Environmental Guide

TDOT Department of Transportation

Roadway Design Division

Website www.tn.gov/tdot/roadway-design/training.html

Email TDOT.RoadwayDesignDivisionTraining@tn.gov

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SECTION 1: ENVIRONMENTAL PERMITTING DESIGN PROCESS

Upon completion of the Initial Studies Request, the Environmental Division will complete and Environmental Boundary Report (EBR). Once the designer receives the EBR, they need to identify and label the locations provided on the plans. Then the Permitting Section will complete a permit assessment, the designer can then draft permit sketches, and make any necessary revisions documented within the assessment.

The goal of the permit assessment process is to receive roadway plans and sketches that can be deemed permittable by the permitting agencies. Roadway plans and sketches are permittable when all assessment comments and markups have been addressed.

While each set of plans can differ in their environmental permitting requirements, there are many items that are consistent across all projects. The Designer should follow the appropriate checklist phase to ensure the plans contain information necessary for application of the environmental permits. Before submitting the sketches and plans back to the permitting section, the designer should ensure the plans and permit sketches are consistent.

ENVIRONMENTAL NOTE REQUIREMENTS IN PLANS

The permit assessment may contain notes that are specific to that project. The Roadway designers should refer to RDG Chapter 9 for Environmental Note requirements. The blue instructional text listed there will help guide as to whether notes are needed in the plans and the placement of those notes.

The notes contain permit requirements and construction limitations. Adding these notes to the plans provides assistance in identifying and following permit requirements for all known environmental constraints.

IDENTIFYING KNOWN ENVIRONMENTAL CONSTRAINTS

Any known environmental constraints identified in environmental technical documents should be indicated on the plans and brought to the Design Manager's attention as soon as the constraints are recognized. Constraints may include, but are not limited to the following: streams, wetlands, endangered or protected species, registered historical or archeological sites, etc. The Environmental Boundary Report (EBR) should be completed and features surveyed, shown, and labeled on the roadway plans before the ROW field review meeting. Ecology, permit assessment, and SWPPP review items encountered are to be addressed prior to the Right-of-Way plan submittal.

SINKHOLE REQUIREMENTS

A treatment plan may be required from the Geotechnical Engineering Section of the Division of Materials and Tests, which should depict the plans/details of the proposed sinkhole remediation/treatment measures and methodologies, as well as the EPSC measures to be

employed at the project site. This treatment plan shall be included within the roadway plans set for submittal with the application for this permit. Additionally, a geotechnical report should also be provided for inclusion within the application for this permit.

Since a permit sketch is generally not required for this permit, the entire sinkhole must be surveyed, shown, and labeled on the present layout sheet of the roadway plans set. The proposed layout sheet should show the remaining portion of the sinkhole (if any) and applicable remediation/treatment measures.

FLOOD STUDIES

All roadway projects with USACE or TVA permits must conform to FEMA standards. If the roadway project is located within a flood study area where either base flood elevations or a designated floodway have been determined, the Designer shall contact the Hydraulic Design Section of the TDOT Structures Division for further guidance and design procedures on FEMA Study information.

The appropriate coordination information for Flood Study streams (i.e. “No-Rise” certification and letter to corresponding officials, Conditional Letter of Map Revision (CLOMR), FEMA map name and number, FEMA Flood Insurance Study Name, etc.), should be supplied to the Environmental Division by the Hydraulic Design Section of the Structures Division for inclusion within the water quality permit application submittal package.

FILL IN CORPS OR TVA RESERVOIRS

Additional information is needed from the Designer when projects impact USACE or TVA reservoirs. This typically occurs when TDOT is acquiring right-of-way from the USACE or TVA. In these instances, the roadway designer shall contact the Headquarters Hydraulics Office for affected reservoir elevations. The quantities of cut and fill, in cubic yards, are required within the affected reservoir elevations. If the project causes a loss of flood or power storage for the reservoir, an offset plan may be required. This may require the purchase of additional right-of-way or additional design work on the subject reservoir or route. Processing time from the Corps and TVA might take as long as 15 months once application has been submitted, so this process should be started early.

ADDITIONAL SUBMITTAL REQUIREMENTS

Depending on the scope, magnitude, location, and existing environmental features/characteristics present on or adjacent to the roadway project site, the following items may also be required as part of a permittable plans submittal:

- Structural Plans (for bridges, retaining walls, etc.).
- Utility Plans depicting the type of crossing for all utility impacts (i.e. trenching, jack and bore, etc.) and impact design options.

The Designer is encouraged to contact the permit assessment preparer to resolve any questions that may arise.

ENVIRONMENTAL PERMIT PACKAGE

Roadway designers are responsible for preparing all requested information, permit sketches, and modifications to their plans that the Regional Environmental Technical Office or Environmental Division – Permits Office use to apply for permits. This document assists in determining what is included in the packet and on the individual sketches. Once the Environmental Permit Package is complete and uploaded to FileNet, send a notification by email to the HQ Environmental Division (TDOT.Env.Permits@tn.gov) and the appropriate Regional Environmental Technical Office:

- Region 1 - R1.EnvTechOffice@tn.gov
- Region 2 - R2.EnvTechOffice@tn.gov
- Region 3 - R3.EnvTechOffice@tn.gov
- Region 4 - R4.EnvTechOffice@tn.gov

REGULATORY AUTHORITY REVIEW

Once the application for water quality permits (which includes the permittable roadway plans and permit sketches) for a given roadway project has been submitted to the various permitting agencies (i.e. Tennessee Department of Environment and Conservation, U.S. Army Corps of Engineers, and Tennessee Valley Authority) by the Environmental Division, an email will be sent to the project's Design Manager notifying them of this application submittal. It should be noted that if agency review results in a request for additional information (RAI) from the Environmental Division, revisions to the roadway plans and/or permit sketches may be required from the roadway designer to satisfy the RAI comments. If revisions to the plans or sketches are required, this information will be coordinated by the Environmental Division to either the Environmental Technical Office or the Design Manager/designer by email.

SECTION 2: PERMIT SKETCHES

PERMIT SKETCH GENERAL REQUIREMENTS

The roadway designer shall prepare the set of permit sketches and applicable information to include (at a minimum) the vicinity map, location map, and impact-specific permit sketches. Additional detailed information related to the required permit sketch components for a given roadway project can be found below. Generally, roadway plans will be reviewed and commented upon as part of the permit assessment process. Once plans are permittable, permit sketches can be produced for needed impacts. This allows for a more streamlined permitting process.

Please note that the provided guidance regarding permit sketch requirements is intended to be taken as general guidance on how to prepare a permit sketch. The permit assessment preparer may provide additional guidance to the roadway designer during a permit assessment to ensure permit sketches meet current regulatory requirements.

At a minimum, the set of permit sketches provided to the Environmental Division for permit assessment should include the following

- All submittals should be in pdf, unless otherwise requested
- All maps and drawings shall be formatted for 8½ x 11-inch page size
- Submit the fewest number of drawings necessary to adequately show the proposed activity. The orientation may be either portrait or landscape (portrait preferred).
- A 1-inch margin shall be left at the top edge and left side
- A ½-inch bottom edge and right-side border shall also be utilized
- The adjacent property owner's names and tract numbers labeled (A separate listing of the property owner's names, tract numbers and addresses of each impact may be required)
- A sketch title, which includes the feature label (i.e STR-2), latitude and longitude of midpoint of impact, and type of impact.
- North arrow
- All drawings shall be to scale, and the scale shall be indicated graphically
- Roadway alignments, stationing, and tick marks adjacent to proposed impact
- When needed, match lines
- Proposed right-of-way boundaries and all easements shown and labeled
- Buffer Zones where applicable
- Proposed cut and fill slope lines shown and labeled
- Turn off unnecessary levels so to minimize non-applicable information and avoid clutter
- An information block containing the following information:
  - The Tennessee Department of Transportation shall be identified as the applicant
  - The Preliminary Engineering (PE) number
  - Project Identification Number (PIN)
  - Route number and/or name
  - Project termini
  - Name of County
  - Sheet __ of __

PERMIT SKETCH CADD CELLS

The following cells shall be used for generation of permit sketches and can be found in the TDOT Roadway Design Division's standard cell libraries (**STDS.CEL**):

- **PMLOCP** Permit drawing location map form (portrait)
- **PMLOCL** Permit drawing location map form (landscape)
- **PMSK** Permit drawing sketch form (portrait)
- **PMSKGR** Permit drawing sketch form (landscape with profile grid)

These cells can be accessed through the TDOT Roadway Design Division MicroStation interface on the "Permits and Forms" dialog. This dialog can be brought up through the TDOT drop down menu on the MicroStation title bar.

The latest versions of the standard cell libraries and programs to access them can be obtained on TDOT Roadway Design Division Standard Design CADD Files and Documents webpage.

VICINITY MAP

A vicinity map based on a color 7 ½-minute Quadrangle map, showing the stream crossings, will be required as part of the permit sketch submittal. The vicinity map shall be on an 8 ½ × 11-inch sheet. If the Quadrangle portion showing the project is larger than that which will fit on the 8½ x 11-inch sheet, it shall be divided into 8½ x 11-inch segments and labeled with match lines. At a minimum, the vicinity map shall provide the following information:

- ☐ Proposed roadway alignment shown
- ☐ Scale shall be indicated graphically
- ☐ Circle the stream crossings, and other impacts such as wetland fills and structure locations
- ☐ Label the feature name and station of each impact
- ☐ Label the location and stations of the project termini and the construction limits of the roadway project
- ☐ Date prepared (and date of latest revision)
- ☐ County indicated on inset state map
- ☐ Contour interval
- ☐ North arrow
- ☐ An information block containing the following information:
  - The Tennessee Department of Transportation shall be identified as the applicant
  - The Preliminary Engineering (PE) number
  - Project Identification Number (PIN)
  - Route number and/or name
  - Project termini
  - Name of County
  - Sheet __ of __

Please refer to **Figure** 0.1 and Figure 0.2 on the next page for an example of the Vicinity Map which is required for submittal within the permit sketches.

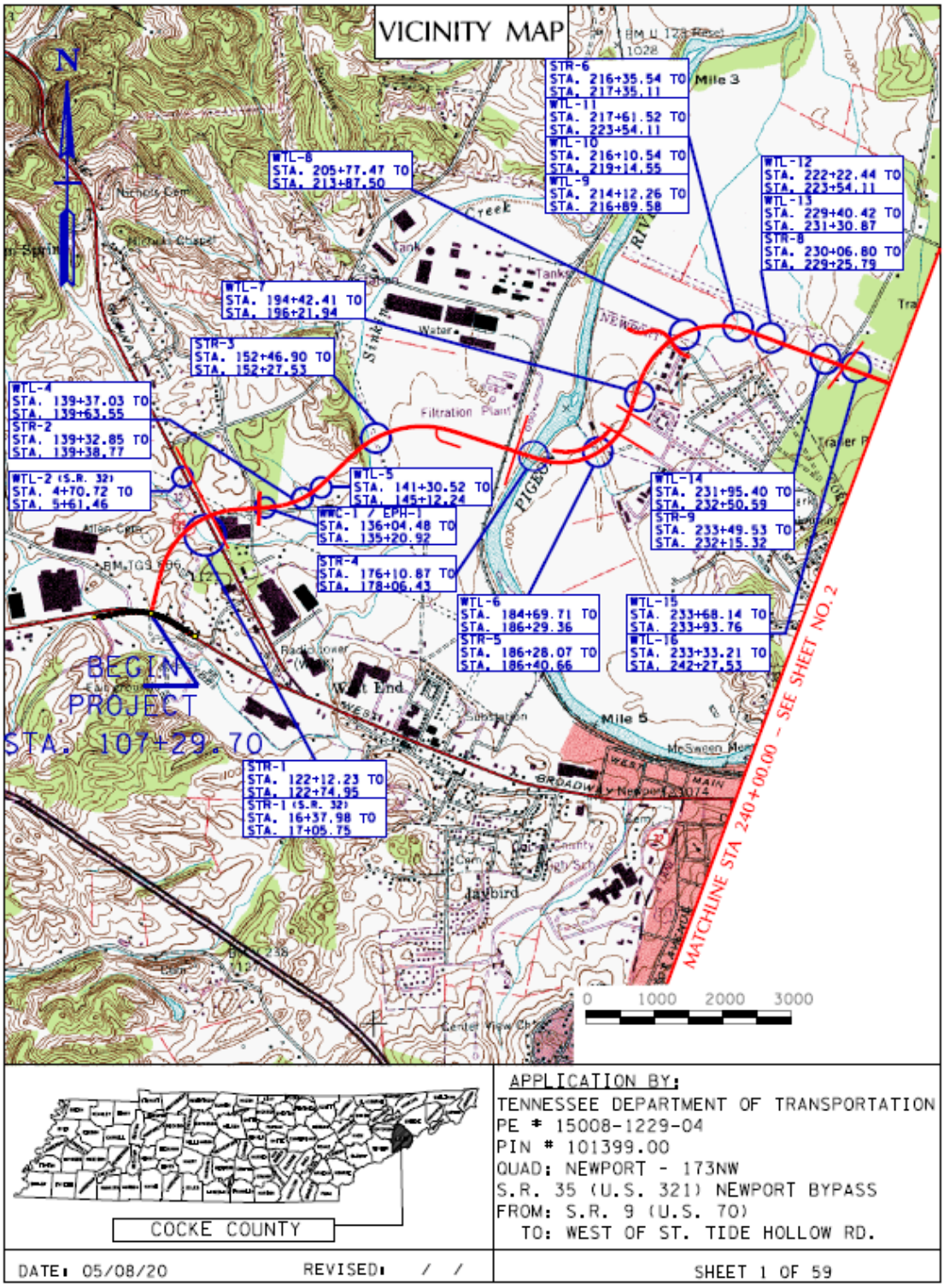


Figure 0.1 - Example Vicinity Map

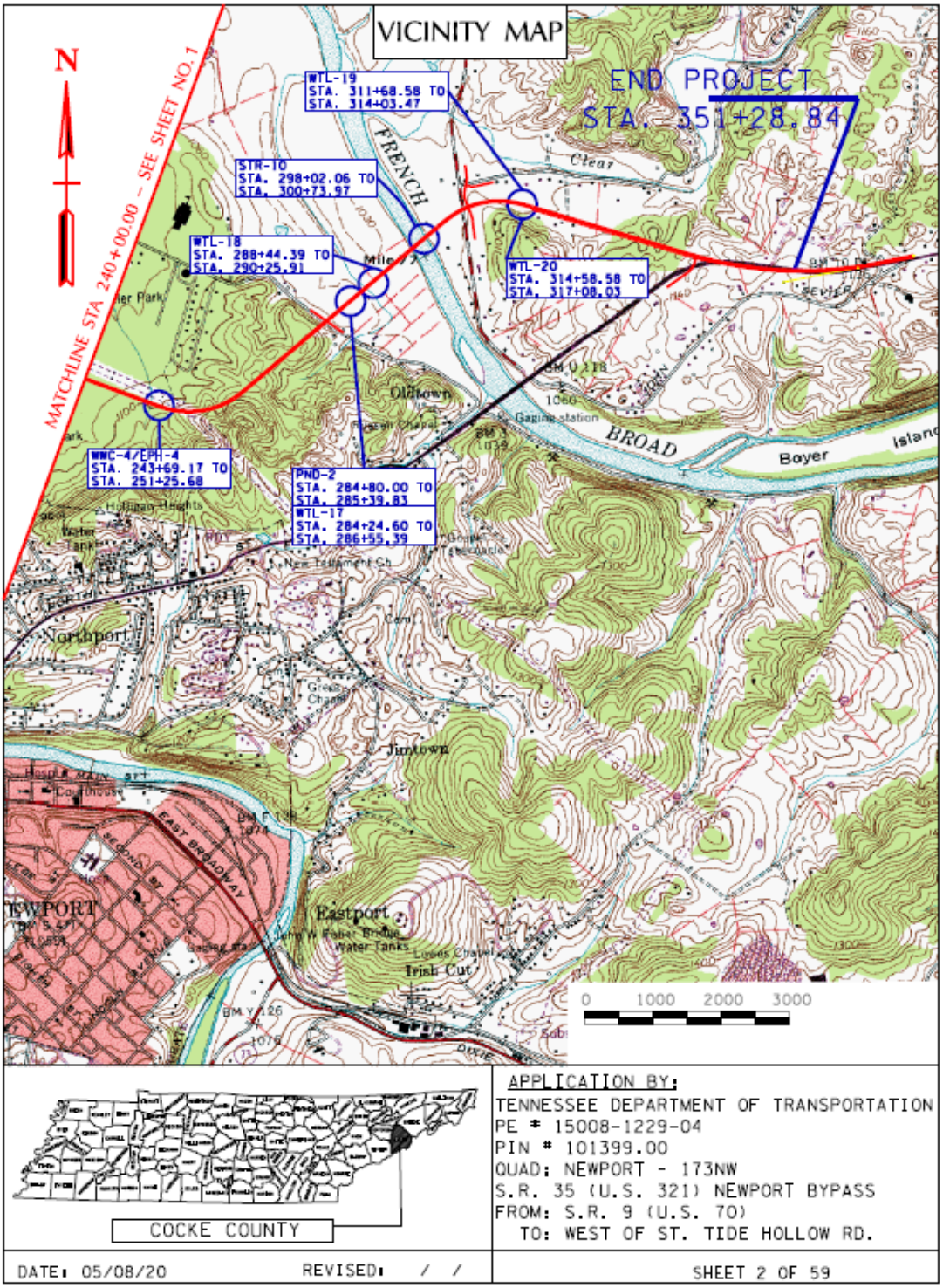


Figure 0.2 - Example Vicinity Map (continued)

LOCATION MAP

A Location Map will be required for all permit sketch submittals. Where multiple impacts occur within a single project, a single location map shall be utilized that indicates each specific impact that requires permit sketches. The following information will be required on the Location Map:

- Proposed roadway alignment
- Scale shall be indicated graphically
- Circle the impact, and other impacts such as wetland fills and structure locations, and mitigation sites
- Label the station of each impact including mitigation areas
- Label the location and stations of the project termini and the construction limits of the roadway project
- Date prepared (and date of latest revision)
- County indicated on inset state map
- North arrow
- An information block containing the following information:
  - The Tennessee Department of Transportation shall be identified as the applicant
  - The Preliminary Engineering (PE) number
  - Project Identification Number (PIN)
  - Route number and/or name
  - Project termini
  - Name of County
  - Sheet __ of __

Please refer to Figure 0.3 and Figure 0.4 for an example of Location Maps.

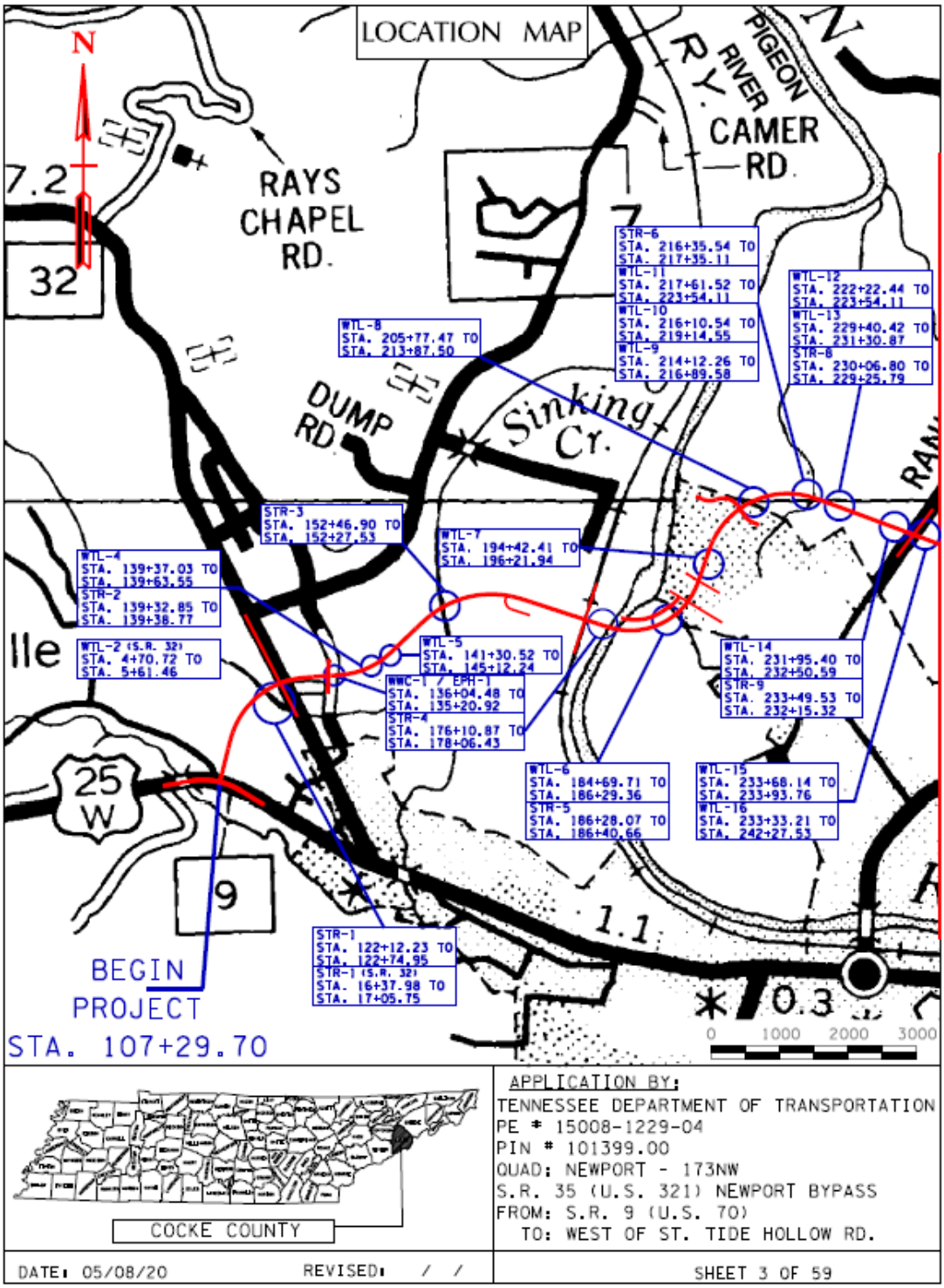


Figure 0.3 - Example Location Map

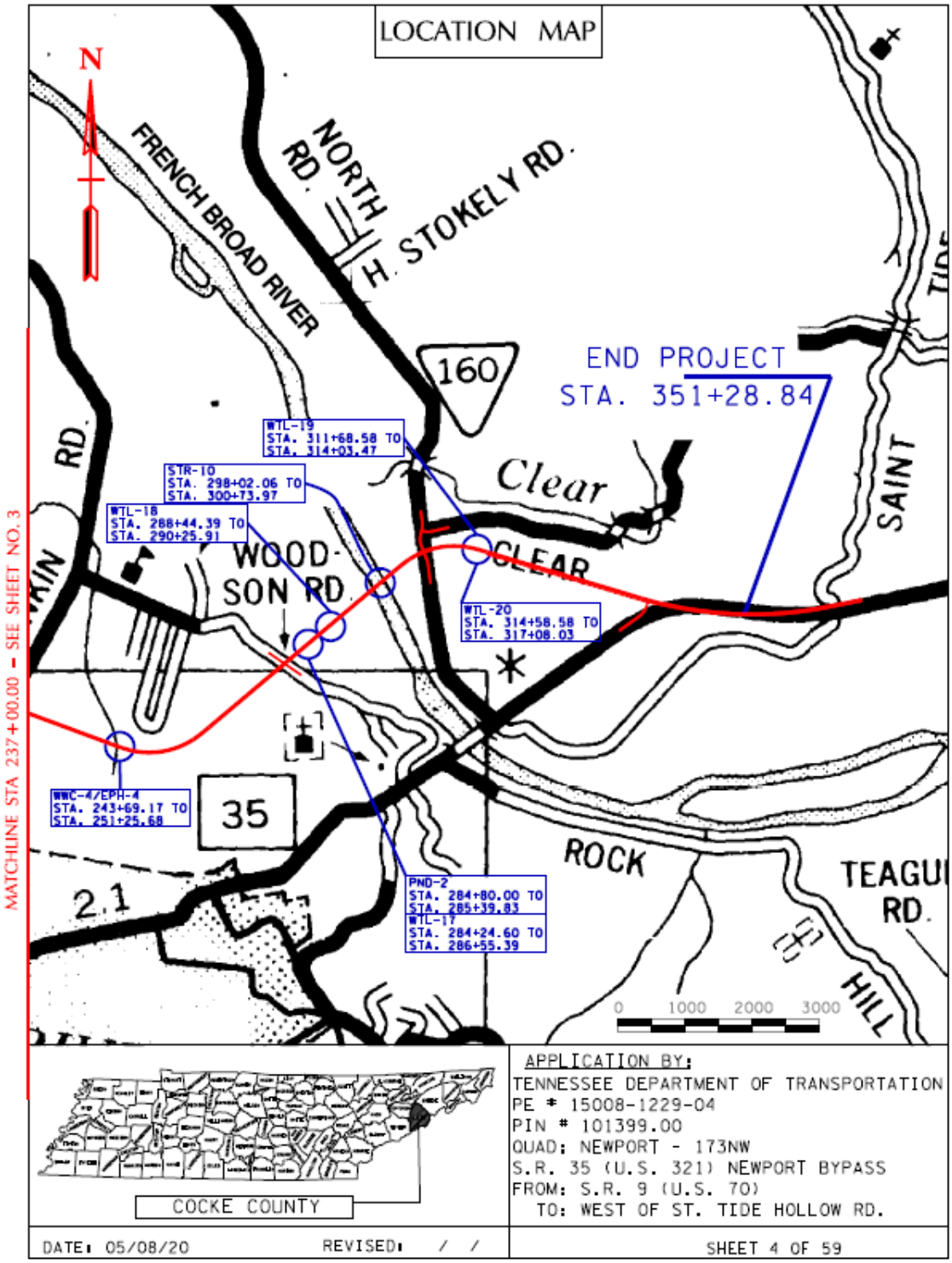


Figure 0.4 - Example Location Map (continued)

ENVIRONMENTAL IMPACTS / PROPERTY OWNERS AND ADJOINERS TABLE

When a given roadway project will require coverage under an Individual Section 404 Permit from the U.S. Army Corps of Engineers, an Excel spreadsheet of Property Owners and Adjacent Owners (Adjoiners) is needed. This is not needed in pdf format. This will be requested during the permit assessment process. If additional property information is required beyond what is in the survey file, the Designer should submit an additional survey request form.

At a minimum, this shall provide the following information:

- Station or range of stations of impact (i.e. STA. 65+20.00 or STA. 82+00 to 103+16)
- Label identifier for impacted feature, from EBR (i.e. WTL-2)
- Property ROW tract number
- Indication whether the tract in question has an “Owner” or “Adjoiner” status
- Property owner name and address

Please refer to Figure 0.5 below for an example of the Property Owners and Adjoiners spreadsheet.

A1 STATION

	A	B	C	D	E
1	STATION	MAP LABEL	R.O.W. TRACT NO.	OWNER / ADJOINER	PROPERTY OWNER NAME AND ADDRESS
2	122+12.23 TO 122+74.95	STR-1	6	OWNER	STOKELY MOORE, 112 NORTH WATAUGA LANE, LOOKOUT MOUNTAIN, TN 37350
3			64	ADJOINER	ED & JOANNE RAMSEY NEWELL, 3073 BEE CARTER RD, DANDRIDGE, TN 37725
4	16+37.98 TO 17+05.75		9	OWNER	J. CARROLL & JANET G. KYKER, 1469 NOTTINGHAM DR, NEWPORT, TN 37821
5			8	ADJOINER	CLIFTON W DUNN & ARLENE DUNN, 136 OVERHILL RD, NEWPORT, TN 37821
6			EX. R.O.W	OWNER	EXISTING RIGHT-OF-WAY
7			EX. R.O.W	ADJOINER	EXISTING RIGHT-OF-WAY
8	4+70.72 TO 5+61.46	WTL-2	6	OWNER	STOKELY MOORE, LLC, 112 NORTH WATAUGA LANE, LOOKOUT MOUNTAIN, TN 37350
9			10	ADJOINER	STOKELY MOORE, LLC, 112 NORTH WATAUGA LANE, LOOKOUT MOUNTAIN, TN 37350
10			EX. R.O.W	ADJOINER	EXISTING RIGHT-OF-WAY

PROPERTY OWNERS

Figure 0.5 - Property Owners and Adjoiners Table

IMPACT-SPECIFIC PERMIT SKETCHES

As part of the permit sketch set, and in addition to the components described in the sections above, the roadway designer shall also include impact-specific sketches within the permit sketch submittal as requested in the permit assessment. Impact-specific permit sketches are necessary in order to document and illustrate the nature of proposed impacts to streams, wetlands, and other similar environmental features. The impact-specific permit sketches provide the permitting agencies with details of the proposed impacts to environmental features as a result of a given roadway project, which can then be brought to the attention of the general public via the public notice process. The permit sketches shall be of a nature so as not to overwhelm the non-engineering public with technical information, yet specific enough to provide details of the environmental impacts. Specific engineering details required for the contractor to construct the project at the locations of the proposed environmental feature impacts shall be included within the permit sketches provided to the Environmental Division. Templates to be used when preparing permit sketches and location maps can be found on the Design CADD Files and Documents webpage.

In general, the permit sketches are for the permitting agencies / public's use and the plans are for the contractor. As such, information should be duplicated in both locations. The contractor will typically not receive a copy of the permit sketches, so it is important that any information included in the permit sketches be also included in the roadway plans.

It is important to note that to the extent practicable, each impact-specific permit sketch should include only one single environmental feature. For instance, multiple proposed wetland impacts should not be lumped together onto one single permit sketch. Therefore, some notes and details will end up being repeated from one proposed impact to the next, throughout the entire set of permit sketches.

Please refer to the following sections for detailed information pertaining to the requirements for impact-specific permit sketches, based upon the nature of the proposed impact and type of environmental feature being impacted.

Impact Table Parameter Tabulation Guidance

According to the sections below, the required impact-specific permit sketches will include impact tables. These impact tables provide a quantified itemization of the existing feature conditions and proposed feature impacts.

Please refer to the instructions provided below for guidance regarding how to tabulate the required parameters that must be included within the impact tables.

- Stream Impact Table - Existing
  - First, determine the begin and end of the proposed impact.

- The begin and end impact locations shown on permit sketches should match the begin and end impact locations shown within the roadway plans set.
- For structures, the impact boundaries will coincide with the end of all channel transitions, riprap, culvert, wingwalls, and/or utility impacts.
- For stream relocations / channel changes, the begin and end impact locations will coincide with the confluence of the proposed stream with the existing stream

- Measure the existing stream length along the centerline of the stream between the begin and end of the impact. Enter this value into the impact table as the "Total Existing Length".
- Next, measure all structure lengths, and categorize them based on the type (i.e. culvert, RCP, catch basin, endwall, wingwall, energy dissipator, etc.).
- The total of the structures measured in the previous step will be entered into the first line "Structure". Specify whether the structure will be removed or if it is to remain. Sum each type of pipe size, catch basin type (do not list each catch basin on the impact table), length for storm sewer systems, etc.
- Subtract the total structure length from the total existing length. This will be the "Open Stream" length included within the impact table. Under the open stream, specify if there is existing rip-rap at the inlet / outlet or bank stabilization.

- Stream Impact Table - Proposed
  - First, determine the begin and end of the proposed impact. This should be the same begin and end of impact as in existing conditions.
  - Measure the proposed stream length along the centerline of the stream between the begin and end of the impact. Enter this value into the impact table as the "Total Proposed Length".
  - Next, measure all structure lengths, and categorize them based on the type (i.e. culvert, RCP, catch basin, endwall, wingwall, energy dissipator, etc.).
  - The total of the structures measured in the previous step will be entered into the first line "Structure". Specify whether the structure is "existing" (the structures that were to remain in the existing box) or whether the structure is "proposed" on each structure line.
  - Subtract the total structure length from the total propose length. This will be the "Open Stream" length included within the impact table. The "Open Stream" row should include the length of open stream on the inlet and outlet sides of the structure. All items such as riprap, bank stabilization, channel relocations/transitions, etc., should specify whether they are located on the inlet or outlet side of the structure.
- Stream Impact Table – Stream Loss
  - Stream loss occurs when the "Total Proposed Length" of the stream is less than the "Total Existing Length".
  - To find the stream loss for a given roadway project, simply subtract "Total Proposed Length" from the "Total Existing Length".
  - If the "Total Proposed Length" is greater than or equal to the "Total Existing Length", then "Stream Loss" would be "0".

- Stream Impact Table –Impact Acreage to the Waters of the US
  - The “Impact Acreage to Waters of the US” will be the plan view area of permanent stream impact.
  - The impacted areas included in this calculation should be the locations where fill is placed below the ordinary high water mark (OHWM) such as, but not limited to, proposed culverts and stream relocations in which the existing channel is filled.
- Stream Impact Table –Fill Volume below Ordinary High Water
  - The “Fill Volumes Below OHWM” will be calculated using the “Impact Acreage to Waters of the US” and multiplying by the depth of fill below the OHWM. This value should be reported in units of cubic yards.

Stream Encapsulation or Structure Extension

The following information is required on permit sketches for stream encapsulations with a new proposed structure, or for proposed extensions of existing structures:

- Begin and end impact labeling, including stations of the stream impact along with the stream name or number (i.e. STR-3)
- Plan view of the stream encapsulation showing the existing conditions concurrent with the proposed conditions, to include:
  - Existing and proposed structure size and length
  - Direction of flow
  - Drainage easements
  - Buffer limits, where applicable
  - Stream number or name
  - Riprap location shown graphically along with the riprap class and linear feet of riprap placement in the channel identified
- A stream impact table providing existing and proposed stream and structure lengths, structure sizes, and end treatments
- Profile view of encapsulation or extension (i.e. culvert cross-section) showing existing and proposed conditions (to scale):
  - Existing and proposed structure size and length
  - Direction of flow
  - End treatments (i.e. endwalls, dissipaters, etc…) and inverts
  - Riprap location shown graphically along with the riprap class and linear feet of riprap placement in the channel
  - Hydraulic data table from roadway drawings, including riprap and notes, embedment, labeling, and notes
  - Notes specific to placement of any material into channel
  - Special Notes, including embedment of riprap note, embedment of structure note and any other notes as directed by the Environmental Division
  - Typical channel cross-section

Stream Channel Changes

Permit sketches are needed in the following situations for stream relocations/transitions:

- Onsite stream relocation where credits are obtained;
- Onsite stream relocation where credits will not be obtained (including transitions of any length);
- and permittee responsible mitigation that will be used to offset impacts on the project.

The following information should be shown on these types of sketches:

- Begin and end impact labeling, including stations of the stream impact along with the stream name or number (i.e. STR-3)
- Plan view of the stream relocation / channel change showing the existing conditions concurrent with the proposed conditions, to include:
  - Location of and labeling the existing stream, relocated stream, channel changes, alterations or longitudinal encroachments
  - Required buffer limits
  - Proposed trees, species, spacing, etc. for replacement of channel
- Direction of flow
- Drainage easements
- Buffer limits, where applicable
- Stream number or name
- Riprap location shown graphically along with the riprap class and linear feet of riprap placement in the channel identified
- Typical cross-section of existing and proposed channel (to scale). The proposed channel dimensions shall match the existing channel dimensions as closely as possible. If channel widening is needed for high flow, contact the Technical Studies Office for an appropriate channel design. This shall also be shown on the proposed layout sheet in the plans.
- Any additional channel cross-sections necessary to show proposed channel geometry and proposed bank stabilization measures
- All requested information from the Stream Encapsulation or Structure Extension section, if structures are included
- A Stream Impact Table on a separate sheet as the plan view
- Length of riprap and/or relevant features with the channel change. Riprap shall only be used in streams where absolutely necessary and when used the evidence to support its use shall be given (to prevent erosion, velocity, etc.)
- Notes specific to the mitigation or vegetative plantings (trees, etc.) and to the sequence of construction when necessary
- Special Notes, including embedment of riprap note and any other notes as directed by the Environmental Division
- Estimated quantities table for specific plantings, including only using native vegetation
- Existing and proposed channel profile (to scale).
- Any necessary planting details specific to the proposed mitigation
- Any other relevant features (to scale)

Please refer to Figure 0.6 through Figure 0.10 on the following pages for examples of the permit sketches with stream relocations / channel change impacts.

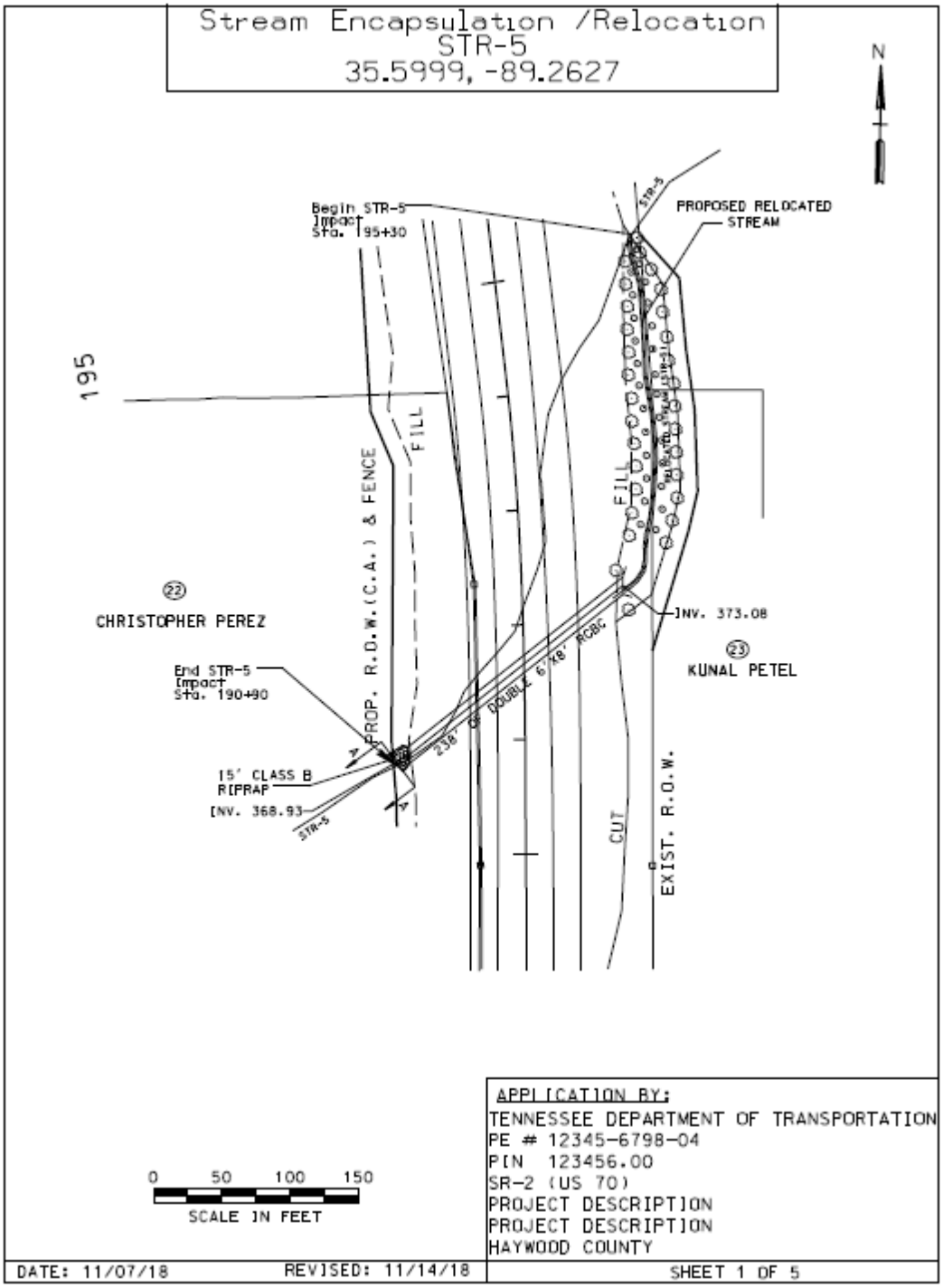


Figure 0.6 - Example Permit Sketches: Stream Relocation with Structures

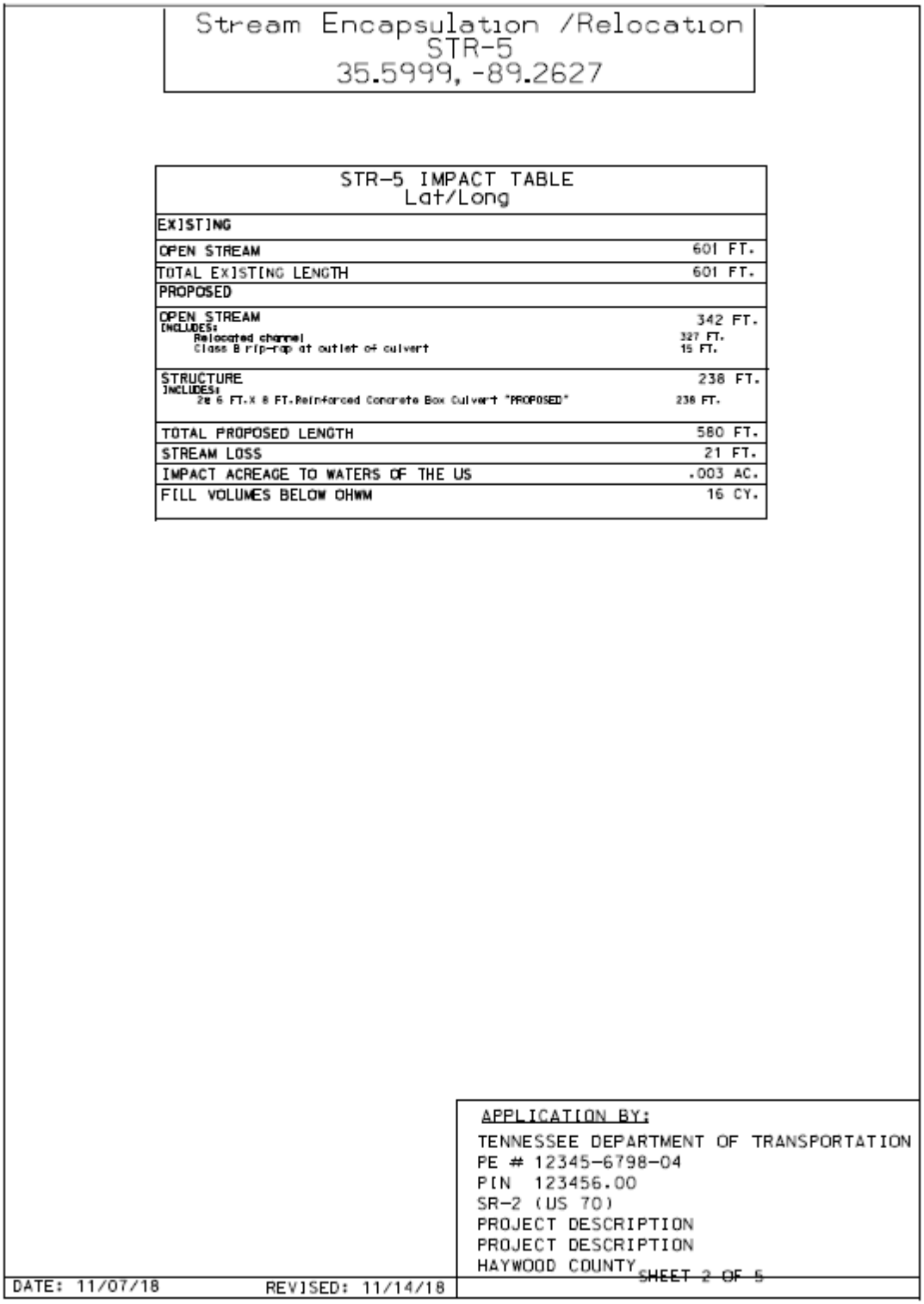


Figure 0.7. Example Permit Sketches: Stream Relocation with Structures (continued)

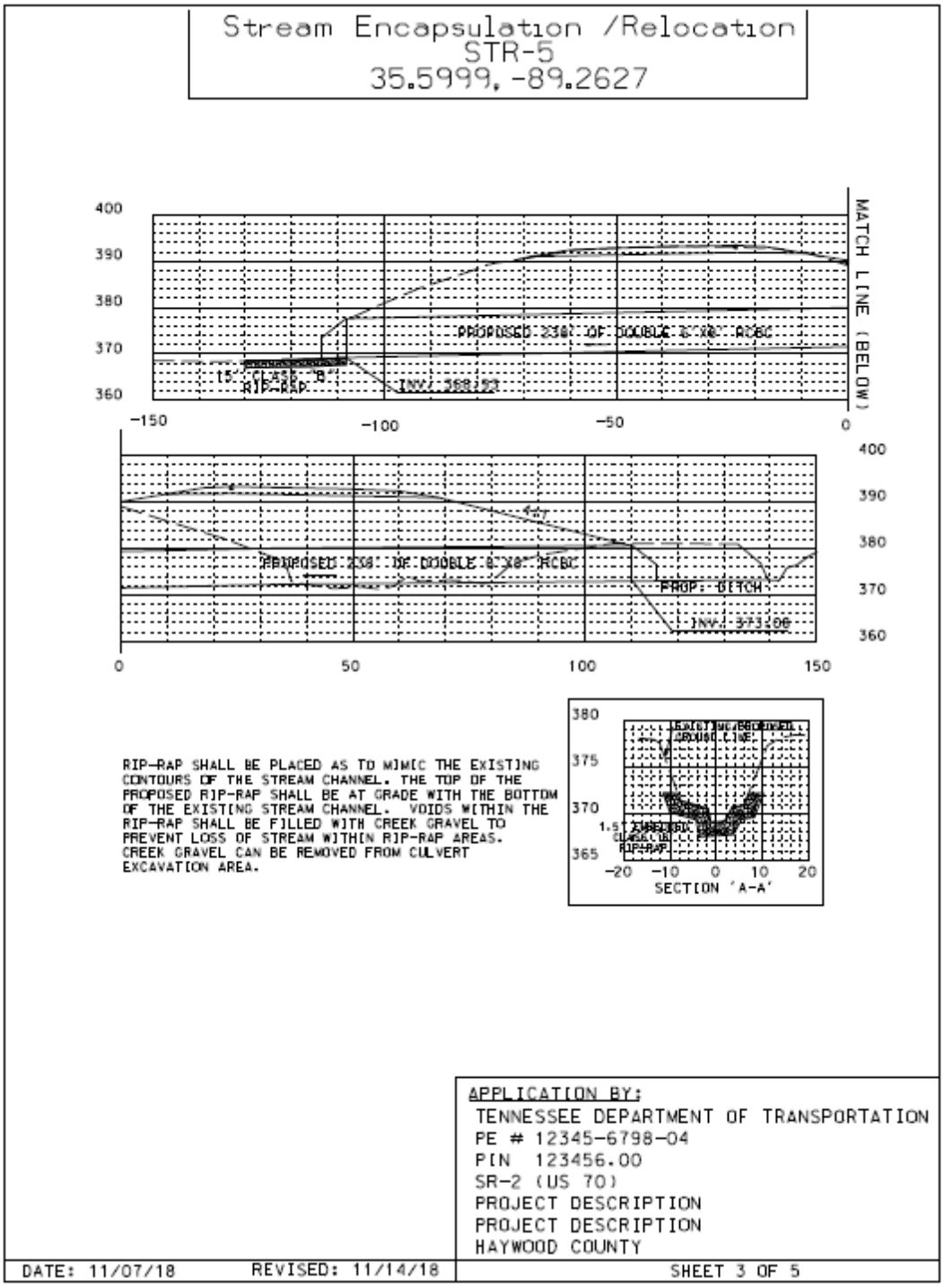


Figure 0.8 - Example Permit Sketches: Stream Relocation with Structures (continued)

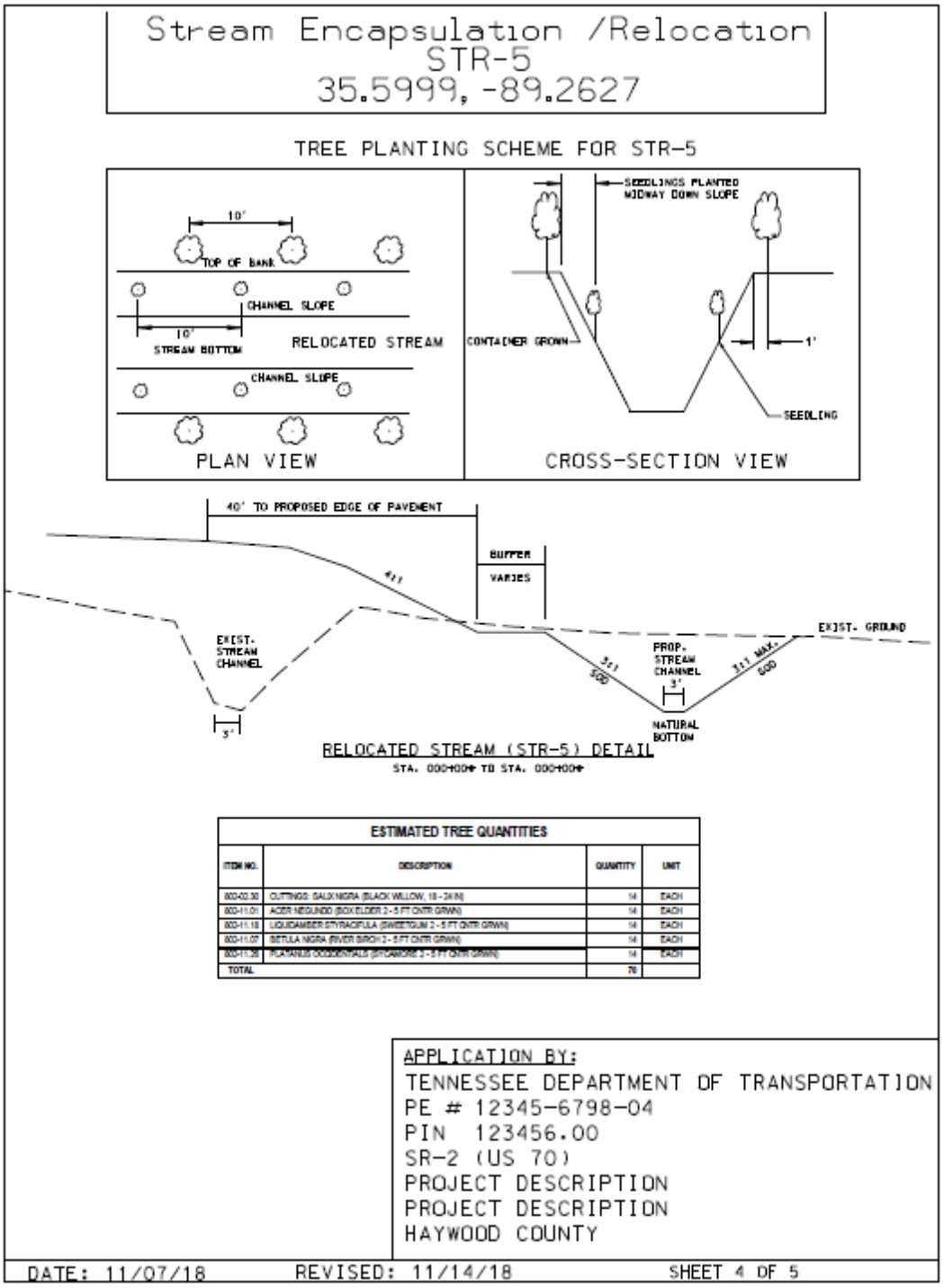
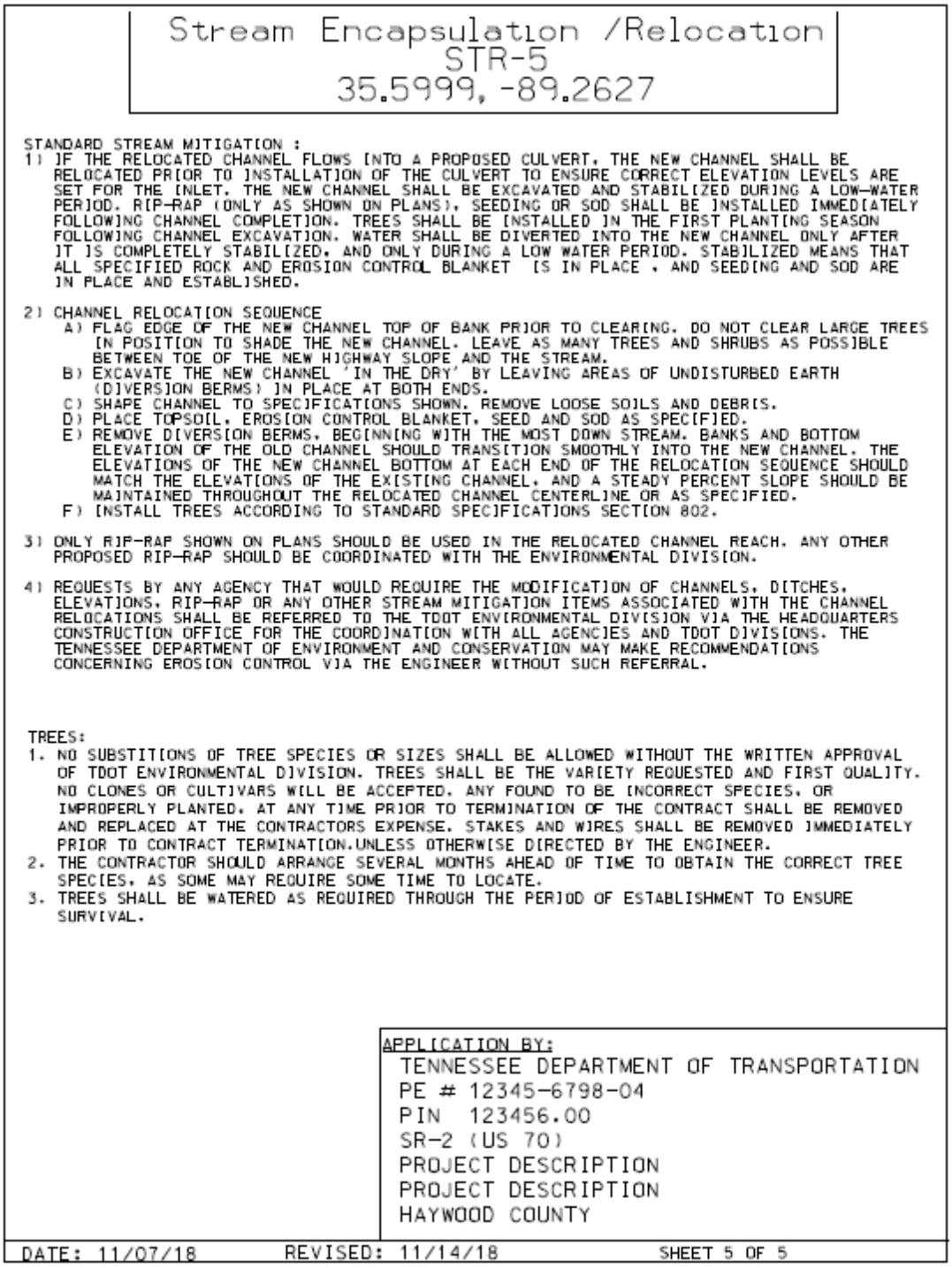


Figure 0.9 - Example Permit Sketches: Stream Relocation with Structures (continued)



Stream Encapsulation /Relocation
STR-5
35.5999, -89.2627

STANDARD STREAM MITIGATION :
1) IF THE RELOCATED CHANNEL FLOWS INTO A PROPOSED CULVERT, THE NEW CHANNEL SHALL BE RELOCATED PRIOR TO INSTALLATION OF THE CULVERT TO ENSURE CORRECT ELEVATION LEVELS ARE SET FOR THE INLET. THE NEW CHANNEL SHALL BE EXCAVATED AND STABILIZED DURING A LOW-WATER PERIOD. RIP-RAP (ONLY AS SHOWN ON PLANS), SEEDING OR SOD SHALL BE INSTALLED IMMEDIATELY FOLLOWING CHANNEL COMPLETION. TREES SHALL BE INSTALLED IN THE FIRST PLANTING SEASON FOLLOWING CHANNEL EXCAVATION. WATER SHALL BE DIVERTED INTO THE NEW CHANNEL ONLY AFTER IT IS COMPLETELY STABILIZED, AND ONLY DURING A LOW WATER PERIOD. STABILIZED MEANS THAT ALL SPECIFIED ROCK AND EROSION CONTROL BLANKET IS IN PLACE , AND SEEDING AND SOD ARE IN PLACE AND ESTABLISHED.

2) CHANNEL RELOCATION SEQUENCE
   A) FLAG EDGE OF THE NEW CHANNEL TOP OF BANK PRIOR TO CLEARING. DO NOT CLEAR LARGE TREES IN POSITION TO SHADE THE NEW CHANNEL. LEAVE AS MANY TREES AND SHRUBS AS POSSIBLE BETWEEN TOE OF THE NEW HIGHWAY SLOPE AND THE STREAM.
   B) EXCAVATE THE NEW CHANNEL 'IN THE DRY' BY LEAVING AREAS OF UNDISTURBED EARTH (DIVERSION BERMS) IN PLACE AT BOTH ENDS.
   C) SHAPE CHANNEL TO SPECIFICATIONS SHOWN. REMOVE LOOSE SOILS AND DEBRIS.
   D) PLACE TOPSOIL, EROSION CONTROL BLANKET, SEED AND SOD AS SPECIFIED.
   E) REMOVE DIVERSION BERMS, BEGINNING WITH THE MOST DOWN STREAM. BANKS AND BOTTOM ELEVATION OF THE OLD CHANNEL SHOULD TRANSITION SMOOTHLY INTO THE NEW CHANNEL. THE ELEVATIONS OF THE NEW CHANNEL BOTTOM AT EACH END OF THE RELOCATION SEQUENCE SHOULD MATCH THE ELEVATIONS OF THE EXISTING CHANNEL, AND A STEADY PERCENT SLOPE SHOULD BE MAINTAINED THROUGHOUT THE RELOCATED CHANNEL CENTERLINE OR AS SPECIFIED.
   F) INSTALL TREES ACCORDING TO STANDARD SPECIFICATIONS SECTION 802.

3) ONLY RIP-RAP SHOWN ON PLANS SHOULD BE USED IN THE RELOCATED CHANNEL REACH. ANY OTHER PROPOSED RIP-RAP SHOULD BE COORDINATED WITH THE ENVIRONMENTAL DIVISION.

4) REQUESTS BY ANY AGENCY THAT WOULD REQUIRE THE MODIFICATION OF CHANNELS, DITCHES, ELEVATIONS, RIP-RAP OR ANY OTHER STREAM MITIGATION ITEMS ASSOCIATED WITH THE CHANNEL RELOCATIONS SHALL BE REFERRED TO THE TDOT ENVIRONMENTAL DIVISION VIA THE HEADQUARTERS CONSTRUCTION OFFICE FOR THE COORDINATION WITH ALL AGENCIES AND TDOT DIVISIONS. THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION MAY MAKE RECOMMENDATIONS CONCERNING EROSION CONTROL VIA THE ENGINEER WITHOUT SUCH REFERRAL.

TREES:
1. NO SUBSTITIONS OF TREE SPECIES OR SIZES SHALL BE ALLOWED WITHOUT THE WRITTEN APPROVAL OF TDOT ENVIRONMENTAL DIVISION. TREES SHALL BE THE VARIETY REQUESTED AND FIRST QUALITY. NO CLONES OR CULTIVARS WILL BE ACCEPTED. ANY FOUND TO BE INCORRECT SPECIES, OR IMPROPERLY PLANTED, AT ANY TIME PRIOR TO TERMINATION OF THE CONTRACT SHALL BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE. STAKES AND WIRES SHALL BE REMOVED IMMEDIATELY PRIOR TO CONTRACT TERMINATION.UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. THE CONTRACTOR SHOULD ARRANGE SEVERAL MONTHS AHEAD OF TIME TO OBTAIN THE CORRECT TREE SPECIES, AS SOME MAY REQUIRE SOME TIME TO LOCATE.
3. TREES SHALL BE WATERED AS REQUIRED THROUGH THE PERIOD OF ESTABLISHMENT TO ENSURE SURVIVAL.

APPLICATION BY:
TENNESSEE DEPARTMENT OF TRANSPORTATION
PE # 12345-6798-04
PIN 123456.00
SR-2 (US 70)
PROJECT DESCRIPTION
PROJECT DESCRIPTION
HAYWOOD COUNTY

DATE: 11/07/18 REVISED: 11/14/18 SHEET 5 OF 5

Figure 0.10 - Example Permit Sketches: Stream Relocation with Structures (continued)

Wetland Impacts

The following information is required on permit sketches for impacts to wetlands:

- Beginning and ending stations of the wetland impact along with the wetland name or number (i.e. WTL-2)
- Plan view of impact area showing the existing conditions concurrent with the proposed conditions, to include:
  - Existing and proposed conditions (to scale)
  - Wetland Number identified (i.e. WTL-2, etc.)
  - Crosshatch the permanent wetland impacts and hatch the temporary wetland impacts
  - Construction haul/access roads where applicable
  - Note indicating if a portion of the wetland is outside of TDOT Right-of-Way, easements, and/or not to be disturbed during construction
- Boundaries of the existing wetland shall be indicated even if the wetland extends past the Right-of-Way or easement lines.
- Notes regarding mitigation (tree, species, etc.) of wetland impact
- Wetland Impact Table (which can be included on the same sheet as the indicating:
  - Legend of hatching for the permanent and temporary wetland impacts
  - Area of the permanent and temporary wetland impacts in acres
  - Volume of the permanent and temporary wetland impacts in cubic yards (assume 1-foot depth)
- Notes specific to mitigation or vegetative plantings (trees, etc.), if required.
- Estimated quantities table for specific plantings, if required.
- Any necessary planting details specific to mitigation, if required.

Please refer to

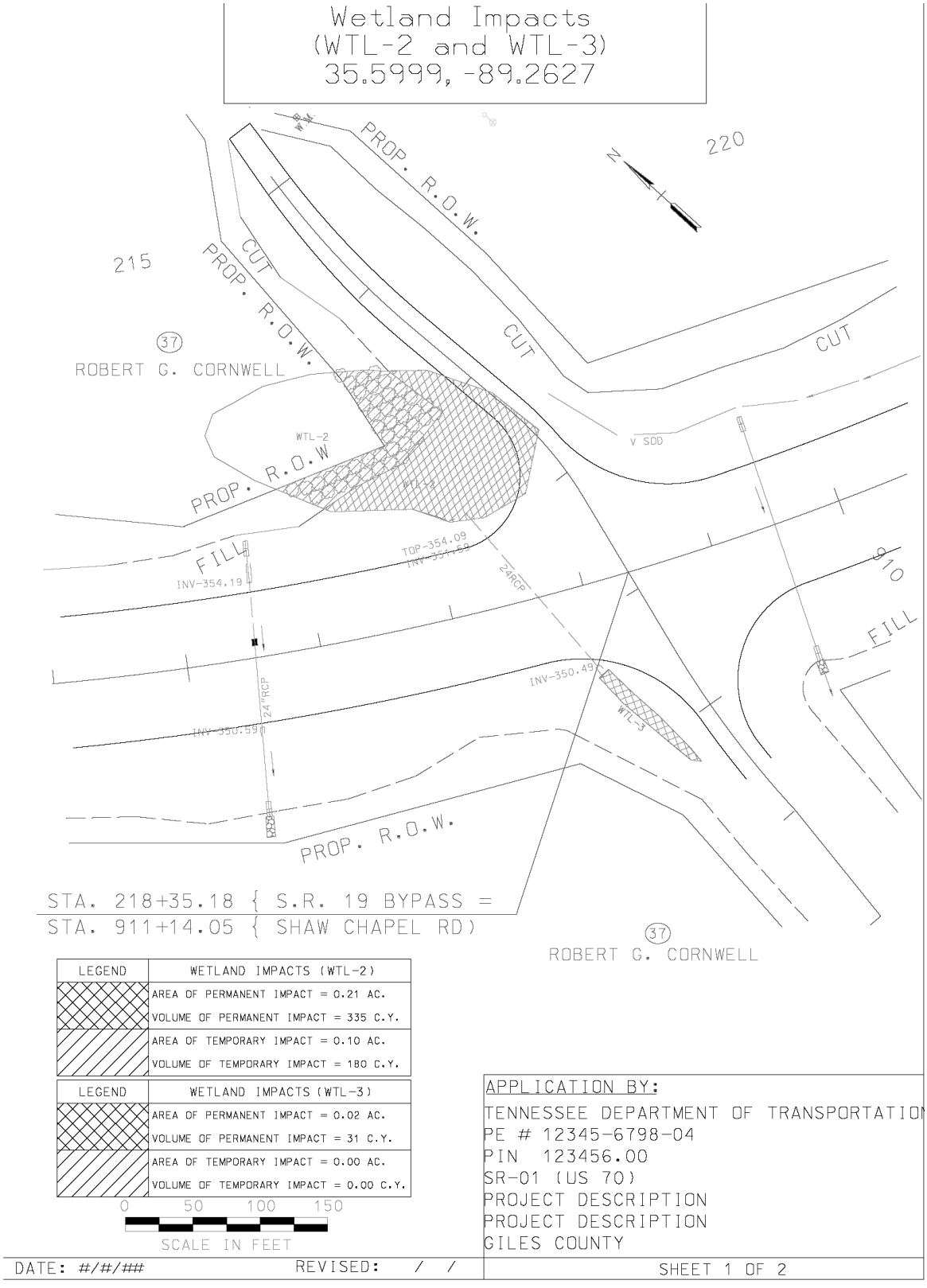


Figure 0.11 and Figure 0.12 for examples of permit sketches with wetland impacts.

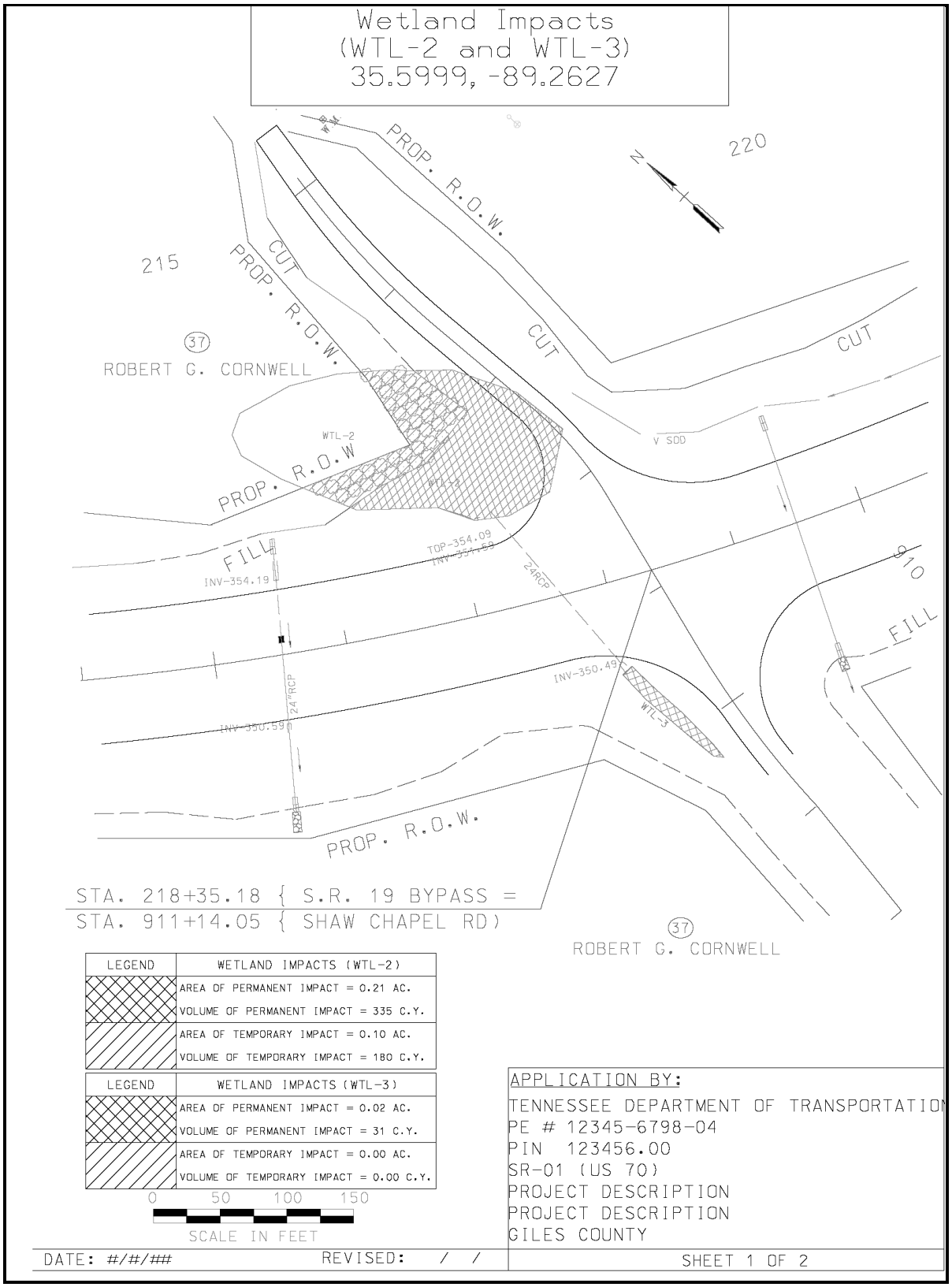


Figure 0.11 - Example Permit Sketches: Wetland Impacts

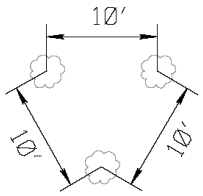
Wetland Impacts
(WTL-2 and WTL-3)
35.5999, -89.2627

MITIGATION NOTES:
1. REMOVE THE TOP 12 INCHES OF TOPSOIL AND STOCKPILE IT UNTIL CONSTRUCTION IS COMPLETE.
2. ONCE CONSTRUCTION ACTIVITIES ARE COMPLETED, RESTORE ALL TEMPORARY WETLAND IMPACT AREAS TO PRE-CONSTRUCTION CONDITIONS. THIS INCLUDES REMOVING HAUL ROADS (IF APPLICABLE), RESTORING THE SITE TO THE ORIGINAL (PRE-CONSTRUCTION) ELEVATION AND SPREADING STOCKPILED TOPSOIL BACK OVER THE WETLAND SITE.
3. THE AREA OF TEMPORARY IMPACTS WILL BE STABILIZED ACCORDING TO STANDARD PRACTICES. PLANTING WILL BE BASED ON NOTES PROVIDED BY ECOLOGY
4. WETLAND AREAS LOCATED OUTSIDE OF PROPOSED RIGHT-OF-WAY AND CONSTRUCTION EASEMENTS ARE TO BE CLEARLY MARKED AND NOT TO BE DISTURBED.

TREES:
1. NO SUBSTITIONS OF TREE SPECIES OR SIZES SHALL BE ALLOWED WITHOUT THE WRITTEN APPROVAL OF TDOT ENVIRONMENTAL DIVISION. TREES SHALL BE THE VARIETY REQUESTED AND FIRST QUALITY. NO CLONES OR CULTIVARS WILL BE ACCEPTED. ANY FOUND TO BE INCORRECT SPECIES, OR IMPROPERLY PLANTED, AT ANY TIME PRIOR TO TERMINATION OF THE CONTRACT SHALL BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE. STAKES AND WIRES SHALL BE REMOVED IMMEDIATELY PRIOR TO CONTRACT TERMINATION.UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. THE CONTRACTOR SHOULD ARRANGE SEVERAL MONTHS AHEAD OF TIME TO OBTAIN THE CORRECT TREE SPECIES, AS SOME MAY REQUIRE SOME TIME TO LOCATE.
3. TREES SHALL BE WATERED AS REQUIRED THROUGH THE PERIOD OF ESTABLISHMENT TO ENSURE SURVIVAL.

ESTIMATED TREE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
	Seedling (Red maple (Acer rubrum) 18" - 24" Ht, BR)		EACH
	Seedling (Sycamore (Platanus occidentalis) 18" - 24" Ht, BR)		EACH
	Seedling (White oak (Quercus alba) 18" - 24" Ht, BR)		EACH
	Seedling (Green ash (Fraxinus pennsycanica) 18" - 24" Ht, BR)		EACH
	Seedling (Black willow (Salix nigra) 18" - 24" Ht, BR)		EACH
TOTAL		0	



PLANTING DETAIL

APPLICATION BY:
TENNESSEE DEPARTMENT OF TRANSPORTATION
PE # 12345-6798-04
PIN 123456.00
SR-01 (US 70)
PROJECT DESCRIPTION
PROJECT DESCRIPTION
GILES COUNTY

DATE: #/#/## REVISED: / / SHEET 2 OF 2

Figure 0.12 - Example Permit Sketches: Wetland Impacts (continued)

SECTION 3: EPSC PLANS GUIDANCE

Generally, EPSC Plans sheets shall be included in the plans submitted for Right-of-Way Appraisals and Acquisition. EPSC Plan sheets shall also be included in right-of-way field review and constructability field review plans. EPSC Plan sheets shall immediately follow the Culvert Cross Sections. The EPSC Plan should be complete to the extent possible; however, quantity tabulations will not be required until printed for constructability field review. Refer to The Drainage Manual Chapter 10 for additional information on EPSC plans.

Projects which involve less than five (5) acres of land disturbance require at least two (2) EPSC stages:

1. Clearing and Grubbing Stage
2. Final Construction Stage

Projects which involve five (5) or more acres of land disturbance require at least three (3) EPSC stages:

1. Clearing and Grubbing Stage
2. Intermediate Stage (example: a widening project where traffic remains on existing roadway and portion of road is being constructed)
3. Final Construction Stage

In all cases, the plans will have at least the same number of EPSC stages as it has Traffic Control phases. The Design Manager should contact either the applicable Regional ETO or the Headquarters Permits Section when EPSC Plans are revised to determine if revised plan sheets or other information is needed.

EPSC PLAN REQUIREMENTS

At a minimum, the EPSC Plans for a given roadway project shall include the staging as described above, based on the project's disturbed acreage. Additionally, prior to submittal of the Stormwater Permit application to TDEC, the EPSC Plans shall be deemed permittable, thus incorporating all comments and markups provided during the permit assessment process.

Regarding EPSC Notes, the Designer should add any additional Special EPSC Notes which provide project-specific information on requirements for the proposed EPSC measures, as well as specific steps the contractor is to take in the execution of the EPSC Plan; these notes shall be added to the first sheet of the EPSC Plans Set. Any additional Special EPSC Notes provided by the Environmental Division shall be shown on the first sheet of the EPSC Plans as well.

Addition of Contours to Plans

Contours shall be included in plans for all projects submitted for Right-of-Way Appraisal and Acquisition except for resurfacing projects, projects where a survey is not required, and small projects or projects of limited scope where a surface is not developed. Contours should include existing (pre-construction), intermediate, and proposed contours. Contour sheets should include all listed items in the ROW checklist.

Since site conditions and topography are unique to each project, Designers should seek input from the respective Regional ETO to determine contour intervals.