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A CULTURAL HISTORIC SURVEY FOR THE HAWKS NEST–GLEN FERRIS HYDROELECTRIC PROJECT (FERC PROJECT NO. 2512), FAYETTE COUNTY, WEST VIRGINIA

by

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Prepared for

Hawks Nest Hydro, LLC

Prepared by

cra
cultural resource analysts, inc

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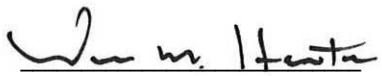

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Principal Investigator

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ABSTRACT

Under agreement with HDR, Inc. and on behalf of Hawks Nest Hydro, LLC, a subsidiary of Brookfield Renewable Energy Group, Cultural Resource Analysts, Inc. completed a cultural historic survey of an area of potential effects that included the Hawks Nest-Glen Ferris Hydro Electric Project permit area and 100 feet of the permit boundary. Cultural Resource Analysts completed a records review that revealed that five previously recorded cultural resources are located within the area of potential effects, two of which, the Glen Ferris Inn and the Hawks Nest State Park Historic District were listed in the National Register of Historic Places under Criteria A and C. The Glen Ferris Power Plant was previously recorded for the West Virginia Historic Property Inventory and recommended as eligible for the National Register of Historic Places, although the specific criteria for evaluation were not identified. Two of the previously recorded resources, the Honey Creek Bridge and the Cotton Hill Bridge, were found to have been razed.

Cultural Resource Analysts identified 34 architectural resources 50 years old or older within the area of potential effects during the field survey and recorded each to the standard of the West Virginia Historic Property Inventory. The existing historic properties identified as being within the area of potential effects are the Glen Ferris Inn, which is outside the permit area, and a portion of the Hawks Nest Sate Park Historic District within the permit area that contains no contributing resources, but is considered to be part of the park setting. Cultural Resource Analysts is recommending 17 additional architectural resources within the area of potential effects as eligible for the National Register of Historic Places, including the Hawks Nest State Park Gondola Landing and Nature Center, the Chesapeake and Ohio Railroad Bridge at Hawks Nest, the Chesapeake and Ohio Trestle over Cane Branch, the Benda property, and the "Horseshoe" Apartments, which is individually eligible for its architecture and is also recommended as a contributing element of the Glen Ferris Housing Subdivision, Lower Historic District, which also includes six houses and a church. Cultural Resource Analysts also recommends that four of the architectural resources are eligible for the National Register of Historic Places as part of two expansive historic sites, the Glen Ferris Development Historic Site and the Hawks Nest Development Historic Site, that encompass the full extent of the Hawks Nest-Glen Ferris Hydro Electric Project permit area. CRA recommends that the other 16 architectural resources identified during the field survey are not eligible for the National Register of Historic Places due to a lack of significance or a loss of integrity.

At this time, Hawks Nest Hydro, LLC does not have specific proposed operation plans or procedures that differ from the existing operation; the relicensing will not alter the *status quo* operation of the facility, and therefore has no potential to affect any historic properties that are located outside the permit area. However, Hawks Nest Hydro is currently evaluating the potential for new project facilities or upgrades, including powerhouse equipment replacement for life extension, modernization, and potential efficiency improvements that may affect elements of the Glen Ferris Development Historic Site and the Hawks Nest Development Historic Site. Therefore, Cultural Resource Analysts recommends that the applicant develop a Historic Property Management Plan to provide for the protection and appropriate management of the two historic sites, in addition to ongoing consultation with the West Virginia State Historic Preservation Office regarding any potential effects to the portion of the Hawks Nest State Park Historic District located within the project area. However, Cultural Resource Analysts found that in the absence of any specific undertaking, the continuation of the existing operation associated with the relicensing of the Hawks Nest-Glen Ferris Hydro Electric Project will have *no adverse effect* on any historic properties.

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I. INTRODUCTION

During August 13–15, 2013, Cultural Resource Analysts, Inc. (CRA) completed a cultural historic survey for the relicensing of the Hawks Nest-Glen Ferris Hydroelectric project in Fayette County, West Virginia (Figures 1–2). The goal of this cultural historic survey is to collect additional information regarding cultural resources within the Hawks Nest-Glen Ferris Project's (Project) area of potential effects (APE) to assist Hawks Nest Hydro, LLC (Hawks Nest Hydro), in identifying Project effects on historic properties. This cultural historic survey was conducted pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1996, as amended [36 CFR Part 800] and attendant state regulations that require the Federal agency responsible for an undertaking consider the potential of the undertaking to affect resources that may be listed in or eligible for inclusion in the National Register of Historical Places (NRHP).

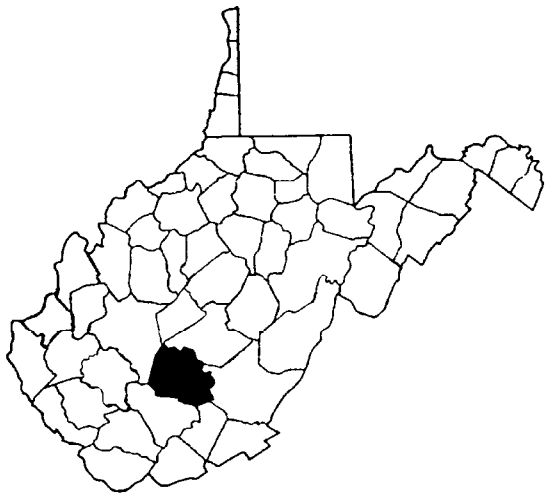

Figure 1. Location of Fayette County, West Virginia.

This cultural historic survey presents the results of CRA's efforts to identify and evaluate architectural resources 50 years and older located with the project's APE. All cultural resource work completed for this project was completed to conform to guidelines and expectations of the West Virginia State Historic Preservation Office (WVSHPO). This project was completed under agreement with HDR Engineering, Inc. (HDR), utilizing mapping provided by the client. The results of the Phase I archaeological survey are presented in a separate report (Moser 2013).

CRA historian William M. Hunter, Principal Investigator, conducted the records review, assembled the historic context, documented the properties in the field, and applied the National Register Criteria for Evaluation and Criteria of Adverse Effects. Jim Kompanek completed project CADD/GIS mapping and analyses. Darla Spencer completed report layout and production.

Project Description

Hawks Nest Hydro, a subsidiary of Brookfield Renewable Energy Group (Brookfield), is the Licensee, owner, and operator of the Hawks Nest Development (Hawks Nest) (FERC No. 2512) on the New River and the Glen Ferris Project (Glen Ferris) (FERC No. 14439) on the Kanawha River, which is formed by the confluence of the New and Gauley Rivers downstream from the Hawks Nest powerhouse. The Projects are currently licensed by the Federal Energy Regulatory Commission (FERC) under the authority granted to FERC by Congress in the Federal Power Act (FPA), 16 U.S.C. § 791(a), et seq., to license and oversee the operation of non-federal hydroelectric projects on jurisdictional waters and/or federal lands.

The current operating license for the Hawks Nest-Glen Ferris Project was issued on December 11, 1987, and expires on December 31, 2017. Hawks Nest Hydro may apply for separate licenses for Hawks Nest and Glen Ferris. However, due to the proximity of the Projects to each other and the expected overlap in resources to be evaluated during the relicensing, and in the interest of efficiency of document preparation and overall relicensing activities, Hawks Nest Hydro will combine both Projects into single study plans and reports, including this cultural historic survey of the combined project areas.

Area of Potential Effects

The APE for any federally funded or permitted undertaking is defined in the regulations and guidance as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, and is influenced by the scale and nature of an undertaking (36 CFR 800.16(d)). Although the nature of project effects is limited by the nature of this undertaking, the relicensing and ongoing operation of an existing facility, the APE was designed to account for any effects caused by the maintenance and operation of the Project, as well as any lands located outside of the Project boundaries where cultural resources may be affected by Project-related activities that are conducted in compliance with the FERC license.

For the Project, the APE includes all lands within the Project, including the Glen Ferris powerhouses, dam, and reservoir; the Hawks Nest powerhouse, surge tank, surge basin, tunnel, and tunnel intake; the Hawks Nest Dam and its impoundment, Hawks Nest Lake, and the lands within 100 ft. of the Project extending on either side of normal waterline from just below the Glen Ferris Dam on the Kanawha River, upstream to the confluence of Marr Branch and the New River. The APE covers a distance of approximately 12.5 miles along the river, as well as an approximately 3.0-mile utility corridor which follows the alignment of the Hawks Nest Tunnel aqueduct. The APE is approximately 535.9 acres in size along the Kanawha and New Rivers and is located in the vicinity of the communities of Kanawha Falls, Gauley Bridge, and Ansted, and includes a portion of the town of Glen Ferris. Since the Project boundaries encompass all lands that are necessary for Project purposes, Hawks Nest Hydro believes that this proposed APE is consistent with 36 CFR § 800.16(d) and the manner in which the FERC has defined the APE for similar hydroelectric projects.

Once CRA defined an appropriate APE in consultation with Hawks Nest Hydro, historians conducted background research, a records review, and a field survey to identify and evaluate all aboveground resources 50 years of age or older and any existing historic properties within the APE. Once the field survey data were analyzed and placed in context, CRA historians applied the NRHP Criteria for Evaluation to resources within the APE, in addition to assessing the potential for historic districts and historic landscapes. CRA concluded the evaluation of the project and other resources within the APE by defining recommended historic property boundaries for all resources that are listed in or recommended as eligible for listing in the NRHP. Finally, the report concludes with an assessment of the potential for effects on historic properties from the continued operation of the Project or from Project-related activities (e.g., routine Project maintenance or proposed enhancements).

II. METHODS

This cultural historic survey, combined with the archaeological survey, was designed to meet the requirements outline in the "Cultural Resources Study Plan" developed by HDR in consultation with FERC and Hawks Nest Hydro (HDR, Inc. 2013). This survey was also conducted in accordance with the *Archeology and Preservation: Secretary of the Interior's Standards and Guidelines* (National Park Service 1983) and *Guidelines for Local Surveys: A Basis for Preservation Planning: National Register Bulletin No. 24* (National Park Service 1997). CRA historians consulted the National Park Service guidance presented in *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* and *National Register Bulletin 27: Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties* (National Park Service 1983, 1996, 1997, 1998). This survey also conforms to the National Historic Preservation Act of 1966 (Section 106), as amended and the regulations of the Advisory Council on Historic Preservation (36CFR63 and 36CFR800), as well as guidelines and expectations of the WVSHPO.

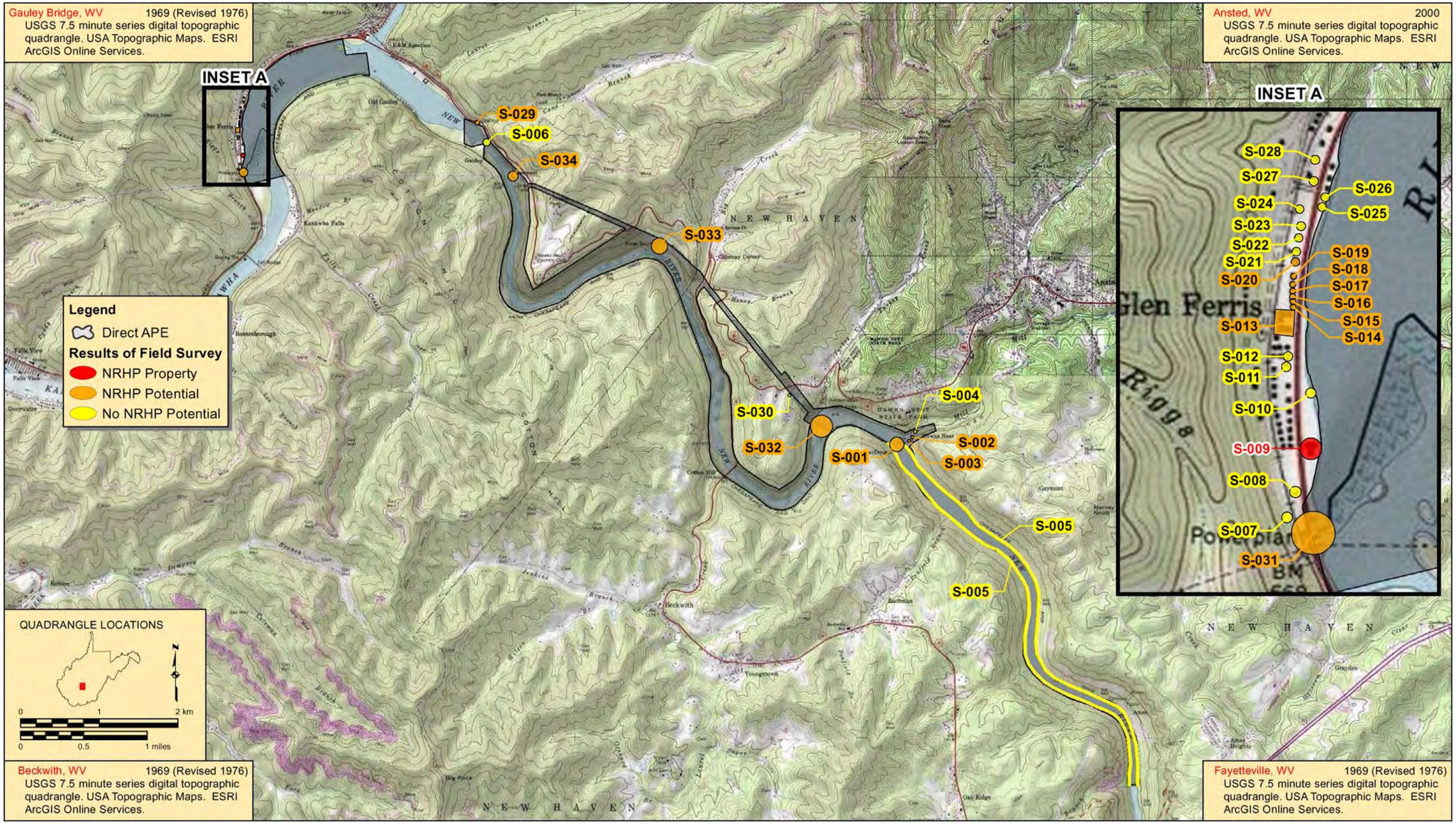

Figure 2. Portion of USGS 7.5-minute quadrangles, (Gauley Bridge, WV, Ansted, WV, (Fayetteville, WV and Beckwith WV) showing the APE and results of the field survey.

To be eligible for listing in the NRHP, a property must be both historically significant and retain integrity, that is, possess the extant physical characteristics necessary to convey its significance. According the National Park Service guidance and its enabling regulations, properties may be significant for:

A. Association with historic events or patterns of events;

B. Association with persons important to our past;

C. Exceptional or important architectural characteristics; and/or

D. Have yielded, or may yield, information important to our past.

A property must meet at least one of the criteria for listing and retain the appropriate aspects of integrity: location, design, setting, materials, workmanship, feeling, and association (National Park Service 1996). NRHP eligibility under Criterion D, which is typically used to assess archaeological sites, was not applied to aboveground properties for the cultural historic survey, but was addressed in the accompanying archaeological survey report (Moser 2013). CRA historians applied the NRHP Criteria to all properties 50 years old or older that are located within the APE.

For the purpose of this report, an architectural resource is defined as any aboveground building, structure, or object 50 years of age or older. A cemetery is defined as the location of interred human remains. A historic property is defined as any architectural resource, landscape, or cemetery that is listed or is eligible for listing in the NRHP. An effect is defined as any activity that may alter a characteristic of a historic property qualifying it for inclusion in, or eligibility to, the NRHP. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association (36 CFR 800.5).

Before entering the field, CRA historians reviewed available cultural resource reports, secondary literature, and historic maps pertinent to the project area. Following the records review, a historic context was compiled using material obtained from the WVSHPO, archival holdings at the Fayette County Courthouse in Fayetteville, the Fayetteville Public Library, and the West Virginia State Archives in Charleston. The results of the records review, background research, and literature review informed the historic context and the interpretation of the results of the field survey.

CRA also reviewed the extensive information relating to the "Hawks Nest Tragedy," the issues revolving around the occupational health of the workers who completed the expansive Hawks Nest Development, defined as the sum of activities at both Glen Ferris and Hawks Nest related to the expansive re-engineering of the New-Kanawha Valley by the Union Carbide Corporation and its subsidiaries in the late 1920s and early 1930s. CRA consulted the secondary literature regarding the tragedy, notably *The Hawks Nest Incident*, an "institutional and quantitative" study of the effects of the tunnel development on public health and the health of the workers (Cherniack 1986:6). Patricia Spangler, a resident of the area, produced a collection of edited primary and secondary sources with some commentary with a focus on the litigation surrounding claims of liability in the *Hawks Nest Tunnel: An Unabridged History*, a complement to Cherniack's well-research technical analysis (Spangler 2008). Although both of these works include important details about the development of the APE and construction of specific buildings and landscapes, the focus in on the tunnel and the occupational health of the workers. In contrast, the company-sponsored *Elkem Metals: 90 Years of Progress in the Kanawha Valley* written by local historian Tim McKinney (1992), focused on the history of the companies involved and the facilities themselves, with only a minor treatment of the occupational health of the workers. Almost every account of the working conditions in the tunnel was subject to contestation or an

interest interpretation during the trials and in the press, but nearly all sources agree that the spectacular engineering achievement and the terrible human cost are both significant aspects of the same historical event.

For projects of this scale and nature, CRA's approach to the field survey includes the systematic survey and mapping of all buildings, structures, and objects 50 years of age or older in the APE in order to identify those with NRHP potential. The comprehensive survey involved recording of each property 50 years of age or older to a baseline level of documentation. CRA used a tabular version of the West Virginia Historic Property Inventory form (WVHPI) form to collect field data. Typically, to define broad categories of resources, CRA focuses on the ground plan, the height, and the roof configuration of each structure, noting all visible materials, appendages, extensions, or other alterations. CRA historians rely on standard sources on architectural characteristics to identify building types and estimate dates of construction (Folly 1980; Jakle et al. 1988; McAlester and McAlester 1992; Noble 1984; Walker 1981). To assist in the interpretations of relict features associated with mining or transportation, CRA consulted secondary sources on the interpretation of mining landscapes (e.g. Francaviglia 1991), industrial archaeology (e.g. McVarish 2008; Weitzman 1973) and the commemoration of landscapes and places associated with violence and tragedy (Foote 1997).

CRA collected baseline data detailing the location, vintage, architectural, and historical features of the properties, and then supplemented the field survey data with close examination of current tax records, historic aerial photographs, and cartographic sources to confirm the date of construction. CRA crosschecked the vintage of each resource against information found in the Fayette County Tax Assessor's office and with landowners, if available. A summary and analysis of the field data detailing the overall architectural character of the APE is included in the body of the report. Photographs of every architectural resource that is 50 years of age or older are also located within the body of the report.

CRA documented the architectural resources to the standard of the WVHPI and prepared survey forms that contain detailed historical and descriptive information, a location map, and additional photographs. This level of documentation produces sufficient information about each property to allow them to be evaluated or re-evaluated for significance according to the NRHP Criteria for Evaluation. This research included establishing a chain of title, where appropriate, the examination of census records and tax data, placing each property within the historic context, and informant interviews, if possible. The research supported final recommendations of non-eligibility or eligibility, and the delineation of historic property boundaries when appropriate (National Park Survey 1997).

Informed by the records review, background research, and the results of the field survey, CRA historians then applied the NRHP Criteria for Evaluation to all properties 50 years old or older within the APE and applied a preliminary Definition of Effect (36 CFR 800.16) to any property previously listed, determined, or recommended as eligible for the NRHP. In addition to individual properties, the survey method makes use of the field data to assess the potential for eligible historic districts and historic landscapes. The definition of historic property boundaries accounts for the characteristics that reflect any associative significance, as well as the degree of landscape change that is characteristic of mining regions in general and the highly engineered landscape of the Hawks Nest Development in particular (National Park Service 1998).

The descriptions and evaluations are found in Section IV.

III. HISTORIC CONTEXT

Physical Environment

The APE primarily occupies the New River and Kanawha River valleys between Marr Branch and Kanawha Falls and an upland corridor located directly over the Hawks Nest Tunnel between the New River near Turkey

Club Branch and the New River just above Cane Branch. The APE is characterized by narrow floodplain, steep sideslopes, ridgetops and hollows, and previously mined/terraformed areas, as well as large areas affected by the construction of the Hawks Nest Development, particularly the distribution of spoil from the construction of the Hawks Nest Tunnel.

Fayette County is located in the unglaciated Appalachian Plateau physiographic province. The terrain is generally rough and mountainous; however, in the eastern part of the county, remnants of an ancient plateau remain relatively intact. The western portions of the APE are underlain by Pennsylvanian-age bedrock of the Kanawha Formation and the eastern areas are underlain by the New River Formation (Cardwell et al. 1986). The Kanawha Formation consists of approximately 50 percent sandstone with lesser amounts of shale, siltstone, and coal. This formation contains several marine zones, and contains more shale westward in the subsurface. The formation extends from the top of the Homewood Sandstone to the top of the Upper Nuttall Sandstone, and includes the Stockton (Mercer), Coalburg, Winifrede, Chilton, Williamson, Cedar Grove, Alma, Peerless, Campbell Creek, Powellton, Eagle, Gilbert, and Douglas coals (Cardwell et al. 1986). The New River Formation consists of predominantly sandstone, with some shale, siltstone, and coal, and grades to nearly entirely sandstone in the subsurface. The formation extends from the top of the Upper Nuttall Sandstone to the top of the Flattop Mountain Sandstone. The New River Formation includes the Iaeger, Sewell, Welch, Raleigh, Beckley, Fire Creek, and Pocahontas Nos. 8 and 9 coals.

The APE is located entirely in the Kanawha River drainage basin, which drains portions of northwestern North Carolina, southwestern Virginia, and southern West Virginia. The Kanawha River is formed by the confluence of the New and Gauley Rivers in Fayette County, just outside the APE, and flows northwest for 97 mi before merging with the Ohio River at Point Pleasant, approximately 266 mi. south of Pittsburgh. Primary surface drainage of the APE is provided by the New River, Gauley River, and Kanawha River as well as multiple first, second, and third order streams that flow into the Kanawha and New Rivers; these include Laurel Branch, Cane Branch, Big Creek, Honey Branch, Turkey Creek, Mill Creek, Marr Branch, Penfield Branch, and Laurel Creek. Drainages along the north side of the New River generally flow from north to south, and those on the south side of the river generally flow in a south to northerly direction. The confluence of New River and Gauley River forms the Kanawha River at the Town of Gauley Bridge.

Fayette County

Fayette County, located in south-central West Virginia, was created by an act of the Virginia General Assembly in 1831 from parts of Kanawha, Nicholas, Logan, and Greenbrier counties. Changes in Fayette County's boundary ensued in 1850, with portions of the county taken for the formation of Raleigh County. Land from Fayette was also used in the formation of Summers County in 1871. Today, Fayette County's land area is 666.5 square miles with a population of 47,579 (Athey 2006a:233).

The great canyon of the New River, which flows from the southeast to the northwest across the county, bisects Fayette County. The junction of the New and Gauley Rivers at Gauley Bridge forms the Kanawha River that flows northwesterly, eventually joining the Ohio River at Point Pleasant, West Virginia. Much of the county sits on a high plateau bordered by Sewell Mountain on the east and the Kanawha Valley to the west.

At present, the county seat is in Fayetteville. This was not always true, as the first county seat for Fayette County was in New Haven, (West) Virginia, on the north side of the New River. In 1837, the county seat was moved to the southern banks of the New River at the town of Vandalia. Shortly after becoming the county seat, Vandalia changed its name to Fayetteville. By 1840, Fayette

County had attracted nearly 4,000 residents. The population of the county increased to 5,997 in 1860, with as many as 271 enslaved African Americans (Athey 2006a:235-236).

From 1861 to 1865, the American Civil War devastated Fayette County, as its men, divided on the issues leading up to the war, faced each other on opposing sides (Cohen 1995). The early battles in the mountains of western Virginia during the 1861 campaign were focused along key transportation routes, such as rivers, turnpikes, and railroad junctions. In Fayette County, Gauley Bridge and Fayetteville (Battle of Fayetteville, 1862) saw the greatest action due to their strategic locations along strategically important transportation routes, including the James River and Kanawha Turnpike and the Giles, Fayette, and Kanawha Turnpike. Local militia and raiders with pro-Confederate leanings skirmished with Union forces throughout the remaining years of the Civil War (Athey 2006a:233-234).

The natural resources of the county, particularly timber and coal, attracted the interest of northern industrialists after the Civil War. Although lumber was long an important material and export commodity, the evolution of a cannel coal market began a long era of coal mining that was to reshape the landscape of the region, the cannel coal feeding a coal oil processing boom centered just below the falls during an early phase of industrialization.

Scholars have noted that the history of economic development in the region is essentially the history of the railroad (Gillenwater 1972). The building of the Chesapeake and Ohio Railway hastened the rise of the coal industry in this rugged, once remote land. The Chesapeake and Ohio Railroad line was completed through the New River Gorge on January 29, 1873. Operating initially as a trunk line, which limited development to the mainline corridor, the C&O eventually embraced the coal economy and the more intense development of its railroad network. During the coal-mining heyday of the early twentieth century, the C&O Railroad drove the development of the company towns established along the New River, and was often closely associated with the various entities working to develop the coalfield.

The New-Kanawha coalfield is located in the dissected Appalachian Plateau, the ridge and hill summits rising up to 2,000 feet above the lowest valley floors, interspersed with eight coal seams of variable size and quality (Gillenwater 1972). The best of the coal was prized for its low content of impurities such as ash and sulfur, as well as its high percentage of fixed carbon with high calorific qualities (Gillenwater 1972:137). Workers drawn from the local population and migrants of diverse nationalities and races flocked to the hundreds of new mines and mining company communities in the New River area in search of work. The increase in population of Fayette County was dramatic, jumping from 6,647 in 1870 to 60,377 by 1920. The many of the workers in the New River coalfield were Eastern European immigrants, in addition to both white and African-American migrants from southern states (Lewis 1987).

Despite the upswing in numbers, few towns in Fayette County exceeded a population of 2,500, with the majority of the workers living in geographically diffuse “patch towns” centered on mines, coke ovens, or other industrial facilities such as mills and kilns, most along railroad corridors and on level areas above the rivers and streams. Much of the development, oriented to the railroad and intimately linked to the extractive economy, was not intended to be sustainable or a basis for the long-term economic stability of the region, but instead to maximize the return on the large-scale mining of coal. Fayette County was the leading coal-producing county in West Virginia from 1888 to 1903, when it was surpassed by the expanding output of McDowell County’s mines (Athey 2006b:233).

Mining, particularly during the late nineteenth century, was a dangerous undertaking where long periods of cooperative production were interrupted by industrial

accidents and labor violence. An inherently dangerous and labor-intensive enterprise, Fayette County was the scene of several mining disasters and labor strikes. Explosions, such as those at Red Ash (1900), Rush Run (1905), Parral (1906), Stuart (1907), and Layland No. 3 (1915), took many Fayette County miners' lives (Fayette County Chamber of Commerce 1993:109).

At one time, the residents in the New River Gorge outnumbered those living on the plateau, until technological innovation and the expansion of the rail network allowed the developers to overcome the considerable topographic barriers and penetrate the interior. Coal production began to decline by mid-century (Athey 2006b:233). Coal towns soon disappeared as populations began outmigration in search of work elsewhere.

As the railroad transportation waned, the automobile and construction of highways increased. By the late twentieth century, expanding road systems in Fayette County linked the county to the expanding interstate highway system. The West Virginia Turnpike (Interstate 64-77) cuts across western Fayette County, while Appalachian Corridor L (U.S. 19) runs diagonally across the county, featuring the famous New River Gorge Bridge (Athey 2006b:234). The $37 million dollar engineering marvel was completed in 1977. The New River Gorge Bridge is the second highest bridge in the United States (876 feet above the riverbed), and until 2003, was the longest single-arch steel span in the world (Sonis 2006:528).

Today, Fayette County depends on tourism offered by the natural and scenic beauty of the New River area and its coal heritage. Modern recreation opportunities in the New River began in the 1930s with the creation of Hawks Nest State Park and Babcock State Park, built by the Civilian Conservation Corps (CCC) in the 1930s under the New Deal programs of the Great Depression era. These early parks and the others created across the state in the 1930s laid the foundation for modern recreation and heritage tourism in West Virginia and the in the New River region. The New River Gorge National River offers visitors whitewater rafting in some of the most technically demanding rapids in the country along the Gauley and New rivers, and unique historical experiences exploring the former coal-mining community of Thurmond. Fayetteville, the county seat, and nearby Summersville, provide tourist amenities and benefit from the annual influx of visitors coming to see and experience the New River Gorge.

New-Kanawha Valley

The APE is located in the New Haven and Valley Districts of Fayette County and encompasses an area that includes the junction of the New River and the Gauley River. The Kanawha Falls was an important point in evolving transportation network, forming the head of navigability on the Kanawha River above which ran one of the most important trans-mountain routes to the west. The route evolved over a long period, first relative to seasonal migration of buffalo and later relative to native trade, war, and migration patterns.

In 1785, the state of Virginia began construction of the Old State Road along the route of an old military route from Greenbrier through Fayette County toward the present day city of Charleston, West Virginia (Sullivan 2006). The route through the New River valley was established as a Virginia state road in 1790, an important route from the eastern inhabitant area to the interior of the Appalachian Plateau and the west (Dunaway 1996). In 1791, the road had been extended from Virginia to the present day town of Cedar Grove, located on the Kanawha River southeast of Charleston. From Cedar Grove travelers could travel downriver by small locally constructed boats.

The level bottoms above the falls and below the confluence of the New and Gauley Rivers attracted early settlers to the

region. The early development of the area owed much to Aaron Stockman, a migrant entrepreneur, slaveholder, and large-scale landowner who, among other early enterprises, sought to harness the power of Kanawha Falls and profit from its important position within the region's preindustrial transportation network, building both mills and raft building enterprises on the valuable "Falls Tract."

By 1820, the growing importance of salt production in the Kanawha valley required a more reliable transportation route to the James River. In 1820, the James River Company was authorized to create a road on the north side of the New and Kanawha Rivers between the James River and Kanawha Falls. The James River and Kanawha Turnpike was constructed over the challenging terrain between 1820 and 1831, opened to traffic through the Gorge area in 1827, a significant undertaking. Hawks Nest was a well-known enough landmark at the time to be granted a post office, housed at a tavern along the route of the turnpike, and Stockman's business thrived at the falls. This route remained an important focus of east-west transportation in the region until after the Civil War. Many of the settlements of the valley were initially established to support trade and travel along this transportation route. Among these early communities were Kanawha Falls, Stockton (Glen Ferris), and Gauley Bridge.

The "Hawks Nest" name refers to a prominent sandstone outcrop, a remnant of the resistant New River Formation known as Hawks Nest Rock, which is above the New River valley and purportedly served as habitat for the osprey or fish hawk that hunted the river corridor below (WVDNR 2010). The actual Hawks Nest Rock was previously known as "Marshall's Pillar," a way-marker established by or for United States Supreme County Chief Justice John Marshall during an 1812 navigational study of the New River (WVDNR 2010). Marshall had successfully sailed down the New River in a boat laden with several tons of stores to demonstrate his interpretation of navigability, later contested in a series of court cases regarding the Hawks Nest Development.

Opposite Hawks Nest, a wagon road, known as Miller's Ferry Road, connected Fayetteville with the Giles, Fayette, and Kanawha Turnpike and the route to Virginia, by a route then known as the Midland Trail. The ferry crossed the New River at a narrow point and it was operated by John B. Miller. The ferry may have begun operations in circa 1840s at this location. Miller's Ferry was an important part of the road connecting the county seat of Fayetteville with Kanawha Falls. By 1861, Miller's Ferry became a point of strategic value as one of the few points where army units and baggage trains could easily cross the New River.

Indeed, during the Civil War, both Union and Confederate armies and partisans occupied the region, beginning with the Union occupation of Fayette County in July 1861. The historic transportation corridor from Virginia to the west was hotly contested, and the areas around Glen Ferris and Gauley Bridge were occupied by the Union Army, used as camps and staging areas, and subject to detailed reconnaissance and survey (Figure 3). At the time, the landscape reflected the relatively low density of population along the floodplains adjacent to the New and Kanawha Rivers, including clusters of development at Glen Ferris, Old Gauley, and near Miller's Crossing. The Town of Gauley Bridge was a strategic location for controlling the Kanawha River Valley and it changed hands at least three times during the war (Sullivan 2006). In 1861, Union camps were established at Kanawha Falls, Gauley Bridge, and near Hawks Nest. During the War, Union and Confederate forces fought several engagements within and adjacent to the APE. These included engagements at Gauley Bridge, Millers Ferry (Hawks Nest), and Fayetteville (McKinney 1988).

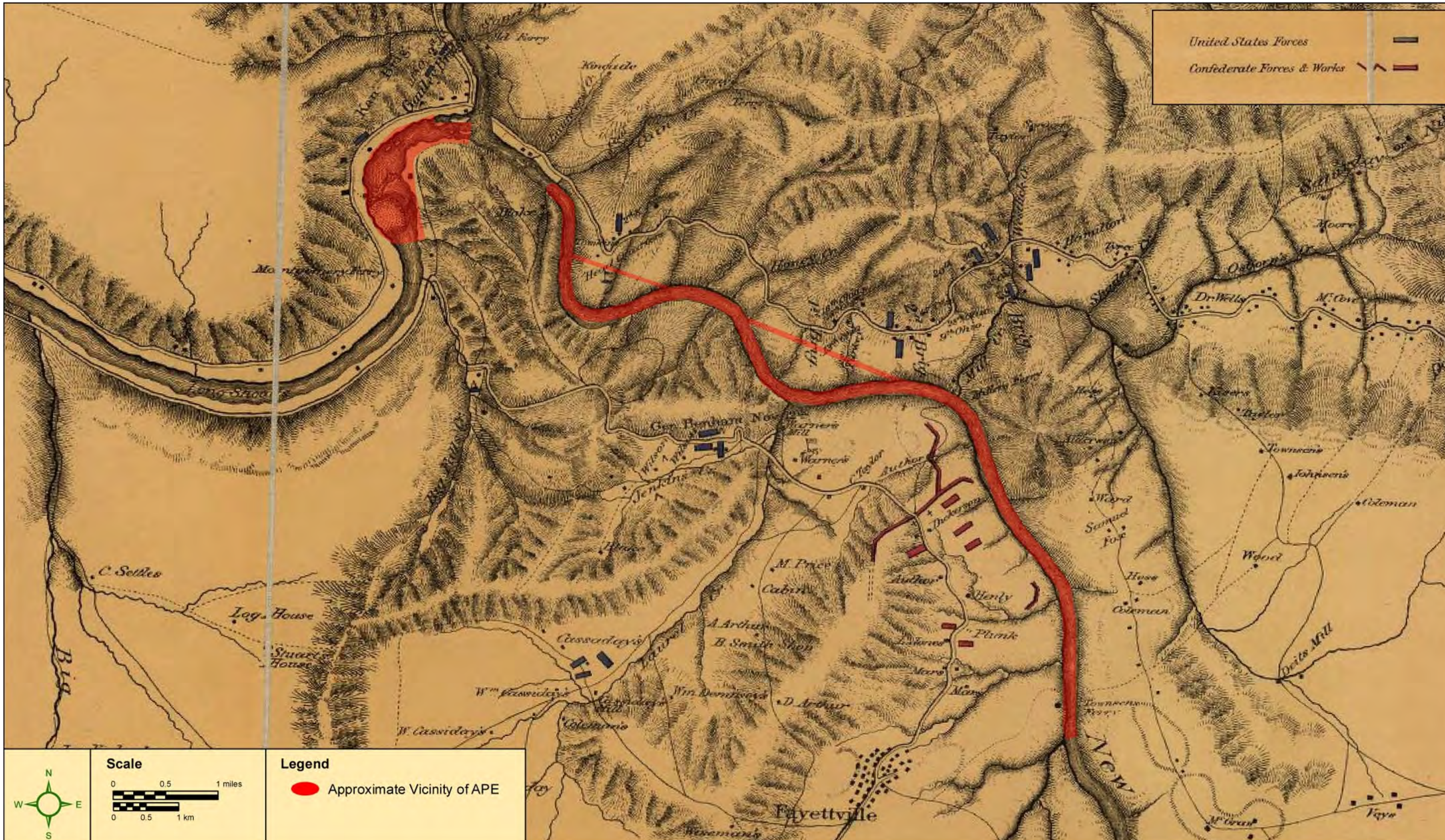

Figure 3. Portion of the 1861 military reconnaissance map in the vicinity of Gauley Bridge depicting the approximate location of the APE (Reynolds 1879).

After the Civil War was over, the expansion of the transportation system remained the dominant theme of historical development in the valley. In 1868, the Chesapeake and Ohio Railroad (C&O) was created from the merger of the Virginia Central Railroad and the Covington & Ohio Railroad. The first survey of the C&O route through the New River Gorge was completed in 1869, informed by the cartographic and scientific data captured in wartime reconnaissance reports and maps (Reynolds 1879). In 1872, on the eve of the nationwide financial panic, C&O engineers and workers completed a large wooden truss bridge to carry the railroad over the New River at Hawks Nest. After years of preparation, a challenging construction program and the upheaval of the Panic of 1873, the "golden spike" joining the southern and northern sections of the C&O, marking traversal of the Appalachian Mountains, was driven into the tracks immediately east of the bridge over the New River, and the C&O Railroad was busy with traffic by 1874, then used primarily as a through route.

Initially the C&O mainline was located on the north side of the New River between the towns of Fayette and Hawks Nest, where a bridge carried the railroad across the river as it continued westward along the south side of the New River. Hawks Nest (with the nearby Lover's Leap) remained a prominent local landmark and geographic reference point in the railroad era, visible from Miller's Ferry, the C&O bridge over the New River, and from the Hawks Nest railroad depot, and was a conspicuous feature in travel guides and the railroad literature (WVDNR 2010). Hawks Nest evolved as a tourist destination as the nearby Gauley Mountain House began a long and prosperous run in 1870 through the turn of the century, the picturesque quality of the region an important aspect of its economy, even as lumbering and mining transformed the surrounding area.

Initially conceived as a trunk line, the C&O executives soon realized the enormous profitability of expanding its system into the Kanawha-New River Coalfield, often through the financing or purchase of nominally independent branch lines. For example, within the APE, the Gauley Kanawha Coal Company built a narrow gauge branch railroad to connect the C&O mainline near Can Branch with their mining operations at the head of Mill Creek at the town of Ansted. The company commissioned the work in 1870, soon after the C&O-surveyed route of the mainline was known, and the short line was completed in 1872 and connected to the C&O line the following year (WVDNR 2010). The earliest coal operations in the immediate vicinity of Hawks Nest were begun by the Gauley-Kanawha Coal Company in 1872 and 1873 luring workers into the region from both the established mining regions, as well as from the lower South.

The completion of branch lines spurred development along their routes, with the Hawks Nest Coal Company building a series of trackside coke ovens in 1881, drawing foreign capital and technical expertise, as well as workers, into the formerly remote region. A small village evolved near the mouth of Mill Creek in part to support the industrial development. In 1889, the C&O acquired and reconstructed the spur line to Ansted, fully incorporating it into the C&O system as the Hawks Nest Subdivision. This subtle shift in scale resulted in the abandonment of trackside coke ovens.

Throughout this period the river side of the town of Hawks Nest continued to develop around the intersection of the two rail lines. Within and adjacent to the APE, Michigan Coal & Coke, Co. and New River Mining Company, among others, operated coal mines at Ames, Elmo, Sunnyside, and Gaymont on the north side of the New River and MacDougal on the south side of the river. Many of these operations included tipples, coke ovens, stores, and workers' housing within the vicinity of the APE. MacDougal was a depot station on the C&O mainline, located on the southern end of the railroad bridge over the New River. The area was the site of small-scale or experiment mining operations overseen by Joseph L. Beury, who relocated to the area as the nation recovered

from the Depression of 1873, building a stone mansion house on the hillside above the New River, later abandoning the house and the operation in the early 1880s (WVDNR 2007). Mines at McDougal were operated throughout the nineteenth century under the auspices of Buery's firm, Wilmuth Brothers and Company, and L.R. Morgan, while developing a small urban function as a post office, railroad maintenance and construction workers housing, and railroad stop.

In 1892, the C&O replaced the original wooden railroad bridge with the durable steel through truss bridge, a hardening of the already substantial railroad infrastructure just as the competing Kanawha and Michigan Railroad, later incorporated into the New York Central system, was built upriver from Charleston to Gauley Bridge. By 1907, a second C&O mainline track was completed on the south side of the New River. The new tracks quickly opened new areas on the south side of the valley to coal mining. Soon afterwards new coalmines were established at Bachman, Whitney, and Marr Branch.

Glen Ferris

The community of Glen Ferris was originally called Stockton, after Colonel Aaron Stockton, who settled in the area in 1812. Stockton built the tavern that is now known as the Glen Ferris Inn (Little 2006). The Inn served as a stagecoach stop on the James River and Kanawha Turnpike until 1874 (Robinson 2007). In 1893, the Kanawha and Michigan (K&M) Railroad was completed through Glen Ferris linking Charleston and Gauley Bridge. Several coalmines were also located in the vicinity of Glen Ferris, including the Glen Ferris Mine No. 117 operated by the Sunday Creek Coal Company, and at least two coalmines were operated by the Glen Falls Fuel Co. in the immediate area (Hennen et al. 1919).

The development of Glen Ferris as an industrial center was part of the long history of investors working to harness the power of the falls. The immediate area first developed as a milling center, a type of enterprise often related to later, more extensive, development projects. The geographic proximity of abundant water power, high quality metallurgical coal, and the development of a railroad network that linked materials procurement sites, resource processing centers, and production sites allowed for the development of the highly specialized production of alloy metals, essential elements in the production of steel, as well as the development of an array of specialized commercial and industrial products.

The evident power of the New River as it joined the Gauley and Kanawha Falls was long an enticement for investment. In 1894, the Great Kanawha Water Power, Electrical Manufacturing and Land Company was formed with the intent of harnessing that power of the river, but failed, attracting the attention of other investors. Oliver Patton, a partner in the Great Kanawha enterprise, told investors "you hold in your hands only great natural force, the only great waterpower in the coal fields . . . second only to Niagara" (McKinney 1992). The plea of the well-known Confederate veteran failed to lure sufficient capital to his firm, but caught the eye of Thomas Willson, inventor of calcium carbide and founder of the Willson Aluminum Company (1890).

Willson purchased property at the Kanawha Falls between 1897 and 1900, including the well situated sawmill seat owned by Cheney family, with the intention of building a modern dam across the river. The existing mill on the property harnessed water flowing through a natural crevasse, supplemented by wooden cribs. Willson applied to the Secretary of War to construct a dam at the falls, arguing the river above was not commercially or practically navigable. The application to the Department of War approved, the Willson firm completed construction of a temporary log crib dam to power the first hydro power facility in the water-rich state. The application was approved with a condition for the accommodation of regionally powerful lumbering interests, in 1899 (McKinney 1992). The original Willson Aluminum Company facility was developed

on the site of the old sawmill following plans drawn by the C.W. Hancock Company of Lynchburg Virginia. Yet, without a deep impoundment or substantial drop, the water channeled through the three alleys of the early facility did not generate a substantial amount of head pressure

The Willson Aluminum Company assembled a team of engineers and contractors to complete the project, moving aggressively in 1898 to develop the dam, a powerhouse, and a large (60 ft. x 68 ft.) furnace house, rectangular (79 ft. x 26 ft.) ore shed, and small office, all oriented to the river and the Kanawha & Michigan Railroad line and siding. The first part of the modern power plant was constructed in 1898 by Willson Aluminum, in concert with a series of wood cribs dams supporting a wood-lap dam that follows the contour of the falls. The electric arc furnace used in the electro-processing of steel and production of alloys required a strong and steady flow of electricity. The furnace was specially designed to process ferromanganese and other alloys using an electric arc developed by Willson's partner, scientist J. Turner Morehead (McKinney 1992). The furnace was in operation by the end of January 1901.

Willson hired more than 100 workers for the operation and developed his holdings, as the small community of Glen Ferris began to take form as a small industrial village by 1906, part of a trend of population growth and resource development in the region (McKinney 1992). In 1907, the Electro-Metallurgical Company (EMCO) purchased all of the holdings of the Willson Aluminum Company at Kanawha Falls, investing in an expansion of the facilities though an expansion of the powerhouse and installation of new furnaces, as well in the development of the village as a company town (Figures 4 and 5). The facility produced an increasing output of ferrochrome in the years following the acquisition when, in 1911, the facility was destroyed by fire.

The facility was quickly reconstructed, using the structurally intact remnants of the earlier facilities (Figure 6). The enterprise boomed during the war economy, when a shortage of specialized alloys and minerals were exposed as a grave national security threat. An undated promotional map shows the general character of the area during or soon after the First World War. The map clearly shows the importance of the valley as a transportation corridor, with the New York Central Railroad running along the northern bank, C&O along the southern bank and the old turnpike road running the northern bank linked to local roads via a ferry at Falls Creek, below Kanawha Falls. Coal operations related to the New York Central Railroad included the Oakland Coal Company just north of Glen Ferris; operations related to the C&O Railroad included the Fort Defiance Coal Company, shown across the river from the mouth of the Gauley River. This map shows the small town of Vanetta as being located up the Gauley River, above Gauley Bridge.

In 1917, EMCO merged with the Carbide and Carbon Chemicals Company to form the Union Carbide and Carbon Corporation, the former retaining its corporate identity as a wholly owned subsidiary. After the corporate merger that gave birth to the Union Carbide Corporation, the firm immediately moved to expand the dam and improve the hydropower facility (Cherniack 1986:10). Traditionally, the eight turbines produced 4,000 kW of power. The EMCO plant at Glen Ferris was employing approximately 150 workers, but expanded production during the war, hampered by a brief labor shortage, allowed EMCO to expand its operations and holdings upstream, as land was acquired in anticipation of ongoing development, including the development of a high dam across the New River at Hawks Nest.

In 1919, the firm again petitioned to build an improved concrete dam across the crest of Kanawha Falls, quickly achieving approval. Workers soon poured over 200 ft.

of concrete and completed the new powerhouse, in full operation by 1921 (McKinney 1992). With the expansion of large-scale industry, the company worked to provide and facilitate provisioning of housing and the social infrastructure necessary to maintain and reproduce a work force, building six new homes for the company employees in 1918 (McKinney 1992). Just outside of the APE opposite the Glen Ferris Inn are a series of concrete blockhouses built by EMCO for its employees during or soon after the First World War.

In the wake of the dam construction, production at the plant continued to increase until the facility was no longer sufficient to meet demand over the long run. The firm set about looking for a new site to develop a facility for expanded production. Located the level ground at the rail stop of Boncar as an ideal site, proximate to mines and the railroad corridor, accessible by barge. The other question was how to provide sufficiently strong and consistent flow of electricity to the new plant. Throughout 1924 and 1925, as the firm continued to acquire property, the necessity of a massive scale undertaking to provide the power for the new facility became apparent.

Hawks Nest Development

The New-Kanawha Power Company was formed on January 7, 1927, as a corporation headquartered in Glen Ferris "to generate, produce, sell and distribute hydraulic electrical and or other power produced by water" (Spangler 2008). The name was not a novelty, as the larger river system itself was known as the New-Kanawha system. Below the mouth of the Gauley River at Gauley Bridge, the river was known as the Kanawha and above the mouth it was known as the New, and the corporate name appropriately captured that scale of its project.

The firm assembled substantial technical and administrative talent to execute the ambitious plan. Edward S. Whitney was the company president, the New York vice president of the company was Leonard H. Davis, and W.P. Simmons was a chief executive. R.E. Buckley was the chief construction engineer for the project, and P. J. Welsone was the design engineer. Owen M. Jones was the New-Kanawha Power Company's chief engineer, heading up the team that developed the plans for the Hawks Nest Development. Jones had spent seven years designing the Hawks Nest Development from start to finish, and he is the individual most responsible for the successful design and evident architectural quality of the facility. Andrew Hill worked under Jones as the design engineer on the project, supervising a team of architects and engineers.

Critics have called the New-Kanawha Power Company an "administrative chimera" and a "legal fiction," a de facto extension of the integrated Union Carbide operation, staffed and administered by managers from the parent company and the locally based Electro-Metallurgical Company, but there is no doubting the tremendous experience, expertise and engineering acumen of the design team (Cherniack 1986:11). The functional relationships between the three corporate entities are undeniable. Union Carbide executive vice president and well-known hydraulic engineer Leonard Davis represented New-Kanawha before the PSC, and chief project engineer Jones was a long-time engineer for the EMCO who had been hard at work on design for the Hawks Nest Development and Alloy plant long before the New-Kanawha Company was incorporated. Use of subcontractors including Dupont, Ingersoll-Rand, Westinghouse, and Allis Chambers notwithstanding, the development of the entire enterprise, from the drilling of the tunnel to the construction of the houses at Glen Ferris, was completed under the direction of Union Carbide engineers (Cherniack 1986:16).

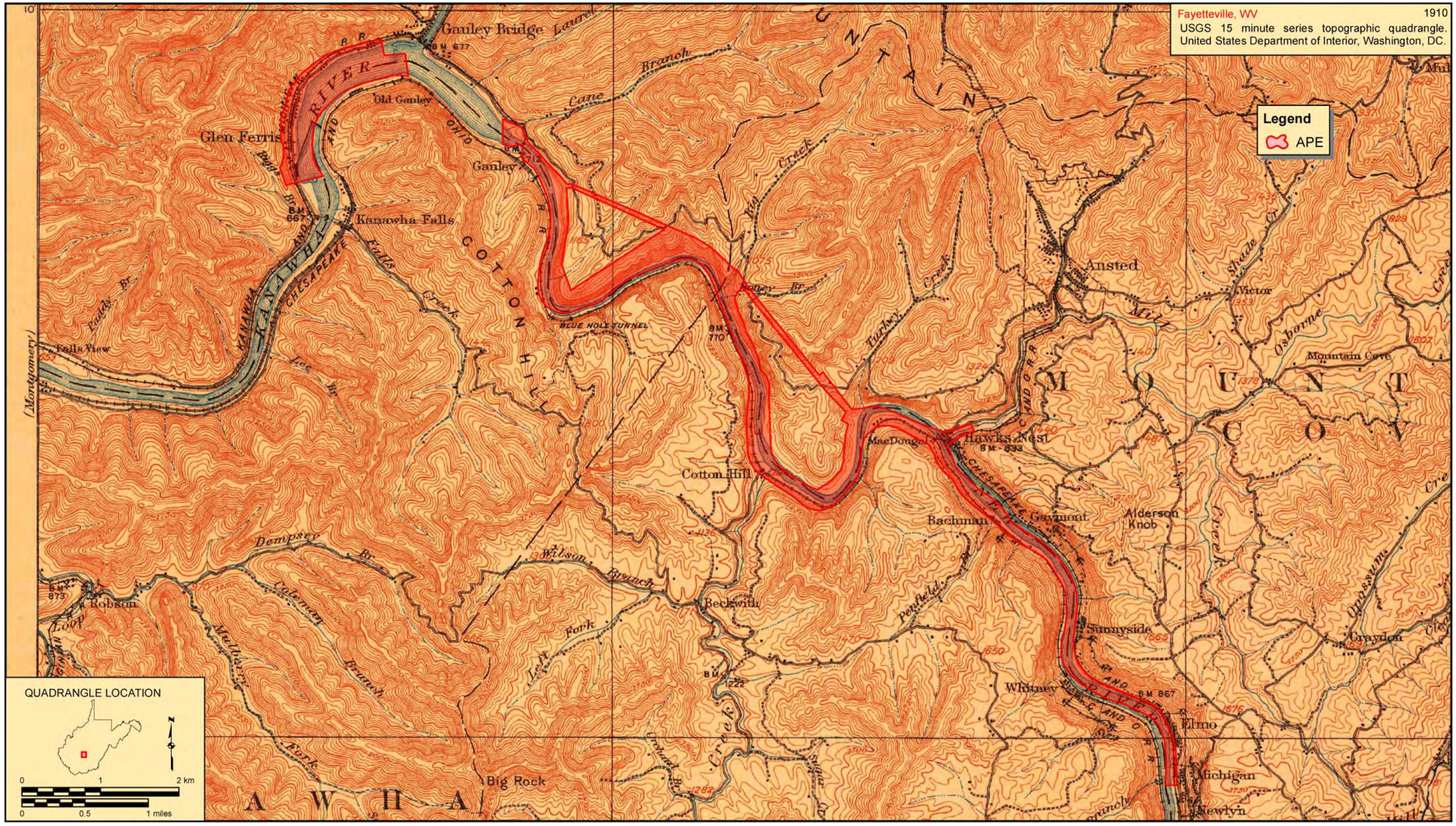

Figure 4. Portion of 1910 USGS 15-minute Fayetteville, WV, quadrangle depicting the approximate location of the APE.

Figure 5. Kanawha Works – Development, December 6, 1917 (West Virginia State Archives, Hawks Nest Tunnel Collection).

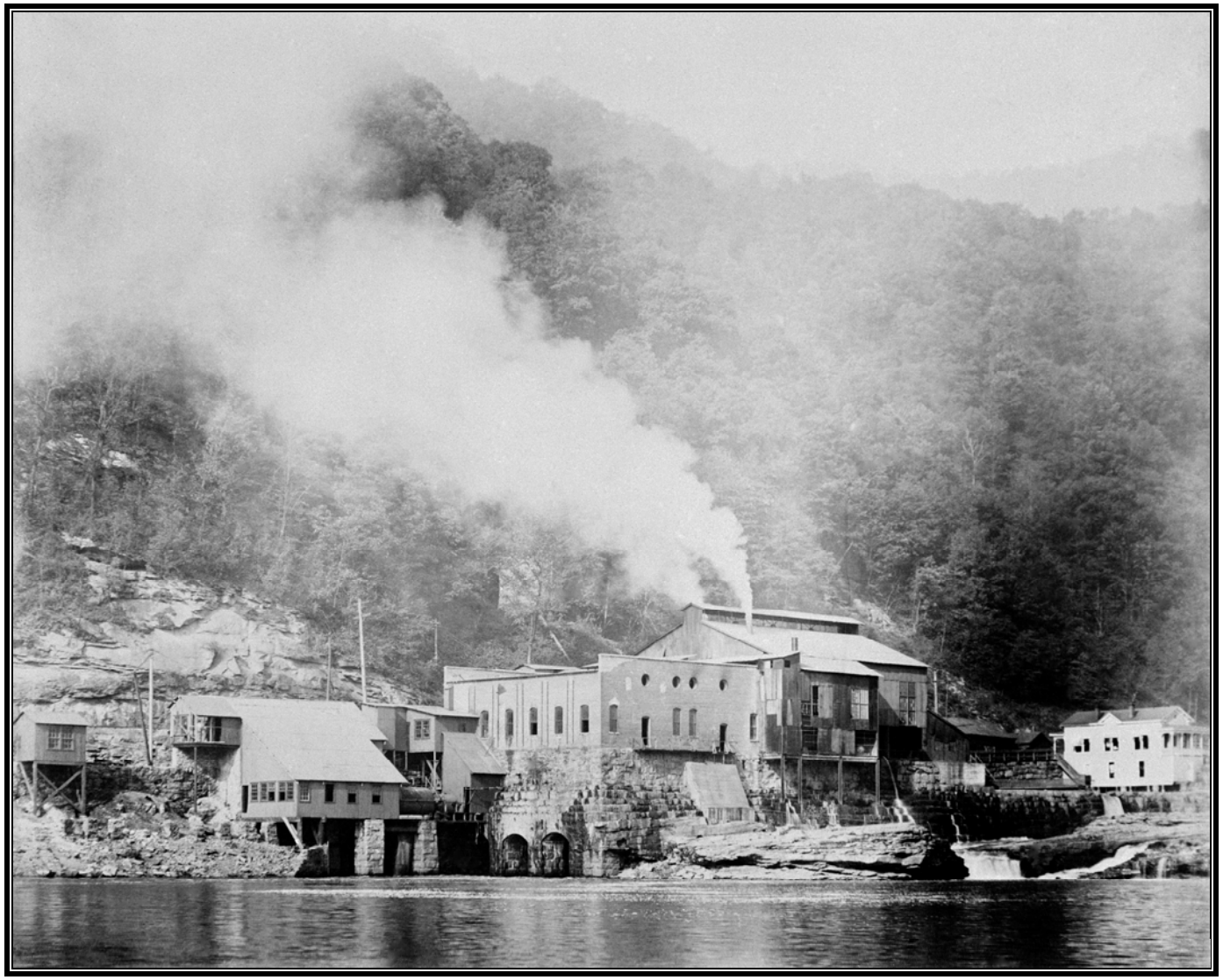

Figure 6. View across the Kanawha River of the powerhouse and furnace room at Electro Metallurgical Company Kanawha Works at Glen Ferris, May 1912 (West Virginia State Archives, Hawks Nest Tunnel Collection).

Planning

The engineers and planners working within the Union Carbide system originally designed the Hawks Nest project as having two dams, two tunnels, and two new large-scale powerhouses. When it was originally conceived, Union Carbide executives envisioned the Hawks Nest Development as a part of several other projects within the larger Kanawha Valley as a regional mega-project, dwarfing their existing operations in Niagara Falls, New York (Spangler 2008; Hydroelectric Power on Kanawha, *Fayette Tribune*, January 1928). The application for the original permit for the project was for a "comprehensive project" that encompassed the "complete utilization of the entire fall" of the river in its ambitions, intended to control the entire course of the river upstream from the Kanawha Falls. The New-Kanawha Power Company announced plans for a 23 million dollar investment of "eastern capital" for the development of five dams and associated power plants on the New and Kanawha Rivers and the associated construction of a major new alloy plant at Boncor, later renamed Alloy, downstream from an earlier facility in Glen Ferris.

By 1924, the plans for the current version of the Hawks Nest Development had taken shape. In 1927, through New-Kanawha Power Company, their project development subsidiary, Union Carbide filed a notice of intent to develop the hydropower of the New River with the Federal Power Commission (FPC), the agency responsible for the oversight of the development of large-scale hydropower projects on the waters of the United States. The original permit application clearly articulated the purpose of the project: "The applicant proposes to utilize to such extent as it may find advantageous, the power from the proposed power stations for the expansion of the electro chemical and electro metallurgical operation and its associated companies, one of which has had for many years a hydro-electric development at Kanawha Falls" (Spangler 2008:115; Hydroelectric Power on Kanawha, *Fayette Tribune*, January 1928). The original permit application also included the provision that "the applicant proposes to dispose of the remaining power for public utility use" (Spangler 2008:115; Hydroelectric Power on Kanawha, Fayette Tribune, January 1928).

Union Carbide and its political allies in West Virginia advanced an argument that the scale for government oversight should be set at the state level, with the more politically malleable West Virginia Public Service Commission (PSC) than with the Federal government, a position that would result in litigation that was eventually tried by the United States Supreme Court (Spangler 2009:112-114). With the company and the state of West Virginia committed to state regulation, and in the absence of any ruling, the Hawks Nest Development was developed without a Federal permit. The company revised and down-scaled the scope of the original enterprise to focus on construction of the Hawks Nest Development, filing a revised permit for the one large dam, tunnel, and powerhouse, the idea being that a longer and wider tunnel provided an economy of hydraulic power. On July 31, 1928, the New-Kanawha Power Company applied to the PSC for authorizing them to "construct a dam at a site on the New River in Falls District and Ranch District ... in connection therewith a hydro-electric plant...and a tunnel connecting said dam and the hydro-electric plant" (Spangler 2008; Notice of An Application, *Fayette Tribune*, July 4, 1928).

In an undated filing with the PSC, the land, water, and tunnel rights lying with in the project's property line were valued at only $330,170, including lands owned by individuals and corporations, including land companies, water companies, real estate firms, and coal operations (PSC n/d). In anticipation of the construction of the Hawks Nest Development, the New-Kanawha Power Company had acquired the land on either side of the river "for distance of 10 miles" (Spangler 2008; Hydroelectric Power on Kanawha, Fayette Tribune, January 1928). As the Hawks Nest Development began to take shape, it soon became clear that the far-flung facilities and the workers needed to support it

would require a modernized overland road system that would initially complement the well-developed railroad system (Figure 7).

Initial objections and legal questions surrounded the potential of the Hawks Nest Development to affect navigation, both above the Kanawha Falls, traditionally considered the head of navigation for barges and flatboats, and downriver. The question of navigation and use was closely associated with the delineation of public and private space, particularly in regard to the actual control of a river. For example, the Campbell's Creek Coal Company, dependent on river navigation for the marketing of its product, objected to the revised plans. The PSC retained well-known geologist and mining engineer Charles E. Krebs to review the plans on behalf of the state.

Because of the location of the longer tunnel, it was understood that the high grade silica was to be mined from the tunnel route and shipped to the site of the new electro metallurgical facility being developed at Boncor, requiring use and partial reconstruction of the six-mile long standard gauge rail line, or used as aggregate for the construction of the project. Lower quality materials were shipped by barge to Blaine Island, below Charleston, were used as aggregate, or were dumped along the river upstream from the tunnel intake. Now known as Carbide Island, Union Carbide developed the built-up Blaine Island site as a petrochemical facility after 1927, coincident with the construction of the Hawks Nest Development, testament to the large scale of Union Carbide's plan for development.

On January 3, 1929, the PSC issued a finding that New River was not navigable and that the development and operation of the Hawks Nest Development would not impair the downstream navigation, and urged the Federal Power Commission not to assume jurisdiction in the case. Importantly, during the development of the project, attorney Chester Counts, representing the chief engineer of the C&O Railroad, reviewed the project plans and asserted the C&O position that the construction of the Hawks Nest Development would "in no way threaten" or affect the railroad (Plans of the New-Kanawha Co. to Use New River Power, *Fayette Tribune*, September 12, 1928). However the company had to pay for the realignment of portions of the C&O Railroad, including changes to its bridge over the New River, as well as changes to the county road network.

The failure to obtain a Federal permit or license, grounded in the company's understanding of the standard of navigability, later became an issue during the development of the project when, in 1934, a Federal action to restrain the collective Electro-Metallurgical Company-New-Kanawha Power Company-Union Carbide interests from completing the Hawks Nest Dam threatened the entire enterprise as it was quickly moving toward completion. The state attorney general intervened with the position that the FPC and the Federal government more broadly had authority to regulate a state permitted action on a non-navigable waterway. The case was adjudicated by the United States Supreme Court, with arguments heard on May 2. 1935. On May 23, 1935, the Supreme Court ruled in favor of the defendants in the case of the *United States v. West Virginia* (Spangler 2008; State Wins Hawks Nest Fight, *Fayette Tribune*, May 23, 1935).

Backed by one of the largest corporate entities in the world and supported by a massive flow of capital, the New Kanawha Company moved forward with its plan to reshape the Kanawha Valley to support production at the massive Alloy plant at Boncar. Boncar was a clever inversion of the word Carbon, which was in essence the reason for its existence. Construction of the 10,000 square ft. Electro-Metallurgical Alloy plant that included a motor house, locomotive house, track scale, yard office, furnace, and packinghouse constructed soon after work commenced on the related Hawks Nest Development (Spangler 2008; First Unit Boncar Plant to be Started, *Fayette Tribune*, October 8, 1930). The original all-steel furnace building at Boncar was 740 ft. long and 100 ft. wide, and over 68 ft. in height, similar in form and construction to large-scale steel plants typically found in urban settings like Huntington.

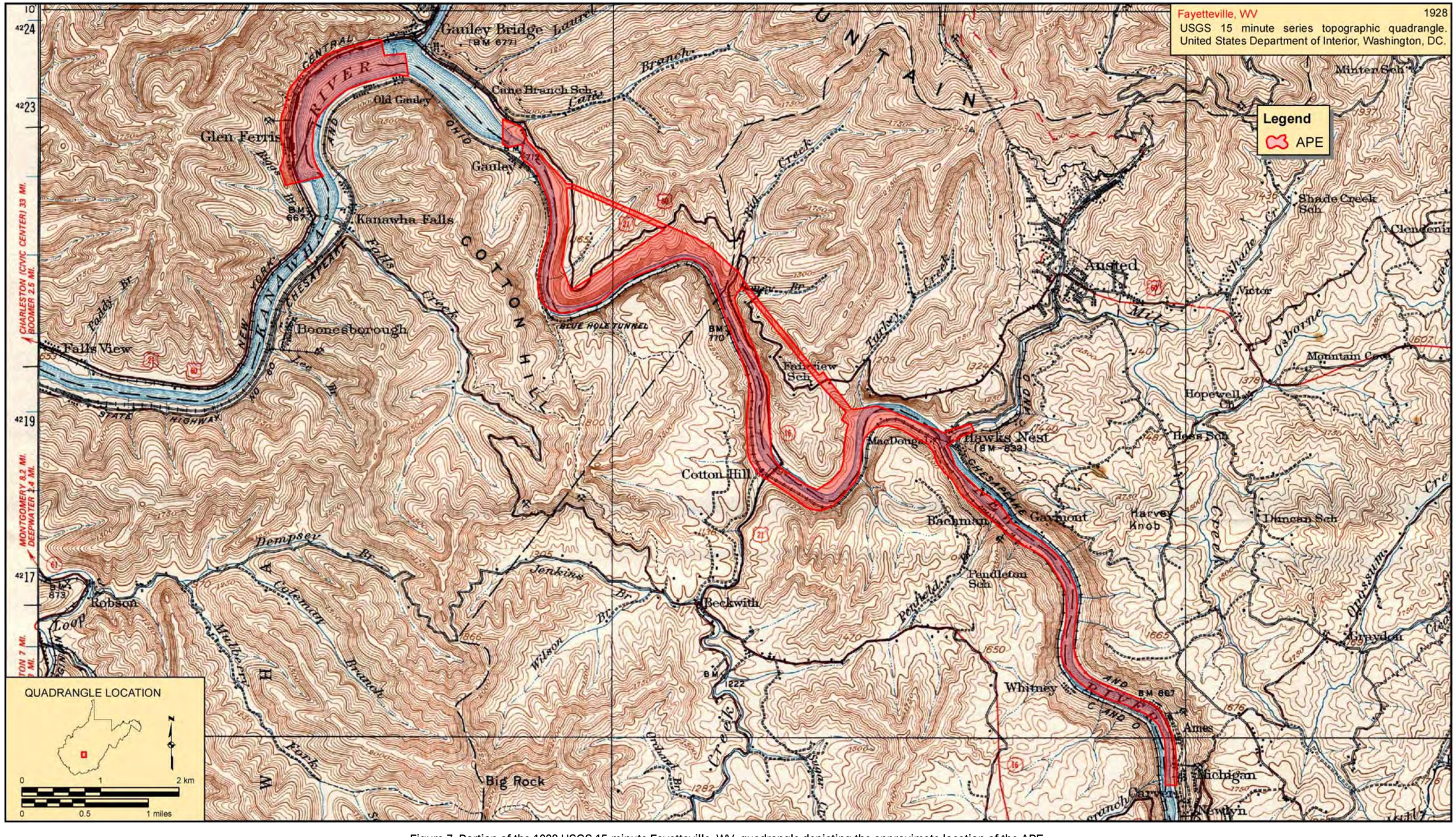

Figure 7. Portion of the 1928 USGS 15-minute Fayetteville, WV, quadrangle depicting the approximate location of the APE.

In 1928, New-Kanawha Power Company began to accept proposals for the large-scale construction by contractors with experience in building tunnels and other large-scale projects. Commissioned just prior to the onset of the Great Depression, the proposed 10 million dollar (actual 22 million dollar) contract enticed only the largest and most capable bidders. Union Carbide & Carbon Corporation purportedly was covered by a $4,000,000 bond to protect against any defaults by its contractors on such a technically difficult and high profile undertaking that was scoped to be completed in four years' time. Importantly, "a time limit has been set for completion of the contract that would require work to be rushed with all possible speed" (Sprague 2008; One Tunnel, One Power Plant. *Fayette Tribune*, July 31, 1929).

By the early twentieth century, the United States led the world in the production of dams for power supply, power, irrigation, and the control of navigation, and yet most of these were located in remote locales that were distant from urban populations (Gandy 2002:41). The cutting of the tunnel in an area in which extensive underground mining was widespread and in an era where projects such as the cutting of the Catskill aqueduct and expansion of sub-terrain subway and sanitation systems had become relatively common shows that the project was in keeping with the ambitious scale of other contemporary modernist undertakings. The number and extent of large-scale engineering projects throughout the first decades of the twentieth century meant that there were a number of contractors with the experience and expertise to complete the project.

The geographer Swygendouw identifies four stages in the organization of large-scale water control projects, placing the development of the Hawks Nest project in the third phase, beginning after the First World War in an era when the development of large-scale industries became a national concern, particularly after the onset of the Great Depression (2004:39). The entirely privately funded massive infrastructure works such as the Hawks Nest project was intended to spur long-term economic development and assure relative social peace in an area and in an era that had theretofore experienced neither.

The New-Kanawha Power Company executed the contract for the development of the larger project with Rinehart & Dennis, a Chancellorsville, Virginia-based company that was an experienced firm that won the bid for the construction of the Hawks Nest development in competition with 35 firms. Rinehart & Dennis, the low bidder on the project, was known as one of the largest railroad contracting firms in the United States, well suited for the development of the tunnel, railroad grading, and transmission lines as well as constructing the dam (not including the crest gates). Rinehart & Dennis also had built major dams throughout the South, completed portions of the New York water system, and drilled over 50 tunnels in an array of environments (Cherniack 1986:14). The firm proved up to the technical and organizational challenges of meeting the demands of such an enormous undertaking.

The firm was hired to complete the key aspects of the Hawks Nest Development, including the dam, tunnel, and other related features (Spangler 2008:70). The contract for the construction of the Hawks Nest Power Station was separately bid. P.H. Falconer was the president of Rinehart & Dennis. J.P. Perkins was Rinehart & Dennis' chief engineer and superintendent for the Hawks Nest project, and Charles F. Ward was the supervising engineer. The medical officer was a Dr. Mitchell. Robert Perkin and Linwood Faulconer were the division superintendents and active project managers for Rinehart & Dennis (Spangler 2008; Governor Conley Attends Tunnel Celebration, *Fayette Tribune*, August 19, 1931). The Rinehart & Dennis team worked in close consultation with Owen Jones and the New-Kanawha Power Company.

Construction

The actual construction of the Hawks Nest Development commenced on schedule, beginning April 1, 1930, in spite of the thickening global financial crisis (Sprague

2008; Giant Undertaking Under Headway on New River, *Fayette Tribune*, April 2, 1930). The aggressive schedule and rapid startup of the project was in part a result of the execution of Owen Jones' meticulous plan, seven years in the making. The contractors began the project with construction and reconstruction of six miles of standard gauge railroad on the north side of the New River to line the tunnel head at the powerhouse site to the river flats at Boncar, later Alloy.

Workers began to cut the tunnel on June 13, 1930, and the tunnel work proceeded on a very aggressive timeline. During maximum operations, the tunnels moved forward at a rate of 250 to 300 ft. a week. There were four different tunnel headings, one at each end, and two at the middle, near the extant surge basin (Griswold 1936; Figure 8). The downstream section of the tunnel was "holed through" by August 7, 1931, and the upstream section by September 19, 1931. Shaft 1 was 4,100 ft. long, Shaft 2 was 3,150 ft. long, Shaft 3 was 3,700 ft. long, and Shaft 4 is 5,300 ft. long. Workers completed the trimming of the tunnel by December 1, 1931, completing the excavation portion of the project. The contractor's work on the Hawks Nest Development was completed in December, 1934, although plant operation was delayed until 1936 following the collapse of the penstock during a test, resulting in the partial reconstruction of the penstock and addition of the Surge Tank to the project.

The tunnel shaft was opened with a conventional practice of drilling, blasting, and hauling out the overburden. The crews on each of the four tunnel heads worked in two separate benches, the upper bench always above and ahead of the lower bench (Figure 9). The workers employed Ingersoll pneumatic drills to cut both vertical (sinker) and horizontal (drifter) holes in excavated benches, which were filled with dynamite and blasted. Fresh air was channeled into the tunnel through a 24-inch ventilation duct, a diameter questioned as ineffective by the workers. The pulverized stone was known to the workers as "muck." Gasoline trams and steam locomotives ran directly into the tunnel to remove the overburden to an intermediate site, where it was loaded into cars pulled by a steam locomotive for disposal.

Workers in each of the four headings were encouraged to outpace the work of rival crews, and foremen were given considerable incentive to win the race to the finish. The company employed the workers in two long shifts working around the clock with the exception of Saturday and Sunday nights, breaking only for an interval following an end-of-shift blasting event (Spangler 2008:55). The main drilling of the tunnel was completed in 15 months. The first meeting of two tunnel headings occurred on August 7, 1931, and the second tunnel sections were joined on September 19, 1931. Soon after the rough work was completed, many of the underground workers were largely paid and dismissed from employment.

The rough cut of the tunnel was semi-circular in shape and then improved through the casting of the circular concrete tunnel walls that line 10,200 ft. of its course. The total fall from the intake to outflow was 168 feet. The competed tunnel was 16,252 ft. in length, and yielded 507,336 cubic yards of excavated material. The quality of the rock within the tunnel proper varied greatly, from the shales near the dam location to nearly 99 percent pure silica near the powerhouse.

Some of the stone was used as concrete aggregate for the completion of the project. At the height of drilling, 175 rail cars of materials were transported from the tunnel a day. The material was examined (or "assayed") by project engineers and chemists, and the high-quality silica was shipped for future processing to Boncour while the low quality materials were dumped on the riverbank or sent downriver to Blaine Island (Cherniack 1986:41). The purer silica rock was valued for use in producing ferrosilicon, a key component in the production of specialty steel (Spangler 2008:80).

Figure 8. Adit during the hydroelectric power construction on the New River, June 29, 1932 (West Virginia State Archives, Hawks Nest Tunnel Collection).

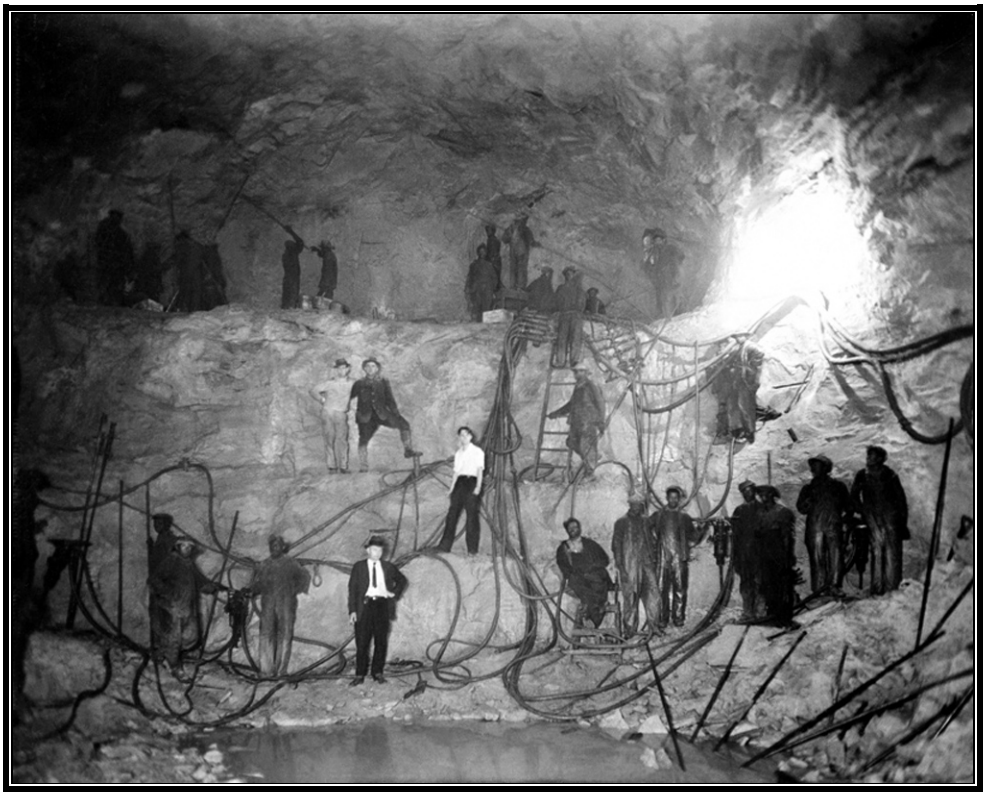

Figure 9. View of the tunnel face during excavation (West Virginia State Archives, Hawks Nest Tunnel Collection).

The value of the actual material through which the tunnel was being bored, silica, was such that engineers widened its diameter from 32 ft. to 46 ft. "at the location of the richest silica deposits" (Spangler 2008:19). Once the quality of the silica along the lower course of the tunnel was discovered, the regulatory oversight broadened to include the state Department of Mines, which oversaw the mining of the silica within the expanded tunnel radius. Department of Mines Chief R. M. Lambie was responsible for the State oversight of the silica mining operation (Spangler 2008; Army of Workman Drilling Through Gauley Mountains, *Fayette Tribune*, June 3, 1931).

The ceremony to celebrate the completion of the boring portion of the tunnel project was held on August 12, 1931, over a year after its initiation, featuring Governor Conley, Chairman Coffman of the PSC, G.H. Davis of the New-Kanawha Power Company and Hollis Dennis of Rinehart & Dennis. E.J. Perkins, the vice president of Rinehart & Dennis, led a tour of the nearly completed facility, touring the tunnel interior (Spangler 2008; Coal Men Inspect the New-Kanawha Co., *Fayette Tribune*, January 11, 1933). The celebration, featuring a large barbeque, orchestras, and dancing, was held at the Lovers Leap Club House, "a large stone building of Olde English design" at the crest of the mountain overlooking the New River Gorge (Spangler 2008; Governor Conley Attends Tunnel Celebration, *Fayette Tribune*, August 19, 1931).

Considered a marvel of technological innovation and progress because of the scope of the undertaking and its execution during a time of profound financial crisis, the facility was the subject of guided tours and planned events, celebrations of modern design, planning, and engineering (Kaika 2005:39). The overlook at the Hawks Nest State Park, with its view of the dam relates to the celebration of this particular achievement of architectural and engineering modernism, designed explicitly to overlook the dam and impoundment. On June 26, 1936, local newspapers reported that water was being diverted into the tunnel for the first time, and that following a period of tests, the Hawks Nest Power Plant would be in operation (Spangler 2008; Great Tunnel Getting Water, *Montgomery News*, June 26, 1936).

Labor

The construction of the Hawks Nest Development is also linked to the "calamity for the Great Depression," during which coal production in Fayette County dropped precipitously and what remained of the UMWA organizational structure crumbled in the face of a massive labor surplus (Cherniack 1986). Rinehart & Dennis advertised throughout the country to lure workers to the remote job site; the possibility of steady wages and solid pay were an attractive enticement during the dark days of the Great Depression.

The Hawks Nest Development was an unquestioned economic boon to the local economy, with large numbers of workers finding housing in the existing communities and local contractors supplying goods and services to the contractors and workers. However, less than 20 percent of the workers were "local," that is, already residing in the immediate area, with the majority of laborers enticed by recruiters who traveled throughout the South, although the men traveled to Gauley Bridge at their own expense and volition (Cerniack 1986:18). Initial news reports on the first day of operation at the project report on a surplus of labor in the area, and commented on the construction of labor camps at Hawks Nest and Gauley (Spangler 2008; Giant Undertaking Under Headway, *Fayette Tribune*, April 2, 1930).

The small army of workers was employed to conduct a full range of activities, from hard rock mining to engineering. According to the contractor, the total number of workers employed during the course of the Hawks Nest Development was 4,931 (1,687 of which were "white" and 3,244 were "colored"), although other estimates were much higher. Many of the workers were employed for relatively short periods throughout the duration of the project, and according to the contractor, the maximum number of workers employed at one time was

1,202. The average length of employment at the tunnel site was just 15 to 16 weeks. The workers, who included a number of specialized trade workers, were employed both inside and outside the tunnel; approximately 2,500 workers, mostly African-American workers, worked inside the tunnel. Among the types of manual work in the tunnel were drilling, nipping steel, mucking, powder and explosives, mechanical work, loaders, muckers, and track men, in addition to the men who worked outside of the tunnel (Cherniack 1986; Spangler 2008).

The overwhelming majority of the project engineers and senior management were from the Northern states and Europe, talent drawn from wherever large-scale projects had been completed, while the majority of the unskilled workers were from Southern states. The class distinction between the professional class of the engineers working under the New-Kanawha name and the southern migrants, including the foremen and middle managers, working for Rinehart & Dennis, was locally well known and reinforced in the landscape, particularly in the type and architectural style of the company housing. To house the workers, the company planned the development of labor camps, one of which was built "on the old Tompkins Farm owned by the EMCO, a subsidiary of the Union Carbide and Carbon Company, which is the chief power behind the entire enterprise" (Sprague 2008; New-Kanawha Company, *Fayette Tribune*, August 28, 1929).

In fact, there were three formal construction camps (Camp One, Camp Two, and Camp Three). Camp One was located near the heading No. 1 upstream from the power plant site on the banks of the New River and was designed to house up to 275 men. Camp Two housed 150 men workingmen at the dam and No. 4 heading. Camp Three was the largest and most prominent of the work camps, housing 350 workers, located on the current site of the Hawks Nest Country Club. A fourth camp was established outside of Ansted. The camps were segregated, and there was a large "colored" camp near the No.1 tunnel heading, as well as a scattering of informal camps in the surrounding countryside and "high in the hills." The specific accommodations were also separate and unequal, with housing for white workers designed to be less crowded than that for African-American workers.

Many, if not most, workers lived in the informal camps or private houses in Hawks Nest, Cotton Hill, Ansted, Gauley Bridge, and other nearby communities and former coal camps, outside formal company control but nonetheless under the careful eye of deputized "rousters" and company foremen. Some worker camps evolved into de facto small towns located up to two miles from Gauley Bridge. Vanetta, for example, was a principal workers town, originally established as a coal company town by the Lynchburg Coal Company on the Gauley Branch of the C&O Railroad, later operated by the Deitz Colliery, and later evolving into a widely publicized work camp associated with the project (Cherniack 1986; Spangler 2008).

State inspectors found the buildings in the formal camps to be "ordinary type construction houses of average good condition for temporary living quarters" (Spangler 2008:217). The workers housed at Camp Two were housed in small side-gable wooden frame structures, generally three building units wide, one room deep, and one story in height, resting on stone piers and covered with a low-pitched roof. The buildings in Camp Three were set amid mature trees, and were spaced at what appears to have been even intervals (Spangler 2008:86). Shanties visible in photographs of Camp Two showing the northern end of the dam are one-story, side-gable wood frame buildings resting on piers. In the "colored camp" section of Camp One, activist journalists reported that some of the buildings for the workers were simple 10 ft. by 15 ft. "sheds" or 10 x 12 ft. "shanties" (Spangler 2008:22). After the completion of the project, or when workers were relocated, the buildings within the workers' camps were either sold or razed and burned (Spangler 2008:55).

Hawks Nest Tragedy

The construction of engineering marvels such as the Hawk Nest Development has historically exacted a human toll (Cherniack 1986:7). The history of the Hawks Nest Development is intimately tied to the highly contested histories of the occupational health crisis known as the "Hawks Nest Tragedy." The contractor's interest in a healthy workforce may have been diminished somewhat by the aggressive schedule and Depression-era labor surplus, yet accustomed to managing a large workforce, the firm supplied a small hospital and clinics, as well as two doctors to oversee the project. The crowded conditions of the camps were such that communicable disease was a persistent health problem, in addition to lung disease associated with tuberculosis and pneumonia, complicating diagnoses of construction-related illnesses such as silicosis. In addition to the silica dust and gasoline fumes, the inadequate ventilation resulted in frequent occurrence of carbon monoxide poisoning among tunnel workers (Spangler 2008:48).

The first published reports of illnesses and deaths among African-American workers appeared at the end of May 1931 – six deaths in a week - spurring a new inspection of the tunnel by West Virginia Department of Mines officials and local authorities. A report noted rumors and gossip about poor working conditions abounded, but New-Kanawha officials and contractors were bound by a gag rule, and employees were discouraged from speaking with the press (Spangler 2008; Inspection at Tunnel, *Fayette Tribune*, May 20, 1931). Initially, the medical staff at the Coal Valley Hospital termed the affliction "tunnelitis," tunnel pneumonia, or miner's consumption.

As Cherniack noted, the "record of Hawks Nest was reported first in the local press, then in the radical press and finally before a national audience" (1986:89). As Cherniack notes "the most sympathetic accounts of the Gauley Bridge [Hawks Nest] tragedy had been preserved in the radical labor tradition, in which moral outrage weighed more heavily than quantifiable data" (1986:3). As the work on the tunnel was underway, the region was wracked by a series of wildcat strikes, not by the once powerful United Mine Workers of America (UMWA), but by the radical communist-inspired National Miners Union (NWU), whose use of writers, poets, and social workers as activists greatly influenced the initial dissemination of the information regarding illness among the workers.

In contrast to the apparent lack of concern for the respiratory health of the workers, Rinehart & Dennis compiled a solid safety recorded for the project (Cerniack 1986:34). Union Carbide acknowledged 27 accidental deaths occurred over the entire extent of the Hawks Nest Development from direct project-related causes, and Rinehart & Dennis reported 17 accidental deaths, counts clearly on the conservative side of the likely range that never accounted for the full death toll. Ultimately, Union Carbide counted 109 deaths among the tunnel workers, but acknowledged silicosis as the principal cause in only 19 cases. Cherniack notes the widely repeated figures of 476 deaths from silicosis, and reports of 169 bodies secretly buried were the result of confusion or outright fictionalization for the benefit of the readers of the "radical press" drawn to the story of an industrial disaster. However, Cherniack, in a statistical analysis of the mortality of all sustained tunnel workers, estimates the overall premature death toll from work in the Hawks Nest Tunnel to be 764 over the long duration (Chenriack 1986:169). Congressional hearings into the health conditions of workers employed in the project were held from January 16, 1936, to February 4, 1936 (Spangler 2008). Rinehart & Dennis disbanded in the wake of the controversy regarding silicosis, though the Faulconer Construction Company, a subcontractor, remains a viable firm. Out of court settlements in 1933 and 1935 effectively resolved the 538 lawsuits brought against the contractors, and the tragedy began to fade from public memory as the economic benefits of the project became manifest, a somewhat common communal reaction to large-scale accidental tragedy (Foote 1977).

Throughout the 1950s, the area experienced a sustained period of prosperity, seen in the material improvements to the communities associated with the EMCO, including Montgomery, Smithers, Boomer, Alloy, Falls View, Glen Ferris, and Gauley Bridge. During these boom times, the company began to divest itself of its extensive residential holdings, selling houses in Boomer first, followed by residences in Falls View, and then in Glen Ferris (McKinney 1992). In 1955, with the exception of the power-generating equipment, the EMCO began to dismantle the productive elements of the original 1921 aluminum plant at Glen Ferris, shifting the function of the power-generating facilities to the provisioning of local electricity. The long, sustained period prosperity in the region began to wane by the early 1960s. In 1962, the FPC sought to reassert Federal regulatory authority over the Hawks Nest facility, and hearings focused on the long-debated question of navigability. The relicensing issue was resolved through the issuance of the permit in 1967. In 1981, the entire EMCO operation was purchased by Elkem Metals, a privately owned Norwegian concern.

Recently, the Glen Ferris facility underwent a $25 million renovation, bringing the power station on-line for the first time since 2004, when one of the plant's units in the east powerhouse failed. The overhaul of the facility began in 2006 when it was acquired by Brookfield Renewable Power. The project was technically rehabilitation because it focused on the refitting of existing elements, which were in operation since their initial installation. The most dramatic alteration was the construction of the heavy concrete bridge to allow access for heavy equipment to the site. Other major alterations included the replacement of some control boards and a shift to an automated control system. The rehabilitation also included the reinstallation of facility-powered streetlights in Glen Ferris, a signature feature of the Glen Ferris company town. Originally, the powerhouse provided the power that lit the large concrete streetlights in the town of Glen Ferris, in part to promote the benefits of the facility, and to demonstrate the modernity of the model community, a service restored during the recent renovation.

IV. RESULTS

Records Review

CRA historians conducted a records review in consultation with the WVSHPO, who determined that there were five previously recorded properties in the APE (Table 1; Figure 10; Appendix A). The results of the records review revealed that, in spite of the well-known engineering achievement of the Hawks Nest Development and the widespread knowledge of the Hawks Nest Tragedy, the Hawks Nest Tunnel, Dam, and Powerhouse have not been previously recorded for the WVHPI or assessed as to their eligibility for the NRHP (Table 2; Figure 2). However, all of the previously recorded resources relate in some manner to the Hawks Nest Development.

Of the previously recorded properties, the Glen Ferris Inn (FA-0003-006) and the New Deal Resources of Hawks Nest State Park (FA-0201 to 0210) were listed in the NRHP, the former as a building and the latter as a historic district. The Glen Ferris Power Plant (FA-0024), integral to the history of the region, was recorded for the WVHPI and recommend as eligible for the NRHP. The other two previously recorded resources, the Honey Creek Bridge (FA-0135) and the Cotton Hill Bridge (FA-0025), both circa 1927 highway bridges, were found to have been razed and replaced with modern structures.

The Glen Ferris Inn (FA-0003-006) was originally recorded for the WVHPI as part of the Gauley Bridge historic district survey conducted by the Fayette County Historic Landmarks Commission in 1986. The property was nominated to and listed in the NRHP under Criteria A and C as the Glen Ferris Inn (Stockton’s Inn) in 1991. The NRHP listing defined the historic property as the inn itself, one contributing building,

and associated grounds comprised of 1.43 acres of land traditionally associated with the property. The New Deal Resources of Hawks Nest State Park (FA-0201 to 0210) were listed in the NRHP as a historic district in 2010, as part of the New Deal Resources in West Virginia State Parks and State Forests National Register of Historic Places Multiple Property Listing (MPD; Sweeten 2010a and b). The district was listed under both Criteria A and C under the areas of social history, politics, conservation, entertainment, and architecture built between 1935 and 1942. Within the district, there are 26 contributing resources, including four buildings, 17 structures, and five objects, as well as one noncontributing resource.

The Hawks Nest State Park has three distinct aspects, the original portion of the park constructed by the CCC, the modern lodge built in the late 1960s, and the area along the New River developed by the park in the 1970s. Therefore, the park's NRHP-listed New Deal era resources are located near the western boundary of the 838-acre park, concentrated at a picnic area and the Hawks Nest Overlook along U.S. 60. The historic boundary was justified as encompassing 71 acres and was crafted to encompass the New Deal-related resources exclusively, but was designed to also encompass potions of the Hawks Nest Lake within the viewshed from the Hawks Nest Overlook. Hawks Nest Lake is part of the impoundment immediately behind the Hawks Nest Dam, explicitly associating the development of the state park to the Hawks Nest Development (Figure 11). There are no contributing buildings, structures, or objects located within the APE, however.

Figure 11. View of the Hawks Nest Overlook showing the impoundment, facing southeast.

Table 1: Results of the Literature Review: Previously Recorded Properties within the Area of Potential Effects

Survey Number	Name Location	Type	Date	Foundation	Wall Material	Roofing Material	NRHP Status	Current Condition	Reference
FA-0003-006	Glen Ferris Inn, U.S. 60, Glen Ferris	Stage Coach Inn, Hotel	1815, 1853, 1910, 1933	Stone	Brick	Slate	NRHP Listed	Intact	WVHPI 1986 NRHP 1991
FA-0024	Glen Ferris Power Plant U.S. 60, Glen Ferris	Electrical Generating Facility	1897	Stone	Brick	Asphalt	Recommended NRHP Eligible	Intact	WVHPI 1986
FA-0025	Cotton Hill Bridge, SR 16 over New River and CSX Railroad	Deck Truss Bridge	1927	Concrete	n/a	n/a	Determined NRHP Eligible	DEMOLISHED	WVHPI 1989
FA-0135	Honey Creek Bridge SR 16 over Honey Creek	Deck Truss Bridge	1927	Concrete	n/a	n/a	Determined NRHP Eligible	DEMOLISHED	WVHPI 2004 State Level Documentation
FA-0201 to 0210 RU-13-FA-2	New Deal Resources of Hawks Nest State Park Hawks Nest State Historic District	Museum Building Residence Picnic Shelter Fireplaces Water Fountains Trading Post Overlook Storage Buildings	1934-1937	Concrete, Stone	Log, Stone	Asphalt Shingles, Wood Shingles	NRHP Listed as a historic district. New Deal Resources in West Virginia State Parks and State Forests MRHP	Intact	NRHP MRHP 2010

Glen Ferris Power Plant (FA-0024) was recorded for the WVHPI to a minimal standard in 1986; the recordation focused on the stone, brick, and asphalt elements of what was thought to be the 1897 electrical generating facility. The power plant was recommend as being intact, historically significant, and was recommended as being eligible, but was never formally listed in or determined eligible for the NRHP.

Honey Creek Bridge (FA-0135), a 1927 five-span deck truss bridge carrying SR 16 over Honey Creek, was initially recorded for the WVHPI in 2004 during the environmental studies associated with the proposed bridge replacement project (S310-16-23.00; Wilson 2004). The bridge was recorded in detail in 2005 prior to its replacement (Mullins 2005). Similarly, Cotton Hill Bridge (FA-0025), the 1927 deck truss bridge that carried SR 16 over the New River and railroad corridor, was replaced following an inspection in 1989. Both bridges were developed as a part of the improved state highway systems during the 1920s, and both were constructed just as the Hawks Nest Development was taking shape, a modern development that was designed relative to both the railroad and emerging roadway networks. Finally, although there was no record of a specific decision regarding the portion of the original C&O mainline that bisects the APE, in past compliance reviews, the WVSHPO has indicated that it considers the railroad corridor as eligible for the NRHP as a linear resource.

Based on the results of the records review, there are two previously recorded NRHP properties and one property previously recommended as eligible for the NRHP within the APE, as well as the railroad corridor, all of which relate directly or indirectly to the Hawks Nest Development. Each was addressed during the field survey.

Field Survey

Following the records review and development of the historic context, CRA historians conducted a field survey of all accessible properties 50 years of age or older located within the APE and recorded each to the standard of the WVHPI (Appendix B). The results of the cultural historic survey are presented in Table 2, and the locations of the cultural historic sites are mapped on Figure 2. CRA identified 34 buildings, structures, and collections of related resources (S-001 to S-034) 50 years of age or older during the field survey.

The field survey was conducted over the course of several days and was structured to accommodate the client's schedule and the capacity for CRA to secure access to Hawks Nest and Glen Ferris facilities. Therefore, the field survey began by boat with a survey of the area above the Hawks Nest Dam, followed by a survey by boat of the area above the Glen Ferris Dam and Kanawha Falls. The second day of the survey focused on the portion of the community of Glen Ferris, Hawks Nest State Park, and railroad-related resources that were located with the APE, as well individual resources. The third day of the survey included interior and exterior examinations of the Hawks Nest Dam, Surge Tank, Hawks Nest Power House, and the Glen Ferris Powerhouse facility. As a result of this survey schedule, the identified properties were assigned survey numbers in their order of field recordation.

All surveyed historic resources are described below, with those properties that are geographically or thematically related grouped appropriately. For examples, properties with shared historical associations are described and evaluated together as appropriate, including the resources in the Hawks Nest State Park (S-002 and S-003), the properties that comprise the portion of the Glen Ferris Housing sub-division that are within the APE and evaluated individually and as a historic district (S-013 to S-020), a pair of related residences (S-025 and 026), and the elements that collectively comprise the Hawks Nest Development (S-032, S-033, and S-034).

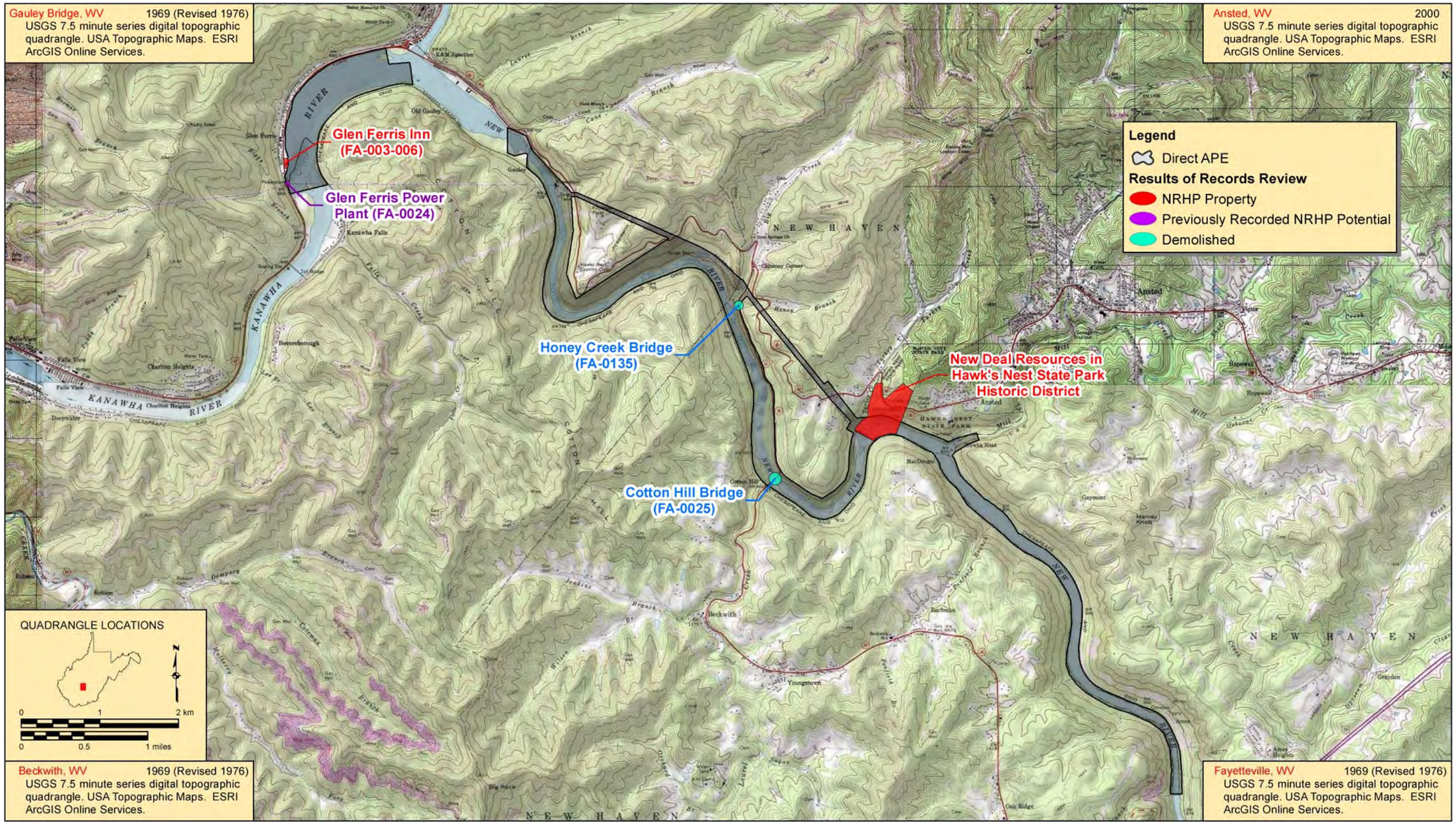

Figure 10. Portion of the United States Geological Survey (USGS) 7.5-minute 1969 (1976) Beckwith, WV, quadrangle showing the location of the APE and results of the records review.

Table 2: Results of Field Survey.

FS#	WVHPI Survey #	Name	Tax Parcel	Acres	Location	UTM	Classification	Historic Function	Current Function	Date	Stylistic Influence	Type	Bays or Spans	Rooms	Stories	Roof Type	Construction	Foundation	Walls	Roof	Outbuildings	Additions	Alt.	NR Potential
7	N/A	Merchants and Manufacturing Warehouse Company	Valley District, Map 30	n/a	North of the CSX tracks and US 60 at the eastern edge of Glen Ferris, opposite site of Glen Ferris Station.	481144 4222325	Building	Commerce - Warehouse	Recreation - Bowling Alley (vacant)	circa 1900	Vernacular	Side Gable Structure	6	1	1	Side Gable	Brick	Concrete	Brick	Metal	Platform	Yes	Yes	Lost Integrity
12	N/A	McClug Property	Valley District, Map 30L, Parcel 12	0.14	9159 Midland Trail (US 60)	481151 4222716	Building	Domestic - Single	Domestic - Single	circa 1900	Vernacular	I-House	2	1	2	Side Gable	Wood Frame	Not Visible	Aluminum	Asphalt Singles	Multiple Additions	Yes	Yes	Lost Integrity
6	N/A	C & O Bridge	Valley District, Map 31	n/a	C & O Railroad Bridge over the New River at Gauley	484260 4222651	Structure	Transportation - Rail Related	Transportation - Rail Related	1904, 2010	Engineered	Deck Plate Girder	6	n/a	n/a	n/a	Steel, Reinforced Concrete	Reinforced Concrete; Cut Sandstone Blocks	Metal	n/a	n/a	Yes	Yes	Lost Integrity
8	N/A	Hill Property	Valley District, Map 30, Parcel 10.1	0.49	North of US 60 at the eastern end of Glen Ferris	481154 4222372	Building	Commerce - Gas Station	Commerce-Specialty	circa 1965	Vernacular	Gable Front Cottage	1	2	1	Gable Front	Wood Frame	Concrete	Brick, Wood Panel	Asphalt Shingle	Auto Lot	Yes	No	Not Significant
11	N/A	Hudson Property	Valley District, Map 30L, Parcel 13	0.18	9163 Midland Trail (US 60)	481148 4222696	Building	Domestic - Single	Domestic - Single	circa 1910	Queen Anne	Irregularly Massed	1.5	3	2	Gable Front	Wood Frame	Rough Sandstone	Vinyl Siding	Asphalt Shingles	Shed	Yes	Yes	Not Significant
21	N/A	Riverview UMC Parsonage	Valley District, Map 30G, Parcel 29	0.3	n/a Midland Trail (US 60)	481156 4222993	Building	Religious - Parsonage	Religious - Parsonage	circa 1945	Tudor Revival	Irregularly Massed	3	4	1.5	Intersecting Gables	Brick	Concrete, Brick	Brick	Asphalt Shingles	Brick Garage	No	No	Not Significant
22	N/A	Jervis Property	Valley District, Map 30G, Parcel 27	0.37	n/a Midland Trail (US 60)	481163 4223032	Building	Domestic - Single	Domestic - Single	circa 1960	Ranch	Ranch	5	3	1	Hipped	Brick	Concrete	Brick	Asphalt Shingles	Modern Shed	No	no	Not Significant
23	N/A	Skaggs Property	Valley District, Map 30G, Parcel 26	0.29	9361 Midland Trail (US 60)	481169 4223064	Building	Domestic - Single	Domestic - Single	circa 1965	Ranch	Ranch	4	2	1	Hipped	Brick	Concrete	Brick	Asphalt Shingles	Attached Garage	No	No	Not Significant
24	N/A	Beard Property	Valley District, Map 30G, Parcel 25	0.29	9389 Midland Trail (US 60)	481176 4223096	Building	Domestic - Single	Domestic - Single	circa 1965	Ranch	Ranch	5	2	1	Side Gable	Brick	Concrete Block	Brick	Asphalt Shingles	Garage	No	No	Not Significant
25	N/A	Clevenger Property	Valley District, Map 30G, Parcel 41	0.33	n/a Midland Trail (US 60)	481220 4223131	Building	Domestic - Single	Domestic - Single	circa 1935	Vernacular	Gable Front	2	2.5	1	Front Gable	Wood Frame	Concrete Block	Vinyl Siding	Asphalt Shingles	n/a	No	Yes	Not Significant
26	N/A	Clevenger Property II	Valley District, Map 30G, Parcel 41	0.33	n/a Midland Trail (US 60)	481220 4223144	Building	Domestic - Single	Domestic - Single	circa 1935	Vernacular	Cape Cod	2	2.5	1	Side Gable	Wood Frame	Concrete Block	Wood - Weatherboard	Asphalt Shingles	n/a	No	No	Not Significant

FS#	WVHPI Survey #	Name	Tax Parcel	Acres	Location	UTM	Classification	Historic Function	Current Function	Date	Stylistic Influence	Type	Bays or Spans	Rooms	Stories	Roof Type	Construction	Foundation	Walls	Roof	Outbuildings	Additions	Alt.	NR Potential
27	N/A	Lilly Property	Valley District, Map 30G, Parcel 22	0.24	9435 Midland Trail (US 60)	481196 4223167	Building	Domestic - Single	Domestic - Single	circa 1940	Vernacular	Hipped Cottage	2.5	2	1	Hipped	Wood Frame	Concrete, Concrete Block	Vinyl Siding	Asphalt Shingles	Shed, Carport	Yes	Yes	Not Significant
5	N/A	Representative Fishing Shanties	Valley District, Maps 32, 33, 41	Various	Squatter Shanties within 100 ft. of the high water mark of the New River	Various	Buildings	Recreation - Outdoor Recreation	Recreation - Outdoor Recreation	circa 1981-present	Vernacular	Side Gable Cottages; Shed Cottages	1 to 3	1	1	Side Gable, Flat	Wood Frame	Stone, wood or concrete piers.	Wood; Tarpaper; Metal	Metal; Asphalt Shingle	Privies; decks	Yes	Yes	Not Significant
30	N/A	Boley Property	New Haven District, Map 24P, Parcel 21	0.53 acres	n/a Hawks Nest Heights (CR 60/45)	488143 4219444	Buildings	Domestic - Single	Domestic - Single	circa 1960	Vernacular	Gable Front Cottage	2	3	1.5	Front Gable	Wood Frame	Concrete Blocks	Aluminum Siding	Asphalt Shingles	Trailer	Yes	Yes	Not Significant
4	N/A	Deck Bridge	New Haven District, Map 32, Parcel 8	661.11	Carrying Access Road over the Mill Creek	489740 4218973	Structure	Transportation - Automobile Related; Recreation	Transportation - Automobile Related; Recreation	circa 1970	Engineered	Prestress Concrete Beam Deck	1	n/a	n/a	n/a	Steel, Reinforced Concrete	Reinforced Concrete	n/a	n/a	n/a	No	No	Not Significant
10	N/A	Retaining Wall	Valley District, Map 30L, Parcel 25	2.42	Located South of US 60, eastern edge of the Glen Ferris Inn property.	481191 4222669	Structure	Unknown	Unknown	circa 1920	Utilitarian	Retaining Wall	n/a	n/a	n/a	n/a	Rough Sandstone	Concrete	Concrete	n/a	n/a	Yes	Yes	Not Significant
2	N/A	Hawks Nest State Park Gondola Landing	New Haven District, Map 32, Parcel 69	28.88	South side of Mill Creek, approx. 1,700 ft. south of US 60 within Hawks Nest State Park	489696 4218899	Building	Recreation - Outdoor Recreation	Recreation - Outdoor Recreation	circa 1970	Modern	Utilitarian	3	2	1	Flat	Metal	Steel Piers	Metal	Not Visible	n/a	No	No	NRHP Eligible
3	N/A	Hawks Nest State Park Nature Center	New Haven District, Map 32, Parcel 69	28.88	South side of Mill Creek, approx. 1,860 ft. south of US 60 within Hawks Nest State Park	489662 4218853	Building	Recreation - Outdoor Recreation	Recreation - Outdoor Recreation	circa 1970	Modern	Utilitarian	2	2	2	Flat	Metal	Steel Piers	Metal	Not Visible	n/a	No	No	NRHP Eligible
14	N/A	Glen Ferris Subdivision Lot 120	Valley District, Map 30G, Parcel 37	0.13	9243 Midland Trail (US 60)	481145 4222857	Building	Domestic - Multiple	Domestic - Multiple	1930	Shingle	Irregularly Massed	3.5	2	2	Hipped	Wood Frame	Concrete	Shingles	Asphalt Shingles	Frame Garage	No	No	NRHP Eligible
15	N/A	Glen Ferris Subdivision Lot 121 (pt.)	Valley District, Map 30G, Parcel 36	0.07	9251 Midland Trail (US 60)	481143 4222874	Building	Domestic - Single	Vacant	1930	Dutch Colonial Revival	Double Pile	2	2.5	1.5	Gambrel	Wood Frame	Concrete	Vinyl Siding	Metal	Frame Garage	No	no	NRHP Eligible
16	N/A	Glen Ferris Subdivision Lot 121 (pt.)	Valley District, Map 30G, Parcel 35	0.07	n/a Midland Trail (US 60)	481146 4222889	Building	Domestic - Multiple	Domestic - Multiple	1930	Colonial Revival	Double Pile (Duplex)	5	2	1.5	Side Gable + Dormer	Wood Frame	Concrete	Vinyl Siding	Asphalt Shingles	Frame Garage	No	No	NRHP Eligible
17	N/A	Glen Ferris Subdivision Lot 122	Valley District, Map 30G, Parcel 34	0.1	9221 Midland Trail (US 60)	481148 4222907	Building	Domestic - Single	Domestic - Single	1930	Dutch Colonial Revival	Bungalow	2	1.5	1.5	Gambrel	Wood Frame	Concrete	Vinyl Siding	Asphalt Shingles	Frame Garage	No	No	NRHP Eligible

FS#	WVHPI Survey #	Name	Tax Parcel	Acres	Location	UTM	Classification	Historic Function	Current Function	Date	Stylistic Influence	Type	Bays or Spans	Rooms	Stories	Roof Type	Construction	Foundation	Walls	Roof	Outbuildings	Additions	Alt.	NR Potential
18	N/A	Glen Ferris Subdivision Lot 123	Valley District, Map 30G, Parcel 33	0.1	9123 Midland Trail (US 60)	481150 4222920	Building	Domestic - Single	Domestic - Single	1930	Vernacular	Three-square	1.5	2	1.5	Hipped	Wood Frame	Concrete	Vinyl Siding	Metal	Frame Garage	No	No	NRHP Eligible
19	N/A	Glen Ferris Subdivision Lot 124B	Valley District, Map 30G, Parcel 32, 32.1	0.16	n/a Midland Trail (US 60)	481152 4222937	Building	Domestic - Multiple	Domestic - Multiple	1930	Shingle	Irregularly Massed	3.5	2	2	Hipped and Gambrel	Wood Frame	Concrete	Aluminum Siding	Metal	Frame Garage	No	No	NRHP Eligible
20	N/A	Riverview United Methodist Church	Valley District, Map 30G, Parcel 30	0.26	n/a Midland Trail (US 60)	481154 4222970	Building	Religious - Church	Religious - Church	1934	Ecclesiastical	Basilica Plan	3	5	1+	Gable Front	Brick	Concrete	Brick	Asphalt Shingles	Parsonage	No	No	NRHP Eligible
28	N/A	Benda Property	Valley District, Map 30G, Parcel 19	0.12	n/a Midland Trail (US 60)	481211 4223210	Building	Domestic - Single	Vacant	circa 1917	Vernacular	Jenny Lind House	1	2	1	Front Gable	Wood Frame	Cut Sandstone, Concrete	Wood - Clapboard	Asphalt Shingles	n/a	Yes	Yes	NRHP Eligible
34	N/A	Hawks Nest Power House	Valley District, Map 30, Parcel 15	223.45	On the north bank of the New River, 0.28 miles east of the Midland Trail (US 60)	484607 422237	Building and Structure	Industry - Energy Facility	Industry - Energy Facility	1930-1934	Art Deco	Power Plant	10	2	2	Flat	Steel Frame	Reinforced Concrete	Brick	Not Visible	Surge Tank, Transformers	No	No	NRHP Eligible
31	FA-0024	Glen Ferris Power Plant	Valley District, Map 39, Parcel 5	464.96	In the channel of the Kanawha River, at the western end of Glen Ferris	481204 4222273	Buildings and Structures	Industry - Energy Facility	Industry - Energy Facility	circa 1900, 1918, 1921	Engineered	Power Plant and Water Treatment Facility	4	2	1.5	Flat	Steel Frame	Cut Sandstone, Concrete	Brick	Not Visible	Retaining Walls	Yes	Yes	NRHP Eligible
1	N/A	C & O Railroad Bridge	New Haven District, Map 32	n/a	3,260 ft. upstream from the Hawk's Nest Dam	489519 4218814	Structure	Transportation - Rail Related	Transportation - Rail Related	1872, 1892, circa 1935	Engineered	Parker Thru-Trusses; Deck Plate Girder	3	n/a	n/a	n/a	Steel Girders; Steel Beam	Cut Sandstone Reinforced Concrete	n/a	n/a	n/a	No	Yes	NRHP Eligible
29	N/A	C & O Railroad Trestle	Valley District, Map 31	n/a	C & O Railroad Bridge over Cane Branch	484160 4222905	Structure	Transportation - Railroad Related	Transportation - Railroad Related	circa 1904	Engineered	Pile Trestle	16	n/a	n/a	n/a	Wood Posts and Beams	Wood Piers	Wood - Ties	n/a	Concrete Retaining Wall	No	No	NRHP Eligible
32	N/A	Hawks Nest Dam and Intake	New Haven District, Map 32	n/a	New River, 1.2 miles upstream from SR 16	488580 4219042	Structure	Industry - Energy Facility	Industry - Energy Facility	1930-1934	Engineered	Barrage Dam	14	n/a	n/a	n/a	Reinforced Concrete	Reinforced Concrete	Reinforced Concrete	n/a	Intake	No	No	NRHP Eligible
33	N/A	Hawks Nest Surge Basin	Valley District Map 39, Parcel 5	464.61	North of the New River, 0.35 miles west of the intersection of SR 16 and the Midland Trail (US 60)	486496 4221348	Structure	Industry - Energy Facility	Industry - Energy Facility	1930-1934	Engineered	Surge Basin	n/a	n/a	n/a	n/a	Reinforced Concrete	Reinforced Concrete	Reinforced Concrete	n/a	Outflow	No	No	NRHP Eligible
9	FA-003-006	Glen Ferris Inn	Valley District, Map 30L, Parcel 25	2.42	Located South of US 60, Glen Ferris	481187 4222507	Building	Commerce - Restaurant, Tavern	Commerce - Restaurant, Lodging	circa 1839. circa 1900, circa 1935	Federal; Colonial Revival	Gable Front House	3	4	2.5	Gable Front	Brick	Concrete; Sandstone	Brick	Asphalt Shingle	Three Additions, Parking Lot	Yes	Yes	NRHP Listed

FS#	WVHPI Survey #	Name	Tax Parcel	Acres	Location	UTM	Classification	Historic Function	Current Function	Date	Stylistic Influence	Type	Bays or Spans	Rooms	Stories	Roof Type	Construction	Foundation	Walls	Roof	Outbuildings	Additions	Alt.	NR Potential
13	N/A	Horseshoe Apartments	Valley District, Map 30L, Parcels 2 and 7	0.2	n/a Midland Trail (US 60)	481136 4222817	Building	Domestic - Multiple	Domestic - Multiple	1930	Tudor and Colonial Revivals	Apartment Complex (13 units)	3	2	1.5	Various	Wood Frame, Brick	Concrete	Brick, Wood - Weatherboard	Asphalt Shingles	None	No	No	NRHP Potential

Information obtained from the Fayette County assessor's office, historic maps, and architectural analysis was used to provide an approximate construction date for each building or structure. CRA did not have access to the interiors of all buildings documented during the survey. All information concerning dimensions and interior spaces was obtained from the property assessment records. Each of these properties was evaluated to determine whether they are eligible or remain eligible for inclusion in the NRHP – whether the properties are historically significant and possess integrity. There are no documented cemeteries within the APE.

As expected within a long-established transportation corridor, the railroad lines are important features of the riverside landscape. The corridors themselves, as part of active rail networks, are dynamic in that they are constantly maintained and rebuilt to accommodate regular use; the rails, ties ballast and aspects of the physical infrastructure such as modern signaling apparatus are all of modern vintage. Even major features, including bridges, have been replaced. Remnant structures and structural ruins were associated with the railroad-oriented towns and mines of Glen Ferris, Old Gauley, McDougal, Bachman, Hawks Nest, and Whitney. Additionally, there are several other towns located just outside the project boundaries including Gauley Bridge, Kanawha Falls, Cotton Hill, and the mining towns of Michigan, Elmo, Sunnyside, and Gaymont. The corridors also contain an array of resources that relate to the original line, including several intact sandstone culverts, vacant or inactive spurs and siding, and objects such as whistle posts and mile markers, most of which are located outside of the APE or are addressed as archaeological sites in the accompanying archaeology survey report, the exception being two railroad bridges with the APE (Moser 2013).

The landscape with the APE, although it appears in places as "natural," is a thoroughly cultural environment, much of which was actually engineered. Prior disturbance within the APE is associated with mechanical grading, blasting, and/or filling associated with the construction of the C&O railroad system, U.S. 60 (Midland Trail), Glen Ferris Dam and powerhouse, Hawks Nest Dam, powerhouse, tunnel, surge basin, surge tanks, utility lines, maintenance roads, local residential development, and prior logging, natural gas, and coal mining operations.

S-001

Name: C&O Hawks Nest Bridge
SHPO Survey Number: N/A
Field Survey Number: S-001
Photograph: Figures
Maps: Figure 2
UTM Location: Z17 489519 4218814
NAD: 1983
Quad: Fayetteville WV (1976)
Tax Parcel: New Haven District, Map 32, railroad corridor
Construction Dates: 1872-3, 1892, circa 1930

Description: The Hawks Nest Bridge consists of two skewed truss bridge elements supplemented by a steel deck beam system, both resting on cut sandstone and reinforced concrete abutments and piers to carry the C&O mainline (now CSX) over the New River at Hawks Nest (Figure 12). The bridge is approximately 668 ft. long and 22 ft. wide, its two Parker through truss elements each extending for approximately 258 ft. The two spans that consist exclusively of the steel deck elements are located on the eastern side of the structure (Figure 13). The minimum vertical under clearance is approximately 12 ft., and the bridge is skewed approximately 50 degrees from the banks.

The Parker through truss system consists of eight panels on each span (Figure 14). The inclined top chords, characteristic of the Parker truss design, were originally held in compression; the lower chords were set in tension. Each side of the truss features three verticals that were set in tension on either side of a central kingpost; diagonals of varying size, depending on their position linking the inclined top and lower chords and strain exerted on them at a given location, supplement each of the flanking vertical posts,

which were set in compression. The lighter diagonal and vertical members reinforce the compressed heavy members such as the portal, chords, and central verticals (Weitzman 1983:81-83). There is a series of stringers now transferring much of the weight of the deck and traffic to the heavy deck beams, which in turn transfer some of the weight to the truss through a hanger assembly, and the rest to the abutments via the added steel deck truss.

The underside of the bridge features lower sway bracing, as well as girders and beams. The truss is connected to the abutments at the end dams with heavy footers affixed with heavy anchor bolts. Yet, the actual structural functioning of the bridge was supplanted by the heavy steel plate girder deck constructed of members created out of riveted shapes. A plate girder is a "built up I-beam consisting of a single web and flanges" (McVarish 2008:29). Each of the plate girder spans features two longitudinal girders set with web plates and horizontal flanges.

The sturdy deck bridge type was fabricated off site, easily integrated into the earlier Parker through truss design and was relatively maintenance free for most of its functional life. The heavy symmetrical concrete piers and reinforced abutment supplements are intact, if largely submerged under the elevated level of Hawks Nest Lake, and are integrated into elements of the original 1872-3 abutments, particularly on the western bank. The bridge-bearing seats on either abutment are concrete, as are the substructure elements on the eastern bank. The abutments were built into the steep riverbanks, and are not seriously affected by hydraulic scour.

Figure 12. View of the Hawks Nest Bridge showing its relationship with the Hawks Nest impoundment, facing north.

Figure 13. View of the Hawks Nest Bridge from eastern bank, facing southwest.

Figure 14. View of the bridge showing the bridge super and sub structures, facing southeast.

History: The first surveys of the C&O route through the New River Gorge was completed in 1869, informed by the cartographic and scientific data captured in wartime reconnaissance reports and maps, locating the key crossing points on the New River (Rosecrans 1861; Rice 1985). In 1872, on the eve of the nationwide financial panic, C&O engineers and workers completed a large wooden truss bridge to carry the railroad over the New River at Hawks Nest, an important part of the C&O's push to the west. After years of preparation, a challenging construction program, and the upheaval of the Panic of 1873, the "golden spike" joining the southern and northern sections of the C&O, marking traversal of the Appalachians Mountains, was driven into the tracks immediately east of the bridge over the New River, and the C&O railroad was busy with traffic by 1874, then used primarily as a through route. The small industrial town of Hawks Nest once occupied its eastern end and approach, and its setting has been dramatically altered by the development of the Hawks Nest Dam, abandonment of the adjoining Hawks Nest Branch spur, and establishment of the Hawks Nest State Park (Figure 15).

In 1892 and again in 1930 during the construction of the Hawks Nest Development, which raised the water level, workers built the substructure to a modern standard designed to hold the bridge above flood stage; as a result, there is no physical evidence of the bridge ever being overtopped by the river. In 1892, the C&O replaced the original wooden railroad bridge with the durable steel Parker Through Truss bridge system, a hardening of the already substantial railroad infrastructure.

The Parker Through Truss bridge design became popular just prior to the turn of the century based on its reputation as a durable design for single spans over 200 feet in length. The bridge type remained popular throughout the first four decades of the century and was often used as a multi-span structure over large watercourses such as the New River. Engineer C.H. Parker developed the Parker truss as a modification of the long-used Pratt truss, the principal innovation being distinctive polygonal top chords, allowing for a series of posts and diagonals built sustaining strain at specific points on the truss (Jackson 1988:24; Waddle 1916:24). This system allowed for a lighter dead load, or weight, of the truss, and enabled engineers to develop longer spans. In spite of the need to fabricate a greater variety of individual members than the regular Pratt truss, the relative ease of manufacturing and assembly allowed unskilled labor to build the bridges under the supervision of a single bridge engineer.

During the construction of the Hawks Nest Development, the bridge and its approaches were adjusted to accommodate the higher water level that was impounded behind the Hawks Nest Dam, adding the steel deck beam supplement to the bridge structure, and rebuilding bridge abutments. The reconfigured bridge differs from the original bridge in several respects, most notably in the addition of the heavy steel deck elements, but also the removal of the sidewalk brackets, channels, and railings that once ran along its downriver side – and important element of the circulation network associated with the housing of workers for the Hawks Nest Development; the walkway was removed. In spite of the modification of the bridge deck, the essential elements of the Parker Through Truss bridge remain, and the original elements–portals, top and bottom chords, verticals, diagonals, and connecting block–are intact (Weitzman 1983:54). The bridge also reflects the persistence of classic pin-connection joinery, where a thin steel pin connected with a hexagonal-head bolt holds the chords, portal, verticals, and diagonals in place on the older truss elements (Figure 16). Beyond the deck system, the signs of circa 1930 reconstruction are more subtle - the abutments are no longer masonry but are concrete with steel reinforcing, incorporating portions of the original cut sandstone elements (Figure 17) (Weitzman 1983:54). A series of wooden utility poles, supporting three arms of glass insulators, remain.

Figure 15. Circa 1930 view of the Hawks Nest Bridge showing the town of Hawks Nest, facing southeast, before the completion of the Hawks Nest Dam.

Figure 16. Detailed view of pin connection and the integration of the steel deck with the Parker Through Truss bridge, facing south.

Figure 17. View of the western abutment showing the original and reconstructed abutments and bridge footings, facings southwest.

NRHP Evaluation: *Eligible*. A key element in the transportation system that precipitated the rapid development of the region, CRA recommends that the bridge over New River is eligible for the NRHP under Criterion A for its association, through its location and some materials, with development of the C&O mainline circa 1873 and subsequent expansion and hardening of the railroad infrastructure circa 1892. Although one element of a larger transportation system, the bridge was an essential element of a larger arc of development, its form and materials speaking to the highly industrialized economy that penetrated formerly remote interior uplands.

Although undoubtedly associated with a number of railroad engineers and industrialists, CRA recommends that the bridge is not associated with individuals significant to our past in a manner necessary for NRHP eligibility under Criterion B.

The Hawks Nest Bridge is also eligible for the NRHP under Criterion C for its technological and engineering associations. Architecturally, the Hawks Nest Bridge reflects the movement toward the standardization of bridge design that favored the most durable and economical truss systems, the Parker Through Truss among them, supplemented by a heavy plate girder deck. The Parker Through Trusses were prized for their durability, and were a common bridge in the region, used on nearby Prince Bridge over the New River on SR 41 and the Sewell Bridge over New River on CSX Railroad. The use of the truss throughout West Virginia is emblematic of the nature of its industrialization.

All of the bridge elements reflect this trend by involving the use of mass-produced steel shapes in combination, reflected in massive overall form of the bridge. The heavy plant girder deck was added to the structure circa 1930 as the bridge and its approaches were reconfigured to accommodate and account for the construction of the Hawks Nest Development.

The changes to the structure all related to

significant events and patterns of events, and the bridge, through its extant materials characteristics, reflects not only its initial construction (its location, some materials including the stone abutments, and its association), but its reconstruction (its redesign to accommodate heavier and more sustained coal traffic, its steel materials, and the workmanship exhibited in the integration of truss systems) in 1892, and its role in the construction of the Hawks Nest Development (design through its slight reorientation; its materials in the reinforced concrete abutments, and its association with and use as a part of the circulatory system during construction of the tunnel). Therefore, the bridge retains the capacity to express each of these associations through its extant material characteristics, and therefore retains integrity.

CRA recommends that historic property boundary should include all extant elements of the bridge superstructure and substructure located within the railroad right of way, extending to each bank and including all elements of the bridge abutments, both original and modern.

S-002 and S-003

Name: Hawks Nest State Park, Gondola Landing; Hawks Nest State Park, Nature Center
SHPO Survey Number: N/A
Field Survey Number: S-002 and S-003
Photograph: Figures
Maps: Figure 2
UTM Location: Z17 489662 4218853; 17 489696 4218899
NAD: 1983
Quad: Fayetteville WV (1976)
Tax Parcel: New Haven District, Map 32, Parcel 69 (28.88 acres)
Construction Date: circa 1970

Description: The rectangular (approximately 34 ft. x 42 ft.) gondola landing consists of three distinct elements: a reinforced concrete slab floor supported by a series of steel piers set in heavy concrete footers, a taller wooden superstructure that supports a broad flat roof, and the mechanical apparatus associated with the operation of the lift, which appears to have been added to the original design soon after its initial construction, perhaps as a planned phased development of the project (Figures 18 and 19). The overall effect of the raised first floor, a low wood and steel balustrade, and the large flat roof is to reinforce the horizontal orientation of the building. An original two-part stairway, with a landing, extends off of the southeastern corner of the structure.

The gondola landing was oriented to the gondola port that was built into the lodge, approximately 930 ft. northwest and 450 ft. above the landing (Figure 20). Most of the mechanical apparatus and the drive terminal are located within the lift head at the lodge. The mechanical elements at the landing are located in a partially excavated, two-story concrete and concrete block structure that is built into the middle of the building core at its southeastern elevation. The lighter concrete block aspect of this structure is built around heavy reinforced concrete vertical members that support the mechanical apparatus that provides supplementary power and control to the lift. For example, the bull wheel, the "large-diameter metal wheel used to change the direction of a haul rope," is built into the back of the heavily built recessed foundation of the concrete structure (Figure 21)(Wolfe 2013).

The associated towers are of a light alloy tube construction and are designed to distribute the tower load to heavy concrete footings built into the steep hillside, allowing for a sling sag in the portions of the haul rope between towers. The T-plan towers support the sheave trains that attach to cross arms, clusters of sheave wheels that control the haul rope and gondola carriers. The towers also carry the communications line down the middle of the lift line that includes a phone or data line between the port and the base. A large square tower structure, supported by round diagonal support members that are grounded below the landing structure, helps ferry the haul rope and carriers into the terminal (Figure 22).

Figure 18. View of S-002 showing, showing the gondola landing, facing southwest.

Figure 19. View of S-002 showing the gondola landing, facing east.

Figure 20. View of S-002 showing the gondola port at the lodge and relationship to the landing, facing south.

Figure 21. View of S-002 showing the gondola landing, facing north.

Figure 22. View of S-002 showing the gondola landing, facing southeast.

The nature center likewise displays the open vertical structure, rectangular footprint (approximately 34 ft. x 64 ft.), and largely open plan of the gondola landing, without the addition of the large mechanical element (Figures 23 and 24). The exposed steel and wood elements reveal that the structure is four building units wide, two building units deep, and two stories in height, with the ground level being entirely open, save for a store area enclosed with chain link fencing (Figure 25). The structure rests on a poured slab concrete foundation, with the vertical steel structural members, five to a side and in the center of the structure, resting on more substantial footings. The second story rests on the heavy reinforced concrete floor that is supported by the steel piers. It is partially enclosed, its northern side and a two bay portion of its southern side enclosed with wooden exterior walls and two part windows that correspond to the interior configuration; the bays themselves are subdivided by the horizontal balustrade element and a vertical window frame element. The continuation of the aesthetic of the balustrade into the framing creates a sort of spandrel panel effect, where the areas below appear to have been adapted for ventilation and utilities (Figures 26 and 27). The heavy wooden vertical elements, resting over the steel supports below, support the projecting flat wood roof that covers the entire facility.

Figure 23. View of S-003 showing the nature center, facing east.

Figure 24. View of S-003 showing the nature center, facing northeast.

Figure 25. View of S-003 showing the nature center, facing east.

Figure 26. View of S-003 showing the nature center, facing west.

Figure 27. View of S-003 showing the nature center, facing northeast.

History: The State of West Virginia established Hawks Nest State Park in 1935, soon after the construction of the Hawks Nest Development and dam. Working in consultation with the National Park Service, workers attached to the CCC camp at the Babcock State Park built the overlook, picnic area, gift shop, and comfort station as the original focus of the state park along U.S. 60 (Midland Trail) at the western edge of the current park property. Considered a marvel of technological innovation and progress because of its scale and rapid development, the Hawks Nest Development was the subject of guided tours and planned events, celebrations of modern design, planning, and engineering (Kaika 2005:39). The overlook at the Hawks Nest State Park, with its view of the dam, relates to the celebration of this particular achievement of architectural and engineering modernism, and is listed in the NRHP as a historic district, a listing focused not only on that portion of the park developed by New Deal era projects, but on the dam and impoundment as well.

Public maps produced by the West Virginia Division of Natural Resources depicts the current state park boundary as including the roadside focus of the original park, the overlook, the area around the modern lodge, the hill slopes, and the entirety of the impoundment behind Hawks Nest Dam (Hawks Nest Lake), from the Hawks Nest Dam to the Hawks Nest railroad bridge upstream from Mill Creek, encompassing 838 acres. The state map shows four park features within the APE clustered on a 28.88-acre tract near the mouth of Mill Creek, two of which are the gondola landing and nature center.

In the 1960s, the U.S. Area Redevelopment Administration initiated a parks expansion program, funding in part the retention of The Architects Collaborative, a well-known Boston-based collective of architects associated with the Bauhaus movement and modernist Walter Gropius, with Louis A. McMillen as the architect in charge of the Hawks Nest State Park project (Chambers 2004:121). The firm completed construction on the modernist guest lodge in 1967. In 1970, the state park added the aerial tramway to connect the lodge to the mouth of Mill Creek, providing visitors access to the nature center and riverside picnic area. The firm

also designed the Pipestem State Park resort, which also featured a ridgetop lodge and aerial tramway.

The gondola landing and nature center are located on what was the community of Hawks Nest. C&O track valuation maps show 11 buildings between the C&O tracks and the bank of the New River. All of the buildings are located on the terrace above the New River and many are unlikely to have been inundated by Hawks Nest Lake. Photographs also show a number of other buildings that were present in the vicinity of Mill Creek and within the present boundaries of Hawks Nest State Park in the early twentieth century. These buildings include at least three large three-story structures on the south side of the railroad tracks. The Hawks Nest Branch of the C&O ascended Mill Creek and continued to serve the mines above Ansted until 1965, although the line was not formally abandoned until May 17, 1972 (Cahill 2013). There is only the faintest trace of this earlier development within the immediately vicinity of the two buildings.

NRHP Evaluation: *Eligible.* Both the gondola landing (S-002) and nature center (S-003) were integrated into the recently completed Hawks Nest Lodge by Von Roll of Switzerland, a well-known developer of aerial tramways, in 1970 (WVDNR 2006). The two structures reflect some of hallmark values built into the lodge, including the simplification of structural design and the building process, and the creation of an architecture that encourages interaction with surrounding "nature" within the self-consciously rustic framework of the state park setting. Both of the buildings clearly exhibit a modernist aesthetic, with the use of steel and reinforced concrete materials to achieve the open, rectilinear, horizontally oriented building forms.

Although associated with larger political and social patterns and trends that led to the expansion of the state park system in the late 1960s, and clearly associated with the long history of the Hawks Nest Development, neither building is significant for its association with events or pattern of events under NRHP Criterion A. Further, although the buildings are associated with important figures in our past, from the design team that developed the plans for the park to politicians that aggressively pursued the development of the facility; they are not associated in a manner necessary to be considered significant under Criterion B.

Clearly associated with the previously unrecorded Hawks Nest Lodge and associated landscape, the two buildings should be considered as elements of the larger property, eligible for the NRHP under Criterion C as an example of modernist architecture associated with the Swiss firm Von Roll and integrated into the TAC design for the Hawks Nest State park Lodge in the early 1970s that are principally intact and retain integrity. However, as the buildings are less than 50 years of age, and the buildings and larger park campus, the associations are such that they cannot be considered exceptionally significant and satisfy NRHP Criteria Consideration C for properties that have achieved significance within the last 50 years (National Park Service 1996).

CRA recommends that for the purposes of this project, the historic property boundary include the buildings and their immediate setting, encompassing the entire portion of the New Haven District, Map 32, Parcel 69 (28.88 acres) located on the eastern side of Mill Creek and north and east of the railroad right-of-way.

S-004

Name: Deck Bridge
SHPO Survey Number: N/A
Field Survey Number: S-004
Photograph: Figures
Maps: Figure 2
UTM Location: Z17 489740 4218973
NAD: 1983
Quad: Fayetteville WV (1976)
Tax Parcel: New Haven District, Map 32, Parcel 8 (661.11 acres)
Construction Date: circa 1970

Description: S-004 consists of a modern pre-stressed concrete beam bridge carrying a park road over the partially impounded mouth of Mill Creek as it empties into the New River behind the Hawks Nest Dam. The elevated bridge deck rests on large reinforced concrete abutments, which feature faired wing walls impressed with

horizontal striping. The abutments support the structurally massive continuous span longitudinal beams and deck (Figure 28). The pre-stressed concrete deck beams are embedded with steel reinforcing rods or cables (McVarish 2008). The substructure supports the reinforced concrete slab bridge deck, inset with a steel pipe balustrade.

History: The steel beam bridge appears to have replaced an earlier concrete arch bridge over Mill Creek, identified as being on the county road in an April 1930 photograph (McKinney 1992). The extant structure was likely built during the expansion of Hawks Nest State Park (circa 1967) and prior to the development of the riverside elements of the park, including the associated gondola landing (S-002) and nature center (S-003). The bridge was constructed in a durable manner, its capacity to endure the periodic flooding of Mill Creek paramount to any explicit aesthetic consideration.

NRHP Evaluation: *Not Eligible*. S-004 is an example of a common bridge type, typical of the modern era, and although associated with the expansion of the state park system in West Virginia during the late 1960s and early 1970s, the bridge is not significant for its association under Criterion A. Likely associated with engineers and even architects contracted to develop the Hawks Nest Lodge and related resources such as the gondola landing and nature center, the bridge is not associated with any individuals significant to our past in a manner necessary for consideration under NRHP Criterion B.

Finally, an example of modern engineering and bridge design that is less than 50 years of age, the bridge is not an important example of a pre-stressed concrete beam bridge, modern design, or concrete construction techniques. Therefore, CRA recommends that S-004 is not eligible for the NRHP under Criterion A, B, or C due to a lack of associative significance.

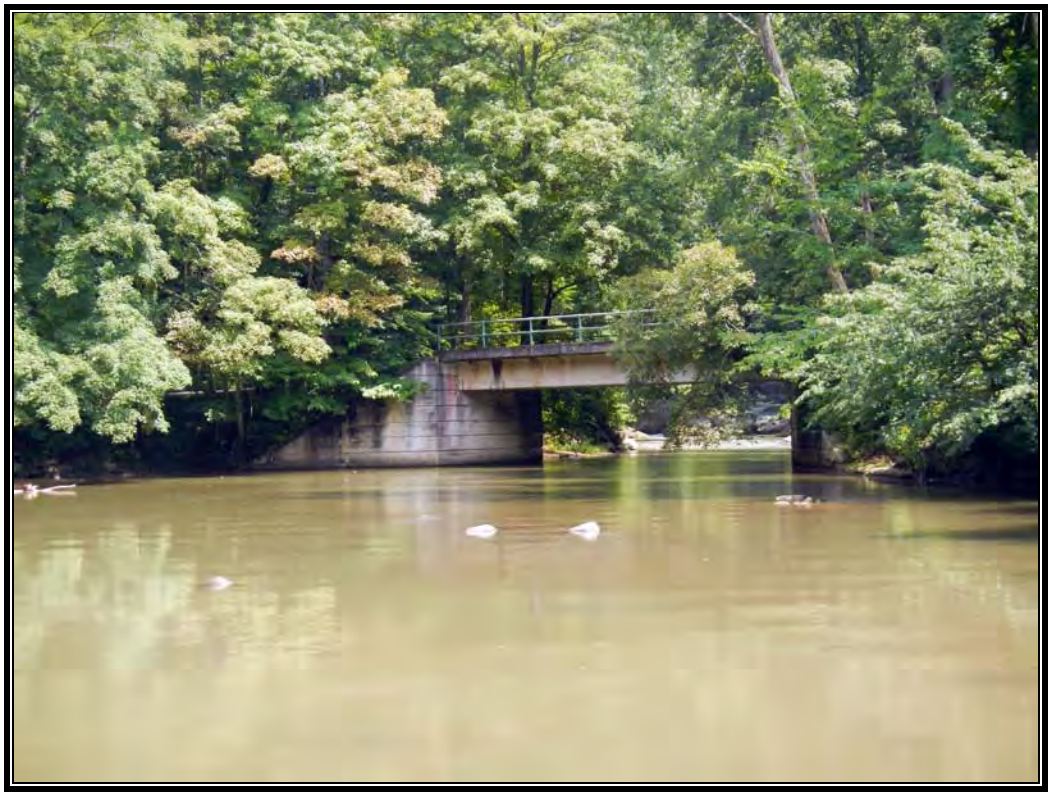

Figure 28. View of S-004 showing the bridge and abutments, facing northeast.

S-005

Name: Fishing Camps, Hawks Nest Lake
SHPO Survey Number: N/A
Field Survey Number: S-005
Photograph: Figures
Maps: Figure 2
UTM Location: Various
NAD: 1983
Quad: Fayetteville WV (1976)
Tax Parcel: Valley District, Maps 32, 33, 41, Various
Construction Date: circa 1960 to the present

Description: S-005 consists of 40 widely dispersed fishing camps located in the area between the riverside railroad corridors and both banks of the New River above the Hawks Nest Dam (S-032) and the Hawks Nest Railroad Bridge (S-001). The fishing camps are situated within an array of settings along Hawks Nest Lake, including on clusters of large boulders, near railroad culverts that allow hillside drainages such as Arthurs Branch and Pipers Branch to flow into the New River, and on some areas that have been leveled through grading activities and fill. Some of the buildings occupy areas that were built up with waste material from the construction of the Hawks Nest Tunnel prior to the impounding of the river behind the dam.

The buildings are nearly all constructed with light wooden frames, the exception being a single roughhewn log building (which appears to be of a recent vintage) and a building that incorporates part of a modular trailer unit. The buildings are typically one or two building-units in width, one building-unit deep, and one story in height, although there is tremendous variety in the building forms and configurations, vintage (from the 1960s to the present) and in the solidity of construction (Figure 29).

All but six of the buildings rest on wooden piers of various shapes and configurations: one building rests on stone piers, one on a continuous rough sandstone foundation that may predate the construction of the structure (Figure 30), three on concrete block piers, and one foundation is not visible. The exterior of the buildings are clad with a wide variety of materials, reflecting the piecemeal nature of their construction and reconstruction. All but seven of the buildings are clad with wooden siding, the exception being two buildings covered with a metal treatment, two with a vinyl treatment, and one with asphalt shingles. One building has been stripped of its siding. Of the wood-covered buildings, 15 of the buildings are clad with wooden press board or particle board; 11 of the buildings are clad with vertical wooded siding; eight with horizontal siding (including two with drop wooden siding); one with board and batten siding that may be of an older vintage; and one has no siding, its structural logs exposed, which contrasts with the light frame construction of the other camps (Figure 31). Many of the buildings exhibit two or more types of exterior wall and roof materials.

The buildings are covered with an array of roof configurations, including 17 flat or shed roofs, 18 side-gable roofs, and five gable-front roofs. Metal, corrugated and sheet, was the most common roof material, seen on 15 of the flat roofs and 12 of the side-gable roofs. Eleven are covered with asphalt shingles, and the rest with tarpaper. Most of the structures are free standing and without outbuildings, although many of the structures are joined by crude privies, sheds, slides, ladders, stairs, and tire swings, as well as landscape features like built-up retaining walls and some areas of riverfront fill.

History: The riverfront boat-accessed fishing camps that are located above the dam in the vicinity of Gauley Bridge are located on small (0.2 acre) private lots located between the railroad corridor and the defined high-water mark of the river. In contrast, the camps that are located above the Hawks Nest Dam are technically squatting on private land, have no formal deeds, and although their possession is established through the practice of use, there are no formal leases or legal arrangements with the landowners.

Figure 29. View of S-005 showing a typical camp with an irregular form, facing northeast.

Figure 30. View of S-005 showing an improved fishing camp resting on a continuous rough sandstone foundation, facing southeast.

Figure 31. View of S-005 showing two camps: one atypical built of log, the other frame, facing east.

The area may have been once associated with the plan to develop Hawks Nest State Park. An undated map on file at the Hawks Nest Power Plant indicates the area between the east and westbound tracks of the C&O as being leased to the State of West Virginia, "including exceptions [and] a large amount of the river bank [that] is too steep for Picnic Areas." As this map shows the locations of proposed picnic areas but no indication of the Hawks Nest Lodge or associated river side buildings (S-002 and 003), it may be an earlier plan for the expansion of the park. Based on the available history of the park, the lease arrangements depicted on the map were never finalized.

Current tax maps are inconclusive regarding the disposition of the strip of land between the railroad and the river's edge, but the parcel maps accompanying the June 25, 1981, sale of Union Carbide Corporation's assets to Elemi Metals clearly indicates that riverside tracts were owned or leased by the corporation, and were acquired during the Hawks Nest Development (Fayette County Map Book 21:37; Deed Book 400:250). According to local informants, the use of the area as a recreational area and the development of the fishing camps accelerated after the 1981 sale of the company.

Although many of the buildings are located on or near the site of earlier development associated with coal mining, including the sites of several coal company towns, and the site of labor camps associated with the construction of the Hawks Nest Tunnel, none of the buildings is discernible as being substantively associated with either broad trend. Nonetheless, CRA believes that some camps may contain some materials taken from buildings from earlier coal mining operations or the Hawks Nest Development, but because of seasonal flooding and the impoundment behind Hawks Nest Dam, none of these buildings is in situ. According to the Fayette County tax assessor, none of the buildings rests on individual lots, and none has formal leases. Although local informants suggest that there are informal leases in place, no one encountered during the field survey was able to clearly describe the legal status of the structures, and others simply considered them "squatter shacks." The lack of clear title is reflected in the

impermanent nature of the construction of the majority of the buildings.

NRHP Evaluation: *Not Eligible.* The 40 fishing camps that are located on the banks of the New River within the extent of the Hawks Nest Lake impoundment all reflect the changes in land use associated with the Hawks Nest Development. As in the area behind the Glen Ferris dam, where more substantial buildings occupy legally defined lots, the area along what has been described as Hawks Nest Lake has been used and informally developed for recreation, leading to the development of the collection of impermanent buildings constructed, in part, from materials salvaged from abandoned mining and possibly construction-related buildings and structures. Susceptible to floods and vandalism, many of the buildings have been repeatedly reconstructed, and some have hardened, or become more and more substantial over time. Yet, none of these extant buildings can be individually or collectively considered eligible for the NRHP due to a lack of substantive association and a lack of integrity. Further, none of the buildings is known to have been associated with individuals considered important to our past in manner necessary to be considered eligible under Criterion B. And, although many of the buildings display interesting features and methods of construction, none can be considered an important example of an important building type, period, or method of construction, and are therefore not eligible for the NRHP under Criterion C. CRA recommends that the sum of the resources (S-005) are not eligible for the NRHP under Criterion A, B, or C due to a lack of associative or architectural significance.

S-006

Name: C&O Bridge at Gauley
SHPO Survey Number: N/A
Field Survey Number: S-006
Photograph: Figures
Maps: Figure 2
UTM Location: Z17 484260 4222651
NAD: 1983
Quad: Fayetteville WV (1976)
Tax Parcel: New Haven District, Map 32, railroad corridor

Construction Date: 1904, 2010

Description: The bridge at Gauley is a 554 ft. long five-span steel girder deck bridge carrying the CSX railroad over New River immediately downstream from the Hawks Nest Power Plant (Figure 32). The bridge was originally constructed in 1904 during the expansion of its systems in the southern West Virginia coalfields and was recently (2010) reconstructed. As a result of the durability of its initial construction, the extant structure consists of elements of the original bridge structure as well as large sections of contemporary material. The 2010 reconstruction involved the removal of three spans of the original deck truss and their replacement. The northeastern riverbank clearly shows excavations and grading associated with the reconstruction of the bridge.

The original 1904 portions of the bridge that remain includes the northeastern abutment, adjacent to what was once the small town of Gauley, that consist of a carefully dressed cut sandstone abutment and massive triangular wing walls set into the bedrock and supplemented by a reinforced concrete retaining wall. This abutment was supplemented by a reinforced concrete seating for the plate girder beams of the deck truss. The cut sandstone southwestern abutment supports one of the original or early steel girder deck bridge spans.

The bridge was located at this site because of the advantageous physical characteristics of the area, which included large portions of sandstone bedrock of the riverbank that extends into the channel and large mid-channel sections of exposed bedrock. The bridge piers reflect a variety of building techniques, two of which are original diamond-shaped pieces constructed of dressed cut sandstone blocks; one of which is an original sandstone pier supplemented with a new section of reinforced concrete; one of which is a sandstone pier previously encased in reinforced concrete; and one of which is a new structure built of reinforced concrete (Figures 33 and 34). Of the five spans, the two western steel girder deck spans are original or early, and the three remaining steel girder deck spans were recently replaced, including the large 160 ft. long second span (Figure 35).

Figure 32. View of S-006 showing the Gauley Bridge over the New River, facing southeast.

Figure 33. View of S-006 showing the east abutment, facing southeast.

Figure 34. View of S-006 showing the east abutment and new pier, facing northeast.

Figure 35. View of S-006 showing the west span, facing southwest.

History: The earlier bridge at Gauley was built in 1904 as a six span bridge with three inverted Fink deck trusses and three steel plate girder trusses, all set in cut sandstone abutments (Figure 36). After two decades of serving primarily as a truck line through West Virginia, the C&O changed tact and aggressively developed its rail network through the southern West Virginia coalfields and emerged as a major coal carrier. In the year before the construction of the bridge, the C&O, working in collaboration with competing carriers, acquired control of smaller railroads, including the Michigan and Kanawha Railroad, and focused on supplying coal to Great Lakes ports and the emerging urban and industrial systems of the upper Midwest. In part to rationalize its service in the southern coalfields and to accommodate the increase in traffic, the C&O developed the bridge in association with the railroad's Gauley Branch. In 2010, CSX Corporation, the corporate descendant of the C&O, realized that the 106-year old inverted fink truss bridge decks were functionally obsolete, and commissioned their replacement and the bridge's reconstruction. In 2010, Advantage Steel fabricated the new bridge spans and the Brahman Construction Corporation removed the derelict spans, replaced, repaired and supplemented the piers abutments, and installed the new steel plate girder deck trusses.

NRHP Evaluation: *Not Eligible*. The bridge at Gauley, now carrying the CSX railroad over the New River, is related to the expansion of the C&O system through southern West Virginia coalfields soon after the turn of the century. In the past, the WVSHPO has considered the C&O mainline to be eligible for inclusion in the NRHP under Criterion A, a designation that would not necessarily apply to a branch line or a reconstructed railroad bridge serving the branch. Undoubtedly associated with important engineers and managers within the C&O system, the bridge is not demonstratively associated with significant individuals in a manner necessary to be considered eligible for inclusion on the NRHP under Criterion B. Rebuilt in 2010, the bridge retains elements of its original construction, but the replacement of three principal bridge spans and one pier, and the retrofitting of the other piers and one abutment has cost the bridge its integrity of design, materials, workmanship, and feeling, giving the bridge a distinctly modern look that is out of keeping with its setting. Based on the recent reconstruction, CRA recommends that S-006 is not eligible for the NRHP due to a loss of integrity.

S-007

Name: Merchants and Manufacturing Warehouse Company
SHPO Survey Number: N/A
Field Survey Number: S-007
Photograph: Figures 38–40
Maps: Figure 2
UTM Location: Z17 481144 4222325
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30, Railroad Parcel
Construction Date: circa 1900

Description: S-007 is a now vacant industrial structure associated with the turn-of-the-century development of the original Willson Aluminum facility at Glen Ferris. The building is located on a narrow strip of level land east of the elevated railroad tracks and U.S. 60 (Midland Trail) at the very southern end of the community of Glen Ferris (Figure 37). The long rectangular building (approximately 88 ft. x 28 ft.) is six building units wide, one room deep, and one story in height. Although changes to the exterior material might suggest that the building is comprised of a core and addition, period photographs and the continuous sandstone and poured concrete foundation suggests that the building was constructed at one time. A lack of access to the building site, and the fact that much of the building exterior is now covered with Kudzu, which covers much of the hillside behind the building and hints at past use of the site as a mine or industrial area, limited the field survey (Figure 38).

The building is oriented to the adjoining railroad, its façade fronting directly on the tracks, separated only by a crumbling concrete slab platform (Figure 39). The facade is raked by 10 bays, including several doorways, a larger

entry bay for movement of bulk materials (now enclosed with bricks), and a series of large window bays that feature two bands of brick arch lintels and flat sills. None of the windows retains their original treatments; several have been enclosed in brick, and at least three have been enlarged to function as doorways. The exterior of the building is clad with bricks set in a running bond, and the depth of the window and door bays suggests that the brick is supplemented by a light wood frame. The very low-pitched side-gable roof is partially covered with corrugated metal, while much of the southern half has lost its roofing material, leaving the interior exposed.

History: The warehouse was once part of a much larger industrial ensemble that occupied the immediate area beside the Michigan and Kanawha Railroad, completed through Glen Ferris in 1893. The building may be the last remaining freestanding element of the original Willson Aluminum company plant, which also consisted of three distinct elements built into the south bank of the river: the powerhouse, the furnace, and a trackside materials building or warehouse (Figure 40).

The Merchants and Manufacturing Warehouse Company operated the facility under a lease agreement with the Willson Aluminum Company soon after the turn of the nineteenth century, just as the Willson plant began to operate on an expanding scale. After the purchase of Willson Aluminum by EMCO in 1907, the building eventually served a freight depot function that complemented the passenger function of the Glen Ferris railroad station, which was located on an elevated stone foundation on the New River, adjacent to the manufacturing facility. The building continued to serve a warehouse function until the building of the Hawks Nest Development and redevelopment of Glen Ferris as a model company town in the late 1920s and early 1930s.

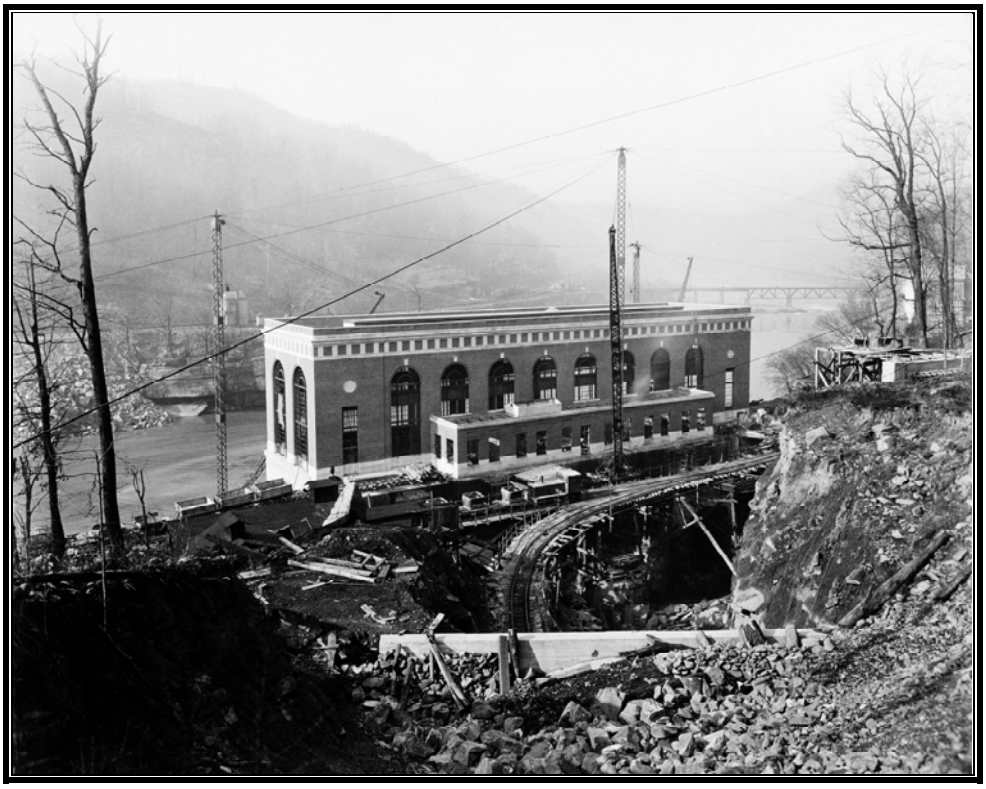

Figure 36. View of circa 1930 image of the Hawks Nest Power House showing the original bridge at the rear, facing northeast (West Virginia State Archives).

Figure 37. View of S-007 showing the warehouse and relationship to railroad, facing north.

Figure 38. View of S-007 showing the warehouse and setting, facing west.

Figure 39. View of the warehouse showing the façade, facing southwest.

Figure 40. View of Glen Ferris showing the Electro Metallurgical Company plant, K&M Railroad station, Glen Ferris Inn, and Kanawha River, March 7, 1908 (West Virginia State Archives, Hawks Nest Tunnel Collection).

After the completion of the Hawks Nest Development, the building was used as a recreational hall and bowling alley by employees of EMCO and Elkem Metals, before its abandonment and dereliction.

NRHP Evaluation: *Not Eligible.* The warehouse building is clearly associated with the early development of Glen Ferris as an industrial center, but the material degradation of the building, the loss of materials, the compromise of its original design and relationship to the earlier facility, and changes to the setting have cost the building its integrity and obscured its historical associations. Not demonstratively associated with significant individuals, the warehouse is not eligible for the NRHP under Criterion B. Further, built as a utilitarian structure as part of a collection of related buildings, the warehouse is not an important example of the trackside warehouse or turn-of-the-century industrial architecture and is not eligible for the NRHP under Criterion C. CRA recommends that S-007 is not eligible for the NRHP under Criterion A, B, or C due to a loss of integrity.

S-008

Name: Hill Property
SHPO Survey Number: N/A
Field Survey Number: S-008
Photograph: Figures 41–42
Maps: Figure 2
UTM Location: Z17 481154 4222372
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30, Parcel 10.1 (0.49 acres)
Construction Date: circa 1965

Description: S-008 is a circa 1965 office for a used car lot associated with the adjacent service station and repair garage (Figure 41). The office is located within the APE, but the service station is not within the APE. The office is a one-story brick and light wood frame building resting on a concrete slab foundation. The front portion features a low brick base element that extends approximately 1.5 ft. from the slab foundation. The façade of the building is oriented to the paved lot to the north of the building, and the roof is a gable-front type, with the roofline running parallel to U.S. 60. The building is one building unit wide, three rooms deep, and one story in height, and the roof is cantilevered over both gable ends to form recessed porches supported by wooden posts on the front and a bracket on the rear. In addition to the low brick section, the exterior of the building is clad with a modern vertical wood treatment pierced by a variety of window bays inset with large picture windows and modern replacement windows. The low-pitched roof is covered with asphalt shingles. The building clearly relates to the adjacent service station, a circa 1960 concrete block "oblong box" type that contained a spacious office in its southern section and a large service bay on its northern section.

History: S-008 is a lightly built commercial building associated with an adjacent service station, located on a 0.49-acre lot at the southern end of the town of Glen Ferris. The date of construction, which seems early based on the building materials and form, was provided by the property owner, although he may be conflating the office building with the concrete block service station to the rear, which was built to serve automobile traffic on U.S. 60 (Midland Trail). The property was most recently used as a service station by the Gallipolis, Ohio-based Burlile Oil Company, which sold the property to Don Wilburn in 1992 (Fayette County Deed Book 462:503; 493:313). The property decreased in assessed value for several years before being reopening as an automobile dealership, now owned by Robert D. and Rebecca L. Hill and used by LKM Auto Sales, a used car dealership (Fayette County Deed Book 652:584).

Figure 41. View of S-008 showing the office and associated repair garage, facing southwest.

Figure 42. View of S-008 showing the side elevation, facing west.

NRHP Evaluation: *Not Eligible.* The building is not substantially associated with events, patterns of events, or individuals important to our history in a manner necessary for inclusion in the NRHP under Criteria A and B. An example of modern industrial vernacular building techniques, S-008 is not an important example of its type, period, or method of construction, and is not individually eligible under Criterion C. CRA recommends that S-008 is not eligible for inclusion in the NRHP under Criterion A, B, or C due to a lack of associative or architectural significance.

S-009

Name: Glen Ferris Inn
SHPO Survey Number: FA-0003-006
Field Survey Number: S-009
Photograph: Figures 43–44
Maps: Figure 2
UTM Location: Z17 481187 4222507
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30L, Parcel 25 (2.42 acres)
Construction Date: circa 1839. Circa 1900, circa 1935

Description: The Glen Ferris Inn was originally a "simple two-story hipped roof brick building," but has been altered and expanded through time (Chambers 2004:118) (Figures 43 and 44). Portions of the original inn and its setting were altered during a turn-of-the-century renovation. Among the alterations to the historic-era building are its circa 1910 renovation and the construction of a new third floor, massive portico, elaborate columns, and stone wall (built in part with waste products from the nearby aluminum smelting operation), surrounding the inn and its immediate grounds. Italian builder Bonaventura Bosia was the craftsman who rebuilt the Glen Ferris Inn, changing the low hipped roof to a tall pediment gable-front roof arrangement with large dormers (Chambers 2004:119). The northern addition of a dining hall was completed in the 1980s. In 1996, the Inn was purchased from Elkem Metals by a local family. The new proprietors added a glass walled dining room on the riverside, overlooking the Kanawha Falls.

History: The Glen Ferris Inn was originally constructed by Aaron Stockton as a tavern and stage stop on the James River and Kanawha Turnpike, which was opened to through traffic in 1827, supplanting the nearby ferry-dependent Giles, Fayette, and Kanawha Turnpike. Aaron Stockman died in 1869, and his daughter and son-in-law took over the operation of the inn until the completion of the railroad led to a drop off of road travel and dramatic loss of business. The development and designation of the Midland Trail (U.S. 60) as a modern automobile route resulted not only in the straightening and amending of the turnpike route, but also of the development of automobile-oriented commercial development.

The Williamson family sold the Glen Ferris Inn to the EMCO on July 31, 1920. EMCO moved quickly to rebuild the inn to suit its needs as a "recreation building," removing interior partitions and adding new interior support to open up space for a dining facility and meeting rooms. In 1929, coincident with the development of the Hawks Nest Development, EMCO built the new two-story wing additions, and outfitted the inn with a 174-seat theater, but soon after replaced the recreational facilities with individual rooms for what was by then the newly rechristened Glen Ferris Inn (McKinney 1992).

The building was redeveloped to serve as lodging for the company's engineers and to houseguests to the remote location. The more conventional hotel wing was added to the building in 1933 in conjunction with the development of the larger Hawks Nest Development. Elkem Metals Company acquired the Alloy plant and some related properties, including the Glen Ferris Inn on June 25, 1981 (McKinney 1992).

Figure 43. View of the S-009 showing the Glen Ferris Inn, facing northeast.

Figure 44. View of the S-009 showing the Glen Ferris Inn, facing southeast.

NRHP Evaluation: *Listed.* The Glen Ferris Inn (FA-0003-006) was originally recorded for the WVHPI as part of the Gauley Bridge historic district survey conducted by the Fayette County Historic Landmarks Commission in 1986. The property was nominated to and listed in the NRHP under Criteria A and C as the Glen Ferris Inn (Stockton's Inn) in 1991. The building and associated elements are intact and retain integrity. The NRHP listing defined the historic property as the inn itself, one contributing building, and associated grounds comprised of 1.43 acres of land traditionally associated with the property.

S-010

Name: Retaining Wall
SHPO Survey Number: N/A
Field Survey Number: S-010
Photograph: Figure 45
Maps: Figure 2
UTM Location: Z17 481191 4222669
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30L, Parcel 25 (2.42 acres)

Construction Date: circa 1900

Description: S-010 is an eight-course rough sandstone retaining wall encased in concrete, located at the northern end of the legal parcel occupied by the Glen Ferris Inn. The wall is 62 ft. long and approximately 4 ft. in height (Figure 45). The wall is topped with a molded concrete cap, and inset on the eastern end by a small (approximately 1 ft. x 1 ft. x 3 ft.) metal lattice that may have, at one time, served as a mooring for navigation restricting wire that once demarcated the forebay of the Glen Ferris dam. The slightly concave retaining wall extends into the river channel, with earth impounded behind the wall, creating a large, level area to the south.

History: S-010 may have been built as part of the expansion of the productive facilities at Glen Ferris following the purchase of the Glen Ferris Inn by EMCO on July 31, 1920. The purpose of the wall was to expand developable space on the relatively narrow floodplain on the west bank of the river, demarcate a property line, and it may have been related to the modernization of the dam.

Figure 45. View of S-010 showing the retaining wall, facing southeast.

NRHP Evaluation: *Not Eligible.* The retaining wall is associated with the ongoing industrial development of Glen Ferris and the expansion of the Glen Ferris Inn by EMCO. However, as one small element in a much larger industrial ensemble, the wall is not an important element of landscape of either the Glen Ferris complex or the Glen Ferris Inn, was consciously excluded from the NRHP nomination for the Glen Ferris Inn, and is not individually eligible for the NRHP for its historical associations under Criterion A, important individuals under Criterion B, or architectural significance under Criterion C. CRA recommends that C-010 is not eligible for the NRHP under Criterion A, B or C due to a lack of significance.

S-011

Name: Hudson Property
SHPO Survey Number: N/A
Field Survey Number: S-011
Photograph: Figures 46–47
Maps: Figure 2
UTM Location: Z17 481148 4222696
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30L, Parcel 13 (0.18 acres)
Construction Dates: circa 1910

Description: S-011 is a two-story wood-frame house located on a 0.18-acre house lot in Glen Ferris, fronting on the Midland Trail (U.S. 60) and backing up to Depot Ct. Road. The building, built on a complex plan that has elements of both gable ell and Foursquare plan houses (40 ft. x 58 ft.), also features four additions, including a one-story hipped roof addition off of its southern elevation and a one-story gable addition to the rear (Figures 46 and 48). The building core rests on a rough sandstone foundation, and the additions of rough sandstone, concrete, and concrete blocks, all conceal a fully excavated basement. Portions of the building foundation and the porch foundation are covered with a decorative stone veneer and are raised approximately 1.5 ft. above the ground level. Based on its form and materials, it appears that the building includes an earlier core structure, now highly altered and surrounded by additions.

The current massing, like the floor plan, is irregular and is reflected in the irregular fenestration, which includes single, paired window bays inset with one-over-one double-hung sash windows, and picture windows set in plain wooden frames. The front doorway is offset on the façade to the north and features a large doorway flanked by sidelights. The large window to the south is similarly framed by one-over-one-light sidelights, set in a vague Palladian arrangement. The second floor of the façade is raked with thee bays, a large picture window to the north, a doorway into the facing gable, and a single window bay. The front-facing gable is inset with a single light arched window lighting the attic story.

A full-length porch and second-story veranda, partially covered with a low-pitched front-gable roof, is located over the façade. The building's side and rear elevations feature irregular massing. The exterior is clad with vinyl siding. The principal roof structure is a truncated hipped roof, with gable extensions on three elevations, a complex roof plan. The roof is covered with asphalt shingles and a chimney has been removed.

History: The complex plan and many alterations make discerning the vintage of the building core difficult, but based on the form and materials, it appears that the core of the house was originally built during the expansion of the EMCO facility in circa 1910, possibly as a boarding house or multiple family dwelling, and later converted into a single family home. Although the builder is unknown, the property was acquired by EMCO, and then sold out of company control with its November 1, 1957 purchase by A. R. McVittie and Garritt Norman (Fayette County Deed Book 212:293). The property is currently owned by Shannon Hudson and Angela Hudson, who acquired it in 2007 from Patricia and Donald Hudson, owners of the property since 1983 (Fayette County Deed Books 627:324, 628:119; Will Book 70:631).

Figure 46. View of S-011 showing the buildings, facing southwest.

Figure 47. View of S-011, showing the house, facing northwest.

NRHP Evaluation: *Not Eligible.* Although clearly associated with the development of Glen Ferris as an industrial community, the property does not individually represent an important event or pattern of events in a manner necessary under NRHP Criterion A. Further, based on the historical context, the property does not appear to be associated with an individual significant to our history, and is not eligible under Criterion B. The house cannot be considered an important example of its type, period, or method of construction in a manner necessary for consideration under Criterion C. The property is not individually eligible for inclusion in the NRHP under any criteria due to a lack of associative significance. Additionally, the alteration of the building through changes to the design, the construction of multiple additions, and the replacement of key materials, and alteration of the workmanship is so extensive that any important historical associations, if present, would be obscured. CRA recommends that S-011 is not eligible for the NRHP under Criterion A, B, or C due to a lack of significance.

S-012

Name: McClug Property
SHPO Survey Number: N/A
Field Survey Number: S-012
Photograph: Figures 48–50
Maps: Figure 2
UTM Location: Z17 481151 4222716
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30L, Parcel 12 (0.14 acres)
Construction Dates: circa 1900

Description: S-012 is a two-story wood frame structure with a rear wing and multiple one-story additions to the north and west elevations (Figure 48 and 49). The building core is a light frame I-house that is two building units wide, one room deep, and two stories tall (36 ft. x 18 ft.) that rests on a rough sandstone and concrete foundation that is only partially visible. The building has been altered by the construction of multiple additions including a large (26 x 52 ft.) one-story addition to the building's north and a large (14 ft. x 52 ft.) garage that have altered the design of the original building. The building core is a four bay I-house with an offset front door and a large centrally placed gable-front portico, supported by three long columns that hint at Colonial Revival styling on a fundamentally vernacular building.

The fenestration on the building core, including the two-story rear gable wing, is regular and balanced, the window bays inset with one-over-one-light double-hung sash vinyl replacement windows in unadorned window bays planked with faux shutters. The building core is covered with a low-pitched gable ell roof, which is, like the portico and additions, covered with modern asphalt shingles. The original chimneys have been removed. The massive additions are built on concrete slab foundations and light wooded frames. The additions are covered with aluminum siding and the window and door bays are inset with modern replacement windows, picture windows, and sliding glass doors.

History: The form and materials suggest that the building core was built circa 1900 during the initial development of the productive facilities at Glen Ferris and subsequently expanded to encompass nearly the entire lot. The building, which appears on a circa 1905 image of Glen Ferris as a freestanding single-family house with a one-story rear kitchen addition, confirms that it preceded the development of much of the town (Figure 50) The building appears to retain most of its original massing in a 1957 plat map of the area, and therefore the most consequential alterations of the building, including the large additions, have occurred in the recent past (Fayette County Map Book 14:99). The building's direct relationship with the development of Glen Ferris as an industrial village is obscure, and the building has been owned by the McClung family since 1960, after which most of the additions were constructed (Fayette County Deed Book 233:293).

Figure 48. View of S-012 showing the building core, facing northwest.

Figure 49. View of S-012 showing the building additions, facing southwest.

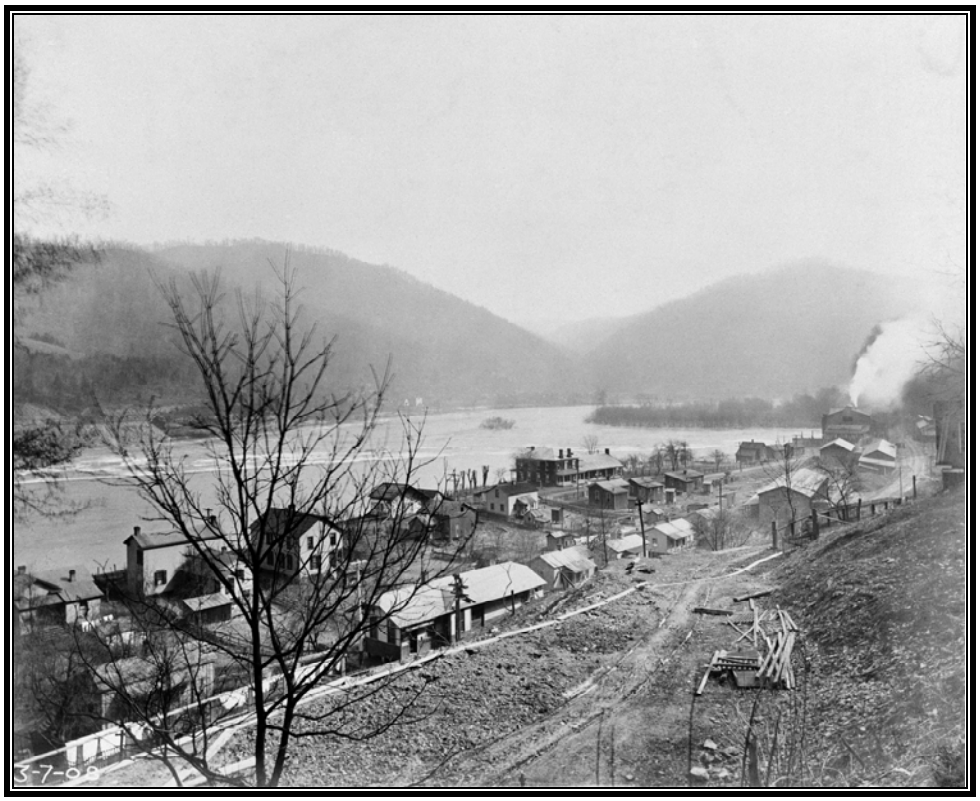

Figure 50. View of Glen Ferris (circa 1905) showing S-011 and S-012 (West Virginia State Archives, Hawks Nest Tunnel Collection).

NRHP Evaluation: *Not Eligible.* The property does not individually represent an important event or pattern of events in a manner necessary under NRHP Criterion A. Further, based on the historical context, the property does not appear to be associated with an individual significant to our history, and is not eligible under Criterion B. The house cannot be considered an important example of its type, period, or method of construction in a manner necessary for consideration under Criterion C. The property is not individually eligible for inclusion in the NRHP under Criterion A, B, or C due to a lack of associative significance. Additionally, the alteration of the building through changes to the design, the construction of multiple additions, and the replacement of key materials, as well as alteration of the workmanship, is so extensive that any important historical associations, if present, would be obscured.

S-013

Name: Horseshoe Apartments, Glen Ferris Housing Subdivision, Lower, Lot 119
SHPO Survey Number: N/A
Field Survey Number: S-013
Photograph: Figures 51–54
Maps: Figure 2
UTM Location: Z17 481136 4222817
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30L, Parcels 2 and 7
Construction Dates: circa 1930

Description: The "horseshoe" apartment building consists of 13 units arranged around a central courtyard (Figures 51 and 52). The building consists of two long wings (approximately 30 ft. x 124 ft.), which essentially mirror each other, connected by a 50 ft. wide section at the bottom of the "horseshoe." The apartments were explicitly included as part of the design of the

residential subdivision, and are included on the map with the six adjoining houses.

The apartment building consists of a series of Dutch Colonial Revival-style building elements arrayed in a "U" shape, giving the visual impression of seven adjoining houses, five with gambrel roofs, and two with steeply pitched Tudor Revival-inspired roofs; the rear of the building is more sparse, with a flush surface, covered in aluminum, wood and wood shingle siding, set under a low-pitched side-gable roof, with intersecting gable elements on each of the three rear elevations (Figure 53). The building rests on a raised reinforced concrete foundation, concealing a fully excavated basement that houses modern utilities, and is vented by a series of hopper windows.

The first story is characterized by a series of recessed porches and two projecting hipped roof porches over the entrances to pairs of individual units. The porches are adorned by four square Craftsman-influenced columns or Doric-style Colonial Revival columns, and the rear is characterized by kitchen doors opening onto original porches or modern wooded deck additions. The hipped porch roofs, and projecting bay window, are covered with a rolled copper treatment; extending from the gable front Tudor-inspired elements.

Although the building is clearly built on a light wooden frame, the exterior is covered with a brick veneer, set in common bond. The portions of the building exterior that were originally clad in wood on the gambrel ends and on the six shed dormers have been partially covered with metal siding, although portions of the original weatherboard and wood shingle siding are intact. All of the original windows have been replaced with one-over-one-light double-hung vinyl replacement windows, set individually and in pairs, and in the bay window at the end of the courtyard.

All of the housing units house half stories under the gambrel and gable roofs, the half story expanded through the use of the shed dormers. A pent apron, covered with asphalt shingles, runs along the base of the gambrel ends, and is carried over on the rear in the form of a slight flair at the base of the second story. The roof is fundamentally a low-pitched side-gable arrangement with projecting gable and gambrel elements, and is pierced by a series of six furnace chimneys, two of which break the rear roof slope on each of the three side of the "horseshoe."

History: The "horseshoe" apartment complex is an integral part of the Glen Ferris Housing Subdivision, Lower Residential Development, one part of a much larger residential housing development associated with the Hawks Nest Development, built to house the managers and skilled workers employed by EMCO, the history of which is summarized below (Chambers 2004:117). The portion of the Glen Ferris Housing Subdivision, Lower Residential Development that is located within the APE included the apartments (S-013), six houses (S-014 to S-019), and a church (S-020), all sharing a collective history described below.

NRHP Evaluation: *Eligible.* The Society of Architectural Historians (SAH) notes the architectural character of the "horseshoe" apartments, and its residential features such as "sloping rooflines and recessed entry porches" in its inventory of architecturally significant buildings in West Virginia (Chambers 2004:119). Based in part on the SAH recognition of the building, CRA recommends that the "horseshoe" apartments are individually eligible for the NRHP under Criterion C as an important example of modern industrial residential architecture, developed for the New-Kanawha Power Company by the Minter Homes Corporation, a leader in large-scale industrial housing development. The eclectically adorned buildings, which display elements of the Colonial Revival, Tudor Revival, and Craftsman architectural styles, are a significant example of a company-owned apartment complex built of largely prefabricated materials at the onset of the Great Depression (Figure 54).

Figure 51. View of S-013 showing the “horseshoe” apartments, facing northwest.

Figure 52. View of S-013 showing the “horseshoe” apartments, facing west

Figure 53. View of S-013 showing the “horseshoe” apartments, facing southwest

Figure 54. Detail view of S-013 showing the “horseshoe” apartments, facing southwest.

The property is not substantially associated with individuals known to be significant to our past in a manner necessary to be eligible under Criterion B. The apartments are also a contributing element, along with the adjoining six residences and church, as a contributing element to the Glen Ferris Housing Subdivision, Lower historic district, are also eligible for the NRHP under Criterion A, significant for its association with the development and operation of the broad Hawks Nest Development. The history, significance, and boundary justification for the recommended historic district are discussed below. The building retains its integrity of location, design, workmanship, feeling, setting, and association.

The historic property boundary for the "horseshoe" apartments under Criterion C includes the entirety of the original Lot 116 of the Glen Ferris Housing Lower Subdivision (now Valley District, Map 30L, Parcels 2 and 7). The historic property boundary for the small historic district includes the entirety of the Glen Ferris Housing Subdivision, Lower including the apartments (S-013), six houses (S-014 to S-019), and a church (S-020). (Valley District, Map 30L, Parcels 2 and 7 and Map 30G, Parcels 32 and 32.1–37).

S-014

Name: Glen Ferris Housing Subdivision, Lower, Lot 120
SHPO Survey Number: N/A
Field Survey Number: S-014
Photograph: Figures 55–58
Maps: Figure 2
UTM Location: Z17 481145 4222857
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 37(0.13 acres)
Construction Dates: circa 1930

Description The wood frame two-story duplex house (approximately 54 ft. x 28 ft.) was built on a 0.13-acre corner lot fronting on the Midland Trail (U.S. 60) (Figures 55 and 56). An example of modern industrial vernacular design and construction, the light wood frame building was constructed as a two-family dwelling with vague Shingle Style and Colonial Revival elements, typical of the Minter Homes aesthetic. The light wooden frame allowed the building to be irregularly massed with a recessed central area, three-and-one-half building units wide, two rooms deep and two stories in height, with two distinct sections, a two-story hipped-roof section on the north and a large gable-front section on the south. The southern unit is accessed by an entryway located under a recessed porch that is built into the long Shingle-style roof slope, and the northern unit is accessed through a doorway located on the building façade located under a prominent low-pitched gable porch roof that features a heavy, classically inspired portico.

The house rests on a reinforced concrete foundation that conceals a full basement, vented through hopper windows set into all elevations. The exterior wall material includes wood shingles on all elevations. Two one-story wood-frame front-gable additions, covered with aluminum siding, have been built onto the rear of both units. The fenestration is fairly regular, with individual one-over-one light double-hung sash vinyl windows being regularly placed, except where the large three-part picture window and small decorative arch window on the front-facing gable. The fenestration is particularly regular on the building rear, the arrangement of which belies the two-part division of the building hidden by architectural elaboration of the façade (Figure 57). The building is covered on its northern side with a hipped roof with boxed eaves and overhangs, and the southern side with long gable elements, featuring flush overhangs, decorative three-part eaves, and cornice returns. The roof is covered with asphalt shingles, and it pierced in the very center of the rear roof slope by a large brick furnace chimney.

Figure 55. View of S-014 showing the house, facing northwest.

Figure 56. View of S-014 showing the house, facing southwest.

Figure 57. View of S-014 showing the house rear, facing northeast.

The house is associated with a long (55 ft. x 20 ft.), one-story six-bay wood-frame garage located to its rear, resting on a poured concrete foundation, sided with drop wooden siding and covered with a low-pitched side-gable roof covered with asphalt shingle siding (Figure 58).

History and Evaluation: S-014 is an integral part of the Glen Ferris Housing Subdivision, Lower Residential Development, one part of a much larger residential housing development associated with the Hawks Nest Development, summarized below (Chambers 2004:117). The portion of the Glen Ferris Housing Subdivision, Lower Residential Development that is located within the APE included the apartments (S-013), six houses (S-014 to S-019), and church (S-020), all sharing a collective history described below following the discussion of S-019.

Figure 58. View of S-014 showing the garage, facing northwest.

S-015

Name: Glen Ferris Housing Subdivision, Lower, Lot 121 (pt.)
SHPO Survey Number: N/A
Field Survey Number: S-015
Photograph: Figures 59–61
Maps: Figure 2
UTM Location: Z17 481145 4222857
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 36 (0.7 acres)
Construction Dates: circa 1930

Description: The wood-frame single-family house (approximately 24 ft. x 34 ft.) occupies a relatively narrow lot, ideal for the building type (Figures 59 and 60). The building rests on a raised foundation of poured concrete pierced at regular intervals by hopper windows. The house is two building units wide, two-and-one-half rooms deep, and one-and-one-half stories in height, the half story incorporated into the gable-front building form. The gambrel front façade has two doorways located on either side of a prominent tapered brick chimney built flush with the wall; the second story features two evenly spaced window bays. A partial-width gable-front porch roof is suspended over the front porch, supported by four turned posts. The regularly placed widow bays are inset with one-over-one-light double-hung vinyl replacement windows, flanked with faux shutters. The gambrel front roof arrangement, which is supplemented by narrow shed dormers, is carried through on the long elevations by a flared pent apron at the base of the half story. S-015 is the only house on the block not directly associated with one of the garages (Figure 61).

Figure 59. View 0f S-015 showing the house, facing northwest.

Figure 60. View of S-015 showing the house, facing west.

Figure 61. View of S-015 showing the house and setting, facing west.

History and Evaluation: S-015 is an integral part of the Glen Ferris Housing Subdivision, Lower Residential Development, one part of a much larger residential housing development associated with the Hawks Nest Development, (Chambers 2004:117). The portion of the Glen Ferris Housing Subdivision, Lower Residential Development that is located within the APE included the apartments (S-013), six houses (S-014 to S-019) and church (S-020), all sharing a collective history described below following the discussion of S-019, and were evaluated for the NRHP as a potential historic district.

S-016

Name: Glen Ferris Housing Subdivision, Lower, Lot 121 (pt.)
SHPO Survey Number: N/A
Field Survey Number: S-016
Photograph: Figures 62–65
Maps: Figure 2
UTM Location: Z17 481146 4222889
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 35 (0.07 acres)
Construction Dates: circa 1930

Description: The two-story wood-frame rectangular duplex (approximately 28 ft. x 48 ft.) is located in the center of the residential block. The building, which displays Colonial Revival styling, consists of two equivalent components which mirror each other in form and ornament, and is five building units wide, two rooms deep, and two-and-one-half stories in height (Figures 62 and 63). Like the other buildings on the block, S-016 rests on a raised reinforced concrete foundation; the porches rest on concrete blocks and the one store rear gable addition on slab concrete. The exterior, with the exception of some of the wooden trim, has been covered with vinyl siding and faux shutters have been added to some of the windows. The fenestration is regular and balanced throughout, the window and door arrangement on the façade relating to the

two-part subdivision of the house. Doorways into each unit are located at the center of each side, with a window immediately to the inside of each, and a second window farther toward the outer edge; the second floor is raked by single window bays, and there are two window bays to each story on the side elevations. The rear features four bays to a story, disrupted by the addition to the northern side of the elevation (Figure 64). The first story of the rear on each unit features a single doorway, with a small shed-roof porch overhead, supported by brackets, and larger window bays opening into the kitchen; the second story is raked by four window bays. All of the window bays, save the kitchen windows, are inset with one-over-one-light double-hung sash vinyl replacement windows. The steeply pitched side-gable roof features boxed eaves and modest overhangs, with slight cornice returns. The front roof slope features three gable dormers inset with six-over-six-light sash double-hung windows, and the rear roof slope is pierced in its center by a large brick furnace chimney.

Figure 62. View of S-016 showing the façade, facing west.

Figure 63. View of S-016 showing the house and setting, facing southwest.

Figure 64. View of S-016 showing the house rear, facing northeast.

Figure 65. View of S-016 showing the garage, facing north.

The house is associated with a long (55 ft. x 20 ft.) one-story six-bay wood-frame garage located to its rear, resting on a poured concrete foundation, sided with drop wooden siding, and covered with a low-pitched side-gable roof covered with asphalt shingle siding (Figure 65).

History and Evaluation: S-016 is an integral part of the Glen Ferris Housing Subdivision, Lower Residential Development, one part of a much larger residential housing development associated with the Hawks Nest Development, (Chambers 2004:117). The portion of the Glen Ferris Housing Subdivision, Lower Residential Development that is located within the APE included the apartments (S-013), six houses (S-014 to S-019), and church (S-020), all sharing a collective history described below following the discussion of S-019, and were evaluated for the NRHP as a potential historic district.

S-017

Name: Glen Ferris Housing Subdivision, Lower, Lot 122

SHPO Survey Number: N/A
Field Survey Number: S-017
Photograph: Figures 66–69
Maps: Figure 2
UTM Location: Z17 481146 4222889
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 34 (0.1 acres)
Construction Dates: circa 1930

Description: The two-story wood-frame single-family house (28 ft. x 24 ft.) is located on a small lot and is set back approximately 20 ft. from the roadway (Figures 66 and 67). The house is the least architecturally elaborate building in the subdivision, an unadorned modern industrial vernacular building with Dutch Colonial Revival styling. The light frame side-gambrel building rests on a raised reinforced concrete foundation with a full basement, and the one-story rear shed bathroom addition and rear porch were built in concrete blocks and poured concrete (Figure 68).

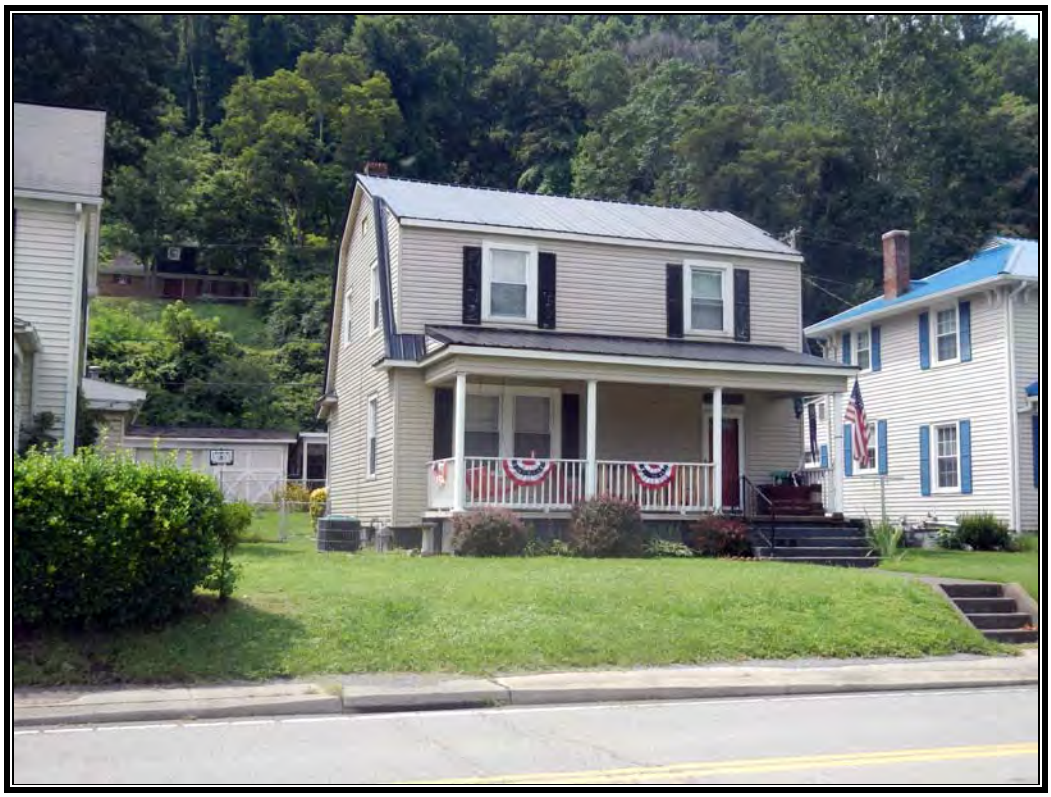

Figure 66. View of S-017 showing the house, facing west.

Figure 67. View of S-017 showing the house, facing southwest.

Figure 68. View of S-017 showing the house rear, facing northeast.

The fenestration is regular and balanced throughout the house, with two bays to a story on all sides. The front door is offset on the façade, with a pair of one-over-one-light windows balancing the location of the doorway. The other window bays were formerly balanced, with bays on the side and rear elevations removed and covered by the exterior vinyl siding. The windows are all one-over-one-light double-hung sash replacement windows, flanked in places by faux shutters.

The side gambrel roof arrangement, which included two full-length shed dormers on each elevation. The principal roof, gambrel pent roofs, and the partial length shed porch roof is all covered with modern metal siding. The porch, resting on concrete blocks, features four Doric columns supporting the heavy cornice and porch roof. The roofline is broken only by a small furnace chimney on the rear roof slope, located flush with the southern elevation.

The house is associated with a long (55 ft. x 20 ft.) one-story six-bay wood-frame garage located to its rear, resting on a poured concrete foundation, sided with drop wooden siding, covered with a low-pitched side-gable roof covered with asphalt shingle siding (Figure 69).

History and Evaluation: S-017 is an integral part of the Glen Ferris Housing Subdivision, Lower Residential Development, one part of a much larger residential housing development associated with the Hawks Nest Development. The portion of the Glen Ferris Housing Subdivision, Lower Residential Development that is located within the APE included the apartments (S-013), six houses (S-014 to S-019), and a church (S-020), all sharing a collective history described below following the discussion of S-019, and were evaluated for the NRHP as a potential historic district.

Figure 69. View of S-017 showing the garage, facing north.

S-018

Name: Glen Ferris Housing Subdivision, Lower, Lot 123
SHPO Survey Number: N/A
Field Survey Number: S-018
Photograph: Figures 70–73
Maps: Figure 2
UTM Location: Z17 481150 4222920
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 33 (0.1 acres)
Construction Dates: circa 1930

Description: The two-story wood-frame single-family house (28 ft. x 24 ft.) is located on a small lot and is set back approximately 20 ft. from the roadway (Figures 70 and 71). A modern industrial vernacular building with Craftsman styling, the light frame building rests on a reinforced concrete foundation, supplemented by concrete blocks on the porch and a concrete slab supporting the full-length one-story shed addition (Figure 72). The fenestration is regular and balanced; although, there are two different sizes of one-over-one-light double-hung sash vinyl replacement windows, with two piercings to a floor on each elevation. The exterior wall material, which covers the surfaces, fascia and soffit, is vinyl siding, and most of the windows are flanked with faux shutters. A large raised porch, with a concrete block foundation, paired Doric columns, and heavy hipped-porch roof, dominates the facade. The roofline of the building has very wide eaves supported by paired brackets supported a gable-on-hip roof arrangement. The principal roof, porch roof and rear shed addition are all covered with metal siding. The house is associated with a five-bay wood-frame garage (46 ft. x 20 ft.), located to the rear of house. The garage is clad with wooden drop siding, pierced by stationary eight-pane windows, and covered by a low-pitched side-gable roof, covered with asphalt shingles (Figure 73).

Figure 70. View of S-018 showing the house, facing northwest.

Figure 71. View of S-018 showing the house and setting, facing southwest.

Figure 72. View of S-018 showing the rear of the house, facing east.

Figure 73. View of S-018 showing the garage, facing south.

History and Evaluation: S-018 is an integral part of the Glen Ferris Housing Subdivision, Lower Residential Development, one part of a much larger residential housing development associated with the Hawks Nest Development. The portion of the Glen Ferris Housing Subdivision, Lower Residential Development that is located within the APE included the apartments (S-013), six houses (S-014 to S-019), and a church (S-020), all sharing a collective history described below following the discussion of S-019, and were evaluated for the NRHP as a potential historic district.

S-019

Name: Glen Ferris Housing Subdivision, Lower Lot, 124B
SHPO Survey Number: N/A
Field Survey Number: S-019
Photograph: Figures 74–77
Maps: Figure 2
UTM Location: Z17 481152 4222937
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 32.1 (0.16 acres)
Construction Dates: circa 1930

Description: The large (46 ft. x 38 ft.) wood frame duplex occupies a large corner lot at the northern edge of the block (Figures 74 and 75). The mirror image of S-014, located on the other side of the block, the house is an example of modern industrial vernacular design and construction. The light wood frame building was constructed as a two-family dwelling with vague Shingle-style and Colonial Revival elements. The light wooden frame allowed the building to be irregularly massed with a recessed central area, three-and-one-half building units wide, two rooms deep, and two stories in height, with two distinct sections, a two-story hipped-roof section on the north and a large gable-front section on the south. The northern unit is accessed by an entryway located under a recessed porch that is built into the long Shingle-style roof slope, and the southern unit is accessed through a doorway on the building façade located under a prominent low-pitched gable-porch roof that features a heavy, classically inspired portico.

The house rests on a reinforced concrete foundation that conceals a full basement, vented through hopper windows set into all elevations. The exterior wall material includes aluminum siding on all elevations (Figure 76). The fenestration is fairly regular, with individual one-over-one-light double-hung sash windows regularly placed, except where the large three-part picture window and small decorative arch window are on the front-facing gable. The fenestration is particularly regular on the building rear, the arrangement of which belies the two-part division of the building hidden by the architectural elaboration of the façade. The building is covered on its northern side with a hipped roof with boxed eaves and overhangs, and the southern side with long gable elements, featuring flush overhangs, decorative three-part eaves, and cornice returns. The roof is covered with asphalt shingles, and it is pierced in the very center of the rear roof slope by a large brick furnace chimney.

The house is associated with a one-story five-bay wood frame garage (46 ft. x 20 ft.) located to its rear, resting on a poured concrete foundation, sided with drop wooden siding, and covered with a low-pitched side-gable roof covered with asphalt shingle siding (Figure 77).

History: S-019 is an integral part of the Glen Ferris Housing Subdivision, Lower Residential Development, one part of a much larger residential housing development associated with the Hawks Nest Development, summarized below (Chambers 2004:117). The portion of the Glen Ferris Housing Subdivision, Lower Residential Development that is located within the APE included the apartments (S-013), six houses (S-014 to S-019), and a church (S-020).

Figure 74. View of S-019 showing the house, facing northwest.

Figure 75. View of S-019 showing the house and setting, facing southwest.

Figure 76. View of S-019 showing the house rear, facing northwest.

Figure 77. View of S-019 showing the garage, facing southwest.

Hawks Nest Housing Subdivision, Lower Residential Development: The Glen Ferris Housing Subdivision, Lower consists of the "horseshoe" apartments (S-013), six single and duplex residences (S-014 to S-019), and a church (S-020), just one part of a much larger residential housing development associated with the Hawks Nest Development that encompassed the towns of Boomer, Alloy, Falls View, and Glen Ferris. Each of the small communities that are situated along the river and U.S. 60 relate to the Hawks Nest Development and the operation of the EMCO facility (Chambers 2004:117). Throughout the early 1930s, contractors working for EMCO built houses for many of its employees, which eventually numbered 2,400 workers (Chambers 2004:117).

The full extent of the company-planned and developed residential aspects of the Hawks Nest Development are an embodiment of what historians have called the "new" company town, a thoroughly engineered environment informed by the three design professions – architecture, landscape architecture, and city planning – as a critical component of the explicitly modern Hawks Nest Development (Crawford 1995:3). In part to ensure an orderly system of production in a remote region wracked by labor unrest, EMCO combined its interest in scientific management of its workforce with the cultivation of a distinct domestic aesthetic focused on emerging middle class values (Crawford 1995:3).

The Minter Homes Corporation of Huntington was the principal contractor for the development of the EMCO worker housing, which was thoroughly modern in its design, materials, and outfitting. The careful planning of the residential development mirrors the comprehensive scale of the company's regional hydropower development, each town reflecting the corporate production of a residential landscape. For example, the residential housing developed at the community of Boncar was built for its blue collar workforce, and the houses at Falls View, with "its more generous scale and amenities indicate that management intended this for workers higher on the wage scale," and those at Glen Ferris were among the most elaborate (Figures 78 and 79)(Chambers 2004:118).

The Minter Construction Company, the forerunner of the Minter Homes Corporation, was incorporated in 1887 as a private Huntington, West Virginia corporation. Founder W.E. Minter established the company to provide housing for coal companies, desperate to provide low-cost prefabricated housing for a burgeoning workforce in the southern West Virginia coalfields (Chambers 2004). The firm soon expanded to supply housing for all manner of industrial situations. An innovator in light wooden framing techniques and the early use of drywall, the firm was rechristened as the Minter Homes Corporation in 1903, builder of easily assembled kit houses and premade window and door units, a precursor to the popular catalogue houses promoted by Sears and firms such as Aladdin, some adopting Minter designs.

The Miner Homes Corporation was reorganized in 1913 as a division of the Huntington Lumber & Supply Company, winning large industrial contracts, including the contract of 1,724 houses in the industrial town of Nitro in 1918, by supplying all manner of buildings as part of a comprehensive approach to industrial design (West Virginia Cyclopedia 2013b). The contract for the work on the Glen Ferris Project was awarded on the strength of the company's past success at building model company towns. Minter later dominated the military housing market during the war years and during the post-World War II era, outlasting the Sears homes division, and eventually turned toward producing custom millwork and factory-made architectural elements.

Figure 78. View of S-016 to S-019 at the time of their construction (circa 1930), facing northwest (McKinney 1992).

Figure 79. View showing S-014 to S-019 soon after their construction (circa 1930), facing northwest (McKinney 1992).

The six houses and large "horseshoe" apartment building were built as part of the larger development of the social infrastructure in support of the development and operation of the larger Hawks Nest Development. In this case, the six houses and apartments were built as a northern portion of a single development called the Glen Ferris Housing Subdivision Lower, built to house middle and upper management of the EMCO as something of a model community. The houses were served by paved sidewalks, walkways, and concrete stairs that accessed the elevated house sites.

The residential block is located to the north of the "horseshoe" apartments, between the railroad tracks of the New York Central system and U.S. 60 (Midland Trail). Three of the buildings were constructed as two-family homes, and three buildings as single-family homes. Although there are six houses on the block, there are only five wood-frame garage structures located across a paved private alley along the New York Central right-of-way, including two six-car garages at the southern end of the block and three five-car garages at the northern end. This speaks to the company-owned nature of the buildings and the primacy of the automobile in the planning of the larger Hawks Nest Development. Parking spaces, rather than garage structures, appear to have been assigned to each house.

In the 1950s during the post-war boom, EMCO began to divest itself of its housing stock, selling the well-built homes to its employees at low prices and on easy credit. Like most company towns, particularly those with less architectural variety than in the EMCO towns, once the houses were sold to private parties, the new owners began to personalize their homes through construction of additions and the replacement of exterior materials. The houses in the portion of the Glen Ferris Housing Subdivision, Lower that lies within the APE are relatively intact, retaining their essential form, original workmanship, and most materials.

NRHP Evaluation: *Eligible.* The six houses, the "horseshoe" apartment building and adjacent church within the Glen Ferris Housing Subdivision, Lower (S-013 to S-020) are eligible for the NRHP as a historic district, a geographically defined collection of thematically related resources that may lack individual distraction, but collectively illustrate the development of the social aspects of the Hawks Nest Development and the provisioning of worker housing, and are emblematic of an important movement in American architecture, the rise of stylistically eclectic modern industrial vernacular housing, developed as a neighborhood according to a "new" company town ethic (Figures 80 and 81).

The apartment building (S-013), which CRA recommends is individually eligible for the NRHP under Criterion C for its architectural characteristics, six houses (S-014 to S-019), and associated church (S-020) are collectively eligible for the NRHP under both Criteria A and C for their association with development of Glen Ferris as part of a model company town during the development of Hawks Nest Development, from 1930 to 1934. The buildings, designed explicitly to serve as an example of "new" company towns design, were built as a visually prominent neighborhood to showcase EMCO's development of an idealized landscape to support the practical and social reproduction of its workface.

Individually undistinguished, the buildings collectively serve as important examples of modern industrial vernacular design and construction enhanced with eclectic stylistics embellishments designed to house management in a defined neighborhood within the expansive EMCO industrial ensemble from 1934 to 1981 (Figure 82). Although individual buildings have been altered through the construction of additions and the replacement of some materials, the buildings as a whole retain their integrity of design, materials, workmanship, setting, feeling, and association. The historic property boundary includes buildings and associated garages on Lots 116 and 110-124 of the original Glen Ferris Residential Subdivision, Lower, now defined as Valley District Maps 30 L, Parcels 2 and 7, and Valley District Map 30G, Parcels 32, 32.1, to 37).

Figure 80. View of the Glen Ferris Lower Subdivision from the impoundment behind the Glen Ferris Dam, facing west.

Figure 81. View of the Glen Ferris Lower Subdivision, facing southwest.

Figure 82. View showing the Glen Ferris Housing Subdivision, Lower and Glen Ferris Reservoir, facing east.

S-020

Name: Riverview United Methodist Church
SHPO Survey Number: N/A
Field Survey Number: S-020
Photograph: Figures 83–86
Maps: Figure 2
UTM Location: Z17
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 30 (0.261 acres)
Construction Dates: 1934

Description: Riverview United Methodist Church is located between U.S. 60 (Midland Trail) and the old Michigan and Kanawha Railroad right of way on a heavily graded 80 ft. x 125 ft. 0.26-acre lot (District, Map 30G, Parcel 30). The building site is built and graded level above the roadway, the space expanded through the construction of an 11-course sandstone block retaining wall. The brick-bearing church structure was built in a cruciform plan. The main axis of the church, the gable-front sanctuary, is a (36 ft. x 34 ft.) one-and-one-half story structure, and the gable-front cross plan element (60 ft. x 20 ft.) at the rear was expanded by a smaller (47 ft. x 13 ft.) one-story hipped rear extension (Figures 83 and 84).

Each of the elements rests on a raised reinforced concrete foundation, both the exposed concrete face and water table and a section that was faced with exterior brick, pierced by a large window bays and inset with large one-over-one-light double-hung recessed vinyl replacement windows on all of the elevations, lighting the interior of the basement level, which houses classrooms, a kitchen, storage rooms, and utilities. The area between the raised basement and elevated first floor is marked on the exterior of the structure by a running bond of glazed brick, giving the effect of a water table (Figure 85).

The brick building exterior is an industrial brick set in common bond and inset with different types of decorative glazed tile bricks that form surface elements and water tables.

Other exterior elements include two stepped brick pilasters on their long elevation, as well as the false front-gable extension on the façade and flanking capped parapets. The central tower features a large base bell tower enhanced with decorative brickwork and pierced in the center of each elevation by a single porthole bay.

For a heavily framed building, the exterior appearance is shaped by the ample fenestration, which includes 24 window bays opening into the basement elevation, the eight three-part arched windows that light the sanctuary, and the smaller, more one-over-one-light windows on the two rear sections of the church. The rectangular windows are set under flat brick arches and lintels, and the arched windows feature flat lintels and a single brick arch, adorned with a decorative keystone.

The building is covered by a complex roof structure, with a gable-front arrangement on the core, low-pitched side-gable extensions on the cross plan portion, and a low hipped roof on the rear extension, all of which is covered with asphalt shingles. The roofline features the false front parapet extensions on the front and rear, and flush eaves and overhangs on the rear elements (Figure 86). The core of the roof is pierced by six small gabled vents and at the rear by two furnace chimney extensions.

History: The Methodist Episcopal Church, South was a branch of Methodism that became a separate faith tradition over the issue of slavery in 1844, and was maintained as a separate church until its reintegration into the Methodist Church in 1939. The Methodist Episcopal Church, South maintained a conservative theology and position about social issues throughout the nineteenth and early-twentieth centuries that was attractive to industrialists, as it stressed temperance and time discipline.

Figure 83. View of S-020 showing the church, facing northwest.

Figure 84. View of S-020 showing the church, facing southwest.

Figure 85. Detailed view of S-020 showing the exterior materials and windows, facing southwest.

Figure 86. View of S-020 showing the building rear, facing southwest.

The church was completed in July 1934 to house a congregation that was first established in 1902. Built in a simple but widely popular form, the church design reflects the tenets of the Methodist (South) faith tradition, a resonance of the pre-industrial culture of the valley built in a culturally diverse industrial setting, emphasizing both the liturgical aspects of the faith and the social and educational elements of a modern form of Methodism. The church was constructed as part of the development of Glen Ferris as a part of the larger Hawks Nest Development, one component of the social infrastructure that evolved alongside the physical infrastructure of the hydro project. Based on the form and materials, the church appears to have been built by Minter Homes, the contractor of the development of the Glen Ferris Residential Subdivision, known for building institutional elements as well as residences. Ownership of the church property was granted to the Methodist Episcopal Church Trustees in 1961 (Fayette County Deed Book 233:540).

NRHP Evaluation: *Eligible*. The church is eligible for the NRHP under Criterion A for its association with modern development of the Glen Ferris Housing Subdivision, Lower, as a neighborhood, part of the larger Hawks Nest Development project. Not individually significant, the church is significant in association with the nearby residences (S-014 to S-019), and apartments (S-013) as part of the Glen Ferris Housing Subdivision, Lower. The church was an important element of the social infrastructure of Glen Ferris, developed as a "new" form of company town by Union Carbide and its subsidiaries, which applied high quality architectural values to both its housing and elements of the social infrastructure such as the church. The property was associated with an array of congregants and pastors, but it is not substantively associated with any persons significant to our past in a manner necessary to be eligible under Criterion B.

Although more architecturally elaborate that the surrounding buildings, the church is not an important example of ecclesiastical architecture or modern building techniques, and is not eligible for the NRHP under Criterion C. The church retains its integrity of materials, design, workmanship, association, setting, and feeling. Because the property derives its significance from its association with the development of the social infrastructure of Glen Ferris and not any religious practices, the property satisfies Criteria Consideration A for religious properties. The historic property boundary of the property is a contributing element to the small historic district encompassing the portion of the Glen Ferris Housing Subdivision, Lower within the APE, and conforms to the legally defined town lot, within the larger district.

S-021

Name: Riverview United Methodist Church Parsonage
SHPO Survey Number: N/A
Field Survey Number: S-021
Photograph: Figures 87–88
Maps: Figure 2
UTM Location: Z17 481156 4222993
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 29 (0.3 acres)
Construction Dates: circa 1945

Description: S-021, the Riverview UMC Parsonage, is located on a 0.3-acre residential lot in the Valley District (Map 30G, Parcel 29). The house was built facing the Midland Trail (U.S. 60) and is directly related to the adjacent church (S-022), post-dating the church but connected by a facing exterior door and walkway (Figures 87 and 88). The large irregularly massed wood frame and brick house (44 ft. x 60 ft.) was built on an excavated reinforced concrete foundation, which is generally flush with the ground. The building is an example of a builder's vernacular type residence, constructed to reflect some of the popular Tudor Revival styling. The building form, fenestration, and especially its roof structure, which consists of a core roof and seven gable extensions (some very steeply pitched), reflects the superficial irregularity of the building type. The fenestration consists of one-over-one, four-over-four, and six-over-six-light double-hung sash replacement windows of various sizes set singularly and in pairs, some of which are set flush with the wall, while other are set off with flat brick lintels and sills. The gables are flush with the exterior walls, and have no eaves or overhangs, their vertical orientation reinforced by barge and fascia boards and vents cut into the peak of each gable. The roof on the core and gables is covered with asphalt shingle siding. A freestanding brick two-car garage (33 ft. x 17 ft.), resting on the concrete slab with brick exterior walls and a low-pitched front-gable roof covered in asphalt shingles, is also located on the lot. The location of the house on a large lot with the freestanding detached garage sets this and the adjoining post-war houses apart from the early residential development in Glen Ferris.

History: Based on its form and materials, and its evident association with the adjacent church property, the house was built as a parsonage circa 1945 in the area outside of formal EMCO associated development. Maynard Shumate, son of longtime manager of the Glen Ferris Inn manager Grace Shumate, was a longtime owner of the house (Federal Census 1930; Fayette County Deed Book 331:192). Shumate transferred partial ownership to his children in 1975, just prior to his death. The property was sold to William, Shirley, Delores, and Arlene Byrum in 2004 (Fayette County Deed Book 602:114). William and Shirley Byrum acquired the property in 2007 (Fayette County Deed Book 634:118).

Figure 87. View of S-021 showing the house, facing northwest.

Figure 88. View of S-021 showing the house and setting, facing west.

NRHP Evaluation: *Not Eligible.* Although associated with the adjacent church, the house was built long after the church was complete; it is related through its use as a parsonage, and later converted to a single-family home. The house is not associated with any significant events or patterns of events and is not eligible under Criterion A. Although associated with well-known members of the community, the property is not associated with any individuals considered significant to our past in a manner necessary for consideration under Criterion B. A stylistically embellished example of builder vernacular architecture, S-021 is not an important example of post-war housing, rectory architecture, or modern construction, and is not significant under Criterion C. CRA recommends that S-021 is not eligible for the NRHP under Criterion A, B, or C due to a lack of significance.

S-022

Name: Jervis Property
SHPO Survey Number: N/A
Field Survey Number: S-022
Photograph: Figures 89–90
Maps: Figure 2
UTM Location: Z17 481163 4223032
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 27 (0.37 acres)
Construction Dates: circa 1960

Description The Jervis Property (S-022) is a one-story composite form ranch house that is located on a 0.37-acre house lot on the north side of Glen Ferris in the Valley District (Map 30G, Parcel 27). Built as a single-family home in the early 1960s, the building is unusual in its composite massing and large footprint (64 ft. x 87 ft.), being five building units in width, three rooms deep, and one story in height, in part owing to the large built-in garage at its rear (Figures 89 and 90). The house rests on a concrete foundation or slab and is built on a light wooden frame with a substantial brick structural element. The heavy brickwork extends beyond the house proper, with built elements such as low berms and built-in flower boxes located near the recessed entryway. The exterior wall material is machined bricks set in running bond. The house is notable for its very low profile, large picture and corner windows, including a five-light bank of picture windows on the façade, and large three-part stationary corner windows; other windows include single-pane stationary windows. Perhaps the most important architectural feature is the very low-pitched intersecting hipped roof, which features very wide eaves and overhangs, and is covered with asphalt shingles. The roof is pierced in its center by a large two-part brick chimney and furnace stove, as well as a small cupola vent into the garage area.

History: Ranch houses represent the predominant American house type of the 1950s and 1960s. By definition, Ranch houses exhibit a low, elongated form; are a single story in height, and have zoned interior living spaces. Common design elements include the brick exterior with contrasting wooden accent materials, painted white. The house features roofs of various types with projecting eaves; prominent chimneys, integrated carports or garages; and a variety of window types, including tripartite windows with a central picture window flanked by smaller windows with operable sashes.

The house is located on a graded and landscaped lot between U.S. 60 (Midland Trail) and the old Kanawha and Michigan railroad tracks. The southern portion of the lot has been largely paved, forming a large driveway. Three modern prefabricated shed outbuildings are also located on the property. Based on available tax records, the house may have been constructed by local banker, automobile dealer, and Democratic politician A.W. “Slim” Orndorf and his wife Irene in the early 1960s (Fayette county Deed Book 233:540). Orndorf had a number of commercial interests, and may have been the developer of the series of residences to the north of this house on the northern edge of Glen Ferris. Orndorf owned the property until his death and its sale in 1994 to Paul and Ramona Pennington, who in turn sold the property to Gary and Ezell Jervis in 2009 (Fayette County Deed Books 593:640 and 646:480). The house is relatively unchanged since its construction.

Figure 89. View of S-022 showing the house, facing northwest.

Figure 90. View of S-022 showing the house, facing west.

NRHP Evaluation: *Not Eligible.* Although the most architecturally elaborate of the ranch houses in this section of Glen Ferris, S-022 is not substantially associated with events, patterns of events, or individuals important to our history in a manner necessary for inclusion in the NRHP under Criteria A and B. An example of modern ranch building techniques, the house is not an important example of its type, period, or method of construction, and is not individually eligible under Criterion C, lacking details and a form that distinguishes the house from other houses of a similar construction and vintage. CRA recommends that the property is not eligible for inclusion in the NRHP under Criterion A, B, or C due to a lack of associative or architectural significance.

S-023

Name: Skaggs Property
SHPO Survey Number: N/A
Field Survey Number: S-023
Photograph: Figures 91–93
Maps: Figure 2
UTM Location: Z17 481169 4223064
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 26 (0.29 acres)
Construction Dates: circa 1965

Description: The Skaggs Property (S-023) is located on a 0.29-acre house lot on the north side of Glen Ferris (Valley District, Map 30G, Parcel 26). The large ranch house (82 ft. x 42 ft.), an example of builder vernacular construction, was built as a single-family home in the mid-1960s. The house exhibits the horizontal orientation characteristics common to the house type, being four building units in width, two rooms deep, and one story in height (Figures 91 and 92). The house rests on a partially excavated foundation of reinforced concrete, with a partial basement lit through window wells. The house, built on a light wooden frame, as exhibited by the large window bays and irregular footprint, is covered with a brick veneer. A large Colonial Revival-influenced front door, with a wooden surround and sidelights, is at the center of its front elevation, with a large bank of living room windows to the north and a pair of three-part windows lighting bedrooms to the south. A three-part window also lights the attached garage, which opens onto the asphalt driveway to the north of the living space. The house is covered with five very low-pitched adjoining hipped roofs, all covered with asphalt shingles, with a single brick chimney breaking the rear slope of the central structure. The roofline features modest eaves and overhangs covering a wide fascia board. There are no outbuildings on the graded and lightly landscaped lot located between U.S. 60 (Midland Trail) and the elevated railroad corridor.

History: S-023 is an example of a popular form of the predominant American house type of the 1950s and 1960s. The house was built by Herman L. Skaggs on a large residential lot located north of the EMCO dominated portion of Glen Ferris in the mid-1960s, part of a modern housing development on the site of what was once the African-American section of Glen Ferris (Figure 93). Skaggs occupied the house until his death in 2009; it is now owned by his son, Herman L. Skaggs Jr., and his wife, Mildred (Fayette County Deed Book 268:42 and Will Book 29:443). Herman Skaggs was a World War Veteran and automobile dealer who was well known for this community service.

NRHP Evaluation: *Not Eligible.* The building is not substantially associated with events, patterns of events or individuals important to our history in a manner necessary for inclusion in the NRHP under Criteria A and B. An example of modern ranch building techniques, the house is not an important example of its type, period, or method of construction, and is not individually eligible under Criterion C. CRA recommends that the property is not eligible for inclusion in the NRHP under Criterion A, B, or C due to a lack of associative or architectural significance.

Figure 91. View of S-023 showing the house, facing west.

Figure 92. View of S-023 showing the house, facing southwest.

Figure 93. View of S-023 and adjoining properties showing the relationship between the modern development to Glen Ferris, facing southwest.

S-024

Name: Beard Property
SHPO Survey Number: N/A
Field Survey Number: S-024
Photograph: Figures 94–95
Maps: Figure 2
UTM Location: Z17 481176 4223096
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 25 (0.29 acres)
Construction Dates: circa 1965

Description: The Beard Property (S-024) is an example of later ranch house, built in the mid-to-late 1960s, which retains the essential elements of the building type, such as its horizontal orientation (five building units wide, two rooms deep, and one story in height) without elaboration (Figures 94 and 95). The building is located between the railroad corridor and U.S. 60 (Midland Trail) on a graded and lightly landscaped 0.29-acre lot on the north side of Glen Ferris, joined on the property by a prefabricated shed and concrete slab driveway. The house rests on a concrete slab foundation. Built on a light wooden frame, the exterior of the building is covered with a brick veneer. The fenestration is typical of this building type and vintage, featuring a large three-part picture window lighting the living room, and widely spaced three-part windows set in horizontally oriented window bays, as well as smaller two-part windows on the side elevations and building rear. The centrally located front door is covered by a gable-front porch extension, ground in a poured concrete base and supported by decorative metal columns. The northern portion of the house includes the built-in two-car garage, with its doorway opening to the road. The house and garage are covered with a very low-pitched intersecting gable roof, with very modest eaves and overhangs and covered with asphalt shingles, unbroken by a chimney.

Figure 94. View of S-024 showing the house, facing northwest.

Figure 95. View of S-024 showing the house, facing southwest.

History: Based on available tax records, the house was built in the mid-to-late 1960s by Nora and Iva Goad. Nora and Iva were well-respected and longtime public school teachers from a family of teachers. The sisters purchased the property in 1964 and built the house soon after, with Iva living there until her death in 1983, and Nora living there until her death in 2006 (Deed Book 297:165; Will Book 32:569). Following her death, the property was managed by her executor, Engil Bailey, until full title was secured by Debra Beard in 2008 (Fayette County Deed Book 639:129).

NRHP Evaluation: *Not Eligible*. The building is not associated with events, patterns of events or individuals important to our history in a manner necessary for inclusion in the NRHP under Criteria A and B. An example of modern ranch building techniques, the house is not an important example of its type, period, or method of construction, and is not individually eligible under Criterion C. CRA recommends that the property is not eligible for inclusion in the NRHP under Criterion A, B, or C due to a lack of associative or architectural significance.

S-025

Name: Clevenger Property
SHPO Survey Number: N/A
Field Survey Number: S-025
Photograph: Figures 96–97
Maps: Figure 2
UTM Location: Z17 481220 4223131
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 41 (0.33 acres)
Construction Dates: circa 1935

Description: S-025 and S-026, the Clevenger properties, are similarly massed vernacular houses located on identical 0.33-acre lots on the western side of U.S. 60 (Midland Trail) overlooking the impoundment behind the Glen Ferris Dam (Figures 96 and 97). S-025 is now the larger and more altered of the two related buildings, its gable-front form, two building units wide, two-and-one-half rooms deep, and one story in height, modified by a large carport affixed to its southern elevation and porch extending over the river bank to the rear. The house rests on a raised concrete block foundation, three courses of which are visible above ground level. The foundation conceals a full basement, as evidenced by a basement entryway accessed through a recessed stairwell, opening into the north side of the structure. The building is constructed on a light wooden frame, pierced on the façade by a centrally placed front door and flanking window bays, all covered by a 2/3-width gable-front porch. The fenestration is balanced, but irregular in the size and grouping of the one-over-one-light double-hung sash replacement windows. The exterior of the house is covered with vinyl siding, and the low-pitched gable-front roof is covered with asphalt shingles, unbroken by a chimney.

History: S-025 and S-026 are what remains of five structures built on the east side of the Midland Trail on a graded, level area above the bank of the Kanawha River in the northern section of Glen Ferris, all once associated with a nearby mining operation. Neither house appears on the 1931 USGS minute topographic map (Fayetteville, WV 1931), but the building forms and construction suggest a pre-war vintage. The houses are located on land that was privately developed by a coal concern, before or coincident with the construction of the EMCO-developed portions of Glen Ferris, and both appear to date from the mid-to-late 1930s. More recently, both properties were purchased by Elmer “Cecil” Clevenger, who retains ownership of S-025; S-026 was sold to Lilly family in 1997 (Fayette County Deed Books 537:207 and 537:242).

Figure 96. View of S-025 showing the house, facing northwest.

Figure 97. View of S-025 showing the house, facing southeast.

NRHP Evaluation: *Not Eligible.* Although associated with the development of Glen Ferris as a village during or soon after the construction of the Hawks Nest Development, S-025 is not substantively associated with significant events or patterns of events or individuals important to our past in a manner necessary to be eligible for the NRHP under Criterion A. Further, the building is an example of vernacular building techniques and devoid of any architectural styling, and is not an important example of Depression-era vernacular domestic architecture, and is not significant under Criterion C. CRA recommends that S-025 is not eligible for the NRHP under Criterion A, B, or C due to a lack of substantive significant historical or architectural associations.

S-026

Name: Clevenger Property II
SHPO Survey Number: N/A
Field Survey Number: S-026
Photograph: Figures 98–100
Maps: Figure 2
UTM Location: Z17 481220 4223144
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 41 (0.33 acres)
Construction Dates: circa 1935

Description: S-025 and S-026, the Clevenger properties, are similarly massed vernacular houses located on identical 0.33-acre lots on the western side of U.S. 60 (Midland Trail) overlooking the impoundment behind the Glen Ferris Dam (Figures 96 and 97). S-025 is now the larger and more altered of the two related buildings, its gable-front form, two building units wide, two-and-one-half rooms deep, and one story in height, modified by a large carport affixed to its southern elevation and porch extending over the riverbank to the rear. The house rests on a raised concrete block foundation, three courses of which are visible above ground level. The foundation conceals a full basement, as evidenced by a basement entryway accessed through a recessed stairwell, opening into the north side of the structure. The building is constructed on a light wooden frame, pierced on the façade by a centrally placed front door and flanking window bays, all covered by a 2/3-width gable-front porch. The fenestration is balanced, but irregular in the size and grouping of the one-over-one-light double-hung sash replacement windows. The exterior of the house is covered with vinyl siding, and the low-pitched gable-front roof is covered with asphalt shingles, unbroken by a chimney.

S-026 is the smaller and more intact of the two related houses, displaying an intersecting gable building that is two-and-one-half building units wide, two rooms deep, and one story in height, with a full-length gable extension to the rear (Figures 98–100). The small rectangular building (25 ft. x 34 ft.) rests on a raised concrete block foundation, four courses of which are visible above the ground level, that conceals a full basement. The light frame building is clad with a weatherboard treatment and pierced by an irregular array of window types, including one-over-one-light double-hung sash windows set individually and in pairs, single-pane stationary windows, and attic vents. The centrally placed front door is flanked by window bays to each side and is covered with a partial-width gable-front porch roof, supported by square wooden columns resting on concrete blocks. The moderately pitched interesting gable roof features flush eaves and overhangs and is covered with asphalt shingles, pierced on the center ridge of the rear gable by a single brick furnace chimney. There are no outbuildings on the property.

Figure 98. View of S-026 showing the house, facing northeast.

Figure 99. View of S-026 showing the house, facing southeast.

Figure 100. View of S-026 showing the house (and S-025), facing east.

History: S-025 and S-026 are what remains of five structures built on the east side of the Midland Trail on a graded and level area above the bank of the Kanawha River in the northern section of Glen Ferris, all once associated with a nearby mining operation. Neither house appears on the 1931 USGS minute topographic map (Fayetteville, WV 1931), but the building forms and construction suggest a pre-war vintage. The houses are located on land that was privately developed by a coal concern, before or coincident with the construction of the EMCO-developed portions of Glen Ferris, and both appear to date from the mid-to-late 1930s. More recently, both properties were purchased by Elmer "Cecil" Clevenger, who retains ownership of S-025; S-026 was sold to Lilly family in 1997 (Fayette County Deed Books 537:207 and 537:242).

NRHP Evaluation: *Not Eligible.* Although associated with the development of Glen Ferris as a village during or soon after the construction of the Hawks Nest Development, S-026 is not substantively associated with significant events or patterns of events or individuals important to our past in a manner necessary to be eligible for the NRHP under Criterion A. Further, the building is an example of vernacular building techniques and devoid of any architectural styling, and is not an important example of Depression-era vernacular domestic architecture, and is not significant under Criterion C. CRA recommends that S-026 is not eligible for the NRHP under Criterion A, B, or C due to a lack of substantive significant historical or architectural associations.

S-027

Name: Lilly Property
SHPO Survey Number: N/A
Field Survey Number: S-027
Photograph: Figures 101–102
Maps: Figure 2
UTM Location: Z17 481196 4223167
NAD: 1983
Quad: Gauley Bridge WV (1976)

Tax Parcel: Valley District, Map 30G, Parcel 22 (0.24 acres)
Construction Dates: circa 1950

Description: The Lilly Property (S-027) is a rectangular (28 ft. x 36 ft.) one-story vernacular hipped cottage located on a 0.24-acre tract immediately north of County Road 24/16, east of the railroad corridor and west of U.S. 60 (Midland Trail) (Figures 101 and 102). Built as a single-family house in the late 1940s or early 1950s, the light frame structure rests on a raised concrete block foundation built into the gentle slope of the house lot. The foundation conceals a full basement, accessed by a basement entrance excavated into the south elevation. The fenestration is regular and balanced throughout, and the house features a central doorway and window bays inset with one-over-one-light double-hung sash vinyl replacement windows, set singly and in pairs. The façade is covered by a large gable-front porch roof supported by metal columns set in the raised concrete block and slab concrete porch foundation. The exterior of the house is covered with vinyl siding. The low-pitched hipped roof and porch roof is covered with asphalt shingles. There is no driveway on the property, and the house is joined by a modern carport and earlier wood frame storage shed.

History: Although the building materials and form suggest a recent vintage, informants in the field insisted that the building was over 50 years of age. The house is located on a large corner lot, and is closer to the road than the nearby ranch houses, all of which are substantially set back from the roadway to accommodate a sidewalk. The house may have been built by longtime resident Samuel Benton Lilly, and is currently owned by his son Sam Lilly (Fayette County Deed Books 636:611 and Will Book 29:196). The property was subject to severe flood damage in 2001.

NRHP Evaluation: *Not Eligible.* The building is not substantially associated with events, patterns of events, or individuals important to our history in a manner necessary for inclusion in the NRHP under Criteria A and B. An example of modern building techniques, the house is not an important example of its type, period, or method of construction, and is not individually eligible under Criterion C. CRA recommends that the property is not eligible for inclusion in the NRHP under Criterion A, B, or C due to a lack of associative or architectural significance.

S-028

Name: N/A
SHPO Survey Number: N/A
Field Survey Number: S-028
Photograph: Figures 103–105
Maps: Figure 2
UTM Location: Z17 481211 4223210
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30G, Parcel 19 (0.12 acres)
Construction Dates: circa 1917

Description: S-028 fronts directly on U.S. 60 (Midland Trail), occupying an excavated level area on a small (0.12-acre) irregular lot (Figures 103 and 104). The building is protected from the flooding of adjoining intermittent stream located to the north of the property by a rough sandstone, concrete, and concrete block floodwall (Figure 105). The building is currently vacant, and set off from the road by hurricane fencing. The wood frame gable-front building consists of two components, the building core and a modern addition, each one building unit wide, two rooms deep, and one story in height. The core structure rests on a rough sandstone and concrete foundation, the addition on a raised reinforced concrete foundation. The fenestration on the building façade is symmetrical, with a narrow front door, over which is a small bracketed shed porch roof over the stone stoop. Large window bays with plain surrounds, now enclosed with plywood, flank the doorway. Notably, both long elevations of the core are blank, unpierced save for a narrow hinged doorway set into the north elevation. The partially offset modern addition obscures the rear elevation. The exterior of the core is clad with a narrow clapboard siding, set with corner boards, as well as modern vertical wood siding on the low front gable. The building is covered with a low-pitched front-gable roof covered with asphalt shingles. There is no visible chimney.

Figure 101. View of S-027 showing the house, facing northwest.

Figure 102. View of S-027 showing the house, facing southwest.

Figure 103. View of S-028 showing the store, facing east.

Figure 104. View of S-028 showing the store, facing north.

Figure 105. View of S-028 showing the floodwall, facing south.

History: S-028 is an anomaly in Glen Ferris, the rare surviving building associated with the African-American workforce drawn to the region prior to Hawks Nest Development. Its location, on a graded lot protected by a small floodwall from flash flooding, shows that it was built prior to the development of the upper portion of the Glen Ferris Housing Subdivision. According to the current property owner, the property was owned and the building was constructed as a residence by an African-American family during the expansion of the EMCO facility in 1917.

According to property owner and local historian Daniel Bender, the original owners refused repeated buyout offers from EMCO, and the house became the nucleus of the small African American community during the 1920s and 1930s. The subject building is the only remaining building in this section of Glen Ferris that was associated with this community.

Locals refers to the building as a Jenny Lind house, a regional moniker that refers to building of a simple design and construction, but also to a type of box framing consisting of a box sill resting on a series of low piers framed with vertical planks instead of studs, which supported the roof (Sullivan 1990).

Based on the building form and materials, the “Jenny Lind” house may have indeed been built in Glen Ferris circa 1917 and became the touchstone for the development of a small African-American community at the northern end of the town. Indeed, review of the 1920 Federal Census indicates only a small community of African-American railroad workers and miners in the broader district, but review of the 1930 Federal Census indicates a substantial African-American population, many in the employ of EMCO. The only African-American family shown as owning their home in the town, and the first listed among African Americans in the census is a property owned by North Carolina native and coalmine worker Pinckney Broadnax and his

family, who lived nearby and worked in the New River and Pocahontas Coal Company operations, surrounded by other miners and workers in the EMCO facility (Federal Census 1930). A building appears on the 1931 USGS 15' topographic map (Fayetteville, W.VA 1931). The property was owned for years by Daniel B. Benda Sr., a longtime resident of the area, and is currently owned by Daniel and Bruce Benda Jr. who acquired the property in 1993 (Fayette Count Deed Book 516: 475).

NRHP Evaluation: *Eligible.* Based on the building form and materials, the information obtained from tax records and the landowner interview, supported by available census data, CRA recommends that S-028 is eligible for the NRHP under Criterion A for its association with the migration of African Americans to the Glen Ferris area prior to the development of the Hawks Nest Tunnel, the rare surviving example of a building associated with a class of workers who shaped the industrial history of the region. Although the individuals associated with the property were clearly important to the history of the area, the specific historical associations and individuals cannot be substantiated, and the property is not eligible under Criterion B. Although an intact example of the regionally popular form of rough vernacular housing known as the Jenny Lind house, the building is not eligible for the NRHP under Criterion C because it is not an architecturally important example of the type or method of construction, which is typically manifested only in relation to other extant examples with a shared historical association, common to this type of housing.

CRA recommends of S-028 is eligible for the NRHP under Criterion A for its association with African-American migration to the area associated with the industrial development of the valley between circa 1917 and circa 1930, prior to the construction of the Hawks Nest Development. The building retains integrity of location, design, workmanship, materials, and association, qualities that overcome the changes to the setting. The historic property boundary conforms to the irregular 0.12-acre tract.

S-029

Name: C&O Railroad Bridge over Cane Branch
SHPO Survey Number: N/A
Field Survey Number: S-029
Photograph: Figures 106–110
Maps: Figure 2
UTM Location: Z17 484160 4222905
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 31, Railroad Parcel
Construction Dates: 1904

Description: S-029 is the railroad bridge now carrying CSX tracks over Cane Branch (Figure 106). The original bridge over Cane Branch dates from the 1904 construction of the spur line. The engineered post truss features 16 bents found on cut sandstone blocks, tie-cribs, and reinforced concrete, built in part into a reinforced concrete dam that regulates the flow of the Cane Branch under the bridge, preventing washouts from flash flood events (Figure 107). Typically, the railroad used wooden trestles to cross-spans higher than 20 feet from grade. Most often constructed of yellow pine, early wooden trestles were often replaced with metal or concrete structures; it is unusual for wooden structures of this size and type to persist in the landscape (McVarish 2008:86). The 214-foot long, 50-foot tall trestle consists of ties and rails supporting an open wooden deck supplemented by an open metal grate walkway on the upstream side (Figures 108–110). The deck, which supported the weight of fully loaded coal cars, rests on heavy wooden tie stringers, which in turn rest on the heavy cap members that top each bent. Each bent in turn rests on a series of pilings and brace pilings joined by both diagonal and horizontal sway braces. The pilings rest on stone and reinforced concrete piers that are excavated into bedrock.

Figure 106. View of S-029 showing the trestle, facing northeast.

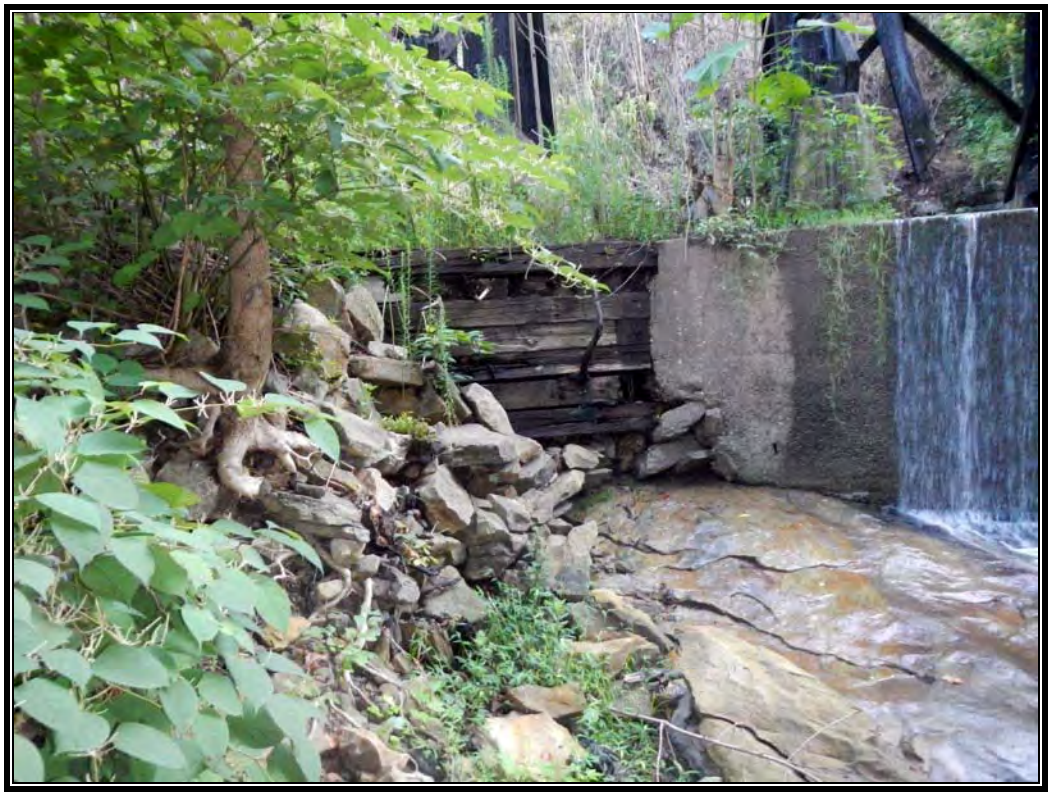

Figure 107. View of S-029 showing the trestle foundation, facing northeast.

Figure 108. View of S-029, showing the trestle, facing northeast.

Figure 109. View of S-029, showing the trestle, facing south.

Figure 110. View of S-029, showing the trestle, facing southeast.

History: After two decades of serving primarily as a truck line through West Virginia, the C&O changed tact and aggressively developed is rail network through the southern West Virginia coalfields and emerged as a major coal carrier. In the year before the construction of the bridge, the C&O, working in collaboration with competing carriers, acquired control of smaller railroads, including the Michigan and Kanawha Railroad, and focused on supplying coal to Great Lakes ports and the emerging urban and industrial systems of the upper Midwest. In part to rationalize its service in the southern coalfields and to accommodate the increase in traffic, the C&O developed the bridge in association with the railroad's Gauley Branch. The railroad trestle is located entirely within the long-established C&O Railway right of way, now an active CSX line. As part of an active line, many elements of the bridge have been replaced, although the fundamental bridge design is intact.

NRHP Evaluation*: Eligible*. The large wooden trestle likely dates from the period of the branch line's construction (1904) and is a well-known local landmark. Like other extant railroad-related resources within the APE, because of its contingent relationship with the larger rail system, the associative significance of the trestle relates to many material elements now missing from the scene. The trestle alone, although an important element of the system, cannot individually convey the significance of the system as a whole and is not individually eligible for the NRHP under Criterion A, although the WVSHPO has indicated in past project reviews that it considers the railroad corridor as eligible for the NRHP as a linear resource, and the bridge would be a contributing element to such a district.

Further, the trestle is indirectly associated with railroad promoters within the C&O system, an array of railroad engineers, and some obviously skilled craftsmen, but is not demonstratively associated with persons important to our past in a manner necessary for

consideration under Criterion B. However, the size, construction methods, and materials of the trestle combine to clearly convey its design significance as an engineering feature quickly built during the 1904 construction. The bridge is an important intact example of wooden trestle construction original to the expansion of the line, reflecting the creative use of local materials by railroad engineers and workers, and is therefore also eligible under Criterion C.

Like all active railroad-related features, the trestle has been subject to ongoing maintenance and the replacement of the tracks, ties, and some structural members. Yet, because of the simplicity of its construction and retention of its essential form, the trestle retains integrity of location, design, materials, feeling, and association, and conveys its significance through the sum of its material characteristics. As a structure, the historic property boundary includes the trestle itself, its footings and passages, its abutments, and the width of its right-of-way. The railroad trestle is located entirely within the long-established C&O Railway right of way as depicted on Fayette County Valley District Tax Map 31.

S-030

Name: Boley Property
SHPO Survey Number: N/A
Field Survey Number: S-030
Photograph: Figures 111–112
Maps: Figure 2
UTM Location: Z17 488143 4219444
NAD: 1983
Quad: Beckwith WV (1976)
Tax Parcel: New Haven District, Map 24P, Parcel 21 (0.53 acres)
Construction Dates: circa 1960

Description: The Boley Property (S-030) is located on a sloping 0.53-acre house lot in Hawks Nest Heights ridgetop residential area just south of U.S. 60, above and slightly to the south of the Hawks Nest Tunnel. The house is a vernacular gable-front cottage with gable appendage, two building units wide, three rooms deep, and one-and-one-half stories in height, and nearly square in its footprint (30 ft. x 32 ft.). The light wooden frame building rests on a raised continuous concrete block foundation built into the western hill slope, below the level of the road grade (Figures 111 and 112). The fenestration is regular and relatively balanced, the front door is offset with flanking window bays, but window bays on long elevations are evenly spaced, and inset with one-over-one-light double-hung replacement windows; the window into the end of the gable appendage is a one-by-one sliding glass window. The gable-front roof, gable-front porch roof, and gable appendages are all set with a moderate pitch and covered with asphalt shingle siding. The roofline features flush eaves and overhangs. A single concrete block chimney is located on the exterior at the center of the rear gable end. The house is joined on the property by a large exterior propane tank and modern mobile home.

History: S-030 was built as a rural non-farm residence on a residential lot occupying the western slope of a narrow ridge, just south of U.S. 60 (Midland Trail). The ridgetop was shown as undeveloped on the 1931 USGS 15-minute topographic maps (Fayetteville, WV 1931). Based on available deed and tax records, the house was built by Henry C. Mitchell and his wife Virgie in the mid-to-late 1960s. The ridgetop is shown as having been developed as a non-farm residential area on the 1969 USGS 7.5-minute topographic map, the subject house appearing just south and 170 ft. above the course of the Hawks Nest aqueduct (Beckwith, WV 1969). The property was acquired by Emma Boley in 2011 (Fayette County Deed Book 673:499 and 551).

NRHP Evaluation: *Not Eligible.* The building is not substantially associated with events, patterns of events, or individuals important to our history in a manner necessary for inclusion in the NRHP under Criteria A and B. An example of vernacular building techniques, the house is not an important example of its type, period, or method of construction, and is not individually eligible under Criterion C. The property is not eligible for inclusion in the NRHP under any criterion due to a lack of associative or architectural significance.

Figure 111. View of S-030 showing the house, facing south.

Figure 112. View of S-030 showing the house and setting, facing northwest.

S-031

Name: Glen Ferris Power Plant
SHPO Survey Number: FA-0024
Field Survey Number: S-031
Photograph: Figures 113–137
Maps: Figure 2
UTM Location: Z17 488580 4219042
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 39, Parcel 5 (464.96 acres)
Construction Dates: circa 1900, 1918-1921, 1934

Description: The Glen Ferris Power Plant facility currently has four distinct components, the West Powerhouse, the East Powerhouse, the Dam, and the Filter Building, which served a function separate from that of the actual powerhouse (Figures 113–115). The original aluminum plant was a "run of the river" hydro plant (McVarish 2008:153). Making use of the immediate geology of the mill seat, the power of the river was channeled through diversion into a short canal and then into the penstock. In this case, the actual facility was, in part, a component of the dam structure. After the construction of the modern concrete dam, Glen Farris was by the nature of the redesign a "run of the river plant with pondage," with sufficient waterpower impounded behind the dam to compensate for any seasonal variations in the river flow (McVarish 2008).

Glen Ferris Dam is a low concrete overflow dam located across the Kanawha River just above and following the contour of the Kanawha Falls (Figure 116). The spillway portion of the dam is approximately 2,850 ft. long. The dam varies in height from 3 ft. to 12 ft. above the riverbed, and it is founded on solid rock. It is composed of mass concrete except for the sluice way, trash, and intake sections. The dam contains a five-sluice wooden stop log section, and the two powerhouses are connected by a non-overflow section of dam. The stop log section has six concrete supporting piers, and wooden stop logs running the full height of the dam. The low concrete dam retains a 397-acre impoundment. The 2.2-mile-long impoundment extends from the dam to just below the confluence of the New and Gauley rivers (Figure 117).

Figure 113. View of S-031 showing the complex and falls, facing north.

Figure 114. View of S-031 showing complex, facing north.

Figure 115. View of S-031 showing complex, facing southeast.

Figure 116. View S-031 showing the dam, facing northeast.

Figure 117. View of S-031 showing the forebay and impoundment, facing east.

The West Powerhouse rests on a foundation of heavy cut sandstone blocks that predates the modern form of the facility (Figure 118). The foundation was originally set in place during the very first development in 1877 and incorporated into development of the Willson Aluminum "metal plant." The remnants of the original building have been incorporated into the existing facility and are particularly noticeable in basement levels, where the original stone foundation is supplemented by continuous reinforced concrete foundation walls and piers. The forebay of the west powerhouse consists of a headwall and two sidewalls that are founded on solid rock. The walls consist of cut stone, brick, and concrete. The intake for the west powerhouse is composed of concrete and cut stone (82 ft. wide), tapering to a width of 49 ft. at the entrance to the flumes.

The generator building is five bays deep, two bays wide, and one-and-one-half stories tall, built to allow for interior light, the circulation of air and accommodation of a lift crane for use in servicing the apparatus (Figure 119). The exterior building material on the West Powerhouse is roughly finished bricks set in common bond (6:1 header to stretcher ratio; Figure 120). The exterior is pierced by two large round arches. There are six large irregular window bays, some arched, located on the eastern elevation, inset with multi-pane windows set in metal frames (Figure 121). The building is covered with a newer metal roof.

The superstructure of the West Powerhouse is functionally and practically divided into two sections, the larger brick building housing the control panels, exciters, and battery banks – built without a substructure - and the smaller structure housing the six generators (Generators 1 through 6) and their associated equipment (Figures 123 and 124). Both aspects share a structural system, although the heavy interior wall is a remnant of the earlier building on the site, and flow between the two related components of the building accomplish through three doorways in the interior wall. The crane is supported by five reinforced concrete and steel support piles, which extend three-quarters of the way up the walls. The southern portion of the facility containing the generator room is accessed through large overhead doors opening on U.S. 60 to the west.

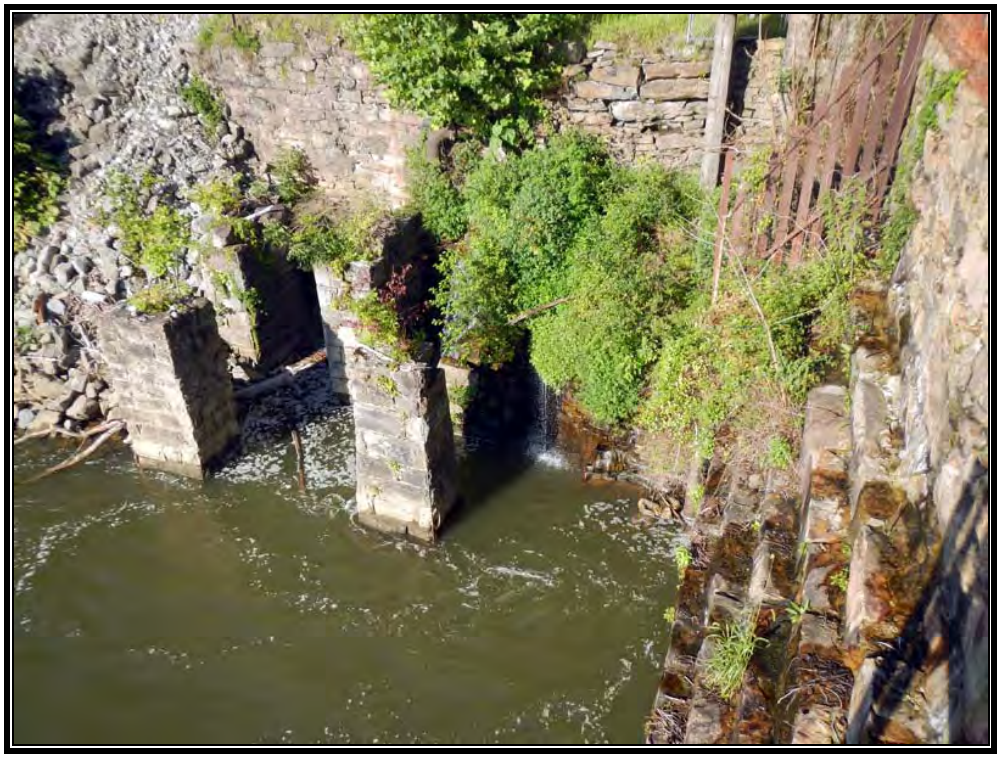

Figure 118. View of S-031 showing the foundation remnants at the West Powerhouse, facing south.

Figure 119. View of S-031 showing the West Powerhouse and Filter Building, facing southeast.

Figure 120. View of S-031 showing the eastern elevation of the West Powerhouse, facing southwest.

Figure 121. View of S-031 showing a West Powerhouse window bay, facing west.

The substructure, which incorporates the heavy cut sandstone foundation of the earlier building on the site, has a smaller area than that of the superstructure above (Figure 122). The control bench, voltage regulation, and relay switchboard for the Glen Ferris plants are located on the generator room (Figure 123). In the case of the West Powerhouse, the control room and generators are housed in two separate, but connected and integrated structures. The generators are arranged two by three and were narrowly placed off-center to the west within the larger buildings (Figure 124). The six generators are linked by a steel coupling to rotating turbines in the substructure; the coupling area is accessed through a small grated floor in the "half story" of the substructure (Figure 125).

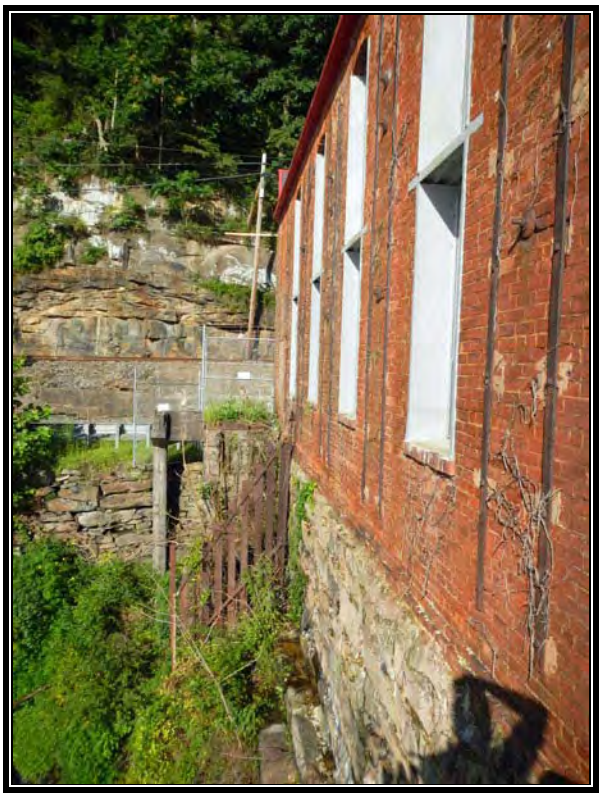

Figure 122. View of S-031 showing the wall and foundation, facing west.

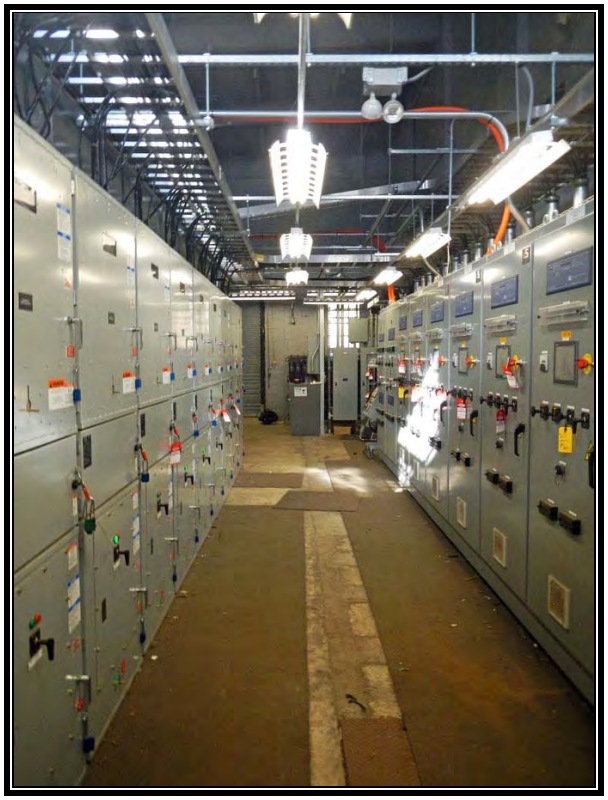

Figure 123. View of S-031 showing the West Powerhouse control room, facing east.

Figure 124. View of S-031 showing the West Powerhouse generator floor, facing east.

Figure 125. Electro Metallurgical Company turbines, February 1914 (West Virginia State Archives, Hawks Nest Tunnel Collection).

There are several prominently placed fireboxes located throughout the West Powerhouse, likely placed in response to the 1911 fire that required the reconstruction of the facility. The West Powerhouse was rebuilt in 1918-1921. Although the building retains some of its original design dating from its reconstruction and expansion, and much of its original materials and workmanship, the mechanical apparatus requires near constant maintenance, resulting in small scale (and some large scale) changes over a long period. There are hints of modern and Classical Revival styling in the building design, but its overall aesthetic is that of an industrial functionality.

The East Powerhouse, the newer of the two structures, built circa 1921, displays a modernistic simplicity and subtle Art Deco design flourishes (Figures 126–128). Like any powerhouse, this building features a tall and open superstructure and less visible but structurally more consequential substructure. The integral concrete intake is 62 ft. wide at the rack section. The substructure contains three open concrete flumes (15 ft. 45 ft.). Each flume is equipped with a stop log section at its entrance. The two steel turbine draft tubes are connected to a common 8 1/2-ft steel draft tube leading to the tailrace. The east powerhouse substructure contains two open concrete flumes.

In contrast to the West Powerhouse, which contains two rooms and the elements of several earlier structures incorporated into its design, the superstructure of the East Powerhouse contains only one open space housing two large generators (Generators 7 and 8) and their attendant control apparatus, all built anew by a then highly capitalized firm (Figure 129). The superstructure is two large building units wide, four bays deep, and one and one half stories in height. The rectangular building (38 ft. 10 in. x 34 ft. 2 in.) is oriented with its low gable roofline perpendicular to the river flow.

Figure 126. View of S-031 showing the East Powerhouse, facing south.

Figure 127. View of S-031 showing the East Powerhouse, facing south.

Figure 128. View of S-031 showing the East Powerhouse, facing southeast.

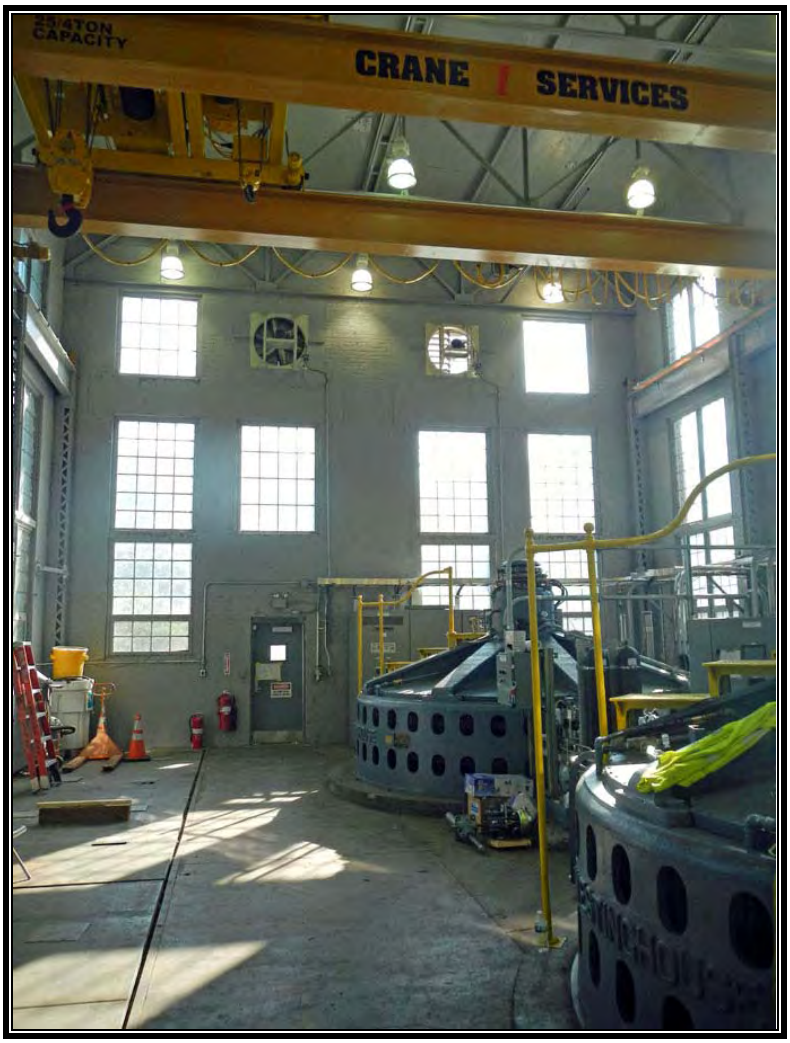

Figure 129. View of S-031 showing East Powerhouse the superstructure interior, facing southeast.

The exterior of the building reveals something of its steel, brick, and concrete structural system with pilasters running the full height of the side and end elevations (three vertical members splitting the two bays on the east and west, five splitting four bays on the north and south). The two-part width of the building is evident on the west elevation, which features a massive entryway on the northern portion and two long window bays on the southern portion. The horizontal architectural elements reflected the interior structure of the buildings.

The window bays include four on each elevation, excepting the absence of two lower wind banks at the large entryway into the west elevation (Figures 130 and 131). The entry way is a five-panel arrangement with a central doorway. The window bays consist of two rectangular twenty-pane windows in set in the lower bay, with a single 15-pane window located above the horizontal band of concrete into the open half story. The large entryway on the west elevation is topped by two 15-pane windows. The elongated recessed window bays are an important architectural element, and each bay is topped with a band of brick corbelling (Figure 132). The roof is a very low-pitched front-gable roof that is supported by a light roof truss. The low pediment is inset with galvanized iron flashing (Figure 133). The East Powerhouse opens onto the newly constructed concrete bridge, and a doorway on its east elevation opens to a small stair and walkway overlooking the dam.

Figure 130. View of S-031 showing East Powerhouse window detail, facing northeast.

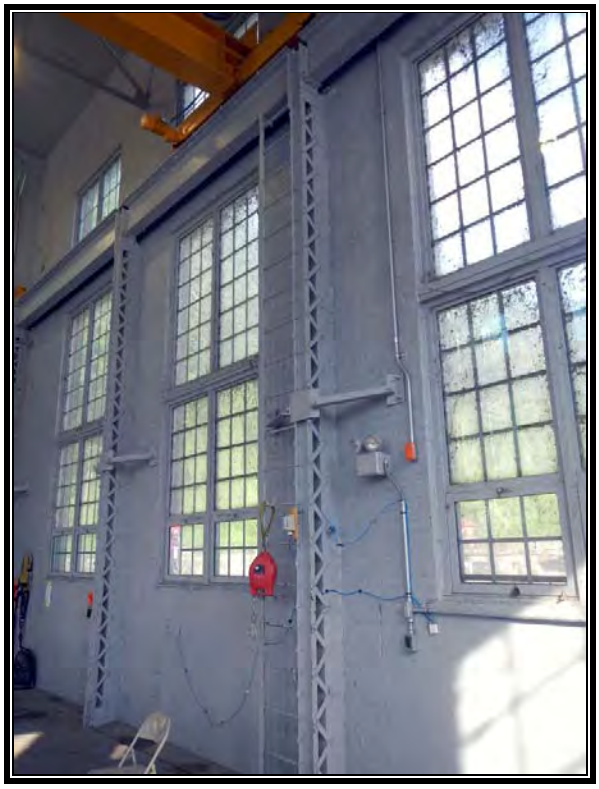

Figure 131. View of S-031 showing the East Powerhouse interior, facing southeast.

Figure 132. View of S-031 showing East Powerhouse window detail, facing south.

Figure 133. View of S-031 showing East Powerhouse window and gable detail, facing east.

The Filter Building served a water filtration function, pumping water to a large water storage tank on the hilltop above Glen Ferris. The building is located on a raised foundation between the east and west powerhouses (Figure 134). The filter plant was a part of the larger water system that supplied filtered water at a rate of 190 million gallons per year. The Filter Building is covered with a flat roof supported by I-beam joists. The filter station was sold by the Union Carbide Corporation to Kanawha Falls Public Service District on February 14, 1958 (Fayette County Deed Book 214:51). The sale of the Filter Station also included the 100,000-gallon hillside water tank.

The flat area to the north of West Powerhouse, now covered with a platform that rests on concrete piers, is known as the "furnace stack" and was the site of the original furnace that occupied the site. The now-vacant reinforced concrete structure built over the headrace is now known as the "locker room" or wash house, built originally to function as an office; it once housed a doctor's office and clinic (Figures 135–137). This structure rests on reinforced concrete pillars over the stone headrace. The large stepped stone wall built at the front of the headrace was hand cut through bedrock and was a component of the first modern industrial development at the falls. A new reinforced concrete bridge structure was recently constructed to connect the East Powerhouse to U.S. 60, allowing for the easier movement of equipment and maintenance activities during a recent rehabilitation of the facility. Workers completed the rehabilitation of the two larger generators (Unit 7 and Unit 8) and the generators were placed back into service in 2011. The six smaller generators (Units 1 through 6) are currently being completed and will all be returned to service.

Figure 134. View of S-031 showing the Filter Building, facing northeast.

Figure 135. View of S-031 showing the locker room, facing east.

Figure 136. View of S-031 showing the locker room and headrace, facing northwest.

Figure 137. View of S-031 showing the locker room and headrace, facing northwest.

History: Please refer to Historic Context on Glen Ferris in Section III.

NRHP Evaluation: *Eligible***.** Glen Ferris Power Plant is eligible for the NRHP under Criteria A and C as the Glen Ferris Development Historic Site, significant for its association with the industrial development of the Kanawha Valley from 1898 to the present. The entirety of the Glen Ferris Development was the site of significant events and patterns of events, a place where the location itself possesses historic and cultural value (National Park Service 1996).

The development of Glen Ferris as an industrial center was part of the long history of investors working to harness the power of the falls. The immediate area first developed as a milling center, a type of enterprise that often related to later, more extensive, development projects. The geographic proximity of abundant water power, high quality metallurgical coal, and the development of a railroad network that linked material procurement sites, resource processing centers, and production sites allowed for the development of the highly specialized production of alloy metals, essential elements in the production of steel, as well as the development of an array of specialized commercial and industrial products, and industry that would reshape the entire physical and cultural environment of the New-Kanawha valley.

The collection of intact elements, including the East and West Power Houses, the Filter Building, foundation remnants, locker room, dam, and impoundment are collectively eligible under Criterion A and can clearly convey through the sum of their material characteristic importance of the development of Kanawha Falls as an industrial site and its centrality to the industrialization of the region, a significant historic process. Although associated with an array of important figures from American industrial history, including Thomas Willson and J. Turner Morehead, the property is not

significant in a manner necessary for NRHP consideration under Criterion B.

Portions of the property, including the East and West Powerhouses and the dam, are important examples of turn of the century industrial architecture, and are also eligible under Criterion C for their architectural significance, the West Powerhouse as an example of a turn of the century hydroelectric generating facility associated with Wilson Aluminum, and the East Powerhouse as an example of a later, more explicitly modern facility associated with the Electro-Metallurgical Corporation, who also built the dam in its modern form. Although subject to a recent renovation and the loss of associated industrial structures throughout its operational life, the extant collection of buildings, structures, and landscape features, including the falls and impoundment, convey its associative and architectural significance through its location, design, workmanship, materials, setting, feeling, and association.

CRA recommends that the historic property boundary includes the entirety of the property associated with the Glen Ferris Development, including the dam, impoundment, both powerhouses, and all accoutrements.

S-032

Name: Hawks Nest Dam and Intake
SHPO Survey Number: N/A
Field Survey Number: S-032
Photograph: Figures 138–153
Maps: Figure 2
UTM Location: Z17 488580 4219042
NAD: 1983
Quad: Beckwith WV (1976)
Tax Parcel: Valley District Map 39, Parcel 5
Construction Dates: 1930-1934

Description: The Hawks Nest Dam structure is a total of 948 ft. long and 65 ft. high; the dam proper is 850 ft. long between its abutments (Figures 138–140). The Hawks Nest Dam created a 3.65-mile long impoundment extending upstream to a point just west of the modern New River Bridge (Figure 141 and 142). The total length of the impoundment shoreline is approximately 8.5 miles. The normal operating range for the reservoir is 819.0 ft. to 819.5 ft. The immediate forebay of the dam, the area within which stream flow is generally still and water is channeled in to tunnel, is demarcated by a series of buoys and a wire recreation safety barrier (Figure 143). The impoundment has a surface area of 243 acres. A 5.5-mile-long segment of the New River, the bypass reach, extends between the Hawks Nest Dam and powerhouse (Figure 144).

The modernist simplicity of the dam design is reflected in the regularly and relative lightness of its structural system. The dam consists of 14 spillways each with a span of 50 ft. between the piers 25-ft. high by 50-ft.-wide lift gates and six chute spillways located in the southeastern portion of the structure. A 10-foot-long waste gate at eastern end of the spillway is used to discharge the minimum flow. There is a small sluice gate and small turbine for generating local emergency electricity located next to the western abutment (Figure 145).

All hydroelectric facilities share characteristic features, such as a headwater, the dam, the penstock, the turbine, the generator, tail water, and after bay (McVarish 2008:153). The dam creates the head of water, conventionally channeled over a much small distance that in this case is supplemented by the long drop of the tunnel on its way from the reservoir to the penstock. In this case, the tunnel carries the water from the reservoir to the penstock via the audit and surge basin. The force of the water pushes the turbine blades and turns the rotor to generate electricity (McVarish 2008:153).

Figure 138. View of S-032 showing the Hawks Nest Dam, facing northeast.

Figure 139. View of S-032 showing the Hawks Nest Dam, facing south.

Figure 140. View of S-032 showing the Hawks Nest Dam, facing southeast.

Figure 141. View of the S-032 showing the Hawks Nest Dam from the Hawks Nest Overlook, facing west

Figure 142. View of S-032 showing upper portion of Hawks Nest Lake, facing east.

Figure 143. View of S-032 showing the Hawks Nest Dam, facing southeast

Figure 144. View of the lower end of the bypass reach, the dries, facing east.

Figure 145. View of S-032 showing the western end of the Hawks Nest Dam, facing northeast.

The Hawks Nest Dam is a hybrid of a "solid gravity concrete dam" in its heavy substructure and a lighter "buttressed concrete dam" superstructure that consists of a series of 14 parallel and equidistant concrete buttresses supporting the sloping downstream face of the structure (Figures 146 and 147). The concrete structure supplants the log and stone cofferdams that were initially used to divert the river flow during the construction of the dam. The concrete used on the Hawks Nest Development was specified to be a 1:3:5 mixture of cement sand and gravel using local sandstone aggregates for the main pours and the rougher 1:3:4 mixture on spillways. The small spillway, tunnel in-flow and six regulating gates are covered with trash racks, to prevent the introduction of debris in the penstocks or turbine mechanisms.

The Hawks Nest Dam was designed so as not to fundamentally alter the water flow of the river or submerge the banks upstream. Founded on two abutments cut into bedrock, the dam substructure consisted of a long, low concrete gravity dam built of continuous reinforced concrete built in 31 sections to support 14 crest gates. The dam structure relies on the 14 heavy reinforced concrete buttresses which provide critical support to both the subsurface elements and support the 14 spillway abutments and associated crest gates (Figure 148).

The subsurface portion is run through with an inspection tunnel and six tubes that served as regulating gates (Figures 149 and 150). The entries into the substructure on either side of the dam feature a stylized concrete wall and a single doorway into the downstream face. The height of the subsurface portion of the dam varied to account for the channel depth and to accommodate six steel lines sluices located at gates 5-7 (as measured from the east), each approximately 8 ft. in diameter and controlled by a 9-ft butterfly valve located in the inspection tunnel.

Figure 146. View of S-032 showing the western end of the Hawks Nest Dam and Tunnel Intake, facing northwest.

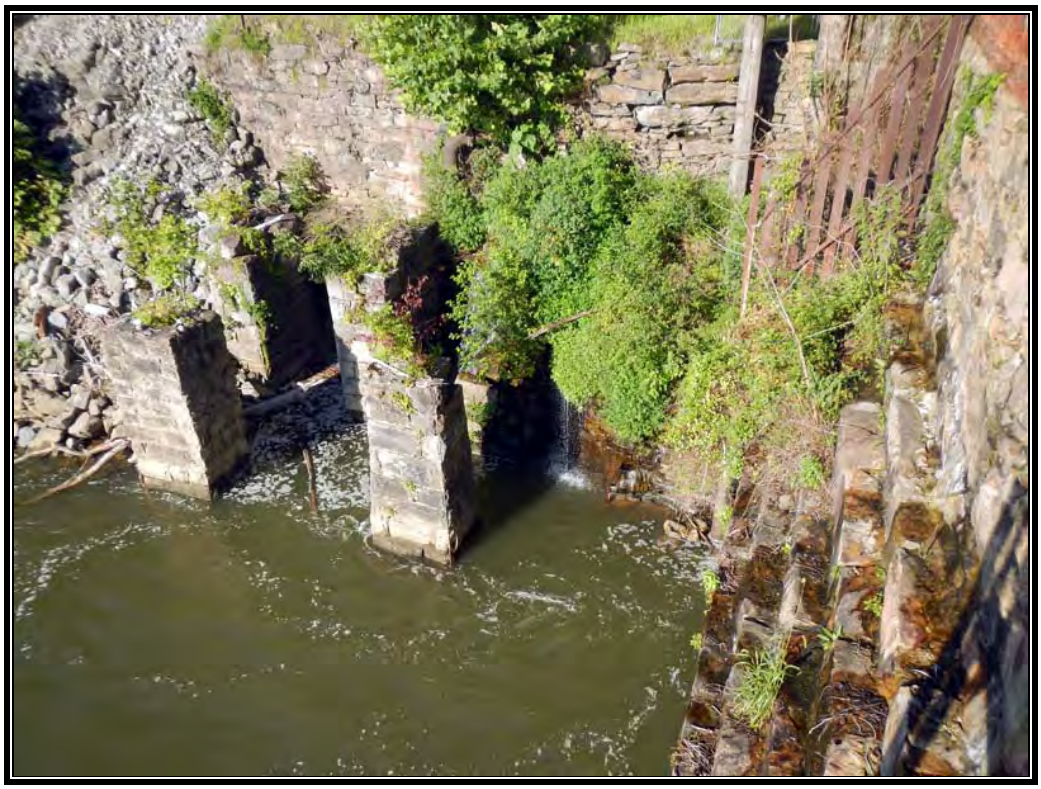

Figure 147. View of S-032 showing eastern end the Hawks Nest Dam, facing south.

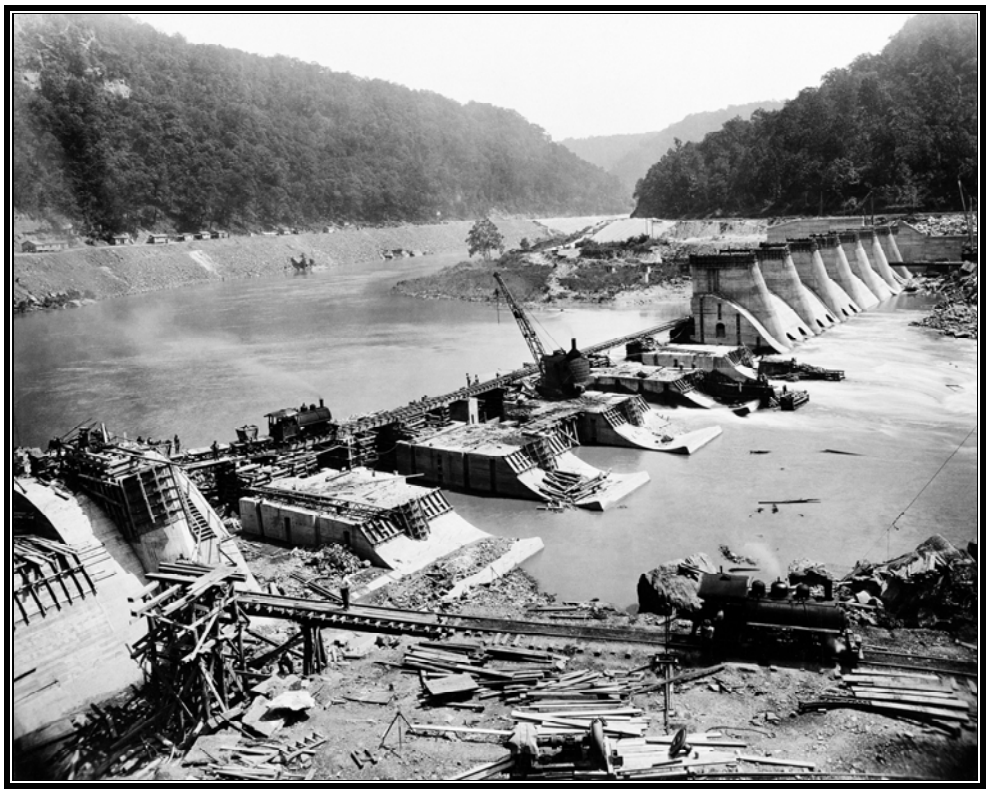

Figure 148. Dam during the hydroelectric power construction on the New River, August 31, 1931 (West Virginia State Archives, Hawks Nest Tunnel Collection).

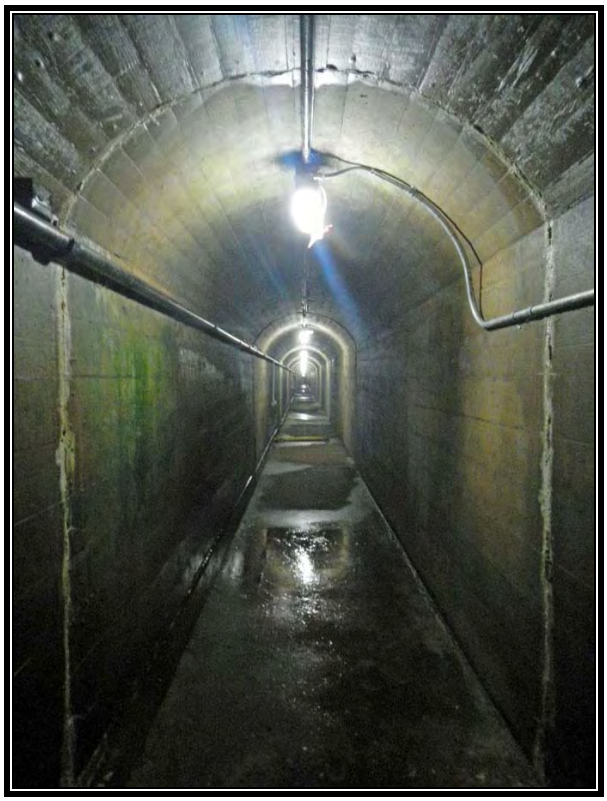

Figure 149. View of S-032 showing the inspection tunnel, facing southwest.

Figure 150. View of S-032 showing the inspection tunnel at the chute spillways facing southwest.

The purpose of the spillways was to allow for excess headwater to flow over the dam (Figure 151). The flow is regulated by the crest gates that are used as spillway control in which the gate is raised to allow the passage of water. Each gate opens into small open spillways on the convex downstream face of the dam. These spillways are nearly always gated, but are nonetheless an important feature of the design. The entire dam structure is served by a side spillway consisting of a concrete lip and an excavated channel located on the northwestern end of the dam.

The gates are lifted through the use of two large steel gantries located on either side of the dam and moved into position to lift the gates. The gantries themselves run along a track system and consist of a tapered vertical members topped by a stylized rectangular structure that houses the hoist mechanisms (Figure 152). The gantry is operated in a small control room located at its centers. The two travelling gantry cranes were designed to operate the head gates on the dam, which were raised and lowered by drum hoists built into the structure of the gantry.

There is a massive intake gate suspended over the tunnel intake near a vertical rock face (Figure 153). The structural steel gate, lift mechanism, and steel frame are designed to slide over the intake in an emergency, when the gate would be lowered, powered by electricity generated at the western end of the dam (which has never occurred during the operation of the facility). The intake opening is rectangular in shape (111.5 ft. by 52.5 ft.) and equipped with a bulkhead intake gate, recessed 50 ft. from the intake opening. The trash rack (110 ft. wide and 51 ft.) is cleaned by an electrical trash rake. The gate is electrically operated and has dimensions of 42 ft. high by 34.5 ft. wide, with two internal 4.5-ft square- shaped "filler" gates that can be independently operated.

Figure 151. Dam during the hydroelectric power construction on the New River, December 29, 1932 (West Virginia State Archives, Hawks Nest Tunnel Collection).

Figure 152. View of S-032 showing the Hawks Nest Dam and gantry crane, facing southwest.

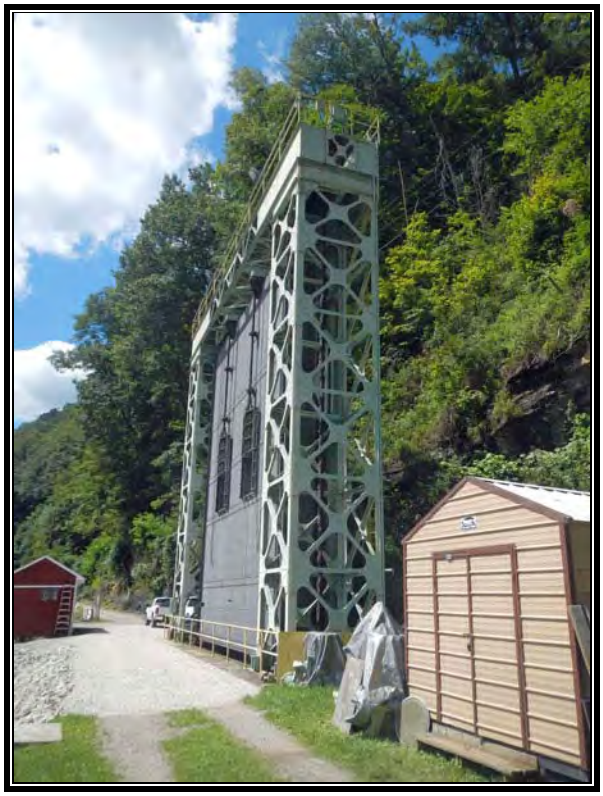

Figure 153. View of S-032 showing the Tunnel Intake, facing southwest.

History and NRHP Evaluation: The Hawks Nest Dam and Intake (S-032) are an integral part of the Hawks Nest Development, one part of a much larger industrial complex that includes the Hawks Nest Surge Basin (S-033), Tunnel and Hawks Nest Powerhouse (S-034), and associated landscapes (Chambers 2004:117). The components of the Hawks Nest Development are functionally and practically related and share a common history, summarized in the Historic Context in Section III. The three related resources (S-032, S-033, and S-034) were collectively evaluated for the NRHP in an evaluation that follows the discussion of the Hawks Nest Powerhouse (S-034), below.

S-033

Name: Hawks Nest Surge Basin
SHPO Survey Number: N/A
Field Survey Number: S-033
Photograph: Figures 154–157
Maps: Figure 2

UTM Location: Z17 484607 422237
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30, Parcel 15
Construction Dates: 1930-1934

Description: Water is conveyed from the reservoir to the Hawks Nest Powerhouse through the 16,250 ft. long tunnel. The Surge Basin is located at the base of two tunnel sections to serve a specific function, to reduce or eliminate "water-hammer pressure" from the long, closed tunnel section by providing a bypass and outflow. The small tunnel audit (54 ft. x 20 ft.) is located toward the eastern end of the basin, and a large (155 ft. wide) concrete spillway empties into the New River at the southwestern corner of the massive (695 ft. x 164 ft.) concrete basin (Figures 154 and 155). The bottom of the basin is at an elevation of 800 ft., and the top of the parapet wall around the basin is at an elevation of 830 ft.

Figure 154. View of S-033 showing the Surge Basin, facing northwest.

Figure 155. View of S-033 showing the Surge Basin, facing southeast.

The basin, excavated during the course of the tunnel construction, is built as a shallow recess from large slab sections of reinforced concrete, with a larger, built up area over the adit. The basin outflow, which includes a concrete and rubble spillway leading to the New River, is located at the northwestern corner of the structure (Figure 156). The basin is surrounded by a low balustrade of reinforced concrete inset with recessed panels, and supplemented with a woven wire fence (Figure 157).

The Surge Basin was built to receive water through an in-flow audit. The Surge Basin was designed to allow the volume of water being channeled through to escape if the gates at the head shaft would need to be shut or if there were a serious power failure. The intermediate Surge Basin is located just inside the Falls Township line. The site was critical to the successful completion of the project, serving as a staging area and entry point into two the tunnel faces.

History and NRHP Evaluation: The Hawks Nest Dam and Intake (S-032) are an integral part of the Hawks Nest Development, one part of a much larger industrial complex that includes the Hawks Nest Surge Basin (S-033), Tunnel and Hawks Nest Powerhouse (S-034), and associated landscapes (Chambers 2004:117). The components of the Hawks Nest Development are functionally and practically related, and share a common history, summarized in the Historic Context in Section III. The three related resources (S-032, S-033, and S-034) were collectively evaluated for the NRHP in an evaluation that follows the discussion of the Hawks Nest Powerhouse (S-034) below.

Figure 156. View S-033 showing the Basin spillway, facing northwest.

Figure 157. View of S-033 showing Basin balustrade and fence, facing north.

S-034

Name: Hawks Nest Power House
SHPO Survey Number: N/A
Field Survey Number: S-034
Photograph: Figures 158–193
Maps: Figure 2
UTM Location: Z17 484607 422237
NAD: 1983
Quad: Gauley Bridge WV (1976)
Tax Parcel: Valley District, Map 30, Parcel 15 (464.61 acres)
Construction Dates: 1930-1934

Description: The Hawks Nest Powerhouse complex consists of the powerhouse proper and the heavily excavated site, the external transformer yards, retaining walls, and a railroad spur (Figures 158–161). The railroad branch built to access the tunnel head and power plant site branches off the C&O mainline just north of the New River Bridge, running through cuts supported in places by a retaining wall until paralleling the roadway to the powerhouse site (Figure 162). The powerhouse rests on a rectangular footprint that is roughly oriented from the north to the south (approximately 61 ft. x 208 ft.). A low one-story control room appendage projects off of the eastern elevation (approximately 19 ft. x 118 ft.)(Figure 163). The generator lead conduit column, feeding the transformers, is located immediately to the northeast of the control room extension (Figure 164). The "outdoor station," consisting of the main transformers and the switchyard rests on a structural concrete slab and column system that covers the penstock manifold.

Figure 158. View of S-034 showing the Powerhouse, facing southeast.

Figure 159. View of S-034 showing the Powerhouse, facing east.

Figure 160. View of the S-034 showing the Powerhouse, facing northeast.

Figure 161. View of S-034 showing the Powerhouse, facing north.

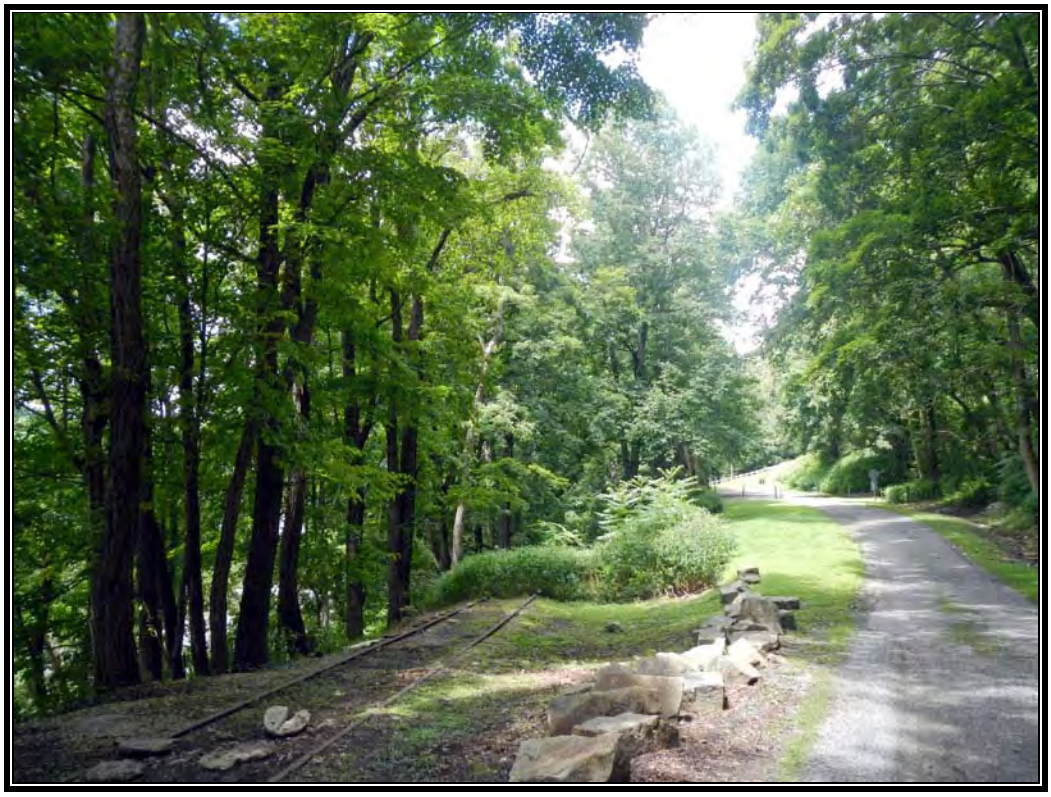

Figure 162. View of S-034 showing the railroad spur line and access road, facing south.

Figure 163. View of S-034 showing the powerhouse appendage, facing southwest.

Figure 164. View of S-034 showing the transformers, facing southeast.

The powerhouse supports and houses the hydraulic and electrical equipment, including the turbines and control mechanisms (McVarish 1928:166). Like all powerhouses, both the Hawks Nest Powerhouse and the Glen Ferris Powerhouse are divided into two sections, the superstructure, which provides the protective cover for the generators and houses the control room, and the more structurally substantial substructure, which houses the turbines and generators (Figure 165). Horizontal features, such as the band of concrete at the base of the superstructure (Figure 166), and the horizontal panels above the window arches (Figure 167), likewise reflect the structural system.

The Hawks Nest Powerhouse was originally designed as a five-turbine operation, but was subsequently downscaled to a four-turbine arrangement due to sufficient capacity, or as some critics suggest, to account for the widening of the tunnel diameter to take advantage of the high quality of silica encountered during the tunnel excavation. The "tunnel itself, deep underground and filled with water, was a hidden artifact that could only be imagined" (Cherniack 1986:2; Figure 168). Approximately two-thirds of the tunnel was lined with concrete or steel-lined; the remainder is unlined. The sections that are lined with concrete and steel are generally circular, while the unlined sections are less regular in shape. The section in the vicinity of the Surge Tank and penstock, which was reconstructed in 1934-5, features an approximately 2,600-ft-long section that is steel lined. After the water has passed through the tunnel, it enters the penstocks, which are a series of four circular pressure conduits that channel the water to the turbines. The tunnel is in effect part of one long low-pressure intake that channels the water into the penstock (McVarish 2008:161).

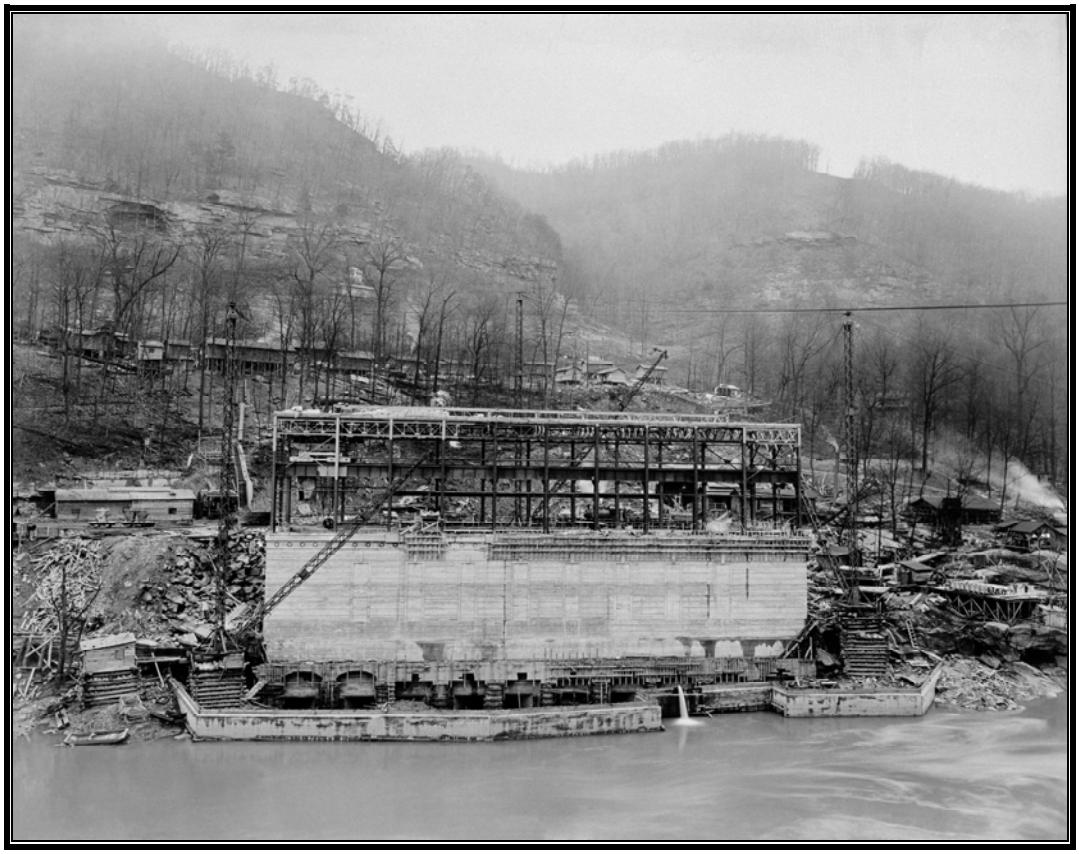

Figure 165. Powerhouse during the hydroelectric power construction on the New River, December 31, 1931 (West Virginia State Archives, Hawks Nest Tunnel Collection).

Figure 166. View of S-034 showing the Powerhouse façade, facing south.

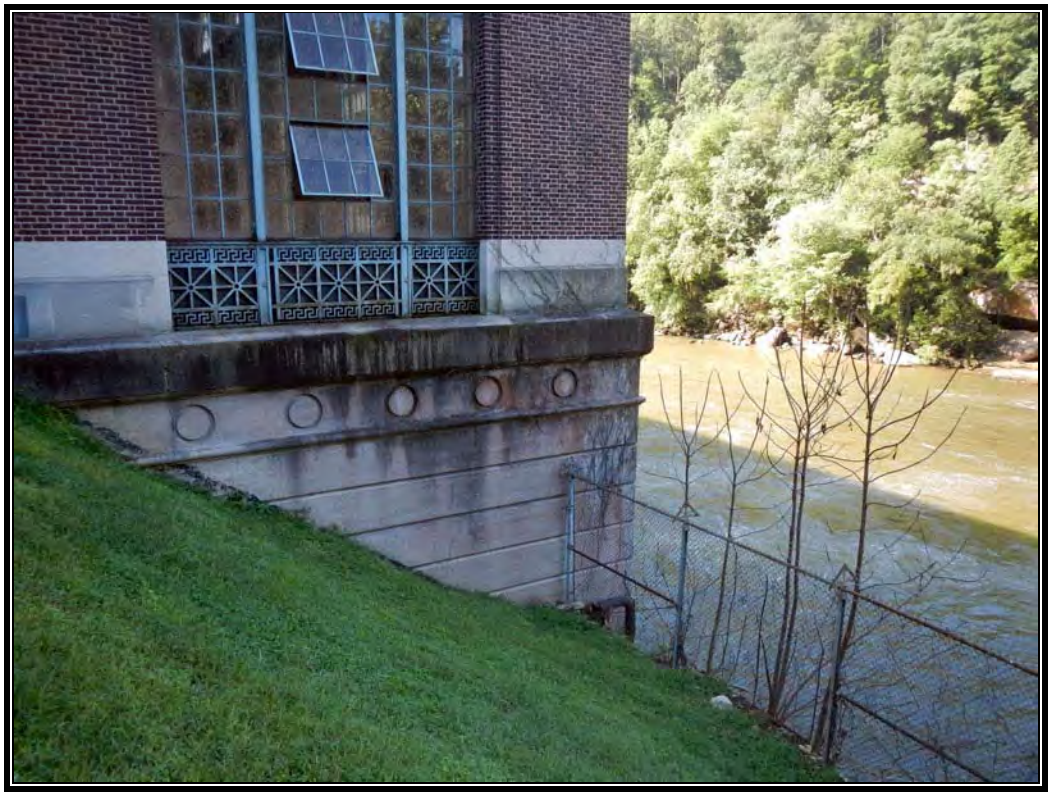

Figure 167. View of S-034 showing the Powerhouse foundation, facing southeast.

Figure 168. View into tunnel during the hydroelectric power construction on the New River. View shows downstream end of completed invert section of tunnel, March 13, 1932 (West Virginia State Archives, Hawks Nest Tunnel Collection).

The overall width of the powerhouse is 61 ft. including the small 4 ft. wide protrusion over the tailraces on the western elevation. The one-story control room and subsurface support rooms extend only 19 ft. from the edge of the powerhouse proper, and the control room appendage extends 26 ft. above ground level. The building was designed to accommodate five turbines, with the axis of each set 40 ft. apart from each other and 25 ft. from each end elevation, only four of which were ever installed. The fitting for the fifth turbine remains intact.

The powerhouse superstructure is made of structural steel and brick backed with concrete. The exterior brickwork is set in a Flemish bond set with cement mortar. There are 10 massive reinforced concrete pilasters on each long side, and two on each end support the massive open space of the generator floor - it is 110 ft. from the generator room floor to the ceiling (Figure 169). Like the older powerhouse at Glen Ferris, the fenestration and arrangement of the building in large bays reflects the nature of the steel and reinforced concrete building structures (Figures 170 and 171). The interior of the superstructure is open and spacious, to allow for interior lighting, ventilation and the massive crane structure used to lift the turbines structures for maintenance and replacement (Figure 172). The large crane is the principal mechanical member of the open generator room, resting on steel beams that are inset on heavy steel and concrete pilasters.

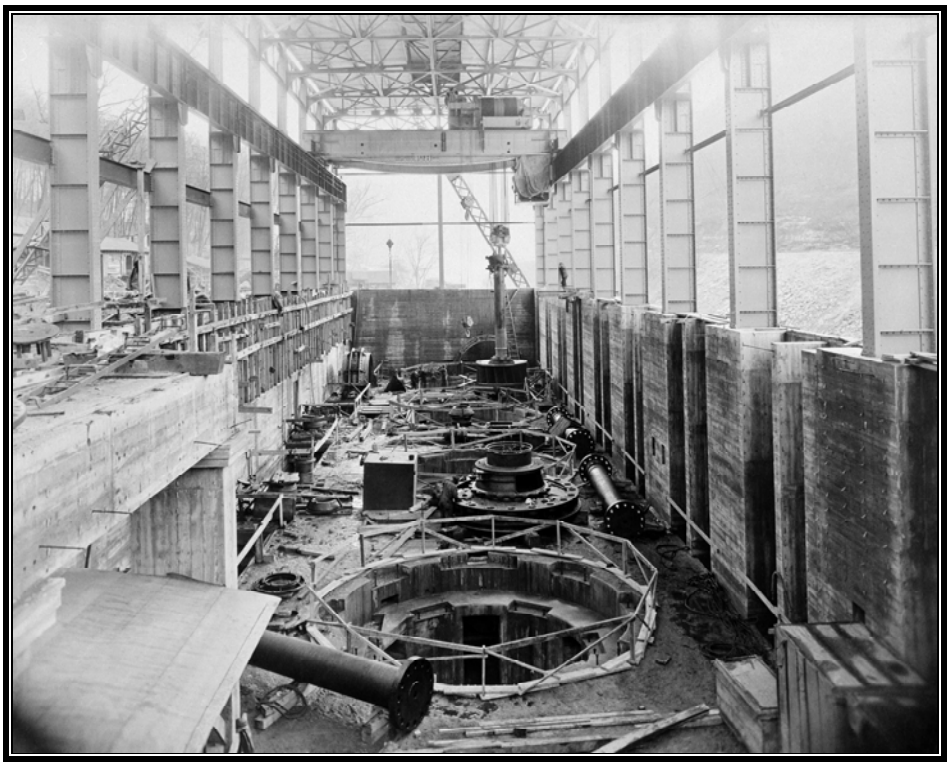

Figure 169. Powerhouse during the hydroelectric power construction on the New River. View of generator room looking upstream showing wheel pits for Units Nos. 1, 2, 3, and 4, February 3, 1932 (West Virginia State Archives, Hawks Nest Tunnel Collection).

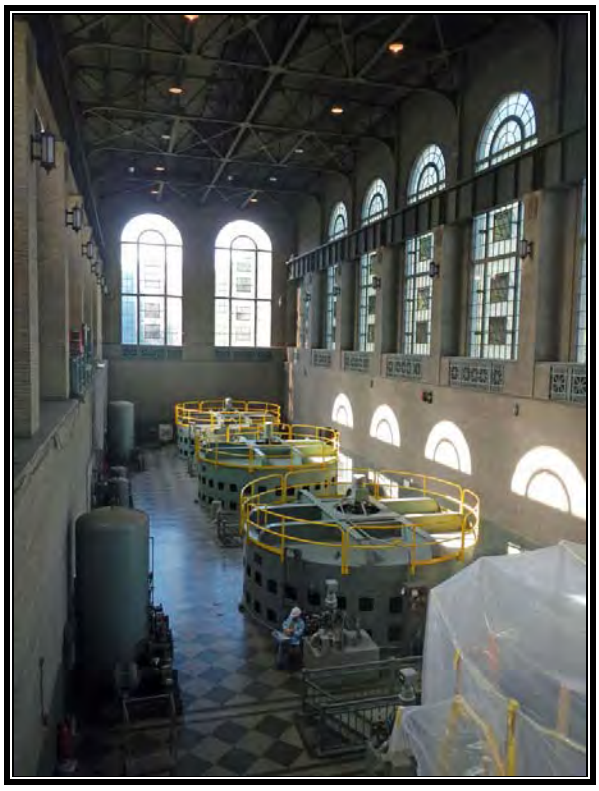

Figure 170. View of S-034 superstructure showing interior, facing south.

Figure 171. View of S-034 superstructure interior showing pilasters, facing south.

Figure 172. View of S-034 superstructure interior showing generators, facing north.

The interior of the superstructure is lit and ventilated by the bank of eight arched window bays on the riverside elevation, pairs of window bays on the end elevations, and a bank of arched windows on the eastern elevation (Figures 173 and 174). Therefore, the interior and exterior architectural elements, namely the vertical members serving as piers and appearing as pilasters, and the horizontals members, including the massive steel beams that support the crane mechanism, are reflected in the fenestration, the division of each window bay into two parts – a 90-pane lower bank inset with three six pane vents, and an upper arched arrangement.

A large terrace overlooks a portion of the generator room at the northern end, supported by a wide column and ringed with a low, Classically inspired balustrade (Figure 176). Railroad tracks enter into the superstructure through a large bay on the northern elevation, resting on the heavy terrace and loading platform located at the northeastern corner of the superstructure above the generator floor (Figure 175). The tracks are located just west of a stairway down to the generator floor and a series of removable three pivot valve hatch covers. The loading dock is a reinforced section of the generator room located below the terrace, over what would have been the fifth turbine system, designed to support the heavy equipment and machinery used to maintain and operate the plant.

Although the generator room is in fact part of the building substructure, recessed 60 ft. below the window bays and surrounded by a tapered reinforced concrete exterior wall system, it shares the large open generator room space with the superstructure. The generator room features the head units of the four 30,000 KVA, 6.5000 volt generators, as well as the related indicator stands and generator field switch panels, including a switch panel affixed to the western wall, all in all a very clean and open arrangement (Figure 177). The Westinghouse A.C. Generators were designed by the Westinghouse Electric & Manufacturing Company at their East Pittsburgh Works in Pennsylvania.

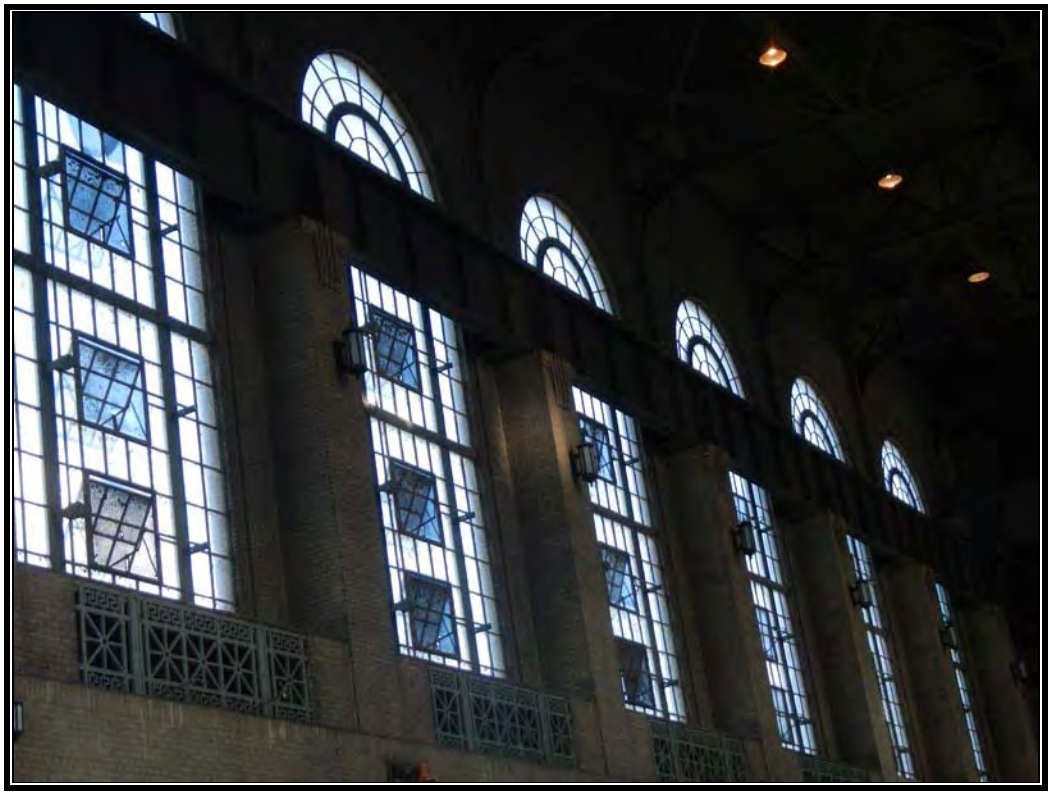

Figure 173. View of S-034 superstructure interior showing window bank, facing southwest.

Figure 174. View of S-034 superstructure interior showing a window bay, facing west.

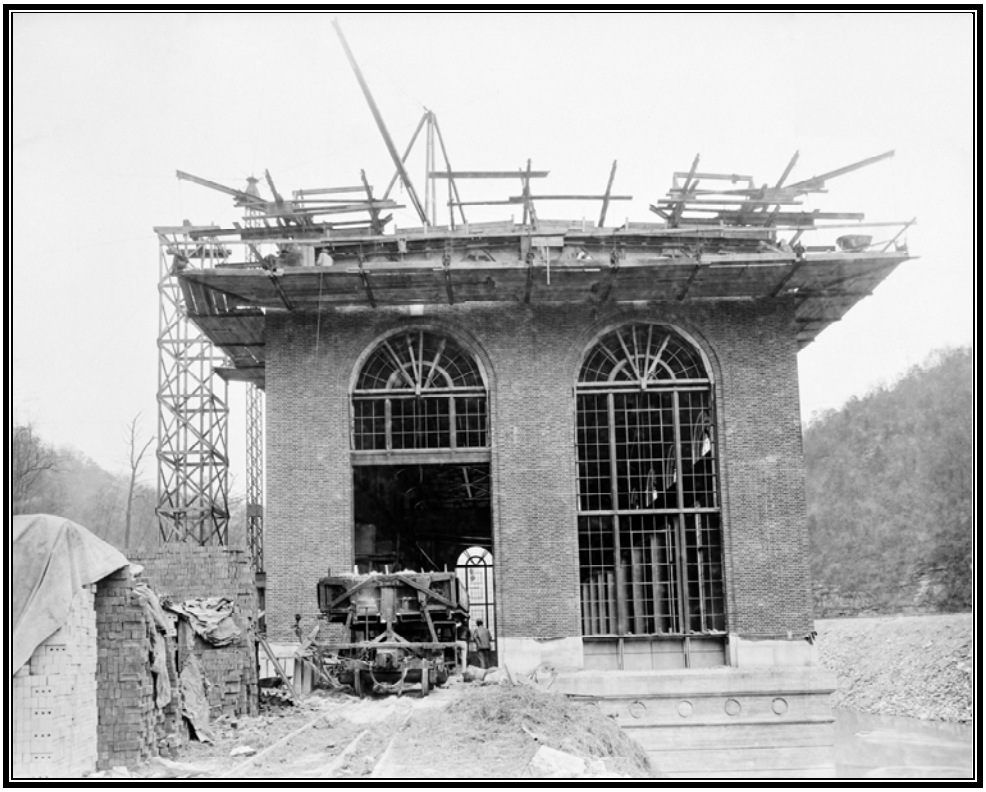

Figure 175. Powerhouse during the hydroelectric power construction on the New River, October 31, 1932 (West Virginia State Archives, Hawks Nest Tunnel Collection).

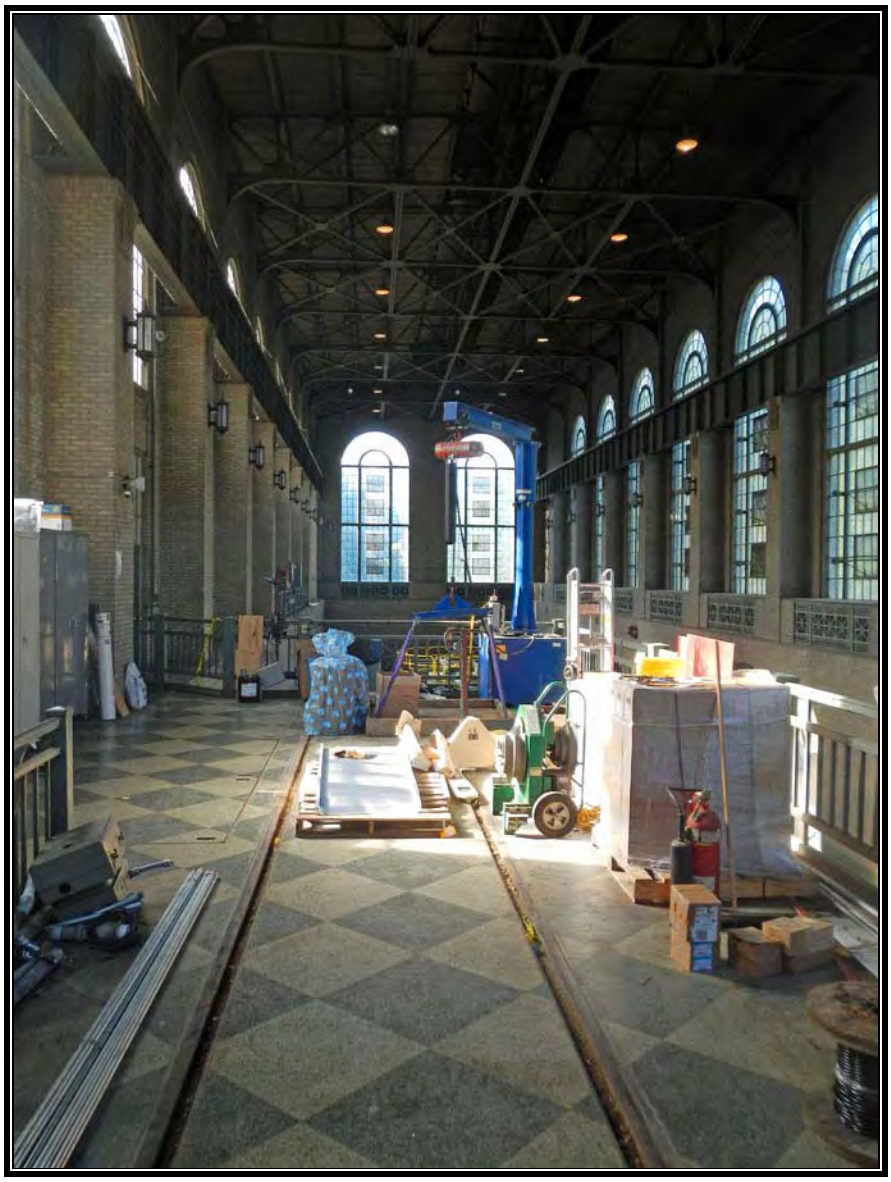

Figure 176. View of S-034 superstructure interior showing terrace, facing south.

The generators were designed as three phases, 25 cycle units rotating up to 50 times per minute. The 150-rpm hydraulic turbines were constructed by I.P. Morris & De La Vergne Incorporated, based in Philadelphia, Pennsylvania, and installed at the facility in 1931. Large overflow accumulator tanks are located along the eastern wall on the generator floor; valve accumulator tanks line the eastern wall of the coupling area (Figure 2085).

The interior generator room walls are covered in glazed brick set in places in a decorative pattern. For example, there are 10 large brickwork panels on each long elevation, interspersed with 10 smaller, vertically oriented panels, providing some surface texture in the open and plainly outfitted space. Among the decorative features are ventilation grates and balustrades featuring Moderne design elements. Other visually prominent features in the open space include light fixtures, the alarm bell, and signal light system (Figure 2031).

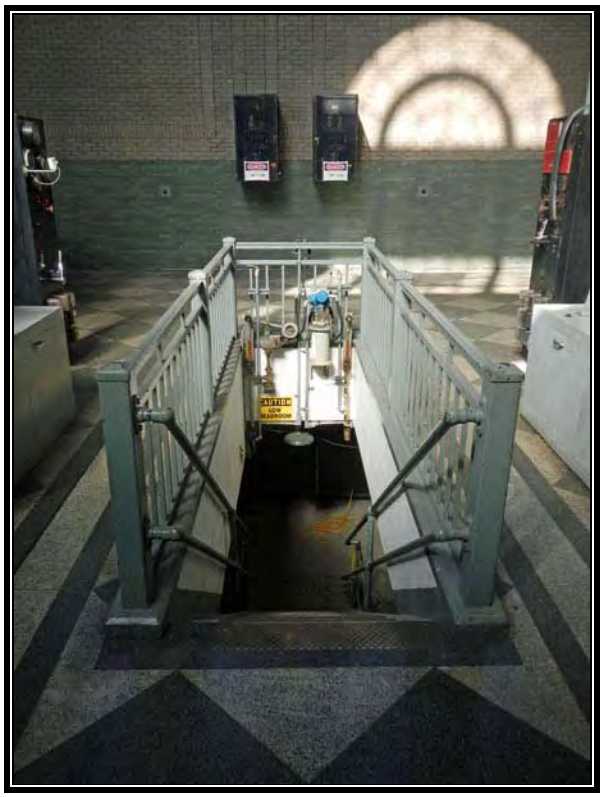

Figure 177. View of S-034 superstructure interior showing control boxes and stairs, facing east.

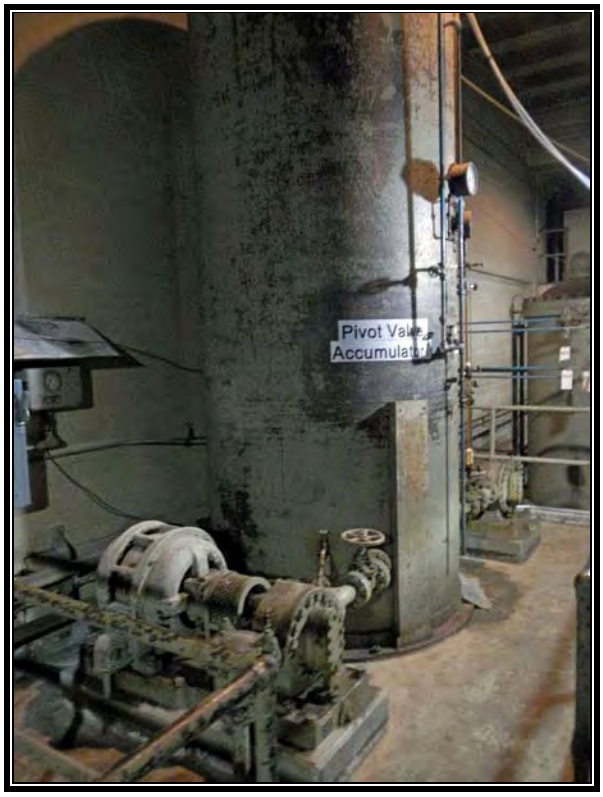

Figure 178. View of S-034 substructure interior showing an accumulator tank, facing southeast.

Figure 179. View of S-034 superstructure interior showing the control room terrace, facing southeast.

The roof is supported by a parabolic truss system with a monitor extension in its center, the truss featuring five vertical members with two diagonal members each, a series of five inverted triangles between the top and bottom beams. The central monitor member is of a similar arrangement. The superstructure is designed to allow natural light into the generator room, as well as to allow for ventilation.

A notable feature of the powerhouse is the air circulation system that is built into the actual structure of the facility to circulate the air from the turbines through the generator floor. The large 28 in. wide ventilation shafts were built into the structure of the western elevation, and extended from the base of the subfloor to the bottom of the superstructure. The openings vented air from the turbines through large screened air ducts.

The control room appendage is divided into seven distinct rooms, including the superintendent's office, the control room, and the staff office, as well as an entry foyer, hallways stairwells, and storage spaces. The functions housed in the control rooms above include operating and engineering offices and the actual control room. The control bench, voltage regulation, and relay switchboard are housed in the elevated control room, with ample windows overlooking the generator room. The control room is located above and overlooking the generator room, and remains the area from which engineers have full control of the facility. The control room extension also enclosed the stairway down into the generator room.

Westinghouse Electric and Manufacturing Company of Pittsburgh won the one million dollar contract put to bid by the New-Kanawha Company for the construction and installation of the four vertical turbines at the Hawks Nest Powerhouse (which has been designed to house five turbines). Westinghouse Electric and Manufacturing also won the contract for the development and installation of the control equipment for the Hawks Nest Powerhouse, the eight-panel switchboard and 10-panel auxiliary boards still functioning in the facility control room, most of which are intact and functioning (Figures 180 and 181).

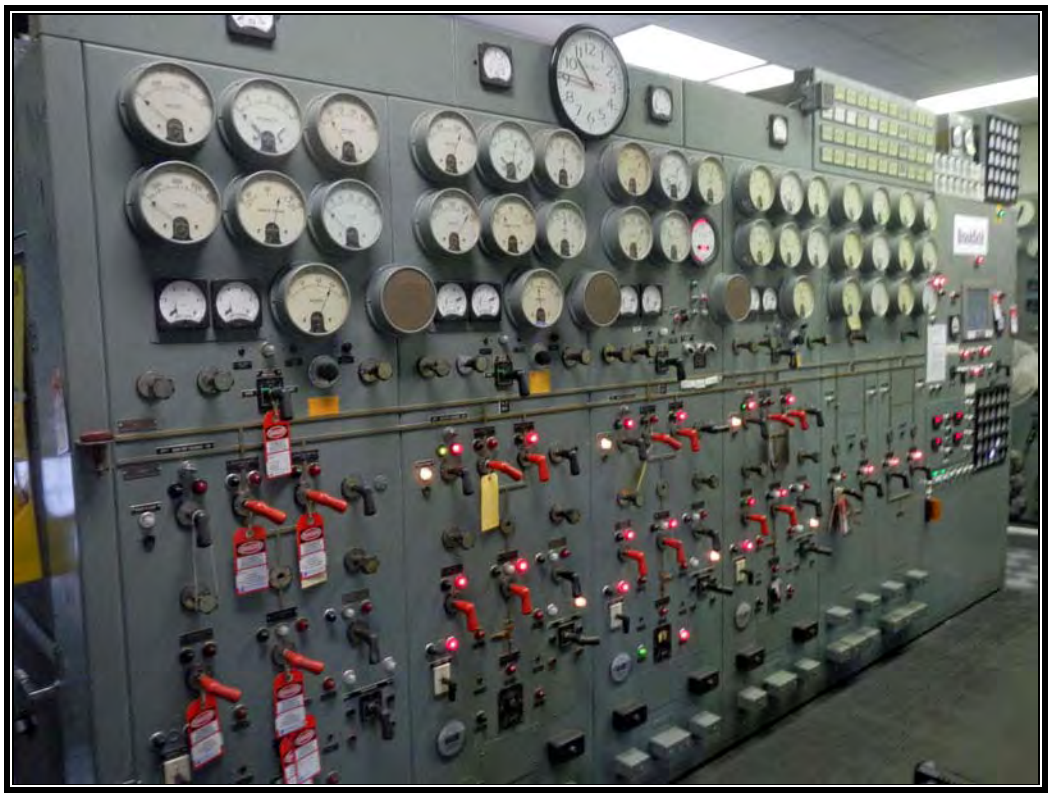

Figure 180. View of S-034 showing the control room apparatus, facing east.

Figure 181. View of S-034 showing the control room apparatus, facing south.

Westinghouse designed and installed the switching equipment that was essential to the conversion of the electricity from high to low voltage current. The switching system at Hawks Nest consists of switches, breakers, and fuses that allow the station operators to monitor and regulate the flow of electricity from the generators to the transformers. The elaborate switchboards serve as the effective center of control for the entire operation, the point at which operators can meter and relay the main power circuits, distribute energy from the control batteries and the chargers, and control the excitation circuits and auxiliary power circuits (McVarish 2008:172).

There is a series of auxiliary rooms, including a utility workshop on the east side of the substructure, off the generator floor, adjacent to an oil room that housed the lubricants and hydraulic oils necessary to keep the turbines functioning. Among the functions of the spaces along the eastern side of the powerhouse are to house the storage batteries, pumps, transformers, and fuses, store room, a machine and carpentry shop, and locker rooms and washrooms (Figure 182). The voltage regulation room includes the manual lead disconnects and fuses, used to monitor and regulate the flow of electricity. There is also a long gallery along the eastern wall of the substructure, just below the generator room, that serves as a conduit for pipes and electrical wires (Figure 183).

The actual turbines are located in the massive concrete base of the substructure, including the massive scroll casing and outflow through submerged draft tubes to the tailrace in the New River. The substructure is built of reinforced concrete and steel and is divided into five bays that hold the turbines and generators (four of which are used) designed to function through a spiral casing. Each turbine site is numbered consecutively from one to five, up river to down river. The substructure is divided into three levels: the generator floor (which opens into the superstructure), the coupling area, and the wheel pit area, located just above the turbine footings. The two lower levels, the coupling area and the well pit area, are accessed by three doorways located between each of the four extant turbine mechanisms.

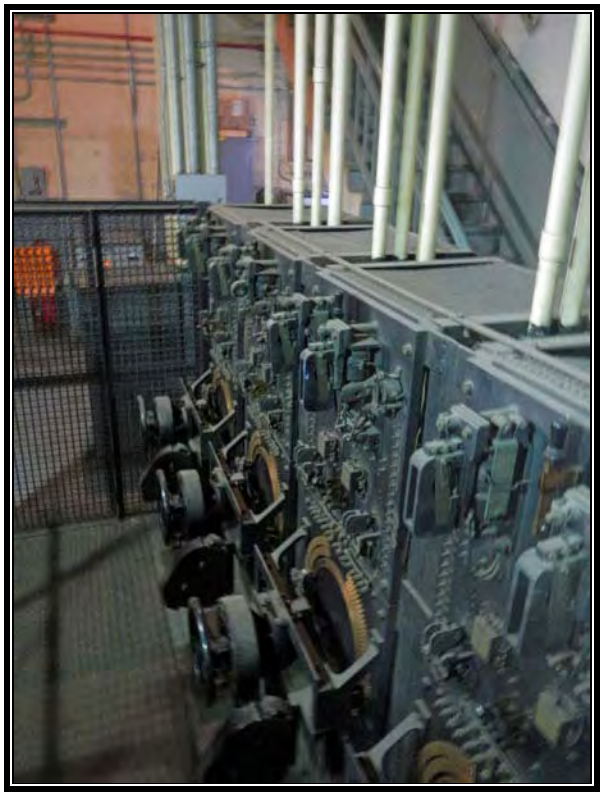

Figure 182. View of S-034 substructure interior showing the breakers, facing northeast.

Figure 183. View of S-034 substructure interior showing the utility conduit, facing south.

The Hawks Nest tunnel feeds into a penstock that in turn feeds into the head shafts that were designed to contain the enormous pressure. The 14-foot diameter penstocks are approximately 40 ft. long and branch out from the main tunnel, diverting water to the No. 1 to No. 4 turbines (Figure 184 and 185). The entire penstock system is in an underground chamber, the reinforced roof of which supports the outdoor switchyard at the powerhouse.

After clearing the penstocks, the water delivered a forced of 60 to 65 pounds per square inch at the turbines to produce 30,000 horsepower. The penstock enters the turbines, running under the control room extension.

At Hawks Nest, the water is conveyed through large cylinders into a circular scroll case, which in turn feeds a bottom ring where it enters into the rotating turbine, pushing against the turbine blades in the runner to rotate the shaft and supply torque to the generators that produce electricity. Hawks Nest features reaction turbines in which the water is forced to flow perpendicular to the axis of the radial-flow turbine. The principal components of a turbine include the speed rings, guide vanes, main shaft, guide bearings, thrust bearing, governors, and pressure regulators.

The actual generators consist of an assembly of large magnets arranged to produce a magnetic flux and an assembly of electrical conductors arranged across the path of the flux. The generators used at Hawks Nest (and Glen Ferris) were of the revolving field type. Each generator consisted of several parts, including the stator, the rotor, the shaft, the coupling, the bearings, bearing bracket, and brakes (McVarish 2008:170). The steel shaft that connects the turbines to the generator is 30 inches in diameter and 30 ft. in length, suspended from heavy bearings, and is accessible in the couplings area (Figures 186–188). The turbine shaft conveys the full torque to the runner under the maximum head conditions at which the turbine can operate, and thus both the shaft and housing were designed to handle an enormous amount stress (McVarish 2008:170).

Figure 184. View of S-034 substructure interior showing the fifth turbine seat, facing southeast.

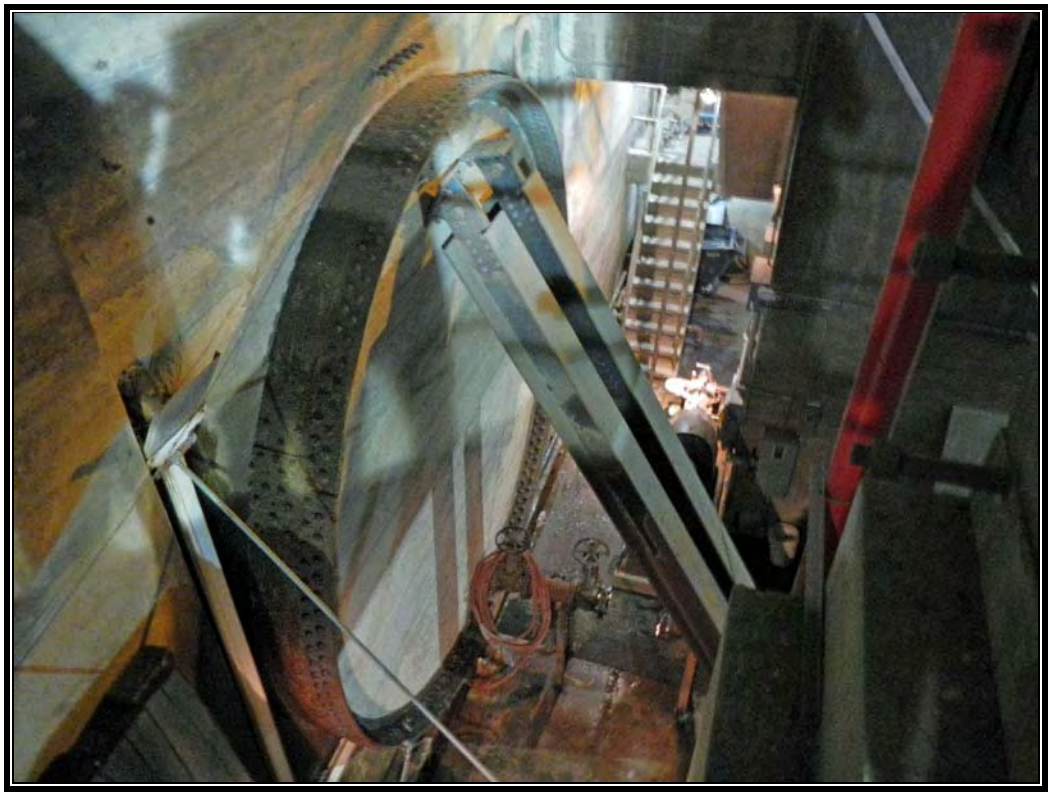

Figure 185. View of S-034 substructure interior showing the fifth penstock, facing southeast.

Figure 186. View of S-034 substructure interior showing the upper drive shaft, facing north.

Figure 187. View of S-034 substructure interior showing the middle drive shaft, facing west.

Figure 188. View of S-034 substructure interior showing the drive shaft base, facing west.

The various rooms on the wheel pit level are connected by a corridor called the west passage (Figure 189). The lower gap area is located below the wheel pit area at the base of the turbines, set in the heaviest concrete portion of the substructure. Louvered vests and vent holes are located through the wheel pit level to allow the circulation of air through the facility. A circular flow gate channels the water out of the massive tunnel to the turbines. The outflows are called draft tubes.

The 124 ft. diameter Surge Tank was designed to allow the volume of water being channeled through to escape if the gates at the penstock would need to be shut or if there were a serious power failure (Figures 190 and 191). The Surge Tank consists of seven bands of riveted steel bands built around internal riser steelwork outflow pipe (Figure 192). The Surge Tank is located on high ground as close to the powerhouse as possible to reduce the distance from the penstock (McVarish 2008:166). The power generated by the four turbines was carried six miles from the transformers to the Alloy Plant on cables suspended by a series of 23 towers (Figure 193). The 400 ft. wide tunnel right of way serves as the corridor of the transmission line. The 6.9-kV (25 Hz) transmission line provides station power from the Hawks Nest powerhouse to the Hawks Nest Dam. This approximately 3.1-mile-long overhead transmission line follows the course of the power tunnel. The Hawks Nest Development also includes two parallel approximately 5.5-mile-long, 69 kV transmission lines that connect the substation at the Hawks Nest Development to the Alloy Substation by way of Glen Ferris.

Figure 189. View of S-034 substructure interior showing the west passage, facing south.

Figure 190. View of S-034 showing the Surge Tank, facing southeast.

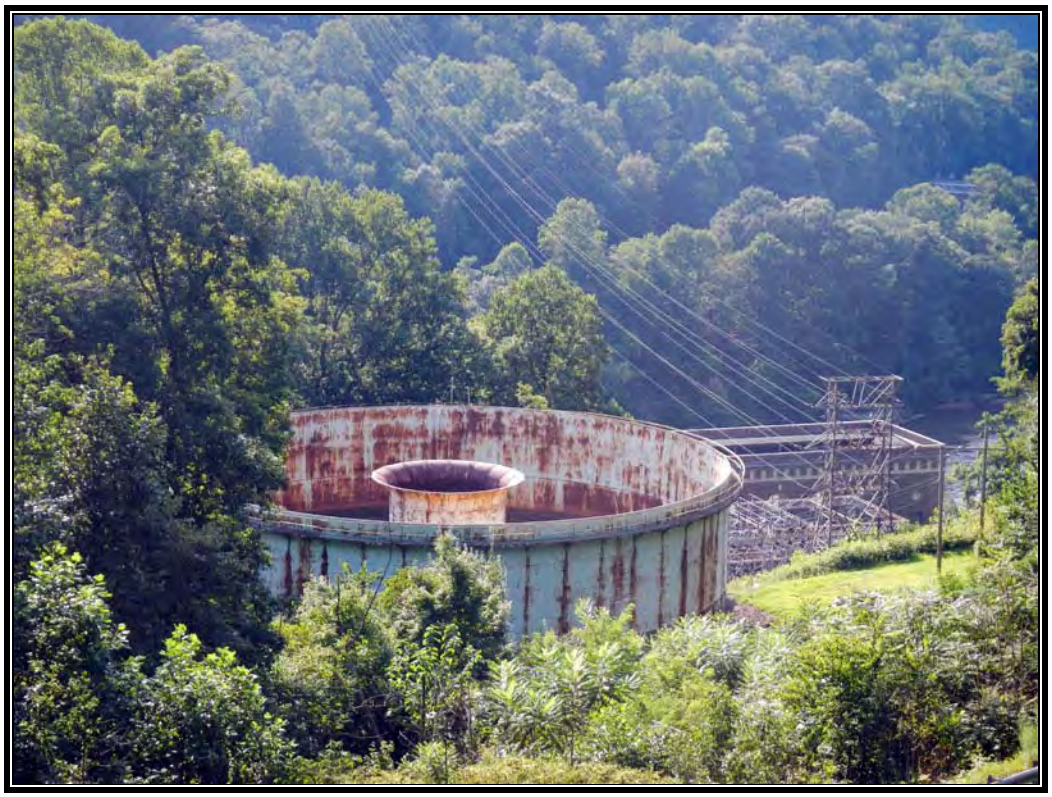

Figure 191. View of S-034 showing the Surge Tank, facing northwest.

Figure 192. Surge tank during the hydroelectric power construction on the New River, February 15, 1934 (West Virginia State Archives, Hawks Nest Tunnel Collection).

Figure 193. View of S-034 showing the power line, facing west.

History: Please refer to Historic Context on the Hawks Nest Development in Section III.

NRHP Evaluation: *Eligible.* The Hawks Nest Development was self-consciously modern in the scope, scale, method of execution and aesthetic style (Kaika 2005:7). The project was part of a larger movement of bringing modernity to the rural hinterlands, "a systematic, rational and scientifically planned marriage of nature, technology, capital and human labor intended to reshape an iconic physical environment" in service of development and industrial production (Kaika 2005:7-8). Writing in the midst of construction, pro-project newspaper reporters captured the scale and explicitly modern ethos behind the project, "Modern man came with his passion for mastering the works of nature, and seeing that the hard and barren rocks gashed everywhere with watercourses, set about to put a bridle on the roaring, plunging wild river" (Army of Workman Drilling Through Gauley Mountains, *Fayette Tribune*, June 3, 1931). Over time, the resulting socio-natural environment has become naturalized, in part because of its enormous scale, but the entire landscape of the valley remains a fundamentally cultural artifact nonetheless.

Therefore, CRA recommends that the totality of the Hawks Nest Development, including Hawks Nest Dam and Intake and Tunnel (S-032), Hawks Nest Surge Basin (S-033), and Hawks Nest Powerhouse (S-034), Transmission Lines, the 243-acre impoundment behind the dam, associated lands within the historic high water mark, the 5.5 mile long bypass reach known locally as "the Dries," transmission right of way marking the location of the tunnel, and the tailrace channel, is eligible for the NRHP under Criteria A and C as a historic site, a location of significant events and patterns of events (the large scale industrialization of the New-Kanawha River and the Hawks Nest Tragedy) where the location itself possesses historic and cultural value (National Park Service 1996). Although associated with engineers such as

Owen Jones and an array of successful engineers, managers, and contractors, the project cannot be considered to be associated with any one individual in a manner that satisfies the requirements of Criterion B, although Jones' contribution demonstrate mastery of his craft.

Further, the design aesthetic of the portions of the Hawks Nest Development that were constructed between 1930 and 1934 all reflect the broader economic and social project of modernism, a visual testament to human progress and mastery of, or accordance with, nature. Even critics notes that “the Hawks Nest Tunnel is incontrovertibly a marvel of engineering prowess” because of its scale, rapidity of development and the quality of its construction (Cerniack 1986:22). Writing in 1986, medical historian Cherniack notes that “the structural integrity of the power station, with is well-crafted fittings and high quality mortise work documents the engineers and contractors attention to details.” He continues, “their [the turbines] antiquity could justify enshrinement in a museum of technology... both companies exercised mastery of their crafts and strong sense of responsibility to maintain the highest levels” of work quality and efficiency, at the cost of misjudging the health effects of the project (Cerniack 1986:22).

Therefore, CRA recommends that the entirely of the Hawks Nest Development is also eligible under Criterion C as an outstanding engineering achievement, both in terms of engineering the ecology of the New-Kanawha River on an unprecedented scale for West Virginia, but also in terms of the successful engineering of the actual components of the project by a team of technical experts working under a disciplined corporate authority. Further, the design itself is significant as an important example of the modern industrial architectural aesthetic drawing from a range of architectural movements, from a pure functionality to the Moderne and Colonial Revival, to add a distractive architectural character to the fundamentally industrial assemblage.

The sum of the material and nature characteristics that comprise the Hawks Nest Development clearly conveys the scope and ambition of the engineering project, its relationship with the special physical environment of the place, and the even the significant events and patterns of events now absent or hidden from the landscape: the role of the workers, many of whom suffered grave health effects from their work on the project. The individual elements are extraordinarily intact for a facility in continuous operation for 77 years, and retain integrity of local, design, materials, workmanship, feeling, setting, and association.

The Hawks Nest Development Historic Site includes the Hawks Nest Dam and Intake, the Hawks Nest Tunnel, the Surge Basin and Surge Tank, the Hawks Nest Powerhouse, Transmission Lines, and their immediate settings. The site also includes the 243-acre impoundment behind the dam, associated lands within the historic high water mark, the 5.5 mile long bypass reach known locally as “the Dries,” and transmission right of way marking the location of the tunnel, and the tailrace channel. The sum of these resources clearly conveys its significance as an outstanding engineering achievement and the reworking hydraulic systems in the service of industrial development, as well as the human cost in terms of the affected lives of the workers who built it.

V. CONCLUSIONS

Under agreement with HDR and on behalf of Hawks Nest Hydro, a subsidiary of Brookfield Renewable Energy Group, CRA completed a cultural historic survey of the APE that included the Hawks Nest-Glen Ferris Hydroelectric Project permit area and 100 feet of the permit boundary. CRA completed a records review that revealed that five previously recorded cultural resources are located within the APE, two of which, the Glen Ferris Inn and the Hawks Nest State Park Historic District were listed in the NRHP under Criteria A and C. The Glen Ferris Power Plant was previously recorded for the WVHPI and recommended as eligible for the

NRHP, although the specific criteria for evaluation were not identified. Two of these previously recorded resources, the Honey Creek Bridge and the Cotton Hill Bridge, were found to have been razed.

CRA identified 34 architectural resources 50 years old or older within the APE during the field survey and recorded each to the standard of the WVHPI, complementing the findings of the archaeological survey (Moser 2013). Following additional property-specific background research and placement of each resource with the historic context, CRA applied the NRHP Criteria for Evaluation to each property and properties with a clear geographic or thematic unity. CRA identified two listed properties and 17 additional architectural resources that are eligible for the NRHP as historic structures, individual buildings, related buildings, a historic district, and two expansive historic sites (Table 3, Figure x Historic Properties). The existing historic properties within the APE are the Glen Ferris Inn (S-009) (outside the project area), and a portion of the Hawks Nest Sate Park Historic District within the project that contains no contributing resources, but is considered to be part of the park setting. Sixteen architectural resources were found to be not eligible for the NRHP due to a lack of significance or a loss of integrity.

CRA is recommending 17 additional architectural resources within the APE as eligible for the NRHP, including the Hawks Nest State Park Gondola Landing (S-002) and Nature Center (S-003); the Chesapeake and Ohio Railroad Bridge at Hawks Nest (S-001), the Chesapeake and Ohio Trestle over Cane Branch (S-029), the Benda property (S-028), and the "Horseshoe" Apartments (S-013), which is individually eligible for its architecture and is recommended as a contributing element to the Glen Ferris Housing Subdivision, Lower Historic District, which includes six houses (S-014 to S-019) and a church (S-020). CRA also recommends that four of the architectural resources are eligible for the NRHP as part of two expansive historic sites: the Glen Ferris Development Historic Site (S-031) and the Hawks Nest Development Historic Site (S-032, S-033 and S-034), which encompasses the full extent of the Hawks Nest-Glen Ferris Hydroelectric Project permit area. CRA recommends that the other 16 architectural resources identified during the field survey are not eligible for the NRHP due to a lack of significance or a loss of integrity.

At this time, Hawks Nest Hydro does not have specific proposed operation plans or procedures which differ from the existing operations; the relicensing will not alter the *status quo* operation of the facility, and therefore has no potential to affect any historic properties that are located outside the permit area. However, Hawks Nest Hydro is currently evaluating the potential for new project facilities or upgrades, including powerhouse equipment replacement for life extension, modernization, and potential efficiency improvements. None of these actions would affect any of the historic properties outside of the permit area, but may affect elements of the Glen Ferris Development Historic Site and the Hawks Nest Development Historic Site.

Therefore, CRA recommends that the applicant develop a Historic Property Management Plant (HPMP) to provide for the protection and appropriate management of the two historic sites, in addition to continuing consultation with the WVSHPO regarding any potential effects to the portion of the Hawks Nest Historic District located within the APE. The management plan should be prepared in accordance with FERC and the ACHP's 2002 *Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects* to provide both broad management practices and specific implementation procedures, including a process for identifying and avoiding or mitigating adverse effects on historic properties that may occur over the term of the new license. Specific procedures, treatment measures, and exempt activities may be chronicled in a Programmatic Agreement document to be developed in consultation with the WVSHPO, agency officials, and the applicant, if appropriate.

Yet, in the absence of any specific undertaking, the continuation of the existing operation associated with re-licensing of the Hawks Nest-Glen Ferris Hydroelectric Project will have *no adverse effect* on any historic properties.

Table 3. Historic Properties in the APE.

FS	WVHI #	Name	Tax Parcel	Acres	Location	Classification	Historic Function	Architectural Classification	Areas of Significance	Date	NRHP Evaluation	Project Effects
1	N/A	C & O Railroad Bridge	New Haven District, Map 32	n/a	3,260 ft. upstream from the Hawk's Nest Dam	Structure	Transportation: Rail-Related	Other: Engineered	Transportation	1898-present	Criteria A and C: C & O Railroad Corridor Historic District (eligible)	No Effect
2	N/A	Hawks Nest State Park Gondola Landing	New Haven District, Map 32, Parcel 69	28.88	South side of Mill Creek, approx. 1,700 ft. south of US 60 within Hawks Nest State Park	Building	Recreation: Outdoor Recreation	Modern	Architecture	circa 1970	Criterion C :Buildings	No Effect
3	N/A	Hawks Nest State Park Nature Center			South side of Mill Creek, approx. 1,860 ft. south of US 60 within Hawks Nest State Park		Recreation: Outdoor Recreation					
N/A	FA-0201 to 0210; RU-13-FA-2	New Deal Resources of Hawks Nest State Park Hawks Nest State Historic District	N/A	71	Encompass the New Deal-related resources in Hawks Nest State park as well as potions of the Hawks Nest Lake within the view shed from the Hawks Nest Overlook.	District	Recreation: Outdoor Recreation	Modern, Rustic	Social History, Politics, Conservation, Entertainment, and Architecture	1935-1942.	Criteria A and C: Hawks Nest State Park Historic District	No Effect
9	FA-003-006	Glen Ferris Inn	Valley District, Map 30L, Parcel 25	2.42	Located South of US 60, Glen Ferris	Building	Domestic: Hotel; Transportation: Road-Related; Institutional Housing	Federal Vernacular; Classical Revival	Transportation; Commerce; Military; Industry	circa 1839. circa 1900, circa 1935	Criteria A and C: Building	No Effect

FS	WVHI #	Name	Tax Parcel	Acres	Location	Classification	Historic Function	Architectural Classification	Areas of Significance	Date	NRHP Evaluation	Project Effects
13	N/A	Horseshoe Apartments	Valley District, Map 30L, Parcels 2 and 7	0.2	n/a Midland Trail (US 60)	Building	Domestic: Multiple	Tudor and Colonial Revivals	Architecture; Industry	1930	Criterion C: Individually Eligible; Criterion A: Glen Ferris Housing Subdivision (Lower) Historic District (Contributing)	No Effect
14	N/A	Glen Ferris Subdivision Lot 120	Valley District, Map 30G, Parcel 37	0.13	9243 Midland Trail (US 60)	Building	Domestic: Multiple	Shingle	Architecture; Industry	1930	Criterion A: Glen Ferris Housing Subdivision (Lower) Historic District (Contributing)	No Effect
15	N/A	Glen Ferris Subdivision Lot 121 (pt.)	Valley District, Map 30G, Parcel 36	0.07	9251 Midland Trail (US 60)	Building	Domestic: Single	Dutch Colonial Revival	Architecture; Industry	1930	Criterion A: Glen Ferris Housing Subdivision (Lower) Historic District (Contributing)	No Effect
16	N/A	Glen Ferris Subdivision Lot 121 (pt.)	Valley District, Map 30G, Parcel 35	0.07	n/a Midland Trail (US 60)	Building	Domestic: Multiple	Colonial Revival	Architecture; Industry	1930	Criterion A: Glen Ferris Housing Subdivision (Lower) Historic District (Contributing)	No Effect
17	N/A	Glen Ferris Subdivision Lot 122	Valley District, Map 30G, Parcel 34	0.1	9221 Midland Trail (US 60)	Building	Domestic: Single	Dutch Colonial Revival	Architecture; Industry	1930	Criterion A: Glen Ferris Housing Subdivision (Lower) Historic District (Contributing)	No Effect
18	N/A	Glen Ferris Subdivision Lot 123	Valley District, Map 30G, Parcel 33	0.1	9123 Midland Trail (US 60)	Building	Domestic: Single	Vernacular: Three-square	Architecture; Industry	1930	Criterion A: Glen Ferris Housing Subdivision (Lower) Historic District (Contributing)	No Effect

FS	WVHI #	Name	Tax Parcel	Acres	Location	Classification	Historic Function	Architectural Classification	Areas of Significance	Date	NRHP Evaluation	Project Effects
19	N/A	Glen Ferris Subdivision Lot 124B	Valley District, Map 30G, Parcel 32, 32.1	0.16	n/a Midland Trail (US 60)	Building	Domestic: Multiple	Shingle	Architecture; Industry	1930	Criterion A: Glen Ferris Housing Subdivision (Lower) Historic District (Contributing)	No Effect
20	N/A	Riverview United Methodist Church	Valley District, Map 30G, Parcel 30	0.26	n/a Midland Trail (US 60)	Building	Religious: Church	Ecclesiastical	Architecture; Industry	1934	Criterion A: Glen Ferris Housing Subdivision (Lower) Historic District (Contributing)	No Effect
28	N/A	Benda Property	Valley District, Map 30G, Parcel 19	0.12	n/a Midland Trail (US 60)	Building	Domestic: Single	Vernacular: "Jenny Lind"	Social History	circa 1917	Criterion A: Individually Eligible Building	No Effect
29	N/A	C & O Railroad Trestle	Valley District, Map 31	n/a	C & O Railroad Bridge over Cane Branch	Structure	Transportation: Railroad Related	Engineered	Transportation	circa 1904	Criteria A and C: C & O Railroad Corridor Historic District (Contributing)	No Effect
31	FA-0024	Glen Ferris Power Plant	Valley District, Map 39, Parcel 5	464.96	In the channel of the Kanawha River, at the western end of Glen Ferris	Site	Industry: Energy Facility	Engineered	Industry, Engineering	circa 1900, 1918, 1921	Criteria A and C: Glen Ferris Development Historic Site	Potential for Effects
32	N/A	Hawks Nest Dam and Intake	New Haven District, Map 32	n/a	New River, 1.2 miles upstream from SR 16	Site	Industry: Energy Facility	Engineered; Modern	Industry, Engineering, Social History	1930-1934	Criteria A and C: Hawks Nest Development Historic Site	Potential for Effects
33	N/A	Hawks Nest Surge Basin	Valley District Map 39, Parcel 5	464.61	North of the New River, 0.35 miles west of the intersection of SR 16 and the Midland Trail (US 60)							

FS	WVHI #	Name	Tax Parcel	Acres	Location	Classification	Historic Function	Architectural Classification	Areas of Significance	Date	NRHP Evaluation	Project Effects
34	N/A	Hawks Nest Power House	Valley District, Map 30, Parcel 15	223.45	On the north bank of the New River, 0.28 miles east of the Midland Trail (US 60)							

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