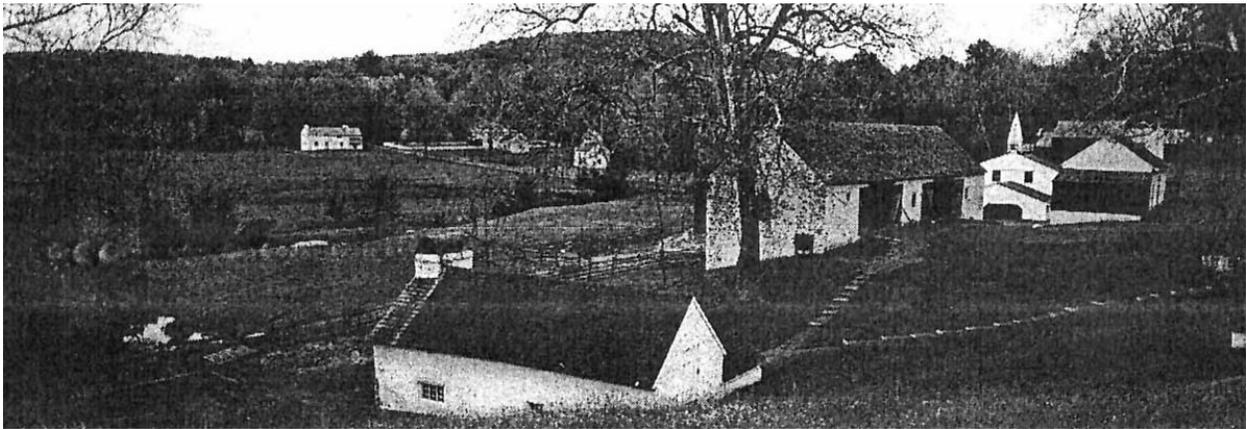

National Park Service
Cultural Landscapes Inventory
2003



Hopewell Furnace Landscape
Hopewell Furnace National Historic Site

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Executive Summary

General Introduction to the CLI

The Cultural Landscapes Inventory (CLI) is a comprehensive inventory of all historically significant landscapes within the National Park System. This evaluated inventory identifies and documents each landscape's location, physical development, significance, National Register of Historic Places eligibility, condition, as well as other valuable information for park management. Inventoried landscapes are listed on, or eligible for, the National Register of Historic Places, or otherwise treated as cultural resources. To automate the inventory, the Cultural Landscapes Automated Inventory Management System (CLAIMS) database was created in 1996. CLAIMS provides an analytical tool for querying information associated with the CLI.

The CLI, like the List of Classified Structures (LCS), assists the National Park Service (NPS) in its efforts to fulfill the identification and management requirements associated with Section 110(a) of the National Historic Preservation Act, NPS Management Policies (2001), and Director's Order #28: Cultural Resource Management (1998). Since launching the CLI nationwide, the NPS, in response to the Government Performance and Results Act (GPRA), is required to report on an annual performance plan that is tied to 6-year strategic plan. The NPS strategic plan has two goals related to cultural landscapes: condition (1a7) and progress on the CLI (1b2b). Because the CLI is the baseline of cultural landscapes in the National Park System, it serves as the vehicle for tracking these goals.

For these reasons, the Park Cultural Landscapes Program considers the completion of the CLI to be a servicewide priority. The information in the CLI is useful at all levels of the park service. At the national and regional levels it is used to inform planning efforts and budget decisions. At the park level, the CLI assists managers to plan, program, and prioritize funds. It is a record of cultural landscape treatment and management decisions and the physical narrative may be used to enhance interpretation programs.

Implementation of the CLI is coordinated on the Region/Support Office level. Each Region/Support Office creates a priority list for CLI work based on park planning needs, proposed development projects, lack of landscape documentation (which adversely affects the preservation or management of the resource), baseline information needs and Region/Support office priorities. This list is updated annually to respond to changing needs and priorities. Completed CLI records are uploaded at the end of the fiscal year to the National Center for Cultural Resources, Park Cultural Landscapes Program in Washington, DC. Only data officially entered into the National Center's CLI database is considered "certified data" for GPRA reporting.

The CLI is completed in a multi-level process with each level corresponding to a specific degree of effort and detail. From Level 0: Park Reconnaissance Survey through Level II: Landscape Analysis and Evaluation, additional information is collected, prior information is refined, and decisions are made regarding if and how to proceed. The relationship between Level 0, I, and II is direct and the CLI for a landscape or component landscape inventory unit is not considered finished until Level II is complete.

A number of steps are involved in completing a Level II inventory record. The process begins when the CLI team meets with park management and staff to clarify the purpose of the CLI and is followed by historical research, documentation, and fieldwork. Information is derived from two efforts: secondary sources that are usually available in the park's or regions' files, libraries, and archives and on-site landscape investigation(s). This information is entered into CLI database as text or graphics. A park report is generated from the database and becomes the vehicle for consultation with the park and the

SHPO/TPO.

Level III: Feature Inventory and Assessment is a distinct inventory level in the CLI and is optional. This level provides an opportunity to inventory and evaluate important landscape features identified at Level II as contributing to the significance of a landscape or component landscape, not listed on the LCS. This level allows for an individual landscape feature to be assessed and the costs associated with treatment recorded.

The ultimate goal of the Park Cultural Landscapes Program is a complete inventory of landscapes, component landscapes, and where appropriate, associated landscape features in the National Park System. The end result, when combined with the LCS, will be an inventory of all physical aspects of any given property.

Relationship between the CLI and a CLR

While there are some similarities, the CLI Level II is not the same as a Cultural Landscape Report (CLR). Using secondary sources, the CLI Level II provides information to establish historic significance by determining whether there are sufficient extant features to convey the property's historic appearance and function. The CLI includes the preliminary identification and analysis to define contributing features, but does not provide the more definitive detail contained within a CLR, which involves more in-depth research, using primary rather than secondary source material.

The CLR is a treatment document and presents recommendations on how to preserve, restore, or rehabilitate the significant landscape and its contributing features based on historical documentation, analysis of existing conditions, and the Secretary of the Interior's standards and guidelines as they apply to the treatment of historic landscapes. The CLI, on the other hand, records impacts to the landscape and condition (good, fair, poor) in consultation with park management. Stabilization costs associated with mitigating impacts may be recorded in the CLI and therefore the CLI may advise on simple and appropriate stabilization measures associated with these costs if that information is not provided elsewhere.

When the park decides to manage and treat an identified cultural landscape, a CLR may be necessary to work through the treatment options and set priorities. A historical landscape architect can assist the park in deciding the appropriate scope of work and an approach for accomplishing the CLR. When minor actions are necessary, a CLI Level II park report may provide sufficient documentation to support the Section 106 compliance process.

Hopewell Furnace National Historic Site and the CLI

Hopewell Furnace National Historic Site started its General Management Plan in 2003. Because the park has a Cultural Landscape Report (CLR), this Cultural Landscape Inventory (CLI) project would not normally be undertaken. However, in this instance, the CLI was initiated to meet GIS testing needs for integrating cultural and natural information located in databases. To make that possible, information was adapted from the 1997 CLR and entered into the CLI database. This included existing conditions information originally documented in 1994-95 and eligibility determinations, which are no longer completely up to date.

A number of fields required by the database were not covered in the CLR and were created by CLI staff. This included various explanatory narratives, the Hierarchy Description, Location Map, UTM's, Ethnographic Information, Adjacent Lands, Condition Assessment, Impacts, Documentation Assessment

and Checklist, and Supplemental Information. CLI staff scanned the images for the database from a copy of the CLR, since electronic versions of the photographs were not available. The CLR maps in the paper copy of the CLR didn't match the final electronic copies sent by the contractor and changes had to be made to the electronic version entered into the database.

The question of whether Mission 66 sites are eligible for the National Register of Historic Places has not been clarified. It was decided to list all of those resources in the CLI as undetermined, although they were previously listed in the CLR as non-contributing. However, the LCS lists some Mission 66 work as eligible (reconstructions within the village), so it was decided to accept that determination and change those features to contributing in the CLI and note in the feature list that the determination came from the LCS, not the CLR. A summary table was created and added to the addenda to show these changes and the source of the information. However text that might be contradictory was not to be rewritten; caveats regarding this were put in the Inventory Summary Explanatory Narrative and the Analysis and Evaluation Summary.

In reviewing the CCC resources, it was discovered that the LCS lists some features as contributing that are listed as non-contributing in the CLR. Additionally, some features are listed as contributing in the CLR but are not listed in LCS, and some features built by the CCC were not listed in either document. For CCC resources the same procedure was used as for Mission 66: features noted in either document as contributing were listed as such and added to the summary table in the appendix.

The issues of the CCC and Mission 66 resources cannot be resolved without substantive research and rewriting of the text. The Historic Resources Study currently underway or other studies looking at eligibility questions are needed to bring this CLI to a Level II. Therefore the CLI staff, with park approval, has finished the CLI for now as a Level I with the known discrepancies relating to CCC and Mission 66. Hopefully a Level II can be completed at some future time (PHSO 2003).

Park Information

Park Name: Hopewell Furnace National Historic Site
Administrative Unit: Hopewell Furnace National Historic Site
Park Organization Code: 4430
Park Alpha Code: HOFU

Property Level And CLI Number

Property Level: Landscape
Name: Hopewell Furnace Landscape
CLI Identification Number: 300091
Parent Landscape CLI ID Number: 300091

Inventory Summary

Inventory Level: Level I

Completion Status:

Level 0

Date Data Collected - Level 0: 5/26/1999
Level 0 Recorder: Nancy J. Brown
Date Level 0 Entered: 5/26/1999
Level 0 Data Entry Recorder: Nancy J. Brown
Level 0 Site Visit: No

Level I

Date Level I Data Collected: 7/15/1994
Level I Data Collection: KFS Cultural Resources Group
Date Level I Entered: 2/13/2003
Level I Data Entry Recorder: Joshua Shields, Nancy J. Brown
Level I Site Visit: Yes

Explanatory Narrative:

This Level I CLI has been adapted from the 1997 Cultural Landscape Report (CLR) prepared by KFS Cultural Resource Group in association with Menke & Menke. All text is taken from the CLR unless otherwise noted.

The 1997 Hopewell Furnace Cultural Landscape Report determined that Mission 66 buildings and structures constructed to fulfill support and service functions were non-contributing features to the Hopewell Furnace cultural landscape. Since the publication

of that document, however, the National Park Service has begun to re-evaluate many of its Mission 66 resources. Some of the features reconstructed under the Mission 66 program have been determined eligible by the List of Classified Structures, and are shown as contributing in the feature lists of this CLI. Other Mission 66 features have been changed from non-contributing to undetermined in the feature lists to reflect the re-evaluation that is taking place. The text describing the Mission 66 features was taken verbatim from the CLR; only the type of contribution in the feature lists was changed.

Other changes that have been made to the feature lists include the addition of resources listed in the LCS database that were not listed in the CLR. In addition, some features were listed in neither the CLR nor the LCS database but are included because the CLI team feels they are important components of the cultural landscape. Finally, it should be noted that the CCC Spring Houses listed in the CLR have been listed separately in the LCS and are therefore listed separately in this CLI.

The park contact for the CLI is Becky Ross, Cultural Resource Manager. She can be reached at 610-582-8773.

Landscape Description

The Hopewell Furnace National Historic Site Landscape, approximately 848 acres in size, occupies a portion of the timbered agrarian hills of the Pennsylvania Piedmont. The park constitutes less than twenty percent of the original Hopewell Furnace property, but does include the furnace and its associated buildings and structures, as well as the outlying farm buildings and their agricultural fields. Buildings were added and demolished throughout the life of the Furnace but the historic Village Core and its transportation corridor traces remain extant.

The existing landscape reflects the past land uses; in evidence are broad expanses of rolling fields, farm lanes, and aging timber stands. These features co-exist with a number of structural ruins, road traces, and other disturbances from the site's industrial and agricultural past.

During the 1930s and 1940s the site underwent changes as part of the CCC movement. These efforts helped salvage many of the Village Core buildings from disrepair and helped map the existing features for reconstruction. It was during this time that PA Route 345 underwent a major bypass that protected the core village from automobile traffic, but at the cost of isolating the village from the transportation system that had proved so crucial to its agricultural and industrial success. This time period also saw the reconstruction of the Hopewell Lake dam to increase recreational use and the addition of site amenities as part of the French Creek Recreation Demonstration Area.

Hopewell's associations with the charcoal iron industry extend over more than a century of time, from the establishment of the furnace in the 1770s until the cessation of smelting operations in 1883. This is the primary period of significance for the property. While not the oldest, largest, or longest operating iron furnace in Pennsylvania, Hopewell is representative of the eighteenth and nineteenth century charcoal furnace that provided colonial America and the new republic with much of its supply of iron. Consequently, Hopewell Furnace National Historic Site has national significance as an industrial site representative of a technology and process important in the economic development of the United States and as a rare example of the industrial villages that surrounded the often isolated and remote iron furnaces.

Hopewell Furnace National Historic Site retains a considerable degree of integrity in terms of the broad patterns that define its cultural landscape. However, examination of the detailed components of the landscape reveals a significantly diminished level of integrity. The appearance of the site differs considerably from its appearance during the mid-nineteenth century. The property is more wooded, with older forested stands than those of the furnace's operation. Reforestation has obscured former agricultural fields and masked boundaries. Boundary demarcations, such as fences, are almost entirely modern. Many buildings and structures are missing, and several major buildings are reconstructions that lack historic integrity. Nevertheless, a holistic approach to the site is called for, given the size of the property, its numerous periods of significance, and the variety of activities that shaped the landscape over the past two hundred years. While various individual components of the resource lack integrity, as a totality the site retains integrity as a resource with a long history of industrial activity, a period of decline and abandonment, and a major effort to reconstruct and interpret colonial and early national period iron making. (summarized from the CLR)

Cultural Landscapes Inventory Hierarchy Description

Hopewell Furnace National Historic Site is classified as a landscape in the CLI database.

Hopewell Furnace National Historic Site is located in the Chesapeake Cluster of the Northeast Region of the National Park Service.

Location Map



Location of Hopewell Furnace National Historic Site within the Mid-Atlantic Region of the United States (Source: www.mapquest.com).



USGS map of the Hopewell Furnace NHS taken from 7.5 Minute Quadrangle of Elverson, PA, 1956 edition photorevised 1974.

Boundary Description

Hopewell Furnace National Historic Site landscape boundary begins at the intersection of Shed Road and PA Route 345 north of the Visitor's Center. It then runs parallel to PA Route 345, approximately 1,000 feet before turning SSW to follow Park Road for roughly 2,500 feet. From there the property line heads SSE in an irregular line to the northeast corner of State Game Lands #43. Turning east, the boundary runs approximately 2,000 feet, coming to the intersection of Harrison Lloyd Road and Bethesda Road. From this intersection it turns and runs back NW parallel to Harrison Lloyd Road for 500 feet, before turning NNE and heading towards French Creek roughly 1,350 feet. The boundary parallels French Creek nearly 800 feet before turning WSW for 750 feet to a point near the site of the Harrison Lloyd House Ruins. From there it runs NNW for 650 feet before heading NNE and running approximately 1,750 feet parallel to the Berks/Chester County Line. The property line then turns ESE, running 1,800 feet to encompass the Bethesda Church before heading NNW along Hopewell Road for nearly 1,100 feet. Next the boundary runs roughly NE for 600 feet before turning NNW approximately 1,000 feet to the confluence of the Berks/Chester County Line and the Raccoon Trail. From there it turns WNW for 1,500 feet before turning NNW 2,700 feet to the Mill Creek Trail. Finally, the property line runs parallel to the Mill Creek Trail approximately 3,000 feet to its point of origin at Shed Road and PA Route 345. (PHSO 2002)

Regional Context

Physiographic Context

Hopewell Furnace National Historic Site may be conveniently divided into a central area that includes the industrial village with its furnace, ancillary structures, residences, the village meadow, and the National Park Service's interpretive and maintenance facilities. This central core is nestled among rolling wooded hills, including Mt. Pleasure to the south, Brush Hill to the northwest, and the Chestnut Hill to the northeast. Hopewell Lake, located west of the National Historic Site in French Creek State Park, feeds French Creek, which flows east and south through the site. The northern portion of the site is predominantly wooded, while the central and southern portions maintain the landscape tradition of this part of upland Pennsylvania, with open fields, some bounded by the remains of stone walls, and isolated stands of woods.

Political Context

Hopewell Furnace National Historic Site is located in the Schuylkill River Valley approximately five miles south of Birdsboro in Union Township, Berks County and Warwick Township, Chester County, Pennsylvania. French Creek State Park bounds the site on the north, west, and south sides. Pennsylvania State Route 345 provides access to the park.

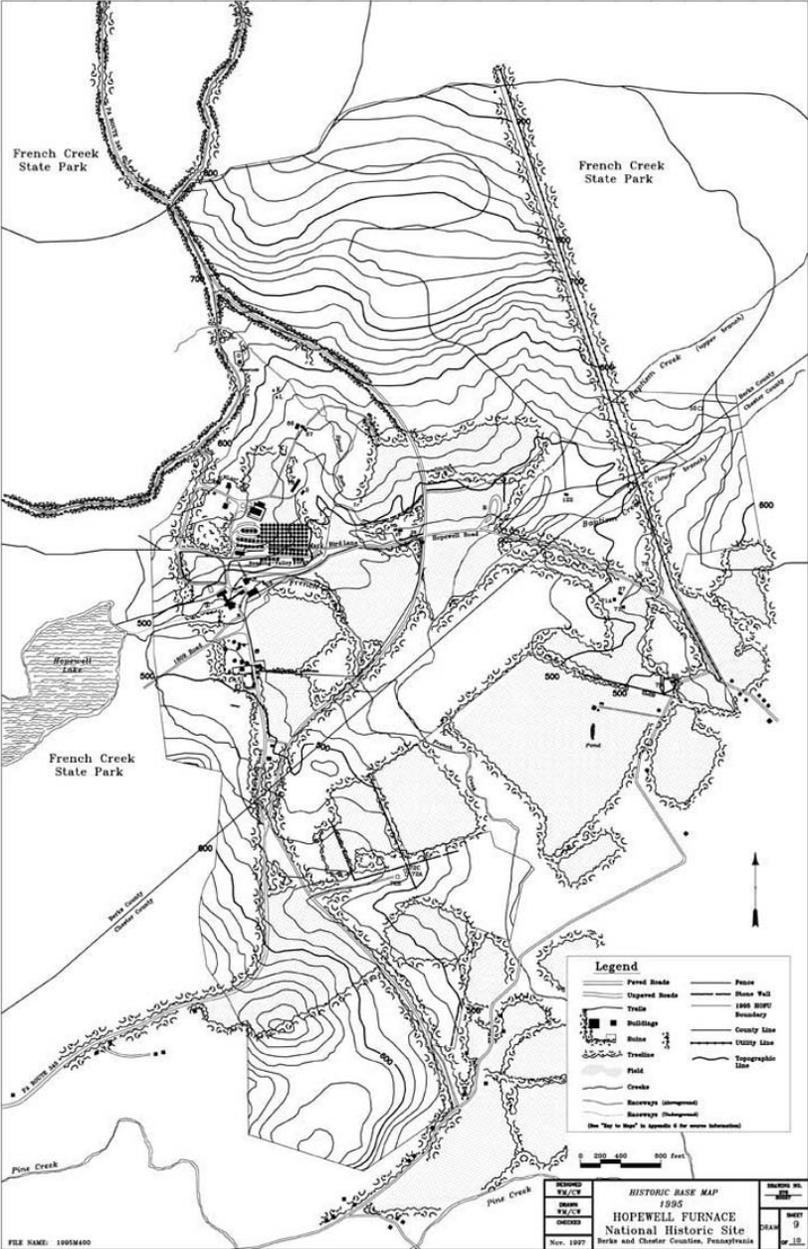
Cultural Context

Hopewell Furnace National Historic Site contain features resulting from its rural setting and historic uses. These include large forested areas with pockets of agricultural open spaces. Within the National Historic Site's boundaries are several building clusters associated with supporting the operation of the furnace. The Bethesda Baptist Church cluster supported the cultural life of nearby residents, while other outlying structures housed furnace workers and farmers. The Thomas Lloyd House cluster, with its associated stone walls, fences, and farm roads is an example of a primary rural landscape feature located within a setting of agricultural fields or meadows surrounded by woods.

Without question, the primary focus of Hopewell Furnace National Historic Site is the historic village core. This unique complex of buildings and structures contains the Ironmaster's House, the Furnace and its associated Cast House and outbuildings, the Village Barn and several Tenant Houses, as well as other supporting structures. Threaded through the village are remnants of roads dating from the eighteenth century and the head and tail water raceways necessary for the operation of the furnace. An important complement to the structural elements of the village is the landscape setting, which is centered upon French Creek meandering through the meadow east of the village center. Pennsylvania Route 345 provides a delineated boundary edge to the east, while forested hillsides surround the village on the other sides.

Site Plan

Hopewell Furnace 1995 Base Map (See addendum for enlargement).



Hopewell Furnace 1995 Base Map Key (See addendum for enlargement).

1995 Base Map - Overall Area

Sources:

Information contained on this map was compiled from numerous sources located predominantly in HOFU's archives and files. Key sources include: Kutztown University "Disk Files of Hopewell Furnace NHS," Menke & Menke Field Survey including GPS readings, Russell Apple's "Historic Base Map - Village Area 1830-1840" and his "Documentation for Historic Base Maps: 1830-1840," 1956; National Park Service, "Topography Hopewell Village - French Creek Demonstration Recreation Project, 1937, rev. 1938; aerial photographs dating from ca. 1920-1980s; historic structure reports; Delaware Valley Orienteering Association's "French Creek East, Orienteering Map," 1992; among others.

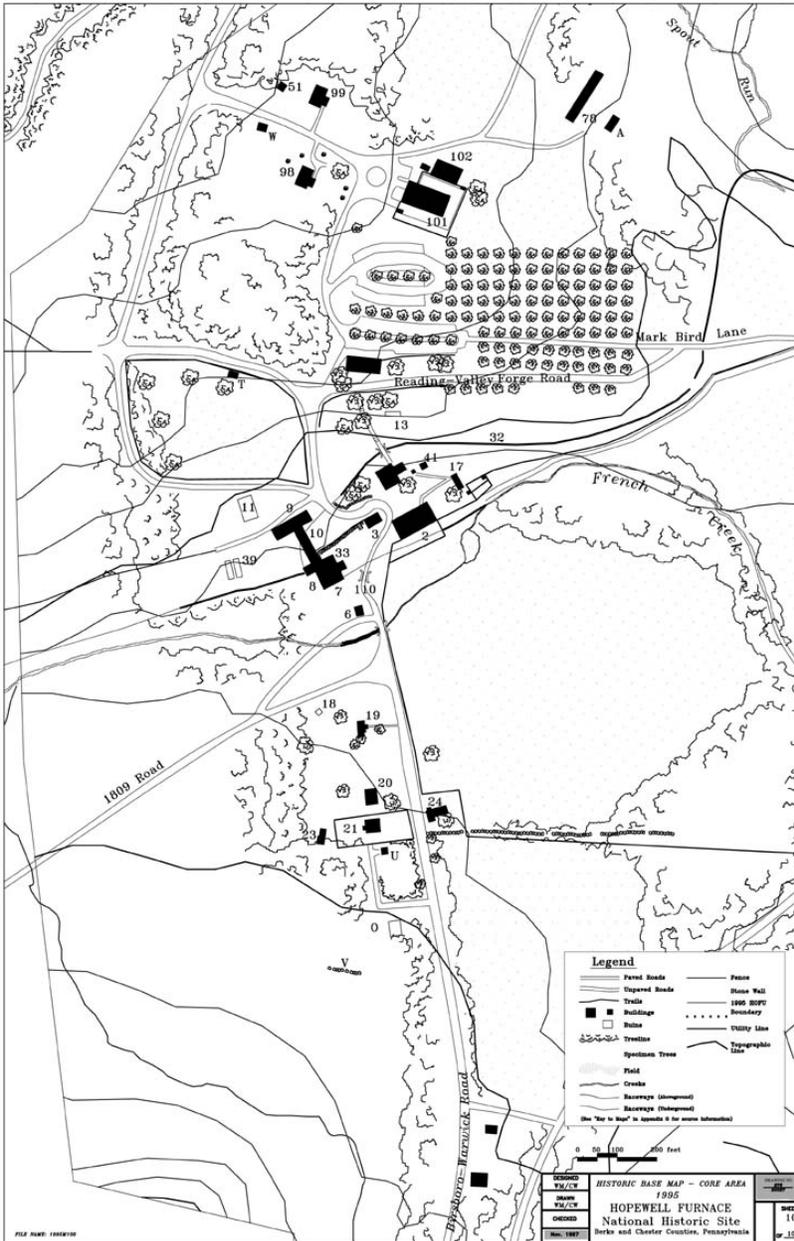
Notes:

- Vegetation layers included on this map are based primarily on field survey, arborist's report, other previous reports, and twentieth century aerial photographs and mapping.

Building Number and Name:

- 27 Church House
- 28. Church House Barn
- 55. Brison House Ruin
- 66. Warehouse
- 67. Oil house
- 70. Church Garage
- 71. Thomas Lloyd House
- 71A. Thomas Lloyd Wagon Shed
- 72A. Harrison Lloyd Barn Ruin
- 72B. Harrison Lloyd House Ruin
- 72C. Harrison Lloyd Blacksmith Shop Ruin
- 76. Woodlot House Ruin
- 78. YCC Building
- 79. Bethesda Baptist Church
- 80. Bethesda Baptist Church Carriage Shed
- 87. Thomas Lloyd Springhouse
- 122. Baptism Creek Picnic Shelter (ESA Shelter)
- R. Baptism Creek Picnic Area Parking
- S. Quonset Hut
- K. Manning Barn Site
- L. Manning House Site

Hopewell Furnace 1995 Base Map - Core Area (See addendum for enlargement).



Hopewell Furnace 1995 Map Key - Core Area (See addendum for enlargement).

1995 Base Map - Core Area

Sources:

Information contained on this map was compiled from numerous sources located predominantly in HOFU's archives and files. Key sources include: Kutztown University "Disk Files of Hopewell Furnace NHS," Menke & Menke Field Survey including GPS readings, Russell Apple's "Historic Base Map - Village Area 1830-1840" and his "Documentation for Historic Base Maps: 1830-1840," 1956; National Park Service, "Topography Hopewell Village - French Creek Demonstration Recreation Project, 1937, rev. 1938; aerial photographs dating from ca. 1920-1980s; historic structure reports; Delaware Valley Orienteering Association's "French Creek East, Orienteering Map," 1992; among others.

Notes:

- Vegetation layers included on this map are based primarily on field survey, arborist's report, other previous reports, and twentieth century aerial photographs and mapping.

Building Number and Name:

1. Ironmaster's House	100. Visitor Center
2. Furnace Barn	101. Maintenance Building
3. Office and Store	102. Bally Building
6. Blacksmith Shop	110. Tail Race
8. Furnace Bank Retaining Wall	111. West Head Race
7. Furnace Complex	O. Tenant House No. 4 Ruin
9. Charcoal House	S. Quonset Hut
10. Bridge House	T. Cedar pasture Stable
11. Anthracite Furnace Ruin	U. Car Port
13. Green House Ruin	V. Tenant house No. 4 Wall Ruin
17. Ironmaster's Spring House	W. Former CCC Garage
18. School House Ruin	
19. Tenant House No. 1	
20. Tenant House No. 2	
21. Tenant House No. 3	
23. Tenant House No. 3 Barn	
24. Boarding House	
25. Nathan Care House	
26. Nathan Care Barn	
32. East Head Race	
33. Cast House	
39. Charcoal Kilns	
41. Smoke House	
51. Pump House	
78. YCC Building	
98. Quarters	
99. Quarters	

Chronology

Year	Event	Description
1757 AD	Established	Road opened from Reading to Coventry Forge.
1770 AD	Established	Hopewell Mine opened circa 1770.
1771 AD	Built	Furnace erected (date in cast arch).
1772 AD	Built	Road built connecting Jones Mine to Schuylkill River at Monocacy (north of Hopewell Village on “Brushy” Hill).
1772 AD	Built	Ironmaster’s House extant by this date.
1773 AD	Built	Cast House constructed circa 1773.
1775 AD	Built	Blacksmith Shop constructed circa 1775.
1782 AD	Built	Bethesda Church built by Thomas Lloyd.
1784 AD	Established	Earliest mention of Store in records.
1786 AD	Purchased/Sold	Bird offered property at public sale – 4,000 acres of land, 5,000 cords of wood, 800 loads of ore.
1788 AD	Purchased/Sold	Sheriff’s sale in April – 5,163 acres to Cadwallader Morris & James Old (included 250 tree apple orchard).
1791 AD	Purchased/Sold	Morris’ brother Benjamin becomes sole owner of Hopewell Furnace.
1793 AD	Purchased/Sold	James Old buys property for \$37,000 and resells to James Wilson.
1796 AD	Purchased/Sold	Sheriff’s sale of 4,000 acres to Old.
1798 AD	Built	East Head Race clearly extant by this date (6,100 feet from Baptism Creek).

1800 AD	Purchased/Sold	Sheriff's sale of Hopewell Furnace to Benjamin Morris.
1800 AD	Purchased/Sold	Morris sells furnace property to Daniel Buckley and brother-in-laws Thomas & Matthew Brooke.
1800 AD	Altered	Buckley & Brooke make extensive alterations to furnace; rebuild hearth walls, reorient water wheel east-west, build new West Head Race; construct new Coal House; as well as a log and timber Charcoal House.
1803 AD	Built	Buckley & Brooke have log house constructed at unknown location (possible tenant house).
1804 AD	Built	Public road from Birdsboro to Hopewell opened.
1805 AD	Built	Stamping Mill erected.
1806 AD	Built	Stone Tenant House is constructed (possibly the west section of Boarding House).
1806 AD	Built	North end of Spring House is constructed.
1807 AD	Damaged	Dam bursts three times during the year.
1808 - 1816 AD	Maintained	Furnace out of blast, lawsuits against furnace; at least three houses extant at mines.
1809 AD	Established	Road to Jones Mine opens (used ford near Blacksmith Shop).
1815 AD	Established	Road to Warwick opens (Warwick Mine to Hopewell).
1816 AD	Built	New Cast House erected circa 1816.
1816 AD	Rehabilitated	\$8,000 worth of repairs are made in preparation to restart the furnace after long hiatus.
1816 AD	Established	water pipe existed from Spring House to Mansion.
1817 AD	Altered	Possible alterations made to the Barn.

1818 AD	Built	Wheel House erected (designated as "new").
1820 AD	Land Transfer	Lloyd Tract willed to Thomas Lloyd – possible house additions.
1823 AD	Built	Bake Oven built near Ironmaster's House.
1825 AD	Established	Road officially established from Furnace to 1750s Road; obliterated in 1930s and reconstructed in 1950s.
1826 AD	Built	Tenant House with excavated cellar constructed (Church House?).
1826 - 1827 AD	Built	Furnace makes door frames and other items for New State Penitentiary.
1827 AD	Altered	Cast House enlarged circa 1827.
1827 AD	Established	Formal organization of Baptist congregation at Bethesda Church.
1828 AD	Built	Smokehouse built circa 1828.
1828 AD	Altered	Major masonry repairs to furnace; possible removal of south shed and construction of new shed.
1829 AD	Built	Greenhouse constructed circa 1829 (based on glass purchases).
1829 - 1842 AD	Altered	25-foot addition made to east end of Barn.
1829 AD	Planted	Furnace purchased and planted 160 apples trees.
1830 AD	Built	Supposed construction of the Boarding House east addition.
1832 AD	Built	Stone steps installed in garden.
1832 - 1833 AD	Built	Garden Wall constructed (records).
1833 AD	Built	Garden Toolhouse built circa 1833.

1834 AD	Built	Ice House/Summer House constructed circa 1834 (earliest mention in records).
1834 AD	Planted	Furnace purchased and planted 304 apple trees.
1837 AD	Built	Public school located at furnace circa 1837 – built at company expense.
1838 AD	Built	Greenhouse constructed (based on presence of full-time gardener).
1841 AD	Built	Gable end steps built on mansion for fire control circa 1841.
1844 AD	Abandoned	Stove casting halted at Furnace.
1845 - 1854 AD	Built	Tenant House No. 3 built around this time.
1847 AD	Abandoned	South Molding Room abandoned circa 1847.
1847 AD	Built	Scales installed at Bridge House.
1849 AD	Built	Brick Kiln House built circa 1849.
1850 - 1860 AD	Built	Carriage Shed frame addition supposedly constructed to east end of Barn during this time.
1850 AD	Established	Care Log House extant circa 1850.
1853 AD	Built	Anthracite Furnace erected.
1856 - 1857 AD	Built	Nathan Care House built circa 1856.
1856 AD	Built	AME Mount Frisby Church constructed (3 miles from furnace).
1857 AD	Moved	Anthracite machinery moved to Monocacy circa 1857.
1859 AD	Established	Hopewell listed as a Post Office.
1859 AD	Built	Nathan Care Barn built circa 1859.

1867 AD	Neglected	No roof on North Molding Room circa 1867.
1867 AD	Altered	Ironmaster's House porch extended to 20 feet.
1869 AD	Rehabilitated	Extensive repairs made to the furnace.
1869 AD	Built	Tenant House No. 4 (Boone Store) built circa 1869.
1870 AD	Built	New school built along Jones Mine Road (approximately one mile west of Hopewell) circa 1870.
1870 AD	Built	Frame additions constructed on Barn circa 1870.
1870 AD	Altered	Bathroom installed in Mansion; 1st floor windows lengthened; porch extended.
1875 AD	Established	Boone Store started in Tenant House No. 4 circa 1875.
1876 AD	Built	Latrine extant in Mansion yard circa 1876.
1878 AD	Altered	Brick Kiln rented as residence to John Roberts.
1879 AD	Reconstructed	Wheel House rebuilt with roof to Bridge House.
1880 AD	Reconstructed	Charcoal House and north shed rebuilt circa 1880.
1881 AD	Built	Boiler installed to provide auxiliary power to furnace circa 1881.
1882 AD	Built	Ore Roaster installed.
1891 AD	Abandoned	Boone Store closed.
1893 AD	Damaged	Boone Store burned.
1895 AD	Demolished	Wheelwright Shop torn down circa 1895.
1895 AD	Exploited	Fence posts and rails cut from woodland and sold in railroad car lots circa 1895.

1900 AD	Demolished	Care Log House demolished to use site as field circa 1900.
1915 AD	Abandoned	Clingans cease using Mansion as summer house.
1920 AD	Built	Ironmaster's House bridge at east façade built (formerly steps to summer house).
1922 AD	Graded	Nathan Care, Jr. regraded north side of Barn.
1926 AD	Built	New Barn built incorporating some old stone walls.
1932 AD	Altered	1804 Road realignment: wall broken, Ore Roaster infilled.
1935 AD	Purchased/Sold	Federal Government purchased Hopewell property (approximately 6,000 acres).
1935 AD	Established	Two Civilian Conservation Corps (CCC) camps located in area (about 400 men).
1935 AD	Altered	CCC workers raise dam on French Creek 8 feet, increasing lake from 12 to 62 acres.
1935 - 1939 AD	Restored	Work Progress Administration restoration work begins on site.
1938 AD	Restored	CCC clean out tail race.
1938 AD	Established	Hopewell Village National Historic Site established.
1939 AD	Established	Pennsylvania Route 345 loop road completed.
1941 AD	Restored	CCC workers complete Furnace restoration.
1941 AD	Expanded	Church House addition constructed.
1946 AD	Land Transfer	Federal government deeds approximately 5,000 acres to the state of Pennsylvania; 848 acres retained as Hopewell Village National Historic Site.

1950 AD	Restored	Blacksmith Shop restored.
1952 AD	Restored	NPS restores waterwheel and blast machinery.
1955 AD	Abandoned	Birdsboro-Warwick Road through Hopewell Village closes to the public.
1955 - 1958 AD	Restored	Steps west of Store restored.
1957 AD	Reconstructed	Bridge House reconstructed.
1958 AD	Rehabilitated	Considerable work completed on the interior of the Ironmaster's House.
1958 - 1959 AD	Built	Visitor Center, Upper Parking Lot, Maintenance Building, and Residences built.
1959 AD	Stabilized	Tenant Barn stabilized and re-roofed.
1960 AD	Established	Parking Lot orchard planted.
1961 AD	Restored	Store restored.
1961 AD	Restored	Barn restored.
1962 AD	Excavated	Cleaning Shed discovered through archeology.
1963 - 1964 AD	Stabilized	Anthracite Furnace stabilized.
1965 AD	Reconstructed	Cast House reconstructed.
1965 AD	Demolished	Harrison Lloyd House razed on January 14.
1965 AD	Restored	Bethesda Cemetery Wall restored.
1965 AD	Restored	Spring House restored.
1965 AD	Reconstructed	Charcoal House reconstructed.
1965 AD	Graded	Grade lowered east and north of Blacksmith Shop.

1973 AD	Maintained	Cedar Pasture cleared of all but cedars.
1980 AD	Damaged	Blacksmith Shop burned.
1981 AD	Restored	Blacksmith Shop restored.
1985 AD	Altered	Name changed to Hopewell Furnace National Historic Site.

Statement Of Significance

Hopewell Furnace National Historic Site is significant under National Register of Historic Places criteria A, B, C, and D, as defined in 36 CFR 60.4. Hopewell Furnace National Historic Site is associated with "events that have made a significant contribution to the broad patterns of our history."⁽¹⁾ These events include the American Revolution; the rise of Pennsylvania's charcoal iron industry, a significant example of early industrial enterprise closely associated with the onset of the Industrial Revolution in the United States; the agricultural development of the Pennsylvania Piedmont, one of the nation's richest agricultural areas; and the evolution of the federal government's role in the preservation of the nation's historic resources and the provision of recreational areas for its citizens.

Hopewell Furnace has significant associations with the history of the American Revolution. The furnace's original owner, Mark Bird, produced cannon, shot, and shell for the Continental Army and served as a colonel in the Berks County militia. Before the start of hostilities, Bird was a member of local Committees of Observation and Correspondence.

Hopewell's associations with the charcoal iron industry extend over more than a century of time, from the establishment of the furnace in the 1770s until the cessation of smelting operations in 1883. This is the primary period of significance for the property. Starting in the early Colonial period, and continuing through the mid-nineteenth century, charcoal iron furnaces produced virtually all of Pennsylvania's and most of the nation's supply of iron. The process used to produce iron changed little over a period of nearly one hundred years, until the late-1830s. After this date other methods of iron production became increasingly important. Cold-blast charcoal furnaces continued to operate until the last quarter of the nineteenth century, but their numbers dwindled after 1850.

Hopewell Furnace National Historic Site is nationally significant for its long history as a charcoal-fueled ironworks. Hopewell survived longer than many of Pennsylvania's charcoal furnaces. While not the oldest, largest, or longest operating iron furnace in Pennsylvania, Hopewell is representative of the eighteenth and nineteenth century charcoal furnaces that provided colonial America and the new republic with much of its supply of iron. Consequently, Hopewell Furnace National Historic Site has national significance as an industrial site representative of a technology and process important in the economic development of the United States and as a rare example of the industrial villages that surrounded the often isolated and remote iron furnaces.

In addition to its industrial activities, Hopewell Furnace included a considerable agricultural operation. The Hopewell Furnace property included agricultural fields, pastures, orchards, and vegetable gardens. These provided foodstuffs for the owners, workers, and animals who resided in the village and reduced the need to purchase food from outside sources. The agricultural operations engaged in at Hopewell are typical of those engaged in by local farmers. Consequently, Hopewell Furnace National Historic Site may be considered locally significant for its associations with local farming practices, and as an example of the efforts of iron furnace operators to achieve agricultural self-sufficiency.

As the National Park Service's first unit focused upon the industrial history of the nation, Hopewell is nationally significant to the history of the historic preservation movement in the United States, and as an early example of the National Park Service's efforts to interpret and display the industrial and social history of the United States. Hopewell Furnace is locally significant for its associations with the Civilian Conservation Corps CCC, a major New Deal employment program. The CCC stabilized the furnace stack, cleaned the water wheel pit, recorded historic buildings, and conducted the first archeological investigations at the site. The CCC also developed roads, hiking and bridle trails, and

constructed a picnic area in the vicinity of Baptism Creek. This work was conducted as part of the larger effort to develop the entire furnace property as the French Creek Recreation Demonstration Area (RDA). The RDA consisted of group camps, picnic areas, lakeside beach areas, and other developments intended to provide recreational opportunities for urban residents. Hopewell Furnace was an integral part of the French Creek RDA and, as such, is associated with this important federal effort to develop recreational facilities for the public.

Hopewell Furnace National Historic Site is associated with "the lives of persons significant in our past."⁽²⁾ As noted above, the furnace's original owner, Mark Bird, produced cannon, shot, and shell for the Continental Army and served as a colonel in the Berks County militia. Bird also served as a member of local Committees of Observation and Correspondence. Subsequent owners of the furnace, including various members of the Buckley and Brooke families, were locally significant because of their ownership of a major industrial enterprise that provided employment to a considerable number of local residents.

Hopewell Furnace National Historic Site embodies "the distinctive characteristics of a type, period, or method of construction."⁽³⁾ A number of extant buildings and structures date from the late-eighteenth and early-nineteenth century and embody the distinctive characteristics of local vernacular style construction. It is important to note, however, that major buildings at the site, including the Cast House and Barn, are reconstructions, not historic buildings.

Hopewell Furnace National Historic Site has "yielded, [and] may be likely to yield, information important in prehistory or history."⁽⁴⁾ Archeological investigations dating back to the 1930s have yielded significant information about the methods and practices of charcoal iron furnaces. Additional archeological investigations have the potential to produce significant information pertaining to the lifestyles of industrial workers and owners at an iron plantation. Much of the information that archeological investigations at Hopewell Furnace may provide is not available through research in documentary source materials.

Notes:

- (1) 36 CFR 60.4(a)
- (2) 36 CFR 60.4(b)
- (3) 36 CFR 60.4.
- (4) 36 CFR 60.4(d)

Physical History

Settlement and Development: 1770-1800

In the early 1770s, Mark Bird built his new iron furnace on the edge of a meadow where French Creek flows between Mount Pleasure and Brush Hill in Union Township, Berks County, Pennsylvania, very near the Chester County line. The local environment strongly influenced Bird's decision to build in this particular location. French Creek and its tributaries offered an adequate supply of waterpower to turn the wheels that powered the furnace's blast machinery. The sloping topography north of French Creek allowed the furnace stack to be sited against a hill, simplifying construction of the charging bridge, by which the various raw materials used to produce iron were dumped into the top of the furnace. The raw materials required to produce iron, including iron ore, limestone for flux, and charcoal for fuel, were readily available within a few miles of the furnace site.

The site's most significant flaw was also a result of local environmental conditions. Situated between two hills and bisected by a creek, the site tended to be marshy. The area around the furnace flooded during spring and fall freshets and remained somewhat wet and boggy throughout a considerable part of the year. Bird's work crews dug drainage ditches to convey water away from the furnace's buildings and into French Creek. Over the years, the slag that resulted from the operations was dumped around the furnace, altering the course of French Creek and effectively raising the elevation of the working area at the core of the site. The marshy conditions remained unaltered in other areas of the site. The Tenant Houses lining the west side of the main road through the village all had boardwalks leading from the house to the road, with small wood footbridges spanning a ditch alongside the road that carried water from a spring on Mount Pleasure to French Creek. Likewise, the northern portion of the village's principal meadow or pasture remained marshy.

Bird acquired the core of the furnace property in 1769, purchasing thirty-three acres from Owen Hugh.⁽¹⁾ It is unclear whether there were buildings on the site at this date, although one tradition holds that Hugh had a residence on the property located near the present barnyard, on the north side of French Creek. Bird inherited most of the larger furnace tract from his father, William Bird, in 1761. The elder Bird, who operated a forge in Birdsboro, owned a large amount of woodlands in Union Township.⁽²⁾ In 1763 his son possessed 8,050 acres in Union Township, of which probably about half had been inherited from his father. Over the next century, the chestnut and hickory trees that grew on these acres were cut and converted into the charcoal that fueled the furnace.

Despite its proximity to French Creek, the furnace utilized other waterpower sources during its first years of operation. An East Head Race extended approximately one mile from its point of origin on Baptism Creek to the furnace, while a West Head Race extended nearly two miles, part of that distance across land not owned by Bird. The lack of control over the furnace's water supply inherent in this condition forced the furnace owners to dam French Creek west of the furnace and build a new West Head Race in the first decade of the nineteenth century. Tradition holds that Bird's slaves dug the East Head Race ca. 1770. The original West Head Race probably dates from the same period, and certainly from before ca. 1800.⁽³⁾ Both head races were open ditches, with stone retaining walls at slopes, and were probably lined with clay to reduce the loss of water resulting from leakage. The races generally conformed to the site's contour lines, gently transporting water downhill from their sources to the waterwheel at the furnace.

The availability and location of transportation facilities also influenced Bird's decision as to the furnace's location. Bird recognized the importance that adequate transportation facilities played in determining the

financial viability of a furnace operation. He located Hopewell near an existing public road, officially opened in 1758 from a point on the west bank of the Schuylkill River, opposite Reading, in Berks County, via Scarlet's Mill, to Coventry Forge in Chester County.(4) This road passed approximately two hundred yards north of Bird's furnace site. A private road, built and maintained by Bird, connected the furnace property to the public road. Private roads linked the furnace with the Hopewell and Jones Mines. Shortly after operations began at the furnace a public road was opened between the Jones Mines and the Schuylkill River, passing conveniently near the furnace and further improving the furnace's transportation links. By the close of the eighteenth century a network of public and private roads linked the furnace with mines and markets, binding the isolated location into the local and regional economy. Hopewell Furnace remained dependent upon roads and highways throughout its history, since it never benefited from direct access to canals or railroads. The road connections established in the eighteenth and early nineteenth centuries remained critical to Hopewell's success throughout the history of its operation.(5)

Hopewell Furnace began operating ca. 1771, the date borne on a carved stone in the furnace's cast arch. The 1788 Pennsylvania Gazette advertisement for public sale of the furnace property states that Hopewell Mine had supplied ore to the furnace for seventeen years, which corroborates the date stone in the cast arch. The early furnace site included a number of buildings essential to the operation of the works. These included the furnace, a water wheel, a charging bridge, a cast house, the ironmaster's house, a blacksmith shop, a store, a barn, and housing for workers. Several of these buildings are currently extant, either rehabilitated or reconstructed based on historical and archeological evidence. It is impossible, however, to determine whether the buildings mentioned in the eighteenth century furnace records are the same buildings presently located at the site. It is possible that buildings presently located at the site replaced earlier buildings that served similar functions as those erected during the first years of operation. Indeed, documentary evidence suggests that the Cast House reconstructed in the mid-1960s reflects a building erected ca. 1816, not the original eighteenth century Cast House. The appearance of the eighteenth century Cast House is unknown, although the location of the furnace's hearth clearly indicates that the building occupied roughly the same location as the later Cast House.(6)

The documentary and archeological record clearly indicates that the original water wheel, which provided power to the blast machinery, was oriented north-south, at right angles to the east-west orientation of the present wheel. The present waterwheel, based upon the ca. 1805 wheel, measures five feet in width and twenty-two feet in diameter. It is somewhat smaller than the original north-south wheel, which is estimated to have measured thirty feet in diameter.(7) It is possible that the original wheel was not sheltered from the elements by a wheel house. The first documentary reference to a wheel house dates from 1818, a period in which the furnace underwent extensive repairs and alterations. The wheel house is referred to as "new" at that date.(8) In addition to the wheel and cast house, the operation of the furnace also necessitated a charging bridge, by which the raw materials were placed into the furnace from above. The extant bridge is covered, and is known as the Bridge House. It is not known whether the earliest charging bridge was protected from the weather.

Early documentary records indicate that Hopewell Furnace included a number of buildings during its first years of operation. Testimony in an 1810 court case suggests that a portion of the Ironmaster's House existed as early as 1772.(9) The earliest portion of the house appears to be the northwest portion of the present main block. The Ironmaster's House has been enlarged and altered on numerous occasions, attaining its present appearance in the 1870s. Other buildings mentioned in eighteenth century documentary records of the furnace include a Blacksmith Shop and an Office & Store, both crucial elements of the operation and both first mentioned in the records in 1784; a barn, which Bird needed to shelter the sixteen horses, twenty-one cows, and forty-six sheep he owned in 1779, according to Union Township tax records; and housing for the furnace employees. Tradition maintains that the

present Blacksmith Shop and Office & Store date from the eighteenth century and that the reconstructed Barn approximates the eighteenth century building.(10)

The April 1788 Pennsylvania Gazette sale advertisement provides a sketchy portrait of the furnace property less than twenty years after Bird began operations at Hopewell. The property contained 4,338 acres, with a six percent allowance for roads and highways. First growth timber occupied about eight hundred acres of the tract, less than twenty percent of the total. An additional two hundred to three hundred acres, an additional five to seven percent, consisted of second growth timber fit for cutting. The advertisement claimed that this second growth forest had more timber "on it than ever." Fuel consumption is suggested by a statement that the entire tract was thought to possess sufficient timber to serve the furnace for six blasts, each producing eight hundred to nine hundred tons of iron. At the end of this period there would be "a considerable quantity of timber from the young growth now coming forward, sufficient to supply the furnace for a number of years."(11)

The Pennsylvania Gazette advertisement states that the tract included fifty to sixty acres of "good watered meadow made," which might "be increased to 90 acres at small expense." This suggests that Bird converted the wetlands along the south side of French Creek into meadows, possibly by constructing drainage works or by clearing the marshy land of trees and brush.(12) The furnace tract included an "excellent young bearing orchard" by 1788, consisting of approximately 250 apple trees. The presence of this orchard, located between the Ironmaster's House and Brush Hill, in approximately the location of the present parking lot orchard, clearly indicates that Bird intended Hopewell Furnace to be a permanent presence in the landscape, with agricultural operations supporting the furnace.(13)

The only buildings specifically mentioned in the 1788 sale advertisement are workers' housing. The advertisement states that the property includes "a sufficient number of houses to accommodate the workmen."(14) The number and location of these buildings, as well as the nature of their construction, is unknown. Tradition and previous scholarship suggest that the stone buildings known as Tenant Houses 1 and 2 may date from the late eighteenth century or the first quarter of the nineteenth century.(15) The evidence is inconclusive. It seems likely that some of the earliest workers' housing consisted of log cabins demolished during the nineteenth century. The location of these buildings, and indeed their very existence, cannot be conclusively determined based upon the available documentary records.(16)

Bird's furnace stood within an established agricultural community comprised of individual farms established prior to the construction of the furnace. While the furnace tract may have been dominated by first and second growth chestnut woods, the countryside south of the furnace was largely cultivated farmland. Thomas Lloyd occupied a 134-acre farm just east of the furnace property in Chester County. Lloyd built Bethesda Church, presently located within Hopewell Furnace National Historic Site, in 1782 to serve the religious needs of the area's residents. Construction of this meeting house indicates that the area surrounding the furnace supported a population of some size by this date. Most of the area's residents were farmers. Many of these farmers, along with their sons, worked for the furnace during the slack periods of the agricultural season as woodcutters or laborers.(17) Hopewell Furnace contained its own agricultural lands as well. In 1795 Ironmaster James Wilson demanded that a minimum of 1,000 bushels of lime be placed on the furnace's arable lands and that clover be planted. Three years later Samuel Cox farmed the two fields flanking the furnace race (probably the East Head Race). Cox planted these fields with corn and had other undisclosed fields planted with buckwheat. Cox's share-cropping agreement with the furnace also permitted the mowing of the meadow to the "haves".(18)

Bird suffered financial setbacks, at least partially as a result of not being paid for work performed during the Revolutionary War years. In 1784, when he appealed for a tax reduction, he stated that the furnace had not run for some time. This appeal followed two sharp reductions in his tax liability the previous

years.(19) A flood in the fall of 1786 further complicated Bird's position. Hopewell apparently suffered damage as a result of this flood, but the nature and extent of the losses is unknown.(20)

In April 1786 Bird offered to sell Hopewell Furnace, Birdsboro Forge, and Spring Forge. The sale advertisement in the Pennsylvania Gazette described the furnace property as consisting of four thousand acres of land and three banks of iron ore "all within a reasonable distance." The terms of the sale required the buyer of the furnace to supply the two forges with "a certain quantity of pig iron at a stipulated price" for the next four years. The furnace was described as currently in blast, with "a provision of five thousand cords of wood and eight hundred loads of ore." The furnace property also included five teams of horses. Apparently the bids for the property proved inadequate, as no sales transaction was recorded.(21)

Two years later, in 1788, Bird again offered Hopewell Furnace at a public sale. Cadwallader Morris and James Old purchased the 5,163-acre tract.(22) The change in ownership did not bring prosperity to the furnace, despite the fact that it was the second largest, in terms of production, of the fourteen furnaces in Pennsylvania in 1789. During the next twelve years the furnace property changed hands at least five times, as various partners sold and resold their shares of the property. Ownership of the furnace remained unsettled until 1800, when the property came under the control of Daniel Buckley and his brothers-in-law, Thomas and Mathew Brooke. From this date, through 1883, when the furnace ceased operations, Hopewell remained in the hands of Buckley and Brooke families.(23)

Notes:

(1) Walker, Hopewell Village, 20.

(2) William Bird was a successful ironmaster who, in 1761, owned two forges and a furnace, with more than 3,000 acres of land. Gerald G. Eggert, *The Iron Industry in Pennsylvania*, Pennsylvania Historical Studies No. 25 (Harrisburg, Penn.: Pennsylvania Historical Association, 1994), 20; W. David Lewis and Walter Hugins, *Hopewell Furnace National Historic Site, Handbook 124* (Washington, D.C.: National Park Service, 1983), 29.

(3) Apple, "Documentation," I-20, I-31, II-7–II-10, II-134–II-136.

(4) It is important to note that most roads in the area existed long before their formal recognition as public roads. The opening of a public road should not be taken to signify that no road existed along that route prior to the date of the official opening.

(5) Walker, Hopewell Village, 206-207.

(6) "Historic Building Survey Report on Cast House," Part I (22 November 1960); "Historic Structures Report: The Cast House and Molding Sheds," Part II (January 1964); "Historic Structures Report: Cast House and Molding Shed - Buildings No. 33 and No. 37," Part III (August 1966). All on file at HOFU Library.

(7) The present waterwheel is a reconstruction of a wheel installed ca. 1805 that was smaller than, and oriented at right angles to, the original wheel described here. Apple, "Documentation," I-11.

(8) *Ibid.*, II-124.

(9) *Ibid.*, II-71.

(10) Ibid., II-43–56, II-69–75, II-124–126.

(11) Pennsylvania Gazette (2 April 1786).

(12) The advertisement suggests the presence of improved land on the property with the possibility of increasing the amount of improved acreage; however, it is unclear if the improved land was used for pasture, field crops, or some other use.

(13) Pennsylvania Gazette (2 April 1786).

(14) Ibid.

(15) Apple, "Documentation," II-141–142, II-149–150.

(16) It should also be noted that several tenant houses were located at the iron mines, several miles from the furnace.

(17) Apple, "Documentation," I-5–6; Walker, Hopewell Village, 229-254..

(18) Walker, Hopewell Village, 122, 125. Cox's sharecropping agreement required him to clear, fence, plow, and sow the field at his own expense. The agreement allowed Cox to keep two-thirds of the corn harvested above the head race and half the corn harvested below the head race. He also received half the buckwheat or other summer grain that he planted.

(19) Ibid., 29.

(20) Ibid., 30.

(21) Pennsylvania Gazette (26 April 1786).

(22) Walker, Hopewell Village, 32.

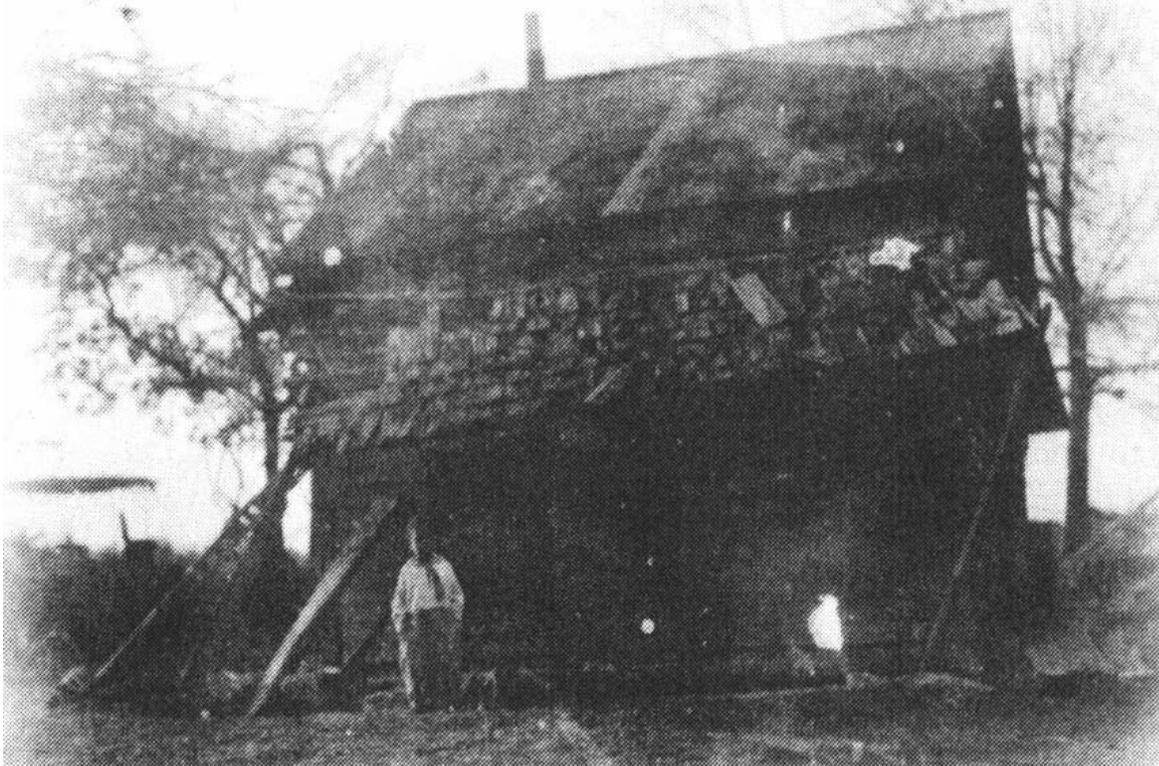
(23) Ibid., 32-37.



View of Office & Store (Bldg. 3), Barn (Bldg. 2), and Ironmaster's House (Bldg. 1) looking north, ca. 1915. HOFU archive photo.



View of Tenant House 1 (Bldg. 19) looking northwest, ca. 1954. HOFU archive photo.



View of "Log House at Hopewell National Historic Site." Unknown location. Octavius Bull photograph taken between 1900-1907. Chester County Historical Society.

Growth and Prosperity: 1800-1845

The new owners of the furnace made extensive improvements to the furnace property during the first decade of the nineteenth century. Perhaps the most significant of these improvements entailed the damming of French Creek and the construction of a new West Head Race. As noted above, the original West Head Race was not located entirely on furnace property. During the first years of the nineteenth century a court action convinced Buckley and the Brooke brothers of the need to secure their waterpower sources. A dam was erected across French Creek a short distance west of the furnace and a new head race was constructed to convey the water to the waterwheel at the furnace. The new West Head Race delivered water to the wheel at a lower elevation than the original West Head Race, which apparently necessitated the installation of a new wheel measuring twenty-two feet in diameter, eight feet smaller than the original thirty-foot overshot wheel. Additionally, the wheel pit was reoriented to an east-west direction, at right angles to the original north-south pit.(1)

The construction of the dam on French Creek, the reorientation of the wheel pit, and the installation of the new waterwheel probably occurred ca. 1805. Furnace records note the employment of a millwright on the furnace wheel in April 1805. Two years later, in 1807, the dam broke or was damaged on three separate occasions. These events strongly suggest a ca. 1805 date for the alteration of the waterwheel and the construction of the new West Head Race. Presumably, the original West Head Race was abandoned at this date.(2)

Furnace records document several other improvements at Hopewell during the first years of the Buckley and Brooke ownership of the property. In 1801 Thomas "Loid" [probably Lloyd] was paid for logs and timber, as well as rafters, shingles, and straw, for a Coal House. The records do not indicate whether this was for a new building or for repairs to an existing building. Presumably, a coal house existed from the

beginning of the furnace's operation in order to protect the charcoal from the elements.(3)

Farming continued at Hopewell during this early time period. In 1804 Elishu Bard performed numerous farming activities for Hopewell's owner Matthew Brooke. Part of Bard's work included planting the "front lot" with flax during the month of May. Later that year he sowed this same lot, as well as the barn lot and the meadow, with turnip seed. In October, Bard brought rails to fence the turnip ground. During the year Bard and his sons also fertilized the garden with dung, plowed potatoes in the garden, cleared the orchard of brush, and cut clover in the orchard. In addition to Bard, Hopewell Furnace employed twelve people to work the furnace's farm fields between 1805 and 1807.(4)

The construction and repair of housing is a recurring topic in furnace records throughout the nineteenth century. During the first decade of ownership by Buckley and the Brooke brothers the records note construction of a log house in 1803 and a stone tenant house in 1806. Apple tentatively identified the 1806 house as the west section of the present Boarding House.(5) He based this identification on an analysis of the number of perches of masonry contained in the walls of the building, compared to the number of perches for which the masons were paid in 1806. The masons received payment for 156 perches, while the west section of the Boarding House contains, according to Apple's calculations, approximately 140 perches.(6)

The reference to a log house in the records raises the possibility that some, perhaps even most, of the early tenant and workers houses at the furnace were impermanent log structures. Records suggest that the furnace owned ten to fifteen houses during the mid-nineteenth century, and perhaps even more.(7) Available documentary records cannot account for all of these buildings, which suggests that some may have been log cabins of an impermanent nature, which the furnace records did not record as assets.

The precise location of non-extant tenant houses is unknown, although their general location may be deduced from the available evidence. In general tenant houses appear to have been located along the Birdsboro-Warwick Road in the present village core, along the 1809 Road (to Jones Mine), and along the north shore of Hopewell Lake. The four extant Tenant Houses – two single houses, a twin house, and the Boarding House – are located in the village core, flanking a road, laid out in 1804 and officially declared public in 1805, that extends from Warwick Furnace to Birdsboro via Hopewell. A private road probably existed along this alignment prior to 1804. Five years later a new access road to the Jones Mine was declared public, after probably existing as a private road for some time. An unknown number of tenant houses, perhaps three to five, lined this road.(8) It is known that at least three houses stood along the north shore of Hopewell Lake prior to the 1930s.(9) These houses were likely erected after construction of the dam ca. 1805. The opening of the 1804 and 1809 roads combined with the flurry of construction activity during the first decade of the nineteenth century suggests that tenant houses, historically known along these roads, may date from the first decade of the nineteenth century.(10)

Hopewell Furnace failed to prosper during the first years of the nineteenth century, despite its new owners' efforts to improve the physical plant. In fact, between 1808 and 1816 the furnace was out of blast entirely, at least partly because of a series of law suits that threatened the owners' title to the property.(11) During this period little work occurred at the furnace beyond routine maintenance. A stamp mill, installed at the furnace in 1805, was used to crush slag so as to recover beads of iron in the waste product. The stamp mill continued to operate until at least 1816, when the furnace again began full operations.(12)

In 1816 the owners of the furnace reorganized as Daniel Buckley & Company, partially as a result of the death of several members of the earlier firm. The new partnership spent approximately \$8,000 to repair and upgrade the furnace property in preparation for a resumption of operations. In March 1816 the

Hopewell store reopened, and by July 1816 the furnace was again in blast, probably with a new Cast House. The owners supplemented the basic furnace operation by erecting a cupola to refine pig iron and expand the molding operations at the furnace. Popular in the early nineteenth century, cupolas remelted pig and scrap iron, removing impurities and permitting finer casting. Cupolas were constructed of sheet iron and could measure as much as eighteen feet tall. The larger units received their blast from the same waterpowered blast machinery as the furnace. The location of the cupola is unknown; however, it is generally thought to have been located west of the furnace, near the Wheel House.(13)

Furnace records document other physical improvements either constructed or in place by 1820. These include the "new" Wheel House described above, which was probably an entirely new building housing the reoriented water wheel, although not necessarily the first wheel house at the furnace, and the introduction of water pipe between the Spring House and the Ironmaster's House. This last improvement, documented as extant in 1816, introduced running water into the Ironmaster's House.(14)

The furnace had yet to reestablish itself in the market when the Panic of 1819 drove the entire economy into a depression. Daniel Buckley & Company weathered this economic storm, and the furnace emerged into its greatest period of prosperity. Improvements in the region's transportation network, as exemplified by the completion of the Schuylkill Navigation Canal in the early 1820s, provided the furnace's manager, Clement Brooke, an opportunity to cut transportation costs and improve Hopewell's position within the regional market. By the mid-1820s the road network in the vicinity of the furnace was essentially complete. Roads and road traces that are presently evident as landscape features all existed by this date, with the exception of PA Route 345 loop road around the core village, which was constructed by the Civilian Conservation Corps between 1937 and 1938.(15)

Brooke concentrated upon the production of stoves, finished goods that commanded a relatively high price and for which a considerable demand existed during this period. The casting of stove plates remained the cornerstone of the furnace's operations until 1844, when casting ceased. Brooke's success at turning Hopewell into a profitable venture is evident in the fact that during the 1820s Daniel Buckley & Company acquired new mine and forest lands, purchasing eight tracts, totaling approximately 265 acres, on the north slope of Brush Hill and two tracts, totaling approximately 189 acres, on the south slope of Williams Hill. Hopewell's owners purchased nearly five hundred acres of land between 1800 and 1845.(16) These tracts provided additional sources for charcoal and iron ore, which the successfully operating furnace consumed in considerable quantities.

During the second half of the 1820s, as the furnace began to recover from the economic downturn associated with the Panic of 1819, the partners embarked upon a number of new construction projects. By 1832 at least twelve skilled moulders worked at the furnace casting stove plates and other items. Their presence at the furnace may have necessitated new construction to accommodate their needs. For example, oral tradition holds that some of the moulders slept in the loft of the Carpenter's Shop. The need for wood molds for sand casting suggests the need for a carpenter's shop during the period from 1820 to 1844, when molding was a major activity at the furnace. This building was demolished ca. 1900 and has not been reconstructed as part of the furnace complex.(17)

It is known that several of the moulders ate in the basement of the Ironmaster's House. Documentary evidence suggests that the Bake Ovens located east of the Ironmaster's House were erected in 1823, a period coincident with Hopewell's emergence from the economic depression of the early 1820s and the furnace's increasing commitment to the production of stove plates. The influx of moulders during this period may have provided the impetus for the construction of the Bake Ovens.(18) Additional provision for the moulders appears to have been made in 1828, when the documents record payment for masonry work "at Smoke House."(19) The present wood frame Smoke House is clearly a different building than

that described in 1828. Management documents date the present building to ca. 1867, based upon the details of its construction and materials. The Ironmaster's House also experienced changes during this period, with the east wing added ca. 1826 and the south addition to the main block added ca. 1828.(20)

In 1826 a tenant house with an excavated cellar was completed. This building may be the John Church House, constructed for one of Clement Brooke's in-laws and located on the north side of the entry road into the site, just west of PA Route 345. The Church House has an excavated basement, unlike the other extant Tenant Houses, which suggests that it may be the house completed in 1826.(21) Other housing constructed during this period of expansion includes the east addition to the Boarding House, which appears to date from ca. 1830.(22)

Work at the furnace proper also occurred during the late 1820s. Documentary evidence suggests that in 1828 the furnace underwent major masonry repairs. Archeological evidence suggests that at approximately this date the South Casting Shed, probably dating from ca. 1816, was removed and a new shed, corresponding to the present reconstructed South Casting Shed in terms of its floor area, was erected. The larger Casting Shed may have been required to meet the space requirements of the moulders.(23)

In 1831 the partnership that owned Hopewell Furnace was reorganized. M. Brooke Buckley, Clement Brooke, and Charles Brooke each owned one-third of the new partnership, which was known as Clement Brooke & Company.(24) This reorganization of the firm coincides with significant changes to the landscape surrounding the Ironmaster's House at Hopewell. Documentary and archeological evidence suggests that in the late 1820s and early 1830s the grounds surrounding the house were developed as a formal garden, with walks, steps, a greenhouse, and planned beds and plantings. This work coincides with the residence of Clement Brooke and his family in the house, strongly suggesting that Clement Brooke or his family conceived of and oversaw the development of this portion of the site.

The remains of a Greenhouse, portions of the north, east, and west walls of the building, are located in the garden area, adjacent to the 1757 road (Reading-Valley Forge Road). In the 1950s Park Historian Russell A. Apple reviewed the extant furnace records and concluded that large purchases of glass in March 1829 related to the construction of the greenhouse. The appearance of this building remains unknown. Oral tradition holds that part of the Greenhouse was used as a vineyard. If this tradition is accurate the payments noted in furnace records to a "vine dresser" in 1832 tend to confirm the ca. 1829 construction date for this building.(25)

The horticultural activities undertaken at Hopewell during the late 1820s and early 1830s included planting of a new orchard, and possibly the replacement of old trees in the original orchard. In 1829 furnace records document the purchase of 160 apple trees, with an additional 304 trees purchased in 1834. These figures represent a substantial orchard. Later documents specifically refer to two orchards at Hopewell. The new orchard was probably located east of the garden between Reading-Valley Forge Road and the East Head Race. By 1835 there is also mention of a peach orchard at Hopewell.(26)

Between 1825 and 1827 Hopewell Furnace employed twenty-one farm workers. In 1829 Isaac Hayer contracted with Hopewell Furnace to farm thirty acres of land. He planted this acreage with summer and winter grains. Half of his product went to Clement Brooke. Hayer also had one half acre for potatoes and one half acre sown with flax. The agreement stipulated that Hayer was responsible for making and repairing fencing around his fields. Common grain crops farmed at Hopewell included wheat, corn, oats, buckwheat, and rye. Often straw was harvested as a by-product of these grains and following a harvest the field would often be planted with clover.(27)

Hopewell Furnace not only farmed land in the immediate vicinity of the furnace, but also owned farmland in the neighboring townships. Clement Brooke leased farms in East Nantmeal Township to Henry Shick and James Reperts during the 1820s. In 1836 Henry Close rented a farm in Robeson Township from Brooke. Additionally, area farmers supplemented Hopewell Furnace's agricultural production with grains, fruits, meats, dairy products, and vegetables.(28)

The formalization of the Ironmaster's Garden in the early 1830s included the construction of a variety of walls, steps, and walkways. Construction of the Garden Fence took place in 1832-1833, when masons were credited with nearly 103 days of work on "the stone fence."(29) The first section of Garden Fence is located on the south side of the garden and separates the garden from the adjacent road. It is, in effect, a two-foot high stone retaining wall extending from the southwest corner of the Ironmaster's House to the East Head Race. Photographs from the late-nineteenth century depict a wire fence atop this stone wall. The second section of Garden Fence extended from the East Head Race, along the 1825 Road, and terminated at a gate located immediately south of the southernmost garden terrace wall (no longer extant). This second section of Garden Fence consisted of a stone wall surmounted by a picket fence approximately two feet in height. The third section of fence began at the garden gate and continued along the west end of the garden, parallel to the 1825 road, and along the 1757 road east to a point east of the Summer/Ice House ruins. It may have been a simple wood picket fence, later replaced with a wire mesh fence. No evidence exists to suggest that the stone Garden Fence existed in this location.(30) It is important to note that the west edge of the garden cannot be precisely located. In 1932, construction of a paved road by Berks County obliterated the west end of the garden and any associated fence or wall was removed. (Further research will be required to determine if this roadwork was undertaken by CCC (PHSO 2003)). The road was returned to its nineteenth century configuration in the mid-1950s, but the precise location of the edge of the garden could not be determined.

Additional work in the garden area during 1832 included construction of the stone steps in the garden and, probably, the garden terraces, although the furnace records do not mention these latter features. The terraces appear to have been used to separate different areas of the garden. Oral tradition holds that, west of the main path, the terrace immediately north of the East Head Race had a vegetable garden at its west end and flowers at the east end. The intermediate terrace, located between the two retaining walls, is described as containing both a vineyard and a large raspberry patch. The upper terrace apparently supported beehives. East of the main path were flowers and boxwoods.(31)

Additional buildings in the garden included a Gardener's Toolhouse, in ruins by the mid-1950s. This building is described in oral interviews as a wood frame building measuring approximately eight feet by ten feet. The date of its construction is unknown, but it would appear likely that it dated to the period of the wholesale garden improvements in the early 1830s.(32) The garden also sheltered the Ironmaster's Privy, which provided toilet facilities to the residents of the Ironmaster's House prior to the introduction of plumbing into the house in the 1870s.(33) Archeological investigations conducted in 1962 revealed an earlier privy. Since a privy was a necessary feature of the site from the earliest days of the operation in the 1770s, it seems likely that there may have been more than two privy pits in the garden during the history of the furnace.

Near the point where the main garden path met the 1757 road, at the north end of the garden, was a combination Ice House and Summer House. According to oral tradition, the Summer House, a lattice work structure covered with vines, was octagonal in plan, with benches lining the inside walls. The Summer House sat atop the Ice House, the walls of which projected one to three feet above grade. The Ice House was a stone-walled pit, approximately fifteen feet square and twenty feet deep, used to store ice for the residents of the Ironmaster's House. Hopewell Lake provided the ice during the winter months. The Ice House is first mentioned in furnace records in 1834, when an employee is credited with

two days work at the structure. This reference appears to relate to an existing building, rather than to a construction project. This date does suggest, however, that the Ice House may have been constructed during the improvement of the garden in the early 1830s. The Summer House is not mentioned in furnace records. It is impossible, therefore, to determine whether it was built at the same time as the Ice House, or was a later addition to the earlier, utilitarian structure.(34)

Brooke authorized other landscape work at the furnace during the 1830s. In 1831, 107 panels of four-rail fence were installed near John Wert's house, the Boarding House. The extent of the fencing and the location stated suggests that this fencing may have been used to enclose the meadow located between the Boarding House and French Creek on the east side of the village road. There is also evidence that both sides of Birdsboro-Warwick Road were later fenced and that some Hopewell tenants grazed their stock along the grassy areas between the road and fence.(35)

The furnace owned both draft animals and general livestock. Draft animals at Hopewell included horses, oxen, and mules. In 1832 the furnace owned eighty-four horses, and in 1850 the furnace's draft animals totaled 50. The furnace probably did not house all these animals in the village core. Some may have been housed at neighboring farms, with tenants, at the furnace's mines, or with teamsters who used the animals to haul furnace product. The Village Barn, located south of the Ironmaster's House, housed approximately thirty-six horses, mules, cows, oxen or steers. A stable, measuring approximately twenty-four feet by twenty-six feet, (no longer extant) was located south of this barn. Another barn, located on the north side of Reading-Valley Forge Road between the Ironmaster's House and the Church House, measured approximately seventy feet by forty feet. (probably in the vicinity of the current entry road).(36) In addition to draft animals the furnace kept cows, poultry, sheep, and hogs to provide meat, milk, eggs, leather, and wool. A forty-foot square pen located east of the barn housed hogs and chickens. Pasture lands close to the furnace would probably have been used for draft animals and milk cows.(37)

Production at Hopewell peaked during 1836-1837, when over 720 tons of iron were produced at the furnace. The furnace's owners reported that the furnace consumed approximately six thousand cords of wood per year in 1837, of which four thousand cords came from furnace-owned lands. The remaining two thousand cords were purchased, presumably from local landowners. During this period the company paid for construction of a public school at the furnace, which suggests the presence of a sizable population within the immediate area. This supposition is confirmed by Union Township tax records, which assessed the company for ten tenant houses in the township in 1837.(38)

Hopewell Furnace continued to produce stoves and stove castings into the early 1840s. Then, in 1844, stove-casting was halted at the furnace and the skilled moulders who had comprised the elite of the local work force departed to seek employment elsewhere. From this date until the furnace ceased operations in 1883 the principal product of Hopewell was unrefined pig iron.(39) Following the cessation of molding, in 1848, Clement Brooke retired from active management of the furnace and moved to Pottstown. In 1850 Charles M. Clingan, Brooke's son-in-law, became manager of the furnace.(40)

Notes:

(1) Apple, "Documentation," II-86; Walker, Hopewell Village, 40.

(2) Apple, "Documentation," II-118.

(3) Walker, Hopewell Village, 40.

- (4) *Ibid.*, 123-124, 425. The location of the "front" field is unclear. Bard's reference to a garden may refer to a garden that Park Service Historian Apple located southeast of the barn.
- (5) Apple, "Documentation," II-144; Walker, *Hopewell Village*, 44.
- (6) These are "cubic perches," 16.5 feet long, 1 foot tall, and 1 foot deep. Apple, "Documentation," 11-15.
- (7) *Ibid.*, 6-11.
- (8) In 1939 the chimneys of two houses were extant in this area. One of these ruins was designated the Strouck House (Building 90) by the National Park Service. *Ibid.*, II-142-143.
- (9) The ruins of one of these houses, designated the Frees' House (Building 36) by the National Park Service, were extant in the mid-1950s. The other two were presumably submerged by the expanded Hopewell Lake in the 1930s. *Ibid.*, I-18-19.
- (10) Other known tenant house locations include the Maddis House (Building 46), located "near the dam;" the Brison House (Building 77) and the Wood Lot House (Building 76), a pair of stone ruins located in the eastern portion of the furnace property; and the Manning House (Building 30), a log ruin located near Spout Run. *Ibid.*, *passim*.
- (11) Walker, *Hopewell Village*, 49.
- (12) *Ibid.*, 47-49.
- (13) Walker, *Hopewell Village*, 55; Apple, "Documentation," II-130-131.
- (14) Apple, "Documentation," II-62, II-124.
- (15) Walker, *Hopewell Village*, 56.
- (16) Walker, *Hopewell Village*, 56; William H. Dechant & Son, "Hopewell Furnace Lands and Contiguous or Adjacent Tracts, Property of a Louise C. Brooke at Hopewell Penna." (August 1915, rev. to January 1931). Map on file at HOFU archive.
- (17) Apple, "Documentation," II-105-107. The decision not to reconstruct the Carpenter's Shop, which is well illustrated in a pair of photographs from the late-nineteenth century, appears to have been based upon two bits of information. For many years this building had been known as the Wheelwright Shop. Park Service historians examining the furnace records determined that no wheelwright worked at the furnace prior to 1837, which suggested that the building dated from late in the site's interpretive period. Perhaps more compelling was archeological information that suggested that the footprint of the shop would have overlapped the footprint of the South Casting House, making it impossible for these two buildings to have existed at the same time. Review of the archeological data casts some doubt upon this conclusion. Combined with the strong oral tradition linking the moulders to the Carpenter's Shop, this suggests that the building probably did date from the period of interpretation. Stuart W. Wells, "Hopewell Furnace Historic Scene Report - Draft" (March 1994), 18-24. On file at HOFU archive.
- (18) Apple, "Documentation," II-63-II-66.

(19) Ibid., II-24.

(20) Diann Jacox and Joseph Boyle, "Hopewell Furnace" National Register of Historic Places Nomination, 7:7-8. On file with the Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania.

(21) Presumably the John Church Barn (Building 28) also dates from this period. Apple, "Documentation," I-24.

(22) Ibid., II-144–147.

(23) Norman M. Souder, "Architectural Data Section" in "Historic Structures Report: The Cast House and Molding Sheds - Part II," 4-7.

(24) Walker, Hopewell Village, 57.

(25) Apple, "Documentation," II-11A–II-20.

(26) Walker, Hopewell Village, 133-134; Apple, "Documentation," II-1-II-3, II-6-II-7.

(27) Walker, Hopewell Village, 122-123, 425; Stuart Wells, "Historic Scene Report," 39.

(28) Walker, Hopewell Village, 121-123, 133, 200.

(29) Apple, "Documentation," II-34.

(30) Ibid., II-30–II-36.

(31) Ibid., II-39.

(32) Ibid., II-20–II-21.

(33) Ibid., II-21. It is likely that servants continued to use the privy after 1870.

(34) Ibid., II-25–II-28.

(35) Apple, "Documentation," II-144–147; Wells, "Historic Scene Report," 24.

(36) Insurance Company of North America, "Survey of the Property of Edward S. Buckley and Maria L. Clingan," Insurance policy dated July 19, 1879. On file at CIGNA Archives, Philadelphia, Pennsylvania. It is unclear how early the barn and stable were constructed on the property. The barn was probably demolished by the early twentieth century and the CCC demolished the stable ca. 1930s.

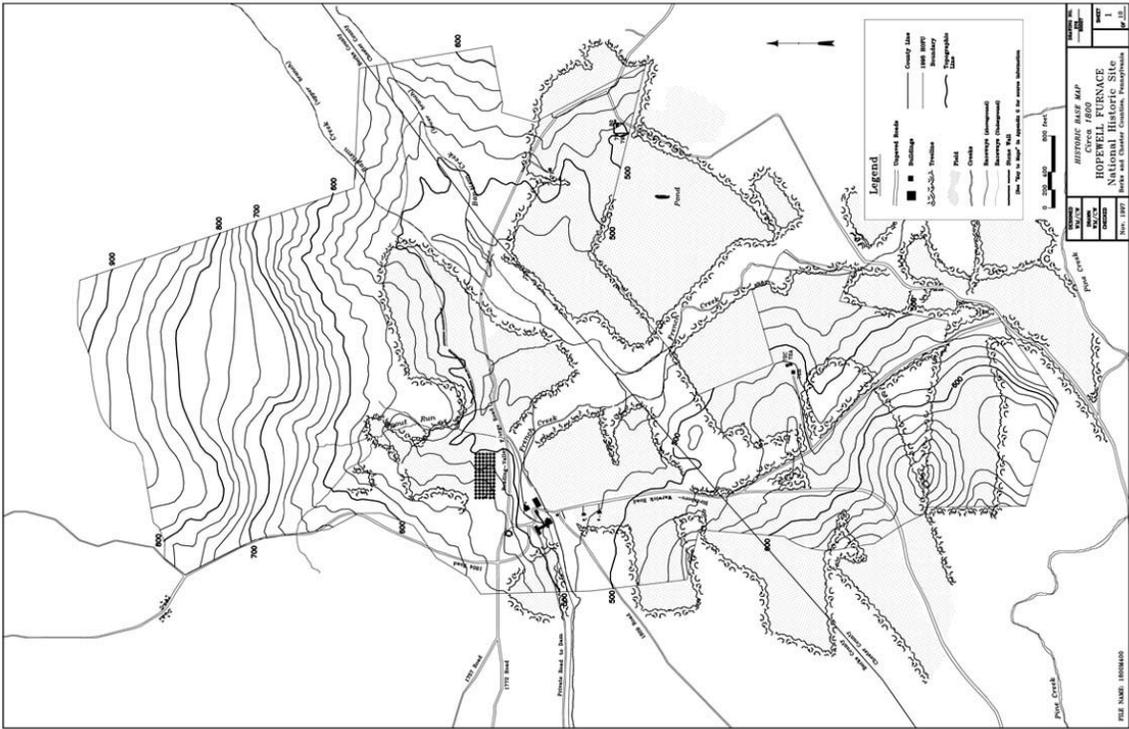
(37) Walker, Hopewell Village, 126-129; Wells, "Historic Scene Report," 39-46.

(38) Ibid., 6-11.

(39) The exact reasons for the cessation of casting at Hopewell are unknown. However, the timing of the decision coincides with the expansion of anthracite iron production in the United States. Anthracite iron, produced using anthracite coal rather than charcoal as a fuel, was preferred by rolling mills.

Additionally, the depletion of forest and ore reserves forced many charcoal furnaces out of business. Walker, Hopewell Village, 59-60.

(40) Ibid., 60-61.



Hopewell Furnace 1800 Base Map (See CLR for enlargement).

1800 Base Map - Overall Site

Sources:

Information contained on this map was compiled from numerous sources located predominantly in HOFU's archives and files. Key sources include: Russell Apple's "Historic Base Map - Village Area 1830-1840" and his "Documentation for Historic Base Maps: 1830-1840," 1956; National Park Service, "Topography Hopewell Village - French Creek Demonstration Recreation Project, 1937, rev. 1938; aerial photographs dating from ca. 1920-1980s; historic structure reports; Delaware Valley Orienteering Association's "French Creek East, Orienteering Map," 1992; among others.

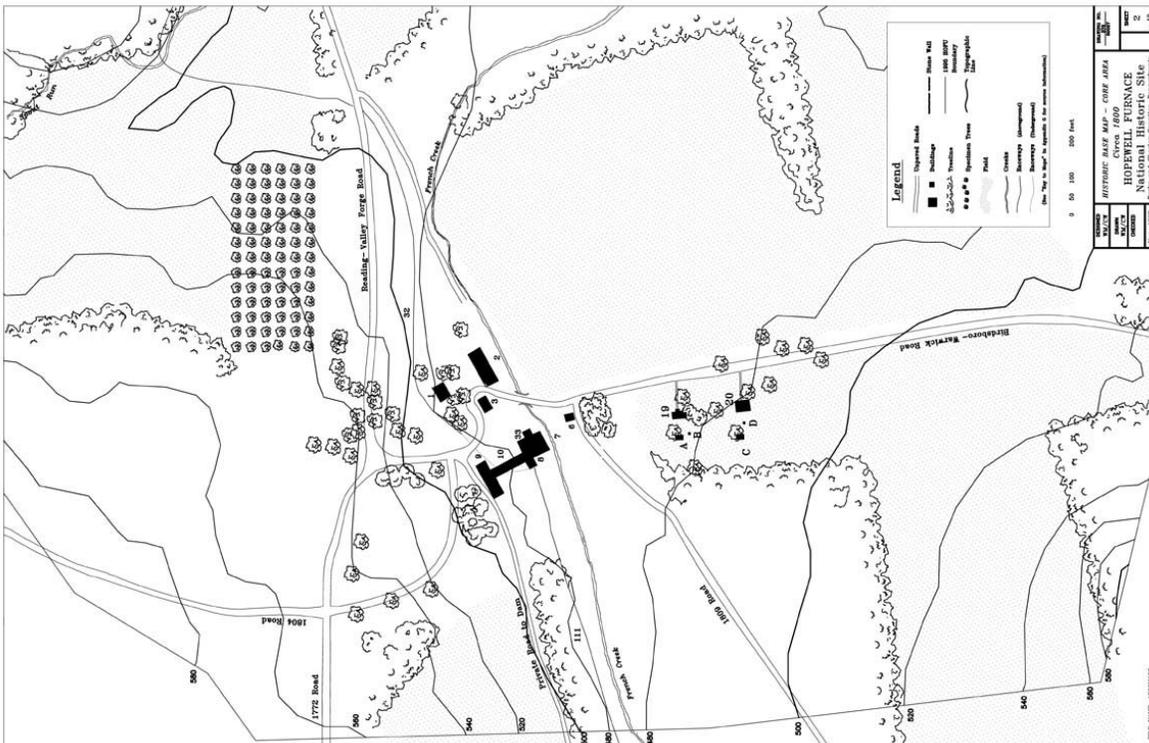
Notes:

- The inclusion of Tenant House and Boarding House outbuildings on this map are conjectural; however, these were common outbuildings and believed to have existed at the site.
- Vegetation layers included on this map are conjectural and based primarily on field survey, arborist's report, other previous reports, and twentieth century aerial photographs. Additional buildings may have existed on and off the site during this time period; however, current documentary evidence does not provide for their locations. Therefore, they are not included on this map.
- Use of fences and/or stone walls as boundary demarcations was common practice during this time period. Evidence exists for this practice at Hopewell Furnace; however, current documentary evidence does not provide for all locations or dates of erection of fences or walls, and therefore, are not included on this map.
- The 1804 and 1809 Roads are presumed to have existed prior to their formal designations and are included on this map.

Building Number and Name:

- 71. Thomas Lloyd House
- 72A. Harrison Lloyd Barn
- 72B. Harrison Lloyd House
- 72C. Harrison Lloyd Blacksmith Shop
- 79. Bethesda Baptist Church
- 80. Bethesda Baptist Church Carriage Shed

Hopewell Furnace 1800 Base Map Key (See CLR for enlargement).



Hopewell Furnace 1800 Base Map - Core Area (See CLR for enlargement).

1800 Base Map - Core Area

Sources:

Information contained on this map was compiled from numerous sources located predominantly in HOFU's archives and files. Key sources include: Russell Apple's "Historic Base Map - Village Area 1830-1840" and his "Documentation for Historic Base Maps: 1830-1840," 1956; National Park Service, "Topography Hopewell Village - French Creek Demonstration Recreation Project, 1937, rev. 1938; aerial photographs dating from ca. 1920-1980s; historic structure reports; Delaware Valley Orienteering Association's "French Creek East, Orienteering Map," 1992; among others.

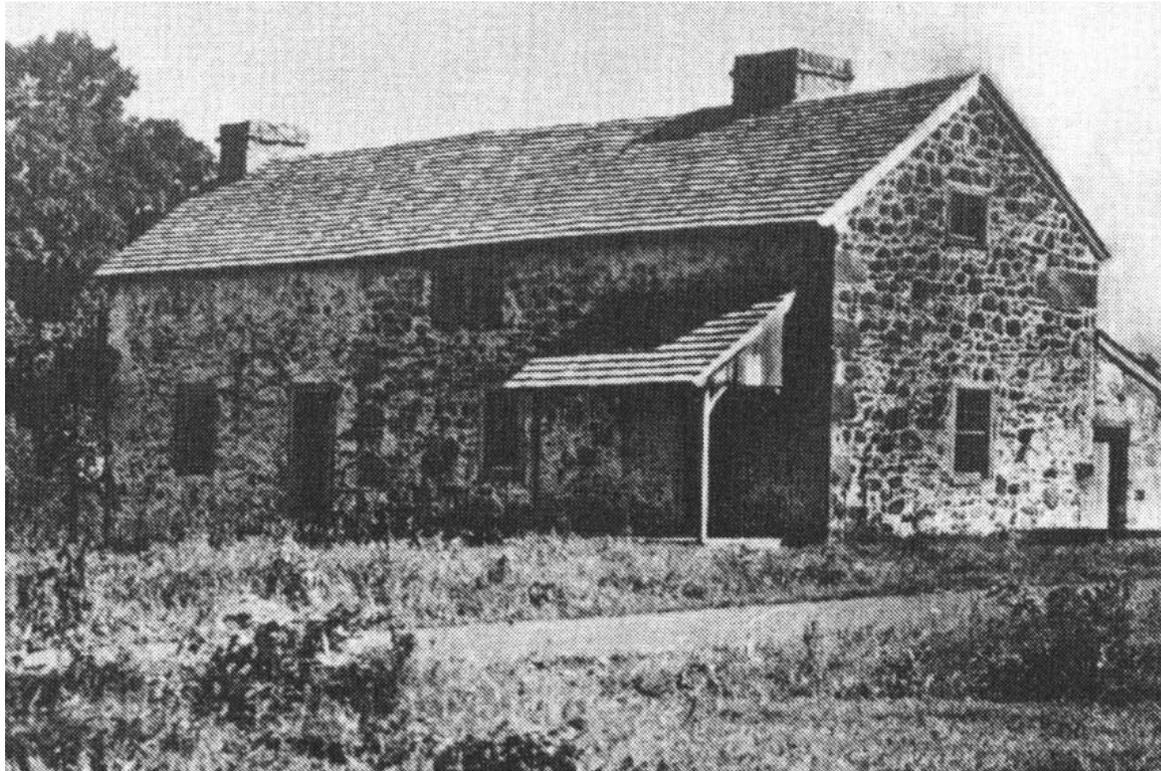
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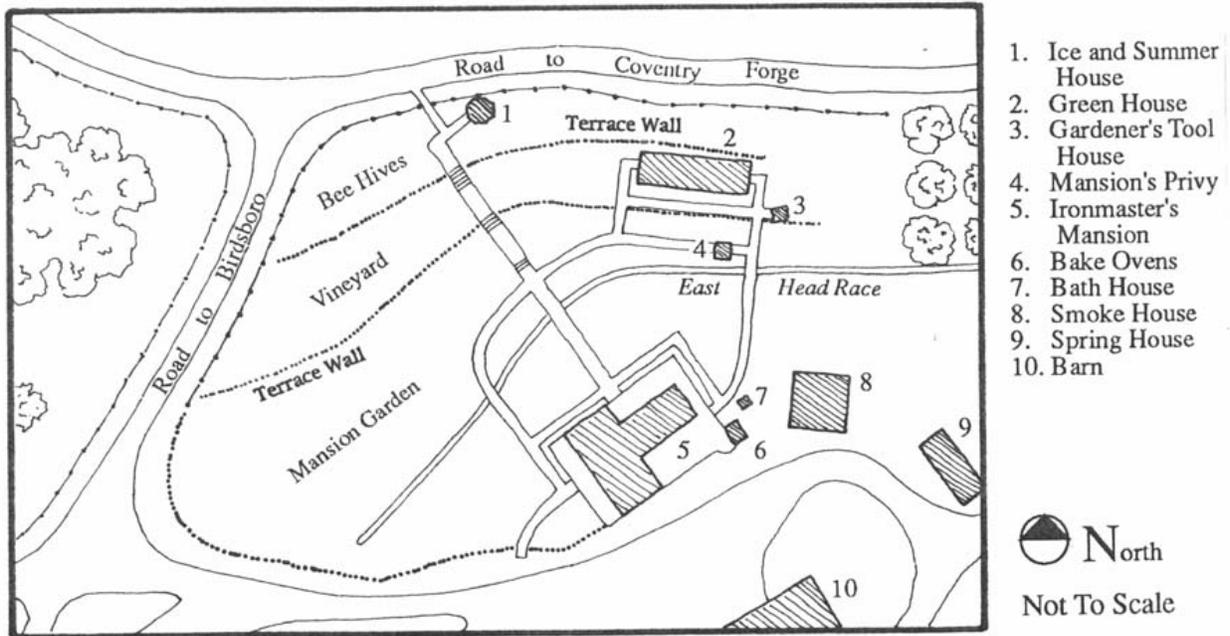
Building Number and Name:

1. Ironmaster's House
2. Furnace Barn
3. Office and Store
6. Blacksmith Shop
7. Furnace Complex
8. Wheel House
9. Charcoal House
19. Tenant House No. 1
20. Tenant House No. 2
32. East Head Race
111. West Head Race
- 115A. Birdsboro-Warwick Road Bridge
- A. Tenant House No. 1 Barn
- B. Tenant House No. 1 Privy
- C. Tenant House No. 2 Barn
- D. Tenant House No. 2 Privy

Hopewell Furnace 1800 Map Key - Core Area (See CLR for enlargement).



View of Boarding House (Bldg. 24) looking southeast, ca. 1954. HOFU archive photo.



Tracing of garden section taken from Apple's "Historical Base Map, 1830-1840".



View of Ironmaster's House (Bldg. 1) looking northeast. N.d., probably twentieth century. HOFU archive photo.

Decline: 1846-1883

During the late 1840s a number of changes affected the cultural landscape at Hopewell Furnace. Perhaps the most significant of these affected the appearance of the furnace complex itself. With the cessation of molding the South Cast House was no longer required. It appears, based upon fairly limited evidence, that this building may have been demolished ca. 1847. Oral tradition cannot place this building at the site in the 1860s, clearly indicating that it had been removed prior to that date.

In 1853, in an attempt to adjust to the changing technology of iron production, an Anthracite Furnace was erected at Hopewell. This operation proved very short-lived, largely due to technical problems using anthracite to smelt the iron ore available to the furnace, and by 1857 the machinery from the new furnace had been removed to Monocacy.(1)

Physical changes in the Hopewell landscape during the years prior to the Civil War included installation of scales in the Bridge House ca. 1847 and construction of a brick Kiln House ca. 1849. The scales facilitated accurate formulation of the furnace charge, while the Kiln House was apparently used to make charcoal. The Kiln House apparently failed to produce the desired quantity or quality of charcoal, and was converted to a residence prior to the 1870s.(2)

A half-acre plot of ground, located near the Kiln House, was used as a vegetable garden by mid-century. A second garden plot, comprised of about one-quarter acre was located immediately west of the barnyard and surrounded by a white picket fence. Tenant houses contained fenced gardens to protect the plantings from chickens and rabbits. Common vegetables found in Hopewell's gardens included onions, beets, lettuce, tomatoes, peas, radishes, cauliflower, cucumbers, squash, eggplant, and salsify.(3)

In 1856, Nathan Care, a furnace employee, acquired a parcel immediately south of the furnace property along Birdsboro-Warwick Road. A log house may have stood on the parcel at the time of this sale. Care built a two-story stone house ca. 1856-1857 and added a barn to his property ca. 1859. These buildings presently form the southern limit of the village, although they did not become part of the furnace property until ca. 1916.(4)

The Civil War revived Hopewell's fortunes, as the skyrocketing demand for iron drove prices up so rapidly that production costs ceased to be a financial issue. Pig iron that commanded thirty dollars per ton before 1860 brought eighty dollars per ton in 1864 and reached ninety-nine dollars a ton before prices began to slip.(5) The increase in business stimulated repairs to the furnace in 1869, which included new interior fire brick walls in the furnace stack.(6)

Physical changes to the Hopewell landscape during the decade of the 1860s appear to include the construction of Tenant House No. 3 and its associated barn. In 1864 Union Township taxed the furnace owners on ten tenant houses. Three years later, in 1867, the owners were taxed for ten single houses and one double house, which suggests that Tenant House No. 3 was erected between 1864 and 1867. The Tenant House Barn has an 1862 date scratched into the interior plaster, which tends to support a ca. 1860 date for these two buildings.(7) An 1860 map of the property depicts three houses located on the north side of Hopewell Lake. During the 1930s the Civilian Conservation Corps raised the height of the dam and increased the lake from twelve acres to sixty-two acres. Two of the tenant houses were presumably submerged beneath the lake at this date. Other tenant houses in Union Township were probably located along the road to Jones Mine, south of French Creek. In ca. 1869 a double house, half of which was occupied by a store, was erected on the west side of the Birdsboro-Warwick Road, south of Tenant House No. 3. Known variously as the Stubblebine House, the Boone Store, and Tenant House No. 4, this building burned in 1893. The parcel was not owned by the furnace until the twentieth century.(8)

Other changes during this period include alterations to the Ironmaster's House and the continued deterioration of the furnace complex. By ca. 1867 the roof of the North Molding Room had apparently collapsed. Oral tradition suggests that the Cleaning Shed on the east side of the Cast House had been demolished prior to the 1860s, since the building was not remembered by those interviewed.

During the 1870s operations at the furnace were sporadic. In 1874, and again in 1877-1878 the furnace was out of blast. In 1870 the Clingan family altered the Ironmaster's House, adding a second floor toilet and extending the porch and the first story windows that opened onto the porch. Additional construction work during this period included a series of frame additions to the barn (ca. 1870) and a new schoolhouse (ca. 1870) located approximately one-half mile west of the earlier schoolhouse along the 1809 Road.(9)

An increase in the price of iron stimulated Hopewell owners to resume operations in 1880. At this date Edward S. Buckley emphatically instructed his managers to cut as much wood on the property as possible and turn it into charcoal to fuel the furnace.(10) During the first half of the 1880s a number of alterations were made to the furnace and its associated buildings. These changes included re-roofing of the Wheel House, whose roof was rebuilt to connect to the Bridge House roof and the construction of a new Charcoal House (ca. 1880). In ca. 1881 a boiler was installed in the Wheel House to provide auxiliary power during periods of low water, and in 1882 an Ore Roaster was erected against the retaining wall between the furnace and the Office & Store. This piece of equipment was designed to remove impurities from the iron ore, thus improving the quality of the resulting iron.(11)

None of these last gasp efforts restored the furnace to profitability. In 1883 the furnace, according to Union Township tax records, owned only five tenant houses in the township, a fifty percent decline in a decade. The five houses no longer on the books in 1883 may have been sold to tenants, although records of such transactions do not survive, or they may have simply been demolished, especially if they had been constructed of log. Finally, on 15 June 1883, Hopewell Furnace went out of blast for the last time. After a period of approximately 112 years, iron ceased to be produced at Hopewell.(12)

Notes:

(1) Ibid., 63.

(2) Apple, "Documentation," II-99–II-102.

(3) Walker, Hopewell Village, 132-133; Wells, "Historic Scene Report," 28-29.

(4) Apple, "Documentation," I-7–I-9; Dechant & Son, "Hopewell Furnace Lands."

(5) Walker, Hopewell Village, 64.

(6) Ibid., 65.

(7) Apple suggests (based primarily on oral tradition) Tenant House No. 3 was constructed for Hopewell employee John Shafer between 1845 and 1854. Apple, "Documentation," 150-151.

(8) Apple, "Documentation," I-13–15.

(9) Ibid., II-139–141.

1845 Base Map - Overall Site

Sources:

Information contained on this map was compiled from numerous sources located predominantly in HOFU's archives and files. Key sources include: Russell Apple's "Historic Base Map - Village Area 1830-1840" and his "Documentation for Historic Base Maps: 1830-1840," 1956; National Park Service, "Topography Hopewell Village - French Creek Demonstration Recreation Project, 1937, rev. 1938; aerial photographs dating from ca. 1920-1980s; historic structure reports; Delaware Valley Orienteering Association's "French Creek East, Orienteering Map," 1992; among others.

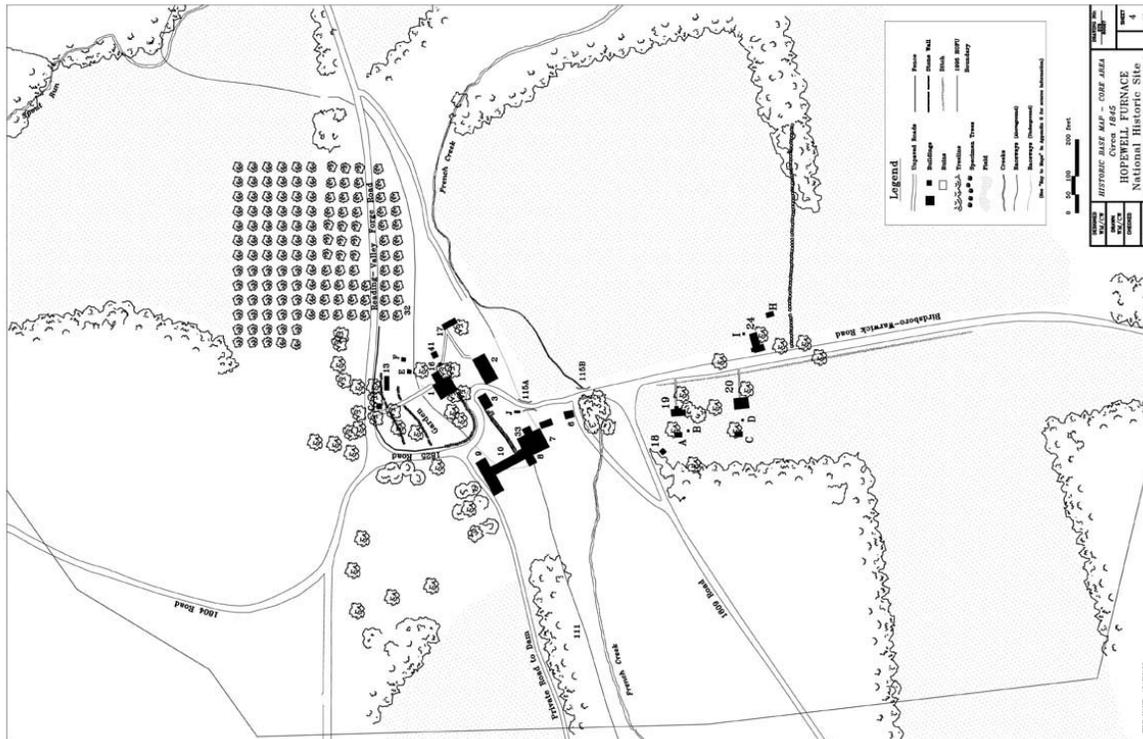
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Building Number and Name:

- 27. Church House
- 28. Church Barn
- 71. Thomas Lloyd House
- 71A. Thomas Lloyd Wagon Shed
- 72A. Harrison Lloyd Barn
- 72B. Harrison Lloyd House
- 72C. Harrison Lloyd Blacksmith Shop
- 76. Woodlot House
- 79. Bethesda Baptist Church
- 80. Bethesda Baptist Church Carriage Shed
- 87. Thomas Lloyd Spring House
- K. Manning Barn
- L. Manning House

Hopewell Furnace 1845 Base Map Key (See CLR for enlargement).



Hopewell Furnace 1845 Base Map - Core Area (See CLR for enlargement).

1845 Base Map - Core Area

Sources:

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Building Number and Name:

- | | | | |
|-----|---------------------------|------|--------------------------|
| 1. | Ironmaster's House | 32. | East Head Race |
| 2. | Furnace Barn | 33. | Cast House |
| 3. | Office and Store | 41. | Smoke House |
| 6. | Blacksmith Shop | 111. | West Head Race |
| 7. | Furnace Complex | A. | Tenant House No. 1 Barn |
| 8. | Wheel House | B. | Tenant House No. 2 Barn |
| 9. | Charcoal House | C. | Tenant House No. 1 Privy |
| 10. | Bridge House | D. | Tenant House No. 2 Privy |
| 13. | Ironmaster's Greenhouse | E. | Privy |
| 16. | Ironmaster's Bake Ovens | F. | Tool House |
| 17. | Ironmaster's Spring House | G. | Ice and Summer House |
| 18. | School House | H. | Boarding House Barn |
| 19. | Tenant House No. 1 | I. | Boarding House Privy |
| 20. | Tenant House No. 2 | J. | Wagon Scales |
| 24. | Boarding House | | |

Hopewell Furnace 1845 Map Key - Core Area (See CLR for enlargement).

Shutdown and Survival: 1883-1935

At the date of Hopewell's last blast the furnace was owned by Edward S. Buckley, heir of M. Brooke Buckley; and Maria T. Clingan, daughter of Clement Brooke and widow of Charles Clingan. Even though Hopewell Furnace no longer produced iron the property continued to generate income for its owners. The furnace company maintained its record books through March 23, 1896. During this time period the company kept records on the sales of remaining pig iron, iron ore, and wood. Additionally, the furnace maintained records on payments for freight bills, farm operations, house rentals, and royalties for stone quarried on the property.(1)

Despite the property's ability to generate a certain level of income through the sale of available product and raw materials (existing pig iron, wood, charcoal), Edward S. Buckley frequently expressed his discouragement for Hopewell's income producing potential. In 1886 Buckley indicated that he had been spending his own money on taxes and repairs at the furnace property and proposed that he and Maria Clingan divide the remaining pig iron for whatever profit they could manage. In September 1886 the Reading Railroad purchased 100 tons of the nearly 360 tons of pig iron that remained at the furnace and by 1888 company records suggest that all Hopewell's iron had been sold. Three years later, however, Buckley was still not optimistic about finding a buyer for the property and offered to sell his portion to any interested person for \$25,000. In 1894 Maria Clingan offered to trade her share in two Philadelphia store buildings in exchange for Buckley's half interest in Hopewell. Buckley agreed to the transaction and his half share of the property was then transferred to Clingan's children; Charles B. Clingan, Alan Hunter Clingan, and A. Louise Clingan Brooke.(2)

The woodlands associated with Hopewell continued to provide income for the new owners. Hopewell's forests, under the management of Charles and Alan Clingan, provided wood for fence posts and rails. These were cut in large lots and then sold at market. Furnace records from the period indicate that this was a major operation. Additionally, in 1902 Hopewell's woodlands supplied charcoal again; however, instead of using it for its own furnace operations the charcoal was sold to Philadelphia iron manufacturers. In addition to the wood sold as fence posts and the charcoal produced for resale, Hopewell's owners received money for stone quarrying on company owned lands. In 1894 Richard Humphreys agreed to quarry stone on Hopewell property and in 1906 A. Louise Clingan Brooke sold quarrying rights on approximately 3,000 acres to the Schuylkill Stone Company for \$157,000. The later agreement included 2,829 acres of Hopewell Furnace lands.(3)

Hopewell's iron mines, located northwest of Warwick in Chester County, also provided income for the Clingans. The Pottstown Iron Company leased Hopewell mines as early as 1883 and continued to mine ore through 1913. At that date the Eastern Steel Company of Pottstown purchased nearly a rail car load of ore a day mined at Hopewell.(4)

The majority of activity at Hopewell during the first thirteen years following closure of the furnace focused on the sale of existing inventories (remaining pig iron) and of raw materials (wood, iron ore, stone, and charcoal). With the iron furnace no longer in blast the buildings, structures, and infrastructure directly associated with furnace operations received little attention or maintenance. As a result, buildings fell into disrepair and the surrounding area became overgrown. In 1887, only four years after the furnace ceased operations, the Carpentry (Wheelwright) shop neared collapse, the South Molding Room had vanished, as had the Cleaning Shed, and the furnace itself began to disintegrate. By 1896 only a portion of the Cast House's wood structure remained in front of the furnace stack and the area in front of the Cast House and North Molding Room had become overgrown with grass. Other areas removed from the furnace complex also showed signs of deterioration. Circa 1893 the Boone House (Tenant House No. 4)

had reportedly burned. Other tenant houses apparently did not fair much better. One tenant noted that the house he then lived in was "in a state of disrepair with its roof leaking, porch falling off, and fences rotting." The brick kiln house (presently a stabilized ruin), located on the south side of the private road leading to Hopewell Dam, was probably abandoned sometime before 1900 and by this date the Care Log Cabin, located near the boarding house, was removed from the site in order to use the area as an agricultural field.⁽⁵⁾ A north facing photograph of the Birdsboro-Warwick Road taken ca. 1914 shows a static village area with high wildflowers along the west and east sides of the road. By this date the east side of the road included utility poles and the fence line bordering the road was obscured by underbrush.

The site certainly received less active supervision following the closure of the furnace. The Clingans continued to use the Ironmaster's House as a summer residence through 1915, with general maintenance of the site left to a caretaker. Harker A. Long acted as caretaker through 1896 and following Long's departure Nathan Care assumed the role of caretaker.⁽⁶⁾ In each case the caretaker occupied the rear wing of the Ironmaster's House. With a site as large as Hopewell it may be presumed that specific maintenance efforts were focused only on active areas of the site, such as the actively farmed fields, while other areas, such as the old industrial core surrounding the furnace, were essentially abandoned.

Despite the lack of furnace related activity the Clingans purchased a substantial amount of land between 1907 and 1928. Out of a total of 1,016 acres purchased during this period approximately 450 acres were acquired (between 1907 and 1908) south of the village area and included the Painter, Lloyd, and Brandon tracts, among others. The tracts purchased during the 1910s and 1920s appeared concentrated west of Hopewell Lake and included portions of Mount Pleasure. A ca. 1920 aerial view of the property reveals that the majority of these tracts contained agricultural lands divided (often by fence or stone wall) into numerous farm fields. It is unclear why these purchases were made; however, the large amount of farmland acquired may suggest increased agricultural activities at Hopewell.⁽⁷⁾ By the 1980s and 1990s many of these fields were combined (especially in the Thomas Lloyd and Harrison Lloyd tracts), while others reverted to forest, creating less open space than may have existed historically. This is evident on the southern section of the Harrison Lloyd tract as well as the area west of the furnace and southwest of the Care property.⁽⁸⁾

In 1926 the principal barn associated with the Ironmaster's House was almost completely reconstructed. The new barn incorporated portions of the stone walls from the ca. 1817 building and a ca. 1830 addition; however, all frame members of the earlier barn were removed to allow for the new construction. The new barn, as constructed, created a large unified structure and may have been intended to accommodate dairy operations.⁽⁹⁾ Four years earlier, in 1922, Nathan Care, Jr. changed the grade between the Ironmaster's House and the barn. The work eliminated the steep grade between the south side of the Ironmaster's House and the north side of the barn by shifting the soil from one area to the other. This eliminated the need for steps near the Bake Ovens and required construction of retaining walls to hold soil around the sycamore trees at the southeast corner of the Ironmaster's House.⁽¹⁰⁾ While buildings and areas directly related to furnace operations continued to fall into disrepair the amount of activity that centered near the barn, as well as the large land acquisitions during this period, suggests that the site supported agricultural activities into the second quarter of the twentieth century.⁽¹¹⁾

In 1932 Berks County road crews realigned portions of the 1804 and 1825 roads through the Hopewell Furnace property, especially in the vicinity of the Office & Store. Reconstruction of this stretch of road substantially changed the physical appearance of this portion of the site. The work entailed demolishing a large portion of the stone wall between the Office & Store and the Bridge House. Construction of the road covered the Ore Roaster, as well as the foundations of the Cast House and Carpenter's Shop (Wheelwright Shop). The new road passed in close proximity to both the Blacksmith Shop and the Furnace remains. The realigned road continued on a relatively straight course north, past the Charcoal

House and cut off part of the Ironmaster's House yard and eliminated a portion of the west garden wall. This realignment reduced the road's previously steep grade and eliminated the dangerous tight turn between the Barn and Office & Store.(12)

Between 1883 and 1935 Hopewell Furnace changed dramatically. The abandonment of the industrial core contributed to the deterioration of the remainder of the site. The supporting functions that once facilitated the successful operation of Hopewell Furnace were no longer needed. By 1935, despite apparent agricultural use, the overall site represented only a trace of its former self.

Notes:

(1) Ibid., 66-67.

(2) Ibid., 67.

(3) Lewis and Hugins, Hopewell Furnace National Historic Site, 67; Walker, Hopewell Village, 68-69; William H. Dechant & Son, "Hopewell Furnace Lands and Contiguous or Adjacent Tracts, Property of A. Louise C. Brooke At Hopewell, Penna.," August 1915, rev. to January 1931. On file at HOFU archive. The Dechant map notes that the Birdsboro Stone Company signed a thirty-year lease on August 2, 1906 with Brooke for "the purpose of quarrying, crushing, removing, and selling stone only." It is unclear where, or to what extent, quarrying occurred. The Birdsboro Stone Company operated a stone crushing plant approximately two and one-half miles north of Hopewell Village.

(4) Breou's Official Series of Farm Maps, Chester County, Pennsylvania (Philadelphia: W. H. Kirk & Co., 1883); Walker, Hopewell Village, 68-69.

(5) Lewis and Hugins, Hopewell Furnace, 67; Apple, "Documentation," I-13 and 35; Walker, Hopewell Village, 69.

(6) Walker, Hopewell Village, 67-68.

(7) Dechant & Son, "Hopewell Furnace Lands."

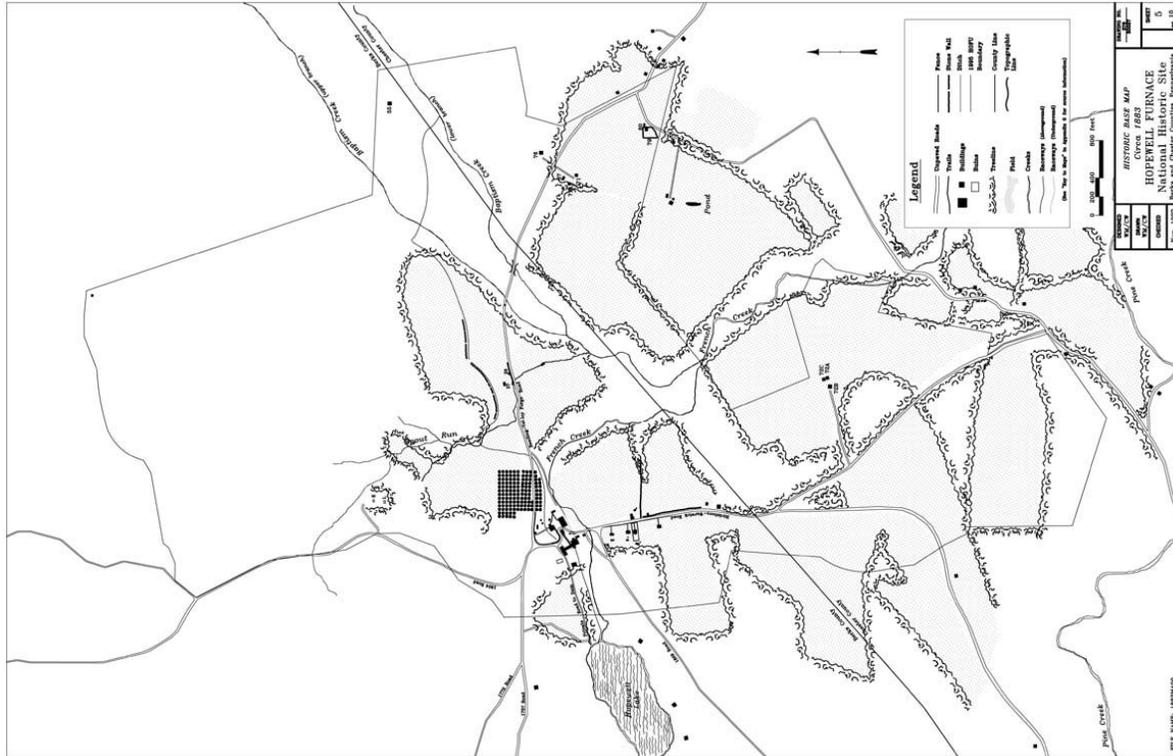
(8) Edward F. Heite, "Report of Archaeological Survey in Two Tracts at Hopewell Furnace National Historic Site," Berks and Chester Counties, PA, May 1988, 27; Edward F. Heite, Report of Archaeological Surveys on 198 Acres at Hopewell Furnace National Historic Site," Berks and Chester Counties, PA., May 1989, 26, 33. On file at HOFU library

(9) It is unclear how this barn functioned; however, its large size taken with the recent purchases of agricultural lands, and the prevalence of dairy farms in the area, may suggest dairy operations at Hopewell.

(10) Apple, "Documentation" II-55 and II-56. The existing grade north of the barn appears to conform more closely to the 1920s grade than the steep grade that existed prior to 1922.

(11) A ca. 1920s aerial photograph shows the extent of farm fields around Hopewell Furnace. Included are farm fields north and west of Hopewell Lake and the large area south of Coventry Road from Birdsboro-Warwick Road east to Bethesda Church. Additionally, the area immediately west of current PA Route 345, south of furnace lands, shows regenerated growth that previously functioned as farmland.

(12) National Park Service, "Development Plan - Residence, Utility & Village Areas, Part of Master Plan, Hopewell Village National Historic Site," December 1956. On file at HOFU archive; Apple, "Documentation" II-36; Roy Appleman, "Map of Hopewell Village & Ruins," December 31, 1935. On file at HOFU archive.



Hopewell Furnace 1883 Base Map (See CLR for enlargement).

1883 Base Map - Overall Site

Sources:

Information contained on this map was compiled from numerous sources located predominantly in HOFU's archives and files. Key sources include: Russell Apple's "Historic Base Map - Village Area 1830-1840" and his "Documentation for Historic Base Maps: 1830-1840," 1956; National Park Service, "Topography Hopewell Village - French Creek Demonstration Recreation Project, 1937, rev. 1938; aerial photographs dating from ca. 1920-1980s; historic structure reports; Delaware Valley Orienteering Association's "French Creek East, Orienteering Map," 1992; among others.

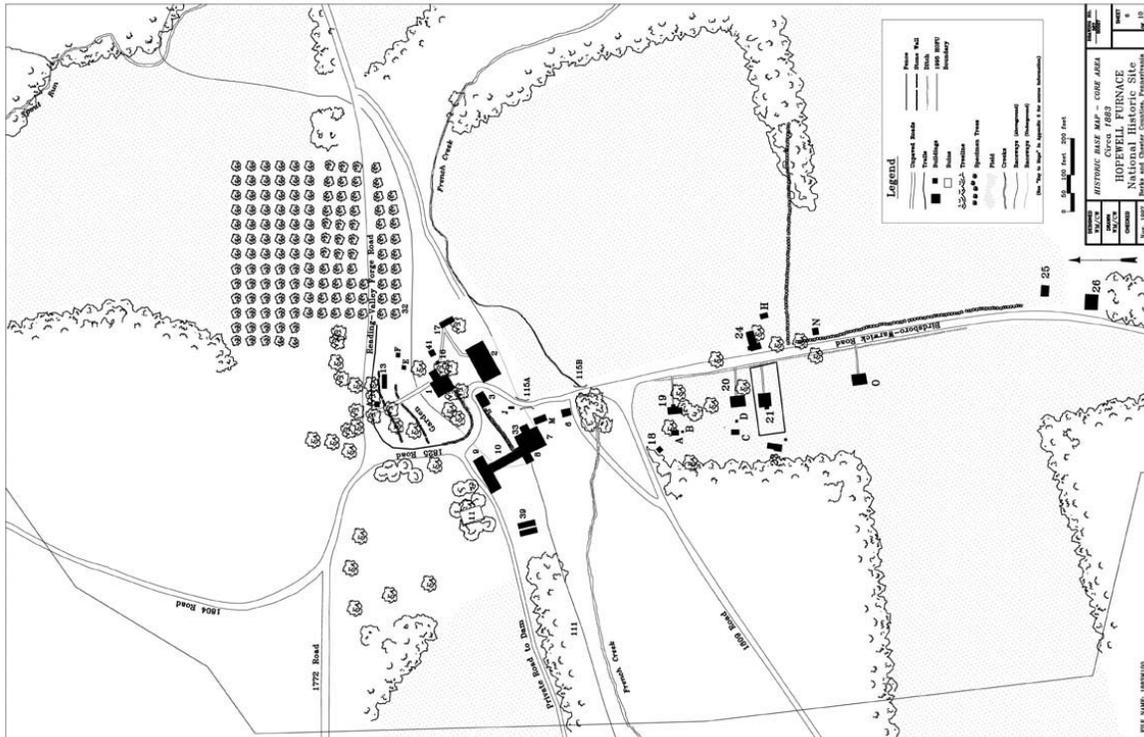
Notes:

- The inclusion of Tenant House and Boarding House outbuildings on this map are conjectural; however, these were common outbuildings and believed to have existed at the site.
- Vegetation layers included on this map are conjectural and based primarily on field survey, arborist's report, other previous reports, and twentieth century aerial photographs. Additional buildings may have existed on and off the site during this time period.
- Current documentary evidence does not provide for their locations; therefore, they are not included on this map.
- Use of fences and/or stone walls as boundary demarcations was common practice during this time period. Evidence exists for this practice at Hopewell Furnace; however, current documentary evidence does not provide for all locations or dates of erection of fences or walls, and therefore, are not included on this map.

Building Number and Name:

- 27. Church House
- 28. Church Barn
- 55. Brison House
- 71. Thomas Lloyd House
- 71A. Thomas Lloyd Wagon Shed
- 72A. Harrison Lloyd Barn
- 72B. Harrison Lloyd House
- 72C. Harrison Lloyd Blacksmith Shop
- 76. Woodlot House
- 79. Bethesda Baptist Church
- 80. Bethesda Baptist Church Carriage Shed
- 87. Thomas Lloyd Spring House
- K. Manning Barn
- L. Manning House

Hopewell Furnace 1883 Base Map Key (See CLR for enlargement).



Hopewell Furnace 1883 Base Map - Core Area (See CLR for enlargement).

1883 Base Map - Core Area

Sources:

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Building Number and Name:

1.	Ironmaster's House	26.	Nathan Care Barn
2.	Furnace Barn	32.	East Head Race
3.	Office and Store	33.	Cast House
6.	Blacksmith Shop	39.	Charcoal Kilns
7.	Furnace Complex	41.	Smoke House
8.	Wheel House	111.	West Head Race
9.	Charcoal House	A.	Tenant House No. 1 Barn
10.	Bridge House	B.	Tenant House No. 1 Privy
11.	Anthracite Furnace Ruin	C.	Tenant House No. 2 Barn
13.	Ironmaster's Greenhouse	D.	Tenant House No. 2 Privy
16.	Ironmaster's Bake Ovens	E.	Privy
17.	Ironmaster's Spring House	F.	Tool House
18.	School House	G.	Ice and Summer House
19.	Tenant House No. 1	H.	Boarding House Barn
20.	Tenant House No. 2	J.	Wagon Scales
21.	Tenant House No. 3	M.	Carpenter's Shop
24.	Boarding House	N.	Care Log Cabin
25.	Nathan Care House	O.	Tenant House No. 4

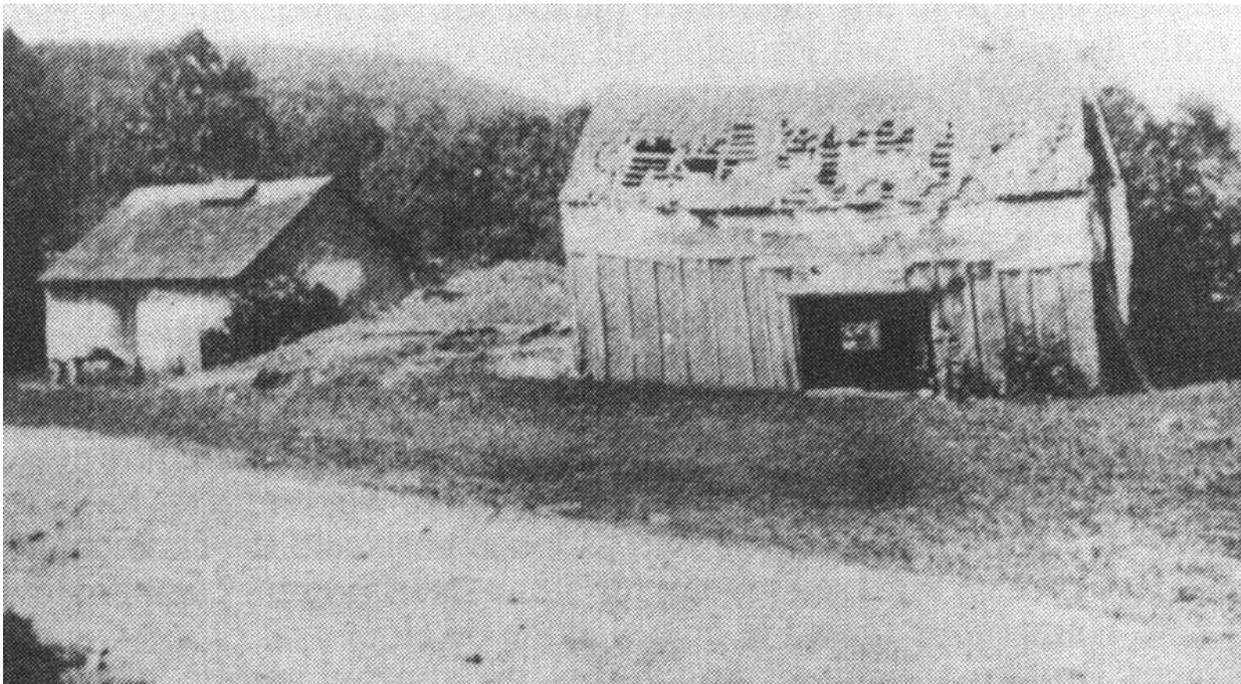
Hopewell Furnace 1883 Map Key - Core Area (See CLR for enlargement).



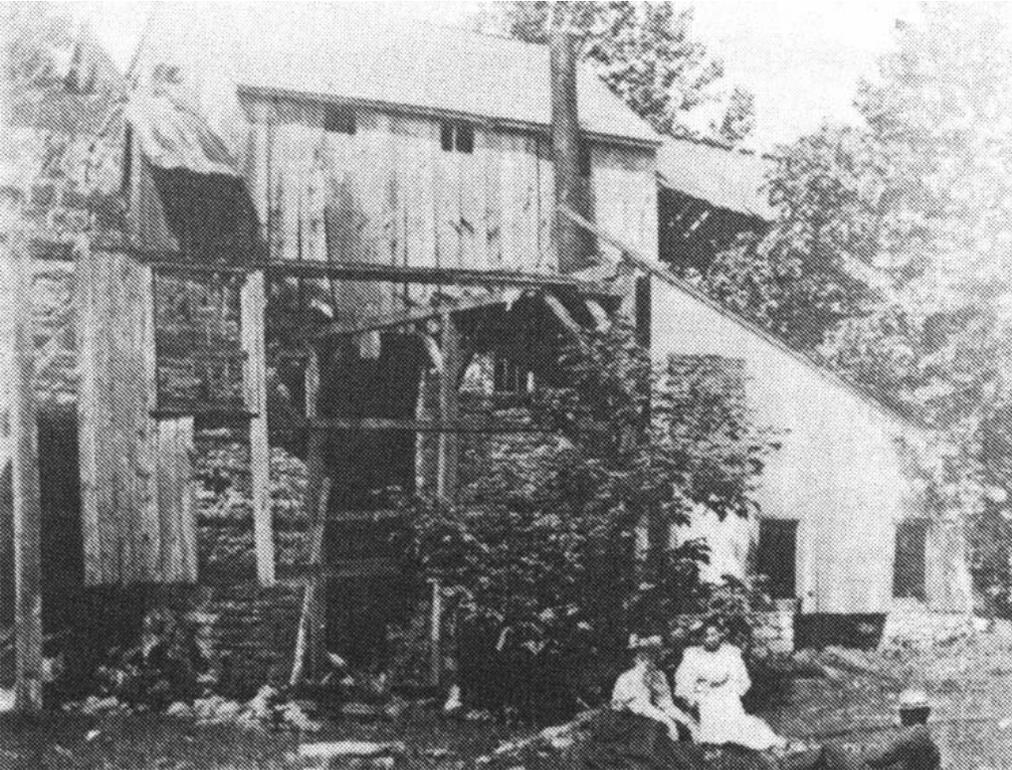
View of furnace grouping including Carpentry/Wheelwright Shop in foreground (Bldg. 35, demolished), Ore Roaster on right (Bldg. 34, stabilized ruin), and Furnace (Bldg. 7) with Cast House (Bldg. 33) and Charcoal House (Bldg. 9) looking north, ca. 1887.



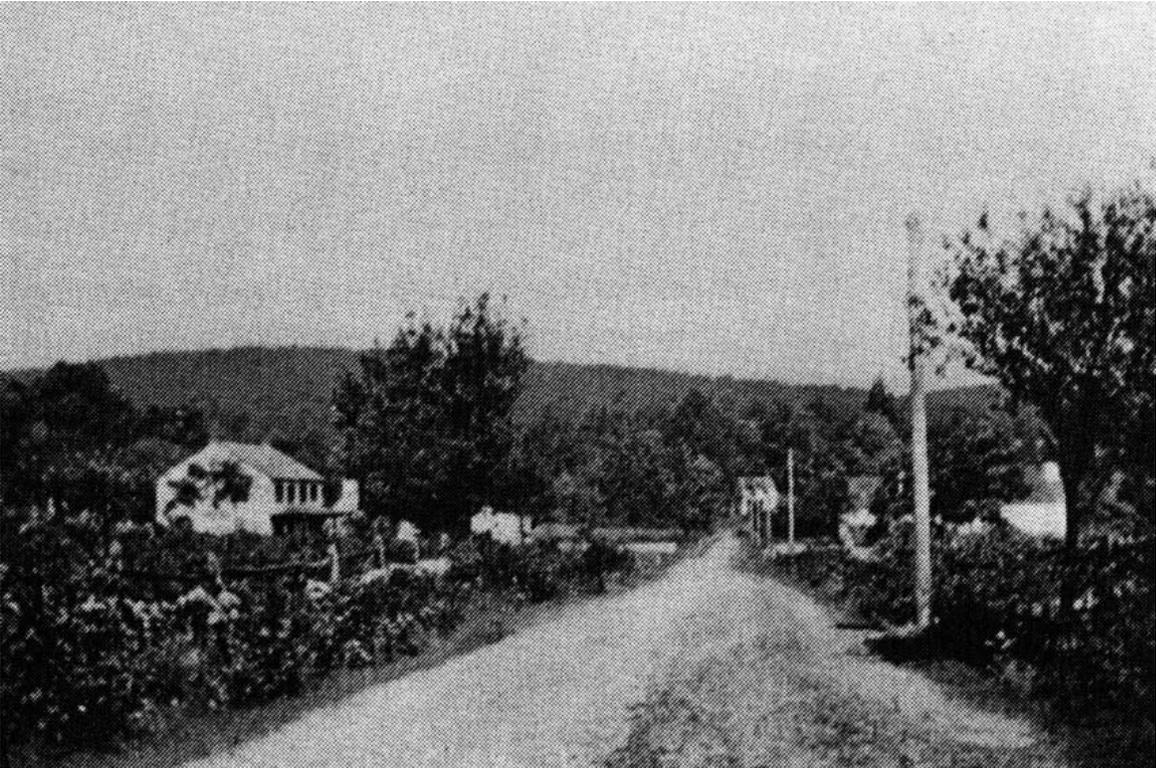
View of Office & Store (Bldg. 3), Barn (Bldg. 2), and Ironmaster's House (Bldg. 1) looking north, ca. 1890. HOFU archive photo.



View of Carpenter's Shop/Wheelwright Shop (Bldg. 35-demolished) and Blacksmith Shop (Bldg. 6) looking southwest, ca. 1895. HOFU archive photo.



View of Furnace (Bldg. 7), Bridge House (Bldg. 10), and remains of Cast House (Bldg. 33) looking west, ca. 1896. HOFU archive photo.



View of Birdsboro-Warwick Road looking north, ca. 1914. Photograph reproduced from Cornelia L. E. Brooke "Forges and Furnaces in the Province of Pennsylvania".



View of Furnace (Bldg. 7), Bridge House (Bldg. 10) looking west, prior to government occupation. HOFU archive photo.

The Civilian Conservation Corps: 1935-1938

In 1935 the federal government purchased approximately 5,500 acres of land in and around Hopewell Furnace for use as the French Creek Recreation Demonstration Area. The land was purchased primarily from Brooke family descendants. A. Louise Brooke received approximately \$87,000 from the United States for just under 4,000 acres of Hopewell Furnace land and she also received \$11,301 for an additional 459 acres. The Brooke family lands were divided into four separate tracts that included Hopewell Furnace lands,

the Good Tract, the Lavery and Hager Tract, and the Shafer Tract. Most of the land fell within Union Township, Berks County. The United States government purchased approximately 1,200 acres of adjacent land from the John T. Dyer Quarry Company for about \$17,211. Smaller, additional purchases were also made at this date, with approximately sixteen tracts acquired for the proposed recreation demonstration area.(1) Acquisition of the lands was ". . . for use as a public park and recreation area, for the restoration of structures of historic interest, the conservation of natural resources, the preservation of scenic beauty, forestation and reforestation, and for use in connection with the construction of certain improvements for the purposes of the project."(2)

Establishment of the French Creek Recreation Demonstration Area fell under Title II of the National Industrial Recovery Act (NIRA) of June 16, 1933. This section of NIRA established the Public Works Administration (PWA), which, among other activities, constructed roads and public buildings. As part of the New Deal the PWA's purpose, in part, was to create employment through the establishment of public works projects.(3) In December 1934 the Civilian Conservation Corps (CCC) established Camp SP-7 in the vicinity of Hopewell Furnace to begin work on the recreation demonstration area. A second camp, SP-17, was established near Hopewell Lake the following year.(4) The primary focus of CCC activity at

French Creek Recreation Demonstration Area was to clear away underbrush, build automobile roads, construct foot and bridle paths, lay out camping sites, and assist in excavating several lakes. To accomplish this the CCC transferred a contingent of men from Putnumville, Vermont to French Creek Recreation Demonstration Area. The two camps employed a total of approximately four hundred men. Camp SP-17 was located in what is presently French Creek State Park, while Camp SP-7 was centered at Hopewell Furnace near the present locations of the utility area and Quarters 98 and 99. This camp consisted of approximately twenty buildings including barracks, mess halls, garages, an administration building, and officer's quarters. The majority of the camp consisted of barracks (approximately ten buildings). Each barrack held twenty-two men and was sixty feet in length. One plan called for converting the barracks into recreational camping cabins following the CCC's departure from the site, with each cabin capable of holding three apartments.(5) This plan was not implemented, and the buildings at Hopewell were subsequently dismantled. Only three buildings (an oil house, pump house, and storage building) remain at Hopewell from the CCC's period of occupation. The pump house (Building 51) is located next to park quarters. The other two buildings are located northeast of the maintenance building.(6)

In the 1930s, following years of disuse and neglect, the buildings, structures, and lands formerly associated with Hopewell Furnace were in varying degrees of deterioration. Certain core buildings such as the Ironmaster's House, Church House, Blacksmith Shop, Office & Store, Boarding House, and Tenant Houses 1-3, while in need of repairs and maintenance, were still extant. Other buildings, including the Carpenter's Shop (Wheelwright Shop), Cast House, Molding Sheds, School House, and numerous tenant houses and outbuildings, as well as gardens and fence lines, were in ruin or had already disappeared from the site. Other features, such as charcoal hearths, roads and trails, and outlying house sites, were being enveloped by the countryside. The furnace stack, once the primary focus of the village now lay in relative isolation and was in serious need of stabilization.

Shortly after the site's purchase, National Park Service historian, Roy A. Appleman, conducted historical research of the Hopewell Furnace area. Following his investigations Appleman noted the site's evident historical significance and recommended that it be restored and the village preserved. Early in 1936 Appleman prepared a proposed restoration plan for Hopewell Furnace. Appleman believed that Hopewell Furnace's fundamental components had changed very little from Colonial times through the Civil War era and proposed restoring Hopewell to its 1785-1800 time period.(7) Based on his recommendations the CCC, with additional funding from the Works Progress Administration (WPA), began stabilization of the furnace stack, cleaned the water wheel pit, recorded buildings, and conducted archeological investigations. In addition to its limited restoration efforts, the CCC constructed trails, picnic shelters, and camp sites as part of the creation of French Creek Recreation Demonstration Area.(8)

In 1936 the CCC began work on a planned ten- to fifteen-acre picnic area in the vicinity of Baptism Creek, east of the proposed bypass road (PA Route 345). The plan included a covered picnic shelter (Building 122 - extant) and approximately 130 picnic tables with benches. The CCC also constructed approximately thirty-five fireplaces with stones taken from the nearby hillside. This phase of the project included construction of two vehicular and two pedestrian bridges across Baptism Creek as it wound through the picnic area. Later plans proposed the construction of additional bridges. Project plans also called for a springhouse and reservoir. The picnic area also included an adjacent, crescent-shaped, parking area located north of Hopewell Road and capable of holding a hundred cars.(9) The picnic area has been used as an environmental study area since the 1970s. A majority of elements related to the CCC picnic area, including picnic tables, fireplaces and drinking fountains, have been removed or have fallen into decay. The parking area is no longer used but is still evident and regularly mowed.

West of Hopewell's village core area the CCC enlarged Hopewell Lake (currently part of French Creek State Park). This new development focused on recreational activities and included beaches and swimming areas. Constructed between 1936 and 1938, the new dam was approximately eight feet higher than the original, and increased the lake's area from approximately twelve acres to sixty-two acres. Enlargement of the lake presumably covered two of three tenant houses originally located along the north side of the lake. The stone ruins of the third tenant house (Frees' House) were extant at the time of the lake's construction. The new dam and lake resulted in the destruction of the old Hopewell dam and its West Head Race connection. The new dam included a concrete ogee spillway put into use in June 1938.(10)

In 1937 the federal government, in a probable effort to help preserve Hopewell Furnace's village core area, began construction of a bypass road (PA Route 345) east of the village. The bow-shaped road (completed in 1939) diverted automobile traffic around the village core and connected to Birdsboro-Warwick road, on the south, below the Nathan Care barn. It connected to Birdsboro-Warwick Road, on the north, approximately one thousand feet south of Shed Road.(11) Birdsboro-Warwick Road was closed to public traffic within the village core area in 1955.(12) During the 1930s the Reading-Valley Forge Road (1757 Road) was upgraded from dirt pavement to macadam. These improvements extended from the bypass to the eastern park boundary.(13) Other road improvements completed at the site by 1938 included upgrading the 1809 Road (road to Joanna) pavement to macadam and the 1932 straightening of the 1804 and 1825 Roads near the furnace. Many of the earlier road improvements used significant amounts of the slag piled near the furnace.(14) The area surrounding the Tenant Houses also received approximately one-foot of fill in order to raise the yard levels and mitigate wet conditions that existed there.

The government's intervention and the subsequent CCC activity at Hopewell Furnace resulted in dramatic changes to the site. These early efforts slowed what had become an unchecked deterioration of the site and its constituent parts. Activities included clearing overgrown areas and stabilizing historic fabric. Important as well were investigations intended to understand the site and its historic components. Another aspect of the government's intervention included the transformation of the site into a recreation demonstration project. This included construction of picnic grounds, campgrounds, and group camps, reconstruction of Hopewell Lake, and the construction of various hiking trails. The government's physical presence at the site also contributed to changes through the clearing and construction of CCC camps and the introduction of truck trails used during construction.

Notes:

(1) Chester County Historical Society, vertical file, "Hopewell National Park - Warwick Township Lands." Miscellaneous newspaper articles on file at the Chester County Historical Society, West Chester, Pennsylvania.

(2) Walker, Hopewell Village, 69-70; Derrick M. Cook, Superintendent, "Statement for Management, Hopewell Furnace National Historic Site," October 1993. On file at HOFU library; Lewis and Hugins, Hopewell Furnace, 68. Work at the park does not appear to have included reforestation.

(3) Richard B. Morris, ed., American Encyclopedia of American History (New York: Harper & Brothers, 1953), 342 and 345.

(4) John C. Paige, The Civilian Conservation Corps and the National Park Service, 1933-1942: An Administrative History, (Washington, D.C.: National Park Service, 1985), 38, 40-42. Individual parks and the National Park Service designed projects for the CCC to complete at parks. Park Superintendents

or regional directors supervised the work and the Washington Office of the NPS had the right of approval for all projects.

(5) Chester County Historical Society, vertical file, "Hopewell National Park - Warwick Township Lands." Miscellaneous newspaper articles on file at the Chester County Historical Society, West Chester, Pennsylvania.

(6) Walker, Hopewell Village, 69; National Park Service, "Topography - Hopewell Village, French Creek Recreational Demonstration Project," 1938. On file at HOFU archive; Jacox and Boyle, "Hopewell Furnace National Register Nomination."

(7) Much of Appleman's research was based on extensive oral interviews with former Hopewell employees. Harker A. Long, Hopewell employee from 1867 through 1896, provided Appleman with a majority of the information used in his report. Long, however, could only relate information told to him for the period prior to the date of his arrival at Hopewell in 1867. Subsequent investigations have added to the understanding of the site's history; however, little definitive documentary evidence exists for the pre-1860 time period.

(8) Lewis and Hugins, Hopewell Furnace, 70.

(9) Chester County Historical Society, vertical file "Hopewell National Park - Warwick Township Land." Miscellaneous newspaper articles on file at the Chester County Historical Society, West Chester, Pennsylvania.

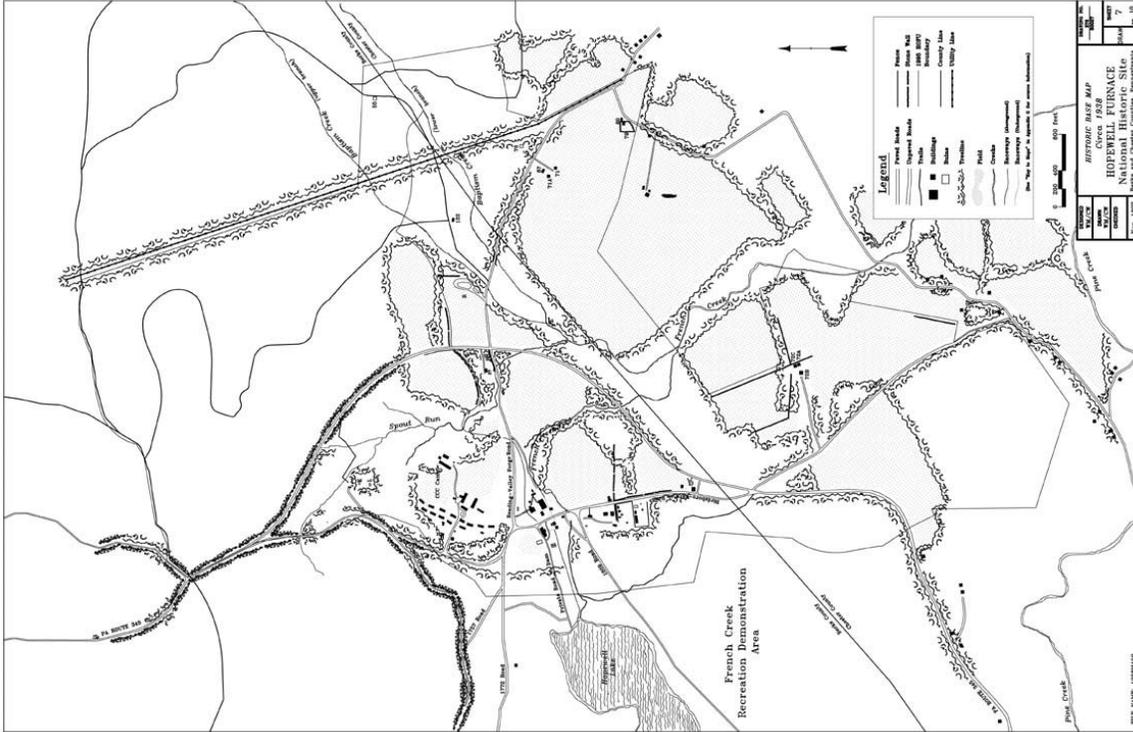
(10) Apple, "Documentation," I-12; Hopewell Furnace National Historical Site Building Maintenance Records, Hopewell Dam file. On file at Maintenance Building, HOFU.

(11) National Park Service, "Base Map - Hopewell Village National Historic Site," 1937. On file at HOFU archive.

(12) Thomas & Newswanger, "Hopewell Furnace Historic Structures Report and Engineering Study," 2 vols., dated 30 June 1987. On file at HOFU library.

(13) Jacox and Boyle, "Hopewell Furnace National Register Nomination."

(14) Lewis and Hugins, Hopewell Furnace, 70.



Hopewell Furnace 1938 Base Map (See CLR for enlargement).

1938 Base Map - Overall Area

Sources:

Information contained on this map was compiled from numerous sources located predominantly in HOFU's archives and files. Key sources include: Russell Apple's "Historic Base Map - Village Area 1830-1840" and his "Documentation for Historic Base Maps: 1830-1840," 1956; National Park Service, "Topography Hopewell Village - French Creek Demonstration Recreation Project, 1937, rev. 1938; aerial photographs dating from ca. 1920-1980s; historic structure reports; Delaware Valley Orienteering Association's "French Creek East, Orienteering Map," 1992; among others.

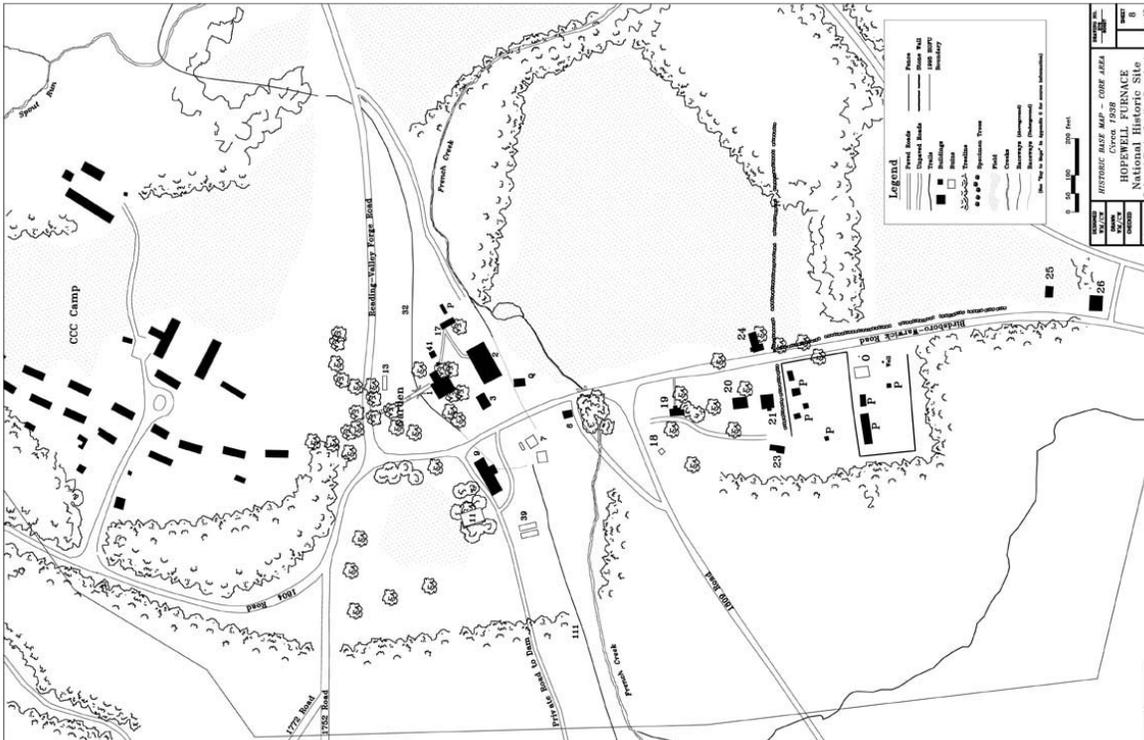
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- Only roads known to have been paved during this period are shown as paved, all others are shown as unpaved.

Building Number and Name:

- 27. Church House
- 28. Church House Barn
- 55. Brison House Ruin
- 71. Thomas Lloyd House
- 71A. Thomas Lloyd Wagon Shed
- 72A. Harrison Lloyd Barn
- 72B. Harrison Lloyd House
- 72C. Harrison Lloyd Blacksmith Shop
- 76. Woodlot House Ruin
- 79. Bethesda Baptist Church
- 80. Bethesda Baptist Church Carriage Shed
- K. Manning Barn Ruin
- L. Manning House Ruin
- R. Baptism Creek Picnic Area Parking

Hopewell Furnace 1938 Base Map Key (See CLR for enlargement).



Hopewell Furnace 1938 Base Map - Core Area (See CLR for enlargement).

1938 Base Map - Core Area

Sources:

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6. Blacksmith Shop
7. Furnace Complex
9. Charcoal House
11. Anthracite Furnace Ruin
13. Ironmaster's Greenhouse
17. Ironmaster's Spring House
18. School House Ruin
19. Tenant House No. 1
20. Tenant House No. 2
21. Tenant House No. 3
23. Tenant House No. 3 Barn
24. Boarding House
25. Nathan Care House
26. Nathan Care Barn
32. East Head Race
39. Charcoal Kilns
41. Smoke House
51. Pump House
111. West Head Race
- O. Tenant House No. 4 Ruin
- P. Chicken House
- Q. Corn Crib

Hopewell Furnace 1938 Map Key - Core Area (See CLR for enlargement).



View of Birdsboro-Warwick Road looking north, ca. 1940. HOFU archive photo.

The National Park Service: 1938-Present

In August 1938 the government's involvement with Hopewell Furnace changed. At this date acting Secretary of the Interior E. K. Burlew designated approximately 214 acres of land within the French Creek Recreation Demonstration Areas as Hopewell Village National Historic Site. Boundaries for the park followed the west side of the Pennsylvania Route 345 bypass road (under construction in 1938) on the east. The west boundary followed the old Birdsboro-Warwick Road on the north from its junction with the bypass road south approximately two thousand feet. At this point the boundary continued southwest approximately one thousand feet. It then followed an irregular diagonal line to the southeast for approximately three thousand feet. It then continued south to the south junction of the old Birdsboro-Warwick Road and the bypass road, approximately seven hundred feet south of the Nathan Care House.(1)

Establishment of Hopewell Village as a National Historic Site emphasized the historic qualities and components of the site. In 1938 the CCC located, mapped, and partially restored the East Head Race. Around this date they also restored the furnace's tail race and in 1940 part of the site's apple orchard was replanted. In 1941 the park constructed a new garage and a frame addition to the John Church House as part of the building's renovation to employee quarters. By the end of 1941 the CCC had terminated its activities at Hopewell Furnace as a result of the United States' entry into World War II.(2) During the War the CCC camp was used as a rest area for French and British sailors.(3)

In June 1942 the lands associated with the French Creek Recreational Demonstration Project were added to Hopewell Village National Historic Site. Just over four years later the Secretary of the Interior authorized the withdrawal of all lands acquire in the 1942 legislation ". . . which in his opinion are not required for historic-site purposes." These lands reverted back to a recreation demonstration area. The

following year the United States government deeded approximately 5,000 acres of land to the Commonwealth of Pennsylvania for use as French Creek State Park. The National Park Service retained approximately 848 acres for Hopewell Village National Historic Site.(4) During the operating period of the furnace (pre 1883) the owners of Hopewell Furnace controlled just over half the area contained within the established boundaries for the historic site. The remaining portion, located south and east of the Boarding House, functioned as adjacent farmland, and was not acquired by Hopewell's owners until the twentieth century.

During World War II the park engaged in minimal activities. Following the war, in 1948, the Nathan Care House was modernized for use as quarters and a Quonset hut was constructed near the Tenant Houses (subsequently removed). During the 1950s restoration and improvement projects increased at the park. In 1951 the West Head Race was reconstructed and by 1954 a new entrance road and parking area had been completed. During 1955 the park restored the Spring House, Bake Ovens, and Bethesda Church carriage shed.(5)

In July 1956 the National Park Service developed a ten-year capital improvements plan entitled Mission 66. Mission 66 was planned, in part, to contribute to a rejuvenation of the National Park System for its fiftieth anniversary (to be held in 1966). After years of general neglect following World War II, the plan called for construction of modern roads, visitor centers, well-planned trails, campgrounds, interpretation centers, and the introduction of new utilities throughout the National Park system. The plan budgeted a billion dollars for the ten-year program and had support from both Congress and President Dwight D. Eisenhower.(6)

Mission 66 efforts at Hopewell Village National Historic Site included construction of a new visitor center, two employee quarters, and a maintenance building. These buildings were completed in 1959 and are located north of the 1757 Road (Reading-Valley Forge Road). The two living quarters were constructed near the southern end of the former CCC camp along a service road connecting the parking area with the 1825 Road to Birdsboro. A planned third quarters was not constructed. The maintenance building was constructed east of the quarters in a designated utilities area. The Visitor Center replaced a small visitor shelter located at the parking area. Following completion of the new Visitor Center, park personnel relocated the visitor shelter to an area near the school house site. This shelter was demolished in 1972.(7)

Between 1957 and 1959 the park reconstructed a number of buildings and structures including the Bridge House, furnace bank and retaining wall, the connecting shed, and the cooling shed. During this time period the Park Service brought slag from Joanna mine to recreate the slag piles around the furnace. They also completed a number of Historic Structures Reports including reports on Tenant Houses 1 & 2, the Charcoal House, and the Bridge House. During this period the park changed the interpretive period it sought to present at the site. Ongoing research shifted the park's interpretive effort from the furnace's colonial period of operation to that of the 1820s through 1840s, when the furnace experienced its greatest prosperity.(8)

Extensive amounts of rehabilitation and reconstruction work continued at the site through the 1960s, with particular emphasis placed on the industrial core. This work included reconstruction of the Cast House and Cleaning Shed, as well as the restoration of the Office & Store and Charcoal House. In 1965 the area surrounding the Blacksmith Shop was regraded and lowered to improve drainage from the reconstructed Cast House to French Creek. The Park Service also stabilized the ruins of the Anthracite Furnace, Ore Roaster, and Carpenters' (Wheelwright) Shop during this period. Work outside the primary industrial zone included restoration of Tenant Houses 1 & 2, as well as the reconstruction of the Barn, Smoke House, and Boarding House.(9) In 1964 the park demolished the Harrison Lloyd House. Ruins

of the house and its associated outbuildings are still evident along the Harrison Lloyd Road, southeast of PA Route 345.

The park continued restoration and stabilization efforts throughout the 1970s and 1980s. During this time period outlying house ruins were stabilized including those of the Boone House, Woodlot House, and Brison House. The exterior of the Ironmaster's House was restored in 1979-1980 and the Blacksmith Shop was once again restored in 1981, following a fire. The park has continually tried to retain the rural character and setting of the site and provide as complete a representation of Hopewell Furnace's rural-industrial history as possible. In 1985 the name of the site changed to Hopewell Furnace National Historic Site.

Notes:

(1) Federal Register 2039, Aug. 3, 1938; National Park Service, "Base Map," Hopewell Village National Historic Site, 1937. On file at HOFU archive.

(2) Apple, "Documentation," I-23, I-31, and I-37; Morris, Encyclopedia of American History, 342; Jacox and Boyle, "Hopewell Furnace National Register Nomination," 7:4-14.

(3) Lewis and Hugins, Hopewell Furnace, 72.

(4) Walker, Hopewell Village, 70; Cook, "Statement for Management," 33-34.

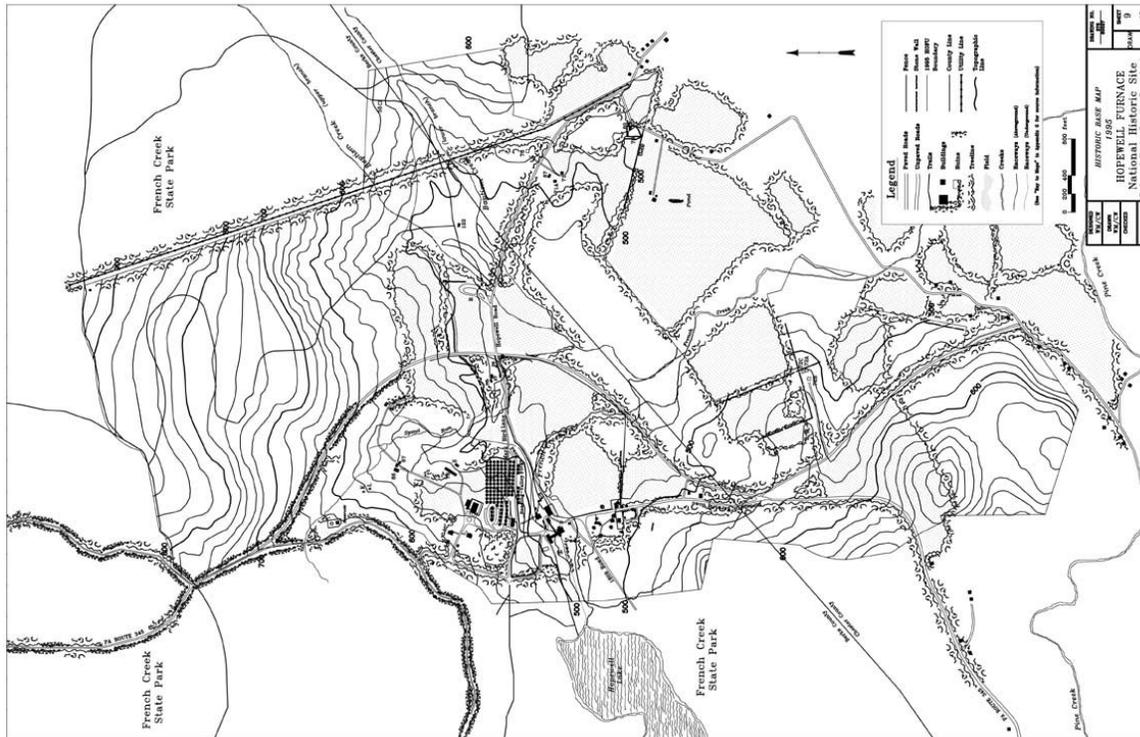
(5) Jacox and Boyle, "Hopewell Furnace National Register Nomination," 7:4-14; Apple, "Documentation."

(6) Hal Rothman, Preserving Different Pasts: The American National Monuments (Chicago: University of Illinois Press, 1989), 222; James A. Glass, The Beginnings of a New National Historic Preservation Program, 1957 to 1969 (Nashville, Tenn.: American Association for State and Local History, 1990), 5.

(7) National Park Service, "Development Plan - Residence, Utility & Village Areas," 1956, revised 1961. On file at HOFU archives; Jacox and Boyle, "Hopewell Furnace National Register Nomination," 7:4-14.

(8) Ibid.; Apple, "Documentation."

(9) Ibid.



Hopewell Furnace 1995 Base Map (See addendum for enlargement).

1995 Base Map - Overall Area

Sources:

Information contained on this map was compiled from numerous sources located predominantly in HOFU's archives and files. Key sources include: Kutztown University "Disk Files of Hopewell Furnace NHS," Menke & Menke Field Survey including GPS readings, Russell Apple's "Historic Base Map - Village Area 1830-1840" and his "Documentation for Historic Base Maps: 1830-1840," 1956; National Park Service, "Topography Hopewell Village - French Creek Demonstration Recreation Project, 1937, rev. 1938; aerial photographs dating from ca. 1920-1980s; historic structure reports; Delaware Valley Orienteering Association's "French Creek East, Orienteering Map," 1992; among others.

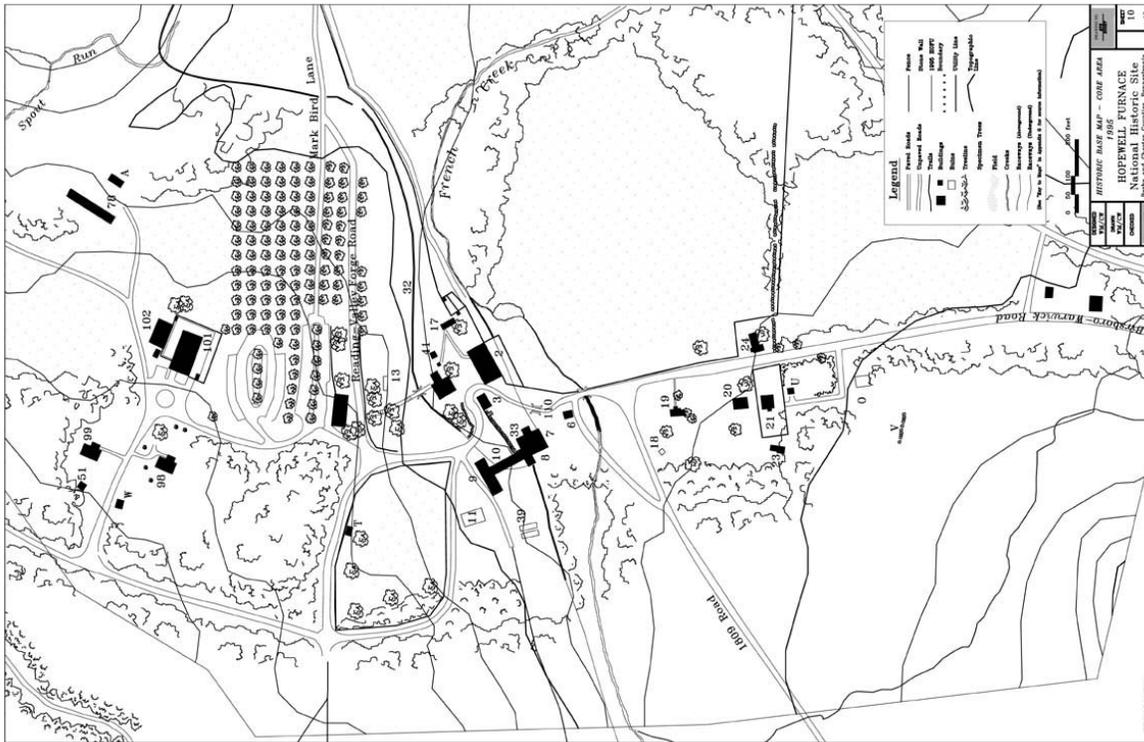
Notes:

- Vegetation layers included on this map are based primarily on field survey, arborist's report, other previous reports, and twentieth century aerial photographs and mapping.

Building Number and Name:

- 27 Church House
- 28 Church House Barn
- 55. Brison House Ruin
- 66. Warehouse
- 67. Oil house
- 70. Church Garage
- 71. Thomas Lloyd House
- 71A. Thomas Lloyd Wagon Shed
- 72A. Harrison Lloyd Barn Ruin
- 72B. Harrison Lloyd House Ruin
- 72C. Harrison Lloyd Blacksmith Shop Ruin
- 76. Woodlot House Ruin
- 78. YCC Building
- 79. Bethesda Baptist Church
- 80. Bethesda Baptist Church Carriage Shed
- 87. Thomas Lloyd Springhouse
- 122. Baptism Creek Picnic Shelter (ESA Shelter)
- R. Baptism Creek Picnic Area Parking
- S. Quonset Hut
- K. Manning Barn Site
- L. Manning House Site

Hopewell Furnace 1995 Base Map Key (See addendum for enlargement).



Hopewell Furnace 1995 Base Map - Core Area (See addendum for enlargement).

1995 Base Map - Core Area

Sources:

Information contained on this map was compiled from numerous sources located predominantly in HOFU's archives and files. Key sources include: Kutztown University "Disk Files of Hopewell Furnace NHS," Menke & Menke Field Survey including GPS readings, Russell Apple's "Historic Base Map - Village Area 1830-1840" and his "Documentation for Historic Base Maps: 1830-1840," 1956; National Park Service, "Topography Hopewell Village - French Creek Demonstration Recreation Project, 1937, rev. 1938; aerial photographs dating from ca. 1920-1980s; historic structure reports; Delaware Valley Orienteering Association's "French Creek East, Orienteering Map," 1992; among others.

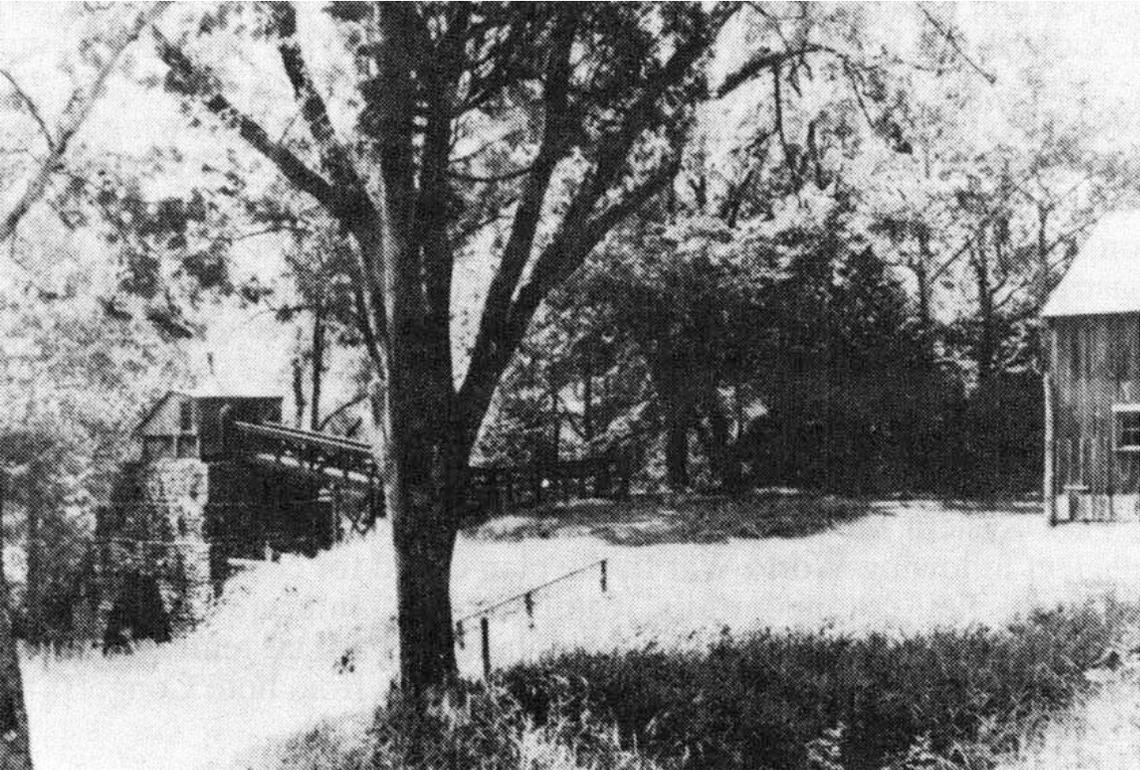
Notes:

- Vegetation layers included on this map are based primarily on field survey, arborist's report, other previous reports, and twentieth century aerial photographs and mapping.

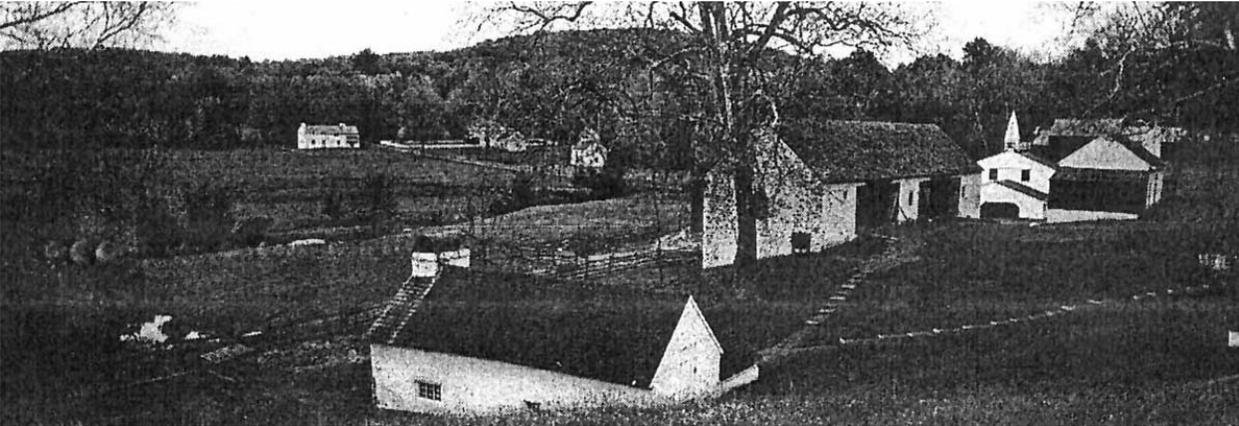
Building Number and Name:

- | | |
|--------------------------------|---------------------------------|
| 1. Ironmaster's House | 100. Visitor Center |
| 2. Furnace Barn | 101. Maintenance Building |
| 3. Office and Store | 102. Bally Building |
| 6. Blacksmith Shop | 110. Tail Race |
| 8. Furnace Bank Retaining Wall | 111. West Head Race |
| 7. Furnace Complex | O. Tenant House No. 4 Ruin |
| 9. Charcoal House | S. Quonset Hut |
| 10. Bridge House | T. Cedar pasture Stable |
| 11. Anthracite Furnace Ruin | U. Car Port |
| 13. Green House Ruin | V. Tenant house No. 4 Wall Ruin |
| 17. Ironmaster's Spring House | W. Former CCC Garage |
| 18. School House Ruin | |
| 19. Tenant House No. 1 | |
| 20. Tenant House No. 2 | |
| 21. Tenant House No. 3 | |
| 23. Tenant House No. 3 Barn | |
| 24. Boarding House | |
| 25. Nathan Care House | |
| 26. Nathan Care Barn | |
| 32. East Head Race | |
| 33. Cast House | |
| 39. Charcoal Kilns | |
| 41. Smoke House | |
| 51. Pump House | |
| 78. YCC Building | |
| 98. Quarters | |
| 99. Quarters | |

Hopewell Furnace 1995 Map Key - Core Area (See addendum for enlargement).



View of Furnace remains (Bldg. 7) and Bridge House prior to reconstruction, ca. 1949. HOFU archive photo.



Hopewell Village in 1995, looking south across the Ironmaster's Spring House. Menke & Menke photo.

Analysis And Evaluation

Summary

The National Register of Historic Places criteria for evaluation state that, in addition to the quality of significance, a resource must possess "integrity of location, design, setting, materials, workmanship, feeling, and association."⁽¹⁾ Hopewell Furnace National Historic Site retains a considerable degree of integrity in terms of the broad patterns that define its cultural landscape. However, examination of the detailed components of the landscape reveals a significantly diminished level of integrity. The appearance of the site differs considerably from its appearance during the mid-nineteenth century. The property is more wooded. The forested stands are older than during the period of the furnace's operation. Reforestation has obscured former agricultural fields and masked boundaries. Boundary demarcations, such as fences, are almost entirely modern. Many buildings and structures are missing, and several major buildings are reconstructions that lack historic integrity. Nevertheless, a holistic approach to the site is called for, given the size of the property, its numerous periods of significance, and the variety of activities that shaped the landscape over the past two hundred years. While various individual components of the resource lack integrity, as a totality the site retains integrity as a resource with a long history of industrial activity, a period of decline and abandonment, and a major effort to reconstruct and interpret colonial and early national period iron making.

The complexity of the site's history makes it difficult to assess integrity for any particular period. Evaluating integrity based upon a single historic period of significance represents an artificial effort to freeze time and deny the entire history of the resource. Indeed, the only quality of integrity that exists for every historic period is that of location. The location of the resource has remained the same throughout all periods of significance. For each individual period of significance qualities of design, setting, materials, workmanship, feeling, and association have been lost. Buildings have been demolished and constructed, roads have been introduced and paved, fields have given way to woods (and vice-versa), and the use of the site has changed dramatically. Despite these changes to the landscape, a careful examination of the cultural landscape characteristics defined in "National Register Bulletin 30: Guidelines for Evaluating and Documenting Rural Historic Landscapes," indicates that Hopewell Furnace National Historic Site retains a considerable degree of integrity, when evaluated as a resource with a long and dynamic history that incorporates landscape change.⁽²⁾

The land uses and activities at the site have obviously changed over the past two hundred years. Iron is no longer produced, many houses are no longer occupied, some fields are no longer planted, and woods are no longer logged. Nevertheless, the patterns of spatial organization and responses to natural features that resulted from these activities are clearly evident in the present landscape. The noise, heat, and dirt associated with iron making are gone, but the industrial core of the site is plainly evident. The furnace complex, with its cast house, charcoal house, charging bridge, wheel house and waterwheel, blacksmith shop, ore banks, and other elements appears visually distinct from the remainder of the site. Likewise, while most of the residences are no longer occupied, these areas of the site clearly reflect their residential use, with houses, gardens, barns, and other elements. The Ironmaster's House remains distinct from the remainder of the site behind its low garden wall and fences, while French Creek separates the residential village from the industrial core. The agricultural areas within the site also remain clearly defined and discernible in the pattern and location of streams, pastures, fields, fences and walls, barnyards and other elements. While the surrounding forests no longer display evidence of the massive wood cutting operations historically required to maintain the furnace's fuel supply, and while the chestnuts and hickories that historically comprised the woods have been replaced by maples and oaks, the hillsides remain forested and undeveloped, providing strikingly similar views from the village core of the nineteenth century.

Circulation patterns within the site remain largely identical to those established by 1825, when the last of the principal historic roads in the area was formally established. The only major change to the historic circulation pattern is the present PA Route 345, which loops around the village to the east and was constructed by the Civilian Conservation Corps (CCC) in the late 1930s. The principal access road to the Visitor Center is also non-historic, but roughly approximates the path of a historic road, while a series of minor service roads, largely located north of the Visitor Center, are essentially not visible to site visitors.

Boundary demarcations exist on two basic levels. Separations between field and forest constitute a basic, and highly visible, form of boundary demarcation. This distinction between furnace property and the property of surrounding landowners remains visible, although partially obscured by the reforestation of some agricultural lands, at the eastern and southern portions of the site. The removal of fences and the incorporation of separate tracts into a single parcel under common management also obscures historic boundaries. Boundary fences have been destroyed in several locations, particularly at the south end of the village core, where the CCC removed several stone walls that marked the limits of the furnace property. While remnant sections of stone walls date from the period of significance, most of the wood fencing within the property is of recent vintage and cannot be considered historic. Nevertheless, the demarcations between furnace property and the property of surrounding landowners remains roughly discernible, although these historic boundary distinctions are often overlooked by visitors.

As noted earlier, the basic composition of the woods surrounding the village core has changed from a chestnut-hickory forest to a maple-oak forest. Field investigations suggest that the site is significantly more wooded at present than it was during the heyday of furnace operations. The proportion of woods to fields has changed dramatically; several historic agricultural fields have become reforested since the 1930s, changing the vegetation in specific areas of the site. Additionally, fields historically planted with row crops are presently planted in hay. Remnants of the eighteenth and nineteenth century pattern of woodlands, agricultural fields, and pastures are evident, but the integrity of this landscape characteristic has been compromised. Within the core village a number of historic specimen trees and plantings survive. The basic pattern of vegetation, the mix of fields and forests, retains some degree of integrity, despite the encroachment of forests into fields and alterations to the specific composition of the vegetation. However, these patterns are threatened, as woods continue to advance into abandoned fields, obscuring boundaries and masking the agricultural aspects of the landscape.

The extant buildings, structures, and objects within the site retain a high degree of integrity. The National Park Service has maintained most of the historic buildings that were extant when it acquired the site in the 1930s, and has worked to accurately reconstruct significant elements of the site's built environment, most notably the Cast House. Many buildings and structures that existed during the nineteenth century are clearly missing from the site, which results in a landscape notably emptier or less occupied in appearance than existed during the primary period of interpretation. The National Park Service has wisely restricted new construction. Most large-scale new construction is located north of the Ironmaster's House.

The cluster arrangement of the site retains a high degree of integrity. The core village remains clearly divided into an industrial area surrounding the furnace, residential areas focused upon the Ironmaster's House and garden and the Tenant Houses lining the village street, and agricultural areas associated with the barn and meadow.

In sum, Hopewell Furnace National Historic Site retains some integrity as a cultural landscape. The site's highest degree of integrity is associated with the broad patterns of the landscape, such as patterns of spatial organization, cluster arrangement, and land uses and activities. In many instances the detailed components of the landscape lack integrity. Nevertheless, given the long evolutionary history of the site,

the basic patterns of Hopewell Furnace's significant cultural landscape remain discernible and may be interpreted for the public.

Contributing and Non-Contributing Resources

The significance and integrity of Hopewell Furnace National Historic Site are linked to the entire history of the site; however the period of the furnace's operation is clearly the primary period of significance. It is important to recognize that the site has evolved over more than two hundred years, and that it includes significant resources from all of its periods of significance. The role of the CCC should not be ignored, and the Baptism Creek Picnic Area should be recognized as a significant resource, not an intrusion into the landscape of the charcoal furnace. Nevertheless, the principal measure of significance and integrity must be with the furnace and its period of operation.

There are, however, a number of specific features that may be considered non-contributing elements of the cultural landscape. These include the Visitor Center and its associated parking lots, and the living quarters and maintenance buildings located north of the Visitor Center. Most of these buildings were constructed in the 1950s and 1960s under the auspices of Mission 66. Mission 66 had important impacts upon the historic resources within the village core; most notably the reconstruction of the Cast House, the realignment of Birdsboro-Warwick Road near the Office & Store, and the remarkable amount of historic and archeological research this work engendered. However, the buildings and structures constructed during Mission 66 that fulfill support and service functions cannot be considered to contribute to the site's cultural landscape.

[The 1997 Hopewell Furnace Cultural Landscape Report determined that Mission 66 buildings and structures constructed to fulfill support and service functions were non-contributing features to the Hopewell Furnace cultural landscape. Since the publication of that document, however, the National Park Service has begun to re-evaluate many of its Mission 66 resources. Some of the features reconstructed under the Mission 66 program have been determined eligible by the List of Classified Structures, and are shown as contributing in the feature lists of this CLI. Other Mission 66 features have been changed from non-contributing to undetermined in the feature lists to reflect the re-evaluation that is taking place. The text describing the Mission 66 features was taken verbatim from the CLR; only the type of contribution in the feature lists was changed.

Other changes that have been made to the feature lists include the addition of resources listed in the LCS database that were not listed in the CLR. In addition, some features were listed in neither the CLR nor the LCS database but are included because the CLI team feels they are important components of the cultural landscape. Finally, it should be noted that the CCC Spring Houses listed in the CLR have been listed separately in the LCS and are therefore listed separately in this CLI.] (PHSO 2002)

The remainder of the resources at the site, the wooded hills, the fields and pastures, the roads and creeks, the sites of charcoal huts and hearths in the woods, and the buildings, structures, and objects within the village core and at outlying locations, all are contributing elements of Hopewell's cultural landscape.

Notes:

(1) 36 CFR 60.4

(2) McClelland, et al., National Register Bulletin 30, 3.

Landscape Characteristics And Features

Natural Systems And Features

1770-1800: Settlement and Development

Natural features significantly influenced the siting of Hopewell Furnace in the eighteenth century. The site offered abundant timber resources, ample water courses, and adequate agricultural lands; all necessary for the operation of a charcoal-fueled iron furnace. Deposits of iron ore and limestone, essential ingredients in the iron making process, were located within a few miles of the furnace site. The surrounding area also offered additional timber and agricultural land to supplement that on furnace property.

The site's topography partially determined the location of the furnace. The steep slopes of Brush, Chestnut, and Williams Hills enabled logs to be skidded or otherwise conveyed downhill, taking advantage of gravity, to clusters of pits where the logs were converted into charcoal. Construction of the furnace against the slope of Brush Hill facilitated charging the furnace from above and eliminated the need for extensive charging bridges.

The topography also permitted the tapping of French and Baptism Creeks and Spout Run at elevations sufficient to generate the necessary waterpower for operating the furnace. The location of the furnace permitted these streams to be tapped near their sources and the furnace owners constructed the East and West Head Races to assure maximum use of available water. Original owner Mark Bird also converted the wetlands south of French Creek through construction of drainage works, furnishing the site with "good watered meadow made."

Field stone, common throughout the site, served as a natural building material. The stone buildings at Hopewell are typical examples of the vernacular architecture found throughout this portion of Pennsylvania. These buildings reflect the permanence of stone masonry construction rather than a representative sample of the eighteenth century built environment. It is likely that wood and log buildings also occupied the site during this period, as they did at farms and settlements elsewhere in the region. The vast majority of the wood and log buildings have deteriorated and disappeared from the landscape, while a significantly higher percentage of masonry buildings survive.(1)

1800-1845: Growth and Prosperity

Natural features continued to play a significant role during this period. The surrounding environment served a similar role to that described for the previous period, providing the resources required for operations at the furnace. The furnace's owners, however, continued to modify the site's natural features to better serve their needs. These modifications are evident in the damming of French Creek and the construction of a new West Head Race ca. 1805. During the 1830s the furnace's owners tempered the natural environment along the slope above the Ironmaster's House through the construction of terraced gardens. Tenants south of French Creek responded to wet conditions near their houses by extending boardwalks from their homes to the roadway.

1846-1883: Decline

Hopewell Furnace's owners exploited and managed the site's natural features during this period of Hopewell's operation in much the same fashion as during the two previous periods. The surrounding environment continued to provide resources for the operation of the furnace.

1883-1935: Shutdown and Survival

The basic natural features present during the operation of Hopewell Furnace remained extant during this period of occupation; however, curtailment of iron-making operations resulted in significant changes in the type of activities supported by the site. Closure of the furnace meant that the creeks and head races were no longer used for waterpower. Management of these areas, as well as those directly associated with the former industrial operations, largely ceased during this period. The change in management and manipulation of the environment resulted in many unused areas becoming overgrown.

Timber continued to be harvested from the property, providing the furnace owners with income from the sale of fence posts and charcoal; however, the overall scale of operations declined. Additionally, lease agreements were signed for the quarrying of stone on furnace lands. The purchase of arable lands south and west of the furnace property facilitated expanded agricultural practices by the property owners.

1935-1938: The Civilian Conservation Corps

The federal government acquired the property in 1935 for development as French Creek Recreation Demonstration Area (RDA). The portion of the RDA that became Hopewell Furnace National Historic Site comprised less than 20 percent of the historic Hopewell Furnace property. The National Historic Site's boundaries excluded significant natural features associated with the furnace's operations, including Hopewell Lake and the majority of timber land located west of the furnace.

During this period the National Park Service and the Civilian Conservation Corps exploited the site's natural features for recreational purposes. The wooded hillsides were developed as a setting for hiking trails and picnic sites. The hillsides also supplied stone for fireplaces, picnic shelters, and other construction projects. This pattern of development is evident near Baptism Creek, where a picnic area was developed, as well as in neighboring French Creek State Park.

The government greatly enlarged Hopewell Lake for fishing, swimming, and boating activities. Development of the site during this period, as well as near the end of the last period, reflected the expanded use of automobiles within American society. A new by-pass road was cut through existing agricultural lands east of the core village, creating a new boundary demarcation. The Warwick-Birdsboro Road, which passed through the heart of the village, had been straightened in 1932 to eliminate an awkward turn between the Office/Store and the Village Barn. This work reflected a disregard for the site's natural topography and the imposition of a modern technological solution upon the landscape. The new alignment necessitated demolition of a substantial portion of the wall between the Cast House and the Office/Store, and destroyed the west end of the Ironmaster's House garden.

1939-Present: The National Park Service

The National Park Service's focus has been on interpreting Hopewell Furnace as a late-eighteenth and nineteenth century charcoal iron furnace and its associated village. In this respect the property's natural features function as an artifact, instead of providing resources for the operation of the furnace. The Park Service's focus on the core village has resulted in a return to a less managed landscape. The lack of attention paid to historical modifications of the landscape, including clearing drainage ways, harvesting timber, and farming agricultural fields, has resulted in reemerging wetlands and the natural reforestation of historically farmed areas. The former is evident in the village meadow, while the latter is evident along PA Route 345 and in the fields formerly associated with the Thomas and Harrison Lloyd

properties. The prohibition of hunting within the boundaries of the National Historic Site has contributed to an explosion in the deer population and extensive browsing of deer within the park. The destructive grazing habits of the local deer population has hampered the regeneration of some forests and has contributed to the elimination of much of the forest understory. Additionally, the deer population has partly determined how the Park Service interprets the site's agricultural history by precluding establishment of large vegetable gardens and the planting of row crops in the agricultural fields, as occurred during most of the site's history. The location of the Visitor Center and parking areas exploits the site's topography in order to provide visitors with a panoramic overview of the historic industrial village immediately upon their arrival at the site.

Response to the Natural Environment Analysis Summary

The siting of Hopewell Furnace responded directly to the natural environment. The site's ample water courses and timber resources supported the operation of the furnace, while its topography directed the placement of the furnace itself, as well as many of the site's other buildings and structures. The soils, slopes, and forests surrounding the furnace property led to establishment of independent farms that also supported furnace operations. Following closure of the furnace in 1883 the site's natural features continued to facilitate timbering, quarrying, and farming. The response to, and management of, the natural environment changed dramatically following the site's acquisition by the United States government in 1935. After this date the site's natural features were viewed as supporting recreational and interpretative activities.

The basic components comprising Hopewell Furnace's natural environment have remained relatively consistent through each of the site's periods of historical significance. These features include topography, water courses, timberlands, and agricultural lands. At present the evidence of historic responses to Hopewell's natural environment most closely corresponds to that implemented after the National Park Service acquired the property in the late 1930s, with a central, interpreted core surrounded by a large natural area. The entry road to the parking areas and Visitor Center also reflect the NPS's response to the site's natural environment.

Evidence of earlier historical responses to the natural environment remain visible. These include the location of the furnace and reconstructed bridge house against the slope of Brush Hill, which clearly depicts one of the historic responses to the site's topography. The continued presence of French, Spout, and Baptism Creeks is reminiscent of historic responses to the natural watercourses, while the continued presence of woodlands and agricultural fields also represents evidence of past responses to the environment.

Notes:

(1) David H. Fischer, *Albion's Seed: Four British Folkways in America* (New York: Oxford University Press, 1989), 476; Philip E. Pendleton, *Oley Valley Heritage, The Colonial Years: 1700-1775* (Birdsboro, PA: The Pennsylvania German Society, 1994), 55-100.



The topography made it simpler to load raw materials into the furnace from above. The Ironmaster's House occupies a commanding position above the furnace complex. The East Head Race (right) carries water to the furnace. Menke & Menke photo 1995.



French Creek in Hopewell Village in 1936. View to southwest toward Boarding House and Tenant Houses. HOFU archive photo.



French Creek in Hopewell Village in 1995. Though presently viewed as an aesthetic amenity, the Creek played a vital role in the economy of the Village and Furnace. Menke & Menke photo.

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Baptism Creek	Contributing			
Flat land south of French Creek	Contributing			
French Creek	Contributing			
Sloped areas north of French Creek	Contributing			
Spout Run	Contributing			

Spatial Organization

1770-1800: Settlement and Development

The patterns of spatial organization at Hopewell Furnace closely reflect the land uses and activities described in the previous section. As with land use and activities, the patterns of spatial organization at the site were strongly influenced by the natural environment. Throughout the more than one hundred years that the furnace operated both land use and activity and patterns of spatial organization changed little. This continuity is largely a result of the fact that all activity at the furnace served the needs of the iron-making operation.

The industrial core of the site was focused upon the furnace and its associated buildings and structures, located against a hill alongside French Creek. The topography facilitated loading raw materials into the top of the furnace stack and the creek provided waterpower. The location of the area's public roads also influenced the siting of various types of activity and the corresponding patterns of spatial organization. Northeast of the furnace, up a slope and across a road, lay the Ironmaster's House and its associated grounds. South of French Creek lay the Tenant Houses of the furnace workers. The Tenant Houses were sited with generous adjacent open space presumed to have been organized into gardens, animal pens, and domestic use areas. Fencing may have denoted boundaries between individual activity areas. The Tenant Houses were strung along the main north-south road through the village, in close proximity to both agricultural fields and the furnace. Agricultural activity within the core village clearly included both small vegetable gardens associated with individual Tenant Houses, and the fields and pastures associated with the Village Barn.

Outside the core village, farmsteads, most independently owned, formed the dominant pattern of spatial organization south and east of the village. Most area farms focused upon the farmhouse and outbuildings at the center of the property, often located in close proximity to a road, with fields and woodlots arranged around this central grouping. Bethesda Church represents a distinct pattern of spatial organization within this larger agricultural landscape that surrounds the furnace and its village. The church served an institutional function, and was attended by both area farmers and furnace workers.

The furnace's woodlands, largely on land presently included within French Creek State Park, stretched west and north of the village. Some workers apparently lived in temporary charcoal huts and wood structures in these areas, well removed from the village core.⁽¹⁾

1800-1845: Growth and Prosperity

The patterns of spatial organization at Hopewell Furnace remained largely unchanged during this period. As previously noted, the intensity of activity increased, as the furnace prospered, but the basic organization of the site, and the surrounding properties appears to have changed little from that of the previous period. The center of the site remained the furnace complex.

The owners' residence occupied a commanding position near the furnace and tenant housing lined the village street. It is known that several additional houses were located north of the 1809 Road, near Hopewell Lake, during this period. The formal establishment of this road in 1809, and the creation of Hopewell Lake in the first decade of the nineteenth century suggests that these dwellings may date from the period between 1800 and 1810. However, it is likely that the road predated its formal establishment as a public thoroughfare, and the dwellings could date from a slightly earlier period.

Exploitation of the property's woodlands increased significantly during this period, with as much as

three hundred acres of woods being cut for charcoaling each year. The furnace property included approximately three thousand to four thousand acres of woodlands. Cut over tracts appear to have been crudely fenced in order to facilitate regeneration of the timber for future harvesting. It is assumed that spatial patterns and organization of open, cultivated areas during this period resembled that of the prior period. The increased activity at the furnace may have led to the establishment of new fields, although documentary sources provide no clear descriptions of such activity.(2)

1846-1883: Decline

The slow decline of the furnace operations between 1846 and 1883 resulted in a reduction of industrial and agricultural activity at the site, as compared with the previous period. However, while the intensity of activity declined, the patterns of spatial organization, as described above, changed little. Many patterns remained, including the industrial core of the site, the Ironmaster's House and its associated gardens, the workers' residences within the village and near the lake, the agricultural fields and farms south and east of the village, and the woodlands north and west of the village. Although activity on the property shifted increasingly away from manufacturing and towards agriculture with the furnace's decline, the patterns of spatial organization remained relatively unchanged during this period.

1883-1935: Shutdown and Survival

Land use at the site shifted from industry to agriculture with the cessation of furnace operations. Landscape elements once vital to the furnace, such as the water raceways, were not maintained and became derelict. In an apparent attempt to create a viable working dairy farm, farmland adjacent to the furnace tract was purchased in the early twentieth century and incorporated into the Hopewell landscape. The property's acreage increased to 5,340 acres, and while the adjacent farms were consolidated into the Hopewell landscape, it does not appear that any new roads or facilities were constructed to unify these various parcels and create a single cohesive agricultural landscape. Indeed, some of the agricultural fields associated with the Nathan Care and the Thomas and Harrison Lloyd farms fell into disuse during this period and became unmanaged woodland. Vegetation grew adjacent to roads and along the stone walls or piles that delineated field boundaries obscuring views across the fields and concealing the boundary structures.

The industrial core of the property ceased to have a function during this period and was abandoned and allowed to become derelict. The Ironmaster's House and its associated gardens remained in use as a summer residence and as the year-round residence of the property's caretaker.

1935-1938: The Civilian Conservation Corps

Spatial organization during this period reflected the land use activities of the CCC. The historic village was documented and the furnace rehabilitated and restored for interpretation as a historic resource. The village ceased to contain multiple uses and, instead, became a single unified entity, a historic site devoted to the preservation and interpretation of the site's iron making past.

The CCC camp, located north of the village in an area associated with the furnace's charcoal woodlands, developed as a major new node of activity during this period. CCC Camp SP-7 and nearby camp SP-17 housed and supplied approximately 400 workers. The CCC significantly enlarged Hopewell Lake, by building a new, higher dam. They developed numerous recreational facilities on the property, including the Baptism Creek Picnic Area, currently designated the Environmental Study Area, and the group camps and recreational facilities within French Creek State Park. Construction roads and truck trails extended throughout the property. These roads provided access to borrow pits, stone field boundaries

that were robbed to provide building material, and construction sites.

Construction of the bypass road east of the village, presently PA Route 345, resulted in significant changes to the spatial organization of the property (Figure 4.8). The removal of vehicular traffic from the Birdsboro-Warwick Road, effectively separated the core village from the historic road network that had carried the furnace's products to market. The core became a protected historic resource, essentially an outdoor museum separate and distinct from its surroundings. In addition to disconnecting the core village from its historically significant position as a crossroads community, the re-routed PA Route 345 also disrupted the historic continuity of the agricultural fields through which it passed. These large open tracts were, as a consequence, subdivided by the bypass into smaller units. This altered the historic patterns of spatial organization and introduced an entirely new series of views. While these views are not associated with any historical period prior to the 1930s, the bypass does provide the sense of moving through wooded areas into an open space. The bypass cut the open area associated with the Church Farmhouse into several smaller units, eliminating the sense of unified open space that had previously characterized this area north of Reading-Valley Forge Road.

Outside the village core, farmland and woodland acquired by the federal government ceased to be considered an economic resource and was, instead, developed and maintained as a natural or recreational resource. Woods were allowed to invade the perimeters of former fields and the walls or stone piles that delineated individual fields were allowed to deteriorate. Charcoal roads were abandoned, although in some instances they were incorporated into the new recreational trail system. Following federal acquisition of the property the complex spatial organization of the previous years was simplified into a historic, interpreted core and a natural periphery used for recreational hiking and other activities.

1938-Present: The National Park Service

The management of the site by the National Park Service represents a continuation of the patterns of spatial organization introduced to the site by the CCC, with a number of minor refinements and changes. Construction of the present entrance road, Visitor Center, and parking area during the 1950s improved vantage points and overall views of the core village, the most historically significant portion of the site in terms of Park Service management objectives and policies of the period. At present the National Park Service's buildings, including the Visitor Center, maintenance area, and living quarters, occupy the highest ground at the site and, particularly in the case of the Visitor Center, are clearly visible to visitors throughout their tour of the village. This is a significant departure from the past, when the Ironmaster's House occupied the highest ground within the village, commanding the industrial area and Tenant Houses spread at its feet.

The Park Service has also altered the patterns of spatial organization outside the core village. Most of this area is managed as a natural or recreational zone. Consequently, the historic patterns of agricultural use have been lost to a large extent. Extant historic buildings, such as the Nathan Care House and Barn, the Church House, have been rehabilitated as staff quarters and no longer reflect the spatial organizations associated with their agricultural past. In a similar fashion, the Harrison Lloyd Farm retains only a few fields of crops and none of the associated buildings survive.

Although the Thomas Lloyd House is also used as a staff residence, its farm cluster retains the essential spatial relationships and organization between farm buildings, fields, and field boundaries. In areas adjacent to this and other historically independent farms, the variety of field and property delineations (fences, walls, and stone piles) are now notably absent or obscured by vegetation. Bethesda Church is located near the Thomas Lloyd farm. Once visually connected to the Lloyd farm by open fields, views from and to the church are now blocked by woods.(3)

Spatial Organization Summary

The spatial organization of the Hopewell Furnace property closely reflects the patterns of land use that characterized the property throughout its history. The needs of the furnace operation determined land use and site organization for more than a century. As with land use, significant shifts in the patterns of spatial organization are associated with major changes in the use and ownership of the property.

Throughout the period from 1770 to 1883 the property was organized around the furnace and its associated support structures. In close proximity to this industrial core were the Ironmaster's House and grounds, the tenant housing of a portion of the furnace's work force, and the primary agricultural buildings, fields, and pastures associated with the property. At a greater distance from the furnace were additional tenant houses, most of which cannot be located with any precision, and a series of independently-owned farms. The periphery of the property was dominated by the charcoal woods that supplied the furnace with its fuel.

After the cessation of furnace operations in 1883 the central focus of the property shifted from the furnace to the Ironmaster's House, which became the focal point of a fairly extensive agricultural operation and dairy farm. During this period the industrial core of the site, and to a lesser extent the tenant housing associated with the furnace, were abandoned.

Federal acquisition of the property in the 1930s resulted in the most significant changes to the historic patterns of spatial organization. Activity at the site focused on the CCC camp, located north of the core village. The village was essentially reorganized into a single entity, an outdoor museum dedicated to the preservation of the site's industrial and social history. The former agricultural fields and farmsteads, and the surrounding charcoal woods, were managed as a natural or recreational area, a previously unknown pattern of organization at Hopewell.

After 1938, the National Park Service refined the patterns of spatial organization introduced by the Civilian Conservation Corps. At present the site is organized into a historic core village, the primary focus of preservation and interpretation efforts, a Park Service support area, approximately corresponding to the area occupied by the CCC camp, and outlying natural and recreational zones. This pattern of spatial organization, although much simpler than that of previous periods, still permits earlier patterns of organization to be discerned by the visitor. This is largely the result of the preservation and interpretation programs implemented within the core village.

In sum, although the present patterns of spatial organization at Hopewell Furnace National Historic Site are greatly simplified from those of previous periods, the historic patterns are readily discernible. This is particularly true within the core village. In the peripheral areas of the site, those historically associated with agricultural activities and the exploitation of the woodlands, much of the subtlety and diversity of the historic patterns of spatial organization have been lost. This is largely a result of the management of these areas as natural and recreational areas, rather than as active farms and a heavily used forest resource.

Notes:

(1) The Forest Type Study accompanying report mentions a huge tulip poplar, over one hundred feet tall, near Baptism Creek east of the picnic area. It is noted as "near the ruined stone remains of a former dwelling house whose original resident worked as a collier at Hopewell Furnace." Charles H. Stearns, "Revised Type Mapping Report," French Creek Project (Birdsboro, PA: July 1939). This is assumed to

be the Brison House, which is located near the spring sources of the upper branch of Baptism Creek and the dam that diverted water into the East Head Race.

(2) Stone walls, or piles of stones cleared from fields, are extant along the edges of several former agricultural fields. It is believed that these walls represent field demarcations that predate 1845.

(3) Thomas Lloyd built the church on his property. His relative, David Lloyd, served as pastor. The connection between Bethesda Church and the Thomas Lloyd farm extend beyond its visual connections.

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Harrison Lloyd property, open vs. closed space	Contributing			
John Church property, open vs. closed space	Contributing			
Nathan Care property, open vs. closed space	Contributing			
Thomas Lloyd property, open vs. closed space	Contributing			
Village Core, open vs. closed space	Contributing			
Brison House property, open vs. closed space	Non-Contributing			
Manning House property, open vs. closed space	Non-Contributing			
Woodlot House property, open vs. closed space	Non-Contributing			

Land Use

1770-1800: Settlement and Development

Land use activity during this period focused upon the operational needs of the furnace, which, with its ancillary and support buildings, comprised the core of the property. Surrounding this core were a variety of other land uses and activities, all of which supported the operation of the furnace in some fashion. In some instances different uses and activities occupied the same physical space.

The siting of the furnace was largely determined by the natural environment. As noted above, the furnace siting took advantage of the natural topography and the proximity of waterpower sources. Additionally, the furnace was located near the existing east-west public road that connected Scarlet's Mill, near Reading, with Coventry Forge in Chester County. Once the location of the furnace was determined the remainder of the property was developed to serve the needs of the furnace. The Ironmaster's House occupied a commanding location on the hillside northeast of the furnace complex. Between the house and the furnace lay the store, blacksmith shop, and carpenter's shop, which functioned as adjuncts to the furnace operation, while also providing commercial services to area residents. Workers' housing occupied the area south of French Creek, which served as a boundary between the industrial area surrounding the furnace and the residential village. (More recent research indicates that tenant houses and privately owned houses were located in all directions from the furnace (PHSO 2003)).

Areas devoted to agriculture within the village core were intermingled with residential areas. The residents of tenant houses presumably maintained vegetable gardens, probably fenced to keep out hogs and other animals. The Village Barn occupied a prominent location in close proximity to the Ironmaster's House, while an orchard lay north of the house. The barns and animal pens and coops in the village supported the local community and the furnace operations, and were surrounded by large open fields filled with cultivated crops and pasture. Fields and pasture land were concentrated in the area south of French Creek and east of the main north-south road through the village.

To the south and east of the village core lay other farms, most independently owned, laid out in accordance with the common agricultural practices of the area. These practices included houses and outbuildings near a road, but with easy access to the surrounding fields and woodlots. Bethesda Church, located east of the village core, served as an important institutional center for the families that owned and operated these farms, as well as for many furnace workers.

North and west of the site's core lay the woodlands that provided the furnace with charcoal. Charcoal pits and huts were not scattered haphazardly through the woods, but were concentrated in areas accessible to the wagons that hauled the charcoal to the furnace. Some furnace employees workers may have lived near the woods in which they worked. It is possible that the Brison and Woodlot sites may represent this pattern of use and activity, since they do not appear to be historically associated with sizable agricultural efforts, although this theory remains speculative and the precise date of construction for these two buildings has yet to be determined.

1800-1845: Growth and Prosperity

Land use and activities during this period changed little from those of the previous period. The operation of the furnace remained the primary focus of all activity at the site and the primary land use activities during this period are closely linked to the production of iron and the support of the work force that produced that iron. During this period Hopewell produced much of its food, mined its own ore, and supplied power and fuel from its own land. The furnace depended upon the area's road network to

transport its products to markets. The condition of the roads and the siting of major buildings in close proximity to these roads were critical considerations in the development and use of the property.

The furnace prospered during this period, and the physical plant and work force expanded accordingly. New buildings were constructed to shelter expanded industrial operations and to shelter the increased work force. This expansion resulted in a more intensive development of the property's industrial and residential core. Evidence suggests that additions and alterations to the Cast House during this period permitted increased productivity, an expansion probably undertaken in response to market demand for the furnace's product. Similarly, it appears that additional tenant houses, most no longer extant, were constructed to provide housing for the larger work force employed during these years. Consequently, while land use and activities during this period remained essentially the same as in the previous period, the intensity of the activity increased in conjunction with the increased intensity of operations at the furnace.

Land use west of the furnace complex changed significantly during this period as a result of an effort to obtain a secure waterpower source wholly owned by the furnace. French Creek was dammed west of the furnace, creating Hopewell Lake, and a new West Head Race was built to carry the impounded water to the furnace. The course of French Creek in the immediate vicinity of the furnace was altered by the placement of furnace slag in low areas prone to seasonal flooding.(1)

It is presumed that the amount of acreage under cultivation expanded during this period, as a result of the increased size of the work force and the general expansion of furnace operations. The documentary record does not indicate the location of any new fields brought under cultivation during this period. The lands utilized for agricultural purposes lay in close proximity to the three area creeks, and presumably enjoyed a greater concentration of topsoil and better moisture retention than other areas of the site, rendering them well suited to crop production. While the amount of acres under cultivation likely increased, it appears that the types of crops grown at Hopewell changed little during this period. Some fields provided more than one crop, as exemplified by the replanting of the flax field later the same year with turnips, and in the underplanting of the orchard with clover for hay. The site's farmers did, however, improve their farming methods through the use of new and improved farm implements. The willingness of the furnace owners to invest in agricultural machinery suggests that they viewed their agricultural operations as essential to the success of the furnace. They were progressive farmers, as were many of their neighbors in southeastern Pennsylvania, and employed technology to increase yields.

The land immediately surrounding the Ironmaster's House was developed as a garden during this period. This formal landscape, with terraces, walkways, a greenhouse, and other amenities, all separated from the industrial activities across the road by a stone wall and fencing, clearly defined the Ironmaster's House as a distinct area within the site. While the garden certainly provided items of utility, such as vegetables, berries, and honey, one of its major purposes clearly seems to have been the provision of pleasure to the ironmaster, his family, and their visitors. In this, the Ironmaster's House Garden is unique among the utilitarian and functional landscapes that predominate at Hopewell.

The ratio of open to wooded spaces in the Hopewell tract is thought to have remained relatively constant during this period. Approximately 15,000 cords of wood, the equivalent of 375 acres of woodland, were reportedly consumed annually during the height of the furnace's operations. Most of this wood is thought to have been cut and converted to charcoal on Hopewell land, primarily from woodlands west of the current national historic site and presently located within French Creek State Park. There is evidence that cutover woodlands were left to regenerate, rather than being brought into cultivation, as was common elsewhere in southeastern Pennsylvania. It is likely that the furnace owners recognized that allowing the woodlands to regenerate assured them of a reliable supply of charcoal for the furnace.

Maintaining the woodlands was likely a rational economic decision on the part of the furnace owners.

1846-1883: Decline

Land use and activities during the years between 1846 and 1883 remained essentially the same as for the previous two periods. The cessation of stove-casting at Hopewell in 1844 marked the beginning of a long period of retrenchment and decline that ultimately led to the closure of furnace operations in 1883. During this period the contraction of operations resulted in less intensive land use and activity throughout the site.

It is assumed that as the work force shrank some tenant houses within the village were abandoned. Likewise, the intensity of the furnace's agricultural operations probably also declined. Neighborhood farmers who provided goods and services to the furnace during flush times likely turned their attention to other markets during these years.

1883-1935: Shutdown and Survival

After the furnace ceased operations in 1883 the property experienced a basic reorganization of land uses and activities. The industrial core of the property was essentially abandoned, with the furnace, cast house, and other ancillary buildings and structures allowed to deteriorate. Area laborers, including those who occupied the furnace's tenant houses, sought employment elsewhere, and many of the tenant houses were abandoned, or allowed to deteriorate. The Ironmaster's House became a summer residence for the property's owners and a year-round residence for the caretakers.

Agricultural activities at the site shifted significantly after the cessation of furnace operations. Row crops appear to have been largely abandoned in favor of a substantial dairying operation. A number of area farmers began dairying during this period. These farms are characterized by large barns and fenced fields that included pasture, corn, and oats.(2) At Hopewell the village barn was remodeled and converted into a dairy barn. Fields formerly given over to wheat were presumably converted to pasture. Additionally, herds of sheep and extensive chicken coops occupied portions of the property during this period. The sheep appear to have been sheltered in the Village Barn, while plans indicate a concentration of chicken coops on the west side of the Birdsboro-Warwick Road south of Tenant House No. 3.

The continued use of agricultural fields, both as pasturage and to grow animal feed crops, distinguishes the Hopewell property from many other areas of southeastern Pennsylvania, in which successional forest growth overtook open fields.(3) It is likely that many formerly unenclosed fields were fenced during this period in order to control the herds of animals kept at Hopewell. The seriousness of the efforts made to transform Hopewell into a productive agricultural property is suggested by the owners' acquisition of a number of adjacent farm properties, largely located south of the furnace property, during this period. These acquisitions may have facilitated expansion of the dairy operation.(4)

While the village and the agricultural lands of Hopewell Furnace experienced a significant change in land use patterns during this period the woodlands north and west of the village, the majority of the furnace property, continued to be exploited for their raw materials until federal acquisition of the property in the 1930s. The owners of Hopewell profited from the production and sale of charcoal and timber from these woodlands and from the quarrying of natural rock and iron ore. The forests continued to be cut throughout this period, but the commodity produced shifted from charcoal to post and rail fencing and other wood products.

1935-1938: The Civilian Conservation Corps

After 1935, and the acquisition of the Hopewell property by the federal government, land use and activity patterns shifted dramatically. The federal government began to develop the entire property as the French Creek Recreation Demonstration Area, with group camps for organized recreational camping, picnic areas, and trails and lakes for recreation. Two Civilian Conservation Corps (CCC) camps furnished the work force employed in this development work.

Within the present boundaries of Hopewell Furnace National Historic Site the center of activity shifted away from the traditional locus, at the furnace and Ironmaster's House, to the CCC camp located west and north of the present maintenance complex. The traditional village was documented as a historic site and a significant effort made to stabilize and preserve the furnace stack. The village, including the industrial core, the Ironmaster's House and grounds, the residential area centered on the Tenant Houses, and the agricultural areas associated with the Village Barn and meadow, became an interpreted historic site and ceased to function as a living community. This shift in emphasis is exemplified by the construction, by the CCC, of a bypass road that circled the village to the east and diverted traffic from the main north-south village street. This altered the site from an active crossroads community to an outdoor museum, significant for its historic associations and located at the end of an access road. As a result, the historic village core became more physically isolated from its surrounding environment than at any point in its previous history.

The site's outlying agricultural areas and woodlands also experienced a significant shift in usage during this period. The federal government valued the wooded acreage surrounding Hopewell Lake and Hopewell Furnace for its recreational potential. Increasing urbanization and upgraded roads made naturalistic landscapes located near major urban areas more accessible to urban populations. Workers cleared brush, built roads (including temporary truck roads used for construction), foot and bridle paths, laid out camp sites and picnic areas (one on the existing Hopewell Furnace NHS property), enlarged Hopewell Lake (now part of French Creek State Park), and erected temporary buildings. The intention was to transform the landscape into a recreational asset.

1938-Present: The National Park Service

The focus of the National Park Service's stewardship of the site has been to maintain and preserve the industrial heritage of the furnace and its support structures. Land use and activities reflect this mission and resemble those implemented in the previous period. The historic village core, comprising the furnace complex, the Ironmaster's House and garden, the tenant housing south of French Creek, and the Village Barn and its associated meadow, are maintained as a "Historic Zone" devoted to the interpretation of the site's history. In essence, this area functions as an outdoor museum.

North of the historic village core is an area designated as the "Park Development Zone." This area contains visitor services facilities, including the Visitor Center and parking lot, park maintenance facilities, and some staff quarters. This pattern of usage in this area dates from the CCC period. The site of the CCC camp is located within the Park Development Zone. Prior to federal acquisition of the property much of this area was woodland. An orchard occupied the approximate location of the visitors parking lot.

The National Park Service designates most of the site outside the historic village core as a "Natural Zone." It is used as a natural recreation area with hiking and bridle trails located throughout the woods. The maintenance, stabilization, and interpretation of the historic resources located within this zone is a low priority. Bethesda Church is the notable exception to this trend. Additionally, several historic houses in this zone have been altered and remodeled for use by Park Service staff.

Land Use Summary

The basic pattern of land use and activity at Hopewell Furnace remained remarkably stable throughout the history of the site. Significant shifts in land use and activity are associated with major changes in the property, such as the cessation of furnace operations and federal acquisition of the property. This applies to those portions of the current property acquired in the early twentieth century, as well as to those portions held by the furnace since the eighteenth century. It is important to note that the present site constitutes only about 20 percent of the property owned by the furnace in the eighteenth and nineteenth centuries. Nevertheless, the stability of land use patterns is apparent.

The historic industrial core of the site, centered on the furnace and its supporting structures, remained a functioning charcoal iron furnace from the 1770s to the 1880s. After the furnace ceased operations this portion of the property was largely abandoned. At present it is interpreted, using a combination of historic buildings and reconstructions, as a circa 1820-1840 charcoal iron furnace.

In close proximity to the historic industrial core were the Ironmaster's House, which remained in use as the residence of the property's owners from the eighteenth century until the second quarter of the twentieth century. This area experienced many changes, including development of the garden in the 1830s and numerous alterations to the house, but it remained the property owner's residence. It is presently interpreted as the owner's residence.

Workers' housing occupied the area south of French Creek, from as early as 1800. With the cessation of furnace operations in the 1880s this area was at least partially abandoned. The surviving buildings are presently interpreted as the residences of furnace employees. Likewise, the Village Barn and its associated meadow served the agricultural needs of the furnace community from the eighteenth century through the shutdown of the furnace. After that date the barn and fields continued to serve an agricultural use, first as a dairy farm and later, after federal acquisition of the property, as part of the interpretive program for the historic iron-making village.

Land usage outside the historic village core also demonstrates a remarkable continuity. Areas devoted to agricultural use, either by the furnace owners or by independent farmers, largely remained in agricultural use until federal acquisition of the property. A major shift from row crops to dairy farming occurred in the late nineteenth century, but agricultural land largely remained in agricultural use until the 1930s. After the federal government acquired the property many of these former farms, fields, and pastures were allowed to revert to nature. Field drainage systems and boundary walls and fences were not maintained. Actively farmed land was abandoned or only used for hay. This shift away from productive agricultural use represents one of the most significant changes in land use and activity at Hopewell.

Like the agricultural areas, the site's woodlands remained in a consistent use for much of the site's history. Until the closure of the furnace in the 1880s the woods were used as a renewable source of charcoal fuel for the furnace operation. After the 1880s the woods continued to provide charcoal, only for outside markets, as well as other timber products, such as fence posts and rails. The woods produced valuable commodities for the property owners until the federal government acquired the site. Since federal acquisition in the 1930s the woods have been managed as a natural zone. They are no longer logged. There are no longer active charcoal pits and huts. Many of the roads and trails that laced the woodlands have disappeared, or been converted into recreational hiking trails. This marks a significant change in land use and activity.

In sum, land use and activity at Hopewell Furnace displays a remarkable longevity. Within the historic

village core the patterns of former usage and activity remain apparent, although only by means of the National Park Service's interpretive efforts. Outside the village core the integrity of the historic patterns of land use and activity have been more greatly compromised. This is particularly true of those areas that functioned as agricultural farms, fields, or pasture during the years prior to the 1930s. Much of this acreage has been allowed to return to a "natural" appearance, obscuring the historic patterns of use and activity. This obscuring of historic patterns is also evident in the site's woodlands. Once exploited for charcoal and wood products, they are now maintained as a natural area. This severs the historic link between the woods and the furnace.

There are no contributing features for this section (PHSO 2003).

Notes:

- (1) Flooding was presumably more prevalent during this period, due to the modest earthwork dam that formed Hopewell Lake. The existing Hopewell Dam, which provides significantly greater control over the lake, was not constructed until the late 1930's.
- (2) Henry F. Bridgens and A. R. Witmer, *Atlas of Chester County, Pennsylvania* (Lancaster, PA: A. R. Witmer, 1873), Sheet 55. On file at the Chester County Historical Society, West Chester, Pennsylvania.
- (3) See the *Harvard Forest Models* (1941) regarding successional forests in New England.
- (4) Local farmland purchases are shown on Wm. H. Dechant, "Hopewell Furnace Lands and Contiguous or Adjacent Tracts, Property of A. Louise C. Brooke At Hopewell Penna.," (August 1915, rev. to January 1931). On file at Hopewell Furnace National Historic Site. The purchases are largely located in the southern portion of the current property and totaled more than five hundred acres. These parcels, which added over a third of the current acreage to the site, were purchased as recently as the 1910s. Prior to their purchase they were independent farmsteads.

Vegetation

1770-1800: Settlement and Development

Vegetation at Hopewell Furnace may be broken down into four categories: gardens, orchards, agricultural fields, and forests. Each of these categories will be discussed for each period of historic significance.

Documentary evidence is scant regarding the location and plant types grown in gardens during this period. It is assumed that gardens were maintained near the Ironmaster's House and the Village Barn. Gardens also are likely to have existed near Tenant Houses. Gardens likely included herbs and flowers as well as vegetables, and were likely fenced in some fashion to protect them from animals. Vegetables known to have been grown at Hopewell included onions, radishes, lettuce, cauliflower, tomatoes, salsify, peas, squash, eggplant, cabbages, potatoes, turnips, beets, and pickles (cucumbers).

An orchard was extant at Hopewell as early as 1788, when furnace records document the planting of 250 fruit trees. There are extensive references in the furnace records to apple products, including dried apples and apple jack. At various dates the furnace store sold apples, plums, prunes, quinces, cherries, cider, vinegar, and peaches.(1)

Wheat, rye, and corn were the major field crops at Hopewell, with share croppers, such as Samuel Cox (1798), and farmers, such as Elishu Bard (1804), providing grain crops for consumption at the furnace. The wheat and rye were likely reserved for human consumption, while the corn was used as animal feed.(2) Corn (probably flint or field corn *Zea indurata*) was grown at Hopewell "above and below" the furnace. This is interpreted to mean that current Fields 1, 2, and 5, all located above or north of the East Head Race, as well as portions of Fields 2, 3, 4, and 6, located below or south of the race, were planted in corn.

Buckwheat was grown at Hopewell as early as 1798 by Samuel Cox. *Fagopyrum saggitatum* or *F. tataricum* is a three-foot tall cereal-like plant, Asian in origin, that grows well in areas too poor or wet for other grains, and therefore could have grown in areas adjacent to French Creek. Oats (*Avena sativa*) were also grown at Hopewell, a conclusion based upon descriptions of summer and winter grains grown by Samuel Cox, Elishu Bard, and Isaac Hayer.

Hay was harvested from the meadows at Hopewell and used as livestock feed. Timothy is a grass known to have been planted in Hopewell's pastures. Hay can also be produced from clover, which was planted between the trees in the orchard, rye, and oats.

The forest surrounding the core village was used to produce charcoal to fuel the furnace. Hopewell records indicate that the woods north of the furnace were cut before the 1770s. The woods of this period are assumed to have been a climax forest prior to initial harvesting.(3) The successively regenerating woods were predominantly chestnut until the arrival of blight in the early twentieth century, when mixed oaks would have assumed a dominant position within the woodlands. "Seed trees" were retained in areas cut, and the stands roughly fenced to keep animals from consuming the shoots sprouting from stumps.(4) Remnant specimens extant on the site (one hundred years and older) are likely to have been border (or witness) trees dating from this period demarcating earlier and/or existing property boundaries.

Most are oaks, although numerous other species were utilized as border trees, most commonly American chestnuts, and hickories in the Hopewell Furnace area.(5) Studies of these and other trees utilized as survey property markers suggest that the pre-settlement forest was dominated by mixed oaks, American

chestnut, and hickories, with very little incidence of birch or maple.

1800-1845: Growth and Prosperity

The expansion of the furnace operations during this period likely necessitated an expansion of agricultural activity. The agricultural landscape during this period was typical of the lower hillsides of Chester and Berks Counties, and included row crops for workers and their families and field crops for the furnace's animals. Large areas were devoted to vegetables, fields crops (such as corn, oats, wheat, rye, and buckwheat), and pasture. A large plot of land near the Village Barn was planted in the spring with flax and later planted with turnips as a winter crop.(6) Furnace records note only two small vegetable gardens, one-quarter to one-half-acre in size, located near the furnace and the Village Barn. An 1833 formula for analyzing the amount of farm products required to produce one ton of furnace product, suggests that seven acres of potatoes would have been consumed at Hopewell, substantially more than could have been produced in these two small plots. This suggests the presence of additional, undocumented, vegetable gardens, in addition to the individual gardens that probably existed alongside the various Tenant Houses, or significant purchases of produce from area farmers.

Ornamental gardens probably existed only in the vicinity of the Ironmaster's House, where development of gardens began as early as 1829. The first documentary evidence for the plantings in this terraced garden dates from a later period in the site's history, and the nature of the plantings during this period is unknown. Ornamental gardens were probably not developed near the Tenant Houses, although many of the vegetables and herbs grown during this period had decorative qualities.

Furnace records document ongoing maintenance within the orchards during this period, as well as the planting of new trees.(7) A peach orchard existed at Hopewell in 1835. A new orchard, probably located east of the Ironmaster's House, was planted circa 1844. Clover was planted as a hay crop under and among the orchard trees, and was harvested several times during the growing season for use as livestock feed.(8)

Animals were an important component of the Hopewell landscape. Livestock mentioned in furnace records include horses, oxen, mules, cattle, dairy cows, hogs, dogs, and sheep. Cats are not mentioned in the records, but were likely residents of the community. In 1840 cattle were the most numerous type of farm animal, constituting 39 percent of the total number of livestock, followed in importance by hogs (27 percent), sheep (22 percent), and horses (12 percent). Horses were more common at the furnace; however, because they were used to haul raw materials to the furnace and transport finished products to market. Hopewell reportedly maintained eighty-four horses in 1832.(9) These animals consumed large amounts of feed, much of which was likely produced at the furnace.

The principal field crops grown at Hopewell likely remained the same as in the previous period. The site's agricultural landscape generally reflected patterns typical of the surrounding area. Wheat (*Triticum vulgare*) and rye (*Secale cereale*), usually referred to as grain or summer and winter grain, were major crops at Hopewell. Walker quotes an 1833 formula for calculating the amount of wheat or rye typically consumed to produce one ton of furnace product. This formula suggests that 400 acres of rye and/or 467 acres of wheat would have been required to support the furnace population during the peak years of production during this period. This is considerably more open field acreage than is presently extant, particularly if acreage for corn and other crops is deducted. Accordingly, it is assumed that some food products were supplied by local independent farms or were purchased from nearby towns, such as Birdsboro.(10)

In 1840, wheat represented 13 percent, and rye 22 percent, of the grain crops grown in Union township.

Oats accounted for 35 percent of the township's grain crops, equal to the production of wheat and rye combined. Buckwheat comprised only one percent of the township's grain crops. The township produced 1,719 tons of hay in 1840. Production of hay at Hopewell may have represented a significant portion of this total. According to the 1833 formula cited by Walker the furnace may have produced 350 tons of hay, over 20 percent of the township's output.(11)

During this period of growth and prosperity, the furnace is thought to have consumed over an acre of forest each day to supply its fuel needs. In the 1820s, the furnace owners acquired 265 acres on the north slope of Brush Hill and two tracts, totaling 189 acres, on the south slope of Mt. Williams, presumably to expand their wood cutting/charcoal operations. Adjacent farmsteads not owned by the furnace provided wood for furnace operations. Charcoal hearths were placed near the lumbering areas and the charcoal was transported from these areas to the furnace by wagon.

1846-1883: Decline

Vegetation during this period resembled that of the previous period. The gradual decline of the furnace may have resulted in the practicing of a less intensive agriculture during this period. Vegetable gardens are known to have existed adjacent to the Ironmaster's House, near the Tenant Houses, and near the Charcoal Kiln.(12) Harker Long's recollections of this period include a quarter-acre area vegetable garden located west of the barn and enclosed with white picket fencing, a acre plot by the Charcoal Kiln, and a "back field" with vegetables.(13) It seems likely that these vegetable gardens could supply only a small portion of the produce consumed by the village population. It is probable that each house had its own garden areas devoted to herbs and vegetables during this period, which would have primarily been tended by the women and children of the family.

Evidence suggests little change in the orchards, animals, meadows, and woodlands during this period. Furnace records note the presence of chickens, ducks, geese, and turkeys during the 1850s. These fowl are thought to have had the run of the village, rather than being penned.

1883-1935: Shutdown and Survival

The decline of furnace operations led to a reduction in the village population. As the Tenant Houses were abandoned it is likely that their associated gardens fell into disrepair and eventually vanished. The Ironmaster's House garden appears, on the other hand, to have been expanded during this period, probably as an adjunct to the building's use as a summer residence. Most information pertaining to specific plantings in this garden dates from this period, largely from a circa 1940 interview with Mary Krewson and rough sketches that she provided.(14) It is likely that Krewson's recollections reflect the garden's late-nineteenth century appearance. She remembered several site elements with related plantings that are no longer extant, including rustic lattice garden seats covered with ivy and arbors covered with trumpet creeper vines (*Campsis* or *Bignonia*) and grapes. Flowers and herbs included several beds of bluebells (*Mertensia*), an "old fashioned" garden bed, as well as poppies (*Papaver*), foxglove (*Digitalis*), mignonette, sage (*Salvia*), rosemary (*Rosemarinus*), thyme (*Thymus*), daylilies (*Hemerocallis*), violets (*Viola*), daffodils, and red, yellow, and pink rambler roses (*Rosa*). Other specimen shrub plantings included boxwood lining the walk (*Buxus* spp.), lilacs near the house (*Syringa* spp.), rose of sharon (*Hibiscus syriacus*), mock orange (*Philadelphus coronarius*), snowball bush (*Viburnum opulus sterile*), and a spirea hedge (*Spiraea* spp.) near the picket fence at the north boundary of the garden. The garden incorporated both formal flower gardens and vegetable gardens, with some mixing of the two, in the form of herbs, in the formal spaces.

Numerous specimen trees in the core village, generally located close to residences, appear to date from

this period. These include willows (*Salix* spp.), sycamores (*Platanus occidentalis*), black walnuts (*Juglans nigra*), black gums (*Nyssa sylvatica*), red cedars (*Juniperus virginiana*), ailanthus (*Ailanthus altissima*), flowering dogwoods (*Cornus florida*), and catalpa (*Catalpa* spp). Some of these may have escaped their original boundaries, in particular the black walnuts, red cedars, catalpa and ailanthus. Other core trees that have achieved mature specimen status include black oak (*Quercus velutina*), red ash (*Fraxinus pensylvanica*), white ash (*Fraxinus americana*), and tulip poplar (*Liriodendron tulipifera*). A large quantity of mature trees exist in the Core Village, however, few appear to date from before 1883. Comparison of historic photographs with the present scene indicates that many of these trees date from the last quarter of the nineteenth century (and indicate that a few specimens presently appear much as they did fifty years ago). Based on core samples, and the subsequent counting of annual growth rings, Morris Arboretum arborist Bill Graham estimates that a large sycamore located between the Greenhouse ruins and the Ironmaster's House dates from the late nineteenth century. Core samples suggest that a number of trees within the Core Village date from before 1850 and include: a 62" d.b.h. sycamore located between the Village Barn and the Springhouse (circa 1840), a 42" oak located along a field path adjacent to French Creek between the Village Barn and Mark Bird Lane (circa 1825), and a 43" black oak located south of the Boarding House near the stone wall along Birdsboro-Warwick Road (circa 1825).(15) Efforts should be made to preserve these older trees.

There are trees noted in historic accounts that no longer exist in the Core Village. These include a willow (*Salix* spp.) described in a drawing by Lafayette Houck with branches cut close to the trunk, thereby forcing long straight shoots. A detailed survey of the area near the Ironmaster's House from the 1930s noted large sycamores, as well as large numbers of the exotic Tree of Heaven (*Ailanthus altissima*). Most of the *Ailanthus* were subsequently removed, although a cluster remains east of the Bake Oven. The mature Indian Bean or caltals (*Caltalpa speciosa*) are still found in the Ironmaster's Garden area. Also noted on this survey are numerous pear and cherry trees now missing from the apple orchard.

An analysis of early twentieth century photographs, in conjunction with documentary records reviewed by Walker and Wells, indicates that in the southern two-thirds of the site numerous cultivated fields, mostly on independent farms, existed during this period. These were likely planted with wheat, rye, oats, buckwheat, and corn. Farm houses and their associated outbuildings were surrounded by from six to ten of these open fields, some of which may have been planted with the same crop.(16) As Hopewell's owners began to acquire adjacent tracts and begin a dairy operation in the early twentieth century, it is likely that the site began to assume the appearance of the local dairy farms seen in turn of the century photographs.

The orchard is likely to have been stabilized, but not replanted with new trees, during this period. A newer orchard appears south of Tenant House No. 3 during this period, in proximity to a number of sheds described in contemporary documents as chicken coops.

Changes in the relationship between forests and fields shown on the accompanying 1883 and 1938 plans indicate that a number of formerly open areas reverted to successional wooded stands during this period. The encroaching forest overtook large portions of open space on the Thomas Lloyd, Harrison Lloyd, and Nathan Care farms. South of the Nathan Care House and Barn is a stand of birch and maple, indicative of open fields that have reverted to successional wooded stands (see 1883 and 1938 historic plans). Other fields remained agricultural well into the twentieth century.(17)

In outlying areas, portions of the wooded stands east of PA Route 345 and south of Hopewell Road (Reading-Valley Forge Road) indicate tree cover typical of open cultivated areas that are suddenly abandoned. These include tulip poplar (*Liriodendron tulipifera*), gray birch (*Betula populifolia*), and red

maple (*Acer rubrum*). However, other portions of these woods include scarlet oak (*Quercus coccinea*), black oak (*Quercus velutina*), chestnut oak (*Quercus prinus*), and white oak (*Quercus alba*), suggesting that these were formerly forested stands.

Specimen plantings at the Thomas Lloyd, Harrison Lloyd, and Nathan Care farms exist near the extant and demolished site buildings, and are presumed to date from this period. Species include ailanthus, catalpa, mulberry (*Morus* spp.), and spruce (*Picea* spp.). Core samples taken by arborist Bill Graham of the Morris Arboretum, indicate that the wooded area near the Harrison Lloyd farm contains trees aging from seventy-two to eighty-five years of age. These areas show clear evidence of trunks emerging from the stumps of mature trees cut ca. 1900. Mature specimen trees (at historic field edges and in the CCC Picnic Area) are somewhat older, ranging from 100 to 118 years of age.

Dramatic change in the forests continued throughout this period, particularly in terms of the loss of old-growth forest. The chestnut blight of the early decades of the twentieth century dramatically altered the makeup of forested stands, with oak and maple regenerating from stands earlier dominated by the fast growing American chestnut. Outlying forest stands continued to be cut after the cessation of furnace operations and the wood marketed as fences or charcoal. This continued the economic role of the forests well into the twentieth century.

North of the village core the woods are noted on a 1936 NPS plan as dating from 1880-1920, indicating that the timber stands in these areas were cut prior to that period.⁽¹⁸⁾ South of Hopewell Lake, most of the slopes of Mt. Pleasure are noted on this plan as containing stands of oaks growing since 1880-1920. Numerous trees within the wooded stands date from the 1910s-1930s, and represent the last cutting of timber on the property prior to federal acquisition of the land.⁽¹⁹⁾

Several forest fires were documented during this period in close proximity to the core village, although most affected acreage outside the current property. These included a 1,448-acre fire on the Dyer Tract in 1925, which affected the portion of the site east of the power line near the Woodlot and Brison ruins. A fire on Brush Hill in 1927 affected 25 acres (all off the existing site). In 1930, a fire destroyed 224 acres on Mt. Pleasure, southwest of the Nathan Care House and Barn.⁽²⁰⁾

1935-1938: The Civilian Conservation Corps

During the CCC era no effort was made to maintain the gardens, orchards, or agricultural fields at Hopewell Furnace. It is likely that lease arrangements allowed local farmers to cut hay in some former agricultural fields, but no documentary evidence has been discovered to verify this supposition. During this time period the property's woodlands were viewed as a recreational and natural asset, rather than as an economic asset, as had been the case in all previous periods of the site's history. When the CCC arrived at Hopewell Furnace the area adjacent to Baptism Creek was filled with oak trees, some noted on period plans as dating from the 1860s. These seventy-year old specimens contrasted sharply with the predominantly cleared landscape of the area and appeared to the designers of the recreation area as a valuable natural resource.⁽²¹⁾ The construction of the Baptism Creek picnic area represented an effort to locate a modern recreational facility within this valuable natural resource.

The CCC clearly attempted to preserve woodlands as a natural resource during its construction of trails and recreational facilities throughout the property. However, some CCC construction activities adversely affected site vegetation. Truck trails and construction roads disrupted agricultural fields and destroyed woodland vegetation. The woods immediately surrounding Hopewell Lake were cut to facilitate expansion and development of the lake as a recreational asset. Construction of CCC Camp SP-7 and the Baptism Creek Picnic Area, with its adjacent 100-car parking area, resulted in a loss of

vegetation in both these areas. Likewise, construction of the bypass road, PA Route 345, disrupted agricultural fields, dividing Field 1 from Fields 2 and 3, and Field 6 from Field 4. The construction of the new highway across these fields dramatically altered the landscape around the Church farm.

1938-Present: The National Park Service

At present the core village appears as an inactive pastoral landscape, rather than as a working industrial and agricultural landscape. Large areas of mown lawn and slag piles covered with grass and weeds do not accurately convey the historic appearance of the site.

The various gardens maintained by the National Park Service near the Tenant Houses and Ironmaster's House in the core village are vestigial representations of these historic landscape features. The specimen trees near the Ironmaster's House and the Tenant Houses do, however, reflect the property's late-nineteenth century appearance, as evidenced by historic photographs. The present Ironmaster's House garden does not appear to be based upon any historical documentation and is a fraction of the size of any of the documented historic gardens. Much of this garden is presently given over to turf; however documentary evidence and the oral recollections of Harker Long and Mary Krewson suggest that, at least since the mid-nineteenth century, this was an intensively cultivated and well-maintained formal garden, with herbs, vegetables, flowers, berry bushes, and ornamental shrubs. The overgrown boxwood and other garden shrubs near the Ironmaster's House currently convey a naturalistic appearance more common to twentieth century gardens and are not indicative of nineteenth century gardening practices.

The present vegetable gardens near the Tenant Houses are planted with heirloom varieties. They appear, however, too small to support the needs of a tenant family. The size of the historic Tenant House gardens is not known, but it is assumed that they were large enough to provide most of the fresh vegetables consumed by the residents of the house. The village store may have offered a supplemental source for fruits and vegetables, but there appears little need to purchase such goods if they could be provided through the labor of oneself and one's family. In addition to their small size the Tenant House gardens are inappropriately fenced. The extant fencing is designed to keep deer at bay, not approximate historic fencing.

Deer browsing represents a significant management problem at Hopewell Furnace National Historic Site. The small size of the extant gardens, the nature of their fencing, and the absence of row crops in the site's agricultural fields are all partially attributable to the deer population, which routinely consumes vegetables and crops that are not adequately protected against their incursions.

In the Cedar Pasture, located near the Anthracite Furnace ruins, deciduous trees among the red cedars were removed, possibly in the 1950s. The red cedars, listed as "scattered young cedars" in 1938, evidence a deer browsing line, indicating that deer have penetrated the area.

The current location of the orchard, on both sides of the Visitor Entrance road, approximates the location of the historic orchard on the hillside above French Creek in close proximity to the Ironmaster's House. The older trees are found to the south, with the newer, circa 1960, grove to the north, spreading beyond the visitor parking area eastward. The resource is maintained as a historic orchard, with managed turf beneath. Documentary evidence notes that clover was planted within the orchard during the mid-nineteenth century. It is unclear whether the white painted lower trunks reflect historic practice. The existing orchards contain over twenty-five varieties of apples.(22)

The village meadow (Field 6), is retained as a fenced pasture. This appears to reflect its historic function. PA Route 345 forms the present east boundary of the meadow. The location of the meadow's

east boundary prior to the construction of PA Route 345 in the 1930s is unknown. Farm animals (sheep, horses and cattle) graze in the meadow; and deer also frequent the area, particularly during hunting season in the adjacent State Game Lands.

PA Route 345 and portions of the later Mark Bird Lane, pass across several agricultural fields, subdividing these features into parcels considerably smaller than those extant prior to the construction of the roads. This is particularly true of the fields adjacent to the Church farm. In addition, the roads separate these fields from the farmstead, making it much more difficult for visitors to recognize this property as a farm. Isolated from its fields, located at the present main entry to the site, and maintained as a staff residence rather than as a working farm, the Church House presently offers visitors the mistaken impression that it functioned as a historic estate gatehouse.

Maintenance and management considerations play an important role in Hopewell's cultural landscape. Extant agricultural fields are retained as open spaces and, in an effort to keep successional forest from reclaiming these tracts, receive more intensive regular maintenance than the site's woodlands. The fields are described in the 1992 Field Maintenance Plan in terms of "advantages and disadvantages in terms of maintenance costs, historical accuracy, utility and public perceptions."⁽²³⁾ Differentiated vegetation in the open spaces include meadow pasture, perennial forage crops, turf, rough grass, tall grass cover, and fields under agricultural special use permits.

Hopewell Furnace's permit farmers have occasionally tried to grow row crops in the site's former agricultural fields; however, hay is presently the dominant field cover. The absence of row crops, such as corn, wheat, and oats, are partly a result of maintenance priorities at the site and partly a result of deer browsing. The size of the local deer population, and the prohibition on hunting within the site, makes special use permits with local farmers interested in raising row crops in these fields very unlikely. Deer browsing greatly reduces crop yields, preventing farmers from earning an adequate return on their investment. Consequently, hay is the predominant crop grown in the site's fields, since it is not as subject to loss from browsing deer.

The small amount of agricultural enterprise at Hopewell has resulted in a reduction in the amount of open, agricultural space at the site. In several locations fields that are not maintained by the National Park Service have reverted to successional woods. The northern sector of the site has been woodland since the early twentieth century, while the central and southern portions are a mixture of open fields and successional forest occupying former agricultural fields. South of the Nathan Care House and Barn, an independent farm throughout the second half of the nineteenth century, is a stand of birch and maple, indicating open fields that have reverted to successional wooded stands in the twentieth century. The loss of these fields creates a false impression that the Nathan Care House and Barn are simply additional tenant buildings located at the south end of the village road, rather than an independent farmstead with close economic and social ties to the furnace.

At least six separate fields in the Thomas Lloyd tract have reverted to forested stands, lending the property the appearance of an isolated house and field surrounded by woods, rather than that of a productive farmstead set in the midst of cultivated agricultural fields.⁽²⁴⁾ All the buildings at the Harrison Lloyd farm have been razed, eliminating a critical part of the farm's cultural landscape. These farm fields are generally planted with hay. The surrounding woodlands are noticeably encroaching upon these fields, further removing them from their historic relationship to the former farmstead. Historic photographs of the area show the farm sited among a collection of no fewer than ten cultivated fields, with additional areas of woodlot.

The incursion of woodlands into former agricultural fields represents a major change in Hopewell's

cultural landscape. Field boundaries are less defined, with many of the divisions between individual fields and between fields and roads, streams, and other boundary demarcations obscured with overgrown vegetation. Invasive plant species have entered portions of the site, particularly along stone walls and climbing mature trees at field edges. These species include barberry, bittersweet, honeysuckle, poison ivy, rugosa rose, and others.

The National Park Service manages the site's woodlands as a natural and recreational area, maintaining the trail system constructed during the previous period by the CCC. At present, three-quarters of the site is forested, with open fields primarily in the southern portion of the site. Vegetation within Hopewell's wooded stands includes many successional species that became established during the National Park Service's management of the site. These have been extensively catalogued by other researchers, notably Russell and Vanderwerff, and include red maples (*Acer rubrum*), tuliptrees (*Liriodendron tulipifera*) and sweet birch (*Betula lenta*). Understory species include witch hazel (*Hamamelis virginiana*), serviceberry (*Amelanchier arborea*), sassafras (*Sassafras albidum*), and flowering dogwood (*Cornus florida*). Shrubs include black huckleberry (*Gaylussacia baccata*), azaleas (*Rhododendron* spp.), viburnums (*Viburnum* spp.) and blueberries (*Vaccinium* spp.). Herbaceous plantings include bedstraws (*Galium* spp.), hay-scented fern (*Dennstaedtia punctilobula*), jack-in-the-pulpit (*Arisaema triphyllum*), wild sarsaparilla (*Aralia nudicaulis*), wood-sorrel (*Oxalis* spp.), hog-peanut (*Amphicarpa bracteata*) and cinquefoils (*Potentilla* spp.). In addition, the open areas within the woods, especially the locations of former charcoal hearths, are host to grasses and mosses.(25)

Hopewell's landscape has been substantially altered by recent deer browsing. Herds have recently grown larger than the landscape can support, with the result that the deer are increasing the number of species they regularly consume. In recent years, vast areas have been cleared to the browsing height of deer. This cleared out the understory from wooded areas, and made growing field crops, such as corn, wheat, rye, oats, and buckwheat nearly impossible. It is not unusual to see deer browsing the fields and forests on any given day. Fences less than ten feet high have been frequently crossed by deer. The deer problem is the most serious obstacle at present to the planting of gardens and historically appropriate field crops, such as corn.

Vegetation Summary

Extant gardens at Hopewell are too small to adequately convey the extent of this agricultural activity throughout the period of the furnace's operation. The location of the Ironmaster's House garden is well documented, as is the appearance of the garden in the late-nineteenth century. The present garden plantings in this location do not reflect the garden's appearance at any time in its past. The existence of tenant house gardens is documented in furnace records. The location of these gardens is not known. It is assumed that they were large enough to supply the needs of the Tenant House residents, in which case the present gardens appear to be too small. Additional vegetable gardens, located near the Charcoal Kilns and the Village Barn, are indicated in the documentary record. Neither of these gardens are extant and their approximate sites are not interpreted. Garden fencing does not reflect historic fencing at Hopewell.

The present orchard appears to be in approximately the same location as the historic orchard. However, the presence of the visitor parking area within portions of the orchard creates confusion as to whether the orchard represents a historic landscape feature or a contemporary design element.

Agricultural fields have been subdivided by non-historic roads. This is particularly apparent in the vicinity of the Church House, which is separated from its fields by PA Route 345 and Mark Bird Lane. The site's fields lack a diversity of historic crops, although the village meadow retains its historic

function. The lack of row crops, partly a concession to the browsing habits of the site's deer herd, makes it difficult for visitors to visualize the scope and extent of agricultural activities at Hopewell during the eighteenth and nineteenth centuries.

The minimal level of agricultural activity, combined with site maintenance priorities, has resulted in the reforestation of significant portions of the site's former agricultural fields. This is particularly evident at the southern end of the site, in the vicinity of the former Nathan Care and Harrison Lloyd Farms. In areas that are maintained as open space, woodlands have developed along the edges of fields, obscuring historic boundary demarcations and reducing the size of the fields. At present the Hopewell site is probably more forested than at any time in the past 150 years.

The forests themselves have undergone significant change at Hopewell. The remnant wooded stands contain trees dating to the late-nineteenth century. In general they are far more mature than during the period of the furnace's operations, when timber tracts were cut for conversion into charcoal every twenty-five to thirty years. The woods are also comprised of different species than during the furnace's operation. Oak and maple are now the dominant species, replacing the chestnut and hickory woods of the eighteenth and nineteenth centuries. American chestnut (*Castanea dentata*) is virtually absent from the woods, largely as a result of blight. Other factors affecting the woodlands include fire, deer browsing, and lack of forest management.

Deer browsing represents a significant problem at Hopewell Furnace. The deer problem is one of the most serious obstacles to the planting of appropriately sized gardens and historically accurate field crops.

[There may be discrepancies between the above text and the feature lists; see the Analysis and Evaluation Summary for a full explanation.] (PHSO 2002)

Notes:

(1) Walker, Hopewell Village, 133; Pendleton, Oley Valley Heritage, 36.

(2) Walker, Hopewell Village, 122-4; Pendleton, Oley Valley Heritage, 32-33. Estimates suggest that the foodstuffs required for each ton of furnace product amounted to twenty bushels of wheat and rye, fifty-seven pounds of pork, forty-three pounds of beef, and two bushels of potatoes. Not able to be interpolated, but also listed, were one-half ton of hay, ten pounds of butter, \$1.00 in fruits and vegetables, and \$1.43 in depreciation in the value of horses. Our analysis assumes a yield of thirty bushels of wheat per acre, thirty-five bushels of rye per acre, (see further analysis in "Hopewell Farming Data" in Appendix).

(3) Species noted in 1936 as predominant included scarlet oak (*Quercus coccinea*), black oak (*Quercus velutina*), white oak (*Quercus alba*) and chestnut oak (*Quercus prinus*). A stand of beech, birch, and maple is noted just north of the CCC camp location.

(4) These were especially noted on the Harrison Lloyd farmstead, where stumps from oaks had regenerated with from two to four trunks of approximately 100 year old trees, widely spaced among a younger, even aged forest stand.

(5) This summary relies on previous vegetation studies of the site by Russell, Mikan et al., and Vanderwerff, as well as on-site investigations conducted during this study by arborist Bill Graham of the Morris Arboretum, consultant to Menke & Menke. Graham cored sample trees throughout the park, read and analyzed previous studies and plans, and submitted field data and a report, which is included as an

appendix. An earlier narrative report of local forest conditions by forester Charles Stearns (1939) was noted by Russell, although she was unable to procure the accompanying plan that delineated forest types for the Hopewell and French Creek areas. This missing graphic may have also hampered the use of this report by 1994 Mikan and Abrams study, as it was not referenced. As part of this study, the map and report were analyzed together, and the accuracy of the 1930s studies was confirmed. Graham noted that in some areas, particularly where invader or short-lived successional species were shown on the 1930s plan, that these have died and been replaced by other tree species (i.e. red maples (*Acer rubrum*), tuliptrees (*Liriodendron tulipifera*) and sweet birch (*Betula lenta*)) that follow the initial reforestation effort.

Mikan and Abrams, "Vegetation, Edaphic and Historical Analysis of Charcoal Hearths at Hopewell Furnace National Historic Site, Pennsylvania," (1994) lists a series of eighteen tree species that were utilized by local surveyors, and analyzes their incidence statistically. The study found that black oaks (*Quercus velutina*) comprised the greatest incidence, while white oaks (*Quercus alba*), American chestnuts (*Castanea dentata*) and hickories (*Carya* spp.) comprised over half the other tree species utilized. The incidence order of trees noted is as follows: black oak (33.1%), white oak (16.6%), American chestnut (15.4%), hickory (14.6%) chestnut oak (6.8%) and Spanish oak (Pin oak?) (4.3%). Occurring in lesser numbers (in order of incidence) were blackgum, poplar, scarlet oak, ash, birch, maple, walnut, sugar tree (sugar maple?), buttonwood (sycamore?), ironwood, lightwood and yew. Mikan and Abrams reported that the oldest trees within the Hopewell site were 127 and 130 years old (i.e. growing since the 1860s), and were located in the northeast and southeast portions of the site, away from the core village. The study also located and studied a stand of trees uncut from the colonial period on the northeast slopes of Mt. Pleasure, overlooking the core village. The oldest of these trees is believed to date from 1627.

(6) Walker, Hopewell Village, 123.

(7) Walker Hopewell Village, 123-124, 133. A young Hopewell orchard contained 250 trees in 1787-1788. In 1829 160 new apple trees were bought. Another 304 trees were purchased in 1834, and in 1844 furnace records mention a "new" orchard.

(8) Ibid., 122-4. Red clover (*Trifolium pratense*), a short lived perennial, is the presumed variety, although the specific variety is not mentioned in furnace records. In 1804 Elishu Bard cut clover planted in the young orchard. In 1829 Isaac Hayer contracted with the furnace to plant clover seed. Stuart Wells thinks that clover was also part of a crop rotation system at Hopewell, in which clover was planted after harvesting corn and grains to fix nitrogen in the soil. Bees make sweet honey from clover, particularly white clover (*T. repens*), and bee hives are reported to have been maintained in the Ironmaster's House garden.

(9) Walker, Hopewell Village, 126.

(10) Ibid., 122-4.

(11) Walker, Hopewell Village, 120; Rupp, 251.

(12) The Charcoal Kiln was used as a residence during part of this period, so this garden may have been associated with the building's occupants.

(13) Walker, Hopewell Furnace, 120 and 133, Wells, "Historic Scene Report," 29 (Wells also lists historic seeds sold locally on page 31); Rupp, 251.

(14) USDI NPS Division of Construction--Eastern Division, "Plan of Mansion Gardens, Ironmaster's House," NHS-HV, August 1, 1956 #MHS-HV (described as an accurate copy of sketch made by Mrs. M. A. Krewson). See also Drawing NHS-HV-3001, and pencil trace by Dennis Kurjack of statistical data base plan based on her recollections and other research.

(15) Mature trees located within the Village Core include (group by species): Black Walnut (*Juglans nigra*) – Black walnuts appear throughout the Core Village and along field edges. Examples found near the Ironmaster's House, Tenant Houses, and Nathan Care farm range from 17" to 36" dbh. Largest specimens are seen in the southern portion of Core Village south of the Boarding House. A 36" dbh black walnut located in this area could date as early as 1850. It is likely that black walnut trees were present on the site prior to 1850, but no evidence suggest that they were part of a grove or other organized planting. Sycamore (*Plantanus occidentalis*) – The American sycamore is especially suited to the moist soils found near the Core Village. Core samples of a specimen located near the Ironmaster's House suggests that it is not more than 115 years old. A specimen located east of Tenant House No. 2 it about the same size; however photographs from the 1930s suggest this tree might be older. A number of sycamore stumps are noted on a 1930s survey of the Core Village. Tuliptree (*Liriodendron tulipifera*) – A 36" dbh specimen is located just west of the Ironmaster's House. Other large examples of this species are located in the Core Village, especially at field/woods fringe areas and along hedgerows. A 31" dbh tuliptree is located at the stone wall south of the Boarding House. Others – Other large specimens are found in the Core Village and include white and green (or red) ash (*Fraxinus americana* and *F. pennsylvanica*) red maple (*Acer rubrum*), black locust (*Robinia pseudoacacia*), hackberry (*Celtis occidentalis*) black cherry (*Prunus serotina*), and shagbark hickory (*Carya ovata*).

(16) These include the Church farm, the Thomas Lloyd farm, the Harrison Lloyd farm, and the Nathan Care farm. Other than the Church farmhouse and barn, no evidence has been found to indicate that the other farms were owned by or under furnace control during the nineteenth century.

(17) This assemblage is based on the interpretation of numerous sources held by HOFU. The conjectural pattern of land use shown on the plan is intended to represent circa 1840.

(18) The age of these woods was determined from forester analysis and National Park Service, Branch of Planning and State Cooperation, Recreational Demonstration Projects, "Forest Type Map, French Creek Project," Berks County, Pa., September 11, 1936. The plan indicates woods in the area north of the Visitor Center dating from 40-60 years, or between 1876 and 1896, approximately the time of the cessation of furnace operations.

(19) Emily W. B. Russell, "Vegetation Study Hopewell Furnace National Historic Site," (New Brunswick, NJ: Rutgers University, 1987), 36. This report also quotes the earlier 1989 Heite study, which described in greater detail the site evidence of the logging operations. The Mikan and Abrams study noted that it was only after the intense logging efforts ended that non-oak species of forest trees began to become established in the Hopewell woodlands.

(20) These burned areas are noted on the 1936 drawing previously cited. Emily Russell's vegetation study of HOFU noted that "a changing fire regime in the post-colonial period may have affected forest composition, especially the increase in fire frequency associated with the nineteenth century logging operations and near railroads, and the decrease in the twentieth century due to improved fire-fighting techniques," (page 1). These changes substantially affected the look of both Hopewell's and adjacent landscapes.

(21) Charles H. Stearns, Project Forester, USDI NPS, "Revised Type Mapping Report," French Creek Project, Birdsboro, PA, July, 1939 (original made in the summer of 1936 by student technicians). This report coincides with the 1936 Forest Type Map.

(22) Location and type are mapped on the 1991 "Apple Orchard Plan." Twenty-five distinct types are noted, including Baldwin, Delicious, Jonathan, Greening, Macintosh, Northern Spy, Rome, Summer Rambo, and York.

(23) Roger Stone, et. al. "Hopewell Furnace NHS Field Maintenance Plan," May 1992. On file at Hopewell Furnace National Historic Site

(24) See the 1883, 1938 and 1995 base maps accompanying this report for a graphic representation of the landscape evolution. Other than the aerial photographs in the HOFU archive, little information is available with regard to the eighteenth and nineteenth century character of the fields and forests adjacent to the core village. This report has interpolated available evidence to predict how the landscape might have appeared in these periods. It is hoped that further research may uncover information pertaining to the adjacent farms, especially the Nathan Care, Thomas and Harrison Lloyd farms, and the Brison and Woodlot parcels.

(25) A full listing of plants found on the Hopewell Furnace site is included in Russell, "Vegetative Study," 1987 and Vanderwerff, "The Vascular Flora of Hopewell Furnace National Historic Site," 1994.



An example of tree stumps sprouting new timber near the Nathan Care House, 1995. Menke & Menke photo.



An agricultural field, typical of the Hopewell vicinity that was farmed for many period of tenancy, with a view toward Mt. Pleasure. Note the cut-over base of the mountainside and the corn fields in the foreground (HOFU archive photo).

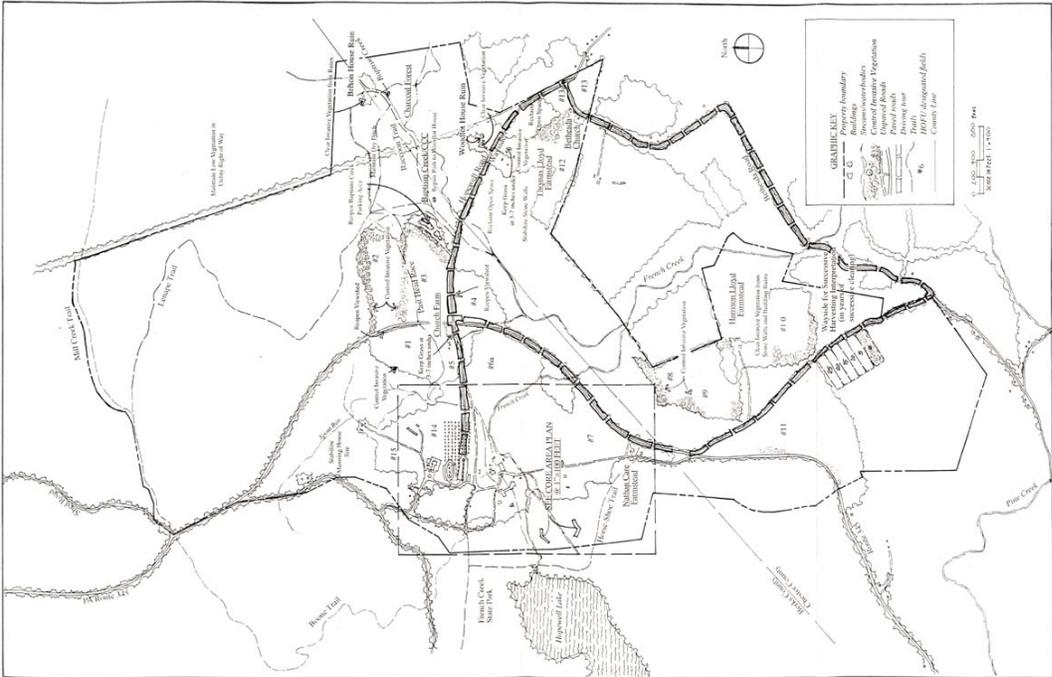


Figure 6.3. Hopewell Furnace Treatment Recommendations.

Hopewell Furnace Field Map (See addendum for enlargement).

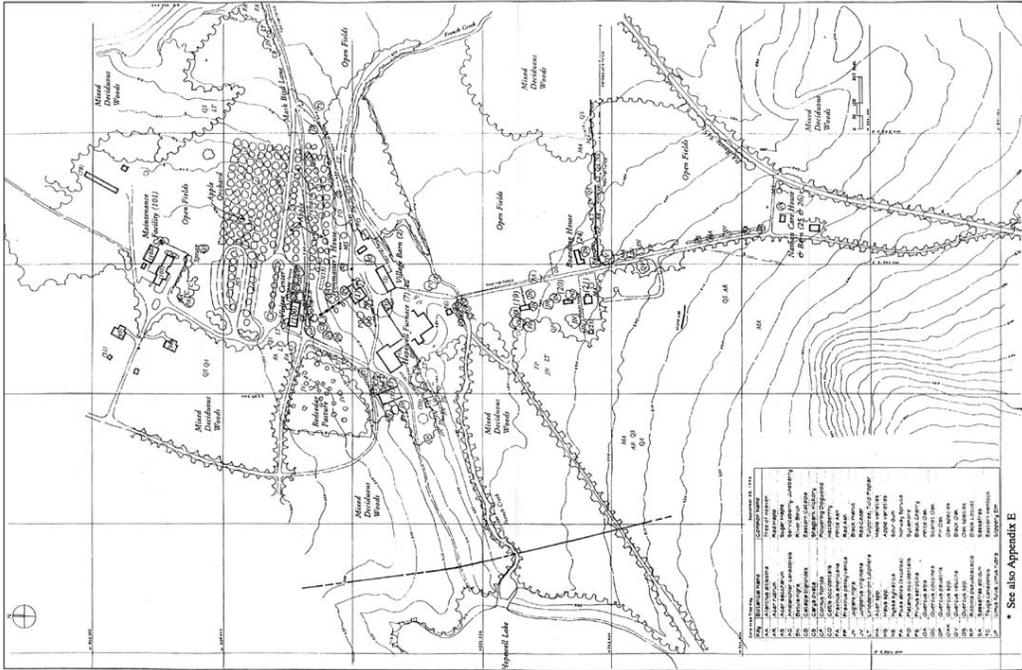


Figure 4.21. Hopewell Furnace Core Area Vegetation, 1995.

Hopewell Furnace 1995 Core Area Vegetation (See CLR for enlargement).



The Cedar Pasture looking west, 1990. All other vegetation has been removed either by deer or by the National Park Service. The pasture is fenced and contains a small outbuilding. Menke & Menke photo.

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Cedar Pasture	Contributing			
Core Area specimen trees	Contributing			
Fields north and east of John Church House	Contributing			
Harrison Lloyd fields	Contributing			
Meadow south of French Creek	Contributing			
Thomas Lloyd fields	Contributing			
Woodland north of Maintenance buildings	Contributing			
Woodlands east of PA 345 and north of Baptism Creek	Contributing			
Tenant House No. 2 garden	Non-Contributing			
Woodlands west and south of tenant houses	Non-Contributing			
Orchard [undetermined from PHSO 2002]	Undetermined			

Circulation

1770-1800: Settlement and Development

During the period of the furnace's operation Hopewell's circulation system, including pedestrian walks, charcoal trails, and the roads that connected the furnace to distant markets, all served the functional needs of the furnace. Indeed, the location of the furnace appears to have been partially influenced by the site's proximity to the public road connecting Scarlet's Mill, near Reading, to Coventry Forge in Chester County.

The principal public road of this period was the 1757 east-west road connecting Coventry Forge to Scarlet's Mill. The road's alignment passed approximately 250 feet north of the furnace and formed the northern boundary of the Ironmaster's House grounds. Additional roads were laid out in the area shortly after the establishment of the furnace. These roads connected Hopewell Furnace to other nearby furnaces, supplies, and population centers. The 1757 Road was known by various names throughout its history (Reading-Valley Forge Road, Reading Road, Coventry Forge Road, St. Peters Road, and Baptism Road.) The approximate trace of this road is presently visible north of the Ironmaster's House and extending east through the "old" orchard toward Saint Peters and Coventry Forge and west, north of the Cedar Pasture.

The site's major north-south road, known as the Birdsboro-Warwick Road, probably existed in some form during this period, but was not designated a public road. It passed through the center of the village, crossed French Creek on a bridge near the furnace, and passed between the Village Barn and the Office & Store before connecting with the Reading-Valley Forge Road just west of the Ironmaster's House. South of French Creek, in the vicinity of the Tenant Houses, this road was likely lined with wood fences on both sides. Cattle grazed along the edge of the roadway.(1)

The road to Jones Mine, located south of French Creek, was another major roadway during this period. The road appears to have crossed French Creek at a ford located just west of the Blacksmith Shop. This road intersected the Birdsboro-Warwick Road in the immediate vicinity of the Blacksmith Shop.

All the roads of this period were unpaved. Wagon wheels rutted the roads, which were likely dusty in the summer and muddy during the winter. Minor dirt roadways connected the main roads with area farmsteads, including the Thomas and Harrison Lloyd farms. Numerous charcoal trails led through the woods to clusters of charcoal pits where cut timber was converted into the charcoal that fueled the furnace. Pedestrian paths included boardwalks leading from the Birdsboro-Warwick Road across the marshy ground to the Tenant Houses. The ground nearest the furnace was likely more compacted and therefore probably did not require board walkways. It is also probable that slag from the furnace operations was utilized to fill low lying areas near the furnace.

1800-1845: Growth and Prosperity

As Hopewell Furnace lacked canal or rail connections, it relied solely upon the local roads to carry its products to market. Both the north-south (Warwick to Birdsboro) and east-west (Valley Forge to Reading) roads were critical to the furnace's economic prosperity. Both roads delivered iron ore to the furnace, from the Hopewell and Jones Mines respectively, and both provided outlets to market for the furnace product.

During this period of growth and expansion the circulation system at Hopewell reached its essential mature form. In fact, by 1815 all of the area's major roads had been designated as public roads. New

connections completed during this period included a northern road to Birdsboro, laid out in 1804, a road south to Warwick laid out in 1814-1815, and a road to Joanna Furnace established in 1809. As during the previous period, all these roads were unpaved, although some evidence suggests that furnace slag was used to improve the road surfaces.

Charcoal trails from the previous period continued to be utilized during this period. The expansion of furnace operations strongly suggests that this network of roads was probably expanded during this period. These roads were likely little more than rough wagon traces through the woods. Their routes probably were altered as wear and erosion made specific routes impassable. Slag may also have been used to improve the road surfaces.

Pedestrian paths added in this period included the series of formal paths, with stairs, benches, and other amenities, laid out in the Ironmaster's House garden during the late 1820s and early 1830s. These paths represented the development of the garden as a formal landscape feature. The earlier appearance of this portion of the site is unknown.

1846-1883: Decline

Documentary evidence provides little information regarding circulation elements during this period of the furnace's history. However, it is assumed that the circulation network, including public roads, charcoal roads, and pedestrian paths, differed little from that described for the prior period. The decline of the furnace probably resulted in the abandonment of many charcoal roads, although continued exploitation of the property's woodlands necessitated some maintenance of these features.

1883-1935: Shutdown and Survival

Beginning in the twentieth century several of the area's roads were realigned, paved, and otherwise improved to accommodate motorized vehicles. Berks County realigned and paved the Birdsboro-Warwick Road in 1932. This work included elimination of the sharp curve between the Village Barn and the Office & Store. The realigned road simply continued along the straight alignment through the village, passing immediately east of the furnace stack and over the site of the casting shed foundations. Portions of the stone wall between the furnace and the Office & Store were demolished and substantial quantities of fill introduced to permit the maintenance of a straight alignment from the lower portion of the village to the intersection with Reading-Valley Forge Road northwest of the Ironmaster's House. The west end of the Ironmaster's garden was destroyed as part of this work.

Unpaved, crushed stone-surfaced roads extant during this period included the Harrison Lloyd Road (called Laurel Road on some maps and roughly corresponding to the alignment of a portion of the present Horse Shoe Trail). Other unpaved roads included dirt roads within the Harrison Lloyd and Thomas Lloyd farm properties, as well as north of the present maintenance complex. The dirt road leading to the Manning house remained on plans as late as 1937.

Wood walks to the Tenant Houses are seen in 1930s plans, and were necessary because of the wet conditions in this area (a swale is seen between the roadway and Tenant Houses in 1930s photographs). It is assumed that the garden walks in the Ironmaster's House garden were maintained throughout this period, since the house continued to be used as a residence. The walks depicted in early National Park Service plans, surfaced with loose stones between brownstone steps, and with a wood foot bridge over the East Head Race may reflect a ca. 1830 design or late-nineteenth century modifications to the original design. By the end of this period many pedestrian walkways throughout the site were in extremely poor repair.

1935-1938: The Civilian Conservation Corps

Circulation patterns changed dramatically during this period. Between 1937 and 1939, the Civilian Conservation Corps (CCC) built a bypass road that diverted automobile traffic around the village to the east. A portion of PA Route 345, a two-lane asphalt-surfaced road, traversed woodlands and fields and dramatically changed traffic patterns. The bypass protected the core village from automobile traffic, but at the cost of isolating the village from the transportation system that had proved so crucial to the economic success of the furnace and its surrounding community. Construction of the bypass also resulted in construction or improvement of several bridges and culverts in the rustic CCC style, including the PA Route 345 crossing of French Creek, two crossings of branches of Baptism Creek by Reading-Valley Forge Road (Hopewell Road), and the crossing of Spout Run by Mark Bird Lane. Also associated with this work was the construction of a driveway leading to the Church House from PA Route 345.

The north-south village road retained its 1932 alignment during this period. However, period photographs indicate that this road was extensively regraded, lowering the grade of the road and raising the grade of the yard areas surrounding Tenant House Nos. 1-3.

The CCC built numerous temporary roads during their occupation of the site. These were used to haul earth from borrow pits, provide access to old stone field walls that were robbed for use as gravel and crushed stone, and for a variety of other construction-related activities. A 1937 aerial photograph of the area depicts major cutting and filling in the area, with all roads appearing to be disturbed by the trucking of cut (areas on Field 4, south of the road leading to the Harrison Lloyd House) and fill (PA Route 345 alignment, CCC camp and dam areas). The CCC also constructed a major (100-car) parking area near Baptism Creek, in association with a picnic area. Aerial photographs do not indicate any large visitor parking near the furnace during this period.

A major activity undertaken during this period involved the construction, by the CCC, of new hiking trails. It is presumed that some former charcoal and logging roads were cleared of successional growth and widened for use as hiking trails; however, comparison of 1930s plans and 1990s trail maps suggests that most of the extant hiking trails do not follow the alignment of former charcoal roads. They are largely new trails, constructed by the CCC in the 1930s.⁽²⁾ Trails created and/or altered by the CCC include Boone Trail (near Hopewell Lake), Lenape Trail (mostly north of Reading-Valley Forge Road), Mill Creek Trail (along the northern boundary of the site) and Raccoon and Buzzard Trail (mostly east of PA Route 345). The Horse Shoe Trail in one section follows a portion of a nineteenth century roadway that passes through the historic Harrison Lloyd farmstead. Most of these trails link to trails that either originate or continue into French Creek State Park.

Pedestrian paths in the Ironmaster's House are not known to have been altered or rehabilitated during this period. The regrading that occurred near the Tenant Houses altered the pedestrian connections between these houses and the Birdsboro-Warwick Road; however, the wood plank boardwalks connecting the houses to the road appear to have remained extant during this period.

1938-Present: The National Park Service

The National Park Service made several major changes to the site's core area roads as part of Mission 66 site improvements. In 1955 public vehicular traffic was banned from the roads in the core village and the macadam and asphalt surfaces on these roads removed. The dirt roads more closely approximated the appearance of these features during the period of the furnace's operation. In 1956 the NPS continued

this effort to return the core village to its supposed nineteenth century appearance by realigning the Birdsboro-Warwick Road to its pre-1932 alignment through the village. This work entailed reconstruction of the retaining wall between the furnace and the Office & Store.

In association with the construction of the present Visitor Center, completed in 1959, the National Park Service built a new entrance road, extending from PA Route 345 to a pair of visitor parking lots located immediately north of the Visitor Center. The entrance road, presently known as Mark Bird Lane, incorporated portions of the old Reading-Valley Forge Road alignment, particularly near its intersection with PA Route 345.(3) The entrance road continues beyond the parking lots, connecting to the NPS maintenance area and extending past several staff quarters to the west boundary of the park, where it connects to the modern road network.

The main visitor parking area was constructed under Mission 66 and consists of a paved lot with a central landscape feature. The auxiliary parking area, located north of the main lot, is turf, with concrete car stops indicating parking bays. Both parking areas are located within one of the replanted village orchards, resulting in an overlay of modern support services atop a feature intended to represent a historic site element. This may generate confusion as to whether the orchard is intended as part of the historic scene or as a mid-twentieth century landscape designed to complement the parking area.

The National Park Service alterations to the site's circulation network effectively transformed Hopewell Village from a crossroads community to an outdoor museum reached by a long entry drive. Closing off the historic roads eliminated vehicular traffic from the core village, protecting it from the potentially adverse impacts associated with road widening, surface improvements, and highway signage. A side effect of this management decision has been that the village is now significantly more isolated than at any time in its past history. This, unfortunately, masks the central role that the network of roads played in the furnace's history. These roads presently function as pedestrian trails, leading visitors between the various historic buildings and interpretive exhibits and features and their historic function is not readily apparent.

The Birdsboro-Warwick Road is of primary importance to the core village, with buildings and structures fronting on or in close proximity to the roadway. Indeed, many sources refer to this road as the village street. However, the road system that resulted from Mission 66 gives the visitor the mistaken impression that the entrance road (Reading-Valley Forge Road) served as the major access to the village.

Trails in Hopewell National Historic Site are not clearly identified as associated with the history of the property. There are no interpretive panels or maps at trail heads or along the trails. Additionally, there are numerous abandoned roads and trails, particularly in the southern portion of the Environmental Study Area (ESA) and adjacent to the Woodlot House, Thomas Lloyd House, and Harrison Lloyd ruins. Some wood pedestrian bridges are in need of repair, reflecting the lower maintenance priorities presently afforded to areas outside the core village.

Functional pedestrian walkways and areas paved with concrete are located in proximity to the Visitor Center. Handicapped accessibility is limited within the village below the Visitor Center because of steep slopes. There are also hazards associated with loose slag on the village walks. Currently, the north-south village road is reserved for pedestrian and restricted National Park Service vehicle use from the Visitor Center south to just past the Boarding House (where a gate crosses the roadway).

Historic roads in the core village are primarily perceived as wide pedestrian trails providing a connection to French Creek State Park. They are predominantly surfaced with tamped earth, mixed with site stones, with the exception of pedestrian pathways in the interpreted village area, which are predominantly

covered with dark crushed stone and/or slag material.

The National Park Service allows access from various portions of the site, including numerous pathways leading from adjacent French Creek State Park trails. Internal flow is usually determined by the visitor, who may enter any open structure, although the current brochure lists twelve points of interest starting with the anthracite furnace and ending with the Ironmaster's House.

Circulation Summary

The basic circulation network at Hopewell Furnace National Historic Site was in place by ca. 1815. The major roads associated with this network remain clearly visible, with the possible exception of the Reading-Valley Forge Road east of its junction with the Birdsboro-Warwick Road. This latter road was partially obscured by construction of the present site entrance road in the late 1950s. The National Park Service removed twentieth century paving materials from roads in the core village and returned the Birdsboro-Warwick Road to its historic alignment in the mid-1950s. In general, the basic pattern of the site's major historic roads is readily discernible. Within the core village these roads largely function as pedestrian walkways for visitors. These roads retain a considerable degree of integrity in terms of their alignment and general appearance.

The CCC-constructed bypass road (PA Route 345) introduced a significant intrusion into the existing landscape. This road passes through areas associated with woodlots and agricultural fields, sub-dividing these areas and creating a major new visual boundary east of the core village. Construction of the present site entrance road in the late 1950s obscured portions of a historic road alignment and introduced another new circulation element into the landscape.

Construction of the bypass enabled site managers to divert automobile traffic away from the core village. This effort to protect the resource unfortunately resulted in its physical isolation. The vibrant crossroads community of the eighteenth and nineteenth century now appears as a quiet, pastoral, outdoor museum.

While evidence of eighteenth and nineteenth century charcoal roads may be discerned in the site's wooded areas, it is clear that most of the present trail system does not follow charcoal road alignments. The trail system is a legacy of the CCC and should be interpreted as such. Outlying area roads and trails are not actively interpreted or maintained as an integral component of Hopewell's program. Instead they are viewed as extensions of the French Creek State Park trail system.

Paths and other pedestrian circulation features within the core village, including those at the Ironmaster's House gardens, appear to reflect late-nineteenth century conditions in terms of location, materials, and general appearance. A considerable portion of these resources have been rebuilt to serve current interpretive and circulation needs. The reliance, during reconstruction and rehabilitation of these features, upon oral interviews with informants whose memories extended to the late-nineteenth century strongly suggests that the present features most closely resemble conditions from this time period.

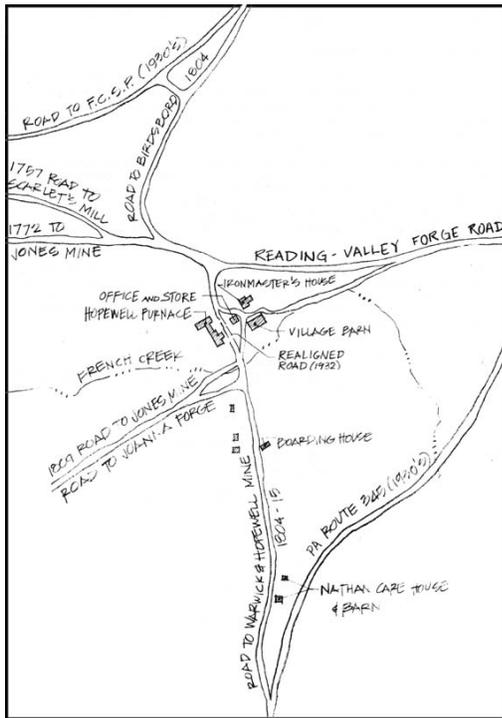
[There may be discrepancies between the above text and the feature lists; see the Analysis and Evaluation Summary for a full explanation.] (PHSO 2002)

Notes:

(1) Stuart Wells, "Draft: Hopewell Furnace Historic Scene Report," 1994, 24. On file at Hopewell Furnace National Historic Site.

(2) Even allowing for mapping discrepancies, a detailed comparison of the 1936 Forest Type Study plan with French Creek Trail Plans reveals only minor correlations between the charcoal trails of that date and the present hiking trails, and then only over short segments. It is probable that the charcoal trails were ephemeral in nature and did not conform to the design requirements for 1930s hiking and equestrian trails. Trails that pass through the property show the lowest correlation between the historic and current alignments. It should be noted, however, that several extant trails follow historic roadways (such as Jones Mine, Scarlett's Mill, and Hopewell Roads).

(3) National Park Service, U. S. Department of the Interior, Division of Design & Construction Eastern Office, "General Development Plan - Part of the Master Plan, Hopewell Village National Historic Site," Feb. 1956, Rev. On file at Hopewell Furnace National Historic Site.



Historic Roadways

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
1757 Road, Reading-Valley Forge Road (116)	Contributing	Reading-Valley Forge Road	006836	116
1772 Road (114)	Contributing	1772 Road	081442	114
1804 Road (117)	Contributing	1804 Road	006837	117
1809 Road (119)	Contributing	1809 Road	006839	119

1825 Road (118)	Contributing	1825 Road	006838	118
Baptism Creek Picnic Area parking	Contributing			
Birdsboro-Warwick Road [LCS not CLR]	Contributing	Birdsboro-Warwick Road	006835	115
Ford in French Creek	Contributing			
Harrison Lloyd Entrance Road Trace (Laural Road)	Contributing	Harrison Lloyd Entrance Road Trace	234902	044A
Hearth Road Trace (121)	Contributing	Hearth Road Trace	081454	121
Hiking trail - Boone Trail	Contributing			
Hiking trail - Buzzard Trail	Contributing			
Hiking trail - Lenape Trail	Contributing			
Hiking trail - Mill Creek Trail	Contributing			
Hiking trail - Raccoon Trail	Contributing			
Meadowbank Road	Contributing			
Private Charcoal House Turn-Around (113)	Contributing	Private Charcoal House Turn-Around	081458	113
Private Road to Dam	Contributing	Private Road To Dam	081457	112
Thomas Lloyd Farm Lane (71B)	Contributing	Thomas Lloyd Farm Lane	081459	071B
Hiking trail - Horse-Shoe Trail	Non-Contributing			
Entrance Road (Mark Bird Lane) [undetermined from PHSO 2002]	Undetermined			
Other CCC Roadways not listed individually [PHSO 2002]	Undetermined			
Road to maintenance buildings [undetermined from PHSO 2002]	Undetermined			

Road to Quarters 98 and 99 Undetermined
[undetermined from PHSO 2002]

Visitor Parking Area Undetermined
[undetermined from PHSO 2002]

Buildings And Structures

1770-1800: Settlement and Development

Few buildings and structures survive from the earliest period of the site's history. Portions of the Ironmaster's House date from the 1770s, although the building was remodeled and enlarged on several occasions. The furnace stack and the East Head Race also date from the 1770s, although the stack was substantially rehabilitated during the 1930s and the head race has been repaired and rehabilitated on several occasions. Bethesda Church was erected in 1782, and is perhaps the most intact building surviving at the site from this period.

Several support structures extant at the site may date from this period. It is impossible to determine whether the blacksmith shop and the office and store described in the furnace records are the same buildings presently extant, but the appearance of the extant buildings suggests that they likely date from the eighteenth century. Portions of the Village Barn, which was almost entirely rebuilt in the 1960s, also likely date to this period.

Tenant houses certainly existed at the site during this period, but documentary evidence suggests that the extant buildings date from the nineteenth century. Early tenant housing may have consisted of log cabins or other temporary buildings.

Several farmsteads in the outlying areas of the site appear to date from the eighteenth century. Elements of both the Thomas Lloyd and Harrison Lloyd farmsteads are apparently eighteenth century. Both clusters consisted of supporting farm buildings grouped around the farmhouse and surrounded by open fields and forested land. At the Thomas Lloyd complex, historic aerial photographs and archeological reports indicate several barn structures, one of which is extant, a springhouse, and stone walls and other earthworks demarcating fields. On the Harrison Lloyd farm, the house was demolished in the 1960s, one freestanding wall remains of what is presumed to have been a large barn, while several other foundations appear to be a blacksmith shop (foundation and partial fireplace remnants) and several other outbuildings of undetermined function.(1)

1800-1845: Growth and Prosperity

Many of the extant buildings and structures at the site date from this period and are representative of the furnace's greatest period of prosperity. Elements of the West Head Race and the associated wheel pit date from this period, although both resources have been heavily rehabilitated, and in some locations reconstructed, by the National Park Service.

The east wing of the Ironmaster's House dates from 1826, and the south addition from 1828. Outbuildings in the vicinity of the Ironmaster's House date from this period, including the Springhouse (1816) and the Bake Ovens (1823).

South of French Creek Tenant Houses No. 1 and 2 date from this period, as does the Boarding House. The permanence of their construction reflects the prosperity enjoyed by the furnace during this period. The first village school house, also located south of French Creek, but no longer extant, was built in the 1830s.

Outside the core village the John Church House and Barn, located near the intersection of Mark Bird Lane and PA Route 345, date from this period. A number of tenant houses, located along the 1809 Road (Joanna Road) and north of Hopewell Lake, were erected during this period, but no longer survive.

1846-1883: Decline

Extant buildings from this period include Tenant House No. 3 and the Nathan Care House and Barn, both built during the third quarter of the nineteenth century. Tenant House No. 4, located south of Tenant House No. 3, and a new schoolhouse built in the 1870s a half-mile west of the earlier school, do not survive. Portions of the Coal House appear to date from the 1880s, when this building was rebuilt. During this period the Ironmaster's House assumed its present configuration. The heart of the village during this period probably resembled the 1936 drawing of Lafayette Houck.

An 1879 insurance map indicates the presence of a second barn in the core village during this period. It is depicted as a large (40-foot by 70-1/2-foot) building located along the north side of Reading-Valley Forge Road east of the Ironmaster's House (see Archeological Sites).(2)

1883-1935: Shutdown and Survival

Few extant buildings and structures date from this period. The cessation of operations at the furnace resulted in the abandonment of many of the site's industrial buildings, which then rapidly deteriorated into a ruinous state, as evidenced by historic photographs. Indeed, historic photographs taken in the 1930s, at the end of this period, record a deteriorated site, with buildings in disrepair. Several buildings burned or were otherwise destroyed during this period, including the Cast House and Tenant House No. 4.

Little new construction occurred during this period. Much of this construction was associated with the use of the property as a summer home and the effort to develop a working dairy farm on the tract. Large additions transformed the Village Barn into a dairy barn, while a series of chicken coops were erected near the former site of Tenant House No. 4. Tenant House No. 4 reportedly burned in 1893.

1935-1938: The Civilian Conservation Corps

The arrival of the CCC inaugurated a massive building program at the site. CCC Camp SP-7 consisted of a cluster of buildings north of the core village. Barracks, mess halls, recreation halls, and various support structures, were all arranged around an open parade ground in accordance with military site planning precepts. CCC construction activities included stabilization and rehabilitation of the furnace stack, rehabilitation of the tail race, construction of the bypass road, and completion of trails, picnic areas, and other recreational facilities. Only three buildings constructed by the CCC in this area are extant: the Pump House (Building 51), and two maintenance structures Buildings 66 and 67. The later two buildings date from the end of the CCC's tenure at Hopewell (1941).

The Baptism Creek Picnic Area (Environmental Study Area) is an example of the rustic style of architecture and naturalistic site planning characteristic of CCC activities. By 1940, a parking area for over 100 vehicles had been completed, curving gently north from Hopewell Road (Reading-Valley forge Road). The picnic area included 130 tables and benches, two latrines, four drinking fountains, two water hydrants, two springhouses, a shelter/concession building, two vehicular bridges, nine foot bridges, and trails, in addition to the parking area.(3) Open fields were utilized for play fields, and trails wound through portions of the surrounding woods, which incorporated some trees growing since the Civil War.(4)

The main structure, the 1936 picnic shelter, has been determined eligible for inclusion on the National Register of Historic Places. Other extant elements associated with the picnic area include fireplaces,

rustic bridges, drinking fountains, springhouses, and latrine ruins.

Miscellaneous CCC improvements included culverts at the Church House driveway and beneath Mark Bird Lane. Several concrete culverts with stone walls pass beneath PA Route 345. One carries French Creek under the roadway, while others carry Spout Run and runoff from area springs.

1938-Present: The National Park Service

The National Park Service has engaged in significant construction efforts at Hopewell Furnace National Historic Site. Many of the key buildings in the core village are reconstructions, based upon extensive documentary and physical evidence, constructed during the 1950s and 1960s. These include the Cast House, Cooling Shed, Bridge House, Charcoal House, and Village Barn. None of these key buildings are historic structures, although the quality and accuracy of the reconstructions appears to be excellent. Additionally, the Blacksmith Shop was rebuilt following a fire in the 1980s.

Other buildings and structures that existed during the nineteenth century, such as the Carpenter's Shop, were not reconstructed, which results in a landscape slightly emptier or less densely built than that which existed during the furnace's operation. In addition, the buildings today present too highly maintained, or "clean" appearance, with soot-free whitewash and carefully tended grounds. This inappropriately reinforces an image of the furnace as an extension of a pastoral landscape associated with a gentleman's estate, rather than as an active industrial site, complete with the dirt and noise that this entailed. Nevertheless, with its impressive collection of historic and reconstructed buildings and structures, the furnace cluster is a remarkably intact resource of exceptional interpretive power.

The Ironmaster's House is appropriately furnished as a late-nineteenth century residence, openly acknowledging the additions and alterations to the original eighteenth century building. Important to the setting and function of the Ironmaster's House are the associated outbuildings that supported its pivotal role in the furnace operation. These include the bake ovens, springhouse, smoke house, garden terraces, and greenhouse ruins. The National Park Service has rehabilitated or preserved most of these structures. A reconstructed hog pen and chicken coop lie east and south of the springhouse. Other outbuildings and structures are no longer extant, including a tool house, privy, and an ice house with a summer house above.

In the 1960s, the Tenant Houses were rehabilitated. No effort was made to reconstruct missing outbuildings and other structures. The absence of these elements prevents a fuller interpretation of the lives of the furnace workers. These buildings appear today as residential structures surrounded by lawns and managed by a single caretaker.

Outside the immediate village core are two historic building clusters with peripheral associations to the furnace. Although not open to the public, these clusters include buildings dating from the furnace's period of operation. At the John Church cluster, near the intersection of Mark Bird Lane and PA Route 345, the National Park Service constructed an addition to the house and a garage in 1941. This work was associated with conversion of the building into a staff residence. Other previously described construction projects have isolated this building from its historic fields. It presently appears as a gate house, rather than as a farmstead. This appearance is enhanced by the gate and stable located south of the house and adjacent to the visitor entrance road. Similarly the Nathan Care cluster, located immediately south of the core village, is isolated from its historic agricultural fields. It was modernized as a staff residence in 1948.

The Thomas Lloyd complex is presently the most intact and representative of the outlying farmsteads. It

is used as a staff residence and is not open to the public. At the Harrison Lloyd farm, the house and barn were demolished in 1964, one freestanding wall remains of what is presumed to have been a large barn structure, while other foundations are associated with a blacksmith shop (foundation and partial fireplace remnants) and several other outbuildings of undetermined function.(5)

The 1936 CCC picnic shelter was determined eligible for inclusion in the National Register of Historic Places in 1995. Its cedar roof has recently been replaced. Other remnant elements of the CCC picnic area include fireplaces, rustic bridges, drinking fountains and springhouses. The CCC activities at the ESA site are not currently part of the interpretive program.

A new cluster of buildings and site elements were erected, beginning in 1959, as part of Mission 66 efforts. Located, for the most part, north of the core village, this cluster includes the Visitor Center, parking area, and an expanded maintenance complex.(6) This area has continued to evolve, as evidenced by the addition of the Bally Building in the 1990s.

Buildings and Structures Summary

The basic clusters of buildings and structures at Hopewell Furnace National Historic Site have changed little over the past two hundred years. The essential organization of Furnace, Ironmaster's House, worker housing, and outlying building clusters survives remarkably intact. Within these clusters, however, there are significant examples of buildings reconstructed during the mid-twentieth century. These buildings, including such major structures as the Cast House, Charcoal House, Village Barn, and Blacksmith Shop, are not historic. Nevertheless, the quality of the reconstructions appears high.

This work has resulted in a core village that never existed at any one time in the past. At present a ca. 1840 furnace complex co-exists with a ca. 1879 Ironmaster's House, an 1853 anthracite furnace, and a ca. 1815 barn. Different buildings are associated with various periods of significance, complicating interpretation. Nevertheless, this situation emphasizes the multi-faceted history of the property and argues against efforts to freeze this dynamic site at one point in time.

It is clear that, while their precise numbers and locations cannot be determined, there were many smaller-scale buildings at the site, such as tenant houses and farm outbuildings, that are no longer extant. The absence of these buildings results in a site that is less cluttered and more pristine than at any point in its past. The lack of documentary evidence regarding these buildings suggests that archeological investigations may offer the best chance for determining their location and some hints as to their appearance.

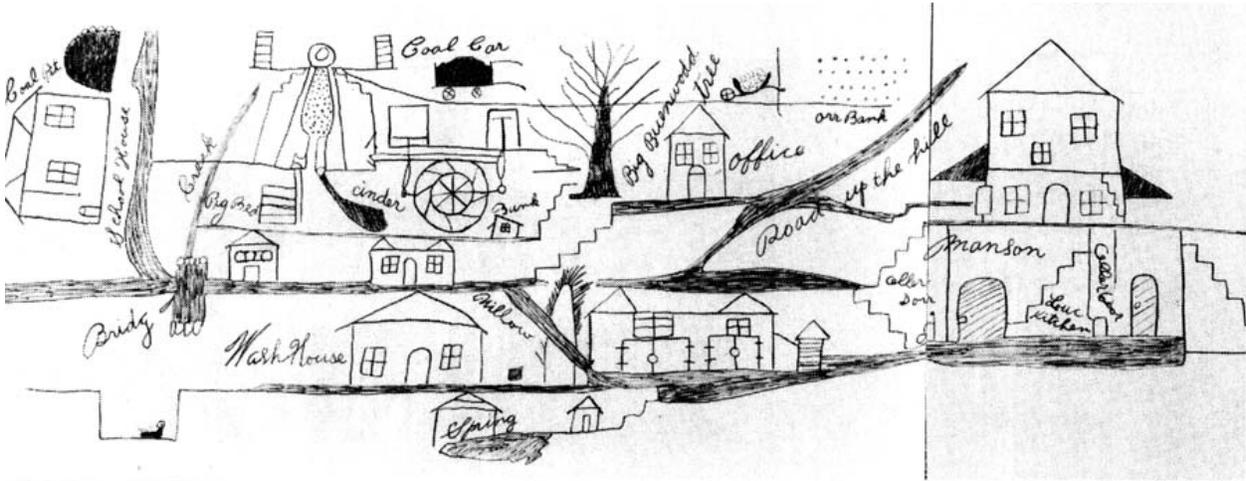
Buildings and farmsteads outside the core village are not adequately protected or interpreted. Several former farm houses are used as staff quarters. Little effort is made to interpret these buildings. Likewise, the ruins of buildings and structures in the woods, such as the Brison and Woodlot Houses, are not included in interpretive programs. Indeed, these resources are not being maintained or stabilized and may be considered threatened by this neglect.

The site's few remaining CCC period buildings and structures, most notably those associated with the former Baptism Creek Picnic Area, are not currently interpreted. National Park Service support facilities are appropriately and sensitively located within the historic landscape.

[There may be discrepancies between the above text and the feature lists; see the Analysis and Evaluation Summary for a full explanation.] (PHSO 2002)

Notes:

- (1) These structures are visible on early twentieth century photographs, including circa 1920s, 1937, and 1951 aerial photographs.
- (2) Insurance Company of North America, "Survey of the Property of Edward S. Buckley and Maria L. Clingan," 1879.
- (3) National Park Service, U. S. Department of the Interior, Pennsylvania Department of Forests and Natural Areas, cooperating, "French Creek Area, Revised Layout Plan, Baptism Creek Picnic Area," paper print, ca. 1940.
- (4) Ibid. The age of these woods was determined from forester analysis and review of National Park Service, "Forest Type Map, French Creek Project," September 11, 1936. The latter depicts woods in the proposed picnic area dating from 61-80 years in age, implying that some trees had been growing since at least 1875, and possibly as early as 1856. Arborist Bill Graham of the Morris Arboretum took core samples from some older trees in 1995, and initial analysis indicates ages of 100-110 years and older .
- (5) These structures are visible on early-twentieth century photographs, including circa 1920s, 1937 and 1951 photographs.
- (6) The National Park Service cluster focus on the Visitor Center, the center of on-site interpretative activities, and the maintenance buildings. On-site residential needs are met by both circa 1950s quarters and historic buildings rehabilitated for this use. A number of interpretive, maintenance, and staff support structures were built during this period, primarily north of the core village. Mission 66 buildings include staff quarters, the Visitor Center, and maintenance buildings. Recently the Bally Building was added for curatorial storage. Existing buildings are listed by name and number in Appendix A, as well as on the existing conditions map.



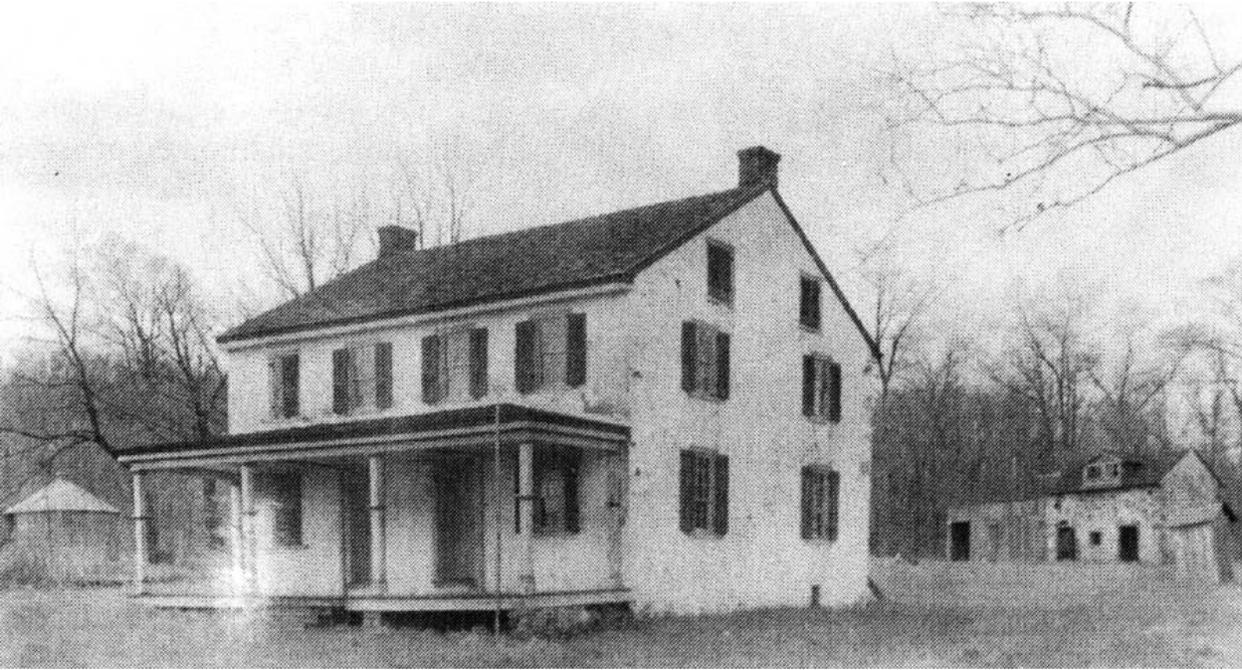
1936 recollections of Lafayette Houck, Master Collier at Hopewell Furnace, showing a representation of Hopewell Furnace's working landscape from the worker's perspective. Sketches on file in HOFU archive.



1995 view of reconstructed furnace complex. Menke & Menke photo.



Ironmaster's House in 1995, with manicured landscape and small-scale elements (fence, bench, and barrel). Menke & Menke photo.



View of Tenant House No. 3 and Privy looking west, 1936. HOFU archive photo.



View of Tenant House No. 3 in 1995. A small grain silo, privy and a shed addition to the outbuildings are no longer extant. Menke & Menke photo.



CCC Picnic Shelter in the Environmental Study Area near Baptism Creek, 1994. Menke & Menke photo.



Two of three buildings from the vicinity of CCC SP-17 Camp (on the left and right), 1995. Menke & Menke photo.

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Baptism Creek Picnic Shelter (122)	Contributing	Baptism Creek Picnic Shelter	081435	122
Bethesda Baptist Church (79)	Contributing	Bethesda Baptist Church	006829	079
Bethesda Baptist Church Carriage Shed (80)	Contributing	Bethesda Baptist Church Carriage Shed	006831	080
Bethesda Baptist Church Privy (81)	Contributing	Bethesda Baptist Church Privy	006832	081
Birdsboro-Warwick Road Bridge (115A)	Contributing	Birdsboro-Warwick Road Bridge	081447	115A
Blacksmith Shop (6)	Contributing	Blacksmith Shop	000683	006
Boarding House (24)	Contributing	Boarding House	000684	024

Bridge House (10) [contributing from LCS, listed as Furnace Complex]	Contributing	Furnace Complex	000691	007
Cast House (33) [contributing from LCS, listed as Furnace Complex]	Contributing	Furnace Complex	000691	007
CCC Vehicular Bridges	Contributing			
Charcoal House (9)	Contributing	Charcoal House	000688	009
East Head Race (32)	Contributing	East Head Race	000692	032
French Creek Bridge (115B) [contributing from LCS]	Contributing	French Creek Bridge	081446	115B
Furnace (7)	Contributing	Furnace Complex	000691	007
Furnace Bank and Retaining Wall H (8) [contributing from LCS]	Contributing	Furnace Bank And Retaining Wall H	012113	008
Furnace Barn (2) [contributing from LCS]	Contributing	Furnace Barn	006823	002
Ironmaster's Bake Ovens (16)	Contributing	Ironmaster's Bake Ovens	000681	016
Ironmaster's Mansion (1)	Contributing	Ironmaster's House	000695	001
Ironmaster's Spring House (17)	Contributing	Ironmaster's Spring House	000700	017
John Church Barn (28)	Contributing	John Church Barn	006827	028
John Church Driveway Culvert (27B)	Contributing	John Church Driveway Culvert	081581	027B
John Church House (27)	Contributing	John Church House	006826	027
Lenape CCC Spring House	Contributing	Lenape Ccc Spring House	233758	088B
Mark Bird Lane Culvert (29)	Contributing	Mark Bird Lane Culvert	081462	029
Nathan Care Barn (26)	Contributing	Nathan Care Barn	006828	026
Nathan Care House (25)	Contributing	Nathan Care House	000686	025

Office & Store (3)	Contributing	Office And Store	000698	003
Oil House (67)	Contributing			
Pump House (51)	Contributing			
Service Warehouse (66)	Contributing			
Smoke House (41)	Contributing	Ironmaster's Smoke House	006822	041
Tail Race (110)	Contributing	Tail Race	000702	110
Tenant House No. 1 (19)	Contributing	Tenant House No. 1	000703	019
Tenant House No. 2 (20)	Contributing	Tenant House No. 2	000704	020
Tenant House No. 3 (21)	Contributing	Tenant House No. 3	000705	021
Tenant House No. 3 Barn (23)	Contributing	Tenant House No. 3 Barn	022829	023
Thomas Lloyd House (71)	Contributing	Thomas Lloyd House	000697	071
Thomas Lloyd Spring House (87)	Contributing	Thomas Lloyd Spring House	081444	087
Thomas Lloyd Wagon Shed (71A)	Contributing	Thomas Lloyd Wagon Shed	017267	071A
West Head Race (111) [contributing from LCS]	Contributing	West Head Race	000693	111
Wheel House (8) [contributing from LCS, listed as Furnace Complex]	Contributing	Furnace Complex	000691	007
Woodlot CCC Spring House (88)	Contributing	Woodlot Ccc Spring House	081436	088
Bally Building (102)	Non-Contributing			
Butler Building (103)	Non-Contributing			
John Church Garage (70)	Non-Contributing			
Pole Shed south of Tenant House No. 3	Non-Contributing			
Quonset Hut (78)	Non-Contributing			

Reservoir	Non-Contributing
Utility Building - northeast edge of site at powerline	Non-Contributing
YCC Storage Building (104)	Non-Contributing
Maintenance Building (101) [undetermined from PHSO 2002]	Undetermined
Quarters (98) [undetermined from PHSO 2002]	Undetermined
Quarters (99) [undetermined from PHSO 2002]	Undetermined
Visitor Center (100) [undetermined from PHSO 2002]	Undetermined

Small Scale Features

1770-1800: Settlement and Development

From the earliest days of settlement at Hopewell outbuildings existed in locations where people worked and lived. A privy would have been located near each house, whether a log tenant house or the Ironmaster's House. These simple wood buildings would be relocated occasionally, when the pits beneath them filled. A privy was probably also placed near the furnace for use by the workers. It is possible that during this period the landscape evidenced other small outbuildings, such as barns or chicken coops. These may have been temporary in nature or constructed from found or left over building materials. It is known that a cider press existed at the site, since it was repaired in 1804.

Slag piles would have existed in the area immediately surrounding the furnace from the earliest days of operation. These piles obviously became larger the longer the furnace operated. It appears that slag was used from an early period to fill low marshy areas of the site. Ultimately the slag piles altered the course of French Creek. Although it is likely that the area west of the furnace was initially utilized as a dumping ground, the dimensions of the slag piles are not known for any given time period. It is also probable that piles of iron ore and limestone stood adjacent to the charcoal house (which may have been a temporary shelter during the early years of furnace operation).

Without documentation, it is not possible to determine the numerous small scale elements present in the early years of settlement at Hopewell. Simple wood hitching posts would have been required at the Office & Store and the Ironmaster's House. Cords of wood for heating and cooking would have been stacked near all residences, while farm implements, such as wheelbarrows or hoes might have been left near vegetable gardens or stored within sheds. The furnace and blacksmith shop may have also had piles of rejected products or implements left outside.

Just as the village residences had outbuildings, the farmsteads adjacent to the furnace property also had privies, barns, and other small structures. For example, by 1798, Thomas Lloyd had erected a barn and constructed a stone springhouse near his residence. Nearby, at Bethesda Church, small-scale elements included gravestones in the cemetery and a carriage house erected soon after the church's construction in 1782.

1800-1845: Growth and Prosperity

The increased number of outbuildings, tools, equipment, and other small scale site elements present during this period reflected the growth and prosperity of the furnace. All buildings continued to have privies, which were replaced or relocated as necessary. Temporary or poorly constructed outbuildings dating from the earliest years may have been replaced with more permanent or larger barns, chicken coops, corn cribs, or sheds. New barns and outbuildings were likely built when new house construction occurred. A water pump may have been installed at the Boarding House during this period.

Boardwalks and footbridges likely existed in the low marshy areas of the village from the first period of settlement. Tenant Houses No. 1 and No. 2, constructed during this period, had wood walks leading to the Birdsboro-Warwick Road, with footbridges over the ditch that ran along the west side of the road. These bridges may have simply been wood planks.

The grounds surrounding the Ironmaster's House contained numerous outbuildings and garden features constructed during this period. The residence's privy dated from the earliest period of occupation, while a Springhouse provided water to the Ironmaster's House by 1816. Bake ovens appeared by 1823 and a

smokehouse by 1828, while the Greenhouse was probably constructed in 1829. Soon thereafter, sets of stone stairs and garden terraces were linked by walkways to the house; and the 1834 ice house, a gardener's tool house, and other ancillary outbuildings were completed.

Existing independent farms within the Hopewell area, such as the Thomas Lloyd farm, expanded operations during this period, resulting in the construction of new and replacement outbuildings. For example, the Harrison Lloyd farmstead had numerous outbuildings probably constructed soon after the house in the early 1800s. These included a blacksmith shop, which may date from this period. Other residences likely constructed during this period included the Woodlot and Brison Houses. It is assumed that all of these residences had a complement of outbuildings.

Ongoing agricultural activities at Hopewell likely led to the acquisition of new and improved farm tools. Some implements or tools noted in furnace records during this period included a horse drawn rake (1819), a winnowing mill, a revolving rake, and an improved plow (1827).

As with the earlier period, the village landscape probably continued to incorporate many small site elements: wood piles, boardwalks, clothes drying on fence rails or drying racks, hitching posts, wagons, wheelbarrows, and a host of other miscellaneous items. The slag piles all increased in size, and new piles were probably begun. Slag may have been used to surface roads and fill marshy areas. The documentary records are largely silent on this matter. Archeological investigations may be able to delineate the various uses of slag at the site.

With new construction came new site elements. A cupola was constructed in 1816, possibly west of the furnace near the West Head Race. The area around the Carpenter's Shop probably included periodic stacks of lumber and scrap piles. Wagon scales along the Birdsboro-Warwick Road, between the Village Barn and the Furnace, may have existed during this period. A bull ring, used to tie off cattle for slaughtering, is reported to have existed near the southwest corner of the Office & Store. Archeological investigations, however, failed to locate this feature. A bake oven was probably built in conjunction with the construction of the Boarding House.⁽¹⁾ Bee hives are reported to have stood in the Ironmaster's House new terraced gardens.

1846-1883: Decline

With the decline in furnace and village activity came a corresponding decline in the condition of previously erected outbuildings and small-scale site elements. After completion of a new school house outside the core village, the old school on the 1809 Road was abandoned. Its privy likely also fell into disrepair and vanished, as did other structures or outbuildings that were no longer used. However, if an outbuilding remained in use it was likely replaced or repaired. For example, a new smokehouse was built ca. 1867 on the Ironmaster's House grounds. When the Ironmaster's House received indoor plumbing (an upstairs toilet was added in the 1870s), the double privy on the hillside was likely retained for use by servants.

Although tenant houses, particularly any log buildings, probably began to disappear during this period, a number of new structures appeared in the village. A barn was constructed behind Tenant House No. 3 in the 1860s. The Charcoal Kiln, built circa 1849, was converted for use as a residence before 1870, probably with a privy and a nearby fenced vegetable garden. Tenant House No. 4, also known as the Boone house and store, was built in 1869. This dwelling also likely had a privy, fenced garden, and perhaps other outbuildings. After the house burned in 1893 any associated outbuildings or site elements probably fell into disrepair and disappeared.

With iron making and farming continuing throughout this period, the landscape would have continued to contain many of the previously described industrial and farm implements and machines. Records indicate the introduction of a threshing machine at the site in 1849. The Houck drawing of Hopewell includes: representations of wheelbarrows with ore; boxes for limestone; a large cart for cinders; tools to cull the furnace (pull hook and ringer); a tool to make the pig bed; a clay box; a clock; a water bucket; and a coal or charcoal car. Houck also indicates that a wagon house and corn crib were located near the village barn.

1883-1935: Shutdown and Survival

After the furnace ceased operations, it is likely that the abandonment and disappearance of small barns, corn cribs, chicken coops, privies, fenced vegetable gardens, and other small-scale elements associated with abandoned Tenant Houses and other buildings accelerated. The Nathan Care Log House and its associated outbuildings were removed ca. 1900 so that the site could be used for agriculture. It is important to note, however, that ca. 1935 maps and photographs indicate the continued presence of a number of small-scale elements, including a hitching post at the foot of the Ironmaster's House south stairs, privies of probable twentieth century origin and location at each Tenant House and the Boarding House, a boardwalk, but no footbridge, at Tenant House No. 3, and a well with a hand pump of indeterminate age at the Boarding House.

Within the furnace complex, any remaining ore or pig iron was removed and sold during this period. Furnace related equipment, tools, wagons, and other gear with a market value were probably disposed of early in the shutdown period, while the expansive slag piles that remained after decades of operation may have been partially used in the 1932 realignment of the Birdsboro-Warwick Road. Slag piles were noted west, southwest, and east, across the road from the furnace, on 1930s survey maps. Another small pile was located in the woods north of the 1809 Road.

Various site elements from previous periods were noted on 1930s plans. Within the Ironmaster's House grounds, the ice house, terrace steps, privy, greenhouse, terrace walls, and gardener's tool shed survived into this period only as ruins. Plans indicate the continued existence of the Springhouse and Bake Ovens, but the Smoke House apparently did not survive into this period. In the furnace area, the scales survived east of the realigned Birdsboro-Warwick Road. Plans indicate a well near the ruins of Tenant House No. 4.

The use of the Ironmaster's House as a summer house, and the development of the property as a dairy farm, introduced new small-scale landscape elements. The Ironmaster's House grounds continued to be maintained. In 1941 Mary Krewson remembered many small scale site elements in this area, including a rustic lattice garden seat covered with ivy, trumpet creeper vines on arbors, and grapes on an arbor.(2) Other elements may have been introduced into the landscape in the Tenant House area during this period, such as a grape arbor at the rear of Tenant House No. 2 and the trellis structures at Tenant House No. 3.

The dairy operation also produced new site elements. A concrete watering trough was constructed in the barn yard and a silo was built at the southeast corner of the Village Barn. A wagon shed, measuring approximately 20 feet by 30 feet, was constructed southwest of the barn. Other small outbuildings, such as a chicken house, a hog shed, and other sheds may have been located near the Ironmaster's House or the Village Barn, but these remain undocumented. In the 1930s, only the foundations remained from the nineteenth century stable located slightly southeast of the barn in the yard area.

Other minor landscape elements appeared and disappeared during this period. At the turn of the century, and clearly shown in village photographs dating from 1914, telephone poles lined the east side of

Birdsboro-Warwick Road. A grape arbor is evident in photographs dating from the 1930s behind Tenant House No. 2.

1935-1938: The Civilian Conservation Corps

When the federal government acquired the property in the 1930s, numerous outbuildings and site elements were in deteriorated or ruinous condition. Plans and existing condition photographs from this period provide some of the best documentation of small-scale site elements.

The CCC was responsible for the construction of several outbuildings within the core village. An approximately 10-foot square corn crib was erected just west of the Bake Ovens. A 10-foot by 40-foot chicken house and a small hog pen were built south of the Springhouse. A new corn crib was constructed on the site of the earlier wagon shed, southwest of the barn, and a temporary plank walk was used to reach the lower barn level. A privy just south of the Charcoal House may also date from this period. A temporary CCC blacksmith shop, measuring about 40 feet by 20 feet, was located just west of the Charcoal House by 1935. The blacksmith shop was indeed temporary, as a "truck road" is shown across its location on a 1937-1938 plan. On the other hand, a few features in the barnyard area were probably extant when the CCC began work at the site, including a concrete watering trough located at the base of the former stable walls.

Eight chicken houses, varying in size from 20 feet by 80 feet to 10-foot square are noted on 1937-1938 survey drawings as of "recent" origin. These were located south of Tenant House No. 3 and to the rear of the ruins of Tenant House No. 4. Another small scale element that may have been relocated by the CCC were the telephone poles along the Birdsboro-Warwick Road. The new line came from the west, along the 1809 Road, then passed north through the woods from 400 to 800 feet west of the old alignment.

Even though the CCC was responsible for numerous changes in the small-scale elements within the core village, the primary focus of their construction activity was in the vicinity of the camp area known as SP-7. Constructed north of the village, the camp included a number of small outbuildings including; two latrines, a barber shop, a pump house, garages, and a flagpole. Other site elements that reflected the work and life of the camp may have included drying lines near the bath house, and buses, trucks, and other vehicles used to transport workers to the job site.

The CCC constructed the Baptism Creek Picnic Area northeast of PA Route 345 and Hopewell Road. Within this site, numerous small scale features were built near the 1936 Picnic Shelter. These included stone fireplaces, drinking fountains, pumps, footbridges, picnic tables, and latrines. Along the outlying trails CCC crews stripped the bark from logs and laid them at right angles to the trails to form steps or to divert water from the paths. Rustic steps are included on some outlying trails, such as along the Lenape Trail.

1938-Present: The National Park Service

During the 1940s a number of outbuildings at the site were photographed. South of Tenant House No. 3, near the former site of a series of chicken coops, it appears that a Quonset hut with a cupola was erected ca. 1948. In another photograph, a silo is visible, probably to the west of the Quonset hut. Another outbuilding visible in photographs, but not depicted on plans, is a shed in front of the barn associated with Tenant House No. 3. A smaller shed may be seen just south of Tenant House No. 1.(3) The origins of these sheds is unknown. At Tenant House No. 3, a pergola gate, a small arbor structure, and possibly a mailbox on a post were located in the front yard, reflecting the continued residential use of this

building. All the small-scale structures, privies, and outbuildings visible in these photographs have been removed, possibly in conjunction with the 1960s rehabilitation of the Tenant Houses. The two surviving small-scale elements in the Tenant House area, the Boarding House pump and the barn east of Tenant House No. 3, were rehabilitated during this period. Recently, the National Park Service erected a pole shed structure north of the former site of Tenant House No. 4.

The National Park Service has restored or reconstructed several of Hopewell's outbuildings and site features. The Bake Ovens, Springhouse, and Bethesda Church carriage shed were restored in 1955. The Ironmaster's House garden steps and terrace walls have been partially rehabilitated. The Smoke House was reconstructed. Slag piles that had been previously removed or reduced in size were reconstructed ca. 1957 with slag from another furnace site. At present the slag piles are partially covered with vegetation, making them difficult to identify for the casual visitor.

The National Park Service removed many outbuildings and small-scale elements because of their condition or lack of clear associations with the period of interpretation. These included corn cribs, privies, silos, chicken houses, and wagon scales. Documentary evidence is inadequate to evaluate the accuracy of location or appearance of the chicken house and hog pen presently located south of the Springhouse.

Outside the core village, barns dating from earlier periods are extant at the Church, Nathan Care, and Thomas Lloyd farmsteads. However, the use of these clusters as staff residences has necessarily introduced modern site elements into these settings; such as cars, mailboxes, and garages.

Some outlying structures in the Hopewell landscape disappeared or were restored during this period. The Harrison Lloyd house and its outbuildings were demolished in 1964. The Bethesda Church Carriage Shed was restored in 1955, while the church's privy was extensively repaired in 1971.⁽⁴⁾ Nearby, in the Baptism Creek Picnic area, some CCC era site elements are in deteriorated condition and require maintenance or rehabilitation. The CCC Picnic Shelter received a new roof in 1995. Throughout the outlying areas there are a few signs, such as those at Bethesda Church and the East Head Race near Baptism Creek, that identify historic site elements. However, most areas lack interpretive visitor information or facilities that connect site elements to the history of the property.

The National Park Service erected a number of small scale elements to serve interpretive or functional purposes. Before construction of the Visitor Center, in 1959, a visitor shelter was located at the site. This shelter was relocated to a spot near the School House ruin, and was removed entirely in 1972. The NPS has placed signs throughout the core village to orient and guide visitors, beginning with an informational kiosk at the visitor parking area and continuing with interpretive signage throughout the industrial and village portions of the site. These are usually associated with site features, such as the anthracite furnace ruins. A reconstructed charcoal pit west of the anthracite furnace, represents the only interpretive element at Hopewell Furnace associated with the historic charcoaling process. The reconstruction is conveniently located for the visitor, but is in a historically inappropriate setting.

A number of site furnishings and elements reflect the National Park Service's need to supply visitor services and facilities. Functional site elements include picnic tables near the parking lot, wood benches, drinking fountains, trash receptacles, a metal bike rack, a flagpole, and directional and regulatory signage. Steps of exposed aggregate are located near the Visitor Center. Within the interpreted area paths are concrete, cinders, or slag. Site lighting is unobtrusive.

Within the core village, the National Park Service has attempted to introduce some small-scale site elements as interpretive displays. These include empty hog and chicken pens; piles of wood, iron ore,

and limestone; wheel barrows, a wagon wheel, and some rejected iron castings. Despite these displays, the core village does not resemble a dynamic, vibrant community where people lived and worked. Many site elements are missing or represented by a single example. Hitching posts and other elements relating to the use of horses and other animals are missing. Likewise, the lack of outbuildings, privies, rain barrels, clothes lines, fenced gardens, and other elements associated with life and work at the furnace is apparent.

Without these small-scale elements; the core village resembles a picturesque, pastoral estate, rather than a vital industrial and agricultural village. Hopewell Village would have been a cluttered, active, dirty landscape; today it is clean; almost sterile. In the adjacent farmsteads and outlying woodlands, the uncluttered landscape mirrors its current rural use.

Small-Scale Elements Summary

Few small-scale site elements are extant from any period in the furnace's history. The general lack of privies, outbuildings, and the general paraphernalia of everyday life contributes greatly to the present overly pastoral, picturesque quality of the site. Reintroducing small-scale elements into the landscape will aid in the interpretation of the site as a living, dynamic community. However, it must be realized that the lack of historical evidence regarding the location and appearance of many small-scale elements necessitates that they be treated as interpretive exhibits, rather than as historic artifacts.

Small-scale site elements include outbuildings, sheds, privies, arbors, rain barrels, clothes lines, fenced gardens and the host of other items that enabled people to live and work at Hopewell Furnace. The few displays presently extant are not sufficient to convey the extent of residential and industrial activity at the site. The present appearance of the slag piles, partially obscured by grass and vegetation, is indicative of the site. During the period of the furnace's operation these were active industrial waste dumps. To permit vegetation to veil these features creates a landscape feature that never existed.

[There may be discrepancies between the above text and the feature lists; see the Analysis and Evaluation Summary for a full explanation.] (PHSO 2002)

Notes:

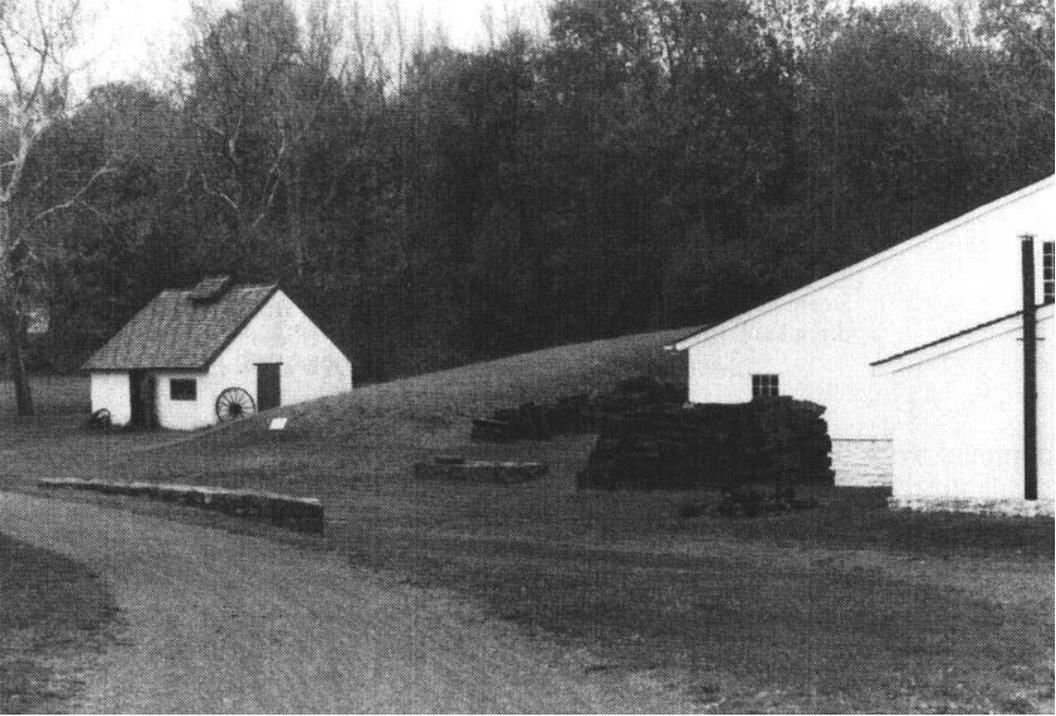
- (1) Apple, "Documentation," II-147.
- (2) This and other information regarding the mansion area gardens are based upon on a drawing by Dennis C. Kurjack, titled "Statistical Data Base Plan for Restoration of Mansion Gardens." On file at HOFU archive.
- (3) Untitled Photograph No. 2210, HOFU archive photo.
- (4) Jacox, National Register Nomination, 7:8.



Ironmaster's terrace garden steps in ruins, 1936. HOFU archive photo.



Drinking fountain and fireplace site elements dating from ca. 1940 at the Baptism Creek Picnic Area north of Hopewell Road. Menke & Menke photo, 1995.



Stacks of iron, grass-covered slag piles, molding frames, and a wagon wheel near the furnace, 1995. Menke & Menke photo.



Gravestones at Bethesda Church cemetery, 1995. Menke & Menke photo.

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Baptism Creek Fireplaces	Contributing			
Bethesda Baptist Church Cemetery Gravestones (79B)	Contributing	Bethesda Church Cemetery Gravestones	081613	079B
Bethesda Baptist Church Cemetery Stone Wall (79A)	Contributing	Bethesda Baptist Church Cemetery Wall	006830	079A
Boarding House Pump and Well Cover (24A) [contributing from LCS]	Contributing	Boarding House Pump And Well Cover	081445	024A
CCC Foot Bridges	Contributing			
Cedar Pasture Fence (4) [contributing from LCS]	Contributing	Cedar Pasture Fence	081451	004
East Head Race Stone Retaining Wall (32A)	Contributing	East Head Race Retaining Wall	081463	032A
Harrison Lloyd Stone Walls (73)	Contributing	Harrison Lloyd Stone Walls	081440	073
Ironmaster's Kitchen Yard Wall (1C)	Contributing	Ironmaster's Kitchen Yard Wall	081461	001C
Ironmaster's Mansion Garden Fence (1B) [contributing from LCS]	Contributing	Ironmaster's Garden Fence	081434	001B
Ironmaster's Mansion Stone Wall (1A)	Contributing	Ironmaster's Yard Wall	081433	001A
John Church Retaining Wall and Steps [LCS not CLR]	Contributing	John Church Retaining Wall And Steps	081460	027A
Nathan Care Boundary Stone Wall (25B)	Contributing	Nathan Care Boundary Stone Wall	081449	025B
Nathan Care Stone Walls (25A)	Contributing	Nathan Care Field Stone Wall	081448	025A
Tenant House Boardwalk (19A) [contributing from LCS]	Contributing	Tenant House No. 1 Walkway	081453	019A

Tenant House No. 3 Fence [LCS not CLR]	Contributing	Tenant House No. 3 Fence	081452	021A
Thomas Lloyd Stone Walls (71C)	Contributing	Thomas Lloyd Stone Walls	081455	071C
Cannon, Wagon Wheel, Iron Stacks near Furnace	Non-Contributing			
Chicken House near Spring House	Non-Contributing			
Fencing along PA 345 at John Church House	Non-Contributing			
Foot Bridges in Mansion garden	Non-Contributing			
Hog Pen near Spring House	Non-Contributing			
Interpretive Signs	Non-Contributing			
Ironmaster's Garden Steps	Non-Contributing			
Meadowbank Road fencing	Non-Contributing			
NPS Drinking Fountains	Non-Contributing			
NPS Picnic Tables	Non-Contributing			
NPS Trash Cans	Non-Contributing			
NPS Wood Benches	Non-Contributing			
Telephone Poles	Non-Contributing			
Village Meadow Fence	Non-Contributing			
Watering Trough	Non-Contributing			
Woodpiles and Sled near Charcoal Hearth	Non-Contributing			
Baptism Creek Water Fountains [PHSO 2002]	Undetermined			
Flagpole at Visitor Center [undetermined from PHSO 2002]	Undetermined			

Slag Piles (between Cast House and Blacksmith Shop)
[undetermined from PHSO 2002] Undetermined

Archeological Sites

1770-1800: Settlement and Development

Previous archeological investigations at Hopewell Furnace National Historic Site have focused upon features and resources associated with the iron furnace. No pre-1770s artifacts or features are noted in these studies. It is possible, however, that future archeological investigations may reveal evidence of pre-1770s European settlement and activities, or of pre-contact Native American occupation of the site.

Most potential archeological sites from this period cannot be precisely located. Possible sites include remnant portions of the Reading Valley Forge Road. This road, paved in 1930's, was partially destroyed during construction of the present entrance road. Nevertheless, traces of the eighteenth century alignment may survive as subsurface features. Other roads might be located and investigated using archeological methods. The precise location of wells, privies, possible log tenant houses, vegetable gardens, and outbuildings from this period are not known. Archeological investigations of such features would likely reveal significant information pertaining to the earliest years of iron production at the furnace, but locating such resources would entail extensive testing.

Ruins located in outlying areas represent a high potential for archeological deposits, and can be readily located. At the Harrison Lloyd farm, which was established during this period, above-ground remains include two sets of stone walls and a well site. Archeological investigations could reveal information pertaining to the eighteenth century occupation of this farm and its continued occupation through the nineteenth century. Investigations might also be conducted at charcoal pits and huts mapped in the late 1980s. The dates of these resources are unknown.(1)

1800-1845: Growth and Prosperity

There are primary archeological resources in the core village dating from this period whose locations are well established. These include the Carpenter's Shop; ruins within the Ironmaster's grounds, including the gardener's tool house, privy, ice house, smoke house, and greenhouse, as well as the terraced gardens themselves; and the School House. The Carpenter's Shop, which dates from the 1820-1844 period, was in ruins by the late-nineteenth century and was razed ca. 1900. The 1830s Ironmaster's House gardens and associated outbuildings and structures were in ruins when the federal government acquired the site in the 1930s. However, it is likely that they fell into disrepair well before that time, as Mary Krewson specifically mentions the Greenhouse ruins in her recollections. The School House dates from 1836 and was abandoned after construction of a new school house in the 1870s. The remains of the School House are barely visible today. Both the Greenhouse and School House presently are identified by National Park Service signage.

Potential archeological resources known to have existed during this period, based upon documentary evidence, but whose precise location is unknown, include the various Tenant House gardens and outbuildings. Near the furnace, a cupola existed as early as 1816. Its location remains unknown, despite several previous investigations. Archeological testing could locate this resource and reveal significant information regarding production at the furnace during this period.

As the furnace prospered the number of workers and tenants in the village grew, and the number of tenant houses increased. The precise location of these buildings is not known, although tenant houses existed along the Jones Mine Road (1772 Road) and north of Hopewell Lake. Additionally, the Nathan Care Log House and its associated features (privy, vegetable garden, and possible sheds) occupied an

area south of the Boarding House during this period.

Determination of the number and location of these tenant houses could provide valuable additional data on the furnace work force's built environment and their living patterns.

A number of outlying farms and building sites date from this period. As noted previously, the Harrison Lloyd farm site includes ruins and features that may date to as early as the late-eighteenth century. Since the site remained occupied and active throughout this period, archeological investigations have the potential to reveal significant information pertaining to nineteenth century activities and practices at this location. Among the remains are the house foundations, an apparent blacksmith shop with a fireplace, several barn walls and foundations, and an open well. The trace of a possible former lane leading to the farmstead can be identified by parallel rows of trees forming an alley.

Other outlying ruins include those associated with the Woodlot House and Brison House. The Woodlot House site includes a possible privy or well pit. The ruins at both sites, located in wooded areas, were stabilized in the 1970s-1980s. Nevertheless, they are continuing to deteriorate. The stabilization of the above-ground ruins did not protect potential archeological resources at either location. Like the Woodlot and Brison ruins, the Manning house and barn ruins occupy a wooded section north of the NPS maintenance complex. As with all archeological sites located in the woods, these are difficult to identify due to encroaching vegetation.

The present site boundaries exclude most of the woodlands associated with the furnace from this period. Consequently, the majority of the charcoal hearths and colliers' huts associated with the furnace would have been located off the present site in these woodlands, which now comprise French Creek State Park. A 1936 Forest Type Study and the current Orienteering Map confirm this conclusion. Nevertheless, a number of hearths and huts, of unknown dates, have been identified within the present site boundaries. Mikan and Abrams "located 105 previously unidentified charcoal hearths and the remains of 13 collier's huts in wooded portions of the site."⁽²⁾ These hearths and huts represent significant archeological resources. They are intimately associated with the iron-making operation, having been used to produce the charcoal that fueled the furnace.

Additional archeological resources that date from this period include fence lines within the core village and the outlying areas. In many instance these resources would leave only an ephemeral trace, possibly posthole molds. Their identification might provide a fuller picture of land divisions and uses at Hopewell. Likewise, archeology may prove able to locate and identify traces of the charcoal roads that ran between the furnace and the clusters of charcoal hearths in the woodlands. These rough, temporary roads are not indicated on historic maps. Archeology may prove the only means to conclusively identify their locations and routes.

1846-1883: Decline

In the core village the locations of several archeological sites from this period are known. The Charcoal Kiln ruins, constructed ca. 1849 were later converted to a residence.⁽³⁾ They are clearly evident as foundation ruins. The nearby Anthracite Furnace was constructed in 1853 and used until circa 1857. The Ore Roaster, built in 1882, was covered by the 1932 realignment of the Birdsboro-Warwick Road. Site rehabilitation subsequently exposed the Ore Roaster's foundation.

Just south of the Village Barn, stone walls for a barn-related structure are evident. These are presumably from a stable depicted on an 1879 fire insurance map. Tenant House No. 4, constructed as a store and residence on the west side Birdsboro-Warwick Road in 1869, burned in 1893. The ruins were stabilized

in the 1970s-1980s, but are not part of the village tour. With charcoaling continuing throughout this period, the establishment and relocation of hearths and huts would most likely have continued.

An 1879 fire insurance map, unknown prior to work on the present study, depicts a large barn on the north side of Reading-Valley Forge Road, east of the Ironmaster's House. Measuring approximately 40 feet by 70-1/2 feet, this major structure is not mentioned in furnace records. The barn was destroyed prior to federal acquisition of the site. Archeological investigations may be able to locate the remains of this building and provide information regarding its function.(4)

1883-1935: Shutdown and Survival

In the core village, several structures, including a silo and wagon shed, were located adjacent to the Village Barn. These structures were probably associated with the dairy operation established during this period.

In the woodland areas, charcoaling continued throughout this period, albeit on a smaller scale than during the furnace's operation. It is not known where charcoal hearths from this period were located.

1935-1938: The Civilian Conservation Corps

The location of CCC Camp SP-7, west and north of the current maintenance complex, is well documented. Numerous chicken coops and other small farm structures located near the Ironmaster's House and south of Tenant House No. 3, none of which are extant, also dated from this period. In the Baptism Creek area, some of the trails developed by the CCC have become traces and CCC-constructed fireplaces are presently in ruins.

1938-Present: The National Park Service

Because the National Park Service's tenancy is relatively recent, few potential archeological sites date from this period. A 1948 Quonset hut and a large shed, perhaps erected at about the same date, are evident in period photographs south of Tenant House No. 3.

Archeological Sites Summary

The lack of conclusive documentary evidence regarding the location of many known features at Hopewell Furnace creates an opportunity for archeologists to make significant contributions to our understanding of the site. The highly successful investigations conducted by the National Park Service in association with the rehabilitation and reconstruction of specific buildings confirms this conclusion. The present plan of the Cast House is almost entirely based upon archeological evidence.

The furnace records clearly indicate the presence of numerous buildings and structures, such as tenant houses, that are no longer extant, but the records do not provide accurate locational data for these resources. Archeological surveys and investigations might provide firm evidence as to the number and location of non-extant buildings within the core village and in outlying areas of the site. This information would not only identify significant cultural resources worthy of preservation, but would also furnish new data to enrich interpretive and educational programs. Our understanding of the pre-twentieth century history of Hopewell Furnace would be greatly enhanced.

The outlying areas of the site also contain important archeological resources. The locations of outlying house and farm sites are well documented, but archeological investigations can determine the boundaries

of these resources and provide a fuller understanding of the scope and extent of these operations.

Charcoal hearths and colliers' huts have been located in recent archeological surveys. More intensive investigations of a sample of these resources may provide information on changes in charcoaling methods over time.

The most significant, and extensive, twentieth century archeological site at Hopewell Furnace is the former site of CCC Camp SP-7. An archeological survey of this area would determine the nature and extent of subsurface resources. Since the camp consisted of temporary buildings designed to be removed or destroyed upon the closure of the camp, it is possible that no significant building remains survive.

[There may be discrepancies between the above text and the feature lists; see the Analysis and Evaluation Summary for a full explanation.] (PHSO 2002)

Notes:

- (1) This plan is based on the interpretation of a number of sources held by HOFU including archeological reports by Edward Heite.
- (2) Mikan and Abrams, 1995, I. These are shown on text figures in the report (Figures 2-5) and reproduced at different scales and keyed to an overall plan (Figure 1).
- (3) Apple, "Documentation," II-99.
- (4) Insurance Company of North America, "Survey of the Property of Edward S. Buckley and Maria L. Clingan," 1879.



Greenhouse Ruins, 1995. Menke & Menke photo.



Woodlot House ruins in enveloping vegetation, 1995. Menke & Menke photo.



Harrison Lloyd Farm; ruins of former barn, 1995. Menke & Menke photo.

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Anthracite Furnace ruin (1)	Contributing	Anthracite Furnace Ruin	000680	011
Brick Kiln ruin (39)	Contributing	Charcoal Kilns Ruin	000690	039
Brison Field Wall & Foundation Ruin [LCS not CLR]	Contributing	Brison Field Wall & Foundation Ruin	233800	055A
Brison House ruins (55)	Contributing	Brison House Ruin	081456	055
Charcoal Hearths	Contributing	Charcoal Hearths	261966	123
Gardener's Tool House ruins	Contributing			
Harrison Lloyd Barn ruins (74)	Contributing	Harrison Lloyd Barn Ruin	233842	074
Harrison Lloyd Blacksmith Shop ruin (72)	Contributing	Harrison Lloyd Blacksmith Shop Ruin	081443	072
Harrison Lloyd Farm Bank Barn Ruin [LCS not CLR]	Contributing	Harrison Lloyd Farm Bank Barn Ruin	264559	074A

Harrison Lloyd House ruins (72B)	Contributing			
Harrison Lloyd Well ruins	Contributing			
Harrison Lloyd Worm Fence Ruins [LCS not CLR]	Contributing	Harrison Lloyd Worm Fence Ruins	264615	074B
Ice / Summer House ruins	Contributing			
Ironmaster's Greenhouse ruins (13)	Contributing	Ironmaster's Greenhouse Ruin	006821	013
Manning House ruins	Contributing			
Mansion garden	Contributing			
Mule Stable ruin (83)	Contributing	Mule Stable Ruin	081450	083
Ore Roaster ruin (34)	Contributing	Ore Roaster Ruin	006825	034
School House ruin (18)	Contributing	School House Ruin	000699	018
Wheelwright shop ruin (35)	Contributing	Wheelwright Shop Ruin	000707	035
Woodlot House ruins (76)	Contributing	Woodlot House Ruin	081437	076

Management Information

Descriptive And Geographic Information

Historic Name(s): French Creek Recreation Demonstration Area
Hopewell
Hopewell Furnace
Hopewell Village
Hopewell Village National Historic Site

Current Name(s): Hopewell Furnace
Hopewell Furnace National Historic Site

Management Unit:

Tract Numbers:

State and County: Berks County, PA
State and County: Chester County, PA

Size (acres): 848.06

Boundary UTM

Boundary UTM(s):	Source	Type	Datum	Zone	Easting	Northing
	USGS Map 1:24,000	Point	NAD 27	18	445200	433940
	USGS Map 1:24,000	Point	NAD 27	18	445228	434960
	USGS Map 1:24,000	Point	NAD 27	18	444900	434740
	USGS Map 1:24,000	Point	NAD 27	18	444884	434460
	USGS Map 1:24,000	Point	NAD 27	18	444904	434000
	USGS Map 1:24,000	Point	NAD 27	18	444990	435080
	USGS Map 1:24,000	Point	NAD 27	18	445092	433700
	USGS Map 1:24,000	Point	NAD 27	18	445120	435680
	USGS Map 1:24,000	Point	NAD 27	18	445022	435700

GIS File Name:

GIS File Description:

National Register Information

National Register Documentation: Entered -- Documented

Explanatory Narrative:

Hopewell Furnace National Historic Site is currently listed on the National Register of Historic Places. It was entered on the National Register undocumented under the Historic Preservation Act in 1966. In 1985, Diann L. Jacox (historian) and Joseph Lee Boyle (Hopewell Village NHS), prepared a National Register nomination for Hopewell Furnace National Historic Site. (PHSO 2002)

The 1985 National Register of Historic Places Nomination for Hopewell Furnace National Historic Site states two specific areas of significance for Hopewell Furnace; significance derived from its associations with the American Revolution through its relationship with its first owner Mark Bird and the products manufactured at the furnace as well as significance derived as a representative example of a cold-blast charcoal furnace and its longevity as an industrial community.(1)

Since the Park was listed in 1985, a Determination of Eligibility found the Baptism Creek Picnic Shelter and Concession Building to be a contributing resource (8/18/1995). In previous NRHP documentation these elements had been listed as non-contributing. (PHSO 2002)

Notes:

(1) Jacox and Boyle, Hopewell Furnace.

NRIS Information:

NRIS Number:	66000645
Primary Certification:	Listed In The National Register
Primary Certification Date:	10/15/1966
Other Certifications:	Additional Documentation
Other Certification Date:	9/19/1985
Name In National Register:	Hopewell Furnace National Historic Site
Other Names In National Register:	Hopewell Furnace; Hopewell Village National Historic Site

National Register Classification: District

Significance Level: National

Contributing/Individual: Individual

Significance Criteria: A -- Inventory Unit is associated with events that have made a significant contribution to the broad patterns of our history
B -- Inventory Unit is associated with the lives of persons significant in our past

C -- Inventory Unit embodies distinctive characteristics of type/period/method of construction; or represents work of master; or possesses high artistic values; or represents significant/distinguishable entity whose components lack individual distinction
D -- Inventory Unit has yielded, or is likely to yield, information important to prehistory or history

Period Of Significance

Time Period: 1771 - 1883 AD

Historic Context Theme:	Shaping the Political Landscape
Historic Context Subtheme:	The American Revolution
Historic Context Facet:	War in the North
Historic Context Theme:	Developing the American Economy
Historic Context Subtheme:	Manufacturing Organizations
Historic Context Facet:	Fabricated Metal And Glass Products
Historic Context Theme:	Expressing Cultural Values
Historic Context Subtheme:	Architecture
Historic Context Facet:	Vernacular Architecture
Historic Context Theme:	Developing the American Economy
Historic Context Subtheme:	Extraction or Mining Industries
Historic Context Facet:	Iron And Ferro Alloys
Historic Context Theme:	Developing the American Economy
Historic Context Subtheme:	The Farmer's Frontier
Historic Context Facet:	Farming the Mid-Atlantic
Historic Context Theme:	Expanding Science and Technology
Historic Context Subtheme:	Technology (Engineering and Invention)
Historic Context Facet:	Extraction And Conversion Of Industrial Raw Materials
Historic Context Theme:	Expanding Science and Technology
Historic Context Subtheme:	Technology (Engineering and Invention)
Historic Context Facet:	Industrial Production Processes (Including Agriculture)
Historic Context Theme:	Developing the American Economy
Historic Context Subtheme:	Transportation by Land and Air
Historic Context Facet:	Wagons and Wagon Roads

Area Of Significance:

Category:	Industry
Priority:	1
Category:	Architecture

Priority:	2
Category:	Transportation
Priority:	3
Category:	Agriculture
Priority:	4
Category:	Military
Priority:	5

National Historic Landmark Information

**National Historic
Landmark Status:** No

World Heritage Site Information

World Heritage Site Status: No

Cultural Landscape Type and Use

Cultural Landscape Type: Historic Vernacular Landscape
Historic Site

Current and Historic Use/Function:

Use/Function Category: Industrial/Processing/Extraction
Use/Function: Manufacturing Facility (Mining)
Detailed Use/Function: Manufacturing Facility (Mining) - Other
Type Of Use/Function: Historic

Use/Function Category: Agriculture/Subsistence
Use/Function: Woodlot/Forest (Managed)
Detailed Use/Function: Woodlot/Forest (Managed)
Type Of Use/Function: Historic

Use/Function Category: Agriculture/Subsistence
Use/Function: Agricultural Field
Detailed Use/Function: Agricultural Field
Type Of Use/Function: Both Current And Historic

Use/Function Category:	Religion
Use/Function:	Religious Structure (church)
Detailed Use/Function:	Religious Structure (church)
Type Of Use/Function:	Historic
Use/Function Category:	Landscape
Use/Function:	Natural Area
Detailed Use/Function:	Forest
Type Of Use/Function:	Both Current And Historic
Use/Function Category:	Landscape
Use/Function:	Leisure-Passive (Park)
Detailed Use/Function:	Leisure-Passive (Park)
Type Of Use/Function:	Current
Use/Function Category:	Recreation/Culture
Use/Function:	Outdoor Recreation
Detailed Use/Function:	Picnic Shelter
Type Of Use/Function:	Current
Use/Function Category:	Domestic (Residential)
Use/Function:	Single Family Dwelling
Detailed Use/Function:	Single Family House
Type Of Use/Function:	Both Current And Historic
Use/Function Category:	Domestic (Residential)
Use/Function:	Village Site
Detailed Use/Function:	Village Site
Type Of Use/Function:	Both Current And Historic
Use/Function Category:	Recreation/Culture
Use/Function:	Museum (Exhibition Hall)
Detailed Use/Function:	Museum (Exhibition Hall)-Other
Type Of Use/Function:	Current

Ethnographic Information

Ethnographic Survey Conducted: Yes-Unrestricted Information

ERI Database

ERI ID:	HOFUER0001
Name/Description:	Hopewell Village
Explanatory Narrative	The Bird family, whose ancestors built and worked at

Hopewell Furnace, periodically hold family reunions at the park.

ERI ID: HOFUER0004
Name/Description: Bethesda Baptist Church and Cemetery
Explanatory Narrative: Thomas Lloyd established the Bethesda Baptist Church, a one room structure with associated cemetery encircling it.

ERI ID: HOFUER0005
Name/Description: Genealogical Database
Explanatory Narrative: Database of genealogies of families historically associated with Hopewell Furnace.

ERI ID: HOFUER0006
Name/Description: Oral Histories
Explanatory Narrative: Extensive files of oral histories conducted between 1938 and 1960.

ERI ID: HOFUER0007
Name/Description: Charcoal-making hearths
Explanatory Narrative: Various hearths on Hopewell lands, including hearth for charcoal-making demonstrations.

Associated Groups

Name of Peoples: Bird Family descendants
Type of Association: Both Current And Historic

Name of Peoples: Families: Lloyd, Bird, Houck, Painter, Cole, Millard, Grubb, and Care families
Type of Association: Both Current And Historic

Name of Peoples: Lloyd family descendants
Type of Association: Both Current And Historic

Name of Peoples: Charcoal-makers/volunteers
Type of Association: Both Current And Historic

Name of Peoples: Cole family descendants, African-Americans (Underground Railroad)
Type of Association: Both Current And Historic

Name of Peoples: African-Americans (Underground Railroad)
Type of Association: Historic

Significance Description:

Familial connections may constitute the strongest persistent cultural association with Hopewell. Several local families retain ongoing ties with the park. The Village itself appears to be an important site for family celebrations of shared ancestry. It is also a site that physically embodies a direct engagement with the history of Hopewell through the work performed in its restoration.

The Lloyd family established the Bethesda Baptist Church and Cemetery; though both are now owned by the NPS. Throughout the twentieth century the cemetery remained a burial site for many families with church associations, even after Hopewell Furnace was established as a national historic site. Flowers are occasionally left at graves in the cemetery, indicating clear ceremonial and emotional associations with the site.

The genealogical database is a key resource for many families researching their genealogies and the history of ancestral relationships to the Hopewell Furnace community and ironmaking operations. It relates people to a time before the establishment of the park. The database's importance is historical and familial.

The oral histories files are historically important as sources of additional information for family members tracing ancestry through the Hopewell genealogical database. The files also contain information about particular objects acquired for display at Hopewell. The objects themselves may be ethnographic resources, if descendants of family members who donated or sold them to the park continue to see them as important in their family histories.

Knowledge of charcoal-making persists in concrete demonstrations of charcoal-making practices. These demonstrations, and the expert knowledge needed to carry them out, link a group of contemporary volunteers to Hopewell's past. Park resources used in the demonstrations—preferred species of wood, hearths, and the resulting charcoal—may be viewed as ethnographic resources whose significance is found in the demonstrations themselves.

Adjacent Ethnographic Resources include areas outside of, but immediately adjacent to, Hopewell Furnace NHS. The most important of these are directly related to the interpretive themes of Hopewell, specifically to the history of the Underground Railroad in the area. Although slavery in Berks County declined rapidly after the Assembly declared gradual emancipation in 1780, many African-Americans stayed on at the furnace as paid workers. Some of Hopewell's African Americans lived in the nearby forest where the community of Six Penny Creek was later founded. This area figured prominently in the Underground Railroad, as slaves came across the hills near Hopewell Furnace to stop at the home of Elizabeth Scarlet and her son Joseph, owner's of Scarlett's Mill. Many of these African Americans worked at the local furnaces and some, like Isaac Cole, even became landowners. The Mt. Frisby African Methodist Episcopal (AME) Church and cemetery were built on Isaac Cole's land, and are maintained by members of the Cole family. (PHSO 2002 from Hopewell Furnace NHS Ethnographic Resource Inventory Report)

Adjacent Lands Information

Do Adjacent Lands Contribute? Yes

Adjacent Lands Description:

The area immediately surrounding Hopewell Furnace National Historic Site is timbered park or otherwise state owned lands. French Creek State Park is located to the north, east, and west of the

park, and includes lands once owned by Hopewell Furnace. The Adjacent Land Study conducted by the KFS Cultural Resource Group suggests that virtually every surviving eighteenth or nineteenth century property within a five-mile radius likely has some historic association with Hopewell. Many of these properties are privately owned, nevertheless still reveal an important part of Hopewell's interpretive history. (summarized from 1997 Adjacent Lands Study)

General Management Information

Management Category: Not Specified

Management Category Date:

Explanatory Narrative:

Condition Assessment And Impacts

The criteria for determining the condition of landscapes is consistent with the Resource Management Plan Guideline definitions (1994) and is decided with the concurrence of park management. Cultural landscape conditions are defined as follows:

Good: indicates the landscape shows no clear evidence of major negative disturbance and deterioration by natural and/or human forces. The landscape's cultural and natural values are as well preserved as can be expected under the given environmental conditions. No immediate corrective action is required to maintain its current condition.

Fair: indicates the landscape shows clear evidence of minor disturbances and deterioration by natural and/or human forces, and some degree of corrective action is needed within 3-5 years to prevent further harm to its cultural and/or natural values. If left to continue without the appropriate corrective action, the cumulative effect of the deterioration of many of the character-defining elements will cause the landscape to degrade to a poor condition.

Poor: indicates the landscape shows clear evidence of major disturbance and rapid deterioration by natural and/or human forces. Immediate corrective action is required to protect and preserve the remaining historical and natural values.

Undetermined: Not enough information available to make an evaluation.

Condition Assessment: Fair

Assessment Date:

Date Recorded: 12/04/2002

Park Management Concurrence: No

Level Of Impact Severity: Moderate

Stabilization Measures:

The items listed under the following impacts section describe the issues that are impacting both the condition and integrity of this park unit. If the impact is affecting condition, the impact is listed, along with a stabilization method and cost estimate to perform the stabilization procedure.

It should be noted, however, that the park will have future maintenance costs involved with this

park unit's impacts to keep the landscape in good condition. These maintenance costs are not included in the stabilization cost estimates listed within this report.

Impact:

Type of Impact: Vegetation/Invasive Plants
Internal/External: Internal

Description:

Exotic invasive vegetation at Hopewell can pose potential threats to both the cultural landscape and the forest in general. Approximately 115 exotic plants have been identified growing at Hopewell Furnace. Asiatic bittersweet [*Celastrus orbiculatus*] and Japanese honeysuckle [*Lonicera japonica*] are major vegetative issues at Hopewell. They are encroaching in agricultural fields, former home sites, and along the border of forest and field and are in danger of spreading further. Other plant materials such as multiflora rose [*Rosa multiflora*] and tree of heaven [*Ailanthus altissima*] also pose problems in recently disturbed sites. Unchecked plant growth is also working its way into retaining walls, which will eventually contribute to their failure. (PHSO 2002 from CLR and Resource Management Plan 1994 Draft)

Agreements, Legal Interest, and Access

NPS Legal Interest: Fee Simple
Explanatory Narrative:
Public Access: Unrestricted

Treatment

Approved Treatment: Preservation
Approved Treatment Document: Cultural Landscape Report
Document Date: December 1, 1997

Explanatory Narrative:

Preservation recognizes the long and significant history of the site, acknowledging the site's evolution as a cultural landscape over a period of more than two hundred years.

Approved Treatment Completed:

Approved Treatment Cost

**LCS Structure Approved
Treatment Cost:**

**Landscape Approved
Treatment Cost:**

Cost Date:

Level of Estimate:

Cost Estimator:

Explanatory Description:

Stabilization Costs

LCS Structure Stabilization Cost:

Landscape Stabilization Costs:

Cost Date:

Level Of Estimate:

Cost Estimator:

Explanatory Description:

A discussion between park and CLI staff will be necessary to determine cost estimates for the Landscape Stabilization Costs. The primary landscape stabilization measure will need to encompass the invasive vegetation growth as well as the relationship between the wooded and open spaces in the site.

Documentation Assessment and Checklist

Documentation Assessment: Fair

Documentation:

Document: Historical Base Map

Year Of Document: 1935

Adequate Documentation:

Explanatory Narrative:

Appleman, Roy Edgar. "Map of Hopewell Village & Ruins."

Document: Historical Base Map

Year Of Document: 1937

Adequate Documentation:

Explanatory Narrative:

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Document: Historical Base Map

Year Of Document: 1946

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Explanatory Narrative:

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Document: Historical Base Map

Year Of Document: 1956

Adequate Documentation:

Explanatory Narrative:

National Park Service. "Historic Vegetative Map"

Document: Special Resources Study

Year Of Document: 1987

Adequate Documentation:

Explanatory Narrative:

Russell, Emily W. B. "Vegetation Study Hopewell Furnace National Historic Site"

Document: Other

Year Of Document: 1992

Amplifying Details: Field Maintenance Plan

Adequate Documentation:

Explanatory Narrative:

Stone, Roger et. al. "Hopewell Furnace NHS Field Maintenance Plan"

Document: Resource Management Plan
Year Of Document: 1993
Adequate Documentation:
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Sharpe, William E., and C. William Neff. "Hopewell Furnace National Historic Site Water Resource Management Plan" Final Report

Document: Statement for Management
Year Of Document: 1993
Adequate Documentation:
Explanatory Narrative:
Cook, Derrick M. "Statement for Management, Hopewell Furnace National Historic Site"

Document: Other
Year Of Document: 1994
Amplifying Details: Historic Scene Report Draft
Adequate Documentation:
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Explanatory Narrative:
Graham, A. William, Jr. "Forest Age Documentation and Other Forest Management Issues at Hopewell Furnace NHS"

Document: Cultural Landscape Report
Year Of Document: 1997
Adequate Documentation:
Explanatory Narrative:
Compiled by KFS Cultural Resources Group in association with Menke & Menke

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