECTION d-d

SCALE 3"=1'-0"

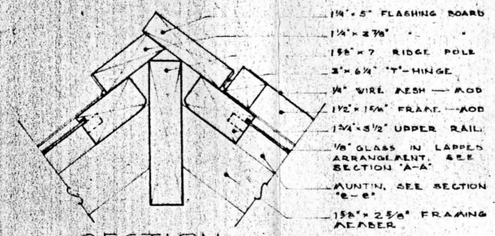
PLAN & SECTION

SCALE ½"=1'-0"



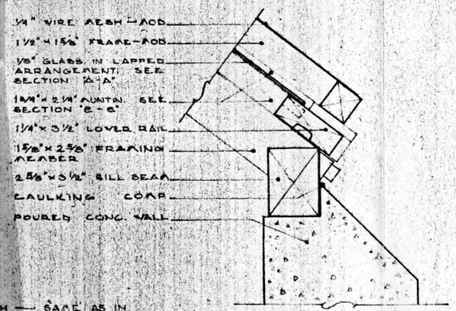
SECTION e-e

SCALE 3"=1'-0"



SECTION c-c

SCALE 3"=1'-0"



SECTION b-b

SCALE 3"=1'-0"

ORIENTATION

DATA LOCATION- NORFOLK COUNTY, QUINCY, MASS.

SCALE AS NOTED

RECOMMENDED DATE

APPROVED

MARK	DESCRIPTION OF REVISION	DATE	INITIAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DIVISION OF DESIGN AND CONSTRUCTION
PREPARED BY EASTERN OFFICE

PLANS-SECTIONS-ELEVATIONS OF GREENHOUSE
TITLE OF DRAWING
GREENHOUSE NEAR NORTH-EAST CORNER
LOCATION WITHIN PARK
ADAMS NATIONAL HISTORIC SITE

PREPARED	C. G. SPURGEON
DESIGNED	C. G. SPURGEON
DRAWN	G. WRENN
CHECKED	
REVISED	
REGION	NORTH-EAST
PCF NO.	B 7
SHEET	"1 OF 1
DRAWING NO.	NPS: ADA 3007

ILLUSTRATION NO. 2

Interior view of Greenhouse looking west. Note stove, flooring boards, planting bed structure, and south bed in use.

Photo: National Park Service
Warren Dungan, July 1964

Negative on file at Adams.

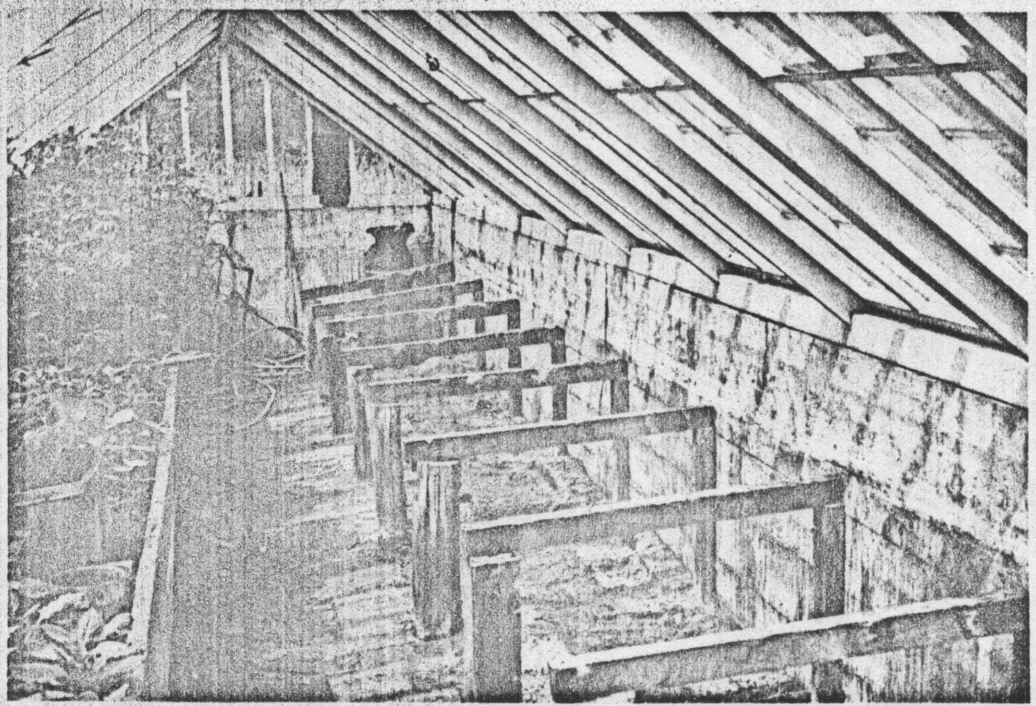


ILLUSTRATION NO. 3

View of the Greenhouse from the northeast. Note protective screens and overhanging ridge flashing boards.

Photo: National Park Service
George M. Cushing, Jr., July 1964

Negative on file at Adams.

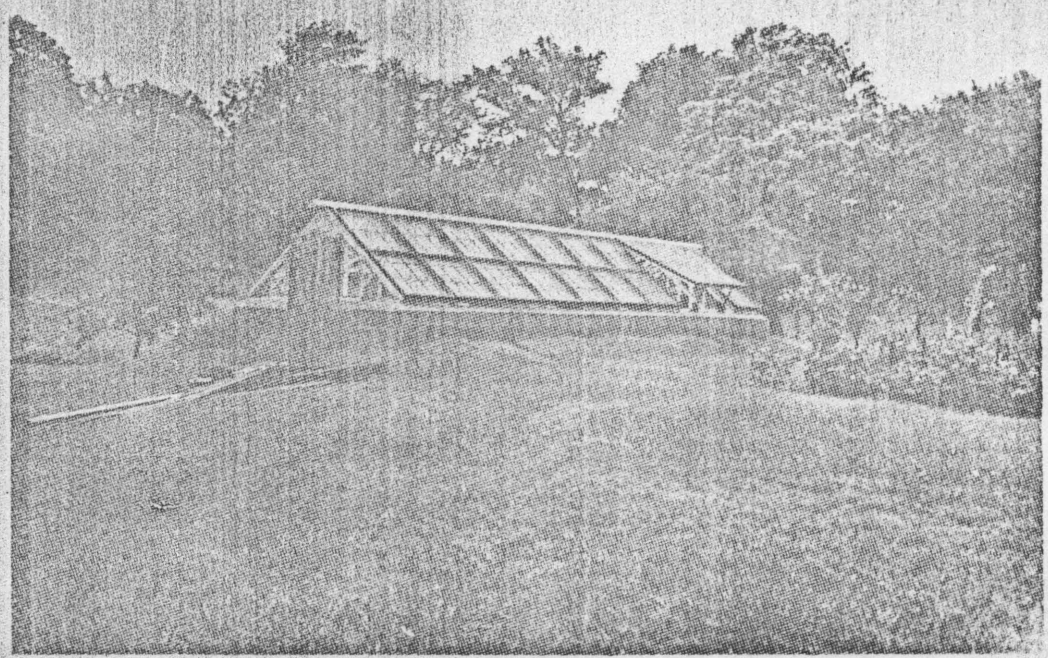


ILLUSTRATION NO. 4

Greenhouse from the south before rehabilitation of the 1950's. Note four muntins per sash and the five rows of 6" x 8" panes of glass, absence of overhanging ridge flashing boards.

Photo: National Park Service
Abbe Rowe, 1946

Negative on file at Adams.



ILLUSTRATION NO. 5

Greenhouse from the north before rehabilitation of the 1950's.

Photo: National Park Service
Abbe Rowe, 1946

Negative on file at Adams.

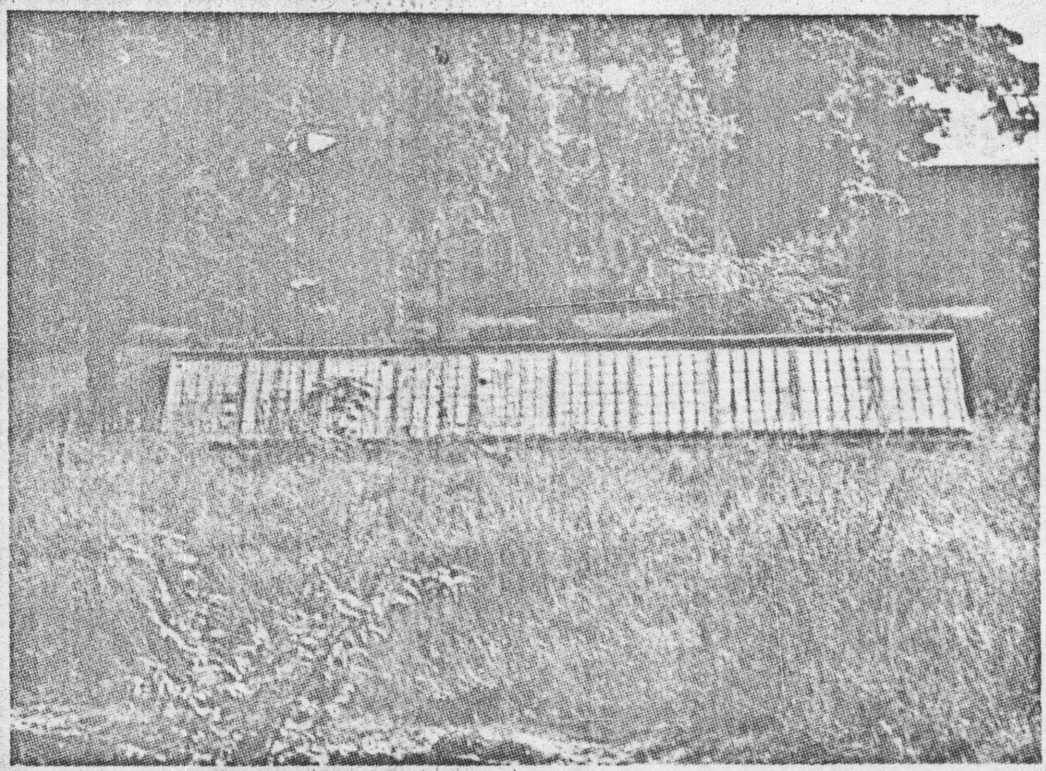


ILLUSTRATION NO. 6

Greenhouse from the south after rehabilitation of the 1950's. Note two muntins per sash and the three rows of 10" x 14" panes of glass. Compare with Illustration No. 4.

Photo: National Park Service
George M. Cushing, Jr., March 1964.

Negative on file at Adams.

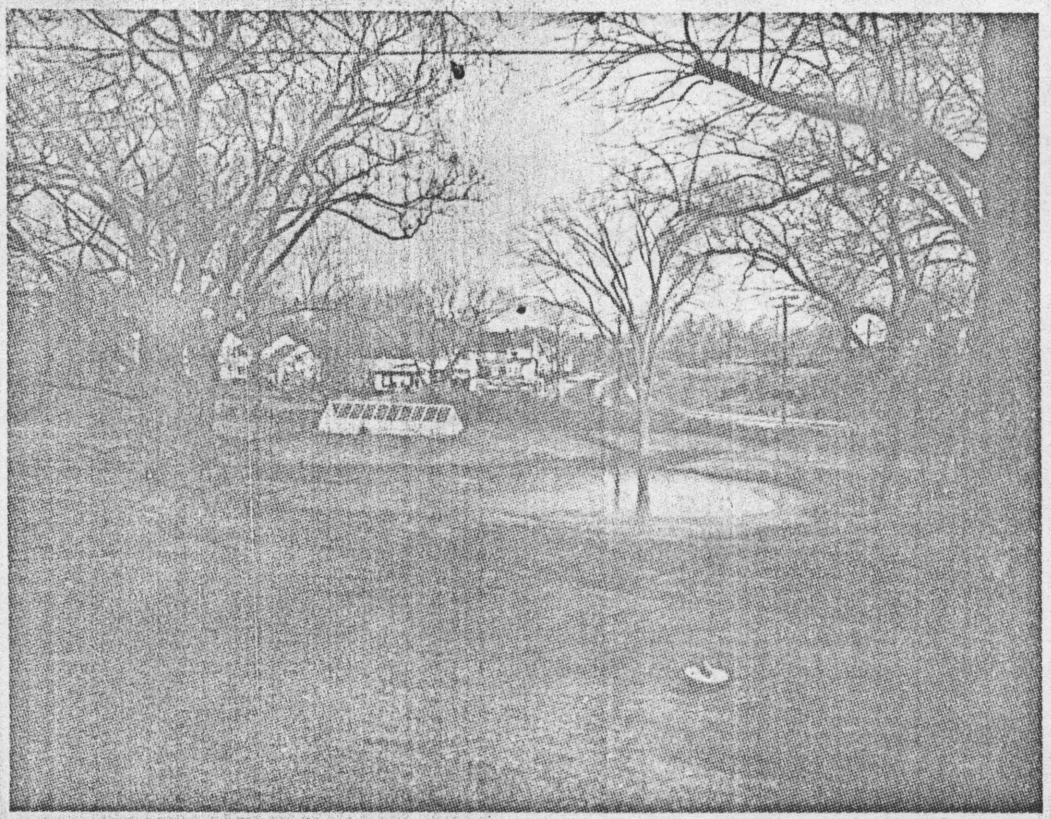


ILLUSTRATION NO. 7

Exterior view of the restored south sash, east end, showing the old glass and method of glazing.

Photo: National Park Service
Warren Dungan, November 1964

Negative on file at Adams.

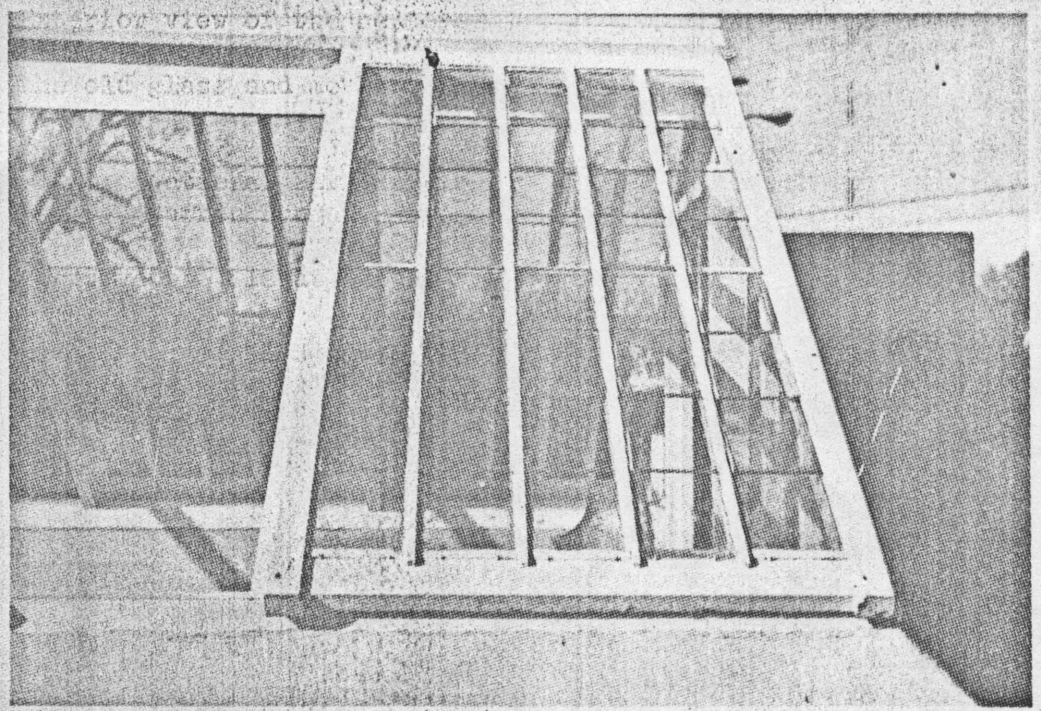


ILLUSTRATION NO. 8

View of the restored north sash with the hinged units open. Note wood prop.

Photo: National Park Service
Warren Dungan, November 1964

Negative on file at Adams.

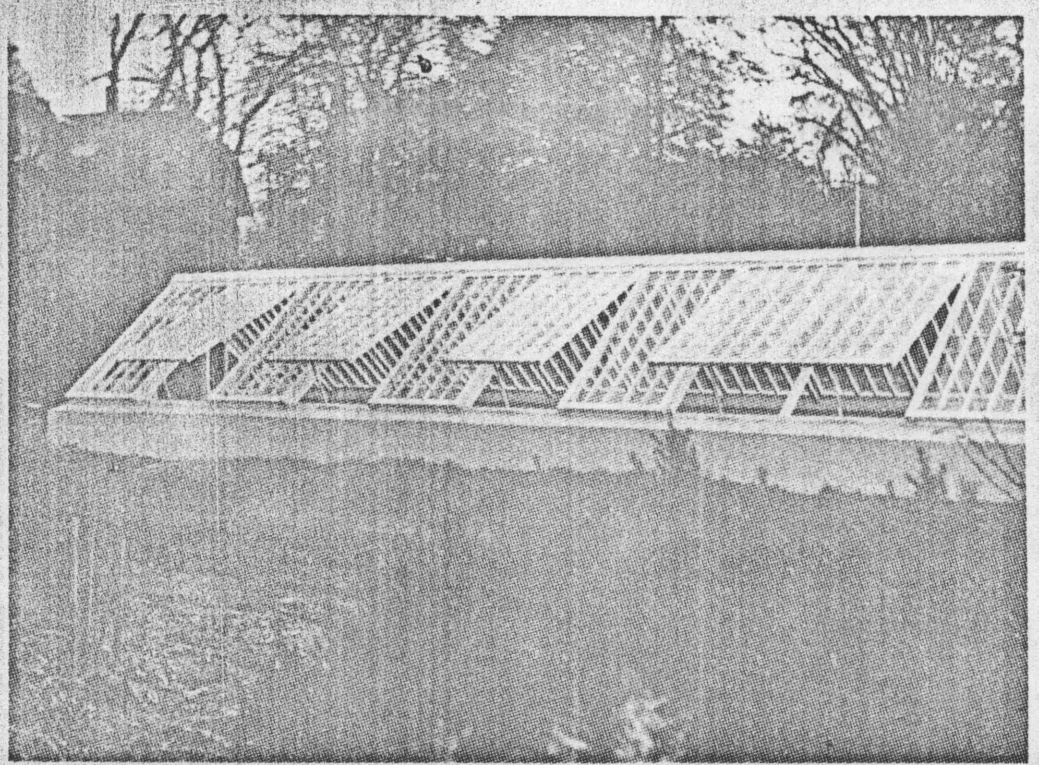


ILLUSTRATION NO. 9

Greenhouse being treated for termite control by Bruce Terminix Company.

Photo: National Park Service
Warren Dungan, August 1964

Negative on file at Adams.

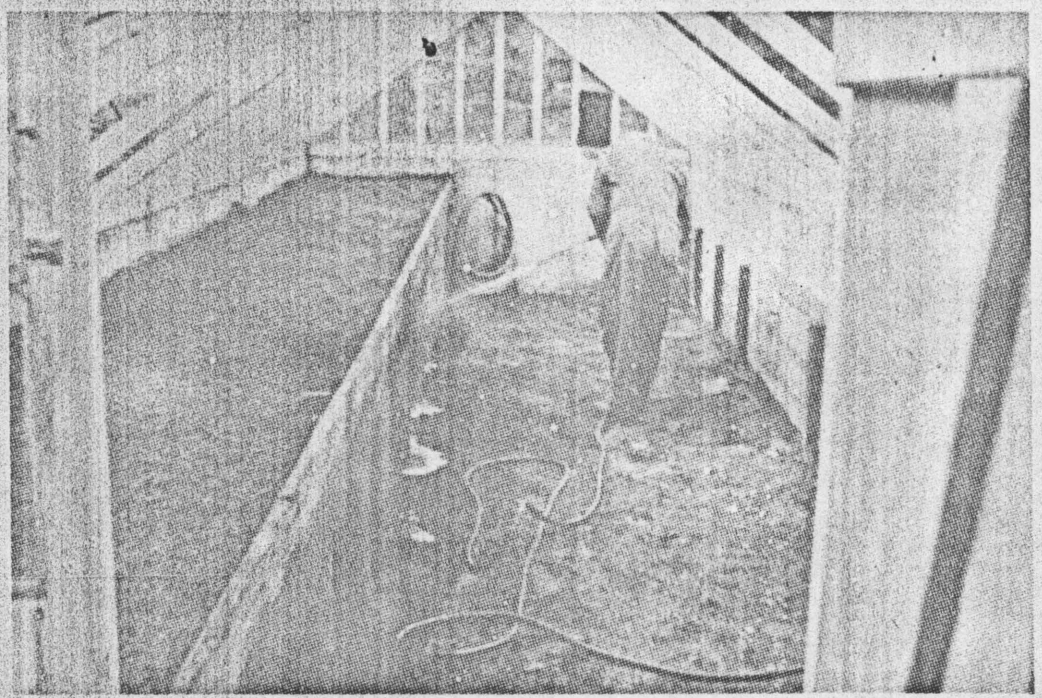


ILLUSTRATION NO. 10

View of brick footing, new cedar post, north planting bed.

Photo: National Park Service
Warren Dungan, November 1964

Negative on file at Adams.

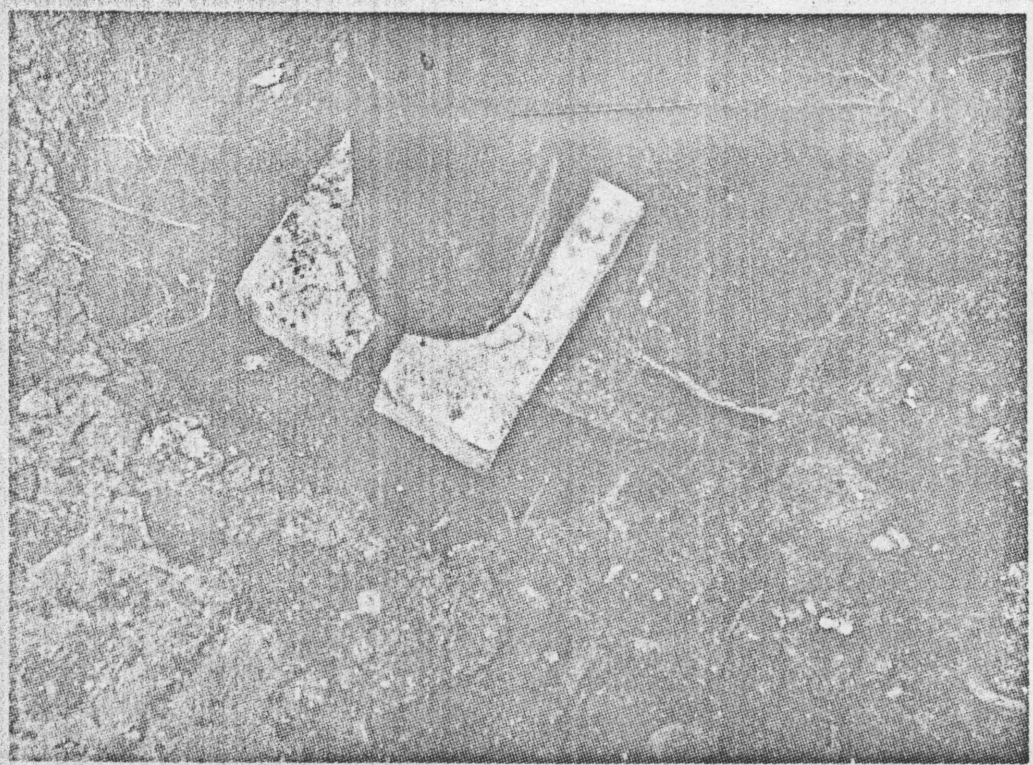


ILLUSTRATION NO. 11

Interior view of Greenhouse looking west. Note new floor boards, new planting bed with re-used side board, sheet of asbestos at east end of bed.

Photo: National Park Service
Warren Dungan, November 1964

Negative on file at Adams.

ILLUSTRATION NO. 22

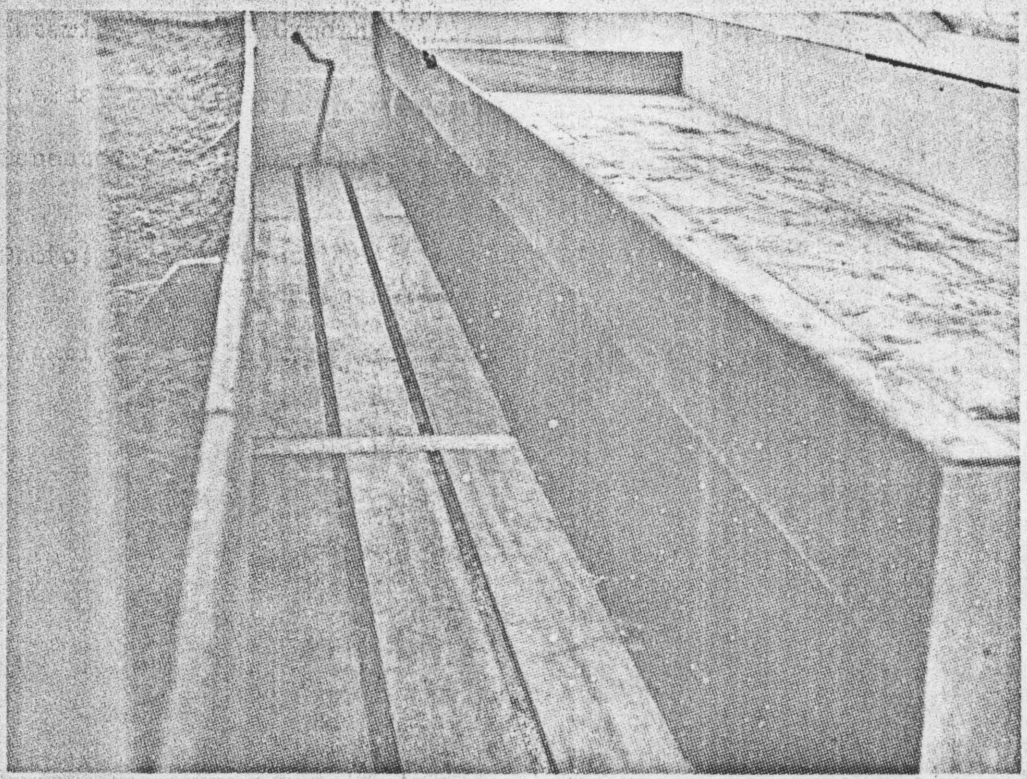


ILLUSTRATION NO. 12

Photograph of the 1889 flood looking west near corner of carriage house. Note appearance of Greenhouse with high pitched lean-to sash on the south side and what may be a potting house on the north side.

Photo: 1889

Negative copy on file at Adams.

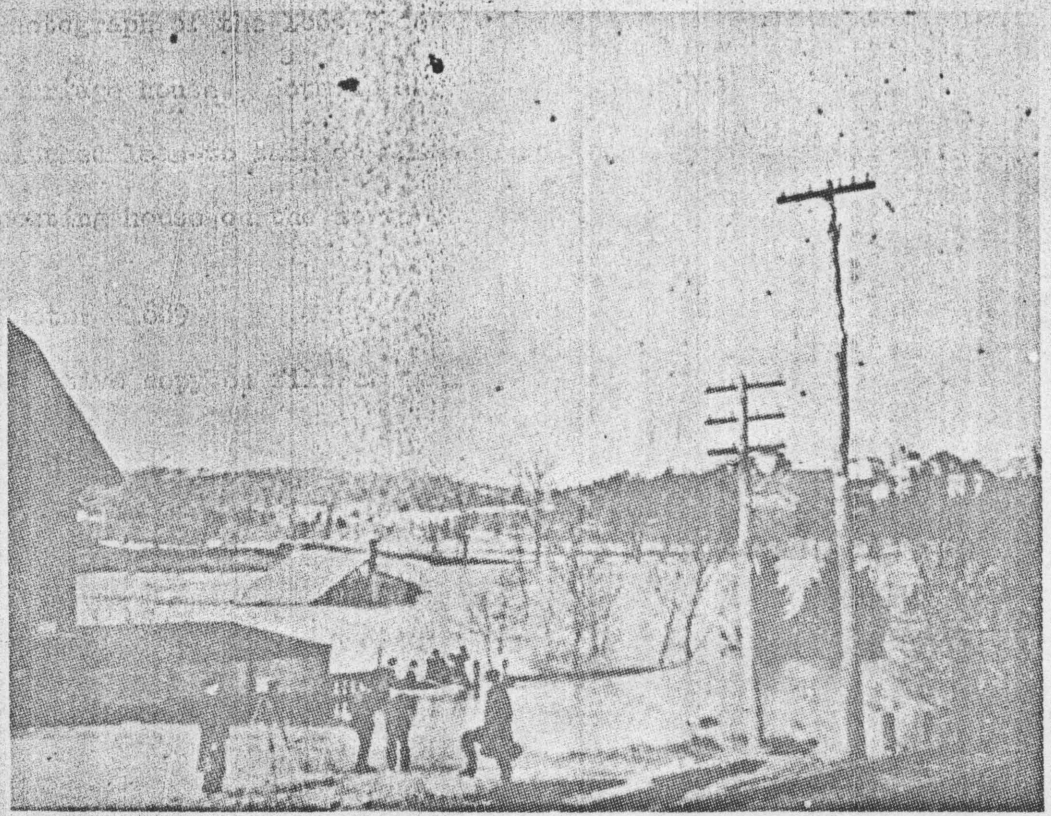


ILLUSTRATION NO. 13

Interior view of Greenhouse floor. Note condition of south planting bed posts, thin concrete floor excavated 12" below present dirt floor.

Photo: National Park Service
George M. Cushing, Jr., July 1964

Negative on file at Adams.

Photo: National Park [illegible]
George M. Du[illegible]

Negative on file at [illegible]



ILLUSTRATION NO. 14

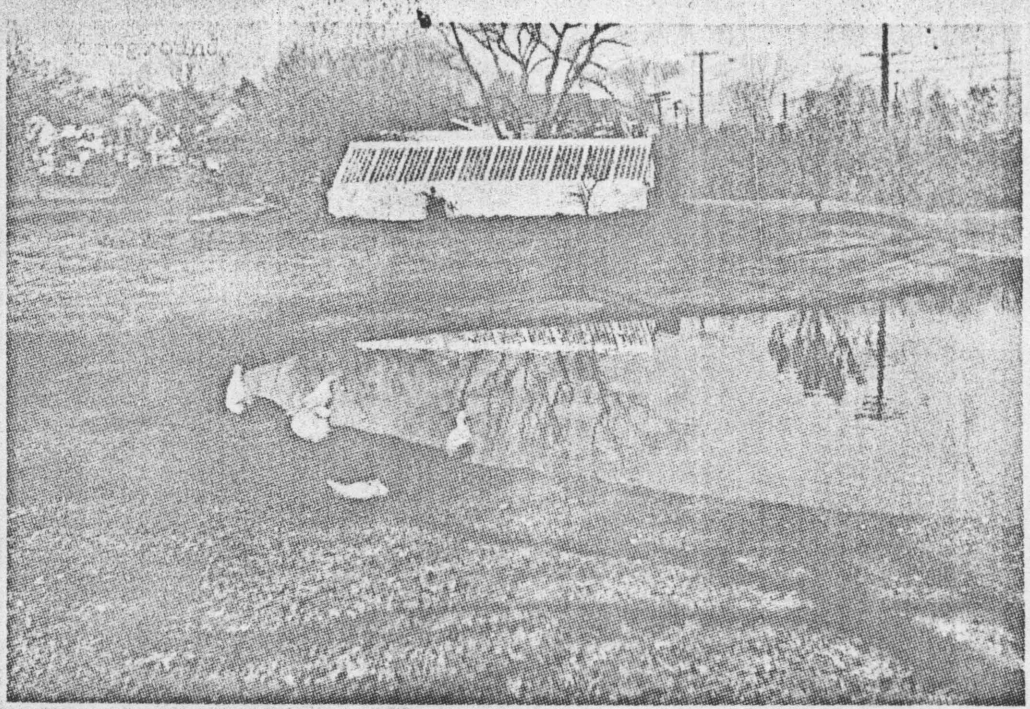
Restored Greenhouse from the south with duck pond in the foreground.

Photo: National Park Service
Warren Dungan, November 1964

Negative on file at Adams.

ILLUSTRATION NO. 14

Mastered Greenhouse [illegible]



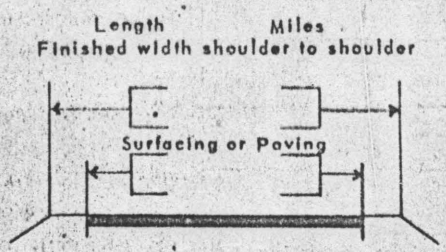
Form 10-411
(Rev. 2/62)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

PROJECT CONSTRUCTION PROPOSAL

Statement of requirements, proposed work and construction data, justification, etc. *(Use additional sheets as necessary.)*

The rehabilitation of the Greenhouse will include stabilization of the foundations, reconstruction of sections of the interior shelving and shelf supports, relaying of the floor, and repair and repainting of the sash and reglazing as necessary. A new stove is required. No research or documentation is necessary because old material in place can be copied. The Greenhouse is both part of the historic scene and a useful, functioning element in the upkeep of the Adams House grounds, and, therefore, its rehabilitation would be of value in two ways.



2. Land Status *(if Govt.-owned, what agency)*, Water Rights, Research, Etc.

Federally Owned, National Park Service

3. PCP Data Prepared by *(Name, Title & Date)*

George L. Wrenn 4/7/64
Architect

4. Cross-reference PCP's to this Project:

PCP numbers of previously completed portions:

5. Construction by:

Day Labor [X] Contract [ ]

Work supervised by:

Park [ ] Reg. [ ] Design Office [X]

6. CLASS C ESTIMATE

	$
Construction.....	5,000
Plans, Surveys, & Supervision.....	650
Contingencies.....	350
SUB TOTAL	
Exhibits, Audio-Visual Installations, etc.....	
GRAND TOTAL	$ 6,000

7. DISTRIBUTION OF COPIES

No	To
1	Director
√1	Regional Director, NE
2	Superintendent
2	Chief, EODC

8. Recommended by Park Office *(Signature, title, date)*

Wilhelmina S. Harris
Wilhelmina S. Harris, Superintendent 4/8/64

9. Approved by Regional Office *(Signature, title, date)*

(Sgd) M. B. Christenson MAY 8 1964

10. Reviewed by D&C Field Office *(Signature, Title, Date)*

Signed Vincent N. Mauro, Project Control Officer, EODC, 5/25/64

11. Location within Area or Termini

Near northeast corner of Adams NHS property

12. Master Plan No.

13. Bldg. or Rt. # and Sec.

14. Region: NE

15. Park: Adams National Historic Site

16. Project: Rehabilitation of Greenhouse

Norfolk (County)

Mass. (State)

17. PCP Index No.: B-7

18. P. S. & S. by: BPR [ ] NPS [X]

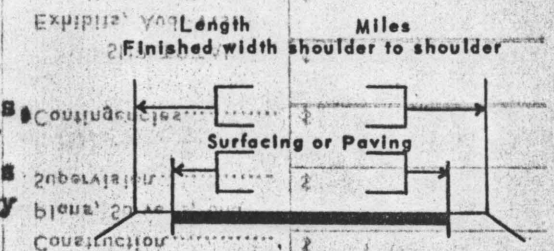
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(Sgd) M. B. Christenson MAY 8 1964

10. Reviewed by D&C Field Office *(Signature, Title, Date)*

Signed Vincent N. Mauro, Project Control Officer, EODC, 5/25/64

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Near northeast corner of Adams NHS property

12. Master Plan No.

13. Bldg. or Rt. # and Sec.

14. Region: NE

15. Park: Adams National Historic Site

16. Project: Rehabilitation of Greenhouse

Norfolk (County)

Mass. (State)

17. PCP Index No.

B-7

18. P. S. & S. by

BPR [ ] NPS [X]

Form 10-174
(June 1962)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

FACE SHEET FOR COMPLETION REPORT

Work Order No.: B-4

Fund Symbol: 14X1035

Park: Adams National Historic Site

Region: Northeast

Year Programmed: 1964

Location in Park: Near the northeast corner of the Site.

State(s): Massachusetts

PCP No.: B-7

Master Plan No.:

County or Counties: Norfolk

Master Plan Corrected By:

[X] Contract and/or [X] Day Labor

As Built Drawings By:

Work Order Title: Restoration of Greenhouse

Date Started: July 1964

Date Completed: November 1964

DESCRIPTION OF FIXED ASSETS (For completion by employee in charge of project)	TOTAL COSTS (For completion by FFO)
Historic Structure (Greenhouse)	
100.7 - Structures	$5,147.69
TOTAL	$ 5,147.69

DISTRIBUTION

No.	To
1	WASO
1	EODC
1	NE Region
1	Adams NHS
1	FFO

THE FIXED ASSET DESCRIBED ABOVE HAS BEEN COMPLETED IN ACCORDANCE WITH APPROVED DRAWINGS, SPECIFICATIONS, AND AUTHORIZED CHANGES

Submitted By: George L. Wrenn — Title: Architect — Date: 2-4-65

Approved By: George L. Wrenn / Wilhelmina S. Harris — Title: Superintendent — Date: 2-4-65

COSTS VERIFIED BY: Ralph E. Motter — Title: Regional Budget Officer — Date: 3/12/65

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Form 10-174A
(June 1962)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

COMPOSITION OF COST FOR COMPLETION REPORT

Work Order Number: B-4
Fund Symbol: 14X1035

Park: Adams National Historic Site
Region: NE
Year Programmed: 1964

Location in Park: Near Northeast Corner of the Site

Work Order Title: Restoration of Greenhouse

COMPOSITION OF COST

COSTS CHARGED TO FUNDS ALLOTTED TO FIELD FINANCE OFFICE		
(1) Personal Services	$ 2,925.43	
(2) Travel	-	
(3) Contract Work	-	
(4) Supplies and Materials	415.52	
(5) Other Direct Expenses	1,096.71	
(6) Operation of Equipment	-	
(7) Depreciation of Equipment	-	
(8) Purchase of Construction Equipment	-	
(9) Purchase of Other Accountable Equipment	-	
(10) Other Costs: _____	-	
(11) TOTAL COST CHARGED TO FFO FUNDS	xxxxxxxxxx	$ 4,437.66
OTHER COSTS:		
(12) PS&S, AP, and/or Facilitating Services @ 16 %	$ 710.03	
(13) Inventory and Other Non-Fund Costs	-	710.03
(14) GROSS WORK ORDER COSTS	xxxxxxxxxx	$ 5,147.69
LESS:		
(15) Residual Value of Construction Equipment on Line 8	$ -	
(16) Other Credits	-	-
(17) NET COST OF FIXED ASSETS	xxxxxxxxxx	$ 5,147.69

Identify other costs and other credits by line item entry, on an attached schedule, or explain in narrative.

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