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HISTORIC STRUCTURES REPORT

ADMINISTRATIVE DATA

PART III

WEST HEADRACE FLUME

Hopewell Village National Historic Site

Prepared by
Benjamin J. Zerbey
Superintendent
October 1964

see memo H30-RHA dtd 10-21-64
in H30 HOV1

HISTORIC STRUCTURES REPORT

PART III

WEST HEADRACE FLUME

Hopewell Village National Historic Site

APPROVAL SHEET

RECOMMENDED

/s/ Benjamin J. Zerby

Date 10/16/64

Superintendent

Robert E. Smith

Date 10-28-64

Chief, EODC, *Acting*

APPROVED

Regional Director

Date _____

HISTORIC STRUCTURES REPORT

ADMINISTRATIVE DATA

PART III

WEST HEADRACE FLUME

The West Headrace Flume was first reconstructed in 1951 following restoration of the Hopewell Water Wheel. The six forebay piers were located by the various archeologists working at the site since 1940. J.C. Fisher Motz excavated Pier #1 in 1940 and located it precisely. Cotter and Schumacher located the other piers in 1950 and '51. All of these were restored to their original height and width in 1951. The wooden superstructure of the flume as created in 1951 was a compromise due to fund limitations and the urgency to get the water wheel in operation. Surplus lumber from some of the old CCC buildings on the site was used. The floor and siding of the trough of the 1951 flume consisted of "bull pine" which was not treated with wood preservative and quickly rotted.

Various informants gave the dimensions of the flume as four feet wide by one foot high. Mr. Sheriden Painter, a local contractor and one who saw the flume in his youth, drew up detailed dimensions for an accurate restoration. These were evidently ignored in 1951 because of lack of funds.

By 1961, the West Headrace Flume had become so badly rotted that it was in a state of near collapse and restoration of the correct original flume became a necessity.

Description of the Work

The detailed sketch of a cross section of the historic flume prepared from interviews with "Sherd" Painter was used as the basis for the reconstruction. This sketch, attached to Part I of this report, was followed without deviation.

Four by four oak timbers were used for the bunks of the flume. This material was purchased from a local saw mill and was given a soaking treatment in creosote solution for several days. The oak bunks or yokes were mortised and tenoned by the Hopewell maintenance crew in March 1964. Supporting 8" x 8" timbers were given several brush applications of creosote.

As recommended in Part I of this report we used Longleaf Yellow Pine for the trough of the flume. The material purchased was full 1 $\frac{1}{4}$ " tongue and groove which was fabricated at a local planing mill. The trough sides were 1 $\frac{1}{4}$ " x 12" yellow pine which were grooved at the bottom to accommodate the tongue of the trough decking thereby providing a tight water seal. The trough material received several brush and spray applications of creosote.

Foreman Charles Seidel, former Building Restoration Specialist, and his crew began construction of the new flume on April 27. The existing piers were used without any modification, however, some masonry work was necessary at the water cutoff where the race entered the forebay. Work was completed on May 14.

No extensive changes were made here but a small realignment of the stone wall was required to widen the opening to four feet.

A large sycamore tree was thus cleared by a few inches. It appears that when a portion of the retaining wall was rebuilt in 1951 it followed a gentle curve. The restored wall straightened out this curve.

Historical or Archeological Evidence

No new evidence came to light during this restoration project.

The pier stones as located look much more in scale supporting the four foot wide flume.

Photographs

A series of photographs is attached to this report showing the flume under construction and after completion. A number of "before" photographs are included in Part I of the report on this structure.



View of the flume from the connecting shed on top of the furnace bank.



View looking up the fluse from where it enters the West Courtyard
and the Theal House and Bridgman House are in the background.



Resetting of Headrace Wall at the gate where
water enters the West Headrace Flume.




View of Forebay Pier #2 where flume enters wheelhouse on the right. Note that pegs have not been sawed off awaiting final curing of the oak timbers.



Four foot wide restored flume clears large Sycamore tree by a few inches. This tree did not interfere with the laying out of the flume but it came quite close.

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

PROJECT CONSTRUCTION PROGRAM PROPOSAL FORM

1. NAME OF AREA Hopewell Village N.H.S.		LOCATION OF AREA STATE Pennsylvania	
2. PROPOSED WORK Restore West Headrace Flume			
3. DIMENSIONAL DATA 4' wide, 1' high x 100' long, supported by 5 masonry piers.			
4. LAND STATUS AND DATA All Government owned.			
5. CONSTRUCTION DATA Wooden flume or trough to be built of treated wood in the above dimensions with gates, diversions and supported by 5 masonry piers.			
6. JUSTIFICATION The present flume was an expedient built to carry water to the wheel before research had been completed on the appearance of the original flume. An accurate restoration can now be made. The present flume is falling apart, needs constant maintenance and is not authentic in appearance.			
7. MISCELLANEOUS DATA--REMARKS, REPORT REFERENCES See "Proposed Restoration of Old Ironmaking Village", Regional Historian Appelman, June 15, 1936.			
8. DATA ON THIS FORM PREPARED BY Name: Robert Ransheim Date: 12/29/59 Title: Park Historian Name: Joseph Prentice Date: 12/29/59 Title: Superintendent		9. CROSS REFERENCES None None	
		10. ESTIMATE COSTS Construction: 1,900 Materials: 100 Labor: 220 Grand Total: 2,200	
		11. APPROVED Date: 3/15/60 /s/ Robert D. Ransheim Date: 3/15/60 Robert D. Ransheim, Jr., Dist. Dir.	
14. NAME OF PROJECT Restore West Headrace Flume		15. LOCATION WITHIN BUREAU TERM Furnace Area	
Route No. Section Master Plan Drawing No.		M-140 NPS	

FACE SHEET FOR COMPLETION REPORT

Park **Hopewell Village National Historic Site**

Region **N.E.**

Fund Symbol **14X138**

Location in Park
Furnace Complex

State **Pennsylvania**

Year Programmed **1964**

W.O. No. **14-147**

County or Counties
Berks & Chester

Master Plan Corrected By

As Built Drawings By

Contract and/or Day Labor

Work Order Title
Restore West Headrace Flume

Date Started **March 1, 1964**

Date Completed **May 14, 1964**

DESCRIPTION OF FIXED ASSETS
(For completion by employee in charge of project)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

reconstruction of 250' historic flume.

100.7 Structures, Miscellaneous

2,046.92

TOTAL \$ 2,046.92

DISTRIBUTION		THE FOLLOWING ASSET DESCRIPTIONS HAVE BEEN COMPLETED AND APPROVED FOR	
No.	To	DRAWING SPECIFICATIONS AND AUTHORIZED CHANGES	
1	WASO	Submitted	By: <i>/s/ Benjamin J. Zerby</i> Title: Superintendent
1	EODC	By:	Benjamin J. Zerby Title: Superintendent
1	NERO	Approved	By: <i>/s/ Benjamin J. Zerby</i> Title: Superintendent
1	FPO	By:	Benjamin J. Zerby Title: Superintendent
2	HOVI	COSTS VERIFIED	By: Ralph E. Matter Title: Regional Budget Officer 7/27/64

COMPOSITION OF COST FOR COMPLETION REPORT

Park **Hopewell Village N.H.S.**

Region **N.H.**

Location in Park
N.H. 11, Alverson, Pa.

Work Order Title
Restore West Mainrace Place

COMPOSITION OF COST

COSTS CHARGED TO FUNDS ALLOTTED TO FIELD FINANCE OFFICE

(1) Personal Services.....	\$	940.48	
(2) Travel.....			
(3) Contract Work.....			
(4) Supplies and Materials.....		824.11	
(5) Other Direct Expenses.....			
(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 FEO FUNDS.....	XXXXXXXXXX	\$	1,764.59

OTHER COSTS

(12) PS&S, AP, and or Facilitating Services * 16	\$	282.33	
(13) Inventory and Other Non-Fund Costs.....			
(14) GROSS WORK ORDER COSTS.....	XXXXXXXXXX	\$	2,046.92
LESS:			
(15) Residual Value of Construction Equipment on Line 3.....	\$		
(16) Other Credits.....			
(17) NET COST OF FIXED ASSETS.....	XXXXXXXXXX	\$	2,046.92

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