



BLOUNT COUNTY, TN
STATE ROUTE 162 (PELLISSIPPI PARKWAY) EXTENSION
FROM SR-33 TO SR-73 (US 321)
PIN 101423.00
PE No. 05097-0229-14

**BIOLOGICAL ASSESSMENT
FOR:**

SNAIL DARTER (*Percina tanasi*)
MARBLED DARTER (*Etheostoma marmorpinnum*)
{formerly the Duskytail darter – *Etheostoma percnurum*}
FINE-RAYED PIGTOE (*Fusconaia cuneolus*)
INDIANA BAT (*Myotis sodalis*)
ASHY DARTER (*Etheostoma cinereum*)
LONGHEAD DARTER (*Percina macrocephala*)

U.S. FISH AND WILDLIFE SERVICE
LOG# 12-I-0454

Prepared Pursuant To
Section 7(c) of the Endangered Species Act of 1973
As Amended

Prepared By:
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I. INTRODUCTION

The Tennessee Department of Transportation (TDOT) proposes to extend SR-162 (Pellissippi Parkway) from SR-33 to SR-73 (U.S. 321) in Blount County, Tennessee (Fig. 1 & 2). Information received from the Tennessee Department of Environment and Conservation, Division of Natural Heritage (TDEC/DNH) database on September 14, 2001 indicated that the following species could be present in the project impact area:

<u>Species</u>	<u>Status</u>	
	<u>State</u>	<u>Federal</u>
Snail darter – <i>Percina tanasi</i>	T	LT
Duskytail darter – <i>Etheostoma percnurum</i> {Now known as the marbled darter – <i>Etheostoma marmorpinnum</i> }	E	LE
Fine-rayed pigtoe – <i>Fusconaia cuneolus</i>	E	LE
Ashy darter – <i>Etheostoma cinereum</i>	T	--
Longhead darter – <i>Percina macrocephala</i>	T	--

LT – Federally threatened LE – Federally endangered T – State threatened E – State endangered

Response from the U. S. Fish and Wildlife Service (Service) on January 12, 2000 indicated that the federally endangered Indiana bat (*Myotis sodalis*) could possibly be present in the project impact area as well. Information from the Service was updated by email on September 27, 2001 and no changes from the January 12, 2000 coordination were indicated. A biological assessment was submitted addressing the above species on November 14, 2001 with a finding of not likely to adversely affect (NLTA). Response from the Service dated February 5, 2002 concurred with the NLTA finding for the Indiana bat, but not the other aquatic species due to their possible presence in three of the tributaries to Little River crossed by the project. TDOT submitted additional information to the Service dated February 27, 2002 addressing their concerns. The Service responded by letter dated April 16, 2002 concurring with the NLTA finding for the above listed aquatic species.

Since conclusion of the initial project species coordination, legal action by a local citizens group, Citizens Against Pellissippi Parkway Extension (CAPPE), necessitated that TDOT reinitiate the NEPA process. In the summer of 2012, TDOT conducted a survey of the project area to determine the possible presence of the Indiana bat, per request from the Service dated May 17, 2012. Results of this survey did not indicate that the Indiana bat was present within the project impact area. A finding of NLTA for the Indiana bat was submitted to the Service on September 24, 2012. The USFWS concurred with the finding of NLTA on October 11, 2012. A request for updated species information was submitted to the Service on May 22, 2013. Information from the Tennessee Department of Environment and Conservation, Division of Natural Heritage (TDEC/DNH) database was reviewed on May 22, 2013. The following federally listed species were recorded from within four miles of the project impact area:

<u>Species</u>	<u>Status</u>	
	<u>State</u>	<u>Federal</u>
Snail darter – <i>Percina tanasi</i>	T	LT
Marbled darter – <i>Etheostoma marmorpinnum</i> {formerly the duskytail darter - <i>Etheostoma percnurum</i> }	E	LE

Fine-rayed pigtoe – <i>Fusconaia cuneolus</i>	E	LE
Ashy darter – <i>Etheostoma cinereum</i>	T	--
Longhead darter – <i>Percina macrocephala</i>	T	--

LT – Federally threatened LE – Federally endangered T – State threatened E – State endangered

Response from the Service dated June 10, 2013 provided the Indiana bat (*Myotis sodalis*) for consideration. Due to the possible presence of the above species in the project impact area, informal consultation was initiated. Results of this coordination indicated that an updated biological assessment would be necessary to evaluate potential project impacts to these species.

II. PROJECT DESCRIPTION

The existing portion of Pellissippi Parkway (SR-162) has a cross-section consisting of 4 @ 12' traffic lanes, 2 @ 12' paved shoulders and a 48' depressed grass median, all within a minimum 250' right-of-way. The cross-section for the proposed SR-162 extension will be similar to that of the existing. The proposed project will be constructed on new alignment and will require acquisition of additional right-of-way. Total length of the proposed project will be 4.4 miles. This will be the final segment of SR-162 connecting I-40 in Knox County, TN to SR-73 (US-321) in Blount County, TN. Construction of the proposed project is expected to take from two and a half to three years to complete, based on projects of comparable scope.

III. ACTION AREA

The proposed project is located in the northeast portion of Blount County, TN. Terrain along the project alignment is mostly rolling, but ranges from nearly level to quite hilly in some areas. Land use is varied within the project area. Agriculture uses for livestock pasture or hay production are the most common, with cultivated fields for corn, tobacco, and soybeans also present. Residential lots of varying size are prevalent throughout the project area. In addition, there are several subdivisions that either have been or are currently being developed in this portion of Blount County. Commercial development in the project area is located mostly along the main roadways and consists primarily of small businesses including gas stations, car lots, auto repair shops, antique stores, and restaurants. The Alcoa water filtration plant is located near the beginning of the project, in close proximity to Little River at approximately Little River Mile (LRM) 9.6. No caves are believed to be present in the project impact area.

Wooded sites are scattered throughout the area, ranging from only a few clustered trees to several acres in size. The wooded sites tend to be located either in upland areas too steep or rocky for cultivation or along stream drainages. The upland sites contain a variety of mixed hardwoods including southern red oak, post oak, white oak, scarlet oak, blackgum, Virginia pine, loblolly pine, red cedar, dogwood, redbud, yellow poplar, red maple, sugar maple, black cherry, American elm, winged elm, American beech, white ash, and persimmon. Wooded sites along area streams are generally less diverse and contain boxelder, green ash, black willow, sycamore, hackberry, and black walnut. The understory in many of these wooded sites is

dominated by a heavy growth of non-native invasive species including Chinese privet, multi-flora rose, or bush honeysuckle.

Several “blue-line” streams will be crossed by the proposed project. These range in size from small, unnamed, first-order trickles to moderately sized, third-order flows. Peppermint Branch, Gravelly Creek and Flag Branch are the only three named streams that will be crossed. All of the streams that will be crossed are direct tributaries to Little River except for Gravelly Creek and Flag Branch, which flow into Crooked Creek approximately two miles upstream of its confluence with Little River. Substrates in these channels consist mainly of sand, gravel, and mud. Most of these streams lack canopy at the proposed crossing sites, as they are located in open hay or pasture fields. Livestock have access to a large percentage of these stream lengths which has resulted in significant impacts to both streamside vegetation and the channel substrates. Where canopy is present, it is sparse for the most part and limited to within a few feet of the top of the streambanks. Five of the drainage features depicted as “blue-lines” on the area topo maps were identified as wet weather conveyances. Most of the proposed crossings will be accomplished as close to perpendicular as possible. The proposed drainage structures that will be constructed will likely be either concrete box culverts or pipes depending on the hydraulic requirements. However, channel changes may be required on some of these streams depending on the skew at the crossing site.

At present, there are six known wetlands in the project area. These wetlands are associated mostly with the stream drainages and have been heavily impacted by livestock. They are generally small in size (< one ac.) and classified as either emergent or scrub-shrub wetland types. Vegetation present in these wetlands includes sedge, rush, cattail, black willow, ironweed, alder, elderberry, jewelweed, boneset, cardinal flower, and beggar ticks. Four of these six wetlands could possibly be impacted by project construction.

IV. SPECIES/CRITICAL HABITAT CONSIDERED

Snail Darter – *Percina tanasi*

Federally Threatened

Species Description – D.A. Etnier and R.A. Stiles discovered the snail darter in the lower Little Tennessee River in 1973 (Etnier 1976). This discovery set in motion an environmental controversy that ascended to the Supreme Court, and is still debated by many today. As a result, the term “snail darter types” has been used to describe “ultra-liberal environmentalists”. *Percina tanasi* is generally thought to have inhabited the main channel of the upper Tennessee River and lower reaches of its major tributaries (Starnes and Etnier 1980; Etnier and Starnes 1993). Preferred habitat is described by Starnes and Etnier (1980) as consisting of large free-flowing rivers with extensive areas of clean-swept gravel shoals. Impoundment of the Little Tennessee River by Tellico Dam in 1979 effectively eliminated critical habitat in this area (Starnes and Etnier 1980; Page 1983; Kuehne and Barbour 1983; Etnier and Starnes 1993). However, a transplant population was established in the Hiwassee River in 1976 by TVA biologists, which still persists. Other transplants were attempted in the Nolichucky River (1975), Holston River (1979), and Elk River (1980) but with little success (USFWS 1983). Additional populations of snail darters were discovered in South Chickamauga Creek in Chattanooga (1980) and in Big Sewee Creek in Meigs County, TN (1981) by fisheries biologists (Etnier and Starnes 1993). Several other small populations, represented by

only one or a few specimens of *Percina tanasi*, have been discovered in the Sequatchie River in Marion County, Little River in Blount County, lower French Broad River in Sevier County, and lower Paint Rock River in Madison County, Alabama (Etnier and Starnes 1993). Although the snail darter was listed as federally endangered on October 9, 1975, it was reclassified as federally threatened on July 5, 1984 due to the discovery of additional populations outside the Little Tennessee River (USFWS 1984, 1992). The TDEC/DNH database (2013) listed records for the snail darter from the Little River at LRM 9.4, 15.9 and 17.3 in 2000. The most recent record for the snail darter in Little River was from LRM 8.5 in 2007. These records are all downstream from tributaries that will be crossed by the proposed project.

Marbled Darter – *Etheostoma marmorpinnum*

Federally Endangered

Species Description – The marbled darter (*Etheostoma marmorpinnum*) was initially included as part of the duskytail darter (*Etheostoma percnurum*) species complex which was listed as federally endangered on April 27, 1993 (USFWS 1993). However, Blanton and Jenkins (2008) described *Etheostoma marmorpinnum* as one of four distinct species from this complex. The marbled darter is presently known only from the lower portion of Little River in Blount Co., TN from SR-35 (US 411) downstream to SR-33 (Layman 1991). A single marbled darter was collected in 1947 from South Fork Holston River in Sullivan Co., TN, three years prior to completion of construction of South Holston Dam (Blanton and Jenkins 2008). This species is now believed to be extirpated from the South Fork Holston River (USFWS 1993a; Blanton and Jenkins 2008). The nine mile reach of Little River between LRM 8.5 and LRM 17.5 where *Etheostoma marmorpinnum* occurs is generally characterized by moderate gradient with riffles, runs, and long pools (Blanton and Jenkins 2008). Individuals are usually associated with pools and runs that are one to four feet in depth, have gently flowing currents, and are for the most part silt-free (Layman 1991; Etnier and Starnes 1993). There are several records from the TDEC/DNH database (2013) for the marbled darter from LRM 8.5, 9.5 and 10.0 in 2000, and LRM 17.3 in 2006. These records are all downstream from tributaries that will be crossed by the proposed project.

Fine-rayed Pigtoe – *Fusconaia cuneolus*

Federally Endangered

Species Description – The fine-rayed pigtoe (*Fusconaia cuneolus*) was listed as endangered on June 14, 1976 (USFWS 1976) and a recovery plan approved on September 19, 1984 (USFWS 1984a). The fine-rayed pigtoe is restricted to the Tennessee River drainage except for the Duck River (Bogan and Parmalee 1983). This species occurred in the Clinch River from the mouth upstream to Hancock County; in the Emory River, Roane County and Poplar Creek, Anderson County (both tributaries to the Clinch River); Powell River from Union to Hancock County; and in the Holston River from its mouth in Knox County up to the North Fork Holston River in Sullivan County (Bogan and Parmalee 1983). Bogan and Parmalee (1983) reported that *Fusconaia cuneolus* presently occurs in the upper Clinch, Powell, North Fork Holston and Holston Rivers. Records for this species are also reported from the North Fork Holston, Clinch, Powell, Sequatchie, Elk, and Little rivers in Tennessee by Neves (1991). The fine-rayed pigtoe has also been collected from the mouth of the Nolichucky River, tributary to the French Broad, and from Pistol Creek, a small tributary to Little River in Blount County (Bogan and Parmalee 1983). Information from the TDEC/DNH database (2013)

indicated records for *Fusconaia cuneolus* from LRM 9.7 (2008) and Pistol Creek (1914) approximately 0.5 mile before its confluence with Little River at LRM 8.1. Neves (1991:274) described the fine-rayed pigtoe as being a “lotic, riffle-dwelling species that usually inhabits ford and shoal areas of rivers with moderate gradient”. Collection of the fine-rayed pigtoe by Hickman (1937) and Ortmann (1925:330) both were from sandy substrates. The fine-rayed pigtoe has been extirpated throughout most of its former range, with the last remaining viable population in Tennessee occurring in the Clinch (Hancock County) and Powell (Hancock and Claiborne counties) rivers (Parmalee and Bogan 1998).

Indiana Bat – *Myotis sodalis*

Federally Endangered

Species Description – The Indiana bat (*Myotis sodalis*) was placed on the federal endangered species list on March 11, 1967 (32 FR 4001) under the Endangered Species Preservation Act of October 15, 1966 [80 Stat. 926; 16 U.S.C. 668aa(c)]. Critical habitat was designated on September 24, 1976 (41 FR 41914). A recovery plan for the Indiana bat was prepared in March, 1999 (USFWS 1999). This species occurs in the midwest and eastern United States from the western edge of the Ozark region in Oklahoma to southern Wisconsin, east to Vermont, and as far south as northern Florida (USFWS 1991). Typically, two distinct habitat types are utilized through the course of a given year. During the winter months this species hibernates in limestone caves where temperatures average 3-6 °C with relative humidities of 66-95% (Barbour and Davis 1969). Hibernation generally takes place from October to April, depending on climactic conditions (Harvey and Pride 1986). After emerging from hibernation, the bats disperse. Males apparently spend the summer months in the vicinity of the hibernacula with the location of their daytime whereabouts not known (Hall 1962; LaVal et al. 1977). Females form maternity colonies that are typically located under the loose bark or in cavities of trees (Humphrey et al. 1977; Kennedy and Harvey 1980). These trees generally have a diameter at breast height of five (5) inches or greater (USFWS, pers. comm.). Humphreys et al. (1977) found that foraging habitat for this species was confined to air space from 6'-100' near foliage of riparian and floodplain trees. Cope et al. (1978) indicated that Indiana bats would not fly over open country or open water when flying to a foraging area.

There are records for the Indiana bat from the TDEC/DNH database (2013) for Blount County, Tennessee. Coordination with the USFWS also indicated that there are records for this species from Blount County. Barr (1961) and Matthews (1971) recorded numerous caves in Blount County. Harvey and Pride (1986) listed three caves from Blount County that are utilized by *Myotis sodalis* as hibernacula. These are Bull Cave, Kelly Ridge Cave, and White Oak Blowhole Cave and are 9.2, 8.25, and 11.5 miles respectively southeast of the proposed project. All three lie within the Great Smoky Mountains National Park. White Oak Blowhole Cave is one of three caves listed as Critical Habitat for the Indiana bat in the Southeast (USFWS 1991). No known hibernacula for the Indiana bat are present within five (5) miles of the proposed project (Harvey and Pride 1986; Harvey 1992). Acoustical and mist net surveys were conducted in the vicinity of the project corridor in July and August 2012, both with negative results (TDOT 2012).

Ashy Darter – *Etheostoma cinereum*

State Threatened

Species Description – The ashy darter was first described from near Florence, Alabama in 1845, but has not been recorded from that state since (Clay 1975). Distribution for the ashy darter in the Tennessee River drainage includes the Buffalo, Duck, Emory, and Little rivers (Starnes and Etnier 1980). *Etheostoma cinereum* typically inhabits small to medium upland rivers, occurring locally in areas of bedrock or gravel substrate with boulders, water willow, or other cover with minimal silt deposits (Etnier and Starnes 1993). Depths in these areas are generally 0.5 m to 2.0 m and have sluggish currents (Etnier and Starnes 1993). Etnier and Starnes (1993) indicated that the healthiest known population for this species is located in the Little River, Blount County, Tennessee, from Melrose Mill Dam downstream to SR-33 in Rockford. One of the most productive collection locations described is just downstream of the US-411 bridge (Etnier and Starnes 1993) at LRM 17.3. This site is approximately 1.6 miles downstream of where the proposed project will cross a small, unnamed tributary to the Little River. Information from the TDEC/DNH database (2013) indicated records for the ashy darter from LRM 13.3 (1970), 14.2 (1968), 17.3 (2006), 17.6 (1970), 19.5 (2007), and 20.2 (1988). Several of these records are downstream from tributaries that will be crossed by the proposed project.

Longhead Darter – *Percina macrocephala*

State Threatened

Species Description – The longhead darter is widely recorded from the Ohio River drainage but is rare (Clay 1975; Starnes and Etnier 1980; Etnier and Starnes 1993). Starnes and Etnier (1993) indicated that in some years, this species is common in portions of the Little River, Blount County, Tennessee. Habitat for the longhead darter is generally described as larger upland creeks and small to medium sized rivers with good water quality, pools one meter or so deep, and gentle currents that provide silt free bottoms composed of bedrock, boulder, and gravel substrates (Clay 1975; Starnes and Etnier 1980; Etnier and Starnes 1993). Information from the TDEC/DNH database (2013) indicated records for *Percina macrocephala* from the Little River near LRM 8.5 (1985), 14.2 (1993), 16.0 (1974), 17.3 (2006), 19.3 (2009), 20.2 (1970), 21.6 (2008) and 22.0 (1993). Several of these records are downstream of tributaries that will be crossed by the proposed project.

V. EFFECTS ANALYSIS

Clearing, grubbing, and grading activities required for project construction will remove vegetation within most of the project limits, temporarily exposing large areas of bare soil to the elements for varying periods of time. Rain events that occur while the soil is unprotected have the potential to carrying large amounts of sediment off-site into wet-weather conveyances and streams crossed by the project and ultimately into Little River. Although not as prevalent in the project area, sustained high winds associated with storm fronts may also mobilize exposed, loose soils providing an avenue for deposit into area streams. Sediment that is allowed to leave the project has the potential to adversely affect the aquatic species preset in these streams. Excessive siltation can clog the gills of adult fish and aquatic invertebrates. In addition, eggs and larvae of many aquatic species could be smothered. Escape cover, foraging areas, and

crucial spawning habitats can be significantly degraded or destroyed. High amounts of silt in the water column can significantly affect the ability many aquatic species to forage effectively as well by reducing visibility.

Several streams that are tributaries to the Little River will be crossed by the proposed project. There were no records noted for any of the aquatic species discussed in this assessment from these tributary streams. However, the project crossings are only one to two miles upstream from their respective confluences with the Little River, where all of the aquatic species discussed above are known to occur. Construction of the required drainage structures at these stream crossings, along with adjacent earthwork, has the potential to adversely affect the four darters and the mussel of concern. Installation of drainage structures will result in direct disturbance of stream channels and substrates. Although the proposed work will be accomplished "in the dry", any loose material in the affected channels at the work locations could be released once stream flows are returned to the finished structures. Some of these structures will be long (>200 ft.) which will result in a loss of "day-lighted" stream channel. These encapsulated stream sections will be rendered essentially unusable for most aquatic species. These drainage structures could also act as barriers for movement of aquatic organisms both upstream and downstream. Material used to fill over the installed structures could be lost into a given drainage feature unless protective measures are taken. Although most of the potential impacts would be negative, one positive impact may be realized. On streams where no canopy is currently present, especially in open pastures or hayfields, these long structures could provide a definite cooling effect that would not otherwise be available.

While loose soil materials are of great concern, other materials such as mortar, fresh concrete, or petroleum products used as fuel and lubricants for construction equipment could enter a stream at these locations and create additional problems. These pollutants could not only degrade crucial habitats, but can also be acutely toxic to many aquatic species and their respective forage species.

Construction of the proposed project will connect I-40 to SR-73, providing four-lane access from Oak Ridge and Knoxville to Maryville. Both residential and commercial development have increased in the project area since the initial field studies were conducted in the late 1990's. Large tracts of what was once farmland have been sold and developed into subdivisions or small shopping centers. This trend is expected to continue as people who work in Knoxville or Oak Ridge may prefer to live in a more scenic, rural-type setting. Development of large tracts of farmland into subdivisions or for businesses has the potential to adversely impact aquatic species in the immediate project impact area. Soil disturbance and exposure during site development and housing construction may provide a source of sediments that could enter areas streams directly affecting the fauna present as discussed above. Development of large farm tracts also removes what was in many cases an effective vegetative buffer for area streams. The amount of impervious surfaces would increase in the form of roofs, driveways, entrance/access roads, parking lots, and the four new traffic lanes from the project itself. This would in turn reduce the run-off time during storm events, possibly causing flashy, more intense, storm runoff into area streams. Pollutants carried from the developed areas, as well as off the roadways, could potentially impact area streams in a negative manner.

There are, however, some positive impacts that may result. Large agricultural fields that may have been significant sources for sediment run-off during storm events would be stabilized. A pollution source for large amounts of fertilizer, herbicides,

insecticides, or other chemicals harmful to aquatic systems would be greatly reduced, if not eliminated. Sections of stream channel that may have been heavily damaged and degraded by livestock or other agricultural practices would be protected and canopy to reestablish.

The primary impact that the proposed project could have on the Indiana bat would be cutting of trees suitable for summer roost habitat. Cutting of roost trees could not only affect adult bats, but also the young bats if any are present. This could lead to loss of vital individuals necessary for bolstering the population of this federally endangered species. There are a few areas that will be affected by project construction where suitable summer roost habitat is present. However, the overall quality is less than optimal. In addition, there are wooded tracts outside the project impact area that are much larger and contain better quality summer roost habitat that could be used by any bats that would possibly be displaced by project construction. Several caves are located in Blount County, three of which are known to be hibernacula for the Indiana bat. However, the closest of these caves is just over eight miles (8.25) from the proposed project, and lies inside the Great Smoky Mountains National Park. No known hibernacula for the Indiana bat are present within five miles of the proposed project (Harvey and Pride 1986; Harvey 1992). Therefore, this habitat type will not be affected by project construction. Recent surveys by TDOT (2012) did not indicate that the Indiana bat was present within the project area. This would greatly reduce, if not eliminate, the likelihood of the proposed project adversely affecting the Indiana bat.

VI. MEASURES TO MINIMIZE HARM

Installation and maintenance of effective erosion control Best Management Practices (BMP's) throughout the duration of the project will be essential to the prevention of adverse impacts to the aquatic species discussed in this assessment. The use of silt fence, hay bales, rock check-dams, detention ponds, slope drains, and erosion control blankets are just a few of the measures that can be used to reduce the amount of sediment that could enter streams in the project limits. However, these measures must be maintained on a regular basis if they become damaged or ineffective, and as work areas shift through the duration of the project. Typical design for these BMP's is based on a two-year storm event. However, the drainage features that will be crossed by this project flow into Little River, which is listed as an Exceptional Tennessee Water (ETW) due to the presence of several state and federally listed aquatic species. Therefore, the Service has requested that the design for BMP's proposed for use on this project be based on a five-year storm event.

Construction of drainage structures will be accomplished "in the dry" so that minimal material is allowed to enter the streams and possibly adversely affect any of the aquatic species present. Streams will be temporarily routed through work areas using pipes or open channels with non-erodible liners until the respective structures are completed. Relocated channel sections will be properly stabilized and any loose materials removed to the practical extent possible prior to turning stream flows back into the constructed channels. Flows will then be returned to these channels with a minimum of sediment disturbance. Where stream crossings are required, these will be accomplished as close to perpendicular as feasible in order to minimize the stream lengths that will be encapsulated.

Equipment staging areas will be located a sufficient distance from streams such that no coolants, lubricants, fuels, or other petroleum products can enter the streams. Waste and borrow areas will be stabilized, seeded, and mulched once they have been completed. Provided these measures for erosion and siltation control are implemented and maintained, no adverse impacts to aquatic species downstream of the project are anticipated.

The most effective measure to avoid adversely impacting the Indiana bat during construction of the proposed project will be to restrict clearing of wooded areas, where possible, to the months that are outside the known summer roosting period. Coordination with the U.S. Fish and Wildlife Service indicated that the time period between October 15 and March 31 is the optimal time to accomplish this activity. Not only would this protect the adult bats, but also any young that might be present. Limiting tree removal to this time period, where possible, should effectively minimize the likelihood of adversely affecting any Indiana bats that might be present in the project area.

The notes listed below addressing each of the above measures to minimize harm will be placed on the project construction plans. Also, any additional recommendations provided by the Service will be placed as notes on the project construction plans as needed.

1. Clearing and grubbing will be limited to the minimum amount necessary to accommodate roadway cut and fill slopes and operation of construction equipment. All disturbed areas will be stabilized, seeded, and mulched as soon as practicable to reduce the potential for soil erosion.
2. Canopy removal along any streams located within the project limits will be kept to the absolute minimum necessary to accommodate project construction.
3. Silt fence with backing will be installed along the toe of all fills and along all streambanks to minimize the potential of sediment from the project entering area streams. A minimum ten (10) foot vegetated buffer or "green belt" will be left between silt fences and the stream edges where possible.
4. Erosion and sediment control measures will be installed concurrent with clearing and grubbing activities, and will be functional prior to commencement of earthmoving activities. Measures may include, but are not limited to, silt fence with backing, clean shot rock checkdams, sandbags, sediment ponds, sediment filter bags, sediment wattles, slope drains, or other suitable methods.
5. Erosion control structures will be inspected regularly and maintained throughout the life of the project so that they are not rendered ineffective. Sediment will be removed from structures as necessary and must be removed when design capacity has been reduced by 50% to insure maximum effectiveness. Material removed from these structures will not be disposed of in any area streams or wetlands.

6. Maintenance needs for erosion and sediment control structures identified during inspections or by other means will be accomplished within twenty-four (24) hours, if possible. If maintenance prior to the next anticipated storm event is impractical, it will be accomplished as soon as practicable.
7. Waste and borrow areas will be developed in accordance with the procedures outlined in the TDOT Statewide Stormwater Management Program for Construction Projects. These sites will be located in non-wetland areas and are to be a sufficient distance from area streams and/or wetlands so that no soil material is allowed to enter them. These areas will be stabilized as soon as practicable. Appropriate erosion and sediment control measures will be used in these areas as needed to minimize soil loss.
8. Stockpiled topsoil or fill material will be treated in such a manner that is not allowed to enter any area streams or wetlands.
9. Equipment staging areas will be located a sufficient distance from streams and wetlands so that no oils, coolants, fuels, or other petroleum products are allowed to enter these features.
10. Drainage structures required at stream crossings will be constructed "in the dry". Stream flows will be diverted through work areas using flexible pipes or berms or channels lined with plastic, clean shot rock, or other non-erodible material. All water from dewatering areas will be pumped into filter bags or sediment ponds prior to release back into a stream.
11. No motorized equipment will be operated in any streams or wetlands in the project limits except as specified in the project water quality permits.
12. Where possible, tree cutting will be accomplished between October 15th and March 31st to minimize potential impacts to the Indiana bat.
13. A Stormwater Pollution Prevention Plan (SWPPP) will be prepared for the proposed project and will contain a detailed erosion and sediment control plan based on a five-year storm event as requested by the USFWS. A copy of the SWPPP will be available on-site.
14. Weekly stormwater inspections will be conducted for the proposed project as per National Pollutant Discharge Elimination System (NPDES) guidelines.

VII. CONCLUSION AND DETERMINATION OF EFFECTS

There are numerous records for the snail darter (*Percina tanasi*), marbled darter (*Etheostoma marmorinum*), fine-rayed pigtoe (*Fusconaia cuneolus*), ashy darter (*Etheostoma cinereum*), and longhead darter (*Percina macrocephala*) from the Little River, downstream of the proposed project. Although the project will not cross the Little River, it will cross several small tributary streams one to two miles upstream of their respective confluences with Little River. There are no records for any of the above

listed darter species or the mussel species from these tributary streams. Project construction will result in some temporary stream disturbances to at the proposed crossing locations. However, installation and maintenance of effective erosion and siltation control measures throughout project construction will minimize impacts to these streams, which will in turn minimize potential impacts to Little River and the aquatic fauna present there. Provided the necessary BMP's for erosion and sediment control implemented and maintained throughout project construction, it is the opinion of TDOT that the proposed project is **NOT LIKELY TO ADVERSELY AFFECT** the snail darter (*Percina tanasi*), marbled darter (*Etheostoma marmorpinnum*), fine-rayed pigtoe (*Fusconaia cuneolus*), ashy darter (*Etheostoma cinereum*), or longhead darter (*Percina macrocephala*).

Information from the U.S. Fish and Wildlife Service indicated that the Indiana bat (*Myotis sodalis*) could be present within the project impact area. Review of available information indicated no records for this species from within five miles of the proposed project. In addition, no known hibernacula for the Indiana bat are present within five miles of the proposed project. Although some suitable summer roost habitat does appear to be present in the project area, very little will be affected by project construction. Even if a suitable tree is removed, there are sufficient suitable trees present outside the project limits to accommodate any Indiana bats that might use this area. Recent surveys by TDOT (2012) did not indicate that the Indiana bat was present within the project impact area. In addition, the USFWS concurred with the finding of NLTA for the Indiana bat for the proposed project on October 11, 2012. Therefore, based on the information provided in this BA it is still the opinion of TDOT that the proposed project is **NOT LIKELY TO ADVERSELY AFFECT** the Indiana bat.

VIII. LITERATURE CITED

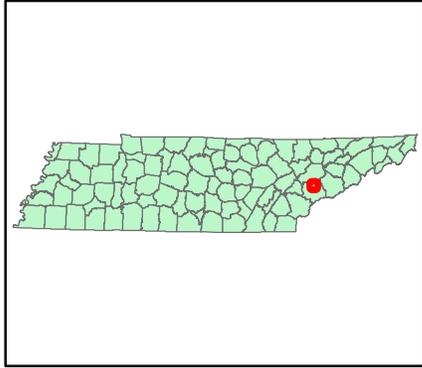
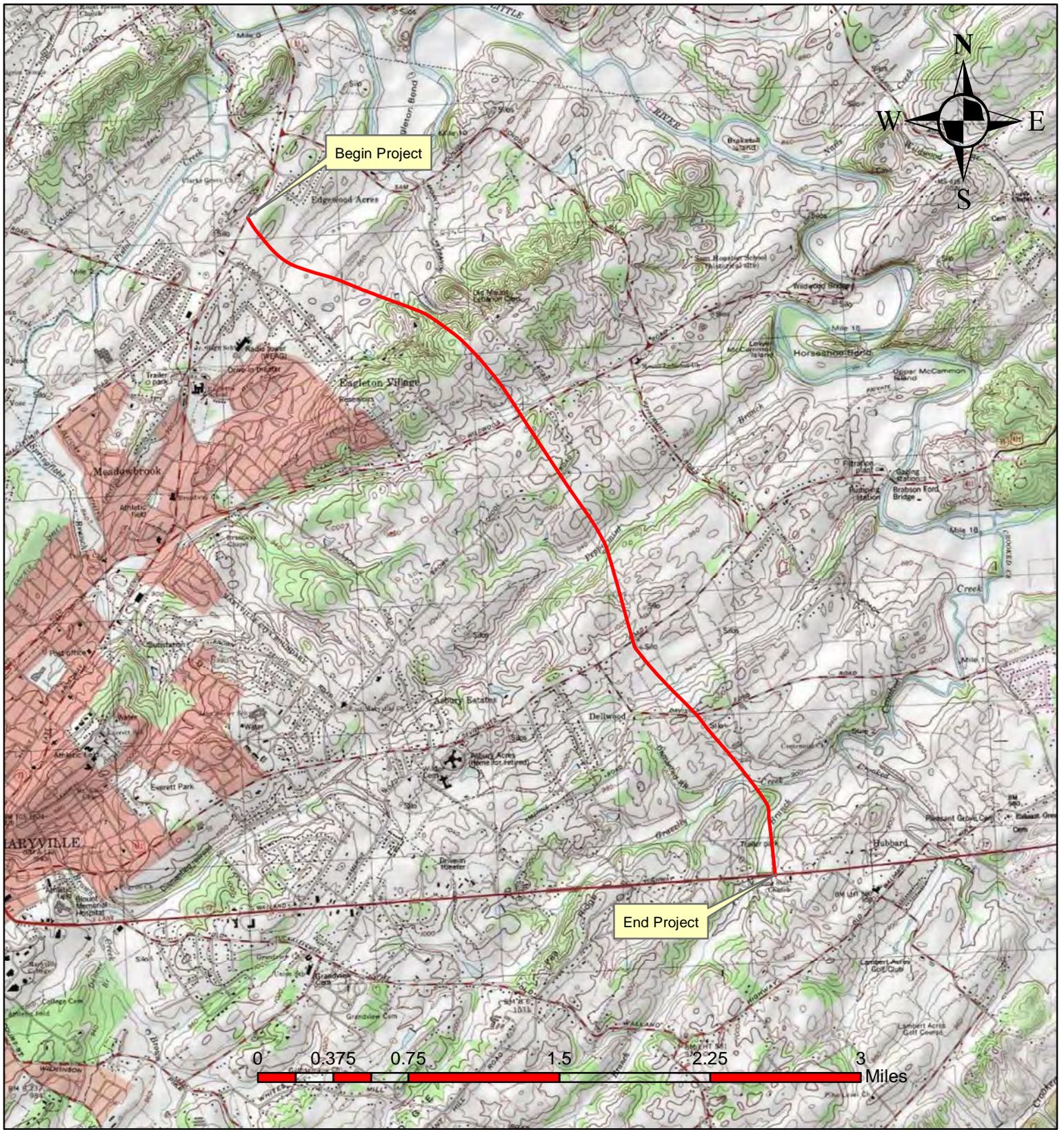
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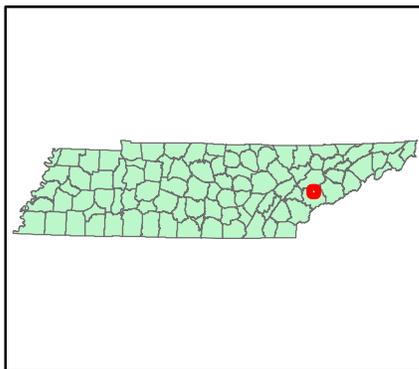
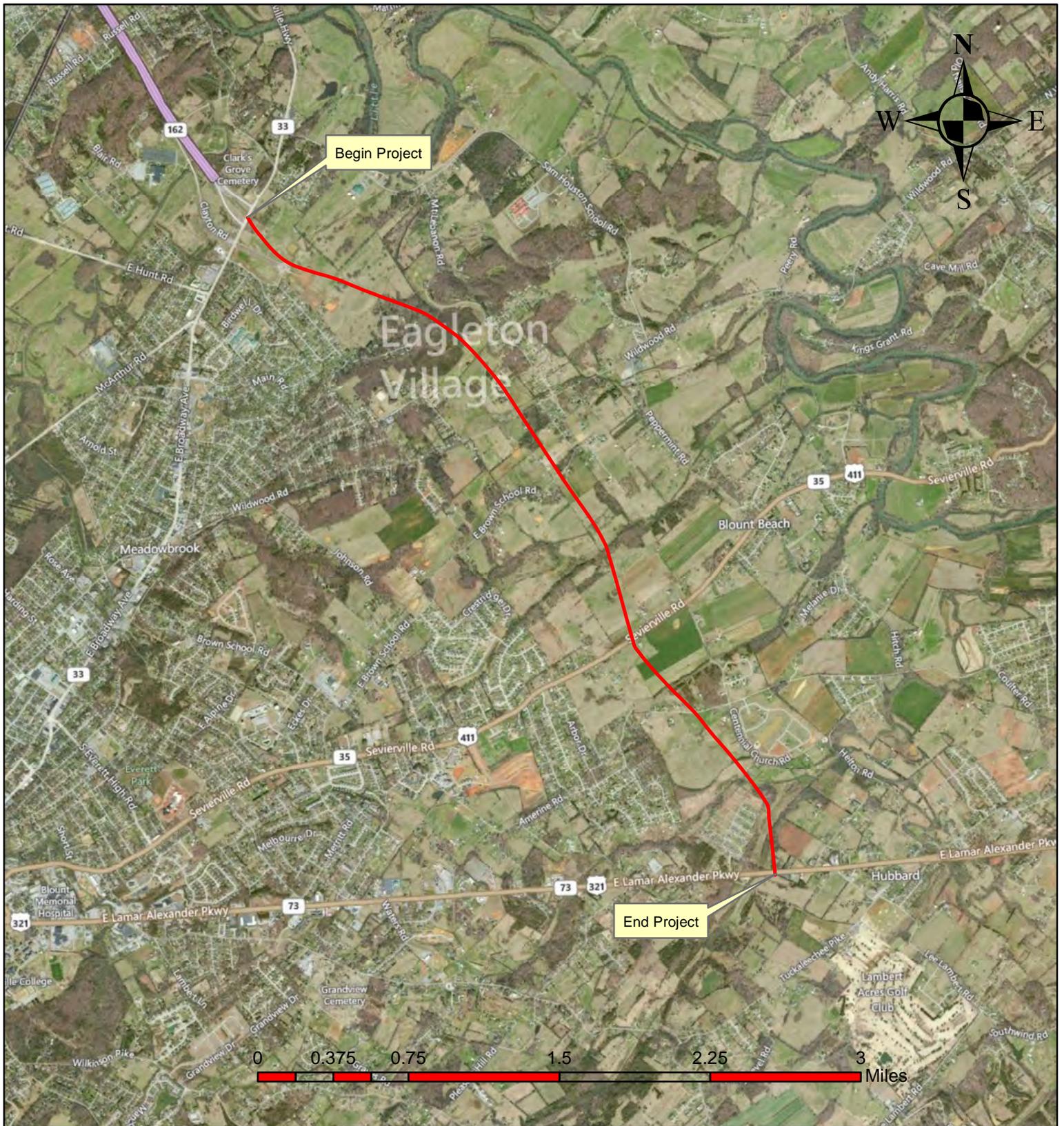
Project Location Map - topo
SR-162EXT, Pellissippi Pkwy, from SR-33 to SR-73
Blount County, TN

Maryville 147-SW and Wildwood 147-SE

6-4-13

PIN 101423.00 PE #05097-0229-14





Project Location Map - aerial
SR-162EXT, Pellissippi Pkwy, from SR-33 to SR-73
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