# LOW IMPACT HYDROPOWER INSTITUTE
# APPLICATION FOR THE
# HAWKS NEST HYDROELECTRIC PROJECT (FERC NO. 2512)

September 2025
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Prepared by:

Brookfield
Renewable U.S.

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# 1.0 INTRODUCTION

The Hawks Nest Hydroelectric Project (Hawks Nest, Project) is an existing, licensed major hydroelectric facility owned and operated by Hawks Nest Hydro, LLC, (Hawks Nest Hydro), a subsidiary of Brookfield Renewable (Brookfield). The original license issued by the Federal Energy Regulatory Commission (FERC) for the project was issued on March 9, 1967, with an effective date of January 1, 1938. A new license was issued by the FERC on December 22, 2017, with a license term of approximately 46 years set to expire on January 31, 2064.

# 2.0 PROJECT DESCRIPTION AND OPERATIONS

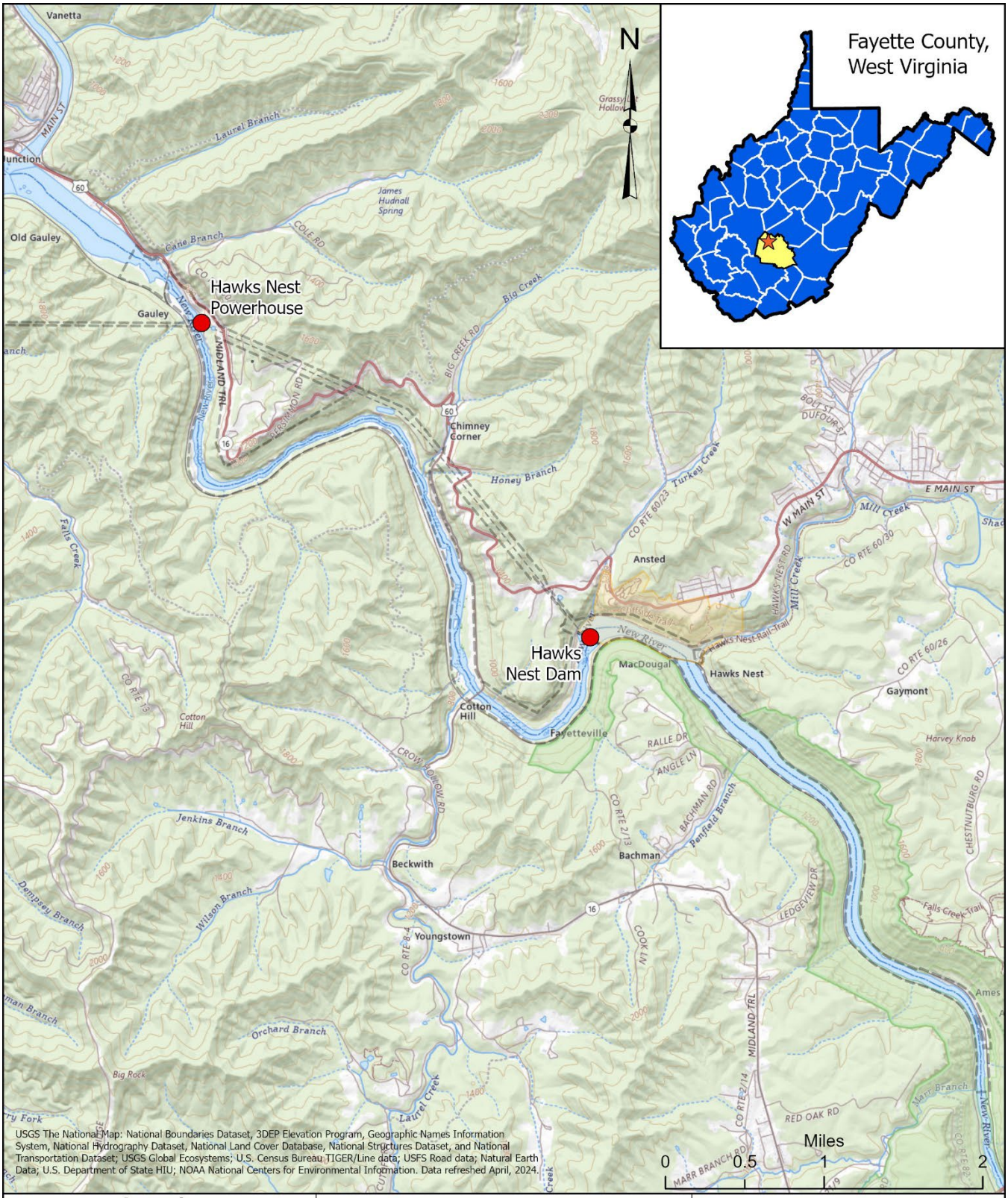
## 2.1 The New River Watershed

The Project is located at the bottom of the New River watershed between the towns of Ansted and Gauley Bridge, West Virginia. The 260 mile long New River originates in North Carolina at the confluence of the North Fork and South Fork New Rivers, then flows northward for 171 miles through Virginia before entering West Virginia. The New River Watershed encompasses an area of 6,964.6 square miles and is comprised of four (4) HUC 8 watersheds (Upper New, Middle New, Greenbriar, and Lower New), within the larger HUC 6 Kanawha River Watershed (*Figure 3*). The Hawks Nest Hydroelectric Project Powerhouse is located 1.5 miles upstream from the confluence of the New and Gauley Rivers where these rivers merge to form the Kanawha River. The Hawks Nest Dam lies at River Mile (RM) 6.9.

Six (6) dams impede the free-flowing New River upstream of Hawks Nest (*Figure 4*). The most upstream of these is the Fields Dam in Virginia, just downstream of the Virginia/North Carolina Border at RM 252 from the mouth of the New River. Proceeding downstream from the Fields Dam are the Fries Dam (P-2883- VA) at RM 208, the Byllesby Dam (P-2514-VA) at RM 199, the Buck Dam (P-2514-VA) at RM 196, Claytor Dam (P-739-VA) at RM 153, and the Bluestone Dam (USACE) at RM 66.2. Four of these are FERC regulated hydroelectric projects. The Bluestone Dam is owned and operated by the United States Army Corps of Engineers (USACE) Huntington District. It was constructed for flood control, recreation, and fish and wildlife enhancement by authority of an Executive Order of the President on September 12, 1935, and the Flood Control Acts of June 22, 1936, and June 28, 1938.

Other projects within the larger Kanawha River HUC 8 watershed include the Summersville Dam (P-10813-WV) located on the Gauley River, the Glen Ferris Dam (P-14439-WV) on the Kanawha River just downstream of the Hawks Nest Project, and a series of Locks and Dams owned and operated by the US Army Corps of Engineers (USACE) further down the Kanawha (*Figure 4*). Of all the dams in the Kanawha River Watershed, only the Summersville Dam is currently certified by the Low Impact Hydropower Institute (LIHI, Certificate No. 17).

Most of the New River between Bluestone Dam and Hawks Nest Dam is encompassed within the 72,186-acre New River Gorge National Park and Preserve. At over 1,000 feet deep, the dramatic New River Gorge is a prominent physiographic feature, though numerous striking geological features such as exposed cliffs, rock cities, massive boulders, rock overhangs, exposed coalbearing sediments, and unusual formations caused by spheroidal weathering also characterize this segment of the river (NPS 2009). The New River National Park ends at the upstream extent of the Hawks Nest Project boundary partially surrounding the project reservoir and a segment of the project bypass reach (*Figures 1 & 2*).




**Legend**

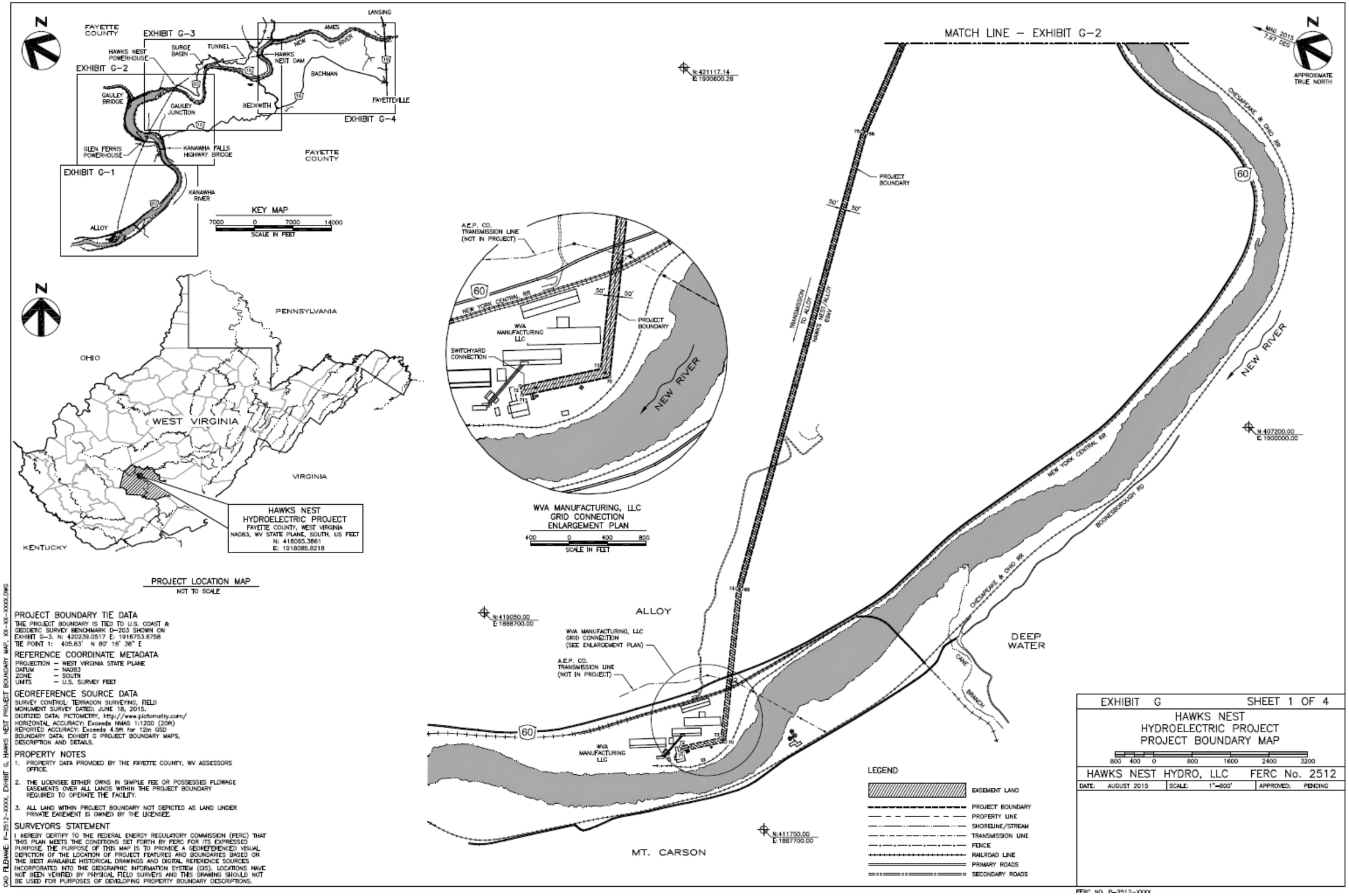
- Hawks Nest Project Facilities
- Hawks Nest FERC Project Boundary
- Hawks Nest State Park
- New River Gorge National Park

**FIGURE 1**
**GENERAL PROJECT LOCATION MAP**
**HAWKS NEST HYDROELECTRIC PROJECT**
**FAYETTE COUNTY**
**GAULEY BRIDGE, WEST VIRGINIA**

Name: HN_LIHI_LocationMap 01/2025

Brookfield
Renewable U.S.

| Designed: CFH | Drawn: CFH | Approved: KL |
|---|---|---|




PROJECT BOUNDARY TIE DATA

THE PROJECT BOUNDARY IS TIED TO U.S. COAST & GEODETIC SURVEY BENCHMARK D-203 SHOWN ON EXHIBIT G-3. N: 420239.0517 E: 1916753.6758
TIE POINT 1: 405.63' N 80° 16' 38" E

REFERENCE COORDINATE METADATA

PROJECTION – WEST VIRGINIA STATE PLANE
DATUM – NAD83
ZONE – SOUTH
UNITS – U.S. SURVEY FEET

GEOREFERENCE SOURCE DATA

SURVEY CONTROL: TERRADON SURVEYING, FIELD MONUMENT SURVEY DATED: JUNE 18, 2015.
DIGITIZED DATA: PICTOMETRY, http://www.pictometry.com/
HORIZONTAL ACCURACY: Exceeds NMAS 1:1200 (20ft)
REPORTED ACCURACY: Exceeds 4.5ft for 12in GSD
BOUNDARY DATA: EXHIBIT G PROJECT BOUNDARY MAPS, DESCRIPTION AND DETAILS.

PROPERTY NOTES

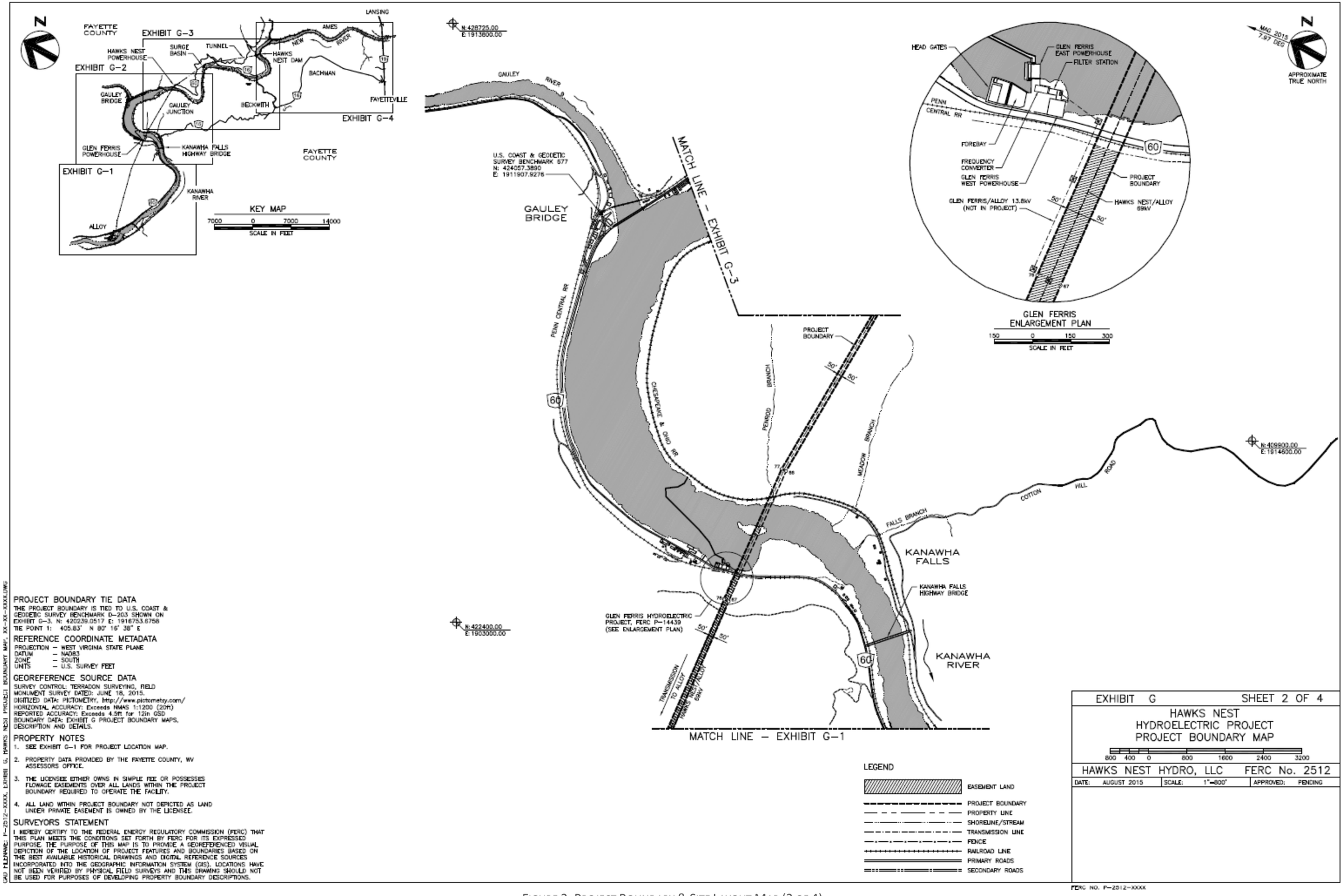
1. PROPERTY DATA PROVIDED BY THE FAYETTE COUNTY, WV ASSESSORS OFFICE.
2. THE LICENSEE EITHER OWNS IN SIMPLE FEE OR POSSESSES FLOWAGE EASEMENTS OVER ALL LANDS WITHIN THE PROJECT BOUNDARY REQUIRED TO OPERATE THE FACILITY.
3. ALL LAND WITHIN PROJECT BOUNDARY NOT DEPICTED AS LAND UNDER PRIVATE EASEMENT IS OWNED BY THE LICENSEE.

SURVEYORS STATEMENT

I HEREBY CERTIFY TO THE FEDERAL ENERGY REGULATORY COMMISSION (FERC) THAT THIS PLAN MEETS THE CONDITIONS SET FORTH BY FERC FOR ITS EXPRESSED PURPOSE. THE PURPOSE OF THIS MAP IS TO PROVIDE A GEOREFERENCED VISUAL DEPICTION OF THE LOCATION OF PROJECT FEATURES AND BOUNDARIES BASED ON THE BEST AVAILABLE HISTORICAL DRAWINGS AND DIGITAL REFERENCE SOURCES INCORPORATED INTO THE GEOGRAPHIC INFORMATION SYSTEM (GIS). LOCATIONS HAVE NOT BEEN VERIFIED BY PHYSICAL FIELD SURVEYS AND THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OF DEVELOPING PROPERTY BOUNDARY DESCRIPTIONS.

CAD FILENAME: P-2512-XXXX_EXHIBIT G_HAWKS NEST PROJECT BOUNDARY MAP_XX-XX-XXXX.DWG

FIGURE 2: PROJECT BOUNDARY & SITE LAYOUT MAP (1 OF 4)




## PROJECT BOUNDARY TIE DATA

THE PROJECT BOUNDARY IS TIED TO U.S. COAST & GEODETIC SURVEY BENCHMARK D-203 SHOWN ON EXHIBIT G-3. N: 420239.0517 E: 1916753.6758
TIE POINT 1: 405.83' N 80° 16' 38" E

## REFERENCE COORDINATE METADATA

PROJECTION – WEST VIRGINIA STATE PLANE
DATUM – NAD83
ZONE – SOUTH
UNITS – U.S. SURVEY FEET

## GEOREFERENCE SOURCE DATA

SURVEY CONTROL: TERRADON SURVEYING, FIELD MONUMENT SURVEY DATED: JUNE 18, 2015.
DIGITIZED DATA: PICTOMETRY, http://www.pictometry.com/
HORIZONTAL ACCURACY: Exceeds NMAS 1:1200 (20ft)
REPORTED ACCURACY: Exceeds 4.5ft for 12in GSD
BOUNDARY DATA: EXHIBIT G PROJECT BOUNDARY MAPS, DESCRIPTION AND DETAILS.

## PROPERTY NOTES

1. SEE EXHIBIT G-1 FOR PROJECT LOCATION MAP.
2. PROPERTY DATA PROVIDED BY THE FAYETTE COUNTY, WV ASSESSORS OFFICE.
3. THE LICENSEE EITHER OWNS IN SIMPLE FEE OR POSSESSES FLOWAGE EASEMENTS OVER ALL LANDS WITHIN THE PROJECT BOUNDARY REQUIRED TO OPERATE THE FACILITY.
4. ALL LAND WITHIN PROJECT BOUNDARY NOT DEPICTED AS LAND UNDER PRIVATE EASEMENT IS OWNED BY THE LICENSEE.

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CAD FILENAME: P-2512-XXXX, EXHIBIT G, HAWKS NEST PROJECT BOUNDARY MAP, XX-XX-XXXX.DWG

EXHIBIT G SHEET 2 OF 4

HAWKS NEST HYDROELECTRIC PROJECT PROJECT BOUNDARY MAP

800 400 0 800 1600 2400 3200

| HAWKS NEST HYDRO, LLC | | FERC No. 2512 |
|---|---|---|
| DATE: AUGUST 2015 | SCALE: 1"=800' | APPROVED: PENDING |

FERC NO. P-2512-XXXX

FIGURE 2: PROJECT BOUNDARY & SITE LAYOUT MAP (2 OF 4)

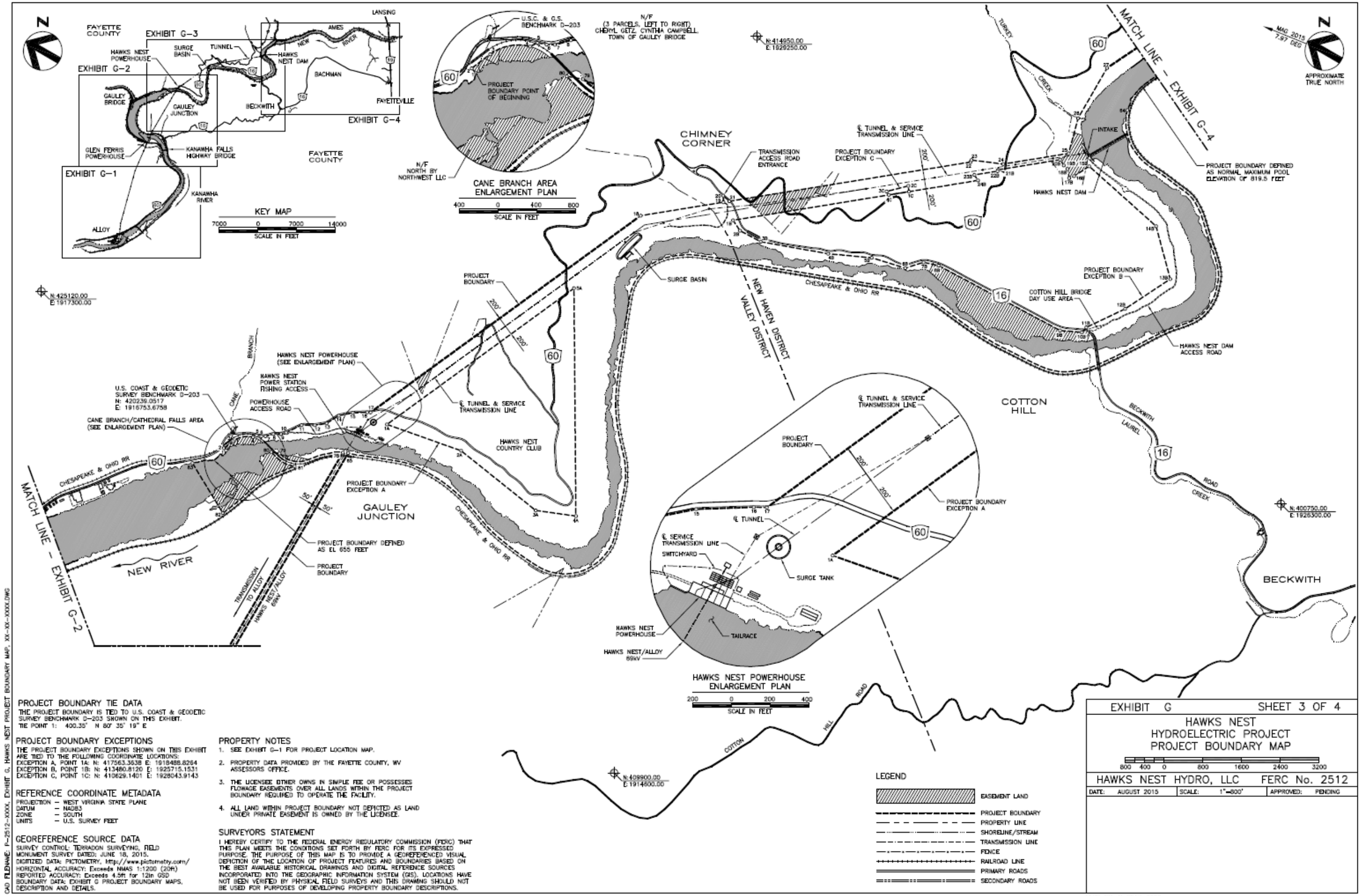



FIGURE 2: PROJECT BOUNDARY & SITE LAYOUT MAP (3 OF 4)

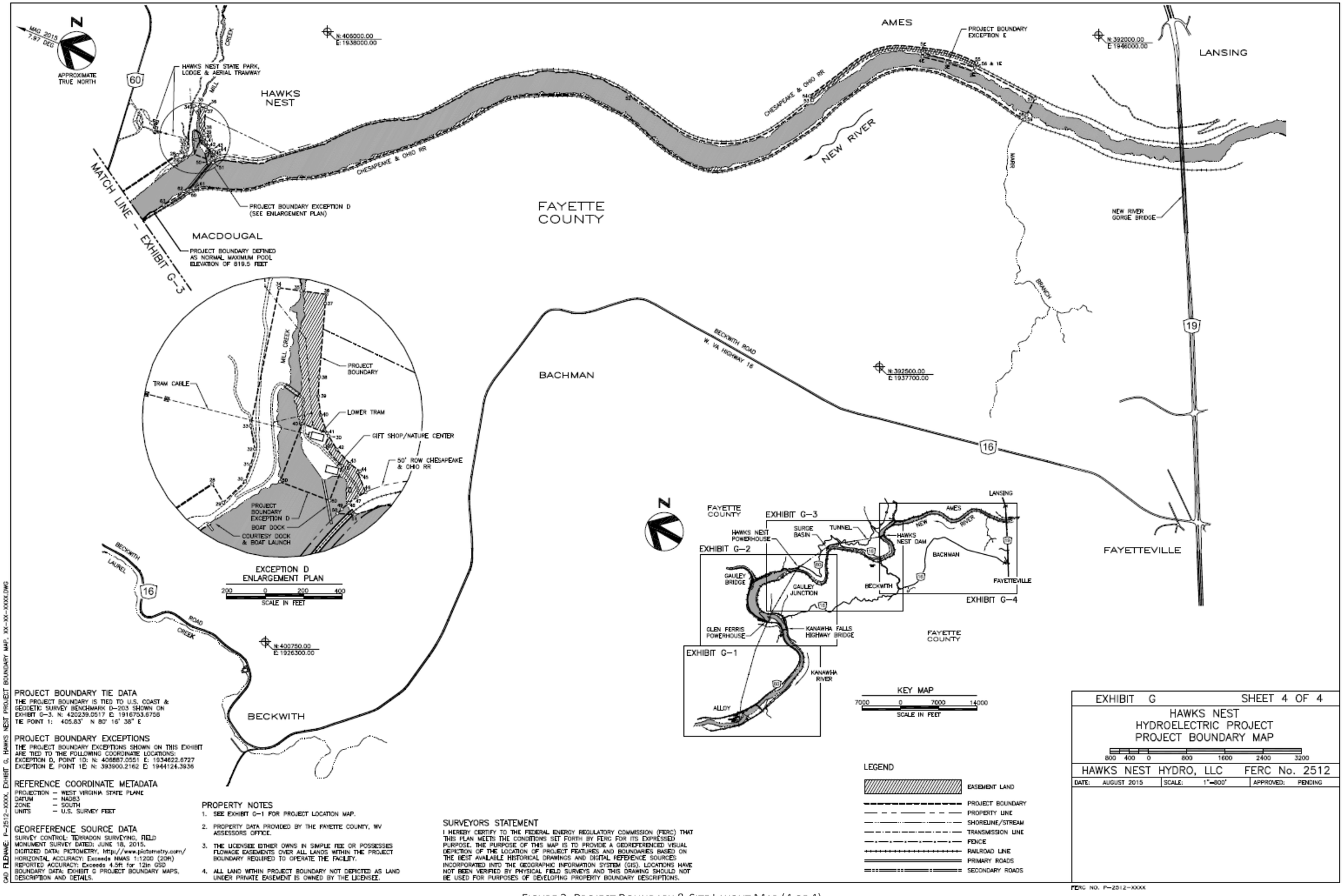
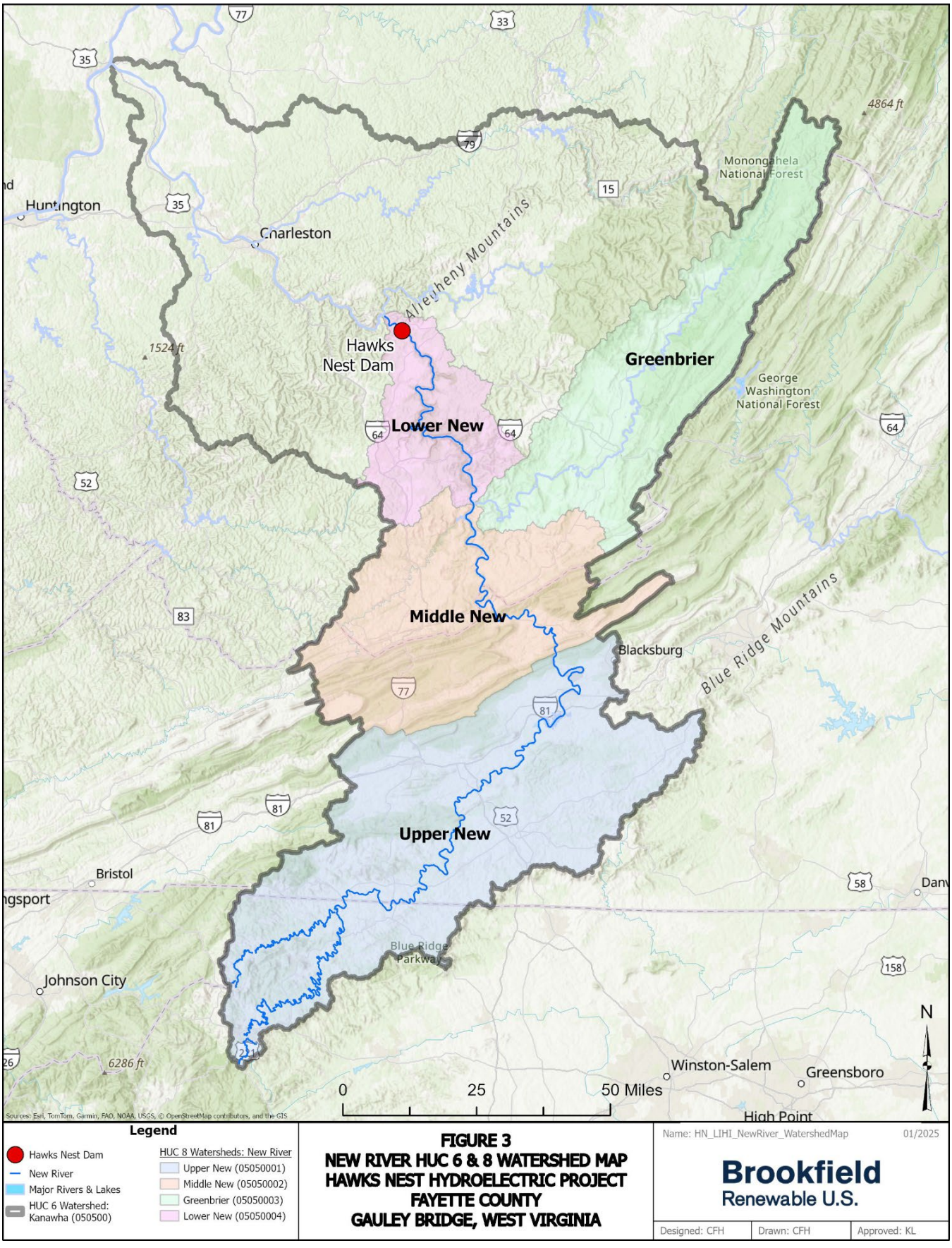
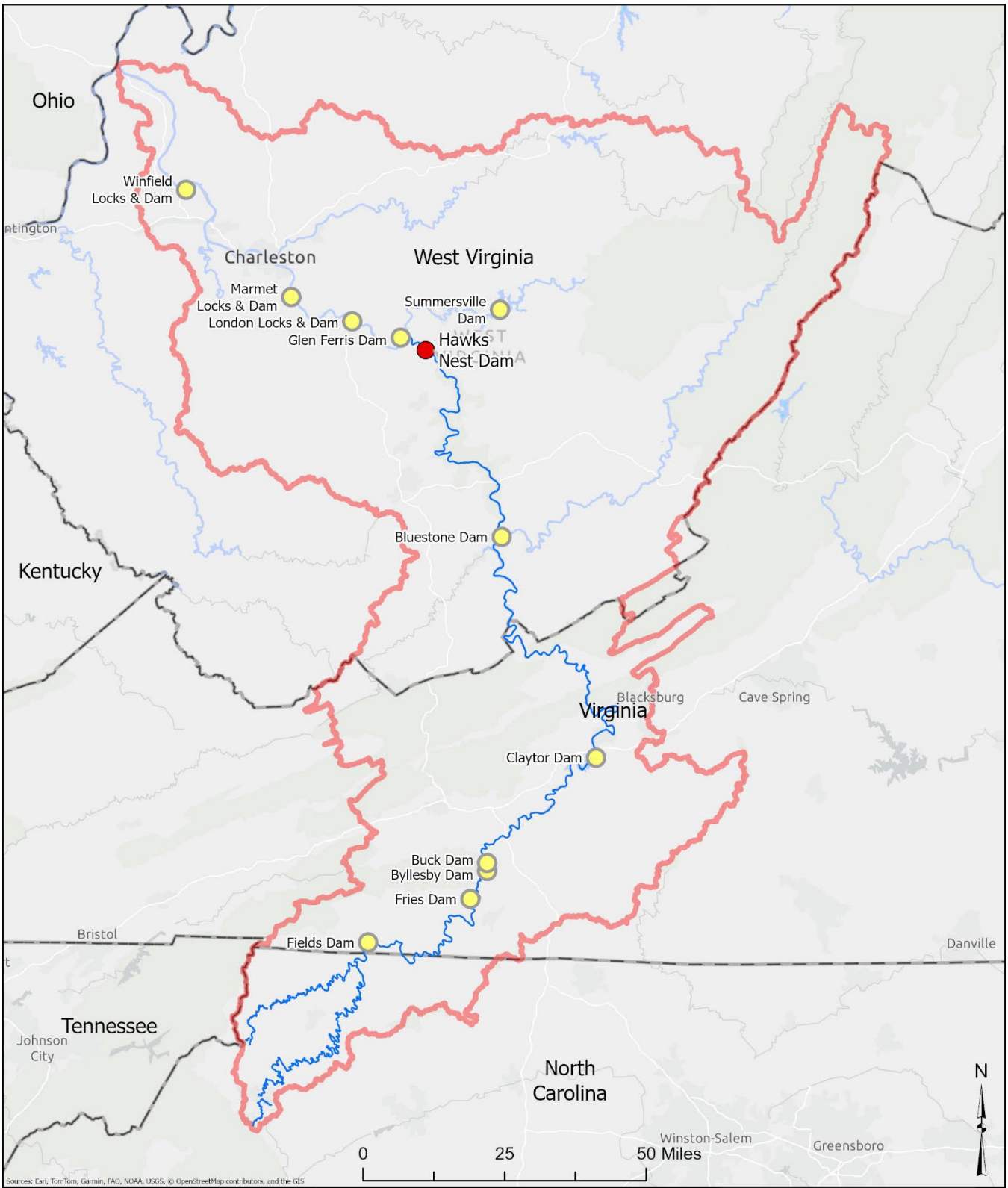



FIGURE 2: PROJECT BOUNDARY & SITE LAYOUT MAP (4 OF 4)


Huntington
Charleston
Bristol
Johnson City
Blacksburg
Winston-Salem
Greensboro
High Point
Monongahela National Forest
George Washington National Forest
Allegheny Mountains
Blue Ridge Mountains
Blue Ridge Parkway
4864 ft
1524 ft
6286 ft
Hawks Nest Dam
Greenbrier
Lower New
Middle New
Upper New
0
25
50 Miles
N
Legend
Hawks Nest Dam
New River
Major Rivers & Lakes
HUC 6 Watershed: Kanawha (050500)
HUC 8 Watersheds: New River
Upper New (05050001)
Middle New (05050002)
Greenbrier (05050003)
Lower New (05050004)
FIGURE 3
NEW RIVER HUC 6 & 8 WATERSHED MAP
HAWKS NEST HYDROELECTRIC PROJECT
FAYETTE COUNTY
GAULEY BRIDGE, WEST VIRGINIA
Name: HN_LIHI_NewRiver_WatershedMap
01/2025
Brookfield
Renewable U.S.
Designed: CFH
Drawn: CFH
Approved: KL


Ohio
Winfield
Locks & Dam
Charleston
West Virginia
Marmet
Locks & Dam
London Locks & Dam
Glen Ferris Dam
Summersville
Dam
Hawks
Nest Dam
Bluestone Dam
Kentucky
Blacksburg
Cave Spring
Virginia
Claytor Dam
Buck Dam
Byllesby Dam
Fries Dam
Bristol
Fields Dam
Danville
Tennessee
Johnson
City
North
Carolina
Winston-Salem
Greensboro
0
25
50 Miles
N
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS
Legend
Hawks Nest Dam
Dams & Hydroelectric Projects
New River
HUC 6 Watershed: Kanawha (050500)
FIGURE 4
HUC 6 DAMS & HYDROELECTRIC PROJECTS
HAWKS NEST HYDROELECTRIC PROJECT
FAYETTE COUNTY
GAULEY BRIDGE, WEST VIRGINIA
Name: HN_LIHI_HUC6_HydroDams
01/2025
Brookfield
Renewable U.S.
Designed: CFH
Drawn: CFH
Approved: KL

## 2.2 Project History

The Hawks Nest Project was built in the 1930s by the New-Kanawha Power Company, a subsidiary of Union Carbide and Carbon Corporation, to provide 25-hertz (Hz) power for the smelter furnaces at the Union Carbide ferroalloy plant near Alloy, West Virginia. Construction of the Project began in April of 1930 and was largely completed by December of 1934, but the Project did not begin producing power until 1936. The original purpose of the Project was to provide the entirety of the installed capacity (102 MW of hydroelectric power) for production of ferroalloys.

At the time of its construction during the Great Depression, the Project was the largest construction project in West Virginia and employed almost 5,000 people including local and immigrant laborers drawn by a promise of steady income and employment. After the First World War, in an era when the development of largescale industries became a national concern particularly after the onset of the Great Depression, the Hawks Nest project was intended to spur long-term economic growth and development in an area, and in an era that had previously experienced neither.

The history of the Hawks Nest Development is intrinsically tied to the highly contested histories of the occupational health crisis known as the “Hawks Nest Tragedy.” During and shortly after construction of the tunnel began, large numbers of workers became sick and died from silicosis. This condition was caused by the inhalation of dust from high-grade silica sandstone through which the tunnel was drilled. Congressional hearings held in 1936 found 476 deaths among tunnel construction workers were attributed to silicosis. Subsequent studies suggest that as many as 764 men may have died from silicosis and related conditions (Cherniack 2006). Construction of the Hawks Nest tunnel is now known as the Hawks Nest Tragedy and is considered one of the worst industrial tragedies in U.S. history. It was not until after the construction of the tunnel that improvements to labor laws for the protection of workers would be enacted. The tragedy at Hawks Nest would later help to inform state and federal legislation to improve working conditions for laborers, and diagnose Silicosis as an occupational disease with compensation for workers.

Union Carbide was dismantled and sold in portions throughout the 1980s and 1990s. In 1981, the entire Alloy/Hawks Nest operation was purchased by the Elkem Metals Company (EMC), a privately owned Norwegian enterprise. At that time the alloy plant began to focus on ferrosilicon and silicon metal which has been the main product since 1990. EMC maintained operation of the ferroalloys plant and associated hydro facilities until 2005 when the alloy plant was obtained by WVAM, and the hydroelectric portion of the project was divested. Hawks Nest Hydro acquired the Project in 2006.

The Project has been deemed eligible for the National Register of Historic Places, both as an outstanding engineering achievement, and for its association with the events related to its construction, including the Hawks Nest Tragedy.

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).

In 1935, West Virginia acquired 31 acres of land crossed by US 60, including Marshall's Pillars, to create a roadside park. It was named Hawks Nest since Marshall's Pillars had once been home to many nesting ospreys, also known as fish hawks, that rode the thermals between the high cliffs of the Gorge. The park

was intended to offer scenic views of the New River Gorge and the newly constructed dam, explicitly associating the development of the state park with the Hawks Nest Development.

In 1937, the Civilian Conservation Corps (CCC) constructed a two-story rustic building, picnic shelter, shop, and restrooms using hand tools and locally sourced chestnut logs. The site is characterized by the prominent use of locally sourced dry-stacked sandstone. A flagstone path and steps lead to the Main Overlook, where stacked stone walls form a loop down to the panoramic viewing area once known as Marshall's Pillars above the river gorge. *Figure 7* Shows a view of the Dam from this overlook. These structures are listed on the National Register of Historic Places, representing the New Deal-era public works in West Virginia State Parks.

In 1966, the Hawks Nest Project leased 200 acres of land upstream of Hawks Nest Dam and adjacent to Hawks Nest State Park (HNSP) to the State of West Virginia for the use and benefit of the WVDNR. This land became part of the now 270-acre HNSP (Figure 13), which is operated and maintained by the WVDNR (FERC 1987). The lease remains in effect as long as the Hawks Nest Project is operating under a valid license issued by FERC. Today the park not only offers scenic views, and recreational opportunities, but also provides visitors with a history lesson of the Hawks Nest Hydro facility, touting both the architectural and engineering achievement as well as honoring those lives lost in the Hawks Nest Tragedy.

## 2.3 American Indians in West Virginia


There are no federally recognized Indian tribes in West Virginia. The state of West Virginia has no state recognized tribes, or an office to manage Indian affairs. Historically it is believed that the Cherokee tangentially inhabited the most southern areas of West Virginia including the New River watershed and parts of the Kanawha, possibly as far north as what is now the state capitol city of Charleston. The Cherokee utilized the land seasonally for hunting and foraging, but did not consider West Virginia their homeland. The Shawnee occupied areas in the northwest portion of the state, particularly along the Ohio River and the upper Ohio Valley. The Shawnee, under Tecumseh, sided with the British during the War of 1812 and were removed to the west of the Mississippi River after the war. Other indigenous tribes that likely occupied the northeastern part of the state include the Delaware, Senica, Mohawk, Saponi, and Mingo. However, not much is known about the Native Americans that inhabited West Virginia, and all of these tribes moved or were removed from the state in the 1800's

## 2.4 Project Facilities

The Hawks Nest Project is located on the New River, starting approximately 0.6 miles downstream from the point where Mill Creek flows into the New River, and ending 1.5 miles upstream from the point where the Gauley River joins the New River to form the Kanawha River (*Figure 1*). The FERC project boundary for the Hawks Nest Hydroelectric Project generally encompasses a reach of the New River from the Marr Branch confluence (RM 11.2) and extending approximately 10.3 miles downstream to a point approximately 3,200 feet downstream of the Hawks Nest powerhouse (RM 0.9). The Hawks Nest Project consists of the following components, which are further described below: (a) a 948-foot-long concrete spillway dam with a maximum structural height of 90 feet and with 14 spillway bays, each with a 25-foot by 50-foot steel crest gate; (b) a reservoir with a surface area of 243 acres at normal surface

elevation 819 feet; (c) a concrete intake structure with trashracks, located at the west abutment; (d) a 16,240-foot-long tunnel; (e) a 600-foot-long by 170-foot-wide surge basin and a 116-foot-diameter surge tank; (f) a 107-foot-long, 30-foot-diameter steel penstock; (g) a manifold connection leading to five 14-foot-diameter steel penstocks varying in length from 42 feet to 132 feet; (h) a concrete powerhouse with four identical 25.5-MW, 25-Hz turbine/generator units (one of the five penstocks is not being used); (i) 6.9-kilovolt (kV) generator leads; (j) four 6.9/69-kV step-up transformers; (k) two 5.5-mile-long, 69-kV transmission lines; and (l) a tailrace channel and appurtenant facilities.

The dam (*Figure 6 & 7*) is a concrete gravity structure (mostly a spillway). The dam has a maximum structural height of 90 feet and is 948 feet long (from left abutment to right abutment), oriented along a generally northwest-southeast axis. The dam is topped with fourteen spillway bays, each having a 25-foot-high by 50-foot-wide Stoney-type vertical lift gate and separated by 9-foot-wide concrete piers. The top elevation of the gates is at elevation 820.0 feet in the closed position. The crest gates are operated by two gantry cranes on rails running the entire length of the dam.

Non-overflow sections of the dam adjoin the left and right abutment. Located between the main spillway section and the right abutment is a 10-foot-wide trash spillway (trash gate) with a sill elevation of 810.0 feet and that is equipped with steel stoplogs operated by an electric motor.

The intake to the water-conducting tunnel (*Figure 8*) is located along the right shoreline of the reservoir just upstream from the dam. The opening is rectangular in shape with dimensions of 111.5 feet wide and 52.5 feet high and is equipped with trashracks and a Stoney-type bulkhead intake gate. The intake trashracks are 110 feet wide and 51 feet high and have bar spacing of 3.5 inches on center. The trashracks are cleaned by an electrical trash rake installed on the intake deck.

Water is conveyed from the reservoir to the Hawks Nest powerhouse through a 16,240-foot-long underground tunnel that extends from the intake to the powerhouse downstream. The tunnel conveys a maximum flow of approximately 10,000 cubic feet per second (cfs). At a point approximately 60 percent of the distance from the intake to the powerhouse, the tunnel connects to a 600-foot-long by 170-foot-wide surge basin (*Figure 9*), and at its downstream end the tunnel is connected by a vertical steel riser to a 116- foot-diameter and 56-foot-high differential surge tank (*Figure 10*).

As the water-conducting tunnel nears the powerhouse, the penstock to each turbine generator successively exits the tunnel. The penstock system includes a main penstock, a manifold, and five penstocks leading from the manifold to the four turbines in the powerhouse. The fifth penstock is bulkheaded off with a steel and concrete bulkhead and the downstream end is filled with concrete.

A 5.5-mile-long segment of the New River extends between the Hawks Nest dam and powerhouse. The bypass reach occupies a narrow gorge, with heavily wooded mountainsides forming the channel walls. The Cotton Hill Bridge crosses the bypass reach at a point 4.2 miles upstream of the powerhouse. With the exception of an access area owned and managed by WVDNR in the vicinity of the Cotton Hill Bridge, and formal and informal trails in the Cotton Hill Bridge area and between the bridge and Hawks Nest Dam, access to the bypass reach is mostly precluded by steep slopes and vegetation.

The Hawks Nest powerhouse (*Figure 11 & 12*) is located on the New River approximately 1.5 miles upstream from the point where the Gauley River joins the New River to form the Kanawha River. The powerhouse structure consists of a concrete substructure founded on solid bedrock and a multistory brick and concrete structure with five generation bays. Currently, the powerhouse accommodates four

turbine-generator units, each with a rated capacity of approximately 25.5 MW. The centerline of the scroll cases for each generating unit is at elevation 663.0 feet.

The power generated by the Hawks Nest powerhouse has a frequency of 25 Hz which is specifically designed to power the 25 Hz equipment and the 25 Hz furnaces at WVAM's alloy facility. Water flowing through the tunnel, penstock system, and then through the turbines is discharged via the draft tubes into the excavated tailrace in the New River.

The Francis turbines are controlled by digital governors. The main transformers and switchyard equipment are supported on a foundation formed by a structural concrete slab and column system that covers the penstock manifold. Each generating unit has a dedicated step-up transformer with a generator breaker.

A transmission line provides station power from the Hawks Nest powerhouse to Hawks Nest Dam. This approximately 3.1-mile-long overhead transmission line follows the course of the power tunnel. The Hawks Nest Project also includes two parallel 5.5-mile-long, transmission lines that connect the Hawks Nest substation to the Alloy substation.

The approximately 4.3-mile-long reservoir for Hawks Nest Dam is situated in a narrow valley with an average width of approximately 500 feet. The reservoir extends from approximately the Marr Branch confluence, located 0.6 miles downstream of the New River Gorge Bridge, to Hawks Nest Dam. The total length of the reservoir shoreline is approximately 15.7 miles. The drainage area at the reservoir is approximately 6,913 square miles. At the normal reservoir elevation of 819 feet, the reservoir has a surface area of 243 acres and a gross storage capacity of 7,323 acre-feet. Because the Project is operated as run-of-river, the reservoir has no significant usable storage capacity.

**Figure 6: Hawks Nest Project Features - Dam & Spillway**

**Figure 7: Hawks Nest Project Features – Dam**

**Figure 8: Hawks Nest Project Features - Intake**

**Figure 9: Hawks Nest Project Features – Surge Basin**


**Figure 10: Hawks Nest Project Features – Surge Tank & Powerhouse**

**Figure 11: Hawks Nest Project Features - Powerhouse**

**Figure 12: Hawks Nest Project Features - Powerhouse**

## 2.5 Project Operation

The operation of the Hawks Nest Project is strongly impacted by seasonal precipitation levels in the New River basin and river regulation from upstream dams owned and operated by others (i.e., Bluestone Lake and Claytor Lake). The reservoir level is maintained through power generation and release of the required minimum flow from the trash gate at the right end of the spillway and additional spill through the spillway gates when inflow exceeds powerhouse capacity.

The Hawks Nest Project operates in a run-of-river mode, with inflow to the Project approximating outflow and minimal reservoir surface elevation fluctuation. The surface of the reservoir is typically operated at 819 feet. Operation of the Project below 818.5 feet would require notification to the West Virginia Department of Environmental Protection (WVDEP) and the West Virginia Department of Natural Resources (WVDNR). As constructed, the maximum reservoir elevation is 820 feet. However, the reservoir is not typically operated more than 0.5 feet above the normal pool level of 819.0 feet. Operation of the Project in the range described above provides pond level flexibility to achieve compliance with the seasonal ramping rate required by Article 402 of the existing license for the protection of downstream public safety and aquatic resources. The approved ramping rate requires the Licensee to upramp or downramp flows from the Hawks Nest Project from March through October when river flows are less than 12,600cfs, and when there are flows of 2,600cfs or less in the bypass reach, to maintain a ramping rate not greater than 1 foot per hour, as measured at the U.S. Geological Survey (USGS) gage in the vicinity of the Cotton Hill Bridge (USGS 380649081083301 New River below Hawks Nest Dam, West Virginia). In accordance with the Commission's 1991 Order Approving and Modifying Ramping Rate and Amending Mode of Operation, the approved ramping rate may be modified, if necessary, to prevent overtopping of the Project dam or spillway gates.

Presently a minimum flow of 300cfs March 1 through June 30, and 250cfs for all other months, is released at the dam into the bypass reach through the trash gate. With the minimum flow requirement of 250cfs provided at the dam, the balance of the flow is dispatched through the power tunnel for powerhouse operations. The powerhouse has a maximum capacity of approximately 10,000cfs. River flow in excess of approximately 10,250cfs is released through the spillway gates. The normal river flow is less than or equal to 10,250cfs approximately 70 percent of the time.

Due to the lack of significant usable storage capacity, the Hawks Nest Project is operated as a run-of-river facility under all conditions of stream flow, except as needed to implement the FERC-approved ramping rate described above or if temporarily modified if required by emergencies beyond the Licensee's control. The control room operators monitor the Hawks Nest reservoir to minimize reservoir elevation changes and maintain the target elevation.

In the event of a significant hydrological event, the 14 spillway gates are operated to pass inflow in excess of the powerhouse capacity. At the normal reservoir elevation, each spillway gate has a maximum discharge capacity of about 23,900cfs. The gates are lifted by one of two gantry cranes that operate on the operating deck of the dam. If multiple gates must be opened to maintain the pool elevation, each gate is successively dogged into position subsequent to lifting. The cranes are electrically operated, and an emergency generator is located at the right abutment of the dam. Movement of the gantry cranes from bay to bay at the dam must be performed by an operator at the dam. Once the crane hoists are engaged with the spillway gates, the gates can be lifted from the powerhouse. The discharge capacity of the spillway with all the spillway gates fully opened at normal maximum operating elevation is approximately 334,600cfs. The trash gate at the right end of the spillway can discharge up to 333cfs at the normal maximum reservoir elevation.

**Table 1.a Facility Information.**

| *Item* | *Information Requested* | *Response – if applicable include references or links to further details* |
|---|---|---|
| ***Name of the Facility*** | Facility name (use FERC project name or other legal name) | Hawks Nest Hydroelectric Project |
| ***Reason for applying for LIHI Certification*** | 1. To participate in state RPS program (specify the state and the total MW/MWh associated with that participation (value and % of facility total MW/MWh))<br>2. To participate in voluntary REC market (e.g., Green-e)<br>3. To satisfy a direct energy buyer's purchasing requirement<br>4. To satisfy the facility's own corporate sustainability goals<br>5. For the facility's corporate marketing purposes<br>6. Other (describe) | (select and describe only applicable reasons)<br>1. ☒<br>State Program:<br>Participating in a state RPS program has been the primary reason for applying for LIHI Certification as LIHI Certification is a qualifying condition for the PA Tier I RPS program. Approximately 100% of Hawks Nest's generation output qualifies for the PA Tier I RPS Program<br>2. ☒<br>3. ☒<br>4. ☐<br>5. ☒<br>6. ☐<br>describe: Click or tap here to enter text. |
| | If applicable, the amount of annual generation (MWh and % of total generation) for which RECs are currently received or are expected to be received upon LIHI Certification | Annual generation for which REC's are expected to be received:<br>100 % of total generation, 102 MW, 529,000 MWh. |
| ***Location*** | River name (USGS proper name) | New River |
| | Watershed name - Select region, click on the area of interest until the 8-digit HUC number appears. Then identify watershed name and HUC-8 number from the map at: https://water.usgs.gov/wsc/map_index.html | Lower New – HUC 8: 05050004 |
| | Nearest town(s), county(ies), and state(s) to dam | Gauley Bridge & Ansted, Fayette County, West Virginia |
| | River mile of dam above mouth | RM 6.9 |
| | Geographic latitude and longitude of dam | Lat: 38° 8'52.08"N<br>Long: 81°10'32.37"W |
| ***Facility Owner*** | Application contact names | Kathleen Lester |

| *Item* | *Information Requested* | *Response – if applicable include references or links to further details* |
|---|---|---|
| | Facility owner company and authorized owner representative name.<br>**For recertifications: If ownership has changed since last certification, provide the effective date of the change.** | Hawks Nest Hydro, LLC – Kathleen Lester |
| | FERC licensee company name (if different from owner) | N/A |
| ***Other Owners*** | If different from hydro facility owner, Provide the dam owner(s)/operator(s) entity names (see also Table 11). | N/A |
| ***Regulatory Status*** | FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption | FERC Project No. P-2512-WV. The current license was issued December 22, 2017. The license expires January 31, 2064. |
| | FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", “non-jurisdictional”) | Major |
| | Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments. | WQC 160013, Issued June 2, 2017 and modified on August 14, 2017, by the West Virginia Department of Environmental Protection – Division of Water and Waste Management (WVDEP-DWWM), in conjunction with the West Virginia Division of Natural Resources – Wildlife Resources Section (WVDNR-WRS) |
| | Hyperlinks to key electronic records on FERC e-Library website or other publicly accessible data repositories[1] ***(or provide a separate list) If not electronically available, provide as appendices to the application)*** | See links in Section 8.0: Supporting Documentation<br>(or provide a separate list) |
| ***Powerhouse*** | Date of initial operation (past or future for pre-operational applications) | July, 1936 |
| | Total installed capacity (MW)<br>**For recertifications: Indicate if installed capacity has changed since last certification** | 102 MW |
| | Average annual generation (MWh) and period of record used<br>**For recertifications: Indicate if average annual generation has changed since last certification** | 538,490 MWh – October 2013 to September-2024 (FERC Annual Generation Reports; Missing 2017) |

[1] For example, the FERC license or exemption, recent FERC Orders, Water Quality Certificates, Endangered Species Act documents, Special Use Permits from the U.S. Forest Service, 3rd-party agreements about water or land management, grants of right-of-way, U.S. Army Corps of Engineers permits, and other regulatory documents. If extensive, the list of hyperlinks can be provided separately in the application.

| *Item* | *Information Requested* | *Response – if applicable include references or links to further details* |
|---|---|---|
| | Mode of operation (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.)<br>**For recertifications: Indicate if mode of operation has changed since last certification** | Run of River |
| | Number, type, and size of turbine/generators, including maximum and minimum hydraulic capacity (in cfs) and maximum and minimum output (in kW or MW) of each turbine and generator unit | The powerhouse contains four (4) identical I.P Morris vertical Francis turbine-generator units, each with a rated capacity of approximately 25.5 MW. Each has a minimum hydraulic capacity of 800 cubic feet per second (cfs), and a maximum hydraulic capacity of 2,540 cfs, with a project total maximum hydraulic capacity of approximately 10,000 cfs. |
| | Trashrack clear spacing (inches) for each trashrack | 3.19 inches (3.5” on center) |
| | Approach water velocity (ft/s) at each intake if known | 2.6 fps |
| | Dates and types of major equipment upgrades<br>**For recertifications: Indicate only those since last certification** | • 6/2011 - Unit 4 GSU transformer replacement<br>• 12/2011 - 69 kV Line 1 transformer replacement<br>• 11/2013 - Unit 1 GSU transformer replacement<br>• 1/2015 - Unit 4 stator rewind<br>• 11/2019 - Unit 3 GSU transformer replacement<br>• 10/16/23 - HN Gantry Crane #1 Upgrades<br>• 3/20/24 - HN Gantry Crane #2 Upgrades |
| | Dates, purpose, and type of any recent operational changes (or provide a separate list)<br>**For recertifications: Indicate only those since last certification** | The FERC Order Issuing New License Issued December 22, 2017, included operational changes including an increase in minimum flows, and the addition of recreational releases. |

| *Item* | *Information Requested* | *Response – if applicable include references or links to further details* |
|---|---|---|
| | Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments | Hawks Nest Hydro, LLC, is planning a series of plant upgrades and modernization activities to include:<br>• Conversion of power generation at Hawks Nest from 25-Hz to 60-Hz<br>• Turbine-generator replacements for Units 1 and 2<br>• Construction of a second switchyard near the Hawks Nest powerhouse with a frequency converter for Units 3 and 4<br>• Construction of an O&M building near the powerhouse<br>• Transmission line and ancillary equipment upgrades<br><br>The modernization project is not expected to significantly increase the powerhouse's hydraulic capacity or authorized installed capacity, change run-of-river Project operations or minimum or recreation flow releases at the dam, or result in other modifications of licensed Project structures. These powerhouse and electrical system modifications require approval from the Federal Energy Regulatory Commission (FERC) in the form of a Non-Capacity Amendment of License. |
| ***Dam or Diversion*** | Date of original dam or diversion construction and description and dates of subsequent dam or diversion structure modifications | 1930 to 1933 |
| | Dam or diversion structure length, height including separately the height of any flashboards, inflatable dams, etc. and describe seasonal operation of flashboards and the like | The dam is a 948-foot-long concrete-gravity dam with 14 ogee-type spillway bays extending almost the entire length of the dam, with each spillway bay topped by a 25-foot-high by 50-foot-wide Stoney-type steel lift gate and separated by 9-foot-wide concrete piers. The maximum height of the dam from the deepest part of the foundation to the operating deck is approximately 90 feet. |

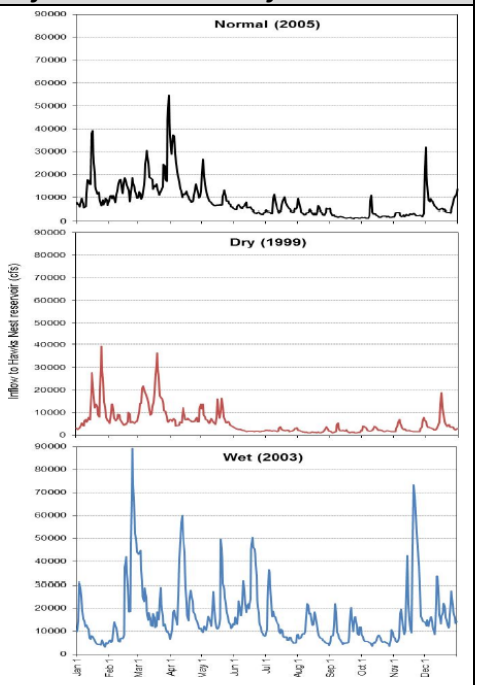
| *Item* | *Information Requested* | *Response – if applicable include references or links to further details* |
|---|---|---|
| | Spillway maximum hydraulic capacity | At the normal reservoir elevation, each spillway gate has a maximum discharge capacity of about 23,900cfs. The discharge capacity of the spillway with all spillway gates fully opened at normal maximum operation level is approximately 334,600cfs. |
| | Length and type of each penstock and water conveyance structure between the impoundment and powerhouse | The underground water conveyance tunnel extends 16,240 feet from the end of the intake transition to the penstock system. Of this total length, 10,230 feet is lined, and the remaining portion is unlined through bedrock. The tunnel lining is generally concrete, but in the vicinity of the surge tank, an approximately 2,600-foot-long, 30-foot-diameter section is steel-lined. As the water-conducting tunnel nears the powerhouse, the penstock to each turbine generator successively exits the tunnel and the tunnel diameter reduces to 30 feet. The penstock system includes a main penstock 30 feet in diameter and 107 feet long, a manifold, and five (5) penstocks, each 14 feet in diameter, with varying lengths of 42 feet to 132 feet, leading from the manifold to four (4) turbines in the powerhouse. The penstocks and manifold are of welded steel reinforced with concrete and heavy steel circumferential rods. The fifth penstock, which was built for an additional generating unit, is bulkheaded off with a steel and concrete bulkhead and the downstream end is filled in with approximately 10 feet of concrete. |
| | Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.) | Power |
| ***Conduit Facilities Only*** | Date of conduit construction and primary purpose of conduit | N/A |
| | Source water | N/A |
| | Receiving water and location of discharge | N/A |

| *Item* | *Information Requested* | *Response – if applicable include references or links to further details* |
|---|---|---|
| ***Impoundment and Watershed*** | Authorized maximum and minimum impoundment water surface elevations **For recertifications: Indicate if these values have changed since last certification** | Maximum Pool Elevation: 819.5 ‘ Minimum Pool Elevation: 818.5’ |
| | Normal operating elevations and normal fluctuation range **For recertifications: Indicate if these values have changed since last certification** | Normal Pool Elevation: 819.0 ‘ (+/- 0.5ft |
| | Gross storage volume and surface area at full pool **For recertifications: Indicate if these values have changed since last certification** | Gross Storage Volume: 7,353 acre-ft Surface Area at Full Pool: 243 acres |
| | Usable storage volume and surface area **For recertifications: Indicate if these values have changed since last certification** | Per Article 402 of the FERC license and Condition 1 of the WVDEP WQC, the Hawks Nest Project is required to operate in run-of-river mode with no usable storage volume. |
| | Describe requirements related to impoundment inflow and outflow, elevation restrictions (e.g., fluctuation limits, seasonality) up/down ramping and refill rate restrictions. | The Hawks Nest Project is operated in run-of-river mode (inflow to the Project approximating outflow from the powerhouse and dam). Reservoir elevation is maintained at El. 819 ft (+/- 0.5 ft) through power generation, release of the required minimum flow, and additional spillway releases as necessary. Operation of the Project below El. 818.5 ft requires notification to the WVDEP and the West Virginia Division of Natural Resources (WVDNR). |

| *Item* | *Information Requested* | *Response – if applicable include references or links to further details* |
|---|---|---|
| | Upstream dams by name, ownership (including if owned by an affiliate of the applicant's company) and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage. | Fields Dam, Mouth of Willson, VA:<br>• Owner: Scotts Mills Hydro, LLC<br>• FERC No.: N/A<br>• RM: 251.6<br>• DS Fish Passage: No<br>Fries Dam, Fries, VA:<br>• Owner: Aquenergy Systems Inc<br>• FERC No.: P-2883-VA<br>• RM: 207.7<br>• DS Fish Passage: No<br>Byllesby Dam, Byllesby, VA<br>• Owner: Appalachian Power Company<br>• FERC No.: P-2514-VA<br>• RM: 199<br>• DS Fish Passage: No<br>Buck Dam, Byllesby, VA<br>• Owner: Appalachian Power Company<br>• FERC No.: P-2514-VA<br>• RM: 196.3<br>• DS Fish Passage: No<br>Claytor Dam, Radford, VA<br>• Owner: Appalachian Power Company<br>• FERC No.: P-739-VA<br>• RM: 153<br>• DS Fish Passage: No<br>Bluestone Dam, Hinton, WV<br>• Owner: USACE<br>• FERC No.: N/A<br>• RM: 66.2<br>• DS Fish Passage: No |

| *Item* | *Information Requested* | *Response – if applicable include references or links to further details* |
|---|---|---|
| | Downstream dams by name, ownership (including if owned by an affiliate of the applicant's company), river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage | Glen Ferris Dam, Glen Ferris, WV<br>• Owner: Hawks Nest Hydro, LLC (Subsidiary of Brookfield Renewable)<br>• FERC No.: P-14439-WV<br>• RM: 95.5 (Kanawha River)<br>• US Fish Passage: No<br>London Locks & Dam, London, WV<br>• Owner: USACE/American Electric Power<br>• FERC No.: P-1175-WV<br>• RM: 82.8 (Kanawha River)<br>• US Fish Passage: No<br>Marmet Locks & Dam, Marmet, WV<br>• Owner: USACE/American Electric Power<br>• FERC No.: P-1175-WV<br>• RM: 67.7 (Kanawha River)<br>• US Fish Passage: No<br>Winfield Locks & Dam, Winfield, WV<br>• Owner: USACE/Appalachian Power Company<br>• FERC No.: P-1290-WV<br>• RM: 31.1 (Kanawha River)<br>• US Fish Passage: No |
| | Operating agreements with upstream or downstream facilities that affect water availability and facility operation | None |
| | Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control. Indicate locations and acres of flowage rights versus fee-owned property. | There are approximately 1,072 total acres within the FERC project boundary. The Hawks Nest Lake Pool occupies ~243 of those acres, and the Bypass Reach and Tailrace includes another ~209 acres of watered area within the Ordinary High-Water Mark (OHWM) of the New River. Of the remaining 619.6 land acres, Hawks Nest Hydro is the fee-owner of 454.5 acres within the project boundary. |

<table>
<tr><th>Item</th><th>Information Requested</th><th>Response – if applicable include references or links to further details</th></tr>
<tr><td rowspan="4">Hydrologic Setting</td><td>Average annual flow at the dam, and period of record used</td><td>Average (Median) Flow: 5,841cfs<br>Period of Record: 1954 - 2014</td></tr>
<tr><td>Average monthly flows and period of record used</td><td>Average (Median) Monthly Flows:
<table>
<tr><th>Month</th><th>cfs</th></tr>
<tr><td>January</td><td>10,014</td></tr>
<tr><td>February</td><td>18,526</td></tr>
<tr><td>March</td><td>12,916</td></tr>
<tr><td>April</td><td>15,756</td></tr>
<tr><td>May</td><td>10,986</td></tr>
<tr><td>June</td><td>6,987</td></tr>
<tr><td>July</td><td>4,920</td></tr>
<tr><td>August</td><td>3,601</td></tr>
<tr><td>September</td><td>3,098</td></tr>
<tr><td>October</td><td>6,031</td></tr>
<tr><td>November</td><td>4,895</td></tr>
<tr><td>December</td><td>9,265</td></tr>
</table>
Period of Record: 2014 - 2024</td></tr>
<tr><td>Locations, names, and hyperlinks to the closest stream gaging stations above and below the facility</td><td>Upstream:<br>New River at Hinton, WV - 03184500;<br>New River at Thurmond, WV - 03185400<br>Downstream of Dam:<br>New River Below Hawks Nest Dam (at Cotton Hill), WV- 380649081083301<br>Downstream of Powerhouse:<br>Kanawha River at Kanawha Falls, WV - 03193000</td></tr>
<tr><td>Watershed area at the dam (in square miles). Identify if this value is prorated from gage locations and provide the basis for proration calculation.</td><td>Watershed Area: 6,913 square miles at USGS Cotton Hill Gage (1.5miles Downstream of Dam)</td></tr>
</table>

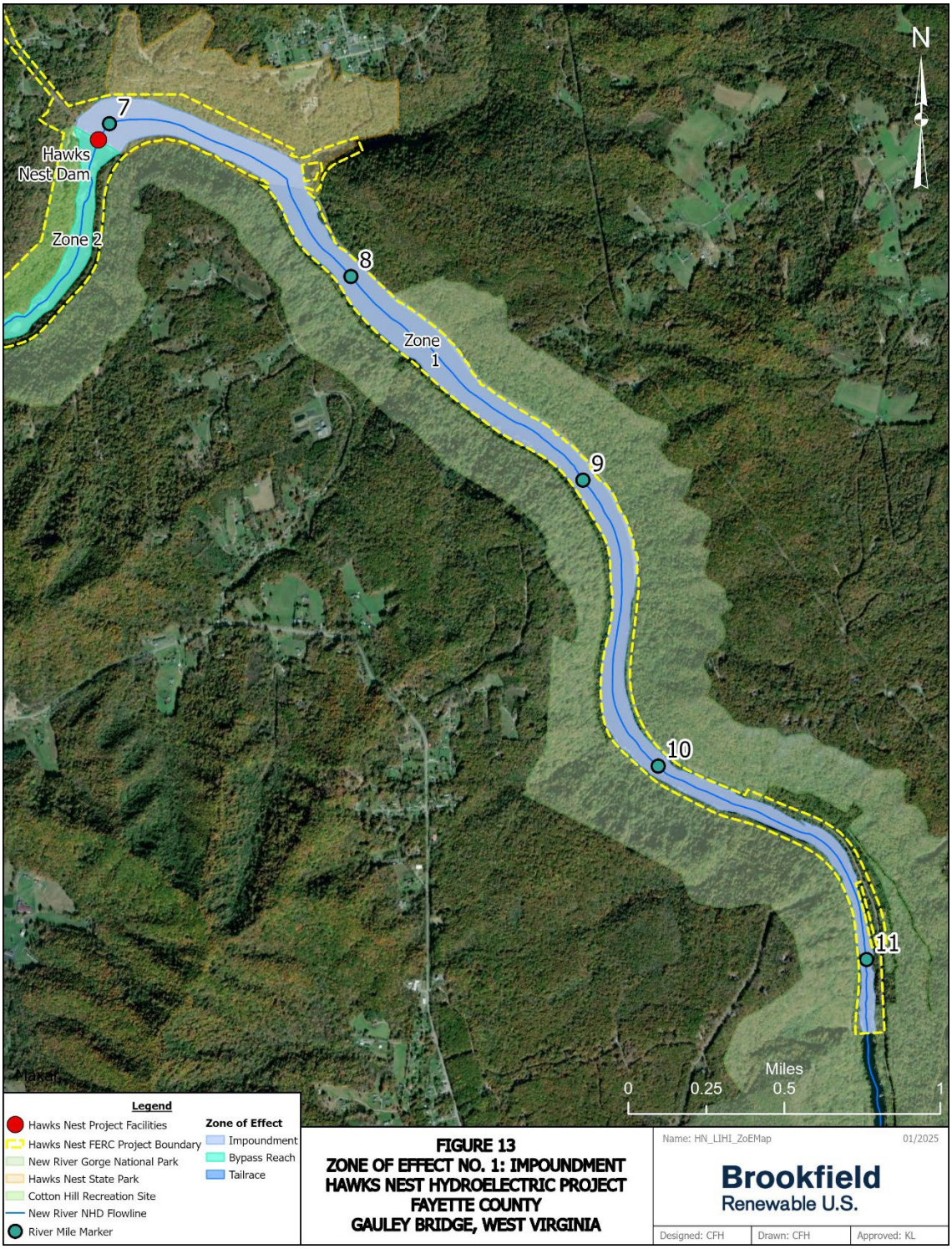
| *Item* | *Information Requested* | *Response – if applicable include references or links to further details* |
|---|---|---|
| | Other facility specific hydrologic information (e.g., average hydrograph) |  <br>Final Environmental Assessment (FERC, October 2017) |
| | Numbers and names of each zone of effect and river mile of upstream and downstream limits of each zone of effect (e.g., "Zone 1: Impoundment RM 6.3 - 5.1") | Zone 1: Impoundment RM 11.2- 6.9<br>Zone 2: Bypass Reach RM 6.9-1.5<br>Zone 3: Tailrace RM 1.5-0 |
| ***Pre-Operational Facilities Only*** | | |
| ***Expected operational date*** | Date generation is expected to begin | N/A |
| ***Dam, diversion structure or conduit modification*** | Description of modifications made to a pre-existing conduit, dam or diversion structure needed to accommodate facility generation. This includes installation of flashboards or raising the flashboard height.<br>Date the modification is expected to be completed | N/A |
| ***Change in water flow regime*** | Description of any change in impoundment levels, water flows or operations required for new generation | N/A |

## 3.0 ZONES OF EFFECT

The Hawks Nest Project site offers three designated zones of effect for this application.

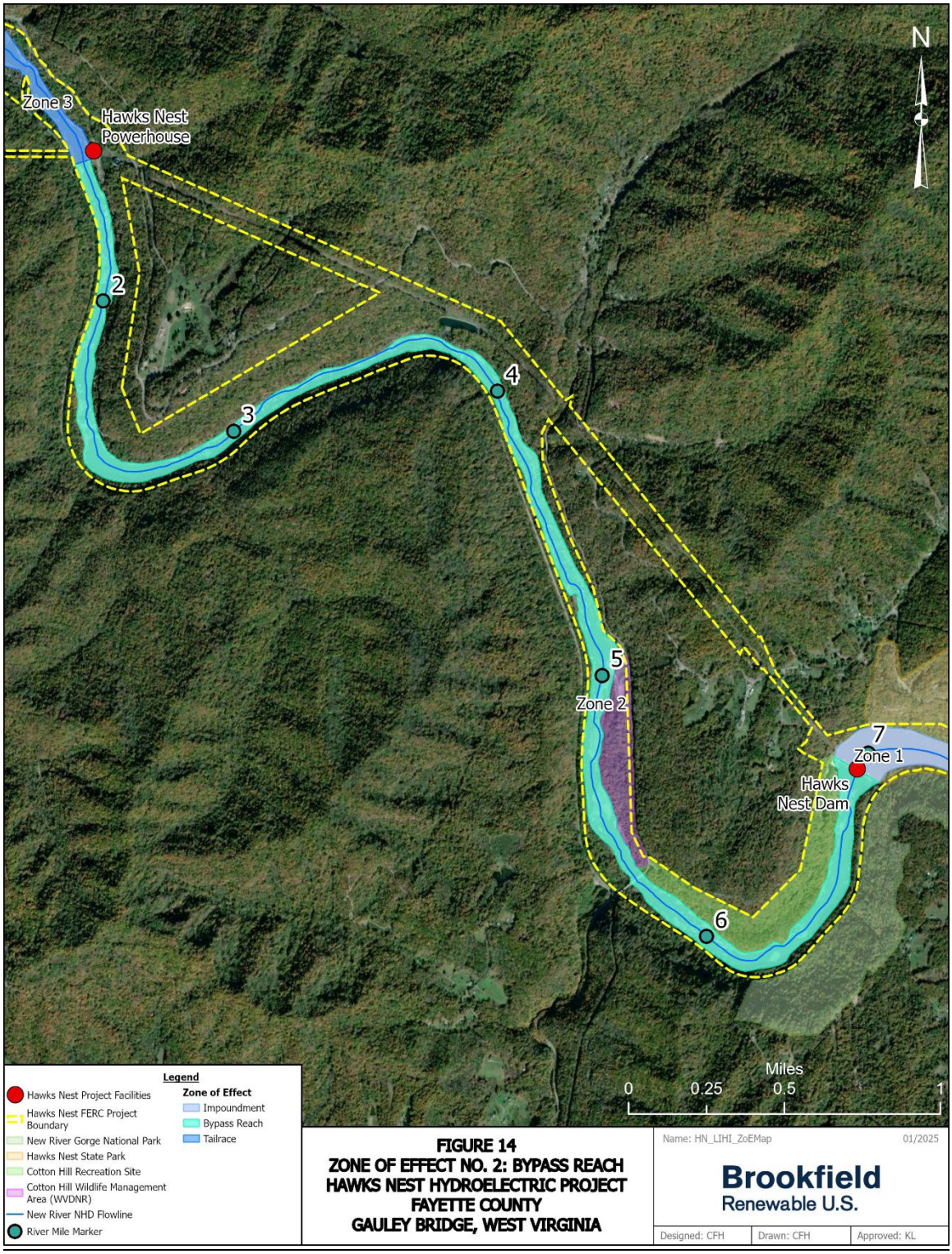
### 3.1 Zone 1: Impoundment

**Zone 1** is defined as the **Impoundment** covering 243 acres starting from the top of Hawks Nest Reservoir at the Marr Branch confluence (RM11.2) and extending 4.3 miles downstream to the Hawks Nest Dam (RM 6.9).



## 3.2 Zone 2: Bypass Reach

**Zone 2** is defined as the **Bypass Reach** beginning at and including the Hawks Nest Dam and Spillway (RM 6.9) and extending downstream 5.4 miles to the confluence with the tailrace adjacent to the Hawks Nest Powerhouse (RM 1.5). This includes the spillway as shown below.



## 3.3 Zone 3: Tailrace

**Zone 3** is defined as the **Tailrace** beginning at the Hawks Nest Powerhouse (RM 1.5) and extending downstream 1.5 miles to the Confluence of the New and Gauley Rivers (RM 0).

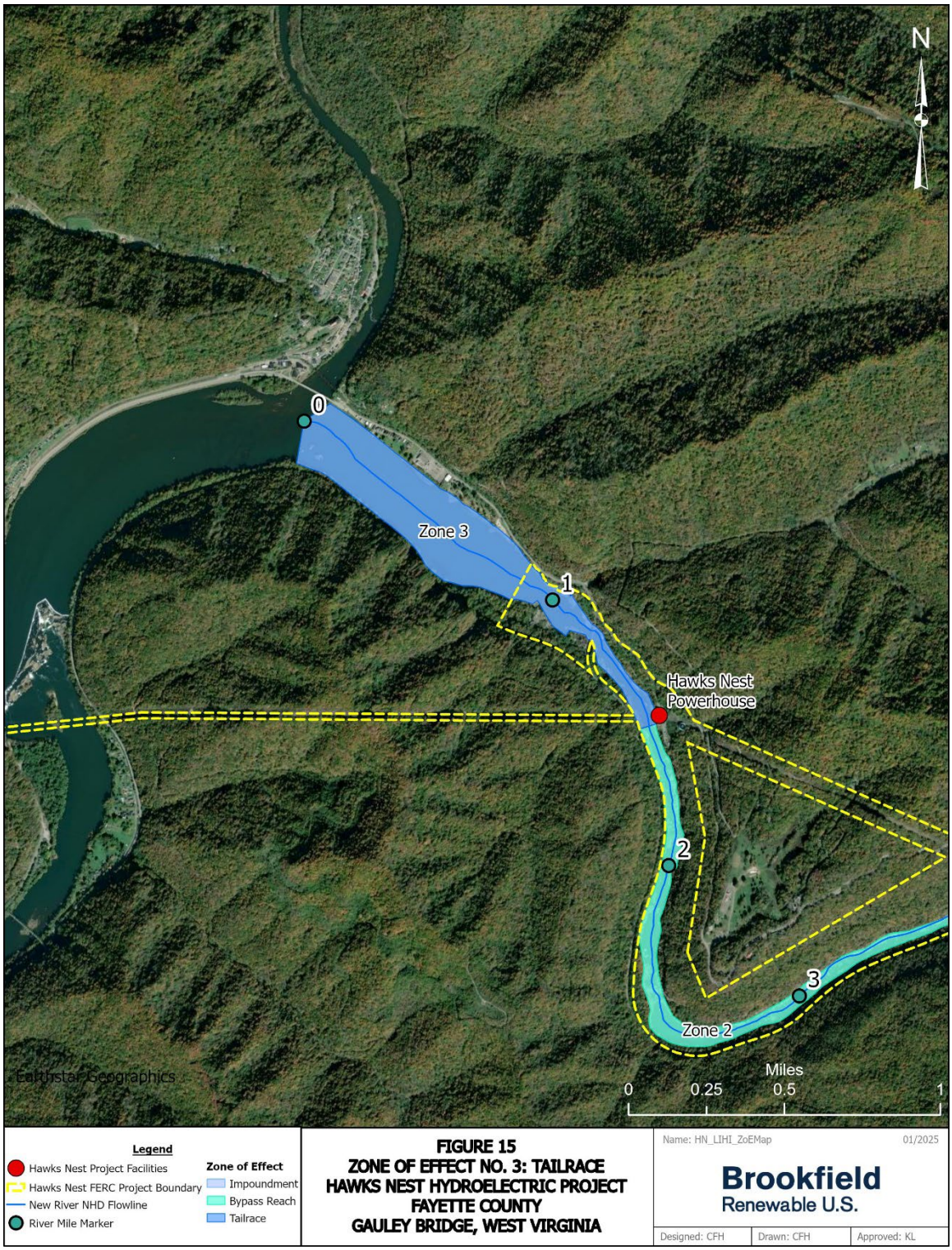


**Table 2.b. Standards Matrix Template for Multiple ZoEs.**

**Facility Name: Hawks Nest Hydroelectric Project**

| Zone: | | 1: Impoundment | 2: Bypass Reach | 3. Tailrace |
|---|---|---|---|---|
| River Mile at upper and lower extent of Zone: | | 11.2 to 6.9 | 6.9 to 1.5 | 1.5 to 0 |
| **Criterion** | | **Standard Selected (type in one numbered standard and PLUS if applicable)** | | |
| A | Flow Regimes | 1 | 2 | 1 |
| B | Water Quality | 1 | 2 | 2 |
| C | Upstream Fish Passage | 1 | 1 | 1 |
| D | Downstream Fish Passage | 1 | 1 | 1 |
| E | Shorelines and Watershed | 3 | 3 | 3 |
| F | Threatened and Endangered Species | 2 | 2, PLUS | 2 |
| G | Cultural and Historic Resources | 2 | 2 | 2 |
| H | Recreational, Public, and Traditional Cultural Access | 2 | 2 | 2 |

## 4.0 CRITERION

This section contains information that explains and justifies the standards selected to pass LIHI certification criteria.

### *4.1 Criterion A: Flow Regimes Standards*

***Goal:*** *The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for heathy fish and wildlife resources.*

#### 4.1.1 Criterion A: Requirements

*1) Identify any deviations that have occurred in the past 10 years; if none have occurred, state so. If deviations have occurred, identify the date, duration, cause, and the measures taken to minimize reoccurrence. Links to FERC notifications and responses should be included.*

Please see *Section 5: Regulatory Deviations* for links to FERC notifications and responses.

*2) Identify how flows and water levels are monitored and explain how compliance with requirements is demonstrated.*

The Project is monitored and operated from the powerhouse control room, which is staffed 24 hours per day, 7 days per week, including weekends and holidays. Plant control (generating units and two spillway gates) is conducted via a remote terminal unit (RTU) and/or electrical equipment from the control room. In the event of the loss of RTU communication, a local operator is dispatched to the site to operate the plant manually.

The control room operators are responsible for controlling the gates at the Hawks Nest Dam to balance the river flow released into the bypass reach and the river flow diverted into the power tunnel for generation purposes. Supervisory data and control signals are telemetered between Hawks Nest Dam

and the control room at the powerhouse. Two gates at the Hawks Nest Dam are connected at all times to the gantry cranes and can be remotely operated from the control room. Operators set these remotely controlled spillway gates to the appropriate opening to manage the excess river flow while sustaining the reservoir elevation. Control room operators periodically check the upstream USGS gage on the New River at Hinton, WV (No. 03184500), which indicates changes in flows released from Bluestone Dam, to determine the need for additional spillway gates and discharge. Operation of additional gates requires that the gantry cranes at the dam be moved by personnel at the dam.

The headpond elevation is continuously monitored by an electronic sensor that transmits data to the control room. The operator on duty monitors the levels regularly and maintains hourly logs documenting the conditions at the Project, including headpond and powerhouse tailrace elevations, station discharge, and spillway and trash gate discharge.

The reservoir level is maintained through power generation and release of the required minimum flow from the trash gate at the right end of the spillway and additional spill through the spillway gates when inflow exceeds powerhouse capacity. Although as presently constructed the maximum reservoir elevation is 820 feet, the reservoir is not typically operated more than 0.5 feet above the normal pool level. Operation of the Project in the range described above provides pond level flexibility to achieve compliance with the seasonal ramping rate required by Article 402 of the existing license for the protection of downstream public safety and aquatic resources.

*3) Describe any enforceable agreements with upstream or downstream facilities that regulate inflow or outflow at the facility (see Section 4.1.1 as these "regulated reaches" may need to be designated as separate Zones of Effect).*

There are no enforceable agreements with upstream or downstream facilities that regulate inflow or outflow at the facility

*4) Describe for each ZoE how the facility satisfies the criterion goal: The flow regimes in riverine reaches affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources.*

Please see Sections 4.1.2 & 4.1.3 for descriptions of how the facility satisfies the criterion goal for each ZoE.

*5) Describe how the flow management approach is appropriate by considering factors such as base flows, inflow, daily, seasonal, and inter-annual variability, high-flow pulses, and ramping rates.*

Please see Sections 4.1.2 & 4.1.3 for descriptions on how the flow management approach is appropriate.

### 4.1.2 Zone 1 & 3: Standard 1 - Non-Applicable/De Minimis Effect

Zones of Effect 1 and 3 are using Standard 1 to justify meeting the Flow Regimes Standard.

| *Criterion* | *Standard* | *Instructions* |
|---|---|---|
| A | 1 | Not Applicable / De Minimis Effect:<br>• Confirm the location of the powerhouse relative to any dam/diversion structures and demonstrate that there are no bypassed reaches in the designated Zone of Effect.<br>• For run-of-river facilities, provide details on operations and describe how flows, water levels, and operations are monitored to ensure such an operational mode is maintained. In a conduit facility, identify the source waters, location of discharge points, and receiving waters for the conduit system within which the hydropower facility is located. This standard cannot be used for conduits that discharge to a natural waterbody.<br>• Describe the target fish and wildlife resources that were considered and how the resultant flow regime supports their habitats over their life cycles.<br>• For impoundment zones, explain water management (e.g., fluctuations, ramping, refill rates, restrictions) and how those requirements support fish and wildlife habitat within the ZoE. |

***Flow Regimes Standard 1: Non-Applicable/De Minimis Effect (Zone 1 & 3)***

The Hawks Nest Project is operated in run-of-river mode (inflow to the Project approximating outflow from the powerhouse and dam) as required by Article 402 of the FERC license which incorporates the specific Special Conditions (conditions) of the Water Quality Certificate (WQC) issued by the WVDEP on August 14, 2017. Reservoir elevation (Zone 1) is maintained at El. 819 ft (+/- 0.5 ft) through power generation, release of the required minimum flow, and additional spillway releases as necessary. Operation of the Project below El. 818.5 ft requires notification to the WVDEP and the WVDNR.

The reservoir level is maintained through power generation and release of the required minimum flow from the trash gate at the right end of the spillway and additional spill through the spillway gates when inflow exceeds powerhouse capacity. Although as presently constructed the maximum reservoir elevation is 820 feet, the reservoir is not typically operated more than 0.5 feet above the normal pool level. Operation of the Project in the range described above provides pond level flexibility to achieve compliance with the seasonal ramping rate required by Article 402 of the existing license for the protection of downstream public safety and aquatic resources. The Hawks Nest reservoir (Zone 1) mirrors the natural upstream pool habitats found in the riffle-pool-drop ecosystem of the New River within the New River Gorge to support aquatic resources and sustain a diverse warm water fishery and macroinvertebrate community.

From the Tailrace down (Zone 3), all flow is returned to the natural river course with outflows matching inflow to the project and no additional diversions of water. Total Project outflow is the calculated sum of total powerhouse flow and flow released to the bypass reach.

### 4.1.3 Zone 2: Standard 2 - Agency Recommendation

Zone of Effect 2 utilizes Standard 2 to justify meeting the Ecological Flow Regimes Standard.

| *Criterion* | *Standard* | *Instructions* |
|---|---|---|
| A | 2 | Resource Agency and Tribal Government Recommendation:<br>• Identify the proceeding and source, date, and specifics of the agency and any tribal government recommendations recommendation applied in the designated ZoE (NOTE: there may be more than one; identify and explain which is most environmentally protective).<br>• Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.<br>• Explain how the recommendation relates to formal agency and tribal management goals and objectives for fish and wildlife and provides fish and wildlife protection, mitigation, and enhancement (including instream flows, ramping, and peaking rate conditions, and seasonal and episodic instream flow variations). |

***Flow Regimes Standard 2: Agency Recommendation (Zone 2)***

A minimum flow of 300cfs March 1 through June 30, and 250cfs for all other months, is required in the Bypass Reach (Zone 2) by Condition 2 of the WVDEP WQC, and Article 402 of the FERC License. This flow is released at the dam into the bypass reach through the trash gate. With the minimum flow requirement of 250cfs provided at the dam, the balance of the flow is dispatched through the power tunnel for powerhouse operations. The powerhouse has a maximum capacity of approximately 10,000cfs. River flow in excess of approximately 10,250cfs is released through the spillway gates. The normal river flow is less than or equal to 10,250cfs approximately 70 percent of the time.

Minimum flows in the bypass reach were a primary issue associated with the 2017 relicensing of the Hawks Nest Project. Prior to the 1987 relicensing, the minimum flow through the 5.5-mile-long bypass channel below Hawks Nest Dam was essentially leakage flow estimated to be approximately 25 cfs. In 1987, minimum flows were increased to 100cfs. During the FERC Integrated Licensing Process scoping and study plan development phase of the most recent relicensing effort, resource agencies requested the current minimum bypass reach flow be re-evaluated.

In the runup to relicensing, numerous studies were conducted including a *Bypassed Channel Minimum Flow Assessment* (HDR 2011), an *Aquatic Species Composition and Abundance Survey* (HDR 2015b), the *Bypass Reach Aquatic Habitat Use and Instream Flow Study* (HDR, 2015), and an *Aquatic Species Composition and Abundance Survey* (HDR 2015b). In addition, comments and recommendations from the US Department of Interior (Interior), the WVDNR, the USFWS, and other stakeholders were considered by the WVDEP and the FERC in determining an appropriate flow regimen for the Bypass Reach.

It was determined that the rate of increase in total wetted habitat for fish in the bypassed reach declines at flows greater than 300 cfs, and that there is little increase in wetted habitat for important fishery species, such as smallmouth bass, at flows higher than 250 to 300 cfs. The greatest gains in total wetted habitat (per unit increase in flow) in the bypassed reach (which would benefit multiple species, including darters and bigmouth chub) occurs from 100 cfs to 300 cfs, after which the rate of habitat gain levels off (300 cfs to 1,000 cfs), then declines (above 1,000 cfs). There is also little increase in Weighted Usable Area (WUA) for important fishery species such as smallmouth bass at flows higher than 250 to 300 cfs. Increasing minimum flows in the Hawks Nest bypassed reach to 250 cfs from July through February and 300 cfs from March through June protects and enhances aquatic resources by providing an additional

59,000 to 70,000 square meters of suitable habitat for adult smallmouth bass, the most sought-after sport fish in the project area.

As stated in Section 4.1.1, operation of the Project Pond level in the range described above provides flexibility to achieve compliance with the seasonal ramping rate required by Article 402 of the existing license for the protection of downstream public safety and aquatic resources. The approved ramping rate requires the Licensee to upramp or downramp flows from the Hawks Nest Project from March through October when river flows are less than 12,600cfs, and when there are flows of 2,600cfs or less in the bypass reach, to maintain a ramping rate not greater than 1 foot per hour, as measured at the U.S. Geological Survey (USGS) gage in the vicinity of the Cotton Hill Bridge (USGS 380649081083301 New River below Hawks Nest Dam, West Virginia). This ramping rate only applies when reservoir inflows are less than 12,600 cfs and flows in the bypassed reach are less than or equal to 2,600 cfs; at higher flows, as it is more difficult to achieve the target ramping rate without posing a threat to dam safety as the dam could be overtopped given the limited storage capacity of the Hawks Nest reservoir. In accordance with the Commission's 1991 Order Approving and Modifying Ramping Rate and Amending Mode of Operation, the approved ramping rate may be modified, if necessary, to prevent overtopping of the Project dam or spillway gates.

From an environmental perspective, ramping rates are implemented to protect aquatic organisms from rapid changes in water levels. The early life history stages of fishes are particularly susceptible to rapid changes in water levels and flows because of their relatively poor swimming ability. A sudden increase in flows can flush fry or early-stage juveniles downstream and reduce their chances of survival, whereby a sudden decrease in water levels can lead to stranding of early life stages. Maintaining the current ramping rate regime in the Hawks Nest bypassed reach from March through October protects young fish from stranding or being flushed downstream during the times of the year in which these sensitive life stages (fry and early-stage juveniles) are most prevalent in the project area.

## 4.2 Criterion B: Water Quality Standards

***Goal:*** *Water quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions.*

### 4.2.1 Criterion B: Requirements

*1) Specify the state and tribal water quality classifications and designated uses for the river at the facility or for each zone if they differ. For instance, "The impoundment is a Class B water designated by the state (or XX Tribe) as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation".*

The West Virginia Integrated Water Quality Monitoring and Assessment Report (IR) fulfills the reporting requirements under Sections 303(d) & 305(b) of the federal Clean Water Act. Section 303(d) to provide a list of impaired waters, and Section 305(b) to provide an overall assessment of West Virginia's waters which are submitted to the U.S. Environmental Protection Agency (USEPA).

While Integrated Reports are normally published for two-year cycles, the WVDEP encountered several circumstances that delayed the release of the 2018 and 2020 cycle reports. For this reason, on July 19, 2023, the WVDEP published a combined Integrated Report that covers three cycles: 2018, 2020, and 2022. This allowed WVDEP to fulfill reporting requirements while streamlining the process to assess data, obtain input from the public, and obtain USEPA approval.

The primary focus of this report is assessing water quality data to determine if waters support their designated uses. The first step in assessing whether a waterbody is supporting its uses is to determine if monitored parameters meet water quality criteria. If any parameter measured in a waterbody is not meeting criteria protective of a single designated use, then that waterbody will be categorized as impaired or "not supporting" its overall use. Waters are placed in one of the five Overall IR Categories based on their level of designated use support.

**Table 5-1: Overall Integrated Report Categories for West Virginia Waters**

| Category | | Description |
|---|---|---|
| Category 1 | | Waters fully supporting all designated uses |
| Category 2 | | Waters fully supporting some designated uses, but insufficient or no information exists to assess the other designated uses |
| Category 3 | | Waters where insufficient or no information exists to determine if any of the uses are being met |
| Category 4 | | Waters impaired or threatened but do not need a total maximum daily load (TMDL) |
| | 4a | Waters that already have an approved TMDL but are still not meeting standards |
| | 4b | Waters that have other control mechanisms in place which are reasonably expected to return the water to meeting designated uses |
| | 4c | Waters determined to be impaired, but not by a pollutant (e.g., low flow alteration) |
| Category 5 | | Waters assessed as impaired and are expected to need a TMDL |

*West Virginia Integrated Water Quality Monitoring and Assessment Report (IR) Categories*

For a stream to be placed in Categories 1, 2, or 3, there can be no impairments. When any parameter is not meeting criteria, then the waterbody is not supporting a designated use and the entire assessment unit is considered impaired and placed in Integrated Report Category 5 (needs a TMDL) or Category 4 (does not need a TMDL).

The entirety of the Lower New River (Assessment Unit ID: WVKN-lo) is considered impaired in its overall use due to elevated levels of fecal coliform. Therefore, all individual segments of the Lower New River, including those within the applicable ZOEs, are assigned the same overall category regardless of their individual designated uses. While there are no known point sources of pollution within the subwatershed(s) directly adjacent to the project, the New River is composed of innumerous upstream subwatersheds within the nearly 1,600 square miles that encompass the watershed within West Virginia. Individual potential sources of pollutants identified within the state by the WVDEP include twenty-three (23) publicly owned treatment works (POTWs), five (5) privately owned sewage treatment plants, fifty-eight (58) privately owned "package plants"[2], twenty (20) home aeration units (HAUs)[3], and three (3) municipal separate storm sewer systems (MS4s). In 2018 a Total Maximum Daily Load (TMDL) was developed by the WVDEP in partnership with the USEPA to address impairment of water quality as identified in West Virginias 2006 Section 303(d) Lists of impaired waters. This effort is ongoing.

ZOEs 2 & 3 lie entirely within the smaller Lower New River assessment unit WV-KNL_16, which extends from the mouth of the river to the Impoundment (ZOE 1) at RM 6.9. Because a TMDL plan has been

[2] "Package plants" generally refers to pre-packaged, pre-engineered wastewater treatment systems. These systems are designed for smaller communities or individual properties where traditional, large-scale treatment facilities aren't feasible or cost-effective.

[3] Home aeration units (HAUs), also known as Aerobic Treatment Units (ATUs), are a key component in enhancing the efficiency of onsite wastewater treatment, particularly when conventional septic systems face limitations due to soil conditions, small lot sizes, or high water tables. They essentially function as miniature versions of municipal wastewater treatment plants.

developed for the New River, it is designated Parameter Category 4a. The TMDL prevents Category 5 listing and precludes the Lower New River from a 303(d)-listing status.

In regards to specific designated uses, Lower New River Assessment Unit WC-KNL_16 (ZOEs 2 & 3) is designated as B1 (Warm Water Fishery), D (Agriculture and Wildlife), and E (Water Supply Industrial, Water Transport, Cooling and Power) waters with no impairments or issues identified for or caused by these uses.

The Impoundment (ZOE 1), despite functioning as a deep-slow pool segment of the New River system, is designated a lake in the IR. The Hawks Nest Lake (Assessment Unit ID: WV-KNL-L5-108) has not been monitored or assessed in the IR for its overall use, or for individual designated uses. The Impoundment has however been designated by the State of West Virginia and the WVDEP as a Tier 3 water. Waters placed in the Tier 3 category are known as outstanding national resource waters. These include waters in Federal Wilderness Areas, specifically designated federal waters, and high-quality waters or naturally reproducing trout streams in state parks, national parks, and national forests. Guidance pertaining to Tier 3 waters can be found in Series 2A Designation of Tier 3 Waters - Title 47CSR2A. Tier 3 waters required the most stringent requirements for protection.

*2) Provide a link to the most recent final Clean Water Act Section 303(d) impaired waters list, the Section 305(b) integrated water quality report; and lists of other stressed waters (if applicable) and indicate the page numbers(s) therein that apply to facility waters, or state that the facility waters are not included on any list.*

The Final WVDEP 2018/2020/2022 Integrated Report (pdf) discusses the requirements, data, assessment, and results of the state's water quality monitoring, thus satisfying the Section 305(b) requirements. However, the report does not contain the 303(d) list and instead directs users to an online 303(d) list in the form of an interactive ESRI StoryMap maintained by the WVDEP. Additionally, the impaired waters list can be found in the recently developed USEPA's, Assessment, TMDL Tracking and Implementation System (ATTAINS). The internet-based data management system prepared by the USEPA is made available to the public at the USEPA How's My Waterway site. The following are direct ATTAINS links to the waterbodies included within the Hawks Nest Zones of Effect:

ZOE 1: Hawks Nest Lake (Entire Lake; Assessment Unit ID: WV-KNL-L5-108)

ZOE 2&3: Lower New River (Mouth to Lake at RM 6.9; Assessment Unit ID: WV-KNL-16)

WVDEP has prepared a workbook called IR Category Designated Use to provide the overall IR category for every assessment unit, as well as use attainment status for every designated use. The workbook can be accessed at the WVDEP site (linked above) and found under the 2018/2020/2022 Cycle Year tab.

*3) Discuss if/how the facility does or does not contribute to the specific impairments.*

The entirety of the Lower New River (Assessment Unit ID: WVKN-lo) is considered impaired in its overall use due to elevated levels of fecal coliform. Therefore, all individual segments of the Lower New River, including those within the applicable ZOEs, are assigned to the same overall category regardless of their individual designated uses. While there are no known point sources of pollution within the subwatershed(s) directly adjacent to the project, the New River is composed of innumerous upstream subwatersheds within the nearly 1,600 square miles that encompass the watershed within West Virginia. Individual potential sources of pollutants identified within the state by the WVDEP include twenty-three (23) publicly owned treatment works (POTWs), five (5) privately owned sewage treatment

plants, fifty-eight (58) privately owned "package plants", twenty (20) home aeration units (HAUs), and three (3) municipal separate storm sewer systems (MS4s). In 2018 a TMDL was developed by the WVDEP in partnership with the USEPA to address impairment of water quality as identified in West Virginias 2006 Section 303(d) Lists of impaired waters. This effort is ongoing.

*4) Describe for each ZoE how the facility satisfies the criterion goal: Water quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions.*

Please see Sections 4.2.2 & 4.2.3 for descriptions of how the facility satisfies the criterion goal for each ZoE.

### 4.2.2 Zone 1: Standard 1 - Non-Applicable/De Minimis Effect

Zone of Effect 1 is using Standard 1 to justify meeting the Water Quality Standard.

| ***Criterion*** | ***Standard*** | ***Instructions*** |
|---|---|---|
| B | 1 | Not Applicable / De Minimis Effect:<br>• Explain the rationale for why the facility does not alter water quality characteristics below, around, and above the facility. |

***Water Quality Standard 1: Non-Applicable/De Minimis Effect (Zone 1)***

The project exerts no effect on WV State Water Quality Requirements, incremental or cumulative, within Zone of Effect No. 1. It was noted in the FERC Environmental Assessment that, per water quality studies conducted during relicensing, minimal stratification occurs in the Hawks Nest reservoir under project operating conditions. Water column temperatures are vertically homogenous, and surface waters of the reservoir remain below the state's maximum temperature threshold. Additionally, dissolved oxygen (DO) values are homogenous with depth and well above the state standard. Other water quality parameters such as pH and nutrient levels were measured in the reservoir and met state standards. Based on summer grab samples in the reservoir, pH ranged from 7.5 to 8.4 and concentrations of ammonia and total phosphorous were below laboratory detection limits of 0.1 and 0.05 mg/L, respectively. Nitrate concentrations in the reservoir ranged from 0.51 to 0.75 mg/L (not to exceed 10 mg/L).

### 4.2.3 Zone 2 & 3: Standard 2 – Agency Recommendation

Zones 2 & 3 are using Standard 2 to justify meeting the Water Quality Standard.

| *Criterion* | *Standard* | *Instructions* |
|---|---|---|
| B | 2 | Resource Agency and Tribal Government Recommendation:<br>• Provide a copy of the most recent state and, if applicable, Tribal Water Quality Certificate and any subsequent amendments, including the date(s) of issuance. If more than 10 years old, provide documentation that the certification terms and conditions remain valid and in effect for the facility (e.g., a confirmation letter or email from the resource agency or Tribal Nation).<br>• Identify any other agency recommendations related to water quality and explain their scientific or technical basis.<br>• Identify any tribal government recommendations and explain their scientific or indigenous knowledge basis.<br>• Describe all compliance requirements and activities related to water quality including on-going monitoring, and how those are integrated into facility operations and reported to resource agencies, tribal governments, and FERC, as applicable . |

***Water Quality Standard 2: Agency Recommendation (Zone 2 & 3)***

Under section 401 of the Clean Water Act (CWA), a license applicant must obtain a WQC from the appropriate state pollution control agency. The WVDEP implements water quality standards to protect human and aquatic health throughout state waters. On June 1, 2016, Hawks Nest Hydro mailed an application to the WVDEP for a section 401 certification for licensing the Hawks Nest Project. The WVDEP issued Section 401 certification for the project on August 14, 2017. The WQC contains twenty (20) mandatory conditions, of which two (2) are directly related to the maintenance of water quality standards.

Per the WQC issued by the WVDEP for relicensing, and the FERC Order Issuing New License for the Hawks Nest Hydroelectric Facility (P-2512), the project is required to operate in a run-of-river mode (WQC Condition No. 1; FERC License Article 402), and release at minimum 250 cfs at all times (WQC Condition No. 2; FERC License Article 402) to ensure compliance with WV State Water Quality requirements. During relicensing, water quality monitoring data indicated that the previous minimum flow requirements (100cfs) caused occasional exceedances of water temperature in the Hawks Nest bypass reach over the West Virginia state standard of 87 degrees Fahrenheit ($F^o$). DO and pH in the bypass reach met state water quality standards. It was determined that by increasing the minimum bypass reach flow to at least 250 cfs would reduce the frequency and magnitude of temperature fluctuations and the potential for exceedances, thereby protecting and enhancing aquatic resources and providing suitable habitat for aquatic species (ZOE 2).

The project also maintains an NPDES Permit (WV0116301), most recently reissued on February 28, 2024, to operate and maintain a discharge system and best management practices for the direct discharge of non-contact cooling water from the project generators. The monthly monitoring requirements for these outlets (001-004) are specific to mitigating temperature exceedances in the New River at and below the tailrace (ZOE 3). This permit also regulates the discharge of treated storm water and groundwater seepage into the New River at the Powerhouse (ZOE 3) via quarterly monitoring of Outlet 005. Water quality studies have shown that there is essentially no change in temperature as water travels down the 3-mile tunnel and is discharged from the powerhouse. Other water quality parameters in the tailrace are also within state standards.

Please see *Section 8.2: Water Quality Certification, Amendments and Reports* for links to the most recent Water Quality Certificate.

## 4.3 Criterion C: Upstream Fish Passage Standard

***Goal:*** *The facility allows for the safe, timely and effective upstream passage of migratory fish to ensure that migratory species can successfully complete their life cycles and maintain healthy populations in areas affected by the facility.*

### 4.3.1 Criterion C: Requirements

*1) Provide a list all migratory fish species (anadromous, catadromous, and potamodromous species) that occur now or have occurred historically at the facility.*

**Migratory Fish Species**

| Species | Scientific Name | Conservation Status |
|---|---|---|
| Channel Catfish | Ictalurus punctatus | Secure |
| Hybrid Striped Bass | Morone chrysops x saxatilis | Exotic |
| Alewife Herring | Alosa pseudoharengus | Exotic |

There are no anadromous or catadromous fish species found in the New River, and only three (3) potamodromous species historically found within or near the project boundary that are known to migrate significant distances. Two (2) of these migratory species are considered exotic to West Virginia waters, while the other (Channel Catfish) has a conservation status ranking of Secure both globally and within the state of West Virginia. Of the other fifty-nine (59) species known to inhabit the vicinity of the facility, approximately twenty-three (23) are locally migrant species that migrate over short distances within a specific river system often for spawning, feeding, or to escape unfavorable environmental conditions.

*2) Provide confirmation from the applicable state and tribal fish and wildlife authorities that no potamodromous species require upstream passage at the facility.*

In the Final Environmental Assessment for New Hydropower License (FEA, Oct 2017), the FERC discusses reasons that Fish Passage was not recommended. It was shown that no recent evidence of native population of diadromous fishes are present in the project area. Furthermore, in a letter filed with the Commission on October 5, 2016, the Department of Interior stated that "… we do not recommend requiring Hawks Nest Hydro to consider provisions for fish passage at the projects given the current lack of native migratory fish populations in the immediate vicinity of the projects".

*3. Describe for each ZoE how the facility satisfies the criterion goal: The facility allows for the safe, timely, and effective upstream passage of migratory fish to ensure that migratory species can successfully complete their life cycles and maintain healthy populations in areas affected by the facility.*

Please see Sections 4.3.2 for descriptions of how the facility satisfies the criterion goal for each ZoE.

### 4.3.2 Zone 1, 2, & 3: Standard 1 - Non-Applicable/De Minimis Effect

Zones of Effect 1, 2, and 3 are using Standard 1 to justify meeting the Upstream Fish Passage Standard.

| *Criterion* | *Standard* | *Instructions* |
|---|---|---|
| C | 1 | <u>Not Applicable / De Minimis Effect:</u><br>• Explain why the facility does not impose a barrier to upstream fish passage in the designated ZoE. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there is no facility barrier to further upstream movement.<br>• Provide available fish distribution data showing the absence of migratory fish species in each ZoE.<br>• If migratory fish species have been extirpated from the facility area, explain why the facility is not or was not the cause of the extirpation. |

***Upstream Fish Passage Standard 1: Non-Applicable/De Minimis Effect (Zone 1,2, & 3)***

There are no barriers to upstream fish passage at the upstream extent of Zone 3 (Tailrace) and Zone 1 (Impoundment). There are no facility barriers to upstream movement within these Zones of Effect.

The Hawks Nest Dam impedes upstream movement of fish at the top of Zone 2. However, there are only three (3) migratory fish species historically within the project area, and the conservation status of two of those, the Hybrid Striped Bass and Alewife Herring, are exotic to the region. The other migratory species (Channel Catfish) is well distributed and secure in regard to its conservation status.

The New River system (including the Gauley River and its tributaries) supports a different fish community than the downstream Kanawha River system, which is part of the larger Ohio River system (Jenkins and Burkhead 1994, in Paybins et al. 2000). The 24-foot Kanawha Falls, located approximately 2.5-miles downstream of the Hawks Nest Powerhouse, is the boundary between these systems. New River and upper Kanawha River (i.e., above Kanawha Falls) fish communities have been characterized as having low numbers of native species, high numbers of endemic species (i.e., unique to a waterbody and not occurring anywhere else), and high numbers of non-native species (Jenkins and Burkhead 1993). Species richness in the New River is lower than in neighboring drainages, and is the lowest of the twenty-six (26) major eastern drainages. The lack of species richness and high endemism has been attributed to lack of Pleistocene glaciation and stream piracy or capture (diversion into an adjoining stream), which eradicated much of the aquatic species diversity. Natural barriers and high gradient rapids such as Kanawha Falls and Sandstone Falls, and the turbulent conditions of the New River Gorge have impeded recolonization and dispersal of species into the upper New River (Jenkins and Burkhead 1993). Habitat in the upstream New River Gorge National River area consists of a series of complex, high-gradient cascades and rapids comprising bedrock and boulder sandstone substrates. The turbulent conditions and cascades within the New River Gorge have also contributed, in part, to the lack of fish emigration, resulting in the low species richness of all aquatic species seen today in the upper New River basin.

Approximately eighty-nine (89) species of fish, comprising forty-six (46) natives, including eight (8) endemics and forty-two (42) introduced species, are attributed to the larger New River watershed. An *Aquatic Species Composition and Abundance Survey* (HDR 2015a) was conducted for the relicensing of the Project. As described in that report, fish sampling upstream of Kanawha Falls (e.g., Hawks Nest reservoir, Hawks Nest bypass reach/tailrace, and Glen Ferris reservoir/Lower Gauley River sample sites) for Hawks Nest Hydro in 2013 documented sixty-two (62) fish species. Although several tributaries adjacent to the Projects' boundaries are classified as trout waters, the mainstem New River and Kanawha River are classified as warmwater streams.

FERC states in their Order Issuing New License, "As described in the EA, there is no recent evidence that American eel, or other population of diadromous fishes are present in the project area. Therefore, due to the current lack of migratory populations in the immediate vicinity of the project, staff did not recommend provision for fish passage at the project. Consequently, this license does not include this measure. However, Article 403 reserves the Commission's Authority to require fishways that may be prescribed by the Interior."

## 4.4 Criterion D: Downstream Fish Passage Standard

***Goal:*** *The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, including resident potamodromous fish, the facility minimizes loss of fish from impoundments and upstream river reaches affected by facility operations. Migratory species can successfully complete their life cycles and maintain healthy populations in the areas affected by the facility.*

### 4.4.1 Criterion D: Requirements

*1) In addition to the migratory species list provided for criterion C above, provide a list of all riverine/resident fish species that occur now or have occurred historically at the facility.*

**Riverine/Resident Fish Species**

| Species | Scientific Name | Migration | | Conservation Status | |
|---|---|---|---|---|---|
| | | Long Distance | Locally | Global | WV |
| Northern Hog Sucker | *Hypentelium nigricans* | No | Yes | Secure | Secure |
| Highfin Carpsucker | *Carpiodes velifer* | No | Yes | Secure | Imperiled |
| Quillback Sucker | *Carpiodes cyprinus* | No | Yes | Secure | Secure |
| White Sucker | *Catostomus commersonii* | No | Yes | Secure | Secure |
| Smallmouth Buffalo | *Ictiobus bubalus* | No | No | Secure | Secure |
| River Redhorse | *Moxostoma carinathum* | No | No | Secure | Vulnerable |
| Golden Redhorse | *Moxostoma erythrurum* | No | Yes | Secure | Secure |
| Shorthead Redhorse | *Moxostoma macrolepidotum* | No | Yes | Secure | Imperiled |
| Common Carp | *Cyprinus carpio* | No | No | Secure | Exotic |
| Bigmouth Chub | *Nocomis platyrhynchus* | No | No | Secure | Secure |
| Central (Ohio) Stoneroller | *Campostoma anomalum* | No | No | Secure | Secure |
| Golden Shiner | *Notemigonus crysoleucas* | No | No | Secure | Secure |
| Mimic Shiner | *Notropis volucellus* | No | No | Secure | Secure |
| Rosyface Shiner | *Notropis rubellus* | No | No | Secure | Secure |
| Silver Shiner | *Notropis photogenis* | No | No | Secure | Secure |
| Spotfin Shiner | *Cyprinella spiloptera* | No | No | Secure | Secure |
| Spottail Shiner | *Notropis hudsonius* | No | Yes | Secure | Secure |
| Telescope Shiner | *Notropis telescopus* | No | No | Secure | Exotic |
| Whitetail Shiner | *Cyprinella galactura* | No | No | Secure | Exotic |
| Bluntnose Minnow | *Pimephales notatus* | No | No | Secure | Secure |
| Blacknose Dance | *Rhinichthys obtusus* | No | No | Secure | No Rank |
| Longnose Dance | *Rhinichthys cataractae* | No | No | Secure | Secure |
| Greenside Darter | *Etheostoma blennioides* | No | No | Secure | Secure |
| Johnny Darter | *Etheostoma nigrum* | No | Yes | Secure | Secure |

| | | | | | |
|---|---|---|---|---|---|
| Rainbow Darter | *Etheostoma caeruleum* | No | No | Secure | Secure |
| Roanoke Darter | *Percina roanoka* | No | No | Secure | Exotic |
| Sharpnose Darter | *Percina oxyrhynchus* | No | No | Secure | Secure |
| Variegate Darter | *Etheostoma variatum* | No | Yes | Secure | Secure |
| Logperch | *Percina caprodes* | No | No | Secure | Secure |
| Walleye | *Sander vitreus* | No | Yes | Secure | Secure |
| Bluegill Sunfish | *Lepomis macrochirus* | No | No | Secure | Secure |
| Green Sunfish | *Lepomis cyanellus* | No | No | Secure | Secure |
| Hybrid Green Sunfish | *Lepomis cyanellus x L. sp.* | No | No | No Rank | No Rank |
| Longear Sunfish | *Lepomis megalotis* | No | No | No Rank | Secure |
| Hybrid Longear Sunfish | *Lepomis megalotis x L. sp.* | No | No | No Rank | No Rank |
| Pumpkinseed Sunfish | *Lepomis gibbosus* | No | No | Secure | Secure |
| Redbreast Sunfish | *Lepomis auritus* | No | No | Secure | Secure |
| Hybrid Redbreast Sunfish | *Lepomis auritis x L. sp.* | No | No | No Rank | No Rank |
| Warmouth Sunfish | *Lepomis gulosus* | No | No | Secure | Imperiled |
| Channel Catfish | *Ictalurus punctatus* | Yes | Yes | Secure | Secure |
| Flathead Catfish | *Pylodictis olivaris* | No | No | Secure | Secure |
| Yellow Bullhead | *Ameiurus natalis* | No | No | Secure | Secure |
| Longnose Gar | *Lepisosterius osseus* | No | Yes | Secure | Secure |
| Hybrid Striped Bass | *Morone chrysops x saxatilis* | Yes | Yes | No Rank | Exotic |
| Largemouth Bass | *Micropterus nigricans* | No | No | No Rank | No Rank |
| Rock Bass | *Ambloplites rupestris* | No | No | Secure | Secure |
| Smallmouth Bass | *Micropterus dolomieu* | No | Yes | No Rank | Secure |
| Spotted Bass | *Micropterus punctulatus* | No | Yes | Secure | Secure |
| Hybrid Spotted Bass | *Micropterus punctulatus x M. dolomieu* | No | Yes | No Rank | No Rank |
| White Bass | *Morone chrysops* | No | Yes | Secure | Secure |
| Freshwater Drum | *Aplodinotus grunniens* | No | No | Secure | Secure |
| Black Crappie | *Pomoxis nigromaculatus* | No | No | Secure | Secure |
| White Crappie | *Pomoxis annularis* | No | No | Secure | Secure |
| Skipjack Herring | *Alosa chrysochloris* | No | Yes | Secure | Secure |
| Alewife | *Alosa pseudoharengus* | Yes | Yes | Secure | Exotic |
| Gizzard Shad | *Dorosoma cepedianum* | No | Yes | Secure | Secure |
| Shovelnose Sturgeon | *Scaphirhynchus platorynchus* | No | Yes | Secure | Imperiled |
| Brook Silverside | *Labidesthes sicculus* | No | No | Secure | Secure |
| Brown Trout | *Salmo trutta* | No | Yes | Exotic | Exotic |
| Muskellunge | *Esox masquinongy* | No | Yes | Secure | Secure |
| Sauger | *Sander canadensis* | No | Yes | Secure | Secure |
| Mooneye | *Hiodon tergisus* | No | Yes | Secure | Secure |

*Notes: 1) Fish Species documented during historical sampling (1986-2013)*
*2) Migration and Conservation Status from NatureServe Explorer*

A total of sixty-four (64) fish species were collected in the project areas (Hawks Nest & Glen Ferris reservoirs, tailraces, and the Hawks Nest bypassed reach) during electrofishing and gill net surveys conducted during the summer of 2013 (HDR, 2015a). Centrarchids (smallmouth bass, rock bass, various

sunfish species) and cyprinids (mimic shiner, whitetail shiner) dominate this warmwater assemblage; however, there are some differences in species composition among habitats (lentic versus lotic) and sampling location (upstream versus downstream of Kanawha Falls). In particular, numerous darter species (variegate, Roanoke, sharpnose, greenside, and rainbow) and central stoneroller were only found in the bypassed reach, which contains the shallow fast-moving waters and substrates these species prefer. Furthermore, some species were either much more common (gizzard shad) or only collected downstream of the Glen Ferris Dam and Kanawha Falls (freshwater drum, river redhorse, smallmouth buffalo, longnose gar, and seven other species) (HDR, 2015a). Several game species are common at both projects (reservoirs, tailraces, and the bypassed reach) including self-sustaining populations of smallmouth bass, channel catfish, and rock bass. The West Virginia DNR currently stocks walleye, muskellunge, blue catfish, paddlefish, and shovelnose sturgeon downstream of Kanawha Falls.

The New River supports an exceptional smallmouth bass fishery. Smallmouth bass are the most sought-after sportfish in the New River (Copeland et al., 2006) and Bassmaster Magazine ranked the New River as one of the top five smallmouth bass rivers in the country (Bassmaster, 2009). Based on electrofishing surveys, smallmouth bass had the highest catch-per-unit effort (CPUE) of any game fish in the Hawks Nest tailrace, Glen Ferris reservoir, and Glen Ferris tailrace; in other areas, smallmouth bass ranked either second (Hawks Nest bypassed reach, Kanawha Falls) or third (Hawks Nest reservoir) in relative abundance, behind rock bass and bluegill (above Kanawha Falls) and freshwater drum (below Kanawha Falls). In addition to their abundance, the broad size distribution of smallmouth bass provides evidence of a healthy fishery as young-of-the-year (YOY) fish were present in all sampled areas, indicative of recent and successful spawning, and fish as large as 18.5 inches (nearing the trophy size of 20 inches) were also sampled. The New River is known for trophy fish and the West Virginia state record for smallmouth bass (length) comes from the New River. Although walleye are a popular sportfish in other parts of the New River (primarily the upper New River, Palmer et al., 2005), only one walleye was captured during the 2013 field surveys, as compared to 338 smallmouth bass, which constitute the most important fishery in the vicinity of the projects.

There are no recent records of the occurrence of diadromous fishes in the project areas (Hawks Nest or Glen Ferris). The American eel is native to the New River drainage, but is currently considered very rare in the basin as the presence of dams on the Ohio, Kanawha, and New Rivers likely limits its distribution to areas of considerable distance downstream of the projects. There are no existing management or restoration plans for American eel in the New River. Although one alewife was collected during the 2013 fisheries surveys (in the Hawks Nest Reservoir), alewife populations in the lower New River are non-anadromous and emanate from historical stocking downstream of Claytor Dam (Jenkins and Burkhead, 1993).

No federally listed fish species have been documented to occur in the project areas. Pallid sturgeon, Scaphirhynchus albus, is a federally endangered species that is found only in portions of the Missouri and Mississippi River basins (FWS, 2010). Due to their similarity in appearance to pallid sturgeon, shovelnose sturgeon (Scaphirhynchus platorynchus) has been listed as federally threatened and granted take prohibitions in waters where they are fished and commonly coexist with pallid sturgeon (FWS, 2010). Therefore, although two shovelnose sturgeon were captured downstream of Kanawha Falls in 2013, shovelnose sturgeon is not federally listed in the New and Kanawha River basins because the endangered pallid sturgeon is not found in these systems. The West Virginia DNR stocks shovelnose sturgeon, as well as paddlefish (Polyodon spathula, a federal species of concern), in the Kanawha River as part of efforts to restore these species to their historical ranges in West Virginia.

Only one New River endemic, the bigmouth chub, has been documented to occur in the project areas (EA Engineering, 1986; Kleinschmidt, 1990; HDR, 2015a). Despite being an endemic, the bigmouth chub is widespread throughout the New River (Jenkins and Burkhead, 1993) and can be locally abundant (Stauffer et al., 1995). Bigmouth chub is not considered as a Species of Greatest Conservation Need (SGCN) in West Virginia, a list that contains seventy-four (74) fish species, of which thirty-four (34) are Priority 1 species (West Virginia DNR, 2015a).

*2. Provide information from the applicable state and tribal fish and wildlife authorities about any potamodromous species that require downstream passage at the facility.*

In the Final Environmental Assessment for New Hydropower License (FEA, Oct 2017), the FERC discusses reasons that Fish Passage was not recommended. It was shown that no recent evidence of native population of diadromous fishes are present in the project area. Furthermore, in a letter filed with the Commission on October 5, 2016, the Department of Interior stated that "… we do not recommend requiring Hawks Nest Hydro to consider provisions for fish passage at the projects given the current lack of native migratory fish populations in the immediate vicinity of the projects".

*3. Describe for each ZoE how the facility satisfies the criterion goal: The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, including resident potamodromous fish, the facility minimizes loss of fish from impoundments and upstream river reaches affected by facility operations. Migratory species can successfully complete their life cycles and maintain healthy populations in the areas affected by the facility.*

Please see Sections 4.4.2 for descriptions of how the facility satisfies the criterion goal for each ZoE.

### 4.4.2 Zone 1, 2, & 3: Standard 1 - Non-Applicable/De Minimis Effect

Zones 1, 2, & 3 are using Standard 1 to justify meeting the Downstream Fish Passage Standard.

| ***Criterion*** | ***Standard*** | ***Instructions*** |
|---|---|---|
| D | 1 | <u>Not Applicable / De Minimis Effect:</u><br>• Explain why the facility does not impose a barrier to downstream fish passage in the designated ZoE, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no additional facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective, and timely downstream migration.<br>• For riverine fish populations that are known to move downstream, explain why the facility in the designated ZoE does not contribute adversely to the species populations or to their access to habitat necessary for successful completion of their life cycles; or<br>• Document available fish distribution data and the lack of fish species requiring passage in the ZoE; or<br>• If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation. |

***Downstream Fish Passage Standard 1: Non-Applicable/De Minimis Effect (Zone 1,2, & 3)***

There are no barriers to downstream fish passage at the downstream extent of Zone 2 (Bypass Reach) and Zone 3 (Tailrace). There are no facility barriers to restrict downstream movement within these Zones of Effect.

The dam is located at the upstream extent of Zone 2 and does pose an obstacle to downstream passage of fish from Zone 1 (Impoundment) to Zone 2. However, as discussed in *Section 4.4 – Criterion C: Upstream Fish Passage Standard*, there are only three (3) truly migrant fish species found within the New River reach of which two (2) are considered exotic, while the third (Chanel Catfish) is well distributed and secure both locally and globally in regard to its conservation status.

Locally migrant fish species both upstream and downstream of the Hawks Nest Dam have access to a variety of habitats to satisfy their needs for spawning, feeding, or to escape unfavorable environmental conditions within the ZoEs, both upstream of Zone 1, and downstream of Zone 2. The Bypass Reach (Zone 2) has relatively long individual pools that are separated by shorter habitat segments such as runs, shoals, and cascades. Based on habitat mapping conducted in August 2011 (at the 100-cfs minimum flow), pools are the most common habitat type as 45.8 percent of the bypassed reach is composed of deep pools (greater than 8 feet deep) and 21.2 percent consists of shallow pools (less than 8 feet deep). Shoals, cascades, and runs comprise 12.5 percent, 11.4 percent, and 9.1 percent of the total length of the bypassed reach, respectively. The substrate in pool habitats is varied and consists of submerged bedrock shelves, large boulders, cobble, and pockets of smaller sized substrates including gravel and sand. Shoals are the widest habitat type, often include riffles, and exhibit a mix of substrate types including large exposed boulders as well as cobble, sand, and gravel. Cascades are shallow, fast-flowing habitats with stacked boulders or steep bedrock slabs as substrate. Runs are the narrowest habitat type in the Bypass Reach and are fairly uniform in depth. A similar mix of habitat conditions exists for over 50 miles of free-flowing river upstream of Zone 1.

The project operates in a run-of-river mode, meaning that outflow from the project approximates inflow, minimizing disruptions to the natural flow regime and helping maintain downstream connectivity. The Bypass Reach provides an alternative route for fish to move downstream without encountering the turbines. Fish passage is possible through the Trash Gate which passes minimum flows of greater than 250cfs continuously year-round. Additionally, river flow exceeding the maximum capacity of the powerhouse and minimum flow requirements occur approximately 30 percent of the time, allowing for downstream fish passage through the crest gates.

The facility uses trashracks with specific spacing that allows smaller fish to pass through while preventing larger fish from entering the turbines. This design minimizes the risk of physical obstruction and impingement for most fish species. Impingement potential is minimal at the project given the relatively large trashrack spacing (3.19 inches). The trashracks are designed to exclude larger fish, which are more capable of avoiding entrainment due to their size and swimming abilities. While some fish species found in the project areas can attain large sizes (greater than 20 inches long and 3 inches wide) and could be impinged on the trashracks based on their body size alone, this is unlikely because adults of these species (e.g., catfish, bass, and walleye) have burst swimming speeds of at least 8 feet per second (fps) that are well above the maximum approach velocities measured at the project intake (2.6 fps). Therefore, these large adults can avoid impingement due to their increased swimming ability.

Estimated entrainment potential was highest for numerically dominant species such as channel catfish, rock bass, and gizzard shad, which comprised 72 percent of the estimated total entrainment at the project. In regards to fish size, the vast majority of entrained fishes (90 percent) would be less than 6

inches. Survival of entrained fishes representing this size group (less than 6 inches) is expected to be high (95 percent). This high survival rate is attributed to the characteristics of the turbines and the relatively low incidence of pressure-induced mortality (decompression trauma) as fish pass through the turbines. These survival estimates are in good agreement with those from hydroelectric projects with similarly sized Francis turbines operating at similar flows and rotational speeds as those at the Hawks Nest Project (~90 percent).

To mitigate potential turbine-induced impacts to fish, Hawks Nest Hydro provides annual fish compensation payments to the West Virginia Division of Natural Resources (West Virginia DNR).The fishery compensation plan assumes that all entrained fish are killed by the project (i.e., compensation is based on an assumed entrainment mortality rate of 100 percent) despite entrainment studies indicating that entrainment survival at the Hawks Nest Project exceeds 90 percent. Although Hawks Nest Hydro provides fish compensation payments to West Virginia DNR for entrainment losses, there is no substantial evidence in the record demonstrating that fish entrainment at the projects has an adverse effect on fishery resources. Because of this, the FERC stated in their final EA and the FERC License, "Because entrainment and turbine impact of damages to fish populations would be low (less than 10 percent) and are not expected to exert appreciable impact or damages to fish population at the project, staff did not find justification for requiring entrainment mitigation". Mitigation payments are billed by the WVDNR and based on the American Fisheries Society (AFS) Special Publication 30 Appendix A: Replacement Cost of Fish as required in the WQC. They are annually adjusted to account for annual inflation (CPI) and any other changes or update to the valuation. The fish entrainment mitigation payment for 2024 were approximately $96,292, and will likely approach or exceed $100,000 in 2025.

Overall, the combination of maintaining a bypass reach with continuous flow, operating the project in a run-of-river mode, and implementing measures to ensure high survival rates of entrained fish helps minimize the impact of the Hawks Nest Hydropower facility on downstream fish passage. Additionally, the provision of fish compensation payments and ongoing monitoring further mitigate any potential adverse effects.

## 4.5 Criterion E: Shorelines and Watershed Standard

***Goal:*** *The facility has demonstrated that sufficient action has been taken to protect, mitigate, or enhance the condition of soils, vegetation, and ecosystem functions on shoreline and watershed lands associated with the facility.*

### 4.5.1 Criteria E: Requirements

*1) Describe land use and land cover around the facility. Describe any protections afforded the river or lands around the facility (e.g., Wild and Scenic River designation, conservation lands surrounding the impoundment: state, local, or tribal regulatory restrictions on facility lands, critical or core habitats for sensitive species, etc.)*

**Land Use & Land Cover**

The land use and land cover in the watersheds around the Hawks Nest facility are characterized by a predominantly forested landscape with various ecological subregions. The area is part of the Dissected Appalachian Plateau, which features narrow ridges, deep coves, and narrow valleys, with a majority of the area covered in forest. The dominant upland vegetative community within the Hawks Nest Project boundary is the Oak-Hickory-Sugar Maple Forest, and Deciduous Tree-Great Laurel Forest. The Hawks Nest Project area also includes significant wetland and riparian habitats generally found along the New River. *Figure 16* below illustrates the land use within a 2.5-mile buffer distance of the Zones of Effect. As

shown in this Land Use Map, 94.08 percent of the area within a 2.5-mile buffer is undeveloped, and hatched areas are protected from future development. The 2.5-mile buffer largely encapsulates the majority of the smaller watersheds which join the New River within the project area.

The geography of the land within and adjacent to the Project (narrow valley, steep slopes, highwalls, and cliffs) precludes development. Other than the projects facilities, County Route 19, and the railroad on river left, there is no development within the narrow gorge containing the New River in the vicinity of the project. Other than the topography, additional barriers to development include the HNSP, the New River Gorge National Park and Preserve, the railroad and its associated property, and the project itself along with its associated recreation areas.

**Protections**

The Hawks Nest Project operates under several regulatory protections to ensure environmental compliance and conservation including the Clean Water Act (CWA) and the Endangered Species Act (ESA). Although no bald eagles have been documented within the project boundaries, suitable habitat exists. The project includes measures to protect potential bald eagle habitats as required by Article 404 and documented in the Hawks Nest Eagle Protection Plan which requires consultation with the USFWS if a nest is discovered. Under Article 405 of the License for the Project, Hawks Nest has also developed and implements a plan to protect Running Buffalo Clover, *Trifolium stoloniferum* (RBC), in cooperation with the WVDNR. RBC has recently been formally delisted as an endangered species, but is still managed under this plan as RBC is currently still within a designated 5-year delisting monitoring period. Additionally, the project provides annual compensation payments to the WVDNR to mitigate for fish entrainment losses.

**Conservation and Recreation Measures**

The project includes several recreation sites such as the Cotton Hill Site (Includes the Cotton Hill Bridge Day-Use Area, the Cotton Hill Wildlife Management Area, and the Hawks Nest Dam Portage/Bike-Hike Trail) and the Hawks Nest Tailrace Fishing Access Site. These sites provide opportunities for hiking, fishing, and wildlife observation. The project also supports whitewater recreation by providing scheduled flow releases for whitewater activities along with several maintained and primitive boater access areas. These dedicated lands maintain and enhance habitat connectivity and quality. The project promotes public access to natural areas and provides educational resources about the local environment and conservation efforts. This includes maintaining trails and providing informational signage at recreation sites, maintaining riparian buffers, and implementing habitat enhancement projects in consultation with state and federal agencies.

A large portion of the project is surrounded by the New River George National Park & Preserve, HNSP, and the Cotton Hill Wildlife Management Area. The National Park & Preserve surrounds the upstream portion of the project including most of Zone 1 (Impoundment), and a portion of Zone 2 (Bypass Reach). The portion of Zone 1 that is not adjacent to the National Park is abutted by the HNSP, which overlaps the Projects FERC boundary along the impoundment shoreline. The Cotton Hill Recreation Site begins at the downstream end of HNSP and extends downstream to Cotton Hill Bridge where it joins the Cotton Hill Wildlife Management Area (Please see Section 4.8.1 for additional information on and description of the Coton Hill Site and Cotton Hill Wildlife Management Area).

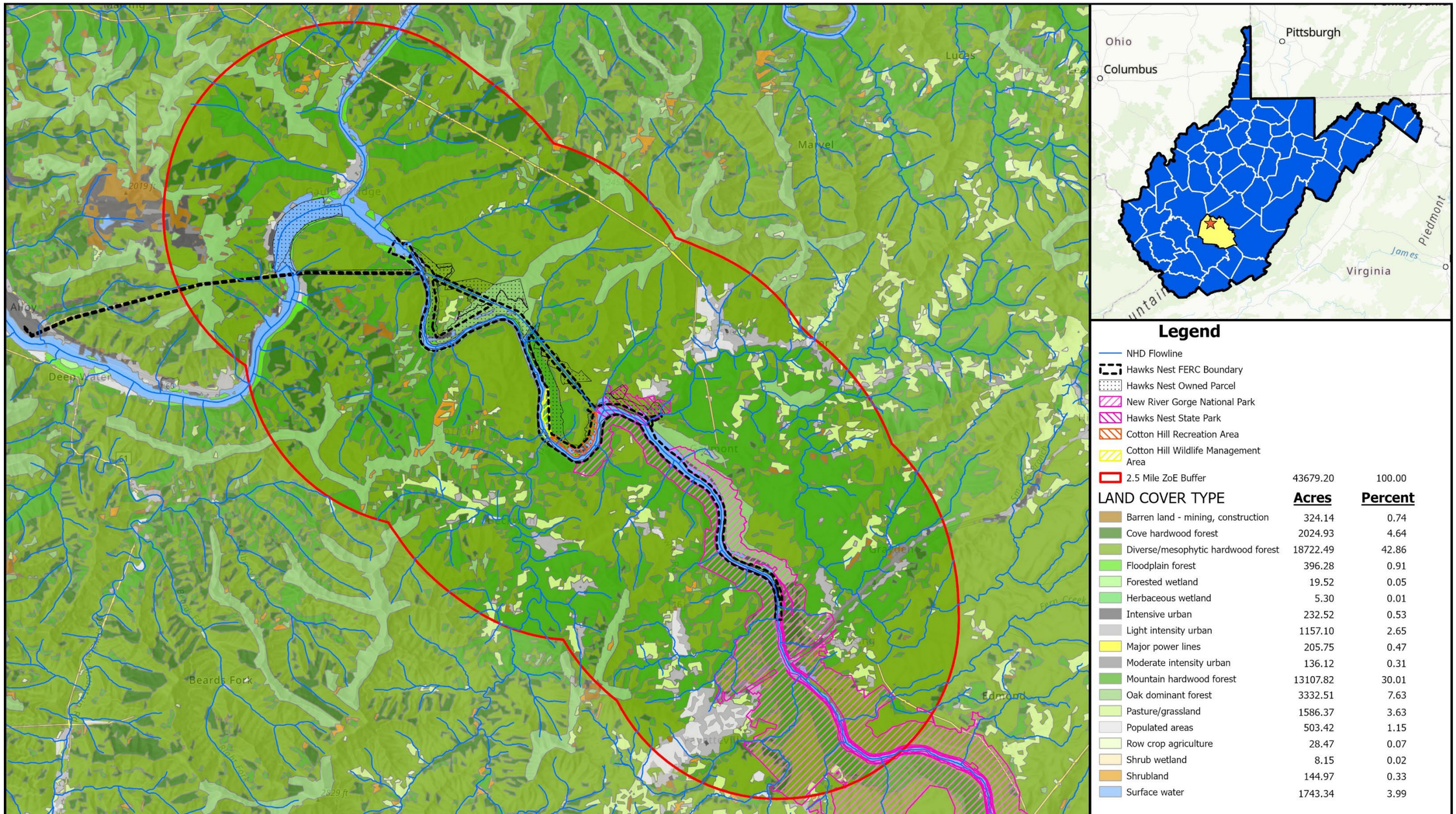
Overall, the Hawks Nest Project is managed to balance hydroelectric power generation with environmental protection and recreational opportunities, ensuring the conservation of natural resources and habitats within the project area.

*2. If applicable, provide a summary and copies of any relevant facility-related land conservation easement documents including maps, organization maintaining oversight, and management and/or stewardship plans.*

Not Applicable.

*3. Describe for each ZoE how the facility satisfies the criterion goal: The facility has demonstrated that sufficient action has been taken to protect, mitigate or enhance the condition of soils, vegetation, and ecosystem functions on shoreline and watershed lands associated with the facility.*

Please see Sections 4.5.2 for descriptions of how the facility satisfies the criterion goal for each ZoE.




Fayette County, West Virginia
Gauley Bridge, Ansted, Beckwith,
& Fayetteville Quadrangles
Valley, Gauley Bridge, Ansted, Fayetteville,
Plateau, & New Haven Districts

**FIGURE 16**

## Zones of Effect
## 2.5 Mile Radius Land Use Map

### 4.5.2 Zone 1 - 3: Standard 3 – Enforceable Protection

All Zones of Effect utilize Standard 3 to justify meeting the Shorelines and Watershed Standard.

| *Criterion* | *Standard* | *Instructions* |
|---|---|---|
| E | 3 | Enforceable Protection:<br>• Demonstrate that there is an approved and enforceable shoreline buffer or equivalent watershed protection plan (including tribal, state or local regulations) in place for conservation purposes, including buffered shoreline along river corridors; or<br>• In lieu of an existing shore land protection plan, provide documentation that the facility has protected or commits to protect and not develop an equivalent land area for conservation purposes as a condition of LIHI Certification, with such commitment to be in effect for the duration of LIHI Certification. |

***Shorelines and Watershed Standard 3: Enforceable Protection (Zone 1 - 3)***

Nearly 100 percent of the shoreline within the project area is undeveloped and protected from development. Significant shoreline buffers, both formal and implicit, exist to protect and enhance the watershed environment. These buffers extend beyond the immediate shoreline to include significant portions of the subwatersheds that join the New River within and upstream of the project.

**Zone of Effect 1 (Impoundment)**

Lands abutting facility waters in Zone 1 are protected by the legally enforceable buffer created by State and National Parks. The FERC project boundary for Zone 1 (Impoundment) is generally established as the Ordinary High Water Mark (OHWM) of the pool at elevation 819.5 feet with some exceptions. These exceptions include: 1) a privately owned river access point on river right at the top of the pool that is maintained and operated by local commercial river outfitters (See *Figure 2*, Pg 4 of 4, Exception E), 2) an area at the mouth of Mill Creek for the HNSP Aerial Tram and Jetboat dock (Exception D), and 3) the inclusion inside the Project boundary of some shoreline on river right at the mouth of and downstream of Mill Creek within HNSP. Other than the privately owned river access and the HNSP public access, both on river right, there is no access to the river within Zone 1. The railroad operates on the river left bank for the length of the Impoundment, and on river right from the C&O Railroad Bridge, just upstream of Mill Creek, to the upstream extent of the project boundary. C&O strictly enforces a no trespassing policy thereby preventing public access for the majority of this zone. While Hawks Nest Hydro does own some parcels of shoreline property, the majority is owned and part of the National Park (*Figure 13*), establishing significant environmental protections including and well beyond the typical stream buffer zone and extending up to the canyon rim.

The portion of the Zone 1 stream buffer not abutted by the National Park is included within the HNSP and leased by the WVDNR. HNSP was originally established in 1935 when West Virginia acquired 31 acres of land crossed by US 60 at the top of the Gorge including what was known then as Marshall's Pillars, once home to many nesting ospreys (also known as fish hawks) that rode the thermals between the high cliffs of the Gorge. Marshalls Pillars is now the site of the Hawks Nest overlook built in 1937 by the Civilian Conservation Corps (CCC) using hand tools and locally sourced chestnut logs. This and other structures constructed by the CCC at HNSP are now listed on the National Register of Historic Places, representing the New Deal-era public works in West Virginia State Parks. The park was established to showcase scenic panoramic views of the Gorge including the Hawks Nest Lake (Impoundment), and

Hawks Nest Dam, explicitly associating the development of the state park to the Hawks Nest Development.

In 1966, the Hawks Nest Project leased 200 acres of land upstream of Hawks Nest Dam and adjacent to HNSP to the State of West Virginia for the use and benefit of the WVDNR. This land became part of the now 270-acre HNSP (*Figure 13*), which is operated and maintained by the WVDNR (FERC 1987). The lease remains in effect as long as the Hawks Nest Project is operating under a valid license issued by FERC.

**Zone of Effect 2 and 3 (Bypass Reach and Tailrace)**

Within Zone 2 (Bypass Reach) and 3 (Tailrace) the project boundary on river left extends to the railroad grade which follows the river course. There are no developments within the buffer between the river and the railway which is wholly owned by Hawks Nest Hydro. Upslope of the railway is also undeveloped land consisting of large tracts mostly held by large land companies. National Park Land occupies approximately a mile of this area at the upstream extent of Zone 2 between river miles 6 and 7. Access to this side of the river is extremely limited within these Zones of Effect, with access only possible at the Route 16 Cotton Hill Bridge crossing. However, as described above, the C&O Railroad prohibits trespassing, and even Hawks Nest Hydro must obtain permission and an escort to utilize any portion of railroad property to access project lands on river left. The railroad grade also poses an obstacle to approaching the river from above, as its construction required the cutting of a bench into the steep mountainside resulting in the prevalence of impassable cliffs and highwalls on the upslope side of the tracks. The entirety of the river left shoreline buffer in Zones 1 and 2 is thus protected by the legally enforceable barrier imposed by the railroad grade (Standard E-3).

On river right within Zone 2 and 3, Hawks Nest Hydro owns nearly all the land within the FERC project boundary as well as a significant portion of the land upslope (*Figure 16*). Other than project facilities and recreational sites, none of this land is developed. The Cotton Hill Site, including the Hawks Nest Portage/Bike-Hike Trail, the Cotton Hill Bridge Day-Use Area, and the Cotton Hill Wildlife Management Area (WVDNR), occupies the upper two (2) miles of the Bypass Reach (Zone 2) on river right from approximately RM 5 to RM 7. These shoreline buffers are Resource Agency Recommendations (Standard E-2) outlined in the FERC License, WOC, and Recreation Management Plan for the project.

Downstream of the Cotton Hill Site, river right access in Zones 2 and 3 is extremely difficult. Hawks Nest maintains an access road to the Surge Basin for use by operational staff only and for which access to the public is barred. Steep slopes and cliffs make this property unsuitable for development. This not only offers environmental protection and preservation, but in concert with the topography, provides security and public safety measures for the project by acting as a natural barrier. Lands in this area abutting facility waters and within the FERC project boundary are solely for project purposes and use and will not otherwise be further developed.

## 4.6 Criterion F: Threatened and Endangered Species Standard

***Goal:*** *The facility does not negatively impact federal or state listed species, or tribal trust species.*

### 4.6.1 Criterion F: Requirements

*1) Identify all federal and state listed species (fish, aquatic plants and organisms, and terrestrial plants and wildlife) in the facility area based on current data. Avoid using privileged locational information or provide that information in a separate confidential attachment.*

**Federal and State Listed Species**

West Virginia has no State endangered species legislation; therefore, the only species listed as threatened or endangered in the State are those listed as such by the Federal government. A list of all federally listed species was obtained from the USFWS's Information for Planning and Consultation (IPaC) system. There are a total of sixteen (16) threatened, endangered, or candidate species on this species list. This list is provided below, and the IPaC Official Species List can be found in *Section 8.4.6*.

| Species | Scientific Name | Critical Habitat | Status |
|---|---|---|---|
| **Mammals** | | | |
| Gray Bat | *Myotis grisescens* | None Designated | Endangered |
| Indiana Bat | *Myotis sodalis* | Final - None In Project | Endangered |
| Northern Long-eared Bat | *Myotis septentrionalis* | None Designated | Endangered |
| Tricolored Bat | *Perimyotis subflavus* | None Designated | Proposed Endangered |
| Virginia Big-eared Bat | *Corynorhinus townsendii virginianus* | Final - None In Project | Endangered |
| **Clams** | | | |
| Fanshell | *Cyprogenia stegaria* | None Designated | Endangered |
| Green Floater | *Lasmigona subviridis* | Proposed - Not In Project | Proposed Threatened |
| Longsolid | *Fusconaia subrotunda* | Final - Project Overlap | Threatened |
| Northern Riffleshell | *Epioblasma rangiana* | None Designated | Endangered |
| Pink Mucket | *Lampsilis abrupta* | None Designated | Endangered |
| Round Hickorynut | *Obovaria subrotunda* | Final - Project Overlap | Threatened |
| Sheepnose Mussel | *Plethobasus cyphyus* | Proposed - Not In Project | Endangered |
| Snuffbox Mussel | *Epioblasma triquetra* | Proposed - Not In Project | Endangered |
| Spectaclecase | *Cumberlandia monodonta* | Proposed - Not In Project | Endangered |
| **Insects** | | | |
| Monarch Butterfly | *Danaus plexippus* | Proposed - Not In Project | Proposed Threatened |
| **Flowering Plants** | | | |
| Virginia Spiraea | *Spiraea virginiana* | None Designated | Threatened |

*2) Describe for each ZoE how the facility satisfies the criterion goal: The facility does not negatively impact federal or state listed species, or tribal trust species.*

Please see Sections 4.6.2 for descriptions of how the facility satisfies the criterion goal for each ZoE.

### 4.6.2 Zone 1 - 3: Standard 2 - Finding of No Negative Effects

All three Zones of Effect are using Standard 2 to justify meeting the Threatened and Endangered Species Standard. Within Zone 2, Hawks Nest qualifies for the PLUS standard under Criterion F for its implementation of the Running Buffalo Clover Management Plan under Article 407 of the FERC license.

| *Criterion* | *Standard* | *Instructions* |
|---|---|---|
| F | 2 | Finding of No Negative Effects:<br>• Identify all federal and state listed species and any tribal trust species that are or may be in the immediate area of the designated ZoE based on current data from the appropriate natural resource management agencies and Tribal Nations.<br>• Provide documentation that there is no demonstrable negative effect of the facility on any listed or trust species in the area from appropriate federal, state, and tribal natural resource management agency; or<br>• Provide documentation that habitat for the species does not exist within the designated ZoE or is not impacted by facility operations. |
| F | PLUS | Bonus Activities:<br>• Describe any enforceable agreements that the facility has with resource agencies or Tribal Nations to operate the facility in support of rare or at-risk species; or<br>• Describe any formal agreements that the facility has with resource agencies or Tribal Nations to take proactive measures in the vicinity of the facility to substantially minimize impacts on species that are at risk of becoming listed or designated as tribal trust species; or<br>• Describe any formal agreements that the facility has with resource agencies or Tribal Nations to be a significant participant in a species recovery effort. |

***Threatened and Endangers Species Standard 2: Finding of No Negative Effects (Zone 1 - 3)***

There are sixteen (16) federally listed species as indicated by the IPac that may be present within the project area including five (5) bats, nine (9) mussels, one (1) insect, and one (1) flowering plant. There are two species, the Longsolid and Round Hickorynut mussels, for which critical habitats are listed as being within the Project boundary. However, these critical habitats are found downstream of Kanawha falls where the only project feature present is the transmission line which crosses above the river on its way to the Alloy Substation. *Figure 17* illustrates the location of these critical habitats (red) in relation to the FERC Project Boundary (blue).

Utilizing the IPaC Northern Species Determination Key (D-Key) tool to gauge the potential effect of the project on listed species results in a “No Effect” or “Not Likely to Adversely Affect” (NLAA) designation for most species. The Indiana Bat, and the critical habitats of the Lonsolid and Round Hickorynut mussels receive a “May Affect” determination. As previously stated, these critical habitats are not affected by project operations. The IPac D-Key report letter is provided in *Section 8.4.6*.

During relicensing in 2017, recommendations were provided by federal and state fish and wildlife agencies for the protection, mitigation, or enhancement of fish and wildlife resources by the project.


**Figure 17: Critical Habitat for Longsolid and Round Hickorynut Mussels (Red)**

**Bats**

Habitat suitable for the four (4) federally listed bat species occurs within the project boundary, and the presence of the Indiana bat and northern long-eared bat has been documented at the project during field studies. No Virginia big-eared bats have been documented. In the EA, Commission staff concluded that habitat for the bat species would not be affected by continued project operation or maintenance activities, and that, with implementation of Interior's recommendation to conduct any necessary tree removal activities related to maintenance or recreation facility enhancements between November 15 and March 31, relicensing the project would not be likely to adversely affect federally listed bats or their habitats. Article 406 requires the seasonal limitation of tree-clearing activities.

**Mussels**

Mussel studies were completed during the relicensing process and are discussed at length in the *Aquatic Species Composition and Abundance Report* (HDR 2015a), the *Rare, Threatened, and Endangered Aquatic Species Report* (HDR 2015b), and the *Final Environmental Assessment* (FEA) for the project. Consistent with historical findings, the mussel survey indicated that freshwater mussel communities in the study areas upstream of the Glen Ferris Project are generally lacking in both abundance and diversity. This has historically been documented due to range restriction created by Kanawha Falls (Jirka and Neves [undated]; Pinder et al. 2002; DTA and Alderman Environmental Services, Inc. 2008).

Eight (8) federally endangered mussel species are known to occur downstream of the Glen Ferris Project and Kanawha Falls to include pink mucket, sheepnose, fanshell, northern riffleshell, snuffbox, and spectaclecase, round hickorynut, and longsolid. Four of these species (pink mucket, sheepnose, fanshell, and northern riffleshell) have been documented at a large, dense mussel bed at the base of Kanawha Falls, immediately below the Glen Ferris Dam. The dense mussel bed occurring at the base of Kanawha Falls and lack of species upstream of the falls are likely the result of the natural restriction in fish

movement created by Kanawha Falls. As fish move upstream, they become blocked by the natural barrier created by the falls, where juvenile mussels likely shed off, forming the dense mussel colony.

A New River drainage-wide survey of freshwater mussels in Virginia (Pinder et al. 2002) documented eight species upstream of Kanawha Falls, although the authors suggest that 11 species have been documented from previous surveys. Citing multiple authors, Pinder et al. (2002) noted the New River has historically maintained a low diversity of aquatic fauna that is likely the result of unique geologic features (e.g., Kanawha Falls). Further support for low mussel diversity in the New River is provided by the results of an extensive mainstem New River survey conducted downstream of the Claytor Hydroelectric Project that documented only five species of mussel (DTA and Alderman Environmental Services, Inc. 2008). No federal or state listed endangered or threatened mussel species have been documented upstream of Kanawha Falls, and none were found during the survey. No Critical Habitat for aquatic Rare, Threatened and Endangered (RTE) species has been designated within or immediately adjacent to the Project areas.

Because the mussel bed at Kanawha Falls is healthy under existing project operation and there is evidence that the listed species are successfully reproducing at this site, it was determined that continued operation of the Project under the existing operating conditions would continue to support healthy mussel populations downstream of the project. This assessment states that no federally listed mussels were found upstream of the Glen Ferris Dam during qualitative sampling, and that the mussel bed below the dam at Kanawha Falls has been established by the DNR as a long-term monitoring site. It was determined that future consultation with the USFWS would only be required if any proposed license amendments would affect federally listed species.

**Eagle Protection Plan**

Even though the Bald Eagle was delisted under the Endangered Species Act on August 8, 2007, they continue to be protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Article 404 of the FERC Project License requires a Bald Eagle Protection Plan to minimize impacts to Bald Eagle habitat. The plan includes provisions to, 1) conduct routine right-of-way/transmission corridor maintenance and minimal hazardous tree/vegetation removal consistent with the May 2007 USFWS' National Bald Eagle Management Guidelines; and 2) consult with USFWS' West Virginia Field Office and the WVDNR if a nest is discovered and file, for Commission approval, a summary of consultation and any recommended mitigation measures. This plan was developed in consultation with the USFWS and WVDNR.

Suitable habitat for Bald Eagle breeding and foraging is present throughout the Project boundary, which includes habitat surrounding the Project reservoir and areas adjacent to the Project boundary, but evidence of nesting has not been reported. Surveys to document Bald Eagle use of the Project boundary were conducted for Hawks Nest Hydro in parallel with RTE species surveys between September 17 and September 21, 2012 in support of the relicensing process for the Project. No bald eagles were observed during the RTE species surveys, and no evidence of current or historic stick nests was present in the Project boundary. Hawks Nest continues to train its staff annually in Bald Eagle protection measures as described in the plan.

**Running Buffalo Clover**

The USFWS designated Running Buffalo Clover (Trifolium stoloniferum) as an endangered species on July 6, 1987 (50 FR 21478-21480). Running Buffalo Clover (RBC) was listed under the Endangered Species Act

(ESA) because the few known populations were threatened by habitat alteration. An occurrence of RBC was discovered at Cotton Hill, WV in 1983. This occurrence is found on WVDNR property at the Cotton Hill Wildlife Management Area, a 29-acre property provided by the licensee in 1988 to provide public access to the New River for fishing, boating, and other recreational activities (ZoE No. 2: Bypass Reach).

On October 31, 1990, the FERC issued an Order approving a plan to protect the endangered RBC in compliance with what was then Article 407 of the license for the Hawks Nest Project. Hawks Nest Hydro filed the Running Buffalo Clover Management Plan with its new license application on December 29, 2015, and Article 405 of the new license requires implementation of this plan. Article 405 requires Hawks Nest to implement running buffalo clover protection and management activities under the direction of WVDNR and in consultation with the USFWS. According to the Plan, Hawks Nest is responsible for coordination of the monitoring & meetings between Hawks Nest the WVDNR and USFWS, cooperation with the agencies on any management activities deemed necessary, and preparation and submission of an annual report to the FERC. The WVDNR is responsible for conducting the annual census in consultation with the USFWS, providing management recommendations and direction, and providing a field survey report to Hawks Nest and USFWS which is included in an annual report filing to FERC. In the WVDNR's most recent annual report it is stated that Brookfield Renewable's core activities of maintaining hydroelectric production and associated maintenance activities is unlikely to adversely impact the species and have had no demonstrated impact on the population to date.

RBC was formally delisted as an endangered species in September of 2021, and is currently within a 5-year post delisting monitoring period. In 2024 Hawks Nest consulted with USFWS, who recommended continuation of the monitoring requirements of the RBC Management Plan through the end of the post-delisting monitoring period in 2026. Hawks Nest will continue to work with the WVDNR and USFWS on a year-to-year basis to determine the study and management plan needs for RBC at the Hawks Nest Project. The RBC Management Plan can be found in *Section 8.4.6*.

**Virginia Spirea**

In the EA, staff determined that the project would have no effect on Virginia spiraea, because the last documented observation of Virginia spiraea at the project occurred in 1961 and West Virginia's database lists the species as extirpated. In addition, no evidence of Virginia spiraea was observed at the project during Hawks Nest Hydro's field studies (FERC License Order, 2017).

## 4.7 Criterion G: Cultural and Historic Resources Standard

***Goal:*** *The facility does not adversely impact cultural or historic resources associated with the facility's lands and waters, including archaeological sites, historic era sites, traditional cultural landscapes, traditional cultural properties, and other tribal trust resources.*

### 4.7.1 Criterion G: Requirements

*1) Identify all federal and state recognized Tribal Nations having reserved rights, interests, resources, and/or historic presence (see definition of tribal trust resources in Appendix A) in the facility area and provide a summary of those rights and interests that relate to the facility or its operations.*

There are no federally recognized Indian tribes in West Virginia. The state of West Virginia has no state recognized tribes, or an office to manage Indian affairs. With consideration of the *American Indian Religious Freedom Act of 1978*, *Executive Order 13007 of 1996: Indian Sacred Sites*, *Executive Order 13175 of 2000: Consultation and Coordination with Indian Tribal Governments*, and the *Native American Graves Protection and Repatriation Act of 1990*, Hawks Nest Hydro consulted with nine federally

recognized Indian tribes in the development of the Historic Properties Management Plan (HPMP) for the project. Tribes consulted include the Absentee-Shawnee Tribe of Indians of Oklahoma, Eastern Shawnee Tribe of Oklahoma, Seneca-Cayuga Tribe of Oklahoma, Shawnee Tribe, Eastern Band of Cherokee Indians, United Keetoowah Band of Cherokee Indians, Catawba Indian Nation, Tuscarora Nation, and Cherokee Nation (collectively, the Indian Tribes).

Hawks Nest Hydro recognizes the special expertise of the Indian Tribes to identify and assess properties of traditional religious or cultural significance (often referred to as "traditional cultural properties" or TCPs) within the Project's Area of Potential Effect (APE). Accordingly, Hawks Nest Hydro has consulted with Indian Tribes to identify any additional information regarding properties of traditional religious or cultural significance that may be located within the Project's APE. Neither the Indian Tribes nor the WVSHPO has provided any information regarding TCPs, and Hawks Nest Hydro has not identified any properties of traditional religious or cultural significance within the APE for the Hawks Nest Project. Hawks Nest Hydro continues to consult with the Indian Tribes as necessary when planning projects that may have the potential to affect TCPs.

*2) Identify the cultural and historic resources, and Traditional Cultural Properties, Traditional Cultural Landscapes and other tribal trust resources (tribes are the only resource for this information) that are present on facility-owned property or that may be affected by facility operations. Avoid using privileged locational information or provide that information in a separate confidential attachment.*

**Cultural and Historic Resources**

During the development of the Historical Properties Management Plan (HPMP) for Hawks Nest Hydro, archaeological surveys identified eight (8) archaeological sites within the Project's APE. Two (2) of these include precontact period resources, of which one (1) has previously been recommended as ineligible for inclusion on the National Register of Historic Places (HRHP), and the HRHP eligibility of the remaining precontact period archaeological site has not been evaluated. The other six (6) are historic period archaeological sites within the APE which include resources related to the mid-nineteenth to mid-twentieth century coal mining history of the New River Valley, including historic foundations, architectural debris, industrial sites, and a historic cemetery. The WVSHPO concluded that one (1) historic period site is not eligible for inclusion in the NRHP. The NRHP eligibility of the five remaining historic period archaeological sites has not been evaluated. The ineligible resources are not considered historic property and are not included in the HPMP. The eligibility of the remaining six (6) sites has not been determined and are therefore treated as eligible and management measures for these sites is included in the HPMP. None of the identified archaeological sites are being affected by ongoing operation of the Project.

An architectural reconnaissance survey to identify and evaluate the significance and NRHP eligibility of buildings, structures, or other built resources 50 years of age or older within the APE, including the Project's facilities was also conducted during the development of the HPMP. Three historic architectural resources listed in or eligible for inclusion in the NRHP are located within the Project's APE: the C&O Railroad Bridge, the Hawks Nest Development Historic Site, and contributing resources to the New Deal Resources of Hawks Nest State Park Historic District. The New Deal Resources of Hawks Nest State Park 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 NRHP Multiple Property Listing (Sweeten 2010a and 2010b). The C&O Railroad Bridge spans the Hawks Nest Reservoir but is not a Project facility or otherwise associated with Project operations. The Hawks Nest Development Historic Site is eligible for the NRHP under NRHP

Criteria A and C. Contributing resources to the Hawks Nest Development Historic Site identified by CRA include the Hawks Nest Dam, surge basin, surge tank, intake, Hawks Nest Tunnel, and powerhouse.

*3. Describe for each ZoE how the facility satisfies the criterion goal: The facility does not adversely impact cultural or historic resources associated with the facility's lands and waters, including archaeological sites, historic era sites, traditional cultural landscapes, traditional cultural properties, and other Tribal trust resources.*

Please see Sections 4.7.2 for descriptions of how the facility satisfies the criterion goal for each ZoE.

### 4.7.2 Zone 1, 2, & 3: Standard 2 – Approved Plan

All Zones of Effect utilize Standard 2 to justify meeting the Cultural and Historic Resources Standard.

| *Criterion* | *Standard* | *Instructions* |
|---|---|---|
| G | 2 | Approved Plan:<br>• Provide documentation of all approved local, state, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility.<br>• Document that the facility is in compliance with all such plans. |

***Cultural and Historic Resources Standard 2: Approved Plan (Zone 1, 2, & 3)***

**Historical Properties Management Plan**

To protect cultural resources, Hawks Nest has a Historic Properties Management Plan (HPMP) and Programmatic Agreement (PA) in place. The HPMP was prepared in 2015 for relicensing in anticipation that the Commission (FERC) would complete the Section 106 process by executing a PA for managing historic properties that may be affected by issuing a new license for the Project. Hawks Nest Hydro projected that the PA would require Hawks Nest Hydro to implement the approved Historic Properties Management Plan (HPMP) as a condition of the new license.

A Final PA between the FERC and WVSHPO for the management of historic properties that may be affected by issuing a new license for the operation Hawks Nest Hydroelectric Project by Hawks Nest Hydro was signed in September 2017. This PA cites the Hawks Nest 2015 HPMP and requires its implementation with the issuance of a new license.

The HPMP describes how Hawks Nest Hydro will consider and manage historic properties within the Project's APE throughout the term of the license. The HPMP was developed in accordance with the *Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects*, jointly issued by FERC and the Advisory Council on Historic Preservation (ACHP) in May 2002. In developing the HPMP, the Authorities consulted with the WVSHPO and the National Park Service (NPS). Hawks Nest Hydro also consulted with nine federally recognized Indian tribes in the development of this HPMP, including the Absentee-Shawnee Tribe of Indians of Oklahoma, Eastern Shawnee Tribe of Oklahoma, Seneca-Cayuga Tribe of Oklahoma, Shawnee Tribe, Eastern Band of Cherokee Indians, United Keetoowah Band of Cherokee Indians, Catawba Indian Nation, Tuscarora Nation, Cherokee Nation, (collectively, the Indian Tribes).

The HPMP includes a list of routine operations and maintenance activities that have already been determined to not have an adverse effect and are therefore not subject to review and consultation with SHPO. Consultation is performed for any non-routine activities or modifications that may adversely affect eligible structures, activities that require cutting and active ground disturbance within the Project.

If previously unidentified historic resources are discovered within the Project during any Project-related ground-disturbing activities, monitoring efforts, or during any authorized actions by others, the Licensee will make reasonable and good faith efforts to halt those activities that may affect the resource and consult with SHPO.

To protect historic properties that are eligible or potentially eligible for listing in the NRHP from unauthorized collectors, the identity and location of these sites are kept confidential. Hawks Nest monitors activities in these areas and submits annual reports to the West Virginia State Historic Preservation Office. Please refer to the Hawks Nest HPMP for documentation of all approved state, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility (See *Section 8 – Supporting Documentation*).

**Documentation of Compliance**

Please see *Section 8.4.6: Additional Attachments Appended, not Found Electronic on FERC Docket* for SHPO Annual Report Receipt Letter.

## 4.8 Criterion H: Recreational Public, and Traditional Cultural Access Standard

***Goal:*** *The facility accommodates recreational activities on land and waters controlled by the facility and provides recreational public, and traditional cultural access to its associated lands and waters without fee or charge.*

### 4.8.1 Criterion H: Requirements

*1) Identify and briefly describe all recreational amenities and existing public and traditional cultural access opportunities/locations associated with the facility. Identify which are owned or operated by the facility, and which are not owned or operated by the facility.*

**Hawks Nest Tailrace Fishing Access (Zone 3; Project Facility)**

The Hawks Nest Tailrace Fishing Access is a day-use facility located on river right (looking downstream), adjacent to the Hawks Nest powerhouse. The facility includes a paved parking area for approximately 17 vehicles, steps down to the New River for angler access, and a fenced walkway to a tailrace catwalk fishing platform (*Figure 20*). The facility was constructed by the licensee, and Hawks Nest Hydro is responsible for maintenance and operation of this Project recreation facility. The location of the Hawks Nest Tailrace Site is depicted on the overview map provided in *Figure 18*.

**Cotton Hill Site (Zone 1 & 2; Project and Non-Project Facilities)**

The larger Cotton Hill Site generally refers to a large area, including lands owned by the licensee as well as land that was deeded to WVDNR by the prior licensee, that provides public recreational access to the upper Hawks Nest bypass reach (i.e., in the vicinity of the Cotton Hill Bridge / State Route 16) and area below Hawks Nest Dam (*Figure 14*). The Cotton Hill Site provides opportunities for hiking, rock climbing, wildlife observation, and fishing access, and the multi-use pedestrian trails also serve as the put-in locations for boater access to the bypass reach.

The larger Cotton Hill site includes the approximately 10-acre area deeded by the licensee to the WVDNR and is designated by WVDNR as the Cotton Hill Wildlife Management Area. In addition to wildlife habitat, the Cotton Hill Wildlife Management Area is designated for hunting and trapping. This area also includes informal parking and turnaround areas and informal trails, including trails in the vicinity of Cotton Hill Bridge that commonly serve as informal kayak launch sites and provide angler access to the bypass reach.

The larger Cotton Hill Site also includes the land upstream of Cotton Hill Bridge up to Hawks Nest Dam, between the Hawks Nest Dam Portage/Bike-Hike Trail and the riverbank, including a series of informal trails that provide access to the bypass reach. The most upstream trail consists of a series of switchbacks from the trail head to a point approximately 0.1 miles downstream of the dam.

**Hawks Nest Dam Portage/Bike-Hike Trail (Zone 1 & 2; Project Facilities)**

WVDEP's 401 WQC condition 5 required Hawks Nest Hydro to (1) open to biking and hiking traffic the existing trail/right of way beginning approximately 1,000 feet downstream of the mouth of Mill Creek, near HNSP and continuing downstream to Hawks Nest Dam; (2) design and construct safe passage for biking/hiking, during daylight hours, past the intake gate/dam area to allow for connection of the gated/Project Hawks Nest Dam access road from the Cotton Hill Bridge upstream to the mouth of Mill Creek, and (3) accommodate carriable boat portage upstream of the Hawks Nest Dam boat barrier (*Figures 18, 19, 21 & 22*).

This route is now referred to as the Hawks Nest Dam Portage/Bike-Hike Trail and is maintained by Hawks Nest Hydro. Hawks Nest Hydro has installed fencing and signage along the trail for public safety purposes, particularly in the vicinity of the dam and intake. A primitive portage takeout was constructed and provides egress from the river upstream of the boat barrier above the dam. The Hawks Nest Dam Portage/Bike-Hike Trail also offers river access for anglers via additional river access trails and is open to pedestrian and non-motorized vehicles year-round, from dawn until dusk.

**Cotton Hill Bridge Day-Use Area (Zone 2; Project Facility)**

The Cotton Hill Bridge Day-Use Area is a day-use facility that is located on lands owned by the licensee at the northeast terminus of the Cotton Hill Bridge (State Route 16) as it crosses over the New River (*Figure 23 & 24*). The parking area was constructed by the prior licensee and was maintained by the WVDNR-WRS. WVDEP's 401 WQC Condition 7 required Hawks Nest Hydro to identify, design, construct and maintain improvements to the Cotton Hill Bridge Day-Use Area parking area in consultation with WVDNR-WRS, with such improvements expected to include a seasonal toilet/changing facility, new picnic facilities, and improvements to parking and signage.

Hawks Nest Hydro completed and maintains the following enhancements to the Cotton Hill Bridge Day-Use Area: (1) addition of a portable toilet and changing facility, (2) addition of new picnic facilities (including 2 picnic tables), (3) installation of additional signage, and (4) expansion of the available area for parking. The Cotton Hill Bridge Day-Use Area provides a total of twenty-two (22) parking spaces and includes two turnaround areas. The Cotton Hill Bridge Day-Use Area is open year-round, from dawn until dusk.

**Enhancements to the Cotton Hill Site (Zone 2; WVDNR Cotton Hill Wildlife Management Area; Non-Project Facility)**

As required by WVDEP's 401 WQC Condition 6, Hawks Nest Hydro provided one-time funding to WVDNR-WRS in the amount of $50,000 for improvements to the Cotton Hill Site, including accommodations for improved boating access during scheduled recreation flow releases.

The New River access area near Cotton Hill was completed by WVDEP in cooperation with WVDNR within the Cotton Hill Wildlife Management Area. The access provides parking, drop-off, and boater access to the bypass reach for rafts and kayaks (*Figure 25 & 26*). Construction of the put in facility was completed by the WVDEP in late summer of 2021.

**Midland Trail New River Access (Zone 3; Non-Project Facilities)**

WVDEP's 401 WQC Condition 9 required Hawks Nest Hydro to work in conjunction with WVDNR-WRS to acquire and develop a take-out location on the New River in the Gauley Bridge area. Once constructed, this non-Project recreation facility is to be maintained by WVDNR-WRS using annual funding provided by Hawks Nest Hydro per Condition 10 of the WQC.

Hawks Nest Hydro and WVDNR-WRS, in consultation with WVDEP, identified a suitable and practicable location for constructing a take-out area approximately 0.2 miles upstream from the New River Campground (*Figure 27 & 28*). Hawks Nest acquired the property and completed a Memorandum of Agreement with the West Virginia Division of Natural Resources for acceptance of the Midland Trail New River Access site The Midland Trail New River Access site was constructed by Hawks Nest in 2019 to provide seven parallel parking spots, seven angled boat and trailer parking spots, and a bus turn around at each end of the parking lot. The natural conditions of the existing flat shoreline and rock shelf at the site are suitable for kayak or raft take-out. The property was conveyed via deed to the WVDNR in September of 2020, and the facility remains a non-project recreational facility.

**Hawks Nest State Park (Zone 1; Non-Project Facilities)**

In 1966, the original licensee of the Hawks Nest Project leased 200 acres of land upstream of the Hawks Nest Dam and adjacent to HNSP to the State of West Virginia for the use and benefit of the WVDNR-WRS. This land became part of the 270-acre HNSP (*Figure 13*), which is operated and maintained by the WVDNR-WRS (FERC 1987). The lease remains in effect as long as the Hawks Nest Project is operating under a valid license issued by FERC. The park borders the New River Gorge National River, and offers a scenic, panoramic view of the gorge. HNSP is located on the Midland Trail Scenic Highway about one hour east of Charleston. Hawks Nest Dam is located 0.5 miles west/southwest of HNSP, while the Hawks Nest powerhouse is located 3.5 miles southeast of the park.

HNSP is one of six state parks located in the New River Basin. HNSP offers numerous recreational opportunities, including an aerial tramway running from Hawks Nest Lodge to a marina located at the bottom of the New River Gorge. Visitors can experience the New River via a jet boat tour offered May through October annually. The park's River Complex provides a picnic area, gift shop, access to the Hawks Nest Rail Trail and a nature center with interactive displays. It also offers fishing and boating access to the Hawks Nest Reservoir. Hiking is a primary activity available at HNSP, which boasts a variety of trails. Other recreational facilities at the park include an overlook vista, picnic shelters, souvenir shops, and a playground area. Accommodations are available at the park's 31-room lodge, which includes a conference center and a full-service restaurant (WVSP 2014).

*2) Provide representative photos of all recreational facilities taken within the last 12 months, and a map showing locations.*

Please see *Figures 18 & 19* for a map showing locations of recreational facilities. Photos are provided in *Figures 20 – 28*.

*3) If there has been a FERC Environmental and Recreation Inspection, please provide a link to or copy of the report and any follow up activities that were conducted. If there was no inspection, please state that.*

**FERC Environmental and Recreation Inspection**

The last FERC environmental inspection was completed at the Project on May 29, 2024 and the inspection report, issued on December 23, 2024, can be found here. The report outlines follow-up actions on certain recreation resource and public safety items that, while within the Hawks Nest Project Boundary, are also within the boundary and under the purview of the HNSP. Hawks Nest is currently working with the HNSP to resolve these items.

*4) If applicable, provide a weblink to any public website or describe signage informing the public about the facility's recreational amenities.*

**Recreational Amenities and Flow Notification Website**

As required by license Article 407 and WVDEP WQC Condition 4, by March 1, 2019, Hawks Nest Hydro developed and maintains a public flow notification website for the Hawks Nest Project. The website provides the final schedule for recreation flow releases (to be posted by March 1st, annually). The website also provides safety guidelines, real-time river conditions based on upstream and downstream USGS gages, flow forecasts for the bypass reach based on data readily available from the National Weather Service and USGS, and information about available recreational facilities at the Project. Cancellation and confirmation of scheduled recreation flow releases are communicated via the website.

Hawks Nest Website URL: https://safewaters.com/facility/hawks-nest

*5. Describe for each ZoE how the facility satisfies the criterion goal: The facility accommodates recreation activities on lands and waters controlled by the facility; and provides recreational, public, and traditional cultural access to its associated lands and waters without fee or charge.*

Please see Sections 4.8.2 for descriptions of how the facility satisfies the criterion goal for each ZoE.

### 4.8.2 Zone 1 - 3: Standard 2 – Resource Agency and Tribal Government Recommendations

All three Zones of Effect are using Standard 2 to justify meeting the Recreational Resources Standard.

| *Criterion* | *Standard* | *Instructions* |
|---|---|---|
| H | 2 | Resource Agency and Tribal Government Recommendation:<br>• Document all resource agency and tribal government recommendations and any enforceable recreation plans or agreements in place for recreational, public, and traditional cultural access or accommodations.<br>• Document that the facility in the designated ZoE is in compliance with all such recommendations, plans, and agreements. |

***Recreational Public, and Traditional Cultural Access Standard 2: Agency Recommendation (Zone 1 - 3)***

**Hawks Nest Recreation Management Plan**

On December 22, 2017, the FERC issued a new license for the continued operation and maintenance of the Project pursuant to the FERC's delegated authority under the Federal Power Act. Article 408 of the new license required Hawks Nest Hydro to file a Recreation Management Plan (Management Plan) for FERC approval, following consultation with the WVDNR-WRS, WVDEP, WVA Manufacturing, LLC, American Whitewater (AW), and West Virginia Professional River Outfitters (WVPRO). The Management Plan must be consistent with WVDEP's 401 WQC Conditions 11 (requiring an updated Recreation Management Plan), 3 (maintenance of the stage gauge at Cotton Hill), 4 (providing flow information in the bypass reach via a website), 5 (through-access and portage), 6 (improved boating access at Cotton

Hill), 7 (facility improvements at Cotton Hill), 8 (maintenance of the existing tailrace fishing access area), 9 (take-out location), and 10 (annual funding to WVDNR-WRS).

As currently licensed, there are two formal recreation facilities associated with the Hawks Nest Project: The Hawks Nest Tailrace Fishing Access, and the Cotton Hill Bridge Day-Use Area. Recreation within the Project area has also been developed in coordination with the WVDNR-WRS, primarily in the form of HNSP and the Cotton Hill Wildlife Management Area.

**Recreation Flow Release Plan**

Article 407 of the FERC license issued on December 22, 2017, required Hawks Nest Hydro to file a Recreation Flow Release Plan (Plan) for FERC approval, following consultation with the WVDNR, WVDEP, WVA Manufacturing, LLC (WVA Manufacturing), AW, and WVPRO. The Plan is consistent with WVDEP's WQC Condition 11 (requiring a plan be prepared that details procedures and protocols related to the scheduled recreation flow releases), that includes certification conditions 4 (flow release notification website), 12 (recreation flow release scheduling), and 13 (number of and schedule for planned recreation releases).

Nine (9) recreational flow releases are provided by Hawks Nest Hydro to the bypass reach each year, to include two (2) releases in the spring (March), and seven (7) during the summer (June-August). During these releases, flows in the bypass reach are maintained between 2200-2500 cfs. The schedule for these releases is coordinated by Hawks Nest Hydro each year during an annual planning meeting with stakeholders, and this schedule is published to the public on the Hawks Nest flow release notification website by March 1$^{st}$ annually. The website additionally provides the projected status for each scheduled release 7 days, 3 days, and 24 hours before the release.

**Documentation of Compliance**

Please see *Section 8.4.4: Article 407: Recreation Flow Release Plan*, and *Section 8.4.5 Article 408 – Recreation Management Plan* for links to FERC notifications and responses.

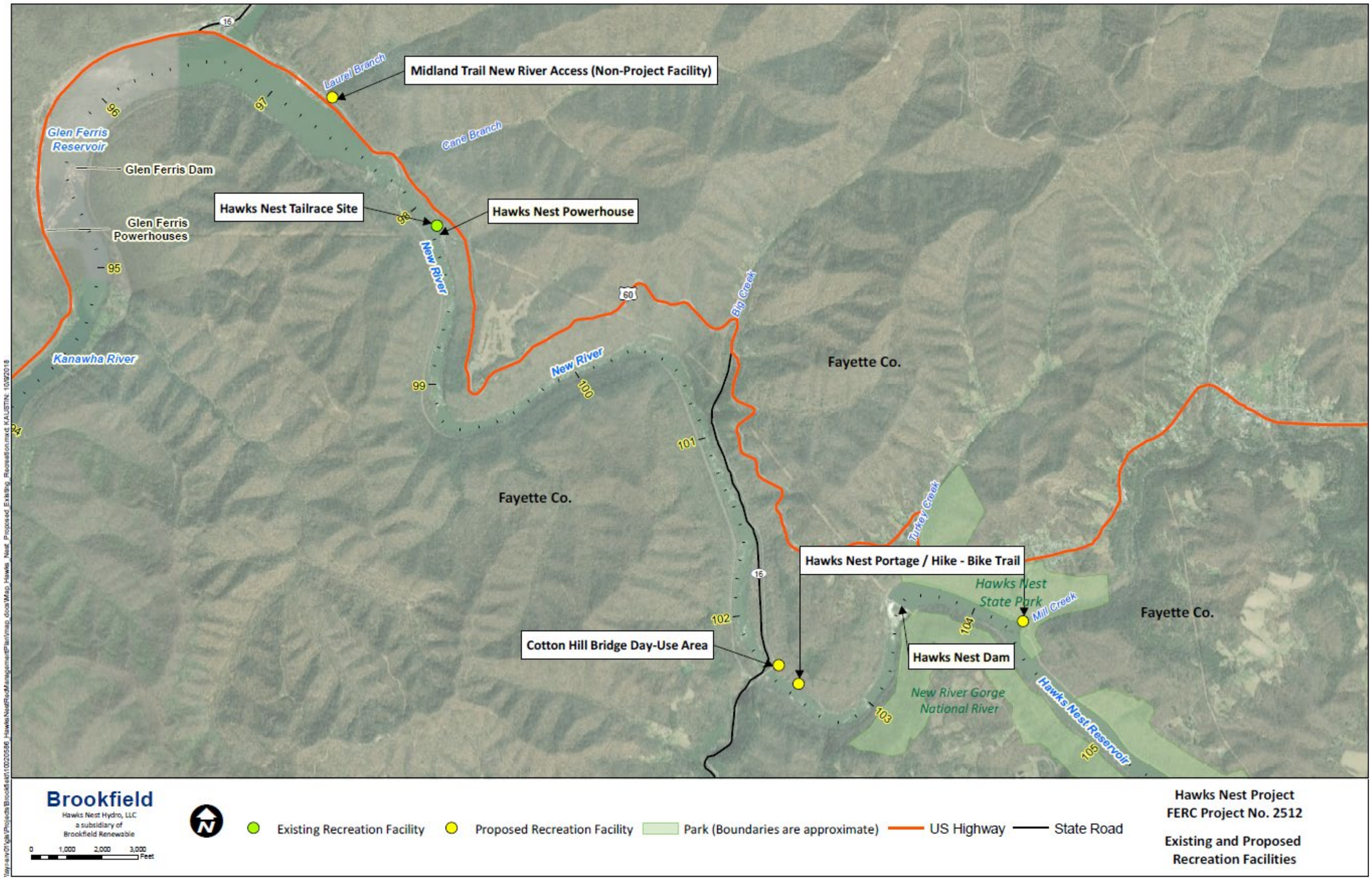



FIGURE 18: EXISTING AND PROPOSED RECREATION FACILITIES MAP (RECREATION MANAGEMENT PLAN, 2018)

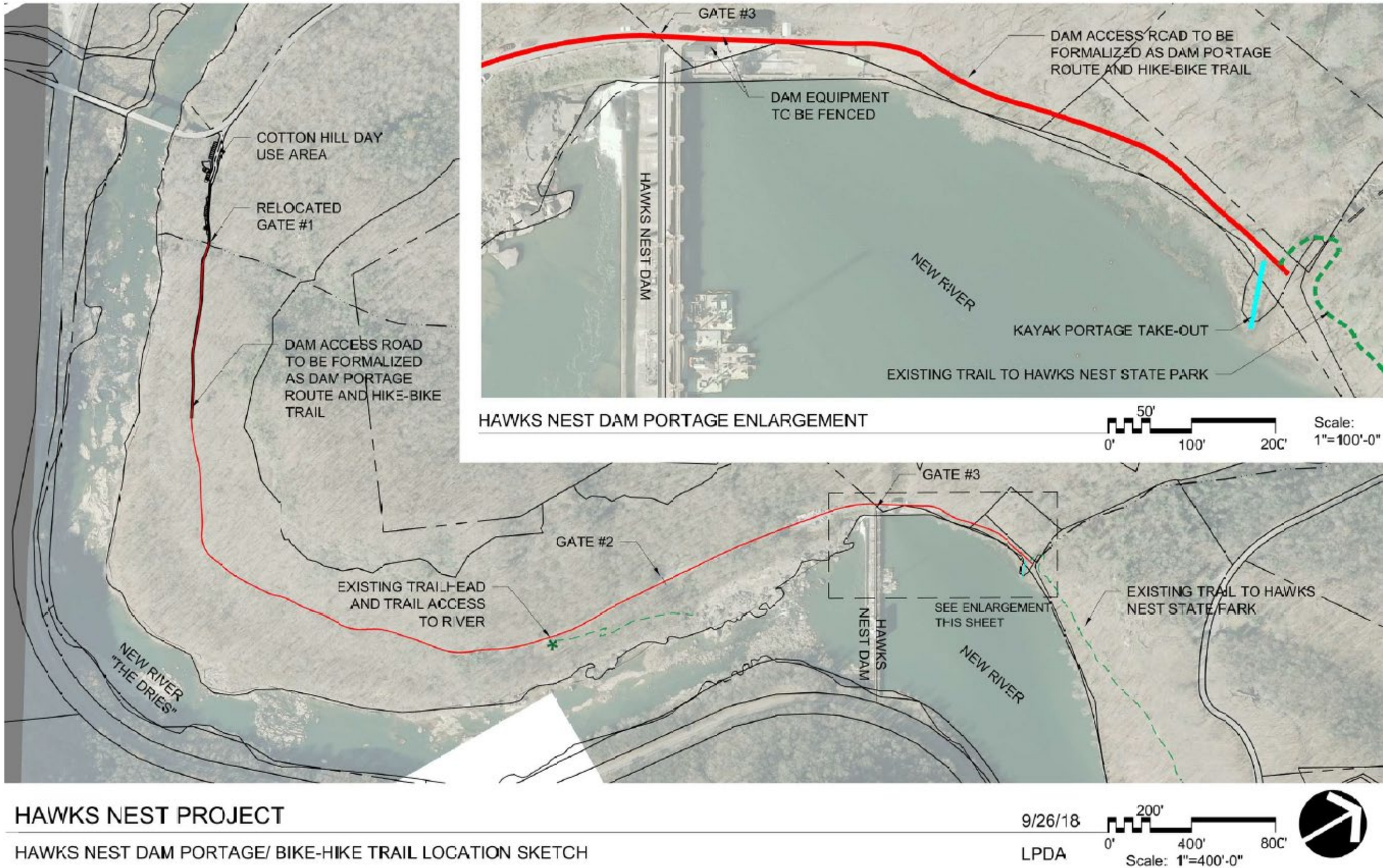



FIGURE 19: HAWKS NEST DAM PORTAGE/BIKE-HIKE TRAIL (RECREATION MANAGEMENT PLAN, 2018)


**Figure 20: Hawks Nest Recreation Area: Tailrace Fishing Access**


**Figure 21: Hawks Nest Recreation Area: Cotton Hill Portage /Bike-Hike Trail**


**Figure 22: Hawks Nest Recreation Area: Cotton Hill Portage /Bike-Hike Trail**

**Figure 23: Hawks Nest Recreation Area: Cotton Hill Bridge Day-Use Area**

**Figure 24: Hawks Nest Recreation Area: Cotton Hill Bridge Day-Use Area**

**Figure 25: Recreation Area: WVDNR Cotton Hill Enhancements – River Access**

**Figure 26: Recreation Area: WVDNR Cotton Hill Enhancements – River Access**

**Figure 27: Recreation Area: WVDNR Midland Trail New River Access**

**Figure 28: Recreation Area: WVDNR Midland Trail New River Access**

# 5.0 REGULATORY DEVIATIONS

Below is a summary of all planned and unplanned deviations from, or violations of the FERC license, exemption, or other permit or authorization requirement (e.g., water quality certification) over the last ten years.

## 5.1 NPDES Permit Violations

- On December 8, 2023, WVDEP conducted a compliance inspection at the Hawks Nest project and issued an inspection report on February 4, 2024. The report issued two violations: (1) failure to develop and implement a stormwater pollution prevention plan and (2) failure to collect stormwater samples during the first thirty minutes of a qualifying rain event. Hawks Nest responded by letter dated March 12, 2024, noting that the newly issued permit no longer had stormwater monitoring included and asked that the violations be released. WVDEP responded on March 25, 2024, agreeing to remove the violations and return Hawks Nest to compliance. Copies of the WVDEP letter are enclosed in Section 8.0.

## 5.2 Compliance Monitoring Plan Deviations

- By letter dated September 20, 2019, Hawks Nest filed a minimum flow excursion report. During a toe inspection on September 10, 2019, a crest gate was being utilized to pass minimum flows resulting in flow dropping below the minimum required 250cfs. Upon examination it was determined that the gate height adjustment required recalibration. The report can be found here.

  No response from the FERC was received or recorded by Brookfield for this self-reported event, and there is no record of a response in the FERC Library.

- By letter dated January 13, 2020, Hawks Nest filed a minimum flow excursion report. On December 21, 2019, after the operator conducted gate changes, they discovered the minimum flow was no longer being released after verifying using the USGS gauge. An examination later revealed debris was caught on a large tree that had become wedged in the trash gate, thereby restricting flow. The deviation was approximately four hours long. The report can be found here.

  By letter dated April 22, 2020, the FERC responded informing Hawks Nest that the deviation from the low flow event requirement that occurred on December 21, 2019, would not be considered a violation of Article 402 for the Hawks Nest Hydroelectric Project. This letter can be found here.

# 6.0 ATTESTATION AND WAIVER FORM

## B.3 Attestation and Waiver Form

All applications for LIHI Certification must include the following statement before they can be reviewed by LIHI:

**ATTESTATION**

*As an Authorized Representative of Hawks Nest Hydro, LLC, the Undersigned attests that the material presented in the application is true and complete.*

*The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's certification program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.*

*The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to the final certification decision and prior to marketing the electricity product as LIHI Certified® (which includes selling RECs in a market that requires LIHI Certification).*

*The Undersigned further agrees to hold the Low Impact Hydropower Institute, the Governing Board, and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's certification program.*

**FOR PRE-OPERATIONAL CERTIFICATIONS:**

*The Undersigned acknowledges that LIHI may suspend or revoke the LIHI Certification should the impacts of the facility, once operational, fail to comply with the LIHI program requirements.*

Authorized Representative:

Name: Kathleen Lester

Title: Senior Compliance Manager

Authorized Signature: _____

Date: 9/18/25

# 7.0 FACILITY AND STAKEHOLDER CONTACTS

**A. Table 11: Applicant-Related Contacts**

| **Facility Owner:** | |
|---|---|
| Name and Title | Kevin Moriarty, Director of Operations |
| Company | Hawks Nest Hydro, LLC |
| Phone | 757-641-6019 |
| Email Address | Kevin.moriarty@brookfieldrenewable.com |
| Mailing Address | 439 Elizabeth Way, Fayetteville, WV 25840 |
| **Facility Operator (if different from Owner):** | |
| Name and Title | Same as Owner |
| Company | |
| Phone | |
| Email Address | |
| Mailing Address | |
| **Consulting Firm / Agent for LIHI Program (if different from above):** | |
| Name and Title | N/A |
| Company | |
| Phone | |
| Email Address | |
| Mailing Address | |
| **Compliance Contact (responsible for LIHI Program requirements):** | |
| Name and Title | Kathleen Lester, Sr. Compliance Manager |
| Company | Hawks Nest Hydro, LLC |
| Phone | 570-226-1371 |
| Email Address | Kathleen.lester@brookfieldrenewable.com |
| Mailing Address | 126 Lamberton Lane, Hawley, PA 18428 |
| **Party responsible for accounts payable:** | |
| Name and Title | |
| Company | Hawks Nest Hydro, LLC |
| Phone | |
| Email Address | AP@brookfieldrenewable.com |
| Mailing Address | |
| **Dam owner / operator if different from facility contacts above:** | |
| Name and Title | Same as Owner |
| Company | |
| Phone | |
| Email Address | |
| Mailing Address | |

**B. Table 12: Federal, state, and local resource agency contacts with knowledge of the facility.**

| *Agency Contact* | | *Area of Responsibility* |
|---|---|---|
| **Agency Name** | **New River Gorge National Park & Preserve<br>US National Park Service** | ☐ Flows<br>☐ Water Quality<br>☒ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☒ Recreation |
| Name and Title | Kevin R. Mendik, Hydro Assistance Program | |
| Phone | 617-320-3496 | |
| Email address | NERI_Superintendent@nps.gov<br>kevin_mendik@nps.gov | |
| Mailing Address | PO Box 246, 104 Main St.<br>Glen Jean, WV 25846 | |
| **Agency Name** | **WV Department of Environmental Protection (WVDEP)** | ☒ Flows<br>☒ Water Quality<br>☐ Fish/Wildlife<br>☒ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name and Title | Nancy Dixon, Environmental Resources Analyst | |
| Phone | (304) 541-4268 | |
| Email address | nancy.j.dixon@wv.gov | |
| Mailing Address | 601 57th Street, S.E.<br>Charleston, WV 25304 | |
| **Agency Name** | **WV Division of Natural Resources (WVDNR)** | ☒ Flows<br>☒ Water Quality<br>☒ Fish/Wildlife<br>☒ Watershed<br>☒ T&E Species<br>☐ Cultural/Historic<br>☒ Recreation |
| Name and Title | Chase Garvey, Environmental Coordinator | |
| Phone | (304) 630-0365 | |
| Email address | chase.a.garvey@wv.gov | |
| Mailing Address | PO Box 67<br>Elkins, WV 26241-3235 | |
| **Agency Name** | **WV State Historic Preservation Office** | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☒ Cultural/Historic<br>☐ Recreation |
| Name and Title | Susan Pierce, WV Deputy State Historic Preservation Officer | |
| Phone | 304-558-0240 ext. 158 | |
| Email address | Susan.M.Pierce@wv.gov | |
| Mailing Address | 1900 Kanawha Boulevard East<br>Charleston, WV 25305-0009 | |
| **Agency Name** | **Hawks Nest State Park** | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☒ Recreation |
| Name and Title | Joe Baughman, Superintendent | |
| Phone | 304-658-5196 | |
| Email address | Joe.D.Baughman@wv.gov | |
| Mailing Address | 49 Hawks Nest Park Rd. PO Box 857<br>Ansted, WV 25812 | |
| **Agency Name** | **United States Fish and Wildlife Service (USFWS)** | ☐ Flows<br>☐ Water Quality<br>☒ Fish/Wildlife<br>☒ Watershed<br>☒ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name and Title | Frankie Green, USFWS National Hydropower Coordinator | |
| Phone | (703) 358-1884 | |
| Email address | Frankie_Green@fws.gov | |
| Mailing Address | 5275 Leesburg Pike<br>Baileys Crossroads, VA 22041 | |

**C. Table 13: Tribal government and tribal agency contacts.**

| *Tribal Contact* | | *Area of Responsibility* |
|---|---|---|
| **Organization Name** | **Absentee-Shawnee Tribe of Indians of Oklahoma** | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name/contact | 2025 S. Gordon Cooper Drive<br>Shawnee, OK 74801<br>106NAGPRA@astribe.com | |
| **Organization Name** | **Eastern Shawnee Tribe of Oklahoma** | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name/contact | PO Box 350<br>Seneca, MO 64865<br>thpo@estoo.net | |
| **Organization Name** | **Seneca-Cayuga Tribe of Oklahoma** | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name/contact | 23701 South 655 Road<br>Grove, OK 74344<br>wtarrant@sctribe.com | |
| **Organization Name** | **Shawnee Tribe** | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name/contact | PO Box 189<br>Miami, OK 74355<br>thpo@shawnee-tribe.com | |
| **Organization Name** | **Eastern Band of Cherokee Indians** | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name/contact | Cultural Resources Department<br>PO Box 455<br>Cherokee, NC 28719<br>syerka@nc-cherokee.com | |
| **Organization Name** | **United Keetoowah Band of Cherokee Indians** | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name/contact | Roger Cain<br>Tribal Historic Preservation Officer<br>18263 W. Keetoowah Circle<br>Tahlequah, OK 74465<br>rcain@ukb-nsn.gov | |

| | | |
|---|---|---|
| **Organization Name** | **Catawba Indian Nation** | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name/contact | Wenonah Haire<br>Caitlin Rogers<br>996 Avenue of the Nations<br>Rock Hill, SC 29730<br>wenonah.haire@catawba.com | |
| **Organization Name** | **Tuscarora Nation** | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name/contact | 5226 Walmore Road<br>Lewiston, NY 14092<br>tuscnationhouse@gmail.com | |
| **Organization Name** | **Cherokee Nation** | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name/contact | Elizabeth Toombs<br>Tribal Historic Preservation Officer<br>22361 Bald Hill Road<br>Tahlequah, OK 74464<br>elizabeth-toombs@cherokee.org | |
| **Organization Name** | **Delaware Nation** | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name/contact | PO Box 825<br>Anadarko, OK 73005<br>sallen@delawarenation-nsn.gov | |
| **Organization Name** | | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name/contact | | |
| **Organization Name** | | ☐ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☐ Recreation |
| Name/contact | | |

**D. Currently engaged external interested party contacts.**

| *Stakeholder Contact* | | *Area of Responsibility* |
|---|---|---|
| **Organization Name** | **WVA Manufacturing LLC (Rec Release Plan consultation)** | ☒ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☒ Recreation |
| Name/contact | Mike Thacker<br>mthacker@wvamfg.com<br>Russ Lang<br>rlang@ferroglobe.com | |
| **Organization Name** | **American Whitewater** | ☒ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☒ Recreation |
| Name/contact | Kevin Colburn<br>kevin@americanwhitewater.org | |
| **Organization Name** | **West Virginia Professional River Outfitters (Rec Release Plan consultation)** | ☒ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☒ Recreation |
| Name/contact | Bobby Bower<br>westvirginiafishing@gmail.com | |
| **Organization Name** | **Adventures on the Gorge** | ☒ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☒ Recreation |
| Name/contact | Roger Wilson<br>wilson-roger1@aramark.com | |
| **Organization Name** | **River Expeditions** | ☒ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☒ Recreation |
| Name/contact | Rick Johnson<br>rick@raftinginfo.com | |
| **Organization Name** | **ACE Adventure Resort** | ☒ Flows<br>☐ Water Quality<br>☐ Fish/Wildlife<br>☐ Watershed<br>☐ T&E Species<br>☐ Cultural/Historic<br>☒ Recreation |
| Name/contact | Jerry Cook<br>jerry@aceraft.com | |

# 8.0 SUPPORTING DOCUMENTATION

Below is a list of supporting documentation that demonstrate compliance with existing regulatory requirements.

## 8.1 FERC LICENSE AND AMENDMENT ORDERS

- 12/22/2017 Order Issuing New License - https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20171222-3092&optimized=false&sid=8c9d500a-9376-481c-86ca-bdd9cdb60dec
- 10/20/2017 Final Environmental Assessment for New Hydropower License https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20171020-3004&optimized=false&sid=8c9d500a-9376-481c-86ca-bdd9cdb60dec

## 8.2 WATER QUALITY CERTIFICATION, AMENDMENTS AND REPORTS

- 08/15/2017 WVDEP Modified Water Quality Certification - https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20170815-5072&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c

## 8.3 SETTLEMENT AND OTHER AGREEMENTS

- 09/27/2017 Programmatic Agreement with the WV State Historic Preservation Officer - https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20170927-3061&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c

## 8.4 COMPLIANCE PLANS AND REPORTS

### 8.4.1 Article 402 – Compliance Monitoring Plan

- 06/29/2018 Operation Compliance Monitoring Plan https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20180629-5170&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c
- 08/09/2018 FERC Order Approving Compliance Monitoring Plan https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20180809-3020&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c

### 8.4.2 Article 403 and 404 – Bald Eagle Protection Plan

- 06/28/2018 Bald Eagle Protection Plan https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20180628-5173&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c
- 11/20/2018 FERC Order Approving Bald Eagle Protection Plan https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20181120-3028&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c

### 8.4.3 Article 405 - Running Buffalo Clover

- 2018 Running Buffalo Clover Report - https://elibrary.ferc.gov/eLibrary/docfamily?accessionnumber=20181115-5037&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c
- 2019 Running Buffalo Clover Report - https://elibrary.ferc.gov/eLibrary/docfamily?accessionnumber=20190903-5160&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c
- 2020 Running Buffalo Clover Report - https://elibrary.ferc.gov/eLibrary/docfamily?accessionnumber=20200814-5117&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c
- 2021 Running Buffalo Clover Report - https://elibrary.ferc.gov/eLibrary/docfamily?accessionnumber=20210618-5031&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c
- 2022 Running Buffalo Clover Report - https://elibrary.ferc.gov/eLibrary/docfamily?accessionnumber=20221209-5104&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c
- 2023 Running Buffalo Clover Report - https://elibrary.ferc.gov/eLibrary/docfamily?accessionnumber=20231222-5222&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c
- 2024 Running Buffalo Clover Report - https://elibrary.ferc.gov/eLibrary/docfamily?accessionnumber=20241209-5138&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c

### 8.4.4 Article 407 - Recreation Flow Release Plan

- 11/01/2018 Recreation Flow Release Plan https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20181101-5172&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c
- 02/01/2019 Recreation Flow Release Plan Amended https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20190201-5055&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c
- 04/05/2019 FERC Order Approving Recreation Flow Release Plan https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20190405-3087&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c

### 8.4.5 Article 408 – Recreation Management Plan

- 11/30/2018 Recreation Management Plan https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20181130-5241&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c
- 10/09/2019 Order Approving Recreation Management Plan https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20191009-3027&optimized=false&sid=e3698ba1-78c5-4776-b3fa-3ef235cb017c

### 8.4.6 Additional Attachments Appended (not found on electronic FERC docket):

- USFWS IPaC Official Species List and D-Key Report (RE: *Section 4.6*)
- SHPO Annual Report Receipt Letter (RE: *Section 4.7*)
- Hawks Nest Running Buffalo Management Plan (RE: Section 4.7)
- WVDEP 2023 NPDES Inspection Letter – Return to Compliance

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
West Virginia Ecological Services Field Office
6263 Appalachian Highway
Davis, WV 26260-8061
Phone: (304) 866-3858 Fax: (304) 866-3852

In Reply Refer To: 05/06/2025 17:09:25 UTC
Project Code: 2025-0092991
Project Name: Hawks Nest: LIHI

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). If you determine that other federally protected species not listed in this Official Species List are present in your action area, you are still responsible to analyze your potential effects to those species and consult with the U.S. Fish and Wildlife Service if consultation is required.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

**Migratory Birds**: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of

this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

# OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**West Virginia Ecological Services Field Office**
6263 Appalachian Highway
Davis, WV 26260-8061
(304) 866-3858

# PROJECT SUMMARY

Project Code: 2025-0092991
Project Name: Hawks Nest: LIHI
Project Type: Dam - Operations
Project Description: LIHI Application, 2025
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.11628305,-81.13840124521516,14z


Counties: Fayette County, West Virginia

# ENDANGERED SPECIES ACT SPECIES

There is a total of 16 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 5 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## MAMMALS

| NAME | STATUS |
|---|---|
| Gray Bat *Myotis grisescens*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/6329 | Endangered |
| Indiana Bat *Myotis sodalis*<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>This species only needs to be considered under the following conditions:<br>▪ All activities in this location should consider potential effects to this species. This project is not within a known-use area, but potentially occupied habitat may exist. Please contact the WVFO for further coordination.<br>▪ All activities in this location should consider potential effects to this species. This project is within known Indiana bat habitat, which may include spring staging, fall swarming, winter hibernacula, and summer roosting. Please contact the WVFO.<br>Species profile: https://ecos.fws.gov/ecp/species/5949 | Endangered |
| Northern Long-eared Bat *Myotis septentrionalis*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/9045 | Endangered |
| Tricolored Bat *Perimyotis subflavus*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/10515 | Proposed Endangered |
| Virginia Big-eared Bat *Corynorhinus (=Plecotus) townsendii virginianus*<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/8369 | Endangered |

## CLAMS

| NAME | STATUS |
|---|---|
| Fanshell *Cyprogenia stegaria*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/4822<br>General project design guidelines:<br>https://ipac.ecosphere.fws.gov/project/OC3BDLSHNRFQVLPCOPCKH3KR2A/documents/generated/6470.pdf | Endangered |
| Green Floater *Lasmigona subviridis*<br>There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/7541 | Proposed Threatened |
| Longsolid *Fusconaia subrotunda*<br>There is **final** critical habitat for this species. Your location overlaps the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/9880 | Threatened |
| Northern Rifffleshell *Epioblasma rangiana*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/527 | Endangered |

NAME STATUS

General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OC3BDLSHNRFQVLPCOPCKH3KR2A/documents/generated/6462.pdf

## Pink Mucket (pearlymussel) *Lampsilis abrupta* — Endangered

No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:
- This project is in close proximity of a stream known to support this species; all activities in this location should consider potential effects to the species. Review the project design guidelines for information about next steps and contacting the WVFO.

Species profile: https://ecos.fws.gov/ecp/species/7829
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OC3BDLSHNRFQVLPCOPCKH3KR2A/documents/generated/6463.pdf

## Round Hickorynut *Obovaria subrotunda* — Threatened

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/9879

## Sheepnose Mussel *Plethobasus cyphyus* — Endangered

There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.
This species only needs to be considered under the following conditions:
- This project occurs within a watershed known to support this species. Review the project design guidelines for more information about next steps and contacting the WVFO.
- This project is in close proximity of a stream known to support this species; all activities in this location should consider potential effects to the species. Review the project design guidelines for information about next steps and contacting the WVFO.

Species profile: https://ecos.fws.gov/ecp/species/6903
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OC3BDLSHNRFQVLPCOPCKH3KR2A/documents/generated/6465.pdf

## Snuffbox Mussel *Epioblasma triquetra* — Endangered

There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.
This species only needs to be considered under the following conditions:
- This project is in close proximity of a stream known to support this species; all activities in this location should consider potential effects to the species. Review the project design guidelines for information about next steps and contacting the WVFO.

Species profile: https://ecos.fws.gov/ecp/species/4135
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OC3BDLSHNRFQVLPCOPCKH3KR2A/documents/generated/6466.pdf

## Spectaclecase (mussel) *Cumberlandia monodonta* — Endangered

There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.
This species only needs to be considered under the following conditions:
- This project occurs within a watershed known to support this species. Review the project design guidelines for more information about next steps and contacting the WVFO.

| NAME | STATUS |
|---|---|

- This project is in close proximity of a stream known to support this species; all activities in this location should consider potential effects to the species. Review the project design guidelines for information about next steps and contacting the WVFO.

Species profile: https://ecos.fws.gov/ecp/species/7867
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/OC3BDLSHNRFQVLPCOPCKH3KR2A/documents/generated/6467.pdf

## INSECTS

| NAME | STATUS |
|---|---|
| Monarch Butterfly *Danaus plexippus*<br>There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/9743 | Proposed Threatened |

## FLOWERING PLANTS

| NAME | STATUS |
|---|---|
| Virginia Spiraea *Spiraea virginiana*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/1728 | Threatened |

## CRITICAL HABITATS

There are 2 critical habitats wholly or partially within your project area under this office's jurisdiction.

| NAME | STATUS |
|---|---|
| Longsolid *Fusconaia subrotunda*<br>https://ecos.fws.gov/ecp/species/9880#crithab | Final |
| Round Hickorynut *Obovaria subrotunda*<br>https://ecos.fws.gov/ecp/species/9879#crithab | Final |

# USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

# BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

---

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

BALD & GOLDEN EAGLES INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

# MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

MIGRATORY BIRD INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

# WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER POND
- PUBHx
- PUBFh

FRESHWATER FORESTED/SHRUB WETLAND
- PFO1C
- PFO1A

RIVERINE
- R3UBH
- R3RBH
- R2UBH

FRESHWATER EMERGENT WETLAND
- PEM1Ch

LAKE
- L1UBHh

# IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Clint Henry
Address: 439 Elizabeth Way
City: Fayetteville
State: WV
Zip: 25840
Email clint.henry@brookfieldrenewable.com
Phone: 3042225827

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
West Virginia Ecological Services Field Office
6263 Appalachian Highway
Davis, WV 26260-8061
Phone: (304) 866-3858 Fax: (304) 866-3852

In Reply Refer To: 05/06/2025 17:44:39 UTC
Project code: 2025-0092991
Project Name: Hawks Nest: LIHI (P-2512)

Federal Nexus: yes
Federal Action Agency (if applicable): Federal Energy Regulatory Commission

Subject: Technical assistance for 'Hawks Nest: LIHI (P-2512)'

Dear Clint Henry:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on May 06, 2025, for “Hawks Nest: LIHI (P-2512)” (here forward, Project). This project has been assigned Project Code 2025-0092991 and all future correspondence should clearly reference this number.

The Service developed the IPaC system and associated species’ determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northeast Determination Key (Dkey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative effect(s)), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17). Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no further consultation with, or concurrence from, the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Service concurs, in writing, that a

proposed action "is not likely to adversely affect (NLAA)" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13]).

The IPaC results indicated the following species is (are) potentially present in your project area and, based on your responses to the Service's Northeast DKey, you determined the proposed Project will have the following effect determinations:

| **Species** | **Listing Status** | **Determination** |
|---|---|---|
| Fanshell (*Cyprogenia stegaria*) | Endangered | NLAA |
| Gray Bat (*Myotis grisescens*) | Endangered | NLAA |
| Indiana Bat (*Myotis sodalis*) | Endangered | May affect |
| Longsolid (*Fusconaia subrotunda*) | Threatened | NLAA |
| Northern Riffleshell (*Epioblasma rangiana*) | Endangered | NLAA |
| Pink Mucket (pearlymussel) (*Lampsilis abrupta*) | Endangered | NLAA |
| Round Hickorynut (*Obovaria subrotunda*) | Threatened | NLAA |
| Sheepnose Mussel (*Plethobasus cyphyus*) | Endangered | NLAA |
| Snuffbox Mussel (*Epioblasma triquetra*) | Endangered | NLAA |
| Spectaclecase (mussel) (*Cumberlandia monodonta*) | Endangered | NLAA |
| Virginia Big-eared Bat (*Corynorhinus (=Plecotus) townsendii virginianus*) | Endangered | No effect |
| Virginia Spiraea (*Spiraea virginiana*) | Threatened | No effect |

| **Critical Habitat** | **Listing Status** | **Determination** |
|---|---|---|
| Longsolid (*Fusconaia subrotunda*) | Final | May affect |
| Round Hickorynut (*Obovaria subrotunda*) | Final | May affect |

**Consultation with the Service is not complete.**Further consultation or coordination with the Service is necessary for those species or designated critical habitats with a determination of "May Affect". Please contact our West Virginia Ecological Services Field Office to discuss methods to avoid or minimize potential adverse effects to those species or designated critical habitats.

In addition to the species listed above, the following species and/or critical habitats may also occur in your project area and are not covered by this conclusion:

- Green Floater *Lasmigona subviridis* Proposed Threatened
- Monarch Butterfly *Danaus plexippus* Proposed Threatened
- Northern Long-eared Bat *Myotis septentrionalis* Endangered
- Tricolored Bat *Perimyotis subflavus* Proposed Endangered

Please Note: If the Action may impact bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d) by the prospective permittee may be required. Please contact the Migratory Birds

Permit Office, (413) 253-8643, or PermitsR5MB@fws.gov, with any questions regarding potential impacts to Eagles.

If you have any questions regarding this letter or need further assistance, please contact the West Virginia Ecological Services Field Office and reference the Project Code associated with this Project.

**Action Description**
You provided to IPaC the following name and description for the subject Action.

**1. Name**

Hawks Nest: LIHI (P-2512)

**2. Description**

The following description was provided for the project 'Hawks Nest: LIHI (P-2512)':

> LIHI Application, 2025

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.11628305,-81.13840124521516,14z

# QUALIFICATION INTERVIEW

1. As a representative of this project, do you agree that all items submitted represent the complete scope of the project details and you will answer questions truthfully?

   *Yes*

2. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed species?

   **Note:** This question could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered, or proposed species.

   *No*

3. Is the action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   *Yes*

4. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) the lead agency for this project?

   *No*

5. Are you including in this analysis all impacts to federally listed species that may result from the entirety of the project (not just the activities under federal jurisdiction)?

   **Note:** If there are project activities that will impact listed species that are considered to be outside of the jurisdiction of the federal action agency submitting this key, contact your local Ecological Services Field Office to determine whether it is appropriate to use this key. If your Ecological Services Field Office agrees that impacts to listed species that are outside the federal action agency's jurisdiction will be addressed through a separate process, you can answer yes to this question and continue through the key.

   *Yes*

6. Are you the lead federal action agency or designated non-federal representative requesting concurrence on behalf of the lead Federal Action Agency?

   *No*

7. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)?

   *No*

8. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

   *Yes*

9. Is FERC reviewing the proposed action under the Natural Gas Act, in whole or in part?

   *No*

10. Will the proposed project involve the use of herbicide where listed species are present?

    *No*

11. Are there any caves or anthropogenic features suitable for hibernating or roosting bats within the area expected to be impacted by the project?

    *No*

12. Does any component of the project associated with this action include activities or structures that may pose a collision risk to **birds** (e.g., plane-based surveys, land-based or offshore wind turbines, communication towers, high voltage transmission lines, any type of towers with or without guy wires)?

    **Note:** For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

    *No*

13. Does any component of the project associated with this action include activities or structures that may pose a collision risk to **bats** (e.g., plane-based surveys, land-based or offshore wind turbines)?

    **Note:** For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

    *No*

14. Will the proposed project result in permanent changes to water quantity in a stream or temporary changes that would be sufficient to result in impacts to listed species?

    For example, will the proposed project include any activities that would alter stream flow, such as water withdrawal, hydropower energy production, impoundments, intake structures, diversion structures, and/or turbines? Projects that include temporary and limited water reductions that will not displace listed species or appreciably change water availability for listed species (e.g. listed species will experience no changes to feeding, breeding or sheltering) can answer "No". Note: This question refers only to the amount of water present in a stream, other water quality factors, including sedimentation and turbidity, will be addressed in following questions.

    *No*

15. Will the proposed project affect wetlands where listed species are present?

    This includes, for example, project activities within wetlands, project activities within 300 feet of wetlands that may have impacts on wetlands, water withdrawals and/or discharge of contaminants (even with a NPDES).

    *No*

16. Will the proposed project directly affect a streambed (below ordinary high water mark (OHWM)) of the stream or tributary where listed species may be present?

    *No*

17. Will the proposed project bore underneath (directional bore or horizontal directional drill) a stream where listed species may be present?

    *No*

18. Will the proposed project involve a new point source discharge into a stream or change an existing point source discharge (e.g., outfalls; leachate ponds) where listed species may be present?

    *No*

19. Will the proposed project involve the removal of excess sediment or debris, dredging or in-stream gravel mining where listed species may be present?

    *No*

20. Will the proposed project involve the creation of a new water-borne contaminant source where listed species may be present?

    **Note** New water-borne contaminant sources occur through improper storage, usage, or creation of chemicals. For example: leachate ponds and pits containing chemicals that are not NSF/ANSI 60 compliant have contaminated waterways. Sedimentation will be addressed in a separate question.

    *No*

21. Will the proposed project involve perennial stream loss, in a stream of tributary of a stream where listed species may be present, that would require an individual permit under 404 of the Clean Water Act?

    *No*

22. Will the proposed project involve blasting where listed species may be present?

    *No*

23. Will the proposed project include activities that could negatively affect fish movement temporarily or permanently (including fish stocking, harvesting, or creation of barriers to fish passage).

    *No*

24. Will the proposed project involve earth moving that could cause erosion and sedimentation, and/or contamination along a stream or tributary of a stream where listed species may be present?

    **Note**: Answer "Yes" to this question if erosion and sediment control measures will be used to protect the stream.

    *No*

25. Will the proposed project impact streams or tributaries of streams where listed species may be present through activities such as, but not limited to, valley fills, large-scale vegetation removal, and/or change in site topography?

    *No*

26. Will the proposed project involve vegetation removal within 200 feet of a perennial stream bank where aquatic listed species may be present?

    *No*

27. Will erosion and sedimentation control Best Management Practices (BMPs) associated with applicable state and/or Federal permits, be applied to the project? If BMPs have been provided by and/or coordinated with and approved by the appropriate Ecological Services Field Office, answer "Yes" to this question.

    *Yes*

28. Is the project being funded, lead, or managed in whole or in part by U.S Fish and Wildlife Restoration and Recovery Program (e.g., Partners, Coastal, Fisheries, Wildlife and Sport Fish Restoration, Refuges)?

    *No*

29. [Semantic] Is the project located on a Group 4 stream: the Ohio River downstream of Hannibal Locks and Dam, Little Kanawha River (slack-water section adjoining the Ohio River), and/or the Kanawha River downstream of Kanawha Falls?

    **Automatically answered**
    *Yes*

30. Does the proposed project involve construction or installation of a non-commercial boat dock on a stream?

    *No*

31. Have you received a technical assistance communication (email or letter) from the West Virginia Field office?

    *No*

32. [Semantic] Does the project intersect the Gray Bat AOI?

    **Automatically answered**
    *Yes*

33. Are there any caves, mine portals, bridges, fissures, structures, or culverts within the proposed action area that are suitable for roosting bats?

    *No*

34. Will the proposed project include the removal, replacement, repair and/or maintenance of an existing bridge or culvert that is >4 feet in diameter?

    *No*

35. [Semantic] Does the project intersect the Virginia Big-eared Bat AOI?

    **Automatically answered**
    *Yes*

36. Will Virginia big-eared bats or big-eared bat habitat (e.g., caves, bridges, culverts, rock fissures, or anthropogenic structures used for roosting or foraging areas) have any possible exposure to any of the project activities during any time of year?

    *No*

37. [Semantic] Does the project intersect the Virginia big-eared bat critical habitat?

    **Automatically answered**
    *No*

38. [Semantic] Does the project intersect the Indiana bat AOI?

    **Automatically answered**
    *Yes*

39. Are trees present within the action area?

    **Note:** If there are trees within the action area that are of a sufficient size to be potential roosts for bats (i.e., live trees and/or snags ≥5 inches dbh (12.7 centimeter), answer "Yes". If you are unsure, answer “Yes.” Or refer to Appendix A of the Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines for definitions and an assessment form that will assist you in determining if suitable habitat is present within your project's action area. Suitable summer habitat for Indiana bat consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥5 inches dbh (12.7 centimeter) that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat

    *Yes*

40. [Semantic] Does the project intersect the Indiana bat critical habitat?

    **Automatically answered**
    *No*

41. [Hidden Semantic] Does the project area intersect the AOI for Virginia spiraea?

    **Automatically answered**
    *Yes*

42. Will all activities occur within an area that is currently paved, graveled, routinely maintained, and/or inside a structure?

    *No*

43. Will the proposed project involve temporary or permanent modification to hydrology, including groundwater recharge, that could result in changes to water quality, water quantity, or timing of water availability in proximity to listed plants?

    *No*

44. Will the proposed project involve herbaceous native vegetation removal (including prescribed fire that would result in the burning of plants) or mowing?

    *No*

45. Will the proposed project involve ground disturbance?

    *No*

46. [Hidden Semantic] Does the project intersect the Virginia spiraea AOI?

    **Automatically answered**
    *Yes*

47. Will the project directly affect the streambed (below ordinary high-water mark) or the streambanks and riparian vegetation of the Lower New, Meadow, Marsh Fork, Gauley, Greenbrier, Buckhannon or Bluestone rivers?

    *No*

48. Are federally listed freshwater mussels known to be present in the action area? If unsure, contact the appropriate Ecological Services Field Office for additional information or answer "NO" and continue through the key.

    *No*

49. Did a qualified surveyor conduct a freshwater mussel survey within the action area with the appropriate level of search effort according to local survey guidance?

    **Note:** Answer this question "Yes" if the project is located in WV and the action area is located outside the stream reaches where mussel surveys are required following the West Virginia Mussel Survey Protocol [West Virginia Mussel Survey Protocol].

    *No*

50. [Hidden Semantic] Does the project area intersect the AOI of Sheepnose?

    **Automatically answered**
    *Yes*

51. [Hidden Semantic] Does the project area intersect the AOI of Fanshell?

    **Automatically answered**
    *Yes*

52. [Hidden Semantic] Does the project area intersect the AOI of Snuffbox?

    **Automatically answered**
    *Yes*

53. [Hidden Semantic] Does the project area intersect the AOI of Spectaclecase?

    **Automatically answered**
    *Yes*

54. [Hidden Semantic] Does the project area intersect the AOI of the Pink Mucket?

    **Automatically answered**
    *Yes*

55. [Hidden Semantic] Does the project area intersect the AOI of Northern Riffleshell?

    **Automatically answered**
    *Yes*

56. [Hidden Semantic] Does the project area intersect the AOI of Round Hickorynut?

    **Automatically answered**
    *Yes*

57. [Semantic] Does the project intersect the round hickorynut proposed critical habitat?

    **Automatically answered**
    *Yes*

58. [Hidden Semantic] Does the project area intersect the AOI of Longsolid?

    **Automatically answered**
    *Yes*

59. [Semantic] Does the project intersect the longsolid proposed critical habitat?

    **Automatically answered**
    *Yes*

60. [Semantic] Does the project intersect the candy darter critical habitat?

    **Automatically answered**
    *No*

61. [Semantic] Does the project intersect the diamond darter critical habitat?

    **Automatically answered**
    *No*

62. [Semantic] Does the project intersect the Big Sandy crayfish critical habitat?

    **Automatically answered**
    *No*

63. [Hidden Semantic] Does the project intersect the Guyandotte River crayfish critical habitat?

    **Automatically answered**
    *No*

64. Do you have any other documents that you want to include with this submission?

    *No*

# PROJECT QUESTIONNAIRE

1. Approximately how many acres of trees would the proposed project remove?

   *0*

2. Approximately how many total acres of disturbance are within the disturbance/ construction limits of the proposed project?

   *0*

3. Briefly describe the habitat within the construction/disturbance limits of the project site.

   *No new construction or disturbance is anticipated.*

# IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Clint Henry
Address: 439 Elizabeth Way
City: Fayetteville
State: WV
Zip: 25840
Email clint.henry@brookfieldrenewable.com
Phone: 3042225827

# LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Energy Regulatory Commission

West Virginia Department of
ARTS, CULTURE
AND HISTORY

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300

Randall Reid-Smith, Curator
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

May 14, 2025

Clint Henry
Compliance Specialist
Brookfield Renewable
Hawks Nest Hydro, LLC
439 Elizabeth Way, Fayetteville,WV 25840

Via email: Clint.Henry@brookfieldrenewable.com

RE: Annual Reports for Hawks Nest and Glen Ferris Hydroelectric Projects
FR#: 24-0228-FA-1

Dear Mr. Henry,:

We have received the Annual Reports dated January 21, 2025, which are intended to comply with annual reporting requirements established in the executed Programmatic Agreement dated September 8, 2017. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

Thank you for the 2024 Hawks Nest WVSHPO Activity Report (FERC Project No. P-2512-075) and the 2024 Glen Ferris WVSHPO Activity Report (FERC Project No. P-14439-001). According to the submitted information, two projects at the Hawks Nest facility were submitted for our review. We commented on the repurposing of the locker room within the powerhouse to accommodate electrical upgrades to the station. We also commented upon the modernization of generation and transmission equipment from 25-Hz to 60-Hz. Neither project affected historic resources. At the Glen Ferris facility, we commented upon selective demolition and replacement of the furnace deck, including the demolition of an old masonry storage shed at the Glen Ferris facility. This project did not affect cultural resources. We provided comment letters for each of these projects (19-663-FA-4, 24-1025-FA, and 24-1025-FA-1).

We appreciate your continued cooperation with our office. This fulfills the requirements outlined in the Programmatic Agreement. *If you have questions regarding our comments or the Section 106 process, please contact our office at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

# HAWKS NEST HYDROELECTRIC PROJECT (FERC NO. 2512)

# RUNNING BUFFALO CLOVER MANAGEMENT PLAN

**Prepared for:**
**Hawks Nest Hydro, LLC**

**Prepared by:**

**DECEMBER 2017**

# HAWKS NEST HYDROELECTRIC PROJECT
# (FERC NO. 2512)
# RUNNING BUFFALO CLOVER MANAGEMENT PLAN

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# 1.0 Introduction

Hawks Nest Hydro, LLC (Hawks Nest Hydro or Licensee), a wholly owned subsidiary of Brookfield Renewable Energy Group, Inc. (Brookfield), owns and operates the 102-MW Hawks Nest Hydroelectric Project (FERC Project No. 2512) (Hawks Nest Project or Project) on the New River located in Fayette County, West Virginia.

The Hawks Nest Project consists of a 243-acre impoundment, a concrete-gravity dam and spillway; a gated intake; water conveyance structures, including an approximately 3-mile-long underground tunnel that conveys water from the reservoir to a penstock system at the powerhouse, a surge basin and surge tank, manifold, and five penstocks; a 5.5-mile-long bypass reach; a powerhouse that contains four turbine-generator units; two approximately 5.5-mile-long, 69-kV transmission lines; a tailrace channel; and appurtenances. In addition to lands necessary for operation of the Project, the FERC project boundary encompasses lands that provide recreational access to the reservoir and bypass reach, including a formal recreation area known as the Cotton Hill Bridge Day-Use Area. The Cotton Hill Bridge Day-Use Area is located at the northeast terminus of the Cotton Hill Bridge (State Route 16) as it crosses over the New River. This area, including recreational facilities within, was deeded to the West Virginia Division of Natural Resources (WVDNR) by the previous licensee in 1988 and is currently managed by WVDNR.

The Hawks Nest Project is licensed by the Federal Energy Regulatory Commission (FERC or Commission) under the authority granted to the 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. In support of obtaining a new license to continue operation of the Project, Hawks Nest Hydro initiated FERC's Integrated Licensing Process and associated activities in 2012 inclusive of filing the Final License Application by December 31, 2015. In conjunction with the relicensing effort, and under the previously FERC-approved License Article 407 Running Buffalo Clover Protection Plan,[1] Hawks Nest Hydro has consulted with WVDNR and U.S. Fish and Wildlife Service (USFWS) regarding the presence and management of the endangered running buffalo clover (*Trifolium*

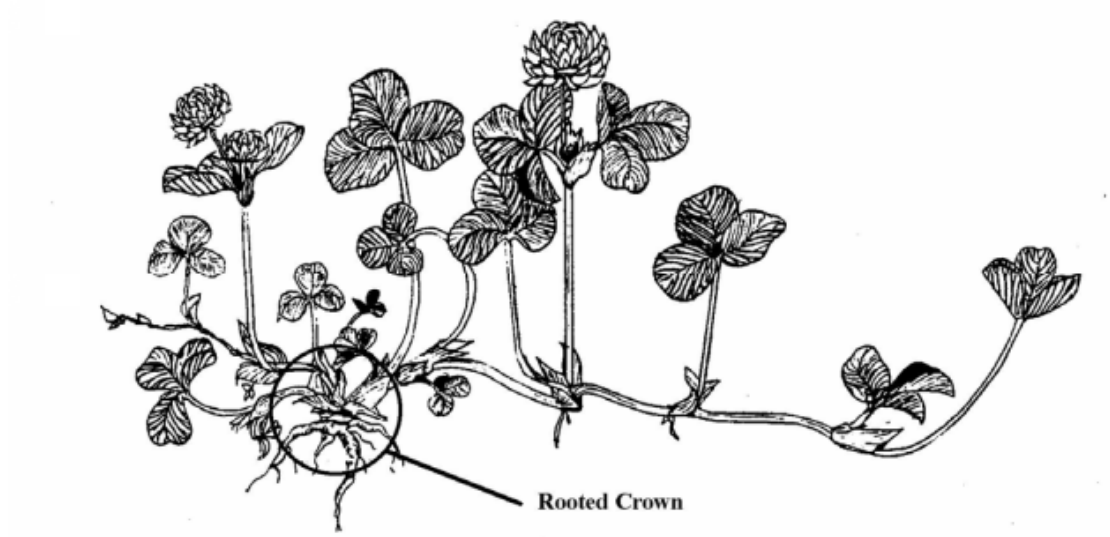
[1] 53 FERC ¶ 62,093 (*Elkem Metals Company*, Project No. 2512-010, October 31, 1990)

*stoloniferum*) within the Hawks Nest Project boundary. Based on these activities, Hawks Nest Hydro has developed this Running Buffalo Clover Management Plan to guide continued management of the known occurrence of this species within the Project boundary over the term of the new license. On December 22, 2017, the Federal Energy Regulatory Commission (FERC or Commission) issued a new license for the continued operation and maintenance of the Project pursuant to the Commission's delegated authority under the Federal Power Act. In conjunction with the new license, the Buffalo Clover Management Plan was approved as final.

## 2.0 Background

Running buffalo clover usually acts as a perennial species, forming long stolons that root at the nodes (Figure 1). Plants produce erect flowering stems, 10-30 cm tall that send out long basal runners (stolons). Therefore, the plant structure of running buffalo clover usually includes rooted crowns, or rooted rosettes, and stolons, or above-ground creeping stems, connecting several rooted or un-rooted crowns that eventually separate to leave "daughter" plants. Because of the soloniferous growth form, individual plants can be difficult to distinguish. The Recovery Plan developed by USFWS (2007) and further described below defines an individual plant as a rooted crown (Figure 1). Running buffalo clover flowers from mid-April to June, with fruiting occurring from May to July (Brooks 1983, in USFWS 2007).

**FIGURE 1**
**RUNNING BUFFALO CLOVER WITH STOLON GROWTH AND FLOWERING STEMS (ORIGINAL ILLUSTRATION CREDIT ETHEL HICKEY, REPRINTED WITH PERMISSION IN USFWS 2007).**




Running buffalo clover occurs in mesic habitats of partial to filtered sunlight, where there is a prolonged pattern of moderate periodic disturbance, such as mowing, trampling, or grazing. It is most often (though not exclusively) found in regions underlain with limestone or other calcareous bedrock.

The USFWS designated running buffalo clover as an endangered species on July 6, 1987 (50 FR 21478-21480). Running buffalo clover was listed under the Endangered Species Act (ESA) because the few known populations were threatened by habitat alteration. Current threats to the species include habitat destruction, habitat succession, and invasive plant competition (USFWS 2007). The primary threat to running buffalo clover is habitat alteration. Factors that contribute to this threat include natural forest succession, and subsequent canopy closure, competition by invasive plant species, permanent habitat loss through development or road construction, and may include the elimination of bison and other large herbivores. Critical habitat is not currently designated by USFWS for the running buffalo clover.

The USFWS's Running Buffalo Clover Recovery Plan (Recovery Plan) was approved on June 8, 1989, with the first revision to the Recovery Plan issued in June 2007 (USFWS 2007). According to the first revision to the Recovery Plan, running buffalo clover occurs in 101

populations in three geographical regions: Appalachian (West Virginia and southeastern Ohio), Bluegrass (southwestern Ohio, central Kentucky, and Indiana), and the Ozarks (Missouri) (USFWS 2007). Element occurrence (EO) rankings, which integrate population size and habitat integrity, indicate that known populations fall into four ranking categories (A-D) (Table 1).

In the USFWS's 2007 Recovery Plan, the Cotton Hill site described in the section below had an EO ranking of D. As described in the WVDNR's report on the 2015 annual running buffalo clover monitoring survey at the Cotton Hill site, WVDNR was considering revising the EO ranking, based on an increased number of rooted crowns and flowering stems (Hawks Nest Hydro, LLC 2015).

**TABLE 1**
**ELEMENTAL OCCURRENCE RANKING CATEGORIES (USFWS 2007)**

| Rank | Description |
|---|---|
| A | Population has 1,000 or more naturally occurring rooted crowns. Plants occur in natural suitable habitat (mesic woodland or river terraces) where the disturbance regime is maintained by natural processes (such as large mammal trampling, canopy gap creation, stream scouring); OR in somewhat suitable habitat maintained by anthropogenic activities (old roads, jeep trails, "skidder" trails) where disturbance for a prolonged period (such as grazing, trampling, light logging traffic) is mild to moderate. |
| B | Population has between 100 and 999 naturally occurring rooted crowns. Plants occur in suitable habitat (mesic woodland, river terraces, or partially shaded lawn) where the disturbance regime is maintained by natural processes (such as large mammal trampling, canopy gap creation, stream scouring); OR in somewhat suitable habitat maintained by anthropogenic activities (old roads, jeep trails, "skidder" trails, old cemeteries, savannah-like lawns at old home sites) where disturbance for a prolonged period (such as mowing, grazing, trampling, or logging) is mild to moderate. |
| C | Population has between 30 and 99 naturally occurring rooted crowns. Plants occur in suitable habitat (mesic woodland, river terraces, or partially shaded lawn) where the disturbance regime is maintained by natural processes (such as large mammal trampling, canopy gap creation, stream scouring); OR in somewhat suitable habitat maintained by anthropogenic activities (old roads, jeep trails, "skidder" trails, old cemeteries, savannah-like lawns at old home sites) where disturbance for a prolonged period (such as mowing, grazing, trampling, or logging) is curtailed or limited. |

| Rank | Description |
|---|---|
| D | Population has between 1 and 29 naturally occurring rooted crowns. Plants occur in suitable habitat (mesic woodland, river terraces, or partially shaded lawn) where the disturbance regime is maintained by natural processes (such as large mammal trampling, canopy gap creation, stream scouring); OR in somewhat suitable habitat maintained by anthropogenic activities (old roads, jeep trails, "skidder" trails, old cemeteries, savannah-like lawns at old home sites) where disturbance for a prolonged period (such as mowing, grazing, trampling, or logging) is curtailed or limited. |

## 3.0 Management Plan

Running buffalo clover is known to occur at the Hawks Nest Project in the vicinity of the Cotton Hill Bridge Day-Use Area (mesic forest habitat), on land that has been deeded to and is managed by WVDNR. Article 407 of the license issued by FERC on December 11, 1987 requires the Licensee to implement monitoring and protection measures for this occurrence. Under this initial Running Buffalo Clover Protection Plan, the previous licensee permanently closed to vehicular traffic the unpaved road at the Cotton Hill Site where the occurrence is located, through the creation of an impassible barrier at the point where the road leaves State Route 16. Ongoing measures implemented under the Running Buffalo Clover Protection Plan consist of an annual site survey and meeting by the Licensee with representatives from WVDNR and USFWS, and filing of a subsequent annual report to FERC. Subsequent to the annual monitoring surveys, the Licensee implements limited management measures, such as those described below in this section, as recommended by WVDNR for the protection of this occurrence.

Under this new Running Buffalo Clover Management Plan, which is expected to be included as a requirement of the new license, Hawks Nest Hydro proposes to continue to implement the existing monitoring and management measures which have proven to be satisfactory to all parties involved. These measures, and this Management Plan, are consistent with the USFWS's revised Recovery Plan for this species. Given the known threats to and constraints of this species, the USFWS's Recovery Plan focuses primarily on increasing the number of protected and managed populations, determining the viability of existing populations, and research into the species ecological requirements. As stated by USFWS (2007), key to this strategy is the

protection and ecological management of various-sized populations of running buffalo clover throughout its geographic range.

This Management Plan recognizes and considers the respective cooperative roles of USFWS, WVDNR, and the Licensee to monitor and manage the existing occurrence of running buffalo clover at the Cotton Hill site.

## 3.1 Monitoring

According to the species Recovery Plan (USFWS 2007):

> *Long-term monitoring data suggest that running buffalo clover populations often display widely fluctuating population size. The cause for changes in population size may be due to disturbance, weather patterns, management strategy, natural succession, or other unknown factors. The cyclic nature of running buffalo clover and the high probability of small populations blinking in and out, may lead to difficulty in protecting small populations. Regardless, small populations have displayed high levels of genetic diversity that is important for survival of the species as a whole. Protection of several small populations across the landscape will help ensure viability of the species range-wide.*

Appendix 1 of the first revision to the USFWS's Recovery Plan (2007) provides population monitoring protocols for running buffalo clover. For small populations (less than 50 rooted crowns), a simple census is recommended. For this method, the number of rooted crowns and flowering stems are recorded, at approximately the same time each year (e.g., May), when the running buffalo clover is flowering and before new stolons root (USFWS 2007).

The WVDNR is responsible for conducting the annual census according to appropriate protocols, in consultation with USFWS. The Licensee will initiate and coordinate the annual meeting with WVDNR, USFWS, and the Licensee.

If follow-up monitoring surveys or site inspections are recommended by the agencies during or following the annual survey, WVDNR or USFWS will notify the Licensee to schedule additional site inspections or surveys.

## 3.2 Management Activities

According to the first revision to the USFWS's Recovery Plan (2007), ongoing management of running buffalo clover habitats is critical for maintaining populations of this species. The first revision to the Recovery Plan provides management recommendations to guide property owners and land managers in the management of running buffalo clover habitats. These recommendations note that habitat for running buffalo clover must include filtered sunlight, and this requirement often means removal of competing vegetation (especially invasive plants) and selective tree removal to prevent over-shading. Specific management recommendations for wooded sites provided by USFWS (2007) are as follows:

- Removal of individual, select trees to maintain a "dappled shade" environment. Cut stumps should be treated with a systemic herbicide to prevent resprouting.
- Control invasive plants through manual pulling (e.g., garlic mustard) or selective herbicide application on cut stems (e.g., Amur honeysuckle).
- No foliar herbicide application within 25 feet of running buffalo clover sites.
- No burning. Running buffalo clover is not fire-adapted, as much of the plant structure is above ground. Fire will most likely kill the plants that are growing at the site.
- Minimal soil disturbance. Soil disturbances/scraping may be beneficial to existing populations, but should only be conducted by experienced researchers.

While the information above is provided as general reference, the Licensee recognizes that regional agency experts and personnel are in the best position to determine, and in many cases implement, the most appropriate management measures for the Cotton Hill population. As described in the WVDNR's report on the 2015 annual running buffalo clover monitoring survey at the Cotton Hill site, presently the main management recommendations for this population are as follows (Hawks Nest Hydro, LLC 2015):

- Control of invasive (primarily Japanese stiltgrass [*Microstegium vimineum*]) and native vegetation from within a 6-foot radius of the extant plants for the immediate future, until the population can restore as close to the original 100 plants seen in the late 1980s. The Licensee will perform manual (i.e., pulling) removal of plants within this radius as

directed by the WVDNR, and if WVDNR determines herbicide application to be appropriate this maintenance will be performed by WVDNR.

- Control of competition from such invasive species as ground ivy (*Glechoma hederacea*) and Japanese stiltgrass in the larger population vicinity. (Hawks Nest Hydro notes that the larger areas of concern include lands deeded to and managed by WVDNR, and removal of these species from the extensive Cotton Hill area would be a very significant undertaking, and one not currently proposed by Hawks Nest Hydro.)
- Periodic mild disturbance using a fire rake (WVDNR).
- Maintenance of a more open canopy, perhaps 50 to 60 percent coverage (Licensee, under direction of WVDNR, or WVDNR).

As with the prior plan upon which this plan is based, this Management Plan is not intended to prescribe specific management activities to be undertaken by the Licensee or other parties, but rather provides a framework for continued management, if and as needed, based on annual monitoring. Under this Management Plan, the Licensee will continue to consult annually with WVDNR and USFWS to determine appropriate management activities (and the frequency of such activities) within the immediate vicinity of the Cotton Hill population to be undertaken by the Licensee.

### 3.3 Reporting

The WVDNR is responsible for providing a field survey report to the Licensee and USFWS within 90 days of the monitoring survey. Subsequent to receipt of this report from WVDNR, the Licensee will prepare and file an annual report with FERC by December 22 (with copies sent to WVDNR and USFWS) on the annual survey and management measures undertaken by the Licensee in the previous year, as well as any consultation with WVDNR and USFWS.

## 4.0 Periodic Review

As part of the annual site monitoring, the Licensee will consult with WVDNR and USFWS annually to review the status of the running buffalo clover to determine whether revisions to this Management Plan are appropriate in light of other circumstances affecting the Hawks Nest Project. If any information should come to the Licensee's attention concerning the condition of

the running buffalo clover that necessitates more frequent meetings, the Licensee will immediately inform the agencies and schedule a meeting or meetings, as appropriate.

## 5.0 References

Brooks, R.E. 1983. Trifolium stoloniferum, running buffalo clover: Description, distribution, and current status. Rhodora 85(842): 343-354.

Hawks Nest Hydro, LLC. 2015. Annual Running Buffalo Clover Report Pursuant to Article 407, Hawks Nest Hydroelectric Project, P-2512. September 18, 2015.

U.S. Fish and Wildlife Service (USFWS). 2007. Running Buffalo Clover (*Trifolium stoloniferum*) Recovery Plan: First Revision. U.S. Fish and Wildlife Service, Fort Snelling, MN. 77pp.

west virginia department of environmental protection

Environmental Enforcement
1159 Nick Rahall Greenway
Fayetteville, WV 25840
Phone: 304-574-4471
Fax: 304-574-4477

Harold Ward, Cabinet Secretary
dep.wv.gov

March 25, 2024

Hawks Nest Hydro LLC
Attn. Kevin Moriarty
439 Elizabeth Way
Fayetteville, WV 25840

**Certified Return Receipt Requested**
Cert # 70211970000172889051

Dear Mr. Moriarty:

This office has completed its review of your response to Notice of Violation(s) (NOV) No. W23-10-071-KM and W23-10-072-KM, dated December 8, 2023, and found the documentation provided is sufficient to return the violation(s) to compliance.

If you have any questions, please contact Gregory Morris at (304) 574-4471.

Sincerely,

Gregory C. Morris
Environmental Inspector Supervisor

enclosure
cc: Gregory Morris, Environmental Inspector Supervisor, EE/WW (via e-mail)
Kimberly Maxwell, Environmental Inspector, EE/WW (via e-mail)
Shyrel Moellendick, MSSS I, EE/WW (via e-mail)

**Brookfield**
Renewable U.S.

*Via Email*

March 12, 2024

Ms. Kimberly Maxwell
Environmental Inspector, EE/WW
West Virginia Department of Environmental Protection
Environmental Enforcement – Southeast Region
1159 Nick Rahall Greenway
Fayetteville, WV 25840

**Subject: Hawks Nest Hydroelectric Project, NPDES No. WV0116301, Comprehensive Evaluation Inspection Report Response**

Dear Ms. Maxwell,

Hawks Nest Hydro LLC, a subsidiary of Brookfield Renewable (Brookfield), and owner of the Hawks Nest Hydroelectric Project (Hawks Nest) herein provides response to your letter and Report of Comprehensive Evaluation Inspection for Hawks Nest WV/NPDES Permit Number WV0116301, sent on February 5, 2024, and received February 28, 2024.

In the report you noted three (3) deficiencies, and issue two (2) resulting Notice of Violations (NOV). A response to this report detailing Hawks Nests plan for the correction of these deficiencies was requested within twenty (20) days of receipt. Your comments for each deficient item from the report, and our responses to them are as follows:

*WVDEP Deficiency #1:*

Permittee has failed to develop and implement within ninety days from the issue date of this permit, a stormwater pollution prevention plan (SWPPP) for the site and retain a copy of this document at the site for review upon request. Because of this, NOC No. W23-10-071-KM has been issued to Hawks Nest Hydro, LLC.

Hawks Nest Response:

Hawks Nest had intended to complete and submit a SWPPP to the WVDEP within ninety (90) days of receipt of the Inspection Report. However, on February 29, 2024, Hawks Nest received final reissuance of NPDES Permit WV0116301 wherein requirements for stormwater monitoring and the associated SWPPP were no longer mandated. Therefore, as the permit no longer requires the development and implementation of this plan, Hawks Nest requests reconsideration and release from the requirements of this NOV.

**HAWKS NEST HYDRO, LLC**
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**Brookfield**
Renewable U.S.

*WVDEP Deficiency #3:*

Permittee has failed to collect stormwater samples during the first thirty (30) minutes of a qualifying rain event, or as soon thereafter as practicable. Permittee has not been sampling stormwater outlets according to permit requirements regarding qualifying rain events and has reported "No Flow" for all stormwater outlets (Outlet 008, 009, and 010) between the dates of November 1, 2021, and November 1, 2023. Therefore, NOV No. W23-10072-KM has been issued to Hawks Nest Hydro, LLC.

Hawks Nest Response:

This oversight in Hawks Nests sampling procedure for stormwater outlets was addressed immediately following the inspection, and a new sampling procedure was written and implemented. Since that time, Hawks Nest has sampled the outlets one time within thirty (30) minutes of a qualifying rainfall event and reported these results in the DMR submitted on March 11, 2024 as required with no exceedances. However, the associated stormwater Outlets 008, 009, and 010 were removed from the permit in the reissuance issued February 28, 2024, and these outlets are no longer required to be sampled. Please consider the revocation of this NOV.

We hope that with this letter we have fulfilled the requirements of this permit and Hawks Nest can return to compliance. Feel free to advise us of any further steps that may be taken to assist in this endeavor. Should you deem the actions taken sufficient to abate the deficiencies and associated violations please send us verification of this decision. If any additional information is required, or if you have any questions or comments regarding this submittal, please do not hesitate to contact me at (304) 222-5827 or by email at clint.henry@brookfieldrenewable.com.

Sincerely,

Clint Henry

Clint Henry
Compliance Specialist

Cc: Brad Wright, Chief Inspector, WVDEP
Gregory Morris, Environmental Inspector Supervisor, WVDEP
Shyrel Moellendick, MSSS I, WVDEP
Katie Lester, Brookfield
Kevin Moriarty, Brookfield
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