

Attachment C

Department of Army, Corps of Engineers Memorandum for Record Documenting Nationwide Permit/Regional General Permit Verification (State Route 29 from Just South of Whetstone Road to Balfour Drive, in the Town of Harriman, Morgan County, Tennessee), September 24, 2014.

CELRN-OP-F
Application LRN-2014-00088

MEMORANDUM FOR RECORD

SUBJECT: Department of the Army Memorandum Documenting Nationwide Permit/Regional General Permit Verification

Applicant: Tennessee Department of Transportation Environmental Division, Suite 900,
James K. Polk Building, 505 Deaderick Street, Nashville, Tennessee 37243-1402

Project Location (*Waterway, Section, Township, Range, City, County, State*): located along State Route 29 between Whetstone Road and Balfour Drive, in the Town of Harriman, Morgan County, Tennessee

Pre-Construction Notification Receipt Date: 2/19/2014; revised 4/17/2014 **Complete**
Yes No

Additional Information Requested Date:

26 FEB 2014 and Follow up on 15 APR 2014: Dimensions of the mapped aquatic resources was requested, an updated permit application and mitigation plan

18 MAR 2014: TDOT was asked if they were seeking conference opinion for the northern long-eared bat (*Myotis septentrionalis*); to provide a copy of the acid producing rock monitoring plan for this section of the SR-29 project; clarify where wetland mitigation will be provided from (Shady Valley 1 or the Walls Site); provide dimensions of all waters identified in the delineation.

1 MAY 2014: TDOT was asked to address EPA comments on APR monitoring plan

29 MAY 2014: The following items were re-requested: 1. The conference opinion is needed from USFWS for the northern long eared bat; 2. An APR monitoring plan is needed; 3. The mitigation spreadsheet needs to be revised.

12 JUN 2014: The revised stream and wetland impacts table provide on 10 JUN 2014 indicated that all wetland mitigation for Section 1 and 2 of SR-29 would come from the Walls Site. The Corps called Mr. Lynn Bumgardner to confirm the credit availability at the Walls Site. According to Mr. Lynn Bumgardner, there are 3.8 wetland credits currently available. This would only be enough mitigation for Section 1 of SR-29. TDOT was asked to revise their mitigation plan for Section 2 of SR-29.

24 JUN 2014: TDOT was asked to address EPA's remaining comments regarding the APR monitoring plan

Pre-Construction Notification Complete Date: September 17, 2014. Relevant ESA information was not provided by FHWA / TDOT on September 17, 2014.

Waters of the US: * see Jurisdictional Determination form(s) dated: 7-11-2014 (Attachment A)

Authority: Section 404

Project Description (*Describe activities in waters of the U.S. considered for verification*):

The applicant proposes to expand and modify alignments along 2.023 miles of State Route 29. The new construction will consist of a 4-lane divided highway and a 5-lane section with 12 ft. lanes and 12 ft. shoulders and varied guardrail. The proposed work would impact 5 streams and 3 wetlands to facilitate roadway widening. The road widening project will result in the placement of 226 LF of riprap and 80 LF of additional culvert (slab bridge) within Stream 6, 15 LF of riprap and 143 LF of additional culvert within stream 19, 25 LF of additional culvert within Stream 20, 308 LF of stream relocation and 20 LF of stream loss associated with Stream 21, 504 LF of stream relocation and 116 LF of culvert associated with Stream 22, 0.18 acre of permanent impact to Wetland 12, 0.02 acre of permanent wetland impact and 0.18 acre of temporary wetland impact to Wetland 13, and 0.33 acre of permanent impact to Wetland 14. Temporary crossings will be required at all stream crossings. Depending on the site conditions, a stream ford or culvert crossing will be used to provide temporary construction access. In both cases, maximum crossing widths are limited to twenty feet. All temporary stream crossing will be required to be restored to preexisting conditions. In addition, water and electric utilities would also be relocated to facilitate roadway widening. According to the proposed plans, the electric lines and cable lines will be installed on poles and there is no discharge of fill associated with the installation of these utilities. The proposed waterline will be located within the fill slopes of the road, except at Stream 18. Aquatic resource impacts have been accounted for in the road widening and additional aquatic resource impacts will not occur as a result of the installation of the water line, except at Stream 18. Stream 18 is a small intermittent channel and does not have a special aquatic site (riffle/pool complex) associated with it. The stream crossings qualify for a non-reporting NWP 12. TDOT has stated that this crossing is non-reporting and does not request a permit verification.

Each wetland and stream crossing meets the definition of single and complete linear project, as defined in the 21 FEB 2012 Federal Register on pg 10290. Therefore, NWPs are required for each crossing. The following crossings have been determined to qualify as Non-PCN NWPs: Stream 6, Stream 19, Stream 20, Stream 21, and Stream 22. The

impacts to these stream crossings do not occur within a special aquatic site (i.e. Riffle/Pool complex) and PCN notification is not required for ESA or Historic Property coordination, as it was already performed by FHWA. The non-reporting nature of these crossings will result in no mitigation being required for the permanent impacts. The permanent impacts to wetland crossing require pre-construction notification and mitigation for those impacts will be required. Compensatory mitigation for those impacts are listed below.

Type of Permit Requested: NWP 14 for widening of road. Impacts resulting from the installation of a new water main qualify for a non-reporting NWP 12.

Pre-construction Notification Required: Yes No

PCN was required for the wetland impacts associated with the crossings.

Waiver required to begin work (see GC 27 (a)(2) as applied to appropriate NWPs):

Yes No

Rationale:

Coordination with Agencies/Tribes Needed: Yes No Date: On 28 FEB, 2008, FHWA and TDOT coordinated with the following tribes: Cherokee Nation, Eastern Band of Cherokee Indians, Eastern Shawnee Tribe of Oklahoma, Kialegee Tribal Town, Muscogee (Creek) Nation, Shawnee Tribe, Thlopthlocco Tribal Town, and United Keetoowah Band of Cherokee Indians in Oklahoma. FHWA provided the tribes with Phase I archeology report and a determination that the project will have no effect on National Register listed, eligible, or potentially eligible archaeological sites.

Resolution: No comments were provided by the tribes.

Commenting Agencies: USEPA provided review and comment on the acid producing rock (APR) monitoring and adaptive management plan. TDOT has addressed USEPA's comments and have provided an acceptable monitoring and adaptive management plan. A special condition will be added to the permit to ensure the permittee follows the APR monitoring and adaptive management plan (Attachment E).

Substantive Issues Raised and Corps Resolution (Consideration of Comments):

Compliance with Other Federal Laws (If specific law is not applicable write N/A):

1. Endangered Species Act. NA

The proposed project:

a. Will have "No Effect" on the following threatened or endangered species:

Gray bat (*Myotis grisescens*): No Effect – No suitable caves were found within the project limits that would support gray bats.

Cumberland bean (*Villosa trabalis*): No Effect – The species is limited to the South Fork Watershed. The project is located in the Emory watershed.

Cumberland sandwort (*Arenaria cumberlandensis*): No Effect – The species is limited to the South Fork Watershed. The project is located in the Emory watershed.

b. “May affect, but is not likely to adversely affect”:

Species: As lead federal agency for this project, the FHWA, in coordination with the applicant, prepared a Biological Assessment (BA) for those species where suitable habitat is and/or species are present, or potentially present, or known to occur within the county. FHWA and the applicant made the following determinations:

Alabama lampmussel (*Lampsilis virescens*): Not likely to adversely affect – No suitable habitat was documented for this species within the construction limits of the project.

Finerayed pigtoe (*Fusconaia cuneolus*): Not likely to adversely affect – No suitable habitat was documented for this species within the construction limits of the project.

Purple bean (*Villosa perpurpurea*): Not likely to adversely affect – No suitable habitat was documented for this species within the construction limits of the project.

Cumberland elktoe (*Alasmidonta atropurpurea*): Not likely to adversely affect – No suitable habitat was documented for this species within the construction limits of the project.

Virginia spiraea (*Spiraea virginiana*): Not likely to adversely affect – No suitable habitat was documented for this species within the construction limits of the project.

Spotfin chub (*Cyprinella monacha*): Not likely to adversely affect – No suitable habitat was documented for this species within the construction limits of the project.

Cumberland rosemary (*Conradina verticillata*): Not likely to adversely affect – No suitable habitat was documented for this species within the construction limits of the project.

Indiana Bat (*Myotis sodalists*) – Not likely to adversely affect

In a letter dated March 31, 2003, USFWS concurred that the proposed project would not likely to adversely affect the above listed species. On July 23, 2007 and August 7, 2013, USFWS re-verified that the project is not likely to adversely affect the above listed species. In 2008, Tennessee Wildlife Resources Agency requested the applicant to consider potential impacts to the state and federally endangered Alabama lampmussel (*Lampsilis virescens*). A survey was performed by the applicant on the Little Emory River and no individuals were recovered during the surveying effort. In addition, the substrate was heavily silted and was not suitable for the mussel species. The USFWS concurred that the project would not likely to adversely affect the Alabama lampmussel.

SUBJECT: Department of the Army Memorandum Documenting Nationwide Permit/Regional General Permit Verification for the Above-Numbered Permit Application

FHWA and the applicant determined that potential habitat for the Indiana bat (*Myotis sodalist*) exists within the project corridor. In July 2011, the FHWA and the applicant performed joint misting netting and acoustical studies to determine the presence or absence of the Indiana bat. No Indiana bats were discovered or recorded during the study. FHWA determined that the project would not likely adversely affect the Indiana bat. In a letter dated February 22, 2012, USFWS concurred that the project would not likely adversely affect the Indiana bat based on the negative survey results.

On May 15, 2014, FHWA provided a Biological Assessment to USFWS for Indiana bat and northern long-eared bat. FHWA determined that the project would likely adversely affect the Indiana and have No Jeopardy on the northern long-eared bat. FHWA made a determination of likely to adversely affect the Indiana bat, because survey results from 2011 were not longer valid. USFWS considers survey results for Indiana bat only valid for two years. Through an intra-agency consultation process between FHWA/TDOT and USFWS, USFWS has concurred that the project would "likely to adversely affect" the Indiana bat. To mitigate for their impacts the applicant was required to pay \$201,400 to the Indiana Bat Conservation fund to mitigate for the removal of 53 acres of potential habitat.

The requirement to pay into the Indiana Bat Conservation fund could not have been accomplished by TDOT due to administrative/funding reasons. As a result, another survey was performed during the period of August 2 – August 13, 2014 to determine the presence of Indiana bat and northern long-eared bat. No Indiana bats or northern-longer-eared bats were recorded within the project corridor during the survey. As a result, FHWA determined that the project would not likely adversely affect the Indiana bat and northern long-eared bat. In a letter dated September 16, 2014, USFWS concurred that the project would not likely adversely affect the Indiana bat and northern long-eared bat. Although not required, the USFWS asked that the removal of trees with a DBH of three inches or greater be considered from October 15 through March 31 to further minimize potential harm. In an email dated September 29, 2014, TDOT stated that they cannot commit to a cutting restriction suggested (not required) by USFWS.

The Corps has reviewed the findings provided by FHWA, the applicant, and USFWS and agrees with the effects determinations described above. The Corps will include permit conditions to ensure that all Section 7 ESA obligations are met by the applicant.

- (1) Will/ Will not adversely modify designated critical habitat for any listed species.
- (2) Is/ Is not likely to jeopardize the continued existence of any listed species.
- (3) The Services concurred/ provided a Biological Opinion(s).
Explain. The USFWS acknowledged that the project would not likely adversely affect the Purple bean, Cumberland elktoe, Virginia spiraea,

CELRN-OP-F (Application LRN-2014-00088)

SUBJECT: Department of the Army Memorandum Documenting Nationwide Permit/Regional General Permit Verification for the Above-Numbered Permit Application

Spotfin chub, Cumberland rosemary, Alabama lampmussel, Finerayed pigtoe, and Indiana bat on August 7, 2013.

On September 16, 2014, USFWS concurred that the project would not likely adversely affect the Indiana bat and northern long-eared bat (Attachment B).

b) Section 106 of the National Historic Preservation Act:

Known site present: yes no

Survey required/conducted: yes no

Effects determination: No historic properties affected.

Rationale: In 2002, the applicant performed a Phase I survey of the overall proposed project route to determine if any archaeological resources, listed or eligible for listing in the National Register of Historic Places (NRHP) would be affected. In cooperation with the State Historic Preservation Officer (SHPO), the applicant determined that the proposed project would have no effect on any resources listed or eligible for listing in the NRHP. By letter dated April 9, 2002, the SHPO concurred with the applicant.

In response to the Corps' public notice, the Tennessee Historical Commission provided a letter dated July 25, 2013, that concluded that there are no national register of historic places listed or eligible properties affected by the proposed undertaking. This is consistent with the Corps determination the project will have No Effect on any property listed, eligible for listing, or appear to meet the criteria for listing in the National Register of Historic Places (Attachment C).

Date consultation complete (if necessary):

Additional information (optional): The Nationwide Permit General Condition #21 addresses the permittee's obligations should previously unknown historic, cultural, or archaeological remains and artifacts be discovered during project construction.

c) Section 401 Water Quality Certification:

Individual certification required: yes no

Issued Waived Denied

The WQC was issued by TDEC on July 2, 2014. (Attachment D).

d) Wild and Scenic Rivers Act:

Project located on designated or "study" river: yes no

Managing Agency:

Date written determination provided that the project will not adversely affect the Wild and Scenic River designation or study status:

Additional information (optional):

e) Other

Special Conditions Required (include rationale for each required condition/explanation for requiring no special conditions): yes no

Rationale: In order to ensure the project remains minor in nature with minimal chance for appreciable impacts to waters the following special conditions will be added to the permit:

1. Permit Drawings: The work must be completed in accordance with the plans and information submitted in support of the proposed work, as attached (sheets 3 through 71, titled SR-311, PIN 107386.01).

2. Fill Material: The Permittee shall use only clean fill material for this project. The fill material shall be free from items such as trash, debris, asphalt, construction materials, concrete block with exposed reinforcement bars, and soils contaminated with any toxic substance, in toxic amounts in accordance with Section 307 of the Clean Water Act. *Rationale: This condition has been added to ensure the project remains minor in nature with minimal chance for appreciable impacts to waters.*

3. Erosion Control: Prior to the initiation of any work authorized by this permit, the Permittee shall install erosion control measures along the perimeter of all work areas to prevent the displacement of fill material outside the work area. Immediately after completion of the final grading of the land surface, all slopes, land surfaces, and filled areas shall be stabilized using sod, degradable mats, barriers, or a combination of similar stabilizing materials to prevent erosion. The erosion control measures shall remain in place and be maintained until all authorized work has been completed and the site has been stabilized.

Rationale: This condition has been added to ensure the project remains minor in nature with minimal chance for appreciable impacts to waters.

4. Temporary Wetland Impacts: Within 30 days from the date of completing the authorized work the Permittee shall restore 0.18 acre of temporary wetland impacts (as detailed on Drawing 5 of 24) to pre-existing contours, elevations, vegetation, habitat type, and hydrology. The following shall be monitored to ensure Temporary Wetland Impacts are restored:

a. **Temporary Wetland Impacts: Wetland 13** - At the end of the monitoring period (5 years) the temporary wetland impact sites shall have a predominance of wetland vegetation and shall meet the definition of a wetland as outlined in the 1987 US Army Corps of Engineers Wetland Delineation Manual and the Eastern Mountains and Piedmont Region supplement (1987 Manual and Regional Supplement).

b. **Reporting:** Perform a time-zero, year 3, and year 5 monitoring event of the temporary wetland impact areas. Post-construction monitoring reports shall include collecting data on the vegetation, soils, and indicators of wetland hydrology associated with wetland 13 in accordance with the 1987 Manual and Regional Supplement.

Rationale: The condition has been added to ensure the project will not have an adverse environmental affect and impacts minimal, such that mitigation will not be required.

5. In-Lieu Fee Credit Purchase: Wetland ILF Credit Purchase: Prior to impacts to waters of the United States, the Permittee shall provide verification to the Corps that 1.02 federal ILF credits have been purchased from the Tennessee Wetland Fund ILF (LRN-2011-00206). The required verification shall reference this project's permit number (LRN-2014-00088).

Rationale: The condition has been added to ensure the project will not have an adverse environmental affect.

6. Endangered Species Act: The Section 7 Endangered Species Act effects determination for this project was based on the negative survey results for the Indiana bat and northern long-eared bat. The survey results are valid for a period of two years. If the project has not completed tree clearing by April 1, 2016, the Permittee is required to reinitiate consultation under Section 7 of the Endangered Species Act. *Rationale: This condition has been added to the project as mitigation for the removal of Indiana bat habitat and the "likely to adversely effect" determination.*

7. Acid Producing Rock: During and post-construction, the Permittee shall follow the "Adaptive Management and APR Water Quality Monitoring Plan for SR-29 (US-27) From SR-61 Near Harriman in Roane County to South of Whetstone Road in Morgan County PIN 101411.04; Project No. 65001-3266-14, 73008-3243-14; and Adaptive Management and APR Water Quality Monitoring Plan for SR-29 (US-27) From South of Whetstone Road to North of SR-328 in Morgan County PIN 101411.05; Project No. 65001-3268-14".

Compensatory Mitigation Determination: The applicant has avoided and minimized impacts to the maximum extent practicable.

- (1) Is compensatory mitigation required for unavoidable impacts to jurisdictional aquatic resources to reduce the individual and cumulative adverse environmental effects to a minimal level?

yes no

Mitigation will be required for permanent impacts to wetlands to reduce the individual and cumulative adverse environmental effects to a minimal level. 0.18 acres of Wetland 12, and 0.33 acres of Wetland 14 will be permanently impacted by the project. Mitigation for these impacts will be required at a 2:1 ratio to replace wetland functions lost, address temporal loss. Wetland 13 will only have 0.02 acres of permanent impacts and mitigation will not be required for this loss. Due to the small size of this impact and the wetland's close proximity to the existing road, the permanent impact as a result of the project will have a minimal adverse environmental effect.

The impacts to streams at each single and complete crossing will not require mitigation because the actions qualify for non-reporting NWP's. The impacts at each

individual crossing will be less than 0.1 acres and are not within special aquatic sites. TDOT has not requested reverification from the Corps that the non-PCN NWP crossings qualify for NWP 12 and 14.

Is the impact in the service area of an approved mitigation bank? yes no

i. Does the mitigation bank have appropriate number and resource type of credits available? yes no

(2) Is the impact in the service area of an approved in-lieu fee program? yes no

i. Does the in-lieu fee program have appropriate number and resource type of credits available? yes no

(3) Check the selected compensatory mitigation option(s):

mitigation bank credits

in-lieu fee program credits

permittee-responsible mitigation under a watershed approach

permittee-responsible mitigation, on-site and in-kind

permittee-responsible mitigation, off-site and out-of-kind

(4) If a selected compensatory mitigation option deviates from the order of the options presented in §332.3(b)(2)-(6), explain why the selected compensatory mitigation option is environmentally preferable. Address the criteria provided in §332.3(a)(1) (i.e., the likelihood for ecological success and sustainability, the location of the compensation site relative to the impact site and their significance within the watershed, and the costs of the compensatory mitigation project): The selected compensatory mitigation does not deviate from the order of the options presented in §332.3(b)(2)-(6). There are no banks available to provide credits to mitigate for the proposed impacts. The Permittee will mitigate for wetland impacts at the Tennessee Wetland Fund ILF (LRN-2011-00206).

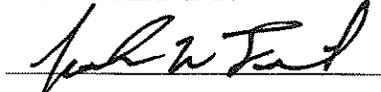
Determination (Reference General Condition D):

The proposed activity would result in no more than minimal individual and cumulative adverse environmental effects and would not be contrary to the public interest. This project complies with all terms and conditions of NWP 14.

CELRN-OP-F (Application LRN-2014-00088)

SUBJECT: Department of the Army Memorandum Documenting Nationwide Permit/Regional General Permit Verification for the Above-Numbered Permit Application

PREPARED BY:

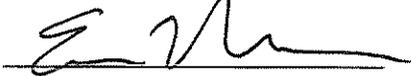


Date: September 25, 2014

Joshua Frost

Project Manager

REVIEWED BY:



Date: September 25, 2014

Eric G. Reusch
Chief, Eastern Regulatory Section

CELRN-OP-F (Application LRN-2014-00088)

SUBJECT: Department of the Army Memorandum Documenting Nationwide Permit/Regional General Permit Verification for the Above-Numbered Permit Application

Attachment A. Preliminary Jurisdictional Determination

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): 11-Jul-14

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

TDOT
505 Deadrick Street, Suite 900
JK Polk Bdg
Nashville, TN 37243

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

Nashville District, File Name: LRN-2014-00239 TDOT SR 29 PIN 101411.05

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: Unnamed Tributaries and Wetlands of Bitter Creek Mile 1.7, Little Emory River Mile 4.5L, Emory River Mile 5.1L, Morgan County, Tennessee (SR-29; PIN 101411.05)

(SEE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES)

State: TN County/parish/borough: Morgan City: Oliver Springs

Center coordinates of site (lat/long in degree decimal format):

Lat. 36.0098° N, Long. -84.5177° W.

Universal Transverse Mercator: NAD83

Name of nearest waterbody: Bitter Creek

Identify (estimate) amount of waters in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.

Cowardin Class:

Stream Flow:

Wetlands:

Cowardin Class:

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal: N/A

Non-Tidal: N/A

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date: 11-Jul-14

Field Determination. Date(s): 25-Nov-13

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Delineation/ Survey received 20-Nov-13 & 11-Mar-13.
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps:
- Corps navigable waters' study: Bitter Creek is a 2nd order tributary to Emory River, a Navigable waters as listed in Nashville District Public Notice #86-23, dated 8 May 1986 .
- U.S. Geological Survey Hydrologic Atlas:
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps. 60102080405, Little Emory River
- U.S. Geological Survey map(s). Cite scale & quad name: Camp Austin 1:24,000
- USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/> accessed [11-Jul-2014].
- National wetlands inventory map(s). Cite name:.
- State/Local wetland inventory map(s):.
- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date):NAIP 1m 2012.
or Other (Name & Date): Taken by TDOT March 2013
- Previous determination(s). File no. and date of response letter:.
- Other information (please specify):.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.


 Eric G Reusch
 Chief, Eastern Regulatory Section

 Signature and date of
 person requesting preliminary JD
 (REQUIRED, unless obtaining the
 signature is impracticable)

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
WTL-11	36.0012	-84.5076	PEM	0.075 a	404- Wetland
ESTR-22	36.0016	-84.5088	Ephemeral	110'	404- Stream
STR-16	36.0017	-84.5093	Perennial	118'	404- Stream
STR-16A	36.0016	-84.5083	Intermittent	36'	404- Stream
STR-17	36.0036	-84.5124	Perennial	290'	404- Stream
ESTR-27	36.0039	-84.513	Ephemeral	1280'	404- Stream
ESTR-28	36.0042	-84.5132	Ephemeral	155'	404- Stream
STR-6 (Bitter Creek)	36.01	-84.5188	Perennial	5280'	404- Stream
STR-18 (SPR-3)	36.012	-84.522	Intermittent	35'	404- Stream
STR-19	36.013	-84.5214	Perennial	571'	404- Stream
WTL-12	36.0132	-84.5225	PSS	0.18 a	404- Wetland
ESTR-36	36.0133	-84.5228	Ephemeral	566'	404- Stream
ESTR-37	36.0139	-84.5235	Ephemeral	418'	404- Stream
ESTR-37A	36.0146	-84.5244	Ephemeral	306'	404- Stream
WTL-13	36.0141	-84.5238	PFO	0.251 a	404- Wetland
STR-23	36.0157	-84.5266	Perennial	291'	404- Wetland
ESTR-39	36.0157	-84.526	Ephemeral	153'	404- Stream
STR-20 (Muddy Branch)	36.0174	-84.5268	Perennial	268'	404- Stream
STR-21	36.0181	-84.5265	Perennial	580'	404- Stream
WTL-14	36.019	-84.5267	PSS	0.33 a	404- Wetland
STR-22	36.0191	-84.5266	Intermittent	574'	404- Stream

CAMP AUSTIN
TN

PETROS
TN

Dakdale
HARRIMAN
TN

ELVERTON
TN

EPH-27
36.0039, -84.513

STR-17
36.0036, -84.5124

EPH-22
36.0016, -84.5088

EPH-28
36.0042, -84.5132

WTL-11
36.0012, -84.5076

STR-16
36.0017, -84.5094

WTL-10
36.0007, -84.5068

STR-16A
36.0016, -84.5093

STR-15
36.0004, -84.507

-  = Wetland
-  = Perennial Stream
-  = Ephemeral Stream
-  = Bitter Creek (STR 6)

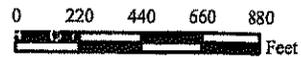
LRN-2014-00239

TDOT SR-29

PIN 101411.05

Tributaries and Wetlands of Bitter Creek Mile 1.7,

Little Emory River Mile 4.5L, Emory River Mile 5.1L



US Army Corps
of Engineers
Nashville District

CAMP AUSTIN
TN

PETROS
TN

HARRIMAN
TN

ELVERTON
TN



STR-20 (Muddy Branch)
36.0174, -84.5288

STR-23
36.0157, -84.5286

EPH-37A
36.0146, -84.5244

EPH-36
36.0133, -84.5228

WTL-12
36.0132, -84.5225

STR-22
36.0191, -84.5266

STR-21
36.0181, -84.5285

EPH-39
36.0157, -84.526

WTL-13
36.0141, -84.5238

EPH-37
36.0139, -84.5235

STR-19
36.013, -84.5214

SPR-3: STR-18
36.012, -84.522

STR-6 (Bitter Creek)
36.01, -84.5188

-  = Wetland
-  = Perennial Stream
-  = Ephemeral Stream
-  = Bitter Creek (STR 6)

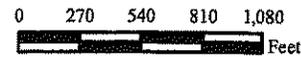
LRN-2014-00239

TDOT SR-29

PIN 101411.05

Tributaries and Wetlands of Bitter Creek Mile 1.7,

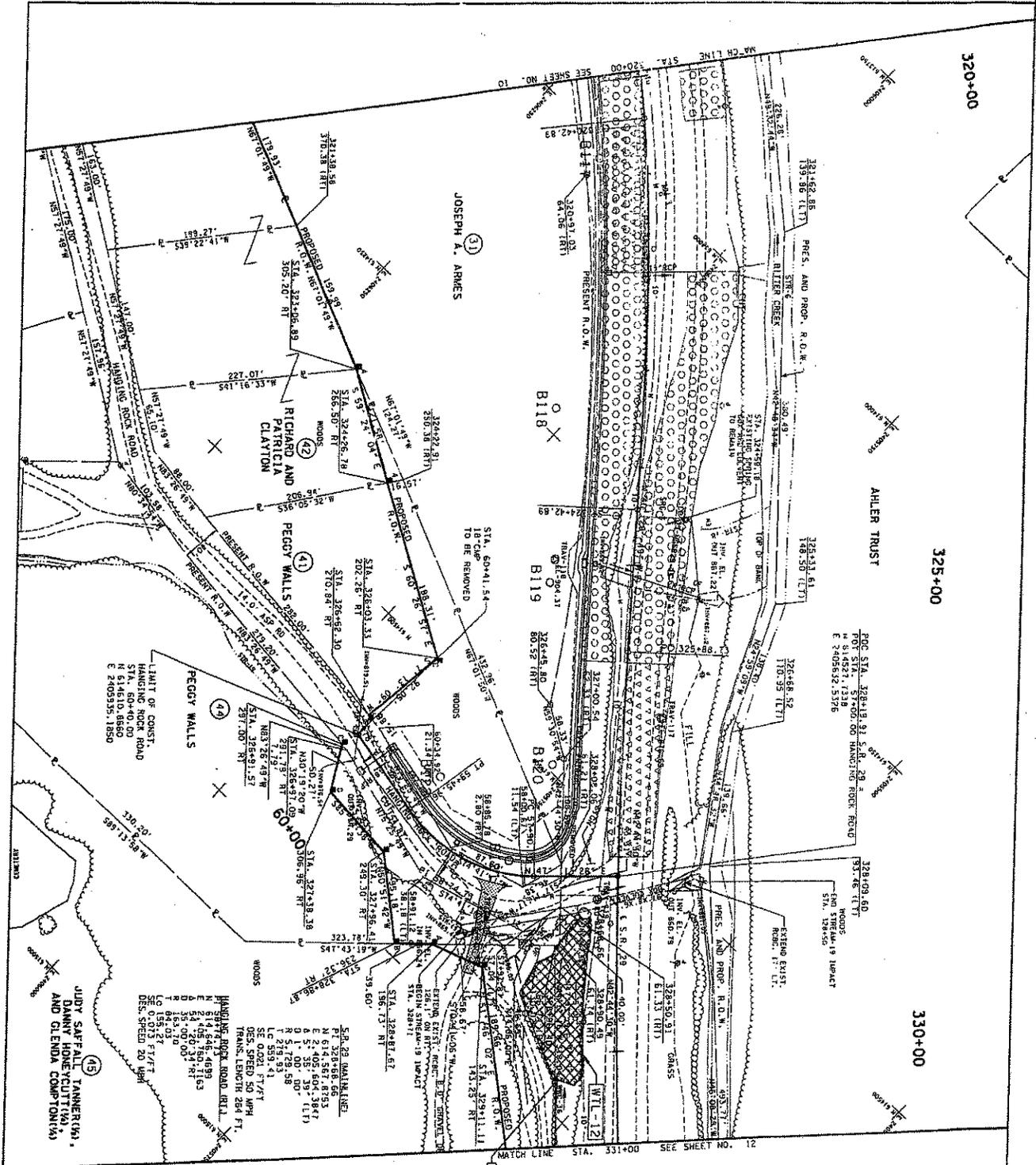
Little Emory River Mile 4.5L, Emory River Mile 5.1L



US Army Corps
of Engineers
Nashville District



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PRESENT LAYOUT
STA. 325+00 TO STA. 331+4

SCALE: 1" = 50'

06/18/2010: REVISED DRAINAGE FOR TRACT 4

1/28/2011: ADDED PRESENT R.O.W. LABEL.
STA. 328+49.29 TO 329+79.71, REVISED
BEARING NEAR STA. 328+40.51 EL. 33.71 FT.
REMOVED PRESENT R.O.W. DIMENSION LABEL
1162.58' NEAR STATION 328+91.51 297.00' RT
2/21/2012: INCREASED WIDTH OF THE PROPOSED
DRAINAGE OFF OF HANGING ROCK ROAD.

THE YEAR	PROJECT NO.	DATE
2008	HPD-NH-291363	2/21/08
2008	HPD-NH-291351	2/21/08
2014	NH-291363	1/21/14

NO EQUIPMENT IS TO BE OPERATED IN
WETLAND AREAS AND STREAMS LOCATED
BEYOND THE PERMITTED LIMITS.

THE CONTRACTOR SHALL USE ANY
NECESSARY MEASUREMENTS TO
VERIFY THE LOCATION AND
DISTURBANCE AND IS PROTECTED FROM
SOLICIT AND OTHER REGULATIONS.

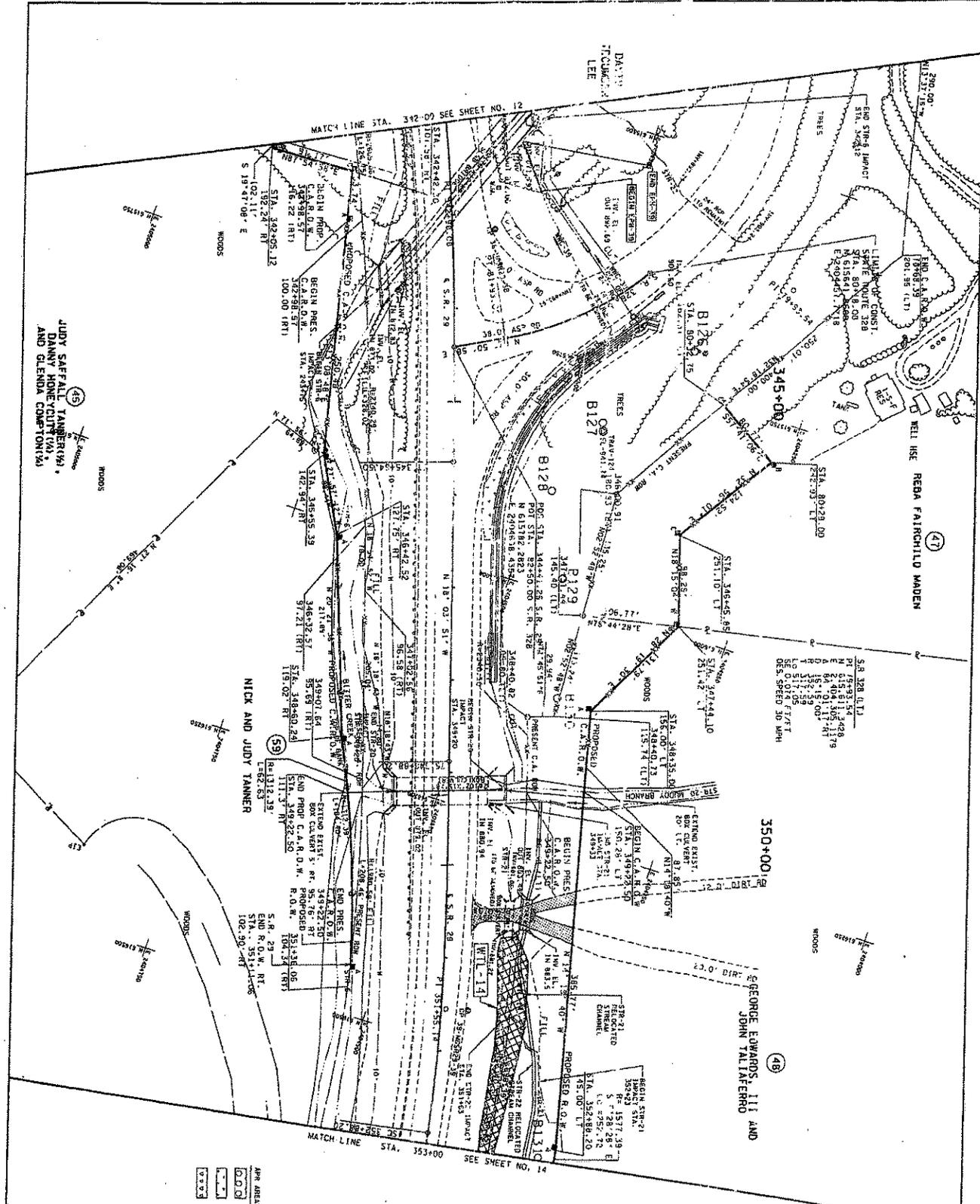
NO EQUIPMENT IS TO BE OPERATED IN
WETLAND AREAS AND STREAMS LOCATED
BEYOND THE PERMITTED LIMITS.

NO EQUIPMENT IS TO BE OPERATED IN
WETLAND AREAS AND STREAMS LOCATED
BEYOND THE PERMITTED LIMITS.

WIL-12 STA 328+62 TO 330+33

LEGEND	WETLAND IMPACTS
[Symbol]	AREA OF REMAINT IMPACT = 0.18 AC.
[Symbol]	AREA OF TEMPORARY IMPACT = 294 C.Y.
[Symbol]	AREA OF PERMANENT IMPACT = 0 C.Y.

0.0.0 - Erosion/Excavation Required
0.0.1 - Air - Erosion/Excavation or Partial Banding Required
0.0.2 - Air - Banding Required
0.0.3 - Air - Banding Required
SEE SHEET 9 FOR ESTIMATED AIR MATERIAL QUANTITIES FOR THIS SHEET



COORDINATE VALUES ARE NAD 83/2011 AND ARE DATUM ADJUSTED BY THE FACTOR LISTED BELOW & TIED TO THE TORS SURVEY OF THE STATE OF TENNESSEE

PRESENT LAYOUT

STA. 342+00 TO STA. 353+4

SCALE: 1" = 50'

TYPE	YEAR	PROJECT NO.	DATE
R.O.W.	2005	HPP-NH-291361	2
R.O.W.	2005	HPP-NH-291361	2
CONST.	2014	NH-291361	1

LEGEND

- WT-14 STA. 350+76 TO 357+16
- AREA OF PERMANENT IMPACT = 0.33 AC.
- AREA OF TEMPORARY IMPACT = 0.45 AC.
- INCLUDE OF TEMPORARY IMPACT = 0.45 AC.

NO EQUIPMENT IS TO BE OPERATED IN THE AREAS AND STRIPES LOCATED WITHIN THE PERMITTED LIMITS.

THE CONTRACTOR SHALL USE APPROPRIATE MEASUREMENTS TO DETERMINE THE LIMITS OF DISTURBANCE AND IS PROHIBITED FROM SEDIMENT AND OTHER POLLUTANTS.

STIPPLED INCLUDES (CONTR.)

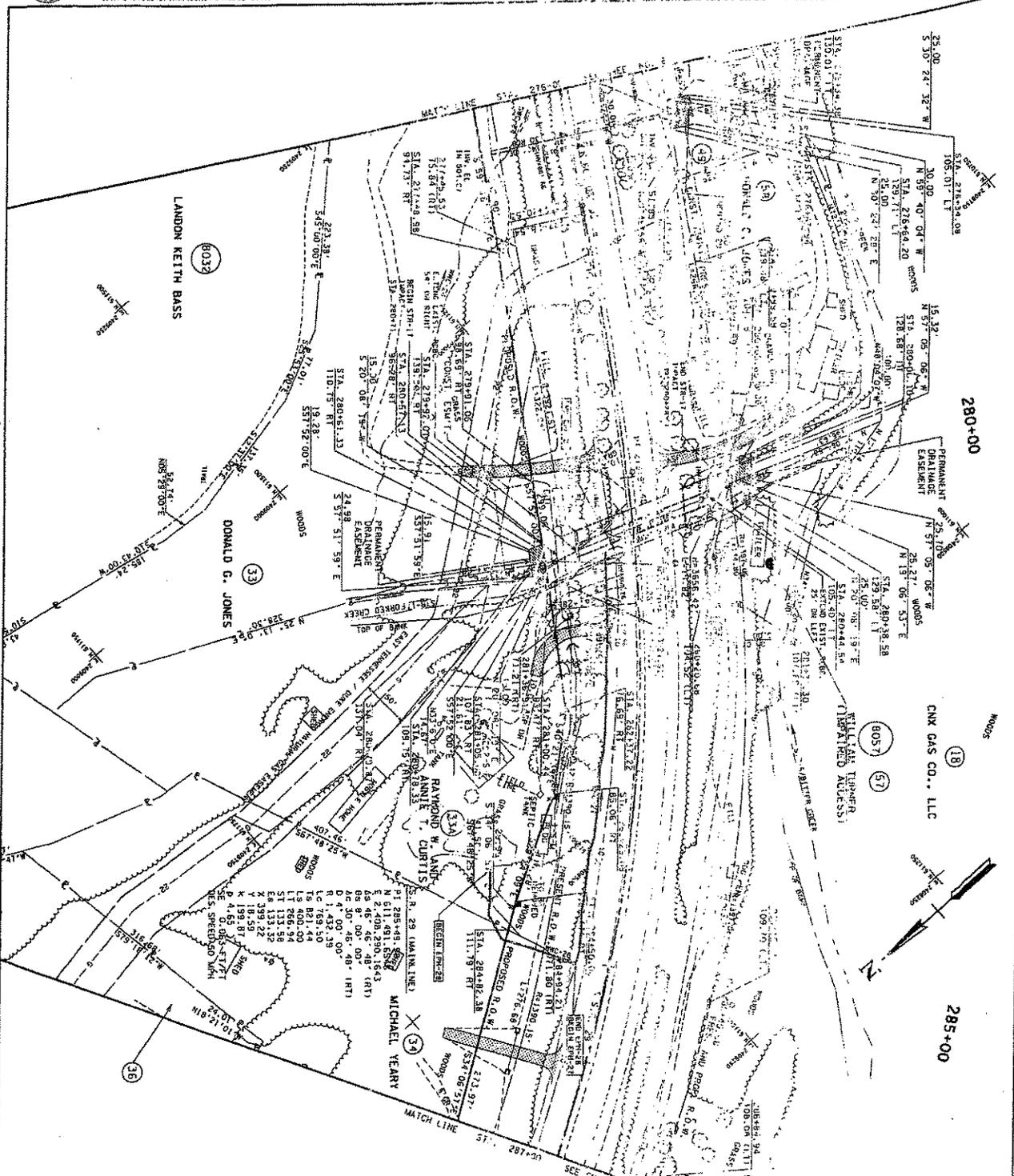
AREA AREAS	APR - Erosion/Drainage Required	100
APR - Erosion/Drainage Required	500	
APR - Erosion/Drainage Required	400	

17/16/2011 - REVISED STATIONING TO 0.25 DISTANCE BETWEEN STA. 350+00 AND STA. 351+00 TO CORRECT FOR THE 1/4" OFFSET OF SET DISTANCE FOR BEGIN PRES. C.A. R.O.W. BEGIN AND END STATION AND OTHER PROPOSED C.A. R.O.W. MODIFICATIONS ACCORDINGLY.

17/16/2011 - REVISED PROPOSED R.O.W. FROM STA. 342+00 TO THE INTERSECTION OF SR-123 AND STA. 342+00 AND STA. 343+00 TO THE INTERSECTION OF SR-123 AND STA. 343+00 AND STA. 344+00 TO THE INTERSECTION OF SR-123 AND STA. 344+00 AND STA. 345+00 TO THE INTERSECTION OF SR-123 AND STA. 345+00.



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LANDON KEITH BASS (8032)

NO EQUIPMENT IS TO BE DEPOSITED IN
RIGHT-OF-WAY AREAS AND STREAMS LOCATED
BEYOND THE PERMITTED LIMITS.

COORDINATE VALUES ARE USED/SHOWN
FACTORS LOCATED AS REFER TO THE
STATE OF TENNESSEE
DEPARTMENT OF REVENUE & TAXATION
BUREAU OF PLANNING & SURVEILLANCE

PRESENT LAYOUT

STA. 276+00 TO STA. 287+
SCALE: 1" = 50'

TYPE	YEAR	PROJECT NO.
R.O.W.	2008	HPR-NH-291351
R.O.W.	2008	HPR-NH-291351
CONST.	2014	NH-291351

06/18/2010, ADDED TRACT 31 LEFT OF 28140
REVISED OPEN ROAD FOR TRACTS 33 AND 33A
12/26/2011, REVISED DRAINAGE EASEMENT
DIRECTION ON P/CH SIDE OF SR-29.
12/18/2011, ADDED TRACT 8022 AND UPGRADED
DRAINAGE EASEMENT LABELS ON TRACT 33
OPERATING IN THIS DRAINAGE EASEMENT
LINE BETWEEN TRACT 37 AND SR. ADDED
INSERT OF TRACT 8022.
04/20/2012, REVISED PROPOSED ROW LINES
TRACT 33A IN ORDER TO AVOID SERVICE

CELRN-OP-F (Application LRN-2014-00088)

SUBJECT: Department of the Army Memorandum Documenting Nationwide Permit/Regional General Permit Verification for the Above-Numbered Permit Application

Attachment B. USFWS Correspondence



United States Department of the Interior

FISH AND WILDLIFE SERVICE

446 Neal Street
Cookeville, TN 38501

September 16, 2014

Mr. Keven Brown
Tennessee Department of Transportation
Environmental Planning and Permits
James K. Polk Building, Suite 900
505 Deaderick Street
Nashville, Tennessee 37243-0349

Subject: FWS# 14-I-0519. Proposed construction of State Route 29 from State Route 61 in Harriman to north of State Route 328; PIN#s 101411.04 and 101411.05, P.E. 73008-1237-14 and 65001-1256-14, Morgan and Roane counties, Tennessee.

Dear Mr. Brown:

Thank you for your correspondence dated September 3, 2014, transmitting mist netting survey results for construction of approximately five miles of State Route (SR) 29 under two separate projects from SR 61 in Harriman to north of SR 328 in Morgan and Roane counties, 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*) and "not likely to jeopardize" the proposed northern long-eared bat (*Myotis septentrionalis*). Personnel of the U.S. Fish and Wildlife Service have reviewed the subject proposal and offer the following comments.

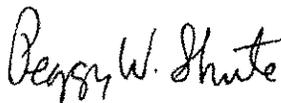
A mist netting survey was performed during the period of August 2 through August 13, 2014, at nine sites determined to be suitable netting locations. Efforts resulted in the capture of 118 non-listed bats, including two female northern long-eared bats. The northern long-eared bats were captured outside of the project corridor and tracked to three roost sites over two miles from the nearest portion of the proposed SR 29 project, indicating that clearing of trees for construction would likely not have an effect on this colony. Based on this and other information provided, we concur with TDOT's finding of "not likely to jeopardize" for the northern long-eared bat. Although there is no requirement to implement a winter tree cutting timeframe restriction on this project, we would appreciate consideration given to the removal of trees with a DBH (diameter at breast height) of three inches or greater from October 15 through March 31 to further minimize potential for harm.

No Indiana bats were captured during mist net efforts. Therefore, we concur with TDOT's determination of "not likely to adversely affect" for this species. Unless new information otherwise indicates Indiana bat use of the area, this survey will be valid until April 1, 2017. We are unaware of

any federally listed or proposed species that would be impacted by this 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 the Act must 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 of my staff at 931/525-4995 or by email at john_griffith@fws.gov.

Sincerely,



for Mary E. Jennings
Field Supervisor

From: [John Griffith](mailto:John.Griffith@fws.gov)
To: [Frost, Joshua W LRN](mailto:Frost.Joshua.W.LRN@usace.army.mil)
Subject: [EXTERNAL] **correction** FW: FWS# 14-CPA-0548 BA assessment for the proposed construction of State Route 29 (UNCLASSIFIED)
Date: Monday, June 30, 2014 7:59:01 AM

Joshua,

On read through, I realized that I missed something when replying below. You asked whether the project would receive our NLAA concurrence. The answer is no. TDOT is contributing into Tennessee's IBCF to address a "likely to adversely affect" finding. We will be providing our section 7 clearance but will not be arriving at a NLAA finding. Sorry for the confusion.

John Griffith
Transportation Biologist
U.S. Fish and Wildlife Service
Tennessee Field Office
931-525-4995 (office)
931-528-7075 (fax)

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

From: John Griffith [mailto:john_griffith@fws.gov]
Sent: Thursday, June 26, 2014 8:29 AM
To: 'Frost, Joshua W LRN'
Subject: RE: FWS# 14-CPA-0548 BA assessment for the proposed construction of State Route 29 (UNCLASSIFIED)

Joshua,

Thanks for the questions. Technically, when a species is proposed to be listed and an action(s) "may effect" the species, the project proponent must make a jeopardy determination and confer with the Service. For this project, TDOT made the case for "no jeopardy" due to a variety of factors including a cutting timeframe restriction in August-September that would ensure the bats would be absent from the project area or juveniles would be volant (flying). So, in answer to your question, the commitment of a cutting restriction should be included in the permit. TDOT additionally (voluntarily) proposed to enter into an MOA with our office and contribute to Tennessee's Indiana Bat Conservation Fund as a means to mitigate possible impacts from removal of 53 acres of potentially suitable roosting habitat. They had other options, but chose this to expedite the project. We are currently working through the MOA process with their legal counsel. We will grant TDOT our NLAA concurrence and section 7 language once they provide us with the receipt of payment into the fund. So, you might also condition the permit to require payment into the Indiana bat fund since TDOT has agreed to this. Please let me know if you need anything else.

John Griffith
Transportation Biologist
U.S. Fish and Wildlife Service
Tennessee Field Office
931-525-4995 (office)
931-528-7075 (fax)

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

From: Frost, Joshua W LRN [<mailto:Joshua.W.Frost@usace.army.mil>]

Sent: Thursday, June 19, 2014 9:54 AM
To: John_Griffith@fws.gov
Subject: FWS# 14-CPA-0548 BA assessment for the proposed construction of State Route 29 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

John,

I read the letter dated June 9, 2014 from USFWS that provided a "No jeopardy" for the NLEB and required TDOT to contribute \$201,400 towards the species recovery for impacts to Indiana Bat. Can you clarify the following:

1. Are there cutting restrictions, or other management practices that were required in order for USFWS to make the "no jeopardy" determination? If so, what are they?
2. Also, when TDOT pays the \$201,400 towards the species recovery for impacts to Indiana Bat, will USFWS consider the project to "not likely adversely affect" the Indiana Bat?

I am working on drafting special conditions for the permit and in order to ensure that Section 7 requirements are met, can you provide specific permit conditions USFWS would need the Corps to add to the permit to ensure the project will have "no jeopardy" to the NLEB and "not likely adversely affect" the Indiana Bat?

Best Regards,

Joshua Frost, PWS, Certified Ecologist
Project Manager, Regulatory Branch
U.S. Army Corps of Engineers
3701 Bell Road
Nashville, Tennessee 37214
615-369-7512 / 615-369-7501 (Fax)

Classification: UNCLASSIFIED
Caveats: NONE



United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

June 9, 2014

Ms. Leigh Ann Tribble
Federal Highway Administration
Tennessee Division Office
404 BNA Drive, Suite 508
Nashville, TN 37217

Subject: FWS# 14-CPA-0548. Biological Assessment for the proposed construction of State Route 29 from State Route 61 in Harriman to north of State Route 328; PIN#s 101411.04 and 101411.05, P.E. 65001-3266-14, 73008-3243-14, and 650011-3268-14, Morgan and Roane counties, Tennessee.

Dear Ms. Tribble:

Thank you for the Biological Assessment and letter dated May 15, 2014, regarding the proposal to construct approximately five miles of State Route (SR) 29 under two separate projects from SR 61 in Harriman to north of SR 328 in Morgan and Roane counties, Tennessee. The Tennessee Department of Transportation (TDOT) proposes to widen the first section of roadway from two traffic lanes to a cross-section consisting of four twelve-foot traffic lanes with ten-foot stabilized shoulders and a forty-eight foot wide depressed median. The second segment of SR-29 would be widened to a four lane divided cross-section to tie into the preceding section and then narrow down to a five-lane cross-section consisting of four twelve-foot traffic lanes with twelve-foot shoulders and a twelve-foot center turn lane for most of the remainder. Retaining walls would be constructed along this section at various locations to minimize the extent of cut slopes that would be required in the steeper areas and reduce the exposure of pyritic material present in some of these areas. Personnel of the U.S. Fish and Wildlife Service have reviewed the subject proposal and offer the following comments.

Joint mist netting and acoustical studies were performed between the period of July 8 and July 24, 2011, at 12 sites along both sections of the project where suitable roosting habitat for the Indiana bat was present. The acoustical studies resulted in the recording of a combined 3,775 bat calls, of which one was identified as an Indiana bat. The mist netting efforts resulted in the capture of a total of 85 bats, representing six non-listed species. However, 18 of these individuals were northern long-eared bats (NLEB) (*Myotis septentrionalis*), officially proposed for listing on October 2, 2013. TDOT found that the project is "not likely to adversely affect" the Indiana bat because two or more isolated calls must pass through the MoreNet filter to be considered a positive species indicator and no Indiana bats were captured during mist netting efforts. Also, a cave feature was evaluated within the

project right-of-way and determined not to be suitable for use as a bat hibernaculum. In a letter to Federal Highway Administration dated February 22, 2012, we concurred with TDOT's determination of "not likely to adversely affect" for the Indiana bat.

TDOT requests our concurrence of "no jeopardy" for the proposed NLEB based on an overall minimal removal of habitat and a proposed cutting timeframe that ensures young would be volant and/or bats would be absent from the area. Upon review of the project proposal, we concur with TDOT's determination of "no jeopardy" for the NLEB. Because the 2011 Indiana bat survey results are no longer valid, TDOT has made a "likely to adversely affect" finding and requests to enter into a Memorandum of Agreement with our office and mitigate potential impacts to this species through contribution into the Indiana Bat Conservation Fund. The current forested land average value in Tennessee is \$3,800/acre. TDOT has agreed to contribute \$201,400 towards species recovery efforts for removal of 53 acres of potential habitat. Upon receipt of payment, TDOT will have met section 7 obligations for this project. We will provide our section 7 clearance at such time.

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

Sincerely,



Mary E. Jennings
Field Supervisor

xc: Keven Brown, TDOT, Knoxville, TN



United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

August 7, 2013

Lt. Colonel John L. Hudson
District Engineer
U.S. Army Corps of Engineers
3701 Bell Road
Nashville, Tennessee 37214

Attention: Ms. Deborah Tuck, Regulatory Branch

Subject: FWS #13-CPA-0612. Public Notice No. 13-31. Proposed construction of State Route 29 from State Route 61 to State Route 328; PIN #101411.04, P.E. 65001-1256-14, Roane and Morgan counties, Tennessee.

Dear Lt. Colonel Hudson:

Fish and Wildlife Service (Service) personnel have reviewed the subject public notice dated July 8, 2013, regarding the proposal to widen 3.1 miles of State Route (SR) 29 in Roane and Morgan counties, Tennessee. The Tennessee Department of Transportation (TDOT) proposes to widen this portion of roadway to a 4-lane divided highway or 5-lane section, impacting 12 streams and seven wetlands. Compensation for the loss of 1,976 linear feet of stream would be mitigated by purchase of 1,976 credits from the Tennessee Stream Mitigation Program. The applicant proposes 1,378 linear feet of onsite in-kind replacement to three streams. Permanent impacts to 1.52 acres of filled wetlands would be mitigated by purchasing, at a 2:1 ratio, 3.04 acres of available credits from an approved wetland mitigation site. Temporary wetland impacts would be mitigated by restoring pre-construction contours and planting appropriate tree species. The following constitute the comments of the U.S. Department of Interior, provided in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.)

In a letter dated March 31, 2003, we concurred that the proposed project would not adversely affect the federally endangered purple bean (*Villosa perpurpurea*) and Cumberland elktoe (*Alasmidonta atropurpurea*) or the threatened spotfin chub (*Erimonax monachus*), Virginia spiraea (*Spiraea virginiana*), or Cumberland rosemary (*Conradina verticillata*) due to a lack of suitable habitat in the project area. On July 25, 2008, the Tennessee Wildlife Resources Agency further requested that TDOT consider potential impacts to the State and federally endangered Alabama lampmussel (*Lampsilis virescens*). Civil and Environmental Consultants, Inc., biologists and personnel from

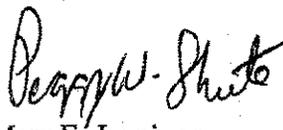
TDOT's Environmental Division conducted 15 person-hours of surveys in the Little Emory River on September 10, 2009. The substrate was heavily silted due to the fluctuating water levels at Watts Bar Lake and no live mussels or relic shells were recovered during the survey effort. Based on these findings, no new information in the area, and the evident barrier to migration by Watts Bar Dam; our concurrences provided on March 31, 2003, are still in effect. Furthermore, we would not anticipate any adverse effects to the Alabama lampmussel or finereyed pigtoe (*Fusconaia cuneolus*), provided in a species list by the Tennessee Department of Environment and Conservation in a July 30, 2013, letter to the Nashville District Corps of Engineers.

Joint mist netting and acoustical studies were performed between July 8 and July 14, 2011, at eight sites determined to contain suitable habitat for the Indiana bat (*Myotis sodalis*). The acoustical study resulted in the recording of 2,611 bat calls, of which none were identified as Indiana bats. The mist netting efforts resulted in the capture of 77 bats, representing six non-listed species. Evaluation of a cave feature within the project right-of-way determined that it is not suitable for use as a bat hibernaculum. Due to negative survey results for the Indiana bat, we concurred with a "not likely to adversely affect" finding for this species in a letter to TDOT dated February 22, 2012.

We are not aware of any federally listed or proposed species that would be adversely affected by this project. Therefore, based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act of 1973, as amended, are fulfilled for all species that currently receive protection under the Act. Obligations under section 7 of the Act must 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 of my staff at 931/525-4995 or by email at john_griffith@fws.gov.

Sincerely,


for Mary E. Jennings
Field Supervisor

xc: Chuck Howard, TVA, Knoxville, TN
Robert Todd, TWRA, Nashville, TN
Keven Brown, TDOT, Nashville, TN



United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

February 22, 2012

Ms. Leigh Ann Tribble
Federal Highway Administration
Tennessee Division Office
404 BNA Drive, Suite 508
Nashville, Tennessee 37217

Subject: FWS #12-CPA-0283. Biological Assessment for the construction of State Route 29 from State Route 61 to State Route 328; PIN #101411.01, P.E. 73008-1237-14 and 65001-1256-14, Roane and Morgan counties, Tennessee.

Dear Ms. Tribble:

Thank you for your letter dated February 3, 2012, transmitting acoustic and mist netting survey results for the proposed construction to State Route 29 from State Route 61 to State Route 328 in Roane and Morgan counties, Tennessee. At the request of our office, surveys were conducted along the proposed corridor to determine if the area is being utilized as summer roosting habitat by the federally endangered Indiana bat (*Myotis sodalis*). Personnel of the U.S. Fish and Wildlife Service have reviewed the information provided and offer the following comments.

Joint mist netting and acoustical studies were performed between July 8 and July 14, 2011, at eight sites determined to contain suitable habitat for the Indiana bat. The acoustical study resulted in the recording of 2,611 bat calls, of which none were identified as Indiana bats. The mist netting efforts resulted in the capture of 77 bats, representing six non-listed species. Evaluation of a cave feature within the project right-of-way determined that it is not suitable for use as a bat hibernaculum. The Tennessee Department of Transportation (TDOT) has concluded that the project is "not likely to adversely affect" the Indiana bat because none were recorded during the surveys.

Due to negative survey results for the Indiana bat, we concur with TDOT's finding of "not likely to adversely affect" for this species. Although it is likely that this project would have an insignificant effect on the Indiana bat, we would appreciate consideration given to the removal of trees with a DBH (diameter at breast height) of five inches or greater from October 15 through March 31 to further minimize potential for harm to the Indiana bat. Based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act of 1973, as amended, are fulfilled. Obligations under the Act must 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 of my staff at 931/525-4995 or by email at john_griffith@fws.gov.

Sincerely,

A handwritten signature in black ink that reads "Mary E. Jennings". The signature is written in a cursive style with a large, prominent "M" and "J".

Mary E. Jennings
Field Supervisor



United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

July 23, 2007

Mr. Mark Doty
Tennessee Department of Transportation
7345 Region Lane
Knoxville, Tennessee 37914

Re: FWS #07-FA-0862

Dear Mr. Doty:

Thank you for your email of July 18, 2007, requesting updated information concerning federally listed and proposed endangered and threatened species that might occur in the impact area of the reconstruction of State Route 29 from east of Harriman to State Route 62 in Roane and Morgan counties, Tennessee. Fish and Wildlife Service biologists have reviewed the information submitted and we offer the following comments.

In a response dated March 31, 2003, we concurred that the proposed project is not likely to adversely affect the federally endangered purple bean (*Villosa perpurpurea*) and Cumberland elktoe (*Alasmidonta atropurpurea*) or the threatened spotfin chub (*Erimonax monachus*), Virginia spiraea (*Spiraea virginiana*), or Cumberland rosemary (*Conradina verticillata*). We further stated in that letter that the requirements of section 7 of the Endangered Species Act were fulfilled.

Since that time, we have received no new records of federally listed species nor have we listed new species that might occur in the project impact area. Our March 31, 2003, letter therefore remains in effect. Obligations under section 7 of the Endangered Species Act must be reconsidered, however, if: (1) new information reveals that the proposed project may affect listed species in a manner or to an extent not previously considered, (2) the proposed project is subsequently modified to include activities which were not considered during this review, or (3) new species are listed or critical habitat designated that might be affected by the proposed project.

Thank you for the opportunity to comment. If you have any questions, please contact Jim Widlak of my staff at 931/528-6481, ext. 202.

Sincerely,

A handwritten signature in cursive script that reads "Lee A. Barclay". The signature is written in black ink and is positioned above the printed name.

Lee A. Barclay, Ph.D.
Field Supervisor



United States Department of the Interior

FISH AND WILDLIFE SERVICE

446 Neal Street
Cookeville, TN 38501

March 31, 2003

Ms. Leigh Ann Tribble
Area Engineer
Federal Highway Administration
640 Grassmere Park, Suite 112
Nashville, Tennessee 37211

Re: FWS #03-0309

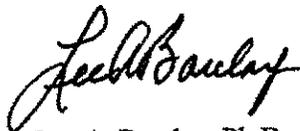
Dear Ms. Tribble:

On March 28, 2003, Lilah Miller from the Tennessee Department of Transportation (TDOT) called Jim Widlak of my staff concerning the proposed widening of State Route 29 from State Route 61 in Roane County to State Route 62 in Morgan County, Tennessee. On December 11, 2002, we received a letter from you transmitting an evaluation, prepared by TDOT personnel, of potential effects of that project to five federally listed endangered and threatened species. The project evaluation included a determination that the proposed highway widening would not affect any of the five listed species. Our response, dated January 23, 2003, indicated that no listed species occur in the project impact area. This was an erroneous response in light of the fact, as stated in TDOT's evaluation, that we had previously provided the list of species that were included in the project evaluation. Fish and Wildlife Service biologists have reviewed the project evaluation again and we offer the following comments.

Because no suitable habitat for the purple bean (*Villosa perpurpurea*), Cumberland elktoe (*Alasmidonta atropurpurea*), spotfin chub (*Cyprinella monacha*), Cumberland rosemary (*Conradina verticillata*), or Virginia spiraea (*Spiraea virginiana*) exists in the project area, we concur that the proposed widening of State Route 29 from State Route 61 to State Route 62 is not likely to adversely affect those listed species. In view of this, we believe that the requirements of section 7 of the Endangered Species Act have been fulfilled. Obligations under section 7 must be reconsidered, however, if: (1) new information reveals that the proposed project may affect listed species in a manner or to an extent not previously considered, (2) the proposed project 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 project.

Thank you for bringing this matter to our attention. We apologize for our error and hope that it has not caused undue delays in the project. If you have any questions or if we can be of further assistance, please contact Jim Widlak of my staff at 931/528-6481, ext. 202.

Sincerely,

A handwritten signature in cursive script that reads "Lee A. Barclay". The signature is written in black ink and is positioned above the printed name.

Lee A. Barclay, Ph.D.
Field Supervisor



United States Department of the Interior

FISH AND WILDLIFE SERVICE

446 Neal Street
Cookeville, TN 38501

January 23, 2002

Ms. Leigh Ann Tribble
Area Engineer
Federal Highway Administration
640 Grassmere Park, Suite 112
Nashville, Tennessee 37211

Re: FWS #03-0309

Dear Ms. Tribble:

Thank you for your letter and enclosures of December 11, 2002, concerning the bridge widening of State Route 29 from State Route 61 in Roane County to State Route 62 in Morgan County, Tennessee. Fish and Wildlife Service (Service) personnel have reviewed the information submitted and the following comments are provided in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

The Service is concerned that highway projects frequently accelerate erosion and sedimentation in streams, resulting in adverse effects to the aquatic environment. The use of heavy equipment to move earth and existing vegetation disrupts natural drainage patterns and exposes large areas of disturbed soil to erosion. Excessive sedimentation can clog stream channels and contribute to increased flooding. It can also increase water temperatures and cause oxygen demands which can damage or destroy fish and invertebrate populations. Deposition of sediment on the channel bottom also degrades aquatic habitat by filling in substrate cavities, burying demersal eggs, and smothering bottom organisms. In addition, turbidity, as induced by accelerated erosion and sedimentation, results in further damage to aquatic systems. Increased particulate matter suspended in the water column may drive fish from the polluted area by irritating the gills, concealing forage, and/or destroying vegetation that may be essential for spawning and cover habitat for particular species. Turbidity also degrades water quality by reducing light penetration, pH and oxygen levels, and the buffering capacity of the water. Degraded water quality may continue far downstream from the point where the erosion occurs.

Prevention of excessive sedimentation can occur only through application of Best Management Practices during daily construction activities. Rigid application of your agency's construction erosion control standards can preclude most sedimentation problems; however, in some cases additional measures will need to be taken by on-site inspectors and construction representatives.

Upon review of the proposed projects, we find that the information provided is insufficient to determine if the proposed actions will require U.S. Army Corps of Engineers' permits. Since permit applications could more thoroughly reveal the extent of construction activities affecting aquatic resources, we will provide additional comments during the 404 review process should the project necessitate Corps' permits. However, we would likely have no objection to the issuance of permits if any necessary stream channel work is held to a minimum and Best Management Practices are utilized and enforced, effectively controlling erosion, sedimentation, and other potential hazards. The following conditions are specifically recommended:

1. Erosion and sediment control measures, including but not limited to the following, should be implemented on all vegetatively denuded areas:
 - a. Preventive planning: A well-developed erosion control plan which entails a preliminary investigation, detailed contract plans and specifications, and final erosion and sediment control contingency measures should be formulated and made a part of the contract.
 - b. Diversion channels: Channels should be constructed around the construction site to keep the work site free of flow-through water.
 - c. Silt barriers: Appropriate use should be made of silt fences, hay bale and brush barriers, and silt basins in areas susceptible to erosion.
 - d. Temporary seeding and mulching: All cuts and fill slopes, including those in waste sites and borrow pits, should be seeded as soon as possible.
 - e. Limitation of instream activities: Instream activities, including temporary fills and equipment crossings, should be limited to those absolutely necessary.
2. Concrete box culverts should be placed in a manner that prevents any impediment to low flows or to movement of indigenous aquatic species.
3. Channel excavations required for pier placement should be restricted to the minimum necessary for that purpose. Overflow channel excavations should be confined to one side of the channel, leaving the opposite bank and its riparian vegetation intact.

4. All fill should be stabilized immediately upon placement.
5. Streambanks should be stabilized with riprap or other accepted bioengineering technique(s).
6. Existing transportation corridors should be used in lieu of temporary crossings where possible.
7. Good water quality should be maintained during construction.

Efficient management practices can minimize adverse impacts associated with construction. It is important that these and other measures be monitored and stringently enforced. This will aid in preserving the quality of the natural environment.

Endangered species collection records available to the Service do not indicate that federally listed or proposed endangered or threatened species occur within the impact area of the project. We note, however, that collection records available to the Service may not be all-inclusive. Our data base is a compilation of collection records made available by various individuals and resource agencies. This information is seldom based on comprehensive surveys of all potential habitat and thus does not necessarily provide conclusive evidence that protected species are present or absent at a specific locality. However, based on the best information available at this time, we believe that the requirements of Section 7 of the Endangered Species Act of 1973, as amended, are fulfilled. Obligations under Section 7 of the Act must 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.

Thank you for giving us the opportunity to comment on these actions. If you have any questions, please contact Jim Widlak of my staff at 931/528-6481, ext. 202.

Sincerely,



Lee A. Barclay, Ph.D.
Field Supervisor

Frost, Joshua W LRN

From: DJ Wiseman [DJ.Wiseman@tn.gov]
Sent: Monday, September 29, 2014 10:53 AM
To: Frost, Joshua W LRN
Subject: [EXTERNAL] RE: ESA permit condition for SR-29 (UNCLASSIFIED)

No, we can't adhere to it because there are lots of variables such as the letting schedule, project sequence, etc. We can put it as a special note and give it as much consideration as possible but we can't commit to it. USFWS fully understands this and simply wants us to try cutting at a certain time but they understand if it's not possible.

I emailed the credit acceptance letter for the wetland mitigation for the second part of the project this morning. Is there anything else that is needed for permit issuance?

Thanks,
D.J. Wiseman, PE, CPESC
Senior Transportation Project Specialist
Environmental Division
Natural Resources Office, Permits Section
Tennessee Department of Transportation
Work (615) 532-4554
Fax (615) 741-1098
DJ.Wiseman@tn.gov

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

From: Frost, Joshua W LRN [<mailto:Joshua.W.Frost@usace.army.mil>]
Sent: Thursday, September 25, 2014 9:23 AM
To: DJ Wiseman
Subject: ESA permit condition for SR-29 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

D.J.,

In USFWS' recent letter they state "Although there is no requirement to implement a winter tree cutting timeframe restriction on this project, we would appreciate consideration given to the removal of trees with a DBH of three inches or greater from October 15 through March 31 to further minimize potential for harm". Can and would TDOT be willing to adhere to this cutting restriction?

Joshua Frost, PWS, Certified Ecologist
Project Manager, Regulatory Branch
U.S. Army Corps of Engineers
3701 Bell Road
Nashville, Tennessee 37214
615-369-7512 / 615-369-7501 (Fax)

Classification: UNCLASSIFIED
Caveats: NONE

CELRN-OP-F (Application LRN-2014-00088)

SUBJECT: Department of the Army Memorandum Documenting Nationwide Permit/Regional General Permit Verification for the Above-Numbered Permit Application

Attachment C. SHPO Correspondence

CULTURAL RESOURCES UNDERTAKING REVIEW WORKSHEET

Department of the Army
Nashville District, Corps of Engineers
Regulatory Branch

FILE NO. 2014-00088

SUSPENSE: _____

Project Manager: Joshua Frost Date: 3-14-2014

Applicant: TDOT Project Name: SR-29 State Route 29 (US 27) from Whetstone Road to North of SR 328, PIN 101411.05

- Type of permit: Section 10 Section 404 Section 10 / 404 NWP# 12,14
 Associated With TVA 26a Off Reservoir On Reservoir _____
 Need specific Cultural Information for inclusion in Public Notice (PN No. _____) PCN
 Cultural Resources report is provided, Please provide findings and written coordination
 Site file review

Undertaking Location: Individual crossings at 2.023 miles of State Route 29 from Whetstone

Topo (Quad) Name: Camp Austin, TN County Morgan City Harriman State TN

Coordinates: Lat: 36.0002 °, Long: -84.5060 °

Description of Undertaking: (include any work that would not occur "but for"): _____

Map of vicinity with project area indicated potential **and** one of the following: Project Plans **or** Public Notice

Associated Mitigation/Borrow/Disposal site location: on-site [include plans] off-site [include plans] N/A

Coordinates: Lat: _____ °, Long: _____ °

Has the applicant supplied (or PM obtained) any of the following documentation?

- Share Drive File Location (\\lrn-fs-op-jpr) H: 1 EMPLOYEE Folders\Josh Frost\2014-00088 TDOT
- Photo(s) of the project area(s)
- Information about houses, buildings, structures, etc [including estimated construction dates]
- Previous Cultural Resources Work [predetermination reports, survey reports, etc]
Report Title: SHPO info referenced in the EA (pg24), FONSI (pg12) and reeval (pg11, 36, 67) of the report. No actual reports have been provided.
- Correspondence [e.g. SHPO concurrence]

Project Manager Assessment (must identify Permit Area=APE and include map), and check all that apply:

- Areas extensively modified by previous work
- Areas created in modern times
- Types of work of limited scope: explain Each crossing is considered single and complete (linear project) and
- Other federal or state agency determination: have independent utility. Review area is limited to each crossing.

To be completed by cultural resources reviewer:

- National Register checked on: 3/20/2014
- State's Archaeological Site files / date: 3/19/2014 State's Historical Structure files / date: TDOT

Recommendation:

- Proceed with Permit Processing
- Need a Cultural Resource Survey (Phase ____)
- Avoidance or MOA for mitigation is required
- TDOT completed an archaeological and historic structure survey of the entire project for FHWA. FHWA is the lead federal agency on this project. In prior coordination, TDOT determined "no effect" to historic properties (pre 2004 regulation update).

Finding

- No Potential to Affect
- No Historic Properties Present
- No Adverse Effect
- Adverse Effect

Given the prior correspondence and FHWA as the lead (pursuant to 2005 interim guidance memo 6.b), the above finding is justified.

MC CORMACK, VALERIE JEAN, 1296111445 Digitally signed by MC CORMACK, VALERIE JEAN, DN: cn=MC CORMACK, o=USDA, ou=USDA, email=MC.CORMACK@USDA.GOV, c=US, Date: 2014.03.20 13:07:49-0700

3/20/2014

Cultural resources reviewer

decision date



TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

April 9, 2002

Mr. Gerald Kline
Tennessee Department of Transportation
Environmental Planning Office
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-0334

RE: FHWA, ARCHAEOLOGICAL ASSESSMENT, SR-29/NORTH OF HARRIMAN TO SR-62,
UNINCORPORATED, ROANE COUNTY, TN

Dear Mr. Kline:

At your request, our office has reviewed the above-referenced archaeological survey report in accordance with regulations codified at 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739). Based on the information provided, and the revised design, we concur that the project area contains no archaeological resources eligible for listing in the National Register of Historic Places.

Therefore, this office has no objection to the implementation of this project. If project plans are changed or archaeological remains are discovered during construction, 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.

Your cooperation is appreciated.

Sincerely,

Herbert L. Harper
Executive Director and
Deputy State Historic
Preservation Officer

HLH/jmb



July 25, 2013

TENNESSEE HISTORICAL COMMISSION

STATE HISTORIC PRESERVATION OFFICE

Ms. Deborah T. Tuck
COE-Nashville District
3701 Bell Road
Nashville, Tennessee, 37214

2941 LEBANON ROAD
NASHVILLE, TENNESSEE 37214
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

RE: COE-N, PN# 13-31/SR-29 WIDENING, MORGAN, ROANE COUNTY

Dear Ms. Tuck:

In response to your request, received on Thursday, July 11, 2013, 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. You may wish to familiarize yourself with these procedures (Federal Register, December 12, 2000, pages 77698-77739) if you are unsure about the Section 106 process.

After considering the documents you submitted, we determine that THERE ARE NO NATIONAL REGISTER OF HISTORIC PLACES LISTED OR ELIGIBLE PROPERTIES AFFECTED BY THIS UNDERTAKING. We have made this determination either because: 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, the undertaking will not alter an eligible Historic Property's location, setting or use, the specific location, scope and/or nature of the undertaking precluded affect to Historic Properties, the size and nature of the undertaking's area of potential effects precluded affect to Historic Properties, or, no National Register listed or eligible Historic Properties exist within the undertaking's area of potential effects. Therefore, 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 find additional information concerning the Section 106 process and the Tennessee SHPO's documentation requirements at <http://www.tennessee.gov/environment/hist/federal/sect106.shtml>. You may direct questions or comments to Joe Garrison (615) 532-1550-103. This office appreciates your cooperation.

Sincerely,

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

EPM/jyg



CELRN-OP-F (Application LRN-2014-00088)

SUBJECT: Department of the Army Memorandum Documenting Nationwide Permit/Regional General Permit Verification for the Above-Numbered Permit Application

Attachment D. State Water Quality Certification



STATE OF TENNESSEE
TENNESSEE DEPARTMENT OF ENVIRONMENT & CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11TH Floor
Nashville, Tennessee 37243-1102

July 2, 2009

Ms. Melanie Bumpus
Tennessee Department of Transportation
Environmental Division
Suite 900 James K. Polk Bldg.
505 Deaderick St.
Nashville, TN 37243

Subject: Aquatic Resource Alteration Permit NRS 14,049.
TDOT 650 01-1256-14 PIN10141109 SP29, Harriman, Morgan County (Lat: 36.0002/ Lon: -84.5060)

Dear Ms. Bumpus:

We have reviewed your application for the proposed stream alterations in support of the widening of SR-29 from south of Whetstone Road to north of SR-328 near Harriman in Morgan County. Pursuant to the *Tennessee Water Quality Control Act of 1977* (T. C. A. § 69-3-101 et seq.) and supporting regulations, the Division of Water Resources is required to determine whether the activity proposed will violate applicable water quality standards.

Subject to conformance with applicable laws, specifications and other information submitted in support of application NRS 14,049, the state of Tennessee hereby issues an aquatic resources alteration permit (enclosed). Failure to comply with the terms of this permit or other violations of the *Tennessee Water Control Act of 1977* is subject to penalty in accordance with T.C.A. § 69-3-115.

It is the responsibility of the permittee to ensure that all contractors involved with this project have read and understood the permit conditions before the project begins. If you need additional information or clarification, please contact Brian Canada at 615-532-0660 or by e-mail brian.canada@tn.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian Canada".

Brian Canada, M.S., Q.H.P.
Natural Resources Unit

Cc: Incofile Environmental Field Office
U.S. Army Corps of Engineers, Nashville District
file copy

Cc: Knoxville Environmental Field Office
U.S. Army Corps of Engineers, Nashville District
file copy

Brian Canada, M.S., Q.H.P.
Natural Resources Unit



Sincerely,

It is the responsibility of the permittee to ensure that all contractors involved with this project have read and understood the permit conditions before the project begins. If you need additional information or clarification, please contact Brian Canada at 615-533-0660 or by e-mail at bcanada@tncanada.com.
Subject to conformance with accepted plans, specifications and other information submitted in support of application NRS 14.049, the state of Tennessee hereby issues an aquatic resources alteration permit (enclosed). Failure to comply with the terms of this permit or other violations of the *Tennessee Water Control Act of 1977* is subject to penalty in accordance with T.C.A. § 39-3-115.

We have reviewed your application for the proposed stream alterations in support of the SR-29 from south of Whetstone Road to north of SR-328 near location at Morgan County. Pursuant to the *Tennessee Water Quality Control Act of 1977* (T.C.A. § 39-3-101 et seq.) and supporting regulations, the Division of Water Resources is required to determine whether the activity proposed will violate applicable water quality standards.

Dear Ms. Bumpus:

Subject: Aquatic Resource Alteration Permit NRS 14.049.
TDOT 65001-1256-14 PIN101411.05 SR29, Harpman, Morgan County (att: 36.0002/Lo 84.5060)

Ms. Melanie Bumpus
Tennessee Department of Transportation
Environmental Division
Suite 900, James K. Polk Bldg.
505 Deaderick St.
Nashville, TN 37243

July 2, 2014

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT & CONSERVATION
DIVISION OF WATER RESOURCES
William R. Snodgrass - Tennessee Governor
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243-1001



Sandra D. ... P.E.
Director

[Handwritten signature]

EXPIRATION DATE: July 1, 2019

EFFECTIVE DATE: July 2, 2018

LOCATION: Bitter Creek and unnamed tributaries, State Route 29 in Morgan County, Tennessee (Lat: 36.0002/Lon: -84.5060)

AUTHORIZED WORK: 563 ft. of stream encapsulation in permanent impact zone of wetlands required to construct 2.023 miles of State Route 29 from State of Whetstone Road to North of SR-328.

PERMITTEE: Tennessee Department of Transportation

Pursuant to §101 of the Federal Clean Water Act (33 U.S.C. 1341), the State of Tennessee is required to certify whether the activity described below will violate applicable water quality standards. Accordingly, the Division of Water Resources requires reasonable assurance that the activity will not violate provisions of the Tennessee Water Quality Control Act of 1970 (T.C.A. §69-3-101 et seq.) or provisions of §§301, 302, 303, 305 or 307 of the Clean Water Act. Subject to conformance with accepted plans, specifications and other information submitted in support of the application, pursuant to 33 U.S.C. 1341 the State of Tennessee hereby certifies the activity described below. This shall serve as authorization under T.C.A. §69-3-101 et seq.

NPS16049

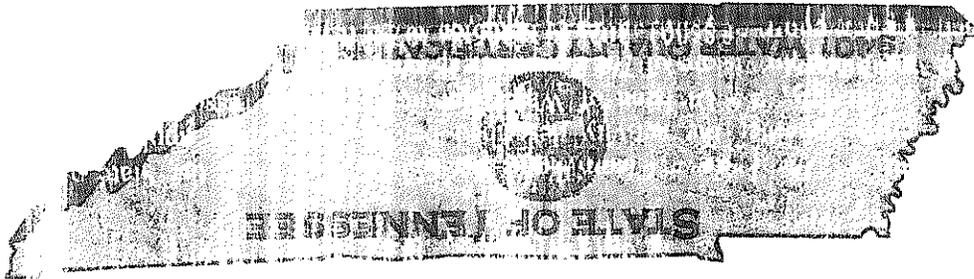


Table of Contents

3 SPECIFIC IMPACTS

4 GENERAL CONDITIONS

5

5 MITIGATION REQUIREMENTS AND MITIGATION PROCEDURES

5 Required Mitigation Activities

5 Monitoring Requirements and Procedures

5 Recording of Results

6 Surveillance of Monitoring Results

6 Record Retention

6 Felony Report and/or Reporting

7

7 DUTY TO REAPPY

7 PROPERTY RIGHTS

7 OTHER INFORMATION

7 CHANGES AFFECTING THE PERMITS

7 Transfer/Change of Ownership

8 Change of Mailing Address

8 NONCOMPLIANCE

8 Effect of Noncompliance

8 Reporting of Noncompliance

9 Adverse Impact

9 LIABILITIES

9 Civil and Criminal Liability

9 Liability under State Law

10 APPENDIX I

10 Topographic Maps

PART III

PART II

PART I

Specific Impacts

Impact 1: Lathrop 34.6155
Bitter Creek (STR-6)
Existing 12" (12X9 ft. slab) pipe at the site shall be extended by 30 ft. to the riprap. Assoc. pipe shall be extended by 30 ft. to the riprap. All pipe shall be installed and overlapped with 12" pipe.

Impact 2: Lathrop 36.0120
Unnamed tributary to Bitter Creek (STR-18)
Install a 12" water line.

Impact 3: Lathrop 36.0127
Unnamed tributary to Bitter Creek (STR-18)
Existing open stream 161 ft. and 117 ft. of stream shall be removed and the remaining 97 ft. shall be replaced by 12" pipe. The impact of the stream water outfalls at the riprap shall be 15 ft. of riprap. Assoc. pipe shall be installed and overlapped with 12" pipe.

Impact 4: Lathrop 36.0125
Wetland (WTL-12)
Permanent impact (fill) to 0.18 acre wetlands to move existing 10" water line.

Impact 5: Lathrop 36.0135
Wetland (WTL-13)
Permanent impact to 0.02 and temporary 0.13 acre wetlands.

Impact 6: Lathrop 36.0156
Bitter Creek (STR-6)
Replace an existing 10" water line with a 12" water line and a 3" service line and a water meter assembly.

Impact 7: Lathrop 36.0155
Muddy Branch (STR-20)
Existing open stream 25 ft. and 102 ft. at the intake and 2 ft. at the outlet. Existing bridge shall be extended 20 ft. at the intake and 2 ft. at the outlet.

Impact 8: Lathrop 36.0171
Muddy Branch (STR-20)
Replace an existing 12" water line with a 12" water line.

Impact 9: Lathrop 36.0178
Unnamed tributary to Muddy Branch (STR-20)
Existing open stream 275 ft., 33 ft. of 10X12 BC (to be retained) and 20 ft. of 3" C/P (to be removed). Replace 275 ft. of open stream with 12" pipe and install 3" of 10X12 BC.

The above information shall be used for the purpose of...

For each measurement or sample taken pursuant to the terms of the permit, the permittee shall record the following information:

Recording of Results

- a. Monitoring said or required data on a regular basis and recording the results.
- b. ...
- c. Vegetation - Vegetative specimens shall be collected for the purpose of plant identification.
- d. Meteorology - The monitored meteorology data shall be recorded for the purpose of...
- e. ...
- f. ...

Minimum Requirements and Procedures

The permittee shall be responsible for the collection and recording of data. The data shall be recorded on a regular basis and the results shall be reported to the appropriate authority. The permittee shall also be responsible for the maintenance of the monitoring equipment and the collection of samples. The permittee shall also be responsible for the collection of vegetation specimens and the collection of meteorology data. The permittee shall also be responsible for the collection of data on a regular basis and the results shall be reported to the appropriate authority. The permittee shall also be responsible for the maintenance of the monitoring equipment and the collection of samples. The permittee shall also be responsible for the collection of vegetation specimens and the collection of meteorology data.

Mitigation Requirements and Procedures

...

... (mirrored text) ...

1. The permittee shall be responsible for obtaining all necessary permits from other agencies and for complying with all applicable laws, rules, and regulations.

2. The permittee shall be responsible for obtaining all necessary easements and rights-of-way from the landowners affected by the proposed project.

3. The permittee shall be responsible for obtaining all necessary approvals from the appropriate regulatory agencies, including the Department of Environmental Protection, the Department of Transportation, and the Department of Public Safety.

4. The permittee shall be responsible for obtaining all necessary approvals from the appropriate regulatory agencies, including the Department of Environmental Protection, the Department of Transportation, and the Department of Public Safety.

5. The permittee shall be responsible for obtaining all necessary approvals from the appropriate regulatory agencies, including the Department of Environmental Protection, the Department of Transportation, and the Department of Public Safety.

6. The permittee shall be responsible for obtaining all necessary approvals from the appropriate regulatory agencies, including the Department of Environmental Protection, the Department of Transportation, and the Department of Public Safety.

Changes and Modifications

If the permittee wishes to make any changes or modifications to the approved plan, they must first obtain written approval from the Department of Transportation. Any changes or modifications must be consistent with the approved plan and must not result in any increase in the overall impact of the project.

Other Information

The permittee shall be responsible for providing all necessary information to the Department of Transportation, including a detailed description of the proposed project, a site plan, and a traffic study. The permittee shall also be responsible for providing all necessary information to the appropriate regulatory agencies, including the Department of Environmental Protection, the Department of Transportation, and the Department of Public Safety.

Property Rights

The permittee shall be responsible for obtaining all necessary easements and rights-of-way from the landowners affected by the proposed project. The permittee shall also be responsible for providing all necessary information to the landowners, including a detailed description of the proposed project, a site plan, and a traffic study.

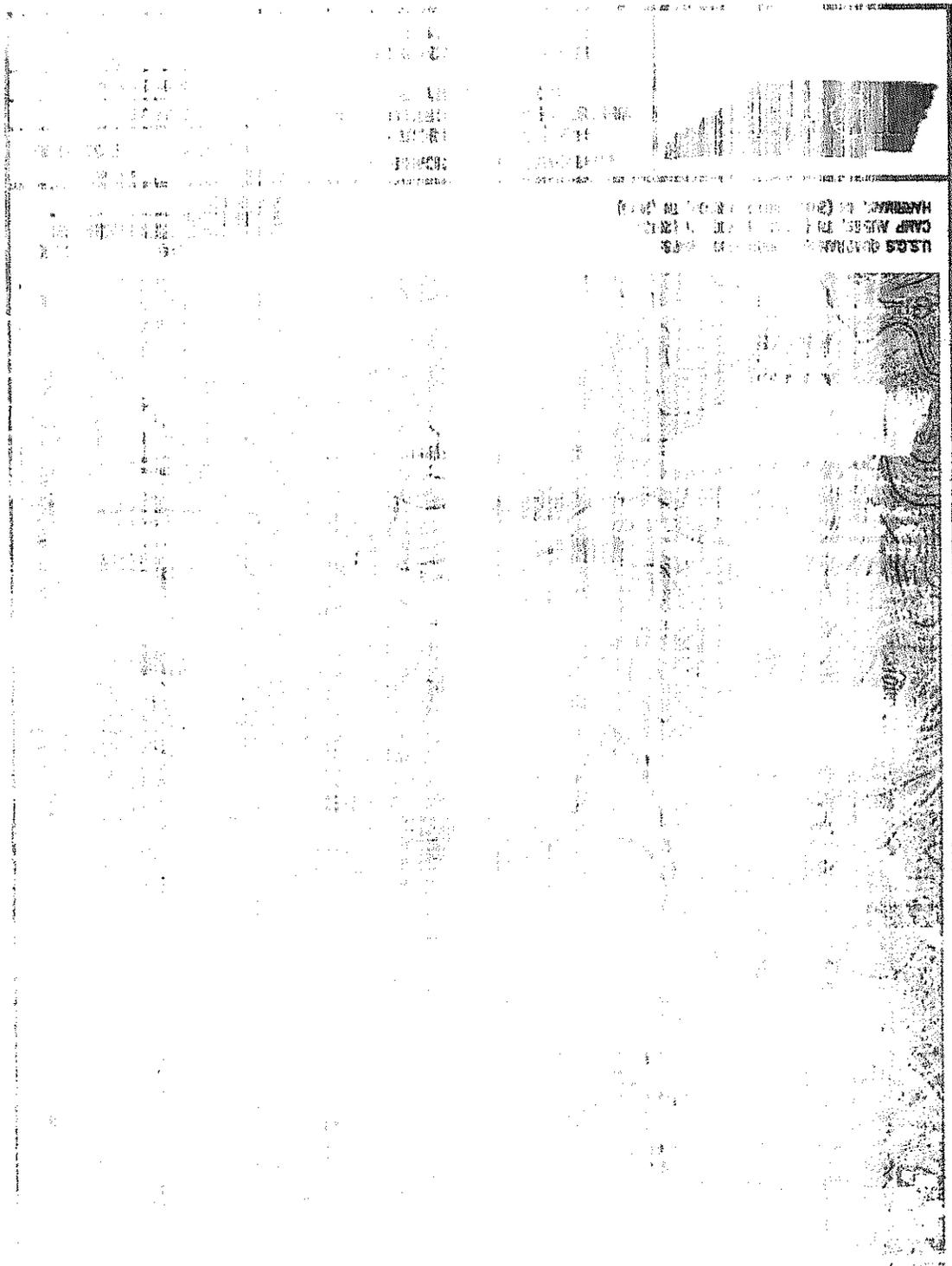
Duty to Reason

The permittee shall be responsible for exercising a duty of reasonable care in the design, construction, and maintenance of the proposed project. The permittee shall also be responsible for providing all necessary information to the Department of Transportation, including a detailed description of the proposed project, a site plan, and a traffic study.

The permittee shall be responsible for providing all necessary information to the Department of Transportation, including a detailed description of the proposed project, a site plan, and a traffic study. The permittee shall also be responsible for providing all necessary information to the appropriate regulatory agencies, including the Department of Environmental Protection, the Department of Transportation, and the Department of Public Safety.

...the ... of the ...

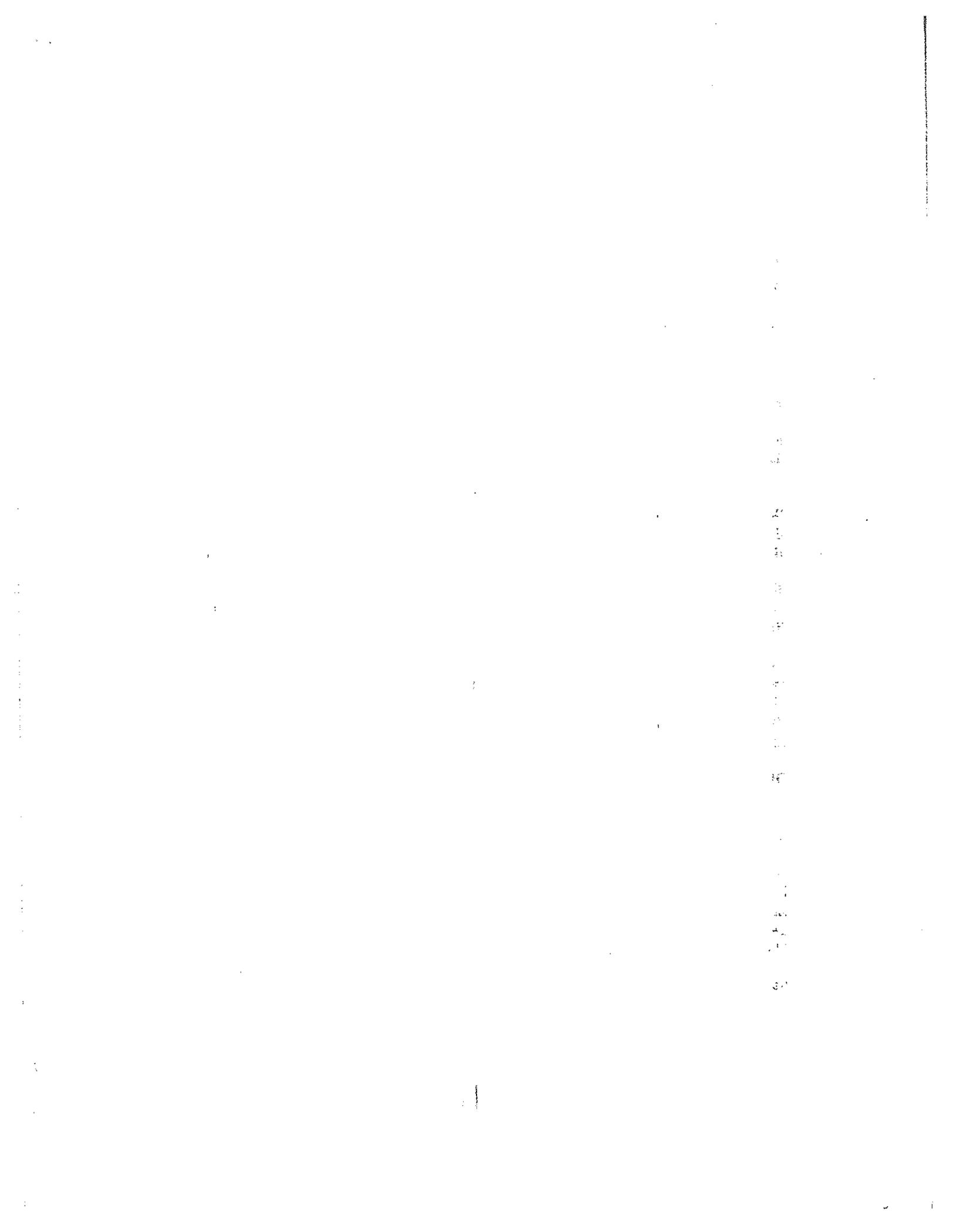
Noncompletion



USGS DEPARTMENT OF THE INTERIOR
 CAMP MERRILL, ALASKA
 (2000) 100000 1:50,000

ALASKA

8:00
 10:00
 12:00



CELRN-OP-F (Application LRN-2014-00088)

SUBJECT: Department of the Army Memorandum Documenting Nationwide Permit/Regional General Permit Verification for the Above-Numbered Permit Application

Attachment E. Acid Producing Rock Monitoring and Adaptive Management Plan

**Adaptive Management and APR Water Quality Monitoring Plan for SR-29 (US-27)
From South of Whetstone Road to North of SR-328 in Morgan County
PIN 101411.05; Project No. 65001-3268-14**

I. INTRODUCTION

Background

The State Route (SR) 29 (US-27) proposed roadway widening project from SR 61 near Harriman, TN to north of SR 328 will consist of two separate design and construction projects. The first SR-29 project (PIN 101411.04) begins at the intersection of SR-29 and SR-61 east of Harriman in Roane County and extends to the north 3.25 miles ending just south of Whetstone Road in Morgan County. The second SR-29 project (PIN 101411.05) begins at the end of the first SR-29 project (PIN 101411.04) just south of Whetstone Road and extends 2.02 miles to just north of the intersection of SR-328 and SR-29 in Morgan County.

Following is more detailed information regarding the second SR-29 project (PIN 101411.05). The existing roadway consists of two travel lanes with paved shoulders and contains four reinforced concrete box culverts (RCBC): one over Bitter Creek and three over tributaries (Forked Creek, Muddy Branch, and unnamed) to Bitter Creek. The majority of the existing roadway is bounded to the south and west by Bitter Creek and to the north and east by Whetstone Mountain.

The Advance Planning Report (APR) and the Project Data Summary sheet prepared in 1998 by TDOT contains additional information regarding the existing roadway conditions. SR-29 is considered an arterial highway and is also listed as part of the National Highway System (US-27) by the Federal Highway Administration (FHWA). As such TDOT has design standards (RD01-TS-3A) for 4-lane arterial highways that contain minimum standards for travel lanes, medians, side slopes, etc. The proposed improvements in the second SR-29 project include two typical sections:

1. Four 12-foot traffic lanes, a 48-foot median (minimum allowed) and two 12-foot paved shoulders, and
2. Four 12-foot traffic lanes, a 12-foot center two-way left turn (TWLT) lane and two 12-foot paved shoulders.

Side slopes for the project range from 2:1 (H:V) to 6:1 depending on the location, topography and geology. The alignment for the proposed roadway widening predominantly follows the existing route; however, safety improvements to correct horizontal and vertical deficiencies, including intersections with side roads and driveways, were also included.

Southbound Lanes: The existing two lane roadway is bounded predominantly to the west/southwest by Bitter Creek. Minor modifications will develop the existing two lane roadway into the southbound lanes. This will minimize impacts to Bitter Creek.

Northbound Lanes: The northbound lanes are bounded on the west/southwest side by the existing two lane roadway (future southbound lanes) and on the east/northeast side as previously stated by Whetstone Mountain. The proposed median, TWLT lanes, northbound lanes and shoulders will be

constructed in this location. Design alternatives considered for the tie slopes adjacent to the northbound lanes included the following:

- 1.) use of typical cut and fill slopes (2:1);
- 2.) use of cut slopes with benches (where feasible); and
- 3.) use of retaining walls in select areas.

In the first alternative, a four lane highway with a divided median using the typical cut and fill slopes caused substantial land disturbance and resulted in significant right-of-way requirements and extreme earthwork volumes. Several cut slopes required ridge/mountain top removal.

The second alternative considered transitioning the typical section with a divided median from the end of SR-29 Project 1 (PIN 101411.04) to a typical section that contained a center TWLT lane with slope benching in select areas as defined by the local geology. This alternative reduced the amount of land disturbance, as well as the required right-of-way and earthwork volumes, when compared to alternative 1. However, subsequent geotechnical investigations concluded that acid producing rock (APR) was located in several of the benched slope areas. Further reduction in APR volume/disturbance resulted in Alternative three.

Alternative three uses the four lanes with a center TWLT lane, retaining walls and slope benching in select locations to reduce land disturbance, earthwork volume, and APR exposure. This alternative results in higher construction costs, but was selected as the preferred design alternative to limit environmental impacts. The preferred design alternative reduced stream impacts, land disturbance, erosion, and the amount of APR exposure/mitigation. All other side slopes and associated ditches were reduced to prevent additional environmental impacts.

Adaptive Management Plan Elements

This document describes the Tennessee Department of Transportation's (TDOT) recommended Adaptive Management Plan (AMP) for the second SR-29 (US-27) project (PIN 101411.05) in Morgan County, TN. The AMP is focused on localized water quality impacts from potential APR exposure during and post roadway construction.

Adaptive management is a process of information gathering, review and analysis, and response that promotes flexible agency decision-making. It is particularly appropriate where complex systems are involved, where the effects of an agency's decisions and actions play out over an extended period of time, and where the agency must meet multiple objectives. This AMP is consistent with TDOT's approach to other roadway construction projects that contains APR which incorporates the following:

- On-going evaluations of water quality during and post construction,
- Coordination with the Tennessee Department of Environment & Conservation (TDEC),
- Implementation of best management practices (BMPs) during and post construction, and

- Continuous adjustments to the program to meet regulatory requirements, as necessary.

Figure 1 represents the adaptive management process. It illustrates how new information is used to refine and adjust agency action to continually meet its defined objective.

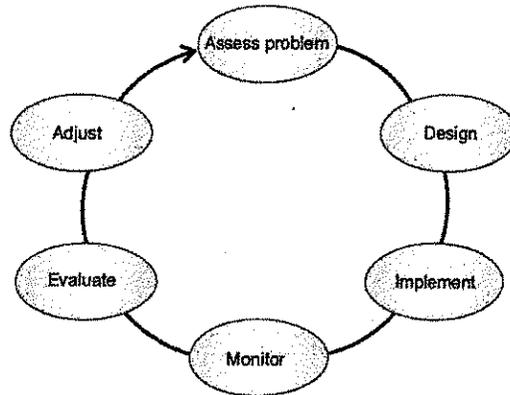


Figure 1: Adaptive Management Process

Construction of SR-29 is expected to begin in the fall/winter of 2014/2015. Using the adaptive management approach, TDOT will assess whether there are unanticipated, adverse localized water quality impacts associated with APR exposure and runoff from the roadway construction and evaluate the data discussed in this plan for indicators of unintended adverse impacts. If adverse impacts in these areas are found and demonstrated to be the result of the roadway construction, TDOT is committed to taking appropriate action and adjusting the operation to minimize the effect or occurrence of the action that caused the impact.

The key elements of this adaptive management plan are:

1. Data and data source identification (information gathering);
2. Analysis to determine whether an adverse impact is caused by the exposure of APR during and post roadway construction; and
3. Identifying potential actions TDOT could take to address these impacts and committing to take appropriate action (response).

In this AMP TDOT is focusing on minimizing APR exposure and maintaining the water quality of the surrounding streams, rivers, etc. The AMP focuses on these two areas because they were identified in the environmental and design analysis previously discussed. Although not anticipated through the use of engineering controls during and post construction, unintended environmental impacts could occur.

Therefore the objectives of TDOT's AMP include:

- Identify potential localized water quality impacts due to APR exposure and runoff caused by the roadway construction.
- Establish a process to address unanticipated adverse local water quality impacts.

- Keep TDOT Construction, the prime contractor, and TDEC informed of impacts attributed to the roadway construction.

The strategies that TDOT will employ to achieve these objectives include:

- Identify data sources (water quality monitoring locations).
- Use water quality data to assess if there has been or is anticipated to be an increase in localized changes to water quality (e.g., increase in pH, conductivity, soluble metals (Al, Fe, Mn, Ni, Zn), hardness, acidity and sulfate).
- Assess if the change is caused directly, or indirectly, by the roadway construction.
- Use data to assess if there has been or is anticipated to be an adverse impact.
- Share data and reports with TDOT Construction, prime contractor and TDEC.
- Take appropriate action to address any adverse impacts related to localized water quality from APR runoff caused by the roadway construction.

The key questions that must be answered on an on-going basis by the AMP are:

- Has an environmental change (e.g., increase in pH and/or conductivity) occurred?
- Is the environmental change caused, directly or indirectly, by the roadway construction?
- Has the environmental change had an adverse localized impact on water quality?
- What action could TDOT and/or the contractor take to address an adverse water quality impact linked to the roadway construction?

It is unlikely that TDOT will be able to rely on any single analysis or data source. The complex interplay of multiple sources, as well as other regulatory drivers, will most likely require TDOT to conduct multiple analyses. It may not be possible to identify a direct relationship between the environmental change and the roadway construction. Therefore, TDOT will evaluate the weight of available evidence to determine the reason for the change.

In conducting the analysis, it will be necessary to consider normal variations, existing conditions, and other factors that may be responsible for changes in the data. For example, water quality data can vary significantly from year-to-year due to meteorology (precipitation) and changes in land use conducted by others outside TDOT ROW (land disturbances, silviculture, proposed developments, etc.) upstream/up gradient within the project watershed(s).

The following is an example of the stepwise approach TDOT will take to analyze the water quality data for determining a localized impact:

- 1) Monitor stream locations subject to receiving APR runoff. For example, increases in pH and conductivity could indicate that storm water runoff from APR-exposed areas has occurred. If an increase is apparent, then
- 2) Review indicators to assess if the change was caused by the roadway construction, lack of implementation of engineering controls or BMPs to prevent APR exposure and runoff, adjustment of construction techniques, or some other factor. If the change is determined to be caused by the roadway construction, then

- 3) Work with TDOT Construction, Environmental and the contractor to review construction techniques, BMPs, policies, etc. to determine whether the change had or is likely to have adverse impacts on local water quality.

In the event that an unanticipated adverse localized water quality impact is identified and determined to have been caused by the roadway construction, this plan requires TDOT to take action and respond appropriately. Regardless of the potential various water quality impacts, TDOT will be able to address these issues through use of the AMP.

II. APR ENGINEERING CONTROLS DURING CONSTRUCTION

Geotechnical Investigations

TDOT has identified APR locations for potential localized water quality impacts through three (3) separate geotechnical investigations:

1. "Geotechnical Investigation State Route 29 (U.S. 27) sta. 100+00 to sta. 345+00" report prepared by ARCADIS U.S., Inc., February 12, 2002;
2. "Report of Acid Producing Rock Evaluation State Route 29 (U.S. Highway 27) Improvements" prepared by S&ME, Inc., January 4, 2013; and
3. "Retaining Wall and Acid Producing Rock Evaluation Report, State Route 29 Widening from South of Whetstone Road to North of State Route 328" prepared by S&ME, Inc., December 11, 2013.

The APR classification and locations identified through the geotechnical investigation were then placed within the roadway construction design plans (horizontally) to determine locations and cross sections (horizontally and vertically) to calculate the potential volume of APR excavated during the roadway construction. An estimated volume of 79,000-84,000 CY of APR is anticipated to be excavated during the construction of this project. Use of retaining walls substantially decreased this estimate from the original amount.

APR Handling & Disposal

TDOT has existing construction policies in place in regards to handling APR material. As such, TDOT Special Provision 107L, regarding potentially acid producing materials, and supplemental notes included in the construction plans and permits shall be followed for the sampling, testing and disposal of acid producing materials. Additionally, notes have been added to the construction plans to make all site personnel and contractors aware of the potential of APR.

- Project Commitment: Pyrite monitoring plan must be adhered to, starting with pre-construction sampling, 3 months prior to start of construction and continuing during- and post-construction.
- This project contains potentially acid producing materials (pyritic materials) consisting of rock, rock-like materials, and soil that contain sufficient amounts of certain minerals that could

produce drainage at pH levels sufficiently less than background pH when exposed to atmospheric conditions and weathering processes.

Due to the existing site conditions, lack of ROW and unacceptable areas that could be used to encapsulate APR material on-site, TDOT has adopted the following APR disposal method on this project.

- All acid producing materials that require encapsulation or blending shall be placed in an approved Class I landfill. The following landfill has airspace available to accept acid producing material: Rhea County, TN, landfill. Contact information:

Santek Waste Services
Attn: Aaron Elledge
650 25th Street, N.W., Suite 100
Cleveland, TN 37311
Phone: 423-303-7101
Toll free: 800-467-9160

- The contractor shall coordinate with the landfill regarding the amount of acid producing materials that may be received on a per day basis in order to prevent excess stockpiling of acid producing materials on-site.

APR Exposure During Construction

Construction BMPs, notes, pay items, and estimated quantities have been included in the construction plans to prevent and control APR exposure and runoff during construction. Following is a list of the items included within the construction plans:

1. Special clearing and grubbing notes beyond normal TDOT policy to prevent contact/exposure during clearing operations include the following:

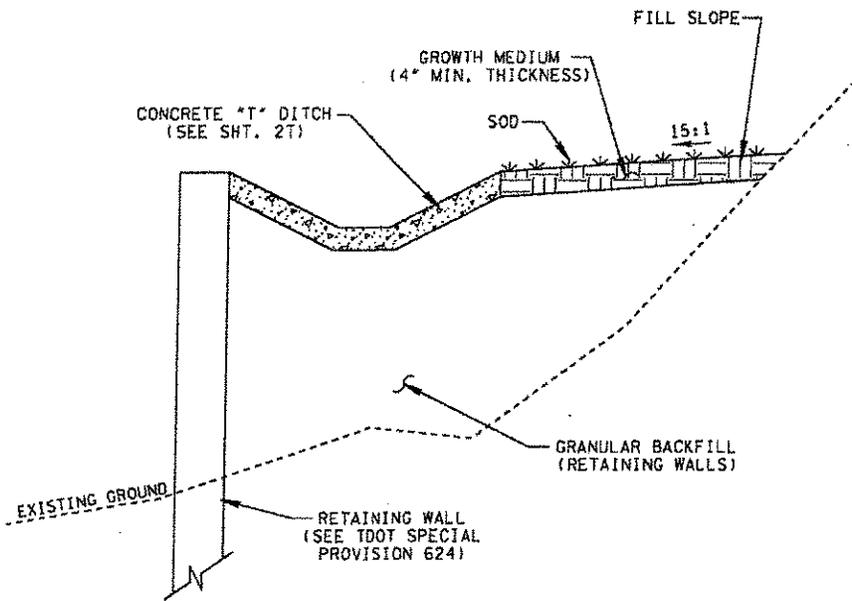
Clearing operations for the entire project shall include the chipping/mulching of trees and vegetation (excluding trees and vegetation used to construct brush barriers) and the spreading/blowing of wood mulch over the cleared area(s) at a depth of 3-inches (min.) for temporary stabilization. The cost for remobilization, chipping/mulching and spreading/blowing of wood mulch is to be included in the cost of pay item 201-01.

2. In addition to Special Provision 107L, the contractor shall cover all APR slopes and materials that will/may remain exposed for greater than seven (7) calendar days by the use of polyethylene sheeting and sandbags.
3. The contractor shall cover and protect all APR slopes and material by the use of polyethylene sheeting and sandbags at any time the project engineer determines that approaching inclement weather will pose a concern with potential acidic runoff.

4. Offsite storm water runoff will be diverted around APR areas to minimize contact and potential of APR runoff. Diversions will consist of temporary earth berms, sediment tubes, silt fence (with and/or without backing), mulch berms, slope drains, and temporary diversion channels and pipes.
5. TDOT is aware that sediment transported from APR areas may contain contaminants that could result in water quality impacts. As such, several BMPs are included within the erosion prevention and sediment control (EPSC) that will serve a dual purpose: (1) to control erosion of soils in exposed APR areas, and (2) to capture sediment and storm water runoff from exposed APR areas for monitoring and potential treatment.
6. There are locations that have existing pipe culverts that provide drainage from exposed APR areas and discharge directly into receiving streams. In these locations, notes and BMPs have been added to the plans to plug the pipe culvert as needed to redirect storm water runoff to designated sediment storage areas down gradient.
7. Storm water runoff collected within sediment traps, rock sediment dams, sediment basins, etc. below exposed APR locations will be monitored by TDOT Construction through the EPSC inspector. The EPSC inspector will use a portable pen/pocket type meter and/or pH strips to quickly measure pH and conductivity collected in these areas.
8. Past research and vendor information from the mining industry provided information that the use of anionic polyacrylamides (PAM) may be used as a treatment method to remove soluble metals and sediments from storm water. Pay items and estimated quantities for PAM powder and gel logs have been included in the construction plans. Special notes and PAM specifications have also been included within the construction plans on type and use. PAM should only be used when construction techniques and other BMPs being implemented are not proving effective in preventing water quality impacts associated with APR.

Retaining Walls

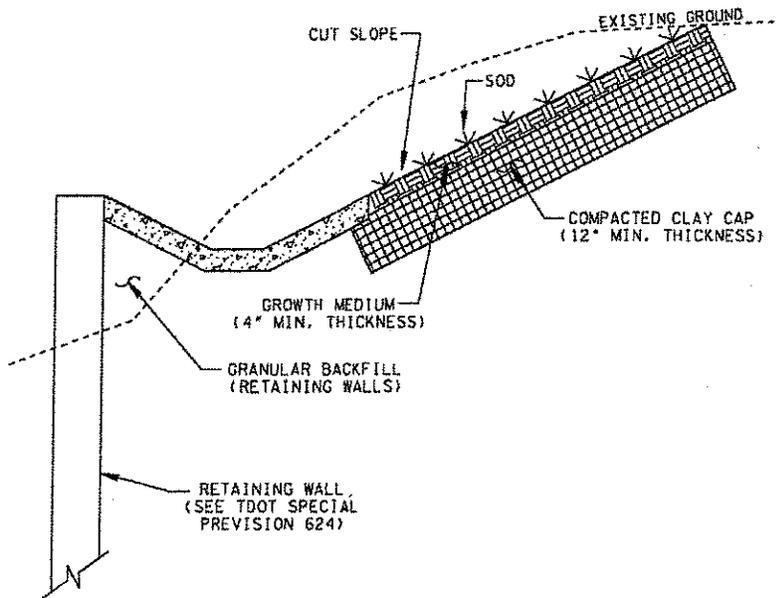
As previously mentioned in Section I, Introduction, TDOT recognized that the use of retaining walls, even though it resulted in higher construction costs, was needed to minimize the amount of APR excavated and exposed to protect water quality. Special techniques have also been incorporated into the retaining walls to minimize APR exposure and runoff. These special techniques include the following details depicted in Figures 2-3 and construction notes:



RETAINING WALL DITCH DETAIL (FILL SECTION)

N. T. S.

Figure 2



RETAINING WALL DITCH DETAIL (CUT SECTION)

N. T. S.

Figure 3

Construction Notes:

1. The back slope of the concrete "T" ditch shall tie into existing ground or be placed in fill. Excavation of the existing slope up gradient of the concrete "T" ditch will be allowed only in the locations listed below:

STA. 314+00.00 SR 29

STA. 325+00.00 SR 29

STA. 60+00.00 Hanging Rock Road

2. The compacted clay cap shall consist of 12 inches of low to moderately plastic clay or silt with a plasticity index of less than thirty five ($PI < 35$) and a standard proctor maximum dry density greater than 90 pounds per cubic foot. The cap shall contain no rock fragments larger than 1 inch in any dimension, and no organic matter. *(The clay cap is to minimize the amount of infiltration of precipitation and runoff from coming in contact with the potential APR located on the cut slope.)*
3. The compacted clay cap shall be placed in thin lifts with a maximum loose thickness of 8 inches, then compacted to 90 percent of the standard proctor maximum dry density, with moisture content within 3 percent of the optimum moisture content, depending on the shape of the Proctor curve. Wetting or drying of these soils may be required, depending on the time of year site grading is performed.
4. The density and moisture content of each lift shall be tested by a soils technician before placing additional lifts to evaluate that the specified degree of compaction is being achieved.
5. The actual testing frequency shall be determined by the geotechnical engineer based on the type of soil being placed, the equipment being used, and the time of year the fill is being placed. Any areas that do not meet the compaction specification shall be re-compacted to achieve compliance.
6. The growth medium shall consist of 4 inches of topsoil placed over the clay cap with sod for permanent stabilization.
7. Densified ASTM D448 No. 57 stone shall be placed beneath the concrete "T" ditch sections located in fill areas.

With the exception of the three areas noted above, no excavation of the existing slope up gradient of the concrete ditch will be allowed as depicted in Figure 2. Therefore all surface runoff from up gradient slopes should not come into contact with exposed APR. The three areas listed requiring small cut areas behind the retaining walls is due to low points within the retaining walls and surrounding topography. As such these low points will require the installation of drainage structures. To mitigate the risk of

potential infiltration and APR runoff, the adjacent up gradient cut slopes will be mitigated per the detail depicted in Figure 3 and the construction notes listed above.

All storm water runoff from up gradient fill and cut slopes will then be collected in the continuous concrete lined "T" ditch placed immediately behind the top of the retaining walls. The concrete ditches will allow water to flow to each end of the retaining walls and discharge into limestone structures that will serve primarily as velocity energy dissipaters and secondly as passive treatment systems to buffer any potential APR runoff prior to discharge into receiving streams. Additionally, the concrete-lined ditches will also prevent the infiltration of storm water runoff behind the retaining walls. As a secondary preventive measure to treat potential APR runoff and infiltration, the top portion of the retaining wall that is located in fills will be backfilled with No. 57 limestone rock.

Permanent Stabilization

Through TDOT's past experience with projects containing APR, the Department realizes that soils on final graded slopes may be acidic in nature due to APR and limit or prevent the establishment of permanent vegetation. As such the following note has been added to the construction plans:

- Due to the potential of acidic soils throughout the project site, soils on or topsoil placed on cut and fill slopes shall be tested for pH prior to applying permanent stabilization (seed and erosion control blankets, sod, etc.). Agricultural lime (801-09) shall be applied to the slopes to neutralize the soil acidity at the recommended rates to provide a pH range of 6-9.

Pay items and associated quantities for agricultural lime, fertilize, water, seeding, sod and erosion control blankets have been included to obtain permanent vegetation. As a secondary preventive measure to reduce infiltration and establish permanent vegetation quickly in areas that contain retaining walls, all slopes placed behind the retaining walls will be permanently stabilized with 4-inches of growth media (topsoil) and sod.

III. ACID PRODUCING ROCK MONITORING PLAN

As noted in Section I, Introduction, the construction of the SR-29 roadway widening project will be two separate projects (PIN 101411.04 and 101411.05). For the second SR-29 project (PIN 101411.05), field parameters will be monitored at nine (9) sites on this project pre-, during-, and post-construction to ensure that water quality is not jeopardized from acid runoff behind the retaining walls. The first SR-29 project (PIN 101411.04), will also require water quality monitoring and is addressed in a separate document. Refer to this document for more detailed information regarding the first SR-29 project (PIN 101411.04).

For clarity, water quality monitoring locations have been numbered in sequential order from the beginning of the first SR-29 project (PIN 101411.04) through the end of the second SR-29 project (PIN 101411.05). Therefore, Site No. 17 will be used as a reference site for both projects, and is located upstream of all construction activities on the same stream. As such, it will provide a comparison between the characteristics of the nine sites within the construction area PIN 101411.05) and an

upstream non-affected site (Site 17). Two “trigger” parameters have been chosen to act as indicators of possible acid producing rock (APR) entering waterways during the construction and post-construction phases. If pH is less than 6.0 (based on TDEC Division of Water Resources Division, Chapter 0400-40-03, General Water Quality Criteria, rule 0400-40-03-.03 (3) 4 (b) for Fish and Aquatic Life, and approved by EPA) and/or if specific conductance is greater than 500 μ siemens/cm (unless pre-construction monitoring or the upstream reference site is >500 μ siemens/cm), then samples will be collected at that site for laboratory analysis. Constituents to be analyzed are aluminum, iron, manganese, nickel, zinc, hardness, acidity, and sulfate. Results from each field survey will be submitted to TDEC, Division of Water Resources, Natural Resources Section, within 20 working days of the survey, and within 30 working days of receipt of the laboratory analytical results by TDOT. If the results indicate potential problems, TDEC will be notified immediately. TDOT and TDEC will review the results to determine if corrective action needs to be taken.

Below is a brief description of the site locations, sampling frequencies during various time frames, and parameters analyzed.

Sampling Sites

See Table 1, APR Water Quality Monitoring Locations, for a complete description of the 10 site locations. Figure 4, Topographic Map APR Water Quality Monitoring Locations, depicts the locations listed in Table 1.

Frequency and Parameters

The tables below outline the sampling effort for each construction phase of the project. Field measurements will always include pH, dissolved oxygen (DO), specific conductance (conductivity), temperature, and salinity. Laboratory analyses will always include aluminum (Al), iron (Fe), manganese (Mn), nickel (Ni), zinc (Zn), hardness, acidity, and sulfate.

- Pre-Construction

No. Months	No. Surveys/Mo.	Field	Lab	Conditions
3	1	pH DO Cond. Temp. Salinity	Al Fe Mn Ni Zn Hardness Acidity Sulfate	One sample each month will be taken following a period of no rain in the previous 5 days. However, if there is not a five-day period of dry weather by the beginning of the fourth week of a month, the second sample will be taken regardless.
3	3 total over the entire period	as above	as above	Three samples will be taken, regardless of the month, when a rain event of >1.0 inch occurs

				on the project site.
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(Note: The limited sampling timeframe is a result of the constraints of the project letting and initiation.)

• During-Construction

No. Months	No. Surveys/Mo.	Field	Lab	Conditions
Length of project, from beginning to NOT	1*	pH DO Cond. Temp. Salinity	Al Fe Mn Ni Zn Hardness Acidity Sulfate	Sampling will be set at pre-determined dates, and will not be weather dependent. If pH is less than 6.0, and/or conductivity is more than 500 μ siemens/cm (see note at top of page 11), then water for lab analysis will be collected. See Note below.

*There will be one additional survey bi-annually following a >1.0 rain event, and one survey bi-annually for laboratory analysis of the above-listed parameters, regardless of the pH and conductivity values.

Note: Weekly sampling for a minimum of three additional weeks will occur, and will continue until the pH and/or conductivity reaches the numeric criteria.

• Post-Construction

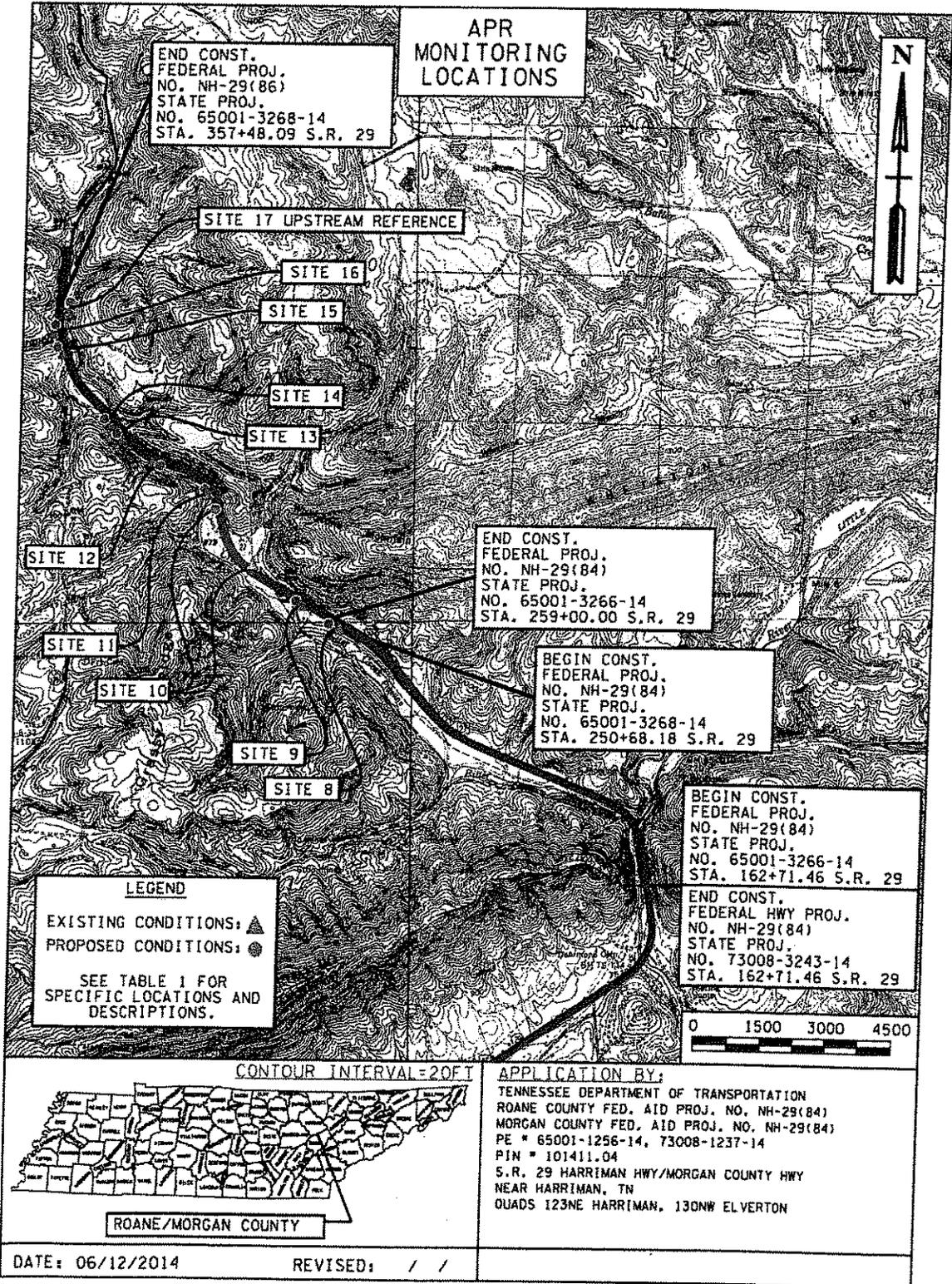
No. Years	No. Surveys	Field	Lab	Conditions
3*	5 total, as follows: 1 mo. post-NOT 6 mos. post-NOT 1 yr. post-NOT 2 yr. post-NOT 3 yr. post-NOT	pH DO Cond. Temp. Salinity	Al Fe Mn Ni Zn Hardness Acidity Sulfate	Sampling will be set at pre-determined dates, and will not be weather dependent. If pH is less than 6.0, and/or conductivity is more than 500 μ siemens/cm above baseline (based on pre-construction data), then water for lab analysis will be collected.

*TDOT Operations conducts routine maintenance on all structures and roadways for the life of the roadway/structure. If a problem occurs which could affect water quality, TDOT's Environmental Division will be contacted to assess the situation, and if necessary, monitor and remedy the problem.

Table 1
APR Water Quality Monitoring Locations

Site No.	Plans Sheet No.	Plans Station No. (approximate)	Existing Conditions	Proposed Conditions	Descriptions/Notes	Latitude, N	Longitude, W
8	5	259+25 LT	X	X	At confluence of STR-15 and Bitter Creek (STR-6)	35.9989799	-84.505791870
9	6	267+07 LT	X	X	At confluence of EPH-22/WWC-22 and Bitter Creek (STR-6)	36.00105250	-84.50801210
10	7	280+73 RT	X		At confluence of existing EPH-27/WWC-27 and Bitter Creek (STR-6)	36.00347356	-84.51160568
		280+98 RT		X	At confluence of proposed 5-ft "T" Rip Rap Class B ditch (relocated EPH-27/WWC-27) and Bitter Creek (STR-6)	36.00361370	-84.51157824
11	9	299+29 LT	X		At existing 30" CMP outlet at confluence with Bitter Creek (STR-6)	36.00785764	-84.51440596
		299+98 LT		X	At proposed 48" RCP outlet at confluence with Bitter Creek (STR-6)	36.00797441	-84.51459983
12	10	314+36 LT	X		At existing 24" RCP outlet at confluence with Bitter Creek (STR-6)	36.00978407	-84.51852761
		314+00		X	At proposed 36" RCP outlet at confluence with Bitter Creek (STR-6)	36.00976161	-84.51841536
13	11	325+16 LT	X	X	At confluence of WWC-35 and Bitter Creek (STR-6)	36.01162199	-84.52159470
14	11	328+25 LT	X	X	Downstream of existing 8' X 6' RCBC at confluence of STR-19 and Bitter Creek (STR-6)	36.01235542	-84.52212861
15	13	349+19 LT	X		At confluence of existing roadside ditch and Muddy Branch (STR-20)	36.01719724	-84.52584334
		349+18 LT		X	At confluence of proposed 3-ft "T" Rip Rap Class B ditch and Muddy Branch (STR-20)	36.01716348	-84.52596977
16	13	349+34 LT	X		At confluence of STR-21 and Muddy Branch (STR-20)	36.01724040	-84.52584511
		349+31 LT		X	At confluence of relocated channel for STR-21 and Muddy Branch (STR-20)	36.01718838	-84.52602416
17	14	Upstream Reference Site 357+00 RT	X	X	Located at the end of the construction project limits near the Balfour Drive crossing of Bitter Creek (STR-6), Morgan Co.; within Bitter Creek upstream of road crossing.	36.01926290	-84.52548704

Figure 4
Topographic Map APR Water Quality Monitoring Locations



IV. ADAPTIVE MANAGEMENT PLAN

As noted in Section I, Introduction, TDOT will implement some or all components of the Adaptive Management Plan (AMP) as necessary in response to the following water quality criteria:

- Reduction below or exceedance above threshold values of the two "trigger" parameters
 - ✓ <6.0 for pH or
 - ✓ >500 microsiemens for specific conductance (conductivity), or
- Exceedance of 80 percent of the criterion continuous concentrations for metals, or
- Trending increase in any of the sampled criteria during any of the During- and Post-Construction monitoring events outlined in the APR Monitoring Plan.

During-Construction

Provided below is a systematic approach of steps that will be followed to address water quality monitoring of impacts that may be associated with APR exposure and runoff during construction:

- 1) *If the pH falls below 6.0 and/or if the conductivity rises above 500 microsiemens/cm, then metal sampling will occur. See Section III, During Construction sampling schedule.*
- 2) *If total metal concentrations for a given metal reach levels that exceed 80 percent of the criterion continuous concentrations at a sampling location and/or there is an increasing trend of the criterion (20 percent increase from the pre-construction sample levels), then sampling of that metal would continue*
 - a. *On a weekly basis until the value dropped below the 80 percent threshold, and/or*
 - b. *There was no longer an increasing trend, and metal concentrations were maintained below this level for a minimum of three (3) consecutive samples.*

This will assist in determining if this was an anomaly and whether conditions will quickly return to background levels.

- 3) *If there is a continuing trend of exceedance (three samples taken over three weeks), then the following engineering controls will be followed:*
 - a. *Visual inspection to observe and document on-site conditions, work being performed and land disturbing activities occurring within the drainage areas immediately adjacent to or up-gradient of the affected water bodies or conveyances within the project right-of-way. This may include slopes, ditches, natural conveyances or additional tributaries which contribute runoff or surface flow to the receiving water or conveyance associated with a particular monitoring location. Documentation should include photos, location of potential contributing site condition or activity (project station number and off-set; lat/long coordinates if necessary), and description of how conditions, activities, etc. may be affecting receiving waters or conveyances, etc.*

- b. *Visual inspection to observe and document off-site conditions up-gradient or outside of the project right-of-way in order to determine if off-site conditions, land disturbance or other activities within the same watershed could be contributing to adverse effects on project receiving waters or conveyances associated with a specific monitoring location. Adequate documentation, including that noted in step 3) a. above, should be provided.*
 - c. *Interview TDOT, consultant, and/or contractor site personnel regarding knowledge of specific site conditions or construction-related activities which may be resulting in water quality impacts at the designated monitoring location(s).*
 - d. *Review project-related documentation, including construction diaries, the project Storm Water Pollution Prevention Plan (SWPPP), EPSC inspection reports (including monthly rainfall logs), Quality Assurance (QA) Reports completed by the TDOT Comprehensive Inspections Office (CIO) or any other documents which may provide insight into changing site (or off-site) conditions which may have contributed to adverse effects on water quality.*
 - e. *Compile and analyze data and site information obtained in steps a through d above.*
 - f. *Communicate findings and potential recommendations to TDOT project personnel, the Region Construction Office, CIO and the contractor for implementation, including the alteration or addition of APR engineering controls and BMPs prescribed for the active phase of construction.*
- 4) *If observation of site conditions or review of water quality monitoring/sampling results indicate an immediate threat to water quality, then recommendation to stop on-site work in the affected drainage area should be made to the TDOT Environmental Division, Region Construction Office, and CIO until an appropriate level of engineering controls and BMPs are installed and site conditions are restored. TDEC will be notified immediately of this action.*
 - 5) *If revisions to existing BMP measures or installation of additional measures, such as sediment basins, retention structures, diversion ditches, etc., is required in order to address project water quality, then relocation and/or establishment of additional monitoring locations may be made at the discretion of the TDOT Environmental Division. Notification of changes to the APR Monitoring Plan will be made to TDEC within 14 days.*
 - 6) *If an increase in monitoring frequency is made, then the revised frequency will be maintained until the affected parameters and/or criterion have returned to within the appropriate threshold value(s) within the affected receiving water or conveyance for a period of three (3) consecutive monthly monitoring periods. TDEC will be notified and concurrence obtained prior to returning to the normal monitoring frequency.*

- 4) *In addition to the sampling frequency noted above, should designated thresholds for water quality parameters and criterion be exceeded or their values continue in an unfavorable trend, then APR engineering controls and BMPs shall also be applied during the post-construction period. These will be made on a case-by-case basis due to completion of construction activities, permanent stabilization of the site, and de-mobilization of the contractor.*