North Carolina Department of Transportation

Permit Drawing Guidelines

Hydraulics Unit

August 8, 2022

Revisions Sheet			
Page	**Old Section**	**New Section**	**Description**
-	-	-	• Updated Revision Date • Added Acronyms Page
16-18	5	5	• Added Example Sheets to Additional Documentation

Table of Contents: Permit Drawing Guidelines

Acronyms

AEC	Area of Environmental Concern
BSR	Bridge Survey Report
CAMA	Coastal Area Management Act
CSR	Culvert Survey Report
DEO	Division Environmental Officer
DWQ	Division of Water Quality
EAU	Environmental Analysis Unit
HSP	NCDOT Highway Stormwater Program
MHW	Mean High Water
MLW	Mean Low Water
MP	Major Permit
NPDES	National Pollutant Discharge Elimination System
NWL	Normal Water Level
NWS	Normal Water Surface
PCSP	NCDOT Post-Construction Stormwater Program
SMGD	Structures Management's General Drawing
SMP	Stormwater Management Plan
SMU	NCDOT Structures Management Unit
STIP	State Transportation Improvement Program
SW	Surface Water

1. Introduction

This chapter provides guidelines for permit drawings, including drafting and submittal requirements.

2. Permit Drawing CADD File Setup

1. Use the Design File Generator and create the following files (if needed):
   - "TipNo_Hyd_prm_wet.dgn"
     - where wetland and stream impact hatching will be drawn
   - "TipNo_Hyd_prm_buf.dgn"
     - where buffer impact hatching will be drawn
2. Open the "*wet.dgn" or "*buf.dgn" file above and attach reference files needed to identify and hatch impacts.
   - Roadway's DSN file may be referenced with nest level=1 to ensure consistency with the roadway plans, but the designer should verify the use of the most recent wetland file and final survey file.
   - Hatch impact areas as needed.
     - When hatching impacts, use streamlines from the final survey file and wetland boundaries from the wet file.
   - Orient the labels with the plan sheet. Site number labels may be placed in this file or in the individual plan sheet files created in the next step.
     - Bridge replacement projects generally do not require site numbers, but depending on the number of resources impacted, separate site numbers may be required. (e.g., more than one stream or more than one wetland would require separate site numbers).
     - Label site locations numerically (1, 2, 3, etc.). Refer to Section 3.2, Bullet #9
   - Notify the Environmental Analysis Unit (EAU) if problems are found with the wet file such as incorrect linestyles or symbol scales and ask the Unit to resolve the issues.
   - If wetland symbols fall inside of a jurisdictional channel, those symbols may be clipped by the hydraulic designer so they won't appear on the final drawings.
3. Create a plan sheet file for each plan sheet having impact areas. Reference in the "*wet.dgn" or "*buf.dgn" noted above, as well as the individual roadway plan sheet.
   - Use live nesting when attaching the roadway plan sheet to ensure consistency with the roadway plans and to bring in the other required reference files.

- If the roadway plan sheet is not using the most current final survey file and wet file, notify Roadway to update its references.
- Each plan sheet should have a “Permit Drawing Sheet of” cell, a plan scale, date/user name/ file name label, and a legend for each different impact type shown on the sheet. A separate legend sheet is not required.
- Add site numbers to the individual plan sheet files if they were not labeled in the impact file created above files. IPLOT Organizer may facilitate plotting of multiple permit plan sheets.
- Add "date/user name/file name label", dropping the cell in the bottom left-hand corner of the plan sheet. The cell will appear as "$date$ $(username)$ $filel$". DO NOT manually replace this text with your own information. The cell will automatically populate the text when you print or export the file to PDF.
- If wetland impacts are on the project, plot at least one representative cross section per site.
    - It is not necessary to plot all cross sections that the site covers. The cross section “xpl” files should be used for this purpose. Simply copy and rename the file “”TipNo_Hyd_prm_xpl.dgn”.

4. Follow the Department’s current levels, logical names, and symbology for permit CADD work. The Hydraulics Workspace for MicroStation provides a Hydraulics Toolbar to facilitate this. The Workspace should be updated regularly to ensure it is current. The permit drawings must be in color, using red for all proposed drainage, blue for all jurisdictional features, gray for contours, and black for all impacts. This same color format is to be used for permit drawings reviewed during the “4C” Merger Meeting, if applicable.

Items to omit (if possible) to declutter plan sheets:

DRN file:

- Structure numbers, ditch details (except swales or ditches near jurisdictional areas; ditch details must be shown in jurisdictional areas), quantities for rip rap and geotextile
- Approach slab, embankment cut and pavement removal hatching since it can be confused with wetland or buffer impact hatching

ROW file:

- Station and offsets for R/W, PDE, TDE, and TCE
- Right of Way marker symbols
- Property line bearings

DSN file:

- Superelevations
- Pavement and shoulder widths
- Guardrail and guardrail text
- Traffic flow arrows
- Begin and End Bridge stations
- Begin and End Approach Slab stations
- Approach Slab single hatch must be turned off
- Any other hatching that could be confused with impact hatching should be turned off as well
- Curve Data Info, PT, PC, etc.

FS file:

- Baseline
- Deed book reference and/or map page
- Bearing and distance for property lines
- Datum description

3. Permit Drawing Package

The permit drawing package should be submitted in PDF format containing the following (where applicable):

3.1 Stormwater Management Plan (SMP)

(https://connect.ncdot.gov/resources/hydro/pages/default.aspx) under “Highway Stormwater Program (HSP).”

Submission of Completed SMPs to Hydraulics Unit

NCDOT's NPDES Permit requires that all completed SMPs be archived for a minimum period of five years. All SMPs must be submitted in their original Excel format for review, and upon approval, uploaded in PDF format to the ATLAS Workbench, which will tag them appropriately and place them on the Preconstruction Connect NCDOT site in the project library. Note that submittal of the SMP is not part of the permit drawing package approval process and even if a project does not require permit drawings an SMP is required if the project increases Built Upon Area. See the PCSP guidelines for reference.

3.2 Wetland / Stream Permit Drawings

The SMP and wetland / stream permit drawings should be submitted together as a single PDF, with the SMP appearing first. The required naming convention for this single PDF will be *"TIP_Permit Drawings_Current Date (YEARmoDAY) .pdf".*

Include "*Permit Drawing Sheet__of __"* cell on all sheets, excluding the Stormwater Management Plan, SMP, with respective sheet numbers completed, starting with one for the title sheet. If both wetland and stream and buffer permit drawings are required, each type is separately packaged, and each should be numbered as an individual set.

Wetland and Stream Permit Drawings should contain the following, in this order:

1. Project Title Sheet
   - 11"x17", titled "Wetland & Stream Impacts"
   - Site locations should be labeled numerically (1, 2, 3, etc.). Refer to Section 3.2, Bullet #9
   - Verify that Let and Right of Way dates are current.
2. Ditch Detail Sheets (if applicable)
   - 11"x17"
   - This applies only if ditch details are on separate sheets from the plan sheets.
3. Plan Sheets with Impacts Hatched
   - 11"x17", only those sheets with impacts, one sheet without contours plotted, immediately followed by the same sheet with contours plotted

- Show hatched area impacts in wetlands and streams within the project footprint as well as those areas needed for demolition of the existing structure or construction of the proposed structure, including limits of construction phasing, work bridges, work pads or causeways.
- Place a legend for the hatched area type and sheet scale on each sheet.
    - If enlargement view is necessary on an additional plan sheet, include it on an 11” x 17” sheet directly behind the respective plan sheet from which the enlargement comes, following the with contours plan sheet.
    - Place a rectangle on the source plan sheet (both without and with contours) to depict the extent of the enlargement, and a note “See Permit Drawing Sheet __ of __ for Enlargement”. Do not show contours on the enlargement sheet.
    - If applicable, Riparian Buffer Zones should be reflected on the wetland/stream permit plan view.

<u>Sheets should include</u>:

- Existing and proposed bridge/interior bents and/or box culverts
- Stormwater treatment data
    - Show Q_{10} and V_{10} data for all ditch outlets that drain directly into wetlands. V_{10} must be non-erosive (2.0 fps or less) entering wetlands.
    - For preformed scour holes, show Q_{10}.
- Temporary work bridges and rock work pads or causeways. See Work Pad section below.
- Details for features affecting impact areas: bank stabilization, swales, structure inlet/outlets, etc.
- Roadway centerline, stations with tick marks, sheet match lines, north arrow and parcel numbers and names.
- Top of bank lines for major stream crossings.

4. Permit Profile Sheets for Bridges
    - 11”x17”, each located directly behind respective permit plan view
    - Use Roadway’s centerline profile sheet and show existing and proposed bridges including interior bents.
    - The bridge and bridge opening profile should match the bridge opening contained in the Bridge Survey Report.
    - Any required excavation and the Normal Water Surface (NWS) should also be shown on the profile sheets.
    - For CAMA Permits, indicate rip rap under bridges on profile. It should match what is shown on the BSR.

- For tidally influenced crossings, show Mean High Water (MHW) and Mean Low Water (MLW) or only Normal Water Level (NWL) if the difference between daily high and low tides is less than six inches.

5. Permit Profile Sheets for Culverts
   - 11”x17”, each located directly behind respective permit plan view
   - Profiles along culverts are required for pipes and box culverts that have the conveyance of a 60” pipe or greater in Jurisdictional Streams (JS).
   - Show flow line profile of culvert and stream. Flow Line Profile from Culvert Survey Report can be used.
   - Indicate the Normal Water Surface (NWS) and slope of the culvert. (See examples provided in link under Section **Error! Reference source not found.**.)
   - If copying linework from the CSR, delete any extraneous linework, notes, etc. not specifically required by these guidelines.
   - Include a readable grid as necessary.
6. Roadway Cross Sections
   - 11”x17”, one representative cross section per site in wetland impact areas, located directly behind respective permit site plan or profile view
   - Wetland boundaries should be indicated on the cross section(s) by a thick vertical line labeled “Wetlands”.
     - It is not necessary to add arrows or other designations to indicate the span of wetlands.
   - Separate cross sections are not needed for buffer permit drawings if they are already included in wetland/stream permit drawings.
7. Hydraulic Design Detail Sheet (if not included on project plan sheets)
   - For culvert sites with sills and/or baffles, provide culvert detail(s) and any associated notes such as native bed material.
8. Work Pads and Causeways
   - Copy layout from Structures Management’s General Drawing (SMGD) onto permit plan view if required.
     - Check the plotted limits of the work pad/causeway and correct if needed
   - Include cross-sectional detail of the work pad/causeway if needed for clarity and if not provided on SMGD.
     - If the cross-sectional detail will not fit on the permit plan view sheet, a separate detail sheet can be added.
     - Verify that the top of the work pad/causeway has been drawn at least two feet above the NWS. See example plan and profile sheets provided in link under Section 5.

- It is also acceptable to directly include Structures Management's General Drawing with the work pad/causeway cross sectional detail as a part of the Permit Drawings. The sheet number cell should be added directly to SMGD.

9. Wetland & Stream Impact Summary Sheet
   - 11"x 17", including separate Excel file
   - The latest "Wetland Permit Impact Summary" form can be found on the Hydraulics Unit Web Site under "Environmental Permits".
   - Individual site impacts should be entered to the nearest 0.001 acres on the Excel Wetland Permit Impact Summary Form "Data Entry Page" tab.
   - Print the Wetland Permit Impact Summary to be included in the permit drawing package from the "Print Page" tab, which rounds data to the nearest 0.01 acres or will show as "<0.01 acres" if applicable.
   - Show surface water impacts to the nearest linear foot.
   - Report permanent bank stabilization as a separate linear impact to the nearest foot.
   - Report temporary bank stabilization as a linear foot and acreage impact.
   - The Structures Management Unit will supply the Hydraulics Unit with permanent impact calculations for the proposed bents in the water.
     - This data should be reflected below the Wetland Permit Impact Summary Table in the "Notes" section.
   - If more than one summary sheet is required, include a subtotal for each sheet and on the last sheet have both a subtotal for that sheet and a total line for the entire project.
   - When numbering sites, present the impact quantities in enough detail where needed, without overly subdividing impacts.
     - Multiple impacts to a given jurisdictional feature that has the same wetland or stream ID should generally be numbered as one site, although some flexibility is permitted in dividing into separate sites if the impacts are not located near each other.
     - Numbering should be sequential numbers and avoid the use of letters to further subdivide sites (e.g., 2A, 2B, 2C, etc.) as this nomenclature is occasionally used for additional sites that are determined in late stages of design or construction.
     - Separate lines may be used on the Summary Sheet for the same site if absolutely necessary and as an exception, and not the rule. Site numbering examples include:
       - Show one large wetland that has several lateral impacts that are visually near each other (such as on the same sheet or straddling a

matchline) as one site. Additional impacts that are not on the same or adjacent sheets may be divided into a separate site.

- Show a wetland with a stream running through it as one site. It is not necessary to show separate lines on the Summary Sheet for the wetland / stream impacts, since the impacts for each will be in separate columns and it will be clear which is which.
- Show a stream carried by a cross-pipe with the same stream ID on both sides of the road as one site. If the stream has adjacent wetlands on both sides of the road (which have different wetland IDs), the wetlands would be separate sites from each other, and both sides of the stream may be included with one of the wetland sites.
- Show streams with different stream IDs as separate sites. In the case of multiple streams (and stream IDs) adjacent to wetlands, the wetlands should be included with the main stream, and those streams considered to be tributaries should be listed separately.
- Show a stream that is crossed twice (such as on the mainline, and again on a -Y- line) as separate sites for each crossing if they are physically separated from each other.
- Show bank stabilization quantities as a separate line on the Summary Sheet from other impacts to the same stream, although they would still be part of the same numbered site for that one stream (same stream ID) and would not have a separate site number label on the plan view.

3.2.1 Wetland Permit Impact Summary Sheet Key

Do NOT add/modify columns in the Summary Sheet. Notes may be added in the bottom left “Notes” section if additional description is required.

1. Site No.: site number referenced on the permit drawing plan view
2. Station (from/to): the project station where the impacts occur. Does not have to be from/to unless it is a very long linear impact. Reference left or right of the centerline if applicable.
3. Structure Size/Type: type of structure, if applicable (e.g., box culvert, bridge, pipe, temporary work bridge, temporary rock causeway, bank stabilization, roadway fill, etc.)
    - Descriptions should avoid being overly descriptive and should avoid specialized engineering terms beyond those previously listed.
    - It is not necessary to identify pipe material. Identify as a pipe with the pipe size (for example, 54” Pipe).
    - “Roadway fill” should only be specified if no other structure type applies. If there is a pipe or culvert, it is understood that it will have fill over it and this should not be listed as a separate line.

- The goal is to identify the primary cause of impact for that site and not to subdivide the impacts for every single structure/feature that may be present. For example, two cross-pipes crossing one wetland may be shown together on the same line.
- Bank Stabilization should be noted on a separate line and only the impacts associated with the bank stabilization will be shown on this line.

4. For permanent fill in wetlands, temporary fill in wetlands, excavation in wetlands, mechanized clearing in wetlands, hand clearing in wetlands, and isolated wetlands, report impact in acres of wetlands. For an isolated wetland site, place an asterisk with the quantity to reference a note below the summary table on the impact summary sheet.
5. Permanent SW Impacts: quantity in acres of surface waters impacted permanently (normally by fill).
    - Surface waters include streams, lakes and ponds that are connected to surface water streams or wetlands. Does not include isolated ponds.
        - Examples: culverts in streams, permanently placed riprap in streams, bank stabilization, any part of the surface water of the stream that is permanently relocated, permanent roadway fill in the surface water, any part of the surface water that is permanently dewatered or drained, etc.
        - Bank stabilization should be noted separately, for each site in the impact table.
        - Permanent bank stabilization should be reported only as a linear impact to the nearest foot. Where permanent bank stabilization is proposed on opposing sides of the channel, do not double count impacts in areas of overlap.
            - Length is total length of channel impacted, regardless of whether impacts are on one bank or both
6. Temporary SW Impacts: quantity in acres of surface waters impacted temporarily.
    - Surface waters include streams, lakes and ponds that are connected to surface water streams or wetlands
    - Ponds that are connected to surface water streams or wetlands; does not include isolated ponds. Examples: temporary fills due to temporary rock causeways required for bridge construction or construction access, temporary detour fills in surface water, temporary dewatering impacts required for construction.
    - Temporary bank stabilization (grading of the bank where rip rap will not be placed) should be reported as a linear foot and acreage impact.
7. Existing Channel Impacts Permanent: length of stream that is permanently impacted as noted in item 5 above. Report to nearest foot.
8. Existing Channel Impacts Temporary: length of stream that is temporarily impacted as noted in item 6 above. This distance should be a minimum of ten feet beyond

each end of the proposed drainage structure for pipe and culvert crossings but may need to extend to the limit of construction phasing. Report to nearest foot.

9. Natural Stream Design - length of stream that is relocated (due to project impacting it) using natural stream design techniques. Report to nearest foot.

Note that other impacts the permitting agencies require may be reported at the bottom of the sheet in the "Notes" section. Examples would be impacts due to bridge piers (provided by Structures Management Unit) in the wetlands (temporary and permanent), CAMA wetlands, etc. Notes regarding impact quantities should be clear if they're "in addition to the impact quantities shown in the table" or "included in the impact quantities shown in the table."

3.2.2 Buffer Permit Drawings

Current basins and watersheds that require buffer permit drawings:

Neuse River Basin, Tar-Pamlico River Basin, Catawba River (Main Stem and Main Stem Lakes), Goose Creek, Randleman Lake Watershed, Jordan Lake Watershed

- Submit buffer permit drawings as a separate PDF and not part of the wetland / stream permit drawings PDF). The buffer drawings package should be named *"TIP_Permit Drawings_BUFFER_Current Date (YEARmoDAY) .pdf".*
- Include "*Permit Drawing Sheet__of __"* cell on all sheets (excluding the Stormwater Management Plan, SMP) with respective sheet numbers filled in. Sheet numbers should start with one for the title sheet and are not a continuation of the numbers for the wetland / stream permit drawing package.

Buffer permit drawings should contain the following, in the order listed:

1. Project Title Sheet
   - 11"x17" titled "Buffer Impacts"
   - Label site locations numerically (1, 2, 3, etc.).
   - Verify that Let and R/W dates are current.
2. Plan Sheets with Impacts Hatched (without contours)
   - 11"x17" (for only those sheets with impacts), showing hatched area impacts for buffers and access for work bridges/work pads or causeways needed for demolition of the existing structure or construction of the proposed structure.
   - Place a legend for the hatched area type and sheet scale on each sheet.
   - If enlargement view is necessary on an additional plan sheet, include it on an 11" x 17" sheet directly behind the respective plan view. Place a rectangle on the main plan sheet to depict the extent of the enlargement, and a note "See Permit Drawing Sheet __ of __ for Enlargement". If applicable, wetland/stream boundaries should be reflected on the buffer permit plan view.

- For existing transportation facilities with jurisdictional stream crossings, show riparian buffer zones as arcs around the ends of the existing cross line pipes/culverts. If both ends of the existing cross line are jurisdictional, the arcs should extend until they overlap where they should merge.
    - The guidance above is based on the March 10, 2008 Buffer Interpretation/Clarification Memo from the Division of Water Quality (Division of Water Resources as of 8/1/2013) provided in Section 5.1.
    - To review other Riparian Buffer Clarification Memos published by NCDWR, refer to "DOT and Other Road Projects" on the following link: http://swpermits.nc.gov/web/wq/swp/ws/401/riparianbuffers/bufferclarifications#DOT_Projects
- Show buffer lines, but do not show buffer hatching nor quantify impacts within the footprint of the existing transportation facility (existing toe of slope or edge of maintenance, or edge of existing bridge deck).

  Sheets should include:
    - Existing and proposed bridge/interior bents and/or box culverts
    - Top of bank for any stream with buffers
    - Grass swale ditch data at buffer areas:
        - Show Q_2, V_2 and Q_{10}, V_{10} data as well as all other pertinent data described in BMP Toolbox, Stormwater Management Plan and grass swale data table cell under MicroStation main menu/Permits/Buffer Rules/Data Tables/Grass Swale.
    - Temporary work bridges and rock work pads or causeways
        - See example work pad plan and profile sheets in the link provided in Section 5.
    - Details for features affecting impact areas; bank stabilization, swale, structure inlet/outlets, etc.
    - Roadway centerline, stations with tick marks, sheet match lines, north arrow and parcel numbers and property owners.

3. Hydraulic Design Detail Sheet (if not included on Project Plan Sheets)
4. Stormwater Control Details (if details are on separate sheets, include those sheets)
5. Buffer Impact Summary Sheet
    - 11"x17"
    - The latest "Buffer Impact Summary" form can be found on the Hydraulics Unit Web Site under "Environmental Permit Forms".
    - Show Riparian Buffer (Zone 1 and Zone 2) Impacts to the nearest square foot.
    - There is another worksheet in this file (see Excel tab) where "wetlands in buffer" square footage needs to be reported, to be used by EAU to ensure that impacts

are not counted twice. Note that a line drawn through and skewed with each end of the proposed bridge serves as the break between Road Crossing and Bridge Crossing Impacts.

- For coastal counties, riparian buffers extend from the limit of the established CAMA Coastal Wetland boundary. See the Division of Water Quality (Division of Water Resources as of 8/1/2013) buffer clarification memo dated May 25, 2007: (copy provided Section 5.2).

3.2.3 Buffer Permit Impact Summary Key

(For items not explained above)

1. SITE NO.: site number referenced on the buffer drawing plan view.
2. TYPE: type of impact - Road Crossing, Bridge or Parallel Impact - place an “x” in the appropriate column
   - The three most common types of impacts are road crossing, bridge, or parallel impacts; however, other types of impacts may exist (e.g., temporary road). A column that is not being used may be used for reporting these impacts, or a new column may need to be added.
3. ALLOWABLE IMPACT: Zone 1, Zone 2, and totals (Zone 1 plus Zone 2)
4. MITIGABLE IMPACT: Zone 1, Zone 2, and totals.
5. BUFFER REPLACEMENT: Zone 1, Zone 2, and totals.
6. WETLANDS IN BUFFERS (see tab at bottom of spreadsheet): To ensure impacts are not counted twice in both wetlands and buffers impacts summaries, report the wetlands within buffer zones in units of square feet for EAU’s use.

3.2.4 CAMA Major Permit (MP) Application Forms

Refer to Figure 1 for a map of the 20 CAMA Counties.

For CAMA Permits (only if required):

- If CAMA Wetlands are indicated in the WET file, show combined quantity in table but indicate separate CAMA Wetland Quantity in a note at the bottom of the impact summary sheet.
- CAMA Major Permit (MP) Application Forms as needed. The forms can be downloaded from https://deq.nc.gov/about/divisions/coastal-management/coastal-management-permits/major-permit-applications.

CAMA COUNTIES

If your project is one of these 20 counties reflected below and within an Area of Environmental Concern (AEC), a CAMA Permit may be required.

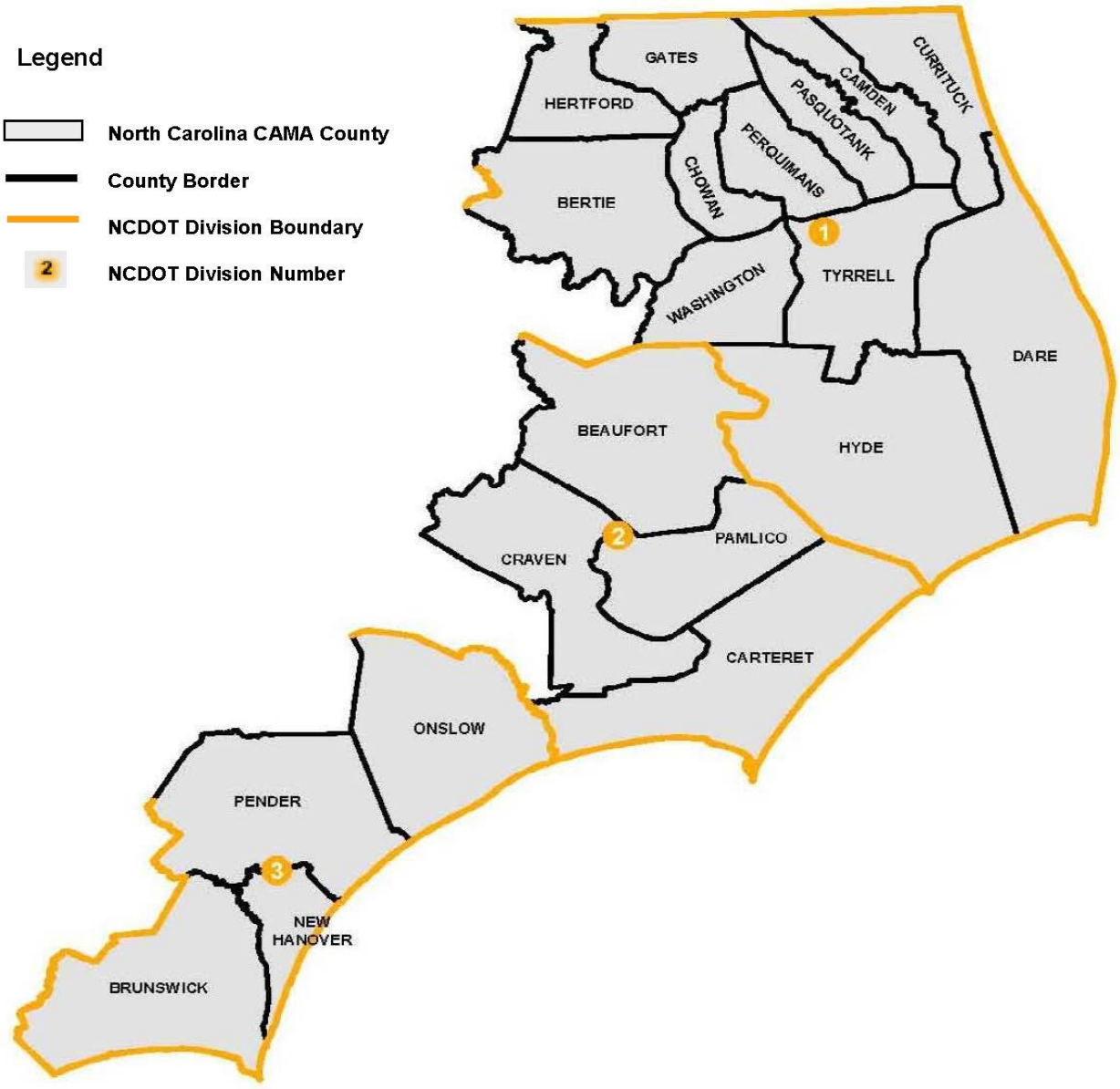


Figure 1. Map of CAMA Counties

4. General Guidance for Submittals

- Include Excel versions of the wetland / stream and buffer impact table with the submittals for review by the hydraulic reviewer and EAU.
- Prior to submittal to the hydraulic reviewer, submit the permit drawings to the Roadway Design Lead for a roadway consistency review. This review ensures that the permit drawings agree with the current roadway plans (e.g., the latest design and reference files are being used, including WET file), and all revisions are reflected on the permit drawings.
- Upon completion of the roadway consistency review, the Roadway Design Lead should notify EAU of the location of the PDF of the current roadway plans for inclusion in the Permit Application package.
- Include CADD and Excel files as well as the PDF of the permit drawings in the final submission to the hydraulic reviewer.
- For Merger Projects, upload final “4B” & “4C” Merger Meeting Minutes in PDF format to the ATLAS Workbench, which will tag them appropriately and place them on the Preconstruction Connect NCDOT site in the project library.
- When plan drawings are submitted in a Permit Application package, they are being presented to the respective agencies, and if appropriate, for public review. The internal review process should be as thorough as the review our State and Federal agency partners will apply during the application process. As such, application drawings should always be submitted to the NCDOT Technical Expert Unit to ensure directives like the above are followed (e.g., Utility drawings are reviewed Utilities, Roadway by Roadway, etc.). The drawings may be delivered to EAU once the Technical Expert Unit reviews and approves them. Permit drawings prepared for roadway and drainage impacts must include review and approval by both the Roadway Design Lead (as noted above in the consistency review) and the hydraulic reviewer prior to submittal to EAU.
- Utility impacts should be kept separate from those required for roadway and drainage impacts and should not be combined with the impacts shown on the wetland/stream and buffer permit drawings prepared by the hydraulic designer. Utility impacts should appear on a separate set of permit drawings in accordance with guidance from the Utilities Unit.
- Once the permit drawing package has been reviewed and approved by all reviewers (including EAU), it should be included as part of the permit application package and uploaded in PDF format to the ATLAS Workbench (which will tag items appropriately and place them on the Preconstruction Connect NCDOT site in the project library). This is performed by EAU Environmental Coordination and Permitting (ECAP) for centrally managed projects.
- Submittals for Division-managed projects should be coordinated with the Division Environmental Officer (DEO).

5. Additional Documentation

Example permit applications

Figure 2. Example Along Culvert Profile Permit Drawing

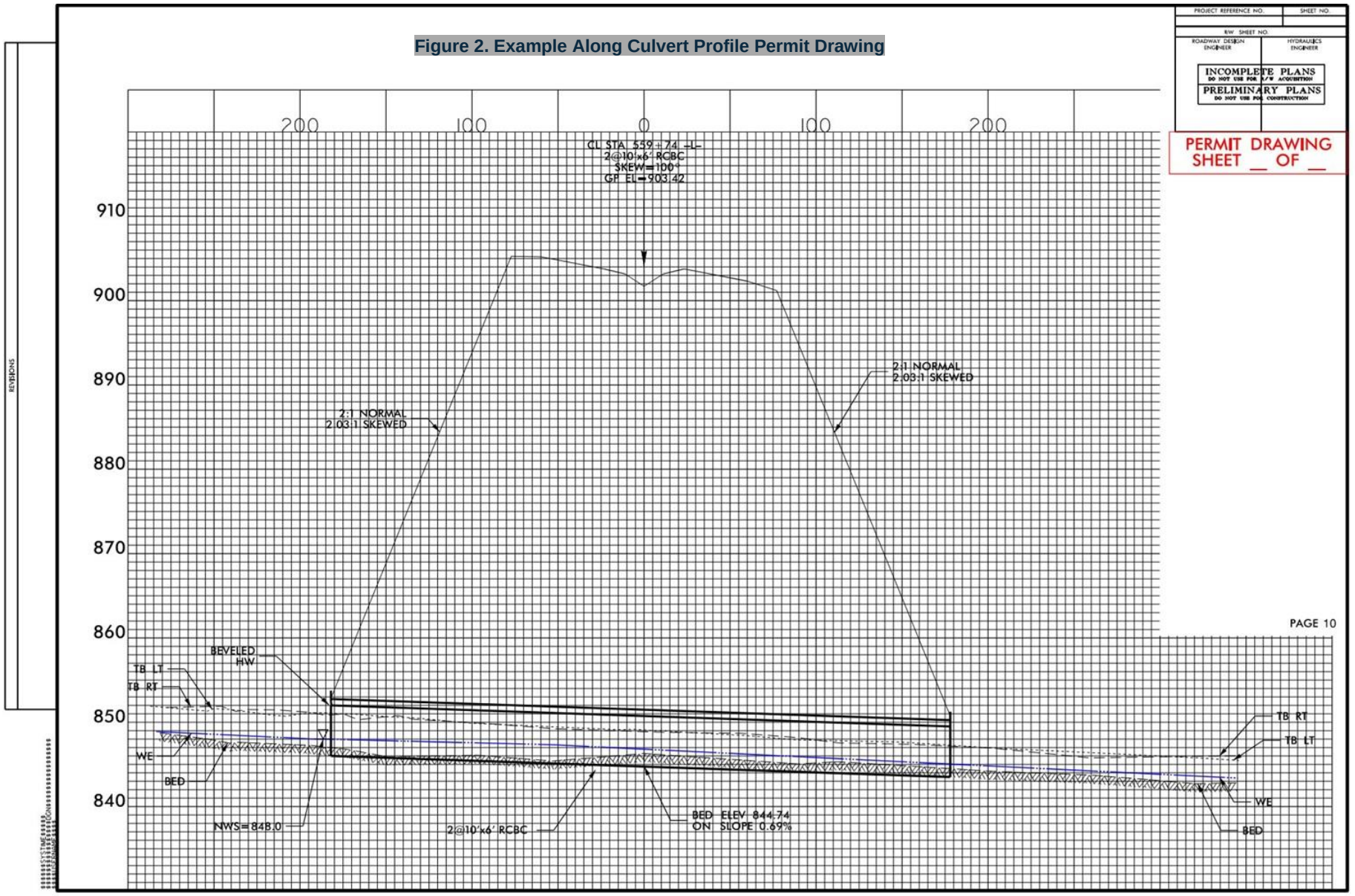


Figure 3. Work Pad Example

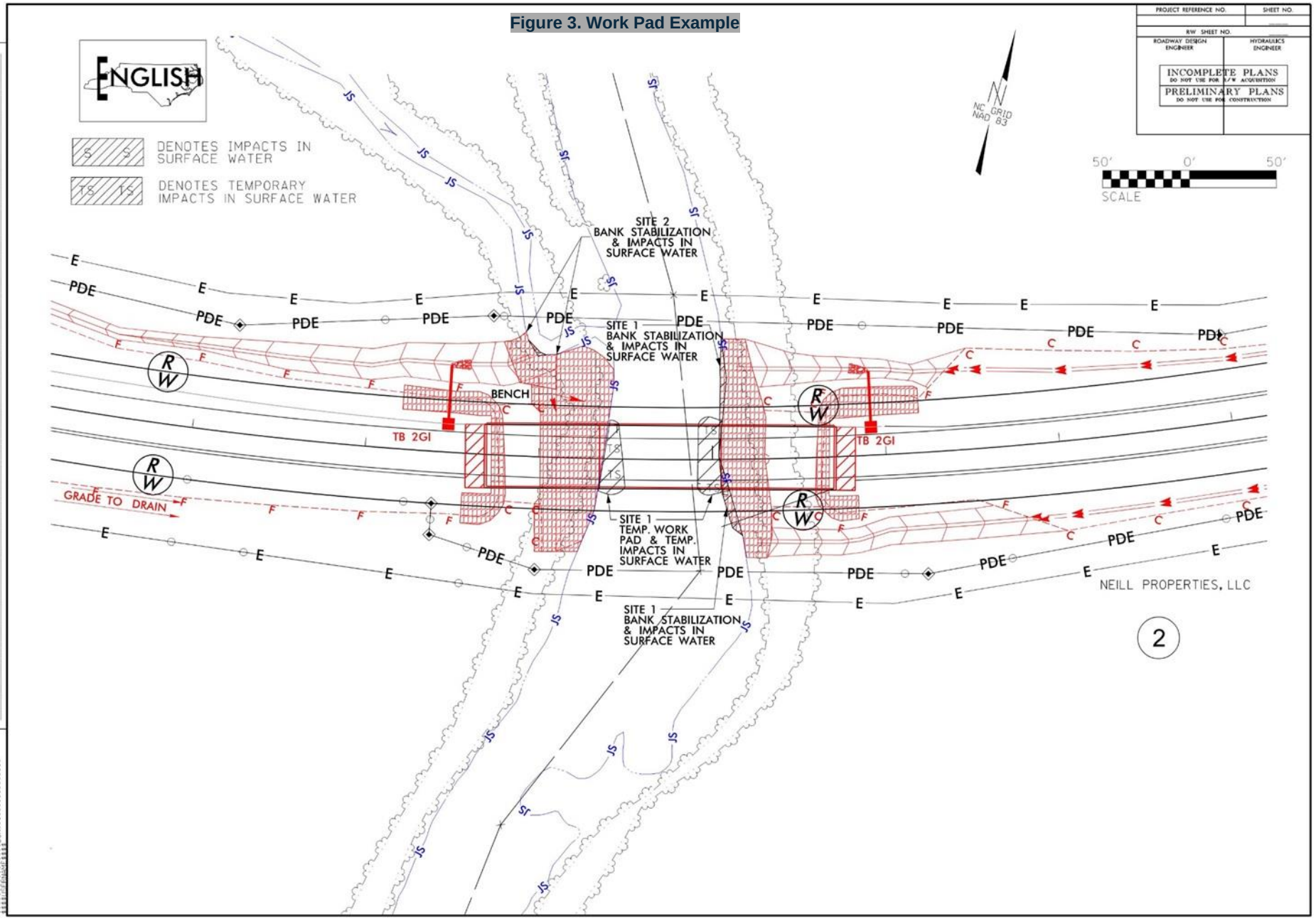
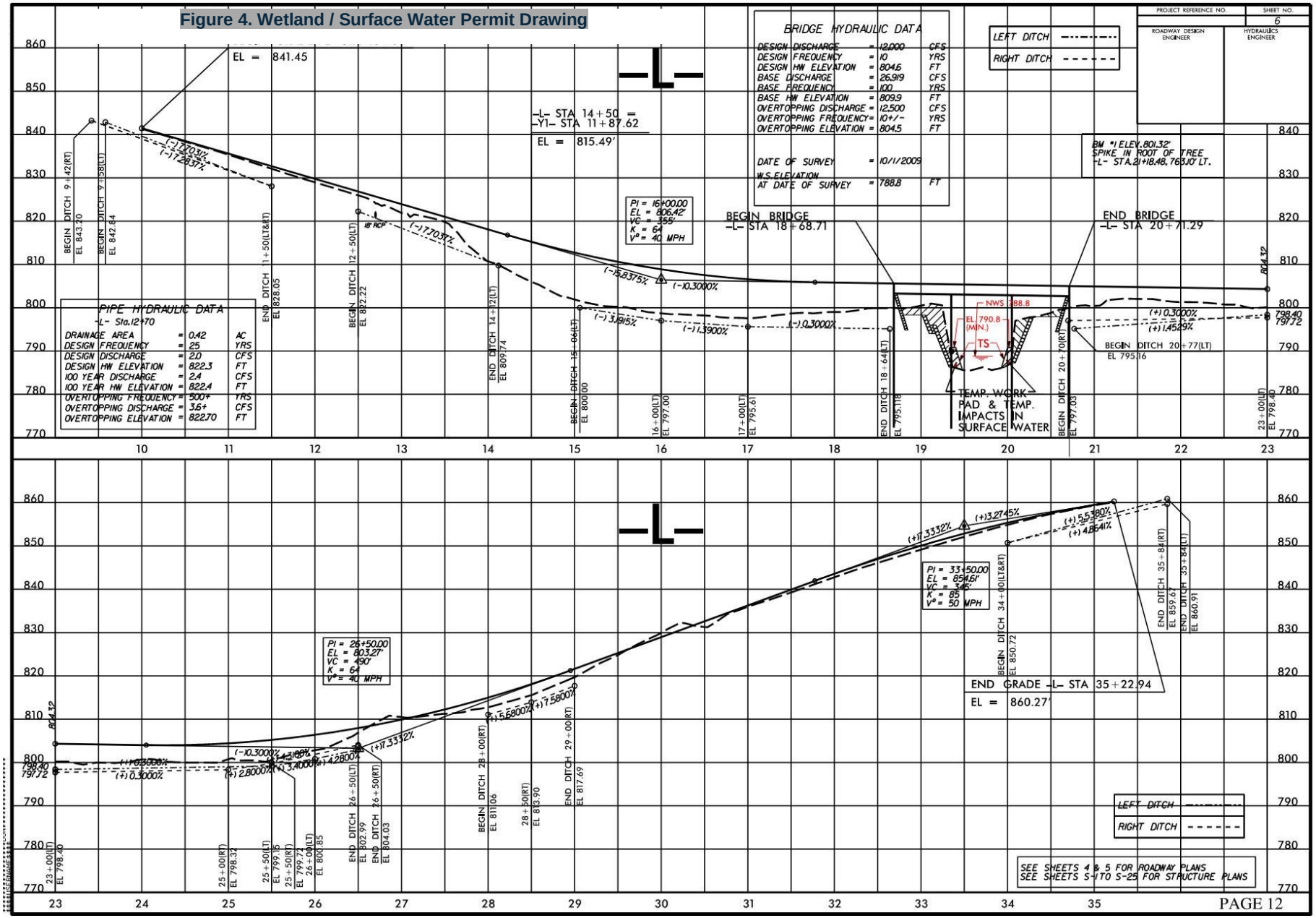


Figure 4. Wetland / Surface Water Permit Drawing



5.1 DWQ Memo – Buffer Limits at Pipe

DIVISION OF WATER QUALITY

Michael F. Easley
Governor

William G. Ross, Jr., Secretary
Department of Environment and Natural Resources

Coleen, H. Sullins, Director
Division of Water Quality

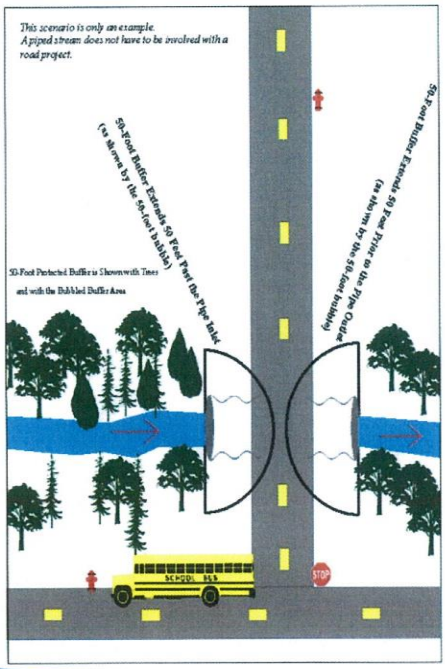
March 10, 2008
Buffer Interpretation/Clarification #2008-018

MEMORANDUM

RE: There has been a need to clarify how to measure the 50-foot buffer at the point where a stream ceases to be piped or "daylights" (the start point of a stream) as well as how to measure the 50-foot buffer at the point where a "daylighted" stream becomes piped (the stop point of a stream), per the Neuse River Basin Buffer Rule 15A NCAC 2B.0233(4), the Tar-Pamlico River Basin Buffer Rule 15A NCAC 2B.0259(4), the Randleman Lake Water Supply Watershed Buffer Rule 15A NCAC 2B.0250(3), and the Catawba River Basin Buffer Rule 15A NCAC 2B.0243(4).

Solution: In the case where a stream has been piped and then daylights, the buffer start point of that stream is a "bubble" arcing 50-feet upstream of the pipe. In the case where a daylighted stream becomes piped, the buffer stop point is a "bubble" arcing 50-feet downstream from the pipe.

**The drawing below illustrates the 50-foot buffer "bubble" at the start and stop points of a stream that is subject to the above-mentioned buffer rules*.*



Signature: _____ Date: 3-13-08

One North Carolina Naturally

401 Wetlands Certification Unit
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5.2 DWQ Memo – Buffer Zone in Coastal Counties

DIVISION OF WATER QUALITY DWQ

Michael F. Easley
Governor

William G. Ross, Jr., Secretary
Department of Environment and Natural Resources

Alan W. Klimek, P.E., Director
Division of Water Quality

May 25, 2007
Buffer Interpretation/Clarification #2007-009

MEMORANDUM

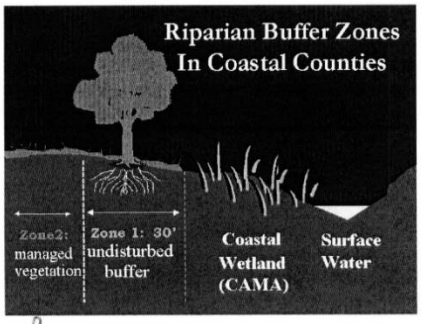
The Division of Water Quality's (DWQ's) stance on riparian buffers in the 20 Coastal Counties per the Neuse River Basin Buffer Rule 15A NCAC 02B.0233 and the Tar-Pamlico River Basin Buffer Rule 15A NCAC 02B.0259.

According to the Neuse River Basin Buffer Rule 15A NCAC 02B.0233(4)(a)(iii) and the Tar-Pamlico River Basin Buffer Rule 15A NCAC 02B.0259(4)(a)(iii), for surface waters within the 20 Coastal Counties (defined in 15A NCAC 2B.0202) within the jurisdiction of the Division of Coastal Management (DCM), Zone 1 shall begin at the most landward limit of:

(A) the normal high water level;
(B) the normal water level; or
(C) the landward limit of coastal wetlands as defined by the DCM.

In some instances, the Coastal Shoreline Rule's (15A NCAC 07H.0209(e) 30- foot shoreline buffer is being confused with the DCM's coastal wetland line. The Coastal Shoreline Rule requires new development to be located a distance of 30 feet landward of the normal water level or normal high water level. Zone 1 for the Neuse and Tar-Pamlico Buffer Rules begins at the same point as this Coastal Shoreline Rule buffer. Zone 2 for the Neuse and Tar-Pamlico Buffer Rules extends 20 feet past the Zone 1 buffers.

However, if DCM flags a coastal wetland boundary line, the Neuse and Tar-Pamlico Buffers shall begin landward of the coastal wetland boundary line (see diagram below). Coastal wetlands are defined as marshlands in G.S. 113-229(n)(3) as "any salt marsh or other marsh subject to regular or occasional flooding by tides, including wind tides (whether or not the tidewaters reach the marshland areas through natural or artificial watercourses), provided this shall not include hurricane or tropical storm tides."



Signature: _____ Date: 5/29/07

One North Carolina Naturally

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