



North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office

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Office of Archives and History
Deputy Secretary Kevin Cherry

November 1, 2017

MEMORANDUM

To: Kate Husband, Architectural Historian klhusband@ncdot.gov
NCDOT/PDEA/HES

From: Renee Gledhill-Earley 
Environmental Review Coordinator

Subject: Historic Structures Survey Report, Replace Bridge No. 79 on SR 1402 (Long Creek Road), PA 17-05-0026, Gaston County, ER 17-1846

Thank you for your September 28, 2017, memorandum transmitting the above-referenced report. We apologize for the delayed response caused by staffing shortages.

We have reviewed the report and concur that the Washington-Ormand Furnace (GS0194) is eligible for listing in the National Register of Historic Places under Criterion A for Industry and possibly under Criterion D for information it may yield about history. To that end, we offer the following comments.

The report states that "To date, no archaeological studies have been undertaken". This is incorrect. The site was recorded in 1987 as part of a grant-funded report "Investigations into early iron works in south-central NC" and is included in the Office of State Archaeology's survey files as Site #31GS147. We, therefore, recommend that the property be considered as possibly eligible under Criterion D and the boundaries more thoroughly investigated and defined by an experienced archaeologist. This is especially important as the report is unclear on the property's boundaries. Page 8 says it is on an 11.96-acre tract and pages 14 and 17 say 10.96-acre tract.

Besides being a local historic landmark designated by the Gaston County Historic Preservation Commission 1987. We would note that the furnace was placed on the State Study List in 1974. Given the above concerns, we will look forward to a revised report.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579 or renee.gledhill-earley@ncdcr.gov. In all future communication concerning this project, please cite the above-referenced tracking number.

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HISTORIC STRUCTURES SURVEY REPORT

**REPLACE BRIDGE NO. 79 ON SR 1402 (LONG CREEK ROAD) OVER UT TO LONG CREEK
GASTON COUNTY, NORTH CAROLINA**

**WBS No. 17BP.12.R.67
Limited Services Contract No. 7000016411**

Prepared by:

**Frances Alexander, Project Manager
Mattson, Alexander and Associates, Inc.
2228 Winter Street
Charlotte, North Carolina 28205**

Prepared for:

**North Carolina Department of Transportation
Human Environment Section
Raleigh, North Carolina**

18 September 2017

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MATTSON, ALEXANDER AND ASSOCIATES, INC.

Frances P. Alexander

18 September 2017

Frances P. Alexander, M.A.

Date

Richard L. Mattson, Ph.D.

Date

North Carolina Department of Transportation

Date

MANAGEMENT SUMMARY

The North Carolina Department of Transportation (NCDOT) is replacing Bridge No. 79 on SR 1402 (Long Creek Road) over UT to Long Creek in Gaston County. NCDOT architectural historians conducted a reconnaissance review of the area of potential effects (APE) and identified one historic property—the Washington-Ormand Furnace (GS0194)—that required intensive-level investigation to determine National Register eligibility. This report contains the eligibility evaluation for the furnace. Bridge No. 79 did not warrant intensive-level examination. Built in 1952, the bridge is not eligible for National Register listing according to the NCDOT Historic Bridge Inventory (2005). The project location is depicted in **Figure 1**, and the APE is shown in **Figure 2**.

This architectural resources investigation consisted of background research into the historical and architectural development of the study area and a field survey of the APE. The principal investigators surveyed the entire APE, defined as the geographic area or areas within which a project may cause changes to the character or use of historic properties, if any such properties exist. The APE for this bridge replacement project extends seventy-five (75) feet in each direction from the center line of the existing roadway as well as extending 300 feet from each end of the bridge.

An in-depth field investigation of the Washington-Ormand Furnace was undertaken in August 2017. The property had been added to the Study List in 1974 and designated a local landmark in Gaston County in 1987. (The local landmark designation report identified the property as the Ormand Furnace.) The intensive-level evaluation contained within this report recommends the furnace for National Register eligibility (**Table 1**).

Table 1

Property Name	Survey Site Number	Eligibility Recommendation
Washington-Ormand Furnace	GS0194	Eligible

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I. INTRODUCTION

This eligibility report was prepared in conjunction with the North Carolina Department of Transportation (NCDOT) project entitled, *Replace Bridge No. 79 on SR 1402 (Long Creek Road) over UT to Long Creek (TIP No. N/A)*. The WBS Number is 17BP.12.R.67. The project is located in Gaston County and is shown in **Figure 1**.

The area of potential effects (APE) for this bridge replacement project extends seventy-five (75) feet in each direction from the center line of the existing roadway as well as extending 300 feet from each end of the bridge. The APE was drawn to include any area that might be affected by the proposed improvements. The Washington-Ormand Furnace (GS0194) was the only resource within the APE that warranted intensive-level investigation (**Table 1**). The furnace was added to the Study List in 1974 and designated a Gaston County local landmark as the Ormand Furnace in 1987. The property is shown on the APE map (**Figure 2**).

This investigation was conducted to evaluate this one resource for National Register eligibility. The current evaluation of eligibility report is part of the environmental studies undertaken by NCDOT and is on file at NCDOT, Raleigh, North Carolina. This documentation complies with the National Environmental Policy Act (NEPA) of 1969, the National Historic Preservation Act of 1966, as amended (36 CFR 800), the National Register criteria set forth in 36 CFR 61, and NCDOT's current *Historic Architecture Group Procedures and Work Products*. The report also complies with the *Report Standards for Historic Structure Survey Reports/Determinations of Eligibility/Section 106/110 Compliance Reports in North Carolina* established by the North Carolina Historic Preservation Office (HPO). Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effect of federally funded, licensed, or permitted projects on properties listed in, or eligible for listing in, the National Register of Historic Places and to afford the Advisory Council on Historic Preservation and the North Carolina Historic Preservation Office a reasonable opportunity to comment.

The eligibility evaluation consisted of research into the history and architecture of the resource and a field survey of the property. For the research phase, both primary and secondary sources were examined, including deeds, the HPO survey files for Gaston County, and the Gaston County local landmark report for the furnace. Mrs. Lucy Penegar with the Gaston County Historic Preservation Commission provided helpful information about the property which is a designated local landmark.

Field work took place in August 2017. The furnace, along with other structures and landscape features on the site, were examined and documented with photographs to assess the level of current integrity. The current tax parcel for the property is shown on the site plan (**Figure 3**).

Table 1

Property Name	Survey Site Number	Eligibility Recommendation
Washington-Ormand Furnace	GS0194	Eligible

Figure 1
Project Location Map

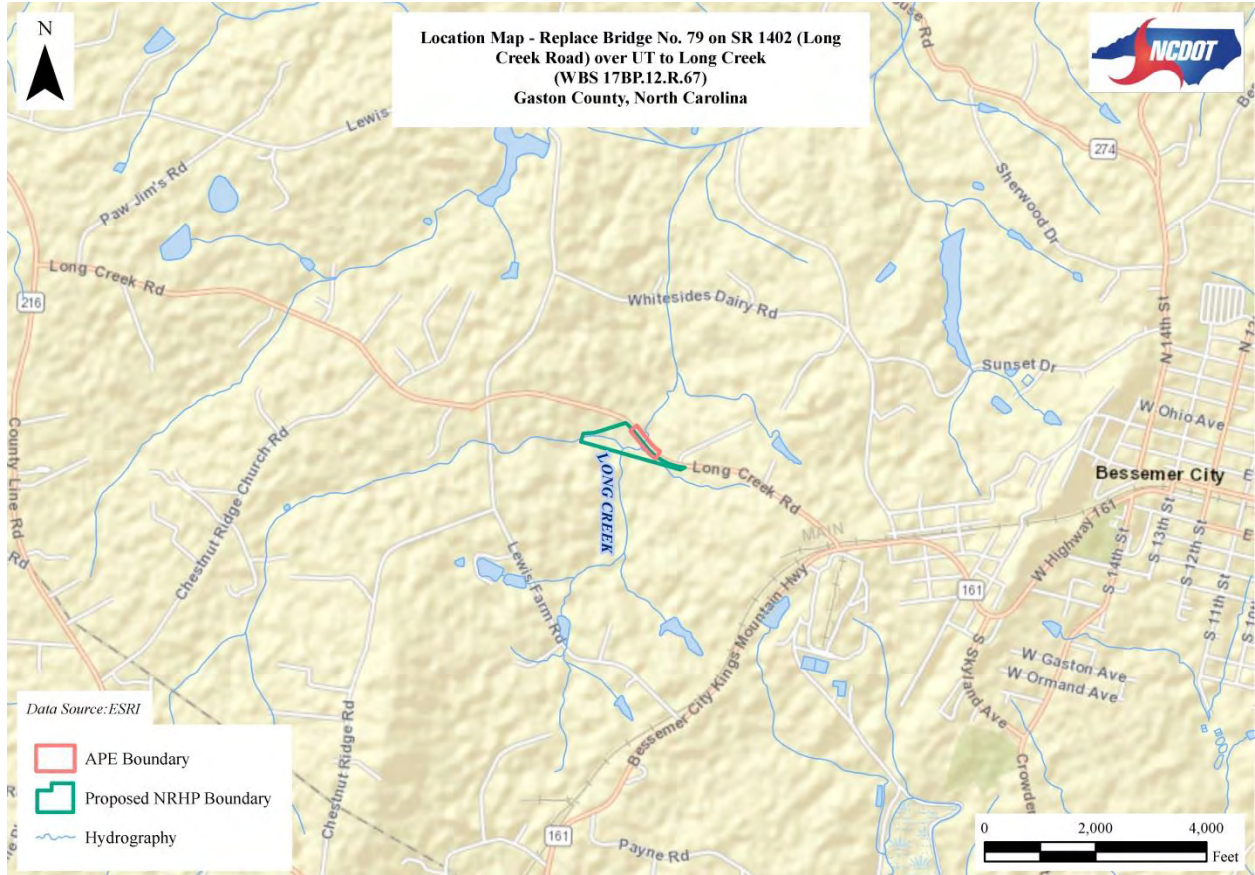
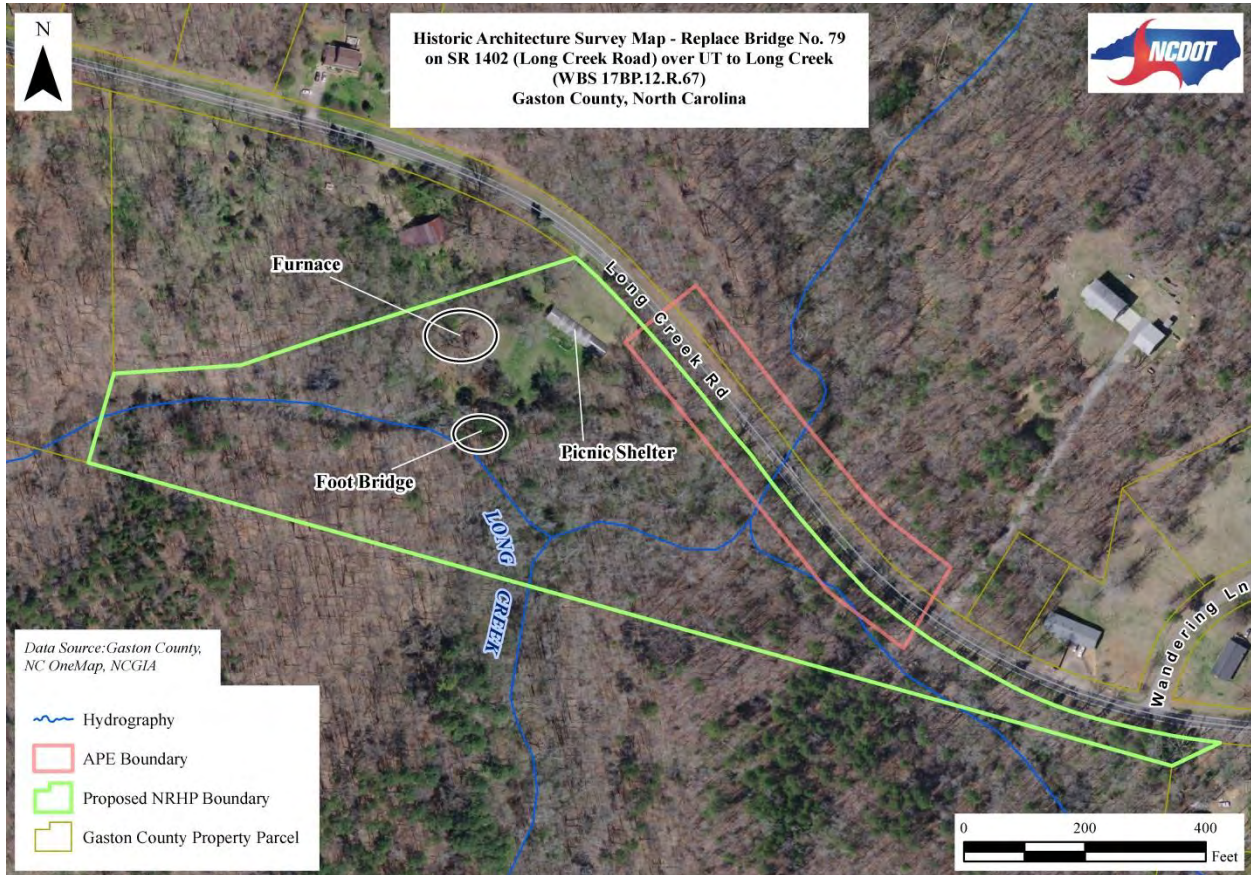


Figure 2
Area of Potential Effects (APE) Map



II. PROPERTY EVALUATION OF ELIGIBILITY

Washington-Ormand Furnace (GS0194) (PIN 3506 77 9210) (Local Landmark 1987)

517 Long Creek Road
Bessemer City, Gaston County

Date of Construction: circa 1786
Eligibility Recommendation: Eligible

Physical Description (Figures 3-4)



The Washington-Ormand Furnace is located in a relatively flat clearing within an 11.96-acre tract on the south side of Long Creek Road near Bessemer City in western Gaston County. A branch of Long Creek winds through the tract, and a modern, wooden foot bridge crosses over the creek south of the furnace. The furnace stands against a steep embankment along the northwest side of the parcel. Furnaces of this period commonly took advantage of such adjacent hillsides for loading fuel into the tall stack and unloading the iron ore. On the south side, the furnace measures approximately twenty feet tall but is tapered towards the top to allow for the conical, interior flue that rises from the bosh, the hottest part of the furnace. The furnace appears to have been originally constructed of unmortared, rough-quarried granite on the exterior with a lining of rubble rock and clay. The best evidence of the original exterior masonry work remains around the west and south sides of the base where the granite blocks are laid in fairly consistent courses to a height of about twelve feet. Other sections of the base and the entire stack now consist mainly of exposed rubble-rock and clay lining, and a portion of the stack top is now gone. The existence of numerous granite blocks scattered around the site indicates that they constituted the original furnace exterior but gave way over decades of furnace firings. The fire opening with angled walls and an iron lintel is located on the south side of the structure. Rubble now fills this opening preventing an examination of the interior. There is no above-ground evidence of iron or other materials on the site, and there are no other remaining structures or buildings historically associated with the furnace.

In addition to the iron furnace and the foot bridge, the property contains a substantial, modern picnic shelter erected by members of the Ormand family. Situated near the short entrance drive leading from Long Creek Road, the shelter is a long, rectangular structure with a gabled roof, wooden supports, and a concrete pad. The property is surrounded by barbed wire fence, and a chain link fence encloses the furnace.

The site also contains a millstone that now rests beside the furnace. Its historic function on this property is not known, and the stone may have been relocated to the site in the 1970s when preservation efforts began. However, the millstone may also predate the furnace at this site. Ironmasters in the eighteenth and nineteenth centuries often acquired land that included existing grist mills because the mills already had the dam, raceway, and waterwheel necessary for iron making (Lucy Penegar Interview 2017; www.motherbedford.com/Ironworks).



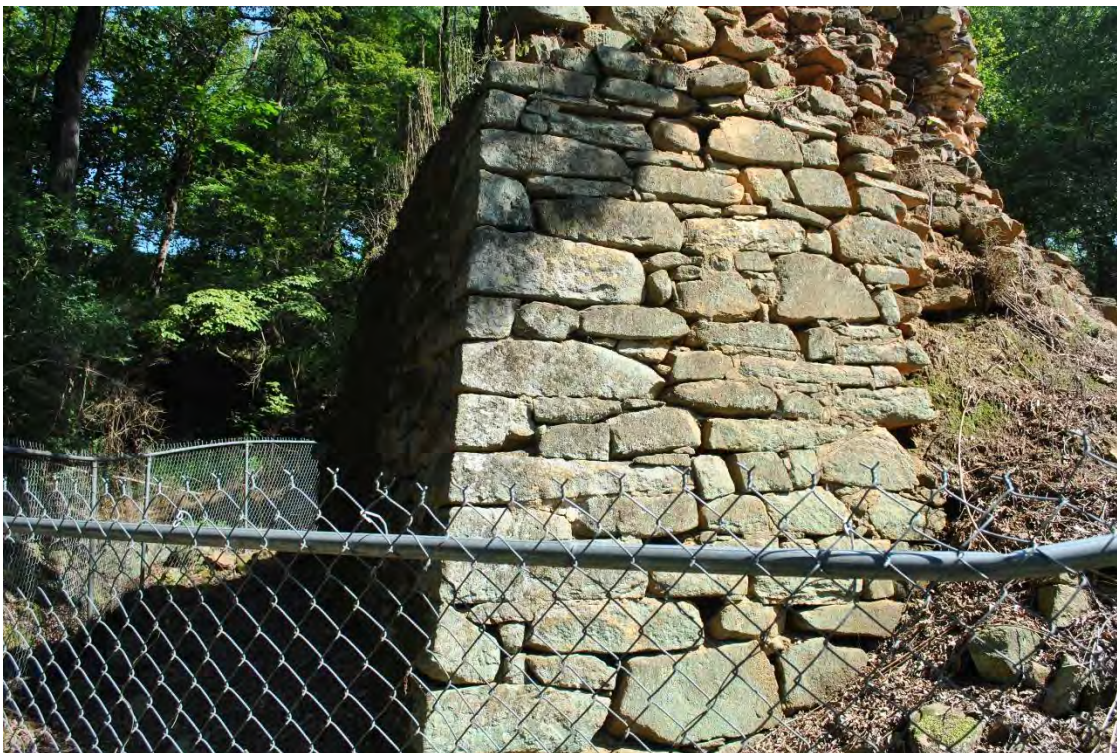
Washington-Ormand Furnace, Overall View, Looking West.



Washington-Ormand Furnace, Overall View, Looking Northeast.



Washington-Ormand Furnace, Overall View, Looking East.



Washington-Ormand Furnace, Masonry Exterior, Looking Northeast.



Washington-Ormand Furnace, Fire Opening, Looking West.



Washington-Ormand Furnace, Modern Picnic Shelter, Looking Northeast.



Washington-Ormand Furnace Tract, Modern Foot Bridge Over Long Creek, Looking South.

Historical Background

In 1786, John Sloan of Mecklenburg County purchased 350 acres in what was then western Lincoln County (the area became part of Gaston County at its formation in 1846) from Thomas Espy for the purpose of operating an iron furnace. While oral tradition has this furnace in existence prior to the Revolutionary War, the facility was probably put into use shortly after the war by Sloan who gave the operation its patriotic name, Washington Furnace. A chimney fireback produced at the furnace and now owned by John Hovis in Boone, North Carolina, is inscribed, "Washington Furnace 1788." The enterprise soon attracted new investors. In 1791, William Hill, an ironmaster, purchased a one-third interest in the furnace, and in 1793, Joseph Atkinson and Daniel Bourdeaux acquired the remaining interests from Sloan (Lincoln County Deed Books 3: 484; 17: 26, 32; 19: 78; Gaston County Historic Preservation Commission, Ormand Furnace, 1986: 1-2).

By the early nineteenth century, Washington Furnace had become one of the more profitable iron furnaces in the region. The furnace was advantageously sited near an iron ore bank and a branch of the Long Creek that powered the bellows used to intensify the charcoal fire. The furnace was situated against a steep embankment from where the iron ore, charcoal, and lime (as a flux) were fed into the chimney stack. The furnace produced iron implements for domestic and agricultural uses but primarily supplied pig iron (iron bars) for the nearby High Shoals foundry and forge on the South Fork of the Catawba River. In 1808, John Fulenwider, a German-born iron master at High Shoals, purchased a half interest in the iron furnace from the Hill family and in 1809 acquired the entire operation. Taking advantage of generous state subsidies to encourage iron production, Fulenwider accumulated vast iron-manufacturing holdings in the western Piedmont that included

High Shoals in Gaston County, Maiden Forge in Catawba County, a furnace at Little Mountain also in Catawba County, and a second furnace on the extensive Washington Furnace tract which Fulenwider had expanded to nearly 5,000 acres. The Washington Furnace was described as the “old furnace” in the 1819 tax records. Tax records for that year also described Fulenwider as owning 32,698 acres of timber land surrounding his iron furnaces that were valued at \$20,940.00 (Lincoln County Deed Books 23: 501-504; 25: 451; Gaston County Historic Preservation Commission, Ormand Furnace, 1986: 2; Ragan 2010: 189-193).

Following Fulenwider’s death in 1826, his family sold the original 350-acre Washington Furnace property to neighbor Benjamin Ormand. The Ormands apparently operated the furnace as a small family business that supplemented their farming operations. They sold pig iron to the High Shoals Iron Foundry which, in 1850, consumed 936 tons of iron ore and contained a rolling mill, nail factory, and a blast furnace. After the death of Benjamin Ormand in 1853, his three sons, John, Benjamin, and Robert, established the Ormand Mining Company that included the furnace and an adjacent iron ore tract (Gaston County Historic Preservation Commission, Ormand Furnace, 1986: 3; Benjamin Ormand Will, Gaston County Collection).

While the Civil War spurred production at the Ormand mine and furnace, the war’s aftermath brought widespread economic depression that crippled the area’s ironmaking industry. An 1873 government report on the iron industry around High Shoals noted that the foundries and furnaces were abandoned and in disrepair, and iron ore land had been contaminated by other minerals. However, the study also stated that the High Shoals area still offered industrial potential. The report noted that the Ormand ore bank was especially rich in manganese which could be used for industrial purposes. A second report in 1885 encouraged speculation in iron manufacturing as well as gold mining in this area, but this industrial potential was never realized (Winter 1873; Winslow 1885: 92-95; Gaston County Historic Preservation Commission, Ormand Furnace 1986: 3).

Hampered by many factors, including poor transportation, scant capital for improvements, and the decline of available timber for charcoal, the Ormand Mining Company operated on a limited basis through the late nineteenth century, primarily shipping ore to a smelting operation in Greensboro, North Carolina. In 1892, the town of Bessemer City was established on Ormand family property, east of the furnace tract, and named for the Bessemer process for producing steel. Despite this implied association, the economy of the town was based primarily on the textile industry, not iron manufacturing (Gaston County Historic Preservation Commission, Ormand Furnace, 1986: 3-4).

In 1918, the Ormand Mining Company conveyed the furnace tract, by then no longer in operation, to Robert D. Ormand. The property remained in the Ormand family until 1968 when the tract was divided into two parcels and sold to Bessemer City investors. The following year, Joe and Lida Whitehurst acquired the nearly eleven-acre parcel containing the furnace, and in 1972 conveyed the land to the Old Furnace Foundation, Inc., a non-profit organization committed to preserving the property. Foundation volunteers maintain the property and have erected a picnic shelter on the grounds (Gaston County Deed Book 190: 245; 1080: 531; Gaston County Historic Preservation Commission, Ormand Furnace, 1986: 4; Cope and Wellman 1977: 134).

National Register Criteria Evaluation

For purposes of compliance with Section 106 of the National Historic Preservation Act (NHPA), the Washington-Ormand Furnace is recommended **eligible** for the National Register under Criterion A for industry. The period of significance extends from circa 1786 when John Sloan purchased the tract and built the furnace to circa 1918 when the Ormand Mining Company, which by then had ceased operations, conveyed the property to Robert D. Ormand. The furnace was designated a local landmark by the Gaston County Historic Preservation Commission in 1987.

Integrity

The Washington-Ormand Furnace retains the seven aspects of integrity needed for National Register eligibility under Criterion A. The furnace has integrity of location, having occupied this site along Long Creek since its circa 1786 construction. The furnace also retains integrity of setting, feeling, and association. The furnace is situated on a rolling, 10.96-acre tract traversed by Long Creek and its branches in a rural part of western Gaston County. The only modern features on the property are the wooden picnic shelter and a small foot bridge which are both sited at some distance from the furnace. The large stone furnace remains in stable condition and retains sufficient integrity of design, materials, and workmanship for eligibility under Criterion A for industry. The design of the furnace, with its fire opening at the base beneath a lead lintel, and tall, battered, stone stack, remains intact. The rubble-rock and clay interior lining beneath an exterior of rough-dressed granite blocks is also evident. A portion of the stack is now missing, and sections of the original granite walls are no longer extant, but the remaining stack and granite elevations illustrate clearly the typical furnace form, materials, and method of construction. The furnace appears unchanged since its local landmark designation in the 1980s.

Criterion A

The Washington-Ormand Furnace is **eligible** for the National Register under Criterion A for industry (Event). To be eligible under Criterion A, the property must retain integrity and must be associated with a specific event marking an important moment in American prehistory or history or a pattern of events or historic trend that made a significant contribution to the development of a community, a state, or a nation. Furthermore, the property must have existed at the time and be documented to be associated with the events. Finally, the property's specific association must be important as well (National Park Service, *National Register Bulletin 15*: 12).

The furnace is a rare surviving example of the iron furnaces that arose around iron deposits primarily in the North Carolina Piedmont between the late eighteenth century and the Civil War. Operating as Washington Furnace by 1786, this resource is the oldest of only four surviving furnaces in Lincoln and Gaston counties, and the only remaining iron furnace in Gaston County. The other existing furnaces, all in Lincoln County, are the circa 1809 Madison Furnace (LN0481) (Study List 1986), the 1814 Rehoboth Furnace (LN0457) (Study list 1969), and the 1862 Stonewall Iron Furnace (LN0548) (Study List 1986). Similar to the Washington-Ormand Furnace, they are large, unmortared, granite structures with battered forms, center shafts, and fire openings at the bases.

In typical fashion, Washington Furnace was sited against a steep embankment from which iron ore, charcoal, and lime could be fed into the top of the furnace stack. The maximum height of such furnaces was approximately thirty-five feet because the heavier loads of ores and fuel that could be accommodated in taller stacks would have suffocated the fires below. The proximity of creeks for

water power was also integral to the process. Water power operated the bellows that pumped oxygen into the furnace to produce the necessary high heat. The embankments were typically the sites of the waterwheels (Brown and York 1986: 258-261).

While iron furnaces had been operating in North Carolina before the Revolutionary War, the industry developed significantly in the late eighteenth and early nineteenth centuries. In 1788, the North Carolina General Assembly passed an act “to encourage the building of iron works in the state.” The legislature generously offered each new ironworks 3,000 acres of land unfit for cultivation. If a newly established operation produced 5,000 pounds of iron in three years, the state unconditionally granted the land to the company and exempted the property from taxation for a decade. The construction of iron furnaces, foundries, and forges was especially robust around the major iron deposits found in Lincoln County which encompassed present-day Gaston County until 1845. In this area, ironmaster, John Fulenwider, operated the Washington Furnace and a collection of other profitable furnaces around his large High Shoals Iron Foundry. Lincoln County planter families that included the Grahams, Forneys, Brevards, and Davidsons also prospered from their investments in furnaces, forges, and mining operations. In 1790, ironmaster, Joseph Graham, established a large furnace (now ruinous) along Anderson Creek on his expansive Vesuvius Furnace plantation (LN0012) (National Register 1974). Nearby, the 1795 Mount Tirzah Forge (LS0598) (now gone), the circa 1809 Madison Furnace (LN0481) (Study List 1986), and the 1814 Rehoboth Furnace (LN0457) (Study List 1969) all thrived on the banks of Leepers Creek. In the Iron Station community, the Forney family in 1789 opened a successful mining business at the Big Ore Bank (Brown and York 1986: 44, 220, 222, 254, 258-261; Bishir and Southern 2003: 467-468).

These successful pioneering efforts were joined by other area furnaces and forges through the antebellum years and into the Civil War. Operated in large measure by slave labor, they made a variety of farm and household implements as well as iron castings transported overland to markets in North and South Carolina. By 1823, Lincoln County contained ten iron furnaces and four forges manufacturing some 900 tons of bar iron and 200 tons of castings. Through the antebellum period, county furnaces led the state in iron production with skilled iron workers fabricating a wide range of products, from horse shoes and wagon wheels to sophisticated steam engines and farm machinery (Brown and York 1986: 258-261).

The North Carolina iron industry declined sharply after the Civil War and effectively disappeared by the early twentieth century. The end of slave labor and deforestation, which limited the supply of charcoal for firing the furnaces, altered the economics of producing iron in North Carolina. More importantly, however, the opening of the anthracite, or hard, coal fields of Pennsylvania in the 1830s and the subsequent development of the anthracite cold blast furnace transformed iron production in the U.S. The dispersed, charcoal-fired, water-driven furnaces quickly became obsolete. The high, steady heat of anthracite increased production, and by 1854, forty-five percent of all iron made in America was manufactured using hard coal. The use of anthracite for fuel soon concentrated iron making in Pennsylvania, a trend that only accelerated with the development of the Bessemer steel process in the late 1850s. The new process allowed steel to be produced economically on a large scale from molten pig iron, and with its rapid adoption, the American iron and steel industry became further centralized in Pennsylvania near the anthracite fields. With consolidation and changes in technology, Washington-Ormand Furnace and the other iron making and mining operations in the western Piedmont all shut down operations by the early twentieth century (www.historync.org/ironforging; Chandler 1977: 76, 245).

Criterion B

The Washington-Ormand Furnace is **not eligible** for the National Register under Criterion B (Person). For a property to be eligible for significance under Criterion B, it must retain integrity and 1) be associated with the lives of persons significant in our past, i.e. individuals whose activities are demonstrably important within a local, state, or national historic context; 2) be normally associated with a person's productive life, reflecting the time period when he/she achieved significance; and 3) should be compared to other associated properties to identify those that best represent the person's historic contributions. Furthermore, a property is not eligible if its only justification is that it was owned or used by a person who is or was a member of an identifiable profession, class, or social or ethnic group (National Park Service, *National Register Bulletin 15: 14*).

The iron furnace is not eligible under Criterion B because it is not associated with individuals whose activities were demonstrably important within a local, state, or national historic context.

Criterion C

The circa 1786 Washington-Ormand Furnace is **not eligible** for the National Register under Criterion C (Design/Construction). For a property to be eligible under this criterion, it must retain integrity and either 1) embody distinctive characteristics of a type, period, or method of construction; 2) represent the work of a master; 3) possess high artistic value; or 4) represent a significant and distinguishable entity whose components may lack individual distinction (National Park Service, *National Register Bulletin 15: 17*).

Although a rare industrial resource that survives from the late eighteenth century, the furnace no longer retains sufficient integrity to illustrate the engineering of these early charcoal-fired facilities. The furnace is in stable condition but has lost sections of its original quarry-dressed, granite-block walls and a portion of its upper stack. With these losses, the furnace is not recommended for eligibility under Criterion C for engineering.

No other iron furnaces remain extant in Gaston County, but three furnaces in adjacent Lincoln County retain their integrity of design, workmanship, and materials. The Madison and Rehoboth furnaces as well as the 1862 Stonewall Iron Furnace (LN0548) (Study List 1986) clearly display the characteristic trapezoidal form, executed in cut granite, and stacks that rise to approximately thirty-five feet, the optimum height for such furnaces. Each also has its triangular opening at the base (Brown and York 1986: 44, 220, 222, 254, 258-261; Bishir and Southern 2003: 467).

Criterion D

The Washington-Ormand Furnace **may be eligible** for the National Register under Criterion D (potential to yield information). For a property to be eligible under Criterion D, it must meet two requirements: 1) the property must have, or have had, information to contribute to our understanding of human history or prehistory; and 2) the information must be considered important (National Park Service, *National Register Bulletin 15: 21*).

To date, no archaeological studies have been undertaken on the Washington-Ormand Furnace site. However, such investigations could yield more information about the operations of this charcoal-fired iron furnace during the late eighteenth and nineteenth centuries. Any proposed development on the site should take into account the archaeological potential of the property under Criterion D.

National Register Boundary Description and Justification

Shown in **Figure 3**, the proposed National Register boundary the Washington-Ormand Furnace has been drawn according to the guidelines of National Register Bulletin 21, *Defining Boundaries for National Register Properties*.

The proposed boundary encompasses the current 10.96-acre tax parcel that conforms to the tract conveyed in 1972 to the Old Furnace Foundation, Inc., the non-profit organization that preserves the property. Part of the original 350-acre furnace tract of 1786, this parcel also conforms to the local landmark boundary designation. The current boundary encompasses the furnace, the adjacent embankment, and a section of Long Creek which contribute to the significance of the resource. The modern picnic shelter and foot bridge on the property are noncontributing resources. The proposed boundary follows the existing right-of-way along Long Creek Road.

Figure 3
Washington-Ormand Furnace
Site Plan and Proposed National Register Boundary Map



Source: Gaston County Tax Map

Scale: 1" = 600'

Figure 4
Washington-Ormand Furnace
Detailed Site Plan



Source: Gaston County Tax Map

III. BIBLIOGRAPHY

- Bishir, Catherine W. *North Carolina Architecture*. Chapel Hill, North Carolina: University of North Carolina Press, 1990.
- , and Michael T. Southern. *A Guide to the Historic Architecture of Piedmont North Carolina*. Chapel Hill, North Carolina: University of North Carolina Press, 2003.
- Brengle, Kim Withers. *The Architectural Heritage of Gaston County, North Carolina*. Raleigh: North Carolina Division of Archives and History, 1982.
- Brown, Marvin A., and Maurice C. York. *Our Enduring Past: A survey of 235 Years of Life and Architecture in Lincoln County, North Carolina*. Lincolnton, North Carolina: Lincoln County Historic Preservation Commission, 1986.
- Cappon, Lester J. "Iron-Making: A Forgotten Industry of North Carolina." *North Carolina Historical Review*, Vol IX, No. 4 (October 1932): 331-349.
- Chandler, Alfred D., Jr. *The Visible Hand: The Managerial Revolution in American Business*. Cambridge: Harvard University Press, 1977.
- Cope, Robert F. and Manly Wade Wellman. *The County of Gaston: Two Centuries of a North Carolina Region*. Baltimore: Gateway Press, Inc., 1977.
- Gaston County Historic Preservation Commission. *Proposal of the Ormand Furnace, Crowders Mountain Township to the Gaston County Historic Properties Register*. December 1986. Available online at www.gastongov.com.
- Gaston County Register of Deeds. Gastonia, North Carolina.
- Gaston County Wills. Gaston County Collection. North Carolina Division of Archives and History. Raleigh.
- Lincoln County Register of Deeds. Lincolnton, North Carolina.
- Peneger, Lucy. Interview with Richard Mattson. 21 August 2017. Ms. Penegar is a longtime member of the Gaston County Historic Preservation Commission.
- Ragan, Robert Allison. *The History of Gastonia and Gaston County, North Carolina*. Charlotte: Loftin and Company, 2010.
- North Carolina Division of Archives and History. *Vesuvius Furnace (Lincoln County)*. Nomination to the National Register of Historic Places. On file at the North Carolina Historic Preservation Office, 1974.
- Winslow, Arthur. *Annual Report of the North Carolina Experiment Station: Report on Priorities in North Carolina*. 1985.

Winter, F. "Report on the High Shoals Property in Gaston County, North Carolina." F. Winter, Geologist, Federal Archives, Washington, D.C. 1873.

www.motherbedford.com/Ironworks. Accessed 22 August 2017.

www.historync.org/ironforging. Accessed 18 August 2017.