



US Army Corps  
Of Engineers  
Wilmington District

# PUBLIC NOTICE

Issue Date: February 4, 2013  
Comment Deadline: March 4, 2013  
Corps Action ID #: SAW-2010-01947

The Wilmington District, Corps of Engineers (Corps) received an application from John Koenig, Inc. seeking Department of the Army authorization for a discharge of dredged and/or fill material into waters of the United States associated with constructing access and infrastructure for the final phases of Williamsburg Plantation residential subdivision located west of Gum Branch Road, to the southwest of and between Western Boulevard and Williamsburg Parkway, in Jacksonville, Onslow County, North Carolina.

Specific plans and location information are described below and shown on the attached plans. This Public Notice and all attached plans are also available on the Wilmington District Web Site at

<http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram/PublicNotices.aspx>.

**Applicant:** John Koenig, Inc.  
Attn: Mr. John Koenig  
235 Green Street  
Fayetteville, North Carolina 28301

**Agent (if applicable):** Wetland Solutions, LLC  
Attn: Mr. Samuel A. Carter  
Post Office Box 244  
Bunnlevel, North Carolina 28323

## Authority

The Corps will evaluate this application and decide whether to issue, conditionally issue, or deny the proposed work pursuant to applicable procedures of Section 404 of the Clean Water Act (33 U.S.C. 1344).

## Background

Four previous permit verifications exist for the Williamsburg Plantation subdivision. On June 17, 1999, the Corps verified the use of Nationwide Permit (NWP) 26 under Corps Action ID # SAW-1999-01103 for permanent impacts to 0.239 acre of wetlands for the infrastructure of the Hyde Park phase; no compensatory mitigation was required for this project. On October 29,

2003, the Corps verified the use of NWP 39 under Corps Action ID # SAW-2002-00602 for permanent impacts to 0.497 acre of wetlands for the infrastructure of the Regency Park phase, with the requirement to purchase 0.994 acre of wetland credits from the North Carolina Wetlands Restoration Program, as well as preserve remaining wetlands on several lots within Regency Park. On January 17, 2006, the Corps verified the use of NWP 18 under Corps Action ID # SAW-2006-00272 for permanent impacts to 0.02 acre of wetlands for the infrastructure of the Kensington Park phase; no compensatory mitigation was required for this project. Lastly, on August 10, 2007, the Corps verified the use of NWP 29 under Corps Action ID # SAW-2006-00272 for permanent impacts to 0.0983 acre of wetlands and 86 linear feet of stream for additional infrastructure of the Kensington Park phase and access to the Emerson Park phase, with the requirement to purchase 0.0983 acre of wetland credits and 86 linear feet of stream credits from the North Carolina Ecosystem Enhancement Program, as well as preserve remaining wetlands within the Kensington and Emerson Park phases.

Cumulative impacts to Waters of the U.S. for the Williamsburg Plantation single and complete project following all permit actions described above total 0.854 acre of wetlands and 86 linear feet of stream. Cumulative compensatory mitigation requirements total the purchase of 1.09 acres of wetland and 86 linear feet of stream credits from in-lieu fee programs and the preservation of remaining wetlands within three subdivision phases. Given that the current proposed impacts to Waters of the U.S., in combination with impacts permitted in earlier phases, exceed the Nationwide Permit threshold, the current proposal to further expand Williamsburg Plantation is subject to Individual Permit review.

Previously verified Nationwide Permits can be found with the Public Notice on the District Website at <http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram/PublicNotices.aspx>.

## **Location**

The proposed project area is 1,253 acres of undeveloped land southwest of the Williamsburg Plantation residential subdivision, located west of Gum Branch Road, to the southwest of and between Western Boulevard and Williamsburg Parkway, in Jacksonville, Onslow County, North Carolina (34.78335° N -77.45603° W). The proposed project is located in wetlands and other waters adjacent to unnamed tributaries (UTs) to the New River, which drain into the New River, a Traditionally Navigable Waterway.

## **Existing Site Conditions**

The proposed project area is located within the Coastal Plain Ecoregion, in the White Oak River sub-basin, USGS 8-digit hydrologic unit 03030001. The site has been historically utilized for timber and agriculture production and contains stands of loblolly pine from 5 to fifty years of age, and deciduous forest in the same range of maturity. Two Progress Energy transmission line easements, one 150-foot and one 300-foot wide, run through the western and northern portions of the property, respectively. Based on the North Carolina Wetland Assessment Methodology (NCWAM), wetlands on the Williamsburg Plantation property include a mosaic of Riverine Swamp Forest and Bottomland Hardwood Forest in floodplain

areas of the New River and unnamed tributaries (UTs), Headwater Forest in smaller stream valleys and topographic drainages higher in the landscape, and Pine Flat and Hardwood Flat systems in inter-stream divide areas of low topographic relief. Jurisdictional streams on the property include the New River, a Traditionally Navigable Water, and nine UTs, all of which are Relatively Permanent Waters. Several drainage ditches also exist throughout the property, some of which are considered Waters of the U.S.

The New River and its UTs all carry the NC Division of Water Quality (NCDWQ) best usage classification of “C NSW”; “C” refers to those waters protected for secondary recreation, fishing, wildlife, fish consumption, aquatic life including propagation, survival, and maintenance of biological integrity, agriculture and other uses, whereas “NSW” is a supplemental classification intended for waters needing additional nutrient management due to being subject to excessive growth of microscopic or macroscopic vegetation. The New River within the project area is on the 303d list of impaired waterbodies due to mercury in fish tissue; the US Environmental Protection Agency lists the cause of the mercury impairment as unknown. There are no designated Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply I (WS-I), or Water Supply (WS-II) waters within 1.0 mile of the project area.

The property is bordered to the southwest by the New River, to the southeast by a UT to New River, to the northeast by existing section of Williamsburg Plantation subdivision including Regency Park, Hyde Park, Emerson Park, and Saint James Park, and to the northwest by undeveloped Progress Energy Carolinas property and the Lauradale subdivision. The majority of the surrounding site area to the south and west is undeveloped and covered by a combination of riverine swamp forest and managed timber land. The surrounding site area to the north and east contains developed residential neighborhoods.

Elevation in the immediate vicinity of the site ranges from approximately 33 feet above mean sea level (MSL) in the northernmost extent of the property to 0 feet MSL along the New River.

Wetland Solutions, LLC, consultant for John Koenig, Inc., conducted a jurisdictional delineation for the proposed site in 2012. The jurisdictional boundaries were verified by the Corps and surveyed and mapped by a registered land surveyor; a Jurisdictional Determination (JD) was approved on October 29, 2012 (USACE ID No. SAW-2010-01947).

### **Applicant’s Stated Purpose**

The purpose of this project is to construct a residential subdivision.

### **Project Description**

The applicant has proposed to discharge fill material into an additional 0.628 acre of riparian, non-riverine wetlands and 820 linear feet of streams to complete the final phases of the Williamsburg Plantation residential subdivision. No temporary impacts are proposed. The proposed impacts to Waters of the U.S. are the result of 16 road crossings, intended to provide access to proposed

upland facilities including single family homes, multi-family housing, and associated infrastructure such as utilities and amenities. Project plans and a narrative are available on the District Website at <http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram/PublicNotices.aspx>.

**Table 1. Existing and Proposed Permanent Waters of the U.S. Impacts Table**

Impact		Wetland Impacts (acre)	Stream Impacts (linear feet)
Verified under NWP 26, Action ID: SAW-1999-01103, 6/17/1999		0.239	
Verified under NWP 39, Action ID: SAW-2002-00602, 10/29/2003		0.497	
Verified under NWP 18, Action ID: SAW-2006-00272, 1/17/2006		0.02	
Verified under NWP 29, Action ID: SAW-2006-00272, 8/10/2007		0.0983	86
<b>Previously Permitted Total</b>		<b>0.854</b>	<b>86</b>
<b>Impacts Currently Proposed</b>	<b>A</b>	0.045	
	<b>B</b>	0.019	
	<b>C</b>	0.014	35
	<b>D</b>	0.053	96
	<b>E</b>	0.019	29
	<b>F</b>		125
	<b>G</b>		85
	<b>H</b>	0.039	
	<b>I</b>		149
	<b>J</b>	0.043	
	<b>K</b>	0.051	65
	<b>L</b>	0.019	
	<b>M</b>	0.028	90
	<b>N</b>	0.257	146
<b>O</b>	0.018		
<b>P</b>	0.024		
<b>Proposed Total</b>		<b>0.628</b>	<b>820</b>
<b>Subdivision Total</b>		<b>1.482</b>	<b>906</b>

The applicant submitted an Alternatives Analysis that includes a No Build and Off-site Alternative. This information has been included with this Public Notice as well. Supplemental documentation and plans can be found on the District Website at <http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram/PublicNotices.aspx>.

### **Avoidance and Minimization Information**

Avoidance and minimization efforts for previously permitted sections of Williamsburg Plantations were documented via the Nationwide Permit process.

For the current proposed impacts, the applicant has stated that proposed road crossings over Waters of the U.S. were limited to the narrowest crossing footprint where possible. Further, the applicant notes that proposed impacts to the New River floodplain, a North Carolina Natural

Heritage Program (NCNHP) Significant Natural Heritage Area, were avoided, and lots were designed to avoid wetlands (i.e. wetlands in subdivision common area). Also, headwalls are proposed on crossings to minimize impacts to Waters of the U.S.

### **Compensatory Mitigation**

The applicant proposes to mitigate for permanent wetland and stream losses through 1) preserving all wetlands not proposed for impact through the subdivision Restrictive Covenants, and 2) purchasing riparian wetland and stream credits at a 1:1 ratio from the Bachelors Delight Mitigation Bank, located approximately 4 miles north of the project area.

### **Other Required Authorizations**

This notice and all applicable application materials are being forwarded to the appropriate State agencies for review. The Corps will generally not make a final permit decision until the North Carolina Division of Water Quality (NCDWQ) issues, denies, or waives State Certification required by Section 401 of the Clean Water Act (PL 92-500). The receipt of the application and this public notice combined with appropriate application fee at the North Carolina Division of Water Quality central office in Raleigh will constitute initial receipt of an application for a 401 Water Quality Certification. A waiver will be deemed to occur if the NCDWQ fails to act on this request for certification within sixty days of the date of the receipt of this notice in the NCDWQ Central Office. Additional information regarding the Clean Water Act certification may be reviewed at the NCDWQ Central Office, 401 Certification and Oversight, 1650 Mail Service Center, Raleigh, North Carolina 27699-1650. All persons desiring to make comments regarding the application for certification under Section 401 of the Clean Water Act should do so in writing delivered to the North Carolina Division of Water Quality (NCDWQ), 1650 Mail Service Center, Raleigh, North Carolina 27699-1650 Attention: Mr. Ian McMillan by February 25, 2013.

### **Coastal Zone Management**

The applicant has certified that the proposed work complies with and will be conducted in a manner that is consistent with the approved North Carolina Coastal Zone Management Program. Pursuant to 33 CFR 325.2 (b)(2) the Corps is, by this notice, forwarding this certification to the North Carolina Division of Coastal Management (NCDCM) and requesting its concurrence or objection. Generally, the Corps will not issue a DA permit until the NCDCM notifies the Corps that it concurs with the applicant's consistency certification.

### **Essential Fish Habitat**

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The Corps' initial

determination is that the proposed project will not adversely impact EFH or associated fisheries managed by the South Atlantic or Mid Atlantic Fishery Management Councils or the National Marine Fisheries Service.

## **Cultural Resources**

The following description of work is adapted from the applicant's proposal (included with this Public Notice). Archaeological Consultants of the Carolinas, Inc. (ACC) conducted a Phase I Archeological Survey of a State Historic Preservation Office (SHPO) approved Scope of Work totaling approximately 314 acres of the project area. Results of the investigation were detailed in a 2012 "Archaeological Survey of Portions of the Proposed Williamsburg Plantation Extension Tracts, Onslow County, North Carolina" prepared by ACC, and available as supplemental documentation on the District Website at <http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram/PublicNotices.aspx>.

ACC identified 26 archaeological resources, including 11 archeological sites and 15 isolated finds, during the study. Of the resources found, one site of archaeological significance (Site 31ON1833) was identified as National Register of Historic Places (NRHP) *Potentially Eligible/Un-assessed* adjacent to the New River floodplain. This site is located at the extreme southwestern corner of the property, measures 7.76 acres, and is not planned for residential development due to its location and elevations near the 100-year floodplain. Site 31ON1833 will be placed in permanent preservation in order to prevent any disturbance or further mitigation measures as recommended in the archaeological assessment. According to the applicant, the SHPO was provided a copy of the report, and their review and concurrence is pending.

## **Endangered Species**

Wetland Solutions, LLC conducted a pedestrian assessment of potential habitat for federally protected terrestrial plant and animal species over a period ranging from January through June 2011 pursuant to the Endangered Species Act of 1973. Results of the protected species assessment were documented in a December 13, 2012 "Biological Assessment, Williamsburg Plantation Subdivision", available as supplemental documentation on the District Website at <http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram/PublicNotices.aspx>. Fifteen federally protected species are known to occur within the eight subject Counties, these include the American alligator (*Alligator mississippiensis*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), shortnose sturgeon (*Acipenser brevirostrum*), loggerhead sea turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), West Indian manatee (*Trichechus manatus*), piping plover (*Charadrius melodus*), red-cockaded woodpecker (*Picoides borealis*), seabeach amaranth (*Amaranthus pumilus*), golden sedge (*Carex lutea*), Hirst's panic grass (*Dichanthelium hirstii*), pondberry (*Lindera melissifolia*), rough-leaf loosestrife (*Lysimachia asperulaefolia*), and Cooley's meadowrue (*Thalictrum cooleyi*).

The applicant states a Biological Determination of “No Effect” for fourteen of the species above, with no determination made for Hirst’s panic grass, a candidate species. According to the applicant, the U.S. Fish and Wildlife Service (USFWS) was provided a copy of the report, and their review and concurrence is pending. The District Engineer, based on available information, is not aware that the proposed activities requiring DA authorization will affect any species, or their critical habitat, designated as endangered or threatened pursuant to the Endangered Species Act of 1973.

## **Evaluation**

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values (in accordance with Executive Order 11988), land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving the discharge of dredged or fill materials in waters of the United States, the evaluation of the impact of the activity on the public interest will include application of the Environmental Protection Agency’s 404(b)(1) guidelines.

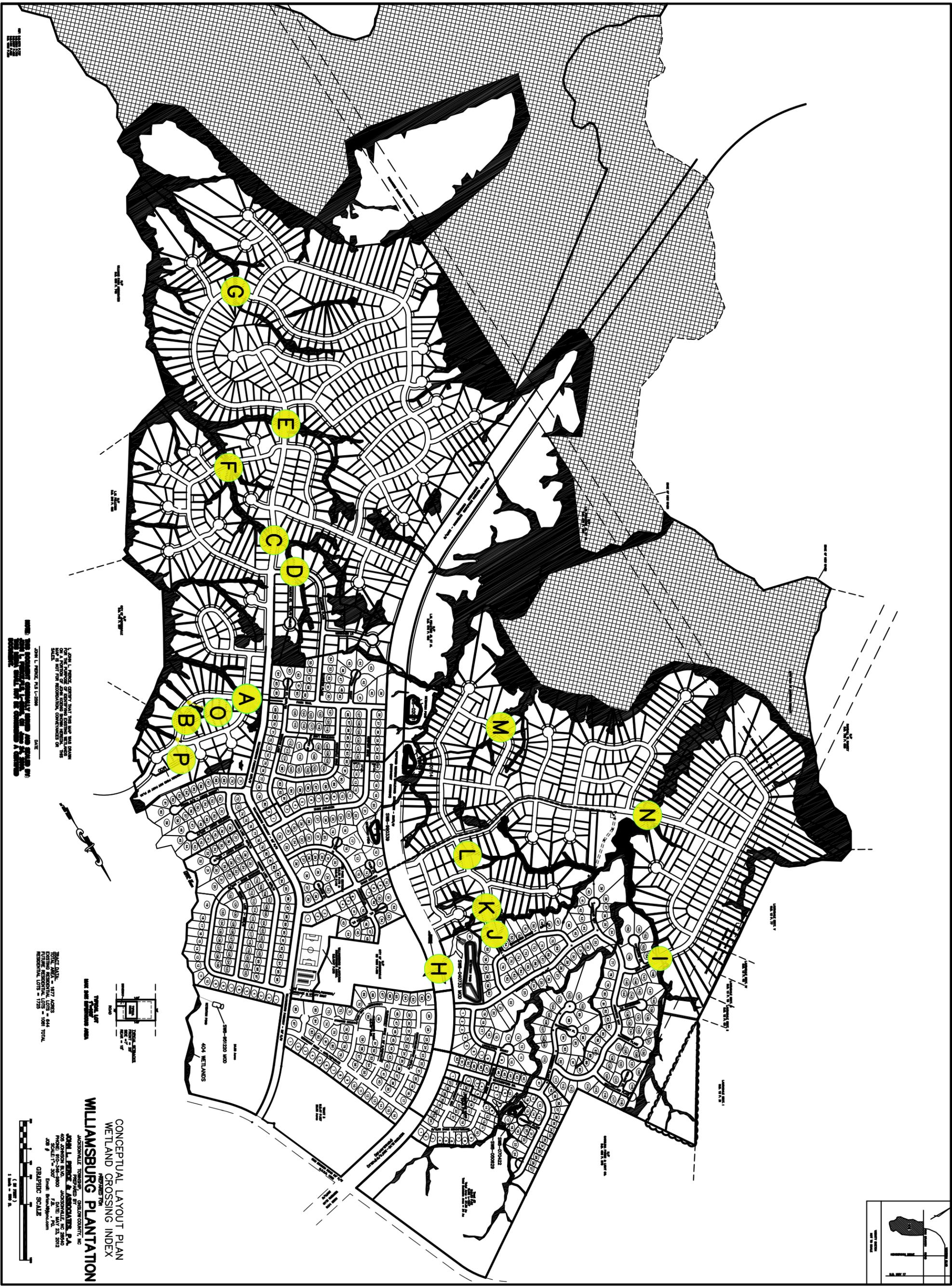
## **Commenting Information**

The Corps of Engineers is soliciting comments from the public; Federal, State and local agencies and officials, including any consolidate State Viewpoint or written position of the Governor; Indian Tribes and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

A copy of this Public Notice and all pertinent plans and specifications can be found at: <http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram/PublicNotices.aspx> or by contacting the Wilmington Regulatory Field Office at (910) 251-4633.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Requests for a public hearing shall be granted, unless the District Engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing.

Written comments pertinent to the proposed work, as outlined above, will be received by the Corps of Engineers, Wilmington District, until 5pm, March 4, 2013. Comments should be submitted to David E. Bailey, Wilmington Regulatory Field Office, 69 Darlington Avenue, Wilmington, North Carolina, 28403, telephone (910) 251-4469.



DATE: 12/4/2012

JOHN L. PERDUE, CERTIFIED PLANNING AND DESIGN PROFESSIONAL  
 FOR THE PURPOSE OF PREPARING CONCEPTUAL LAYOUT PLANS AND WETLAND CROSSING INDEX MAPS FOR RESIDENTIAL DEVELOPMENT, CONDUCTED ON:

SHEET NUMBER: 1477  
 TOTAL SHEETS: 1477  
 DATE: MAY 23, 2012

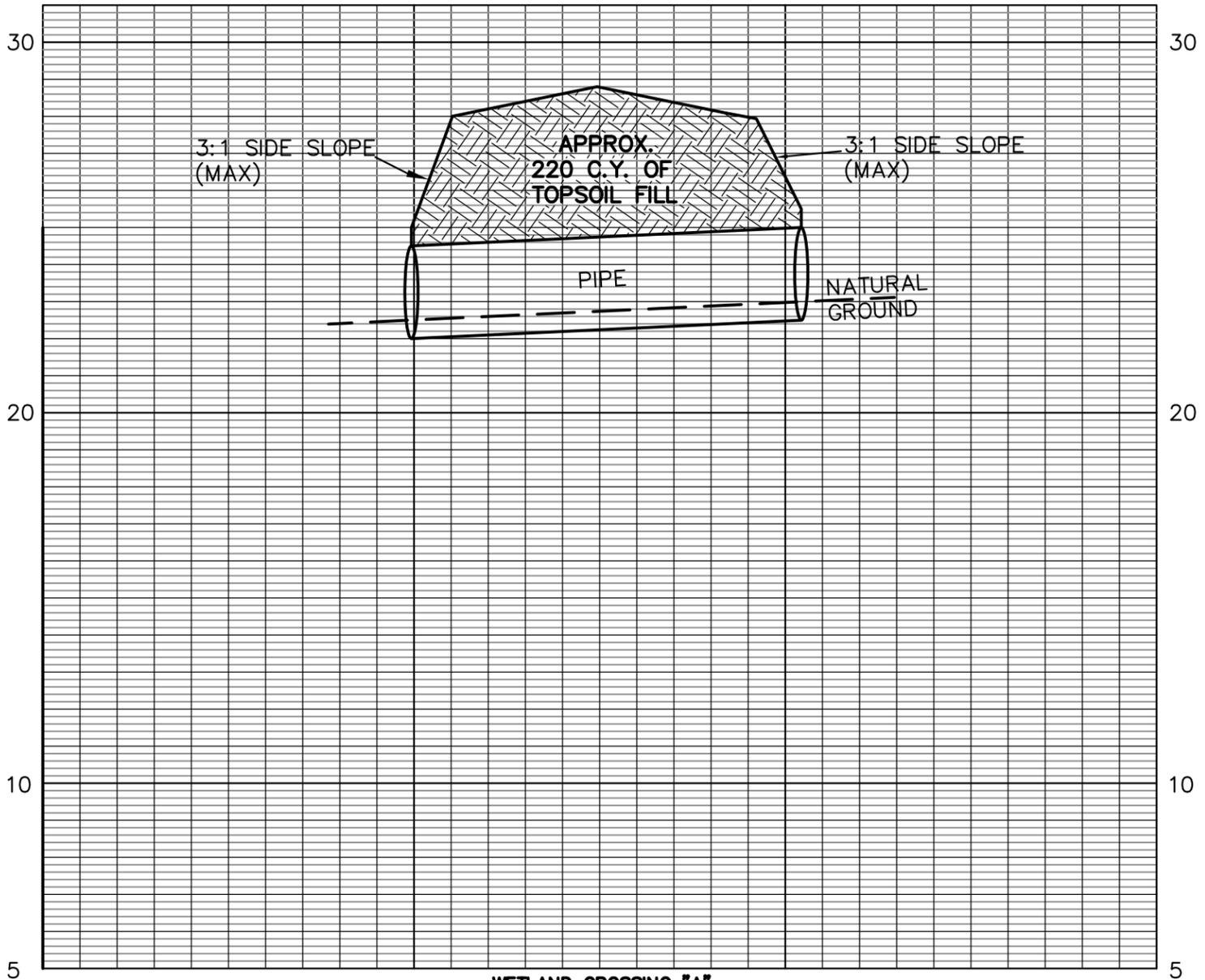
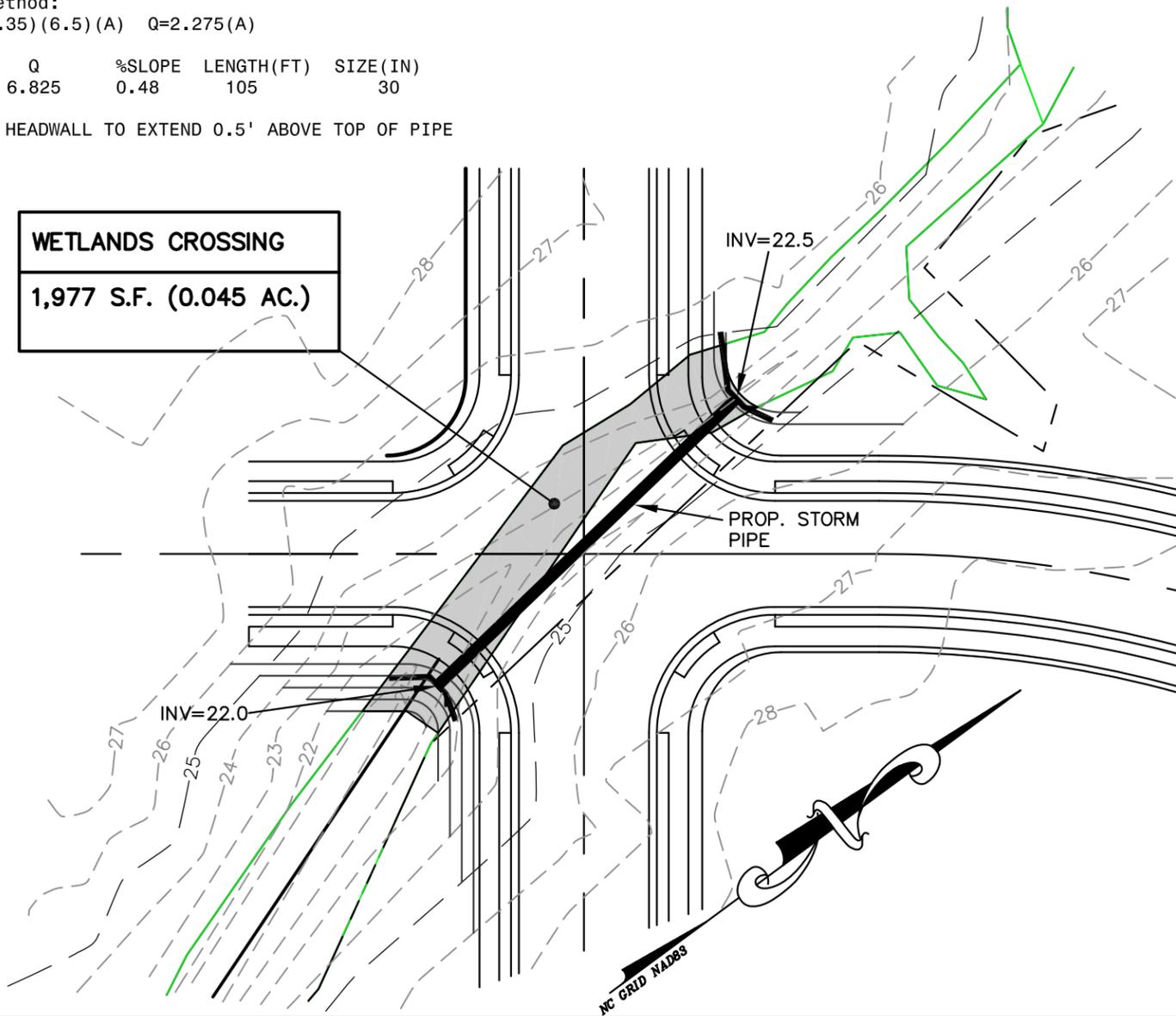
**WILLIAMSBURG PLANTATION**  
 CONCEPTUAL LAYOUT PLAN  
 WETLAND CROSSING INDEX  
 PREPARED BY:  
 JOHN L. PERDUE & ASSOCIATES, P.A.  
 405 GORDON BLVD., JACKSONVILLE, NC 28540  
 PHONE: 919-366-2900 FAX: 919-366-2901  
 PROJECT NO.: 1201 DATE: MAY 23, 2012  
 SHEET NO.: 1477 OF 1477  
 GRAPHIC SCALE



STORM PIPE DATA  
 Rational Method:  
 $Q=CIA$   $Q=(0.35)(6.5)(A)$   $Q=2.275(A)$

AREA(AC)	Q	%SLOPE	LENGTH(FT)	SIZE(IN)
3	6.825	0.48	105	30

NOTE: PIPE HEADWALL TO EXTEND 0.5' ABOVE TOP OF PIPE

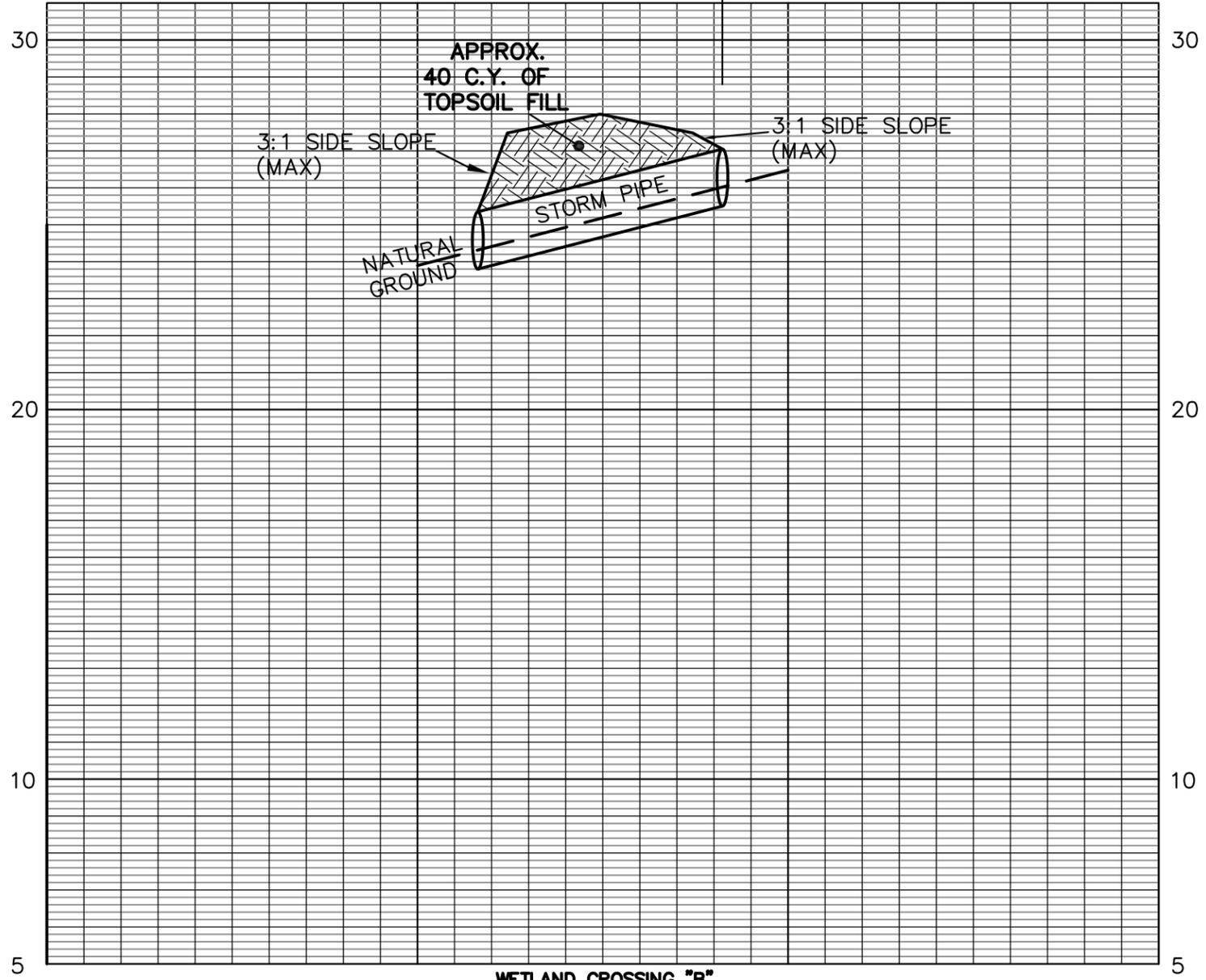
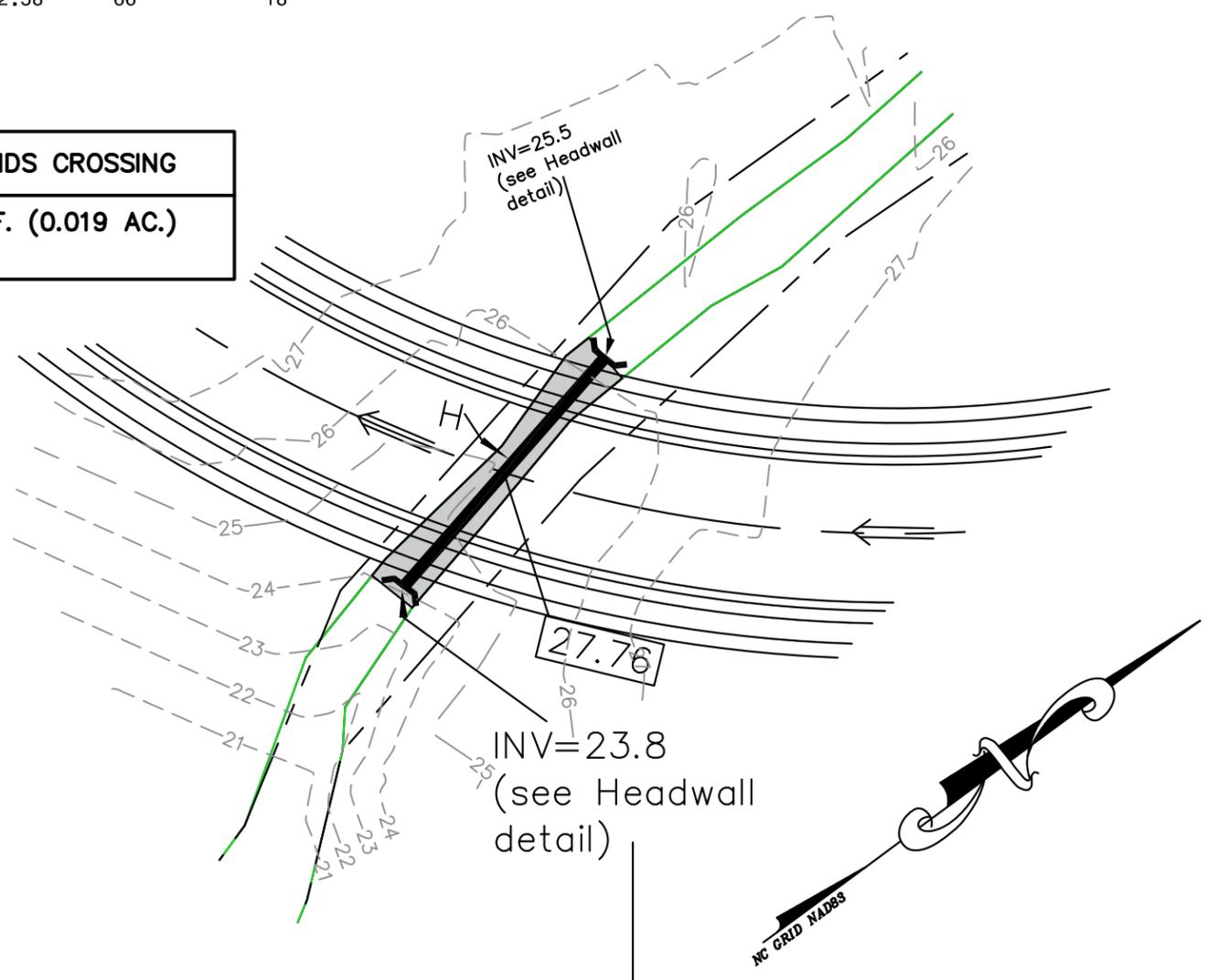


**WETLAND CROSSING "A"**  
**WILLIAMSBURG PLANTATION**  
 JACKSONVILLE TWSP., ONSLOW COUNTY, NC  
 PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
 NC LICENSE No. C-1888  
 405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
 910-346-9800 FAX 910-346-1210 EMAIL: brianJ@jpnnc.com  
 APRIL 26, 2012  
 SCALE: HORIZONTAL 1"=40"  
 VERTICAL 1"=4'

STORM PIPE DATA  
 Rational Method:  
 $Q=CIA$   $Q=(0.35)(6.5)(A)$   $Q=2.275(A)$

AREA(AC)	Q	%SLOPE	LENGTH(FT)	SIZE(IN)
1.5	3.41	2.58	66	18

**WETLANDS CROSSING**  
**814 S.F. (0.019 AC.)**



**WETLAND CROSSING "B"**  
**WILLIAMSBURG PLANTATION**  
 JACKSONVILLE TWSP., ONSLOW COUNTY, NC  
 PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
 NC LICENSE No. C-1888  
 405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
 910-346-9800 FAX 910-346-1210 EMAIL: brianJ@jpnnc.com  
 APRIL 26, 2012  
 SCALE: HORIZONTAL 1"=40'  
 VERTICAL 1"=4'

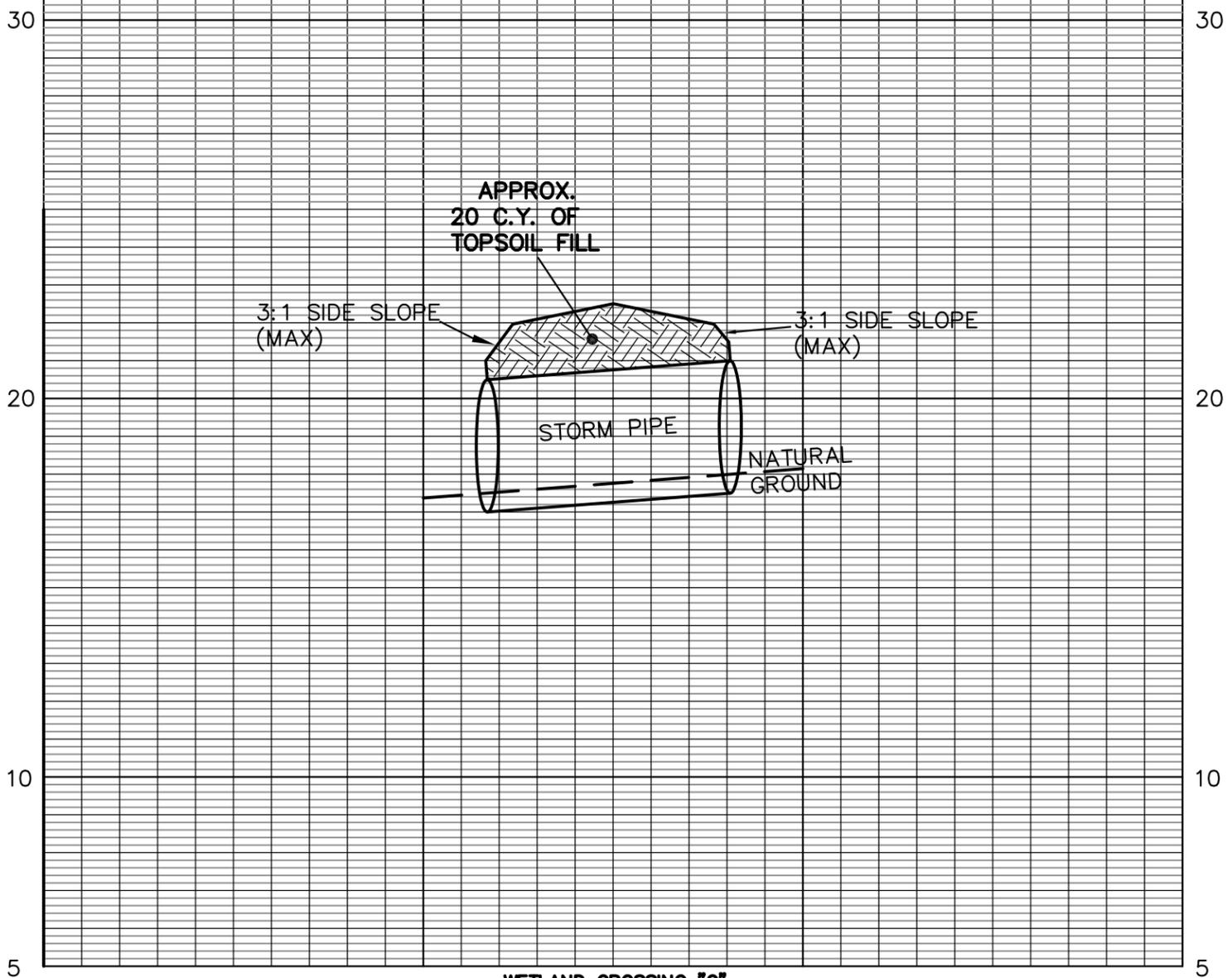
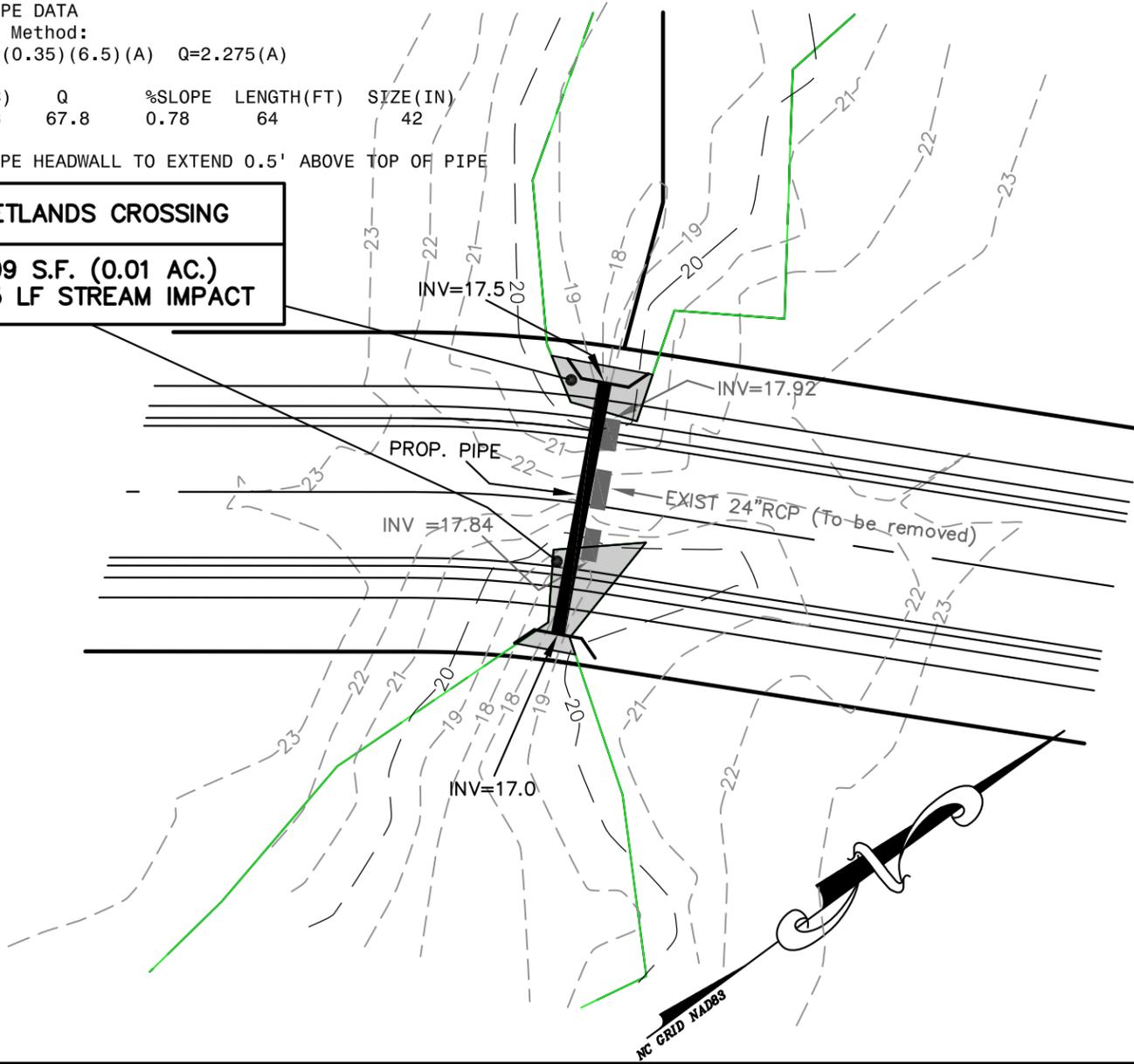
STORM PIPE DATA  
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AREA(AC)	Q	%SLOPE	LENGTH(FT)	SIZE(IN)
29.8	67.8	0.78	64	42

NOTE: PIPE HEADWALL TO EXTEND 0.5' ABOVE TOP OF PIPE

**WETLANDS CROSSING**

**609 S.F. (0.01 AC.)  
 35 LF STREAM IMPACT**



**WETLAND CROSSING "C"**  
**WILLIAMSBURG PLANTATION**  
 JACKSONVILLE TOWNSHIP, ONSLOW COUNTY, NC  
 PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
 NC LICENSE No. C-1888  
 405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
 910-346-9800 FAX 910-346-1210 EMAIL: brianj@jlpnc.com  
 APRIL 17, 2012  
 SCALE: HORIZONTAL 1"=40'  
 VERTICAL 1"=4'

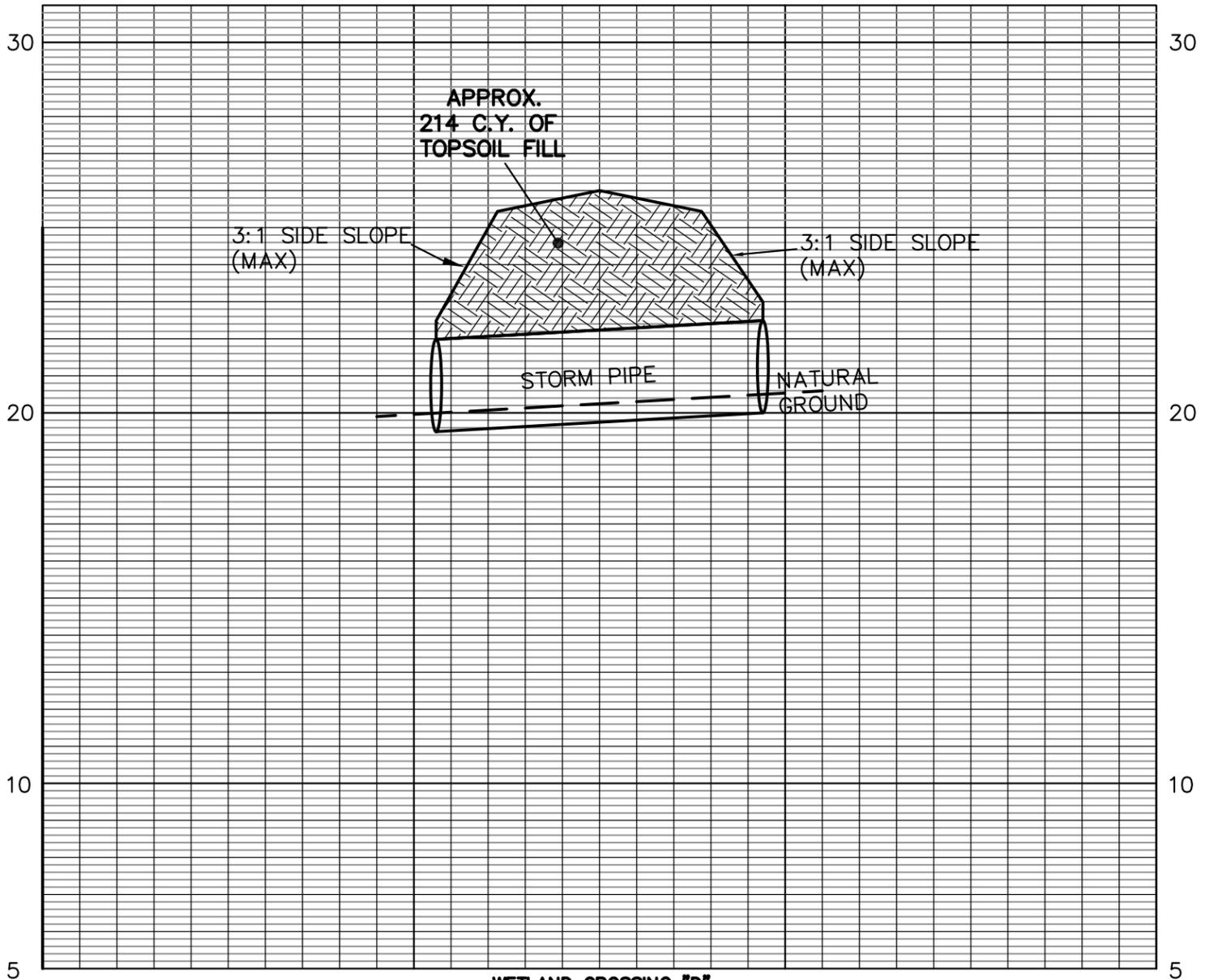
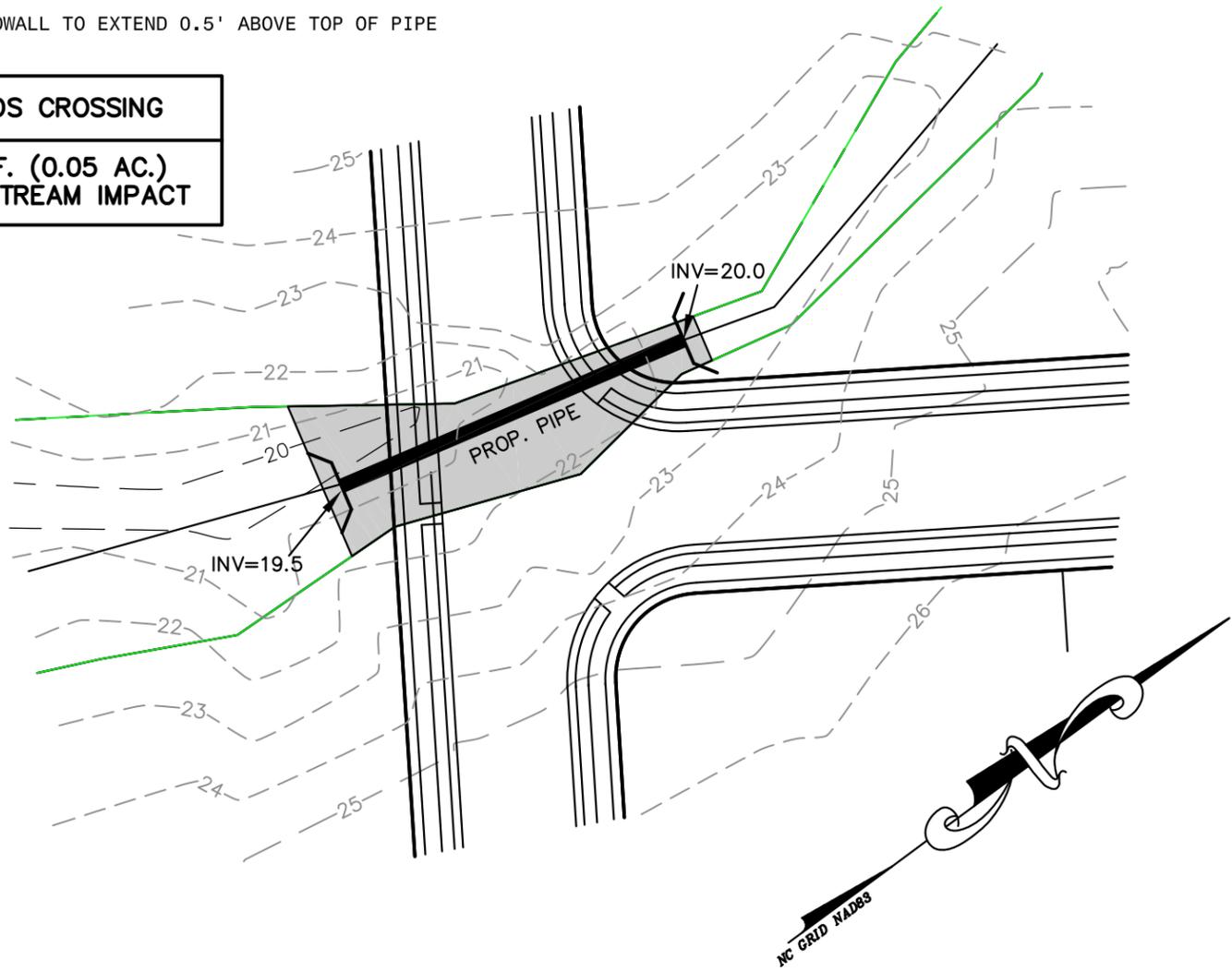
STORM PIPE DATA  
 Rational Method:  
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AREA(AC)	Q	%SLOPE	LENGTH(FT)	SIZE(IN)
5.76	13.1	0.57	88	30

NOTE: PIPE HEADWALL TO EXTEND 0.5' ABOVE TOP OF PIPE

**WETLANDS CROSSING**

**2310 S.F. (0.05 AC.)  
 96 LF STREAM IMPACT**



**WETLAND CROSSING "D"**  
**WILLIAMSBURG PLANTATION**  
 JACKSONVILLE TOWNSHIP, ONSLOW COUNTY, NC  
 PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
 NC LICENSE No. C-1888  
 405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
 910-346-9800 FAX 910-346-1210 EMAIL: brianJ@jlpnc.com  
 APRIL 18, 2012  
 SCALE: HORIZONTAL 1"=40"  
 VERTICAL 1"=4'

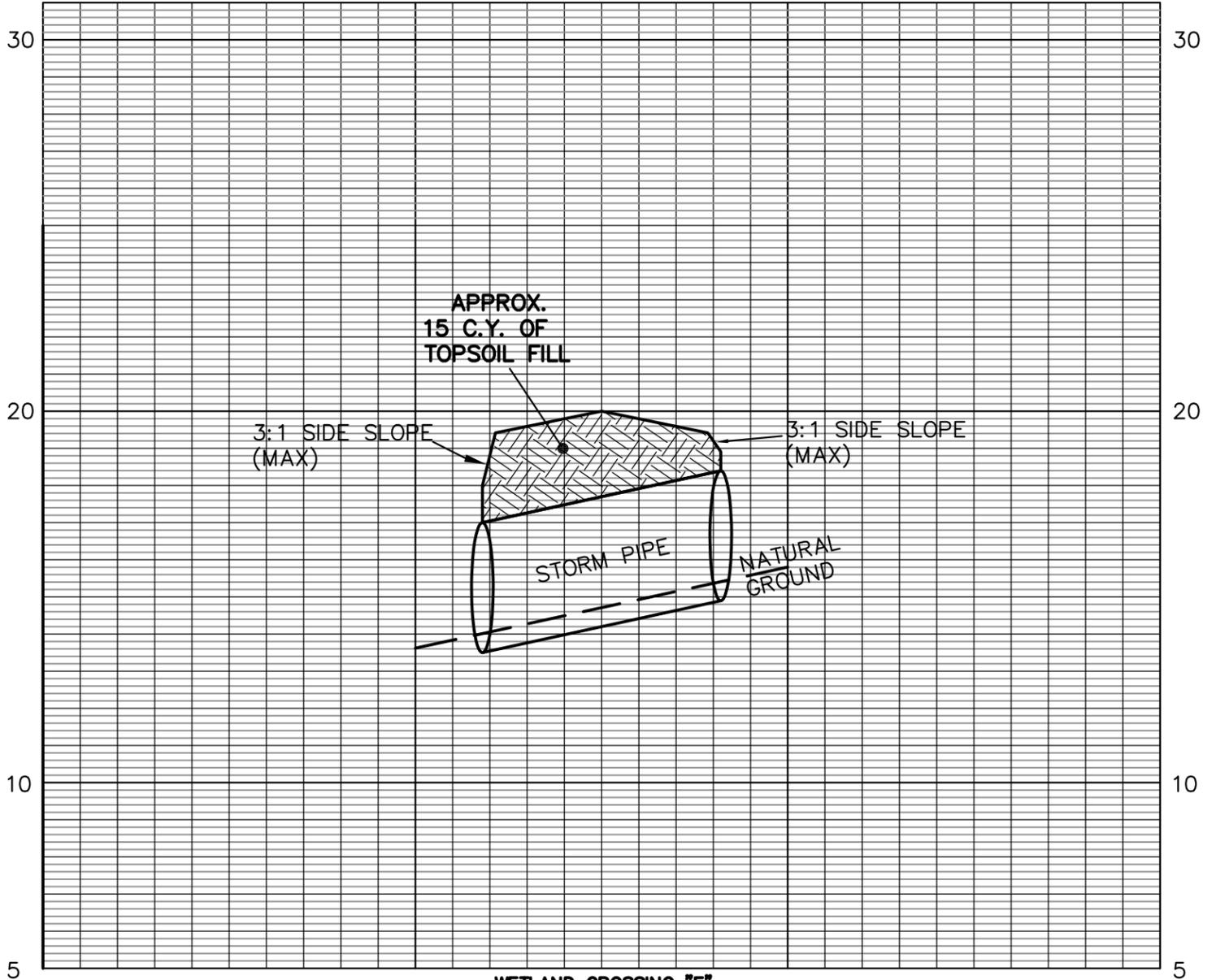
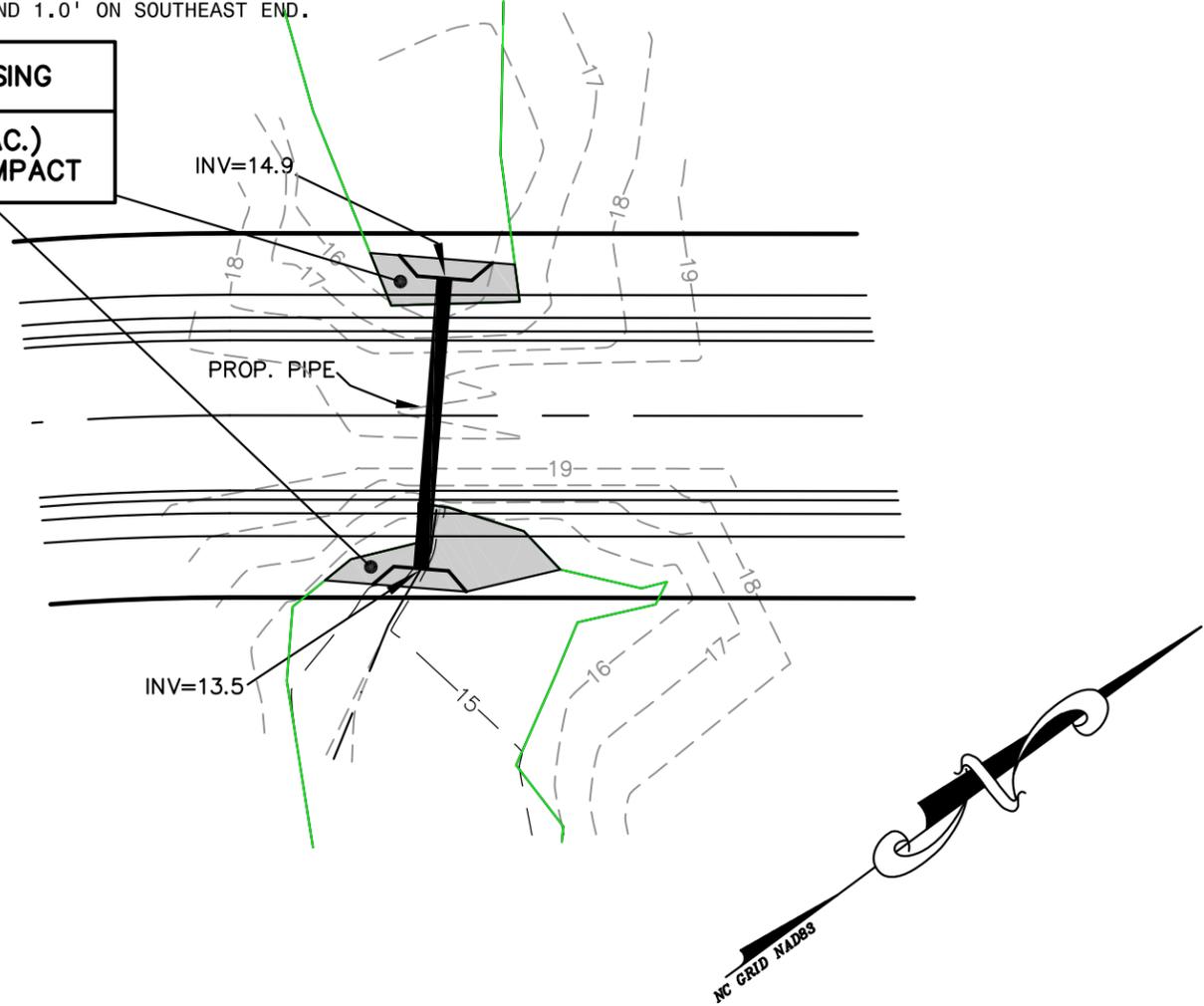
STORM PIPE DATA  
 Rational Method:  
 $Q=CIA$   $Q=(0.35)(6.5)(A)$   $Q=2.275(A)$

AREA(AC)	Q	%SLOPE	LENGTH(FT)	SIZE(IN)
33	75.0	2.19	64	42

NOTE: PIPE HEADWALL TO EXTEND 0.5' ABOVE TOP OF PIPE ON NORTHWEST END AND 1.0' ON SOUTHEAST END.

**WETLANDS CROSSING**

**824 S.F. (0.02 AC.)  
 29 LF STREAM IMPACT**



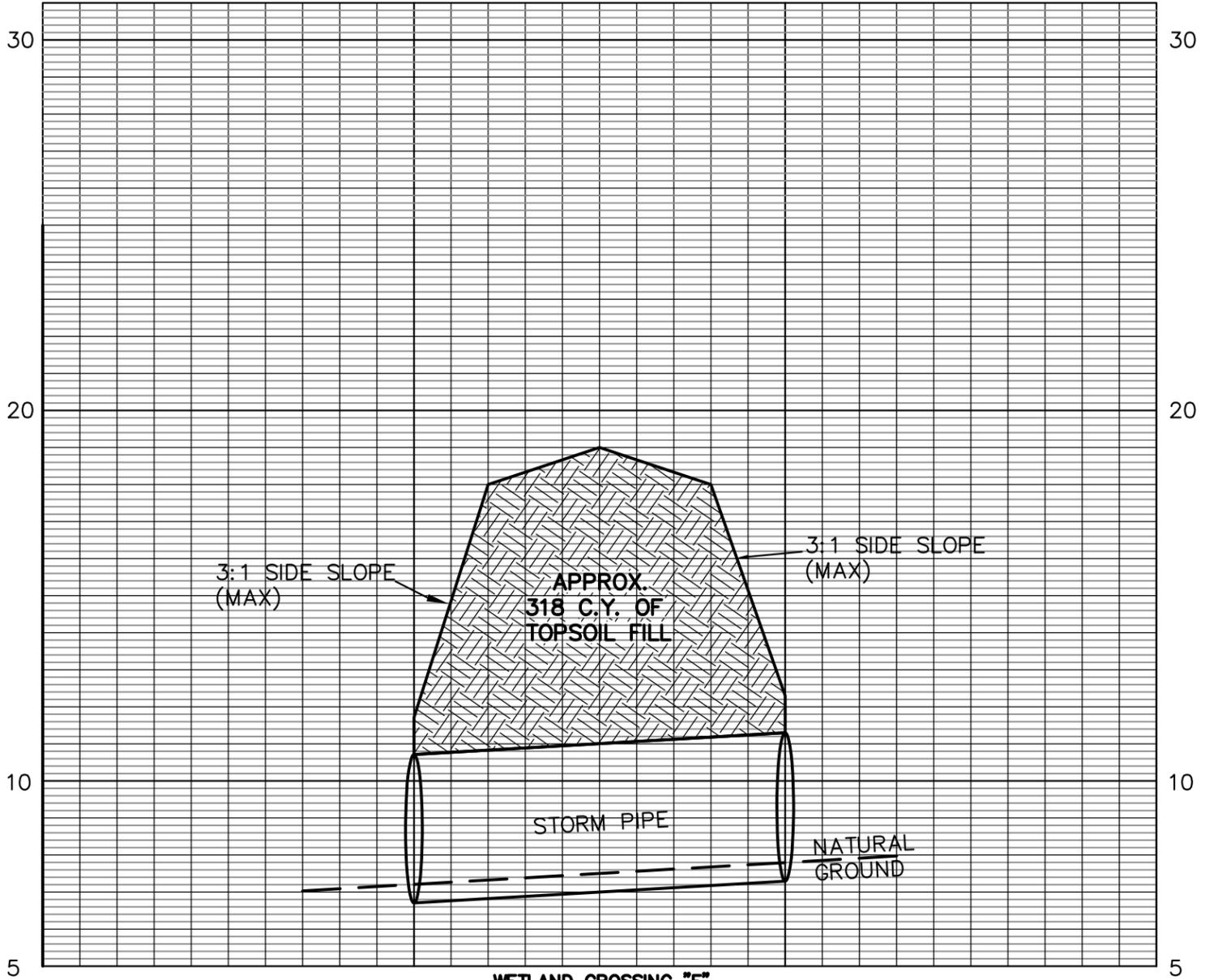
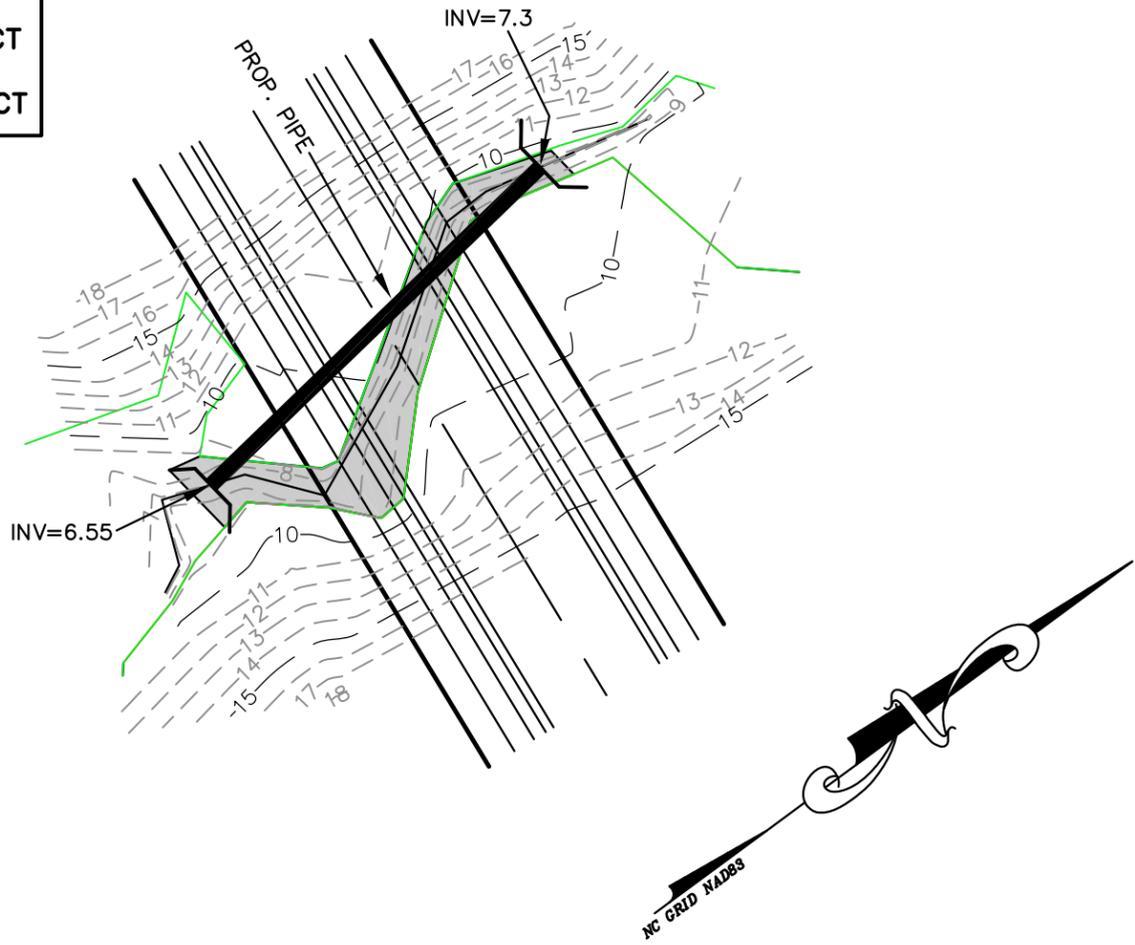
**WETLAND CROSSING "E"**  
**WILLIAMSBURG PLANTATION**  
 JACKSONVILLE TOWNSHIP, ONSLOW COUNTY, NC  
 PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
 NC LICENSE No. C-1888  
 405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
 910-346-9800 FAX 910-346-1210 EMAIL: brianJ@jlpnc.com  
 APRIL 17, 2012  
 SCALE: HORIZONTAL 1"=40"  
 VERTICAL 1"=4'

STORM PIPE DATA  
 Rational Method:  
 $Q=CIA$   $Q=(0.35)(6.5)(A)$   $Q=2.275(A)$

AREA(AC)	Q	%SLOPE	LENGTH(FT)	SIZE(IN)
53.9	122.6	0.75	100	48

NOTE: PIPE HEADWALL TO EXTEND 1.0' ABOVE TOP OF PIPE

**WETLANDS CROSSING**  
**125 LF STREAM IMPACT**  
**5' WIDE**  
**625 SF STREAM IMPACT**



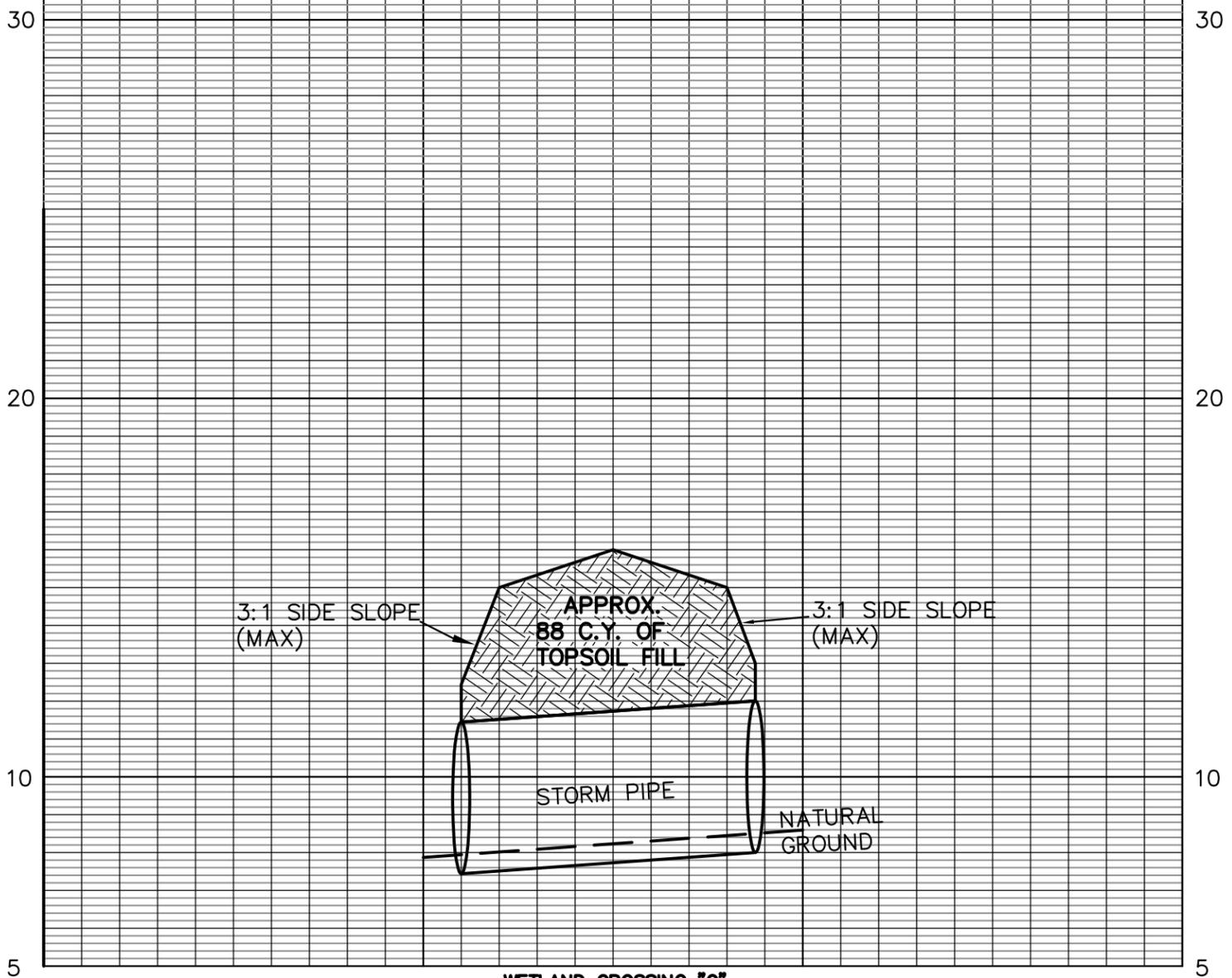
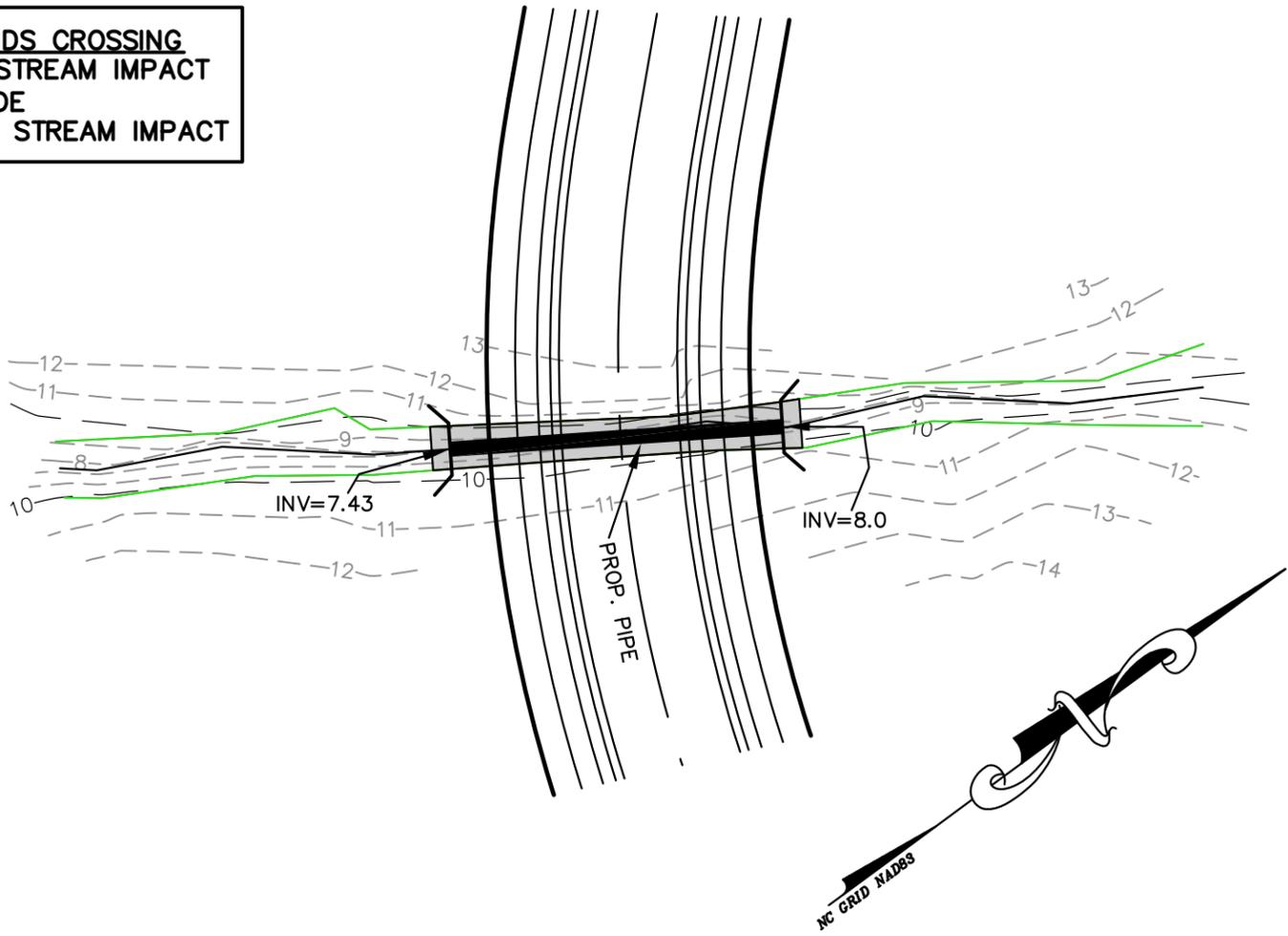
**WETLAND CROSSING "F"**  
**WILLIAMSBURG PLANTATION**  
 JACKSONVILLE TWSP., ONSLOW COUNTY, NC  
 PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
 NC LICENSE No. C-1888  
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 APRIL 26, 2012  
 SCALE: HORIZONTAL 1"=40'  
 VERTICAL 1"=4'

STORM PIPE DATA  
 Rational Method:  
 $Q=CIA$   $Q=(0.35)(6.5)(A)$   $Q=2.275(A)$

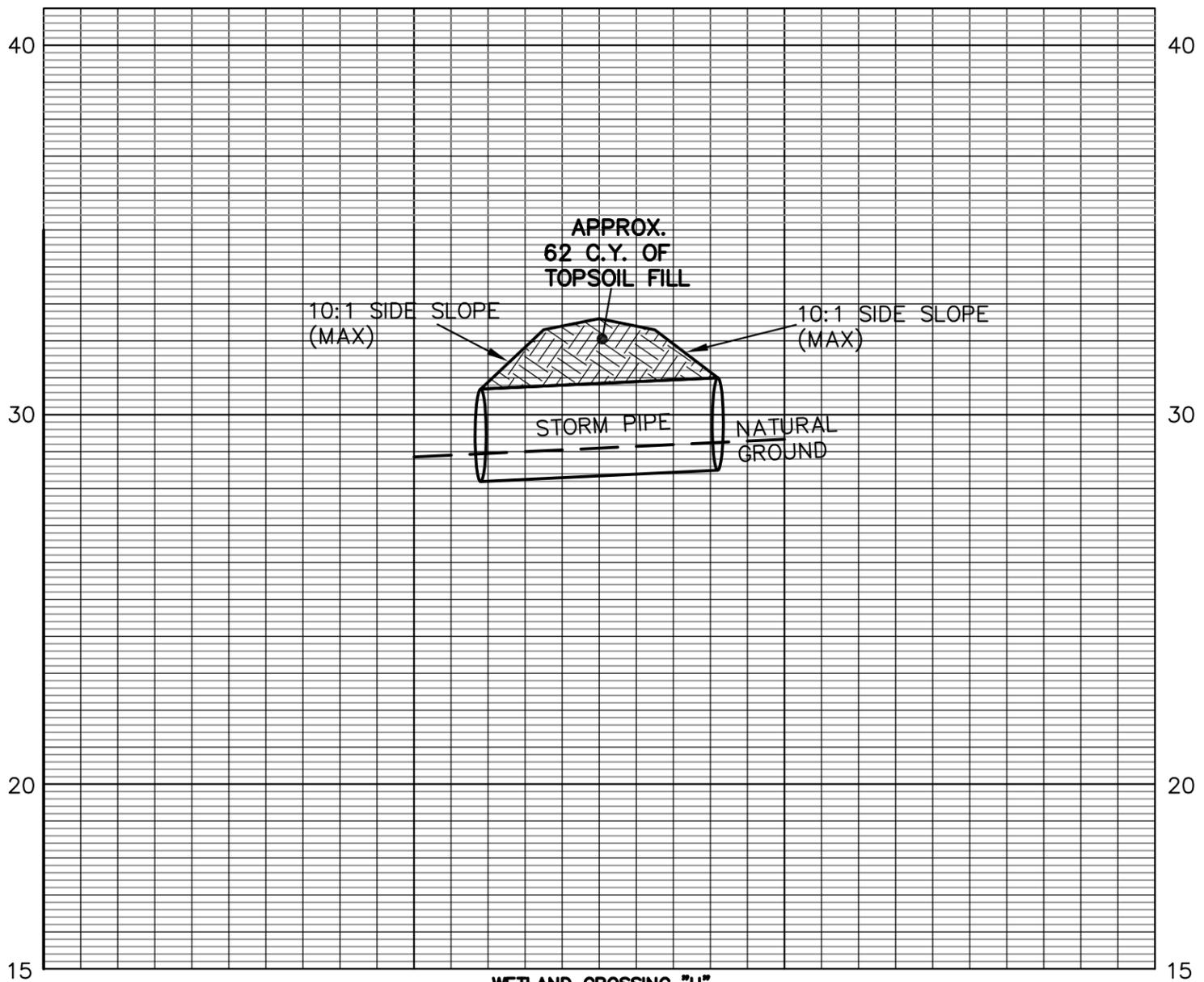
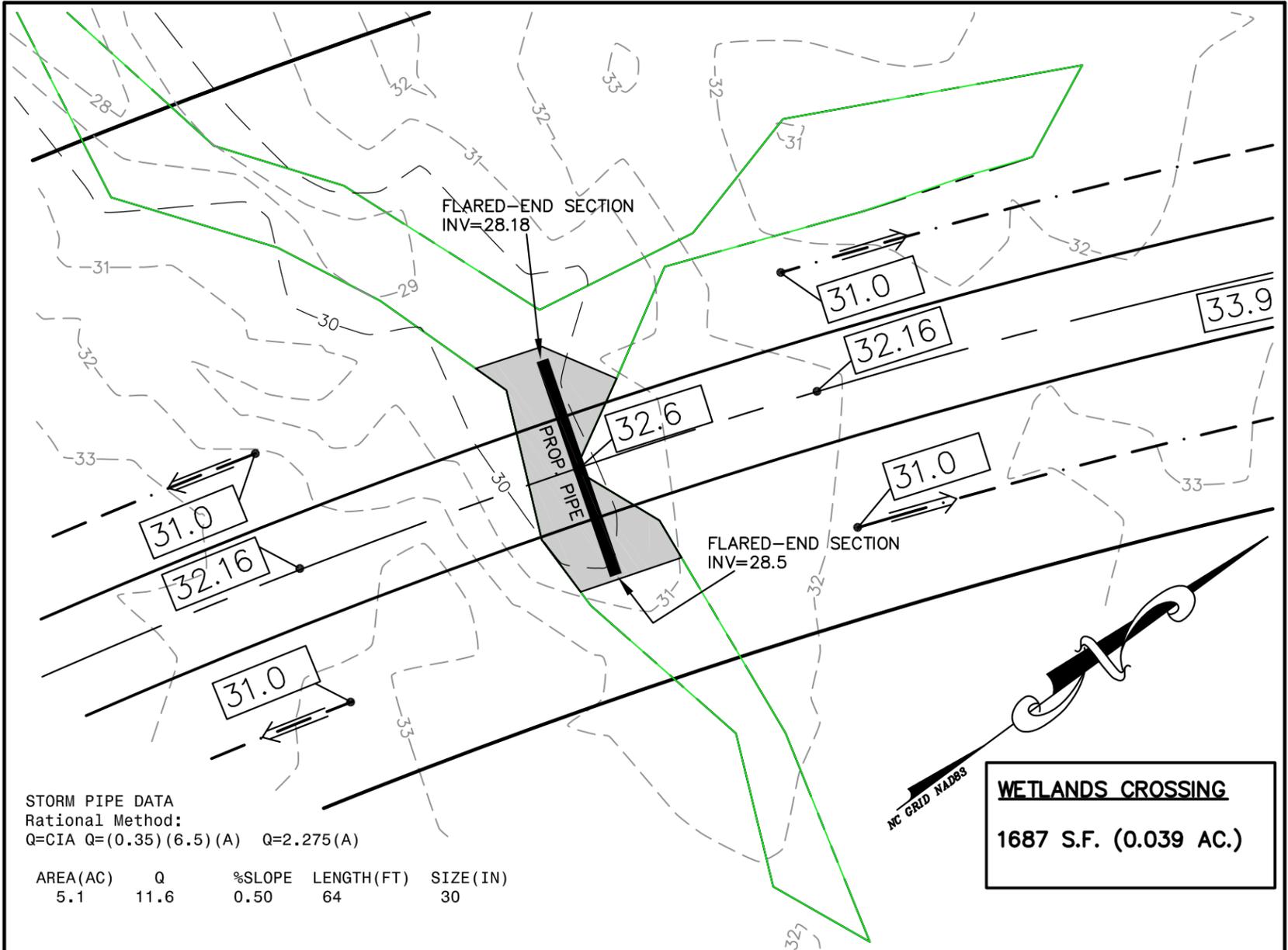
AREA(AC)	Q	%SLOPE	LENGTH(FT)	SIZE(IN)
28.6	65.1	0.75	76	48

NOTE: PIPE HEADWALL TO EXTEND 1.0' ABOVE TOP OF PIPE

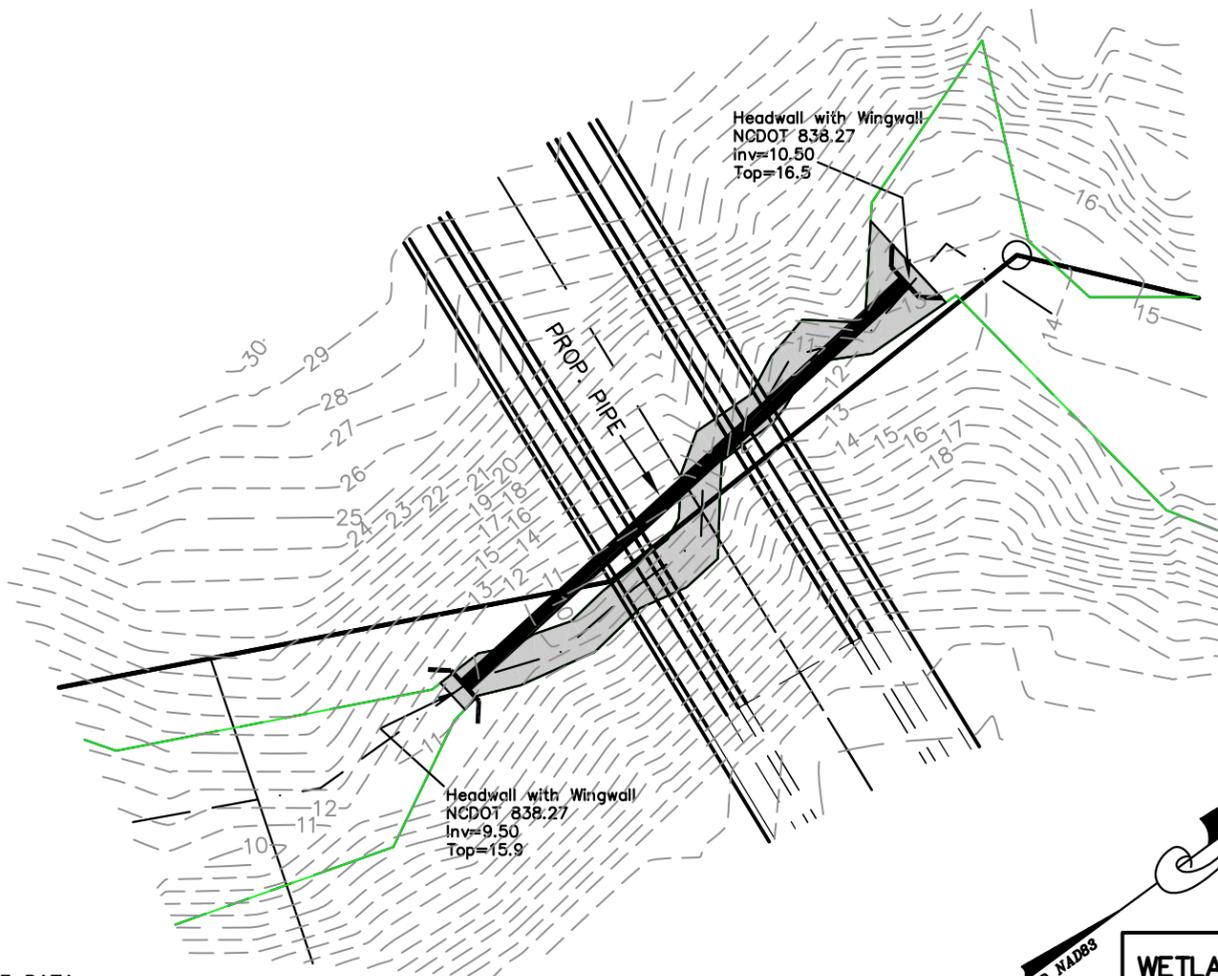
**WETLANDS CROSSING**  
**85 LF STREAM IMPACT**  
**3.5' WIDE**  
**298 SF STREAM IMPACT**



**WETLAND CROSSING "G"**  
**WILLIAMSBURG PLANTATION**  
 JACKSONVILLE TOWNSHIP, ONSLOW COUNTY, NC  
 PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
 NC LICENSE No. C-1888  
 405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
 910-346-9800 FAX 910-346-1210 EMAIL: brianj@jlpnc.com  
 APRIL 26, 2012  
 SCALE: HORIZONTAL 1"=40"  
 VERTICAL 1"=4'



**WETLAND CROSSING "H"**  
**WILLIAMSBURG PLANTATION**  
JACKSONVILLE TWSP., ONSLOW COUNTY, NC  
PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
NC LICENSE No. C-1888  
405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
910-346-9800 FAX 910-346-1210 EMAIL: brianJ@jpnnc.com  
APRIL 26, 2012  
SCALE: HORIZONTAL 1"=40"  
VERTICAL 1"=4'

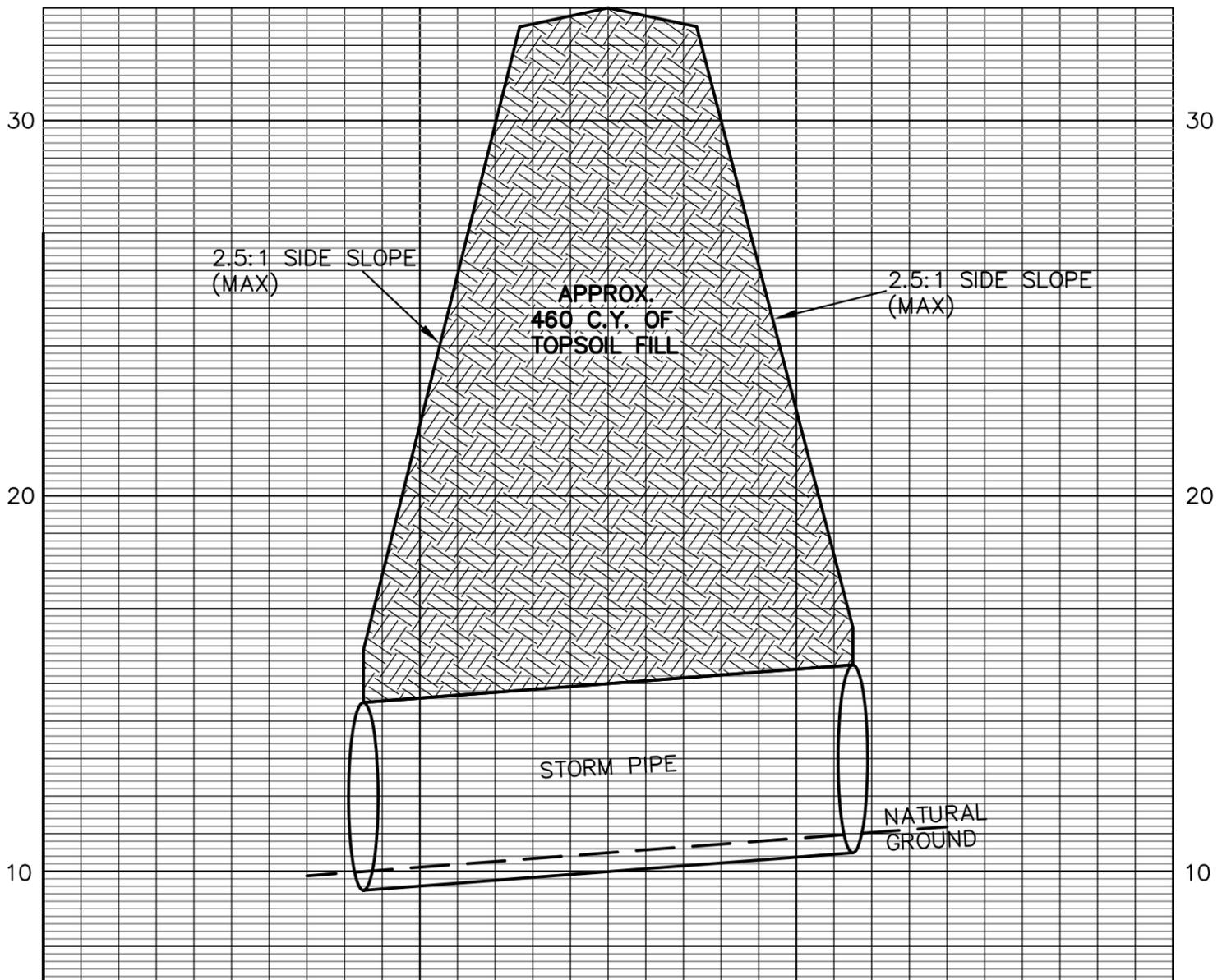


STORM PIPE DATA  
 Rational Method:  
 $Q=CIA$   $Q=(0.35)(6.5)(A)$   $Q=2.275(A)$

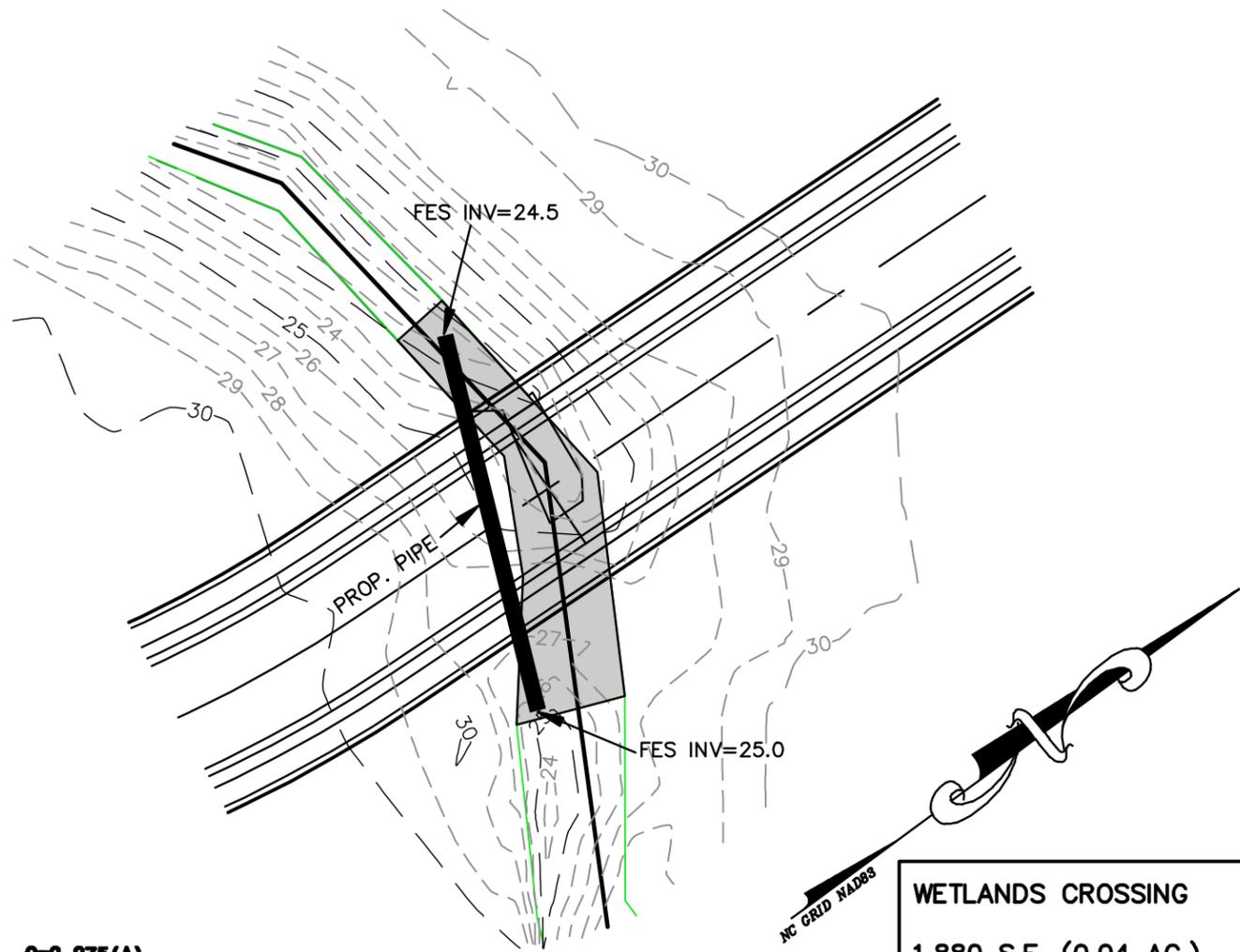
AREA(AC)	Q	%SLOPE	LENGTH(FT)	SIZE(IN)
49.0	111.5	0.77	130	60

NOTE: PIPE HEADWALL TO EXTEND 1.5' ABOVE TOP OF PIPE

**WETLANDS CROSSING**  
 149 LF STREAM IMPACT  
 4' WIDE  
 596 SF STREAM IMPACT



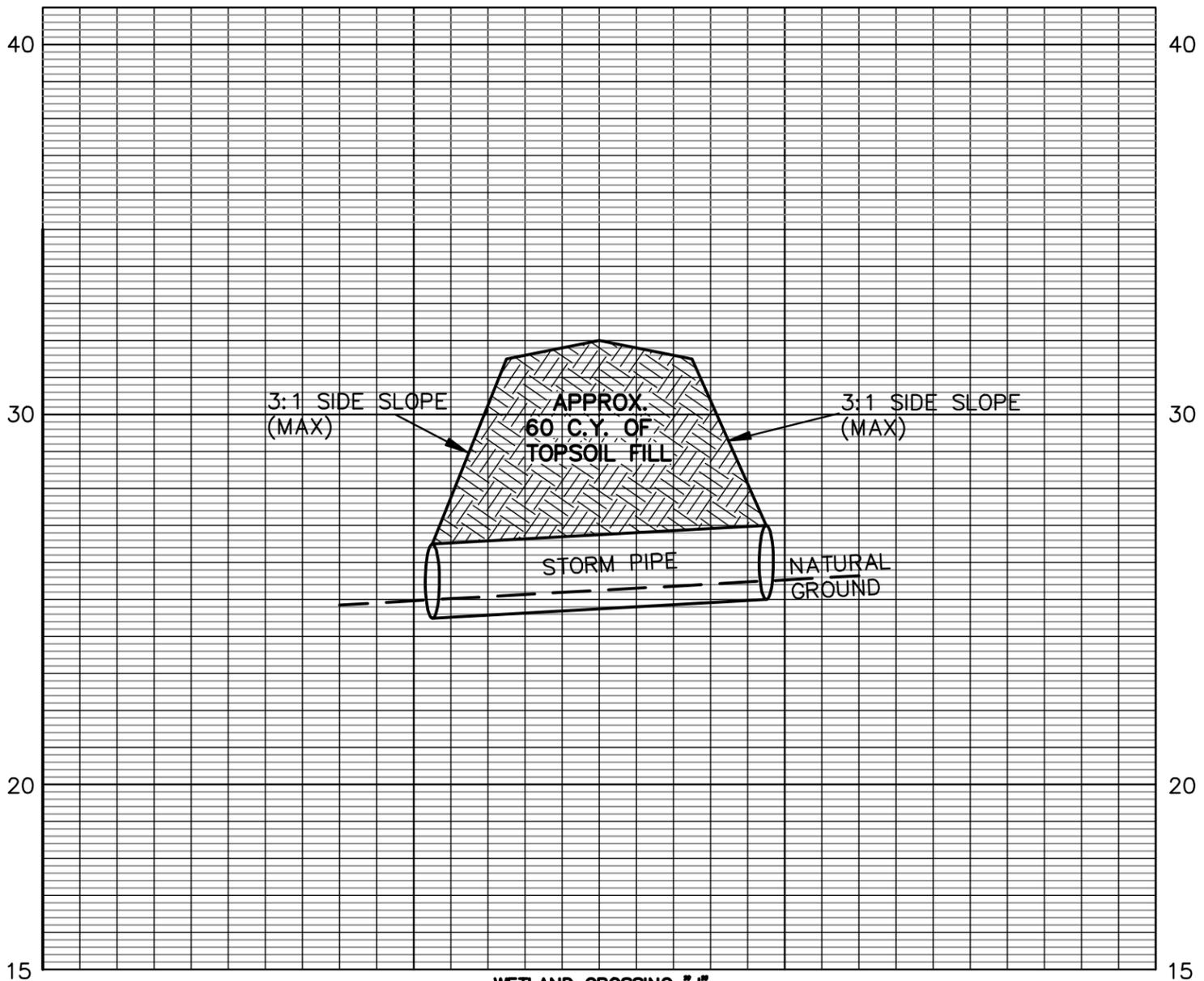
**WETLAND CROSSING "I"**  
**WILLIAMSBURG PLANTATION**  
 JACKSONVILLE TWSP., ONSLOW COUNTY, NC  
 PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
 NC LICENSE No. C-1888  
 405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
 910-346-9800 FAX 910-346-1210 EMAIL: brianJ@jlpnc.com  
 APRIL 26, 2012  
 SCALE: HORIZONTAL 1"=40"  
 VERTICAL 1"=4'



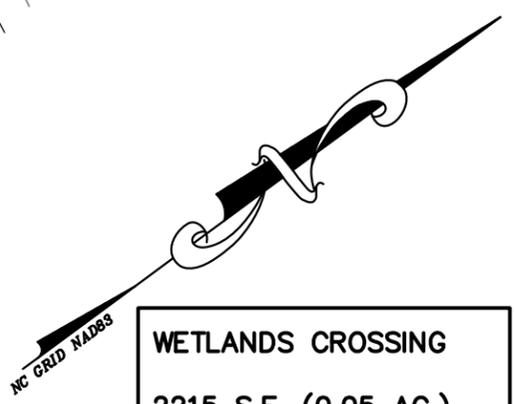
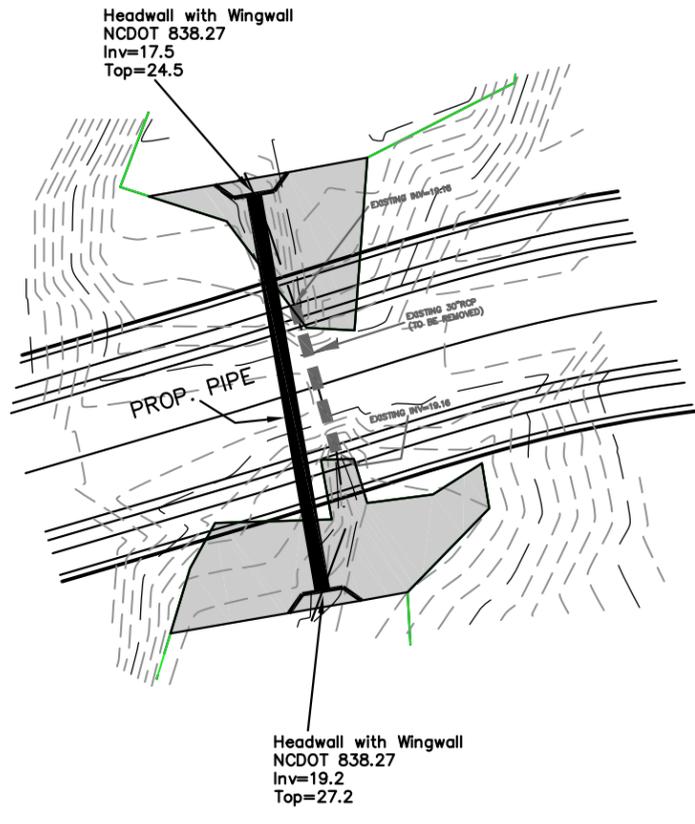
**WETLANDS CROSSING**  
 1,880 S.F. (0.04 AC.)

**STORM PIPE DATA**  
 Rational Method:  
 Q=CIA Q=(0.35)(6.5)(A) Q=2.275(A)

AREA(AC)	Q	%SLOPE	LENGTH(FT)	SIZE(IN)
1	2.28	0.56	90	24



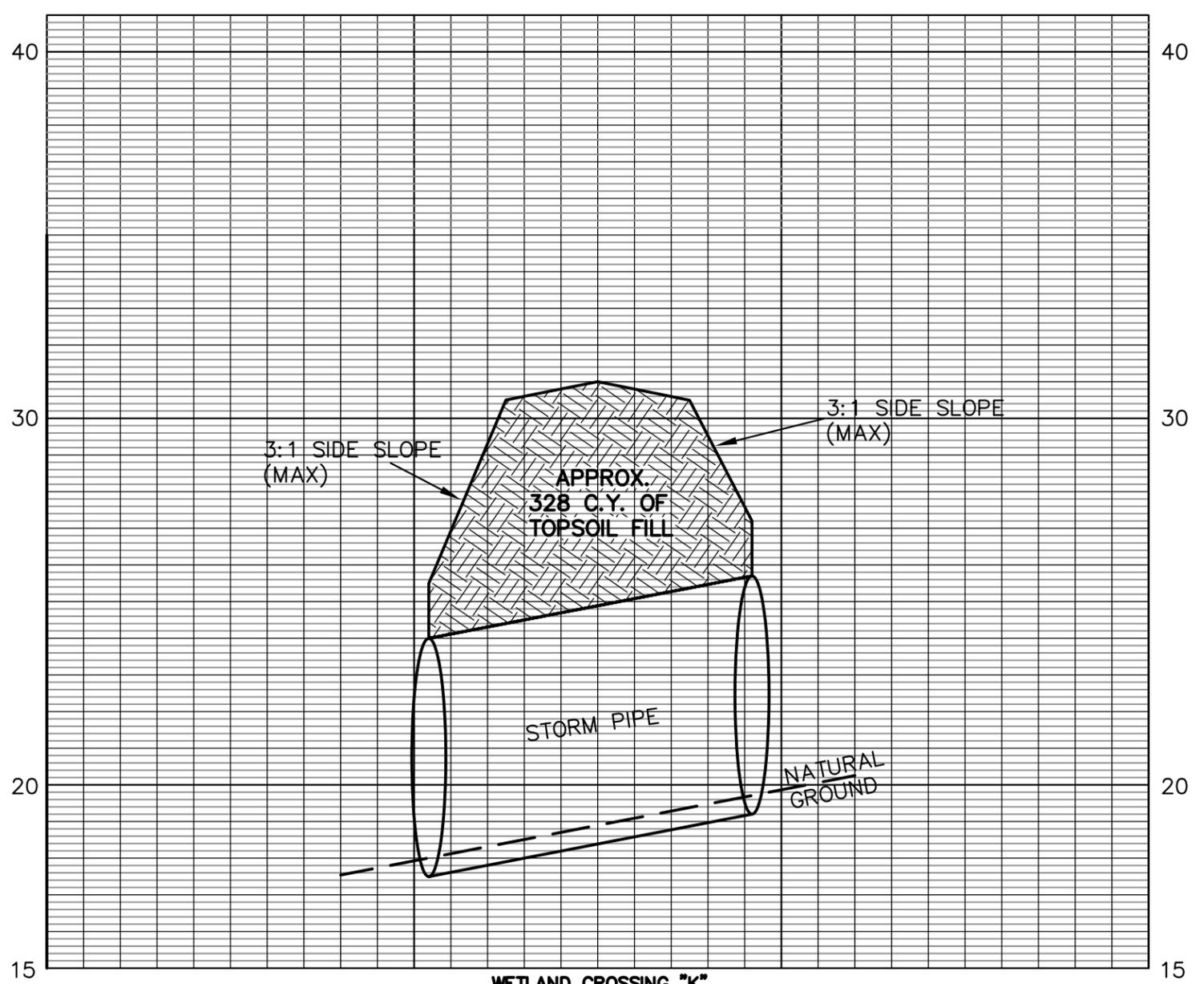
**WETLAND CROSSING "J"**  
**WILLIAMSBURG PLANTATION**  
 JACKSONVILLE TWSP., ONSLOW COUNTY, NC  
 PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
 NC LICENSE No. C-1888  
 405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
 910-346-9800 FAX 910-346-1210 EMAIL: brianJ@jlpnc.com  
 NOVEMBER 20, 2012  
 SCALE: HORIZONTAL 1"=40"  
 VERTICAL 1"=4'



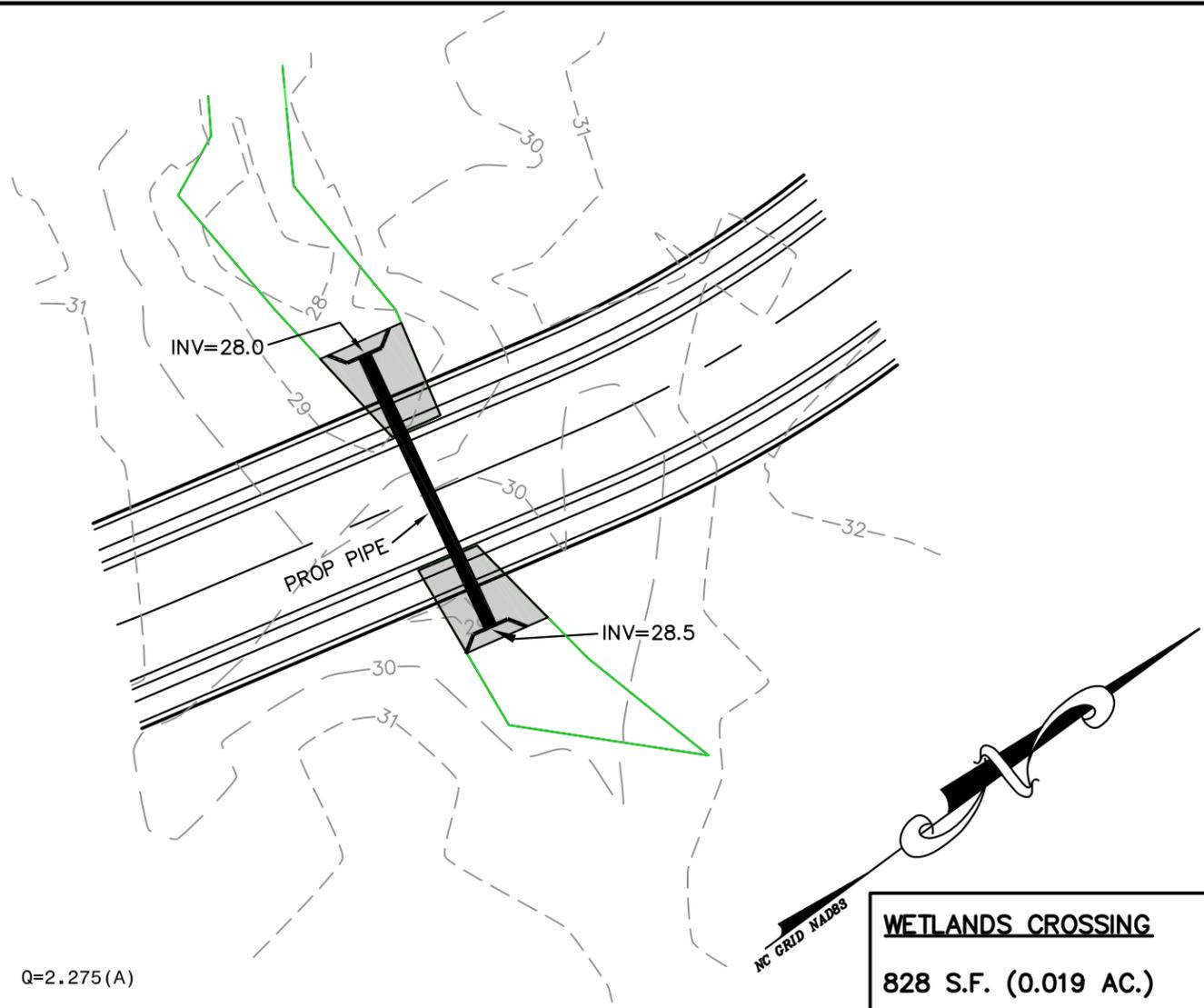
STORM PIPE DATA  
 Rational Method:  
 $Q=CIA \quad Q=(0.35)(6.5)(A) \quad Q=2.275(A)$

AREA(AC)	Q	%SLOPE	LENGTH(FT)	SIZE(IN)
107.5	244.6	1.94	88	66

NOTE: PIPE HEADWALL TO EXTEND 1.5' ABOVE TOP OF PIPE



**WETLAND CROSSING "K"**  
**WILLIAMSBURG PLANTATION**  
 JACKSONVILLE TWSP., ONSLOW COUNTY, NC  
 PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
 NC LICENSE No. C-1888  
 405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
 910-346-9800 FAX 910-346-1210 EMAIL: brianJ@jlpnc.com  
 APRIL 20, 2012  
 SCALE: HORIZONTAL 1"=40"  
 VERTICAL 1"=4'

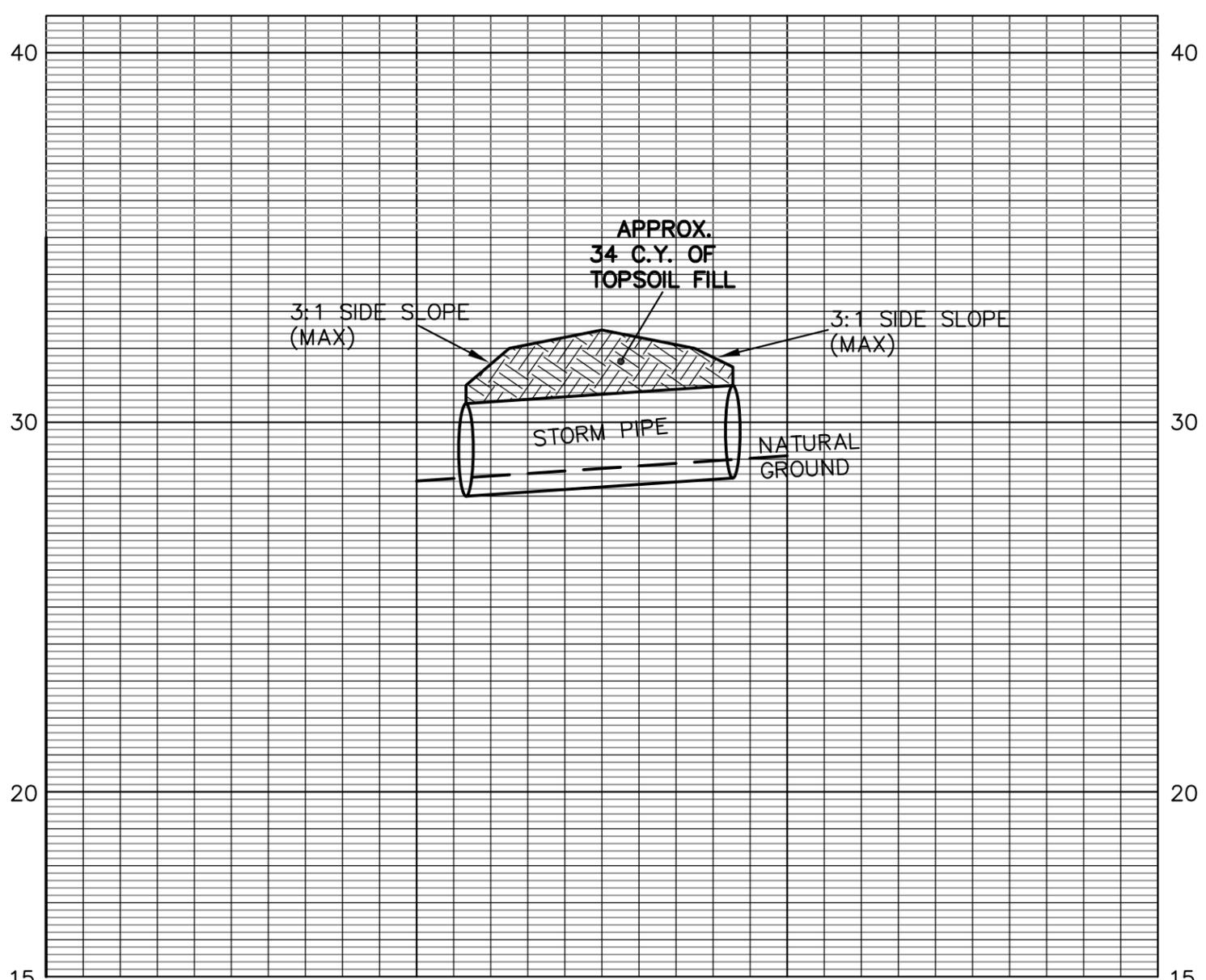


**WETLANDS CROSSING**  
**828 S.F. (0.019 AC.)**

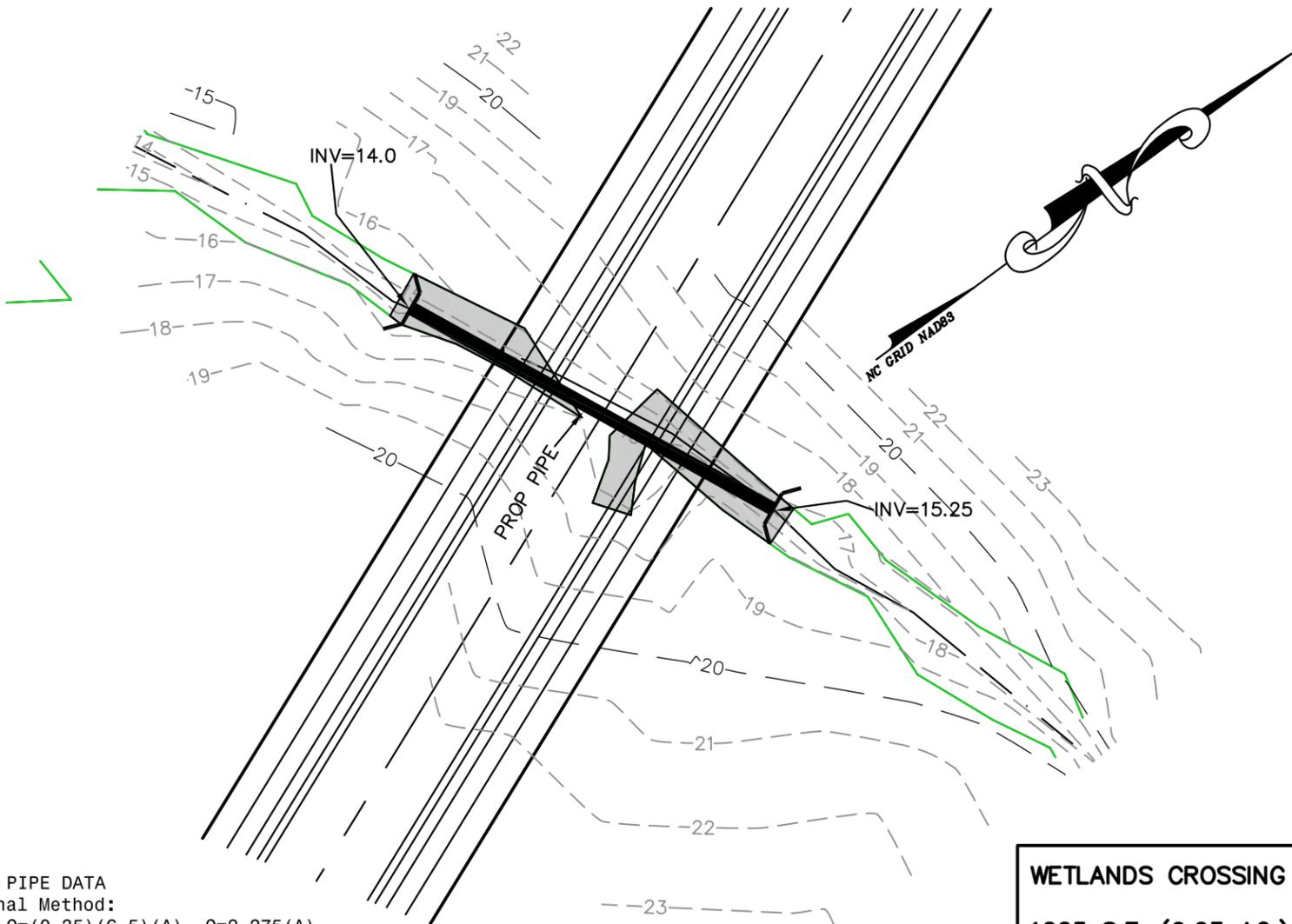
STORM PIPE DATA  
 Rational Method:  
 $Q=CIA \quad Q=(0.35)(6.5)(A) \quad Q=2.275(A)$

AREA(AC)	Q	%SLOPE	LENGTH(FT)	SIZE(IN)
5.0	11.4	0.69	72	30

NOTE: PIPE HEADWALL TO EXTEND 0.5' ABOVE TOP OF PIPE



**WETLAND CROSSING "L"**  
**WILLIAMSBURG PLANTATION**  
 JACKSONVILLE TWSP., ONSLOW COUNTY, NC  
 PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
 NC LICENSE No. C-1888  
 405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
 910-346-9800 FAX 910-346-1210 EMAIL: brianJ@jlpnc.com  
 APRIL 26, 2012  
 SCALE: HORIZONTAL 1"=40"  
 VERTICAL 1"=4'

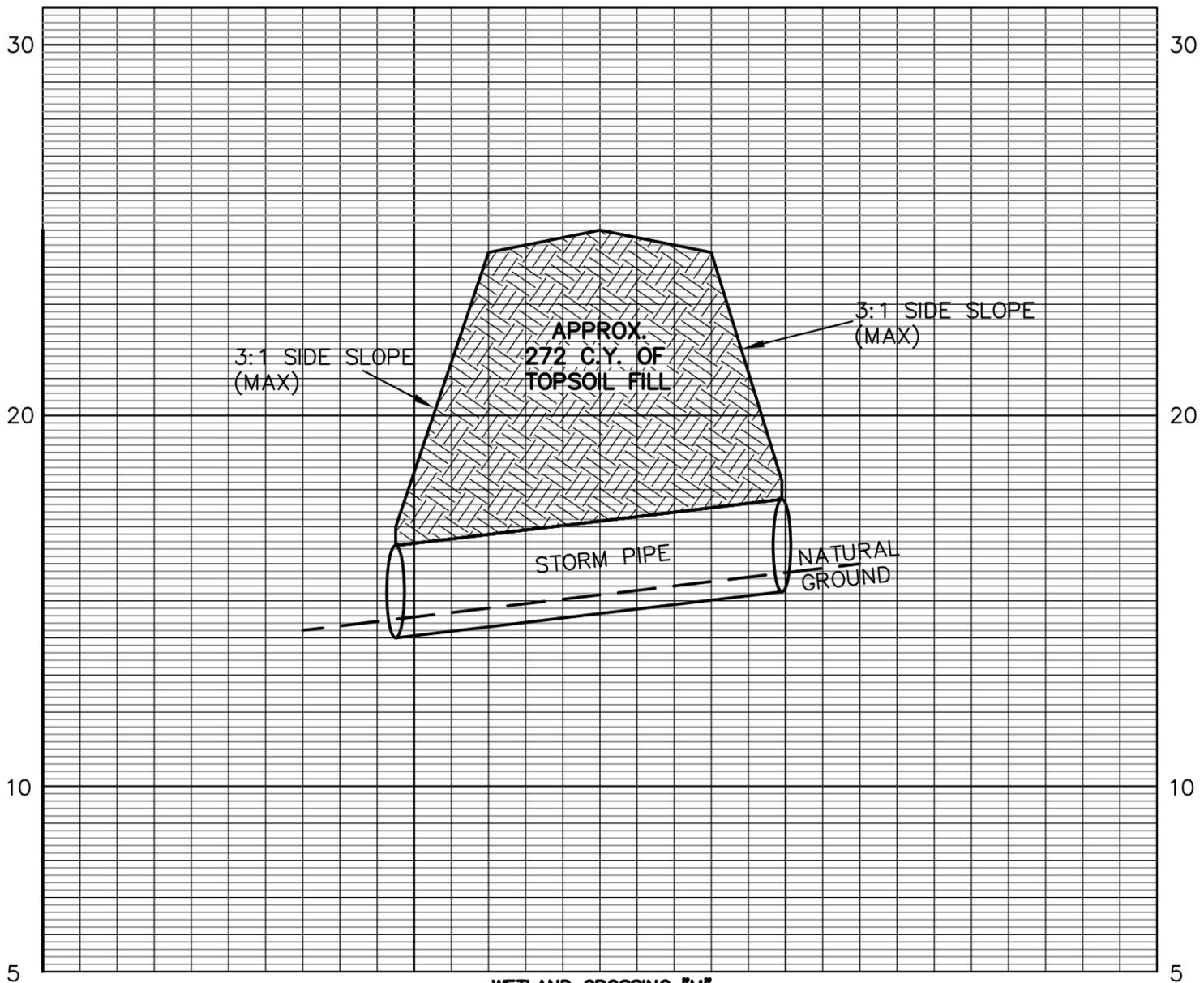


STORM PIPE DATA  
 Rational Method:  
 $Q=CIA$   $Q=(0.35)(6.5)(A)$   $Q=2.275(A)$

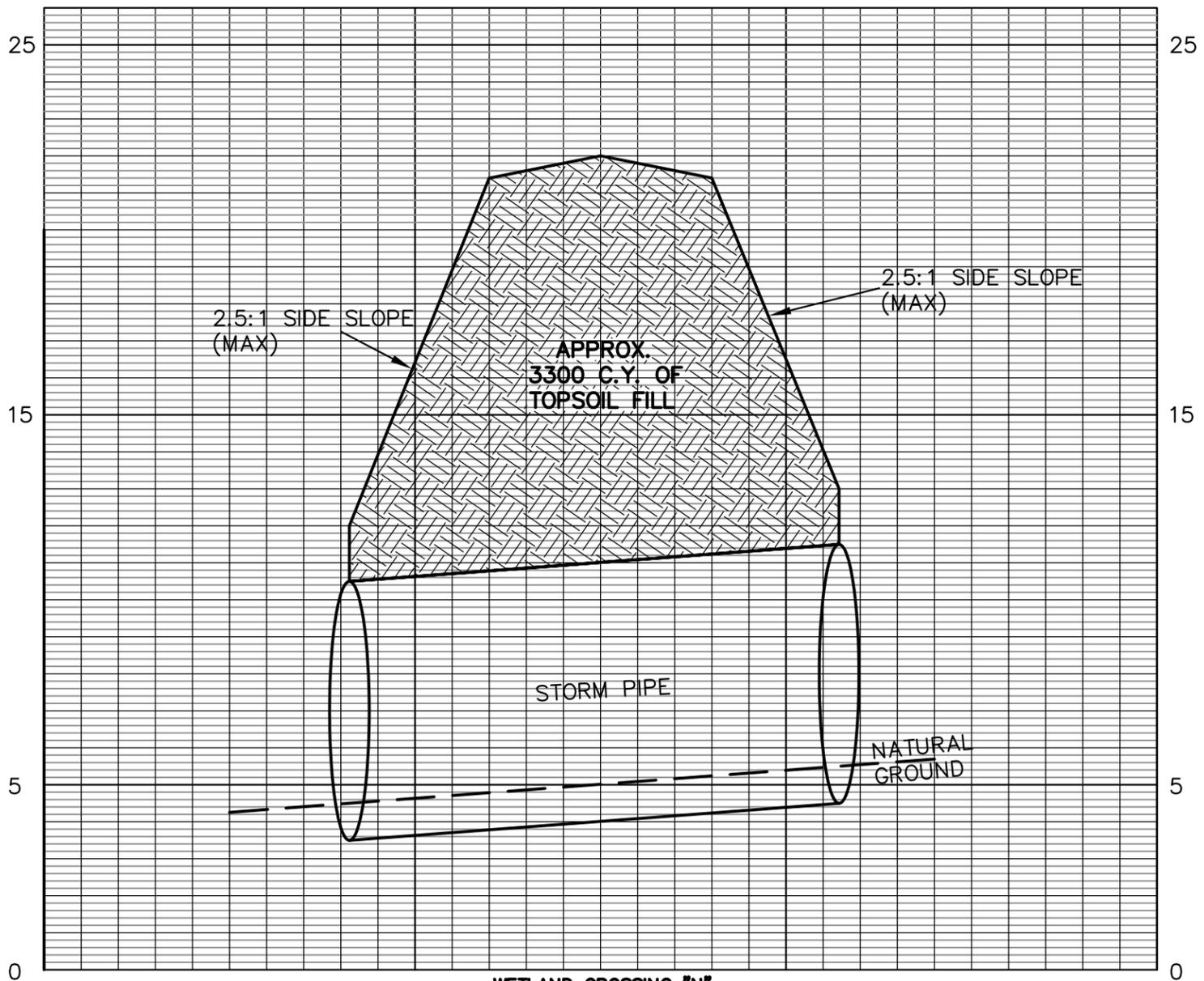
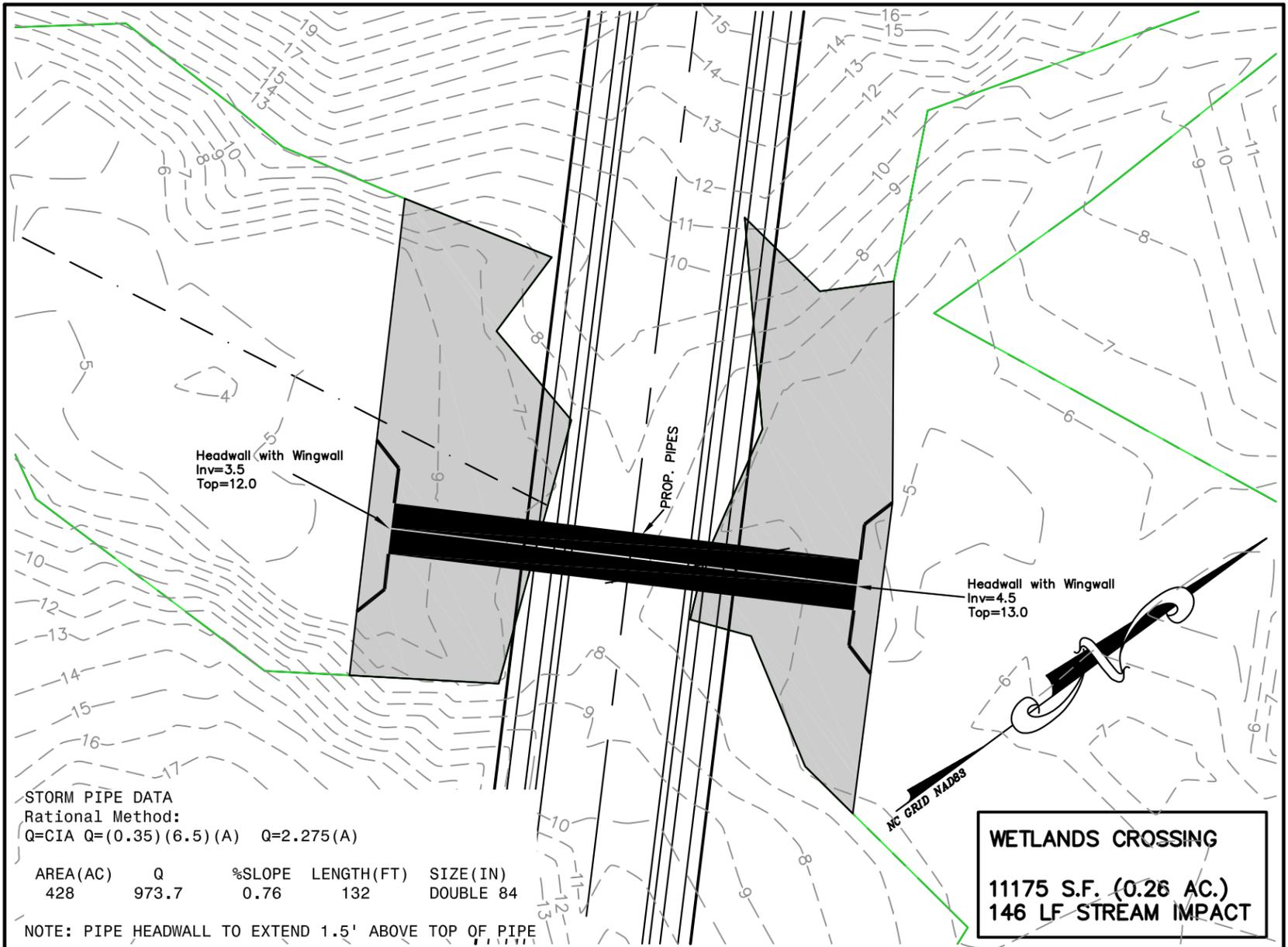
AREA(AC)	Q	%SLOPE	LENGTH(FT)	SIZE(IN)
8.7	19.8	1.20	104	30

NOTE: PIPE HEADWALL TO EXTEND 0.5' ABOVE TOP OF PIPE

**WETLANDS CROSSING**  
 1225 S.F. (0.03 AC.)  
 90 LF STREAM IMPACT



**WETLAND CROSSING "M"**  
**WILLIAMSBURG PLANTATION**  
 JACKSONVILLE TWSP., ONSLOW COUNTY, NC  
 PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
 NC LICENSE No. C-1888  
 405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
 910-346-9800 FAX 910-346-1210 EMAIL: brianJ@jlpnc.com  
 APRIL 21, 2012  
 SCALE: HORIZONTAL 1"=40'  
 VERTICAL 1"=4'



**WETLAND CROSSING "N"**  
**WILLIAMSBURG PLANTATION**  
JACKSONVILLE TOWNSHIP, ONSLOW COUNTY, NC  
PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
NC LICENSE No. C-1888  
405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
910-346-9800 FAX 910-346-1210 EMAIL: brianJ@jlpnc.com  
APRIL 21, 2012  
SCALE: HORIZONTAL 1"=40"  
VERTICAL 1"=4'

**STORM PIPE DATA**

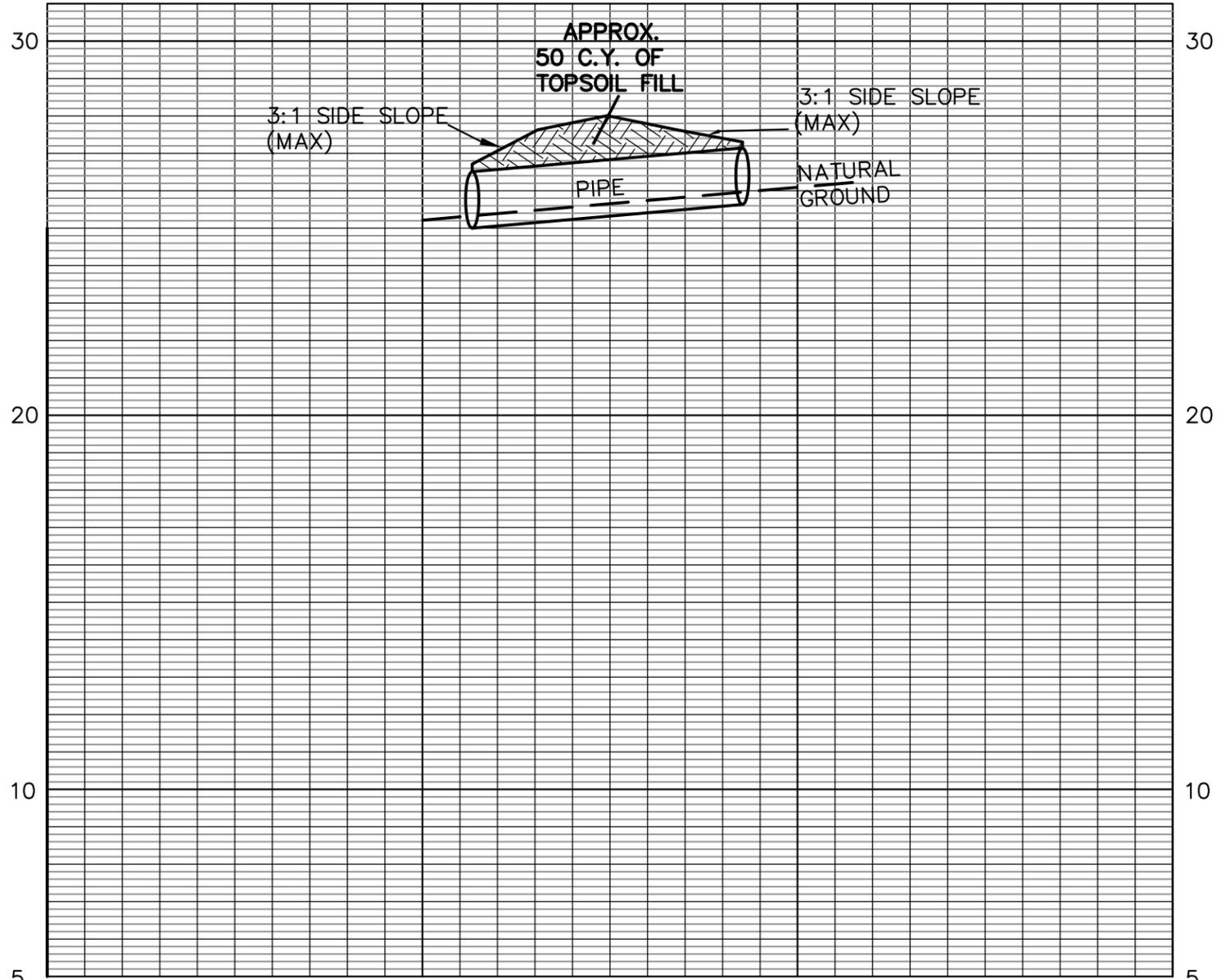
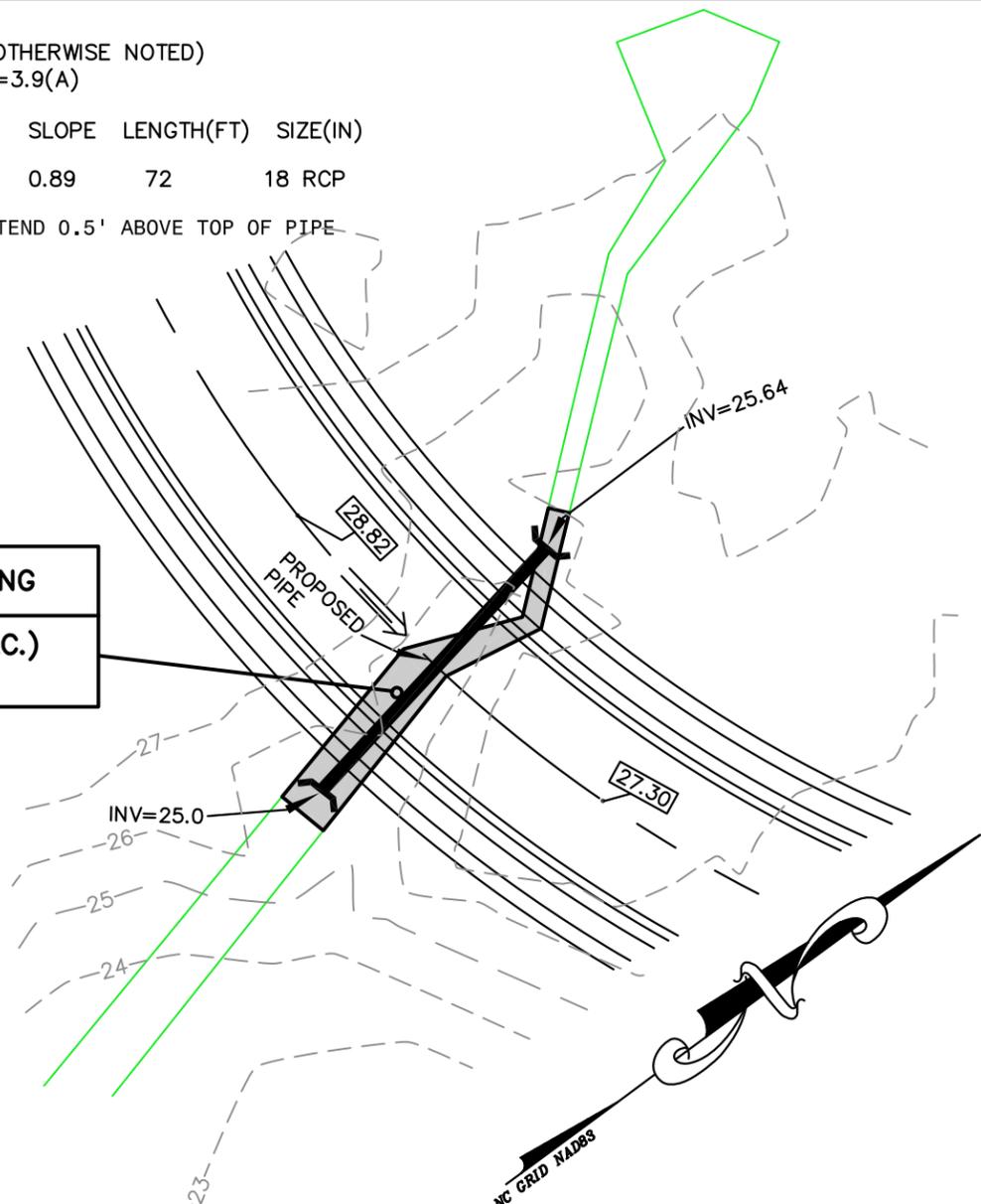
Rational Method: UNLESS OTHERWISE NOTED)

$Q=CIA$   $Q=(0.65)(6.0)(A)$   $Q=3.9(A)$

	AREA(AC)	Q	SLOPE	LENGTH(FT)	SIZE(IN)
PIPE	1.50	5.85	0.89	72	18 RCP

NOTE: PIPE HEADWALL TO EXTEND 0.5' ABOVE TOP OF PIPE

**WETLANDS CROSSING**  
764 S.F. (0.018 AC.)



**WETLAND CROSSING "0"**  
**WILLIAMSBURG PLANTATION**  
JACKSONVILLE TWSP., ONSLOW COUNTY, NC  
PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
NC LICENSE No. C-1888  
405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
910-346-9800 FAX 910-346-1210 EMAIL: brianJ@jlpnc.com  
OCTOBER 25, 2012  
SCALE: HORIZONTAL 1"=40"  
VERTICAL 1"=4'

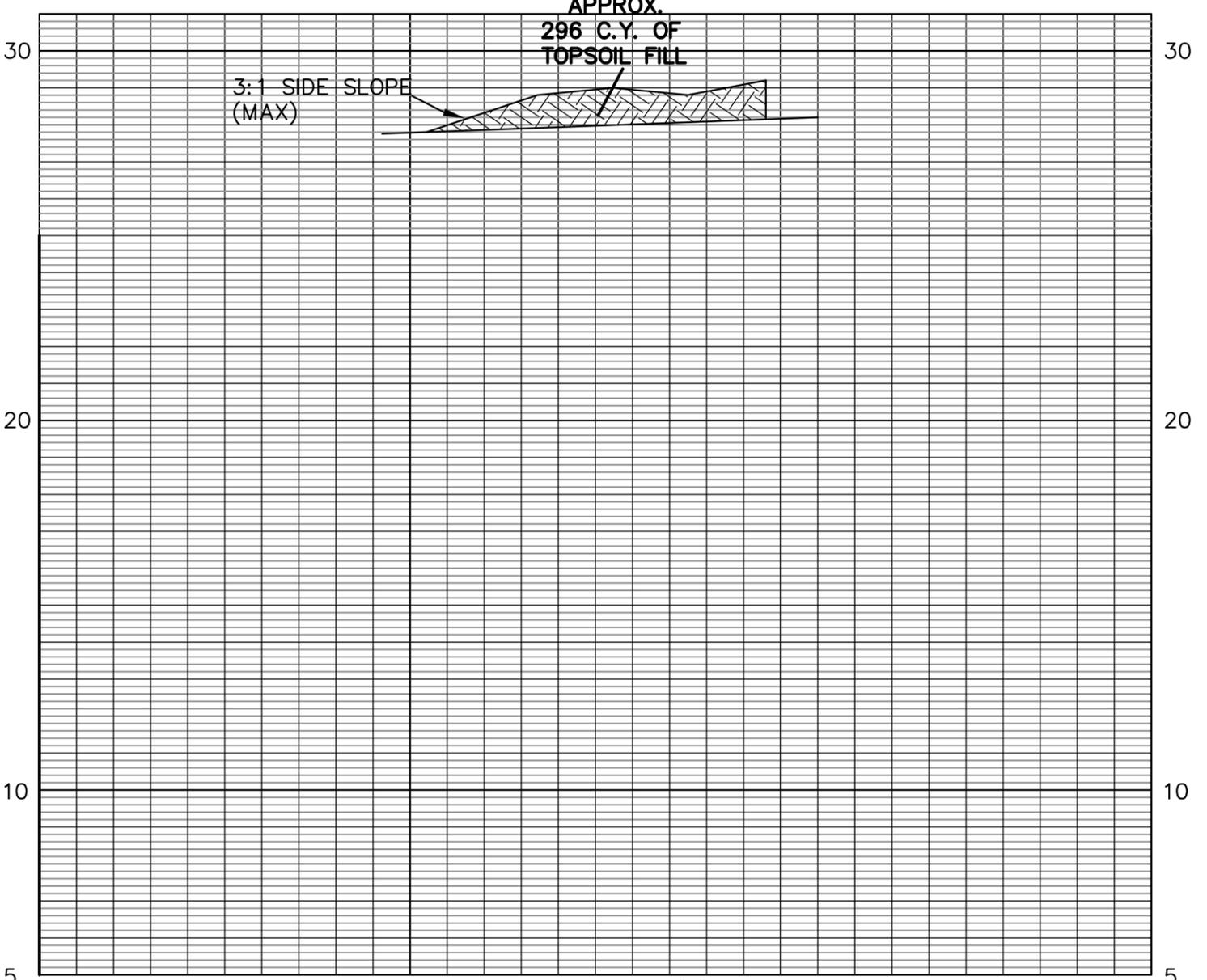
**WETLANDS CROSSING**  
1,065 S.F. (0.024 AC.)

NC GRID NAD83

29.34

-28-

27



**WETLAND CROSSING "P"**  
**WILLIAMSBURG PLANTATION**  
JACKSONVILLE TOWNSHIP, ONSLOW COUNTY, NC  
PREPARED BY  
**JOHN L. PIERCE & ASSOCIATES, P.A.**  
NC LICENSE No. C-1888  
405 JOHNSON BLVD, JACKSONVILLE, NC 28540  
910-346-9800 FAX 910-346-1210 EMAIL: brianJ@jlpnc.com  
OCTOBER 25, 2012  
SCALE: HORIZONTAL 1"=40"  
VERTICAL 1"=4'