



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

January 30, 2007

MEMORANDUM TO: Mr. Richard E. Greene, Jr., PE  
Division Four Engineer

FROM: Philip S. Harris, III, P.E., Unit Head   
Natural Environment Unit  
Project Development and Environmental Analysis Branch

SUBJECT: Johnston County, Replace Bridge No.415 on SR 1718 over  
Buffalo Creek; T.I.P. Number B-3672; Federal Aid Project  
BRZ-1718(4); State Project 8.2312401

Attached is the U. S. Army Corps of Engineers 404 Nationwide Permit Number 23 and the general conditions for the 401 Water Quality Certification for the above referenced project. All environmental permits have been received for the construction of this project.

PSH/gyb

Attachment

Cc:

Mr. Majed Alghandour, P. E., Programming and TIP  
Mr. Jay Bennett, P.E., Roadway Design  
Dr. David Chang, P.E., Hydraulics  
Mr. Randy Garris, P.E. State Contract Officer  
Mr. Art McMillan, P.E., Highway Design  
Mr. Greg Perfetti, P.E., Structure Design  
Mr. Mark Staley, Roadside Environmental  
Mr. John F. Sullivan, FHWA  
Mr. Rob Hanson, P.E., PDEA Eastern Region Unit Head  
Mr. Jamie Guerrero, Division Environmental Officer

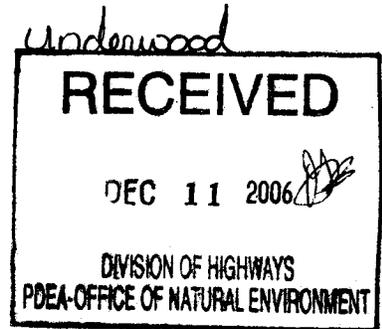


IN REPLY REFER TO

**DEPARTMENT OF THE ARMY  
WILMINGTON DISTRICT, CORPS OF ENGINEERS**

Washington Regulatory Field Office  
P.O. Box 1000  
Washington, North Carolina 27889-1000

November 28, 2006



Regulatory Division

Subject: Action ID No. SAW 2006-41547-151 and Nationwide Permit No. 23 (Approved  
Categorical Exclusions)

Dr. Gregory J. Thorpe, Ph.D.  
Environmental Management Director, PDEA  
N.C. Department of Transportation  
1548 Mail Service Center  
Raleigh, North Carolina 27699-1548



Dear Dr. Thorpe:

Reference your Categorical Exclusion Document, approved on April 4, 2005, and your subsequent correspondence dated October 12, 2006, for the replacement of Bridge No. 415 on NCSR 1718 over Buffalo Creek, Federal Aid Project No. BRZ-1718 (4), State Project No. 8.2312401, T.I.P. No. B-3672, Johnston County, North Carolina. The project involves an off site detour and will replace the existing structure in the same location with a 120-foot bridge utilizing top-down construction adversely impacting 0.018 acres of riverine wetlands and 0.02 acres of open waters adjacent to Buffalo Creek.

For the purposes of the Corps of Engineers Regulatory Program, Title 33, Code of Federal Regulations (CFR), Part 330.6, published in the Federal Register on November 22, 1991, lists nationwide permits. Authorization pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, was provided for activities undertaken, assisted, authorized, regulated, funded or financed, in whole or part, by another Federal agency or department where that agency or department has determined, pursuant to the CEQ Regulation for the Implementing the Procedural Provisions of the National Environmental Policy Act, that the activity, work or discharge is categorically excluded from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment, and the Office of the Chief of Engineers has been furnished notice of the agency's or department's application for the categorical exclusion and concurs with that determination.

Review of this project indicates that the construction of the new bridge will adversely impact 0.018 acres of riverine wetlands consisting of 0.001 acres of permanent fill, 0.003 acres of excavation, and 0.014 acres of temporary impacts from hand-clearing activities in wetlands.

There will also be temporary impacts to 0.02 acres of surface waters for the installation of a temporary work pad.

Your work is authorized under Nationwide Permit 23, Categorical Exclusion, and Nationwide Permit 33, Temporary Construction, Access and Dewatering, provided it is accomplished in strict accordance with the enclosed Nationwide Permit Conditions and the following special conditions:

a. All measures will be taken to avoid any temporary fill from entering into Buffalo Creek from bridge demolition. Bridge demolition shall follow NCDOT best management practices for construction and maintenance activities dated August 2003 and incorporate NCDOT policy entitled "Bridge Demolition and Removal in Waters of the United States" dated September 20, 1999.

b. No bridge demolition debris or excavated or fill material will be placed at any time, in any wetlands or surrounding waters, outside of the alignment of the fill area indicated on the work plans.

c. All excavated materials will be confined above normal high water and landward of regularly or irregularly flooded wetlands behind adequate dikes or retaining structures to prevent spillover of solids into any wetlands or surrounding waters.

d. Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill, or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands, or any activities that cause the degradation of waters or wetlands, except as authorized by this permit, or any modification to this permit. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. There shall be no excavation from, waste disposal into, or degradation of, jurisdictional waters or wetlands associated with this permit without appropriate modification of this permit, including appropriate compensatory mitigation. This prohibition applies to all borrow and fill activities connected with this project.

e. To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the

USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands. The permittee shall ensure that all such areas comply with condition (d) of this permit, and shall require and maintain documentation of the location and characteristics of all borrow and disposal sites associated with this project. This information will include data regarding soils, vegetation and hydrology sufficient to clearly demonstrate compliance with the preceding condition (d). All information will be available to the USACE upon request. NCDOT shall require its contractors to complete and execute reclamation plans for each waste and borrow site and provide written documentation that the reclamation plans have been implemented and all work is completed. This documentation will be provided to the Corps of Engineers within 30 days of the completion of the reclamation work.

f. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions and any Corps approved modifications shall be available at the project site during construction and maintenance of this project.

g. Any violation of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District, U.S. Army Corps of Engineers, within 24 hours of the violation.

h. All temporary fill (rip-rap work pad) shall be removed in its entirety upon completion of the construction at the site.

h. Failure to institute and carry out the details of special conditions a. - h., above, may result in a directive to cease all ongoing and permitted work within waters and/or wetlands associated with TIP No. B-3672, or such other remedy as the District Engineer or his authorized representatives may seek.

This nationwide permit does not relieve you of the responsibility to obtain any required State or local approval. This permit is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked prior to March 18, 2007. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to

commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this nationwide permit. If, prior to the expiration date of March 18, 2007, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until March 18, 2007, provided it complies with all new and/or modified terms and conditions. The District Engineer may, at any time, exercise his discretionary authority to modify, suspend, or revoke a case specific activity's authorization under any NWP.

Thank you for your time and cooperation. If you have any questions, you may contact Mr. William Wescott at the Washington Regulatory Field Office, Post Office Box 1000, Washington, North Carolina, 27889, or telephone 252-975-1616, extension 31.

Sincerely,



William Biddlecome  
Project Manager

Enclosures

Copies Furnished (without enclosures)

Mr. Rob Ridings  
Water Quality Section  
North Carolina Division of Environment  
and Natural Resources  
1650 Mail Service Center  
Raleigh, North Carolina 27699-1650

Mr. Travis Wilson  
Eastern Region Highway Project Coordinator  
Habitat Conservation Program  
1142 I-85 Service Road  
Creedmoor, North Carolina 27522

Mr. Gary Jordan  
U.S. Fish and Wildlife Service  
Fish and Wildlife Enhancement  
Post Office Box 33726  
Raleigh, North Carolina 27636-3726

Mr. Ron Sechler  
National Marine Fisheries Service  
101 Pivers Island  
Beaufort, North Carolina 28516

Mr. Chris Militscher  
U.S. Environmental Protection Agency  
C/O FHWA, Raleigh Office  
310 New Bern Avenue, Room 206  
Raleigh, North Carolina 27601

Ms. Kathy Matthews  
USEPA-Region 4 Wetlands Section  
109 T.W. Alexander Drive  
Durham, North Carolina 27771  
Mail Code:E143-04

Mr. William D. Gilmore, P.E.  
EEP Director  
North Carolina Ecosystem Enhancement Program  
1652 Mail Service Center  
Raleigh, North Carolina 27699-1652

Mr. Garcy Ward  
NCDWQ Washington Regional Office  
943 Washington Square Mall  
Washington, North Carolina 27889

Action ID Number: 2006-41547-151

County: Johnston

Permittee: NCDOT, Greg Thorpe, Ph.D.

Date Permit Issued: 11/28/2006

Project Manager: Biddlecome/Wescott

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

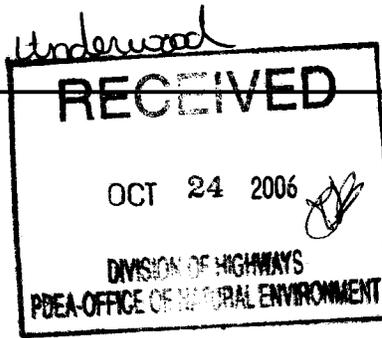
US ARMY CORPS OF ENGINEERS  
WILMINGTON DISTRICT  
WASHINGTON REGULATORY FIELD OFFICE  
Post Office Box 1000  
Washington, North Carolina 27889

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Date



October 20, 2006  
 Johnston County  
 DWQ Project No. 20061616  
 Bridge 415 on SR 1718  
 TIP# B-3672

**APPROVAL of 401 WATER QUALITY CERTIFICATION, and NEUSE BUFFER AUTHORIZATION, with ADDITIONAL CONDITIONS**

Dr. Gregory J. Thorpe, Ph.D., Director  
 NCDOT, Project Development and Environmental Analysis  
 1598 Mail Service Center  
 Raleigh, NC 27699

Dear Dr. Thorpe:

You have our approval, in accordance with the conditions listed below, for the following impacts for the purpose of replacing Bridge 415 in Johnston County:

**Wetland Impacts in the Neuse River Basin**

Site	Fill (ac)	Excavation (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
1	0.001	0.003	0.014	0.018
<b>Total</b>	<b>0.001</b>	<b>0.003</b>	<b>0.014</b>	<b>0.018</b>

**Total Wetland Impact for Project: 0.018 acres.**

**Open Water (Stream) Impacts in the Neuse River Basin**

Site	Permanent Fill in Open Waters (ac)	Temporary Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
1	0	0.02	0.02
<b>Total</b>	<b>0</b>	<b>0.02</b>	<b>0.02</b>

**Total Open Water Impact for Project: 0.02 acres.**

**Neuse Riparian Buffer Impacts**

Site	Zone 1 Impact (sq ft)	minus Wetlands in Zone 1 (sq ft)	= Zone 1 Buffers (not wetlands) (sq ft)	Zone 1 Buffer Mitigation Required (using 3:1 ratio)	Zone 2 Impact (sq ft)	minus Wetlands in Zone 2 (sq ft)	= Zone 2 Buffers (not wetlands) (sq ft)	Zone 2 Buffer Mitigation Required (using 1.5:1 ratio)
1	3,417	650	2,767	N/A	2,895	0	2,895	N/A
<b>Totals</b>	<b>3,417</b>	<b>650</b>	<b>2,767</b>	<b>0</b>	<b>2,895</b>	<b>0</b>	<b>2,895</b>	<b>0</b>

\* n/a = Total for Site is less than 1/3 acre and 150 linear feet of impact, no mitigation required

**Total Buffer Impact for Project: 5,662 square feet.**



The project shall be constructed in accordance with your application dated received October 17, 2006. After reviewing your application, we have decided that these impacts are covered by General Water Quality Certification Number 3366 and 3403. This certification corresponds to the Nationwide Permit 33 and Nationwide Permit 23 issued by the Corps of Engineers. This approval is also valid for the Neuse Riparian Buffer Rules (15A NCAC 2B.0233). In addition, you should acquire any other federal, state or local permits before you proceed with your project including (but not limited to) Sediment and Erosion Control, Non-Discharge and Water Supply Watershed regulations. This approval will expire with the accompanying 404 permit.

This approval is valid solely for the purpose and design described in your application (unless modified below). Should your project change, you must notify the DWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If total wetland fills for this project (now or in the future) exceed one acre, or of total impacts to streams (now or in the future) exceed 150 linear feet, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you must adhere to the conditions listed in the attached certification as well as those listed below.

#### **Conditions of Certification:**

1. Riprap should not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.
2. For any streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species.
3. The post-construction removal of any temporary bridge structures must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species.
4. Strict adherence to the most recent version of NCDOT's Best Management Practices For Bridge Demolition and Removal approved by the US Army Corps of Engineers is a condition of the 401 Water Quality Certification.
5. Bridge deck drains should not discharge directly into the stream. Stormwater should be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices*.
6. All stormwater runoff shall be directed as sheetflow through stream buffers at nonerosive velocities, unless otherwise approved by this certification.
7. All riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the preconstruction contours and revegetated. Maintained buffers shall be permanently revegetated with non-woody species by the end of the growing season following completion of construction. For the purpose of this condition, maintained buffer areas are defined as areas within the transportation corridor that will be subject to regular DOT maintenance activities including mowing. The area with non-maintained buffers shall be permanently revegetated, with native woody species before the next growing season following completion of construction.
8. Pursuant to NCAC15A 2B.0233(6), sediment and erosion control devices shall not be placed in Zone 1 of any Neuse Buffer without prior approval by the NCDWQ. At this time, the NCDWQ has approved no sediment and erosion control devices in Zone 1, outside of the approved project impacts, anywhere on this project. Moreover, sediment and erosion control devices shall be allowed in Zone 2 of the buffers provided that Zone 1 is not compromised and that discharge is released as diffuse flow.



9. If concrete is used during construction, a dry work area should be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete should not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.
10. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.
11. The dimension, pattern and profile of the stream above and below the crossing should not be modified. Disturbed floodplains and streams should be restored to natural geomorphic conditions.
12. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage.
13. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.
14. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.
15. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.
16. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.
17. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.
18. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If DWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, DWQ may reevaluate and modify this certification.
19. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification..
20. A copy of this Water Quality Certification shall be posted on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.
21. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.
22. Upon completion of the project, the NCDOT Division Engineer (or whomever is the authorized agent if a non-DOT project) shall complete and return the enclosed "Certification of Completion Form" to notify DWQ when all work included in the 401 Certification has been completed.



23. Native riparian vegetation must be reestablished within the construction limits of the project by the end of the growing season following completion of construction.

24. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.

25. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards:

- a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
- b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
- c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
- d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.

26. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, they shall be removed and the natural grade restored upon completion of the project.

If you do not accept any of the conditions of this certification, you may ask for an adjudicatory hearing. You must act within 60 days of the date that you receive this letter. To ask for a hearing, send a written petition that conforms to Chapter 150B of the North Carolina General Statutes to the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699. This certification and its conditions are final and binding unless you ask for a hearing. This letter completes the review of the Division of Water Quality under Section 401 of the Clean Water Act. If you have any questions, please contact Rob Ridings at (919)733-9817.

Sincerely,

A handwritten signature in black ink, appearing to read "Alan W. Klimek".

Alan W. Klimek, P.E.



Michael F. Easley, Governor  
William G. Ross Jr., Secretary  
North Carolina Department of Environment and Natural Resources

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

Attachments (General Certifications and Certificate of Completion form)

cc: Jamie Guerrero, Division 4 Environmental Officer  
William Wescott, US Army Corps of Engineers, Washington Field Office  
Travis Wilson, NC Wildlife Resources Commission  
DWQ Raleigh Regional Office  
File Copy



DWQ Project No.: \_\_\_\_\_ County: \_\_\_\_\_

Applicant: \_\_\_\_\_

Project Name: \_\_\_\_\_

Date of Issuance of 401 Water Quality Certification: \_\_\_\_\_

**Certificate of Completion**

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401 Transportation Permitting Unit, North Carolina Division of Water Quality, 1650 Mail Service Center, Raleigh, NC, 27699-1650. This form may be returned to DWQ by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

**Applicant's Certification**

I, \_\_\_\_\_, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Agent's Certification**

I, \_\_\_\_\_, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Engineer's Certification**

\_\_\_\_\_ Partial \_\_\_\_\_ Final

I, \_\_\_\_\_, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project, for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature \_\_\_\_\_ Registration No. \_\_\_\_\_

Date \_\_\_\_\_

# Certification of Completion

DWQ Project No.: \_\_\_\_\_ County: \_\_\_\_\_

Applicant: \_\_\_\_\_

Project Name: \_\_\_\_\_

Date of Issuance of Wetland Permit: \_\_\_\_\_

## Certificate of Completion

Upon completion of all work approved within the **401 Water Quality Certification and Buffer Rules**, and any subsequent modifications, the applicant is required to return this certificate to the 401 Oversight/Express Permitting Unit, North Carolina Division of Water Quality, 1650 Mail Service Center, Raleigh, NC, 27699-1650. This form may be returned to DWQ by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

### *Applicant's Certification*

I, \_\_\_\_\_, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the **401 Water Quality Certification and Buffer Rules**, the approved plans and specifications, and other supporting materials.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### *Agent's Certification*

I, \_\_\_\_\_, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the **401 Water Quality Certification and Buffer Rules**, the approved plans and specifications, and other supporting materials.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### *If this project was designed by a Certified Professional*

I, \_\_\_\_\_, as a duly registered Professional \_\_\_\_\_ (i.e., Engineer, Landscape Architect, Surveyor, etc.) in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project, for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the **401 Water Quality Certification and Buffer Rules**, the approved plans and specifications, and other supporting materials.

Signature: \_\_\_\_\_ Registration No. \_\_\_\_\_ Date \_\_\_\_\_

**GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE  
FOR CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBER 33  
(TEMPORARY CONSTRUCTION, ACCESS AND DEWATERING)  
AND RIPARIAN AREA PROTECTION RULES (BUFFER RULES)**

This General Certification is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality Regulations in 15A NCAC 2H, Section .0500 and 15A NCAC 2B .0200 for the discharge of fill material to waters and wetland areas as described in 33 CFR 330 Appendix A (B) (33) of the Corps of Engineers regulations (i.e., Nationwide Permit No. 33) and for the Riparian Area Protection Rules (Buffer Rules) in 15A NCAC 2B .0200. The category of activities shall include any fill activity for temporary construction, access and de-watering. This Certification replaces Water Quality Certification Number 2727 issued on May 1, 1992 and Certification Number 3114 issued on February 11, 1997. This WQC is rescinded when the Corps of Engineers reauthorize Nationwide Permit 33 or when deemed appropriate by the Director of the DWQ.

The State of North Carolina certifies that the specified category of activity will not violate appropriate portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

**Conditions of Certification:**

1. These activities do not require written concurrence from the Division of Water Quality as long as they comply with all conditions of this General Certification. If any condition in this Certification cannot be met, application to and written concurrence from DWQ are required. Also, Condition No. 2 is applicable to all streams in basins with riparian area protection rules;
2. Impacts to any stream length in the Neuse, Tar-Pamlico and Randleman River Basins (or any other major river basins with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) requires written concurrence from DWQ in accordance with 15A NCAC 2B.0200. Activities listed as "exempt" from these rules do not need to apply for written concurrence under this Certification. New development activities located in the protected 50-foot wide riparian areas (whether jurisdictional wetlands or not) within the Neuse, Tar-Pamlico, Randleman and Catawba River Basins shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 2B .0200. All new development shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices;
3. Appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" or the "North Carolina Surface Mining Manual" whichever is more appropriate (available from the Division of Land Resources (DLR) in the DENR Regional or Central Offices) shall be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate turbidity water quality standard;
4. All sediment and erosion control measures placed in wetlands or waters shall be removed and the original grade restored within two months after the Division of Land Resources has released the project;
5. If an environmental document is required, this Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse;
6. Placement of culverts and other structures in waters, streams, and wetlands must be placed below the elevation of the streambed to allow low flow passage of water and aquatic life unless it can be shown to DWQ that providing passage would be impractical. Design and placement of culverts including open bottom or bottomless arch culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in aggradation, degradation or significant changes in hydrology of wetlands or stream beds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium shall be maintained if requested in writing by DWQ. Additionally, when roadways, causeways or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges must be provided to maintain the natural hydrology of the system as well

## WQC #3366

as prevent constriction of the floodway that may result in aggradation, degradation or significant changes in hydrology of streams or wetlands;

7. Measures shall be taken to prevent live or fresh concrete from coming into contact with waters of the state until the concrete has hardened;
8. All temporary fill shall be removed to the original grade after construction is complete and the site shall be stabilized to prevent erosion;
9. Pipes shall be installed under the road or causeway in all streams to carry at least the 25 year storm event as outlined in the most recent edition of the "North Carolina Sediment and Erosion Control Planning and Design Manual" or the "North Carolina Surface Mining Manual" so as not to restrict stream flow during use of this Certification;
10. In accordance with North Carolina General Statute Section 143-215.3D(e), any request for written concurrence for a 401 Water Quality Certification must include the appropriate fee. If a project also requires a CAMA Permit, one payment to both agencies shall be submitted and will be the higher of the two fees;
11. Additional site-specific conditions may be added to projects for which written concurrence is required or requested under this Certification in order to ensure compliance with all applicable water quality and effluent standards;
12. Concurrence from DWQ that this Certification applies to an individual project shall expire three years from the date of the cover letter from DWQ or on the same day as the expiration date of these corresponding Nationwide and Regional General Permits, whichever is sooner;
13. When written concurrence is required, the applicant is required to use the most recent version of the Certification of Completion form to notify DWQ when all work included in the 401 Certification has been completed.

Non-compliance with or violation of the conditions herein set forth by a specific fill project shall result in revocation of this Certification for the project and may result in criminal and/or civil penalties.

The Director of the North Carolina Division of Water Quality may require submission of a formal application for individual certification for any project in this category of activity that requires written concurrence under this certification, if it is determined that the project is likely to have a significant adverse effect upon water quality or degrade the waters so that existing uses of the wetland, stream or downstream waters are precluded.

Public hearings may be held for specific applications or group of applications prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Quality.

Effective date: 18 March 2002

DIVISION OF WATER QUALITY

By

Gregory J. Thorpe, Ph.D.  
Acting Director

## WQC #3403

### **GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE FOR CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBER 23 (APPROVED CATEGORICAL EXCLUSIONS) AND RIPARIAN AREA PROTECTION RULES (BUFFER RULES)**

This General Certification is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality Regulations in 15A NCAC 2H, Section .0500 and 15A NCAC 2B .0200 for the discharge of fill material to waters and wetland areas as described in 33 CFR 330 Appendix A (B) (23) and for the Riparian Area Protection Rules (Buffer Rules) in 15A NCAC 2B .0200. This Certification replaces Water Quality Certification Number 2670 issued on January 21, 1992, Certification Number 2734 issued on May 1 1993, Certification Number 3107 issued on February 11, 1997 and Water Quality Certification Number 3361 issued March 18, 2002. This WQC is rescinded when the Corps of Engineers re-authorizes Nationwide Permit 23 or when deemed appropriate by the Director of the DWQ.

The State of North Carolina certifies that the specified category of activity will not violate applicable portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

#### Conditions of Certification:

1. Proposed fill or substantial modification of wetlands or waters (including streams) under this General Certification requires notification to the Division of Water Quality. Two copies shall be submitted to DWQ at the time of notification in accordance with 15A NCAC 2H .0501(a). Written concurrence from DWQ is not required unless any standard conditions of this Certification cannot be met;
2. Appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" or the "North Carolina Surface Mining Manual" whichever is more appropriate (available from the Division of Land Resources (DLR) in the DENR Regional or Central Offices) shall be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate turbidity water quality standard;
3. In accordance with 15A NCAC 2H .0506 (h) compensatory mitigation may be required for impacts to 150 linear feet or more of streams and/or one acre or more of wetlands. In addition, buffer mitigation may be required for any project with Buffer Rules in effect at the time of application for buffer impacts resulting from activities classified as "allowable with mitigation" within the "Table of Uses" section of the Buffer Rules or require a variance under the Buffer Rules. A determination of buffer, wetland and stream mitigation requirements shall be made for any Certification for this Nationwide Permit. The most current design and monitoring protocols from DWQ shall be followed and written plans submitted for DWQ approval as required in those protocols. When compensatory mitigation is required for a project, the mitigation plans must be approved by DWQ in writing before the impacts approved by the Certification occur. The mitigation plan must be implemented and/or constructed before any permanent building or structure on

## WQC #3403

site is occupied. In the case of public road projects, the mitigation plan must be implemented before the road is opened to the travelling public;

4. Compensatory stream mitigation shall be required at a 1:1 ratio for not only perennial but also intermittent stream impacts equal to or exceeding 150 feet and that require application to DWQ in watersheds classified as ORW, HQW, Tr, WS-I and WS-II unless the project is a linear, publicly-funded transportation project, which has a 150-foot per-stream impact allowance;
5. All sediment and erosion control measures placed in wetlands or waters shall be removed and the original grade restored within two months after the Division of Land Resources has released the project;
6. Measures shall be taken to prevent live or fresh concrete from coming into contact with freshwaters of the state until the concrete has hardened;
7. In accordance with North Carolina General Statute Section 143-215.3D(e), any request for written concurrence for a 401 Water Quality Certification must include the appropriate fee. If a project also requires a CAMA Permit, one payment to both agencies shall be submitted and will be the higher of the two fees;
8. Impacts to any stream length in the Neuse, Tar-Pamlico, Randleman and Catawba River Basins (or any other river basins with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) requires written concurrence from DWQ in accordance with 15A NCAC 2B.0200. Activities listed as "exempt" from these rules do not need to apply for written concurrence under this Certification. New development activities located in the protected 50-foot wide riparian areas (whether jurisdictional wetlands or not) within the Neuse, Tar-Pamlico, Randleman and Catawba River Basins shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 2B .0200. All new development shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices;
9. Additional site-specific conditions may be added to projects for which written concurrence is required or requested under this Certification in order to ensure compliance with all applicable water quality and effluent standards;
10. Concurrence from DWQ that this Certification applies to an individual project shall expire three years from the date of the cover letter from DWQ or on the same day as the expiration date of the corresponding Nationwide and Regional General Permits, whichever is sooner;
11. When written concurrence is required, the applicant is required to use the most recent version of the Certification of Completion form to notify DWQ when all work included in the 401 Certification has been completed.

Non-compliance with or violation of the conditions herein set forth by a specific fill project shall result in revocation of this Certification for the project and may result in criminal and/or civil penalties.

## WQC #3403

The Director of the North Carolina Division of Water Quality may require submission of a formal application for individual certification for any project in this category of activity that requires written concurrence under this certification, if it is determined that the project is likely to have a significant adverse effect upon water quality or degrade the waters so that existing uses of the wetland, stream or downstream waters are precluded.

Public hearings may be held for specific applications or group of applications prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Quality.

Effective date: 28 March 2003

DIVISION OF WATER QUALITY

By

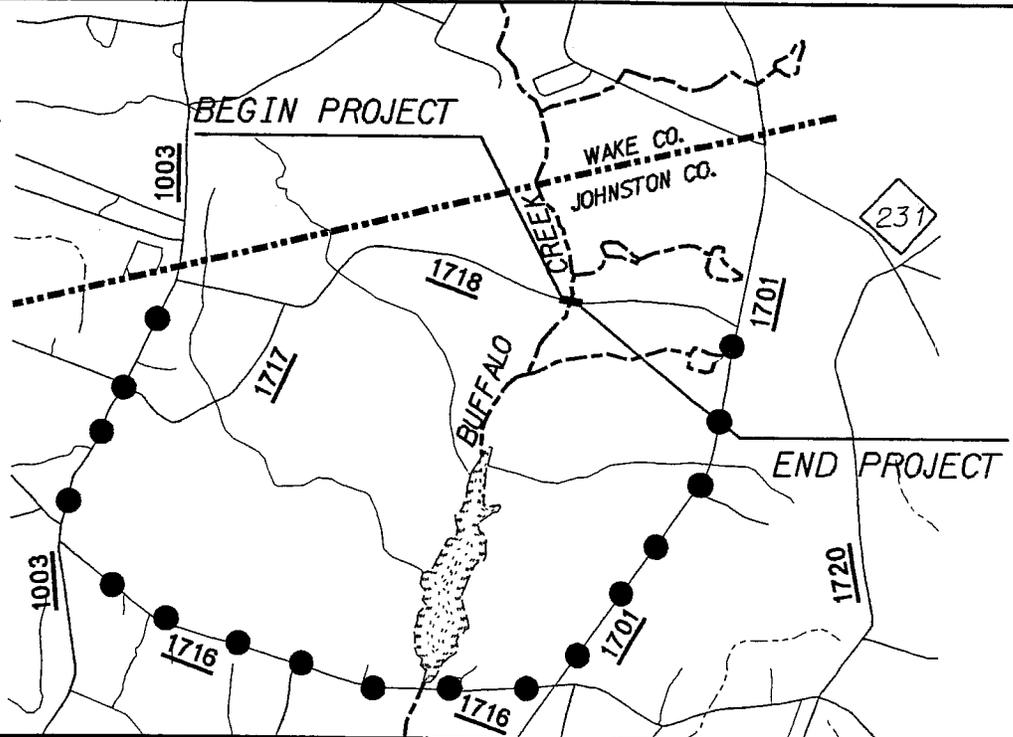
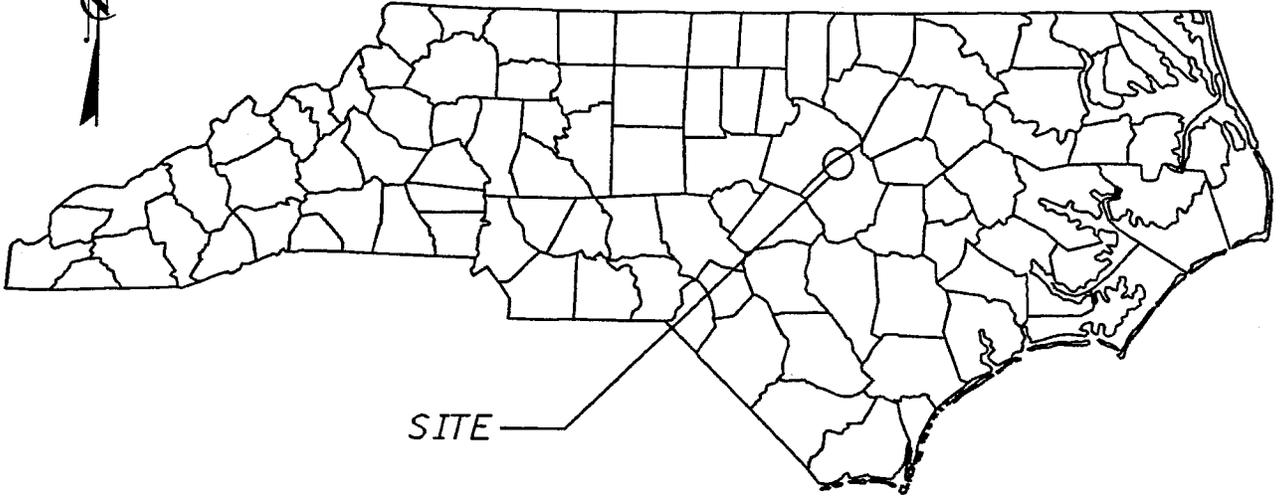
A handwritten signature in black ink that reads "Alan Klimek". The signature is written in a cursive style with a distinct loop at the end of the last name.

Alan W. Klimek, P.E.

Director

WQC # 3403

# NORTH CAROLINA



## VICINITY MAPS

WETLAND/STREAM

**NCDOT**  
DIVISION OF HIGHWAYS  
JOHNSTON COUNTY  
PROJECT: 33216.1.1 (B-3672)  
BRIDGE NO. 415  
OVER BUFFALO CREEK  
ON SR 1718

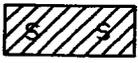
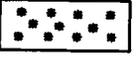
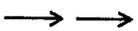
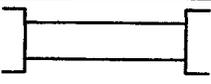
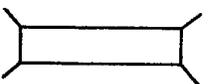
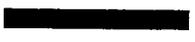
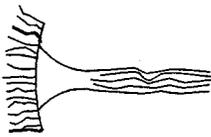
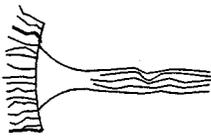
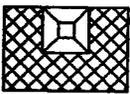
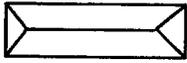
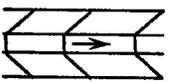
SHEET

OF

8 / 06

Wetland Drawing 1 of 12

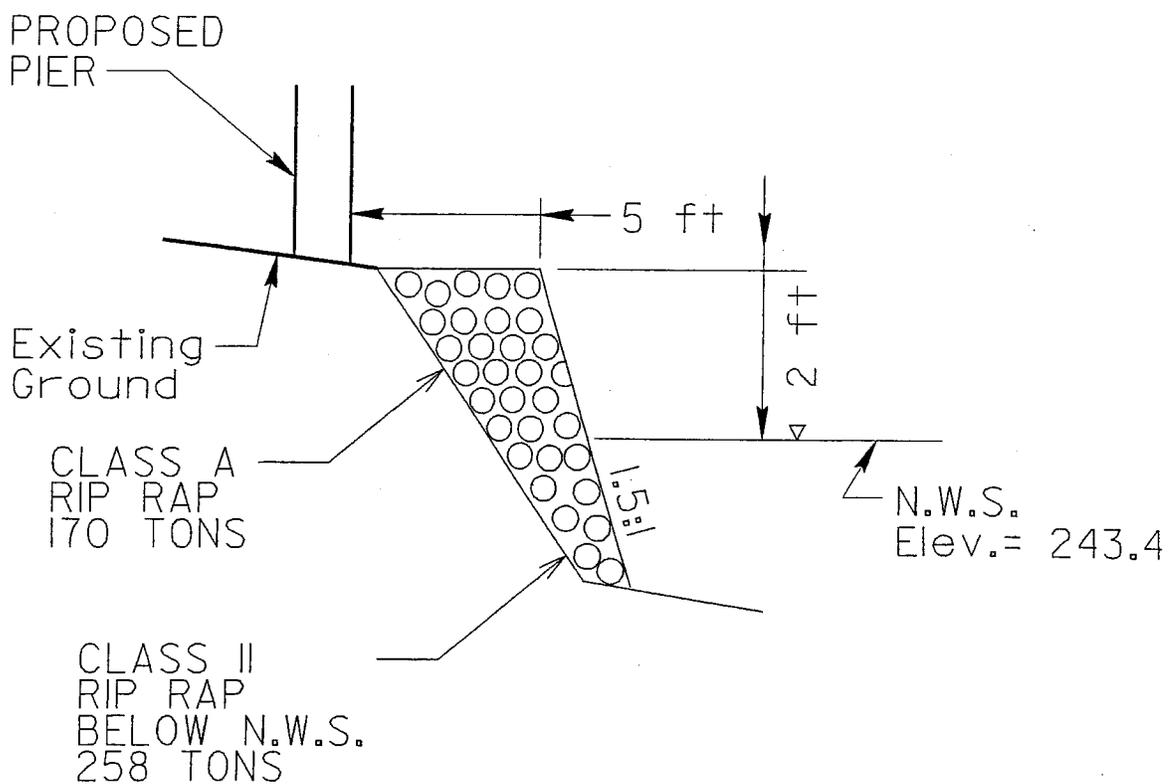
# WETLAND LEGEND

- |   |  |
|---|--|
| <p> WETLAND BOUNDARY</p> <p> WETLAND</p> <p> DENOTES FILL IN WETLAND</p> <p> DENOTES FILL IN SURFACE WATER</p> <p> DENOTES FILL IN SURFACE WATER (POND)</p> <p> DENOTES TEMPORARY FILL IN WETLAND</p> <p> DENOTES EXCAVATION IN WETLAND</p> <p> DENOTES TEMPORARY FILL IN SURFACE WATER</p> <p> DENOTES MECHANIZED CLEARING</p> <p> FLOW DIRECTION</p> <p> TOP OF BANK</p> <p> EDGE OF WATER</p> <p> PROP. LIMIT OF CUT</p> <p> PROP. LIMIT OF FILL</p> <p> PROP. RIGHT OF WAY</p> <p> NATURAL GROUND</p> <p> PROPERTY LINE</p> <p> TEMP. DRAINAGE EASEMENT</p> <p> PERMANENT DRAINAGE EASEMENT</p> <p> EXIST. ENDANGERED ANIMAL BOUNDARY</p> <p> EXIST. ENDANGERED PLANT BOUNDARY</p> <p> WATER SURFACE</p> <p> LIVE STAKES</p> <p> BOULDER</p> <p> CORE FIBER ROLLS</p> | <p> PROPOSED BRIDGE</p> <p> PROPOSED BOX CULVERT</p> <p> PROPOSED PIPE CULVERT<br/> <small>12"-48" PIPES<br/>54" PIPES &amp; ABOVE</small></p> <p><small>(DASHED LINES DENOTE EXISTING STRUCTURES)</small></p> <p> SINGLE TREE</p> <p> WOODS LINE</p> <p> DRAINAGE INLET</p> <p> ROOTWAD</p> <p> RIP RAP</p> <p> ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE</p> <p> PREFORMED SCOUR HOLE WITH LEVEL SPREADER (PSH)</p> <p> LEVEL SPREADER (LS)</p> <p> GRASS SWALE</p> |
|---|--|

**N. C. DEPT. OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**JOHNSTON COUNTY**  
**PROJECT: 33216.11 (B-3672)**  
**BRIDGE NO. 415**  
**OVER BUFFALO CREEK**  
**ON SR 1718**

*Wetland Drawing 2 of 12*

TEMPORARY  
WORK PAD  
(Not to Scale)



**NCDOT**

**DIVISION OF HIGHWAYS**

**JOHNSTON COUNTY**

**PROJECT: 33216.L1 (B-3672)**

**BRIDGE NO. 415**

**OVER BUFFALO CREEK**

**ON SR 1718**

SHEET

OF

8 / 06

Wetland Drawings 3 of 12

# PROPERTY OWNERS

## NAMES AND ADDRESSES

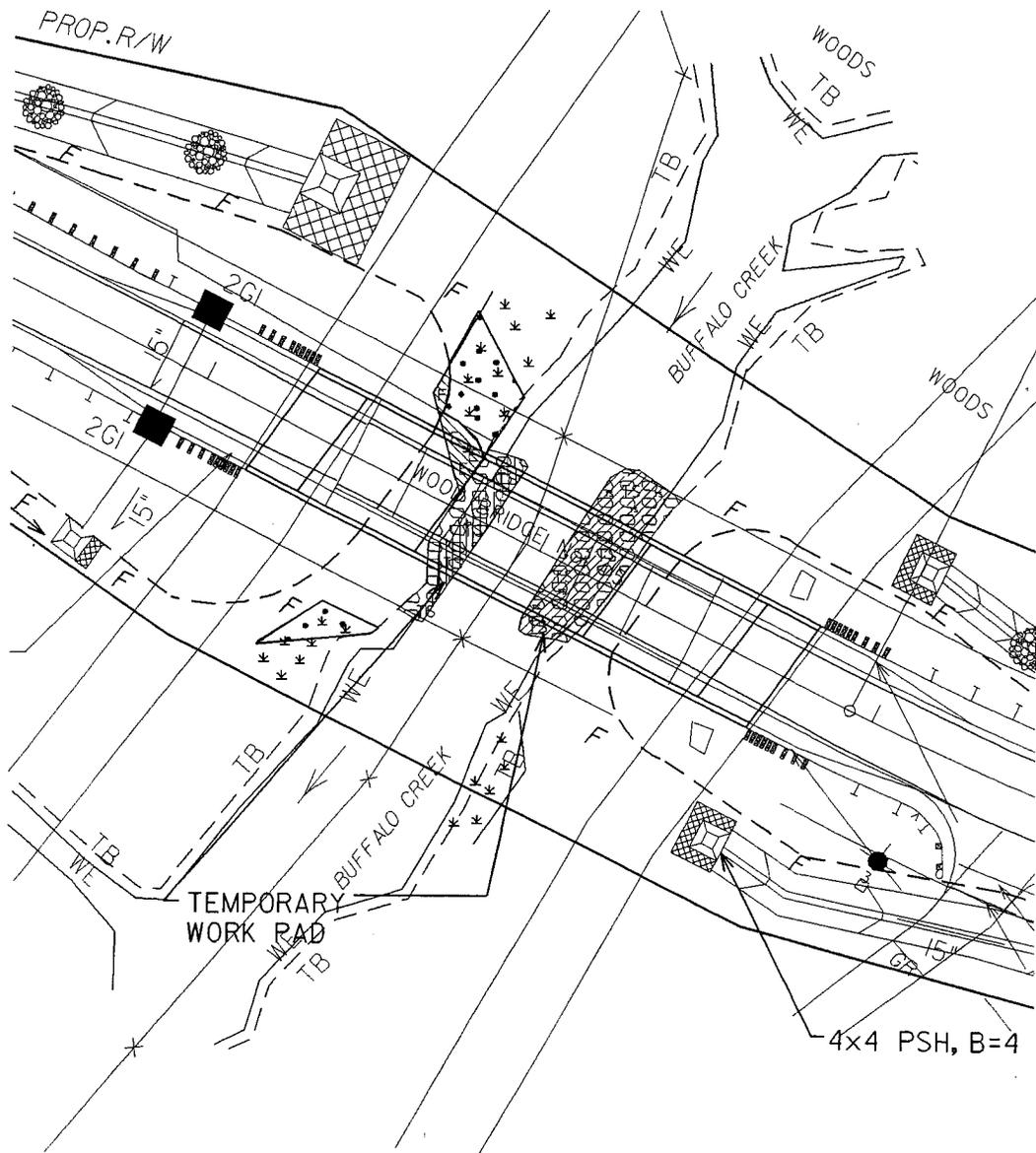
PARCEL NO.	NAMES	ADDRESSES
①	ANTHONY L. WHITLEY & KATHY S. WHITLEY	331 STOTTS MILL ROAD WENDEL, NC 27591
②	JACK W. LILES & EVA F. LILES	208 N. CHURCH STREET ZEBULON, NC 27597

### NCDOT

DIVISION OF HIGHWAYS  
JOHNSTON COUNTY  
PROJECT: 33216.11 (B-3672)  
BRIDGE NO. 415  
OVER BUFFALO CREEK  
ON SR 1718

SHEET OF 8 / 09

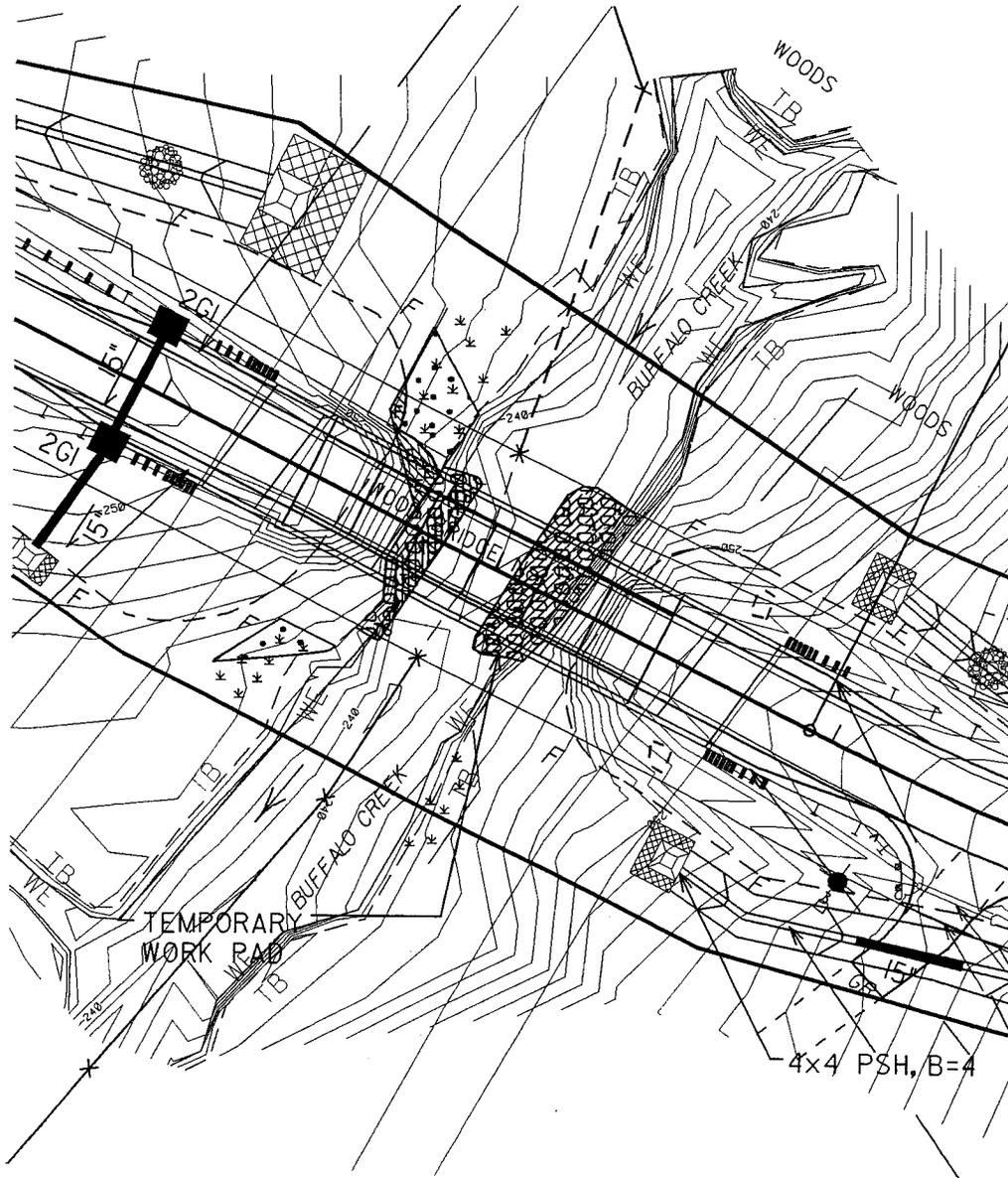
Wetland Drawing 4 of 12



PLAN VIEW

NCDOT  
 DIVISION OF HIGHWAYS  
 JOHNSTON COUNTY  
 PROJECT: 33216.1.1 (B-3672)  
 REPLACE BRIDGE #415  
 OVER BUFFALO CREEK  
 ON SR 1718

SHEET OF  
 8/06



PLAN VIEW

NCDOT  
 DIVISION OF HIGHWAYS  
 JOHNSTON COUNTY  
 PROJECT: 33216.1.1 (B-3672)  
 REPLACE BRIDGE #415  
 OVER BUFFALO CREEK  
 ON SR 1718

SHEET OF  
 Wetland Drawing 10 of 12

8/06

**WETLAND PERMIT IMPACT SUMMARY**

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS						SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)	
1	-L- Sta 17+66 LT & RT	Bridge/Roadway Fill	0.001		0.003	0.014							
2	-L- Sta 17+98	Temporary Causeway								0.023			
<b>TOTALS:</b>			0.001		0.003	0.014				0.02			

39 ft<sup>2</sup> due to impact of four drilled shafts

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

JOHNSTON COUNTY  
WBS - 33216.1.1 (B-3672)

SHEET August-06

Wetland Drawing 7 of 12







BM\*1 = "BENCHLITE" NAIL SET IN 18" OAK, 27.3' RT OF B  
 STA 5+75.33 (-L- STA.10+14.38), ELEV.=277.43',  
 N 728599 E 2189103

BM\*2 = "BENCHLITE" NAIL SET IN 10" OAK, 131.45' RT OF B  
 STA 14+20.32 (-L- STA.18+74.41), ELEV.=255.55',  
 N 728566 E 2189979

BM\*3 = "BENCHLITE" NAIL SET IN 10" PINE, BEYOND B  
 ELEV.=301.03', N 729046 E 2190738



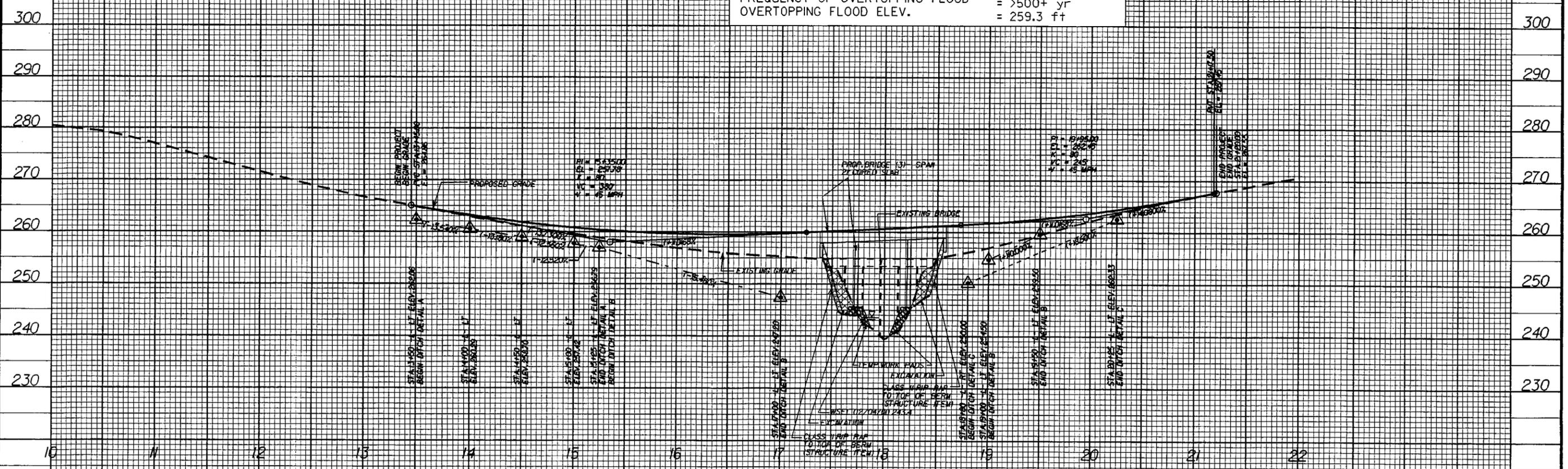
KCI Associates  
 of North Carolina, P.A.  
 RALEIGH OFFICE  
 ENGINEERS • PLANNERS • ECOLOGISTS

SUITE 220, LANDMARK CENTER II  
 4604 SIX FORKS RD.  
 RALEIGH, N.C. 27609-5200  
 1991 783-9284

PROJECT REFERENCE NO.	SHEET NO.
B-3672	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
Wetland Drawing 11 of 12	

**HYDRAULIC & OVERTOPPING DATA**

DESIGN DISCHARGE	= 3900 cfs
DESIGN FREQUENCY	= 25 yrs.
DESIGN HIGH WATER ELEV.	= 253.2 ft
BASE DISCHARGE	= 500 cfs
BASE FREQUENCY	= 100 yrs
BASIC HIGH WATER ELEV.	= 255.0 ft
OVERTOPPING DISCHARGE	= 7350+ cfs
FREQUENCY OF OVERTOPPING FLOOD	= >500+ yr
OVERTOPPING FLOOD ELEV.	= 259.3 ft

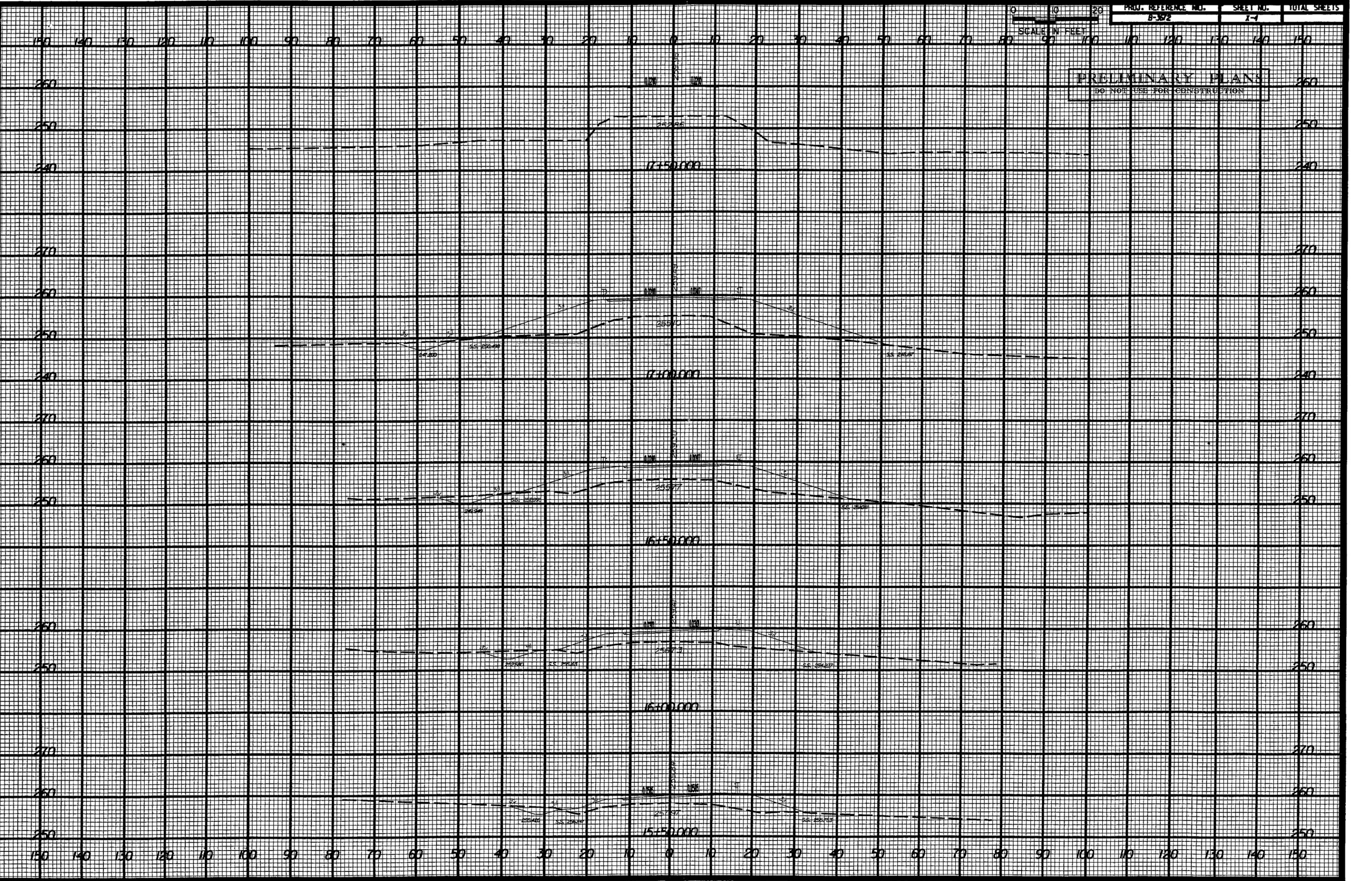


FOR -L- PLAN, SEE SHEET 4  
 SEE SHEETS S-1 THRU S-7 FOR  
 STRUCTURE PLANS

\* DESIGN EXCEPTION FOR SAG VERTICAL CURVE AND VERTICAL SSD.

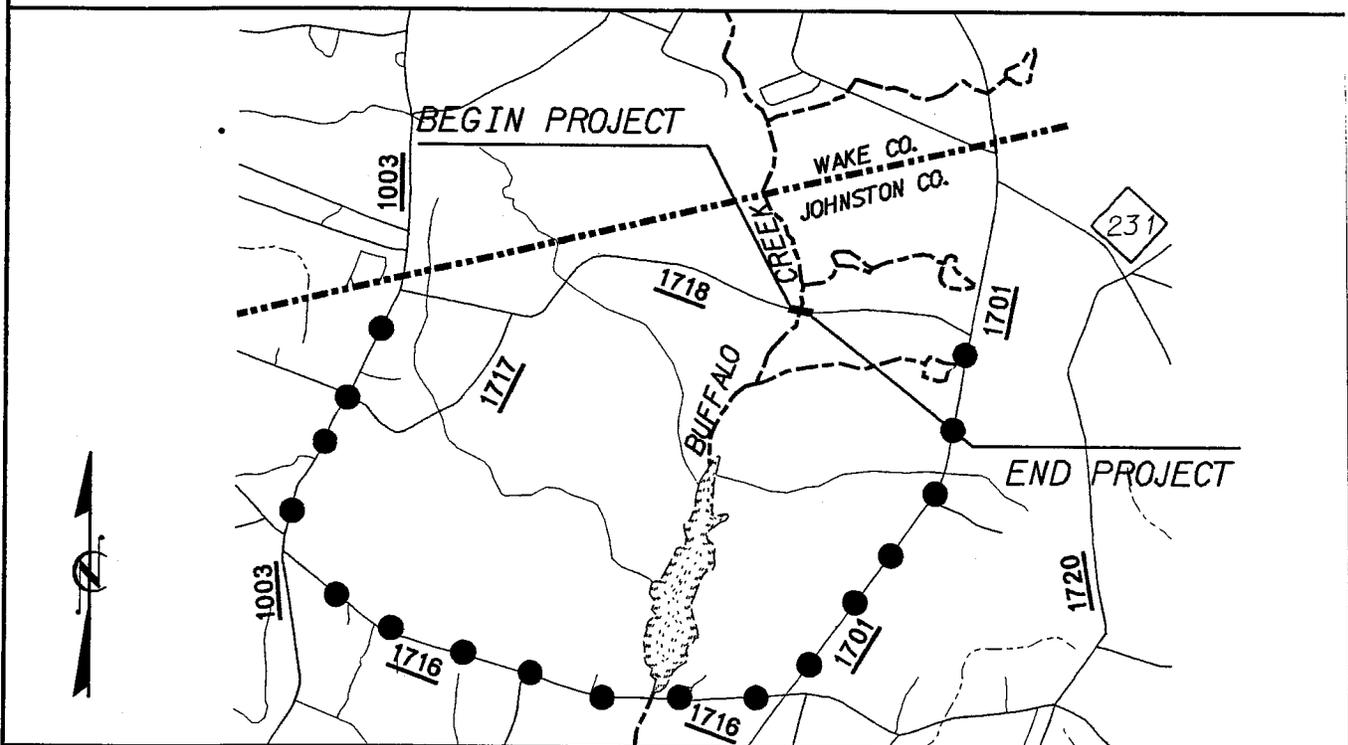
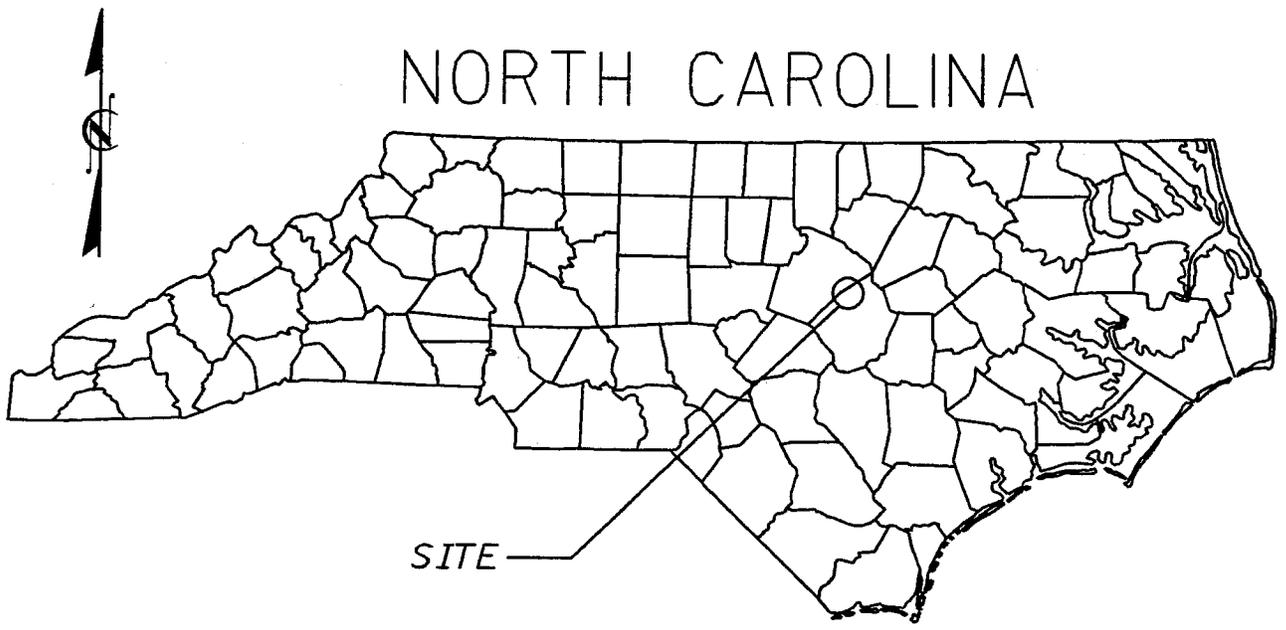
SCALE IN FEET

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION



VERTICAL SCALE

# NORTH CAROLINA



## VICINITY MAPS

*BUFFER*

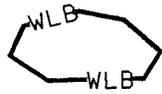
**NCDOT**  
DIVISION OF HIGHWAYS  
JOHNSTON COUNTY  
PROJECT: 33216.L1 (B-3672)  
BRIDGE NO. 415  
OVER BUFFALO CREEK  
ON SR 1718

SHEET OF 8 / 06

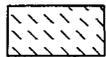
*Buffer Drawing 1 of 10*

# BUFFER LEGEND

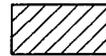
—WLB— WETLAND BOUNDARY

 WETLAND

 ALLOWABLE IMPACTS ZONE 1

 ALLOWABLE IMPACTS ZONE 2

 MITIGABLE IMPACTS ZONE 1

 MITIGABLE IMPACTS ZONE 2

—BZ— RIPARIAN BUFFER ZONE

—BZ1— RIPARIAN BUFFER ZONE 1  
30 ft (9.2m)

—BZ2— RIPARIAN BUFFER ZONE 2  
20 ft (6.1m)

→ FLOW DIRECTION

—TB— TOP OF BANK

—WE— EDGE OF WATER

—C— PROP. LIMIT OF CUT

—F— PROP. LIMIT OF FILL

▲ PROP. RIGHT OF WAY

—NG— NATURAL GROUND

—PL— PROPERTY LINE

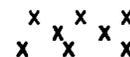
—TDE— TEMP. DRAINAGE EASEMENT

—PDE— PERMANENT DRAINAGE EASEMENT

—EAB— EXIST. ENDANGERED ANIMAL BOUNDARY

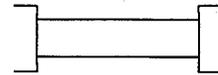
—EPB— EXIST. ENDANGERED PLANT BOUNDARY

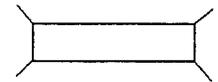
—▽— WATER SURFACE

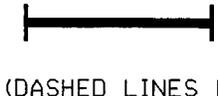
 LIVE STAKES

 BOULDER

— — — CORE FIBER ROLLS

 PROPOSED BRIDGE

 PROPOSED BOX CULVERT

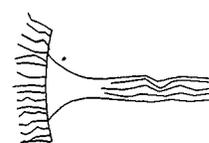
 PROPOSED PIPE CULVERT  
12"-48"  
PIPES

(DASHED LINES DENOTE EXISTING STRUCTURES)

54" PIPES & ABOVE

 SINGLE TREE

 WOODS LINE

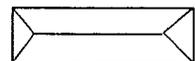
 DRAINAGE INLET

 ROOTWAD

 RIP RAP

 ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

 PREFORMED SCOUR HOLE (PSH)

 LEVEL SPREADER (LS)

 GRASS SWALE

N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

JOHNSTON COUNTY

PROJECT: 33216.1.1 (B-3672)

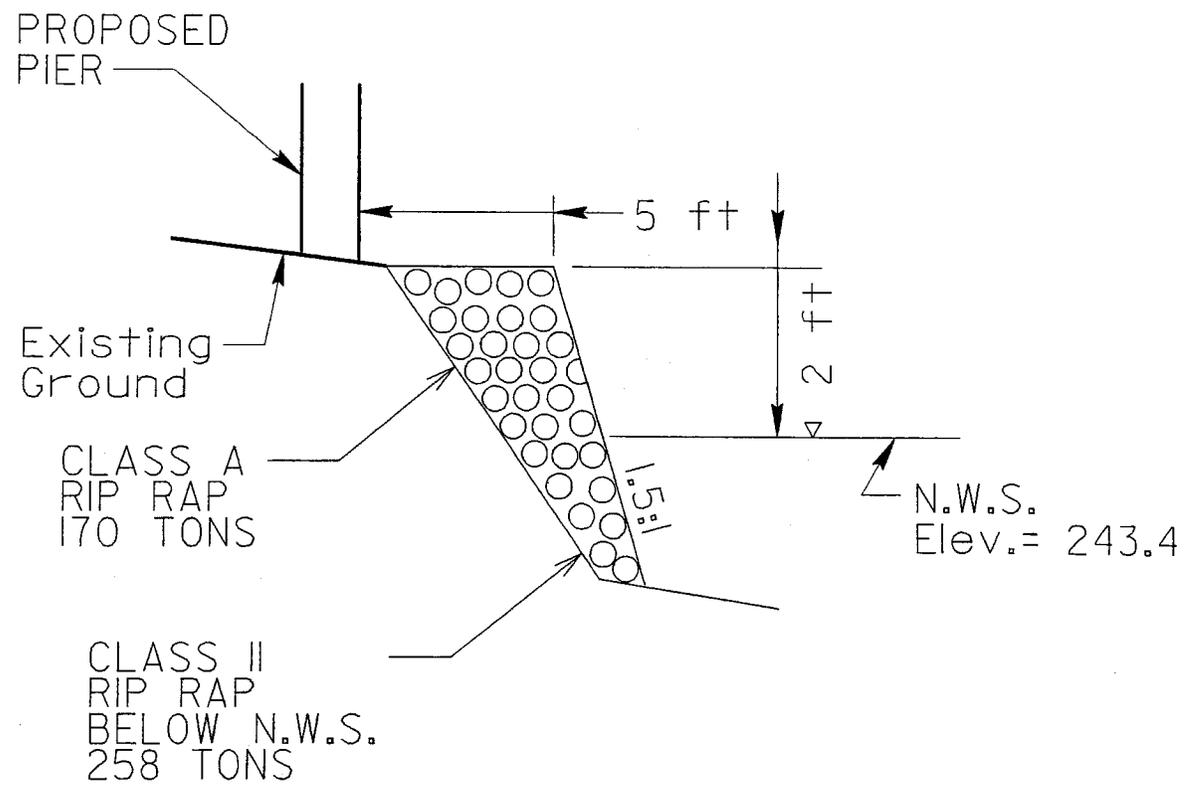
REPLACE BRIDGE #415  
OVER BUFFALO CREEK

ON SR 1718

Buffer Drawing 2 of 10  
SHEET OF

8/06

TEMPORARY  
WORK PAD  
(Not to Scale)



**NCDOT**  
DIVISION OF HIGHWAYS  
JOHNSTON COUNTY  
PROJECT: 33216.L1 (B-3672)  
BRIDGE NO. 415  
OVER BUFFALO CREEK  
ON SR 1718

SHEET OF 8 / 06

Buffer Drawing 3 of 10

# PROPERTY OWNERS

## NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
①	ANTHONY L. WHITLEY & KATHY S. WHITLEY	331 STOTTS MILL ROAD WENDEL, NC 27591
②	JACK W. LILES & EVA F. LILES	208 N. CHURCH STREET ZEBULON, NC 27597

### NCDOT

DIVISION OF HIGHWAYS  
JOHNSTON COUNTY

PROJECT: 33216.11 (B-3672)

BRIDGE NO. 415  
OVER BUFFALO CREEK  
ON SR 1718

SHEET OF

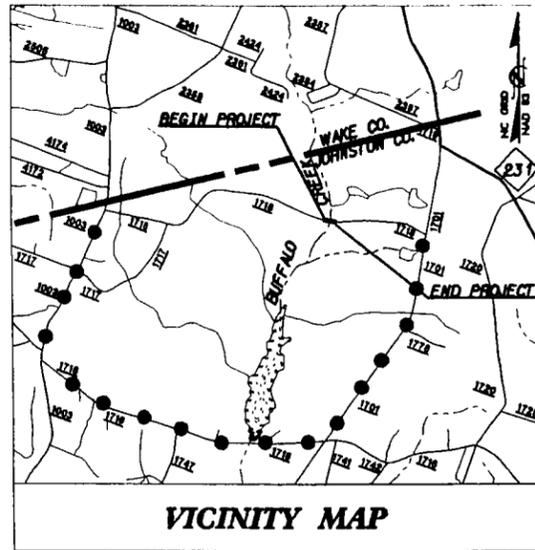
8 / 08

Buffer Drawing 4 of 10



PROJECT: 33216.1.1 TIP PROJECT: B-3672

See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols



DETOUR ●—●—●—●—●

NOTE: THIS PROJECT IS NOT WITHIN THE MUNICIPAL BOUNDARIES OF ANY TOWN OR CITY.

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

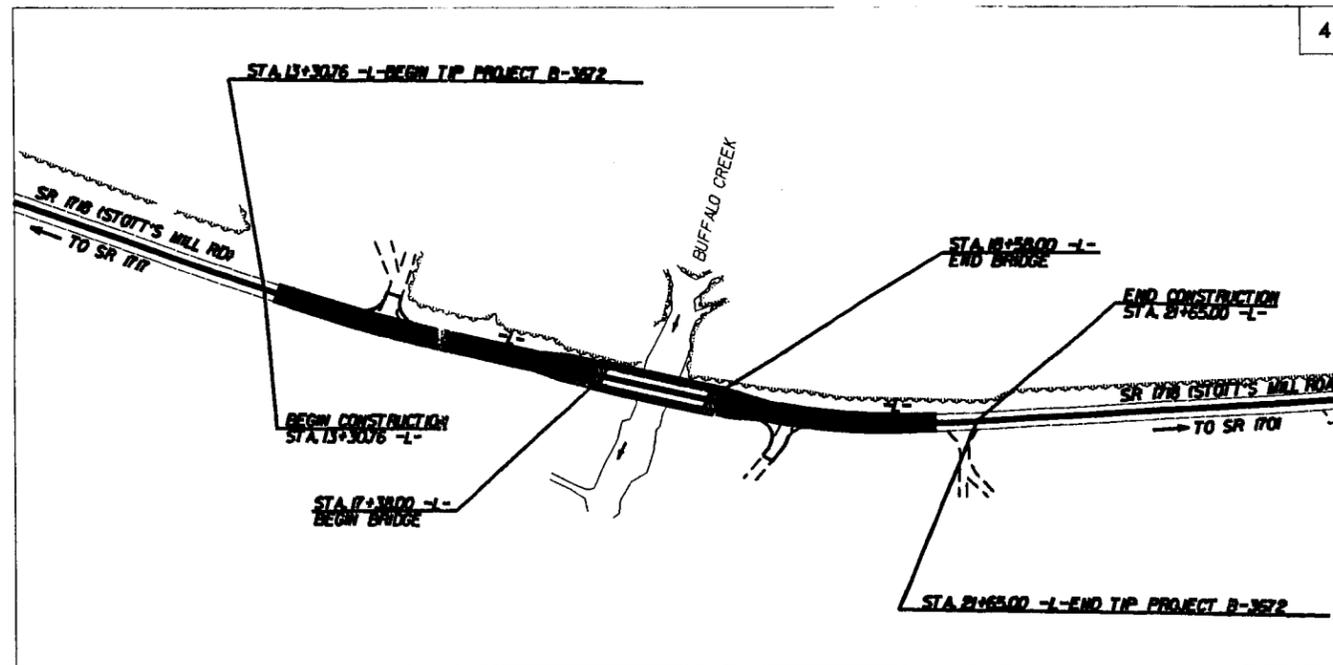
**JOHNSTON COUNTY**

LOCATION: BRIDGE NO. 415 OVER BUFFALO CREEK  
AND APPROACHES ON SR 1718

TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3672	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
33216.1.1	BRZ-1718 (4)	PE	
33216.2.1	BRZ-1718 (4)	RW, UTIL.	

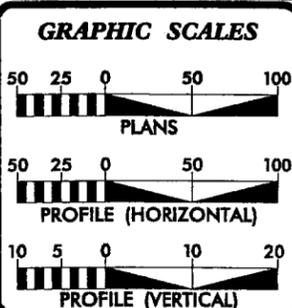
Buffer Drawing 7 of 10  
**BUFFER**



DESIGN EXCEPTION FOR MIN. HORIZONTAL CURVE RADIUS, SAG VERTICAL CURVE K VALUES, VERTICAL SSD, AND SUPERELEVATION.  
NCDOT CONTACT: MS. CATHY S. HOUSER, PE, PROJECT ENGINEER

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



**DESIGN DATA**

ADT 2007 =	430 VPD
ADT 2027 =	730 VPD
DHV =	12%
D =	60%
T =	4% *
V =	60 MPH
* TTST 1% +	DUAL 3%

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-3672 =	0.135 MILE
LENGTH STRUCTURE TIP PROJECT B-3672 =	0.023 MILE
TOTAL LENGTH OF TIP PROJECT B-3672 =	0.158 MILE

Prepared for NCDOT In the Office of:

**KCI Associates of North Carolina, P.A.**  
RALEIGH OFFICE  
DESIGNERS@KCI.ASNC.COM

SUITE 202, LANEMARK CENTER I  
4601 SIZEMORE RD.  
RALEIGH, N.C. 27609-0200  
(919) 783-9254

2006 STANDARD SPECIFICATIONS & GENERAL NOTES

RIGHT OF WAY DATE: MARCH 17, 2006

LETTING DATE: TO BE DETERMINED

MICHELLE R. BRAME, P.E.  
PROJECT ENGINEER

KEVIN SU, E.I.  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.

**DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

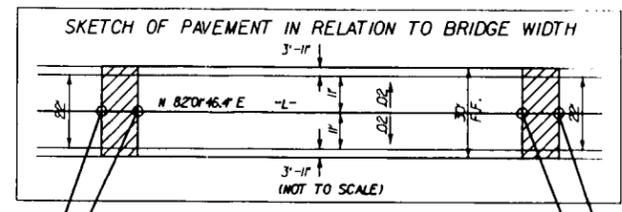


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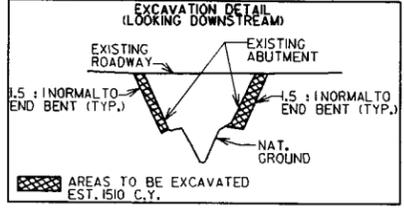
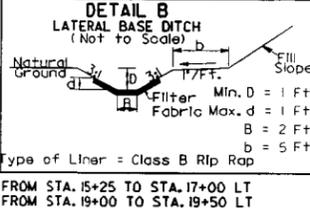
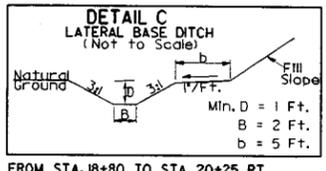
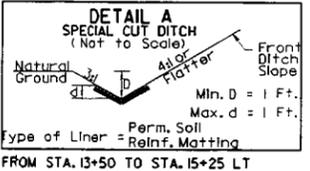
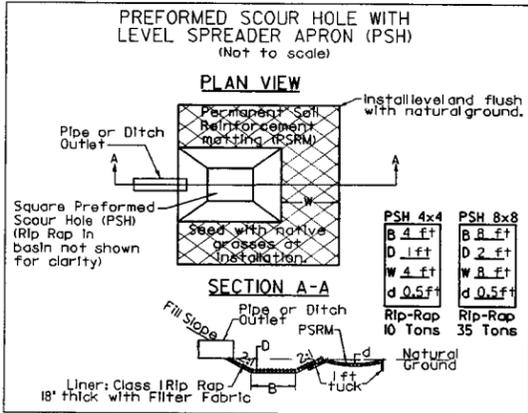
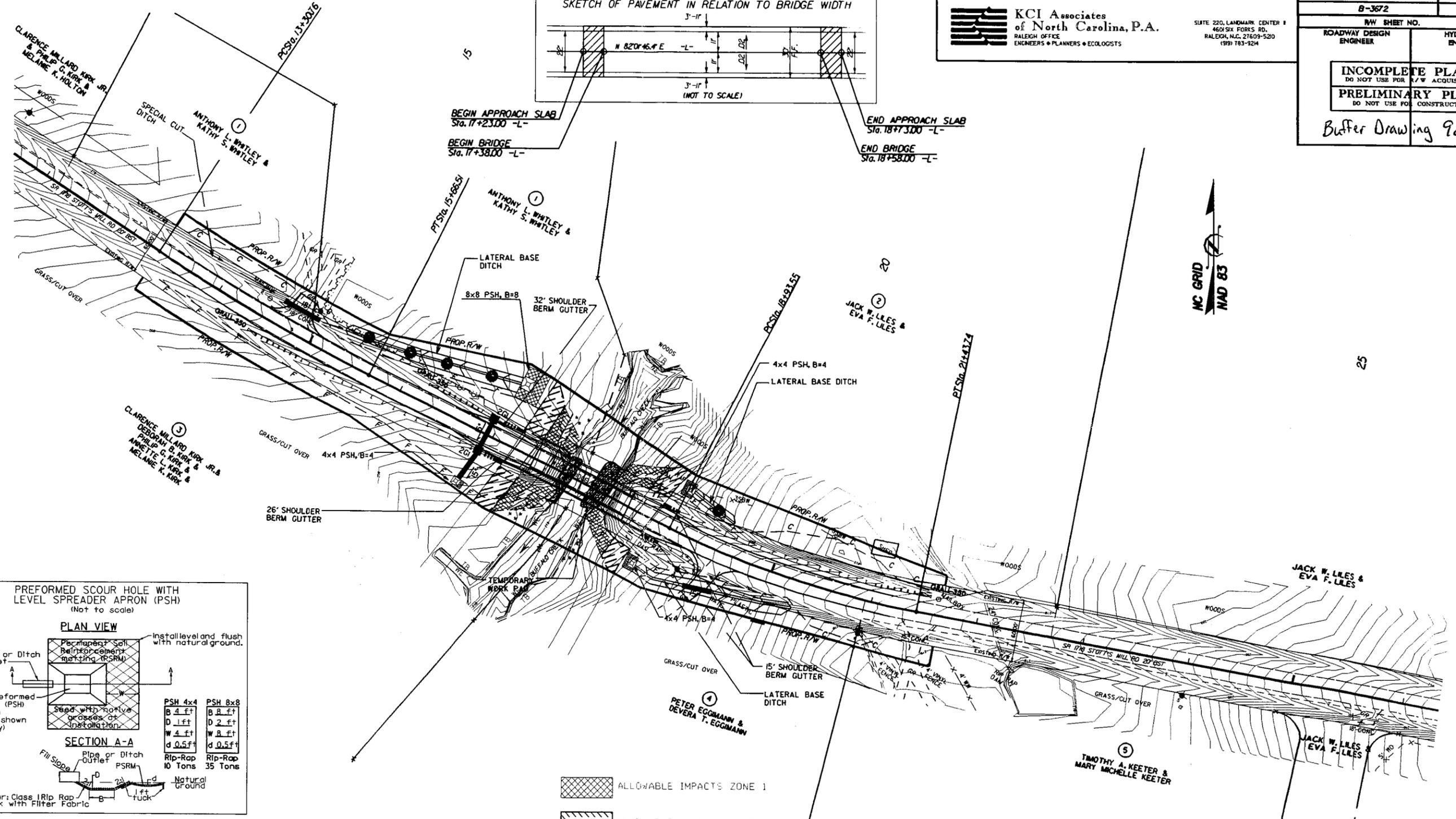
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RALEIGH, N.C. 27609-520  
(919) 783-9214

PROJECT REFERENCE NO. B-3672		SHEET NO. 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Buffer Drawing 90510			



BEGIN APPROACH SLAB Sta. 17+23.00 -L-  
 END APPROACH SLAB Sta. 18+73.00 -L-  
 BEGIN BRIDGE Sta. 17+38.00 -L-  
 END BRIDGE Sta. 18+58.00 -L-



ALLOWABLE IMPACTS ZONE 1  
 ALLOWABLE IMPACTS ZONE 2

REVISIONS

11-SEP-2006 14:14  
s:\enr\3672\design\3672\_hyd\_perm\tdgn

BM\*1 = "BENCLITE" NAIL SET IN 18" OAK, 27.3' RT OF B  
 STA 5+75.33 (-L- STA.10+14.38), ELEV.=277.43',  
 N 728599 E 2189103

BM\*2 = "BENCLITE" NAIL SET IN 10" OAK, 131.45' RT OF B  
 STA 14+20.32 (-L- STA.18+74.41), ELEV.=255.55',  
 N 728566 E 2189979

BM\*3 = "BENCLITE" NAIL SET IN 10" PINE, BEYOND B,  
 ELEV.=301.03', N 729046 E 2190738

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 RALEIGH, N.C. 27609-5290  
 1981 783-9214

PROJECT REFERENCE NO. 8-3672 SHEET NO. 5

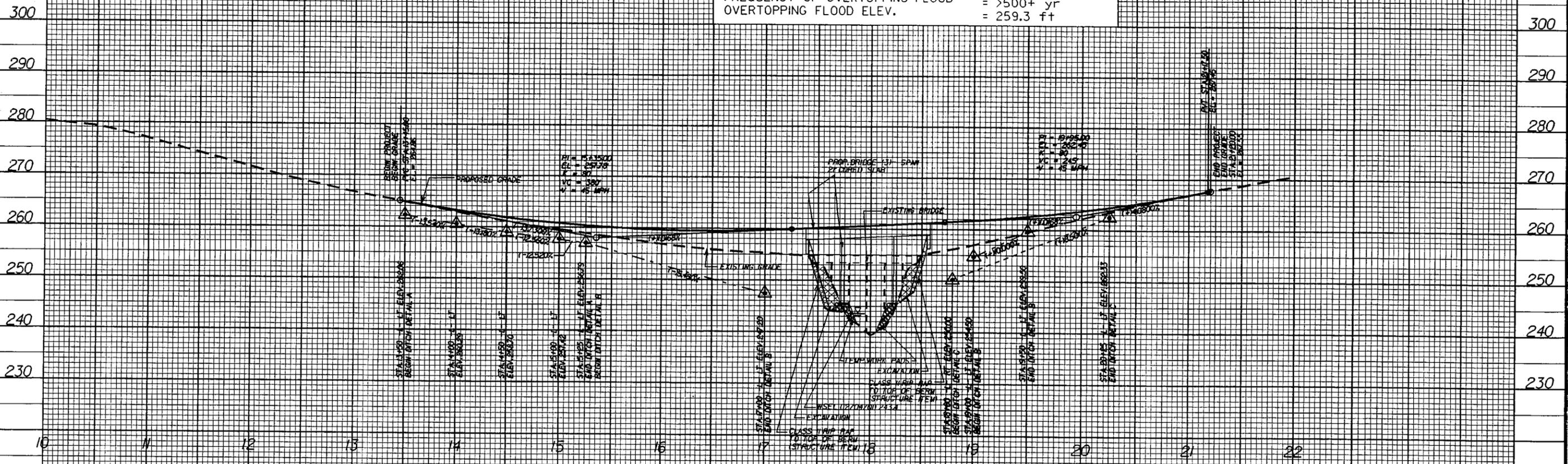
RDV SHEET NO.

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION

Buffer Drawing 10 of 10

HYDRAULIC & OVERTOPPING DATA	
DESIGN DISCHARGE	= 3900 cfs
DESIGN FREQUENCY	= 25 yrs.
DESIGN HIGH WATER ELEV.	= 253.2 ft
BASE DISCHARGE	= 5100 cfs
BASE FREQUENCY	= 100 yrs
BASIC HIGH WATER ELEV.	= 255.0 ft
OVERTOPPING DISCHARGE	= 7350+ cfs
FREQUENCY OF OVERTOPPING FLOOD	= >500+ yr
OVERTOPPING FLOOD ELEV.	= 259.3 ft



FOR -L- PLAN, SEE SHEET 4  
 SEE SHEETS S-1 THRU S-? FOR  
 STRUCTURE PLANS

\* DESIGN EXCEPTION FOR SAG VERTICAL CURVE AND VERTICAL SSD.

