



**Finding of No Significant Impact (FONSI)  
and  
Environmental Assessment (EA)**

**US Route 460 Connector, Phase II including  
Coalfields Expressway (CFX) Interchange Area at Hawks Nest  
Buchanan County, Virginia**

*Project: 0460-013-781, P101; UPC-88140*

January 26, 2010

Department of Transportation  
Federal Highway Administration

**FEDERAL HIGHWAY ADMINISTRATION**

**FINDING OF NO SIGNIFICANT IMPACT**

**FOR**

**ROUTE:** Route 460 Connector, Phase II  
**LOCATION:** Buchanan County, Virginia  
**STATE PROJECT:** 0460-013-781, P101 (ID 88140)

The Federal Highway Administration has determined that this project will have no significant impact on the environment. This Finding of No Significant Impact is based on the Environmental Assessment and the letter finalizing the Environmental Assessment which have been independently evaluated by the Federal Highway Administration and determined to adequately and accurately discuss the need, environmental impacts, and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required.

1/26/10

Date

*John Dimkins*

for: FHWA Division Administrator

**Rationale for the Finding of No Significant Impact**  
U.S. Route 460 Connector, Phase II  
Project Number 0460-013-781, P101 (UPC 88140)

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I have reviewed the Virginia Department of Transportation's January 12, 2010 letter finalizing the Environmental Assessment and requesting a Finding of No Significant Impact (FONSI), the transcript from the Location Public Hearing, and the other project documentation. The letter finalizing the Environmental Assessment is attached to the FONSI and is hereby incorporated by reference into this rationale supporting the FONSI.

The environmental impacts of the Build Alternative were described in the Environmental Assessment. The Environmental Assessment was made available for public review prior to and at the public hearing, and the Virginia Department of Transportation (VDOT) has addressed the public hearing comments. None of the public hearing comments suggested that the project would have a significant environmental impact.

**Environmental Impacts**

The following sections contain a summary of the impacts of the Build Alternative as described in the Environmental Assessment and the letter finalizing the Environmental Assessment.

**Land use**

The local planning district commission did not express any concerns about the project, and the Buchanan County Administrator conveyed strong support for the project. The project is consistent with and supports the economic development and transportation objectives of the Buchanan County Comprehensive Plan, and the project would not adversely affect local land use planning.

The Federal Highway Administration (FHWA) finds that the impacts on land use will not be significant.

**Farmlands**

In accordance with Farmland Protection Policy Act, the Farmland Conversion Impact Rating form was completed in consultation with the U.S. Department of Agriculture. The score on the form allows an agency to identify the effect on farmland as well as the suitability of the site for protection of farmland. The project received a score of 108. In accordance with 7 CFR 658.4(c), sites receiving a score of less than 160 need not be given further consideration for protection.

FHWA finds that the impacts to farmlands will not be significant.

### Social and Economic

As described in the Environmental Assessment, the goal of the Appalachian Development Highway System is to generate economic development in previously isolated areas, supplement and connect Appalachia to the interstate highway system, and provide access to areas within the Appalachian region as well as other markets in the rest of the country. The Route 460 Connector is part of Corridor Q of the Appalachian Development Highway System and would have beneficial social impacts in the region. The improvement to the region's transportation network would result in travel deficiencies that would reduce travel time and operating costs.

The project would not split or isolate existing neighborhoods and would enhance connectivity between communities. It would improve accessibility to community services such as schools, churches, shopping centers, and medical facilities. VDOT established a public participation program to allow affected parties to review the project and provide comments. The demographics of the area are such that the project area has a lower percentage of minority and low-income populations than that of Buchanan County, and disproportionate impacts to minority and low-income populations are not expected.

*Relocation Impacts.* Approximately five housing units would be displaced by the project. Grundy is the closest incorporated town to the project site and represents the most resources for gauging the regional real estate market. An online search of MLS listings yielded approximately two dozen available units in and around Grundy. Many of the homes found in this search are close to the Grundy region's median home value of \$105,000. Two local real estate agencies are located in Grundy and conduct business along the Route 460 Connector corridor. The real estate activity level was discussed with both agencies and each suggested a handful of properties had been purchased and sold throughout the last calendar year. Additionally, there are usually one or two homes for sale along the corridor at any given time. These facts demonstrate that there is an availability of adequate replacement housing for those displaced.

Implementation of an acquisition and relocation program developed by VDOT would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended. Any individual displaced as a result of the acquisition of real property, in whole or in part, is eligible to receive reimbursement for the fair market value of the property acquired, as well as moving costs. Displaced property owners would be provided relocation assistance and advisory services together with the assurance of the availability of decent, safe, and sanitary housing. Relocation resources would be made available to all relocatees without discrimination.

FHWA finds that the social and economic impacts will not be significant.

### Parks, Recreation Areas, and Open Space Easements

No parks, recreation areas, or open space easements will be impacted by the project.

### Historic Properties

No properties in the project area are eligible for the National Register of Historic Places. Therefore, the project will have no effect on historic properties.

### Hazardous Materials

The hazardous materials assessment consisted of a database search as well as a field review. Former surface mines were observed to be scattered along the alignment. The sites are now vegetated and no active surface mining operations were observed during the field review. In addition, sparsely scattered residential dwellings were observed along the corridor as part of the field review.

The database search revealed 53 mappable sites in the area, all of which are associated with either underground or surface coal mining activities. Also, the database denotes approximately 275 unmappable sites due to poor or inadequate address information. As the project is further developed, additional evaluation of both mappable and unmappable sites may be required if the sites are within the actual roadway alignment. These additional evaluations would be utilized to develop mitigation measures that could be incorporated into construction plan design and the highway construction phase of the project in order to minimize or eliminate hazardous materials impacts. Any impacted hazardous materials would be addressed and handled in accordance with all applicable requirements.

FHWA finds that the impacts to hazardous materials will not be significant.

### Air Quality

The project is within an area that is in attainment with the National Ambient Air Quality Standard for all pollutants, including carbon monoxide, ozone, and fine particulate matter. As such, regional and project-level air quality conformity requirements do not apply.

*Mobile Source Air Toxics.* In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), the U.S. EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries). Mobile Source Air Toxics (MSAT) are a subset of the 188 air toxics defined by the Clean Air Act. MSAT are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

A qualitative assessment of the likely impacts of MSAT was conducted because this project has been determined to have a potential impact on vehicle miles traveled (VMT) or diesel traffic although not to the extent which would warrant a quantitative analysis. The project may result in an increase in VMT or affect truck traffic in a way that would lead to higher MSAT emissions for the Build Alternative, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds and reduced VMT on parallel roadways. According to the U.S. EPA's MOBILE6 emissions model, emissions of all of the priority MSAT except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Local conditions may differ from the national projections used in the MOBILE6 model in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the U.S. EPA's projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases. The additional travel lanes contemplated as part of the project may have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, there may be localized areas where ambient concentrations of MSAT could be higher under the Build Alternative than under the No-Build Alternative.

The qualitative assessment was prepared using guidance derived in part from a study conducted by FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at: [www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm](http://www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm).

In conclusion, technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of this project, however, it can be safely concluded that localized increases of MSAT that may occur as a result of the project will be offset in the future by the implementation of new and existing mobile emissions control programs.

FHWA finds that the air quality impacts will not be significant.

### Noise

*Impacts.* As described in the Noise Analysis Technical Report, noise impacts are predicted to occur at three single-family residences along the project corridor in 2035. This is a relatively small number of impacts considering the scope of the project. All of the impacts are due to a substantial increase in noise and not to an exceedance of the Noise Abatement Criteria.

FHWA noise regulations (23 CFR 772.13(d)) discuss a situation whereby noise abatement measures other than those listed can be utilized. One of the criteria is that there has to be a severe noise impact. FHWA's *Highway Traffic Noise and Abatement*

*Policy and Guidance* provides guidance on the determination of a severe impact, and states that “... the affected activities experience traffic noise impacts to a far greater degree than other similar activities adjacent to highway facilities, e.g., residential areas with absolute noise levels of 75 db(A) Leq(h) or more, residential areas with noise level increases of 30 db(A) or more over existing noise levels.” Although the determination of a severe impact is in the context of noise abatement, the concept can be used to support the determination of whether the noise impacts will be significant. The predicted noise impacts from the project are not severe for any of the three impacted residences, as the highest absolute noise levels (58 db(A)) and greatest noise level increase (19 db(A)) are well below the 75 db(A) and 30 db(A) thresholds, respectively.

*Mitigation.* Mitigation measures include the alteration of horizontal and vertical alignments, traffic management measures, and the construction of noise barriers. Any changes to the horizontal alignment would likely result in the taking of more homes, while changes to the vertical alignment would not be feasible with the existing terrain. Reduced speeds would not be an effective noise mitigation measure since a substantial decrease in speed is necessary to provide a substantial noise reduction. A 10 mph reduction in speed would result in only a two db(A) decrease in noise level. Restricting truck usage on the roadway would not be practical as the new facility is meant for through cars and trucks, as well as local vehicles.

The construction of a noise barrier has been considered for each of the three impacted properties; however, the barriers are not feasible. To be feasible, a barrier must be effective; that is it must reduce noise levels by at least five decibels. Due to the mountainous terrain, the barriers are not feasible as they are not able to achieve a five decibel reduction for the impacted sites.

*Construction Noise.* An increase in project area noise levels would occur during the construction of the project. Construction noise differs from that generated by normal traffic due to differences in the spectral and temporal characteristics of the noise. The degree of noise impact during construction is a function of the number and types of equipment being used and the distances between the construction equipment and the noise-sensitive areas. Generally, construction activity would occur during normal working hours on weekdays. Therefore, noise impact experienced by local residents as a result of construction activities should not occur during typical sleeping hours. Some impact would occur in the project vicinity where outdoor recreation takes place during normal working hours. A number of measures can be utilized in order to minimize noise resulting from construction activities. Such measures include, but are not limited to, the following:

- equip any internal combustion engine used for any purpose on or related to the job with a properly operating muffler;
- conduct truck loading, unloading, and hauling so that noise is kept to a minimum;
- route construction equipment and vehicles in areas that will cause the least disturbance to nearby receptors where possible; and

- place continuously operated diesel-powered equipment, such as compressors and generators, in areas as far as possible from or shielded from noise-sensitive locations.

The Build Alternative will be designed and constructed to meet all current federal, state, and local requirements for noise, including VDOT's amended *Road and Bridge Specifications and Standards* and/or the Virginia Department of Mines, Minerals, and Energy requirements.

FHWA finds that the noise impacts will not be significant.

### Water Quality

The study area is within the Big Sandy Watershed which is comprised of three major tributaries: Levisa Fork, Russell Fork, and Tug Fork. The study area does not contain streams on the lists of Federal or State Wild and Scenic Rivers.

No public drinking water resources or waters that drain into public drinking water resources are present in the study area. Therefore, the project would not impact these resources. The population around the study area primarily relies on private groundwater resources for drinking water. The locations of and impacts to private water supplies (wells, springs, cisterns) and septic systems will be addressed during the right-of-way acquisition process when more detailed engineering information is available. Should private water supplies and septic systems be impacted, all federal, state, and local regulations, including those of the Virginia Department of Health, would be strictly adhered to should closure be necessary.

Temporary, minor effects on water quality would be caused by construction, and the project would increase the amount of impervious surface in the watershed. However, the project would be designed and constructed to meet all federal, state, and local requirements for water quality and stormwater management, including VDOT's amended *Road and Bridge Specifications and Standards* and/or the Virginia Department of Mines, Minerals, and Energy requirements. These requirements include permits, plans, and temporary Best Management Practices to manage stormwater runoff during construction, as well as design criteria for permanent highway runoff control and treatment measures. These measures would help reduce potential adverse effects on water quality in the Big Sandy Watershed. With proper design, implementation, and maintenance of the Best Management Practices, stream crossings, and highway runoff control facilities, there should be no substantial adverse effects on surface waters.

FHWA finds that the impacts to water quality will not be significant.

### Floodplain Impacts

The project will not impact any FEMA-regulated floodplain areas.

## Jurisdictional Areas

*Impacts.* Federal and state agencies have jurisdiction over most wetlands and waterways and require permits for activities that affect these jurisdictional areas. Construction of the project would result in impacts to approximately 3.83 acres of wetlands and 7,849 linear feet of streams.

*Permits.* Construction of the project would require Section 404, Section 402, and Section 401 Clean Water Act permits. Conveyances of stormwater from the project would require compliance with the National Pollution Discharge Elimination System and the Virginia Pollution Discharge Elimination System standards and stormwater management regulations.

*Mitigation.* Mitigation of impacts would be addressed in a stepwise approach that includes avoidance, minimization, and compensation for unavoidable impacts. Detailed avoidance and minimization measures would be determined during final design in consultation with the permitting agencies. Wetland impacts would likely be compensated using standard wetland mitigation ratios of 2:1 for forested wetlands, 1.5:1 for scrub shrub wetlands, and 1:1 for emergent wetlands. Stream impacts would be compensated based on stream functions impacted as calculated using the joint U.S. Army Corps of Engineers (Corps)/Virginia Department of Environmental Quality (DEQ) Unified Stream Methodology.

Compensation strategies will be developed in accordance with the Corps and U.S. EPA *Compensatory Mitigation for Losses of Aquatic Resources, Final Rule* (33 CFR Parts 325 and 332, and 40 CFR Part 230). The final rule revised the Corps' and U.S. EPA's mitigation strategy such that it now:

- emphasizes a watershed approach in selecting compensatory mitigation project locations;
- requires measurable, enforceable ecological performance standards and regular monitoring for all types of compensation; and
- specifies the components of a complete compensatory mitigation plan, including assurances of long-term protection of compensation sites, financial assurances, and identification of the parties responsible for specific project tasks.

The final rule states, "Since a mitigation bank must have an approved mitigation plan and other assurances in place before any of its credits can be used to offset permitted impacts, this rule establishes a preference for the use of mitigation bank credits, which reduces some of the risks and uncertainties associated with compensatory mitigation." Based on the final rule, the three strategies for addressing the compensation needs of this project are:

- acquisition of wetland and stream credits from a mitigation bank within the appropriate hydrologic unit code;
- payments to the Aquatic Restoration Trust Fund; and/or
- restoration and/or creation of replacement wetlands and streams within the watersheds.

The *Natural Resources Technical Memo* provides details on the proposed mitigation compensation strategies. The Corps will approve appropriate compensatory mitigation during the permit acquisition phase of the project.

FHWA finds that the impacts to jurisdictional areas will not be significant.

### Wildlife

Construction of the project would require the removal of approximately 356 acres of forest vegetation. Most of Buchanan County is forested with similar forest cover, and the forested area within the project area comprises a small portion (approximately 0.1%) of the total forest cover of Buchanan County. Of the 356 acres, approximately 133 acres would be suitable for reforestation; the remaining acreage would not support vegetation because of steep slopes. VDOT will reforest suitable areas and will continue discussions with the Virginia Department of Forestry to pay an in lieu mitigation fee for the remaining impacted areas. VDOT is committed to reaching a mutually acceptable mitigation plan with the Virginia Department of Forestry.

In accordance with Section 7 of the Endangered Species Act, the U.S. Fish and Wildlife Service has concurred that the project is not likely to adversely affect any federally endangered or threatened species. In addition, there are no trout streams located in the project area. The primary impacts to wildlife would be the elimination of habitat and the potential loss of smaller, less mobile species located within the corridor. Additional impacts would occur in the form of forested ecosystem fragmentation, potentially reducing the habitat value of the adjacent areas for species that require large contiguous forested areas.

As discussed above, a forest mitigation plan will be developed in consultation with the Virginia Department of Forestry. In addition, the existence of large areas of similar forest in the project vicinity and surrounding Buchanan County would reduce the impacts to wildlife populations. Finally, none of the wildlife species are federally endangered or threatened.

FHWA finds that the impacts to wildlife populations will not be significant.

### Invasive Species

The project would clear vegetation, including stands of invasive species, from the within the project area. Potential reintroduction of invasive species would be reduced through incremental seeding of disturbed areas, the use of proper erosion and sediment control devices, Best Management Practices as described in Virginia Department of Conservation and Recreation's *Virginia Erosion and Sediment Control Handbook*, and through frequent inspections and repairs on all erosion and sediment control devices.

FHWA finds that the invasive species impacts will not be significant.

### Construction Impacts

The project would have temporary construction impacts to the project area. Construction would have air, noise, water quality, and visual impacts for those residents and travelers within the immediate vicinity of the project. To minimize construction-related impacts the project would meet all federal, state, and local requirements, including VDOT's amended *Road and Bridge Specifications and Standards* and/or the Virginia Department of Mines, Minerals, and Energy's requirements.

### Indirect Impacts

Indirect impacts are caused by the action and are later in time or farther removed in distance, but are still reasonable foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems.

One of the project's purposes is to provide system linkage and continuity, thereby improving the economic vitality of the Appalachian region. However, no land has been set aside for development projects adjacent to the roadway corridor as part of the project. Although it is feasible that such development may occur in the future in the project vicinity because of the general improvements to system linkage, those specific impacts are not known and speculating on them would not contribute to informed decision making.

FHWA finds that the indirect impacts will not be significant.

### Cumulative Impacts

*Reasonably Foreseeable Actions.* Reasonably foreseeable actions were determined for the watersheds of streams impacted by the project and for Buchanan County as a whole. The impacts of these reasonably foreseeable actions were examined for potential cumulative impacts in light of the impacts from the project.

Due to the rural nature of the project area and slow growth in the region, there are not many reasonably foreseeable actions related to increasing populations planned within the project area. Local planning groups such as the Virginia Coalfield Economic Development Authority and the Buchanan County Board of Supervisors anticipate that improved transportation and system linkage would help attract more development in the future. Part of the improved system linkage would be provided by the project and other actions including Phase I of the Route 460 Connector, the Buchanan County Industrial Access Road, and the Coalfields Expressway.

Poplar Gap, an economic area to be served by the Buchanan County Industrial Access Road, is the one area that is already planned to be a focus of Buchanan County's economic development. In addition, there are mining and natural gas projects in the

region, although development authorities have reported that such projects are less frequent in the area, prompting the preparation for other industries to grow in the region. The following reasonably foreseeable actions overlap the project area watersheds and Buchanan County:

- Route 460 Connector, Phase I;
- Coalfields Expressway;
- Buchanan County Industrial Access Road;
- Poplar Gap development; and
- mining activities.

The Environmental Assessment contains a detailed description of these reasonably foreseeable actions.

*Impacts.* Impacts assessed for potential cumulative impacts include impacts to the natural environment (vegetation and wildlife, wetlands, and surface waters) and to the human environment (socioeconomic).

- **Vegetation and Wildlife.** Construction of the project in combination with other foreseeable projects in the area would result in a loss of forest vegetation and would reduce the availability of wildlife habitat. The existence of similar deciduous forest in the surrounding region, in combination with the proposed mitigation, will help offset the cumulative impacts to wildlife populations.

Disturbance from mining projects are subject to a rigorous permit approval process, as required by the Virginia Coal Surface Mining Control Reclamation Act, and subsequent environmental review processes required for the approval of necessary permits (e.g., a Clean Water Act Section 404 Permit). The permit approval process includes the opportunity for comment from environmental resource agencies, including the Virginia Department of Game and Inland Fisheries and the U.S. Fish and Wildlife Service. All areas disturbed from mining must be returned to conditions that are capable of supporting the land use it could support prior to mining, unless a higher and better use has been determined and approved. Additionally, in accordance with 4VAC25-31-360, reclamation of the mined land is conducted as simultaneously as is feasible, which would have the effect of allowing wildlife to inhabit the area as soon as possible if wildlife habitat was a pre-mining land use for the area.

With the mitigation measures for unavoidable impacts and the availability of undisturbed areas in the region, the cumulative impacts on vegetation and wildlife will not be significant.

- **Wetlands.** Construction of the project would impact approximately 3.83 acres of wetlands. Wetland impacts from the final design of the Coalfields Expressway would likely not be substantial because the alignment largely follows ridgetops where fewer wetlands exist. There are no wetland impacts associated with the

Route 460 Connector, Phase I project. Only one of the permitted mines in the region of the proposed project and only four of the permitted mines within or overlapping Buchanan County have any wetland impacts. The cumulative impacts on wetlands will not be significant.

- **Surface Waters.** Construction of the project would impact 7,849 linear feet of intermittent and perennially streams. Impact mitigation may consist of a combination of banking credits, in-lieu fee payment, and restoration and/or creation. There are more than 50 miles of potential stream restoration opportunities in the project vicinity. Streams within the project area, as well as the project areas for several other reasonably foreseeable projects in the region, include tributaries of Russell Fork and Bull Creek which are listed in the Virginia Department of Environmental Quality's list of impaired rivers.

The project would be constructed in accordance with federal and state technical guidance, permit conditions, and amended VDOT specifications that would require the use of Best Management Practices to control the rate of runoff and where practical, to retain runoff on site. Construction of the project would include construction of a new stormwater management system that would collect, treat, and discharge highway runoff from the new impervious surfaces. Additionally, the receiving waters and streams would each receive only a small percentage of their total flow from the construction areas. The other highway projects in the area should be subject to the same requirements and mitigation measures.

Mining projects in the region are subject to review by the Virginia Department of Mines, Minerals, and Energy in a Cumulative Hydrologic Impact Assessment. This assessment incorporates all previous and planned/permitted mining activities as related to the hydrologic impacts of the receiving streams. Additionally, applications for surface mining are not approved without an erosion and sediment control plan. The post-mining peak flow rate of runoff is subject to limitations that will protect downstream areas from erosion and flooding (4VAC25-150-270). Also, in accordance with 4VAC25-31-360, reclamation of the mined land is conducted as simultaneously as is feasible, which would have the effect of reducing runoff and erosion among other environmental protections. The cumulative impacts on surface waters will not be significant.

- **Socioeconomics.** The cumulative impact of the project, along with other reasonably foreseeable highway projects, would be to provide improved system linkage to Buchanan County and the Virginia-Kentucky-West Virginia coalfields region. Positive effects also would occur with the development of Poplar Gap. As a link to the Coalfields Expressway, the Buchanan County Industrial Access Connector, and Phase I of the Route 460 Connector near Breaks Interstate Park, the project would provide a link to enable the localities to improve their economic development potential.

While construction of the project would cost taxpayers, citizens would benefit from improved economic vitality of the region. In addition, the sale of coal extracted in Virginia benefits state residents and, in particular, the residents of Buchanan County. Through a Mineral License Tax, one percent of the gross receipts would be added to the county's general fund, where it is used for myriad services including education. Through a Coal and Gas Road Improvement Tax, another one percent of the gross receipts is collected by Buchanan County. This money is used for road repair and improvement and for programs by the Coalfield Economic Development Authority. A local benefit from coal mining projects is the creation of jobs at the mines.

FHWA finds that the adverse cumulative impacts will not be significant.

### **Council on Environmental Quality's Regulations**

The Council on Environmental Quality's regulations require consideration of a project's context and intensity in determining whether the project will have a significant impact (40 C.F.R. 1508.27). Regarding context, the regulations state, "Context means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant." Since this project is a site-specific action, significance depends upon the effects of the project on the project area.

Regarding intensity, the regulations identify issues that should be considered in determining if the intensity of a project's impacts is substantial enough to warrant the preparation of an environmental impact statement (40 C.F.R. 1508.27(b)(1-10)). These issues are considered in the determination of whether there is a significant impact. The issues are addressed as follows:

*1. Impacts that may be both beneficial and adverse* – The project would result in beneficial socioeconomic impacts through improved system linkage and economic vitality as well as the creation of jobs. FHWA finds that these beneficial impacts, when taken in conjunction with the adverse impacts, do not reach the level of significance requiring the preparation of an environmental impact statement.

*2. The degree to which the project affects public health or safety* – It is not anticipated that the project will adversely affect public health and safety. The project will not cause or contribute to an exceedance of the National Ambient Air Quality Standards.

*3. Unique characteristics of the geographical area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers or ecologically critical area* – No historic or cultural resources, park lands, prime farmlands,

wild and scenic rivers, or ecologically critical areas will be impacted by the project. As discussed earlier, the impacts to wetlands will not be significant.

*4. The degree to which the effects on the environment are expected to be highly controversial* – Based on case law, it is our position that the term “controversial” refers to cases where substantial dispute exists as to the size, nature, or effect of the action rather than to the existence of opposition to a use, the effect of which is relatively undisputed. On this project, there has been no documented dispute regarding the size, nature, or effect of the project from the state or federal environmental resource agencies or any other entity. Further, no environmental resource agency has opposed the project. Based on the above, FHWA finds that the degree to which the effects on the environment are expected to be highly controversial does not require an environmental impact statement for this project.

*5. The degree to which the effects on the quality of human environment are highly uncertain or involve unique or unknown risks* – There are no known effects on the quality of the human environment that can be considered highly uncertain or involve unique or unknown risks. Five residential relocations are anticipated and the project will not cause or contribute to an exceedance of the National Ambient Air Quality Standards.

*6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration* – This action will not set a precedent for future actions with significant effects or represent a decision in principle about a future consideration. The project has logical termini and independent utility and represents a reasonable expenditure of funds; it does not force additional improvements to be made to the transportation system. This decision will not establish a precedent regarding the requirements of the National Environmental Policy Act as they will be applied to future projects.

*7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts* - This action has logical termini and independent utility and does not force additional transportation improvements to be made to the transportation system. Cumulative impacts were addressed in the Environmental Assessment and in this document, and FHWA finds that they are not significant.

*8. The degree to which the action may adversely affect districts, sites, highways structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss of significant scientific, cultural, or historic resources* -- No districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places will be affected by the project.

*9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act* – The U.S. Fish and Wildlife Service has concurred that the

project is not likely to adversely affect any federally endangered or threatened species or its critical habitat.

*10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment* – The proposed action does not threaten a violation of any Federal, State, or local law for the protection of the environment. All applicable permits will be acquired prior to construction.

### **Conclusion**

Based on the foregoing information and other supporting information, FHWA finds that the proposed project will not have a significant impact on the environment. Therefore, an environmental impact statement is not warranted, and the Finding of No Significant Impact is being issued accordingly. The Finding of No Significant Impact will be reevaluated as appropriate pursuant to 23 C.F.R. 771.129(c) as major approvals are requested from FHWA.



COMMONWEALTH of VIRGINIA  
DEPARTMENT OF TRANSPORTATION

870 BONHAM ROAD  
BRISTOL, VA 24201

DAVID S. EKERN, P.E.  
COMMISSIONER

January 12, 2010

Ms. Mary Ridgeway  
Acting Division Administrator  
ATTN: Mr. John Simkins  
Federal Highway Administration  
400 North 8<sup>th</sup> Street, Room 750  
Richmond, VA 23240

RE: Environmental Assessment for US Route 460 Connector, Phase II, including the Coalfields Expressway (CFX) Interchange Area at Hawks Nest

State Project: 0460-013-781, P101; UPC-88140  
From: Route 460 Connector, Phase I  
To: Coalfields Expressway (CFX) Hawks Nest Section  
Location: Buchanan County, VA

Dear Ms. Ridgeway:

This letter constitutes the attachment to finalize the Environmental Assessment (EA) prepared for this project. The draft EA was approved for public availability on March 26, 2009. An open forum Location Public Hearing on the above referenced project was held on Tuesday, July 14, 2009 at the Breaks Interstate Park Conference Center in Buchanan County, VA. The Public Hearing was attended by 140 citizens. Written comments were provided by 17 citizens within the comment period that expired ten days after the Public Hearing. No oral comments were provided by citizens during the hearing.

The revised EA addresses the requirements in accordance with 23 CFR 771 and Federal guidelines provided in FHWA Technical Advisory T6640.8A II(h). The signed draft EA is included in Appendix A.

- A. Changes in the proposed action or mitigation measures resulting from comments received at the public hearing or on the EA:
1. Comments received at the public hearing and on the draft EA did not result in significant changes to the proposed action or mitigation measures.

2. The primary issues expressed at the public hearing related to:

- Personal property acquisition
- Changes to neighborhoods and communities
- Improved access to the region
- Support for the project

It should be noted that of the 17 written comments received during the public hearing comment period, most expressed support for the project as designed.

3. A summary of the written comments received, as well as VDOT responses, is attached (Appendix B).
4. All comments have been considered and substantive comments received on the draft EA and from the public hearing have been addressed.

B. Findings, agreements, or determinations required for this proposal:

1. The U.S. Fish and Wildlife Service (FWS) provided written comments on November 6, 2008 expressing concern for the project's potential adverse impacts to the federally listed endangered Indiana bat (*Myotis sodalist*) and gray bat (*Myotis grisescens*). The FWS requested that VDOT conduct an assessment of potential wintering and summer habitats within the project area to determine if either species would be adversely affected by the project.

In accordance with the FWS's request, and following FWS guidelines and survey protocol, a FWS-approved bat survey team assessed suitable caves and abandoned mines with the project area during the winter months and suitable forest habitat during the summer months. Because of the season-specific requirements for the surveys, they were not completed in time for inclusion in the draft Environmental Assessment. Findings of the winter and summer surveys are documented in the following reports (Appendix C):

- BHE Environmental, Inc. for Michael Baker Jr., Inc. *Phase I Portal Assessment at the US Route 460 Connector Project – Buchanan County, Virginia* (April 2009)
- BHE Environmental, Inc. for Michael Baker Jr., Inc. *Portal Survey and Mist Net Survey for the Indiana Bat and the Gray Bat at the US Route 460 Connector Project – Buchanan County, Virginia* (July 6, 2009)

No Indiana bats or gray bats were captured during the portal and mist net surveys conducted for this project. In a letter dated July 22, 2009, based on the findings of the above two surveys and in accordance with the provisions of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), VDOT requested the FWS's concurrence that the project would have no adverse impact on the Indiana bat and the gray bat. In a letter dated December 21, 2009,

the FWS concurred with these findings (Appendix D).

In e-mail correspondence dated October 1, 2009, the Department of Game and Inland Fisheries (DGIF) stated that they approved the procedures documented in the two bat surveys and had no further comments on the subject. The DGIF also requested additional stream crossing information for subsequent permit acquisition activities. VDOT responded via e-mail on October 6, 2009 that the Natural Resources Technical Memorandum prepared for the project contains detailed stream and waters of the U.S. (WOUS) information (Appendix D). VDOT will recalculate WOUS impacts during final design once the project's construction limits are better defined.

2. Two electronic comments were received from the Department of Conservation and Recreation (DCR) dated May 21 and May 25, 2009 (Appendix B). In both, DCR asked if VDOT had complied with the DCR's earlier request that VDOT conduct an inventory in the project area for the Six-banded longhorn beetle (*Dryobius sexnotatus*), a rare Millipede (*Cherokia Georgiana latassa*), and the Nodding trillium (*Trillium flexipes*).

On May 27, 2009, VDOT provided DCR with a written response similar to its previous responses to DCR's request (Appendix B). VDOT stated that, because the three species previously noted are not listed as state or federal threatened or endangered species, they are not afforded protection under 4VAC15-20-130, 2VAC5-320-10, or the Endangered Species Act of 1973 as amended. In consideration of this, VDOT cannot justify conducting the DCR-recommended inventories for these non-listed species. While a discussion of these three species is not included in the draft Environmental Assessment, it is included in the supporting *Route 460 Connector, Phase II: Natural Resources Technical Memorandum*, December 2008.

3. In accordance with Section 106 of the National Historic Preservation Act of 1966, a cultural resources survey was conducted for the project and a determination of No Effect on architectural properties or archaeological resources was provided by the Virginia Department of Historic Resources. On May 20, 2009, the Department of Historic Resources provided a letter to VDOT concurring with the assessment that no historic properties listed in or eligible for the National Register of Historic Places will be affected by Phase II of the Route 460 Connector project (Appendix B).

There are no Section 4(f) properties affected by this project.

4. In electronic correspondence dated May 1, 2009, the Virginia Department of Health (VDH) commented that heating oil underground and aboveground storage tanks (USTs and ASTs), underground septic tanks, and private wells may be present and will need to be addressed in accordance with state requirements. The VDH also commented that a well abandonment permit will be required from the VDH should such actions be necessary (Appendix B).

As noted in the draft Environmental Assessment, the locations of and impacts to private water supplies (wells, springs, cisterns) and septic systems would be addressed during VDOT's right-of-way acquisition process when more detailed engineering information is available. Should such resources be impacted, all federal, state, and local regulations, including those of the VDH, will be strictly adhered to.

5. VDOT and the Virginia Department of Forestry (VDOF) will continue to discuss the mitigation of forest impacts. The Build Alternative would require removal of approximately 356 acres of primarily deciduous forest vegetation and habitat for construction of roadway, cut, and fill. Of that, approximately 133 acres (37 percent) are suitable for reforestation within the project's new fill area. The remaining 223 acres (63 percent) are in new cut slopes and will be too steep to revegetate.

As stated in the draft Environmental Assessment, VDOT will reforest suitable fill areas and will continue discussions with the VDOF to pay an in-lieu fee for the remaining impacted areas. VDOT will recalculate forest impacts during final design once the project's construction limits are better defined. VDOT is committed to reaching a mutually acceptable mitigation plan with VDOF.

Buchanan County comprises approximately 504 square miles of mountainous terrain, of which 317,043 acres or 96% are forested. Overall, the forested area located within the project area comprises a small portion of the total forest cover in Buchanan County (356 acres or 0.1 %).

6. Construction of the Build Alternative will require Section 404, Section 402, and Section 401 Clean Water Act (CWA) permits. Conveyances of stormwater from the proposed project will require compliance with the National Pollution Discharge Elimination System (NPDES) and the Virginia Stormwater Management Program (VSMP) Permit Regulations.

Section 404 of the Clean Water Act requires permits for the discharge of dredged and fill material into waters of the US, including wetlands and streams. The Build Alternative will impact 3.83 acres of wetlands and 7,849 linear feet of streams. Impacts to these resources will be minimized to the greatest extent practicable during final design. Project impacts to jurisdictional wetlands and waterways would be mitigated in accordance with the guidelines set forth in the U.S. Army Corps of Engineers (Corps) and EPA's Compensatory Mitigation for Losses of Aquatic Resources: Final Rule (33 CFR Parts 325 and 332; 40 CFR Part 230). Wetland impacts will be compensated using standard wetland mitigation ratios of 2:1 for forested wetlands, 1.5:1 for scrub shrub wetlands, and 1:1 for emergent wetlands. Stream impacts will be compensated based on stream functions impacted, as calculated using the joint Corps/DEQ Unified Stream Methodology (USM).

The acquisition of wetland and stream credits from an existing mitigation bank

within the appropriate hydrologic unit code is the Corps' first preference for mitigation but it is not currently an option for this project as there are no existing banks in the area. It is possible that a mitigation bank could be operational in the area by the time this project is designed and ready to go to construction; however, this strategy is an unlikely possibility at this time.

The second option for mitigation of the project's wetland and stream impacts is payment into the Aquatic Restoration Trust Fund. Payments to the Aquatic Restoration Trust Fund are often considered to be an option when appropriate mitigation bank credits are not available; however, the Big Sandy watershed is currently closed to in-lieu fee payments.

The third and final option for mitigation is the restoration and/or creation of replacement wetlands and streams within the impacted watersheds. During the permit acquisition phase of the project, the use of all three options will be explored. Should restoration and/or creation of wetlands and streams become a viable option, few opportunities exist for restoration/creation inside of the project limits because of the steepness of the terrain within the proposed project limits. At lower elevations outside of the project limits, however, multiple opportunities can be found. Stream impact compensation could be achieved through restoration of streams in the Big Sandy watershed; more specifically in the Russell Fork and Levisa Fork subwatersheds. The *Route 460 Connector, Phase II: Natural Resources Technical Memorandum* provides details on the proposed mitigation compensation strategies.

The project is not located within a FEMA-designated 100-year floodplain.

7. The Build Alternative will require the relocation of up to five households. No businesses or non-profit organizations will be required to relocate. The right-of-way acquisition program will be conducted in accordance with the Uniform Relocation and Real Estate Property Act of 1970, as amended.

This project was developed in accordance with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. No low-income or minority populations have been identified in the study area. Therefore, none will be impacted by this project.

8. Noise impacts are predicted to occur at three single-family residences along the project corridor under the Build Alternative. All of these impacts are due to substantial increase, not to an exceedance of the Noise Abatement Criteria. Noise barriers were determined to not be feasible for the three impacted properties. Due to the mountainous terrain, barriers are not feasible as they are not able to achieve a 5 decibel reduction for the impacted sites.

On November 19, 2009, the Commonwealth Transportation Board approved the location of the proposed Build Alternative as presented at the Location Public Hearing (Appendix E).

Ms. Mary Ridgeway  
January 12, 2010  
Page 6

The Virginia Department of Transportation requests that you issue a Finding of No Significant Impact (FONSI) determination and return the signed originals of the FONSI to our Bristol District Environmental Section for use in reproducing the necessary copies for distribution.

If you have questions, please contact George Young at 276-645-1656.

Sincerely,  
Virginia Department of Transportation – Bristol District

*for:*   
Doris K. Bush  
District Environmental Manager

# LIST OF APPENDICES

## **Appendix A:**

Draft Environmental Assessment  
*US Route 460 Connector, Phase II including Coalfields Expressway (CFX)  
Interchange Area at Hawks Nest. Buchanan County, VA*  
March 2009

## **Appendix B:**

Location Public Hearing and Draft EA Comments and Responses

## **Appendix C:**

Indiana Bat (*Myotis sodalists*) and Gray Bat (*M. grisescens*) Survey Reports

## **Appendix D:**

Section 7 Informal Consultation on the Indiana Bat (*Myotis sodalists*) and Gray Bat (*M. grisescens*): FWS and DGIF

## **Appendix E:**

CTB Project Location Approval

# **Appendix A:**

Draft Environmental Assessment  
*US Route 460 Connector, Phase II  
including Coalfields Expressway (CFX) Interchange  
Area at Hawks Nest.  
Buchanan County, VA  
March 2009*



US Route 460 Connector, Phase II including  
Coalfields Expressway (CFX) Interchange Area at Hawks Nest  
Buchanan County, Virginia

Environmental Assessment  
Project: 0460-013-781, P101; UPC-88140

March 2009  
Department of Transportation  
Federal Highway Administration

**ENVIRONMENTAL ASSESSMENT**

**US Route 460 Connector, Phase II including  
Coalfields Expressway (CFX) Interchange Area at Hawks Nest  
Buchanan County, Virginia**

State Project: 0460-013-781, P101; UPC-88140

From: US Route 460 Connector, Phase I  
To: Coalfields Expressway (CFX) Hawks Nest Section

U.S. Department of Transportation  
Federal Highway Administration  
&  
Virginia Department of Transportation

Submitted Pursuant to 42 U.S.C. 4332(2)(C)

We concur that this document is acceptable for public availability.

3/26/09

Date

John Simkins

for: Division Administrator

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## **Section 1: PURPOSE AND NEED**

*All Figures are included in Appendix A of this report.*

### **1.1 Study Area**

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA) and the Appalachian Regional Commission (ARC), is proposing to construct Phase II of the US Route 460 Connector in Buchanan County, Virginia (Figure 1). The proposed highway would be a four-lane, median divided, rural principal arterial highway on new alignment. It would further the region's goal of improving transportation by providing a link between the US Route 460 improvements in Kentucky and Virginia's Coalfields Expressway (CFX). As proposed, its western terminus would connect to Phase I of the Route 460 Connector near the Virginia/Kentucky State line and Breaks Interstate Park. From this point, it would extend on new alignment to its eastern terminus at the CFX, Hawks Nest Section approximately 2.9 miles southeast of the Bull Gap community. Included in this project is the CFX interchange area at Hawks Nest that consists of approximately 2,560 feet of CFX mainline and the footprint area of the connecting ramps. The length of the Route 460 Connector, Phase II is approximately 6.2 miles and the length of the CFX interchange area at Hawks Nest is approximately 0.5 miles for a total project length of approximately 6.7 miles.

The project's western terminus, Phase I of the Route 460 Connector, is scheduled for construction in 2009. Rough-grading activities are currently underway on the project's eastern terminus, the CFX Hawks Nest Section. The proposed Route 460 Connector, Phase II, including the CFX interchange area, has logical termini because it would link the Kentucky and Virginia Route 460 improvements with the approved CFX Hawks Nest Section and Corridor Q; thereby completing a major component of the planned Appalachian Development Highway System (ADHS) (Figure 2). As such, this project represents a reasonable expenditure of public funds.

### **1.2 Project History**

The Route 460 Connector is tied to the development, goals, and objectives of two separate transportation initiatives; the CFX and Corridor Q of the ADHS. The CFX is a planned, multi-state, limited access facility on new alignment. The proposed highway extends from Pound, Virginia, 116 miles northeast to Beckley, West Virginia. As proposed, Virginia's CFX project, designated as US Route 121, travels approximately 49 miles through southwestern Virginia in Wise, Dickenson, and Buchanan counties. Ultimately, the CFX would link with the planned West Virginia CFX at the State line, east of Slate, Virginia (Figure 2).

Corridor Q of the ADHS is also located in southwestern Virginia and shares a portion of its alignment with the CFX and the Route 460 Connector. Congress established the ARC in 1965 to foster and promote economic and social development in the Appalachian Region. The ADHS is considered the centerpiece of ARC's economic and social development programs. Corridor Q extends 127.5 miles northeast from the State line near the Breaks Interstate Park to I-81 near Christiansburg, Virginia (Figure 2 and Figure 3).

In Virginia, improvements to US Route 460 have been proposed and studied since the late 1960's. In 1984, FHWA signed a VDOT-prepared Final Environmental Impact Statement (FEIS) for relocating US Route 460 on new alignment. The proposed location of the US Route 460 roadway has since changed; first to accommodate and connect with other planned highway projects such as the CFX and more recently to accommodate coal recovery/transportation synergy projects made possible via Virginia's Public-Private Transportation Act (PPTA) partnerships and unsolicited coal-synergy projects from private interests.

The following is a summary of the Route 460 Connector's recent project history, primarily excerpted from VDOT's *Status of Coalfields Expressway and Coalfields Connector* and *VDOT's Environmental Re-evaluation: Route 460 Connector Phase I, Buchanan County*.

- **August 2000**

The Route 460 Connector to the CFX Project evolved from the CFX location study. The CTB approved a build alternative location in August 2000 for the Route 460 Connector. The Kentucky Transportation Cabinet (KYTC) studied, approved, and began construction on upgrades to US Route 460 with connections into Virginia in the vicinity of Breaks Interstate Park. Ultimately, the Route 460 Connector would connect to both the US Route 460 improvements in Kentucky and the CFX build alternative in Virginia.

- **Late 2000**

The CTB authorized a preliminary engineering study for the purpose of determining a preferred alignment for the Route 460 Connector. The purpose of the Route 460 Connector EA was to identify, evaluate, and determine the preferred highway corridor between US Route 460 in Kentucky and the CFX. A range of options was reviewed, including the No-Build, Transportation System Management, Mass Transit, and Build Alternatives.

- **Early 2001**

Three preliminary alignments for the Route 460 Connector were studied for feasibility. The results of the study showed that, due to cost and construction constraints, only one Build Alternative, a 3.1-mile long alignment, was feasible to carry forward for consideration.

- **July 2001**

A Build Alternative alignment in the Route 460 Connector EA was approved by FHWA in July 2001 and a Finding of No Significant Impact (FONSI) was issued by FHWA in March 2002. The EA addressed the Route 460 Connector project from Virginia Route 631 to the CFX. The location of this 2001 alignment relative to the currently proposed Build Alternative for the Route 460 Connector, Phase II, is shown on Figure 4.

- **August 2001**

An interstate memorandum of agreement (MOA) between Virginia and Kentucky was finalized resolving that both states would coordinate the two highway construction projects planned by each state as follows:

- Relocate US Route 460/KY Route 80, from Pikeville, Kentucky to the Virginia State line near Breaks Interstate Park;
  - Construct a connector road in Virginia from the planned CFX to relocated US Route 460 in Kentucky;
  - The KYTC will prepare final design of the relocated section of US Route 460 up to the Virginia State line, including an approach road from relocated US Route 460 in Kentucky to Virginia Route 80 to provide for continuous traffic flow; and
  - The VDOT is obligated to pay for and/or design-build a connector to VA Route 80 (i.e., Phase I of the Route 460 Connector).
- **July 2002**  
VDOT authorized preliminary engineering funding for the Route 460 Connector. By mid-2003, the majority of surveying was complete and initial design was underway.
  - **June 2005 - December 2005**  
Work was suspended on the CFX project because of funding issues and for consideration of proposals from potential private partners. Because the future location of the CFX was uncertain, VDOT decided to revise the scope of the Route 460 Connector project to meet the intent of the Virginia/Kentucky MOA while providing flexibility for future connections. Therefore, the Route 460 Connector mainline was terminated 0.8 mile east of the Virginia/Kentucky State line and a connection to Virginia Route 80 was provided to allow both local and through traffic movement and improved access to Breaks Interstate Park. This section is now referred to as Phase I of the Route 460 Connector. The remainder of the Build Alternative alignment for the Route 460 Connector is referred to as Phase II.
  - **January 2006**  
The Department, Alpha Natural Resources, LLC (Alpha), Pioneer Group, Inc. (Pioneer), and Kellogg Brown & Root Services, Inc. (KBR) entered into an Assignment and Assumption Agreement to advance the CFX, pursuant to which KBR assigned all of its rights and obligations under the Comprehensive Agreement to Alpha and Pioneer, and Alpha and Pioneer assumed all of KBR's rights and obligations under the Comprehensive Agreement, subject to certain obligations and conditions as set forth therein.
  - **January 2007**  
The Department, Alpha, and Pioneer entered into a First Amendment to the Assignment and Assumption Agreement. This provided, among other things, that all of Alpha's and Pioneer's obligations under the Comprehensive Agreement and Design-Build Contract referenced in the First Amendment to Assignment would be suspended in order to allow good faith negotiations between the Department, Alpha, and Pioneer for the purpose of modifying the Comprehensive Agreement to reflect potential use of value of the Contractor's coal reserves and expertise in mining and large-scale earth moving operations to reduce the estimated CFX development costs.

- **January 2007 – September 2007**

Alpha and Pioneer conducted a coal-synergy feasibility study to evaluate potential CFX alignments that would cross coal reserves controlled by the coal companies. The study explored whether such alignments could result in the recovery of marketable coal reserves that could be used to lower the construction costs and reduce the amount of public dollars needed to complete the CFX. As a result of the study, the CFX alignment was refined to its current proposed location.
- **October 2007**

In October 2007, Pioneer, a member of the CFX PPTA project team, submitted an unsolicited proposal to VDOT to advance the second phase (Phase II) of the Route 460 Connector project utilizing a coal-synergy to help offset construction costs. Pioneer proposes to help VDOT with the preliminary construction of 6.2 miles of roadway on new location from Phase I of the Route 460 Connector to the new CFX interchange area at Hawks Nest. Pioneer's Route 460 Connector, Phase II location is outside the corridor previously approved by the CTB and FHWA in 2001. As such, VDOT proposed to FHWA to develop a new EA for the Pioneer proposal for the Phase II portion of the Route 460 Connector. VDOT received concurrence from FHWA and is proceeding with this approach.
- **November 2007**

On November 5, 2007, FHWA approved the Re-evaluation for the proposed Route 460 Connector, Phase I alignment and concurred with VDOT that the project will not have a significant impact to the human or natural environment. VDOT plans to award Phase I of the Route 460 Connector project as a design-build contract in 2009. The current design for Phase I of the Route 460 Connector consists of a four-lane mainline, beginning at the Virginia/Kentucky State line, then extending on new location approximately 0.8 mile southeast to its eastern terminus. Beginning near the eastern terminus of the mainline, a two-lane connection will travel southeast for approximately 0.8 mile and provide a connection to Route 80 near the Breaks Interstate Park. Two, dual-lane bridges (eastbound and westbound lanes) over Route 610 and Grassy Creek, and a multi-span bridge over Hunts Creek and Route 609, will be constructed. Area network connections will be provided to Route 609 and Route 768. Phase I of the Route 460 Connector will provide a logical terminus for the Kentucky Route 460 project and allow for a safe and efficient flow of traffic between the two states.
- **March 2008**

On March 26, 2008, FHWA approved the Re-evaluation for the CFX Section IIIA, Hawks Nest and concurred with VDOT that design changes will result in no additional significant impacts.
- **June 2008**

The US Route 460 Connector project, a connection from relocated Kentucky Route 460 to CFX, has been in VDOT's Six Year Improvement Plan since the late 1990s under UPC 64144. The phased approach, where the project was divided into two construction segments, occurred in June 2008 with the

addition of UPCs 85914 (Phase I) and 88140 (Phase II). This project (Phase II of the Route 460 Connector) is included in VDOT's Six-Year Improvement Plan (FY 09, Revised February 2009).

On June 19, 2008, the Commonwealth Transportation Board (CTB) approved the location of the CFX Hawks Nest Section (CFX Section IIIA). The southern terminus for the approved CFX Hawks Nest Section is at the Route 460 Connector/CFX interchange area at Hawks Nest.

- **September 2008**

VDOT and Alpha entered into a 2<sup>nd</sup> Amendment to the Assignment and Assumption Agreement for the CFX Hawks Nest Section. The agreement allowed VDOT opportunities to develop the Hawks Nest Section's rough-grade roadbed at a substantial cost savings to the Department. As per the amendment, Alpha, acting through its indirect wholly owned subsidiary Paramount Coal Company Virginia, LLC (Paramount), would modify their existing mining permits and mine plans to a post-mining land use (PMLU) of "public use – public road use" to accommodate the development of a rough-grade, four-lane roadbed at the Hawks Nest Mine.

As shown on Figure 5, the CFX interchange area at Hawks Nest is part of a much larger, active coal mining operation. All federal, state, and local environmental studies, clearances, permits, and authorizations for activities within the interchange area have previously been obtained by Paramount for the Hawks Nest Surface Mine. These clearances include but are not limited to compliance with the Clean Water Act, the Endangered Species Act, the National Historic Preservation Act, the Clean Air Act, and the Surface Mining Control and Reclamation Act. In addition to obtaining environmental clearances, Paramount is also responsible for implementing all compensatory mitigation measures stipulated in the permit conditions. Figure 5 shows the Virginia Division of Mined Land Reclamation (VDMLR) permit boundaries for the Hawks Nest authorizations listed below.

- Surface Mining Control and Reclamation Act (SMCRA) Permit No. 1101903
- Virginia Department of Mines, Minerals and Energy (DMME) – Division of Mined Land Reclamation (DMLR) Application No. 1001191 and subsequent applications
- United States Army Corps of Engineers (USACOE) Project No. 04-K0014 and subsequent authorizations
- Virginia Department of Historic Resources (VDHR) related clearances and determinations of no effect

As part of a coal-synergy partnership between VDOT and Alpha, Paramount will leave a rough-graded roadbed suitable for the construction of a four-lane, median divided highway upon which VDOT will construct the CFX mainline through the interchange area following coal mining activities. Alpha is donating the right-of-way (ROW) and the rough-grade construction of the 2,560 feet of CFX mainline in the interchange area to VDOT.

So as to not duplicate previous study efforts, the impacts of and mitigation commitments for mining activities within the interchange area are incorporated in this EA by reference only with the details being available in the permits and authorizations cited above.

The subject of this EA is the 6.2-mile long Route 460 Connector, Phase II alignment and the 0.5-mile long Route 460 Connector/CFX interchange area at Hawks Nest that was developed in conjunction with VDOT's coal-synergy partners. As noted in Pioneer's October 2007 proposal to VDOT:

Pioneer Group, Inc. proposes to revise the connection to the Coalfields [Expressway] while working within the context of the current VDOT Phase I connection to the Breaks Interstate Park. Pioneer has tied to the VDOT designed connection and utilized locations where savings can be derived from the sale of coal reserves on lands where mineral rights are controlled by Pioneer. This would allow VDOT to abandon their [previously proposed Route 460] Connector to the Coalfields [Expressway] that involves the residential and golf course relocations and utilize the Pioneer US 460 Connector [Phase II] with little or no relocations, fewer stream impacts, and no need for excess material sites. Pioneer proposes to design and build the 460 Connector [Phase II] to rough grade. Subgrade, pavement, and other incidentals will be done either by supplemental agreement or separately bid by VDOT.

As part of their mining operations, Pioneer selected and designed an alignment that follows the location of Pioneer-controlled coal resources. After the coal is extracted, Pioneer would leave behind a 150-foot wide, rough-graded roadbed upon which VDOT would construct Phase II of the Route 460 Connector. Should VDOT choose to take full advantage of the coal-synergy partnership, it would save approximately 54 percent in roadway construction costs.

## **1.3 Project Need**

### **1.3.1 Existing Conditions**

The need for this project is based on the need for improved local and regional connectivity. The communities in the region lack efficient access to the region's highway network. The considerable travel time required to reach the regional highway network hinders local economic development efforts, adding shipping costs to local industries and travel time to potential tourists. It also inconveniences local residents who experience longer travel times when driving to points within and outside of the study area. As noted in Buchanan County's Comprehensive Plan:

"Existing Route 460 is the lifeline of economic development for Buchanan County. However, this system has several hazardous intersections, crossovers, and turnouts that need immediate attention to avoid accidents and promote commerce . . . Route 460 is the source of many preventable traffic jams and accidents which create safety hazards. This highway needs to be improved in order to promote Buchanan County's efforts toward commerce and tourism".

This project is part of a larger effort to improve access into and through the Appalachian Region. In 1965, Congress established the ARC to foster and promote economic and social development of Appalachia. In turn, ARC developed the ADHS to improve the region's transportation infrastructure. The proposed Route 460 Connector has been part of the ADHS since its inception.

Breaks Interstate Park is the area's largest tourist attraction yet a study by Economic Research Associates (ERA) determined that park visitation was well below visitation to other regional parks having similar sized markets. The ERA study stated that improved access could help Breaks Interstate Park realize its full tourism potential. Motorists traveling westbound along Route 460 reach the Breaks Interstate Park using Route 609 or take Route 83 to Route 80. Due to the rugged terrain, these roadways, along with existing Route 460, have a wide variation of design speeds, shoulder widths, clear zone widths, and curve warning signage. This variation, largely attributed to the severe topography of the area, results in frequent changes in driving conditions and impedes corridor mobility. Existing development along these roadways results in a large number of turning vehicles that interrupts traffic flow.

These roadways are also characterized by steep grades and, due to the many horizontal curves, a high percentage of no-passing zones. Both of these highway characteristics slow traffic movement through the area. Furthermore, the high percentage of trucks along these roadways exacerbates the problem. Historic VDOT traffic counts show heavy truck percentages of 8 percent along Route 609 and 21 percent along VA 80, near the Kentucky State line and Breaks Interstate Park.

Traffic studies show that a 2,000-foot long roadway with a four percent grade will reduce the speed of a truck traveling 55 miles per hour (mph) to approximately 36 mph. An eight percent grade will further reduce truck speed to about 13 mph (AASHTO, 1994). A different problem occurs on downgrades, where faster traveling trucks sometimes tailgate cars and create an unsafe situation. FHWA guidance states that "speed differential on highways with steep grades can contribute to safety and operational problems. Trucks and other heavy vehicles lose speed on steep, ascending grades and may be unable to reach full highway speed until they have passed the crest of the steep grade. Vehicles behind them are slowed, degrading operations at the least, and contributing to rear-end conflicts and in some cases risky passing maneuvers at the worst. Truck drivers may also choose to descend grades at slower speeds to maintain better control of their vehicles. Operations may be degraded for faster-moving vehicles from behind, creating an increased risk of rear-end crashes and risky passing maneuvers."

### **1.3.2 Future Conditions**

Under the No-Build condition in the design year 2035, the need for improved local and regional connectivity would remain. The absence of a connector facility between the newly completed Phase I, Route 460 Connector and the CFX would amplify the region's lack of system linkage as drivers would have to use rural routes to connect to these two principal arterials. As with the existing condition, greater travel times would continue to hinder local economic development efforts and continue to inconvenience drivers. Safety concerns identified as part of the existing conditions would also remain. The 2035 No-Build condition would leave a gap in the ARC's ADHS; a system that was developed to promote and foster social and economic development within this region of Appalachia.

## **1.4 Project Purpose and Summary**

As stated in the Buchanan County Comprehensive Plan, US Route 460 is the lifeline of economic development for Buchanan County. . . Better highway access will bring many economic benefits to Buchanan County and enhance the quality of life. The goals for the Route 460 Connector are aligned with the goals for the CFX; reverse the current population and employment decline in the coal producing region, stimulate economic development, open the region to tourism, and improve the local transportation network throughout the region. Local, regional, state, and federal planning and programming efforts support the Route 460 Connector because it would serve these needs. In addition to serving the transportation needs of the public, VDOT coal-synergy partnerships would provide a public savings of approximately 54 percent in the construction costs of Phase II of the Route 460 Connector and the CFX interchange area at Hawks Nest.

## Section 2: ALTERNATIVES

*All Figures are included in Appendix A of this report.*

This section discusses the range of alternatives considered, the process used to identify and screen the alternatives, alternatives considered and eliminated from further consideration, and alternatives carried forward for detailed study. The No-Build Alternative was retained for detailed study and serves as a baseline for alternatives comparison. A preferred Build Alternative has been identified and is described in detail.

### 2.1 Alternative Development and Screening Process

As noted in Section 1.2: Project History, the 2001 EA prepared for the Route 460 Connector evaluated the No-Build Alternative, the Transportation Systems Management (TSM) Alternative, the Mass Transit Alternative; and three Build Alternatives. However, the selected Build Alternative identified in the 2001 EA and approved by FHWA in the 2002 FONSI was never constructed. To meet Virginia's commitment to Kentucky to provide logical termini for their Route 460 improvements, Virginia split the Route 460 Connector into two phases. Phase I provides a logical terminus for the Kentucky improvements to the Route 460 Connector by terminating at Virginia Route 80 near Breaks Interstate Park. Construction of Phase I is scheduled to begin in 2009.

In 2007, VDOT received an unsolicited proposal from Pioneer to advance Phase II of the Route 460 Connector using a coal-synergy to offset roadway construction costs. As part of that proposal, Pioneer developed a new Build Alternative alignment that maximizes coal mining opportunities on lands where surface and mineral rights are controlled by Pioneer yet minimizes impacts to the natural and human environment in accordance with the requirements of the National Environmental Policy Act (NEPA) and related laws and regulations. The Build Alternative under consideration in this study is the Phase II, Route 460 Connector component developed by Pioneer and the Route 460 Connector/CFX interchange area at Hawks Nest. Because of funding constraints, Phase II of the Route 460 Connector including the CFX interchange area at Hawks Nest would not be constructed in the foreseeable future without the aid of VDOT's coal-synergy partners. The cost savings of the VDOT coal-synergy partnerships would expedite the ability of VDOT to fund and construct both components of the proposed project.

### 2.2 Other Alternatives Eliminated from Detailed Study

The 2001 EA prepared for the Route 460 Connector documents other alternatives considered but eliminated from further study. Figure 4 shows the alignment of the 2001 Build Alternative relative to the new alignment proposed for the Route 460 Connector, Phase II project.

## 2.3 Alternatives Carried Forward

### 2.3.1 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be implemented. This alternative would include all currently adopted and planned transportation improvements, such as those projects listed in VDOT's Six-Year Transportation Improvement Plan. The No-Build Alternative would not meet the project need to improve system linkage, reduce or eliminate roadway deficiencies, or improve the area's ability to attract economic development. While it would not meet the project need, the No-Build Alternative provides a means to measure the relative impacts of the Build Alternative under consideration.

### 2.3.2 Build Alternative

The proposed Build Alternative would be a four-lane, median divided, rural principal arterial highway on new alignment and would serve as a link between the US Route 460 improvements in Kentucky and Virginia's CFX. As proposed, its western terminus would connect to Phase I of the Route 460 Connector near the Virginia/Kentucky State line and Breaks Interstate Park. From this point, it would extend on new alignment approximately 6.2 miles to its connection with the approximately 0.5 mile long CFX interchange area at Hawks Nest. The project's eastern terminus is the approved location of the CFX Hawks Nest Section (CFX Section IIIA) (Figure 6).

The Route 460, Phase II alignment and the CFX interchange area at Hawks Nest were designed in accordance with VDOT and the American Association of State Highway and Transportation Officials (AASHTO) guidelines and specifications. The design criteria for the proposed roadways are as follows:

- 60 MPH = Design Speed
- 6 percent = Maximum Grade
- 0.5 percent = Minimum Grade (to ensure adequate drainage)
- 570' = Minimum Stopping Distance

Access management to the highway will be limited with partial control access with preference given to through-traffic. In accordance with AASHTO Design Controls and Criteria, access connections, which may be at-grade or grade separated, will be provided with select public roads and private driveways. In addition to the project termini, at-grade access will be provided at Route 609 (Bull Creek Road) and at Cindy Fork Road near Rockhouse Gap and the CFX interchange.

As shown on Figure 7, the proposed four lane roadway for both Route 460 and the CFX interchange area would have mainline typical sections consisting of the following:

- 12' = Lane Width
- 40' = Depressed Median Width
- 13' = Outside Shoulder Width with 8' paved and 5' grass shoulders
- 1:1 = Cut Slopes
- 2.3:1 = Fill Slopes

Fill slopes at a ratio of 2.3:1 were chosen to reflect a worst-case scenario and maximum roadway footprint. During final design, the geotechnical analyses will indicate whether the fill slopes can be steepened, thereby reducing the ROW limits of the project. In addition, the specific location and design of the ramps connecting the Route 460 Connector with the CFX at the Hawks Nest interchange area will be determined during final design.

In design year 2035, the proposed project would have an average daily traffic (ADT) volume of 9,100 vehicles. This projected traffic volume reflects the travel attractions for local and through traffic.

Within the Route 460 Connector ROW, approximately 54 percent of the land has been previously disturbed with 35 percent of that being from surface mining activities, approximately 5 percent from logging, and approximately 14 percent from open land/urban/or other development. Within the ROW of the CFX interchange area at Hawks Nest, over 95 percent of the area is disturbed from surface mining activities.

## 2.4 Capital Cost Estimate

If VDOT were to construct Phase II of the Route 460 Connector and the CFX interchange area at Hawks Nest without the coal-synergy partnerships, the total cost would be approximately \$334 million. However, with VDOT's coal-synergy partnerships, the total cost to VDOT would be approximately \$154 million. While VDOT would pay their coal-synergy partners approximately \$66 million for their efforts constructing the rough-graded roadbeds, their participation in the construction of the proposed project would provide a total cost savings to the public of approximately \$179 million. Under this arrangement, VDOT would be responsible for the final engineering and the cost of paving and maintaining the roadway. This cost estimate does not include possible property contributions by Pioneer for needed ROW within the Route 460 Connector area. Should this occur, these donations would further reduce the project construction costs and would be considered additional cost savings to the public.

## 2.5 Ability to Meet Needs

The proposed project is part of the ADHS. It would complete a major component of the ADHS by linking to the CFX at the project's eastern terminus and to the Kentucky Route 460 improvements at its western terminus. The Route 460 Connector would enhance the regional transportation network by improving access to and through the study area. When combined with Kentucky's portion, the proposed facility would link (via the CFX) improved Route 460 near Grundy, Virginia with the reconstructed US 23/119 in Kentucky. This would improve the connection between Grundy and points south and east (e.g. Tazewell, Bluefield, I-81) with Pikeville, Kentucky and points north and west. The connection with US 23/119 would also improve linkage to the Mountain Parkway and Interstate system in Kentucky, as well as the CFX in West Virginia.

The proposed facility includes an interchange with the CFX near the Buchanan County Industrial Development Access (IDA) Road (Figure 2). The IDA Road is sponsored by Buchanan County and provides a link to the county's industrial park that is currently under construction with the CFX. In addition, access would be improved to the isolated Breaks Interstate Park, an important tourist attraction in the region. A study by the Economic

Research Associates (ERA) determined that, because of accessibility limitations, visitation for the park was well below visitation to other regional parks having similar sized markets.

The proposed Build Alternative would meet the project's purpose and need to improve local and regional system linkage and the area's ability to attract economic development. Therefore, it has been retained for further study.

## Section 3: IMPACTS

All Figures are included in Appendix A of this report.

As noted in Section 1, the proposed project is made up of two components: the 6.2-mile long Route 460 Connector, Phase II and the 0.5-mile long Route 460 Connector/CFX interchange area at Hawks Nest. The CFX interchange area at Hawks Nest has already received all required federal, state, and local environmental clearances as a result of privately-owned surface coal mining activities. Copies of the Section 106 coordination are included in Appendix B. To avoid duplication of study efforts, the studies, findings, and clearances obtained for the 0.5-mile long Route 460 Connector/CFX interchange area at Hawks Nest are included in this EA by reference. Unless otherwise noted, specific impacts presented in the remainder of this EA pertain to the 6.2-mile long Route 460 Connector, Phase II component of the proposed project.

### 3.1 Land Use Impacts

To aid in determining land use impacts, the Buchanan and Dickenson County Administrators and the Cumberland Plateau Planning District Commission (PDC) were contacted through the agency scoping process. No concerns were expressed by any of the Counties or the PDC regarding the project. The Coalfields Economic Development Authority stated that the project is vital to the economic success of the area. The Route 460 Connector would not adversely affect local land use planning efforts. The project is consistent with and supports the economic development and transportation objectives of the Buchanan County Comprehensive Plan.

Current land use within the Build Alternative's ROW is approximately 81 percent forested with the remaining land either previously mined or logged, open, or rural residential development. The Build Alternative would directly impact existing land uses by converting approximately 741 acres of land to highway ROW. However, of those 741 acres, only 356 acres would be physically altered and the remaining 385 acres would remain undisturbed by roadway construction (Table 1).

**Table 1: Land Conversion within Proposed ROW**

Land Conversion	Acres	% Project Area ROW
Land Conversion: Area of Roadway, Cut, and Fill within Proposed ROW	356	48%
Remaining ROW Undisturbed by Roadway Construction	385	52%
<b>Total Area within Build Alternative's ROW</b>	<b>741</b>	<b>100%</b>

### **3.2 Farmlands / Agricultural and Forestal Districts**

The Farmland Protection Policy Act, as revised, requires that federal actions identify and consider adverse impacts to the protected farmlands. Guidance from the Natural Resources Conservation Service (NRCS) states that protected farmlands include soils that are either prime, unique, statewide important, or locally important.

To determine if the project would convert property subject to the Farmland Protection Policy Act, VDOT requested the NRCS to complete the Farmland Conversion Impact Rating form (NRCS-CPA-106). Based on NRCS input, the Build Alternative would not impact prime and unique soils but would impact approximately 14 acres of soils classified as statewide and local important farmlands. While the Build Alternative would impact these soils, the total points accrued by the Build Alternative was relatively low (108 out of 260). NRCS guidance states that if a project equals or exceeds 160 points, then alternative actions should be considered, as appropriate, that could reduce adverse impacts. Because the Build Alternative's farmlands impacts are below the threshold, no minimization or mitigation measures would be necessary.

There are no Agricultural or Forestal Districts within the project area.

### **3.3 Social and Economic Impacts**

As noted in Sections 1 and 2, the goal of the ARC's ADHS is to generate economic development in previously isolated areas, supplement and connect Appalachia to the interstate system, and provide access to areas within the Appalachian Region, as well as other markets in the rest of the country. To that end, the ARC developed 26 transportation corridors within the Appalachian Region; of which, Corridor Q is one and includes the proposed Route 460 Connector. Construction of the Route 460 Connector would help ARC achieve this goal. The proposed improvement to the region's transportation network would result in travel efficiencies for both automobile and truck users who utilize the new roadway. These travel efficiencies would include reduced travel time, reduced vehicle operating costs, and a reduced number of accidents. As noted in ARC's study of the economic benefits of completed ADHS corridors, "improved travel efficiency along the ADHS corridors ultimately leads to an increase in economic production, job opportunities, wages, population, and travel benefits to the people and the communities the highways serve." Completion of the ADHS is a top priority for ARC.

The Cumberland Plateau PDC's Comprehensive Economic Development Strategy (CEDS) identifies highways, water and sewer, vocational training, and industrial site development as main elements in the development program for the region. In addition, one of the goals of the PDC, working in coordination with the Virginia Economic Development Partnership and Coalfields Economic Development Authority, is to improve the area highway network and access to other forms of transportation. As discussed in Section 1, the proposed project would help achieve those goals.

As noted in Section 2, access management to the highway will be limited with partial control access with preference given to through-traffic. Access connections, which may be at-grade or grade separated, would be provided with select public roads and private driveways. In addition to the project termini, at-grade access would be provided at Route 609 (Bull Creek Road) and at Cindy Fork Road near Rockhouse Gap and near the CFX interchange. Therefore, no substantial adverse impacts to travel patterns are expected to occur.

As a link to the CFX at its eastern terminus and to Phase I of the Route 460 Connector near Breaks Interstate Park at its western terminus, the Build Alternative would provide a vital link to enable the area's localities to improve their economic development potential. Due to the difficult topography in the region, the counties in this southwest Virginia region have remained rural with most development focused in the valley areas.

The FEIS for the separate CFX project cited numerous statistics that highlight the need for enhanced access and connectivity throughout the region. While the region has made great strides in replacing lost coal-related jobs with technology-related opportunities, much remains to be done to improve the overall economic quality of life for the region's residents. The development of the Route 460 Connector is a project that would move the region forward in enhancing economic development potential.

Phase II of the Route 460 Connector would not split or isolate existing neighborhoods and would enhance connectivity between communities. It would improve accessibility to community services such as schools, churches, shopping centers, and medical facilities.

To gauge the potential for Environmental Justice impacts, a review of census data for the area was conducted. Comparing the demographics of the project area with that of the entire county reveals that the project area has a lower percentage of minority populations and a lower percentage of persons at or below the poverty level. Overall, the demographics suggest that it is unlikely this project would disproportionately impact environmental justice populations. Therefore, construction of the proposed project is not expected to result in disproportionate impacts to low-income or minority populations. The project would comply with Executive Order 12898 and Title VI of the Civil Rights Act of 1968 as amended. VDOT has established a comprehensive and ongoing public participation program to allow affected parties to review the proposed project concepts and provide comments.

### **3.4 Relocation Impacts**

Details of the relocation impact assessment conducted for this project are documented in VDOT's *ROW and Relocation Technical Report*. Pioneer has control or ownership of approximately 70 percent of the surface rights and 100 percent of the mineral rights within the proposed project ROW. Therefore, relocation impacts have been minimized by using properties primarily or wholly controlled by Pioneer. No business or non-profit organizations would be relocated or displaced by the Build Alternative. Based on a GIS review of aerial imagery and field information, it appears that five housing units are within the proposed ROW and would require acquisition (Figure 8). Based on Census 2000 data, relocating five households would likely result in the relocation of about 13 persons.

Real estate market information for the specific project site is sparse. Grundy, Virginia is the closest incorporated town to the project site and presents the most resources for gauging the regional real estate market. An online search of MLS Listings yielded approximately two dozen available units in and around Grundy. Prices of these identified units range from \$42,900 for a 3 bedroom, 1 bathroom single family home to \$499,000 for a 4 bedroom, 4 bathroom single family home. Many of the homes found in these searches cluster more closely to the Grundy region's median home value of \$105,000.

Two local real estate agencies are located in Grundy and conduct business along the proposed Route 460 Connector corridor. The general real estate activity level was

discussed with both local agencies, each of which suggested that a handful of properties had been purchased and sold throughout the last calendar year. Additionally, there are usually one or two homes for sale along the corridor at any given time. This demonstrates that there is an availability of adequate replacement safe, decent, and sanitary housing for those potentially displaced.

Should the Build Alternative be constructed, implementation of the acquisition and relocation program developed by VDOT would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended. Any individual, family, business, personal property, or non-profit organization displaced as a result of the acquisition of real property, in whole or in part, is eligible to receive reimbursement for the fair market value of the property acquired, as well as moving costs. Displaced property owners would be provided relocation assistance and advisory services together with the assurance of the availability of decent, safe, and sanitary housing. Relocation resources would be made available to all residential and business relocates without discrimination. Displaced renters who have rented their apartment/home for at least 90 days before negotiations began with the owner of the rental property would be provided with relocation assistance advisory services and compensation, which may be used to rent another housing property or to purchase a home.

### **3.5 Parks and Recreation Areas and Open Space Easements**

The Build Alternative would not use any resources protected under 49 USC 303 of the 1983 Department of Transportation Act (formerly Section 4(f)) or Section 6(f) of the Land and Water Conservation Fund of 1965. Also, the study area does not contain any open space easements owned by the Virginia Outdoors Foundation. Therefore, these lands would not be impacted by the Build Alternative.

Interstate Bike Route 76 is the closest designated on-road bicycle route in the region. It follows Route 80, a Virginia Scenic Byway, from the Virginia Creeper Trail north to the Kentucky State line near Breaks Interstate Park. The Build Alternative would not have a direct impact on this bike route but the route would likely become safer for bicyclists with the completion of the Route 460 Connector. Under the Build Alternative, some of the truck and automobile traffic currently using Route 80 (Bike Route 76) would divert to the Route 460 Connector instead, thereby reducing the number of vehicles on Bike Route 76 and the potential for bicycle/vehicle conflicts.

A portion of the 300-mile long Virginia Coal Heritage Trail is also located within Buchanan County and follows Route 609 (a designated Virginia Scenic Byway) and Route 80 to Breaks Interstate Park. The Trail provides drivers with views of mining towns and abandoned coal mining operations established over a century ago. Under the Build Alternative, an approximately 400-foot long section of Route 609 would be relocated in the vicinity of Rockhouse Gap to provide an at-grade crossing with the Route 460 Connector. While the two-lane, Route 609 crossing of the four-lane Route 460 Connector would provide minor discontinuity in traffic flow, the additional access to Route 609 via the Route 460 Connector would improve access to the Virginia Coal Heritage Trail. The minor shift in the location of Route 609 would not adversely impact the integrity or visual quality of the overall Virginia Coal Heritage Trail or this Virginia Scenic Byway. In addition, safety on Route 609 would be improved by reducing the traffic volumes on Route 609 as through-traffic is diverted to the Route 460 Connector.

### **3.6 Cultural Resources**

Efforts to identify historic properties or cultural resources affected by this project have been completed in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended and 36 CFR 800. The cultural resource survey included both an archaeological survey and an architectural investigation.

The archaeological survey area consisted of the portions of the proposed ROW that were determined to have the potential for containing intact subsurface resources. These include areas not disturbed by previous development, such as coal mining, and areas not containing steep slope or saturated soils. No archaeological sites, intact cultural features, or intact cultural deposits were identified within the Survey Area.

The goals of the architectural survey were to identify any architectural resources over 50 years in age within the project Area of Potential Effect (APE) and to make recommendations on the National Register of Historic Places (NRHP) eligibility for all identified resources. The APE is defined as the entire subsurface impact area plus any areas within the viewshed of the corridor where impacts to a resource's setting and feeling could occur.

Sixteen historic architectural properties meeting the age criteria for the NRHP are located within the project area, consisting of five previously recorded and eleven newly recorded resources. Two of the previously recorded resources have been determined to be not eligible for listing on the NRHP; therefore, they were not included in the Phase I survey. The fourteen resources examined during the survey included eight Craftsman-style dwellings, four cemeteries, and two turn-of-the-century farmsteads. Based on the results of the survey, it was found that none of the 14 resources are associated with a notable event or individual. In addition, the resource styles are commonplace and seen throughout both Buchanan County itself and surrounding southwest Virginia. Most of the resources also have compromised historical and physical integrity. Therefore, they are not recommended for listing on the NRHP as individual properties under Criteria A–C. Since no archaeological materials were recovered during the subsurface investigation in the area, they are also not eligible under Criterion D.

The Virginia Department of Historic Resources (VDHR) concurred with the findings that none of the resources identified within the project area are eligible for listing on the NRHP. In addition, the VDHR concurred with the study findings and provided a determination of No Effect on architectural properties or on archaeological resources within the proposed Build Alternative ROW (Appendix B).

### **3.7 Hazardous Materials**

A hazardous materials assessment was conducted for the Build Alternative. The assessment width was approximately 4,000 feet for the Build Alternative (2,000 feet from each side of the Build Alternative's centerline). The assessment consisted of a field review coupled with a review of the "EDR Data Map Corridor Study", referred to as the database search. The majority of the Build Alternative would extend along ridge lines and mountain tops. In general, the area within the Build Alternative is rural, mountainous, and wooded with scattered former surface mine areas. Due to rugged topography and lack of roads, portions of the Build Alternative were not accessible.

### 3.7.1 Field Observations and Database Findings

The sites observed during the field review and findings from the EDR database search are as follows:

- **Former Surface Mine Areas**  
Former surface mine areas were observed to be scattered along the alignment corridor. The sites appear dated, and are now vegetated. No active surface mine operations were observed during the field review.
- **Residences**  
Sparsely scattered residential dwellings were observed within the alignment corridor. Should private residences be acquired for highway construction, heating oil USTs and/or ASTs may be present on the property.
- **EDR Database Search**  
The database search is documented in the EDR DataMap Corridor Study conducted for this project. The database search revealed 53 mappable sites, all of which are associated with either underground or surface coal mining activities (Figure 9). Also, the database search denotes approximately 275 “orphan” (unmappable) sites due to poor or inadequate address information. For example, numerous orphan sites have address information such as Route 460 or Route 83. Neither Route 460 nor Route 83 intersects the current Route 460 Connector, Phase II Build Alternative corridor. In addition, approximately 27 orphan sites have remote address information such as Elkhorn City, Kentucky.

One orphan site that may be of particular concern is a potential PCB site on Route 610. PCB is an Environmental Protection Agency (EPA) designated hazardous substance. Sites with the potential to release hazardous substances into the environment are added to EPA’s Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) inventory. As the Build Alternative is further defined and subsequent project plans developed, additional evaluation of both mappable and unmappable sites may be required if any of the sites are discovered within the Build Alternative corridor.

### 3.7.2 Hazardous Materials Mitigation

Additional evaluation of the 53 mappable sites may be required when final design plans are developed for the Build Alternative. Although address information indicates the majority of orphan sites are removed from the alignment corridor, approximately 40 orphan sites may be within (or near) the Build Alternative project area. These additional evaluations (if necessary) would be utilized to develop mitigation measures that could be incorporated into construction plan design and the highway construction phase of the project to minimize or eliminate hazardous materials impacts. These evaluations may include detailed information about the site, environmental impacts, public health concerns, and proposed mitigation measures.

### 3.8 Geology

The Virginia Department of Mines, Minerals, and Energy (DMME) states that “the project area is within the Appalachian Plateaus physiographic province and is characterized by nearly flat-lying sedimentary rock that contains economically viable deposits of coal, oil, and gas. These resources have been extracted in the past and still have potential for development along the proposed Route 460 Connector route.” The exposed bedrock throughout the project area consists of alternating layers of sedimentary rock of the Middle Pennsylvanian aged Wise Formation. The rock consists primarily of sandstone, siltstone, and shale with interbedded layers of coal. The regional dip of the bedrock throughout the region is a few degrees towards the northwest. Ground water is encountered at depths below the elevation of local drainage features.

### 3.9 Air Quality

The EPA is responsible for administering the Clean Air Act and has responsibilities for establishing and regulating the National Ambient Air Quality Standards (NAAQS) and Mobile Source Air Toxics (MSAT). This project lies in an area that is currently in attainment with all of the NAAQS, including carbon monoxide, 8-hour ozone, and fine particulate matter (PM<sub>2.5</sub>). As such, regional and project-level conformity requirements do not apply. However, restrictions and prohibitions may apply to open burning and fugitive dust.

In addition to the criteria air pollutants for which there are NAAQS, the EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries). Mobile Source Air Toxics (MSAT) are a subset of the 188 air toxics defined by the Clean Air Act. MSAT are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

A qualitative assessment of the likely impacts of MSAT was conducted because this project has been determined to potentially impact vehicle miles traveled (VMT) or diesel traffic, although not to the extent that would warrant a detailed or quantitative analysis (Appendix C). The project may result in an increase in VMT or affect truck traffic in a way that would lead to higher MSAT emissions for the Build Alternative, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds and reduced VMT on parallel roadways. With the exception of diesel particulate matter, EPA’s MOBILE6 emissions model indicates that emissions of all of the priority MSAT decrease as speed increases. The extent to which these speed-related emissions decrease will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Local conditions may differ from the national projections used in the MOBILE model in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases. Any additional travel lanes contemplated as part of the project may have the

effect of moving some traffic closer to nearby homes, schools and businesses; therefore, there may be localized areas where ambient concentrations of MSATs could be higher under the Build Alternative than under the No-Build Alternative. This qualitative assessment was prepared using guidance derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*.

### **3.10 Noise**

Because the Route 460 Connector/CFX interchange area at Hawks Nest is part of a much larger and active surface mine, there are no sensitive noise receptors in this portion of the project area. However, for the remainder of the project area, potential traffic noise impacts associated with the construction of the Build Alternative were assessed in accordance with procedures and criteria approved by FHWA and VDOT. For more information, including explanations of terms, definitions, and methods, refer to the *Noise Analysis Technical Report* prepared for this study.

All traffic-noise computations for this study were conducted using the FHWA Traffic Noise Model (FHWA TNM 2.5). Traffic data for highway noise computation was developed by VDOT. Data included design hour traffic volumes, speeds, and percent heavy vehicles for both directions. Average Daily Traffic (ADT) volumes, peak hour volumes, percent heavy trucks and speeds were provided for the both the westbound and eastbound directions.

#### **3.10.1 Noise Impacts**

The project corridor includes a number of areas containing noise-sensitive properties. All such properties within 1,000 feet from the edge of pavement were included in this study. All of the properties included in this study are single family. The *Noise Analysis Technical Report* provides figures identifying the locations of the noise sensitive sites within the project area. The figures also show the 66 dBA  $L_{eq}$  noise contours developed for the design year 2035 Build Alternative.

Noise impacts are predicted to occur at three single-family residences along the project corridor with the 2035 Build Alternative. All of these impacts are due to substantial increase, not to an exceedance of the Noise Abatement Criteria (NAC). Noise barriers were determined to not be feasible for the three impacted properties.

#### ***Happy Hollow Road (Route 631)***

Happy Hollow Road roughly parallels the planned location for the Route 460 Connector for the first half mile. There are 15 single family properties along this portion of the project. Based on measurements conducted in this area, existing (2008) noise levels at these properties range from 43 to 46 dBA  $L_{eq}$ . Measurements at the existing noise sensitive locations in this area revealed that the noise levels are dominated by community noise. Therefore, the 2035 No-Build Alternative levels are predicted to range from 43 to 46 dBA  $L_{eq}$ . The Build Alternative levels are predicted to range from 45 to 50 dBA  $L_{eq}$ . None of these properties are predicted to experience impact. For the 2035 Build Alternative, the 66 dBA  $L_{eq}$  contour is predicted to be located approximately 80 feet from the edge of pavement of the Route 460 Connector, Phase II.

### ***Bull Creek Road (Route 609), Doubling Fields Road, and Winding Gap Road***

There are nine noise sensitive properties located east of the proposed Route 460 Connector, Phase II on Bull Creek Road, Doubling Fields Road, and Winding Gap Road. (Doubling Fields Road is located to the west of Harman off of Route 609 and Winding Gap Road is located to the south of Harman off of Deel Fork Road [Route 664]). Based on measurements, the Existing (2008) noise levels at these properties range from 39 to 48 dBA Leq. No-Build noise levels are not predicted to increase due to the lack of traffic noise in the area. The Build Alternative noise levels are predicted to range from 44 to 53 dBA Leq by design year 2035. Three properties are predicted to be impacted along this portion of the project due to substantial increase. Along this area, the 66 dBA contour is predicted to be located approximately 80 feet from the edge of pavement of the Route 460 Connector, Phase II.

### **3.10.2 Noise Abatement**

The FHWA has identified certain noise abatement measures that may be incorporated in projects to reduce or eliminate the traffic noise impact. With this project, the only measure that would possibly be feasible and reasonable is the construction of noise barriers. Normally, alternative mitigation measures that include traffic management and the alteration of horizontal and vertical alignment are considered. However, in the construction of a new roadway, alignments are considered in the design process. Any changes to the horizontal alignment would likely result in the taking of more homes, while changes to the vertical alignment would not be feasible with the existing terrain. Reduced speeds will not be an effective noise mitigation measure since a substantial decrease in speed is necessary to provide a significant noise reduction. A 10 mph reduction in speed will result in only a 2 db decrease in noise level. Restricting truck usage on the Route 460 Connector, Phase II will not be practical as the new facility is meant for through cars and trucks, as well as local vehicles.

The construction of noise barriers has been considered for each of the impacted properties that would be exposed to noise impact with the Build Alternative in design year 2035. In this case, the construction of a noise barrier was found to not be feasible. To be feasible, a barrier must be effective; that is it must reduce noise levels by at least 5 decibels. To be reasonable, a barrier cannot cost more than \$30,000 per protected or benefited residential property. A residential property is “protected” if it will be exposed to future noise impact and will receive at least 5 decibels of noise reduction from a barrier. By comparison, a residential property is “benefited” if it is not exposed to future noise impact but will still receive at least 5 decibels of noise reduction from a barrier designed to protect other properties.

Noise barriers have been determined to not be feasible for the three impacted properties on this project. Due to the mountainous terrain, barriers are not feasible as they are not able to achieve a 5 decibel reduction for the impacted sites.

### **3.10.3 Construction Noise**

An increase in project area noise levels will occur during the construction of the proposed project. Construction noise differs from that generated by normal traffic due to differences in the spectral and temporal characteristics of the noise. The degree of noise impact during

construction will be a function of the number and types of equipment being used, and the distances between the construction equipment and the noise-sensitive areas.

Generally, construction activity would occur during normal working hours on weekdays. Therefore, noise impact experienced by local residents as a result of construction activities should not occur during typical sleeping hours. Some impact will occur in the project vicinity where outdoor recreation takes place during normal working hours.

A number of measures can be utilized in order to minimize noise resulting from construction activities. Such measures include, but are not limited to, the following:

- Equip any internal combustion engine used for any purpose on or related to the job with a properly operating muffler;
- Conduct truck loading, unloading, and hauling so that noise is kept to a minimum;
- Route construction equipment and vehicles in areas that will cause the least disturbance to nearby receptors where possible; and
- Place continuously operated diesel-powered equipment, such as compressors and generators, in areas as far as possible from or shielded from noise-sensitive locations.

The Build Alternative will be designed and constructed to meet all current federal, state, and local requirements for noise, including VDOT's amended *Road and Bridge Specifications and Standards* and/or the Virginia Department of Mines, Minerals, and Energy (DMME) requirements.

### **3.11 Water Resources**

Details of the water resources impact assessment conducted for this project are documented in VDOT's *Natural Resources Technical Memo*.

#### **3.11.1 Water Quality**

Highway facilities can adversely affect surface water resources through increased runoff from impervious surfaces, from pollutants washed off impervious surfaces by stormwater, and by physical encroachment on natural drainages and floodplains by the facility infrastructure. This section identifies surface water issues and changes as a result of constructing the Build Alternative, including changes in flow characteristics of highway stormwater runoff and effects on local watersheds and drainage systems.

The study area falls within the Big Sandy Watershed which is comprised of three major tributaries: Levisa Fork, Russell Fork, and Tug Fork. Figure 10 shows the surface water resources within the project area and Table 2 identifies the flow path of surface waters within the study area. The streams impacted by the project are tributaries of the Levisa Fork or Russell Fork, the latter of which is listed on the Virginia Department of Environmental Quality's (DEQ's) list of Impaired Rivers and Streams. However, none of the streams within the project boundary are listed as impaired.

The project does not contain streams on the lists of Federal or State Wild and Scenic Rivers.

**Table 2: Surface Waters in the Study Area**

Surface Water	Major Tributary
Cow Fork	Grassy Creek → Russell Fork
Middle Fork Hunts Creek	Hunts Creek → Grassy Creek → Russell Fork
Tributary of Jess Fork	Bull Creek → Levisa Fork
Hunts Creek	Grassy Creek → Russell Fork
Barts Lick Creek	Russell Fork

The study area does not contain public drinking water resources or waters that drain into public drinking water resources. Therefore, the Build Alternative would not impact these resources. The population around the project study area primarily relies on private groundwater resources for drinking water. The locations of and impacts to private water supplies (wells, springs, cisterns) and septic systems would be addressed during VDOT's ROW acquisition process when more detailed engineering information is available. Should private water supplies and septic systems be impacted, all federal, state, and local regulations, including those of the Virginia Department of Health, would be strictly adhered to should closure be necessary.

Temporary, minor effects on water quality would be caused by construction. The project would increase the amount of impervious surface in the watershed. The Build Alternative would be designed and constructed to meet all current federal, state, and local requirements for water quality and stormwater management, including VDOT's amended *Road and Bridge Specifications and Standards* and/or the Virginia Department of Mines, Minerals, and Energy (DMME) requirements. These requirements include permits, plans, and temporary Best Management Practices (BMPs) to manage stormwater runoff during construction, as well as design criteria for permanent highway runoff control and treatment measures. Implementation of both temporary and permanent BMPs satisfying these requirements and protecting the water quality of the Big Sandy River and its tributaries are part of the Build Alternative. Therefore, long-term adverse impacts to these water bodies are not anticipated.

### 3.11.2 Floodplain Impacts

The project would not impact any FEMA regulated floodplain areas; therefore, the project complies with Executive Order 11988. The Build Alternative would be designed and constructed to meet all current federal, state, and local requirements for stormwater management and floodplain management. These requirements include permits, plans, and temporary BMPs to manage stormwater runoff during construction, as well as design criteria for permanent highway runoff control and treatment measures. Sections 107 and 303 of VDOT's specifications require the use of stormwater management practices to address concerns such as post-development storm flows and downstream channel capacity. These standards require that stormwater management ponds be designed to reduce stormwater flows to pre-construction conditions for up to a 25-year storm. VDOT would adhere to its specifications to prevent an increase in flooding risks associated with the project.

Water quality and quantity controls are part of the Build Alternative and would be designed to manage and reduce the project's potential adverse effects on surface water. With proper design, implementation, and maintenance of the BMPs, stream crossings, and highway runoff control facilities, there should be no substantial adverse effects on surface waters or floodplains from highway operation and maintenance. No additional mitigation is necessary.

### 3.11.3 Jurisdictional Areas

Federal and state agencies have jurisdiction over most wetlands and waterways and require permits for activities that affect these jurisdictional areas. Wetlands are areas that are typically inundated or saturated by surface or groundwater to the extent that they support vegetation typically adapted for life in saturated or inundated soil conditions. In certain situations, jurisdictional wetlands can also include man-made features like stormwater facilities.

The Build Alternative would pass through steep mountainous terrain where topography imposes some limits on the potential for the presence of jurisdictional wetlands and streams. Nonetheless, the following jurisdictional wetlands and streams were identified within the project boundaries (Figure 11 through Figure 23):

- 23 vegetated wetlands ranging in size from 0.01 acre up to 1.4 acres. Of those, only one (wetland SH2-2) is a natural wetland and is classified as Palustrine Scrub-Shrub/Emergent. The remaining wetlands have formed in excavated areas along the base of old surface mines. These "mine toe" wetlands are small in size and over half of them are isolated from other jurisdictional wetlands and waters of the US;
- 3 open water ponds ranging in size from 0.09 to 0.18 acre in size; and
- 15 streams (9 intermittent and 6 perennial) with stream reaches ranging in length from 78 linear feet to 908 linear feet, where
  - The 9 intermittent stream reaches encompass a total of 4,739 linear feet and
  - The 6 perennial stream reaches encompass a total of 3,110 linear feet.

As shown in Table 3, the Build Alternative would have permanent impacts to the identified jurisdictional wetlands and waterways. Construction of the Build Alternative would result in the loss (filling) of the wetlands and open waters within the project area, whereas the waterways would be piped and filled. Both actions would result in a loss of these habitats within the project area.

Project impacts to jurisdictional wetlands and waterways would be mitigated in accordance with the guidelines set forth in the U.S. Army Corps of Engineers (Corps) and EPA's *Compensatory Mitigation for Losses of Aquatic Resources; Final Rule* (33 CFR Parts 325 and 332; 40 CFR Part 230). Details on mitigation for these impacts are discussed in Section 3.11.5, Mitigation and Compensation.

**Table 3: Wetland and Stream Impacts**

Resource Category	Impact	
Wetlands	Vegetated	Unvegetated
Open Water	N/A	0.39 acre
Isolated Palustrine Emergent Wetlands	0.58 acre	N/A
Non-Isolated Palustrine Emergent Wetlands	0.46 acre	N/A
Isolated Palustrine Scrub-Shrub Wetlands	0.27 acre	N/A
Non-Isolated Palustrine Scrub-ShrubWetlands	2.13 acres	N/A
<i>Total Wetland Impacts</i>	<i>3.44 acres</i>	<i>0.39 acre</i>
Streams	Intermittent	Perennial
Riverine Intermittent Stream Bed – rubble (R4SB2)	4,739 lf*	N/A
Riverine Upper Perennial Rock Bottom – rubble (R3RB2)	N/A	2,841 lf
Riverine Upper Perennial Unconsolidated Bottom – cobble & gravel (R3UB1)	N/A	269 lf
<i>Total Stream Impacts</i>	<i>4,739 lf</i>	<i>3,110 lf</i>

\*lf = linear feet, measured along the stream centerline.

### 3.11.4 Permits

This project would impact waters of the U.S., including nontidal wetlands. In addition, more than one acre of land would be disturbed. Therefore, construction of the Build Alternative would require Section 404, Section 402, and Section 401 Clean Water Act (CWA) permits. Conveyances of stormwater from the proposed project would require compliance with the National Pollution Discharge Elimination System (NPDES) and the Virginia Pollution Discharge Elimination System (VPDES) standards and stormwater management regulations.

### 3.11.5 Mitigation and Compensation

Mitigation of impacts would be addressed in a stepwise approach that includes avoidance, minimization, and compensation for unavoidable impacts. Avoidance and minimization would be addressed during the final design stage. Wetland impacts would be compensated using standard wetland mitigation ratios of 2:1 for forested wetlands, 1.5:1 for scrub shrub wetlands, and 1:1 for emergent wetlands. Stream impacts would be compensated based on stream functions impacted, as calculated using the joint Corps/DEQ Unified Stream Methodology (USM).

Based on the potential impacts and anticipated compensation requirements, the project would need compensatory mitigation for at least 3.6 acres of shrub-scrub wetlands, 1.04 acres of emergent wetlands, and 0.39 acre of open water (ponds). Approximately 3,110 lf of perennial streams and 4,739 lf of intermittent streams would need to be restored for compensation of project impacts. Actual compensation requirements may be more or less depending on the determination of actual impacts based on final roadway design, USM valuation of impacted stream functions, and agency coordination.

Compensation strategies are developed in accordance with the Corps' and EPA's *Compensatory Mitigation for Losses of Aquatic Resources, Final Rule* (33 CFR Parts 325 and 332, and 40 CFR Part 230). The final rule revised the Corps' and EPA's mitigation strategy such that it now:

- Emphasizes a watershed approach in selecting compensatory mitigation project locations;
- Requires measurable, enforceable ecological performance standards and regular monitoring for all types of compensation; and
- Specifies the components of a complete compensatory mitigation plan, including assurances of long-term protection of compensation sites, financial assurances, and identification of the parties responsible for specific project tasks.

The Final Rule states:

*Since a mitigation bank must have an approved mitigation plan and other assurances in place before any of its credits can be used to offset permitted impacts, this rule establishes a preference for the use of mitigation bank credits, which reduces some of the risks and uncertainties associated with compensatory mitigation. This rule also significantly revises the requirements for in-lieu fee programs to address concerns regarding their past performance and equivalency with the standards for mitigation banks and permittee-responsible compensatory mitigation.*

Based on the above guidance, the three strategies for addressing the compensation needs of this project are:

1. Acquisition of wetland and stream credits from a mitigation bank within the appropriate HUC code;
2. Payments to the Aquatic Restoration Trust Fund; and/or
3. Restoration and/or creation of replacement wetlands and streams within the impacted watersheds.

While the acquisition of wetland and stream credits from an existing mitigation bank within the appropriate HUC code is the Corps' first preference for mitigation, it is not currently an option for this project as there are no existing banks in the area. It is possible that a mitigation bank could be operational in the area by the time this project is designed and ready to go to construction; however, this strategy is an unlikely possibility at this time.

The second option for mitigation of the project's wetland and stream impacts is payment into the Aquatic Restoration Trust Fund. Payments to the Aquatic Restoration Trust Fund are

often considered to be an option when appropriate mitigation bank credits are not available; however, the Big Sandy watershed is currently closed to in-lieu fee payments.

The Corps approves appropriate compensatory mitigation during permit acquisition. During the permit acquisition phase of the project, the use of all three options would be explored: i.e. banking credits, in-lieu fee payment, and restoration and/or creation as appropriate. Should restoration and/or creation of wetlands and streams become a viable option, few opportunities exist for restoration/creation inside of the project limits because of the steepness of the terrain within the proposed project limits. At lower elevations outside of the project limits, however, multiple opportunities can be found. Stream impact compensation could be achieved through restoration of streams in the Big Sandy watershed; more specifically in the Russell Fork and Levisa Fork subwatersheds. The *Natural Resources Technical Memo* provides details on the proposed mitigation compensation strategies.

### **3.12 Biological Resources**

Details of the biological resources impact assessment conducted for this project are documented in VDOT's *Natural Resources Technical Memo*.

#### **3.12.1 Vegetation (Forest Cover)**

Vegetation is a key component of wildlife habitat, providing food and shelter for wildlife, including birds, small mammals, and amphibians. Loss of vegetation and subsequently habitat due to development can lead to the decline of wildlife.

Vegetative communities and forest cover types were determined through a combination of field observations and interpretation of aerial photographs to quantify the extent of each forest cover type or vegetative community. Dominant and subdominant species observed in the field were compared to DCR definitions and a conclusion was made about the observed forest types. The forest areas are primarily deciduous and are typical of the deciduous forests in Buchanan County and the surrounding counties. Five percent of the project alignment was previously forested but is now clear cut and has been left to regenerate itself. Approximately 81 percent of the project alignment is forested with mixed oak/hickory forests dominating (Table 4). Figure 11 through Figure 23 provide project mapping of the forest cover types within the Build Alternative.

Most of Buchanan County is forested with similar forest cover type. Overall, the forested area located within the project area comprises a small portion of the total forest cover of Buchanan County. However, construction of the Build Alternative would require the removal of approximately 356 acres of primarily deciduous forest vegetation and habitat for construction of the roadway, cut, and fill (Table 5). Of that, approximately 133 acres would be suitable for reforestation within the project's new fill area. This would leave approximately 223 acres in cut that would not support revegetation because of steep slopes.

VDOT and the Virginia Department of Forestry (VDOF) are in discussions regarding mitigation of the forest impacts. Specifically, reforestation of suitable fill areas and an in-lieu fee to the VDOF for the remaining impact area are being considered. There is currently no vehicle through which VDOT could make such a payment to VDOF but VDOF is currently working on legislation that will allow acceptance of mitigation fees for upland impacts. VDOF hopes to have the funding mechanism in place in 2009. VDOT would commit to

recalculating forest impacts during final design and would commit to VDOF that a mutually agreeable mitigation plan be developed. The acreages considered for reforestation and in-lieu fee payment are noted in Table 5.

In addition, the DCR’s Division of Soil and Water Conservation recommends putting proper erosion control measures in place anytime forest cover is removed, as outlined in the *Virginia Erosion and Sediment Control Handbook*. BMPs to control erosion and sedimentation and revegetation of affected habitats would be implemented to avoid or minimize effects to vegetation from the proposed project.

**Table 4: Forest Cover Types in Study Area**

Forest Cover Type	Acres	Percent of Total
Acidic Cove Forest	159.7	21.5%
Eastern Hemlock - Hardwood Forest	33.6	4.5%
Eastern White Pine - Hardwood Forest	43.9	5.9%
Montane Mixed Oak - Oak - Hickory	364.1	49.1%
Logged (clear-cut)	36.9	5.0%
Open Land/Urban/Other	103.0	13.9%
<b>TOTAL</b>	<b>741.2</b>	<b>100.0%</b>

**Table 5: Land Conversion and Forest Mitigation**

Land Conversion	Acres	Total Project ROW(%)
Total Project Area ROW	741	--
<i>Undisturbed Area within ROW</i>	385	52%
<i>Impact Area within Construction Limits*</i>	356	48%
Land Conversion Mitigation	Acres	Impacted Project ROW (%)
Impact Area within Construction Limits*	356	--
<i>Area of Fill Suitable for Reforestation within Impact Area</i>	133	37%
<i>Within Impact Area, Remaining Area Subject to the Development of a Compensatory Mitigation Plan with VDOF</i>	223	63%

Where:

*Impact Area = (Area suitable for reforestation) + (Area unsuitable for reforestation)*

*Construction Limits = Area disturbed for Roadway, Cut, and Fill.*

### 3.12.2 Wildlife

The Department of Game and Inland Fisheries (VDGIF) website was reviewed for data on wildlife resources within the project area and observed habitat types. VDGIF was also consulted regarding trout streams located near the project area. Wildlife observed or expected to occur in the project area is typical of wildlife that inhabits upland habitat in the Blue Ridge Mountains. There are no trout streams located within the project area. The few perennial streams observed lack the physical stream characteristics needed for trout to exist. In addition, the VDGIF mapping of known trout streams in Buchanan County does not include any of these watercourses within the project area.

The primary impacts of the project to wildlife would be the elimination of 356 acres of habitat and the potential loss of smaller, less mobile wildlife species located within the corridor. Additional impacts would occur in the form of forested ecosystem fragmentation, potentially reducing the habitat value of the adjacent areas for species that require large contiguous forested areas. As discussed in Section 3.12.1, VDOT has proposed mitigation of these impacts through VDOT's reforestation of 133 impacted acres and, when a funding mechanism is made possible, by VDOT's payment to a VDOF in-lieu fee fund for land conservation for compensatory mitigation of the remaining 223 acres. In addition, the existence of large areas of similar deciduous forest in the project vicinity and surrounding Buchanan County reduces the overall impacts to wildlife populations.

The project would result in an increase in edge habitat and may have beneficial impacts to species adapted to edge habitat types.

### 3.13 Protected Species

The Endangered Species Act of 1973 as amended is jointly administered by the US Fish and Wildlife Service (FWS) and the National Oceanographic and Atmospheric Administration (NOAA). In Virginia, additional species are identified as threatened or endangered and protected by the Commonwealth through Article 6 (Section 29.1-563 et seq.) of Chapter 5, Title 29.1 of the Code of Virginia. Unlike federally listed species, species that are solely listed as state threatened or state endangered are not afforded protection under the Endangered Species Act of 1973 as amended and are not included in the discussion herein. However, state listed threatened and endangered species identified during agency coordination activities are addressed in VDOT's *Natural Resources Technical Memo*.

A determination of possible protected species in the project area was made based on agency comments and state databases. A review of federal and state protected species occurrences was conducted through the FWS, the Virginia Department of Game and Inland Fisheries (VDGIF), and the Virginia Department of Conservation and Recreation (DCR) - Natural Heritage Program. Additional coordination with the Virginia Department of Mines, Minerals, and Energy (VDMME) was undertaken to obtain abandoned mine locations for possible Indiana bat winter hibernacula.

A review of the DCR Biotics Data System for occurrences of Natural Heritage resources (i.e. the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations) identified one such resource downstream of the project area – the Russell Fork-Camp Branch Creek Stream

Conservation Unit; specifically, the Rocky Bars and Shore community within the designated reach. There are no State Natural Area Preserves in the project vicinity.

The project area was evaluated for the presence of likely habitat associated with each protected species identified as possibly being in the area. A field survey was then conducted to determine the presence or absence of likely habitat for each protected species. The field survey consisted solely of reconnaissance-level observation of likely habitat based on the habitat types described below. The field survey did not involve any sampling for the presence or absence of individuals of protected species.

The Build Alternative's potential impacts to the following protected species and critical habitats were evaluated with the following findings.

### **3.13.1 Indiana Bat (*Mysotis sodalis*)**

The Indiana bat is a federally endangered species. The FWS describes the Indiana bat as being very small, weighing approximately ¼ ounce with a wingspan of 9 to 11 inches. The fur is dark-brown to black. It is a migratory species that occupies much of the eastern half of the United States. During winter months, Indiana bats are restricted to suitable hibernacula (caves and mines), primarily located in karst areas of the east-central U.S. Over 85 percent of the known population of this species have been documented in Indiana, Kentucky, and Missouri (USFWS, 1999). Smaller populations have been documented in Alabama, Arkansas, Connecticut, Florida, Georgia, Illinois, Iowa, Maryland, Massachusetts, Michigan, Mississippi, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin (USFWS, 1999). Summer captures of reproductively active Indiana bats in the Midwest, generally north of the major cave areas, suggest that many female Indiana bats migrate north in the spring and south in the fall (USFWS, 1999). Male Indiana bats have been found throughout the entire range of the species and appear to roost singly or in small groups (USFWS, 1999).

In Virginia, Indiana bats hibernate over winter in caves in the western part of the state. However, very little is known about its summer range in Virginia (Terwilliger 1991). This species was listed as Federally Endangered on March 11, 1967 throughout its range in the U.S. It is considered endangered because hibernating populations tend to concentrate in only a few caves so that a local catastrophe could greatly affect the population. This bat is rare in Virginia.

Indiana bats are found along wooded or semi-wooded areas along streams and are associated with cavernous limestone areas. Rivers and streams are important for dispersal, navigation, and feeding. Caves with high humidity/water bodies are favored hibernacula. Winter caves need to provide uniformly cool damp conditions (4 to 8 degrees Celsius and 66 percent relative humidity) throughout the winter. They are also found in bridges, underpasses, buildings, ditches, culverts, tree cavities, standing snags, tunnels, and shafts. The shagbark hickory is a preferred summer roosting tree because of its "shaggy" bark and also some large white oaks. Bats pick several trees in a general area and designate one as a primary roost and the rest as alternate roosts to use during weather changes etc. This species spends its summers either in caves or under loose bark of dead trees along streams. The bats emerge at night to feed on moths, mayflies, and other insects in treetops and over streams.

### **Winter Habitat Observations**

A review of data on abandoned mines received from the VDMME identified one documented abandoned mine located within the project boundaries. Due to the steep terrain, dense vegetative cover, and lack of consistent GPS signals, this mine was not located during the field survey. However, three abandoned mines not listed in the data received from VDMME were discovered and mapped. Field observations also identified several mining bore holes and mine shafts from previous mining activity. The mining bore holes ranged from one foot to several feet in diameter and were found in exposed coal seams. The abandoned mines and bore holes could provide potential winter habitat for the Indiana bat.

### **Summer Habitat Observations**

Most of the stream corridors within the project area contain suitable roost trees, including shag bark hickories (*Carya ovata*), large white oaks (*Quercus alba*) and other dead trees with exfoliating bark. These stream corridors could provide potential Indiana bat summer habitat.

### **Agency Coordination**

Coordination was conducted with the FWS, the federal agency having jurisdiction and/or interest in federally listed threatened and endangered species and critical habitat that may occur in the study area. In its November 6, 2008 correspondence, the FWS stated it has concerns about the project's potential adverse impact on the Indiana bat. The FWS further stated that an assessment of potential wintering and summer habitat within the project area is needed to determine whether the project may adversely affect the Indiana bat.

VDOT is committed to conducting winter and summer Indiana bat surveys in accordance with the requirements of the FWS and the VDGIF guidelines. The results of the Indiana bat surveys, agency consultation, avoidance and minimization measures, and mitigation commitments, if required, will be included in the revised EA.

### **3.13.2 Virginia Spiraea (*Spiraea Virginiana*)**

Virginia spiraea is a federally threatened species. In its October 27, 2008 correspondence, the FWS stated that the Build Alternative would not adversely impact this species. In addition, perennial streams in the project area lack the necessary physical stream characteristics to provide habitat for Virginia spiraea. This species is not known to occur within the project area; therefore, the Build Alternative would not adversely impact it.

### **3.13.4 Russell Fork – Camp Branch Creek Stream Conservation Unit**

The Russell Fork – Camp Branch Creek Stream Conservation Unit (SCU) is separated from the project area by a mountain range creating a divide in the watersheds. The project area does not extend into the Camp Branch watershed. Any drainage that may affect this SCU from the proposed project would flow downstream through Hunts Creek or Bart's Lick Creek. Hunts Creek flows into Grassy Creek and then enters Russell Fork downstream from the SCU area. Bart's Lick Creek flows approximately 6.5 river miles downstream from the project area and enters Russell Fork about 1.69 miles upstream from the SCU. Therefore, there is no impact to this SCU.

### **3.13.5 Russell Fork – Big Sandy River**

The Russell Fork – Big Sandy River is a Virginia Threatened and Endangered Species Water due to presence of the variegate darter. As with the Russell Fork-Camp Branch SCU, the Russell Fork – Big Sandy River’s drainage from Hunt’s Creek enters Russell Fork is downstream of the Threatened and Endangered Species Waters. Bart’s Lick creek enters Russell Fork approximately 1.69 miles upstream of the Threatened and Endangered Species Waters. Therefore, the Build Alternative would not impact these Threatened and Endangered Species Waters.

### **3.14 Invasive Species**

The proposed project would clear vegetation, including stands of invasive species, from within the project area. Potential reintroduction of invasive species will be reduced through incremental seeding of disturbed areas, the use of proper Erosion and Sediment (E&S) control devices, and BMPs as described in the DCR’s *Virginia Erosion and Sediment Control Handbook*, as well as through frequent inspections and repairs of all E&S control devices.

### **3.15 Construction Impacts**

The Build Alternative would have temporary construction impacts to the project area. Construction activities would have air, noise, water quality, and visual impacts for those residents and travelers within the immediate vicinity of the project. To minimize construction-related impacts, the proposed Build Alternative would be constructed to meet all current federal, state, and local requirements, including VDOT’s amended *Road and Bridge Specifications and Standards* and/or the DMME’s requirements.

### **3.16 Indirect Impacts**

Indirect impacts are “caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems” (40 CFR 1508.8(b)).

The Route 460 Connector’s main purpose is to provide system linkage and continuity, thereby improving the economic viability of the Appalachian region. However, no land has been set aside for development projects adjacent to the Route 460 Connector as part of the proposed project. Although it is feasible that such development may occur in the future or in the project vicinity because of the general improvements to system linkage, those specific impacts are not known and speculating on them would not contribute to informed decision making. Therefore, only direct impacts of the proposed Route 460 Connector, Phase II project are assessed for potentially contributing to region-wide cumulative effects.

### 3.17 Cumulative Impacts

Cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7).

#### 3.17.1 Reasonably Foreseeable Actions

Reasonably foreseeable actions were determined for the watersheds of streams impacted by the proposed project and for Buchanan County as a whole. The impacts by these foreseeable actions were examined for potential cumulative effects in light of the potential impacts resulting from the proposed project (Sections 3.1 through 3.15).

Because of the rural nature of the project area and slow growth in the region, there are not many reasonably foreseeable actions related to increasing populations planned within the project area. As indicated in letters to VDOT, local planning groups such as the Virginia Coalfield Economic Development Authority (VCEDA) and the Buchanan County Board of Supervisors, anticipate that improved transportation and system linkage would help attract more development in the future. Part of the improved system linkage would be provided by the proposed project and other planned projects including Phase I of the Route 460 Connector, the Buchanan County Industrial Access Road (or County IDA Road), and the Coalfields Expressway (Figure 2).

Poplar Gap, an economic development area to be served by the County IDA Road, is the one area that is already planned to be a focus of Buchanan County’s economic development. In addition, there are mining and natural gas projects in the region, though development authorities have reported that such projects are less frequent in the area, prompting them to prepare for other industries to grow the region.

The following paragraphs describe these reasonably foreseeable projects overlapping the project area watersheds and Buchanan County.

- **Route 460 Connector, Phase I:**  
Like Phase II of the Route 460 Connector, Phase I will be a four-lane rural principal arterial highway that furthers the goal of improving transportation in the southwest Virginia region by providing a link between the CFX in Virginia to Route 460 in Kentucky (details of Phase I are presented in Section 1). In 2007, FHWA approved the Re-evaluation for Phase I of the Route 460 Connector and concurred with VDOT that the project will not have a significant impact to the human or natural environment. VDOT plans to award Phase I of the Route 460 Connector project as a design-build contract in 2009.
- **Coalfields Expressway (CFX):**  
The CFX is a planned, multi-state, limited access facility on new alignment extending from Pound, Virginia to Beckley, West Virginia. The project will provide linkage between Interstates 64 and 77 in West Virginia and Routes 23 and 460 in Virginia. Virginia’s CFX project, designated as US Route 121, travels approximately 49 miles through southwestern Virginia in Wise, Dickenson, and Buchanan counties. The

Route 460 Connector evolved from the CFX location study in 2000. A Record of Decision for Virginia's CFX was issued in November 2001. By September 2007, the CFX alignment was refined to its current proposed location. The refined alignment affected the location of other connector roadways in the region, including the proposed project. The section of the CFX closest to the proposed project is the Hawks Nest Section (Figure 2), which is currently under construction.

- ***Buchanan County Industrial Access Connector:***  
This connector is an approximately four-mile highway linking the CFX to Route 83 in Buchanan County. It would connect these other major roadways to the county's planned Poplar Gap Development. This connector is also in close proximity to the Route 460 Connector, Phase II terminus at CFX, and thus would provide further system linkage to the region.
- ***Poplar Gap Development:***  
Poplar Gap is a 3,200-acre property planned for build-out over the next 40 years by the Industrial Development Authority of Buchanan County. The property is located in the Hawks Nest area, near the junction of the proposed project with the CFX; therefore, should these two highway projects be completed, the Poplar Gap Development would be ideally located within Buchanan County for access to points east, west, north, and south. The development will contain industrial, commercial, and residential properties. In 2008, a large call center was constructed. In 2009, plans include construction of a 100-home subdivision and installation of public water, sewer, electric, phone, and broad-band utilities. Because of the steep terrain of the region, the Poplar Gap Development will disturb much of the 3,200 acres in order to fulfill the goal of providing level ground for new development.
- ***Mining:***  
There are currently 26 permitted mines that lie within approximately two miles of the project area. Half (13) of these permitted mines are less than 25 acres in size and over 30 percent of their permitted acreage has been reclaimed. Permits that lie within or overlap Buchanan County, which encompasses an area of 322,560 acres, number 179 and cover 20,975 acres. Approximately 7,400 acres (35 percent) have been reclaimed. In accordance with the Virginia Coal Surface Mining Control and Reclamation Act of 1979 as amended, reclamation entails actions taken to restore mined land to a post mining land use. Post mining land use must be equal or better use of the affected land and it must be compatible with adjacent land uses and state and local land use plans. Typically, this includes returning the mined lands to their approximate original contours, regrading, revegetation, and the implementation of a pollution abatement plan.

An additional mine project that is foreseeable but not yet permitted is the Pioneer surface mine for which the proposed post-mining land use would be "public-road" in which Pioneer would leave behind a 150-wide, rough-graded roadbed for the Route 460 Connector, Phase II project. Through an unsolicited proposal by Pioneer to the Department, the planning of VDOT's proposed roadway has occurred in conjunction with Pioneer's surface mining plans. The combined Pioneer and VDOT project is a coal-synergy project in which VDOT's roadway construction costs would be reduced by approximately 50 percent. The project area for Pioneer's surface mine activities

would include the proposed ROW for Phase II of the Route 460 Connector but would also include a portion of adjacent acreage in order to ensure the efficient mining of marketable coal reserves. The precise acreage of the surface mine project has not been determined. However, preliminary engineering has determined that the surface mine would extract approximately 220,000 tons of coal from the proposed ROW and would employ approximately 40 people at peak operation over a two and a half year period. While the future of Phase II of the Route 460 Connector would be in jeopardy if the coal-synergy option were not proffered, Pioneer still intends to mine coal in the area regardless of whether their coal-synergy proposal to VDOT is accepted.

### 3.17.2 Impacts to the Natural & Human Environment

Impacts assessed for potential cumulative effects by the proposed project included impacts to the natural environment (vegetation and wildlife, wetlands, and surface waters) and to the human environment (system linkage, employment).

- **Vegetation and Wildlife:**

Construction of the proposed project, in combination with other foreseeable projects in the area, would result in a net loss of forest vegetation and would reduce the availability of wildlife habitat. The existence of large areas of similar deciduous forest in the surrounding region, in concert with proposed mitigation, will help to offset the cumulative impacts to wildlife populations. It is assumed that other highway projects included in this analysis are subject to the same requirements and mitigation measures where applicable.

Disturbance from mining projects are subject to a rigorous permit approval process, as required by the Virginia Coal Surface Mining Control Reclamation Act (Chapter 19, Title 45.1 of the Code of Virginia) and any subsequent environmental review processes required for the approval of necessary permits (e.g., a Clean Water Act Section 404 Permit). The permit approval process includes opportunity for comment from resource agencies, including the VDGIF and FWS. All areas disturbed from mining must be returned to conditions that are capable of supporting the land use it could support prior to mining, unless a higher or better use has been determined and approved (4VAC25-130-816.133). Consequently, most mined lands in southwestern Virginia are returned to forestland. Additionally, in accordance with 4VAC25-31-360, reclamation of the mined land is conducted as simultaneously as is feasible, which would have the effect of allowing wildlife to inhabit the area as soon as possible if wildlife habitat was a pre-mining land use for the area.

With the efforts to reduce disturbance within the ROW, the mitigation measures for the remaining unavoidable impacts, and the availability of undisturbed acreage in the region, the cumulative effects on vegetative land cover from the proposed project would be of low magnitude.

- **Wetlands:**

Construction of the proposed project would impact 3.83 acres of Palustrine Emergent (PEM), Palustrine Scrub-Shrub (PSS), and Palustrine Open Water (POW) wetlands. Re-evaluations have not been completed for the entire CFX alignment; however, it is

likely that wetland impacts would not be substantial because the alignment largely follows ridgetops where fewer wetlands exist. There are no wetland impacts associated with the Route 460 Connector, Phase I project. Only one of the permitted mines in the region of the proposed project (within approximately two miles) and only four of the permitted mines within or overlapping Buchanan County have wetland impacts. Therefore, the cumulative effects to this resource from the proposed project would be of low magnitude.

- **Surface Waters:**

Construction of the proposed project would impact 7,849 linear feet of intermittent and perennial streams. Mitigation for loss of streams from the proposed project would likely include a combination of banking credits, in-lieu fee payment, and restoration and/or creation as appropriate. It has been determined that there are more than 50 miles of potential stream restoration opportunities in the project vicinity. Streams within the proposed project area, as well as the project areas for several other foreseeable projects in the region, include tributaries of Russell Fork and Bull Creek which are listed on VA DEQ's list of 2006 Impaired Rivers and Streams (VA DEQ, 2006).

Conveyances of stormwater from the proposed project, as well as from the other foreseeable highway and mining projects, would be subject to regulation through the National Pollutant Discharge Elimination System (NPDES) permit program.

The project would be constructed in accordance with federal and state technical guidance, permit conditions, and amended VDOT specifications that would require the use of BMPs to control the rate of runoff and, where practical, to retain runoff on site. Construction of the Route 460 Connector, Phase II would include construction of a new stormwater management system that would collect, treat, and discharge highway runoff from the new impervious surfaces. Additionally, the receiving waters and streams would each receive only a small percentage of their total flow from the construction areas. It is assumed that the other highway projects included in this analysis are subject to the same requirements and mitigation measures where applicable.

Mining projects in the region are subject to review by the DMME in a Cumulative Hydrologic Impact Assessment (CHIA). The CHIA incorporates all previous and planned/permitted mining activities as related to the hydrologic impacts of the receiving streams. Additionally, the application for surface mining will not be approved without an erosion and sediment control plan. The post-mining peak flow rate of runoff is subject to limitations that will protect downstream areas from erosion and flooding (4VAC25-150-270). Also, in accordance with 4VAC25-31-360, reclamation of the mined land is conducted as simultaneously as is feasible, which would have the effect of reducing runoff and erosion among other environmental protections. It is anticipated that once construction is complete, BMPs are in place, and revegetation has occurred, the cumulative effects on surface waters would be of low magnitude.

- **Socio-Economics:**

The cumulative effect of construction of the proposed project, along with other reasonably foreseeable highway projects, would be to provide improved system

linkage to Buchanan County, Virginia, and the Kentucky-Virginia-West Virginia coalfields region. Subsequent positive effects to local economies would be magnified with the development of Poplar Gap. Along with these other projects, the Route 460 Connector would advance local land use planning efforts. As a link to the CFX and the Buchanan County Industrial Access Connector and to Phase I of the Route 460 Connector near Breaks Interstate Park, the proposed project would provide a vital link to enable the area's localities to improve their economic development potential.

While the construction of these highway projects would cost taxpayers, they also would have the benefit of providing jobs and improving the economic viability of their region. In addition, the cumulative effect of constructing the proposed roadway in partnership with the Pioneer coal-synergy option would be to reduce the Department's highway construction costs by approximately 50 percent. Pioneer's coal recovery would reduce the cost of VDOT's highway construction through the excavation and rough-grading conducted prior to VDOT's construction operations.

Through taxation, the sale of coal extracted in Virginia also benefits all state residents and residents of Buchanan County in particular. Virginia would receive income taxes from Pioneer. Income would also be taxed by Buchanan County via several ways, as described by the Treasurer of Buchanan County (Keen, 2008). Through a Mineral License Tax, one percent of the gross receipts would be added to the county's General Fund, where it is used for myriad services such as education. Through a Coal and Gas Road Improvement Tax, another one percent of the gross receipts is collected by Buchanan County. This one percent is used for road repair and improvement (75 percent of this tax revenue) and for programs by the Coalfield Economic Development Authority (25 percent).

Another important local economic benefit to coal mining projects is the creation of jobs and the use of payroll for local economic activity. Pioneer is currently estimating that the proposed surface mine will employ approximately 40 people at peak operation. The complete operation will last approximately 2.5 years. New coal mining projects support the continuation of coal transportation jobs in other parts of the state. As noted in a study by the Virginia Center for Coal and Energy Research describing the indirect and induced economic effects of the coal extraction revenues and salaries, "A portion of the revenues received by Virginia's coal producers are spent in Virginia's communities to purchase goods and services. In addition, wages and salaries received by coal-industry employees, and by employees of supporting industries, support economic activity within the state".

All the economic effects resulting from the proposed Pioneer surface mine in the area of the Route 460 Connector, Phase II project would also apply to mining that is induced by the proposed project. Studies in the southern coalfields of West Virginia, which, like the proposed project, is within the Appalachian Plateau geologic province, show that increases in surface mining affect an increase in the region's underground mining (Hicks and Burton, 2001). Pioneer predicts that an additional 500,000 tons of coal would be rendered mineable adjacent to the proposed surface mine.

### **3.17.3 Summary**

The Route 460 Connector, Phase II project's contribution to cumulative effects on natural resources would be minimized through compliance with regulatory requirements and permit conditions, and implementation of mitigation plans and applicable BMPs. It is assumed that similar mitigation measures would be followed, where appropriate, for the other projects being implemented in the region. As a result, cumulative effects on natural resources would be temporary and/or of low magnitude. Cumulative effects to the socio-economics of the region would be temporary, except for the effects of improved system linkage which would provide long-term benefits. No mitigation measures, beyond those incorporated within the project design, would be necessary

## **Section 4: COORDINATION**

As part of this project, VDOT has developed and implemented a public involvement program to provide information and solicit comments. This program helps ensure open communication throughout the planning stage. This section describes the public involvement program and public agency coordination efforts.

### **4.1 Public Agency Coordination**

VDOT coordinated with the following public agencies and interested parties regarding the project:

- US Army Corps of Engineers
- US Department of Agriculture - Natural Resources Conservation Service
- US Department of Housing and Urban Development
- US Department of the Interior - Fish and Wildlife Service
- US Department of the Interior – Surface Mining Reclamation & Enforcement
- US Environmental Protection Agency
- US National Marine Fisheries Service
- Tennessee Valley Authority
- Virginia Department of Agriculture and Consumer Services
- Virginia Department of Conservation and Recreation
- Virginia Department of Conservation and Recreation – Natural Heritage Program
- Virginia Department of Environmental Quality, Air Division
- Virginia Department of Environmental Quality, Waste Division
- Virginia Department of Environmental Quality, Water Division
- Virginia Department of Forestry
- Virginia Department of Game and Inland Fisheries
- Virginia Department of Health, Office of Water Programs
- Virginia Department of Historic Resources
- Virginia Department of Mines, Minerals, and Energy
- Virginia Department of Rail and Public Transportation
- Virginia Marine Resources Commission
- Virginia Museum of Natural History
- Virginia Outdoors Foundation

- Breaks Interstate Park
- Virginia Coalfields Economic Development Authority
- Buchanan County Chamber of Commerce
- Buchanan County Department of Social Services
- Buchanan County Health Department
- Buchanan County Public Schools
- Buchanan County, County Administrator
- Cumberland Plateau Planning District Commission
- Dickenson County Chamber of Commerce
- Dickenson County Department of Social Services
- Dickenson County Health Department
- Dickenson County Industrial Development Authority
- Dickenson County Public Schools
- Dickenson County, County Administrator

## **4.2 Public Involvement**

A Location Public Hearing for the project is planned for late spring/early summer 2009. The Department will consider comments from the Hearing and provide a copy of the public record to the CTB and FHWA for review prior to rendering a decision on the project.

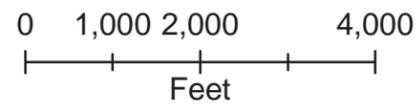
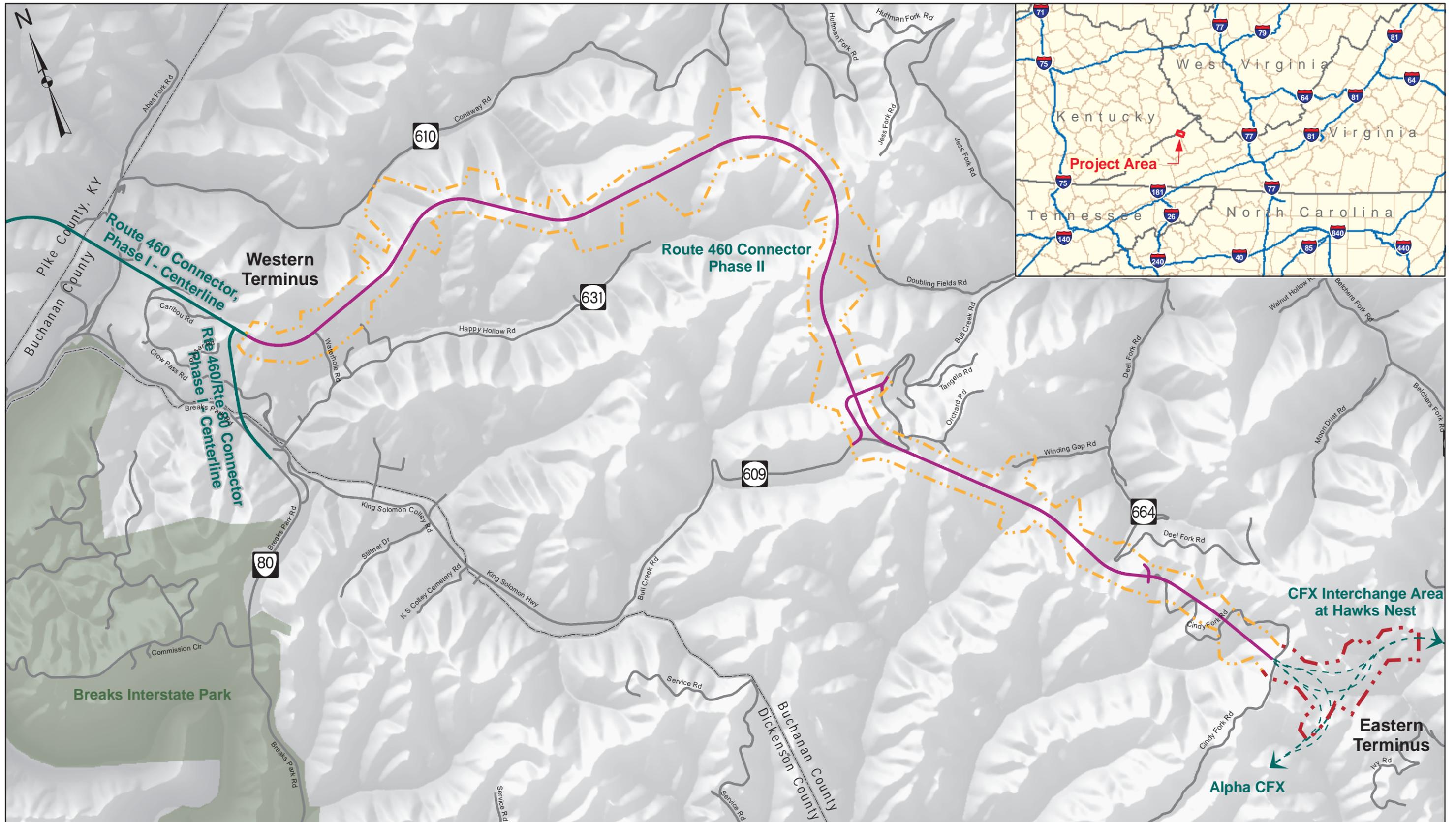
## **Section 5: APPENDICES**

**Appendix A: Figures**

**Appendix B: Section 106 Coordination**

**Appendix C: Qualitative Analysis for Mobile Source Air Toxics  
(MSATs)**

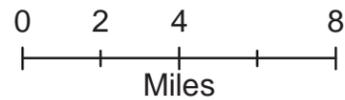
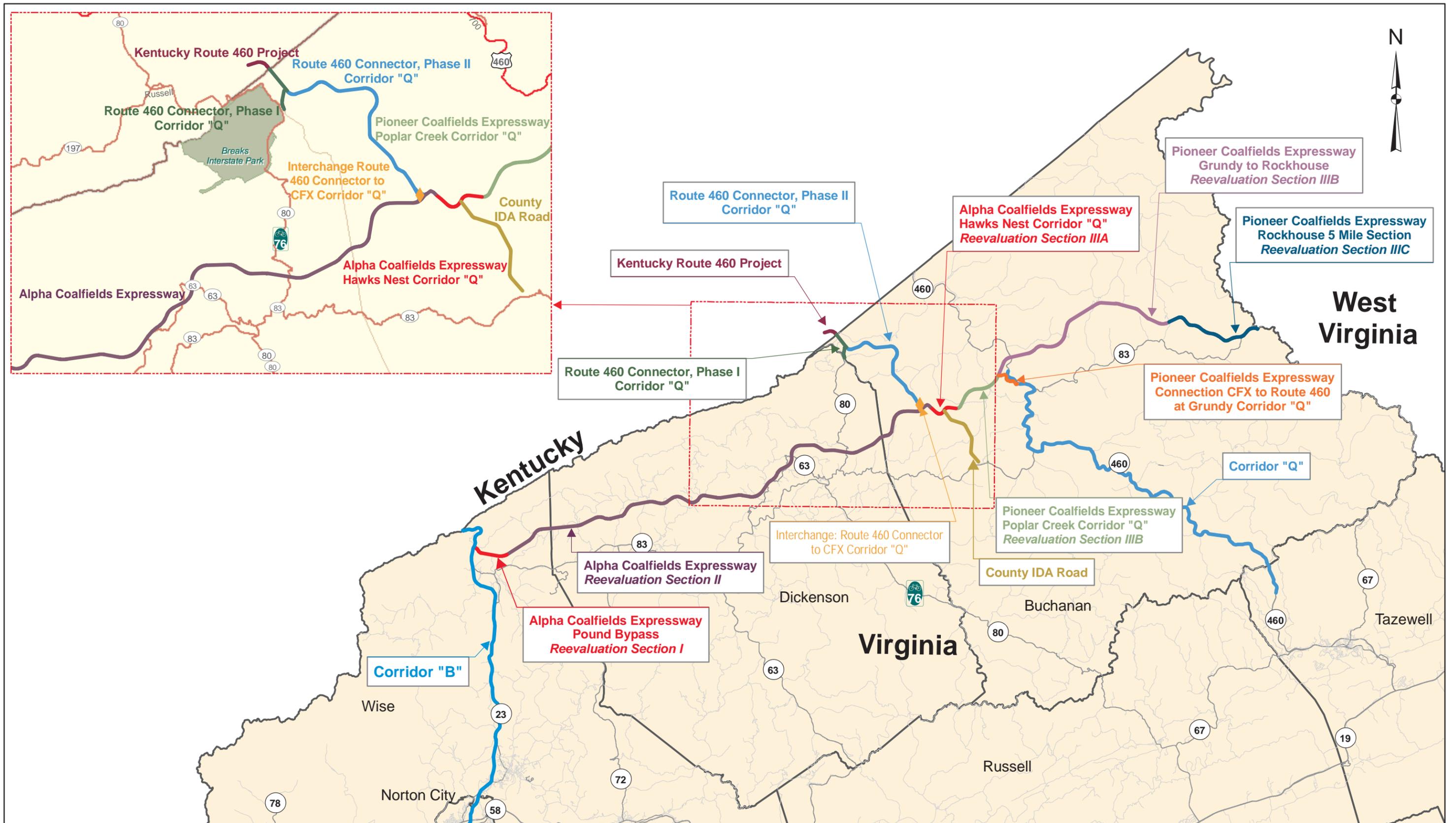
# **Appendix A: Figures**



- - - Phase II ROW Limits
- Phase II Centerline
- - - CFX Interchange Area at Hawks Nest Study Area

US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area

Figure 1: Project Location

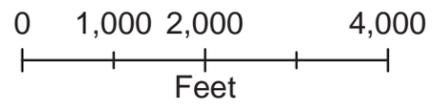
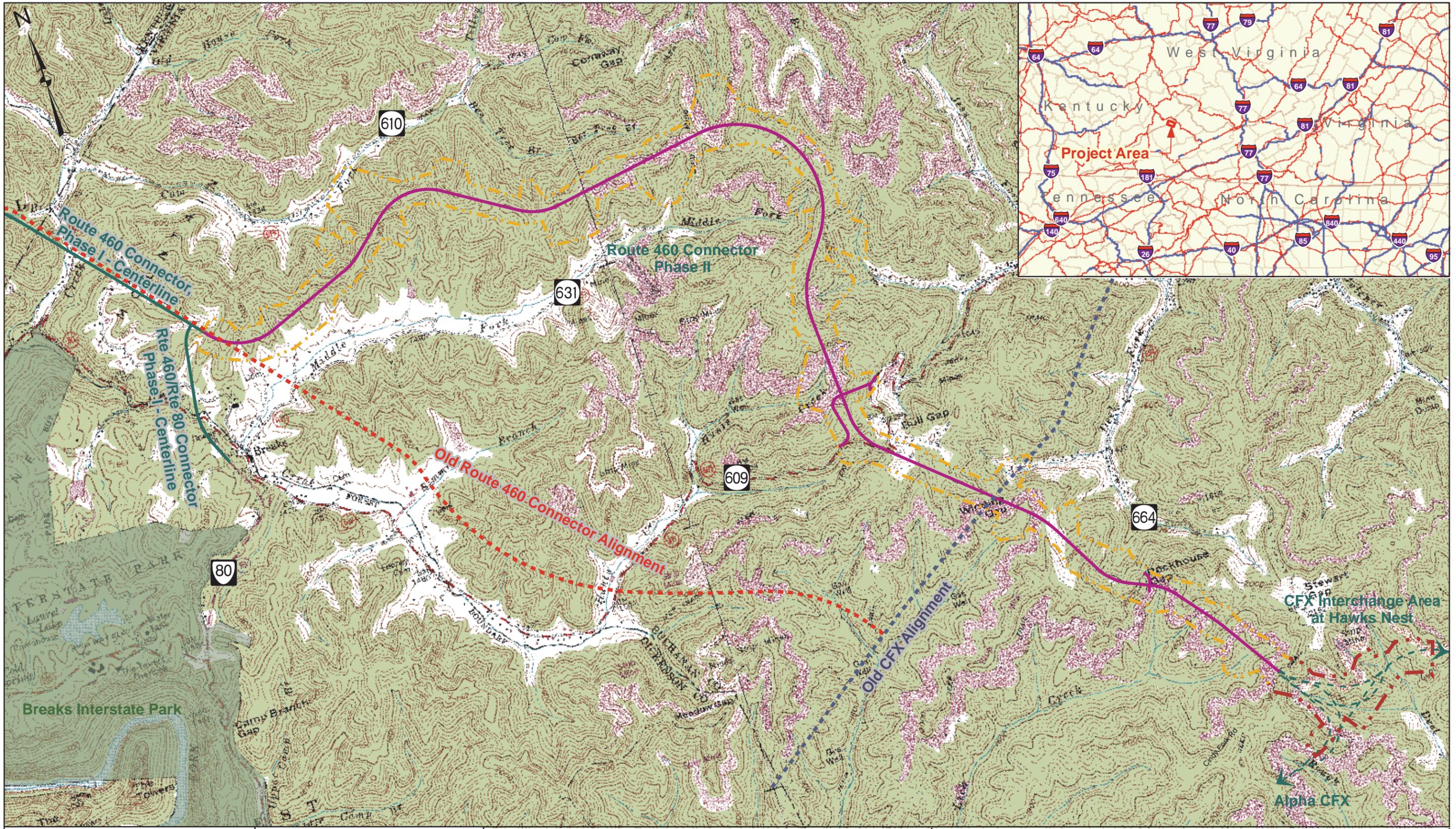


Notes: Design layers from VDOT and Pioneer and created at 1" to 400' scale.  
Water features courtesy of National Hydrographic Dataset and created at 1" to 2,000' scale.  
Roads layer courtesy of Virginia Geographic Information Network and created at 1" to 400' scale or better.



US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area  
Figure 2: Route 460 Connector, CFX, and Corridor Q

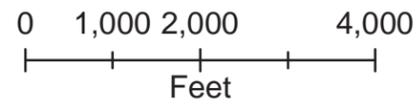
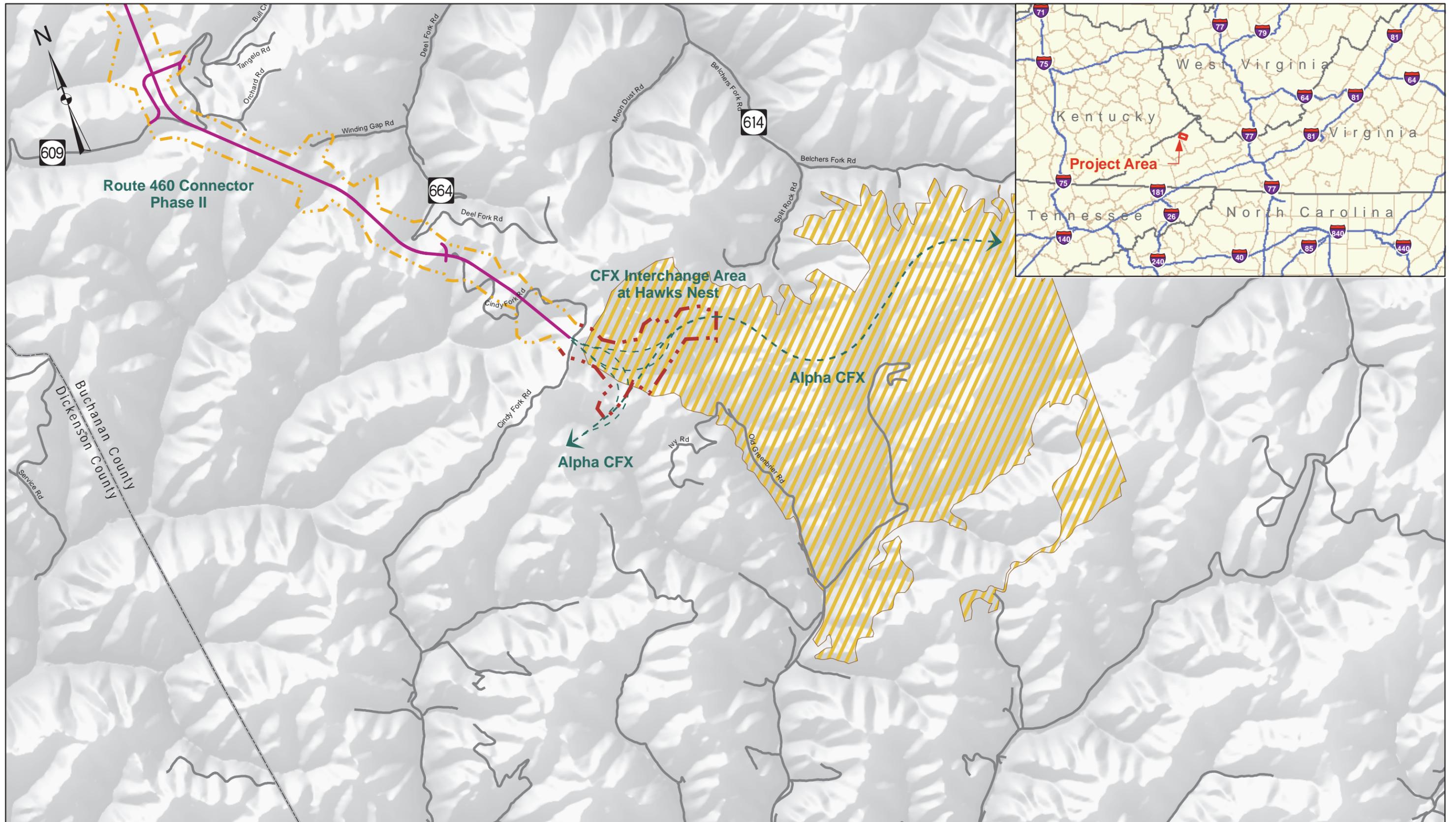




- - - Old Route 460 Connector Alignment
- - - Old CFX Alignment
- Phase II Centerline
- - - Phase II ROW Limits
- - - CFX Interchange Area at Hawks Nest Study Area

US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area

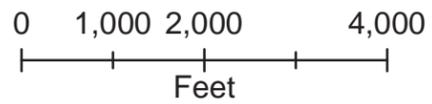
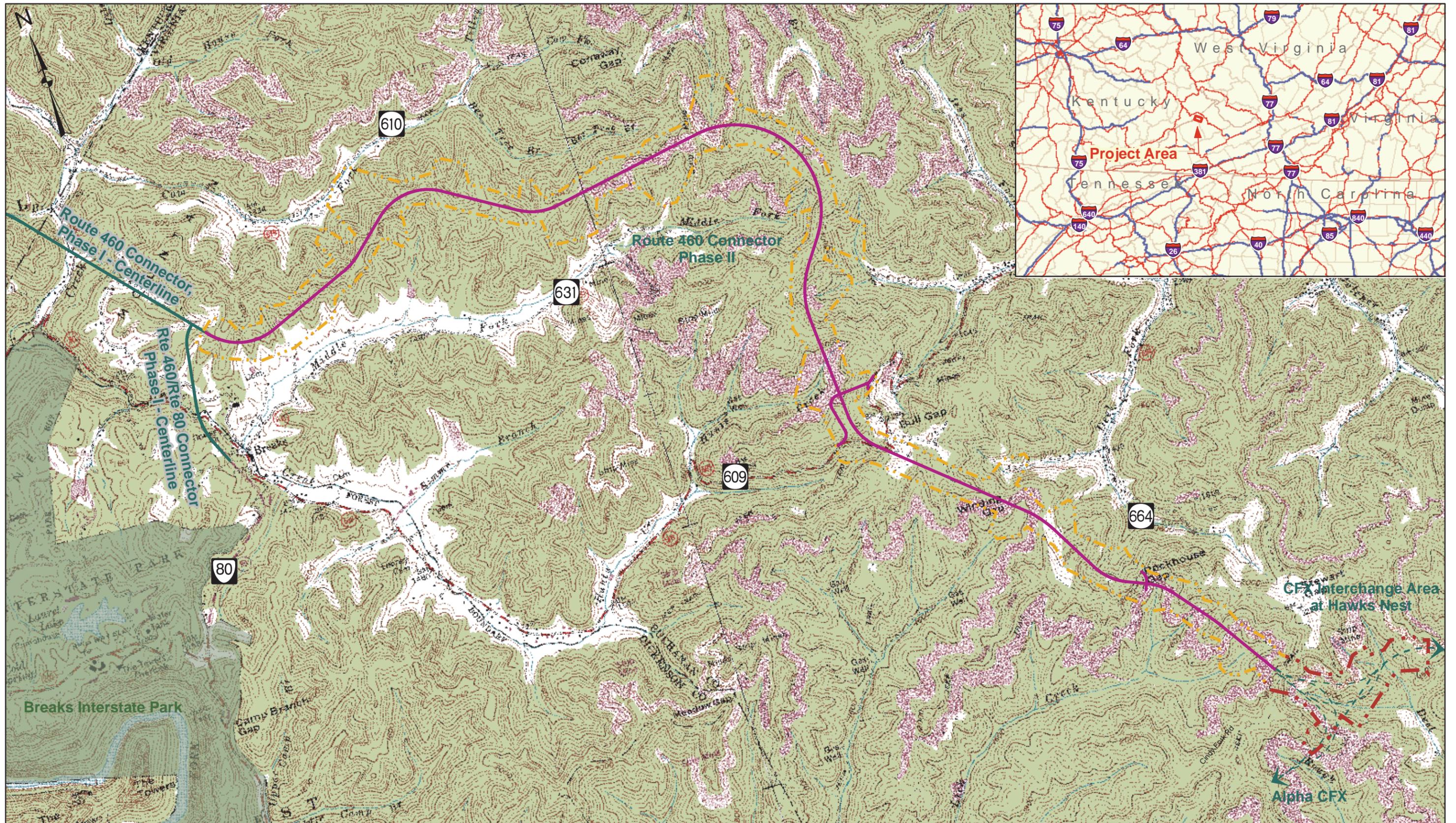
Figure 4: Location of 2001 Route 460 Connector Build Alternative



- Phase II Centerline
- Phase II ROW Limits
- CFX Interchange Area at Hawks Nest Study Area
- CFX Centerline
- SMCRA Permit 1101903 Area

US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area

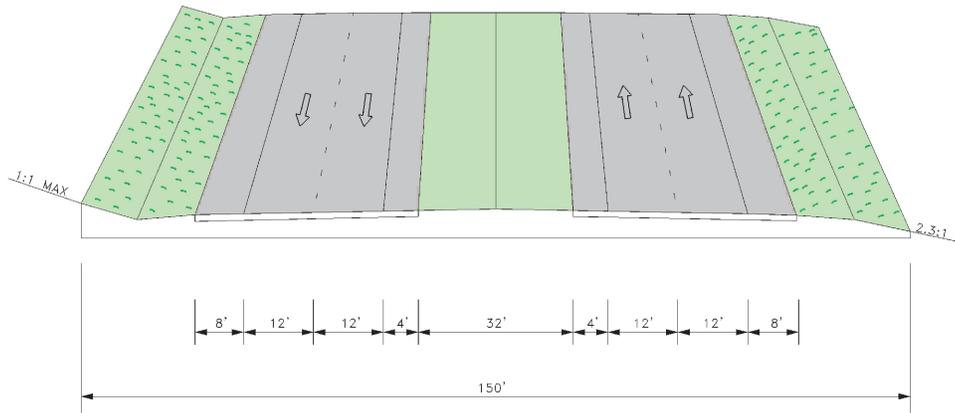
Figure 5: SMCRA Permit 1101903 Area



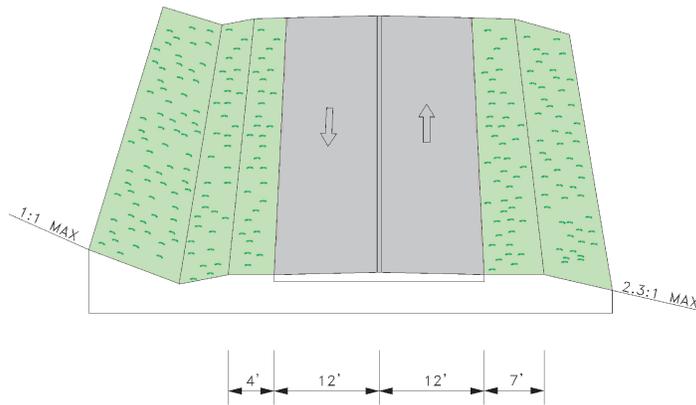
- Phase II Centerline
- - - Phase II ROW Limits
- - - CFX Centerline
- - - CFX Interchange Area at Hawks Nest Study Area

US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area

Figure 6: Build Alternative



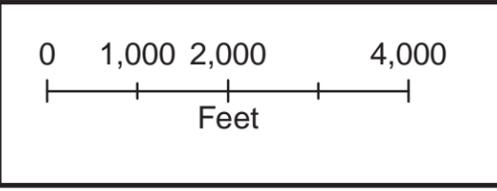
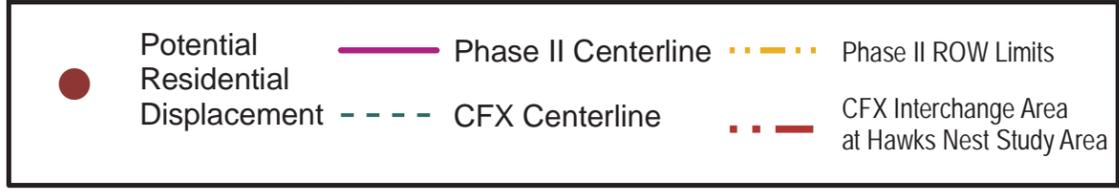
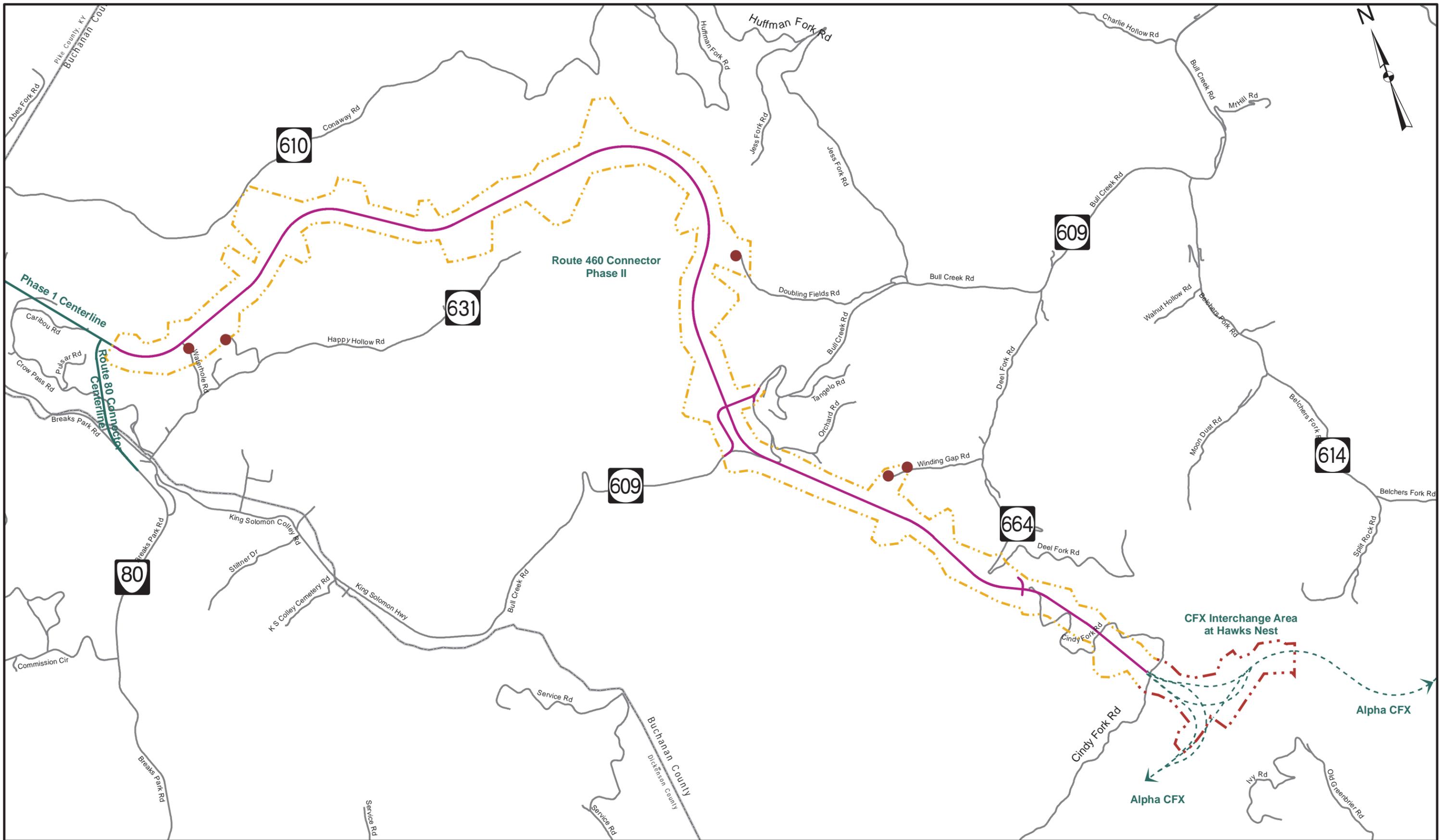
Mainline Typical Section:  
Route 460 Connector, Phase II & CFX



Connector Road: Route 609

US Route 460 Connector, Phase II

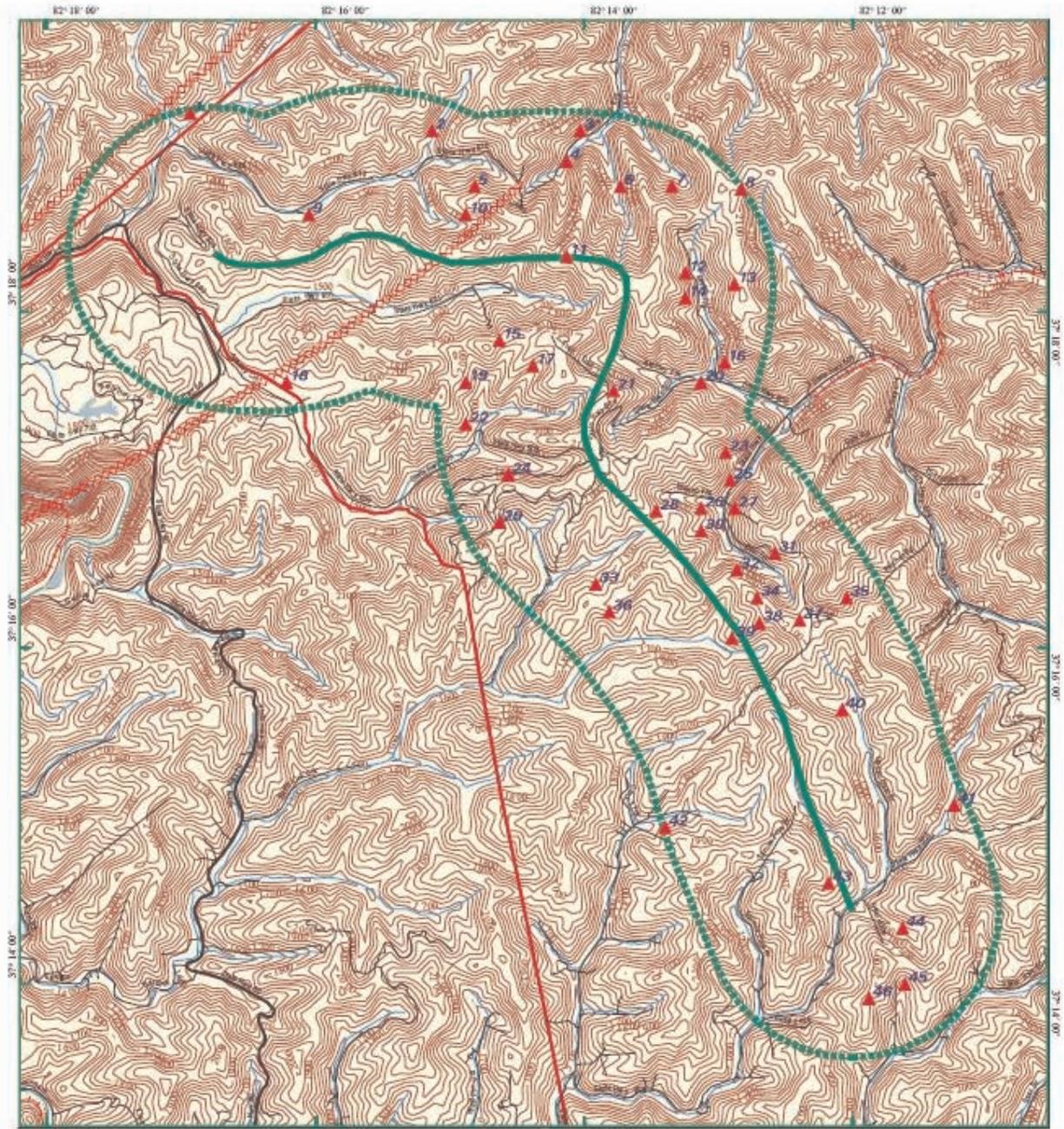
Figure 7: Build Alternative Typical Sections



Note: Aerial photography copyrighted by the Commonwealth of Virginia, 2008.

US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area

**Figure 8: Potential Residential Displacements**



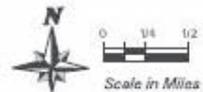
EDR DataMap® - Corridor Study

### 460 Connector Phase 2 Study



Buchanan County, VA

- |  |               |                            |
|--|---------------|----------------------------|
| Listed Sites                                 | Waterways     | Water                      |
| Earthquake Epicenters (Richter 5 or greater) | Railroads     | Superfund Sites            |
| Search Boundary                              | Contour Lines | Federal DOD Sites          |
| Roads  | Pipelines     | Indian Reservations BIA    |
| Major Roads                                  | Powerlines    | 100-Yr Flood Zones         |
|  | Fault Lines   | National Wetland Inventory |



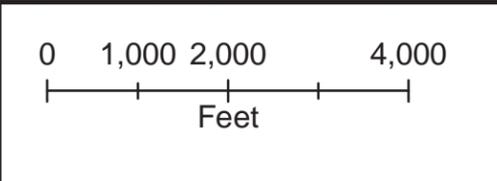
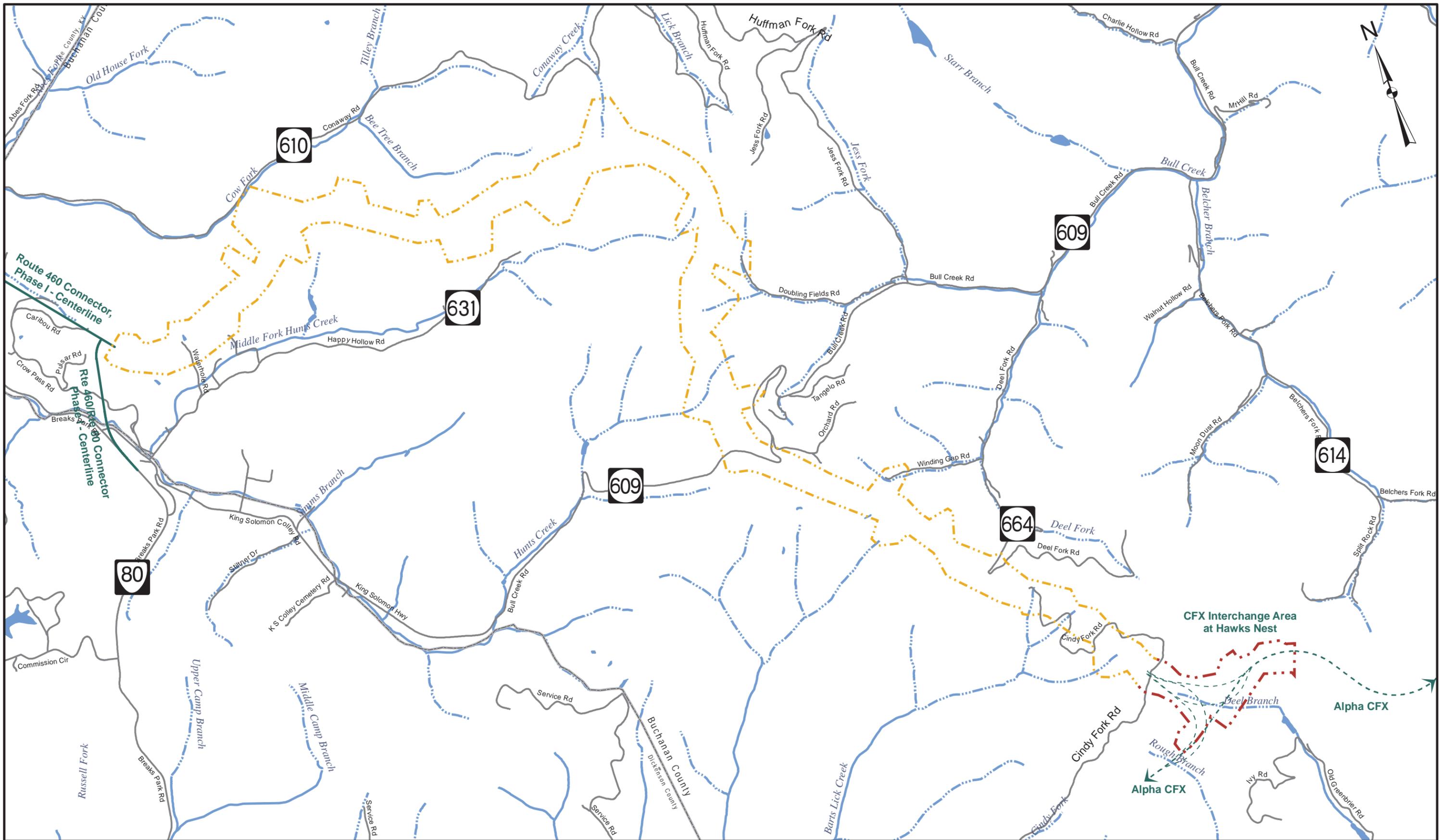
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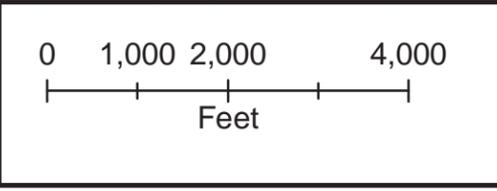
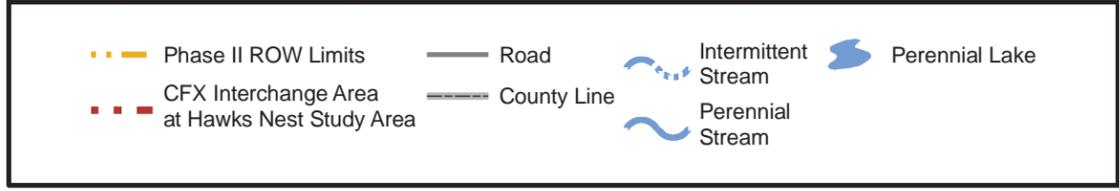
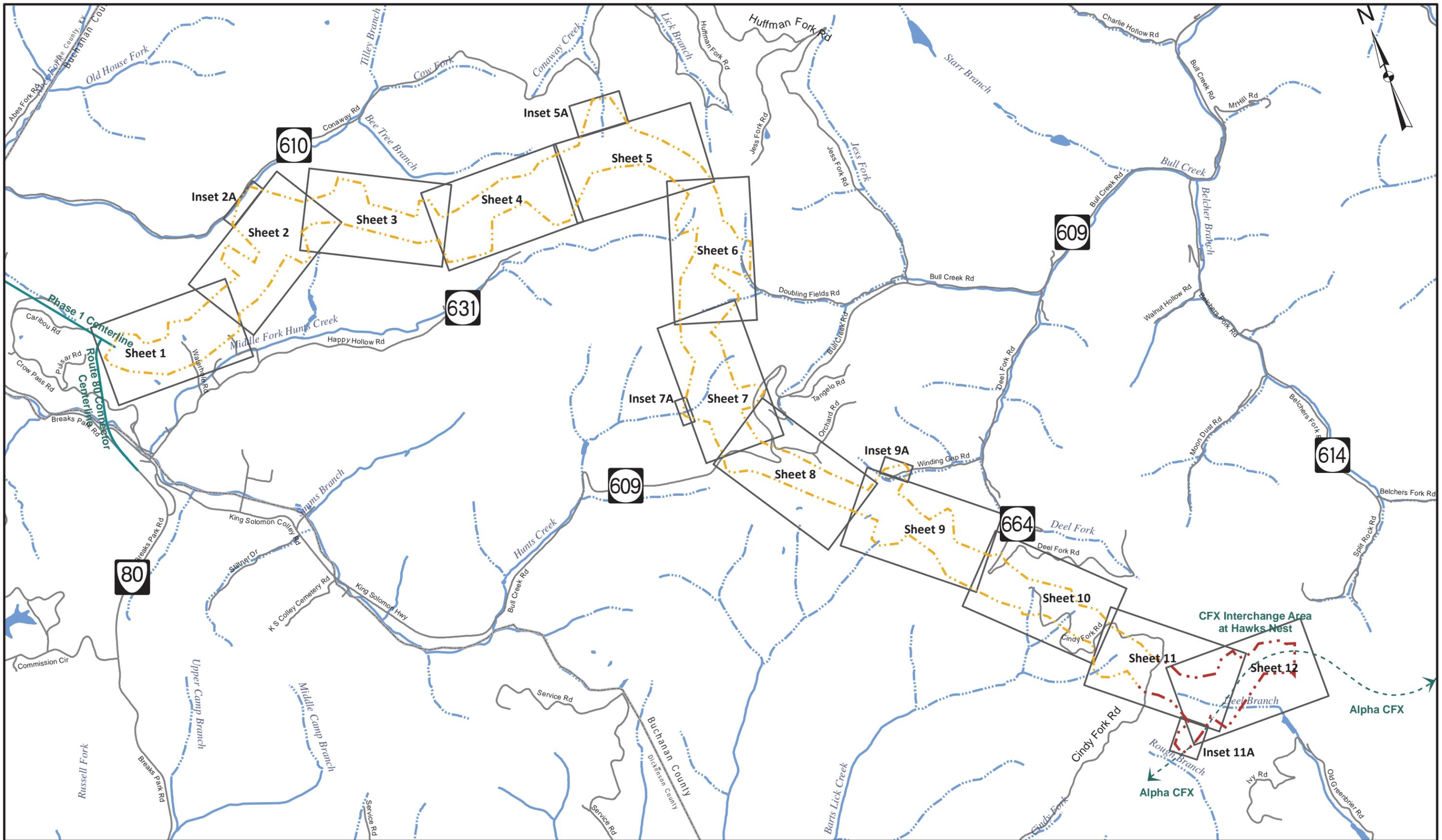
US Route 460 Connector, Phase II

Figure 9: Hazardous Material Sites



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 Note: Aerial photography copyrighted by the Commonwealth of Virginia, 2008.

US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area  
**Figure 10: Surface Water Resources**

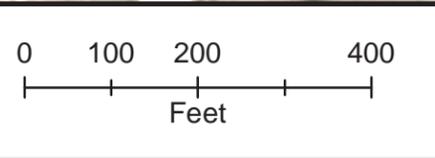


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US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area

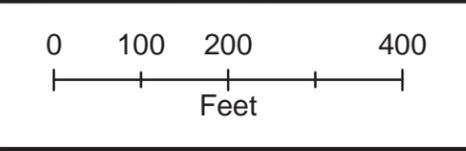
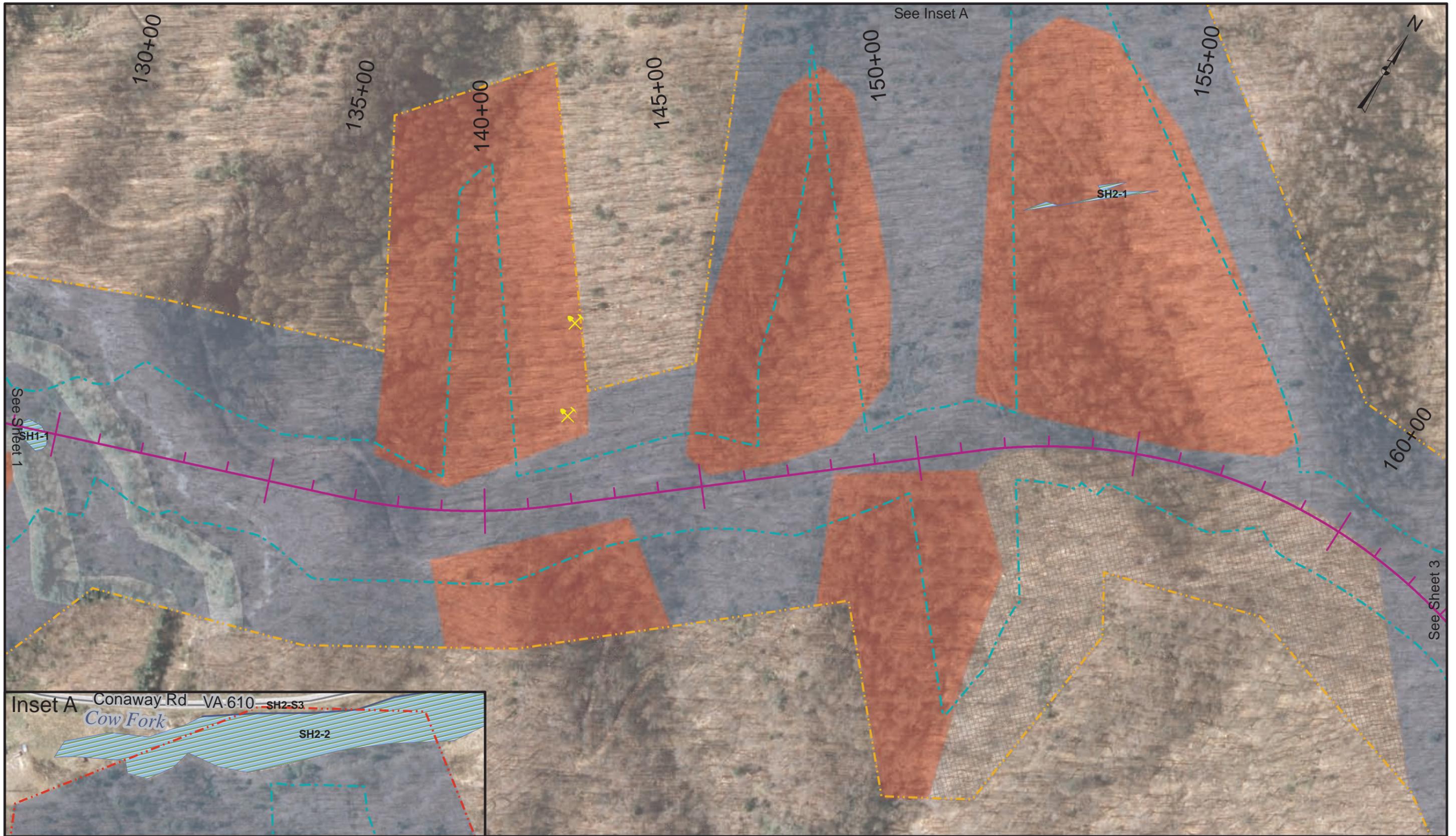
**Figure 11: Natural Resources Sheet Index**



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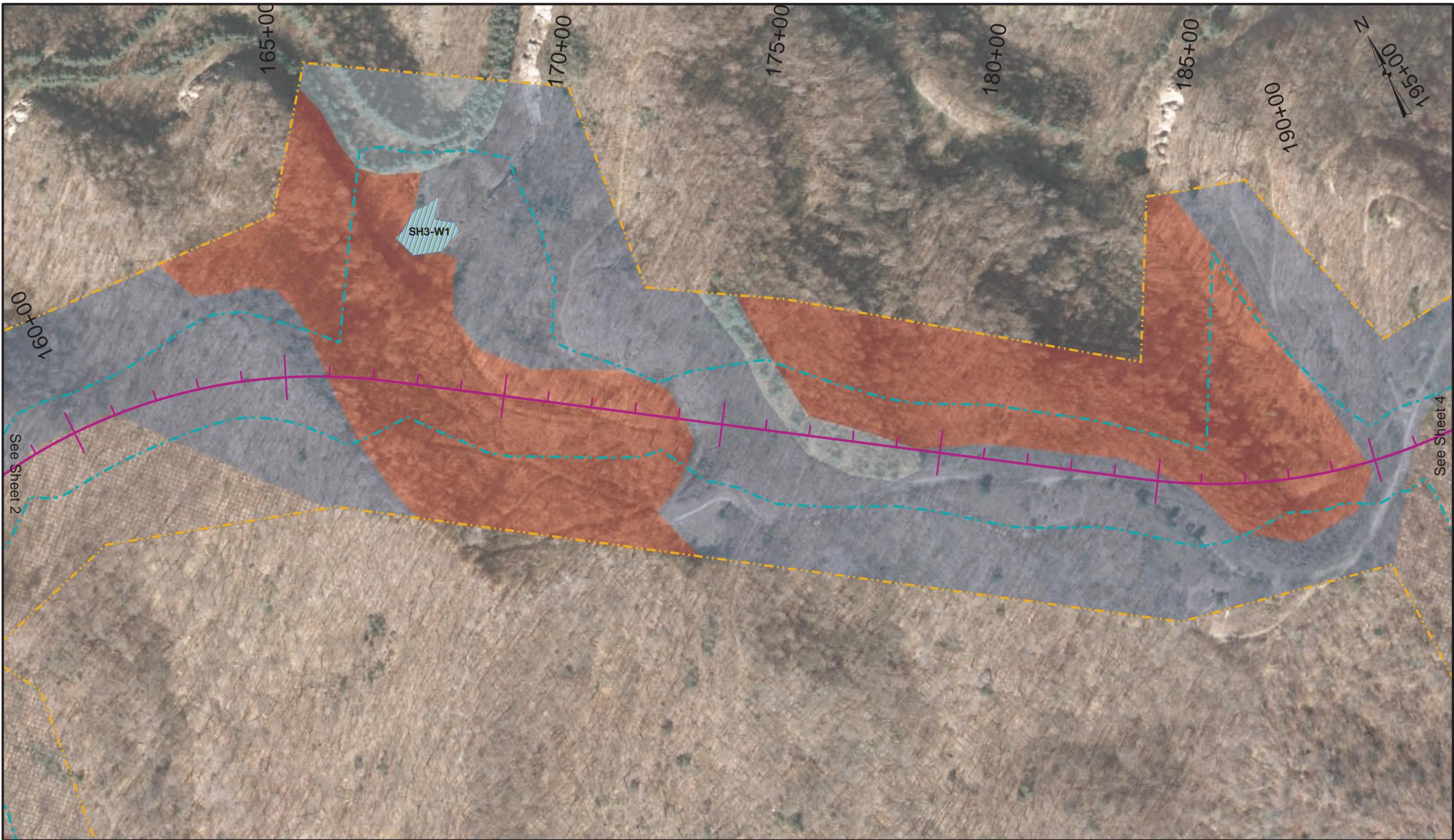
US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area

Figure 12: Natural Resources Sheet 1 of 12

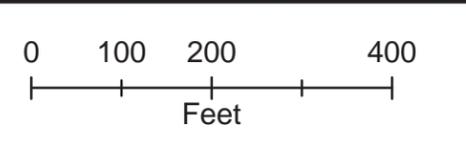


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US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area  
**Figure 13: Natural Resources Sheet 2 of 12**



	Wetlands - COE/DEQ		Acidic Cove Forest		Mine
	Wetlands - DEQ		Eastern Hemlock - Hardwood Forest		Phase II Centerline
	Intermittent Stream		Eastern White Pine - Hardwood Forest		Cut/Fill Lines
	Perennial Stream		Montane Mixed Oak - Oak - Hickory		Phase II ROW Limits
	Logged		CFX Interchange Area at Hawks Nest Study Area		

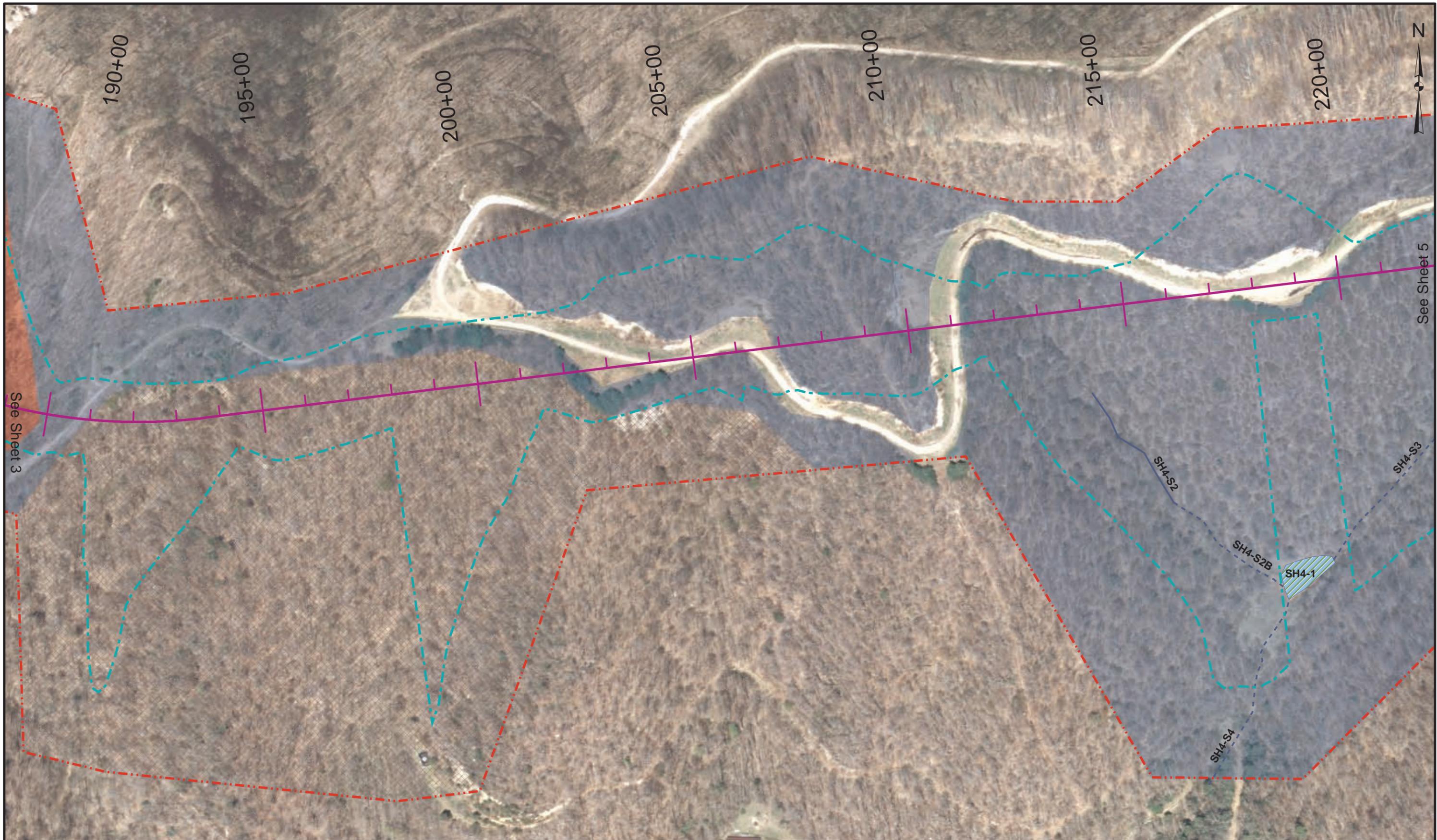


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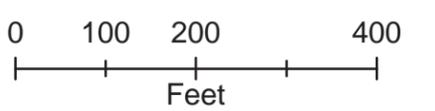
Note: Aerial photography copyrighted by the Commonwealth of Virginia, 2008.

US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area

**Figure 14: Natural Resources Sheet 3 of 12**

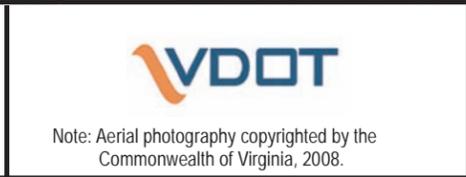
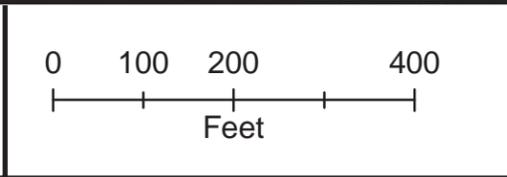
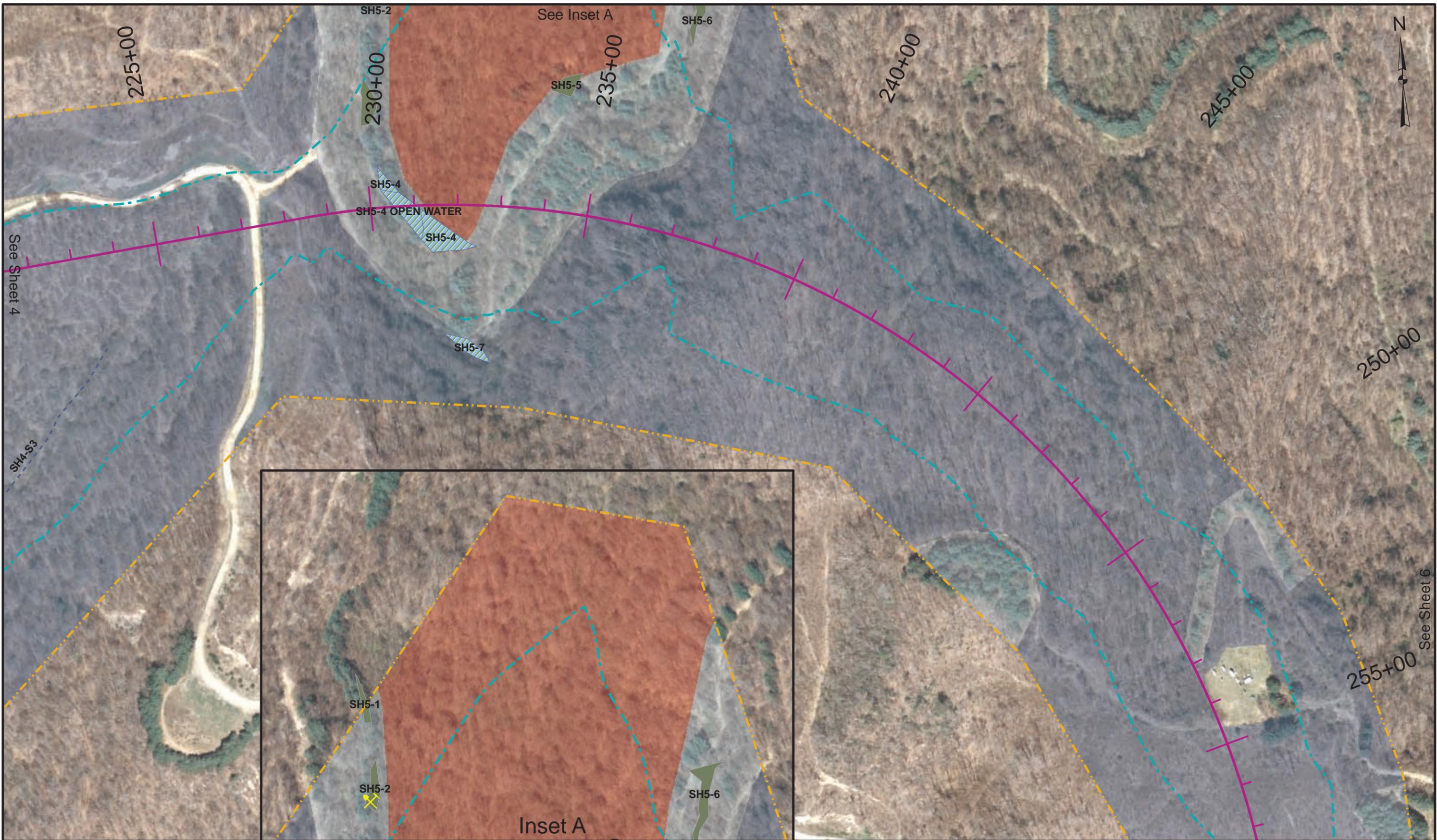


Wetlands - COE/DEQ	Acidic Cove Forest	Mine
Wetlands - DEQ	Eastern Hemlock - Hardwood Forest	Phase II Centerline
Intermittent Stream	Eastern White Pine - Hardwood Forest	Cut/Fill Lines
Perennial Stream	Montane Mixed Oak - Oak - Hickory	Phase II ROW Limits
Logged		CFX Interchange Area at Hawks Nest Study Area

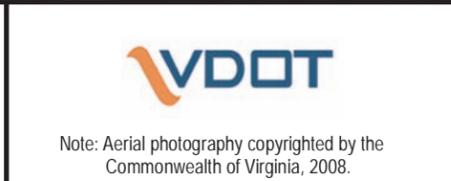
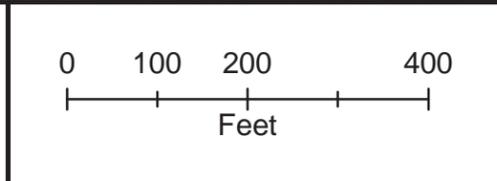
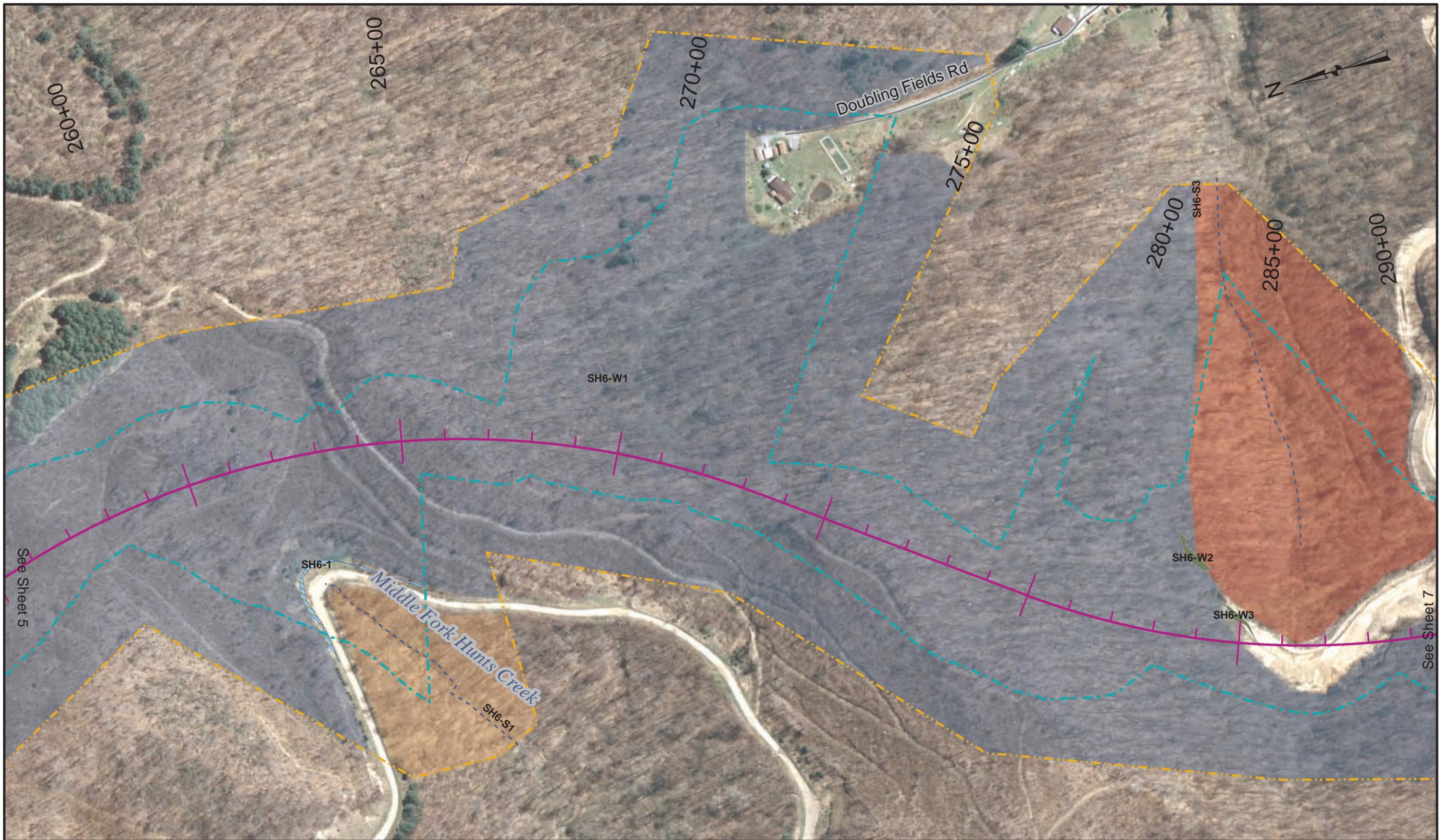


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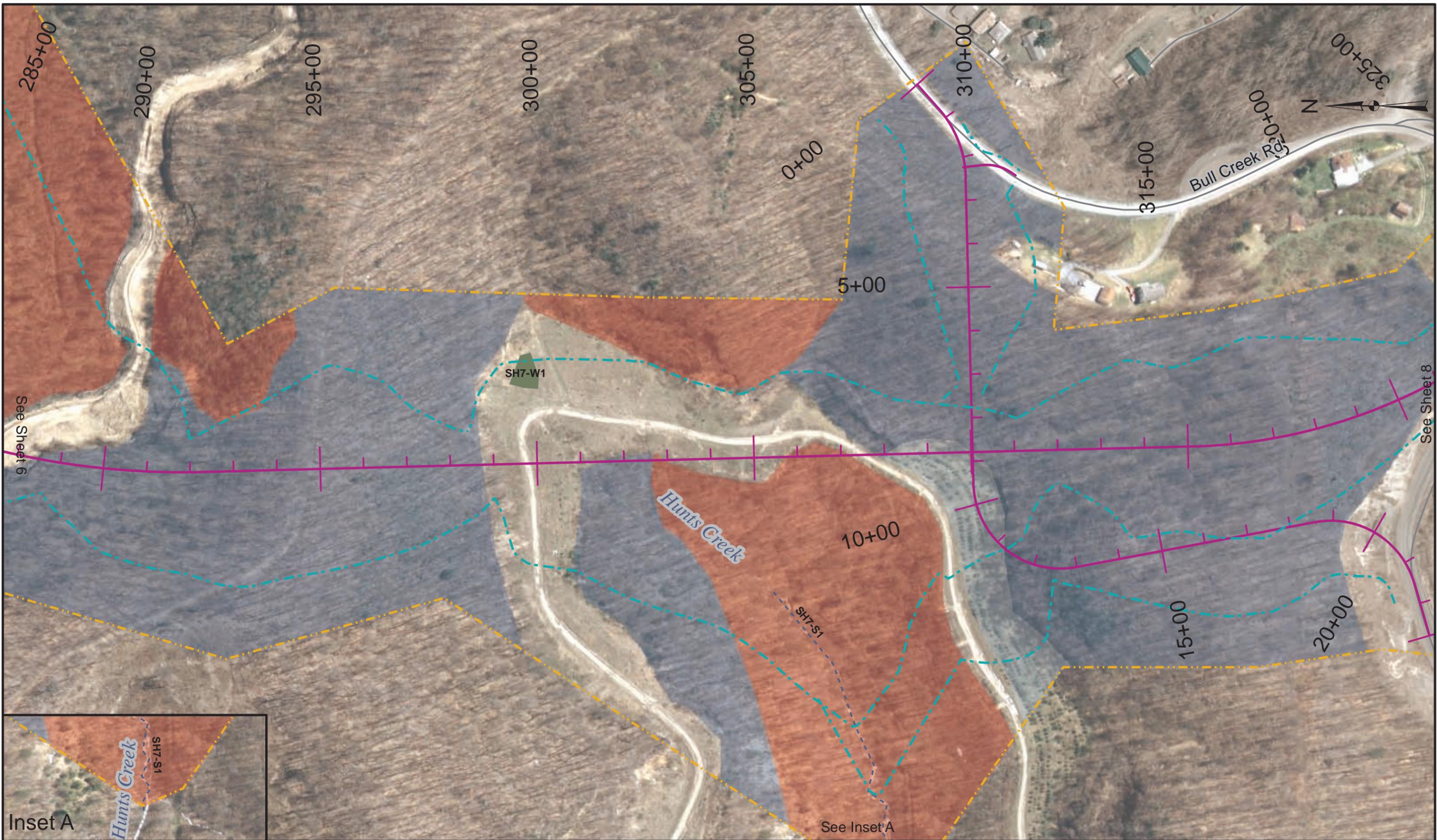
US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area  
 Figure 15: Natural Resources Sheet 4 of 12



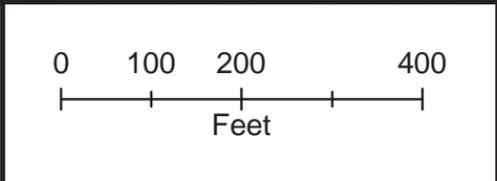
US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area  
Figure 16: Natural Resources Sheet 5 of 12



US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area  
Figure 17: Natural Resources Sheet 6 of 12



Wetlands - COE/DEQ	Acidic Cove Forest	Mine
Wetlands - DEQ	Eastern Hemlock - Hardwood Forest	Phase II Centerline
Intermittent Stream	Eastern White Pine - Hardwood Forest	Cut/Fill Lines
Perennial Stream	Montane Mixed Oak - Oak - Hickory	Phase II ROW Limits
Logged	CFX Interchange Area at Hawks Nest Study Area	

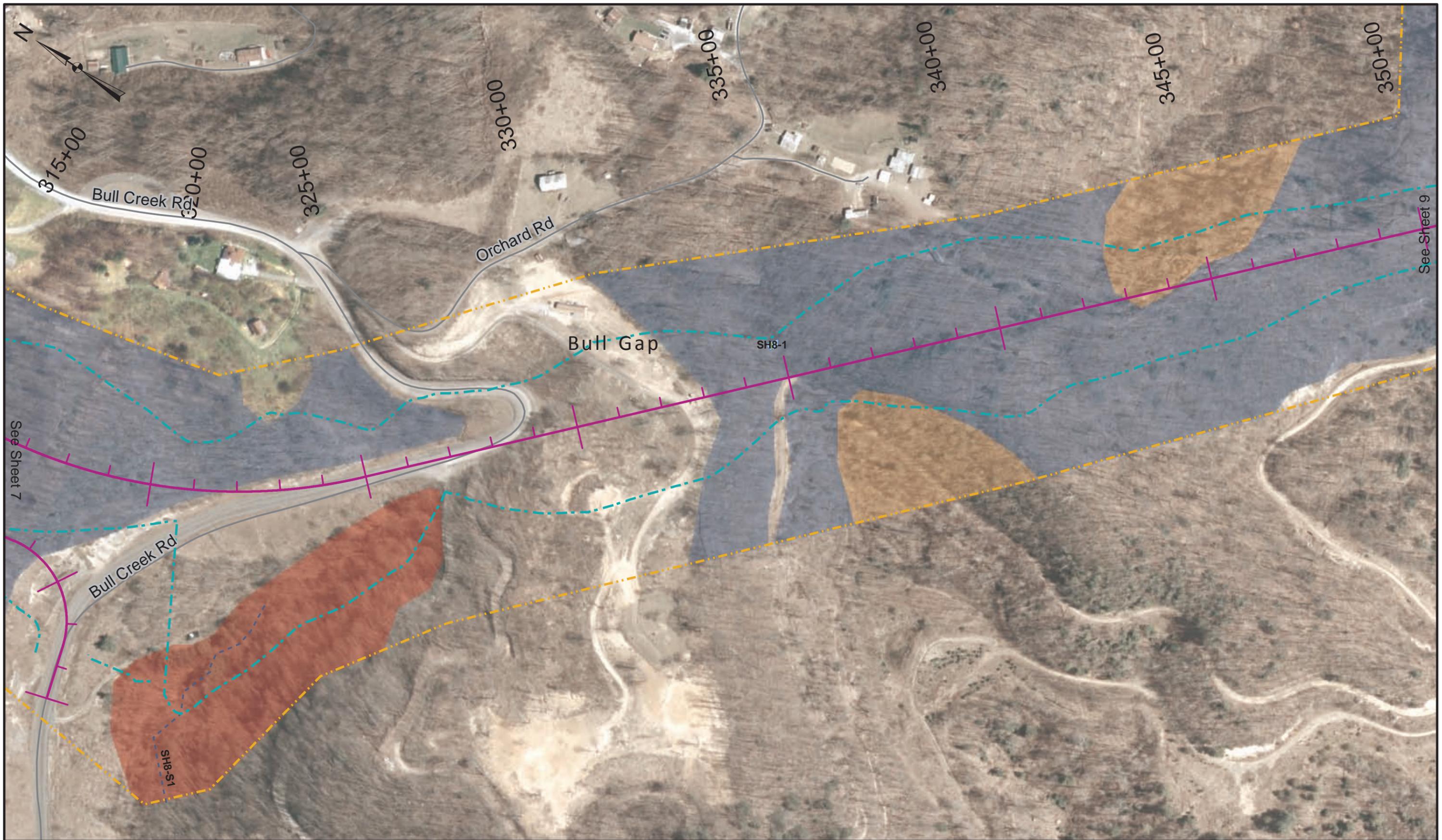


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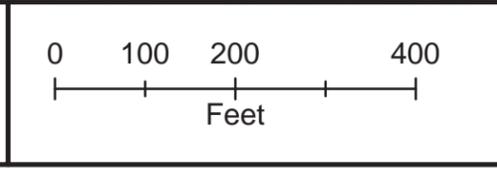
Note: Aerial photography copyrighted by the Commonwealth of Virginia, 2008.

US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area

Figure 18: Natural Resources Sheet 7 of 12



Wetlands - COE/DEQ	Acidic Cove Forest	Mine
Wetlands - DEQ	Eastern Hemlock - Hardwood Forest	Phase II Centerline
Intermittent Stream	Eastern White Pine - Hardwood Forest	Cut/Fill Lines
Perennial Stream	Montane Mixed Oak - Oak - Hickory	Phase II ROW Limits
	Logged	CFX Interchange Area at Hawks Nest Study Area

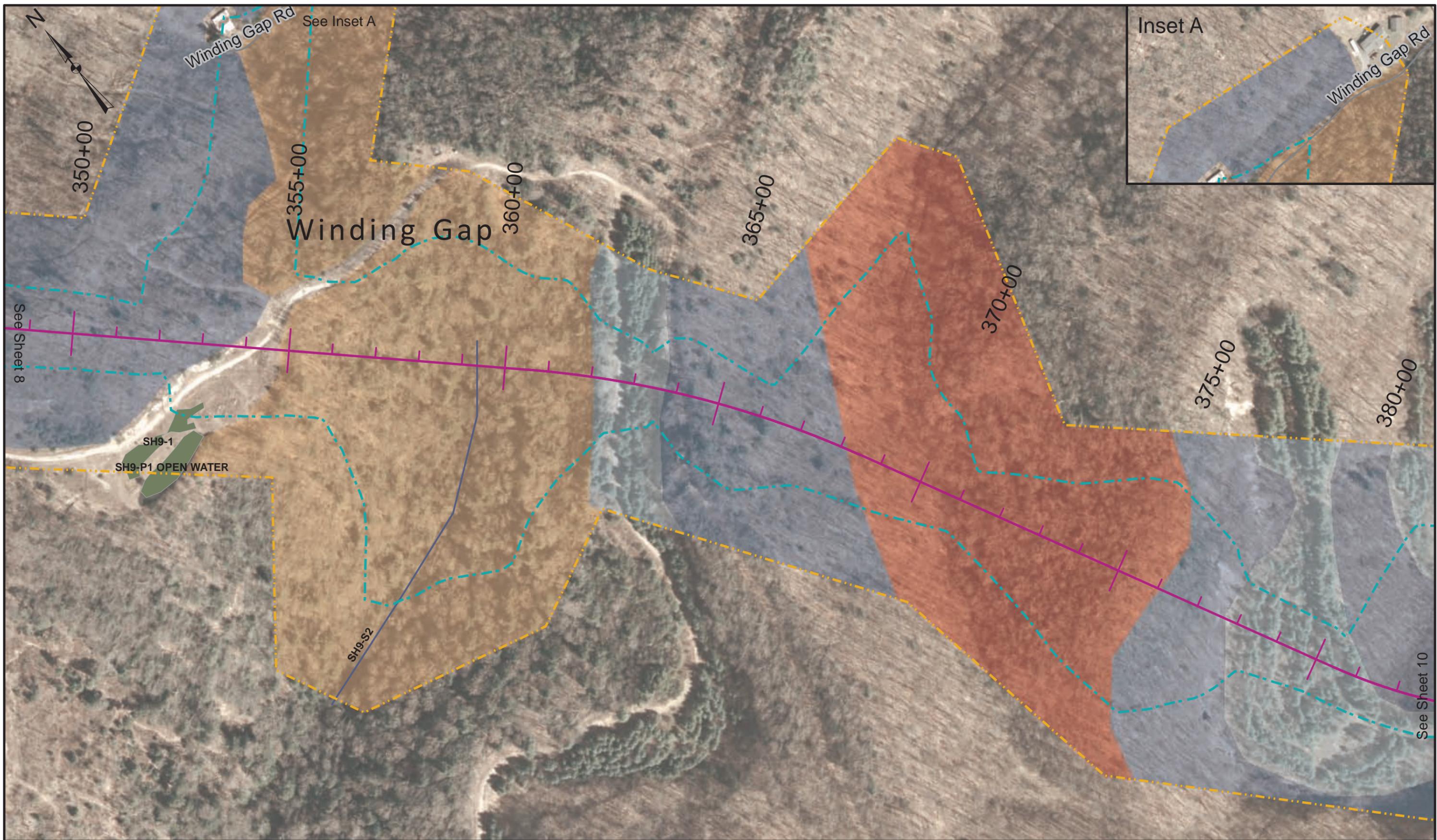


**VDOT**

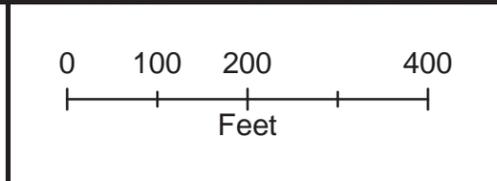
Note: Aerial photography copyrighted by the Commonwealth of Virginia, 2008.

US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area

Figure 19: Natural Resources Sheet 8 of 12



Wetlands - COE/DEQ	Acidic Cove Forest	Mine
Wetlands - DEQ	Eastern Hemlock - Hardwood Forest	Phase II Centerline
Intermittent Stream	Eastern White Pine - Hardwood Forest	Cut/Fill Lines
Perennial Stream	Montane Mixed Oak - Oak - Hickory	Phase II ROW Limits
Logged	CFX Interchange Area at Hawks Nest Study Area	

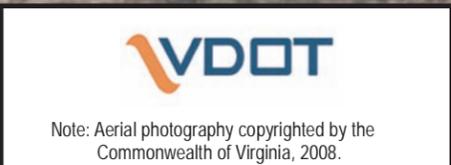
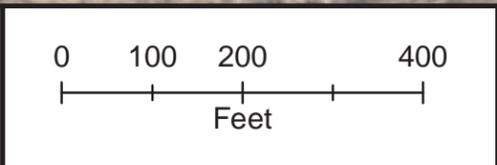


VDOT

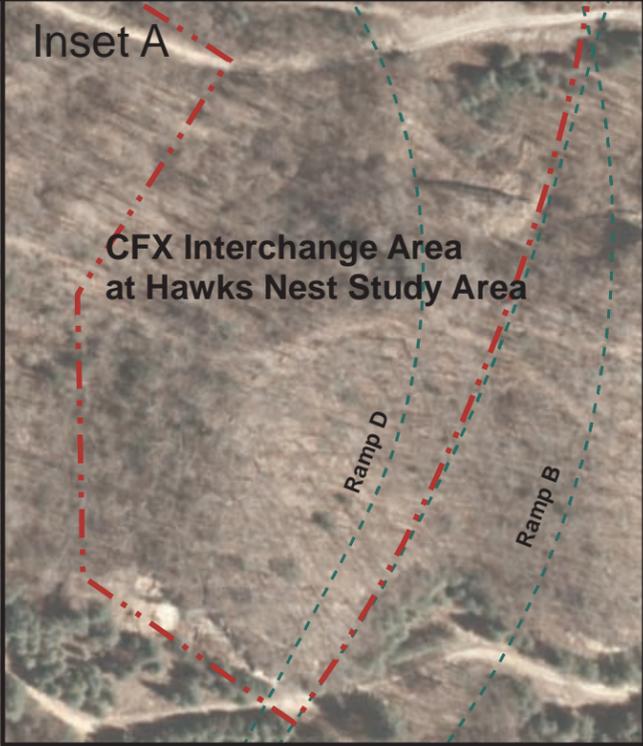
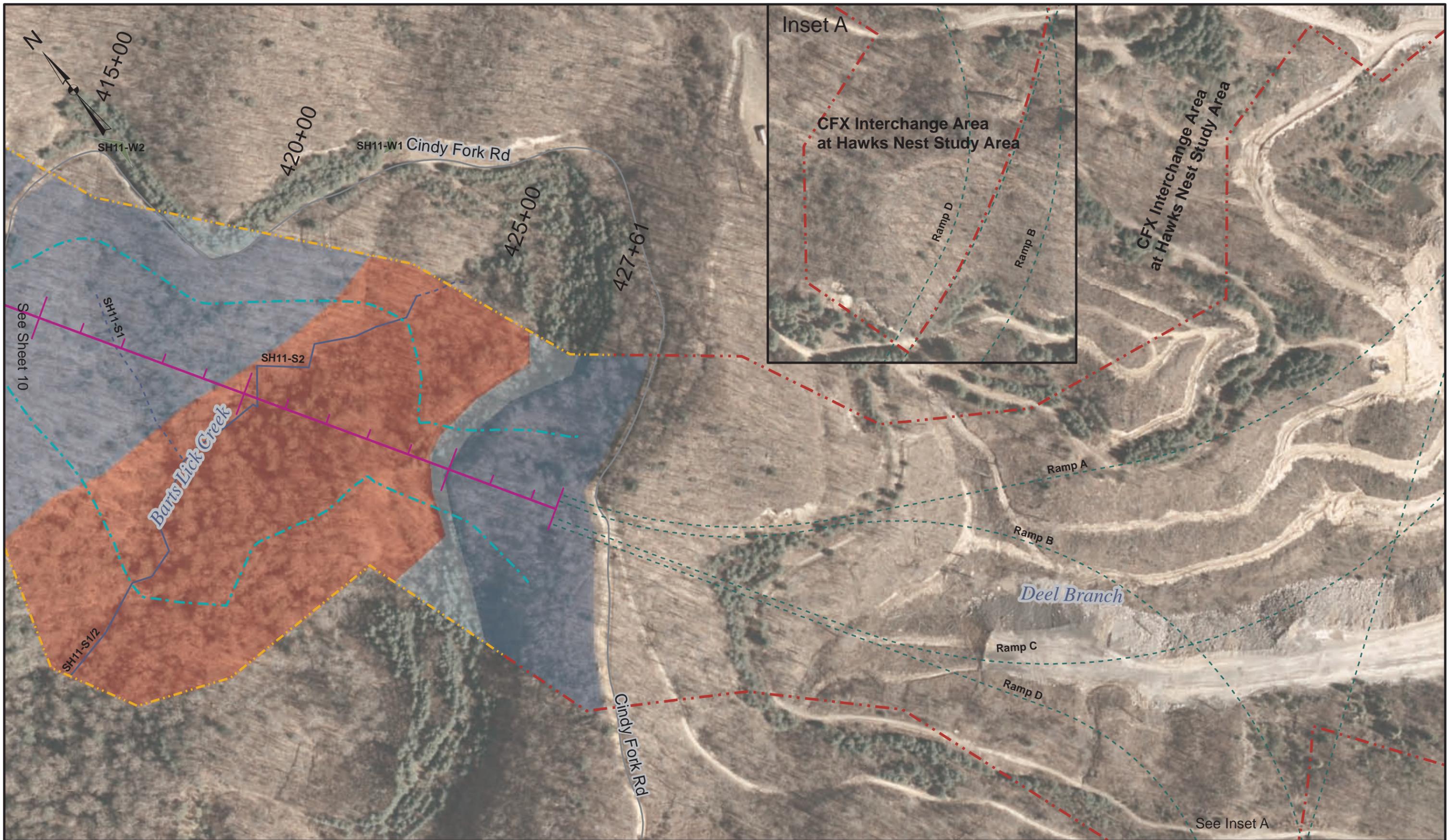
Note: Aerial photography copyrighted by the Commonwealth of Virginia, 2008.

US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area

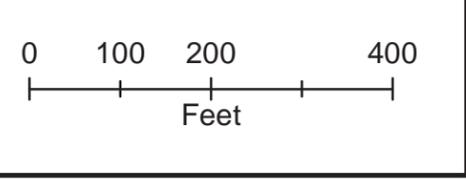
Figure 20: Natural Resources Sheet 9 of 12



US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area  
Figure 21: Natural Resources Sheet 10 of 12



Wetlands - COE/DEQ	Acidic Cove Forest	Mine
Wetlands - DEQ	Eastern Hemlock - Hardwood Forest	Phase II Centerline
Intermittent Stream	Eastern White Pine - Hardwood Forest	Cut/Fill Lines
Perennial Stream	Montane Mixed Oak - Oak - Hickory	Phase II ROW Limits
	Logged	CFX Interchange Area at Hawks Nest Study Area

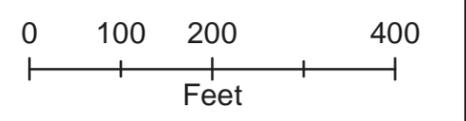


**VDOT**  
 Note: Aerial photography copyrighted by the Commonwealth of Virginia, 2008.

US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area  
 Figure 22: Natural Resources Sheet 11 of 12



Wetlands - COE/DEQ	Acidic Cove Forest	Mine
Wetlands - DEQ	Eastern Hemlock - Hardwood Forest	Phase II Centerline
Intermittent Stream	Eastern White Pine - Hardwood Forest	Cut/Fill Lines
Perennial Stream	Montane Mixed Oak - Oak - Hickory	Phase II ROW Limits
Logged	CFX Interchange Area at Hawks Nest Study Area	



**VDOT**

Note: Aerial photography copyrighted by the Commonwealth of Virginia, 2008.

US Route 460 Connector, Phase II / CFX Hawks Nest Interchange Area

Figure 23: Natural Resources Sheet 12 of 12

# **Appendix B: Section 106 Coordination**



# COMMONWEALTH of VIRGINIA

## Department of Historic Resources

2801 Kensington Avenue, Richmond, Virginia 23221

W. Tayloe Murphy, Jr.  
Secretary of Natural Resources

Kathleen S. Kilpatrick  
Director

January 15, 2004

RECEIVED

JAN 19 2004

Tel: (804) 367-2323  
Fax: (804) 367-2391  
TDD: (804) 367-2386  
www.dhr.state.va.us

Mr. David Slack  
Department of Mines, Minerals and Energy  
Division of Mined Land Reclamation  
Po Drawer 900  
Big Stone Gap, VA 24219-0900

Re: Hawks Nest Surface Mine  
Permit Application No. 1001191  
DHR File # 2003-1273

Dear Mr. Slack:

We have received a response from D.R. Allen & Associates regarding the above referenced project for our review and comment. Thank you for having this information forwarded to us. In a conversation with Mr. Lance DeBord this morning I was informed that he performed the cultural resource survey with Ms. Heather McDonald, and that both are professional biologists. Although we appreciate the environmental information provided, the fact remains that cultural resource surveys must be performed by cultural resource professionals in order for the information to be of assistance to us. We ask that future projects requiring cultural resource survey utilize individuals meeting the Secretary of the Interior's *Professional Qualifications Standards* (48 FR 44716-44742).

With regard to this permit application, we are of the opinion that there will be no effect to known historical, architectural or archaeological resources. In the event that such resources are encountered during related activities, however, all such activities shall cease and our office shall be contacted immediately.

If you have any questions about the Section 106 review process or our comments, please call me at (804) 367-2323, Ext. 140.

Sincerely,

Joanna Wilson, Archaeologist  
Office of Review and Compliance

cc: Mr. Lance DeBord, D.R. Allen & Associates, P.C.

Administrative Services  
10 Courthouse Avenue  
Petersburg, VA 20808  
Tel: (804) 863-1624  
Fax: (804) 862-6196

Capital Region Office  
2801 Kensington Ave.  
Richmond, VA 23221  
Tel: (804) 367-2323  
Fax: (804) 367-2391

Portsmouth Region Office  
612 Court Street, 3rd Floor  
Portsmouth, VA 23704  
Tel: (757) 866-6707  
Fax: (757) 396-6712

Roanoke Region Office  
1080 Peanar Ave., SE  
Roanoke, VA 24013  
Tel: (540) 867-7585  
Fax: (540) 867-7588

Winchester Region Office  
107 N. Kent Street, Suite 208  
Winchester, VA 22601  
Tel: (540) 722-3427  
Fax: (540) 722-7656

*LCB*



# COMMONWEALTH of VIRGINIA

Department of Historic Resources  
2801 Kensington Avenue, Richmond, Virginia 23221

L. Preston Bryant, Jr.  
Secretary of Natural Resources

Kathleen S. Kilpatrick  
Director

Tel: (804) 367-2323  
Fax: (804) 367-2391  
TDD: (804) 367-2386  
www.dhr.virginia.gov

November 1, 2006

Mr. Gregory Baker  
Division of Mined Land Reclamation  
PO Drawer 900  
Big Stone Gap, VA 24219-0900

Re: Paramount Coal Company Virginia  
Application # 1003866  
DHR File # 2006-1511

Dear Mr. Baker:

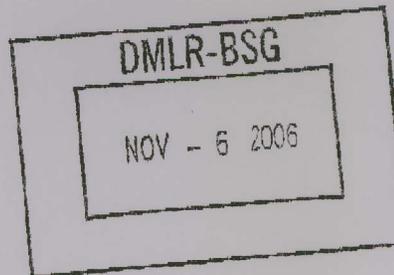
We have received information regarding the above referenced project for our review. We understand that, of the 124.13 surface acres to be added to the existing permit, 74.56 are previously mined by Paramount, and an additional 27.56 are also slated for re-mining. Given the extensive previous disturbance, and based upon the information provided, it is our opinion that this action will have no effect upon known historic properties.

If you have any questions about the Section 106 review process or our comments, please call me at (804) 367-2323, Ext. 140.

Sincerely,

Joanna Wilson, Archaeologist  
Office of Review and Compliance

*c: JEL  
aps*



Administrative Services  
10 Courthouse Avenue  
Petersburg, VA 23803  
Tel: (804) 863-1624  
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2801 Kensington Ave.  
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Tidewater Region Office  
1441 S Old Courthouse Way, 2<sup>nd</sup> Floor  
Newport News, VA 23608  
Tel: (757) 886-2807  
Fax: (757) 886-2808

Roanoke Region Office  
1030 Penmar Ave., SE  
Roanoke, VA 24013  
Tel: (540) 857-7585  
Fax: (540) 857-7588

Winchester Region Office  
107 N. Kent Street, Suite 203  
Winchester, VA 22601  
Tel: (540) 722-3427  
Fax: (540) 722-7535

MSW



# COMMONWEALTH of VIRGINIA

## Department of Historic Resources

2801 Kensington Avenue, Richmond, Virginia 23221

L. Preston Bryant, Jr.  
Secretary of Natural Resources

Kathleen S. Kilpatrick  
Director

Tel: (804) 367-2323  
Fax: (804) 367-2391  
TDD: (804) 367-2386  
www.dhr.virginia.gov

January 31, 2007

Mr. Greg Baker  
Division of Mined Land Reclamation  
PO Drawer 900  
Big Stone Gap, VA 24219-0900

Re: Paramount Coal Company Virginia  
Application # 1004096  
DHR File # 2007-0104

Dear Mr. Baker:

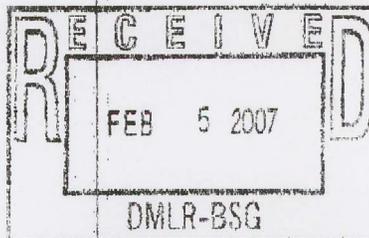
We have received information regarding the above referenced projects for our review. We require additional information in order to complete our review, however. Please provide the results of a search of our archives. A search may be accomplished directly through a visit to our Richmond office, or indirectly through either an Archives staff member or through our online data source at [http://www.dhr.virginia.gov/archives/archiv\\_info.htm](http://www.dhr.virginia.gov/archives/archiv_info.htm).

If you have any questions about the Section 106 review process or our comments, please call me at (804) 367-2323, Ext. 140.

Sincerely,

Joanna Wilson, Archaeologist  
Office of Review and Compliance

ci cgs



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Fax: (804) 367-2391

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Fax: (757) 886-2808

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1030 Penmar Ave., SE  
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Fax: (540) 857-7588

Winchester Region Office  
107 N. Kent Street, Suite 203  
Winchester, VA 22601  
Tel: (540) 722-3427  
Fax: (540) 722-7535



# COMMONWEALTH of VIRGINIA

## Department of Historic Resources

L. Preston Bryant, Jr.  
*Secretary of Natural Resources*

2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick  
*Director*

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TDD: (804) 367-2386  
[www.dhr.virginia.gov](http://www.dhr.virginia.gov)

May 23, 2007

Gary Slone  
Terra Tech Engineering Services, P.C.  
P.O. Box 1063  
Grundy, VA 24614

RE: Detailed Archives Search  
Paramount Coal Company, LLC, Hawks Nest Surface Mines A and B

Dear Mr. Slone:

Thank you for your recent request for information from our Archives on previously recorded archaeological and architectural resources within the area of potential effect, as delineated on your map, for the above-referenced project. Please note that your request for information from the Department of Historic Resources (DHR) Archives concerning the location of historic resources does not relieve you or your client from possible obligations under state or federal historic preservation regulations. I strongly recommend that you contact Dr. Ethel Eaton of the DHR's Resource Services and Review Division at (804) 367-2323, extension 112, if you have any questions concerning state and federal regulatory requirements.

Enclosed are the maps showing the locations of any archaeological or architectural resources previously recorded at DHR. Since no sites or structures were found to have been previously identified in your project area, no records were copied for inclusion in this packet.

DHR serves as the official state repository on historic resources. This information has been compiled primarily by independent cultural resource consultants. DHR makes no warranty as to the fitness of the data for any purpose. The absence of historic resources in DHR records does not necessarily mean that no historic properties are present. It is advisable to check with local government planning offices for information on any properties that may meet the age and significance tests of the National Register criteria and have not yet been recorded in the DHR Archives. Also, the area in question may not have been systematically surveyed for resources, possibly necessitating a survey and submittal of that data with your Project Review application.

Please contact me at (804) 367-2323, extension 125, if I can be of further assistance.

Sincerely,

Ann Drury Wellford  
Archives - DHR

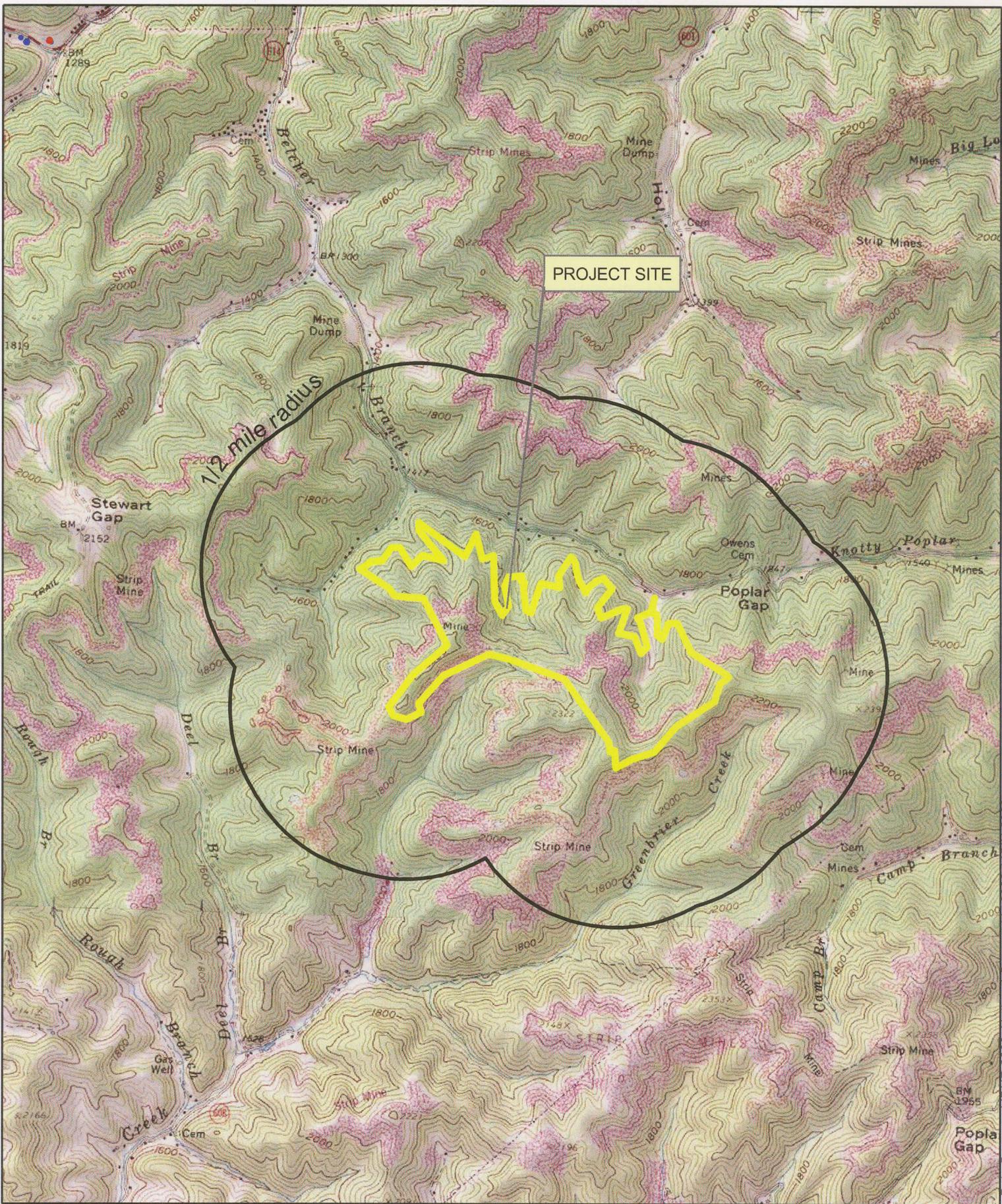
Administrative Services  
10 Courthouse Ave.  
Petersburg, VA 23803  
Tel: (804) 863-1624  
Fax: (804) 862-6196

Capital Region Office  
2801 Kensington Office  
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Fax: (804) 367-2391

Tidewater Region Office  
14415 Old Courthouse Way  
2<sup>nd</sup> Floor  
Newport News, VA 23608  
Tel: (757) 886-2807  
Fax: (757) 886-2808

Roanoke Region Office  
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Roanoke, VA 24013  
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Fax: (540) 857-7588

Winchester Region Office  
107 N. Kent Street, Suite 203  
Winchester, VA 22601  
Tel: (540) 722-3427  
Fax: (540) 722-7535

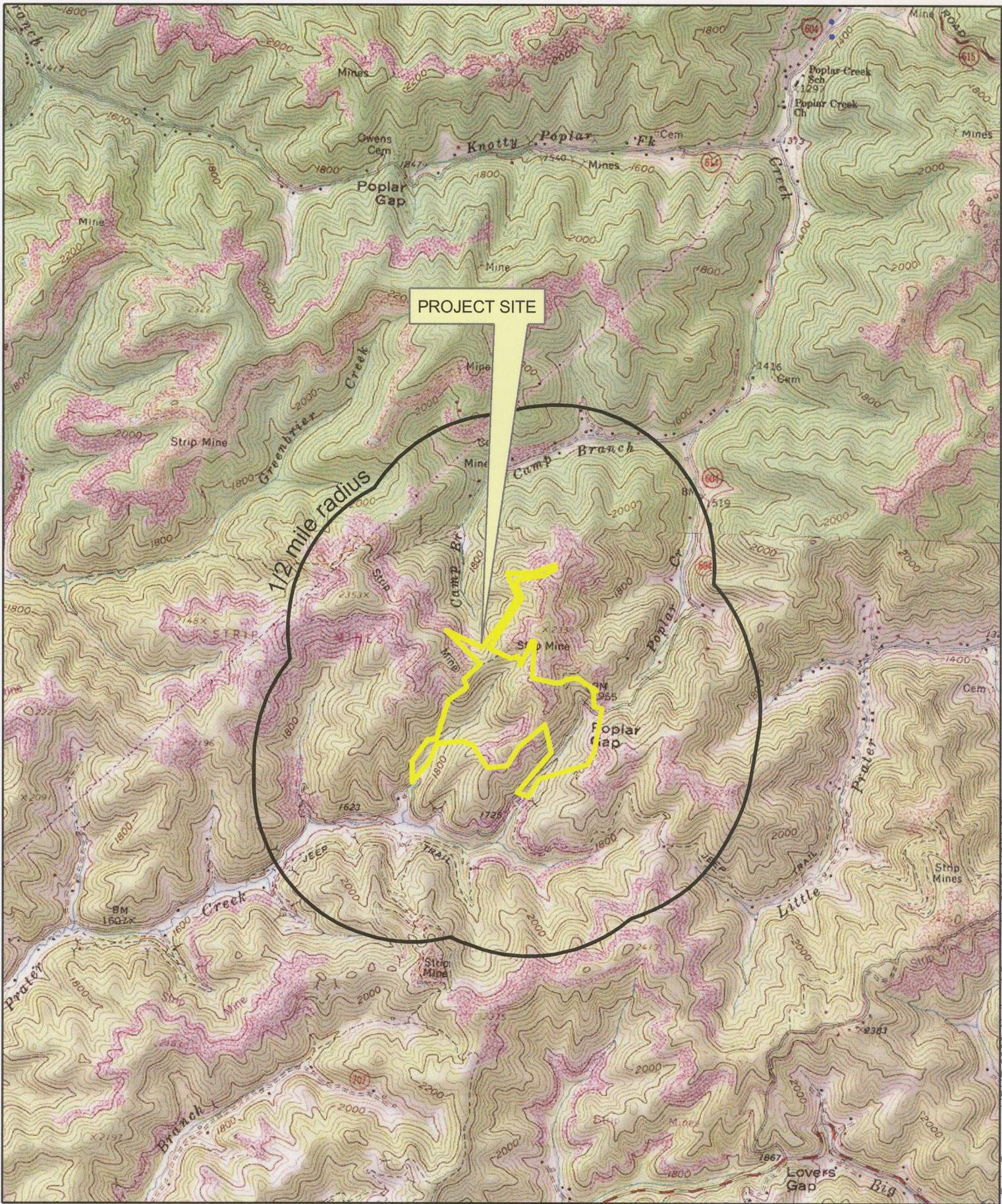


Hawks Nest Surface Mine (A)  
 Terra Tech Engineering Services, P.C.  
 Harman Quad/Buchanan County  
 05/22/2007  
 Drury Wellford/VDHR

0 0.125 0.25 0.5 Miles



-  Archaeological Sites
-  Architectural Resources



Hawks Nest Surface Mine (B)  
 Terra Tech Engineering Services, P.C.  
 Prater Quad/Buchanan County  
 05/22/2007  
 Drury Wellford/VDHR

0 0.15 0.3 0.6 Miles



-  Archaeological Sites
-  Architectural Resources

OFFICE FILE #

sw



# COMMONWEALTH of VIRGINIA

## Department of Historic Resources

2801 Kensington Avenue, Richmond, Virginia 23221

L. Preston Bryan, Jr.  
Secretary of Natural Resources

Kathleen S. Kilpatrick  
Director

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TDD: (804) 367-2386  
www.dhr.virginia.gov

June 26, 2007

Mr. Gregory Baker  
Division of Mined Land Reclamation  
PO Drawer 900  
Big Stone Gap, VA 24219-0900

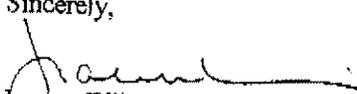
Re: Paramont Coal Company  
Application # 1004096  
DHR File # 2007-0104

Dear Mr. Baker:

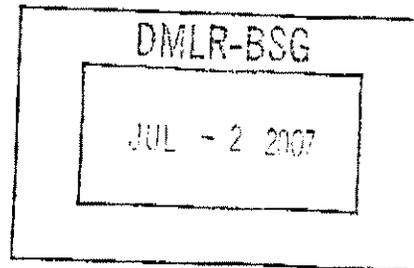
We have received the archival information requested in our January 31, 2007 review of the above referenced project. Our staff has completed review of this project. Based upon the information provided, it is our opinion that this action will have no effect upon known historic properties. In the event that previously unrecorded historic properties are discovered during project activities, please contact DHR immediately.

If you have any questions about the Section 106 review process or our comments, please call me at (804) 367-2323, Ext. 140.

Sincerely,

  
Joanna Wilson, Archaeologist  
Office of Review and Compliance

CGS



Administrative Services  
10 Courthouse Avenue  
Petersburg, VA 23803  
Tel: (804) 863-1624  
Fax: (804) 862-6196

Capital Region Office  
2801 Kensington Ave  
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Fax: (804) 367-2391

Tidewater Region Office  
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Fax: (757) 886-2808

Roanoke Region Office  
1030 Penmar Ave., SE  
Roanoke, VA 24013  
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Fax: (540) 857-7588

Winchester Region Office  
107 N. Key Street, Suite 203  
Winchester, VA 22601  
Tel: (540) 722-3427  
Fax: (540) 722-2533



## COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION  
870 Bonham Road  
BRISTOL, Virginia 24201  
Virginia.DOT.org

DAVID S. EKERN, P.E.  
COMMISSIONER

November 5, 2008

Ms. Kathleen S. Kilpatrick, State Historic Preservation Officer (SHPO)  
Attn: Mr. Marc Holma  
Office of Review and Compliance  
Virginia Department of Historic Resources  
2801 Kensington Avenue  
Richmond, VA 23221

**PROJECT:** US Route 460 Connector, Phase II  
State Project No. 0460-013-781, P101; UPC 88140  
**VDHR FILE:** 2005-0003  
**COUNTY/CITY:** Buchanan County  
**FUNDING:** Federal  
**ACTION REQUIRED:** Determination of Eligibility

Dear Ms. Kilpatrick:

The Virginia Department of Transportation (VDOT) is proposing to construct Phase II of the Route 460 Connector in Buchanan County, Virginia. The proposed highway is a four-lane, median divided, principle arterial highway on new alignment. It will serve as a link between US Route 460 and the Coalfields Expressway. The 460 Connector, Phase II, will tie into Phase I near the Virginia/Kentucky state line and Breaks Interstate Park. Phase II will then extend on new alignment approximately 6.1 miles and terminate at a connection with the proposed Coalfields Expressway, southeast of the town of Bulls Gap. The purpose of this letter is to begin coordination with your department on VDOT's efforts to identify historic properties within the new alignment's area of potential effect (APE) and to seek your concurrence on VDOT's eligibility determinations for architectural resources within the APE. On behalf of the Federal Highway Administration (FHWA), VDOT is coordinating this undertaking with your department

in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR Part 800.

### **Identification of Historic Resources**

#### Archaeological Resources

The results of the identification of archaeological resources will be reported under separate cover.

#### Architectural Resources

The APE for architectural resources is defined as the proposed right of way footprint plus areas adjacent to or visible from the corridor. Dovetail Cultural Resource Group completed the architectural survey. Dovetail conducted background research at the Virginia Department of Historic Resources (VDHR) archives, Buchanan County Tax Assessors Office and the Library of Congress American Memory database. When possible, Dovetail interviewed residents and owners of the properties for information concerning the construction dates and history of the resources.

#### Previously Recorded Resources

Through the research conducted at VDHR archives Dovetail identified seventeen previously recorded architectural resources within one mile of the project APE, and five within the project's APE. Two (013-0068 and 0069) of the five resources were determined not eligible for the NRHP and are not included in this survey. The remaining three previously recorded resources (013-5001, 5002, and 5003) were revisited during the current survey.

#### Newly Identified Resources

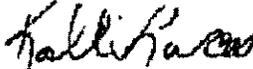
Dovetail completed Phase I reconnaissance-level surveys of fourteen resources over 50 years of age within the APE. The fourteen resources include eight Craftsman-style dwellings (013-5001, 5002, 5003, 5166, 5167, 5168, 5170 and 5172), four cemeteries (013-5176, 5177, 5178, 5179) and two turn-of-the-century farmsteads (013-5169 and 5173). These resources represent common, vernacular, properties. There are no known associations with important people or events, and the property resource types are common, the design and workmanship undistinguished, and the materials stock. The resources do not have the potential to yield important information. As such it is recommended that none of the resources are eligible for the NRHP.

Please find enclosed documentation for the above mentioned properties, VDHR #s 013-(5001-5003) and 013-(5166-5179, not including 013-5171). The documentation includes DSS reconnaissance-level survey forms, black and white photographs, and site plans for each resource. In addition, two paper copies and a CD of the management survey are also included.

Ms. Kathleen Kilpatrick  
November 5, 2008  
Page 3

Please review the accompanying information and should you concur with our recommendations please sign below within **30 days** after receipt of this letter. If you have any questions please do not hesitate to contact me at Kalli.Lucas@vdot.virginia.gov or (276) 645-1643.

Sincerely,



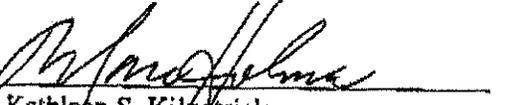
Kalli Lucas  
VDOT Regional Architectural Historian  
Bristol VA District

Enclosures

cc: Calvert McIlhenny

\*\*\*\*\*

The Virginia Department of Historic Resources concurs with the Virginia Department of Transportation's recommendation that the following newly recorded resources are not eligible for the National Register of Historic Places under Criteria A, B, C or D, either individually or as contributing elements to an eligible historic district: VDHR #s 013-5001-5003 and 013-5166-5179, not including 013-5171). ~~The VDOT project, 0460-013-781, P101, 460 Connector, will have no effect to historic structures.~~

  
Kathleen S. Kilpatrick  
Virginia State Historic Preservation Officer

3 Dec 08  
Date

DHR# 2005-0003



# COMMONWEALTH of VIRGINIA

## Department of Historic Resources

2801 Kensington Avenue, Richmond, Virginia 23221-0311

L. Preston Bryant, Jr.  
Secretary of Natural Resources

Kathleen S. Katpatrick  
Director

Tel: (804) 367-2323  
Fax: (804) 367-2391  
TDD: (804) 367-2386  
www.dhr.virginia.gov

26 November 2008

Mr. Calvert M. McIlhany  
Virginia Department of Transportation  
P.O. Box 1768  
Bristol, Virginia 24203

RE: Archaeology Management Summary, Route 460 Connector, Phase II—  
Buchanan County  
Buchanan County, Virginia  
VDOT Project No. 0460-013-781, P101; UPC-88140  
VDHR File No. 2005-0003

Dear Mr. McIlhany:

We have received for our review and comment the archaeology management summary for the above referenced project. We concur with the consultant's recommendation that no further archaeological investigation is warranted for Phase II of the Route 460 Connector project.

If you have any questions about our comments, please contact me at (804) 367-2323, Ext. 114.

Sincerely,

Marc Holma, Architectural Historian  
Office of Review and Compliance

Administrative Services  
10 Courthouse Avenue  
Petersburg, VA 23803  
Tel: (804) 863-1624  
Fax: (804) 862-6196

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2801 Kensington Ave.  
Richmond, VA 23221  
Tel: (804) 367-2323  
Fax: (804) 367-2391

Tidewater Region Office  
14415 Old Courthouse Way, 2<sup>nd</sup> Floor  
Newport News, VA 23608  
Tel: (757) 886-2807  
Fax: (757) 886-2808

Roanoke Region Office  
1030 Penmar Ave., SE  
Roanoke, VA 24013  
Tel: (540) 857-7585  
Fax: (540) 857-7588

Northern Region Office  
2357 Main Street  
PO Box 519  
Stephens City, VA 22655  
Tel: (540) 868-7031  
Fax: (540) 868-7033



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF TRANSPORTATION

P.O. BOX 1768  
BRISTOL, Virginia 24203  
Virginia.DOT.org

DAVID S. EKERN, P.E.  
COMMISSIONER

January 20, 2009

Ms. Kathleen S. Kilpatrick, State Historic Preservation Officer  
**Attn: Marc Holma, Division of Project Review**  
Virginia Department of Historic Resources  
2801 Kensington Avenue  
Richmond, Virginia 23221

RE: U.S. Route 460 Connector, Phase II – Buchanan County  
VDOT Project 0460-013-781, P101: UPC 88140  
Archaeological Identification Survey  
VDHR File No. 2005-0003

Dear Ms. Kilpatrick:

On November 12, 2008, I forwarded a management summary prepared by the Dovetail Cultural Resource Group I, Inc. (Dovetail) presenting the results of an identification survey for archaeological resources within the area of potential effects for the U.S. Route 460 Connector, Phase II project in Buchanan County, Virginia.

You responded by separate letter dated November 26, 2008 and concurred with our recommendation that no further archaeological investigation is warranted for this project.

On November 5, 2008, Kalli Lucas forwarded a management summary prepared by Dovetail presenting the results of a Phase I survey for architectural resources within the area of potential effects for the U.S. Route 460 Connector, Phase II project in Buchanan County, Virginia.

You completed the concurrence page of the letter from Ms. Lucas on December 3, 2009 and concurred that no newly recorded architectural resources were eligible for inclusion in the National Register of Historic Places (NRHP) under Criteria A, B, C or D, either individually or as contributing elements to an eligible historic district. The management survey also documents the fact that no previously recorded architectural properties within the area of potential effects (APE) for this project had been found eligible for inclusion in the NRHP.

The Virginia Department of Transportation (VDOT), upon reviewing the documentation submitted by Dovetail, feels that no archaeological or architectural resources exist within the APE for Project No. 0460-



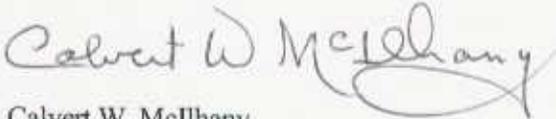
Letter to Ms. Kathleen S. Kilpatrick  
VDOT Project No. 0460-013-781, P101  
VDHR File No. 2005-0003  
January 20, 2009  
Page 2

013-781, P101 which are eligible or potentially eligible for inclusion in the NRHP under Criterion A, B, C or D and that proposed construction of the U.S. Route 460 Connector, Phase II will have no effect on historic properties.

We invite the State Historic Preservation Officer to concur with the above recommendations by completing the signature block below. Please return a signed copy to this office for our records.

Should you have any questions or require additional information, please contact Mr. Calvert W. McIlhany at (540) 645-1644 or Ms. Kalli S. Lucas at (540) 645-1643.

Sincerely,



Calvert W. McIlhany  
District Cultural Resources Manager

Enclosures

cc: Ms. D. K. Bush  
Mr. G. B. Young  
Ms. L. E. Surber  
Ms. S. Manes  
Ms. K. S. Lucas

---

The State Historic Preservation Officer (SHPO) concurs with VDOT's opinion that proposed construction activities within the APE for the U.S. Route 460 Connector, Phase II (VDOT Project No. 0460-013-781, P101) will have no effect on historic properties which are eligible or potentially eligible for inclusion in the National Register of Historic Places.

\_\_\_\_\_  
DATE

\_\_\_\_\_  
Kathleen S. Kilpatrick  
State Historic Preservation Officer

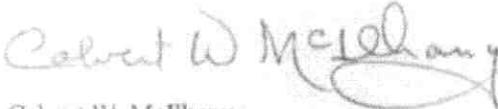
Letter to Ms. Kathleen S. Kilpatrick  
VDOT Project No. 0460-013-781, P101  
VDHR File No. 2005-0003  
January 20, 2009  
Page 2

013-781, P101 which are eligible or potentially eligible for inclusion in the NRHP under Criterion A, B, C or D and that proposed construction of the U.S. Route 460 Connector, Phase II will have no effect on historic properties.

We invite the State Historic Preservation Officer to concur with the above recommendations by completing the signature block below. Please return a signed copy to this office for our records.

Should you have any questions or require additional information, please contact Mr. Calvert W. McIlhany at (540) 645-1644 or Ms. Kalli S. Lucas at (540) 645-1643.

Sincerely,



Calvert W. McIlhany  
District Cultural Resources Manager

Enclosures

cc: Ms. D. K. Bush  
Mr. G. B. Young  
Ms. L. E. Surber  
Ms. S. Manes  
Ms. K. S. Lucas

---

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20 Jan 09  
DATE



Kathleen S. Kilpatrick  
for State Historic Preservation Officer

DHR # 2005-0003

# **Appendix C: Qualitative Analysis for Mobile Source Air Toxics (MSATs)**

## **Air Form Appendix**

### **Qualitative Analysis for Mobile Source Air Toxics (MSATs)**

In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries). Mobile Source Air Toxics (MSAT) are a subset of the 188 air toxics defined by the Clean Air Act. MSAT are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

A qualitative assessment of the likely impacts of MSAT is presented because this project has been determined to have a potential impact on vehicle miles traveled (VMT) or diesel traffic although not to the extent which would warrant a detailed analysis. The project may result in an increase in VMT or affect truck traffic in a way that would lead to higher MSAT emissions for the build alternative, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; and reduced VMT on parallel roadways. According to EPA's MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

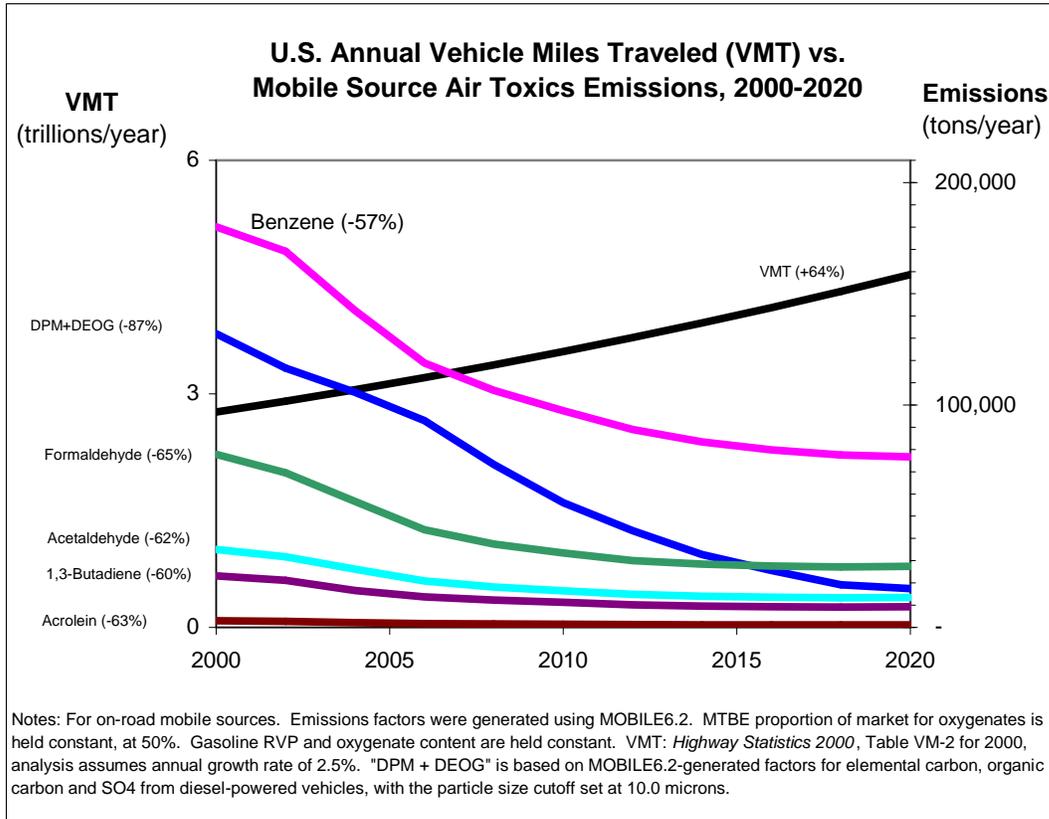
Local conditions may differ from these national projections used in the MOBILE model in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases. Any additional travel lanes contemplated as part of the project may have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSATs could be higher under the Build Alternative than under the No-Build Alternative.

This qualitative assessment was prepared using guidance derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at: [www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm](http://www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm).

### **Background**

The EPA is the lead Federal Agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources (66 FR 17229) on March 29, 2001. This rule was issued under the authority in Section 202 of the Clean Air Act. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA projects that even with a 64 percent increase in VMT, these programs will reduce on-highway emissions of benzene,

formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-highway diesel PM emissions by 87 percent. As a result, EPA concluded that no further motor vehicle emissions standards or fuel standards were necessary to further control MSATs. The agency is preparing another rule under authority of CAA Section 202(l) that will address these issues and could make adjustments to the full 21 and the primary six MSATs. Although this figure only forecasts emissions through 2020, EPA's new MSAT2 Rule should result in additional emission reductions beyond 2020 that were not envisioned when the MSAT1 Rule or this Figure were developed.



### Unavailable Information for Project Specific MSAT Impact Analysis

Available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the project. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information:

#### Information that is Unavailable or Incomplete

Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

1. Emissions: The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway

projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model--emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emissions rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis. These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

2. Dispersion. The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The NCHRP is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.
3. Exposure Levels and Health Effects. Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupported assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affect emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is

likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

### **Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs**

Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that select MSATs are either statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to air toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or state level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The IRIS database is located at <http://www.epa.gov/iris>. The following toxicity information for the six prioritized MSATs was taken from the IRIS database Weight of Evidence Characterization summaries. This information is taken verbatim from EPA's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- Benzene is characterized as a known human carcinogen.
- The potential carcinogenicity of acrolein cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- Formaldehyde is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- 1,3-butadiene is characterized as carcinogenic to humans by inhalation.
- Acetaldehyde is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- Diesel exhaust (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.
- Diesel exhaust also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot spots, the health

implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes -- particularly respiratory problems<sup>1</sup>. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

**Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of impacts based upon theoretical approaches or research methods generally accepted in the scientific community.**

Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

FHWA has acknowledged that the project may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

**Conclusion**

As discussed above, technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of this project, however, it can be safely concluded that localized increases of MSATs that may occur as a result of the project will be offset in the future by the implementation of new and existing mobile emissions control programs.

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<sup>1</sup> South Coast Air Quality Management District, Multiple Air Toxic Exposure Study-II (2000); Highway Health Hazards, The Sierra Club (2004) summarizing 24 Studies on the relationship between health and air quality); NEPA's Uncertainty in the Federal Legal Scheme Controlling Air Pollution from Motor Vehicles, Environmental Law Institute, 35 ELR 10273 (2005) with health studies cited therein.

# **Appendix B:**

Location Public Hearing and Draft EA  
Comments and Responses



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF TRANSPORTATION

870 BONHAM ROAD  
BRISTOL, VA 24201-2002

DAVID S. EKERN, P.E.  
COMMISSIONER

July 28, 2009

### MEMORANDUM

**TO:** Susan Manes, Michael Baker, Jr., Inc.

**FROM:** George Young, VDOT Bristol District 

**RE:** **Route 460 Connector, Phase II**  
**Draft EA Comments and Public Hearing Comments**

Enclosed please find copies of electronic comments VDOT received from the distribution of the Draft EA as well as VDOT's responses to those comments. In addition, I have enclosed written comments received from the public hearing held on 14 July 2007 at the Breaks Interstate Park. No oral comments were received at the hearing.

As per the approved scope of work, please compile the comments and provide an electronic scanned set to VDOT as well as prepare a summary and responses to the comments to be presented to the CTB.

If you have any questions, let me know.



# **Draft Environmental Assessment (EA)**

## ***Written Comments***

**US Route 460 Connector – Phase II  
Including the Coalfields Expressway (CFX) Interchange Area at Hawks Nest  
Buchanan County, VA**

## Young, George

---

**From:** Young, George  
**Sent:** Wednesday, May 06, 2009 11:56 AM  
**To:** Rhur, Robbie (DCR)  
**Subject:** RE: EA Route 460 connector Phase II

**Attachments:** DCR Letter.pdf



DCR Letter.pdf

Robbie-

Thank you for your email, hopefully I can clarify a couple of issues for you.

Each federal agency has its own idiosyncrasies in implementing NEPA. VDOT follows FHWA requirements as outlined in 23 CFR 771 in preparing NEPA documents on their behalf for transportation projects. FHWA's generally accepted format for an EA does not include presenting scoping letters and associated responses in the appendices; Section 4 of the EA is the usual and customary format to present the Department's coordination efforts for this class of action. Including scoping letters and associated responses in the appendices of NEPA documents are reserved for EISs.

Related to your comments on "surveys". VDOT responded to Mr. Robert Munson, DCR Planning Bureau Manager, on 4 December 2008 regarding DCR's NEPA scoping comments on this project. I have attached a copy of that letter for your convenience. To summarize VDOT's response: *Dryobius sexnotatus*, *Cherokia georgiana latassa*, and *Trillium flexipes* are not listed as state or federal threatened or endangered species and as such are not afforded protection under 4VAC15-20-130 or the Endangered Species Act of 1973 as amended. In consideration of same, VDOT cannot justify conducting the DCR recommended inventories for these non-listed species.

We will continue our coordination efforts with USFWS and VDGIF on state and federal protected species. If you have any other questions, let me know.

Regards,  
George B. Young  
Assistant District Environmental Manager  
Phone: (276) 645-1656  
Fax: (276) 645-1667  
Cell: (423) 502-7928

-----Original Message-----

From: Robbie Rhur [mailto:Robbie.Rhur@dcr.virginia.gov]  
Sent: Tuesday, May 05, 2009 3:41 PM  
To: Young, George  
Subject: EA Route 460 connector Phase II

George:

I was just reviewing the EA that you submitted to DCR, we commented in August of 08 to the consultant and I do not see any reference to our letter or a copy of the letter in the doc. Heritage recommended surveys. Where they conducted?

Thank you

Robbie Rhur

Environmental Impact Review Coordinator  
804-371-2594  
Robbie.Rhur@dcr.virginia.gov



**COMMONWEALTH of VIRGINIA**  
**DEPARTMENT OF TRANSPORTATION**

P.O. BOX 1768  
BRISTOL, VA 24203

**DAVID S. EKERN, P.E.**  
COMMISSIONER

December 4, 2008

Mr. Robert Munson  
Planning Bureau Manager  
Virginia Department of Conservation and Recreation  
203 Governor Street  
Richmond, Virginia 23219-2010

**RE: DCR 08-095, Route 460 Connector, Phase II**  
**Buchanan County, Virginia**

Dear Mr. Munson:

Thank you for providing comments on the proposed Route 460 Connector, Phase II project in Buchanan County, Virginia. VDOT will consider the information provided in the development of the project as well as the Department continues to coordinate with the Virginia Department of Game and Inland Fisheries (VDGIF) and the United States Fish and Wildlife Service (USFWS) regarding the protection of state and federal threatened and endangered species.

In your letter of 18 August 2008, the Department of Conservation and Recreation (DCR) recommended VDOT conduct an inventory in the project area for the Six-banded longhorn beetle, a rare Millipede, and the Nodding trillium. As you are aware, these species are not currently "listed" and afforded protection under 4VAC15-20-130 or the Endangered Species Act of 1973 as amended.

In consideration of the above, VDOT cannot justify conducting the DCR recommended inventory for these non-protected species during a time of limited project funding. We appreciate your continued cooperation in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "George B. Young". The signature is fluid and cursive, with a large loop at the end.

George B. Young  
Assistant District Environmental Manager

CC: Doris Bush  
Leo Snead  
Julie Smith  
Susan Manes  
John Simkins

## Young, George

---

**From:** vdotprojects vdotprojects [vdotprojects.po-richmond.dom-richmond@dcr.virginia.gov]  
**Sent:** Wednesday, May 27, 2009 3:05 PM  
**To:** Young, George  
**Subject:** RE: Route 460 Connector Phase II

George,

Thank you for your response.

Rene'

Rene' Hypes  
Project Review Coordinator  
Dept. of Conservation & Recreation  
Division of Natural Heritage  
www.vdotprojects@dcr.virginia.gov

>>> "Young, George" <George.Young@VDOT.Virginia.gov> 05/27/09 1:01 PM

>>> >>>

Rene'-

The Natural Resources Technical Memorandum is an ancillary stand alone document that supports the findings of the EA. The memo discusses both federal and state listed species, stream and wetland impacts, etc. that are associated with the proposed project. In the NEPA document, we focus on the federal listed species because VDOT is preparing it for FHWA and that is the scope of their regulatory authority.

As related to the Six-banded longhorn beetle, a rare Millipede, and the Nodding trillium, I will respond as I previously responded to Bob Munson and Robbie Rhur (email attached) of your office. To summarize: *Dryobius sexnotatus*, *Cherokia georgiana latassa*, and *Trillium flexipes* are not listed as state or federal threatened or endangered species and as such are not afforded protection under 4VAC15-20-130 or the Endangered Species Act of 1973 as amended. In consideration of same, VDOT cannot justify conducting the DCR recommended inventories for these non-listed species.

Thank you for your comments and should you have any additional questions, please do not hesitate to contact me.

Regards,  
George B. Young  
Assistant District Environmental Manager  
Phone: (276) 645-1656  
Fax: (276) 645-1667  
Cell: (423) 502-7928

-----Original Message-----

From: vdotprojects vdotprojects  
[mailto:vdotprojects.po-richmond.dom-richmond@dcr.virginia.gov]  
Sent: Wednesday, May 27, 2009 9:43 AM  
To: Young, George  
Subject: RE: Route 460 Connector Phase II

George,

We would like to reiterate our August 2008 comments for the project (see attached memo).

On page 29 of the Environmental Assessment (EA) a statement is made in regards to addressing "federally listed species" in the EA but "solely state threatened or state endangered are addressed in VDOT's Natural Resources Technical Memo." Does this memo also address rare species that are not listed such as the Six-banded longhorn beetle (*Dryobius sexnotatus*, GNR/S1S3/NL/NL), a rare Millipede (*Cherokia georgiana latassa*, G4TNR/S1/NL/NL) and the Nodding trillium (*Trillium flexipes*, G5/S1/NL/NL)? We recommended a survey for these species and wanted to know whether surveys for these species would be conducted.

DCR supports the removal of invasive species from the project area as mentioned on page 32. DCR recommends an invasive species plan be developed and implemented for the project to control reintroduction of invasives from soil disturbance.

Thank you for the opportunity to provide additional comments for the Route 460 Connector Phase II.

Rene'

Rene' Hypes  
Project Review Coordinator  
Dept. of Conservation & Recreation  
Division of Natural Heritage  
www.vdotprojects@dcr.virginia.gov

>>> "Young, George" <George.Young@VDOT.Virginia.gov> 05/26/09 7:17 AM

>>> >>>

Certainly you can provide additional comments at this time should you desire.

George B. Young  
Assistant District Environmental Manager  
Phone: (276) 645-1656  
Fax: (276) 645-1667  
Cell: (423) 502-7928

-----Original Message-----

From: vdotprojects vdotprojects  
[mailto:vdotprojects.po-richmond.dom-richmond@dcr.virginia.gov]  
Sent: Thursday, May 21, 2009 3:50 PM  
To: Young, George  
Subject: Route 460 Connector Phase II

George,

We have received the EA for the above referenced project. Thank you. I wanted to follow-up to determine if you requesting additional comments at this time ?

Rene'

Rene' Hypes  
Project Review Coordinator  
Dept. of Conservation & Recreation  
Division of Natural Heritage  
www.vdotprojects@dcr.virginia.gov

## Young, George

---

**From:** vdotprojects vdotprojects [vdotprojects.po-richmond.dom-richmond@dcr.virginia.gov]  
**Sent:** Wednesday, May 27, 2009 9:43 AM  
**To:** Young, George  
**Subject:** RE: Route 460 Connector Phase II

**Attachments:** 53889,08-095 Route 460 Connector, Phase II.doc



53889,08-095  
Route 460 Connect

George,

We would like to reiterate our August 2008 comments for the project (see attached memo). On page 29 of the Environmental Assessment (EA) a statement is made in regards to addressing "federally listed species" in the EA but "solely state threatened or state endangered are addressed in VDOT's Natural Resources Technical Memo." Does this memo also address rare species that are not listed such as the Six-banded longhorn beetle (*Dryobius sexnotatus*, GNR/S1S3/NL/NL), a rare Millipede (*Cherokia georgiana latassa*, G4TNR/S1/NL/NL) and the Nodding trillium (*Trillium flexipes*, G5/S1/NL/NL)? We recommended a survey for these species and wanted to know whether surveys for these species would be conducted.

DCR supports the removal of invasive species from the project area as mentioned on page 32. DCR recommends an invasive species plan be developed and implemented for the project to control reintroduction of invasives from soil disturbance.

Thank you for the opportunity to provide additional comments for the Route 460 Connector Phase II.

Rene'

Rene' Hypes  
Project Review Coordinator  
Dept. of Conservation & Recreation  
Division of Natural Heritage  
[www.vdotprojects@dcr.virginia.gov](mailto:www.vdotprojects@dcr.virginia.gov)

>>> "Young, George" <George.Young@VDOT.Virginia.gov> 05/26/09 7:17 AM  
>>> >>>

Certainly you can provide additional comments at this time should you desire.

George B. Young  
Assistant District Environmental Manager  
Phone: (276) 645-1656  
Fax: (276) 645-1667  
Cell: (423) 502-7928

-----Original Message-----

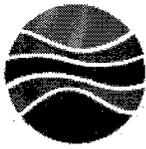
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[mailto:vdotprojects.po-richmond.dom-richmond@dcr.virginia.gov]  
Sent: Thursday, May 21, 2009 3:50 PM  
To: Young, George  
Subject: Route 460 Connector Phase II

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Rene'

Rene' Hypes  
Project Review Coordinator  
Dept. of Conservation & Recreation  
Division of Natural Heritage  
[www.vdotprojects@dcr.virginia.gov](mailto:www.vdotprojects@dcr.virginia.gov)



DCR  
Interoffice  
MEMORANDUM

---

To: Robbie Rhur, DCR-DPRR  
From: Rene' Hypes, DCR-DNH  
Date: August 14, 2008  
Subject: DCR 08-095-Route 460 Connector-Phase II

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Russell Fork – Camp Branch Creek Stream Conservation Unit (SCU) is downstream of the project site. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Russell Fork – Camp Branch Creek SCU has been given a biodiversity significance ranking of B3, which represents a site of high significance. The natural heritage resource of concern associated with this SCU is:

Rocky Bar and Shore Community

GNR/SNR

Rocky Bar and Shore Communities contain seasonally flooded to intermittently exposed woodland, shrub, and herbaceous vegetation of bouldery and cobbly depositional bars, or less frequently bedrock exposures, on the shores and islands of large, high-gradient streams. Communities in this group are scattered throughout the Virginia mountains and Piedmont, primarily along major rivers and their largest tributaries. Habitats are influenced by a frequent regime of powerful flood scouring, including occasional scouring by ice flows during the winter months. Substrates vary from bedrock outcrops to deeply piled cobbles and boulders, with soils consisting of fine to coarse alluvial materials deposited among the rocks (Fleming et al, 2006).

Also, the Six-banded longhorn beetle (*Dryobius sexnotatus*, GNR/S1S3/NL/NL) and the Brown supercoil (*Paravitrea septadens*, G1/S1/SOC/LT) have been documented in the project vicinity and a rare Millipede (*Cherokia georgiana latassa*, G4TNR/S1/NL/NL) and the Nodding trillium (*Trillium flexipes*, G5/S1/NL/NL) have been historically documented in the project vicinity.

In addition, the Russell Fork – Big Sandy River has been designated by the VDGIF as a “Threatened and Endangered Species Water” and is downstream of the project site. The species associated with this T & E Water is the Variegate darter (*Etheostoma variatum*, G5/S1/NL/LE).

Due to the potential for this site to support populations of the Six-banded longhorn beetle, a rare Millipede and the Nodding trillium, DCR recommends an inventory for these resources in the study area if appropriate habitat is present. With the survey results we can more accurately evaluate potential impacts to these natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

Due to the legal status of the Brown supercoil and the Variegate darter, DCR also recommends coordination with the Virginia Department of Game and Inland Fisheries (VDGIF) to ensure compliance with protected species legislation. Furthermore, to minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to

applicable state and local erosion and sediment control/storm water management laws and regulations.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

In addition, our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters, that may contain information not documented in this letter. Their database may be accessed from [www.dgif.virginia.gov/wildlifeinfo\\_map/index.html](http://www.dgif.virginia.gov/wildlifeinfo_map/index.html), or contact Shirl Dressler at (804) 367-6913.

Thank you for the opportunity to comment on this project.

CC: Amy Ewing, VDGIF



# COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.  
Secretary of Natural Resources

**Department of Historic Resources**  
2801 Kensington Avenue, Richmond, Virginia 23221-0311

Kathleen S. Kilpatrick  
Director

Tel: (804) 367-2323  
Fax: (804) 367-2391  
TDD: (804) 367-2386  
www.dhr.virginia.gov

20 May 2009

Mr. George B. Young  
Virginia Department of Transportation  
P.O. Box 1768  
Bristol, Virginia 24203

RE: Environmental Assessment, Route 460 Connector, Phase II—Buchanan County  
Buchanan County, Virginia  
VDOT Project No. 0460-013-781, P101; UPC-88140  
VDHR File No. 2005-0003

Dear Mr. Young:

We have received for our review and comment the Environmental Assessment (EA) for the above referenced project. We concur with the assessment that no historic properties listed in or eligible for the National Register of Historic Places will be affected for Phase II of the Route 460 Connector project.

If you have any questions about our comments, please contact me at (804) 367-2323, Ext. 114.

Sincerely,

Marc Holma, Architectural Historian  
Office of Review and Compliance

C: Ms Kalli Lucas, VDOT  
Mr. Mac McIlhany, VDOT

MAY 26 2009

Administrative Services  
10 Courthouse Avenue  
Petersburg, VA 23803  
Tel: (804) 862-6416  
Fax: (804) 862-6196

Capital Region Office  
2801 Kensington Ave.  
Richmond, VA 23221  
Tel: (804) 367-2323  
Fax: (804) 367-2391

Tidewater Region Office  
14415 Old Courthouse Way, 2<sup>nd</sup> Floor  
Newport News, VA 23608  
Tel: (757) 886-2807  
Fax: (757) 886-2808

Roanoke Region Office  
1030 Penmar Ave., SE  
Roanoke, VA 24013  
Tel: (540) 857-7585  
Fax: (540) 857-7588

Northern Region Office  
5357 Main Street  
PO Box 519  
Stephens City, VA 22655  
Tel: (540) 868-7029  
Fax: (540) 868-7033

**Young, George**

---

**From:** Stanley, Brian (VDH) [Brian.Stanley@vdh.virginia.gov]  
**Sent:** Friday, May 01, 2009 2:12 PM  
**To:** Young, George  
**Subject:** Environmental Assessment Route 460 Connector

Mr. Young, thank you with providing me a copy of the Environmental Assessment for the proposed Route 460 Connector Project # 0460-013-781,P101. I understand that the assessment is approved by the FHWA. Reviewing Section 3.7.1 Residences - It is noted that scattered dwellings were observed within the alignment corridor and should they be acquired, heating oil UST's and AST's may be present. I would also note that these homes may have underground septic tanks and private wells which may also have to be addressed. If a private well is encountered and shall be abandoned, a well abandonment permit is required from the Virginia Department of Health and can be obtained from the local health department.

Regards,  
Brian Stanley

Brian Stanley  
Environmental Health Manager - Cumberland Plateau Health District  
75 Rogers Street P.O. Box 2347 Lebanon, VA 24266  
Phone: (276) 889-7621 ext. 35  
Fax: (276) 889-7695  
Cell: (276) 701-7327  
Pager: 888-227-1079

# **Location Public Hearing**

## ***Attendance Sheets***

**US Route 460 Connector – Phase II  
Including the Coalfields Expressway (CFX) Interchange Area at Hawks Nest  
Buchanan County, VA**

### **Location Public Hearing**

**July 14, 2009 4:00 P.M. – 7:00 P.M.**

**Breaks Interstate Park Conference Center**

U.S. ROUTE 460 CONNECTOR – PHASE II  
 BUCHANAN COUNTY  
 ROUTE #460  
 JULY 14, 2009

NAME	ADDRESS
PLEASE PRINT	PLEASE PRINT
<i>EARL Jessie Taylor</i>	
PLEASE PRINT	PLEASE PRINT
<i>Edward Bailey</i>	
PLEASE PRINT	PLEASE PRINT
<i>Reba Treadaway</i>	
PLEASE PRINT	PLEASE PRINT
<i>Ginger Robertson</i>	<i>P.O. Box 862, Grundy, VA 24614</i>
PLEASE PRINT	PLEASE PRINT
<i>David Lindeman</i>	<i>Palmer Engineering P.O. Box 747, Winchester, KY 40391</i>
PLEASE PRINT	PLEASE PRINT
<i>Jetty Webb</i>	
PLEASE PRINT	PLEASE PRINT
<i>Hexie Webb</i>	
PLEASE PRINT	PLEASE PRINT
<i>Louise Stacy</i>	<i>Louise Stacy</i>
PLEASE PRINT	PLEASE PRINT
<i>Kenneth Hill</i>	<i>Kenneth Hill</i>
PLEASE PRINT	PLEASE PRINT
<i>Michelle Matney</i>	<i>7884 Conaway Rd. Breaks, VA 24607</i>
PLEASE PRINT	PLEASE PRINT
<i>Mark And Peggy Trines</i>	
PLEASE PRINT	PLEASE PRINT

\*\*\*\*\*PLEASE PRINT CLEARLY -- THANK YOU\*\*\*\*\*

U.S. ROUTE 460 CONNECTOR - PHASE II  
 BUCHANAN COUNTY  
 ROUTE #460  
 JULY 14, 2009

NAME	ADDRESS
Matthew Dingus	3044 Rose Ridge Clintwood, VA 24218
PLEASE PRINT	PLEASE PRINT
Jerry Blankenship	Box 165 Maxie VA. 24628
PLEASE PRINT	PLEASE PRINT
Matthew O'Quinn	Po Box 100 BREAKS, VA 24607
PLEASE PRINT	PLEASE PRINT
Sandra Hylton	Po Box 53 Breaks Va 24607
PLEASE PRINT	PLEASE PRINT
Johnny & Rita Rice	P.O. Box 13 Breaks Va 24607
PLEASE PRINT	PLEASE PRINT
PAUL CORBIN	P.O. Box 2303 Pikeville, Ky 41502
PLEASE PRINT	PLEASE PRINT
<del>BOBBY POWERS</del>	<del>77221 ERWIN VA</del>
PLEASE PRINT	PLEASE PRINT
Danny Willis / Shirley Willis	P.O. Box 114 Breaks V.A.
PLEASE PRINT	PLEASE PRINT
Matthew Wolverton	4145 Skatecreek Rd unit 5 surry VA
PLEASE PRINT	PLEASE PRINT
Leon Looney	P.O. Box 307 Maxie Va. 24628
PLEASE PRINT	PLEASE PRINT
Evelyn Looney	P.O. Box 307 Maxie Va.
PLEASE PRINT	PLEASE PRINT
Dianne Looney Hylton	PO Box 154 BREAKS VA 24607
PLEASE PRINT	PLEASE PRINT
Mackay Tom J	Buchanan County

\*\*\*\*\*PLEASE PRINT CLEARLY -- THANK YOU\*\*\*\*\*

U.S. ROUTE 460 CONNECTOR - PHASE II  
 BUCHANAN COUNTY  
 ROUTE #460  
 JULY 14, 2009

NAME	ADDRESS
BILL VERBETEN	P.O. Box 85 / 1897 CROW PASS
PLEASE PRINT	PLEASE PRINT
BENNY Z. RAINES	P.O. #2 BREAKS
PLEASE PRINT	PLEASE PRINT
Lawrence L. Moise	P.O. Box 882, Grundy, Va. 24614
PLEASE PRINT	PLEASE PRINT
William R. Stone	P.O. Box 73 Breaks Va 24607
PLEASE PRINT	PLEASE PRINT
Erdil Lowery	P.O. Box 8 Breaks, VA 24607
PLEASE PRINT	PLEASE PRINT
Roy L. Owens	P.O. Box 194 BREAKS VA, 24607
PLEASE PRINT	PLEASE PRINT
Donald Powell	P.O. Box 31 BREAKS VA, 24607
PLEASE PRINT	PLEASE PRINT
ROY E. OWENS	151 POSSOM DR
PLEASE PRINT	2177 Crow Pass Breaks VA
Estes Deel	
PLEASE PRINT	PLEASE PRINT
Craig Horn	4313 State Creek Rd, Grundy VA 24614
PLEASE PRINT	PLEASE PRINT
G. ROGER RIFE	2047 LITTLE PRATER RD. GRUNDY VA. 24614
PLEASE PRINT	PLEASE PRINT
Emma Jean Mullins	P.O. Box 65 BREAKS VA 24607-0065
PLEASE PRINT	PLEASE PRINT
Jimmy Mullins	P.O. Box 65 BREAKS VA 24607.

\*\*\*\*\*PLEASE PRINT CLEARLY -- THANK YOU\*\*\*\*\*

U.S. ROUTE 460 CONNECTOR – PHASE II  
 BUCHANAN COUNTY  
 ROUTE #460  
 JULY 14, 2009

NAME	ADDRESS
Delilah Turner PLEASE PRINT	P.O. Box 27 Breaks, Va PLEASE PRINT
VERNON BELCHER PLEASE PRINT	PO Box 1024 Grundy PLEASE PRINT
MARY Belcher PLEASE PRINT	PO Box 1162 Grundy PLEASE PRINT
ROBERT DENNY PLEASE PRINT	 PLEASE PRINT
Edgar Wilson PLEASE PRINT	5592 Poplar Creek PLEASE PRINT
Jon RIFE PLEASE PRINT	P.O. Box 724 Grundy, Va PLEASE PRINT
Ricky OWENS PLEASE PRINT	P.O. Box 507 Grundy, VA. PLEASE PRINT
RANDY LOONEY PLEASE PRINT	245 h-2A HAYS, VA 24256 PLEASE PRINT
Don Hamilton PLEASE PRINT	360 S MAIN ST #724 West Salem OH 44287 PLEASE PRINT
Otis Ray Deel PLEASE PRINT	P.O. Box 168, MAXIE, VA. 24628 PLEASE PRINT
Merldine Deel PLEASE PRINT	P.O. Box 168, MAXIE, VA. 24628 PLEASE PRINT
CLARENCE LOONEY PLEASE PRINT	PO Box 186 BREAKS, VA 24607 PLEASE PRINT
Nina McClanahan	4617 Slate Creek Rd. Grundy, VA 24614

\*\*\*\*\*PLEASE PRINT CLEARLY -- THANK YOU\*\*\*\*\*

U.S. ROUTE 460 CONNECTOR - PHASE II  
 BUCHANAN COUNTY  
 ROUTE #460  
 JULY 14, 2009

NAME	ADDRESS
Roger McClanahan PLEASE PRINT	4617 Slate Creek Rd. Grundy, VA 24614 PLEASE PRINT
JERRY VIERS PLEASE PRINT	20401 Reverside Grundy VA PLEASE PRINT
J.D. Matney PLEASE PRINT	1146 Hoot Owl Rd Grundy VA PLEASE PRINT
Helen Matney PLEASE PRINT	1146 Hoot Owl Rd Grundy VA PLEASE PRINT
Brian F. Belcher PLEASE PRINT	7413 Lovers Gap Rd Vansant VA 24654 PLEASE PRINT
Jackie Ball PLEASE PRINT	2119 Council Mt Rd Rone VA 24269 PLEASE PRINT
Kenny Ramey PLEASE PRINT	P.O. Box 1063 Grundy, Va 24614 PLEASE PRINT
Roman Lawson PLEASE PRINT	LEEBROOK, VA - PLEASE PRINT
Ellis Epling PLEASE PRINT	1114 Country Meadows Rd Breaks <sup>24607</sup> PLEASE PRINT
Lee Bentley PLEASE PRINT	P Box 1669 Grundy 24614 PLEASE PRINT
Barbara Hunt PLEASE PRINT	Box 42 Breaks, VA 24607 PLEASE PRINT
LAWRENCE P. LINDSAY PLEASE PRINT	2831 LEEMASTER DRIVE, VANSANT 24656 PLEASE PRINT
Gary + Amy Swiney PLEASE PRINT	PO Box 406 Maxie Va 24628 PLEASE PRINT

\*\*\*\*\*PLEASE PRINT CLEARLY -- THANK YOU\*\*\*\*\*

U.S. ROUTE 460 CONNECTOR - PHASE II  
 BUCHANAN COUNTY  
 ROUTE #460  
 JULY 14, 2009

NAME	ADDRESS
PLEASE PRINT	PLEASE PRINT
PLEASE PRINT	J. CARROLL BRANKIN, Grady, Va
PLEASE PRINT	PLEASE PRINT
PLEASE PRINT	DENNIS COLEMAN ROSE
PLEASE PRINT	PLEASE PRINT
PLEASE PRINT	BILL FULLER Big Rock, VA 24603
PLEASE PRINT	PLEASE PRINT
Steve Quinn	2755 Greenbrier Rd. Haysi, Va. 24254
PLEASE PRINT	PLEASE PRINT
IS d q o LOCKMAN	
PLEASE PRINT	PLEASE PRINT
Chris & Judy Lockhart	P.O. Box 252 Breaks, VA.
PLEASE PRINT	PLEASE PRINT
GARNET FULLER	2996 Conway Va.
PLEASE PRINT	PLEASE PRINT
Chris Lockhart	
PLEASE PRINT	PLEASE PRINT
WILLIAM N. STOKES, JR	P.O. Box 444 Grady VA 24614
PLEASE PRINT	PLEASE PRINT
JAY R. G.	Box 798 Grady 24614
PLEASE PRINT	PLEASE PRINT
Tracie & Tim Wallace	PO Box 226 Breaks VA 24607
PLEASE PRINT	PLEASE PRINT
Jerry & Dixie Deel	PO Box 213 Maxie VA 24628

\*\*\*\*\*PLEASE PRINT CLEARLY -- THANK YOU\*\*\*\*\*

U.S. ROUTE 460 CONNECTOR - PHASE II  
 BUCHANAN COUNTY  
 ROUTE #460  
 JULY 14, 2009

NAME	ADDRESS
Carl F. Landreth PLEASE PRINT	P.O. Box 1103 Grundy 24614 PLEASE PRINT
KATIE WYSOR PLEASE PRINT	P.O. Box 116 Breaks, VA 24607 PLEASE PRINT
Charles WYSOR PLEASE PRINT	PO Box 116 Breaks, VA 24607 PLEASE PRINT
Patricia Hayes PLEASE PRINT	P.O. Box 111 Breaks, Va. 24607 PLEASE PRINT
Phillip J Stewart PLEASE PRINT	PO Box 111 Breaks VA 24607 PLEASE PRINT
Ben Frank BROWN PLEASE PRINT	124 Lancaster ave Richmond Ky <sup>40475</sup> PLEASE PRINT
Bill Rodda PLEASE PRINT	PO Box 1272 Grundy VA 24614 PLEASE PRINT
Jeff Coleman PLEASE PRINT	2800 Conway Rd Big Rock, VA 24603 PLEASE PRINT
Patrice Carter, PLEASE PRINT	4712 Bull Creek Rd. Maxie, VA 24628 PLEASE PRINT
Michael S Rose PLEASE PRINT	PLEASE PRINT
DANNY WHIT PLEASE PRINT	PLEASE PRINT
James Green PLEASE PRINT	1137 Sandy Valley Lane Vansant, VA 24654 PLEASE PRINT
DeStiggen Lockhart	

\*\*\*\*\*PLEASE PRINT CLEARLY -- THANK YOU\*\*\*\*\*

U.S. ROUTE 460 CONNECTOR – PHASE II  
 BUCHANAN COUNTY  
 ROUTE #460  
 JULY 14, 2009

NAME	ADDRESS
PLEASE PRINT	PLEASE PRINT
Wm Bendice	P.O. Box 421; Maxie, Va 24628
PLEASE PRINT	PLEASE PRINT
Jerry Clevinger	1170 Winding Gap Grundy, Va 24614
PLEASE PRINT	PLEASE PRINT
Billy Clevinger <small>Marshall's</small>	1338 Winding Gap Grundy 24614
PLEASE PRINT	PLEASE PRINT
William & Natasha Clevinger	P.O. Box 391 Maxie, VA. 24628
PLEASE PRINT	PLEASE PRINT
Dennis Seldon Clevinger	P.O. Box 93 Breaks, VA. 24607
PLEASE PRINT	PLEASE PRINT
DOTSON, MARY	499 VENTURA RD. CLINTWOOD, VA 24228
PLEASE PRINT	PLEASE PRINT
Douglas Deel	P.O. Box 47 Breaks, Va. 24607
PLEASE PRINT	PLEASE PRINT
Mike + Deborah Yates	P.O. Box 1686 Grundy Va 24614
PLEASE PRINT	PLEASE PRINT
June Yates	Box 197 Maxie, Va. 24628
PLEASE PRINT	PLEASE PRINT
Rox Ann Owens	1075 Finis Rd. Grundy, VA. 24614
PLEASE PRINT	PLEASE PRINT
WILLIAM W. OWENS	1075 FINIS RD GRUNDY, VA 24614
PLEASE PRINT	PLEASE PRINT
Lyle Muffey	P.O. Box 1240 Grundy, Va. 24614

\*\*\*\*\*PLEASE PRINT CLEARLY -- THANK YOU\*\*\*\*\*

U.S. ROUTE 460 CONNECTOR - PHASE II  
 BUCHANAN COUNTY  
 ROUTE #460  
 JULY 14, 2009

NAME	ADDRESS
Brown Boyd	P o Box 554 Big Rock Va 24608
PLEASE PRINT	PLEASE PRINT
Veronica Skeens & Shad Skeens	P.O. Box 201 Breaks, VA 24607
PLEASE PRINT	PLEASE PRINT
Jadice Mullins	PO Box 217 BREAKS, Va 24607
PLEASE PRINT	PLEASE PRINT
Helen Mullins	P.O. Box 216 BREAKS, VA. 24607
PLEASE PRINT	PLEASE PRINT
Mickey Branham	P.O.B # 33 Haysi, VA 24256
PLEASE PRINT	PLEASE PRINT
Sabrina Harr	P.O.B 115 Breaks Va 24607
PLEASE PRINT	PLEASE PRINT
Vaughn Harr	POB 115 Breaks Va 24607
PLEASE PRINT	PLEASE PRINT
Barbara Owens	PO Box 87 Haysi VA 24256
PLEASE PRINT	PLEASE PRINT
Larry Owens	PO Box 87 Haysi VA, 24256
PLEASE PRINT	PLEASE PRINT
Eric Fleming	
PLEASE PRINT	PLEASE PRINT
Billie Fleming	
PLEASE PRINT	PLEASE PRINT
Nancy Blevins	PO Box 271 Breaks Va 24607
PLEASE PRINT	PLEASE PRINT

\*\*\*\*\*PLEASE PRINT CLEARLY -- THANK YOU\*\*\*\*\*

U.S. ROUTE 460 CONNECTOR - PHASE II  
 BUCHANAN COUNTY  
 ROUTE #460  
 JULY 14, 2009

NAME	ADDRESS
Vickie M DAVIS PLEASE PRINT	Po Box 81 Breaks Va 24607 PLEASE PRINT
Mary Beth Mullins PLEASE PRINT	Po Box 351 ELKHORN City, KY 41522 PLEASE PRINT
Kimberly Elswick PLEASE PRINT	615 Half Mile Drive, Clintwood VA 24228 PLEASE PRINT
Brady Elswick PLEASE PRINT	615 Half Mile Drive, Clintwood VA 24228 PLEASE PRINT
Teresa Ratliff PLEASE PRINT	P.O. Box MAXIE VA 24628 PLEASE PRINT
David OWENS PLEASE PRINT	1117 Wood's Fork Rd. 24614 Grundy, VA PLEASE PRINT
Sylvia Jones PLEASE PRINT	Po Box 204 Vansant, VA 24656 PLEASE PRINT
Todd Elswick PLEASE PRINT	P.O. Box 145 B.3 Rock VA 24603 PLEASE PRINT
DAVID EPLING PLEASE PRINT	P.O. Box 1067; Grundy, VA 24611 PLEASE PRINT
Michael Stiltner PLEASE PRINT	1494 Stable Dr Grundy Va 24614 PLEASE PRINT
Brian Stiltner PLEASE PRINT	1494 Stable Dr. Grundy VA PLEASE PRINT
JAMES MOONEY PLEASE PRINT	PLEASE PRINT
DAVID G. COOK	1112 DOUBLING FIELDS ROAD Box 463 MAXIE

\*\*\*\*\*PLEASE PRINT CLEARLY -- THANK YOU\*\*\*\*\*



# **Location Public Hearing**

## ***Comment Sheets***

**US Route 460 Connector – Phase II  
Including the Coalfields Expressway (CFX) Interchange Area at Hawks Nest  
Buchanan County, VA**

### **Location Public Hearing**

**July 14, 2009 4:00 P.M. – 7:00 P.M.**

**Breaks Interstate Park Conference Center**

How come UDot  
is going around  
& missing the  
golf course &  
~~not~~ showing favorites  
is not right?!.

Comments  
received  
from  
PH.



Tuesday July 14, 2009

4:00 PM to 7:00 PM

Breaks Interstate Park

Rhododendron Conference Center

460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET

NAME: BRENDA MARSHALL Clevinger  
ADDRESS: 1358 Winding Gap  
GRUNDY, VA ZIP CODE: 24614

1. What effect will the proposed roadway improvements have on your daily travel?

*This proposal will effect our current dwelling and also property that is separate from it. Our son lives on property of ours that has been in our family for more than 100 yrs. which has a family cemetery located on it. The alignment could be changed onto*

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project?

*Coal company property and not effect our property. We were previously told by Julie that it would be changed. We feel that it needs to be changed and not effect us especially because of the coal company owning the surrounding property. The alignment would not have to be moved more than 600-800 feet.*

3. Did you feel this meeting helped you understand the project better?

What other information would you like to see, if any?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. How familiar were you with this project prior to this meeting?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. How did you hear about this meeting ?

Newspaper \_\_\_\_\_ Direct Mail \_\_\_\_\_ VDOT Roadway Signs \_\_\_\_\_ Other \_\_\_\_\_

6. Were VDOT Representatives able to answer your questions ?

If not, were you offered further assistance ? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

Project: 0460-013-781, P101  
Federal Project: APD-4601(008)



Tuesday July 14, 2009

4:00 PM to 7:00 PM

Breaks Interstate Park

Rhododendron Conference Center

460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET

They are concerned over 2 separate properties. One at Deal Fork at residents that Joe Bull had at 500s residents + Family Cemetery which shows only one tract the other is in Cynthia Deal which is more info

NAME: Billy Younger  
ADDRESS: 1358  
Glendy Va. ZIP CODE: 24614

1. What effect will the proposed roadway improvements have on your daily travel?  
It will prevent me from access to Cemetery (family) and other property that has been in family since 1800s.

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project?  
The roadway could be shifted approx 400 to 600 ft. and bother nobody except stay on Cool Co. land and leave our property and family cemetery along.

3. Did you feel this meeting helped you understand the project better?  
What other information would you like to see, if any?  
No help the landowners as individuals. ps well as CO. Treat them the same.

4. How familiar were you with this project prior to this meeting?  
(Good)  
Had already met w/ VDOT rep worried not to worry if could be changed. Just easier in the project into problem.

5. How did you hear about this meeting?  
Newspaper \_\_\_\_\_ Direct Mail  VDOT Roadway Signs \_\_\_\_\_ Other Call from ~~Amaz~~ already aware.

6. Were VDOT Representatives able to answer your questions? \_\_\_\_\_  
If not, were you offered further assistance? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

Project: 0460-013-781, P101  
Federal Project: APD-4601(008)

2 different locations of property being affected.



Tuesday July 14, 2009

4:00 PM to 7:00 PM

Breaks Interstate Park

Rhododendron Conference Center

460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET

NAME: Steve Quinn  
ADDRESS: 2755 Greenbrier Road  
HAYS, Va. 24256 ZIP CODE: 24256

1. What effect will the proposed roadway improvements have on your daily travel?  
NONE -

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project?  
I feel this project is very important and I hope it is completed as soon as possible

3. Did you feel this meeting helped you understand the project better?  
What other information would you like to see, if any? yes

4. How familiar were you with this project prior to this meeting?  
Fair

5. How did you hear about this meeting?  
Newspaper  Direct Mail  VDOT Roadway Signs  Other

6. Were VDOT Representatives able to answer your questions? yes  
If not, were you offered further assistance?

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

Project: 0460-013-781, P101  
Federal Project: APD-4601(008)



**460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET**

**Tuesday July 14, 2009  
4:00 PM to 7:00 PM  
Breaks Interstate Park  
Rhododendron Conference Center**

NAME: Randy Looney  
ADDRESS: 245 Liza FTS,  
Haysi, VA. ZIP CODE: 24256

1. What effect will the proposed roadway improvements have on your daily travel?  
Improved Greatly

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Did you feel this meeting helped you understand the project better?  
What other information would you like to see, if any?  
yes

4. How familiar were you with this project prior to this meeting?  
Not Very

5. How did you hear about this meeting ?  
Newspaper \_\_\_\_\_ Direct Mail  VDOT Roadway Signs \_\_\_\_\_ Other \_\_\_\_\_

6. Were VDOT Representatives able to answer your questions ?   
If not, were you offered further assistance ? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

**Project: 0460-013-781, P101  
Federal Project: APD-4601(008)**



Tuesday July 14, 2009

4:00 PM to 7:00 PM

Breaks Interstate Park

Rhododendron Conference Center

460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET

NAME: Lawrence L. Moise III  
ADDRESS: P.O. Box 882  
Grundy, Va. ZIP CODE: 24614

- 1. What effect will the proposed roadway improvements have on your daily travel?  
This project will not effect my daily travel per se. However it will have a tremendous impact to present and future ~~devel~~ economic development of Buchanan County, particularly the Southern Gap Development site.
- 2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project? N/A

- 3. Did you feel this meeting helped you understand the project better?  
What other information would you like to see, if any?  
Yes, the maps were particularly helpful in understanding the 460 Connector Phase II project and how it will interconnect with the Ky 460 Connector and provide access between the Southern Gap Development site and U.S. 23 in Ky - This will be a significant step in opening up Buchanan County to economic development and provide the citizens of Buchanan
- 4. How familiar were you with this project prior to this meeting?  
I was fairly familiar w/this project - but the information provided at this meeting was very helpful.

- 5. How did you hear about this meeting?  
Newspaper \_\_\_\_\_ Direct Mail \_\_\_\_\_ VDOT Roadway Signs \_\_\_\_\_ Other E-mail from Buchanan County/Grundy Chamber of Commerce
- 6. Were VDOT Representatives able to answer your questions? Yes  
If not, were you offered further assistance? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

Project: 0460-013-781, P101  
Federal Project: APD-4601(008)



**460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET**

**Tuesday July 14, 2009  
4:00 PM to 7:00 PM  
Breaks Interstate Park  
Rhododendron Conference Center**

NAME: Dianne Looney Hylton 276-531-8745  
 ADDRESS: PO Box 154  
BREAKS VA ZIP CODE: 24607

1. What effect will the proposed roadway improvements have on your daily travel?

\_\_\_\_\_  
 \_\_\_\_\_

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project?

you need to correct my name  
on the map Dianne Looney Green Shadows Road 276-531-8745  
ITS in the wrong place.

3. Did you feel this meeting helped you understand the project better?

What other information would you like to see, if any?

YES

4. How familiar were you with this project prior to this meeting?

\_\_\_\_\_  
 \_\_\_\_\_

5. How did you hear about this meeting ?

Newspaper \_\_\_\_\_ Direct Mail  VDOT Roadway Signs \_\_\_\_\_ Other \_\_\_\_\_

6. Were VDOT Representatives able to answer your questions ? YES

If not, were you offered further assistance ? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments  
 WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

**Project: 0460-013-781, P101  
 Federal Project: APD-4601(008)**



Tuesday July 14, 2009

4:00 PM to 7:00 PM

Breaks Interstate Park  
Rhododendron Conference Center

**460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET**

NAME: Sandra Hyton  
ADDRESS: 1259 Green Shadows Rd.  
B53 Breaks Va ZIP CODE: 24607

1. What effect will the proposed roadway improvements have on your daily travel?  
good

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project?  
Buy me out please!!

3. Did you feel this meeting helped you understand the project better?  
What other information would you like to see, if any?  
yes

4. How familiar were you with this project prior to this meeting?

5. How did you hear about this meeting?  
Newspaper \_\_\_\_\_ Direct Mail  VDOT Roadway Signs \_\_\_\_\_ Other \_\_\_\_\_

6. Were VDOT Representatives able to answer your questions? yes  
If not, were you offered further assistance? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

Project: 0460-013-781, P101  
Federal Project: APD-4601(008)



Tuesday July 14, 2009

4:00 PM to 7:00 PM

Breaks Interstate Park

Rhododendron Conference Center

460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

ZIP CODE: \_\_\_\_\_

1. What effect will the proposed roadway improvements have on your daily travel?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project?

Build  
\_\_\_\_\_  
\_\_\_\_\_

3. Did you feel this meeting helped you understand the project better?  
What other information would you like to see, if any?

the  
\_\_\_\_\_  
\_\_\_\_\_

4. How familiar were you with this project prior to this meeting?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. How did you hear about this meeting ?

Newspaper \_\_\_\_\_ Direct Mail \_\_\_\_\_ VDOT Roadway Signs \_\_\_\_\_ Other \_\_\_\_\_

6. Were VDOT Representatives able to answer your questions ?

If not, were you offered further assistance ? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

Project: 0460-013-781, P101  
Federal Project: APD-4601(008)



Tuesday July 14, 2009

4:00 PM to 7:00 PM

Breaks Interstate Park

Rhododendron Conference Center

**460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET**

NAME: William N. Stokes, Jr  
ADDRESS: P.O. Box 444  
GRUNDY VA ZIP CODE: 24614

1. What effect will the proposed roadway improvements have on your daily travel?  
WOULD MOST LIKELY REDUCE MY DAILY COMMUTE  
FOR WORK

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Did you feel this meeting helped you understand the project better?  
What other information would you like to see, if any?  
YES, I NOW UNDERSTAND THE NEW ROUTING

4. How familiar were you with this project prior to this meeting?  
HAVE ATTENDED PREVIOUS PUBLIC HEARINGS  
HOLD IN BUCHANAN COUNTY

5. How did you hear about this meeting ?  
Newspaper  Direct Mail \_\_\_\_\_ VDOT Roadway Signs \_\_\_\_\_ Other EMAIL

6. Were VDOT Representatives able to answer your questions ? YES  
If not, were you offered further assistance ? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

**Project: 0460-013-781, P101**  
**Federal Project: APD-4601(008)**



**460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET**

**Tuesday July 14, 2009  
4:00 PM to 7:00 PM  
Breaks Interstate Park  
Rhododendron Conference Center**

NAME: Trish Hayes  
ADDRESS: P.O. Box 111  
Breaks Va ZIP CODE: 24607

1. What effect will the proposed roadway improvements have on your daily travel?  
\_\_\_\_\_  
\_\_\_\_\_

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project? Can you not design a road without displacing so many homes.  
\_\_\_\_\_  
\_\_\_\_\_

3. Did you feel this meeting helped you understand the project better?  
What other information would you like to see, if any?  
no  
\_\_\_\_\_  
\_\_\_\_\_

4. How familiar were you with this project prior to this meeting?  
Nothing  
\_\_\_\_\_  
\_\_\_\_\_

5. How did you hear about this meeting ?  
Newspaper  Direct Mail  VDOT Roadway Signs  Other

6. Were VDOT Representatives able to answer your questions ? \_\_\_\_\_  
If not, were you offered further assistance ? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

**Project: 0460-013-781, P101  
Federal Project: APD-4601(008)**



Tuesday July 14, 2009

4:00 PM to 7:00 PM

Breaks Interstate Park

Rhododendron Conference Center

**460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET**

NAME: SANDRA KAY Looney Hillon  
ADDRESS: PO Box 53 1259 Green Shadows Rd.  
Breaks VA ZIP CODE: 24607

1. What effect will the proposed roadway improvements have on your daily travel?

\_\_\_\_\_  
\_\_\_\_\_

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project? I know progress has to come, but my family has lived in Happy Hollow Rd. for many generations back, I have lived there all my life. It's quiet, peaceful, we have wildlife there I'm so sad because this will be all gone.

3. Did you feel this meeting helped you understand the project better?

What other information would you like to see, if any?

yes  
\_\_\_\_\_  
\_\_\_\_\_

4. How familiar were you with this project prior to this meeting?

was somewhat familiar  
\_\_\_\_\_  
\_\_\_\_\_

5. How did you hear about this meeting?

Newspaper \_\_\_\_\_ Direct Mail  VDOT Roadway Signs \_\_\_\_\_ Other \_\_\_\_\_

6. Were VDOT Representatives able to answer your questions? yes

If not, were you offered further assistance? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

Project: 0460-013-781, P101  
Federal Project: APD-4601(008)



460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET

Tuesday July 14, 2009  
4:00 PM to 7:00 PM  
Breaks Interstate Park  
Rhododendron Conference Center

NAME: Jon RIFE  
ADDRESS: PO Box 724  
Grundy, VA ZIP CODE: 24614

1. What effect will the proposed roadway improvements have on your daily travel?

probably none

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project?

3. Did you feel this meeting helped you understand the project better?  
What other information would you like to see, if any?

yes  
please Build IT

4. How familiar were you with this project prior to this meeting?

Some what

5. How did you hear about this meeting?

Newspaper  Direct Mail  VDOT Roadway Signs  Other Chamber

6. Were VDOT Representatives able to answer your questions? yes  
If not, were you offered further assistance?

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

Project: 0460-013-781, P101  
Federal Project: APD-4601(008)



460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET

Tuesday July 14, 2009  
4:00 PM to 7:00 PM  
Breaks Interstate Park  
Rhododendron Conference Center

NAME: Joe & Lanette Street  
ADDRESS: 1226 Clear Creek Rd  
Warsant, VA ZIP CODE: 24656

1. What effect will the proposed roadway improvements have on your daily travel?  
\_\_\_\_\_  
\_\_\_\_\_

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project? \_\_\_\_\_

Build CFX ASAP!!

3. Did you feel this meeting helped you understand the project better?  
What other information would you like to see, if any?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. How familiar were you with this project prior to this meeting?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. How did you hear about this meeting?  
Newspaper \_\_\_\_\_ Direct Mail \_\_\_\_\_ VDOT Roadway Signs \_\_\_\_\_ Other \_\_\_\_\_

6. Were VDOT Representatives able to answer your questions? \_\_\_\_\_  
If not, were you offered further assistance? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

Project: 0460-013-781, P101  
Federal Project: APD-4601(008)



**460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET**

Tuesday July 14, 2009  
4:00 PM to 7:00 PM  
Breaks Interstate Park  
Rhododendron Conference Center

NAME: Jodi Street Reynolds  
ADDRESS: PO Box 1114, 1305 Lover's Gap Rd  
Van Sant, VA ZIP CODE: 24165

1. What effect will the proposed roadway improvements have on your daily travel?

no effect on my travel, but will assist my customer's travel, thereby improving local business

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project?

CFX should be built ASAP - the benefits to the local economies are drastically needed

3. Did you feel this meeting helped you understand the project better?  
What other information would you like to see, if any?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. How familiar were you with this project prior to this meeting?

Fairly Familiar

5. How did you hear about this meeting?

Newspaper  Direct Mail \_\_\_\_\_ VDOT Roadway Signs \_\_\_\_\_ Other Chamber of Commerce

6. Were VDOT Representatives able to answer your questions?

If not, were you offered further assistance? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

Project: 0460-013-781, P101  
Federal Project: APD-4601(008)



460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET

Tuesday July 14, 2009  
4:00 PM to 7:00 PM  
Breaks Interstate Park  
Rhododendron Conference Center

NAME: Jordan Reynolds  
ADDRESS: 21304 Riverside Dr  
Grundy VA ZIP CODE: 24614

1. What effect will the proposed roadway improvements have on your daily travel?

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project?

I support CFX - should be built ASAP!

3. Did you feel this meeting helped you understand the project better?  
What other information would you like to see, if any?

4. How familiar were you with this project prior to this meeting?

5. How did you hear about this meeting?

Newspaper \_\_\_\_\_ Direct Mail \_\_\_\_\_ VDOT Roadway Signs \_\_\_\_\_ Other \_\_\_\_\_

6. Were VDOT Representatives able to answer your questions?

If not, were you offered further assistance? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

Project: 0460-013-781, P101  
Federal Project: APD-4601(008)

7-20-9  
I am a widow, my health is bad.  
And a long ways to travel to the  
meetings.

If you need more engeration  
you can contact me

Dixie Elswick  
362 Viking Place  
Greeneville Tenn. 37745  
Or Call 423-638-5677



## Young, George

---

**From:** Cox, Mandy  
**Sent:** Friday, July 24, 2009 3:56 PM  
**To:** Stevens, Faye; Blevins, Willis  
**Cc:** Brittle, Ken; Powell, Jeffrey, P.E., PMP; Young, George; Copenhaver, Betty  
**Subject:** RE: Dixie J. Elswick

Faye,

I just got off the phone with Dixie Elswick. She owns property on the 460 Connector Phase II alignment. Had a good conversation with her. I am going to mail her a copy of the Brochure that was handed out at the public hearing as well as a portion of the display map utilized at the hearing that depicts the roadway and her property lines. She has no objections with the roadway. She stated that she no longer lives in the area and knows the roadway is needed.

Thanks,  
Mandy

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**From:** Stevens, Faye  
**Sent:** Friday, July 24, 2009 3:47 PM  
**To:** Blevins, Willis  
**Cc:** Cox, Mandy  
**Subject:** RE: Dixie J. Elswick

Mandy has tried calling her today, she was not in.  
I will forward your e-mail to Mandy and you two can decide.

Have a great weekend!  
Faye

*Faye Stevens*

*VDOT - Administration Division*

Office 276-669-9905 | Bb 276-591-9382 | Fax 276-645-1682

faye.stevens@VDOT.Virginia.gov

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**From:** Blevins, Willis  
**Sent:** Friday, July 24, 2009 3:45 PM  
**To:** Stevens, Faye  
**Subject:** RE: Dixie J. Elswick

Faye:

I know the lady, she was living in a rental house on the original CFX alignment.  
Ronnie Shockley and I contacted her.

Do you want me to call her.

Willis

---

**From:** Stevens, Faye  
**Sent:** Friday, July 24, 2009 3:27 PM  
**To:** Blevins, Willis  
**Subject:** FW: Dixie J. Elswick

Her property is located on the Coalfield Connector.

Thanks,

Faye

*Faye Stevens*

*VDOT - Administration Division*

Office 276-669-9905 | Bb 276-591-9382 | Fax 276-645-1682

faye.stevens@VDOT.Virginia.gov

---

**From:** Powell, Jeffrey, P.E., PMP  
**Sent:** Friday, July 24, 2009 3:15 PM  
**To:** Stevens, Faye  
**Subject:** RE: Dixie J. Elswick

We have located her property. Mandy tried to contact her earlier and continues to try.

Thanks.

**Jeffrey B. Powell, P.E., PMP**

*Coalfields Expressway Project Manager*

*Virginia Department of Transportation*

*Bristol District*

*Office: (276) 642-2482*

*Cell: (276) 591-6339*

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**From:** Stevens, Faye  
**Sent:** Friday, July 24, 2009 3:06 PM  
**To:** Powell, Jeffrey, P.E., PMP  
**Subject:** Dixie J. Elswick

Jeff:

Ken suggests that you call Ms. Elswick and find out where she owns property.

I am sending you the original note from her.

Thanks,  
Faye

*Faye Stevens*

*VDOT - Administration Division*

Office 276-669-9905 | Bb 276-591-9382 | Fax 276-645-1682

faye.stevens@VDOT.Virginia.gov

**Location Public Hearing**  
***Oral Comments to Court Reporter***

**US Route 460 Connector – Phase II**  
**Including the Coalfields Expressway (CFX) Interchange Area at Hawks Nest**  
**Buchanan County, VA**

**Location Public Hearing**

**July 14, 2009 4:00 P.M. – 7:00 P.M.**

**Breaks Interstate Park Conference Center**

***No oral comments were given at the  
Location Public Hearing***

# **Location Public Hearing**

## ***Handout***

**US Route 460 Connector – Phase II  
Including the Coalfields Expressway (CFX) Interchange Area at Hawks Nest  
Buchanan County, VA**

### **Location Public Hearing**

**July 14, 2009 4:00 P.M. – 7:00 P.M.**

**Breaks Interstate Park Conference Center**

## U.S. Route 460 Connector - Phase II Including the Coalfields Expressway (CFX) Interchange Area at Hawks Nest Buchanan County, VA

www.VirginiaDOT.org  
bristolinfo@VDOT.Virginia.gov

Tuesday, July 14, 2009 4:00 P.M. - 7:00 P.M.  
Breaks Interstate Park Conference Center

Welcome to the Virginia Department of Transportation's (VDOT) location public hearing for consideration of the location for the U.S. Route 460 Connector - Phase II, including the Coalfields Expressway (CFX) interchange area at Hawks Nest in Buchanan County. The hearing will present the location information for the proposed connection from the U.S. Route 460 Connector - Phase I near the Virginia/Kentucky state line to the CFX Hawks Nest section.

This meeting is being held to provide an opportunity for any person, acting on his or her own behalf or representing a group or governmental agency, to give VDOT comments and/or suggestions on the proposed project. A comment sheet is included and your input is encouraged. All comments received, both oral and written, will be compiled in the form of a public hearing transcript. This document will be made available for public review at VDOT's Bristol District Office in the City of Bristol at 870 Bonham Road.

### Project Information (History)

VDOT, in cooperation with the Federal Highway Administration (FHWA) and the Appalachian Regional Commission, is proposing to construct Phase II of the U.S. Route 460 Connector in Buchanan County. The proposed highway would be a four-lane, median-divided, rural principal arterial highway on new alignment. It would further the region's goal of improving transportation by providing a link between the U.S. Route 460 improvements in Kentucky and Virginia's CFX. This project is the continued development of the U.S. Route 460/CFX interstate projects.

In Virginia, improvements to U.S. Route 460 have been proposed and studied since the late 1960s. In 2001, a 3.1-mile alignment was approved by the Commonwealth Transportation Board (CTB) and FHWA connecting Route 631 to the CFX. Since then, the alignment of the CFX shifted to the southeast to its current location and the U.S. Route 460 Connector project was divided into two phases. Phase I connects the Kentucky improvements to U.S. Route 460 with Route 80 near Breaks Interstate Park. The subject of this study completes the connection between Phase I and the realigned CFX Hawks Nest section.

The length of the Route 460 Connector - Phase II is approximately 6.2 miles and the length of the CFX interchange area at Hawks Nest is approximately 0.5 mile for a total project length of approximately 6.7 miles.

In 2007, VDOT received an unsolicited proposal from Pioneer Group, Inc. (Pioneer) to advance Phase II using an innovative delivery approach with the benefit of coal-synergy. Coal-synergy applies large scale earth moving techniques common to the coal industry as well as recovery of marketable coal

### Project Location



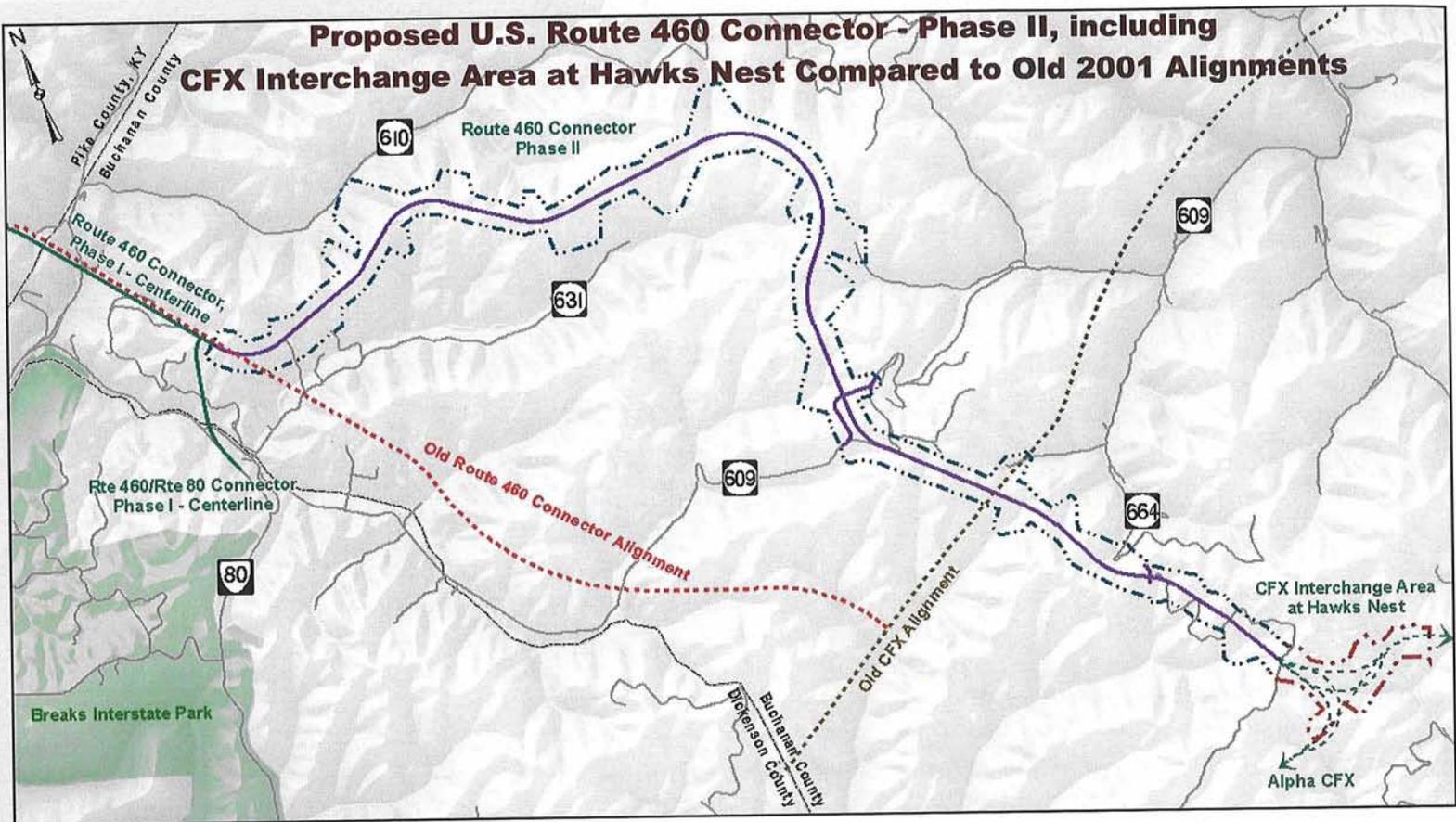
### VDOT Information

Representatives from VDOT are present to discuss the project and answer your questions. It is the responsibility of VDOT to ensure that all members of the community are afforded the opportunity to participate in public decisions on transportation systems and projects affecting them.

VDOT ensures nondiscrimination and equal employment in all programs and activities in accordance with Title VI and Title VII of the Civil Rights Act of 1964. If you need more information or special assistance for persons with disabilities or limited English proficiency, contact VDOT's Bristol District Office of Civil Rights, telephone 276-669-9907 ext 207 or TTY/TDD-711.

# Project Information (Location)

## Proposed U.S. Route 460 Connector - Phase II, including CFX Interchange Area at Hawks Nest Compared to Old 2001 Alignments



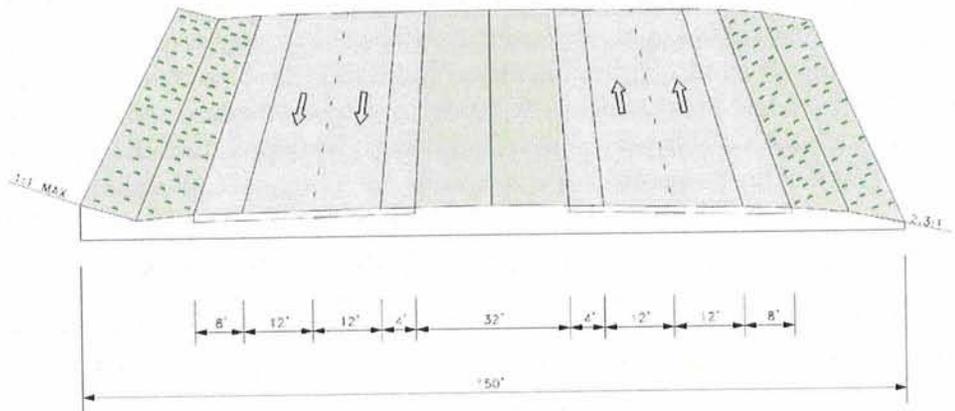
(Continued from page 1)

reserves to offset total project development costs. Using this innovative delivery method, Pioneer would leave behind a 150-foot wide, rough-graded roadbed upon which VDOT would construct Phase II after the coal is extracted.

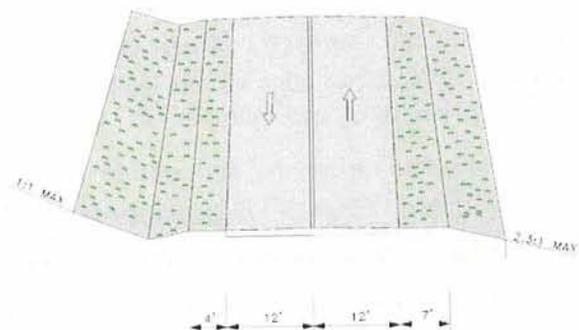
In 2008, VDOT entered into an agreement with Alpha Natural Resources, LLC (Alpha) to develop the CFX Hawks Nest section utilizing coal-synergy. The agreement allows VDOT to take advantage of Alpha's current permitted coal mining activities within the project area to leave behind a rough-graded roadbed for VDOT to construct a section of the CFX mainline in the interchange area. Should VDOT take advantage of Pioneer's Route 460 Connector - Phase II proposal, VDOT would save approximately 50% in roadway construction costs. When combined with the current savings on the CFX Hawks Nest section, VDOT would save approximately 54% in roadway construction costs.

The following illustrations depict the typical cross sections.

Mainline for U.S. Route 460 Connector - Phase II and the CFX



Connector Road: Route 609



### Environmental Review

Because Pioneer's and Alpha's alignments are different than the alignments approved by the Commonwealth Transportation Board (CTB) and FHWA in 2001, VDOT conducted an Environmental Assessment (EA) to determine the potential impacts of the project on the human and natural environment. Studies of and permits for the CFX interchange area at Hawks Nest have been issued as part of Alpha's mining operations. Therefore, the impacts reported in the EA are primarily associated with the U.S. Route 460 Connector - Phase II.

VDOT completed and FHWA approved the EA for this project on March 26, 2009. The EA is available for your review. It documents the potential environmental impacts associated with the location and design of the project and provides commitments for additional studies and mitigation. This project will not impact FEMA-regulated floodplains, Section 4(f) resources, or Section 106 resources. Potential impacts include:

- The relocation of five households
- The filling of 3.83 acres of wetlands and 7,849 linear feet of streams
- The clearing of 356 acres of forested lands
- VDOT is conducting surveys of the Indiana bat, a federally endangered species, to determine if the project would impact this species.

Final design will include measures to minimize these impacts.

VDOT is working with the Virginia Department of Forestry on suitable mitigation measures for forested impacts, including reforesting cleared areas.

VDOT is working with the U.S. Fish and Wildlife Service on the Indiana bat surveys and potential mitigation measures, if necessary. Compensatory mitigation strategies for impacts to wetlands and streams will be developed in accordance with all applicable state and federal regulations and requirements.

Based on review of available data, this project may require the relocation of five households. No businesses or non-profit organizations will be required to relocate.

The right-of-way acquisition program will be conducted in accordance with the Uniform Relocation and Real Estate Property Acquisition Act of 1970, as amended. This project has been developed in accordance with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. No low-income or minority populations have been identified in the study area; therefore, none will be disproportionately impacted by this project.

Information about right-of-way purchases is discussed in VDOT's brochure, "Right of Way and Utilities: A Guide for Property Owners and Tenants." Copies of this brochure are available from a VDOT right-of-way agent.

After this meeting, information regarding right-of-way may be obtained from VDOT, Bristol District Right-of-Way and Utilities Office Manager, Mr. Curt Jackson, 870 Bonham Road in the City of Bristol, VA 24201, or telephone 276-669-9923 or TTY/TDD-711.

For additional copies, contact:

Office of Public Affairs  
Virginia Department of Transportation  
870 Bonham Road  
Bristol, VA 24201  
276-669-6151 or TTY/TTD-711  
Bristolinfo@VDOT.Virginia.gov

## ANTICIPATED SCHEDULE

### The following schedule has been proposed:

Location Public Hearing - July 14, 2009

Design Public Hearing - unscheduled

Right-of-Way Acquisition - unscheduled

Construction - unscheduled

## What's Next?

Ten days after this meeting, the public comment period will close. The study team will review and evaluate any comments received as a result of the meeting tonight and during the comment period.

The comments, along with other information developed during the study will be forwarded to the CTB for consideration in reaching a decision. Following the public availability period, the Environmental Assessment will be revised as appropriate, to reflect changes in the proposed action or mitigation measures resulting from comments received on the Environmental Assessment or at the public hearing. It will then be submitted to the FHWA, along with a copy of the public hearing transcript, the recommendation of the CTB, and a request that a final decision by the FHWA be made.

Any further project development efforts, such as design, right-of-way acquisition, and construction, will depend on availability of funding and are not scheduled at this time.

VDOT is considering the option of a partnership with Pioneer with coal-synergy benefits. The process to complete the final design will be determined at a later date and will be dependent upon funding.

## Estimated Project Cost

If VDOT were to construct U.S. Route 460 Connector - Phase II and the CFX interchange area at Hawks Nest without coal-synergy partnerships, the total cost would be approximately \$334 million. However, with the coal-synergy partnerships, VDOT anticipates a total cost savings of approximately 54%.

## Additional Information

Project information shared here is available for review after the meeting at the following offices:

VDOT Bristol District Office  
870 Bonham Road  
Bristol, VA  
276-669-6151 or TTY/TDD-711

VDOT Lebanon Residency  
Route 71  
Lebanon, VA  
276-889-7600 or TTY/TDD-711

Written comments and other exhibits related to the proposed project may be submitted in place of or in addition to statements made at the meeting. Such information must be postmarked or delivered to VDOT within 10 calendar days of today's meeting (on or before July 24, 2009) in order to be included in the official record. Please send written comments to:

**Virginia Department of Transportation**  
**Bristol District Administrator**  
**870 Bonham Road**  
**Bristol, VA 24201**

Please call prior to visiting to assure the availability of staff to assist you.

# **Location Public Hearing**

## ***Blank Comment Sheet***

*(Inserted in all handouts)*

**US Route 460 Connector – Phase II  
Including the Coalfields Expressway (CFX) Interchange Area at Hawks Nest  
Buchanan County, VA**

### **Location Public Hearing**

**July 14, 2009 4:00 P.M. – 7:00 P.M.**

**Breaks Interstate Park Conference Center**



Tuesday July 14, 2009  
4:00 PM to 7:00 PM  
Breaks Interstate Park  
Rhododendron Conference Center

**460 Connector Phase II  
and CFX Interchange at Hawks Nest  
Location Public Hearing  
COMMENT SHEET**

NAME: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
ZIP CODE: \_\_\_\_\_

1. What effect will the proposed roadway improvements have on your daily travel?  
\_\_\_\_\_  
\_\_\_\_\_

2. Please provide us with any additional information which you feel will assist the department in developing the Final Design on this project?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Did you feel this meeting helped you understand the project better?  
What other information would you like to see, if any?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. How familiar were you with this project prior to this meeting?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

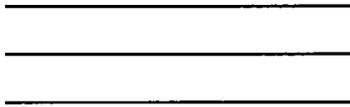
5. How did you hear about this meeting ?  
Newspaper \_\_\_\_\_ Direct Mail \_\_\_\_\_ VDOT Roadway Signs \_\_\_\_\_ Other \_\_\_\_\_

6. Were VDOT Representatives able to answer your questions ? \_\_\_\_\_  
If not, were you offered further assistance ? \_\_\_\_\_

Please leave this comment sheet at the designated location or mail your comments  
WITHIN 10 DAYS (postmarked by July 26, 2009) to the addressee on the reverse side.

**Project: 0460-013-781, P101  
Federal Project: APD-4601(008)**

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PLACE STAMP  
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VIRGINIA DEPARTMENT OF TRANSPORTATION  
MR. KEN BRITTLE  
870 BONHAM ROAD  
BRISTOL, VIRGINIA 24201-2002



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# Appendix C:

Indiana Bat (*Myotis sodalists*) and  
Gray Bat (*M. grisescens*) Survey Reports



PN 1230.013

April 2009

**PHASE I PORTAL ASSESSMENT  
AT THE ROUTE 460 CONNECTOR PROJECT  
BUCHANAN COUNTY, VIRGINIA**

Prepared for:  
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## APPENDICES

Appendix A: Agency Portal Location Responses

Appendix B: Phase I Portal Assessment Datasheets

Appendix C: Portal Photographs

## 1.0 INTRODUCTION

### 1.1 PROJECT BACKGROUND

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), is proposing to construct Phase II of the US Route 460 Connector in Buchanan County, Virginia (Figure 1). The proposed highway will be a four-lane, median-divided rural principal arterial highway, 6.2 miles in length ("project"). The project continues the goal of improving transportation in the region by linking US Route 460 improvements in Kentucky, with Virginia's Coalfield Expressway (CFX). The western terminus will tie into Phase I of the US Route 460 Connector near the Virginia/Kentucky state line and Breaks Interstate Park. The proposed alignment continues approximately 6 miles to its eastern terminus at the connection with the proposed CFX, approximately 2.9 miles southeast of the Bull Gap community (Figure 2).

Pioneer Group Inc. (Pioneer), a member of the CFX Public-Private Transportation Act (PPTA) project team, proposes to advance Phase II of the US Route 460 Connector project utilizing a coal-synergy approach to help offset construction cost. The project alignment was sited following the location of Pioneer-owned coal resources. Pioneer will extract the available coal along the alignment prior to construction, and use mine spoil and overburden to reclaim the project alignment to a 150-foot wide, rough graded roadbed upon which VDOT will construct Phase II of the US Route 460 Connector project.

### 1.2 INDIANA AND GRAY BATS

The proposed project is located within the range of the Indiana bat (*Myotis sodalis*) and gray bat (*M. grisescens*), federally listed endangered species. Though most Indiana bats hibernate in Indiana, Kentucky, and Missouri, their winter caves, called hibernacula, have been found in 18 other states including Virginia (Menzel et al. 2001). Indiana bats require stable temperatures between 37 and 45°F (3 to 7°C) throughout the winter to minimize energetic costs while hibernating (Tuttle and Kennedy 2002). Consequently, these bats tend to hibernate underground in caves and mines where air temperatures are not affected by fluctuating ambient temperatures above ground. These caves and mines typically have a high relative humidity (RH; mean 87 percent) (Hassell 1967), which reduces the amount of evaporative water loss during hibernation. Many hibernacula have at least some air flow, which helps to maintain constant air temperature (Tuttle and Kennedy 2002). The US Fish and Wildlife Service (USFWS) reports that more than 80 percent of Indiana bats hibernate in only 23 hibernacula, suggesting most subterranean features are unsuitable for hibernation (USFWS 2007).

Unlike many other species of North American *Myotis*, gray bats inhabit caves in both summer and winter and as a result, may be more restricted to cave habitats than any other U.S. mammal (Barbour and Davis 1969, Hall and Wilson 1966, Tuttle 1976). Populations of gray bats are primarily found in Alabama, northern Arkansas, Kentucky, Missouri, and Tennessee. Smaller populations are also known to occur in northwestern Florida, western

Georgia, southeastern Kansas, southern Illinois, southern Indiana, northeastern Oklahoma, northeastern Mississippi, western Virginia, and possibly western North Carolina (Barbour and Davis 1969, USFWS 1982). Gray bats hibernate in deep, vertical caves or mines that act as cold air traps with temperatures ranging from 41 - 52 °F (5 - 11°C). During the summer maternity season, females roost in caves with restricted rooms or domed ceilings that act as warm air traps with temperatures that range from 57 - 77°F (14 - 25°C) (Harvey 2000). Due to specific habitat requirements, fewer than five percent of available caves are suitable for use by gray bats (Tuttle 1976).

Abandoned mines provide important habitat for hibernating bats throughout the United States, becoming a “refuge of last resort” for many species due to disturbance and modification of traditional roosts (Ducummon 2000). Of the 20 species of bats that occur in the eastern United States, about half use abandoned mines during at least some portion of the year, including the Indiana bat and gray bat (Harvey 2000). Historically both species have primarily used caves for roosting and hibernation. However, they readily use man-made structures that provide suitable microclimate conditions, including abandoned coal mines (Currie 2000).

The USFWS has requested that VDOT provide an assessment of potential winter and summer habitat within the project area to determine if the project would adversely affect the Indiana or the gray bat. BHE Environmental, Inc. (BHE) was retained by Michael Baker Jr., Inc. to survey the US 460 Connector project area to determine the potential for use by Indiana and/or gray bats in both summer and winter, in accordance with the Scope of Work provided by BHE to Michael Baker Jr., Inc. (dated 4 February 2009). This report outlines the initial assessment of portals identified within the project area to determine their suitability for use by Indiana or gray bats. Results will be used to guide future survey efforts, and will be incorporated into the Environmental Assessment for Phase II of the US Route 460 Connector project.

## 2.0 METHODS

### 2.1 PORTAL IDENTIFICATION

BHE was provided the locations of four previously-identified potential bat hibernacula within the project area, referred to here as Portals 1 through 4 (Figure 2). To determine the presence of additional caves or mine portals, the following state agencies were contacted:

- Virginia Department of Mines, Minerals, and Energy (DMME)
- Virginia Department of Conservation, Recreation, Division of Natural Heritage (DCR-DNH)
- Virginia Department of Game and Inland Fisheries (VDGIF)

Each agency was given a project boundary map and basic background information including the locations of the previously-identified portals. Agency responses are provided in Appendix A.

## 2.2 PORTAL ASSESSMENT

Identified portals were evaluated using “Criteria for Determining Whether Abandoned Coal Mines Provide Potentially Suitable Bat Habitat” as developed by Cal Butchkoski (Pennsylvania Game Commission). The criteria include:

1. Horizontal openings should be one foot in diameter or larger.
2. Passage should continue for 100 feet or more and open into mine workings (may not be verifiable by inspector).
3. There should be some amount of air flow in or out of entrance. (Air flow is not always detectable and changes by day and/or season).
4. Mine entrances that are flooded or prone to flooding (as evidenced by water stains or debris on ceiling), collapsed, or otherwise inaccessible to bats are unsuitable and can be excluded from further survey.
5. Openings that have occurred recently (within the past one to two years) due to subsidence are unsuitable and can be excluded from further survey.
6. Bats will use vertical shafts. Vertical passages should be at least two feet in diameter with some air flow.
7. Foliage and other vegetation in front of mine openings do not stop use by bats. The animals can navigate through foliage.
8. Bats can access mines via old buildings such as a fan house.

In addition to assessing suitability using the above criteria, Phase I Portal Assessments as established by the Pennsylvania Game Commission were also conducted. The following data were recorded on a Phase I Portal Assessment Datasheet for each portal (Appendix B): opening type, opening size, entrance stability, internal dimensions, slope, air flow direction, air flow amount, evidence of collapse, ceiling condition, flooding, portal length, distance to water, evidence of use by bats, potential portal connections, and observable side passages.

## 3.0 RESULTS AND DISCUSSION

### 3.1 PORTAL IDENTIFICATION

The responses from the state agencies resulted in the identification of one additional mine portal within the project area (Figure 2). Data provided by the Virginia DMME identified a single portal (identified here as Portal 5) located approximately 1500 feet west of Swiney Fork near the center of the proposed US Route 460 alignment. A second previously unidentified portal (Portal 6), located 1100 feet northwest of Swiney Fork and 1300 feet northeast of Portal 5, was identified by biologists in the field (Figure 2).

## 3.2 PORTAL ASSESSMENT

On 31 March 2009, six features were located and evaluated for suitability as bat hibernacula, and a Phase I Portal Assessment was completed for each (Appendix B). Photographs of the six portals are provided in Appendix C. A summary and discussion of each feature follows, and additional data may be found in Table 1.

### 3.2.1 Portal 1

Portal 1 is one of the previously identified mine portals. This portal is a small adit (horizontal opening) located at the northwest end of the project corridor (Figure 2, Appendix C). The entrance is moderately stable, with considerable airflow. Phase I assessment suggests that this opening may provide suitable bat roosting or hibernating habitat.

### 3.2.2 Portal 2

Portal 2 is one of the previously identified mine portals (Figure 2). This portal has completely collapsed (Appendix C). There are no visible openings to shelter hibernating bats, and Phase I assessment indicated that Portal 2 is not suitable for bat use.

### 3.2.3 Portal 3

Portal 3 is one of the previously identified mine portals (Figure 2). This portal has completely collapsed with metal and support timbers completely covering the entrance (Appendix C). There are no visible openings to shelter hibernating bats, and Phase I assessment indicated that Portal 3 is not suitable for bat use.

### 3.2.4 Portal 4

Portal 4 is one of the previously identified mine portals (Figure 2). This portal has been filled in approximately five feet from the entrance (Appendix C). There are no visible openings to shelter hibernating bats, and Phase I assessment indicated that Portal 4 is not suitable for bat use.

### 3.2.5 Portal 5

Portal 5 is the portal that was identified using data provided by the VDMME (Figure 2). This portal has completely collapsed (Appendix C). There are no visible openings to shelter hibernating bats, and Phase I assessment indicated that Portal 5 is not suitable for bat use.

### 3.2.6 Portal 6

Portal 6 was identified by biologists in the field (Figure 2). This portal is a series of five small horizontal adits located near the center of the project corridor (Figure 2, Appendix C). Of the five entrances, four are very shallow and are not suitable for bat use. The center passage is stable, and continues more than 75 feet. A slight amount of airflow into the passage was detected. Phase I assessment suggests that this opening may provide suitable bat roosting or hibernating habitat.

### 3.3 PORTAL SURVEY CONCLUSIONS

Of the six mine openings identified during the survey, two were determined to be potentially suitable for use by Indiana bats or gray bats: Portal 1 and Portal 6. These openings were stable, showed no signs of flooding, and had openings at least one foot in diameter. Phase I onsite assessment of these openings, conducted by a qualified Indiana bat biologist, suggests that these two openings may provide suitable habitat for Indiana and/or gray bats. Additional investigation of the two suitable portals/openings will be conducted in 2009 to determine whether these openings are actually used by endangered bats. Results of these surveys will be submitted under separate cover.

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- U.S. Fish and Wildlife Service (USFWS). 2007 Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. Fort Snelling, Minnesota. 258 pp.

## TABLES

Table 1. Summary of data collected from six mine portals surveyed 31 March 2009.

Feature Name	Location (UTM Zone 17,NAD 83)	Type of Opening	Height of Opening (feet)	Width of Opening (feet)	Depth (feet)	External Temp. (°C)	Internal Temp. (°C)	Evidence of Stability	Presence of Water	Airflow Direction	Airflow Amount	Comments on Potential Use by Bats
Portal 1	0387626.8 4129544.7	adit	1.5	1.5	> 6	17	10	Some loose rock	No	Out	Heavy	May provide suitable habitat
Portal 2	0387595.4 4129601.2	adit	NA	NA	NA	NA	NA	N/A	N/A	N/A	N/A	Does not provide suitable habitat
Portal 3	0390139.8 4129684.9	adit	NA	NA	NA	NA	NA	N/A	N/A	N/A	N/A	Does not provide suitable habitat
Portal 4	0392103.0 4125603.4	adit	2.5	2	5	13	10	Collapsed after five feet	N/A	N/A	N/A	Does not provide suitable habitat
Portal 5	0390450.1 4128225.4	adit	NA	NA	NA	NA	NA	N/A	N/A	N/A	N/A	Does not provide suitable habitat
Portal 6	0390723.6 4128572.1	adit	2	2	>75	12	7	Stable	2 inches	In	Slight	May provide suitable habitat

## FIGURES

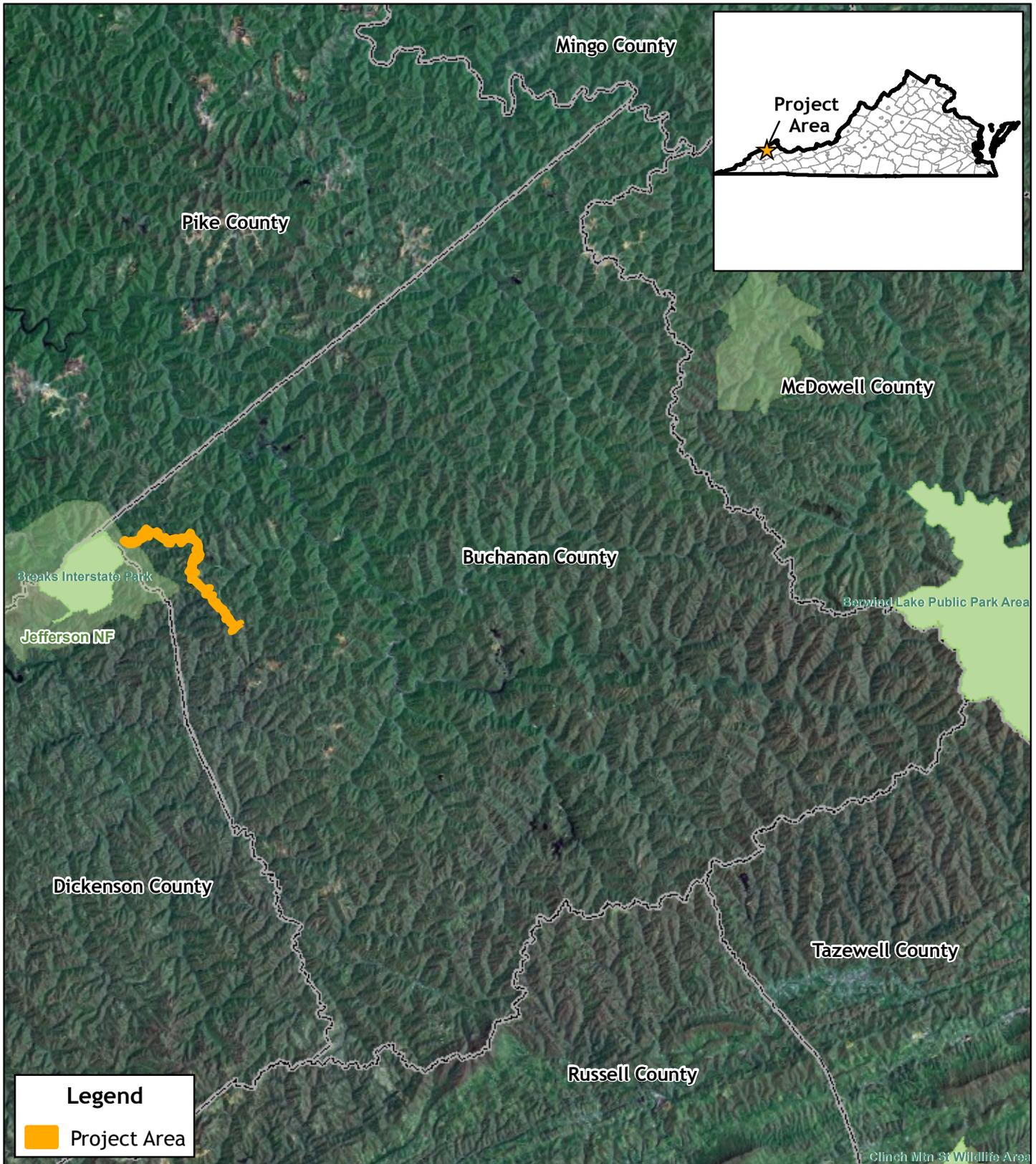
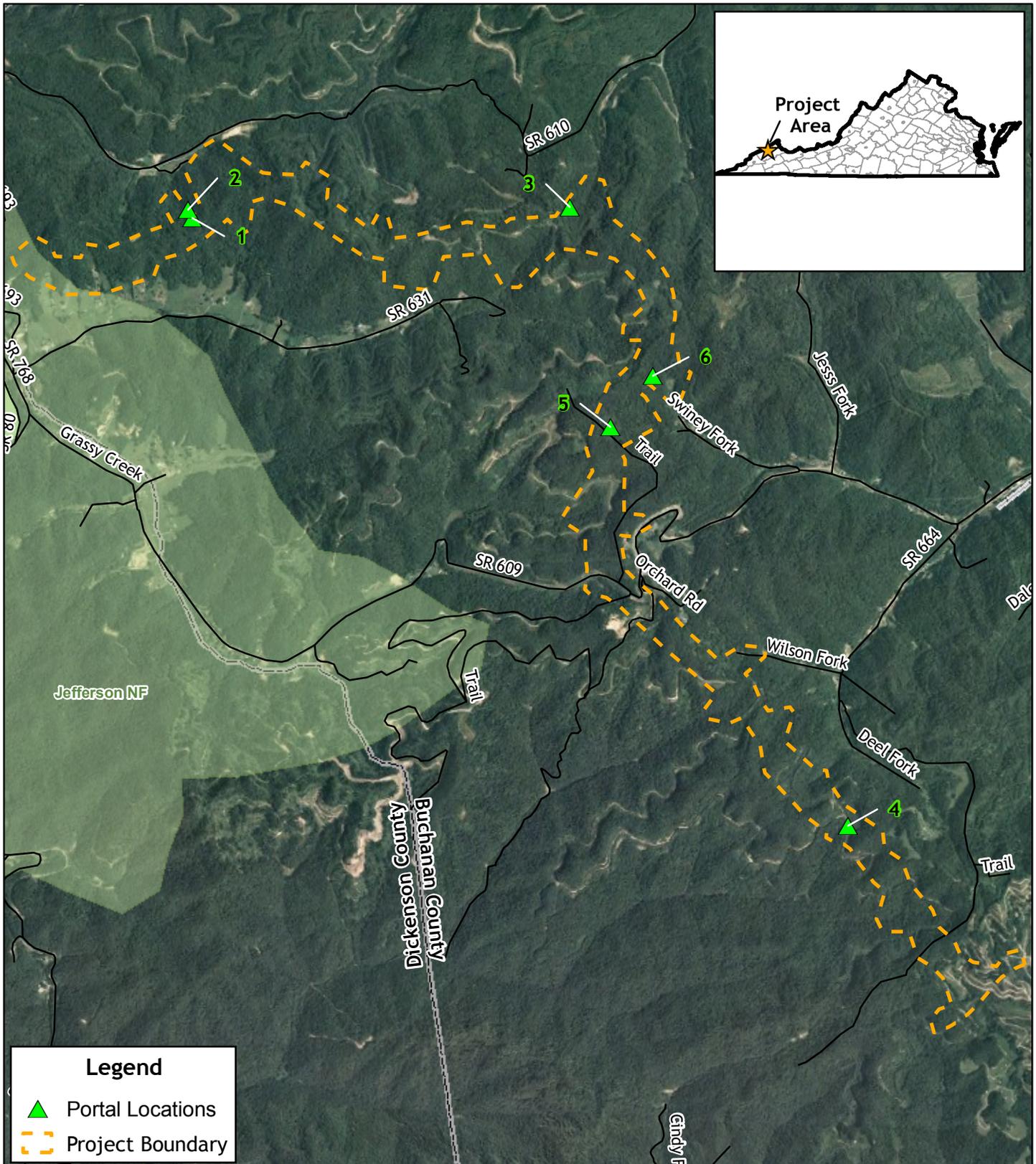


Figure 1. Location of the proposed Phase II of the US Route 460 Connector project in Buchanan County, Virginia.

	<p>Miles</p>	<p>April 2009</p>	
	<p>Project No. 1230.013</p>	<p>Base Map: I<sup>3</sup> Imagery Prime World 2D</p>	



**Figure 2. Locations of the identified portals within Phase II of the US Route 460 Connector project alignment in Buchanan County, Virginia.**

	<p>Feet</p>	<p>April 2009</p>	
<p>Project No. 1230.013</p>		<p>Base Map: I<sup>3</sup> Imagery Prime World 2D</p>	

## Appendix A: Agency Portal Location Responses

## Bradley Steffen

---

**From:** Joseph Fagan [Joseph.Fagan@dcr.virginia.gov]  
**Sent:** Tuesday, March 24, 2009 1:04 PM  
**To:** Bradley Steffen  
**Cc:** Rene Hypes; Wil Orndorff; rick.reynolds@dgif.virginia.gov  
**Subject:** RE: Portal locations within the Rt 460 Connector Project in Buchanan County, VA

Brad,

As a follow up to our telephone conversation earlier today, I wanted to send you a short e-mail to summarize my verbal comments. The project area in Buchanan County, as identified in the map you provided earlier, is situated on the Appalachian Plateau. There are no karst-forming carbonate rocks exposed on the surface in the vicinity of the project area; likewise, there are no documented caves on or near the site as identified on the map you provided.

You indicated that you have been in contact with the VA Department of Mines Minerals and Energy and with the VA Department of Game and Inland Fisheries. Rick Reynolds of DGIF is an excellent contact in regards to bats found in Virginia \* I would encourage you to coordinate your harp trapping efforts with Rick. Also be aware of the possible risks of transmitting pathogens that might be associated with White Nose Syndrome as a result of your proposed activities. Rick Reynolds could offer guidance on best practices to avoid possible WNS transmission issues during the course of your work.

Here is Ricks contact information: Rick Reynolds (540) 248 - 9386  
<[rick.reynolds@dgif.virginia.gov](mailto:rick.reynolds@dgif.virginia.gov)>

This website contains more information about WNS in Virginia \*  
[http://www.dcr.virginia.gov/natural\\_heritage/karsthome.shtml](http://www.dcr.virginia.gov/natural_heritage/karsthome.shtml)

I have asked Rene' Hypes, the DCR Natural Heritage Program's Environmental Review Coordinator, to provide you with some additional information on how to access the Natural Heritage Data Explorer and other available information services through our agency that are available for use in project planning and environmental review.

Let me know if I can be of further assistance.

Thanks,

Joey

Joey Fagan  
Karst Protection Specialist  
Virginia Department of Conservation and Recreation Division of Natural Heritage  
8 Radford St - Suite 102  
Christiansburg, VA 24073

office - (540) 394-2552  
fax - (540) 394-2504

## Bradley Steffen

---

**From:** Davis, Richard [Richard.Davis@dmme.virginia.gov]  
**Sent:** Monday, February 23, 2009 1:00 PM  
**To:** Bradley Steffen  
**Subject:** RE: Portal locations within the Rt 460 Connector Project in Buchanan County, VA  
**Attachments:** image001.jpg

Brad  
I would suggest looking at Virginia's abandoned mine land inventory for any portals within your project area. Portals would be designated with an acronym P on the drawings. You should be able to access and download our AML inventory at this ftp site:  
[ftp://mail.dmme.virginia.gov/DMLR/downloads/aml\\_inv/](ftp://mail.dmme.virginia.gov/DMLR/downloads/aml_inv/)

Richard Davis  
AML Projects Coordinator

## Bradley Steffen

---

**From:** Rick.Reynolds@dgif.virginia.gov  
**Sent:** Thursday, March 05, 2009 11:10 AM  
**To:** Bradley Steffen  
**Subject:** RE: Portal locations within the Rt 460 Connector Project in Buchanan County, VA  
**Attachments:** image001.jpg

Yes, I received the attachment and I am not aware of any karst features in the project area. However, you may want to talk with Renee' Hypes of DCR-Division of Natural Heritage. They maintain a close relationship with the Virginia Speleological Survey which maintains the most complete database for karst features in Virginia. Hope this will be of help.

Rick

---

## Appendix B: Phase I Portal Assessment Datasheets

PHASE I PORTAL ASSESSMENT DATA SHEET

Location: VDOT Rt 460 (site off of conway Rd.)

Observers: Chad Kinney and Josh Mace

Latitude/Longitude: Portal 1 on map (Lack of GPS signal)

Date: 3-31-09 Time: 1:30 pm Temperature (external): 17°C internal (10°C)

	Portal #1	Portal #2	Portal #3	Portal #4
Opening (vertical or horizontal)	horizontal			
Opening size: height x width (or diameter)	1.5ft x 1.5ft			
Internal dimensions: height x width	1ft x 1ft			
Slope (up or down from entrance)	down			
Entrance stable?	some loose sandstone			
Direction of airflow (in or out of portal)	out			
Amount of airflow (slight, heavy)	heavy			
Internal air warmer or cooler than external temperature?	Cooler			
Evidence of collapse?	yes			
Ceiling condition	moderately stable			
Amount of water in portal	none			
Evidence of past flooding?	none			
Observed length of portal	6ft			
Distance to nearest water source	1500ft			
Percent obstruction of portal entrance by trees, slide, etc.	0%			
Foraging signs (o.g., moth wings)?	none			
Are any portals suspected or known to be connected? Which ones?	none			
Any observable side passages?	none			

**PHASE I PORTAL ASSESSMENT DATA SHEET**

Location: VDOT Rt 460 (site off of Conway Rd. Portal #2)

Observers: \_\_\_\_\_

Latitude/Longitude: Portal 2 on map (Lack of GPS signal)

3-31-09

Date: 2:00pm Time: 2:00pm Temperature (external): 17°C internal: (unknown)

	Portal #1	Portal #2	Portal #3	Portal #4
Opening (vertical or horizontal)	Appears horizontal but is caved in			
Opening size: height x width (or diameter)	unknown - no opening			
Internal dimensions: height x width	unknown			
Slope (up or down from entrance)	unknown			
Entrance stable?	entrance has collapsed			
Direction of airflow (in or out of portal)	none			
Amount of airflow (slight, heavy)	none			
Internal air warmer or cooler than external temperature?	no openings			
Evidence of collapse?	yes - Area is filled in			
Ceiling condition	unknown			
Amount of water in portal	unknown			
Evidence of past flooding?	none			
Observed length of portal	0 ft			
Distance to nearest water source	1450 ft			
Percent obstruction of portal entrance by trees, slide, etc.	100% filled in Groin collapse			
Foraging signs (e.g., moth wings)?	none			
Are any portals suspected or known to be connected? Which ones?	none			
Any observable side passages?	none			

**PHASE I PORTAL ASSESSMENT DATA SHEET**

Location: VDOT Rt 460 (off of ~~out~~ fork)

Observers: Chad Kinney and John Mace

Latitude/Longitude: Portal 3 on map (Lack of GPS signal)

Date: 3-31-09 Time: 4:20 pm Temperature (external): 17°C internal (unknown)

	Portal #1	Portal #2	Portal #3	Portal #4
Opening (vertical or horizontal)	horizontal			
Opening size: height x width (or diameter)	unknown - collapsed			
Internal dimensions: height x width	unknown			
Slope (up or down from entrance)	most likely was down			
Entrance stable?	collapsed			
Direction of airflow (in or out of portal)	none			
Amount of airflow (slight, heavy)	none			
Internal air warmer or cooler than external temperature?	not open			
Evidence of collapse?	yes - old Timbers and Rock slide			
Ceiling condition	unknown			
Amount of water in portal	unknown			
Evidence of past flooding?	yes - standing water at entrance			
Observed length of portal	0 ft			
Distance to nearest water source	5 ft			
Percent obstruction of portal entrance by trees, slide, etc.	100%	timbers and Rock slide		
Foraging signs (e.g., moth wings)?	none			
Are any portals suspected or known to be connected? Which ones?	none			
Any observable side passages?	none.			

PHASE I PORTAL ASSESSMENT DATA SHEET

Location: VDOT Rt 460 (off Deel fork)

Observers: Chad Kinney and Josh Mace

Latitude/Longitude: Portal 4 on Map

Date: 3-31-09 Time: 5:30 pm Temperature (external): 13°C internal (10°C)

	Portal #1	Portal #2	Portal #3	Portal #4
Opening (vertical or horizontal)	vertical			
Opening size: height x width (or diameter)	2.5ft x 2ft			
Internal dimensions: height x width	3ft x 3ft			
Slope (up or down from entrance)	down			
Entrance stable?	yes			
Direction of airflow (in or out of portal)	none			
Amount of airflow (slight, heavy)	none			
Internal air warmer or cooler than external temperature?	Cooler			
Evidence of collapse?	yes — filled in approx. 5ft down			
Ceiling condition	walls stable to the filled in portion			
Amount of water in portal	none			
Evidence of past flooding?	none			
Observed length of portal	5ft down			
Distance to nearest water source	200 ft			
Percent obstruction of portal entrance by trees, slide, etc.	100% 5ft down — collapse			
Foraging signs (e.g., moth wings)?	none			
Are any portals suspected or known to be connected? Which ones?	none			
Any observable side passages?	none			

**PHASE I PORTAL ASSESSMENT DATA SHEET**

Location: VDOT Rt 460 (off of Rt 609)

Observers: Chad Kinney and Josh Mace

Latitude/Longitude: Portal 5 on Map

Date: 3-31-09 Time: 6:30 pm Temperature (external): 13°C internal (unknown)

	Portal #1	Portal #2	Portal #3	Portal #4
Opening (vertical or horizontal)	horizontal			
Opening size: height x width (or diameter)	unknown - filled in			
Internal dimensions: height x width	unknown			
Slope (up or down from entrance)	unknown			
Entrance stable?	Entrance is filled in			
Direction of airflow (in or out of portal)	none			
Amount of airflow (slight, heavy)	none			
Internal air warmer or cooler than external temperature?	no opening			
Evidence of collapse?	yes - collapse			
Ceiling condition	filled in			
Amount of water in portal	unknown			
Evidence of past flooding?	yes - water in front of portal			
Observed length of portal	0 ft			
Distance to nearest water source	1000 ft			
Percent obstruction of portal entrance by trees, slide, etc.	100%	filled in		
Foraging signs (e.g., moth wings)?	none			
Are any portals suspected or known to be connected? Which ones?	none			
Any observable side passages?	none			

PHASE I PORTAL ASSESSMENT DATA SHEET

Location: North of portal 5 (un-mapped Portal 1)

Observers: Chad Kinney

Latitude/Longitude: 37° 17' 50.3" N 082° 13' 58.2" W

Date: 3-31-09 Time: 10:00am Temperature (external): 12°C internal (7°C)

	Portal #1	Portal #2	Portal #3	Portal #4
Opening (vertical or horizontal)	horizontal			
Opening size: height x width (or diameter)	2ft x 2ft			
Internal dimensions: height x width	2ft x 2ft			
Slope (up or down from entrance)	down			
Entrance stable?	yes			
Direction of airflow (in or out of portal)	in			
Amount of airflow (slight, heavy)	very light			
Internal air warmer or cooler than external temperature?	cooler			
Evidence of collapse?	no			
Ceiling condition	stable			
Amount of water in portal	2 inches			
Evidence of past flooding?	none			
Observed length of portal	75ft			
Distance to nearest water source	200ft			
Percent obstruction of portal entrance by trees, slide, etc.	0%			
Foraging signs (e.g., moth wings)?	none	possible Guano at entrance		
Are any portals suspected or known to be connected? Which ones?	none			
Any observable side passages?	None.			

## Appendix C: Portal Photographs



Portal 1



Portal 1



Portal 2



Portal 4



Portal 3



Portal 3



Portal 5



Portal 5



Portal 6



Portal 6



PN: 1230.013-001

July 6, 2009

**PORTAL SURVEY AND MIST NET SURVEY  
FOR THE INDIANA BAT AND THE GRAY BAT  
AT THE US ROUTE 460 CONNECTOR PROJECT  
BUCHANAN COUNTY, VIRGINIA,**

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## 1.0 EXECUTIVE SUMMARY

BHE Environmental, Inc. completed spring emergence surveys and summer mist net and acoustic surveys to investigate the presence of federally endangered Indiana bats (*Myotis sodalis*) and/or gray bats (*Myotis grisescens*) at the US Route 460 Connector Project in Buchanan County, Virginia. The purpose of this survey was to investigate presence of Indiana bats and gray bats within the project alignment.

Between 24 and 25 April 2009, BHE surveyed a single mine portal with a harp trap to assess use by bats. Between 1 and 13 June, 2009, BHE surveyed 10 sites with mist nets and 10 sites with acoustic Anabat detectors. Methods of the surveys followed recommendations of the Indiana Bat Recovery Team, and guidance from the U.S. Fish and Wildlife Service, Virginia Field Office. Timing of the surveys, level of effort, and survey conditions were appropriate for investigating presence of both species of bat during the spring emergence and summer maternity seasons.

No Indiana bats or gray bats were captured during the survey. A total of two northern long-eared bats (*Myotis septentrionalis*) were captured with a harp trap during spring emergence surveys. Ninety-eight bats, representing eight species, were captured during the mist net survey: northern long-eared bats, big brown bats (*Eptesicus fuscus*), eastern red bats (*Lasiurus borealis*), eastern small-footed bats (*M. leibii*), silver-haired bats (*Lasionycteris noctivagans*), little brown bats (*M. lucifugus*), eastern pipistrelles (*Perimyotis subflavus*), and hoary bats (*Lasiurus cinereus*). None of these species are federally or state listed as endangered or threatened, and they are afforded no legal protection beyond measures that protect common species of wildlife.

## 2.0 INTRODUCTION

### 2.1 PROJECT BACKGROUND

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), is proposing to construct Phase II of the US Route 460 Connector in Buchanan County, Virginia (Figure 1). The proposed highway will be a four-lane, median-divided rural principal arterial highway, 6.2 miles in length ("Project Area"). The project links US Route 460 improvements in Kentucky, with Virginia's Coalfield Expressway (CFX). The western terminus will tie into Phase I of the US Route 460 Connector near the Virginia/Kentucky state line and Breaks Interstate Park. The proposed alignment continues approximately 6 miles to its eastern terminus at the connection with the proposed CFX, approximately 2.9 miles southeast of the Bull Gap community.

Pioneer Group Inc. (Pioneer), a member of the CFX Public-Private Transportation Act (PPTA) project team, proposes to advance Phase II of the US Route 460 Connector project utilizing a coal-synergy approach to help offset construction cost. The project alignment was sited following the location of Pioneer-owned coal resources. Pioneer will extract the available coal along the alignment prior to construction, and use mine spoil and overburden to reclaim the project alignment to a 150-foot wide, rough graded roadbed upon which VDOT will construct Phase II of the US Route 460 Connector project.

### 2.2 INDIANA AND GRAY BATS

The proposed Project Area is located within the range of the Indiana bat (*Myotis sodalis*) and gray bat (*M. grisescens*), federally listed endangered species. Though most Indiana bats hibernate in Indiana, Kentucky, and Missouri, their winter caves, called hibernacula, have been found in 18 other states including Virginia (Menzel et al. 2001). Indiana bats require stable temperatures between 37 and 45°F (3 to 7°C) throughout the winter to minimize energetic costs while hibernating (Tuttle and Kennedy 2002). Consequently, these bats tend to hibernate underground in caves and mines where air temperatures are not affected by fluctuating ambient temperatures above ground. These caves and mines typically have a high relative humidity (RH; mean 87 percent) (Hassell 1967), which reduces the amount of evaporative water loss during hibernation. Many hibernacula have at least some air flow, which helps to maintain constant air temperature (Tuttle and Kennedy 2002). The US Fish and Wildlife Service (USFWS) reports that more than 80 percent of Indiana bats hibernate in only 23 hibernacula, suggesting most subterranean features are unsuitable for hibernation (USFWS 2007).

Unlike many other species of North American *Myotis*, gray bats inhabit caves in both summer and winter and as a result, may be more restricted to cave habitats than any other U.S. mammal (Barbour and Davis 1969, Hall and Wilson 1966, Tuttle 1976). Populations of gray bats are primarily found in Alabama, northern Arkansas, Kentucky, Missouri, and Tennessee. Smaller populations are also known to occur in northwestern Florida, western Georgia, southeastern Kansas, southern Illinois, southern Indiana, northeastern Oklahoma, northeastern Mississippi, western Virginia, and possibly western North Carolina (Barbour and Davis 1969, USFWS 1982). Gray bats hibernate in deep, vertical caves or mines that act as cold air traps with temperatures ranging from 41 - 52 °F (5 - 11 °C). During the summer maternity season, females roost in caves with restricted rooms or doomed ceilings that act as

warm air traps with temperatures that range from 57 - 77°F (14 - 25°C) (Harvey 2000). Due to specific habitat requirements, fewer than five percent of available caves are suitable for use by gray bats (Tuttle 1976).

Abandoned mines provide important habitat for hibernating bats throughout the United States, becoming a “refuge of last resort” for many species due to disturbance and modification of traditional roosts (Ducummon 2000). Of the 20 species of bats that occur in the eastern United States, about half use abandoned mines during at least some portion of the year, including the Indiana bat and gray bat (Harvey 2000). Historically both species have primarily used caves for roosting and hibernation. However, they readily use man-made structures that provide suitable microclimate conditions, including abandoned coal mines (Currie 2000).

The USFWS has requested that VDOT provide an assessment of potential winter and summer habitat within the Project Area to determine if the project would adversely affect the Indiana or the gray bat. BHE Environmental, Inc. (BHE) was retained by Michael Baker Jr., Inc. to survey the US Route 460 Connector Project Area to determine the potential for use by Indiana and/or gray bats in both summer and winter, in accordance with the Scope of Work provided by BHE to Michael Baker Jr., Inc. (dated 4 February 2009). This report outlines the spring emergence surveys and summer mist net and acoustic surveys to determine presence or probable absence of Indiana and gray bats within the Project Area. Results will be incorporated into the Environmental Assessment for Phase II of the US Route 460 Connector project.

## 3.0 METHODS

### 3.1 SURVEY SITE SELECTION

The level of survey effort for this project was established through coordination with the USFWS, Virginia Field Office and the Virginia Department of Game and Inland Fisheries (VDGIF). Survey methods and approach followed guidelines developed by the Indiana Bat Recovery Team (USFWS 2007; Appendix A).

A work plan was drafted by BHE and approved by the USFWS on 11 May 2009 and by the VDGIF on 21 April 2009 (Appendix B). Ten locations were selected for mist net surveys, and 10 corresponding locations were selected for acoustic sampling (Table 1, Figure 3). Mist net sites were selected during field reconnaissance; site selection was based primarily upon extent of canopy cover and presence of an open flyway. Nets were deployed in areas that provided optimum chance to capture foraging bats. Acoustic sampling locations corresponded with mist net survey sites; a description of acoustic sampling methods is in Section 3.4.

### 3.2 SPRING EMERGENCE SURVEYS

On 31 March 2009, six features were located and evaluated for suitability as bat hibernacula, and a Phase I Portal Assessment was completed for each (BHE 2009). Of the six mine openings identified during the survey, two were determined to be potentially suitable for use by Indiana bats or gray bats: Portal 1 and Portal 6. These openings were stable, showed no signs of flooding, and had openings at least one foot in diameter. Phase I onsite assessment of these openings, conducted by a qualified Indiana bat biologist, suggests that these two openings may provide suitable habitat for Indiana and/or gray bats (BHE 2009). Portal 1 was

reassessed using a more powerful flashlight on 23 April 2009. The passage narrowed to less than 6 inches approximately 15 feet from the entrance. As a result, the portal was determined to be unsuitable for use by bats and was not trapped. Portal 6 was trapped on the evenings of 24 and 25 April 2009 by qualified surveyors in accordance with the 2007 Indiana Bat Draft Recovery Plan and the USFWS, Pennsylvania Field Office and Pennsylvania Game Commission Bat Hibernacula Survey Guidelines:

- Surveys will only occur if aboveground ambient temperature is 50°F or above and there is no precipitation.
- If a portal has multiple openings, BHE will survey the most suitable, and visually monitor others for bat activity.
- Traps will be deployed 30 minutes prior to sunset and shall remain in place until 3:00 A.M.
- Species, sex, and reproductive status will be recorded for each bat. Bats shall then be released near the portal unharmed and unmarked.
- A bat trapping datasheet will be completed for each portal surveyed. Photos of the opening and trap set-up will also be provided.

### **3.2.1 Bat Handling Procedures**

Upon capture, bats were removed from the harp trap and identified to species. The sex of each bat was recorded, and each bat was observed for symptoms of White Nose Syndrome. All bats were released unharmed at the point of capture.

### **3.3 MIST NETTING**

Mist netting was conducted from 1 to 13 June 2009 and followed survey guidelines of the Indiana Bat Draft Recovery Plan, first revision (USFWS 2007; Appendix A). Mist nets were approximately 20 to 30 feet in height, and were approximately 18 to 30 feet wide. A net set consisted of two nets suspended (horizontally) between two poles. The nets were tiered and raised and lowered with a pulley system (Gardner et al. 1989). Two net sets were erected, and spaced at least 100 feet apart, at 10 sites. The two net sets were operated for two calendar nights at these ten sites, resulting in a total of 40 net nights for the entire survey (2 nets x 2 nights x 10 sites = 40 net nights). A "net night" is defined as the operation of one net set for one night. Representative photographs of mist net sites were also taken (Appendix B)

Mist nets were of 2-ply, 50-denier, nylon construction with a mesh size of no larger than 1.5 inches. Hardware (metal poles, pulleys and ropes) similar to that described in Gardner et al. (1989) was used to suspend the nets across flight corridors. Nets were placed so that canopy cover and vegetation created a funneling effect to facilitate capture of bats to the maximum extent practicable. Mist nets were deployed at dusk (approximately 2030 hours) and monitored every 10 minutes for at least five hours from deployment. Wind speed, percent cloud cover, and moon phase were estimated. A standard mercury thermometer was used to record temperature. Temperature, wind speed and direction, percent cloud cover, and moon phase (if visible) typically were recorded approximately every 30 minutes during the survey.

### 3.3.1 Bat Handling Procedures

Upon capture, bats were removed from the nets, identified to species, weighed, measured, and released unharmed at the capture site. The following data were recorded for each bat captured: species, age, sex, reproductive condition, right forearm length (RFA; to nearest 0.1 millimeter using Vernier calipers), weight (to nearest half gram, using a Pesola® scale), time of capture, and capture height in net. All bats were identified to species based upon distinctive morphological characteristics (e.g., body size, hair color, ear length, tragus shape, presence/absence of a keeled calcar). Adult female bats were classified as reproductive if they were pregnant (determined by palpation of abdomen) or bore signs of nursing young (i.e., lack of hair surrounding the teats). Male bats whose testes were descended into the scrotum were considered reproductive. Each bat captured was observed for symptoms of White Nose Syndrome.

### 3.4 ACOUSTIC SAMPLING

Acoustic sampling equipment was used in conjunction with mist netting to provide presence/absence survey results that have greater likelihood of documenting Indiana bat activity within the Project Area. A single acoustic monitoring site was established for each of the mist net sites surveyed. Acoustic data was collected using Anabat II detectors paired with CF storage ZCAIM units (Titley Electronics, New South Wales, Australia). Ten Anabat units (one for each mist net site) were placed at least 200 feet from the mist net sites, and were deployed in areas that can not be effectively sampled with mist nets (e.g. forest edges, large streams/creeks, large ponds, etc.). The sampling period began 30 minutes prior to sunset, and continued for the entire duration of the mist net survey (approximately 5 hours). Each recorded call was assigned to one of the following species or species groups:

- hoary bat (*Lasiurus cinereus*);
- big brown bat (*Eptesicus fuscus*) and silver-haired bat (*Lasionycteris noctivagans*);
- Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) and Virginia big-eared bat (*Corynorhinus townsendii virginianus*);
- Red bat (*Lasiurus borealis*) and evening bat (*Nycticeius humeralis*);
- *Myotis* sp.; or
- Eastern pipistrelle (*Perimyotis subflavus*)

### 3.5 WHITE NOSE SYNDROME DECONTAMINATION PROTOCOL

A site-specific White Nose Syndrome Decontamination Protocol was carried out during the course of the field work. The protocol was developed using suggested guidance from the following documents:

- Disinfection Protocol for Bat Field Studies (USFWS Region 3, March 2009),
- Draft Disinfection Protocol for Bat Field Studies (USFWS Region 5, April 2008), and
- State-specific guidelines provided by VDGIF.

## 4.0 RESULTS

### 4.1 SPRING EMERGENCE SURVEYS

#### 4.1.1 Site Description

The single abandoned mine portal (Portal 6) was surveyed using a harp trap on 24-25 April 2009 (Figure 2). This portal is a series of five small horizontal adits located near the center of the project corridor (BHE 2009). The portal is located upslope immediately adjacent to an old mine road. The dominant tree species in the vicinity of the portal include tulip poplar (*Liriodendron tulipifera*), American beech (*Fagus grandifolia*), and sugar maple (*Acer saccharum*).

#### 4.1.2 Bat Captures

A total of two female northern long-eared bats (*M. septentrionalis*) were captured at this portal. A single female was captured during each night of the survey. Completed datasheets for the spring emergence survey are provided in Appendix C.

### 4.2 MIST NETTING

#### 4.2.1 Site Descriptions

Ten mist net sites were established approximately every kilometer within the Project Area (Table 1, Figure 3). A majority of the Project Area is located on top of the ridge at high elevations. A study by Brack et al. (2002) indicated that potential bat habitat for reproductive bats may not be suitable when occurring at higher elevations and latitudes. Higher latitudes and elevations are cooler and wetter than areas at lower latitudes and elevations. Further, daily and seasonal temperatures are more variable at higher latitudes and elevations. These weather-related and climatic characteristics add significantly to the cost of reproduction to individual bats (Brack et al. 2002). As a result, some sites (mist net sites 1, 3, and 9) were placed near the valley floor immediately adjacent to the Project Area. (Table 1, Figure 3). Dominant canopy species at the 10 sites included American beech, American elm, (*Ulmus americana*), red maple (*Acer rubrum*), black locust (*Robinia pseudoacacia*), tulip poplar, American sycamore (*Platanus occidentalis*), black walnut (*Juglans nigra*), sugar maple, yellow birch (*Betula alleghaniensis*), black cherry (*Prunus serotina*), white pine (*Pinus strobus*), butternut (*Juglans cinerea*), white oak (*Quercus alba*), and American basswood (*Tilia americana*). Dominant understory species included red maple, eastern redbud (*Cercis canadensis*), autumn olive (*Elaeagnus umbellata*), black locust, tulip poplar, butternut, yellow birch, sugar maple, black cherry and American hornbeam (*Carpinus caroliniana*) Detailed site descriptions can be found in Table 2 and Appendix D. Example photographs of typical mist net deployments are provided in Appendix E

#### 4.2.2 Bats Captured

A total of 98 bats, representing eight species, were captured at 10 sites on or near the Project Area during 40 net-nights of survey from 1 to 13 August 2008 (Table 3, Appendix D):

- Northern long-eared bat (*Myotis septentrionalis*, n = 30; 31%),
- Big brown bat (*Eptesicus fuscus*, n = 24; 25%),

- Red bat (*Lasiurus borealis*, n = 15; 15%),
- Eastern small-footed bat (*Myotis leibii*, n = 13; 13%),
- Silver-haired bat (*Lasionycteris noctivagans*, n = 6; 6%),
- Little brown bat (*Myotis lucifugus*, n = 5; 5%),
- Eastern pipistrelle bat (*Perimyotis subflavus*, n = 4; 4%), and
- Hoary bat (*Lasiurus cinereus*, n = 1; 1%)

Representative photographs of each species captured during the surveys are provided in Appendix F.

### 4.3 ACOUSTIC SAMPLING

#### 4.3.1 Site Descriptions

A single acoustic (Anabat) monitoring location was established near each of the 10 mist net sites on or near the Project Area (Table 1, Figure 3). Anabat units were placed at least 200 feet from the mist net sites in locations unsuitable for mist nets (open fields, open portions of roads, etc.) (Table 4). Example photographs of typical Anabat deployments are provided in Appendix G.

#### 4.3.2 Acoustic Sampling Results

A total of 3169 bat echolocation calls were recorded from the 10 Anabat sites. Of these 1411 (45%) were identified as *Myotis* sp., 905 (29%) were identified as eastern pipistrelle, 610 (19%) were identified as big brown bat/ silver-haired bat, 242 (8%) were identified as red bat / evening bat, and 1 (<1%) were identified as hoary bat. A breakdown of species groups recorded per site, per night is provided in Table 5.

## 5.0 DISCUSSION

In August 2008, BHE conducted mist net and acoustic surveys of 10 locations within the US Route 460 Connector Project Area, Buchanan County, Virginia with the level of effort recommended by the Indiana Bat Recovery Team and the USFWS Virginia Field Office for assessing presence of Indiana bats and gray bats. Timing of the survey and conditions in the field were appropriate for investigating presence of Indiana bats and gray bats during the maternity season. No Indiana or gray bats were captured, thus results of the survey did not confirm presence of the Indiana bat or gray bat within or near the Project Area. None of the bats captured during this survey are federally or state-listed, and they are afforded no legal protection beyond measures that protect common species of wildlife.

### 5.1 SPECIES ACCOUNTS

#### 5.1.1 Northern Long-Eared Bat (*M. septentrionalis*)

The northern long-eared bat ranges from southern Canada and the central and eastern U.S. through northern Florida (Appendix A). It is abundant throughout Virginia and Kentucky and is a year-round resident in both states (KBWG 2009, VDGIF 2009).

The northern long-eared bat is migratory, but usually does not migrate long distances (Whitaker and Hamilton 1998). Northern breeding populations generally move south to winter hibernacula, typically occupying winter habitat beginning in mid-October (Natureserve 2009). In winter (October/November through March/April), this species hibernates in caves and mines. It may hibernate in caves occupied by several other species. Northern-long eared bats occasionally emerge from hibernation and briefly fly around (Whitaker and Hamilton 1998).

In summer, this species typically roosts in trees (under exfoliating bark or in crevices and hollows) and in manmade structures (Harvey 1992, Foster and Kurta 1999). Foster and Kurta (1999) identified northern long-eared bats roosting singly or in small groups that averaged 17 individuals. This species forages along forested hillsides and ridges, often through dense vegetation (Harvey et al. 1999).

Northern long-eared bats were captured emerging from Portal 6 during the spring emergence survey and at mist net sites 4, 5, 6, and 10 (Table 3, Appendix D).

### 5.1.2 Big Brown Bat (*Eptesicus fuscus*)

The big brown bat is common throughout North America. It ranges throughout the United States from Alaska and Canada to Mexico and South America. Big brown bats do not migrate; there appears to be no difference in range from summer to winter (Barbour and Davis 1969). The big brown bat is found throughout Virginia and Kentucky year-round (KBWG 2009, VDGIF 2009). It roosts in rock crevices, expansion joints of bridges and dams, hollow trees, and manmade structures. Maternity colonies containing several hundred individuals have been recorded from attics, barns, and other manmade buildings (Harvey 1992).

Big brown bats were captured at mist net sites 4, 5, 6, and 10 (Table 3, Appendix D).

### 5.1.3 Eastern Red Bat (*Lasiurus borealis*)

The red bat is found from southern Canada, throughout the U.S., to Mexico and Central America (Barbour and Davis 1969). It is common in the Midwest and central states, and is present throughout Virginia and Kentucky (KBWG, VDGIF 2009, Whitaker and Hamilton 1998). During winter, male red bats are more commonly found in northern areas, while females are more often found in southern areas (Cryan 2003). There is no clear segregation of the genders during summer (Cryan 2003).

Red bats are migratory; however, migration patterns are poorly understood. Red bats inhabiting the eastern U.S. are likely to move south in the fall. In winter, red bats may hibernate in tree foliage for short periods, but arouse and forage during warm nights. Like most lasiurids, *Lasiurus borealis* typically roosts in tree foliage. Individual red bats may use several roost sites. Red bats hang from branches or leaf petioles and are camouflaged by leaves. Adults are solitary, but females and young roost together until young become volant.

Eastern red bats were captured at mist net sites 2, 4, 6, 7, 8, 9, and 10 (Table 3, Appendix D).

### 5.1.4 Eastern Small-Footed Bat (*M. leibii*)

The eastern small-footed bat is distributed along the Appalachian Mountains from Southern Maine, Vermont, and New Hampshire to northern Alabama, and west to northern Arkansas. Eastern small-footed bats appear to be sparsely distributed throughout their range, including

in Virginia and Kentucky (Barbour and Davis 1969, KBWG 2009, VDGIF 2009). In Virginia, the eastern small-footed bat occurs throughout all counties along the eastern third of the state (VDGIF 2009).

Little is known about the habits of this species. The eastern small-footed bat typically occurs in mountainous regions at elevations ranging from 787 to 3690 feet (240 to 1125 meters). They often are found in eastern deciduous and coniferous forests (Best and Jennings 1997). In summer, eastern small-footed bat may be found roosting in buildings, caves, rock outcrops, and mines (Harvey et al. 1999). This species is often found in late summer with other migrating bats, but migratory behavior of the eastern small-footed bat is not well known (Best and Jennings 1997). In winter, this species hibernates in caves and mines, often in the coldest locations near the entrance (Harvey 1992). The eastern small-footed bat begins hibernation later, and emerges from hibernation earlier, than most other species (Best and Jennings 1997). Hibernation begins late in the fall (mid-November) and individuals usually leave hibernation by March, although it has been noted that they may remain active throughout the winter months (Best and Jennings 1997).

Eastern small-footed bats were captured at mist net sites 2, 4, 7, and 8 (Table 3, Appendix D).

#### 5.1.5 Silver-Haired Bat (*Lasionycteris noctivagans*)

The silver-haired bat is common in forested areas throughout much of North America, although it is characterized as a northern species (Whitaker and Hamilton 1998). This species may be found throughout Virginia and Kentucky (KBWG 2009, VDGIF 2009). This species typically is found in parts of its range containing stands of coniferous or mixed coniferous and deciduous forests (Whitaker and Hamilton 1998). Silver-haired bats commonly roost in tree cavities, often switching roosts during the maternity season. Silver-haired bats typically are solitary, but may congregate in small maternity colonies usually numbering fewer than 10 individuals (Whitaker and Hamilton 1998).

Females are thought to migrate farther than males, and it is possible males remain in winter habitat year-round (Whitaker and Hamilton 1998). During migration, silver-haired bats have been found roosting in trees along a ridge (Whitaker and Hamilton 1998). Typical winter roosts for this species include trees, buildings, wood piles, and rock crevices (Harvey et al. 1999). Occasionally silver-haired bats will hibernate in caves or mines, especially in northern regions of their range.

Silver-haired bats roost in forested areas and feed predominantly in openings such as small clearings and along roadways or streams (Whitaker and Hamilton 1998). The silver-haired bat typically leaves the roost and begins to forage relatively late, with major foraging activity peaks 3, and 7 to 8 hours after sunset (Kunz 1973).

Silver-haired bat were captured at mist net sites 6, 9, and 10 (Table 3, Appendix D).

#### 5.1.6 Little Brown Bat (*M. lucifugus*)

The little brown bat is abundant throughout forested areas of the United States as far north as Alaska. This species often forms nursery colonies in buildings, attics, and other manmade structures (Harvey et al. 1999). These colonies are often close to a lake or stream. Males are likely solitary in the summer months (Harvey et al. 1999). In late August and early September, little brown bats prepare for hibernation, and may swarm at the entrance of

caves or mines (Whitaker and Hamilton 1998). Migration between summer and winter roosts may be short distances or several hundred miles (Fenton and Barclay 1980, Whitaker and Hamilton 1998). The timing of migration and hibernation depends upon local weather conditions, with northern populations hibernating from September to early May, and southern populations hibernating from November to March (Fenton and Barclay 1980). Little brown bats typically hibernate in caves and mines, and hibernacula are typically not used as summer roosts (Harvey et al. 1999, Whitaker and Hamilton 1998).

Little brown bats often forage over water where their diet consists of aquatic insects, including mosquitoes, mayflies, midges, and caddisflies. Foraging also occurs over forest trails, cliff faces, meadows, and farmland where they consume a wide variety of insects (Harvey et al. 1999).

Little brown bats were captured at mist net sites 4, 6, and 10 (Table 3, Appendix D).

#### 5.1.7 Eastern Pipistrelle (*Perimyotis subflavus*)

The eastern pipistrelle occurs in the eastern U.S., including all of Virginia and Kentucky (Barbour and Davis 1969, KBWG 2009, VDGIF 2005). This species appears abundant throughout its range. Summer and winter ranges are identical. The eastern pipistrelle is present year-round throughout Virginia and Kentucky. In summer, eastern pipistrelles have been found roosting in foliage and, rarely, in buildings. They may roost singly or in colonies of up to 30 bats (Barbour and Davis 1969). In winter, eastern pipistrelles hibernate in mines, quarries, caves, and rock crevices.

Eastern pipistrelles were captured at mist net sites 4, 8, and 10 (Table 3, Appendix D).

#### 5.1.8 Hoary Bat (*L. cinereus*)

The hoary bat is widespread throughout the U.S., but in eastern regions, the species distribution varies seasonally (Whitaker and Hamilton 1998). Breeding individuals are known from Canada south to Arkansas, Louisiana, and Georgia (Barbour and Davis 1969). The range of the hoary bat includes all of Virginia and Kentucky (Harvey et al. 1999, KBWG 2009). Maps of hoary bat distribution in Virginia vary, but the species is consistently depicted in the western third of the state (Whitaker and Hamilton 1998, VDGIF 2009). It appears that the genders are separate during summer, with females inhabiting the northeast region (Cryan 2003, Whitaker and Hamilton 1998). Reproductive females are found in the northeast as far south as Pennsylvania and Indiana (Whitaker and Hamilton 1998). Female hoary bats give birth between mid-May and early July (Cryan 2003).

In August, this species moves south to winter habitat in southeastern and southwestern states, the Caribbean, and Central and South America (Cryan 2003, Whitaker and Hamilton 1998). In the eastern U.S., hoary bats winter in northern Florida and southern Georgia, Alabama, Louisiana, and South Carolina (Whitaker and Hamilton 1998). Hoary bats apparently migrate in groups, with large numbers passing through an area over several nights in spring and fall (Whitaker and Hamilton 1998, Natureserve 2009). Females precede males in spring migration. In the north, some may hibernate rather than migrate (Whitaker 1980). Hoary bats migrate north from March through April (Whitaker and Hamilton 1998).

Hoary bats roost in foliage of deciduous or coniferous trees (Barbour and Davis 1969). The species generally is solitary except during migration and when young accompany females (Mumford and Whitaker 1982).

Hoary bats were captured at mist net site 6 (Table 3, Appendix D).

## 5.2 ANABAT

The data collected with Anabat detectors was generally consistent with the data collected via mist nets. The majority of the bats captured with mist nets or identified with Anabat detectors were *Myotis* species (49% and 45% respectively). This trend was also observed with respect to hoary bats (1% of mist net captures and >1% of Anabat calls). The big brown bat / silver-haired bat species group and the red bat / evening bat species group were captured in mist nets slightly more frequently than would be expected based on the Anabat data collected (31% and 19% respectively and 15% and 8% respectively). There was a significant difference between the percentages of eastern pipistrelles captured with mist nets versus identified with Anabat detectors (4% and 28% respectively). These differences are likely a result of differing habitat structure between mist net sites (closed canopy) and Anabat sites (open canopy), as well foraging strategies of a particular species.

Identification of bats using acoustic data can be problematic. One of the major limitations of the Anabat system is the possibility for misidentification. Sources of variation, such as variation between individual detector units (Larson and Hayes 2000), and call attenuation in different habitats (Griffin 1971, Brigham et al 1997, Patriquin 2003), can reduce the probability that a call will be correctly identified (Barclay 1999). Furthermore, call structures vary with age (Jones and Ransome 1993, Kazail et al. 2001), sex (Jones et al. 1992) and geographic region (Thomas et al. 1987, O'Farrell et al. 2000, Murray et al. 2001). Call filters and technology are constantly improving, but acoustic data should still be interpreted cautiously and the results applied judiciously.

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## TABLES

Table 1. Coordinates of 10 mist net and 10 acoustic (Anabat) sampling locations surveyed at the US Route 460 Connector Project Area, Buchanan County, Virginia from 1 to 13 June 2009.

Site Name	Easting	Northing
Mist Net Site 1	387162	4129721
Anabat Site 1	387142	4129599
Mist Net Site 2	388490	4129566
Anabat Site 2	388359	4129534
Mist Net Site 3	388737	4130014
Anabat Site 3	388817	4129890
Mist Net Site 4	390097	4129577
Anabat Site 4	390051	4129505
Mist Net Site 5	390694	4128533
Anabat Site 5	390799	4128681
Mist Net Site 6	390962	4127991
Anabat Site 6	391152	4127834
Mist Net Site 7	390504	4127240
Anabat Site 7	390435	4127001
Mist Net Site 8	391092	4126088
Anabat Site 8	391011	4125965
Mist Net Site 9	392315	4126033
Anabat Site 9	392260	4126029
Mist Net Site 10	392690	4124832
Anabat Site 10	392818	4125019

\* coordinates are UTM zone 17 S

Table 2. Description of mist net sites surveyed at the US Route 460 Connector Project, Buchanan County, Virginia from 1 to 13 June 2009.

Mist Net Site No.	Dates Surveyed	Net Placement	Dominant Overstory	Dominant Understory
Site 1	6/5-6/6	Both nets across grass road	<i>Fagus grandifolia</i> <i>Ulmus americana</i> <i>Acer rubrum</i>	<i>Acer rubrum</i> <i>Cercis canadensis</i> <i>Elaeagnus umbellata</i>
Site 2	6/12-13	Both nets across gravel road	<i>Robinia pseudoacacia</i> <i>Acer rubrum</i> <i>Liriodendron tulipifera</i>	<i>Robinia pseudoacacia</i> <i>Liriodendron tulipifera</i> <i>Acer rubrum</i>
Site 3	6/7-6/	Both nets across gravel road	<i>Platanus occidentalis</i> <i>Acer rubrum</i> <i>Juglans nigra</i>	<i>Acer rubrum</i> <i>Cercis canadensis</i> <i>Juglans nigra</i>
Site 4	6/12-13	Both nets across dirt road	<i>Liriodendron tulipifera</i> <i>Acer saccharum</i> <i>Betula alleghaniensis</i>	<i>Liriodendron tulipifera</i> <i>Acer saccharum</i> <i>Betula alleghaniensis</i>
Site 5	6/1-6/2	Both nets across abandoned mine road	<i>Fagus grandifolia</i> <i>Liriodendron tulipifera</i> <i>Acer saccharum</i>	<i>Acer saccharum</i> <i>Liriodendron tulipifera</i> <i>Betula alleghaniensis</i>
Site 6	6/1-6/2	Both nets across abandoned mine road	<i>Robinia pseudoacacia</i> <i>Liriodendron tulipifera</i> <i>Betula alleghaniensis</i>	<i>Acer Saccharum</i> <i>Liriodendron tulipifera</i> <i>Betula alleghaniensis</i>
Site 7	6/5-6/6	Both nets across gravel road	<i>Prunus serotina</i> <i>Acer saccharum</i> <i>Betula alleghaniensis</i>	<i>Prunus serotina</i> <i>Acer saccharum</i> <i>Betula alleghaniensis</i>
Site 8	6/9-6/10	Both net across gravel road	<i>Pinus strobus</i> <i>Acer rubrum</i> <i>Juglans cinerea</i>	<i>Acer rubrum</i> <i>Liriodendron tulipifera</i> <i>Elaeagnus umbellata</i>
Site 9	6/7-8	Both nets across gravel road near stream	<i>Platanus occidentalis</i> <i>Liriodendron tulipifera</i> <i>Pinus strobus</i>	<i>Liriodendron tulipifera</i> <i>Acer Saccharum</i> <i>Carpinus caroliniana</i>
Site 10	6/9-10	Both nets across gravel road	<i>Quercus alba</i> <i>Tilia americana</i> <i>Acer saccharum</i>	<i>Betula alleghaniensis</i> <i>Acer saccharum</i>



Table 5. Acoustic bat calls identified from 10 locations at the US Route 460 Connector Project Area from 1 to 13 June 2009.

Date	Anabat Site.	LACI <sup>1</sup>	EPFU / LANO <sup>2</sup>	CORA / COTO <sup>3</sup>	LABO / NYHU <sup>4</sup>	Myotis	PESU <sup>5</sup>	Totals by Day
5-Jun-09	1					2	1	3
6-Jun-09	1				15	16		31
12-Jun-09	2		117			372	138	627
13-Jun-09	2		34		14	297	57	402
7-Jun-09	3					2		2
8-Jun-09	3				3	1		4
12-Jun-09	4	1	121		6	38	356	522
13-Jun-09	4		27		6	55	231	319
1-Jun-09	5							0
2-Jun-09	5							0
1-Jun-09	6		62		89	61	39	251
2-Jun-09	6		95		51	3	17	166
5-Jun-09	7		5			178		183
6-Jun-09	7		2		34	212		248
9-Jun-09	8		25		7	12	18	62
10-Jun-09	8		17			35	19	71
7-Jun-09	9		2		1	17	2	22
8-Jun-09	9		1		7	39		47
9-Jun-09	10		67		7	48	12	134
10-Jun-09	10		35		2	23	15	75
<b>TOTALS</b>		<b>1</b>	<b>610</b>	<b>0</b>	<b>242</b>	<b>1411</b>	<b>905</b>	<b>3169</b>

<sup>1</sup> LACI = *Lasiurus cinereus* (hoary bat)

<sup>2</sup> EPFU / LANO = *Eptesicus fuscus* (big brown bat) / *Lasionycteris noctivagans* (silver-haired bat)

<sup>3</sup> CORA / COTO = *Corynorhinus rafinesquii* (Rafinesque's big-eared bat) / *Corynorhinus townsendii virginianus* (Virginia big-eared bat)

<sup>4</sup> LABO / NYHU = *Lasiurus borealis* (red bat) / *Nycticeius humeralis* (evening bat)

<sup>5</sup> PESU = *Perimyotis subflavus* (eastern pipistrelle)

## FIGURES

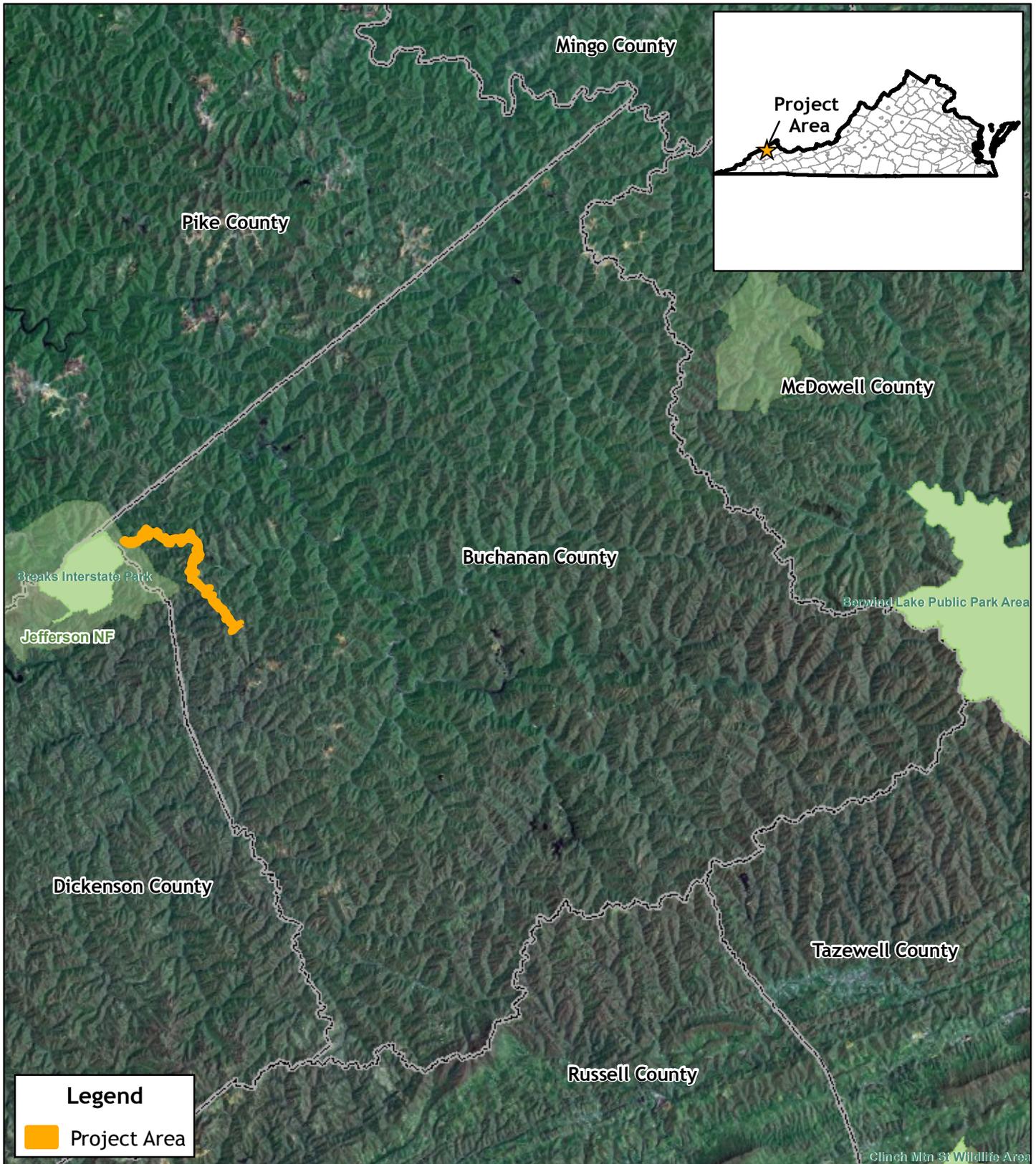
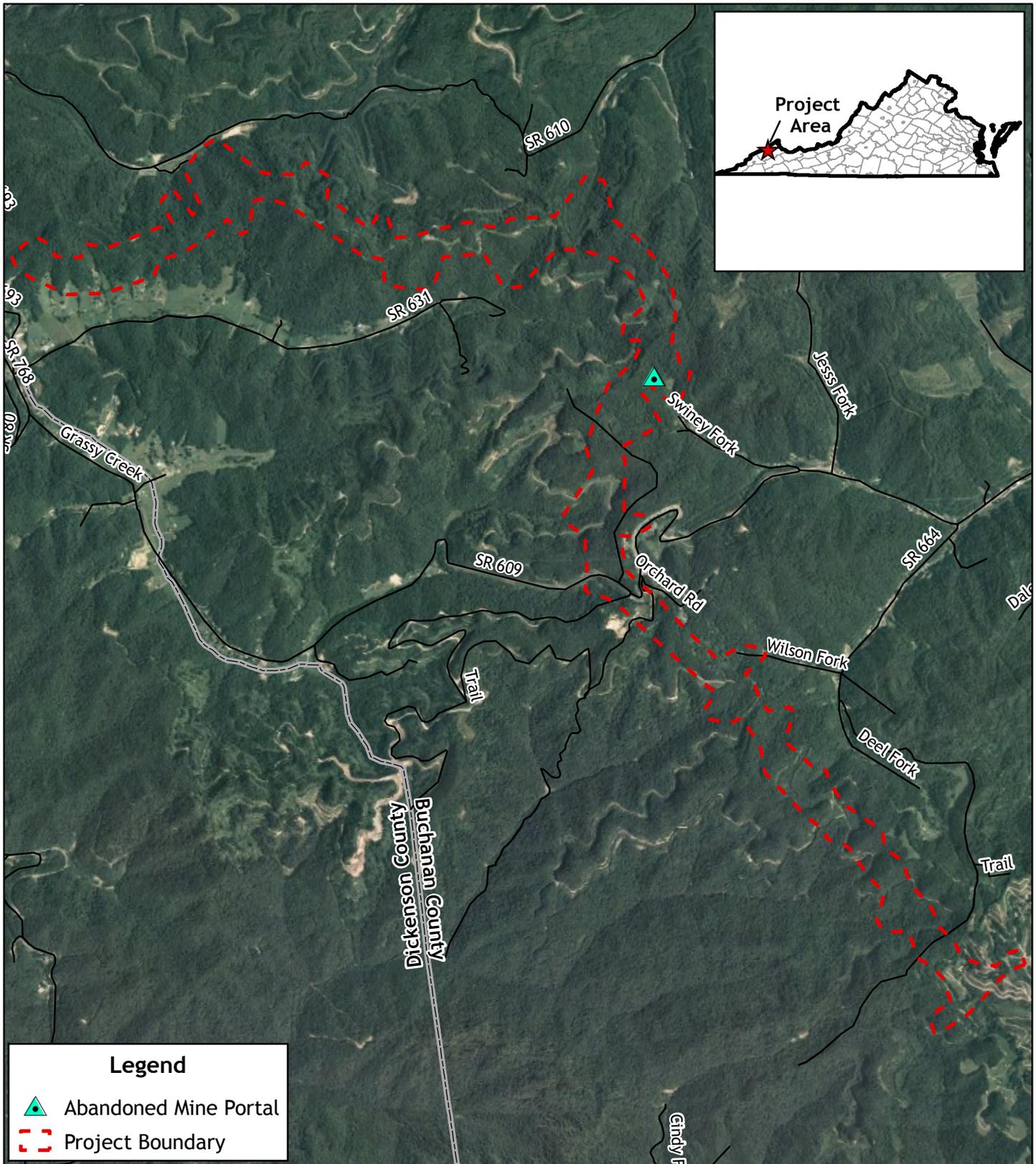
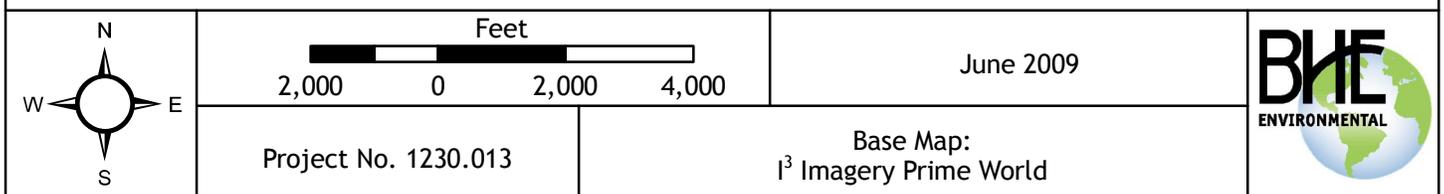


Figure 1. Location of the proposed Phase II of the US Route 460 Connector Project in Buchanan County, Virginia.

	<p>Miles</p>	<p>April 2009</p>	
<p>Project No. 1230.013</p>		<p>Base Map: I<sup>3</sup> Imagery Prime World 2D</p>	



**Figure 2. Location of the abandoned mine portal surveyed during spring emergence within Phase II of the US Route 460 Connector Project in Buchanan County, Virginia.**



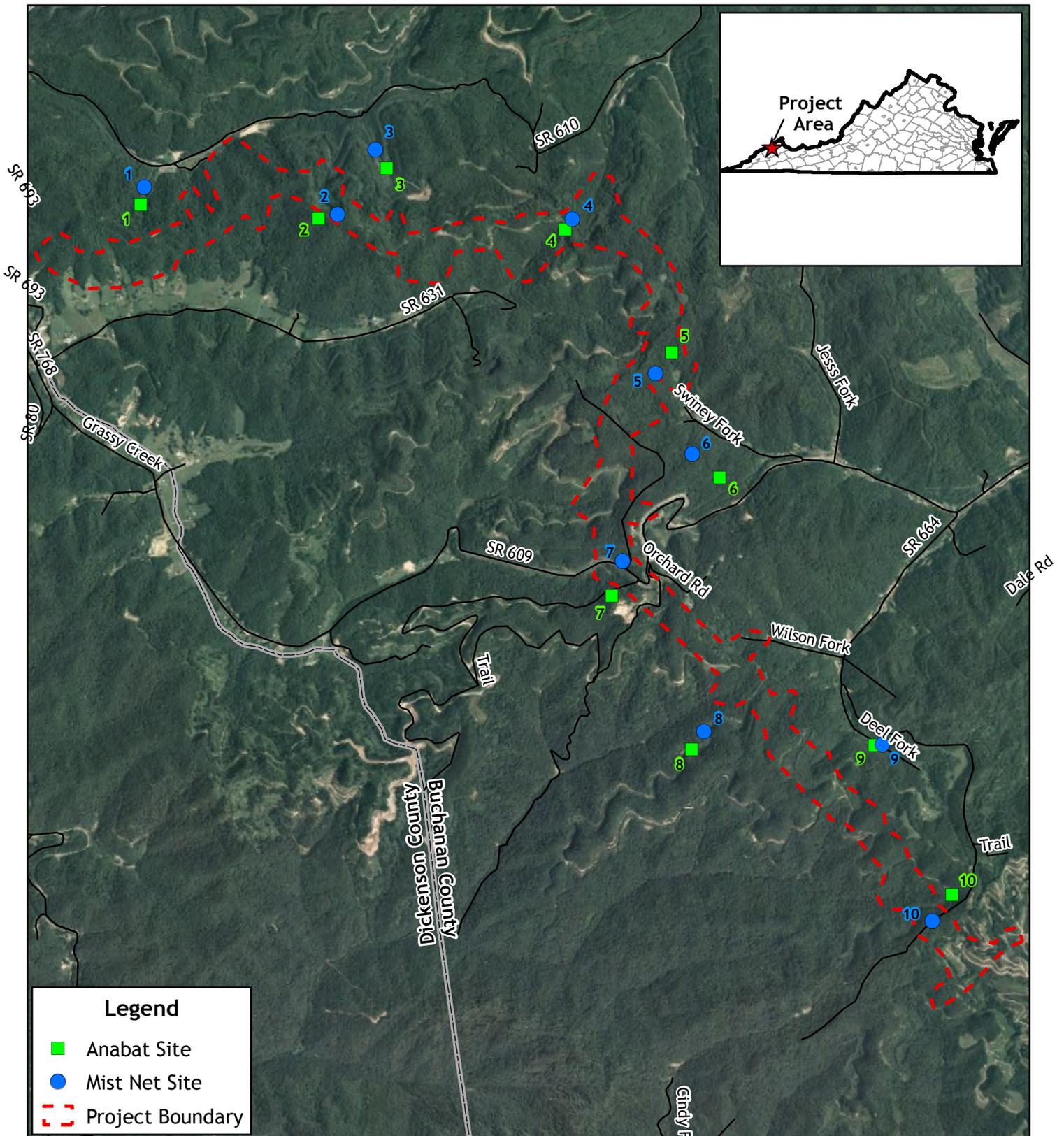


Figure 3. Location of ten mist net survey sites and ten Anabat survey sites within Phase II of the US Route 460 Connector Project in Buchanan County, Virginia.

		June 2009	
	Project No. 1230.013	Base Map: I <sup>3</sup> Imagery Prime World	

## APPENDICES

## Appendix A. USFWS Indiana Bat Survey Guidelines

## GUIDELINES FOR MIST NETTING INDIANA BATS

These guidelines were prepared by the Indiana Bat Recovery Team and are presented in the Indiana Bat (*Myotis sodalis*) Revised Recovery Plan (USFWS 2007).

### RATIONALE

A typical mist-net survey is an attempt to determine presence or probable absence of the species; it does not provide sufficient data to determine population size or structure. Following these guidelines will standardize procedures for mist netting. It will help maximize the potential for capture of Indiana bats at a minimum acceptable level of effort. Although the capture of bats confirms their presence, failure to catch bats does not absolutely confirm their absence. Netting effort as extensive as outlined below usually is sufficient to capture Indiana bats if they are present. However, there have been instances in which additional effort yielded detection when the standard effort did not. The Service accepts the results of these surveys to determine presence for the purposes of Section 7 consultation.

### NETTING SEASON: May 15 - August 15

May 15-August 15 are acceptable limits for documenting the presence of summer populations of Indiana bats, especially maternity colonies. (However, see Kiser and MacGregor 2005 for precautions regarding early-season surveys between May 15 and June 1, as well as late-season surveys between August 1 and August 15). Capture of reproductive adult females (i.e., pregnant, lactating, or post-lactating) and/or young of the year during the May 15-August 15 period indicates that a nursery colony is active in the area. Outside these dates, even when Indiana bats are caught, data should be carefully interpreted. Particularly if only a single bat is captured, it may be a transient or migratory individual.

### EQUIPMENT

Mist nets to be used for Indiana bat surveys should be the finest, lowest visibility mesh commercially available: 1) In the past, this was 1 ply, 40 denier monofilament-denoted 40/1; 2) Currently, monofilament is not available and the finest on the market is 2 ply, 50 denier nylon denoted 50/2; 3) The finest mesh size available is approximately 38 mm (~1 1/2 in).

No specific hardware is required. There are many suitable systems of ropes and/or poles to hold the nets. The system of Gardner et al. (1989) has been widely used. See NET PLACEMENT below for minimum net heights, habitats, and other netting requirements that affect the choice of hardware

### NET PLACEMENT

Potential travel corridors such as streams or logging trails typically are the most effective places to net. Place the nets approximately perpendicular across the corridor. Nets should fill the corridor from side to side and from stream (or ground) level up to the overhanging canopy. A typical set is 7 m high consisting of three or more nets stacked on top one another and up to 20 m wide. (Different width nets may be purchased and used as the situation dictates.)

Occasionally it may be desirable to net where there is no good corridor. Take caution to get the nets up into the canopy. The typical equipment described in the section above may be inadequate for these situations, requiring innovation on the part of the observers.

See Kiser and MacGregor (2005) for additional discussion of net placement.

### RECOMMENDED NET SITE SPACING

Stream corridors—one net site per km of stream.

Study areas other than stream corridors—two net sites per square km of habitat.

#### **MINIMUM LEVEL OF EFFORT**

A “net night” is defined as one net set up for one night. Netting at each site should include at least four net nights, consisting of: 1) a minimum of two net locations at each site (at least 30 m apart, especially in linear habitat such as a stream corridor); and 2) a minimum of two nights of netting (i.e., two net locations for two nights = four net nights per site). The sample period should begin at sunset; net for at least 5 hours (longer sample periods may improve success). For purposes of determining presence or probable absence of Indiana bats, four net nights at a site are not required if Indiana bats are caught sooner (i.e., if Indiana bats are caught on the first night of netting, a second night is not required).

#### **CHECKING NETS**

Each net should be checked approximately every 10 minutes. Some researchers prefer continuous monitoring (with or without an electronic bat detector); care must be taken to avoid noise and movement near the nets if this technique is used. When monitoring the site continuously with a bat detector, bats can be detected immediately when they are captured in the net. Prompt removal from the net decreases stress on the bat and potential for the bat to escape (MacCarthy et al. 2006). Monitoring the net with a bat detector also allows the researcher to assess the effectiveness of their net placement (i.e., if bats are active near the nets but avoiding capture); this may allow for adjustments that will increase netting success on subsequent nights. There should be no disturbance near the nets, other than to check nets and remove bats.

#### **WEATHER AND LIGHT CONDITIONS**

Severe weather adversely affects capture of bats. If Indiana bats are caught during weather extremes, it is probably because they are at the site and active despite inclement weather. On the other hand, if bats are not caught, it may be that there are bats at the site but they may be inactive due to the weather. Negative results combined with any of the following weather conditions throughout all or most of a sampling period are likely to require additional netting: 1) precipitation; 2) temperatures below 10°C; and/or 3) strong winds (use good judgment: moving nets are more likely to be detected by bats).

It is typically best to set nets under the canopy where they are out of the moonlight, particularly when the moon is ½-full or greater. Areas illuminated by artificial light sources should also be avoided.

## Appendix B. Agency Coordination



February 24, 2009

Ms. Cindy Schulz  
U.S. Fish and Wildlife Service  
Virginia Field Office  
6669 Short Lane  
Gloucester, VA 23061

**RE: Request Concurrence for Proposed Indiana and Gray Bat Survey**

Dear Ms. Schulz,

BHE Environmental, Inc. (BHE) has been contracted to conduct a survey for Indiana bats and gray bats at a site in Buchanan County, Virginia. Our client has requested mine portal surveys, acoustic (Anabat) surveys, and mist net survey of ten sites within their proposed project area. The proposed project area is composed of a 1000 foot (305 meter) linear corridor that extends approximately 6.2 miles (10 kilometers). The proposed project area is mostly forested.

BHE annually conducts numerous surveys for endangered bats throughout the eastern United States. BHE's Federal Fish and Wildlife Permit No. TE 809227-19 provides broad authority to capture, handle, radio-tag, and release Indiana bats and gray bats throughout U.S. Fish and Wildlife Service (USFWS) Regions 3, 4, and 5, on the condition of project-specific concurrence from local USFWS Field Offices.

The purpose of this correspondence is to obtain your concurrence with the proposed methods for the survey in Buchanan County in order to meet requirements of our federal permit. BHE will follow methods described in the 2007 Indiana Bat Draft Recovery Plan for investigating presence or probable absence of Indiana bats using mist net surveys (no survey protocol currently exists for the gray bat). The proposed study plan is attached.

To minimize the potential for the transmission of White Nose Syndrome (WNS) while handling bats, BHE will implement the Disinfection Protocol for Summer Bat Field Studies as outlined by the State of West Virginia (2008).

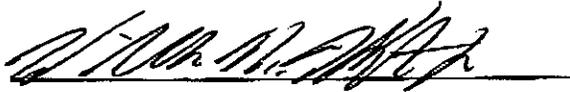
If the proposed plan is acceptable, please reply by e-mail, or sign this letter in the space provided below and return it by fax to me at 513.326.1550. Should you have any questions or comments about the proposed work plan, please contact me by phone at 513.326.1560 or by e-mail at [bsteffen@bheenvironmental.com](mailto:bsteffen@bheenvironmental.com). I appreciate your assistance.

February 24, 2009  
Page 2

Sincerely,



Bradley J. Steffen  
Biologist / Project Manager  
Natural Resources Management Group



signature

5-11-09

date

## Bradley Steffen

---

**From:** Rick.Reynolds@dgif.virginia.gov  
**Sent:** Tuesday, April 21, 2009 2:58 PM  
**To:** Bradley Steffen  
**Subject:** RE:

Brad,

The protocol looks fine to me with the following WNS guidelines. Follow the FWS summer mist netting guidelines as well the guidelines below.

1. You may not use equipment in VA that has been used in another state where WNS has been confirmed.
2. Because WNS has been confirmed in VA, we recommend you do not use "VA equipment" in any other state, especially states where WNS has not been confirmed.
3. Each bat should be placed in a separate disposable bag (we recommend a paper lunch bag). Each bat should be processed in a separate light plastic sandwich bag, thus eliminating contact with measuring equipment (calipers, scales, etc.). Any equipment that comes in contact with a bat must be disinfected before it is used on another bat.
4. Mist nets and harp trap bags must be cleaned when moving to a new location. Follow FWS protocols.

If you have any questions or need to borrow equipment, please let me know. Thanks

Rick Reynolds  
Wildlife Biologist  
VDGIF  
Verona Regional Office

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## Appendix C. Spring Emergence Datasheets

BAT TRAPPING SURVEY

Survey date 4/24/2009

1. Surveyors names B. Steffen & S. Williams
2. Cave/Mine name Portal C
3. Location: County Buchanan, VA; Topographic map distance and cardinal directions to nearest town: N \_\_\_ or S \_\_\_ and E 1.8m or W \_\_\_ of (town) Harman, VA  
 Quadrangle name Harman  
 Location coordinates: <sup>UTM</sup> ~~X~~ Latitude 0390723.58 <sup>Y</sup> Longitude 4128572.11
4. Cave/Mine access (who controls access? Give name and address) \_\_\_\_\_
5. Trap hours: Start 2015 Stop 0300 Total hours 6.75
6. Trap type (circle one): A. Tuttle trap B. Mist Net  
 Dimensions of trap/net surface area 4' x 4' No. of nets 1 trap
7. Describe trap placement in relation to cave/mine entrance. Attach diagram with scale.  
description below, diagram on back
8. Outside air temperature at Start time 77 F Stop time 68 F
9. Percent of sky overcast 10 % Precipitation 0 (amount) Wind velocity <1 (mph)
10. Describe habitat 150' around trap. Describe topography and vegetation including dominant tree species.

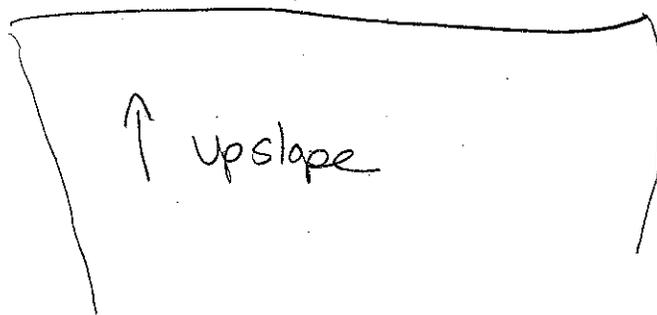
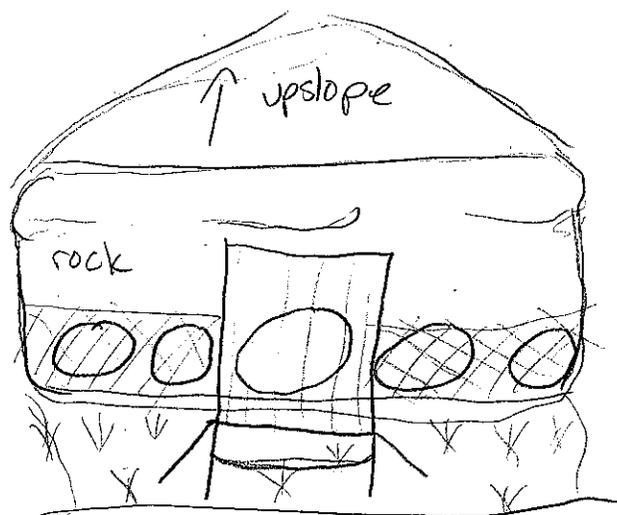
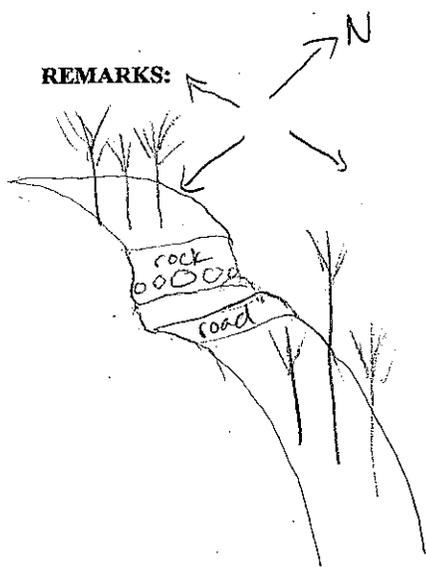
Dominant tree species - *Liriodendron tulipifera*  
*Fagus americana*  
*Acer saccharum*

Portal comprised of 5 openings on a rock face along the ridge side. Center opening covered by harp trap w/ remaining openings blocked w/ netting.  
 Diagram on back side

BAT SPECIES TRAPPED

SPECIES	NUMBER MALES	NUMBER FEMALES	TOTAL NUMBER
<i>Myotis septentrionalis</i>	0	1	1
TOTAL	0	1	1

REMARKS:



BAT TRAPPING SURVEY

Survey date 4/25/2009

1. Surveyors names B. Steffen & S. Williams
2. Cave/Mine name Portal 6
3. Location: County Buchanan, VA; Topographic map distance and cardinal directions to nearest town: N \_\_\_ or S \_\_\_ and E 1.8mi or W \_\_\_ of (town) Harman, VA  
 Quadrangle name Harman  
 Location coordinates: <sup>UTM</sup> Latitude 0390723.58 <sup>Y</sup> Longitude 4128572.11
4. Cave/Mine access (who controls access? Give name and address) \_\_\_\_\_
5. Trap hours: Start 2015 Stop 0300 Total hours 6.75
6. Trap type (circle one): A. Tuttle trap B. Mist Net  
 Dimensions of trap/net surface area 4' x 4' No. of nets 1 trap
7. Describe trap placement in relation to cave/mine entrance. Attach diagram with scale.  
See previous datasheet
8. Outside air temperature at Start time 76 F Stop time 70 F
9. Percent of sky overcast 10% Precipitation ∅ (amount) Wind velocity < 1 (mph)
10. Describe habitat 150' around trap. Describe topography and vegetation including dominant tree species.

BAT SPECIES TRAPPED

SPECIES	NUMBER MALES	NUMBER FEMALES	TOTAL NUMBER
<i>Myotis septentrionalis</i>	0	1	1
TOTAL	0	1	1

REMARKS:

## Appendix D. Summer Mist Net Datasheets

### NET SITE DESCRIPTION

Date: 6/05/09 Biologists: B. Steffen, S. White

County: Buchanan State: VA Quad: Elkhorn City

Project Name: Rt. 460 Connector Project Number: 1230.013

UTM Zone: 17s GPS Waypoint Name: \_\_\_\_\_

Easting: 3 8 7 1 6 2

Northing: 4 1 2 9 7 2 1

Comments (If photos taken, include direction camera was facing): \_\_\_\_\_

Pic 1 => Net 1 Facing N, Pic 2 => Net 2 Facing S.

#### STREAM NAME:

Bank Height (indicate units):

Channel Width (indicate units):

Stream Width (indicate units):

Substratum:

Average Water Depth (indicate units):

Turbidity:

Presence of open flyway above stream?

#### VEGETATION:

Estimated % Canopy Closure: Net 1 = 0% Net 2 = 0%

Dominant canopy species (at least 3; scientific names; spell out):

Fagus grandifolia, Quercus americana, Acer rubrum

Average canopy diameter at breast height (DBH; indicate units): 18 in

Dominant understory species (at least 3; scientific names; spell out):

Acer rubrum, Cirsium canadensis, Elaeagnus umbellata

Average understory DBH (indicate units): 3 in

Estimated density of understory vegetation: high moderate low



### WEATHER DATA

Date: 6/05/09

Biologists: B. Steffen, S. White

County: Buchanan

State: VA

Quad: Elkhorn City

Project Name: Rt. 460 Connector

Project Number: 1230.013

Estimated Moon Phase: new    1/4    1/2    3/4    full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2045	60	4	N/A	No	0%	b:t foggy
2115	58	4	N/A	No	0%	
2145	56	4	N/A	No	10%	
2215	56	4	N/A	No	0%	
2245	54	4	N/A	No	0%	
2315	54	4	N/A	No	0%	
2345	54	4	N/A	No	0%	
0015	54	4	N/A	No	0%	
0045	53	4	N/A	No	0%	
0115	52	4	N/A	No	0%	
0145	52	4	N/A	No	0%	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph      smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph      wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust



## WEATHER DATA

Date: 6/06/09 Biologists: B. Steffen, J. White

County: Buchanan State: VA Quad: Elkhorn City

Project Name: Rt. 460 Connector Project Number: 1230.013

Estimated Moon Phase: new    1/4    1/2    3/4    full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2045	61	41	N/A	No	0%	
2115	60	41	N/A	No	0%	
2145	58	41	N/A	No	10%	moon behind ridge
2215	56	41	N/A	No	20%	↓
2245	55	41	N/A	No	10%	↓
2315	55	41	N/A	Yes	30%	
2345	55	41	N/A	Yes	40%	
0015	54	41	N/A	Yes	20%	
0045	54	41	N/A	No	20%	moon behind trees
0115	53	41	N/A	Yes	10%	
0145	53	41	N/A	Yes	0%	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph      smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph      wind felt on face; leaves rustle; small twigs move
- 8-12 mph     leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph    moves small branches; raises dust



### NET SITE DESCRIPTION

Date: 6/12-13/09 Biologists: B. Steffen

County: Buchanan State: VA Quad: Ellchorn City

Project Name: Rt 460 Connector Project Number: 1230.013

UTM Zone: 17s GPS Waypoint Name: BakerNet2

Easting: 3 8 8 4 9 0

Northing: 4 1 2 9 5 6 6

Comments (If photos taken, include direction camera was facing): Plot 1 ⇒ Net 1 facing E; Plot 2 ⇒ Net 2 facing east

#### STREAM NAME:

Bank Height (indicate units):

Channel Width (indicate units):

Stream Width (indicate units):

*N/A*

Substratum:

Average Water Depth (indicate units):

Turbidity:

Presence of open flyway above stream?

#### VEGETATION:

Estimated % Canopy Closure: Net 1 = 100% Net 2 = 100%

Dominant canopy species (at least 3; scientific names; spell out):

*Robinia pseudacacia, Acer rubrum, Liquidambar tulipifera*  
Average canopy diameter at breast height (DBH; indicate units):

Dominant understory species (at least 3; scientific names; spell out):

*Robinia pseudacacia, Liquidambar tulipifera, Acer rubrum*  
Average understory DBH (indicate units):

Estimated density of understory vegetation: high moderate low



## WEATHER DATA

Date: 6/12/09 Biologists: B. Steffen

County: Buchanan State: VA Quad: Elkhorn City

Project Name: Rt 460 Connector Project Number: 1230.013

Estimated Moon Phase: new    ¼    ½    ¾    full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2045	68	41	N/A	No	100%	
2115	66	41	N/A	No	100%	
2145	66	41	N/A	No	100%	
2215	65	41	N/A	No	100%	
2245	65	41	N/A	No	100%	
2315	64	41	N/A	No	100%	
2345	64	41	N/A	No	100%	
0015	62	41	N/A	No	100%	
0045	61	41	N/A	No	100%	
0115	61	41	N/A	No	100%	
0145	60	41	N/A	No	100%	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph      smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph      wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust

Site Name/Number: BakerNet2

Page 1 of 1

### BAT CAPTURE DATA SHEET

Date: 6/12/09 Biologists: B. Steffen

County: Buchanan State: VA Quadrangle: Elkhorn City

Project Name: Rt. 460 Connector Project Number: 1230.013

Net 1 Size: width 6m height 6m Net 2 Size: width 6m height 6m

Site Description/Comments: Both nets across a gravel road on top of ridge

Net Up Time: 2045 Net Down Time: 0145

Capture No.	Net No.	Time (military)	Height (m)	Age (A/J)	Sex (F/M)	Repro. Cond.	Weight (g)	RFA Length (mm)	Band Color/No.	Species (scientific name spell out)	Comments
1	1	2115	2m	A	M	NR	7.5g	35.5	-	<i>Myotis septentrionalis</i>	No WNS damage
2	1	2115	2m	A	F	Preg	-	-	-	<i>Myotis leibii</i>	escape / no WNS dam.
3	2	2135	2m	A	F	Preg	7.5g	36.7	-	<i>Myotis septentrionalis</i>	No WNS damage
4	1	2215	3m	A	F	Preg	8.5g	33.9	-	<i>Myotis septentrionalis</i>	No WNS damage
5	2	2215	4m	A	M	Scrot	7.5g	35.7	-	<i>Myotis septentrionalis</i>	No WNS damage
6	2	0015	2m	A	M	Scrot	8.5g	39.4	-	<i>Lasiurus borealis</i>	No WNS damage

Reproductive Condition: N = non-reproductive, P = pregnant, L = lactating, PL = post-lactating, TD = testes descended

## WEATHER DATA

Date: 6/13/09Biologists: S. SteffenCounty: BuchananState: VAQuad: Elkhorn CityProject Name: Et 466 ConnectorProject Number: 1230.013Estimated Moon Phase: new    1/4    1/2    3/4    full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2045	67	41	N/A	No	0%	
2115	66	41	N/A	No	0%	
2145	66	41	N/A	No	0%	
2215	66	41	N/A	No	0%	
2245	65	41	N/A	No	0%	
2315	65	41	N/A	No	0%	
2345	64	41	N/A	No	0%	
0015	63	41	N/A	No	0%	
0045	62	41	N/A	No	0%	
0115	62	41	N/A	No	0%	
0145	62	41	N/A	No	0%	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph     smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph     wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust



### NET SITE DESCRIPTION

Date: 6/07/09 Biologists: B. Steffen, J. White

County: Buchanan State: VA Quad: Elkhorn City

Project Name: Rt 460s Connector Project Number: 1230.015

UTM Zone: 17S GPS Waypoint Name: BakerNet3

Easting: 3 8 8 7 3 7

Northing: 4 1 3 0 0 1 4

Comments (If photos taken, include direction camera was facing): Pic 1 => Net 2 - Facing N. Pic 2 Net 1 - Facing N

#### STREAM NAME:

Bank Height (indicate units):

Channel Width (indicate units):

Stream Width (indicate units):

Substratum:

Average Water Depth (indicate units):

Turbidity:

Presence of open flyway above stream?

#### VEGETATION:

Estimated % Canopy Closure: Net 1 = 90% Net 2 = 100%

Dominant canopy species (at least 3; scientific names; spell out):

Platanus occidentalis, Acer rubrum, Juglans nigra

Average canopy diameter at breast height (DBH; indicate units): 20in

Dominant understory species (at least 3; scientific names; spell out):

Acer rubrum, Cirsium canadensis, Juglans nigra

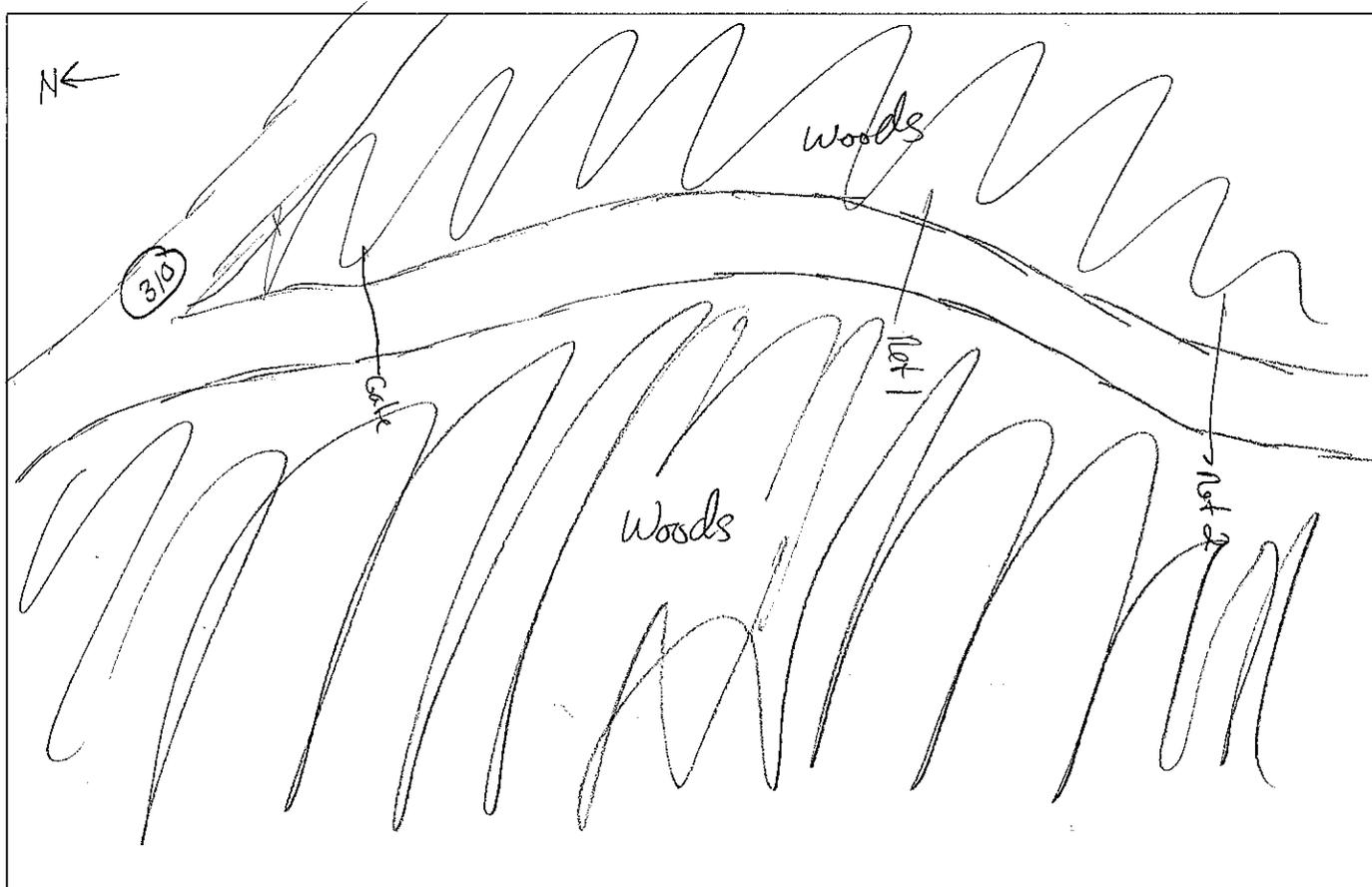
Average understory DBH (indicate units): 3in

Estimated density of understory vegetation: high moderate low

Description of potential Indiana bat roost trees visible from net site

Tree Species (scientific names; spell out)	Est. DBH (with units)	Live or dead	Est. % loose bark	Comments
N/A				

Drawing of net site. Include north arrow & location of each net.



## WEATHER DATA

Date: 6/07/09 Biologists: B Steffen, J White

County: Buchanan State: VA Quad: Elkhorn City

Project Name: Et 460 Connector Project Number: 1230.013

Estimated Moon Phase: new    1/4    1/2    3/4    full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2045	66	41	N/A	No	0%	
2115	64	41	N/A	No	0%	moon behind ridge
2145	63	41	N/A	No	0%	↓
2215	62	41	N/A	No	0%	↓
2245	61	41	N/A	Yes	0%	
2315	60	41	N/A	Yes	0%	
2345	60	41	N/A	Yes	0%	
0015	60	41	N/A	Yes	0%	
0045	59	41	N/A	Yes	0%	
0115	58	41	N/A	Yes	0%	
0145	58	41	N/A	Yes	0%	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph     smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph     wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust



**WEATHER DATA**Date: 6/08/09Biologists: B. Steffen, J. WhiteCounty: BuchananState: VAQuad: Elkhorn CityProject Name: Rt 460 ConnectorProject Number: 1230.013Estimated Moon Phase: new    1/4    1/2    3/4    full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2045	66	21	N/A	No	100%	
2115	66	21	N/A	No	80%	
2145	65	21	N/A	No	90%	Moon behind ridge
2215	64	21	N/A	No	90%	↓
2245	64	21	N/A	No	40%	↓
2315	64	21	N/A	Yes	20%	
2345	64	21	N/A	Yes	60%	
0015	63	21	N/A	No	80%	moon behind clouds
0045	63	21	N/A	No	80%	
0115	62	21	N/A	No	60%	
0145	62	21	N/A	No	80%	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph     smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph     wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust



### NET SITE DESCRIPTION

Date: 12 June 2009 Biologists: L. Winhold & G. Janos

County: Buchanan State: VA Quad: Harman

Project Name: Rt 460 connector Project Number: 1230.013

UTM Zone: 17S GPS Waypoint Name: Baker-Net 4

Easting: 3 9 0 0 9 7

Northing: 4 1 2 9 5 7 7

Comments (If photos taken, include direction camera was facing): \_\_\_\_\_

Photo of Net 1 facing N  
Photo of Net 2 facing SE

STREAM NAME: None

Bank Height (indicate units):

Channel Width (indicate units):

Stream Width (indicate units):

Substratum:

Average Water Depth (indicate units):

Turbidity:

Presence of open flyway above stream?

#### VEGETATION:

Estimated % Canopy Closure: Net 1 = 80 Net 2 = 100

Dominant canopy species (at least 3; scientific names; spell out):

Liriodendron tulipifera, Acer saccharum, Betula alleghaniensis

Average canopy diameter at breast height (DBH; indicate units): 30cm

Dominant understory species (at least 3; scientific names; spell out):

Liriodendron tulipifera, Acer saccharum, Betula alleghaniensis

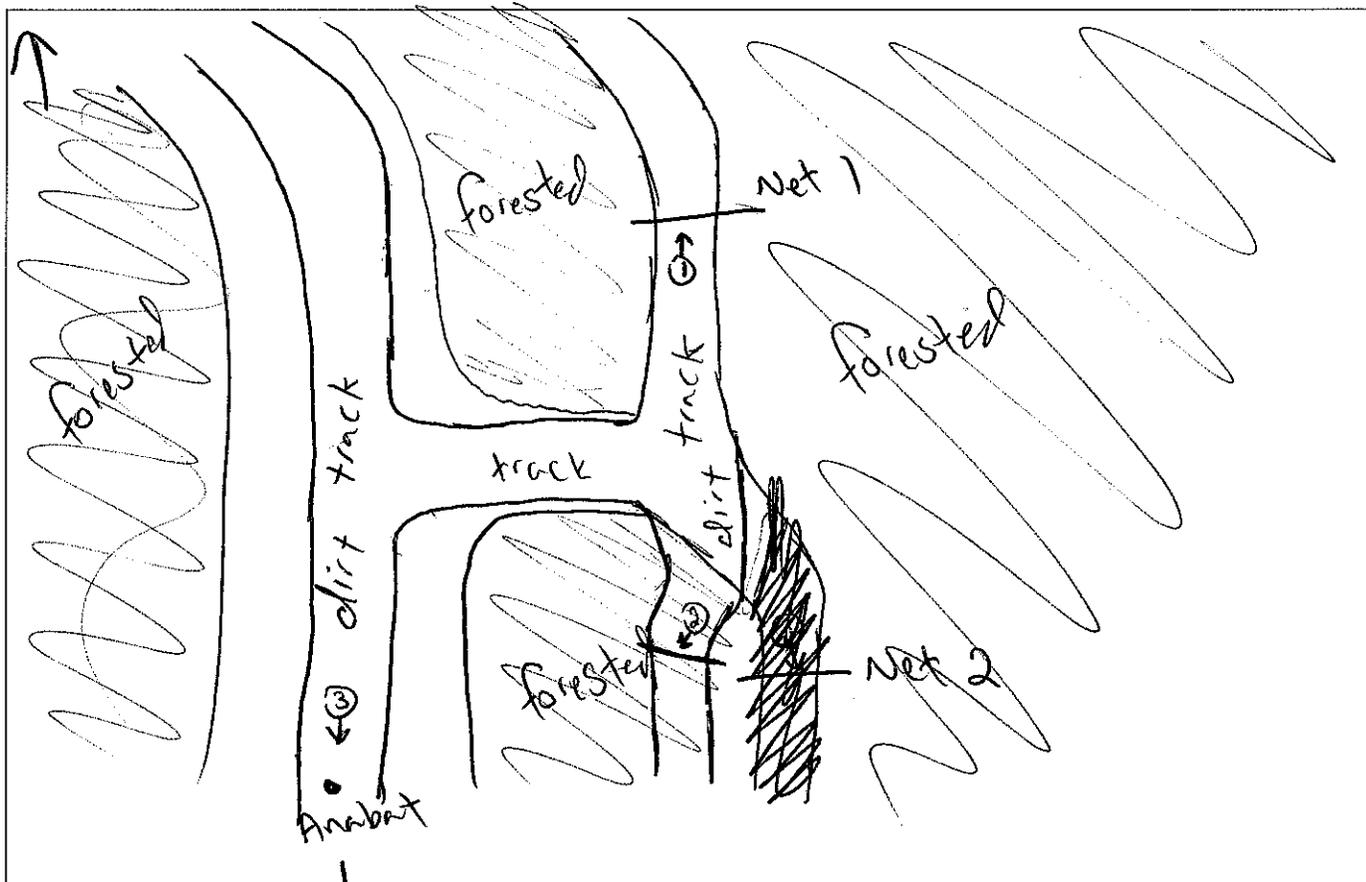
Average understory DBH (indicate units): 6cm

Estimated density of understory vegetation: high moderate low

Description of potential Indiana bat roost trees visible from net site

Tree Species (scientific names; spell out)	Est. DBH (with units)	Live or dead	Est. % loose bark	Comments
<i>None</i>				

Drawing of net site. Include north arrow & location of each net.



### WEATHER DATA

Date: 12 June 2009 Biologists: L. Winhold & G. Janos

County: Buchanan State: VA Quad: Harman

Project Name: Rt 460 connector Project Number: 1230.013

Estimated Moon Phase: new    1/4    1/2    3/4    full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
20:45	66	0	N/A	No	100	occasional sprinkles
21:15	66	0	N/A	No	100	
22:15	66	0	N/A	No	70	
22:45	66	0	N/A	No	100	
23:15	65	0	N/A	No	100	
23:45	65	0	N/A	No	100	light sprinkle foggy
00:15	64	0	N/A	No	30	foggy
00:45	64	0	N/A	No	30	
01:15	64	0	N/A	No	10	
01:45	64	0	N/A	No	100	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph      smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph      wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust

Site Name/Number: Baker Net 4

### BAT CAPTURE DATA SHEET

Date: 12 June 2009 Biologists: L. Winhold & G. Janos

County: Buchanan State: VA Quadrangle: Harman

Project Name: Rt 460 Connector Project Number: 1230.013

Net 1 Size: width 6m height 6m Net 2 Size: width 6m height 6m

Site Description/Comments: both nets across forested dirt track.

Net Up Time: 20:45

Net Down Time: 01:45

Capture No.	Net No.	Time (military)	Height (m)	Age (A/J)	Sex (F/M)	Repro. Cond.	Weight (g)	RFA Length (mm)	Band Color/No.	Species (scientific name spell out)	Comments
1	1	2130	1.0	A	F	N	6.0	32.7	—	<i>Myotis leibii</i>	WNS score 0 <sup>foot 3.2mm</sup>
2	1	2130	1.6	A	F	P	7.0	33.2	—	<i>Myotis leibii</i>	WNS score 0 <sup>foot 3.2mm</sup>
3	2	2130	3.0	A	M	N	6.0	34.1	—	<i>Myotis septentrionalis</i>	WNS score 0 <sup>foot 3.2mm</sup>
4	1	2200	2.0	A	F	P	6.5	34.0	—	<i>Myotis leibii</i>	WNS score 0 <sup>foot 3.2mm</sup>
5	1	2230	2.0	A	M	N	6.5	34.5	—	<i>Myotis septentrionalis</i>	WNS score 0
6	1	2230	2.0	A	M	N	7.0	36.3	—	<i>Myotis lucifugus</i>	WNS score 0
7	1	2230	3.0	A	M	N	7.0	37.5	—	<i>Myotis lucifugus</i>	WNS score 0
8	1	2240	2.0	A	M	N	12.5	41.2	—	<i>Lasiurus borealis</i>	WNS score 0
9	1	2300	2.0	A	M	N	6.0	36.1	—	<i>Myotis septentrionalis</i>	WNS score 0

Reproductive Condition: N = non-reproductive, P = pregnant, L = lactating, PL = post-lactating, TD = testes descended



### WEATHER DATA

Date: 13 June 2009

Biologists: L. Winhold + G. Janos

County: Buchanan

State: VA

Quad: Harman

Project Name: Rt. 460 connector

Project Number: 1230.013

Estimated Moon Phase: new    ¼    ½    ¾    full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2115	65	0	N/A	No	0	
2145	65	0	N/A	No	0	
2215	64	0	N/A	No	0	occasional flash of lightning to distant south
2245	64	0	N/A	No	0	
2315	64	0	N/A	No	0	
2345	64	0	N/A	No	0	
0015	63	0	N/A	No	0	
0045	63	0	N/A	No	0	
0115	63	0	N/A	No	0	
0145	62	0	N/A	No	0	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph      smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph      wind felt on face; leaves rustle; small twigs move
- 8-12 mph     leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph    moves small branches; raises dust

Site Name/Number: Baker Net 4

### BAT CAPTURE DATA SHEET

Date: 13 June 2009 Biologists: L. Winhold & G. Janos

County: Buchanan State: VA Quadrangle: Harman

Project Name: Rt. 460 connector Project Number: 1230.013

Net 1 Size: width 6m height 6m Net 2 Size: width 6m height 6m

Site Description/Comments: Same as 12 June 2009.

Net Up Time: 20:45 Net Down Time: 01:45

Capture No.	Net No.	Time (military)	Height (m)	Age (A/J)	Sex (F/M)	Repro. Cond.	Weight (g)	RFA Length (mm)	Band Color/No.	Species (scientific name spell out)	Comments
1	1	23:15	2.0	A	M	P	6.5	33.3	—	Perimyotis subflavus	WNS score 0
2	1	23:45	1.5	A	F	P	6.0	31.6	—	Myotis leibii	WNS score 0
3	1	01:06	1.5	A	M	N	15.0	45.5	—	Eptesicus fuscus	WNS Score 0
4	1	01:30	1.5	A	M	N	4.5	32.7	—	Myotis leibii	WNS score 0

Reproductive Condition: N = non-reproductive, P = pregnant, L = lactating, PL = post-lactating, TD = testes descended

### NET SITE DESCRIPTION

Date: 6/1/09 Biologists: B. Steffen, S. White

County: Buchanan State: Va Quad: Harman

Project Name: Rt. 460 Connector Project Number: \_\_\_\_\_

UTM Zone: 17S GPS Waypoint Name: BakerNet 5

Easting: 3 9 0 6 9 4

Northing: 4 1 2 8 5 3 3

Comments (If photos taken, include direction camera was facing): ① Net 1 - facing W; ② Net 2 facing N

#### STREAM NAME:

Bank Height (indicate units):

Channel Width (indicate units):

Stream Width (indicate units):

Substratum:

Average Water Depth (indicate units):

Turbidity:

Presence of open flyway above stream?

#### VEGETATION:

Estimated % Canopy Closure: Net 1 = 30% Net 2 = 40%

Dominant canopy species (at least 3; scientific names; spell out):

Fagus grandifolia, Liquidambar fulpitera, Acer saccharum  
Average canopy diameter at breast height (DBH; indicate units): 18 in

Dominant understory species (at least 3; scientific names; spell out):

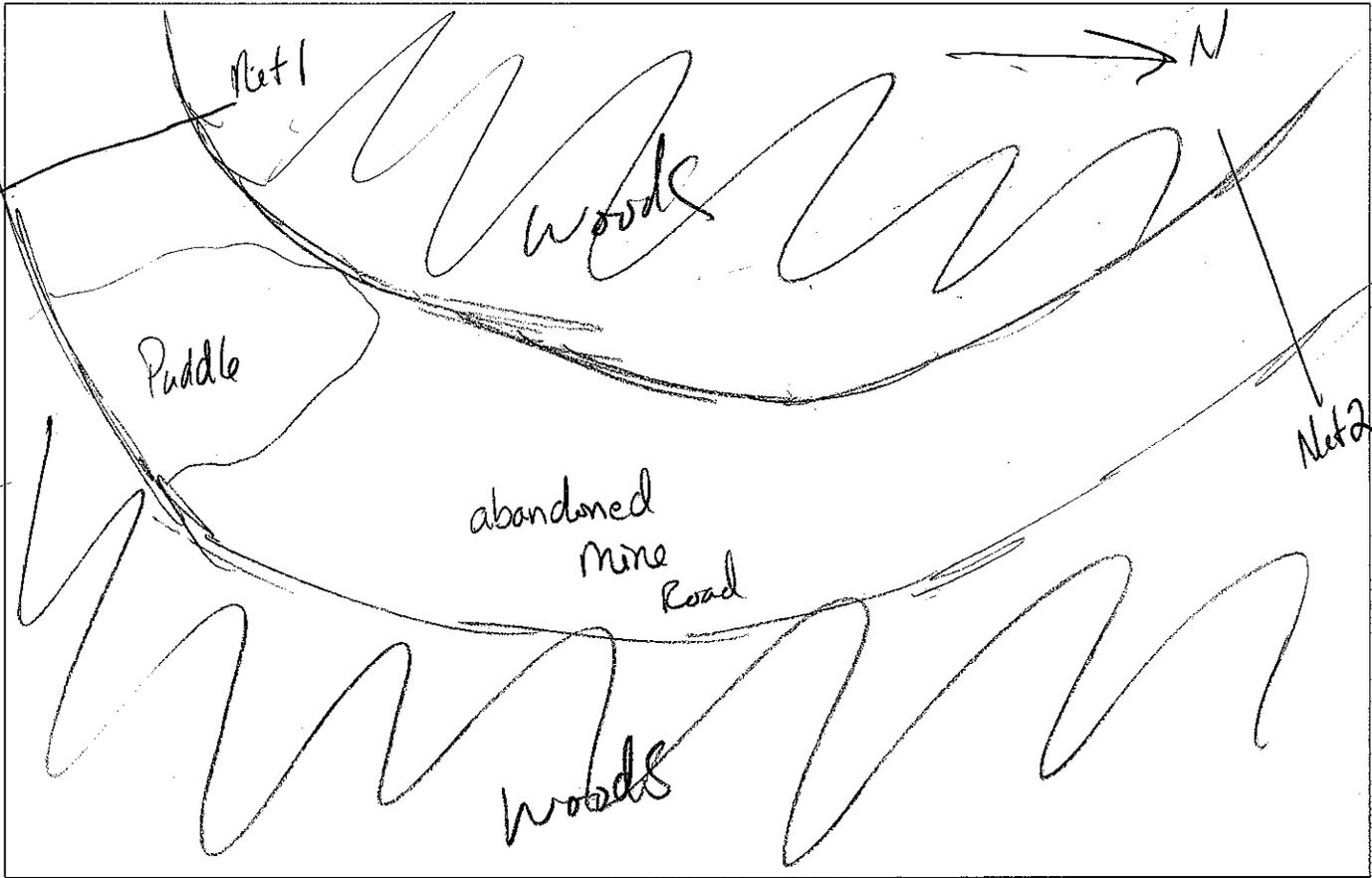
Acer saccharum, Liquidambar fulpitera, Butela alleghaniensis  
Average understory DBH (indicate units): 2 in

Estimated density of understory vegetation: high moderate low

Description of potential Indiana bat roost trees visible from net site

Tree Species (scientific names; spell out)	Est. DBH (with units)	Live or dead	Est. % loose bark	Comments
		N/A		

Drawing of net site. Include north arrow & location of each net.



### WEATHER DATA

Date: 6/1/09 Biologists: B. Steffen, J. White

County: Suchanan State: VA Quad: Harman

Project Name: Rt 460 Connector Project Number: 1230.013

Estimated Moon Phase: new    ¼    ½     ¾    full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2045	71	4	N/A	Yes	0%	
2115	70	4	N/A	Yes	0%	
2145	70	4	N/A	Yes	0%	
2215	69	4	N/A	Yes	0%	
2245	68	4	N/A	Yes	0%	
2315	68	4	N/A	No	0%	moon behind treeline
2345	68	4	N/A	No	0%	
0015	67	4	N/A	No	0%	
0045	67	4	N/A	No	0%	
0115	66	4	N/A	No	0%	
0145	66	4	N/A	No	0%	↓

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph     smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph     wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust

Site Name/Number: Baker Net 5

### BAT CAPTURE DATA SHEET

Date: 6/1/09 Biologists: B. Steffen, J. White

County: Buchanan State: VA Quadrangle: Harman

Project Name: Rt 460 Connector Project Number: 1230.013

Net 1 Size: width 9m height 9m Net 2 Size: width 9m height 6m

Site Description/Comments: Both nets along abandoned mine road

Net Up Time: 2045		Net Down Time: 0145									
Capture No.	Net No.	Time (military)	Height (m)	Age (A/J)	Sex (F/M)	Repro. Cond.	Weight (g)	RFA Length (mm)	Band Color/No.	Species (scientific name spell out)	Comments
1	1	21:35	1m	A	F	Preg	7.5	36.0	<del>    </del>	Myotis septentrionalis	no WNS Pan
2	2	21:55	.25m	A	F	Preg	8	37.5	<del>    </del>	myotis septentrionalis	no WNS Pan
3	1	22:05	2m	A	F	Preg	8.5	36.5	<del>    </del>	myotis septentrionalis	no WNS Pan
4	2	22:45	3m	A	F	Preg	8	37.4	<del>    </del>	myotis septentrionalis	no WNS Pan
5	1	00:45	1.5m	A	FF	Preg	8.5	39.0	<del>    </del>	myotis septentrionalis	no WNS Pan

Reproductive Condition: N = non-reproductive, P = pregnant, L = lactating, PL = post-lactating, TD = testes descended

## WEATHER DATA

Date: 6/2/09 Biologists: B. Steffen, J. White

County: Buchanan State: VA Quad: Harman

Project Name: Bt. 460 Connector Project Number: 1230.013

Estimated Moon Phase: new    1/4    1/2    3/4    full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2045	69	41	N/A	No	100%	
2115	68	41	N/A	No	90%	
2145	66	41	N/A	No	90%	
2215	66	41	N/A	Yes	60%	
2245	66	41	N/A	No	80%	moon behind treehive
2315	66	41	N/A	No	90%	
2345	66	41	N/A	No	60%	
0015	65	41	N/A	No	20%	
0045	64	41	N/A	No	0%	
0115						
0145						↓

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph     smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph     wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust

Site Name/Number: Baker Nets

Page 1 of 1

### BAT CAPTURE DATA SHEET

Date: 6/2/09 Biologists: B. Steffen, S. White

County: Buchanan State: VA Quadrangle: Harman

Project Name: Et. 460 Connector Project Number: 1230.013

Net 1 Size: width 9m height 9m Net 2 Size: width 9m height 6m

Site Description/Comments: Both nets across an abandoned mine road

Net Up Time: 2045 Net Down Time: 0145

Capture No.	Net No.	Time (military)	Height (m)	Age (A/J)	Sex (F/M)	Repro. Cond.	Weight (g)	RFA Length (mm)	Band Color/No.	Species (scientific name spell out)	Comments
1	2	21:45	1.25	A	F	Preg	7	36.2		Myotis septentrionalis	no WNS Dam
2	1	22:05	1	A	F	Preg	8	36.2		Myotis septentrionalis	light WNS
3	1	22:05	3	A	M	Scrotal	15.5	42.1		Eptesicus Fuscus	5 ticks no WNS Damage
4	1	00:05	2	A	F	Preg	7.5	35.1		Myotis septentrionalis	No wing Damage

Reproductive Condition: N = non-reproductive, P = pregnant, L = lactating, PL = post-lactating, TD = testes descended

### NET SITE DESCRIPTION

Date: 1 June 2009 Biologists: L. Winhold + G. Janos

County: Buchanan State: VA Quad: Harman

Project Name: RT 460 connector Project Number: 1230.013

UTM Zone: 17S GPS Waypoint Name: Baker-Net6

Easting: 3 9 0 9 6 2

Northing: 4 1 2 7 9 9 1

Comments (If photos taken, include direction camera was facing):

Net 1 photo facing S. Net 2 photo facing NW.  
~~GPS at~~

STREAM NAME: None

Bank Height (indicate units):

Channel Width (indicate units):

Stream Width (indicate units):

Substratum:

Average Water Depth (indicate units):

Turbidity:

Presence of open flyway above stream?

### VEGETATION:

Estimated % Canopy Closure: Net 1 = 20 Net 2 = 20

Dominant canopy species (at least 3; scientific names; spell out):  
Robinia pseudoacacia, Liriodendron tulipifera, Betula alleghaniensis

Average canopy diameter at breast height (DBH; indicate units): 24cm

Dominant understory species (at least 3; scientific names; spell out):  
Acer saccharum, Liriodendron tulipifera, Betula alleghaniensis

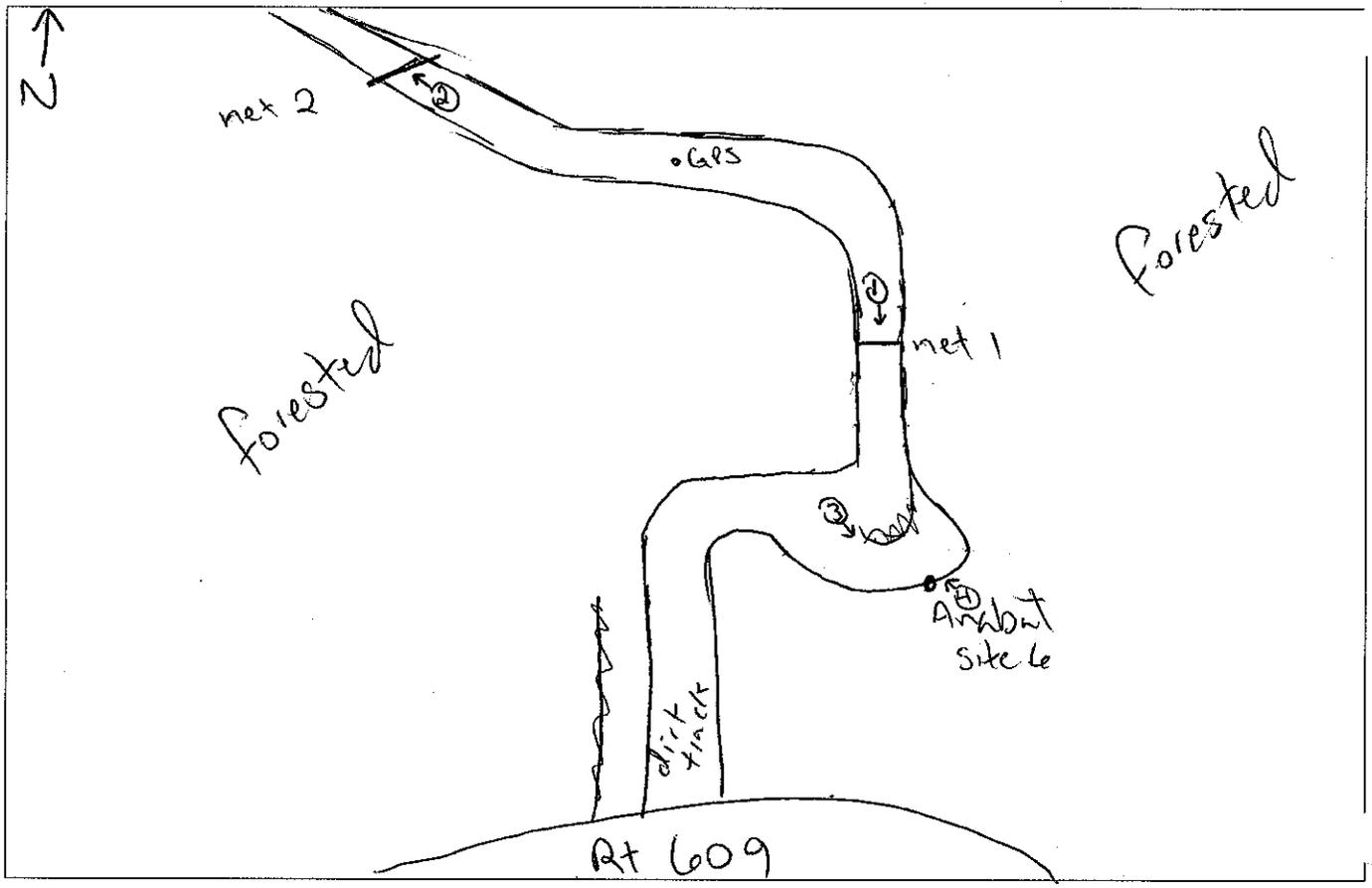
Average understory DBH (indicate units): 10cm

Estimated density of understory vegetation: high moderate low

Description of potential Indiana bat roost trees visible from net site

Tree Species (scientific names; spell out)	Est. DBH (with units)	Live or dead	Est. % loose bark	Comments
None				

Drawing of net site. Include north arrow & location of each net.



→ photo

### WEATHER DATA

Date: 1 June 2009 Biologists: L. Winhold & G. Janos

County: Buchanan State: VA Quad: Harman

Project Name: Rt 460 Connector Project Number: 1230.013

Estimated Moon Phase: new    ¼    ½    ¾    full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2045	68	0	N/A	0	0	moon behind trees
2150	68	0	N/A	0	0	
2215	66	0	N/A	0	0	
2345	66	0	N/A	0	0	
0025	65	0	N/A	0	0	
0055	65	0	N/A	0	0	
01:30	65	0	N/A	0	0	
0145	65	0	N/A	0	0	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph     smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph     wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust

Site Name/Number: Baker Net 6

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### BAT CAPTURE DATA SHEET

Date: June 2009 Biologists: L. Winhold & G. Janos

County: Buchanan State: VA Quadrangle: Harman

Project Name: RT 460 connector Project Number: 1230.013

Net 1 Size: width 9m height 9m Net 2 Size: width 12m height 9m

Site Description/Comments: old forested logging road, both nets across rd.

Net Up Time: 20:35		Net Down Time: 01:25									
Capture No.	Net No.	Time (military)	Height (m)	Age (A/J)	Sex (F/M)	Repro. Cond.	Weight (g)	RFA Length (mm)	Band Color/No.	Species (scientific name spell out)	Comments
1	1	21:10	4m	A	M	N	14.5g	46.5mm	—	<del>Eptesicus fuscus</del>	WNS score 0
2	1	21:22	5m	A	M	M	5.5g	37.7mm	—	Myotis lucifugus	WNS score 0
3	1	21:22	5.5m	A	—	—	—	—	—	Lasiurus borealis	escape
4	1	21:22	6m	A	—	—	—	—	—	Lasiurus borealis	escape
5	1	21:50	1m	A	M	N	5.5g	34.4mm	—	Myotis septentrionalis	WNS score 0
6	1	22:00	1m	A	F	N	20.5g	47.7mm	—	Eptesicus fuscus	WNS score 0
7	1	22:02	4m	A	M	N	18.5g	41.6mm	—	Eptesicus fuscus	WNS score 0
8	1	23:00	1.5	A	F	P	24.0g	47.2mm	—	Eptesicus fuscus	WNS score 0
9	1	23:03	1.5	A	F	P	25.5g	48.0mm	—	Eptesicus fuscus	WNS score 0

Reproductive Condition: N = non-reproductive, P = pregnant, L = lactating, PL = post-lactating, TD = testes descended



### WEATHER DATA

Date: 2 June 2009 Biologists: L. Winhold + G. Janos

County: Buchanan State: VA Quad: Harman

Project Name: Rt 460 connector Project Number: 1230.013

Estimated Moon Phase: new    1/4    1/2    3/4    full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
21:00	67	0	N/A	0	100	
21:30	65	0	N/A	0	100	
22:00	65	0	N/A	0	95	
22:30	64	0	N/A	0	80	moon behind trees + clouds
23:00	64	0	N/A	0	90	
00:40	63	0	N/A	0	0	
01:15	62	0	N/A	0	0	
01:45	62	0	N/A	0	0	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph      smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph      wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust

Site Name/Number: Baker Net 6

### BAT CAPTURE DATA SHEET

Date: 2 June 2009 Biologists: K. Winhold + G. Janos

County: Buchanan State: VA Quadrangle: Harman

Project Name: Rt 460 connector Project Number: 1230, D13

Net 1 Size: width 9m height 9m Net 2 Size: width 12m height 9m

Site Description/Comments: Same as 1 June 2009.

Net Up Time: 20:45 Net Down Time: 02:00

Capture No.	Net No.	Time (military)	Height (m)	Age (A/J)	Sex (F/M)	Repro. Cond.	Weight (g)	RFA Length (mm)	Band Color/No.	Species (scientific name spell out)	Comments
1	1	23:00	2m	A	F	P	29.5g	47.4mm	—	<i>Eptesicus fuscus</i>	WNS score 0
2	2	23:15	8m	A	M	N	10.5g	42.3mm	—	<i>Lasionycteris noctivagans</i>	WNS score
3	1	23:20	5m	A	M	N	12.5g	41.6mm	—	<i>Lasionycteris noctivagans</i>	WNS score 0
4	1	23:20	2.5m	A	M	N	16.0g	45.1mm	—	<i>Eptesicus fuscus</i>	WNS score 0
5	1	23:20	2m	A	F	P	25.0g	47.0mm	—	<i>Eptesicus fuscus</i>	WNS score 0
6	1	23:50	3m	—	—	—	—	—	—	<i>Lasiurus cinereus</i>	escaped
7	1	00:46	1.5m	A	F	P	28.0g	46.5mm	—	<i>Eptesicus fuscus</i>	WNS score 0
8	1	01:10	2.0m	A	M	N	16.5g	48.3mm	—	<i>Eptesicus fuscus</i>	WNS score 0
9	1	02:00	1.0m	A	M	N	18.0g	46.5m	—	<i>Eptesicus fuscus</i>	WNS score 0

Reproductive Condition: N = non-reproductive, P = pregnant, L = lactating, PL = post-lactating, TD = testes descended

### NET SITE DESCRIPTION

Date: 5 June 2009 Biologists: L. Winhold & G. Janos

County: Buchanan State: VA Quad: Harman

Project Name: Rt 460 Connector Project Number: 1230.013

UTM Zone: 17 S GPS Waypoint Name: Baker-Net7

Easting: 3 9 0 9 4 8

Northing: 4 1 2 7 9 8 2

Comments (If photos taken, include direction camera was facing):

Net 1 photo facing NW, Net 2 photo facing SE

STREAM NAME: None

Bank Height (indicate units):

Channel Width (indicate units):

Stream Width (indicate units):

Substratum:

Average Water Depth (indicate units):

Turbidity:

Presence of open flyway above stream?

#### VEGETATION:

Estimated % Canopy Closure: Net 1 = 100 Net 2 = 100

Dominant canopy species (at least 3; scientific names; spell out):  
Prunus serotina, Acer saccharum, Betula alleghaniensis  
Average canopy diameter at breast height (DBH; indicate units): 30 cm

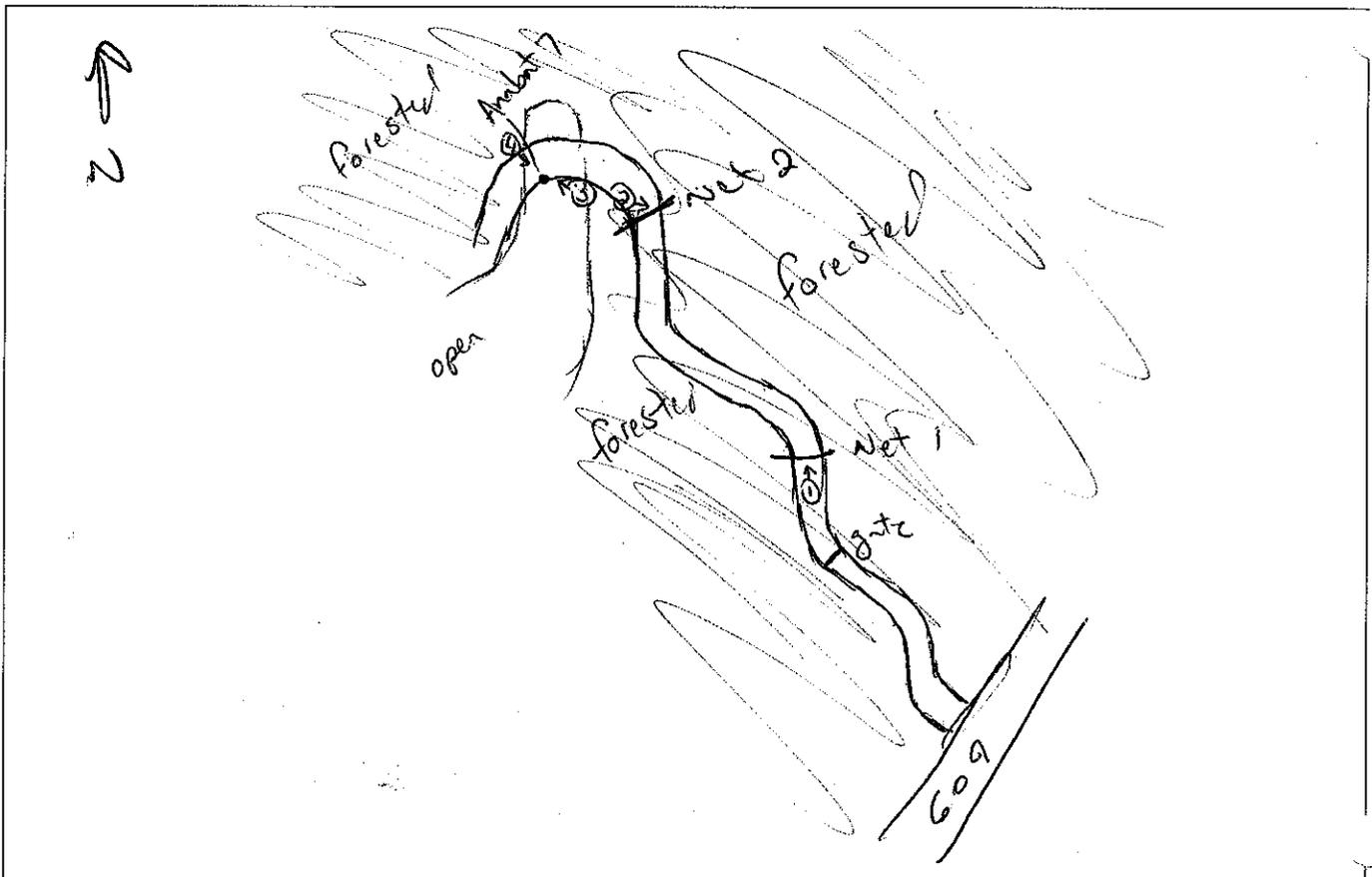
Dominant understory species (at least 3; scientific names; spell out):  
Prunus serotina, Acer saccharum, Betula alleghaniensis  
Average understory DBH (indicate units): 8 cm

Estimated density of understory vegetation: high moderate low

Description of potential Indiana bat roost trees visible from net site

Tree Species (scientific names; spell out)	Est. DBH (with units)	Live or dead	Est. % loose bark	Comments
None				

Drawing of net site. Include north arrow & location of each net.



### WEATHER DATA

Date: 5 June 2009 Biologists: L. Winhold & G. Janos

County: Buchanan State: VA Quad: Harman

Project Name: Rt 460 connector Project Number: 1230.013

Estimated Moon Phase: new    ¼    ½    ¾    (full) nearly

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
20:40	56	0	N/A	No	10	
21:45	56	0	N/A	yes	0	moon behind trees
22:20	56	0	N/A	yes	0	
22:45	55	0	N/A	yes	0	foggy
23:15	54	0	N/A	yes	0	
23:50	54	0	N/A	yes	0	
00:20	54	0	N/A	yes	0	
00:40	54	0	N/A	yes	0	
01:30	54	0	N/A	yes	0	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph      smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph      wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust

Site Name/Number: Baker Net 7

### BAT CAPTURE DATA SHEET

Date: 5 June 2009

Biologists: L. Winhold & G. Janos

County: Buchanan

State: VA

Quadrangle: Harman

Project Name: RT 460 connector

Project Number: 1230.013

Net 1 Size: width 6m height 6m

Net 2 Size: width 6m height 6m

Site Description/Comments: Both nets access forested dirt track.

Net Up Time: 20:40

Net Down Time: 01:45

Capture No.	Net No.	Time (military)	Height (m)	Age (A/J)	Sex (F/M)	Repro. Cond.	Weight (g)	RFA Length (mm)	Band Color/No.	Species (scientific name spell out)	Comments
1	2	2100	2.0	A	F	P	5.5g	33.0mm	—	Miotis leibii	Foot 4.5mm WNSO
2	2	2100	2.0	A	F	P	6.0g	33.6mm	—	Miotis leibii	Foot 5.4mm WNSO
3	2	2100	2.0	A	F	P	5.0g	32.5mm	—	Miotis leibii	Foot 5.2mm WNSO
4	2	2105	4.5	A	F	N	5.5g	28.4mm	—	Miotis leibii	Foot 5.5mm WNSO
5	2	2110	1.5	A	F	P	6.0g	34.0mm	—	Miotis leibii	Foot 5.1mm WNSO
6	1	2120	4.5	A	M	N	11.0g	39.4mm	—	Lasiurus borealis	WNS score 0

Reproductive Condition: N = non-reproductive, P = pregnant, L = lactating, PL = post-lactating, TD = testes descended

### WEATHER DATA

Date: 6 June 2009

Biologists: L. Winhold & G. Janos

County: Buchanan

State: VA  
Rt 460

Quad: Harman

Project Name: ~~1230-013~~ connector

Project Number: 1230-013

Estimated Moon Phase: new    1/4    1/2    3/4    full *nearly*

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
20:45	60	0	N/A	No	0	
21:15	59	0	N/A	No	0	
21:45	59	0	N/A	<del>No</del> yes	0	moon behind trees
22:15	59	0	N/A	yes	0	
22:45	59	0	N/A	yes	0	
23:15	58	0	N/A	yes	0	
23:45	57	0	N/A	yes	0	
00:15	56	0	N/A	yes	0	
00:45	56	0	N/A	yes	0	
01:15	55	0	N/A	yes	20	
01:45	55	0	N/A	yes	10	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph      smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph      wind felt on face; leaves rustle; small twigs move
- 8-12 mph     leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph    moves small branches; raises dust



### NET SITE DESCRIPTION

Date: 6/09/09 Biologists: B. Steffen, J. White

County: Buchanan State: VA Quad: Harman

Project Name: Pt. 460 Connector Project Number: WSD.013

UTM Zone: 17s GPS Waypoint Name: BakerNet 8

Easting: 3 9 1 0 9 2

Northing: 4 1 2 6 0 8 8

Comments (If photos taken, include direction camera was facing): Pic 1 => Net 1 facing E, Pic 2 => Net 2 facing W.

#### STREAM NAME:

Bank Height (indicate units):

Channel Width (indicate units):

N/A

Stream Width (indicate units):

Substratum:

Average Water Depth (indicate units):

Turbidity:

Presence of open flyway above stream?

#### VEGETATION:

Estimated % Canopy Closure: Net 1 = 90%

Net 2 = 100%

Dominant canopy species (at least 3; scientific names; spell out):

Pinus strobus, Acer rubrum, Juglans cinerea

Average canopy diameter at breast height (DBH; indicate units): 20m

Dominant understory species (at least 3; scientific names; spell out): Acer rubrum, Liriodendron tulipifera, Elaeagnus umbellata

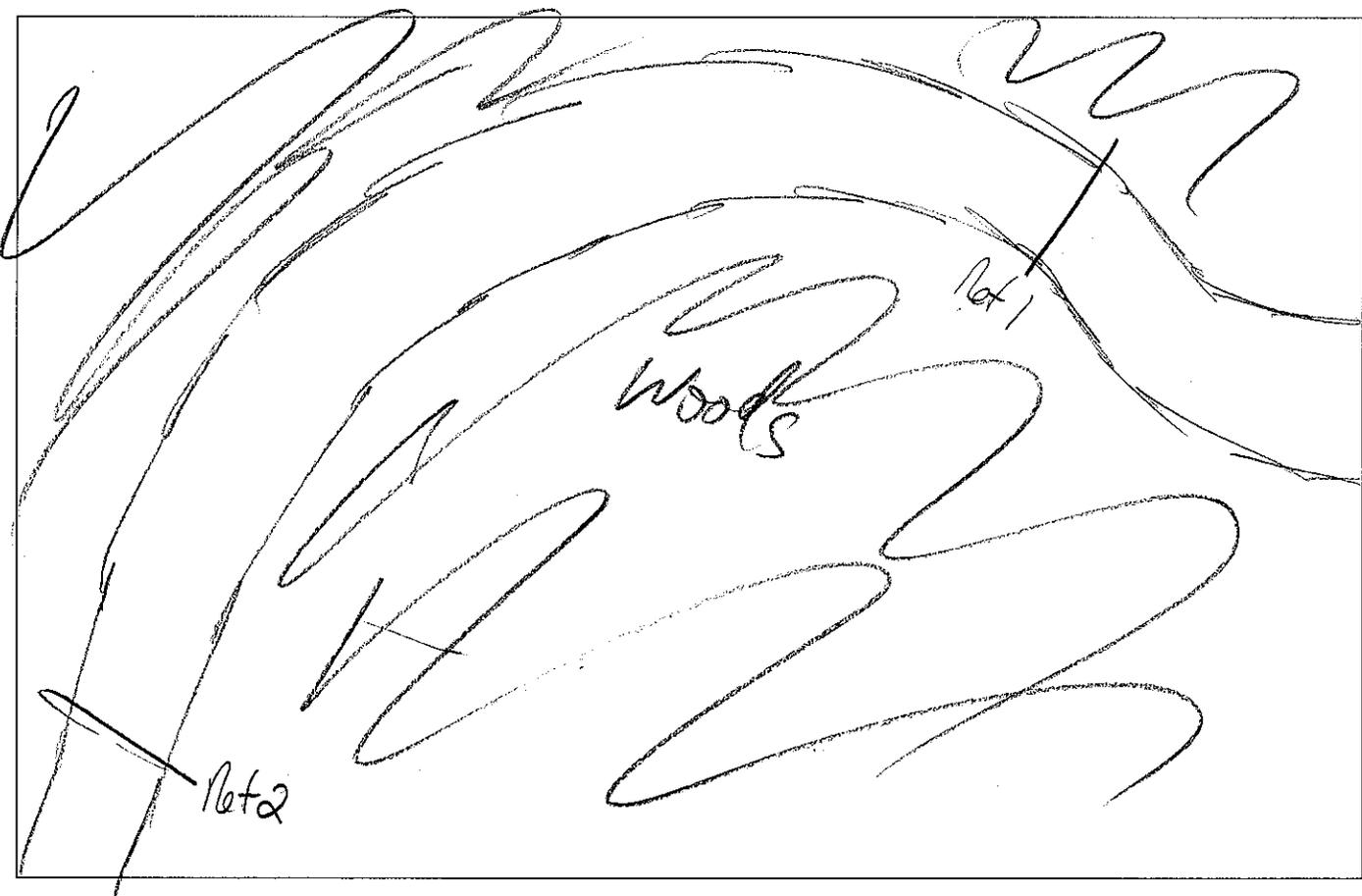
Average understory DBH (indicate units): 3m

Estimated density of understory vegetation: high moderate low

Description of potential Indiana bat roost trees visible from net site

Tree Species (scientific names; spell out)	Est. DBH (with units)	Live or dead	Est. % loose bark	Comments
N/A				

Drawing of net site. Include north arrow & location of each net.



## WEATHER DATA

Date: 6/09/09 Biologists: B. Steffen, J. White

County: Buchanan State: VA Quad: Harman

Project Name: Rt. 460 Connector Project Number: 1230.013

Estimated Moon Phase: new    ¼    ½    ¾    full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2100	68	41	N/A	No	0%	
2130	68	41	N/A	No	0%	
2200	67	41	N/A	No	0%	
2230	66	41	N/A	No	10%	
2300	66	41	N/A	No	20%	
2330	65	41	N/A	No	20%	
0000	65	41	N/A	No	40%	
0030	65	41	N/A	No	20%	moon behind tree line
0100	64	41	N/A	No	20%	↓
0130	64	41	N/A	No	10%	
0200	63	41	N/A	No	10%	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph      smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph      wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust

### BAT CAPTURE DATA SHEET

Date: 6/09/09 Biologists: B. Steffen, J. White

County: Buchanan State: VA Quadrangle: Harman

Project Name: Rt. 460 Connector Project Number: 1230.013

Net 1 Size: width 6m height 9m Net 2 Size: width 6m height 6m

Site Description/Comments: Both nets across gravel road. Net 2 across road cuts w/ standing water

Net Up Time: 2100 Net Down Time: 0200

Capture No.	Net No.	Time (military)	Height (m)	Age (A/J)	Sex (F/M)	Repro. Cond.	Weight (g)	RFA Length (mm)	Band Color/No.	Species (scientific name spell out)	Comments
1	2	21:20	.5	A	M	Scrotal	7g	35.0		Myotis septentrionalis	No VIVIS damage
2	2	23:10	2	A	M	Scrotal	13g	39.4		Lasiurus borealis	No VIVIS damage
3	2	23:40	.25	A	F	Preg	8.5	36.7		Myotis septentrionalis	NO VIVIS Damage

Reproductive Condition: N = non-reproductive, P = pregnant, L = lactating, PL = post-lactating, TD = testes descended

## WEATHER DATA

Date: 6/10/09 Biologists: B. Steffen, J. White

County: Buchanan State: VA Quad: Harman

Project Name: Rt. 460 Connector Project Number: 1230.013

Estimated Moon Phase: new    1/4    1/2    3/4  full

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2045	64	41	N/A	No	100%	
2115	64	41	N/A	No	60%	
2145	62	41	N/A	No	40%	
2215	62	1-3	NE	No	20%	
2245	62	41	N/A	No	0%	
2315	62	41	N/A	No	0%	
2345	62	41	N/A	No	0%	light fog
0015	61	41	N/A	No	10%	moon behind treeline
0045	61	41	N/A	No	0%	↓
0115	60	41	N/A	No	0%	
0145	60	41	N/A	No	0%	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph      smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph      wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust

Site Name/Number: BakerNet 8

Page 1 of 1

### BAT CAPTURE DATA SHEET

Date: 6/10/09

Biologists: B. Steffen, J. White

County: Buchanan

State: VA

Quadrangle: Harman

Project Name: Rt. 460 Connector

Project Number: 1230.013

Net 1 Size: width 6m height 9m

Net 2 Size: width 6m height 6m

Site Description/Comments: Both nets across gravel road. Net 2 across road cuts w/ standing water

Net Up Time: 2045

Net Down Time: 0145

Capture No.	Net No.	Time (military)	Height (m)	Age (A/J)	Sex (F/M)	Repro. Cond.	Weight (g)	RFA Length (mm)	Band Color/No.	Species (scientific name spell out)	Comments
1	2	2145	3	A	-	-	-	-	-	<i>Perimyotis subflavus</i>	escape from net
2	1	22:05	2	A	F	Preg	7.5	31.1	-	<i>Myotis Leibii</i>	NO WNS Damage
3	2	22:30	2.25	A	F	Preg	8	30.5	-	<i>Myotis Leibii</i>	NO WNS Damage
4	2	23:35	3	A	M	scrotal	7.5	33.8	-	<i>Myotis septentrionalis</i>	NO WNS Damage
5	1	00:05	2	A	M	NR	7.5	35.8	-	<i>Myotis septentrionalis</i>	NO WNS Damage

Reproductive Condition: N = non-reproductive, P = pregnant, L = lactating, PL = post-lactating, TD = testes descended

### NET SITE DESCRIPTION

Date: 7 June 2009 Biologists: L. Winhold + G. Janos

County: Buchanan State: VA Quad: Harman

Project Name: Rt 460 connector Project Number: 1230.013

UTM Zone: 17 S GPS Waypoint Name: Baker-~~10~~ Net 9 <sup>LW</sup>

Easting: 3 9 2 3 1 5

Northing: 4 1 2 6 0 3 3

Comments (If photos taken, include direction camera was facing):  
Photos of Nets 1 + 2 face E.

#### STREAM NAME: Deel Fork

Bank Height (indicate units): 3m

Channel Width (indicate units): 4m

Stream Width (indicate units): 2m

Substratum: sand + gravel

Average Water Depth (indicate units): 10cm

Turbidity: clear

Presence of open flyway above stream? no

#### VEGETATION:

Estimated % Canopy Closure: Net 1 = 90 Net 2 = 80

Dominant canopy species (at least 3; scientific names; spell out):  
Platanus occidentalis, Liriodendron tulipifera, Pinus strobus  
Average canopy diameter at breast height (DBH; indicate units): 25cm

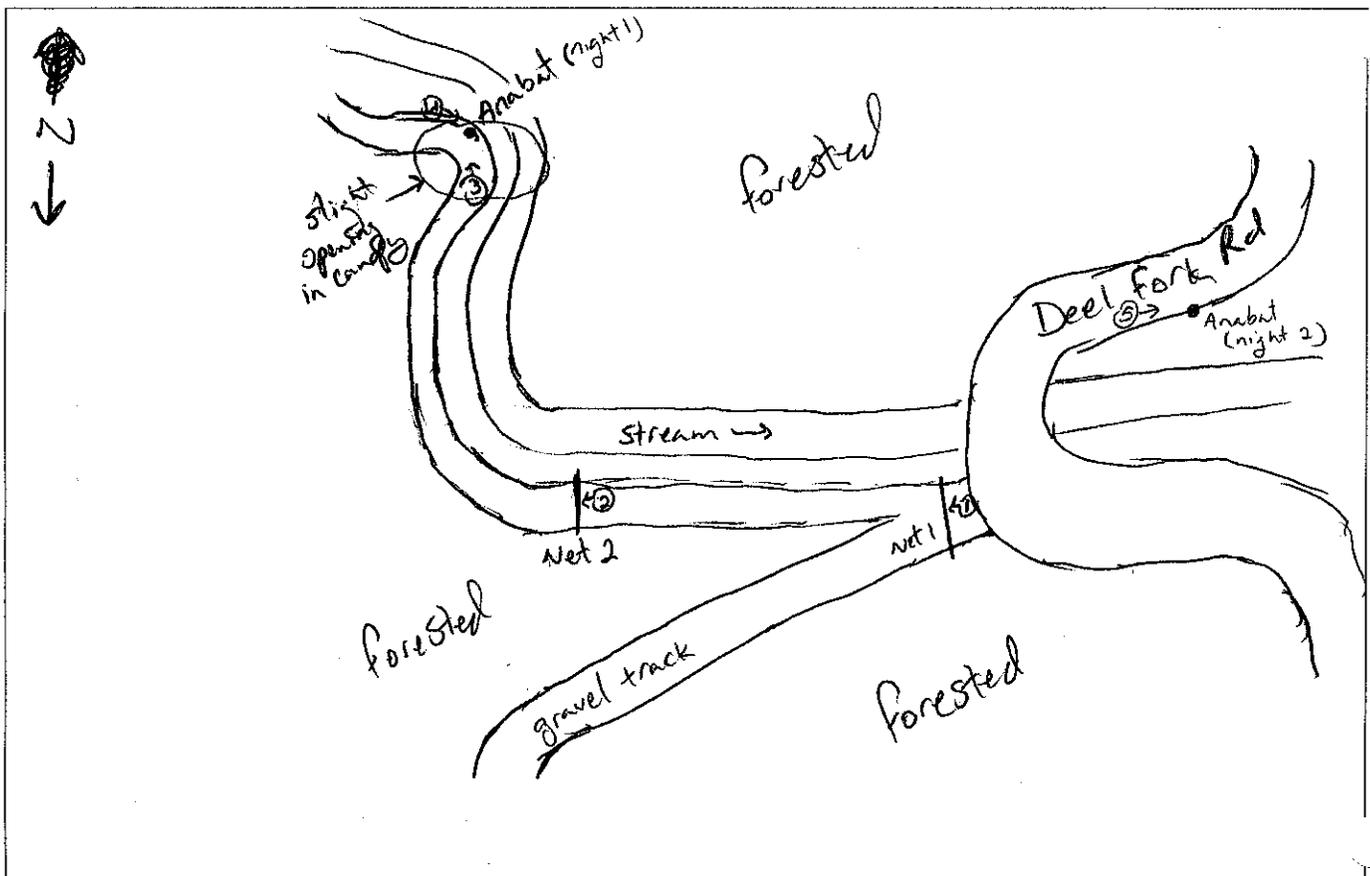
Dominant understory species (at least 3; scientific names; spell out):  
Liriodendron tulipifera, Acer saccharum, Carpinus caroliniana  
Average understory DBH (indicate units): 7cm

Estimated density of understory vegetation: high moderate low

Description of potential Indiana bat roost trees visible from net site

Tree Species (scientific names; spell out)	Est. DBH (with units)	Live or dead	Est. % loose bark	Comments
None				

Drawing of net site. Include north arrow & location of each net.



Site Name/Number: Baker net <sup>LW</sup> ~~12~~ 9

Page 1 of 1

### WEATHER DATA

Date: 7 June 2009

Biologists: L. Winhold + G. Janos

County: Buchanan

State: VA

Quad: Harman

Project Name: Rt 460 connector

Project Number: 1230.013

Estimated Moon Phase: new    ¼    ½    ¾    **(full)**

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
20:45	66	0	N/A	No	10	
21:15	64	0	N/A	No	0	
21:45	64	0	N/A	No	0	
22:15	62	0	N/A	No	0	
22:45	62	0	N/A	No	0	
23:15	61	0	N/A	No	0	
23:45	60	0	N/A	No	0	
00:15	60	0	N/A	No	0	
00:45	60	0	N/A	No	0	
01:15	59	0	N/A	No	0	
01:45	59	0	N/A	No	0	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph      smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph      wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust

Site Name/Number: <sup>W2</sup> Baker Net ~~9~~

### BAT CAPTURE DATA SHEET

Date: 7 June 2009

Biologists: L. Winhold & G. Janos

County: Buchanan State: VA

Quadrangle: Harman

Project Name: Rt. 460 connector Project Number: 1230.013

Net 1 Size: width 6m height 6m

Net 2 Size: width 6m height 6m

Site Description/Comments: Both nets over gravel dirt track near stream. Stream too cluttered to net.

Net Up Time: 20:45

Net Down Time: 01:45

Capture No.	Net No.	Time (military)	Height (m)	Age (A/J)	Sex (F/M)	Repro. Cond.	Weight (g)	RFA Length (mm)	Band Color/No.	Species (scientific name spell out)	Comments
1	1	23:45	1.0m	A	M	N	9.5g	39.9mm	—	Lasionycteris noctivagans	WNS score 0
2	1	23:45	1.5m	A	M	N	9.5g	42.5mm	—	Lasionycteris noctivagans	WNS score 0
3	2	01:45	1.0m	A	M	N	10.5g	38.8mm	—	Lasionycteris noctivagans	WNS score 0

Reproductive Condition: N = non-reproductive, P = pregnant, L = lactating, PL = post-lactating, TD = testes descended

### WEATHER DATA

Date: 8 June 2009

Biologists: L. Winhold + G. Janos

County: Buchanan

State: VA

Quad: Harman

Project Name: Rt. 460 connector

Project Number: 1230.013

Estimated Moon Phase: new    ¼    ½    ¾    (full) newly

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
20:45	66	0	N/A	NO	100%	foggy
21:45	66	0	N/A	NO	100	
21:45	66	0	N/A	NO	100%	
22:15	65	0	N/A	NO	80%	
22:45	65	0	N/A	NO	20%	
23:15	64	0	N/A	NO	0%	
23:45	64	0	N/A	NO	20%	
00:15	64	0	N/A	NO	90%	
00:45	64	0	N/A	NO	100%	
01:15	64	0	N/A	NO	100	slight rain
01:45	64	0	N/A	NO	100	

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph      smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph      wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust



### NET SITE DESCRIPTION

Date: <sup>9<sup>LW</sup></sup> 6/18/09 Biologists: L. Windhold & G. Janos

County: Buchanan State: VA Quad: Harman

Project Name: Rt 460 Connector Project Number: 1230.013

UTM Zone: 17S GPS Waypoint Name: Baker-Net10

Easting: 3 9 2 6 9 0

Northing: 4 1 2 4 8 3 2

Comments (If photos taken, include direction camera was facing): Elevation 2052 ft.

Photo of Net 1 facing S  
Photo of Net 2 facing E

STREAM NAME: NONE

Bank Height (indicate units):

Channel Width (indicate units):

Stream Width (indicate units):

Substratum:

Average Water Depth (indicate units):

Turbidity:

Presence of open flyway above stream?

### VEGETATION:

Estimated % Canopy Closure: Net 1 = 100% Net 2 = 100%

Dominant canopy species (at least 3; scientific names; spell out):

Quercus alba, Tilia americana, Acer ~~saccharum~~ saccharum  
Average canopy diameter at breast height (DBH; indicate units):

Betula alleghaniensis, Acer ~~saccharum~~ saccharum DBH 40cm

Dominant understory species (at least 3; scientific names; spell out):

Average understory DBH (indicate units):

10cm DBH

Estimated density of understory vegetation: high moderate low



### WEATHER DATA

Date: <sup>9 AM</sup> 6/18/09 Biologists: L. Winhold & G. Janas

County: Buchanan State: VA Quad: Harman

Project Name: RT 460 Connector Project Number: 1230.013

Estimated Moon Phase: new 1/4 1/2 3/4 full *nearly*

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2045	73°	0	N/A	No	0	
2115	72°	0	N/A	No	10	
2145	72°	0	N/A	No	0	
2245	71	0	N/A	No	0	
2315	68	1-3	W	yes	30	moon behind trees
2345	67	0	N/A	yes	60	
0015	67	0	N/A	yes	40	
0045	66	0	N/A	yes	10	
0015	67	0	N/A	yes	30	
0145	67	0	N/A	yes	0	

\*Use the following guidelines to determine wind speed:

- < 1 mph calm; smoke rises vertically; no perceivable movement
- 1-3 mph smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph wind felt on face; leaves rustle; small twigs move
- 8-12 mph leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph moves small branches; raises dust

Site Name/Number: Baker Net 10

### BAT CAPTURE DATA SHEET

Date: <sup>9:10</sup> 6/1/09 Biologists: L. Winhold + G. Janos

County: Buchanan State: VA Quadrangle: Harman

Project Name: RT 460 Connector Project Number: 1230.013

Net 1 Size: width 6m height 6m Net 2 Size: width 6m height 6m

Site Description/Comments: Both nets set up across dirt track.

Net Up Time: 20:40 Net Down Time: 01:45

Capture No.	Net No.	Time (military)	Height (m)	Age (A/J)	Sex (F/M)	Repro. Cond.	Weight (g)	RFA Length (mm)	Band Color/No.	Species (scientific name spell out)	Comments
1	1	2200	1.5m	A	M	N	13.0g	38.8mm	—	<i>Lasiurus borealis</i>	WNS score 0
2	2	2200	2.0m	A	F	P	8.5g	36.1mm	—	<i>Myotis septentrionalis</i>	WNS score 0
3	2	2200	2.0m	A	M	N	6.0g	33.0mm	—	<i>Perimyotis subflavus</i>	WNS score 0
4	2	2210	1.0m	A	M	N	5.5g	34.9mm	—	<i>Perimyotis subflavus</i>	WNS score 0
5	1	2230	3.0m	A	M	N	7.5g	37.4mm	—	<i>Myotis septentrionalis</i>	WNS score 0
6	2	2330	1.5m	A	M	N	11.5g	39.4mm	—	<i>Lasionia ketneri nectivagus</i>	WNS score 0
7	2	2350	1.5m	A	M	N	12.5g	39.6mm	—	<i>Lasiurus borealis</i>	WNS score 0
8	2	0015	0.5m	A	F	P	20.0g	42.0mm	—	<i>Lasiurus borealis</i>	WNS score 0
9	2	0015	0.5m	A	M	N	7.0g	37.7mm	—	<i>Myotis septentrionalis</i>	WNS score 0

Reproductive Condition: N = non-reproductive, P = pregnant, L = lactating, PL = post-lactating, TD = testes descended  
ear length 15.3mm  
tragus length 7.3mm



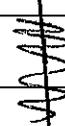
### WEATHER DATA

Date: 10 June 2009 Biologists: L. Winhold & G. Janos

County: Buchanan State: VA Quad: Harman

Project Name: Rt. 460 connector Project Number: 1230.013

Estimated Moon Phase: new    1/4    1/2    3/4    (Full) nearly

Time (military)	Temp (F)	Wind Speed*	Wind Direction	Moon Visible?	% Cloud Cover	Comments
2045	64°	4-7	S	No	100	
2115	64°	4-7	S	No	100	
2200	64	0	N/A	No	40	
2215	64	0	N/A	No	30	foggy
2245	64	1-3	S	No	0	
2315	64	0	N/A	No	0	
2345	63	0	N/A	No	0	foggy
0015	62	0	N/A	Yes	0	moon behind trees
0045	62	1-3	NE	yes	0	
0145	62	1-3	NE	yes	0	foggy

\*Use the following guidelines to determine wind speed:

- < 1 mph      calm; smoke rises vertically; no perceivable movement
- 1-3 mph      smoke drift shows wind direction; barely moves tree leaves
- 4-7 mph      wind felt on face; leaves rustle; small twigs move
- 8-12 mph    leaves and small twigs in constant motion; blows up dry leaves
- 13-18 mph   moves small branches; raises dust

### BAT CAPTURE DATA SHEET

Date: 10 June 2009 Biologists: L. Winhold & G. Janos

County: Buchanan State: VA Quadrangle: Harman

Project Name: Rt. 460 connector Project Number: 1230.013

Net 1 Size: width 6m height 6m Net 2 Size: width 6m height 6m

Site Description/Comments: Same as 9 June 2009.

Net Up Time: <u>20:45</u>										Net Down Time: <u>01:45</u>		
Capture No.	Net No.	Time (military)	Height (m)	Age (A/J)	Sex (F/M)	Repro. Cond.	Weight (g)	RFA Length (mm)	Band Color/No.	Species (scientific name spell out)	Comments	
1	2	21:30	2.0	A	F	P	19.0	46.5	—	<i>Eptesicus fuscus</i>	WNS score 0	
2	2	21:30	2.0	A	F	P	20.5	46.4	—	<i>Eptesicus fuscus</i>	WNS score 0	
3	2	21:30	2.0	A	M	N	17.5	49.0	—	<i>Eptesicus fuscus</i>	WNS score 0	
4	1	21:45	2.5	A	F	L	16.5	45.9	—	<i>Eptesicus fuscus</i>	WNS score 0	
5	1	21:45	2.5	A	F	P	23.5	50.2	—	<i>Eptesicus fuscus</i>	WNS score 0	
6	1	21:45	2.5	A	M	N	11.5	39.8	—	<i>Lasiurus borealis</i>	WNS score 0	
7	2	22:22	2.0	A	M	N	7.5	37.2	—	<i>Myotis lucifugus</i>	WNS score 0	
8	1	23:00	0.5	A	—	—	—	—	—	<i>Lasiurus borealis</i>	Escaped	
9	2	23:00	1.0	A	M	N	7.0	35.7	—	<i>Myotis septentrionalis</i>	WNS score 0	

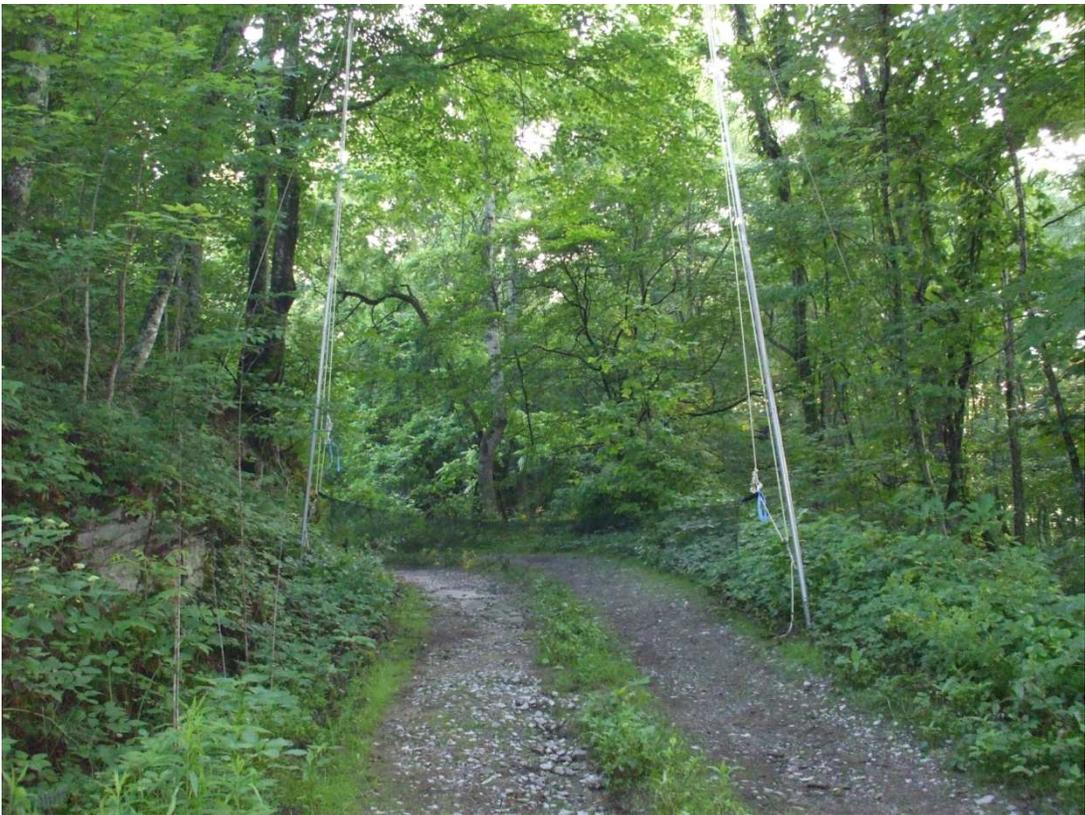
Reproductive Condition: N = non-reproductive, P = pregnant, L = lactating, PL = post-lactating, TD = testes descended



## Appendix E. Representative Mist Net Site Photographs



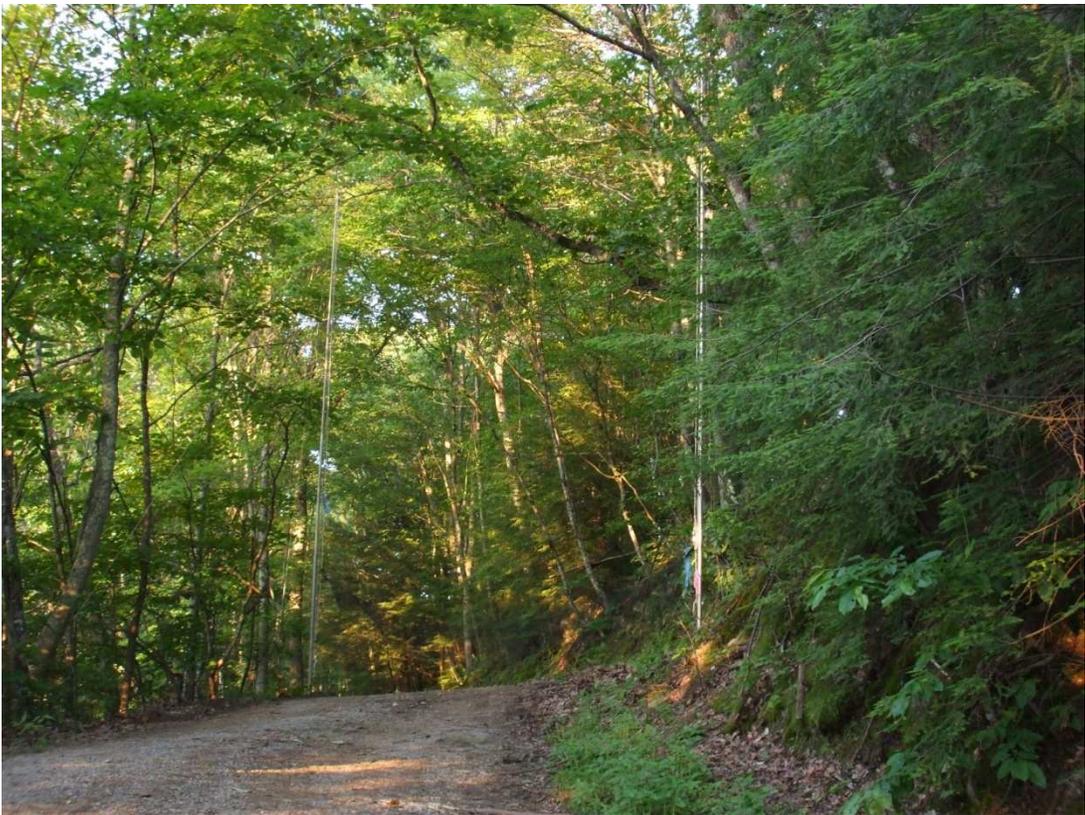
Mist Net Site 4, Net 2 – View facing N



Mist Net Site 7, Net 1 – View facing NW



Mist Net Site 9, Net 1 – View facing E



Mist Net Site 10, Net 2 – View facing E

## Appendix F: Representative Species Photographs



Northern Long-eared Bat, *Myotis septentrionalis*



Big Brown Bat, *Eptesicus fuscus*



Eastern Red Bat, *Lasiurus borealis*



Eastern Small-footed Bat, *Myotis leibii*



Silver-haired Bat, *Lasionycteris noctivigans*



Little Brown Bat, *Myotis lucifugus*



Eastern Pipistrelle, *Perimyotis subflavus*



Hoary Bat, *Lasiurus cinereus*

## Appendix G. Representative Anabat Site Photographs



Anabat Site 4 – View facing S



Anabat Site 6 – View facing NW



Anabat Site 7 – View facing SE



Anabat Site 8 – View facing SW

## **Appendix D:**

Section 7 Informal Consultation on the Indiana Bat  
(*Myotis sodalists*) and Gray Bat (*M. grisescens*):

*FWS and DGIF*

**From:** Young, George [mailto:George.Young@VDOT.Virginia.gov]  
**Sent:** Tuesday, July 21, 2009 2:42 PM  
**To:** William\_Hester@fws.gov  
**Cc:** Reynolds, Rick (DGIF); Cox, Mandy (VDOT); Cromwell, James R. (VDOT); Snead, Leo C. (VDOT); Bradley Steffen; Susan Manes; Aschenbach, Ernie (DGIF)  
**Subject:** RE: Route 460 Connector, Phase II EA, VDOT Project 0460-013-718,PE101 (UPC-88140)

William-

Attached please find two (2) reports for the Indiana bat and gray bat winter and summer survey findings the Service requested in a letter dated 6 November 2008 for the above-referenced project. Based on the findings of the two surveys, the Department is requesting a determination of no adverse effect on the Indiana bat and the gray bat.

If you have any questions, let me know.

Best Regards,  
**George B. Young**

Assistant District Environmental Manager

Phone: (276) 645-1656

Fax: (276) 645-1667

Cell: (423) 502-7928

<<VDOT-FWS-Ltr\_BatSurvey\_NoAdverseEffect\_7-21-09\_reduced.pdf>>



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
6669 Short Lane  
Gloucester, Virginia 23061



DEC 21 2009

December 21, 2009

Colonel Andrew W. Backus  
District Engineer  
Norfolk District, Corps of Engineers  
Fort Norfolk, 803 Front Street  
Norfolk, Virginia 23510-1096

Attn: Alice Allen-Grimes & Kathy Perdue  
Regulatory Branch

Re: Route 460 Connector, Phase II,  
Buchanan County, Virginia, VDOT  
Project # 0460-013-733

Dear Colonel Backus:

The U.S. Fish and Wildlife Service (Service) has reviewed the results of the portal surveys and summer bat surveys conducted for the referenced project that were provided by the Virginia Department of Transportation (VDOT). The following comments are provided under provisions of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended.

As recommended in our November 6, 2008 letter, VDOT contracted surveys for Federally listed bats for the referenced project, and surveys were conducted during 2009 by BHE Environmental, Inc. Mist net surveys and trapping at portals that provided suitable bat habitat captured 100 bats of eight species. However, surveys did not detect the Federally listed endangered Virginia big-eared bat (*Corynorhinus townsendii virginianus*), gray bat (*Myotis grisecens*) or Indiana bat (*M. sodalis*). Based on the survey results, the Service believes that no hibernacula or caves used by listed bats are likely to be affected by the referenced project, and no maternity colonies or roost sites used by listed bats are likely to be disturbed. Anabat II recordings did document over 1,400 calls of bats of the genus *Myotis* (approximately half of all calls recorded), and these recordings may have included Indiana bats or gray bats. Acoustic data were not analyzed to determine the species of *Myotis* bats that were recorded. Neither of these species have been documented within Buchanan County to date. The project area may be used by listed bats for foraging, but the absence of listed bats during mist netting surveys suggests that these areas are not significant foraging areas for the listed species.

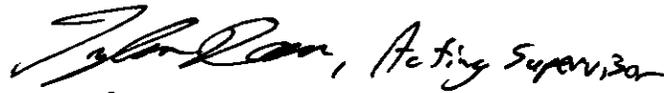
Colonel Backus

Page 2

Consequently, the Service believes that effects of the referenced project on listed bats are expected to be insignificant and discountable, and we concur with VDOT's assessment that this project is not likely to adversely affect Federally listed species. No critical habitat has been designated near the project area, and therefore, none will be affected. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

Species information and other pertinent information on project reviews within Virginia is available at our website [http://www.fws.gov/northeast/virginiafield/Project\\_Reviews.html](http://www.fws.gov/northeast/virginiafield/Project_Reviews.html). If you have questions, please contact William Hester of this office at (804) 693-6694, extension 134.

Sincerely,

A handwritten signature in black ink, appearing to read "Cindy Schulz, Acting Supervisor".

 Cindy Schulz  
Supervisor  
Virginia Field Office

Colonel Backus

Page 2

bcc: SVFO, Abingdon, VA (Roberta Hylton)  
VDGIF, Richmond, VA (Amy Ewing)  
VDGIF, Verona, VA (Rick Reynolds)  
DNH, Richmond, VA (Rene Hypes)  
VDOT, Bristol, VA (George Young)  
FHWA, Richmond, VA (Ed Sundra)

(P:\Federal Activities\PERMITS\VDOT\2009\460PhaseIIBATNoEffect.doc)  
(WHester: 12-10-09)

**From:** [Young, George](#)  
**To:** [Aschenbach, Ernie \(DGIF\)](#)  
**Cc:** [William\\_Hester@fws.gov](#); [Cox, Mandy](#); [Cromwell, James R.](#); [Snead, Leo C.](#); [Manes, Susan](#); [Pinder, Mike \(DGIF\)](#); [Watson, Brian \(DGIF\)](#)  
**Subject:** RE: Route 460 Connector, Phase II EA, VDOT Project 0460-013-718,PE101 (UPC-88140)  
**Date:** Tuesday, October 06, 2009 10:32:25 AM

---

Ernie-

I thought I had provided DGIF a copy of the Natural Resources Technical Memorandum for the above-referenced project. The NRTM provides information on potential natural resource impacts associated with the location study and from it you should be able to glean basic estimates of WOUS impacts you requested. However, you must understand that at this stage of project development the information is very preliminary and typically based on worst case estimates.

Due to the size of the NRTM, I am resending a CD of the project study to your attention at the address listed below.

## George B. Young

Assistant District Environmental Manager  
Phone: (276) 645-1656  
Fax: (276) 645-1667  
Cell: (423) 502-7928

---

**From:** Aschenbach, Ernie (DGIF) [mailto:[Ernie.Aschenbach@dgif.virginia.gov](mailto:Ernie.Aschenbach@dgif.virginia.gov)]  
**Sent:** Thursday, October 01, 2009 4:51 PM  
**To:** Young, George; [William\\_Hester@fws.gov](#); Reynolds, Rick (DGIF); Cox, Mandy; Cromwell, James R.; Snead, Leo C.; Bradley Steffen; Susan Manes; ProjectReview (DGIF); Pinder, Mike (DGIF); Watson, Brian (DGIF)  
**Subject:** FW: Route 460 Connector, Phase II EA, VDOT Project 0460-013-718,PE101 (UPC-88140)

We have reviewed the reports for the above-referenced project. Investigators followed the guidelines as outlined by USFWS and decon. procedures by USFWS/USGS. We no further comments on the report.

We reiterate our original request for stream crossing information (stream name, location, lat/long, description, etc.) that is required in order to provide further guidance regarding aquatic resources.

Thank you.

Ernie Aschenbach  
Environmental Services Biologist  
Virginia Dept. of Game and Inland Fisheries  
4010 West Broad Street  
Richmond, VA 23230  
Phone: (804) 367-2733  
FAX: (804) 367-2427  
Email: [Ernie.Aschenbach@dgif.virginia.gov](mailto:Ernie.Aschenbach@dgif.virginia.gov)

---

# **Appendix E:**

## CTB Project Location Approval



## COMMONWEALTH of VIRGINIA

### *Commonwealth Transportation Board*

Pierce R. Homer  
Chairman

1401 East Broad Street - Policy Division - CTB Section - #1106  
Richmond, Virginia 23219

(804) 786-1830  
Fax: (804) 225-4700  
*Agenda item # 13*

### **RESOLUTION OF THE COMMONWEALTH TRANSPORTATION BOARD**

**November 19, 2009**  
**MOTION**

**Made By: Mr. Keen Seconded By: Mr. Bowie Action: Motion Carried, Unanimously**

**Title: Location Approval for Phase II Route 460 Connector**

**WHEREAS**, in accordance with the statutes of the Commonwealth of Virginia and policies of the Commonwealth Transportation Board, a Location Hearing was held in the Conference Center of the Breaks Interstate Park, in Buchanan County, Virginia on Tuesday, July 14, 2009 between 4:00 p.m. and 7:00 p.m. for the purpose of considering the proposed location of Phase II of the Route 460 Connector from 0.833 mile east of Kentucky Stateline, to its eastern terminus at the CFX, Hawks Nest Section approximately 2.9 miles southeast of the Bull Gap Community. Included in the project is the CFX interchange area at Hawks Nest that consists of approximately 2,560 feet of CFX mainline and the footprint area of the connection ramps. The length of the proposed Phase II of the Route 460 Connector is 6.2 miles and the length of the CFX interchange area at Hawks Nest is approximately 0.5 miles for a total project length of 6.7 miles, in Buchanan County. State Project 0460-013-781, P101; and

**WHEREAS**, proper notice was given in advance, and all those present were given a full opportunity to express their opinions and recommendations for or against the proposed project as presented, and their statements being duly recorded; and

**WHEREAS**, the economic, social, and environmental effects of the proposed project have been examined and given proper consideration, and this evidence, along with all other, has been carefully reviewed.

**NOW, THEREFORE, BE IT RESOLVED** that the location of this project be approved in accordance with the plan as proposed and presented at the said Location Public Hearing by the Department's Engineers.

Resolution of the Board  
Location of U.S. Route 460 Connector, Phase II  
November 19, 2009

**BE IT FURTHER RESOLVED** that the Phase II Route 460 Connector be designated as a Limited Access Highway from 0.833 mile east of Kentucky Stateline, to the CFX, Hawks Nest Section 2.9 miles southeast of the Bull Gap community in accordance with the statutes of Virginia and in accordance with the Commonwealth Transportation Board Policies.

**BE IT FURTHER RESOLVED** that in the interest of public safety, pedestrian, persons riding bicycles or mopeds, horse drawn vehicles, self-propelled machinery or equipment, and animals led, ridden or driven on the hoof be prohibited from using the Phase II Route 460 Connector from 0.833 mile east of Kentucky Stateline, to the CFX, Hawks Nest Section 2.9 miles southeast of the Bull Gap community

###