D-List Categorical Exclusion

State Route 40 Improvements

From Existing Five-Lane Near Hildabrand Road to Existing Three-Lane Near Welcome Valley Road

Polk County

PIN 124102.00

Submitted Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4332(2)

Environmental Commitments

Owner	Commitment
Hazardous Materials	An Asbestos Containing Material (ACM) survey was performed on Bridge No. 70SR0400005, SR-40 over Ocoee River, Log Mile 3.12 (Bridge No. 70SR0400005). The bridge has asbestos in the vibration dampener bearing pad material between the approach bents and deck; approximately 432 square feet at less than 1% chrysotile (which is only regulated under OSHA standards). Please see the report for further details and photographs. The survey was completed under a previous PIN (PIN 123737.00). Since the asbestos is less than 1%, no special accommodations (except OSHA health and safety regulations for asbestos materials) for demolition and waste disposal are anticipated for this structure and the material can be deposited in a C&D landfill. Prior to the demolition or rehabilitation of any structure (bridge or building), the contractor is required to submit the National Emission Standards for Hazardous Air Pollutants standard 10-day notice of demolition to the TDEC Division of Air Pollution Control (per TDOT Standard Specifications for Road and Bridge Construction (January 1, 2015) Sections 107.08 D and 202.03).
Ecology	Due to concerns for the federally threatened snail darter (*Percina tanasi*), TDOT is committed to prohibit instream work from February 1st – April 30th in the Ocoee River for the duration of the project.
Ecology	To comply with the TDOT/USFWS 2015 Memorandum of Agreement for impacts to Cliff Swallows (*Petrochelidon pyrrhonota*) and Barn Swallows (*Hirundo rustica*), Cliff swallow and barn swallow nests, eggs or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests may be removed or destroyed, and measures may be implemented to prevent future net building at the site (e.g., closing off area using netting).
Ecology	Due to concerns for the state listed Barn Owl (*Tyto alba*) using the bridge over the Ocoee River during various nesting stages, TDOT has committed to prohibit work on the existing bridge from April 1st to September 1st.
Other	With TDOT's prior approval, the Design-Builder may temporarily close the Ocoee River at the project site to recreational users for short durations during beam erection and bridge demolition activities. The Design-Builder should develop a plan to notify river traffic of closures, temporarily hold river traffic and notify river traffic of when it is safe to proceed. This plan should be pre-approved by TDOT. Warning / notification signs pre-approved by TDOT shall be placed by the Design-Builder above and below the bridge site within the ROW and at all public boat ramps/boat access points located upstream to Ocoee Dam #1 (Parksville Dam). If the Design-Builder elects to utilize a barge, jetty, or a haul road for construction purposes, warning / notification signs pre-approved by TDOT shall be placed by the Design-Builder above and below the bridge site and at all boat ramps/boat access points located upstream to Ocoee Dam #1 (Parksville Dam).

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Project Information

General Information

Route: State Route 40 Improvements

Termini: From Existing Five-Lane Near Hildabrand Road to Existing Three-Lane Near Welcome Valley Road

County: Polk County

PIN: 124102.00

Plans: Environmental Technical Study Area Mapping

Date of Plans: This is a Design-Build project and plan dates will vary as the project progresses.

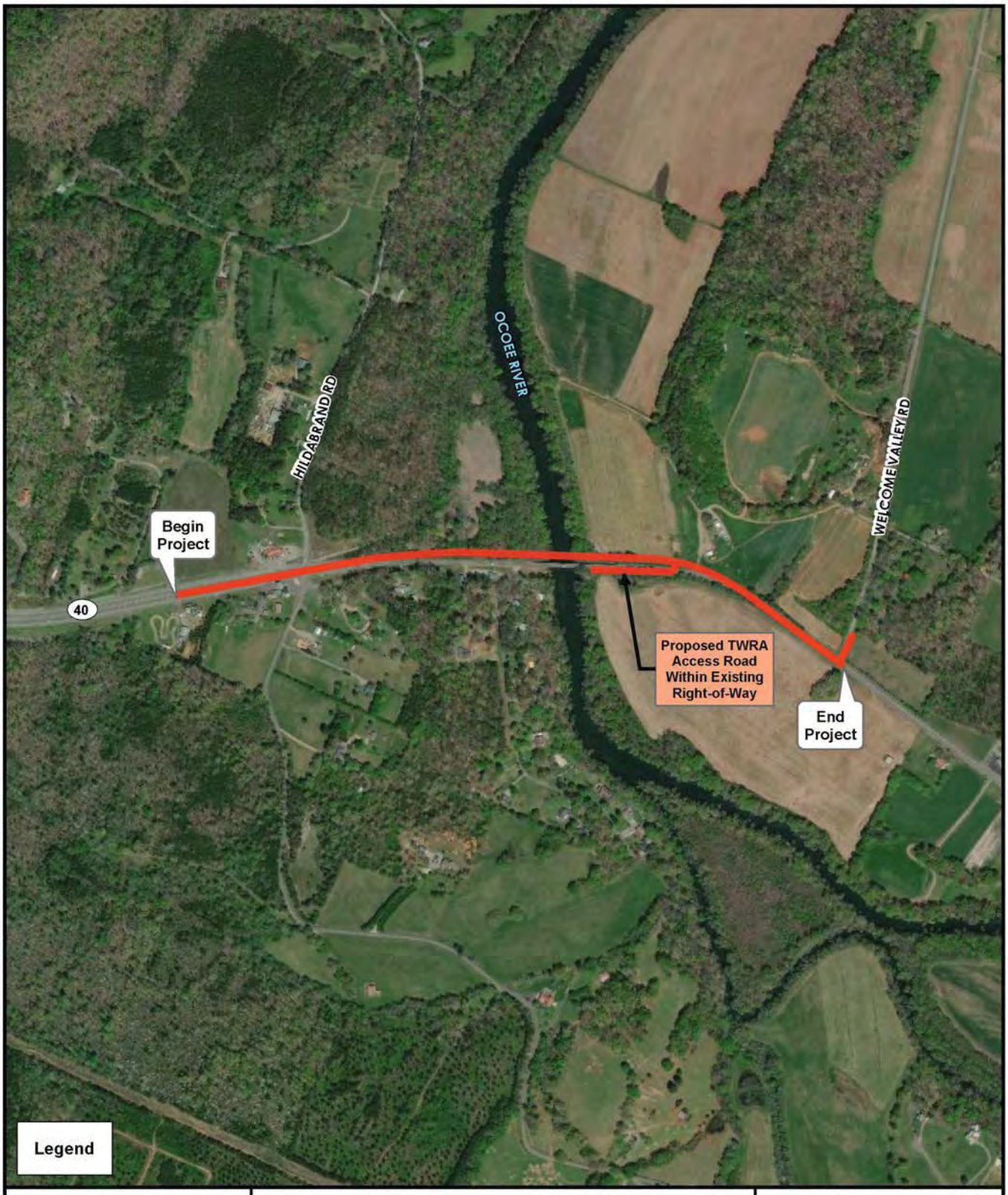
Project Funding

Planning Area: Southeast Tennessee RPO

STIP/TIP: STIP # 1770005 included in Attachment A.

Funding Source	Preliminary Engineering	Right-of-Way	Construction
Federal	BR-NH/APD-40(37)	BR-NH/APD-40(37)	BR-NH/APD-40(37)
State	70068-1211-94	70068-2211-94	70068-3211-94

Project Location



1 in = 0.15 mile

STATE ROUTE 40

Bridge Over the Ocoee River (Bridge No. 70SR0400005)
Polk County, Tennessee
TDOT PIN 124102.00

TN TDOT Department of Transportation

Project Overview

Introduction

The Tennessee Department of Transportation (TDOT), in cooperation with the Federal Highway Administration (FHWA), proposes to improve State Route (SR) 40 from the existing five (5) lane near Hildabrand Road to the existing three (3) lane near Welcome Valley Road in Polk County, Tennessee.

Background

The proposed project was originally part of a separate Corridor K (SR-40, U.S. 64) study initiated by the Appalachian Regional Commission (ARC) as part of the Appalachian Development Highway System (ADHS) and included in the Appalachian Regional Development Act of 1965. TDOT began studying areas of SR-40 (U.S. 64) in Polk County in the 1980's. Since this time, several studies have been prepared by TDOT and ARC, including a Transportation Planning Report which was completed for the entire Corridor K project in 2010. Following completion of this report, a Notice of Intent (NOI) to prepare a Draft Environmental Impact Statement (DEIS) for the Corridor K project was published on the Federal Register on September 21, 2010. TDOT has since been developing the DEIS for the Corridor K (SR-40, U.S. 64) project from west of the Ocoee River to SR-68 near Ducktown (PIN 102420.08); however, the development of the DEIS is currently paused while an analysis of potential spot improvements are further investigated and in some cases implemented. It is important to note that while the current project (PIN 124102.00) is within the project limits of the Corridor K DEIS (PIN 102420.08), the improvements discussed in this CE would not preclude the analysis or selection of any alternatives under consideration in the currently paused DEIS.

TDOT originally developed a Transportation Investment Report (TIR) for the proposed SR-40 improvements project in April 2018 (Refer to Appendix A for a copy of the April 2018 TIR). The April 2018 TIR proposed to construct a five (5) lane typical section from west of Hildabrand Road to near Welcome Valley Road, including the replacement of the bridge over the Ocoee River (Bridge ID 70SR0400005). At this time, Environmental Studies Requests (ESRs) were sent to the appropriate TDOT Environmental Technical Offices for their evaluation.

Following completion of the April 2018 TIR, the TDOT Region 2 Project Development Office decided to modify the proposed typical section after further evaluating the anticipated traffic projections as well as overall cost associated with the proposed project. With an average annual daily traffic of less than 7,000 vehicles per day, TDOT decided the traffic did not justify having a five (5) lane facility. Additionally, constructing a bridge over the Ocoee River for five (5) lanes had an increased cost compared to constructing a bridge for four (4) lanes (future) considering the length of the bridge (greater than 620-feet). As such, an updated TIR was completed on August 16, 2018 in which a three (3) lane typical section is proposed from west of Hildabrand Road to approximately the intersection of SR-40 and Welcome Valley Road (Refer to Appendix A for a copy of the August 2018 TIR). It is important to note that the August 2018 TIR inadvertently states that the proposed structure would be configured in a way so that it could be widened in the future to a five (5) lane facility. Per coordination with the TDOT Region 2 Project Development Office, the August 2018 TIR should state that the structure would be configured so that it could be widened in the future to a four (4) lane facility. Refer to Appendix A for record of coordination with the TDOT Region 2 Project Development Office.

Based on the August 2018 TIR, TDOT is preparing a D-List Categorical Exclusion (D-List CE) for the proposed SR-40 Improvements Project. This D-List CE has been shown to have it's own independent utility and logical termini independent of the overarching Corridor K EIS. Additionally, all ESRs have been updated to reflect the three (3) lane typical section by the appropriate TDOT Environmental Technical Offices and are documented in the following sections.

Following approval of the August 2018 TIR, the Environmental Technical Study Area (ETSA) was modified in December 2018 to account for potential additional construction easements. The December 2018 ETSAs were circulated to the TDOT Environmental Technical Offices for review on December 7, 2018. The ESRs from the TDOT Environmental Technical Offices are summarized henceforth and included in either the attachments or the appendices of this document. In some cases where the most recent December 7, 2018 ESRs build upon a previous ESR response from either the April 2018 or August 2018 TIR, both ESRs are included in the attachments or appendix for reference.

Finally, in order to address changes in scope that have occurred since the original Corridor K project was proposed, coordination with the ARC was updated on February 25, 2019. A representative of the ARC reviewed the proposed project design and provided the following response: "*Based on ARC's review of the project design details, including a 50 miles per hour (mph) design speed (with ability to increase to 55 mph later) and 3-lane cross section (with ability to widen to 4-lanes later), ARC concurs with TDOT's project proposal with the following caveats:*

- *ARC concurrence only pertains to TDOT's immediate plans for this specific project and does not represent concurrence on the ultimate design details which would constitute official "completion" for the Corridor K sections included in this project or other unfinished portions of Corridor K.*

- *Unless otherwise proposed by TDOT and approved by ARC, the portions of Corridor K included in this project will not be officially considered complete once the project is finished and will be considered "Stage Construction" per ARC's status classification system."*

Refer to Attachment C for record of coordination with the ARC.

Project Development

Need

As part of the scope of this project, the bridge over the Ocoee River is proposed to be replaced. Based on the 2016 Bridge Inspection Report, the existing SR-40 bridge has a general condition rating of "poor" and has been given a sufficiency rating of 32.9, rated out of 100 possible points.* See Appendix A for a copy of the 2016 Bridge Inspection Report.

In addition, SR-40 is classified as a rural principal arterial. Traffic counts in Base Year 2022 are estimated to be 5,790 AADT and 6,950 AADT in Design Year 2042. This represents a 20 percent increase between Base Year and Design Year traffic volumes. Refer to the August 2018 TIR included in Appendix A for a copy of the traffic volumes provided by TDOT's Strategic Transportation Investments Division (STID). Additionally, existing SR-40 within the project vicinity consists of several roadway typical sections including an improved five (5) lane typical section west of Hildabrand Road, a two (2) lane typical section between Hildabrand Road and Welcome Valley Road, and a three (3) lane typical section east of Welcome Valley Road. As stated in the August 2018 TIR, transitioning from a five (5) lane to a two (2) lane on the existing bridge is undesirable for both design and for the driver's expectation along the bridge. There are also existing sight distance issues at the intersection of SR-40 and Welcome Valley Road.

**A sufficiency rating is calculated for each individual bridge that is used to carry vehicular traffic. Ratings are measured on a scale of 0 to 100. A rating of 100 corresponds to a bridge that qualifies as an "entirely sufficient bridge," while a rating of 0 denotes a bridge that is "entirely deficient." Bridges that receive a sufficiency rating of less than 80.0 are eligible for rehabilitation; bridges that earn a rating below 50.0 are eligible for replacement.*

Purpose

Based on the needs established above, the purpose of the proposed project is to:

- Provide An Improved Bridge Structure over the Ocoee River - The proposed project would correct the structural deficiencies associated with the existing bridge structure over the Ocoee River to meet current bridge design standards.

- Improve Traffic Operational Efficiency - The improved facility is anticipated to better meet future traffic volumes. In addition, traffic operational efficiency is expected to improve as the project proposes a three (3) lane typical section which better meets driver expectation as either end of the project ties into an existing three (3) lane or five (5) lane roadway.

- Improve Local and Regional Access and Connectivity Consistent with the Legislative Intent of the *Appalachian Regional Development Act* (ARDA) of 1965 - The purpose of the ARDA has evolved as new problems and challenges have emerged for rural areas such as the Appalachian region. The purpose of the ARDA includes coordinating efforts to improve the economic conditions of the Appalachian Region through the following means: provide the infrastructure necessary for economic and human resources development, develop the region's industry, help build entrepreneurial communities, and make the region's industrial and commercial resources more competitive in national and world markets. The proposed project would meet the legislative intent of the ARDA by improving the connectivity and the infrastructure between the region's more populated and commercially/industrially developed areas of the Cities of Cleveland and Ducktown.

The proposed project is also consistent with the legislative intent set forth in the *Improving Manufacturing, Public Roads and Opportunities for a Vibrant Economy* (IMPROVE) Act signed into law July 1, 2017. One of the main goals of the IMPROVE Act is "*providing a safe, reliable, and debt-free transportation network…to ensure the next generation of Tennesseans will have a robust transportation system*" (Governor Haslam, 2018). This SR-40 project has been identified as an IMPROVE Act project and would meet the legislative intent of the IMPROVE Act by improving an important infrastructure facility in Polk County.

Range of Alternatives

Other than the selected design, were any alternative build designs developed for this project? **No**

No-Build	In the development of design solutions that address the needs outlined above and achieve the purpose of the project, TDOT evaluated the potential consequences should the project not be implemented. This option, known as the No-Build Alternative, assumed the continuation of current conditions and set the baseline from which the impacts of the selected design were compared.

Public Involvement

Has there been any public involvement for the project? **Yes**

A Stakeholder Meeting was held at the Benton Municipal Building in Benton, Tennessee on Thursday, November 15, 2018 from 5:00 PM to 7:00 PM. The purpose of the meeting was to provide stakeholders with an opportunity to provide comments regarding the No-Build Alternative and the Build Alternative that includes the construction of a three (3) lane roadway with shoulders and a new bridge over the Ocoee River, and for TDOT representatives to answer questions and provide information. A total of 32 people attended (12 stakeholder group members, 16 TDOT staff including Gresham Smith and Kimley-Horn staff, and 4 members of the public). During the official comment period (November 15, 2018 through December 6, 2018) approximately 21 public comments were received through informal comments given during the question and answer portion of the meeting and written comments in the form of comment cards, letters, and e-mails. A comment summary was completed December 18, 2018.

See Appendix B for copies of all Stakeholder Meeting Materials.

Project Design

Existing Conditions and Layout

Existing SR-40 is classified as a rural principal arterial and consists of a two (2) lane typical section between Hildabrand Road and Welcome Valley Road. Currently, this existing two (2) lane typical section ties into an improved five (5) lane typical section west of Hildabrand Road and to an improved three (3) lane typical section east of Welcome Valley Road. The existing SR-40 and Hildabrand Road/Cookston Creek Road intersection is a two-way stop controlled intersection at an approximate 78-degree skew while the existing intersection of SR-40 and Welcome Valley Road is a stop controlled intersection at an approximate 72-degree skew.

The existing SR-40 bridge structure, built in 1937, is a six-span concrete bridge crossing the Ocoee River in Polk County. The existing bridge is 546 feet long with an out-to-out width of 27 feet 2 inches and a weight limit of 20 tons. The existing structure and roadway approaches have two (2) twelve (12) foot travel lanes with less than one (1) foot shoulders.

Proposed Project Description

The project would replace the existing SR-40 Bridge (Bridge ID 70SR0400005) over the Ocoee River, widen SR-40 from west of Hildabrand Road to Welcome Valley Road, and improve the intersection at Welcome Valley Road and SR-40 in Polk County. The proposed bridge structure would shift on new alignment north of the existing bridge (approximately a 90 degree skew with the river channel). The project would also widen the existing two (2) lane roadway to three 12-foot lanes (one travel lane in each direction and a center turn lane) and a 10-foot shoulder on each side. Intersection improvements at SR-40 and Welcome Valley Road are proposed as part of this proposed project and include the realignment of Welcome Valley Road to intersect SR-40 at a 90-degree angle as well as some additional grading on SR-40 to address sight distance issues. Additionally, a Tennessee Wildlife Resources Agency (TWRA) access road would also be included as part of the proposed project within existing right-of-way just east of the Ocoee River on the south side of SR-40. The road would be graded to be 22-feet wide. TWRA will be required to enter into an Interagency Agreement prior to construction of the access road which will deem TWRA responsible for the management and maintenance of the road and any future boat ramp TWRA may construct. TWRA would be responsible for providing any kind of parking area or launch pad for public use and would choose whether to make the area accessible to the public.

The proposed bridge would be a four-span steel I-beam structure with a total length of 570 feet including a 210 foot main span over the river and a 120 foot span on the west end and two (2) 120 foot spans on the east end. The typical section of the proposed bridge would consist of two (2) twelve (12) foot travel lanes and one (1) twelve (12) foot two-way left turn lane with shoulder widths of 10-feet and concrete parapets for a total out-to-out width of approximately 57 feet. The proposed bridge would be configured in such a way so that it could be widened to accommodate a potential four (4) lane typical section when warranted.

Currently, SR-40 has a posted speed limit of 45 miles per hour (mph); however, the design speed within the project area is 55 mph.

Proposed Typical Section

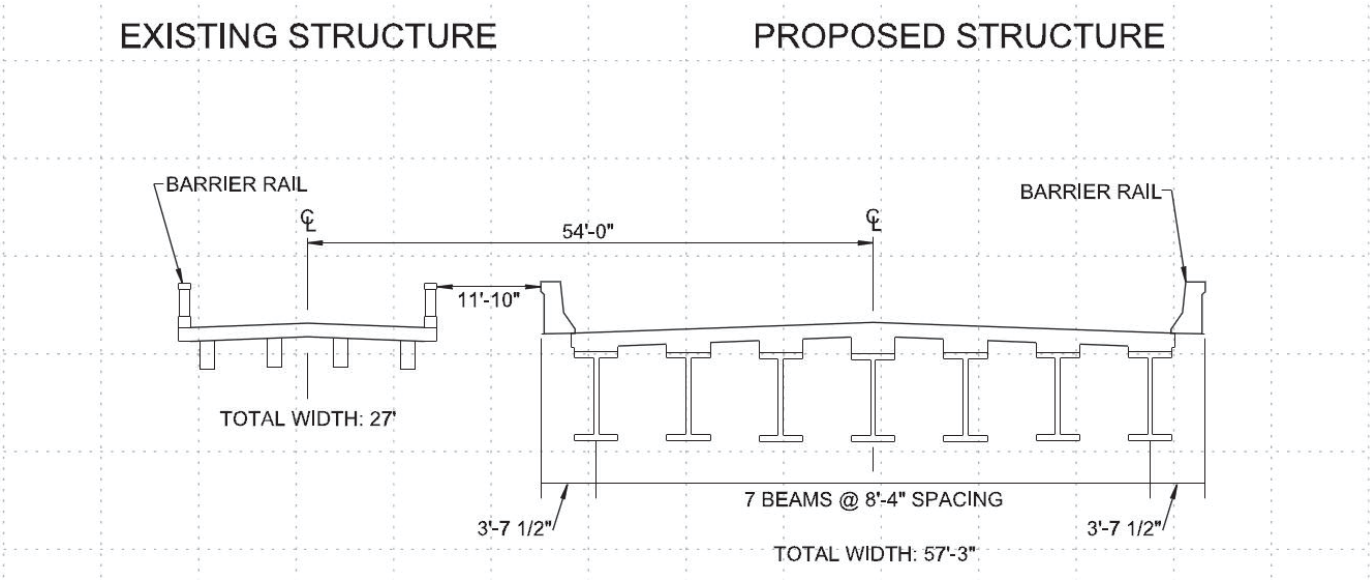


Figure 1: Proposed Typical Section (Source: Transportation Investment Report, (dated 08/16/2018))

Right-of-Way

Does this project require the acquisition of right-of-way or easements? **Yes**

Right-of-Way Acquisition Table					
Permanent Acquisition			**Temporary Acquisition**		
R.O.W Acquisition	Drainage Easements	**Total**	Slope Easements	Construction Easements	**Total**
6.98	Unknown at this time	**6.98**	Unknown at this time	Unknown at this time	

*Measured in acres

Based on the August 2018 TIR and December 2018 ETSAs, it is estimated that two (2) tracts of land would be affected resulting in the acquisition of approximately 6.98 acres of right-of-way. Exact amounts of right-of-way as well as permanent and temporary easements required for construction of the proposed project are unknown at this time as they would be heavily influenced by the final horizontal alignment to be determined at a future date as the project moves forward closer to construction.

Displacements and Relocations

Will this project result in residential, business or non-profit displacements and relocations? **No**

The TDOT Right-of-Way Division reviewed the December 2018 Revised ETSA on 12/13/2018 and provided the following response: *"Construction of this project is not anticipated to displace any persons, businesses, farms, or non-profits. As such, a conceptual state relocation plan will not be required* ." Refer to Attachment D for record of coordination with the TDOT Right-of-Way Division.

Changes in Access Control

Will changes in access control impact the functional utility of any adjacent parcels? **No**

Traffic and Access Disruption

At this time, are traffic control measures and temporary access information available? **Yes**

Will this project involve traffic control measures that may result in major traffic disruptions? **No**

No detours or phasing would be required for construction of this project. The existing structure and roadway consisting of two lanes of traffic would be maintained while the proposed structure is constructed on new alignment north of the existing structure, except for possible short-term lane closures during construction for beam delivery and erection. After completion of the project, the existing approach roadway and structure would be removed.

With TDOT's prior approval, the Design-Builder may temporarily close the Ocoee River at the project site to recreational users for short durations during beam erection and bridge demolition activities. The Design-Builder should develop a plan to notify river traffic of closures, temporarily hold river traffic and notify river traffic of when it is safe to proceed. This plan should be pre-approved by TDOT. Warning / notification signs pre-approved by TDOT shall be placed by the Design-Builder above and below the bridge site within the ROW and at all public boat ramps/ boat access points located upstream to Ocoee Dam #1 (Parksville Dam).

If the Design-Builder elects to utilize a barge, jetty, or a haul road for construction purposes, warning / notification signs pre-approved by TDOT shall be placed by the Design-Builder above and below the bridge site and at all boat ramps/boat access points located upstream to Ocoee Dam #1 (Parksville Dam).

Water Resources

Are there any water resources, wetlands or natural habitat located within the project area? **Yes**

Water Resources				
Resource Type	**Label**	**Quality**	**Impact Type**	**Amount**
Intermittent Stream (STR)	STR-1	Undetermined	Crossing	500
Wet Weather Conveyance (WWC)/ Ephemeral Stream (EPH)	WWC-1 / EPH-1	Undetermined	Crossing	185
Perennial Stream	STR-2 / Ocoee River	303(d) Listed	Crossing	100
Wet Weather Conveyance/ Ephemeral Stream	WWC-2 / EPH-2	Undetermined	Crossing	375
			Total Stream Impact	**600**
			Total WWC/EPH Impact	**560**

Source: Environmental Boundaries Report, TDOT, October 2018
**Units measured in linear feet. Identification of features has not been reviewed by regulatory agencies and determinations of stream type could possibly be changed. Predicted impacts are considered "preliminary" and will not be completely accurate until the time of permit application.*

Mitigation of impacts to streams or any other fluvial systems will be accomplished through the avoidance and minimization of potential impacts during the design process. Permanent stream alterations such as relocations, impoundments or channel modification will be mitigated on-site to the extent possible in order to return the channel to its most probable natural state. Impacts that cannot be mitigated on-site will be subject to a compensatory mitigation plan that may include restoration of a comparable resource or application of an in-lieu fee program.

According to the 2018 Environmental Boundaries Report (EBR) completed for the subject project, two streams (STR) and two wet weather conveyance (WWC) / ephemeral (EPH) streams were identified within the project area. All water resources identified are connected to the Ocoee River which is listed as an Exceptional Tennessee Water (ETW) due to the federally threatened Snail Darter (*Percina tanasi*) and is a recreational resource of national significance within the Cherokee National Forest (CNF). As currently planned, the proposed SR-40 bridge would span the entire Ocoee River. A copy of the EBR, completed on 10/22/2018, with more details on the above referenced water resources is included in Appendix C.

The TDOT Region 2 Environmental Tech Office reviewed the December 2018 Revised ETSA and offered the following comments: "*TDOT's Region 2 Environmental Tech Office (ETO) has reviewed the two maps sent with this ESR request on 7 December 2018. Staff prepared an Updated Environmental Boundaries Report for this project on 22 October 2018, which encompasses the additional study areas shown in this request. If the project scope is revised or if the project limits are extended, an additional review by the Region 2 ETO will be required.*"

Please see Appendix C for a copy of the coordination record with the TDOT Region 2 ETO.

Protected Species

Are the MOA's between TDOT and USFWS (2012) and TDEC-DNA (2015) applicable to this project? **No**

Rare Species Dataviewer:

The TDEC Rare Species Dataviewer was reviewed on 09/11/2018

Rare Species List			
Species Name	**Status**	**Species Potential within Right-of-Way**	**Accommodations**
Eastern Turkeybeard *(Xerophyllum asphodeloides)*	State - T	Low Potential: Present habitat unsuitable	Best Management Practices (BMPs)
Fraser's Loosestrife *(Lysimachia fraseri)*	State - E	Low Potential: Present habitat unsuitable	BMP's
Lined Chub *(Hybopsis lineapunctata)*	State - D	Low Potential: Present habitat unsuitable	BMP's
Nevius' Stonecrop *(Sedum nevii)*	State - E	Low Potential: Present habitat unsuitable	BMP's
Northern Pinesnake *(Pituophis melanoleucus)*	State - T	Low Potential: Present habitat unsuitable	BMP's
Purple Gerardia *(Agalinis plukenetii)*	State - E	Low Potential: Present habitat unsuitable	BMP's
Seepage Salamander *(Desmognathus aeneus)*	State - D	Low Potential: Present habitat unsuitable	BMP's
Snail Darter *(Percina tanasi)*	Federal - LT State - T	Potential: Habitat is present	Special notes are included in the text below.
Eastern Woodrat *(Neotoma floridana)*	State - D	Potential: Habitat is present	BMP's
Tennessee Dace *(Chrosomus tennesseensis)*	State - D	Low Potential: Present habitat unsuitable	BMP's
Trailing Trillium *(Trillium decumbens)*	State - E	Potential: TDEC-listed within ROW	BMP's
Woodland Jumping Mouse *(Napaeozapus insignis)*	State - D	Potential: Habitat is present	BMP's
Indiana Bat *(Myotis sodalis)*	Federal - E	Low Potential: Not observed during visit	Not applicable
Northern Long Eared Bat *(Myotis septentrionalis)*	Federal - T	Low Potential: Not observed during visit	Not applicable

Source: Environmental Boundaries Report, TDOT, October 2018
Note: T = Threatened; E = Endangered; D = Deemed in Need of Management; LT = Federally Listed Threatened

According to the 2018 EBR completed for the subject project, no protected species were identified within a one-mile radius of the project area and 12 protected species were identified within a four-mile radius of the project area as listed in the Rare Species List table above. Refer to the 2018 EBR included in Appendix C for more information on the identified species. Additionally, suitable habitat for the federally endangered Indiana bat (*Myotis sodalis*) and the federally threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*) was documented within the project area; therefore, a bat mist net survey was completed in June 2018. No Indiana bats or NLEBs were captured during the survey. A copy of the bat survey is included in Appendix C.

Additionally, collection records in the Tennessee Department of Environment and Conservation (TDEC) Division of Natural Areas Database documented the presence of the federally threatened snail darter (*Percina tanasi*) 7.4-miles downstream of the project location. Due to concerns for the snail darter, TDOT will prohibit instream work from February 1st to April 30th on the Ocoee River within the project area.

As stated in the 2018 EBR, TDOT field surveys documented the presence of nesting Cliff Swallows (*Petrochelidon pyrrhonota*) and Barn Swallows (*Hirundo rustica*) on the existing SR-40 bridge over the Ocoee River. To comply with the TDOT/USFWS 2015 Memorandum of Agreement (MOA) for impacts to Cliff Swallows and Barn Swallows, cliff swallow and barn swallow nests, eggs, or birds (young and adults) will not be disturbed between April 15th and July 31st. From August 1st to April 14th, nests may be removed or destroyed, and measures may be implemented to prevent further nest building at the site (e.g., closing off area using netting). TDOT field surveys also documented the presence of roosting adult and young, state listed, Barn Owls (*Tyto alba*) on the existing SR-40 bridge over the Ocoee River. In accordance with Tennessee Wildlife Resources Agency (TWRA), TDOT will implement the following protective measure for demolition of the existing SR-40 bridge: "*Due to concerns for state listed Barn Own, and in coordination with the TWRA, TDOT will prohibit demolition work on the existing SR-40 bridge over the Ocoee River from April 1 to September 1."*

Coordination responses from the USWFS, TWRA, and TDEC Division of Natural Areas are provided below.

U.S. Fish and Wildlife Service (USFWS):

Coordination with the USFWS was completed on 10/05/2018

"*A mist netting survey was performed from June 3 through June 5, 2018, at one site determined to be a suitable netting location. Efforts resulted in the capture of eight individuals, representing four non-listed bat species. Due to negative survey results for the Indiana bat and NLEB, we concur with TDOT's determinations of "not likely to adversely affect" for these species. This survey will be valid until April 1, 2024. Because the nearest snail darter record is approximately 7.4 miles downriver, and TDOT commits to an instream construction prohibition during the spawning timeframe of February 1 through April 30, we additionally concur with TDOT's "not likely to adversely affect" finding for the snail darter.*

We are not aware of any other federally listed or proposed species that would be impacted by the project. Therefore, based on the best information available at this time, we believe that the requirements of Section 7 of the Endangered Species Act (Act) of 1973, as amended, are fulfilled for all species that currently receive protection under the Act." Refer to Attachment E for record of coordination with the USFWS.

Tennessee Wildlife Resources Agency (TWRA):

Coordination with TWRA was completed on 10/01/2018

"*Thank you for the update and detailed commitments you have outlined in your correspondence. I have no other specific request than you have provided. Please contact me if you need further assistance."* Refer to Attachment E for record of coordination with the TWRA.

Tennessee Department of Environment and Conservation (TDEC):

Coordination with TDEC was completed on 09/24/2018

"*The Division of Natural Areas - Natural Heritage Program has reviewed the location of the proposed SR-40 bridge over the Ocoee River project, located in Polk, Tennessee. We have reviewed the state's natural heritage database and based on the habitat within the project area and the type of project, we do not anticipate any impacts to rare, threatened, or endangered plant species from this project.*" Refer to Attachment E for record of coordination with TDEC.

Floodplain Management

Flood Zone: Zone AE (Cross Hatched) - Floodway Area in Zone AE

Portions of this project impact a FEMA defined floodplain where a floodway is defined. A No Rise Certification or a CLOMR/LOMR will be submitted for the project and it will be consistent with the Memorandum of Understanding (MOU) between FHWA and FEMA. The design of the roadway system will be consistent with the Memorandum of Understanding (MOU) between FHWA and FEMA and with the floodplain management criteria set forth in the National Flood Insurance Regulations of Title 44 of the Code of Federal Regulations (CFR). It will be consistent with the requirements of floodplain management guidelines for implementing Executive Order 11988 and FHWA guidelines 23 CFR 650A.

The proposed project is located on Flood Insurance Rate Map (FIRM) in Polk County, Panel 206 of 401, Map # 47139C0206F. Refer to Appendix D for a copy of the FEMA FIRM.

Air Quality

Transportation Conformity:

This project is in Polk County which is in attainment for all regulated criteria pollutants. Therefore, conformity does not apply to this project.

Mobile Source Air Toxics (MSAT):

This project qualifies as a categorical exclusion under 23 CFR 771.117 and does not require a Mobile Source Air Toxics (MSATs) evaluation per FHWA's "I*nterim Guidance Update on Air Toxic Analysis in NEPA Documents*" dated October 2016.

Coordination with the TDOT Air and Noise Section was completed on 12/07/2018. Refer to Appendix E for record of coordination with the TDOT Air and Noise Section.

Noise

In accordance with FHWA requirements and TDOT's Noise Policy this project is determined to be **Type III**

Based on coordination with the TDOT Air and Noise Section, completed on 12/07/2018, the new bridge will be located north of the existing structure. However, the relocation will not halve the distance between the center of the near travel lane and an adjacent noise-sensitive land use. Therefore, the project is Type III in accordance with FHWA noise regulation 23 CFR 772 and TDOT's noise policy and a noise study is not needed. Refer to Appendix E for record of coordination with the TDOT Air and Noise Section.

Farmland

Is this project exempt from the provisions of the Farmland Protection Policy Act (FPPA)? **No**

Natural Resources Conservation Service (NRCS):

Coordination with the NRCS was completed on 10/24/2018 and is included in Attachment F.

Farmland Conversion Impact Rating: 159

Is the Farmland Conversion Impact Rating less than 160? **Yes**

Sites receiving a Farmland Conversion Impact Rating of less than 160 need not be given further consideration for protection and no additional sites need to be evaluated.

Section 4(f)

Does this project involve the use of property protected by Section 4(f) (49 USC 303)? **No**

Is the activity an exception to the requirements for Section 4(f) approval per 23 CFR 774.13? **No**

Although some portions of the project area are within the established boundaries of the Cherokee National Forest, all land is privately owned or has been previously acquired by TDOT and is therefore not subject to the requirements of Section 4(f).

Section 6(f)

Does this project involve the use of property assisted by the L&WCF? **No**

Cultural Resources

Does the Interstate Highway exemption or MOU between TDOT and the SHPO (2015) apply? **No**

Are NRHP listed or eligible cultural resources within the project Area of Potential Effect (APE)? **No**

Historic/Architectural Concurrence:

Concurrence from the TN State Historic Preservation Office (TN-SHPO) was received on 07/31/2018.

TDOT prepared a Historic/Architectural Assessment for the proposed project on 07/13/2018. TDOT historians did not identify any National Register listed or eligible properties within the project area. Refer to Appendix F for a copy of the Historical/Architectural Assessment.

The TN-SHPO reviewed the assessment and provided the following response in a letter dated 07/31/2018: *"After considering the documentation submitted, it is our opinion that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. We have made this determination because either: no National Register listed or eligible Historic Properties exist within the undertaking's area of potential effects; the specific location, size, scope, and/or nature of the undertaking and its area of potential effects precluded affects to Historic Properties; the undertaking will not alter any characteristics of an identified eligible or listed Historic Property that qualify the property for listing in the National Register; or it will not alter an eligible Historic Property's location, setting, or use. We have no objections to your proceeding with your undertaking* ." Refer to Attachment G for a copy of the TN-SHPO letter.

The TDOT Historic Preservation Section reviewed the December 2018 Revised ETSA on 12/14/2018 and determined that the TN-SHPO letter dated 07/31/2018 and summarized above remains valid. Refer to Appendix F for record of coordination with the TDOT Historic Preservation Section.

Archaeology Concurrence:

Concurrence from the TN State Historic Preservation Office (TN-SHPO) was received on 06/26/2018.

TDOT submitted documentation to the TN-SHPO regarding archaeological resources for the proposed project on 06/21/2018. This documentation did not identify National Register of Historic Places listed, eligible, or potentially eligible archaeological sites within the proposed project's area of potential effect (APE). Refer to Appendix F for a copy of the archaeological resources documentation.

The TN-SHPO reviewed the documentation and provided the following response in a letter dated 06/26/2018: *"After considering the documentation submitted, it is our opinion that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. We have made this determination because either: no National Register listed or eligible Historic Properties exist within the undertaking's area of potential effects, the specific location, size, scope and/or nature of the undertaking and its area of potential effects precluded affects to Historic Properties, the undertaking will not alter any characteristics of an identified eligible or listed Historic Property that qualify the property for listing in the National Register, or it will not alter an eligible Historic Property's location, setting, or use. We have no objections to your proceeding with your undertaking* ." Refer to Attachment G for a copy of the TN-SHPO letter.

The TDOT Archaeology Section reviewed the December 2018 Revised ETSA on 12/07/2018 and determined that the TN-SHPO letter dated 06/26/2018 and summarized above remains valid. Refer to Appendix F for record of coordination with the TDOT Archaeology Section.

Native American Consultation

Does this project require Native American consultation? **Yes**

Native American Consultation was originally requested on 06/27/2018, followed by an updated request sent on 11/02/2018.

Native American Consultation					
Sent	Response		Sent	Response	
☒	☐	Absentee Shawnee Tribe of Oklahoma	☒	☐	Muscogee (Creek) Nation
☒	☒	Cherokee Nation	☒	☐	Poarch Band of Creek Indians
☐	☐	Chickasaw Nation	☐	☐	Quapaw Tribe of Oklahoma
☐	☐	Choctaw Nation of Oklahoma	☒	☐	Shawnee Tribe
☒	☐	Eastern Band of Cherokee Indians	☒	☐	Thlopthlocco Tribal Town
☒	☐	Eastern Shawnee Tribe of Oklahoma	☒	☐	United Keetoowah Band of Cherokee Indians
☒	☐	Kialegee Tribal Town	☐	☐	Other

Cherokee Nation:

The response was received on 07/22/2018.

"Please allow this letter to serve as the Nation's interest in acting as a consulting party to this proposed undertaking.

The Nation maintains databases and records of cultural, historic, and pre-historic resources in this area. Our Historic Preservation Office reviewed this project, cross referenced the project's legal description against our information, and found no instances where this project intersects or adjoins such resources. Thus, the Nation does not foresee this project imparting impacts to Cherokee cultural resources at this time.

However, the Nation requests that the Tennessee Department of Transportation (TNDOT) halt all project activities immediately and re-contact our Offices for further consultation if items of cultural significance are discovered during the course of this project." Refer to Attachment H for a copy of the Native American Consultation (NAC) documentation.

The TDOT Archaeology Section reviewed the December 2018 Revised ETSA on 12/07/2018 and had the following response: *"NAC initial consultation was sent to all tribes with an interest in Polk County on 06/27/2018. The Cherokee Nation (CN) responded on 07/22/2018 and requested to be a consulting party, but have no specific requests other than to be notified in the event archaeological resources are discovered during construction. The Muscogee (Creek) Nation (MCN) has a standing order of consultation. The Absentee Shawnee Tribe of Oklahoma (AST) claimed an interest in Polk County in October 2018. Final consultation was sent to the CN, MCN, and AST on 11/02/2018. No other tribe has responded, and the most recent consultation period ended on 12/03/2018. This concludes NAC for this project."*

Refer to Appendix F for record of coordination with the TDOT Archaeology Section.

Environmental Justice

Are there any disproportionately high or adverse effects on low-income or minority populations? **No**

On February 11, 1994, President William J. Clinton issued Executive Order (EO) 12898, Federal Actions to Address Environmental Justice (EJ) in Minority and Low-Income Populations. This EO stated that "*each federal agency shall make achieving environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health and environmental effects of its programs, policies, and activities on minority populations and low-income populations*."

Minority populations include Black or African American, Hispanic, Asian American, American Indian or Alaskan Native, and Native Hawaiian or Pacific Islander. Low-income populations include those with household income at or below the poverty guidelines published yearly by the U.S. Department of Health and Human Services.

An Environmental Justice Analysis was completed for the proposed SR-40 bridge replacement project. This analysis identified the following census tracts (CT) and block groups (BG) within the project area in Polk County: CT 9502.02, BG 1 and CT 9503, BG 1. During analysis of the populations present within each block group, two threshold indicators were used to identify and report EJ populations as defined in the "*Effective Methods for Environmental Justice Assessment*" report (National Cooperative Research Program Report 532): (1) the minority and/or low-income population average exceeds the county average by 10 percent or more and/or (2) the minority and/or low-income population average exceeds 50 percent or more of the overall block group population.

Minority Population Percentages and EJ Determination

State Route 40, Polk County, PIN 124102.00			
Minority Populations			
Census Tract (CT)/Block Group (BG)	CT 9502.02 BG 1	CT 9503 BG 1	**Polk County**
% Minority/Non-White	0.7%	14.9%	4.5%
Exceeds County Average by 10% or More	No	Yes	N/A
Is BG Population Average >50%?	No	No	N/A
Meet EJ Criteria?	No	Yes	N/A

N/A = Not Applicable

U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Minority Populations:

As shown in the table above, the 2012-2016 American Community Survey (ACS) data shows that the minority population percentage for Polk County is 4.5 percent. Within the project area, minority populations range from 0.7 percent (CT 9502.02, BG 1) to 14.9 percent (CT 9503, BG 1).

Based on the EJ analysis, no block groups within the project area contain minority populations that exceed 50 percent or more of the overall block group population. However, the minority population within CT 9503, BG 1, exceeds the county average by more than 10 percentage points. Therefore, the minority population within CT 9503, BG 1 is considered an EJ population.

Low-Income Population Percentages and EJ Determination

State Route 40, Polk County, PIN 124102.00			
Low-Income Populations			
Census Tract (CT)/Block Group (BG)	CT 9502.02 BG 1	CT 9503 BG 1	**Polk County**
% Low-Income/Below Poverty Line	12.7%	12.5%	17.8%
Exceeds County Average by 10% or More	No	No	N/A
Is BG Population Average >50%?	No	No	N/A
Meet EJ Criteria?	No	No	N/A

N/A = Not Applicable

U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Low-Income Populations:

The 2012-2016 ACS data was used to identify low-income populations (percent below poverty) within the project area. According to the five-year data included in the table above, the low-income population percentage for Polk County is 17.8 percent. Within the project area, low-income populations range from 12.5 percent (CT 9503, BG 1) to 12.7 percent (CT 9502.02, BG 1).

Based on the EJ analysis, no block groups within the project area contain low-income populations that either 1) exceed the county average by 10 percentage points or more, or 2) exceed 50 percent or more of the overall block group population. Thus, no low-income populations within the identified block groups are considered EJ populations.

Conclusion:

Based on the environmental justice (EJ) analysis conducted for the proposed project, one minority population (Census Tract 9503, Block Group 1) was found to be above the Polk County minority population average by 10 percent or more. This does represent an EJ population as defined by the National Cooperative Research Program Report 532. However, as currently proposed, no residential or commercial displacements are expected as part of the project. Therefore, it has been determined that the proposed project is not expected to have a disproportionately high and adverse effect on the EJ population as compared to other populations in the project area. Both EJ and non-EJ populations are expected to receive the benefits resulting from the project which include improved connectivity and improved traffic operational efficiency within the project area.

The project was coordinated with the TDOT Civil Rights Division Title VI Program staff for review and comment. On 02/28/2019, TDOT Civil Rights Division Title VI Program Staff responded that they had reviewed the analysis and that "*Actions and steps taken are found to be in accordance with the mandates of Title VI of the 1964 Civil Rights Act, the National Environmental Policy Act of 1969, and 42.U.S.C 4332(2), and Executive Order 12898. There does not appear to be any Title VI nor Environmental Justice Issues.*"

Refer to Attachment I for the TDOT Civil Rights Division concurrence.

Hazardous Materials

Does the project involve any asbestos containing materials? **Yes**

An Asbestos Survey Report of the SR-40 bridge over the Ocoee River (Bridge No. 70SR0400005) was completed in December 2016. The survey identified and quantified suspect asbestos-containing materials (ACM) within the bridge's components through visual observations, suspect material sampling, laboratory analysis, and reporting. Based on the laboratory analytical results, asbestos was confirmed present in one of the 15 homogeneous areas (HAs) identified at the SR-40 bridge over the Ocoee River. More specifically, one sample from the HA-14 vibration dampener material contained less than one percent Chrysotile asbestos. Thus, all vibration dampener material should be considered to contain less than one percent Chrysotile asbestos and should be handled/managed per Occupational Safety and Health Administration (OSHA) requirements during future repairs or demolition of the strucutre. Refer to Appendix G for a copy of the Asbestos Survey Report.

Does the project involve any other hazardous material sites? **No**

TDOT Hazardous Materials Section Staff reviewed the December 2018 Revised ETSA on 12/07/2018 and determined that no known hazardous materials sites appear to affect this project as it is currently planned and no additional hazardous material studies are recommended at this time. TDOT Hazardous Materials Section Staff also indicated that the asbestos bridge survey has been completed and asbestos was detected at OSHA-regulated levels. Project commitments were submitted to address ACM and are included in the green sheet of this D-List Categorical Exclusion.

In the event hazardous substances/wastes are encountered within the right-of-way, their disposition shall be subject to all applicable regulations, including the applicable sections of the Federal Resource Conservation and Recovery Act, as amended; and the Comprehensive Environmental Response, Compensation, and Liability Act, as amended; and the Tennessee Hazardous Waste Management Act of 1983, as amended. Databases reviewed include: Google Earth imagery, EPA National Priorities List, EPA EnviroMapper, TDEC Registered UST database, TDEC Division of Water Resources Public Data Viewer, TDOT IBIS, and others as necessary.

Refer to Appendix G for record of coordination with the TDOT Hazardous Materials Section.

Bicycle and Pedestrian

Does this project include accommodations for bicycles and pedestrians? **Yes**

The project's design, as reflected in the December 2018 Revised ETSA, would include paved shoulders as part of the roadway improvements. Coordination with the TDOT Multimodal Section, completed on 12/14/2018, stated the following: "*This project accommodates bicyclists and pedestrians with 10-foot shoulders in a rural area.*" Refer to Appendix H for a copy of the TDOT Multimodal Section ESR response.

Environmental Commitments

Does this project involve any environmental commitments? **Yes**

Additional Environmental Issues

Are there any additional environmental concerns involved with this project? **No**

Conclusion

Review Determination

Determination: D-List Categorical Exclusion

This federal-aid highway project qualifies for a Categorical Exclusion under 23 C.F.R 771.117(d) and exceeds the thresholds listed in Section IV(A)(1)(b) of the 2016 Programmatic Agreement between the Federal Highway Administration, Tennessee Division and the Tennessee Department of Transportation. This project is therefore designated as a D-list Categorical Exclusion and requires Administration approval.

Reference Material

All source material used in support of the information and conclusions presented in this document are included in the attachments and technical appendices. The attachments are located at the end of the environmental document and include information on funding, agency concurrence, applicable agency agreements, and special commitment support. The technical appendices are compiled as a separate document and include the project plans, technical reviews, reports and any other additional information.

Preparer Certification

By signing below, you certify that this document has been prepared in compliance with all applicable environmental laws, regulations and procedures. You can attest to the document's quality, accuracy, and completeness, and that all source material has been compiled and included in the attachments and technical appendices.

Laura Morile 03/11/2019

Document Preparer

Document Approval

By signing below, you officially concur that this document is in compliance with all applicable environmental laws, regulations and procedures. You have reviewed and verified the document's quality, accuracy, and completeness and that all source material has been compiled and included in the attachments and technical appendices.

Holly Cantrell Digitally signed by Holly Cantrell DN: cn=Holly Cantrell, o=Tennessee Department of Transportation, ou=Major Projects Office | Environmental Division, email=holly.cantrell@tn.gov, c=US Date: 2019.03.11 11:44:40 -05'00'

Tennessee Department of Transportation

Leigh Ann Tribble 3-13-19

Federal Highway Administration

List of Acronyms

Acronyms

AADT	Annual Average Daily Traffic
ADA	Americans with Disabilities Act
APE	Area of Potential Effect
BMP	Best Management Practice
CAA	Clean Air Act
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMAQ	Congestion Mitigation and Air Quality
DEIS	Draft Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
EPA	Environmental Protection Agency
EPH	Ephemeral Stream
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FPPA	Farmland Protection Policy Act
GHG	Greenhouse Gas
GIS	Geographic Information System
IAC	Interagency Consultation
LWCF	Land and Water Conservation Fund
LOS	Level of Service
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
PCE	Programmatic Categorical Exclusion
PIN	Project Identification Number
PM	Particulate Matter
PND	Pond
RCRA	Resource Conservation and Recovery Act
ROW	Right-of-Way
ROD	Record of Decision
RPO	Rural Planning Organization
SIP	State Implementation Plan
SNK	Sinkhole
SR	State Route
STIP	State Transportation Improvement Program
STR	Stream
TDEC	TN Department of Environment and Conservation
TDOT	Tennessee Department of Transportation
TIP	Transportation Improvement Program
SHPO	State Historic Preservation Office
TPO	Transportation Planning Organization
TVA	Tennessee Valley Authority
TWRA	Tennessee Wildlife Resources Agency
USDOT	U.S. Department of Transportation
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
VMT	Vehicle Miles Traveled
VPD	Vehicles Per Day
WWC	Wet Weather Conveyance

List of Attachments and Appendices

Attachments

Attachment A - STIP Page

Attachment B - Project Location Maps

Attachment C - Appalachian Regional Commission Coordination

Attachment D - TDOT Right-of-Way Division Coordination

Attachment E - Ecology Coordination

Attachment F - NRCS Coordination

Attachment G - Cultural Resources Coordination

Attachment H - Native American Consultation

Attachment I - TDOT Civil Rights Division Coordination

Appendices

Appendix A - Transportation Investment Reports (Dated 04/24/2018 and 08/16/2018), Revised Environmental Technical Study Area (Dated 12/2018), and Bridge Inspection Report (Dated 04/20/2016)

Appendix B - Public Involvement

Appendix C - Ecology

Appendix D - Floodplains

Appendix E- Air Quality and Noise

Appendix F - Cultural Resources

Appendix G - Hazardous Materials

Appendix H - Bicycle and Pedestrian

PIN 124102.00

Attachment A

STIP Page

STIP # 1770005 **TDOT PIN #** 124102.00 **LENGTH IN MILES** 1.0 **LEAD AGENCY** TDOT

COUNTY POLK

TOTAL PROJECT COST $30,000,000

ROUTE SR-40

TIP #

TERMINI NEAR HILDABRAND ROAD TO NEAR WELCOME VALLEY ROAD

PROJECT DESCRIPTION CONSTRUCT 3-LANE ROAD FROM EXISTING 5-LANE NEAR HILDABRAND ROAD TO EXISTING 3-LANE NEAR WELCOME VALLEY ROAD, INCLUDING A 3-LANE BRIDGE OVER THE OCOEEE RIVER, ON NEW ALIGNMENT

REMARKS

COUNTY MAP

Amendment #: 187

NEW PAGE

FY	PHASE	FUNDING	TOTAL FUNDS	FED FUNDS	STATE FUNDS	LOCAL FUNDS
2019	PE, ROW, CONST	APD	30,000,000	30,000,000		

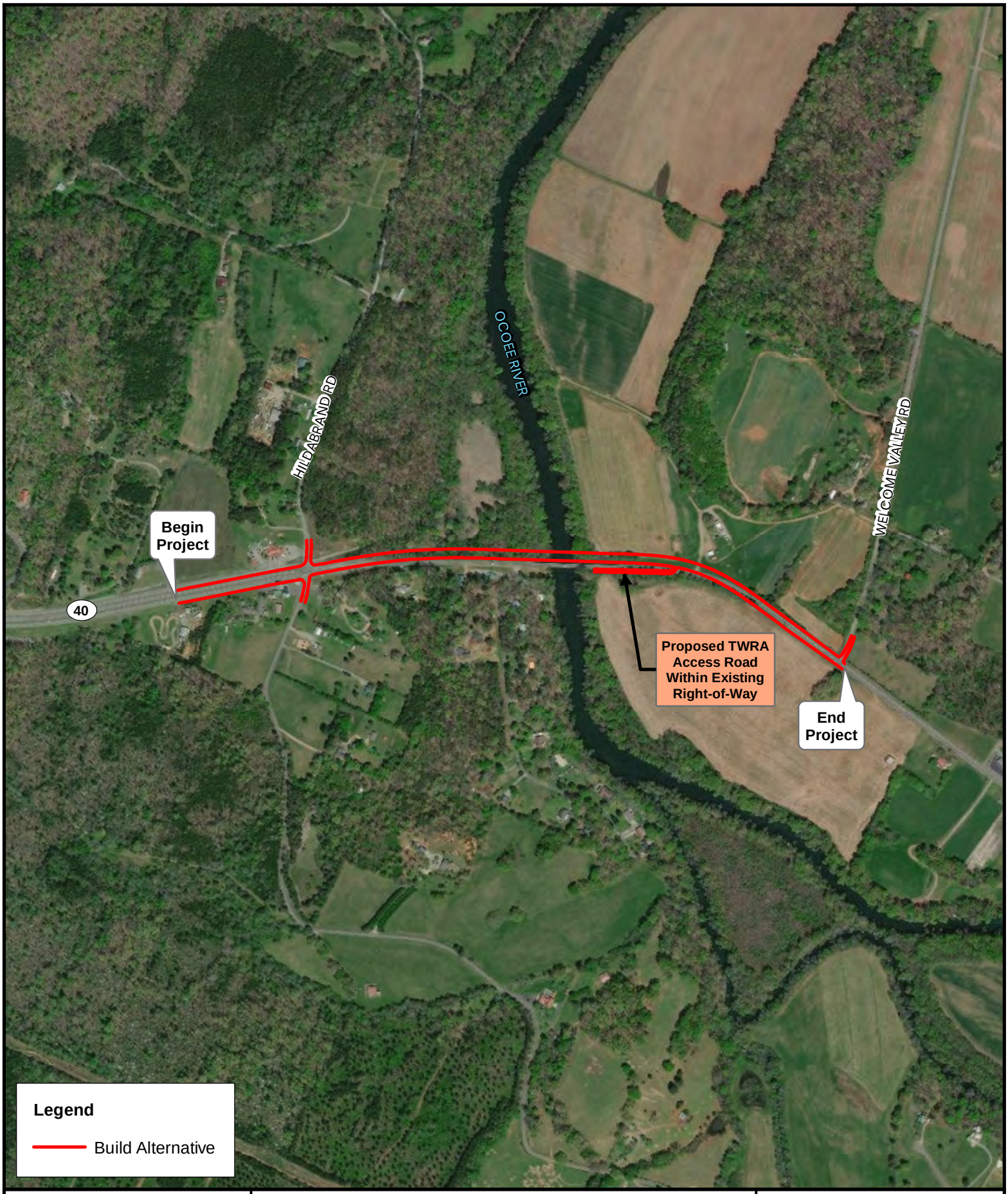
VICINITY MAP

ALL SCHEDULES SUBJECT TO AVAILABILITY OF FUNDS

PIN 124102.00

Attachment B

Project Location Map



1 in = 0.15 mile

STATE ROUTE 40

Bridge Over the Ocoee River (Bridge No. 70SR0400005)
Polk County, Tennessee
TDOT PIN 124102.00

TN TDOT Department of Transportation

PIN 124102.00

Attachment C

Appalachian Regional Commission Coordination

APPALACHIAN REGIONAL COMMISSION

A Proud Past, A New Vision

To: Mr. Ronnie Porter
Transportation Director
Program Development and Administration Division
Tennessee Department of Transportation (TDOT)

Subject: ADHS Corridor K - SR-40/US-64 Bridge Over Ocoee River

Date: February 25, 2019

Dear Mr. Porter,

Thank you for the letter dated February 13, 2019 and subsequent email detailing the proposed Appalachian Development Highway System (ADHS) Corridor K (SR-40/US-64) Ocoee River bridge replacement and adjacent improvements in Polk County, TN. Because the details of the proposed project differ from those approved in the 2012 ADHS Cost-to-Complete estimate, Appalachian Regional Commission (ARC) approval is required.

Based on ARC's review of the project design details, including a 50 mph design speed (with ability to increase to 55 mph later) and 3-lane cross section (with ability to widen to 4-lanes later), ARC concurs with TDOT's project proposal with the following caveats:

- ARC concurrence only pertains to TDOT's immediate plans for this specific project and does not represent concurrence on the ultimate design details which would constitute official "completion" for the Corridor K sections included in this project or other unfinished portions of Corridor K.
- Unless otherwise proposed by TDOT and approved by ARC, the portions of Corridor K included in this project will not be officially considered complete once the project is finished and will be considered in "Stage Construction" per ARC's status classification system.

Please work with Ryan Brumfield to properly document changes to ADHS section numbering and design details based on this approval. Let us know if you have any questions or concerns.

Recommended:

2/25/19

Ryan Brumfield (Date)
Senior Transportation Advisor

Approved:

Scott T. Hamilton 2-25-19

Scott T. Hamilton (Date)
Executive Director

1666 CONNECTICUT AVENUE, NW, SUITE 700 WASHINGTON, DC 20009-1068 (202) 884-7700 FAX (202) 884-7691 www.arc.gov

PIN 124102.00

Attachment D

TDOT Right-of-Way Division Coordination

Environmental Studies

TDOT Right-of-Way Division

Environmental Studies Request

Project Information

Route: State Route 40 Bridge

Termini: Bridge Over the Ocoee River (Bridge ID 70SR0400005)

County: Polk

PIN: 124102.00

Request

Request Type: Initial Environmental Study

Project Plans: Revised ETSA

Date of Plans: 12/2018

Location: Email Attachment

Certification

Requestor: Laura Moribe

Title: Environmental Planner

Signature: Laura Moribe Digitally signed by Laura Moribe Date: 2018.12.06 14:28:47 -06'00'

Environmental Study

Technical Section

Section: TDOT Right-of-Way Division, CSRP Study

Study Results

After careful review of the most recently submitted plans labeled "2018-DEC_Polk_PIN124102.00_SR-40_ETSA_CHANGES_REV.png", construction of this project is not anticipated to displace any persons, businesses, farms, or non-profits. As such, a conceptual stage relocation plan will not be required.

Commitments

Did the study of this project result in any environmental commitments? **No**

Additional Information

Is there any additional information or material included with this study? **No**

Certification

Responder: Christina Wilbert

Title: Right-of-Way Agent

Signature: Christina Wilbert

Digitally signed by Christina Wilbert
Date: 2018.12.13 10:49:55 -06'00'

PIN 124102.00

Attachment E

Ecology Coordination

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

REGION 2 PROJECT DEVELOPMENT
7512 VOLKSWAGEN DRIVE
CHATTANOOGA, TENNESSEE 37416
(423) 510-1165

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

13 September 2018

Mr. John Griffith
US Dept. of Interior
Fish and Wildlife Service
446 Neal Street
Cookeville, TN 38501

Subject: Polk County, SR-40 Over Ocoee River, LM 3.12
PE 70068-0211-94, PIN 124102.00

Dear Mr. Griffith:

TDOT proposes replacing the existing SR-40 (US-64) bridge over the Ocoee River in Polk County, TN. This project will be completed as a design / build project with a contractor handling the design and construction of the project with TDOT oversite. The environmental review is based on the functional plans and the Transportation Investment Report included with this correspondence. Any changes to the project scope that could potentially impact listed species after the design / build contract is let will require the contractor to reinitiate consultation with the USFWS.

Suitable habitat for federally endangered Indiana bat (*Myotis sodalis*) and the federally threatened northern long-eared bat (*Myotis septentrionalis)* has been documented within the project area. Due to the presence of suitable habitat, a bat mist net survey was completed by Stantec from 3-5 June 2018. The purpose of the survey was to determine possible presence of Indiana bat (*M. sodalis*) and northern long-eared bat (*M. septentrionalis*) within the project area. Attached, please find a copy of Stantec's 31 August 2018 Bat Survey Report for the subject project. Stantec reports no captures for *M. sodalis* or *M. septentrionalis*.

- Based on the negative survey results, TDOT concludes the proposed project **"may affect, not likely to adversely affect"** the federally endangered Indiana bat (*M. sodalis*).

- Based on the negative survey results, TDOT concludes the proposed project **"may affect, not likely to adversely affect"** the federally threatened northern long-eared bat (*M. septentrionalis*).

Collection records in the Tennessee Department of Environment and Conservation: Division of Natural Areas Database document the presence of the federally threatened snail darter (*Percina tanasi*) 7.4 miles downstream of the project location. Due to concerns for the snail darter (*P. tanasi*), TDOT will prohibit instream work from February 1 – April 30 on the Ocoee River within the project limits.

- Due the implementation of this prohibition on instream work, TDOT requests concurrence that the proposed project is **"may affect, not likely to adversely affect"** the federally threatened snail darter (*P. tanasi*).

TDOT field surveys have documented the presence of nesting Cliff Swallows (*Petrochelidon pyrrhonota*) and Barn Swallows (*Hirundo rustica*) on the existing SR-40 bridge over the Ocoee River. To comply with the TDOT/USFWS 2015 MOA for impacts to Cliff Swallows (*Petrochelidon pyrrhonota*) and Barn Swallows (*Hirundo rustica*); cliff swallow and barn swallow nests, eggs, or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests may be removed or destroyed, and measures may be implemented to prevent future nest building at the site (e.g., closing off area using netting).

TDOT field surveys have documented the presence of roosting adult and young, state listed, Barn Owls (*Tyto alba*) on the existing SR-40 bridge over the Ocoee River. In coordination with Tennessee Wildlife Resources Agency, TDOT will implement the following protective measure for demolition of the existing SR-40 bridge:

- Due to concerns for state listed Barn Owl (*Tyto alba*) *T. alba* and in coordination with Tennessee Wildlife Resources Agency, TDOT will prohibit demolition work on the existing SR-40 bridge over the Ocoee River from April 1 and September 1.

TDOT's Region 2 Environmental Tech Office is tasked with reviewing the project information and completing ecological studies for water resources, suitable habitat and protected species concerns. In compliance with the Fish and Wildlife Act of 1958, and the Endangered Species Act of 1973 (amended), TDOT requests a list of threatened and/or endangered species that may be present in the vicinity of the proposed project. I would appreciate your review and comment related to protected species and regarding concurrence for these determinations. If you have any questions or need additional information, please contact me at k.brandon.chance@tn.gov or 423-634-7563.

Respectfully,

K. Brandon Chance | T.E.S.S. Advanced
Region 2 Project Development
Environmental Tech Office - Ecology
PO Box 22368, Chattanooga, TN 37422-2368
p. 423-634-7563
k.brandon.chance@tn.gov
tn.gov/tdot

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Tennessee ES Office
446 Neal Street
Cookeville, Tennessee 38501

October 5, 2018

Mr. Brandon Chance
T.E.S.S. Advanced
Region 2 Project Development
Environmental Tech Office - Ecology
P.O. Box 22368
Chattanooga, Tennessee 37422

Subject: FWS# 18-CPA-0777. Proposed State Route 40 Bridge replacement over the Ocoee River at LM 3.12; PIN# 124102.00, P.E. 70068-0211-94, Polk County, Tennessee.

Dear Mr. Chance:

Thank you for the letter dated September 13, 2018, transmitting bat survey results and project commitments for the proposed State Route 40 Bridge replacement over the Ocoee River in Polk County, Tennessee. The Tennessee Department of Transportation (TDOT) has determined that the project is "not likely to adversely affect" the federally endangered Indiana bat (*Myotis sodalis*) or threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*) based on negative survey results. TDOT has further concluded that the project "is not likely to adversely affect" the federally threatened snail darter (*Percina tanasi*) due to the distance from known occurrences and a prohibition of instream construction during the period of February 1 through April 30. In accordance with the 2015 Memorandum of Agreement between the Federal Highway Administration, TDOT, and our office for addressing concerns regarding cliff swallows (*Hirundo pyrrhonota*) and barn swallows (*Hirundo rustica*), TDOT additionally commits to avoiding swallows, nests, and eggs between April 15 and July 31. Personnel of the U.S. Fish and Wildlife Service have reviewed the subject proposal and offer the following comments.

A mist netting survey was performed from June 3 through June 5, 2018, at one site determined to be a suitable netting location. Efforts resulted in the capture of eight individuals, representing four non-listed bat species. Due to negative survey results for the Indiana bat and NLEB, we concur with TDOT's determinations of "not likely to adversely affect" for these species. This survey will be valid until April 1, 2024. Because the nearest snail darter record is approximately 7.4 miles downriver, and TDOT commits to an instream construction prohibition during the spawning timeframe of February 1 through April 30, we additionally concur with TDOT's "not likely to adversely affect" finding for the snail darter.

We are not aware of any other federally listed or proposed species that would be impacted by the project. Therefore, based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act (Act) of 1973, as amended, are fulfilled for all species that currently receive protection under the Act. Obligations under section 7 of the Act should be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

If you have any questions regarding our comments, please contact John Griffith at 931/525-4995 or by email at *john_griffith@fws.gov*.

Sincerely,

Steven R. Alexander
Acting Field Supervisor

xc: Vincent Pontello, TWRA, Crossville, TN

From: Vincent Pontello
To: K.Brandon Chance
Cc: Rob Todd
Subject: Re: Polk Co., SR-40 (US 64) Bridge over the Ocoee River, LM 3.12
Date: Monday, October 1, 2018 12:35:57 PM
Attachments: image001.png

Brandon,

Thank you for the update and detailed commitments you have outlined in your correspondence. I have no other specific request than you have provided. please contact me if you need further assistance.

Vincent L. Pontello
Wildlife Biologist
Liaison to Federal Highway Admin. & TDOT
Tennessee Wildlife Resources Agency
Environmental Services Division

From: K.Brandon Chance
Sent: Thursday, September 13, 2018 6:00:53 PM
To: Vincent Pontello
Cc: Rob Todd; Scott Medlin; Chester Sutherland; John Griffith; Stephanie.Ann Williams
Subject: Polk Co., SR-40 (US 64) Bridge over the Ocoee River, LM 3.12

Dear Mr. Pontello:

TDOT originally coordinated this project as a bridge repair project. Your 7 July 2017 coordination response is attached. The project scope has changed, and TDOT proposes replacing the existing SR-40 (US-64) bridge over the Ocoee River in Polk County, TN. This project will be completed as a design / build project with a contractor handling the design and construction of the project with TDOT oversite. The environmental review is based on the functional plans and the Transportation Investment Report included with this correspondence. Any changes to the project scope that could potentially impact listed species after the design / build contract is let will require the contractor to reinitiate consultation with the USFWS. The statements below were included in the Section 7 coordination with USFWS and will be incorporated into the plans.

Suitable habitat for federally endangered Indiana bat (Myotis sodalis) and the federally threatened northern long-eared bat (Myotis septentrionalis) has been documented within the project area. Due to the presence of suitable habitat, a bat mist net survey was completed by Stantec from 3-5 June 2018. The purpose of the survey was to determine possible presence of Indiana bat (M. sodalis) and northern long-eared bat (M. septentrionalis) within the project area. Attached, please find a copy of Stantec's 31 August 2018 Bat Survey Report for the subject project. Stantec reports no captures for M. sodalis or M. septentrionalis.

- Based on the negative survey results, TDOT concludes the proposed project "may affect, not

likely to adversely
affect" the federally endangered Indiana bat (M. sodalis).

- Based on the negative survey results, TDOT concludes the proposed project "may affect, not likely to adversely
affect" the federally threatened northern long-eared bat (M. septentrionalis).

Collection records in the Tennessee Department of Environment and Conservation: Division of Natural Areas Database document the presence of the federally threatened snail darter (Percina tanasi) 7.4 miles downstream of the project location. Due to concerns for the snail darter (P. tanasi), TDOT will prohibit instream work from February 1 – April 30 on the Ocoee River within the project limits.

- Due the implementation of this prohibition on instream work, TDOT requests concurrence that the proposed project is "may affect, not likely to adversely affect" the federally threatened snail darter (P. tanasi).

TDOT field surveys have documented the presence of nesting Cliff Swallows (Petrochelidon pyrrhonota) and Barn Swallows (Hirundo rustica) on the existing SR-40 bridge over the Ocoee River. To comply with the TDOT/USFWS 2015 MOA for impacts to Cliff Swallows (Petrochelidon pyrrhonota) and Barn Swallows (Hirundo rustica); cliff swallow and barn swallow nests, eggs, or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests may be removed or destroyed, and measures may be implemented to prevent future nest building at the site (e.g., closing off area using netting).

TDOT field surveys have documented the presence of roosting adult and young, state listed, Barn Owls (Tyto alba) on the existing SR-40 bridge over the Ocoee River. In coordination with Tennessee Wildlife Resources Agency, TDOT will implement the following protective measure for demolition of the existing SR-40 bridge:

- Due to concerns for state listed Barn Owl (Tyto alba) T. alba and in coordination with Tennessee Wildlife Resources Agency, TDOT will prohibit demolition work on the existing SR-40 bridge over the Ocoee River from April 1 and September 1.

TDOT's Region 2 Environmental Tech Office is tasked with reviewing the project information and completing ecological studies for water resources, suitable habitat and protected species concerns. I would appreciate your review and comment related to protected species. If you have any questions or need additional information, please contact me at k.brandon.chance@tn.gov or 423-634-7563.

Respectfully,

K. Brandon Chance | T.E.S.S. Advanced
Region 2 Project Development
Environmental Tech Office - Ecology

From: Stephanie.Ann Williams
To: K.Brandon Chance
Subject: RE: Polk Co., SR-40 (US 64) Bridge over the Ocoee River, LM 3.12
Date: Monday, September 24, 2018 1:54:14 PM
Attachments: image002.png
image003.png

Mr. Chance-

The Division of Natural Areas - Natural Heritage Program has reviewed the location of the proposed SR-40 bridge over the Ocoee River project, located in Polk, Tennessee. We have reviewed the state's natural heritage database and based on the habitat within the project area and the type of project, we do not anticipate any impacts to rare, threatened, or endangered plant species from this project.

Please contact me should you have any questions.
Kind regards-
Stephanie

Department of Environment & Conservation

Stephanie Williams | Data Manager
Division of Natural Areas – Natural Heritage Program
Tennessee Tower, 2nd Floor
312 Rosa L. Parks Avenue, Nashville, TN 37243 **MAP**
p. 615-532-4799 c. 256-337-3858
stephanie.ann.williams@tn.gov
TN.Gov/environment/natural-areas
Natural Areas Facebook
We value your feedback! Please complete our customer satisfaction survey.

From: K.Brandon Chance
Sent: Thursday, September 13, 2018 5:02 PM
To: Stephanie.Ann Williams
Cc: Roger McCoy; Scott Medlin; Chester Sutherland; Colby Mann; John Griffith; Vincent Pontello
Subject: Polk Co., SR-40 (US 64) Bridge over the Ocoee River, LM 3.12

Dear Ms. Williams:

TDOT originally coordinated this project as a bridge repair project. Your 7 July 2017 coordination response is attached. The project scope has changed, and TDOT proposes replacing the existing SR-40 (US-64) bridge over the Ocoee River in Polk County, TN. This project will be completed as a design / build project with a contractor handling the design and construction of the project with TDOT oversite. The environmental review is based on the functional plans and the Transportation Investment Report included with this correspondence. Any changes to the project scope that could potentially impact listed species after the design / build contract is let will require the contractor to reinitiate consultation with the USFWS. The statements below were included in the Section 7 coordination with USFWS. All time of year work prohibitions along with all avoidance and

minimization measures will be included in the project plans.

Suitable habitat for federally endangered Indiana bat (Myotis sodalis) and the federally threatened northern long-eared bat (Myotis septentrionalis) has been documented within the project area. Due to the presence of suitable habitat, a bat mist net survey was completed by Stantec from 3-5 June 2018. The purpose of the survey was to determine possible presence of Indiana bat (M. sodalis) and northern long-eared bat (M. septentrionalis) within the project area. Attached, please find a copy of Stantec's 31 August 2018 Bat Survey Report for the subject project. Stantec reports no captures for M. sodalis or M. septentrionalis.

- Based on the negative survey results, TDOT concludes the proposed project "may affect, not likely to adversely
affect" the federally endangered Indiana bat (M. sodalis).

- Based on the negative survey results, TDOT concludes the proposed project "may affect, not likely to adversely
affect" the federally threatened northern long-eared bat (M. septentrionalis).

Collection records in the Tennessee Department of Environment and Conservation: Division of Natural Areas Database document the presence of the federally threatened snail darter (Percina tanasi) 7.4 miles downstream of the project location. Due to concerns for the snail darter (P. tanasi), TDOT will prohibit instream work from February 1 – April 30 on the Ocoee River within the project limits.

- Due the implementation of this prohibition on instream work, TDOT requests concurrence that the proposed project is "may affect, not likely to adversely affect" the federally threatened snail darter (P. tanasi).

TDOT field surveys have documented the presence of nesting Cliff Swallows (Petrochelidon pyrrhonota) and Barn Swallows (Hirundo rustica) on the existing SR-40 bridge over the Ocoee River. To comply with the TDOT/USFWS 2015 MOA for impacts to Cliff Swallows (Petrochelidon pyrrhonota) and Barn Swallows (Hirundo rustica); cliff swallow and barn swallow nests, eggs, or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests may be removed or destroyed, and measures may be implemented to prevent future nest building at the site (e.g., closing off area using netting).

TDOT field surveys have documented the presence of roosting adult and young, state listed, Barn Owls (Tyto alba) on the existing SR-40 bridge over the Ocoee River. In coordination with Tennessee Wildlife Resources Agency, TDOT will implement the following protective measure for demolition of the existing SR-40 bridge:

- Due to concerns for state listed Barn Owl (Tyto alba) T. alba and in coordination with Tennessee Wildlife Resources Agency, TDOT will prohibit demolition work on the existing SR-40 bridge over the Ocoee River from April 1 and September 1.

TDOT's Region 2 Environmental Tech Office is tasked with reviewing the project information and

completing ecological studies for water resources, suitable habitat and protected species concerns. I would appreciate your review and comment related to protected species. If you have any questions or need additional information, please contact me at k.brandon.chance@tn.gov or 423-634-7563.

Respectfully,

K. Brandon Chance | T.E.S.S. Advanced
Region 2 Project Development
Environmental Tech Office - Ecology
7512 Volkswagen Drive Chattanooga, TN 37416
p. 423-634-7563 m. 865-206-5509
k.brandon.chance@tn.gov
tn.gov/tdot

PIN 124102.00

Attachment F

Natural Resources Conservation Service Coordination

From: McMillen, David - NRCS, Nashville, TN
To: Krebs, Meridith
Subject: FPPA: SR-40 Bridge; Polk County, TN
Date: Wednesday, October 24, 2018 11:28:16 AM
Attachments: AD1006_polk_bridge.pdf

Dear Meridith,

I have received your request for information pertaining to the Farmland Protection Policy Act (FPPA) and/or prime farmland in Polk County.

This project will convert areas of prime farmland as defined by the FPPA. This determination is based solely on the information provided by you, your organization, and other relevant resource data for the area of the project. No site visit has been made.

As always, please feel free to contact me via phone or email if I can help further.

Dave

David McMillen, LPSS
State Soil Scientist
801 Broadway, Suite 675
Nashville, TN 37203
(615) 277-2550 office
(615) 390-1507 SMS/cell

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request: 10/1/18 — 4. Sheet 1 of 1
1. Name of Project: State Route 40 Bridge Over the Ocoee River	5. Federal Agency Involved: Federal Highway Administration
2. Type of Project: Transportation	6. County and State: Polk County, Tennessee

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS: 10/1/18	2. Person Completing Form: McMillen
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☑ NO ☐		4. Acres Irrigated: n/a — Average Farm Size: 106
5. Major Crop(s): Corn	6. Farmable Land in Government Jurisdiction — Acres: 81184 % 29	7. Amount of Farmland As Defined in FPPA — Acres: 21950 % 29
8. Name Of Land Evaluation System Used: Polk LESA	9. Name of Local Site Assessment System: n/a	10. Date Land Evaluation Returned by NRCS: 10/24/18

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment _____			
	Build Alt.	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	5			
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0			
C. Total Acres In Corridor	5	0	0	0
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	5			
B. Total Acres Statewide And Local Important Farmland	0			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	87			
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*	70			

PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15	11			
2. Perimeter in Nonurban Use	10	10			
3. Percent Of Corridor Being Farmed	20	20			
4. Protection Provided By State And Local Government	20	0			
5. Size of Present Farm Unit Compared To Average	10	5			
6. Creation Of Nonfarmable Farmland	25	25			
7. Availablility Of Farm Support Services	5	3			
8. On-Farm Investments	20	10			
9. Effects Of Conversion On Farm Support Services	25	0			
10. Compatibility With Existing Agricultural Use	10	5			
TOTAL CORRIDOR ASSESSMENT POINTS	160	89	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	70			
Total Corridor Assessment (From Part VI above or a local site assessment)	160	89	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	159	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
Build Alternative	5	12/20/2018	YES ☐ NO ☑

5. Reason For Selection:

TDOT believes that the Build Alternative best meets the purpose and need statement identified in the attached Categorical Exclusion.*

*Categorical Exclusion is pending FHWA's approval as of 12/20/2018.

Signature of Person Completing this Part: [signature] — DATE: 12/20/2018

NOTE: Complete a form for each segment with more than one Alternate Corridor

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

November 20, 2018

To: Project File

Subject: State Route 40 Bridge Over the Ocoee River, Polk County, Tennessee, PIN No.: 124102.00 – Farmland Conversion Impact Rating (NRCS-CPA-106) Form

The following assumptions were made in order to complete the Farmland Conversion Impact Rating (NRCS-CPA-106) Form for the proposed SR-40 project. As stated in NRCS-CPA-106, the following criteria are used to evaluate projects that have linear or corridor type configuration while connecting two distant points and crossing several different tracts of land.

1. **Area in non-urban use:** ***How much land is in nonurban use within a radius of 1.0 mile from where the project is intended*****?**

   Methodology:

   In order to ascertain the amount of land which is in non-urban use, a 1.0-mile buffer was created around the Build Alternative using GIS. After the buffer identified the impacted parcels, each parcel's designated land use was highlighted and the total acreage of the entire buffer versus the non-urban use acreage was compared. Examples of non-urban use include: agricultural, range land, forest land, golf courses, non-paved parks/recreational areas, mining sites, farm storage, lakes/ponds/other waterbodies, rural roads (with houses spread at least ¼ mile apart), open space, wetlands, fish protection and pasture/hay land.

   Area non-urban use = 765.73 acres

   Total area of impacted parcels in 1.0-mile buffer = 1,058.26 acres

$$\frac{765.73\ acres}{1{,}058.26\ acres} x\ 100 = \mathbf{72.36}\%$$

   <u>Point Total</u> – 11 points out of 15 Total Possible Points

2. **Perimeter of non-urban use:** ***How much of the perimeter of the site borders on land in nonurban use*****?**

   Methodology:

   In order to ascertain the perimeter of the corridor which borders land in a non-urban use, a GIS clip was performed between the Build Alternative and the parcel data layer. Following the clip, the designated land use of each parcel was identified as well as the total acreage of parcel to be impacted by the proposed Build Alternative versus the total acreage of parcels which are designated as a non-urban use. These numbers were then compared.

   Total acreage of parcel to be impacted = 5.27 acres

   Total acreage of non-urban use = 5.27 acres

$$\frac{5.27\ acres}{5.27\ acres} x\ 100 = \mathbf{100}\%$$

   Point Total – 10 points out of 10 Total Possible Points

3. **Percentage of corridor being farmed:** ***How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years*****?**

   Methodology:

   The total amount of farmland meeting the above description located inside the proposed right-of-way was calculated and compared to the total acreage inside the proposed right-of-way minus the existing right-of-way. This percentage was determined to be 100%, resulting in a point value of 20 being assigned.

   Build Alternative – 5.27 acres of farmland, **100%** of total ROW

   Point Total – 20 points out of 20 Total Possible Points

4. **Protection provided by state and local government:** ***Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland*****?**

   Methodology:

   Farmlands within Tennessee are afforded no protection by state and local governments. Consequently, zero points were awarded for this question.

   Point Total – 0 points out of 20 Total Possible Points (see statement above)

5. **Size of present farm unit compared to average:** ***Is the farm unit(s) containing the site (before the project) as large as the average – size farming unit in the County?***

   Methodology:

   According to the NRCS Census of Agriculture County Profile 2012, the average size of a farm for Polk County is 139 acres. In order to calculate the average farm size within the limits of the Build Alternative, an average acreage total was taken of the farm/ agriculture identified parcels within the existing land use map which would be impacted by the proposed project.

   The average farm size within limits of the Build Alternative = 60.07 acres

$$\frac{60.07\ acres}{139\ acres}\ x\ 100 = \mathbf{43.21}\%$$

   Point Total – 5 points out of 10 Total Possible Points

6. **Creation of non-farmable farmland:** ***If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?***

   Methodology:

   The maximum number of points (25) were awarded for this question due to the consideration that the remaining acreage of the parcel could potentially become non-farmable.

   Point Total – 25 points out of 25 Total Possible Points (see statement above)

7. **Availability of farm support services:** ***Does the site have available adequate supply of farm support services and markets i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets*****?**

   Methodology:

   An average point total (3 points) was given for this question since there appears to be adequate supply of farm support services and markets.

   Point Total – 3 points out of 5 Total Possible Points (see statement above)

8. **On-Farm investments:** ***Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures*****?**

   Methodology:

   An average point total (10 points) was given to this question for a generalization that there is average amount of on-farm investments at each farm which could potentially be impacted by the proposed project.

<u>Point Total</u> – 10 points out of 20 Total Possible Points (see statement above)

9. **Effects of conversion on farm support services:** ***Would the project at this site, by converting farmland to non-agricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area*****?**

<u>Methodology:</u>

The total amount of farmland to be converted for the Build Alternative compared with the total farmland in Polk County is 0.01%, as shown below. Based on this percentage value, a point total of zero was assigned for this question given the assumption that 0.01% represents minor reductions in demand for support services.

Total land in farms in Polk County = 35,560 acres

$$\frac{5.27\ acres}{35{,}560\ acres} x\ 100 = \mathbf{0.01}\%$$

<u>Point Total</u> – 0 points out of 25 Total Possible Points (see statement above)

10. **Compatibility with existing agricultural use:** ***Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to non-agricultural use*****?**

<u>Methodology:</u>

According to the *Boyd Center for Business and Economic Research, University of Tennessee, Knoxville – September 2017* data, the total population for Polk County is expected to increase by 0.89% by 2043. Based on this data and in the event that additional development comes to the project area, 5 of the 10 maximum points were assigned.

<u>Point Total</u> – 5 points out of 10 Total Possible Points (see statement above)

PIN 124102.00

Attachment G

Cultural Resources Coordination

TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

July 31, 2018

Ms. Katherine Looney
Tennessee Department of Transportation
Environmental Division, Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243

RE: FHWA / Federal Highway Administration, Historic/Architectural Assessment for proposed replacement of SR 40 bridge over the Ocoee River, Log Mile 3.12, Polk County, TN

Dear Ms. Looney:

In response to your request, we have reviewed the documents you submitted regarding your proposed undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

After considering the documentation submitted, it is our opinion that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. We have made this determination because either: no National Register listed or eligible Historic Properties exist within the undertaking's area of potential effects; the specific location, size, scope and/or nature of the undertaking and its area of potential effects precluded affects to Historic Properties; the undertaking will not alter any characteristics of an identified eligible or listed Historic Property that qualify the property for listing in the National Register; or it will not alter an eligible Historic Property's location, setting or use. We have no objections to your proceeding with your undertaking.

If your agency proposes any modifications in current project plans please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. If you are applying for federal funds, license or permit, you should submit this letter as evidence of consultation under Section 106 to the appropriate federal agency, which, in turn, should contact us as required by 36 CFR 800. If you represent a federal agency, you should submit a formal determination of eligibility and effect to us for comment. You may direct questions or comments to Justin Heskew at (615) 770-1092.

Sincerely,

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jsh

TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

June 26, 2018

Mr. Phillip R. Hodge
Tennessee Department of Transportation
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243-1402

RE: FHWA / Federal Highway Administration, Bridge Replacement, SR-40 Over Ocoee River, L.M. 3.12, Polk County, TN

Dear Mr. Hodge:

In response to your request, we have reviewed the documents you submitted regarding your proposed undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicant for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

After considering the documentation submitted, it is our opinion that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. We have made this determination because either: no National Register listed or eligible Historic Properties exist within the undertaking's area of potential effects, the specific location, size, scope and/or nature of the undertaking and its area of potential effects precluded affects to Historic Properties, the undertaking will not alter any characteristics of an identified eligible or listed Historic Property that qualify the property for listing in the National Register, or it will not alter an eligible Historic Property's location, setting or use. We have no objections to your proceeding with your undertaking.

If your agency proposes any modifications in current project plans or discovers any archaeological remains during the ground disturbance or construction phase, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. If you are applying for federal funds, license or permit, you should submit this letter as evidence of consultation under Section 106 to the appropriate federal agency, which, in turn, should contact us as required by 36 CFR 800. If you represent a federal agency, you should submit a formal determination of eligibility and effect to us for comment. You may direct questions or comments to Jennifer M. Barnett (615) 687-4780. This office appreciates your cooperation.

Sincerely,

E. Patrick McIntyre, Jr.

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jmb

PIN 124102.00

Attachment H

Native American Consultation

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

June 27, 2018

Mr. Brett Barnes
70500 E. 128 Road
Wyandotte, OK 74370

SUBJECT: Section 106 Initial Consultation for Proposed Replacement of State Route 40 Bridge over the Ocoee River in Polk County, Tennessee.

Dear Mr. Barnes,

The Tennessee Department of Transportation (TDOT), in coordination with the Federal Highway Administration (FHWA), is proposing to replace the State Route 40 Bridge over the Ocoee River in Polk County, Tennessee (maps attached). The proposed bridge replacement will require additional right-of-way and easements. There will be ground disturbance in the area of potential effects (APE). This location, which co-occurs with the western terminus of Appalachian Corridor K, has been surveyed for archaeological resources on several different occasions, most recently in 2012. None of these previous studies have identified archaeological resources at this location on either side of the Ocoee River.

The National Historic Preservation Act (NHPA) recognizes that federally funded undertakings, like the subject project, can affect historic properties to which your tribe attaches religious, cultural, and historic significance. In accordance with 36 CFR 800 regulations implementing compliance with Section 106 of the NHPA, we are providing general project information so that you can determine if your tribe has an interest in the project area or nature of the work proposed and so you have an opportunity to bring to our attention any interests and concerns about the potential for impacts to properties of religious and cultural significance. In addition, do you wish to be a consulting party on the project? Early awareness of your concerns can serve to protect historic properties valued by your tribe.

If you act as a consulting party you will receive archaeological assessment reports and related documentation, be invited to attend project meetings with FHWA, TDOT, and the Tennessee State Historic Preservation Office (TN-SHPO), if any are held, and be asked to provide input throughout the process. If you choose to not act as a consulting party at this time, you can do so at a later date simply by notifying me.

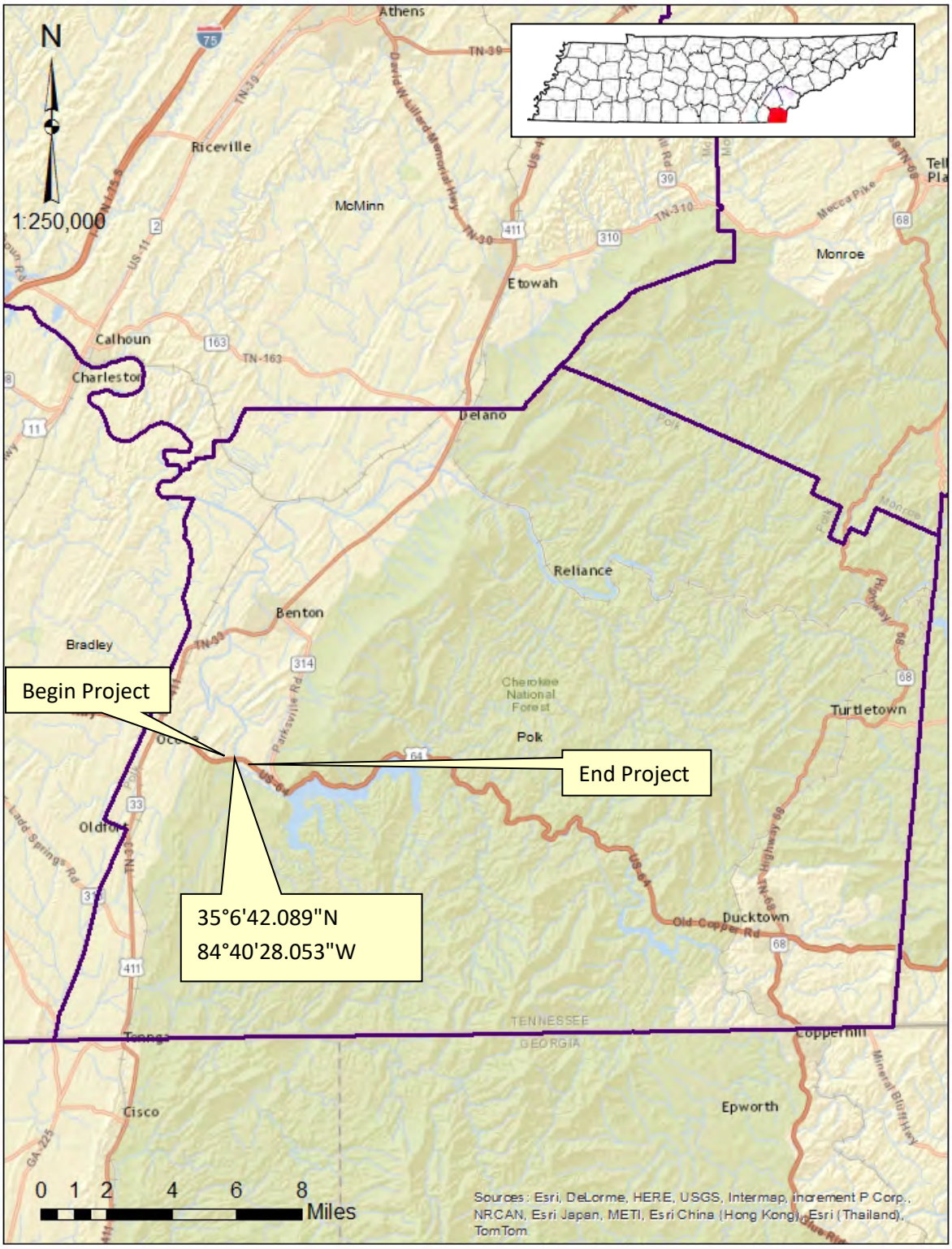
Please respond to me via letter, telephone (615-741-0977), fax (615-741-1098), or E-mail (Phillip.Hodge@tn.gov). I respectfully request responses (email is preferred) to project reports and other materials within thirty (30) days of receipt if at all possible. Thank you for your assistance.

Sincerely,

Phillip R. Hodge
Archaeology Program Manager

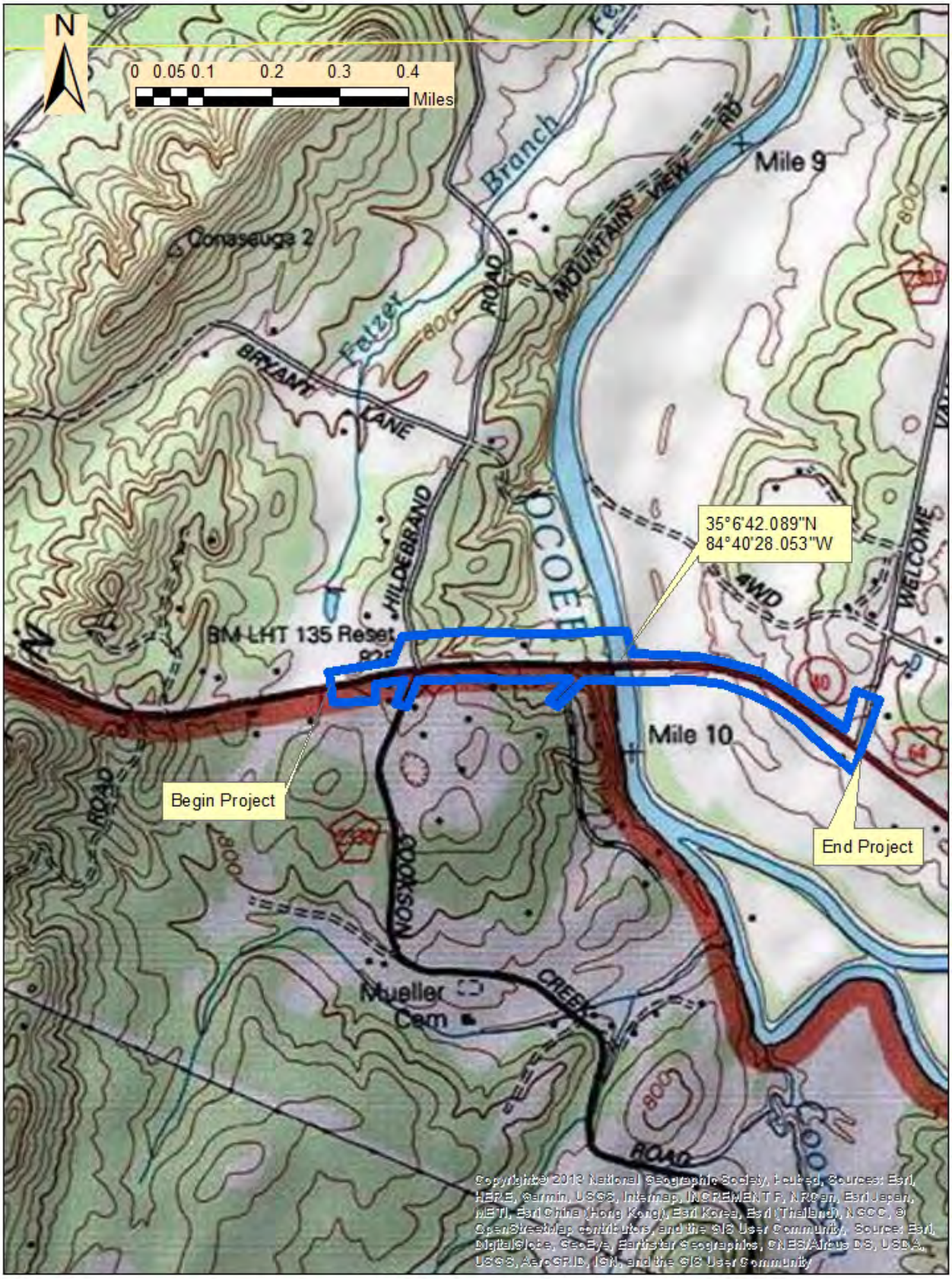
Enclosure

cc Elizabeth Toombs, The Cherokee Nation
Stephen Yerka, Eastern Band of Cherokee Indians
Corain Lowe-Zepeda, Muscogee (Creek) Nation
Tonya Tipton, Shawnee Tribe
Sheila Bird, United Keetoowah Band of Cherokee Indians
David Cook, Kialegee Tribal Town
Terry Clouthier, Thlopthlocco Tribal Town
Carolyn White, Poarch Band of Creek Indians



Project Vicinity Map

Polk County, TN. PIN 124102.00



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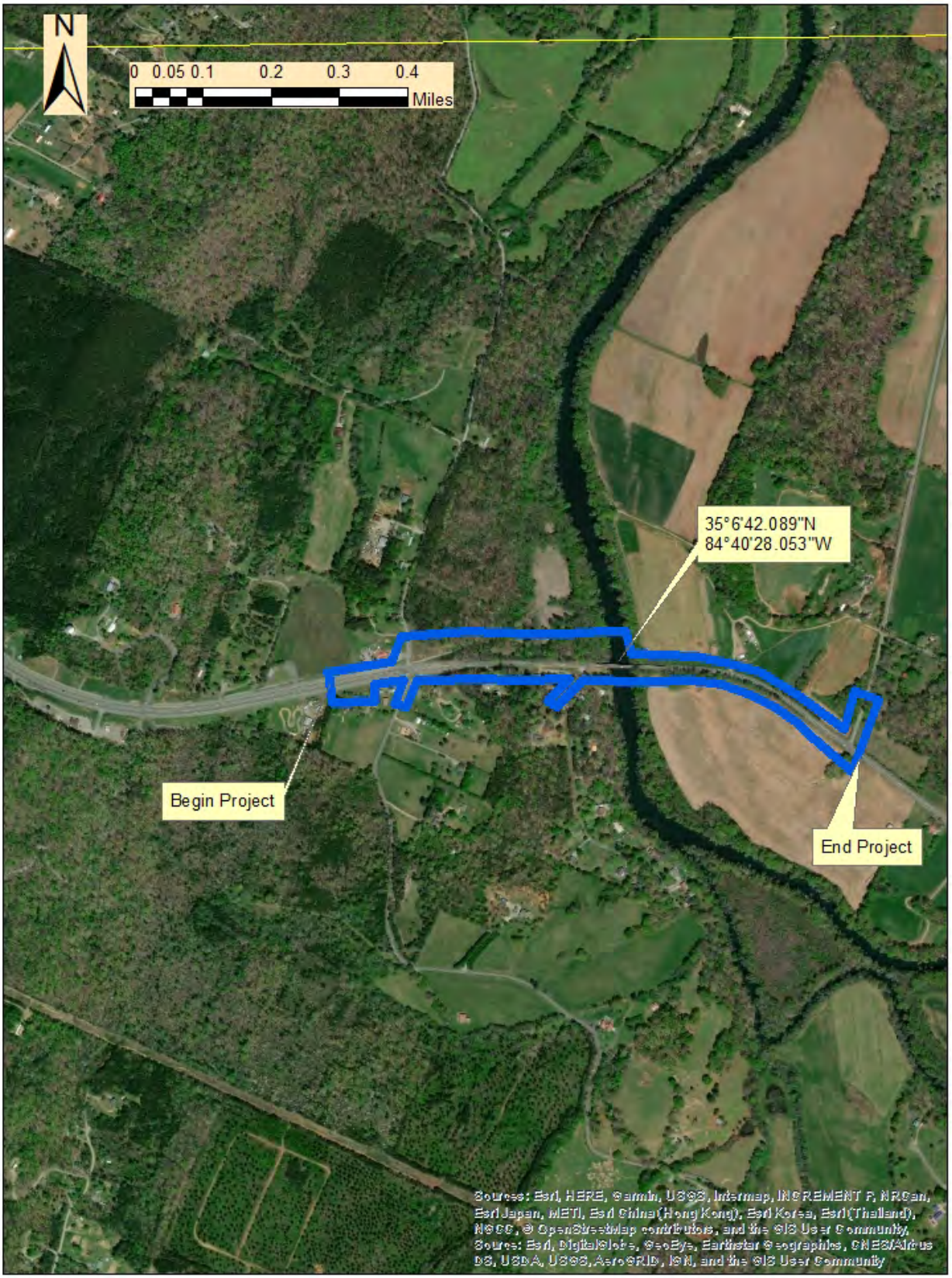

Project Location: Aerial View

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

November 2, 2018

Ms. Devon Frazier
Absentee Shawnee Tribe of Oklahoma
2025 South Gordon Cooper Dr.
Shawnee, OK 74801-9381

SUBJECT: Section 106 Initial Consultation for Proposed Replacement of State Route 40 Bridge over the Ocoee River in Polk County, Tennessee.

Dear Ms. Frazier,

The Tennessee Department of Transportation (TDOT), in coordination with the Federal Highway Administration (FHWA), is proposing to replace the State Route 40 Bridge over the Ocoee River in Polk County, Tennessee (maps attached). The proposed bridge replacement will require additional right-of-way and easements. There will be ground disturbance in the area of potential effects (APE). This location, which co-occurs with western terminus of Appalachian Corridor K, has been surveyed for archaeological resources on several different occasions, most recently in 2012. None of these previous studies have identified archaeological resources at this location on either side of the Ocoee River.

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If you act as a consulting party you will receive archaeological assessment reports and related documentation, be invited to attend project meetings with FHWA, TDOT, and the Tennessee State Historic Preservation Office (TN-SHPO), if any are held, and be asked to provide input throughout the process. If you choose to not act as a consulting party at this time, you can do so at a later date simply by notifying me.

Please respond to me via letter, telephone (615-741-0977), fax (615-741-1098), or E-mail (Phillip.Hodge@tn.gov). I respectfully request responses (email is preferred) to project reports and other materials within thirty (30) days of receipt if at all possible. Thank you for your assistance.

Sincerely,

Phillip R. Hodge
Archaeology Program Manager

Enclosure

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Stephen Yerka, Eastern Band of Cherokee Indians
Brett Barnes, Eastern Shawnee Tribe of Oklahoma
Corain Lowe-Zepeda, Muscogee (Creek) Nation
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David Cook, Kialegee Tribal Town
Carolyn White, Poarch Band of Creek Indians
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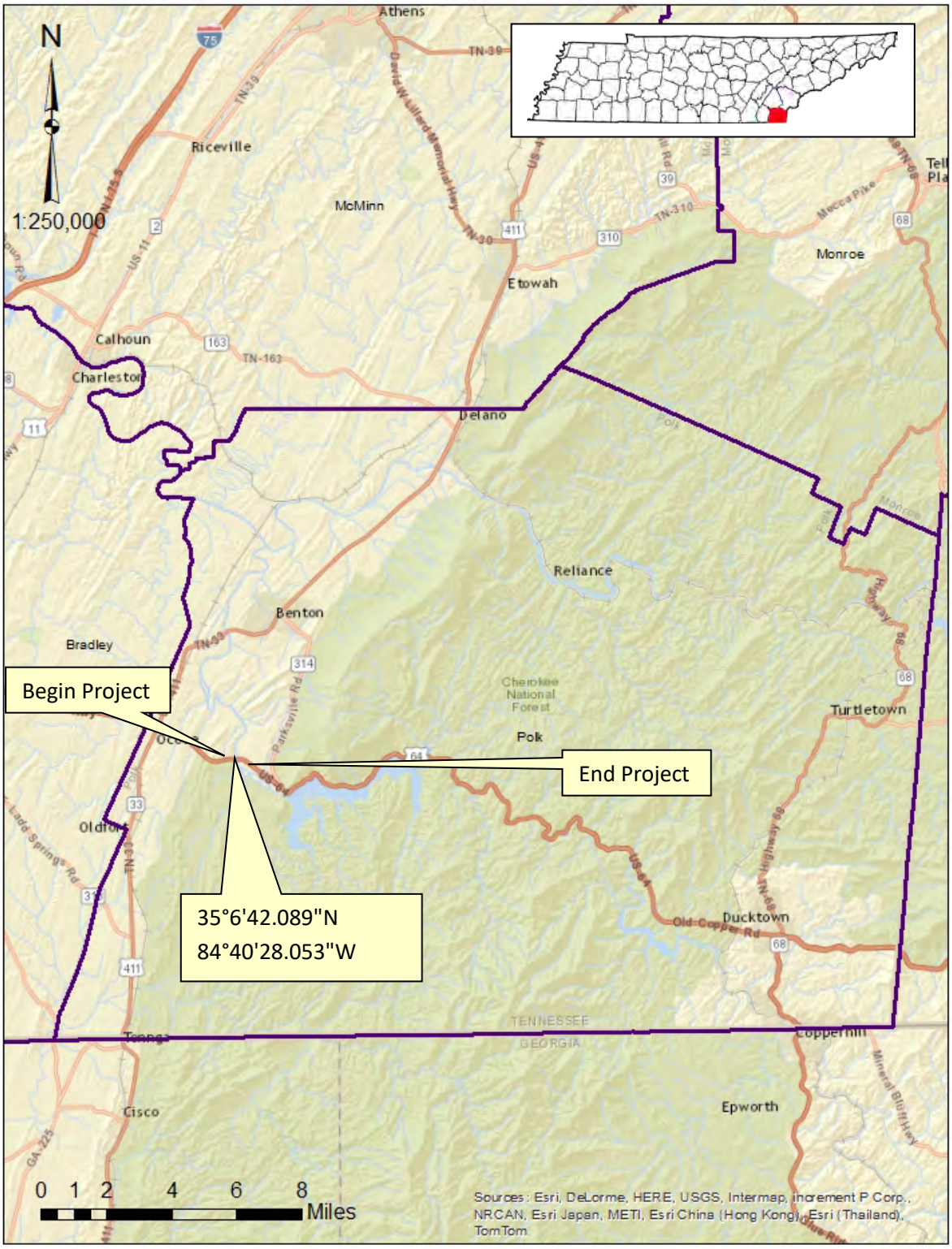
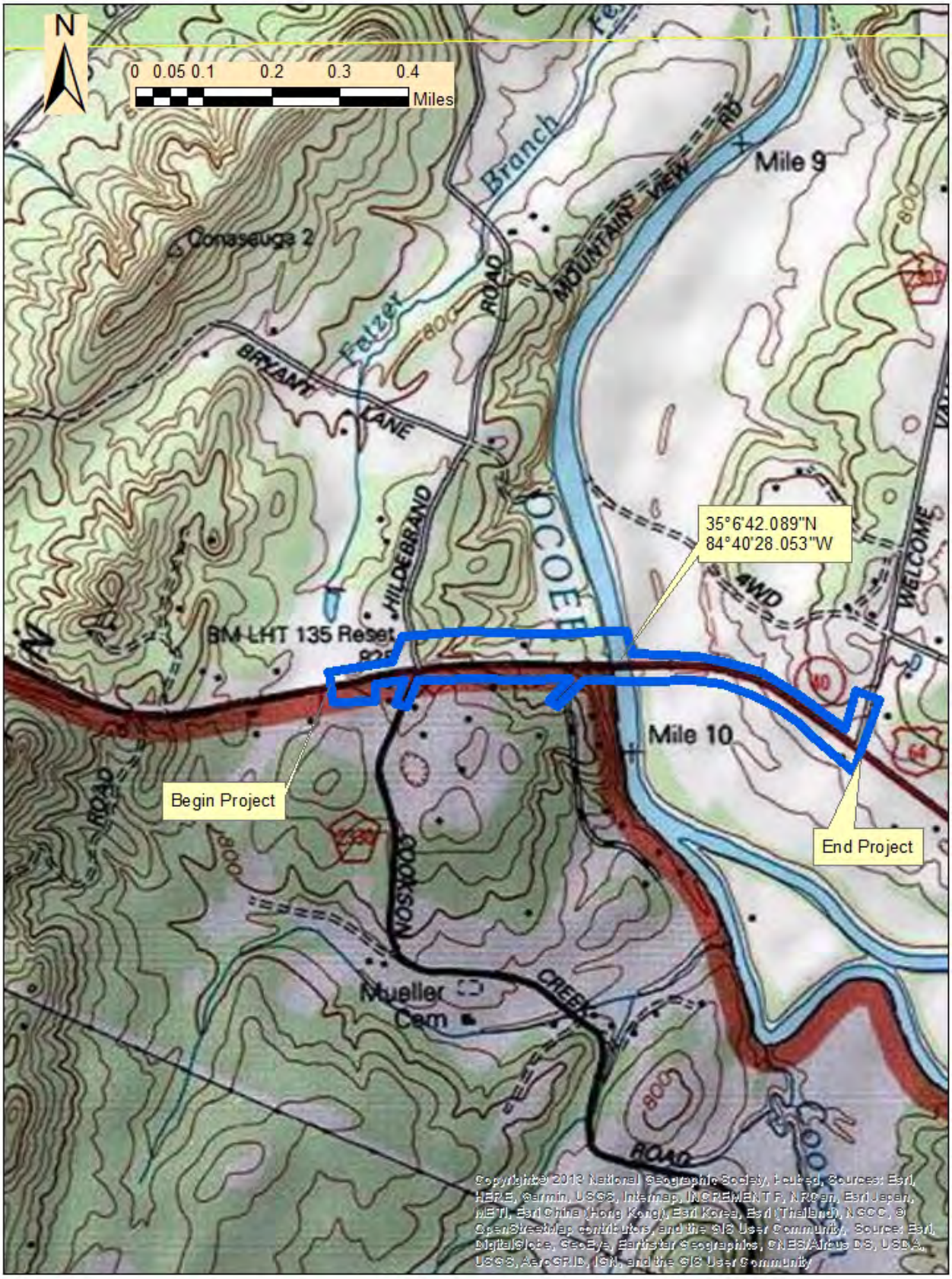


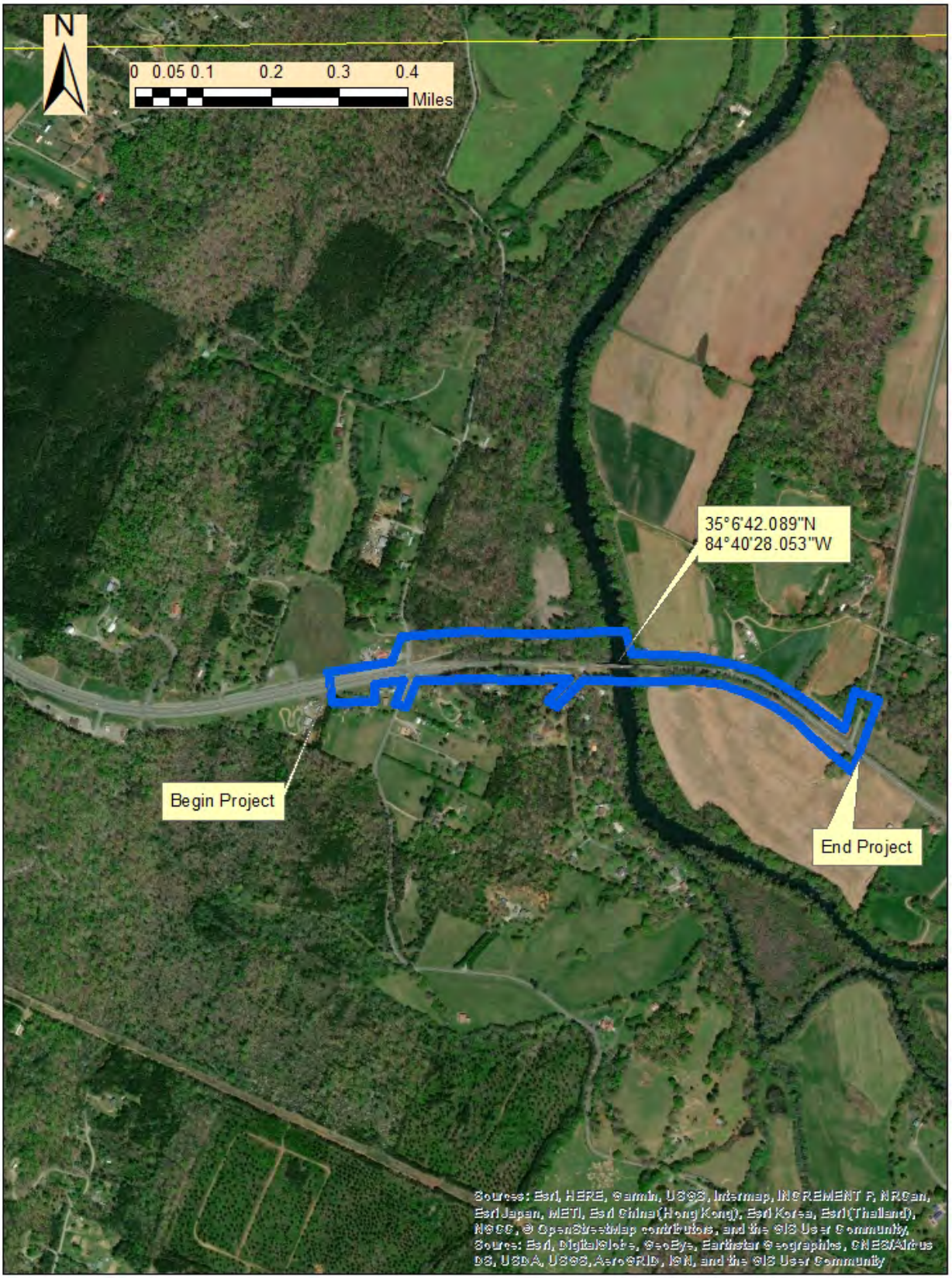
Project Vicinity Map

Polk County, TN. PIN124102.00



USGS Quad Parksville 126 SW

Polk County, TN. PIN124102.00



Project Location: Aerial View

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CHEROKEE NATION®
P.O. Box 948 • Tahlequah, OK 74465-0948 • 918-453-5000 • cherokee.org

Office of the Chief

Bill John Baker
Principal Chief
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S. Joe Crittenden
Deputy Principal Chief
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ᏔᏂᏁ ᎠᏓᏅᏁ ᎣᏓᏫᏋᏊ

July 22, 2018

Phillip R. Hodge
Tennessee Department of Transportation
Environmental Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243-1402

Re: PIN 124102.00, Proposed Replacement of SR-40 Bridge over Ocoee River

Mr. Phillip R. Hodge:

The Cherokee Nation (Nation) is in receipt of your correspondence about **PIN 124102.00, Proposed Replacement of SR-40 Bridge over Ocoee River**, and appreciates the opportunity to provide comment upon this project. Please allow this letter to serve as the Nation's interest in acting as a consulting party to this proposed undertaking.

The Nation maintains databases and records of cultural, historic, and pre-historic resources in this area. Our Historic Preservation Office reviewed this project, cross referenced the project's legal description against our information, and found no instances where this project intersects or adjoins such resources. Thus, the Nation does not foresee this project imparting impacts to Cherokee cultural resources at this time.

However, the Nation requests that the Tennessee Department of Transportation (TNDOT) halt all project activities immediately and re-contact our Offices for further consultation if items of cultural significance are discovered during the course of this project.

Additionally, the Nation requests that TNDOT conduct appropriate inquiries with other pertinent Tribal and Historic Preservation Offices regarding historic and prehistoric resources not included in the Nation's databases or records.

If you require additional information or have any questions, please contact me at your convenience. Thank you for your time and attention to this matter.

Wado,

Elizabeth Toombs

Elizabeth Toombs, Tribal Historic Preservation Officer
Cherokee Nation Tribal Historic Preservation Office
elizabeth-toombs@cherokee.org
918.453.5389

PIN 124102.00

Attachment I

TDOT Civil Rights Division Coordination

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
CIVIL RIGHTS OFFICE
SUITE 1800, JAMES K. POLK BUILDING
505 DEADERICK STREET, NASHVILLE, TENNESSEE 37243-1402
(615) 741-3681 TOLL FREE (888) 370-3647
FAX (615) 741-3169

CLAY BRIGHT
COMMISSIONER

BILL LEE
GOVERNOR

February 28, 2019

Tennessee Department of Transportation
Susannah Kniazewycz, Director
Environmental Division
James K. Polk Building, Suite 900
505 Deaderick Street
Nashville, TN 37243-0334

Subject: State Route 40 Improvements, From the Existing Five-Lane Near Hildabrand Road to the Existing Three-Lane Near Welcome Valley Road, Polk County, Tennessee, TDOT PIN No. 124102.00, Federal No. BR-NH/APD-40(37), State No. 70068-1211-94

Dear Ms. Kniazewycz:

The Civil Rights Division's Title VI Program staff has reviewed the Environmental Justice Analysis for State Route 40 Improvements, From the Existing Five-Lane Near Hildabrand Road to the Existing Three-Lane Near Welcome Valley Road, Polk County, Tennessee, TDOT PIN No. 124102.00, Federal No. BR-NH/APD-40(37), State No. 70068-1211-94. Actions and steps taken are found it to be in accordance with the mandates of Title VI of the 1964 Civil Rights Act, the National Environmental Policy Act of 1969, and 42.U.S.C. 4332(2), and Executive Order 12898. There does not appear to be any Title VI nor Environmental Justice issues.

Thank you for the opportunity to review the updated analysis. Should you have questions or comments, please do not hesitate to contact me at 615-253-1066 or Cynthia.Howard@TN.GOV.

Best Regards,

Cynthia Howard

Cynthia Howard
Title VI Program Director

CC: Kelsey Finch, Title VI Specialist

PIN 124102.00

Appendix A

Transportation Investment Reports

(Dated 04/24/2018 and 08/16/2018),

Revised Environmental Technical Study Area

(Dated 12/2018),

and Bridge Inspection Report

(Dated 04/20/2016)

TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION INVESTMENT REPORT
IMPROVE Act

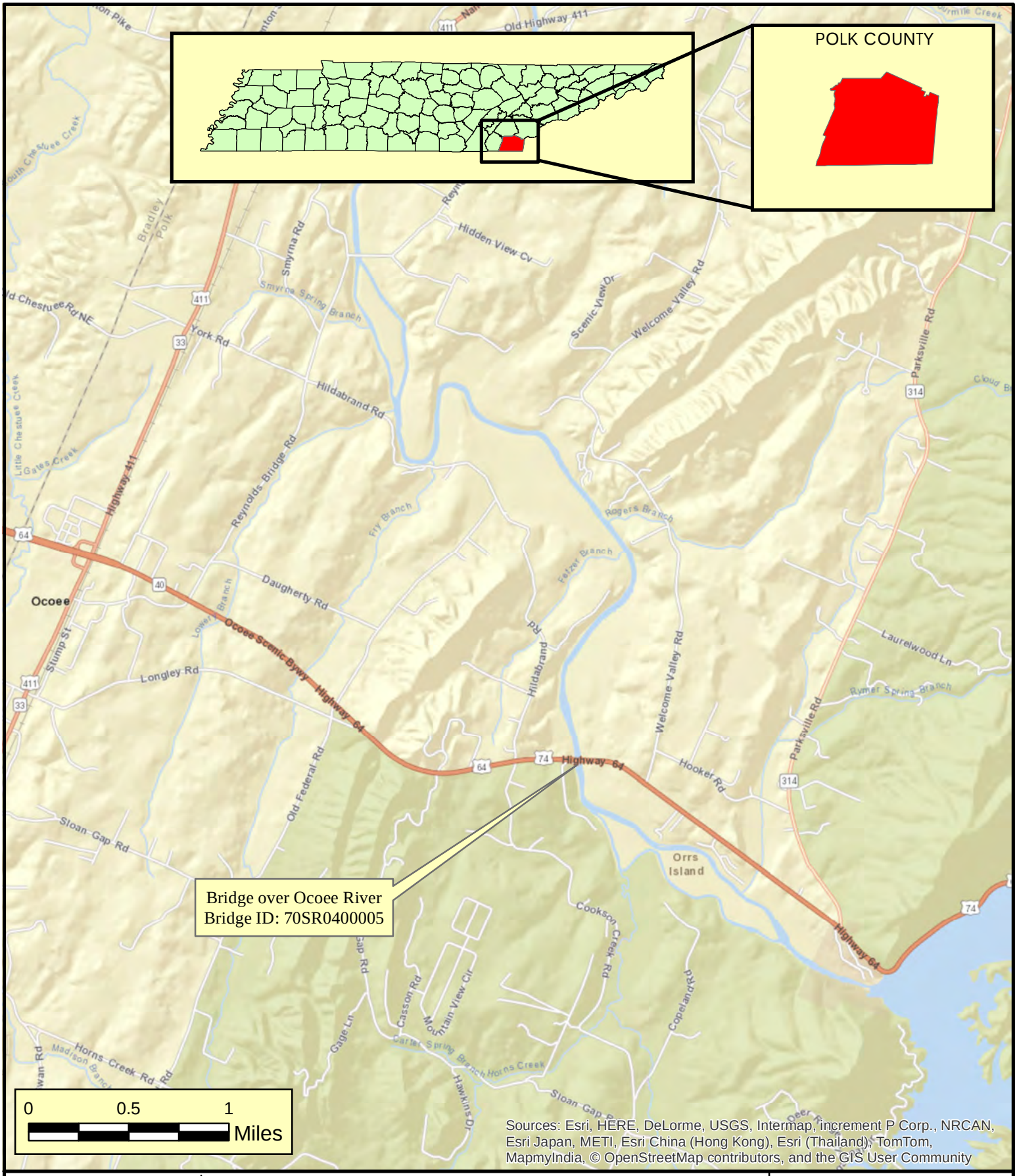
STATE ROUTE 40
Bridge Over Ocoee River (70SR0400005)
Log Mile 3.12 Polk County
PIN 124102.00

PREPARED BY ARCADIS U.S.
FOR THE
TENNESSEE DEPARTMENT OF TRANSPORTATION

Approved by _____ *Date* 4-24-18 *Approved by* _____ *Date* 4/24/18
Chief of Environment and Planning *Deputy Commissioner and Chief Engineer*

Approved by:	Signature	DATE
TRANSPORTATION DIRECTOR STRATEGIC TRANSPORTATION INVESTMENTS DIVISION		3-23-18
ENGINEERING DIRECTOR REGION 2 PROJECT DEVELOPEMENT DIVISION	Wesley Hughes	3-26-18
ENGINEERING DIRECTOR STRUCTURES DIVISION		3/23/18

This document is covered by 23 USC § 409 and its production pursuant to fulfilling public planning requirements does not waive the provisions of § 409.



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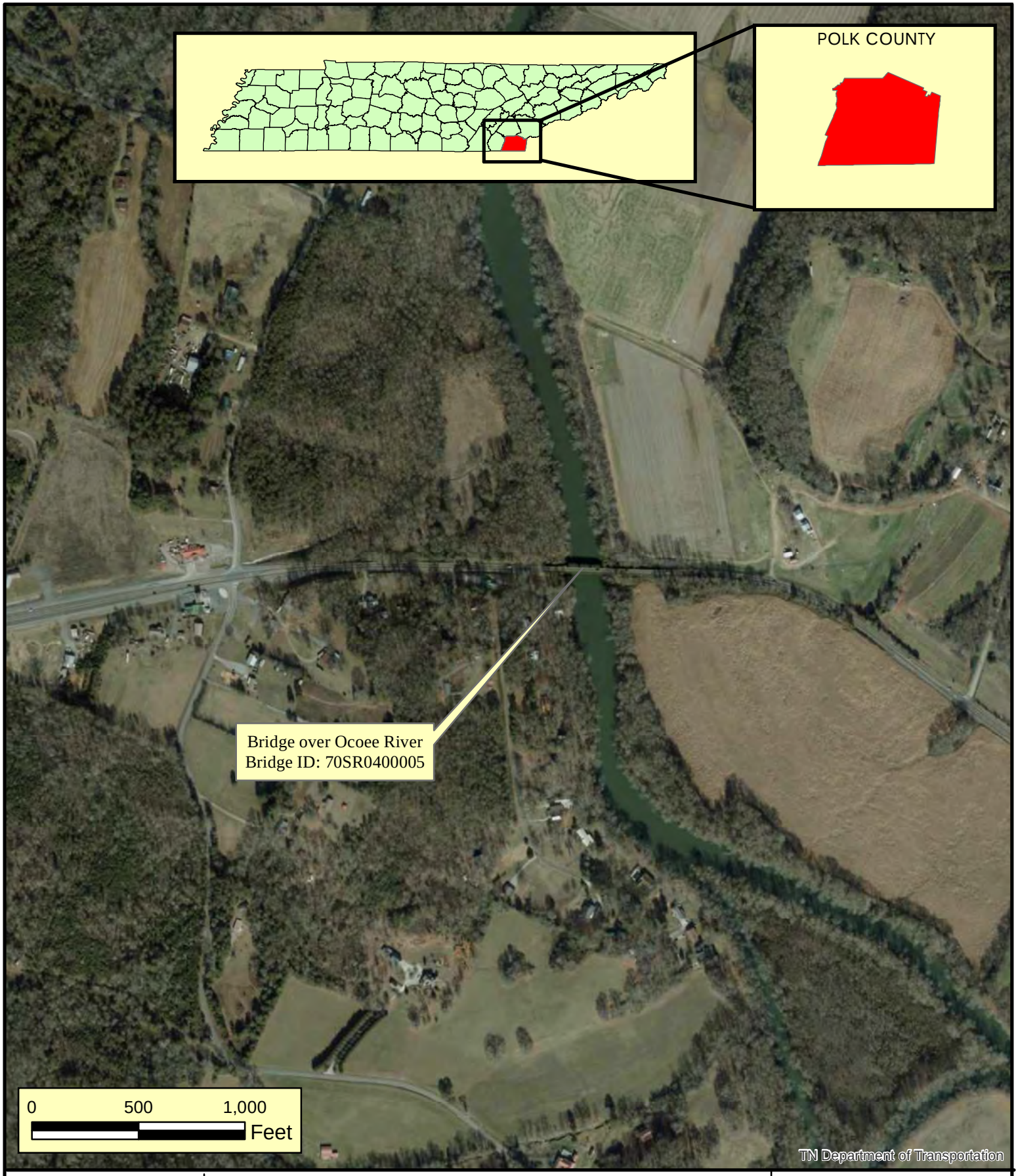
AREA MAP
STATE ROUTE 40 (US-64/74)
BRIDGE OVER OCOEE RIVER
LOG MILE 3.12
POLK COUNTY

TN TDOT Department of Transportation



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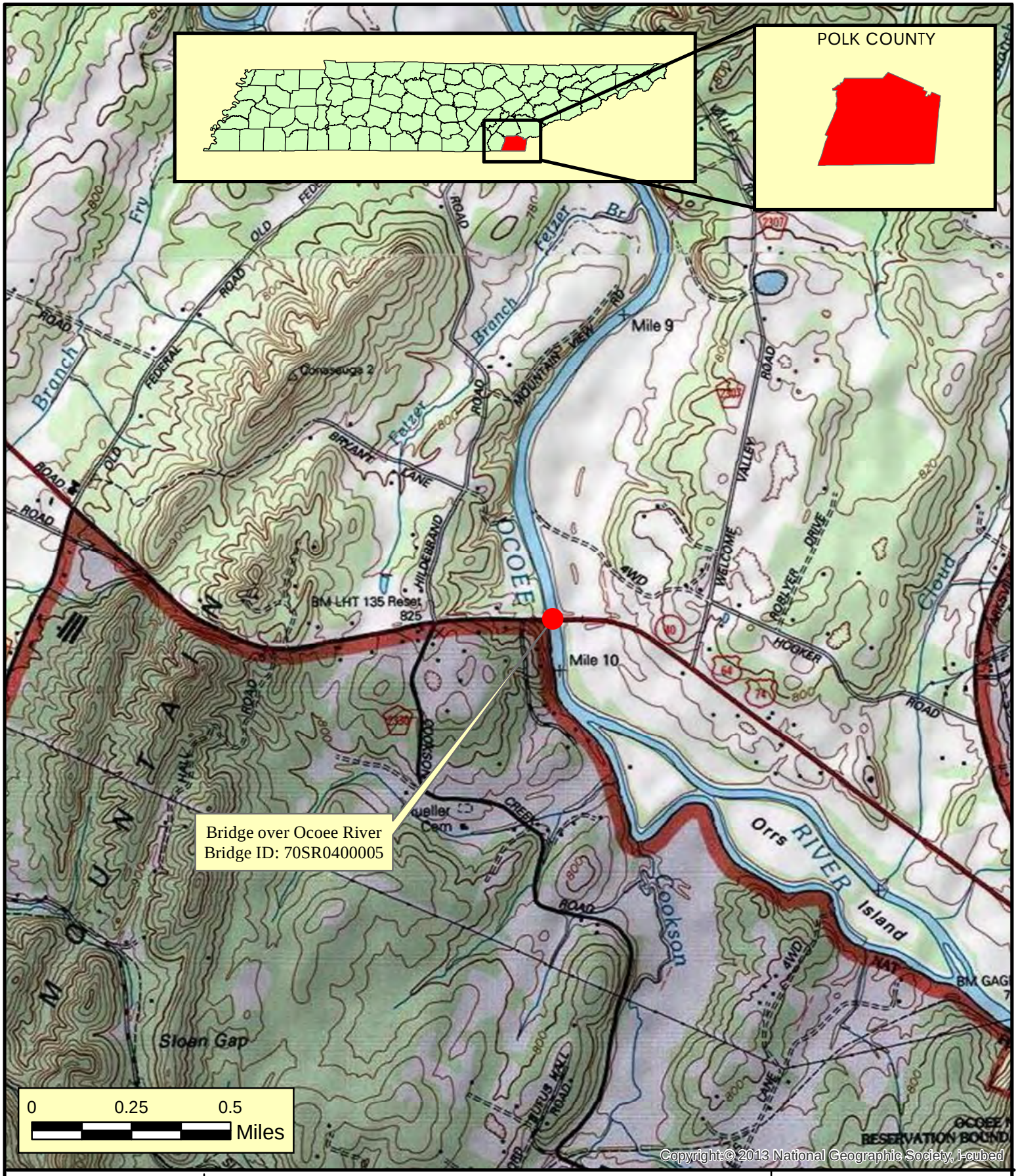
LOCATION MAP
STATE ROUTE 40 (US-64/74)
BRIDGE OVER OCOEE RIVER
LOG MILE 3.12
POLK COUNTY

TN TDOT Department of Transportation



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TOPOGRAPHIC MAP
STATE ROUTE 40 (US-64/74)
BRIDGE OVER OCOEE RIVER
LOG MILE 3.12
POLK COUNTY

TN TDOT Department of Transportation

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION
SUITE 1000, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TN 37243
(615) 741-2208

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

MEMORANDUM

TO: Steve Allen, Transportation Director
Strategic Transportation Investments Division

FROM: Michael Cloud, Transportation Project Specialist
Strategic Transportation Investments Division

DATE: March 9, 2018

SUBJECT: TIR Field Review
SR 40, Bridge over Ocoee River
Bridge ID: 70SR0400005
Log Mile 3.12
Polk County
PIN: 124102.00

A field review was held for the above-mentioned project on December 13, 2017.

The existing structure, built in 1937, is a six-span concrete bridge crossing the Ocoee River in Polk County. The bridge is 546 feet long with an out-to-out width of 27 feet 2 inches and a weight limit of 20 tons. The existing structure has several animal-related issues including barn owls, cliff swallows, snail darter (fish) and bats. As per the Bridge Inspection Report from April 20, 2016, the structure has a sufficiency rating of 32.9.

The discharges for the drainage basin were determined using StreamStats Version 3.0. which used a drainage area of 612.9 square miles. The 10-year discharge rate (Q10) was 33,000 cubic feet per second (cfs), Q50 was 46,200 cfs, and Q100 was 52,300 cfs.

The proposed alignment and grade for the replacement structure will shift to the north of the existing structure on a new alignment. Proposed alignments shown in this report are for graphical purposes only and are not a final horizontal alignment for the Corridor K project. Transitioning from a 5-lane to a 2-lane on the bridge is undesirable for both design and for the driver's expectation along the bridge. Therefore, to improve safety along this section of roadway, a 5-lane section will be extended from just west of Hildabrand Road to just east

of the proposed bridge. Transitioning to match the existing 3-lane section prior to Welcome Valley Road is accomplished immediately after the curve section east of the proposed bridge with a 540 foot taper length. The bridge will have a 90-degree skew with the river channel. There is a 45 mph posted speed limit on SR 40 however the design speed will be 55 mph. The proposed structure will be a four-span steel I-beam structure with a total length of 542 feet including a 200 foot main span over the river and a 114 foot span on the west end and two (2) 114 foot span on the east end. FEMA regulations apply to this structure. It is estimated that two (2) tracts of land will be affected resulting in 5.27 acres of estimated ROW.

The route has a base year 2022 AADT of 5,790 and a design year 2042 AADT of 6,950. The existing structure and roadway approaches have two (2) twelve (12) foot travel lanes with less than one (1) foot shoulders. The state route is classified as a Rural Principal Arterial and Standard Drawing RD01-TS-3 was used for design considerations. According to the Draft Environmental Impact Statement (DEIS) for this Corridor K project, the typical section on the proposed structure will consist of four (4) twelve (12) foot travel lanes and a twelve (12) foot two-way left turn lane with shoulder widths of 12 feet and concrete parapets for a total out-to-out width of 85’- 3” on the structure. The project will extend approximately to the intersection of SR 40 and Hildebrand Road to the west and will extend to approximately the intersection of SR 40 and Welcome Valley Road to the east in order to tie the roadway back in. No detours or phasing will be required. The existing structure and roadway will remain open to traffic until completion of the proposed structure and realignment of State Route 40.

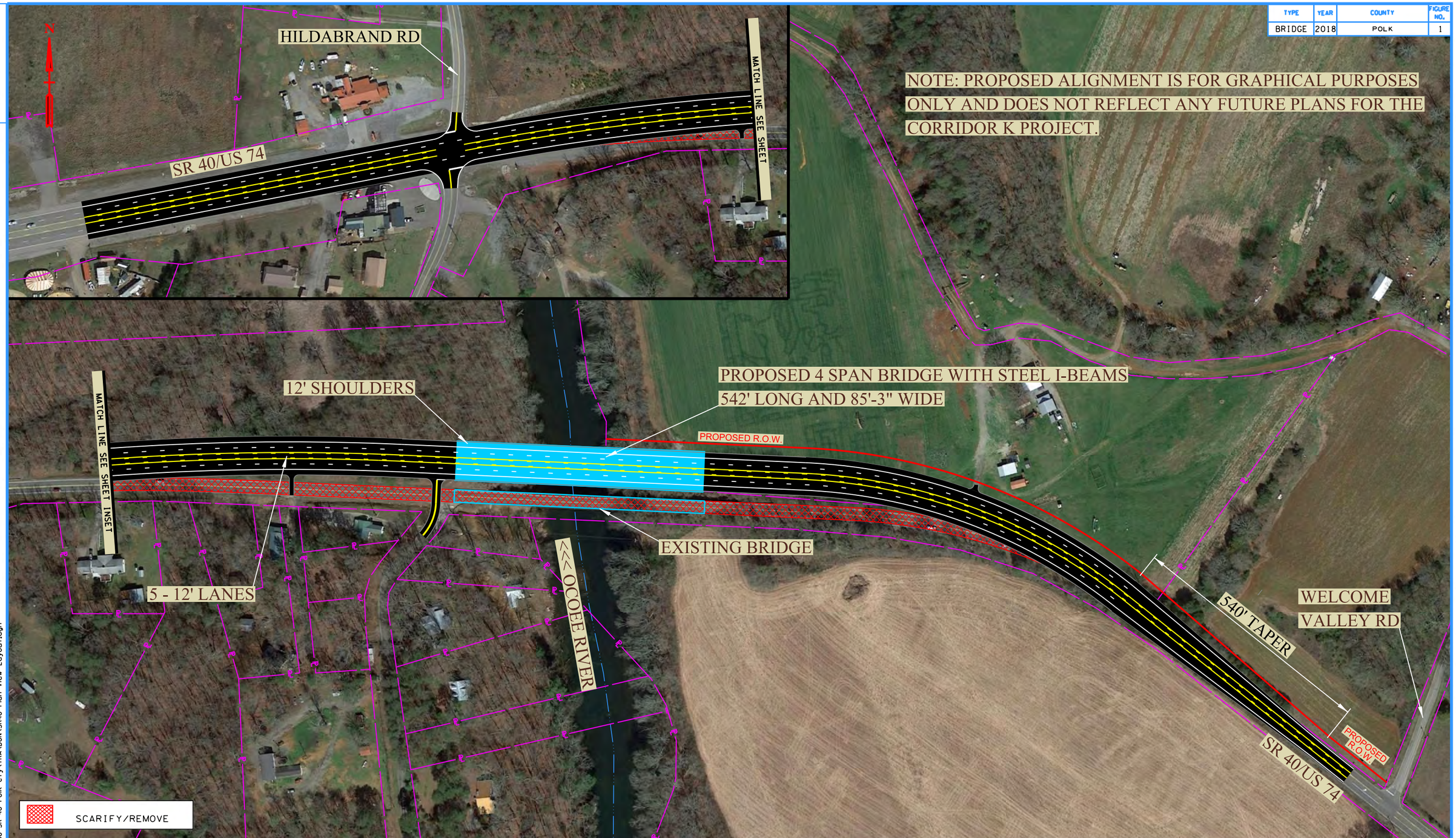
The cost for the estimated required approach work, estimated replacement, and estimated preliminary engineering for this bridge replacement is approximately $24,579,000. This project will be funded with APD funds from Corridor K.

MC

cc: File

TENNESSEE D.O.T.
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION
FILE NO.

TYPE	YEAR	COUNTY	FIGURE NO.
BRIDGE	2018	POLK	1



0' 200' 400' 600'

N

BRIDGE TIR

STATE ROUTE 40
US 74
L.M. 3.12
POLK COUNTY

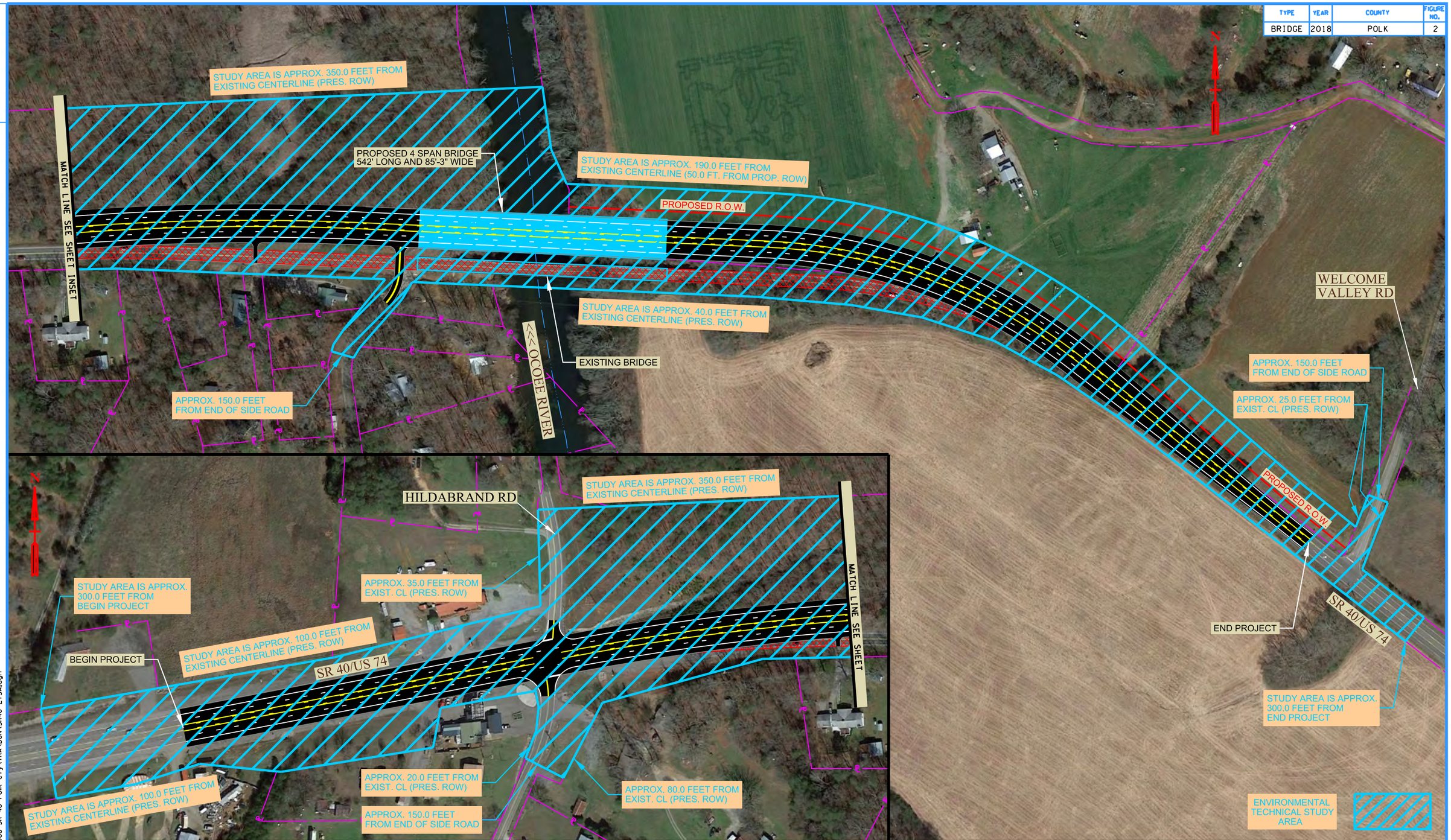
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION

FIGURE 1
SR 40
L.M.3.12

3/8/2018 10:28:53 AM
G:\tra\CTT39 -TDOT STID\CTT39008 SR 40 Polk Cty\TRA\DGN\SR40 Plan View Layout.dgn

TENNESSEE D.O.T.
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION
FILE NO.

TYPE	YEAR	COUNTY	FIGURE NO.
BRIDGE	2018	POLK	2



0' 200' 400' 600'

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ENVIRONMENTAL TECHNICAL STUDY AREA

STATE ROUTE 40
US 74
L.M. 3.12
POLK COUNTY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION

FIGURE 2
SR 40
L.M.3.12

3/15/2018 5:18:46 PM
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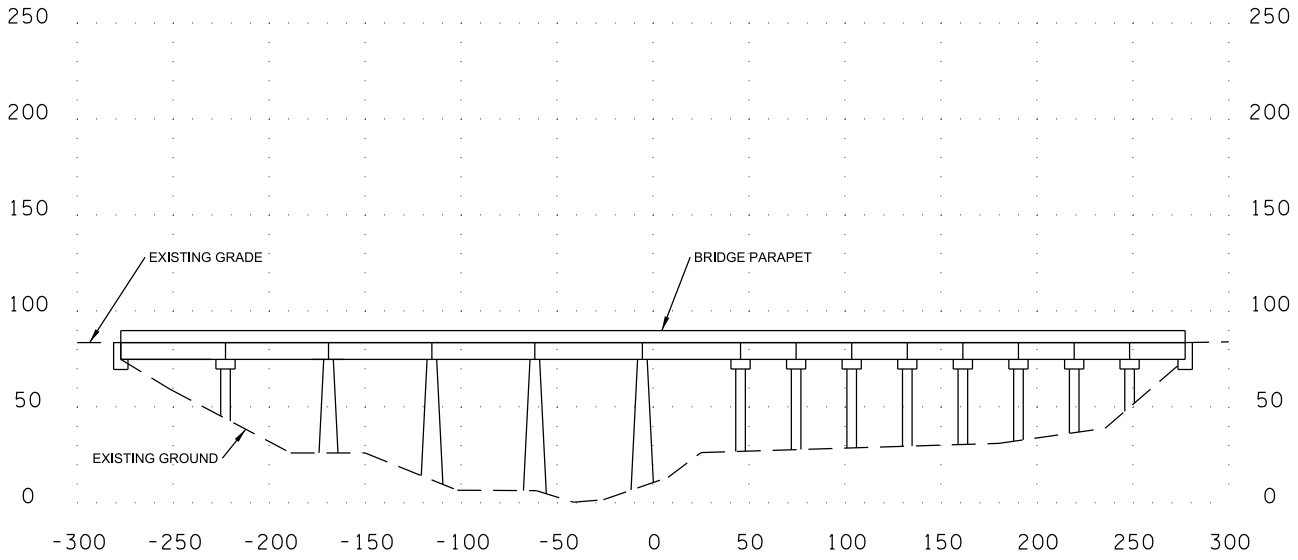
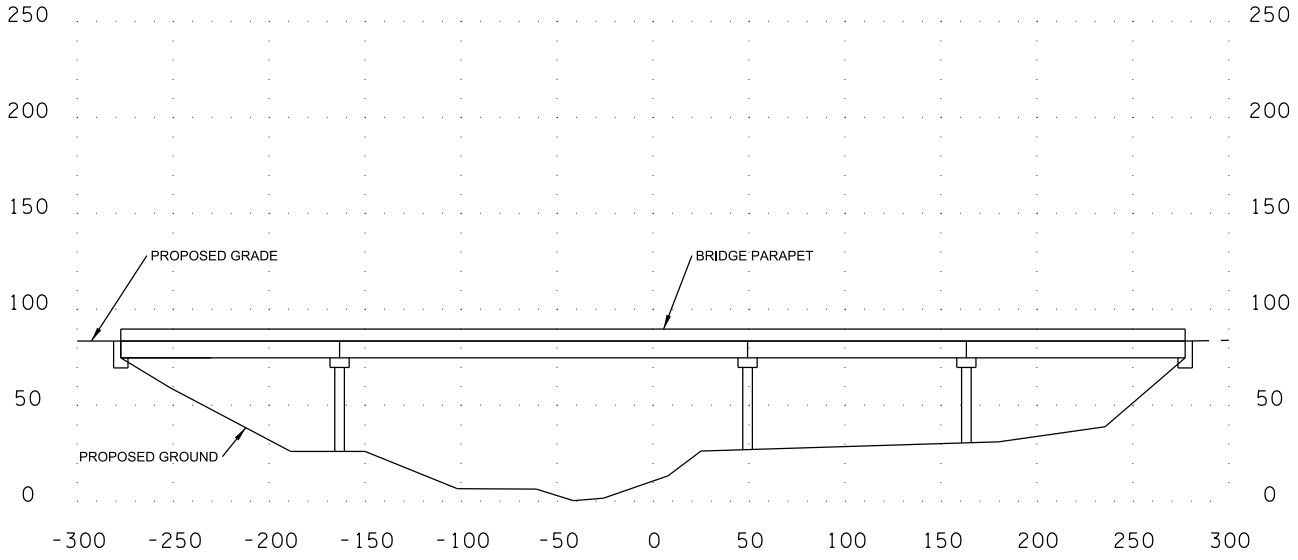
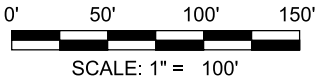
EXISTING STRUCTURE



PROPOSED STRUCTURE

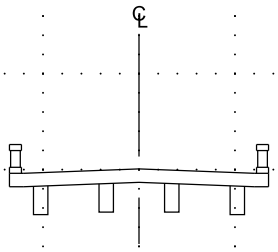




PROPOSED PROFILE

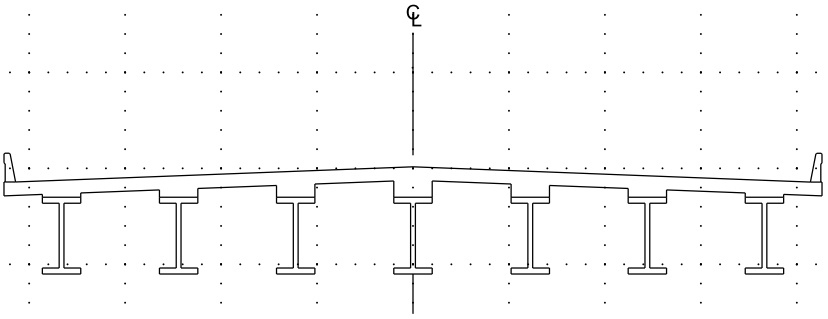
STATE ROUTE 40
BRIDGE OVER OCOEE RIVER, L.M. 3.12
BRIDGE ID: 70SR0400005
POLK COUNTY, TN

EXISTING STRUCTURE



TOTAL WIDTH: 27'

PROPOSED STRUCTURE



TOTAL WIDTH: 85'-3"

0' 10' 20' 30'

SCALE: 1" = 20'

PROPOSED TYPICAL SECTION

STATE ROUTE 40
BRIDGE OVER OCOEE RIVER, L.M. 3.12
BRIDGE ID: 70SR0400005
POLK COUNTY, TN

COST ESTIMATE SUMMARY

Route:	SR 40
Description:	Bridge over Ocoee River
County:	Polk
Length:	0.85 mi
Date:	January 25, 2018

DESCRIPTION	LOCAL 0%	STATE 0%	FEDERAL 0%	TOTAL
Construction Items				
Pavement Removal	$0	$0	$0	$104,200
Asphalt Paving	$0	$0	$0	$2,557,800
Concrete Pavement	$0	$0	$0	$0
Drainage	$0	$0	$0	$160,800
Appurtenances	$0	$0	$0	$0
Structures	$0	$0	$0	$11,958,800
Fencing	$0	$0	$0	$0
Signalization	$0	$0	$0	$0
Railroad Crossing or Separation	$0	$0	$0	$0
Earthwork	$0	$0	$0	$1,781,400
Clearing and Grubbing	$0	$0	$0	$0
Seeding & Sodding	$0	$0	$0	$44,000
Rip-Rap or Slope Protection	$0	$0	$0	$0
Guardrail	$0	$0	$0	$75,100
Signing	$0	$0	$0	$16,700
Pavement Markings	$0	$0	$0	$41,000
Maintenance of Traffic	$0	$0	$0	$197,800
Mobilization (5%)	$0	$0	$0	$846,900
Other Items = 10%	$0	$0	$0	$1,778,500
Const. Contingency = 15%	$0	$0	$0	$1,140,600
Construction Estimate	$0	$0	$0	$20,703,600
Interchanges & Unique Intersections				
Roundabouts	$0	$0	$0	$0
Interchanges	$0	$0	$0	$0
Right-of-Way & Utilties	**LOCAL 0%**	**STATE 0%**	**FEDERAL 0%**	**TOTAL**
Right-of-Way	$0	$0	$0	$29,500
Utilities	$0	$0	$0	$0
Preliminary & Construction Engineering and Inspection				
Prelim. Eng. 9%	$0	$0	$0	$1,772,400
Const. Eng. & Inspec. 10%	$0	$0	$0	$2,073,300
Total Project Cost	$0	$0	$0	$ 24,579,000

PAY ITEM SUMMARY

TDOT PAY ITEM	TDOT DESCRIPTION	UNIT	TOOL QUANTITIES	ADDITIONAL QUANTITIES	TOOL QUANTITIES + ADDITIONAL QUANTITIES	Statewide UNIT COST	TOTAL COST
Pavment Removal							
202-03.01	Removal of Asphalt Pavement	SY	4428		4428	$ 23.51	$ 104,113.74
						PAVEMENT REMOVAL TOTAL (ROUNDED)	$ 104,200
Asphalt Roads							
303-01	Mineral Aggregate, Type A Base, Grading D	TON	38516		38516	$ 27.89	$ 1,074,358.14
307-02.01	Asphalt Concrete Mix (PG70-22) (BPMB-HM) Grading A	TON	4797		4797	$ 94.15	$ 451,628.06
307-02.02	Asphalt Cement (PG70-22)(BPMB-HM) Grading A-S	TON	113		113	$ 724.96	$ 81,646.82
307-02.03	Aggregate (BPMB-HM) Grading A-S Mix	TON	3641		3641	$ 69.53	$ 253,175.86
307-02.08	Asphalt Concrete Mix (PG70-22) (BPMB-HM) Grading B-M2	TON	3142		3142	$ 106.52	$ 334,720.80
402-01	Bituminous Material For Prime Coat (PC)	TON	53		53	$ 676.05	$ 35,602.51
402-02	Aggregate For Cover Material (PC)	TON	190		190	$ 58.15	$ 11,052.82
403-01	Bituminous Material For Tack Coat (TC)	TON	25		25	$ 766.44	$ 19,375.56
411-01.07	ACS (PG64-22) GR "E"	TON	823		823	$ 108.76	$ 89,510.25
411-02.10	ACS Mix(PG70-22) Grading D	TON	1842		1842	$ 112.17	$ 206,653.45
						PAVING TOTAL (ROUNDED)	$ 2,557,800
Concrete Roads							
						CONCRETE RAMPS AND ROADWAYS TOTAL (ROUNDED)	$ -
Drainage							
607-05.02	24" Concrete Pipe Culvert (Class III)	LF	946		946	$ 82.48	$ 77,989.40
611-07.01	Class A Concrete (Pipe Endwalls)	CY	27		27	$ 1,017.96	$ 27,861.56
611-07.02	Steel Bar Reinforcement (Pipe Endwalls)	LB	2601		2601	$ 2.27	$ 5,897.00
710.02	Aggregate Underdrains (with pipe)	LF	8976		8976	$ 5.46	$ 49,008.96
						DRAINAGE TOTAL (ROUNDED)	$ 160,800
Appurtenances							
						ROADWAY AND PAVEMENT APPURTENANCES TOTAL (ROUNDED)	$ -
Earthwork & Mineral							
105-01	Constrction Stakes, Lines, and Grades	LS	1		1	$ 112,407.96	$ 112,407.96
203-01	Road & Drainage Excavation (Unclassified)	CY	58338		58338	$ 16.33	$ 952,436.95
203-03	Borrow Excavation (Unclassified)	CY	48615		48615	$ 14.74	$ 716,519.99
						EARTHWORK & MINERAL TOTAL (ROUNDED)	$ 1,781,400
Structures							
N/A	Removal of Bridge	SF	15288		15288	$ 20.00	$ 305,760.00
N/A	New Bridge (Steel Girder):	SF	46612		46612	$ 250.00	$ 11,653,000.00
						STRUCTURES TOTAL (ROUNDED)	$ 11,958,800
Interchanges and Unique Intersections							
						INTERCHANGES AND UNIQUE INTERSECTIONS TOTAL (ROUNDED)	$ -
Lighting & Signalization							
						LIGHTING & SIGNALIZATION TOTAL (ROUNDED)	$ -
Guardrail							
705-01.01	Guardrail at Bridge Ends	LF	100		100	$ 73.64	$ 7,364.49
705-02.02	Single Guardrail (Type 2)	LF	2468		2468.4	$ 18.54	$ 45,757.27
705-04.07	Tan Energy Absg Term (NCHRP, 350, TL3)	EA	6		6	$ 2,350.94	$ 14,105.65
705-04.09	Earth Pad for Type 38 GR End Treatment	EA	6		6	$ 1,297.93	$ 7,787.58
						GUARDRAIL TOTAL (ROUNDED)	$ 75,100
Seeding and Sodding							
801-01	Seeding (With Mulch)	UNIT	393		393	$ 70.00	$ 27,489.77
801-01.07	Temporary Seeding (With Mulch)	UNIT	295		295	$ 29.21	$ 8,602.36
801-02	Seeding (Without Mulch)	UNIT	295		295	$ 26.65	$ 7,848.59
						SODDING TOTAL (ROUNDED)	$ 44,000
Maintenace of Traffic							
N/A	Traffic Control	LS	1		1		$ 190,570.44
712-02.02	Interconnected Portable Barrier Rail	LF	224		224	$ 31.95	$ 7,170.64
						MAINTENANCE OF TRAFFIC TOTAL (ROUNDED)	$ 197,800
Signs							
Not Listed	Signs (Construction)	LS	1		1	$ -	$ 16,700
						SIGNING TOTAL (ROUNDED)	$ 16,700
Pavement Markings							
716-13.06	Spray Thermo P.M. (40 mil 4")	LM	14.7		14.7	$ 2,793.86	$ 40,957.94
						PAVEMENT MARKINGS TOTAL (ROUNDED)	$ 41,000
Fencing							
						FENCE TOTAL (ROUNDED)	$ -
Rip-Rap							
						RIP-RAP & SLOPE PROTECTION TOTAL (ROUNDED)	$ -
Clearing and Grubing							
						CLEAR AND GRUBBING TOTAL (ROUNDED)	$ -
Railroad At-Grade Crossing							
						RAILROAD CROSSING OR SEPARATION TOTAL (ROUNDED)	$ -
Utilties							
						UTILITIES TOTAL (ROUNDED)	$ -
Right-of-Way							
N/A	Right-of-Way	LS	1		1	$ 29,427.27	$ 29,427.27
						RIGHT-OF-WAY TOTAL (ROUNDED)	$ 29,500.00

BRIDGE TIR

LOCATION			
Bridge #:	70SR0400005	Feature Crossed:	Ocoee River
Road Name:	SR 40	Log mile:	3.12
Route ID:	SR 40	System:	State Route
City:	Ocoee	Functional Class:	Rural Principle Arterial
County:	Polk		
PIN:	124102.00		

ROADWAY		
	Existing	**Proposed (Preliminary Design Estimate)**
Design Standard		RD01-TS-3
Route Characteristics		
AADT:	6390	6950
AADT Year:	2016	2042
Terrain:	Rolling	Rolling
No. Lanes:	2	5
Speed(Posted):	45	55
Speed (Design):		60
Approach Character.		
Lane Width (ft):	12	12 ft lanes with 12 ft TWLTL
Shoulder Width (ft):	0	12
ROW Width (ft):	Varies 70-425	Varies 100-425
ROW Tracts Affected		2
ROW Required (acre)		5.27
Cross Section Width (ft):	24/24/70-425	60/84/100-425
Approach Length (ft):		0.43 mi (west), 0.33 mi (east)
Alignment:	Tangent	*New Alignment
Grade:		N/A
Surface Material:	Asphalt overlaying concrete deck	Concrete deck
Sidewalks (R/L):	No	No
App. Lower Than Structure	No	No
Utilities (list)	UG: Water, Gas OH: Electric, Telephone	
Utilities to be Relocated		
Comments	No utilities are attached to the structure	*Note: The proposed alignment shown in this report is for graphical purposes only and is not a final horizontal alignment for the Corridor K project. This project will be funded with APD funds from Corridor K.

BRIDGE TIR

Polk County
SR 40

STRUCTURE		
	Existing	Proposed (Preliminary Design Estimate)
Bridge Characteristics		
Year Built	1937	
Load Limit	20	
Sufficiency Rating	32.9	
Skew	90	90
Structure Type	Concrete T-beam	Steel I-beam
Structures in Channel	Yes	No
Length (ft)	546	542
No. Spans (App./Main)	8 | 6	3 | 1
Width (curb to curb) (ft)	23'-11"	84'
Width (o to o) (ft)	27'-2"	85'-3"
Sidewalks on Structure	No	No
Vert. Clearance (ft)	N/A	N/A
Superstructure Depth (in)	N/A	N/A
Girder Depth (in)	N/A	N/A
Finish Grade-Low Girder (in)	N/A	N/A
High Water Marks	No	
Bridge Rail Type	Concrete Parapet	Concrete Parapet
Bridge Rail Height (ft)	3	3
Indication Overtopping	No	
Local Scour	N/A	
Obstructions	No	
Other Structures		
Comments		Main span 200' and approach spans of 114'. FEMA regulations apply. This project will be funded with APD funds from Corridor K.

BRIDGE TIR

FLOW RATES (from USGS StreamStats Program Version 3)	
Drainage Area (sq. miles)	612.9
10 Year Discharge Rate (Q10) cfs	33000
50 Year Discharge Rate (Q50) cfs	46200
100 Year Discharge Rate (Q100) cfs	52300

CHANNEL	
Depth (ft)	N/A
Width of Normal Flow (ft)	180
Depth of Normal Flow (ft)	N/A
Skew of Channel with Roadway	80 degrees
Type of Material in Stream Bed	rock, gravel, boulders
Type of Vegetation on Banks	low growth, large timber
Are Channel Banks Stable	Moderate bank erosion
Signs of Stream Aggradation	No
Signs of Stream Degradation	No
Drift or Drift Potential	Yes
Comments	

FLOODPLAIN	
Skew Same as Channel	Yes
Symmetrical About Channel	Yes
Approx. Floor Elevations	N/A
Type of Vegetation in Floodplain	low growth, large timber
Any Buildings in Floodplain	Yes
Flood Information From Locals	N/A
Comments	

MAINTENANCE OF TRAFFIC	
Method of Maintaining Traffic	Stage Construct
Description	Existing structure to remain open during construction while proposed structure is constructed north of the existing structure on new alignment. Future bicycle/pedestrian plans may utilize the existing structure (To Be Determined).
Comments	

TN TDOT Department of Transportation

Date: 12/13/2017 at 9:30AM EST

Meeting Location: SR 39 (Bridge over Middle Creek) * SR 40 Polk County

Project: 124089.00 TIR McMinn County

RE: Transportation Investment Report (TIR) Field Review

	Name	Organization	Phone	Email
1	GARY CHAPMAN	TDOT Reg 2 Survey	423-510-1144	gary.chapman@tn.gov
2	BARRY McCLENDON	TDOT R2 SURVEY	423-510-1240	robert.mcclendon@tn.gov
3	JOSEPH DELORENZO	TDOT R2 DESIGN	423-634-7525	joseph.delorenzo@tn.gov
4	Ryan Stinton	Arcadis	865 824 8679	ryan.stinton@arcadis.com
5	Colby Mann	TDOT	423-510-1225	Colby.Mann@tn.gov
6	Brandon Chance	TDOT R2 Env. Tech office	931 520-2418	K.Brandon.Chance@TN.gov
7	Don Vanhook	TDOT Region 2 Survey	423-510-1144	hatton.vanhook@tn.gov
8	Jason Ingram	TDOT Rg 2 Design	423-634-2520	Jason.Ingram@tn.gov
9	Victor Weddle	TDOT R2 Const	423-510-1219	Victor.Weddle@TN.gov
	BILLY CURTIS	TDOT CLGV. CONST	423-478-0338	WILLIAM.CURTIS@TN.GOV
	DOUG FORD	TDOT SURVEY	423-298-3279	DOUGLAS.FORD@TN.GOV
	Sara Elmore	TDOT - Planning OCT	423-510-6921	Saraelmore@tn.gov

Alan Wolfe	TDOT - R2 Traffic	423-510-1139	Alan.Wolfe@tn.gov
Garris Bugg	TDOT R2 Traffic	423-510-6926	garris.bugg@tn.gov
Mike Cloud	TDOT STID	615-532-7696	michael.cloud@tn.gov

TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION

PROJECT NO.: 70068-0211-94 ROUTE: S.R. 40
COUNTY: POLK CITY: OCOEE
PROJECT PIN NUMBER: 124102.00
PROJECT DESCRIPTION: BRIDGE OVER OCOEE RIVER @ L.M. 3.12. (DESIGN BUILD)

BRIDGE ID: 70SR0400005

DIVISION REQUESTING:

		PAVEMENT DESIGN	☐
MAINTENANCE	☐	STRUCTURES	☐
S.T.I.D.	☒	SURVEY & ROADWAY DESIGN	☐
PROG. DEVELOPMENT & ADM.	☐	TRAFFIC SIGNAL DESIGN	☐
PUBLIC TRANS. & AERO.	☐	OTHER	☐

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION:
PROJECTED LETTING DATE:

TRAFFIC ASSIGNMENT:

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
5,790	2022	6,950	695	10	2042	65-35	6	9		

REQUESTED BY: NAME EMILY BURGESS DATE 11/3/17
DIVISION S.T.I.D.
ADDRESS 1000 J. K. POLK BUILDING
NASHVILLE TN 37243

REVIEWED BY: TONY ARMSTRONG Tony Armstrong DATE 11-28-17
TRANSPORTATION MANAGER I
SUITE 1000, JAMES K. POLK BUILDING

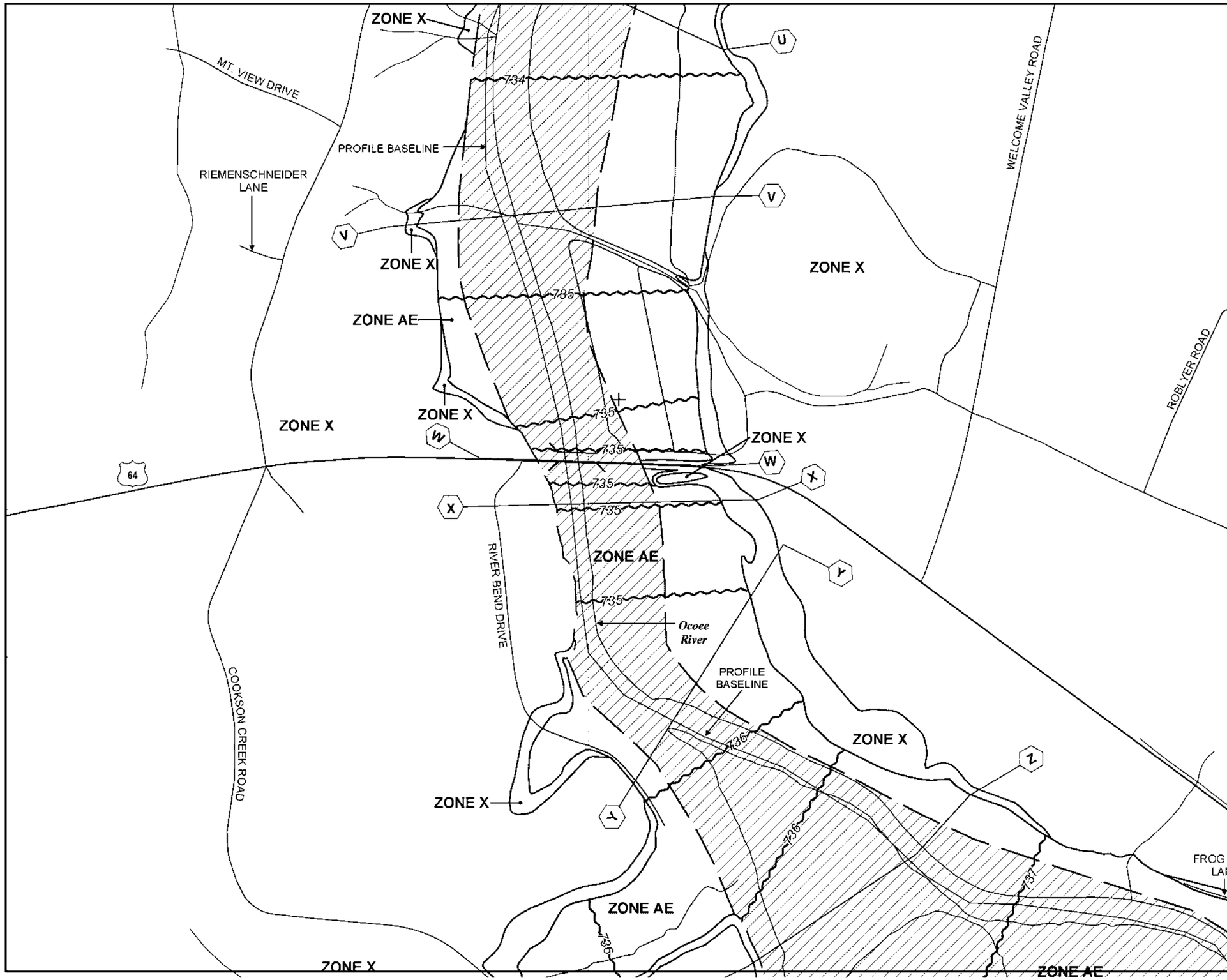
APPROVED BY: JIM WATERS DATE 11/29/17
ASSISTANT DIRECTOR
SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

THIS TRAFFIC WAS TAKEN FROM A PREVIOUS PROJECT PREPARED FOR THE ENVIRONMENTAL DIVISION DATED 10/17/2017.

DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.

NOTE: FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.
SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS. (REV. 2/22/17)



MAP SCALE 1" = 500'

0 500 1000 FEET

0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0206F

FIRM

FLOOD INSURANCE RATE MAP

POLK COUNTY, TENNESSEE

AND INCORPORATED AREAS

PANEL 206 OF 425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
POLK COUNTY	473261	0206	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
47139C0206F

EFFECTIVE DATE
MAY 18, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

StreamStats Version 3.0

Basin Characteristics Ungaged Site Report

Date: Tues Jan 9, 2018 2:04:02 PM GMT-5
Study Area: Tennessee
NAD 1983 Latitude: 35.1115 (35 06 41)
NAD 1983 Longitude: -84.6746 (-84 40 29)

Label	Value	Units	Definition
DRNAREA	612.9	square miles	Area that drains to a point on a stream

Accessibility FOIA Privacy Policies and Notices
U.S. Department of the Interior | U.S. Geological Survey
URL: http://streamstatsags.cr.usgs.gov/v3_beta/BCreport.htm
Page Contact Information: StreamStats Help
Page Last Modified: 12/06/2016 22:50:12 (Web1)
Streamstats Status News

StreamStats Version 3.0

Flow Statistics Ungaged Site Report

Date: Tues Jan 9, 2018 2:05:47 PM GMT-5
Study Area: Tennessee
NAD 1983 Latitude: 35.1115 (35 06 41)
NAD 1983 Longitude: -84.6746 (-84 40 29)
Drainage Area: 613 mi2

Peak Flow Region Basin Characteristics			
100% MultiVariable Area 1 (613 mi2)			
Parameter	**Value**	**Regression Equation Valid Range**	
		Min	**Max**
Contributing Drainage Area (square miles)	613	0.2	9000
Stream Slope 10 and 85 Method (feet per mi)	14.81	3.29	950
Tennessee Climate Factor 2 Year (dimensionless)	2.322 (above max value 2.32)	2.06	2.32

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Low-flow Regions Basin Characteristics			
100% Low Flow Central and East Regions 2009 5159 (613 mi2)			
Parameter	**Value**	**Regression Equation Valid Range**	
		Min	**Max**
Drainage Area (square miles)	613	1.3	14441
Recession Index (days per log cycle)	143	32	175
2 Yr climate factor LK1990 (dimensionless)	2.322	2.056	2.46
Average Soil Permeability (inches per hour)	2.855	0.45	9.72
Percent permeability gte 2 in per hr (percent)	55.902	2	100

Peak Flow Region Statistics						
Statistic	**Value**	**Unit**	**Prediction Error (percent)**	**Equivalent years of record**	**90-Percent Prediction Interval**	
					Min	**Max**
PK2	18500	ft3/s				
PK5	27100	ft3/s				
PK10	33000	ft3/s				
PK25	40600	ft3/s				
PK50	46200	ft3/s				
PK100	52300	ft3/s				
PK500	66300	ft3/s				

http://pubs.usgs.gov/wri/wri034176/ (http://pubs.usgs.gov/wri/wri034176/)
Law_ G.S._ and Tasker G.D._ 2003_ Flood-Frequency Prediction Methods for Unregulated Streams of Tennessee_ 2000: U.S. Geological Survey Water-Resources Investigations Report 03-4176_ 79p.

Low-flow Regions Statistics						
Statistic	**Value**	**Unit**	**Prediction Error (percent)**	**Equivalent years of record**	**90-Percent Prediction Interval**	
					Min	**Max**
M7D10Y	160	ft3/s	89			
M30D5Y	205	ft3/s	70			
QA	1140	ft3/s	26			
MNSUMMER	649	ft3/s	43			
D99 5	153	ft3/s	86			

D99	164	ft3/s	78			
D98	183	ft3/s	72			
D95	220	ft3/s	66			
D90	268	ft3/s	60			
D80	343	ft3/s	54			
D70	423	ft3/s	51			
D60	521	ft3/s	49			
D50	667	ft3/s	43			
D40	870	ft3/s	36			
D30	1140	ft3/s	28			
D20	1480	ft3/s	23			
D10	2300	ft3/s	21			

http://pubs.usgs.gov/sir/2009/5159/ (http://pubs.usgs.gov/sir/2009/5159/)
Law_ G.S._ Tasker_ G.D._ and Ladd_ D.E._ 2009_ Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009-5159_ 212 p._ 1 pl.

CHECK LIST OF DETERMINANTS FOR LOCATION STUDY

If any of the following facilities or ESE categories are located within the project area or corridor, place an "x" in the blank opposite the item. Where more than one alternate is to be considered, place its letter designation in the blank.

1.	Agricultural land usage	
2.	Airport (existing or proposed)	
3.	Commercial area, shopping center	
4.	Floodplains	
5.	Forested land	✓
6.	Historical, cultural, or natural landmark	
7.	Industrial park, factory	
8.	Institutional usages	
	a. School or other educational institution	
	b. Church or other religious institution (Cemetery)	
	c. Hospital or other medical facility	
	d. Public building, e.g., fire station	
	e. Defense installation	
9.	Recreation usages	
	a. Park or recreational area	✓
	b. Game preserve or wildlife area	✓
10.	Residential establishment	
11.	Urban area, town, city, or community	
12.	Waterway, lake, pond, river, stream, spring	✓
	Permit required: Coast Guard	
	Section 404	✓
	TVA Section 26a review	
	NPDES	✓
	Aquatic Resource Alteration	
13.	Other	
14.	Location coordinated with local officials	
15.	Railroad crossings	
16.	Hazardous materials site	

Eastbound Bridge Approach

Bent 5

Bent 1

Super/Sub Structure – Abutment 1

Bent 2

Super/Sub Structure

Super/Sub Structure – Abutment 1

Undercut – Abutment 1

TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION INVESTMENT REPORT
IMPROVE ACT

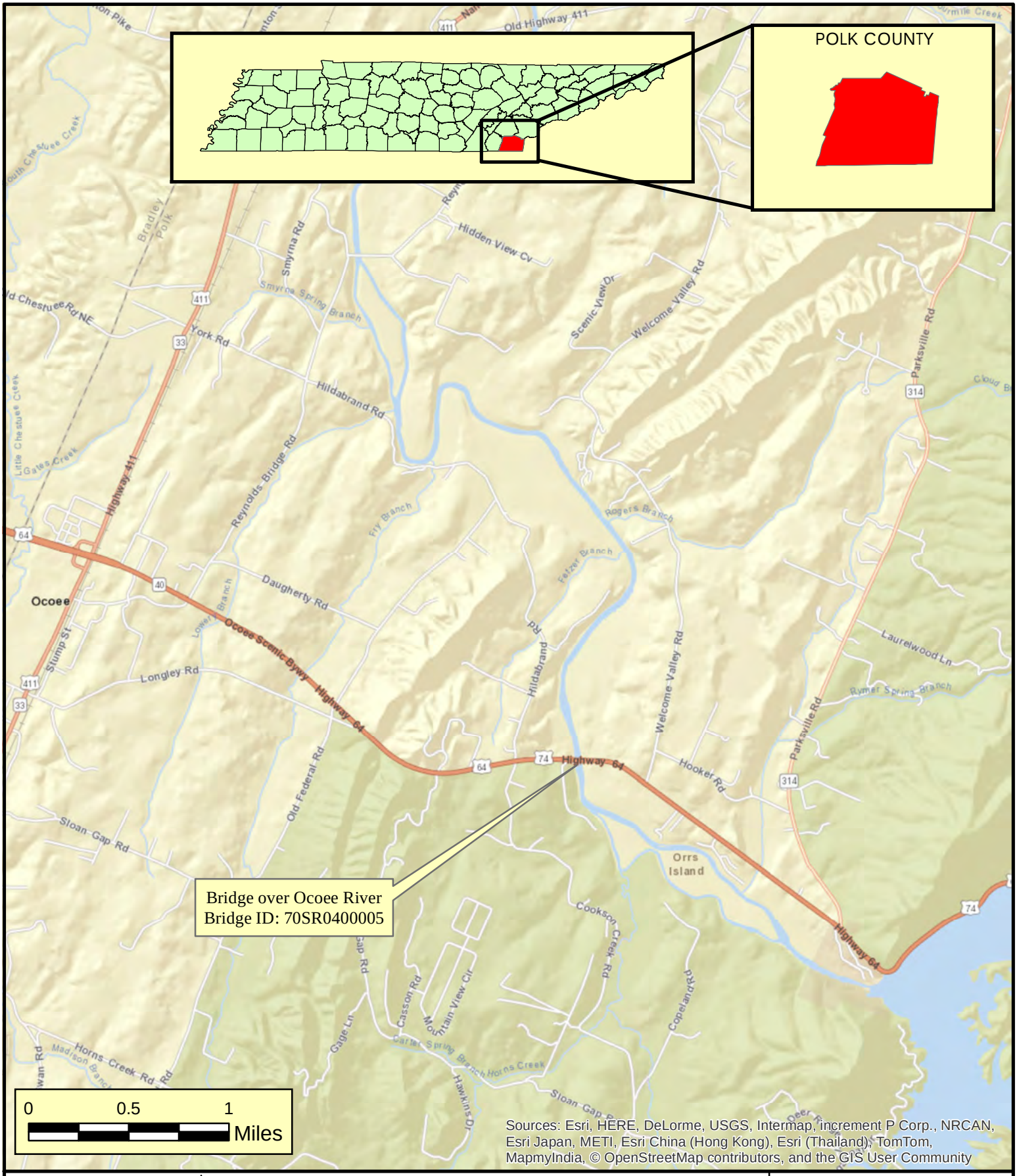
STATE ROUTE 40
Bridge (70SR0400005) over Ocoee River,
Log Mile 3.12 Polk County
PIN 124102.00

PREPARED BY ARCADIS U.S.
FOR THE
TENNESSEE DEPARTMENT OF TRANSPORTATION

Approved by [signature] *Date* 8.16.18 *Approved by* [signature] *Date* 8/16/18
Chief of Environment and Planning *Deputy Commissioner and Chief Engineer*

Approved by:	Signature	DATE
TRANSPORTATION DIRECTOR STRATEGIC TRANSPORTATION INVESTMENTS DIVISION	[signature]	8-14-18
ENGINEERING DIRECTOR REGION 2 PROJECT DEVELOPMENT DIVISION	Wesley Hughes	8-15-18
ENGINEERING DIRECTOR STRUCTURES DIVISION	[signature]	8/14/18

This document is covered by 23 USC § 409 and its production pursuant to fulfilling public planning requirements does not waive the provisions of § 409.



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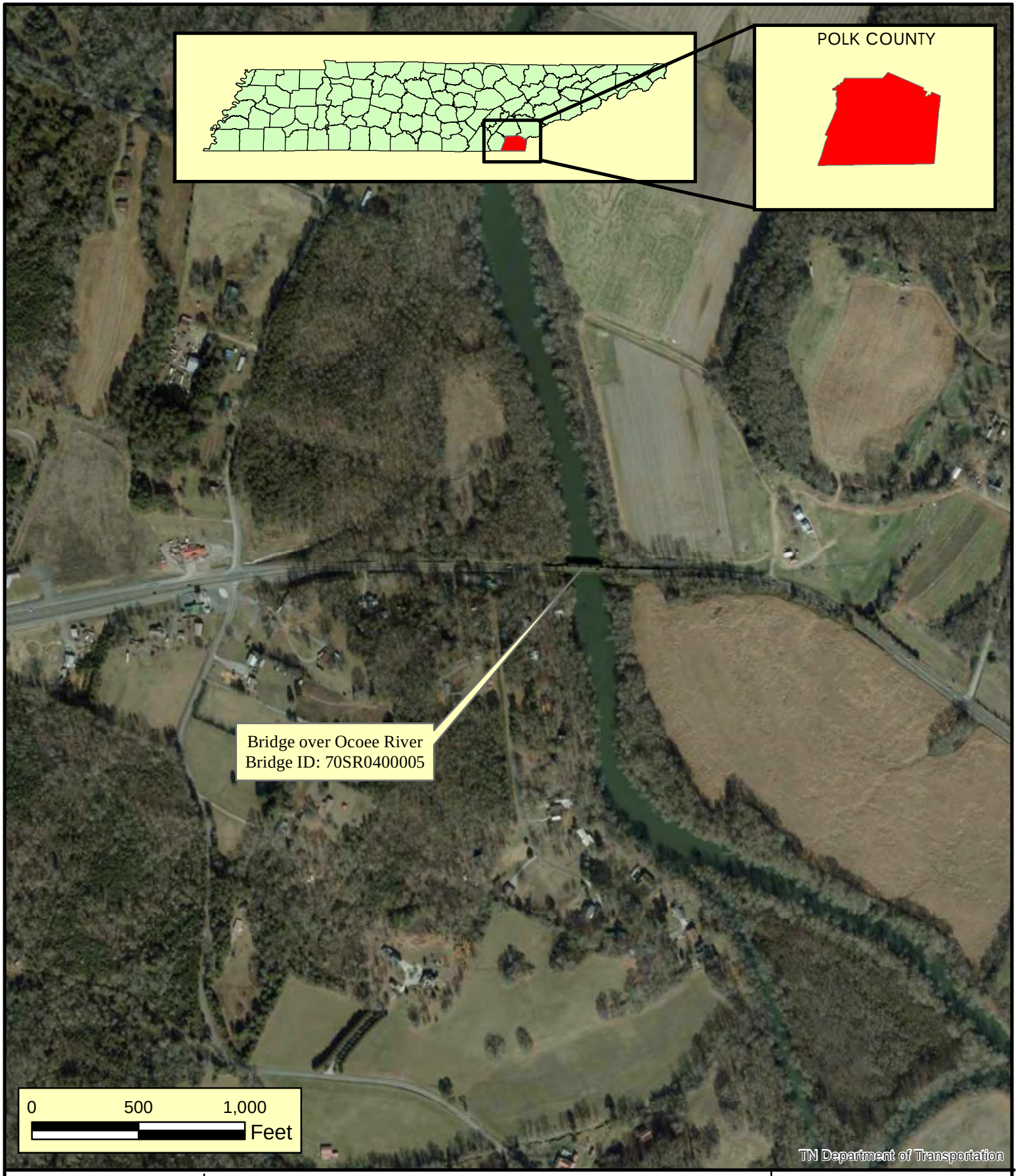
AREA MAP
STATE ROUTE 40 (US-64/74)
BRIDGE OVER OCOEE RIVER
LOG MILE 3.12
POLK COUNTY

TN TDOT Department of Transportation



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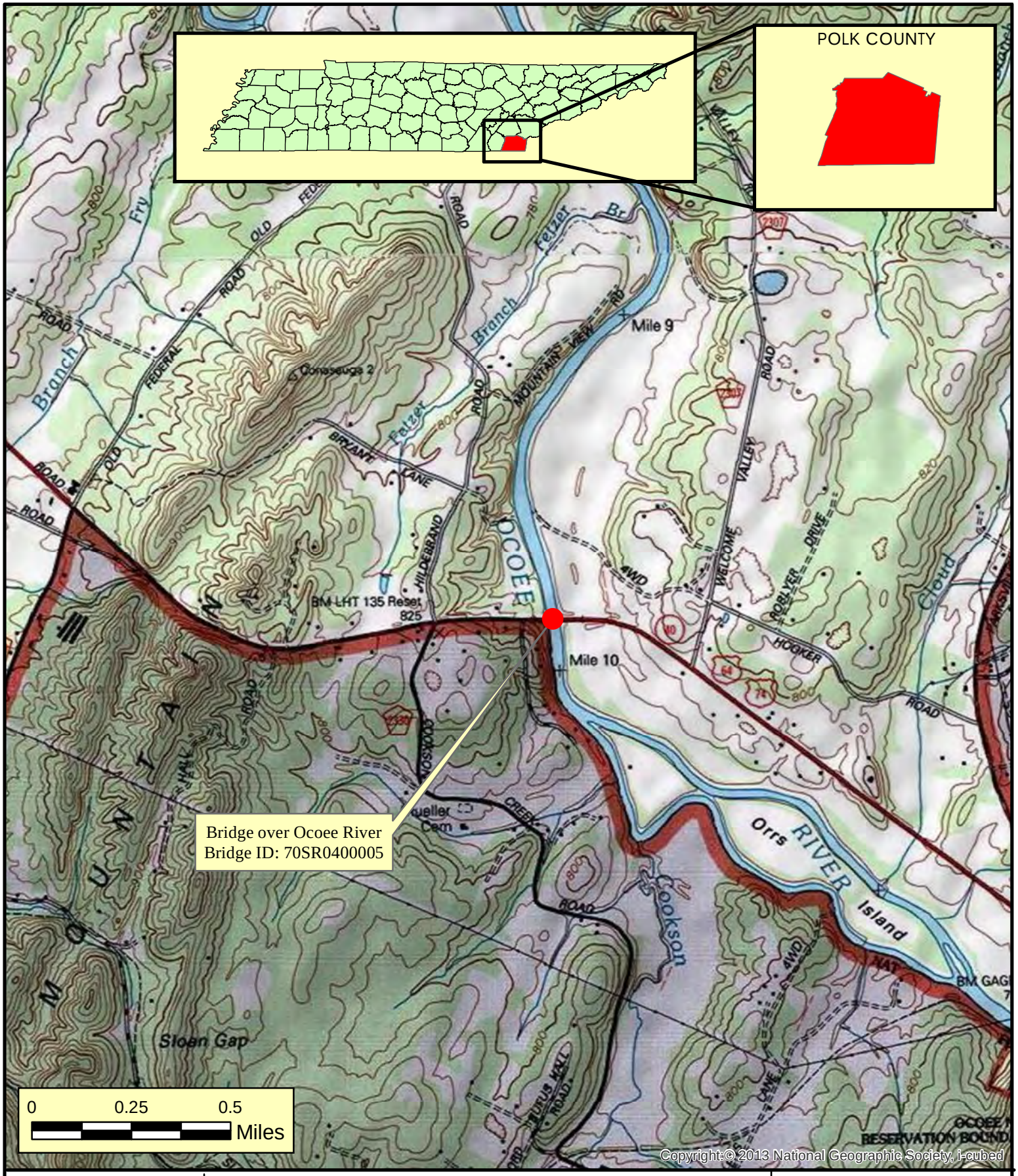
LOCATION MAP
STATE ROUTE 40 (US-64/74)
BRIDGE OVER OCOEE RIVER
LOG MILE 3.12
POLK COUNTY

TN TDOT Department of Transportation



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TOPOGRAPHIC MAP
STATE ROUTE 40 (US-64/74)
BRIDGE OVER OCOEE RIVER
LOG MILE 3.12
POLK COUNTY

TN TDOT Department of Transportation

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION
SUITE 1000, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TN 37243
(615) 741-2208

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

MEMORANDUM

TO: Steve Allen, Transportation Director
Strategic Transportation Investments Division

FROM: Emily Burgess, Transportation Project Specialist
Strategic Transportation Investments Division

DATE: August 8, 2018

SUBJECT: TIR Field Review
S.R. 40, Bridge over Ocoee River
Bridge ID: 70SR0400005
Log Mile 3.12
Polk County
PIN: 124102.00

A field review was held for the above-mentioned project on December 13, 2017.

The existing structure, built in 1937, is a six-span concrete bridge crossing the Ocoee River in Polk County. The bridge is 546 feet long with an out-to-out width of 27 feet 2 inches and a weight limit of 20 tons. The existing structure has several animal-related issues including barn owls, cliff swallows, snail darter (fish) and bats. As per the Bridge Inspection Report from April 20, 2016, the structure has a sufficiency rating of 32.9.

The discharges for the drainage basin were determined using StreamStats Version 3.0 which used a drainage area of 612.9 square miles. The 10-year discharge rate (Q10) was 33,000 cubic feet per second (cfs), Q50 was 46,200 cfs, and Q100 was 52,300 cfs.

The proposed alignment and grade for the replacement structure will shift to the north of the existing structure on a new alignment. Proposed alignments shown in this report are for graphical purposes only and are not a final horizontal alignment. The bridge will have a 90-degree skew with the river channel. There is a 45 mph posted speed limit on S.R. 40 however the design speed will be 55 mph. The proposed structure will be a four-span steel I-beam structure

with a total length of 570 feet including a 210 foot main span over the river and a 120 foot span on the west end and two (2) 120 foot spans on the east end. FEMA regulations apply to this structure. It is estimated that two (2) tracts of land will be affected resulting in 5.27 acres of estimated ROW.

The route has a base year 2022 AADT of 5,790 and a design year 2042 AADT of 6,950. The existing structure and roadway approaches have two (2) twelve (12) foot travel lanes with less than one (1) foot shoulders. The state route is classified as a Rural Principal Arterial and Standard Drawing RD01-TS-3 was used for design considerations. The typical section on the proposed structure will consist of two (2) twelve (12) foot travel lanes and a twelve (12) foot two-way left turn lane with shoulder widths of 10 feet and concrete parapets for a total out-to-out width of 57'- 3" on the structure. The project will extend approximately to the intersection of S.R. 40 and Hildebrand Road to the west and will extend to approximately the intersection of S.R. 40 and Welcome Valley Road to the east in order to tie the roadway back in to existing roadway. This structure should be configured in a way so that it could be widened in the future to a five (5) lane facility. No detours or phasing will be required. The existing structure and roadway will remain open to traffic until completion of the proposed structure and realignment of S.R. 40 after which the existing approach roadway and structure will be removed.

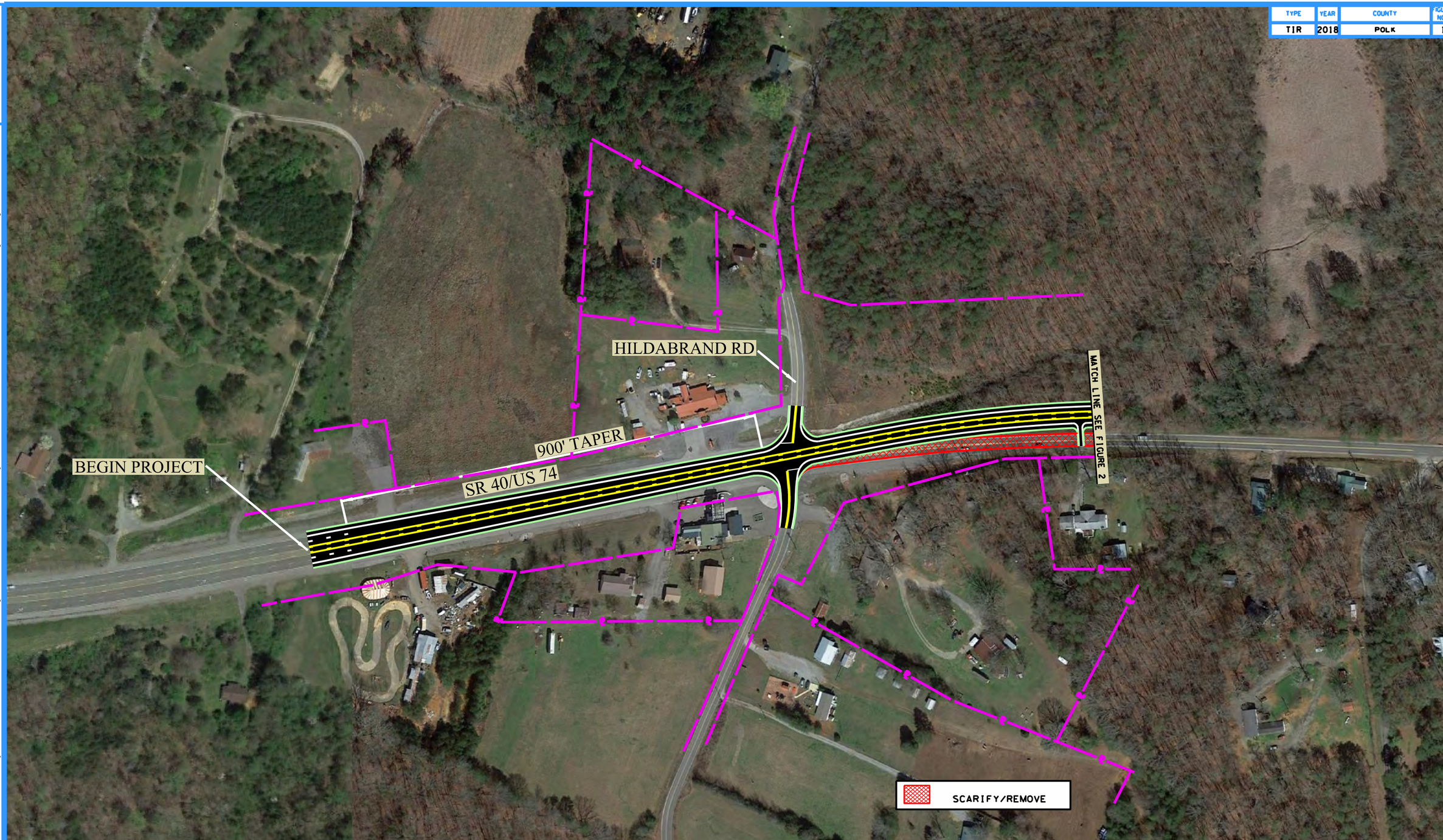
The cost for the estimated required approach work, estimated replacement, and estimated preliminary engineering for this bridge replacement is approximately $19,603,000.

EB

cc: File

TENNESSEE D.O.T.
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION
FILE NO.

TYPE	YEAR	COUNTY	FIGURE NO.
TIR	2018	POLK	1



0' 200' 400' 600'

N

BRIDGE TIR

STATE ROUTE 40
US 74
L.M. 3.12
POLK COUNTY

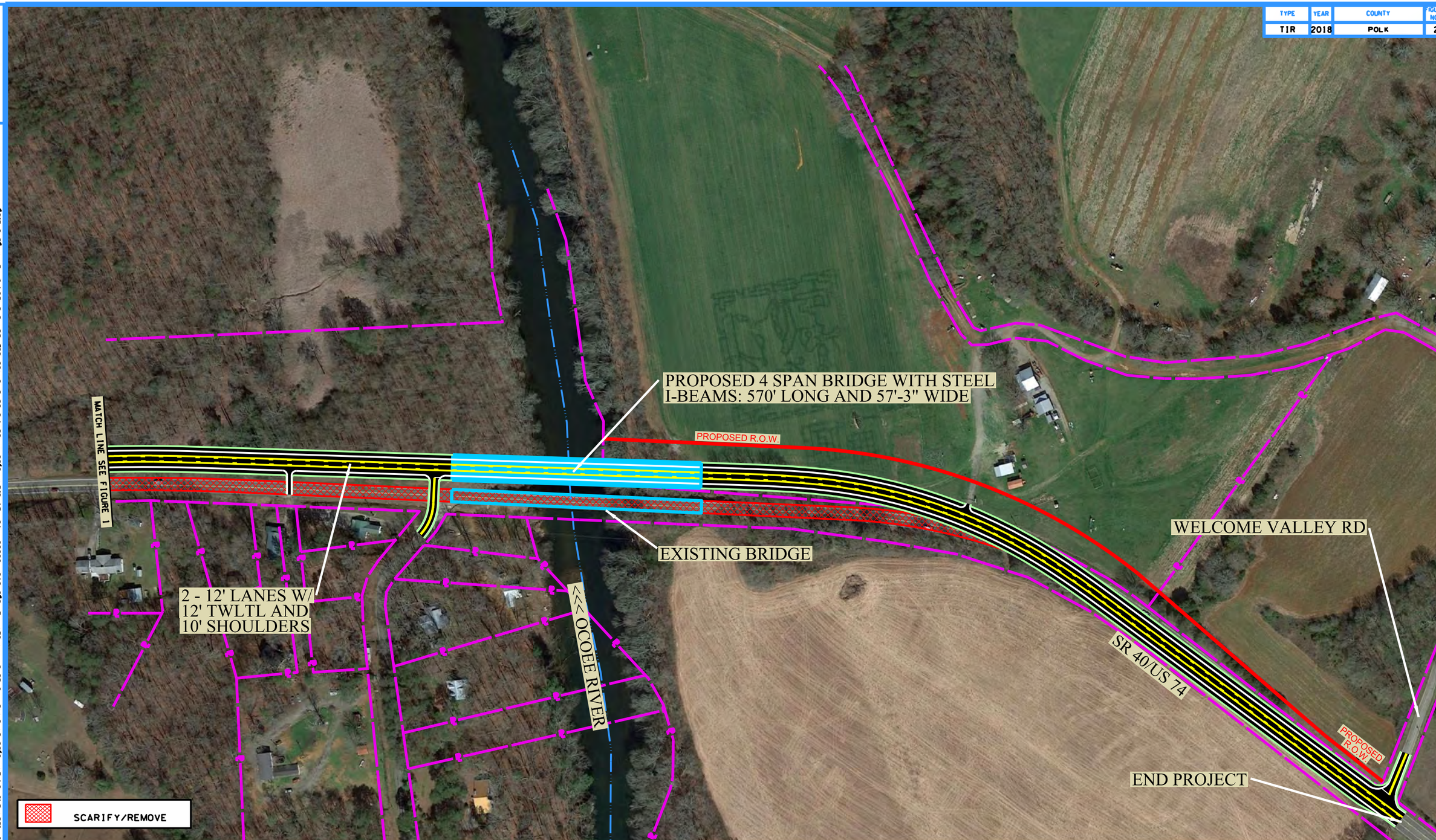
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION
INVESTMENTS DIVISION

FIGURE 1
SR 40
L.M.3.12

8/8/2018 9:56:17 AM
\\AG03SDCWF00008.net.ads.state.tn.us\FUNCTIONAL\Projects\Polk\SR 40 US 64 74\POLK - Bridge over Ocoee River LM 3.12\Project Files\Microstation\ConceptualPlans (DGN & PDF)\Figure 1.dgn

TENNESSEE D.O.T.
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION
FILE NO.

TYPE	YEAR	COUNTY	FIGURE NO.
TIR	2018	POLK	2



0' 200' 400' 600'

N

BRIDGE TIR

STATE ROUTE 40
US 74
L.M. 3.12
POLK COUNTY

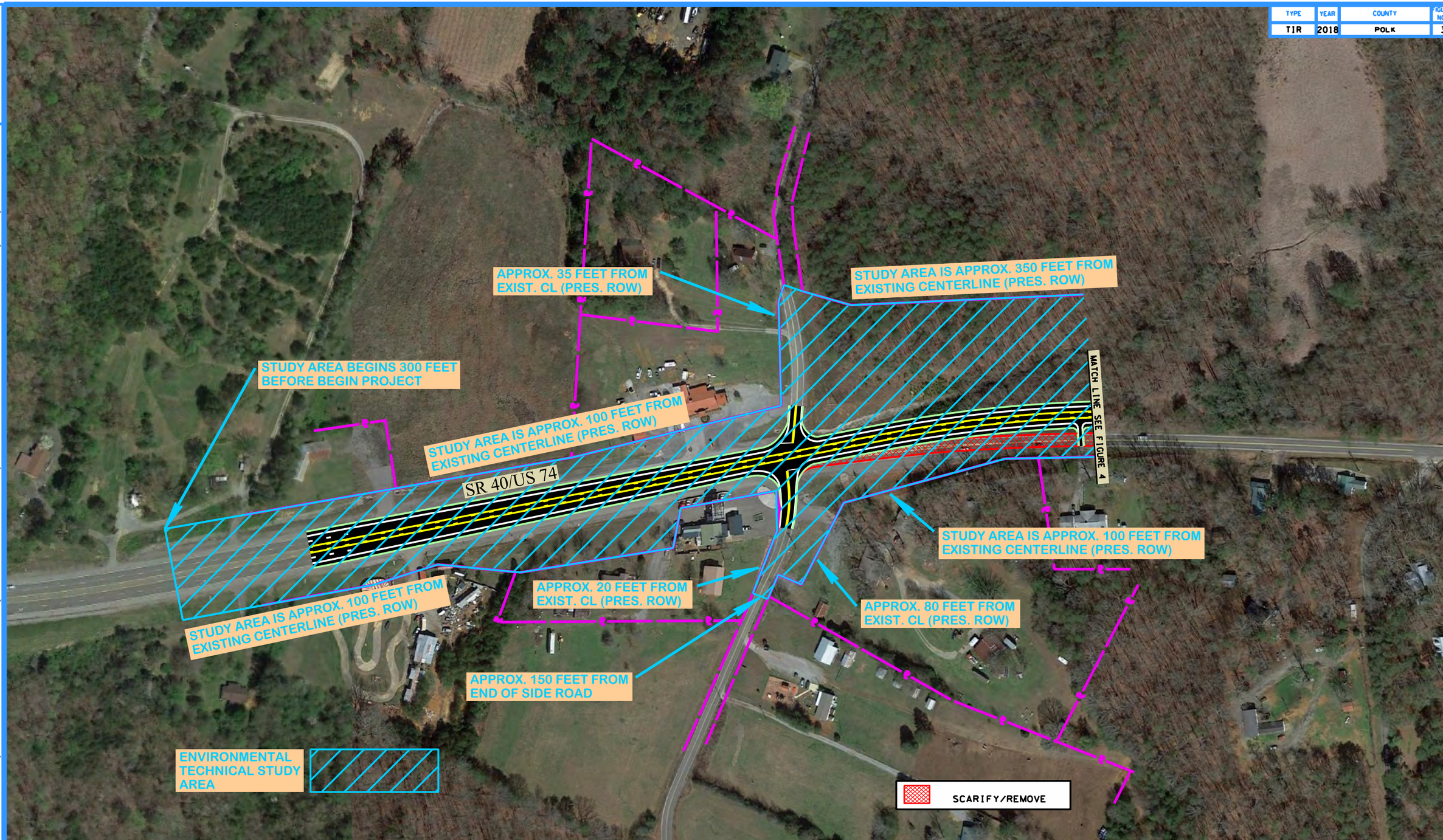
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION

FIGURE 2
SR 40
L.M.3.12

8/8/2018 10:30:28 AM
\\AD0350CWF00008.net.dot.state.tn.us\FUNCTIONAL\Projects\Polk\SR 40 US 64 74\POLK - Bridge over Ocoee River LM 3.12\Project Files\Microstation\Conceptual\Plans 100% & PDF\Figure 2.dgn

TENNESSEE D.O.T.
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION
FILE NO.

TYPE	YEAR	COUNTY	FIGURE NO.
TIR	2018	POLK	3



0' 200' 400' 600'

N

ENVIRONMENTAL TECHNICAL STUDY AREA

STATE ROUTE 40
US 74
L.M. 3.12
POLK COUNTY

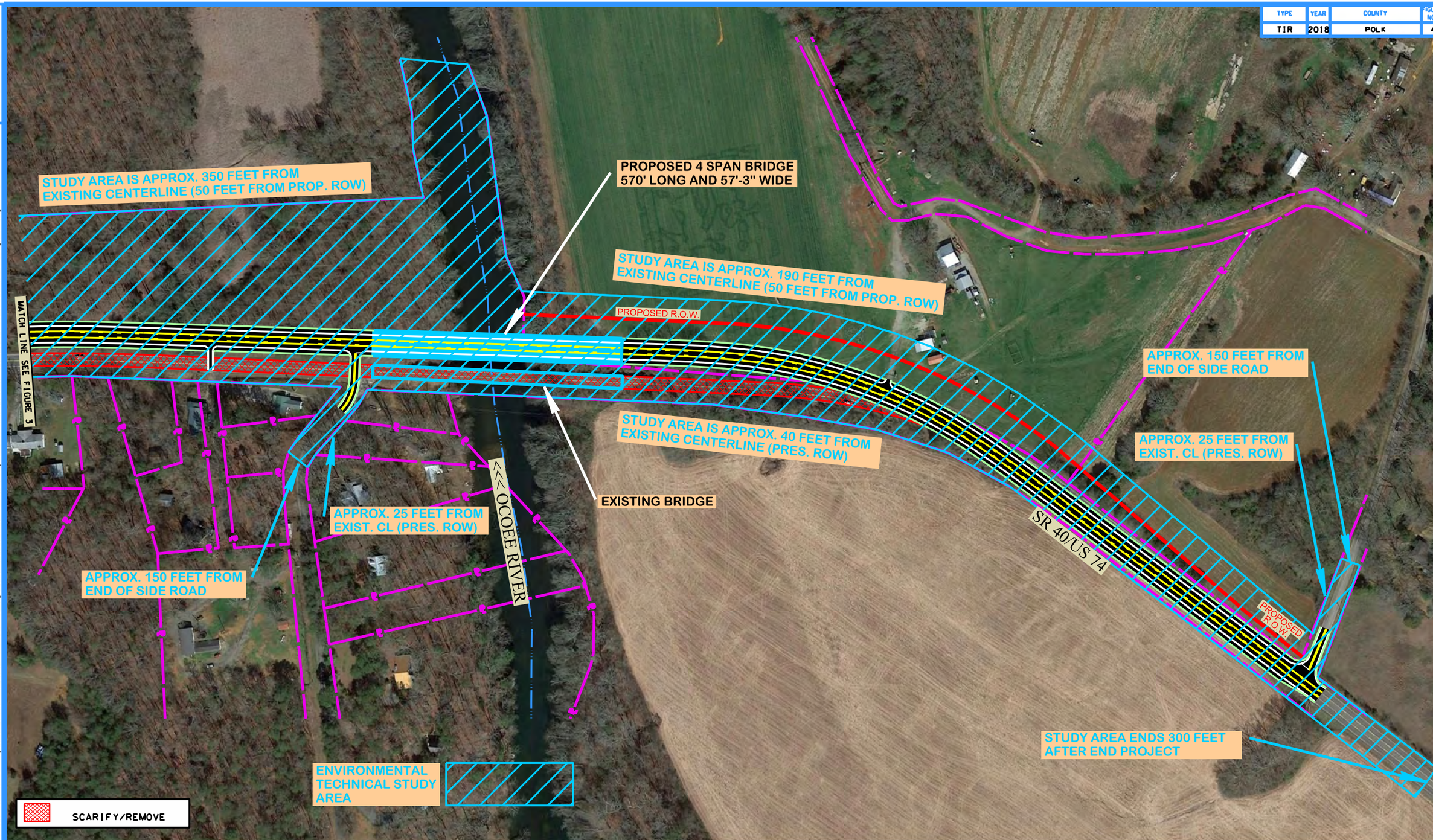
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION

FIGURE 3
SR 40
L.M.3.12

8/8/2018 10:40:50 AM
\\AG03SDCWF00008.net.ads.state.tn.us\FUNCTIONAL\Projects\Polk\SR 40 US 64 74\POLK - Bridge over Ocoee River LM 3.12\Project Files\Microstation\ConceptualPlans (DGN & PDF)\Figure 3.dgn

TENNESSEE D.O.T.
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION
FILE NO.

TYPE	YEAR	COUNTY	FIGURE NO.
TIR	2018	POLK	4



0' 200' 400' 600'

N

ENVIRONMENTAL TECHNICAL STUDY AREA

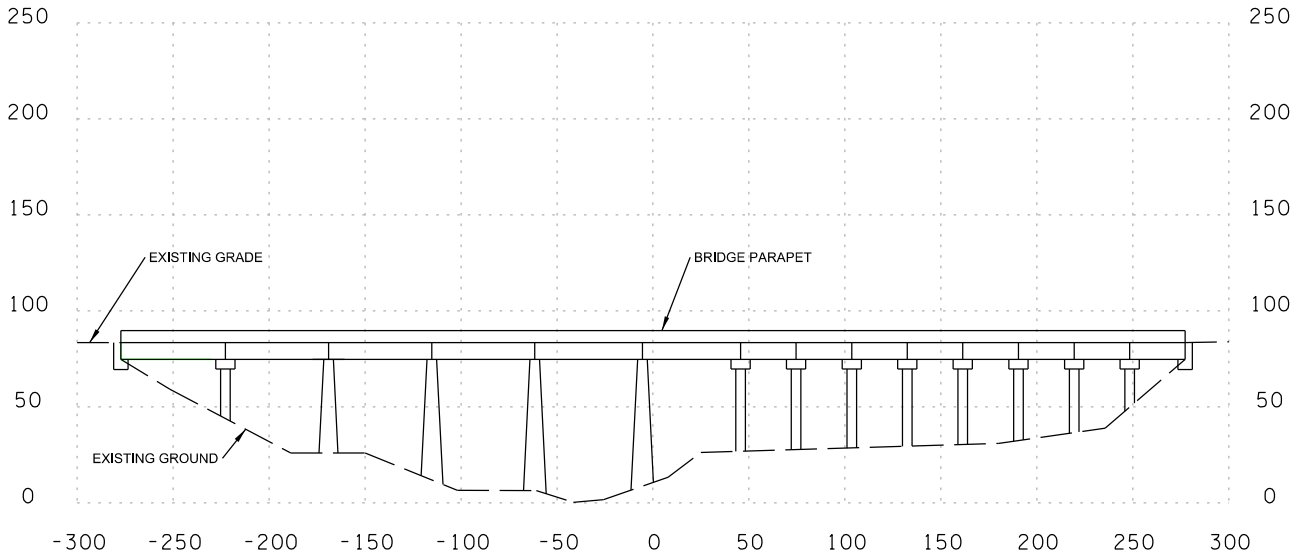
STATE ROUTE 40
US 74
L.M. 3.12
POLK COUNTY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION

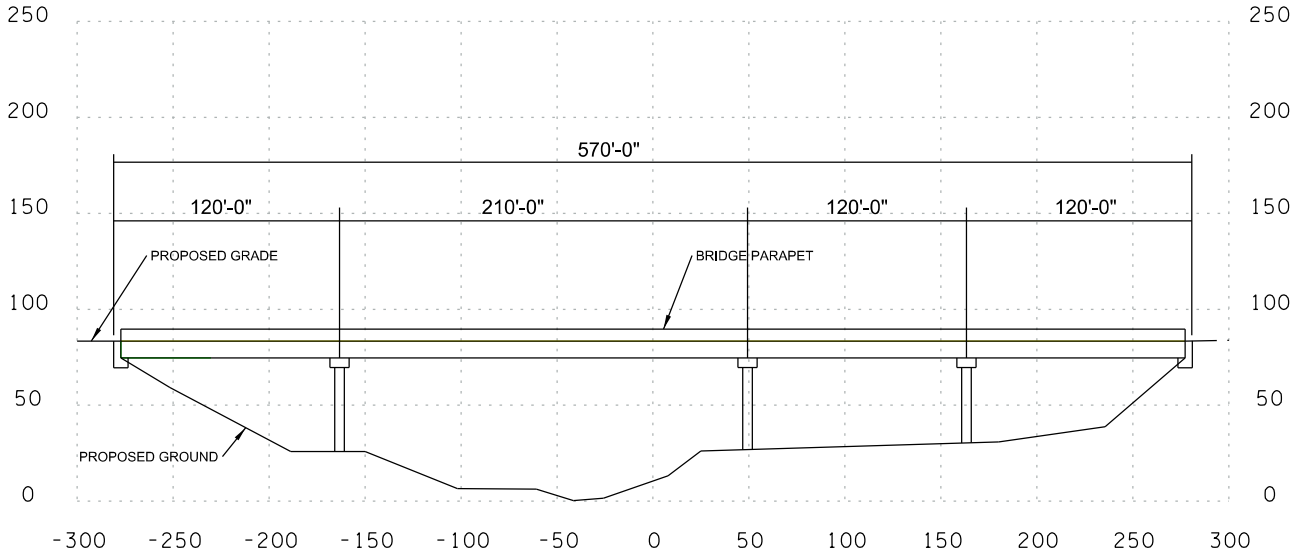
FIGURE 4
SR 40
L.M.3.12

8/13/2018 2:03:35 PM
\\AG03SOCWF00008.net.ads.state.tn.us\FUNCTIONAL\Projects\Polk\SR 40 US 64 74\POLK - Bridge over Ocoee River LM 3.12\Project Files\Microstation\ConceptualPlans (DGN & PDF)\Figure 4.dgn

EXISTING STRUCTURE



PROPOSED STRUCTURE

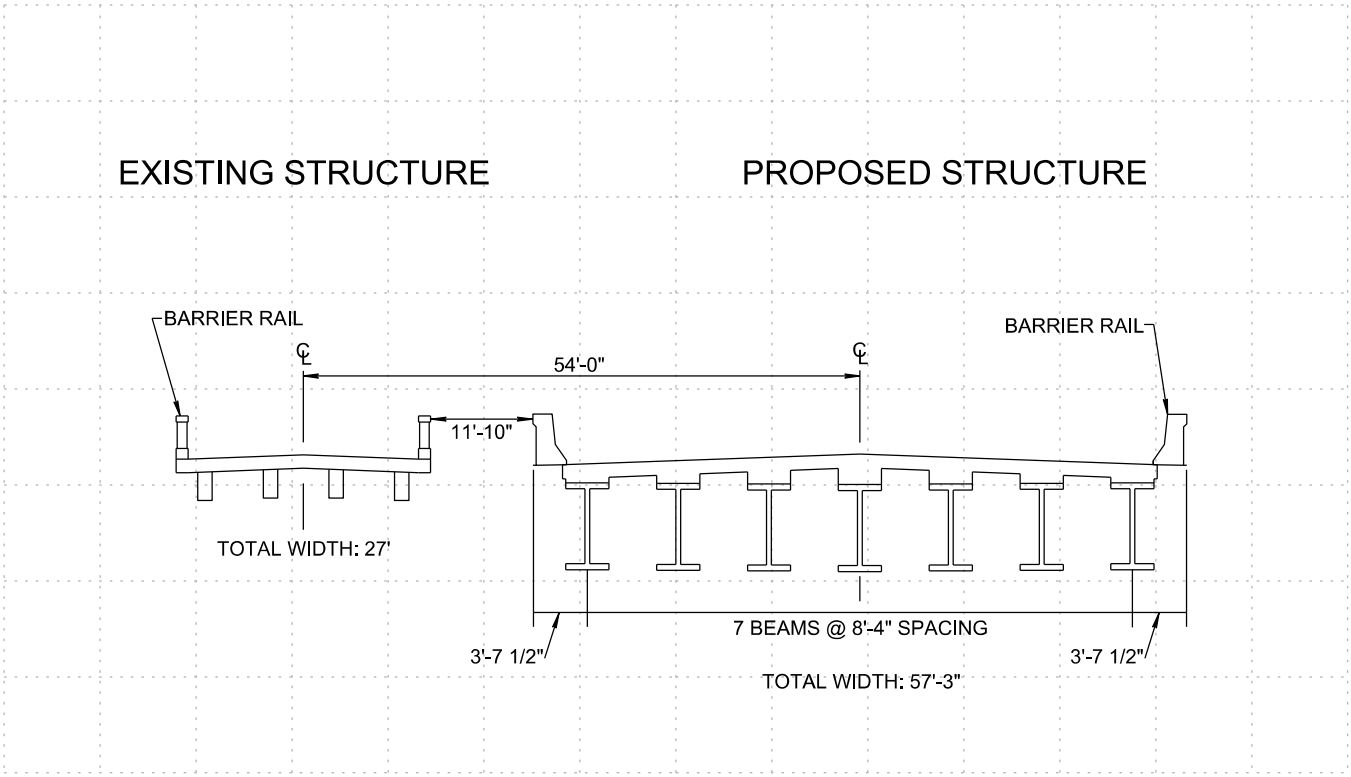


0' 50' 100' 150'

SCALE: 1" = 100'

PROPOSED PROFILE

STATE ROUTE 40
BRIDGE OVER OCOEE RIVER, L.M. 3.12
BRIDGE ID: 70SR0400005
POLK COUNTY, TN



0 10 20 30

SCALE: 1"= 20' H
1"= 10' V

PROPOSED TYPICAL SECTION

STATE ROUTE 40
BRIDGE OVER OCOEE RIVER, L.M. 3.12
BRIDGE ID: 70SR0400005
POLK COUNTY, TN

COST ESTIMATE SUMMARY

Route:	SR 40
Description:	Bridge over Ocoee River
County:	Polk
Length:	0.85 mi
Date:	August 8, 2018

DESCRIPTION	LOCAL 0%	STATE 0%	FEDERAL 0%	TOTAL
Construction Items				
Pavement Removal	$0	$0	$0	$104,200
Asphalt Paving	$0	$0	$0	$1,810,700
Concrete Pavement	$0	$0	$0	$0
Drainage	$0	$0	$0	$141,400
Appurtenances	$0	$0	$0	$0
Structures	$0	$0	$0	$8,471,100
Fencing	$0	$0	$0	$0
Signalization	$0	$0	$0	$0
Railroad Crossing or Separation	$0	$0	$0	$0
Earthwork	$0	$0	$0	$1,463,200
Clearing and Grubbing	$0	$0	$0	$0
Seeding & Sodding	$0	$0	$0	$44,000
Rip-Rap or Slope Protection	$0	$0	$0	$0
Guardrail	$0	$0	$0	$75,100
Signing	$0	$0	$0	$12,100
Pavement Markings	$0	$0	$0	$27,800
Maintenance of Traffic	$0	$0	$0	$162,000
Mobilization (5%)	$0	$0	$0	$615,600
Other Items = 15%	$0	$0	$0	$1,939,100
Const. Contingency = 25%	$0	$0	$0	$1,598,800
Construction Estimate	$0	$0	$0	$16,465,100
Interchanges & Unique Intersections				
Roundabouts	$0	$0	$0	$0
Interchanges	$0	$0	$0	$0
Right-of-Way & Utilties	**LOCAL 0%**	**STATE 0%**	**FEDERAL 0%**	**TOTAL**
Right-of-Way	$0	$0	$0	$29,500
Utilities	$0	$0	$0	$0
Preliminary & Construction Engineering and Inspection				
Prelim. Eng. 9%	$0	$0	$0	$1,459,000
Const. Eng. & Inspec. 10%	$0	$0	$0	$1,649,500
Total Project Cost	$0	$0	$0	$ 19,603,000

PAY ITEM SUMMARY

TDOT PAY ITEM	TDOT DESCRIPTION	UNIT	TOOL QUANTITIES	ADDITIONAL QUANTITIES	TOOL QUANTITIES + ADDITIONAL QUANTITIES	Statewide UNIT COST	TOTAL COST
Pavment Removal							
202-03.01	Removal of Asphalt Pavement	SY	4428		4428	$ 23.51	$ 104,113.74
						PAVEMENT REMOVAL TOTAL (ROUNDED)	$ 104,200
Asphalt Roads							
303-01	Mineral Aggregate, Type A Base, Grading D	TON	25907		25907	$ 29.27	$ 758,426.31
307-02.01	Asphalt Concrete Mix (PG70-22) (BPMB-HM) Grading A	TON	3461		3461	$ 96.16	$ 332,805.20
307-02.02	Asphalt Cement (PG70-22)(BPMB-HM) Grading A-S	TON	81		81	$ 725.60	$ 58,961.99
307-02.03	Aggregate (BPMB-HM) Grading A-S Mix	TON	2627		2627	$ 70.87	$ 186,215.32
307-02.08	Asphalt Concrete Mix (PG70-22) (BPMB-HM) Grading B-M2	TON	2267		2267	$ 108.57	$ 246,143.57
402-01	Bituminous Material For Prime Coat (PC)	TON	33		33	$ 690.22	$ 22,774.05
402-02	Aggregate For Cover Material (PC)	TON	119		119	$ 61.15	$ 7,283.15
403-01	Bituminous Material For Tack Coat (TC)	TON	18		18	$ 770.60	$ 14,055.83
411-01.07	ACS (PG64-22) GR "E"	TON	303		303	$ 111.21	$ 33,666.44
411-02.10	ACS Mix(PG70-22) Grading D	TON	1329		1329	$ 113.07	$ 150,293.93
						PAVING TOTAL (ROUNDED)	$ 1,810,700
Concrete Roads							
						CONCRETE RAMPS AND ROADWAYS TOTAL (ROUNDED)	$ -
Drainage							
607-05.02	24" Concrete Pipe Culvert (Class III)	LF	704		704	$ 83.29	$ 58,595.55
611-07.01	Class A Concrete (Pipe Endwalls)	CY	27		27	$ 1,017.96	$ 27,861.56
611-07.02	Steel Bar Reinforcement (Pipe Endwalls)	LB	2601		2601	$ 2.27	$ 5,897.00
710.02	Aggregate Underdrains (with pipe)	LF	8976		8976	$ 5.46	$ 49,008.96
						DRAINAGE TOTAL (ROUNDED)	$ 141,400
Appurtenances							
						ROADWAY AND PAVEMENT APPURTENANCES TOTAL (ROUNDED)	$ -
Earthwork & Mineral							
105-01	Constrction Stakes, Lines, and Grades	LS	1		1	$ 112,407.96	$ 112,407.96
203-01	Road & Drainage Excavation (Unclassified)	CY	46980		46980	$ 16.42	$ 771,357.84
203-03	Borrow Excavation (Unclassified)	CY	39150		39150	$ 14.80	$ 579,384.63
						EARTHWORK & MINERAL TOTAL (ROUNDED)	$ 1,463,200
Structures							
N/A	Removal of Bridge	SF	15288		15288	$ 20.00	$ 305,760.00
N/A	New Bridge (Steel Girder):	SF	32661		32661	$ 250.00	$ 8,165,250.00
						STRUCTURES TOTAL (ROUNDED)	$ 8,471,100
Interchanges and Unique Intersections							
						INTERCHANGES AND UNIQUE INTERSECTIONS TOTAL (ROUNDED)	$ -
Lighting & Signalization							
						LIGHTING & SIGNALIZATION TOTAL (ROUNDED)	$ -
Guardrail							
705-01.01	Guardrail at Bridge Ends	LF	100		100	$ 73.64	$ 7,364.49
705-02.02	Single Guardrail (Type 2)	LF	2468		2468.4	$ 18.54	$ 45,757.27
705-04.07	Tan Energy Absg Term (NCHRP, 350, TL3)	EA	6		6	$ 2,350.94	$ 14,105.65
705-04.09	Earth Pad for Type 38 GR End Treatment	EA	6		6	$ 1,297.93	$ 7,787.58
						GUARDRAIL TOTAL (ROUNDED)	$ 75,100
Seeding and Sodding							
801-01	Seeding (With Mulch)	UNIT	393		393	$ 70.00	$ 27,489.77
801-01.07	Temporary Seeding (With Mulch)	UNIT	295		295	$ 29.21	$ 8,602.36
801-02	Seeding (Without Mulch)	UNIT	295		295	$ 26.65	$ 7,848.59
						SODDING TOTAL (ROUNDED)	$ 44,000
Maintenace of Traffic							
N/A	Traffic Control	LS	1		1		$ 154,766.88
712-02.02	Interconnected Portable Barrier Rail	LF	224		224	$ 31.95	$ 7,170.64
						MAINTENANCE OF TRAFFIC TOTAL (ROUNDED)	$ 162,000
Signs							
Not Listed	Signs (Construction)	LS	1		1	$ -	$ 12,100
						SIGNING TOTAL (ROUNDED)	$ 12,100
Pavement Markings							
716-13.06	Spray Thermo P.M. (40 mil 4")	LM	9.8		9.8	$ 2,826.07	$ 27,752.00
						PAVEMENT MARKINGS TOTAL (ROUNDED)	$ 27,800
Fencing							
						FENCE TOTAL (ROUNDED)	$ -
Rip-Rap							
						RIP-RAP & SLOPE PROTECTION TOTAL (ROUNDED)	$ -
Clearing and Grubing							
						CLEAR AND GRUBBING TOTAL (ROUNDED)	$ -
Railroad At-Grade Crossing							
						RAILROAD CROSSING OR SEPARATION TOTAL (ROUNDED)	$ -
Utilties							
						UTILITIES TOTAL (ROUNDED)	$ -
Right-of-Way							
N/A	Right-of-Way	LS	1		1	$ 29,427.27	$ 29,427.27
						RIGHT-OF-WAY TOTAL (ROUNDED)	$ 29,500.00

BRIDGE TIR

LOCATION			
Bridge #:	70SR0400005	Feature Crossed:	Ocoee River
Road Name:	SR 40	Log mile:	3.12
Route ID:	SR 40	System:	State Route
City:	Ocoee	Functional Class:	Rural Principle Arterial
County:	Polk		
PIN:	124102.00		

ROADWAY		
	Existing	**Proposed (Preliminary Design Estimate)**
Design Standard		RD01-TS-3
Route Characteristics		
AADT:	6390	6950
AADT Year:	2016	2042
Terrain:	Rolling	Rolling
No. Lanes:	2	3
Speed(Posted):	45	45
Speed (Design):		55
Approach Character.		
Lane Width (ft):	12	12 ft lanes with 12 ft TWLTL
Shoulder Width (ft):	0	10
ROW Width (ft):	Varies 70-425	Varies 100-425
ROW Tracts Affected		2
ROW Required (acre)		5.27
Cross Section Width (ft):	24/24/70-425	36/56/100-425
Approach Length (ft):		0.43 mi (west), 0.33 mi (east)
Alignment:	Tangent	*New Alignment
Grade:		N/A
Surface Material:	Asphalt overlaying concrete deck	Concrete deck
Sidewalks (R/L):	No	No
App. Lower Than Structure	No	No
Utilities (list)	UG: Water, Gas OH: Electric, Telephone	
Utilities to be Relocated		
Comments	No utilities are attached to the structure	*Note: The proposed alignment shown in this report is for graphical purposes only and is not a final horizontal alignment.

BRIDGE TIR

STRUCTURE		
	Existing	**Proposed (Preliminary Design Estimate)**
Bridge Characteristics		
Year Built	1937	
Load Limit	20	
Sufficiency Rating	32.9	
Skew	90	90
Structure Type	Concrete T-beam	Steel I-beam
Structures in Channel	Yes	No
Length (ft)	546	570
No. Spans (App./Main)	8 | 6	3 | 1
Width (curb to curb) (ft)	23'-11"	56'
Width (o to o) (ft)	27'-2"	57'-3"
Sidewalks on Structure	No	No
Vert. Clearance (ft)	N/A	N/A
Superstructure Depth (in)	N/A	N/A
Girder Depth (in)	N/A	N/A
Finish Grade-Low Girder (in)	N/A	N/A
High Water Marks	No	
Bridge Rail Type	Concrete Parapet	Concrete Parapet
Bridge Rail Height (ft)	3	3
Indication Overtopping	No	
Local Scour	N/A	
Obstructions	No	
Other Structures		
Comments		Main span 210' and approach spans of 120'. FEMA regulations apply.

BRIDGE TIR

FLOW RATES (from USGS StreamStats Program Version 3)	
Drainage Area (sq. miles)	612.9
10 Year Discharge Rate (Q10) cfs	33000
50 Year Discharge Rate (Q50) cfs	46200
100 Year Discharge Rate (Q100) cfs	52300

CHANNEL	
Depth (ft)	N/A
Width of Normal Flow (ft)	180
Depth of Normal Flow (ft)	N/A
Skew of Channel with Roadway	80 degrees
Type of Material in Stream Bed	rock, gravel, boulders
Type of Vegetation on Banks	low growth, large timber
Are Channel Banks Stable	Moderate bank erosion
Signs of Stream Aggradation	No
Signs of Stream Degradation	No
Drift or Drift Potential	Yes
Comments	

FLOODPLAIN	
Skew Same as Channel	Yes
Symmetrical About Channel	Yes
Approx. Floor Elevations	N/A
Type of Vegetation in Floodplain	low growth, large timber
Any Buildings in Floodplain	Yes
Flood Information From Locals	N/A
Comments	

MAINTENANCE OF TRAFFIC	
Method of Maintaining Traffic	Stage Construct
Description	Existing structure to remain open during construction while proposed structure is constructed north of the existing structure on new alignment. Future bicycle/pedestrian plans may utilize the existing structure (To Be Determined).
Comments	

TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION

PROJECT NO.: 70068-0211-94 ROUTE: S.R. 40
COUNTY: POLK CITY: OCOEE
PROJECT PIN NUMBER: 124102.00
PROJECT DESCRIPTION: BRIDGE OVER OCOEE RIVER @ L.M. 3.12. (DESIGN BUILD)

BRIDGE ID: 70SR0400005

DIVISION REQUESTING:

		PAVEMENT DESIGN	☐
MAINTENANCE	☐	STRUCTURES	☐
S.T.I.D.	☒	SURVEY & ROADWAY DESIGN	☐
PROG. DEVELOPMENT & ADM.	☐	TRAFFIC SIGNAL DESIGN	☐
PUBLIC TRANS. & AERO.	☐	OTHER	☐

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION:
PROJECTED LETTING DATE:

TRAFFIC ASSIGNMENT:

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
5,790	2022	6,950	695	10	2042	65-35	6	9		

REQUESTED BY: NAME EMILY BURGESS DATE 11/3/17
DIVISION S.T.I.D.
ADDRESS 1000 J. K. POLK BUILDING
NASHVILLE TN 37243

REVIEWED BY: TONY ARMSTRONG Tony Armstrong DATE 11-28-17
TRANSPORTATION MANAGER I
SUITE 1000, JAMES K. POLK BUILDING

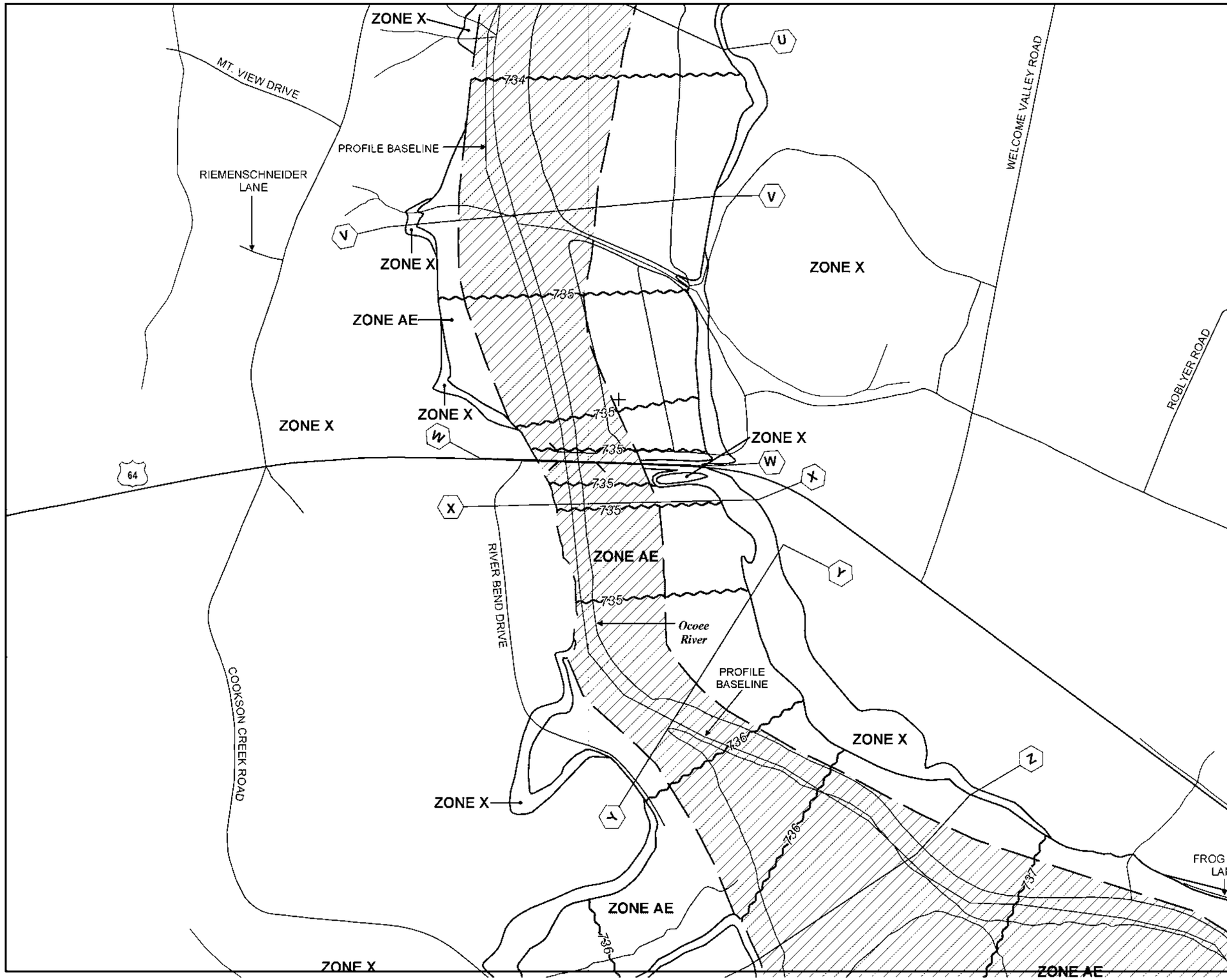
APPROVED BY: JIM WATERS DATE 11/29/17
ASSISTANT DIRECTOR
SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

THIS TRAFFIC WAS TAKEN FROM A PREVIOUS PROJECT PREPARED FOR THE ENVIRONMENTAL DIVISION DATED 10/17/2017.

DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.

NOTE: FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.
SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS. (REV. 2/22/17)



MAP SCALE 1" = 500'

0 500 1000 FEET

0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0206F

FIRM

FLOOD INSURANCE RATE MAP

POLK COUNTY, TENNESSEE

AND INCORPORATED AREAS

PANEL 206 OF 425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
POLK COUNTY	473261	0206	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
47139C0206F

EFFECTIVE DATE
MAY 18, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

StreamStats Version 3.0

Basin Characteristics Ungaged Site Report

Date: Tues Jan 9, 2018 2:04:02 PM GMT-5
Study Area: Tennessee
NAD 1983 Latitude: 35.1115 (35 06 41)
NAD 1983 Longitude: -84.6746 (-84 40 29)

Label	Value	Units	Definition
DRNAREA	612.9	square miles	Area that drains to a point on a stream

Accessibility FOIA Privacy Policies and Notices
U.S. Department of the Interior | U.S. Geological Survey
URL: http://streamstatsags.cr.usgs.gov/v3_beta/BCreport.htm
Page Contact Information: StreamStats Help
Page Last Modified: 12/06/2016 22:50:12 (Web1)
Streamstats Status News

StreamStats Version 3.0

Flow Statistics Ungaged Site Report

Date: Tues Jan 9, 2018 2:05:47 PM GMT-5
Study Area: Tennessee
NAD 1983 Latitude: 35.1115 (35 06 41)
NAD 1983 Longitude: -84.6746 (-84 40 29)
Drainage Area: 613 mi2

Peak Flow Region Basin Characteristics			
100% MultiVariable Area 1 (613 mi2)			
Parameter	**Value**	**Regression Equation Valid Range**	
		Min	**Max**
Contributing Drainage Area (square miles)	613	0.2	9000
Stream Slope 10 and 85 Method (feet per mi)	14.81	3.29	950
Tennessee Climate Factor 2 Year (dimensionless)	2.322 (above max value 2.32)	2.06	2.32

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Low-flow Regions Basin Characteristics			
100% Low Flow Central and East Regions 2009 5159 (613 mi2)			
Parameter	**Value**	**Regression Equation Valid Range**	
		Min	**Max**
Drainage Area (square miles)	613	1.3	14441
Recession Index (days per log cycle)	143	32	175
2 Yr climate factor LK1990 (dimensionless)	2.322	2.056	2.46
Average Soil Permeability (inches per hour)	2.855	0.45	9.72
Percent permeability gte 2 in per hr (percent)	55.902	2	100

Peak Flow Region Statistics						
Statistic	**Value**	**Unit**	**Prediction Error (percent)**	**Equivalent years of record**	**90-Percent Prediction Interval**	
					Min	**Max**
PK2	18500	ft3/s				
PK5	27100	ft3/s				
PK10	33000	ft3/s				
PK25	40600	ft3/s				
PK50	46200	ft3/s				
PK100	52300	ft3/s				
PK500	66300	ft3/s				

http://pubs.usgs.gov/wri/wri034176/ (http://pubs.usgs.gov/wri/wri034176/)
Law_ G.S._ and Tasker G.D._ 2003_ Flood-Frequency Prediction Methods for Unregulated Streams of Tennessee_ 2000: U.S. Geological Survey Water-Resources Investigations Report 03-4176_ 79p.

Low-flow Regions Statistics						
Statistic	**Value**	**Unit**	**Prediction Error (percent)**	**Equivalent years of record**	**90-Percent Prediction Interval**	
					Min	**Max**
M7D10Y	160	ft3/s	89			
M30D5Y	205	ft3/s	70			
QA	1140	ft3/s	26			
MNSUMMER	649	ft3/s	43			
D99 5	153	ft3/s	86			

D99	164	ft3/s	78			
D98	183	ft3/s	72			
D95	220	ft3/s	66			
D90	268	ft3/s	60			
D80	343	ft3/s	54			
D70	423	ft3/s	51			
D60	521	ft3/s	49			
D50	667	ft3/s	43			
D40	870	ft3/s	36			
D30	1140	ft3/s	28			
D20	1480	ft3/s	23			
D10	2300	ft3/s	21			

http://pubs.usgs.gov/sir/2009/5159/ (http://pubs.usgs.gov/sir/2009/5159/)
Law_ G.S._ Tasker_ G.D._ and Ladd_ D.E._ 2009_ Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009-5159_ 212 p._ 1 pl.

TN TDOT Department of Transportation

Date: 12/13/2017 at 9:30AM EST

Meeting Location: * SR 40 Polk County

Project:

RE: Transportation Investment Report (TIR) Field Review

	Name	Organization	Phone	Email
1	GARY CHAPMAN	TDOT Reg 2 Survey	423-510-1144	gary.chapman@tn.gov
2	BARRY McCLENDON	TDOT R2 SURVEY	423-510-1240	robert.mcclendon@tn.gov
3	JOSEPH DELORENZO	TDOT R2 DESIGN	423-634-7525	joseph.delorenzo@tn.gov
4	Ryan Stinton	Arcadis	865 824 8679	ryan.stinton@arcadis.com
5	Colby Mann	TDOT	423-510-1225	Colby.Mann@tn.gov
6	Brandon Chance	TDOT R2 Env. Tech office	931 520-2418	K.Brandon.Chance@TN.gov
7	Don Vanhook	TDOT Region 2 Survey	423-510-1144	hatton.vanhook@tn.gov
8	Jason Ingram	TDOT Rg 2 Design	423-634-2520	Jason.Ingram@tn.gov
9	Victor Weddle	TDOT R2 Const	423-510-1219	Victor.Weddle@TN.gov
	BILLY CURTIS	TDOT CLGV. CONST	423-478-0338	WILLIAM.CURTIS@TN.GOV
	DOUG FORD	TDOT SURVEY	423-298-3279	DOUGLAS.FORD@TN.GOV
	Sara Elmore	TDOT - Planning OCT	423-510-6921	Saraelmore@tn.gov

Alan Wolfe	TDOT - R2 Traffic	423-510-1139	Alan.Wolfe@tn.gov
Garris Bugg	TDOT R2 Traffic	423-510-6926	garris.bugg@tn.gov
Mike Cloud	TDOT STID	615-532-7696	michael.cloud@tn.gov

Eastbound Bridge Approach

Bent 5

Bent 1

Super/Sub Structure – Abutment 1

Bent 2

Super/Sub Structure

Super/Sub Structure – Abutment 1

Undercut – Abutment 1

From:	Rachel Gentry
To:	Holly Cantrell
Cc:	Meridith Krebs; Holloran, Mark (mark.holloran@greshamsmith.com); Joe Deering; Curtis Duncan; Jeff Blevins
Subject:	Polk Co. SR-40, PIN 124102.00, BR-NH/APD-40(37), Bridge Description in TIR
Date:	Tuesday, March 5, 2019 12:27:20 PM
Attachments:	image001.png

Holly,

The Bridge TIR dated August 8, 2018, contains a mistake in the second to last paragraph on page 6, where it states, "This structure should be configured in a way so that it could be widened in the future to a ***five (5) lane*** facility." This should have said that the structure should be configured so that it could be widened in the future to a ***four (4) lane*** facility. The TIR also states in many places that the bridge would be approximately 57' wide, and that width is not possible to accommodate 5 lanes.

If you have any questions or need any additional information please let me know.

Thank you,

Rachel Gentry

Rachel R. Gentry, P.E. | Trans. Proj. Spec. Senior
Region 2 Major Projects
7512 Volkswagen Drive, Chattanooga, TN 37416
office: (423) 510-1161 | cell: (615) 981-0063
rachel.gentry@tn.gov
www.tn.gov/tdot

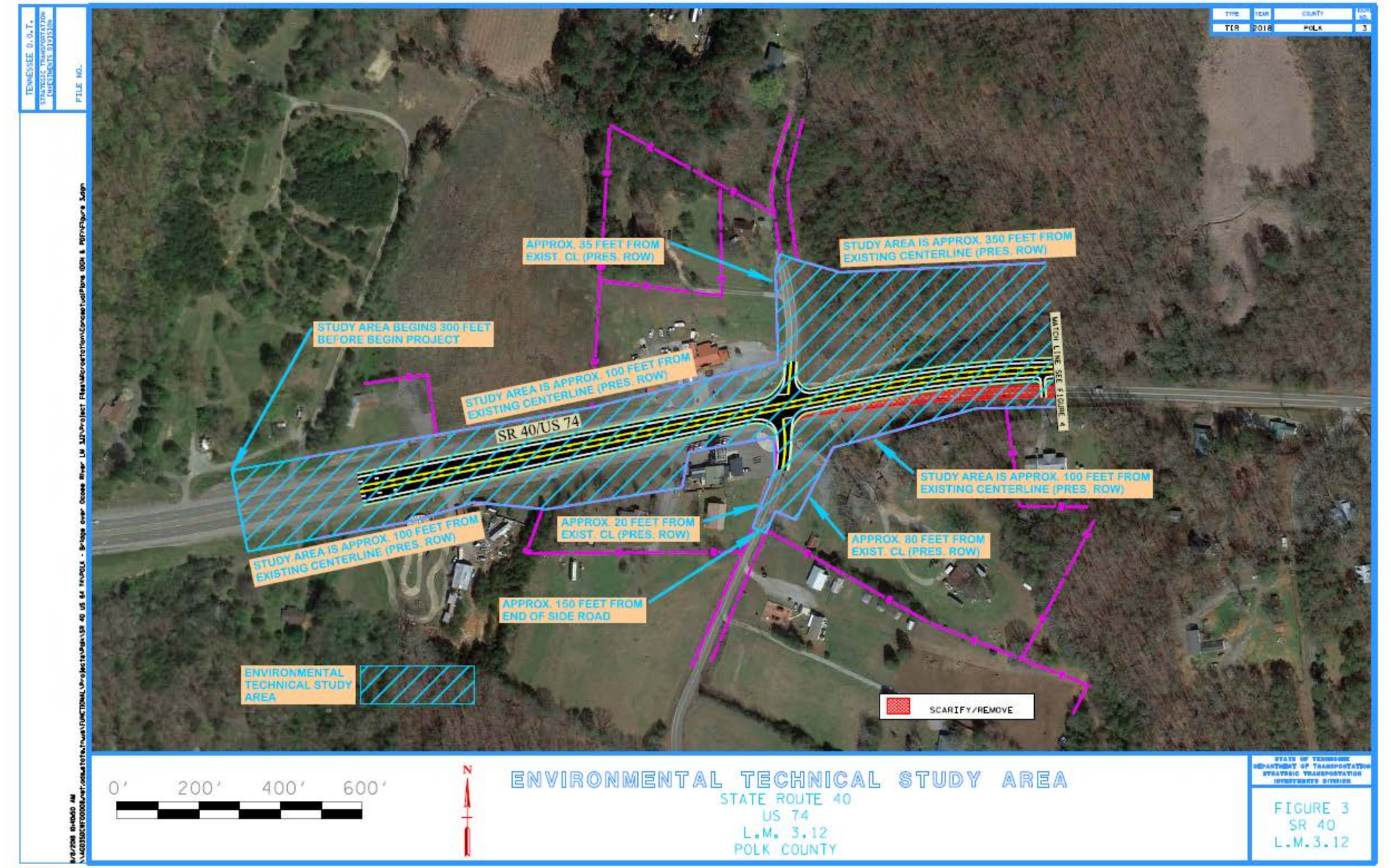
State Route 40 Bridge (70SR0400005) Over Ocoee River,

Polk County, TN, PIN 124102.00

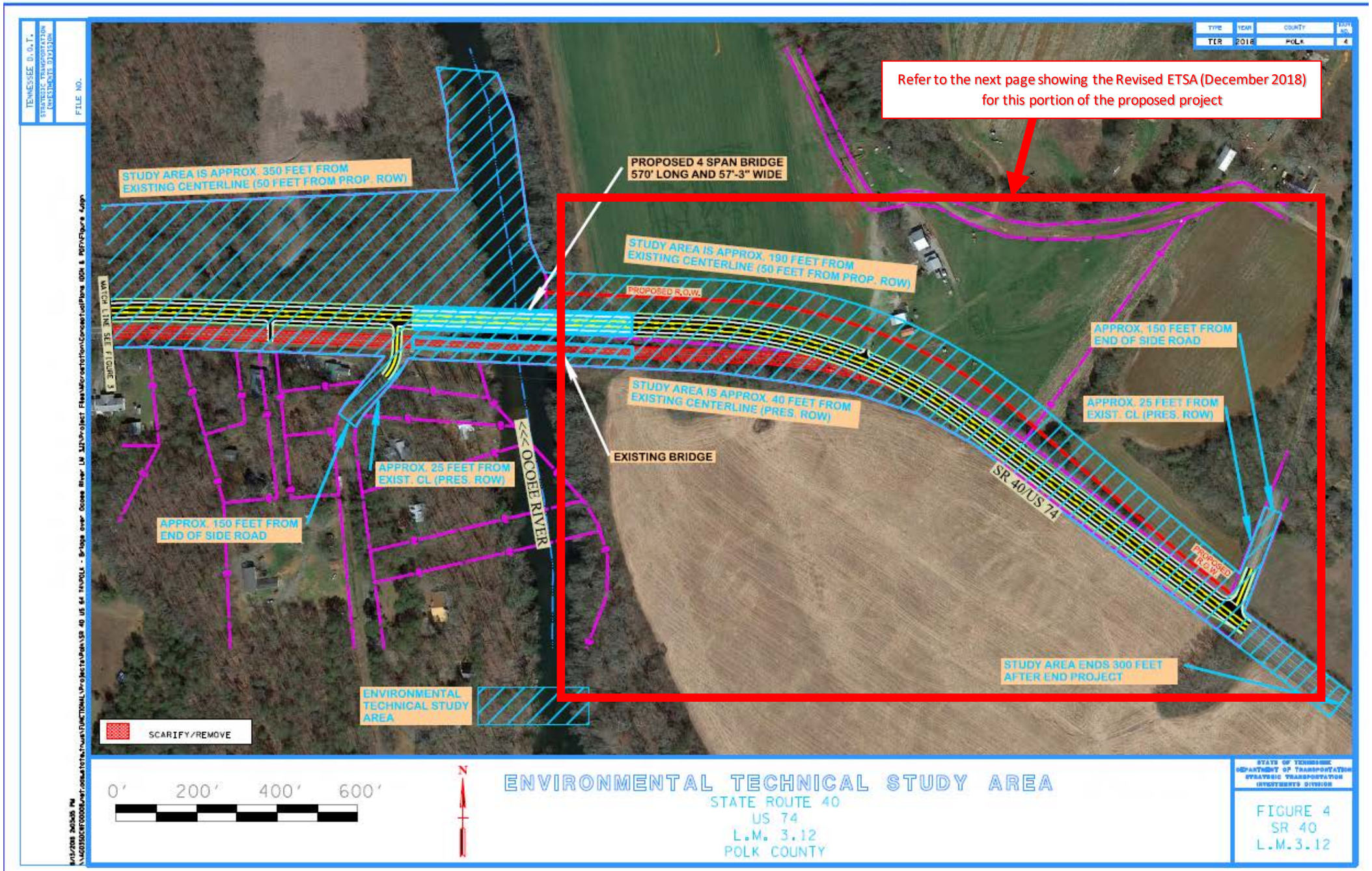
Revised Environmental Technical Study Area Mapping

December 2018

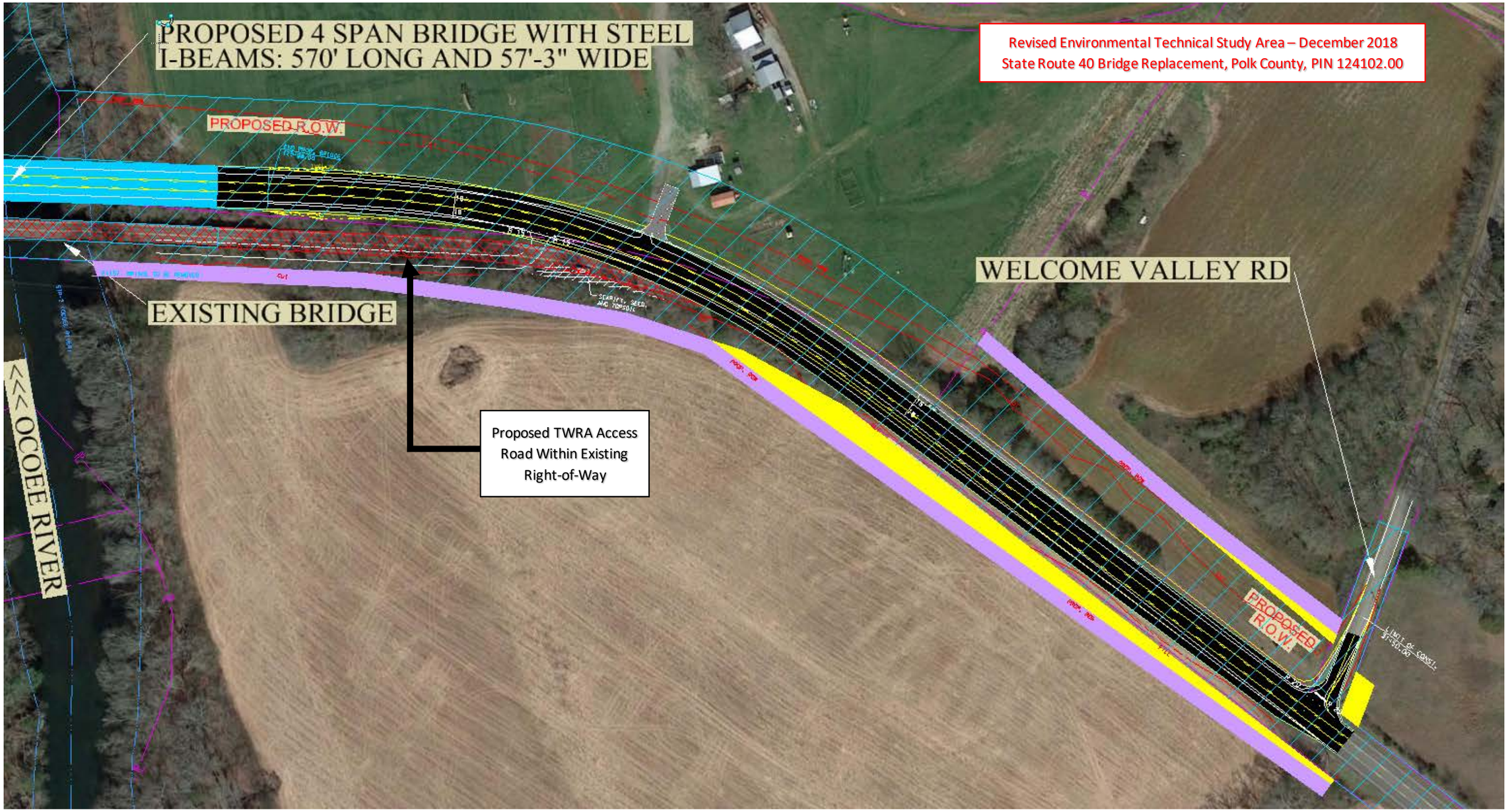
Environmental Technical Study Area (ETSA) Figure 1 of 2 from the TIR dated 08/16/2018



ETSA Figure 2 of 2 from the TIR dated 08/16/2018

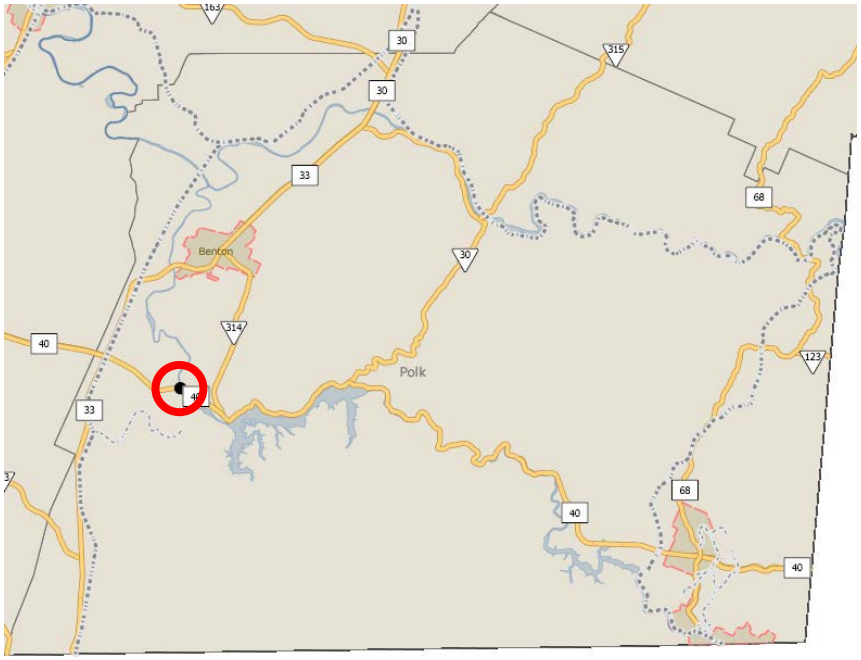


Revised ETSA Dated December 2018 showing additional areas studied in yellow and additional 20-foot buffer studied in purple.



Polk County

Regular Inspection Report



Location: 70-SR040-03.12
Federal ID: 70SR0400005
Maintenance Authority:
State of Tennessee

Description:
SR 40
OVER
Ocoee River

Type of Structure: 14 - Span
Inspection Date: April 20, 2016

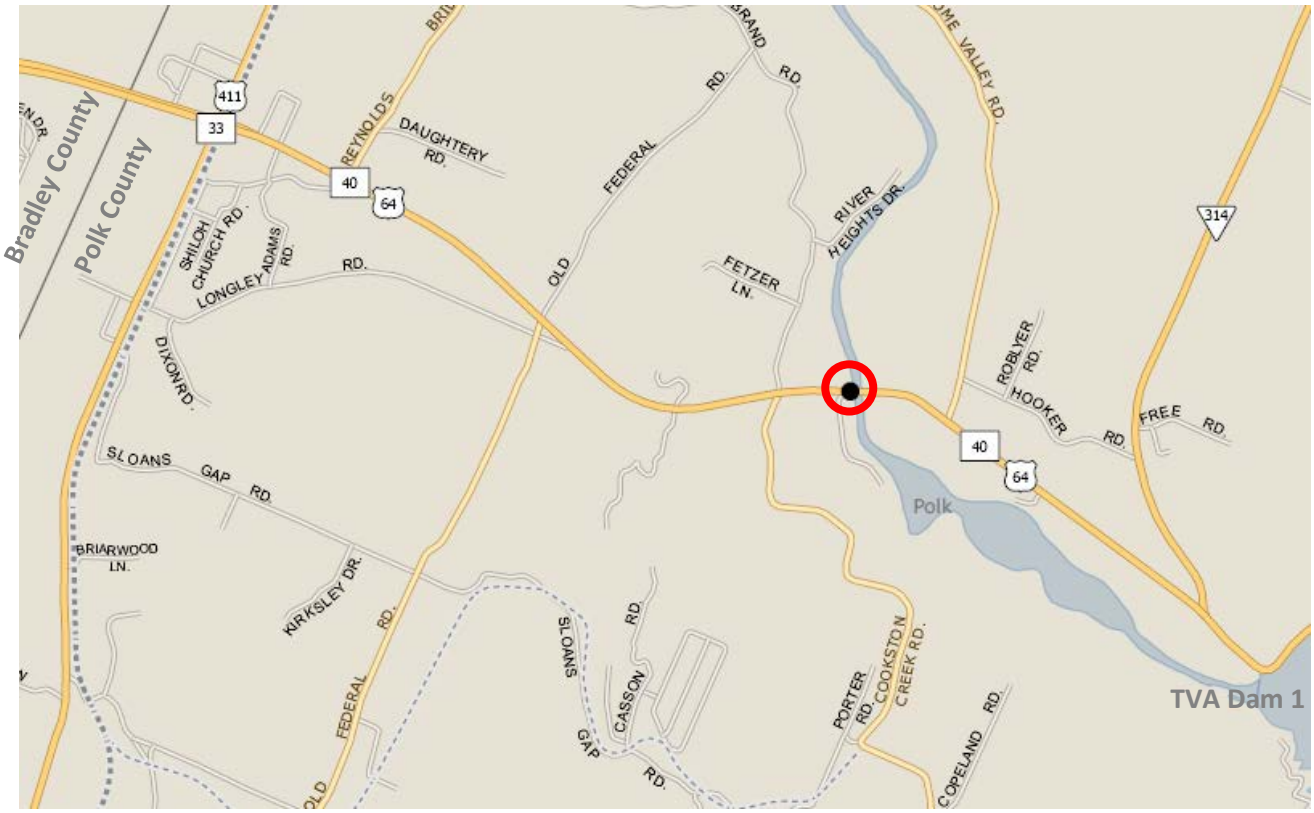
Rating:

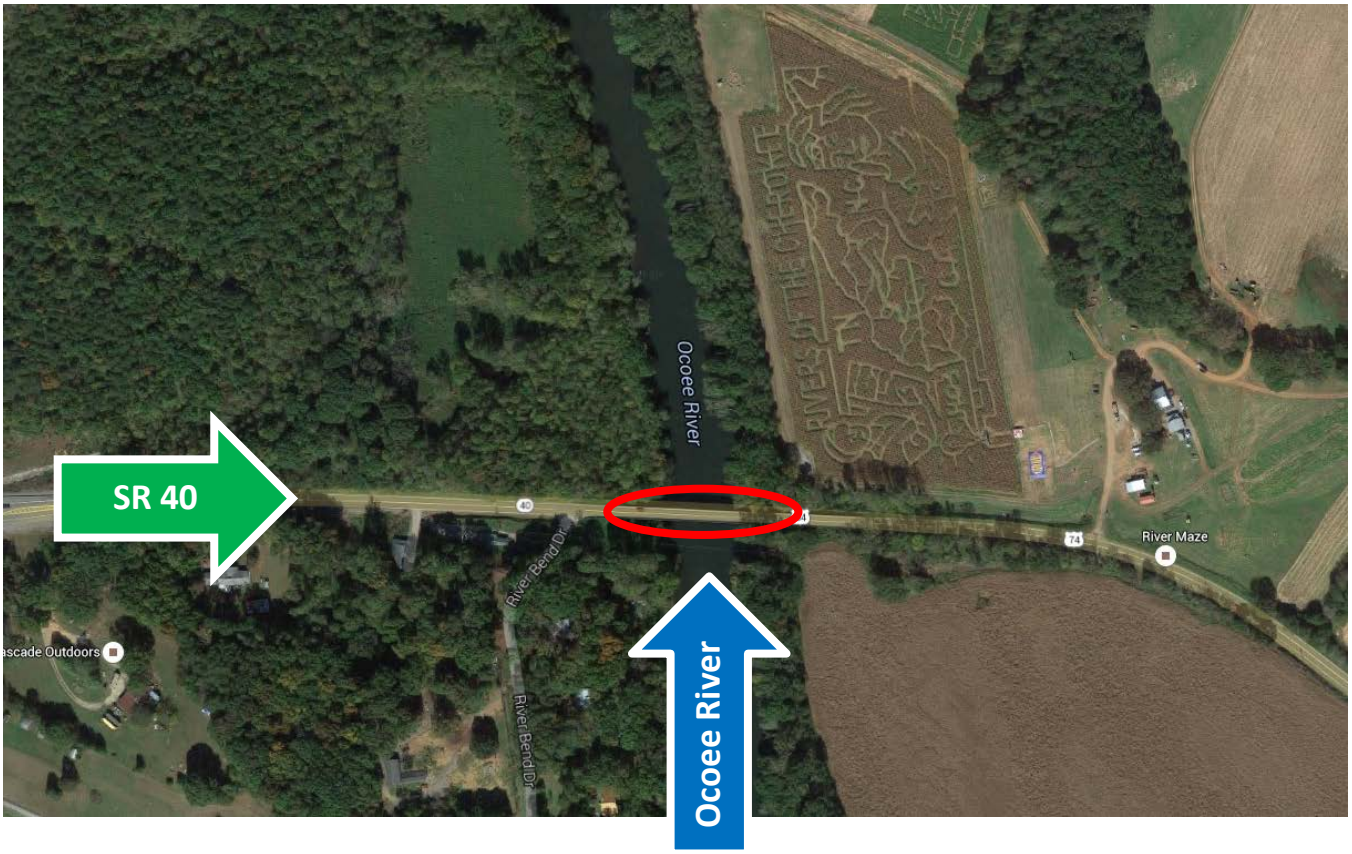
POOR

PRODUCED PURSUANT TO
PUBLIC RECORDS REQUEST
This document is covered by 23 USC §409
And its production pursuant to a public
document records request does not
waive the provisions of §409

LOCATION MAP

N





Direction of Inspection Route Direction of Flow

BRIDGE MAINTENANCE RECOMMENDATIONS

COUNTY: POLK
LOCATION: 70-SR040-03.12-
CO. SEQ.: 1 SPEC. CASE: 0

Tennessee Department of Transportation

CROSSING: OCOEE RIVER
FED. BRIDGE NO.: 70SR0400005
MAINT. DIST.: 70

REPAIR LIST NO.: 3
DATE ADDED: 05/06/2002
REVISED: 04/28/2016

FACILITY CARRIED:	FAP 402 (SR 40)	NUMBER OF MAIN SPANS:	6
HIGHWAY SYSTEM:	03-NHS RURAL, STATE	NUMBER OF APPROACH SPANS:	8
BRIDGE WIDTH (CURB TO CURB):	23 FT 11 IN	BRIDGE LENGTH (FT):	546
BRIDGE WIDTH (OUT TO OUT):	27 FT 2 IN	MAXIMUM SPAN LENGTH (FT):	53
APPROACH ROADWAY (W/SHOULDERS):	23 FT 11 IN	SKEW ANGLE (DEGREES):	90

MAINTAINED BY:	STATE HIGHWAY AGENCY
MAIN SPAN MATERIAL:	CONCRETE
MAIN SPAN DESIGN TYPE:	TEE BEAM
APPROACH SPAN MATERIAL:	CONCRETE
APPROACH SPAN DESIGN TYPE:	TEE BEAM

INSPECTION DATE:	04/20/2016	GENERAL CONDITION:	POOR
EVALUATION DATE:	04/25/2014	STRUCTURALLY DEFICIENT:	YES
PPRM PIN NUMBER:			
H TRUCK RATING @ INV.:	20 TONS	SUFFICIENCY RATING:	32.9

SUGGESTED ROUTINE MAINTENANCE AND COMMENTS
REPAIR UNDERCUTTING AT ABUTMENT NO. 1
REPAIR THE SEVERAL CAPBEAM REBAR SPALLS
REPAIR THE SEVERAL COLUMN REBAR SPALLS
REPAIR BRIDGE RAIL - APPROACH 1 - RIGHT

GENERAL COMMENTS:

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

Bridge Condition Coding Form

Revised 04/28/2016

County:	70
Route:	SR040
Special Case:	0
County Sequence:	1
Log Mile:	3.12

Bridge Number: (Includes Item 5A)	70SR04000051
Feature Intersected:	OCOEE RIVER
Evaluation Status:	CONDITION ITEM CHANGE

CODE ONLY THOSE VALUES WHICH HAVE CHANGED

ITEM #	DESCRIPTION	VALUE
90	LAST INSPECTION DATE	04/20/2016
	EARLIEST DATE OF NEXT REGULAR INSPECTION	02/19/2018
		/ /
10	MINIMUM V.C. OVER DECK (ROADWAY + SHOULDERS)	99 FT. 99 IN.
		FT. IN.
520	MINIMUM V.C. OVER DECK (EXCLUDES SHOULDERS)	99 FT. 99 IN.
		FT. IN.
36	TRAFFIC SAFETY FEATURES	

Br. Rail	Trans.	Appr. Rail	Terminal	SPEED LIMIT
0	0	0	0	45

41	STRC OPEN/CLOSED/POSTED A K P	A
58	DECK	7
59	SUPERSTRUCTURE	5
60	SUBSTRUCTURE	4
61	CHANL/CHANL PROTECTION	5
62	CULVERT AND RETAIN WALL	N
71	WATERWAY ADEQUACY	7
72	APPROACH RDWY ALIGNMENT	8
521	OVERALL CONDITION	POOR

16 LATITUDE	17 LONGITUDE
N 35° 6.7020′	W 84° 40.5100′

TEAM LEADER SIGNATURE

/ / REVIEW DATE

CONDITION CODING GUIDELINES

(Values for Coding Items 58, 59, 60 and 62)

- N NOT APPLICABLE
- 9 EXCELLENT CONDITION
- 8 VERY GOOD CONDITION - NO PROBLEMS NOTED.
- 7 GOOD CONDITION - SOME MINOR PROBLEMS.
- 6 SATISFACTORY CONDITION - MINOR DETERIORATION OF STRUCTURAL ELEMENTS.
- 5 FAIR CONDITION - ALL PRIMARY STRUCTURAL ELEMENTS ARE SOUND BUT MAY HAVE MINOR SECTION LOSS, CRACKING, SPALLING OR SCOUR.
- 4 POOR CONDITION - ADVANCED SECTION LOSS, DETERIORATION, SPALLING OR SCOUR.
- 3 SERIOUS CONDITION - LOSS OF SECTION, DETERIORATION, SPALLING OR SCOUR HAVE SERIOUSLY AFFECTED PRIMARY STRUCTURAL COMPONENTS. LOCAL FAILURES ARE POSSIBLE. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT.
- 2 CRITICAL CONDITION - ADVANCED DETERIORATION OF PRIMARY STRUCTURAL ELEMENTS. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT OR SCOUR MAY HAVE REMOVED SUBSTRUCTURE SUPPORT. UNLESS CLOSELY MONITORED IT MAY BE NECESSARY TO CLOSE THE BRIDGE UNTIL CORRECTIVE ACTION IS TAKEN.
- 1 "IMMINENT" FAILURE CONDITION - MAJOR DETERIORATION OR SECTION LOSS PRESENT IN CRITICAL STRUCTURAL COMPONENTS OR OBVIOUS VERTICAL OR HORIZONTAL MOVEMENT AFFECTING STRUCTURAL STABILITY. BRIDGE IS CLOSED TO TRAFFIC BUT CORRECTIVE ACTION MAY PUT IT BACK IN LIGHT SERVICE.
- 0 FAILED CONDITION - OUT OF SERVICE AND BEYOND CORRECTIVE ACTION.

Photographs

Bridge ID#: 70SR0400005 **Date: 04/20/2016**

LOOKING AHEAD

LOOKING BACK

Photographs

SUPER/SUB STRUCTURE

SUPER/SUB STRUCTURE

Photographs

SUPER/SUB STRUCTURE

BEARINGS - ABUTMENT

Photographs

BEARINGS - ABUTMENT

BEARINGS - BENT - ROLLER

Photographs

SPAN 5 - BENT 4 - REBAR SPALL

APPROACH 1 - RIGHT - RAIL DAMAGE

Photographs

APPROACH 1 - RIGHT - RAIL DAMAGE

APPROACH 2 - RIGHT - TERMINAL DAMAGE

Photographs

EROSION - DITCH 1 - RIGHT

UNDERCUT - ABUTMENT 1

Photographs

SPALL - SPAN 8 - BENT 8 - COLUMN E

REBAR SPALL - SPAN 9 - BENT 8 - BEAM B

Photographs

CRACK & SPALL - SPAN 9 - BENT 9 - CAP - BETWEEN C & D

3 REBAR SPALLS - SPAN 9 - BENT 9 - CAP

Photographs

CRACKS - SPAN 10 - BENT 9 – COLUMN D

CRACK - SPAN 10 - BENT 9 – COLUMN A

Photographs

REBAR SPALL - BENT 10 – BETWEEN COLUMN A & B

REBAR SPALL - BENT 11 - COLUMN E

Photographs

REBAR SPALL - BENT 11 – BETWEEN COLUMN C & D

REBAR SPALL - BENT 12 – BETWEEN COLUMN C & D

Photographs

REBAR SPALL - SPAN 14 - BENT 13 - BEAM B

CORROSION - SPAN 14 - BENT 13 - BEARING

BRIDGE INSPECTION REPORT

Page No.____

Form BIR 3.0
(Rev. 9-22-98)
DT-0069

Field Report No. 23 Date 4/20/2016
Previous Report No. 22 Date 4/9/2014
Plans: DESIGN

Bridge No. 70SR0400005 (Eleven Digit No.)
Bridge Location No. 70 - SR040 - 0312 (Co. Route Log Mile)

FAP 402 (SR 40) over OCOEE RIVER * RA 2008
Facility Carried by Structure | Crossing | Structure Name (If Named)

Year Constructed 1937 ACTUAL County _____ Maintenance District 21
Year Widened NA NA Year Rehabilitated NA NA

FEATURES

Wearing Surface ASPHALT Depth 6 (in.)
Flared Width NO Median Width NONE
Navigational Control NO Bridge Skew 90 °
Structure Type (Main Span) CDG
Structure Type (Appr.Spans) CDG
No. Main Spans 6 No. Approach Spans 8
Maximum Span Length 54.0 (**.* ft.)
Total Length 546.0 (**.* ft.)

TEAM LEADER

Tays

INSPECTORS

Haas
Watkins

WIDTHS (*.* ft.)

Deck Out-to-Out 27.3
Roadway Curb/Curb 24.0
Roadway Rail/Rail 24.0
Sidewalk Rt. NA Lt. NA
*Approach Roadway 24.0
*(Does Not Include Shoulders)
Approach Shoulder Rt. 0
Lt. 0

CLEARANCES

Min. Vertical Clearance over Deck 99-99 (ft.-in.)
Min. Vertical Under Clearance NA (ft.-in.)
Min. Lateral Under Clearance Rt. NA (*.* ft.)
Min. Lateral Under Clearance Lt. NA (*.* ft.)

FRACTURE CRITICAL: NO
(If Yes, Include BIR 3.9)

NBIS Bridge Length (<25 ft.)_____ (ft.-in.)

UNDERWATER INSPECTION

To Be Performed By: SCOUREVALUATION Date 9/20/1995

Change in Structural Condition: NO Major Repairs Made: NO BRIDGE is: OPEN

COMMENTS:

Supervising Bridge Inspector: Tays

BRIDGE RATING: **POOR**

Form BIR 3.1
(Rev. 9-22-98)
DT-0080

Page No.____

Bridge Location No. 70 - SR040 - 0312 (Co. Route Log Mile)

Date 4/20/2016

PERFORMANCE EVALUATION

Time of Day Inspected PM Weather Conditions Sunny 75F

Vehicles Observed ALL TYPES

LIVE LOAD BEHAVIOR

Substructure	Yes/No	Comments
Horiz./ Vert. Defl.	NO	
Vibration	NO	
Superstructure		
Horiz./ Vert. Defl.	NO	
Vibration	NO	

APPROACH

	Rating	Comments
Alignment	GOOD	
Slab	NA	
Joints	NA	
Pavement	FAIR	*CRACKS, BREAKING-UP, SETTLED, UNEVEN @ #2.*
Embankment	GOOD	
Drains	NA	*NONE*

TRAFFIC SAFETY FEATURES

	Rating	Standard/ SubStandard	Comments
Bridgerailing	FAIR	NONSTANDARD	*Design, #1 right collision damage*
Transitions	GOOD	NONSTANDARD	*Metal blocks*
Guardrail	GOOD	NONSTANDARD	*Metal blocks*
Guardrail Terminal	GOOD	NONSTANDARD	*Metal blocks*

SIGNING

	Yes/ No/ Needed
Paddleboards	YES
Vertical Clearance (<14'-6")	NO
Narrow Bridge Signs	NO
One Lane Bridge Signs	NO

Weight Limit Posted NO

Gross..... _____ Tons

2 Axle..... _____ Tons

3 or more Axles.. _____ Tons

Other Signs or Plaques:

Comments Regarding any Problems with Signing:

Form BIR 3.2
(Rev. 9-22-98)
DT-0081

Bridge Location No. 70 - SR040 - 0312 (Co. - Route - Log Mile)

Date 4/20/2016

DECK

	Rating	Comments
Wearing Surface	F-P	*SETTLED, CRACKING, UNEVEN @ JOINTS. RANDOM SMALL CRACKS*
Deck - Structural Condition	GOOD	*HL-SMALL CRACKS W/ EFF, MAP-CRACKING.*
Curbs	GOOD	
Median	NA	
Sidewalks	NA	
Parapet	NA	
Railing	FAIR	*COLLISION DAMAGE*
Paint	NA	
Drains	POOR	*BLOCKED*
Lighting Standards	NA	
Utilities	NA	
Joint Leakage	FAIR	
Expansion Joints	POOR	*POURABLE SEALER. SETTLED, COMPACTED, UNEVEN & SEALER LOSS*

SUPERSTRUCTURE

Bearing Devices	FAIR	*CORROSION, SECTION LOSS @ PLATES & ROLLERS.*
Girders or Beams	G--F	*CRACKS, SPALLS, DELAMS, POPOUTS. Some significant rebar spalls*
Floor Beams	NA	
Stringers	NA	
Diaphragms	G-F	*CRACKS, SPALLS, DELAMS*
Bracing	NA	
Trusses - General	NA	
Portals	NA	
Bracing	NA	
Paint	NA	
Alignment of Members	GOOD	

TEXTURE COAT

Condition Rating _____

Overall Appearance _____

Staining Rating _____

Fading Rating _____

Scaling Rating _____

Needs Spot Painting _____

Needs Repainting _____

Comments

Form BIR 3.3
(Rev. 9-22-98)
DT-0082

Page No.____

Bridge Location No. 70 - SR040 - 0312
Co. Route Log Mile

Date 4/20/2016

SUBSTRUCTURE

ABUTMENTS

	Rating	Comments
Caps	GOOD	
Breastwall	GOOD	
Wings	GOOD	
Backwall	G-F	*DELAMS, SPALLS, CRACKS W/ EFF.*
Plumb	GOOD	
Footing	NV	
Piles	NV	
Embankment	F-P	*SETTLED, SLOUGHING.*
Bearing Surface	GOOD	
Slope Paving	NA	
Rip Rap	NA	

PIERS

Caps	N/A	
Columns	N/A	
Plumb	N/A	
Footings	N/A	
Piles	N/A	
Bearing Surface	N/A	

BENTS

Caps	G-F	*CRACKS, DELAMS, SPALLS*
Columns	G-F	*CRACKS, SPALLS, DELAMS*
Plumb	GOOD	
Footings	NV	
Piles	NV	
Bearing Surface	GOOD	

Piles Need Replacement: NO

Piles To Be Replaced:

Form BIR 3.8
(Rev. 9-22-98)
DT-1508

Bridge Location No. 70 - SR040 - 0312 (Co. / Route / Log Mile) Date 4/20/2016

STREAM CHANNEL DATA AND CONDITIONS

Stream Crossing: OCOEE RIVER *

I. 1. Type of bed material? ROCK, GRAVEL, BOULDERS
2. Has channel shifted? NO (Yes/ No/ Not Apparent)
3. Condition of rip-rap? _____ Est. % failed _____%
4. Overall condition of channel? FAIR
5. Item 61 - Code values 0 thru 9 according to the recording and coding guide currently in effect: 5
6. Underwater diver inspection recommended? NO
If yes, why? _____

II. Channel and bank stability conditions: (yes if applicable)
1. Steep bank conditions: Failures upstream No Failures downstream No
2. Moderate bank erosion YES
3. Bank vegetation: a. low growth YES b. large timber YES c. clear banks No
d. dead trees upstream YES e. dead trees downstream No
4. Sediment or gravel accumulation: NO (Yes/ No/ Unknown)
5. Channel altered or straightened: NO (Yes/ No/ Unknown)
6. Stable conditions: a. live growth YES b. bedrock Yes
c. boulders YES d. flat slopes (<=2:1) No

III. Waterway adequacy and debris characteristics: (yes if applicable)
1. Bridge deck elevations:
a. level with approach roadway. . . . . YES
b. higher than approach roadway. . . . . _____
c. roadway approach >= 2 ft. above natural ground line. . YES
2. Abutment encroaches into channel. . . . . No
3. Large scour (blowhole) under bridge. . . . . No
4. Indications that flood waters overtop bridge: NO (Yes/No)
If YES, Answer: Occasionally, Frequently, or Unknown _____
5. Debris characteristics:
a. debris/drift present YES
b. debris/drift likely to accumulate YES
c. dead trees upstream YES dead trees downstream No

IV. Comments:

SPECIAL INSPECTION DATA - FOR REASONS OTHER THAN FC OR SCOUR

I. Does this bridge need a special inspection? NO

II. Reason for special inspection:

Inspection Team's Summary
Bridge Location No. 70 - SR040 - 0312
Inspection Date 4/20/2016
Bridge Rating POOR

TYPE SERVICE: SR 40
OVER: OCOEE RIVER *

On Wednesday, April 20, 2016 , a Region Two bridge inspection team inspected this structure and found it to be in POOR condition.

TOP OF DECK

Traffic Safety Features

Bridge Rail:	FAIR	NONSTANDARD	Design, #1 right collision damage
Transitions:	GOOD	NONSTANDARD	Metal blocks
Approach Rail:	GOOD	NONSTANDARD	Metal blocks
Terminals:	GOOD	NONSTANDARD	Metal blocks

Wearing Surfaces

Approach Pvmt:	FAIR	CRACKS, BREAKING-UP, SETTLED, UNEVEN @ #2.
Deck - Wearing Surface:	F-P	SETTLED, CRACKING, UNEVEN @ JOINTS. RANDOM SMALL CRACKS

BOTTOM OF DECK

Deck - Structural Condition:	GOOD	HL-SMALL CRACKS W/ EFF, MAP-CRACKING.

SUPERSTRUCTURE

Beams:	G--F	CRACKS, SPALLS, DELAMS, POPOUTS. Some significant rebar spalls
Bearings:	FAIR	CORROSION, SECTION LOSS @ PLATES & ROLLERS.

SUBSTRUCTURE

Abutments

Caps:	GOOD	
Breastwall:	GOOD	
Wings:	GOOD	
Backwall	G-F	DELAMS, SPALLS, CRACKS W/ EFF.
Bearing Surface:	GOOD	

Bents

Caps:	G-F	CRACKS, DELAMS, SPALLS
Columns:	G-F	CRACKS, SPALLS, DELAMS
Bearing Surface:	GOOD	

UNDERCLEARANCE

Min Vert Under Clear(ft-in): NA

SPECIAL NOTES

Item 58 - 5 to 7 - Some minor problems. No advanced section loss

ELEVATIONS OF DECK PAGE NO._____

BRIDGE LOCATION NO. 70 40 3.12 (5.02) DATE: 06-02-98
COUNTY ROUTE LOG MIL (LOG km)

STATION/ LOCATION	TOP OF LT. CURB/RAIL	GUTTER/ EDGE DECK	CENTERLINE	GUTTER/ EDGE DECK	TOP OF RT. CURB/RAIL
ABUT # 1	751.52	751.76		750.80	751.50
BENT # 1	750.30	749.50		749.50	750.20
PIER # 1	749.20	748.44		748.35	749.14
PIER # 2	748.15	747.40		747.37	748.10
PIER # 3	747.10	746.36		746.38	747.06
PIER # 4	746.06	745.29		745.27	746.02
BENT # 2	744.96	744.20		744.12	744.83
BENT # 3	744.31	743.60		743.60	744.35
BENT # 4	743.80	743.04		743.04	743.77
BENT # 5	743.25	742.45		742.46	743.12
BENT # 6	742.66	741.92		741.90	742.65
BENT # 7	742.06	741.30		741.32	742.02
BENT # 8	741.50	740.75		740.75	741.48
BENT # 9	740.95	740.16		740.12	740.75
ABUT # 2	740.30	739.64		739.62	740.25

BENCH MARK LOCATION TOP CURB, ABUT. # 1, RT. SIDE.
BENCH MARK ELEVATION 751.51 ft.
NOTE: ELEVATIONS TAKEN FROM PREVIOUS REPORT DATED 10-10-96

RIGHT SIDE ELEVATION

PAGE NO.___

BRIDGE LOCATION NO.:

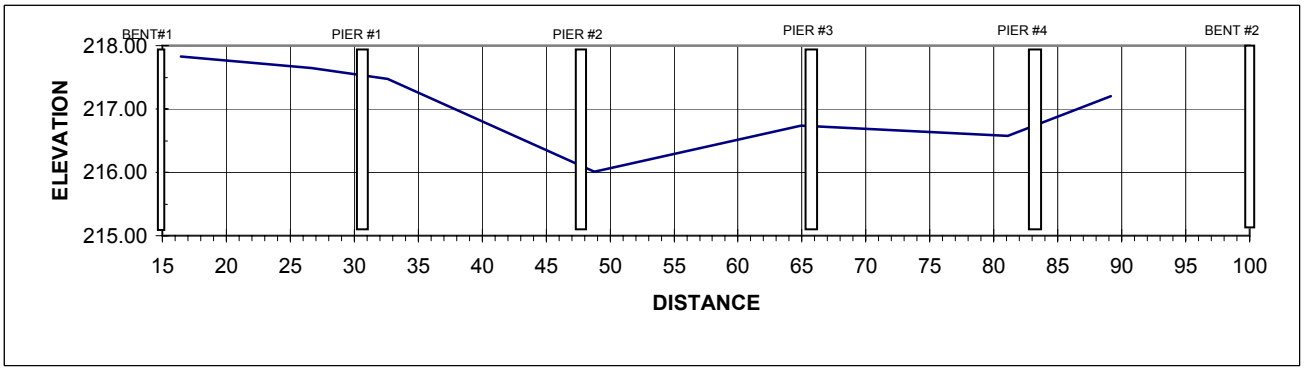
DATE: 4/7/10

OVER: OCOEE RIVER
DOWNSTREAM

NO CHANGE 2010, 2012

(m)	LOCATION	ELEV '06
ABUT #2	0.00	0.00
B1	16.43	217.83
E.W.	26.65	217.65
P1	32.59	217.47
P2	48.77	216.01
P3	64.92	216.74
P4	81.08	216.58
E.W.	89.16	217.20
B2	97.24	0.00
	0.00	0.00
	0.00	0.00
	0.00	0.00
ABUT #1	0.00	0.00

APPROX. BOTTOM FOOTING ELEVATIONS	
PIER #1	m
PIER #2	m
PIER #3	m
PIER #4	m



LEFT SIDE ELEVATIONS

PAGE NO.___

BRIDGE LOCATION NO.: 70-SR40-3.12(5.02)

DATE: 4/7/10

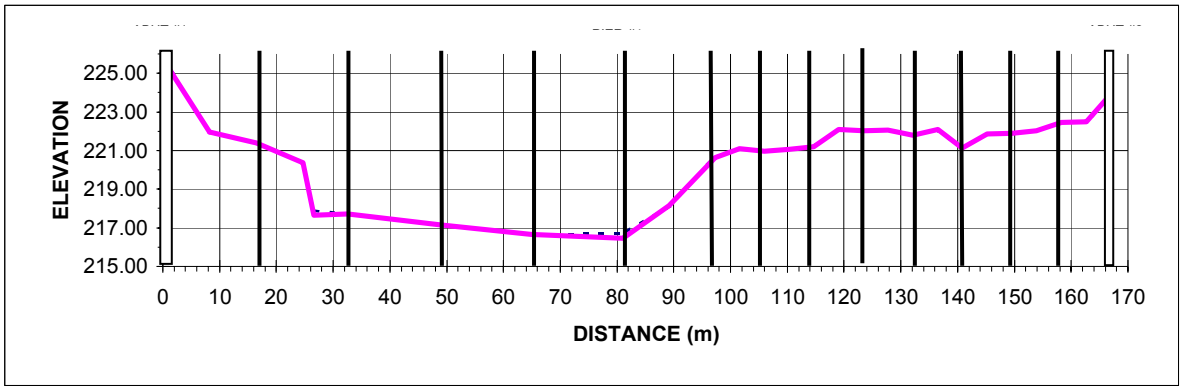
OVER: OCOEE RIVER

DOWNSTREAM

NO SIGNIFICANT CHANGE 2010, 2012

(m)	LOCATION	ELEV '98	EL.2000	
ABUT #1	0.00	225.72	225.72	
	8.22	221.97	221.97	
BENT #1	16.43	221.41	221.41	APPROX. BOTTOM
	24.65	220.37	220.37	FOOTING ELEVATIONS
EDG WTR	26.65	217.88	217.65	PIER #1 < 716.00 FT
PIER #1	32.59	217.72	217.72	PIER #2 < 716.00 FT
PIER #2	48.77	217.16	217.16	PIER #3 < 716.00 FT
PIER #3	64.92	216.65	216.65	PIER #4 < 716.00 FT
PIER #4	81.08	216.68	216.47	
EDG WTR	89.16	218.15	218.15	B.M. ELEVATION 229.06 m
BENT #2	97.24	220.63	220.63	TOP OF CURB, ABUT. #1, RIGHT SIDE.
	101.60	221.11	221.11	
B #3	105.96	220.95	220.95	
	110.32	221.06	221.06	
B#4	114.68	221.20	221.20	SCOUR HOLE DUE TO HIGH WATER
	119.04	222.10	222.10	
B#5	123.40	222.04	222.04	
	127.76	222.05	222.05	
B#6	132.12	221.79	221.79	
	136.48	222.09	222.09	
B#7	140.84	221.14	221.14	
	145.20	221.87	221.87	
B#8	149.59	221.89	221.89	
	153.92	222.01	222.01	
B#9	158.28	222.46	222.46	
	162.64	222.49	222.49	
ABUT #2	167.00	223.91	223.91	

218 m

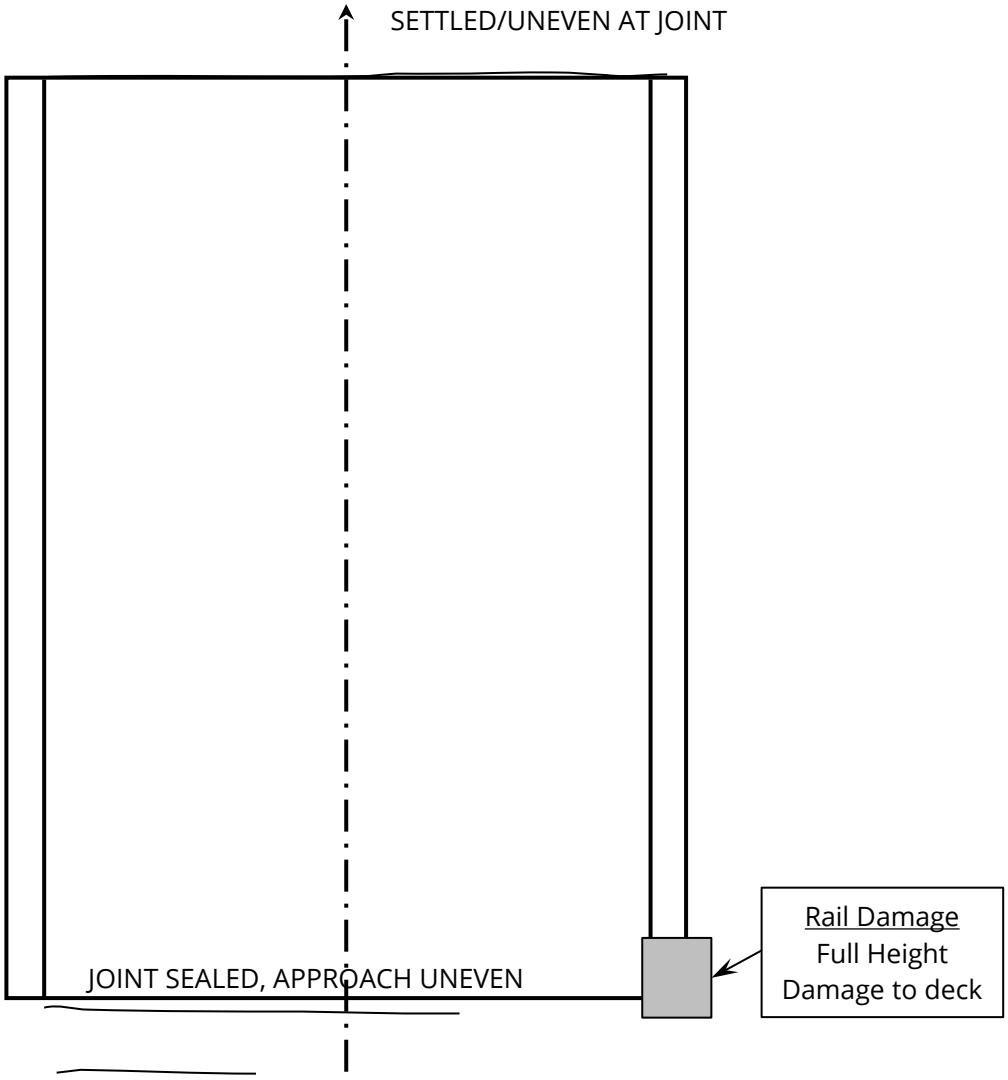


Approach Pvmt: F

Approach Rail: G Standard

Wearing Surface: F

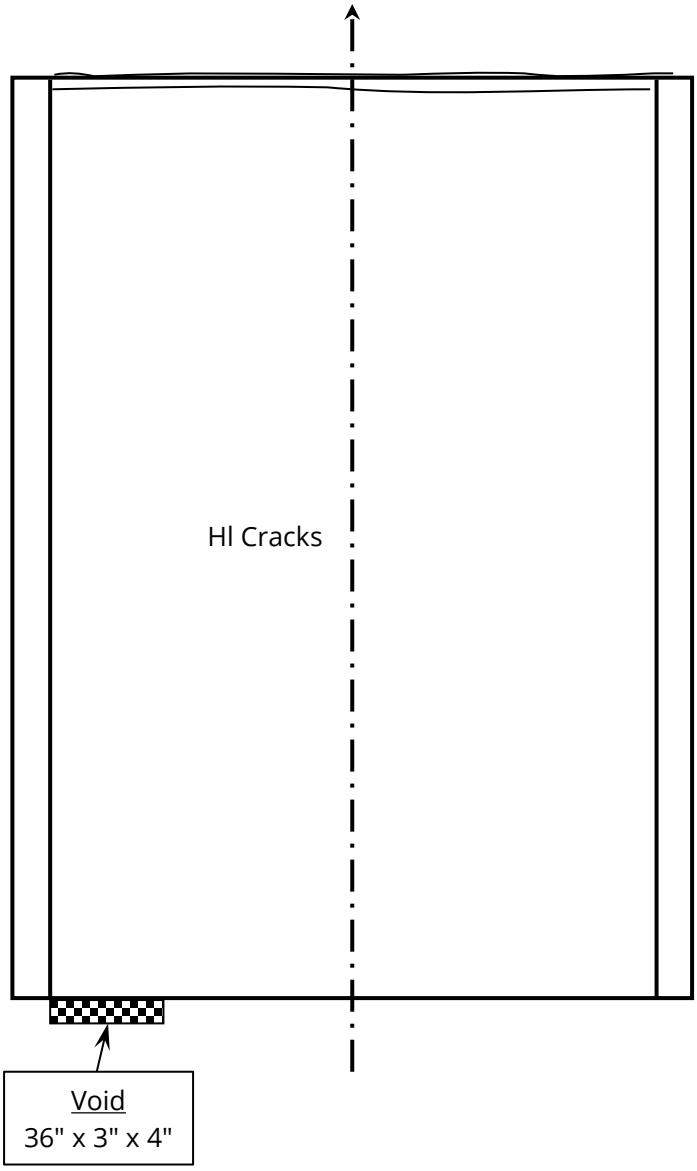
Bridge Rail: P



Wearing Surface: G

Bridge Rail: G

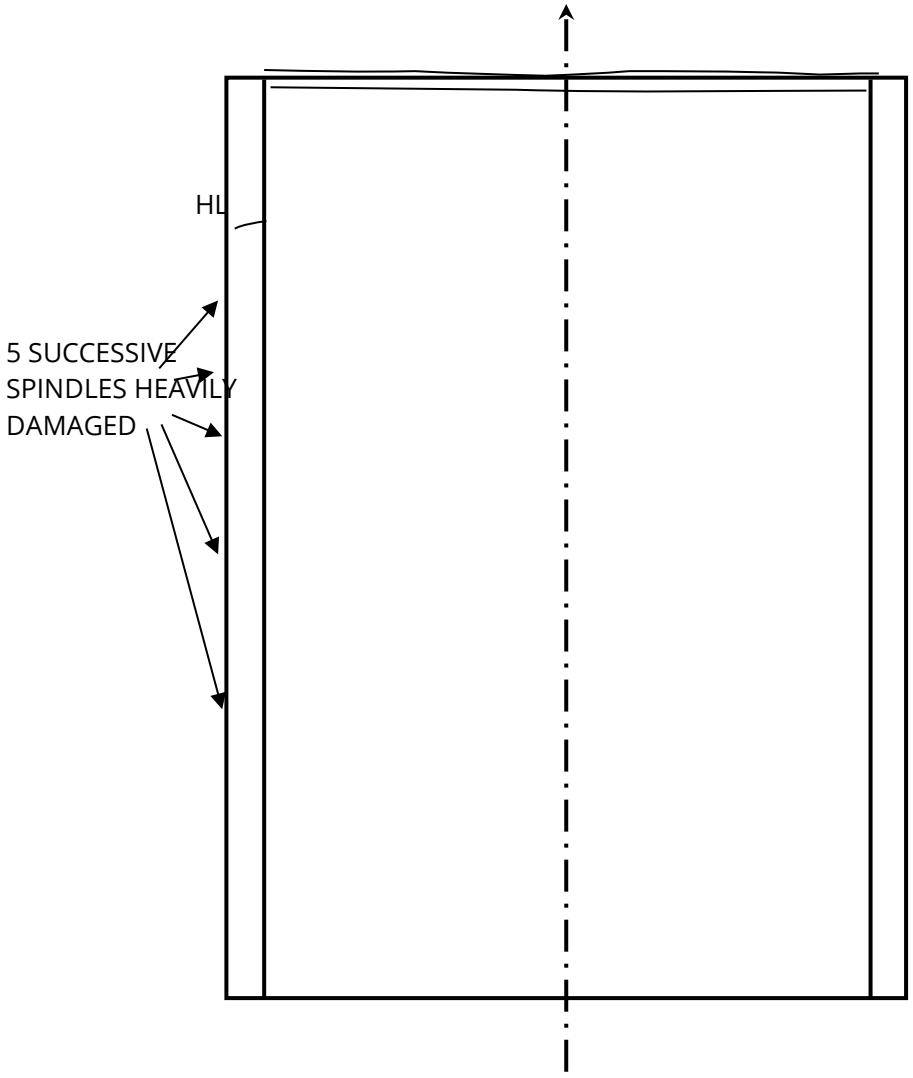
Drains: F Blocked



Wearing Surface: G

Bridge Rail: G

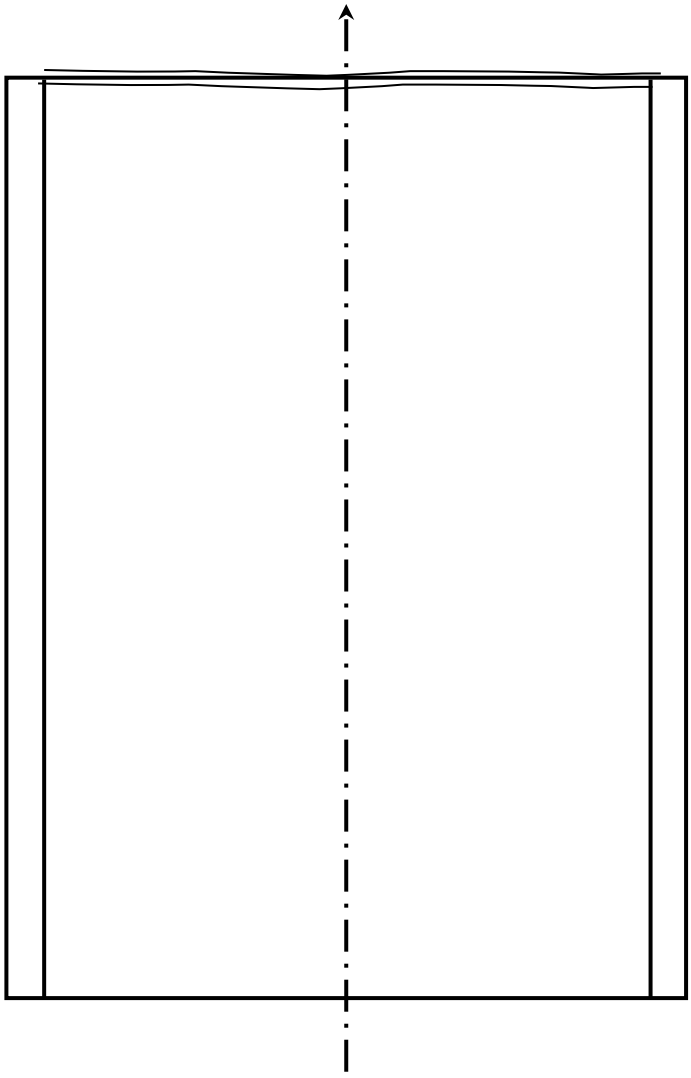
Drains: P Blocked



Wearing Surface: G

Bridge Rail: G

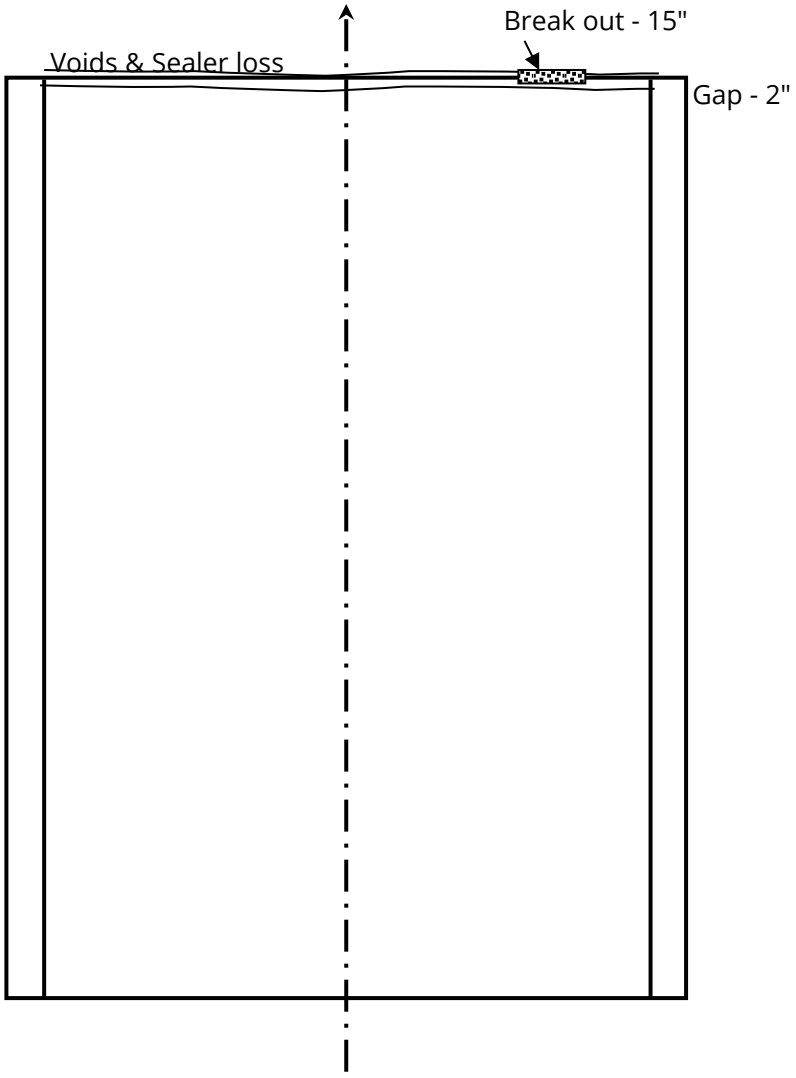
Drains: P Blocked



Wearing Surface: G

Bridge Rail: G

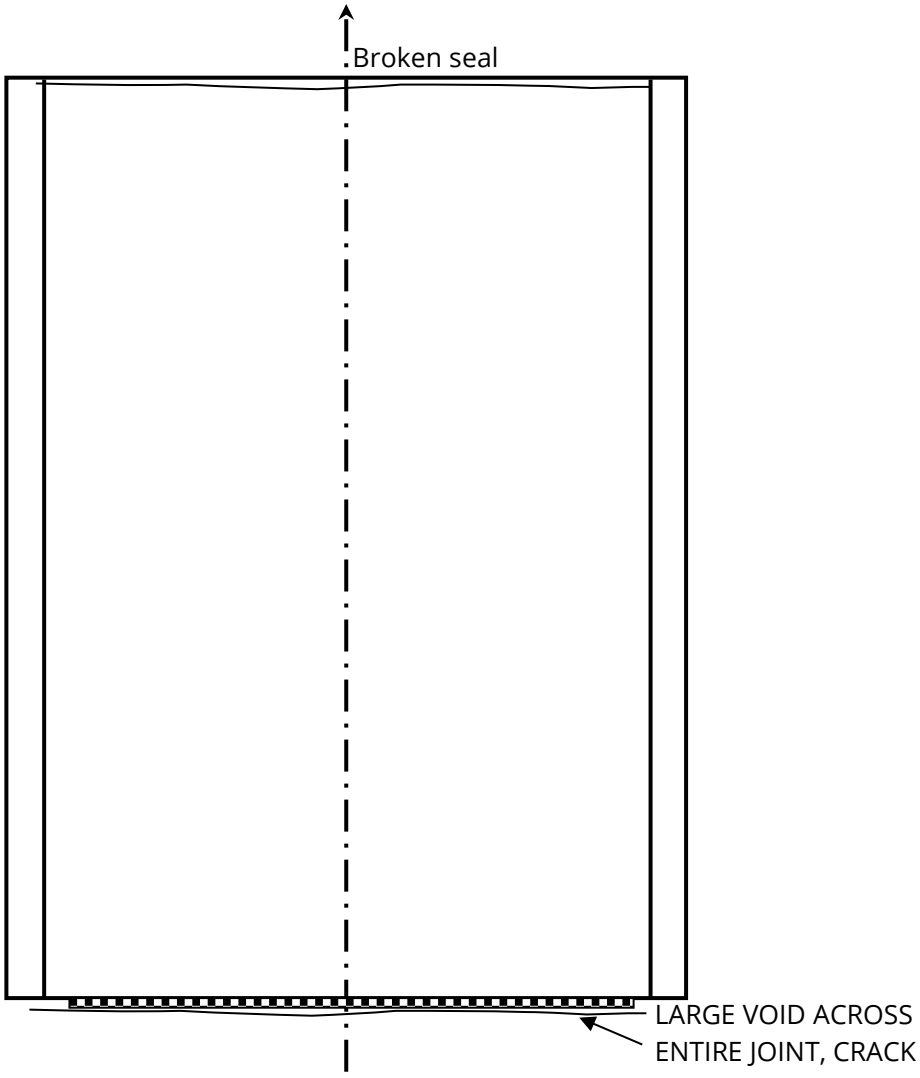
Drains: P Blocked



Wearing Surface: G

Bridge Rail: G

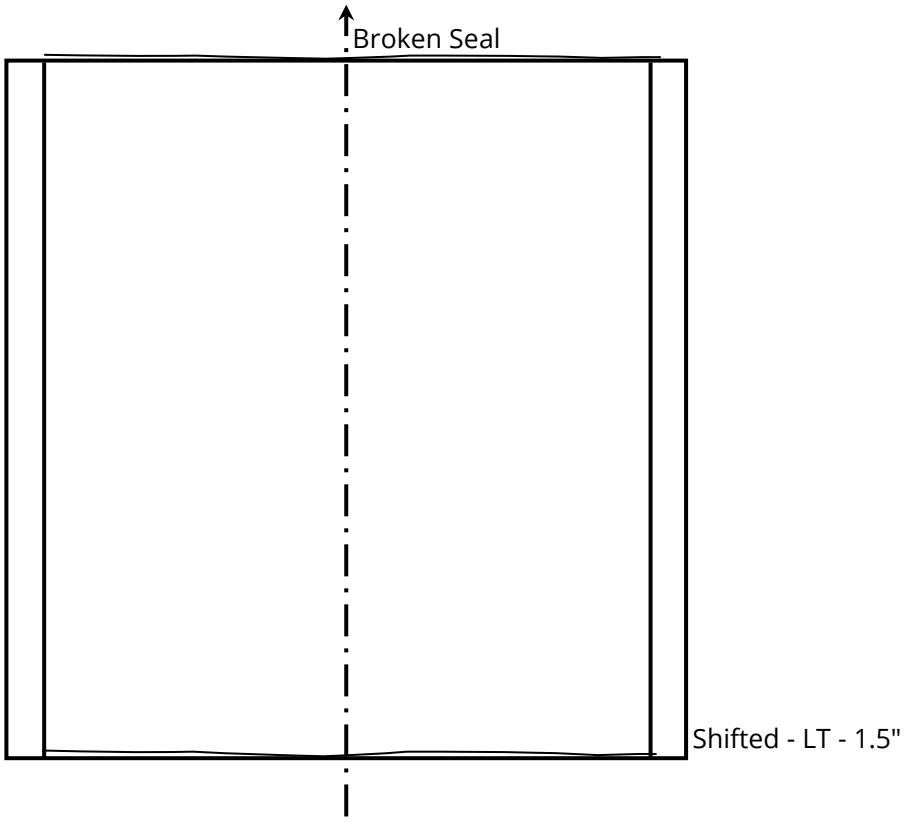
Drains: P Blocked



Wearing Surface: G

Bridge Rail: G

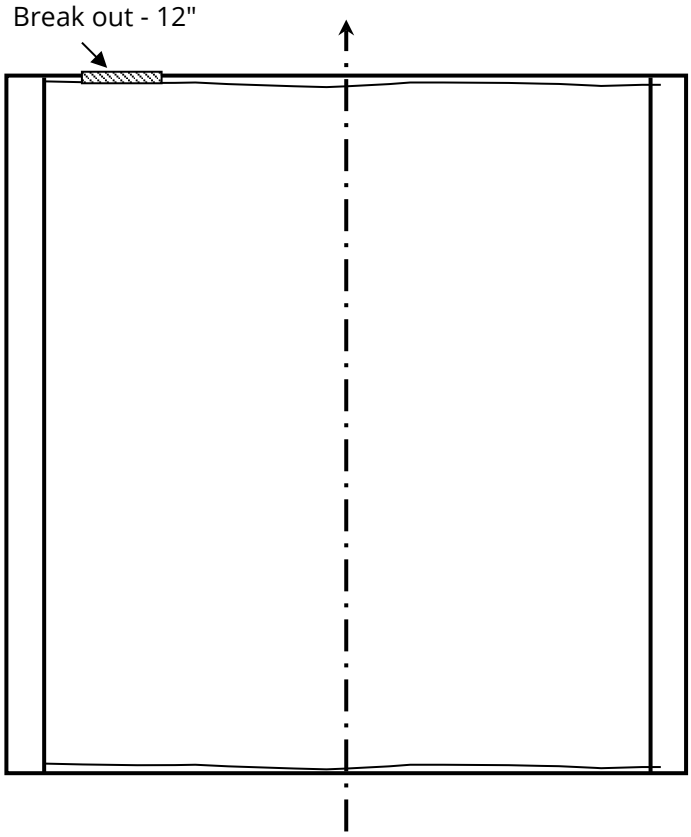
Drains: P Blocked



Wearing Surface: G

Bridge Rail: G

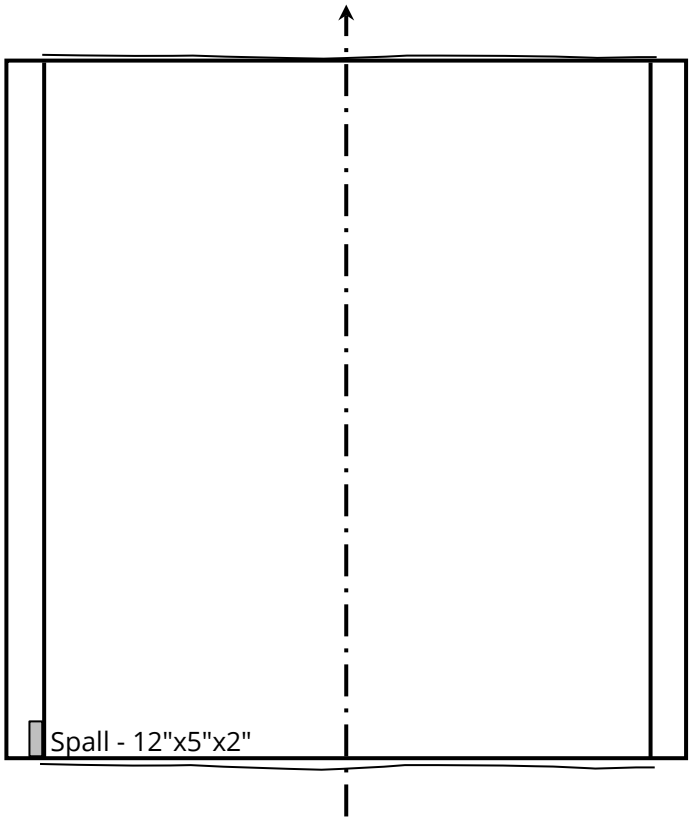
Drains: P Blocked



Wearing Surface: G

Bridge Rail: G

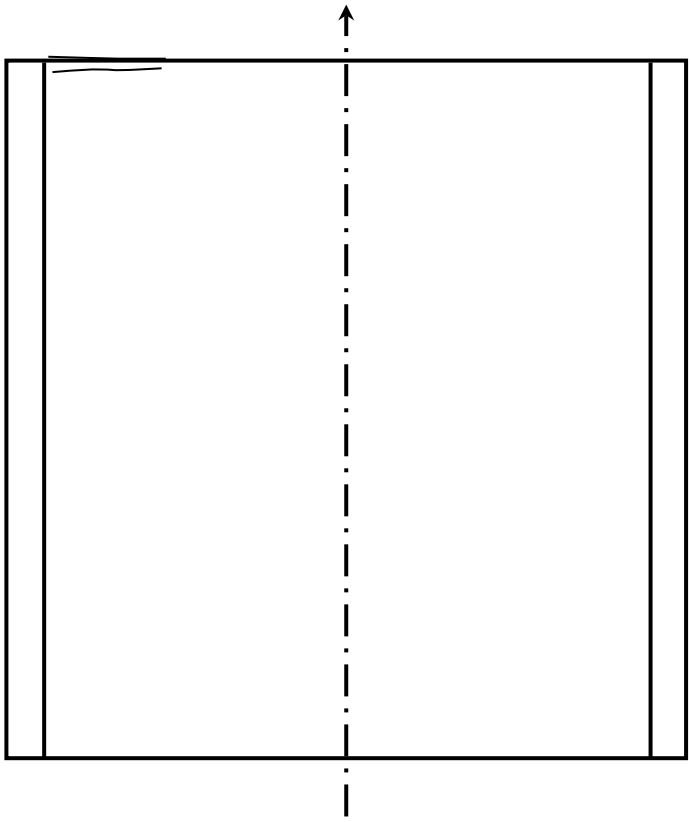
Drains: P Blocked



Wearing Surface: G

Bridge Rail: G

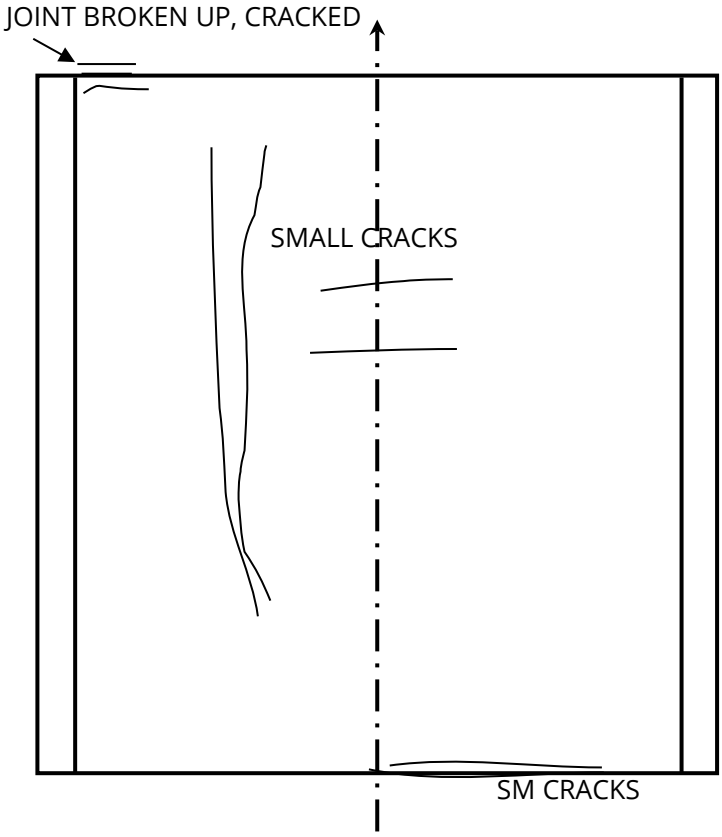
Drains: P Blocked



Wearing Surface: G

Bridge Rail: G

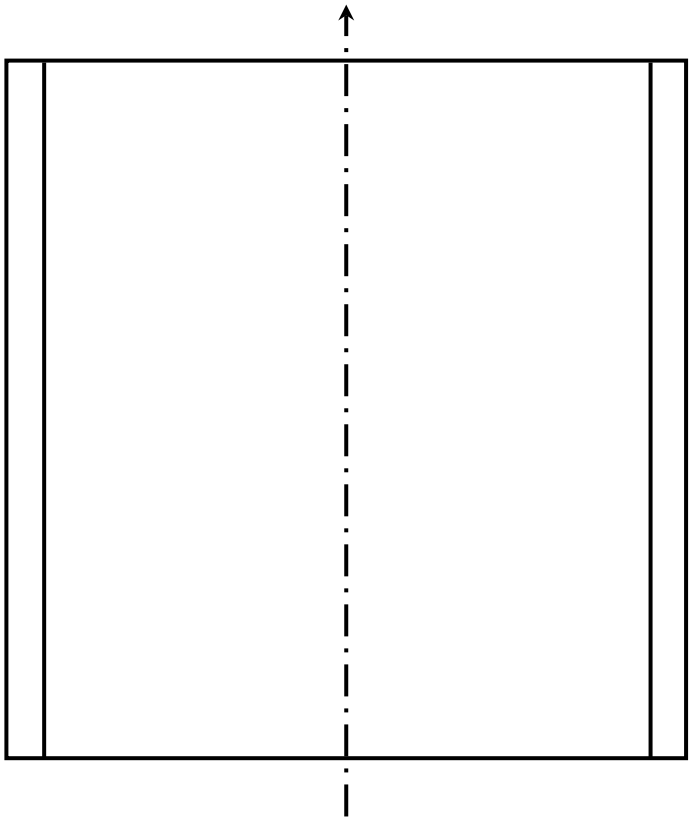
Drains: P Blocked



Wearing Surface: G

Bridge Rail: G

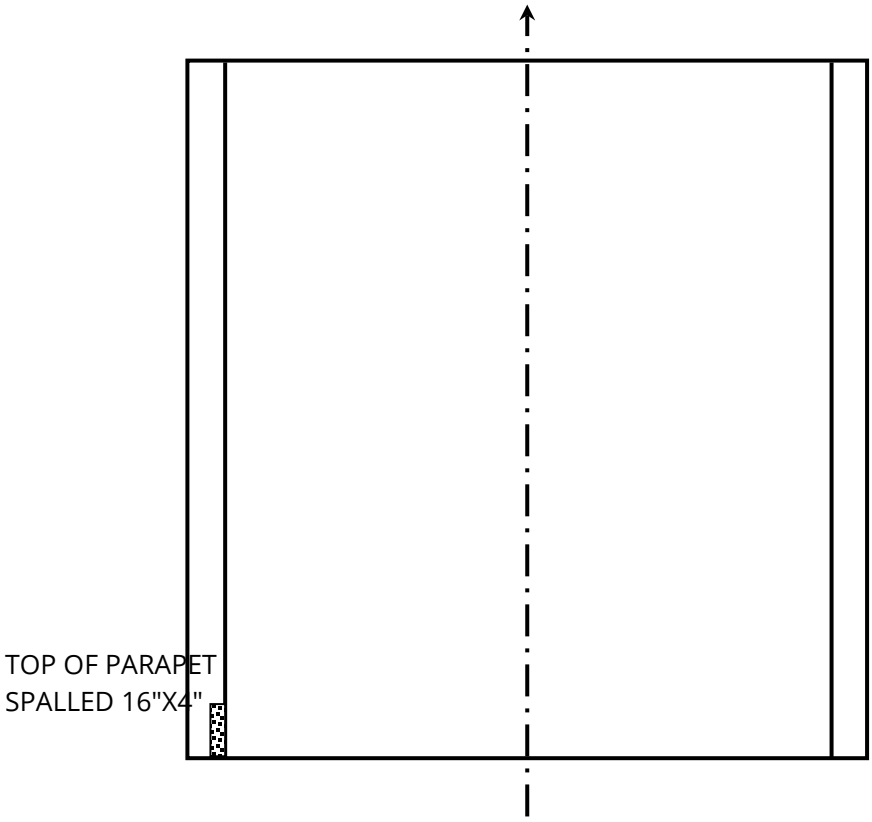
Drains: P Blocked



Wearing Surface: G

Bridge Rail: G

Drains: P Blocked

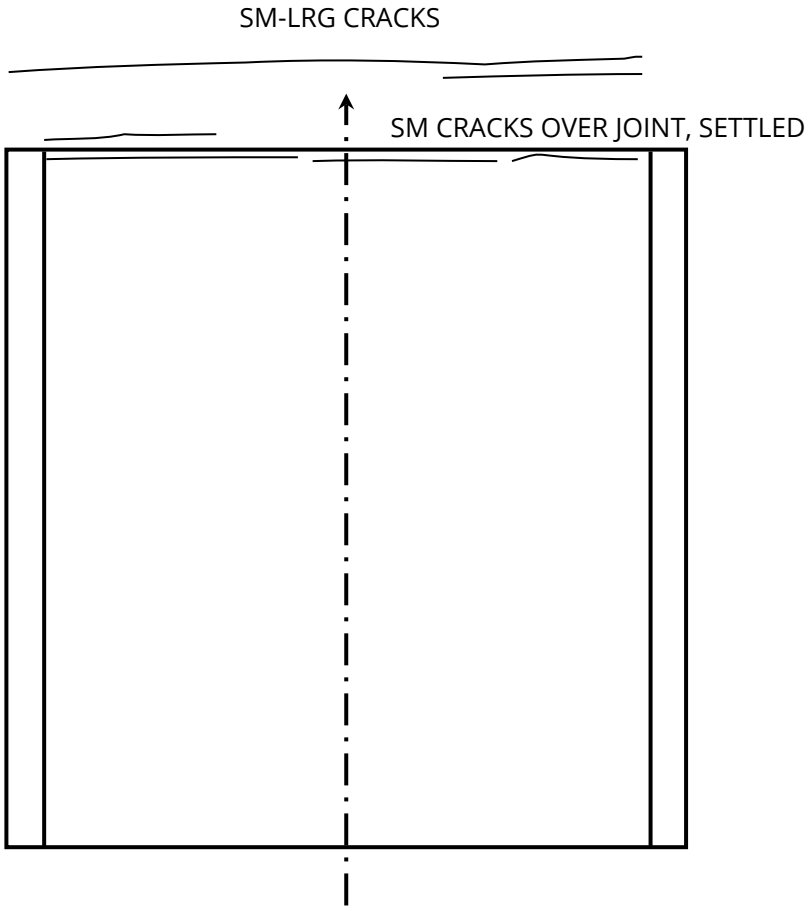


Approach Pvmt: F

Approach Rail: G

Wearing Surface: G

Bridge Rail: G

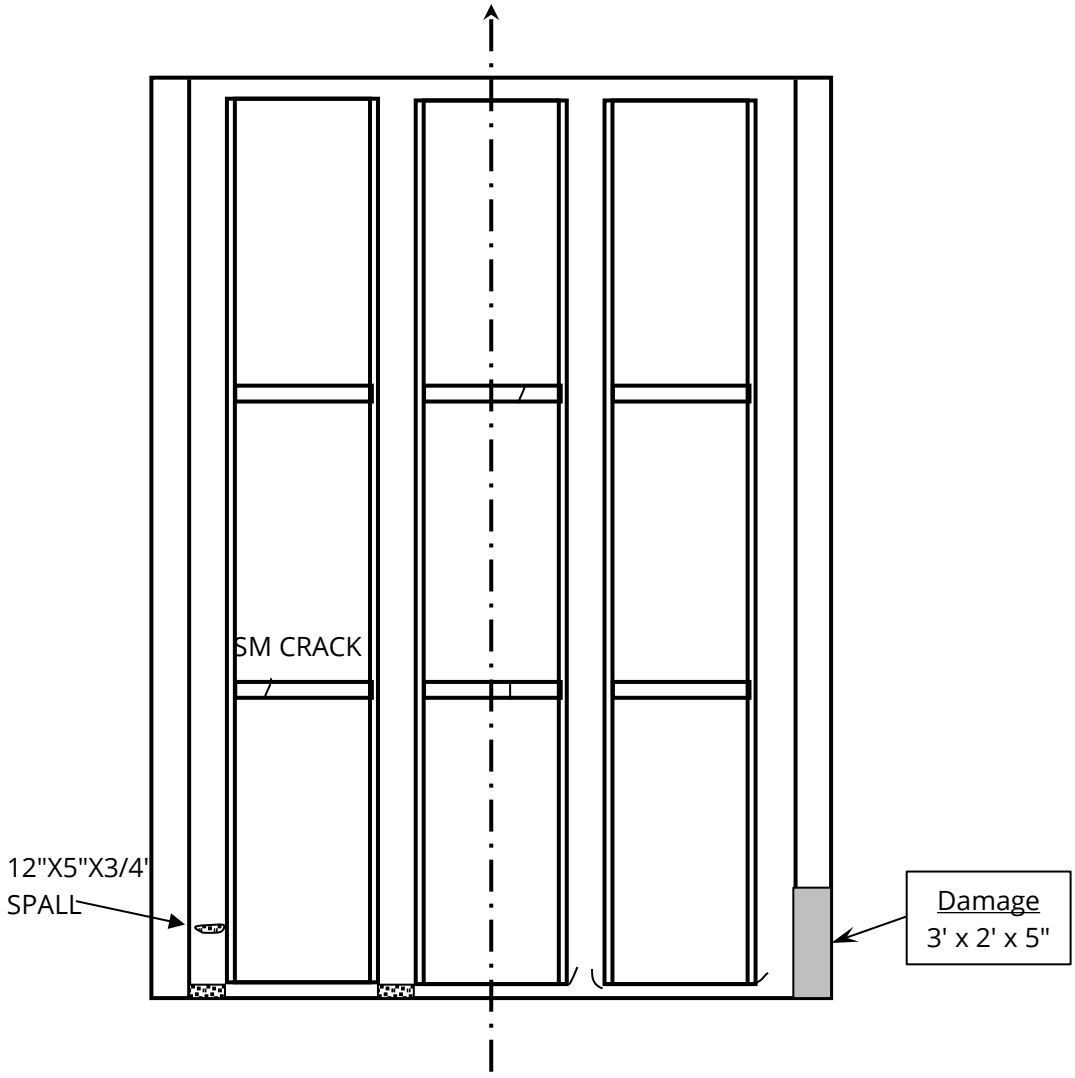


Overhang: G

Beams: GF

Deck: GF

Diaphragms: GF HL cracks

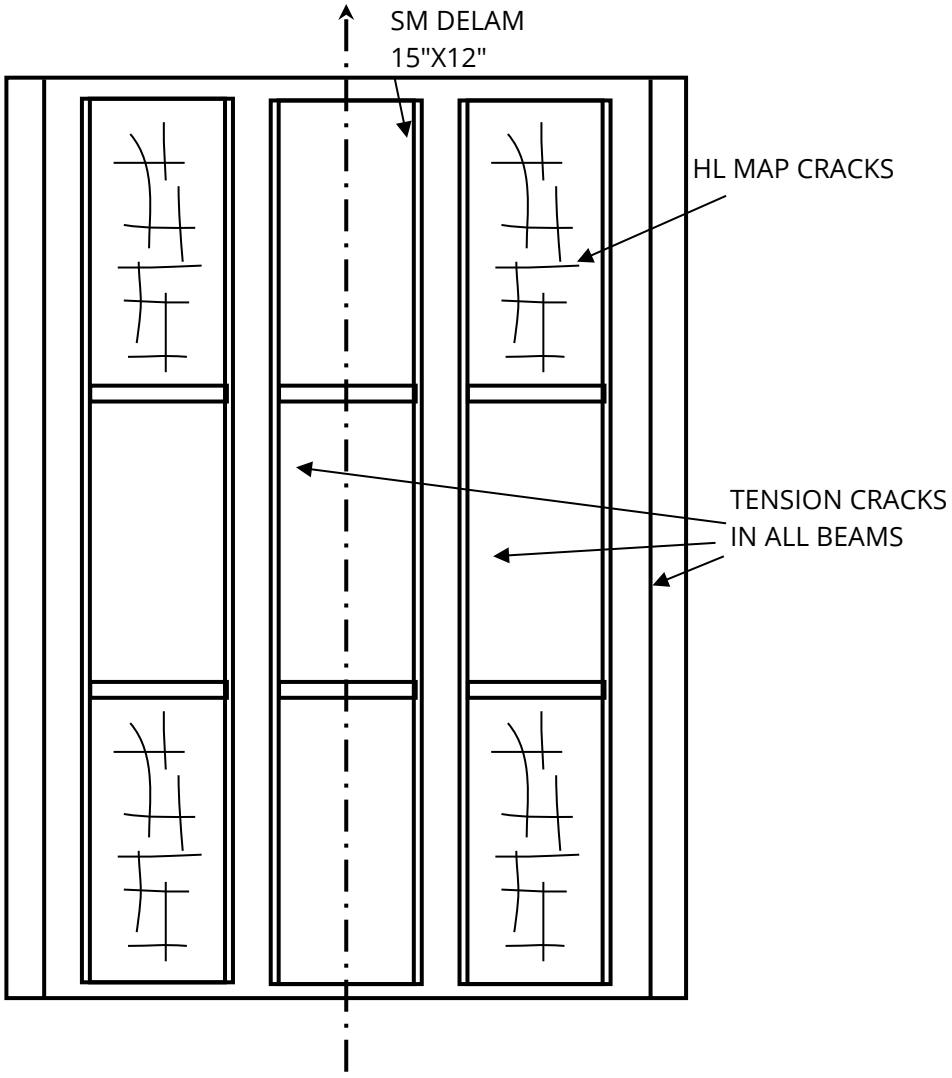


Overhang: G

Beams: GF

Deck: GF

Diaphragms: GF

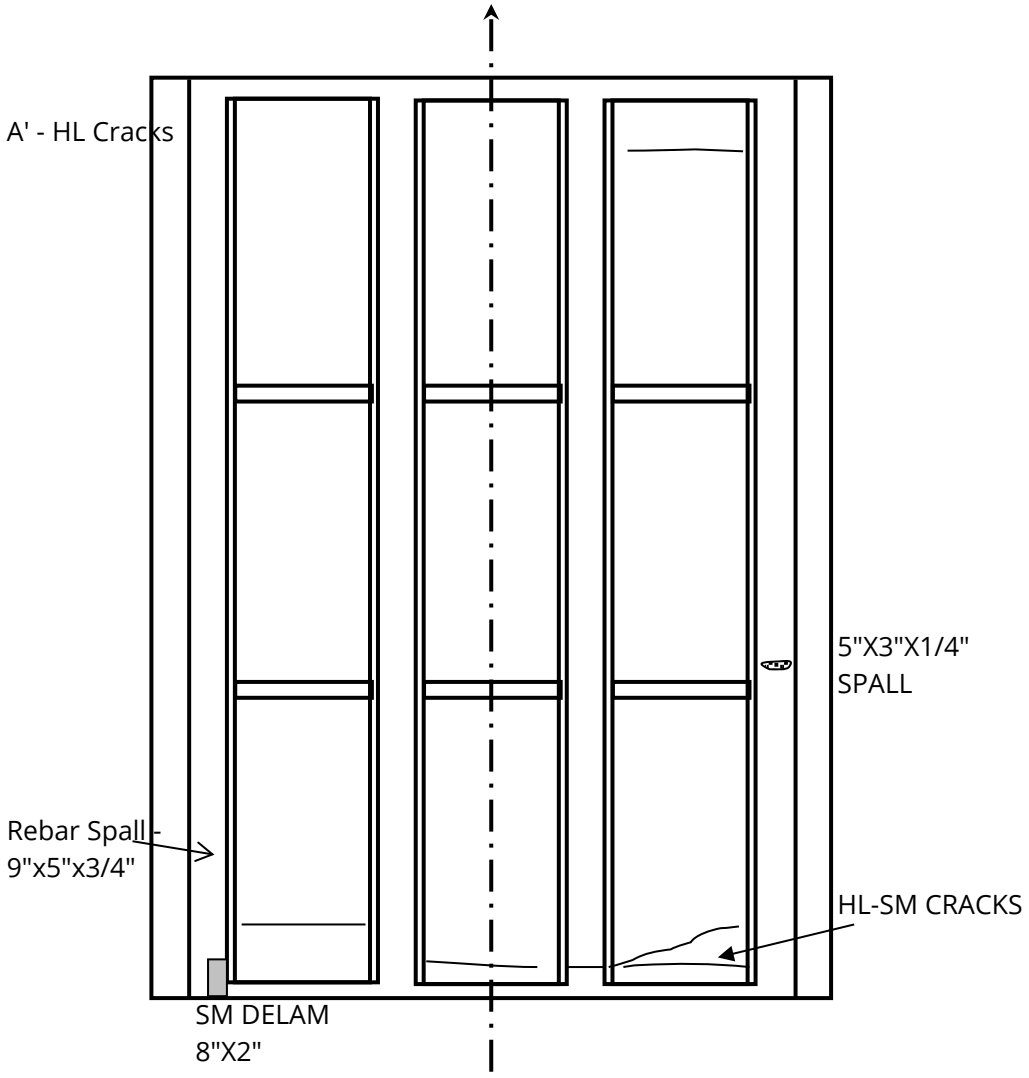


Overhang: G

Beams: GF

Deck: G

Diaphragms: GF

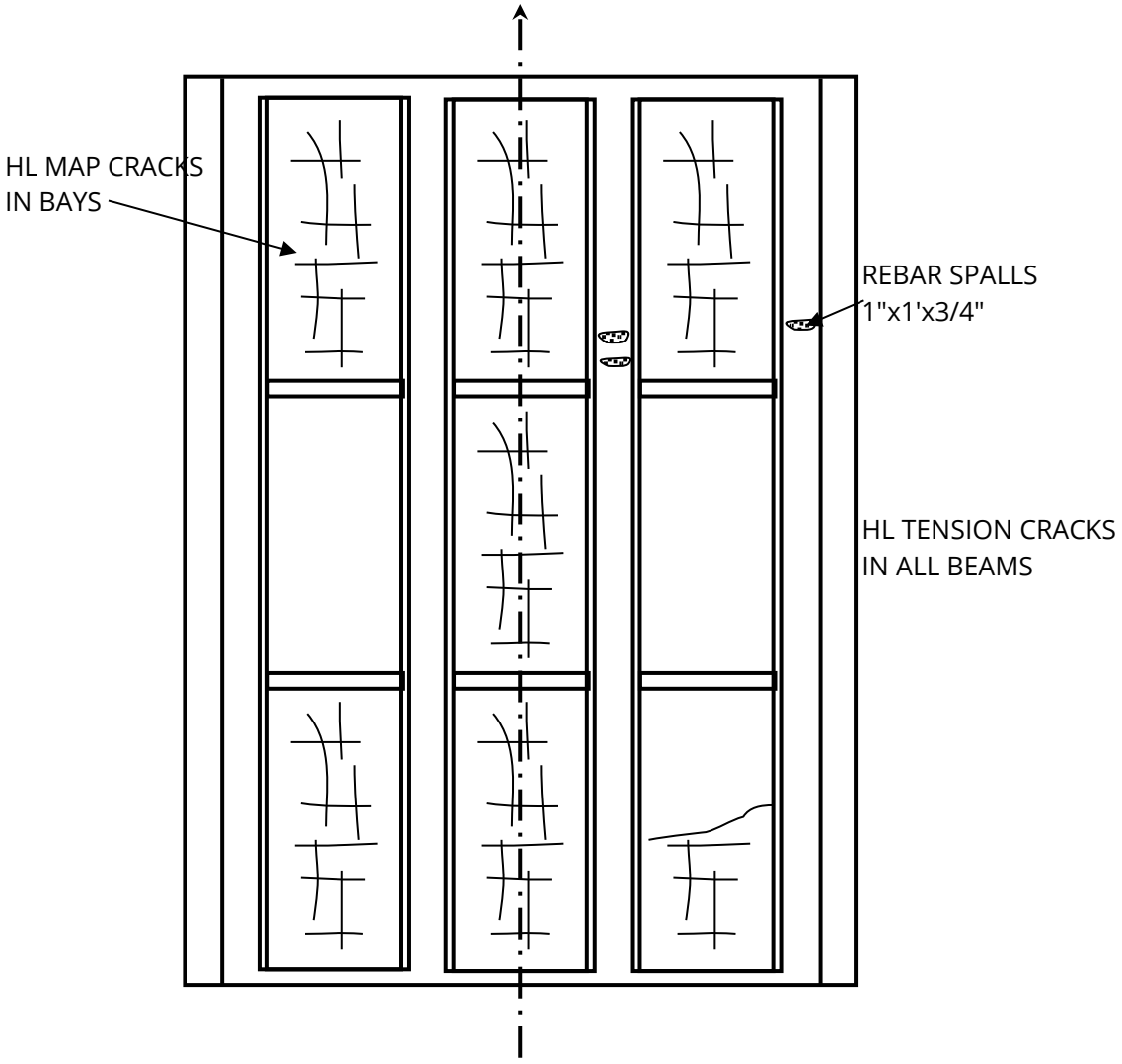


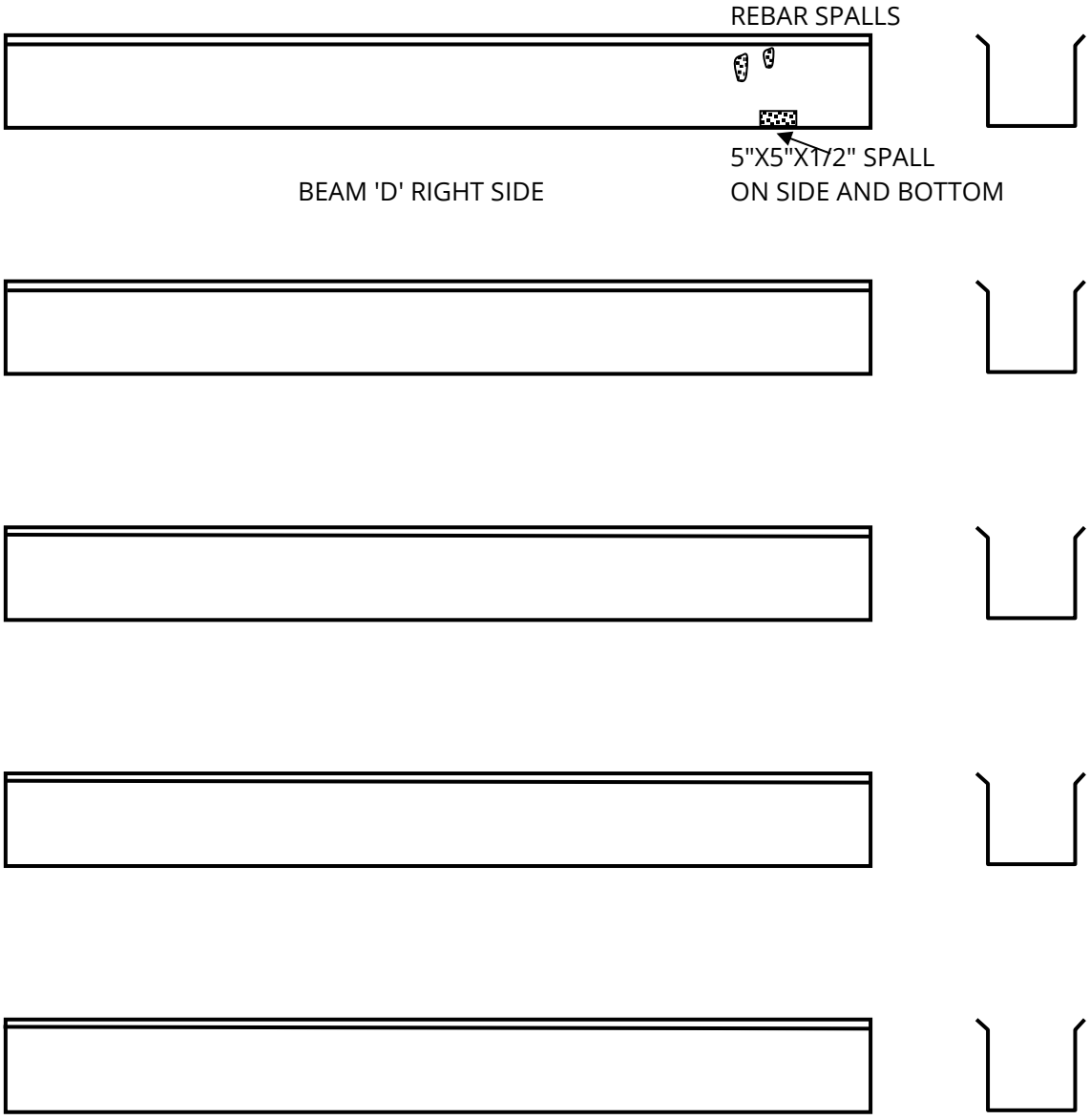
Overhang: G

Beams: GF

Deck: GF

Diaphragms: G



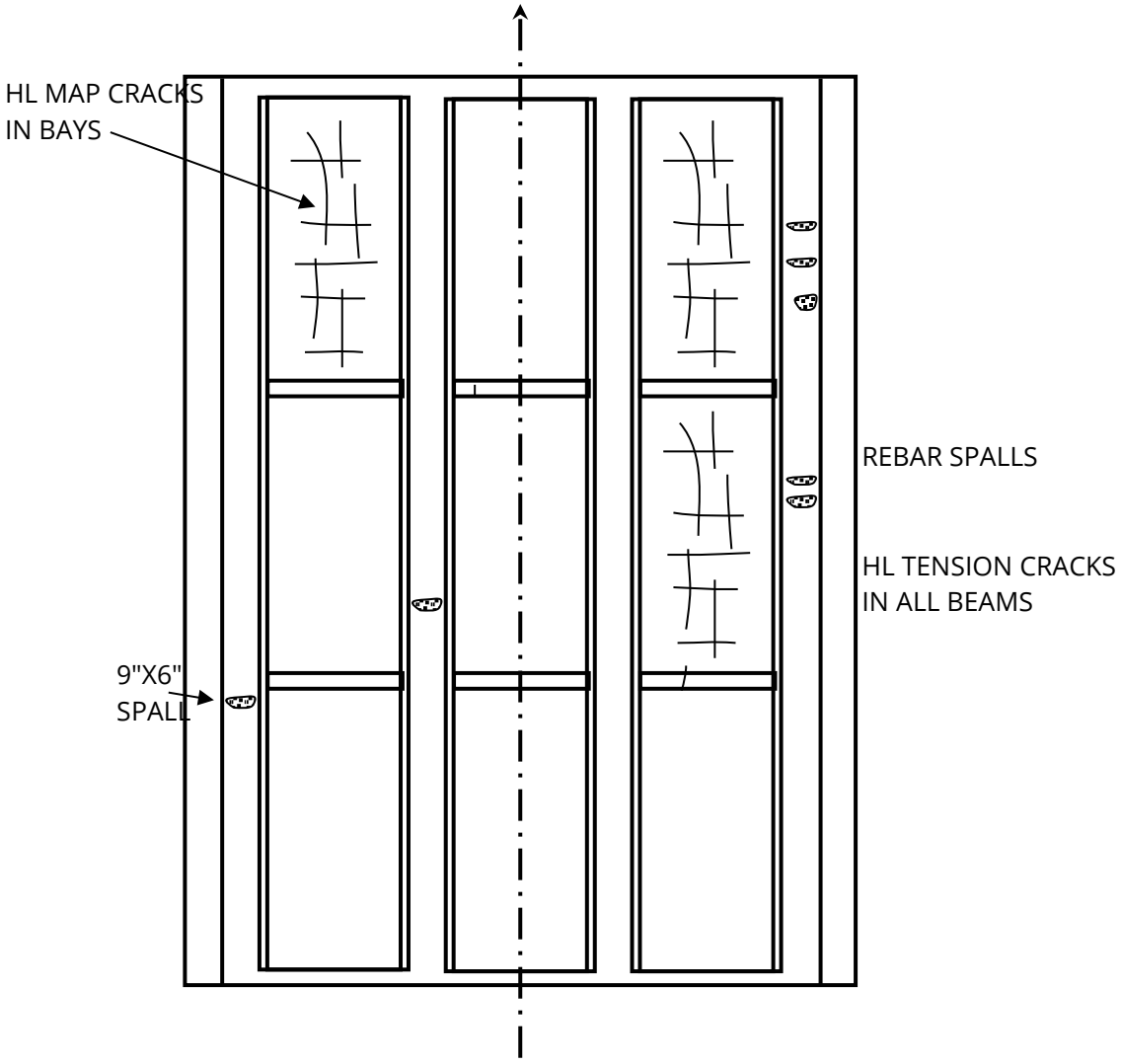

REBAR SPALLS
5"X5"X1/2" SPALL
ON SIDE AND BOTTOM
BEAM 'D' RIGHT SIDE

Overhang: G

Beams: GF

Deck: GF

Diaphragms: GF

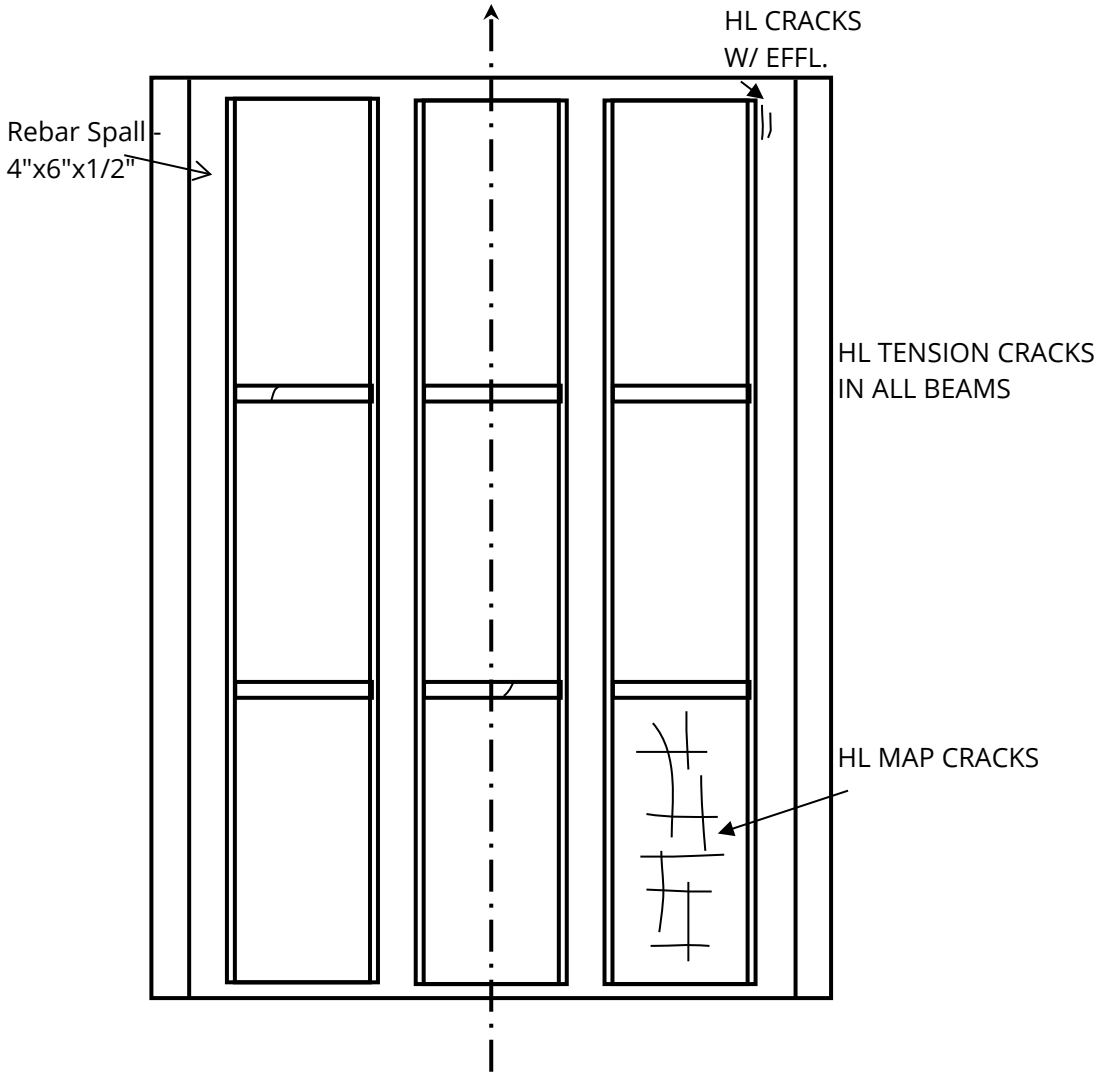


Overhang: G

Beams: GF

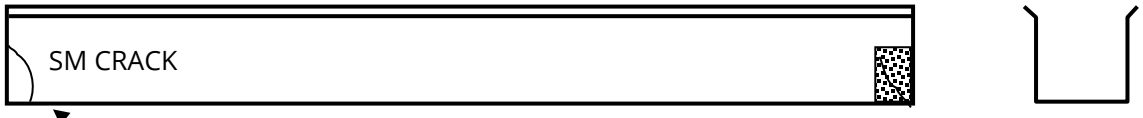
Deck: GF

Diaphragms: GF



18"X14"X1.5"
SPALL, HL CRACKS
CONCRETE DETERIORATION

LEFT SIDE BEAM 'A'



12"X3"X1" SPALL ON
BOTTOM NEXT TO
SOLE PLATE

RT SIDE BEAM 'D'

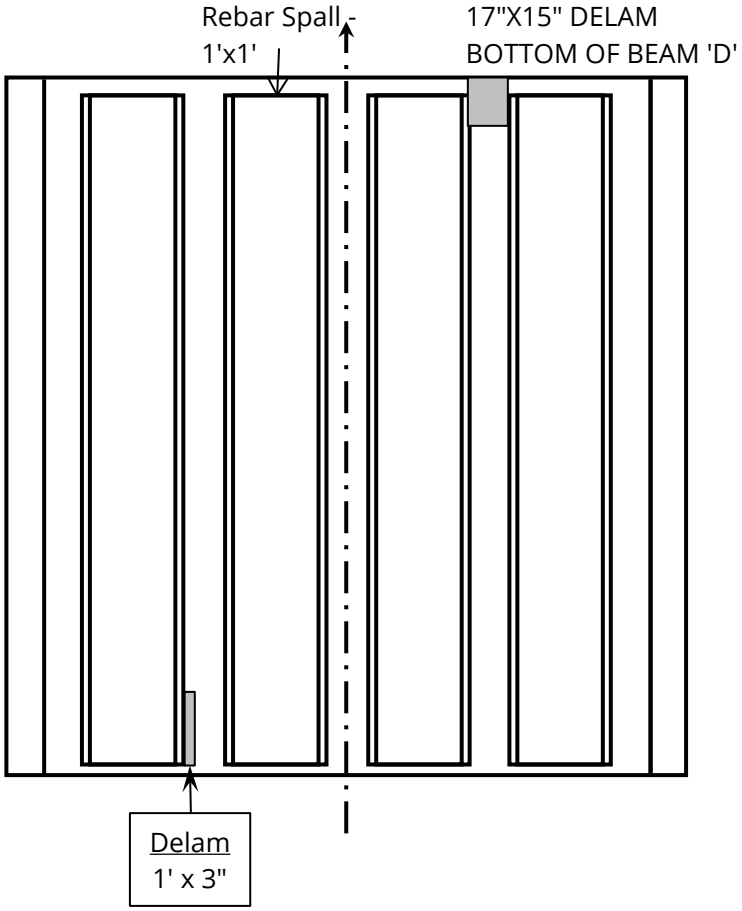
22"X15" DELAM/SPALL
W/ SM CRACK

Overhang: G

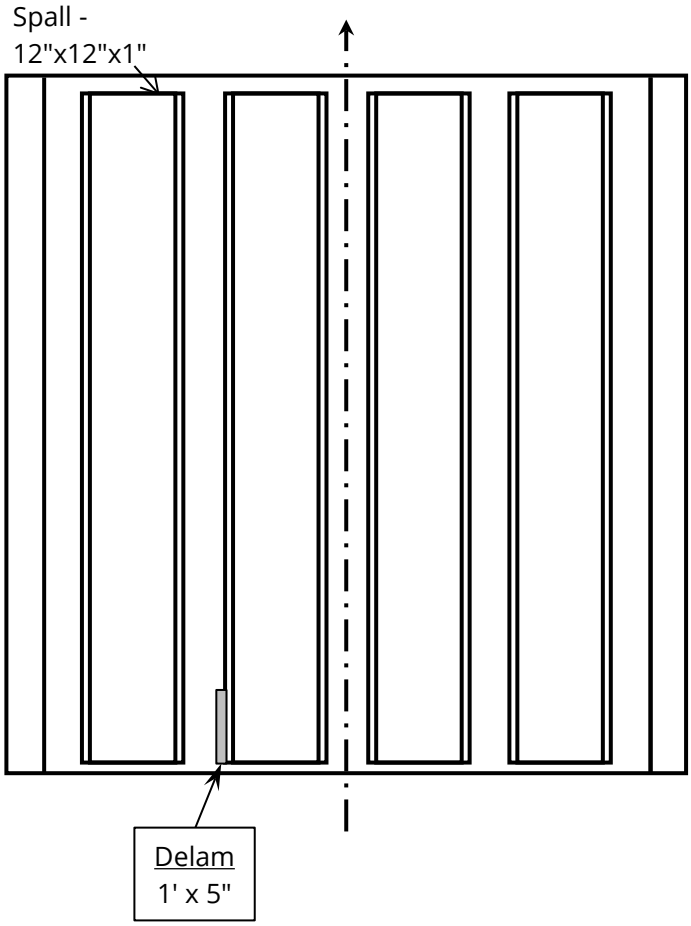
Beams: GF

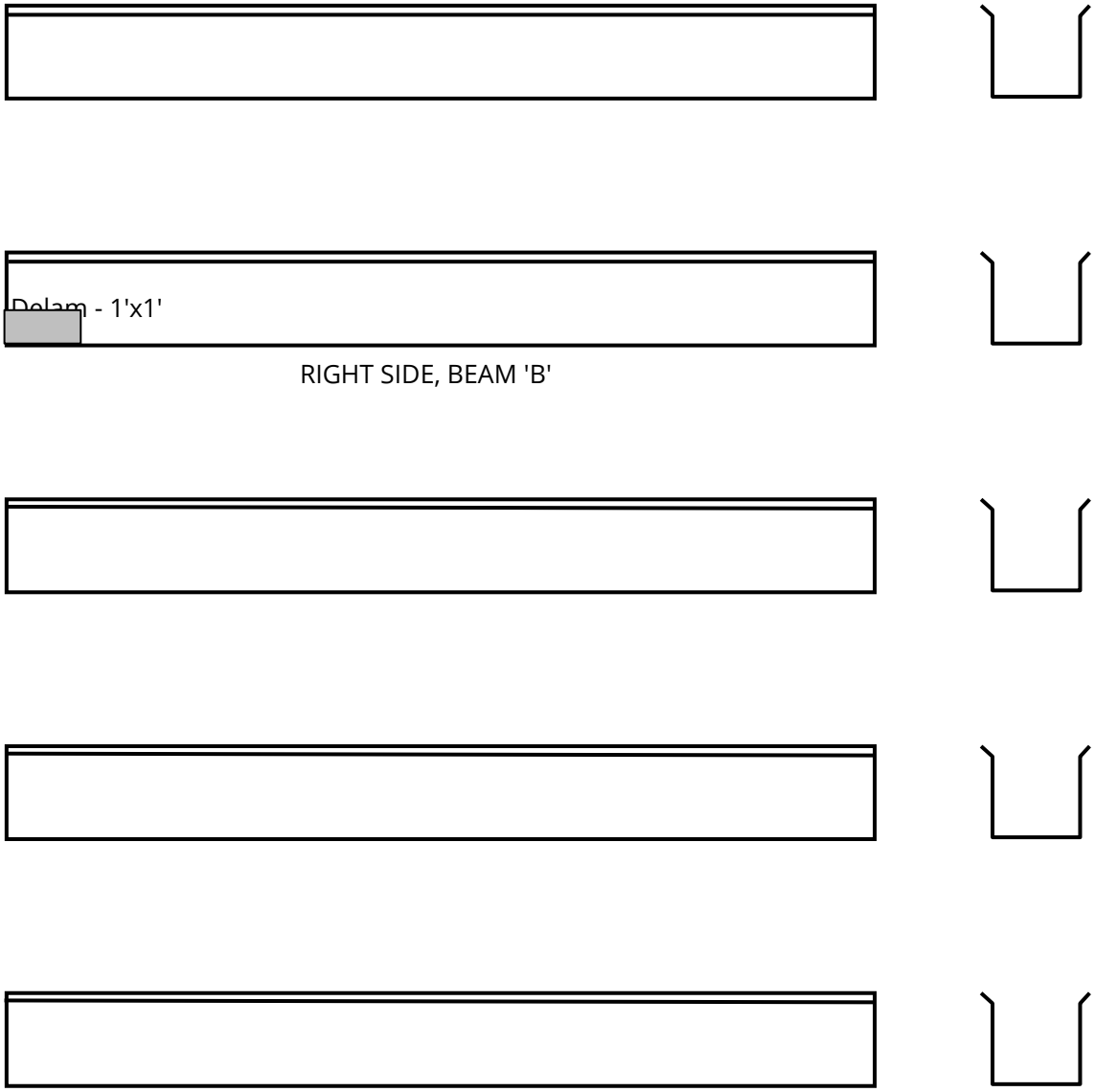
Deck: G

Diaphragms: GF



Overhang:	G	
Beams:	GF	DELAM AT BENT 7, BEAM 'B' RT SIDE
Deck:	G	
Diaphragms:	G	





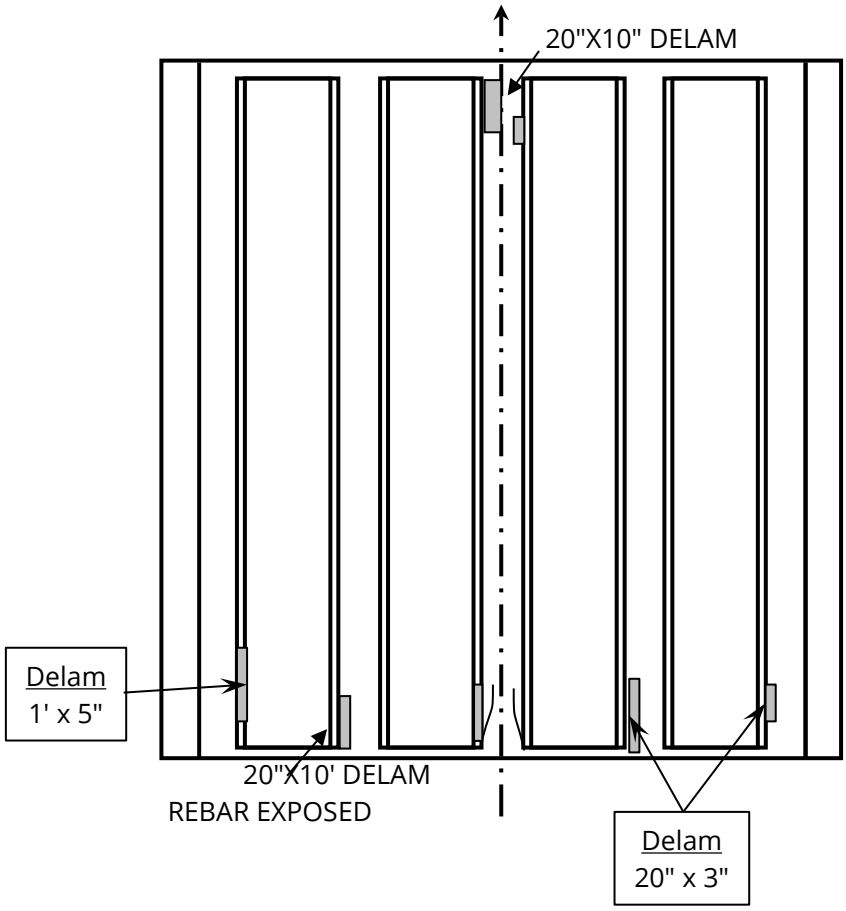
RIGHT SIDE, BEAM 'B'

Overhang: G

Beams: GF DELAMS W/EXP REBAR AT BENT 8 BEAM 'B' LT&RT SIDE

Deck: G

Diaphragms: G

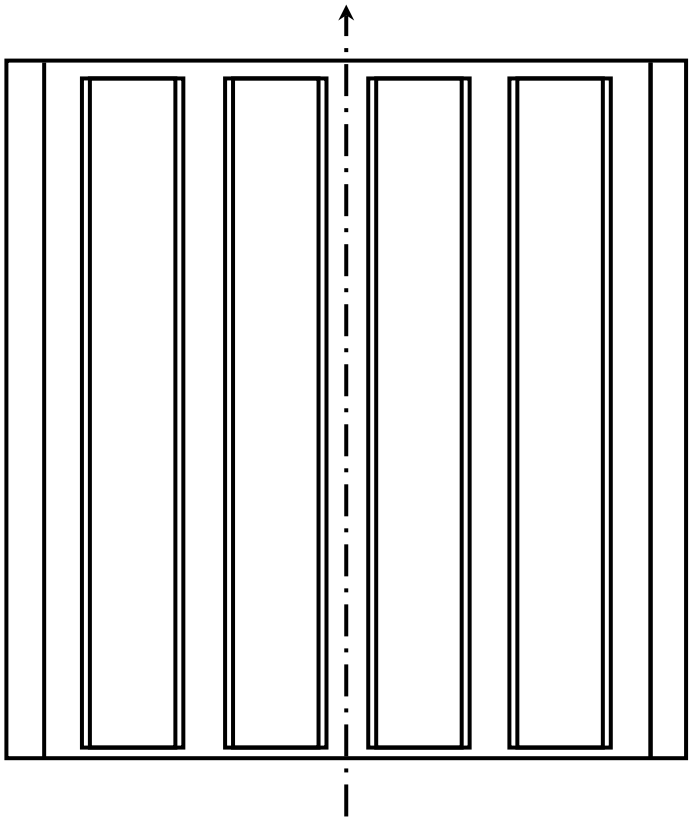


Overhang: G

Beams: G

Deck: G

Diaphragms: G

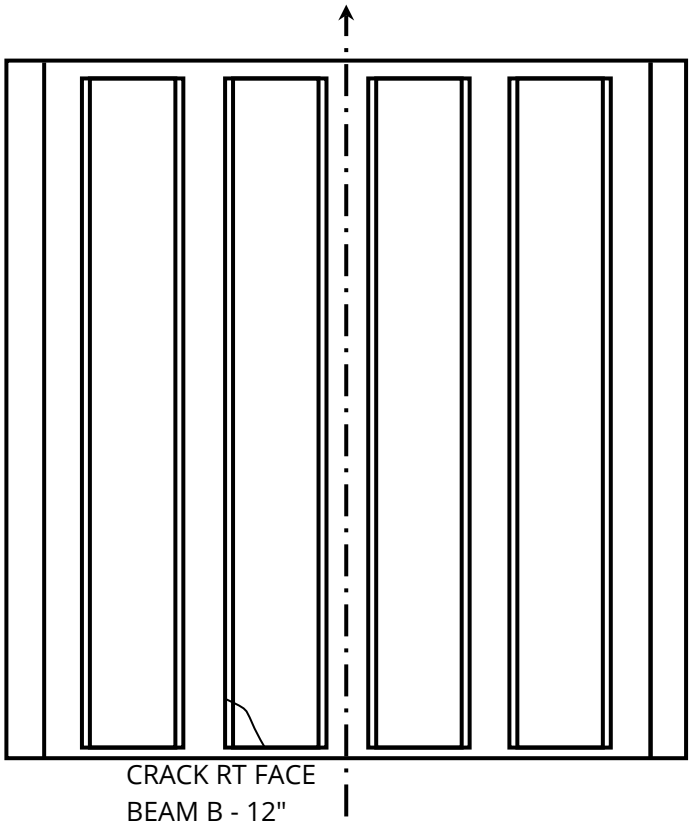


Overhang: G

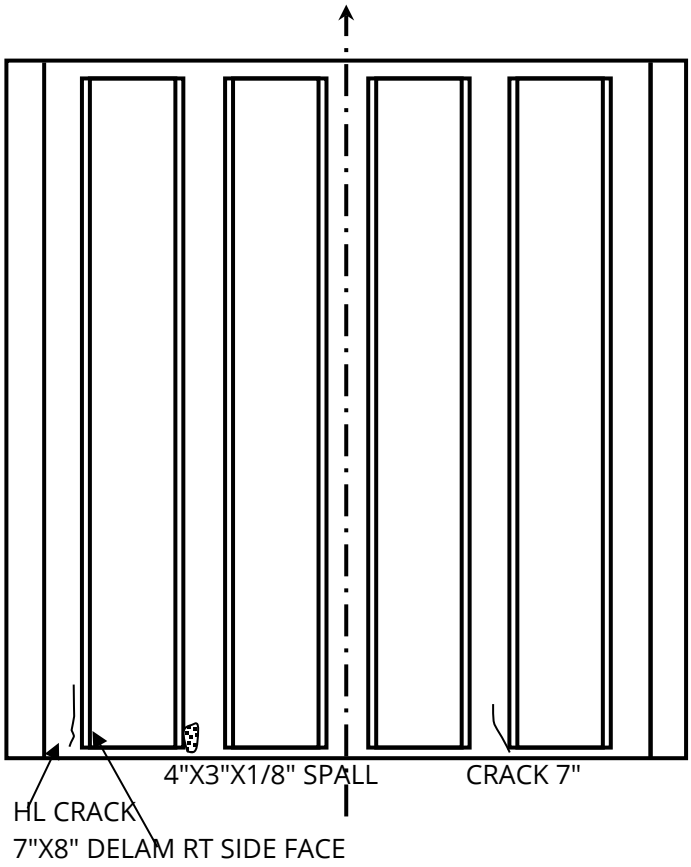
Beams: G

Deck: G

Diaphragms: G



Overhang:	G	
Beams:	G	12"x5" DELAM @ BENT 11, BEAM A RT FACE
Deck:	G	
Diaphragms:	G	

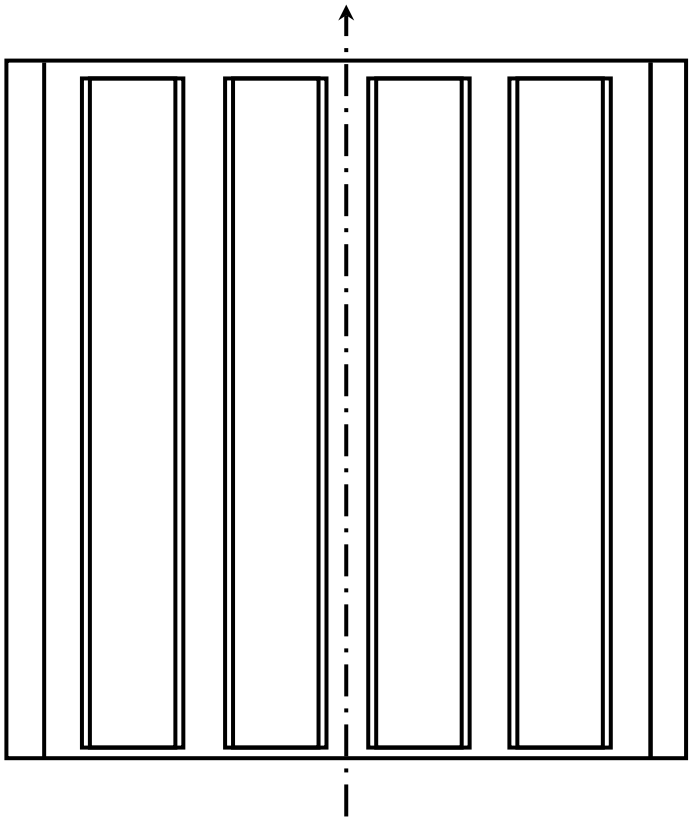


Overhang: G

Beams: G

Deck: G

Diaphragms: G



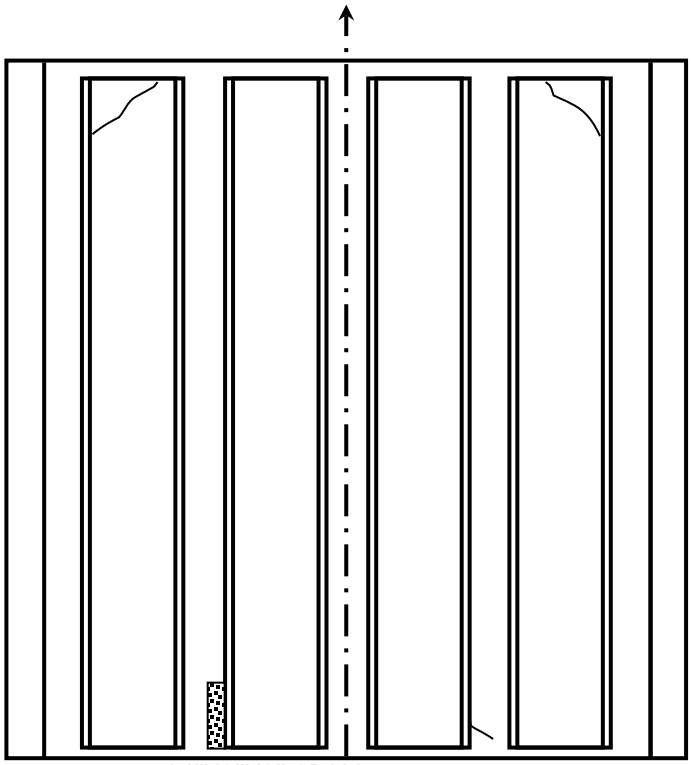
Overhang: G

Beams: GF

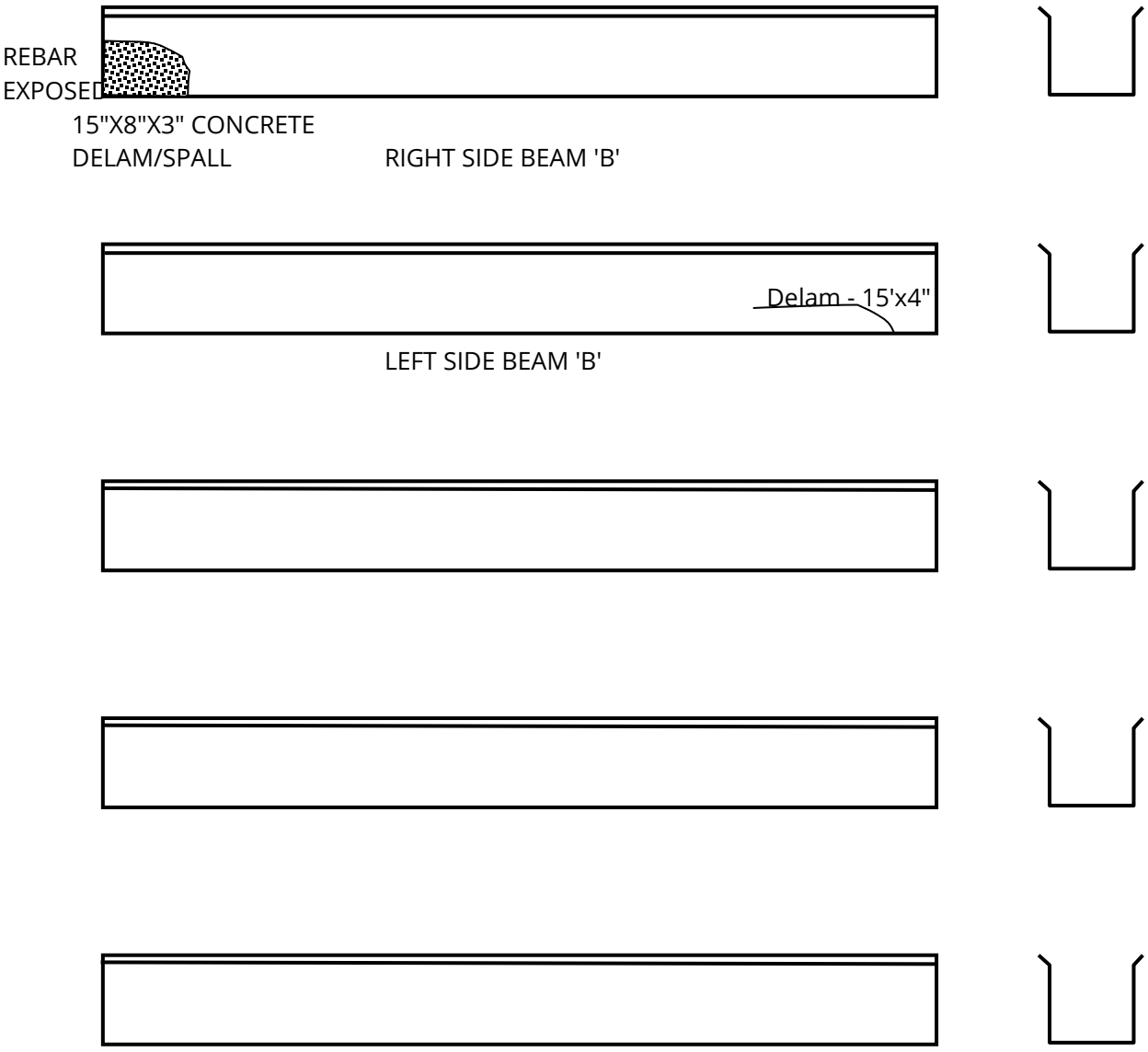
Deck: GF

Diaphragms: GF A', 'B', 'C' - spalls

DELAM/SPALLS IN DIAPHRAGMS



14"X3"X3" SPALL
W/ SM-LRG CRACKS


REBAR
EXPOSED
15"X8"X3" CONCRETE
DELAM/SPALL
RIGHT SIDE BEAM 'B'
Delam - 15'x4"
LEFT SIDE BEAM 'B'

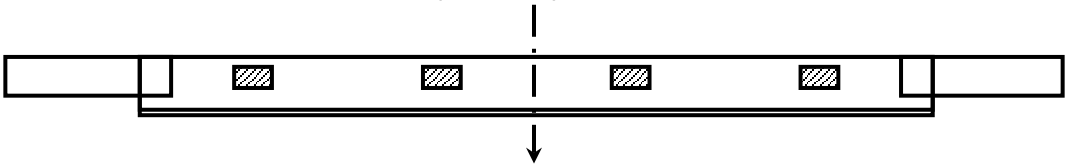
Slope: F

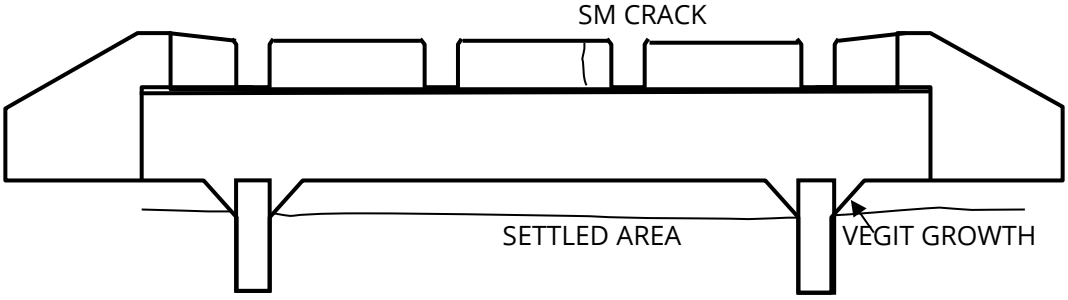
Wings: G

Abutment Walls: G

Bearing: GF

ALL MASONARY PLATES HAVE
1/16"-1/8' LOSS W/ OLD CORROISON (PAINTED)



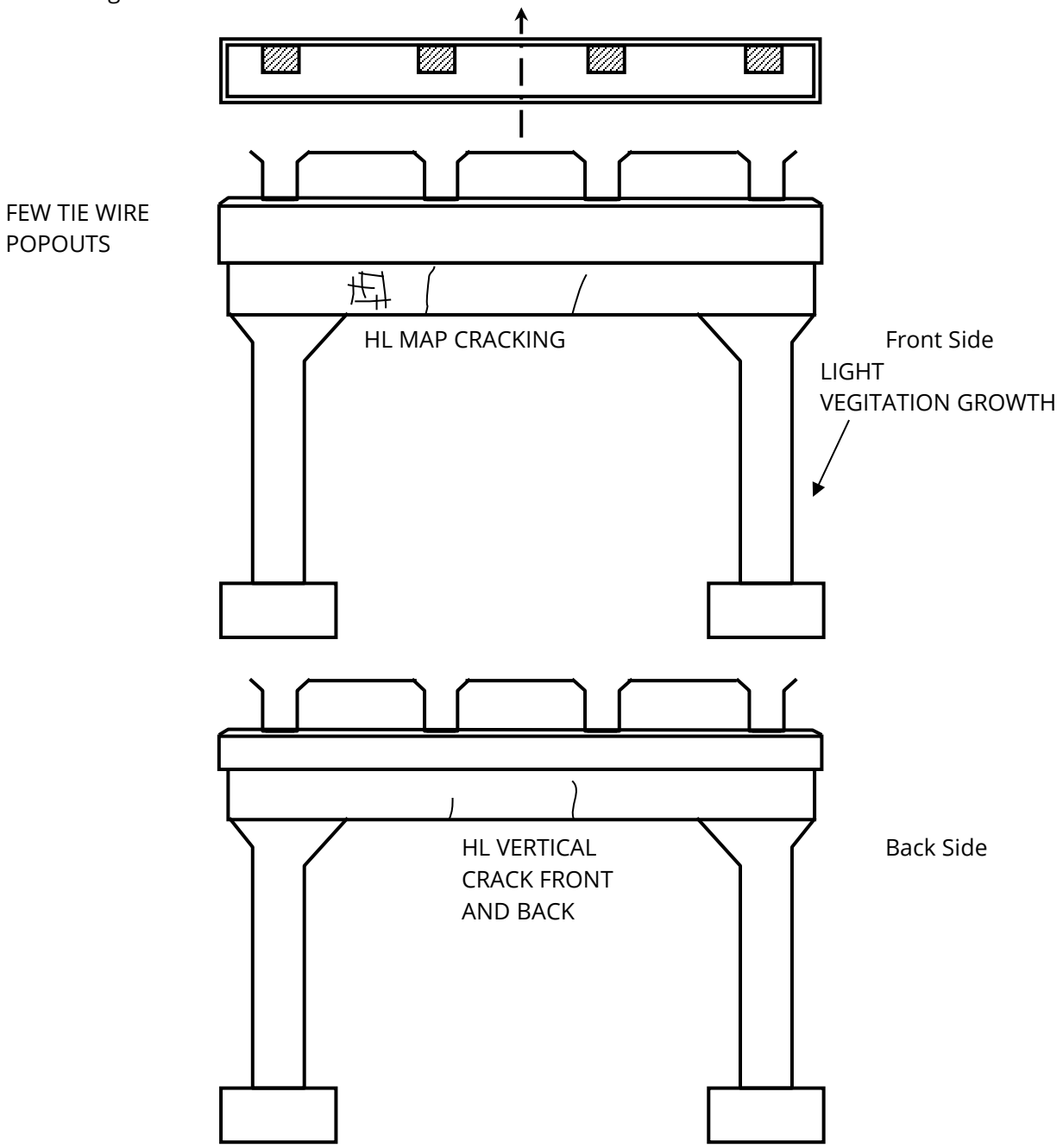


Column: G

Risers: G

Cap: GF

Bearings: GF



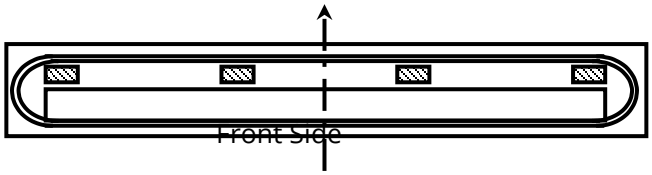
Column: G

Risers: G

Cap: G

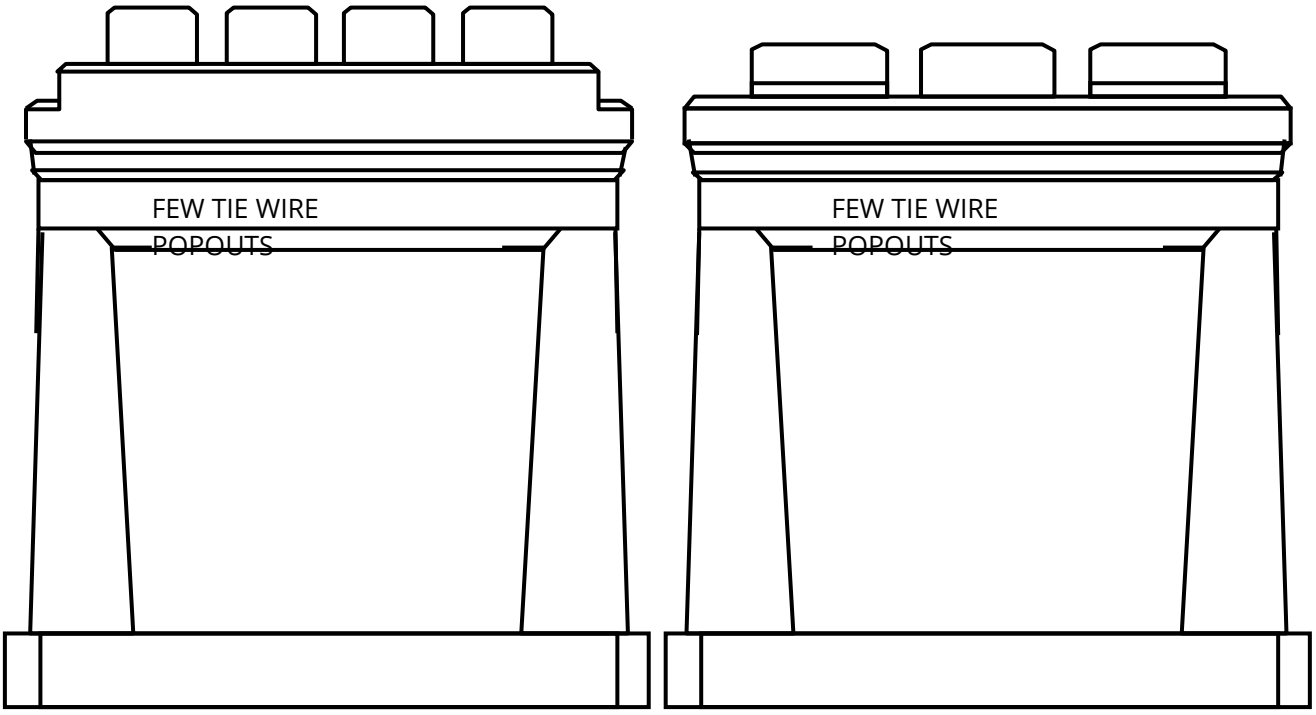
Bearings: GF

LIGHT DRIFT AGAINST PIER



Back Side

LG Spall - Behind bearing 'B' & 'C'

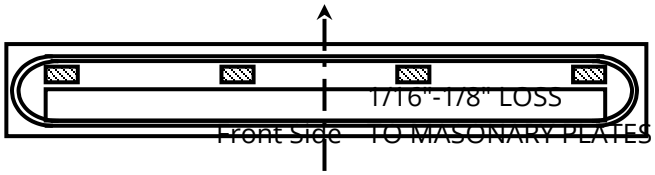


Column: G

Risers: G

Cap: G

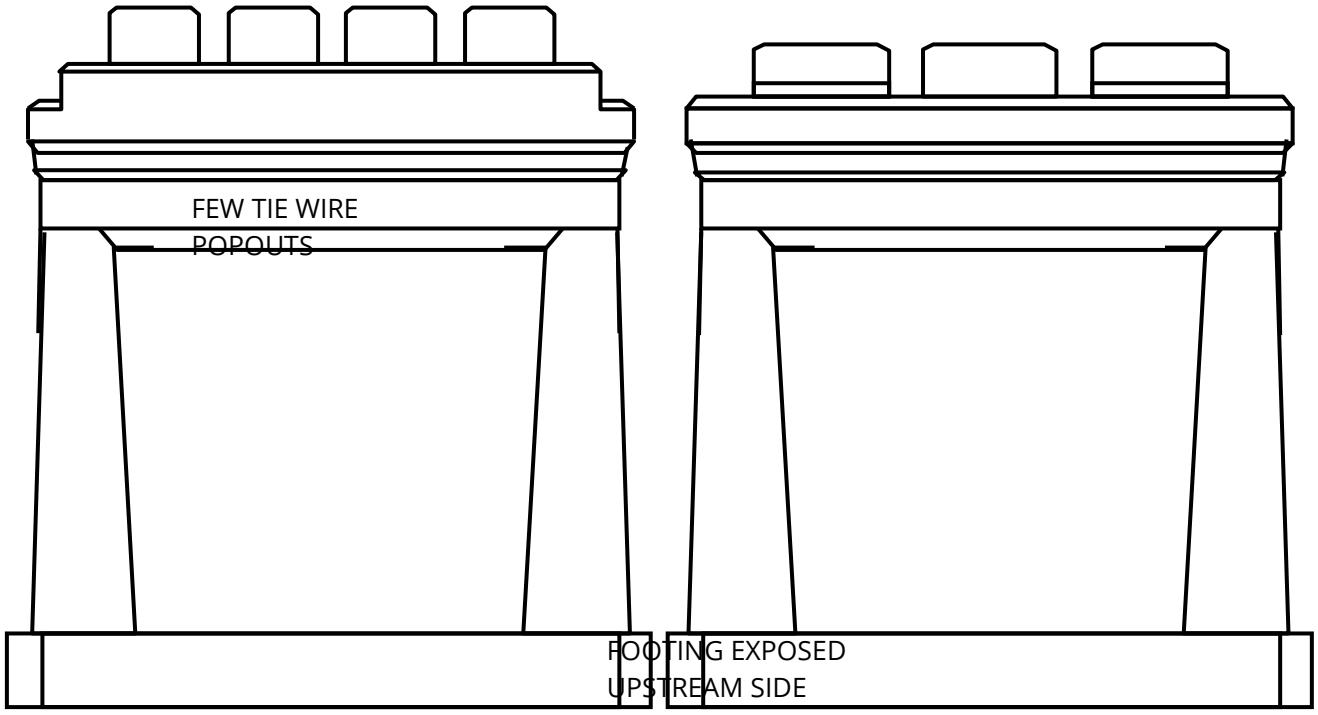
Bearings: GF



TOP OF FOOTING EXPOSED

Back Side

LG Spall behind bearings 'B' & 'C'

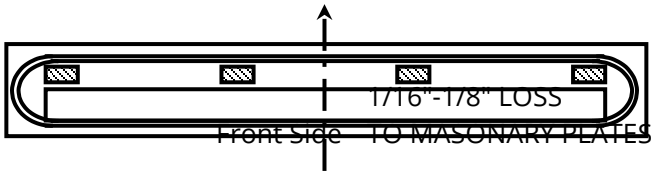


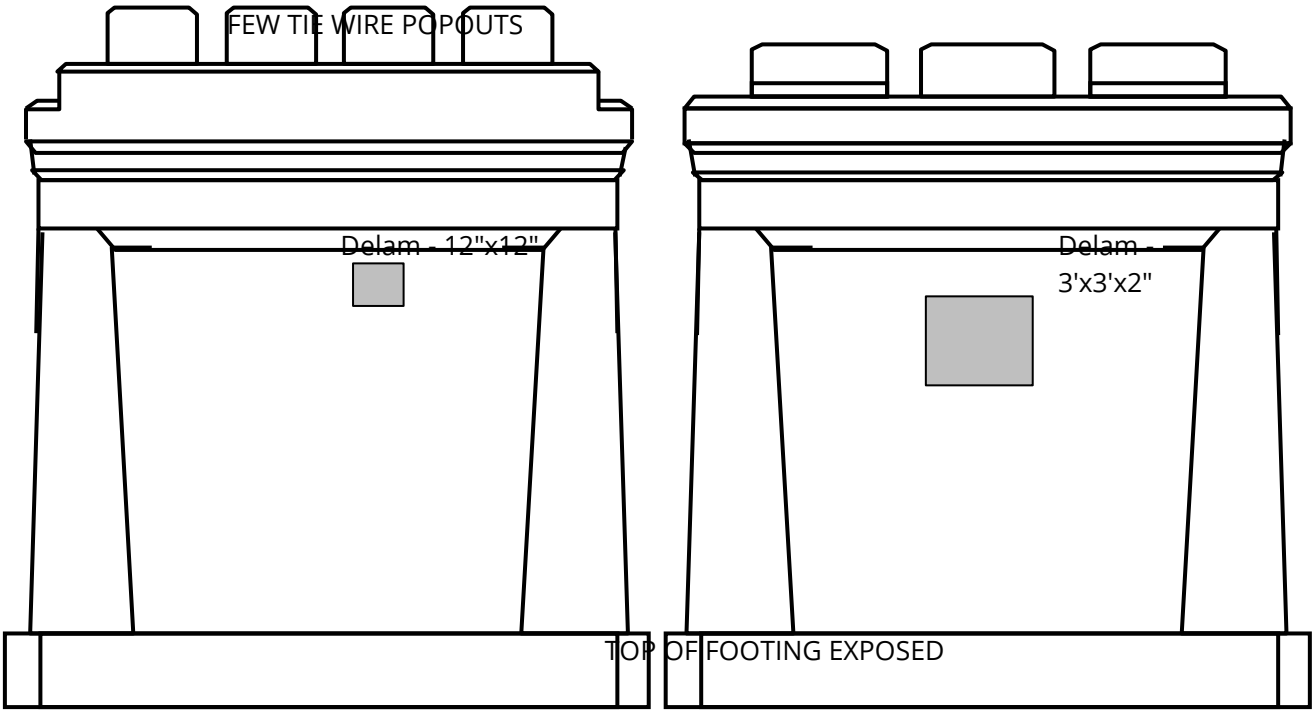
Column: G

Risers: G

Cap: G

Bearings: GF



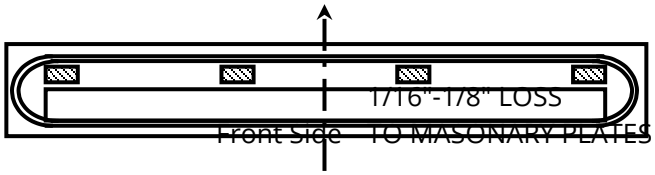


Column: G

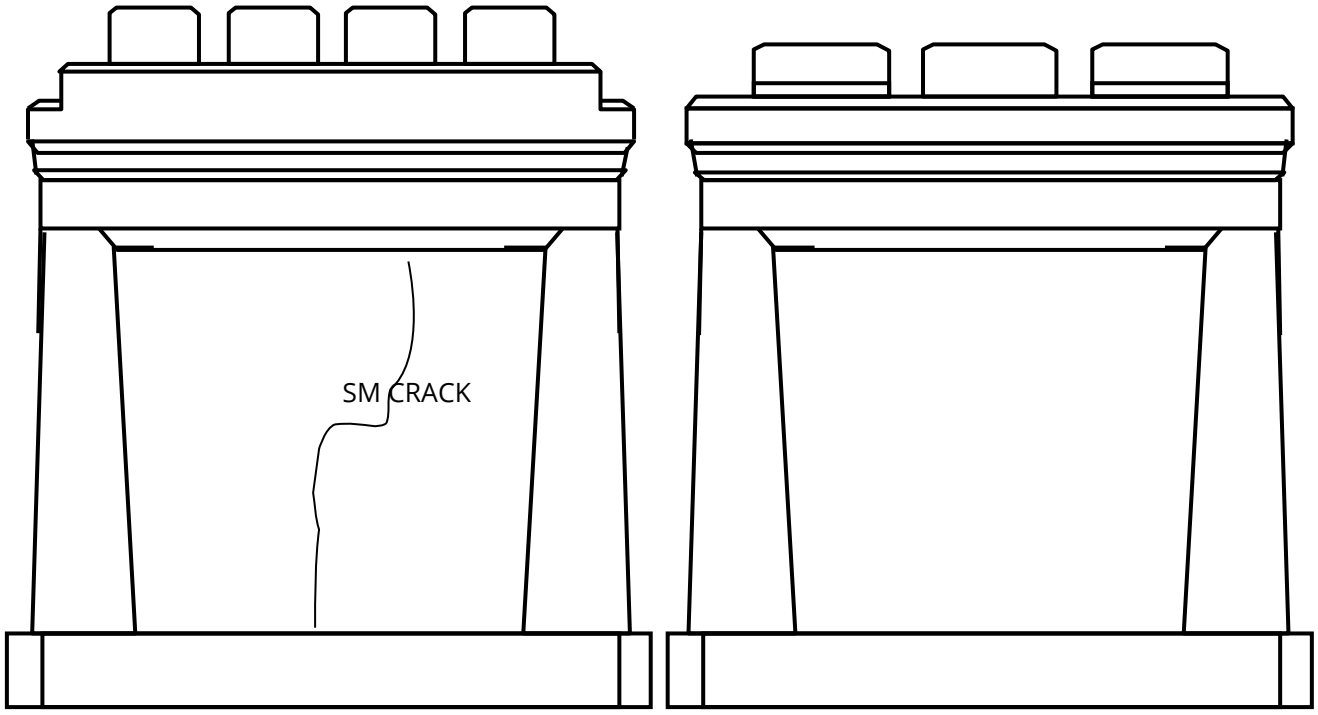
Risers: G

Cap: G

Bearings: GF



Back Side

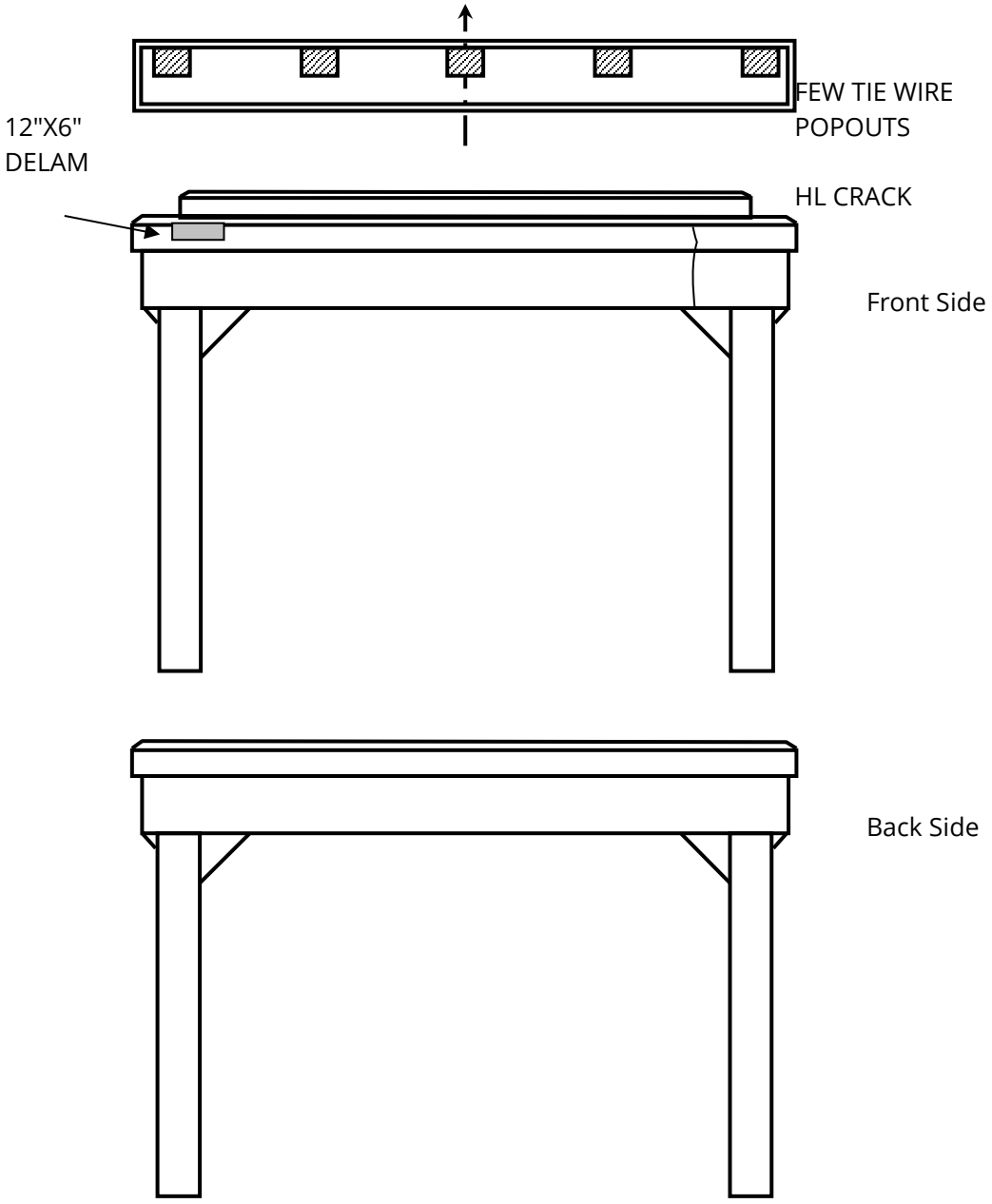


Column: G

Risers: G

Cap: GF

Bearings: G

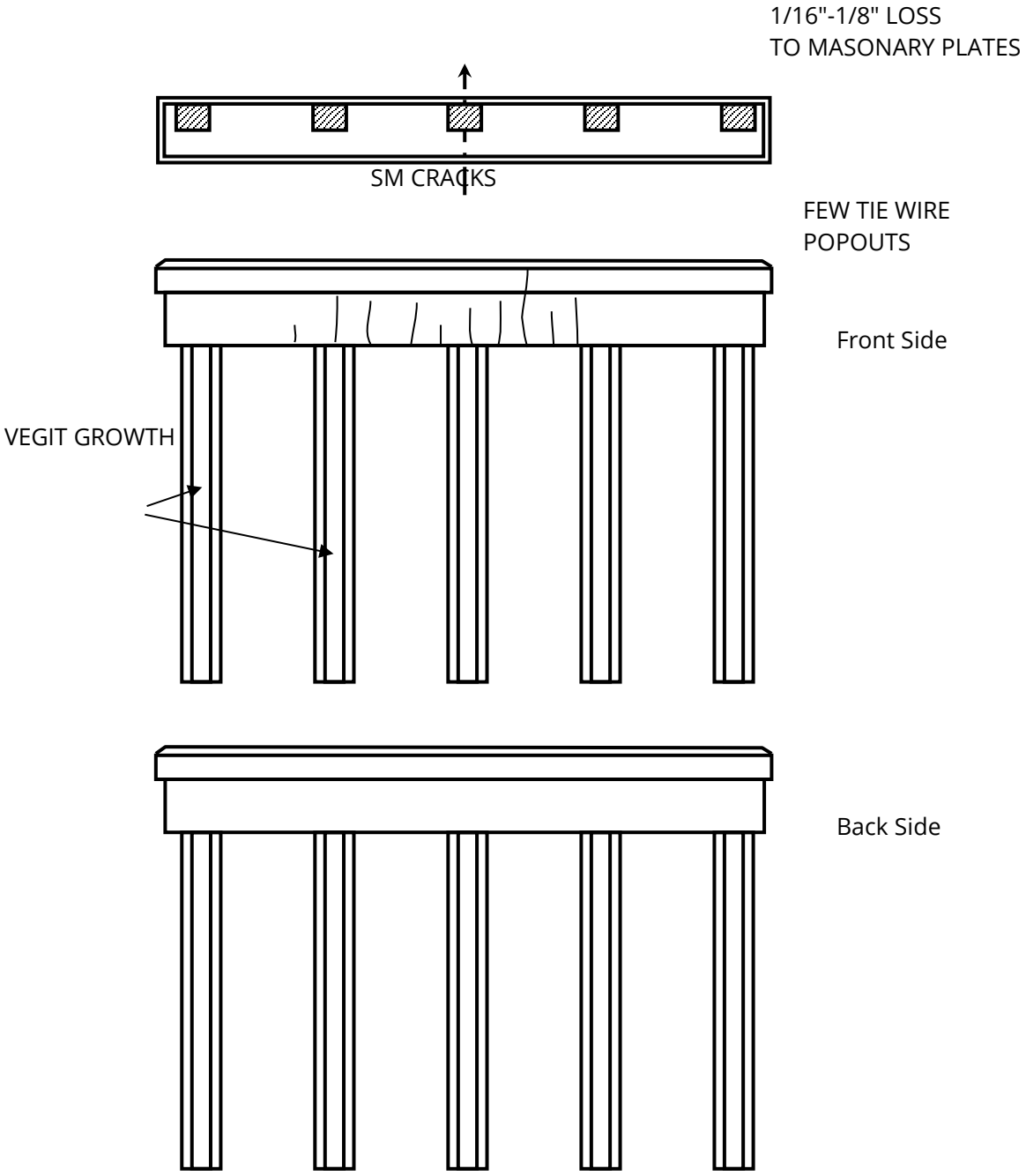


Column: G

Risers: G

Cap: GF

Bearings: GF

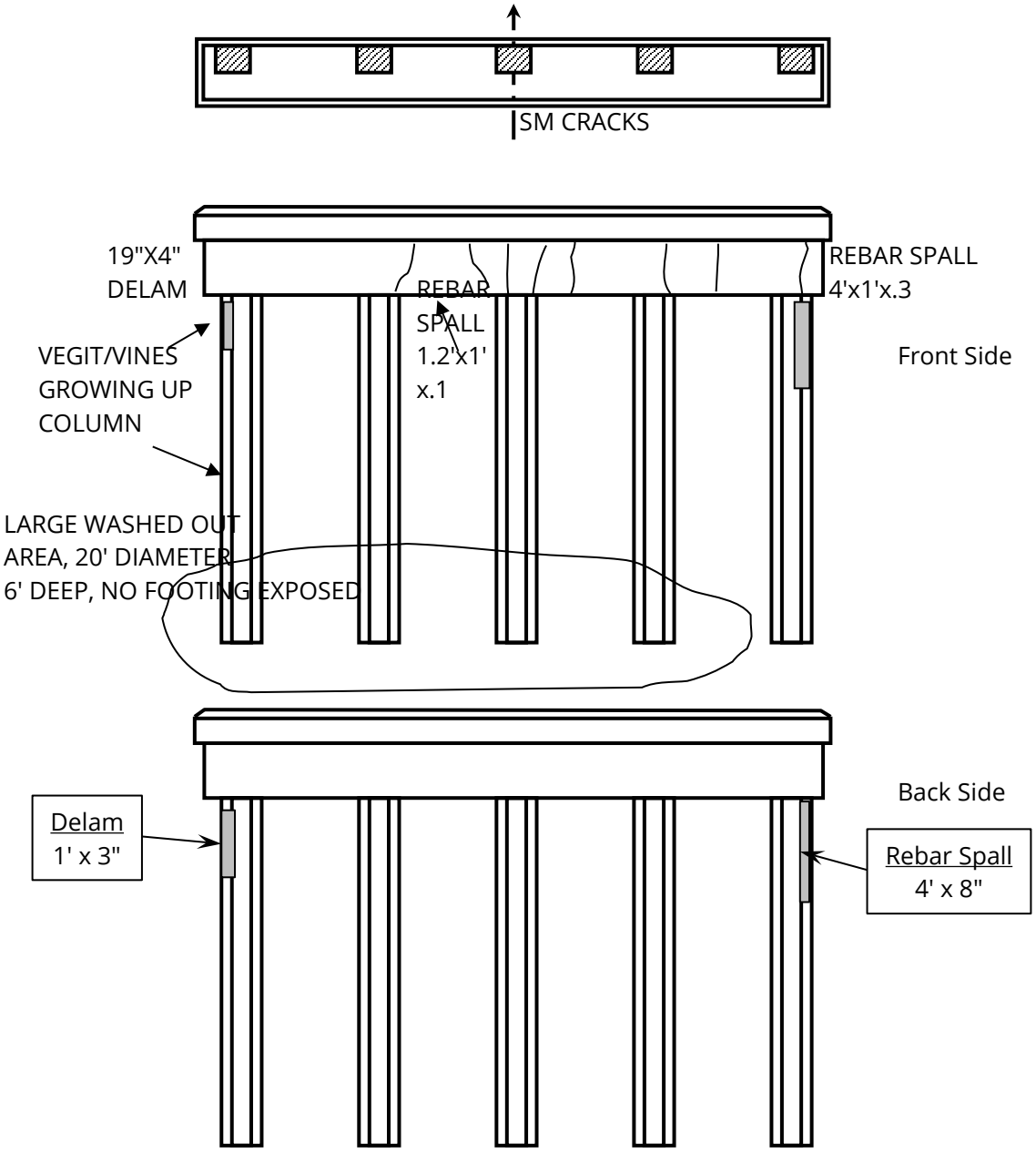


Column: GF

Risers: G

Cap: GF

Bearings: GF



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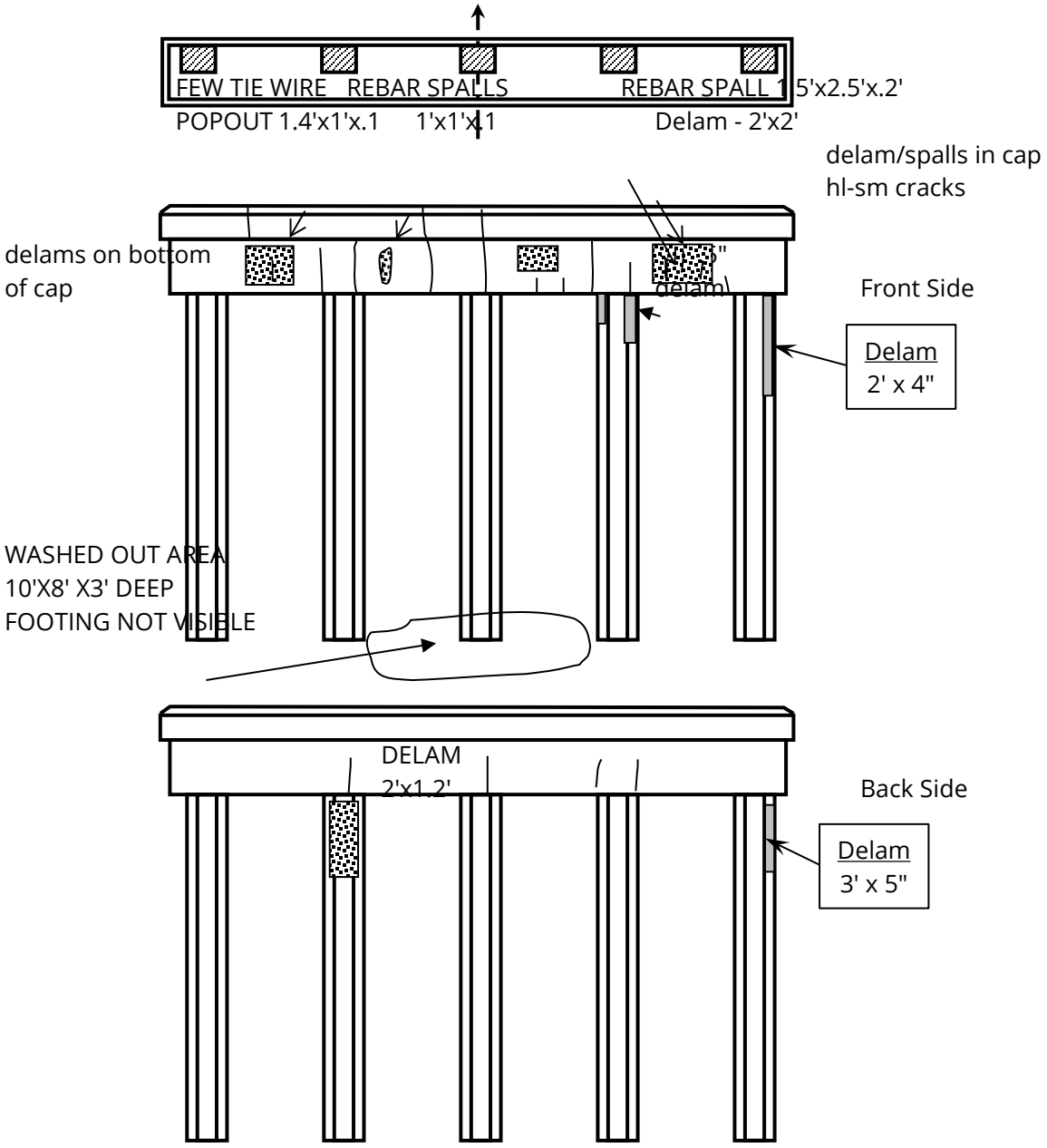
Cap: FP

Bearings: GF



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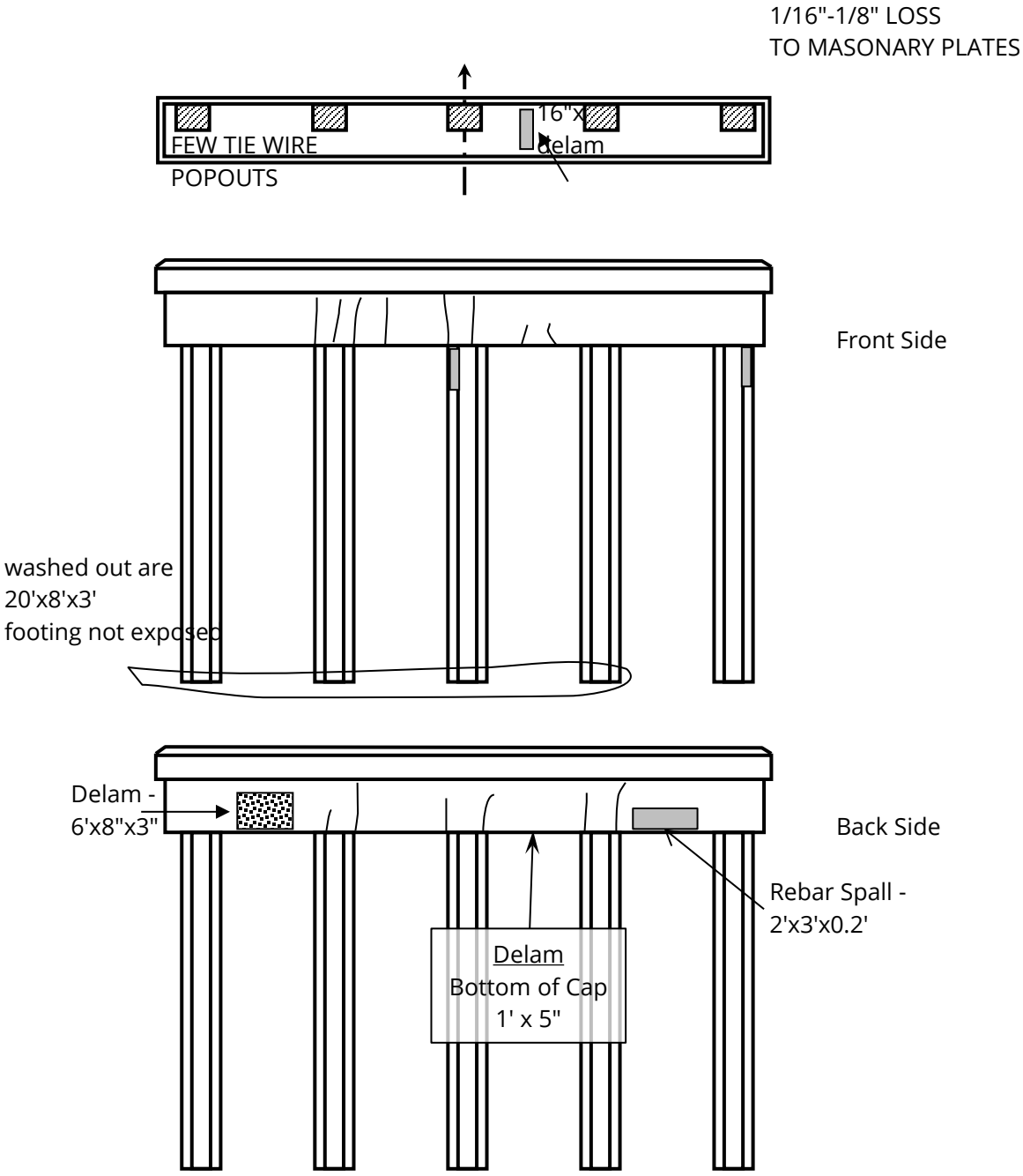
Bearings: G



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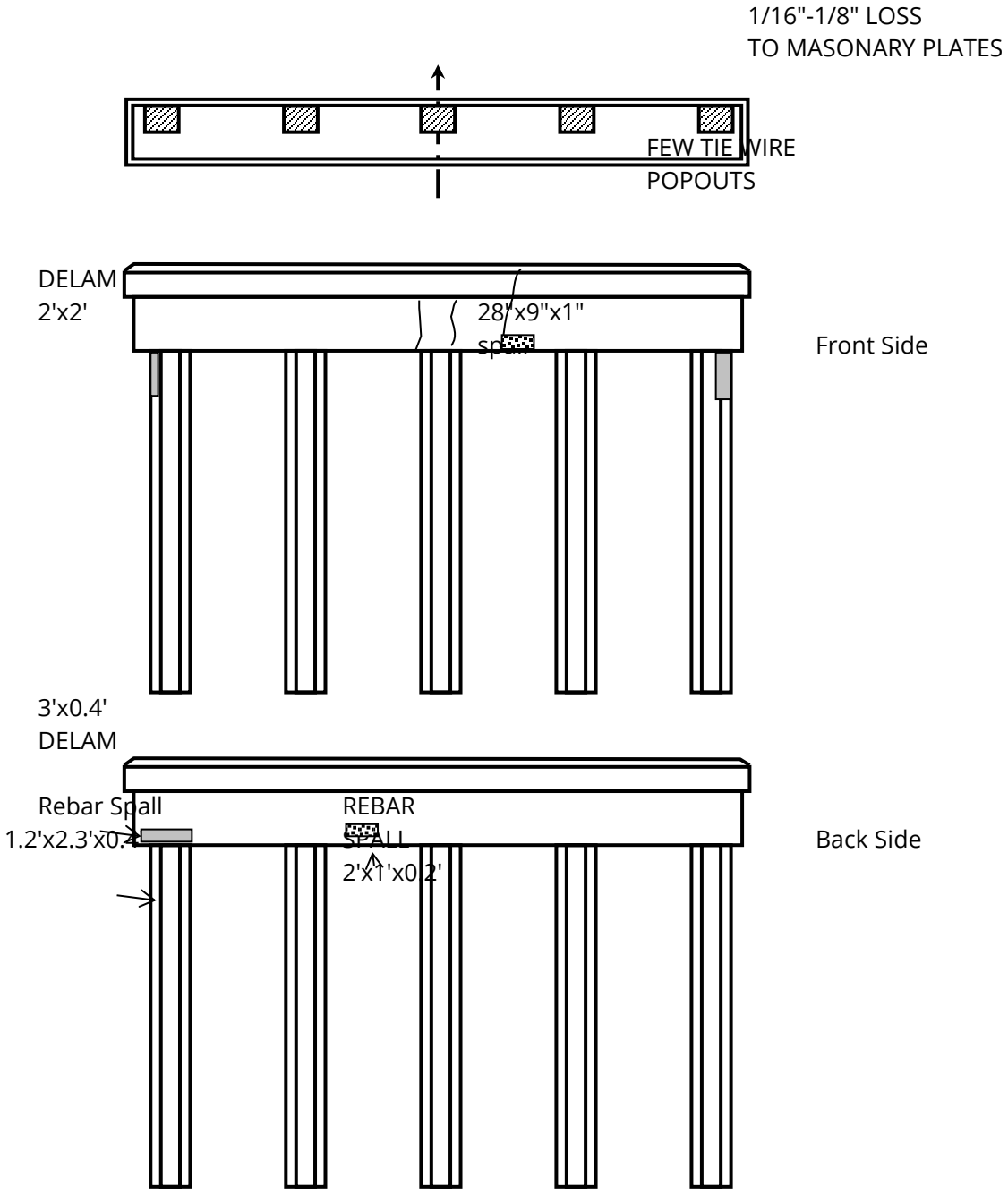
Risers: G

Cap: G

Bearings: GF



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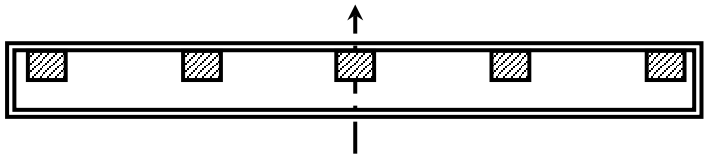
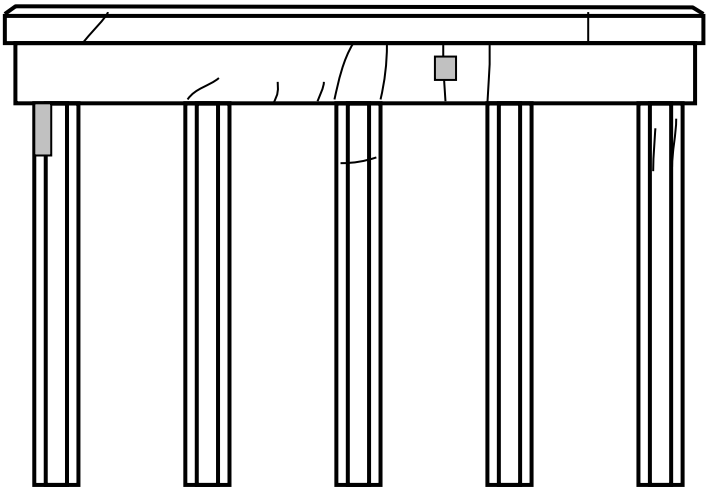
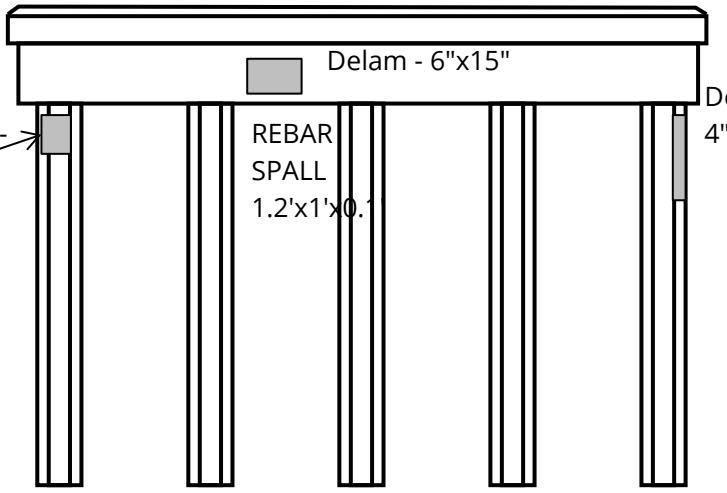
Cap: G

Bearings: GF





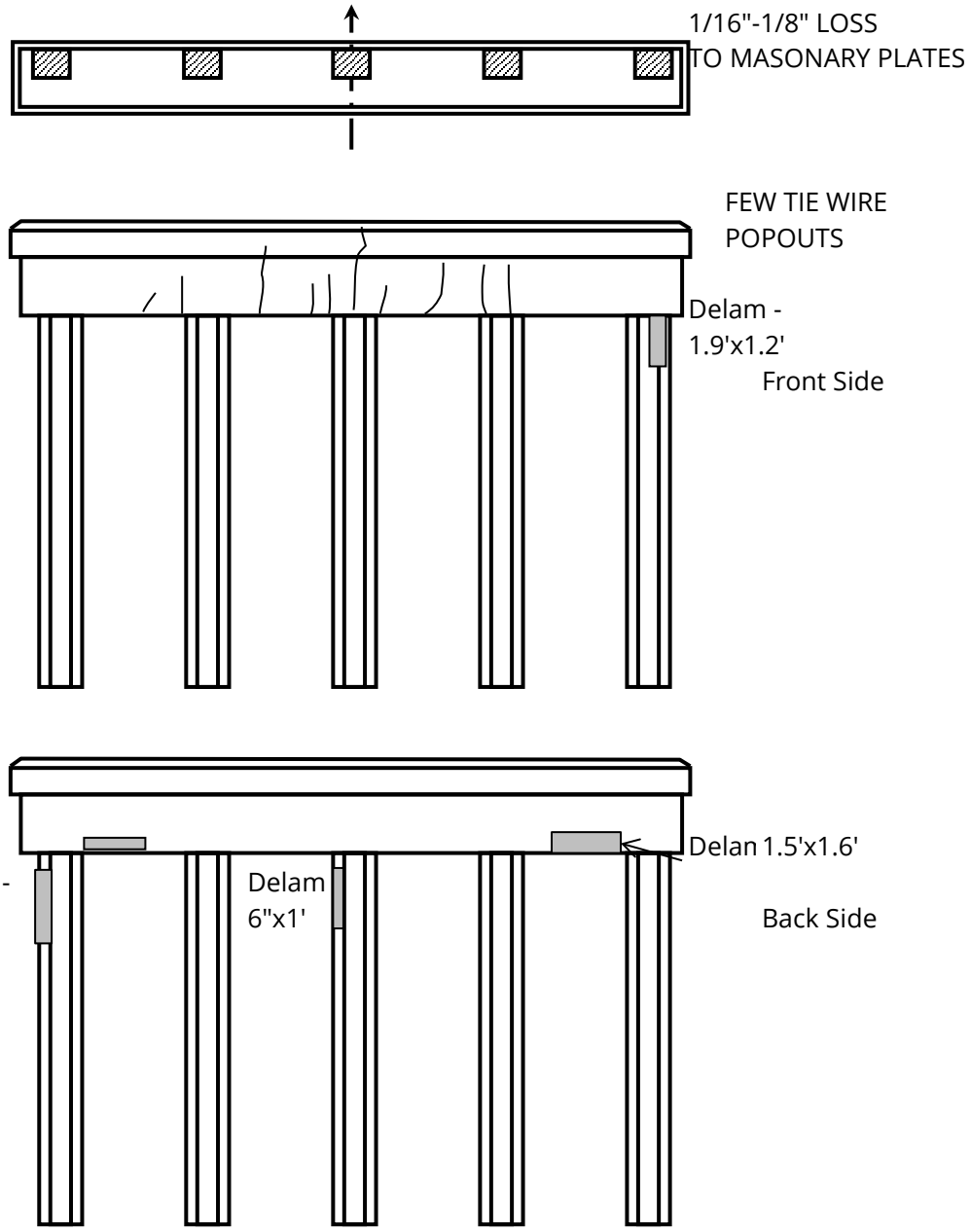


Column: GF

Risers: G

Cap: G

Bearings: GF



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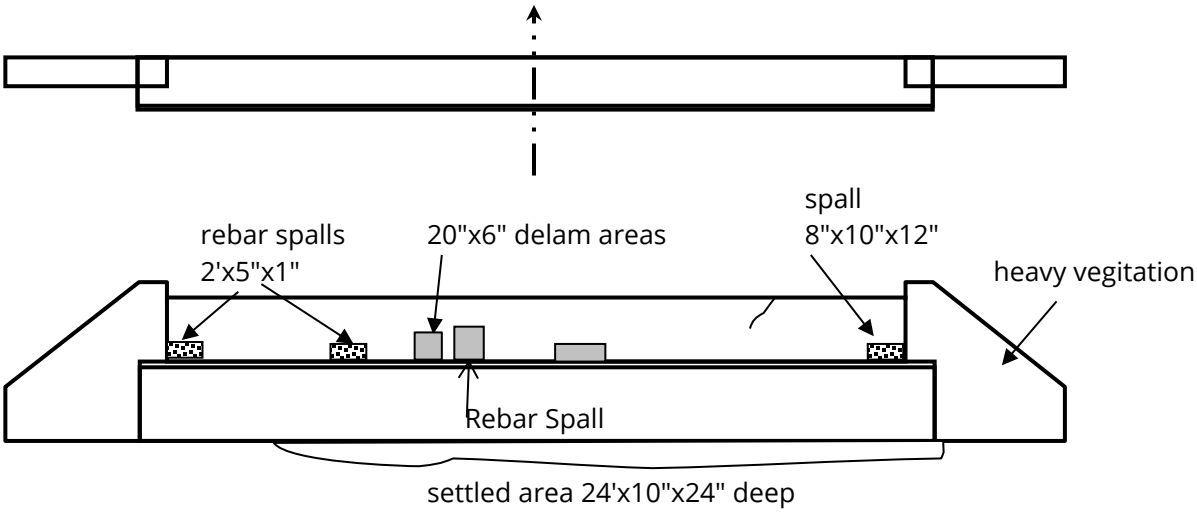
Wings: G

Abutment Walls: GF

Bearing: GF



Structure Inventory and Appraisal Sheet (English Units)

ELEMENT CONDITION STATE DATA

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4
0	16/1	Re Conc Top Flange	sq.ft	14,924	0%	0	70%	10,447	30%	4,477	0%	0
0	110/1	Re Conc Opn Girder/Beam	ft	2,184	92%	2,009	5%	109	3%	66	0%	0
0	205/1	Re Conc Column	each	32	98%	31	0%	0	0%	0	2%	1
0	210/1	Re Conc Pier Wall	ft	88	100%	88	0%	0	0%	0	0%	0
0	215/1	Re Conc Abutment	ft	74	100%	74	0%	0	0%	0	0%	0
0	234/1	Re Conc Pier Cap	ft	312	100%	312	0%	0	0%	0	0%	0
0	311/1	Moveable Bearing	each	56	100%	56	0%	0	0%	0	0%	0
0	313/1	Fixed Bearing	each	56	100%	56	0%	0	0%	0	0%	0
0	331/1	Re Conc Bridge Railing	ft	1,092	100%	1,092	0%	0	0%	0	0%	0

PIN 124102.00

Appendix B

Public Involvement

SUMMARY OF STAKEHOLDERS MEETING COMMENTS
US 64 OVER OCOEE RIVER
POLK COUNTY, TENNESSEE

December 18, 2018

The Tennessee Department of Transportation (TDOT), conducted a stakeholder meeting for the US 64 Bridge over Ocoee River project on November 15, 2018, from 5:00 to 7:00 p.m. at the Benton Municipal Building. There were twelve stakeholder group members, sixteen TDOT staff (including Gresham Smith staff) in attendance, as well as 4 citizens that had signed in at the welcome table. A copy of the handout and sign-in sheets are attached.

The following is a summary of the comments that were received from the stakeholders at the meeting or within the period after the meeting during which TDOT was accepting comments. Comments received from citizens has also been included in the summary. There were at total of 21 responses received. The comments received will be sorted by the questions asked therein. The number of similar responses will be indicated in parentheses ( ) after each statement.

The first question asked, "Which describes your primary interest in the project?" (Some comment cards checked multiple choices.)

- Concerned citizen (9)
- Affected Lessee (1)
- Affected resident (2)
- Affected landowner (2)
- Affected business (3)

Please indicate your preference and what you like and dislike about the project alternatives:

1. No-Build Alternative
    - The old bridge simply needs replacing (1)
    - We need a new bridge over the Ocoee (1)
2. Build Alternative
    - The current Design-Build plan should be workable (1)
    - Definitely replace bridge. Gateway appearance needs further input from public (1)
    - I would like to see the Tri-star colored (1)
    - Build It (2)
    - Love it (2)
    - Support Build Alternative (3)

Do you have issues and/or concerns with the proposed project?

What an official gateway looks like should be decided after more input from the public is obtained. Would like to see something about Old Copper Road added to the sign. (Owner of Old Copper Road Preservation Alliance) (1)

If this is going to be the gateway to the Ocoee River, home of the 1996 Olympics, the bridge needs to make a LARGE statement. (1)

Do you have any concerns with the bridge design and components, Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied. (The average rating from respondents is below)
Bridge Renderings (in general) – 4.6
Bridge Rails – 4.3
Bridge Beams - 4.4
Bridge Piers – 4.7
Use of Ocoee River Symbol – 4.6
Monuments at the end of the Bridge - 4.5
Bridge Rail and Monument lighting – 4.8

Is there anything else you would like to see done?

- Include the Olympic rings in the monuments (1)
- Consider adding phrase "Ocoee River Gateway to the Cherokee National Forest" (1)

Additional Comments:

Supportive of the bridge replacement project. (5)

Impressed with the bridge and the preliminary layout and illustrative renderings. (1)

Very satisfied with the bridge renderings, rails, beams, piers, monuments, and monument lighting. Also satisfied with the use of the Ocoee symbol. (3)

I had hoped the bridge could be either concrete or steel arches. (1)

Encourage TDOT to continue to minimize impacts to the "River Maze" and its related "Riverwalk" that incorporate both agritourism and heritage tourism. (1)

The proposed bridge rails have a rather industrial look, just wondering if those rails could be redesigned to add interest. (1)

Your consideration of public input is highly questionable since it has been years since you have allowed stakeholders to have their thoughts involved. Also very questionable is the informing the public about the stakeholders meeting. (1)

Additional Comments concerning TWRA Access (13 opposed)**:**

Having a wider bridge and shoulders is a tremendous improvement in safety and accessibility for bicyclists and pedestrian. However, adding an exit option at the end of the bridge would be a step backwards in terms of traffic safety. (1)

There is already a river access ramp just 1 mile away at Sugarloaf Mountain Park. It is completely adequate for boaters and floaters to park and enter the river for a float downstream. Adding one just 1-mile away is a waste of taxpayers' money. (1)

Concerned about the safety of ingress and egress to the new highway alignment which will still involve a sloping and curved highway alignment, low moving vehicles with some pulling trailers. (2)

Aesthetics related to the parking area placement in a critical foreground viewshed of the gateway. (1)

Potential lack of restroom facilities and adequate trash management. (1)

Highly erodible soils along the riparian zone where the river is relatively straight and very swift (not a safe, natural zone for putting in or taking out of the river). (1)

I feel any community developments in the area would be hindered by any TWRA developments. (1)

Writing in opposition to the boat ramp being built by TWRA. (8)

Opposed to the TWRA controlled area. TWRA makes no effort to keep the property clean and it becomes a dump for dead or unwanted animals and discarded household items etc. TWRA does not maintain any type of fencing to control those using the facility. There is an access area maintained by TVA about a mile upstream that is clean and secure. (4)

One component of the project seen as unnecessary, the proposed TWRA access road and boat ramp. 1) It cannot be patrolled enough to cut down on illegal activity. 2) There are other TWRA boat ramps in Polk County. It is also not needed because Sugarloaf Park is located approximately 1 mile upstream. 3) A TWRA access at the 64 bridge would hinder plans to make Parkville area a premier tourist community. (1)

Key findings from the conversations between the project team and meeting attendees and the feedback provided on the comment cards are as follows:

- The stakeholder group generally supports the project; and
- A majority within the group expressed opposition to the TWRA access

Stakeholders Meeting

US 64 Over Ocoee River Design-Build Project

Benton Municipal Building
Thursday, November 15, 2018
5:00—7:00
p.m. EST

Welcome

The Tennessee Department of Transportation welcomes you to this stakeholder meeting. The goal of this meeting is to give an overview of the project, show renderings for the proposed bridge, provide a brief update on the overall US 64 corridor project and receive comments from the public.

Purpose of Meeting

- Give an overview of the bridge replacement project and intersection improvements
- Present renderings of the proposed bridge
- Provide a summary of the Design/Build process
- Provide a brief update on the overall US 64 corridor project
- Offer attendees an opportunity to ask questions and provide written comments

For More Information Contact:

Joe Deering
TDOT
Phone: 423-510-1204
Joe.Deering@tn.gov

Project Description

- Approximately 0.8 mile in length
- Begins west of Hilderbrand Road and ends east of Welcome Valley Road
- Two 12-foot travel lanes with a 12-foot center turn lane and 10-foot shoulders
- Includes construction of a new bridge (north of the existing bridge) over the Ocoee River
- Includes intersection improvements at Welcome Valley Road

How to Comment

Fill out a comment card and submit it tonight in the box at the sign-in table, email to Jennifer.Flynn@tn.gov or mail to the address below by November 20, 2018.

Jennifer Flynn, Community Relations Officer
TDOT Region 2
7512 Volkswagen Drive
Chattanooga, TN 37416

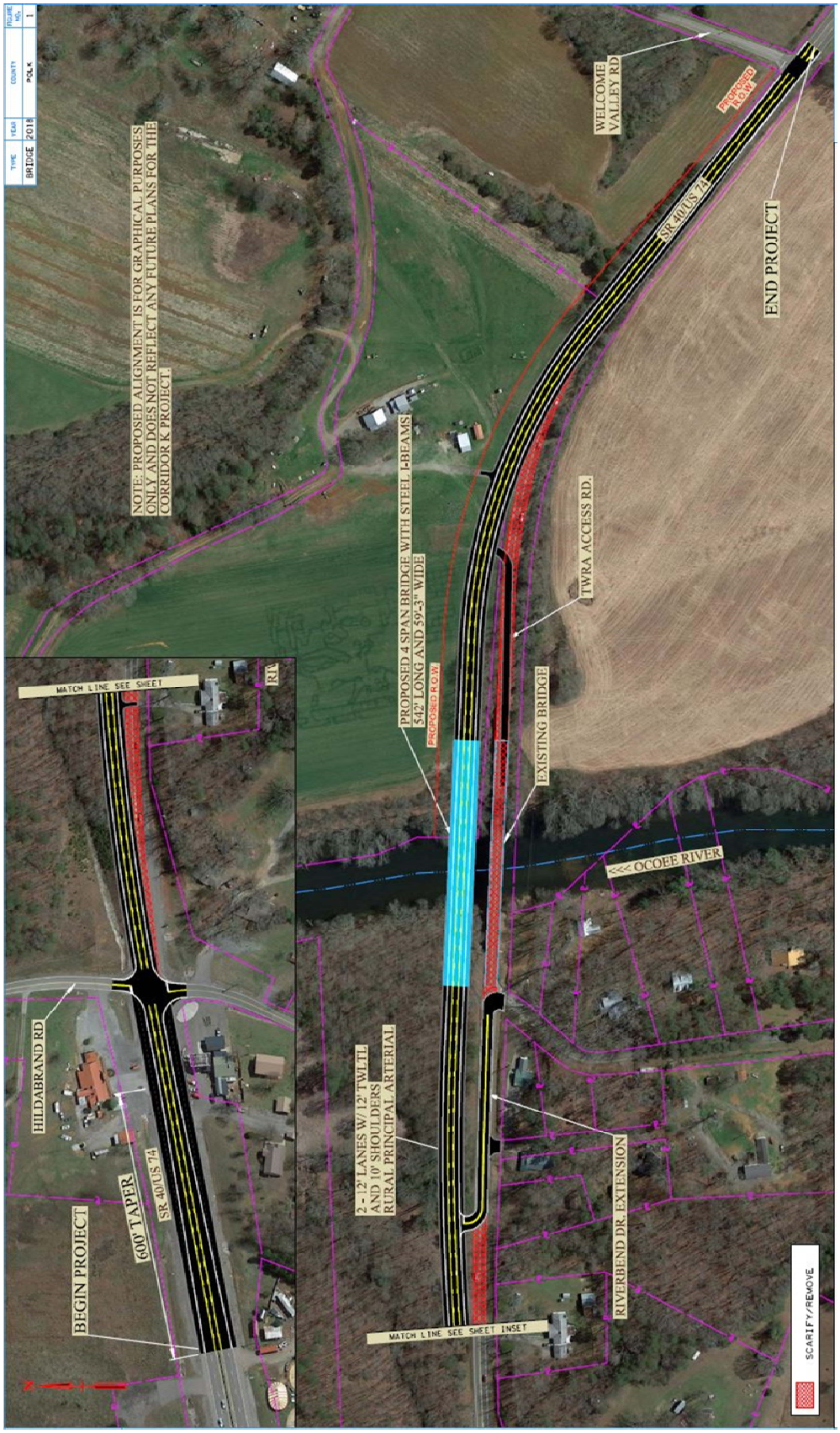
Estimated Project Milestones

- Design Builder awarded project—Summer 2019
- ROW Acquisition—Winter 2019/2020
- Construction Begins—Spring 2020

Visit the TDOT Website at:

www.tn.gov/tdot/tdot-construction-division/transportation-construction-alternative-contracting/design-build

PROPOSED ALIGNMENT FOR US 64 OVER OCOEE RIVER



TN TDOT Department of Transportation

General Services, Authorization No. 123456, copies January, 2015. This public document was promulgated at a cost of $0.10 per copy.

Meeting Comment Card

www.tn.gov/tdot

Project Description:
US 64 Over Ocoee River
Design-Build Project

Date: November 15, 2018

Project #: 70068-0211-94

County: Polk

PLEASE PRINT

Name _____ E-mail: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone (include area code): _____

Which describes your primary interest in the project? Concerned Citizen _____ Affected Resident _____

Affected Landowner _____ Affected Business _____ Name of Business _____

Please indicate your preference and what you like and dislike about the project Alternatives:

1. No-Build Alternative _____

_____

2. Build Alternative _____

_____

Do you have issues and/or concerns with the proposed project? If so, please explain.

_____

_____

_____

Do you have any concerns with the bridge design and components as shown in the renderings provided:
Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied.

	Very Dissatisfied				Very Satisfied	Comments
Bridge Renderings (in general)	1	2	3	4	5	
Bridge Rails	1	2	3	4	5	
Bridge Beams	1	2	3	4	5	
Bridge Piers	1	2	3	4	5	
Use of the Ocoee River Symbol	1	2	3	4	5	
Monuments at each end of bridge	1	2	3	4	5	
Bridge Rail and Monument Lighting	1	2	3	4	5	

AN ADDITIONAL QUESTION AND SPACE FOR ADDITIONAL COMMENTS ARE LOCATED ON BACK

Project #: 70068-0211-94

Is there anything else you would like to see done?

ADDITIONAL COMMENTS:

Please complete and deposit in the comment card box, email to Jennifer.Flynn@tn.gov or mail to the following address by 11/20/18:

Jennifer Flynn, Community Relations Officer
TDOT Region 2
7512 Volkswagen Drive
Chattanooga, TN 37416

TENNESSEE DEPARTMENT OF TRANSPORTATION

US 64 Over Ocoee River Design-Build Project

November 15, 2018

TN TDOT Department of Transportation

Sign In (Please Print)

Name	Address	Phone	Email
L.W. Smith		423-618-5455 423-416-2587	smith_lw@bellsouth.net
Keith Dilbeck		423-241-0493 423-548-6407	dkrduck@hotmail.com
Eugene Kilgore		423-463-2821	eugene.kilgore@kencogroup.com
Chris White		423-715-1596 423-339-1014	cwocoee@gmail.com
Cindy Moss	CM	423-338-8443 423-618-5691	moss_cindy@hotmail.com
Larry Dunn		423-472-0010 423-284-9696	LarryCarolyn@bellsouth.net
Tom Tohill	TT	423-240-8386	digitalocoee@hotmail.com
Jerry Hamby	JH	423-338-2630	jerry@ocoeeinn.com
Denny Mobbs		423-618-6155 423-338-2200	mobbs@hughes.net
Jan Beck		423-496-7956 423-496-2557	Janbeak_99@yahoo.com
Robby Hatcher		423-338-4527	roberthatcher06@yahoo.com
Jerry Stephens JS	6496 US-411, Benton, TN 37307	423-338-5733	
Doug Collins	DC	423-496-3546 423-241-2284	ducktown@etcmail.com

TENNESSEE DEPARTMENT OF TRANSPORTATION

US 64 Over Ocoee River Design-Build Project

November 15, 2018

TN TDOT Department of Transportation

Sign In (Please Print)

Name	Address	Phone	Email
Mike Bell MB		615-741-1946 423-829-0058	
Dan Howell	DH	423-284-7277	dhowell10@gmail.com
Sam Rogers	SR	(865) ~~856~~-805-5905	srogers1@utk.edu
Adrian Lambert	AL		westoffice@ocoeecounty.com
Dana Teasley D.T.		423-478-6477	oldcopperroad@gmail.com
Chris Richardson	W. Mark Thurman WMT	615-837-6016	Chris.Richardson@tn.gov
James Talley			
Kathy Stewart		423-496-5141	cityofcopperhilltn@gmail.com
Jim Passmore			
James Woody		423-716-4120	w316444w@yahoo.com
Ryan Cooke	2496 Hwy 64		ryan@ocoeeinn.com
Walter Bates	N/A	423-438-1883	thepolkcountynews@gmail.com

please send email with slides etc. to thepolkcountynews@gmail.com thanks!

TENNESSEE DEPARTMENT OF TRANSPORTATION

US 64 Over Ocoee River Design-Build Project

November 15, 2018

TN TDOT Department of Transportation

Sign In (Please Print)

Name	Address	Phone	Email
Joe Deering	JR	423-899-1636	Joe.Deering@tn.gov
Wesley Hughen	WH	423-510-1133	Wesley.Hughen@tn.gov
Rachel Gentry	RG	615-350-4215	Rachel.Gentry@tn.gov
Jeff Blevins	JB	423-510-1218	Jeff.Blevins@tn.gov
Scott Medlin		423-510-1118	Scott.Medlin@tn.gov
Chester Sutherland	CS	423-510-1229	Chester.Sutherland@tn.gov
Jeremy Sims	JS	423-510-1227	Jeremy.Sims@tn.gov
Holly Cantrell	HC	615-532-5869	Holly.Cantrell@tn.gov
Robbie Stephens	RMS	615-253-7693	Robbie.Stephens@tn.gov
Kristen Taylor	KKT	615-253-2573	Kristen.K.Taylor@tn.gov
Jennifer Flynn	JMF	423-510-1164	Jennifer.Flynn@tn.gov
Ken Flynn	KF	423-510-1217	Ken.Flynn@tn.gov
Meridith Krebs	MCK	615-741-3653	Meridith.Krebs@tn.gov

TENNESSEE DEPARTMENT OF TRANSPORTATION

US 64 Over Ocoee River Design-Build Project

November 15, 2018

Sign In (Please Print)

Name	Address	Phone	Email
Richard Casalone RC		615-695-4096	Richard.Casalone@dot.gov
Theresa Claxton		615-781-5772	Theresa.Claxton@dot.gov
Mark Holloran		615-770-8461	Mark.Holloran@greshamsmith.com
Jason Brady JB		865-299-6126	Jason.Brady@greshamsmith.com

2 RIVERS, INC.
RV Park & Campground
397 Dentville Road
P.O. Box 333
Benton, TN 37307

CHATTANOOGA
TN 374 1 T
21 NOV 2018 PM

Jennifer Flynn, Community Relations Officer
TDOT Region 2
7512 Volkswagen Drive
Chattanooga, TN 37416

37416$1758

Meeting Comment Card

www.tn.gov/tdot

Project Description:
US 64 Over Ocoee River
Design-Build Project

Date: November 15, 2018

Project #: 70068-0211-94

County: Polk

PLEASE PRINT

Name: Clarence McClure E-mail:

Address: P.O. Box 333

City: Benton State: Tn Zip: 37307

Phone (include area code): 423 715 0965

Which describes your primary interest in the project? Concerned Citizen ✓ Affected Resident ✓
Affected Land~~owner~~ lessee ✓ Affected Business Name of Business

Please indicate your preference and what you like and dislike about the project Alternatives:

1. No-Build Alternative

2. Build Alternative

Do you have issues and/or concerns with the proposed project? If so, please explain.

See Comments - Additional Sheet

Do you have any concerns with the bridge design and components as shown in the renderings provided:
Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied.

	Very Dissatisfied				Very Satisfied	Comments
Bridge Renderings (in general)	1	2	3	4	5	
Bridge Rails	1	2	3	4	5	
Bridge Beams	1	2	3	4	5	
Bridge Piers	1	2	3	4	5	
Use of the Ocoee River Symbol	1	2	3	4	5	
Monuments at each end of bridge	1	2	3	4	5	
Bridge Rail and Monument Lighting	1	2	3	4	5	

AN ADDITIONAL QUESTION AND SPACE FOR ADDITIONAL COMMENTS ARE LOCATED ON BACK

Project #: 70068-0211-94

Is there anything else you would like to see done?

ADDITIONAL COMMENTS:

See Additional PAge

Please complete and deposit in the comment card box, email to Jennifer.Flynn@tn.gov or mail to the following address by 11/20/18:

Jennifer Flynn, Community Relations Officer
TDOT Region 2
7512 Volkswagen Drive
Chattanooga, TN 37416

OCOEE RIVER BRIDGE—US HWY. 64 POLK COUNTY

I am not opposed to the bridge being built. All travelers on US Hwy. 64 need the present bridge replaced. However, I am opposed to another TWRA controlled area.

I am the lessee of the farm on the right going toward the mountains. The farm borders the present road and the river. I am also a major stock holder and manager of a business near Benton, 2 Rivers RV Park, with property on three(3) sides of the TWRA Benton Boat Ramp.

My opposition is based on the following observations and experiences this past 30+ years:

> TWRA makes no effort to keep the property clean and it becomes a dump for dead or unwanted animals and discarded house hold items etc., does not maintain any type of fencing to control those using the facility and etc.

> As a user of TVA produced power, I and all other user are presently paying to maintain an access area for river user about a mile up stream that is clean and secure with a large amount of all weather parking and has all conveniences needed for river use. I don't see the need to duplicate services and tax payers should not be asked to do so.

Thank you.

Clarence McClure
P.O. Bx 333
Benton, Tn 37307

Meeting Comment Card

www.tn.gov/tdot

Project Description:
US 64 Over Ocoee River
Design-Build Project

Date: November 15, 2018

Project #: 70068-0211-94

County: Polk

PLEASE PRINT

Name Cynthia Moss E-mail: moss_cindy@hotmail.com

Address: 323 DeLano Rd

City: DeLano State: TN Zip: 37325

Phone (include area code): (423) 618-5691

Which describes your primary interest in the project? Concerned Citizen ✓ Affected Resident ____
Affected Landowner ____ Affected Business ____ Name of Business ____

Please indicate your preference and what you like and dislike about the project Alternatives:

1. No-Build Alternative that old bridge simply needs replacing

2. Build Alternative the current Design-Build plan should be workable

Do you have issues and/or concerns with the proposed project? If so, please explain.

Do you have any concerns with the bridge design and components as shown in the renderings provided:
Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied.

	Very Dissatisfied				Very Satisfied	Comments
Bridge Renderings (in general)	1	2	3	4	(5)	
Bridge Rails	1	2	(3)	4	5	
Bridge Beams	1	2	3	(4)	5	
Bridge Piers	1	2	3	(4)	5	
Use of the Ocoee River Symbol	1	2	3	4	(5)	
Monuments at each end of bridge	1	2	3	4	(5)	
Bridge Rail and Monument Lighting	1	2	3	4	(5)	

AN ADDITIONAL QUESTION AND SPACE FOR ADDITIONAL COMMENTS ARE LOCATED ON BACK

(see over)

Project #: 70068-0211-94

Is there anything else you would like to see done?

ADDITIONAL COMMENTS:

the proposed bridge rails have a rather industrial look, just wondering if those rails could be redesigned to add interest;

Please complete and deposit in the comment card box, email to Jennifer.Flynn@tn.gov or mail to the following address by 11/20/18:

Jennifer Flynn, Community Relations Officer
TDOT Region 2
7512 Volkswagen Drive
Chattanooga, TN 37416

Jennifer Flynn

From: Rogers, Sam <srogers1@utk.edu>
Sent: Monday, November 26, 2018 4:01 PM
To: Jennifer Flynn
Cc: Wesley Hughen; Chester Sutherland; Jeff Blevins; Joe Deering
Subject: US 64 Over Ocoee River Design-Build Project

Dear Ms. Flynn:

I attended the November 15 "Stakeholders" meeting in Benton, and I would like to offer a few comments as a property owner of a Century Farm near the project location and as a descendent of multiple pioneer families that settled in the Ocoee River Valley in the early 1800s.

First, I was favorably impressed with the bridge proposal. The preliminary layout and illustrative renderings of the proposed bridge respond well to my hope that the bridge would potentially mark the arrival to the 'gateway' community of Parksville on the threshold of 'Ocoee Country' and the Cherokee National Forest. I especially like the illuminated concrete and stone monuments and the beautiful graphic signage and symbol simply proclaiming "Ocoee River". The bridge piers, beams, and railings are also attractive and seem to be context sensitive without attempting to make an iconic artistic statement that detracts from the setting. I expressed an idea in the meeting that I had originally hoped that the the bridge structure could incorporate either concrete or steel arches into the design. I was referring to a type of bridge design for the structure, since many beautiful bridges nationally and internationally tend to favor an arch-type aesthetic, whether it is concrete, steel, or stone in structure. After the meeting, it seems that some had interpreted my comments as favoring some kind of 'rainbow' like arch, which was certainly not my intent!

The plan layout seems to minimize the unfortunate impact to the 'River Maze' and its related 'riverwalk'; and, I encourage TDOT to continue working to mitigate any issues relating to this commendable attraction that incorporates both agritourism and heritage tourism. The proposed project will be the third bridge and roadway ROW taking lands originally owned by the Fetzer family in the immediate vicinity. It seems that site design and access issues/impacts will be a significant challenge, especially during the construction phase of the new bridge and highway alignment.

Lastly, I have concerns regarding the proposed TWRA river access ramp utilizing the present ROW. These concerns relate to:

- Safety of ingress and egress to the new highway alignment (which will still involve a sloping and curved highway alignment). Slow moving vehicles, some pulling trailers can be anticipated.
- Aesthetics relating to the parking area placement in a critical foreground viewshed of the 'gateway'.
- Potential lack of a restroom facility and adequate trash management that tend to become problematic for obvious reasons at any 'blueway' access node.
- Highly erodible alluvial soils along the riparian zone where the river is relatively straight and very swift (not a safe, natural zone for putting in or taking out of the river). The likely result is a highly disturbed area with lots of ugly rip-rap!
- The location itself may not be as advantageous as other possibilities further downstream from the existing ramp at Sugarloaf Park.

Despite these concerns, I am generally in favor of an integrated greenway-blueway infrastructure for the lower Ocoee River that would seek an optimum planning solution, potentially involving the Hiwassee/Ocoee State Park unit as well as TWRA and TDOT. Thus, I encourage TDOT to reach out to the specific property owners and tourism businesses/organizations that are in the immediate vicinity of Parksville to initiate a more direct dialog relating to the proposed project.

Sincerely,
Sam Rogers, FASLA
Ocoee Valley Property Owner
Planning Advisor, Parksville/Ocoee Valley Alliance for a Planned Community

Jennifer Flynn

From: Old Copper Road <oldcopperroad@gmail.com>
Sent: Monday, November 26, 2018 3:21 PM
To: Jennifer Flynn
Subject: Highway 64 Bridge over lower Ocoee
Attachments: Highway 64 Bridge Project.pdf

***** This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email - STS-Security. *****

Hi Jennifer,

I've attached the questionnaire that was passed out at the stakeholders meeting. As I've stated, before any decisions are made regarding the "look" of the gateway, I believe more input from the public, affected businesses and other agencies/organizations is needed. The bridge looks great, though.

As for the boat ramp, the feedback I'm getting is that everyone thinks it's too close to the boat ramp at Sugarloaf and they would rather see something more done with the boat ramp at Nancy Ward gravesite.

Thank you for all your work on this!!

Best Regards,
Dana Teasley
Director
Old Copper Road Preservation Alliance

Meeting Comment Card

www.tn.gov/tdot

Project Description:
US 64 Over Ocoee River
Design-Build Project

Date: November 15, 2018

Project #: 70068-0211-94

County: Polk

PLEASE PRINT

Name Dana Teasley E-mail: Oldcopperroad@gmail.com

Address: PO Box 305

City: Cleveland State: TN Zip: 37364

Phone (include area code): 423-478-6477

Which describes your primary interest in the project? Concerned Citizen ____ Affected Resident ____
Affected Landowner ____ Affected Business X Name of Business Old Copper Road Preservation Alliance

Please indicate your preference and what you like and dislike about the project Alternatives:

1. No-Build Alternative

2. Build Alternative Definitely replace bridge. Gateway appearance needs further input from public.

Do you have issues and/or concerns with the proposed project? If so, please explain.
What an "official" gateway looks like should be decided after more input from the public in obtained. Would like to see something about the Old Copper Road added to design.

Do you have any concerns with the bridge design and components as shown in the renderings provided:
Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied.

	Very Dissatisfied				Very Satisfied	Comments
Bridge Renderings (in general)	1	2	3	4	5	
Bridge Rails	1	2	3	4	5	
Bridge Beams	1	2	3	4	5	
Bridge Piers	1	2	3	4	5	
Use of the Ocoee River Symbol	1	2	3	4	5	Needs more discussion
Monuments at each end of bridge	1	2	3	4	5	
Bridge Rail and Monument Lighting	1	2	3	4	5	

AN ADDITIONAL QUESTION AND SPACE FOR ADDITIONAL COMMENTS ARE LOCATED ON BACK

US 64 Over Ocoee River Design-Build Project

Comments by Joe Fetzer , an affected landowner

My comments are not to be considered in any way(s) that I am affected as a landowner. That would be, but not limited to—property loss, replacement of or simply expenditures and efforts made to adjoining property that will be lost, ways our businesses are affected or other losses or potential losses. These comments are about the things you requested to be commented about. I am presenting my comments now from the viewpoint of a citizen of this area, a taxpayer, and from insights of matters that many stakeholders may not see.

It is obvious from your statement of 90% of the cost to upgrade vs the design/build project, that this needs to be done. The roads in this area affect local and many other stakeholders. The bridge structure as presented appeared to be very nice. The River symbols underneath, the beams, rails, and lighting looked good as I saw them during the presentation. Your consideration of public input is highly questionable since it has been years since you have allowed stakeholders to have their thoughts involved. Also very questionable is the informing of the public about the stakeholders meeting. The obvious intentional determination on your part to exclude property owners affected from the stakeholders meeting defies any of your intentions to be open to all stakeholders.

The Gateway entrance is greatly enhanced by your proposed monuments as it appeared, but some days to ponder (we did not get copies of the pictures) would have been appreciated. However, I believe that any structural facilitation that this could be limited to in the design-build contract and still allow more public thought and input to happen is what needs to proceed. This would allow much more thought and input even from other TN Government agencies that are and have invested taxpayer dollars into enhancing development that locals desperately need to fund our local government. The Copper Basin businesses and those in other counties, as well as the State of Tenn. could also benefit if any improvements to designate entering the area of a treasure here could be decided upon and funded to happen.

Another part of this proposal definitely needs to be excluded from this design-build proposal to be made to contractors. It is not even listed on the opening page's project description. Although the river access was talked about at the stake holders meeting, the meeting was controlled as stated

before by TDOT to limit those who also could have attended and/or been made more aware of this comment period so they could have had their input. The TWRA Ocoee River access was proposed at the meeting as being two hours downstream of the existing input at Ocoee # 1 Dam. With a 4 or 5 turbine flow this is very incorrect, even on tubes. Their request was based upon being between input and the Nancy Ward access. The TWRA's discussion is not considering distance and water flow according to elevation changes affecting time of travel on this distance of the Ocoee River. Input these factors and/or simply the distance of this location and the proposed is nowhere near the middle of the two points of existing access.

There is a huge problem that needs to be considered much more in depth. The potential of a dramatic increase in destination tourism developing, especially from Ocoee to Parksville is realistic. To jump start this, one of the things that must happen is more travel of humans not in automobiles. The determination of the vehicles used would come from a wide variety of potentials. The cost of travel lanes for these vehicles would be very small compared to the highway construction you are proposing. (Please note that what you are proposing and what I am pointing out are two separate things that would complement each other). The travel would be potentially between businesses that bring local tax dollars and thru corridors of farmland with scenic beauty. It would likely be designed in such a way that the scenic beauty from Hwy 64 and on the mentioned corridors could be preserved. The beauty of the scenic parts of this area is one of the greatest values we have to get tourists here. Granted that negotiation would be necessary to balance values of developing clusters with the preserved areas being compensated for in order for property owners to determine this is a plan they would like to be a part of. These routes could include parking areas (especially at businesses) that would keep highway traffic growth of this proposed design-build section to be adequate for a tremendous amount of business growth. I believe that one of the concerns by many local citizens is for business growth to ever become like that of Pigeon Forge traffic. However, the plan jump starts the infrastructure needed to allow growth. The potential here should be appreciated by many more local citizens when the need for economic development grows. The realization will be appreciated as plans are coming together to provide jobs, improve this premier area that they are proud of, and see that more tourists are planning to spend their time visiting, paying us, then going home and leaving us an even better place to enjoy.

The proposed boat ramp is at a location that is likely to strangle the development just discussed. The vehicle traffic routes carrying humans not in automobiles must cross Hwy 64 if these corridors are to include both sides of Hwy 64. The crossing underneath the proposed bridge is obviously the most feasible point as it appears at this time. Being on both sides of Hwy 64 would make this potential development a lot more likely to happen. The closing of this bottleneck with a boat ramp also puts any potential of a greenway into the control of TWRA, even if TDOT were to agree. The vision will have a lot of modifications to address. So it is obvious that time is needed and if the boat ramp is omitted in the current design-build, that can take place and not hinder going ahead with the design-build. As visioning by property owners and stakeholders takes place, many will realize that starting professional visioning has already taken place with about 20 landscape architect students from the University of Georgia. Then close to the time of the last public meetings of this corridor (road) about 20 more U-T landscape architect students studied the potential tourist development of this area. The State of TN should be considered as they have spent funds for growth in rural areas and some specific funds for our county. Tennessee Department of Tourism, the Tennessee Department of Economic Development as well as the Tennessee Department of Agriculture may have comments to make. There is likely a multitude of Stakeholders that would comment if you asked those who enjoy coming to this area. Most people I talk to want to see the beauty of this area preserved.

Putting such a potentially lethal chokehold on Polk County and other stakeholder's benefits does not need to happen in the urgency of this design-build proposal. Again I say it is not necessary to include this TWRA access to go ahead now with design-build contracts. Therefore I want this TWRA access omitted from the design build for this project.

Meeting Comment Card

www.tn.gov/tdot

Project Description:
US 64 Over Ocoee River
Design-Build Project

Date: November 15, 2018

Project #: 70068-0211-94

County: Polk

PLEASE PRINT

Name Robert Paxton E-mail: rgpaxton3262@gmail.com

Address: PO Box 555

City: Benton State: TN Zip: 37307

Phone (include area code): 423-338-0862

Which describes your primary interest in the project? Concerned Citizen X Affected Resident ____

Affected Landowner X Affected Business ____ Name of Business ____

Please indicate your preference and what you like and dislike about the project Alternatives:

1. No-Build Alternative

2. Build Alternative

Do you have issues and/or concerns with the proposed project? If so, please explain.

See Attached letter

Do you have any concerns with the bridge design and components as shown in the renderings provided:
Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied.

	Very Dissatisfied				Very Satisfied	Comments
Bridge Renderings (in general)	1	2	3	4	5	
Bridge Rails	1	2	3	4	5	
Bridge Beams	1	2	3	4	5	
Bridge Piers	1	2	3	4	5	
Use of the Ocoee River Symbol	1	2	3	4	5	
Monuments at each end of bridge	1	2	3	4	5	
Bridge Rail and Monument Lighting	1	2	3	4	5	

AN ADDITIONAL QUESTION AND SPACE FOR ADDITIONAL COMMENTS ARE LOCATED ON BACK

Project #: 70068-0211-94

Is there anything else you would like to see done?

ADDITIONAL COMMENTS:

See Attached letter.

Please complete and deposit in the comment card box, email to Jennifer.Flynn@tn.gov or mail to the following address by 11/20/18:

Jennifer Flynn, Community Relations Officer
TDOT Region 2
7512 Volkswagen Drive
Chattanooga, TN 37416

11/21/2018

Jennifer Flynn
Community Relations Officer
TDOT Region 2
7512 Volkswagen Drive
Chattanooga TN 37416

Dear MS Flynn:

I'm writing in regards to the proposed TDOT Project number 70068-0211-94 US 64 Ocoee River bridge project in Polk County. Let me first say that I approve of the bridge replacement project and the bridge design which has been needed for many years. As you know, Polk County and the Ocoee Region host many visitors each year, Highway 64 is the gateway to the region and any improvements helps those visitors enjoy what we the residents get to enjoy year around. I applaud TDOT's decision to move forward with this project.

However, there is one component of the project I see unnecessary which is the proposed TWRA access road and boat ramp. There are many reason I oppose this addition. First, it is known that TWRA River Access areas in Polk County are not or cannot be patrolled enough to cut down on unlawful activities. There are many other TWRA controlled river access ramps in Polk County. I live with-in ¼ mile of one of the river access ramps on the Hiwassee River. I have witnessed illegal dumping, weapons discharged, and suspicious activity that would lead one to believe that drug activities were going on at the TWRA access. Although, law enforcement was called and complains where made to TWRA, law enforcement could not arrive in time to make much of a difference. Second, it is not needed due to a nearby public access. Sugar Loaf Park located at the Ocoee No. 1 Dam is just approximately 1 mile upstream from the proposed TWRA access and bridge project. The Sugar Loaf river access has a gently sloped ramp into the river, with paved public parking and 24 hour TVA security. The river access at Sugar Loaf provides a safe public access to the river where a poorly secure and poorly kept TWRA access would not. Third, a TWRA access at the 64 bridge would hinder plans to make the Parksville area a premier tourist community. I am a property owner within 2 miles on the Hwy 64 Bridge. I and other community members have discussed ways to make the area a premier tourist community. One of the plans is to have the Ocoee River available for everyone to enjoy. We would like to see the river stay in its natural form. It is our desire to have a connector passage under or over the Hwy 64 Bridge for foot and non-traditional motorized traffic. Such a river access at the site would likely choke the ability to become a premier tourist community as outlined in the Community Plan. Finally, along with the points made above, problems have be recorded at other TWRA river access points in Polk County. The Nancy Ward site in Benton has been plagued from its existence with boaters having to fight swift water to deploy boats. Just this year, a family had to be rescued after almost drowning when their boat overturned trying to use the Nancy Ward access. Many others have reported similar problems with the design of the access. Another TWRA access point is the Dentville Bridge access where the ramp is so steep that after deploying their boat boaters have had to call for assistance and tows when their vehicle could not pull up the ramp. The access at Patty Bridge was not designed with large enough parking for the demand and boaters have to trespass on private land to use the access. TWRA has demonstrated

time and time again that their river access are poorly planned and developed with little to no service and upkeep.

In closing I believe the issues I have presented to you warrant a reconsideration of the proposed TWRA River Access at the Hwy 64 Ocoee Bridge in Polk County. I know many other community members who feel the same as I and who plan to contact you with similar statements.

Sincerely,

Robert Paxton

Meeting Comment Card

www.tn.gov/tdot

Project Description:
US 64 Over Ocoee River
Design-Build Project

Date: November 15, 2018

Project #: 70068-0211-94

County: Polk

PLEASE PRINT

Name Ryan Cooke E-mail: ryan@ocoeeinn.com

Address: 2496 Hwy 64

City: Benton State: TN Zip: 37307

Phone (include area code): 423.584.0892

Which describes your primary interest in the project? Concerned Citizen ____ Affected Resident ____
Affected Landowner ____ Affected Business X Name of Business Ocoee Inn Rafting

Please indicate your preference and what you like and dislike about the project Alternatives:

1. No-Build Alternative We need a new bridge over the Ocoee.

2. Build Alternative I would like to see the Tri-Star colored.

Do you have issues and/or concerns with the proposed project? If so, please explain.
I agree with Sam Rogers, if this bridge is going to be the gateway to the Ocoee River, home of the 1996 Olympics, the bridge needs to make a LARGE statement.

Do you have any concerns with the bridge design and components as shown in the renderings provided:
Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied.

	Very Dissatisfied				Very Satisfied	Comments
Bridge Renderings (in general)	1	2	3	4	5	
Bridge Rails	1	2	3	4	5	
Bridge Beams	1	2	3	4	5	Curved?
Bridge Piers	1	2	3	4	5	
Use of the Ocoee River Symbol	1	2	3	4	5	
Monuments at each end of bridge	1	2	3	4	5	
Bridge Rail and Monument Lighting	1	2	3	4	5	

AN ADDITIONAL QUESTION AND SPACE FOR ADDITIONAL COMMENTS ARE LOCATED ON BACK

Project #: 70068-0211-94

Is there anything else you would like to see done?

Include the Olympic Rings in the Monuments.

ADDITIONAL COMMENTS:

Please complete and deposit in the comment card box, email to Jennifer.Flynn@tn.gov or mail to the following address by 11/20/18:

Jennifer Flynn, Community Relations Officer
TDOT Region 2
7512 Volkswagen Drive
Chattanooga, TN 37416

Jennifer Flynn

From: Kevin or Jenny Rogers <welcomevalley@bellsouth.net>
Sent: Monday, November 26, 2018 10:19 AM
To: Jennifer Flynn
Subject: US 64 Over Ocoee River Design-Build Project

Categories: Done

Hello Ms. Flynn,

I am writing to comment on the proposed US 64 Bridge over the Ocoee River in Polk County. I am a local business owner and resident, living less than 2 miles from the bridge location. I frequently drive across this bridge, usually several times a day.

I did not attend the recent "Stakeholders" meeting which was held in Benton, as there was no public notification. However I have spoken with several people who were in attendance and most of them were generally pleased with the overall bridge design. All seemed to have reservations about adding a new TWRA access road to the river at the current bridge location.

I would like to voice some of my concerns regarding a proposed TWRA Access Road along the south side of the bridge. Having lived in this neighborhood for over 24 years I am intimately familiar with the public's driving habits along this stretch of highway. Having a wider bridge with shoulders will be a tremendous improvement in safety and accessibility for bicycles and pedestrians. However, adding an exit option at the end of the bridge would be a step backwards in terms of traffic safety.

Secondly, there is already a river access ramp just 1 mile away at Sugarloaf Mountain Park. I have used this facility hundreds of times and believe it to be completely adequate for boaters and floaters to park and enter the river for a downstream float. Adding another put-in just 1 mile away is totally unnecessary, and is too close to the existing one to be of value as a take-out. It would be a waste of taxpayers money.

As you are likely aware, no one floats this river unless the Ocoee 1 Dam is operating 2 or more generators because with just 0-1 generators operating, you can't float downstream due to the prevalence of shallow shoals that exist. With 2+ generators the resulting water flow brings one to the US 64 Bridge in about 15-25 minutes. That is too short of a trip to be of any real appeal to the public.

Lastly, this location is uniquely beautiful and widely recognized as the entrance to the Ocoee River Valley and gateway to the Cherokee National Forest. Residents and tourists alike appreciate the still unspoiled beauty of this corridor. I along with others believe that this area holds tremendous potential as a gateway community, that should not be squandered by opportunistic uncoordinated development such as a redundant public boat ramp. I believe it's reasonable to imagine that such a place would become unkempt and unsightly. One doesn't have to look far to see an example of how this would likely unfold. I offer as an example the TWRA Access ramp at the Hwy 411 bridge over the Hiwassee River. There is litter everywhere, erosion issues, no restrooms and consequently toilet paper and human waste around the perimeter. It's quite simply disgusting, and I can only imagine the heartbreak of adjacent land owners.

If the TN DOT truly wants to be a partner with a positive impact on the future development of the Ocoee Region, I would urge you to reconsider the TWRA Access Road, and seek more public input from our community. I would appreciate being included on your mailing list for future meeting regarding this project.

Sincerely,

Kevin Rogers
P.O. Box 577
Benton, TN 37307
423.715.0151

Jennifer Flynn

From: Suzanne Akins <suzanne@suzanneakinshome.com>
Sent: Tuesday, November 20, 2018 7:24 PM
To: Jennifer Flynn
Subject: Hwy 64 Bridge project

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64 Over Ocoee River Design-Build Project Comment

I agree with the development of the Hwy 64 Design and Build project but in my opinion it should be controlled locally. I feel any future community developments in this area would be hindered by any TWRA developments. Thank you for your time and consideration for this project.

Former President of Polk County Chamber of Commerce and Local Small Business Owner
Suzanne Akins, Affiliate Broker
REMAX Real Estate Professionals
1727 Mount Vernon Dr
Cleveland, TN 37312
423-476-7300 office
423-650-9222 mobile
423-472-4444 fax
www.suzanneakinshome.com
Each office independently owned and operated

Jennifer Flynn

From: JT Lemons <snomelt@gmail.com>
Sent: Wednesday, November 21, 2018 7:43 AM
To: Jennifer Flynn
Subject: US Hwy. 64 bridge

***** This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. - STS-Security*****

I am writing to register my opposition to the proposed US Hwy. 64 Ocoee River design and build project, specifically the boat ramp being built and operated by TWRA. My businesses and properties are about 1/2 mile east of the proposed development and I've been in business here for forty two years. TWRA has earned the reputation of being difficult to work with and that is my main concern about the proposal. Tn. State Parks maintains and manages the other boat ramps on the lower Ocoee River and I would prefer to have them operate the proposed ramp. Thanks for your consideration.

JT Lemons
Founder and CEO, Ocoee Outdoors/Hiwassee Outpost/Ocoee Zipz/The Ocoee River Barn
Chairman of the Board, Ocoee River Council, founder and co-owner, Hummingbird Zipline, Gulf Shores, Al.

PO Box 84
Ocoee, Tn. 37361
423-338-5678
423-338-2438
www.ocoeeoutdoors.com
www.ocoeezipz.com
www.theocoeeriverbarn.com

"Twenty years from now you will be more disappointed by the things you didn't do than by the ones you did. So throw off the bowlines, sail away from the safe harbor. Catch the trade winds in your sails. Explore. Dream." Mark Twain

Jennifer Flynn

From: Tom T <trtohill@comcast.net>
Sent: Tuesday, November 20, 2018 3:12 PM
To: Jennifer Flynn
Subject: US 64 Over Ocoee River Design-Build Project Coment

***** This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. - STS-Security*****

US 64 Over Ocoee River Design-Build Project

I am opposed to the idea of a boat ramp built and managed by TWRA. The development of the area is a good idea, but should be controlled locally. TWRA development would like impede development by creating an area that would have to be a "work around" for any future community development.

Tom Tohill

Virus-free. www.avast.com

Meeting Comment Card

www.tn.gov/tdot

Project Description:
US 64 Over Ocoee River
Design-Build Project

Date: November 15, 2018

Project #: 70068-0211-94

County: Polk

PLEASE PRINT

Name: Thomas Tohill

E-mail: TRTohill@Comcast.Net

Address: 274 Parksville Rd

City: Benton

State: TN

Zip: 37307

Phone (include area code): 423-240-8386

Which describes your primary interest in the project? Concerned Citizen ✓ Affected Resident ____

Affected Landowner ____ Affected Business ____ Name of Business ____

Please indicate your preference and what you like and dislike about the project Alternatives:

1. No-Build Alternative ____

2. Build Alternative Build IT

Do you have issues and/or concerns with the proposed project? If so, please explain.

No

Do you have any concerns with the bridge design and components as shown in the renderings provided:
Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied.

	Very Dissatisfied				Very Satisfied	Comments
Bridge Renderings (in general)	1	2	3	4	5	
Bridge Rails	1	2	3	4	5	
Bridge Beams	1	2	3	4	5	
Bridge Piers	1	2	3	4	5	
Use of the Ocoee River Symbol	1	2	3	4	5	
Monuments at each end of bridge	1	2	3	4	5	
Bridge Rail and Monument Lighting	1	2	3	4	5	

AN ADDITIONAL QUESTION AND SPACE FOR ADDITIONAL COMMENTS ARE LOCATED ON BACK

Jennifer Flynn

From:	Polk County Chamber of Commerce <westoffice@ocoeecountry.com>
Sent:	Friday, November 23, 2018 12:14 PM
To:	Jennifer Flynn
Subject:	US 64 Over Ocoee River Design-Build Project
Follow Up Flag:	Flag for follow up
Flag Status:	Flagged

***** This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. - STS-Security*****

Good afternoon! Following are my comments for the US 64 Over Ocoee River Design-Build Project. I am very satisfied with the bridge renderings, rails, beams, piers, monuments and monument lighting. I am also very satisfied with the use of (and appreciate the inclusion of) the Ocoee River symbol.

I am opposed to the idea of a boat ramp built and managed by TWRA. The development of the area is a good idea, but should be controlled locally. TWRA development would likely impede development by creating an area that would have to be a "work around" for any future community development.

Thank you for taking comments on the project. Should you have any questions or concerns, please feel free to give me a call.

Have a wonderful day,
Adrian Lambert
Polk County Chamber of Commerce
(423)338-5040
www.ocoeecountry.com

Meeting Comment Card

www.tn.gov/tdot

Project Description:
US 64 Over Ocoee River
Design-Build Project

Date: November 15, 2018

Project #: 70068-0211-94

County: Polk

PLEASE PRINT

Name DAN HOWELL E-mail: DHOWELL10@GMAIL.COM

Address:

City: State: Zip:

Phone (include area code):

Which describes your primary interest in the project? Concerned Citizen ____ Affected Resident ____
Affected Landowner ____ Affected Business ____ Name of Business ____

Please indicate your preference and what you like and dislike about the project Alternatives:

1. No-Build Alternative

2. Build Alternative

Do you have issues and/or concerns with the proposed project? If so, please explain.

LOVE IT!
Consider adding the phrase "Ocoee River Gateway to the Cherokee National Forest"

Do you have any concerns with the bridge design and components as shown in the renderings provided:
Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied.

	Very Dissatisfied				Very Satisfied	Comments
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AN ADDITIONAL QUESTION AND SPACE FOR ADDITIONAL COMMENTS ARE LOCATED ON BACK

Meeting Comment Card

www.tn.gov/tdot

Project Description:
US 64 Over Ocoee River
Design-Build Project

Date: November 15, 2018

Project #: 70068-0211-94

County: Polk

PLEASE PRINT

Name Robby Hatcher E-mail: robertthatcher do@yahoo.com

Address: PO Box 586

City: Benton State: TN Zip: 37307

Phone (include area code): 423 338 - 4528

Which describes your primary interest in the project? Concerned Citizen ____ Affected Resident ____
Affected Landowner ____ Affected Business ____ Name of Business ____

Please indicate your preference and what you like and dislike about the project Alternatives:

1. No-Build Alternative ____

2. Build Alternative ____

Do you have issues and/or concerns with the proposed project? If so, please explain.

Do you have any concerns with the bridge design and components as shown in the renderings provided:
Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied.

	Very Dissatisfied				Very Satisfied	Comments
Bridge Renderings (in general)	1	2	3	~~4~~	5	
Bridge Rails	1	2	3	~~4~~	5	
Bridge Beams	1	2	3	~~4~~	5	
Bridge Piers	1	2	3	4	~~5~~	
Use of the Ocoee River Symbol	1	2	3	~~4~~	5	
Monuments at each end of bridge	1	2	3	~~4~~	5	
Bridge Rail and Monument Lighting	1	2	3	4	~~5~~	

AN ADDITIONAL QUESTION AND SPACE FOR ADDITIONAL COMMENTS ARE LOCATED ON BACK

Meeting Comment Card

www.tn.gov/tdot

Project Description:
US 64 Over Ocoee River
Design-Build Project

Date: November 15, 2018

Project #: 70068-0211-94

County: Polk

PLEASE PRINT

Name: Douglas Collins E-mail: ddcollins@outlook.com

Address: P.O. Box 1141

City: Copperhill State: TN Zip: 37317

Phone (include area code): 423-241-2284

Which describes your primary interest in the project? Concerned Citizen ____ Affected Resident ____
Affected Landowner ____ Affected Business ____ Name of Business ____

Please indicate your preference and what you like and dislike about the project Alternatives:

1. No-Build Alternative ____

2. Build Alternative Love the concept, Build the Bridge

Do you have issues and/or concerns with the proposed project? If so, please explain.

Do you have any concerns with the bridge design and components as shown in the renderings provided:
Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied.

	Very Dissatisfied				Very Satisfied	Comments
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Monuments at each end of bridge	1	2	3	4	5	
Bridge Rail and Monument Lighting	1	2	3	4	5	

AN ADDITIONAL QUESTION AND SPACE FOR ADDITIONAL COMMENTS ARE LOCATED ON BACK

Jennifer Flynn

From: Carol Kamm <carolkamm@gmail.com>
Sent: Monday, November 26, 2018 9:33 PM
To: Jennifer Flynn
Subject: Thoughts on the US 64 Over Ocoee River Bridge Project

Jennifer,

I am writing to you as a member of the Polk County Chamber Board. I am elated about the potential development of our area with the US 64 Over Ocoee River Project. The Chamber of Commerce has worked very hard to keep the special uniqueness of our county, listen to its merchants and landowners, and at the same time, consider positive ways to develop our county to attract growth for the future. The Hwy 64 Bridge Project no doubt will lend itself to future development but there are many, including myself, who want to leave the planning and control in the hands of those who know it best. The Chamber has solicited outside feasible consultants recently which has given the Polk County Chamber renewed excitement and direction. Turning any development of this project over to TWRA exclusively may negate all the recent efforts made by the Chamber of Commerce, which is considered "the heartbeat for the area businesses".

For efficiency, and completeness, I would ask that you include the Polk County Chamber in the development aspect of the bridge, rather than TWRA. Feel free to call me with any questions, suggestions, or concerns. I would love to help where I am able, along with any members of the Chamber.

Sincerely,

Carol Kamm
Grandview Realty
423-790-4547

Jennifer Flynn

From: rogersbi <rogersbi@gmail.com>
Sent: Monday, November 26, 2018 9:41 PM
To: Jennifer Flynn
Subject: New Ocoee River bridge

Dear Jennifer,

I am the new property owner of 1620 Highway 64 near the newly proposed bridge over the Ocoee River. I purchased this land in hopes of increased tourism activity in the Ocoee Valley near Parksville Lake Thus, I am very supportive of TDOT investments and infrastructure enhancements in this area. However, I am opposed to the TWRA proposal to add a river access ramp near the existing bridge for the below reasons:

1) Tubing down the lower Ocoee River is becoming increasingly popular. The public has access to put in at Sugarloaf Mountain Park just before Ocoee Dam #1. The appropriate takeout location should be farther downriver than the existing Hwy 64 bridge which is too soon or too short of a tubing trip. A good river access location would be near Ocoee Adventure Rafting (629 Welcome Valley Rd.) which utilizes their land for takeouts for their tubing trips.

2) Disruptions to traffic flow when trucks pulling boats need to pull out onto Hwy 64.

3) The access ramp will be an eyesore and disrupt the aesthetic design of the new bridge. Why would TDOT build such a nice gateway bridge on top of a parking lot of pickup trucks, flat bottom boats, and litter that will accumulate over time? The nice appearance of the bridge would be diluted or even negated by a river access ramp.

Please let me know the process and timeline to decide if a river access ramp will be built and who will make this decision.

Thank you,

Benjamin Rogers, CPA, CFA
10229 Foxhall Dr, Charlotte, NC 28210

David J. Green
Po Box 23
Copperhill, TN. 37317

CHATTANOOGA
TN 374 3 L
03 DEC 2018 PM

Jennifer Flynn - Comm. Relations officer
TDOT Region 2
7512 Volkswagen. DR
Chattanooga, TN. 3746

37416[illegible]

Meeting Comment Card

www.tn.gov/tdot

Project Description:
US 64 Over Ocoee River
Design-Build Project

Date: November 15, 2018

Project #: 70068-0211-94

County: Polk

PLEASE PRINT

Name David J. Green E-mail:

Address: 248 MAIN St. - Mailing Address PO BOX 23

City: Copperhill State: TN. Zip: 37317

Phone (include area code): 423-241-3337

Which describes your primary interest in the project? Concerned Citizen ✓ Affected Resident ✓
Affected Landowner ____ Affected Business ____ Name of Business ____

Please indicate your preference and what you like and dislike about the project Alternatives:

1. No-Build Alternative

2. Build Alternative YES anything would b very helpful.

Do you have issues and/or concerns with the proposed project? If so, please explain.

Do you have any concerns with the bridge design and components as shown in the renderings provided:
Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied.

	Very Dissatisfied				Very Satisfied	Comments
Bridge Renderings (in general)	1	2	3	4	5	
Bridge Rails	1	2	3	4	5	
Bridge Beams	1	2	3	4	5	
Bridge Piers	1	2	3	4	5	
Use of the Ocoee River Symbol	1	2	3	4	5	
Monuments at each end of bridge	1	2	3	4	5	
Bridge Rail and Monument Lighting	1	2	3	4	5	

AN ADDITIONAL QUESTION AND SPACE FOR ADDITIONAL COMMENTS ARE LOCATED ON BACK

Sorry about first marking above, I think that is a very well designed plan. Didn't have glasses on.

ADDITIONAL COMMENTS:

Please read attached letter.

Please complete and deposit in the comment card box, email to Jennifer.Flynn@tn.gov or mail to the following address by 11/20/18:

Jennifer Flynn, Community Relations Officer
TDOT Region 2

Dear Jennifer,

My name is David Green, I live in Ducktown, TN. I was raised in the Copper Basin area. I graduated CBHS in 1980. I joined the Air Force and left here for almost 9 years, before moving back in Sept. 1989.

First I would like to thank TDOT for all the improvements I have saw in my lifetime to the River road. Especially straightening out that bad curve during the last rock slide. Great job to all concerned.

During my time in AF, I was stationed in Nevada, Colorado, Louisiana, and Kansas. I have traveled extensively all over the U.S. and the world.

I would like to make a couple of suggestions about really improving corridor K or River Road. First, make it a toll road to pay for project. I cannot believe that has not been done long ago. Very common thing all over our Country. Many, many, People think the same way. Please corridor this very carefully it's a win-win deal. Do you realize the income potential over a 20 yr period. Doing something that simple. X-amount for cars, More for buses and Tractor trailers, First step in showing people the state and Federal Govt are serious.

Second suggestion, Have U ever traveled West of Denver to Glenwood Springs, Vail Aspen area. They pinned a long part of that highway to side of mountain. In other words traffic going west on Top, traffic East on bottom. Double-decker.

If those people done that why can't we? Very simple,

over ↑

design. Very complex to do. It took them 15 years to do it. It totally opened up that area to some of the best snow skiing in the world. They made it a toll Road for 5 yrs. before even starting construction. I have personally driven on it several times while living out there.

In my opinion this would create a large economic impact for state and local people.

I know your job is very difficult. You are obviously a very intelligent woman or U would not b in charge of this matter.

The design I just told U about, done very little environmental damage. Thankfully we have a President now who is trying to elimate a lot of problems for people like yourself is doing to try and improve peoples lifes. Like I said I know your job is very difficult, I Love the design I saw on paper.

<u>Toll Road</u> first, show them the money potential and that will b of huge help. Politicans love money makers. That will b the key to any major project.

I hope U read this and it helps U in some way. This is only suggestions from things I have personally saw in my life. Thank U for your hard work and time trying to help E. Polk Co.

Sincerly,

Meeting Comment Card

www.tn.gov/tdot

Project Description:
US 64 Over Ocoee River
Design-Build Project

Date: November 15, 2018

Project #: 70068-0211-94

County: Polk

PLEASE PRINT

Name Alan Fetzer E-mail: akfetzer@msn.com

Address: 855 Adele St.

City: New Orleans State: LA Zip: 70130

Phone (include area code): 423-503-4228

Which describes your primary interest in the project? Concerned Citizen ____ Affected Resident ____
Affected Landowner X Affected Business ____ Name of Business ____

Please indicate your preference and what you like and dislike about the project Alternatives:

1. No-Build Alternative

2. Build Alternative I'm fine with the project as is, with the exception of the proposed boat ramp.

Do you have issues and/or concerns with the proposed project? If so, please explain.
Yes - the proposed boat ramp. I just think it is a bad idea. Who is going to monitor it? It will just be a place to dump dead animals (or not so dead - Kittens or puppies that are live and the owner wants to dispose of them that way)

Do you have any concerns with the bridge design and components as shown in the renderings provided:
Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied.

	Very Dissatisfied				Very Satisfied	Comments
Bridge Renderings (in general)	1	2	3	(4)	5	
Bridge Rails	1	2	3	(4)	5	
Bridge Beams	1	2	3	(4)	5	
Bridge Piers	1	2	3	(4)	5	
Use of the Ocoee River Symbol	1	2	3	(4)	5	
Monuments at each end of bridge	1	2	3	(4)	5	
Bridge Rail and Monument Lighting	1	2	3	(4)	5	

AN ADDITIONAL QUESTION AND SPACE FOR ADDITIONAL COMMENTS ARE LOCATED ON BACK

US 64 Over Ocoee River Design-Build Project

Comments by Alan Fetzer, an affected landowner

My comments are not to be considered in any way(s) that I am affected as a landowner. That would be, but not limited to—property loss, replacement of or simply expenditures and efforts made to adjoining property that will be lost, ways our businesses are affected or other losses or potential losses. These comments are about the things you requested to be commented about. I am presenting my comments now from the viewpoint of a citizen of this area, a taxpayer, and from insights of matters that many stakeholders may not see.

It is obvious from your statement of 90% of the cost to upgrade vs the design/build project that this needs to be done. The roads in this area affect local and many other stakeholders. The bridge structure as presented appeared to be very nice. The River symbols underneath, the beams, rails, and lighting looked good as I saw them during the presentation. Your consideration of public input is highly questionable since it has been years since you have allowed stakeholders to have their thoughts involved. Also very questionable is the informing of the public about the stakeholders meeting. The obvious intentional determination on your part to exclude property owners affected from the stakeholders meeting defies any of your intentions to be open to all stakeholders.

The Gateway entrance is greatly enhanced by your proposed monuments. However, I believe that any structural facilitation that this could be limited to in the design-build contract and still allow more public thought and input to happen is what needs to proceed. This would allow much more thought and input even from other TN Government agencies that are and have invested taxpayer dollars into enhancing development that locals desperately need to fund our local government. Nearby cities in other counties, as well as the State of Tenn. could also benefit if any improvements to designate entering the area of a treasure could be determined.

Another part of this proposal definitely needs to be excluded from this design-build proposal to be made to contractors. It is not even listed on the opening page's project description. Although talked about at the stake holders meeting which was controlled as stated before by TDOT to limit those who also could have attended and/or been made more aware of this comment period so they could have had their input. The TWRA access

road was proposed at the meeting as being two hours downstream of the existing input at Ocoee # 1 Dam. With a 4 or 5 turbine flow this is very incorrect, even on tubes. Their request was based upon being between input and the Nancy Ward access. This is not considering distance and flow according to elevation changes affecting time of travel on this distance of the Ocoee River as being anywhere close to halfway or even needed at all. The huge problem that needs to be considered much more in depth is the potential of a travel for tourists that would not require now considered normal road construction costs. The travel would be potentially between businesses that bring local tax dollars. These routes could include parking areas (especially at businesses) that would keep highway traffic growth much less. This should be accepted in a far greater way than present local citizens view growth. The thoughts of having only a Pigeon Forge road front is opposed by practically all concerned and most of those tourist coming here. The proposed boat ramp also puts any potential of a greenway into the control of TWRA even if TDOT were to agree. Much more local discussion (any state holders and TN or other Government representation included) needs to be happen, especially if property owners want to join this vision. The vision may have a lot of modifications to address, especially property owners participation. However, a starting professional visioning has taken place with about 20 landscape architect students from the University of Georgia and then close to the time of the last public meetings of this corridor (road) about 20 more U-T landscape architect students studied the potential tourist development of this area. The State of TN should be considered as they have spent funds for growth in rural areas and some specific funds for our county.

Putting such a potentially lethal chokehold on Polk County and other stakeholder's benefits does not need to happen in the urgency of this design-build proposal. It is not necessary to include this access to go ahead now with design-build contracts.

Meeting Comment Card

www.tn.gov/tdot

Project Description:
US 64 Over Ocoee River
Design-Build Project

Date: November 15, 2018

Project #: 70068-0211-94

County: Polk

PLEASE PRINT

Name Ronnie O'Neal E-mail:

Address: 922 Grassy Crk

City: Copperhill State: TN Zip: 37317

Phone (include area code): 423-241-2633

Which describes your primary interest in the project? Concerned Citizen ✓ Affected Resident ____ Affected Landowner ____ Affected Business ____ Name of Business

Please indicate your preference and what you like and dislike about the project Alternatives:

1. No-Build Alternative We need the hwy 64 built the people in the Basin has to travel it daily going to work and etc. there has been so many times the road has been closed due to rocks.

2. Build Alternative

Do you have issues and/or concerns with the proposed project? If so, please explain.

falling and wrecks. For once please have a thought for the people in the Basin area

Do you have any concerns with the bridge design and components as shown in the renderings provided:
Rate from 1 to 5, with 1 being very dissatisfied and 5 being very satisfied.

	Very Dissatisfied				Very Satisfied	Comments
Bridge Renderings (in general)	1	2	3	4	5	
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Monuments at each end of bridge	1	2	3	4	5	
Bridge Rail and Monument Lighting	1	2	3	4	5	

AN ADDITIONAL QUESTION AND SPACE FOR ADDITIONAL COMMENTS ARE LOCATED ON BACK

ADDITIONAL COMMENTS:

Frank Wamp had the Fed. Part appropriated and it is spent elsewhere. Basin people don't mean anything to the state why not cut us off and give us to Ga. They are building a bypass around Copperhill, spending their money in TN. and the people of state of TN. don't give a dam to help us.

Please complete and deposit in the comment card box, email to Jennifer.Flynn@tn.gov or mail to the following address by 11/20/18:

Jennifer Flynn, Community Relations Officer
TDOT Region 2
7512 Volkswagen Drive
Chattanooga, TN 37416

TN TDOT Department of Transportation

US 64 Bridge over Ocoee River

Ocoee, Polk County, Tennessee

Stakeholders Meeting
November 15, 2018

Purpose of this Meeting

- Give an overview of the bridge replacement project and intersection improvements
- Present renderings of the proposed bridge
- Offer attendees an opportunity to ask questions and provide written comments

During the meeting, TDOT will also provide an update regarding the overall US 64 corridor project approach and a summary of the Design-Build process.

Corridor K (US 64) Overview

Environmental Document Determination	**CORRIDOR K (US-64)** SR-40 (US-64) From West of the Ocoee River to SR-68 Near Ducktown Polk County, Tennessee, PIN 102420.08	TN TDOT Department of Transportation

This project is…….

- Replacement of bridge over Ocoee River
- Intersection improvements at Welcome Valley Road

Status of Corridor K Project

- Corridor K Environmental Impact Statement (EIS) is paused.
- TDOT to review projects from the Targeted Approach for potential development
- This US 64 Bridge Replacement is one of the Targeted Approach Projects
  - The Environmental review for this project is already underway.
  - Much of the information/effort in the current EIS effort can be used in the development/study of the Targeted Approach projects.
- Targeted Approach process

Environmental Review for this Project

The Environmental Review considers two project alternatives:

- No-Build Alternative:

  No new construction – only maintenance

- Build Alternative:

  Includes construction of a 3-lane roadway with shoulders and a new bridge over the Ocoee River

On the comment card you can indicate your preference and what you like or dislike about the above alternatives.

What is Design-Build?

- Combines portions of design and construction phases of a project
- Design and construction services are performed by a single entity (Design-Builder) under a single contract
- Design-Builder manages all contracts with subcontractors, vendors, and materials

Design-Build Three-Phase Selection

- Phase 1 – Short-listing of potential Design-Builders based on Statements of Qualifications in response to an RFQ (Request for Qualifications) – Winter 2018

- Phase 2 – Submission of price and technical proposals in response to an RFP (Request for Proposals) - Spring 2019

- Phase 3 – Award of Design/Build contract – Summer 2019

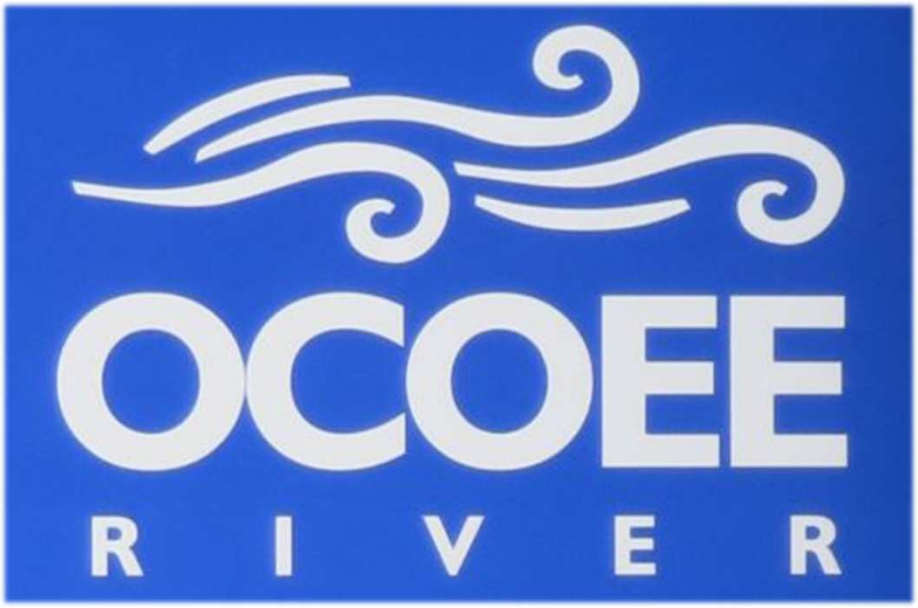
Benefits of Design-Build for US-64 Bridge over Ocoee River

- Combined design & construction of the bridge is expected to result in time and/or cost savings
- Designer and contractor will have collaborative relationship throughout project
- Complex site conditions (seasonal construction limitations, environmental considerations, limited traffic detour options)

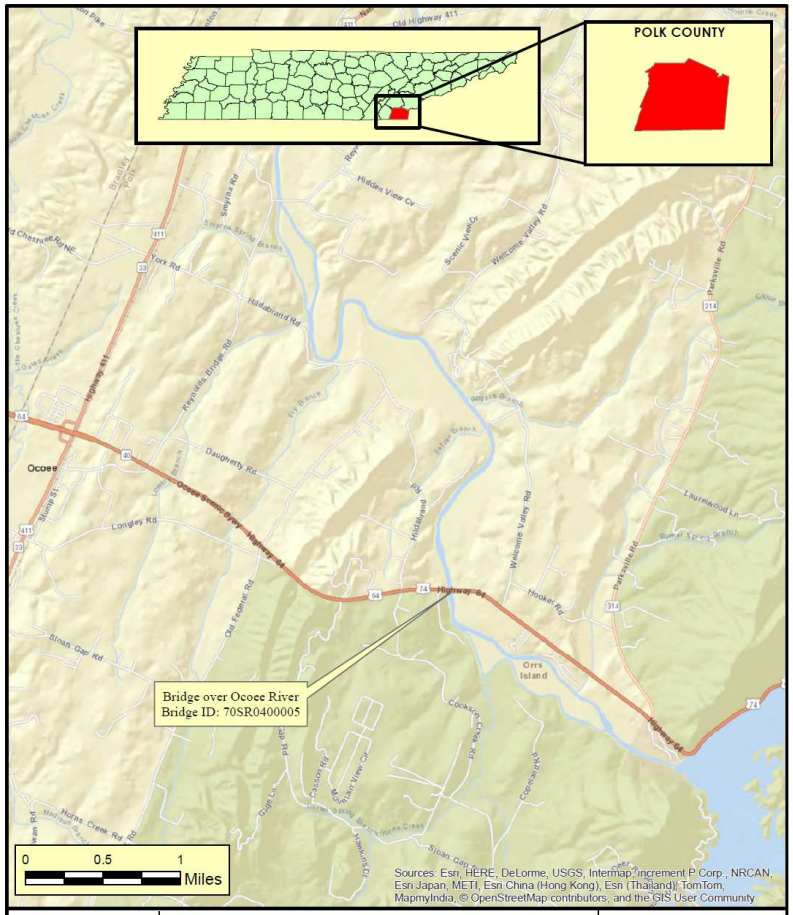
Benefits of Design-Build for US-64 Bridge over Ocoee River

- Potential for innovation in design and construction through ATCs (Alternative Technical Concepts)

- Opportunity for consideration of unique elements to be incorporated into bridge design through design process

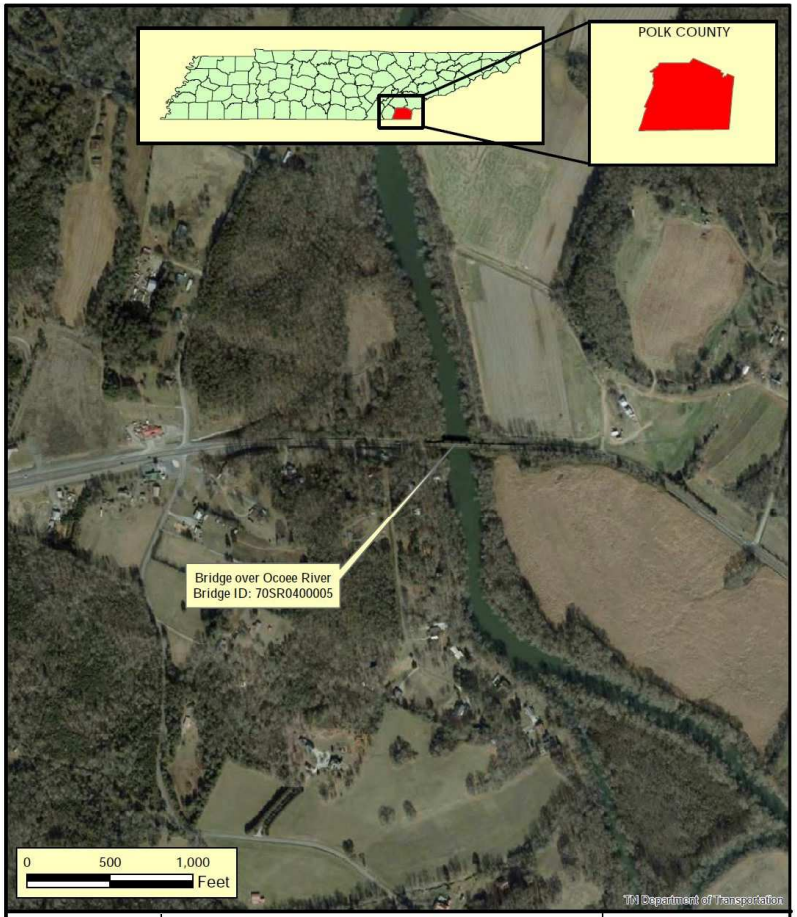


Project Overview – Project Location



AREA MAP
STATE ROUTE 40 (US-64/74)
BRIDGE OVER OCOEE RIVER
LOG MILE 3.12
POLK COUNTY

TN TDOT Department of Transportation



LOCATION MAP
STATE ROUTE 40 (US-64/74)
BRIDGE OVER OCOEE RIVER
LOG MILE 3.12
POLK COUNTY

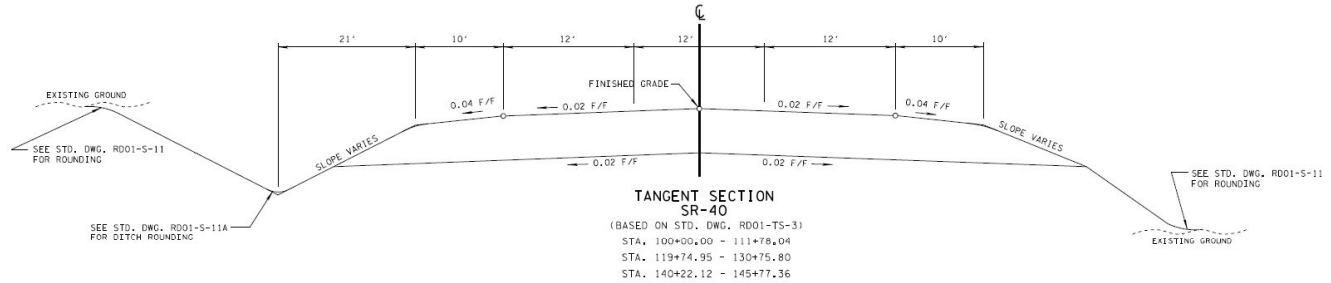
TN TDOT Department of Transportation

Project Overview - Project Limits and Length

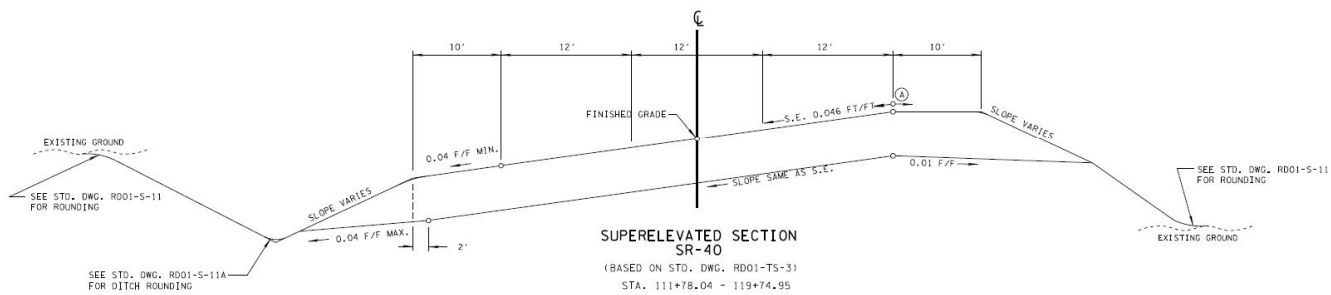
- Project begins west of Hildebrand Road and ends east of Welcome Valley Road
- Construct 0.8-mile of 3-lane roadway on new alignment
- Roadway will be two 12-foot travel lanes with a 12-foot center turn lane and 10-foot shoulders
- Construct a new bridge over the Ocoee River

Project Overview - Roadway Typical Section

TYPE	YEAR	PROJECT NO.	SHEET NO.
Prellm.	2018	70068-1211-94	2



TANGENT SECTION
SR-40
(BASED ON STD. DWG. RD01-TS-3)
STA. 100+00.00 - 111+78.04
STA. 119+74.95 - 130+75.80
STA. 140+22.12 - 145+77.36



SUPERELEVATED SECTION
SR-40
(BASED ON STD. DWG. RD01-TS-3)
STA. 111+78.04 - 119+74.95

(A) THE SLOPES OF THE SHOULDER AND ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 0.07.

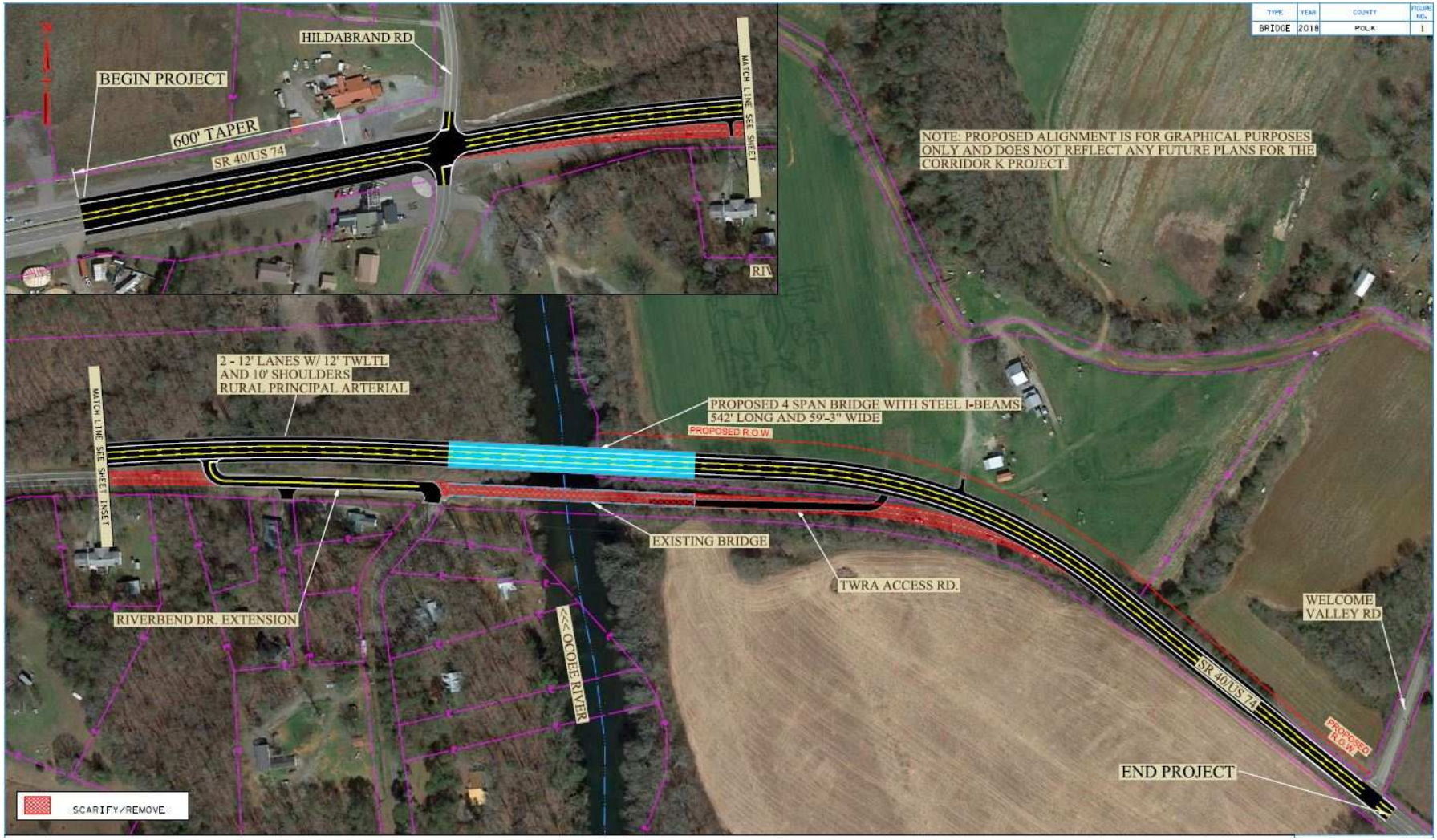
HYDRAULIC GRADE APPROVAL

SEALED BY

STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

Project Overview – Conceptual Plan



TN TDOT Department of Transportation

Project Overview - Bridge over Ocoee River

- New bridge will be constructed to the north with approximately 35 feet clear from the existing bridge

- Existing bridge will be removed after the new bridge is opened to traffic

Project Overview - ROW Acquisition and Easements

ROW Phase may include:

- ROW acquisition
- Construction easements
- Slope easements
- Drainage easements
- Utility Coordination

Project Overview - Maintenance of Traffic

Roadway

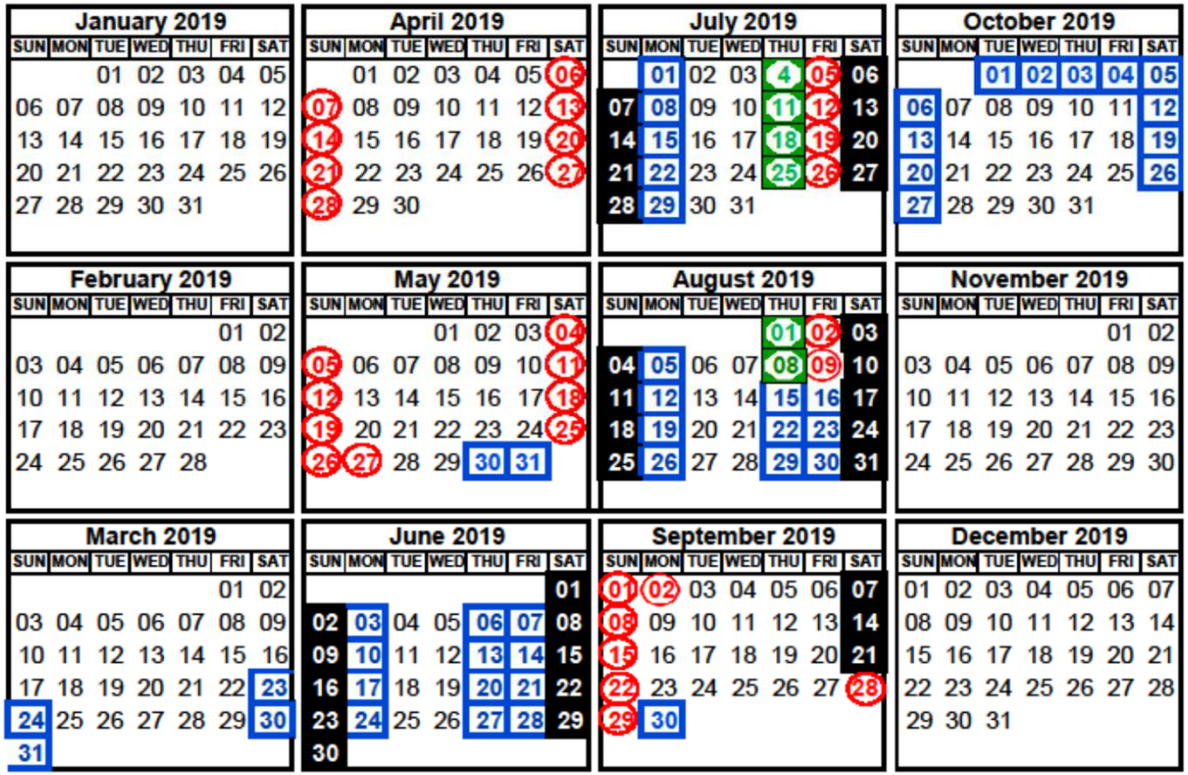
Two lanes of traffic will be maintained except for possible short-term lane closures during construction for beam delivery and erection.

Waterway

Possible closures during beam erection and existing bridge demolition.

Project Overview - Maintenance of Traffic

Draft 2019 Recreational Release Calendar for Ocoee #2



Six hour day: 10 am - 4 pm

Eight hour day: 9 am - 5 pm

(All times local time)

Ten hour day: 9 am - 7 pm

Seven hour day: 9 am - 4 pm

Ocoee River Bridge Rendering

Ocoee River Bridge Rendering

Ocoee River Bridge Rendering

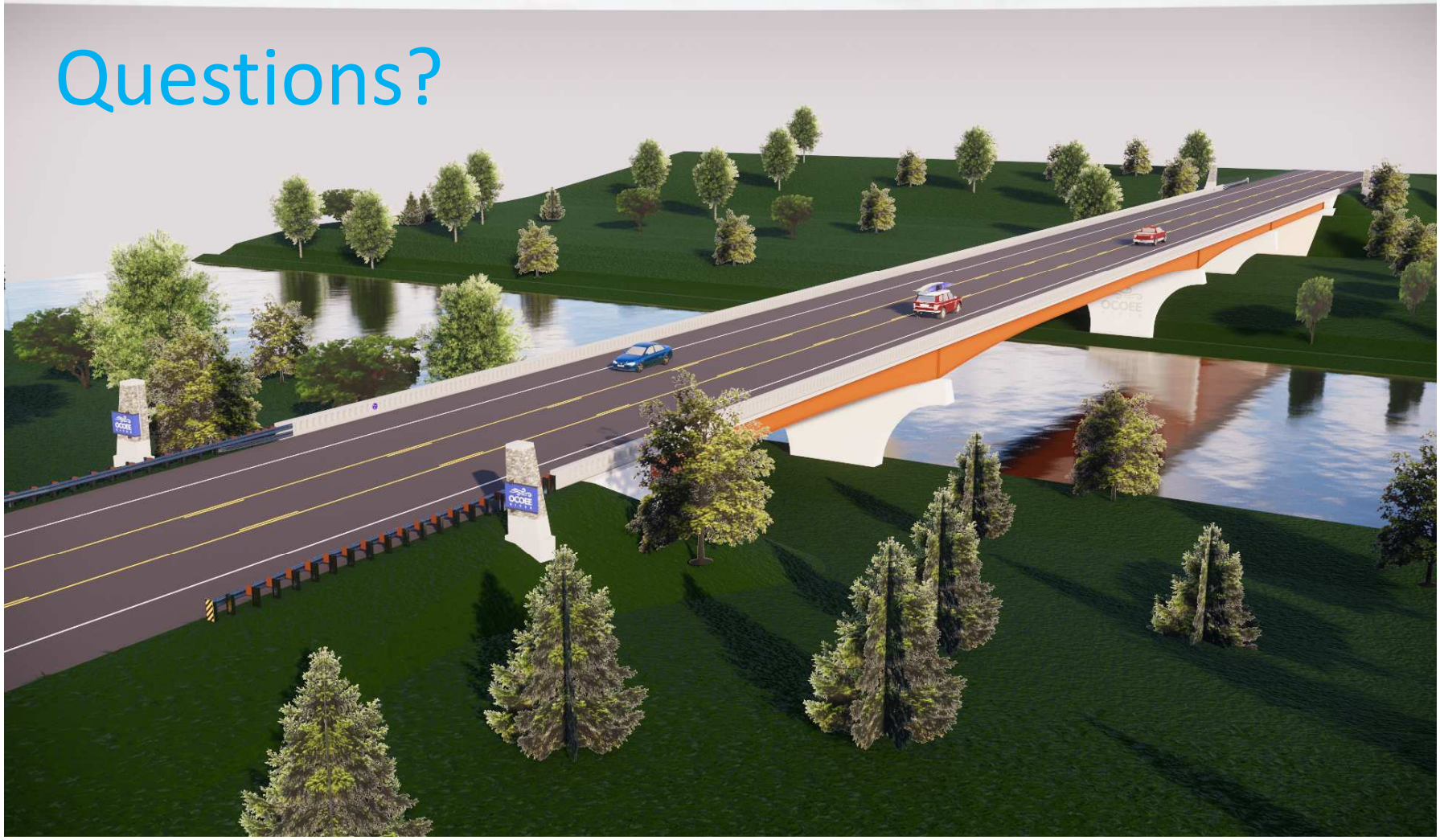
Ocoee River Bridge Rendering

Ocoee River Bridge Rendering

Ocoee River Bridge Rendering

Ocoee River Bridge Rendering

Ocoee River Bridge Rendering



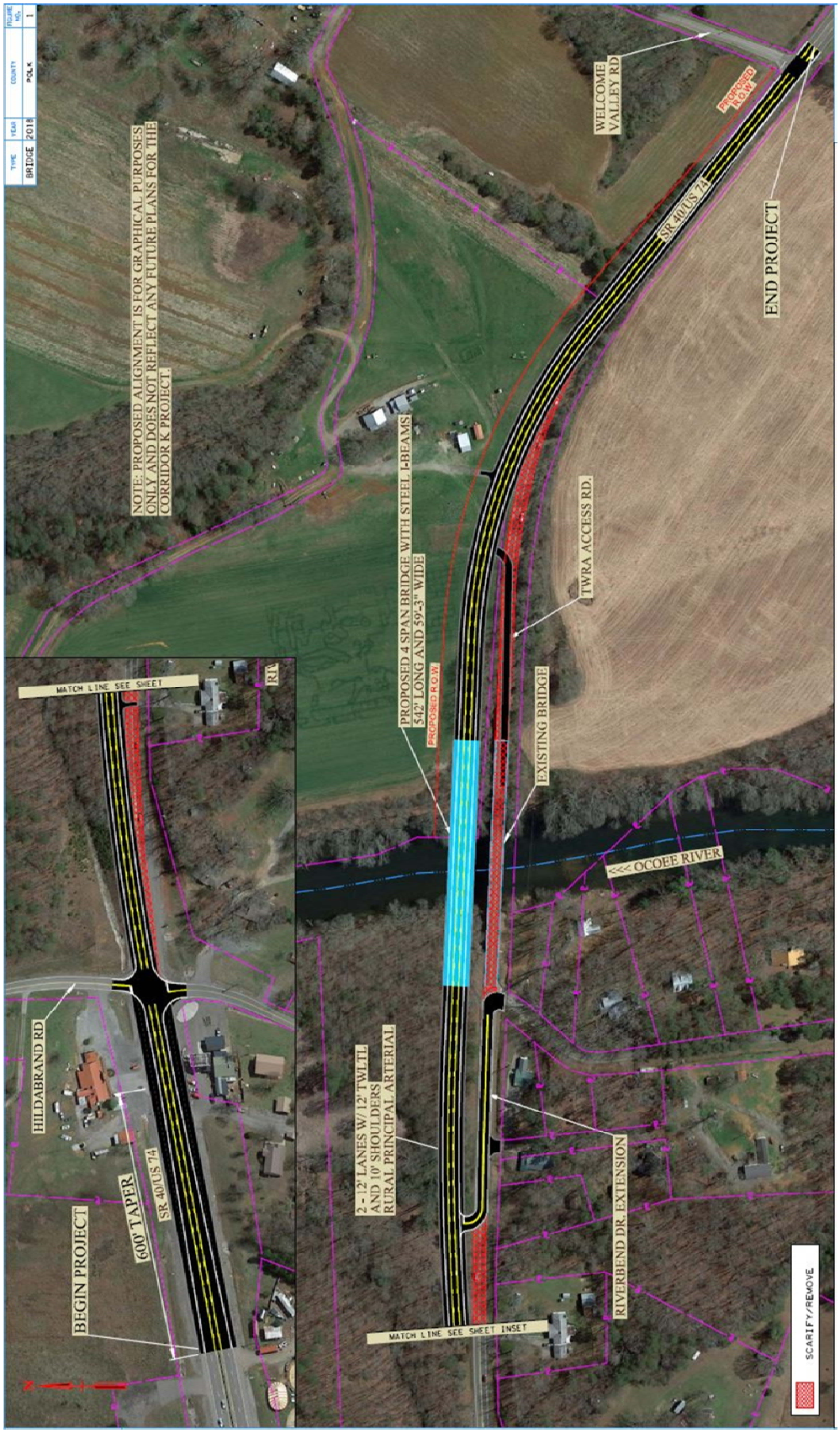
Estimated Project Milestones

1. **Design Builder awarded project –** Summer 2019
2. **ROW Acquisition –** Winter 2019/2020
3. **Construction Begins –** Spring 2020
4. **Construction Completed -** TBD

Thanks for attending tonight's meeting!

- Please visit the **displays** around the room.
- People with nametags can answer your questions.
- Remember to fill out the **comment card**. You can drop it in the box before you leave, or you can send your comments by email to the email address on the comment card or by mail to the address on the comment card by 11/20/18.

PROPOSED ALIGNMENT FOR US 64 OVER OCOEE RIVER



TN TDOT Department of Transportation

General Services, Authorization No. 123456, copies January, 2015. This public document was promulgated at a cost of $0.10 per copy.

PIN 124102.00

Appendix C

Ecology

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
REGION 2 PROJECT DEVELOPMENT
7512 VOLKSWAGEN DRIVE
CHATTANOOGA, TENNESSEE 37416
(423) 510-1165

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

To: Robert Rodgers
TDOT Region 2 – Project Development

From: Brandon Chance
Region 2 Project Development
Environmental Tech Office – Ecology

Brandon Chance

Digitally signed by Brandon Chance
DN: cn=Brandon Chance, o=TDOT, ou=Region 2 Project Development - Environmental Tech Offic - Ecology, email=k.brandon.chance@tn.gov, c=US
Date: 2019.01.02 12:26:29 -05'00'

Date: 22 October 2018

Subject: **UPDATED - ENVIRONMENTAL BOUNDARIES REPORT**
Polk County, SR-40 Bridge over the Ocoee River, LM 3.12
P.E. 70068-0211-94, PIN 124102.00

TDOT Region 2 Environmental Tech staff has completed the environmental boundaries field survey for the subject project and submits the following results:

WETLANDS

There are no wetlands within the project limits.

SPRINGS, STREAMS, WET WEATHER CONVEYANCES AND EPHEMERAL STREAMS

There are two (2) streams and two (2) wet weather conveyances / ephemeral streams located within the project limits.

PROTECTED SPECIES

There are no protected species within a one (1) mile radius of the project limits and 12 protected species within the four (4) mile radius of the project limit. There is suitable habitat for Indiana bat (Myotis sodalis) and the northern long-eared bat (Myotis septentrionalis) within the project area. TDOT conducted a presence / absence survey for bats during the summer 2018 sampling season. A state listed Barn Owl (Tyto alba) is roosting under the bridge with her young. Additionally, Cliff Swallows (Petrochelidon pyrrhonota) and Barn Swallows (Hirundo rustica) are nesting on the bridge and piers. This project is covered under the TDOT/USFWS 2015 MOA for impacts to Cliff Swallows (Petrochelidon pyrrhonota) and Barn Swallows (Hirundo rustica). Coordination responses from the US Fish and Wildlife Service (USFWS) Tennessee Wildlife Resources Agency (TWRA) and TDEC Division of Natural Areas are provided.

Project Commitments:

Please activate these project commitments in PPRM, and add these commitments to the project plans:

- "To comply with the TDOT/USFWS 2015 MOA for impacts to Cliff Swallows (Petrochelidon pyrrhonota) and Barn Swallows (Hirundo rustica). Cliff swallow and barn swallow nests, eggs or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests may be removed or destroyed, and measures may be implemented to prevent future net building at the site (e.g., closing off area using netting)."

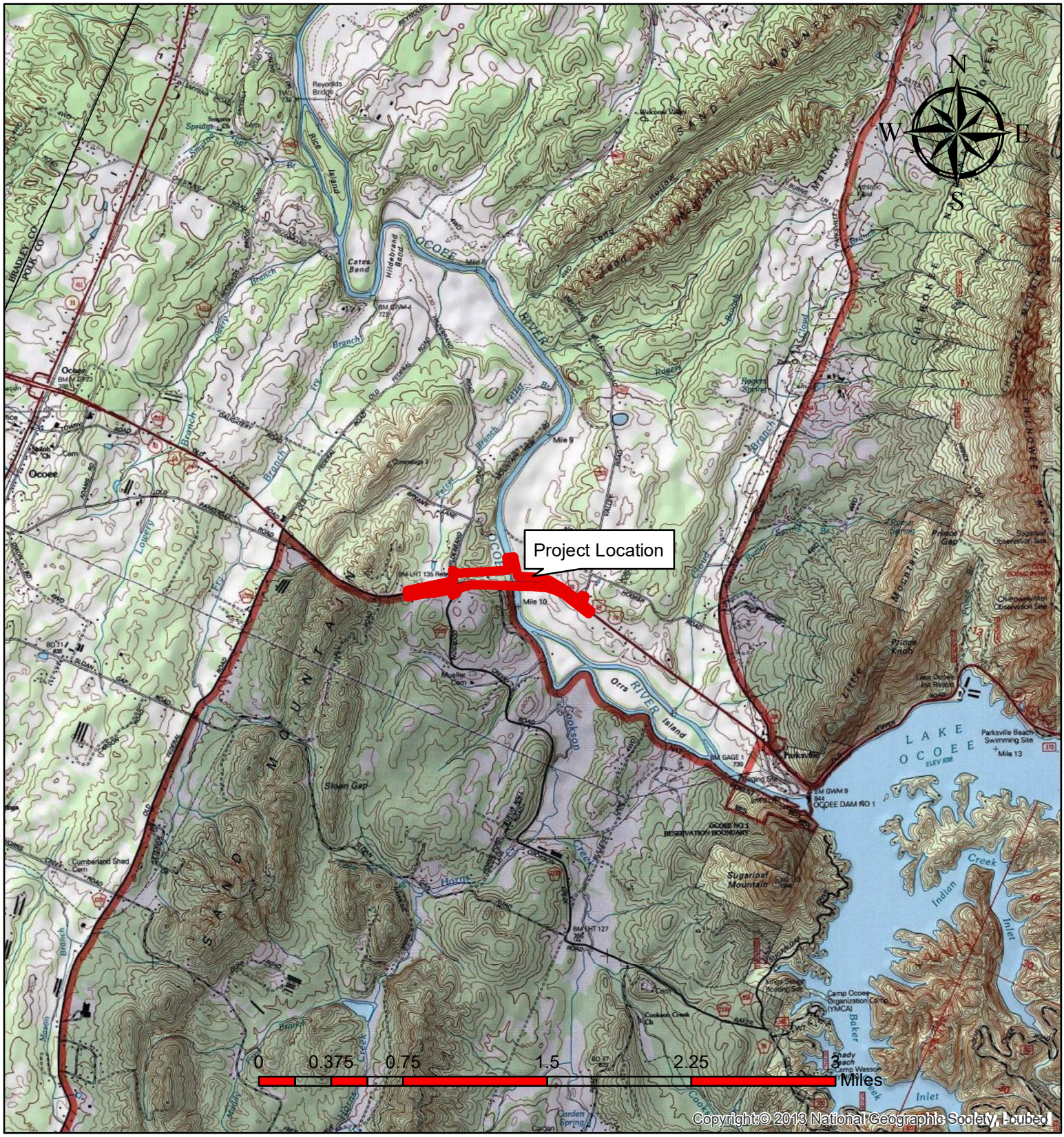
- "Due to concerns for the federally threatened snail darter (Percina tanasi), TDOT is committed to prohibit instream work from February 1 – April 30 in the Ocoee River for the duration of the project."

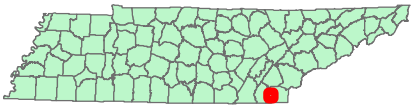
- "Due to concerns for the state listed Barn Owl (*Tyto alba*) using the bridge during various nesting stages, TDOT has committee to prohibit work on the existing bridge from April 1 and September 1."

Please incorporate this information into the project plans as needed. Thank you for your assistance with this project. If you have any questions or comments please contact me at K.Brandon.Chance@tn.gov or 423-634-7563.

Attachment: Environmental Boundaries Report:

Copy: Region 2 Project Development: Wes Hughen, Jeremy Sims, Scott Medlin, Chester Sutherland, Colby Mann, Emily Carpenter, Tami Johnson-Praino
HQ Ecology: Matt Richards, Dennis Crumby
HQ Permits: Kristen Taylor, Mary Showers, Ben Young TDOT.Env.Permits@tn.gov
NEPA Documentation Office: TDOT.Env.NEPA@tn.gov
Filenet





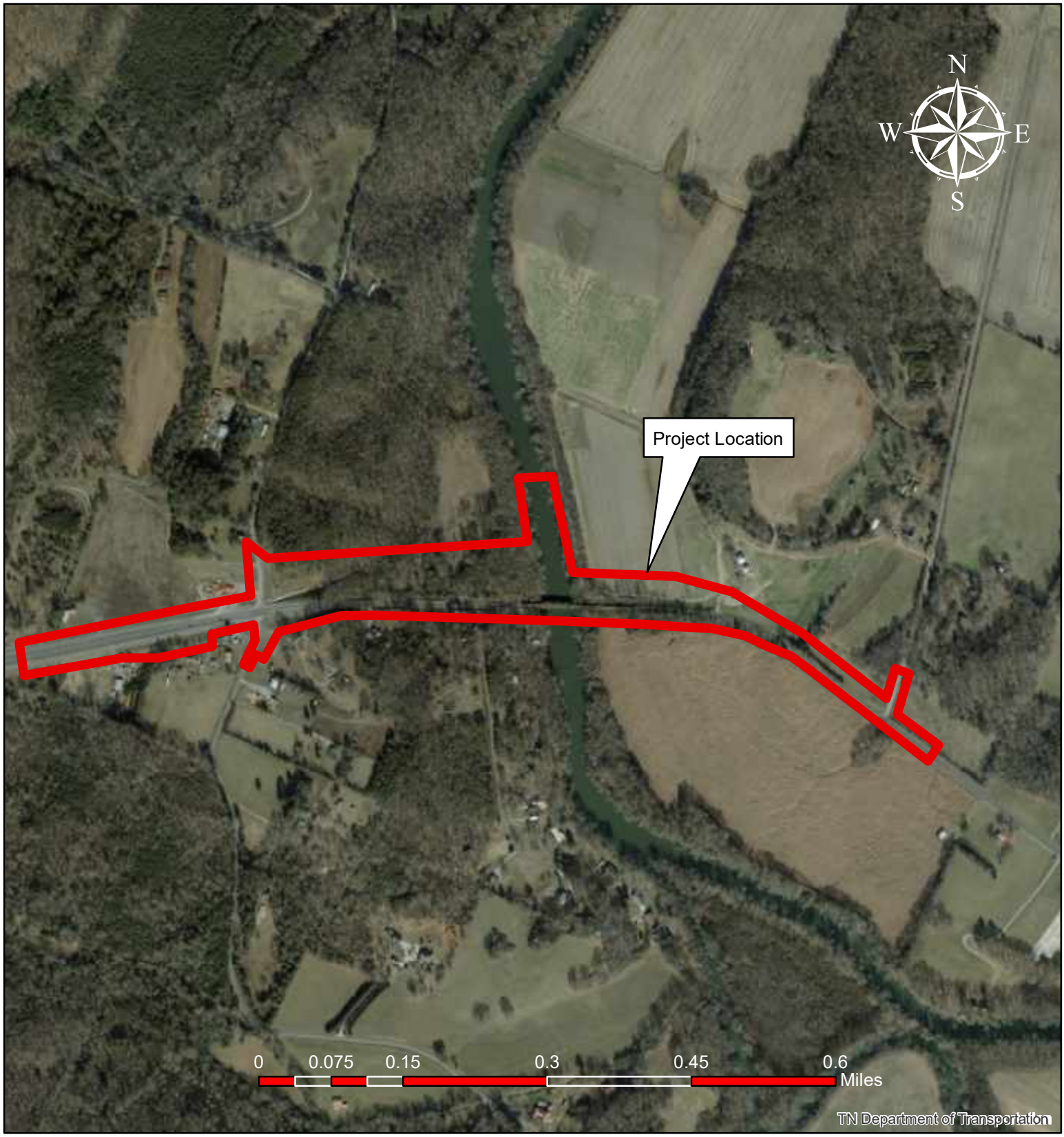
Project Location Topographical Map

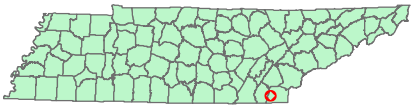
Polk County, SR-40 Over Ocoee River, LM 3.12

11 September 2018

P.E. 70068-0211-94
PIN 124102.00

TN TDOT Department of Transportation





Project Location Aerial Map

Polk County, SR-40 Over Ocoee River, LM 3.12

11 September 2018

P.E. 70068-0211-94
PIN 124102.00

TN TDOT Department of Transportation

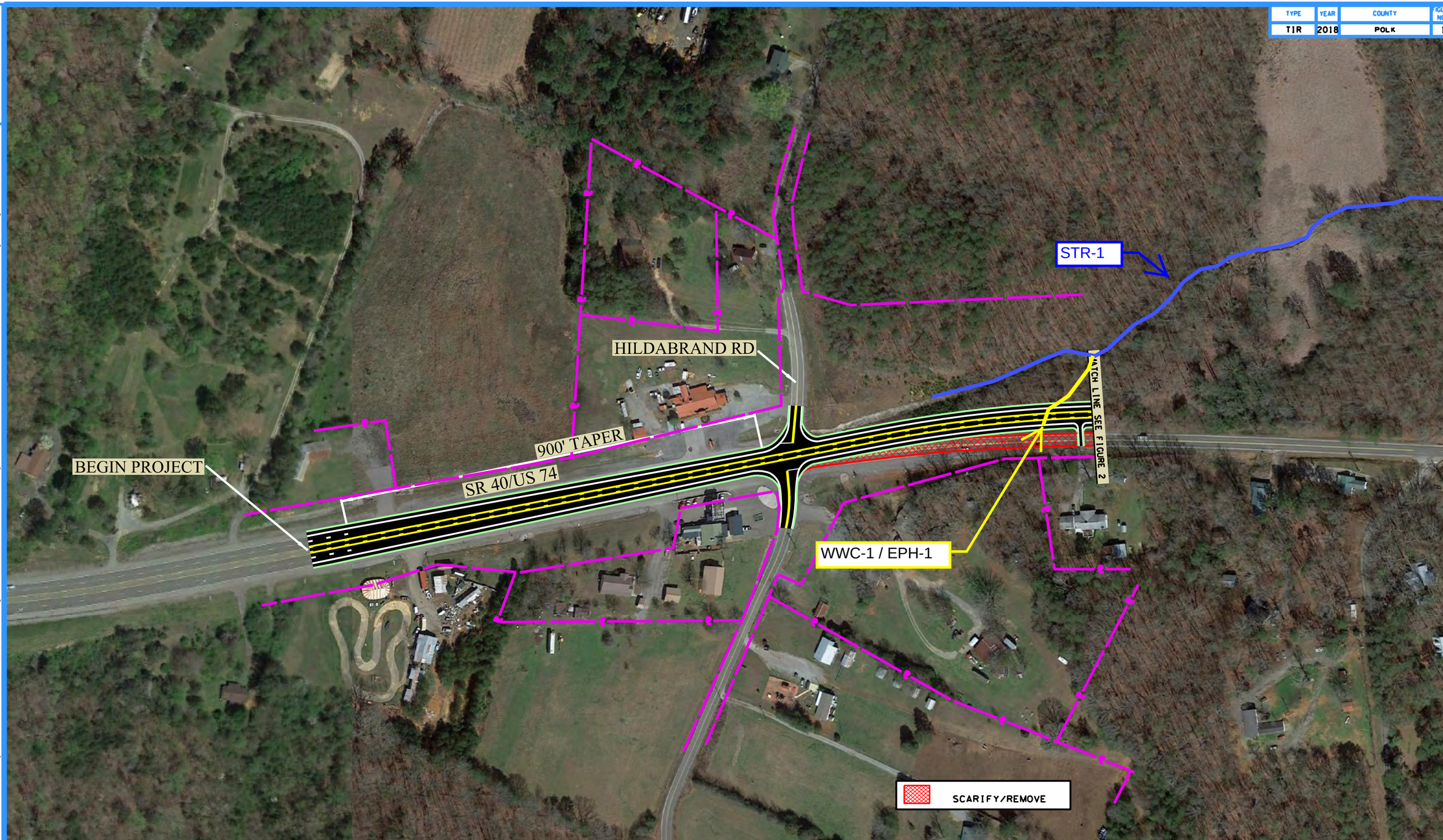
Impact Table: PIN 124102.00 - Polk County, SR-40 over the Ocoee River, LM 3.12

Site Number (Label)	Station Number from Plans	Latitude	Longitude	Estimated amount of aquatic resource in review area	Type	Receiving Water	Function	Quality
Wetlands								
None								
Streams								
STR-1	*	35.112556°	-84.677373°	500 ft **	Intermittent	Ocoee River		Undetermined at this time
WWC-1 / EPH-1	*	35.112247°	-84.677952°	185 ft **	wet weather conveyance / ephemeral	unnamed tributary to Ocoee River		Undetermined at this time
STR-2 (Ocoee River)	*	35.111676°	-84.674265°	100 ft **	perennial	Ocoee River		
WWC-2 / EPH-2	*	35.111756°	-84.673895°	375 ft **	wet weather conveyance / ephemeral	Ocoee River		Undetermined at this time

* Plans are functionals at this time and have not been assiged station numbers.
** The linear footages are estimates made from functional plans and subject to change as project plans are developed.

TENNESSEE D.O.T.
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION
FILE NO.

TYPE	YEAR	COUNTY	FIGURE NO.
TIR	2018	POLK	1



BRIDGE TIR

STATE ROUTE 40
US 74
L.M. 3.12
POLK COUNTY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION
INVESTMENTS DIVISION

FIGURE 1
SR 40
L.M.3.12

8/8/2018 9:56:17 AM
\\AG03SDCWF00008.net.ads.state.tn.us\FUNCTIONAL\Projects\Polk\SR 40 US 64 74\POLK - Bridge over Ocoee River LM 3.12\Project Files\Microstation\ConceptualPlans (DGN & PDF)\Figure 1.dgn

TENNESSEE D.O.T.
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION
FILE NO.

TYPE	YEAR	COUNTY	FIGURE NO.
TIR	2018	POLK	2

0' 200' 400' 600'

N

BRIDGE TIR

STATE ROUTE 40
US 74
L.M. 3.12
POLK COUNTY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION

FIGURE 2
SR 40
L.M.3.12

8/8/2018 10:30:28 AM
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Ecology Field Data Sheet: **Water Resources**

Project:	PIN 124102.00, SR-40 (US-64) Bridge over the Ocoee River, LM 3.12				
Biologist:	Brandon Chance	**Affiliation:**	TDOT R2 Env Tech	**Date:**	12 July 2018

1-Station: from plans	No plans at this time				
2-Map label and name	STR-1				
3-Latitude/Longitude	35.112556°N, -84.677373°W				
4-Potential impact	Crossing / Runoff				
5-Feature description:					
-channel identification	perennial stream ☐	intermittent stream ✓	ephemeral stream ☐	wwc ☐	
-HD score (if applicable)	N/A				
-OHWM indicators	bed & banks ✓	deposition ☐	presence of litter / debris ☐	scour ✓	veg absent, bent, matted ☐
	change in plant community ☐	destruction of terrestrial veg ✓	multiple observed flow events ☐	sediment sorting ☐	water staining ☐
	change in soil character ☐	leaf litter disturbed absent ☐	natural line impressed on bank ☐	shelving ☐	wracking ✓
-sinuosity	absent ☐	weak ✓	moderate ☐	strong ☐	
-channel bottom width	3-5 ft	-top of bank width	4-8 ft		
- avg. gradient of stream (%)	5%				
-bank height and slope ratio	LDB - 1-6 ft (1:1)	RDB - 1-6 ft (1:1)			
-water flow	fast ☐	moderate ☐	slow ☐	isolated pools ✓	none ☐
-water depth (riffles / pools)	none / 6-12 inches	water width (riffles / pools)	none / 12-24 inches		
-bank stability: LDB, RDB	LDB: Stable ☐	Eroding ☐	Undercutting ✓	Sloughing ✓	Exposed Roots ☐
	RDB: Stable ☐	Eroding ☐	Undercutting ✓	Sloughing ✓	Exposed Roots ☐
-dominant riparian species: ----------(LDB /RDB)----------	LDB: poplar, mulberry, green ash, white oak				
	RDB: poplar, mulberry, green ash, white oak				
-habitat assessment score	78				
	epifaunal substrate	7	channel alteration	1	
	riffle embeddedness	8	frequency of re-ox zones	17	
	velocity / depth regime	5	bank stability	LDB 1	RDB 1
	sediment deposition	18	bank vegetative protection	LDB 0	RDB 0
	channel flow status	2	riparian veg zone width	LDB 9	RDB 9
-OHWM	approximately 782 ft				
-riffle pool complex	no				
-fish, benthos,algae, aquatic life	none observed				
6-photo numbers	see attached photo summary				
7-rainfall information	0.11 inches in previous 7 days				
8-HUC -12 Code & Name	060200030212 - Ocoee River Outlet				
9-Confirmed by:	N/A				
10-Assessed	yes ☐	no ✓			
11-ETW	yes ☐	no ✓			
12-303 (d) List	yes ☐	siltation ☐	habitat: ☐	other: ☐	
	no ✓				
13-Notes	This feature begins at a headcut at the end of a rip-rap slope drain along the north toe of the SR-40 fill slope. The outlet to STR-2 (Ocoee River) is off project to the north and obscured by kudzu.				

Ecology Field Data Sheet: **Water Resources**

Project:	PIN 124102.00, SR-40 (US-64) Bridge over the Ocoee River, LM 3.12				
Biologist:	Brandon Chance	**Affiliation:**	TDOT R2 Env Tech	**Date:**	12 July 2018

1-Station: from plans	No plans at this time				
2-Map label and name	WWC-1 / EPH-1				
3-Latitude/Longitude	35.112247°N, -84.677952°W				
4-Potential impact	Crossing / Runoff				
5-Feature description:					
-channel identification	perennial stream ☐	intermittent stream ☐	ephemeral stream ✓	wwc ✓	
-HD score (if applicable)	16.5				
-OHWM indicators	bed & banks ✓	deposition ☐	presence of litter / debris ☐	scour ✓	veg absent, bent, matted ☐
	change in plant community ☐	destruction of terrestrial veg ☐	multiple observed flow events ☐	sediment sorting ☐	water staining ☐
	change in soil character ☐	leaf litter disturbed absent ☐	natural line impressed on bank ☐	shelving ☐	wracking ✓
-sinuosity	absent ☐	weak ✓	moderate ☐	strong ☐	
-channel bottom width	2-3 ft	-top of bank width	3-5 ft		
- avg. gradient of stream (%)	5%				
-bank height and slope ratio	LDB - 1-5 ft (1:1)	RDB - 1-5 ft (1:1)			
-water flow	fast ☐	moderate ☐	slow ☐	isolated pools ☐	none ✓
-water depth (riffles / pools)	N/A	water width (riffles / pools)	N/A		
-bank stability: LDB, RDB	LDB: Stable ☐	Eroding ✓	Undercutting ☐	Sloughing ☐	Exposed Roots ☐
	RDB: Stable ☐	Eroding ✓	Undercutting ☐	Sloughing ☐	Exposed Roots ☐
-dominant riparian species: ----------(LDB /RDB)----------	LDB: poplar, mulberry, white oak, red maple				
	RDB: poplar, mulberry, white oak, red maple				
-habitat assessment score	76				
	epifaunal substrate	1	channel alteration	2	
	riffle embeddedness	6	frequency of re-ox zones	17	
	velocity / depth regime	5	bank stability	LDB 2	RDB 2
	sediment deposition	18	bank vegetative protection	LDB 2	RDB 2
	channel flow status	1	riparian veg zone width	LDB 9	RDB 9
-OHWM	approximately 795 ft				
-riffle pool complex	no				
-fish, benthos,algae, aquatic life	none observed				
6-photo numbers	see attached photo summary				
7-rainfall information	0.11 inches in previous 7 days				
8-HUC -12 Code & Name	060200030212 - Ocoee River Outlet				
9-Confirmed by:	N/A				
10-Assessed	yes ☐	no ✓			
11-ETW	yes ☐	no ✓			
12-303 (d) List	yes ☐	siltation ☐	habitat: ☐	other: ☐	
	no ✓				
13-Notes	This feature begins at the outlet of an existing cross-drain under SR-40. The outlet is deeply incised through old road bed / railroad grade material before it joins STR-1.				

Ecology Field Data Sheet: **Water Resources**

Project:	PIN 124102.00, SR-40 (US-64) Bridge over the Ocoee River, LM 3.12				
Biologist:	Brandon Chance	**Affiliation:**	TDOT R2 Env Tech	**Date:**	12 July 2018

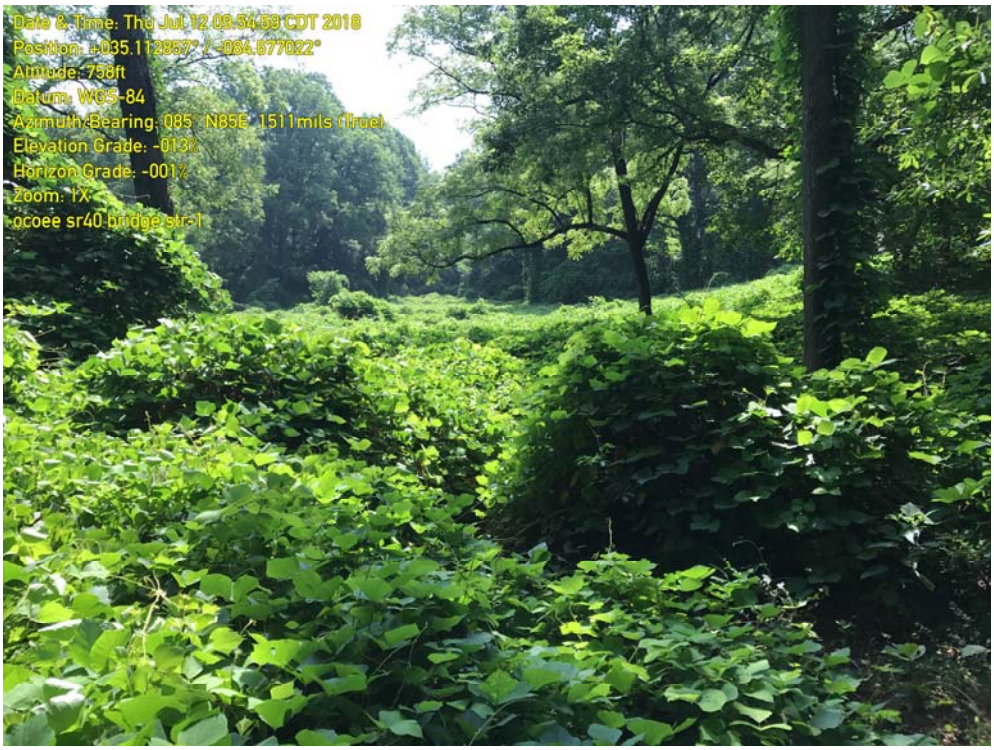
1-Station: from plans	No plans at this time				
2-Map label and name	STR-2 (Ocoee River)				
3-Latitude/Longitude	35.111676°N, -84.674265°W				
4-Potential impact	Crossing / Runoff				
5-Feature description:					
-channel identification	perennial stream ✓	intermittent stream ☐	ephemeral stream ☐	wwc ☐	
-HD score (if applicable)	N/A				
-OHWM indicators	bed & banks ✓	deposition ☐	presence of litter / debris ☐	scour ✓	veg absent, bent, matted ☐
	change in plant community ☐	destruction of terrestrial veg ✓	multiple observed flow events ☐	sediment sorting ✓	water staining ☐
	change in soil character ☐	leaf litter disturbed absent ☐	natural line impressed on bank ✓	shelving ☐	wracking ✓
-sinuosity	absent ☐	weak ☐	moderate ✓	strong ☐	
-channel bottom width	150-175 ft	-top of bank width	175 -200 ft		
- avg. gradient of stream (%)	5%				
-bank height and slope ratio	LDB - 5-6 ft (2:1)	RDB - 8-10 ft (2:1)			
-water flow	fast ☐	moderate ✓	slow ☐	isolated pools ✓	none ☐
-water depth (riffles / pools)	1-3 ft / 3-6 ft	water width (riffles / pools)	20-50 ft / 150-175 ft		
-bank stability: LDB, RDB	LDB: Stable ☐	Eroding ☐	Undercutting ✓	Sloughing ✓	Exposed Roots ☐
	RDB: Stable ☐	Eroding ☐	Undercutting ✓	Sloughing ✓	Exposed Roots ☐
-dominant riparian species: ----------(LDB /RDB)----------	LDB: kudzu, hackberry, mimosa, red maple, green ash				
	RDB: sycamore, river birch, black gum, green ash				
-habitat assessment score	139				
	epifaunal substrate	19	channel alteration	2	
	riffle embeddedness	18	frequency of re-ox zones	16	
	velocity / depth regime	17	bank stability	LDB 7	RDB 7
	sediment deposition	15	bank vegetative protection	LDB 6	RDB 6
	channel flow status	18	riparian veg zone width	LDB 4	RDB 4
-OHWM	approximately 782 ft				
-riffle pool complex	no				
-fish, benthos,algae, aquatic life	yes numerous species				
6-photo numbers	see attached photo summary				
7-rainfall information	0.11 inches in previous 7 days				
8-HUC -12 Code & Name	060200030212 - Ocoee River Outlet				
9-Confirmed by:	N/A				
10-Assessed	yes ✓	no ☐			
11-ETW	yes ✓	no ☐			
12-303 (d) List	yes ✓	siltation ☐	habitat: ✓	other: ✓	
	no ☐				
13-Notes	The Ocoee River is listed as an ETW due to the Federal threatened Snail Darter, and is a recreational resource of national significance within Cherokee NF.				

Ecology Field Data Sheet: **Water Resources**

Project:	PIN 124102.00, SR-40 (US-64) Bridge over the Ocoee River, LM 3.12				
Biologist:	Brandon Chance	**Affiliation:**	TDOT R2 Env Tech	**Date:**	12 July 2018

1-Station: from plans	No plans at this time				
2-Map label and name	WWC-2 / EPH-2				
3-Latitude/Longitude	35.111756°N, -84.673895°W				
4-Potential impact	Crossing / Runoff				
5-Feature description:					
-channel identification	perennial stream ☐	intermittent stream ☐	ephemeral stream ✓	wwc ✓	
-HD score (if applicable)	16 (see attached HD Field Data Sheet for details)				
-OHWM indicators	bed & banks ✓	deposition ☐	presence of litter / debris ☐	scour ✓	veg absent, bent, matted ☐
	change in plant community ☐	destruction of terrestrial veg ☐	multiple observed flow events ☐	sediment sorting ☐	water staining ☐
	change in soil character ☐	leaf litter disturbed absent ☐	natural line impressed on bank ☐	shelving ☐	wracking ✓
-sinuosity	absent ☐	weak ☐	moderate ✓	strong ☐	
-channel bottom width	3-4 ft	-top of bank width	10-12 ft		
- avg. gradient of stream (%)	<5%				
-bank height and slope ratio	LDB - 5-6 ft (1:1)	RDB - 5-6 ft (1:1)			
-water flow	fast ☐	moderate ☐	slow ☐	isolated pools ☐	none ✓
-water depth (riffles / pools)	N/A	water width (riffles / pools)	N/A		
-bank stability: LDB, RDB	LDB: Stable ☐	Eroding ✓	Undercutting ☐	Sloughing ☐	Exposed Roots ☐
	RDB: Stable ☐	Eroding ✓	Undercutting ☐	Sloughing ☐	Exposed Roots ☐
-dominant riparian species: ----------(LDB /RDB)----------	LDB: poplar, sycamore, black gum, hackberry				
	RDB: poplar, sycamore, black gum, hackberry				
-habitat assessment score	49				
	epifaunal substrate	1	channel alteration	2	
	riffle embeddedness	0	frequency of re-ox zones	1	
	velocity / depth regime	10	bank stability	LDB 5	RDB 5
	sediment deposition	9	bank vegetative protection	LDB 7	RDB 7
	channel flow status	1	riparian veg zone width	LDB 0	RDB 1
-OHWM	approximately 722 ft				
-riffle pool complex	no				
-fish, benthos,algae, aquatic life	none observed				
6-photo numbers	see attached photo summary				
7-rainfall information	0.11 inches in previous 7 days				
8-HUC -12 Code & Name	060200030212 - Ocoee River Outlet				
9-Confirmed by:	N/A				
10-Assessed	yes ☐	no ✓			
11-ETW	yes ☐	no ✓			
12-303 (d) List	yes ☐	siltation ☐	habitat: ☐	other: ☐	
	no ✓				
13-Notes	This feature begins as a mown ditch along the north toe of the SR-40 fill slope. The outlet is deeply incised through the stream bank before it joins STR-2 (Ocoee River).				

Photo Summary: Field Photographs
Project Description: Polk County, SR-40 Over Ocoee River, LM 3.12
P.E.: 70068-0211-94 PIN: 124102.00



Photograph 1 – View of STR-1 at north edge of ROW flowing toward STR-2 (Ocoee River) looking east

Photograph 2 – View of STR-1 looking downstream from confluence with WWC-1/EPH-1

Photograph 3 – View of STR-1 looking upstream from confluence with WWC-1/EPH-1

Photograph 4 – View of WWC-1/EPH-1 looking upstream from confluence with STR-1

Photograph 5 – View of WWC-1/EPH-1 looking upstream midway between confluence with STR-1 and origin at SR-40 cross drain outlet

Photograph 6 – View of WWC-1/EPH-1 looking upstream toward origin at SR-40 cross drain outlet – it appears that a notch was cut in this historic fill material and eroded

Photograph 7 – View of WWC-1/EPH-1 looking downstream from the deeply incised area downstream of the origin

Photograph 8 – View of STR-2 (Ocoee River) looking downstream from west river bank

Photograph 9 – View of STR-2 (Ocoee River) looking upstream from west river bank

Photograph 10 – View of cliff swallow nests under the bridge

Photograph 11 – View of Barn Own (*Tyto alba*) owlets on top of bent on east bank of STR-1 (Ocoee River)

Photograph 12 – View of WWC-2/EPH-2 looking downstream toward confluence with STR-1 (Ocoee River)

Photograph 13 – View of WWC-2/EPH-2 looking upstream

Project: Polk County, SR-40 Over Ocoee River, LM 3.12 **PE 70068-0211-94** **PIN 124102.00**

Date of field study: 18 July 2018 Date TDEC database checked: 11 September 2018 Completed by: Brandon Chance

Species reported within 1 mile radius of project

There are no protected species documented within one mile of the project location.

Species reported within 1-mile to 4-mile radius of project

Species Scientific Name	Species Common Name	Status		Species is potentially present in R-O-W because: **(A)** it is listed by TDEC within ROW **(B)** habitat is present **(C)** observed during site visit **(D)** critical habitat present within ROW	Species is considered likely NOT present in R-O-W because: **(A)** Present habitat unsuitable **(B)** Not observed during site visit **(C)** Original record questionable **(D)** Considered extinct/extirpated	Accommodations to minimize impacts: **(A)** BMPs are sufficient to protect species **(B)** Special Notes are included on project plans **(C)** Individuals will be impacted. **(D)** Accommodations not practical due to broad habitat description or mobility of species	Habitat (include blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Notes Last Observation Date
		Fed	TN					
Xerophyllum asphodeloides	Eastern Turkeybeard	--	T		A	A	Eastern turkeybeard inhabits dry woods with Virginia, shortleaf, or table mountain pine and dry bluffs with mountain laurel and rhododendron. It is a perennial, evergreen herb that reproduces sexually as well as vegetatively by sprouting from tuberous rhizomes. Plants live for several years before flowering then die after fruiting. Flower clusters mature from the bottom of the cluster toward the top.	1987

Project: Polk County, SR-40 Over Ocoee River, LM 3.12 **PE 70068-0211-94** **PIN 124102.00**

Species Scientific Name	Species Common Name	Status		Species is potentially present in R-O-W because: **(A)** it is listed by TDEC within ROW **(B)** habitat is present **(C)** observed during site visit **(D)** critical habitat present within ROW	Species is considered likely NOT present in R-O-W because: **(A)** Present habitat unsuitable **(B)** Not observed during site visit **(C)** Original record questionable **(D)** Considered extinct/extirpated	Accommodations to minimize impacts: **(A)** BMPs are sufficient to protect species **(B)** Special Notes are included on project plans **(C)** Individuals will be impacted. **(D)** Accommodations not practical due to broad habitat description or mobility of species	Habitat (include blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Notes Last Observation Date
Lysimachia fraseri	Fraser's Loosestrife	--	E		A	A	Fraser's Loosestrife is a perennial herb with stout, erect stems 2.5 - 5 feet tall, the upper stem covered with tiny, black-tipped hairs. The leaves are lance-shaped, covered with purple or black dots, and with a very narrow, red band around the leaf edges, and arranged in whorls of 3-6 leaves. The yellow flowers are arranged in a loosely branched cluster, up to 10 inches (25 cm) tall, at the top of the plant, covered with tiny, black-tipped hairs. Inhabits open gravel bars and stream banks; edges of granite and sandstone outcrops; sunny, rocky slopes; rocky, wet, open roadsides.	7/15/2008, 7/20/1969
Hybopsis lineapunctata	Lined Chub	--	D		A	A	The lined chub is usually found in pools of small and medium-sized streams and near shoreline in sections of rivers with moderate current, typically over sandy substrate. The species is restricted to the Connasauga River Drainage in Tennessee.	2/4/1978

Project: Polk County, SR-40 Over Ocoee River, LM 3.12 **PE 70068-0211-94** **PIN 124102.00**

Species Scientific Name	Species Common Name	Status		Species is potentially present in R-O-W because: **(A)** it is listed by TDEC within ROW **(B)** habitat is present **(C)** observed during site visit **(D)** critical habitat present within ROW	Species is considered likely NOT present in R-O-W because: **(A)** Present habitat unsuitable **(B)** Not observed during site visit **(C)** Original record questionable **(D)** Considered extinct/extirpated	Accommodations to minimize impacts: **(A)** BMPs are sufficient to protect species **(B)** Special Notes are included on project plans **(C)** Individuals will be impacted. **(D)** Accommodations not practical due to broad habitat description or mobility of species	Habitat (include blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Notes Last Observation Date
Sedum nevii	Nevius' Stonecrop	--	E		A	A	Nevius's Stonecrop is a perennial, succulent herb forming a ground-hugging network of stems bearing rosettes of evergreen leaves at the ends of the stems. The flowers are white, 1 cm across, and 4-5 pointed. It inhabits shallow soils on steep bluffs of gneiss (Georgia), limestone and shale (Alabama), and quartzitic slate (Tennessee). (Chafin 2008).	5/21/1961
Pituophis melanoleucus melanoleucus	Northern Pinesnake	--	T		A	A	The Northern Pine Snake is typical in sandy, well-drained upland pine or pine-oak woodland where it burrows in loose soils, and is almost exclusively fossorial (Tennant 2003).	5/18/1968
Agalinis plukenetii	Purple Gerardia	--	E		A	A	Purple gerardia (Chattahoochie false foxglove) is an annual herb about 2 feet in height, with pink flowers in September and October. It inhabits sandy pine woods on mountain sides in Polk County (northernmost location within its range).	10/4/1975, Oct -2015

Project: Polk County, SR-40 Over Ocoee River, LM 3.12 **PE 70068-0211-94** **PIN 124102.00**

Species Scientific Name	Species Common Name	Status		Species is potentially present in R-O-W because: **(A)** it is listed by TDEC within ROW **(B)** habitat is present **(C)** observed during site visit **(D)** critical habitat present within ROW	Species is considered likely NOT present in R-O-W because: **(A)** Present habitat unsuitable **(B)** Not observed during site visit **(C)** Original record questionable **(D)** Considered extinct/extirpated	Accommodations to minimize impacts: **(A)** BMPs are sufficient to protect species **(B)** Special Notes are included on project plans **(C)** Individuals will be impacted. **(D)** Accommodations not practical due to broad habitat description or mobility of species	Habitat (include blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Notes Last Observation Date
Desmognathus aeneus	Seepage Salamander	--	D		A	A	The Seepage salamander is a small terrestrial salamander endemic to the southeastern United States. It's preferred habitat is seepages or small headwater streams, but they are also terrestrial and can often be found in well-shaded upland habitatsin the general vicinity of seeps and streams. Adult salamanders are nocturnal and typically remain hidden under debris and vegetation on the forest floor.	8/17/2004

Project: Polk County, SR-40 Over Ocoee River, LM 3.12 PE 70068-0211-94 PIN 124102.00

Species Scientific Name	Species Common Name	Status		Species is potentially present in R-O-W because: **(A)** it is listed by TDEC within ROW **(B)** habitat is present **(C)** observed during site visit **(D)** critical habitat present within ROW	Species is considered likely NOT present in R-O-W because: **(A)** Present habitat unsuitable **(B)** Not observed during site visit **(C)** Original record questionable **(D)** Considered extinct/extirpated	Accommodations to minimize impacts: **(A)** BMPs are sufficient to protect species **(B)** Special Notes are included on project plans **(C)** Individuals will be impacted. **(D)** Accommodations not practical due to broad habitat description or mobility of species	Habitat (include blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Notes Last Observation Date
Percina tanasi	Snail Darter	LT	T	B		B	Snail Darter habitat includes gravel and sand runs of medium-sized rivers (Page and Burr 2011). Adults and spawning individuals inhabit sand and gravel shoals of moderately flowing, vegetated, large creeks and river; also in deeper portions of rivers and reservoirs where current is present (Etnier and Starnes 1993, Boschung and Mayden 2004). Young occur in slack water habitats, including the deeper portions of rivers and reservoirs (Boschung and Mayden 2004). Individuals often burrow into substrate (Etnier and Starnes 1993, Boschung and Mayden 2004).	7/26/1993

Project: Polk County, SR-40 Over Ocoee River, LM 3.12 PE 70068-0211-94 PIN 124102.00

Species Scientific Name	Species Common Name	Status		Species is potentially present in R-O-W because: **(A)** it is listed by TDEC within ROW **(B)** habitat is present **(C)** observed during site visit **(D)** critical habitat present within ROW	Species is considered likely NOT present in R-O-W because: **(A)** Present habitat unsuitable **(B)** Not observed during site visit **(C)** Original record questionable **(D)** Considered extinct/extirpated	Accommodations to minimize impacts: **(A)** BMPs are sufficient to protect species **(B)** Special Notes are included on project plans **(C)** Individuals will be impacted. **(D)** Accommodations not practical due to broad habitat description or mobility of species	Habitat (include blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Notes Last Observation Date
Neotoma floridana	Eastern Woodrat	--	D	B	B	A	The eastern woodrat is an eastern woodland species but has also been observed in the grasslands of the Midwest and coastal areas of the Southeast. Eastern woodrats inhabit deciduous forests in mountainous areas, swamps and marshes in coastal areas, and sometimes inhabit abandoned buildings. (Webster, et al., 1985; Wiley, 1980)	9/29/1990
Chrosomus tennesseensis	Tennessee Dace	--	D		A	A	C. tennesseensis (Tennessee Dace) is found in first order spring-fed streams of woodlands in Ridge and Valley limestone region; Tennessee River watershed (TDEC-DNH 2014).	6-2-2008, 6/19/2008

Project: Polk County, SR-40 Over Ocoee River, LM 3.12 **PE 70068-0211-94** **PIN 124102.00**

Species Scientific Name	Species Common Name	Status		Species is potentially present in R-O-W because: **(A)** it is listed by TDEC within ROW **(B)** habitat is present **(C)** observed during site visit **(D)** critical habitat present within ROW	Species is considered likely NOT present in R-O-W because: **(A)** Present habitat unsuitable **(B)** Not observed during site visit **(C)** Original record questionable **(D)** Considered extinct/extirpated	Accommodations to minimize impacts: **(A)** BMPs are sufficient to protect species **(B)** Special Notes are included on project plans **(C)** Individuals will be impacted. **(D)** Accommodations not practical due to broad habitat description or mobility of species	Habitat (include blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Notes Last Observation Date
Trillium decumbens	Trailing Trillium	--	E	A		A	Trailing trillium, is a perennial wildflower which blooms from mid-March to April. Unlike most other trilliums, its stems grow along the ground rather than standing upright, so that the plant appears to rest on the ground.Its leaves are mottled green and bronze, overlaid with silver, dying back early in the season. The flowers are dark maroon or purple. After flowering, it bears a dark purple berry. It is native to southeastern Tennessee and northern Georgia and Alabama, growing in deciduous woodlands.	2016
Napaeozapus insignis	Woodland Jumping Mouse	--	D	B		A	Woodland Jumping Mouse prefers deciduous and coniferous forests with herbaceous groundcover. Also occurs in brush lands. Nests in underground burrow (winter) or in log, stump, or under other cover.	9/28/1990

Project: Polk County, SR-40 Over Ocoee River, LM 3.12 **PE 70068-0211-94** **PIN 124102.00**

Natural Areas, Management Areas, Refuges, or Similar Sites Within or Adjacent to Project Limits

(Provide topographic and aerial maps with pertinent boundaries of area marked)

Area Name	Type of Area	Pertinent Notes
N/A		

Migratory Birds

List *significant concentrations* of migratory birds encountered within the project area (rookeries, aggregations, nesting areas, *etc*).

Species (Scientific and Common Name)	Approximate No. of Nests (or Individuals)	Location of Nests (or Individuals) (Include Latitude & Longitude)	Nesting Dates and Reference	Photograph #
cliff swallows (Hirundo pyrrhonota) and barn swallows (Hirundo rustica)	>20	Various locations on the underside of the bridge and on the piers	April 15 and July 31 – USFWS MOA	No photos

USFWS Endangered Species Act Coordination (Section 7)

Is the project covered using the current TDOT / USFWS Grouped Programmatic No Effect Activities (GPNEA) Document? Yes ☐ No ☑

Is the USFWS ESA Section 7 clearance provided? Yes ☑ No ☐

Protected Bat Species

Is there suitable habitat for protected bat species within the project limits? Yes ☑ No ☐

Is there a current presence / absence bat study report? Yes ☑ No ☐

When is the completion date of the most recent presence / absence bat study? 17 September 2018

Biological Assessment: Yes ☐(response letter attached; see below) No ☑

From: Stephanie.Ann Williams
To: K.Brandon Chance
Subject: RE: Polk Co., SR-40 (US 64) Bridge over the Ocoee River, LM 3.12
Date: Monday, September 24, 2018 1:54:14 PM
Attachments: image002.png
image003.png

Mr. Chance-

The Division of Natural Areas - Natural Heritage Program has reviewed the location of the proposed SR-40 bridge over the Ocoee River project, located in Polk, Tennessee. We have reviewed the state's natural heritage database and based on the habitat within the project area and the type of project, we do not anticipate any impacts to rare, threatened, or endangered plant species from this project.

Please contact me should you have any questions.
Kind regards-
Stephanie

TN Department of Environment & Conservation

Stephanie Williams | Data Manager
Division of Natural Areas – Natural Heritage Program
Tennessee Tower, 2nd Floor
312 Rosa L. Parks Avenue, Nashville, TN 37243 **MAP**
p. 615-532-4799 c. 256-337-3858
stephanie.ann.williams@tn.gov
TN.Gov/environment/natural-areas
Natural Areas Facebook
We value your feedback! Please complete our customer satisfaction survey.

From: K.Brandon Chance
Sent: Thursday, September 13, 2018 5:02 PM
To: Stephanie.Ann Williams
Cc: Roger McCoy; Scott Medlin; Chester Sutherland; Colby Mann; John Griffith; Vincent Pontello
Subject: Polk Co., SR-40 (US 64) Bridge over the Ocoee River, LM 3.12

Dear Ms. Williams:

TDOT originally coordinated this project as a bridge repair project. Your 7 July 2017 coordination response is attached. The project scope has changed, and TDOT proposes replacing the existing SR-40 (US-64) bridge over the Ocoee River in Polk County, TN. This project will be completed as a design / build project with a contractor handling the design and construction of the project with TDOT oversite. The environmental review is based on the functional plans and the Transportation Investment Report included with this correspondence. Any changes to the project scope that could potentially impact listed species after the design / build contract is let will require the contractor to reinitiate consultation with the USFWS. The statements below were included in the Section 7 coordination with USFWS. All time of year work prohibitions along with all avoidance and

minimization measures will be included in the project plans.

Suitable habitat for federally endangered Indiana bat (Myotis sodalis) and the federally threatened northern long-eared bat (Myotis septentrionalis) has been documented within the project area. Due to the presence of suitable habitat, a bat mist net survey was completed by Stantec from 3-5 June 2018. The purpose of the survey was to determine possible presence of Indiana bat (M. sodalis) and northern long-eared bat (M. septentrionalis) within the project area. Attached, please find a copy of Stantec's 31 August 2018 Bat Survey Report for the subject project. Stantec reports no captures for M. sodalis or M. septentrionalis.

- Based on the negative survey results, TDOT concludes the proposed project "may affect, not likely to adversely
affect" the federally endangered Indiana bat (M. sodalis).

- Based on the negative survey results, TDOT concludes the proposed project "may affect, not likely to adversely
affect" the federally threatened northern long-eared bat (M. septentrionalis).

Collection records in the Tennessee Department of Environment and Conservation: Division of Natural Areas Database document the presence of the federally threatened snail darter (Percina tanasi) 7.4 miles downstream of the project location. Due to concerns for the snail darter (P. tanasi), TDOT will prohibit instream work from February 1 – April 30 on the Ocoee River within the project limits.

- Due the implementation of this prohibition on instream work, TDOT requests concurrence that the proposed project is "may affect, not likely to adversely affect" the federally threatened snail darter (P. tanasi).

TDOT field surveys have documented the presence of nesting Cliff Swallows (Petrochelidon pyrrhonota) and Barn Swallows (Hirundo rustica) on the existing SR-40 bridge over the Ocoee River. To comply with the TDOT/USFWS 2015 MOA for impacts to Cliff Swallows (Petrochelidon pyrrhonota) and Barn Swallows (Hirundo rustica); cliff swallow and barn swallow nests, eggs, or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests may be removed or destroyed, and measures may be implemented to prevent future nest building at the site (e.g., closing off area using netting).

TDOT field surveys have documented the presence of roosting adult and young, state listed, Barn Owls (Tyto alba) on the existing SR-40 bridge over the Ocoee River. In coordination with Tennessee Wildlife Resources Agency, TDOT will implement the following protective measure for demolition of the existing SR-40 bridge:

- Due to concerns for state listed Barn Owl (Tyto alba) T. alba and in coordination with Tennessee Wildlife Resources Agency, TDOT will prohibit demolition work on the existing SR-40 bridge over the Ocoee River from April 1 and September 1.

TDOT's Region 2 Environmental Tech Office is tasked with reviewing the project information and

completing ecological studies for water resources, suitable habitat and protected species concerns. I would appreciate your review and comment related to protected species. If you have any questions or need additional information, please contact me at k.brandon.chance@tn.gov or 423-634-7563.

Respectfully,

K. Brandon Chance | T.E.S.S. Advanced
Region 2 Project Development
Environmental Tech Office - Ecology
7512 Volkswagen Drive Chattanooga, TN 37416
p. 423-634-7563 m. 865-206-5509
k.brandon.chance@tn.gov
tn.gov/tdot

From: Vincent Pontello
To: K.Brandon Chance
Cc: Rob Todd
Subject: Re: Polk Co., SR-40 (US 64) Bridge over the Ocoee River, LM 3.12
Date: Monday, October 1, 2018 12:35:57 PM
Attachments: image001.png

Brandon,

Thank you for the update and detailed commitments you have outlined in your correspondence. I have no other specific request than you have provided. please contact me if you need further assistance.

Vincent L. Pontello
Wildlife Biologist
Liaison to Federal Highway Admin. & TDOT
Tennessee Wildlife Resources Agency
Environmental Services Division

From: K.Brandon Chance
Sent: Thursday, September 13, 2018 6:00:53 PM
To: Vincent Pontello
Cc: Rob Todd; Scott Medlin; Chester Sutherland; John Griffith; Stephanie.Ann Williams
Subject: Polk Co., SR-40 (US 64) Bridge over the Ocoee River, LM 3.12

Dear Mr. Pontello:

TDOT originally coordinated this project as a bridge repair project. Your 7 July 2017 coordination response is attached. The project scope has changed, and TDOT proposes replacing the existing SR-40 (US-64) bridge over the Ocoee River in Polk County, TN. This project will be completed as a design / build project with a contractor handling the design and construction of the project with TDOT oversite. The environmental review is based on the functional plans and the Transportation Investment Report included with this correspondence. Any changes to the project scope that could potentially impact listed species after the design / build contract is let will require the contractor to reinitiate consultation with the USFWS. The statements below were included in the Section 7 coordination with USFWS and will be incorporated into the plans.

Suitable habitat for federally endangered Indiana bat (Myotis sodalis) and the federally threatened northern long-eared bat (Myotis septentrionalis) has been documented within the project area. Due to the presence of suitable habitat, a bat mist net survey was completed by Stantec from 3-5 June 2018. The purpose of the survey was to determine possible presence of Indiana bat (M. sodalis) and northern long-eared bat (M. septentrionalis) within the project area. Attached, please find a copy of Stantec's 31 August 2018 Bat Survey Report for the subject project. Stantec reports no captures for M. sodalis or M. septentrionalis.

- Based on the negative survey results, TDOT concludes the proposed project "may affect, not

likely to adversely
affect" the federally endangered Indiana bat (M. sodalis).

- Based on the negative survey results, TDOT concludes the proposed project "may affect, not likely to adversely
affect" the federally threatened northern long-eared bat (M. septentrionalis).

Collection records in the Tennessee Department of Environment and Conservation: Division of Natural Areas Database document the presence of the federally threatened snail darter (Percina tanasi) 7.4 miles downstream of the project location. Due to concerns for the snail darter (P. tanasi), TDOT will prohibit instream work from February 1 – April 30 on the Ocoee River within the project limits.

- Due the implementation of this prohibition on instream work, TDOT requests concurrence that the proposed project is "may affect, not likely to adversely affect" the federally threatened snail darter (P. tanasi).

TDOT field surveys have documented the presence of nesting Cliff Swallows (Petrochelidon pyrrhonota) and Barn Swallows (Hirundo rustica) on the existing SR-40 bridge over the Ocoee River. To comply with the TDOT/USFWS 2015 MOA for impacts to Cliff Swallows (Petrochelidon pyrrhonota) and Barn Swallows (Hirundo rustica); cliff swallow and barn swallow nests, eggs, or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests may be removed or destroyed, and measures may be implemented to prevent future nest building at the site (e.g., closing off area using netting).

TDOT field surveys have documented the presence of roosting adult and young, state listed, Barn Owls (Tyto alba) on the existing SR-40 bridge over the Ocoee River. In coordination with Tennessee Wildlife Resources Agency, TDOT will implement the following protective measure for demolition of the existing SR-40 bridge:

- Due to concerns for state listed Barn Owl (Tyto alba) T. alba and in coordination with Tennessee Wildlife Resources Agency, TDOT will prohibit demolition work on the existing SR-40 bridge over the Ocoee River from April 1 and September 1.

TDOT's Region 2 Environmental Tech Office is tasked with reviewing the project information and completing ecological studies for water resources, suitable habitat and protected species concerns. I would appreciate your review and comment related to protected species. If you have any questions or need additional information, please contact me at k.brandon.chance@tn.gov or 423-634-7563.

Respectfully,

K. Brandon Chance | T.E.S.S. Advanced
Region 2 Project Development
Environmental Tech Office - Ecology

7512 Volkswagen Drive Chattanooga, TN 37416
p. 423-634-7563 m. 865-206-5509
k.brandon.chance@tn.gov
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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

REGION 2 PROJECT DEVELOPMENT
7512 VOLKSWAGEN DRIVE
CHATTANOOGA, TENNESSEE 37416
(423) 510-1165

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

13 September 2018

Mr. John Griffith
US Dept. of Interior
Fish and Wildlife Service
446 Neal Street
Cookeville, TN 38501

Subject: Polk County, SR-40 Over Ocoee River, LM 3.12
PE 70068-0211-94, PIN 124102.00

Dear Mr. Griffith:

TDOT proposes replacing the existing SR-40 (US-64) bridge over the Ocoee River in Polk County, TN. This project will be completed as a design / build project with a contractor handling the design and construction of the project with TDOT oversite. The environmental review is based on the functional plans and the Transportation Investment Report included with this correspondence. Any changes to the project scope that could potentially impact listed species after the design / build contract is let will require the contractor to reinitiate consultation with the USFWS.

Suitable habitat for federally endangered Indiana bat (*Myotis sodalis*) and the federally threatened northern long-eared bat (*Myotis septentrionalis)* has been documented within the project area. Due to the presence of suitable habitat, a bat mist net survey was completed by Stantec from 3-5 June 2018. The purpose of the survey was to determine possible presence of Indiana bat (*M. sodalis*) and northern long-eared bat (*M. septentrionalis*) within the project area. Attached, please find a copy of Stantec's 31 August 2018 Bat Survey Report for the subject project. Stantec reports no captures for *M. sodalis* or *M. septentrionalis*.

- Based on the negative survey results, TDOT concludes the proposed project **"may affect, not likely to adversely affect"** the federally endangered Indiana bat (*M. sodalis*).

- Based on the negative survey results, TDOT concludes the proposed project **"may affect, not likely to adversely affect"** the federally threatened northern long-eared bat (*M. septentrionalis*).

Collection records in the Tennessee Department of Environment and Conservation: Division of Natural Areas Database document the presence of the federally threatened snail darter (*Percina tanasi*) 7.4 miles downstream of the project location. Due to concerns for the snail darter (*P. tanasi*), TDOT will prohibit instream work from February 1 – April 30 on the Ocoee River within the project limits.

- Due the implementation of this prohibition on instream work, TDOT requests concurrence that the proposed project is **"may affect, not likely to adversely affect"** the federally threatened snail darter (*P. tanasi*).

TDOT field surveys have documented the presence of nesting Cliff Swallows (*Petrochelidon pyrrhonota*) and Barn Swallows (*Hirundo rustica*) on the existing SR-40 bridge over the Ocoee River. To comply with the TDOT/USFWS 2015 MOA for impacts to Cliff Swallows (*Petrochelidon pyrrhonota*) and Barn Swallows (*Hirundo rustica*); cliff swallow and barn swallow nests, eggs, or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests may be removed or destroyed, and measures may be implemented to prevent future nest building at the site (e.g., closing off area using netting).

TDOT field surveys have documented the presence of roosting adult and young, state listed, Barn Owls (*Tyto alba*) on the existing SR-40 bridge over the Ocoee River. In coordination with Tennessee Wildlife Resources Agency, TDOT will implement the following protective measure for demolition of the existing SR-40 bridge:

- Due to concerns for state listed Barn Owl (*Tyto alba*) *T. alba* and in coordination with Tennessee Wildlife Resources Agency, TDOT will prohibit demolition work on the existing SR-40 bridge over the Ocoee River from April 1 and September 1.

TDOT's Region 2 Environmental Tech Office is tasked with reviewing the project information and completing ecological studies for water resources, suitable habitat and protected species concerns. In compliance with the Fish and Wildlife Act of 1958, and the Endangered Species Act of 1973 (amended), TDOT requests a list of threatened and/or endangered species that may be present in the vicinity of the proposed project. I would appreciate your review and comment related to protected species and regarding concurrence for these determinations. If you have any questions or need additional information, please contact me at k.brandon.chance@tn.gov or 423-634-7563.

Respectfully,

K. Brandon Chance | T.E.S.S. Advanced
Region 2 Project Development
Environmental Tech Office - Ecology
PO Box 22368, Chattanooga, TN 37422-2368
p. 423-634-7563
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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Tennessee ES Office
446 Neal Street
Cookeville, Tennessee 38501

October 5, 2018

Mr. Brandon Chance
T.E.S.S. Advanced
Region 2 Project Development
Environmental Tech Office - Ecology
P.O. Box 22368
Chattanooga, Tennessee 37422

Subject: FWS# 18-CPA-0777. Proposed State Route 40 Bridge replacement over the Ocoee River at LM 3.12; PIN# 124102.00, P.E. 70068-0211-94, Polk County, Tennessee.

Dear Mr. Chance:

Thank you for the letter dated September 13, 2018, transmitting bat survey results and project commitments for the proposed State Route 40 Bridge replacement over the Ocoee River in Polk County, Tennessee. The Tennessee Department of Transportation (TDOT) has determined that the project is "not likely to adversely affect" the federally endangered Indiana bat (*Myotis sodalis*) or threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*) based on negative survey results. TDOT has further concluded that the project "is not likely to adversely affect" the federally threatened snail darter (*Percina tanasi*) due to the distance from known occurrences and a prohibition of instream construction during the period of February 1 through April 30. In accordance with the 2015 Memorandum of Agreement between the Federal Highway Administration, TDOT, and our office for addressing concerns regarding cliff swallows (*Hirundo pyrrhonota*) and barn swallows (*Hirundo rustica*), TDOT additionally commits to avoiding swallows, nests, and eggs between April 15 and July 31. Personnel of the U.S. Fish and Wildlife Service have reviewed the subject proposal and offer the following comments.

A mist netting survey was performed from June 3 through June 5, 2018, at one site determined to be a suitable netting location. Efforts resulted in the capture of eight individuals, representing four non-listed bat species. Due to negative survey results for the Indiana bat and NLEB, we concur with TDOT's determinations of "not likely to adversely affect" for these species. This survey will be valid until April 1, 2024. Because the nearest snail darter record is approximately 7.4 miles downriver, and TDOT commits to an instream construction prohibition during the spawning timeframe of February 1 through April 30, we additionally concur with TDOT's "not likely to adversely affect" finding for the snail darter.

We are not aware of any other federally listed or proposed species that would be impacted by the project. Therefore, based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act (Act) of 1973, as amended, are fulfilled for all species that currently receive protection under the Act. Obligations under section 7 of the Act should be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

If you have any questions regarding our comments, please contact John Griffith at 931/525-4995 or by email at *john_griffith@fws.gov*.

Sincerely,

Steven R. Alexander
Acting Field Supervisor

xc: Vincent Pontello, TWRA, Crossville, TN

Bat Mist Net Survey for SR-40 Bridge Replacement Project Over Ocoee River, LM 3.12, Polk County, Tennessee

PIN: 124102.00
P.E. No.: 70068-0211-94

Stantec

Prepared for:
Tennessee Department of Transportation
Nashville, Tennessee

August 31, 2018

Sign-off Sheet

This document entitled Bat Mist Net Survey for SR-40 Bridge Replacement Project Over Ocoee River, LM 3.12, Polk County, Tennessee was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of Tennessee Department of Transportation (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by _____

James Kiser

Technical Review by _____

James Evans

Independent Review by _____

Mike Williams

Stantec

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Executive Summary

Tennessee Department of Transportation (TDOT) has recently identified a need to replace an older bridge [State Route 40 (SR-40)] over the Ocoee River, Polk County, Tennessee to improve the highway approaches on both sides of the river. This bridge replacement and highway improvement is planned in order to provide a safe and reliable transportation route in the area, as well as to serve in supporting increased traffic flows into the recreation areas provided by the Ocoee River gorge, Lake Ocoee, and Cherokee National Forest. Due to the presence of summer habitat for the Indiana bat (*Myotis sodalis*), a federally endangered species, and the northern long-eared bat (*Myotis septentrionalis*), a federally threatened species, within the forested stands along the edge of the proposed project corridor, Stantec Consulting Services Inc. (Stantec) was retained by TDOT in order to complete a presence/probable absence bat mist net survey for these two bat species.

The objective of this survey was to assess the presence, or probable absence, of Indiana and northern long-eared bats using summer habitat within the proposed SR-40 bridge replacement project over the Ocoee River. Survey methods followed the U. S. Fish and Wildlife Service (USFWS) 2018 Range-wide Summer Survey Guidelines dated April 2018. Weather restrictions outlined in the above guidance were also followed, as well as conducting mist netting in areas with potentially suitable summer habitat for the Indiana and northern long-eared bats.

No Indiana bats or northern long-eared bats were captured during survey efforts. Overall, a total of eight bats representing four species were captured. Species captured include the eastern red bat, the evening bat, the big brown bat, and the hoary bat. An additional 9 big brown bats were found night roosting underneath the SR-40 Bridge over Ocoee River. In addition to these 9 bats, three barn owls, including one adult and two nearly grown chicks, presumably a nest site, was also observed under the bridge. The bridge also contained five barn swallow nests, one cliff swallow nest, and one eastern phoebe nest.

The deciduous hardwood forests within the project corridor provided potentially suitable summer habitat for both the Indiana bat and northern long-eared bat, but the mist net locations within a potential bat travel corridor where bats were likely to be found traveling and/or foraging failed to document either of these species. Based on the data collected during mist net surveys completed for the proposed SR-40 bridge replacement project over the Ocoee River following USFWS approved guidelines, and the apparent absence of the Indiana bat and northern long-eared bat, a May Affect – Not Likely to Adversely Affect determination is anticipated from the USFWS's Tennessee Field Office.

1.0 INTRODUCTION

Tennessee Department of Transportation (TDOT) has recently identified a need to replace an older bridge [State Route 40 (SR-40)] over the Ocoee River, LM 3.12, Polk County, Tennessee to improve the highway approaches on both sides of the river. This bridge replacement and highway improvement is planned in order to provide a safe and reliable transportation route in the area, as well as to serve in supporting increased traffic flows into the recreation areas provided by the Ocoee River gorge, Lake Ocoee, and Cherokee National Forest. This bridge replacement and highway improvement project will cover approximately 0.94 km (0.58 mi.). The project corridor can be seen on Figure 1 in Appendix A.

Due to the presence of potential summer habitat for the Indiana bat (*Myotis sodalis*), a federally endangered species, and the northern long-eared bat (*Myotis septentrionalis*), a federally threatened species, within the forested stands along the proposed project corridor, Stantec Consulting Services Inc. (Stantec) was retained by TDOT in order to complete a bat mist net survey for these two bat species. The objectives of this survey were as follows:

- Determine presence or probable absence of Indiana bats and northern long-eared bats in the project corridor;
- Establish baseline data on bat species composition within the project corridor; and
- If captured, radio-track Indiana bats to determine their roosting habitat and locations.

1.1 PROJECT CORRIDOR DESCRIPTION

The proposed project is located along existing SR-40 where it crosses the Ocoee River on the eastern edge of the city of Ocoee, Polk County, Tennessee. The project corridor extends from the end of the four-lane section of road on the west side of Ocoee River, including the bridge, eastward to the junction of Welcome Valley Road. It is located on the Parksville United States Geological Survey (USGS) 7.5-minute Topographic Quadrangle. This portion of Polk County is located within the Appalachian Ridge and Valley Physiographic Province (Miller 1974). Landscape within the Appalachian Ridge and Valley consists primarily of low elevation hills having the appearance of rolling topography that contains steep narrow, north-east to south-west aligned ridges.

According to Braun (1950), the vegetation in the Appalachian Ridge and Valley Physiographic Province is within the Ridge and Valley Section of the Oak-Chestnut Forest Region. This region was historically dominated by forest containing a variety of oaks (*Quercus* spp.) and American chestnut (*Castanea dentata*), but a blight [fungus (*Cryphonectria parasitica*)] eliminated much of the chestnut component. Due to the productive soil overlaying limestone bedrock in the Ridge and Valley, the historic forest communities associated with these areas has been greatly changed by agriculture practices.

Land use in the proposed project corridor consists of agricultural (pastures, hayfields, etc.), riparian and upland forest, and residential. Approximately 50 percent of the proposed project corridor is non-forested, consisting of agricultural lands uses.

1.2 REGULATORY SETTING

The federal Endangered Species Act (ESA) [16 U.S.C. 1531 *et seq*.] became law in 1973. This law provides for the listing, conservation, and recovery of endangered and threatened species of plants and wildlife. Under the Act, the U. S. Fish and Wildlife Service (USFWS) strives to protect and monitor the numbers and populations of listed species. Many states enacted similar laws.

Section 7(a)(2) of the ESA states that each federal agency shall ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in destruction or adverse modification of designated critical habitat. Federal actions include (1) expenditure of federal funds for roads, buildings, or other construction projects, and (2) approval of a permit or license, and the activities resulting from such permit or license. This is true regardless of whether involvement is apparent, such as issuance of a Federal permit, or less direct, such as Federal oversight of a state-operated program, or Federal funding of state highways.

Section 9 of the ESA prohibits the take of listed species. Take is defined by the ESA as "*to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect*." The definition of harm includes adverse habitat modification. Actions of federal agencies that do not result in jeopardy or adverse modification, but that could result in a take, must be addressed under Section 7 of the ESA.

1.3 PURPOSE OF REPORT

The purpose of this report is to provide a scientifically-defensible report detailing the mist net survey efforts for TDOT for their use in consultation with USFWS. The report includes a description of methods, results and summarized data, and discussion in regard to the bat mist netting survey. Maps, field data sheets, and representative photographs are provided as appendices in the report (Appendices A, B, and C respectively). This report will also be used by Stantec for annual coordination of our federal permit activities with USFWS. Data will also be provided to the Tennessee Wildlife Resources Agency (TWRA) to meet state scientific collection permit conditions.

2.0 METHODS

Based on the length of the project corridor [approximately 0.94 kilometers (0.58 mi)], a single mist net site was needed to meet standards set in the USFWS 2018 Range-wide Indiana Bat Summer Survey Guidance (USFWS 2018). The mist net site (MS-01), located approximately 304 m (1,000 ft) downstream from existing SR-40 bridge on the east side of Ocoee River, was netted for three nights. Netting effort at the site consisted of four net sets on the first two nights and two mist net sets on the third night, totaling 10 net-nights of survey effort. Each net set consisted of two to three

nets stacked vertically on top of each other, equaling a total of ten net nights of survey effort/site to meet the USFWS 2018 Range-wide Indiana Bat Summer Survey Guidance (USFWS 2018) for linear projects located within the Appalachian Recovery Unit. Mist net surveys were conducted within the project corridor between 3 and 5 June 2018. Survey methods were based on communications with USFWS as well as in accordance with USFWS 2018 Range-wide Indiana Bat Summer Survey Guidelines (USFWS 2018). Site specific authorization of survey methods were received from the USFWS Tennessee Field Office, and verbal notification was provided to TWRA Regional Office, prior to initiating surveys.

2.1 MIST NETTING GUIDELINES

Efforts to survey for endangered bats are difficult to standardize because of the great deal of variability that exists in a field situation. However, a number of practices used for summer mist net surveys for Indiana bats have become relatively standardized through implementation of netting and acoustic guidelines provided by USFWS in the 2018 Range-Wide Indiana Bat Summer Survey Guidelines (USFWS 2018). The guidelines, a summary of which follows, were employed for this survey. Extra precaution was taken to follow the USFWS White Nose Syndrome (WNS) Disinfectant Protocols (version 04.12.2016) during the survey.

USFWS Netting Guidelines

1. **Netting Season**: May 15 to 15 August, when Indiana bats occupy summer habitat in Tennessee.

2. **Equipment** (Mist Nets): Constructed of the finest, lowest visibility mesh commercially available – monofilament or black nylon – with the mesh size approximately 1½ inch (1¼ –1¾) (38 mm).

3. **Net Placement**: Mist nets extend approximately from water or ground level to overhanging canopy and are bounded by foliage on the sides. Net width and height are adjusted for the fullest coverage of the flight corridor at each site. A "typical" net set consists of nets "stacked" on top of one another with heights from 5 m (16 ft.) up to 8 m (30 ft.); width may vary up to 18 m (60 ft.).

4. **Minimum Level of Effort Per Net Site**:

   - Non-linear projects – minimum of nine net nights per 123 acres (0.5 square km) of suitable summer habitat outside of Appalachian Recovery Unit; and 42 net nights of effort inside the Appalachian Recovery Unit. No minimum distance apart, but net locations should be distributed throughout suitable habitat.

USFWS Netting Guidelines
♦ Two (calendar) nights of netting ♦ Linear projects – Outside Appalachian Recovery Unit – minimum of two net nights; Inside Appalachian Recovery Unit – minimum of 10 net nights; (one net night = one net set deployed for one night) typically, one - three net sets are deployed at one site for one - three nights (fourth net added on third night), resulting in 10 net net-nights per km of suitable summer habitat. ♦ Sample Period: begin at dusk and net for 5 hours ♦ Nets are monitored at approximately 10-minute intervals ♦ No disturbance near the nets between checks 5. **Weather Conditions**: Net only if the following weather conditions are met: ♦ No more than 30 consecutive or cumulative minutes of precipitation ♦ Temperature ≥ 10°C (50°F) ♦ No strong winds (maximum of 4 m/s or 3 on Beaufort scale) 6. **Moonlight**: Avoid net sets with direct exposure to a moon ½ -full or greater – typically by utilizing forest canopy cover

2.2 MIST NET SITE SELECTION

A qualified Indiana bat mist net surveyor chose suitable net locations within the project corridor. Net site selection targeted areas throughout the project corridor that were suspected to have a high amount of bat activity. Net site selection was also influenced by property access. Surveyors were limited to work within tracts of land where landowners could be contacted, and permission granted for the surveys. Net placement was based upon a variety of characteristics, including canopy cover, presence of potential flight corridors, proximity to water, and forest conditions found within the project corridor. General habitat types selected included the following characteristics:

- Large trees (>16 inches diameter-at-breast height [dbh]) that can support primary maternity roosts;
- An open canopy, allowing solar exposure for warming of roost sites;
- An open, uncluttered understory, used for travel and foraging; and

- Stream corridor (or other water source) for drinking and prey presence.

While riparian corridors often provide successful mist net sites, upland corridors (e.g., trails or logging roads) also provide suitable sites (Kiser and MacGregor 2005). In upland areas, road ruts or other areas of standing water frequently facilitate capture of a variety of bat species. The actual location and orientation of each mist net was determined in the field.

2.3 HABITAT ASSESSMENT

A habitat description and a sketch of each mist net location was completed on bat mist net datasheets (Appendix B). The emphasis of this description was habitat form: size and relative abundance of large trees and snags that may potentially serve as roost trees, canopy closure, understory clutter/openness, distance to water, stream or pond characteristics (if mist net was placed over them), and flight corridors. Habitat form is emphasized because the Indiana bat is known to roost in several different species of trees. Tree species composition is included in the assessment, because it provides insight to edaphic conditions of each site.

Habitat characterization identifies components of the canopy and subcanopy layers. All trees that reach into the canopy are canopy trees, regardless of their diameter/size. As defined in the Indiana Bat Habitat Suitability Index Model (3D/Environmental 1995), dominant trees are the large trees in the canopy (> 16" dbh) that have the greatest likelihood of being used by maternity colonies of Indiana bats. Many smaller trees are often also found in the canopy, and in some situations, the canopy can be entirely composed of smaller-diameter trees.

Habitat for the northern long-eared bat is less understood, but apparently far more general than that of the Indiana bat (Schultes and Elliot 2002; Whitaker and Mumford 2009). While some studies have found this species using larger, older forests and roosts (Lacki and Schwierjohann 2001; Henderson and Broders 2008), others have found the species using smaller roosts and forest tracks (Whitaker and Mumford 2009; Schultes and Elliot 2002). Therefore, conditions for capture of the Indiana bat were considered adequate for sampling for northern long-eared bats as well.

The subcanopy, or understory, vegetation layer is well defined in classical ecological literature. It is that portion of the forest structure between the ground vegetation to approximately 0.6 m (2 ft) and the canopy layers, usually beginning at about 7.6 m (25 ft).

Vegetation in the understory may come from:

- Lower branches of overstory trees;
- Young overstory trees; or
- Small trees and shrubs that are confined to the understory

The amount of vegetation in the understory is termed clutter. Many species of bats, including the Indiana bat, tend to avoid areas of high clutter.

2.4 BAT CAPTURE AND PROCESSING

Protocols for bat capture, handling, and equipment decontamination for WNS were followed at each mist net site. The survey was conducted under USFWS permit #'s TE38821A-3 and Tennessee Scientific Collection permit #1491.

2.5 BRIDGE SURVEYS

The nearby existing SR-40 bridge over the Ocoee River is constructed of concrete, including the deck, support beams. I-beams, and abutments. This type of bridge construction provides warm air trap underneath during the night and often provides appropriate conditions for bat use. Since bats are known to use bridges during the day and night for roosting, and because the design and construction material of the existing SR-40 bridge is conducive for bat roosting, Stantec biologists checked this bridge for bats during the day on 04 June, and during two nights on 04 & 05 June after mist net efforts were completed for each night.

2.6 WEATHER

Weather conditions were monitored each night of the survey. Conditions recorded include: temperature, wind speed and direction, percent cloud cover, and moon phase (if visible). A standard digital thermometer was used to record temperature, wind speed was estimated by using the Beaufort wind scale, and cloud cover was visually estimated.

3.0 RESULTS

3.1 HABITAT DESCRIPTION

The project consisted of a single mist net site as shown in Figure 1 (Appendix A). Habitat at the mist net site is briefly described below.

Mist net site 1 (MS-01) was located approximately 304 m (1,000 ft) downstream from existing SR-40 bridge on the east side of Ocoee River. It consisted of several road corridors through the Ocoee River floodplain, including riparian forest and agricultural fields used to grow corn. The Ocoee River is too large to survey at this location, having channel width of more than 53 m (174 ft) and swift currents. Nets were placed over road corridors adjacent to the open river channel within the riparian forest. The forest overstory was dominated by 30.4 – 45.7 cm (12 – 18 in) dbh sycamore (*Platanus occidentalis*), river birch (*Betula nigra*), northern red oak (*Quercus rubra*), and water oak (*Q. nigra*). Midstory vegetation was dominated by 10.1 – 20.3 cm (4 – 8 in) dbh American hornbeam (*Carpinus caroliniana*), sweetgum (*Liquidambar styraciflua*), sycamore and water oak. The presence of few large snags and trees resulted in a potential roosting habitat assessment of low and an overall habitat rating of fair.

A mist net site habitat description and field sketch for the mist net site are included on the datasheets found in Appendix B. Photos of the mist net site can be found in Appendix C.

3.2 BAT CAPTURE

Mist netting efforts for this project was conducted between 3 and 5 June 2018. No Indiana bats or northern long-eared bats were captured during this summer mist net survey. Overall, a total of 8 bats, representing four species, were captured. Species captured include: eastern red bat [*Lasiurus borealis* (n=3)] representing 37.5 percent of bat captures, evening bat [*Nycticeius humeralis* (n=3)] representing 37.5 percent of bat captures, big brown bat [*Eptesicus fuscus* (n=1)], and the hoary bat [*Lasiurus cinereus* (n=1)], each representing 12.5 percent of total captures. Breakdown of species captured, sex, reproductive condition, and age can be found in Table 1. Bat Capture Data Sheets can be found in Appendix B.

Table 1. Bat capture by sex, reproductive condition, and age during 2018 summer mist netting surveys along the SR-40 Bridge Replacement Project, Polk County, Tennessee.

Species	Adult Male	Juvenile Male	Adult Female[1]				Juvenile Female	Escape[2]	Total
			P	L	PL	NR			
Eastern Red Bat *(Lasiurus borealis)*	1	0	0	1	0	0	0	1	3
Hoary Bat *(Lasiurus cinereus)*	0	0	0	0	0	0	0	1	1
Evening Bat *(Nycticeius humeralis)*	1	0	1	1	0	0	0	0	3
Big Brown Bat *(Eptesicus fuscus)*	0	0	0	0	0	0	0	1	1
Total	**2**	**0**	**1**	**2**	**0**	**0**	**0**	**3**	**8**

[1] P = pregnant; L = lactating; PL = Post lactating; NR = non-reproductive
[2] Escape = escaped from net or hand before processing was complete

3.3 BRIDGE SURVEYS

An additional 9 big brown bats were found night roosting underneath the SR-40 Bridge over Ocoee River. In addition to these 9 bats, three barn owls (*Tyto alba*), including one adult and two nearly grown chicks (presumably a nest site) were also observed under the bridge. The bridge also contained five barn swallow (*Hirundo rustica*) nests, one cliff swallow (*Petrochelidon pyrrhonota*) nest, and one eastern phoebe (*Sayornis phoebe*) nest.

3.4 WEATHER AND TEMPERATURE

Weather during the survey period was unseasonably cool for the area during this time of the year with temperatures starting in the lower 60's to mid-70's and dropping after sunset and throughout the night into the upper 50's to mid-50's. Cloud cover ranged from 0 percent to 30 percent during

the survey period. No rain events occurred during survey efforts for this project that resulted in surveys being cancelled for a particular night. Wind ranged from calm to a light breeze, which is 0 – 2 on the Beaufort wind scale. Table 2 contains onsite weather data collected during survey efforts.

Table 2. Weather observations recorded during 2018 summer mist netting surveys along SR-40 Bridge Replacement Project, Polk County, Tennessee.

Site	Date	Temp.°F			Wind Speed[1]			Cloud Cover %		
		2100h	2300h	0200h	2100h	2300h	0200h	2100h	2300h	0200h
MS-01	03-June-2018	75	64	59	1	1	0	10	0	0
MS-01	04-June-2018	66	61	57	1	2	1	30	0	0
MS-01	05-June-2018	63	59	55	1	1	1	0	0	0

4.0 DISCUSSION

No federally endangered Indiana bats or federally threatened northern long-eared bat were captured during the 2018 summer mist net surveys in Polk County, Tennessee. Overall, a total of eight bats representing four species were captured in mist nets. Species captured include the eastern red bat, the evening bat, the big brown bat, and the hoary bat. An additional nine big brown bats were found night roosting underneath the SR-40 Bridge over Ocoee River. In addition to these nine bats, three barn owls, including one adult and two nearly grown chicks, presumably a nest site, was also observed under the bridge. The bridge also contained five barn swallow nests, one cliff swallow nest, and one eastern phoebe nest.

The objective of this survey was to assess the presence, or probable absence, of Indiana bats and northern long-eared bats using potential summer habitat within the SR-40 bridge replacement project corridor. To effectively investigate the corridor, we used guidelines outlined by the 2018 Range-wide Indiana Bat Summer Survey Guidelines (USFWS 2018). Mist netting was conducted during the summer Indiana bat maternity season (i.e. May, June, July, and August). Weather restrictions outlined in the guidance were also followed, as well as conducting mist netting in areas with potentially suitable summer habitat for the Indiana bat. The deciduous hardwood forests within the project corridor provided potentially suitable habitat for Indiana and northern long-eared bats, but the mist nets located within the project corridor where bats were likely to be found traveling and/or foraging failed to document either of the bat species.

Based on the data collected from this 2018 summer mist net survey completed for the SR-40 bridge replacement project corridor following USFWS approved guidelines, and the apparent absence of the Indiana bat and northern long-eared bat, a May Affect – Not Likely to Adversely Affect determination is anticipated from the USFWS's Tennessee Field Office.

5.0 LITERATURE CITED

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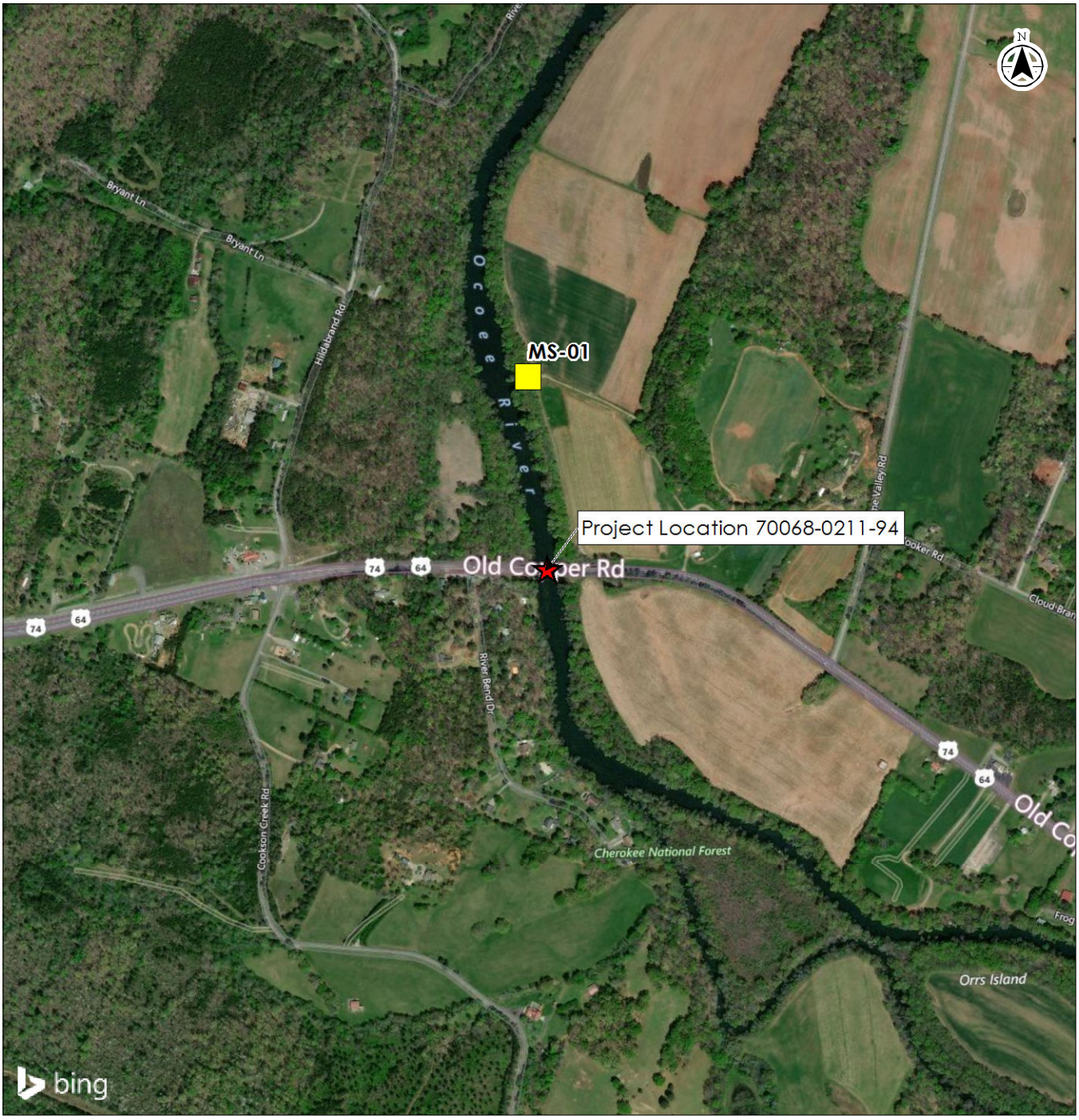
Appendix A

PROJECT AREA MAP

U:\Jamestown\Maps\20180521\SR40\SR40_MistNet.mxd Revised: 2018-08-30 By: mbough



0 500 1,000 1,500 Feet

1:11,524 (at original document size of 8.5x11)

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TN TDOT Department of Transportation

Project Location
Polk County, Tennessee
Parksville Quadrangle

Prepared by DMB on 2018-08-30
Technical Review by JK on 2018-08-30
Independent Review by TE on 2018-08-30

Client/Project
Tennessee Department of Transportation
SR-40 Bat Surveys
PIN # 124102.00 P.E. # 70068-0211-94

Figure No.
1

Title
State Route 40
Bat Mist Net Survey

Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Imagery Courtesy: © 2018 Microsoft Corporation © 2018 DigitalGlobe ©CNES (2018) Distribution Airbus DS © 2018

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Appendix B

BAT MIST NET DATASHEETS

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Bat Capture Data Sheet

Project Name/No.: TDOT-US 64/SR-40/PIN: 124102.00 **Date:** 03 June 2018 **Biologist(s):** James Kiser, Brittany White

Site Name/No.: Ocoee River/MS-01 **State/County:** TN/Polk **Lat/Long:** N35.11491° W-84.67445°

Quadrangle: Parksville **Nets Open:** 2030h **Nets Close:** 0200h **Sun Rise/Set:** 0625/2049 **Moon Rise/Set:** D050/ **Moon Phase:** Waning Gibbous

Site Information: Located approx. 0.1 mile downstream along Ocoee River from existing US-64/SR-40 Bridge (Joe Fetzer Property)

Time	Temp	Wind	Wind Direction	% Cloud Cover	Beaufort Wind Scale Scale	Beaufort Wind Scale Wind speed Indicators	Net	Length	Height	Road	Stream	Pond	Cave/ Portal	Other
2030	79	2	NW-SE	25	0	Calm (0 mph)	A	9m	6m	✓ —	along stream			
2100	75	1	NW-SE	10	1	Light Wind (1-3 mph)	B	12m	9m	✓				
2200	70	1	NW-SE	0	2	Light Breeze (4-7 mph)	C	18m	9m					Field Edge
2300	64	1	NW-SE	0	3	Gentle Breeze (8-12 mph)	D	9m	6m	✓ —	along stream			
0000	63	1	NW-SE	0	4	Moderate Breeze (13-18 mph)								
0100	61	0	—	0										
0200	59	0	—	0		Acoustic Detector ID:								

No.	Species	Time	Net/Ht.	Age	Sex	Repro.*	RFA (mm)	Mass (g)	WNS Score	Notes: Band#, Guano/Hair
1	Lasiurus borealis	2130h	B/3m	A	M	NON	41	11.25	0	Tissue: TN-PO-05; Photo: 1674-1678
2	Nycticeius humeralis	2200h	C/8m	A	F	P	36	17.25	0	Tissue: TN-PO-06; Photo: 1679-1683
3	Nycticeius humeralis	2240h	B/6m	A	M	NON	35	10.0	0	Tissue: TN-PO-07;
4	Lasiurus borealis	2300h	C/2m	Escaped	From	Net	—	—	—	—
5	Lasiurus borealis	2350h	C/2.5m	A	F	L	44	11.25	0	Tissue: TN-PO-08;
	Glaucomys volans	↓	C/4m	—	—	—	—	—	—	—

*Reproduction: P – pregnant; L – lactating; PL – Post Lactating; DESC. - testes descended ; NON - testes not descended for male and not Preg, Lac, or PLac for female

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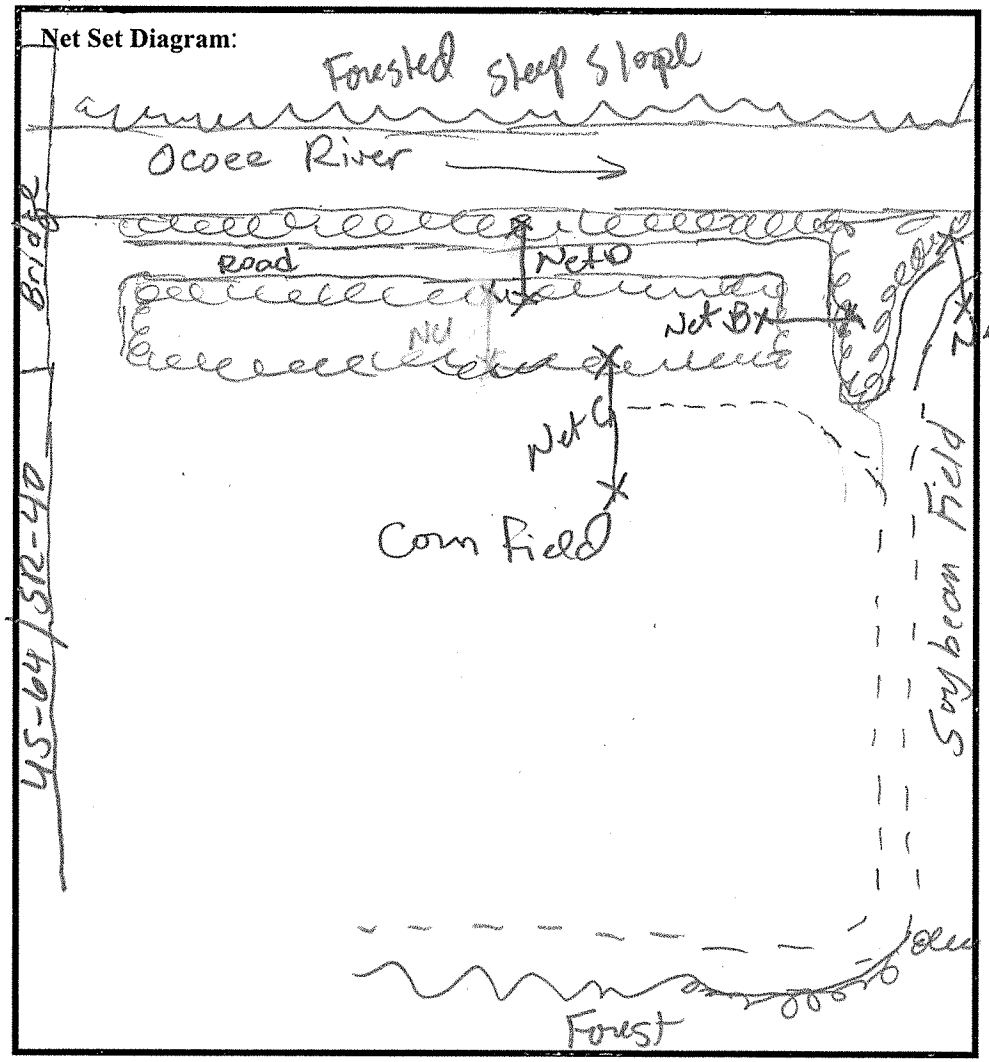
Net Site Habitat Description

Net Set Diagram:



Project: TDOT-US 64/SR-40/PIN: 124102.00

Date: 03 June 2018 **Site Name:** Ocoee River/MS-01

Other Wildlife Observations Carolina Wren (2 in nests) Chimney Swift (Vo) Hyla chrysoscelis (Vo), Barred Owl (Vo)

STREAM CHARACTERISTICS NA ☑

Bank Height: 6-8' **Channel Width:** ≈150'

Stream Width: 150' **Riparian Width: (rt bank)** 100' **(lt bank)** >300'

Avg. Water Depth: 3' **% Canopy Cover** 50

% Substrate type: Bedrock —, **Boulder** —, **Cobble** —, **Gravel** —, **Sand** —, **Fines** —.

VEGETATION

Estimated Distance to Water Source: At site – Ocoee River

Estimated Canopy Closure: closed (moderate) open

Dominant Sized Canopy Species (>16") Avg. DBH range 12-18"

1. Sycamore 2. N. Red Oak 3. River birch

Subdominant Sized Canopy Species (<16") Avg. DBH range 4-8"

1. Carpinus caroliana 2. Sycamore 3. Sweetgum

Roost Tree Potential consists of: Large Trees Snags (Both)

Roost Tree Potential for Area: High Moderate (Low)

Subcanopy Clutter: closed moderate (open)

Travel Corridor Present: (Yes) No

Overall Habitat: Great Good (Fair) Poor No habitat present

Comments: Site consists of wide river channel, approx. 150 feet from bank to bank, with a narrow strip of riparian forest on the east side of river and forested slope on the west side. A road corridor, ranging from 15-25 feet wide, extends through forest along the river. The adjacent field is used to grow corn and soybeans.

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1500 Lake Shore Drive
Columbus, OH 43204

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Bat Capture Data Sheet

Project Name/No.: TDOT-US-64/SR-40/PIN:124102.00 **Date:** 04 June 2018 **Biologist(s):** James Kiser, Wes Cunningham

Site Name/No.: Ocoee River/MS-01 **State/County:** TN/Polk **Lat/Long:** N35.11491° W-84.67445°

Quadrangle: Parksville **Nets Open:** 2030 **Nets Close:** 0200h **Sun Rise/Set:** 0625/2050 **Moon Rise/Set:** 0126h/ **Moon Phase:** Waning Gibbous

Site Information: Located approx 0.1 mile downstream along Ocoee River from existing US 64/SR-40 Bridge

Time	Temp	Wind	Wind Direction	% Cloud Cover	Beaufort Wind Scale: Scale	Beaufort Wind Scale: Wind speed Indicators	Net	Length	Height	Road	Stream	Pond	Cave/ Portal	Other
2030	72	1	NW-SE	40	0	Calm (0 mph)	A	9m	6m	✓ –	along stream			
2100	66	1	NW-SE	30	1	Light Wind (1-3 mph)	B	12m	9m	✓				
2200	63	1	NW-SE	0	2	Light Breeze (4-7 mph)	C	18m	9m					Field edge
2300	61	2	NW-SE	0	3	Gentle Breeze (8-12 mph)	D	9m	6m	✓	along stream			
0000	59	1	NW-SE	0	4	Moderate Breeze (13-18 mph)								
0100	59	1	NW-SE	0										
0200	57	1	NW-SE	0		Acoustic Detector ID:								

No.	Species	Time	Net/Ht.	Age	Sex	Repro.*	RFA (mm)	Mass (g)	WNS Score	Notes: Band#, Guano/Hair
1	Eptesicus fuscus	2210h	C/3m	Escaped	from	Net	—	—	—	
	Glaucomys volans	2250h	A/3m	—	—	—	—	—	—	
	Glaucomys volans	2330h	B/1m	—	—	—	—	—	—	
	Glaucomys volans	0100h	C/6m	—	—	—	—	—	—	

*Reproduction: P – pregnant; L – lactating; PL – Post Lactating; DESC. - testes descended ; NON - testes not descended for male and not Preg, Lac, or PLac for female

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Net Site Habitat Description

Net Set Diagram:

See Field Data Sheet from Previous Day (03 June 2018)

Project: TDOT-US 64/SR-40/PIN: 124102.00

Date: 04 June 2018 **Site Name:** Ocoee River/MS-01

Other Wildlife Observations Blue-gray Gnatcatcher, Chimney Swift (No), Hyla chrysoscelis (No), N. Cardinal (2 in Net), Great Blue Heron (No), White footed Mouse (1), Bobwhite (No), Great Horned Owl, Barn Owl (1 Ad & 2 juv) under bridge

STREAM CHARACTERISTICS NA ☑

Bank Height: 6-8 ft **Channel Width:** 150 ft

Stream Width: 150 ft **Riparian Width: (rt bank)** 100 ft **(lt bank)** >300 ft

Avg. Water Depth: ~3 ft **% Canopy Cover** 50

% Substrate type: Bedrock —, **Boulder** —, **Cobble** —, **Gravel** —, **Sand** —, **Fines** —.

VEGETATION

Estimated Distance to Water Source: At site - Ocoee River

Estimated Canopy Closure: closed (moderate) open

Dominant Sized Canopy Species (>16") Avg. DBH range 12-18"

1. Sycamore 2. N. Red Oak 3. River birch

Subdominant Sized Canopy Species (<16") Avg. DBH range 4-8"

1. Carpinus caroliniana 2. Sycamore 3. Sweetgum

Roost Tree Potential consists of: Large Trees Snags (Both)

Roost Tree Potential for Area: High Moderate (Low)

Subcanopy Clutter: closed moderate (open)

Travel Corridor Present: (Yes) No

Overall Habitat: Great Good (Fair) Poor No habitat present

Comments: Net A: N35.11507° W-84.67495°; Photos: DSC_1708-1713
Net B: N35.11478° W-84.67479°; Photos: DSC_1714-1719
Net C: N35.11444° W-84.67461°; Photos: DSC_1729-1732
Net D: N35.11399° W-84.67469°; Photos: DSC_1723-1728

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Bat Capture Data Sheet

Project Name/No.: TDOT-US 64/SR-40/PIN:124102.00 **Date:** 6/5/18 **Biologist(s):** James Kiser, Wes Cunningham

Site Name/No.: Ocoee River/MS-01 **State/County:** TN/Polk **Lat/Long:** N35.11491° W-84.67445°

Quadrangle: Parksville **Nets Open:** 2030 **Nets Close:** 0200h **Sun Rise/Set:** 0625/2050h **Moon Rise/Set:** 0200h/1229h **Moon Phase:** Waning Gibbous

Site Information: Located approx. 0.1 mile downstream along Ocoee River from existing US-64/SR-40 Bridge on Joe Fetzer Property

Time	Temp	Wind	Wind Direction	% Cloud Cover	Beaufort Wind Scale: Scale	Beaufort Wind Scale: Wind speed Indicators	Net	Length	Height	Road	Stream	Pond	Cave/ Portal	Other
2030	64	1	NW-SE	10	0	Calm (0 mph)	B	12m	9m	✓				
2100	63	1	NW-SE	0	1	Light Wind (1-3 mph)	C	18m	9m					Edge Field
2200	59	1	NW-SE	0	2	Light Breeze (4-7 mph)								
2300	59	1	NW-SE	0	3	Gentle Breeze (8-12 mph)								
0000	57	1	NW-SE	0	4	Moderate Breeze (13-18 mph)								
0100	55	1	NW-SE	0										
0200	55	1	NW-SE	0		Acoustic Detector ID:								

No.	Species	Time	Net/Ht.	Age	Sex	Repro.*	RFA (mm)	Mass (g)	WNS Score	Notes: Band#, Guano/Hair
1	Nycticeius humeralis	2120h	B/6m	A	F	L	37.42	10.25	0	Tissue: TN-PO-09
2	Lasiurus Cinereus	2340h	B/3.5m	Escaped from Net			—	—	—	Photos: DSC_1750-1752

*Reproduction: P – pregnant; L – lactating; PL – Post Lactating; DESC. - testes descended ; NON - testes not descended for male and not Preg, Lac, or PLac for female

rev. 6-2016

Stantec

Net Site Habitat Description

Net Set Diagram:

See Field Data Sheet from 03 June 2018

Project.: TDOT-US-64/SR-40/PIN:124102.00

Date: 05 June 2018 **Site Name:** Ocoee River/MS-01

Other Wildlife Observations Killdeer (Vo), Indigo bunting (Vo) N. Cardinal (Vo), Canada Goose (1), Hyla chrysoscelis (Vo) Barred Owl (Vo)
Barn Owls shed under existing bridge

STREAM CHARACTERISTICS NA ☑

Bank Height: 6-8 ft **Channel Width:** 150 ft

Stream Width: 150 ft **Riparian Width: (rt bank)** 100 ft **(lt bank)** >300 ft.

Avg. Water Depth: 3 ft **% Canopy Cover** 50

% Substrate type: Bedrock —, **Boulder** —, **Cobble** —, **Gravel** —, **Sand** —, **Fines** —.

VEGETATION

Estimated Distance to Water Source: At site - Ocoee River

Estimated Canopy Closure: closed (moderate) open

Dominant Sized Canopy Species (>16") Avg. DBH range 12-18"

1. Sycamore 2. N. Red Oak 3. River birch

Subdominant Sized Canopy Species (<16") Avg. DBH range 4-8"

1. Carpinus caroliniana 2. Sycamore 3. Sweetgum

Roost Tree Potential consists of: Large Trees Snags (Both)

Roost Tree Potential for Area: High Moderate (Low)

Subcanopy Clutter: closed moderate (open)

Travel Corridor Present: (Yes) No

Overall Habitat: Great Good (Fair) Poor No habitat present

Comments: See field data sheets from June 03 & 04, 2018

If found, please return to:
Stantec Consulting Services Inc.
1500 Lake Shore Drive
Columbus, OH 43204

Appendix C

PHOTOGRAPHS

BAT MIST NET SURVEY FOR SR-40 BRIDGE REPLACEMENT PROJECT OVER OCOEE RIVER, LM 3.12, POLK COUNTY, TENNESSEE

Appendix C
August 31, 2018

MS-01; Net A

MS-01; Net B

BAT MIST NET SURVEY FOR SR-40 BRIDGE REPLACEMENT PROJECT OVER OCOEE RIVER, LM 3.12, POLK COUNTY, TENNESSEE

Appendix C
August 31, 2018

MS-01; Net-C

MS-01; Net D

Stantec

BAT MIST NET SURVEY FOR SR-40 BRIDGE REPLACEMENT PROJECT OVER OCOEE RIVER, LM 3.12, POLK COUNTY, TENNESSEE

Appendix C
August 31, 2018

Top of Existing SR-40 Bridge (looking from west to east)

West end of Existing SR-40 Bridge

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BAT MIST NET SURVEY FOR SR-40 BRIDGE REPLACEMENT PROJECT OVER OCOEE RIVER, LM 3.12, POLK COUNTY, TENNESSEE

Appendix C
August 31, 2018

Underneath Existing SR-40 Bridge on West Side (Concrete Deck & Girders)

Underneath Existing SR-40 Bridge on East Side (Concrete Deck & Girders)

Bat Guano & Urine Stain Underneath Existing SR-40 Bridge on East Side

BAT MIST NET SURVEY FOR SR-40 BRIDGE REPLACEMENT PROJECT OVER OCOEE RIVER, LM 3.12, POLK COUNTY, TENNESSEE

Appendix C
August 31, 2018

Big Brown Bats (*Eptesicus fuscus*) Night-roosting under Bridge

Evening Bat (*Nycticeius humeralis*)

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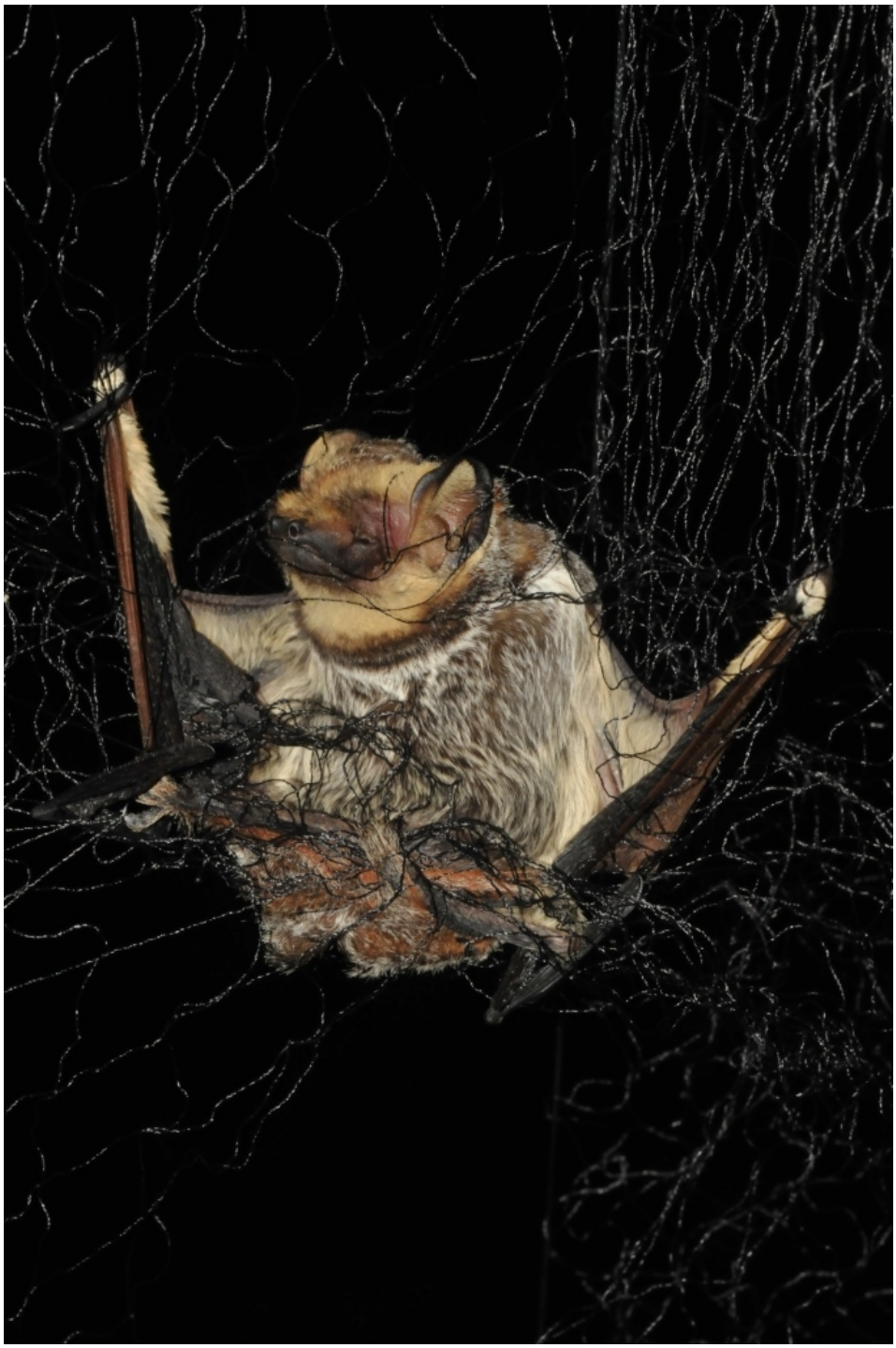
BAT MIST NET SURVEY FOR SR-40 BRIDGE REPLACEMENT PROJECT OVER OCOEE RIVER, LM 3.12, POLK COUNTY, TENNESSEE

Appendix C
August 31, 2018



Hoary Bat (*Lasiurus cinereus*) in Net

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BAT MIST NET SURVEY FOR SR-40 BRIDGE REPLACEMENT PROJECT OVER OCOEE RIVER, LM 3.12, POLK COUNTY, TENNESSEE

Appendix C
August 31, 2018

Eastern Red Bat (*Lasiurus borealis*)

Barn Owl Chicks on Ledge Underneath SR-40 Bridge on East Side of River

Stantec

Adult Barn Owl Looking from Ledge Underneath SR-40 Bridge on East Side of River

Environmental Studies

Ecology

Environmental Studies Request

Project Information

Route: State Route 40 Bridge

Termini: Bridge Over the Ocoee River (Bridge ID 70SR0400005)

County: Polk

PIN: 124102.00

Request

Request Type: Initial Environmental Study

Project Plans: Revised ETSA

Date of Plans: 12/2018 Email

Location: Attachment

Certification

Requestor: Laura Moribe

Title: Environmental Planner

Signature: Laura Moribe Digitally signed by Laura Moribe Date: 2018.12.06 14:28:47 -06'00'

Environmental Study

Technical Section

Section: Ecology

Study Results

TDOT's Region 2 Environmental Tech Office (ETO) has reviewed the two maps sent with this ESR request on 7 December 2018. Staff prepared an Updated Environmental Boundaries Report for this project on 22 October 2018, which encompasses the additional study areas shown in this request. If the project scope is revised or if the project limits are extended, an additional review by the Region 2 ETO will be required.

Commitments

Did the study of this project result in any environmental commitments? **Yes**

• “To comply with the TDOT/USFWS 2015 MOA for impacts to Cliff Swallows (Petrochelidon pyrrhonota) and Barn Swallows (Hirundo rustica). Cliff swallow and barn swallow nests, eggs or birds (young and adults) will not be disturbed between April 15 and July 31. From August 1 to April 14, nests may be removed or destroyed, and measures may be implemented to prevent future net building at the site (e.g., closing off area using netting).”

• “Due to concerns for the federally threatened snail darter (Percina tanasi), TDOT is committed to prohibit instream work from February 1 – April 30 in the Ocoee River for the duration of the project.”

• “Due to concerns for the state listed Barn Owl (Tyto alba) using the bridge during various nesting stages, TDOT has committed to prohibit work on the existing bridge from April 1 and September 1.”

Additional Information

Is there any additional information or material included with this study? **Yes**

Type: Environmental Boundaries Report (EBR)

Location: FileNet

Certification

Responder: Brandon Chance

Title: Region 2 TESS ADV

Signature: Brandon Chance

Digitally signed by Brandon Chance
DN: cn=Brandon Chance, o=TDOT, ou=Region 2 Project Development - Environmental Tech Offic - Ecology, email=k.brandon.chance@tn.gov, c=US
Date: 2018.12.10 06:13:24 -05'00'

PIN 124102.00

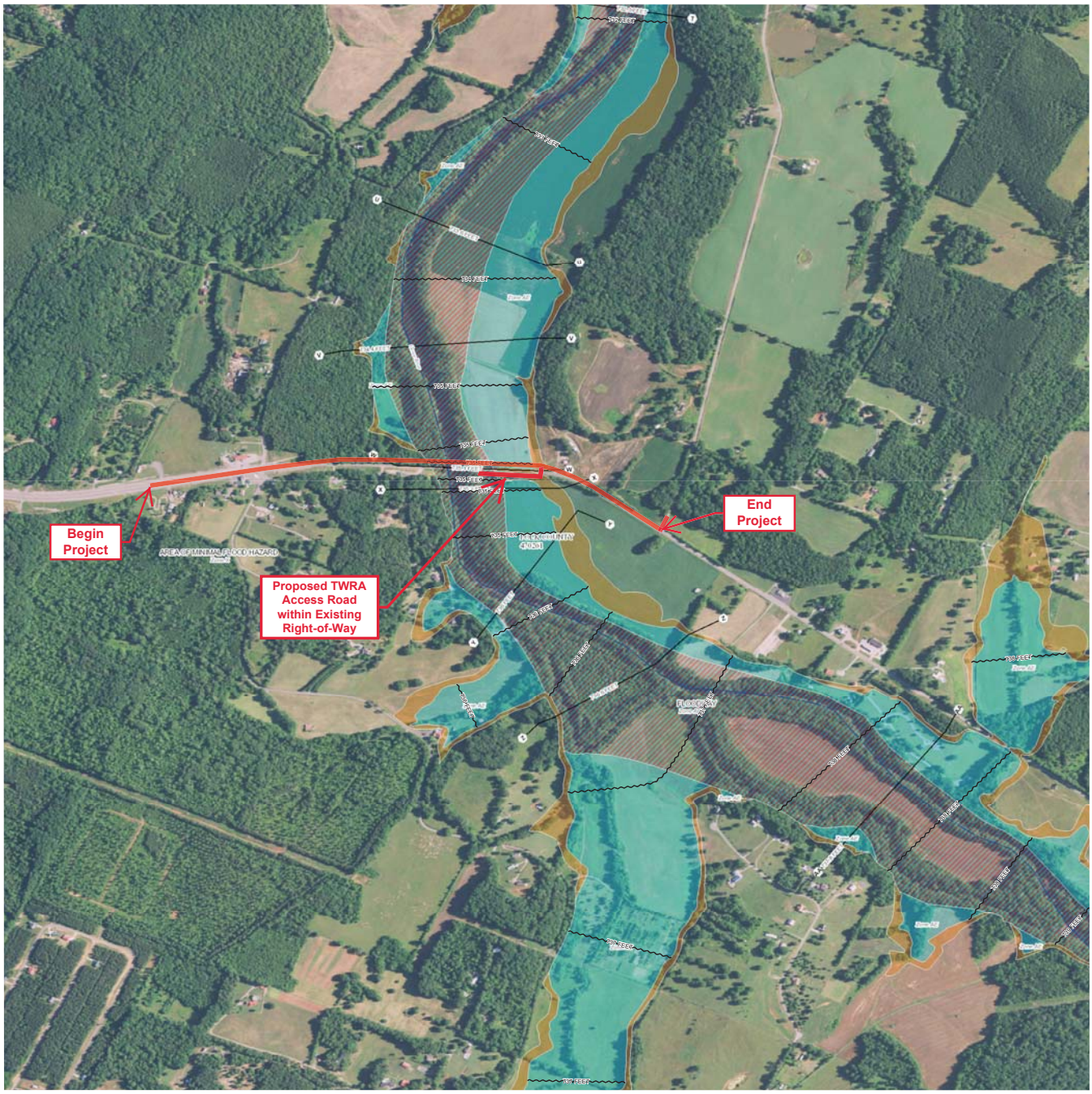
Appendix D

Floodplains

35°7'36.73"N

84°4'115.46"W

SR-40 Bridge Over the Ocoee River (Bridge ID 70SR0400005)
Polk County, Tennessee, PIN 124102.00



USGS The National Map: Orthoimagery. Data refreshed October 2017.

35°5'30.92"N

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99*
	With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee See Notes. *Zone X*
	Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard *Zone X*
	Effective LOMRs
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
OTHER FEATURES	20.2 Cross Sections with 1% Annual Chance
	17.5 Water Surface Elevation
	Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can beordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Basemap information shown on this FIRM was provided in digital format by USDA, Farm Service Agency (FSA). This information was derived from NAIP, dated April 11, 2018.

This map was exported from FEMA's National Flood Hazard Layer (NFHL) on **7/18/2018 10:00:11 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date.

SCALE

N

Map Projection:
GCS. Geodetic Reference System 1980;
Vertical Datum: NAVD88
For information about the specific vertical datum for elevation features, datum conversions, or vertical monuments used to create this map please see the Flood Insurance Study(FIS) Report for your community at https://msc.fema.gov

1 inch = 500 feet 1:6,000

0 250 500 1,000 1,500 2,000 Feet

0 50 100 200 300 400 Meters

FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

POLK COUNTY, TENNESSEE AND INCORPORATED AREAS

PANEL **206** OF **401**

Panel Contains:

COMMUNITY	NUMBER	PANEL
POLK COUNTY TENNESSEE	470261	0206

MAP NUMBER
47139C0206F
EFFECTIVE DATE
05/18/2009

PIN 124102.00

Appendix E

Air Quality and Noise

Environmental Studies

Air and Noise

TN TDOT Department of Transportation

U.S. Department of Transportation Federal Highway Administration

SEMS Statewide Environmental Management System

Environmental Studies Request

Project Information

Route: State Route 40 Bridge

Termini: Bridge Over the Ocoee River (Bridge ID 70SR0400005)

County: Polk

PIN: 124102.00

Request

Request Type: Initial Environmental Study

Project Plans: Revised ETSA

Date of Plans: 12/2018 Email

Location: Attachment

Certification

Requestor: Laura Moribe

Title: Environmental Planner

Signature: Laura Moribe Digitally signed by Laura Moribe Date: 2018.12.06 14:28:47 -06'00'

Environmental Study

Technical Section

Section: Air and Noise

Study Results

AIR QUALITY
Transportation Conformity

This project is in Polk County which is in attainment for all regulated criteria pollutants. Therefore, conformity does not apply to this project.

Mobile Source Air Toxics (MSATs)

This project qualifies as a categorical exclusion under 23 CFR 771.117 and does not require a Mobile Source Air Toxics (MSATs) evaluation per FHWA's "Interim Guidance Update on Air Toxic Analysis in NEPA Documents" dated October 2016.

NOISE

The new bridge will located north of the existing structure. However, the relocation will not halve the distance between the center of the near travel lane and an adjacent noise-sensitive land use. Therefore, the project is Type III in accordance with the FHWA noise regulation in 23 CFR 772 and TDOT's noise policy and a noise study is not needed.

Commitments

Did the study of this project result in any environmental commitments? **No**

Additional Information

Is there any additional information or material included with this study? **No**

Certification

Responder: Chasity L. Stinson

Title: TESS ADV, Air and Noise Section

Signature: Chasity L. Stinson

Digitally signed by Chasity L. Stinson
Date: 2018.12.07 11:00:22 -06'00'

PIN 124102.00

Appendix F

Cultural Resources

TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

July 31, 2018

Ms. Katherine Looney
Tennessee Department of Transportation
Environmental Division, Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243

RE: FHWA / Federal Highway Administration, Historic/Architectural Assessment for proposed replacement of SR 40 bridge over the Ocoee River, Log Mile 3.12, Polk County, TN

Dear Ms. Looney:

In response to your request, we have reviewed the documents you submitted regarding your proposed undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

After considering the documentation submitted, it is our opinion that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. We have made this determination because either: no National Register listed or eligible Historic Properties exist within the undertaking's area of potential effects; the specific location, size, scope and/or nature of the undertaking and its area of potential effects precluded affects to Historic Properties; the undertaking will not alter any characteristics of an identified eligible or listed Historic Property that qualify the property for listing in the National Register; or it will not alter an eligible Historic Property's location, setting or use. We have no objections to your proceeding with your undertaking.

If your agency proposes any modifications in current project plans please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. If you are applying for federal funds, license or permit, you should submit this letter as evidence of consultation under Section 106 to the appropriate federal agency, which, in turn, should contact us as required by 36 CFR 800. If you represent a federal agency, you should submit a formal determination of eligibility and effect to us for comment. You may direct questions or comments to Justin Heskew at (615) 770-1092.

Sincerely,

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jsh

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

July 13, 2018

Mr. E. Patrick McIntyre, TN-SHPO
Deputy State Historic Preservation Officer
Tennessee Historical Commission
Clover Bottom Mansion
2941 Lebanon Road
Nashville, TN 37214

SUBJECT: Historic/Architectural Assessment for proposed replacement of State Route 40 bridge over the Ocoee River, Log Mile 3.12, Polk County PIN 124102.00

Dear Mr. McIntyre:

The Tennessee Department of Transportation (TDOT), with funding from the Federal Highway Administration (FHWA), is proposing to replace the State Route 40 bridge over the Ocoee River in Polk County. The existing bridge is a fourteen span concrete deck girder bridge built in 1937. The bridge was surveyed in the 2000 *University of Tennessee's Evaluation of Pre-1950 Bridges* and found to be a common type, with no notable features, and no apparent significance. It is the opinion of TDOT that the bridge is not eligible for listing in the National Register of Historic Places. In 2013, a consultant originally surveyed the project area for a different project with the same Area of Potential Effects (APE) as the subject project for historic resources. Your office agreed in a letter dated January 10, 2014 that there were no historic resources within the project area of potential effect (report and SHPO letter enclosed). The referenced reports and letters are attached.

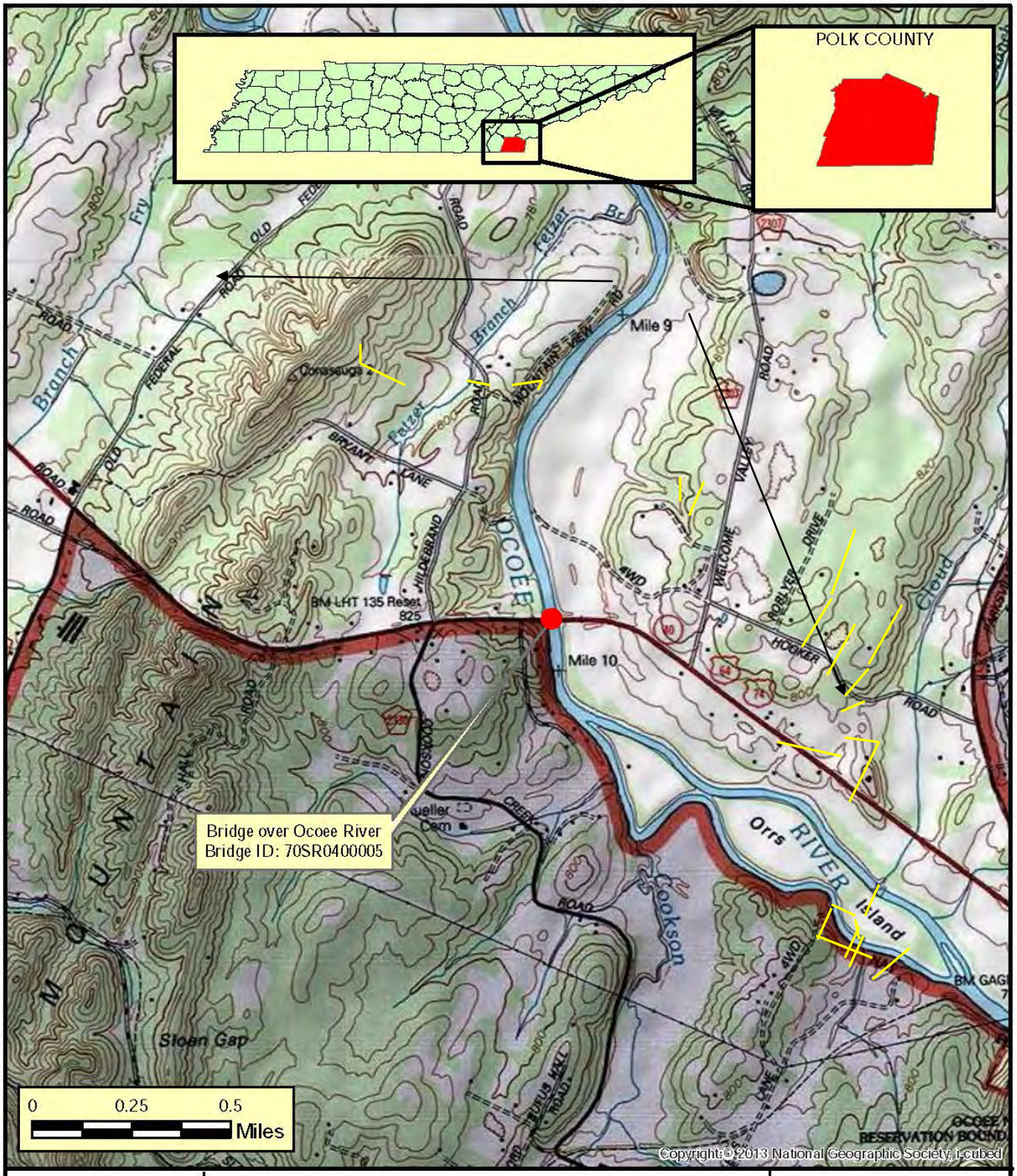
Due to the passage of time, TDOT historians revisited the project area on July 11, 2018 and did not identify any additional properties within the area of potential effect that required survey. For these reasons, it remains the opinion of TDOT that there are no National Register listed or eligible properties within the project area.

On behalf of the Federal Highway Administration, we request your review of this report pursuant to regulations contained within 36 CFR 800.

We look forward to your comments. Thank you for your help in this matter.

Sincerely,

Katherine Looney, TDOT Environmental Supervisor



N

TOPOGRAPHIC MAP
STATE ROUTE 40 (US-64/74)
BRIDGE OVER OCOEE RIVER
LOG MILE 3.12
POLK COUNTY

TN TDOT Department of Transportation

Attachment 1

2013 *Historic/Architectural Assessment and Project Effects for Proposed Appalachian Corridor K (US 64/State Route 40) from west of the Ocoee River to State Route 68 in Ducktown, Polk County*

and

January 10, 2014 SHPO Letter

TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

January 10, 2014

Ms. Tammy Sellers
Tennessee Department of Transportation
505 Deaderick St/900
Nashville, Tennessee, 37243-0349

RE: FHWA, EFFECT ASSESSMENT, APPALACHIAN CORRIDOR K, UNINCORPORATED, POLK COUNTY

Dear Ms. Sellers:

In response to your request, received on Monday, December 23, 2013, we have reviewed the effect assessment documents you submitted regarding your proposed undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicant for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings.

Considering the information provided, we find that the undertaking's area of potential effects contains several Historic Properties eligible for listing in the National Register of Historic Places: Ocoee# 1, Ocoee# 2, Ocoee# 3, and various components of the Old Copper Road. We further find that various proposed Alternatives of Appalachian Corridor K will adversely affect these Historic Properties. After reviewing the comments of various consulting parties and the referenced TDOT Effect Assessment, we concur with the TDOT's findings of effect as represented in the attached matrix. You should notify interested persons and the Advisory Council on Historic Preservation of our effect finding and make the documentation associated with this finding available to the public.

All borrow areas outside proposed rights-of-way will require separate certification as specified under Section 107.06-Federal Aid Provisions. If your agency proposes any modifications in current project plans or discovers any archaeological remains during the ground disturbance or construction phase, please contact us to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act.

This office appreciates your cooperation.

Sincerely,

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jyg

Corridor K
Effects Matrix for each of the six historic properties

Alternatives	*Effects* *Ocoee #1*	*Effects* *Ocoee #2*	*Effects* *Ocoee #3*	*Effects* *Old Copper Road 40PK373A*	*Effects* *Old Copper Road 40PK373B*	*Effects* *Old Copper Road 40PK645*
Alternative 1 No Build	No Effect	No Effect	No Effect	No Effect	No Effect	No Effect
Alternative 2 Improve Existing U.S. 64	No Effect	Adverse Effect	Adverse Effect	No Effect	Adverse Effect	Outside APE
Alternative 4 New Location to the N	Outside APE	Outside APE	Adverse Effect	No Effect	Outside APE	Adverse Effect
Alternative 5 New Location to the N	Outside APE	Outside APE	Adverse Effect	No Effect	Outside APE	Adverse Effect
Alternative 8A Combination, New Location and U.S. 64	No Effect	Outside APE	Adverse Effect	No Effect	Outside APE	Outside APE
Alternative 9 Combination New Location and U.S. 64	No Effect	Outside APE	Adverse Effect	No Effect	Outside APE	Outside APE

Appalachian Corridor K (U.S. 64)

from west of the Ocoee River to State Route 68 in Ducktown, Polk County, Tennessee

ASSESSMENT OF

ARCHITECTURAL/HISTORICAL RESOURCES

AND PROJECT EFFECTS

Prepared Pursuant to Section 106 of the National Historic Preservation Act

Prepared By:
Margaret Slater, AICP
Tennessee Department of Transportation

Revised: October 2013

Summary

This report is prepared in support of the Corridor K Environmental Impact Statement (EIS) and pursuant to Section 106 of the National Historic Preservation Act for architectural/historical resources. It presents a description of the proposed Corridor K alternatives, a historic context of the project area, and the methodology for and findings regarding National Register of Historic Places (NRHP) eligibility and Section 106 effects.

The U.S. 64/Corridor K EIS evaluates proposed improvements of Corridor K from U.S. 64 west of the Ocoee River to State Route (SR) 68 near Ducktown, Tennessee. This approximately 24-mile segment of U.S. 64 is known as the Ocoee River Gorge section and transverses the southeastern portion of the Cherokee National Forest (CNF). Six alternatives are being considered for the corridor, including a No Build alternative.

Research and field work conducted revealed the following in the Area of Potential Effect (APE):

- Two resources were listed in the APE—Ocoee No. 1 and Ocoee No. 2;
- Two resources had previously been determined NRHP-eligible as part of the Section 106 process and remain eligible, Ocoee No. 3 and Old Copper Road (two separated segments—Site 40PK373A and B);
- Six resources that had previously been surveyed and eligibility determinations undertaken as part of Section 106—None were identified as eligible;
- Eleven resources were surveyed in 2011. Five of these resources warranted an in-depth NRHP eligibility assessment (Rogers Century farm, three former residences at Ocoee No. 1, CNF Recreational Residences, and 40PK645, Old Copper Road between Hooker Road and Ocoee River);
- Of the 11 resources surveyed in 2011, only 1 resource is recommended by the Tennessee Department of Transportation (TDOT) as NRHP-eligible—40PK645, Old Copper Road between Hooker Road and Ocoee River.

TDOT applied the Section 106 Criteria of Adverse Effect to the NRHP-listed or eligible resources in the project's APE. As indicated in the current concepts developed for the project Build Alternatives, four of the resources would be adversely affected under Section 106 and the project would have a use under Section 4(f) of the Department of Transportation Act from the same four resources. Table S-1 summarizes TDOT's findings regarding the project's effects under Section 106. In addition, if land is to be taken, a Section 4(f) use is identified in the table.

Table S-1: Summary of Section 106 Effects

NRHP-Listed or Eligible Resource	Alternative(s)	Effect	Section 4(f) Use?
Ocoee No. 1	2, 8A, 9	No Effect	No
Ocoee No. 2	2	Adverse Effect	Yes
Ocoee No. 3	All	Adverse Effect	Yes
Old Copper Road 40PK373A	All	No Effect	No
Old Copper Road 40PK373B	2	Adverse Effect	Yes
Old Copper Road 40PK645	4 and 5	Adverse Effect	Yes

This report has been prepared in consultation with the U.S. Forest Service (USFS), Tennessee Valley Authority (TVA), and the Tennessee State Historic Preservation Office (SHPO) and interested Native American tribes. It will be circulated pursuant to Section 106 to:

- USFS, TVA, SHPO, Native American tribes
- Local Government
- Owners of affected resources
- Local parties with historic preservation interests

The appropriate Section 4(f) documentation will be developed and coordinated as part of the EIS process, and once an alternative is selected, agency consultation will continue. TDOT will refine the selected alternative and attempt to avoid or minimize effects. If the alternative selected adversely impacts NRHP-listed or eligible properties, TDOT will work with the SHPO and appropriate agencies to develop a Section 106 Memorandum of Agreement. Appropriate Section 4(f) documentation will also be developed and made available to agencies and the public as required.

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1.0 Background

URS Corporation has been contracted by the Tennessee Department of Transportation (TDOT) to prepare preliminary engineering plans for the preparation and approval of a National Environmental Policy Act (NEPA) document, determined to be an Environmental Impact Statement (EIS), for proposed Corridor K in Polk County, Tennessee. The subject project location is shown on Figure 1.

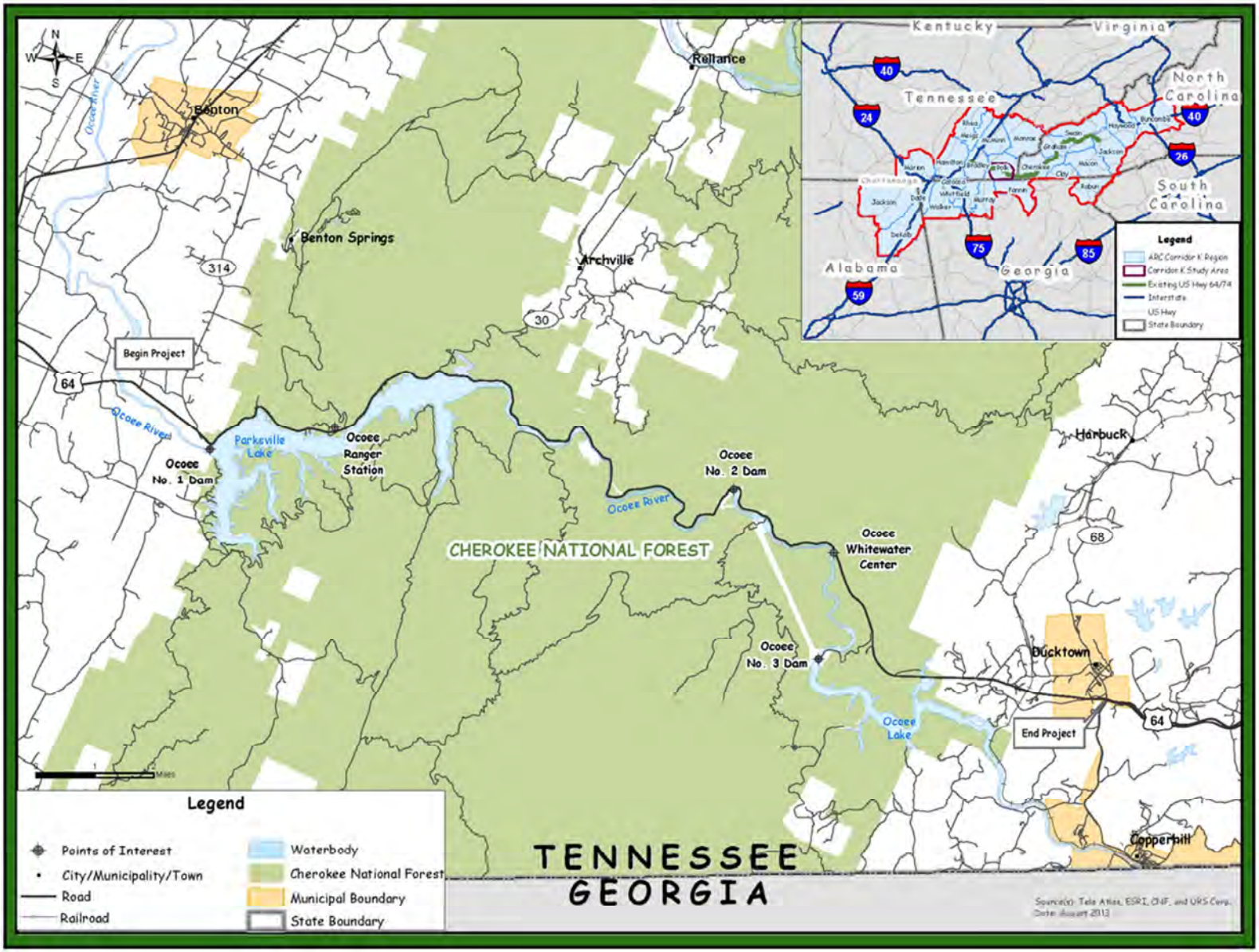
The U.S. 64/Corridor K EIS evaluates proposed improvements of Corridor K from U.S. 64 west of the Ocoee River to State Route (SR) 68 near Ducktown, Tennessee. This approximately 24-mile segment of U.S. 64 is known as the Ocoee River Gorge section and transverses the southeastern portion of the Cherokee National Forest (CNF).

The project has received funding assistance from the Federal Highway Administration (FHWA). As such, this project is being coordinated with the State Historic Preservation Office (SHPO) pursuant to Section 106 of the National Historic Preservation Act. TDOT is conducting the Section 106 coordination with the SHPO, local government, local interested parties, and Native American tribes and other Consulting Parties.

This document is prepared to identify architectural/historical properties listed in, or eligible for, the National Register of Historic Places (NRHP) that are located within the project's Area of Potential Effects (APE) and to identify effects to such resources pursuant to the Section 106 requirements outlined in 36 CFR 800. (Archaeological studies are being conducted by the Louis Berger Group under contract to TDOT and the study findings are also being coordinated with the SHPO through TDOT.)

The principal investigator for this project is Margaret Slater. Ms. Slater began the study and undertook research and field work as a Consultant and now has completed this report as a TDOT employee. Ms. Slater meets the Secretary of Interior's Professional Qualification Standards for working on historic preservation projects.

Figure 1: Project Location Map



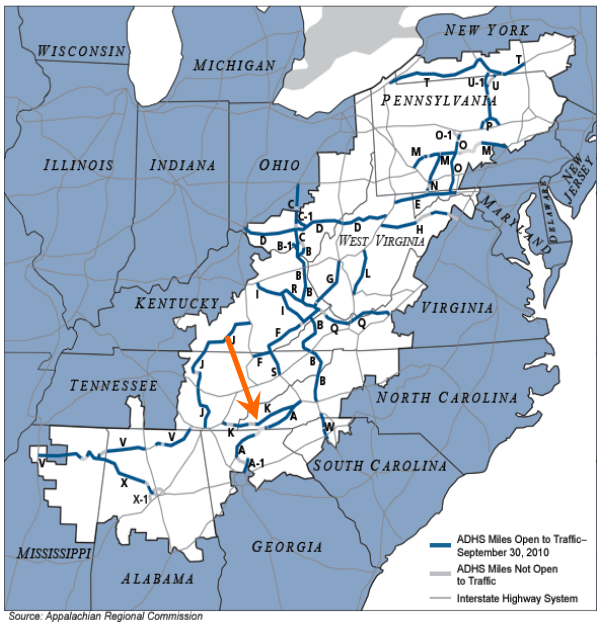
2.0 U.S. 64/Corridor K Project

2.1 Project Description

The U.S. 64/Corridor K project would implement a safe, reliable, and efficient east-west transportation route from just west of where U.S. 64 crosses the Ocoee River west of the CNF to SR-68 in Polk County, Tennessee. The proposed project would improve a segment of the regional Appalachian Development Highway System (ADHS) and would support regional and state transportation plans.

The proposed project would provide a limited access highway as part of the State Highway System that meets current ADHS, U.S. National Truck Network, and Strategic Highway Network (STRAHNET) design standards.

The ADHS was created to open the impoverished areas of Appalachia to economic development (Southeast Tennessee Development District, 2009). The Appalachian Regional Commission (ARC) is a federal-state partnership that provides funding for projects that foster economic growth, enabling Appalachia to become a noteworthy contributor to the national economy.



Source: Appalachian Regional Commission

Figure 2: ADHS Regional Projects.
Arrow shows Corridor K.

Corridor K is one of several corridors designed to support the goals of the ARC. Corridor K extends 127 miles from I-75 near Cleveland, Tennessee, to near Dillsboro, North Carolina, providing an east-west connection between Cleveland, Tennessee, and Asheville, North Carolina, to the east and Chattanooga, Tennessee, to the west.

Approximately 70 percent of Corridor K has been improved by the North Carolina Department of Transportation (NCDOT) and TDOT. Projects currently underway on Corridor K in Tennessee include this project (U.S. 64/Corridor K project) and the construction of a 2.2-mile section of U.S. 64/74 (SR-40) from U.S. 411 (SR-33) to west of the Ocoee River in Polk County.

The Southeast Tennessee Rural Planning Organization (RPO) has voted the U.S. 64/Corridor K project as their number one priority for four consecutive years (2007–2011) based on its determination that there is an immediate and long-term economic development need for an improved east-west transportation corridor in southeast Tennessee.

2.2 Project History

In 1976, TDOT sent coordination letters for "scoping comments" to agencies. At that time, the project was a low priority and did not advance due to lack of funding. Also in 1976, the Tennessee Valley Authority (TVA)improved the Ocoee No. 2 power plant, which resulted in water being released into the Ocoee riverbed. Over the next five years, the Ocoee area was discovered by recreationists who rallied for continued use. TVA agreed to regularly scheduled water releases into the Ocoee River as a result of tourist pressures, which in turn increased tourism in the Ocoee River Gorge area.

In 1981, government funding for the ADHS was reduced, eliminating all funding for Corridor K. The proposed corridor was subsequently included in the Tennessee Accelerated Primary Highway Plan in 1986 and was to be funded by additional state gas tax approved by the General Assembly. But still no funding was allocated to advance the project.

TDOT has worked in cooperation with TVA, the U.S. Army Corps of Engineers (USACE), the U.S. Forest Service (USFS), and other entities since the late 1980s to assess the potential effects of the Corridor K project, known initially as the "Ocoee Gorge Bypass Project." In July 1988, U.S. 64 within the limits of the proposed project, along with National Forest System Road (FS) 77 within the CNF, became the Ocoee Scenic Byway, the first designated National Forest Byway. In 1989 and 1990, TDOT conducted a preliminary engineering analysis for a new location section of U.S. 64 that would bypass the section through the gorge. A preferred alignment was selected through the NEPA process but TDOT placed the project on hold.

In 1995, TDOT and USFS developed a NEPA document for spot improvements along U.S. 64 in the Ocoee Gorge area of proposed Corridor K to address safety concerns. FHWA later adopted the USFS' NEPA Finding of No Significant Impact (FONSI) for these three improvements.

Congress passed the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 and subsequently passed the Transportation Equity Act for the 21st Century (TEA-21) in 1998. These Acts provided a guaranteed funding source from the Highway Trust Fund and provided funds to the State for use on the ADHS. TDOT, FHWA, and ARC compiled cost estimates for the completion of the ADHS in Tennessee in 1997 and 2002.

In 1999, NEPA environmental studies were reopened for Corridor K, and the limits of the project were expanded to the east and west. TDOT completed a FONSI in 1999, but the project did not move forward.

In late 1999, TDOT initiated an EIS for improvements to U.S. 64 between the four-lane section at U.S. 411 and the four-lane section at SR-68 in Ducktown. The project included the segment formerly known as the "Ocoee Gorge Bypass," which was proposed as a four-lane facility on new location with multiple tunnels. A Draft EIS (DEIS) for the proposed project between the Ocoee River Bridge and Ducktown was completed and approved by FHWA in 2003, with public meetings held in January 2004.

Several alternatives were considered in the 2003 DEIS, including the No-Build Alternative and two Build Alternative conceptual corridors that were evaluated for environmental effects (Build Alternatives 1 and 2). Both Build Alternatives involved constructing a new location roadway in the middle of the project corridor and widening existing U.S. 64 in the western and eastern portions of the corridor. The typical section featured two 12-foot travel lanes in each direction, separated by a 48-foot median, and 12-foot outside shoulders. Tunnels were proposed at four new alignment locations to reduce areas of cut and fill and related visual effects. Alternatives that were eliminated from further consideration included:

- Improve existing alignment,
- Construct a long tunnel to divert traffic through the gorge,
- Construct the eastern half of the project along Kimsey Highway,
- Construct the project entirely south of the Ocoee River,
- TSM (Transportation Systems Management), and
- Transit.

Both Build Alternatives were estimated to cost approximately $1.5 billion. Based on the estimated cost and comments, expectations, and issues raised by the public, interest groups, and resource agencies, TDOT decided to enter into a grant agreement with the Southeast Tennessee Development District (SETDD) for the purposes of assessing the economic return on constructing this segment of Corridor K. The result of that assessment was the development of the *Corridor K Economic Development and Transportation Study*, which was initiated in June 2006 and finalized in February 2008. This study concluded that there is an economic development need for an improved east-west transportation corridor to serve the region.

FWHA rescinded the 2003 DEIS in 2008. Based on the conclusions of the *Corridor K Economic Development and Transportation Study*, TDOT determined that a fresh look at Corridor K was warranted. A corridor level planning study was initiated that resulted in the completion of a Transportation Planning Report (TPR) in the spring of 2010. Through collaborative agency and community input and preliminary environmental screening within the project study area, the TPR re-assessed the preliminary need for the proposed project and identified potential corridor options for further study.

After the approval of the TPR, FHWA and TDOT initiated a new DEIS that would provide comprehensive information on the purpose of and the need for the project, the proposed alternatives, and the potential environmental, social, and economic effects as a result of this project.

2.3 Alternatives Description

Six alternatives are being considered for the corridor, including a “No Build” alternative. These alternatives are described below and depicted on Figure 3.

Alternative 1: No Build – No improvements beyond operational maintenance to existing U.S. 64. The No Build alternative does not meet the project purpose and need.

Alternative 2: Improve Existing U.S. 64 – Improvements to the entire length of existing U.S. 64 through the project limits. Some sections would require widening of the existing roadway or construction in a new location to eliminate sharp curves. Improvement would be made to shoulder widths, guardrails, and bridges. This alternative would also include enhancements at key intersections and at areas prone to rock slides and other safety issues.

Alternative 4: New Location Roadway to the North – This alternative runs north of the section of existing U.S. 64 that travels along Parksville Lake and through the Ocoee Gorge. This alternative intersects SR-30 south of Archville and east of Ocoee No. 1. It then continues southeast toward the Little Frog Wilderness Area, where it ties back into existing U.S. 64 about 0.5 mile east of Ocoee Dam No. 2 and west of the designated wilderness area.

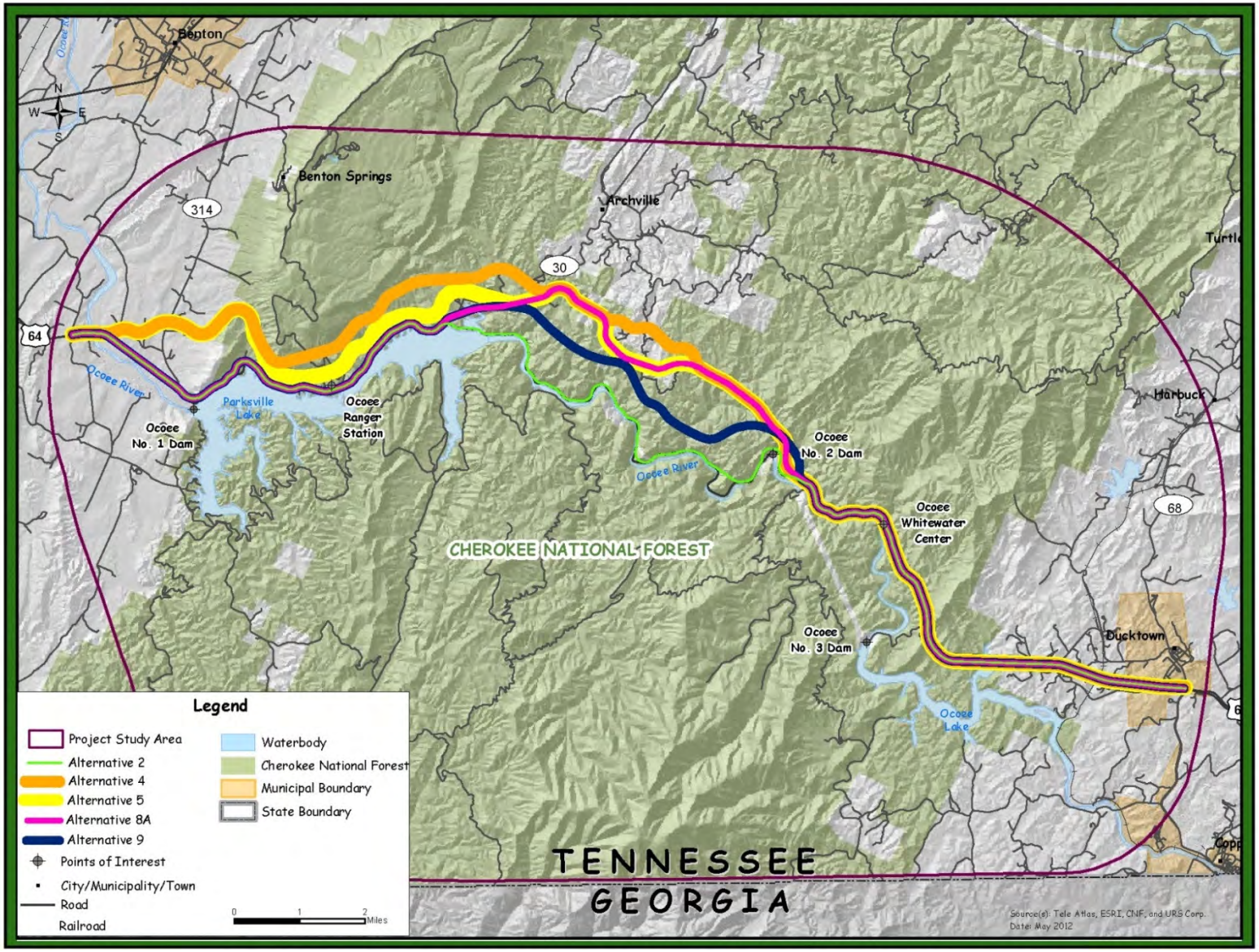
Alternative 5: New Location Roadway to the North – This alternative is similar to Alternative 4, except along Parksville Lake it runs closer to the lake at a lower elevation than Alternative 4. It connects back with the Alternative 4 alignment just east of SR-30 before dipping south again for approximately 1.5 miles. It then follows the Alternative 4 alignment to existing U.S. 64.

Alternative 8A: Combination of New Location Roadway and Improvements to Existing U.S. 64 – This alternative follows existing U.S. 64 on the western end of the project area. It then follows a small segment of SR-30 for approximately 0.25 mile before a new location segment diverges to the northeast to connect with the Alternative 5 alignment. It then follows the Alternative 5 alignment to existing U.S. 64.

Alternative 9: Combination of New Location Roadway and Improvements to Existing U.S. 64 – Similar to Alternative 8, this alternative follows existing U.S. 64 on the western end of the project area. It then follows the small segment of SR-30 for approximately 0.25 mile before turning northeast to follow Alternative 8A for about 1 mile. At that point, Alternative 9 turns directly east on new location, south of all the other alternatives. It crosses the other alternatives about 0.5 mile before turning directly south and connecting back into existing U.S. 64 at the same location as all the other alternatives.

Common Features All Build Alternatives – The build alternatives share the same alignment and propose the same improvements to U.S. 64 at the eastern end of the project. The alternatives tie into the existing U.S. 64 alignment near the existing TVA-owned bridge over the Ocoee River that provides access to Thunder Rock Campground and TVA Powerhouse No. 3 and follow the same alignment along existing U.S. 64 for the remainder of the project, approximately 7.2 miles. The tie points for each Build Alternative are located within 100 feet of each other. All the Build Alternatives cross the Benton-MacKaye Trail at this bridge, which will be retained. The posted speed limit will be 45 miles per hour (mph) from the tie points to just east of the Ocoee Whitewater Center. For the remainder of the project the

Figure 3: Build Alternatives under Consideration



existing horizontal and vertical alignments currently meet a minimum design speed of 55 mph and the posted speed limit will remain 55 mph. Existing intersections and driveways along this easternmost section of the project will be retained, including access to Boyd Gap overlook.

Table 1 provides design features for the five Build Alternatives.

Table 1: Design Features of Build Alternatives

Design Element/Feature	Alternative 2	Alternative 4	Alternative 5	Alternative 8A	Alternative 9
Location	Existing	Existing and new	Existing and new	Existing and new	Existing and new
# travel lanes	2 lanes	2 lanes	2 lanes	2 lanes	2 lanes
Center turn/access lane	Yes, select locations	Yes, select locations	Yes, select locations	Yes, select locations	Yes, select locations
Truck passing lanes	Yes, no new, but maintain existing	Yes, new plus maintain existing	Yes, no new, but maintain existing	Yes, no new, but maintain existing	Yes, new plus maintain existing
Design speed	50–60 mph	50–60 mph	50–60 mph	50–60 mph	50–60 mph
Proposed posted speed	45–55 mph	45–55 mph	45–55 mph	45–55 mph	45–55 mph
Average travel speed	50.0 mph	51.7 mph	52.8 mph	52.6 mph	51.1 mph
Total distance	22.3 miles	21.2 miles	21.6 miles	21.2 miles	21.1 miles
Roadway width	44–60 feet between shoulders	48–60 feet between shoulders	48–60 feet between shoulders	48–60 feet between shoulders	48–60 feet between shoulders
Lane width	12 feet	12 feet	12 feet	12 feet	12 feet
Shoulder width and type	10 or 12 feet varies on location, paved, grass and gravel	10 or 12 feet varies on location, paved, grass and gravel	10 or 12 feet varies on location, paved, grass and gravel	10 or 12 feet varies on location, paved, grass and gravel	10 or 12 feet varies on location, paved, grass and gravel
Median width and type	None	None	None	None	12 feet paved (flush center turn lane at select locations)
Ditch/Rock catchment width	21 feet/ variable 0–42 feet	21 feet / variable 0–42 feet	21 feet / variable 0–42 feet	21 feet / variable 0–42 feet	21 feet / variable 0–42 feet
Pedestrian / Bike accommodations	Yes	Yes	Yes	Yes	Yes

3.0 Methodology

3.1 Area of Potential Effects

A project's APE is defined in 36 CFR 800.16(d) as "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The project's APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."

The APE for proposed Corridor K generally follows the alignments under study. West of the CNF, the APE is about 1,000 feet to either side of the proposed alignment, as the terrain is flatter and farm fields open up the view. Note that any property that touches the APE is considered within the APE so as not to exclude properties such as farms where the farm buildings could be outside the APE but the farmland is within it. East of the CNF, the topography is hillier and views are often limited. Within the CNF, the APE is irregular due to the mountainous topography and dense forest.

Considering the land use and topography of the Corridor K project area, the following is proposed as the APE:

- Properties with land within or abutting the proposed right-of-way.
- Properties within the noise impact area.
- Areas within or near the roadway corridor that may experience development pressures or changes in land use. These areas are all outside the CNF, as no new development would occur within the CNF as a result of the roadway.
- Areas within the nearby viewshed of the proposed roadway.

The APE for proposed Corridor K is delineated on Figures 4A through 4D.

3.2 Records Check

The records of the Tennessee Historical Commission (THC), Tennessee's SHPO, were consulted in June 2011. A review of the THC U.S. Geological Survey (USGS) map file (see maps in Appendix A) indicated that the following NRHP-listed resources are in the general project area:

- Burra Burra Mine Historic District
- Central Headframe
- Copperhill Historic District
- Copperhill Historic District (boundary increase)
- Ducktown Historic District
- Ocoee No. 1

Figure 4A: Surveyed Properties in Area of Potential Effect

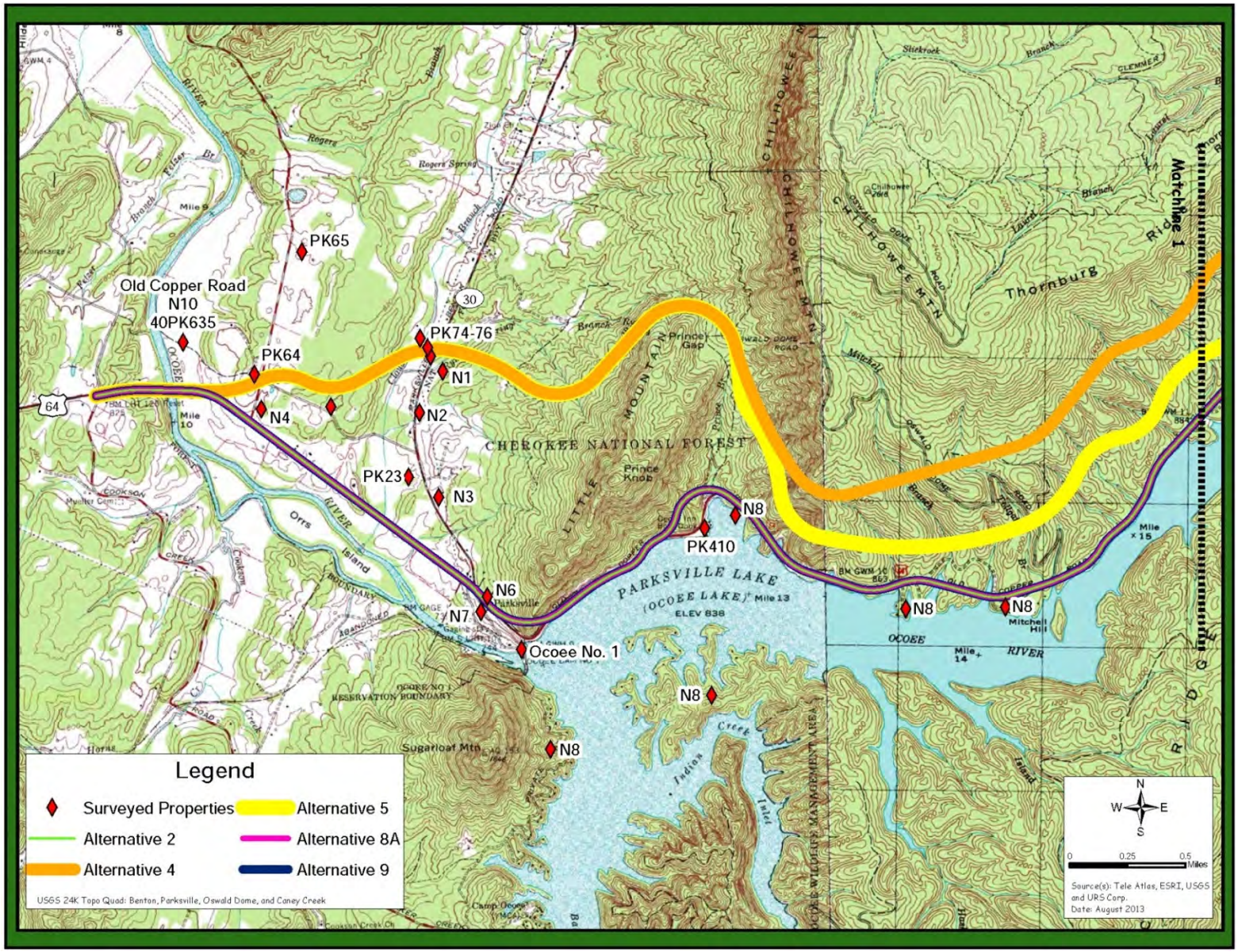


Figure 4B: Surveyed Properties in Area of Potential Effect

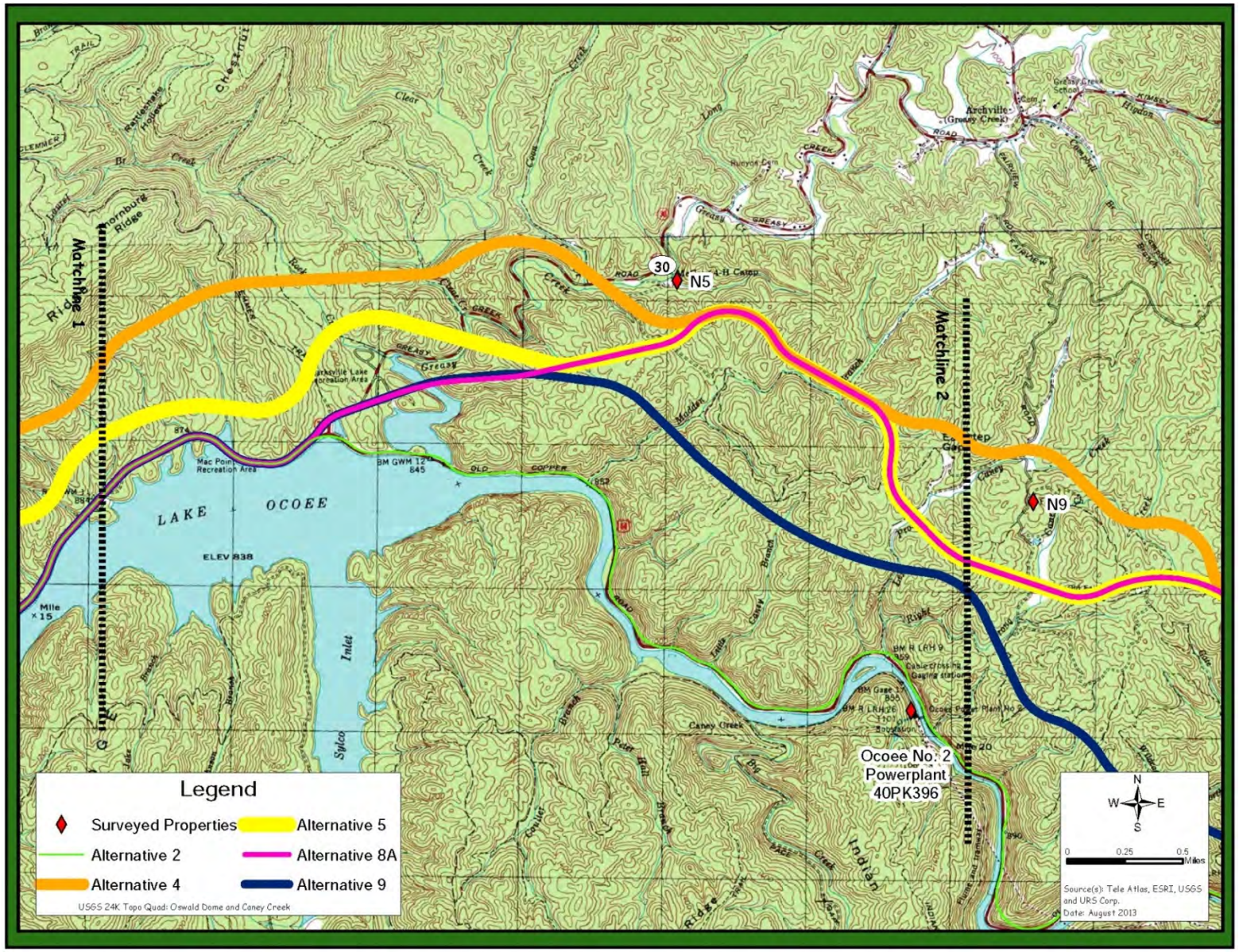


Figure 4C: Surveyed Properties in Area of Potential Effect

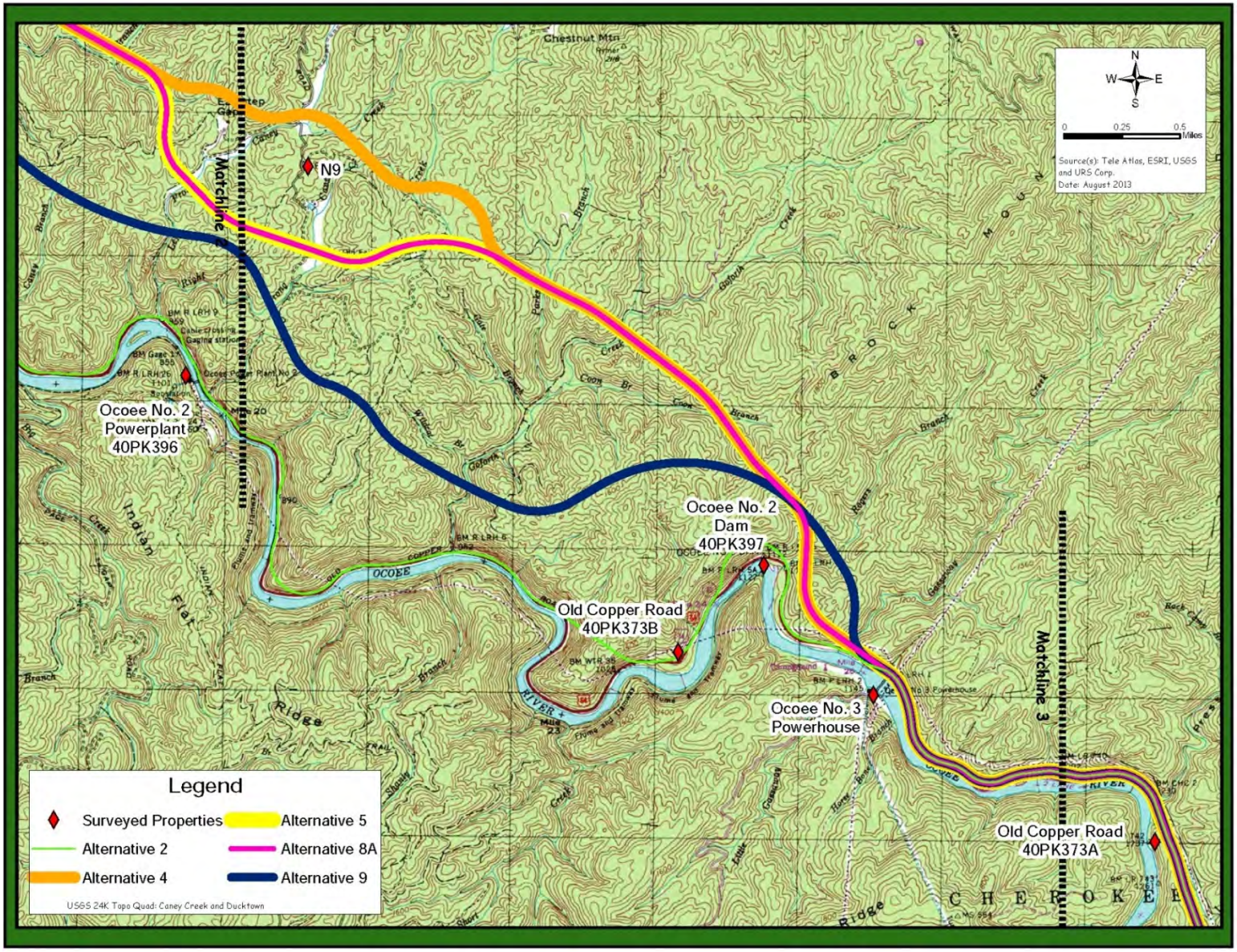
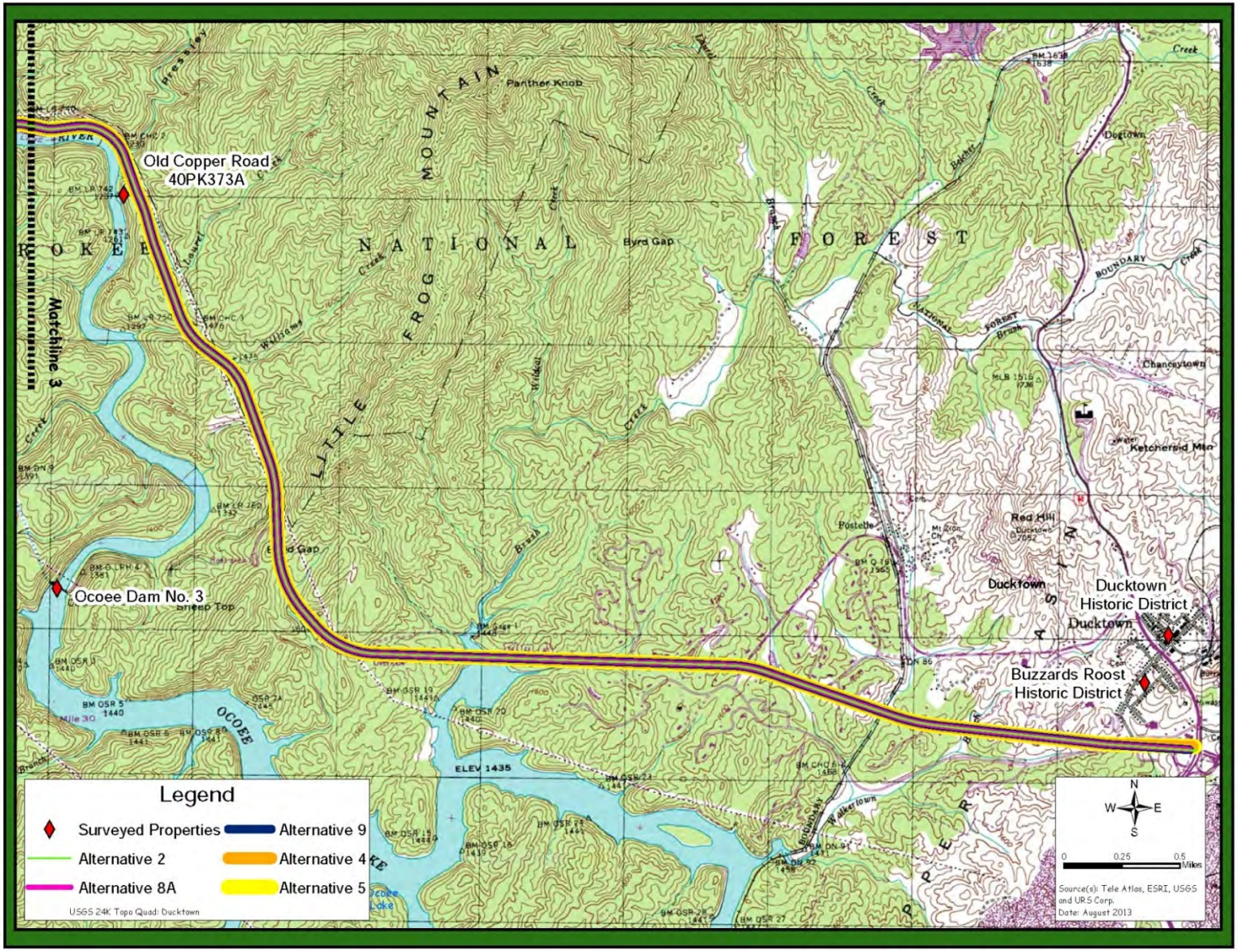


Figure 4D: Surveyed Properties in Area of Potential Effect



The THC records also included:

- Multiple Property Documentation Form—Historic Resources of the Tennessee Copper Basin;

- A Consensus-level Determination of NRHP Eligibility for Old Copper Road (extant segment at Ocoee Whitewater Center);

- Polk County Information Files—contained "Inventory of Historic Architecture in Polk County" (Evans and Karhu, 1984), data relating to a 2005 Section 106 review of "Recreational Residences" in the CNF and other general information.

The Consultant also checked the records of the historic preservation section at the TDOT Environmental Division in Nashville. This check revealed three prior architectural/historical surveys had been completed to comply with Section 106 of the National Historic Preservation Act for the earlier concepts for the U.S. 64/Ocoee Gorge Bypass (Corridor K) and the spot improvements on U.S. 64 in the Ocoee Gorge. The studies are:

- *Architectural/Historical Assessment for the Proposed Improvement of State Route 40, 1.0 Mile West of State Route 30 to 0.1 Mile east of Gassaway Creek, Polk County*. 1988. Author: Margaret Slater, Tennessee Department of Transportation.

- *Architectural/Historical Survey and Assessment of Effects for the Spot Improvements to U.S. 64 (SR 40), Polk County*. 1997. Author: Margaret Slater, Parsons Brinckerhoff.

- *Architectural/Historical Survey and Assessment of Effects, Improvements to U.S. 64 (State Route 40) From U.S. 411 to State Route 68, Polk County*. 2000. Author: Margaret Slater, Parsons Brinckerhoff.

The SHPO concurred with the findings of these studies. NRHP-eligible or listed resources identified in these studies were Ocoee Powerplants No. 1, No. 2, and No. 3. The section of Old Copper Road at today's Ocoee Whitewater Center and another segment near Ocoee No. 2 had been determined NRHP-eligible through Section 106 and as part of planning for the 1996 Olympic Whitewater Event. The eligibility of the extant sections of Old Copper Road was addressed in the archaeological reports prepared by DuVall & Associates for TDOT in 2001 and 2002 and the SHPO concurred that the resource remained eligible.

The Consultant also conducted research at the Tennessee State Library and Archives, reviewing a number of resources from the shelves and book stacks. Information was also gathered from sites in the project area, such as the Ducktown Basin and Burra Burra Mine museums.

Quentin Bass of the USFS was also queried for information on historic properties within the CNF. When asked about the potential NRHP eligibility of the recreational residences within the CNF, he said that no decisions had been made in the 2006 USFS/SHPO review conducted for renewal of the permit for the residences. According to Mr. Bass, the recreational residences date as early as the nineteen

teens, and many of the residences have been substantially altered. Some of the residences are on the south side of the lake/river and two groups are on the north side—one is near the CNF Ocoee Ranger Station and the other is in the vicinity of the Ocoee Inn and Marina. He provided TDOT with a copy of an old publication that contained historic photographs of some of the recreational residences.

TDOT also contacted TVA Historian Chester Peebles. He was unaware of any TVA studies conducted to identify cultural resources within the area of the Corridor K project area. He mentioned the three Ocoee hydroelectric stations and the fact that the bridge to Ocoee No. 3 had been rebuilt (date unknown).

3.3 Field Review

On June 27–30, 2011, a field review of the general project area was conducted. All accessible roadways in the area were driven. In addition, previously surveyed properties (both eligible and not eligible) were revisited. Digital photographs were taken of all resurveyed and newly surveyed resources. Appendix C contains a map showing the roadways that were driven during the survey.

A second field review occurred on August 29–31, 2011. The emphasis of the field review was the recreational residences. On August 29, representatives of the SHPO, the TDOT Environmental Division, the USFS CNF, and the project Consultant's lead engineer and historian took a boat trip to look at the group of residences that were accessible only by boat. Over the next two days, the Consultant surveyed all the recreational residences in the potential project APE. Additionally, USFS CNF staff assisted the Consultant with a review of the records for each recreational residence. During this second field review, a determination was also made of whether NRHP-listed and -eligible properties were in the project APE and whether they retained their NRHP eligibility status.

3.4 Architectural/Historical Survey Findings

The survey identified two NRHP-listed properties in or immediately adjacent to the APE and two properties that had previously been determined NRHP-eligible on a consensus level through the Section 106 process. Table 2 lists these resources. Table 3 shows properties that had been previously surveyed as part of a county-wide historic building survey. Some of these properties had been previously determined ineligible for the NRHP through the Section 106 process, but they were reexamined in the 2011 survey. Table 4 shows properties surveyed in 2011 within the project APE that approach or exceed 50 years of age and were not previously surveyed.

The locations of the properties in Tables 2, 3, and 4 are shown on Figures 4A through 4 D.

Several of the NRHP-listed properties in the general project area (listed in Section 3.2) were determined to be outside the project APE, because they are too far away from the project to be affected (see Figure 4D). These properties are:

- Burra Burra Mine Historic District
- Central Headframe

- Copperhill Historic District
- Ducktown Historic District
- Kimsey Junior College/Ducktown Elementary School

Table 2: NRHP-listed or Previously Determined Eligible Properties in APE

#	Property Name	NRHP status	Location	Advance to NRHP Eligibility and Section 106 Effects Assessment
H-1	Ocoee No. 1 (PK 395)	Listed	Existing U.S. 64	Yes
H-2	Ocoee No. 2 (PK 396-397)	Listed	Existing U.S. 64	Yes
H-3	Ocoee No. 3	Determined Eligible [a]	Existing U.S. 64	Yes
H-4	Old Copper Road PK373A and PK 373B	Determined Eligible [a]	2 separate sites--East of Ocoee Whitewater Center and near Ocoee No. 2, south of U.S. 64	Yes

[a] Section 106 consensus-level determination

Table 3: Previously Surveyed Properties

Property Name / Location	Advance to NRHP Eligibility and Section 106 Effects Assessment	Photograph
PK 64 Fetzer House/ Welcome Valley Road	Not assessed in 2000 report, as it was outside the APE. The owner said that the property has mostly remained in his family since around 1904. Of the original 122 acres, 100 remain. The house was remodeled in 1969. The 2011 evaluation revealed that the house is radically altered and the farmstead surrounding the house does not represent a historic farm in its buildings or current use. A large portion of the former farm fields are used for a commercial corn maze. The Consultant found no known historic or architectural significance associated with the property. Because of alterations and lack of historic significance, in the opinion of TDOT,	

Table 3: Previously Surveyed Properties

Property Name / Location	Advance to NRHP Eligibility and Section 106 Effects Assessment	Photograph
	the property is not eligible for the NRHP and warrants no further analysis.	
PK 65 Welcome Valley Road	Not assessed in 2000 report, as it was outside the APE. The house stands on farmland, but there are no historic agricultural buildings extant. The house is log, with extensive side and rear additions. The log portion has been altered with new windows and doors, chinking, metal roof and shed porch. Behind the house are a large modern carport and a small restored log pen. Because of the extensive alterations and the lack of known historic significance, in the opinion of TDOT, the property is not eligible for the NRHP and warrants no further analysis.	
PK 73 Ferguson-Raines House / Parksville Road (SR-314)	Not Eligible in 2000 report. In 2011, examination of this vacant log house revealed that it is highly deteriorated and is too altered and lacks sufficient architectural integrity to be NRHP-eligible. In the opinion of TDOT, the 2000 opinion of “not eligible” remains valid. This property warrants no further analysis.	
PK 74 Parksville Road (SR-314)	This property was outside the APE in 2000. This 4-acre property has been owned for five years by Stanley Stennett. A deed shows the date of construction as 1926. It has substantial alterations including new siding, doors and windows. The owner stated that the interior has been remodeled. Because of alterations and lack of architectural or historic significance, in the opinion of TDOT, the property is not eligible for the NRHP and warrants no further analysis.	
PK 75	GONE	

Table 3: Previously Surveyed Properties

Property Name / Location	Advance to NRHP Eligibility and Section 106 Effects Assessment	Photograph
PK 76 Parksville Road (SR-314)	This property was outside the APE in 2000. Fifty-year resident Dorothy Blackwell said this ca. 1920s house was known as the "McNally Place." The house has been expanded and has new siding and windows. The south end and porch were added in 1965. The garage dates to after 1961 when the Blackwells bought the property from Joe Clayton. Because of the alterations and lack of architectural or historic significance, in the opinion of TDOT, the property is not eligible for the NRHP and warrants no further analysis.	
PK 410 Ocoee Inn and Marina (U.S. 64)	The property was recommended Not Eligible in the 2000 report – the SHPO concurred. In 2011, the Consultant retains the recommendation of "Not Eligible." Numerous highly visible and key elements post-date 1957 and many alterations have occurred to almost all the buildings. Alterations include new siding, windows, doors and porches. Some buildings, such as the restaurant, have been expanded. The 1930s marina has been rebuilt. Because of the alterations to the buildings and the rebuilding of the marina, in the opinion of TDOT, the property is not eligible for the NRHP and warrants no further analysis.	

Table 4: 2011 Historic Resource Survey

Property Name/ Location	Description	Further Analysis?	Photograph
N-1 Parksville Road (SR-314)	This ca. 1930s residence is a gable front frame cottage with synthetic siding, new windows and other alterations, such as the turned porch posts. This house is a common type and does not possess architectural significance and there is no known historic significance. Due to its lack of	No	

Table 4: 2011 Historic Resource Survey

Property Name/ Location	Description	Further Analysis?	Photograph
	significance, in the opinion of TDOT, the house is not eligible for the NRHP.		
N-2 Parksville Road (SR-314)	This ca. 1930s residence is a gable front frame cottage that has been radically altered with synthetic siding, new windows and several additions. This house is a common type and does not possess architectural significance and there is no known historic significance. Due to its lack of significance, in the opinion of TDOT, the house is not eligible for the NRHP.	No	
N-3 714 Parksville Road (SR-314)	This house appears to date to the 1920s-30s. It is a modest gable-front bungalow, with an offset gabled porch. It has stone-faced exterior walls and stone lug sills. Some of the windows and the front door are replacements. The brick chimney and the gables have been stuccoed over, likely in recent years. This property has no known historic significance. Architecturally, the property is a modest, somewhat altered Bungalow from the early twentieth century. The house is not of a significant architectural type. For these reasons, in the opinion of TDOT, the property is not eligible for the NRHP.	No	
N-4 Rogers Century Farm (Welcome Valley Road)	This property is a Century Farm and has been identified in the public involvement process as potentially historic.	**Yes**	

Table 4: 2011 Historic Resource Survey

Property Name/ Location	Description	Further Analysis?	Photograph
N-5 4H Camp McCroy (SR-30)	The Consultant spoke with the manager of the current 4H camp. The camp was originally a Civilian Conservation Corps (CCC) camp, Camp Hickory. All that remains from the CCC era are some foundations and the flag pole base. The 4H camp began to be developed in the 1960s when a number of the current buildings were constructed. Several of these 1960s-era buildings have been altered and expanded. The site does not represent the CCC era and its 1960s-era 4H use, buildings and site improvements do not possess architectural or historical significance. In the opinion of TDOT, this resource is not NRHP-eligible.	No	
N-6 TVA Police at Ocoee No. 1 (U.S. 64)	This building is across U.S. 64 from Ocoee No. 1 and was assessed in 2000 as part of an analysis to expand the NRHP boundary of Ocoee No. 1. This expansion was concurred with by the SHPO in the Section 106 process, but did not include this property. This is a ca. 1925–39 residential structure, originally associated with Tennessee Electric Power Company and currently in government/office use. By 1965, the building is shown as outside the TVA Ocoee No. 1 Reservation boundary. The wood-frame, stuccoed building has Tudor details of half-timbering in its gables. Modern alterations have damaged the integrity of the building, including 1:1 replacement windows, new doors, closing in of the original front entrance/porch and addition of a modern entrance	No	

Table 4: 2011 Historic Resource Survey

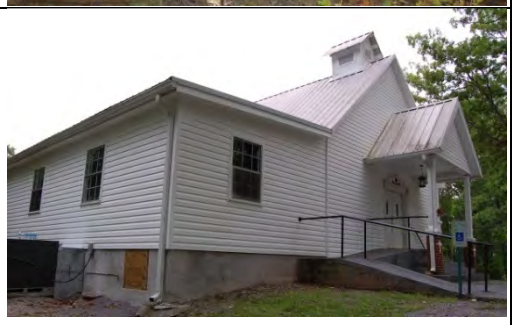
Property Name/ Location	Description	Further Analysis?	Photograph
	porch and deck on the side of the building. In the opinion of TDOT, alterations to this house have damaged its integrity to a point where it is not eligible for the NRHP.		
N-7 Three Former Residences at Ocoee No. 1 (U.S. 64)	These buildings were assessed in 2000 as part of an analysis to expand the NRHP boundary of Ocoee No. 1. This expansion was concurred with by the SHPO in the Section 106 process, but did not include these houses, which are on TVA's Ocoee No. 1 property. These structures are all associated with the first quarter century of Ocoee No. 1 operations.	**Yes**	
N-8 CNF Recreational Residences (Various Locations)	The USFS has permitted properties within the CNF for residential use. Since the early twentieth century, over 60 recreational residences have been built around Parksville Lake.	**Yes**	
N-9 Fairview Baptist Church (Fairview Road)	This church was established in 1894, originally on land donated by Albert Frisby. At a later date, the church moved 0.5 mile onto 2 acres of land donated by Frank Brock. The cemetery adjacent to the church has no graves dating before 1940, so it is assumed that the church likely was built around that time. The church building has had so many alterations on the interior and exterior that a date cannot be determined. The building today has modern siding, modern windows and	No	

Table 4: 2011 Historic Resource Survey

Property Name/ Location	Description	Further Analysis?	Photograph
	doors, a new front portico, and numerous rear additions, including a new fellowship hall at the rear. The interior has dropped ceilings and modern chandeliers and carpeting. In the opinion of TDOT, the church is not NRHP-eligible as it possesses no architectural or historical significance and it has been substantially altered.		
N-10 Site PK635, Old Copper Road between Hooker Road and Ocoee River	This previously unevaluated resource is an extant section of Old Copper Road.	**Yes**	
N-11 Cabin at Ocoee River Bridge	Access to this cabin was denied. It is a log cabin with many modern alterations, including non-historic doors, windows and porticos, and cut-in window openings and AC unit openings as well as a side addition.	No	

In the opinion of TDOT, the only properties in Table 4 that warrant further evaluation for NRHP eligibility are:

- N-4, Rogers Century Farm
- N-7, Three Former Residences at Ocoee No. 1
- N-8, CNF Recreational Residences
- N-10, 40PK645, Old Copper Road between Hooker Road and Ocoee River

The other five resources, N1, N2, N3, N5, N6, N9, and N-11, are common types and styles and do not possess architectural significance and/or integrity (resulting from alterations) or known historical significance. N-11 has been altered and does not possess sufficient integrity to be NRHP-eligible and there is no known historical significance.

4.0 Historic Context

Polk County is located in the southeastern corner of Tennessee, bounded by North Carolina and Georgia. The county lies within the Chilhowee and Unaka mountain ranges. The Ocoee, Conasauga, and Hiwassee Rivers flow through its valleys. Much of Polk County today is encompassed by the CNF and the project is within southeast Polk County.

The subject area of Polk County developed within a number of historic contexts, and the resources extant today fit within these contexts:

- Early Settlement and Transportation
- Nineteenth-Twentieth Century Mining
- Hydroelectric Power Generation
- Cherokee National Forest
- New Deal Programs
- Cherokee National Forest
- Recreation/Tourism

4.1 Early Settlement and Transportation

Prior to 1836, the subject area of Polk County, with its eastern section known as the "Copper Basin," was composed of Cherokee lands. The Cherokees produced and smelted some copper for use in trade, but never established large mines. The 1835 Treaty of Removal forced the Cherokees to cede their land claims in Tennessee to the U.S. government. Most Cherokees in the area were forced out as part of the Indian Removal of 1838, and non-native (white) settlement began shortly thereafter.

In 1839, the Tennessee General Assembly created Polk County, which was named for the newly-elected Governor, James K. Polk. The following year, the town of Benton became the County seat.

The lands in Polk County in the vicinity of Benton and along the Ocoee River east and west of today's CNF provided fertile farmland for the early settlers and a number of small farms developed. Historian Roy Lillard wrote in his 1999 book, *The History of Polk County*, "during the first four decades of its history, the western part of Polk County was almost totally agricultural" (Lillard 1999: 142). The land within today's CNF was not well-suited for farming due to its rugged topography, but some farms developed in the upland valleys or plateaus, as did some small settlements, such as Archville.

A number of mills were built along the Ocoee River, including John and William Shield's mill at Parksville, which was built in the mid-1830s.

Construction of Copper Road through the Ocoee River Gorge between 1851 and 1853 and its improvement later by Julius Raht facilitated travel within the area and also between areas that had been physically separated by the rugged gorge.

Communities developed in the nineteenth century adjacent to the mines and mills and in the twentieth century, new communities sprang up at the hydroelectric power facilities along the Ocoee River. Communities included McCays/Copperhill and Ducktown east of the Ocoee River Gorge, Parksville west of the gorge, and Caney Creek adjacent to Ocoee No. 2 in the gorge.

In the twentieth century, Dr. Lucius Kimsey built the second major east-west road in this area of the county. The Kimsey Highway was 28 miles long and about 16 feet wide. At the July 17, 1920, dedication of the completed highway, the state governor and highway commissioner were both present. According to a 2007 history of the roadway:

> *Kimsey Highway is a very historic route through these mountains. While the present route is named for the man who had it constructed in 1920, Dr. Lucius Kimsey, it generally follows an old Cherokee Indian path across Little Frog Mountain. This route was in use by the Cherokee long before white settlers arrived. The Ocoee River Gorge was so wild, steep and dangerous that the Cherokee rarely used it preferring the route of the Kimsey Highway instead. The white settlers continued to use the Indian path until copper was discovered in Copper Hill and a new road was dug out through the Gorge between 1851 and 1853 to facilitate the hauling of copper ore to the railhead in Cleveland, TN. At this point the old Indian Trail fell into disuse until Dr. Kimsey constructed his road in 1920 (http://www.chatthiking.com/kimseyhy.html).*

Fairview and Archville are communities that sprang up along the old Cherokee Indian path, the Kimsey Highway in the twentieth century. Also in the twentieth century, Old Copper Road was rebuilt. When portions of the old road were flooded by the creation of Parksville Lake around 1910, the power company contracted with the County to rebuild part of the road. It appears that the Ocoee River crossing was shifted south at this time to just south of its current location, abandoning Old Copper Road crossing, which is thought to have been a ford. In 1931, the State built a new road that became U.S. 64. It crossed the Ocoee River just north of the 1920 crossing (the old piers remain in a field). At the entrance to the forest and through the forest, U.S. 64 followed the alignment of Old Copper Road. East of the forest, Old Copper Road was south of U.S. 64. The road was again upgraded by the State in 1957 and is today on the state and federal highway systems.

The extant segments of Old Copper Road represent this historic context as does Kimsey Highway, and the communities of Copper Hill, Ducktown, and Archville.

4.2 Nineteenth-Twentieth Century Mining

Prospectors had come to the area looking for gold, but instead found iron and copper. Shortly after the legislature created the county, a prospector discovered iron in the southeastern portion of the county near Potato Creek. According to the

Tennessee Encyclopedia the 1843 "discovery sparked interest among regional entrepreneurs and opportunists, although the lack of major roads in and out of the basin complicated early mining operations" (http://www.tennesseeencyclopedia.net).

Copper mining began in this area in 1847, and the Hiwassee mine became the first deep copper mine when it opened in August 1850.

Originally ore was hauled to Dalton, Georgia, for railroad shipment north. To develop a shipping point closer to the source, in 1851 John Caldwell commenced work on construction of a road to connect the copper mines on the east side of the Ocoee River Gorge to the markets to the west of the gorge, specifically to the railroad in Cleveland 35 to 40 miles away. Cleveland's railroad line had been completed in 1850. Cleveland was 30 miles closer than the Dalton shipping point. Caldwell hired Cherokee Indian labor to build Old Copper Road, an undertaking that took 2 years (Thieme 1991).

In 1860, several small-scale mining operations in the basin consolidated into the Burra Burra Copper Company under the direction of mining engineer Julius Raht (1826–1879). Born in Germany in 1826, by age 34, Raht was managing all the mines and smelting works at Ducktown. Raht improved Old Copper Road and set it up to accommodate hauling the copper and accommodating the haulers at a halfway house, which he owned.

Between 1861 and 1863 the Confederates supervised the mine operations, but when the railroad at Cleveland fell to the Union army, the mines closed until the war ended.

According to the *Tennessee Encyclopedia*, "the industry briefly recovered after the war due in large part to [Julius] Raht's efforts" (http://www.tennesseeencyclopedia.net). In this period following the Civil War, production was somewhat limited due to the shipping constraints of Old Copper Road, more specifically because the railroad had not come to the area. By the late 1870s Burra Burra and the basin's other mining operations were forced out of business because there was no cost-effective way of transporting ore out of the Copper Basin.

In 1890, a rail line was completed between Marietta, Georgia, and Knoxville, Tennessee, and a station opened at McCays (later Copperhill). Mining operations subsequently recommenced.

Between the end of the Civil War and the turn of the twentieth century, about 24 million tons of ore had been produced. At the turn of the century, mining, harvesting of forests to fuel the smelters, and emissions from the smelters had combined to denude approximately 32,000 acres of land, creating a barren landscape that was visible from outer space.

In the twentieth century, the basin's products diversified from copper, producing TNT, copper sulfate, iron concentrate, zinc concentrate, sulfuric acid, and liquid sulfur dioxide. In 1963, Citiservices purchased the Tennessee Copper Company, which in 1982 became the Tennessee Chemical Company. Five years later (1987) an announcement came that the mines would be closed. On July 31, 1987, mining ceased in the Copper Basin, but chemical processing continues.

Reforestation efforts began in the 1920s and 1930s. In 1941, a CCC camp was established in the basin to enhance tree planting efforts. Today, while the environmental impacts of mining are still visible, the effects have been partially reversed through ongoing soil reclamation efforts.

Old Copper Road, Ducktown, and Copper Hill represent this historic context.

4.3 Hydroelectric Power Generation

In the early twentieth century, J.W. Adams, a prominent Chattanooga contractor, began promoting the harnessing the Ocoee River to provide power to Chattanooga and other regional cities. C.M. Clark of Philadelphia formed the Eastern Tennessee Power Company to build a facility to generate electricity, which is known today as Ocoee No. 1. J.G. White Engineering Company of New York designed the plant with assistance from hydraulic engineer W.P. Creager. Work began in 1910 with the construction of labor camps and the following year laborers poured the first concrete. The dam and adjacent power plant began operations in 1912. Two years later, the company completed the Ocoee No. 2 plant. Together, these two facilities supplied power to Cleveland, Chattanooga, Athens, Sweetwater, Loudon, Lenoir City, and Knoxville, Tennessee and to Rome and Dalton, Georgia.

The Eastern Tennessee Power Company operated the plants until Ocoees No. 1 and No. 2 and many other companies were absorbed by the Tennessee Electric Power Company (TEPCO), which became a private, electrical power monopoly in Tennessee's early twentieth century (Jones, 2012).

In turn, the Ocoees were absorbed by TVA as a result of a U.S. Supreme Court decision in 1939. TVA, an independent public corporation, was founded by Congress under the TVA Act of 1933 in the first 100 days of the administration of Franklin D. Roosevelt and his "New Deal." Its mission was to control flooding, improve navigation, assist farmers, provide cheap electric power, and make "surveys of and general plans for [the Tennessee River] basin and adjoining territory . . . for the general purpose of fostering an orderly and proper physical, economic, and social development" of the Tennessee Valley (Tennessee Valley Authority Act of 1933).

President Roosevelt envisioned TVA as a totally different kind of agency and asked Congress to create "a corporation clothed with the power of government but possessed of the flexibility and initiative of a private enterprise" (http://www.tva.com/abouttva/history.htm). Roosevelt envisioned an agency that would be operated like a corporation and would have governmental authority, but would be flexible and open to initiative like a private enterprise. He intended that the work of TVA would include seven states within the Tennessee River Basin: Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, and Virginia. He stressed that in order to address the dire economic conditions of the region he intended TVA to have extremely broad powers in the area of unified regional planning and economic development. His view comprised a "bold experiment in regional development, with hopes that if successful, the plan might be utilized elsewhere" (http://www.tva.com/abouttva/history.htm).

In 1943, a third dam and powerhouse were added to the Ocoee system, Ocoee No. 3. TVA continues to operate the three Ocoee plants, as well as many other power-

generating plans in the region. It has jurisdiction over the Ocoee River from Ocoee No. 3 downriver to Ocoee No. 1 and controls the land along the river up to the high water mark.

Extant resources that represent this historic context include the three Ocoee hydroelectric facilities, Parksville Lake, and a small number of the recreational residences along the shores of Parksville Lake.

4.4 New Deal Programs

On March 31, 1933, President Franklin D. Roosevelt signed legislation creating the Civilian Conservation Corps (CCC), which gave young men the opportunity to develop new skills during the Depression era to prepare them for future employment. Nationally, it provided unskilled manual labor for the conservation and development of natural resources on lands owned by federal, state, and local governments. The New Deal's CCC worked to rebuild the national forests throughout the 1930s by planting hundreds of thousands of seedlings. The new trees aided drainage and soil conservation. The CCC also constructed trails, fire towers, recreation facilities, and local roads and highways.

Tennessee's total number of CCC companies reached its peak in July 1937, when the state supported 46 camps. The CNF contains a wide range of CCC-constructed camps and recreation areas, in varying states of preservation. Polk County's CCC camps included Old Hickory at Archville (today Camp McCroy 4H), Cleoga (Cherokee Chief) at Sylco, Camp Andrew Jackson at Tumbling Creek and Turtletown, Company 296. Each camp had a maximum of 240 men. By the time the CCC disbanded in 1942, more than 70,000 Tennesseans had served (National Park Service, 2012).

At the onset of World War II, the United Daughters of the Confederacy (UDC) in cooperation with the USFS, commemorated the sacrifice of Tennessee Confederate soldiers by creating a living memorial within the CNF. The CCC planted the seedlings provided by the UDC in an area in need of reclamation from the damages of the mining industry, creating a "Memorial Forest" on a 100-acre tract along the south side of U.S. 64 (east of the Ocoee Whitewater Center). The UDC dedicated the memorial forest in 1942 to the 115,000 Tennessee "boys in grey." A sign along U.S. 64 marks the location of the Memorial Forest, but unfortunately the Southern Pine Beetle destroyed many of the trees planted in the 1940s.

Resources representing this historic context are the remains of the Old Hickory Camp at Archville (today Camp McCroy 4H) and the site of the Memorial Forest.

4.5 Cherokee National Forest

The CNF, Tennessee's largest wildlife management area and single largest tract of public land, is the only national forest in the state. Its creation followed the Weeks Act of 1911, which gave the federal government the authority to purchase private land for the creation of national forests as a way to regulate the flow of navigable streams and timber production. Unregulated logging and mining had taken a toll on the state's forestlands. The Weeks Act appropriated $9 million for the purchase of 6 million acres of land in the eastern United States; acquisition of land that would

later become the CNF began in 1912. The land acquired included large tracts of over logged mountain lands acquired from commercial logging companies.

In 1920, President Woodrow Wilson created the first national forests in Tennessee. However, it was not until 1936, when President Roosevelt combined the Tennessee sections of the Unaka, Cherokee, and Pisgah National Forests, that the CNF was established in its present form. Today, its 650,000 acres are entirely within the borders of Tennessee, from Bristol to Chattanooga, and are divided into two sections by the Great Smoky Mountains National Park (http://www.tennesseeencyclopedia.net).

Since World War II, the CNF has been managed under a multiple use policy, which includes fire control and timber stand improvement and management as well as management for wildlife, soils, recreation, and cultural resources. Millions of people visit the CNF and its managed recreation areas each year to enjoy the scenery and recreational opportunities such as hiking, whitewater rafting, kayaking, camping, mountain biking, fishing, hunting, canoeing, driving for pleasure, horseback riding, and Off-Highway Vehicle (OHV) riding. The Ocoee River and the Appalachian Trail are recognized internationally for their recreational qualities. The forest also contains many cultural properties within its boundaries, and the USFS and other preservation groups work to document, interpret, and protect these nonrenewable resources.

Resources representing this historic context include, but are not limited to, post-1936 recreational residences.

4.6 Recreation/Tourism

The CNF and the rivers within it provide many recreational opportunities. Historically, the area has drawn tourists and today, recreation is a huge draw for tourists.

In 1936, Ed and Mabel Lowe leased land from TEPCO and built a marina on the north shore of Parksville Lake. In the late 1930s or early 1940s, they constructed a restaurant and tourist cabins on the hill above the marina. When U.S. 64 was improved in 1958, the road alignment was shifted to the north, providing more developable land on today's Ocoee Inn site. A new and larger restaurant was then built on the site, and the former restaurant was converted to a motel.

While TVA's stated purpose for managing the Ocoee River remains "power generation," they have granted recreational use of the river through regular releases of water from TVA's dams. Such recreation really took off when the Ocoee No. 2 flume was closed for repairs in 1976. This closure filled the Ocoee River channel with water that had previously been diverted through the flume. Word spread and boaters began showing up to the Ocoee with army surplus rafts to run the 5 miles of whitewater rapids. At first TVA opposed the use of the river for recreation, but in 1977 they agreed to schedule water releases into the river, and commercial rafting found a home on the river. For 6 years while the flume was under repair water was available daily. Upon completion of the flume repair, TVA agreed to a regular schedule of water releases for recreational use. The dams have provided many visitors with opportunities to traverse the river's rapids and have made the Ocoee River one of the premier sport rivers in the Southeast. The river served as the site of

the 1996 Summer Olympics whitewater competitions and the Ocoee Whitewater Center was built at the site.

The forest provides many opportunities for swimming, picnicking, camping, fishing, and boating, as well as scenic vistas for drivers. U.S. 64 through the Ocoee River Gorge and the road up Chilhowee Mountain comprise the first National Scenic Byway designated by the USFS. The forest also features many hiking and mountain biking trails and numerous picnic areas and there are a number of scenic overlooks within the forest.

In 1996, the Ocoee Whitewater Center was built for the 1996 Olympic whitewater kayaking events, which were held on the Ocoee River. It is located on the south side of U.S. 64, abutting the existing roadway. The facility serves today as a visitor center and a center for environmental education classes for children and adults. A 10-mile long system of hiking and biking trails, as well as interpretive trails, gardens, and picnic areas, surrounds the Center. Expanded recreational opportunities are anticipated in the near future as an additional 44 miles of trails are built and opened to the public.

Resources representing this context include the Ocoee Inn and Marina and the Ocoee Whitewater Center.

5.0 Assessment of NRHP Eligibility and Section 106 Effects

In this section, TDOT undertakes the following for resources within the APE that were identified in Chapter 3 as warranting assessment for NRHP eligibility and Section 106 effects:

- Assesses the continued NRHP eligibility of NRHP-listed resources. For resources that remain NRHP-eligible, effects are assessed pursuant to Section 106.

- Assesses the continued NRHP eligibility of resources that were previously determined eligible. For resources that remain NRHP-eligible, effects are assessed pursuant to Section 106.

- Assesses the NRHP eligibility of resources that have not previously been assessed for NRHP eligibility. For resources recommended as eligible, effects are assessed pursuant to Section 106.

The NRHP eligibility assessments have been undertaken by TDOT using the criteria set forth in 36 CFR 60.4. The project's impacts to the NRHP-eligible or listed resources are evaluated under Section 106, as outlined in the regulations set forth in 36 CFR 800. The regulations state that if historic properties are present and may be affected by the proposed undertaking, an assessment must be made as to whether the proposed project will have an adverse effect on the property. This is accomplished by applying the Criteria of Adverse Effect, set forth in 36 CFR 800.5:

(1) *Criteria of adverse effect*. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

(2) *Examples of adverse effects*. Adverse effects on historic properties may include:

(i) Physical destruction of, or damage to, all or part of the property;

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;

(iii) Removal of the property from its historic location;

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;

(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

5.1 NRHP-listed Resources

5.1.1 Ocoee No. 1

History: Ocoee No. 1 was built by the Eastern Tennessee Power Company. Work began in 1910 and in 1912 the dam and powerhouse were in operation. This was the first of three facilities on the Ocoee River intended to provide power to the region and was the first hydroelectric facility in the state of Tennessee that was large enough to provide power to Chattanooga and other regional cities (Jones, 1990). In 1922, the Eastern Tennessee Power Company merged with several other companies to form TEPCO, which assumed operation of the two completed facilities on the Ocoee River, Ocoee No. 1 and Ocoee No. 2. In 1939, TVA acquired the hydroelectric plants on the Ocoee River and continues to operate them today.

Description: This resource is located along the south side of U.S. 64 at Parksville, just outside the western boundary of the CNF. The TVA reservation for Ocoee No. 1 contains the dam and powerhouse, which are listed in the NRHP, and the stockroom and transformer that were added to the NRHP-eligible boundary on a consensus level in 2000 as part of the Section 106 process. These buildings comprise the NRHP-eligible portion of the larger site.

The dam is a concrete gravity structure, 135 feet high and 840 feet long. The structure creates Parksville Lake to the east. The brick powerhouse stands adjacent to the dam, as shown in Photograph 1. Also adjacent to the dam is the ca. 1912 transformer, which is a metal structure on a concrete pad and the ca. 1912 stock room, which is a one-story brick building with multi-paned windows in each bay.

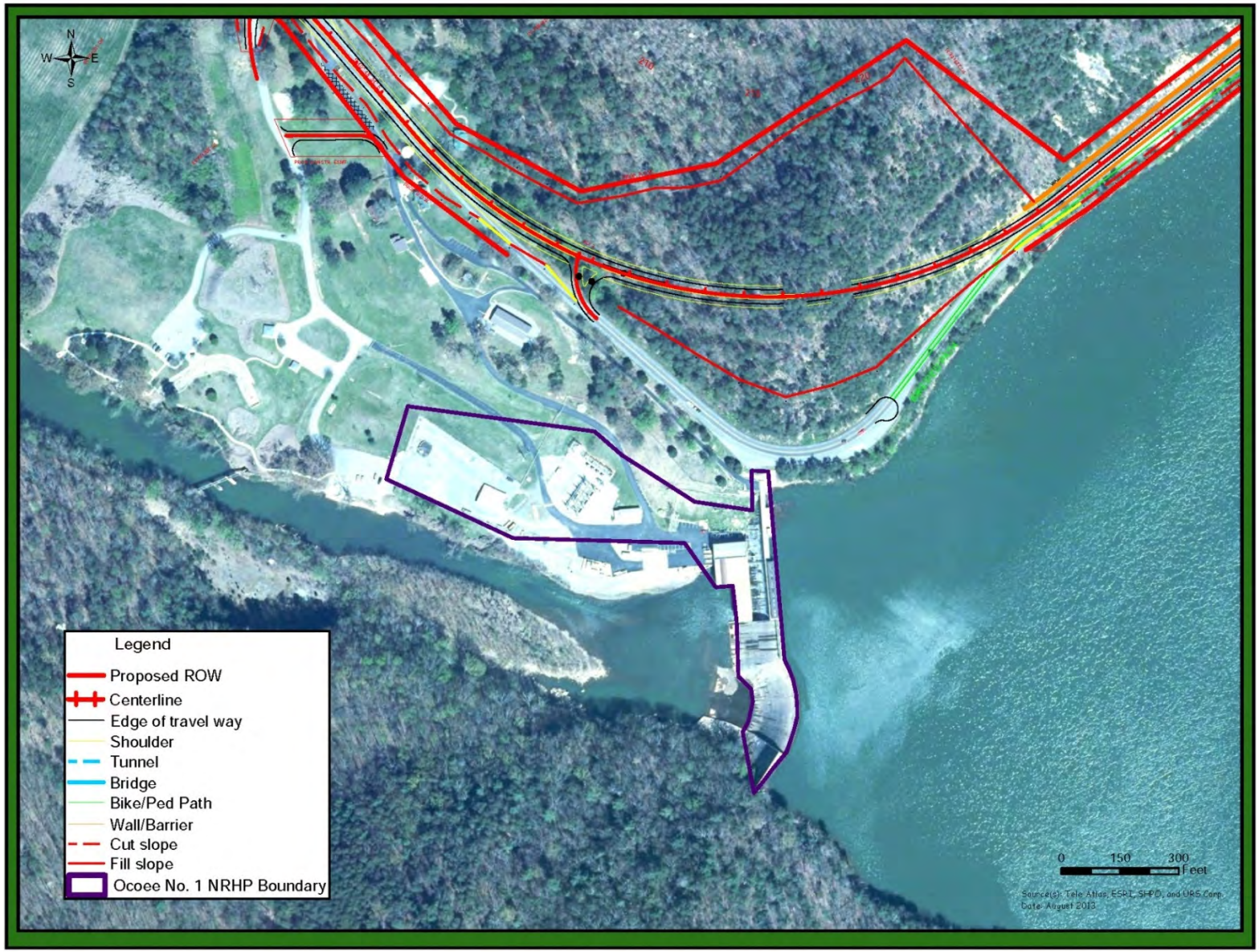
Other buildings on the reservation are outside the eligible NRHP boundary and are a mixture of older and modern structures. The older structures that date to the first half of the twentieth century have been altered and have lost their integrity and/or are too far from the eligible boundary, and intrusive elements would have had to be included to expand the boundary to include these properties. A complete inventory and assessment of the site is contained in the 2000 Architectural/Historical Assessment on file in the TDOT Environmental Division in Nashville.

Photograph 1: Ocoee No. 1 – View east at the Ocoee No. 1 Dam and Powerhouse.

NRHP Eligibility Assessment: The Ocoee No. 1 Hydroelectric Station/Parksville Dam was listed in the NRHP in 1990 for its significance in the areas of commerce, engineering, and planning and community development. Its NRHP boundary included the dam and powerhouse footprints. In the *Architectural/Historical Assessment and Assessment of Effects* report (Slater 2000), the author recommended that the NRHP boundary be expanded to include the Transformer and the Stock Room. The SHPO concurred that the resource retained its NRHP eligibility and with the recommended expansion of this boundary for Section 106 purposes. The boundary expansion concurred to by the SHPO is in Appendix D. In 2011, the Consultant's opinion is that the resource retains it NRHP eligibility and that the 2000 expansion of the boundary and the justification for it presented in the 2000 report remain valid.

Assessment of Effects: Alternative 2 involves improvements in the vicinity of Ocoee No. 1; however, it diverges from existing U.S. 64 about 900 feet west of the facility and passes north of the existing roadway and behind a knob. It connects again with existing U.S. 64 over 1,000 feet east of Ocoee No. 1. The project involves leaving existing U.S. 64 open along the north side of the property to serve as an access road and it is proposed to terminate in a cul de sac east of the dam. The existing overlook and interpretive signage would remain accessible. The project would take one building on the site that serves for TVA administrative purposes and would require reconfiguration of access from the unaffected driveway to the two administrative buildings that would remain. Figure 5 illustrates the project in the vicinity of Ocoee No. 1.

Figure 5: Alternative 2 in Vicinity of Ocoee No. 1.



The Criteria of Adverse Effect are applied below.

(i) Physical destruction of or damage to all or part of the property;

The project would not encroach upon the NRHP-eligible boundary of Ocoee No. 1.

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;

The project would not alter the historic property.

(iii) Removal of the property from its historic location;

The proposed project would not result in the removal of an NRHP-listed property from its historic location. Consequently, this criterion does not apply.

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;

The project would not result in changes to the property's use. No physical features that contribute to the historic significance of the resource would be affected.

(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;

Alternative 2 would be built behind a knob in the vicinity of the dam and powerhouse. Consequently, it would have no visual, atmospheric, or noise impacts that diminish the property's significant historic features. Photographs 2 and 3 illustrate the knob adjacent to the dam and powerhouse.

Photograph 2: Ocoee No. 1 – View north from within expanded NRHP boundary.
Alternative 2 would be behind the knob and would not be visible.

Photograph 3: Ocoee No. 1 – Powerhouse and dam are to the left of this photo.
Alternative 2 would be behind the knob on the right.

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization.

This criterion does not apply.

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

This criterion does not apply.

5.1.2 Ocoee No. 2

History: Three years after completing Ocoee No. 1, the Eastern Tennessee Power Company added Ocoee No. 2 to the Ocoee system of hydroelectric facilities. Work began in 1912, the dam was completed in 1913, and its two generators went online in October of that year.

As previously stated, the Eastern Tennessee Power Company, which had merged with several other entities to form TEPCO in 1922, operated Ocoee No. 2. The facility consisted of a dam and a flume that diverted water from the dam and connected to the powerhouse. After TVA bought TEPCO in 1939, they made several improvements to the facility, which remains in operation today.

Description: The facility consists of a rock-filled, crib-type dam 30 feet high and 450 feet long. The powerhouse is 5 miles downstream from the dam. Connecting the dam and powerhouse is a flume that consists of a wooden trough situated upon a shelf carved out of the cliffside. The trough carries the water to a point just above the powerhouse where it drops the water 250 feet through two large steel pipes to the powerhouse below. Photographs 4 through 7 illustrate the facility's components.

The dam spans the Ocoee River near Rogers Branch. The 5-mile long flume is on the south side of the river on the side of the hill. The brick powerhouse stands on the south side of the Ocoee River near Caney Creek and is accessed via a bridge from U.S. 64. The large steel pipes that transport water from the flume are clearly visible at the south side of the powerhouse.

Photograph 4: Ocoee No. 2 – View east at Ocoee No. 2 Dam.

Photograph 5: Ocoee No. 2 – View south at portion of flume.

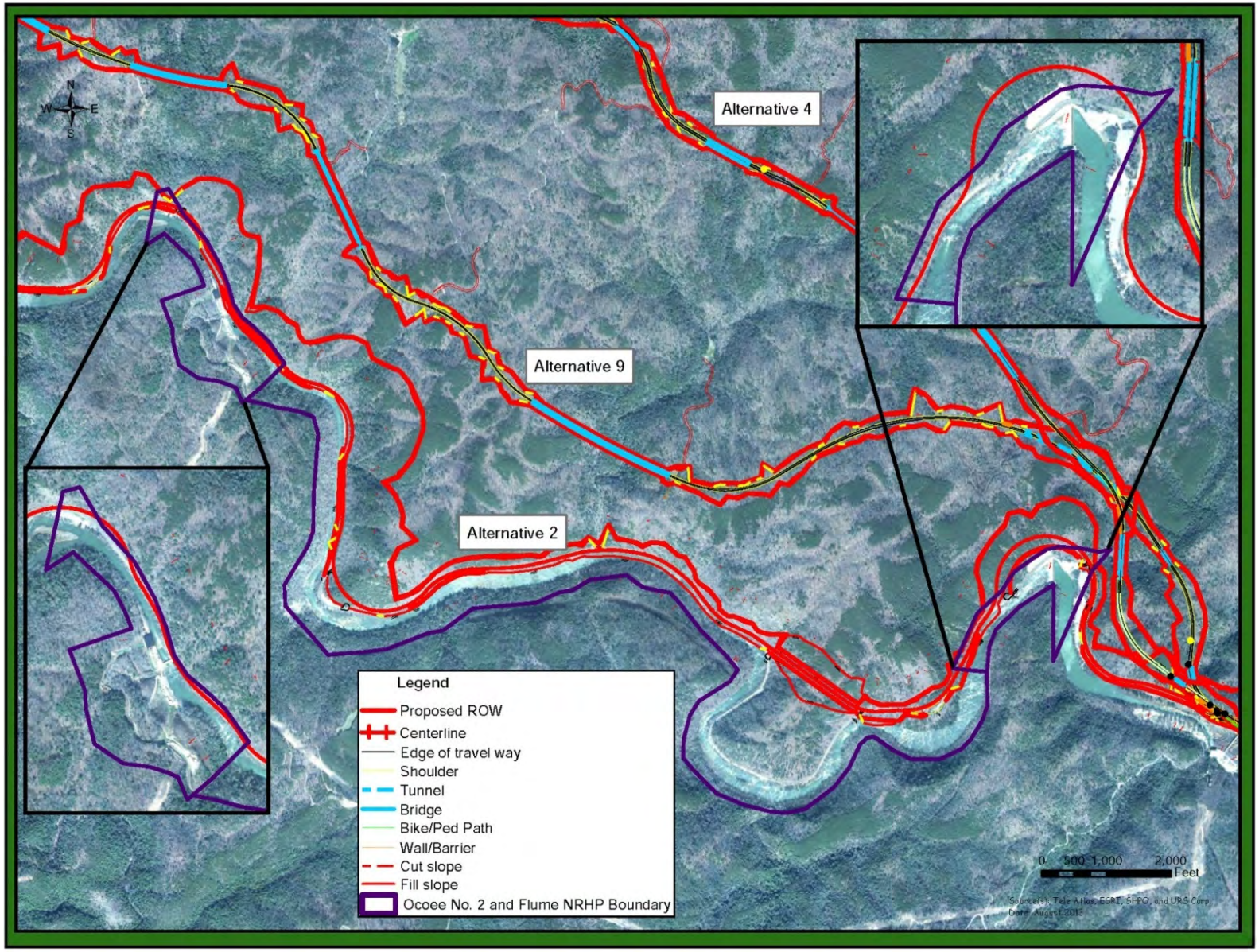
Photograph 6: Ocoee No. 2 – View southwest from U.S. 64 at Ocoee No. 2 Powerhouse and transport pipes from the flume to the Powerhouse (in background).

Photograph 7: Ocoee No. 2 – View from U.S. 64 across bridge.

NRHP Eligibility Assessment: In the opinion of TDOT, Ocoee No. 2 retains its significance and integrity and remains eligible for the NRHP. When listed in the NRHP in 1979, it was significant in the areas of industry and engineering. TDOT is also of the opinion that its NRHP boundary is valid (see boundary map in Appendix D.) The boundary includes the TVA reservation property containing the dam on the east and the powerhouse on the west and a 100-foot wide corridor centered on the flume between the dam and the powerhouse. The boundary also crosses over to the north side of U.S. 64 at both the dam and powerhouse.

Assessment of Effects: Alternative 2 is the only alternative in the vicinity of this resource. The alternative involves improvements to existing U.S. 64, which would be widened through this area. The widening would involve cutting into the slope on the north side of U.S. 64 to accommodate the new lanes and rock catchment areas. Cuts into the slope could be substantial. Figure 6 illustrates the project in the vicinity of Ocoee No. 2.

Figure 6: Project Alternatives in Vicinity of Ocoee No. 2.



The Criteria of Adverse Effect are applied below.

(i) Physical destruction of or damage to all or part of the property;

Alternative 2 of the project would take land from within the NRHP boundary across U.S. 64 from both the powerhouse and the dam. While this would not take any contributing buildings within the NRHP boundary, the land it takes will be altered physically and will result in an adverse visual impact (see iv and v below).

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;

This criterion does not apply.

(iii) Removal of the property from its historic location;

The proposed project would not result in the removal of an NRHP-listed property from its historic location. Consequently, this criterion does not apply.

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;

<u>Use</u>: This criterion does not apply.

<u>Change to physical features that contribute to the historic significance of the resource</u>: The forested, mountainous setting within the NRHP boundaries of Ocoee No. 2 contributes to the historic significance of the resource. Cutting into the slope on the north side of U.S. 64 and taking land from within the NRHP boundary will result in a substantial change to the property's setting. While today it is comprised of forested mountainside on the north side of U.S. 64, if Alternative 2 is built, it is likely to cut deeply into the mountainside, leaving a barren rock slope devoid of vegetation. This would constitute an adverse effect.

(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;

As described in the preceding paragraph, Alternative 2 would result in a substantial visual impact to a level that it would be considered an adverse effect.

Photographs 8 through 10 show views of Ocoee No. 2 from the powerhouse and dam.

Photograph 8: Ocoee No. 2 – View from bridge to U.S. 64.
Alternative 2 will impact the slope shown in this photograph.

Photograph 9: Ocoee No. 2 – View from the Powerhouse bridge at U.S. 64.
Alternative 2 will impact the slope shown in this photograph.

Photograph 10: Ocoee No. 2 – View of 2011 rock slide area adjacent to parking lot at Ocoee No. 2 dam.

Alternative 2 will encroach farther into slope and up higher and would resemble the barren rock slope depicted here.

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization;

This criterion does not apply.

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

This criterion does not apply.

5.2 Previously Determined NRHP-eligible Resources

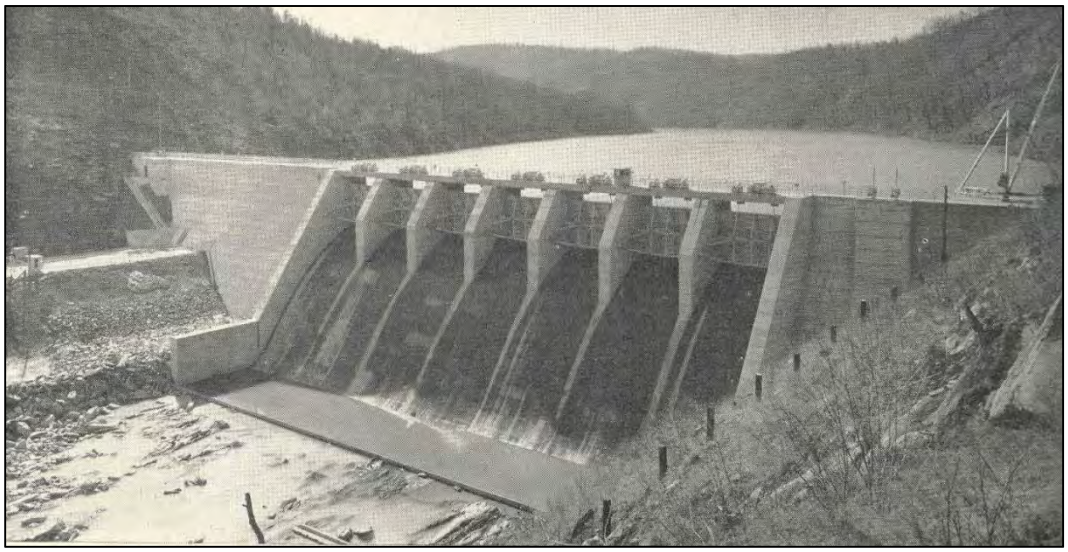
The two resources in this section were previously determined eligible for the NRHP on a consensus level between the SHPO and TDOT/FHWA.

5.2.1 Ocoee No. 3

History: Ocoee No. 3 is the third and final hydroelectric facility to be added to TVA's Ocoee River system. It was built by TVA between 1941 and 1943 and they continue to operate the facility.

Description: Ocoee No. 3 has three components, a dam located approximately 1 mile south of U.S. 64, a powerhouse located on U.S. 64, and a tunnel (conduit) that carries the water from the dam to the powerhouse. The dam is a concrete gravity structure, 110 feet high and 612 feet long, that creates Lake Ocoee. The tunnel is underground and is not visible along its route to Ocoee No. 3 Powerhouse. The Powerhouse stands on the south side of the Ocoee River and is accessed from U.S. 64 by a 1940s concrete girder bridge. The Powerhouse is in a cleared area of the forest that contains no other buildings. It is a steel-frame building faced in limestone panels—its design exhibits an Art Deco influence. Photographs 11 through 14 depict the four main components of Ocoee No. 3.

Photograph 11: Ocoee No. 3 – 1945 photograph of dam. View east.
(http://ookaboo.com/o/pictures/topic/1618612/Ocoee_Dam_No_3)



Photograph 12: Ocoee No. 3 – View west at Powerhouse.

Photograph 13: Ocoee No. 3 – 1945 view of tunnel connecting dam and powerhouse.
Source: (http://ookaboo.com/o/pictures/topic/1618612/Ocoee_Dam_No_3)

Photograph 14: Ocoee No. 3 – View from existing U.S. 64 toward bridge, powerhouse and tunnel outlet.

NRHP Eligibility Assessment: Ocoee No. 3 was determined NRHP-eligible on a consensus level in 1998 through the Section 106 process for its significance in engineering and industry. The recommended boundary includes the TVA property occupied by the powerhouse and the concrete girder bridge at that location, the footprint of the dam, and the footprint of the tunnel connecting the two facilities. A map of the eligible boundary is in Appendix D. In the opinion of TDOT, Ocoee No. 3 retains its significance and integrity and remains eligible for the NRHP.

Assessment of Effects: Alternative 2 involves improving U.S. 64 adjacent to the Powerhouse and on the opposite side of the Ocoee River from the facility. All the other alternatives join U.S. 64 from a new alignment north of the existing roadway at the bridge that crosses to the Powerhouse.

From the bridge eastward, the proposed typical section would be reduced from the existing four-lane divided to a three-lane section to minimize cuts into the existing slopes along the north side of US 64. Retaining walls (estimated to be approximately 10 feet high) may be required in some areas to avoid significant cuts.

Figure 7 shows the project alternatives in the vicinity of Ocoee No. 3.

The Criteria of Adverse Effect are applied below.

(i) Physical destruction of or damage to all or part of the property;

The project will not physically impact the resource. Consequently, this criterion does not apply.

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;

The project will not alter the resource, so this criterion does not apply.

(iii) Removal of the property from its historic location;

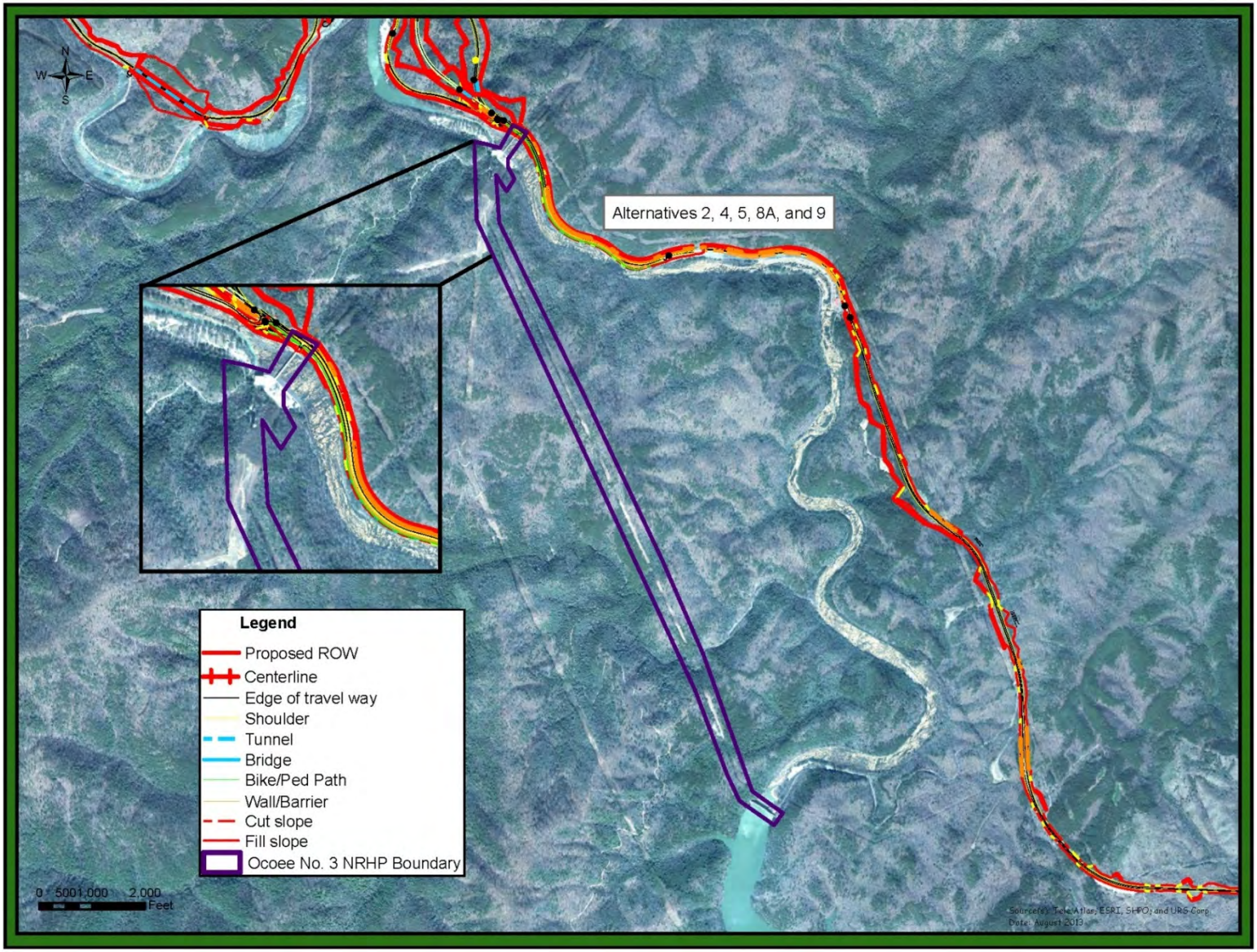
The proposed project would not result in the removal of an NRHP-listed property from its historic location. Consequently, this criterion does not apply.

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;

Use: The project would not alter the use of the property.

Setting: The property's setting of forested mountain slopes would be affected to a different level by all alternatives. If retaining walls are feasible, cuts and removal of vegetation may be lessened, but any cuts and vegetation removal will adversely alter the property's setting, which contributes to the significance of the resource.

Figure 7: Ocoee No. 3. Project Alternatives in Vicinity of Ocoee No. 3.



(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features:

The project will not result in atmospheric or audible impacts that diminish the integrity of the property's significant historic features.

Approaching the bridge from the west, the viewshed of Ocoee No. 3 Powerhouse under all the Build Alternatives would be impacted from new cut slopes, some as wide as 500 feet on the west side of Gassaway Creek from the new location alternatives. Alternative 9 is in the direct sight line of Ocoee No. 3 Powerhouse and would be the most visible. These cuts would involve removal of the forested vegetation that currently covers the slopes. The large expanses of barren slopes would result in an adverse visual effect to Ocoee No. 3 under all the Build Alternatives.

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization.

This criterion does not apply.

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

This criterion does not apply.

Photographs 15 and 16 show the setting of Ocoee No. 3.

Photograph 15: Ocoee No. 3 – View from powerplant across bridge at U.S. 64.
All the new location build alternatives would join existing U.S. 64 at this location.

Photograph 16: Ocoee No. 3 – View east from powerplant entrance toward location where all of the new location Build Alternatives will intersect U.S. 64.
Also, Alternative 2 will cut into the slope across from the powerplant at this location.

5.2.2 Old Copper Road (40PK373A and 373B)

History: Early travel between the east and west areas of today's Polk County was hazardous because of the rugged topography. After copper production began in the southeastern part of the county in the area that came to be known as the Copper Basin, a solution was needed to get the product to a market closer than that in northern Georgia. That market was Cleveland, 40 miles to the west. To reach that market, geologist John Caldwell envisioned a road between the basin and Cleveland, with 25 miles of that road running through the "raging" Ocoee River Gorge (Polk County Historical Society 1997).

Caldwell began work in 1851 and completed the road 2 years later. It is said that Cherokee laborers provided manpower for the construction project. In Barclay's 1946 book (Barclay 1946: 263), he describes Old Copper Road:

> *As the murmuring heart at Ducktown rose and fell it poured through the artery-like Ocoee gorge a pulsating stream of wagons loaded with ingots and bars of copper to the railhead at Cleveland and drew insatiably back to it those same wagons loaded with provisions and materials for consumption at the mines.*

At some point between 1865 and 1878, machine drills and dynamite appear to have been used to widen stretches of the road, probably under Raht's regime (DOE).

Later modifications occurred in the early twentieth century when Ocoee No. 1 created Parksville Lake, which flooded part of the road and necessitated repairs and reconstruction. In 1931, the State built a new road that became U.S. 64, and primarily followed the alignment of Old Copper Road. The road was again upgraded by the State in 1957 and is today on the state and federal highway systems.

Description: According to the 1991 Determination of Eligibility for the NRHP for Old Copper Road, Site 40PK373, which had been prepared as part of planning for the 1996 Olympic Whitewater Event:

> *Two segments of Old Copper Road remain along the Ocoee River in Polk County and have been reported to the Tennessee State Site files as 40PK373A and 40PK373B. Site 40PK373A extends from a parking lot and swimming hole above the Ocoee No. 3 powerhouse upstream, possibly as far as the Ocoee No. 3 dam. It is the best preserved section of the old wagon trail used to haul copper from Ducktown to Cleveland. Rocks and stream cobbles ranging from 10 to 25 cm in diameter were laid down in a flat pavement, sometimes interspersed with fine sandy fill. Several rock faces along the slope show evidence of blasting, which occurred during reconstruction of the road after the Civil War. At one stream crossing, the road is raised to a level surface several meters above the natural grade. . . .*
>
> *Site 40PK373B is downstream of the Ocoee No. 2 dam on the opposite side from the Ocoee No. 2 flume. . . It is less well preserved and the upper portion has silted in . . . (Thieme 1991: n.p.).*

A portion of Old Copper Road, Site 40PK373A, is today a hiking trail that begins at the Ocoee Whitewater Center. The 1930s construction of U.S. 64 generally followed the route of Copper Road, but a few sections remained. 40PK373A remained intact because the U.S. 64 road alignment had been shifted northward away from the river and Old Copper Road. The old road bed today has been cleared of vegetation and is a 2.4-mile walking trail that begins at the Ocoee Whitewater Center and ends at the driveway Ocoee No. 3 dam. The trail follows the north side of the Ocoee River and is a narrow, curvy, unpaved, vegetation-lined path. The eastern portion of the trail is in a more rugged state than the section nearest the Whitewater Center. Evidence of the old road, including blast holes, is visible along the trail. Signage describing the history of Old Copper Road has been erected at the trailheads at either end. Photographs 17 through 19 depict Site 40PK373A.

Site 40PK373B was resurveyed in 2012 by both historians and archaeologists. It is located on a narrow terrace/floodplain on the north side of the Ocoee River between the river and U.S. 64. The site identified in 2012 is longer than the site identified in the 1991 survey; it measures 2,099 feet long and between 6.6 and 13.9 feet wide. The extant section terminates on each end at the steep embankments of U.S. 64. The old roadbed is visible as are wagon rut traces at many locations. Site 40PK373B is shown in Photographs 20 and 21.

Photograph 17: Old Copper Road (40PK373A) – Sign at trailhead at east end.

Photograph 18: Old Copper Road (40PK373A) – View of old roadbed near east end of current hiking trail (west of driveway to Ocoee No. 3 Dam).

Photograph 19: Old Copper Road (40PK373A) – View east at trail near trailhead at Ocoee Whitewater Center.

Photograph 20: Old Copper Road (40PK373B) – View west of roadbed.

Photograph 21: Old Copper Road (40PK373B) – Section that runs along north river bank.

NRHP Eligibility Assessment: The two segments of Old Copper Road included in the 1991 DOE were determined eligible by the SHPO on a consensus-level for Section 106 purposes. In the opinion of TDOT, they both retain sufficient integrity and significance to remain NRHP-eligible. They were determined eligible under Criterion D; however, in 2012, only 40PK373A remains eligible under Criterion D for the information is offers. Both 40PK373A and 40PK373B are recommended eligible under Criterion A, for the significant role the roadway played in the development of southwest Polk County.

The NRHP-eligible boundary for 40PK373A includes the entire path of today's hiking trail between the Ocoee Whitewater Center and the parking lot on the road to Ocoee No. 3 dam. Regarding 40PK373B, the NRHP-eligible boundary in 2012 is longer than the 1991 boundary. It follows the roadbed identified in the 2012 survey, which measures 2,099 feet long and between 6.6 and 13.9 feet wide and terminates adjacent to existing U.S. 64 at each end.

The NRHP-eligible boundary maps are in Appendix D.

Assessment of Effects: The project would have no effect to Site 40PK373A, as it is too far from the proposed project to be affected and the topography and vegetation block any views of the project. Figures 8 and 9 show the project in relation to the sites.

In the vicinity of Site 40PK373B, Alternative 2 would straighten out the curve on U.S. 64 and cut into the existing slope. Alternative 2 is the only one of the Build Alternatives in this vicinity. All others are north of this site at a higher elevation and would not be visible from or physically impact this site. The viewshed from this site would only be impacted by Alternative 2, which in general follows the existing alignment with a wider typical section, but also includes areas with a larger curve radius that will shift the proposed alignment off of existing U.S. 64. Widening the existing road requires both cutting into the existing slope along the north side and, in some areas, placing fill material along the south side. Slope treatments such as retaining walls and rock pads can be used to avoid fill slopes in the Ocoee River. The elevation of the proposed road under Alternative 2 would not change significantly from the existing road. On the western end of this site, a tunnel is proposed through

the southern tip of Brock Mountain. This tunnel would bypass a series of sharp curves along the existing alignment and avoid a significant cut section.

It is never visible at all from existing or proposed US 64, which follows the existing route. At the west end where it is closest to the trail head at the Ocoee Whitewater Center, the distance between the existing/proposed US 64 and the Old Copper Road trail is about 155 feet. The trail then diverges away from the road and runs along the river. For the whole path of the Old Copper Road Trail, thick stands of trees are between the road and the trail. Distances range from 155 feet to over ½ mile.

The Criteria of Adverse Effect are applied to Site 40PK373B below.

(i) Physical destruction of or damage to all or part of the property;

The current conceptual plans indicate that the project may physically destroy the easternmost section of the site (approximately one-eighth of the length of the site) and the less intact section of Old Copper Road that remains at this location. The section to be physically affected is away from the river and along the south side of existing U.S. 64.

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;

This criterion does not apply.

(iii) Removal of the property from its historic location;

The proposed project will physically affect a portion of the resource, but it will not remove it from its historic location.

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;

<u>Use</u>: The east and west ends of this extant section of Old Copper Road, which are adjacent to U.S. 64, will be physically affected by Alternative 2. However, the use of the resource will not change. The lower section along the river will remain as a trail along the north side of the river.

Figure 8: Site 40 PK373A, Old Copper Road. Map showing Alternatives in vicinity of resource.

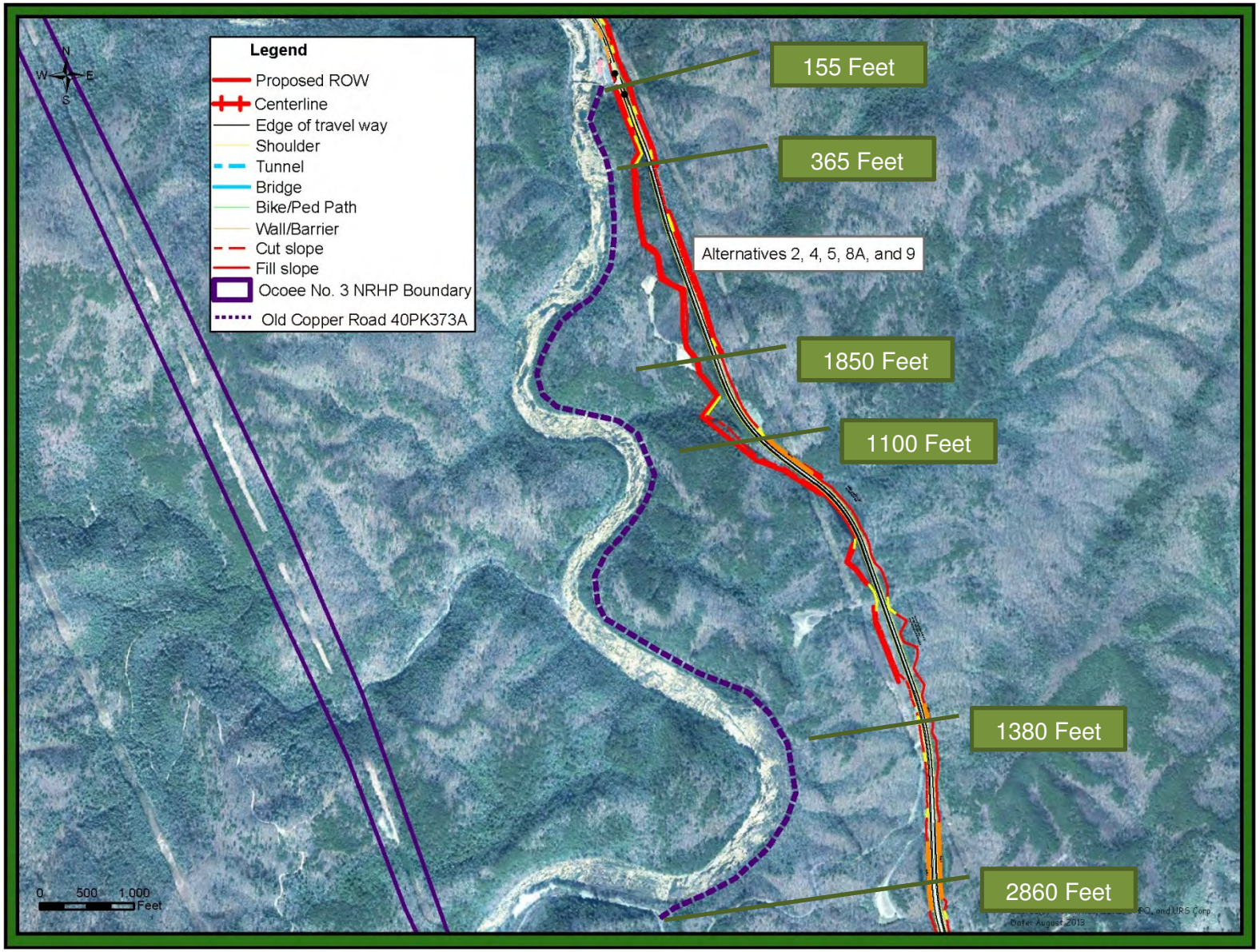
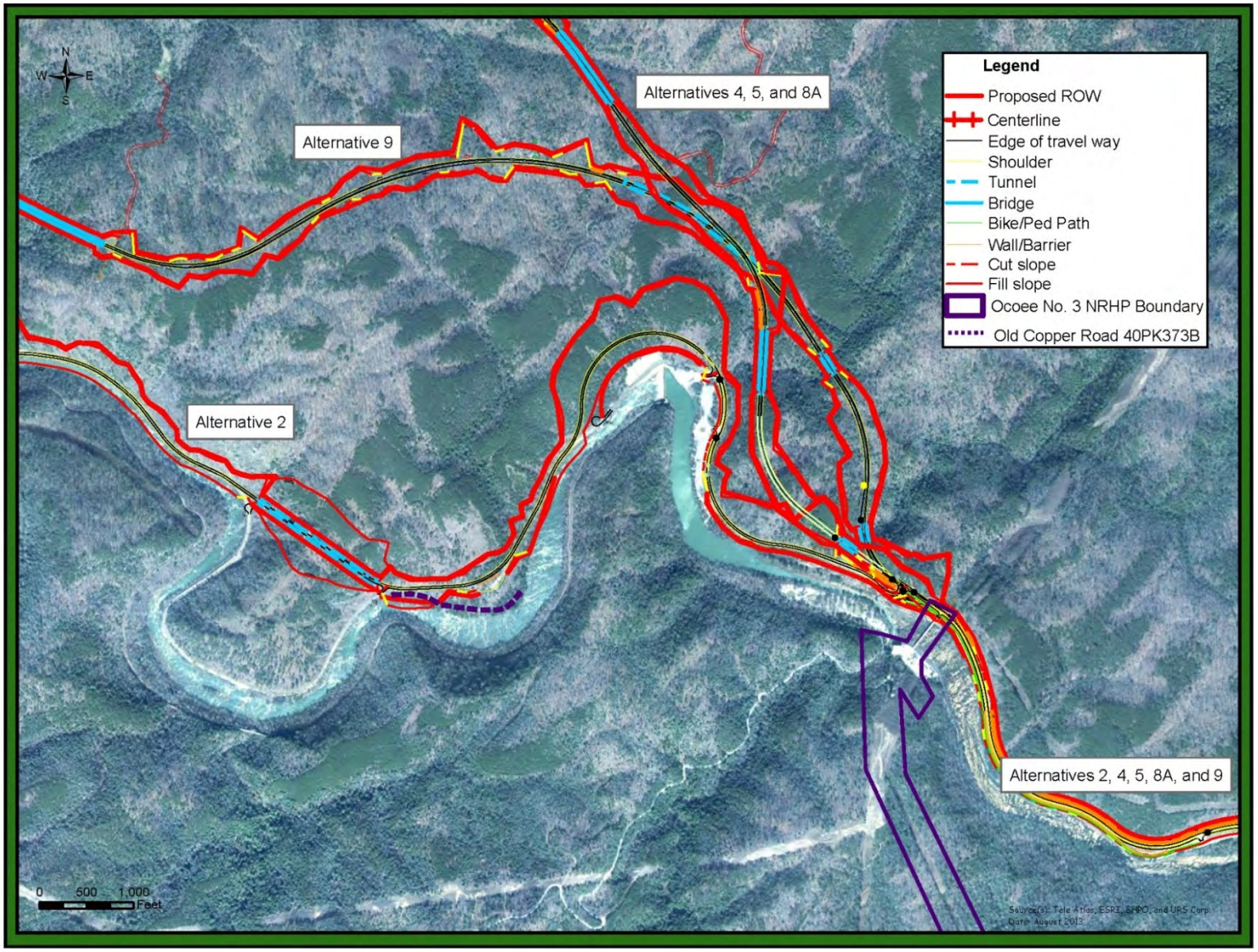


Figure 9: Old Copper Road (40PK373B). Alternatives in relation to site.



Change to physical features that contribute to the historic significance of the resource: Since Alternative 2 will take part of the extant roadway at both ends and open up the woods at the locations of impact, it will alter the current wooded, serene setting of the resource resulting in an adverse impact.

(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;

While Alternative 2 has the potential to physically affect the extant portion of Old Copper Road at this location, it also has the potential to visually impact it. Today, this segment of the old road runs through the woods and along the river, with modern intrusions only at each end where is connects to U.S. 64. Where land is taken from the old road and wooded areas around it are opened up for construction of Alternative 2, and adverse visual impact will occur.

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization;

This criterion does not apply.

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

This criterion does not apply.

5.3 Resources Not Previously Assessed

5.3.1 N-4. Rogers Century Farm

History: The Rogers Farm is designated by the Tennessee Department of Agriculture as a Century Farm. The Tennessee Century Farms website (http://www.tncenturyfarms.org/polk_county/#Rogers_Farm) includes a description of the farm as follows:

> *The contribution of improved highway transportation to the modern success of Tennessee agriculture is well illustrated in the twentieth century development of the Rogers Century Farm. Jesse and Dorinda A. Rymer established the Rogers Farm, which is 4 miles southeast of Benton, in 1861. The following year, Jesse left the farm to serve in the 62nd Tennessee Regiment of the Confederate army. After returning from the war, Jesse began farming on his 250 acres of land. But in 1867, he became a freighter to the Ducktown copper mines and continued this business for the next twelve years. Throughout these years, Dorinda kept the farm in operation, producing corn, wheat, rye, sugar cane and cotton.*
>
> *In 1893, Minerva Rymer Fetzer inherited the farm from her parents. Minerva was the wife of Harve A. Fetzer and the mother of eight children. Bridge and road construction marked this period of*

> *ownership; in 1912, a bridge over the Ocoee River was built on the Fetzer's farm [near the location of the existing bridge] and local roads were re-routed to provide better access to the new bridge. About 27 years later, state officials constructed Highway 64, which now constitutes the farm's southern boundary and built a new bridge. The improved transportation allowed the family to sell their agricultural products in larger markets, which perhaps accounts for the family's decision to add sheep and swine to their livestock herds.*
>
> *In 1944, Blanche Fetzer Rogers acquired the family land. The great granddaughter of the founders, Blanche is the wife of Roscoe G. Rogers. The Rogers have improved the farm by constructing two ponds, building a new home and barn in 1952 and restoring a tenant house in 1970. Almost all of their 44 acres are in production and the family raises beef cattle, garden vegetables and fruits.*

The owner today does not occupy the property. The house serves as rental recreation use and the farmland north of Hooker Road is leased.

Description: The farm today possesses 44.8 of its original 250 acres. While the property encompasses one parcel (County 070, Map: 065 Parcel: 049.00), it is divided by Hooker Road (Figure 10).

Figure 10: Rogers Century Farm. Parcel map shows farm sections north and south of Hooker Road in yellow.

The northern half of the parcel contains primarily open agricultural land, with the northeastern section containing dense vegetation. The owner leases this land to a farmer. At the south end of this northern section is a residence, which the property records indicate was built in the 1930s, but it likely was built earlier. It is assumed

that this is the tenant house referenced in the history above, moved north to this site when U.S. 64 was built, and restored by the owner in 1970. It has been radically altered and has new siding, a new porch and new windows. Modern materials obscure the foundation. This is the only building on the property north of Hooker Road.

South of Hooker Road, the property is not farmed or owner-occupied. Along the south side of Hooker Road is a clearing that contains three buildings. The farm's primary residence, which fronts on Welcome Valley Road, is a 1951 frame ranch that has brick and board facing and a hipped roof. The house is currently available for short-term tourist rentals. A two-car garage attached to the front of the house has a hipped roof and appears to postdate the house. The front porch is not original and it appears that some windows may be replacements.

The three outbuildings in the clearing south of Hooker Road and north of the house are:

- Small frame shed with a shed roof, exposed rafters and vertical board siding. One elevation has a door and the other has a window opening with a top-hinged wooden shutter. Estimated date is ca. 1950s.

- Small, gable-roofed log pen may have been a smokehouse, as is indicated by the open woodwork in the gable ends. The building has half-dovetail notching and a standing seam metal sheathing on its roof. The foundation is concrete blocks and modern boards, which indicate the building may have been moved at one time.

- Frame barn dating to 1951. The medium-sized structure is a transverse crib barn, with a metal-sheathed gabled roof, vertical board siding and a shed attached to one eave side.

Photograph 22 (a-f) illustrates the agricultural land and each of the buildings on the farm.

NRHP Eligibility Assessment: The farm on this location had been operating for over 100 years, but only 44.8 of its original 250 acres remain. The two residences on the property, the former tenant house and the current primary residence, date to 1933 and 1951, respectively. The old frame tenant house, moved to this site in the 1930s, has been radically altered. The barn and small shed were likely constructed at the same time as the primary residence, ca. 1951. The only building on the property that may date to earlier in the farm's existence is the small log pen, which may or may not have been moved to its current location. Four of the five buildings are on the unfarmed part of the property south of Hooker Road. As previously stated, the only structure north of Hooker Road is the former tenant house, which has been substantially altered and is not original to this site.

Nothing on the property alludes to the historic farm, neither the extant buildings, the placement of them on the property. the current use of the farm's fields, or the farm's infrastructure (e.g., farm roads, fencing).

Photograph 22: Rogers Century Farm

a. View of fields, looking south.

b. Front of renovated tenant house.

c. Rear of renovated tenant house.

d. 1951 Ranch Style house.

e. small frame shed, ca. 1951.

e. Log pen, date unknown

f. 1951 frame barn

The farm also lacks historic significance within the context of early settlement or farming in Polk County and it has no agricultural significance, as it was simply a small farm that raised row crops early in its existence and later changed to focus on raising livestock.

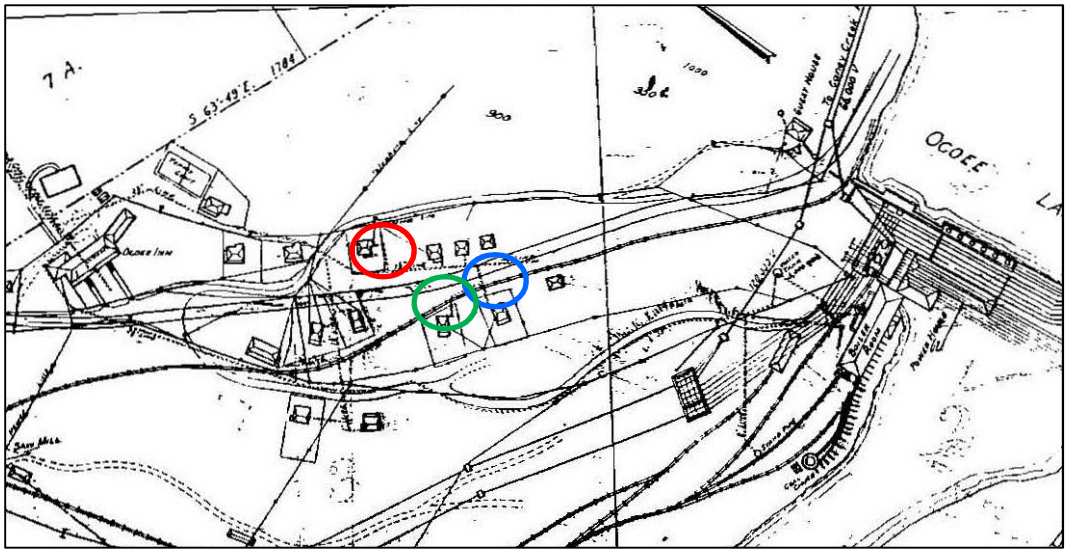
Because the farm no longer possesses its historic, character-defining elements, because the extant elements do not possess architectural significance, and because the farm lacks historic significance, in the opinion of TDOT, it is not eligible for the NRHP.

Assessment of Effects: Since the property is not eligible for the NRHP, the criteria of effect do not apply.

5.3.2 N-7. Former Residences at Ocoee No. 1

History: Refer to Section 5.1.1 for a history of Ocoee No. 1. Five structures on the Ocoee No. 1 site are known to date to the construction and opening of the power plant: the dam and powerhouse, which are listed in the NRHP; the brick stock room building just west of the powerhouse and dam; the current TVA office; and the trestle. Two other buildings on the site date between 1915 and 1924 and are associated with the operation of the facility by Tennessee Electric Power. Another building is associated with, TEPCO, the Work Area Building and the Meeting Room Building. An excerpt from a 1924 map of the northern portion of the reservation is shown on Figure 11.

Figure 11: Excerpt from 1924 Map of Ocoee No. 1.
From 2000 Architectural Historical Assessment Report (Original source, National Archives)



Description: The three extant former residential buildings on the TVA reservation at Ocoee No. 1 are depicted in Photograph 23 and are described below.

Photograph 23: Former residences at Ocoee No. 1 – View north at three extant former residences at Ocoee No. 1 (from left #3, #1, and #2 below).

- *TVA Office*: This ca. 1911–1914 residential structure (labeled "house" on 1915 map and circled in red on 1924 map, Figure 11 above) is used today for TVA offices. The one-story building exhibits a Cape Cod-influence, and has a wood frame rectangular plan, asphalt-shingled gable roof, asbestos siding, stone foundation, original 6:6 windows with plain wood surrounds and lintel, original front porch enclosed with synthetic siding, new front porch and entrance on side of porch, three gabled roof dormers on front with 6:6 sash, one shed dormer on rear, interior brick chimney, brick end chimney, enclosed rear porch, and a new exterior wood staircase on the gable end (Photograph 24). Numerous visible alterations have been made to the building and the historic footprint indicates that there was originally a full façade porch on the front (south) elevation.

Photograph 24: Former residences at Ocoee No. 1 – TVA Office, Ca. 1911–1914.

View north east at front (south) elevation.

View northwest at front elevation.

- *TVA Work Area/Offices*: This is a ca. 1915–1924 residential structure, which is circled in blue on the 1924 map, Figure 11). The building, today in government/office use, is a simple, one-story wood frame cottage built on a rectangular plan with a wing. It has a stone-faced foundation with an exposed basement in the rear, asphalt-shingled gable roof that extends to form front porch, 6:6 windows, modern front door, one window on front and windows on wing filled in, wing has brick chimney, and the porch has a concrete slab

foundation and plain porch support posts. The building has been altered, as depicted in Photograph 25.

Photograph 25: Former residences at Ocoee No. 1 – TVA Work Area/Offices. Ca. 1924.

View southeast at west side and front (north) elevations.

View south at west side and front.

- *TVA Meeting Rooms*: This is a post 1924 (ca. 1925–1930) residential structure in government/office use (not on 1924 map, but location is circled in green on Figure 11). The structure exhibits a Tudor influence in its plan and half-timbering in the gable. It is one and one-half stories on a stone-faced foundation with an exposed basement in the rear, asphalt-shingled roof with gabled wall dormer in front and hipped dormer in rear, stucco walls, modern 6:6 and 8:8 windows, screened-in porch at southwest rear corner and the one-bay front porch has a stone base and stone post supports and a steeply-pitched gabled roof with half-timbering The interior has original arched openings and door and window surrounds, new carpeting, and lowered ceilings (Photograph 26).

Photograph 26: Former residences at Ocoee No. 1 – TVA Meeting Rooms.

View south at front (north) elevation.

View northwest at east side and rear elevations.

<u>NRHP Eligibility Assessment</u>: In the opinion of TDOT, the group of three buildings does not meet the criteria for NRHP eligibility. As a group, these three buildings are simply a remnant of a much larger and diverse development at Ocoee No. 1, which began in 1910 and reached its peak during the construction of the facility, completed by the Eastern Tennessee Power Company in 1912. Only Building #1 above remains

from this early era and is shown on maps from 1910 and 1915. In 1915, there were still a number of buildings at Ocoee No. 1, including the same row of small houses shown on the 1910 map. Between 1915 and 1924, Building #2 was built and appears on a 1924 map adjacent to Building #1 and as part of a small cluster of modest-sized buildings (about 14) just east of the building labeled "Ocoee Inn" and west of the dam and powerhouse. Building #2 may have been associated with the Eastern Tennessee Power Company or may have been built after TEPCO took control of Ocoee No. 1 in 1922. Building #3 is not on the 1924 map, but was likely built by TEPCO in the late 1920s or 1930s as is indicated by its Tudor influenced architecture. As a group, these buildings are not cohesive in their era of construction and they do not present a cohesive view of early life at Ocoee No. 1 because too many buildings are gone. In addition, except for Building No. 3, the buildings have been radically altered on the exterior. All have been radically altered on the interior.

The 2000 study that recommended these buildings be excluded from the NRHP boundary expansion for Ocoee No. 1 remains valid in the opinion of TDOT. Individually, these buildings are not NRHP-eligible in the opinion of TDOT because of the aforementioned interior and exterior alterations, which have destroyed many of the buildings' character-defining features. Additionally, none of the buildings possesses sufficient architectural or historical significance to be individually eligible for the NRHP.

Assessment of Effects: Since the subject resources are not eligible for the NRHP in the opinion of TDOT, the criteria of effect do not apply.

5.3.3 N-8. CNF Recreational Residences

History: The CNF contains recreational residences that are privately leased and permitted by the CNF. This section summarizes the Recreational Resources Assessment, which is included as an appendix to this report.

According to Quentin Bass of the CNF and interviews with leasees of some of the recreational residences, construction of these residences may have begun around 1910–1912, when the area was under the jurisdiction of the Eastern Tennessee Power Company, which was building Ocoee No. 1.

The earliest residences are thought to be the group on the south side of U.S. 64 near Forest Service Road (FSR) 77. There are several small cabins there and a larger cabin said by its current owner to have been built in the 1930s by a lawyer for TEPCO.

By the time TVA assumed control of the area in 1939–1940, a number of the recreational residences had been built. By the late 1940s, the USFS controlled everything around the lake except for the TVA reservations and later, the State of Tennessee controlled the boat put-ins and take-outs. The land on which the residences stood was transferred to the USFS, along with the leases for the land occupied by the residences. The recreational residence occupants own the buildings and lease the CNF land on which the buildings stand. Now, construction of residences on new sites is not permitted, and if a house is demolished, the lease holders have 1 year to rebuild or the lease is lost.

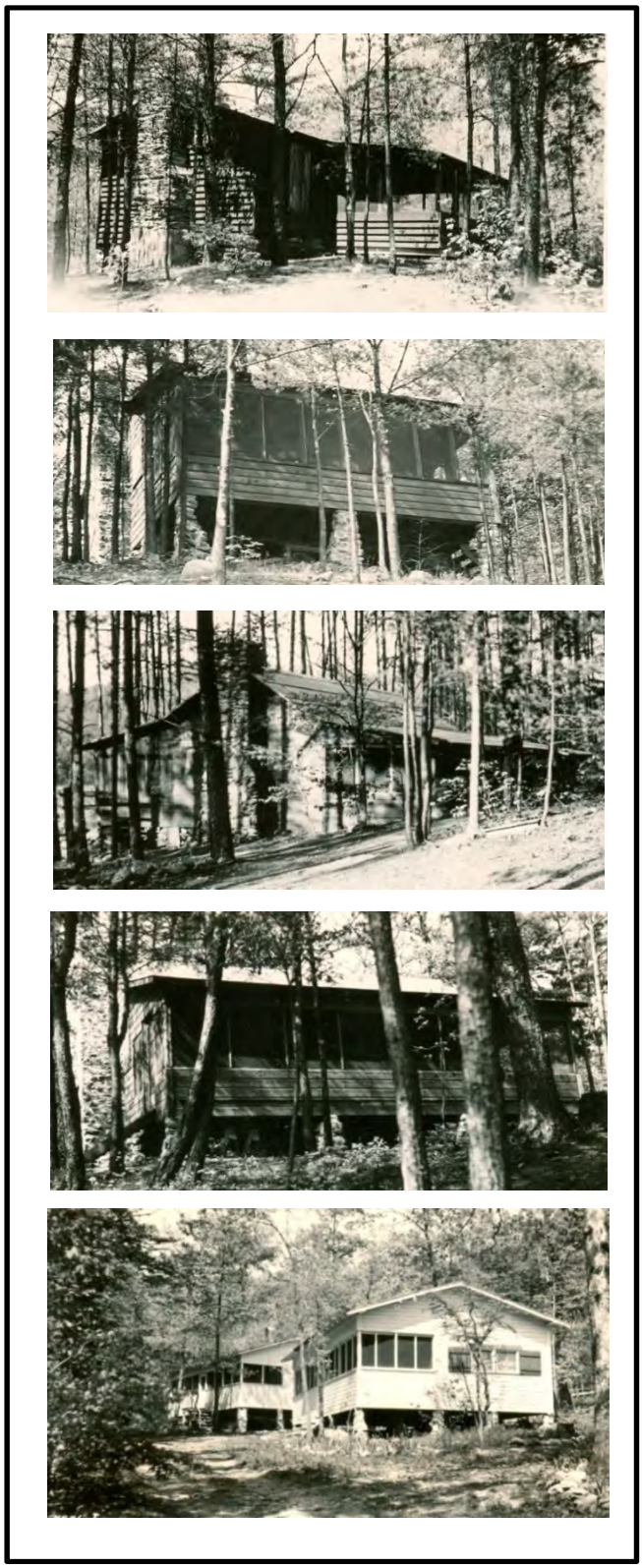
Description: Today, the CNF contains 54 recreational residences that are within the USFS-designated blocks located in the visual APE. These residences in the APE are grouped in three areas. Block A is along U.S. 64 between the Ocoee Inn and FSR 77. Block B is on the west side of Parksville Lake, south of Ocoee No. 1, and Block D is on the south side of Parksville Lake between Haskins Creek and the Indian Creek Inlet. (The YMCA Camp and other recreational residences in Block C are on the south side of the Baker Creek Inlet and are considered outside the APE. Consequently, they were not included in the survey.)

Appendix F includes the recreational residence survey. The survey contains a table containing a brief description, date built and modified, and a general assessment of each residence. The table features a photograph of each building.

The best source for a depiction of the appearance of the early cabins is contained in a report that is on file at the CNF office in Cleveland, “Pictures from a field trip to Tennessee Electric Power Company Properties, May 1st to 5th, 1939.” Pictures taken from that report are included on Figure 12. Figure 13 is a map showing the location of the recreational residences.

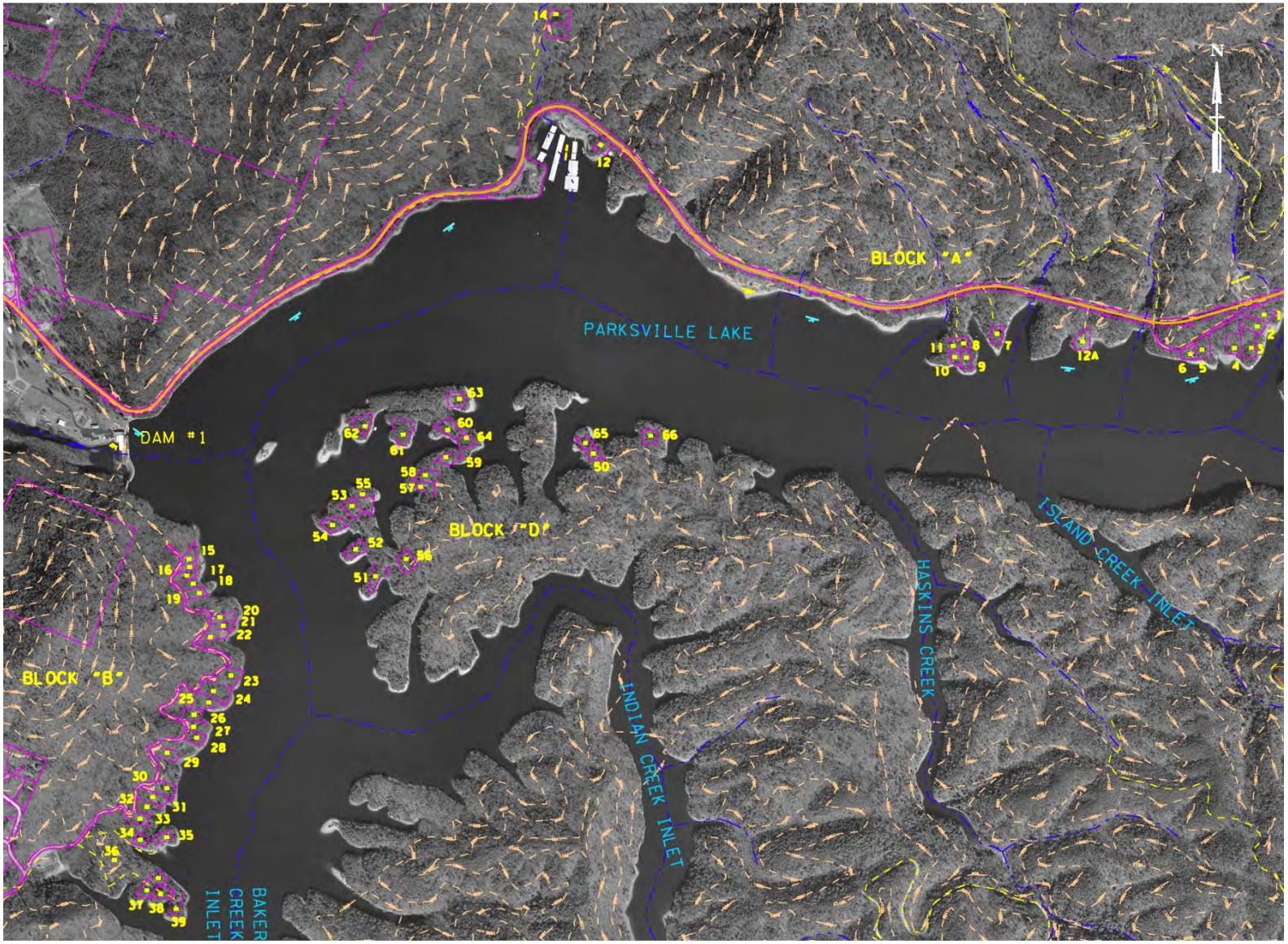
As indicated in Photograph 27, pre-World War II cabins (recreational residences today) were simple wood frame buildings, and generally had a low pitched gabled roof, wood siding, stone piers, screened an unscreened porches either integrated into the main block of the building or appended to it, stone chimneys, and wood shutters to cover window openings. Although records indicate that they were built in the early 1950s, Buildings #3 and #4 in Block B are closest to that early form. Figure 13 shows the location of all recreational residences.

Figure 12: 1939 Copies of Photographs of Recreational Residences.



Source: "Pictures from a field trip to Tennessee Electric Power Company Properties, May 1st to 5th, 1939."

Figure 13: Map showing location of Recreational Residences.



Photograph 27: Recreational residences in Block B that exhibit early cabin form.

Recreational Residence #3

Recreational Residence #4

Many of the recreational residences were enlarged from their original size through construction of large porches and at times, incorporation of former porches into the interior living space of the houses, roof pitch alterations, and addition of rooms. Photographs 28 through 30 depict examples of expanded, radically altered and new recreational residences.

Photograph 28: Examples of expanded recreational residences.

Recreational Residence #18.
Expanded from 480 to 1,996 square feet.

Recreational Residence #22.
Expanded from 640 square feet.

Photograph 29: Examples of altered recreational residences

Recreational Residence #35

Recreational Residence #66

Photograph 30: Examples of new recreational residences

Recreational Residence #28

Recreational Residence #12A

The Block A recreational residences are along the north side of Parksville Lake and primarily on the south side of U.S. 64. This block contains 13 residences (#1, #3–#11, #12, #12A, and #14). Of these, only three (#3, #4, and #8) have had alterations to a point where they could not be considered individually NRHP-eligible. The others are deteriorated to a point where historic fabric is no longer extant (#1), substantially altered (#7, #9, #10, and #11) or replacements of the original cabins (#5, #6, #12A). Residences 2 and 13 have been torn down and residence 12 is no longer a recreational residence. These residences date primarily between the 1920s (#7) and mid-1950s, with the three new residences dating between 1989 and 2011.

The Block B residences are accessed from Sugarloaf Drive, a narrow roadway that winds up the side of Sugarloaf Mountain. Block B includes 25 residences that date primarily from 1946 to 1961, with two from the 1930s (#21 and #35), One from the 1970s (A-frame, 1970) and two new cabins (#28 and #38). Records and visual observation indicate that all the 1930s through 1960s cabins have been altered, expanded, or rebuilt, with many of the alterations/expansions considered substantial. Records indicate that many of the cabins started as small buildings, 400 to no more than 1,000 square feet (some records are missing as to the original square footage). These same records indicate that the sizes of these structures today exceed 1,000 square feet with the exception of three buildings. Many have increased to double their original size. Along with the increases in size, the buildings today have lost much of their original fabric, including windows and doors. Because of the substantial expansions and modifications to many of the buildings, the area does not meet NRHP criteria as a historic district. Additionally, none of these residences possess historic or architectural significance or integrity to a level that they would be considered individually NRHP-eligible.

The 17 Block D residences (#50–#66) are accessible only by boat. Of the 17 residences, 6 are new (#54–#56, #59, #63, and #65). The 11 extant original residences date from 1947 to 1961, with the majority built in the 1950s. Only two residences appear relatively intact (#58 and #62), but #58 (a 1961 A-frame) is damaged and has lost original building fabric. The other nine have been expanded and/or altered through more recent renovations. Like the cabins in Blocks A and B, some expansions have more than doubled the original building sizes. For example, Residence #51 expanded from 555 square feet to 1,014 square feet. Because of the number of new buildings and expansions and modifications to many of the buildings, the area does not meet NRHP criteria as a historic district. Additionally, none of these residences possess historic or architectural significance or integrity to a level that they would be considered individually NRHP-eligible.

NRHP Eligibility Assessment: As discussed above and as further documented in Appendix F, most of the recreational residences have been altered and expanded and many exhibit substantial alterations. Due to the loss of integrity, TDOT is of the opinion that there are no NRHP-eligible individual recreational resources or eligible districts composed of the resources within the APE.

Assessment of Effects: Since the subject resources are not eligible for the NRHP in the opinion of TDOT, the criteria of effect do not apply.

5.3.4 N-10. 40PK645, Old Copper Road, West of Hooker Road

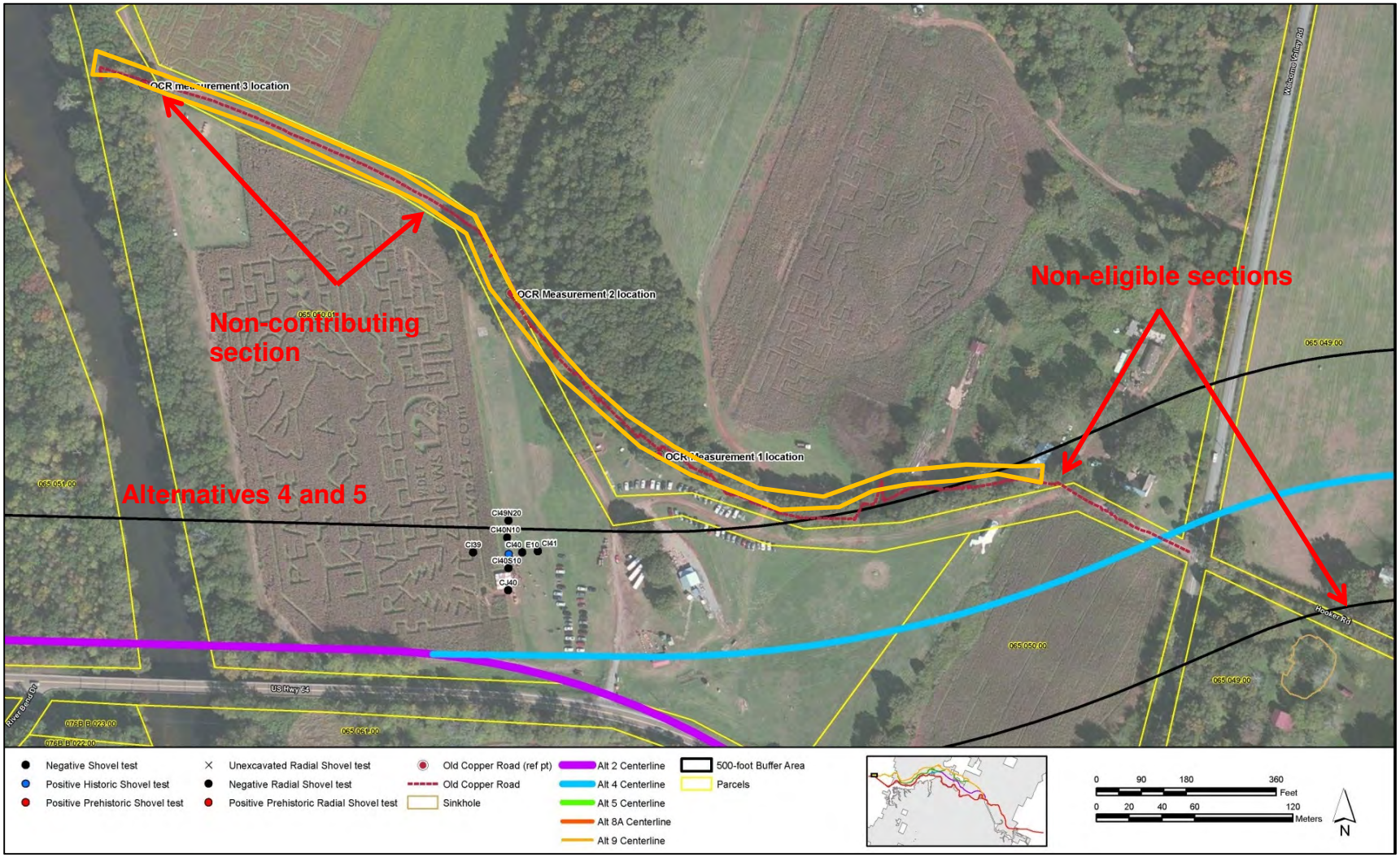
History: The history of Old Copper Road is described in Section 5.2.2.

Description: This segment of Old Copper Road stretches between Welcome Valley Road on the east and the Ocoee River on the west. (The site likely extends across the river and westward toward Hildabrand Road, but that area is outside the project APE and is not addressed in this study.) Part of the site is today an active farm road and private driveway. Agricultural fields or maintained lawns surround the site to the north and south at the western and eastern ends, while the central section is covered in secondary hardwoods. The Ocoee River forms the western boundary of the surveyed site (Figure 14). Photographs 31–35 illustrate the subject segment of Old Copper Road.

According to the archaeological study (Louis Berger Group 2013), the portion of the site within the APE (the eastern 754.6 feet of the eastern segment) was shovel tested; the western portion of the site was pedestrian surveyed and recorded, but no shovel tests were excavated outside of the APE. The site consists of a historic road trace segment of Old Copper Road. The dirt road trace is 2,526.3 feet in length and ranges from 14.4 to 43.3 feet wide; portions of the road are sunken, with berms and/or steep slopes bounding the northern and southern extents. These range in height from 2.3 to 7.4 feet, and are typically lower man-made berms on the southern side and higher natural slopes that have been cut back on the northern side. In one portion of the road, the trace itself is relatively flat, with a low southern berm, but the northern slope rises 23.0 feet above the trace. A ford located in the river is believed to be part of the site, but was not recorded due to safety concerns and because it was outside the APE. In addition, a second segment located west of the Ocoee River was noted but it is located completely outside of the Corridor K APE, and was not recorded. No additional archaeological investigation of this site was recommended as its information potential has been realized by GPS mapping and photography.

Photograph 31: 40PK645, Old Copper Road, West of Hooker Road. West end of surveyed segment at Ocoee River.

Figure 14: Map from 2013 Draft Archaeological Report (Berger) showing surveyed area and potentially NRHP-eligible portion of surveyed area. Orange line shows section recommended as NRHP-eligible.



Photograph 32: 40PK645, Old Copper Road, West of Hooker Road. Old Copper Road is in "trench" to left of large tree on right.

Photograph 33: 40PK645, Old Copper Road, West of Hooker Road. View of extant portion of Old Copper Road.

Photograph 34: 40PK645, Old Copper Road, West of Hooker Road. Existing segment of old roadway

Photograph 35: 40PK645, Old Copper Road, West of Hooker Road. Existing segment of old roadway

NRHP Eligibility Assessment: In the opinion of TDOT, a portion of Old Copper Road surveyed by archaeologists and reviewed by TDOT and SHPO historians in 2012 is eligible for the NRHP. That portion is illustrated on Figure 14. The section considered eligible is undisturbed on the east end where the old roadway is in a trench and on the west end where the old roadway slopes down to the river crossing. In between, the roadway comes out of the trench to an existing farm road, which connects to the intact western section adjacent to the river. The existing farm road section is non-contributing as shown on Figure 14.

The resource is eligible under Criterion A for the significant role the roadway played in the development of southwest Polk County.

Photograph 36 shows the non-contributing portion of the eligible section of Old Copper Road, Site 40PK 645.

Photograph 36: 40PK645, Old Copper Road, West of Hooker Road.
The farm road is a non-contributing portion of NRHP-eligible section of Old Copper Road.

The eligible portion of the surveyed site retains integrity of location and materials. Portions to the east of the eligible portion may follow the alignment of Old Copper Road, but they do not retain integrity of materials. They have been graded and graveled and/or paved. They do not retain any of the appearance of the historic Old Copper Road. The segments to the east include the driveway to the farm and a section of Hooker Road east of Welcome Valley Road. These are shown in Photographs 37–39.

Photograph 37: 40PK645, Old Copper Road, West of Hooker Road.
Driveway to Fetzer Farm follows alignment of Old Copper Road west of Hooker Road, but it does not possess its historic features or materials and is not included in the NRHP-eligible boundary.

Photograph 38: 40PK645, Old Copper Road, West of Hooker Road.
Hooker Road east of Welcome Valley Road does not possess its historic features or materials and is not included in the NRHP-eligible boundary.

Photograph 39: 40PK645, Old Copper Road, West of Hooker Road. View of driveway crossing Welcome Valley Road and west end of Hooker Road.
Both segments were excluded from the NRHP-eligible boundary because they lack integrity.

Assessment of Effects: Alternatives 4 and 5 as currently planned would affect Old Copper Road, Site 40PK645. The Criteria of Adverse Effect are applied to the resource below.

(i) Physical destruction of or damage to all or part of the property;

The current conceptual plans indicate that the project may physically impact several hundred feet of the eastern end of the eligible section through acquisition of the property for right-of-way.

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;

This criterion does not apply.

(iii) Removal of the property from its historic location;

The proposed project will physically affect a portion of the resource, but it will not remove it from its historic location.

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;

Use: The use of the resource will not change as the affected portion is an unused segment of the roadway located today in a trench.

Change to physical features that contribute to the historic significance of the resource: The project will truncate Old Copper Road and may adversely change the character of the area. However, it should be noted that the character of the area is already changing as there is an adjacent corn maze.

(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features:

While Alternatives 4 and 5 have the potential to physically affect the extant portion of Old Copper Road at this location, they also have the potential to visually impact it. Today, this segment of the old road at this location runs through the woods in a trench. The project will remove part of the old road and surrounding vegetation.

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization.

This criterion does not apply.

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

This criterion does not apply.

5.4 Summary of Effects

The Consultant applied the Criteria of Adverse Effect to the four NRHP-listed resources in the project's APE. Table 5 summarizes TDOT's findings regarding the project's effects under Section 106. In addition, if land is to be taken, a Section 4(f) use is identified in the table.

Table 5: Summary of Section 106 Effects

NRHP-Listed or Eligible Resource	Alternative(s)	Effect	Section 4(f) Use?
Ocoee No. 1	2, 8A, 9	No Effect	No
Ocoee No. 2	2	Adverse Effect	Yes
Ocoee No. 3	All	Adverse Effect	Yes
Old Copper Road 40PK373A	All	No Effect	No
Old Copper Road 40PK373B	2	Adverse Effect	Yes
Old Copper Road 40PK645	4 and 5	Adverse Effect	Yes

6.0 Coordination

This project has been coordinated with parties pursuant to Section 106.

6.1 NEPA Cooperating Agencies

The USFS-CNF is a NEPA cooperating agency, as are TVA and USACE. The USFS has participated in the Section 106 process for proposed Corridor K through field and report reviews and through the issuance and enforcement of the Archaeological Resource Protection Act (ARPA) permit. The Consultant solicited input on historic resources from TVA cultural resources staff. All three agencies will be afforded the opportunity to comment on NRHP eligibility recommendations. The USFS also has participated in Native American tribal coordination meetings.

6.2 Tribal Coordination

Tribes coordinated with included:

- Alabama-Coushatta Tribe of Texas
- Alabama-Quassarte Tribal Town
- The Cherokee Nation
- Eastern Band of Cherokee Indians
- Eastern Shawnee Tribe of Oklahoma
- Kialegee Tribal Town
- Muscogee (Creek) Nation
- Poarch Band of Creek Indians
- Seminole Nation of Oklahoma
- Shawnee Tribe
- Thlopthocco Tribal Town
- United Keetoowah Band of Cherokee Indians In Oklahoma

Section 106 Native American coordination began with Initial Consultation on April 14, 2010. Project information, including a project description and location maps, were mailed to the 10 federally recognized tribes who had indicated to FHWA that they have interests in Polk County. TDOT received responses from The Cherokee Nation, United Keetoowah Band of Cherokee Indians (UKB), and Eastern Band of Cherokee Indians (EBCI). The Cherokee Nation indicated that they had no concerns with the project at that time, but wanted to be notified in the event of inadvertent discoveries. The UKB and EBCI, however, indicated that they wanted to be Section 106

Consulting Parties on the project and wanted to receive project information and attend project meetings.

The actual archaeological study began in August 2011. An initial coordination meeting was held August 31, 2011, at the Cherokee National Forest Headquarters in Cleveland, Tennessee. All Section 106 stakeholders, including Native American consulting parties, were invited to attend. Attendees included TDOT's Archaeology Section, USFS archaeologists, representatives from the EBCI's Tribal Historic Preservation Office, and the project's NEPA consultant. Roles and responsibilities of all parties were discussed, with special emphasis on Native American coordination and consultation. Resource-specific issues were also identified and discussed (e.g., Old Copper Road and Cherokee Farmsteads). Miscellaneous issues discussed included fieldwork, site location modeling, lead agency status, agreement documents, National Register eligibility, and confidentiality of site locations.

TDOT's archaeological contractor began work on the project in September 2011. They were tasked with developing an archaeological scoping report designed to identify, integrate, and synthesize known archaeological, historical and environmental data about the project area. The Scoping Report was used to generate expectations about the nature of archaeological sites likely to be encountered within the APE. This report was distributed to all Native American Consulting Parties on December 14, 2012. The UKB responded the same day with no revisions or comments. No other responses were received.

The Scope of Work for the Phase I Archaeological Survey was distributed to all tribes for review and comment June 14, 2012. The UKB responded June 19, 2012, with no comments or revisions.

On June 25, 2012, a face-to-face consultation meeting was held with EBCI and USFS personnel in Cherokee, North Carolina. TDOT and USFS made presentations to the EBCI on the overall project and the Section 106 process. The Phase I Scope of Work was also discussed. The UKB planned to call-in to this meeting, but could not due to an unexpected scheduling conflict. USFS personnel indicated to TDOT Archaeological staff that they briefed UKB on the meeting later that afternoon.

Concurrent to the activities described above, the majority of 2012 was spent developing a Memorandum of Understanding (MOU) for the Corridor K project, among FHWA, USFS, and TDOT and regarding the Section 106 process for archaeological sites, Native American consultation, and protocols for the identification of human remains. This document was executed August 17, 2012. The EBCI provided comments on this document after it was executed and it was subsequently amended October 1, 2012, to reflect the EBCI comments. The UKB had no comments on the MOU, but did request to be a signatory and have been provided a signature page to be inserted into the document. The MOU is on file in the TDOT Environmental Division and at the Cleveland Office of the USFS.

The Phase I archaeological survey began July 1, 2012, and concluded October 15, 2012. As of August 1, 2013, the draft report is nearing completion. Once submitted to TDOT, the draft report will be provided to all parties, including Native American Consulting Parties, for review and comment. A face-to-face consultation meeting is

tentatively planned for late fall of 2013 to discuss the results of the archaeological survey and NRHP recommendations.

6.3 Tennessee State Historic Preservation Office

This project is also being coordinated with the SHPO.

SHPO historians assisted with locating the data related to the study area that existed in their office. They also attended the field reviews of the recreational residences in August 2011 and of the west section of Old Copper Road in October 2012.

Through the development of this study, they have also been consulted regarding NRHP eligibility questions. They will be asked to comment on the findings of the architectural/historical and archaeological survey reports regarding NRHP eligibility and Section 106 effects.

6.4 Other Coordination

TDOT will send this report to the NEPA Cooperating Agencies: USFS, USACE, and TVA. TDOT will also send this report to property owners, local government, and local interested parties.

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Appendix A
Applicable Regulations
Fact Sheets

- Section 106 Review, National Historic Preservation Act of 1966
- Eligibility Criteria of the National Register of Historic Places
- National Register of Historic Places, TDOT Summary Sheet
- Criteria of Adverse Effects, Codified at 36 CFR 800.5
- Section 4 (f), TDOT Act of 1966, TDOT Summary Sheet

Section 106 Review, National Historic Preservation Act of 1966

Section 106 of the **National Historic Preservation Act** requires that Federal agencies consider what effects their actions and/or actions they may assist, permit, or license, may have on historic properties, and that they give the **Advisory Council on Historic Preservation** (Council) a "reasonable opportunity to comment" on such actions. The Council is an independent Federal agency. Its role in the review of actions under Section 106 is to encourage agencies to consider, and where feasible, adopt measures that will preserve historic properties that would otherwise be damaged or destroyed. The Council's regulations, entitled "Protection of Historic Properties" (36 CFR Part 800) govern the Section 106 process. The Council does not have the authority to require agencies to halt or abandon projects that will affect historic properties.

Section 106 applies to properties that have been listed in the **National Register of Historic Places (NRHP)**, properties that have been determined to be eligible for inclusion in the NRHP, and properties that may be eligible but have not yet been evaluated. If a property has not yet been nominated to the NRHP or determined eligible for inclusion, it is the responsibility of the Federal agency involved to ascertain its eligibility.

The Council's regulations are set forth in a process consisting of four basic steps which are as follows:

1. Initiate Section 106 Process: The Federal agency responsible for the action establishes the undertaking, determines whether the undertaking has the potential to affect historic properties (i.e., properties listed in or eligible for listing in the National Register of Historic Places), and identifies the appropriate State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO). At this time, the agency plans to involve the public and identify other consulting parties.

2. Identify Historic Properties: If the agency's undertaking has the potential to affect historic properties, the agency determines the scope of appropriate identification efforts and proceeds to identify historic properties within the area of potential effects. Identification involves assessing the adequacy of existing survey data, inventories, and other information on the area's historic properties. This process may also include conducting further studies as necessary and consulting with the SHPO/THPO, consulting parties, local governments, and other interested parties. If properties are discovered that may be eligible for the National Register, but have not been listed or determined eligible for listing, the agency consults with the SHPO/THPO and, if needed, the Keeper of the National Register to determine the eligibility status of the property.

3. Assess Adverse Effects: The agency, in consultation with the SHPO/THPO, assesses the potential effects to historic properties affected by the undertaking. The agency at this time will determine that the action will have "no adverse effect" or an "adverse effect" on historic properties. Consulting parties and interested members of the public are informed of these findings.

   The regulations provide specific criteria for determining whether an action will have an effect, and whether that effect will be adverse. Generally, if the action may alter the characteristics that make a property eligible for the National Register, it is recognized that the undertaking will have an effect. If those alterations may be detrimental to the property's characteristics, including relevant qualities of the property's environment or use, the effects are recognized as "adverse."

4. Resolve Adverse Effects: The agency consults with the SHPO/THPO and others, including consulting parties and members of the public. The Council may choose to participate in consultation, particularly under circumstances where there are substantial impacts to historic properties, when a case presents important questions about interpretation, or if there is the potential for procedural problems. Consultation usually results in a Memorandum of Agreement (MOA).

   If agreement cannot be reached, the agency, SHPO/THPO, or Council may terminate consultation. If the SHPO/THPO terminates consultation, the agency and the Council may conclude the MOA without SHPO/THPO involvement. If the SHPO/THPO terminates consultation and the undertaking is on or affecting historic properties on tribal lands, the Council must provide formal comments. The agency must request Council comments if no agreement can be reached.

ELIGIBILITY CRITERIA OF THE NATIONAL REGISTER OF HISTORIC PLACES AS SET FORTH AT 36 CFR 60.4

The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- **CRITERION A**. that are associated with events that have made a significant contribution to the broad patterns of our history (history); or
- **CRITERION B**. that are associated with the lives of persons significant in our past (person); or
- **CRITERION C**. that embody the distinctive characteristic of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that components may lack individual distinction (architecture); or
- **CRITERION D**. that have yielded, or may be likely to yield, information important in prehistory or history (archaeology).

Ordinarily, cemeteries; birthplaces or graves of historical figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; properties primarily commemorative in nature; and properties that have achieved significance within the past 50 years are not considered eligible for the National Register of Historic Places; however, such properties will qualify if they are integral parts of historic districts that do meet the criteria or if they fall within the following categories:

- **EXCEPTION A**. a religious property deriving primary significance from architectural or artistic distinction or historical importance; or
- **EXCEPTION B**. a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
- **EXCEPTION C**. a birthplace or grave of a historical figure of outstanding importance if there is no other appropriate site or building directly associated with his productive life; or
- **EXCEPTION D**. a cemetery which derives its primary significance from graves or persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
- **EXCEPTION E**. a reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
- **EXCEPTION F**. a property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own historical significance; or
- **EXCEPTION G**. a property achieving significance within the past 50 years if it is of exceptional importance.

NATIONAL REGISTER OF HISTORIC PLACES SUMMARY SHEET PREPARED BY TDOT

What is the National Register of Historic Places? The National Register, maintained by the Keeper of the Register within the National Park Service, Department of the Interior, is the nation's official list of districts, buildings, sites, structures, and objects significant in American history, architecture, archaeology, engineering, and culture.

What are the benefits and restrictions of listing? In addition to honorific recognition, listing in the National Register results in the following benefits for historic properties:

- Section 106 provides for consideration of National Register listed or eligible properties in planning for Federal, federally licensed, and federally assisted projects;
- Eligibility for certain tax provisions for the certified rehabilitation of income-producing National Register structures such as commercial, industrial, or rental residential buildings;
- Consideration of historic values in the decision to issue a surface mining permit where coal is located in accordance with the Surface Mining Control Act of 1977; and
- Qualification of Federal grants for historic preservation, when funds are available.

Does National Register designation place any additional burdens or obligations on the property owner?

Owners of private property listed in the National Register are free to maintain, manage, or dispose of their property as they choose, provided that no Federal moneys are involved.

How is a property nominated to the National Register?

The first step is for the owner to contact the Tennessee State Historic Preservation Office (TN-SHPO), Clover Bottom Mansion, 2941 Lebanon Road, Nashville, TN 37243-0442; 615-532-1558. Ordinarily, private individuals (or paid consultants) prepare nomination forms. The TN-SHPO submits these nominations to a State Review Board, which meets three times a year. This body reviews the nominations and votes to recommend or deny National Register listing. If approved, the TN-SHPO submits the nomination to the Keeper of the Register in Washington, D.C. for consideration for listing. The Keeper's Office has 45 days to review the nomination, and its decision regarding National Register listing is final.

How long does the nomination process take?

The process varies but typically takes between eight and twelve months.

CRITERIA OF ADVERSE EFFECT

Regulations codified at 36 CFR 800 require Federal agencies to assess their impacts to historic resources. The regulations provide specific criteria for determining whether an action will have an effect, and whether that effect will be adverse. These criteria are given below.

36 CFR 800.5 Assessment of Adverse Effects

(a) *Apply Criteria of Adverse Effect*. In consultation with the SHPO/THPO and any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to identified historic properties, the Agency Official shall apply the criteria of adverse effect to historic properties within the area of potential effects. The Agency Official shall consider any views concerning such effects which have been provided by consulting parties and the public.

(1) *Criteria of adverse effect*. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

(2) Examples of adverse effects. Adverse effects on historic properties include, but are not limited to:

(i) Physical destruction of or damage to all or part of the property;

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access that is not consistent with the Secretary's Standards for the Treatment of Historic Properties and applicable guidelines;

(iii) Removal of the property from its historic location;

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;

(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii) Transfer, lease or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance

SECTION 4(f), TDOT SUMMARY SHEET

WHAT IS SECTION 4 (f)? Codified at 49 CFR 303, "Section 4 (f)" refers to a section of the U.S. Department of Transportation Act which gives special consideration to the use of park and recreation lands, wildlife and waterfowl refuges, and historic sites by Federally assisted transportation projects. Section 4(f) applies only to those projects using funds from the U.S. Department of Transportation. The law states:

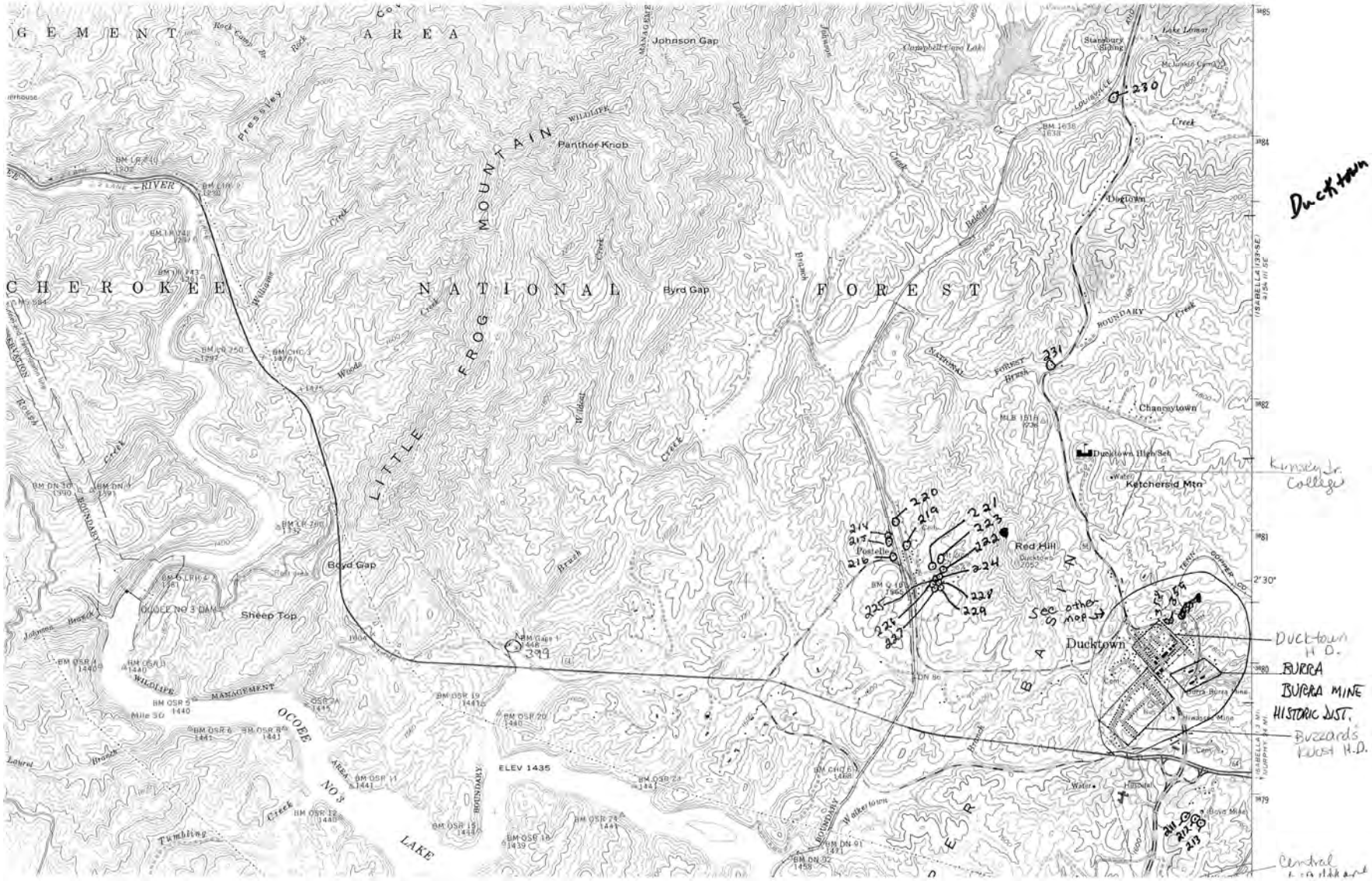
> (c) The Secretary may approve a transportation program or project (other than any project for a park road or parkway under section 204 of title 23) requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if-
>
> (1) there is no prudent or feasible alternative to using that land; and
>
> (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

WHAT IS THE SECTION 4 (f) PROCESS FOR HISTORIC PROPERTIES? To be considered "historic," a property must either be listed in the National Register of Historic Places or be determined eligible for such listing by the Keeper of the Register or the State Historic Preservation Officer (SHPO). On any project, the primary objective is to develop a design that does not have Section 4(f) involvement. If such a design is not possible, then the Section 4 (f) documentation is prepared and circulated. Such documentation is circulated to all appropriate agencies or groups (consistent with the Section 106 process and the National Environmental Policy Act), and as applicable, to the U.S. Department of the Interior, Housing and Urban Development, and Agriculture. It is also circulated to the agency having authority over the Section 4 (f) property. For historic properties, such agencies are the SHPO and the Advisory Council on Historic Preservation (ACHP). After review of any comments received, the final Section 4(f) documentation is sent to the Federal Highway Administration (FHWA) which determines if the requirements of the Section 4(f) statute are met. If the requirements are satisfied, then the FHWA will approve the use of the Section 4 (f) property.

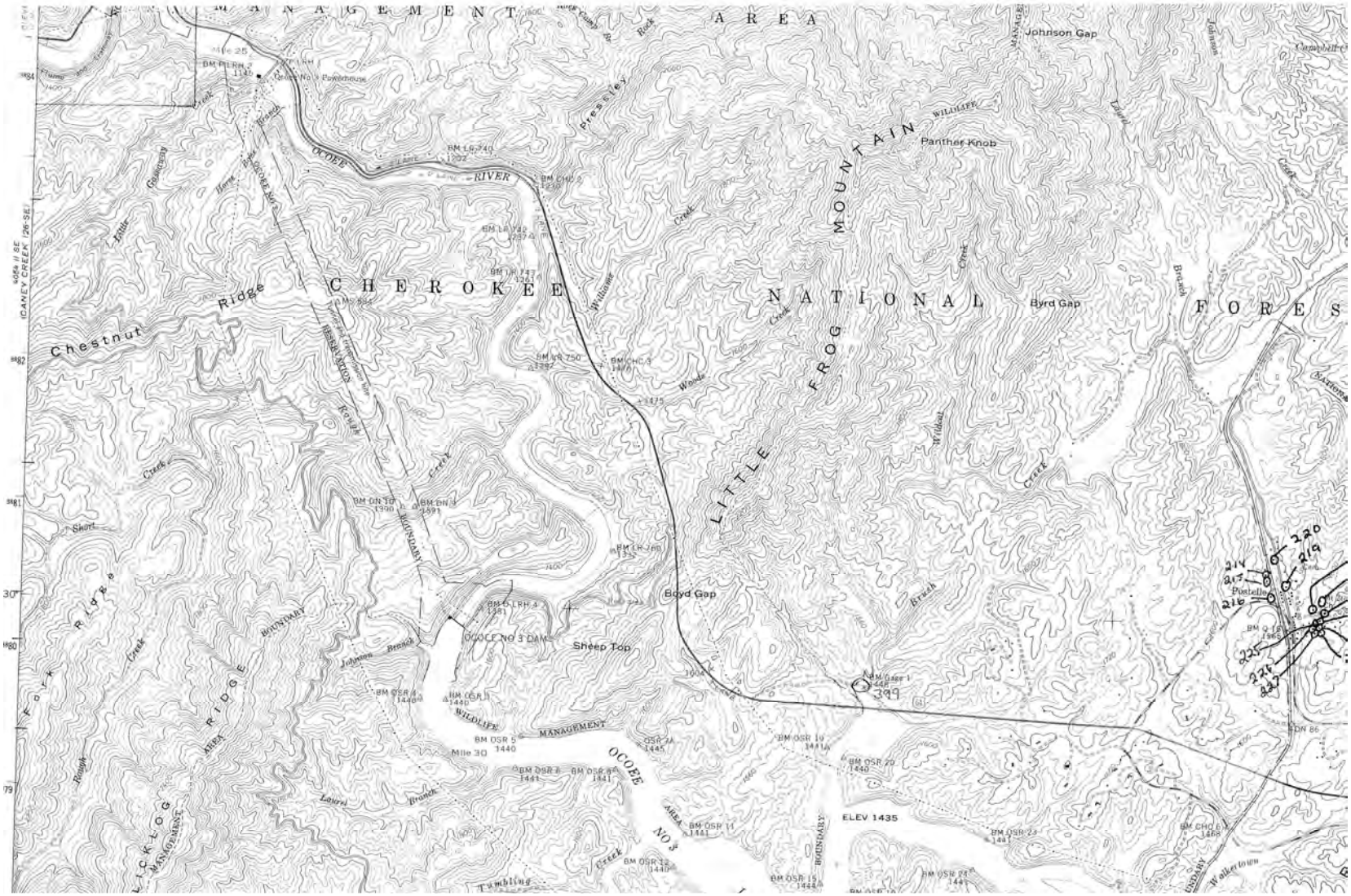
HOW ARE SECTION 4 (f) AND SECTION 106 RELATED? Section 106 is a provision of the National Historic Preservation Act of 1966, which requires all federal agencies to consider the effects of their projects on historic properties and to provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on those effects. The ACHP has promulgated regulations at 36 CFR 800 that describe the procedures that agencies must follow in order to comply with Section 106. Many of the Section 106 documentation requirements overlap the Section 4 (f) documentation requirements for historic properties. For this reason, for projects having a 4(f) use of a historic site, the documentation for Section 106 and Section 4 (f) is usually combined into one document and circulated to the appropriate groups described above. The consent of neither the SHPO nor the ACHP is necessary for FHWA to approve a Section 4 (f) use, but FHWA gives great consideration to comments from these agencies.

Appendix B
THC Survey Maps

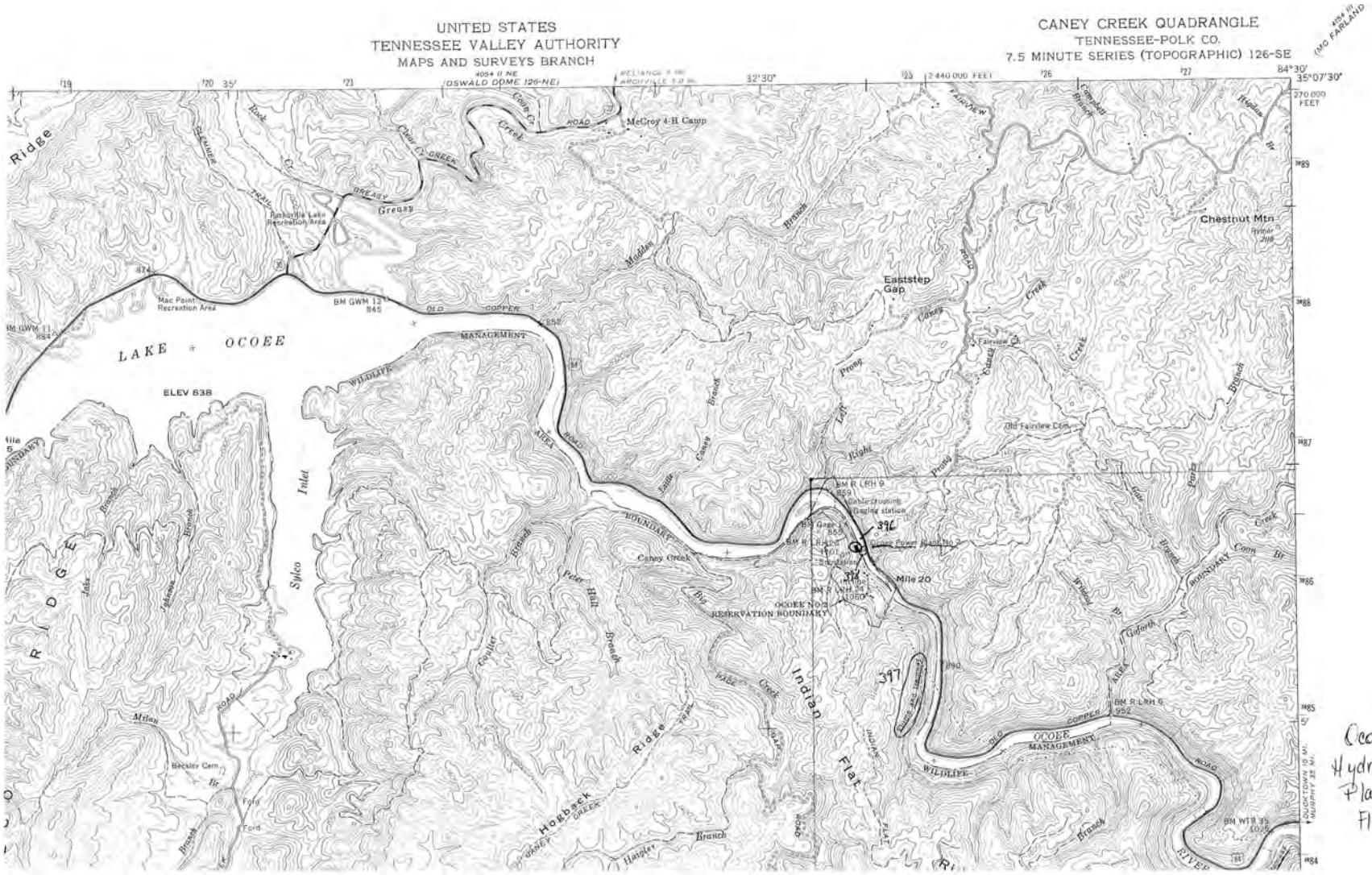
East Half, Ducktown, TN 2003 USGS Quadrangle



West Half, Ducktown, TN 2003 USGS Quadrangle

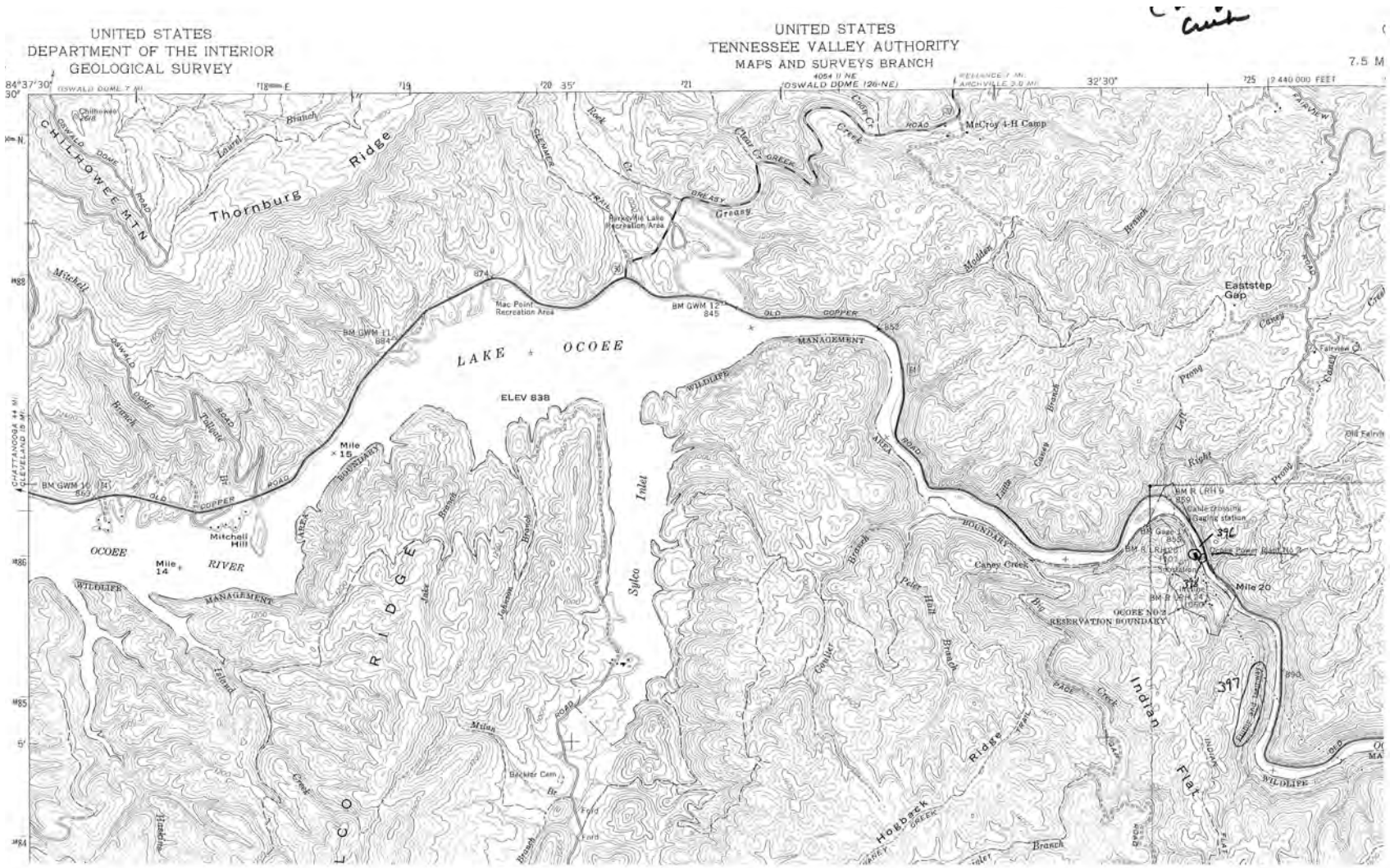


East Half, Caney Creek, TN, USGS Quadrangle

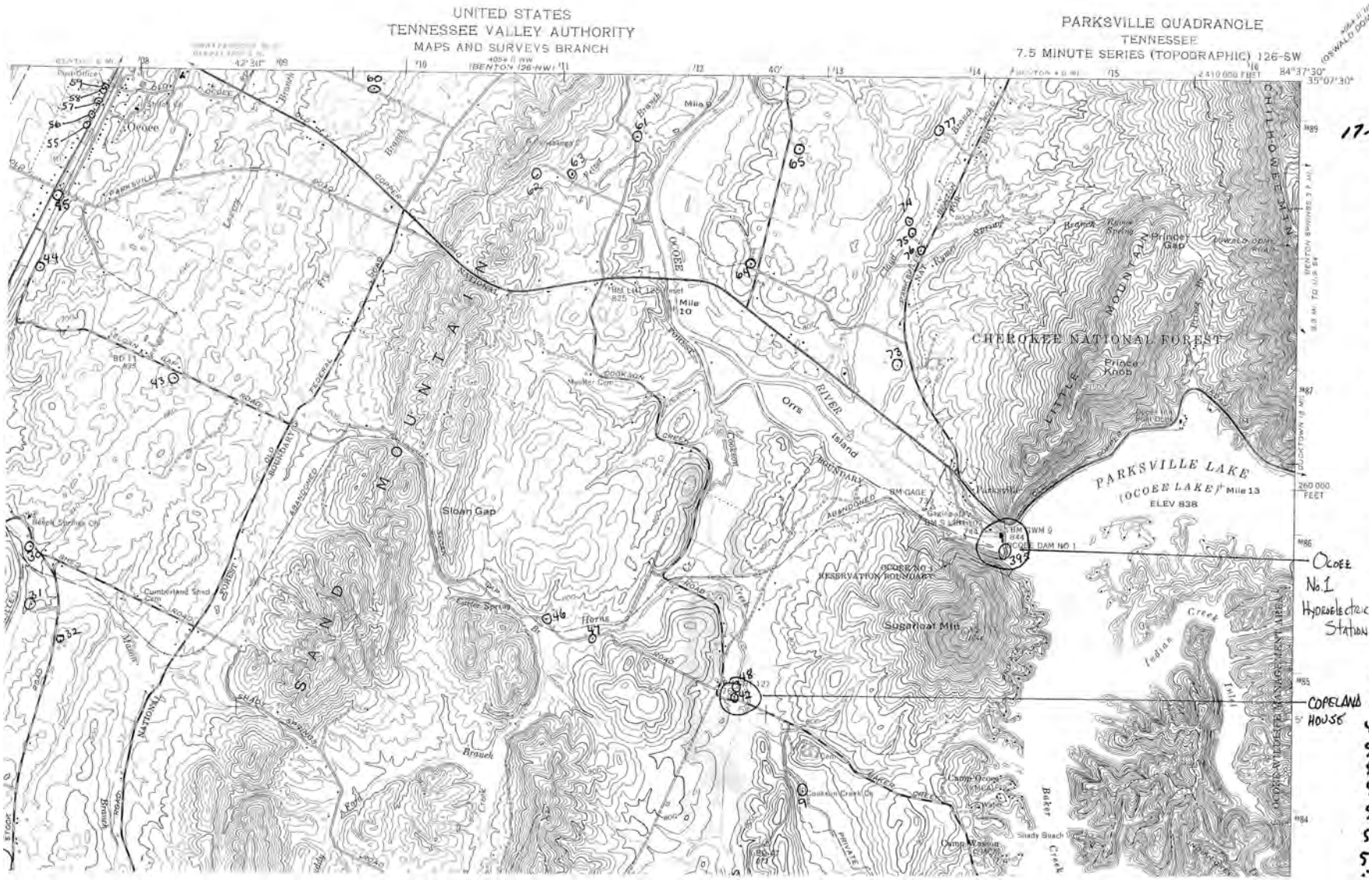


Ocoee No.2 Hydroelectric Plant & Flume

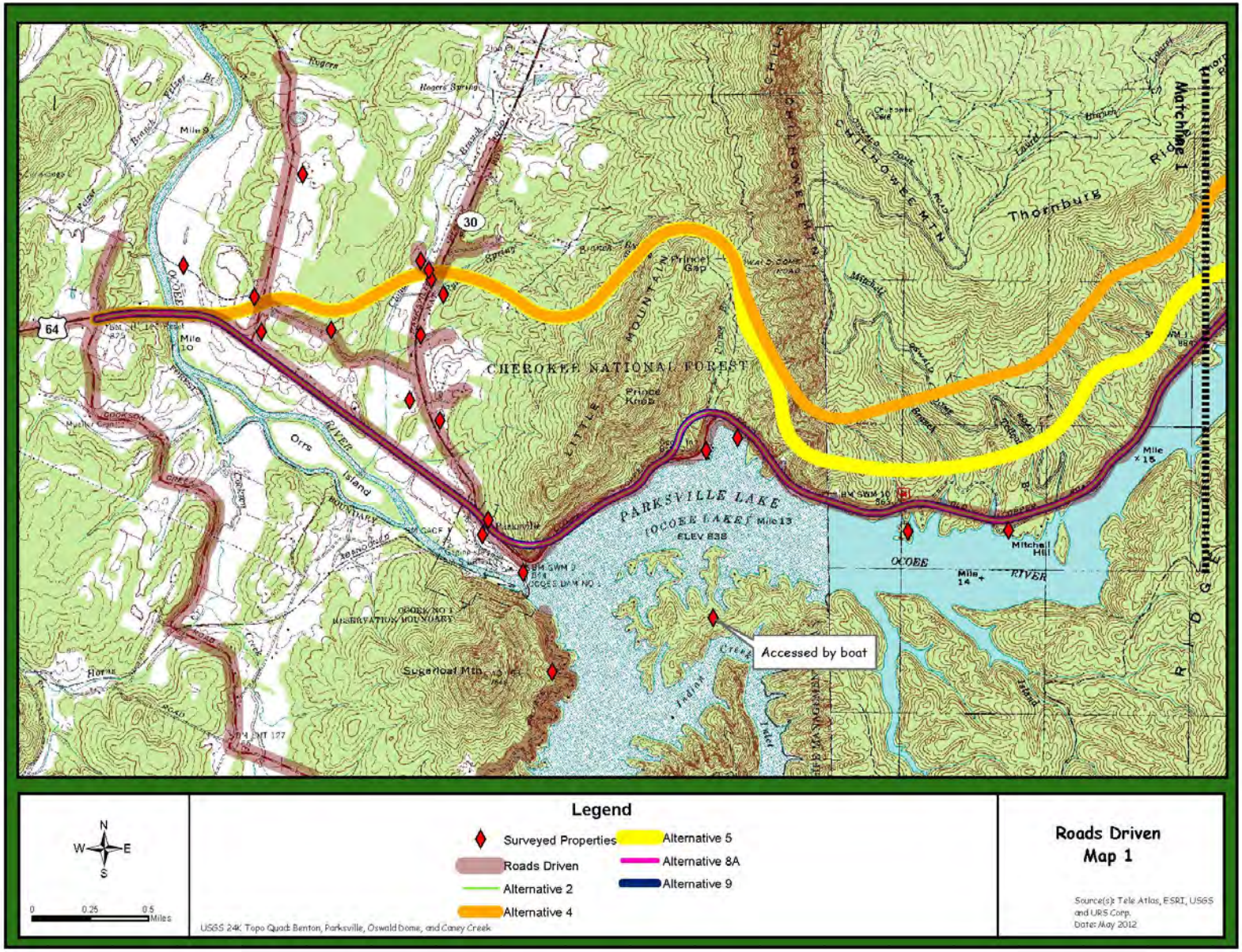
West Half, Caney Creek, TN, USGS Quadrangle

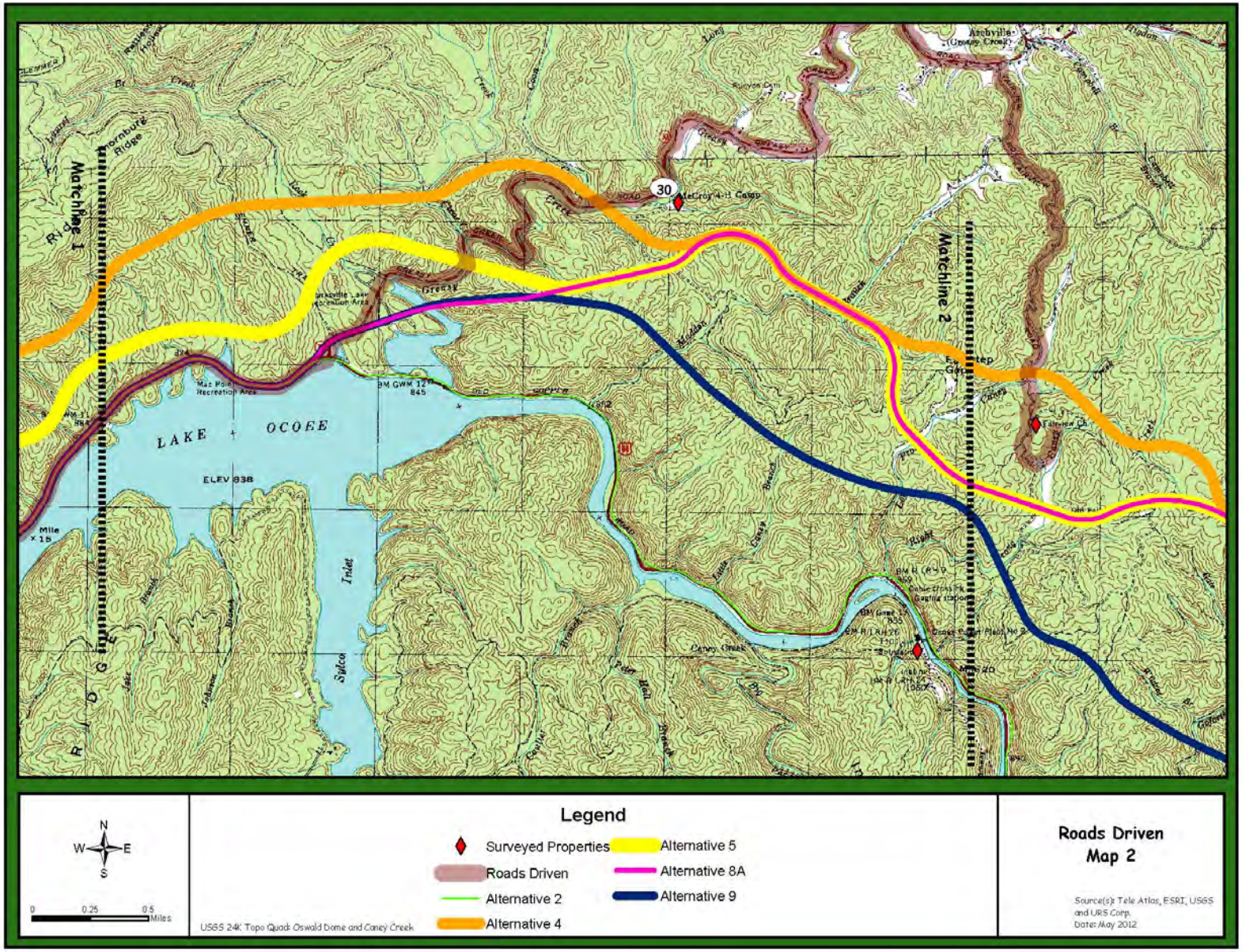


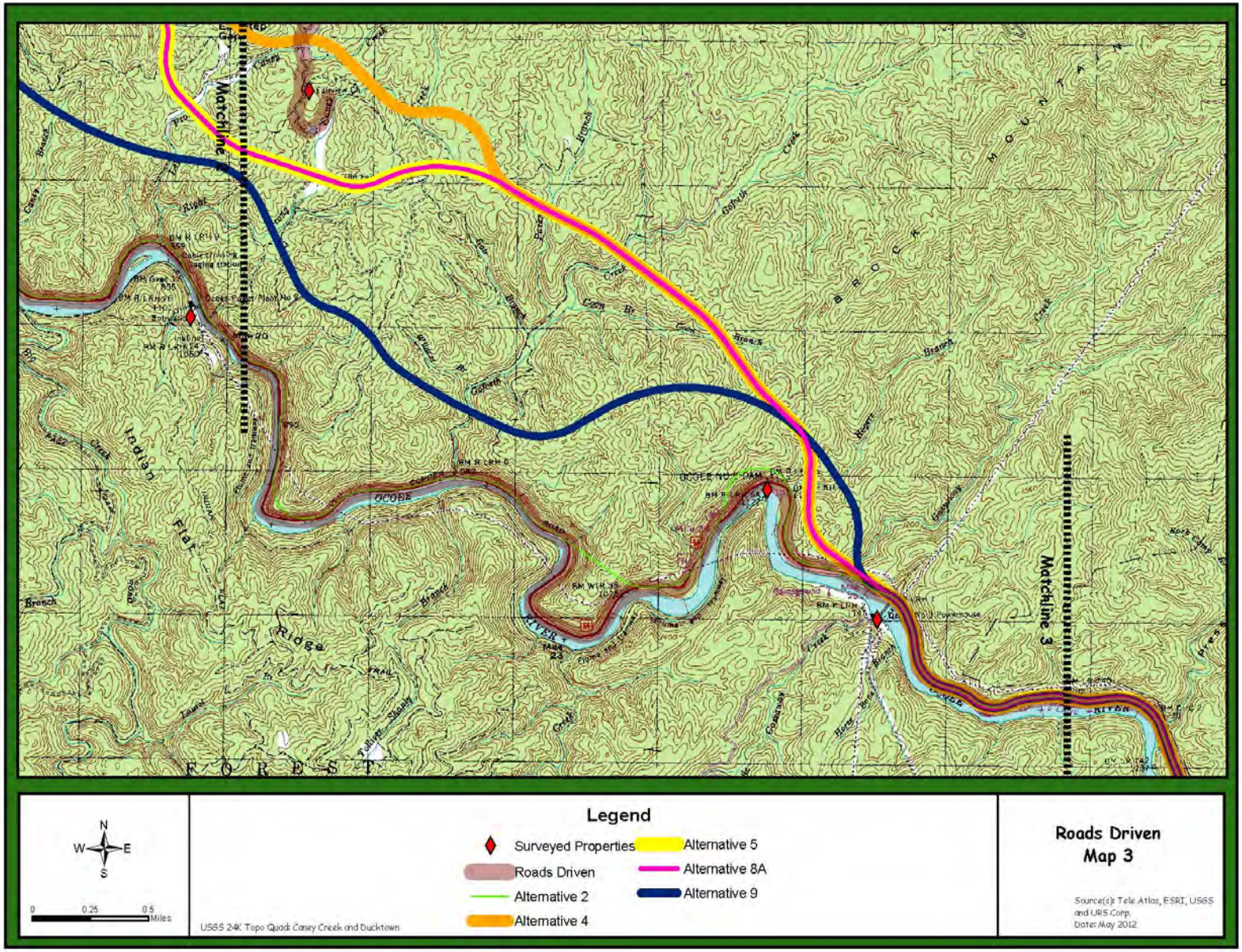
East Half, Parksville USGS Quadrangle

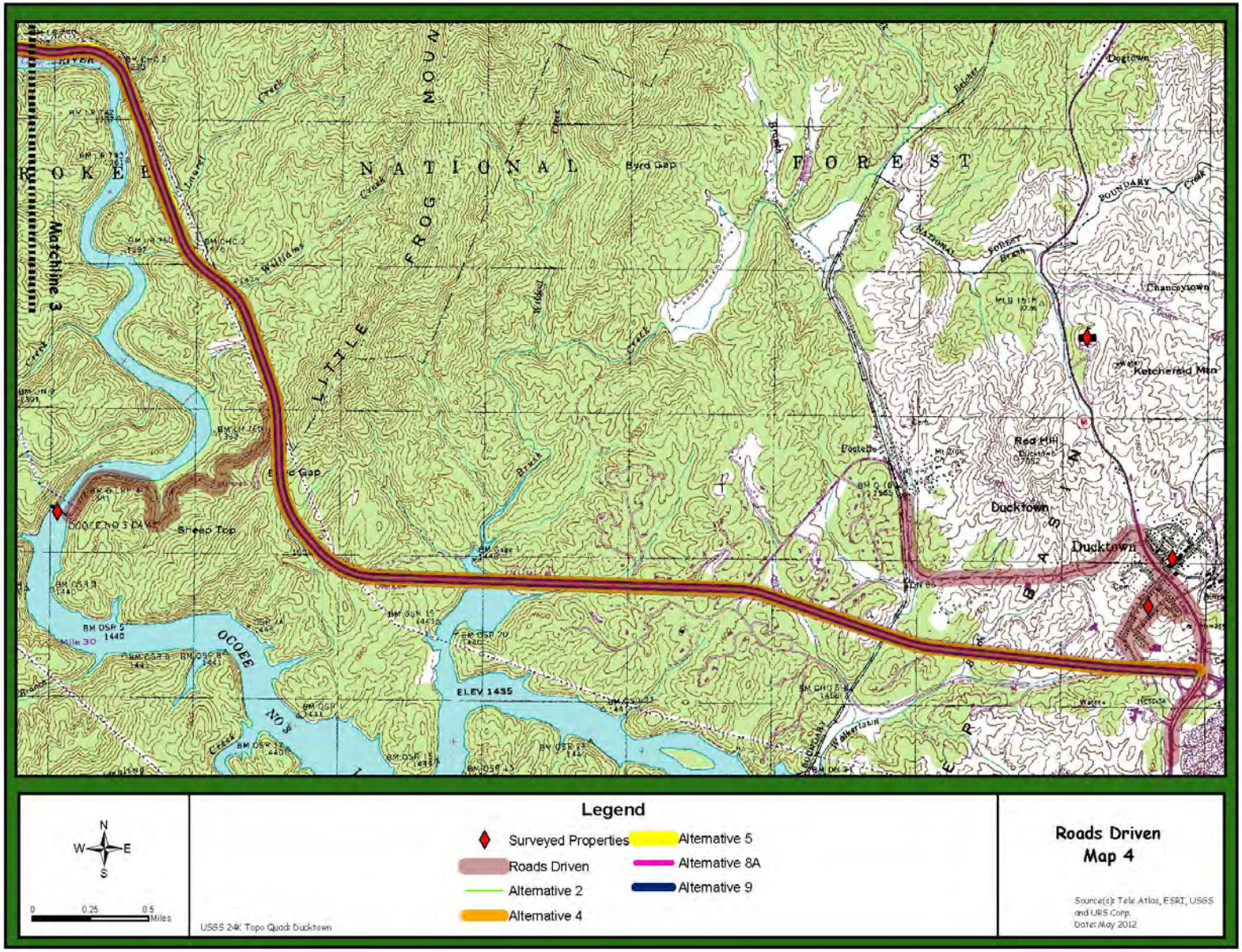


Appendix C
Roads Driven


Matchline 1
Thornburg
CHEROKEE NATIONAL FOREST
PARKSVILLE LAKE
(OCOEE LAKE) Mile 13
ELEV 838
OCOEE
RIVER
Mitchell Hill
Sugarloaf Mtn
Orrs Island
Accessed by boat
Legend
Surveyed Properties
Roads Driven
Alternative 2
Alternative 4
Alternative 5
Alternative 8A
Alternative 9
USGS 24K Topo Quad: Benton, Parksville, Oswald Dome, and Caney Creek
Roads Driven
Map 1
Source(s): Tele Atlas, ESRI, USGS and URS Corp.
Date: May 2012

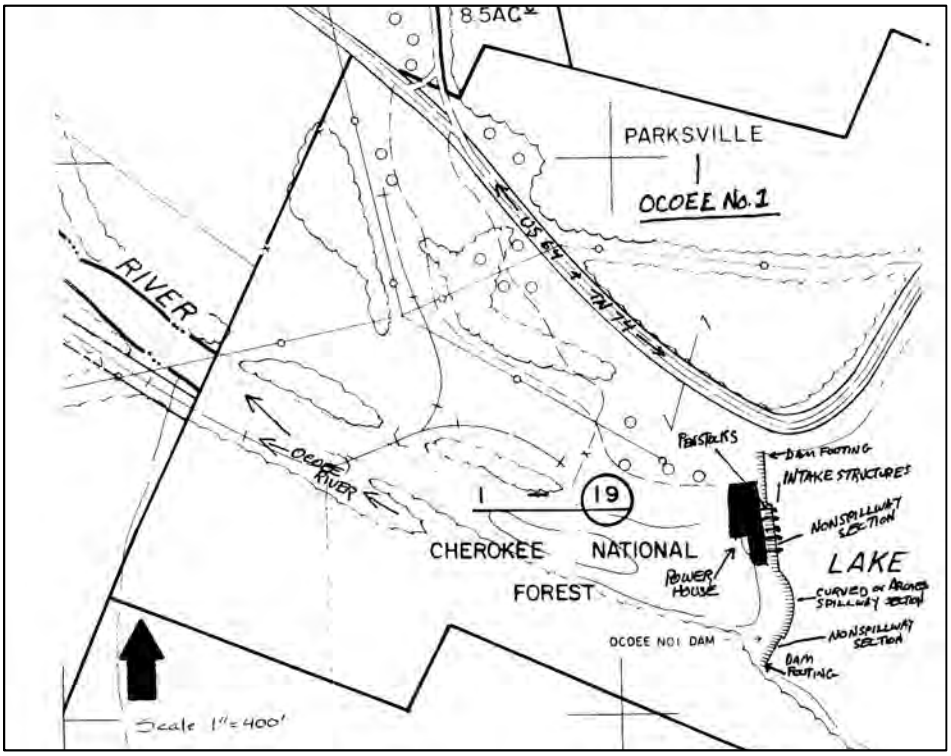

Matchline 1
Matchline 2
LAKE OCOEE
ELEV 838
Inlet
Sylco
30
McCroy 4-H Camp
Legend
Surveyed Properties
Roads Driven
Alternative 2
Alternative 4
Alternative 5
Alternative 8A
Alternative 9
N
W
E
S
0
0.25
0.5
Miles
USGS 24K Topo Quad: Oswald Dome and Caney Creek
Roads Driven
Map 2
Source(s): Tele Atlas, ESRI, USGS and URS Corp.
Date: May 2012


Matchline 2
Matchline 3
Legend
Surveyed Properties
Roads Driven
Alternative 2
Alternative 4
Alternative 5
Alternative 8A
Alternative 9
N
W
E
S
0
0.25
0.5
Miles
USGS 24K Topo Quad: Caney Creek and Ducktown
Roads Driven
Map 3
Source(s): Tele Atlas, ESRI, USGS and URS Corp.
Date: May 2012

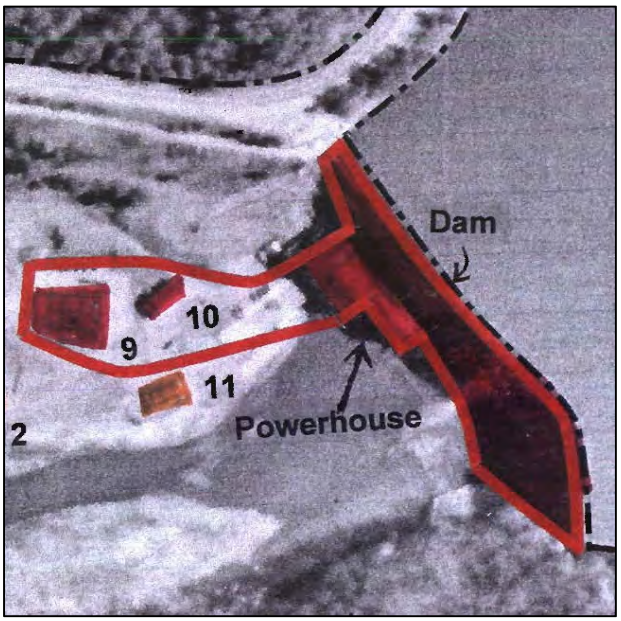

Legend
Surveyed Properties
Roads Driven
Alternative 2
Alternative 4
Alternative 5
Alternative 8A
Alternative 9
Roads Driven
Map 4
Source(s): Tele Atlas, ESRI, USGS and URS Corp.
Date: May 2012
USGS 24K Topo Quad: Ducktown
0 0.25 0.5 Miles
N
W
E
S
Matchline 3
NATIONAL FOREST
Byrd Gap
Sheep Top
Ducktown
Red Hill
Ketchersid Mtn
Chancaytown
Dogtown
ELEV 1435
OCOEE NO 3 DAM

Appendix D
NRHP Boundary Maps of Affected Properties

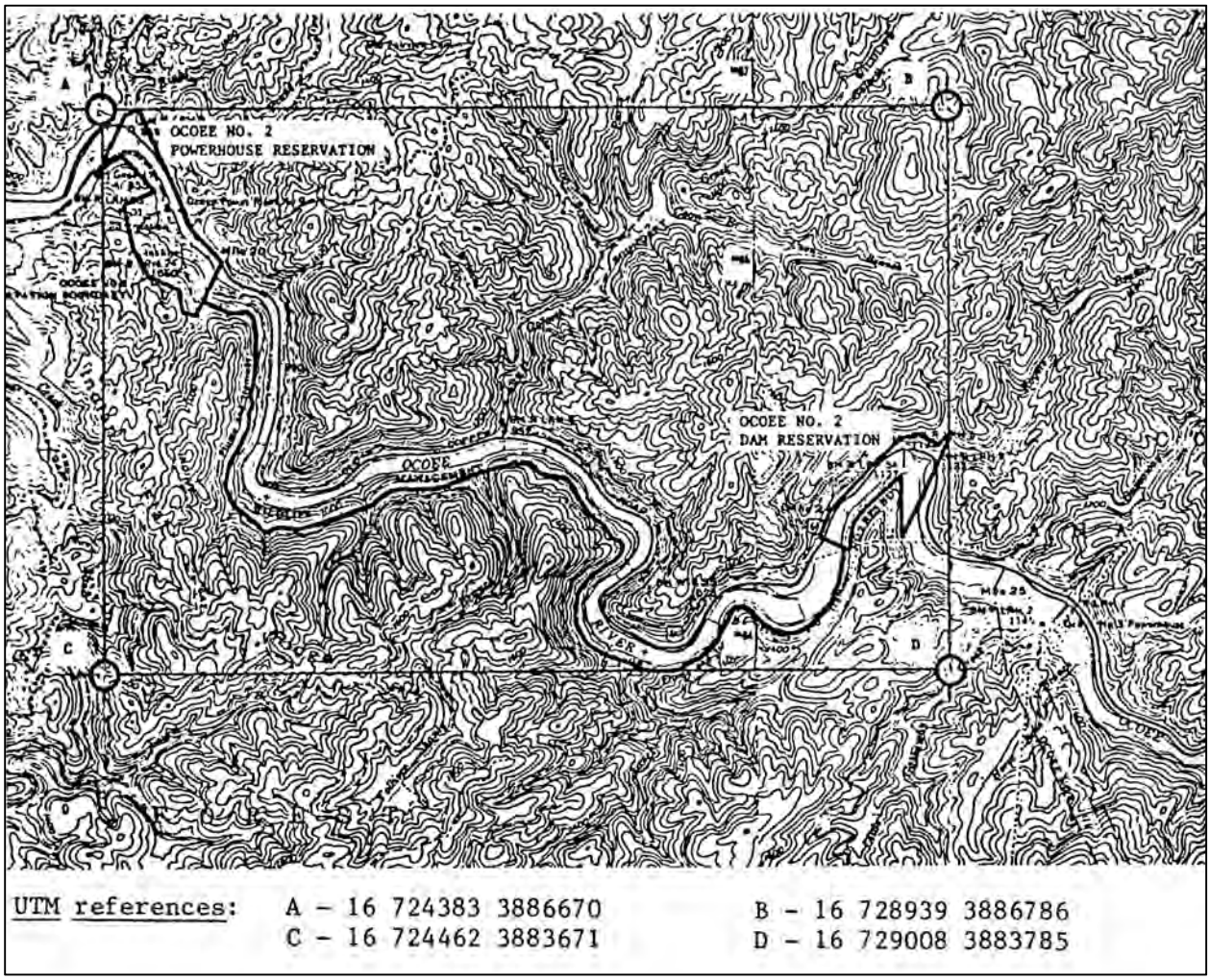
Boundary Maps of NRHP-Listed or Previously Determined Eligible Resources



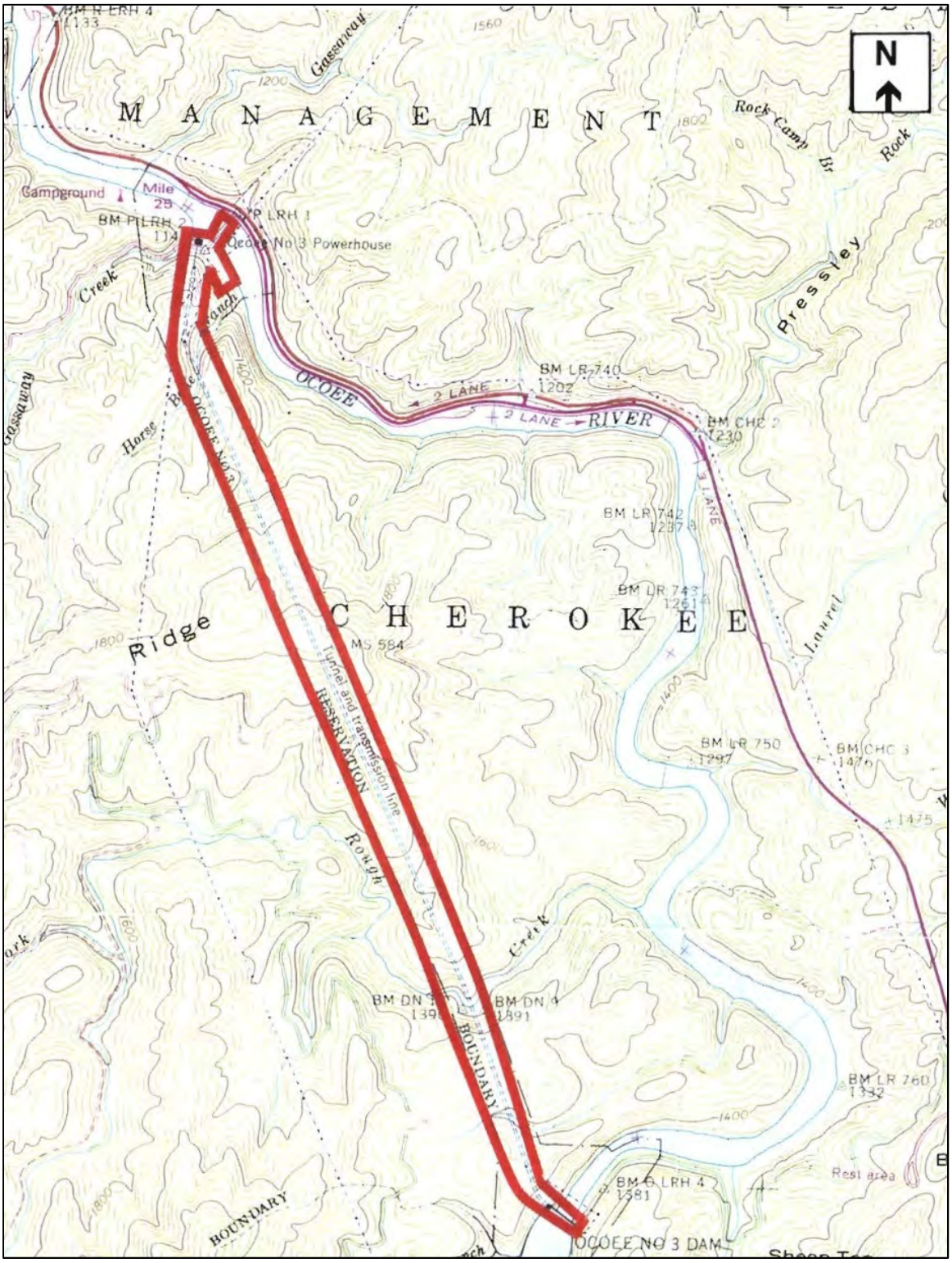
Ocoee No. 1. Boundary map from 1990 NRHP nomination. Boundary is footprint of dam and powerhouse.



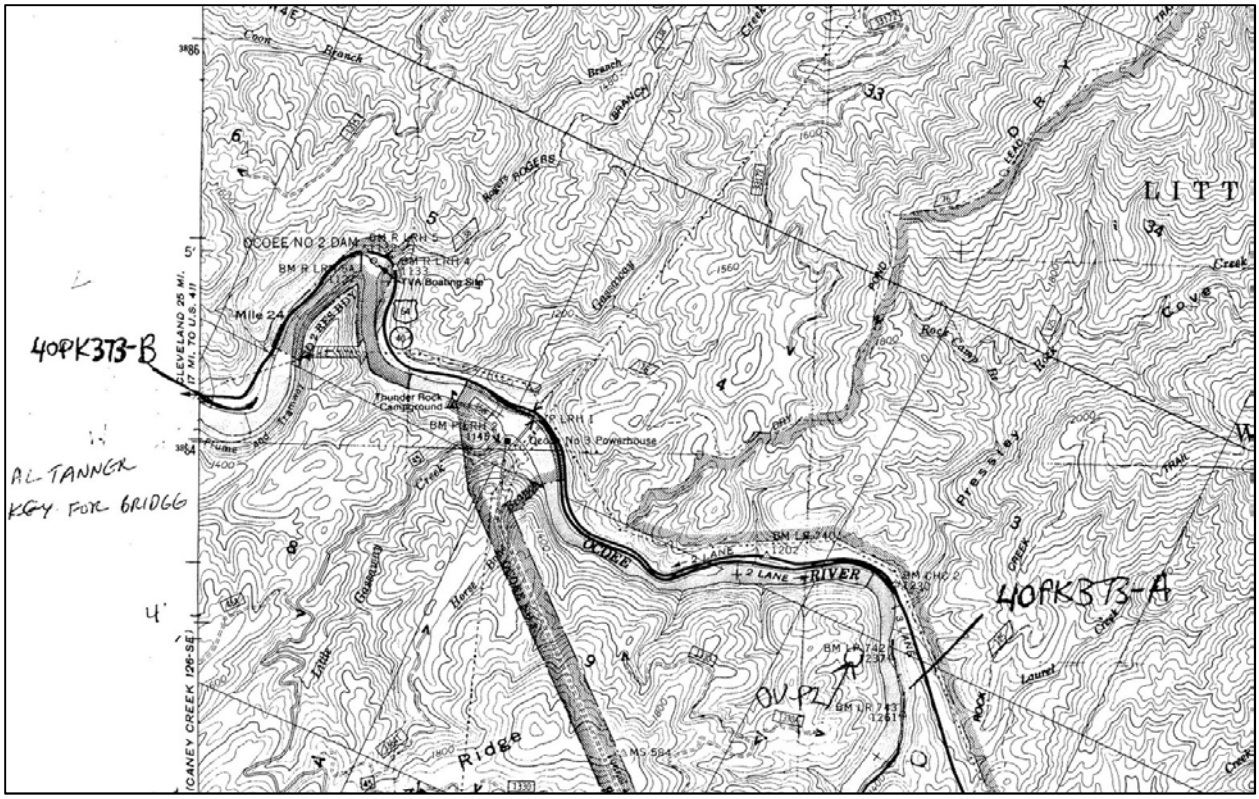
Ocoee No. 1. 2000 Recommended Boundary Expansion concurred to by SHPO. From 2000 Historic Architectural Assessment.



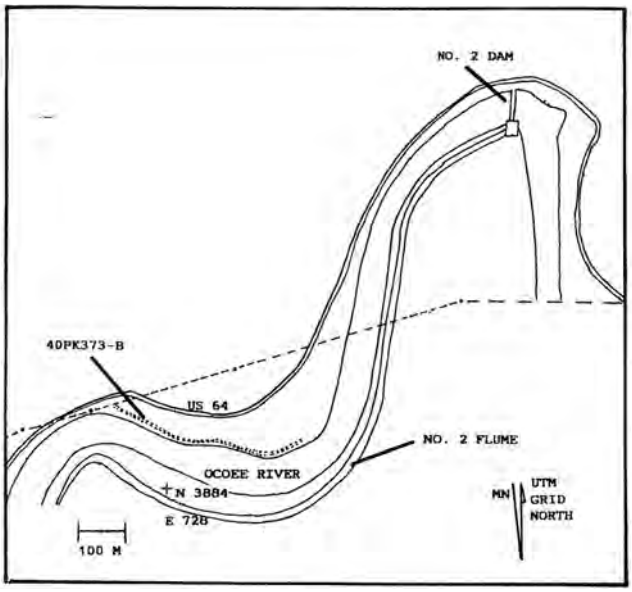
Ocoee No. 2. NRHP boundary map. Boundary includes powerhouse, flume and dam.



Ocoee 3. Recommended NRHP-eligible boundary concurred to by SHPO in 2000. From 2000 Historic Architectural Assessment.



From 1991 Determination of Eligibility for Old Copper Road 40PK373A (Trail at Whitewater Center) and 40PK373B



Detail of 40PK373 B

Appendix E
Owners of Affected Properties

Rogers Century Farm
122 Welcome Valley Road
Benton, TN 37307 (Polk County)
Owner:
Samuel Rogers
12101 Creekwood Terrace
Knoxville, TN 37934

Joe and Diane Fetzer
Birchland Ocoee Farms (Fetzer Farm)
173 Welcome Valley Road
Benton, TN 37307 (Polk County)

Tennessee Valley Authority
400 W. Summit Hill Dr.
Knoxville, TN 37902-1499

U.S. Forest Service – Cherokee National Forest
Forest Supervisor's Office
2800 Ocoee Street N
Cleveland, TN 37312

Appendix F
Recreational Resources Report

Appendix F
Recreational Resources Report

USFS RECREATIONAL RESIDENCES*
OCOEE DISTRICT, CHEROKEE NATIONAL FOREST

**Report also contains survey notes for the YMCA Camp and the Ocoee Inn*

Prepared by: Margaret Slater, URS Corporation, August 24, 2011
Revised by: Robbie Hayes, URS Corporation, August 20, 2013

This report contains data collected in the June 2011 and August 2011 URS field review that was undertaken in support of the Corridor K Environmental Impact Statement and from the 2005 field review by the Tennessee State Historic Preservation Office (SHPO) and representatives from the U.S. Forest Service (USFS), Cherokee National Forest (CNF). The results of the 2005 field review were contained in a file at the Tennessee Historical Commission (THC), "Polk County General Information."

The CNF contains around 65 recreational residences that are privately leased and permitted by the CNF. A data sheet in the THC files included a status report of the cabins in various years:

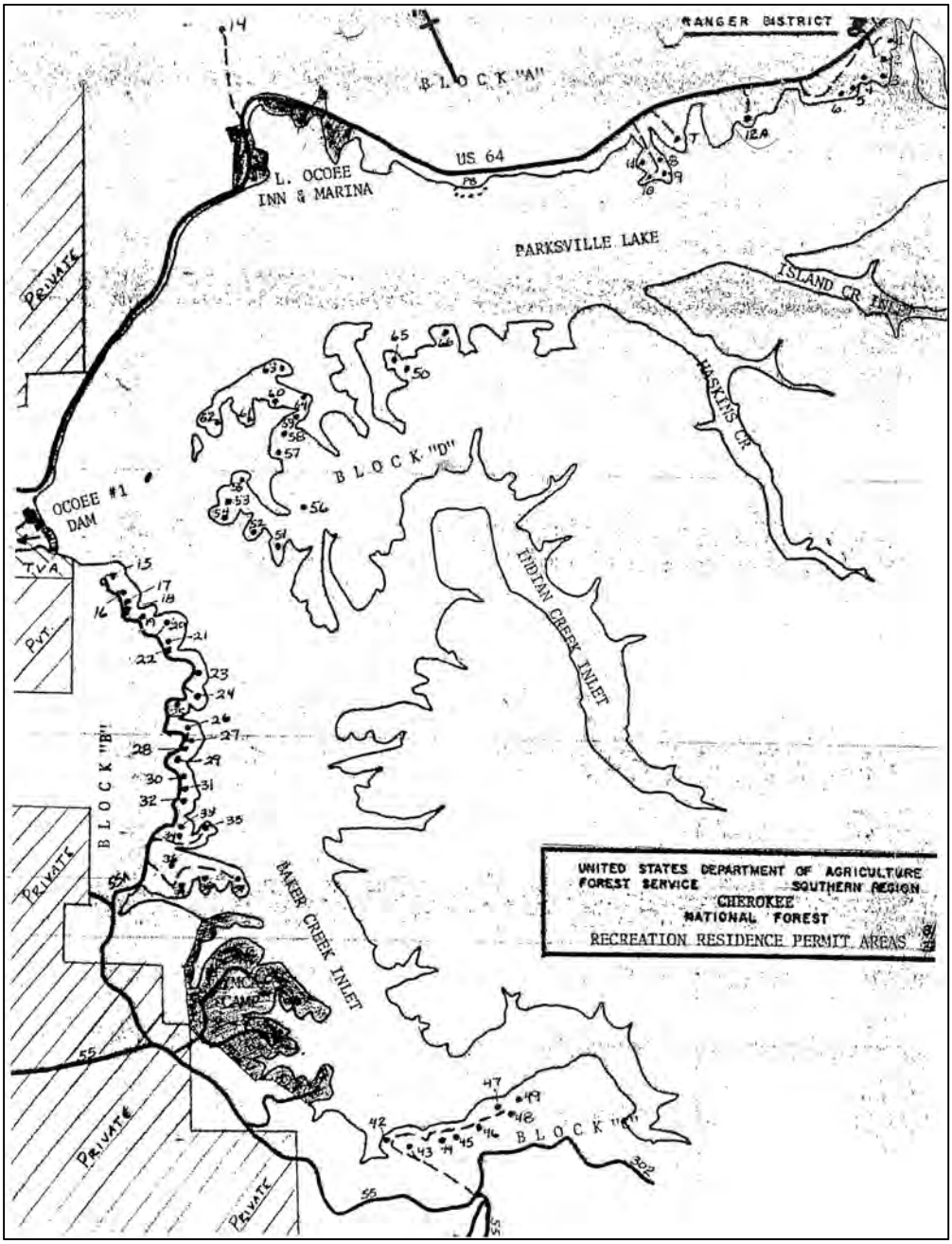
1950s	1992
15 cabins between 400 and 756 square feet	29 cabins between 400 and 1,200 square feet
1 cabin at 1,399 square feet	29 cabins between 1,224 and 2,049 square feet
	1 cabin at 2,647 square feet
	1 cabin at 3,880 square feet

According to Quentin Bass of the CNF, construction of the recreational residences may have begun around 1910–1912, when the area was under the jurisdiction of TEPCO, the Tennessee Electric Power Company. The earliest are thought to be the group on the south side of US 64 near Forest Service Road 77, likely originally 400 square feet in size. They may date to the nineteen teens or twenties. By the time the Tennessee Valley Authority (TVA) took over control of the area in 1939–1940, most of the recreational residences had been built. By the late 1940s, the USFS controlled everything around the lake except for the TVA reservations and later, the State of Tennessee-controlled boat put-ins and take-outs. The land on which the residences stood came to the USFS, along with the leases for the land occupied by the residences. The owners owned the buildings and leased the land. Construction of residences on new sites is not permitted, and if a house is demolished, the lease holders have 1 year to rebuild or the lease is lost.

Recreational Residences 1–14: During the June 2011 survey, URS visited the recreational residences on the south side of US 64 near Forest Service Road 77, photographed them, and recorded building information. A group of 11 recreational residences was examined on the south side of US 64 near the Ocoee Ranger Station. A few additional recreational residences were also examined at and adjacent to the Ocoee Marina. Photographs and building descriptions were undertaken. Time did not permit an examination of the residences south of Ocoee #1 and the residences across Lake Ocoee (Parksville Lake) from the Ocoee Marina were accessible by boat only and could not be accessed.

Recreational Residences 15–66: During the 2005 survey, these residences accessible only by boat and others were visited by boat. At that time, the SHPO staff took notes and some

photographs of the recreational residences and the YMCA camp. On August 29–31, 2011, representatives of the SHPO, the Tennessee Department of Transportation Environmental Division, the USFS CNF, and the project Consultant's lead engineer and historian took a boat trip to look at the group of residences that were accessible only by boat. Over the next 2 days, the Consultant surveyed all the recreational residences in the potential project area of potential affect. Additionally, USFS CNF staff assisted the Consultant with a review of the records for each recreational residence. A map locating the resources is shown below.



Source: USFS CNF.

The findings of the three surveys are outlined in the photographs and inventory table included on the following pages.

PHOTOGRAPHS OF RECREATIONAL RESIDENCES

Block A—US 64	
#1	#3
#4	#5 New
#6	#7
#8	#9

Block A—US 64, Continued

#10

#11

#12

#12A New

#14

Block B—Sugarloaf Group

#15

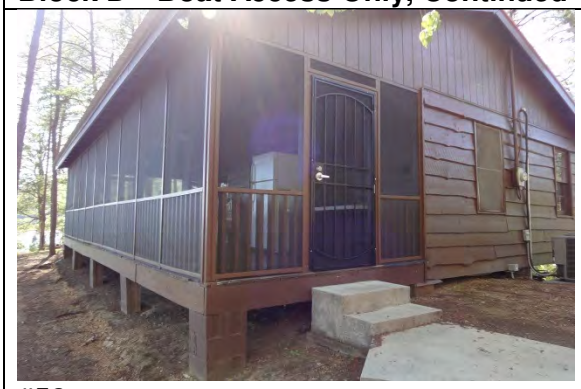
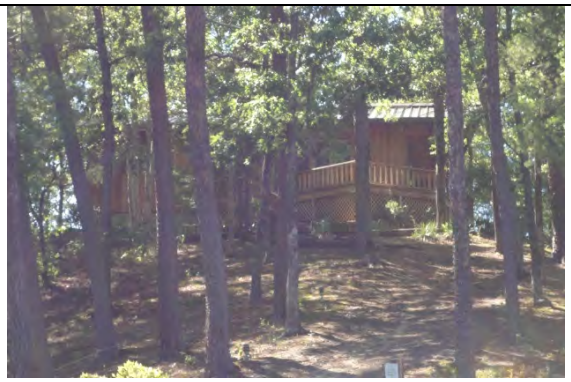
#16

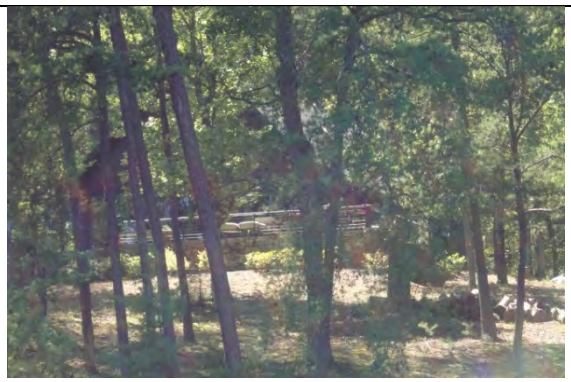
#17

Block B—Sugarloaf Group, Continued	
#18	#19
#20	#21
#22	#23
#24	#25

Block B—Sugarloaf Group, Continued	
#26	#27
#28 New	#29
NO PHOTO #30	#31
#32	#33 Proposed for Demolition

Block B—Sugarloaf Group, Continued	
#34	#35
#36	#37
#38 New	#39
Block D—Boat Access Only	
#50	#51

Block D—Boat Access Only, Continued	
 #52	#53
#54 New	 #55 New
#56 New	#57

Block D—Boat Access Only, Continued	
#58	#59 New
#60	#61
#62	 #63 New

Block D—Boat Access Only, Continued	
#64	#65 New
#66	

Recreation Resource Inventory

#	Description	Year Built	Size when Built (ft^2)	1992 Size (ft^2)	Post 1961 Additions	General Assessment
US 64 Group						
1	In rough condition—being renovated, new door, chimney gone, 6:6 windows on rear, novelty board and weatherboard siding, rear has paired 4-pane fixed windows and new concrete block piers, shell of a building			1,282	Date unknown: screened porch; 1997: roof replaced	Very altered, loss of original fabric
3	Frame, asphalt shingled roof, original storm door and front door, stone end chimney, window opening fitted with wood shutters, concrete block foundation on rear; brick piers on front, wood steps, exposed rafter tails, green, rear screened porch appears to be added, chimney on gable end, shed section on chimney gabled end.			882	1976: fireplace and chimney	
4	Frame, asphalt shingled roof, original storm door and front door, stone end chimney, window opening has no sash—fitted with wood shutters, concrete block foundation on rear; brick piers on front, not altered, wood steps, exposed rafter tails, green, rear screened porch, chimney on gable end, shed section of chimney gabled end.	1952		1,230	1981: 576 ft^2 bedroom addition	
5	Altered, new concrete block chimney, “Totally re-done”	1951		2,104	Rebuilt in 2011	Very Altered
6	New	1948				New
7	Built by Mayfield family, attorney for Electric Power Company—still in family. Added deck and basement, added bathroom #2 40 years ago, unfinished novelty board siding may not be original, no sash in side windows—shutters only.	1920–1930s		2,099		Alterations expansions
8	Novelty board siding, original doors and windows, brick foundation, garage on lower level, 6:6 windows, rear siding different, brick flue, gutter system, screened porch on new foundation on gable end, rear addition	1944		1,836		Alterations expansions

#	Description	Year Built	Size when Built (ft^2)	1992 Size (ft^2)	Post 1961 Additions	General Assessment
9	Novelty board siding, old screen door, modern windows, concrete block foundation, enclosed back porch, new brick foundation under back porch, concrete block foundation, new front porch, addition on rear				1987: 60 ft^2 addition; 1995: 321 ft^2 deck addition	Alterations expansions
10	"TimberLane", original (?) novelty-board siding, new windows, 8-pane door, asphalt shingled roof, some original 4-pane fixed windows, brick chimney, screened in back porch, new portico on front	1948			1979: 60 ft^2 bedroom addition	Alterations expansions
11	Rolled asphalt over foundation—brick piers, asphalt shingled roof, new back porch and deck, some new windows, some original fixed pane windows, new storm door, stone chimney appears re-built	1956		972	1992: 430 ft^2 deck addition	Alterations expansions
12	Owned now by Jerry Hamby. Located at rear of new marina building. Built in the 1930s as Hargess Lumber Company cabin. Stone chimney, new siding, some new windows, some fixed pane windows (6 panes and 9 panes), exposed rafter tails, asphalt shingled roof	1944			rebuilt 1970s; 1982: 280 ft^2 deck addition	Alterations expansions
12A	New	1989				New
14	Concrete block, hipped roof, shed porch on concrete foundation, modern stone chimney and windows	1947			1973: burned and rebuilt; 1974: roof extended; 1977 168 ft^2 addition	Alterations expansions
Sugarloaf Group						
15	Screened porch on stone foundation, some new louvered windows, old stone chimney, 6:6 windows, board-and-batten siding	1950	832	1,224		Alterations expansions
16	Newer siding, interior looks old, screened porch, asphalt shingled roof, new 6:6 horizontal windows			1,082		Alterations expansions
17	A-frame, asphalt shingle roof, new windows, screened in porch on lakeside, side shed addition, built 1971	1953			rebuilt 1970, 1987	Altered, not historic

#	Description	Year Built	Size when Built (ft^2)	1992 Size (ft^2)	Post 1961 Additions	General Assessment
18	New windows, small, novelty board siding, enclosed porch with new glass windows, addition, low-pitched roof	1955	480	1,996		Alterations expansions
19	Roof line changed, new stone chimney, new 1"1 windows, roof line altered, new windows and doors	1950		1,105	192 +285 ft^2 added	Alterations expansions
20	Board and batten siding, L-shaped screened porch, board floors on porch, huge new stone chimney, board shutters, 6:6 windows and 6-pane windows, bunk house	1946	980	1,406		Alterations expansions
21	Low-pitched roof, square plan, large, open deck	1931		1,931	rebuilt 1992	Alterations expansions
22	Standing seam metal roof, 2-story, screened porch on lower level, board and batten siding, 6 -pane, side-by-side windows, walkway to back porch on upper level	1955	640	1,327		Substantial alterations
23	Standing seam, low-pitched metal roof, board and batten siding, modern 1:1 windows, concrete block foundation on part; other part board and batten to ground level, L-shaped porch, pine walls on interior			1,456		Alterations expansions
24	Asphalt shingled roof, new board siding, concrete block foundation, 1:1 modern windows, old board floor on porch, modern stone chimney, screened porch, open elevated porch on lake side			1,410	240 ft^2	Alterations expansions
25	Very altered. Screen porch has new tile floor, new windows and door, board siding, 1:1 windows	1946	1,012	1,297	336 ft^2	Substantial Alterations
26	Gable front orientation, weatherboard siding, 3:1 windows, concrete block foundation, low-pitched asphalt shingled gable roof, exposed rafter tails, band of six windows, original stone interior chimney, screened porch, elevated open deck	1952		840	3 decks added 1992	Expansion
27	Novelty board siding, asphalt shingled roof, 6:6 windows, exposed rafters, deck on piers, painted wood floors on porch, interior original pine ceiling and walls, pine bar in kitchen, new picture windows	1951		1,350	2003 remodel	Alterations expansions
28	New--old cabin destroyed by fire					New

#	Description	Year Built	Size when Built (ft^2)	1992 Size (ft^2)	Post 1961 Additions	General Assessment
29	L-shaped, low-pitched gable roof, wood siding	1946	600	1,400	1960s major alterations	Substantial alterations
30	Asphalt shingled roof, sprawling, in valley	1953		760	144 ft^2	Could not access
31	Small, casement windows, screened porch, odd siding, interior has original pine walls, oddly-pitched roof, gable end entrance	1950		1,365		Alterations expansions
32	Concrete block construction, asphalt shingled gabled roof, concrete block chimney, interesting windows on rear of house leading to deck--3 horizontal panes with a narrower pane above, some 8-pane windows, some horizontal 1 by 1 windows	1946–1948	500	892		Alterations expansions
33	Screened back porch, enclosed and open side porch, open elevated porch, side by side 6-pane windows, original board and batten door, board and batten siding	1949			Proposed for demolition	Alterations expansions
34	Scalloped fascia board, wide board siding, original casement windows, screen porch on posts, interior re-done, floors old, nice fireplace	1958		1,872	1984 porch added	Substantial alterations
35	Shingle siding, low pitched roof, stone-faced chimney, new doors and windows	1939		2,647	Altered in 1998	Substantial alterations
36	Modern T-21 siding (vertical board), screened in porch, standing seam metal roof, modern windows, exposed rafter tails	1961	840	1,176	2004—216 ft^2 deck	Alterations expansions
37	Two-story, hipped roof, modern siding, no historic fabric visible, major additions	1941				Substantial alterations
38	Looks new, not A-frame as described in Claudette's inventory	1956		1,422	New in 1991	New
39	Brick chimney, some old 6:6 windows, board and batten siding, clerestory, new concrete block basement, screened porch on new concrete block			1,624		Alterations expansions

#	Description	Year Built	Size when Built (ft^2)	1992 Size (ft^2)	Post 1961 Additions	General Assessment
Block D--Boat Access Only						
50	Frame, multi-sided lattice porch, double doors on lakeside, screened room between porches, board and batten siding, exposed rafter tails, standing seam metal roof, screened porch, new deck, new windows, faux wood paneling on interior, wide board floors			1,369	Renovated 1991	Major alterations / expansions
51	Novelty board siding, old screen door, particle board covers foundation, vertical board siding, 6:6 windows, board floor on porch, new front door, screened porch, adjacent small building	1954	554+	1,014	Addition in 1964	Alterations expansions
52	Gable-front orientation, "wavy" siding, screened porch across front with spindle rails, new security doors, concrete block pier foundation, new siding in gables, concrete block support building	1958		1,200		Alterations expansions
53	Board and batten siding, asphalt shingled roof, hardwood floors on back, new concrete block fireplace, some 6:6 windows, other 1:1 windows, modern siding on part			1,431		Alterations expansions
54	New					New
55	New					New
56	New					New
57	Board and batten siding, concrete block foundation, horizontal windows, narrow board wood floor on screened in porch, exposed basement is screened in	1955	756	926		Alterations/ Post 1992 Expansion
58	A-frame, damage to roof, one side shingled/other side exposed boards, loft and wide board floors on interior, deeply recessed entry	1961	1,992	1,992		Damaged, but relatively intact
59	New					New
60	Weatherboard siding, new brick chimney, new double front and rear doors, 6:6 windows, low-pitched ridged metal roof, vertical board foundation, double tiered screened windows on large front porch			895		Alterations expansions

#	Description	Year Built	Size when Built (ft^2)	1992 Size (ft^2)	Post 1961 Additions	General Assessment
61	Tongue-and-groove siding, exposed rafter tails, novelty board siding, concrete block piers, old wood floor on 3-sided screened porch, brick exterior chimney, horizontal metal siding on porch below screen, exposed rafter tails, outhouse behind	1947		1,564	1965—1,452 ft^2 added	Alterations expansions
62	Standing seam metal roof, 3-sided screened porch with new floors, some 6:6 windows with original screens, board walk to guest house which has new door, horizontal board siding, exposed rafters, 6:6 windows, "huge" pumphouse	1953	1,339 + 353 ft^2 guest-house			Relatively Intact
63	New					New
64	Gable-front orientation, older and newer screened porches, 4-pane windows in basement, novelty board siding, corrugated metal roof, brick chimney, some 6:6 windows, several new windows and doors	1952	813	832		Alterations
65	New					New
66	Several additions, all new windows/doors/siding, exposed rafter tails, large paned windows with smaller windows above, lattice deck with stone foundation					Major alterations/ expansions

Environmental Studies

Historic Preservation

TN TDOT Department of Transportation

U.S. Department of Transportation Federal Highway Administration

SEMS Statewide Environmental Management System

Environmental Studies Request

Project Information

Route: State Route 40 Bridge

Termini: Bridge Over the Ocoee River (Bridge ID 70SR0400005)

County: Polk

PIN: 124102.00

Request

Request Type: Initial Environmental Study

Project Plans: Revised ETSA

Date of Plans: 12/2018

Location: Email Attachment

Certification

Requestor: Laura Moribe

Title: Environmental Planner

Signature: Laura Moribe Digitally signed by Laura Moribe Date: 2018.12.06 14:28:47 -06'00'

Environmental Study

Technical Section

Section: Historic Preservation

Study Results

Based on the information provided, the TN-SHPO letter from 7/31/2018 remains valid.

Commitments

Did the study of this project result in any environmental commitments? **No**

Additional Information

Is there any additional information or material included with this study? **No**

Certification

Responder: Katherine Looney

Title: TDOT Environmental Supervisor

Signature: Katherine Looney

Digitally signed by Katherine Looney
Date: 2018.12.14 15:05:43 -06'00'

Environmental Studies

Historic Preservation

Environmental Studies Request

Project Information

Route: State Route 40 Bridge

Termini: Bridge Over the Ocoee River (Bridge ID 70SR0400005)

County: Polk

PIN: 124102.00

Request

Request Type: Initial Environmental Study

Project Plans: Transportation Investment Report

Date of Plans: 04/24/2018

Location: Email Attachment

Certification

Requestor: Laura Moribe

Title: Environmental Planner

Signature: Laura Moribe

Digitally signed by Laura Moribe
DN: cn=Laura Moribe, o=Kimley-Horn, ou=Environmental, email=laura.moribe@kimley-horn.com, c=US
Date: 2018.05.03 09:12:09 -05'00'

Environmental Study

Technical Section

Section: Historic Preservation

Study Results

In a letter dated 31 July 2018, the TN-SHPO concurred that there are no National Register-listed or eligible properties affected by this undertaking as currently proposed.

Commitments

Did the study of this project result in any environmental commitments? **No**

Additional Information

Is there any additional information or material included with this study? **Yes**

Type: TN-SHPO letter

Location: Email Attachment

Certification

Responder: Katherine Looney

Title: TDOT Environmental Supervisor

Signature: Katherine Looney

Digitally signed by Katherine Looney
Date: 2018.08.08 15:55:09 -05'00'

TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

June 26, 2018

Mr. Phillip R. Hodge
Tennessee Department of Transportation
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243-1402

RE: FHWA / Federal Highway Administration, Bridge Replacement, SR-40 Over Ocoee River, L.M. 3.12, Polk County, TN

Dear Mr. Hodge:

In response to your request, we have reviewed the documents you submitted regarding your proposed undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicant for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

After considering the documentation submitted, it is our opinion that there are no National Register of Historic Places listed or eligible properties affected by this undertaking. We have made this determination because either: no National Register listed or eligible Historic Properties exist within the undertaking's area of potential effects, the specific location, size, scope and/or nature of the undertaking and its area of potential effects precluded affects to Historic Properties, the undertaking will not alter any characteristics of an identified eligible or listed Historic Property that qualify the property for listing in the National Register, or it will not alter an eligible Historic Property's location, setting or use. We have no objections to your proceeding with your undertaking.

If your agency proposes any modifications in current project plans or discovers any archaeological remains during the ground disturbance or construction phase, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. If you are applying for federal funds, license or permit, you should submit this letter as evidence of consultation under Section 106 to the appropriate federal agency, which, in turn, should contact us as required by 36 CFR 800. If you represent a federal agency, you should submit a formal determination of eligibility and effect to us for comment. You may direct questions or comments to Jennifer M. Barnett (615) 687-4780. This office appreciates your cooperation.

Sincerely,

E. Patrick McIntyre, Jr.

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jmb

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

June 21, 2018

Mr. E. Patrick McIntyre, Jr.
Executive Director and State Historic Preservation Officer
Tennessee Historical Commission
2941 Lebanon Road
Nashville, Tennessee 37214

RE: State Route 40, Bridge over Ocoee River, Log Mile 3.12 in Polk County, Tennessee, TDOT PIN 124102.00.

Dear Mr. McIntyre,

The subject project proposes to replace the existing two-lane bridge with a four-lane bridge on TDOT right-of-way (ROW) immediately to the north of the existing bridge, with a narrow strip of new ROW along the eastern terminus to allow the roadway to taper into the existing alignment. The area of potential effects (APE) for the subject project co-occurs with the APE for Corridor K (State Route 40, from West of Ocoee River to State Route 68 in Ducktown, Polk County, TN) and has consequently been surveyed on multiple occasions between 1970 and the present, most recently in 2012 by the Louis Berger Group, Inc. (Berger) (Tippett, et al. 2015). Berger's three volume Corridor K report synthesizing the results of previous surveys and reporting the results of their survey was submitted to your office for review and comment on March 26, 2014.

Figures 3a and 6a from Berger's 2015 final report on Corridor K illustrate the various overlapping surveys that have covered the APE for the subject project and the location of nearby archaeological sites, respectively. Based on this information and a comparison of the subject project with the Corridor K results, it is the opinion of TDOT that, while there are eight sites within a one mile radius of the subject project's APE, no National Register of Historic Places listed, eligible, or potentially eligible archaeological sites are located within the APE and no such sites will be affected by the proposed undertaking.

In compliance with Section 106 of the National Historic Preservation Act (as amended) and implementing regulations 36 CFR 800, please review this information and provide me with your comments. If any additional information is needed, please contact Alan Longmire at 423-773-1161 or me at 615-741-0977. I appreciate your assistance.

Sincerely,

Phillip R. Hodge
Archaeology Program Manager

PRH/al

cc: Ms. Jennifer Barnett, TDOA, w/enclosure

Attachment 1: Figure 3a from Tippett et al., 2015 showing the current APE (yellow polygon) and various previous archaeological surveys of the current APE and vicinity.

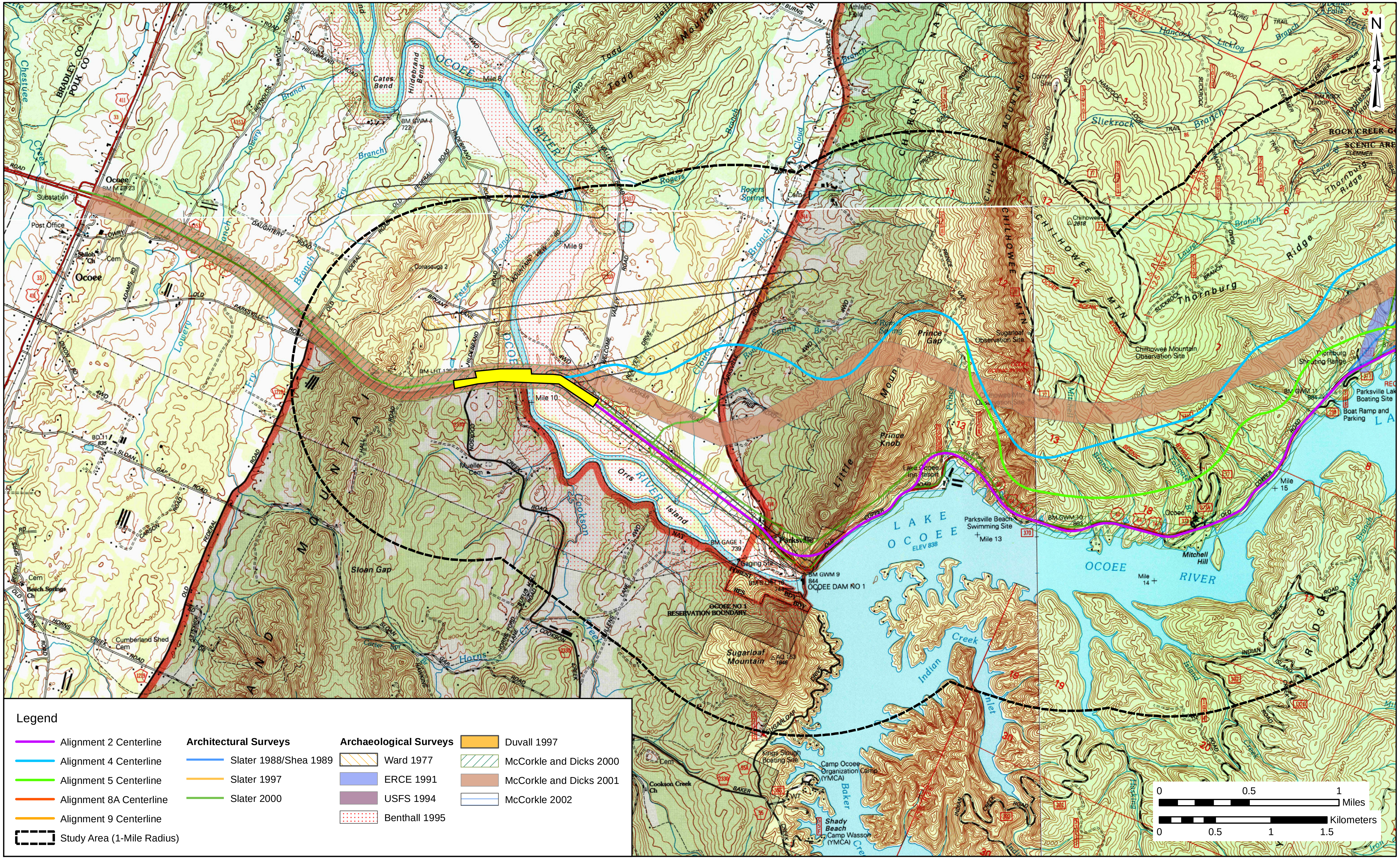


FIGURE 3a: Location of Previous Surveys in the Corridor K Study Area, Polk County

SOURCE: USGS 2003a, 2003b, 2003f, 2003g

Attachment 2: Figure 6a from Tippett et al., 2015 showing the current APE (yellow polygon) and known sites within a one mile radius.

FIGURE 6a: Previously Recorded Archaeological Sites in the Corridor K Study Area, Polk County

SOURCE: USGS 2003a, 2003b, 2003f, 2003g

Environmental Studies

Archaeology

Environmental Studies Request

Project Information

Route: State Route 40 Bridge

Termini: Bridge Over the Ocoee River (Bridge ID 70SR0400005)

County: Polk

PIN: 124102.00

Request

Request Type: Initial Environmental Study

Project Plans: Revised ETSA

Date of Plans: 12/2018 Email

Location: Attachment

Certification

Requestor: Laura Moribe

Title: Environmental Planner

Signature: Laura Moribe Digitally signed by Laura Moribe Date: 2018.12.06 14:28:47 -06'00'

Environmental Study

Technical Section

Section: Archaeology

Study Results

The SHPO clearance letter for archaeology dated 7/3/2018 remains valid for this project. It is on FileNet.

Commitments

Did the study of this project result in any environmental commitments? **No**

Additional Information

Is there any additional information or material included with this study? **No**

Certification

Responder: Alan Longmire

Title: TESS Adv. Archaeologist

Signature: C. Alan Longmire, RPA 11196

Digitally signed by C. Alan Longmire, RPA 11196
Date: 2018.12.07 10:42:56 -05'00'

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

June 27, 2018

Mr. Brett Barnes
70500 E. 128 Road
Wyandotte, OK 74370

SUBJECT: Section 106 Initial Consultation for Proposed Replacement of State Route 40 Bridge over the Ocoee River in Polk County, Tennessee.

Dear Mr. Barnes,

The Tennessee Department of Transportation (TDOT), in coordination with the Federal Highway Administration (FHWA), is proposing to replace the State Route 40 Bridge over the Ocoee River in Polk County, Tennessee (maps attached). The proposed bridge replacement will require additional right-of-way and easements. There will be ground disturbance in the area of potential effects (APE). This location, which co-occurs with the western terminus of Appalachian Corridor K, has been surveyed for archaeological resources on several different occasions, most recently in 2012. None of these previous studies have identified archaeological resources at this location on either side of the Ocoee River.

The National Historic Preservation Act (NHPA) recognizes that federally funded undertakings, like the subject project, can affect historic properties to which your tribe attaches religious, cultural, and historic significance. In accordance with 36 CFR 800 regulations implementing compliance with Section 106 of the NHPA, we are providing general project information so that you can determine if your tribe has an interest in the project area or nature of the work proposed and so you have an opportunity to bring to our attention any interests and concerns about the potential for impacts to properties of religious and cultural significance. In addition, do you wish to be a consulting party on the project? Early awareness of your concerns can serve to protect historic properties valued by your tribe.

If you act as a consulting party you will receive archaeological assessment reports and related documentation, be invited to attend project meetings with FHWA, TDOT, and the Tennessee State Historic Preservation Office (TN-SHPO), if any are held, and be asked to provide input throughout the process. If you choose to not act as a consulting party at this time, you can do so at a later date simply by notifying me.

Please respond to me via letter, telephone (615-741-0977), fax (615-741-1098), or E-mail (Phillip.Hodge@tn.gov). I respectfully request responses (email is preferred) to project reports and other materials within thirty (30) days of receipt if at all possible. Thank you for your assistance.

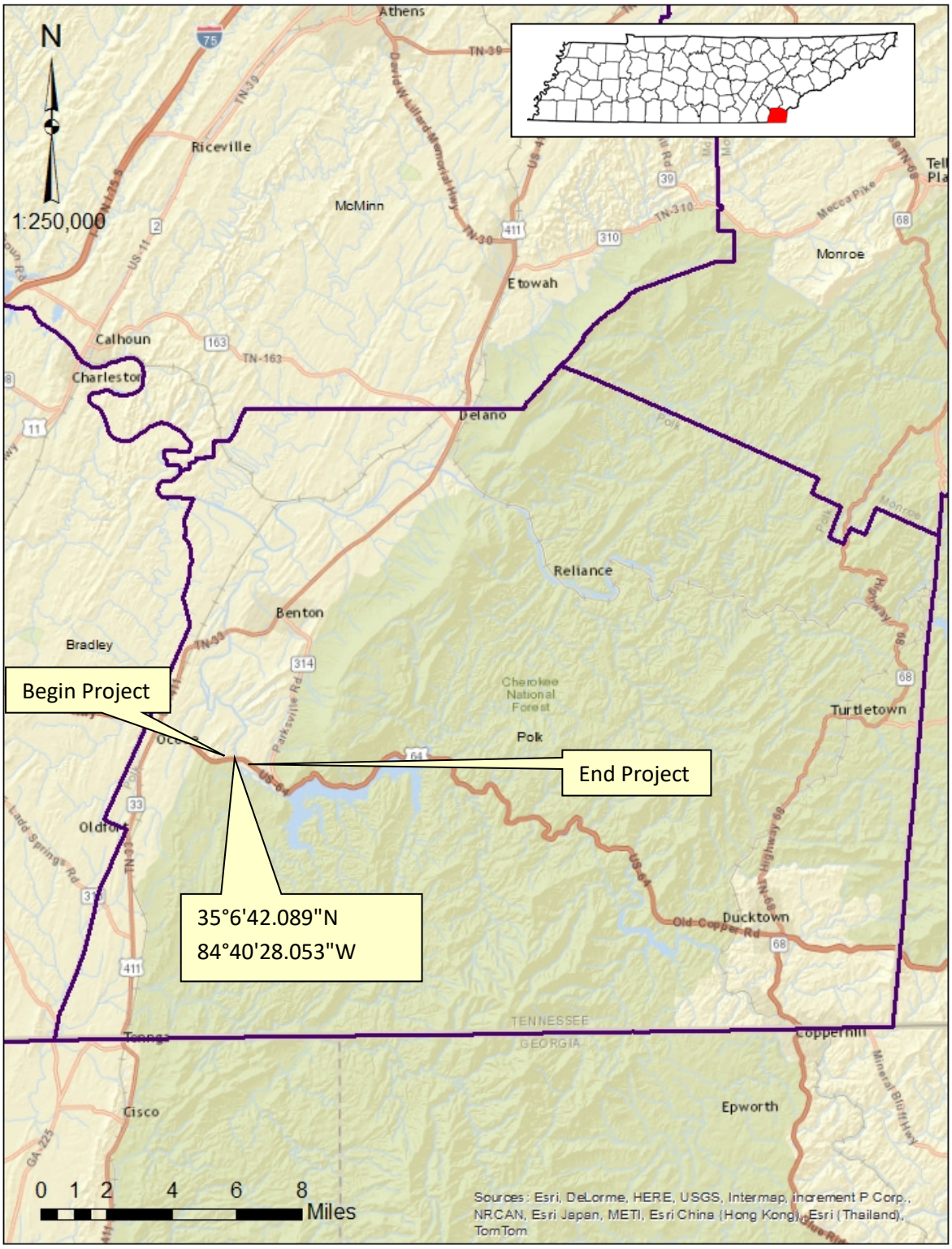
Sincerely,

Phillip R. Hodge
Archaeology Program Manager

Enclosure

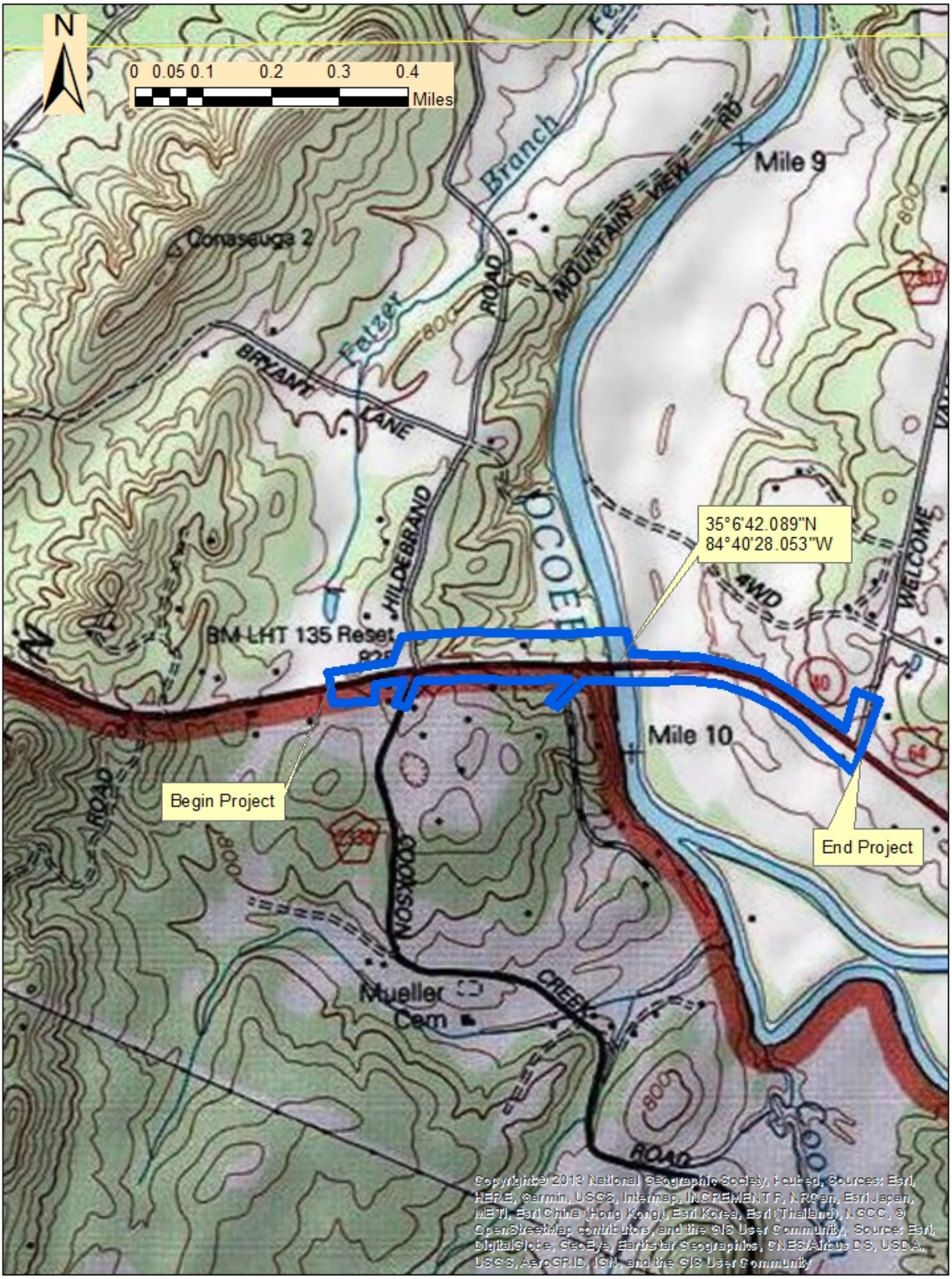
cc Elizabeth Toombs, The Cherokee Nation
Stephen Yerka, Eastern Band of Cherokee Indians
Corain Lowe-Zepeda, Muscogee (Creek) Nation
Tonya Tipton, Shawnee Tribe
Sheila Bird, United Keetoowah Band of Cherokee Indians
David Cook, Kialegee Tribal Town
Terry Clouthier, Thlopthlocco Tribal Town
Carolyn White, Poarch Band of Creek Indians

Polk County, TN. PIN 124102.00



Project Vicinity Map

Polk County, TN. PIN 124102.00



USGS Quad Parksville 126 SW

Polk County, TN. PIN 124102.00

Project Location: Aerial View

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

November 2, 2018

Ms. Devon Frazier
Absentee Shawnee Tribe of Oklahoma
2025 South Gordon Cooper Dr.
Shawnee, OK 74801-9381

SUBJECT: Section 106 Initial Consultation for Proposed Replacement of State Route 40 Bridge over the Ocoee River in Polk County, Tennessee.

Dear Ms. Frazier,

The Tennessee Department of Transportation (TDOT), in coordination with the Federal Highway Administration (FHWA), is proposing to replace the State Route 40 Bridge over the Ocoee River in Polk County, Tennessee (maps attached). The proposed bridge replacement will require additional right-of-way and easements. There will be ground disturbance in the area of potential effects (APE). This location, which co-occurs with western terminus of Appalachian Corridor K, has been surveyed for archaeological resources on several different occasions, most recently in 2012. None of these previous studies have identified archaeological resources at this location on either side of the Ocoee River.

The National Historic Preservation Act (NHPA) recognizes that federally funded undertakings, like the subject project, can affect historic properties to which your tribe attaches religious, cultural, and historic significance. In accordance with 36 CFR 800 regulations implementing compliance with Section 106 of the NHPA, we are providing general project information so that you can determine if your tribe has an interest in the project area or nature of the work proposed and so you have an opportunity to bring to our attention any interests and concerns about the potential for impacts to properties of religious and cultural significance. In addition, do you wish to be a consulting party on the project? Early awareness of your concerns can serve to protect historic properties valued by your tribe.

If you act as a consulting party you will receive archaeological assessment reports and related documentation, be invited to attend project meetings with FHWA, TDOT, and the Tennessee State Historic Preservation Office (TN-SHPO), if any are held, and be asked to provide input throughout the process. If you choose to not act as a consulting party at this time, you can do so at a later date simply by notifying me.

Please respond to me via letter, telephone (615-741-0977), fax (615-741-1098), or E-mail (Phillip.Hodge@tn.gov). I respectfully request responses (email is preferred) to project reports and other materials within thirty (30) days of receipt if at all possible. Thank you for your assistance.

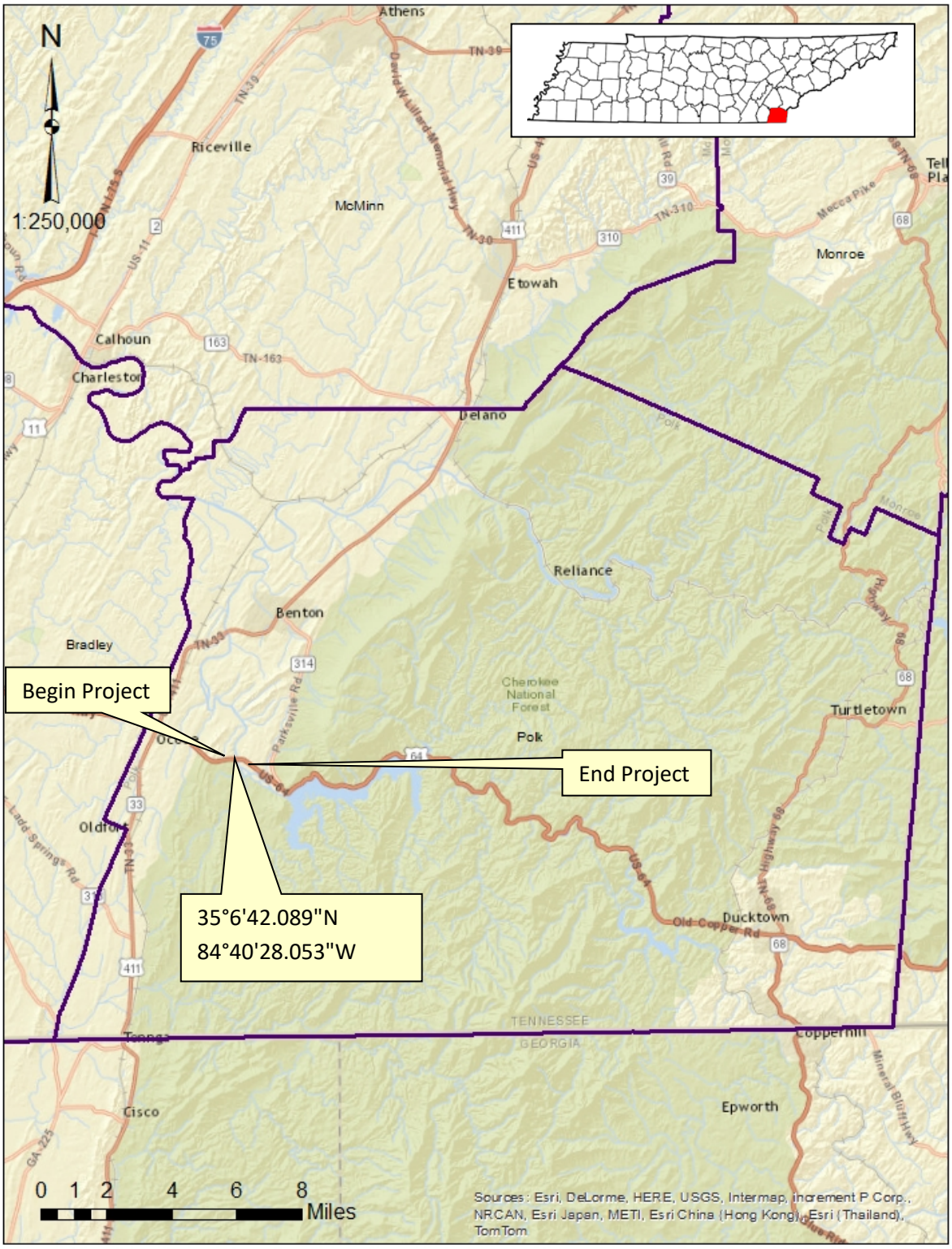
Sincerely,

Phillip R. Hodge
Archaeology Program Manager

Enclosure

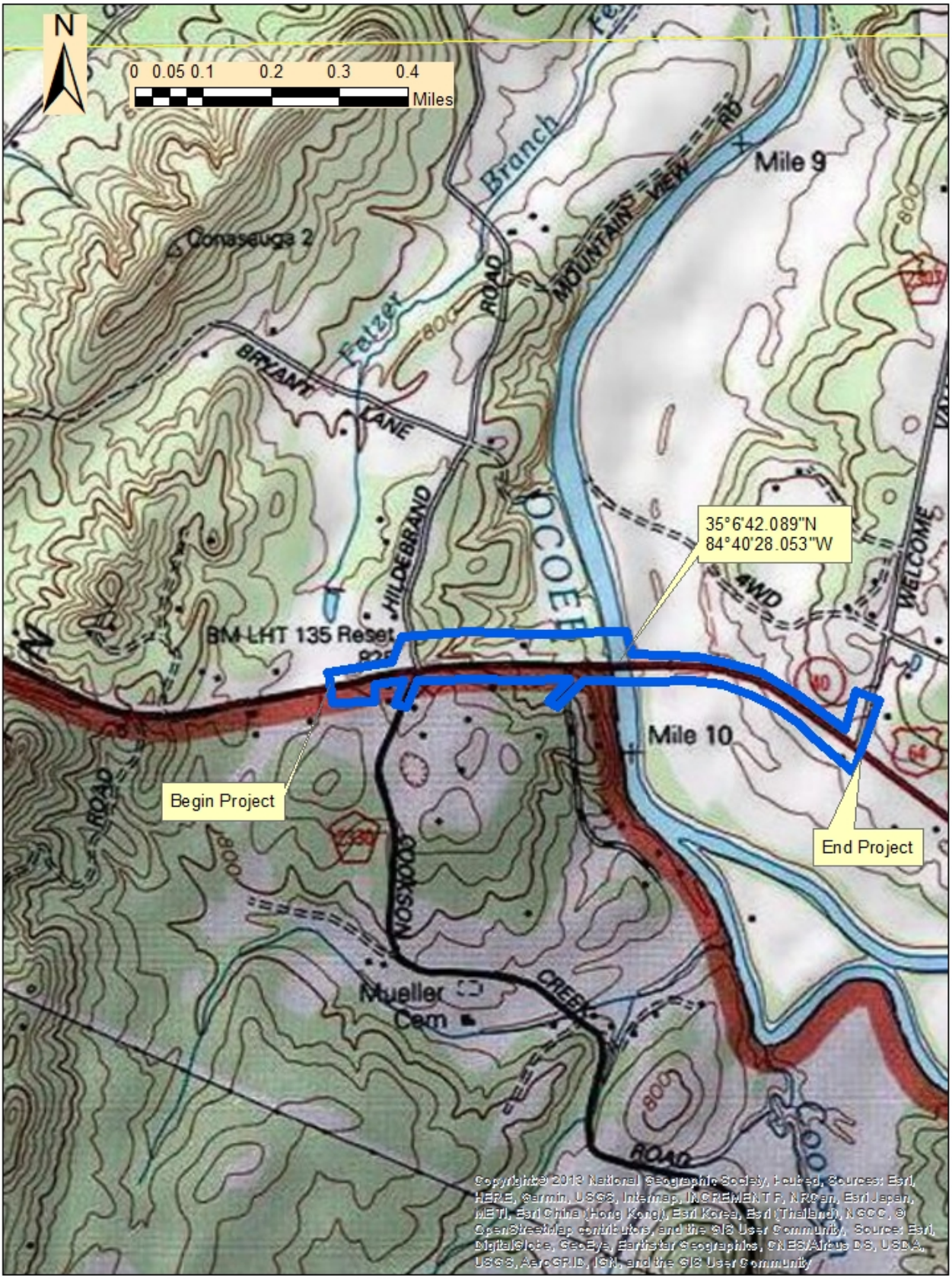
cc Elizabeth Toombs, The Cherokee Nation
Stephen Yerka, Eastern Band of Cherokee Indians
Brett Barnes, Eastern Shawnee Tribe of Oklahoma
Corain Lowe-Zepeda, Muscogee (Creek) Nation
Tonya Tipton, Shawnee Tribe
Sheila Bird, United Keetoowah Band of Cherokee Indians
David Cook, Kialegee Tribal Town
Carolyn White, Poarch Band of Creek Indians
Terry Clouthier, Thlopthlocco Tribal Town

Polk County, TN. PIN124102.00



Project Vicinity Map

Polk County, TN. PIN124102.00



USGS Quad Parksville 126 SW

Project Location: Aerial View

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CHEROKEE NATION®
P.O. Box 948 • Tahlequah, OK 74465-0948 • 918-453-5000 • cherokee.org

Office of the Chief

Bill John Baker
Principal Chief
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S. Joe Crittenden
Deputy Principal Chief
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July 22, 2018

Phillip R. Hodge
Tennessee Department of Transportation
Environmental Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243-1402

Re: PIN 124102.00, Proposed Replacement of SR-40 Bridge over Ocoee River

Mr. Phillip R. Hodge:

The Cherokee Nation (Nation) is in receipt of your correspondence about **PIN 124102.00, Proposed Replacement of SR-40 Bridge over Ocoee River**, and appreciates the opportunity to provide comment upon this project. Please allow this letter to serve as the Nation's interest in acting as a consulting party to this proposed undertaking.

The Nation maintains databases and records of cultural, historic, and pre-historic resources in this area. Our Historic Preservation Office reviewed this project, cross referenced the project's legal description against our information, and found no instances where this project intersects or adjoins such resources. Thus, the Nation does not foresee this project imparting impacts to Cherokee cultural resources at this time.

However, the Nation requests that the Tennessee Department of Transportation (TNDOT) halt all project activities immediately and re-contact our Offices for further consultation if items of cultural significance are discovered during the course of this project.

Additionally, the Nation requests that TNDOT conduct appropriate inquiries with other pertinent Tribal and Historic Preservation Offices regarding historic and prehistoric resources not included in the Nation's databases or records.

If you require additional information or have any questions, please contact me at your convenience. Thank you for your time and attention to this matter.

Wado,

Elizabeth Toombs

Elizabeth Toombs, Tribal Historic Preservation Officer
Cherokee Nation Tribal Historic Preservation Office
elizabeth-toombs@cherokee.org
918.453.5389

Environmental Studies

Native American Coordination

Environmental Studies Request

Project Information

Route: State Route 40 Bridge

Termini: Bridge Over the Ocoee River (Bridge ID 70SR0400005)

County: Polk

PIN: 124102.00

Request

Request Type: Initial Environmental Study

Project Plans: Revised ETSA

Date of Plans: 12/2018 Email

Location: Attachment

Certification

Requestor: Laura Moribe

Title: Environmental Planner

Signature: Laura Moribe Digitally signed by Laura Moribe Date: 2018.12.06 14:28:47 -06'00'

Environmental Study

Technical Section

Section: Native American Coordination

Study Results

NAC initial consultation was sent to all tribes with an interest in Polk County on 6/27/2018. The Cherokee Nation (CN) responded on 7/22/2018 and requested to be a consulting party, but have no specific requests other than to be notified in the event archaeological resources are discovered during construction. The Muscogee (Creek) Nation (MCN) had a standing order of consultation. The Absentee Shawnee Tribe of Oklahoma (AST) claimed an interest in Polk County in October. Final consultation was sent to the CN, MCN, and AST on 11/2/2018. No other tribe has responded, and the most recent consultation period ended on 12/3/2018. This concludes NAC for this project.

Commitments

Did the study of this project result in any environmental commitments? **No**

Additional Information

Is there any additional information or material included with this study? **No**

Certification

Responder: Alan Longmire

Title: TESS Adv. Archaeologist

Signature: C. Alan Longmire, RPA 11196

Digitally signed by C. Alan Longmire, RPA 11196
Date: 2018.12.07 10:51:10 -05'00'

PIN 124102.00

Appendix G

Hazardous Materials

ASBESTOS SURVEY REPORT

Termini: SR-40 Bridge Over Ocoee River, LM 3.12

Polk County, Tennessee

TDOT Project No. 70068-4209-04; PIN No. 123737.00

Bridge No. 70SR0400005

December 2016

Gregory M. Drelich

Tennessee Accredited Asbestos Inspector A-I-103660-55591

161212-TNDT-RPT-258

ASBESTOS SURVEY REPORT

Termini: SR-40 Bridge Over Ocoee River, LM 3.12
Polk County, Tennessee
TDOT Project No. 70068-4209-04
PIN No. 123737.00
Bridge No. 70SR0400005

Gregory M. Drelich
Staff Geologist

Richard A. Lounsbury
Certified Project Manager I

Peter C. Frederick, CIEC
National Asbestos Leader

Prepared for:
Tennessee Department of Transportation
James K. Polk Building, Suite 900
505 Deaderick Street
Nashville, Tennessee 37243

Prepared by:
Arcadis U.S., Inc.
114 Lovell Road
Suite 202
Knoxville
Tennessee 37934
Tel 865 675 6700
Fax 865 675 6712

Our Ref.:
TNDT1935.HZ02

Date:
December 16, 2016

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Table 1. Summary of Materials Containing Detectable Levels of Asbestos

FIGURES

Figure 1. Bulk Sample Location Map

APPENDICES

Appendix A. Accreditations
Appendix B. Photographic Log
Appendix C. Laboratory Analytical Data

ACRONYMS AND ABBREVIATIONS

%	percent
ACM	asbestos-containing material
AIHA	American Industrial Hygiene Association
EMSL	EMSL Analytical, Inc.
HA	homogeneous area
NESHAP	National Emission Standards for Hazardous Air Pollutants
NVLAP	National Voluntary Laboratory Accreditation Program
PLM	polarized light microscopy
RACM	regulated asbestos-containing material
TDOT	Tennessee Department of Transportation
USEPA	U.S. Environmental Protection Agency

1 INTRODUCTION

In accordance with our current Tennessee Department of Transportation (TDOT) Hazardous Material Contract E1935, a comprehensive inspection, including the collection of samples of suspect asbestos-containing materials (ACM), was recently conducted by Arcadis at the existing SR-40 bridge structure situated over the Ocoee River in Polk County, Tennessee. The purpose of this survey was to identify and quantify suspect ACM within the bridge's components prior to future repair of the structure. The survey was conducted in a phased approach, including visual observations, suspect material sampling, laboratory analysis, and reporting. All work was conducted in accordance with the TDOT-approved proposal prepared by Arcadis on July 28, 2016.

1.1 Bridge Identification

The bridge is identified in the TDOT Project System/Bridge Management System as follows:

TDOT Project Number:	70068-4209-04
TDOT PIN Number:	123737.00
Bridge Inventory Number:	70SR0400005 (70-SR040-03.12)
Route Number:	SR-40

The structure evaluated for this project is known as the SR-40 bridge located over the Ocoee River in Polk County, Tennessee.

1.2 Bridge Description

One two-lane, six-span, eight-approach span bridge structure was evaluated for this project. The existing 546-foot-long bridge, which was built in 1937, and is scheduled for repair, is constructed of concrete deck girders with a concrete deck and an asphalt wearing surface (Figure 1). Details regarding stormwater drains and utilities are discussed below in Section 2.2.

2 INSPECTION AND SAMPLING

The identification of ACM is performed by collecting bulk samples of suspect materials and having those samples analyzed by a laboratory. ACM are those materials found to contain greater than 1 percent (%) asbestos by calibrated visual area estimation by polarized light microscopy (PLM).

Bulk sampling is a procedure in which representative homogeneous sampling areas in a structure are identified and then sampled. A homogeneous sampling area is defined as an area that contains material of the same type (uniform in color and texture) and is applied during the same general time period. Once the homogeneous sampling areas are identified, bulk samples of suspect materials are obtained at the discretion of our inspectors, based on site conditions and professional judgment. It should be noted that it was necessary to minimally damage existing finishes to collect bulk samples.

2.1 Personnel Qualifications and Sampling Date

Mr. Gregory Drelich of Arcadis performed the inspection at the existing bridge structure along the SR-40 project corridor for this project. Mr. Drelich is a State of Tennessee-accredited asbestos inspector (Appendix A). Arcadis is also accredited by the State of Tennessee (accreditation number A-F-710-46035) to conduct asbestos activities (Appendix A). The asbestos survey and associated bulk sample collection were conducted by Arcadis on December 6, 2016. Traffic control measures for temporary lane or shoulder closures by TDOT were not required for this project.

2.2 Visual Survey

The inspection began with a visual survey of the structure to identify homogeneous areas (HAs) and to determine sampling locations for suspect ACM. Sample locations were sketched on a site drawing. Based on the visual survey completed on December 6, 2016, approximately 188 vertical steel stormwater drain pipes were observed on both sides of the bridge within the roadway shoulders and extending through the overhangs (Appendix B - Photo 16). No utilities were observed to be attached to the bridge. Skim coatings were not present on the majority of the bridge, however, they were observed to be remaining, but heavily weathered, on four small corner sections of the parapet wall/rail on each approach (Appendix B – Photo 13).

2.3 Sampling of Bridge Components

Individual bridge components were sampled as described in the following subsections. Materials such as metal and fiberglass (if present) were not considered suspect ACM. Arcadis collected bulk samples of suspect homogeneous materials in a random and representative manner, as determined by the inspector. Once sampling locations were determined, bulk concrete samples were collected by following these steps:

- The sample areas were thoroughly brushed and rinsed to remove surface debris and eliminate the possibility of sample contamination from asbestos-containing vehicular brake dust.
- A battery-powered hammer drill was used to cut away a thin layer of the concrete in order to make a dimple for sampling. This material was discarded.
- Additional drilling was continued after the asbestos inspector placed a new sample container near the drill bit to collect a concrete sample.
- The collected material was then bagged and labeled for transmittal to the laboratory.
- All equipment was then cleaned and the operation repeated at subsequent locations.

Non-concrete material sampling methods are described below. Material sampling included physically touching the material to determine friability, obtaining a representative bulk sample of the material for laboratory analysis, and more detailed observation of the material's condition and accessibility. A total of 49 suspect ACM samples from 15 HAs were submitted for laboratory analysis; these HAs are discussed below. Forty-nine samples (inclusive of all layers) were analyzed and reported by the laboratory. Laboratory analytical data sheets are presented in Appendix C. Generalized sample locations are presented on Figure 1. Representative photographs of each HA are also provided in Appendix B.

2.3.1 Abutment Concrete

Four bulk samples were collected from the abutment concrete (HA-01). Three samples were collected across the east side abutment wall and one sample was collected along the west side (per Section 2.3).

2.3.2 Abutment Wall Concrete

Three deck concrete samples were collected from the abutment wall (HA-02), between the abutment and the deck. All the samples were collected from the east end of the bridge (per Section 2.3).

2.3.3 Girder Concrete

Five bulk samples were collected from the girder concrete (HA-03). Three samples were collected on the east end of the bridge and two samples were collected from the west end of the bridge (per Section 2.3). One of the two samples collected on the west end of the bridge was collected from a cross-member girder that runs perpendicular to the deck girders.

2.3.4 Deck Concrete

Three bulk samples were collected from the deck concrete (HA-04). All the samples were collected on the east end of the bridge (per Section 2.3).

2.3.5 Abutment Joint Filler

Abutment joint filler (HA-05) was observed between the abutment and the deck. Three samples of the material were collected from east end of the bridge using cutting and tearing techniques.

2.3.6 Approach Bent Concrete

Three bulk samples were collected from approach bent concrete (HA-06). All the samples were collected on the east end of the bridge from three different bent structures (per Section 2.3).

2.3.7 Approach Bent Cap Concrete

Three bulk samples were collected from the approach bent concrete caps (HA-07). These samples were collected on the east end of the bridge from three different bent structures (per Section 2.3).

2.3.8 Main Span Bent Cap Concrete

Three bulk samples were collected from the main span bent cap concrete (HA-08). These samples were collected on the east end of the bridge (per Section 2.3).

2.3.9 Main Span Bent Concrete

Four bulk samples were collected from the main span bent concrete (HA-09). Three samples were collected on the east end of the bridge and one sample was collected on the west end (per Section 2.3).

2.3.10 Pier Concrete

Three bulk samples were collected from the pier concrete (HA-10). These samples were collected on the west end of the bridge (per Section 2.3).

2.3.11 Overhang Concrete

Three bulk samples were collected from the overhang concrete (HA-11). These samples were collected on the east end of the bridge (per Section 2.3).

2.3.12 Parapet Wall/Rail Concrete

Three bulk samples were collected from the parapet wall/rail concrete (HA-12). These samples were collected on the east end of the bridge (per Section 2.3).

2.3.13 Parapet Wall/Rail Skim Coating

Based on the estimated square footage of the remaining coating, three skim coat samples (HA-13) were collected from the approach parapet wall/rail. These samples were collected from the east end of the bridge. The skim coat was highly weathered and samples were collected without the use of hand tools.

2.3.14 Vibration Dampener

Three bulk samples were collected from the vibration dampener (HA-14). These samples were collected on the east end of the bridge between the approach bent and deck using cutting and tearing techniques.

2.3.15 Joint Filler

Abutment joint filler (HA-15) was observed between two approach spans. Three samples of the material were collected from southeast end of the bridge using cutting and tearing techniques.

3 ANALYTICAL PROCEDURES

The suspect asbestos-containing bulk samples were submitted under proper chain-of-custody protocol for analysis to EMSL Analytical, Inc. (EMSL) located in Cinnaminson, New Jersey. EMSL is a National

Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory (NVLAP Lab Code 101048-0) and an American Industrial Hygiene Association (AIHA) accredited laboratory (AIHA Laboratory 100194), using procedures compliant with the guidelines established by the U.S. Environmental Protection Agency (USEPA).

The bulk samples are analyzed in the laboratory using PLM coupled with dispersion staining. PLM is an analytical method for asbestos identification, which identifies the specific asbestos minerals by their unique optical properties. The optical properties are a result of the mineral's chemical composition, physical atomic structure, and visual morphology. This is the USEPA recommended method of analysis for asbestos identification in bulk samples. No other analytical methods (Point Counting, California Air Resource Board 435, or Transmission Electron Microscopy) were used or recommended per TDOT guidance.

4 REGULATORY CRITERIA

Applicable asbestos regulations define ACM as a material containing greater than 1% asbestos by weight and also distinguishing between friable and non-friable forms of ACM. Friable materials can be crumbled or reduced to powder by hand pressure. Non-friable materials cannot be crumbled, pulverized, or reduced to powder by hand pressure. The USEPA further classifies non-friable ACM as Category I and II.

4.1 National Emission Standards for Hazardous Air Pollutants

The USEPA's National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations (40 CFR 61, Subpart B) requires that all regulated asbestos-containing materials (RACM) be properly removed prior to any renovation or demolition activities that will disturb them. These regulations define RACM as:

- Friable ACM.
- Category I non-friable ACM that has become friable.
- Category I non-friable ACM that will be or has been subject to sanding, grinding, cutting, or abrading.
- Category II non-friable ACM that has a high probability of becoming, or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

The NESHAP regulations also establish specific notification and control requirements for renovation and demolition work.

4.2 Definitions

Significant definitions related to regulation of asbestos under NESHAP include:

Friable ACM is defined by the Asbestos NESHAP as any material containing more than 1% asbestos, as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized

Light Microscopy (PLM), that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure (Sec. 61.141).

Non-friable ACM is any material containing more than 1% asbestos, as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM), that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. USEPA also defines two categories of non-friable ACM, Category I non-friable ACM and Category II non-friable ACM, which are described as follows:

- **Category I non-friable ACM** is any asbestos-containing packing, gasket, resilient floor covering, or asphalt roofing product which contains more than 1% asbestos as determined using PLM according to the method specified in Appendix A, Subpart F, 40 CFR Part 763. (Sec. 61.141).
- **Category II non-friable ACM** is any material, excluding Category I non-friable ACM, containing more than 1% asbestos, as determined using PLM according to the methods specified in Appendix A, Subpart F, 40 CFR Part 763, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. (Sec. 61.141).

RACM is (a) friable asbestos material; (b) Category I non-friable ACM that has become friable; (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

5 RESULTS

Forty-nine bulk samples were collected and submitted for analysis from this bridge; 49 results were reported, inclusive of all material layers. Multiple samples of each HA were collected in accordance with State of Tennessee, Department of Transportation Environmental Division, Social and Cultural Resources Office, Hazardous Materials Section requirements and delivered to the laboratory for visual observation and microscopic analysis. The samples were selected based on HAs of suspect materials, as described in Section 2.

Based on the laboratory analytical results, asbestos was confirmed to be present in one of the 15 HAs identified at the SR-40 bridge over the Ocoee River in Polk County, Tennessee. More specifically, one sample from the HA-14 vibration dampener material (HA-14C) contained <1% Chrysotile asbestos (Table 1). Photographs of this positive material are included in Appendix B (Photo 14). The laboratory analytical report for bulk samples obtained and analyzed by PLM is presented in Appendix C.

Based on the results of this survey, all vibration dampener material should be considered to contain <1% Chrysotile asbestos and should be handled/managed per Occupational Safety and Health Administration requirements during future repairs or demolition of the structure.

6 LIMITATIONS

Arcadis performed services in a manner consistent with the level of care and expertise exercised by members of the asbestos inspection and assessment profession. Arcadis does not imply or guarantee that every suspect ACM on or in the structure has been identified or sampled. Historically, asbestos has been used extensively in the United States. This inspection is intended to identify those components that are reasonably suspect and are most likely to be ACM in quantities subject to regulation based on existing industry and regulatory standards. The inspector did not utilize extensive destructive sampling techniques to assess those materials potentially located in the structural components.

The information presented herein is based on information obtained during the site visit(s) and from professional judgment. If additional information becomes available which might impact this report, Arcadis requests the opportunity to review the information and re-assess the potential concerns and modify this report, if warranted.

There are no third party rights or benefits conferred under this report. Use of this report is strictly limited to TDOT, the only party to whom Arcadis intends to confer any rights. Any reliance on the contents of this report by any third party is the sole responsibility of that party.

TABLES

Table 1
Summary of Materials Containing Detectable Levels of Asbestos

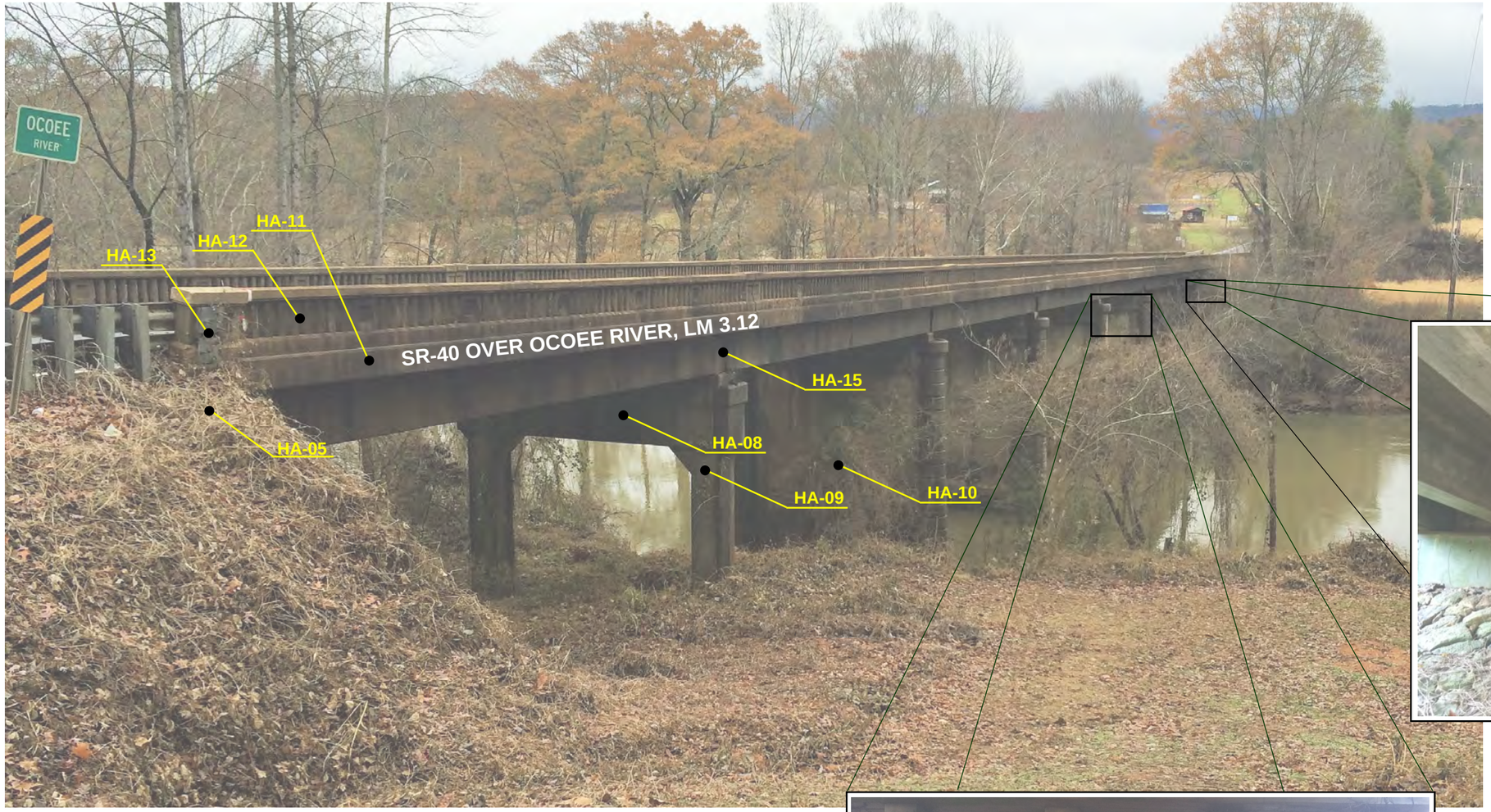
Tennessee Department of Transportation
SR- 40 Bridge Over Ocoee River, LM 3.12
Polk County, Tennessee
TDOT Project No. 70068-4209-04; PIN No. 123737.00
Bridge No. 70SR0400005

Inspection Date	Sample Identification No.	Homogeneous Area	Location (Bridge Component)	Approximate Quantity	Friable (Y/N)	Type of Asbestos and Content (%)
12/6/2016	HA-14C	Vibration dampener	Between approach bent structure and deck	432 sq ft	N	<1% Chrysotile

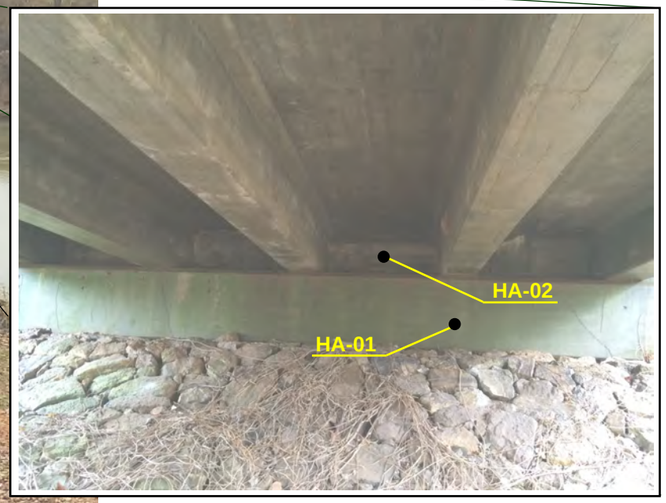
General Notes:
All vibration dampener material for this structure should be assumed to contain <1% Chrysotile based on the analytical results obtained.

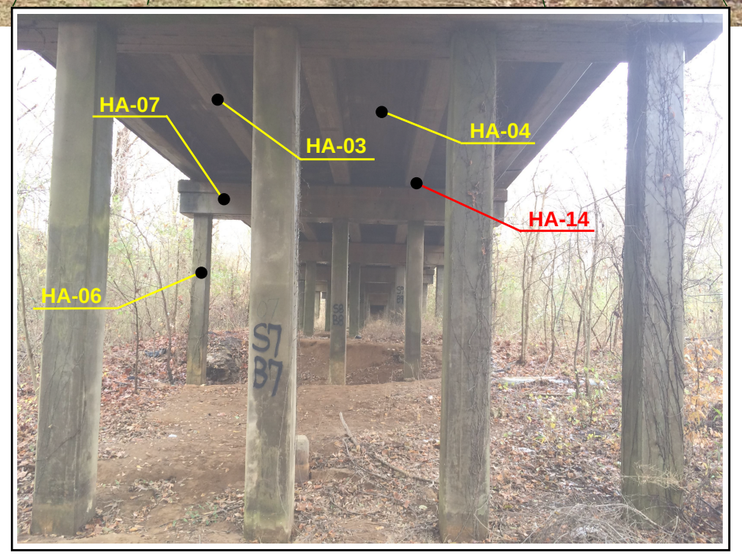
Acronyms and Abbreviations:
% = percent
sq ft = square feet

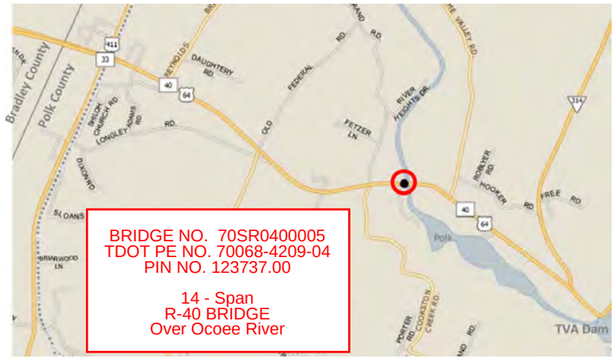
FIGURES



APPROXIMATE
NORTH







NOTES:
1) Homogenous Area (HA) sample locations illustrated above are generalized. Actual locations were placed at random locations across entire structure.
2) Samples were collected December 12, 2016.
3) Asbestos was not detected in the bulk samples collected, with the exception of HA-14 vibration dampener material (<1% Chrysotile), as shown above in red.
4) Numerous steel stormwater drain pipes were present on the bridge.
5) Total bridge length is 546 feet.

NOT TO SCALE

TERMINI: SR-40 BRIDGE OVER OCOEE RIVER, LM 3.12
POLK COUNTY, TENNESSEE
BRIDGE NO. 70SR0400005
TDOT PROJECT NO. 70068-4209-04; PIN NO. 123737.00
ASBESTOS SURVEY REPORT

Bulk Sample Location Map

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

CITY: (KNOXVILLE) DIV/GROUP: (ENV/GIS) DB: (B.ALTOM) PIC: (P.WHITAKER) PM: (B.ILGNER) APM: (R.LOUNSBURY) TM: (G.DRELICH)
PROJECT: TNDT1935.HZ02 PATH: G:\ENV\TDOT_E1935 Contract\HZ02_Monroe_SR40 Over Ocoee_Bridge ACM\DLV\20161.2 ACM Survey\F1 HZ02 ACM Bulk.pdf SAVED 14DEC2016 Ba

APPENDIX A

Accreditations

THE STATE OF TENNESSEE

Department of Environment and Conservation
Division of Solid Waste Management
Toxic Substances Program

100241-30798

Initial

Gregory M Drelich

DOB	Sex	HGT	WGT
28-Jul-1983	M	6' 0"	185

Discipline	Accreditation	Expiration
Inspector	A-I-103660-55591	Nov-30-2017

Asbestos Accreditation

THE STATE OF TENNESSEE

Department of Environment and Conservation Division of Solid Waste Management
Toxic Substances Program
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 14th Floor Nashville TN 37243

By virtue of the authority vested by the Division of Solid Waste Management, the Company named below is hereby accreditted to offer and/or conduct Asbestos activities pursuant to Rule 1200-01-20:

Arcadis U.S., Inc.

P O Box 66 Syracuse NY, 13214

to conduct ASBESTOS ACTIVITIES in schools or public and commercial buildings in Tennessee. This firm is responsible for compliance with the applicable requirements of Rule 1200-01-20.

Discipline	Type	Accreditation Number	Effective Date	Expiration Date
Accreditation	Re-Accreditation	A-F-710-46035	December 01, 2015	December 31, 2016

Given under the Seal of the State of Tennessee in Nashville.

This **17th** Day of **December 2015**

Division of Solid Waste Management
Toxic Substance Program

CN-1324 **(Rev 6/13)** **RDA-3020**

APPENDIX B

Photographic Log

Project Photographs

Termini: SR-40 Bridge Over Ocoee River, LM 3.12
Polk County, Tennessee
TDOT Project No. 70068-4209-04, PIN No. 123737.00
Bridge No. 70SR0400005

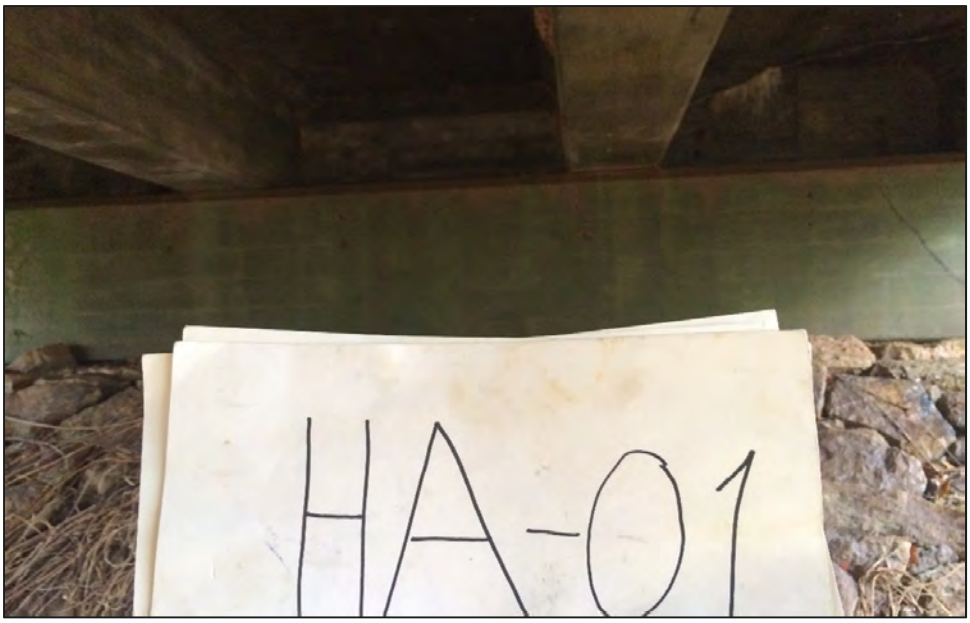


Photo: 1

Date:
December 6, 2016

Description:
View of abutment concrete (HA-01).

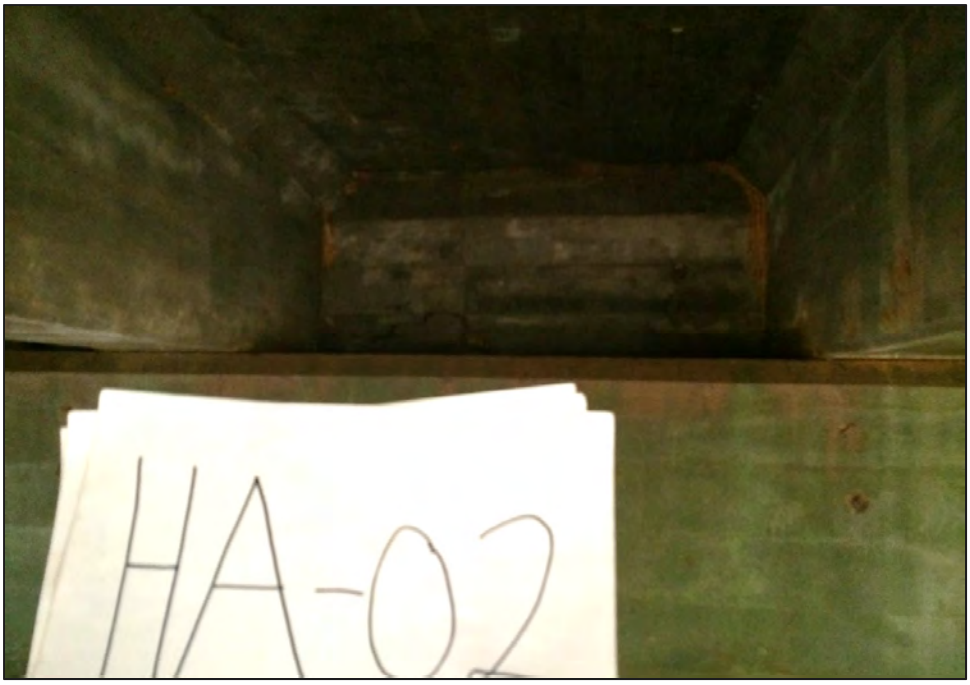


Photo: 2

Date:
December 6, 2016

Description:
View of abutment wall concrete (HA-02).

Project Photographs

Termini: SR-40 Bridge Over Ocoee River, LM 3.12
Polk County, Tennessee
TDOT Project No. 70068-4209-04, PIN No. 123737.00
Bridge No. 70SR0400005

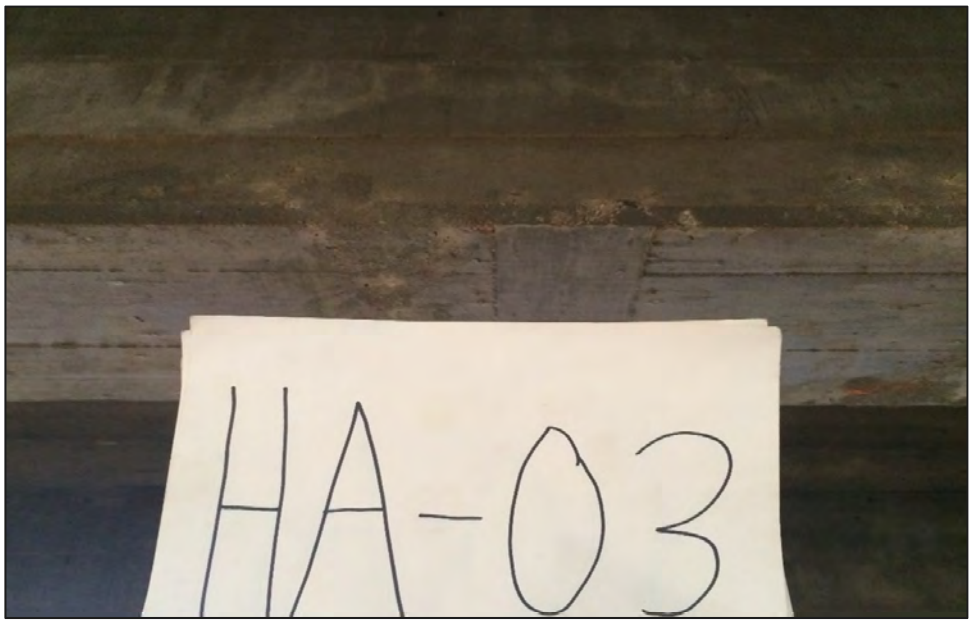


Photo: 3

Date:
December 6, 2016

Description:
View of girder concrete (HA-03).

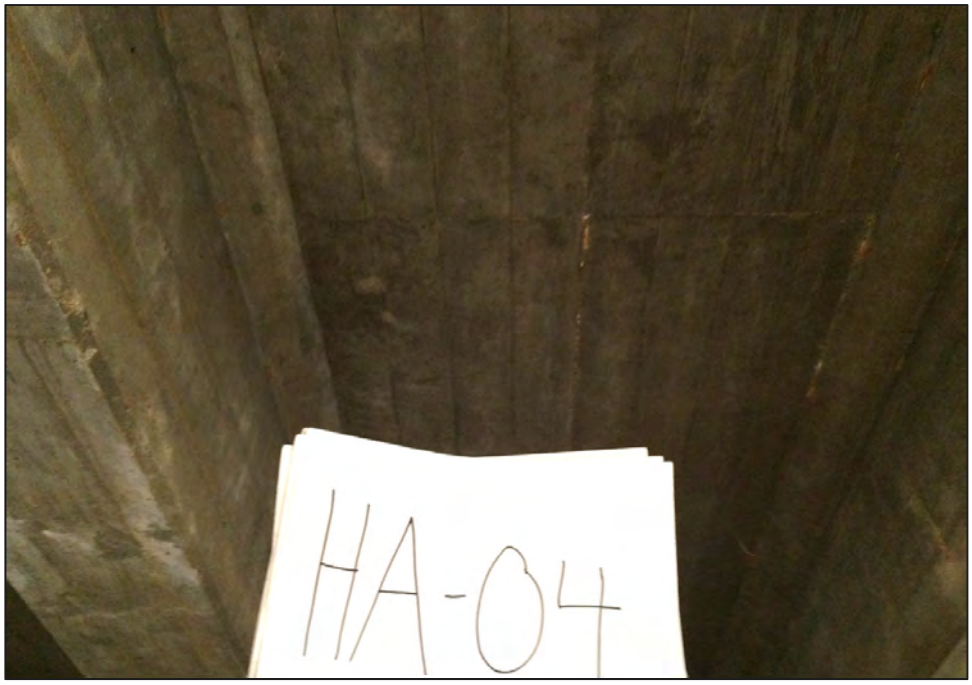


Photo: 4

Date:
December 6, 2016

Description:
View of deck concrete (HA -04) from under side of bridge.

Project Photographs

Termini: SR-40 Bridge Over Ocoee River, LM 3.12
Polk County, Tennessee
TDOT Project No. 70068-4209-04, PIN No. 123737.00
Bridge No. 70SR0400005

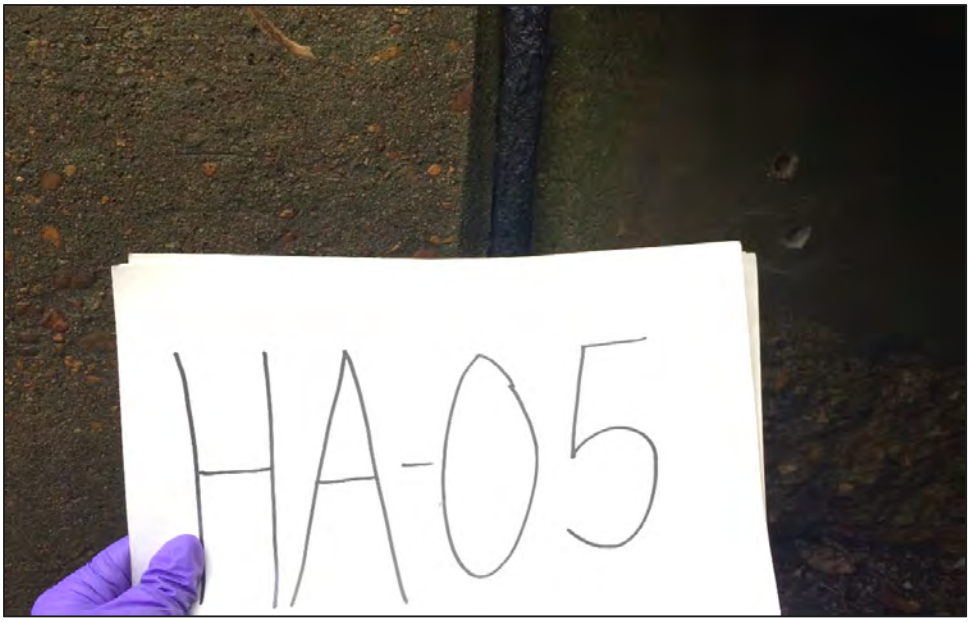


Photo: 5

Date:
December 6, 2016

Description:
View of abutment joint filler (HA-05).

Photo: 6

Date:
December 6, 2016

Description:
View of approach bent concrete (HA-06).

Project Photographs

Termini: SR-40 Bridge Over Ocoee River, LM 3.12
Polk County, Tennessee
TDOT Project No. 70068-4209-04, PIN No. 123737.00
Bridge No. 70SR0400005

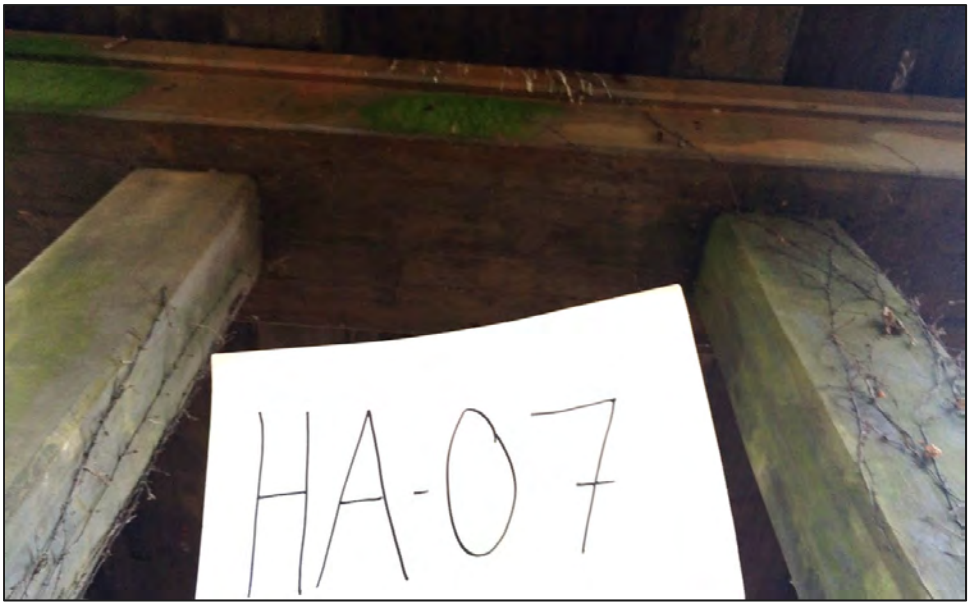


Photo: 7

Date:
December 6, 2016

Description:
View of approach bent concrete cap (HA-07) above the base structure.

Photo: 8

Date:
December 6, 2016

Description:
View of main span bent concrete cap (HA-08).

Project Photographs

Termini: SR-40 Bridge Over Ocoee River, LM 3.12
Polk County, Tennessee
TDOT Project No. 70068-4209-04, PIN No. 123737.00
Bridge No. 70SR0400005

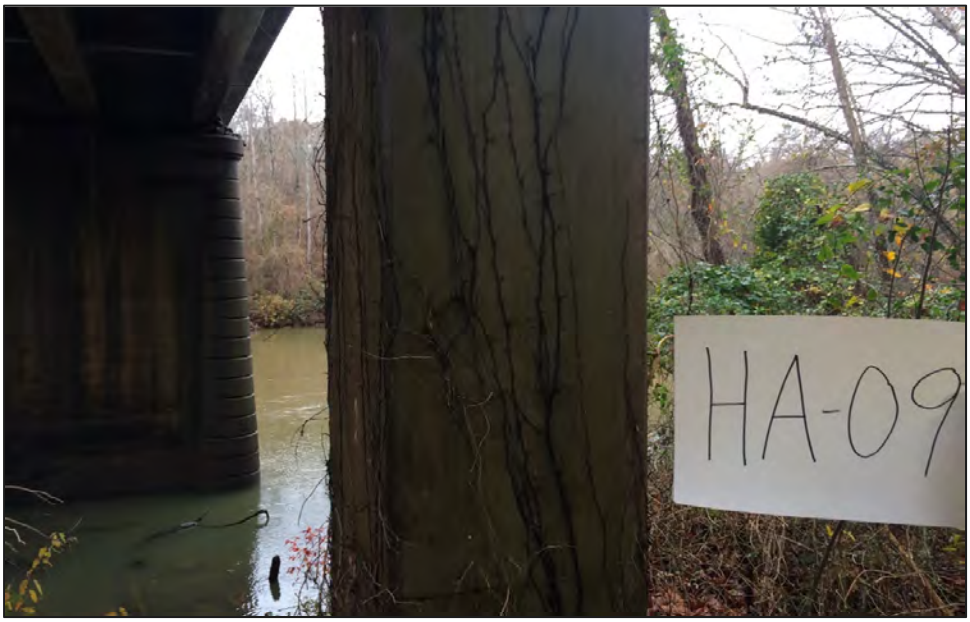


Photo: 9

Date:
December 6, 2016

Description:
View of main span bent concrete (HA-09).

Photo: 10

Date:
December 6, 2016

Description:
View of pier concrete (HA-10).

Project Photographs

Termini: SR-40 Bridge Over Ocoee River, LM 3.12
Polk County, Tennessee
TDOT Project No. 70068-4209-04, PIN No. 123737.00
Bridge No. 70SR0400005

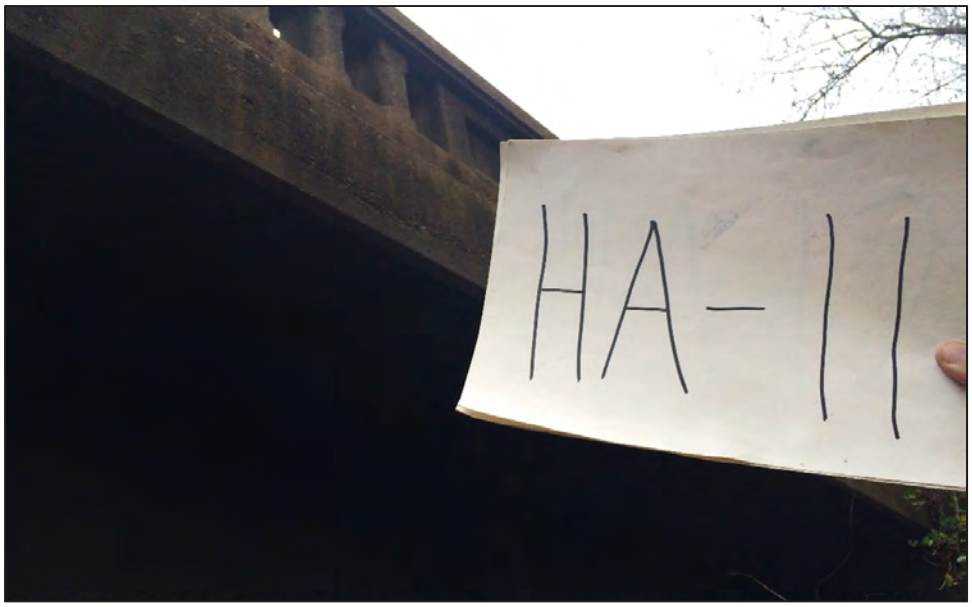


Photo: 11

Date:
December 6, 2016

Description:
View of overhang concrete (HA-11).

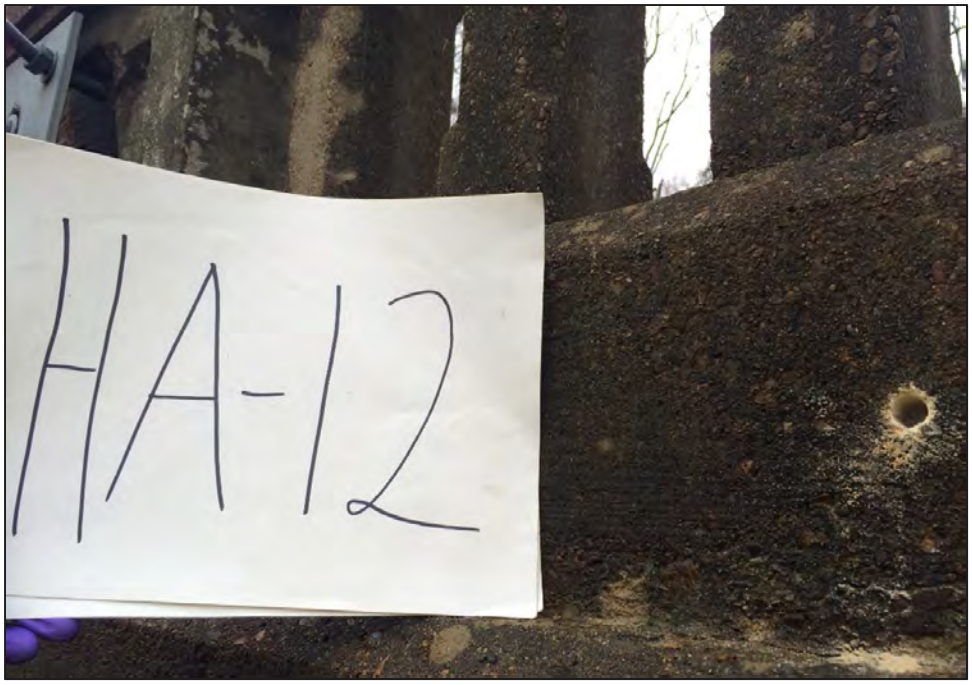


Photo: 12

Date:
December 6, 2016

Description:
View of parapet wall/rail concrete (HA-12).

Project Photographs

Termini: SR-40 Bridge Over Ocoee River, LM 3.12
Polk County, Tennessee
TDOT Project No. 70068-4209-04, PIN No. 123737.00
Bridge No. 70SR0400005

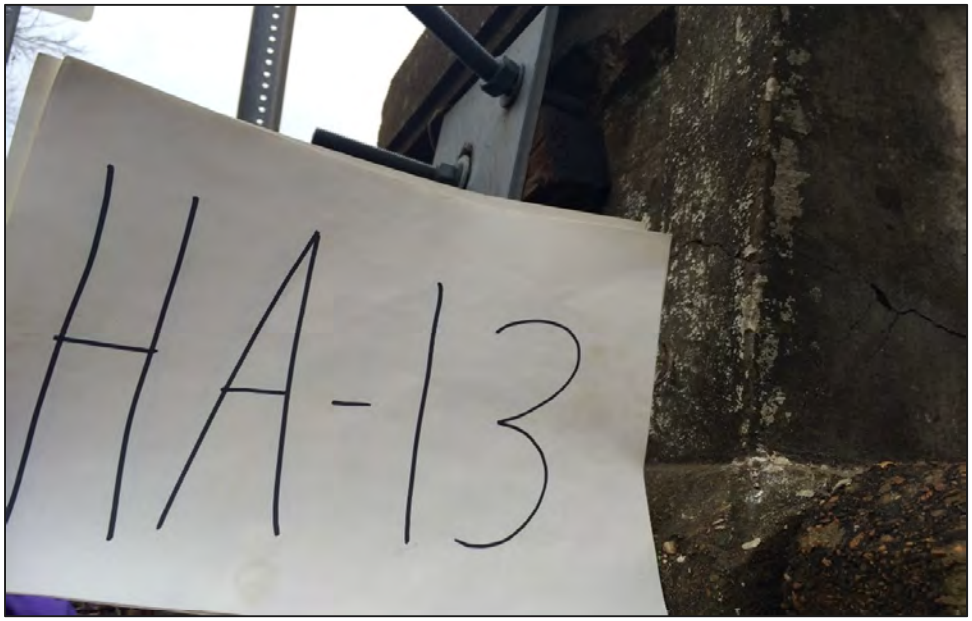


Photo: 13

Date:
December 6, 2016

Description:
View of parapet wall/rail skim coating (HA-13).

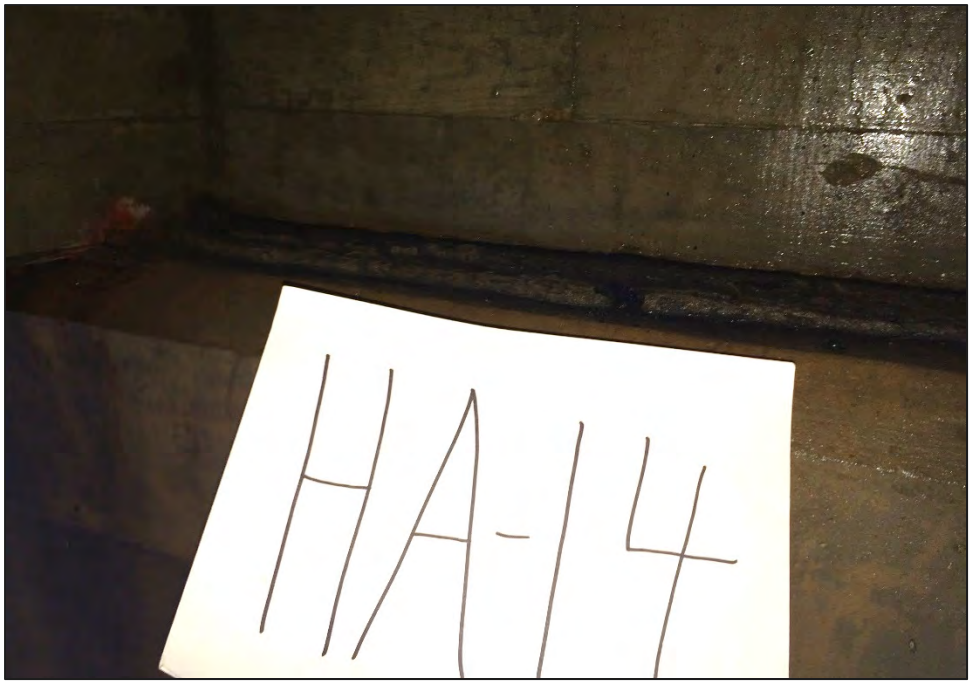


Photo: 14

Date:
December 6, 2016

Description:
View of vibration dampener (HA-14).

Project Photographs

Termini: SR-40 Bridge Over Ocoee River, LM 3.12
Polk County, Tennessee
TDOT Project No. 70068-4209-04, PIN No. 123737.00
Bridge No. 70SR0400005

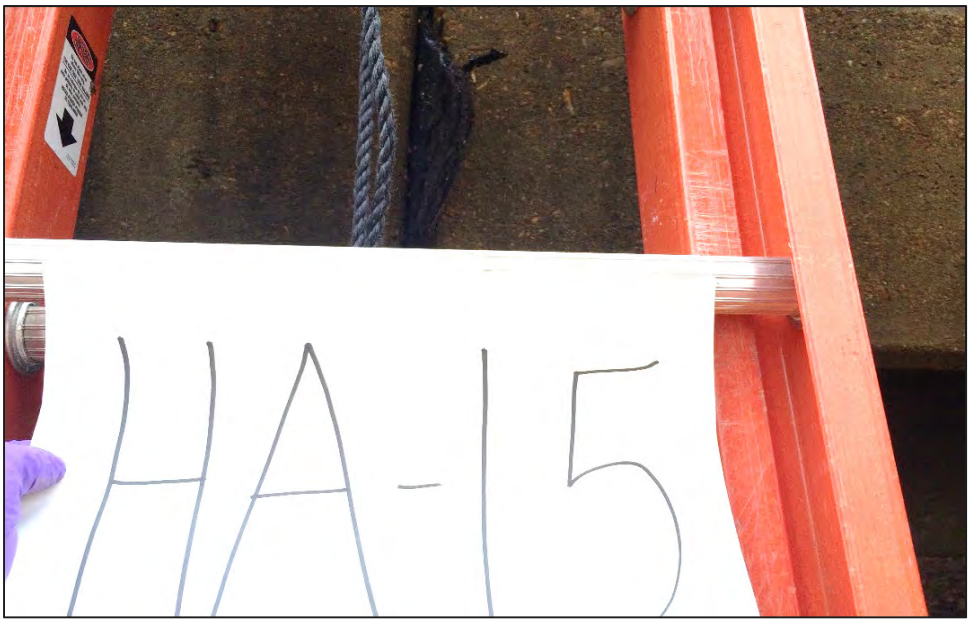


Photo: 15

Date:
December 6, 2016

Description:
View of joint filler (HA-15) between approach spans.

Photo: 16

Date:
December 6, 2016

Description:
View of vertical steel stormwater drain pipes.

APPENDIX C

Laboratory Analytical Data

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041633199
Customer ID: ACAD78E
Customer PO:
Project ID:

Attention: Richard Lounsbury
ARCADIS U.S., Inc.
114 Lovell Road
Suite 202
Knoxville, TN 37934

Phone: (865) 481-3000
Fax:
Received Date: 12/07/2016 9:30 AM
Analysis Date: 12/08/2016
Collected Date: 12/06/2016

Project: TNDT1935.HZ02 / SR-40 Bridge over Ocoee River

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
1A *041633199-0001*	NE - Abutment Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1B *041633199-0002*	NE - Abutment Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1C *041633199-0003*	SE - Abutment Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
1D *041633199-0004*	SW - Abutment Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
2A *041633199-0005*	NE - Abutment Wall Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
2B *041633199-0006*	NE - Abutment Wall Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
2C *041633199-0007*	SE - Abutment Wall Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
3A *041633199-0008*	NE - Girder Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
3B *041633199-0009*	E - Girder Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
3C *041633199-0010*	SE - Girder Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
3D *041633199-0011*	SW - Girder Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
3E *041633199-0012*	W (Crossmember) - Girder Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
4A *041633199-0013*	NE - Deck Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
4B *041633199-0014*	E - Deck Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
4C *041633199-0015*	SE - Deck Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
5A *041633199-0016*	NE - Abutment Joint Filler	Black Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected

Initial report from: 12/09/2016 07:11:29

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041633199
Customer ID: ACAD78E
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
5B *041633199-0017*	NE - Abutment Joint Filler	Black Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected
5C *041633199-0018*	NE - Abutment Joint Filler	Black Non-Fibrous Homogeneous	25% Cellulose	75% Non-fibrous (Other)	None Detected
6A *041633199-0019*	BENT 1 (From E) - Approach Bent Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
6B *041633199-0020*	BENT 2 (From E) - Approach Bent Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
6C *041633199-0021*	BENT 3 (From E) - Approach Bent Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7A *041633199-0022*	BENT 1 (From E) - Approach Bent Cap Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7B *041633199-0023*	BENT 2 (From E) - Approach Bent Cap Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
7C *041633199-0024*	BENT 3 (From E) - Approach Bent Cap Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
8A *041633199-0025*	NE - Main Span Bent Cap Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
8B *041633199-0026*	NE - Main Span Bent Cap Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
8C *041633199-0027*	SE - Main Span Bent Cap Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
9A *041633199-0028*	NE - Main Span Bent Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
9B *041633199-0029*	NE - Main Span Bent Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
9C *041633199-0030*	SE - Main Span Bent Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
9D *041633199-0031*	SW - Main Span Bent Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
10A *041633199-0032*	NW - Pier Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
10B *041633199-0033*	W - Pier Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
10C *041633199-0034*	SW - Pier Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
11A *041633199-0035*	NE - Overhang Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 12/09/2016 07:11:29

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 041633199
Customer ID: ACAD78E
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
11B *041633199-0036*	NE - Overhang Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
11C *041633199-0037*	NE - Overhang Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
12A *041633199-0038*	NE - Parapet Wall/Rail Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
12B *041633199-0039*	NE - Parapet Wall/Rail Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
12C *041633199-0040*	SE - Parapet Wall/Rail Concrete	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
13A *041633199-0041*	NE - Parapet Wall/Rail Skim Coating	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
13B *041633199-0042*	NE - Parapet Wall/Rail Skim Coating	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
13C *041633199-0043*	SE - Parapet Wall/Rail Skim Coating	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
14A *041633199-0044*	Vibration Dampener between Approach Bent and Deck	Black Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
14B *041633199-0045*	Vibration Dampener between Approach Bent and Deck	Black Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
14C *041633199-0046*	Vibration Dampener between Approach Bent and Deck	Black Non-Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (Other)	<1% Chrysotile
15A *041633199-0047*	Joint Filler between Approach Spans 1 and 2 (From East)	Black Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
15B *041633199-0048*	Joint Filler between Approach Spans 1 and 2 (From East)	Black Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected
15C *041633199-0049*	Joint Filler between Approach Spans 1 and 2 (From East)	Black Non-Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected

Initial report from: 12/09/2016 07:11:29

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	041633199
Customer ID:	ACAD78E
Customer PO:	
Project ID:	

Analyst(s)

Benjamin Verghese (33)
Samantha Rundstorm-Cruz (1)
William Nguyen (15)

Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Initial report from: 12/09/2016 07:11:29

OrderID: 041633199

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number *(Lab Use Only)*: 041633199

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-5974

Company : ARCADIS-US	**EMSL-Bill to:** ☐ Same ☒ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 114 Lovell Road, Suite 202	
City: Knoxville / **State/Province: TN**	**Zip/Postal Code: 37934-1984** / **Country: USA**
Report To (Name): Richard Lounsbury	**Fax #: 865.675.6712**
Telephone #: 865.777.3526	**Email Address: richard.lounsbury@arcadis.com**
Project Name/Number: TNDT1935.HZ02/SR-40 Bridge over OcoeeRiver	
Please Provide Results: ☐ Fax ☒ Email / **Purchase Order:**	**U.S. State Samples Taken: TN**

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☒ 48 Hour ☐ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

**For TEM Air 3 hr through 6 hr, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air ☐ Check if samples are from NY
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☒ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ 4-4.5hr TAT (AHERA only)
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group** | **Filter Pore Size (Air Samples):** ☐ 0.8µm ☐ 0.45µm

Samplers Name: Patrick Kontovich | **Samplers Signature:**

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
	See Attached Sheets		

2016 DEC -7 A 11:02
RECEIVED
EMSL
CINNAMINSON, NJ

Client Sample # (s): [redacted] **Total # of Samples:** [redacted]

Relinquished (Client): **Date:** 12/6/16 **Time:** 19:30

Received (Lab): **Date:** 12/7/16 **Time:** 930

Comments/Special Instructions: Bill to address: Accounts Payable, 630 Plaza Drive, Suite 100, Highlands Ranch, CO 80129

49

Controlled Document – Asbestos COC – R3 – 8/17/2011

ARCADIS Design & Consultancy for natural and built assets

Project/Client TDOT / Bridge No. 70SR0400005 (SR-40 Bridge over Ocoee River) **Sample Date** 12/6/2016

Site Address Ocoee, Polk County, TN

Project Number TNDT1935.HZ02.00EXP **Inspector** G. Drelich/Z. Mongan

HA / Sample Number		Material Type	Color Texture	Description	Floor	Sample Location	Condition	Friable Y / N	Quantity (square feet)	Photo #
1	A	Misc	Grey	Abutment concrete		NE	Good	N	~186	
	B		Grey			NE	Good	N	~186	
	C		Grey			SE	Good	N	~186	
	D		Grey			SW	Good	N	~186	
Notes:										
2	A	Misc	Grey	Abutment wall concrete		NE	Good	N	~81	
	B		Grey			NE	Good	N	~81	
	C		Grey			SE	Good	N	~81	
Notes:										
3	A	Misc	Grey	Concrete girder		NE	Good	N	~12,285	
	B		Grey			E	Good	N	~12,285	
	C		Grey			SE	Good	N	~12,285	
	D		Grey			SW	Good	N	~12,285	
	E		Grey			W (crossmember)	Good	N	~12,285	
Notes:										
4	A	Misc	Grey	Deck concrete		NE	Good	N	~14,742	
	B		Grey			E	Good	N	~14,742	
	C		Grey			SE	Good	N	~14,742	
Notes:										
5	A	Misc	Black	Abutment joint filler		NE	Fair	N	~20	
	B		Black			NE	Fair	N	~20	
	C		Black			SE	Fair	N	~20	
Notes:										
6	A	Misc	Grey	Approach bent concrete		BENT 1 (from E)	Good	N	~3,840	
	B		Grey			BENT 2 (from E)	Good	N	~3,840	
	C		Grey			BENT 3 (from E)	Good	N	~3,840	
Notes:										
7	A	Misc	Grey	Approach bent cap concrete		BENT 1 (from E)	Good	N	~648	
	B		Grey			BENT 2 (from E)	Good	N	~648	
	C		Grey			BENT 3 (from E)	Good	N	~648	
Notes:										
8	A	Misc	Grey	Main span bent cap concrete		NE	Good	N	~540	
	B		Grey			NE	Good	N	~540	
	C		Grey			SE	Good	N	~540	
Notes:										
9	A	Misc	Grey	Main span bent concrete		NE	Good	N	~640	
	B		Grey			NE	Good	N	~640	
	C		Grey			SE	Good	N	~640	
	D		Grey			SW	Good	N	~640	
Notes:										

Project/Client TDOT / Bridge No. 70SR0400005 (SR-40 Bridge over Ocoee River)

Site Address Ocoee, Polk County, TN

Project Number TNDT1935.HZ02.00EXP

Sample Date 12/6/2016

Inspector G. Drelich/Z. Mongan

HA / Sample Number		Material Type	Color / Texture	Description	Floor	Sample Location	Condition	Friable Y / N	Quantity (square feet)	Photo #
10	A	Misc	Grey	Concrete pier		NW	Good	N	~8,100	
	B		Grey			W	Good	N	~8,100	
	C		Grey			SW	Good	N	~8,100	
Notes:										
11	A	Misc	Grey	Concrete overhang		NE	Good	N	~2,184	
	B		Grey			NE	Good	N	~2,184	
	C		Grey			SE	Good	N	~2,184	
Notes:										
12	A	Misc	Grey	Parapet wall/rail concrete		NE	Good	N	~4,368	
	B		Grey			NE	Good	N	~4,368	
	C		Grey			SE	Good	N	~4,368	
Notes:										
13	A	Surfacing	White	Parapet wall/rail skim coating		NE	Good	N	~40	
	B		White			NE	Good	N	~40	
	C		White			SE	Good	N	~40	
Notes:										
14	A	Misc	Black	Vibration Dampener		Dampener between abutment bent and deck	Good	N	~432	
	B		Black			Dampener between abutment bent and deck	Good	N	~432	
	C		Black			Dampener between abutment bent and deck	Good	N	~432	
Notes:										
15	A	Misc	Black	Joint Filler		Filler between approach spans 1 and 2 (from e	Good	N	~54	
	B		Black			Filler between approach spans 1 and 2 (from e	Good	N	~54	
	C		Black			Filler between approach spans 1 and 2 (from e	Good	N	~54	
Notes:										

Arcadis U.S., Inc.

114 Lovell Road

Suite 202

Knoxville, Tennessee 37934

Tel 865 675 6700

Fax 865 675 6712

www.arcadis.com

Site Specific Health and Safety Plan

Revision 13c, 5/9/2016

Project Name: Asbestos-Containing Material Bridge Survey
Termini: SR-40 Bridge Over Ocoee River, LM 3.12
Bridge No. 70SR0400005
Ocoee, Polk County, Tennessee

Project Number:	TNDT1935.HZ02
Client Name:	Tennessee Department of Transportation
Date:	11/9/2016
HASP Expires	11/9/2017
Revision:	0

Approvals:

HASP Developer: Benita Ferrell

Project Manager: Rich Lounsbury

HASP Reviewer: _____

Emergency Information

Site Address: Asbestos-Containing Material Bridge Survey
Termini: SR-40 Bridge Over Ocoee River, LM 3.12
Bridge No. 70SR0400005
Ocoee, Polk County, Tennessee

Emergency Phone Numbers:

Emergency (fire, police, ambulance)		911
Emergency (facility specific, if applicable):		
		NA
		NA
Emergency Other (specify)		NA
Client Contact	Kyle Kirschenmann	615-598-1522
WorkCare (non-life-threatening injury/illness)		888-449-7787
Project H&S	Rich Lounsbury	865-621-2189
Task Manager	Zach Mongan	240-476-1315
Project Manager	Rich Lounsbury	865-621-2189
Corporate H&S Specialist	Sharon Lingle	864-331-9940
Corporate H&S Director	Denis Balcer	614-778-9171

Hospital Name and Address: Tennova Healthcare
2305 Chambliss Ave NW
Cleveland, TN 37311

Hospital Phone Number: 423-559-6000

Incident Notification Process

1 Dial 911/Facility Emergency Number/WorkCare as applicable
2 Contact PM/Supervisor — Rich Lounsbury
3 Contact Corporate H&S — Denis Balcer
4 Contact Client — Kyle Kirschenmann

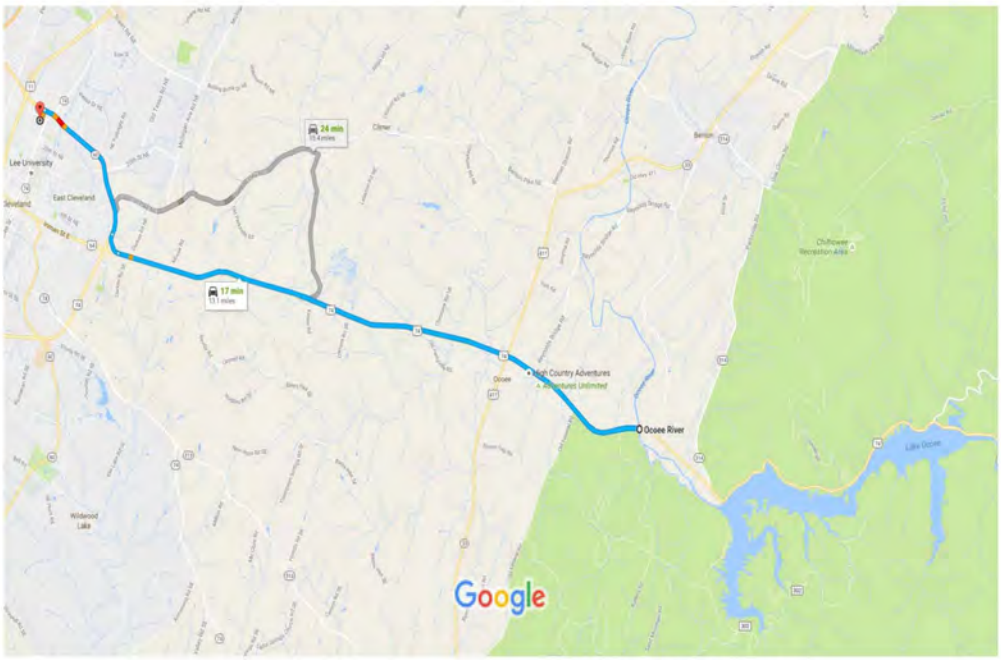
Complete below, as applicable, or clear cell contents:

Location of Assembly Area(s):

Nearest AED location: AED is not available at project site.
Nearest Storm Shelter: To be determined during tailgate H&S meeting

Route to the Hospital

Google Maps Ocoee River to Tennova HealthCare Drive 13.1 miles, 17 min



Map data ©2016 Google 1 mi

Ocoee River

1. Head west on US-64 W/US-74 W toward River Bend Dr — 10.1 mi
2. Take the TN-60 N exit toward Dayton — 0.3 mi
3. Continue straight onto TN-60 N/25th St NE — 2.4 mi
4. Turn left onto Chambliss Ave NW — 0.2 mi
   Destination will be on the right

Tennova HealthCare
2305 Chambliss Avenue Northwest, Cleveland, TN 37311

General Information

Site Type (select all applicable where work will be conducted):

- [x] Active
- [x] Bridge
- [ ] Buildings
- [ ] Commercial
- [ ] Construction
- [ ] Military Installation
- [ ] Inactive Industrial
- [ ] Active Industrial
- [ ] Landfill
- [ ] Marine
- [ ] Mining
- [ ] Parking Lot/Private Roadway
- [ ] Railroad
- [x] Remote Area
- [ ] Residential
- [ ] Retail
- [x] Roadway (public, including right-of-way)
- [ ] Water Treatment Plant
- [ ] Unknown
- [ ] Security Risk Site/Location
- [ ] Utility
- [x] Other (specify): State Highway Bridge over the Ocoee River

Temporary lane closures across the bridge and associated traffic control, if necessary, will be provided by the local TDOT Maintenance Division. Arcadis will coordinate closely with TDOT regarding the lane closure request and work scheduling as needed. Lane closures are estimated to take no more than 6 hours per day during non-peak travel times (i.e., 9:00 am to 3:00 pm).

Surrounding Area and Topography (select one):

- [ ] Surrounding area and topography are presented in the project work plan
- [x] Surrounding area and topography (*briefly describe*):

Bridge 70SR0400005 is located in a remote area along SR-40 in Polk County, Tennessee over the Ocoee River. Surrounding land use is generally rural, residential, and agricultural, and the topography is gently rolling.

Simultaneous Operations (SimOps)

- [x] Not applicable
- [ ] SimOps will exist on this project

Site Background (select one):

- [ ] Site background is presented in the project work plan
- [x] Site background (*briefly describe)* :

Prior to future repairs, TDOT is evaluating this bridge for the potential presence of asbestos to minimize future potential worker exposure. This bridge was constructed in 1937 and is in poor condition and consists of a 546-foot, two lane, six span, eight approach span structure constructed of concrete girders with a concrete deck and asphalt wearing surface.

Project Tasks

The following tasks are identified for this project:

Examples: "Drilling/soil sampling", "Surveying", "General Inspections", "Construction Management/Inspections"

1 Bridge Material ACM Recon/Survey & Sampling
2 General Site Work
3
4
5

☐ Subcontractor H&S information is attached
☐ Utility clearance required.
☐ Journey Management Plan attached
☐ State specific H&S required:

The following H&S Standards are attached:
Not applicable
Not applicable

Comments:

Arcadis Field H&S Handbook: I.D., II.H, II.M, III.A, III.F, III.H, III.I, III.K, III.M, III.N, III.R, III.U, III.T, III.BB, III.JJ, III.LL, V.F, V.G

Roles and Responsibilities

	Name	*Role*	*Additional Responsibilities (Describe)*
1	Rich Lounsbury	APM	Budgeting, SOW Planning, Client Comms
2	Zach Mongan	TM/Field Lead	Lead TN-certified ACM Inspector
3	Greg Drelich	SSO	General project support/resource
4			
5			
6			

Training

All Arcadis employees are required to have the following training to be on site:

H&S Program Orientation
HAZCOM GHS/EAP
Defensive Driving - Smith On-Line
Hazwoper 40 Hour
Asbestos Awareness
BBP (Bloodborne Pathogens)
First Aid/CPR
DOT HazMat #1
Fire Extinguisher
Hazwoper 8-Hour Annual Refresher
Hearing Conservation/Protection
Respirator
PPE

Client specific:
OSHA 10/30 Hr Construction Safety

Other:
#NA

Selected Arcadis employees are required to have the following additional training:

	Names or Numbers from above
Construction Safety - 30 Hour	1
Construction Safety - 10 Hour	2,3
Electrical General Awareness	2,3
Ladders	2,3
Fall Protection General Awareness	2,3

Other:
TN Asbestos Inspector 2,3

Hazard Analysis

Risk Assessment Matrix		Likelihood Ratings** (likelihood that incident would occur)			
Consequences Ratings*		A	B	C	D
People	Property	0 Almost impossible	1 Possible but unlikely	2 Likely to happen	3 Almost certain to happen
1 - Slight or no health	Slight or no damage	0 - Low	1 - Low	2 - Low	3 - Low
2 - Minor health effect	Minor damage	0 - Low	2 - Low	4 - Medium	6 - Medium
3 - Major health effect	Local damage	0 - Low	3 - Low	6 - Medium	9 - High
4 - Fatalities	Major damage	0 - Low.	4 - Medium.	8 - High	12 - High

Business Line
All Categories

Business Unit
All Categories

Task 1: Bridge Material ACM Recon/Survey & Sampling

Hazardous Activity #1

Field-Tools, power- use of chain saws, power hand augers, generators, small power tools, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III AD

Biological	-	Chemical	-	Driving	-	Electrical	M
Environmental	-	Gravity	L	Mechanical	M	Motion	M
Personal Safety	-	Pressure	-	Radiation	-	Sound	H

Overall Unmitigated Risk: Medium Mitigated Risk: Low if utilizing:

Controls that should be Considered: Primary: TRACK Operator Competency per Standard Engineering Controls (specify below) JSAs Secondary: HASP H&S Standards Job Briefing/Site Awareness Admin. Controls (specify below) Specialized Equipment (specify below) Inspections PPE (see HASP "PPE" section)

Enter Required Controls:

Hazardous Activity #2

Field-Equipment - work with or in the vicinity of energized equipment/components

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III AA, III AB

Biological	L	Chemical	-	Driving	-	Electrical	H
Environmental	-	Gravity	-	Mechanical	-	Motion	-
Personal Safety	-	Pressure	H	Radiation	-	Sound	-

Overall Unmitigated Risk: High Mitigated Risk: Medium. if utilizing:

Controls that should be Considered: Primary: TRACK H&S Standards Electrical (NFPA 70E) Training Lockout/Tagout Training Secondary: JSAs HASP Job Briefing/Site Awareness Engineering Controls (specify below) PPE (see HASP "PPE" section) Housekeeping Competent Person Required (designated person)

Enter Required Controls:

Hazardous Activity #3

Field-Tools, hand - use of hammers, screwdrivers, wrenches, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III AD

Biological	-	Chemical	-	Driving	-	Electrical	-
Environmental	-	Gravity	L	Mechanical	-	Motion	M
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Low if utilizing:

Controls that should be Considered: Primary: TRACK JSAs Engineering Controls (specify below) Inspections

Enter Required Controls:

Hazardous Activity #4

Field-Falls - work on elevated work surfaces including ladders, manlifts, platforms, scaffolding, etc.

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: IV A, IV B, IV C

Biological	-	Chemical	-	Driving	-	Electrical	-
Environmental	-	Gravity	H	Mechanical	-	Motion	-
Personal Safety	H	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: High Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK JSAs Fall Protection Awareness Training Competent Person Required (designated person) Engineering Controls (specify below) Secondary: Specialized Equipment (specify below) HASP H&S Standards Job Briefing/Site Awareness Housekeeping Inspections

Enter Required Controls:

Risk Assessment Matrix		Likelihood Ratings** (likelihood that incident would occur)			
Consequences Ratings*		A	B	C	D
People	Property	0 Almost impossible	1 Possible but unlikely	2 Likely to happen	3 Almost certain to happen
1 - Slight or no health	Slight or no damage	0 - Low	1 - Low	2 - Low	3 - Low
2 - Minor health effect	Minor damage	0 - Low	2 - Low	4 - Medium	6 - Medium
3 - Major health effect	Local damage	0 - Low	3 - Low	6 - Medium	9 - High
4 - Fatalities	Major damage	0 - Low.	4 - Medium.	8 - High	12 - High

Task 2: General Site Work

Hazardous Activity #1

Field-Ambient environment - exposure heat, cold, sun, weather, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III I, III M

Biological	-	Chemical	-	Driving	M	Electrical	L
Environmental	L	Gravity	H	Mechanical	-	Motion	L
Personal Safety	M	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK Field H&S Handbook (see ref. above) Secondary: H&S Standards Engineering Controls (specify below) Admin. Controls (specify below) Specialized Equipment (specify below) PPE (see HASP "PPE" section)

Enter Required Controls:

Hazardous Activity #2

Field-Biological - insects, spiders, snakes, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III N

Biological	M	Chemical	-	Driving	-	Electrical	-
Environmental	-	Gravity	-	Mechanical	-	Motion	-
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK Engineering Controls (specify below) Secondary: JSAs HASP Job Briefing/Site Awareness PPE (see HASP "PPE" section) Housekeeping

Enter Required Controls:

Hazardous Activity #3

Field-Traffic - working on or adjacent to roadways

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III AM, V F

Biological	-	Chemical	-	Driving	M	Electrical	-
Environmental	-	Gravity	-	Mechanical	-	Motion	H
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium. Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK Traffic Control Plan (TCP) Engineering Controls (specify below) Engineering Judgement Employee Required Secondary: H&S Standards Job Briefing/Site Awareness Admin. Controls (specify below) Specialized Equipment (specify below) PPE (see HASP "PPE" section)

Enter Required Controls:

Hazardous Activity #4

Field-Mobilization/Demobilization - from a site

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: #N/A

Biological	-	Chemical	L	Driving	M	Electrical	-
Environmental	-	Gravity	M	Mechanical	-	Motion	L
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Low if utilizing:

Controls that should be Considered: Primary: TRACK Field H&S Handbook (see ref. above) Engineering Controls (specify below) Secondary: JSAs Job Briefing/Site Awareness PPE (see HASP "PPE" section) Admin. Controls (specify below)

Enter Required Controls:

Hazard Communication (HazCom)/Global Harmonization System (GHS)

☐ HAZCOM/GHS for this project is managed by the client or general contractor

List the chemicals anticipated to be used by Arcadis on this project per HazCom/GHS requirements.
(Modify quantities as needed)

	Preservatives	Qty		**Decontamination**	Qty		**Calibration**	Qty.
☑	Not applicable		☑	Not applicable		☑	Not applicable	
☐	Hydrochloric acid	<500 ml	☐	Alconox	≤ 5 lbs	☐	Isobutylene/air	1 cyl
☐	Nitric acid	<500 ml	☐	Liquinox	≤ 1 gal	☐	Methane/air	1 cyl
☐	Sulfuric acid	<500 ml	☐	Acetone	≤ 1 gal	☐	Pentane/air	1 cyl
☐	Sodium hydroxide	<500 ml	☐	Methanol	≤ 1 gal	☐	Hydrogen/air	1 cyl
☐	Zinc acetate	<500 ml	☐	Hexane	≤ 1 gal	☐	Propane/air	1 cyl
☐	Ascorbic acid	<500 ml	☐	Isopropyl alcohol	≤ 4 gal	☐	Hydrogen sulfide/air	1 cyl
☐	Acetic acid	<500 ml	☐	Nitric acid	≤ 1 L	☐	Carbon monoxide/air	1 cyl
☐	Isopropyl alcohol	< 4 gal.	☐	Other:		☐	pH standards (4,7,10)	≤ 1 gal
☐	Formalin (<10%)	< 4 gal.		_____		☐	Conductivity standards	≤ 1 gal
☐	Methanol	<500 ml		_____		☐	Other:	
☐	Sodium bisulfate	<500 ml		_____			_____	

	Fuels	Qty.		**Kits**			Qty.
☑	Not applicable		☑	Not applicable			
☐	Gasoline	≤ 5 gal	☐	Hach (specify):		_____	1 kit
☐	Diesel	≤ 5 gal	☐	DTECH (specify):		_____	1 kit
☐	Kerosene	≤ 5 gal	☐	Other:		_____	1 kit
☐	Propane	1 cyl		_____			
☐	Other:			_____		_____	
	_____			_____		_____	

	Remediation			**Other:**	Qty.		**DOT(1):**	Qty.
☑	Not applicable		☐	Not applicable		☐	_____	
☐	_____		☑	Spray paint	≤ 6 cans	☑	urethane caulk	2 tubes
☐	_____		☐	WD-40	≤ 1 can	☐	_____	
☐	_____		☐	Pipe cement	≤ 1 can	☐	_____	
☐	_____		☐	Pipe primer	≤ 1 can	☐	_____	
☐	_____		☐	Mineral spirits	≤ 1 gal	☐	_____	
			☐	_____		☐	_____	

(1) Attach applicable Materials of Trade (MOT) generic shipping determination. SDS not generally applicable to this category.

Safety Data Sheets (SDSs) must be available to field staff. Indicate below how SDS information will be provided:

☐ Not applicable
☐ Printed copy in company vehicle
☐ Printed copy in the project trailer/office
☑ Printed copy attached
☐ Electronic copy on field computer

☐ Contractor SDSs are not applicable
☐ Contractor SDSs are attached
☐ Contract

_____

☐ Bulk quantities of the following materials will be stored: _____

Contact the project H&S contact for information in determining code and regulatory requirements associated with bulk storage of materials.

Monitoring

☑ Chemical air monitoring is not required for this project or is the responsibility of contractor.

For projects requiring air monitoring, list the relevant constituents representing a hazard to site workers.

Constituent	Max. Conc.	Units	TWA	Units	STEL	Units	IDLH	Units	LEL/UEL (%)	VD Air=1	IP (eV)
Asbestos	0.0001	ppm	0.1	f/cc	1	f/cc30	NA	-	NA/NA	NA	NA
None			9999	-	0	-	0	-	0	0	0
None			9999	-	0	-	0	-	0	0	0
None			9999	-	0	-	0	-	0	0	0
None			9999	-	0	-	0	-	0	0	0
None			9999	-	0	-	0	-	0	0	0

Notes: TWAs are ACGIH 8 hr.-TLVs unless noted.

p-ppm m-mg/m3 c2- ceiling (2 hr.) se-sensitizer A - Arcadis specific TWA*
s- skin c-ceiling "9999" - NA O-OSHA PEL "#N/A"-Manually enter
r- respirable i-inhalable N-NIOSH 10 hr. REL

See Special Instructions

Monitoring Equipment and General Protocols

Air monitoring is required for any task or activity where employees have potential exposure to vapors or particulates above the TWA. Action levels below are appropriate for most situations. Contact the project H&S contact for all stop work situations. Select monitoring frequency and instruments to be used.

Monitoring Frequency:	Not required
Indicator Tube/Chip Frequency:	Indicator tube/chip monitoring not required

	Instrument	Action Levels	Actions
☐	Photoionization Detector Lamp (eV):	< 0.000 0.000 - 0.0 > 0.0	Continue work Sustained >5 min. continuous monitor, review eng. controls and PPE, proceed with caution Sustained >5 min. stop work, contact SSO
☐	Flame Ionization Detector (FID)	< 0.0 0.0 - 0.0 > 0.0	Continue work Sustained >5 min. continuous monitor, review eng. controls and PPE, use caution Sustained >5 min. stop work, contact SSO
☐	LEL/O2 Meter	0-5% LEL >5-10% LEL >10% LEL 19.5%-23.5% O2 <19.5% O2 >23.5% O2	Continue work Continuous monitor, review eng. controls, proceed with caution Stop work, evacuate, contact SSO Normal, continue work O2 deficient, stop work, evacuate, cont. SSO O2 enriched, stop work, evacuate, contact SSO
☐	Indicator: ☐ tube ☐ chip Compound(s):	≤PEL/TLV >PEL/TLV	Continue work Stop work, review eng. controls and PPE, contact SSO
☐	Particulate Monitor (mists, aerosols, dusts in mg/m^3)	< 1.5 1.5 - 3.000 > 3.000	Continue work Use engineering controls, monitor continuously Stop work, review controls, contact SSO
☑	Other:	Specify:	Specify: Use wetting as the primary control to eliminate dust hazards.

* Arcadis administrative TWAs ensure mixture component TWAs are not exceeded that would require additional monitoring or medical surveillance.

One or more constituents listed above is a particulate hazard.

Personal Protective Equipment (PPE)

***See JSA or Permit for the task being performed for required PPE**. If work is not conducted under a JSA or Permit, refer to the governing document for PPE requirements. At a minimum, the following checked PPE is required for* *all tasks during field work* *(outside of field office trailers and vehicles) not covered by a JSA or Permit on this project:*

Minimum PPE required to be worn by all staff on project:

			Specify Type:
☑ Hard hat	☐ Snake chaps/guards	☐ Coveralls:	
☑ Safety glasses	☐ Briar chaps	☐ Apron:	
☐ Safety goggles	☐ Chainsaw chaps	☐ Chem. resistant gloves:	
☐ Face shield	☐ Sturdy boot	☑ Gloves other:	Leather work gloves
☐ Hearing protection	☑ Steel or comp. toe boot	☐ Chemical boot:	
☐ Rain suit	☐ Metatarsal boot	☐ Boot other:	
☐ Other:		☑ Traffic vest, shirt or coat:	Class III
		☐ Life vest:	

Task specific PPE: Hearing protection when using power tools/drill. See Level C Supplement for APR use for ACM sample collection.

Comments:
Also see various attached JSAs for task-specific PPE requirements (like snake chaps or PFDs).

Medical Surveillance (*check all that apply*)

☐ Medical Surveillance is not required for this project.
☑ HAZWOPER medical surveillance applies to all Arcadis site workers on the project.
☐ HAZWOPER medical surveillance applies to all subcontractors on the project.
☐ HAZWOPER medical surveillance applies to all site workers on the project except:

☐ Other medical surveillance required (describe type and who is required to participate):

☐ Client drug and/or alcohol testing required.

Hazardous Materials Shipping and Transportation (*check all that apply*)

☐ Not applicable, no materials requiring a Shipping Determination (SD) will be transported or shipped
☐ A SD has been reviewed and provided to field staff
☑ A SD is attached
☐ All HazMat will be transported under Materials of Trade by Arcadis (see generic MOT SD Form)
☐ Other (specify):

Roadway Work Zone Safety (*check all that apply*)

☐ Not applicable for this project
☐ All or portions of the work conducted under a TCP
☐ All or portions of the work conducted under a STAR Plan
☐ TCP or STAR Plan provided to field staff
☑ TCP or STAR Plan attached
☑ Other (specify): If temporary traffic lane closures are required, TDOT will deploy and maintain traffic control measures.

Arcadis Commercial Motor Vehicles (CMVs)

This section is applicable to Arcadis operated vehicles only

☑ This project will **not** utilize CMV drivers ☐ This project will utilize CMV drivers

This project will NOT utilize vehicles (alone or in combination with a trailer) with a gross vehicle weight rating (GVWR) of 10,001 pounds or more. GVWR Truck + GVWR Trailer = <10,001 pounds

Site Control (*check all that apply*)

- ☐ Not applicable for this project.
- ☑ Site control protocols are addressed in JSA or other supporting document (attach)
- ☐ Maintain an exclusion zone of _____ ft. around the active work area
- ☑ Site control is integrated into the STAR Plan or TCP for the project
- ☑ Level C site control - refer to Level C Supplement attached
- ☐ Other (specify):

Decontamination (*check all that apply*)

- ☐ Not applicable for this project.
- ☐ Decontamination protocols are addressed in JSA or other governing document (attach)
- ☑ Wash hands and face prior to consuming food, drink or tobacco.
- ☐ Remove gloves and coveralls and contain, wash hands and face prior to consuming food, drink or tobacco. Ensure footwear is clean of site contaminants
- ☑ Respiratory protection- refer to the Level C supplement attached.
- ☑ Other (specify):

Level C work requires decontamination of the APR prior to storage and transport. See Level C Supplement.

Sanitation *(check all that apply)*

- ☑ Mobile operation with access to off-site restrooms and potable water
- ☐ Restroom facilities on site provided by client or other contractor
- ☐ Project to provide portable toilets (1 per 20 workers)
- ☐ Potable water available on site
- ☐ Project to provide potable water (assume 1 gal./person/day)
- ☐ Project requires running water (hot and cold, or tepid) with soap and paper towels

Safety Briefings (*check all that apply*)

- ☑ Safety briefing required daily
- ☐ Safety briefing required twice a day
- ☐ Safety briefings required at the following frequency: _____
- ☐ Subcontractors to participate in Arcadis safety briefings
- ☐ Arcadis to participate in client/contractor safety briefings
- ☑ Other (specify):

TDOT to attend Arcadis briefings related to traffic control support, as necessary.

Safety Equipment and Supplies

Safety equipment/supply requirements are addressed in the JSA or Permit for the task being performed. *If work is not performed under a JSA or Permit, the following safety equipment is required to be present on site in good condition (Check all that apply):*

- ☑ First aid kit
- ☐ Bloodborne pathogens kit
- ☑ Fire extinguisher
- ☐ Eyewash (ANSI compliant)
- ☑ Eyewash (bottle)
- ☑ Drinking water
- ☑ Other:
  Truck strobe/worker ahead signage

- ☑ Insect repellent
- ☑ Sunscreen
- ☐ Air horn
- ☑ Traffic cones
- ☐ 2-way radios
- ☐ Heat stress monitor

International Travel

- [x] This project does not involve international travel
- [ ] This project involves international travel

Behavior Based Safety Program (*check all that apply*)

- [x] TIP required at the following frequency on this project:
  Select One: _____ mhrs 1 time(s) _____ Define: per field mob
- [ ] H&S Field Assessment required at the following frequency on this project:
  Select One: _____ mhrs _____ time(s) _____ Define: _____
- [ ] Other (specify):

Signatures

I have read, understand and agree to abide by the requirements presented in this health and safety plan. I understand that I have the absolute right to stop work if I recognize an unsafe condition affecting my work until corrected.

Printed Name	Signature	Date

Add additional sheets if necessary

You have an absolute right to STOP WORK if unsafe conditions exist!

Level C Supplement for the Standard HASP (Revision 5, 4/9/2015)

Level C Scope of Work

Describe the task(s) requiring Level C upgrade:
Asbestos inspection with half-face or full-face respirator.

Verify the following (check box if condition ***does not exist*** *for the task(s) listed above):*

- [x] NO IDLH atmospheres
- [x] NO oxygen deficient atmospheres
- [x] NO permit required confined spaces
- [x] NO unknown contaminant atmospheres

If any of the above conditions exist, contact your project H&S contact for assistance.

Roles and Responsibilities

Identify project team members and Level C responsibilities for each member for this work:

	Employee Name	Responsibilities
1	Zach Mongan	Lead ACM Inspector
2	Greg Drelich	SSO
3		
4		
5		
6		
7		
8		

Training
The following training is required beyond the training specified in the HASP:

- [x] Respirator use and limitations
- [x] Level C PPE specific to the project
- [x] Site control specific to the project
- [x] Decontamination specific to the project.
- [ ] Project air monitoring requirements under Level C
- [ ] Emergency Action Plan specific to this Level C project
- [ ] Other (specify): _____
- [ ] Other (specify): _____

Training will be provided on site prior to imitation of work and documented on:

- [x] Tailgate Safety Briefing Form
- [ ] Field Logbook
- [x] Other (specify): Internal ANA Training Records

Medical Surveillance

- [x] All project team members have a current medical clearance to wear a respirator
- [ ] The following project team members are required to have a current medical clearance to wear a respirator

Air Monitoring Supplement

The following air monitoring requirements are in addition to the requirements in the HASP when work is performed under Level C conditions.

Constituent(s)	Odor Threshold (ppm)	MUC (ppm)	Comments

Other air monitoring equipment required for Level C work not specified in the HASP:

- [ ] 1) PID
- [ ] 2) FID
- [ ] 3) LEL/O2 Meter
- [ ] 4) Particulate monitor
- [ ] 5) Colorimetric indicator tubes (specify type): _____
- [ ] 6) Other: _____
- [ ] 7) Weather:
  - [ ] Temperature
  - [ ] Humidity
  - [ ] Precipitation
  - [ ] Wind direction
  - [ ] Wind speed
  - [ ] Other: _____

Air monitoring will be conducted at (check all that apply):

Location:	Frequency:	Type (instruments or numbers from above):
[ ] Breathing zone		
[ ] Exclusion zone boundary		
[ ] Upwind		
[ ] Downwind		
[ ] Crosswind		
[ ] Site perimeter		
[ ] Other: _____		

- [ ] A windsock is required.

Comments:

Respirator Selection and Fit Testing

The following respirator is required for this project:

	APF	Permitted Fit Test
☐ Dust mask	10	QLFT
☑ Half facepiece air purifying respirator (dual cartridge)	10	QLFT
☑ Full facepiece air purifying respirator	50	QLFT
☐ Loose fitting facepiece powered air purifying respirator	25	QLFT
☐ Half facepiece powered air purifying respirator	50	QLFT
☐ Full facepiece powered air purifying respirator	1000	QNFT

Required fit test for project: ☐ Qualitative (QLFT) ☑ Quantitative (QNFT)
☐ QLFT fit test protocol attached

Cartridge Selection

The following cartridges are required for this project:
Note: Consult the manufacturer's literature for specific constituents of interest to ensure correct cartridge is selected.

Chemical:
- ☐ Multigas
- ☐ Organic vapor
- ☐ Organic vapor/acid gas
- ☐ Ammonia/methylamine
- ☐ Mercury vapor/chlorine
- ☐ Other (specify): _____

Particulate/Dust/Mists:
- ☑ P-100
- ☐ N-95
- ☐ R-95
- ☐ Other (specify): _____

Combination:
- ☐ Organic vapor/P-100
- ☐ Organic vapor/acid gas/P-100
- ☐ Ammonia/methylamine/P-100
- ☐ Mercury vapor/chlorine/P-100
- ☐ Other (specify): _____

End of Service Life Indicators (ESLIs) (aka Respirator Cartridge Change Out)

Respirator cartridge ESLIs shall be factored when selecting the appropriate cartridge. Use of warning properties such as odor and taste are not permissible practices. The ESLI shall be identified and a cartridge change out schedule established prior to start of work. Information used to establish the change out schedule will be computed using manufacturer's supplied guidance or software (see below). At a minimum, chemical cartridges will be changed out daily. For particulate filters and cartridges, replace when breathing becomes difficult or daily whichever comes first.

☐ ESLI information is attached.

Comments:
There is no safe threshold for exposure to asbestos, therefore cartridges should be changed out daily.

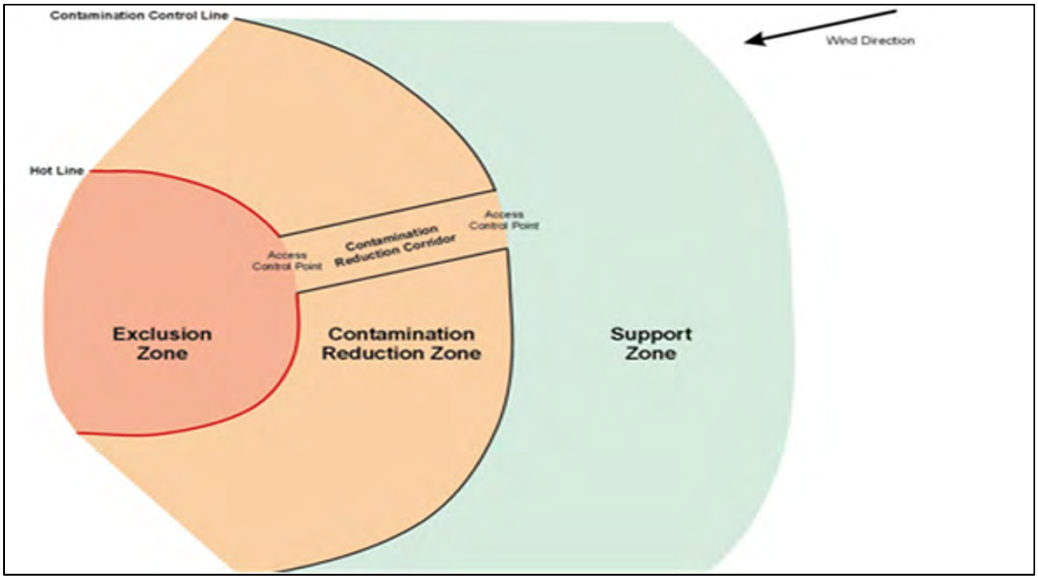
Respirator Care and Maintenance

☑ Cleaning protocol attached

All respirators will be stored in a clean and sanitary condition at all times. Each respirator used will be cleaned prior to be stored for the day. Each respirator will be inspected by the user prior to use. Any defective or worn part will be promptly replaced.

Site Control

Example site control layout (check configurations to be used below):



The size and configuration used for site control is dependent on many variables. Based on the hazards and tasks being performed, identify site control requirements for this project:

Configuration?

- ☐ Exclusion zone (EZ)
- ☐ Contamination reduction zone (CRZ)
- ☐ Contamination reduction corridor (CRC)
- ☐ Access control points (ACPs)
- ☐ Other: _____
- ☐ Other: _____

How delineated?

- ☐ Cones
- ☐ Channelizer cones
- ☐ Caution tape
- ☐ Safety fencing
- ☐ Other: _____
- ☐ Other: _____

☐ Site control is integrated into the STAR Plan or TCP for the project

Additional Level C PPE specific for each zone (excluding respirator):

EZ and ACP at EZ

- ☐ Coveralls: _____
- ☐ Boot covers: _____
- ☐ Outer gloves: _____
- ☐ Inner gloves: _____
- ☐ Taping _____
- ☐ Other: _____
- ☐ Other: _____

CRZ/CRC/ACP at Support Zone

- ☐ Coveralls: _____
- ☐ Boot covers: _____
- ☐ Outer gloves: _____
- ☐ Inner gloves: _____
- ☐ Taping _____
- ☐ Other: _____
- ☐ Other: _____

Support Zone

- ☐ See applicable JSA
- ☐ See HASP
- ☐ Other: _____

Comments:

Level C. Supplement - Respirator Cleaning Protocol

Remove cartridges/canisters/filters. Disassemble facepiece by removing speaking diaphragm, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer.

Wash components with warm (<110° F) water with a mild detergent or with a cleaner approved by the manufacturer. A soft, non-wire bristle brush may be used to facilitate dirt removal.

Rinse with warm (<110° F) clean water, preferably running water.

If the cleaner used does not contain a disinfecting agent, respirator components should be immersed in one of the following for two minutes:

1. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43° C (110° F); or,

2. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of

3. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

Rinse components thoroughly in clean, warm (43° C [110° F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.

Components should be hand-dried with a clean lint-free cloth or air-dried.

Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.

Test the respirator to ensure that all components work properly.

Task Improvement Process

General

Observed Company:	
Observation Type:	
TIP Form:	H&S Field Multi-Task (General)
Task Observed:	
Observee Name:	
Observer Name:	
Observation Date:	
Project Number:	TNDT1935.HZxx
Project Name:	
Supervisor:	
Equipment On Site:	
Pertinent Information:	

Observation

Task	Correct	Questionable	Comments
General			
PPE worn according to HASP/JLA specifications and inspected before use?			
STOP work authority used where appropriate?			
Body Use/Positioning			
Proper lifting/pushing/pulling techniques used (no awkward positions/posture; no twisting or excessive reaching; no straining; no excessive weight; load under control/stable; etc.)?			
Body parts away from pinch points (clear or protected from being caught between objects/equipment or from contacting sharp objects/edges, etc.)?			
Body parts not in the Line of Fire (protected from being struck by traffic, equipment, falling/flying objects, etc.)?			
Work Procedures/Environment			
Correct type and number of barricades/warning devices/cones?			

Communication with others when necessary (hand signals, flags, etc.)?			
Right tools and equipment selected for the job and inspected before use?			
Tools and equipment used properly?			
Housekeeping performed (work areas and pathways clear of hazards, uneven surfaces addressed, etc.)?			
Slip/trip/fall hazards addressed (path selected and cleared, eyes on path, speed footing, etc.)?			
Proper energy control (electrical systems grounded, lock out/tag out performed, isolated, cords/fixtures in good condition, GFCI inspected and utilized when appropriate and used properly, etc.)?			
Protected from overhead/underground utilities (proper clearance, properly marked, spotters as necessary, etc.)?			
Safe work on/near water (appropriate flotation device, appropriate boat for body of water and operation of boat, etc.)?			
Chemical/Radiation protection (decontamination zones set up properly, air monitoring, completed, and logged, etc.)?			
Fall from elevated height prevention (maintains 3-points of contact, appropriate ladder, mounting/dismounting vehicle/equipment, fall arrest system, etc.)?			
Any additional safety issues identified:			

Tip Summary **Enter details of the TIP and follow up discussion provide details on how any**

Discussion following the TIP led by: _____

Date of follow-up discussion: _____

Positive Comments:

Discussion Summary Completed:

- [ ] Supervisor Led
- [ ] Peer to Peer
- [ ] Arcadis Employee to Subcontractor

Summary of Questionable Items

Action Items (Optional) Assign appropriate action items based on the observations made. You can

Item #	Action Item	Responsible Person	Due Date	Comp. Date
1				
2				
3				

Standard Review

Reviews to be performed after entry of this TIP into 4-Sight.

Quality Review

Quality Reviews to be performed after entry of this TIP into 4-Sight.

Field Validation and Verification

Use the 4-Sight generated copy of this TIP to perform field V&V activities.

Control Number: TSM- TNDT1935.HZxx

TSM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS Design & Consultancy for natural and built assets

TAILGATE HEALTH & SAFETY MEETING FORM

Project Name:			**Project Location:**
Date:	**Time:**	**Conducted by:**	**Signature/Title:**

Issues or concerns from previous day's activities:

Task anticipated to be performed today:

☐ Additional permits/checklists attached

USE TRACK! Evaluate the hazards (h) for the tasks being performed today and rank as Low (L), Medium (M) or High (H). Use relevant JSAs, FHSHB, permit or other work standard to communicate controls (c) to be used to eliminate or mitigate identified hazards.

☐ Gravity (i.e., ladder, scaffold, trips) (L M H)
h: _____
c: _____

☐ Motion (i.e., traffic, moving water) (L M H)
h: _____
c: _____

☐ Mechanical (i.e., augers, motors) (L M H)
h: _____
c: _____

☐ Electrical (i.e., utilities, lightning) (L M H)
h: _____
c: _____

☐ Pressure (i.e., gas cyl., wells) (L M H)
h: _____
c: _____

☐ Environment (i.e., heat, cold, ice) (L M H)
h: _____
c: _____

☐ Chemical (i.e., fuel, acid, paint) (L M H)
h: _____
c: _____

☐ Biological (i.e., ticks, poison ivy) (L M H)
h: _____
c: _____

☐ Radiation (i.e., alpha, sun, laser) (L M H)
h: _____
c: _____

☐ Sound (i.e., machinery) (L M H)
h: _____
c: _____

☐ Personal (i.e. alone, night) (L M H)
h: _____
c: _____

☐ Driving (i.e. car, ATV, boat, dozer) (L M H)
h: _____
c: _____

☐ Refer to the attached Hazard Analysis Sheet(s) or JSA

Comments:

Signature and Certification: I have read and understand the project specific HASP for this project.

Printed Name/Signature/Company	Sign In Time	Sign Out Time

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call **WorkCare at 1.800.455.6155** and then notify the field supervisor.

Utility strike, motor vehicle accident or 3rd party property damage - field supervisor will immediately notify the Project or Task Manager

Place any additional signatures on the back of this form.

ARCADIS
Infrastructure · Water · Environment · Buildings

IF NOT ME, THEN WHO?

- H&S SITUATIONS WHERE NO ARCADIS EMPLOYEES ARE INVOLVED OR WHEN ARCADIS DOES NOT HAVE HEALTH & SAFETY RESPONSIBILITY-

Effective: 1 March 2013

This document addresses the "If Not Me, Then Who?" concept in perceived or actual H&S situations (unsafe acts or behaviors, unsafe conditions, etc.) which do not involve our employees or partners and where we are not contractually or statutorily responsible for H&S[1].

For example, what does an ARCADIS employee do, when ARCADIS has no construction site responsibility but they see that a fence that was erected by a general contractor and is supposed to be protecting this site, has a gap that may allow an unauthorized person to enter the site where they could be injured?

The ARCADIS H&S Vision and Policy, and our culture using TRACK to 0 concept put H&S first in all things. Yet we also have the need to protect ourselves from injury and the company from undue risk and liability:

1. Take a minute to think through the situation, related risks, and risks that would result from corrective action (TRACK).
2. Act immediately to safe lives if in your best judgment delay would cost lives or severe injuries (imminent danger).
3. If we see unsafe acts/behavior or conditions that are not imminent dangers: speak up and promptly notify the appropriate party. In a project: liaise with project manager about best person to address (consider H&S responsible person - contractor and client). In other situations, attempt to identify the person with H&S or overall responsibility for the activities.
4. Re-confirm the formal H&S responsibilities (law & contract) with H&S and legal department before doing anything else, or, if action could not be postponed for risk of losing lives/severe injuries, immediately after the action.
5. When having pointed out, or about to point out, areas of concern outside of our scope of responsibilities, accompany with a specific disclaimer[2].
6. Refrain from taking H&S responsibility through further action (actual corrections, audits, reviews or other)[3].

It is noted that the above example actually occurred involving an ARCADIS employee. Instead of notifying the appropriate parties of the situation, our employee attempted to fix the contractor fence and got seriously injured in doing so. This resulted in lost time to our employee and a recordable injury against the company.

---

[1] The ARCADIS Stop Work Authority covers H&S situations that do involve our employees or where we are statutorily or contractually responsible for H&S.

[2] *In this activity, it is not our role to monitor H&S, but as a company we are very committed to a safe work environment and based on our previous experiences we believe [**] to create an imminent threat to [**].* If providing a disclaimer at the time is "too much", we can do a clear short one in writing immediately after.

[3] This is to avoid our employees running safety risks through corrective actions. We also wish to avoid being held responsible, and possibly liable, for work outside scope.

ARCADIS Design & Consultancy for natural and built assets

Weekly Vehicle Inspection Form

Vehicle # / License Plate # _____ **Wheels # / Last 6 of Vin #** _____

	Inspection Date											
	Odometer reading											
	Driver / Inspector Name											
	Check the appropriate box and enter repair date for identified repairs:	OK	Needs Repair	Repair Date	OK	Needs Repair	Repair Date	OK	Needs Repair	Repair Date	OK	Needs Repair	Repair Date
Interior[1]	Horn operational												
	Door Locks operational												
	Seat Belts in good repair & operational												
	Seats and Seating Controls operational												
	Steering Wheel - No Excessive Play												
	Interior Lights and Light Controls												
	Instrument Panel/Gauges												
	Wiper Controls operational												
	Heat/Defrost/Air Conditioning operational												
	Rear View Mirror present												
	Backup Camera/Sensors working												
	Jack and Lug Wrench present												
Exterior[1]	Lights and Signals operational												
	Tires and Spare Tire properly inflated												
	Tires have proper tread depth (Page 2)												
	Doors operational												
	Windows Cracked/Damaged												
	Side View Mirrors operational												
	Damaged Body Panels and Bumpers												
Engine & Brakes	Engine Start & Running Smoothly												
	Fluid Levels-OK?, No Noticeable Leaks												
	Belts tight, no cracks												
	Parking Brake & Brakes operational												
Emergency Equipment[2]	First Aid Kit, inspected monthly												
	Fire Extinguisher properly secured												
	Fire Extinguisher inspected monthly												
	Amber emergency warning light present												
	Roadside Assistance Information												
	Recommend spotter cones available												
Cargo	Cargo Secure and Properly Distributed												
	Securing Devices in Good Condition												
Registration	Valid License Plate /Tags												
	Valid Registration and Insurance												
	Valid City/State Inspection Decal												
	Lease Plan information/Fuel Card												

[1] **Note all damages to the vehicle on the back of this page**

[2] **Emergency Equipment required per Motor Vehicle Standard ARC HSGE024**

GOAL Get Out And Look

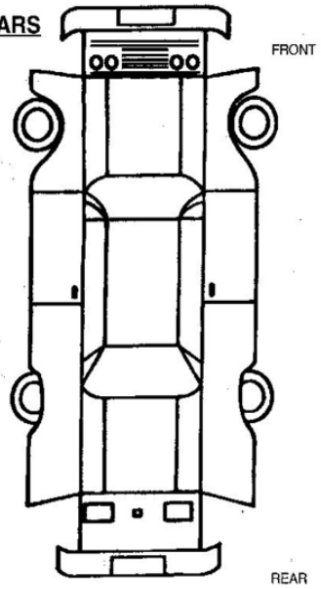
Note All Vehicle Damage Below

All Vehicle Damage must be reported to Anthony Cline (Corporate Fleet Manager) and Susan Berndt (Corporate Legal)

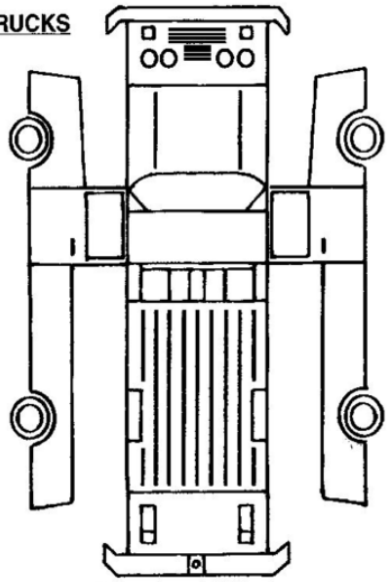
CODES:

B-BENT
BR-BROKEN
BU-BULGE
C-CHAFED
CH-CHIPPED
CPM-COVERED WITH PROTECTIVE MATERIAL-UNABLE TO DETERMINE DEFECTS IF ANY
CSA-CHAFED AND SCRATCHED ALL OVER
CR-CRACKED
D-DENTED
DMC-DUST AND MUD COVERED UNABLE TO DETERMINE OTHER DEFECTS IF ANY
G-GOUGED OR CUT
GC-GLASS CRACKED
HS-HAIRLINE SCRATCH
M-MISSING
P-PUNCTURED
R-RUSTY
S-SCRATCHED
SC-SCRAPED
SM-SMASHED
ST-STAINED AND/OR SOILED
T-TORN

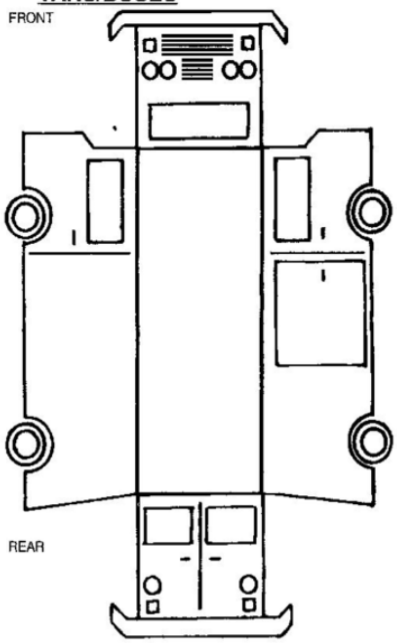
CARS



TRUCKS



VANS/BUSES



-INDICATE ON DIAGRAM-
-GIVE DIMENSIONS-
-CIRCLE WHERE APPLICABLE-

Notes:

_____

_____

_____

Tread Depth Guide: If a tread gauge is not available coins may be used to determine remaining tread. 2/32" is the minimum by law in most states (top of Lincoln's head on penny), 4/32" is minimum recommended for wet surfaces (top of Washington's head on quarter), 6/32" is minimum recommended for snowy surfaces (top of Lincoln Memorial on penny).Vehicle tires should be replaced if the tread depth is less than 6/32".

2/32" remaining 4/32" remaining 6/32" remaining

Reference JSA 10907 For Weekly Vehicle Inspection

Visitor Acknowledgement and Acceptance of HASP Signature Form

By signing below, I waive, release and discharge the owner of the site and Arcadis and their employees from any future claims for bodily and personal injuries which may result from my presence at, entering, or leaving the site and in any way arising from or related to any and all known and unknown conditions on the site.

Name	Company	Reason for Visit	Date/Time On Site	Date/Time Off Site

SHIPPING DETERMINATION FORM Revision 8c

Date:	8/31/2016
Project Name:	TDOT Bridge ACM Surveys
Project Number:	TNDT1935.HZxx
Supplemental Information:	None

1) Description of the Material to be Transported or Shipped

1a	Select a description category ===>	Samples
1b	*Asbestos containing material*	
1c	Potential Asbestos Containing Material, Non-Friable	

☐ This material is mixed with water, soil or other inert material

☐ This material will be shipped on wet or blue ice

☐ This material will be shipped on dry ice

2) Classification and Identification

This material is: None

Complete for Hazardous Materials ONLY:

2a UN/NA/ID# : NA 2b PG: NA Hazard Class: NA

Subsidiary Hazard Class: NA NA

PSN: NA

☐ See Sect. 7

2c This material is a: No additional criteria applies to this material

3) Packaging, Exceptions and Shipping Information

This material will be shipped (mode of transport and type of shipment):

3a None

If using an exception/exemption, list the exception/exemption below

3b None

Carrier/Transporter information:

3c None

Consider entering your desired bottle set in section 3f prior to completing 3a-3c to see if exceptions can be used.

Auth. Air Limits for EQ, LQ and Fully Reg. Shipments and Selected Ground LQ and SQE:

Inner Container Limit (NA- Not Applicable; F- Forbidden; mg, g, or kg for solids; ml or L for liquids):

Glass	NA	NA	Plastic Bag	NA	NA
Metal	NA	NA	Paper Bag	NA	NA
Plastic	NA	NA	Fibre	NA	NA

Outer package Limit:	NA	NA

Air Shipping Specification Package Requirements (NA-Not Available or Not Applicable):

Combination Packages					
Drums:	Steel	Aluminum	Plywood	Fibre	Plastic
	NA	NA	NA	NA	NA
Jerricans:	Steel	Aluminum	Plastic		
	NA	NA	NA		
Boxes:	Steel	Aluminum	Plywood	Fibreboard	Plastic
	NA	NA	NA	NA	NA
Single Packages					
Drums:	Steel	Aluminum	Fibre	Wood	Plastic
	NA	NA	NA	NA	NA
Jerricans:	Steel	Aluminum	Plastic		
	NA	NA	NA		
Boxes:	Steel	Aluminum	Plywood	Fibreboard	Plastic
	NA	NA	NA	NA	NA
Bags:	Textile	Plastic	Paper		
	NA	NA	NA		

Volume/mass limits and package information are not available for this hazard class, PSN or shipping configuration. Consult section 8 for guidance. If no Arcadis guidance is referenced, enter regulatory required quantity limits and packaging in section 7.

Complete 3d-3f for all Shipments HazMat and Not Regulated/Not Restricted:

3d	Packaging Type:	Combination Package - Non-Bulk			
3e	Inner Container Category:	Bag- plastic			
3f	Inner Container Specific/Pkg:	Container type		Net Qty. Each Container	
	≤# of Single /Inners: 50	None	None	5	grams
	≤# of Single /Inners: 0	None	None		None
	≤# of Single /Inners: 0	None	None		None
	≤# of Single /Inners: 0	None	None		None
	≤# of Single /Inners: 0	None	None		None
	≤# of Single /Inners: 0	None	None		None
3g	Intermediate Packaging:	None			
3h	Outer Packaging:	Non-specification box - fibreboard			
3i	Other:	All packed in one (air only)			

- ☐ ARCADIS Shipping Guide US-001 attached
- ☐ Specific package closure instructions are attached
- ☐ ARCADIS Shipping Guide or HSSP is available for this shipment: NA

4) Marks and Labels

- ☐ PSN, ID # (ID # -12 mm text height required)
- ☐ To/From Address (10 pt. font, Arial)
- ☐ Hazard Class Label(s) :
- ☐ Cargo Aircraft Only Label
- ☐ Orientation Arrows (2 req.)
- ☐ LTD QTY (Ground - no "Y")
- ☐ LTD QTY (Air -"Y")
- ☐ Excepted Quantity
- ☐ Small Quantity Exception by Hwy/Rail
- ☐ OVERPACK (12mm text height required)
- ☐ Dry Ice Class 9 Label
- ☐ Scientific Research Specimen
- ☐ Inside packages meet prescribed spec.
- ☐ RQ (place before PSN on package)
- ☐ Radioactive Matateria, Exc Package
- ☐ Other: _____

Checked marks and labels are usually required - consult applicable regulation for actual marks/labels required.

5) Documentation

- ☑ No special documentation required
- ☐ Requires a Shipper's Declaration (air) prepared using : None
- ☐ Requires HazMat ground shipping papers prepared using: None
- ☐ Requires a Bill of Lading or Manifest (>MOT, Freight,Trucking Co., Waste Hauler, etc.)
- ☐ Requires Special Permit DOT-SP # _____
- ☐ Other: _____

6) Emergency Response

- ☐ Use ChemTel 24/7 Emergency Phone and Contract Number or approved equivalent (authorized client or vendor) for this shipment: 1-800-255-3924 (ChemTel #MIS0007883) Register this shipment with ChemTel: Have carrier tracking number available. http://arcadis.chemtel.net/
- ☐ Ensure current edition of North American Emergency Response Guidebook in vehicle (ARCADIS Transport requiring a shipping paper)

7) Special Instructions (Specify any "See Section 7" details in cell B124)

This is a free text field..

8) References and Rationale for the Determination (add additonal sheets, if requried):

NA
DOT Special Provisions:
Various suspect bulk material samples will be collected for TDOT for PLM analyses from the following bridge construction materials, or as determined by the TN-Licensed Asbestos Inspector: concrete, concrete skim coatings, stormwater drains/pipes, utility conduit(s), expansion joint filler/pre-formed expansion material between concrete sections, or other miscellaneous materials (such as tar paper, sealant/caulking, tar flashing, felt, fiberboard, vibrtation dampener pads, etc.). Historical sampling for TDOT at similar bridge structures has determined that some constuction materials contain small percentages (i.e., 1-15%) of Chrysotile asbestos in a limited number of sampled materials from any given strucuture. Suspect material samples are placed inside a plastic sample bag inside the outer container for air shipping to the anlaytical laboratory. Where possible samples are collected using wet methods.
☐ See attached for rationale (IF CHECKED, DETERMINATION IS VOID IF RATIONALE NOT ATTACHED)

9) Signatures

Determination performed by: Richard Lounsbury, APM
Phone (XXX-XXX-XXXX): 865.777.3526

Determination QA/QC performed by: Patrick Kontin

White Asbestos

(Chrysotile, Actinolite, Anthophyllite, Tremolite)
HazMat Shipping Support Package (HSSP-022)
Do Not Use After 12/31/2012
3/14/2012

Instructions:

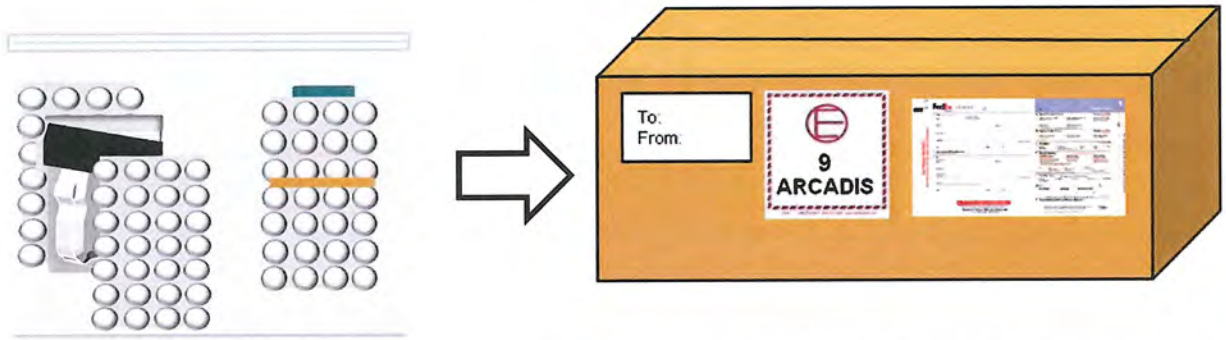
- ❑ **This package applies to FedEx Express air shipment of friable asbestos having the above Proper Shipping Name and using Excepted Quantity**
- ❑ **This guide does not apply to materials known as blue asbestos (crocidolite) or brown asbestos (amosite, mysorite)**
- ❑ **This shipment requires HazMat #1 training (or equivalent) for all persons collecting, preparing packaging, or offering this package to a carrier**
- ❑ **Follow all special instructions in the Shipping Determination**
- ❑ **Do not deviate from the wording, markings or labels presented in this package**
- ❑ **Affix all markings and labels on the same side of the package**
- ❑ **UN Specification outer packaging is not required. Can use standard cardboard box, cooler or case (i.e. Pelican® case) that is in good condition**
- ❑ **DO NOT use FEDEX or UPS branded boxes**
- ❑ **DO NOT use Tyvek or similar envelopes**
- ❑ **Excepted Quantity mark should be purchased but a downloadable version (right click to open hyperlink) is available for color printing**
- ❑ **Other required markings may be made on a computer**
- ❑ **Preparation of a Shipper's Declaration is not required.**
- ❑ **A 24 hour phone number is not required.**
- ❑ **DOT NOT give this information or the Shipping Determination to FedEx, keep on file at offering employee's office.**
- ❑ **Report all rejected shipments to the ARCADIS Transportation Compliance Manager**

Example Package Configuration for a Friable Asbestos Shipment

1) ≤ 30 grams of material per container:

Seal in bag Tape bag seal Seal in vial Tape vial lid Protect vial

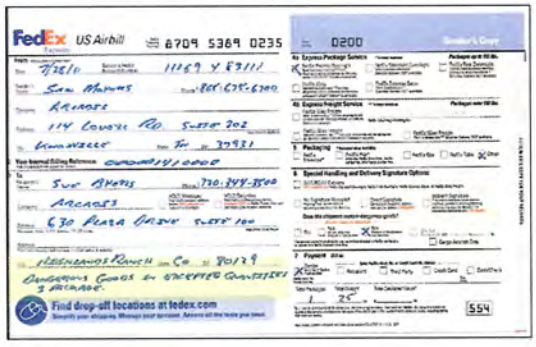
2) ≤ 1 Kg of material per package:



Secure samples in self sealing bag and protect with cushioning material

Place samples in box and secure against movement
Mark box as shown above

3) Mark shipping document or air waybill "*Dangerous Goods in Excepted Quantities, 1 Package*":



ARCADIS

TICK BITE
PREVENTION

Health & Safety Fact Sheet

Administrative/Engineering Controls

- Consider mowing work area and paths prior to job if heavily tick infested.
- Consider time of year when planning work. Schedule work to avoid high tick activity season – avoid warmer months.
- Is pesticide application a possibility for highly infested areas?
- Avoid walking/working in wooded, overgrown/brushy/ tall grass areas.
- Walk in the middle of clearings and trails to avoid brush and tall grass.
- Plan and schedule "buddy checks" throughout day for ticks that may be present on clothing or along the hairline.
- Complete personal body checks in morning and evening.

Personal Prevention Measures

- Wear light-colored clothing to detect ticks more easily.
- Wear long pants and long-sleeved shirts.
- Button up shirt near collar and end of sleeves.
- Wear light-colored hat.
- Wear boots with a high cuff (> 6-in.) for tucking in pants. Gaiters may be worn but still need to tuck pants into socks.
- Consider wearing mesh head and/or body netting in infested areas.
- Tuck shirt into pants. Tuck pant legs into socks or inside boot cuffs.
- Tape pants near boots and sleeves near wrists to seal openings.
- Wear coveralls in highly tick-infested areas. Use of coveralls may require additional hazard assessment for high heat conditions. Evaluate the use of disposable breathable white coveralls.
- Using double-sided tape or duct tape (sticky-side out) around forearms and calves to capture ticks on outside of clothing. Note: tape may be a trip hazard or collect debris.
- Use 0.5% permethrin insecticide on clothes. **DO NOT APPLY TO SKIN! DO NOT APPLY DAY OF USE! FOLLOW PRODUCT USE AND SAFETY INSTRUCTIONS.**
- Use insect repellent containing 20 - 40% DEET on exposed skin, clothes, hats, & boots. When applying to face, avoid mouth and eyes, and do not apply to any exposed skin that is irritated or abraded. **FOLLOW PRODUCT SAFETY INSTRUCTIONS.**
- Consider, for purchase, clothing pre-impregnated with permethrin.

CALL WORK CARE IF BITTEN BY TICK

WORKCARE®
Making Health Count

800 455 6155 (US) **888 449 7787** (Canada)

ARCADIS
Infrastructure, environment, facilities

Safety Bulletin

Take Care of Your Hands

Think through the task

- The materials being used or the job process itself might be hazardous
- Use the correct tool for the job
- The most common causes of hand injuries are:
  - Not understanding or recognizing the hazards
  - Being in the "line of fire"
  - Using the wrong tool
  - Not using the correct glove
  - Disregard for safety procedures
  - Distractions, carelessness, lack of awareness
  - Repetitive motion strain

Recognize the hazards that could hurt hands

- Sharp surfaces (i.e., cutting tools, etc.)
- Pinch points
- Sharp and/or pointy edges that can cause puncture wounds
- Chemicals
- Rotating equipment
- Bee stings/insect bites
- Bloodborne pathogens
- Extreme temperatures
- Vibrating equipment
- Struck by hazards – things falling on the hand or striking the hand

Assess the risks

- Cuts and wounds
- Heat burn
- Frostbite
- Crushing of hand or fingers
- Amputation

Control the hazards

Preventing injury:

- Always use the right glove for the job
- Use the correct cutting tool for the job and tools that have guarded or protected edges
- Be aware of pinch points
- Stay out of the "line of fire" of moving or falling equipment
- Be aware of hot and cold surfaces and weather conditions
- Be aware of rotating or moving surfaces
- Automated machinery may be controlled by remote control, or delayed timing devices that cause the machine to start automatically
- Use lockout/tagout procedures for de-energized equipment
- Loose clothing (including gloves) and jewelry may be caught in moving machinery (remove jewelry when it could be caught)
- Never remove machine safeguards or operate machinery with safeguards removed

Preventing strain:

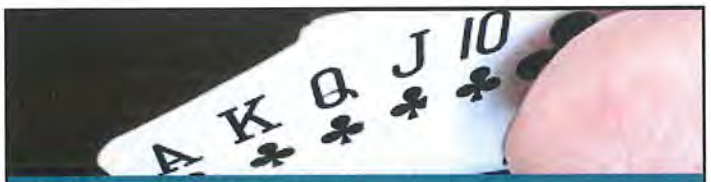
- Doing a few simple exercises before work and between tasks will build hand strength and provide a rest from repetitive motions
  1. Stretch fingers by spreading them wide apart for a few seconds (repeat 3 times with each hand)
  2. Stretch your thumb by holding it down gently for five seconds (repeat 3 times with each hand)
  3. Stretch your wrist by making circles with your hands (repeat 10 times for each hand)

Which glove is best?

- **Cotton** - Light duty material handling and cleanup work (these do not provide puncture protection)
- **Leather** - Equipment handling, general construction, heavy cleanup, welding, moderately hot or cold material handling
- **Shock absorbing** - Operating rotary hammers and other vibrating equipment
- **Kevlar or wire mesh** - Work with sheet metal, glass, or heavy cutting (these do not provide puncture protection)
- **Rubber, nitrile, and other synthetics** - Chemical gloves must be chosen for the specific chemical being used (found in the MSDS or site safety plan)
- **Insulated** - extreme high and low temperatures

Keep health and safety first in all things

- Plan ahead on projects to obtain proper hand protection before work starts
- Stop work authority
- Ask for help from H&S!



Safety – a winning hand.

To order hand protection or any other PPE:
https://www.reisenv.com/reisweb/webcode/welcome.asp
username: ARCADIS
password: track

ARCADIS

Wise Safety & Environmental
Products and Services for a Safe Workplace

National Oceanic and Atmospheric Administration
U.S. Department of Commerce

NOAA Knows...

Lightning

Lightning is one of the most underrated severe weather hazards, yet ranks as one of the top weather killers in the United States. Lightning strikes in America kill about 50 people and injure hundreds of others each year.

Unlike other weather hazards that often involve sophisticated watches and warnings from NOAA's National Weather Service, lightning can occur anywhere there is a thunderstorm. That's why the National Weather Service conducts an on-going campaign to educate people about lightning risks.

The Shocking Truth

Lightning is a rapid discharge of electrical energy in the atmosphere. The resulting clap of thunder is the result of a shock wave created by the rapid heating and cooling of the air in the lightning channel.

During a thunderstorm, winds within the thunderstorm cloud cause collision between the various precipitation particles within the storm cloud. These collisions cause very small ice crystals to lose electrons while larger particles of soft hail gain electrons.

Upward winds within the cloud redistribute these particles and the charges they carry. The soft hail causes a negative charge build up near the middle and lower part of the storm cloud which, in turn, causes a positive charge to build up on the ground beneath the storm cloud.

Eventually, when the charge difference between the negative charge in the cloud and the positive charge on the ground become large, the negative charge starts moving toward the ground. As it moves, it creates a conductive path toward the ground.

This path follows a zigzag shape as the negative charge jumps through segments in the air. When the negative charge from the cloud makes a connection with the positive charge on the ground, current surges through the jagged path, creating a visible flash of lightning.

Thunder, high winds, darkening skies, rainfall and brilliant flashes of light are warning signs for lightning strikes.

(continued on back)

Lightning Quick Facts

- Lightning often strikes the **same place repeatedly** if it is a tall, isolated object.
- Most lightning victims are **in open areas or near a tree**.
- Lightning strikes the U.S. about 25 million times each year.
- Lightning can heat its path through the air to **five times hotter** than the surface of the sun.

While most lightning casualties occur at the beginning of an approaching storm, a significant number of lightning deaths occur after the thunderstorm has passed. If thunder is heard, then the storm is close enough for a lightning strike. It is very important to seek safe shelter immediately.

When Thunder Roars, Go Indoors

When you hear thunder or see lightning, you should immediately seek safe shelter — a building with electricity and/or plumbing or a metal-topped vehicle with the windows closed. Picnic shelters, dugouts, small buildings without plumbing or electricity are **not** safe. Once inside, follow these important safety tips:

- **Stay off corded phones.** You can use cellular or cord less phones.
- **Don't touch electrical equipment or cords.**
- **Avoid plumbing.** Do not wash your hands, take a shower or wash dishes.
- **Stay away from windows and doors, and stay off porches.**
- **Do not lie on concrete floors or lean against concrete walls.**

Nowhere outside is safe when thunderstorms are in the area. Run to a safe building or vehicle when you first hear thunder, see lightning or observe dark threatening clouds developing overhead. Stay inside until 30 minutes after you hear the last clap of thunder.

Organizers of outdoor events should monitor the weather and evacuate participants as soon as they hear thunder. It's a good idea to post lightning safety rules in programs, flyers or signs so participants know what to do. Most importantly, keep an eye on the sky, listen for thunder, and keep up to date with the latest NWS forecasts.

For more lightning information and safety tips, visit **http://www.lightningsafety.noaa.gov**.

To learn more about NOAA, visit **http://www.noaa.gov**.

All Hazards NOAA Weather Radio
NOAA's National Weather Service™

Job Safety Analysis

General

JSA ID	HASP 1	**Status**	Complete
Job Name	General Industry-Driving - passenger vehicles	**Created Date**	1/12/2015
Task Description	Driving a car, van, or truck on public roadways.	**Completed Date**	01/12/2015

Client / Project

Client	Tennessee Department of Transportation
Project Number	TNDT1810.HZxx
Project Name	**ACM Bridge Survey**
Project Manager	Rich Lounsbury

User Roles

Role	Employee	Due Date	Completed Date
Developer	Josh Ferry	1/12/2015	1/12/2015
HASP Reviewer	Lueke, Clair	1/12/2015	1/12/2015
Quality Reviewer			

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Pre-Trip Inspection	1	Failing to perform pre-trip inspections may cause mechanical failure, accident or injury	Perform walk around of vehicle with particular attention to tire inflation and condition. Check lights, wipers, seatbelts for proper operating condition. Properly adjust seat and mirrors prior to vehicle operation. Use or review vehicle inspection checklist as required under the MVSP.	ARC HSGE024 Motor Vehicle Safety Standard (MVSP)
		2	Scrapes, cuts, burns to hand if inspecting engine fluids and/or tires. Eye splash hazard if inspecting engine fluids. Pinch or crush hazards when opening or closing hood, trunk or tailgate.	Wear protective gloves and safety glasses as described below when checking under hood or tires. Use TRACK and keep hands clear when opening/closing hood, trunk, or tailgate to avoid crush or pinch hazard.	
		3	Struck by other vehicles while walking around vehicle performing inspections	Wear high visibility vest, shirt, or coat while performing inspections in parking lots or other areas with a traffic hazard. Remain vigilant of moving vehicles or equipment in area, face oncoming vehicles to extent practical.	
		4	Improperly secured cargo may dislodge creating injury, property damage or road hazard.	Ensure all cargo is properly secured to prevent movement while the vehicle is in opertation. This includes cargo in the cab of the vehicle.	

2	Driving a motor vehicle on public streets	1	Failing to observe traffic flow ahead increases risk of hard braking resulting in potential impact of vehicle ahead, being struck by another vehicle from behind and decreases decision making time.	Use Smith System Key #1, "Aim High in Steering". **Look ahead (15 seconds if possible) to observe traffic flow and traffic signals.** Adjust speed accordingly to keep vehicle moving and avoid frequent braking. Select lane of least traffic and adjust speed based on observed signal timing when possible. Avoid following directly behind large vehicles that obscure view ahead.	Smith System "5-Keys" is a registered trademark of Smith System Driver Improvement Institute, Inc.
		2	Failing to observe vehicles, pedestrians, bicyclists and other relevant objects in vicinity of your vehicle increases risk of side swipes, rear ending, and third party injury.	Use Smith System Key #2, "Get the Big Picture". **Maintain 360 degrees of awareness around vehicle.** Check a mirror every 6-8 seconds, maintain space around the vehicle, choose a lane that avoids being boxed in. Look for pedestrian activity ahead in crosswalks or sidewalks. Watch for construction zone approach signs and act early by executing lane changes and reducing speed.	
		3	Failing to keep your eyes moving increases risk of not seeing relevant vehicles, pedestrians and objects in your vicinity that may impair your ability to make timely and appropriate driving decisions and also increases risk of accident.	Use Smith System Key #3, "Keep Your Eyes Moving". **Move your eyes every 2 seconds and avoid staring while evaluating relevant objects.** Scan major and minor intersections prior to entering them. Check mirrors.	
		4	Failing to maintain space around and in front of your vehicle increases risk of striking another vehicle or being struck by another vehicle. Insufficient space shortens time for effective driving decision making resulting in increased accident risk.	Use Smith System #4, "Leave Yourself an Out". **Use 4 second rule when following a vehicle.** Avoid driving in vehicle clusters by adjusting speed and using lanes that permit maximum space and visibility. When stopped, keep one car length space in front of vehicle ahead or white line.	
		5	Failing to communicate with other drivers and pedestrians increases risk of striking vehicles, pedestrians, or being struck by other vehicles, especially from the rear.	Use Smith System Key #5, "Make Sure They See You". **Brake early and gradually when stopping to reduce potential of being rear ended.** Keep foot on brake while stopped. Use turn signals and horn effectively. Establish eye contact with other drivers and pedestrians to extent practical. Use vehicle positioning that promotes being seen.	
		6	Distractions within the vehicle takes focus off driving, increases risk of accident decreases time for making effective driving decisions.	**Cell phone use (any type or configuration) is prohibited while the vehicle is in motion.** Familiarize yourself with vehicle layout and controls (radio, temperature controls, etc.) prior to operating unfamiliar vehicles. Set controls prior to operating vehicle. Use GPS in unfamiliar areas to avoid use of paper maps/directions while driving. Set GPS prior to vehicle operation. Pull over and stop to modify GPS functions. Avoid consuming food or drink while driving.	

3	Parking	1	Parking vehicle in areas of clustered parked vehicles or near facility entrance may impair visibility to oncoming traffic in lot and increase exposure to pedestrian traffic.	**Use pull through parking or back into parking space when permitted or practical.** When practical and safe to do so, park away from other vehicles and avoid parking near the facility entrance or loading docks. If available, use a spotter to aid in backing activity. Back no further than necessary and back slowly. Get out and look (GOAL) if uncertain of immediate surroundings. Tap horn prior to backing.	

PPE Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Eye Protection	safety glasses	While checking engine or tires	Required
Hand Protection	work gloves (specify type)	Leather or equivalent checking engine or	Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
	other	Vehicle kit (applies to company trucks)	Required
Miscellaneous	fire extinguisher	Applies to company trucks	Required
	first aid kit	Applies to company trucks	Required

Job Safety Analysis

General

JSA ID	NONE	**Status**	(3) Completed
Job Name	TN Bridge Surveys	**Created Date**	3/16/2012
Task Description	Bridge Asbestos Surveys	**Completed Date**	03/19/2012
Template	FALSE	**Auto Closed**	FALSE

Client / Project

Client	TDOT Hazmat Contract
Project Number	TNDT1810.HZxx
Project Name	Bridge Asbestos-Containing Material Surveys
PIC	Whitaker, Brian
Project Manager	Lounsbury, Richard

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Hodges, Greg	3/16/2012	3/16/2012	Padron, Eduardo	☑
HASP Reviewer	Padron, Eduardo	3/19/2012	3/19/2012		☑
Quality Reviewer	Allman, John	3/19/2012	3/19/2012	Walter, Lee	☐

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Preparation & Planning	1	Not completing the Task Hazard Analysis Checklist could result in field staff being unprepared for site work.	Coordinate completion of Task Hazard Analysis Checklist with PM/TM. Determine need for ladders, lifts, fall protection, confined space entry, unsafe areas, etc. Identify age of bridges and potential to encounter friable ACM. Review information supplied by client. Ensure that any personnel that will be required to wear respiratory protection is medically cleared and annual fit testing requirements are satisfied. Coordinate traffic flow/control activities will be properly established at the time of survey.	ARC HSIH002, ARC HSFS003, ARC HSFS007, ARC HSFS015
2	Mobilization	1	Driving early/late to jobsite that is a good distance from office	Driving times should be planned ahead. Driving should not be done when driver is tired. Do not use cell phones while driving. Practice Smith Defensive Driving System.	
3	Tailgate Safety Meeting	1	Poor Communication	Communicate site-specific health & safety information to entire sampling team and traffic control providers. Confirm all team members have site-specific training, as required. Review site-specific hazards and procedures, including coordination with other work on-going at site. These may include lock-out/tag-out of utilities, confined space entry, using ladders, working on lifts, additional lighting to work in dark areas, etc.	Field HS Handbook III.A; ARCADIS Tailgate Meeting Standard (ARC HSGE001)
4	Evaluate site upon arrival for personal safety and security	1	Bridge could have structural issues creating fall hazards or debris could cause slip/trip/fall hazards	Assess bridge and make sure that hazards were similar as what was scoped in the project or reported by the client. Additional hazards that could impact safety of personnel should be called into the project manager. A qualified and licensed engineer should perform an assessment on any bridge/building that appears structurally unsafe.	
		2	Personal Security	Assess potential personal security issues prior to starting work. Verify cell phone reception. In high risk areas, have a security escort or a buddy as needed. Notify PM/TM or supervisor at time of entry and anticipated time of exit. Inform that person of anticipated walking route. Assess presence of other individuals unrelated t0 the work, such as general public, temporary bridge dwellers, onlookers, etc and determine control measures. Seek advice from client and traffic control staff as needed; do not confront these individuals.	

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
5	Visual inspection of areas to be sampled	1	Trip, slip or fall in dark areas or over clutter.	Inspect walking surface before proceeding. Use temporary lighting or flashlight if area lighting is not adequate. Use a headlamp to keep hands free. Cover or demarcate openings in walking surfaces. Have replacement flashlight batteries handy; use work lights if possible for work in dark areas under the bridge structure.	Refer to Field Handbook, ARC HSIH008, HSIS015, Elevated Heights JSA.
		2	Heat Stress from working in an unventilated facility or in direct sunlight; or Cold Stress from working in an unheated facility or outdoors	Dress for weather accordingly. Keep hydrated in hot environments.	

		3	Noise exposure >85dBA from site conditions.	Use engineering and administrative controls to minimize noise exposure; Use hearing protection to reduce exposure below 85 dBA action level.	
		4	Fall from elevated heights during inspection.	Select appropriate ladder/lift for work activity, do not overextend or lean out; use a spotter to stabilize extension ladders. Use 3-points of contact when climbing ladders; keep belt buckle within the limits of the side rails; use a tool belt to bring equipment up the ladder. use two people to carry ladders, keep a clear line of sight. Wear proper fall arresting equipment as dictated by the activity being performed.	
		5	Limited access and egress to/from active work area.	Confirm that everyone entering the area where samples are being collected is aware of the escape route and periodically discuss where the escape route is in relation to the current work area as you move throughout the bridge.	
		6	Stray animals, mice, rats	Be mindful of wildlife residing in the structure. Make noise to scare away wildlife and carry repellent spray in the event of encountering stray animals. If a dangerous or aggravated animal is spotted, leave the area immediately.	
6	Collect potential asbestos-containing building material samples	1	Ergonomic - using excessive force or repetitive motion to obtain samples could result in injury to musculoskeletal system.	Work slowly, use appropriate sample tool, don't overextend, stretch exercises for hands/fingers.	
		2	Insufficient Lighting	Ensure suitable permanent or temporary lighting in work area and access/egress locations.	
		3	Trip, slip and fall	All cords, equipment, supplies and debris should be cleared and/or organized within the work area.	
		4	Electric shock from cords while working in wet or difficult to access area.	Require the use of GFCI interrupters for any/all electrical equipment. Lock Out/Tag Out power to utilities that may be contacted during sampling work.	
		5	Heat/Cold Stress or Inclement Weather	Dress for the weather accordingly. Take breaks as necessary. Keep hydrated in hot environments.	
		6	Biological Hazards: Insects, Snakes, Wildlife, Vegetation	Inspect work areas upon arrival at site to identify hazards. Where possible, landscape site to reduce high grass and stagnant water that create habitats attractive to wildlife and remove hazardous flora. Where needed, wear long pants and snake chaps in areas with grass higher than 4 inches. If moving through vegetated areas, use a long handled tool to disturb vegetation prior to stepping through. Use insect repellant when in areas with grass higher than 4 inches or standing water where insects are observed. Prior to beginning work in vegetated areas, survey employees to determine whether they have known sensitivities to hazardous flora and fauna. Reassign sensitive employees to tasks in non-vegetated areas or provide Tyvek to reduce potential for dermal contact.	

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
		7	Lifting hazards (heavy or bulky equipment, ladders).	Use TRACK to plan lifts and routes to work location. Use proper lifting techniques.	
		8	Awkward body positions and twisting.	Plan activity to avoid twisting of body or awkward body positions. Use buddy system or job rotation to reduce exposure to conditions that can not be avoided.	
		9	Noise exposure >85 dBA from sample collection with power tools.	Use engineering and administrative controls to minimize noise exposure; Use hearing protection to reduce exposure below 85 dBA action level.	
		10	Fall from ladder when attempting to obtain samples.	Maintain three points of contact with ladder at all times.	
		11	Exposure to asbestos could cause lung cancer, mesothelioma, or asbestosis	Use wet methods when sampling suspect ACM. Wear air purifying respirator with P100 (HEPA) filters. Conduct personal air monitoring (PEL and STEL) on a routine basis to verify and validate respiratory protection requirements. Wash hands thoroughly after collection activities. Clean any generated debris using appropriate wet-wiping techniques.	
		12	Coring through roadway for sampling.	If sampling >1.0", verify through TDOT/811 & AUS policy that utilities are not present. Prevent debris from falling.	
		13	Cuts or splinters from sample collection.	Wear cut resistant gloves and cut away from yourself when sampling.	
		14	Site investigation might require entry into confined spaces which could present physical/health hazard.	Personnel must have confined space awareness training. Personnel must NOT enter a permit-required confined space unless specialized permit-required confined space training is received, rescue operations have been practiced/arranged, and employee is familiar with the permit required confined space program and hazard identification/testing requirements.	

7	Decontaminate sampling equipment	1	Exposure to potential asbestos fibers while decontaminating equipment	Wear all protective PPE as outlined in the HASP; including, gloves, eye protection, and respirator (if friable material).	
		2	Cuts from handling sampling equipment	Use gloves to minimize potential contact with sharp edges.	
8	Demobilization	1	Driving early/late to jobsite that is a long distance from office	Driving times should be planned ahead. Driving should not be done when driver is tired. Do not use cell phones while driving. Practice Smith Defensive Driving System.	

Personal Protective Equipment (PPE)

Type	Personal Protective Equipment	Description	Required
Dermal Protection	coveralls	Tyvek as necessary	Required
	long sleeve shirt/pants		Required
Eye Protection	safety glasses		Required
Foot Protection	boots	non-slip, steel toe	Required
Hand Protection	chemical resistant gloves (specify type)	nitrile or latex	Required
	work gloves (specify type)	cut-resistant	Required
Head Protection	hard hat		Required
Miscellaneous PPE	traffic vest--Class II or III	as necessary	Required
Respiratory Protection	full face respirator	P100 cartridges	Required
	half face respirator	P100 cartridges	Required

Supplies

Type	Supply	Description	Required
Communication	mobile phone		Required
Decontamination	Decon supplies (specify type)	Water	Reccomended
Miscellaneous	fall protection (specify type)	as necessary	Required
	fire extinguisher		Required
	first aid kit		Required
	flashlight	with spare batteries	Required
Personal	eye wash (specify type)	personal bottles or equivalent	Required
	insect repellant	as necessary	Required
	sunscreen	as necessary	Required
	water/fluid replacement	as necessary	Required
Traffic Control By TDOT	barricades	as necessary	Required
	signage	as necessary	Required
	traffic cones	as necessary	Required

Review Comments

Reviewer	Comments
Employee: **Role** **Review Type** **Completed Date**	
Employee: **Role** **Review Type** **Completed Date**	

Job Safety Analysis

General

Client Name	TDOT Hazmat Contract
JSA ID	3342 - Ladder Safety
Job Name	Environmental-Other
Task Description	Asbestos Survey
Project Number	Misc. TDOT Bridge Projects
Project Name	ACM Bridge Surveys
PIC Name	WHITAKER, BRIAN
Project Manager	LOUNSBURY, RICHARD
Status	(3) Completed
Creation Date	8/27/2010 01:55:08 PM
Auto Closed	True

User Roles

Role	Employee	Due Date	Completed	Approve	Supervisor	Active
Created By	Powell, Jace'que	9/17/2010	8/27/2010		Mosher, Tyler	True
Developer (Primary Contact)	Powell, Jace'que	9/17/2010	8/27/2010		Mosher, Tyler	True
HASP Reviewer	Webster, Charles	9/10/2010			Insco, Ashly	True
Quality Reviewer	Rankin, William	9/29/2010	9/29/2010		Ulm, David	True
Reviewer	Wisbeck, Diane	9/10/2010	9/1/2010	True	Smith, Lee	True

Reviewer Comments

Role	Employee	Approval Status	Completed Date	Comments
HASP Reviewer	Webster, Charles			
Reviewer	Wisbeck, Diane	Approve	09/01/2010	
Quality Reviewer	Rankin, William	Quality	09/29/2010	Good. Also, many ladders have an angle sticker affixed to the side of the ladder to help ensure the ladder is used at the appropriate angle. Suggest using when present.

Job Steps

Job Step	Job Step Description		Potential Hazard	Critical Action	HSP Reference
1	Non-fixed Ladder Selection	1	Improper ladder selection could result in ladder failure	Select ladder with load rating appropriate for work being performed.	Field H&S Handbook section III JJ
		2	Improper ladder selection could result in electrocution	Select non-conductive ladders if working near electrical wiring or other electrical hazard	Field H&S Handbook section III JJ
		3	Use of ladders that are in unsound operational condition may result in injury or death	Inspect all ladders prior to use, do not use a ladder marked "out of service", check ladders for proper operation, good ropes, if equipped, good feet, and free of oil grease or other slick substance on rungs. Check wood ladders for signs of cracking or splitting. Inspect all ladders prior to use.	Field H&S Handbook section III JJ
2	Non-fixed Ladder transport to work area	1	Lifting and carrying ladders	Use TRACK. Use buddy system when moving heavy ladders or long extension ladders. Don't carry ladders that obstruct view of path forward or use awkward body twist picking up ladders. Use proper lifting techniques.	

		2	striking other workers or objects with ladder during carrying	Plan route with ladder, remember to check the rear when turning corners with ladder, use buddy system to carry longer ladders to maintain better control. Look up when moving shorter step ladders vertically.	
		3	Property damage, vehicle damage or injury from improperly secured ladders on vehicles during transport	Make sure ladders are adequately secured such that doors can be operated and driver views are not impaired. Secure in manner that prevents forward or rear movement of ladder if mounted on top of vehicle. Inspect securing devices prior to moving/driving the vehicle. if ladder extends >4 ft from rear of vehicle, attach 18 square inch fluorescent red or orange flag to end.	
3	Working on Non-fixed ladders	1	Muscle strain setting up or taking down ladders	Use buddy system to place/remove heavy or long ladders. Avoid awkward twisting or bending during this activity.	
		2	Falls from ladders	Always maintain 3 points of contact, over 6 ft from ground fall safety devices to be utilized by workers, only one worker on ladder at time, ensure ladder extends at least 3 ft above level being accessed. Ensure extension ladder is at a 1ft horizontal to every 4 ft vertical rise to maintain proper angle. Follow all warning label requirements.	
		3	Tipping of ladders that are improperly secured	Ensure ladders are on level firm ground, tie off ladders at top,	
		4	Collapse of ladders that are over extended or over loaded.	Ensure ladder weight ratings are maintained, maintain at least 3 ft of overlap on extension ladders or other overlap length per ladder instructions.	
		5	Struck by objects or debris dropped from ladders	Keep ground workers away from work activities on ladders. Do not walk under occupied ladders.	
4	Fixed ladder work	1	Falls from height causing injury or death	Always maintain 3 points of contact. Utilize ladder fall safety devices if ladder is equipped. Do not hurry when climbing fixed ladders, rest at any landings provided by the ladder.	
		2	Slips on wet or icy rungs creating impact injuries	Inspect for presence of hazard, clear if possible, do not attempt to climb ladders with ice on rungs, use anti-slip footwear and gloves. Maintain 3 points of contact and climb in a slow methodical manner. Use Stop Work authority for any condition making climbing unsafe	

		3	Temperature stress contact stress to hands while climbing	Wear gloves with good dexterity and anti-slip coatings, wear footwear good tread and anti-slip soles. Rest at any landing provided by the ladder. Shift weight to other hand, leg periodically if at one position on the ladder for an extended period of time.	

Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Eye Protection	safety glasses		Required
Foot Protection	boots		Required
Hand Protection	work gloves (specify type)	leather	Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Miscellaneous	fall protection (specify type)	if needed for task and ladder type	As Needed
Miscellaneous	first aid kit		Required
Miscellaneous	Other	securing devices for mounting on vehicle	Required
Miscellaneous	Other	flags for transport	Required

Job Safety Analysis

General

JSA ID	11315	**Status**	(3) Completed
Job Name	Environmental-Other	**Created Date**	7/8/2014
Task Description	Collect ACM samples from bridge components	**Completed Date**	07/09/2014
Template	FALSE	**Auto Closed**	FALSE

Client / Project

Client	TDOT
Project Number	TNDT1810.HZxx
Project Name	ACM Bridge Surveys
PIC	Whittaker, Brian
Project Manager	Lounsbury, Richard

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	MacKenzie, Marcia	7/30/2014	7/9/2014	Selger, David	☑
Developer	Moore, Wendy	7/30/2014	7/9/2014	Benoit, Michael	☑
Developer	Shivell, Michael	7/30/2014	7/9/2014	Scoville, Michael	☑
HASP Reviewer	Whipple, Curtis	7/23/2014	7/9/2014	Nelson, Bruce	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Approach sampling point.	1	Moving water. Possibility of tripping or slipping on rocks.	Wear flotation device, use buddy system, step carefully. Wear 3 mm neoprene waders for moderate temperatures, 5 mm neoprene waders for colder temps. Stop work if water is above the knee and have certified divers or a boat to carry out the tasks. The buddy must be certified in first aid and CPR. If working in remote area, contact an offsite party to let them know you will be working on/in water and when you expect to be off. Place a follow up call after completing water work. Keep a hand free when walking, consider using a bucket to carry multiple items. Use a walking stick to probe the bottom and add stability.	Emp Field H&S Handbook Sections III and V, Subsections H & G, respectively.
		2	Access bridge component.	Access near water can be challenging. Ensure stable footing and ask sampling partner to lower equipment from above, if appropriate.	
		3	Moving water.	Understand river conditions, water speed, flow rate, and depth of water. Do not proceed if footing is unstable. Research if water body is dam-controlled and if so, learn release schedule ahead of sampling event. Determine if water levels have the potential to rise due to dam release and reschedule event if the water body is affected.	
2	Sampling.	1	Moving/loose rocks, moving water, water depth. Slipping or tripping over rocks.	Wear flotation device, do not proceed if water is above the knee. Move carefully. Wear waders. Do not enter water unless you have a buddy certified in first aid and CPR on shore. If area is remote, contact on offsite party to let them know you will be working on/in water and when you expect the the task to be completed. Place a follow up call after completing water work.	PushPoint Method SOP, Emp Field H&S Handbook Section 1 Subsections D & E.
		2	Potential electrica shock or damage to pump and/or battery in or near water.	Use enough tubing to purge and collect data readings from a safe, dry distance. Keep hands dry when working with pump battery or cables.	
3	Decontaminate sampling equipment.	1	Exposure to decon rinse (hexane solution).	Provide and have staff review Safety Data Sheet (SDS). Provide single use nitrile gloves. Dispose of purge & rinse water in properly labeled drum for proper transport and disposal.	Emp Field H&S Handbook Section 3 Subsection F.

PPE — Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Dermal Protection	coveralls	Neoprene waders-3 mm moderate, 5 mm	Required
Eye Protection	safety glasses		Required
Foot Protection	boots		Required
	outer boot covers	Waders	Required
	rubber boots		Required
Hand Protection	chemical resistant gloves (specify type)	Nitrile Gloves	Required
	work gloves (specify type)	Heavy duty work gloves	Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Decontamination	Decon supplies (specify type)	Alconx/liquinox & hexane solution & DI	Required
Miscellaneous	first aid kit		Required
Personal	insect repellant		Required
	sunscreen		Required
	water/fluid replacement	Drinking water or gatorade.	Required

Review Comments

Reviewer		Comments
Employee:	Whipple, Curtis	
Role	HASP Reviewer	
Review Type	Approve	
Completed Date	7/9/2014	

Job Safety Analysis

General

JSA ID	2995	**Status**	(3) Completed
Job Name	Environmental-Other	**Created Date**	7/6/2010
Task Description	Hammer drilling	**Completed Date**	07/06/2010
Template	FALSE	**Auto Closed**	FALSE

Client / Project

Client	ARCADIS-AGMI
Project Number	000000100000
Project Name	GENERAL OVERHEAD
PIC	
Project Manager	

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Bell, Caitlin	7/6/2010	7/6/2010	Phillips, Hollis	☑
HASP Reviewer	Tremblay, Tony	7/20/2010	7/7/2010	Kundert, Brian	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Prepare before mobilizing by completing utility clearance, completing site-specific health and safety requirements (training, notifications, approval of specific sample locations, scheduling), confirm lighting and power requirements.	1	Electrical shock, damage to utility lines, inadequate or unsafe power source.	Confirm no utilities in work area (in concrete or overhead) that could be impacted by coring or travel through work area. Confirm adequate power source.	Utility Location Policy & Procedure ARCHSF019
2	Conduct Tailgate Safety Meeting. Identify best travel routes within plant/on site, locate power source(s), establish order of sample locations, set up protection from traffic/equipment/other workers on site (cones, caution tape, etc).	1	High traffic in sampling area could cause collision with sampling crew or impact with tools, equipment.	Establish clear communication on site with sampling crew and others working on site. Mark work area clearly so it is visible to others working on site. Locate samples in lowest risk locations possible to achieve sampling objectives.	
3	Operate impact hammer drill to demolish concrete.	1	Exposure to dust, contaminants of concern.	Operate dust monitor to measure dust levels, upgrade PPE as indicated (respirator). Wear all required PPE as specified in HASP.(half-face APR with P100 cartridges, tyvek suit, rubber booties)	
		2	Hand Injury from repetitive motion on vibrating equipment.	Wear heavy work gloves. Trade positions with sampling buddy to minimize impact (drill operation & sample collection).	
		3	Noise	Wear earplugs	
4	Remove concrete	1	Exposure to concrete dust or constituents of concern.	Utilize dust monitor and PPE as dictated by HASP. Note action levels, and respond accordingly should dust levels in air reach action level.	
		2	Strains from moving heavy items repeatedly	Be sure to remove in mangable sized bits	
5	Decontaminate tools/drill bits	1	Chemical exposure	Work upwind. Use specified decon products for constituents of concern. Collect and containerize decon fluids and wastes. Change gloves as frequently as necessary.	
		2	Strains from moving heavy items repeatedly	Utilize the smallest containers of fluids and water as practical. Use vehicle or cart to move equipment, tools and decon fluids.	
6	Clean up work area. Gather tools/equipment.	1	Slips, trips, falls, strains from moving heavy equipment	Rest if fatigued. Utilize cart and/or vehicle to the extent possible to move heavy items. Remove and put away all cords, tools, bits.	

PPE — Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Dermal Protection	chemical protective suit (specify type)	Tyvek	Required
	long sleeve shirt/pants		Required
Eye Protection	safety glasses		Required
Foot Protection	rubber boots	covers	Required
	steel-toe boots		Required
Hand Protection	chemical resistant gloves (specify type)	nitrile	Required
	work gloves (specify type)	leather	Recommended
Head Protection	hard hat		Required
Hearing Protection	ear muffs		Recommended
	ear plugs		Required
Respiratory Protection	half face respirator	half-face with P100 cartridges	Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Decontamination	Decon supplies (specify type)	alconox	Required
Miscellaneous	first aid kit		Required
Personal	eye wash (specify type)		Required
	water/fluid replacement		Required

Review Comments

Reviewer		Comments
Employee:	Tremblay, Tony	
Role	HASP Reviewer	
Review Type	Approve	
Completed Date	7/7/2010	

Traffic Control Plan/Site Traffic Awareness and Response Plan
Revision 8, 7/13/2015

1.0 General

Plan type	TCP
Project Name:	TDOT Bridge Asbestos Surveys
Project Number:	TNDT1935.HZxx
Developer Name:	R. Lounsbury
Engineering Judgement (EJ) Review By:	
Duration of Work (hours or days):	<1 hr per HA; <1 day total for bridge
Roadway Work Zone Start Point	
Roadway Work Zone End Point	
Posted Speed Limit (roadway)	
Number of Lanes (each direction)	variable depending on bridge size
Time Restrictions (describe below)[2]	If TC is required, 9 am to 3 pm

Comments:
Temporary lane closures across the bridge and associated traffic control, if necessary, will be provided by the local TDOT Maintenance Division. Arcadis will coordinate closely with TDOT regarding any lane closure requests and work scheduling, as needed. Lane closures are estimated to take no more than 6 hours per day during non-peak travel times (i.e., 9:00 am to 3:00 pm).

2.0 Work Description

Provide a brief description of scope of work:
Collection of bulk concrete samples from bridge components using hand tools and power hammer drill. Most work is performed from underneath the bridge deck using ladders. Inspector discretion may require collection of samples from the bridge shoulder. If required after pre-inspection, TDOT will provide and implement traffic control measures and brief the field team on all signage and barrier systems.

3.0 Type and Duration

Work locations on this project will be: Short term work (<1 hour per location)

Roadway work will be performed:
On & off shoulders, sidewalk, mobile operation

Special traffic conditions may include (select most prevalent): Not applicable

4.0 Traffic Control Layout, Number of Devices Required and Phasing

The following traffic control configuration in the Field Guide to RWZ Safety applies:
Section 6.2 Work on the Shoulder (DOT Facts-301j)
Section 6.2 Work on the Shoulder (DOT Facts-301j)

All Arcadis vehicles in a RWZ will, at a minimum, have a functioning high intensity strobe or rotating orange light. All Arcadis employees in the RWZ will wear, at a minimum, a retroreflective high visibility vest meeting Class II or III requirements and other PPE required by JSA or HASP. Don't leave vehicle doors open.

Select the traffic control devices to be used and enter number each required:

Check all that apply:	*Wording or Pictogram*	*Number:*
☑ Warning signs	Roadway Work Ahead	2 - 6
☐ Warning signs		
☐ Warning signs		
☐ Stop/Slow paddle		
☐ Red flag		
☐ Drums		
☑ Channelizer cone (42 inch height, 10 lb base)		6 - 10
☐ Channelizer cone (42 inch height, 30 lb base)		
☐ Traffic cones (≥ 18 inches tall)		
☐ Barricade ☐ Type I ☐ Type II		
☐ Flags for cones		
☐ Lights (for night work)		
☐ Plastic fencing (rolls)		
☐ Caution tape (rolls)		
☑ Other (specify):		
	flashing strobe	1

TCP Phasing:

1) Deploy warning signs at first approach, if required

2) Deploy subsequent approach warning signs, if required

3) Deploy channeling devices, if required, starting with first approach

4) Deploy "End Road Work" signs, if required

5) Position vehicle as shield to the extent practical

6) Commence work, SSO or designated contractor to maintain devices

7) Remove devices in reverse order

5.0 Approvals

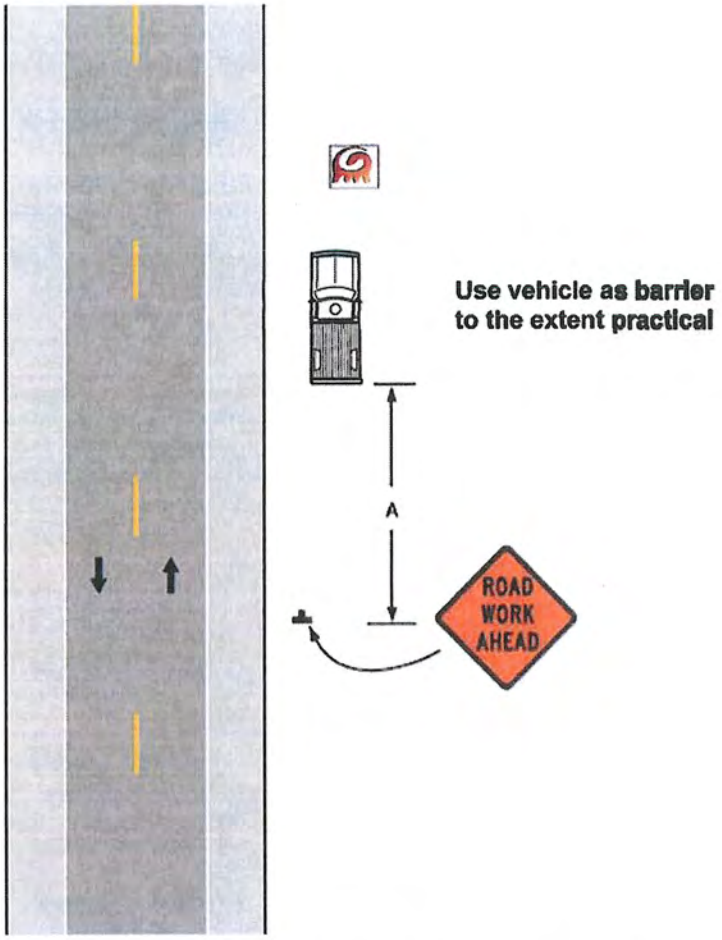
Plan Developer: Richard Lounsbury 8/31/2016

HASP Reviewer 8/31/2016

Engineering Judgment Review By:

DOT Facts-301i
Work Beyond the Shoulder

The following configuration may be used for work conducted beyond the shoulder of the roadway:



Road Type	"A" (m/ft)
Urban (Low Speed)	30/100
Urban (High Speed)	100/350
Rural	150/500

Mandatory:

M1. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

Guidance:

G1. If the work space is in the median of a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

G2. The ROAD WORK AHEAD sign may be replaced with other appropriate signs such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

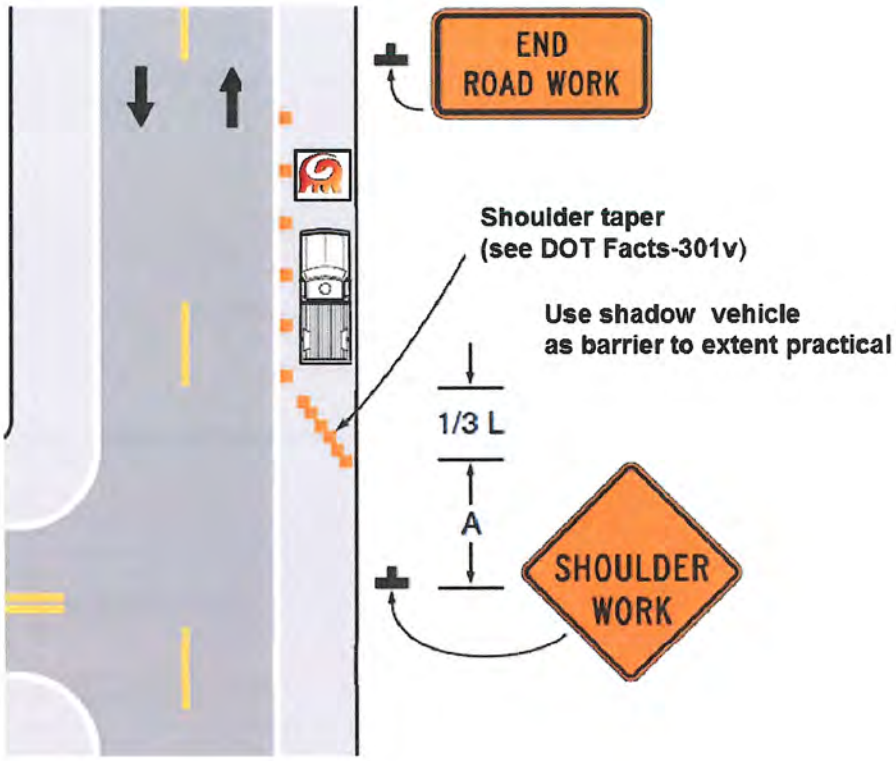
G3. The ROAD WORK AHEAD sign may be omitted where the work space is behind a barrier, more than 600 mm (24 in) behind the curb, or 4.6 m (15 ft) or more from the edge of any roadway.

G4. For short-term, short-duration or mobile operation, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity rotating, flashing, oscillating, or strobe lights is used.

G5. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

DOT Facts-301j
Work on the Shoulder

The following configuration may be used for work conducted on the shoulder of the roadway:



Road Type	"A" (m/ft)
Urban (Low Speed)	30/100
Urban (High Speed)[1]	100/350
Rural	150/500

1 – Excludes freeway, expressway, and interstate highway scenarios

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The ARCADIS Transportation Safety Program is committed to continuous improvement. Report all errors or omissions to Sam Moyers in the Knoxville, TN office. sam.moyers@arcadis-us.com.

Revision 2, 8/26/2014

Mandatory:

M1. Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

M2. When paved shoulders having a width of 2.4 m (8 ft) or more are closed, at least one advance warning sign shall be used. In addition, channelizing devices shall be used to close the shoulder in advance to delineate the beginning of the work space and direct vehicular traffic to remain within the traveled way.

Guidance:

G1. A SHOULDER WORK sign should be placed on the left side of the roadway for a divided or one-way street only if the left shoulder is affected.

G2. The Workers symbol signs may be used instead of SHOULDER WORK signs.

G3. The SHOULDER WORK AHEAD sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.

G4. For short-duration operations of 60 minutes or less, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity rotating, flashing, oscillating, or strobe lights is used.

G5. Vehicle hazard warning signals may be used to supplement high-intensity rotating, flashing, oscillating, or strobe lights.

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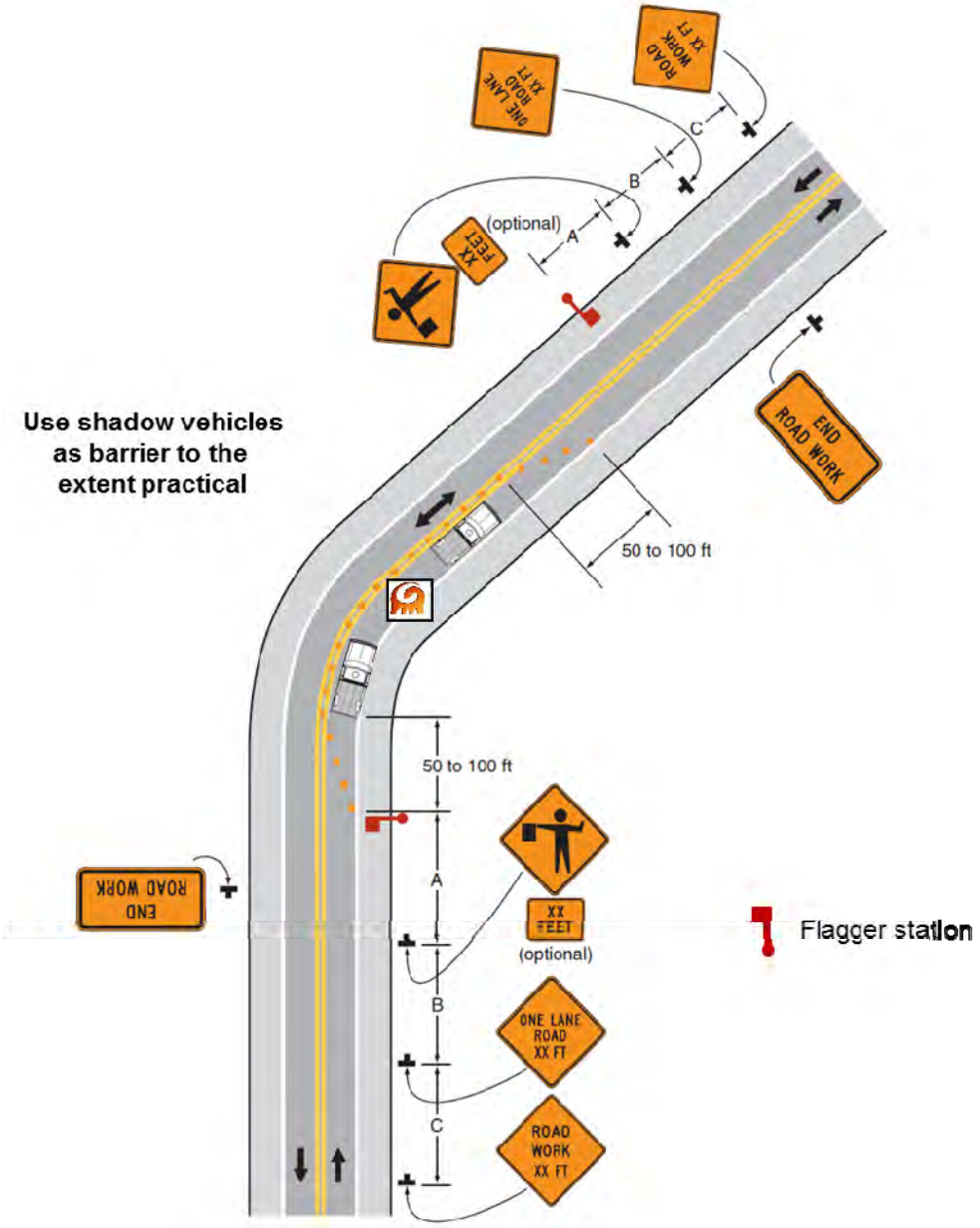
Revision 2, 8/26/2014

DOT Facts-301n
Lane Closure on Two-Lane Road Using Flaggers

The following configuration may be used for lane closure on two-lane roads using flaggers:



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Revision 2, 8/26/2014

Road Type	"A" (m/ft)	"B" (m/ft)	"C" (m/ft)
Urban (Low Speed)	30/100	30/100	30/100
Urban (High Speed)[1]	100/350	100/350	100/350
Rural	150/500	150/500	150/500

1 – Excludes freeway, expressway, and interstate highway scenarios

Mandatory:

M1. At night, flagger stations shall be illuminated, except in emergencies.

Guidance:

G1. For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (refer to DTO Facts-301f for more information).

G2. The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short-duration operations.

G3. Flashing warning lights and/or flags may be used to call attention to the advance warning signs. A BE PREPARED TO STOP sign may be added to the sign series.

G4. The buffer space should be extended so that the two-way traffic taper is placed before a horizontal (or crest vertical) curve to provide adequate sight distance for the flagger and a queue of stopped vehicles.

G5. When used, the BE PREPARED TO STOP sign should be located between the Flagger sign and the ONE LANE ROAD sign.

G6. When a highway-rail grade crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the highway-rail grade crossing, the Roadway Work Zone should be extended so that the transition area precedes the highway-rail grade crossing.

G7. When a highway-rail grade crossing equipped with active warning devices exists within the activity area, provisions should be made for keeping flaggers informed as to the activation status of these warning devices.

G8. When a highway-rail grade crossing exists within the activity area, drivers operating on the left side of the normal centerline should be provided with comparable warning devices as for drivers operating on the right side of the normal centerline.

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G9. Early coordination with the railroad company should occur before work starts.

G10. A flagger or a uniformed law enforcement officer may be used at the highway-rail grade crossing to minimize the probability that vehicles are stopped within 4.6 m (15 ft) of the highway-rail grade crossing, measured from both sides of the outside rails.

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Revision 2, 8/26/2014

Safety Data Sheet

Revision Number: 004.0 **Issue date:** 08/03/2015

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **Loctite® PL® Polyurethane Concrete Crack and Masonry Sealant**
IDH number: 1618522
Product type: Sealant
Restriction of Use: None identified
Region: United States
Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

Contact information:
Telephone: +1 (800) 624-7767
MEDICAL EMERGENCY Phone: Poison Control Center 1-877-671-4608 (toll free) or 1-303-592-1711 TRANSPORT EMERGENCY Phone: CHEMTREC 1-800-424-9300 (toll free) or 1-703-527-3887

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER: CAUSES SKIN IRRITATION.
MAY CAUSE AN ALLERGIC SKIN REACTION.
CAUSES SERIOUS EYE IRRITATION.
MAY CAUSE ALLERGY OR ASTHMA SYMPTOMS OR BREATHING DIFFICULTIES IF INHALED.

HAZARD CLASS	HAZARD CATEGORY
SKIN IRRITATION	2
EYE IRRITATION	2A
RESPIRATORY SENSITIZATION	1
SKIN SENSITIZATION	1

PICTOGRAM(S)

Precautionary Statements

Prevention: Avoid breathing dust or fumes. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wear eye and face protection. Wear protective gloves. In case of inadequate ventilation wear respiratory protection.

Response: IF ON SKIN: Wash with plenty of water. IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation or rash occurs: Get medical attention. If eye irritation persists: Get medical attention. If experiencing respiratory symptoms: Call a poison center or physician. Take off contaminated clothing.

Storage: Not prescribed

Disposal: Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component(s)	CAS Number	Percentage*
Limestone	1317-65-3	10 - 30
Stoddard solvent, <0.1% Benzene	8052-41-3	1 - 5
Talc	14807-96-6	1 - 5
Calcium oxide	1305-78-8	1 - 5
Toluene-2,4-diisocyanate	584-84-9	0 - 0.1
Unknown components~		60 - 100
Titanium dioxide	13463-67-7	1 - 5
Toluene-2,6-diisocyanate	91-08-7	0.1 - 1
Gamma-glycidoxypropyl trimethoxysilane	2530-83-8	0.1 - 1

* Exact percentage is a trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST AID MEASURES

Inhalation: If inhaled, immediately remove the affected person to fresh air. Immediate medical treatment necessary.

Skin contact: Wash affected area immediately with soap and water. If symptoms develop and persist, get medical attention. Remove contaminated clothes.

Eye contact: In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.

Ingestion: Do not induce vomiting, seek medical advice immediately.

Symptoms: See Section 11.

Notes to physician: An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.Treatment based on judgement of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES

Extinguishing media: Water fog. Foam Carbon dioxide.

Special firefighting procedures: Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. In case of fire, keep containers cool with water spray.

Unusual fire or explosion hazards: None known.

Hazardous combustion products: Nitrous gases Irritating fumes. Isocyanate vapors.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Do not empty into drains / surface water / ground water.

Clean-up methods: Ensure adequate ventilation. Scrape up spilled material and place in a closed container for disposal. Wear suitable protective clothing, gloves and eye/face protection.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes, skin and clothing. Avoid extreme temperatures. Wash thoroughly after handling. Protect from moisture. Use only with adequate ventilation.

Storage: For safe storage, store between 18.3 °C (64.9 °F) and 40 °C (104°F) Avoid moisture. Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

For information on product shelf life, please review labels on container or check the Technical Data Sheet.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Limestone	10 mg/m3 TWA Total dust.	5 mg/m3 PEL Respirable fraction. 15 mg/m3 PEL Total dust.	None	None
Stoddard solvent, <0.1% Benzene	100 ppm TWA	500 ppm (2,900 mg/m3) PEL	None	None
Talc	2 mg/m3 TWA Respirable fraction.	20 MPPCF TWA 2.4 MPPCF TWA Respirable. 0.1 mg/m3 TWA Respirable. 0.3 mg/m3 TWA Total dust.	None	50 ppm
Calcium oxide	2 mg/m3 TWA	5 mg/m3 PEL	None	None
Toluene-2,4-diisocyanate	0.005 ppm TWA 0.02 ppm STEL (Sensitizer.)	0.02 ppm (0.14 mg/m3) Ceiling	None	None
Unknown components~	None	None	None	None
Titanium dioxide	10 mg/m3 TWA	15 mg/m3 PEL Total dust.	None	None
Toluene-2,6-diisocyanate	0.005 ppm TWA 0.02 ppm STEL (Sensitizer.)	None	None	None
Gamma-glycidoxypropyl trimethoxysilane	None	None	None	None

Engineering controls: Local exhaust ventilation is recommended when general ventilation is not sufficient to control airborne contamination below occupational exposure limits.

Respiratory protection: Observe OSHA regulations for respirator use (29 CFR 1910.134). Use a NIOSH approved air-purifying respirator if the potential to exceed established exposure limits exists. Respirator with combination filter for vapor/particulate.

Eye/face protection: Safety glasses with side-shields. Full face protection should be used if the potential for splashing or spraying of product exists.

Skin protection: Use impermeable gloves and protective clothing as necessary to prevent skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Solid
Color: Tan
Odor: Slight
Odor threshold: Not available.
pH: Neutral

Vapor pressure:	Not available.
Boiling point/range:	Not available.
Melting point/ range:	Not applicable
Specific gravity:	1.15
Vapor density:	Not available.
Flash point:	Does not flash.
Flammable/Explosive limits - lower:	Not available.
Flammable/Explosive limits - upper:	Not available.
Autoignition temperature:	None expected.
Evaporation rate:	Not available.
Solubility in water:	Insoluble
Partition coefficient (n-octanol/water):	Not available.
VOC content:	2.89 %; 33 g/l
Viscosity:	Not available.
Decomposition temperature:	Not available.

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions of storage and use.
Hazardous reactions:	Contact with moisture, other materials that react with isocyanates, or temperatures above 350° F (177° C), may cause polymerization.
Hazardous decomposition products:	Irritating and/or toxic fumes and gases may be emitted upon the product's decomposition. nitrogen oxides Aromatic isocyanates. carbon oxides. carbon monoxide Hydrogen cyanide.
Incompatible materials:	Oxidizing agents. Alcohols. Water. Strong bases.
Reactivity:	Not available.
Conditions to avoid:	Avoid moisture. Prolonged exposure to heat.

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Inhalation, Skin, Eyes, Ingestion

Potential Health Effects/Symptoms

Inhalation: As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV. Chronic overexposure to isocyanates has been reported to cause lung damage. Dryness of nasal passages, sore throat, cough, tightness of chest, shortness of breath. Persons suffering from allergic reactions to isocyanates should avoid contact with the product. This product may cause sensitization by inhalation and skin contact. Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage. May cause respiratory tract irritation.

Skin contact: Contact with skin can cause irritation and allergic reaction (sensitization) in some individuals. This product may discolor the skin.

Eye contact: Contact with eyes will cause irritation.

Ingestion: Ingestion of this product may cause nausea, vomiting and diarrhea.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Limestone	None	Nuisance dust
Stoddard solvent, <0.1% Benzene	None	Central nervous system, Irritant
Talc	None	Irritant, Lung, Some evidence of carcinogenicity
Calcium oxide	None	Irritant, Corrosive, Eyes
Toluene-2,4-diisocyanate	Oral LD50 (RAT) = 5,800 mg/kg Inhalation LC50 (RAT, 4 h) = 14 mg/l Inhalation LC50 (RABBIT) = 11 mg/l	Allergen, Eyes, Irritant, Lung, Respiratory, Some evidence of carcinogenicity
Unknown components~	None	No Data
Titanium dioxide	None	Irritant, Respiratory, Some evidence of carcinogenicity
Toluene-2,6-diisocyanate	None	Allergen, Bone Marrow, Corrosive, Eyes, Irritant, Mutagen, Respiratory, Some evidence of carcinogenicity
Gamma-glycidoxypropyl trimethoxysilane	None	Allergen, Irritant

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Limestone	No	No	No
Stoddard solvent, <0.1% Benzene	No	No	No
Talc	No	Group 2B	No
Calcium oxide	No	No	No
Toluene-2,4-diisocyanate	Reasonably Anticipated to be a Human Carcinogen.	Group 2B	No
Unknown components~	No	No	No
Titanium dioxide	No	Group 2B	No
Toluene-2,6-diisocyanate	Reasonably Anticipated to be a Human Carcinogen.	Group 2B	No
Gamma-glycidoxypropyl trimethoxysilane	No	No	No

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal:	Dispose of according to Federal, State and local governmental regulations.
Hazardous waste number:	It is the responsibility of the user to determine if an item is hazardous as defined in the Resource Conservation and Recovery Act (RCRA) at the time of disposal. Product uses, transformations, mixtures, processes, etc., may render the resulting material hazardous, under the criteria of ignitability, corrosivity, reactivity and toxicity characteristics of the Toxicity Characteristics Leaching Procedure (TCLP) 40 CFR 261.20-24.

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

International Air Transportation (ICAO/IATA)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

Water Transportation (IMO/IMDG)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification:	Toluene-2,6-diisocyanate (CAS# 91-08-7).
CERCLA/SARA Section 302 EHS:	Toluene-2,6-diisocyanate (CAS# 91-08-7).
CERCLA/SARA Section 311/312:	Immediate Health, Delayed Health
CERCLA/SARA Section 313:	This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Toluene-2,6-diisocyanate (CAS# 91-08-7).
California Proposition 65:	This product contains a chemical known in the State of California to cause cancer. This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDSL Status:	All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: This Safety Data Sheet contains changes from the previous version in Section(s):
2, 3, 8, 9, 15

Prepared by: Mary Ellen Roddy, Sr. Regulatory Affairs Specialist

Issue date: 08/03/2015

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SAFETY DATA SHEET

K07307000

Section 1. Identification

Product name : KRYLON® PRO PROFESSIONAL Solvent-Based Fluorescent Marking Paint Orange

Product code : K07307000

Other means of identification : Not available.

Product type : Aerosol.

Relevant identified uses of the substance or mixture and uses advised against

Not applicable.

Manufacturer : Krylon Products Group
Cleveland, OH 44115

Emergency telephone number of the company : (216) 566-2917

Product Information Telephone Number : (800) 457-9566

Regulatory Information Telephone Number : (216) 566-2902

Transportation Emergency Telephone Number : (800) 424-9300

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE AEROSOLS - Category 1
GASES UNDER PRESSURE - Compressed gas
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 1A
TOXIC TO REPRODUCTION (Fertility) - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
ASPIRATION HAZARD - Category 1

Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 47.8%

GHS label elements

Hazard pictograms :

Signal word : Danger

Section 2. Hazards identification

Hazard statements : Extremely flammable aerosol.
Contains gas under pressure; may explode if heated.
Causes serious eye irritation.
Causes skin irritation.
May cause cancer.
Suspected of damaging fertility or the unborn child.
May be fatal if swallowed and enters airways.
May cause respiratory irritation.
May cause drowsiness or dizziness.
Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Use only outdoors or in a well-ventilated area. Do not breathe dust or mist. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Pressurized container: Do not pierce or burn, even after use.

Response : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. Store in a well-ventilated place.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

DANGER: Rags, steel wool, other waste soaked with this product, and sanding residue may spontaneously catch fire if improperly discarded. Immediately place rags, steel wool, other waste soaked with this product, and sanding residue in a sealed, water-filled, metal container. Dispose of in accordance with local fire regulations. DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Contains solvents which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal. WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Adequate ventilation required when sanding or abrading the dried film. If Adequate ventilation cannot be provided wear an approved particulate respirator (NIOSH approved). Follow respirator manufacturer's directions for respirator use. DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Abrading or sanding of the dry film may release Crystalline Silica which has been shown to cause lung damage and cancer under long term exposure.

Please refer to the SDS for additional information. Keep out of reach of children. Keep upright in a cool, dry place. Do not discard empty can in trash compactor.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

CAS number/other identifiers

Ingredient name	% by weight	CAS number
Crystalline Silica, respirable powder	19.8	14808-60-7
Propane	14.65	74-98-6
Acetone	10.13	67-64-1
Hexane	8.42	110-54-3
Butane	6.9	106-97-8
Lt. Aliphatic Hydrocarbon Solvent	6.74	64742-89-8
2-Methylpentane	3.9	107-83-5
Xylene	1.87	1330-20-7
3-Methylpentane	1.45	96-14-0
2,3-Dimethylbutane	1.23	79-29-8
Toluene	0.48	108-88-3
Ethylbenzene	0.33	100-41-4

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Section 4. First aid measures

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.

Skin contact : Causes skin irritation.

Ingestion : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
nausea or vomiting
reduced fetal weight
increase in fetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Section 5. Fire-fighting measures

Specific hazards arising from the chemical : Extremely flammable aerosol. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high speed. Runoff to sewer may create fire or explosion hazard. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
sulfur oxides
metal oxide/oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Avoid breathing gas. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Protect from sunlight. Store locked up. Eliminate all ignition sources. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits (OSHA United States)

Ingredient name	Exposure limits
Crystalline Silica, respirable powder	**OSHA PEL Z3 (United States, 2/2013).** TWA: 250 mppcf / (%SiO2+5) 8 hours. Form: Respirable TWA: 10 mg/m³ / (%SiO2+2) 8 hours. Form: Respirable **ACGIH TLV (United States, 3/2015).** TWA: 0.025 mg/m³ 8 hours. Form: Respirable fraction **NIOSH REL (United States, 10/2013).** TWA: 0.05 mg/m³ 10 hours. Form: respirable dust
Propane	**NIOSH REL (United States, 10/2013).** TWA: 1000 ppm 10 hours. TWA: 1800 mg/m³ 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 1000 ppm 8 hours. TWA: 1800 mg/m³ 8 hours.
Acetone	**ACGIH TLV (United States, 3/2015).** TWA: 250 ppm 8 hours. STEL: 500 ppm 15 minutes. **NIOSH REL (United States, 10/2013).** TWA: 250 ppm 10 hours. TWA: 590 mg/m³ 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 1000 ppm 8 hours. TWA: 2400 mg/m³ 8 hours.
Hexane	**ACGIH TLV (United States, 3/2015).** **Absorbed through skin.** TWA: 50 ppm 8 hours.

	NIOSH REL (United States, 10/2013). TWA: 50 ppm 10 hours. TWA: 180 mg/m³ 10 hours. **OSHA PEL (United States, 2/2013).** TWA: 500 ppm 8 hours. TWA: 1800 mg/m³ 8 hours.
Butane	**NIOSH REL (United States, 10/2013).** TWA: 800 ppm 10 hours. TWA: 1900 mg/m³ 10 hours. **ACGIH TLV (United States, 3/2015).** STEL: 1000 ppm 15 minutes.
Lt. Aliphatic Hydrocarbon Solvent	None.
2-Methylpentane	**ACGIH TLV (United States, 3/2015).** TWA: 500 ppm 8 hours. TWA: 1760 mg/m³ 8 hours. STEL: 1000 ppm 15 minutes. STEL: 3500 mg/m³ 15 minutes. **NIOSH REL (United States, 10/2013).** TWA: 100 ppm 10 hours. TWA: 350 mg/m³ 10 hours. CEIL: 510 ppm 15 minutes. CEIL: 1800 mg/m³ 15 minutes.
Xylene	**ACGIH TLV (United States, 3/2015).** TWA: 100 ppm 8 hours. TWA: 434 mg/m³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 651 mg/m³ 15 minutes. **OSHA PEL (United States, 2/2013).** TWA: 100 ppm 8 hours. TWA: 435 mg/m³ 8 hours.
3-Methylpentane	**ACGIH TLV (United States, 3/2015).** TWA: 500 ppm 8 hours. TWA: 1760 mg/m³ 8 hours. STEL: 1000 ppm 15 minutes. STEL: 3500 mg/m³ 15 minutes. **NIOSH REL (United States, 10/2013).** TWA: 100 ppm 10 hours. TWA: 350 mg/m³ 10 hours. CEIL: 510 ppm 15 minutes. CEIL: 1800 mg/m³ 15 minutes.
2,3-Dimethylbutane	**ACGIH TLV (United States, 3/2015).** TWA: 500 ppm 8 hours. TWA: 1760 mg/m³ 8 hours. STEL: 1000 ppm 15 minutes. STEL: 3500 mg/m³ 15 minutes. **NIOSH REL (United States, 10/2013).** TWA: 100 ppm 10 hours. TWA: 350 mg/m³ 10 hours. CEIL: 510 ppm 15 minutes. CEIL: 1800 mg/m³ 15 minutes.
Toluene	**OSHA PEL Z2 (United States, 2/2013).** TWA: 200 ppm 8 hours. CEIL: 300 ppm AMP: 500 ppm 10 minutes. **NIOSH REL (United States, 10/2013).** TWA: 100 ppm 10 hours. TWA: 375 mg/m³ 10 hours. STEL: 150 ppm 15 minutes. STEL: 560 mg/m³ 15 minutes.

	ACGIH TLV (United States, 3/2015). TWA: 20 ppm 8 hours.
Ethylbenzene	**ACGIH TLV (United States, 3/2015).** TWA: 20 ppm 8 hours. **NIOSH REL (United States, 10/2013).** TWA: 100 ppm 10 hours. TWA: 435 mg/m³ 10 hours. STEL: 125 ppm 15 minutes. STEL: 545 mg/m³ 15 minutes. **OSHA PEL (United States, 2/2013).** TWA: 100 ppm 8 hours. TWA: 435 mg/m³ 8 hours.

Occupational exposure limits (Canada)

Ingredient name	Exposure limits
Crystalline Silica, respirable powder	**CA British Columbia Provincial (Canada, 5/2015).** TWA: 0.025 mg/m³ 8 hours. Form: Respirable **CA Quebec Provincial (Canada, 1/2014).** TWAEV: 0.1 mg/m³ 8 hours. Form: Respirable dust. **CA Ontario Provincial (Canada, 7/2015).** TWA: 0.1 mg/m³ 8 hours. Form: Respirable fraction. **CA Alberta Provincial (Canada, 4/2009).** 8 hrs OEL: 0.025 mg/m³ 8 hours. Form: Respirable particulate **CA Saskatchewan Provincial (Canada, 7/2013).** TWA: 0.05 mg/m³ 8 hours. Form: respirable fraction
Propane	**CA Alberta Provincial (Canada, 4/2009).** 8 hrs OEL: 1000 ppm 8 hours. **CA British Columbia Provincial (Canada, 5/2015).** TWA: 1000 ppm 8 hours. **CA Quebec Provincial (Canada, 1/2014).** TWAEV: 1000 ppm 8 hours. TWAEV: 1800 mg/m³ 8 hours. **CA Ontario Provincial (Canada, 7/2015).** TWA: 1000 ppm 8 hours. **CA Saskatchewan Provincial (Canada, 7/2013).** STEL: 1250 ppm 15 minutes. TWA: 1000 ppm 8 hours.
Acetone	**CA Alberta Provincial (Canada, 4/2009).** 8 hrs OEL: 1200 mg/m³ 8 hours. 15 min OEL: 1800 mg/m³ 15 minutes. 8 hrs OEL: 500 ppm 8 hours. 15 min OEL: 750 ppm 15 minutes. **CA British Columbia Provincial (Canada, 5/2015).** TWA: 250 ppm 8 hours. STEL: 500 ppm 15 minutes. **CA Ontario Provincial (Canada, 7/2015).**

	TWA: 500 ppm 8 hours. STEL: 750 ppm 15 minutes. **CA Quebec Provincial (Canada, 1/2014).** TWAEV: 500 ppm 8 hours. TWAEV: 1190 mg/m³ 8 hours. STEV: 1000 ppm 15 minutes. STEV: 2380 mg/m³ 15 minutes. **CA Saskatchewan Provincial (Canada, 7/2013).** STEL: 750 ppm 15 minutes. TWA: 500 ppm 8 hours.
Hexane	**CA Alberta Provincial (Canada, 4/2009). Absorbed through skin.** 8 hrs OEL: 50 ppm 8 hours. 8 hrs OEL: 176 mg/m³ 8 hours. **CA British Columbia Provincial (Canada, 5/2015). Absorbed through skin.** TWA: 20 ppm 8 hours. **CA Ontario Provincial (Canada, 7/2015). Absorbed through skin.** TWA: 50 ppm 8 hours. **CA Quebec Provincial (Canada, 1/2014). Absorbed through skin.** TWAEV: 50 ppm 8 hours. TWAEV: 176 mg/m³ 8 hours. **CA Saskatchewan Provincial (Canada, 7/2013). Absorbed through skin.** STEL: 62.5 ppm 15 minutes. TWA: 50 ppm 8 hours.
2-Methylpentane	**CA Alberta Provincial (Canada, 4/2009).** 15 min OEL: 3500 mg/m³ 15 minutes. 8 hrs OEL: 1760 mg/m³ 8 hours. 15 min OEL: 1000 ppm 15 minutes. 8 hrs OEL: 500 ppm 8 hours. **CA British Columbia Provincial (Canada, 5/2015).** TWA: 200 ppm 8 hours. **CA Ontario Provincial (Canada, 7/2015).** TWA: 500 ppm 8 hours. STEL: 1000 ppm 15 minutes. **CA Quebec Provincial (Canada, 1/2014).** TWAEV: 500 ppm 8 hours. TWAEV: 1760 mg/m³ 8 hours. STEV: 1000 ppm 15 minutes. STEV: 3500 mg/m³ 15 minutes. **CA Saskatchewan Provincial (Canada, 7/2013).** STEL: 1000 ppm 15 minutes. TWA: 500 ppm 8 hours.
Toluene	**CA Alberta Provincial (Canada, 4/2009). Absorbed through skin.** 8 hrs OEL: 50 ppm 8 hours. 8 hrs OEL: 188 mg/m³ 8 hours. **CA British Columbia Provincial (Canada, 5/2015).** TWA: 20 ppm 8 hours. **CA Ontario Provincial (Canada, 7/2015).** TWA: 20 ppm 8 hours.

	CA Quebec Provincial (Canada, 1/2014). Absorbed through skin. TWAEV: 50 ppm 8 hours. TWAEV: 188 mg/m³ 8 hours. **CA Saskatchewan Provincial (Canada, 7/2013). Absorbed through skin.** STEL: 60 ppm 15 minutes. TWA: 50 ppm 8 hours.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state	:	Liquid.
Color	:	Not available.
Odor	:	Not available.
Odor threshold	:	Not available.
pH	:	7
Melting point	:	Not available.
Boiling point	:	Not available.
Flash point	:	Closed cup: -29°C (-20.2°F) [Pensky-Martens Closed Cup]
Evaporation rate	:	9.1 (butyl acetate = 1)
Flammability (solid, gas)	:	Not available.
Lower and upper explosive (flammable) limits	:	Lower: 0.9% Upper: 12.8%
Vapor pressure	:	13.5 kPa (101.325 mm Hg) [at 20°C]
Vapor density	:	1.55 [Air = 1]
Relative density	:	0.89
Solubility	:	Not available.
Partition coefficient: n-octanol/water	:	Not available.
Auto-ignition temperature	:	Not available.
Decomposition temperature	:	Not available.
Viscosity	:	Kinematic (room temperature): <0.205 cm^2/s (<20.5 cSt) Kinematic (40°C (104°F)): <0.205 cm^2/s (<20.5 cSt)
Molecular weight	:	Not applicable.

Aerosol product

Type of aerosol	:	Spray
Heat of combustion	:	23.77 kJ/g

Section 10. Stability and reactivity

Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	:	Avoid all possible sources of ignition (spark or flame).
Incompatible materials	:	No specific data.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Acetone	LD50 Oral	Rat	5800 mg/kg	-
Hexane	LC50 Inhalation Gas.	Rat	48000 ppm	4 hours
	LD50 Oral	Rat	15840 mg/kg	-
Butane	LC50 Inhalation Vapor	Rat	658000 mg/m³	4 hours
Xylene	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
	LD50 Oral	Rat	4300 mg/kg	-
Toluene	LC50 Inhalation Vapor	Rat	49 g/m³	4 hours
	LD50 Oral	Rat	636 mg/kg	-
Ethylbenzene	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Acetone	Eyes - Mild irritant	Human	-	186300 parts per million	-
	Eyes - Mild irritant	Rabbit	-	10 microliters	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Eyes - Severe irritant	Rabbit	-	20 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	395 milligrams	-
Hexane	Eyes - Mild irritant	Rabbit	-	10 milligrams	-
Xylene	Eyes - Mild irritant	Rabbit	-	87 milligrams	-
	Eyes - Severe irritant	Rabbit	-	24 hours 5 milligrams	-
	Skin - Mild irritant	Rat	-	8 hours 60 microliters	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Moderate irritant	Rabbit	-	100 Percent	-
Toluene	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 milligrams	-
	Eyes - Mild irritant	Rabbit	-	870 Micrograms	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
	Skin - Mild irritant	Pig	-	24 hours 250 microliters	-
	Skin - Mild irritant	Rabbit	-	435 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Moderate irritant	Rabbit	-	500 milligrams	-
Ethylbenzene	Eyes - Severe irritant	Rabbit	-	500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-

Sensitization

Not available.

Mutagenicity

Section 11. Toxicological information

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
Crystalline Silica, respirable powder	-	1	Known to be a human carcinogen.
Xylene	-	3	-
Toluene	-	3	-
Ethylbenzene	-	2B	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Propane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Acetone	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Hexane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Butane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Lt. Aliphatic Hydrocarbon Solvent	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
2-Methylpentane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Xylene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
3-Methylpentane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
2,3-Dimethylbutane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Toluene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Ethylbenzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Crystalline Silica, respirable powder	Category 1	Inhalation	Not determined
Propane	Category 2	Not determined	Not determined
Acetone	Category 2	Not determined	Not determined
Hexane	Category 2	Not determined	Not determined
Butane	Category 2	Not determined	Not determined
Lt. Aliphatic Hydrocarbon Solvent	Category 2	Not determined	Not determined
2-Methylpentane	Category 2	Not determined	Not determined
Xylene	Category 2	Not determined	Not determined
3-Methylpentane	Category 2	Not determined	Not determined
2,3-Dimethylbutane	Category 2	Not determined	Not determined
Toluene	Category 2	Not determined	Not determined
Ethylbenzene	Category 2	Not determined	Not determined

Aspiration hazard

Name	Result
Propane	ASPIRATION HAZARD - Category 1
Hexane	ASPIRATION HAZARD - Category 1
Butane	ASPIRATION HAZARD - Category 1
Lt. Aliphatic Hydrocarbon Solvent	ASPIRATION HAZARD - Category 1
2-Methylpentane	ASPIRATION HAZARD - Category 1
Xylene	ASPIRATION HAZARD - Category 1
3-Methylpentane	ASPIRATION HAZARD - Category 1
2,3-Dimethylbutane	ASPIRATION HAZARD - Category 1
Toluene	ASPIRATION HAZARD - Category 1
Ethylbenzene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.

Skin contact : Causes skin irritation.

Ingestion : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
nausea or vomiting
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : Causes damage to organs through prolonged or repeated exposure.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : Suspected of damaging the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : Suspected of damaging fertility.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	119917.5 mg/kg
Inhalation (gases)	139439 ppm

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Acetone	Acute EC50 7200000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute LC50 6000000 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 6900 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 5600 ppm Fresh water	Fish - Poecilia reticulata	96 hours
	Chronic NOEC 4.95 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.016 ml/L Fresh water	Crustaceans - Daphniidae	21 days
	Chronic NOEC 0.1 ml/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
Hexane	Acute LC50 2500 µg/l Fresh water	Fish - Pimephales promelas	96 hours
Lt. Aliphatic Hydrocarbon Solvent	Acute LC50 >100000 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
Xylene	Acute LC50 8500 µg/l Marine water	Crustaceans - Palaemonetes	48 hours

		pugio	
	Acute LC50 13400 µg/l Fresh water	Fish - Pimephales promelas	96 hours
Toluene	Acute EC50 12500 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 11600 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult	48 hours
	Acute EC50 6000 µg/l Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute LC50 5500 µg/l Fresh water	Fish - Oncorhynchus kisutch - Fry	96 hours
	Chronic NOEC 1000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
Ethylbenzene	Acute EC50 4600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 3600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 6530 µg/l Fresh water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 2930 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 4200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Acetone	-	-	Readily
Xylene	-	-	Readily
Toluene	-	-	Readily
Ethylbenzene	-	-	Readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Hexane	-	501.187	high
Lt. Aliphatic Hydrocarbon Solvent	-	10 to 2500	high
Xylene	-	8.1 to 25.9	low
Toluene	-	90	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IATA	IMDG
UN number	UN1950	UN1950	UN1950	UN1950	UN1950
UN proper shipping name	AEROSOLS	AEROSOLS	AEROSOLS	AEROSOLS, flammable	AEROSOLS
Transport hazard class(es)	2.1	2.1	2.1	2.1	2.1
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	- **ERG No.** 126	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2. 13-2.17 (Class 2). **ERG No.** 126	- **ERG No.** 126	-	**Emergency schedules (EmS)** F-D, S-U

Special precautions for user : Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Proper shipping name : Not available.

Ship type : Not available.

Pollution category : Not available.

Section 15. Regulatory information

SARA 313

SARA 313 (40 CFR 372.45) supplier notification can be found on the Environmental Data Sheet.

California Prop. 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	*	2
Flammability		3
Physical hazards		0

The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE AEROSOLS - Category 1	On basis of test data
GASES UNDER PRESSURE - Compressed gas	Calculation method
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A	Calculation method
CARCINOGENICITY - Category 1A	Calculation method
TOXIC TO REPRODUCTION (Fertility) - Category 2	Calculation method
TOXIC TO REPRODUCTION (Unborn child) - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1	Calculation method
ASPIRATION HAZARD - Category 1	Calculation method

History

Date of printing : 7/15/2016

Date of issue/Date of revision : 7/15/2016

Date of previous issue : 6/4/2016

Version : 4.01

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader

Section 16. Other information

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Products shall not be repackaged, modified, or tinted except as specifically instructed by Sherwin-Williams, including but not limited to the incorporation of non Sherwin-Williams products or the use or addition of products in proportions not specified by Sherwin-Williams. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.

Environmental Studies

Hazardous Materials

Environmental Studies Request

Project Information

Route: State Route 40 Bridge

Termini: Bridge Over the Ocoee River (Bridge ID 70SR0400005)

County: Polk

PIN: 124102.00

Request

Request Type: Initial Environmental Study

Project Plans: Revised ETSA

Date of Plans: 12/2018

Location: Email Attachment

Certification

Requestor: Laura Moribe

Title: Environmental Planner

Signature: Laura Moribe Digitally signed by Laura Moribe Date: 2018.12.06 14:28:47 -06'00'

Environmental Study

Technical Section

Section: Hazardous Materials

Study Results

The additional area indicated on the provided figure, (2018-DEC_Polk_PIN124102.00_SR-40_ETSA_CHANGES_REV.png) has not changed the hazmat review conclusions provided 3 May 2018.

Commitments

Did the study of this project result in any environmental commitments? **Yes**

previously submitted

Additional Information

Is there any additional information or material included with this study? **No**

Certification

Responder: Kyle Kirschenmann

Signature: Kyle Kirschenmann

Digitally signed by Kyle Kirschenmann
DN: cn=Kyle Kirschenmann, o=TDOT, ou=Hazardous Materials Section, email=kyle.kirschenmann@tn.gov, c=US
Date: 2018.12.07 09:23:30 -05'00'

Title: Environmental Program Manager, Hazardous Materials Section

Environmental Studies

Hazardous Materials

Environmental Studies Request

Project Information

Route: State Route 40 Bridge

Termini: Bridge Over the Ocoee River (Bridge ID 70SR0400005)

County: Polk

PIN: 124102.00

Request

Request Type: Initial Environmental Study

Project Plans: Transportation Investment Report

Date of Plans: 04/24/2018

Location: Email Attachment

Certification

Requestor: Laura Moribe

Title: Environmental Planner

Signature: Laura Moribe

Digitally signed by Laura Moribe
DN: cn=Laura Moribe, o=Kimley-Horn, ou=Environmental, email=laura.moribe@kimley-horn.com, c=US
Date: 2018.05.03 09:12:09 -05'00'

Environmental Study

Technical Section

Section: Hazardous Materials

Study Results

Based on the Transportation Investment Report dated 24 April 2018, no known hazardous materials sites appear to affect this project as it is currently planned and no additional hazardous material studies are recommended at this time. The asbestos bridge survey has been completed and asbestos was detected at OSHA-regulated levels. The following project commitments have been submitted.

In the event hazardous substances/wastes are encountered within the right-of-way, their disposition shall be subject to all applicable regulations, including the applicable sections of the Federal Resource Conservation and Recovery Act, as amended; and the Comprehensive Environmental Response, Compensation, and Liability Act, as amended; and the Tennessee Hazardous Waste Management Act of 1983, as amended. Databases reviewed include: Google Earth imagery, EPA National Priorities List, EPA EnviroMapper, TDEC Registered UST database, TDEC Division of Water Resources Public Data Viewer, TDOT IBIS, and others as necessary.

Commitments

Did the study of this project result in any environmental commitments? **Yes**

An Asbestos Containing Material (ACM) survey was performed on Bridge No. 70SR0400005, SR-40 over Ocoee River, LM 3.12 (70-SR040-03.12). The bridge has asbestos in the vibration dampener bearing pad material between the approach bents and deck; approximately 432 square feet at less than 1% chrysotile (which is only regulated under OSHA standards). Please see the report for further details and photographs. The survey was completed under PIN 123737.00

Since the asbestos is less than 1%, no special accommodations (except OSHA health and safety regulations for asbestos materials) for demolition and waste disposal are anticipated for this structure and the material can be deposited in a C&D landfill. Prior to the demolition or rehabilitation of any structure (bridge or building), the contractor is required to submit the National Emission Standards for Hazardous Air Pollutants standard 10-day notice of demolition to the TDEC Division of Air Pollution Control (per TDOT Standard Specifications for Road and Bridge Construction (January 1, 2015) Sections 107.08 D and 202.03).

Additional Information

Is there any additional information or material included with this study? **No**

Certification

Responder: Kyle Kirschenmann

Signature: Kyle Kirschenmann

Digitally signed by Kyle Kirschenmann
DN: cn=Kyle Kirschenmann, o=TDOT, ou=Environmental Division, email=kyle.kirschenmann@tn.gov, c=US
Date: 2018.05.03 11:21:09 -04'00'

Title: Environmental Program Manager, Hazardous Materials Section

PIN 124102.00

Appendix H

Bicycle and Pedestrian

Environmental Studies

Multimodal

Environmental Studies Request

Project Information

Route: State Route 40 Bridge

Termini: Bridge Over the Ocoee River (Bridge ID 70SR0400005)

County: Polk

PIN: 124102.00

Request

Request Type: Initial Environmental Study

Project Plans: Revised ETSA

Date of Plans: 12/2018

Location: Email Attachment

Certification

Requestor: Laura Moribe

Title: Environmental Planner

Signature: Laura Moribe Digitally signed by Laura Moribe Date: 2018.12.06 14:28:47 -06'00'

Environmental Study

Technical Section

Section: Multimodal

Study Results

This project accommodates bicyclists and pedestrians with 10' shoulders in a rural area.

Commitments

Did the study of this project result in any environmental commitments? **No**

Additional Information

Is there any additional information or material included with this study? **No**

Certification

Responder: Jessica Wilson

Title: Transportation Program Supervisor

Signature: Jessica Wilson

Digitally signed by Jessica Wilson
Date: 2018.12.14 13:10:48 -06'00'