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PHASE I ARCHAEOLOGICAL SURVEY OF THE BEECH RIDGE WIND ENERGY PROJECT & ASSOCIATED TRANSMISSION SUPPORT LINE, GREENBRIER AND NICHOLAS COUNTIES, WEST VIRGINIA

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CULTURAL RESOURCE ANALYSTS, INC.

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CRAI Project No.: W08P004

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MANAGEMENT SUMMARY

Cultural Resource Analyst, Inc. conducted a Phase I archaeological survey for the proposed Beech Ridge Wind Energy project and associated Transmission Support Line in Greenbrier and Nicholas counties, West Virginia. The survey was completed under contract with Potesta & Associates, Inc. on the behalf of Beech Ridge Energy LLC. The records search for this project was completed on July 17, 2008, and the field investigation was conducted between August 25 and September 26, 2008.

The area for the Phase I survey was considered the direct Area of Potential Effect. The direct Area of Potential Effect to archaeological sites was defined as the footprint of proposed ground disturbing activities, which includes the development of a wind turbine power generating facility, new access roads, access roads requiring upgrade, a substation, an operation and maintenance facility, and a transmission line.

Systematic survey resulted in the identification of six newly recorded archaeological sites; 46Gb445, 46Gb446, 46Gb447, 46Gb448, 46Gb449, and 46Gb450. Site 46Gb445 is a potential stone mound. Site 46Gb446 is a multicomponent artifact scatter containing prehistoric lithic debris and historic-period refuse. Sites 46Gb447 and 46Gb448 are possible historic-period gravesites. Sites 46Gb449 and 46Gb450 are prehistoric lithic scatters of unknown cultural and temporal affiliation.

Based on extant information, there is insufficient evidence to determine the origin, age, or cultural affiliation of sites 46Gb445, 46Gb447, and 46Gb448. Further investigation beyond the scope of a Phase I study would be required to assess the eligibility of these sites for inclusion in the National Register of Historic Places. The eligibility of these three sites is currently indeterminable, and it is the recommendation of CRAI that the sites be avoided by all project activities by no less than 30.5 m (100 ft). If avoidance is not feasible, it is recommended that a Phase II research design be developed in consultation with the WVSHPO, in accordance with Stipulation B.1.b of a Memorandum of Agreement between the West Virginia State Historic Preservation Office and Beech Ridge Energy LLC. The remaining sites (46Gb446, 46Gb449, and 46Gb450) are recommended ***not eligible*** for the National Register of Historic Places.

Outside of sites 46Gb445, 46Gb447, and 46Gb448, ***no additional archaeological investigations*** are recommended for the direct Area of Potential Effect. However, should evidence of intact archaeological deposits or human burials be identified during construction or project activities, work in the area of discovery should cease, and the West Virginia Public Service Commission and the West Virginia State Historic Preservation Office should be notified immediately of the discovery.

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I. INTRODUCTION

Between August 25 and September 26, 2008, personnel from Cultural Resource Analyst Inc. (CRAI) conducted a Phase I archaeological survey on approximately 69.9 ha (172.6 ac) of land for the proposed Beech Ridge Wind Energy project and associated Transmission Support Line (Beech Ridge Wind Energy Facility) located in Greenbrier and Nicholas counties, West Virginia (Figures 1-3). The survey was completed under contract with Potesta & Associates, Inc. (Potesta) to aid Beech Ridge Energy LLC (Beech Ridge).

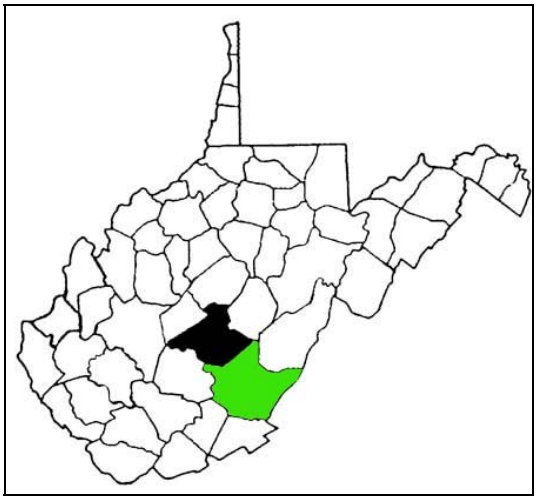

Figure 1. Locations of Greenbrier and Nicholas counties, West Virginia.

CRAI personnel consisted of Jason Baker, Richard Butler, Amber Hill, Simone and James Kompanek, Jamie Meece, Shawn Parsons, William Updike, and the authors. Aaron Smith served as the Principal Investigator and Michael Anslinger as Project Manager. Mr. Tim Sedosky served as project liaison for Potesta, and Mr. Erik Duncan served as project liaison for Beech Ridge.

For the purpose of this project, ***Phase I archaeological survey*** is defined as reconnaissance-based survey designed to document and evaluate archaeological sites. An ***archaeological site*** is defined as any below-ground remains and/or aboveground ruins of a district, site, building, structure, or object 50 years of age or older. A ***historic property*** is defined as any archaeological site listed in, or determined eligible to, the National Register of Historic Places (NRHP). An ***effect*** is defined as any activity that alters a characteristic of a historic property qualifying it for inclusion in, or eligibility to, the NRHP.

Phase I Survey Area

The Phase I survey boundaries for the Beech Ridge Wind Energy Facility were considered to be the direct Area of Potential Effect (direct APE) as defined by 36 CFR 800.16 (d). CRAI understands that the indirect APE and indirect effects to historic properties from the Beech Ridge Wind Energy Facility have previously been addressed. Therefore, the sole purpose of the Phase I survey reported herein is to address direct effects to archaeological sites located within the footprint of proposed ground disturbing activities.

The Beech Ridge Wind Energy Facility is located in north central Greenbrier County and southeast Nicholas County, West Virginia, and includes the development of a wind turbine power generating facility, new access roads, existing access roads requiring upgrade, an operations and maintenance facility, a transmission line, and a substation.

Purpose and Scope

The Beech Ridge Wind Energy Facility is subject to review by the West Virginia Public Service Commission (WVPSC). To meet WVPSC conditions, the project requires consultation with the West Virginia State Historic Preservation Office (WVSHPO) concerning effects to historic properties.

Consultation between Beech Ridge and the WVSHPO lead to the execution of a Memorandum of Agreement (MOA), which included programmatic language requiring archaeological work prior to the initiation of construction activities (Appendix A). The results of the archaeological investigations, which are reported herein, were prepared to meet the requirements of Stipulation B.1 of the MOA. As required by Stipulation B.1.a of the MOA, a Scope of Work (SOW) for conducting the Phase

I archaeological survey was developed in consultation with the WVSHPO (Appendix B).

The SOW for the Phase I archaeological survey consists of the completion of the following tasks:

1. A search of archaeological records on file at the WVSHPO for an area extending 1.6 km (1 mi) from the direct APE ;
2. Phase I archaeological survey of the direct APE for the proposed Beech Ridge Wind Energy Facility;
3. As possible, evaluate whether any identified archaeological sites may qualify as historic properties;
4. If necessary, assess whether the Beech Ridge Wind Energy Facility may have an effect on any identified historic properties located within the direct APE; and
5. A technical report presenting results of the Phase I investigation prepared to guidelines of the WVSHPO (Trader 2001).

II. ENVIRONMENTAL CONTEXT

This section presents an overview for the environmental setting of Greenbrier and Nicholas counties, including discussion of physiography, geology, toolstone resources, hydrology, soils, and climate. In addition, a summary of regionally available faunal and floral resources is provided.

Physiography and Geology

The eastern part of Greenbrier County is located in the Southern Allegheny Front Ridge and Valley physiographic province, and the western part is in the unglaciated Eastern Appalachian Plateau physiographic province. Nicholas County is located entirely within the unglaciated Appalachian Plateau physiographic province. The unglaciated Appalachian Plateau province is characterized by a maturely dissected landscape and dendritic drainage pattern, with common landforms consisting of sinuous ridge systems with narrow ridgetops and steep sideslopes, and narrow, V-shaped stream valleys. The Allegheny Front Ridge and Valley is characterized by roughly parallel northeast/southwest trending ridges separated by narrow intervening valleys and expanses of low irregular hills. The Beech Ridge Wind Energy Facility is located entirely within the unglaciated Appalachian Plateau physiographic province.

In portions of Greenbrier County, relative elevation between upland ridges and river/stream valleys exceeds 305 m (1,000 ft). Primary drainage of the eastern Ridge and Valley portion of the county is provided by the Greenbrier River, Anthony Creek, Howard Creek, and underground solution channels in the limestone (Gorman et al. 1972). The mountainous northwestern part of the county located within the Appalachian Plateau is primarily drained by tributaries of the Cherry River to the north, and Big Clear and Little Clear creeks to the south (Gorman et al. 1972). The less rugged southwest portion of the county, also located within the unglaciated Appalachian Plateau, is drained by several small streams and Meadow River (Gorman et al. 1972).

Much of western Greenbrier County is underlain by Pennsylvanian and Mississippian age bedrock belonging to the Pottsville and Mauch Chunk series. The Pennsylvanian Pottsville series includes the Kanawha and New River formations, and the Pocahontas group. The Upper Mississippian Mauch Chunk series includes the Bluestone and Princeton, Hinton, and the Bluefield formations, as well as the Middle Mississippian Greenbrier group, and the Lower Mississippian Maccrady formation and the Pocono group (Cardwell et al. 1986).

The majority of eastern Greenbrier County is underlain by Upper, Middle and Lower Devonian and Upper and Middle Silurian age bedrock. The Devonian units belong to the Hampshire formation, Chemung group, Brallier formation, Helderburg group, Millboro series, and the Huntersville chert and Oriskany sandstone. The Silurian age system includes the Tonoloway, Wills Creek, and Williamsport

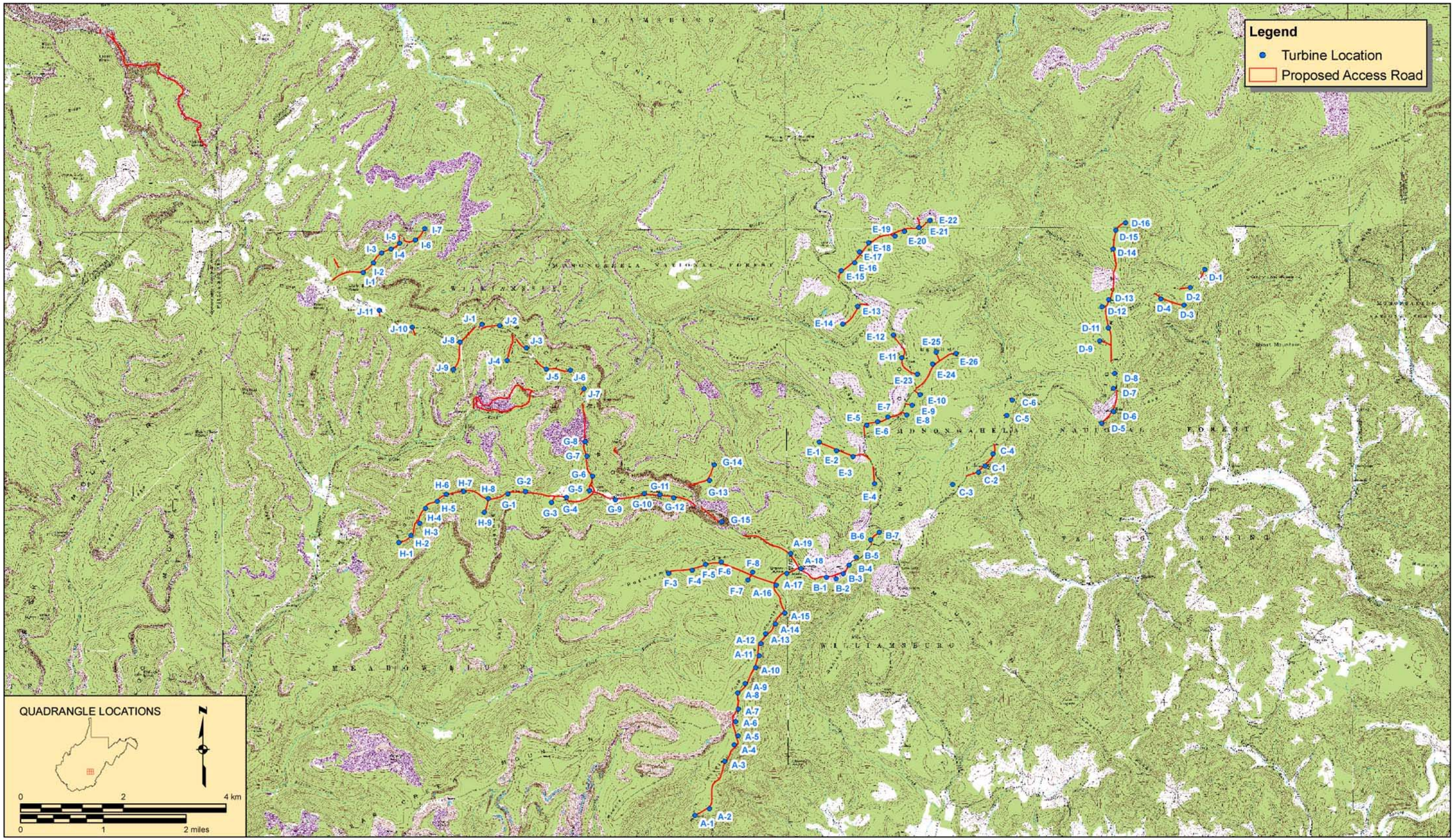

Figure 2. Portions of USGS 7.5-minute 1972 (1979) Nettie, 1972 (1981) Quinwood, Richwood, and Duo, 1977 (1981) Fork Mountain, and Trout, WV quadrangles charting the approximate location of direct APE for archaeological sites.

Figure 3. Portions of USGS 7.5-minute 1972 (1979) Nettie, 1972 (1981) Quinwood, Richwood, and Duo, 1977 (1981) Fork Mountain, and Trout, WV quadrangles charting the approximate location of direct APE for archaeological sites.

formations, and the McKenzie formation and Clinton group (Cardwell et al. 1986).

The portion of the Beech Ridge Wind Energy Facility in Greenbrier County is underlain by bedrock of the Pennsylvanian Pottsville series, the New River and the Pocahontas formations, and the Mississippian Mauch Chunk series, Bluestone and Princeton formations, and the Hinton and Bluefield formations.

The Pennsylvanian Pottsville series consists predominantly of sandstones, some of which are conglomeratic, with thin shales and coals. The New River formation is predominantly sandstone, with some shale, siltstone, and coal. This formation extends from the top of the Upper Nuttall Sandstone to the top of the Flattop Mountain Sandstone. The formation includes the Iaeger, Sewell, Welch, Raleigh, Beckley, Fire Creek, and Pocahontas Nos. 8 and 9 coals (Cardwell et al. 1986). The Pocahontas formation consists of approximately 50 percent sandstone, with some shale, siltstone, and coal, which extends from the top of the Flattop Mountain Sandstone to the top of the Mississippian age bedrock. The formation includes (from the bottom upward) Pocahontas coals Nos. 1 through 7 (Cardwell et al. 1986).

The Mississippian Mauch Chuck series consists of red, green, and medium-gray shale and sandstone, with a few thin limestone lenses (Cardwell et al. 1986). The Bluestone and Princeton formation consists of the Bluestone formation, which is mostly red, green, medium-gray shale and sandstone, with the Princeton Sandstone underneath (Cardwell et al. 1986). The Hinton formation is composed of red, green, and medium gray shale, sandstone, and thin beds of limestone (Cardwell et al. 1986). The Bluefield formation consists of red and green shale and sandstone, with a few limestone lenses such as the Reynolds (Cardwell et al. 1986).

Nicholas County is underlain by Pennsylvanian and Mississippian age bedrocks. Pennsylvania age bedrock includes the New River and the Kanawha groups of the Pottsville formation, the Allegheny formation, and the Conemaugh group. Mississippian-age bedrock includes the Bluestone and Princeton and the Hinton formations (Cardwell et al. 1986).

The portion of the Beech Ridge Wind Energy Facility in Nicholas County is specifically underlain by bedrock of the Pennsylvanian Pottsville series and the Kanawha and New River formations. The New River formation is mentioned in the geological section on Greenbrier County. The Kanawha formation is approximately 50 percent sandstone, with shale, siltstone, and coal. This formation contains several marine zones, with the shale content increasing westward in the subsurface. The formation extends from the top of the Homewood Sandstone to the top of the Upper Nuttall Sandstone, and includes the Stockton (Mercer), Coalburg, Winifrede, Chilton, Williamsburg, Cedar Grove, Alma, Peerless, Campbell Creek, Powellton, Eagle, Gilbert, and Douglas coals (Cardwell et al. 1986).

Toolstone Resources

A number of cherts used prehistorically as toolstone are located in the Ohio Valley and Appalachian region. Two of these cherts outcrop in southern West Virginia, and as such, would have been local or semi-local resources to groups living in Greenbrier and Nicholas counties.

Reger (1931) indicates that nodules of Hillsdale chert occur in limestone of the Mississippian Greenbrier group in eastern West Virginia. The distribution of accessible exposures of Hillsdale chert is not adequately mapped. However, extant information indicates this raw material is generally available along a narrow, 125-km (77.7-mi) long band in Greenbrier and Pocahontas counties. Although secondary sources of Hillsdale include fluvial and alluvial deposits along some streams throughout much of the Greenbrier drainage basin (Brashler and Lesser 1985, 1990), no such deposits are known to occur within the Beech Ridge Wind Energy Facility (Figure 4).

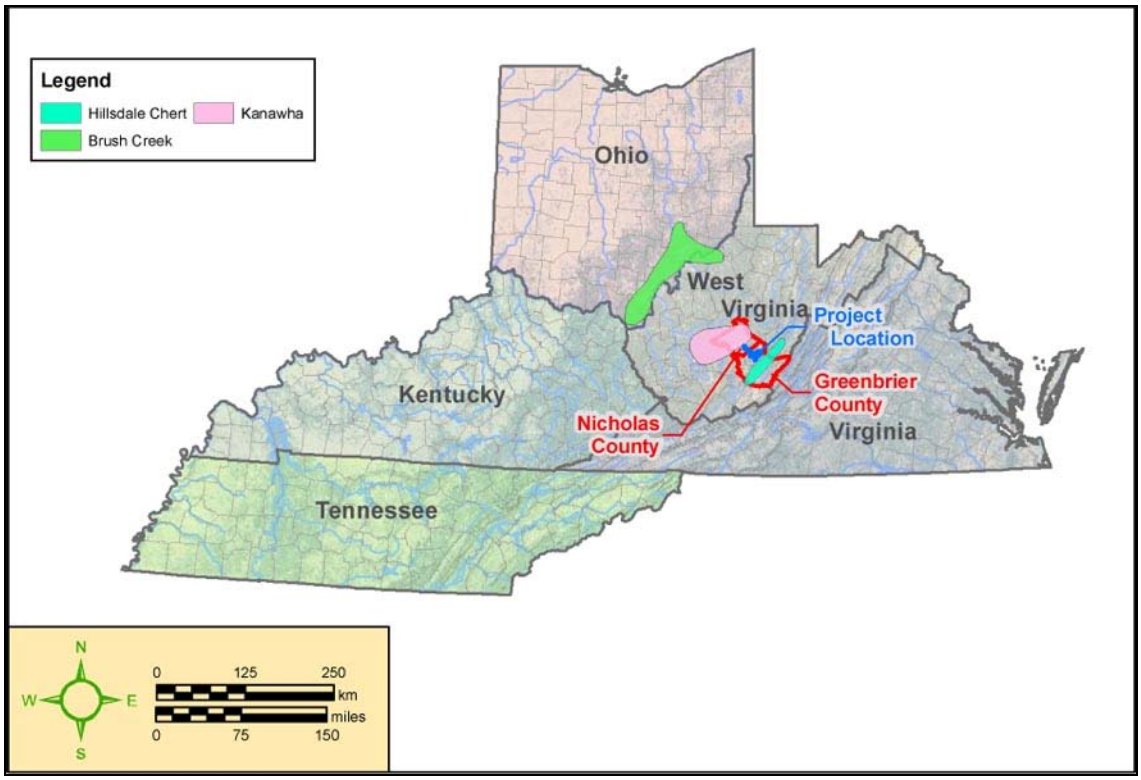

Figure 4. Regional map showing locations of available chert toolstone resources.

A constituent of the Kanawha formation is Kanawha Black Flint (Kanawha chert), a raw material used locally throughout prehistory for the manufacture of chipped-stone tools. Kanawha chert is a bedded chert that occurs within the Lower/Middle Pennsylvania Upper Pottsville formation. This formation occurs in a basin that is approximately 42 km by 64 km in size in parts of Boone, Kanawha, Clay, Nicholas, Webster, and Fayette counties, West Virginia (Krebs and Teets 1914; Reger 1921:227; Reppert 1978:3). Olafson (1955) reported that it also extended northward into Braxton and Lewis counties. Kanawha chert is also available in cobble and gravel form from secondary deposits along the Kanawha and Teays River valleys (Yerkes and Pecora 1994). However, neither primary nor secondary deposits of raw Kanawha chert were identified within the Beech Ridge Wind Energy Facility (Figure 4).

Kanawha chert is composed primarily of microcrystalline and cryptocrystalline quartz (Vento 1982) and is characterized as having an earthy, occasionally semi-vitreous, luster. Typically, it is black, dark bluish-black, and reddish-black with texture ranging from relatively coarse to fine-grained. In addition, a gray-tan variety, which is similar to the other Kanawha varieties except for the color, is also recognized. Cortex colors include and can range from black to hematitic red and dark bluish-black (Vento 1982).

The most common and abundant inclusions consist of ferric oxides, organic matter, and unidentified opaque minerals (Vento 1982). However, other inclusions are also present but in lesser amounts, including sand particles, silt-sized detrital quartz grains, silt-sized muscovite mica (Vento 1982), and occasionally inclusions filled in with white microcrystalline quartz crystals (chalcedony?). Fossil inclusions are common, and often abundant, and primarily consist of monaxon sponge spicules, brachiopods valves, and valve fragments (Vento 1982).

In the current analysis, two varieties of Kanawha chert were defined: low quality and

high quality. The low quality Kanawha is characterized as coarse grained with a dull luster and generally of poor quality for purposes of controlled flake removal. The high quality Kanawha was a medium-grained chert with a slight luster. This material was of better quality for purposes of controlled flake removal. Kanawha chert is a lithic type used extensively throughout local prehistory for manufacture of chipped stone tools and implements.

Hydrology

Surface drainage in the northeastern part of the project area is provided by low order streams that empty directly or indirectly into the Cherry River. Prominent tributaries of the Cherry River are South Fork of Cherry River and Laurel Creek. The South Fork of Cherry River is fed by Cold Knob Fork, Becky Run, and an unnamed feeder stream. Laurel Creek has a similar structure; it receives its waters from Cold Spring Branch, Job Knob Branch, Jackson Run, Hogcamp Run, McMillion Creek, Beech Run, and two unnamed feeder streams.

The Gauley River receives surface waters from the northwestern part of the project area. The Gauley River is fed by two creeks, Panther Creek and Hominy Creek. Hominy Creek is fed by Brushy Meadows Creek, Deer Creek, and an unnamed feeder stream of Hominy Creek. Deer Creek is fed by Jims Creek. Brushy Meadows Creek is supplied by Bowen Creek, Grassy Creek, and four unnamed feeder streams of Brushy Meadows Creek. Grassy Creek is comprised of Chestnut Lick Run, Line Laurel Creek, and two unnamed feeder streams of Grassy Creek. Line Laurel Creek has an unnamed feeder creek immediately adjacent to part of the project area.

Surface water shed from the southeastern end of the project area drains to the Greenbrier River. Spring Creek is the main waterway into the Greenbrier River from the project area. It is supported by Panther Camp Creek and an unnamed feeder stream of Spring Creek.

Other landforms in the southeastern part of the project area are drained by streams that enter the Meadow River. The Meadow River is feed by Little Clear Creek and Big Clear Creek. Big Clear Creek is supported by five feeder streams: the South Fork of the Big Clear Creek, Maple Branch, Long Branch, Elijah Branch, and an unnamed feeder stream of the Big Clear Creek (proper). The South Fork of the Big Clear Creek is fed by Old Field Branch, Smokehouse Branch, and an unnamed feeder stream of the South Fork of the Big Clear Creek.

Soils

Specific soil map units located within the portion of the direct APE located in Greenbrier County are listed in Table 1. The general soils map of Greenbrier County places the Beech Ridge Wind Energy Facility within three soil associations Potomac-Chavies-Philo-Atkins, the Macove-Gilpin, and the Mandy-Snowdog (Flegel 2007). Soils in the Potomac-Chavies-Philo-Atkins soil association occupy broad, nearly level floodplains and terraces, where some areas are cut by stream channels. These loamy soils are nearly level, very deep, poorly drained to somewhat excessively drained, and formed in alluvium derived from sandstone, siltstone, shale, and chert (Flegel 2007). Soils in the Macove-Gilpin soil association occupy broad ridgetops that give way to very steep, rugged hillsides, mountainous uplands, benches, and footslopes. These loamy soils are moderately deep and very deep, well drained, and formed in siltstone, shale, and sandstone. Stones are present on most of the sideslopes with outcrops of sandstone scattered along ridgetops (Flegel 2007). Soils in the Mandy-Snowdog soil association occupy rough, rugged mountainous topography, with dissected high plateaus with broad, gently sloping ridgetops, knobs, and very steep sideslopes. Sandstone outcrops, stones, and surface boulders are common. These loamy soils are moderately deep and very deep, well drained and moderately well drained, and formed in deteriorated parent materials including sandstone, siltstone, and shale (Flegel 2007).

Table 1. Project Soils for Greenbrier County.

SCS Soil Classification	Percent Slope	Drainage	Landscape Position
Atkins-Philo-Potomac complex (An)	0-3	Poorly to excessively drained	Narrow Floodplains
Berks-Dekalb complex, very stony (BIC)	3-15	Well drained	Benches and Ridgetops
Berks-Dekalb complex, very stony (BIE)	15-35	Well drained	Benches and sideslopes
Briery-Rock outcrop complex (BxF)	35-55	Well drained	Highwalls, benches, and outslopes, mostly on mountain slopes
Gauley channery sandy loam, extremely stony (GaC)	3-15	Well drained	Convex ridgetops
Gilpin channery silt loam, very stony (GpE)	15-35	Well drained	Ridgetops, benches, and sideslopes
Kaymine-rock outcrop complex (KxF)	35-55	Well drained	Highwalls, benches, and outslopes, mostly on mountain slopes
Lobdell silt loam (Lo)	0-3	Moderately well drained	Floodplains
Macove channery silt loam, very stony (McC)	3-15	Well drained	Footslopes, benches, and alluvial fans
Macove channery silt loam, very stony (McE)	15-35	Well drained	Footslopes, benches, and alluvial fans
Macove-Gilpin complex, very stony (MeF)	35-55	Well drained	Sideslopes
Mandy channery silt loam, very stony (MkC)	3-15	Well drained	Ridgetops, and broad benches at higher elevations
Mandy channery silt loam, very stony (MkE)	15-35	Well drained	Ridgetops, and benches at higher elevations
Mandy channery silt loam, very stony (MkF)	35-55	Well drained	Sideslopes, at higher elevations
Simoda silt loam, very stony (SmC)	3-15	Moderately well drained	Broad ridgetops and upland depressions
Snowdog silt loam, extremely stony (SoC)	3-15	Moderately well drained	Lower sideslopes, footslopes, and benches, at higher elevations
Snowdog silt loam, extremely stony (SoE)	15-35	Moderately well drained	Lower sideslopes, footslopes, and benches, at higher elevations
Snowdog silt loam, extremely stony (SoF)	35-55	Moderately well drained	Lower sideslopes, and footslopes, at higher elevations
Summers very channery sandy loam, very stony (SvC)	0-15	Well drained	Convex ridgetops, at higher elevations

The general soils map of Nicholas County places the direct APE in the Gilpin-Buchanan soil association (Carpenter 1992). Soils in this association occupy gently sloping to very steep, well drained and moderately well drained, stony and very stony landforms on upland footslopes (Carpenter 1992). Specific soil map units located within the portion of the direct APE located in Nicholas County are listed in Table 2.

Modern Flora

Greenbrier and Nicholas counties are included in the Mixed Mesophytic Forest Region (Braun 1950). The forest associations found in this region are the oldest and most complex of the deciduous forests. Mixed Mesophytic refers to a climax community where dominance is shared by several species. As is true for most of the Appalachian Plateau, sugar maple-basswood-buckeye-tulip poplar segregates occurred mainly on north-facing slopes. Oak-chestnut and oak-hickory communities occupied upper slopes and ridgetops. Pine was dominant on ridgetops where rock outcrops occurred, and beech and white oak were located where shale was the underlying rock. Oak, oak-hickory, and oak-pine communities comprise the modern day forest (Niquette and Henderson 1984).

Modern Fauna

The types and composition of animal species that have inhabited Greenbrier and Nicholas counties have changed in response to broader environmental changes and fluctuations over the last 12,000 years. Extinct Pleistocene species may have included giant beaver, stag, moose, mammoth, mastodon, horse, giant ground sloth, and dire wolf

Table 2. Project Soils for Nicholas County.

SCS Soil Classification	Percent Slope	Drainage	Landscape Position
Buchanan channery fine sandy loam, very stony (BvE)	15-35	Moderately well drained	Footslopes, drainageways, benches, and in coves
Chavies fine sandy loam (ChB)	2-6	Well Drained	High floodplains along larger streams
Dekalb channery sandy loam, very stony (DeF)	35-70	Well Drained	Narrow ridgetops, and hillsides
Fenwick silt loam (FeC)	8-15	Moderately well drained	Broad ridgetops and benches
Gilpin silt loam (GIB)	3-8	Well Drained	Ridgetops
Gilpin silt loam (GID)	15-25	Well Drained	Ridgetops, hillsides, and benches
Gilpin silt loam, stony (GnC)	3-15	Well Drained	Ridgetops and benches
Gilpin silt loam, stony (GnE)	15-35	Well Drained	Hillsides, benches, and narrow ridgetops
Gilpin silt loam, stony (GnF)	35-70	Well Drained	Hillsides and narrow ridgetops
Gilpin-Buchanan complex, very stony (GoF)	35-70	Well drained to moderately well drained	Sideslopes and benches
Kaymine channery loam (KaF)	35-55	Well Drained	Mountain sideslopes, and footslopes
Lily loam (LIC)	8-15	Well Drained	Ridgetops

(Funkhouser 1925; Jillson 1968). With the retreat of the Wisconsin ice sheets and the onset of more moderate climatic conditions, these species were replaced by modern types such as turkey, passenger pigeon, Carolina parakeets, caribou, wolves, and buffalo (Barbour and Davis 1974). Today, the area is inhabited by a variety of animals; fauna common to the general area include white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), opossum (*Didelphis marsupialis*), turkey (*Meleagris gallopavo*), muskrat (*Ondatra zibethicus*), beaver (*Castor canadensis*), eastern fox squirrel (*Sciurus niger*), eastern gray squirrel (*Sciurus carolinensis*), eastern gray fox (*Urocyon cinereoargenteus*), and black bear (*Ursus americanus*), along with numerous other small mammals, birds, reptiles, fish, and invertebrates.

Late Pleistocene and Holocene Climate

Climatic conditions during the terminal Pleistocene and Holocene ages represent a series of transitions in temperature, rainfall, and seasonal patterns (Anderson 2001; Niquette and Donham 1985; Shane et al. 2001). These transitions created a seemingly infinite range of ecological variation across time and space. This variation both limited and expanded survival strategies of human populations. Along these lines, some archaeologists see a link between certain climatic events and the development of prehistoric cultures in the Eastern Woodlands of North America (Anderson 2001). It must be recognized, however, that environmental determinism does not account for all culture change.

The Wisconsin glacial maximum occurred approximately 19,400 B.C. (Anderson 2001; Delcourt and Delcourt 1981). The landscape at that time was quite different from modern day conditions. Much of the mid-continent consisted of periglacial tundra, dominated by boreal conifer and jack-pine forests. In addition, sea levels were approximately 100 m (328 ft) below present levels. Because so much water was locked in the glaciers, the coastal plains were approximately twice the size seen today (Anderson 2001). Eastern North America was populated by a variety of faunal species at this time, including megafaunal taxa such as mastodon, mammoth, saber-toothed tiger, and horse, as well as modern taxa such as white-tailed deer, raccoon, and rabbit. A general warming trend and concomitant glacial retreat was underway by about 13,800 B.C. (Anderson 2001; Shane 1994). After 12,000 B.C., the boreal forest gave way to a mixed conifer-northern hardwoods forest regime. By 8000 B.C., much of the Ohio Valley was probably within the northern fringe of expanding deciduous forests (Delcourt and Delcourt 1981). Pollen records

from the Gallipolis Lock and Dam on the Ohio River near Putnam County, West Virginia, reveal that all the important arboreal taxa of the mixed Mesophytic forest had arrived in the region by 7000-6500 B.C. (Fredlund 1989). Reidhead (1984) indicates that the general hardwood forests were well established in southeast Indiana and southwest Ohio by about 6200 B.C.

Prior to approximately 11,450 B.C., conditions were harsh but capable of supporting human populations. It now appears that people were in North America at this time. These populations were likely small and scattered (Anderson 2001). The Inter-Allerod Cold Period witnessed the spread of Clovis populations across the continent, circa 11,450-10,900 B.C. (Anderson 2001). This was followed by the rapid onset of the Younger Dryas cooling event. The period witnessed the extinction of megafauna species, rapid and broad scale changes in vegetation regimes, and dramatic temperature fluctuations. The Younger Dryas corresponded with the end of the pan-North American Clovis culture and the appearance of subregional cultures across eastern North America. This rapid climatic change, perhaps as short as 10-40 years, may have been a factor in this settlement shift.

The beginning of the Holocene Age, dated circa 9000-8000 B.C., is associated with major and fairly rapid warming temperatures, decreases in cloud cover, and generalized landscape instability (Delcourt 1979; Webb and Bryson 1972). Estimated temperature increases during this period are three times greater than later Holocene fluctuations (Webb and Bryson 1972). During the early Holocene, rapid increases in boreal plant species occurred on the Allegheny Plateau in response to the retreat of the Laurentide ice sheet from the continental U.S. (Maxwell and Davis 1972; Whitehead 1973). At lower elevations, deciduous species were returning after having migrated to southern Mississippi Valley refugia during the Wisconsin advances (Delcourt and Delcourt 1981). The climate during the early Holocene was considerably cooler than the modern climate, and extant species in upper altitude zones of the Allegheny Plateau reflect conditions most similar to the Canadian boreal forest region (Klippel and Parmalee 1982; Maxwell and Davis 1972). Conditions at lower elevations were less severe and favored the transition from boreal to deciduous species. At Cheek Bend Cave in the Nashville Basin, an assemblage of small animals from the late Pleistocene has been reported (Klippel and Parmalee 1982). The faunal assemblage from this locality confirms the changes in environment that took place during the Pleistocene/Holocene transition and the resulting extinction of late Pleistocene megafauna and establishment of modern fauna in this area (Klippel and Parmalee 1982).

Traditionally, the Middle Holocene is dated from about 6000-3000 B.C. Climatic conditions during this period were consistently dryer and warmer than the present (Delcourt 1979; Klippel and Parmalee 1982; Wright 1968). In this model, the influx of westerly winds during this Hypsithermal climatic episode contributed to periods of severe moisture stress in the Prairie Peninsula and to an eastward advance of prairie vegetation (Wright 1968). Prairies expanded east into central Indiana between 6000-5000 B.C. (Webb et al. 1983). Pollen data from Hamilton and Marion counties in central Indiana indicate an oak-hickory dominance of the forest regime and warm, dry conditions sometime after about 6000 B.C. (Engelhardt 1960, 1965).

More recent research (Anderson 2001; Shane et al. 2001) suggests, however, that the middle Holocene was marked by considerable local climatic variability. Paleoclimatic data indicate it was a period of more pronounced seasonality, marked by warmer summers and cooler winters. This is supported by ice core data that show no appreciable decrease in continental ice volume, which would be expected with an increase in global temperature (Hu et al. 1999). However, a model put forth by Webb et al. (1983) of increased aridity during this period is still valid for much of the region. Delcourt (1979) identified middle Holocene moisture stress along the Cumberland Plateau in Tennessee,

but indicates that upland barrens did not expand appreciably as did the Midwestern prairies. In fact, due to shifting tropical air masses, the southern and central Appalachians may have witnessed increased precipitation at this time (Delcourt and Delcourt 1997). At Gallipolis, no evidence of climatically driven vegetation change was documented to coincide with the period of prairie expansion (Fredlund 1989). This was probably due to the proximity of the site to the Ohio River. Fredlund (1989) reports that after 3700 B.C., the forest surrounding Gallipolis lost diversity and became dominated by xeric oak-hickory associations more typical of western mesophytic forests.

The Hypsithermal episode might have influenced hunter-gatherer adaptive strategies. Stafford (1994) and Stafford et al. (2000) argue that the changing vegetation resulted in heterogeneous upland resource availability in southern Indiana. In this model, the patchy resource base was exploited through a logistical collector strategy, a change from the generalized foraging of the preceding period. In the southeast, the increased seasonal extremes, expansion of pine forests at the expense of oaks, and increasingly xeric conditions likely caused significant social stress on Middle Archaic populations. This stress may have been ameliorated by the consolidation of peoples into riparian settings where hardwood forests were maintained (Anderson 2001).

The earliest distinguishable late Holocene climatic episode began circa 3000 B.C. and ended around 1000 B.C. This episode is associated with the establishment of essentially modern deciduous forest communities in the southern highlands and increased precipitation across most of the mid-continental U.S. (Delcourt 1979; Maxwell and Davis 1972; Shane et al. 2001; Warren and O'Brien 1982). Changes in local and extra-local forests after about 2800 B.C. may have also been the result of anthropogenic influences. Fredlund (1989) reports that the Gallipolis pollen record documents evidence for increasing local disturbance of the vegetation beginning around 2800 B.C., which may have been associated with developmental and expanding horticulture activity. Based on a study of pollen and wood charcoal from Cliff Palace Pond in Jackson County, Kentucky, Delcourt and Delcourt (1997) recorded the replacement of a red cedar-dominated forest with a forest dominated by fire-tolerant taxa (oaks and chestnuts) around 1000 B.C. The change is associated with increased local wildfires (both natural and culturally augmented) and coincided with increases in cultural utilization of upland (mountain) forests.

Beginning around 800 B.C., generally warm conditions, probably similar to the twentieth century, prevailed until the onset of the Neo-Boreal episode, or Little Ice Age, around A.D. 1300. Despite this trend, there were brief climatic fluctuations during this period. Some of these fluctuations have been associated with adaptive shifts viewed as causal factors for subsistence and settlement changes in the Midwest. For example, the Middle Woodland Hopewellian florescence is temporally correlated with the relatively mild Sub-Atlantic climatic episode (Griffin 1961). Likewise, the culture's decline roughly corresponds to the Vandal Minimum at circa A.D. 400-800, a period of global temperature decline near the beginning of the Late Woodland period in West Virginia.

Fluctuations in the Neo-Boreal episode appear to have varied locally, with increased or decreased temperatures and precipitation (Baerreis et al. 1976; Warren and O'Brien 1982). Struever and Vickery (1973) suggest a possible correlation between the onset of a cooler and moister period circa A.D. 400 and increased use of *Polygonum* by Late Woodland groups in the Midwest. During this same period (A.D. 400-A.D. 200), warmer temperatures have been inferred for the Great Plains and drier conditions for the Upper Great Lakes (Baerreis et al. 1976; Warren and O'Brien 1982). Other fluctuations during the late Holocene are similarly non-uniform across the midcontinental U.S.; however, the interfaces of all fluctuations are generally consistent. Given evidence of fluctuations elsewhere, it is most possible that changes

occurred circa 350 B.C., A.D. 250, A.D. 650, and A.D. 1000.

Studies of historical weather patterns and tree ring data have indicated that climatological averages are "unusually mild" when compared with seventeenth through nineteenth century trends (Fritts et al. 1979:18). This study suggests that winters were generally colder, weather anomalies were more common, and unusually severe winters were more frequent between 1602 and 1899 than after 1900. These cooler, moister conditions are associated with the Neo-Boreal episode, which began around A.D. 1300 and coincided with minor glacial advances in the northwest and Europe (Denton and Karlen 1973; Warren and O'Brien 1982). Warren and O'Brien (1982) view this episode as a causal factor in vegetation pattern shifts in northeast Missouri.

The effects of the Neo-Boreal episode, which ended during the middle to late nineteenth century, have not been studied in detail for southern West Virginia. Despite this, it appears that the area experienced less radical temperature decreases during the late Neo-Boreal than did the upper Midwest and northern Plains (Fritts et al. 1979). Related changes in extant vegetation should therefore be more difficult to detect. It is probably safe to assume, however, that average temperatures were at least a few degrees cooler during the late Prehistoric and early Historic periods. The frequency of severe winters and average winter precipitation were probably greater as well. Several scholars (e.g. Anderson 2001; Griffin 1961; Grove 1988) have observed that the beginning of the Little Ice Age disrupted prehistoric cultures in the Eastern Woodlands. Anderson (2001:166) relates the agricultural difficulties brought on by the climatic downturn to “increased warfare and settlement nucleation, and decreased long distance exchange and monumental construction” (Anderson 2001:166), all of which are attributes that characterize the Late Woodland period in much of the greater Ohio Valley.

Modern Climate

The climate in southeastern West Virginia is continental in character and temperature and precipitation levels fluctuate widely. The area is influenced by a humid continental climate with continental polar and maritime tropical air masses (Guernsey and Doerr 1976). Prevailing winds are westerly, and therefore, most of the storms cross the state in a west to east pattern. Low-pressure storms that originate in the Gulf of Mexico and move in a northeasterly direction across West Virginia contribute the majority of precipitation received by the state. Warm, moist, tropical air masses from the Gulf predominate during the summer months when humidity levels also remain quite high. As storms move through the state, occasional hot and cold periods of short duration may be experienced. During the spring and fall, storm systems tend to be less severe and have a lower frequency, thus resulting in less radical extremes in temperature and rainfall.

Climate can vary drastically from one year to the next, but the trend is warm summers and mild to cold winters. According to Gorman et al. (1972), some of the highest ridges in the state are located in northwestern Greenbrier County, and these ridges have considerable effect on the climate. Because of prevailing westerly winds, considerable moisture falls on the windward side of the Allegheny Mountains, but the leeward side is relatively dry. In northwestern Greenbrier County, the average annual precipitation is about 51 inches and includes up to 80 inches of snowfall. In central and eastern parts of the county, annual precipitation is only 38 inches, which includes approximately 20 inches of snowfall (Gorman et al. 1972).

The annual average daily maximum temperature in the northwestern portion of Greenbrier County is 62.4º F, and the annual average daily minimum temperature is 37.6º F. The average freeze-free period is 132 days. The annual average daily maximum temperature in central and eastern portions of the county is 65.9º F, and the annual average daily minimum temperature is 39.7º F. The

average freeze-free period in this portion of the county is 149 days (Gorman et al. 1972).

In Nicholas County, the climate can also vary depending on elevation. The winters are cold and snowy in the higher elevations, and the valleys are frequently cold, but frequent thaws reduce the amount and length of snow cover (Carpenter 1992). Summers are fairly warm in the mountains and very warm in the valleys, with occasionally very hot days in the valleys (Carpenter 1992). Rainfall is usually distributed evenly throughout the year; it is heavier on the windward and west-facing slopes in the mountains (Carpenter 1992).

In Nicholas County, the average annual precipitation is 46.5 inches, of which about 55 percent falls between April and September. The average seasonal snowfall is about 50 inches. The average annual winter temperature is 31º F and the average summer temperature is 69º F. The prevailing wind is from the southwest and averages nine miles per hour in the spring (Carpenter 1992).

III. RECORDS SEARCH

The search of archaeological records for this project was completed on July 11, 2008, at the WVSHPO (Appendix C). Results indicate that no archaeological sites have been recorded within the direct APE. Although seven professional surveys and one avocational archaeological investigation have taken place within the vicinity of the direct APE, only one recorded archaeological site, 46Gb443, is located within 1.6 km (1 mi) of the direct APE.

A search of architectural records was not undertaken for this study, as BHE Environmental and Gray and Pape, Inc. had previously conducted this search and an architectural evaluation of the APE for indirect effects. For further information concerning architectural resources and previous architectural studies, refer to Sweeten and O'Bannon (2007).

Previous Archaeological Investigations

Information obtained from the WVSHPO files document seven professional cultural resources surveys and one avocational survey located within 1.6 km (1 mi) of the direct APE (Table 3). The majority of previous work was completed for coal-prospecting projects, where narrow, linear areas of ridgetop were examined. Small portions of these previous surveys pass through portions of the direct APE for the Beech Ridge Wind Energy Facility. However, extant records indicate that the majority of the direct APE has not been the subject of previous investigations.

Table 3. Previous Cultural Resources Surveys Located within 1.6 km (1 mi) of Direct APE.

WVSHPO FR#	Survey Area Description	Investigator	Date of Survey	Results
92-1121-GB	Phase I Survey for the Greenbrier Coal Company's Permit No. 5	DuVall & Associates, Inc.	1992	No archaeological sites were identified
93-1196-GB	Phase I Survey for the Greenbrier Coal Company's Lost Flat No. 2 Surface Mine	DuVall & Associates, Inc.	1993	No archaeological sites were identified
94-1433-GB	Greenbrier Coal Company Boundary Revision for Permit No. 0-3048-92	WVSHPO	1994	No archaeological sites were identified
95-276-GB	Greenbrier Coal Company SMA 3030-94, Haul Road	WVSHPO	1995	No archaeological sites were identified
95-277GB	Greenbrier Coal Company SMA 3030-94, Deep Mine	WVSHPO	1995	No archaeological sites were identified
95-293-GB	Greenbrier Coal Company Permit No. P-3025-94	WVSHPO	1995	No archaeological sites were identified
04-705-GB-1	Phase I Proposed Transmission Line Corridor, Greenbrier and Nicholas Counties	John Milner Associates, Inc.	2006	Site 46Ni655 (Hominy Mill)*
NA	Avocational Survey	David Buhrman	2008	Site 46Gb443 (Nancy Hart Douglas Farm)
*Located outside of search radius.				

Previously Recorded Archaeological Site

Avocational archaeologist David Buhrman recorded one archaeological site within 1.6 km (1 mi) of the direct APE. Site 46Gb443 is located approximately 3.2 km (2 mi) above Route 5 at the head of Spring Creek. The site is approximately 115 m (3,800 ft) southeast of proposed Turbine C-1 on Ellis Knob, and 145 m (4750 ft) south-southwest of proposed Turbine D-5 located near Bee Knob. The site is reported to be the Josh and Nancy Hart-Douglass Farmstead. Nancy Hart-Douglas was a well-known Confederate spy during the Civil War. Several books have been published containing a more complete story on the role she played during the Civil War.

IV. CULTURE HISTORY

This section presents background information on the prehistoric occupation of southern West Virginia. The purpose of the discussion is not to present a comprehensive overview of the occupational history of the area, but rather to use extant data to identify the temporal periods and site types likely to be located near the project area.

Pre-Clovis

No known pre-Clovis sites have been documented in West Virginia (Lepper 1999). However, elsewhere in the eastern U.S., including the upper Ohio River valley, cultural deposits located stratigraphically below Early Paleoindian have been reported (Adovasio et al. 1999; McAvoy and McAvoy 1997). Available uncorrected radiocarbon dates indicate these sites date to the late Pleistocene, at approximately 15,000 to 13,000 B.C. The presence of pre-Clovis sites in the region is not unexpected given the antiquity (circa 10,500 B.C.) accepted for the MV-II occupation at the Monte Verde site in southern Chile (Dillehay 1997; Meltzer et al. 1997).

Associated artifacts consist of basally thinned trianguloid to lanceolate bifaces, prepared polyhedral cores, and prismatic blades. The core and blade industry has been described as having an Eurasiatic, Upper Paleolithic flavor (Adovasio et al. 1999). These early populations are characterized as generalized hunter-foragers, rather than specialized hunters.

Known Pre-Clovis sites have low artifact densities and low archaeological visibility. Extant regional data suggest the potential for sites dating to this period is low.

The Paleoindian Period

The earliest cultural period conclusively documented in the Ohio Valley is Paleoindian. Because of a general lack of dateable contexts, the chronology for the region has relied heavily on cross dating with sites located outside the region. Based on typological evidence and limited radiocarbon assays, there is consensus that early groups of specialized late Pleistocene hunters occupied the region by approximately 9500 to 9200 B.C. (Tankersley 1996).

Early Paleoindian sites are identified by the presence of highly distinctive Clovis fluted hafted bifaces. Gainey fluted and Cumberland fluted hafted bifaces are believed to date to the Middle Paleoindian period, and unfluted types of the Plano and Dalton clusters are diagnostic of Late Paleoindian (Tankersley 1996). Other lithic types commonly associated with regional Paleoindian sites include a variety of unifacial tools and bifaces.

Paleoindian sites, or sites having Paleoindian components, have been identified throughout Appalachia, although in the high, dissected plateau region of eastern Kentucky and southern West Virginia the sites are small, often consisting of isolated hafted bifaces (Lane and Anderson 2001). The majority of evidence for the Paleoindian period in West Virginia comes from surface finds located along the lower Kanawha River (Kanawha, Putnam, and Mason counties) and the Ohio River near Parkersburg (Wood County). Diagnostic hafted bifaces have also been recovered from the dissected uplands of southern West Virginia, with the most reported for Boone County. Although a small number of Paleoindian points are reported for

Nicholas County, their occurrence is rare (McMichael 1965).

Given the paucity of Paleoindian sites in West Virginia, and that most of the artifacts/sites identified to date are located on alluvial landforms in the valleys of major drainages, the potential for their presence in the project area, which is characterized by open upland landforms, is low.

The Archaic Period

The Archaic period includes a long span of time during which important cultural and adaptive changes took place throughout the Eastern Woodlands. The period is customarily divided into three sub-periods: Early (8000-6000 B.C.), Middle (6000-3000 B.C.), and Late (3000-1000 B.C.).

Early Archaic

Except for the adoption of notched and stemmed hafted bifaces, Early Archaic toolkits in the Ohio Valley are similar to those associated with the late Paleoindian period. New hafted biface types include Kessell Side Notched, Charleston Corner Notched, Kirk Corner Notched, St. Albans Side Notched, LeCroy Bifurcated Base, and Kanawha Stemmed.

The paucity of tools associated with the preparation of plant foods and fishing suggests most subsistence remains were acquired by hunting (Dragoo 1976). In southern West Virginia, most Early Archaic sites are interpreted as temporary camps located on ridgetops or in upland rockshelters (McMichael 1968; Wilkins 1978). Larger floodplain sites, such as the well-known St. Albans (46Ka27) site and lesser-known Van Bibber Reynolds (46Ka223) site, are known from the Kanawha Valley.

Broyles (1971) suggested that the St. Albans site appeared to be a warm weather base camp. This site, located on a natural levee of the Kanawha River, actually represents multiple spatially overlapping occupations, indicating it was a location repeatedly occupied throughout the period (Anslinger 1998a, 1998b). More recent work at the Van Bibber Reynolds site near Lower Belle, identified evidence of a buried Early Archaic occupation characterized by Kirk Corner Notched and various bifurcated base forms (Anslinger et al. 2004). Also present were large quantities of thermally altered rock. Spatial analysis suggests that the site functioned as a residential base that was reoccupied on occasion for a period of several thousand years.

According to data obtained from the Dixon and Rohr sites (Dragoo 1958; Mayer-Oakes 1955), Early Archaic peoples also utilized rockshelters as short-term camps. Durrett (1952) reported concentrations of Early Archaic materials at 46Cb10 near the confluence of the Guyandotte and Ohio rivers in Cabell County. Investigations by Ballweber and Michael (1990) documented an overwhelming occurrence of Early Archaic materials in association with mountaintop sites in Boone, Kanawha, Logan, and Wyoming counties in southern West Virginia. Wilkins (1977) documented similar evidence for Early Archaic occupation in Boone County.

Archaeological data derived from a wide variety of environmental contexts in West Virginia and the surrounding region indicate that Early Archaic hunter-gatherer populations were highly mobile and widely exploited both valley and upland settings. Sites tend to be small and contain a limited range of artifact functional types, and rarely are features other than shallow thermal facilities present. Based on extant data, including survey results presented by McMichael (1965) and MacDonald et al. (2006) for Nicholas County, the potential for Early Archaic sites in Nicholas and Greenbrier counties, including areas in and adjacent to the project area, is high.

Middle Archaic

During the Middle Archaic period, the environment was dryer and warmer than modern conditions. Increasing regionalization of artifact types and styles suggests decreased mobility and perhaps a shift from foraging to collecting subsistence strategies. In most areas of the Ohio Valley, sites are relatively small

and not unlike those documented for the preceding Early Archaic period. However, by the end of the Middle Archaic, larger sites containing high densities of artifacts and cultural features and midden, occur with some regularity along the Ohio and many of its significant tributaries.

Hafted biface types common for the period include Stanly Stemmed, Big Sandy II, Amos Corner Notched, and Morrow Mountain. This period is also marked by the widespread introduction of ground stone artifacts, including grooved axes. The more regular presence of pitted stones and anvils, which are typically interpreted as implements used for processing plant foods, suggests greater emphasis on the utilization of plant food resources.

In southwestern West Virginia, Middle Archaic sites have been identified in both upland and floodplain settings in primary and secondary river valleys. Three sites in the Kanawha Valley contain Middle Archaic components. These include Hansford Ballfield (46Ka104) as reported by Wilkins (1985) and Youse (1992), Amos Power Plant (46Pu60) as reported by Youse (n.d.), and Glasgow (46Ka229) as reported by Niquette et al. (1991) and Redmond and Niquette (1991). These and other Middle Archaic sites in the region appear to have larger accumulations of cultural material than documented for Early Archaic sites, suggesting increasing group size and perhaps greater occupational stability.

The Middle Archaic component(s) at the Hansford Ballfield site is characterized by small notched points similar to Amos Corner Notched, and, perhaps, examples of Stanly Stemmed. Although the Middle Archaic occupation of the Amos Power Plant site is not well documented, it is best known for having a component characterized by Amos Corner Notched points. Sites containing any quantities of this point type are rare, and to date, no single component Amos sites or components have been documented by professional archaeologists in West Virginia. Excavations at the Glasgow site documented a buried Stanly component, and more recently, some Stanly, Kirk Stemmed, and bifurcated base materials were recovered from a buried context at the Van Bibber Reynolds site (Anslinger et al. 2004).

Late Archaic

The Late Archaic was a time of increased cultural complexity, including the establishment of long distance trade systems in some areas. In West Virginia, Late Archaic sites are widely represented in both floodplain and upland settings. During this period in southwestern West Virginia, there was an increased use of rockshelters and bottomland open sites. Wilkins (1978) has documented many examples of upland rockshelters that were possibly occupied in the fall and winter. In addition, large bottomland base camps such as Buffalo (46Pu31) (Hanson 1975), Corey (46Pu100) (Hughes et al. 1991), Hansford Ballfield (46Pu104), and Burning Spring Branch (46Ka142) have been identified on the Kanawha River. Late Archaic settlement systems in some areas of the greater Ohio Valley appear to have been logistically organized (Stafford et al. 2000).

In southeastern Kentucky, archaeologists have documented a shift from the use of chert for the manufacture of hafted bifaces in the Early and Middle Archaic periods to a preference for materials such as quartzite, silicified shale, and ferruginous sandstones during the Late Archaic (Dunnell 1972). A similar pattern of raw material use appears to have occurred in southern West Virginia, where diagnostic specimens are often manufactured from quartzite and other non-chert materials. A good example of this pattern was documented by Broyles (1964) at the Mill Pond site (46Me2) in Mercer County.

The principal diagnostic hafted biface types for this period belong to the Brewerton, Late Archaic Stemmed (including Buffalo Stemmed), Lamoka, Merom, and Susquehanna clusters (Justice 1987). At sites dating late in the period, stone bowls made of steatite and sandstone have been documented (Anslinger 1999; Pullins et al. 2008; Youse 1992). Radiocarbon dates derived from organic residue collected from the interior surfaces of

stone bowls at the Burning Spring Branch site (46Ka142) indicate a period of use from approximately 1100-1000 B.C. (Pullins et al. 2008).

Late Archaic sites are known to be widely distributed through West Virginia. The evidence indicates that Late Archaic hunter-gatherers, some of which may have been logistically organized, exploited nearly all portions of the environment, including valley floodplains and terraces, colluvial fans, upland ridgetops, and rockshelter settings. In his survey of Nicholas County, McMichael (1965) documented widespread evidence of Late Archaic cultures in Nicholas County, which, based on the morphology of hafted bifaces, were viewed as having ties to cultures in the Ohio Valley, Northeast, and Southeast.

Extant data indicate that the potential for Late Archaic sites to be present in and adjacent to the project area is high. Sites may occur in both open-air settings and rockshelters, and vary greatly in size and material content.

The Woodland Period

Traditionally, archaeologists distinguished the Woodland period from the preceding Archaic by the appearance of cordmarked or fabric-marked pottery, the construction of burial mounds and other earthworks, and the rudimentary practice of agriculture (Willey 1966). The Woodland period is customarily divided into Early (1000-400 B.C.), Middle (400 B.C. - A.D. 400), and Late (A.D. 400-1100).

Early Woodland

Early Woodland cultures in southern West Virginia appear to have developed in situ out of local Late Archaic traditions. Evidence for this period comes from burial mounds and small, dispersed habitation sites that occur in a wide variety of settings, including river terraces, colluvial slopes/benches, and upland rockshelters. More recent reviews of the archaeological data would place the end of this period at the beginning of mound construction (e.g., Clay 2005).

Tubular pipes, copper beads, bracelets, mica, and ground stone gorgets and celts have been recovered from Early Woodland sites in the region. Hafted bifaces typical of the period include Cresap Stemmed, Adena Stemmed, and Robins Stemmed (Justice 1987). Ceramics are thick and poorly produced, with various types of lithic material used as temper. Defined types include Fayette Thick (Griffin 1943a), Adena Plain (Haag 1940), and Montgomery Incised (Haag 1941).

The large, intensively occupied base camps common to the Late Archaic period have not been documented for the Early Woodland. Instead, the settlement system appears to have been diffuse, with small hamlets dotting the landscape. For the southern part of West Virginia and adjoining areas of eastern Kentucky, Early Woodland sites are located in upland areas of tributary valleys, while mortuary sites such as mounds occur on river terraces along main stem and secondary valleys (Fuerst 1988; Niquette 1992; Railey 1990).

In the West Virginia coal belt region, one significant Early Woodland site is the Dennison site (46Lg16). This multi-component site contained an Early Woodland component represented in part by Montgomery Incised ceramics. This marked only the second finding of this pottery type in West Virginia (Moxley 1982).

Mortuary sites include Gore Mound (46Bo26) in Boone County, which is located near the Little Coal River (Fowler et al. 1976; Wilkins 1977). The best documented Early Woodland burial mound in southern West Virginia is the Cotiga Mound (46Mo1) located in Mingo County. This National Register-listed site was located along the Tug Fork River, and was excavated for the construction of Appalachian Corridor G. The mound was constructed in several discrete episodes between 205 B.C. and A.D. 75. It was roughly contemporaneous with other Early and Middle Woodland mounds in West Virginia and eastern Kentucky. The Cotiga Mound contained between 7 and 18 human cremations and grave goods of bone, stone, and copper.

The remains of two paired-post structures were identified beneath the mound (Frankenberg and Henning 1994; Wall 1994).

In Nicholas County, McMichael (1965) documented a number of sites that appeared to contain small quantities of Early Woodland artifacts, as evidenced primarily by several varieties of stemmed points. In West Virginia, including the counties associated with the current project, Early Woodland habitation sites occur at a low frequency and have low archaeological visibility, and as such, are difficult to discover. Based on extant data, the potential for Early Woodland sites to be present in or adjacent to the project is considered low to moderate.

Middle Woodland

The Middle Woodland period remains one of the most poorly documented and understood periods of West Virginia prehistory, although areas along major drainages such as the Ohio and Kanawha rivers have been more extensively studied by archaeologists. It is in the latter areas that the major concentrations of mound/earthwork complexes are/were located.

Subsistence was based on a mix of foraging and gardening. Ethnobotanical remains include hickory nut, black walnut, and acorns, along with domesticated species including sunflower, squash, gourd, and maygrass. Diagnostic hafted biface types include Manker, Snyder Corner Notched, and types in the Lowe Flared Base cluster (Justice 1987). Pottery was more refined than during the Early Woodland period, with plain and cordmarked grit-tempered wares most common in the area. The elaborate vessels and design motifs associated with Ohio Hopewell do not occur in this area. Similarly, local groups do not appear to have participated widely in the Hopewellian Interaction Sphere, a geographically extensive trade network that facilitated the trade/exchange of exotic items including obsidian, copper, high quality flints, grizzly bear canines, and conch shells.

One example of a Middle Woodland site within the coal region is the multi-component Mount Carbon site (46Fa7), which appears to include the remains of a Middle Woodland hamlet (Fuerst 1988; McMichael 1962). Middle Woodland mound sites were located near habitations – this departs from the Early Woodland pattern in which habitation sites were not associated with mortuary sites (Fuerst 1988; Wilkins 1979).

A review of the extant record for Greenbrier and Nicholas counties (e.g., McMichael 1965; MacDonald et al. 2006), suggests the potential for Middle Woodland sites, whether mortuary facilities or habitations, to be present in or adjacent the project area is low.

Late Woodland

Increased dependency on farming and sedentism is characteristic of the Late Woodland period. Corn agriculture was important at floodplain villages along major rivers, while wild resources in upland settings were collected by foraging groups. However, Niquette (1992) states that permanent villages centered on agriculture are not apparent in the southwest region of the state. Evidence for foraging activity has been identified at both open-air and rockshelter settings in the uplands (Adovasio 1982; Baker and Fowler 1975; Niquette and Donham 1985).

Perhaps the most common hafted biface type for the early Late Woodland (circa A.D. 400-750) is Chesser Notched. This type is associated with the Childers phase and contemporary manifestations in the Ohio and Kanawha valleys. The settlement pattern for this period has been described as nucleated villages (Dancey 1988, 1992), although others (Clay and Creasman 1999) question the validity of this interpretation.

In the Kanawha Valley, the late Late Woodland is recognized by the Parkline phase (Niquette and Hughes 1990). Settlement during this period consisted of small hamlets dispersed primarily in valleys, although small extractive sites also have been reported for upland settings. Large villages have not been documented. Diagnostic hafted biface types include Raccoon Notched, Jack's Reef

Pentagonal, and Levanna. Seeman (1992) suggests the introduction of these small hafted biface types reflects the local introduction of the bow and arrow.

Rock-tempered ceramics are typically cordmarked and have thickened rims and some true collars and cordwrapped-stick decoration. Z-twist cordage is most common.

McMichael (1965) discovered substantial evidence for Late Woodland occupation in Nicholas County. In particular, rockshelter sites produced large quantities of ceramics and lithic artifacts attributed to the Buck Garden culture. The potential for Late Woodland sites to be present in or adjacent to the project area is considered moderate to high.

The Late Prehistoric Period

The predominant Late Prehistoric population in the middle Ohio and Kanawha valleys is known by archaeologists as Fort Ancient. Most archaeologists now agree that the Fort Ancient tradition probably encompassed several cultural or linguistic groups.

Fort Ancient settlements exhibited three important elements: (1) increased reliance on agriculture, (2) increased sedentism, and (3) a rise in sociopolitical complexity. However, unlike contemporaneous Mississippian groups in the Midwest and Southeast, no large ceremonial centers or earthworks have been found at Fort Ancient sites that would indicate a similar settlement hierarchy. To date, the only site types identified for Fort Ancient in West Virginia are villages and small extractive camps. Although still a topic of debate, most archaeologists view Fort Ancient as an in situ development from local Late Woodland populations rather than a manifestation resulting from the influx or migration of Mississippian peoples.

Fort Ancient subsistence was based on corn agriculture, as well as other crops such as beans, squash, and sunflower. Despite the increased importance of domestic crops, resources obtained by hunting continued to be important.

Material culture included a greater range of ceramic vessel types (mostly jars with handles), triangular arrow hafted bifaces, and bone and mussel shell tools (e.g., knives, scrapers, and hoes).

In West Virginia, Fort Ancient territory begins on the Ohio River Valley south of the Northern Panhandle and encompasses the Ohio Valley and the drainages of the Little Kanawha, Kanawha/New, and Guyandotte Rivers. Most Fort Ancient sites in West Virginia are located along one of the most heavily traveled Native American trail networks in eastern North America.

A number of chronologies have been developed over the years for Fort Ancient culture (Drooker 1997; Essenpreis 1978; Graybill 1988; Griffin 1943b; Henderson 1992; Mayer-Oakes 1955). However, Fort Ancient occupation in the Ohio Valley can generally be separated into several distinct periods based on changes in settlement patterns, the variability of design elements in ceramics, and the occurrence of time-sensitive artifacts that have been shown to be cultural or temporal markers.

Throughout the Ohio Valley, Fort Ancient has been divided into Early Fort Ancient A.D. 1000/50-1200/50), Middle Fort Ancient 700-500 B.P. (A.D. 1200/50-1400/50), and Late Fort Ancient 500-300 B.P. (A.D. 1400/50-1650/1750). Late Fort Ancient has further been divided between precontact and post contact, or protohistoric (Drooker and Cowan 2001).

Early Fort Ancient

Early Fort Ancient settlements were small (1.5 ac [0.62 ha]) (Graybill 1981), plentiful, and located primarily on high terraces along larger drainages (Maslowski 1984). Both circular and elliptical-shaped middens occur, with a central plaza encircled by a domestic/habitation area. When present, burial mounds are associated with plaza areas, and the vast majority of tools, pits, and general kitchen refuse is associated with a midden ring. Both surface (summer?) and semi-

subterranean pit houses (winter?) have been identified.

Villages appear to be functionally and economically autonomous, unlike the highly integrated system noted for Mississippian societies to the west. Subsistence was based on maize agriculture, as well as resources acquired through gathering and hunting. Faunal remains from this period indicate that a variety of species of mammals, birds, fish, and mollusks were consumed, with elk and white-tailed deer dominating the assemblage (Graybill 1988).

In West Virginia, Early Fort Ancient includes as many as ten sites, of which three have been examined through excavation. These are Roseberry Farm in Mason County, Miller in Jackson County, and Bartlett-Bird in Wood County (Graybill 1988). Based on extant data, diagnostic material culture for this phase includes angular straps, semilunar lugs and other handles on ceramics, excurvate base triangular hafted bifaces, and semiplatform pipes. Ceramic vessels are limited primarily to jars with constricted necks. Bowls and other vessel types are rare. Temper is usually crushed shell, with plain or smoothed exterior surface treatment. Appendages include a variety of lugs or strap handles placed on opposite sides of the vessel below castellations. When present, decoration usually consists of linear arrangements of punctates or linear gashes.

Other artifacts manufactured from chert, sandstone, and igneous/metamorphic rocks, bone, antler, and shell include a wide variety of utilitarian and decorative/ceremonial items such as knives, scrapers, celts, biconcave discs, elbow pipes, pendants, hammerstones, anvils, awls, needles, tubular beads, beamers, and hairpins.

Middle Fort Ancient

Middle Fort Ancient sites appear to share historical continuity with the preceding phase, with differences between the two more a matter of degree than kind (Graybill 1988). Diagnostic artifacts such as semilunar lugs, semiplatform pipes, and excurvate triangular hafted bifaces are absent from Middle Fort Ancient phase assemblages. During this period, triangular hafted bifaces with straight bases predominate, and decorated pottery reached its peak.

Evidence for site types and settlement-subsistence systems suggests drastic changes in life-style did not occur. However, villages appear to be larger (3.06 ac [1.24 ha]) and fewer in number, suggesting consolidation or grouping of peoples, possibly for defensive purposes (Graybill 1981). Pithouses continue to occur with surface structures as evidenced at Blennerhassett Village where six pithouses were encountered (Graybill 1988).

In addition, the preference for high terraces appears to have shifted to flat floodplains. Within sites, plaza and domestic/habitation “zones” persist, but midden stains are exclusively elliptical-shaped and average about 1.2 ha in size. Burial mounds have not been identified for this period and the placement of interments shifted to the domestic (midden) area. Although few sites have been examined by excavation, evidence is lacking for the presence of stockades or other fortifications (Graybill 1988).

The subsistence base for Middle Fort Ancient is similar to the previous period with intensive maize agriculture supplemented by hunting and gathering (Graybill 1988). Botanical remains from this period include maize kernels, beans, and walnut shell from Blennerhassett Village and maize, hickory nut, and wild plum from Lewis Farm. White-tailed deer continue to dominate the faunal assemblage (Graybill 1988).

Late Fort Ancient

The Late Fort Ancient period is further divided into precontact (A.D. 1450-1550) and protohistoric (A.D. 1550-1650).

During the Late Fort Ancient period, significant differences are observed in the archaeological record relative to earlier Fort Ancient sites. Perhaps because of increased interaction between Fort Ancient peoples, the regional diversity previously apparent

disappears. Villages are larger than before (4.67 ac [1.89 ha]) and are located in floodplain or T-0 settings (Graybill 1981, 1988). Pithouses are no longer found. Surface structures are larger than before and palisades begin to appear around villages (Graybill 1988).

Ceramics show great similarity over a large area in regard to vessel type, form, temper, and surface treatment, suggesting a high level of interaction and possible loss of village-level autonomy. The range of vessel types is expanded to include constricted neck jars, bowls, saltpans, and colanders. The type and amount of decoration and appendage use varies between vessel types, although cordmarked and plain exteriors predominate. Pestles, figurines, and pipes represent other types of ceramic artifacts common to this period (Graybill 1988).

The lithic inventory includes a variety of triangular hafted bifaces, as well as bifacial cutting tools, drills, and unifacial scrapers. In addition, disc pipes often manufactured from red catlinite, and effigy pipes are present. Items of bone and shell similar to those common on earlier Fort Ancient sites are found, although incised tubular bone beads and combs also occur. In addition, there is a marked increase in the use of marine shell to fashion ornaments. Conch or whelk columnella, marginella, and olivella shell beads occur, as do those of fresh water pearl.

Several precontact Late Fort Ancient sites are located on the upper Kanawha/New River drainage. These are Mount Carbon, Burning Spring Branch, Marmet Bluffs, and three Bluestone sites. At the Mount Carbon site, a mixture of Fort Ancient and Virginia-Siouan traits has been identified, although it is not clear whether two discrete components or a single Fort Ancient occupation with Siouan contact is represented (Graybill 1988).

Recent excavations for the Marmet Lock Replacement project on the Kanawha River at Malden, West Virginia, revealed a previously unknown Late Prehistoric village across the river from the protohistoric Marmet Village (Pullins et al. 2008). Burning Spring Branch (46Ka142) is a Late Prehistoric palisaded village of approximately 25 houses with radiocarbon dates circa A.D. 1500. An abundance of shell-tempered pottery was found at the site, as well as bone and stone tools. The absence of European trade items corroborates the precontact date for the site.

Shortly after the arrival of the first significant European incursion into eastern North American by the entrada of Hernando de Soto in 1539, European trade goods of glass, iron, and brass/copper began to make their way inland along the established trade routes. Ornaments such as glass beads, metal tinklers, pendants, and animal effigy cutouts, as well as utilitarian items such as axes, knives, and chisels have been found on protohistoric sites in West Virginia (Graybill 1988).

Engraved marine shell gorgets with rattlesnake and weeping eye motifs have been identified at a number of Late Fort Ancient sites (Brasher and Moxley 1990; Graybill 1988; Hoffman 1997). Although these items were sometimes found before European contact, marine shell gorgets, especially the masks with the weeping eye design, are more frequent on protohistoric sites with European artifacts. Marine shell masks have been found in a widely dispersed pattern as far away as the Plains and Canada (Brain and Phillips 1996; Hoffman 1997). Some archaeologists think this might represent a movement of people out of the Southeast, where most of the marine shell ornaments were manufactured, following the cultural disruptions associated with European contact (Brain and Phillips 1996).

Important protohistoric Late Fort Ancient sites in West Virginia include Clover (46Cb40), Buffalo (46Pu31), Marmet Village (46Ka9), Logan (46Lg4), Neale's Landing (46Wd39), Orchard (46Ms61), and Rolf Lee (46Ms51/123). Most of these sites are multi-component. Five of these sites, Clover, Rolf Lee, Buffalo, Marmet Village, and Logan, are located in the floodplain, while two other sites, Orchard and Neale's Landing, are located on high terraces. It has been suggested that

mortuary practices at sites such as Buffalo, where many individuals were buried in the floors of houses, are most similar to eastern Siouan-speaking peoples (Maslowski 1984).

The artifact assemblages and greater frequency of mortuary vessels from Orchard and Neale's Landing are similar to Madisonville/Lower Shawneetown and the Riker site in Ohio (Maslowski 1984). At the Orchard site, 30 percent of the individuals were buried with one or more ceramic vessels (Moxley 1988). The form and surface treatment of the vessels from Orchard and Neale's Landing are very similar to those found at Madisonville and Riker in Ohio, indicating interaction between these sites and non-Fort Ancient Whittlesey sites in northeastern Ohio (Baker 1988; Hoffman 2001; Moxley 1988).

Animal and human figurines occurred at Clover, Buffalo, and Rolf Lee, but with less frequency at Orchard and Madisonville sites (Maslowski 1984). Twenty-one modeled clay objects were recovered from Neale's Landing; however, they were much cruder than Clover specimens (Hemmings 1977). Common to all site types were triangular hafted bifaces with concave bases, as designated by Graybill (1981).

Pipes were also common throughout protohistoric sites. Fifty pipes exhibiting a range of shape and material were found at the Orchard site (Moxley 1988). The Buffalo site produced five pipes, of which two were bird effigies, two vasiform, and one disc platform (Hanson 1975). Vasiform pipes have been found at Clover, Orchard, and Madisonville (Maslowski 1984), and disc platform pipes have been reported at Buffalo (Hanson 1975), Rolf Lee (Maslowski 1984), and Madisonville (Hooton and Willoughby 1920). Narrow, triangular, and rectangular pipes have been found at Riker, Orchard, and Madisonville (Maslowski 1984).

No one knows exactly when or why protohistoric groups abandoned the Ohio Valley, or to where they migrated. Pressure from the Five Nations Iroquois to the north was probably one factor, as well as the imminent arrival of European settlers. For whatever reason, by the end of the seventeenth century, the Upper Ohio Valley, including Fort Ancient territory in West Virginia, was depopulated.

McMichael (1965) discovered only minor evidence for Late Prehistoric occupation in Nicholas County. Evidence for this late period of prehistoric occupation was derived from shell-tempered ceramics and triangular points. Often these deposits were mixed with those of earlier occupations. The existing record indicates Late Prehistoric peoples made use of rockshelter and open-air settings in upland environments not unlike those that typify the project area. However, the main settlements or villages were located on alluvial landforms along significant waterways. The upland sites probably reflect short-term extractive camps that may have been occupied seasonally.

Concluding Remarks

Evidence from the published record (MacDonald et al. 2006; McMichael 1965) and a large number of unpublished reports completed primarily for Section 106 compliance projects, including many conducted by CRAI, indicate clearly that central and southeastern West Virginia were occupied throughout all or most of local prehistory. Based on site frequency, the most intensive occupation of the region, including Nicholas and Greenbrier counties, appears to have occurred during the Early Archaic, Late Archaic, and Late Woodland temporal periods. Middle Archaic and Late Prehistoric are also present, but at lower frequencies. Less evidence has been discovered for Paleoindian occupation, although the recovery of a small number of diagnostic points indicates some utilization of the area.

Because of the upland setting of the region, most sites are associated with stable or eroding landforms, which results in the accumulation of both mixed and disturbed cultural deposits. The best evidence for intact sites comes from rockshelters and open-air sites located along streams in alluvial settings.

Upland sites are often small and probably formed as the result of extractive activities and/or short-term encampments and stations. Because most uplands sites were not utilized intensively or for long periods, the archaeological record is characterized by surface and shallow subsurface scatters of debris, which is most instances, are dominated by lithic waste material produced during tool maintenance or manufacture.

V. HISTORIC CONTEXT

A historic context for the region surrounding the Beech Ridge Wind Energy Facility has been previously developed for the project by BHE Environmental, Inc. and Gray and Pape, Inc. (Sweeten and O'Bannon 2007) and will not be repeated here. Instead, this context was reviewed in conjunction with readily available historic-period maps to attempt to provide a better picture of what types of historic activities may have occurred within the direct APE that could leave behind archaeological signatures. Specifically, three categories of activities were isolated for further discussion: (1) farming; (2) industrial timbering and mining; and (3) events surrounding the American Civil War.

Farming

A review of the developed historic context and supplementary research on Greenbrier and Nicholas counties, suggests that agrarian or mountain farming played a significant role during the early settlement of both counties. As will be discussed in the research design, agrarian mountain farming evolved through time, as population and industrial pressures changed in West Virginia and many family farmsteads were abandoned during the early twentieth century. However, reviewed evidence suggests that farming, particularly in Greenbrier County, remains an important activity today.

During early settlement and throughout much of the nineteenth century, reviewed information indicates that most upland landforms were not occupied due to their high elevation and channery deposits, both of which hampered easy cultivation and habitation, especially during the cold months. Instead, reviewed information suggests that upland ridges, like those found within the direct APE would have been left for stock grazing during the nineteenth century. However, as population pressures increased, it was not uncommon for broad ridges to also be occupied.

A review of an 1876 map of Greenbrier County shows very little development along upland landforms near the direct APE (Figure 5). Not surprisingly, the majority of charted development is centered along stream valleys. Interestingly, the Cold Knob Road to Nicholas County is charted along what appears to be Cold Knob Mountain. As will be discussed later, this historic-trace was likely available for travel as early as the American Civil War and appears to follow the general course of modern day CR 10 – 1 (Richwood/Greenbrier Roads). As such, this early upland route of transportation may have made upland settlement in this portion of Greenbrier County more feasible.

Nevertheless, extant data implies that early settlement and agrarian farming was focused along stream valleys, given their abundance of fertile soils and access to water, food resources, and transportation routes. The majority of stream and valley crossing in the direct APE are located along the transmission line, especially near its eastern terminus where it follows Little Laurel Creek in Nicholas County. Unfortunately, a nineteenth-century map showing this portion of Nicholas County was not readily found. However, not surprisingly, reviewed early twentieth-century maps (Figures 6 and 7) chart several rural buildings in the APE of direct effects within the bottomlands of Little Laurel Creek in Nicholas County and its associated tributaries. Conversely, very little development is charted in the upland portions of the direct APE on these maps (Figures 6 and 7). One isolated building is depicted on the 1936 map of Greenbrier County within Reid Gap, which appears to be a mountain farm (Figure 7).

Industrial Timbering / Mining

Historic contexts for the region suggest that during late nineteenth and twentieth centuries, upland portions of northern Greenbrier County and all of Nicholas County were exploited heavily for their timber and coal resources. Most of the project vicinity is believed to have been under lease to several nearby timber/lumber companies during this period and was being actively clear-cut. Most of the project vicinity has remained under the ownership of the West Virginia Mead Westvaco, and its predecessors Westvaco and the West Virginia Pulp and Paper Company, which manages and continues to harvest the upland timber resources. The abundance of surrounding mill and lumber communities also indicates that logging in this region of Greenbrier and Nicholas counties was an important activity.

No established mill or lumber towns are known to have existed within the direct APE. The majority of these communities (Farmdale, Crawley, Williamsburg, Kieffer, Trout, Rupert, McClung, Alderson, Blue Sulphur Springs, Smoot, Dawson, Fort Spring, Meadow Bluff, Rainelle, Russellville, Richwood, and Fenwick) were historically located along valley floors, where streams and railroads allowed for easy access to broader markets. However, as will be discussed in *Chapter VI*, it was common practice for temporary logging camps to be established in the woods during timbering activities. These communities were so temporary they were rarely depicted on standard maps, and therefore, their locations can be difficult to predict.

Coal mining was also identified as an important industry that also affected the development of the direct APE. As discussed by Sweeten and O'Bannon (2007), early commercial mining was completed to aid the timber industry with fuel needs. However, as the twentieth century progressed, reviewed contexts suggest that coal mining became more and more common throughout the region as standard gage railroads penetrated the woods.

On July 1, 1927, the Chesapeake and Ohio (C&O) and New York Central railroads became owners of the Nicholas, Fayette, and Greenbrier Railroad. In 1928, these companies completed the Big Clear Creek subdivision of that railroad to the headwaters of North Fork Creek, where the mining community of Clearco was established in 1929 within the direct APE (Figure 7). Sweeten and O'Bannon (2007) have already provided a brief history of this community, but given that it stood within the direct APE, a summary of this history is repeated here with some further information concerning typical coal camp life.

The community of Clearco was first established in 1929 by the Clear or Big Clear Creek Coal Company in Williamsburg District of northern Greenbrier County. The camp was established to supply needs of the miners of the Brooke No. 1 and No. 2 mines, both in the Sewell seam. Two other coal companies are also known to have utilized Clearco, the Demasi Coal Company and the Bryant Coal Company. The camp was also reported as the highest in the eastern United States at an elevation of 3,750 ft above sea level (Rice 1986; Stone 1977; Sweeten and O'Bannon 2007).

It was common practice for coal operators to construct company-owned communities to accommodate the influx of labor into a previously uninhabited region. In his study of mining settlements in the Pocahontas Coal Field of West Virginia, Gillenwater (1972) observed four basic mining settlement morphologies - block, linear, cruciform, and fragmented. Block morphology is characterized by a grid pattern of settlement within a centralized location. Towns possessing linear morphologies often resulted when settlements conformed to existing roads within narrow valleys. Towns possessing cruciform morphologies extended along lines of transportation or along tributary valleys adjacent to the main part of town. Towns possessing a fragmented morphology were usually separated by some physical or cultural feature and were often built without extensive planning. Based on the 1936 map of

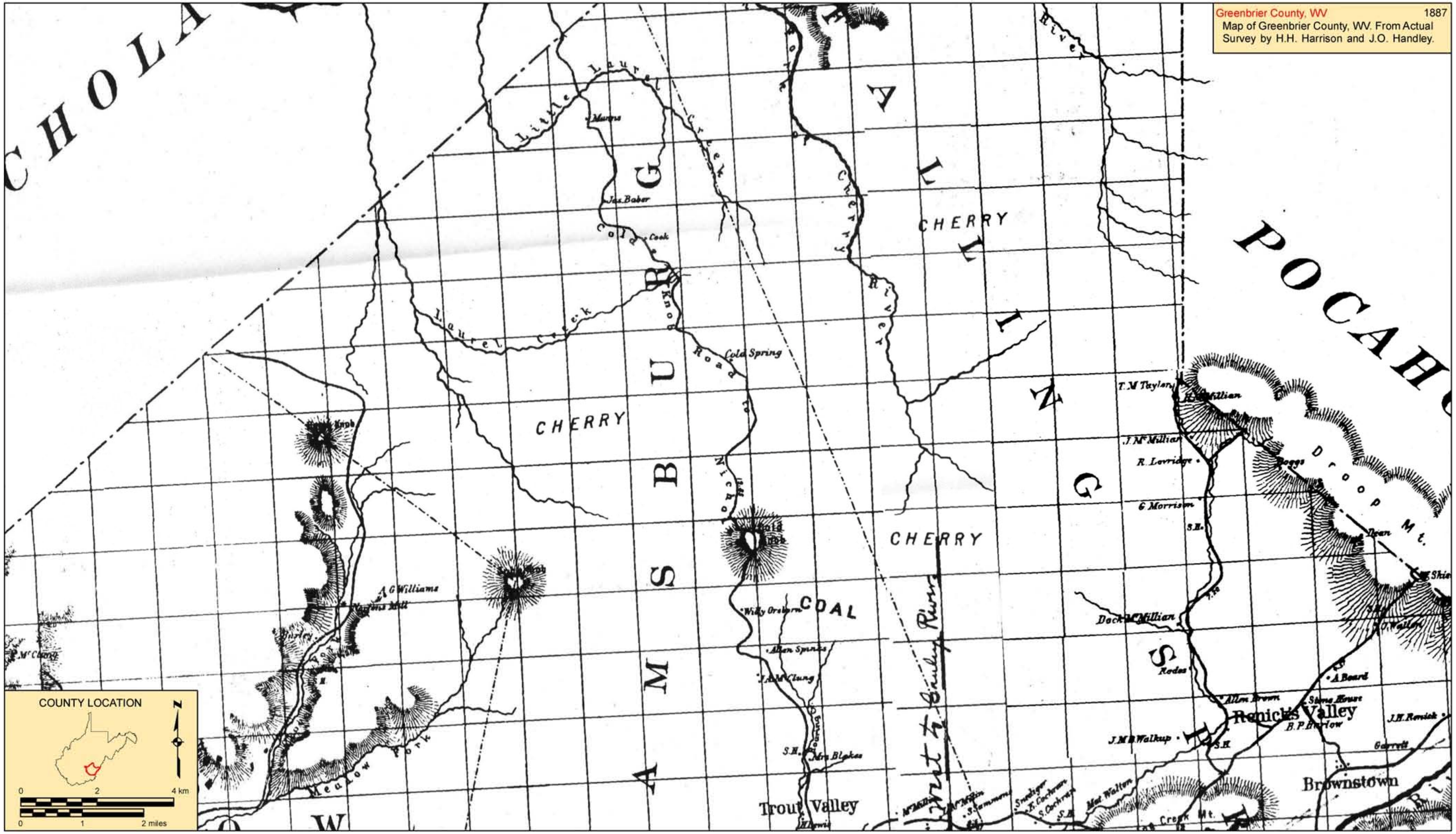

Figure 5. Portion of H.H. Harrison and J.O. Handley 1887 Map of Greenbrier County.

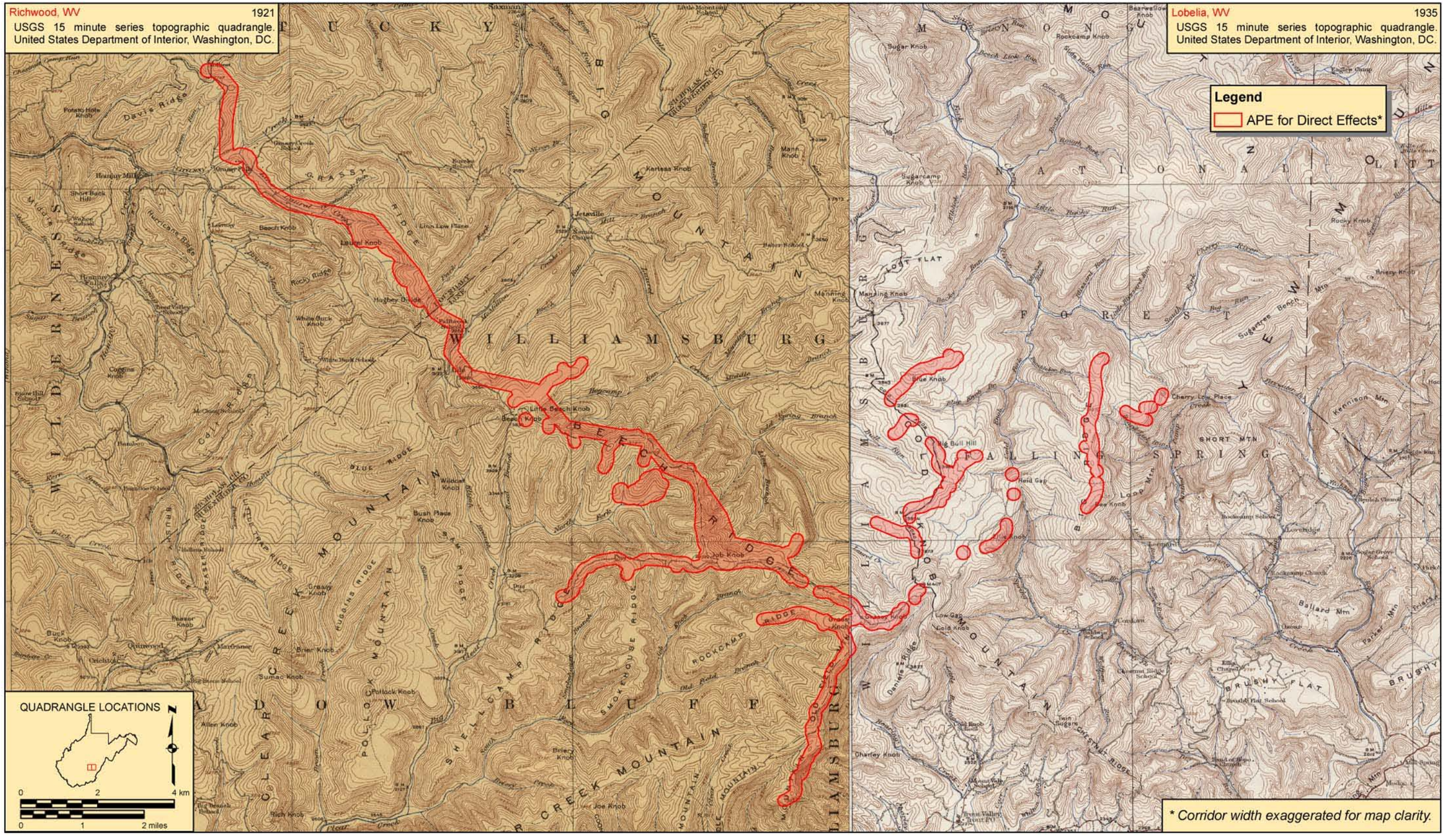

Figure 6. Portions of USGS 15-minute 1921 Richwood, WV and 1935 Lobella, WV quadrangles charting approximate location of the direct APE for archaeological sites.

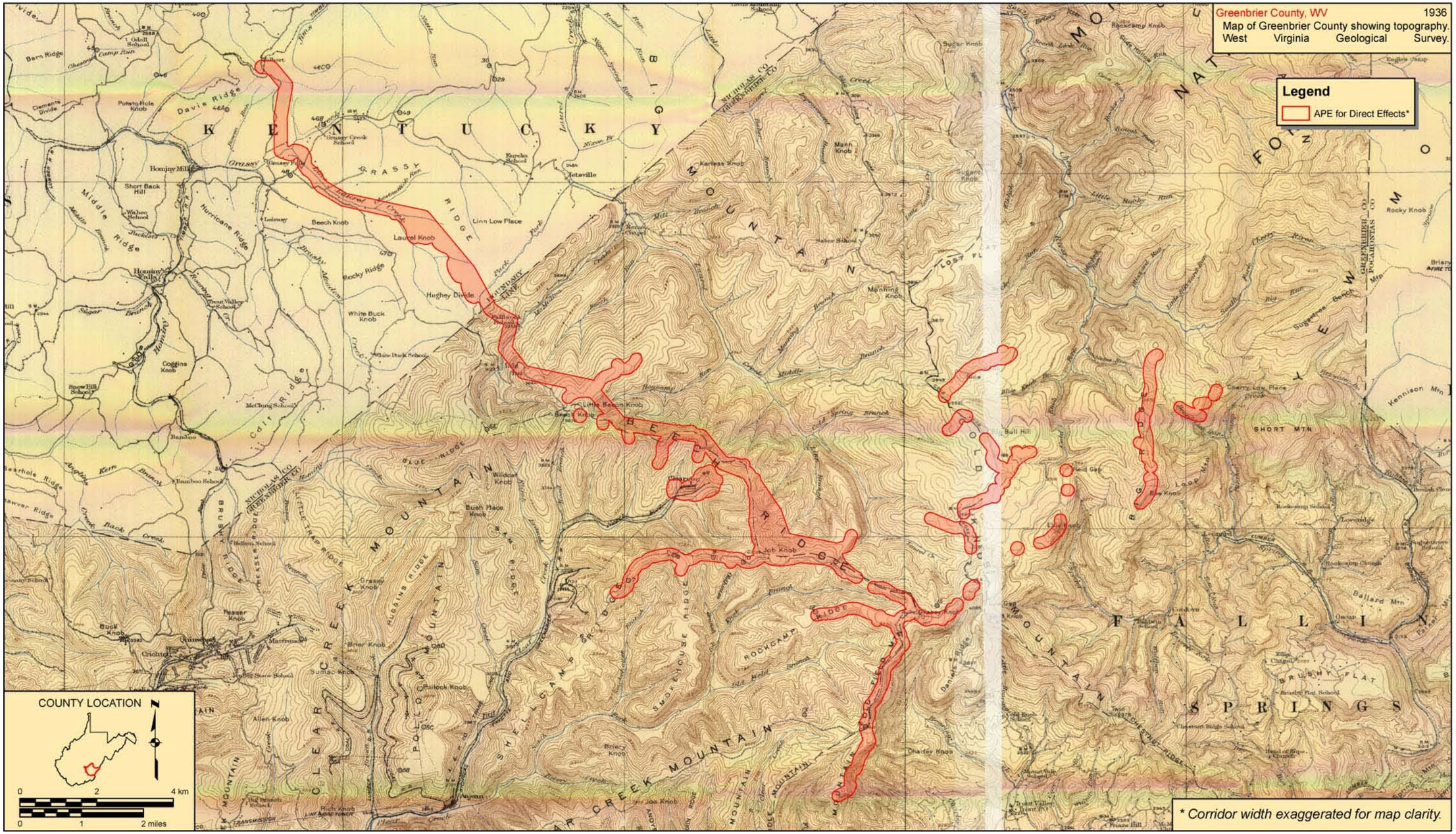

Figure 7. Portions of WVGS 15-minute 1936 Map of Greenbrier County (with portions of Nicholas County) charting the approximate location of direct APE for archaeological sites.

Greenbrier County, Clearco appears to resemble a linear layout (Figure 7).

The residential area was often the most extensive component of the coal town. Despite the diversity of housing types between the different towns, any given town typically contained only one or two basic types (Hudson et al. 2002). A 1916 survey of company towns categorized housing by type, including single, double, row, or miscellaneous. Of the 5,698 dwellings documented in the group that included Kentucky, Alabama, and Tennessee, 5,177 (91 percent) were single-family dwellings. Only 9 percent were double homes, and there were no row houses. All of the homes were frame, and nearly 70 percent lacked modern conveniences, with the exception of a privy (Magnusson 1920).

In his 1982 book, Eller quotes a 1921 account of Logan County from Lane's *Civil War in West Virginia: A Story of the Industrial Conflict in the Coal Mines* that describes houses and mining camps as follows:

> …you see…camp after camp in which the houses are little more than shacks to keep the weather out. Some of these houses are propped up on stilts; many of them are unpainted…..The camps look like the temporary quarters of some construction gang at work far from civilization. Yet they are permanent residence towns [Eller 1982:161].

The grimness of this account must be taken in context. As Shifflett (1991) points out, period descriptions of coal camp life were often unduly negative when compared to middle-class conditions in the affluent north. While informative from a descriptive point of view, they hardly reflect the overall quality of life achieved by the residents. Nevertheless, this account of dwellings is useful. Many miners' dwellings were often not plastered or ceilinged on the interiors. Centrally located stoves often provided both heat and a means of preparing food (Eller 1982).

Clearco, on the other hand appears to have been constructed as a model community, or company-owned town built to impress investors on the quality of the company and its facilities. Some accounts suggest that Clearco distinguished itself as West Virginia's most beautiful coal camp (Stone 1977). Indeed, accounts suggests that all of the homes in Clearco where built from sturdy virgin timber and clad in brick. Each house was equipped with indoor plumbing (cold and hot water), finished hardwood floors, and in some cases central heating (Rice 1986; Stone 1977).

In addition to housing for married workers and their families, many company towns had boarding houses for single workers. Many towns also included a more substantial house for the superintendent and homes for visiting owners and company officials. These structures were usually built at a distance from the other residences, and were often located on a hillside overlooking the town. In addition to being physically removed from the workers housing, they were typically the largest dwellings in the community and often boasted stylistic adornment absent from the workers' homes. All of these characteristics served to establish a physical distinction between workers and management (Hudson et al. 2002). However, scholars have shown that distinctions between employees were not always expressed architecturally or spatially. For example, a study of gold mining communities in Arizona produced evidence that managers and laborers lived in similar, tightly clustered housing (Gillespie and Farrell 2002). Current historic-data on Clearco is insufficient to know if space was utilized to differentiate between socio-economic classes.

Most coal company-operated communities contained company stores, community buildings, churches, and schools. Gillenwater (1972) found that, while company stores varied from town to town out of functional necessity, they were usually three-story, rectangular-shape structures, built primarily of wood (although brick was not uncommon) with either flat or low-angle gabled roofs. Like the company store, many company towns also had a community building located near the center of town.

Community buildings could contain such facilities as a theatre, an auditorium, a billiard room, a dining room, lodge hall, or upstairs sleeping rooms. Many of the larger towns had two churches, one for whites, and one for blacks. Rather than building to serve a single denomination, company churches were often constructed to serve all denominations. Many of the larger towns also segregated their schools along racial lines, one school for black children, and one for whites (Hudson et al. 2002). Firsthand accounts report that Clearco included a store, playground, and one-room schoolhouse (Sweeten and O'Bannon 2007).

However, typical company towns also incorporated many characteristics of rural communities, including chickens, hogs, cows, vegetable gardens, livery stables, barns, and blacksmith shops. Growing up in a coal town was also similar to rural life, with young boys learning crafts from their fathers and labor divided by gender. As women rarely, if ever, worked at the colliery, they were often charged with tending to the household. As men worked long shifts, the mining economy depended on women to support families. Women tended to livestock and gardens, which most mine companies allowed miners to keep. The lack of refrigeration meant many miners wives had to make daily trips to the company store to retrieve perishables. Water often had to be hauled from shared wells or creeks and boiled on a daily basis for cooking and bathing. Daughters often helped their mothers, and the amount of coal dust in the average town meant long hours of laborious cleaning (Shifflett 1991). Currently, it is unknown if Clearco incorporated any elements of rural life.

It is unknown when the community of Clearco was abandoned, but extant data suggests that the town has since been demolished by recent surface mining. A review of the most recent USGS maps (Figures 2 and 3) suggests that contour and surface mining have impacted several portions of the direct APE.

Events Surrounding the American Civil War

The historic context developed by Sweeten and O'Bannon (2007) and other accounts of the American Civil War suggests that Cold Knob Mountain, which runs along the western edge of the proposed turbine sites, contained a trace by the same name that was used during the war. The exact route of this trace is unknown, although, based on the reviewed accounts and an 1887 map (Figure 5), the road appears to have run along the spine of Cold Knob Mountain, located between Trout in Greenbrier County and Richwood in Nicholas County. Today, CR 10-1 (Richwood/Greenbrier Roads) follows a similar path. While not confirmed, accounts also suggest that a second route across northern Greenbrier County into southern Nicholas County past Job Knob on Beech Ridge was also utilized at least once during the war. Again, the exact route is in question, but it may have closely paralleled modern day CR 1-1 (Beech Ridge/Pole Roads). It is interesting to note that this second route is not charted on the 1887 map (Figure 5), suggesting that a formal road may not have existed along Beech Ridge during the nineteenth century.

Reviewed accounts of events during the American Civil War, including an online word search of the Official Records of the Civil War (Official Records) found no evidence that skirmishes, engagements, raids, or battles occurred within or in direct vicinity to the direct APE. The following provides further discussion concerning the known use of transportation routes located near the direct APE during the war.

Sinking Creek Raid 1862

Sweeten and O'Bannon (2007) briefly discussed a late raid in late 1862 by the Eleventh Regiment Ohio Volunteer Infantry (Eleventh Infantry) and the Second West Virginia Cavalry (Second Cavalry) on a Confederate encampment located in the Sinking Creek Valley near Cold Knob. The specific location of the raid was reported as unknown.

Cold Knob is located at the southern apex of Cold Knob Mountain. Cold Knob itself is

located approximately 952 m (3,123 ft) southeast of the direct APE. Sinking Creek Valley is located south of Cold Knob and runs between the communities of Trout and Alta, well outside of the direct APE. Sinking Creek flows southwest from its headwaters near Nunly Mountain for several miles and then abruptly sinks beneath the surface near Brushy Ridge (Bicentennial Committee 1978).

A review of published accounts of the 1862 raid provides further data concerning these events. This activity was set in motion in November 1862, when U.S. Army Brigadier General George Cook, headquartered in Charleston, West Virginia, got word that the 14th Virginia Cavalry was recruiting in the Sinking Creek Valley of Greenbrier County (McKinney 2004; Official Records Series 1, Volume XXI:8). Accordingly, General Cook devised a plan to send troops to attack the Confederate soldiers using both infantry and cavalry. From here, General Cook hoped to send the cavalry through to Covington, Virginia, to secure the release of a Greenbrier County Unionist, Dr. William P. Ruckyer, who was on trial for his life (Rice 1986; Official Records Series I, Volume XXI:9).

On November 24, 1862, Colonel Philander C. Lane, commander of the Eleventh Infantry, left Summersville to march to Cold Knob on orders from General Cook. With 500 strong, Colonel Lane reached the top of Cold Knob on the night of the November 25th, near Cranberry Road (location unknown) (McKinney 2004; Official Records Series I, Volume XXI:9). According to General Cook, Colonel Lane was ordered to march to Cold Knob by way of Job Knob, "thereby saving a distance of 10 miles" (Official Records Series I, Volume XXI:9).

Job Knob is located along Beech Ridge, not Cold Knob Mountain and thus not along Cold Knob Road. This suggests that the Eleventh Infantry followed an alternative path from Summersville that lead them up Beech Ridge to Cold Knob. While not confirmed, it is CRAI's supposition that no formal road existed along Beech Ridge at the time, as none is charted on an 1887 map of the area (Figure 5). If true, it would suggest that the Eleventh Infantry marched to Cold Knob without the benefit of a formal road.

Colonel Lane reported that after spending the night on Cold Knob, they resumed their march on the morning of the 26th until they reached Cranberry Road. According to Lane, they waited there for the arrival of the Second Cavalry (Official Records Series I, Volume XXI:9). Meanwhile, under orders of General Cook, Colonel John C. Paxton, commander of the Second Cavalry, left Camp Piatt (near Charleston) on November 24th for Summersville. The Second Cavalry, comprised of 475 men, arrived in Summersville that same evening. The next day they moved only 35 miles, being delayed by a blinding snowstorm. Finally, on the 26th, the Second Cavalry met up with the Eleventh Infantry via Cold Knob Mountain. While not clear, it appears that Colonel Paxton likely followed the existing road along Cold Knob Mountain. All accounts suggest that a blinding snowstorm continued to drop several inches of snow during the Second Cavalry's approach. (Official Records Series I, Volume XXI:10).

Recent accounts suggest that the meeting between the Eleventh Infantry and the Second Cavalry took place atop Cold Knob, although Colonel Lane's account suggests they met further south of Cold Knob at Cranberry Road. Unfortunately, it is currently unclear where Cranberry Road is located, and Colonel's Paxton description of the meeting makes no mention of Cranberry Road.

Regardless, following the joining of the two forces, Colonel Paxton took command and ordered Colonel Lane to advance on Confederate pickets (Official Records Series I, Volume XXI:10). Accounts suggest that the Eleventh Infantry marched down Cold Knob in eight inches of snow and engaged the Confederate pickets in a brief skirmish, then retreated to Summersville via Cold Knob Mountain. Next, Colonel Paxton ordered Major William H. Powell to take 21 men toward the

Confederate camp. Accounts of the distance of the Confederate camp from Cold Knob vary between three and five miles (McKinney 2004; Official Records Series I, Volume XXI:10). Taken literally, this would place the camp somewhere near present day Trout, well outside of the direct APE. Confederate forces were estimated to be 500 strong and included members of the 14 Virginia Cavalry, Braxton Dragoons, Churchville Cavalry, the Nighthawk Rangers, Rockbridge Cavalry, and the Valley Cavalry. Moving boldly, Powell advanced and was amazingly able to capture the camp without firing a shot (McKinney 2004). Colonel Paxton's report suggests that two of the enemy were killed and two were wounded during the incursion. A total of 113 Confederate soldiers and officers were captured during the raid. Following, the Second Cavalry returned to Camp Piatt given the weather conditions (Official Records Series I, Volume XXI: 10).

Jones-Imboden Raid of 1863

The purpose of the following is not to recount the famous Confederate raid into western Virginia in the spring of 1863 by Brigadier General John D. Imboden and General William E. Jones. Multiple accounts of these events already exist. However, during a key word search of the Official Records for geographic names located in proximity to the direct APE, an account suggesting that General Imboden utilized "Cold Knob" road to reach the Sinking Creek Valley of Greenbrier County from Summersville in Nicholas County (Rice 1987; Official Records Series I, Volume XXV:104). No mention of significant events or action associated with the raid was found in relation to the direct APE.

Other Accounts

An October 5, 1861, account of an attack on Bulltown, Weston, and Buckhannon by Lieutenant Colonel Vincent A. Witcher of the Thirty-fourth Battalion Virginia Cavalry states that his command (523 total men) utilized Cold Knob route as they were leaving Greenbrier County (Official Records Series I, Volume XLIII:640). On November 8, 1863, Lieutenant Colonel William P. Thompson of the Nineteenth Virginia Cavalry stated that he moved from the foot of Cold Knob Mountain to Pocahontas County to engage the enemy (Official Records Series I, Volume XXIX:540).

VI. RESEARCH DESIGN

The Phase I survey was designed to locate and record any historic or prehistoric archaeological sites located within the direct APE. A Phase I survey is defined here as a reconnaissance level field and records survey designed to sample a geographic location in an attempt to identify and preliminarily assess archaeological resources for potential eligibility to the NRHP and to make recommendations for future work. Field survey is largely based on systematic sampling strategies commonly practiced by professional archaeologists, and is approved by the WVSHPO (Trader 2001). The sampling methodology is considered sufficient to identify a wide variety of sites types and preliminarily assess physical integrity and the potential for significant information to be present. The sampling strategy is also designed to establish the spatial and stratigraphic distribution of site deposits, and generate information for the type and density of materials present. Phase I survey can generate information for both the geological and cultural characteristics of sites, providing data useful for establishing their size, age, material content, cultural affiliation, and integrity. Collectively, this information provides a basis for assessing site significance and developing recommendations of NRHP eligibility.

On the basis of topography, soil characteristics, bedrock geology, and information for the distribution of sites in Greenbrier and Nicholas counties obtained from the published record (MacDonald et al. 2006; McMichael 1965) and the records search conducted at the WVSHPO, the archaeological potential of the Beech Ridge Wind Energy Facility to contain sites in surface and shallow subsurface contexts was considered to range from low to high, depending on setting. The

potential for buried sites to be present was considered low, although their presence in some colluvial and alluvial settings could not be discounted, as previous excavations in Nicholas County discovered buried sites in mixed colluvial/alluvial contexts (Cremeens and Lothrop 2001; MacDonald et al. 2006).

Prehistoric Site Potential

Although, as previously discussed, published and unpublished research is available for the archaeological record of central West Virginia, including portions of Greenbrier and Nicholas counties, the overall quantity and quality of the data is insufficient to develop predictive statements regarding the locations and type of sites present in the direct APE.

However, given that the seven professional investigations completed within 1.6 km (1 mi) of the Beech Ridge Wind Energy Facility failed to document any evidence of archaeological sites, the overall potential for prehistoric sites to be present is considered low to moderate. Using the extant record for the larger region as a guide, the highest potential for prehistoric sites within the direct APE is believed to be associated with the broad ridges that typify much of the area.

While chert resources are not known to occur in the vicinity of the project, the relatively level nature of this portion of the project combined with its proximity to the heads of several streams provides a good environment for the acquisition of subsistence resources and perhaps seasonal habitation. However, as previous research has demonstrated that much of the direct APE has been previously clear-cut on more than one occasion, and to a lesser extent impacted by mining, it is also likely that archaeological evidence of prehistoric utilization may be obscured, if not destroyed.

With this in mind, the survey was designed to sample the project in a systematic manner that might discover evidence for even small and/or partially destroyed sites. However, specific attention was given to identifying areas retaining physical integrity, as these areas held greater potential to contain significant cultural deposits.

Based on the extant record, it was anticipated that prehistoric sites in the direct APE, if present, were most likely to be open-air lithic scatters or small camps/stations, rather the larger, more intensively occupations residential sites. Also, because of their greater visibility and known occurrence in Nicholas County and parts of the surrounding region, the identification of stone mounds and rock cairns was not discounted.

Open-Air Lithic Scatters

While this portion of Greenbrier and Nicholas counties has not been the subject of intensive research, it has been the experience of CRAI that many upland prehistoric sites in the region are defined by low to moderate densities of lithic debris and, to a lesser extent, formed tools, made of locally and semi-locally available Kanawha and Hillsdale cherts. In the literature, these sites are typically referred to as lithic scatters.

Open-Air Lithic Scatter Description

Lithic reduction was an important, although perhaps secondary, activity conducted at many prehistoric sites, including those lacking evidence of prolonged occupation. In remote upland settings removed from primary sources to raw toolstone, these sites probably reflect the maintenance or curation of cutting, piercing, and scraping tools made elsewhere, and carried to the site during subsistence forays. The functional range of artifacts found at these sites is typically highly restricted, reflecting the type of activities conducted, the duration of the occupation, and perhaps the size and makeup of the group. Most archaeologists in the region interpret lithic scatters as representing short-term camps or stations. As such, these sites often lack artifacts useful for establishing age and cultural affiliation.

Archaeological Study of Open-Air Lithic Scatters

If open-air lithic scatters were encountered, a primary goal of Phase I research would be to determine their spatial and stratigraphic extent, integrity, material content and density, and if possible age and cultural affiliation.

Upland Stone Mounds / Rock Cairns

Upland stone mounds and/or rock cairns have been reported in the region by several researchers, although their origin and affiliation are not always evident. Indeed, very few of these features in the region have been the subject of modern scientific investigation.

Upland Stone Mounds / Rock Cairns Description

McMichael (1965) documented five rock mound sites (46Ni10, 46Ni11, 46Ni32, 46Ni46, and 46Ni67), all of questionable origin, in Nicholas County. At the time of survey, it appears that no formal archaeological investigations were conducted at these sites. Although all five mounds were reported previously disturbed by locals, no artifacts from the sites were available to McMichael for study. Site 46Ni67 was typical of McMichael's findings. The stone mound was found on a low spur of a high ridge and was approximated to be 7.6 m (25 ft) in diameter and 0.9-1.2 m (3-4 ft) tall.

In 1993, CRAI conducted a Phase II investigation of a possible stone mound at 46Ni163 that had been bisected by mechanical grading (Hand 1993). Like 46Ni731, which is discussed below, a scatter of prehistoric lithic debris was found in association with the rock feature at 46Ni163. The possible mound was tested by three 2-x-2 m (6.6-x-6.6 ft) test units. Results were inconclusive. While prehistoric lithic debris was recovered within the mound fill, evidence suggested that this material had been re-deposited by mechanical grading. No evidence of human remains or other types of cultural material was recovered. Because the origin and function of the rock feature was not determined, the "mound" was recommended not eligible to the NRHP (Hand 1993).

Recently, on a different project completed for a proposed surface mine permit in Nicholas County, CRAI documented a stone mound-like feature (46Ni731) associated with a widely dispersed, low-density prehistoric lithic scatter. The potential prehistoric stone mound consists of a partially collapsed or disturbed dry-laid stack of natural tabular sandstone that appears to rest on a low earthen mound, with soil intermixed near the base of the stacked rock. Overall, the potential mound is oval in plan and measures approximately 1 m (3.3 ft) in height, 2 m (6.6 ft) in width, and 3 m (9.8 ft) in length. Further investigation was recommended to attempt to establish the origin, function, and cultural/temporal affiliation of this rock structure (Baker 2008).

Other examples of documented prehistoric stone mounds in West Virginia include 46Bo26, the Gore Mound (Wilkins 1977), and a brief mention of two "rock heaps" located in Mason County (Thomas 1985 [1894]:435). An Early Woodland siltstone-tempered Montgomery Incised jar was recovered in association with a cremation at 46Bo26, and one of the two "rock heaps" documented by Cyrus Thomas contained a protohistoric burial with grave offerings of an iron hatchet and glass beads (Thomas 1985 [1894]:435).

Additionally, 46Su18 was reported to contain two low, truncated pyramidal rock mounds 45 m (147.6 ft) apart, each encompassing 5.6 m^2 (18.4 ft^2) and exhibiting heights of 1.5 m (4.9 ft) (Fuerst 1981:56; Solecki 1949:355; c.f. Pollack and Crothers 2005:41). According to David Fuerst, these stone mounds, although never verified, have probably been destroyed by development; however, Marshall and Fuerst's (1985) survey of mainly bottomland localities in western Summers County, West Virginia, recorded new mounds constructed of stone (e.g. Pilot Ridge Mound Complex, which consisted of 47 small

rock mounds) (c. f. Pollack and Crothers 2005:128).

Fuerst (1981:95) suggested that the rock mounds in this region could be Armstrong Middle Woodland, although this relationship has yet to be determined. This contrasts with McMichael (1965:81, 86; 1968:27), who considered that the rock mounds/stone cairns he documented in Nicholas County were probably a Late Woodland phenomenon (c.f. Pollack and Crothers 2005:129).

Current research indicates that stone mounds/cairns have been identified in the Upper New River region, but their ages and cultural affiliations are not known. The stone mounds or cairns, occurring as single, small stone piles or as clusters recorded in Giles and Tazewell counties in west-central Virginia, have been assigned variously to the Late Archaic/Early Woodland, Late Woodland, or Protohistoric periods, or are of unknown cultural/temporal affiliation (MacCord 1988, c.f. Pollack and Crothers 2005:185-186).

Burial ceremonialism has been documented only for western Virginia (Pollack and Crothers 2005:131). There, habitation sites (i.e., base camps and smaller resource procurement camps) are linked with stone burial mounds (Blanton 1992:78-79; c.f. Pollack and Crothers 2005:131). The stone mounds in western Virginia consist of a stone cap over multiple linear pits that contain single interments representing discrete burial episodes. They occur in clusters in this region, on bluffs overlooking primary streams and on broad floodplains where most habitation sites are located (Blanton 1992:78-79; Gardner 1982:71; McLearen 1992:50-52; c.f. Pollack and Crothers 2005:131).

South of the New River in southwestern Virginia, no Middle Woodland mounds have been found, and the age and function of rock cairns that are present is not known (MacCord 1988; c.f. Pollack and Crothers 2005:132). They do not occur in clusters like those located further north, and at least two have produced artifacts dating later than the Middle Woodland (McLearen 1992:55; c.f. Pollack and Crothers 2005:132).

In contrast, a small stone mound located close to the mouth of the Big Sandy River in Boyd County, Kentucky, situated on a saddle overlooking a narrow tributary to Viney Branch, produced early Middle Woodland materials. A possible hearth, cremated remains, and two projectile point fragments (Untyped Corner Notched and a Big Sandy Side Notched) were radiocarbon dated between cal 890(600)210 B.C. and cal 800(400)1 B.C. (Aument 1985; c.f. Pollack and Crothers:123-124).

Kellar (1960:462-463) addresses the “stone mound problem” in the Ohio Valley, concluding that the presence of stone mounds is not an indication of population movement or intrusion of a new cultural element, nor do they represent a precursor of the mound tradition. Rather, it is likely that stone mounds, many of which appear to be Middle or Late Woodland in age, are a differential response within the general framework of the mound tradition, perhaps due in part to physiographic location, as concentrations of these sites are frequently found in regions that are somewhat isolated by rugged terrains within the same geographic distribution as earthen mounds (Kellar 1960:462-463).

Archaeological Study of Upland Stone Mounds / Rock Cairns

Because these features are so poorly understood, a primary goal of Phase I research will be to determine if stone features encountered have the potential to be prehistoric. Many historic and modern activities create similar features on the landscape. For example, it was common practice to clear rocks prior to and during cultivation. Rocks removed from the fields were often stacked in small piles or made into stone walls or fences. In addition, mechanical equipment used to construct roads and aid in logging and mining activities can occasionally produce rocky structures of similar size and form to stone mounds. Thus, an important goal of Phase I research would be to identify any evidence surrounding stone mound-

like features that would suggest they are the result of historic or modern activities.

In the absence of this evidence, it was recognized that these features would have to be treated as potentially prehistoric. Because stone mounds may contain human remains, it would, therefore, be necessary to recommend avoidance by proposed project developments. Indeed, in accordance with Beech Ridge's internal policies and the MOA, all attempts will be made to avoid impacting the possible location of any human remains within the direct APE. As such, a goal of fieldwork will be to define the aboveground marked extent of any mounds for avoidance by project activities.

Historic Site Potential

Again, the extant archaeological record for this portion of West Virginia is lacking concerning the presence of historic-period sites, although the Josh and Nancy Hart-Douglass Farmstead (46Gb443) has been inventoried within 1.6 km (1 mi) of the Beech Ridge Wind Energy Facility. Utilizing the historic context developed for the project by Sweeten and O'Bannon (2007), supplemental research, and a historic map review, the potential for historic-period sites to survive within the Beech Ridge Wind Energy Facility could be examined more thoroughly. The discussion presented below provides a brief overview of the types of historic-period sites that might potentially survive within the direct APE.

In summary, the two types of sites considered most likely to survive are the remains of farmsteads and rural cemeteries. It was also considered possible that the remains of a timber or logging camp might survive in the direct APE. As such, research contexts for these three resources types were developed.

In addition, some consideration was given to the possibility that resources associated with the coal industry and the American Civil War might survive in the direct APE. However, the potential that significant resources exist that are associated with either of these two contexts was considered low.

Farmsteads

The history of Greenbrier and Nicholas counties suggests that farmsteads were likely an important feature of the landscape, with agriculture the leading industry of the county. As previously discussed, the ruins of one farmstead have been documented within the vicinity of the project, and Sweeten and O'Bannon (2007) documented several extant farmsteads during their study of the indirect APE for the project.

Farmstead Description

Farmsteads are defined as "a complex of agriculturally related buildings, yards, enclosures, and special activity or use areas associated with the practices of farming" (McBride and McBride 1990:683). Farmsteads required land surrounding the main dwelling to support ancillary dependencies and activities. Common throughout the eastern U.S. during the nineteenth and early twentieth centuries, farmsteads were family-operated, self-sufficient units involved in a variety of agrarian activities, including raising and butchering livestock, and vegetable and grain production (McBride and McBride 1990). The farmstead model of settlement was perhaps the most common type of settlement in the rural eastern U.S. This model of settlement was employed by a broad spectrum of social, economic, and ethnic classes (Stine 1990). The farmstead model evolved during the nineteenth century and was largely abandoned by the early twentieth century.

Eller (1982) has suggested that the farmstead served as the backbone of the pre-industrial Appalachian economy. In Appalachia, farmsteads generally practiced what is known as forest or mountain farming. The mountain farmstead engaged in subsistence farming and was a self-sufficient economic unit designed to provide one family with all of the necessities of life (Eller 1982). Subsistence farming is defined as the ability to produce one's own sustenance and reproduce life (Lewis 1998). The degree of self-reliance required to sustain and reproduce life depended largely on how isolated mountain

farmers were from major routes of transportation and markets. The history of forest and mountain farmsteads has typically been divided into three phases: (1) antebellum, (2) late nineteenth and early twentieth century, and (3) decline and industrial transition (Smith and Updike 2006).

Phase I: Prior to the Civil War, agricultural production in the eastern U.S. focused on the farm household, where several generations of family members worked to maintain a self-sufficient environment based on a variety of production techniques. The small urban populations of the time did not require large-scale commoditization of farm products for mass distribution. Instead, the farmstead model was defined by a family-based agrarian lifestyle focused on local production (Rotman et al. 1998).

In antebellum southern West Virginia, farmsteads were scattered and often isolated by a highly dissected, rugged landscape. Early settlers developed an egalitarian two-class system of landowners and those who could not afford land (Waller 1988).

Early settlement usually occurred within gaps, coves, hollows, and valley meadows. Land ownership often terminated along ridgetops, with hillsides utilized principally for grazing, often by multiple families (Eller 1982). Hillsides were commonly perceived as public space and used to support open range livestock and foraging activities (Eller 1982; Lewis 1998). Hollows and coves were regularly chosen for settlement and cultivation as they contained the richest soils (Eller 1982). Descendants of early settlers would develop lands farther upstream. Farmers would typically choose to settle within as little as one-half mile of each other, creating small clusters of familial or community groups, although collections of more than just a few farmsteads were rare (Eller 1982). Families proliferated, intermarried, and developed complex kinship networks based on mutual reliance. Most early nineteenth-century mountain farmers produced for consumption only and did not generate the surplus cash required to purchase expensive machinery and/or goods such as fertilizers. Poor soils, steep slopes, and inadequate transportation to distant markets also hampered the ability to farm using standard techniques. In response, forest farming was adapted to suit the geographic and economic isolation. Land rotation, a technique developed by the Scots-Irish, was practiced

Early homesteads were usually single-pile, one-bay, gable-roofed log buildings. By the 1830s, one and two-story frame single-pile and irregular massed dwellings were customary (Eller 1982). Between 1820 and 1850, the white population in West Virginia increased from 177,000 to more than 300,000, and the population grew by another 75,000 in the 1850s (Unrau 1996).

As discussed by Sweeten and O'Bannon (2007), Phase I farming did not occur with great frequency in Nicholas County until after the Civil War, given its highly dissected, rugged, and isolated location from established routes of transportation. However, early settlement did occur by homesteaders who would establish their right to land by clearing and farming it. The research completed by Sweeten and O'Bannon (2007) suggested that during this time, double-pen log homes with exterior-end chimneys were the most common form of housing, and that farmers also worked as craftsmen to supplement their incomes.

Greenbrier County was reported to be a wilderness during the early nineteenth century, with most early settlers participating in subsistence and stock farming. Early clearing is reported in the lowlands, which allowed feed grasses to proliferate (O'Bannon and Sweeten 2007).

Phase II: During the late nineteenth and early twentieth centuries, frame homes and a form of architecture called "Box" homes or "Jenny Linds" increased in popularity (Eller 1982).

Forest farming was viewed by contemporaries outside of Appalachia as an archaic and inefficient means of agricultural

production, and mountain farmers were often considered ‘unscientific’ or ‘slovenly.’ However, techniques chosen by mountain farmers were cost and labor efficient considering the heavily forested, steeply sloped, labor scarce, and isolated environment in which they operated. Despite the advantages of forest farming, it had a low ceiling in terms of productivity (Lewis 1998).

Following the Civil War, Appalachia had one of the highest birth rates in the country (Eller 1982). As the population grew, it put a strain on the ability of the mountain farmer to keep large tracts of land fallow for 20 or more years. Premature clearing and cultivation led to soil exhaustion, low crop yields, and erosion.

The slow development of adequate transportation hampered the ability of the mountain farmer to practice more modern agricultural practices (Eller 1982). This was reportedly a major problem in Nicholas County (Sweeten and O’Bannon 2007). While grain and produce production continued to be a necessity, the mountain farmers primarily became stockmen as the nineteenth century progressed. Livestock provided the farmer with the means to participate in a market economy on limited basis. For example, flocks of 300 to 500 wild turkeys were commonly collected in the autumn and sold at market for three to five cents per pound. Mountainsides also provided excellent grazing land for hogs with an abundance of nut-bearing trees, sprouts, and roots. In 1880, over 1,000,000 hogs were raised in the mountain counties of southern West Virginia and its neighboring states. The majority of these hogs were sold or traded for merchandise (Eller 1982).

Cattle did not fare as well in the thickly forested canopies, and few mountain farmers could afford extensive open grazing lands, especially in the dissected uplands of southern West Virginia. Thus, it was common to burn the forest floor during the winter to reduce the understory and parasites, and increase grass growth at the same time. The gathering of herbs and roots for medicinal purposes was also an important economic activity of the mountain farmer. Ginseng, yellow-root, witch hazel, sassafras, galax, golden-seal, and bloodroot were routinely exchanged with local merchants for store goods. In turn, these goods were dried and shipped to large East Coast markets for distribution (Eller 1982).

Agricultural pursuits continued to thrive in the state following the Civil War. The average size of a farm in 1869 was 214 acres. In West Virginia, over 2,600,000 acres of farmland were improved and/or under cultivation. The total value of West Virginia farms was in excess of $100,000,000, and the value of farm products was more than $23,000,000. By 1879, the number of farms in West Virginia had increased to 63,000 and farmland increased in value by more than $31,500,000. However, the average farm size decreased from 214 to 173 acres because of rapid population increase. As the railroad slowly penetrated portions of West Virginia during the late nineteenth and early twentieth centuries, application of commercial fertilizers increased 300 percent. In 1900, agriculture was employing 151,000 of the 326,000 employed people in the state. West Virginia had 93,000 farms, 78 percent of which were owned by their operators. Nearly 5,500,000 acres (31 percent) of all of West Virginia was under cultivation. The total value of farmland was valued at just under $204,000,000 in 1900. Approximately $30,000,000 of this value was tied to livestock (Unrau 1996).

Greenbrier County’s agricultural economy certainly flourished during this period. Sweeten and O’Bannon (2007) report that the county stood at or near the top of agricultural productivity in the state during the mid-1890s, with cattle, sheep, and poultry the most common livestock. The completion of the Chesapeake and Ohio (C&O) railroad in 1873 through the county helped to link Greenbrier County farmers to other markets.

Phase III: Following the Civil War, the economy of the eastern U.S. began to shift toward manufacturing, as technological changes enabled a competitive industrial market to grow.

With this shift came a large demand for labor and an increase in population. Urban centers began to grow, pulling in poor rural farmers with the enticement of better paying manufacturing jobs. Industrialization also created a greater need for fossil fuels, resulting in the growth of rural industries such as coal mining. Such changes affected the value of land, which became commodified in terms of resource allocation and redistribution in order to feed this new urban-based market. This market was fueled by competition and the need for mass quantities of labor, as well as mineral and agricultural resources. Self-sufficient farming units became undesirable as huge new markets demanded large-scale production. Most poor farmers could not meet the capital needs required to begin large-scale farming. As a result, many sold their land and moved to urban centers seeking manufacturing jobs (Rotman et al. 1998).

In Appalachia, including southern West Virginia, timber and coal resources were in great demand during the late nineteenth and early twentieth centuries. During the late nineteenth century, writers from east coast cities published articles on trips they had taken into Appalachia, and gushed about Appalachia's amazing reserve of timber and mineral resources in close proximity to one another. In the 1870s, Appalachia's resources were advertised for its prospective qualities as part of Reconstruction (Eller 1982).

In the 1880s, absentee land developers, speculators, and industrialists altered the social and economic landscape of southern West Virginia in terms of land ownership. Early speculators were often veterans of the Civil War who had traveled through the region and became familiar with its wealth of resources. In the late 1880s, Colonel Alexander McClintock of Lexington, Kentucky, created a minor land boom in Mingo, Logan, Raleigh, and McDowell counties by purchasing major tracts of land in anticipation of the arrival of the railroad. Other speculators were agents paid by northern interests (Eller 1982).

In 1900, for the first time in state history, the value of industrial products exceeded that of farm products by nearly $30,000,000. Between 1900 and 1910, the number of farms increased by nearly 4,000, but the total acreage under cultivation decreased by more than 600,000 acres. As land speculators drove up prices, the value of farms increased nearly $100,000,000 during the first decade of the twentieth century. Between 1911 and 1920, the amount of farmland declined by 450,000 acres, and the number of farms decreased by more than 9,000. However, the value of farm property once again grew more than $180,000,000 (Unrau 1996).

By 1900, when the railroad entered many portions of West Virginia, land ownership changes led to land use changes as large-scale timbering and mining operations began to proliferate. The loss of access to adjacent lands and the addition of large amounts of new labor in industrial communities limited the ability of the farmer to leave tracts of land fallow for long periods of time (Eller 1982). The advance of railroads and towns required 'fence laws' that limited the range of livestock that once roamed free and strained the concept of public lands. Lawsuits against trespassing also increased during this period as timbering began (Williams 2002). However, in 1900, nearly 80 percent of Greenbrier County's residents were engaged in agriculture or related fields (O'Bannon and Sweeten 2007).

While the arrival of the railroad might have helped mountain farmers from southern West Virginia access distant markets to participate in a mercantile economy, the economic loss from the destruction of property and livestock by locomotives outweighed the benefits. While the railroad could ship goods like corn and livestock to market, it also brought in large quantities of cheaper goods that undermined the ability of the farmer to compete in the local market. The railroad also raised property values, and in turn, raised property taxes that forest farmers could not afford to pay (Williams 2002).

Other mountain farmers were happy to part with land for cash and/or join the ranks of

industrial workers to help sustain their agrarian lifestyle. The railroads, new commercial towns, and coal and lumber camps offered many amenities sought by the younger generation of mountain farmer, including public utilities (e.g., running water, electricity), movie theaters, department stores, paved roads, institutional education, clubs, and taverns. No doubt mountain farmers had contact with new merchant goods brought by the railroads at general stores; however, most lacked the capital to purchase large quantities of goods and jumped at the opportunity wage earning jobs would afford them (Williams 2002).

Research recently conducted at 46Lg198 in Logan County, suggests that some mountain farmers displayed not only the ability, but also the desire to shift their performance strategies to take advantage of new economic opportunities. This research further suggested that mountain farmers that stayed in the region and worked with or for newly arrived industries had a distinct economic advantage over other industrial workers, in that they owned their own lands and thus were not solely dependent on their employers for subsistence (Smith and Updike 2006).

Farmers and farming communities reacted, interacted, and adapted to the railroad and associated industries in various ways. Nevertheless, the result was that many small mountain farmsteads established during the nineteenth century were abandoned and sold. Those farmers that remained found themselves surrounded by unfamiliar neighbors and new communities constructed to provide the infrastructure required to sustain the timber and coal industries' large labor demand. Thus, shortly after the turn of the century, industrial growth led to enormous population booms and significant socioeconomic changes that forced the almost complete abandonment of the mountain farmstead in southern West Virginia (Eller 1982).

Conversely, Greenbrier County has maintained a strong agricultural community, even though the number of farms dropped roughly 33 percent between 1950 and 2002. The majority of farmsteads still operating in the county are located along valley bottoms, with upland ridges primarily utilized for timbering and recreational hunting (Sweeten and O'Bannon 2007).

Archaeological Study of Farmsteads

If farmstead remains survive, they might provide a particularly good archaeological dataset for studying the lifeways and processes associated with "ordinary people," who are often forgotten in history. Specific lines of inquiry for the study of farmsteads have focused on three major topics.

First, because the farmstead is seen archaeologically as a window to view lifeways of those obscured in written history, studies to identify patterns of intra-site structure of activity areas, use and disposal patterns, and landscape use and design have become popular (Aument 1986; Fiegel 1989; Huser et al. 1993; Kerr et al. 1990; Redmond and Hughes 1990).

Second, because farmsteads were occupied and used by a broad spectrum of social, ethnic, and economic classes, studies have focused on establishing material correlates, using both specific artifacts and site structure to differentiate levels of stratification (Rotman et al. 1998; Smith 1998; Stine 1990; Wagner 1995).

Finally, the study of farmstead abandonment, associated with significant socio-economic changes in American society during the turn of the nineteenth/twentieth centuries, is commonly attempted archaeologically. Studying changes in farmstead landscapes, as they were phased out as agricultural models of settlement, are thought to provide insights into the effects of industrialization of society on the rural class (Rotman et al. 1998; Stine 1990).

However, as with all types of archaeology, conducting historical archaeology of farmsteads requires that the contributing elements retain a certain degree of physical and contextual integrity in order to address research interests. As each is defined as part of a landscape that incorporates many components of farming, the

archaeological studies of these resources require that they retain a high level of integrity. This is to say the landscape must be extant, or still discernable. In order to address issues of site structure, stratification, and industrialization, archaeologists must be able to revive the farm complex as a whole. The individual components of these resources offer minimal analytical value without understanding the context from which they were derived. And that context is derived from the relationship between individual components of the larger complex.

In addition, because each of these lines of research focuses heavily on material analysis, it is important that site deposits retain a high degree of physical and contextual integrity. Thus, if farmstead remains were encountered, a primary goal of the Phase I study would be to document the extent and integrity of each site.

Farmstead Potential

A portion of the direct APE may have been occupied during the nineteenth century. However, it should be noted that settlement patterns of the area indicate that early settlement in Greenbrier and Nicholas counties would have focused along stream valleys. The preference for valley and hollow settings for occupation was driven by the abundance of fertile soils, and the convenient access to water, food resources, and transportation routes. However, given the broad nature of the ridgelines in the area, upland settings would have provided opportunities for livestock grazing. The channery nature of upland soils would have impeded cultivation, but not prevented it. However, the utilization of areas for grazing and/or cultivation rarely leaves behind significant archaeological signatures. Often evidence of habitation is required to provide important archaeological data.

A review of early twentieth-century maps (Figures 6 and 7) indicates very little development within the direct APE, although limited evidence for rural buildings believed to be farmsteads does exist, especially along creek bottoms. This is not surprising, as historic contexts for the region suggest that during late nineteenth and twentieth centuries, upland portions of northern Greenbrier County and all of Nicholas County were exploited heavily for their timber, coal, and gas resources. Indeed, most of the project vicinity is thought to have been under lease to several nearby timber companies during this period and were being actively clear-cut. Mining also took place in and around the community of Clearco, and the most recent USGS map of the region and a search of WVSHPO files suggest that limited surface mining has taken place along the top of Beech Ridge and its surroundings. These activities would have likely limited the amount of farming that would have taken place during the early twentieth century.

Unlike many counties, the agricultural economy of Greenbrier County continued to flourish following the industrialization of the region. Thus, the direct APE may have been utilized following the clear-cutting and mining activities that took place during the early twentieth century. While both of the activities often depleted soils of the organic material required for cultivation, the cleared ground may have been ideal for stock farming. However, most of the project vicinity has remained under the ownership of the West Virginia Mead Westvaco, and its predecessors Westvaco and the West Virginia Pulp and Paper Company, who manage and continue to harvest upland timber.

Rural Cemeteries

While, no historic-period cemeteries are known to exist within the direct APE, rural cemeteries are a common feature of the Appalachian landscape, and many are found in upland settings, abandoned, and no longer maintained. Therefore, the potential for rural cemeteries to survive in the direct APE could not be ignored. To aid in the development of a methodology that would allow for adequate Phase I level examination of the possible rural cemeteries, a research framework was established for rural cemeteries.

Rural Cemetery Description

For many families, the part of the land deemed sacred and spiritual was the cemetery. The cemetery was a place set apart from the domestic activities that consumed daily life. Very often, a fence would define the space, and the spiritual or religious character of the setting was reinforced through the orientation of the graves and the use of mortuary emblems that expressed a certain hope in eternal life and everlasting union with God.

In many cases, the economic, domestic, and spiritual qualities of the landscape are present, either above or below the ground. As a result, a cultural historic assessment of a cemetery should take into consideration the potential influence each of these factors have on the potential to yield information.

During the late seventeenth and eighteenth centuries, American views of death changed dramatically and were partially stimulated by the westward expansion of pioneer families into areas previously unoccupied by Euro-Americans. A dispersed settlement pattern emerged during this period, with pioneer populations scattered among rural farms and plantations. The dispersal of pioneer populations across the landscape led to the use of small family burial plots within large rural landholdings (Bachman and Catts 1990; Stilgoe 1982). European traditions, in particular those of British Protestants, held that the dead should be buried in community burial grounds close to churches. With the dispersal of pioneer populations across frontier America, this was not possible, as churches were often not built until a community was established (Habenstein and Lamers 1955). The use of small family burial plots was a well-established American practice by the late eighteenth century (Sloane 1991). The family burial plots at George Washington's Mount Vernon and Thomas Jefferson's Monticello are well-known examples of this type of cemetery.

Family cemeteries tended to develop in rural areas in which a local church had not been established. Over time, and as settlement in an area intensified, families other than the founding family interred their deceased in the same general location. These small cemeteries evolved gradually as people moved away from or into the area. The cemetery eventually became more communal, eventually containing several generations of extended family or several non-related families. The family cemeteries were often abandoned once a church with a sanctified cemetery was accessible.

Single-family burial grounds are more common in the rural South than the North and most likely originated on the grounds of plantations and/or farmsteads, where owners were often buried on their property (French 1975).

The locations of rural southern cemeteries may also have been influenced by fears of the danger of contamination from dangerous diseases such as cholera, diphtheria, smallpox, and yellow fever, which were common on the American frontier from the seventeenth through nineteenth centuries. In rural West Virginia, cemeteries are commonly found along moderately sloped hillsides or benches, leaving more fertile and flat land along valley floors for domestic occupation and agricultural development.

Common grave-markers found in West Virginia include both formal and informal head and footstones. Often, rough-shaped fieldstones were used. Yucca is a common planting within cemeteries in the region, although it is not exclusively used in that setting.

Rural cemeteries are often arranged spatially to reflect the Anglo-Christian burial tradition. Individuals are aligned with their heads to the west and feet to the east, enabling them to rise up and meet Jesus during the Second Coming as he arrives from the east, or to hear Gabriel's horn from that direction (Jordan 1982). Those committing unforgivable sins, such as suicide or murder, were occasionally aligned north to south as punishment. Wives were placed to the left of their husbands, following the Judeo-Christian account of Creation (Eve created from the left rib of Adam) (Jordan 1982).

Burial arrangements in rural cemeteries are usually in family clusters and rows. The family

cluster includes blood relatives, or those related through marriage, centrally located within the confines of a square or rectangular plot. Fences made of stone, brick, iron, wood, or bushes often border these plots (Jordan 1982). The row arrangement consists of related or unrelated individuals buried in a series. A mixture of both spatial arrangements can be seen in many cemeteries (Winchell et al. 1992). The mixture of arrangements may be attributed to the use of a cemetery by multiple families, or by later generations of the same family. The cluster arrangement of a founding family in a cemetery may have become outmoded with the interment of unrelated or distantly related individuals.

Archaeological Study of Rural Cemeteries

In accordance with the internal policies of Beech Ridge and the MOA, all efforts will be made to avoid any cemetery or human remains discovered in the direct APE. As such, the primary research goal of this study was to define the aboveground marked extent of the cemeteries only.

Rural Cemetery Potential

As previously stated, there are no known historic-period cemeteries within the direct APE, and none is charted on reviewed maps. However, most rural cemeteries are not included on historic maps. Because many small cemeteries become abandoned and overgrown, they become "lost" and are not depicted on more recent maps. Given the presence of nearby historic communities and possibly mountaintop farms within or adjacent to the project area, evidence for historic burials or cemeteries may exist within the direct APE.

Timber Camps

Reviewed information indicates that the direct APE has been systematically timbered repeatedly since the beginning of the twentieth century by logging, lumber, and milling companies. For example, the Raine-Andrews firm acquired more than 75,000 acres of timber near Cold Knob. The West Virginia Pulp and Paper Company also purchased a large tract of land in northern Greenbrier County for its timber. Indeed, much of the direct APE is still owned by its successor, Mead Westvaco. Nicholas County was full of small communities, each with their own mill that prospered because of local logging, including Richwood, Carl, Nettie, Leivasy, Hominy Falls, and Fenwick. These communities acted as mill towns, shipping centers, and service towns for nearby logging camps (Sweeten and O'Bannon 2007). While no mills or mill towns are known to have existing within the direct APE, it is possible that temporary timber camps were established.

Timber Camp Descriptions

To cut enormous amounts of timber and mill large quantities of lumber required a work force that exceeded southern West Virginia's native population. Therefore, labor was recruited from other states and from groups of newly arrived foreign immigrants. To accommodate the large influx of recruited labor, timber and lumber operators in the region adopted a previously little-used strategy of constructing and operating company-owned camps and/or towns in a frequency and manner not seen before (Eller 1982). These companies had little choice. As discussed previously, this area was sparsely populated prior to the coming of the railroad and did not possess the infrastructure required to accommodate the large influx of labor that timbering brought to this wilderness. Operators were often faced with the responsibility of providing housing and commercial needs to attract potential laborers (Smith 2004).

Two types of settlements, the logging camp and the mill town, are most often associated with the timber and lumber industries. The following provides an abbreviated description of typical logging camps.

The logging camp was planned to shelter and feed loggers in the woods, and was designed to conform to the temporary and fluid nature of the timbering industry. The logging camp best approximates Magnusson's description of the average company-operated coal town that supposedly had few amenities of ordinary

community life. Houses were described as having a dull uniformity in appearance and lacking running water and many ordinary conveniences found in more urban settings (Magnusson 1920). Unlike coal mining, which often extracted resources from the same location for years at a time, during the peak of the timber boom, forests were quickly denuded in a period of months. Efficiency required loggers and equipment to move periodically to chase the forest. Thus, logging camps often lacked many of the fixtures and conveniences even primitive coal communities were afforded.

In 1900, 407 logging camps operated in West Virginia with $4,757,919 in capital. Over 2,800 persons were employed in logging camps earning an aggregate salary of $898,387. Logging camps incurred $1,385,039 in expenses and produced saw-logs and other items valued at $3,333,531 (Unrau 1996). Based on archaeological evidence, the average logging camp usually measured less than 600 ft^2 and was laid out in a linear fashion along the railroad (Brashler 1991).

Before a camp could be established, the logging railroad had to be constructed. To cut and build the rail grades and lay the vast amount of railroad track required a sizeable work force. The majority of railroad builders from this period were Italian immigrants. Improvement crews were responsible for building and repairing log landings, skid ways, bridges, roads, and new logging camps. The camp was always placed directly adjacent to the railroad, as it was the only means of transportation available (Clarkson 1964; Lewis 1998). While each camp varied according to size and layout, a typical logging settlement contained a large bunkhouse with an attached kitchen, dining room, and lobby located on the ground floor and bunks placed on the upper floors. In some instances, a second bunkhouse for railroad crews was also built. Most bunkhouses were designed to accommodate between 50 and 100 men (Lewis 1998). Some camps incorporated multiple boxcar houses or shanty houses in lieu of bunkhouses. Boxcar houses incorporated architectural influences of the Jenny Lind house, using little or no framing and relying on lapped board on board planks for support. The boxcar house was typically 12-x-25 ft in size and placed on leveled or flattened locations (Brashler 1991). Other buildings included an office and quarters for the camp boss and another for the camp cook. Shops for blacksmithing and saw filing and coal, hay, and meat storage sheds were also common (Lewis 1998). Buildings in a timber camp were generally constructed of rough lumber or logs cut from the site (Julian 1984).

In West Virginia, log camp buildings were designed to be portable and easily moved from camp to camp by railroad (Brashler 1991; Lewis 1998). Early during the timber boom, camp buildings were designed to be taken apart and reassembled upon arriving at a new camp location (Julian 1984). Later, buildings were designed to be picked up by steam loaders and transported by rail to the next camp (Brashler 1991). Usually an entire camp could be moved within a few hours (Workman 1997).

Former West Virginia logging camp resident Stewart H. Holbrook described camp life as follows:

> I have known many logging camps, even loved some of them, and can readily call up the scene at it was in its heyday: the bunkhouse alive with familiar sights and sounds; the cookhouse with its great glowing range, the smell of new bread from the immense ovens; the blacksmith shop with its reek of coal gas and iron; the sidetrack where the Shay locomotive drowns the nights away; the pungency of free sawdust on the wind……while one hundred young single men came stomping down the walk, their calks clicking in the planks, heading for an incredible breakfast, a box of Copenhagen, then a thundering ride behind the rolling Shay, to where the big round stuff lay thick among the stumps [Holbrook 1964].

Each member of the camp had a highly specialized job, and each day was scripted to ensure work was completed as efficiently as possible. The camp foreman (bull of the woods)

was the absolute boss of camp life and reported directly to the general or wood superintendent of the timber company. The cook (bull cook or boiler) also received preferential treatment, having his own accommodations and receiving higher wages. The lobby-hog was charged with cleaning the bunkhouse and its lobby. The blacksmith's salary was second only to the foreman's and cook's. The loggers' (wood-hicks') chores were divided into functional categories. A typical cutting team consisted of a chopper, responsible for the initial cut to direct the direction of a tree's fall, two sawyers, who cut the tree with a 6.0-ft crosscut saw from the opposite direction of the notch, and several knot-bumpers, who trimmed limbs and knots along the trunk and nosed it for skidding. A typical crew of six members could cut and prepare 225 logs, or about 8,000 board feet a day (Clarkson 1964).

Prepared logs were then moved from the cut site to a landing for loading on railcars. Prior to 1910, it was the responsibility of one person (grab-driver) to connect logs lengthwise (log trails) for transport down the hill. After 1910, the mechanical Lidgerwood skidder was used by many timber operations. Early tractors were also used by timber camps to skid saw logs. Landings had integrated slanted platforms that rolled logs directly from the skid road onto a flat rail car. However, huge bottlenecks required logs to be decked and stacked and hand loaded later. Hand loading was labor and time intensive and not economical. The invention of the steam log loader in 1886 greatly improved this situation. From the landing, prepared logs were transported to a mill located in a more permanent community (mill town) (Clarkson 1964).

Archaeological Study of Timber Camps

Logging camps were industrial communities, which are by definition tied to the industry that they serve (Van Buren 2002a). This connection often distinguished them from more permanent communities, in that they frequently ceased to exist once the resource, in this case timber, was exhausted. Archaeological assessments of these communities focused on: (1) the spatial distribution of domestic and industrial components; (2) differences in economic status between community residents; (3) the roles and relationships of individuals and groups of individuals of different ethnicities and gender; (4) access to material culture; (5) evidence of tobacco or alcohol use; (6) food preferences; and (7) overall quality of life, as evidenced through sanitation practices and architecture remains (Hardesty 1988; Heberling 1987; Mrozowski 1991; Schenien 1988; Sussenbach and Updike 1994; Van Buren 2002b).

Archaeological investigations of logging camps have become the focus of historical archaeological investigations in the past 20 years as the discipline of industrial archaeology has matured. Past investigations have emphasized railroad logging systems as a thematic context for addressing several research questions concerning the industrial growth and socioeconomic status of, and consumer behavior associated with logging communities, including the reconstruction of foodway preferences (Elliot 1990; Franzen 1992; Rock 1986). Intensive archaeological investigations of logging communities in West Virginia have been rare. Brashler (1991) used reconnaissance field survey and historic accounts to examine the roles gender played at timber camps, identifying potential camp types based on gender makeup. Hulse (1989) excavated several company-owned worker houses in the railroad and timber community of Spruce. In 2005, CRAI conducted the only intensive archaeological investigation associated with a timber camp in West Virginia. The secondary dump site (46Lg198) principally utilized by members of the timber camp Helen, in northeastern Logan County, was investigated and provided invaluable data concerning the living conditions at the camp (Smith and Updike 2006).

Timber Camp Potential

Given the history of logging within the region, it is likely that small temporary camps were established near the direct APE. Indeed,

the remains of many timber camps have been documented in the nearby Monongalia Forest (Brashler 1991). However, unlike the national forest, the direct APE has been continually and systematically logged, and, to a lesser extent, impacted by other activities such as road building and surface mining. Indeed, the timber industry landscape is fraught with problems concerning archaeological visibility. The timber industry frequently utilized and then abandoned a location within a short period. These movements resulted in the formation of spatially scattered sites lacking subsurface and/or stratified deposits. Archaeological assemblages, therefore, tend to be tied to surface or near surface contexts. The surface nature of timber campsites makes them susceptible to a variety of destructive forces. The abandonment of camps often entails the removal of above ground structures and machinery. Furthermore, post-abandonment activities such as coal mining and timbering can destroy or obscure evidence for earlier industrial activities (Hardesty 1988). Thus, the potential to discover intact remains of a timber camp in the direct APE was considered moderate to low.

Coal Resources

Reviewed information indicates that the model mining community of Clearco stood within the direct APE. The community was established in 1929 by the Clear Creek Coal Company and sat at the head of North Fork Creek at the end of the Big Clear Creek subdivision of the C&O and New York Central Rail lines. However, as reported by Sweeten and O'Bannon (2007), Clearco has been destroyed by a later surface mining operation, which means it is unlikely any archaeological evidence of the community survives. Based upon extant information, it is suspected that the only evidence of previous mining that will survive in the project area will be disturbance related to contour and surface mining.

American Civil War Resources

As discussed in *Chapter V*, reviewed evidence suggests that a trace, referred to historically as the Cold Knob Mountain Road, was located near the direct APE and was utilized during the American Civil War. The exact route of this trace is unknown, but it is thought to correspond closely to CR 10 – 1 (Richwood/Greenbrier Roads) and perhaps also incorporated portions of CR 1-1 (Beech Ridge/Pole Roads). Both roads have been extensively improved and modified for use by the coal and logging industries, and it is unlikely that the exact location of the original trace could be determined at this time. As currently planned, the Beech Ridge Wind Energy Facility does not intend to significantly alter either county road.

Specific evidence suggests that this trace was utilized during the Sinking Creek Raid of 1862 and by the Jones Imboden Raid of 1863, as well as during other troop movements. Reviewed accounts do not suggest that significant actions associated with any of these events occurred on top of Cold Knob Mountain or in the direct vicinity of the direct APE. Instead, it appears that this area was principally utilized for troop movements.

Accounts of the Sinking Creek Raid of 1862 suggest that elements of both the U.S. Army infantry and cavalry camped at or near Cold Knob prior to raiding a Confederate Camp located in the Sinking Creek valley. Cold Knob is located approximately 952 m (3,123.4 ft) southeast of the direct APE. Further, according to the most recent USGS map, Cold Knob has been previously disturbed (Figures 2 and 3). The location of the Confederate encampment is reported to have been several miles south of the direct APE, below Cold Knob. Cold Knob Mountain road is mentioned only briefly during accounts of the Jones-Imboden Raid of 1863 as an access route.

Based upon a review of current data, it is unlikely that significant intact remains associated with the American Civil War would be encountered in the direct APE.

VII. METHODS

The direct APE was subjected to a standard Phase I archaeological survey. Methods were designed in consultation with the WVSHPO to conform to their guidelines (Trader 2001) and modified as necessary to take into account the physical nature of the project area.

Field Methods

The following field methods were employed during the Phase I archaeological survey. These methods were previously approved by the WVSHPO (Appendix B).

Identification of Survey Boundaries

Field personnel used Garmin GPSMap 60CSx Chartplotting receivers, henceforth referred to as units, and a Trimble GeoXH to verify locations in the field. Project boundaries provided to CRAI by Potesta were first plotted onto the USGS 7.5-minute Nettie, Richwood, Fork Mountain, Duo, and Trout, WV quadrangles using the track function in *Maptech Terrain Navigator* software. Maps for use with the units were downloaded from the Garmin MapSource Eastern United States Topographic Maps CD-Rom. The datum used by both packages of software was projected into Universal Transverse Mercator (UTM) coordinates using North American Datum 1983 (NAD83). The geo-referenced tracks created in *Maptech Terrain Navigator* were loaded directly onto the units and appeared as overlays on the Nettie, Richwood, Fork Mountain, Duo, and Trout, WV quadrangles.

The units were then used in the field to verify the boundaries of the project, the locations of archaeological deposits, and other cultural features. This effort was aided by the fact that significant portions of the survey area were staked. Upon returning from the field, the collected data was exported into an ESRI shape file for use within *ArcGIS* 9.2. This data was then processed and utilized to create project and site schematics for use in the final report.

Pedestrian Survey

Pedestrian survey was utilized to examine the surface of the direct APE for aboveground archaeological features including cemeteries, foundations, rock cairns, and artifact scatters. This method was used exclusively when clear evidence of disturbance was noted, slopes exceeded 20 percent, and/or soil and sediment exposure exceeded 75 percent. Attempts were made to conduct pedestrian survey in 15-m (49-ft) linear transects within the direct APE. However, pedestrian transects were altered to accommodate vegetative or topographic obstructions. In addition, field personnel were given the leeway to reduce or leave their prescribed transects if archaeological features requiring further examination were noted, or if field conditions require changes for safety reasons.

Shovel Probing

This method was used to sample subsurface contexts. Shovel test probes (STPs) were excavated only when evidence of disturbance was not evident and/or landforms with slopes visually estimated to be less than 20 percent were present. STPs were also excavated on slopes exceeding 20 percent if cultural resources were encountered or the potential for their presence was considered high (e.g., historic maps showing evidence of development; rock overhang encountered).

STPs measured no more than 50 cm (19.7 in) in diameter and extended into culturally sterile deposits or until rocks made further penetration impossible. Soil/sediment excavated from the STPs was screened through 0.64-cm (0.25-in) mesh hardware cloth to capture inclusions. When sediments and/or soils with the potential to contain intact and/or significant cultural resources were encountered, the STPs were excavated at approximate 15-m (49-ft) intervals.

However, when the excavation of STPs illustrated obvious evidence of previous disturbance, deflated and/or eroded soils, and/or soils with a low potential to contain NRHP

eligible archaeological sites, the interval between STPs was increased to spot check these areas for intact cultural deposits. Solid T-probes were also used, as appropriate, to identify contexts with a potential to contain intact cultural deposits. The greatest variance in the distance between STPs was on upland landforms where the potential for intact significant cultural resources to survive was greatly reduced due to erosion, deflation, and/or previous disturbance.

Site Identification

If archaeological deposits or materials were identified, more intensive pedestrian survey and/or shovel testing was conducted to: (1) define horizontal and vertical boundaries, (2) recover a representative sample of artifacts, and (3) obtain information for contextual integrity. A site plan map was made and the area photographed. The location of each site was recorded using GPS units capable of sub-meter accuracy. Site locations were plotted on the appropriate USGS 7.5-minute quadrangle using geo-referenced data stored in GPS units.

Cemetery Identification and Human Remains

Cemeteries or graves identified during the survey were documented. This work was completed through the creation of plan drawings, photography, and grave marker recordation. The marked boundary is defined as the maximum extent of identifiable grave markers. As such, CRAI sought evidence for all potential grave markers. Areas immediately adjacent to the marked boundaries of cemeteries were also examined for additional grave markers, grave shaft depressions, decorative plantings, and/or other landscape features often associated with historic cemeteries (e.g., roads, signs, fences, etc.). CRAI's attempts should be considered a good-faith effort, but may not reflect the true extent of human burials. The location and extent of any identified graves or cemeteries was documented using GPS technology.

Invasive subsurface testing at possible cemeteries was not conducted to avoid the possibility of disturbing human remains. If human remains had been discovered during fieldwork, the WVSHPO would have been contacted within 48 hours of discovery in compliance with W.Va. Code §29-1-8a.

Field Documentation

Project area conditions and survey results were recorded using a combination of notes, sketch maps, and high-resolution digital photography.

Laboratory Methods

Data generated during the analyses of artifacts recovered from the direct APE were used to complete final copies of the West Virginia Archaeological Site Form for identified sites (Appendix C). Primary goals of analysis were to facilitate a better understanding of the cultural, temporal, and functional dimensions of sites recorded during the field phase of investigation. In turn, this information was used in evaluating the NRHP eligibility of sites. Specific methods and techniques are discussed below.

Artifact Processing

Artifacts with stable surfaces (e.g., lithics) were washed by hand with toothbrushes and warm water. Artifacts that lacked stable surfaces (e.g., rusted metal) were dry brushed using a soft-bristle toothbrush.

Prehistoric artifacts were sorted into several general categories (e.g., flake debris, modified implements). Then using a computer-coding format developed by CRAI, attributes of each artifact were recorded. The data were then entered into a database allowing for manipulation and interpretation. These specific procedures are discussed in more detail in following sections.

Artifacts being held for curation were processed and catalogued in a manner consistent with *Guidelines for Submitting a Collection to the Archaeological Collections Facility of West Virginia*, prepared by the West Virginia Division of Culture and History in 2001. Artifacts and

attendant documentation are being temporarily stored at CRAI's Hurricane office. Upon acceptance by the Curator, the materials will be transferred to the Grave Creek Mound Archaeological Complex at Moundsville.

Prehistoric Lithic Analysis

Prehistoric artifacts recovered during the Phase I survey consisted entirely of lithic artifacts.

Flake Debris Analysis

Flake debris is defined here as lithic waste flakes that exhibit evidence of intentional removal from a parent piece, but exhibit no evidence of further modification or use. Flake debris is a useful indicator of prehistoric site activities because (1) it occurs in large numbers on most sites, (2) it exhibits evidence of the state of manufacture in which it was produced, and (3) unlike modified implements, it is usually deposited at the site where it was generated.

The analysis of flake debris provides information concerning prehistoric lithic technology and aids in determining site use in conjunction with other analyses. However, because it is not culturally or temporally diagnostic, its value for addressing research questions at multi-component, non-stratified-surface sites is great reduced. A simple attribute analysis was used to classify the flake debris. The analysis involved recording several attributes, including the size grade, count, weight, and raw materials.

The first step was to sort material into several general artifact categories (i.e., flake debris, cores, modified implements, and FCR). Next, the flake debris was size-graded by passing flakes through a series of nested geological sieves of varying mesh sizes of 25.0 mm (1 in), 19.0 mm (3/4 in), 12.5 mm (1/2 in), and 6.3 mm (1/4 in). All flakes were hand-manipulated through the screen. If a flake could fit through the mesh in any direction, it was included with the size below the upper mesh.

All flakes greater than 1/4 inch were examined using the above attributes. Due to the use of 1/4-inch screens in the field to screen the soil excavated from STPs, flakes less than 1/4 inch in size were not recovered in the field and/or recorded. Therefore, during the laboratory analysis, the presence of any flake debris less than ¼ inch in size was interpreted as the result of post-excavation breakage. For this reason, these flake fragments were considered to have no analytical value and were excluded from the analysis.

After being size graded, the flake debris from each size grade was separated by raw material then counted and weighed. The final step consisted of recording attributes of these artifacts into a computer-coding format. All artifact codes were entered into an *Access* database table.

Cores and Core Tools

Cores are defined as nodules or blocks of toolstone that have negative flake scars (previous flake removals) across at least one face. Core tools are cores that show evidence of use other than a source of flakes. For cores and core tools, flaking orientation is the main attribute recorded. Flaking that was in one direction from a single margin is classified as unidirectional. Bidirectional flaking is described as flake removals from two directions, but not bifacial. Multidirectional cores have random flake removals from several directions. This type has also been called amorphous core by other analysts (e.g., Faulkner and McCollough 1973:80; Johnson 1986). Flake removals that form a bifacial margin are termed bifacial. The edge angles on these specimens are greater than 60^{o}. Cores that were conical in shape with flake removals in one direction are termed unidirectional subconical (i.e., blade core). Bipolar cores are those that exhibit evidence of bipolar reduction techniques. Such cores often exhibit evidence of force being applied from two opposing faces and crushing along the striking platform. Indeterminate orientation is reserved for fragmented cores where the flaking orientation was not determinable.

In addition to the primary attribute of flaking orientation, a secondary attribute was

also recorded. This was used to differentiate between cores, core fragments, and tested cobbles. Simply defined, cores have in excess of three flake removals while tested cobbles exhibit three or less flake removals. Core fragments are portions of cores that have been truncated.

Raw Materials

Raw material type was determined as to parent geological formation when possible. An indeterminate category was also employed for lithic artifacts that could not be assigned confidently to a parent geological source. Determination of raw material type was made using published descriptions and by comparisons with a sample collection of locally occurring chert housed at CRAI. The examination of raw materials used in chipped stone manufacture is important for several reasons. As Binford (1979:260) noted, variability in the proportions of raw material at a site is a function of the scale of the habitat exploited from that location. However, the proportions of raw materials recovered from a site likely represent only the minimal extent of a group's annual range (Ingbar 1994). Given the differential quality and distribution of available raw materials, there is potential for overall differences in their use. A number of raw materials may be sufficient for chipped stone tool production, however, "certain materials may be chosen over others because of differences in mechanical efficiency at hand" (Beck and Jones 1990:284).

The region surrounding Greenbrier and Nicholas counties could be considered raw material rich as there are several chert sources of suitable quality for tool manufacture are present. Greenbrier County is situated within a general area with abundant chert derived from the Mississippian Greenbrier formation; Greenbrier/Hillsdale cherts, and Devonian Helderburg Limestone formation: Helderburg cherts (see Brashler and Lesser 1990, and *Chapter II*). To the north in Nicholas County, expensive outcrops and residual deposits of Kanawha chert are documented.

Historic Artifact Analysis

Prior to classification and analysis, the artifacts were cleaned and sorted into gross categories (e.g., glass, metal, ceramics, etc.) by provenience. The analyst then assessed the materials, creating a record for each item and grouping the individual items into a modified version of a scheme originally developed by Stanley South (1977).

South believed that his classification scheme would present patterns in historic site artifact assemblages that would provide cultural insights. Questions of historic site function, the cultural background of a site's occupants, or regional behavior patterns were topics to be addressed using this system. At first, South's system was widely accepted and adopted by historical archaeologists. However, more recently the system has been criticized by some on theoretical and organizational grounds (Orser 1988; Wesler 1984). One criticism of South's pattern recognition system is that the organization of artifacts is too simplistic. Most archaeologists, however, recognize the usefulness of his classification system to organize data.

The classification scheme that was originally developed by South (1977) has subsequently been revised by numerous authors, including Stewart-Abernathy (1986), Orser (1988), and Wagner and McCorvie (1992). The scheme used for this report groups artifacts into the following categories: Architecture, Arms, Domestic, Industrial, Furnishings, Maintenance and Subsistence, Transportation, Communication, Personal, Clothing, Mortuary, Floral, Faunal, Miscellaneous, and Other.

Grouping artifacts into these specific categories makes it more efficient to associate artifact assemblages with historic activities or site types. Each of the groups represented by artifacts recovered from the Project is discussed in turn below.

Temporal information for the artifacts is derived from a variety of sources. However, the citations for beginning and ending dates need

some clarification. Usually, an artifact has specific attributes that represent a technological change, an invention in the manufacturing process, or simple stylistic changes in decoration. These attribute changes usually have associated dates derived from historical and archaeological research. For example, bottles may have seams that indicate a specific manufacturing process patented in a certain year. The bottle can then be assigned a "beginning date" for the same year of the patent. New technology may eliminate the need for the same patent and the bottle would no longer be produced. The "ending date" will be the approximate time when the new technology takes hold and the old technology is abandoned.

With regard to ceramics, specific styles of decoration are known to have changed through time. Researchers have defined beginning and ending dates for their manufacture. South's (1977) mean ceramic dating technique uses this information. However, the dates presented in this report should not be considered absolute, although they are the best available estimates for age. The rationale for presenting dates is to allow for a more precise estimation for the duration of occupation, rather than the mean date for occupation.

Archaeological specimens recovered from the excavations were analyzed using an *Access*-based data entry program, *CRAI Cultural Material Management System*. It has two main functions. The first is a data entry function whereby an individual record is created for each artifact. Each record includes fields for provenience, functional group, and artifact type and class. Other attributes including window glass thickness, nail pennyweight, and ceramic decoration, are entered into the system. The database program also maintains a dating function, drawing from a reference list to provide a minimum and maximum date for the artifact when applicable.

Once data for the artifacts are entered into the system, the analyst can then query the database to provide a wide range of information for specific types or classes of artifacts, or the assemblage as a whole. The query function allows for information on the quantities and percentages of artifact types by provenience or functional group to be quickly tabulated and presented to the analyst. These tabulations can then be exported to *Excel*, *Word*, or *Surfer* programs to generate data tables or distribution maps for the assemblage.

Architecture Group

The Architecture Group is comprised of artifacts directly related to the built environment, as well as those artifacts used to enhance the interior or exterior of structures. These artifacts include window glass, nails, and construction materials such as brick, mortar, and plaster. Architecture Group items recovered from the Project are discussed below.

Nails

The majority of artifacts from the architecture group were metal nails. There are three stages recognized in the technological chronology of nails: wrought, cut, and wiredrawn. The only specimens identified during this study were wiredrawn. The first wiredrawn nails were introduced into the United States from Europe by the mid-nineteenth century. Early wire nails were primarily used for box construction and were not well adapted for the building industry until the 1870s. Although the cut nail can still be purchased today, it was nearly universally replaced by the wire nail around 1900 (Nelson 1968).

Window Glass

Each fragment of flat glass is measured for thickness and recorded to the nearest hundredth of a millimeter. Window glass measurements are made with Fowler Scientific Sylvac Ultra-Cal IV calipers interfaced with Gage Wedge Software. The difference between window glass and plate glass (used as shelving) is in part determined by the thickness and wear of the pane. Any glass thicker than 3.0 mm (0.12 in) is considered plate glass.

Window glass has been shown to increase gradually in thickness through time and can be a useful tool for dating historic sites. Several

dating schemes and formulas have been devised that use average glass thickness to calculate occupation dates. These include Ball (1984), Chance and Chance (1976), McKelway (1992), Moir (1987), and Roenke (1978). For the purposes of this project, Moir's formula: (Date=thickness in mm*84.22+1712.7) is utilized.

Arms Group

Items from the Arms Group represent guns, gun parts, and ammunition, including gunflints, shell casings, and lead bullets.

Domestic Group

Artifacts included in the Domestic Group consist of ceramics, glass containers, glass container closures, glass tableware, metal food containers, and utensils. The ceramic inventory consisted of a variety of refined earthenwares dating throughout the twentieth century. A full description of the ceramic types from the Project is listed below, followed by descriptions of other domestic group artifacts.

Domestic Ceramic Tableware / Cookware / Storage Vessels

Fragments of domestic vessels manufactured from refined earthenware, including ironstone and white ware were recovered.

Ironstone, highly refined, vitreous, opaque earthenware with a clear glaze, is often indistinguishable from whiteware. Ironstone differs from whiteware in that the body is more vitreous and dense and a bluish tinge or a pale blue-gray cast covers the body. In some cases, a fine crackle can be seen in the glaze (Denker and Denker 1982) although this condition is not restricted to ironstones. Confusion in the classification of white-bodied earthenware is further compounded by the use of the term as a ware type or trade name in advertising of the nineteenth century. Both ironstones and whitewares were marketed with names such as "Patent Stone China," "Pearl Stone China," "White English Stone," "Royal Ironstone," "Imperial Ironstone," "Genuine Ironstone," "White Granite," and "Granite Ware" (Gates and Ormerod 1982:8; Cameron 1986:170). These names do not imply that true ironstone was being manufactured. Some investigators avoid the distinctions entirely by including ironstones as a variety of whiteware, while Wetherbee (1980) adopted the opposite course, referring to all nineteenth century white bodied earthenware as ironstone. For this analysis, the primary determining factor in classification of a sherd as ironstone was the hardness and porosity of the ceramic paste. Sherds with a hard vitreous paste were classified as ironstone.

Charles James Mason is usually credited with the introduction of ironstone (referred to as Mason's Ironstone China) in 1813 (Dodd 1964), although others, including the Turners and Josiah Spode, produced similar wares as early as 1800 (Godden 1965). This early phase of ironstone production was instigated by British potters as a competitive response to the highly popular oriental porcelain. The ironstone of this early phase bears a faint blue-gray tint and oriental motifs much like Chinese porcelain.

A second phase of ironstone production was prompted after 1850 in response to the popularity of hard paste porcelain being produced in France. This variety of ironstone had a harder paste and reflected the gray- white color of French porcelains.

While some ironstone saw continued use of oriental design motifs, the general trend was toward undecorated or molded vessels (Collard 1967; Lofstrom et al. 1982 in Majewski and O'Brien 1987). Ironstone continued to be produced in England, and after 1870, it was manufactured by numerous American companies. Majewski and O'Brien (1987) report that by the late 1800s thick, heavy ironstones were losing popularity and began to be equated with lower social status (Collard 1967:135 in Majewski and O'Brien 1987). Its production all but ceased by the second decade of the twentieth century (Lehner 1980).

There was a shift to thinner, lighter weight ironstone between 1870 and 1880. This ironstone was popular in American homes during most of the twentieth century (Majewski

and O'Brien 1987). Heavy ironstone remained on the market, however, and was popular in both hotel/restaurant service as well as household use.

As a ware group, whiteware includes all refined earthenware exhibiting a dense, relatively non-porous, white to grayish-white clay body. Undecorated areas on dishes exhibit a white finish under clear glaze. This glaze is usually a variant combination of feldspar, borax, sand, nitre, soda, and china clay (Wetherbee 1980). Small amounts of cobalt were added to some glazes, particularly during the period of transition from pearlware to whiteware and during early ironstone manufacture. Some areas of thick glaze on whiteware may therefore exhibit bluish or greenish-blue tinting. Weathered paste surfaces are often buff or off-white and vary considerably in color from freshly exposed paste.

Most whiteware produced before 1840 exhibits colored decorations. These decorations are often used to designate ware groups, i.e., edge decorated, polychrome and colored transfer print. Most of the decorative types are not confined, however, to whiteware, and taken alone, are not particularly accurate temporal indicators or actual ware group designators (Price 1981).

The most frequently used name for undecorated whiteware is the generic "ironstone," which derives from an "Iron-stone China" patented by Charles Mason in 1813 (Mankowitz and Haggar 1957). For purposes of clarification, however, "ironstone" will not be used when referring to whiteware. Ironstone is theoretically harder and denser than whiteware produced prior to about 1840. However, since manufacturer variability is considerable, using paste as a definite ironstone identifier or as a temporal indicator is problematic. Consequently, without independent temporal control, whiteware that is not ironstone is difficult to identify, as is early versus late ironstone. For our analysis, the primary determining factor in classification of a sherd as whiteware was the hardness and porosity of the ceramic paste.

Domestic Glass Containers

Research by Baugher-Perlin (1982), Jones and Sullivan (1985) and Toulouse (1972) were used to date glass containers. Glass color was the only attribute used for dating fragments that could not be identified as to type of manufacture. The date of manufacture for identifiable bottles recovered was estimated through determination of the manufacturing process associated with the bottle and determination of patent or company manufacturing dates embossed on the bottle. Bottle types vary, although preliminary observations suggest that pharmaceutical forms appear to dominate the assemblage.

The manufacturing process of domestic glass can be roughly divided into two basic groups including molded (BIM) and machine manufactured (ABM) vessels (Baugher-Perlin 1982). The only glass recovered was machine-made.

The Owens automatic bottle-making machine was patented in 1903. Bottles of this sort had distinctive seams running up the length of the bottleneck and exhibited valve marks and suction scars. The automatic bottle machine (ABM) mold provides a firm manufacturing date at the beginning of the twentieth century.

Glass color was recorded, although there is some subjectivity inherent in this classification. As Jones and Sullivan (1985) remark, glass is either colored by chemicals as natural inclusions or added by the manufacturer. The concern here was primarily to note the presence of purple or "amethyst" glass and "milk" glass.

Amethyst glass began to be manufactured around 1880, according to Munsey (1970), when magnesium was added to the glass recipe. Glass with magnesium present will turn a purplish color when exposed to sunlight. Milk or white glass has been manufactured as long as glass has been made, but milk glass became common as it was used in "containers, tablewares and lighting devices" in the late nineteenth through twentieth centuries (Jones and Sullivan 1985). Blue glass is another color that had great popularity in the

later nineteenth century. Clear glass came into demand with the growing public desire to see the contents of bottles and was more popular in the late nineteenth century (Baugher-Perlin 1982).

Domestic Container Closures

Bottle closures serve both to prevent the spilling of a bottle's contents and to protect contents from contamination and evaporation (Berge 1980). Closures have been in use almost as long as skins and bottles have been used to contain liquids. Closures range from a utilitarian piece of paper or cloth stuffed into the mouth of a bottle to a delicately crafted crystal stopper for a decanter. There are three primary closure types: caps, stoppers, and seals (Berge 1980).

As will be discussed, a Mason jar liner was recovered. The disc seal was used as early as 1810 by Nicholas Appert (Berge 1980). John L. Mason's patented fruit jar used this type of closure in 1858 (Berge 1980). Mason's closure was made of zinc and was held in place with an exterior screw cap ring. Unfortunately, the zinc reacted with the contents of the jars, giving the contents an unpleasant metal taste (Jones and Sullivan 1985). Glass liners were developed and added to the disc around 1869 by Lewis R. Boyd (Toulouse 1969a and 1977). These liners prevented the zinc from reacting with the contents of the jar. Mr. Boyd added a handle to the disc to aid in its opening around 1900 (Toulouse 1977). Both disc seal types were used until around 1950 (Toulouse 1969b and 1977, Jones and Sullivan 1985). In 1865, the Kerr two-piece seal was patented. This system utilized a metal seal disc held in place by an exterior screw cap with no center. This seal and cap type system is still in use.

Maintenance and Subsistence Group

The Maintenance and Subsistence Group contains artifacts related to general maintenance activities. These artifacts are grouped into classes of farming and gardening, hunting and fishing, stable and barn activities, and fuels such as coal. General hardware items are included in this category, as well as engine parts, electrical components, and non-food containers.

Unidentified (Miscellaneous) Group

This category contains artifacts that could not be identified beyond the material from which the artifact was made.

Curation

All artifacts and attendant information (e.g., field forms and photographs) are being stored temporarily at CRAI's West Virginia office. If landowners do not wish to retain ownership of the recovered materials, they will be prepared for permanent curation at the Grave Creek Mound Archaeological Complex, Archaeological Collections Facility at Moundsville, West Virginia.

NRHP Evaluation

Documented archaeological sites were evaluated against the standards of the NRHP, which, in general, require a site to be at least 50 years old and possess both historical significance and integrity. Significance may be found in four aspects of North American prehistory and/or history defined by the following NRHP Criteria:

- **A.** Association with historic events or activities;
- **B.** Association with important persons;
- **C.** Distinctive design or physical characteristics, or
- **D.** Potential to provide important information about prehistory or history.

A site must meet at least one of these criteria for listing. Integrity must also be evident through historic qualities including location, design, setting, materials, workmanship, feeling, and association. Generally, the majority of archaeological sites that qualify do so under Criterion D. Unfortunately, Phase I data do not always provide sufficient information to allow for a determination of eligibility for archaeological sites. As such, CRAI provided one of the following two recommendations for

encountered sites; (1) "site is not eligible," or (2) "eligibility of site is indeterminable." In the second case, CRAI will provide recommendations concerning the types of investigations required to complete a NRHP evaluation.

VIII. RESULTS

Systematic Phase I survey of the proposed Beech Ridge Wind Energy Facility resulted in the identification of six previously undocumented archaeological resources (Figure 8; Table 4). Individual site descriptions including plan maps and photographs are provided in the following section. Completed copies of the West Virginia Archaeological Site form are provided in Appendix C. Catalogues of recovered material are included in Appendices D and E.

Conditions within the direct APE varied widely and randomly. The locations of most proposed turbine sites were found on relatively level broad ridgetops (Figure 9). The proposed transmission line is laid out largely along steep sideslope (Figure 10). A visual summary of the conditions encountered during fieldwork is included in Appendix F.

Site Descriptions & Evaluations

46Gb445 Stone Mound with Depression

USGS 7.5-minute Quadrangle: 1972 (1981) Trout, WV
UTM Coordinates: Z-17, N4218937, E0551943, NAD 83
Elevation: 1063.1 m (3488 ft) above msl
Size: 8-x-8 m (26.2-x-26.2 ft)
Components: Unknown
Closest named water: Cherry River South Fork
Type of nearest water: Permanent
Topographic Setting: Gap/Saddle
Slope: 35-55%
NRCS Unit: Mandy channery silt loam (MkF).

Description

The site is located approximately 1.5 km (0.9 mi) north of the confluence of Beard Lick Run and Panther Camp Creek, adjacent to a jeep trail off Sky Way (Figure 8).

Archaeological Investigations

Site 46Gb445 was encountered while conducting systematic pedestrian survey and shovel testing along the route of the proposed access road leading to proposed Turbine D-1 (Figure 8). The site consists of a 6.0-x-5.0-m (19.7-x-16.4-ft) stone and dirt mound with a central depression (Figures 9-10). In addition, a mound of stacked piled stones is located at the northern edge of the mound.

Systematic and purposive shovel testing around this feature failed to recover any artifacts or discover evidence of other types of archaeological deposits. The representative soil profile as documented in STP 01 consists of 6 cm (2.4 in) very dark grayish-brown (10YR3/2) sandy loam O/A horizon from 0-6 cm (0-2.4 in), and dark yellowish-brown (10YR4/6) sandy loam B horizon that extends below the base of the subsurface investigations (Figure 11).

Discussion

Upland stone mounds of similar size and extent have been documented in the region, and it is has been hypothesized that some of these features were used during the prehistoric period to place the recently deceased for de-fleshing. Later, these tombs would be revisited and the bones collected for reburial at another location. The central depression and stacked stone pile noted at 46Gb445 may be the result of the re-collection of human remains, although it is also possible that they are the result of a more resent non-scientific investigation.

Current evidence is insufficient to determine the origin, age, or cultural affiliation of the site. Other similar stone features were noted in the survey area. However, unlike 46Gb445, these were clearly the result of historic-period field clearing connected with farming, or mechanical grading for road construction and/or logging activities. Site 46Gb445, on the other hand, is isolated from any obvious historic-period or

modern activity and is not obviously associated with mechanical disturbances.

NRHP Evaluation: Eligibility Indeterminable

Further investigation beyond the scope of a Phase I study is required to assess the eligibility of 46Gb445 for inclusion in the NRHP. The eligibility status of the site is currently indeterminable.

Management Recommendation: Avoidance

It is the recommendation of CRAI that 46Gb445 be avoided by all project activities by no less than 30.5 m (100 ft). If avoidance is not feasible, it is recommended that a Phase II research design be created in consultation with the WVSHPO and in accordance with *Stipulation B.1.b* of the MOA (Appendix A) for determining if the site is eligible to the NRHP.

46Gb446 Reid Gap Site

USGS 7.5-minute Quadrangle: 1972 (1981) Trout, WV
UTM Coordinates: Z-17, N4216624, E0548386, NAD 83
Elevation: 1098.8 m (3605 ft) above msl
Size: 75 EW-x-30 NS m (246.1-x-98.4ft)
Components: Unassigned Prehistoric and Historic-Period Farmstead / Modern Hunting Camp (1935-present)
Closest named water: Cold Knob Fork
Type of nearest water: Permanent
Topographic Setting: Gap/Saddle
Slope: 3-25%
NRCS Unit: Mandy channery silt loam (MkC).

Description

Site 46Gb446 is located west of Big Ridge Mountain in Reid Gap and approximately 200 m (656.2 ft) north of Sky Way. The site was encountered while conducting systematic pedestrian survey and shovel testing along the route of the proposed access road leading to proposed Turbine C-6 (Figures 8, 12, and 13).

Archaeological Investigations

Fifty-five STPs were excavated within and adjacent to the site. Eleven of these, confined to the gap proper, were positive for archaeological materials (Figure 12). Reid Gap, which was largely in pasture at the time of the survey, is bisected by an existing unimproved jeep trail (Figure 13). Steep slope clearly defines the gap on all four sides (Figure 12).

Artifact-bearing deposits were restricted to the O/A horizon. Typically, a 2-cm (0.8-in) black (10YR2/1) O horizon was exposed overlaying a 12 cm (4.7 in) thick very dark brown (10YR2/2) silt loam A horizon, which by volume included an estimated 10-15 percent of natural tabular stone fragments. Beneath the material-bearing O and A horizons was yellowish-brown (10YR5/6) silt loam subsoil containing approximately 15-30 percent natural tabular sandstone fragments by volume (Figures 12 and 14).

Table 4. Summary of Archaeological Sites Documented.

Site	Site Name	Component	Type	NRHP Eligibility Status	Recommendation
46Gb445	Stone Mound with Depression	Unknown	Possible Mound/ Grave	Indeterminable	*Avoidance*
46Gb446	Reid Gap Site	Prehistoric/ Historic	Lithic Scatter/ Farmstead	Not Eligible	*No Further Work*
46Gb447	Possible Grave 1	Unknown	Cemetery	Indeterminable	*Avoidance*
46Gb448	Possible Grave 1	Unknown	Cemetery	Indeterminable	*Avoidance*
46Gb449	Little Beech Knob Scatter	Prehistoric	Lithic Scatter	Not Eligible	*No Further Work*
46Gb450	J-10 Lithic Scatter	Prehistoric	Lithic Scatter	Not Eligible	*No Further Work*

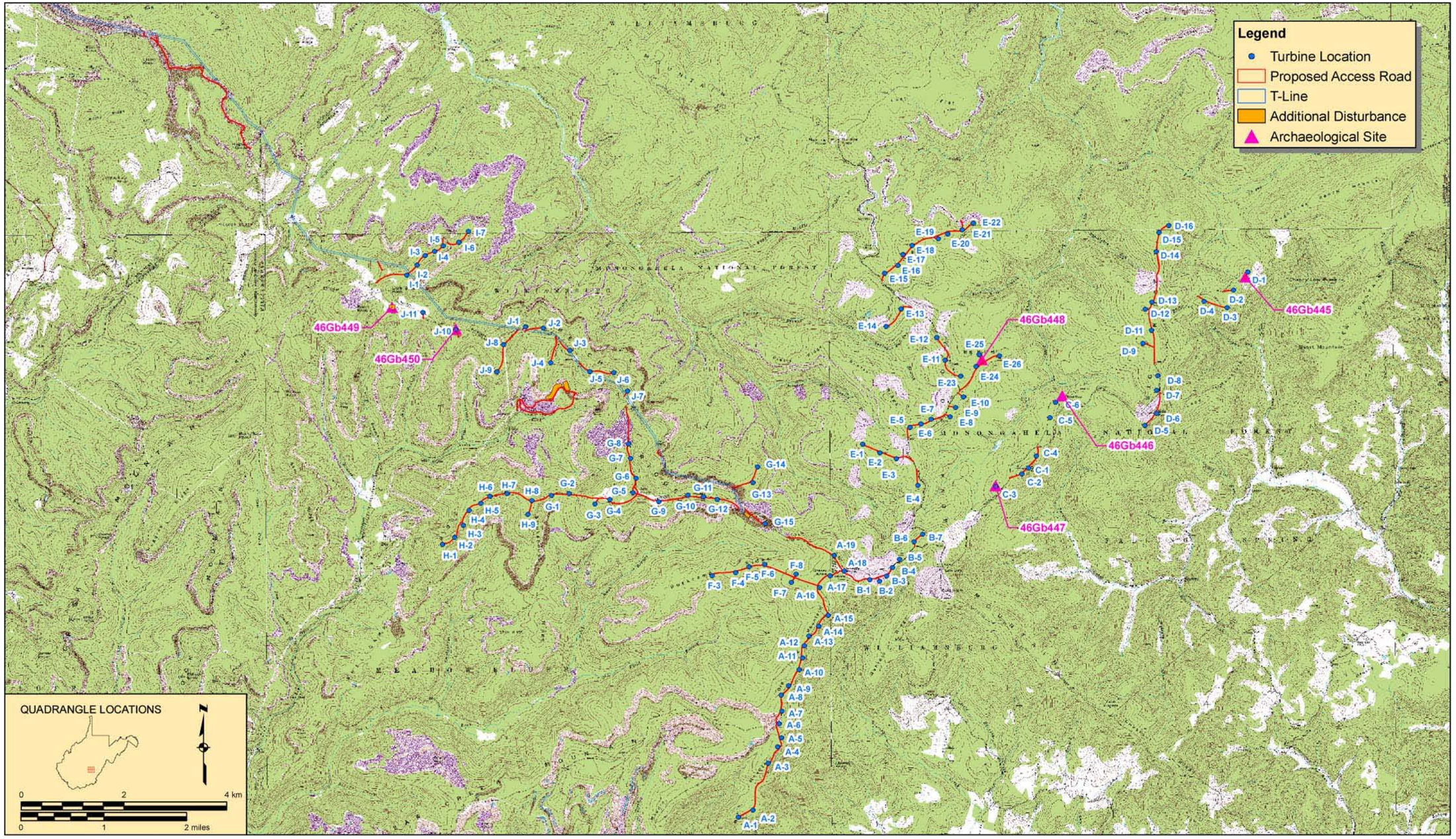

Figure 8. Portions of USGS 7.5-minute 1972 (1979) Nettie, 1972 (1981) Quinwood, Richwood, and Duo, 1977 (1981) Fork Mountain, and Trout, WV quadrangles showing the approximate locations of documented archaeological sites in relation to the direct APE.

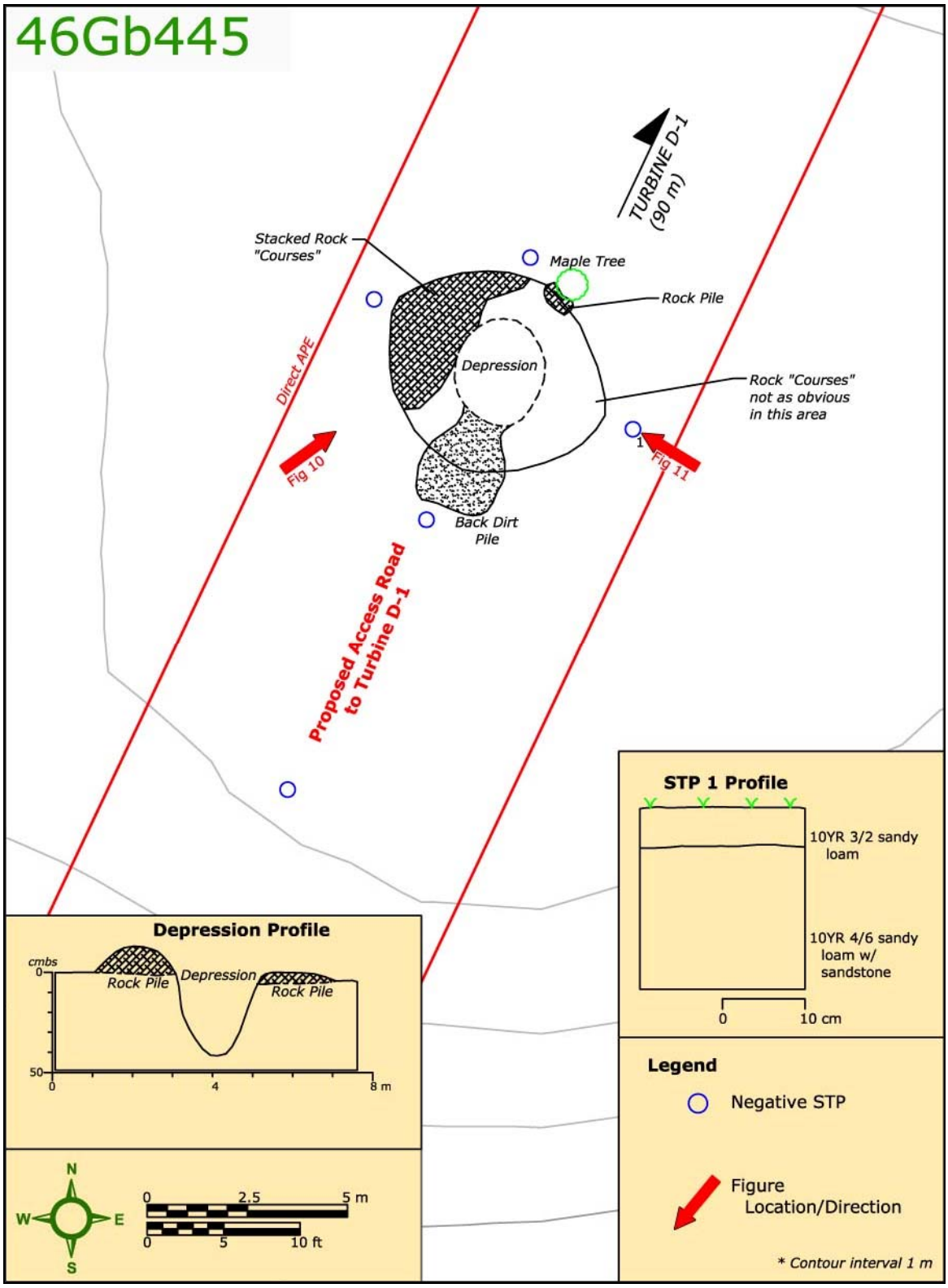

Figure 9. Plan drawing of 46Gb445.

Figure 10. Overview of 46Gb445.

Figure 11. Representative soil profile for 46Gb445.

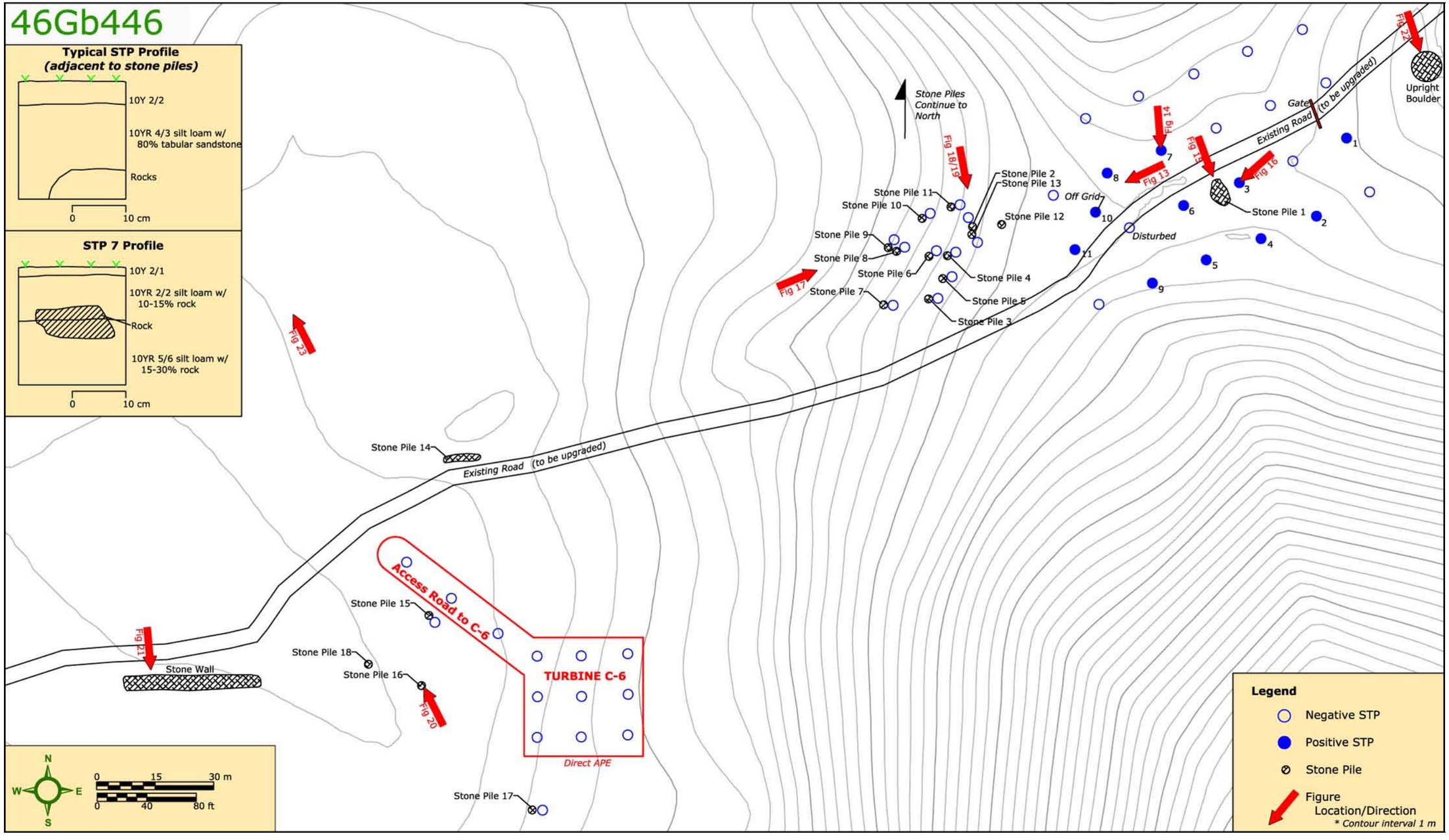

Figure 12. Plan drawing of 46Gb446.

Figure 13. Overview of 46Gb446 located in Reid Gap.

Figure 14. Representative artifact-bearing profile exposed in STP 7 at 46Gb446 in Reid Gap.

One aboveground feature (Stone Pile 1) was noted within the gap proper (Figures 12 and 15). Shovel testing near Stone Pile 1 exposed a channery soil containing 80-90 percent natural pieces of tabular sandstone (Figure 16).

Eleven additional stone piles (Stone Piles 2-12) of similar size and shape were identified on a easterly sloping landform west of the gap and north of the jeep trail (Figures 12, 17, and 18). A single STP was excavated adjacent to each of the stone piles, despite their location just outside the direct APE and on steep slope. The purpose of the STPs was to gain information for the origin of the stone piles.

Typically, the STPs exposed a 5-cm (2.0-in) thick very dark brown (10YR2/2) silt loam O/A horizon, overlying brown (10YR4/3) silt loam subsoil containing approximately 80 percent natural pieces of tabular sandstone (Figures 12 and 19). No evidence of artifacts or other types of archaeological deposits was recovered.

The stone piles continued farther north into areas well outside the direct APE; these stone piles were neither charted nor investigated. However, based on visual observations, it is speculated that 15 to 25 additional stone piles may exist north of the area defined as 46Gb446.

Five additional stone piles (Stone Piles 13-17) and a stone wall were also discovered in the vicinity of proposed Turbine C-6 (Figures 12, 20, and 21). These features are not located in the direct APE. However, given the proximity of Stone Piles 15 and 17, both were tested archaeologically with a single STP. No evidence of archaeological deposits and/or cultural materials was discovered.

A large boulder was noted on the upward slope east of the gap. The boulder appears to have been turned upright and currently sits in a push-pile. On this basis, it appears that this feature was created by mechanical grading (Figures 12 and 22).

Figure 15. Stone Pile 1 located adjacent to direct APE at 46Gb446 in Reid Gap.

Figure 16. Impenetrable channery deposit exposed in STP 3 adjacent to Stone Pile 1 at 46Gb446.

Figure 17. Overview of area outside of direct APE containing Stone Piles 2-12 at 46Gb446 on west slope of Reid Gap.

Figure 18. Stone Pile 2 outside of direct APE at 46Gb446 on west slope of Reid Gap.

Figure 19. Typical soil profile exposed in STPs adjacent to Stone Piles 2-12 at 46Gb446.

Figure 20. Stone Pile 16 outside of direct APE at 46Gb446.

Figure 21. Stone wall located outside of direct APE at 46Gb446.

Figure 22. Upright boulder on east slope of Reid Gap at 46Gb446.

Materials Recovered

Sixty artifacts were recovered from the 11 positive STPs. Of these, 39 are fragments of prehistoric lithic artifacts, including 37 pieces of debitage and two amorphous core fragments (Tables 5 and 6). No temporally and/or cultural diagnostic prehistoric material was recovered from this functionally limited assemblage. In addition, no floral or faunal remains or fire-cracked rock was identified, nor was evidence of prehistoric features or midden encountered.

Twenty-nine Size Grade 2 flakes manufactured from Hillsdale chert (n=20), siltstone (n=1), and an indeterminate chert (n=8) possibly derived from the Helderburg formation are present in the assemblage. Also present are three Size Grade 3 flakes of Hillsdale chert. Of the 29 pieces of flake debitage, 17 retain cortex.

Four flakes less than 1/4 inch were also recovered. As mentioned in *Chapter VII*, due to the use of 1/4-inch screens in the field, flakes less than 1/4 inch in size were not systematically recovered in the field. As such, they were excluded from the technological analysis (Table 5).

Two amorphous core fragments manufactured from Hillsdale chert were recovered; both cores have cortex present. One was recovered from STP 6 and the other from STP 7 (Table 6).

The remaining 21 artifacts date from the historic-period and/or modern times. Recovered material was assigned to the Architecture, Arms, Domestic, Maintenance/Subsistence, and Miscellaneous groups, and generally dates from the late nineteenth and twentieth centuries to modern period (Table 7). As none of the material contained attributes that could be used to assign end dates of manufacture, it is not possible to assign any of the artifacts to a specific time-period with confidence.

Table 5. Debitage by Size Grade and Raw Material, 46Gb446.

Provenience	Raw Material	Size	Total	Number with Cortex	Weight (g)
STP 06	Not Recorded	Size 1 (< 1/4 inch)	1	Not Recorded	0.10
STP 06	Hillsdale Chert	Size 2 (1/4 inch)	9	4	3.50
STP 06	Indet. Chert	Size 2 (1/4 inch)	1	1	0.40
STP 06	Hillsdale Chert	Size 3 (1/2 inch)	1	0	1.00
STP 07	Not Recorded	Size 1 (< 1/4 inch)	2	Not Recorded	0.30
STP 07	Hillsdale Chert	Size 2 (1/4 inch)	9	4	2.60
STP 07	Indeterminate Chert	Size 2 (1/4 inch)	7	5	2.60
STP 07	Siltstone	Size 2 (1/4 inch)	1	0	0.70
STP 08	Hillsdale Chert	Size 2 (1/4 inch)	1	1	0.30
STP 10	Not Recorded	Size 1 (< 1/4 inch)	1	Not Recorded	0.10
STP 10	Hillsdale Chert	Size 2 (1/4 inch)	2	1	0.40
STP 10	Hillsdale Chert	Size 3 (1/2 inch)	1	0	1.50
STP 11	Hillsdale Chert	Size 3 (1/2 inch)	1	1	0.50
Totals			37	17	14.00

Table 6. Cores Recovered from 46Gb446.

Class	Provenience	Raw Material	Type	Section/Part	Count	Weight (g)
Core	STP 06	Hillsdale	Amorphous Fragment, with Cortex	Incomplete	1	29.20
Core	STP 07	Hillsdale	Amorphous Fragment, with Cortex	Incomplete	1	3.60
Total					2	32.80

Table 7. Historic-Period Artifacts Recovered From 46Gb446.

Group	Provenience	Class	Type	Date Range	Count
Architecture	STP 05	Nails	Indeterminate, Fragments, Indeterminate Nail Head	--	3
	STP 05	Nails	Wire, Fragment, Common	1880-Present	1
	STP 05	Nails	Wire, Fragment, Indeterminate Nail Head	1880-Present	2
	STP 11	Nails	Wire, 8d, Common, Pulled	1880-Present	1
	STP 05	Nails	Wire, 12d, Common, Pulled	1880-Present	1
	STP 05	Window Glass	Pane Glass, 2.78 mm	--	1
	STP 05	Window Glass	Pane Glass, 2.84 mm	--	1
Arms	STP 02	Ammunition/Artillery	Shot Gun Shell, Indeterminate Casing, 12 Gauge	1878-present	1
Domestic	STP 04	Ceramic Tableware	Hollowware: Body, Refined Earthenware, Ironstone, Thin, Plain	1870-present	1
	STP 09	Ceramic Cookware/Storage	Hollowware, Refined Earthenware, Whiteware, Plain	1820-present	1
	STP 09	Container Closures	Home Canning Jar, Mason Liner, Domed, Plain	1869-Present	1
	STP 03	Misc. Domestic Glass	Indeterminate Container Glass: Body, Colorless, Clear Glass, Machine-made	1899-Present	1

Table 7. Historic-Period Artifacts Recovered From 46Gb446.

Group	Provenience	Class	Type	Date Range	Count
	STP 03	Misc. Domestic Glass	Indeterminate Container Glass: Body, Colorless, Green Tint, Machine-made	1899-Present	1
	STP 05	Misc. Domestic Glass	Indeterminate Container Glass: Body, Colorless, Clear Glass, Machine-made	1899-Present	1
Maintenance/ Subsistence	STP 01	Tools	Hand Saw, Ferrous Metal, Blade, Machine-made	--	1
	STP 08	Farming and Gardening	Plow Parts, Ferrous Metal	--	2
Miscellaneous	STP 06	Miscellaneous Glass	Colorless, Clear Glass, Amorphous/Melted	--	1
Total				--	22

Architecture Group items (n=10) consist of nails (n=8) and window glass (n=2). Several wire nails (post 1880) and nail fragments were recovered from STPs. Two pieces of windowpane glass were also recovered; one measured 2.78 mm thick, and the other measured 2.84 mm. Both fragments were too thick to be analyzed utilizing Moir's (1987) formula. This suggests that the two fragments likely date from the middle twentieth century.

A single shotgun shell (postdating 1878) was recovered from STP 02 and was the only artifact from the Arms Group (Ball 1997:132).

Domestic Group artifacts (n=6) consist of ceramics (n=2), glass (n=3), and container closures (n=1). Ceramic items include one body fragment from a cookware/storage vessel manufactured from whiteware with no decoration that postdates 1820 (Miller 2000:13), and one fragment from a ceramic tableware vessel manufactured from ironstone with no decoration. This might be a marley fragment from a teacup that most likely postdates 1870.

Container closures include a home canning jar Mason liner with no decoration that postdates 1869 (Miller 2000:8). Miscellaneous domestic glass items include three body fragments from a machine-made glass container of unidentified function, manufactured from clear glass (n=2) and green tint glass (n=1); all three fragments postdate 1899 (Miller 2000:8).

Maintenance and Subsistence Group artifacts (n=3) include two pieces of ferrous metal plow parts and a blade section from a handsaw also manufactured from ferrous metal. None of the specimens is temporally diagnostic, and no dates are available for these items.

Miscellaneous Group artifacts (n=1) include one piece of clear melted glass from an indeterminate item. This item is not temporally diagnostic.

Discussion

The *prehistoric component* at 46Gb446 consists of a low-density lithic-debris scatter found in a shallow O/A horizon, which also contains materials dating largely from the twentieth century. No temporally and/or culturally diagnostic prehistoric material was recovered, and no evidence of prehistoric midden and/or feature deposits was documented. As such, the site does not appear to have the potential to contain data that would provide important information concerning prehistoric habitation and/or utilization of the region.

The *historic-period component* of 46Gb446 consists of a small quantity of functionally restricted material that can not be firmly dated. No evidence of historic-period midden and/or features was documented. In

addition, 18 stone piles, a stone wall, and an upright stone boulder are documented in association with the site.

According to Richard Thomas, the local landowner, a historic-period farm (Reid Farmstead) stood within Reid Gap during the early twentieth century. As previously discussed in *Chapters V and VI*, a single building is depicted within Reid Gap on a 1936 map (Figure 7). Interestingly, the building is not charted on a 1935 map (Figure 6), suggesting that it was constructed between 1935 and 1936.

Today, no historic-period buildings or structures stand within Reid Gap, and no aboveground or belowground ruins of historic-period buildings were encountered during the field investigation. Currently, it is unknown when this farmstead was abandoned. A modern hunting camp is currently located northwest of the site, well outside of the direct APE (Figure 23).

As discussed in *Chapter V*, mountain farming played an important role in the history of Greenbrier County. Reviewed data indicate that most upland landforms were not initially selected for habitation or cultivation due to their high elevation, inaccessibility, and channery soils. Instead, these landforms were primarily utilized for grazing stock. However, the historical record also suggests that as population pressures increased, upland habitation may have become more frequent, especially following the timber and coal booms of the early twentieth century. This may explain why 46Gb446 does not appear to be occupied until at least 1935. The location of the farmstead in a low gap would have also provided the dwelling some natural protection from the elements. The presence of multiple field clearing piles at the site is a testament to the effort required to make the land tillable.

Figure 23. Modern hunting camp northwest of 46Gb446 and outside of direct APE.

Unfortunately, recovered archaeological data do not provide further opportunities to interpret the history of the site or better understand its inhabitants. The small size and limited functional range of the artifact assemblage restricts its analytical value. The lack of temporally diagnostic material further reduces the ability of the collection to be used for interpretive purposes. As discussed in *Chapter VI*, the archaeological study of farmsteads benefits greatly when contributing elements of the farm retain a certain degree of physical and contextual integrity. However, the materials recovered from the site were not found in association with midden or feature deposits, the presence of which might have allowed for the identification of activity areas (e.g. precise dwelling location, garden, barn, cellar livestock pen), as building ruins or remains dating to the period of the farm were not discovered.

The presence of intact field clearing piles provides some clues to landscape use. The piles appear concentrated along the western slope of Reid Gap, indicating that these slopes were not cultivated. Instead, it is likely that the upland portions of the ridges west of the gap were under cultivation. Evidence derived from a historical map and the field investigation indicates that the farmhouse was likely located within the gap.

Beyond this elementary understanding, identified site materials, deposits, and features provide limited opportunities for obtaining significant information about the site and upland farming in Greenbrier County.

NRHP Evaluation: Not Eligible

Current data indicate 46Gb446 is a multi-component open-air site containing a paucity of non-diagnostic prehistoric and historic-period material within a non-stratified depositional context. Evidence of cultural features or midden was not discovered. Visual observations and soil profiles exposed in STPs suggest portions of the site have been previously disturbed by plowing.

It is the opinion of CRAI that the portions of 46Gb446 located in the direct APE do not contain significant archaeological deposits, and as such have low potential to provide information that would furthering our understanding of the local or regional history or prehistory. As depicted in Figure 12, none of the identified stone piles, which based on extant evidence are associated with historic-period field clearing activities, or positive STPs are located within the boundaries of the pad or access road for proposed Turbine C-6. The positive STPs, which contain a mix of non-diagnostic historic and prehistoric artifacts in a non-stratified context, are confined to Reid Gap in areas adjacent to the existing jeep trail, and most of the historic-period stone piles are located north of the road outside the direct APE (Figure 12). Existing data indicate that the proposed upgrading of the existing jeep trail will not impact any significant archaeological deposits. It is the recommendation of CRAI that the portions of 46Gb446 located in the direct APE are ***not eligible*** for inclusion in the NRHP.

Management Recommendation: No Further Investigation:

No further investigation of 46Gb446 is recommended for the proposed Beech Ridge Wind Energy Facility.

46Gb447 Possible Grave Site 1

USGS 7.5-minute Quadrangle: 1972 (1981) Trout, WV
UTM Coordinates: Z-17, N4214873, E0547090, NAD 83
Elevation: 1136.9 m (3730 ft) above msl
Size: Not Available
Components: Possible Single Historic Grave
Closest named water: Cold Knob
Type of nearest water: Permanent
Topographic Setting: Ridgetop
Slope: 3-15%
NRCS Unit: Mandy channery silt loam (MkC)

Description

Site 46Gb447 is located on a ridgetop approximately 720 m (2,362 ft) southwest of

Ellis Knob. The site was encountered while conducting systematic pedestrian survey and shovel testing at the location of proposed Turbine C-3 (Figure 8).

Archaeological Investigations

The site consists of two upright fragments of sandstone approximately 2.0 m (6.6 ft) apart. The stones are orientated east to west and appear to have been sunk into the ground and partially shaped (Figures 24 and 25). No observable inscriptions or ornamentation was noted on either stone, and careful examination of the surrounding area failed to discover evidence of other possible graves or cemetery features (e.g., fencing, ornamental plantings, and depressions). Nevertheless, it is possible that these two stones mark one or more human graves.

Discussion

Current evidence is insufficient to determine whether 46Gb447 is a natural feature or human grave. If the latter, information for age, name of the interred, and dates of birth and death are not available. Further investigation beyond the scope of a Phase I study would be required to assess the origin and eligibility of the site for inclusion n the NRHP.

NRHP Evaluation: Eligibility Indeterminable

The eligibility of 46Gb447 is currently indeterminable, as further work beyond the scope of a Phase I study would be required to determine if the site is cultural in origin and if it contains human remains.

Management Recommendation: Avoidance

It is the recommendation of CRAI that 46Gb447 be avoided by all project activities by no less than 30.5 m (100 ft). If avoidance is not feasible, it is recommended that a Phase II research design be developed in consultation with the WVSHPO, in accordance with *Stipulation B.1.b* the MOA (Appendix A).

Figure 24. Overview of possible grave marker at 46Gb447.

Figure 25. Overview of second possible grave marker at 46Gb447.

46Gb448 Possible Grave Site 2

USGS 7.5-minute Quadrangle: 1972 (1981) Trout, WV
UTM Coordinates: Z-17, N4217328, E0546824, WGS 84
Elevation: 1168 m (3832 ft) above msl
Size: 9.1 m (30 ft) NE/SW-x-7.9 m (26 ft) NW/SE
Components: Possible Single Historic Grave
Closest named water: Cold Knob
Type of nearest water: Permanent
Topographic Setting: Ridgetop
Slope: 35-55%
NRCS Unit: Mandy channery silt loam, very stony (MkE).

Description

Site 46Rg448 is located on top of Big Bull Hill east of Knob Road. The site was encountered while conducting systematic pedestrian survey and shovel testing along the proposed access road between the location of proposed Turbines E-24 and E-25 (Figure 8).

Archaeological Investigations

The site consists of a single upright fragment of sandstone sunk into the ground, which may have been partially shaped (Figure 26). No observable inscriptions or ornamentation was noted. Intensive examination of adjacent areas failed to discover evidence of grave markers, fencing, ornamental planting (e.g. yucca), or other types of cultural features. Nevertheless, based on the size, shape, and upright orientation of the stone, it is possible the site marks the location of one or more human graves.

Discussion

Current evidence is insufficient to determine the origin, age, or cultural affiliation of 46Gb448. Further investigation beyond the scope of a Phase I study would be required to assess the origin of the site and its eligibility for inclusion in the NRHP.

Figure 26. Overview of possible headstone at 46Gb448.

NRHP Evaluation: Eligibility Indeterminable

The eligibility of 46Gb448 is currently indeterminable, as further work beyond the scope of a Phase I study would be required to determine if the site is cultural in origin and if it contains human remains.

Management Recommendation: Avoidance

It is the recommendation of CRAI that 46Gb448 be avoided by all project activities by no less than 30.5 m (100 ft). If avoidance is not feasible, it is recommended that a Phase II research design be developed in consultation with the WVSHPO, in accordance with *Stipulation B.1.b* of the MOA (Appendix A).

46Gb449 Little Beech Knob Scatter

USGS 7.5-minute Quadrangle: 1972 (1981) Trout, WV
UTM Coordinates: Z-17, N4218350, E0535361, NAD 83
Elevation: 1210 m (3969.8 ft) above msl
Size: 60 EW-x-7.5 NS m (196.8-x-24.6 ft)
Components: Unassigned Prehistoric
Closest named water: Hogcamp Run
Type of nearest water: Permanent
Topographic Setting: Hillside/Bench
Slope: 15-35%
NRCS Unit: Snowdog silt loam (SoE)

Description

Site 46Rg449 is located approximately 7 km (4.35 mi) southwest of the community of Lile, West Virginia, and directly adjacent to Beech Ridge Road at the base of Little Beech Knob. The site was encountered while conducting systematic pedestrian survey and shovel testing in a pasture near the base of Little Beech Knob at the possible location of a proposed Operations and Maintenance Facility (Figures 8, 27, and 28).

Archaeological Investigations

Evidence for the site consists of prehistoric artifacts recovered from three STPs

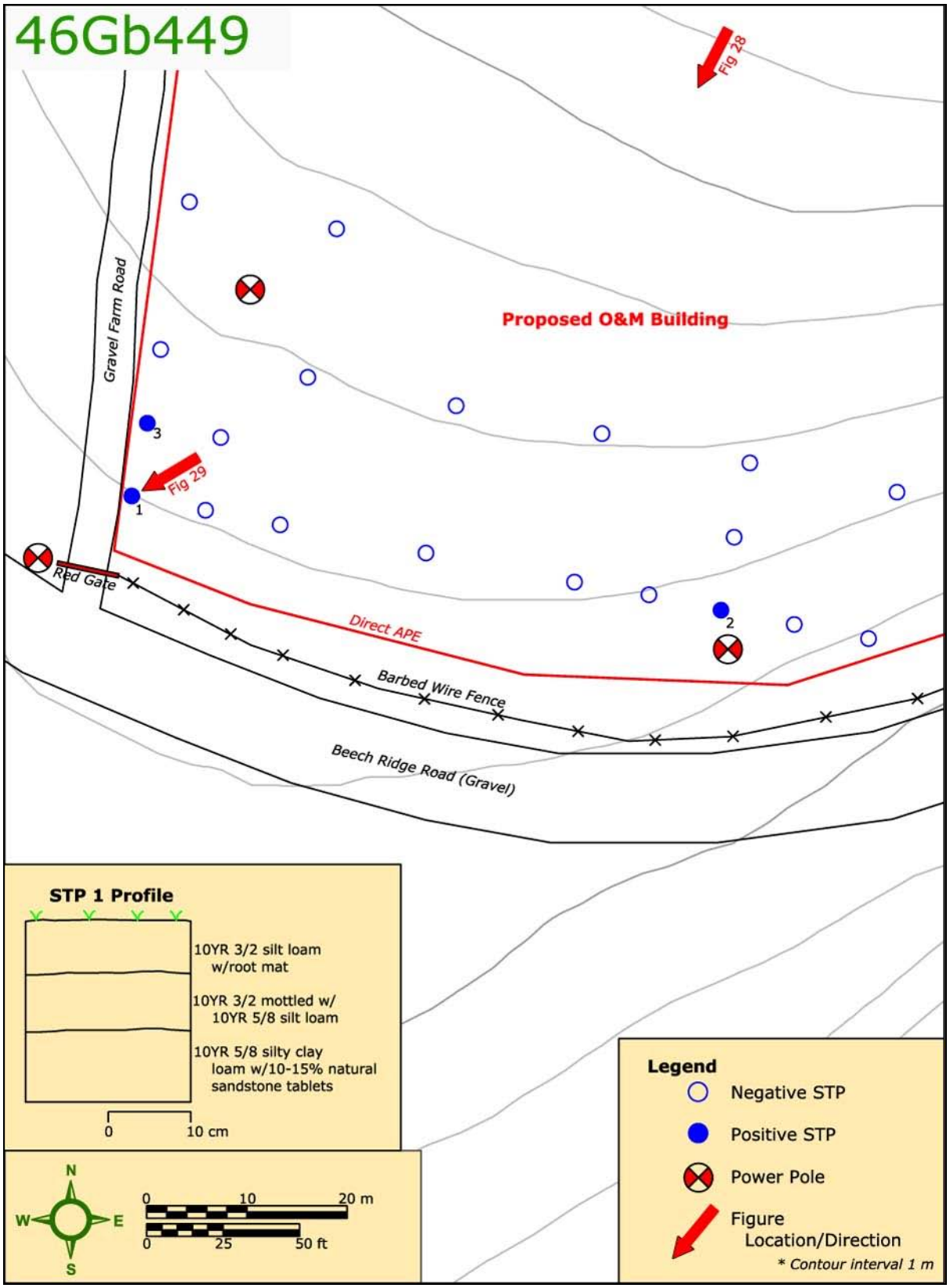

Figure 27. Plan drawing of 46Gb449.

Figure 28. Overview of 46Gb449.

at the southern terminus of the propose facility. Artifact-bearing contexts were restricted to shallow subsurface deposits associated with the soil O/A horizon. Careful examination of the soil profiles and screened deposits failed to discovery any evidence of cultural features or midden. The representative soil profile for this site, as documented in STP 01, consists of 7.9-cm (3.1-in) of very dark grayish-brown (10YR3/2) silt loam O/A horizon, 13 cm (5.1 in) of very dark grayish-brown (10YR3/2) mottled with a yellowish-brown (10YR5/8) silty loam Ap horizon, and yellowish-brown (10YR5/8) silty clay loam subsoil containing 10 to 15 percent natural tabular sandstone inclusions (Figure 29).

Materials Recovered

Three fragments of Size Grade 2 lithic debitage were recovered from three positive STPs (Table 8). One flake was manufactured from Hillsdale chert, one from Kanawha chert High Quality, and one from Kanawha chert Low Quality. Of these three pieces of lithic debitage, only one retains cortex (Table 8).

No temporally and/or culturally diagnostic artifacts were recovered from the site, nor was evidence of floral or faunal remains, fire-cracked rock, midden, or cultural features identified.

Discussion

Current data indicate that 46Gb449 is a prehistoric site containing a paucity of non-diagnostic material within a non-stratified and plowed disturbed deposit lacking evidence of cultural features or midden.

NRHP Evaluation: Not Eligible

Current data indicate that 46Gb449 has a low potential to contain the type or quality of archaeological data that could be used to further our understanding of local and regional prehistory. On this basis, the site is recommended ***not eligible*** for inclusion in the NRHP.

Figure 29. Representative soil profile for 46Gb449.

Table 8. Debitage by Size Grade and Raw Material, 46Gb449.

Provenience	Raw Material	Size	Number	Number With Cortex	Weight (g)
STP 01	Hillsdale Chert	Size 2 (1/4 inch)	1	0	0.10
STP 02	Kanawha Chert: High Quality	Size 2 (1/4 inch)	1	0	0.30
STP 02	Kanawha Chert: Low Quality	Size 2 (1/4 inch)	1	1	1.30
Total			3	1	1.70

Management Recommendation: No Further Investigation:

No further investigation of 46Gb449 is recommended for the proposed Beech Ridge Wind Energy Facility.

46Gb450 J-10 Lithic Scatter

USGS 7.5-minute Quadrangle: 1972 (1981) Trout, WV
UTM Coordinates: Z-17, N4217918, E0536599, NAD 83
Elevation: 1213 m (3979.6 ft) above msl
Size: 7.5 EW-x-7.5 NS m (24.6-x-24.6 ft)
Components: Unassigned Prehistoric
Closest named water: Maple Branch
Type of nearest water: Permanent
Topographic Setting: Hillside/Bench
Slope: 3-15%
NRCS Unit: Mandy channery silt loam (MkC)

Description

Site 46Gb450 is located approximately 7 km (4.35 mi) southwest of the community of Lile, West Virginia, approximately 1.5 km (0.9 mi) southeast of Little Beech Knob and directly adjacent to Beech Ridge Road. The site was encountered while conducting systematic pedestrian survey and shovel testing at the location of a proposed Turbine J-10 (Figures 8, 30, and 31).

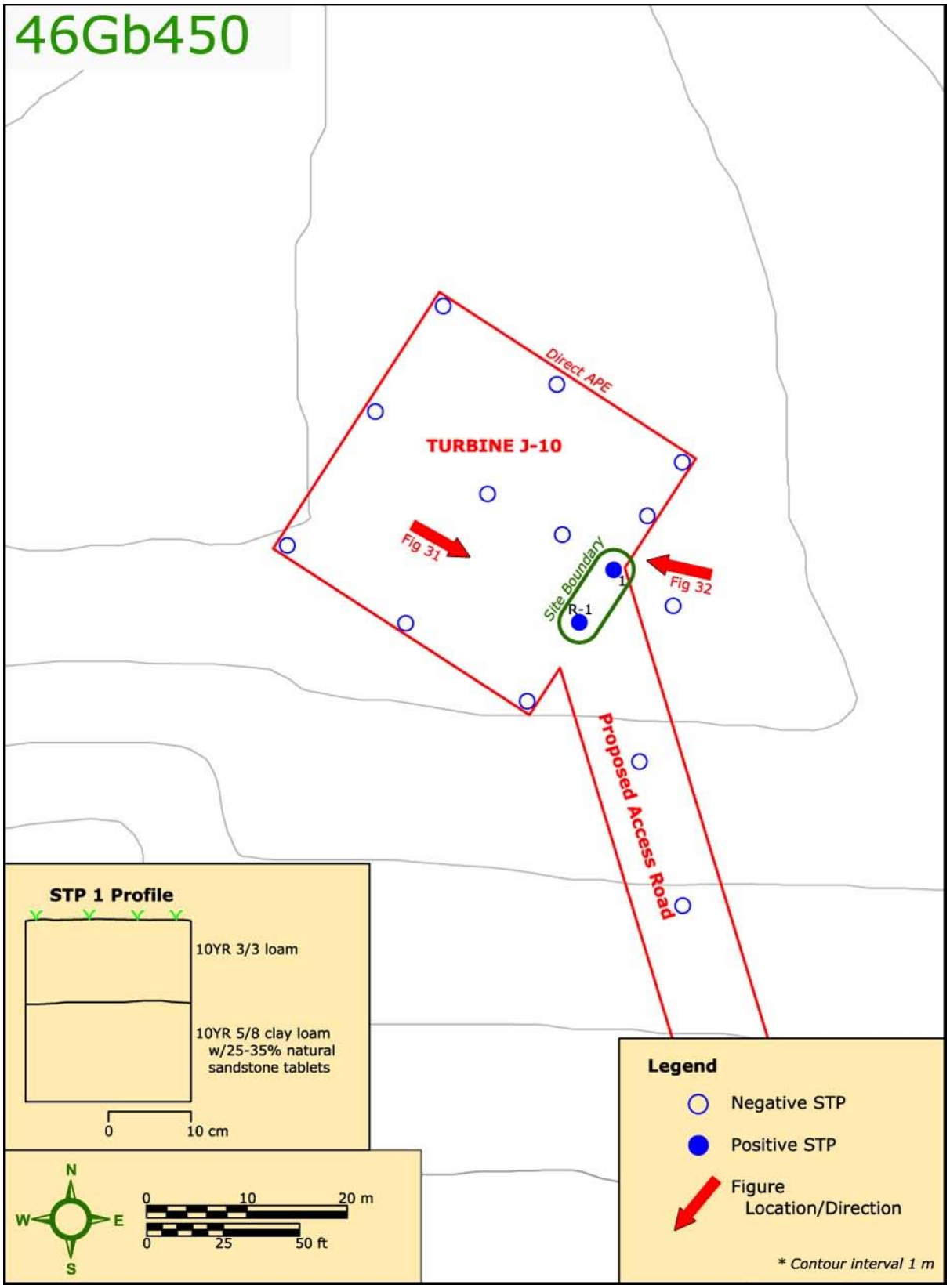

Figure 30. Plan drawing of 46Gb450.

Figure 31. Overview of 46Gb450.

Archaeological Investigations

Evidence for the site consists of prehistoric artifacts recovered from two STPs located near the southeast terminus of the proposed turbine pad. The recovered artifacts were associated with the soil O/A horizon in a shallow subsurface context. Evidence of cultural features or midden was not discovered.

The representative soil profile for this site as documented in STP 01 consists of 10 cm (3.9 in) of dark brown (10YR3/3) loam A horizon, overlaying yellowish-brown (10YR5/8) clay loam subsoil containing an estimated 25 to 35 percent volume of natural pieces of tabular sandstone (Figure 32).

Materials Recovered

Two Size Grade 2 flakes manufactured from Hillsdale chert were recovered from two STPs (Table 9). No temporally and/or culturally diagnostic prehistoric material is present in this functionally limited assemblage. Also lacking at the site is evidence of floral or faunal remains or fire-cracked rock.

Discussion

Current data suggest 46Gb450 is a prehistoric site containing a paucity of non-diagnostic material from a non-stratified deposit lacking evidence of cultural features or midden.

NRHP Evaluation: Not Eligible

It is currently the recommendation of CRAI that 46Gb450 is unlikely to produce information important to the understanding of local or regional prehistory. Site 46Gb450 is recommended ***not eligible*** for inclusion in the NRHP.

Management Recommendation: No Further Investigation:

No further investigation of 46Gb450 is warranted for the proposed Beech Ridge Wind Energy Facility.

Figure 32. Representative soil profile for 46Gb450.

Table 9. Debitage by Size Grade and Raw Material, 46Gb450.

Provenience	Raw Material	Size	Number	Number with Cortex	Weight (g)
STP 01	Hillsdale Chert	Size 2 (1/4 inch)	1	0	0.30
STP R01	Hillsdale Chert	Size 2 (1/4 inch)	1	0	0.10
Total			2	1	0.40

IX. CONCLUSIONS AND RECOMMENDATIONS

Systematic Phase I survey of the proposed Beech Ridge Wind Energy Facility located in Greenbrier and Nicholas counties, West Virginia, identified six previously undocumented archaeological sites consistent with types suggested by information obtained from the records search and preparation of the cultural and historical overviews.

Current evidence is insufficient to determine the origin, age, or cultural affiliation of 46Gb445, 46Gb447, and 46Gb448. Further investigation beyond the scope of a Phase I study would be required to assess the eligibility of these sites for inclusion in the NRHP.

Current data suggest that 46Gb446 is a multi-component site containing a paucity of non-diagnostic prehistoric and historic-period material within a non-stratified context. It is currently the recommendation of CRAI that 46Gb446 is unlikely to produce information important to furthering our understanding of local or regional history or prehistory.

Current data suggest that 46Gb449 and 46Gb450 are prehistoric sites containing low

densities of non-diagnostic prehistoric material within non-stratified contexts lacking evidence of cultural features or midden. In addition, artifact-bearing deposits at 46Gb449 appear to be plow disturbed. Neither site is likely to produce information important to furthering our understanding of local or regional prehistory.

Based on these conclusions, the following recommendations are made:

1. Sites 46Gb446, 46Gb449, and 46Gb450 are ***not eligible*** for inclusion on the NRHP
2. ***No additional archaeological investigations*** for the Beech Ridge Wind Energy Facility are warranted at 46Gb446, 46Gb449, and 46Gb450.
3. The NRHP eligibility of sites 46Gb445, 46Gb447, and 46Gb448 is indeterminable at this time.
4. Sites 46Gb445, 46Gb447, and 46Gb448 should be avoided by all project activities by no less than 30.5 m (100 ft). If avoidance is not feasible, it is recommended that a Phase II research design be developed in consultation with the WVSHPO, in accordance with Stipulation B.1.b of the MOA (Appendix A).
5. Outside of sites 46Gb445, 46Gb447, and 46Gb448, no additional archaeological investigations are recommended for the direct APE.
6. Should evidence of intact archaeological deposits or human burials be identified during construction or project activities, work in the area of discovery should cease, and the West Virginia Public Service Commission and the West Virginia State Historic Preservation Office should be notified immediately of the discovery.

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APPENDIX A

Memorandum of Agreement

Invenergy

January 29, 2009

Ms. Lora Lamarre
Senior Archaeologist
West Virginia State Historic Preservation Office
The Cultural Center
1900 Kanawha Blvd., East
Charleston WV 25305-0300

RE: Phase I Archaeological Survey
Beech Ridge Wind Energy Project & Associated Support Line
Greenbrier and Nicholas Counties, West Virginia
WVSHPO FR#: 06-147-GB-23
WV Public Service Commission Case #: 05-1590-E-CS

Dear Ms. Lamarre:

Enclosed please find one bound color original and one bound color copy of a report for the above referenced project prepared by Cultural Resource Analysts, Inc. (CRAI). The survey resulted in the identification of six previously undocumented archaeological sites assigned trinomials 46Gb445 thru 44Gb450.

CRAI has recommended that 46Gb446 (mixed historic and prehistoric artifact scatter with historic period farm clearing rock piles), 46Gb449 (prehistoric lithic scatter of unknown age), and 46Gb450 (prehistoric lithic scatter of unknown age) are not eligible for the National Register of Historic Places, and that no further field investigations should be completed in association with the proposed wind energy project

However, with respect to sites 46Gb445 (potential stone mound), 46Gb447 (possible historic-period grave), and 46Gb448 (possible historic-period grave), CRAI concluded that existing information was insufficient to determine their origin, age, and cultural affiliation. On this basis CRAI was unable to assess the National Register status of these sites, and recommended that each site either be avoided by proposed project developments, or formally assessed for National Register eligibility through the completion of a Phase II excavation designed in consultation with your office per Stipulation B.1.b of a Memorandum of Agreement between your office and Beech Ridge Energy LLC.

Please be advised that it is the intent of Beech Ridge Energy LLC to avoid sites 46Gb445, 46Gb447, and 46Gb448 per the conditions recommended by CRAI. However, should any changes to the current design plans for this project necessitate physical impacts to the any of these sites or encroachments within their protective buffers, we will consult with your office in advance to develop an appropriate assessment plan.

If you have any questions about the survey or the reported findings, please do not hesitate to contact me at your convenience.

Sincerely,

Erik Duncan
Beech Ridge Energy LLC (Invenergy Wind Development)

INVENERGY LLC 7564 Standish Place, Suite 123 Rockville, MD 20855 T 301.610.6409 F 301.610.6418 invenergyllc.com

MEMORANDUM OF AGREEMENT

Whereas, Beech Ridge Energy LLC (Beech Ridge) has determined that the proposed Beech Ridge Wind Energy Wholesale Electric Generating Facility and Related Transmission Support Line (Beech Ridge Wind Energy Facility), located in Greenbrier County may potentially have an effect on historic resources and;

Whereas after public notice and public hearings affording the public reasonable opportunity to participate in the review process, the West Virginia Public Service Commission (PSC) issued an order dated August 28, 2006 granting Beech Ridge Energy LLC a Siting Certificate to construct and operate the Beech Ridge Wind Energy Facility and;

Whereas the Certificate contains a condition that Beech Ridge shall receive all necessary agency approvals including that of the West Virginia Division of Culture and History - State Historic Preservation Office (WVSHPO) and;

Whereas Beech Ridge has consulted with the WVSHPO pursuant to 82 CSR 2 Standards and Procedures for Administering State Historic Preservation Programs implementing West Virginia Code 29-1-8(a) including identification of historic resources listed in or eligible for the National Register of Historic Places and assessment of possible effects to these resources and;

Whereas, Beech Ridge has conducted a survey of above ground historic resources located within the defined Area of Potential Effect and received concurrence from the WVSHPO regarding their eligibility according to the Criteria of Evaluation for listing in the National Register of Historic Places and;

Whereas, Beech Ridge has agreed to complete stipulations regarding the identification, evaluation of eligibility and assessment of effects regarding archaeological resources as elaborated below and;

Whereas, it is agreed that the potential adverse effects to above ground historic resources cannot be reasonably eliminated due to the nature of the Project and the necessary wind turbine height; and

Beech Ridge has identified and analyzed the potential alteration of the view shed and subsequent impact to the historic resources in the report entitled, "Assessment of Effects for the Proposed Beech Ridge Energy Facility," dated February 15, 2008, prepared by BHE Environmental, Inc., for the WVSHPO;

Now therefore, Beech Ridge and the WVSHPO agree that the following will be implemented to address the PSC Certificate condition and the potential effect of the Project on historic resources:

STIPULATIONS

A. Mitigation of Visual Effects to Above Ground Historic Resources

1. Beech Ridge will provide up to six copies of the completed survey, entitled "Architectural Investigations for the Proposed Beech Ridge Energy Facility," dated March 16, 2007, in hard-copy format and in electronic format on compact disk (CD) for deposit in the Greenbrier County Public Library, Greenbrier Historical Society (GHS), Williamsburg District Historical Foundation (WHF) in Greenbrier County, the Summersville and Richwood public libraries in Nicholas County, and the Nicholas County Historical & Genealogical Society.

2. Beech Ridge will provide one-time monetary funding of up to $10,000 or in-kind service of equivalent value for future assistance in historic preservation-related activities conducted for or by the WVSHPO and/or WHF that fall within the defined WVSHPO historic preservation program activities. Proposed activities shall focus upon the communities visually impacted by the Beech Ridge Energy Facility. This funding will be available at any time for a period of two years following notification by Beech Ridge to the WVSHPO of initiation of construction at the Beech Ridge site. An approved scope of work by the WVSHPO will be submitted to Beech Ridge.

3. Upon notification by WVSHPO, but no earlier than the initiation of construction of the Beech Ridge Wind Energy Facility, Beech Ridge shall provide said funding or in-kind services to WVSHPO and/or WHF for the approved historic preservation activities.

4. After fulfillment of the conditions described above or the expiration of the two year period following initiation of construction without a request from WVSHPO or WHF for funding, Beech Ridge

will have satisfied its mitigation requirements for this specific stipulation.

B. Identification and Mitigation Efforts for Archaeological Resources

1. Prior to the initiation of any construction activities that could potentially disturb or damage archaeological resources , Beech Ridge shall carry out archaeological investigations in accordance with WVSHPO *Guidelines for Phase I, II, and III Archeological Investigations and Technical Reports*, published in 2001 and in accordance with the methodology set forth in this Memorandum of Agreement. Beech Ridge shall ensure that all scopes of work for archaeological identification and evaluation include a plan for the treatment of human remains and funerary objects that might be encountered.

a) Phase I Archaeological Survey. Beech Ridge shall ensure that a Phase I Scope of Work will be developed in consultation with WVSHPO. Phase I work will be designed to provide information regarding the significance of all identified archaeological sites as "site is not eligible" or "eligibility of site is indeterminable" to the National Register of Historic Places (NRHP). This work will be done in consultation with WVSHPO and all deliverables will be submitted for WVSHPO review and comment.

    1) If Beech Ridge and the WVSHPO agree that a "site is not eligible" for the NRHP, then no further investigations of that site will be conducted.

    2) If Beech Ridge and the WVSHPO agree that a site with indeterminable eligibility can and will be avoided by the Beech Ridge Wind Energy Facility, which would be the preferred option, then no further investigation of that site will be conducted, unless avoidance no longer becomes feasible.

b) Phase II Archaeological Testing. If all parties agree that the "eligibility of a site is indeterminable" and avoidance is not feasible, Beech Ridge shall ensure that a Phase II Research Design will be developed in consultation with the WVSHPO. This document will be consistent with WVSHPO guidelines. Phase II work will be designed to provide information regarding the significance of an archaeological site as "site is not eligible" or

"site is eligible" to the NRHP. This work will be done in consultation with WVSHPO and all deliverables will be submitted for WVSHPO review and comment.

1. If Beech Ridge and WVSHPO agree that a "site is not eligible" for the NRHP, then no further investigations of that site will be conducted.
2. If Beech Ridge and WVSHPO cannot agree regarding eligibility, all appropriate information regarding the site will be submitted by Beech Ridge to the Keeper of the National Register, National Park Service, for review. The Keeper's determination of eligibility will be final.
3. If Beech Ridge and WVSHPO agree that an eligible site can and will be avoided by the Beech Ridge Wind Energy Facility, which would be the preferred option, then no further investigation of that site will be conducted, unless avoidance no longer becomes feasible.

c) Application of Criteria of Adverse Effects. If parties agree that the "site is eligible" and avoidance is not a feasible alternative, then Beech Ridge will consult with WVSHPO to apply the criteria of adverse effects. This work will be completed in consultation with WVSHPO guidelines and all deliverables will be submitted for WVSHPO review and comment.

1. If following the application of the criteria of adverse effects, parties agree that the Beech Ridge Wind Energy Facility will have "no effect" or "no adverse effect" on an eligible site, then no further investigations of that site will be conducted.
2. If parties agree that the Beech Ridge Wind Energy Facility will have an "adverse effect" on an eligible site, but the project is subsequently redesigned to avoid adverse effects, then the finding would be changed to "no effect". Beech Ridge shall provide written documentation demonstrating avoidance for WVSHPO concurrence.
3. If continued design of the project determines that avoidance is no longer feasible, the effect will be reassessed.

d) Phase III Archaeological Data Recovery. If all parties agree that the Beech Ridge Wind Energy Facility will have an "adverse effect " on an eligible site and avoidance is not a feasible option, then Beech Ridge will consult with WVSHPO to identify measures to minimize and mitigate the adverse effect to the site. Beech Ridge shall ensure that a Data Recovery Plan will be developed in consultation with WVSHPO. The plan will be consistent with WVSHPO guidelines. The Phase III work will be designed to recover, interpret, and disseminate significant data for any eligible site. This work will be completed in consultation with WVSHPO guidelines and all deliverables will be submitted for WVSHPO review and comment.

1. Following WVSHPO review and approval of Phase III deliverables, no further investigations of that site will be conducted, unless an unanticipated post-review discovery is made.

e) Post-review discoveries.

In the event of any unanticipated discoveries of archaeological sites, unmarked cemeteries, or human remains and associated funerary objects during the implementation of the Beech Ridge Wind Energy Facility, all activities will be suspended in the area of discovery. Beech Ridge will contact WVSHPO within 48 hours of the discovery. In consultation with WVSHPO, Beech Ridge shall ensure that, if necessary, a qualified archaeologist will visit and assess the discovery within 72 hours of the initial WVSHPO notification. Through consultation, Beech Ridge and WVSHPO shall agree upon the appropriate treatment of the discovery prior to resumption of construction activities in the area of discovery. If human remains are determined to be of Native American origin, WVSHPO, in consultation with Beech Ridge, shall comply with W. Va. Code §29-1-8a. Beech Ridge affirms that all human remains will be avoided by direct construction impacts where feasible.

3. Dispute Resolution

During the execution of the stipulations as outlined above, should Beech Ridge and the WVSHPO be unable to reach a mutually satisfactory decision, except as noted, the WVSHPO will provide written comments to Beech Ridge. Beech Ridge shall respond to WVSHPO comments. This exchange of correspondence shall demonstrate that Beech Ridge has afforded the WVSHPO an opportunity to comment and considered potential effects to historic resources. All stipulations not subject to the dispute shall remain in force.

4. Reporting

Should there be an interruption of activity associated with the project for any significant length of time, Beech Ridge will provide at the minimum every six months a project status letter regarding the completion of work associated with the above stipulations.

5. Amendment

Beech Ridge and the WVSHPO may request an amendment to this agreement and consult with the other party prior to execution.

Execution of this Memorandum of Agreement by the Consulting Parties evidences that Beech Ridge has afforded the WVSHPO an opportunity to comment on the Project and its effects on historic properties and that Beech Ridge has addressed the Siting Certificate's condition of coordination with the WVSHPO in this regard.

CONSULTING PARTIES:

Susan M Pierce 7/31/08

West Virginia State Historic Preservation Office Date

David Mohney 8/4/08

Beech Ridge Energy LLC Date

1104590

APPENDIX B

Phase I Archaeological Scope of Work

CULTURAL RESOURCE ANALYSTS, INC.

151 Walton Avenue • Lexington, Kentucky 40508 • Phone (859) 252-4737 • Fax (859) 254-3747
3556 Teays Valley Rd, Suite #3 • Hurricane, WV 25526 • Phone (304)562-7233 • Fax (304) 562-7235

July 16, 2008

Ms. Lora Lamarre
Senior Archaeologist
West Virginia Division of Culture and History
1900 Kanawha Blvd., East
Charleston, WV 25305-0300
Voice: (304) 558-0240
Fax: (304) 558-2779
Email: Lora.Lamarre@wvculture.org
Web: http://www.wvculture.org/shpo/shpoindex.aspx

RE: Phase I Archaeological Survey Scope of Work
Beech Ridge Energy, LLC
Nicholas and Greenbrier Counties, West Virginia

Beech Ridge Wind Energy Wholesale Electric Generating Facility and Related Transmission Support Line (Beech Ridge Wind Energy Facility)

Dear Ms. Lamarre:

Cultural Resource Analysts, Inc. (CRAI) has been contracted by Potesta & Associates, Inc. (Potesta) and Beech Ridge Energy, LLC (Beech Ridge) to conduct a Phase I archaeological survey for the proposed Beech Ridge Wind Energy Wholesale Electric Generating Facility and Related Transmission Support Line (Beech Ridge Wind Energy Facility) located in Nicholas and Greenbrier counties, West Virginia. in The following scope of work (Scope) has been developed for your review, in anticipation of the completion of a Memorandum of Agreement (MOA) for the Beech Ridge Wind Energy Facility that sets forth a programmatic agreement for the completion of required archaeological work. The development of this Scope in consultation with your office is anticipated to be the first task required under the archaeology portion of the MOA.

1. Identify any archaeological sites located in the direct Area of Potential Effect (APE / footprint) of the Project;
2. Evaluate whether any identified archaeological sites may qualify as historic properties; and
3. If necessary, assess whether the Project may have an effect on any historic properties.

In this proposal, an ***archaeological site*** is defined as any below-ground remnants or aboveground ruins of a district, site, building, structure, or object 50 years of age or older. A ***historic property*** is defined as any archaeological site listed in, or eligible to, the National Register of Historic Places (NRHP). The ***NRHP*** is a national inventory of historic properties maintained and administered by the National Park Service. To be eligible for the NRHP, an archaeological site must meet several criteria. An ***effect*** is defined as any activity that alters a characteristic of a historic property qualifying it for inclusion in, or eligibility to, the NRHP.

REGULATORY AFFLIATION

The Beech Ridge Wind Energy Facility is subject to review by the West Virginia Public Service Commission (WVPSC). To meet WVPSC conditions, the project requires consultation with the West Virginia State Historic Preservation Office (WVSHPO) concerning effects to historic properties.

PROJECT BACKGROUND

The following discussion provides a summary of the information available for the Beech Ridge Wind Energy Facility. However, as project design proceeds, modifications to the present specifications may be necessary. The Beech Ridge Wind Energy Facility is located in north central Greenbrier County and southeast Nicholas County, West Virginia, and includes the development of a wind turbine power-generating facility, access roads, a substation, an operations and maintenance facility, and a transmission line (Figures 1 and 2). CRAI's analysis suggests that approximately 91 percent of turbine sites are located on undisturbed landforms with slopes less than 20 percent. However, extant information provided by Potesta and Beech Ridge suggests that much of the new road construction will follow existing logging roads that have been cut to bedrock or subsoil. Minimal new disturbance is anticipated in regards to upgrading existing roads. Current data suggest that the vast majority of the location of the substation and operations and maintenance facility has been previously disturbed by mining related activities. The Project also includes the construction of a 14.2-mile long transmission line. Current data suggest that the majority (77 percent) of this line is located on steep slopes and/or previously disturbed landforms.

AREA OF POTENTIAL EFFECT (APE)

As defined by 36 CFR 800.16 (d) the APE is:

> the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The [APE] is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking.

A project can have multiple APEs depending on its size and nature. It is my understanding that the indirect APE and indirect effects to historic properties from the Beech Ridge Wind Energy Facility have already been addressed by BHE Environmental of Cincinnati, Ohio and are in the final stages of completion. As such, the following document only addresses the direct effects to archaeological sites. The ***direct APE is the footprint of proposed ground disturbing activities***. (Figures 1 and 2).

CULTURAL RESOURCE POTENTIAL

Because no standing or aboveground cultural resources or historic properties are known to exist within the direct APE, archaeological sites are believed to be the most likely resources to exist. The natural setting of the direct APE is conducive to both prehistoric and historic occupation and use, and extant data indicate that prehistoric and historic-period archaeological sites will be identified during the survey. The upland nature of direct APE landforms suggests that identified archaeological sites will likely be confined to surface and near surface deposits. Raw materials utilized prehistorically for lithic tool production outcrop to the east and west of project vicinity, and the region is known to have been utilized and occupied prehistorically. Thus, it is considered likely that upland lithic scatters and/or camps may exist within the direct APE. The most likely resources to be encountered from the historic period are the remains of agrarian farms and industrial camps associated with logging and mining. However, existing disturbance has reduced the potential for cultural resources to survive within portions of the direct APE.

For example, previous mining and logging activities have disturbed portions of the direct APE.

PHASE I ARCHAEOLOGICAL SURVEY SCOPE OF WORK (SCOPE)

Based on the information presented above, CRAI has developed the following Scope to identify archaeological sites located within the direct APE. Specifically, the completion of six tasks is proposed.

These are: (1) consultation with the WVSHPO; (2) records search, (3) background research, (4) archaeological survey of the Project footprint, (5) laboratory analysis and application of the NRHP criteria (as possible), and (6) the preparation of a Phase I archaeological survey report summarizing the results of Tasks 1-5.

Task 1. WVSHPO Consultation

Before initiating Tasks 2-6, the following scope of work is being submitted for your review and approval. The principal goal of this consultation will be to ensure that all work completed will satisfy your concerns.

Task 2. Records Search

A search of files maintained by your office will be completed for an area extending 1mile from the direct APE boundaries. Resources to be examined include:

1. inventory forms, reports, and other available information pertaining to previous cultural resource projects mandated by federal, state, and local legislation;
2. information pertaining to privately or government-funded cultural resource surveys designed to facilitate planning; and
3. NRHP files.

In each of these files, information pertaining to all above ground and below ground cultural resources and historic properties will be reviewed. Information from pertinent reports and/or forms documenting previously surveyed and/or recorded cultural resources and historic properties will be recorded and copied. Field personnel will maintain copies of all forms and other relevant information for sites located within or adjacent to the project area during the course of fieldwork. Backup copies will be placed on file at our West Virginia office.

Task 3. Background Research

Background research is completed to generate information for the development of historic contexts and/or to fill gaps in extant databases used to locate and evaluate newly discovered cultural resources. Specifically, we envision the most important aspect of this task will be its use as a tool for identifying undocumented historic-period sites. Historic maps, aerial photographs, and various written historical accounts may help to reveal the locations of potential archaeological sites. Having information from this task in hand prior to initiating fieldwork will allow for more efficient identification of any cultural resources that might be present within the project area. For this reason, we propose that the majority of background research be completed prior to the initiation of fieldwork. However, supplemental research will likely be conducted throughout the project term, particularly if previously unknown property types are identified in the field. Historic contexts also aid in the process of evaluating identified cultural resources for the NRHP. Resulting information will provide a useful tool for making accurate and expedient decisions concerning the significance of recorded resources.

Task 4. Archaeological Survey

The direct APE will be subject to a standard Phase I archaeological survey. Methods have been designed to conform to guidelines prepared by the WVSHPO (Trader 2001), but are modified to take into account the nature of the project. All aspects of archaeological survey will be completed by professional archaeologists and technicians who have conducted large numbers of similar projects in the region. The Principal Investigator for this project will be Registered Professional Archaeologist (RPA) who will meet the WVSHPO's and the Secretary of the Interior's professional requirements for archaeology.

Pedestrian Survey**:** The direct APE will be subject to pedestrian survey to examine the surface for aboveground archaeological features including cemeteries, foundations, and rock cairns. When clear

evidence of disturbance is noted, slopes exceed 20 percent, or soil and sediment exposure exceeds 75 percent, CRAI will employ pedestrian survey exclusively. Attempts will be made to conduct pedestrian survey in 50-ft linear transects within the footprint of proposed project activities. However, pedestrian transects will be altered to accommodate any vegetative or topographic obstructions. In addition, field personnel will be given the leeway to reduce or leave their prescribed transects if archaeological features are noted that require further examination or field conditions require changes for safety reasons.

Shovel Testing: Shovel test probes (STPs) will be excavated only when superficial evidence of disturbance is not evident and/or along landforms containing slopes estimated to be less than 20 percent. STPs will also be excavated on slopes exceeding 20 percent if cultural resources are encountered or the potential for their presence is high (e.g., historic maps show evidence of development).

STPs will measure no more than 20 inches in diameter and will extend into culturally sterile deposits. Soil/sediment excavated from the STPs will be screened through 0.25-inch mesh hardware cloth. When sediments and/or soils are encountered that have the potential to contain intact and/or significant cultural resources, STPs will be excavated at approximate 50-ft intervals within the footprints of proposed project activities.

However, when the excavation of STPs illustrates obvious evidence of previous disturbance, deflated and/or eroded sediments, and/or soils considered to have a low potential to contain NRHP eligible archaeological sites, the interval between STPs will be increased to spot check these areas for intact deposits. Solid T-probes will be used, as appropriate, to identify contexts with a potential to contain intact cultural deposits. It is anticipated that the greatest variance in the distance between STPs will be on upland landforms where the potential for intact and significant cultural resources to survive is greatly reduced due to erosion, deflation, and/or disturbance.

Site Recordation: If archaeological deposits or materials are identified, more intensive pedestrian survey and/or shovel testing will be conducted to: (1) define horizontal and vertical boundaries, (2) recover a representative sample of artifacts, and (3) obtain information for contextual integrity. A site plan map will be made and the area will be photographed. The location of each site will be recorded using GPS units capable of sub-meter accuracy. Site locations will be plotted on the appropriate USGS 7.5-minute quadrangle using geo-referenced data stored within GPS units.

Human Remains: Should human remains be discovered during field work, WVSHPO will be contacted within 48 hours of discovery and W.Va. Code §29-1-8a will be complied with.

Documentation**:** Project conditions and survey results will be recorded using a combination of notes, sketch maps, and high-resolution digital photography. The locations of recorded resources, existing disturbances, and the types of methods used will be plotted onto project maps for inclusion in the final reports.

Task 5. Laboratory Analysis and NRHP Evaluation

Data generated during the analysis of artifacts recovered from the direct APE will be used to complete copies of the West Virginia Archaeological Site Form. Primary goals of analysis are to facilitate a better understanding of the cultural, temporal, and functional dimensions of sites examined during the field phase. In turn, this information will be used during the evaluation of site significance. All recovered materials from archaeological sites will be enumerated by site, type, and provenience in an appendix to the report. Following the completion of analysis, all artifacts and attendant information (e.g., field forms and photographs) will be stored temporarily at CRAI's West Virginia office. If landowners do not wish to retain ownership of the recovered materials, they will be prepared for permanent curation at the Archaeological Collections Facility, Grave Creek Mound Historic Site, Moundsville, West Virginia.

If archaeological sites are documented, they will be evaluated against the standards of the NRHP, which, in general, require a site to be at least 50 years old and possess both historical significance and integrity. Significance may be found in four aspects of North American prehistory and/or history defined by the following NRHP Criteria:

A. Association with historic events or activities;
B. Association with important persons;
C. Distinctive design or physical characteristics, or
D. Potential to provide important information about prehistory or history.

A site must meet at least one of these criteria for listing. Integrity must also be evident through historic qualities including location, design, setting, materials, workmanship, feeling, and association. Generally, the majority of archaeological sites that qualify do so under Criterion D. Unfortunately, Phase I data do not always provide sufficient information to allow for a determination of eligibility for archaeological sites. As such, CRAI will provide one of the following two recommendations for encountered sites; (1) "site is not eligible", or (2) "eligibility of site is indeterminable". In the second case, CRAI will provide recommendations concerning the types of investigations required to complete an NRHP evaluation.

Task 6. Deliverables

The results of Tasks 1-5 will be documented in a report prepared to WVSHPO guidelines (Trader 2001). All reports will be subject to technical editing by the Publications Director. This technical editing takes place after the Principal Investigator(s) and Project Director(s) have reviewed the draft for content and made all necessary corrections and/or modifications. The final reports will be created in *Microsoft Word* and single-spaced on standard-sized (8.5 x 11-in) white paper. Page numbers will appear on all pages. Maps, photographs, and other graphics will be clearly presented. The reports will be spiral bound. The Principal Investigator(s) will sign the original copy of the reports. The reports will be prepared for WVSHPO comment and for review by appropriate agencies.

STATEMENT OF QUALIFICATIONS

CRAI is a full-service cultural resource management firm with the ability to provide a complete range of historic preservation services to clients required to navigate regulatory requirements associated with federal and state permitting processes. The company maintains large facilities dedicated to analytical and report preparation activities, all of which is supported by a variety of word processing, database, spreadsheet, CAD, and GIS software programs. Our staff consistently exceeds the state requirements for professional education and experience. Every team member has attained a Bachelor's degree. In addition, all of the Principal Investigators in the company possess a Master's degree or higher as do many of our Archaeological and Architectural Field Supervisors and Historians. The Principal Investigators have over 250 years of combined experience. Furthermore, every archaeologist on our staff who is eligible has been certified by the Register of Professional Archaeologists. Given the size of the Project, and the potential for multiple types of cultural resources to exist, we will use a multi-disciplinary team composed of professionally qualified archaeologists who have a history of working together to ensure that the Project is completed on time and within budget. Our capacity allows us to complete large and multi-phase projects without the need for subcontracting out services or using student and/or intern labor. Further, our capacity allows us to dedicate team members to the Project until it is completed.

Archaeological Capacity: The company has over 30 archaeologists who specialize in various aspects of regional archaeology. We have extensive experience with prehistoric sites, including single and multi-component surface sites, unstratified and stratified buried sites, mounds, villages, and rockshelters. Our historic-period archaeologists have studied a variety of farmsteads, residential home sites, school houses, toll houses, plantations, taverns, Civil War resources, and slave sites. Our industrial archaeologists have investigated a variety of industrial sites in the region, some of which have included grist mills, iron furnaces, blacksmith shops, coal mines, timber camps, powder mills and mines, distilleries, and a wool

carding shop. CRAI also employs geophysical experts and a full-time bio-anthropologist who specializes in evaluating human remains.

CRAI maintains a full complement of traditional archaeological gear and the latest in field electronic equipment including digital cameras, GPS units, geophysical survey equipment, and a theodolite with EDM. Transportation is provided by 4x4 field vehicles and access to more remote locations is gained by 4x4 ATVs. The West Virginia office also owns a 12-ft closed equipment trailer that is used to transport large, bulky equipment to remote locations. Soil flotation samples are processed with a Flot-Tech device.

The archaeological laboratory contains state-of-the art database systems designed by and for CRAI that allow for the comprehensive and systematic analysis of all recovered materials. Our laboratory staff has extensive experience in the latest material analysis techniques and are equipped with state-of-the art equipment, including high-resolution microscopes, sonic cleaners, electrolysis tanks, and digital scales and calipers. We also maintain extensive type collections to aid in the identification of raw materials and historic and prehistoric artifacts.

Proposed Staffing: Given the nature of the project, it is anticipated that a multidisciplinary team will be employed to complete the scope of work. Specialties of CRAI staff that will likely be considered important to this project include (in alphabetical order):

- computer aided design (CAD);
- geographic information systems (GIS);
- global positioning systems (GPS);
- historical and industrial archaeology;
- historic research; and
- prehistoric archaeology.

It is anticipated that several members of the staff will play key roles in the supervision and completion of the proposed work.

- ***Project Manager (C. Michael Anslinger, MA, RPA)***: Responsible for overseeing all aspects of the project and assuring quality control. Mr. Anslinger will also serve as the principal project coordinator with your office.
- ***Principal Investigator – Prehistoric Archaeology (Stevan C. Pullins, MA, RPA)***: Responsible for overseeing archaeological research on prehistoric sites, including fieldwork, laboratory analysis, and report write-up.
- ***Principal Investigator – Historical Archaeology (Aaron O. Smith, MS, RPA)*:** Responsible for overseeing archaeological research on historic-period sites, including fieldwork, laboratory analysis, and report write-up.
- ***Principal Investigator – Industrial Archaeology (William D. Updike, MS, RPA)***: Responsible for overseeing archaeological research on industrial-period sites, including fieldwork, laboratory analysis, and report write-up.
- ***Field Supervisors and Technicians:*** CRAI has a pool of full-time Field Supervisors and Technicians. Field Supervisors will work under the direct supervision of the Principal Investigators and will be responsible for overseeing and participating in all aspects of fieldwork. Field Technicians will work under the supervision of the Field Supervisor.
- ***Laboratory Supervisor***: The Laboratory Supervisor will work under the direct supervision of the Principal Investigators and will be responsible for overseeing all aspects of artifact processing, analysis, and curation.
- ***Laboratory Technicians:*** CRAI has a pool of full-time Laboratory Technicians. Laboratory Technicians will work under the direct supervision of the Laboratory Supervisor and will be responsible for processing artifacts.

- ***CAD and GIS Mapping and GPS Specialist*:** The Mapping and GPS Specialist will work under the direct supervision of the Principal Investigators and will be responsible for digitizing and producing project mapping and graphically displaying project results.

CONCLUDING REMARKS

If project plans are altered following the completion of the Phase I survey, new areas of proposed disturbance will be subjected to the same level of work proposed here.

We would like to thank you for this opportunity to consult with you about this Project and look forward to continuing to work with your office. Following your review, we would appreciate any comments your office has concerning the Scope. Should you have any questions, comments, or concerns, please do not hesitate to contact me by phone (304) 562-7233 (ext 106) or email (asmith@crai-ky.com).

Sincerely,

Aaron O. Smith, RPA
Principal Investigator – West Virginia Office

REFERENCES CITED

Trader, P.D.
2001 *Guidelines for Phase I, II, and III Archaeological Investigations and Technical Reports.* Prepared by the West Virginia State Historic Preservation Office, Charleston.

LIST OF ATTACHED FIGURES

1. Portions of USGS 7.5-minute Nettie, Richwood, Fork Mountain, Quinwood, Duo, Trout, Rupert, Cornstalk, and Williamsburg West Virginia quadrangles showing the location of the wind generating facility and proposed access roads.

2. Portions of USGS 7.5-minute Nettie, Richwood, Fork Mountain, Quinwood, Duo, and Trout West Virginia quadrangles showing the location of the proposed transmission line.

ATTACHED FIGURES

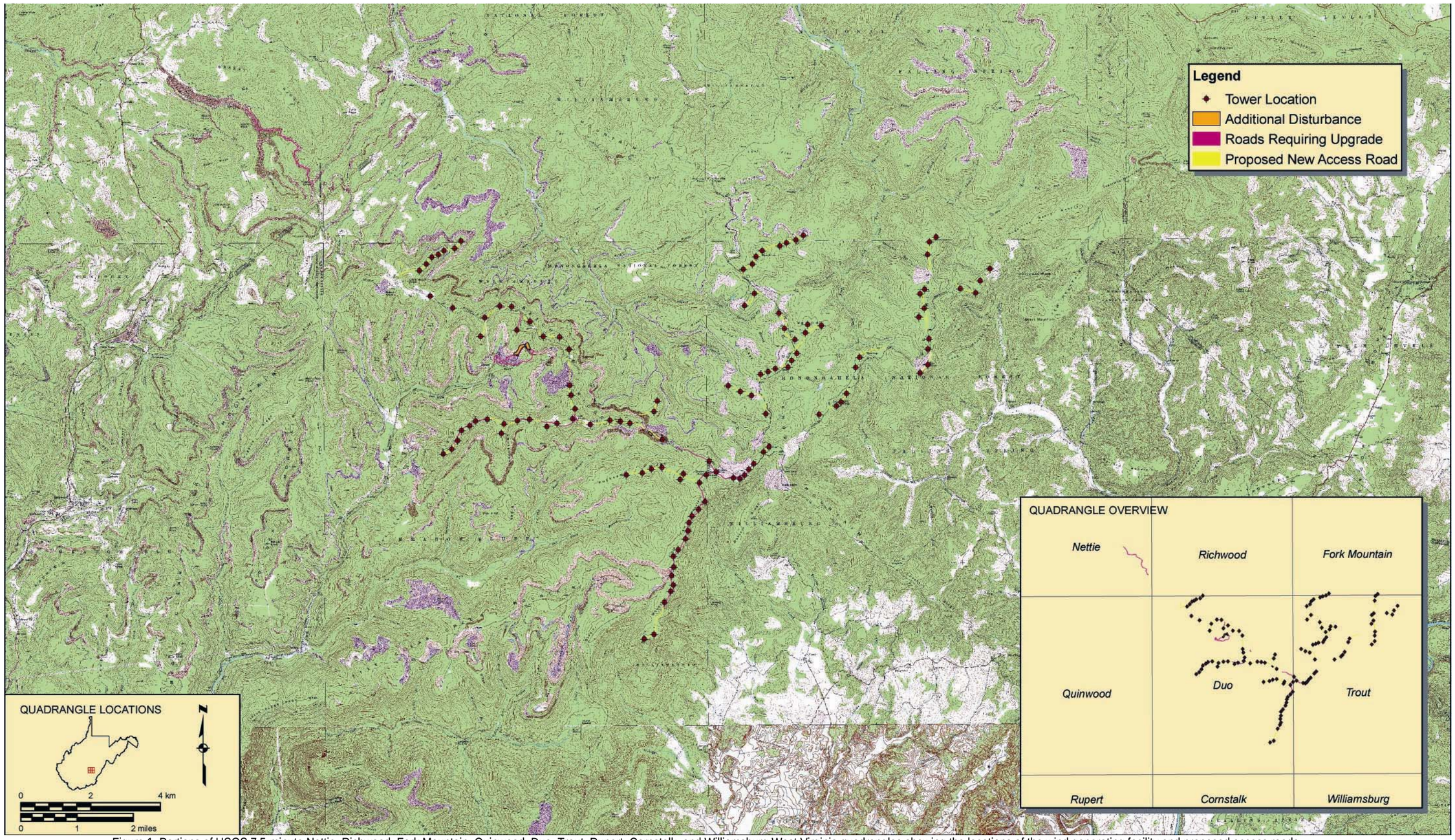


Figure 1. Portions of USGS 7.5-minute Nettie, Richwood, Fork Mountain, Quinwood, Duo, Trout, Rupert, Cornstalk, and Williamsburg West Virginia quadrangles showing the locations of the wind generating facility and proposed access roads.

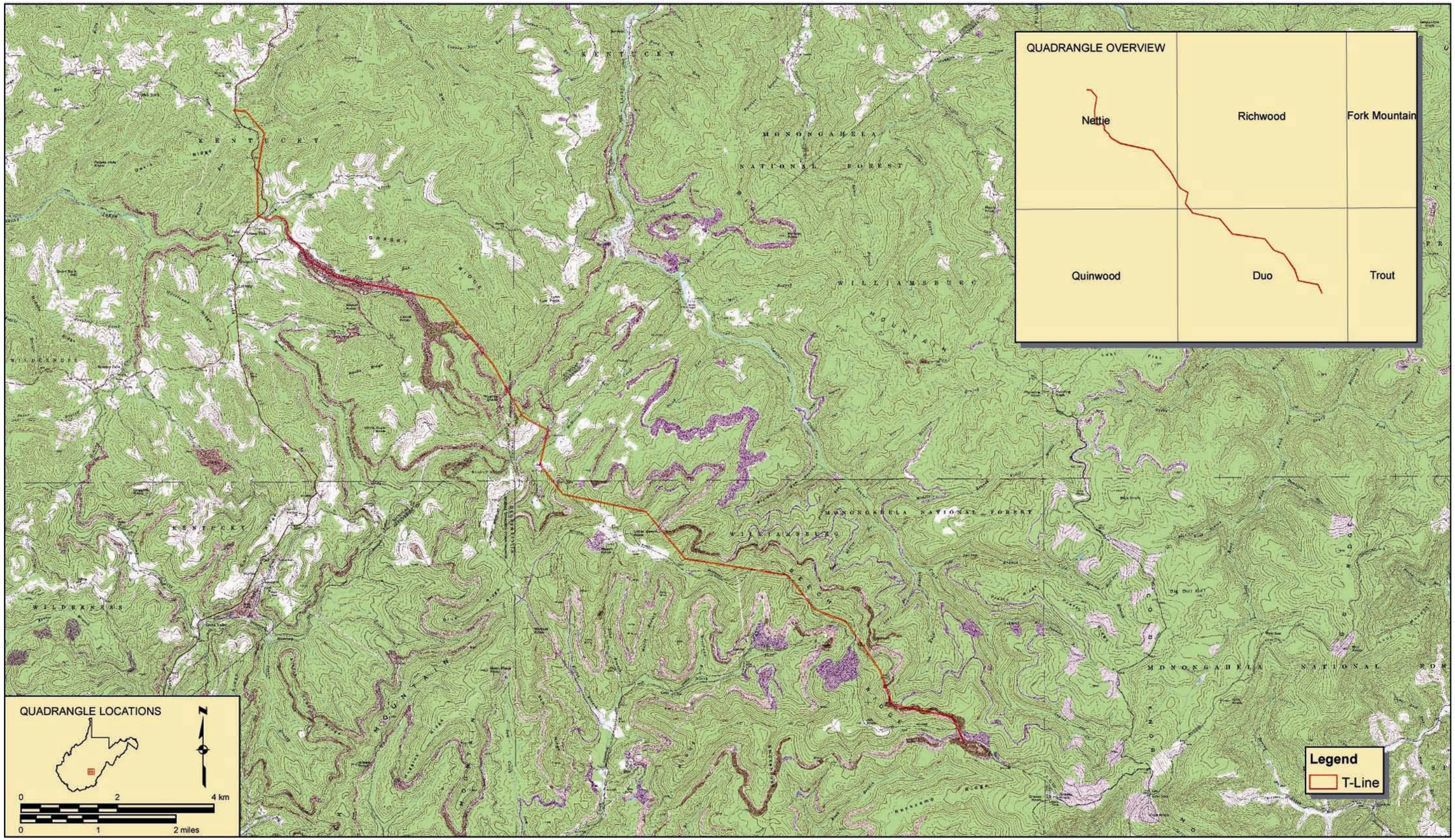


Figure 2. Portions of USGS 7.5-minute Nettie, Richwood, Fork Mountain, Quinwood, Duo, and Trout West Virginia quadrangles showing the location of the proposed transmission line.

WEST VIRGINIA
DIVISION OF
CULTURE & HISTORY

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

Phone 304.558.0220
Fax 304.558.2779
TDD 304.558.3562
www.wvculture.org
EEO/AA Employer

July 23, 2008

Mr. Aaron O. Smith
Principal Investigator
CRAI
3556 Teays Valley Road
Suite 3
Hurricane, WV 25526

RE: Beech Ridge Wind Energy Facility
Archaeology Survey Scope of Work
FR#: 06-147-GB-23

Dear Mr. Smith:

We have reviewed the Phase I archaeological survey proposed scope of work for the above referenced project. The following comments are offered under West Virginia Code 29-1-8.

According to the scope of work (SOW), Phase I archaeological survey will be conducted within the areas proposed for ground disturbing activities, which has been defined as the direct Area of Potential Effect. The field work that will be conducted during the survey includes pedestrian survey, excavation of shovel probes in undisturbed landforms that are less than 20 percent in slope, and recordation of any identified archaeological sites. The results of the field work will be documented in a technical report that will be submitted to this office for review. All field work, laboratory analysis, and written materials will be executed in accordance with *Guidelines for Phase I, II and III Archaeological Investigations and Technical Reports* (Trader 2001). We concur with the methodology and look forward to reviewing the results of the survey.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Lora Lamarre, Senior Archaeologist at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/LAL

APPENDIX C

WV Archaeological Site Forms

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM

1. Site No(s) **46Gb445** 2. Site Name **Site 1 (Stone Mound with Depression)**

3. County: **Greenbrier** 4. 7.5' Quadrangle: **USGS Trout**

5. UTM Zone **17** Northing **4218937** Easting **0551943** Datum **WGS 84**

6. Location Description: **The site is approximately 1.5 km north of the confluence of Beard Lick Run and Panther Camp Creek and adjacent to a jeep trail off Sky Way.**

---

7. Ownership (Name/Address/Tenant) **Unknown**

---

8. Temporal Periods:

Prehistoric ☒ **Unassigned** ☐ Paleo-Indian ☐ Archaic, E M L

☐ Woodland, E M L ☐ Late Prehistoric/Protohistoric

Historic ☐ 1700-1750 ☐ 1751-1800 ☐ 1801-1850

☐ 1851-1900 ☐ 1901-1950 ☐ 1951-Present

9. Cultural Affiliations(s), if known **Unknown**

10. **Prehistoric Site Type**:

☐ Isolated Find ☐ Open Air Habitation (Village/Camp/Hamlet)
☐ Cave/Rock Shelter ☒ **Mound/Earthwork** ☐ Lithic Scatter
☐ Rock Art (Petroglyph/Pictograph) ☐ Unknown ☐ Quarry/Reduction

Remarks: **Potential Stone Mound (not confirmed)**

11. Historic Site Type:

☐ Domestic ☐ Industrial ☐ Military
☐ Cemetery ☐ Rural ☐ Other
☐ Urban (Tax Map 3..... Parcel # .....) ☐ Unknown

Remarks:

---

12. Site Condition:

☐ Unknown ☐ Undisturbed ☐ Destroyed

☒ **Disturbed** (explain): **The stone mound appears to have been partially excavated.**

13. Topography/Landform:

☐ Floodplain ☐ Terrace ☐1 ☐2 ☐ 3 ☐ Ridge Top ☒ **Gap/Saddle**
☐ Hillside/Bench ☐ Other:

Remarks:

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM

14. Physiographic Province:

☐ Appalachian Plateau ☒ **Transitional** ☐ Ridge and Valley

☐ Other

15. Soils **Mandy channery silt loam (MkF)**

16. Vegetation **Second Growth Forest**

17. Elevation **1063 m (3488ft)** 18. Slope **35-55%** 19. Slope Direction **South**

20. Nearest Water (Name) **Cherry River South Fork**

☒ **Permanent** ☐ Intermittent

21. Site Size (Dimensions in Meters) **8-x-8m**

22. Site Description (Note features, present land use, etc.) **Possible stone mound with depression**

---

23. Investigation Type:

☒ **Reconnaissance (Surface survey, shovel tests)** ☐ Intensive (Phase II Testing) ☐ Excavation (%)

24. Investigated By (Name/Organization/Date) **Cultural Resource Analysts, Inc. September 2008**
Remarks: **Proposed Beech Ridge Wind Energy Facility**

---

25. Site Significance: (For Official Use Only)

☐ NHL ☐ Not Evaluated ☐ National Register

☐ Considered Eligible ☐ Not Eligible

---

26. Artifacts Collected: ☐ All ☐ Some ☒ **None**

Check types collected:

☐ Lithics ☐ Ceramics ☐ Floral ☐ Faunal ☐ Historical ☐ Other

Remarks: **No artifacts discovered / recovered**

27. Curation Location: **Cultural Resource Analysts, Inc: Hurricane, WV (Temporary)**

---

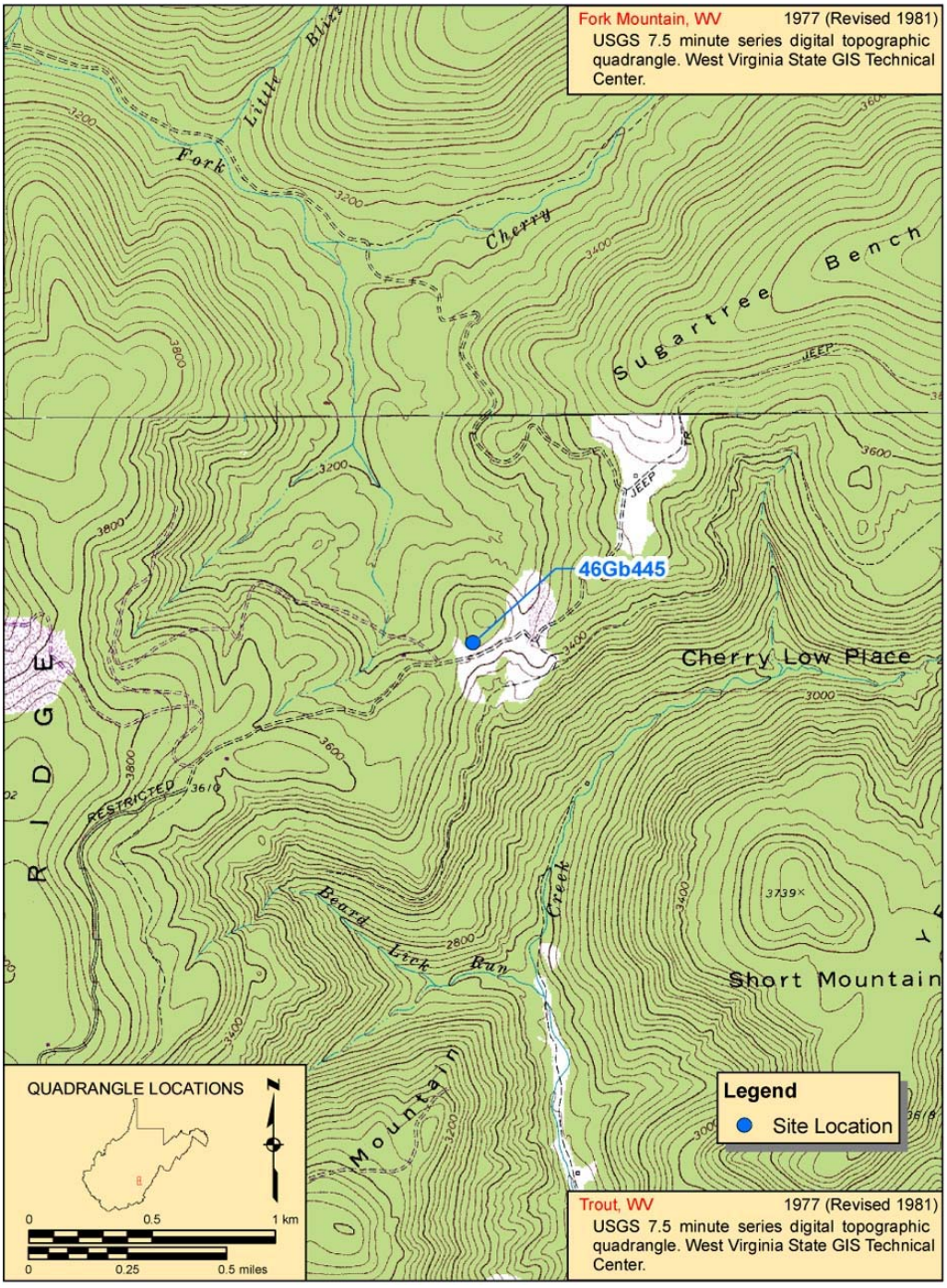
28. Recorder: **Aaron O. Smith** Date: **September 2008**

Cultural Resource Analysts, Inc., 3556 Teays Valley Road, Suite 3, Hurricane, West Virginia 25526

29. Map/References (Attach quad map or sketch location with nearest landmarks and include north arrow. Also note references, if any.) **See Continuation Sheets**

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM CONTINUATION SHEET

Site #:	46Gb445	Site Name:	(Site 1) Stone Mound with Depression
Cultural Resource Analysts, Inc.	County: Greenbrier	Page:	3 of 4



Portion of 1972 (1981) USGS 7.5-minute Trout, WV quadrangle showing the location of site.

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM CONTINUATION SHEET

Site #:	46Gb445	Site Name:	(Site 1) Stone Mound with Depression
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 4 of 4

Taken from:
Meece, Jamie, and Aaron O. Smith
2008 *Phase I Archaeological Survey of the Proposed Beech Ridge Wind Energy Facility & Associated Transmission Line*. Contract Publication Series WV08-70. Prepared for Beech Ridge, LLC. Prepared by Cultural Resources Analysts, Inc., Hurricane, West Virginia.

The site is located approximately 1.5 km (0.9 mi) north of the confluence of Beard Lick Run and Panther Camp Creek, adjacent to a jeep trail off Sky Way. Site 46Gb445 was encountered while conducting systematic pedestrian survey and shovel testing along the route of the proposed access road leading to proposed Turbine D-1. The site consists of a 6.0-x-5.0-m (19.7-x-16.4-ft) stone and dirt mound with a central depression. In addition, a mound of stack piled stones is located at the northern edge of the mound.

Systematic and purposive shovel testing around this feature failed to recover any artifacts or discover evidence for other types of archaeological deposits. The representative soil profile as documented in STP 01 consists of 6 cm (2.4 in) very dark grayish-brown (10YR3/2) sandy loam O/A horizon from 0-6 cm (0-2.4 in), and dark yellowish-brown (10YR4/6) sandy loam B horizon that extends below the base of the subsurface investigations.

Upland stone mounds of similar size and extent have been documented in the region, and it is has been hypothesized that some of these features were used during the prehistoric period to place the recently deceased for de-fleshing. Later, these tombs would be revisited and the bones collected for reburial at another site. The central depression and stacked stone pile noted at 46Gb445 may be the result of the re-collection of human remains, although it is also possible that they are the result of a more resent non-scientific investigation.

Current evidence is insufficient to determine the origin, age, or cultural affiliation of the site. Other similar stone features were noted in the survey area. However, unlike 46Gb445, these were clearly the result of historic-period field clearing connected with farming, or mechanical grading for road construction and/or logging activities. Site 46Gb445, on the other hand, is isolated from any obvious historic-period or modern activity and was not obviously associated with any other mechanical disturbances.

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM

1. Site No(s) **46Gb446** 2. Site Name **Site 2 (Reid Gap Site)**

3. County: **Greenbrier** 4. 7.5' Quadrangle: **USGS Trout**

5. UTM Zone **17** Northing **4216624** Easting **0548386** Datum **WGS 84**

6. Location Description: **The site is located west of Big Ridge Mountain in Reid Gap and approximately 200 m north of Sky Way.**

---

7. Ownership (Name/Address/Tenant) **Unknown**

---

8. Temporal Periods:

Prehistoric
- ☒ **Unassigned**
- ☐ Paleo-Indian
- ☐ Archaic, E M L
- ☐ Woodland, E M L
- ☐ Late Prehistoric/Protohistoric

Historic
- ☐ 1700-1750
- ☐ 1751-1800
- ☐ 1801-1850
- ☐ 1851-1900
- ☒ **1901-1950**
- ☒ **1951-Present**

9. Cultural Affiliations(s), if known **Unknown**

10. **Prehistoric Site Type**:
- ☐ Isolated Find
- ☐ Open Air Habitation (Village/Camp/Hamlet)
- ☐ Cave/Rock Shelter
- ☐ Mound/Earthwork
- ☒ **Lithic Scatter**
- ☐ Rock Art (Petroglyph/Pictograph)
- ☐ Unknown
- ☐ Quarry/Reduction

Remarks:

11. Historic Site Type:
- ☒ **Domestic**
- ☐ Industrial
- ☐ Military
- ☐ Cemetery
- ☒ **Rural**
- ☐ Other
- ☐ Urban (Tax Map 3..... Parcel # .....)
- ☐ Unknown

Remarks: **Remains of Reid Farmstead**

---

12. Site Condition:
- ☐ Unknown
- ☐ Undisturbed
- ☐ Destroyed

☒ **Disturbed** (explain): **Plowing.**

13. Topography/Landform:
- ☐ Floodplain
- ☐ Terrace ☐1 ☐2 ☐ 3
- ☐ Ridge Top
- ☒ **Gap/Saddle**
- ☐ Hillside/Bench
- ☐ Other:

Remarks:

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM

14. Physiographic Province:

☐ Appalachian Plateau ☒ **Transitional** ☐ Ridge and Valley

☐ Other

15. Soils **Mandy channery silt loam (MkF)**

16. Vegetation **Second Growth Forest**

17. Elevation **1098.8 m (3605 ft)** 18. Slope **3-25%** 19. Slope Direction **Varies**

20. Nearest Water (Name) **Cold Knob Fork**

☒ **Permanent** ☐ Intermittent

21. Site Size (Dimensions in Meters) **75 EW-x-30 NS m**

22. Site Description (Note features, present land use, etc.) **Lithic debitage scatter mixed with twentieth-century refuse from post-1935 farmstead.**

---

23. Investigation Type:

☒ **Reconnaissance (Surface survey, shovel tests)** ☐ Intensive (Phase II Testing) ☐ Excavation (%)

24. Investigated By (Name/Organization/Date) **Cultural Resource Analysts, Inc. September 2008**
Remarks: **Proposed Beech Ridge Wind Energy Facility**

---

25. Site Significance: (For Official Use Only)

☐ NHL ☐ Not Evaluated ☐ National Register

☐ Considered Eligible ☐ Not Eligible

---

26. Artifacts Collected: ☒ **All** ☐ Some ☐ None

Check types collected:

☒ **Lithics** ☐ Ceramics ☐ Floral ☐ Faunal ☒ **Historical** ☐ Other

Remarks:

27. Curation Location: **Cultural Resource Analysts, Inc: Hurricane, WV (Temporary)**

---

28. Recorder: **Aaron O. Smith** Date: **September 2008**

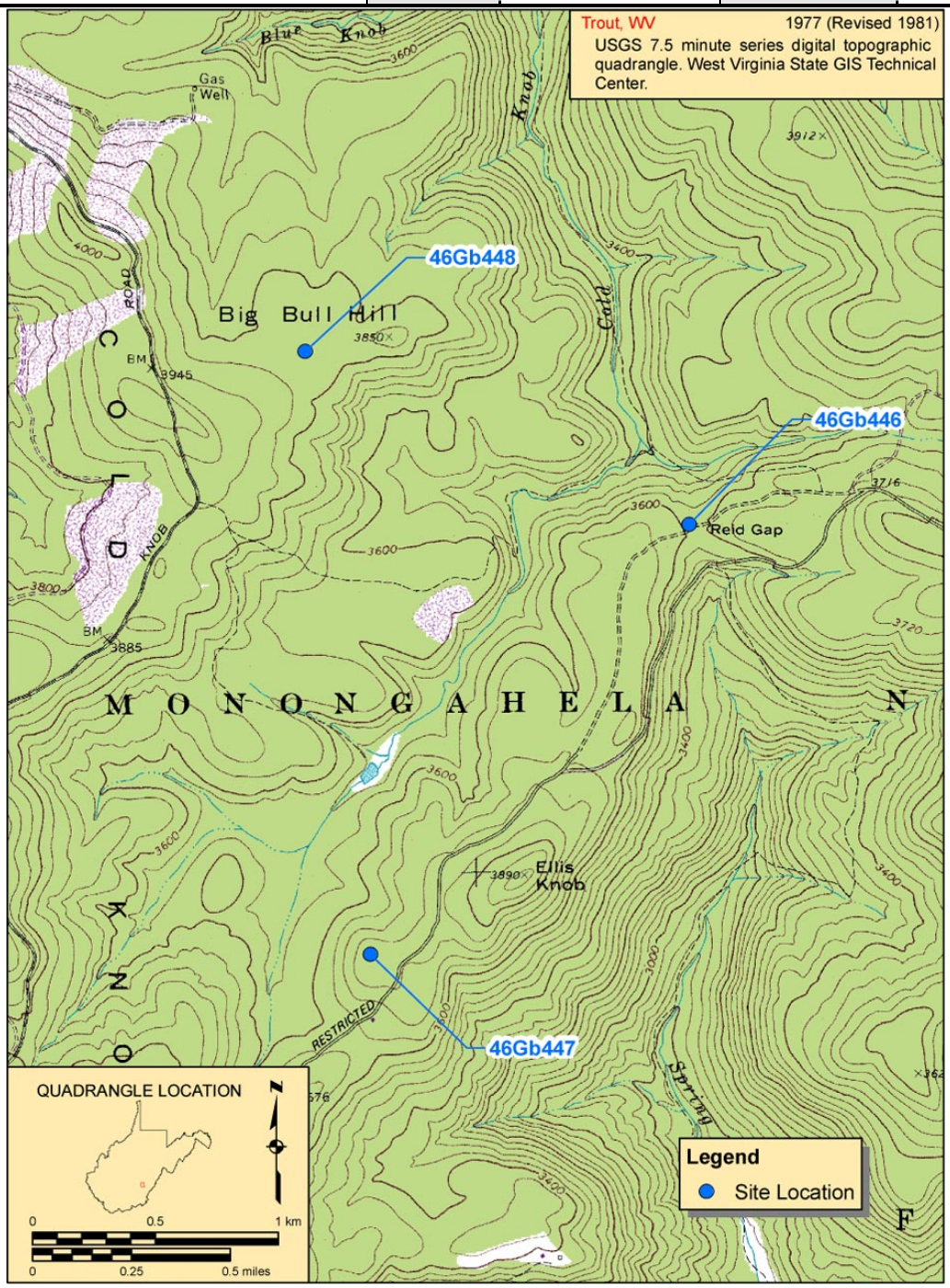
Cultural Resource Analysts, Inc., 3556 Teays Valley Road, Suite 3, Hurricane, West Virginia 25526

29. Map/References (Attach quad map or sketch location with nearest landmarks and include north arrow. Also note references, if any.) **See Continuation Sheets**

Meece, Jamie and Aaron O. Smith
2008 ***Phase I Archaeological Survey Proposed Beech Ridge Wind Energy Facility & Associated Transmission Line*** **. Prepared for Beech Ridge, LLC. Prepared by Cultural Resources Analysts, Inc., Hurricane, West Virginia.**

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM CONTINUATION SHEET

Site #:	46Gb446	Site Name:	(Site 2) Reid Gap Site
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 3 of 10



Portion of 1972 (1981) USGS 7.5-minute Trout, WV quadrangle showing the location of site.

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM CONTINUATION SHEET

Site #:	46Gb446	Site Name:	(Site 2) Reid Gap Site
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 4 of 10

Taken from:
Meece, Jamie, and Aaron O. Smith
2008 *Phase I Archaeological Survey of the Proposed Beech Ridge Wind Energy Facility & Associated Transmission Line*. Contract Publication Series WV08-70. Prepared for Beech Ridge, LLC. Prepared by Cultural Resources Analysts, Inc., Hurricane, West Virginia.

Site 46Gb446 is located west of Big Ridge Mountain in Reid Gap and approximately 200 m (656.2 ft) north of Sky Way. The site was encountered while conducting systematic pedestrian survey and shovel testing along the route of the proposed access road leading to proposed Turbine C-6.

Fifty-five STPs were excavated within and adjacent to the site. Eleven of these, confined to the gap proper, were positive for archaeological materials. Reid Gap, which was largely in pasture at the time of the survey, is bisected by an existing unimproved jeep trail. Steep slope clearly defines the gap on all four sides.

Artifact-bearing deposits were restricted to the O/A horizon. Typically, a 2-cm (0.8-in) black (10YR2/1) O horizon was exposed overlaying a 12 cm (4.7 in) thick very dark brown (10YR2/2) silt loam A horizon, which by volume included an estimated 10-15 percent of natural tabular stone fragments. Beneath the material-bearing O and A horizons was yellowish-brown (10YR5/6) silt loam subsoil containing approximately 15-30 percent natural tabular sandstone fragments by volume.

One aboveground feature (Stone Pile 1) was noted within the gap proper. Shovel testing near Stone Pile 1 exposed a channery soil containing 80-90 percent natural pieces of tabular sandstone. Eleven additional stone piles (Stone Piles 2-12) of similar size and shape were identified on a easterly sloping landform west of the gap and north of the jeep trail. A single STP was excavated adjacent to each of the stone piles, despite their location just outside the direct APE and on steep slope. The purpose of the STPs was to gain information for the origin of the stone piles.

Typically, the STPs exposed a 5-cm (2.0-in) thick very dark brown (10YR2/2) silt loam O/A horizon, overlying brown (10YR4/3) silt loam subsoil containing approximately 80 percent natural pieces of tabular sandstone. No evidence of artifacts or other types of archaeological deposits was recovered.

The stone piles continued farther north into areas well outside the direct APE; these stone piles were neither charted nor investigated. However, based on visual observations, it is speculated that 15 to 25 additional stone piles may exist north of the area defined as 46Gb446.

Five additional stone piles (Stone Piles 13-17) and a stone wall were also discovered in the vicinity of proposed Turbine C-6. These features are not located in the direct APE. However, given the proximity of Stone Piles 15 and 17, both were tested archaeologically with a single STP. No evidence of archaeological deposits and/or cultural materials was discovered.

A large boulder was noted on the upward slope east of the gap. The boulder appears to have been turned upright and currently sits in a push-pile. On this basis, it appears that this feature was created by mechanical grading.

Sixty artifacts were recovered from the 11 positive STPs. Of these, 39 are fragments of prehistoric lithic artifacts, including 37 pieces of debitage and two amorphous core fragments. No temporally and/or cultural diagnostic prehistoric material was recovered from this functionally limited assemblage. In addition, no floral or faunal remains or fire-cracked rock was identified, nor was evidence of prehistoric features or midden encountered.

Twenty-nine Size Grade 2 flakes manufactured from Hillsdale chert (n=20), siltstone (n=1), and an indeterminate chert (n=8) possibly derived from the Helderburg formation are present in the assemblage. Also present are three Size Grade 3 flakes of Hillsdale chert. Of the 29 pieces of flake debitage, 17 retain cortex. Four flakes less than 1/4 inch were also recovered. As mentioned in Chapter VII, due to the use of 1/4-inch screens in the field, flakes less than 1/4 inch in size were not systematically recovered in the field. As such, they were excluded from the technological analysis. Two amorphous core fragments manufactured from Hillsdale chert were recovered; both cores have cortex present. One was recovered from STP 6 and the other from STP 7.

The remaining 21 artifacts date from the historic-period and/or modern times. Recovered material was assigned to the Architecture, Arms, Domestic, Maintenance/Subsistence, and Miscellaneous groups, and generally dates from the late nineteenth and twentieth centuries to modern period. As none of the material contained attributes that could be used to assign end dates of manufacture, it is not possible to assign any of the artifacts to a specific time-period with confidence.

Architecture Group items (n=10) consist of nails (n=8) and window glass (n=2). Several wire nails (post 1880) and nail fragments were recovered from STPs. Two pieces of windowpane glass were also recovered; one measured 2.78 mm thick, and the other measured 2.84 mm. Both fragments were too thick to be analyzed utilizing Moir's (1987) formula. This suggests that the two fragments likely date from the middle twentieth century.

A single shotgun shell (postdating 1878) was recovered from STP 02 and was the only artifact from the Arms Group (Ball 1997:132).

Domestic Group artifacts (n=6) consist of ceramics (n=2), glass (n=3), and container closures (n=1). Ceramic items include one body fragment from a cookware/storage vessel manufactured from whiteware with no decoration that postdates 1820 (Miller 2000:13), and one fragment from a ceramic tableware vessel manufactured from ironstone with no decoration. This might be a marley fragment from a teacup that most likely postdates 1870.

Container closures include a home canning jar Mason liner with no decoration that postdates 1869 (Miller 2000:8). Miscellaneous domestic glass items include three body fragments from a machine-made glass container of unidentified function, manufactured from clear glass (n=2) and green tint glass (n=1); all three fragments postdate 1899 (Miller 2000:8).

Maintenance and Subsistence Group artifacts (n=3) include two pieces of ferrous metal plow parts and a blade section from a handsaw also manufactured from ferrous metal. None of the specimens is temporally diagnostic, and no dates are available for these items.

Miscellaneous Group artifacts (n=1) include one piece of clear melted glass from an indeterminate item. This item is not temporally diagnostic.

The prehistoric component at 46Gb446 consists of a low-density lithic-debris scatter found in a shallow O/A horizon, which also contains materials dating largely from the twentieth century. No temporally and/or culturally diagnostic prehistoric material was recovered, and no evidence of prehistoric midden and/or feature deposits was documented. As such, the site does not appear to have the potential to contain data that would provide important information concerning prehistoric habitation and/or utilization of the region.

The historic-period component of 46Gb446 consists of a small quantity of functionally restricted material that can not be firmly dated. No evidence of historic-period midden and/or features was documented. In addition, 18 stone piles, a stone wall, and an upright stone boulder are documented in association with the site.

According to Richard Thomas, the local landowner, a historic-period farm (Reid Farmstead) stood within Reid Gap during the early twentieth century. A single building is depicted within Reid Gap on a 1936 map. Interestingly, the building is not charted on a 1935 map, suggesting that it was constructed between 1935 and 1936.

Today, no historic-period buildings or structures stand within Reid Gap, and no aboveground or belowground ruins of historic-period buildings were encountered during the field investigation. Currently, it is unknown when this farmstead was abandoned. A modern hunting camp is currently located northwest of the site, well outside of the direct APE.

Mountain farming played an important role in the history of Greenbrier County. Reviewed data indicate that most upland landforms were not initially selected for habitation or cultivation due to their high elevation, inaccessibility, and channery soils. Instead, these landforms were primarily utilized for grazing stock. However, the historical record also suggests that as population pressures increased, upland habitation may have become more frequent, especially following the timber and coal booms of the early twentieth century. This may explain why 46Gb446 does not appear to be occupied until at least 1935. The location of the farmstead in a low gap would have also provided the dwelling some natural protection from the elements. The presence of multiple field clearing piles at the site is a testament to the effort required to make the land tillable.

Unfortunately, recovered archaeological data do not provide further opportunities to interpret the history of the site or better understand its inhabitants. The small size and limited functional range of the artifact assemblage restricts its analytical value. The lack of temporally diagnostic material further reduces the ability of the collection to be used for interpretive purposes. The archaeological study of farmsteads benefits greatly when contributing elements of the farm retain a certain degree of physical and contextual integrity. However, the materials recovered from the site were not found in association

with midden or feature deposits, the presence of which might have allowed for the identification of activity areas (e.g. precise dwelling location, garden, barn, cellar livestock pen), as building ruins or remains dating to the period of the farm were not discovered.

The presence of intact field clearing piles provides some clues to landscape use. The piles appear concentrated along the western slope of Reid Gap, indicating that these slopes were not cultivated. Instead, it is likely that the upland portions of the ridges west of the gap were under cultivation. Evidence derived from a historical map and the field investigation indicates that the farmhouse was likely located within the gap.

Beyond this elementary understanding, identified site materials, deposits, and features provide limited opportunities for obtaining significant information about the site and upland farming in Greenbrier County.

Overview of 46Gb445.

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM CONTINUATION SHEET

Site #:	46Gb446	Site Name:	(Site 2) Reid Gap Site
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 8 of 10

Stone Pile 1 at 46Gb446 in Reid Gap.

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM CONTINUATION SHEET

Site #:	46Gb446	Site Name:	(Site 2) Reid Gap Site
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 9 of 10

Stone Pile 2 at 46Gb446 on west slope of Reid Gap.

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM CONTINUATION SHEET

Site #:	46Gb446	Site Name:	(Site 2) Reid Gap Site
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 10 of 10

Stone Pile 16 at 46Gb446.

WEST VIRGINIA CEMETERY RECORDING FORM

1. Site Number: **46Gb447** 2. Cemetery Name: Historic: **NA** Common: **(Site 3) Possible Grave Site 1**

3. County: **Greenbrier** 4. 7.5' Quadrangle: **Trout**

5. UTM Zone: **17 (WGS 84)** Easting: **0547090** Northing: **4214873**

6. Ownership: Public: ☐ Municipal ☐ County ☐ State ☐ Federal
Private: ☐ Family ☐ Church Denomination:
Fraternal: Other: **Unknown**

7. Burial Population: **Unknown** 8. Predominant Surnames: **None**

9. Mass Grave: Yes ☐ No ☐ Explain:

10. Public Accessibility: ☐ Unrestricted
☒ **Restricted** For permission to visit, contact:

11. Access into Cemetery: ☒ **By foot** ☐ By car:

12. Terrain: **Ridgetop**

13. Bounded by: ☐ Fence ☐ Wall ☐ Hedge ☒ **Other**: **No marked boundaries**

14. Condition: ☐ Well-maintained ☐ Poorly maintained ☐
☒ **Overgrown, identifiable** ☐ Unidentifiable, but known to exist through tradition or other means
(identify source):

15. Cemetery Size and Orientation (give dimensions in feet, and indicate compass direction for long and short axis):
Two upright fragments of sandstone approximately 6.6 ft apart, orientated east to west and appear to be sunk into the ground and partially shaped.

16. Historical Background (use continuation sheet if necessary):

WEST VIRGINIA CEMETERY RECORDING FORM

17. Gravestones (Please list the number of gravestones that fit in the categories below. If this is a guess or an approximation, put "circa" before the number. Include photographs and/or sketches of representative decorative carvings.):

Number of headstones: **Unknown** Number of burials: **Unknown** Footstones? ☒ ☐ no

Number of gravestones with burial dates from the 18th century: **Unknown** l9th century: **Unknown**
20th century: **Unknown**

Please list the earliest headstone date: Most recent date:
Number of gravestones of each material: Slate: Marble: Granite:
Sandstone: **Fieldstone: 2 (sandstone)**
Other:

Number of gravestones with decorative carvings of Skulls/Deathsheads:
Faces: Urns/willows: Other (explain):

Number of gravestones that are: Readable: Eroded: Badly tilted:
Cracked/broken: Broken but standing: Broken, no longer standing:
Location of stones no longer standing:

Restoration efforts, if any

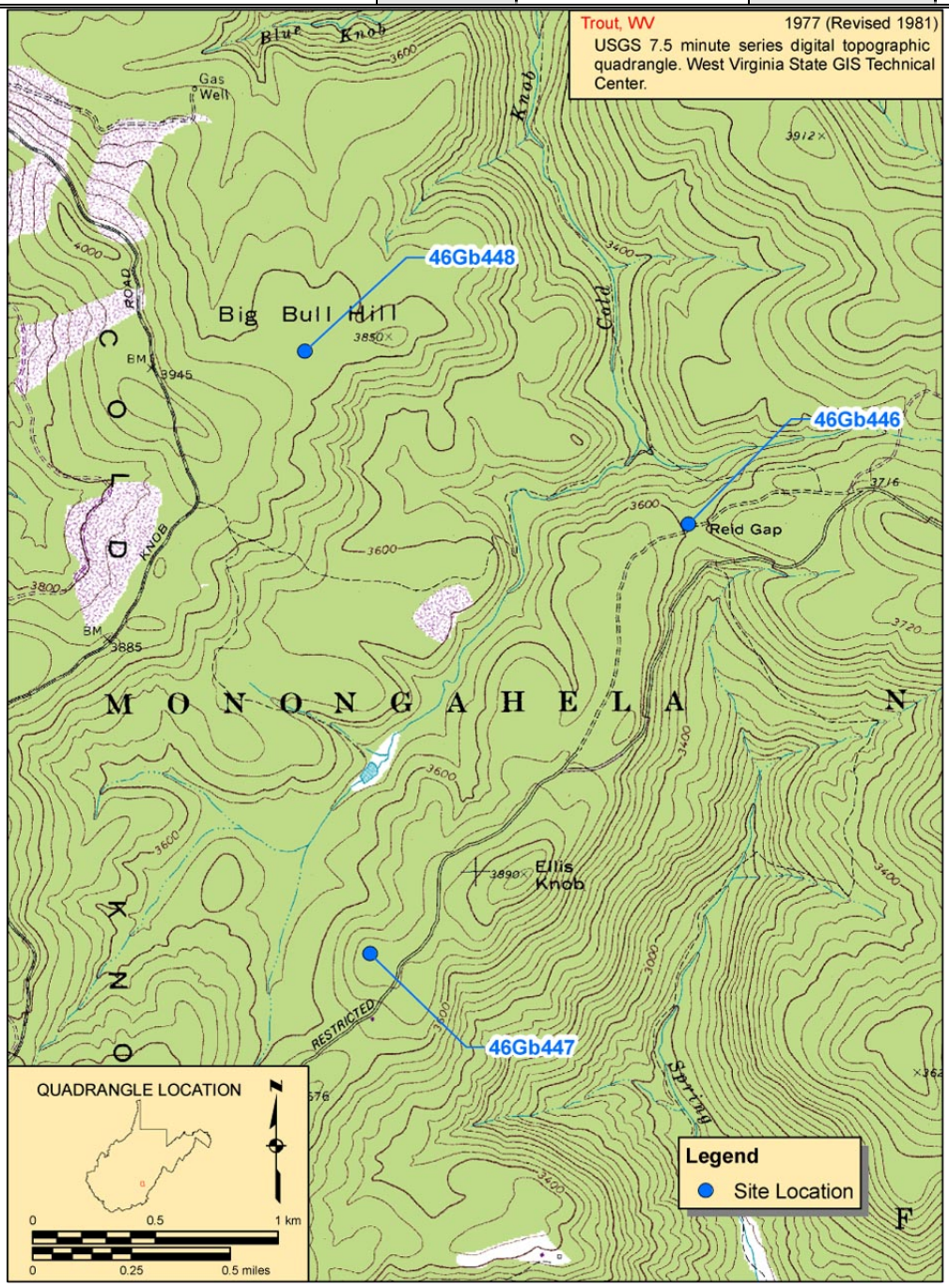
18. Please attach: 1) a copy of the topographic quadrangle indicating the cemetery's location, and 2) general photograph(s) of the cemetery showing its setting and/or location. If you have any reference information about the cemetery (books, personal communication, etc.), please include a list.

Recorder: **Aaron O. Smith** Date: **September 2008**
Cultural Resource Analysts, Inc. 3556 Teays Valley Road, Suite 3, Hurricane, WV 25526

Part of What Survey: **Meece, Jamie and Aaron O. Smith**
2008 Phase I Archaeological Survey of Proposed Beech Ridge Wind Energy Facility & Associated Transmission Line, Greenbrier and Nicholas Counties, West Virginia. Prepared for Beech Ridge, LLC. Prepared by Cultural Resource Analysts, Inc.: Hurricane, West Virginia.

WEST VIRGINIA CEMETERY RECORDING FORM CONTINUATION SHEET

Site #:	46Gb447	Site Name:	Site 3 (Possible Grave Site 1)
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 3 of 6



Portions of 1972 (1981) Trout, WV quadrangle showing the location of site.

WEST VIRGINIA CEMETERY RECORDING FORM CONTINUATION SHEET

Site #:	46Gb447	Site Name:	Site 3 (Possible Grave Site 1)
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 4 of 6

Taken from:
Meece, Jamie, and Aaron O. Smith
2008 *Phase I Archaeological Survey of the Proposed Beech Ridge Wind Energy Facility & Associated Transmission Line*. Contract Publication Series WV08-70. Prepared for Beech Ridge, LLC. Prepared by Cultural Resources Analysts, Inc., Hurricane, West Virginia.

Site 46Gb447 is located on a ridgetop approximately 720 m (2,362 ft) southwest of Ellis Knob. The site was encountered while conducting systematic pedestrian survey and shovel testing at the proposed location of Turbine C-3. The site consists of two upright fragments of sandstone approximately 2.0 m (6.6 ft) apart. The stones are orientated east to west and appear to have been sunk into the ground and partially shaped. No observable inscriptions or ornamentation was noted on either stone, and careful examination of the surrounding area failed to discover evidence of other possible graves or cemetery features (e.g., fencing, ornamental plantings, and depressions). Nevertheless, it is possible that these two stones mark one or more human graves.

Current evidence is insufficient to determine whether 46Gb447 is a natural feature or human grave. If the latter, information for age, name of the interred, and dates of birth and death are not available. Further investigation beyond the scope of a Phase I study would be required to assess the origin and eligibility of the site for inclusion in the NRHP.

WEST VIRGINIA CEMETERY RECORDING FORM CONTINUATION SHEET

Site #:	46Gb447	Site Name:	Site 3 (Possible Grave Site 1)
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 5 of 6

Figure 24. Overview of possible grave marker at 46Gb447.

WEST VIRGINIA CEMETERY RECORDING FORM CONTINUATION SHEET

Site #:	46Gb447	Site Name:	Site 3 (Possible Grave Site 1)
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 6 of 6

Overview of second possible grave marker at 46Gb447.

WEST VIRGINIA CEMETERY RECORDING FORM

1. Site Number: **46Gb448** 2. Cemetery Name: Historic: **NA** Common: **(Site 4) Possible Grave Site 2**

3. County: **Greenbrier** 4. 7.5' Quadrangle: **Trout**

5. UTM Zone: **17 (WGS 84)** Easting: **0546824** Northing: **4217328**

6. Ownership: Public: ☐ Municipal ☐ County ☐ State ☐ Federal
Private: ☐ Family ☐ Church Denomination:
Fraternal: Other: **Unknown**

7. Burial Population: **Unknown** 8. Predominant Surnames: **None**

9. Mass Grave: Yes ☐ No ☐ Explain:

10. Public Accessibility: ☐ Unrestricted
☒ **Restricted** For permission to visit, contact:

11. Access into Cemetery: ☒ **By foot** ☐ By car:

12. Terrain: **Ridgetop**

13. Bounded by: ☐ Fence ☐ Wall ☐ Hedge ☒ **Other**: **No marked boundaries**

14. Condition: ☐ Well-maintained ☐ Poorly maintained ☐
☒ **Overgrown, identifiable** ☐ Unidentifiable, but known to exist through tradition or other means
(identify source):

15. Cemetery Size and Orientation (give dimensions in feet, and indicate compass direction for long and short axis):
One upright fragments of sandstone sunk into the ground and possibly shaped.

16. Historical Background (use continuation sheet if necessary):

WEST VIRGINIA CEMETERY RECORDING FORM

17. Gravestones (Please list the number of gravestones that fit in the categories below. If this is a guess or an approximation, put "circa" before the number. Include photographs and/or sketches of representative decorative carvings.):

Number of headstones: **Unknown** Number of burials: **Unknown** Footstones? ☒ ☐ no

Number of gravestones with burial dates from the 18th century: **Unknown** l9th century: **Unknown**
20th century: **Unknown**

Please list the earliest headstone date: Most recent date:
Number of gravestones of each material: Slate: Marble: Granite:
Sandstone: **Fieldstone: 1 (sandstone)**
Other:

Number of gravestones with decorative carvings of Skulls/Deathsheads:
Faces: Urns/willows: Other (explain) :

Number of gravestones that are: Readable: Eroded: Badly tilted:
Cracked/broken: Broken but standing: Broken, no longer standing:
Location of stones no longer standing:

Restoration efforts, if any

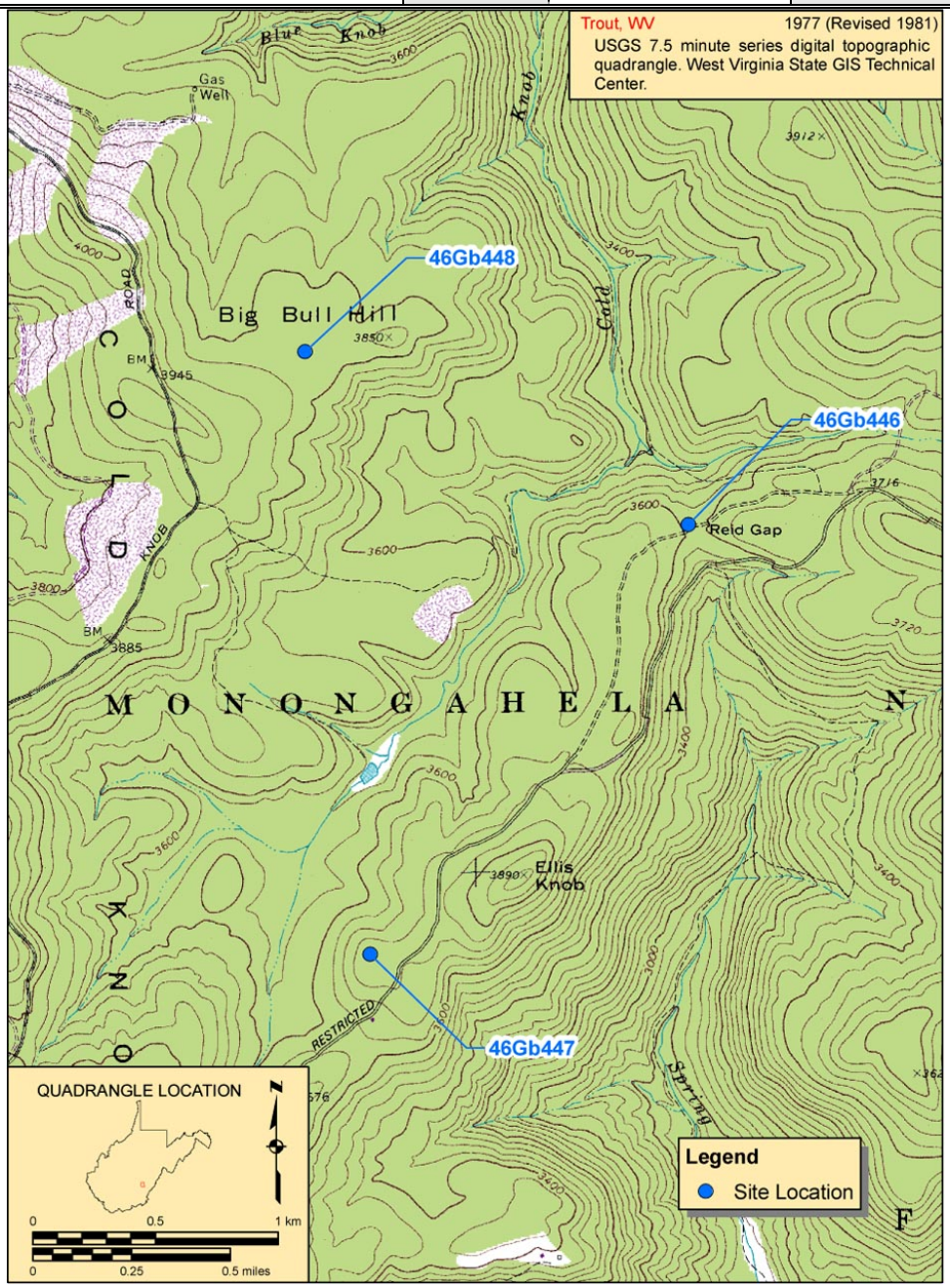
18. Please attach: 1) a copy of the topographic quadrangle indicating the cemetery's location, and 2) general photograph(s) of the cemetery showing its setting and/or location. If you have any reference information about the cemetery (books, personal communication, etc.), please include a list.

Recorder: **Aaron O. Smith** Date: **September 2008**
Cultural Resource Analysts, Inc. 3556 Teays Valley Road, Suite 3, Hurricane, WV 25526

Part of What Survey: **Meece, Jamie and Aaron O. Smith**
2008 Phase I Archaeological Survey of Proposed Beech Ridge Wind Energy Facility & Associated Transmission Line, Greenbrier and Nicholas Counties, West Virginia. Prepared for Beech Ridge, LLC. Prepared by Cultural Resource Analysts, Inc.: Hurricane, West Virginia.

WEST VIRGINIA CEMETERY RECORDING FORM CONTINUATION SHEET

Site #:	46Gb448	Site Name:	Site 4 (Possible Grave Site 2)
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 3 of 4



Portion of 1972 (1981) Trout, WV Quadrangle showing the location of site.

WEST VIRGINIA CEMETERY RECORDING FORM CONTINUATION SHEET

Site #:	46Gb448	Site Name:	Site 4 (Possible Grave Site 2)
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 4 of 4

Taken from:
Meece, Jamie, and Aaron O. Smith
2008 *Phase I Archaeological Survey of the Proposed Beech Ridge Wind Energy Facility & Associated Transmission Line*. Contract Publication Series WV08-70. Prepared for Beech Ridge, LLC. Prepared by Cultural Resources Analysts, Inc., Hurricane, West Virginia.

Site 46Rg448 is located on top of Big Bull Hill east of Knob Road. The site was encountered while conducting systematic pedestrian survey and shovel testing along the proposed access road between Turbines E-24 and E-25. The site consists of a single upright fragment of sandstone sunk into the ground, which may have been partially shaped. No observable inscriptions or ornamentation was noted. Intensive examination of adjacent areas failed to discover evidence of grave markers, fencing, ornamental planting (e.g. yucca), or other types of cultural features. Nevertheless, based on the size, shape, and upright orientation of the stone, it is possible the site marks the location of one or more human graves.

Current evidence is insufficient to determine the origin, age, or cultural affiliation of 46Gb448. Further investigation beyond the scope of a Phase I study would be required to assess the origin of the site and eligibility for inclusion in NRHP.

Overview of possible headstone at 46Gb448.

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM

1. Site No(s) **46Gb449** 2. Site Name **Site 5 (Little Beech Knob Scatter**

3. County: **Greenbrier** 4. 7.5' Quadrangle: **USGS Trout**

5. UTM Zone **17** Northing **4218350** Easting **0535361** Datum **WGS 84**

6. Location Description: **The site is located approximately 7 km southwest of the community of Lile, West Virginia and directly adjacent to Beech Ridge Road at the base of Little Beech Knob.**

---

7. Ownership (Name/Address/Tenant) **Unknown**

---

8. Temporal Periods:

Prehistoric	☒ **Unassigned**	☐ Paleo-Indian	☐ Archaic, E M L	
	☐ Woodland, E M L	☐ Late Prehistoric/Protohistoric		
Historic	☐ 1700-1750	☐ 1751-1800	☐ 1801-1850	
	☐ 1851-1900	☐ 1901-1950	☐ 1951-Present	

9. Cultural Affiliations(s), if known **Unknown**

10. **Prehistoric Site Type**:

☐ Isolated Find	☐ Open Air Habitation (Village/Camp/Hamlet)	
☐ Cave/Rock Shelter	☐ Mound/Earthwork	☒ **Lithic Scatter**
☐ Rock Art (Petroglyph/Pictograph)	☐ Unknown	☐ Quarry/Reduction

Remarks:

11. Historic Site Type:

☐ Domestic	☐ Industrial	☐ Military
☐ Cemetery	☐ Rural	☐ Other
☐ Urban (Tax Map 3..... Parcel # .....)		☐ Unknown

Remarks:

---

12. Site Condition:

☐ Unknown ☐ Undisturbed ☐ Destroyed

☒ **Disturbed** (explain): **Plowing.**

13. Topography/Landform:

☐ Floodplain ☐ Terrace ☐1 ☐2 ☐ 3 ☐ Ridge Top ☐ Gap/Saddle

☒ **Hillside/Bench** ☐ Other:

Remarks:

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM

14. Physiographic Province:

☐ Appalachian Plateau ☒ **Transitional** ☐ Ridge and Valley

☐ Other

15. Soils **Snowdog silt loam (SoE)**

16. Vegetation **Pasture**

17. Elevation **1210 m (3969.8ft)** 18. Slope **15-35%** 19. Slope Direction **South**

20. Nearest Water (Name) **Hogcamp Run**

☒ **Permanent** ☐ Intermittent

21. Site Size (Dimensions in Meters) **60 EW-x-7.5 NS m**

22. Site Description (Note features, present land use, etc.) **Lithic debitage scatter in three STPs**

---

23. Investigation Type:

☒ **Reconnaissance (Surface survey, shovel tests)** ☐ Intensive (Phase II Testing) ☐ Excavation (%)

24. Investigated By (Name/Organization/Date) **Cultural Resource Analysts, Inc. September 2008**
Remarks: **Proposed Beech Ridge Wind Energy Facility**

---

25. Site Significance: (For Official Use Only)

☐ NHL ☐ Not Evaluated ☐ National Register

☐ Considered Eligible ☐ Not Eligible

---

26. Artifacts Collected: ☒ **All** ☐ Some ☐ None

Check types collected:

☒ **Lithics** ☐ Ceramics ☐ Floral ☐ Faunal ☒ Historical ☐ Other

Remarks:

27. Curation Location: **Cultural Resource Analysts, Inc: Hurricane, WV (Temporary)**

---

28. Recorder: **Aaron O. Smith** Date: **September 2008**

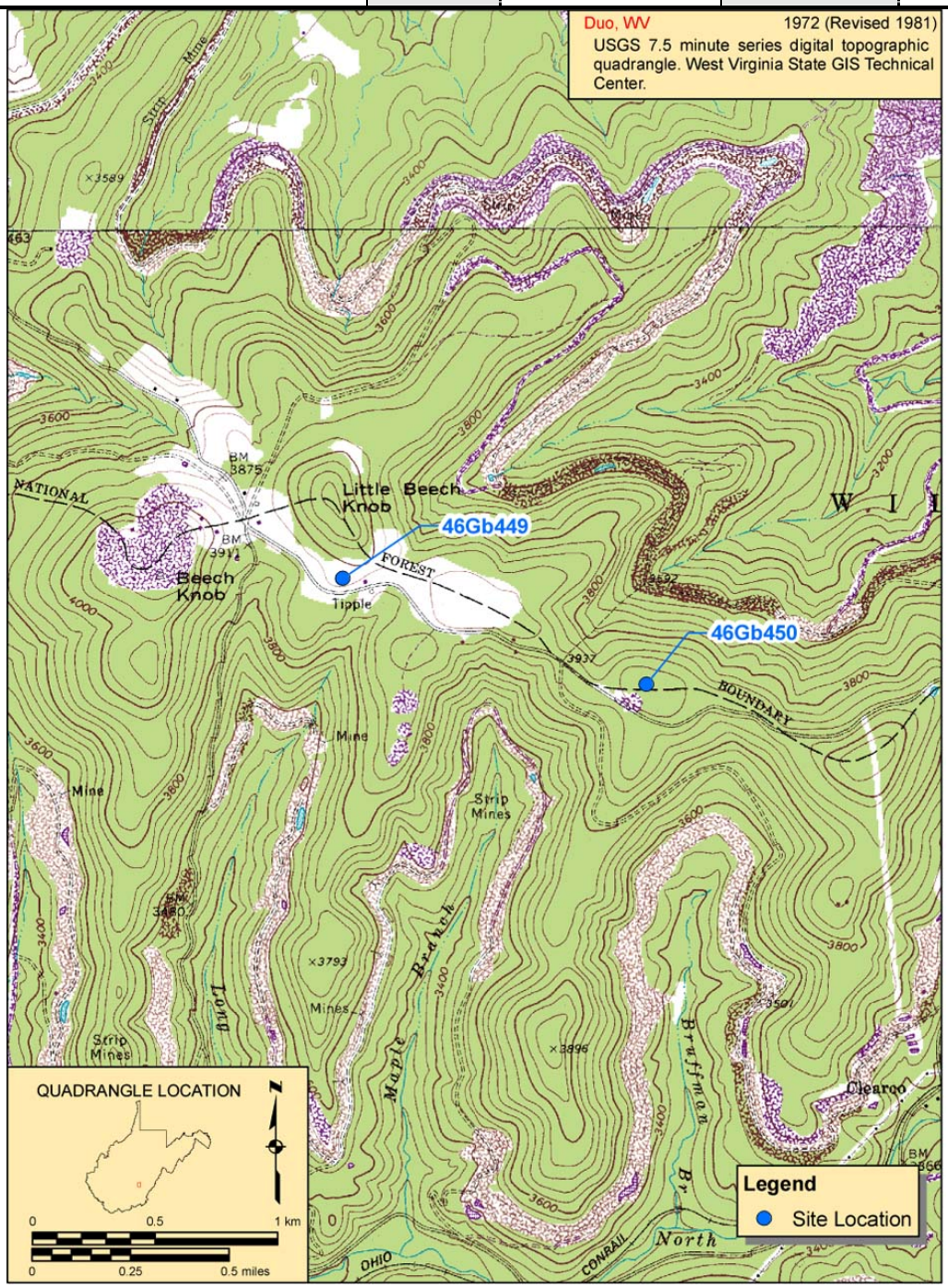
Cultural Resource Analysts, Inc., 3556 Teays Valley Road, Suite 3, Hurricane, West Virginia 25526

29. Map/References (Attach quad map or sketch location with nearest landmarks and include north arrow. Also note references, if any.) **See Continuation Sheets**

Meece, Jamie and Aaron O. Smith
2008 ***Phase I Archaeological Survey Proposed Beech Ridge Wind Energy Facility & Associated Transmission Line*** **. Prepared for Beech Ridge, LLC. Prepared by Cultural Resources Analysts, Inc., Hurricane, West Virginia.**

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM CONTINUATION SHEET

Site #:	46Gb449	Site Name:	(Site 5) Little Beech Knob Scatter
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 3 of 4



Portion of 1972 (1981) USGS 7.5-minute Trout, WV quadrangle showing the location of site.

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM CONTINUATION SHEET

Site #:	46Gb449	Site Name:	(Site 5) Little Beech Knob Scatter
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 4 of 4

Taken from:
Meece, Jamie, and Aaron O. Smith
2008 *Phase I Archaeological Survey of the Proposed Beech Ridge Wind Energy Facility & Associated Transmission Line*. Contract Publication Series WV08-70. Prepared for Beech Ridge, LLC. Prepared by Cultural Resources Analysts, Inc., Hurricane, West Virginia.

Site 46Rg449 is located approximately 7 km (4.35 mi) southwest of the community of Lile, West Virginia, and directly adjacent to Beech Ridge Road at the base of Little Beech Knob. The site was encountered while conducting systematic pedestrian survey and shovel testing in a pasture located near the base of Little Beech Knob at the possible location of a proposed Operations and Maintenance Facility.

Evidence for the site consists of prehistoric artifacts recovered from three STPs at the southern terminus of the propose facility. Artifact-bearing contexts were restricted to shallow subsurface deposits associated with the soil the O/A horizon. Careful examination of the soil profiles and screened deposits failed to discovery any evidence of cultural features or midden. The representative soil profile for this site, as documented in STP 01, consists of 7.9-cm (3.1-in) of very dark grayish-brown (10YR3/2) silt loam O/A horizon, 13 cm (5.1 in) of very dark grayish-brown (10YR3/2) mottled with a yellowish-brown (10YR5/8) silty loam Ap horizon, and yellowish-brown (10YR5/8) silty clay loam subsoil containing 10 to 15 percent natural tabular sandstone inclusions.

Three fragments of Size Grade 2 lithic debitage were recovered from three positive STPs. One flake was manufactured from Hillsdale chert, one from Kanawha chert High Quality, and one from Kanawha chert Low Quality. Of these three pieces of lithic debitage, only one retains cortex. No temporally and/or culturally diagnostic artifacts were recovered from the site, nor was evidence of floral or faunal remains or fire-cracked rock identified.

Current data suggest 46Gb449 is a prehistoric site containing a paucity of non-diagnostic material from a non-stratified and plowed disturbed deposit lacking evidence of cultural features or midden.

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM

1. Site No(s) **46Gb450** 2. Site Name **Site 6 (J-10 Lithic Scatter)**

3. County: **Greenbrier** 4. 7.5' Quadrangle: **USGS Trout**

5. UTM Zone **17** Northing **4217918** Easting **0536500** Datum **WGS 84**

6. Location Description: **The site is located approximately 7 km southwest of the community of Lile, West Virginia, approximately 1.5 km southeast of Little Beech Knob and directly adjacent to Beech Ridge Road.**

---

7. Ownership (Name/Address/Tenant) **Unknown**

---

8. Temporal Periods:

Prehistoric	☒ **Unassigned**	☐ Paleo-Indian	☐ Archaic, E M L	
	☐ Woodland, E M L	☐ Late Prehistoric/Protohistoric		
Historic	☐ 1700-1750	☐ 1751-1800	☐ 1801-1850	
	☐ 1851-1900	☐ 1901-1950	☐ 1951-Present	

9. Cultural Affiliations(s), if known **Unknown**

10. **Prehistoric Site Type**:

☐ Isolated Find	☐ Open Air Habitation (Village/Camp/Hamlet)	
☐ Cave/Rock Shelter	☐ Mound/Earthwork	☒ **Lithic Scatter**
☐ Rock Art (Petroglyph/Pictograph)	☐ Unknown	☐ Quarry/Reduction

Remarks:

11. Historic Site Type:

☐ Domestic	☐ Industrial	☐ Military
☐ Cemetery	☐ Rural	☐ Other
☐ Urban (Tax Map 3..... Parcel # .....)		☐ Unknown

Remarks:

---

12. Site Condition:

☒ **Unknown** ☐ Undisturbed ☐ Destroyed

☐ Disturbed (explain):

13. Topography/Landform:

☐ Floodplain ☐ Terrace ☐1 ☐2 ☐ 3 ☐ Ridge Top ☐ Gap/Saddle

☒ **Hillside/Bench** ☐ Other:

Remarks:

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM

14. Physiographic Province:

☐ Appalachian Plateau ☒ **Transitional** ☐ Ridge and Valley

☐ Other

15. Soils **Mandy channery silt loam (MkC)**

16. Vegetation **Second Growth Forest**

17. Elevation **1213 (3979.6 ft(** 18. Slope **3-15%** 19. Slope Direction **Southwest**

20. Nearest Water (Name) **Maple Branch**

☒ **Permanent** ☐ Intermittent

21. Site Size (Dimensions in Meters) **7.5-x-7.5 m**

22. Site Description (Note features, present land use, etc.) **Lithic debitage scatter in two STPs**

---

23. Investigation Type:

☒ **Reconnaissance (Surface survey, shovel tests)** ☐ Intensive (Phase II Testing) ☐ Excavation (%)

24. Investigated By (Name/Organization/Date) **Cultural Resource Analysts, Inc. September 2008**
Remarks: **Proposed Beech Ridge Wind Energy Facility**

---

25. Site Significance: (For Official Use Only)

☐ NHL ☐ Not Evaluated ☐ National Register

☐ Considered Eligible ☐ Not Eligible

---

26. Artifacts Collected: ☒ **All** ☐ Some ☐ None

Check types collected:

☒ **Lithics** ☐ Ceramics ☐ Floral ☐ Faunal ☒ Historical ☐ Other

Remarks:

27. Curation Location: **Cultural Resource Analysts, Inc: Hurricane, WV (Temporary)**

---

28. Recorder: **Aaron O. Smith** Date: **September 2008**

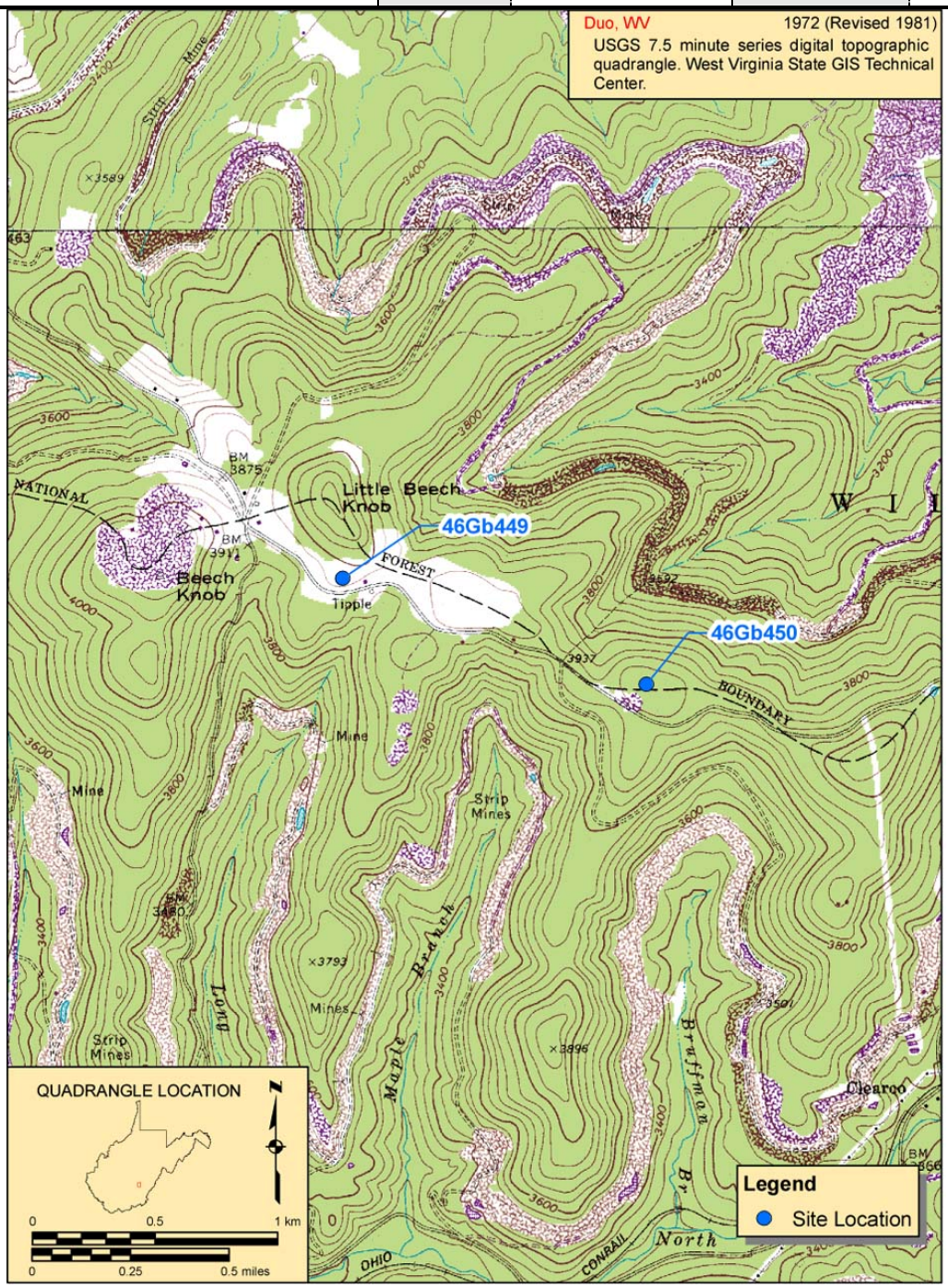
Cultural Resource Analysts, Inc., 3556 Teays Valley Road, Suite 3, Hurricane, West Virginia 25526

29. Map/References (Attach quad map or sketch location with nearest landmarks and include north arrow. Also note references, if any.) **See Continuation Sheets**

Meece, Jamie and Aaron O. Smith
2008 ***Phase I Archaeological Survey Proposed Beech Ridge Wind Energy Facility & Associated Transmission Line*** **. Prepared for Beech Ridge, LLC. Prepared by Cultural Resources Analysts, Inc., Hurricane, West Virginia.**

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM CONTINUATION SHEET

Site #:	46Gb450	Site Name:	(Site 6) J-10 Lithic Scatter
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 3 of 3



Portion of 1972 (1981) USGS 7.5-minute Trout, WV quadrangle showing the location of site.

WEST VIRGINIA ARCHAEOLOGICAL SITE FORM CONTINUATION SHEET

Site #:	46Gb450	Site Name:	(Site 6) J-10 Lithic Scatter
Cultural Resource Analysts, Inc.	County	Greenbrier	Page 4 of

Taken from:
Meece, Jamie, and Aaron O. Smith
2008 *Phase I Archaeological Survey of the Proposed Beech Ridge Wind Energy Facility & Associated Transmission Line*. Contract Publication Series WV08-70. Prepared for Beech Ridge, LLC. Prepared by Cultural Resources Analysts, Inc., Hurricane, West Virginia.

Site 46Gb450 is located approximately 7 km (4.35 mi) southwest of the community of Lile, West Virginia, approximately 1.5 km (0.9 mi) southeast of Little Beech Knob and directly adjacent to Beech Ridge Road. The site was encountered while conducting systematic pedestrian survey and shovel testing at the location of a proposed Turbine J-10. Evidence for the site consists of prehistoric artifacts recovered from two STPs located near the southeast terminus of the proposed turbine pad. The recovered artifacts were associated with the soil O/A horizon in a shallow subsurface context. Evidence of cultural features or midden was not discovered.

The representative soil profile for this site as documented in STP 01 consists of 10 cm (3.9 in) of dark brown (10YR3/3) loam A horizon, overlaying yellowish-brown (10YR5/8) clay loam subsoil containing an estimated 25 to 35 percent volume of natural pieces of tabular sandstone.

Two Size Grade 2 flakes manufactured from Hillsdale chert were recovered from two STPs. No temporally and/or culturally diagnostic prehistoric material is present in this functionally limited assemblage. Also lacking at the site is evidence of floral or faunal remains or fire-cracked rock. Current data suggest 46Gb450 is a prehistoric site containing a paucity of undiagnostic material from a non-stratified deposit lacking evidence of feature or midden fill.

APPENDIX D

Historic Artifact Catalogue

Beech Ridge Wind - 46Gb446 Phase I Historic Inventory

Context	Class	Attribute 1	Attribute 2	Attribute 3	Comments	Qty	Wt (g)
STP 01 0-15cmbs	Tools	Hand Saw	Ferrous Metal	Blade	Machine-made	1	594.7
					STP 01 0-15cmbs Subtotal:	**1**	**594.7**
					STP 01 Total:	**1**	**594.7**
STP 02 0-12cmbs	Ammunition/Artillery	Shot Gun Shell	Indet. Casing	12 Gauge	1878-2008	1	6.9
					STP 02 0-12cmbs Subtotal:	**1**	**6.9**
					STP 02 Total:	**1**	**6.9**
STP 03 0-8cmbs	Misc. Domestic Glass	Indet. Container Glass: Body	Colorless, Clear Glass	Machine-made	1899-2008	1	3.9
STP 03 0-8cmbs	Misc. Domestic Glass	Indet. Container Glass: Body	Colorless, Green Tint Glass	Machine-made	1899-2008	1	1.7
					STP 03 0-8cmbs Subtotal:	**2**	**5.6**
					STP 03 Total:	**2**	**5.6**
STP 04 0-10cmbs	Ceramic Tableware	Hollowware: Body	R.E., Ironstone, Thin	Plain	Possible marley of tea cup 1870-2008	1	1.9
					STP 04 0-10cmbs Subtotal:	**1**	**1.9**
					STP 04 Total:	**1**	**1.9**
STP 05 0-10cmbs	Misc. Domestic Glass	Indet. Container Glass: Body	Colorless, Clear Glass	Machine-made	Paneled Body 1899-2008	1	2.1
STP 05 0-10cmbs	Nails	Indet. Nail	Fragment(s)	Indet. Nail Head		3	18.4
STP 05 0-10cmbs	Nails	Wire	12d	Common	Pulled 1880-2008	1	15.1
STP 05 0-10cmbs	Nails	Wire	Fragment(s)	Common	1880-2008	1	3.0
STP 05 0-10cmbs	Nails	Wire	Fragment(s)	Indet. Nail Head	1880-2008	2	11.2
STP 05 0-10cmbs	Window Glass	Pane Glass	2.78 mm			1	2.0
STP 05 0-10cmbs	Window Glass	Pane Glass	2.84 mm			1	0.8
					STP 05 0-10cmbs Subtotal:	**10**	**52.6**
					STP 05 Total:	**10**	**52.6**
STP 06 0-12cmbs	Misc. Glass	Colorless, Clear Glass	Amorphous/Melted		possible re-heat	1	1.3
					STP 06 0-12cmbs Subtotal:	**1**	**1.3**
					STP 06 Total:	**1**	**1.3**
STP 08 0-15cmbs	Farming/Gardening	Plow, Tractor	Ferrous Metal	Indet. Part	Cast; Possible plow idem parts	2	72.0
					STP 08 0-15cmbs Subtotal:	**2**	**72.0**
					STP 08 Total:	**2**	**72.0**
STP 09 0-13cmbs	Ceramic Cookware/Storage	Hollowware	R.E., Whiteware	Plain	(Miller 2000: 13) 1820-2008	1	1.6

Beech Ridge Wind - 46Gb446 Phase I Historic Inventory

Context	Class	Attribute 1	Attribute 2	Attribute 3	Comments	Qty	Wt (g)
STP 09 0-13cmbs	Container Closures	Home Canning Jar	Mason Liner, Domed	Dome, Plain	1869-2008	1	4.8
					STP 09 0-13cmbs Subtotal:	**2**	**6.4**
					STP 09 Total:	**2**	**6.4**
STP 11 0-13cmbs	Nails	Wire	8d	Common	Pulled 1880-2008	1	5.6
					STP 11 0-13cmbs Subtotal:	**1**	**5.6**
					STP 11 Total:	**1**	**5.6**
					Site Total:	**21**	**747.0**

APPENDIX E

Prehistoric Artifact Catalogue

Beech Ridge Wind Phase I Prehistoric Inventory

Context	Class	Attribute 1	Attribute 2	Attribute 3	Attribute 4	Qty	Wt (g)
46Gb446							
STP 06 0-12cmbs	Core	Core Fragment	Amorphous	Cortex Present	Hillsdale Chert	1	29.2
STP 06 0-12cmbs	Debitage		Size 1 (< 1/4 inch)		< 1/4 inch size	1	0.1
STP 06 0-12cmbs	Debitage		Size 2 (1/4 inch)	Cortex Present	Hillsdale Chert; 4 w/ cortex	9	3.5
STP 06 0-12cmbs	Debitage		Size 2 (1/4 inch)	Cortex Present	Indet. Chert; 1 w/ cortex	1	0.4
STP 06 0-12cmbs	Debitage		Size 3 (1/2 inch)	Cortex Absent	Hillsdale Chert	1	1.0
					STP 06 0-12cmbs Subtotal:	**13**	**34.2**
					STP 06 Total:	**13**	**34.2**
STP 07 0-14cmbs	Core	Core Fragment	Amorphous	Cortex Present	Hillsdale Chert	1	3.6
STP 07 0-14cmbs	Debitage		Size 1 (< 1/4 inch)		< 1/4 inch size	2	0.3
STP 07 0-14cmbs	Debitage		Size 2 (1/4 inch)	Cortex Absent	Siltstone	1	0.7
STP 07 0-14cmbs	Debitage		Size 2 (1/4 inch)	Cortex Present	Hillsdale Chert; 4 w/ cortex	9	2.6
STP 07 0-14cmbs	Debitage		Size 2 (1/4 inch)	Cortex Present	Indet. Chert; 5 w/ cortex; Possible Henderburg Chert	7	2.6
					STP 07 0-14cmbs Subtotal:	**20**	**9.8**
					STP 07 Total:	**20**	**9.8**
STP 08 0-15cmbs	Debitage		Size 2 (1/4 inch)	Cortex Present	Hillsdale Chert; 1 w/ cortex	1	0.3
					STP 08 0-15cmbs Subtotal:	**1**	**0.3**
					STP 08 Total:	**1**	**0.3**
STP 10 0-14cmbs	Debitage		Size 1 (< 1/4 inch)		< 1/4 inch size	1	0.1
STP 10 0-14cmbs	Debitage		Size 2 (1/4 inch)	Cortex Present	Hillsdale Chert; 1 w/ cortex	2	0.4
STP 10 0-14cmbs	Debitage		Size 3 (1/2 inch)	Cortex Absent	Hillsdale Chert	1	1.5
					STP 10 0-14cmbs Subtotal:	**4**	**2.0**
					STP 10 Total:	**4**	**2.0**
STP 11 0-13cmbs	Debitage		Size 3 (1/2 inch)	Cortex Present	Hillsdale Chert; 1 w/ cortex	1	0.5
					STP 11 0-13cmbs Subtotal:	**1**	**0.5**
					STP 11 Total:	**1**	**0.5**
					46Gb446 Site Total:	**39**	**46.8**

Beech Ridge Wind Phase I Prehistoric Inventory

Context	Class	Attribute 1	Attribute 2	Attribute 3	Attribute 4	Qty	Wt (g)
46Gb449							
STP 01 0-33cmbs	Debitage		Size 2 (1/4 inch)	Cortex Absent	Hillsdale Chert	1	0.1
					STP 01 0-33cmbs Subtotal:	**1**	**0.1**
					STP 01 Total:	**1**	**0.1**
STP 02 0-18cmbs	Debitage		Size 2 (1/4 inch)	Cortex Absent	Kanawha Black Flint: High Quality	1	0.3
STP 02 0-18cmbs	Debitage		Size 2 (1/4 inch)	Cortex Present	Kanawha Black Flint: Low Quality; 1 w/ cortex	1	1.3
					STP 02 0-18cmbs Subtotal:	**2**	**1.6**
					STP 02 Total:	**2**	**1.6**
					46Gb449 Site Total:	**3**	**1.7**
46Gb450							
STP 01 0-40cmbs	Debitage		Size 2 (1/4 inch)	Cortex Absent	Hillsdale Chert	1	0.3
					STP 01 0-40cmbs Subtotal:	**1**	**0.3**
					STP 01 Total:	**1**	**0.3**
STP R-1 0-40cmbs	Debitage		Size 2 (1/4 inch)	Cortex Absent	Hillsdale Chert	1	0.1
					STP R-1 0-40cmbs Subtotal:	**1**	**0.1**
					STP R-1 Total:	**1**	**0.1**
					46Gb450 Site Total:	**2**	**0.4**
					Survey Total:	**44**	**48.9**

APPENDIX F

Typical Conditions in the Direct APE

APPENDIX F

Conditions within the direct APE varied widely. The following offers a brief visual synopsis of typical conditions. Detailed notes, hundreds of digital photographs, and profiles from shovel tests excavated at each turbine site, as well as along representative portions of the transmission line and other proposed developments have been archived and prepared for curation along with archaeological materials.

Large portions of the direct APE was covered in second growth forest (Figure F.1), while others had been recently logged (Figure F.2), or logged in the past couple of years (Figure F.3). Small portions of the survey area also crossed pastures or other clearings (Figure F.4). Evidence of the pre-existing disturbances was largely the result of previous logging, previously constructed roads (Figure F.5), and surface mining (Figure F.6).

Soil development in the survey area also varied widely. However, generally speaking, shovel tests exposed a moderately well-developed channery A Horizon, with 30-90 percent natural rock inclusions (Figure F.7). Although, in many locations, degrading bedrock was also found exposed at or near the surface, due to erosion and deflation (Figures F.7-F.9), Notable exceptions to these conditions were found along creek bottoms (Figures F.10-F.11), and in pastures that had been previously cleared of rock and plowed historically.

Figure F.1. Typical forest in survey area.

Figure F.2. Typical logged area in survey area.

Figure F.3. Overview of portion of survey area logged in recent past.

Figure F.4. Typical clearing encountered in survey area.

Figure F.5. Typical existing road in survey area.

Figure F.6. Overview of typical mining disturbance encountered in survey area.

Figure F.7. Typical channery soil profile exposed in shovel tests.

Figure F.8. Portion of survey area covered in boulders.

Figure F.9. View of degrading bedrock encountered at or near the surface in shovel tests.

Figure F.10. Overview of typical drainage encountered in survey area.

Figure F.11. Overview of typical creek encountered in survey area.