STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

DIVISION OF HIGHWAYS

ANTHONY J. TATA
SECRETARY

July 28, 2015

Chatham County

Subject: Subdivision Final Plan Review – US Steel Section 1 – Briar Chapel Subdivision off of Tobacco Farm Way near SR 1532

Newland Communities, LLC
c/o Bill Mumford
13777 Ballantyne Corporate Pl, Ste. 550
Charlotte, North Carolina 28277

Dear Mr. Mumford:

The N. C. Department of Transportation, Division of Highways has reviewed the construction plans signed and sealed by Gareth Avant P.E. on July, 22, 2015 as submitted to this office and approval is granted subject to the following stipulations and recommendations:

1. All Construction is to be in accordance with the details as shown on the plans, as well as conform to the most recent edition of the *Standard Specifications for Roads and Structures*.

2. A Driveway Permit is not needed for this package.

3. The entire proposed right of way is to be cleared and grubbed throughout the whole phase of the project. Please be aware that the areas within the sight distance quadrants are to be treated as right of way.

4. All soil areas within the proposed right of way and any other soil areas disturbed during construction shall be seeded and mulched immediately upon completion of roadway construction. The seeding shall be done as outlined in the seeding specification attachment.

5. The crossline drainage is approved as proposed on the construction plans. If, however field conditions dictate any changes, these shall be made upon approval by NCDOT. If any of the property owners desire to pipe their ditches within the proposed NCDOT right of way, please advise them that this work should conform to NCDOT specifications for this type of work (see attached). If any ditches are piped and not satisfactorily completed to NCDOT specifications, this could result in the road not being accepted for addition to the state maintained system of roads. Any ditches piped or other encroachment prior to addition to the state maintained system are subject to an encroachment agreement, as are utility companies, when the road is added.

P.O. BOX 1164, ASHEBORO, NORTH CAROLINA 27204
PHONE: (336) 318-4000 FAX: (336) 318-4010

6. The typicals as shown in the plans, are approved.

7. The Division of Highways will only allow mailboxes, with non-rigid type post, such as 4" x 4" wooden or small diameter metal type on new additions. Brick columns or mailboxes on rigid stands such as block, stone or any other type deemed to be a traffic hazard will not be allowed within the right of way. This policy applies to all roads being considered for addition to the State Maintained System.

8. An erosion control plan shall require approval from Chatham County. The developer should forward this plan to Mr. Jim Willis, Erosion and Sediment Control Officer, 80 East, P.O. Box 130, Pittsboro, N.C. 27312, phone (919) 545-8343 for his review and approval.

9. As this subdivision is proposed to be public and is likely to be requested to be added to the state maintained system of roads, the developer will be responsible for providing a PE Certification, (See Attached) and testing results for base and asphalt density stating that the streets have been built in accordance with the most current "Subdivision Roads: Minimum Construction Standards" manual and with the attached approved plans. Please be advised that this PE Certification does not approve the road for addition to the State Highway System for maintenance. When the proper home density is achieved and roads have been satisfactorily maintained, the developer or property owners must submit Form SR-1, Petition for Road Addition (copy attached to this correspondence), and four (4) copies of the recorded plat to request that the road or roads be added to the State Highway system. Any maintenance problems found when the road is requested to be added must be repaired by the developer prior to the road becoming state maintained. As stated in GS 136-102.6, final acceptance by the Division of Highways of the public streets and placing them on the State highway system for maintenance shall be conclusive proof that the streets have been constructed according to the minimum standards of the Board of Transportation.

10. The developer shall comply with all applicable local, state, and federal environmental regulations, and shall obtain all necessary local, state, and federal environmental permits, including, but not limited to, those related to sediment control, stormwater, wetlands, streams, endangered species, and historical sites.

11. A properly completed Verification of Compliance with the Department of Environment and Natural Resources (DENR)(page 35, attached) must be submitted prior to the road(s) being considered for addition to the NCDOT System.

12. In preparing the final plat for certification by this office and subsequent recording, the following information will be incorporated:

    A. The sight distance quadrants at the intersections shall be shown either as a public easement or as the property line.
    B. Public easements for drainage throughout the development.
    C. All roads shall be shown as public and the right of way width shown

13. If the plans of this subdivision change in a way that would cause a change in the classification of these roads from Local Residential to Residential Collector the developer will be responsible for upgrading roads to meet Residential Collector standards prior to addition the state maintenance system.

14. This approval does not approve the utilities within this subdivision. Any utilities shall be submitted for approval to this office via a properly executed Encroachment Agreement to be approved at the time the roads within the subdivision are petitioned to be added to the state system for maintenance. Please note that water valves should be located a minimum of 6' from edge of pavement, fire hydrants should be behind the right of way line and all service taps should be installed prior to paving.

If you have any further questions regarding this matter, please do not hesitate to call this office at 336. 318.4000

Yours truly,

DocuSigned by:
Jeff Loflin
2D8073931376436...

Jeff B. Loflin, PE
District Engineer

Attachments

cc: Rob W. Stone II, P.E., Division Engineer
Justin Bullock, P.E., Chatham County Maintenance Engineer
Lynn Richardson, Chatham County Planning
Chris Seamster, RLA McKim & Creed
File

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

DIVISION OF HIGHWAYS

ANTHONY J. TATA
SECRETARY

PROFESSIONAL ENGINEER CERTIFICATION

SUBDIVISIONS AND COMMERCIAL DRIVEWAYS
DIVISION 8, DISTRICT 1

DATE: _____

COUNTY: _____

SUBDIVISION NAME: _____

STREET NAMES	From Sta. No.	To Sta. No.

This is to certify that the above listed roads have been constructed in accordance with the approved plans and all aspects of the most current Subdivision Roads: Minimum Construction Standards manual.

NAME: _____

SIGNATURE: _____

NC PE LICENSE #: _____

Professional Engineer Seal

North Carolina Department of Transportation
Division of Highways
Petition for Road Addition

ROADWAY INFORMATION: (Please Print/Type)

County: _____ Road Name: _____
(Please list additional street names and lengths on the back of this form.)

Subdivision Name: _____ Length (miles): _____

Number of occupied homes having street frontage: _____ Located (miles): _____

miles N ☐ S ☐ E ☐ W ☐ of the intersection of Route _____ and Route _____ .
(Check one) (SR, NC, US) (SR, NC, US)

We, the undersigned, being property owners and/or developers of _____ in

_____ County, do hereby request the Division of Highways to add the above described road.

CONTACT PERSON: Name and Address of First Petitioner. (Please Print/Type)

Name: _____ Phone Number: _____

Street Address: _____

Mailing Address: _____

PROPERTY OWNERS

Name	Mailing Address	Telephone

INSTRUCTIONS FOR COMPLETING PETITION:

1. Complete Information Section
2. Identify Contact Person (This person serves as spokesperson for petitioner(s)).
3. Attach four (4) copies of recorded subdivision plat or property deeds, which refer to candidate road.
4. Adjoining property owners and/or the developer may submit a petition. Subdivision roads with prior NCDOT review and approval only require the developer's signature.
5. If submitted by the developer, encroachment agreements from all utilities located within the right of way shall be submitted with the petition for Road addition. However, construction plans may not be required at this time.
6. Submit to District Engineer's Office.

FOR NCDOT USE ONLY: Please check the appropriate block

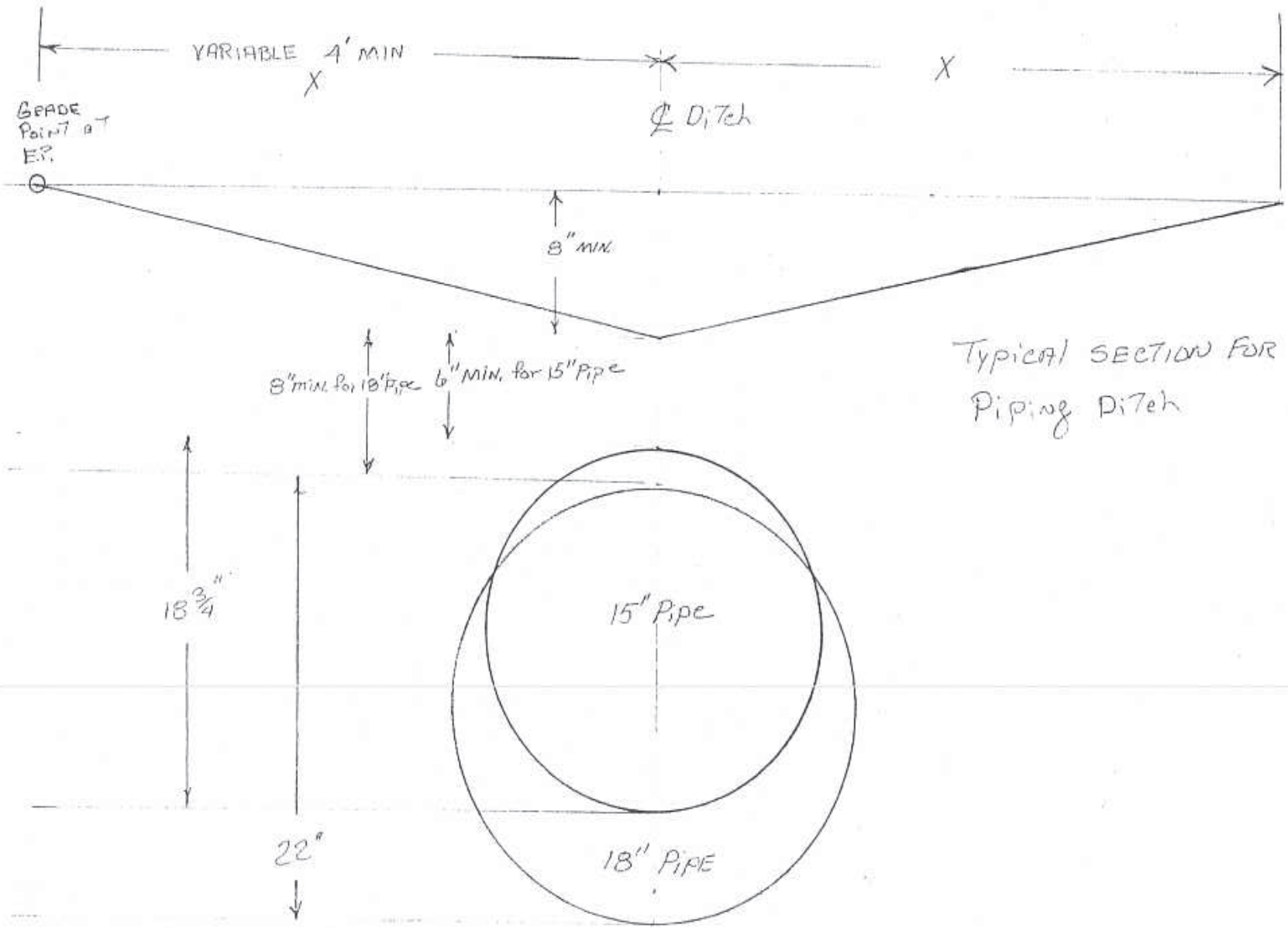
☐ Rural Road ☐ Subdivision platted prior to October 1, 1975 ☐ Subdivision platted after September 30, 1975

REQUIREMENTS FOR ADDITION

If this road meets the requirements necessary for addition, we agree to grant the Department of Transportation a right-of-way of the necessary width to construct the road to the minimum construction standards of the NCDOT. The right-of-way will extend the entire length of the road that is requested to be added to the state maintained system and will include the necessary areas outside of the right-or-way for cut and fill slopes and drainage. Also, we agree to dedicate additional right-of-way at intersections for sight distance and design purposes and execute said right-of-way agreement forms that will be submitted to us by representatives of the NCDOT. The right-of-way shall be cleared at no expense to the NCDOT, which includes the removal of utilities, fences, other obstructions, etc.

General Statute 136-102.6 (see page 29 for Statute) states that any subdivision recorded on or after October 1, 1975, must be built in accordance with NCDOT standards in order to be eligible for addition to the State Road System.

ROAD NAME	HOMES	LENGTH	ROAD NAME	HOMES	LENGTH



Typical SECTION FOR Piping Ditch

POSSIBLE SUPPLIERS FOR GRATES AND FRAMES

SOUTHERN FOUNDRY
P.O. BOX 186
APEX, N.C. 27502
(919) 362-7744

NORFOLK CAST, INC.
P.O. BOX 328
NORFOLK, VA. 23501

VULCAN FOUNDRY CORP.
P.O. BOX 905
DENHAM SPRINGS, LA.
1(800)626-4653

US FOUNDRY
8351 N. W.93RD ST
MEDLEY, FLA.33166
(305)885-0301 FAX (305) 844-3253

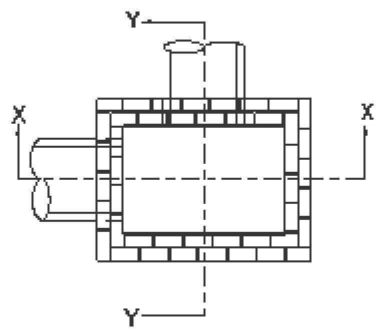
SUPER CAST, INC.
1104 US HWY. 117 BYPASS, S.
GOLDSBORO, N.C. 27530
(919)736-9010 FAX (919)736-0290

BUNCH PATTERN WORKS, INC.
P.O. BOX 267 HWY 308 N.
LEWISTON-WOODVILLE,N.C. 27849

CAPITAL FOUNDRY OF VIRGINIA, INC.
P.O. BOX 2212
VIRGINIA BEACH, VIRGINIA 23450

EMPORIA FOUNDRY, INC.
620 REESE STREET
EMPORIA, VIRGINIA 23847

ENNIS ENTERPRISES
P.O. BOX 931
WILMINGTON, N.C. 28402
(910) 371-9323



PLAN
WITH COPING REMOVED

GENERAL NOTES:

MORTAR JOINTS ½" +/- ⅛" THICK.

USE CLASS "B" CONCRETE THROUGHOUT.

USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.

USE #4 BAR DOWELS AT 12" CENTERS.

DEDUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY.

PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

FOR 6'-0" IN HEIGHT OR LESS, USE 8" WALL. OVER 6'-0" IN HEIGHT, USE 12" WALL TO 6'-0" FROM TOP OF WALL AND 8" WALL FOR THE REMAINING 6'-0". QUANTITIES TO BE ADJUSTED ACCORDINGLY.

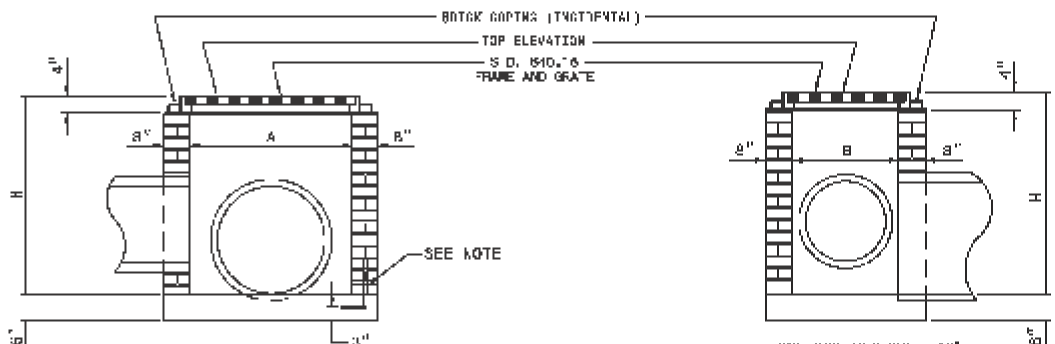
CONSTRUCT WITH PIPE CROWNS MATCHING.

SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES.

DO NOT USE BRICK MASONRY DROP INLET IN LOCATIONS SUBJECT TO TRAFFIC.

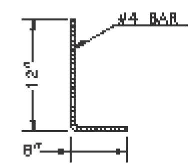
CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.



SECTION X-X

SECTION Y-Y



DOWEL

DIMENSIONS AND QUANTITIES FOR DROP INLET (BASED ON MIN. HEIGHT, H)								
DIMENSIONS OF BOX & PIPE				CUBIC YARDS CONCRETE	CUBIC YARDS BRICK MASONRY		DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	MIN. HEIGHT					
D	A	B	H	BOTTOM SLAB	WALL PER FOOT HT.	TOTAL BRICK MASONRY FOR MIN. HEIGHT, H	C.S.	R.C.
12"	3'-0"	2'-0"	2'-0"	0.268	0.313	0.622	0.020	0.032
15"	⟋	⟋	2'-3"	0.268	0.313	0.600	0.031	0.047
18"			2'-6"	0.260	0.313	0.678	0.044	0.065
24"			3'-0"	0.259	0.313	0.885	0.078	0.118
30"	3'-0"	2'-0"	3'-6"	0.288	0.313	0.991	0.122	0.170

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-12

ENGLISH STANDARD DRAWING FOR
BRICK DROP INLET
12" THRU 30" PIPE

SHEET 1 OF 1
840.15

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
1-12

ENGLISH STANDARD DRAWING FOR
BRICK DROP INLET
12" THRU 30" PIPE

SHEET 1 OF 1
840.15

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

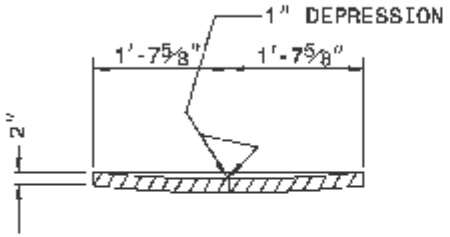
ENGLISH STANDARD DRAWING FOR

DROP INLET FRAME AND GRATES

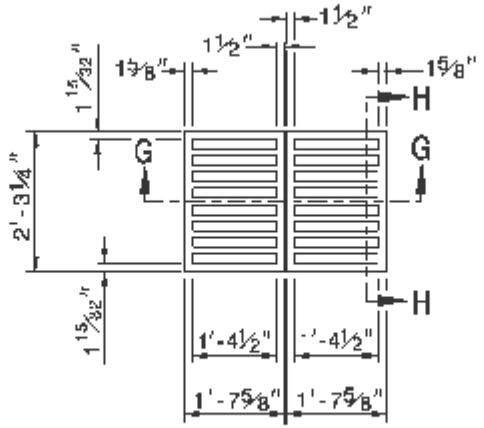
FOR USE WITH STD. DWG.S 840.14 AND 840.15

SHEET 1 OF 1

840.16

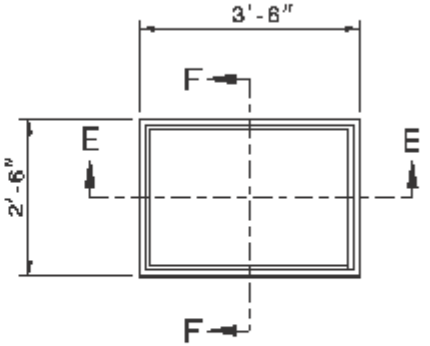


SECTION G-G



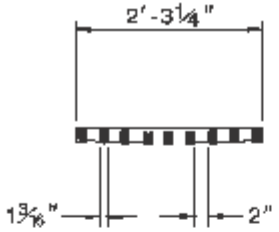
PLAN OF GRATING

CAST IRON

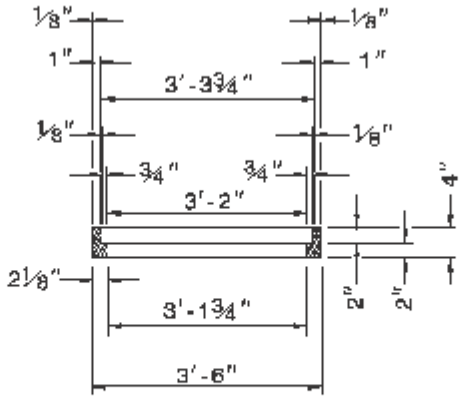


PLAN OF FRAME

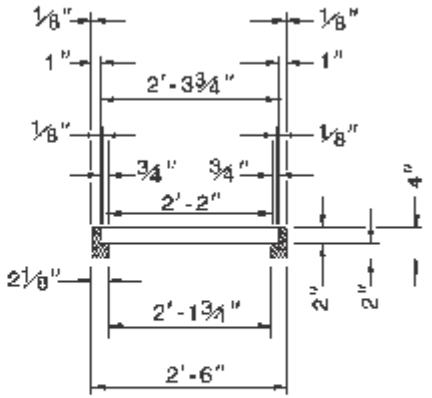
CAST IRON



SECTION H-H



SECTION E-E



SECTION F-F

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR

DROP INLET FRAME AND GRATES

FOR USE WITH STD. DWG.S 840.14 AND 840.15

SHEET 1 OF 1

840.16

VERIFICATION OF COMPLIANCE WITH ENVIRONMENTAL REGULATIONS

(Check Appropriate Box)

☐ Permits from the N.C. Department of Environment and Natural Resources and the U.S. Army Corp of Engineers are not required for this project. However, all applicable federal and state regulations have been followed.

☐ The required permits from the N.C. Department of Environment and Natural Resources and the U.S. Army Corp of Engineers have been obtained for this project. Copies of permits and Completion Certificates are attached.

☐ All applicable NPDES Stormwater Permit requirements have been met for this project. (The applicant should contact the N.C. Division of Water Quality in Raleigh to determine if a stormwater permit is required.)

☐ The project is in compliance with all applicable sedimentation and erosion control laws and regulations.

Project Name: _____

Township: _____ County: _____

Project Engineer: _____ Phone No.: _____

Project Contact: _____

Applicants Name: _____ P.E. SEAL

Date Submitted: _____

(Reference Page 11, Item 10) 11/07/2003

ATTACHMENT "A"

Seeding and mulching shall be in accordance with Section 880 of the North Carolina Standard Specifications for Roads and Structures, except that Articles 880-8(B) shall not apply. Final determination of soil type shall be made by the Engineer. The following rates in pounds per acre shall apply:

SANDY SOIL	CLAY SOIL
50# - KY 31 Tall Fescue or Alta Tall Fescue	100# - KY 31 Tall Fescue or Alta Tall Fescue
5# - Centipede	15# - Kenblue Bluegrass
50# - Pensacola Bahiagrass	500# - Fertilizer
500# - Fertilizer	4000# - Limestone
4000# - Limestone	

Add 10# Kobe or Korean Lespedeza and 10# Millet to the above mixture from May 1 to August 31.

On cut and fill slopes 2:1 or steeper, add 30# Sericea Lespedeza from January 1 to December 31.

Fertilizer shall be 10-20-20 analysis. Upon written approval of the Engineer, a different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis.

BRIAR CHAPEL

US STEEL - SECTION 1

CONSTRUCTION DRAWINGS

U.S. HWY 15-501 and MANN'S CHAPEL ROAD
CHATHAM COUNTY, NORTH CAROLINA

DATE: JULY 22, 2015

COUNTY AND AGENCY CONTACTS

A. Chatham County
Planning Department
Dunlap Building
80 East Street
Pittsboro, NC 27312
(919) 542-8204 phone
Contact: Jason Sullivan
Email: jason.sullivan@chathamnc.org

B. Chatham County
Environmental Services
Dunlap Building
80 East Street
Pittsboro, NC 27312
(919) 542-0945 phone
Contact: Dan LaMontagne, PE
Email: dan.lamontagne@chathamnc.org

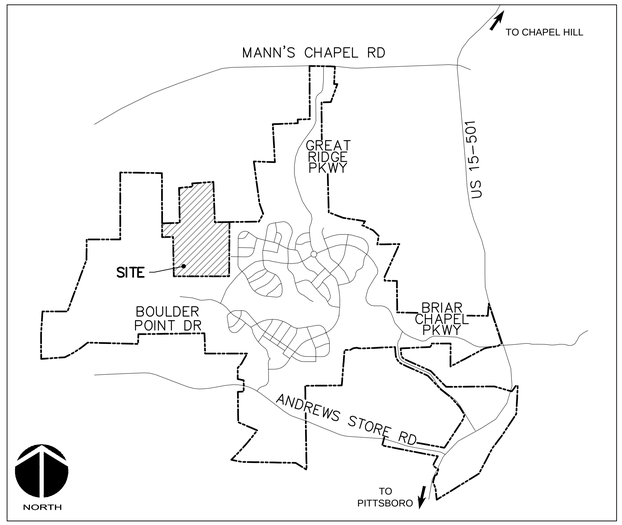
C. Chatham County
Soil Erosion and Sedimentation Control
Dunlap Building
80 East Street
Pittsboro, NC 27312
(919) 545-8339 phone
Contact: Rachael Thorn
Email: rachael.thorn@chathamnc.org

D. Chatham County
Public Works
964 East Street, 2nd Floor, Suite 205
Pittsboro, NC 27312
(919) 542-8270 phone
Contact: Larry Bridges
Email: larry.bridges@chathamnc.org

E. NCDOT
Division 8, District 1
300 DOT Drive
P.O. Box 1164
Asheboro, NC 27204
(336) 318-4000 phone
Contact: Jeff B. Loflin, PE
Email: jloflin@ncdot.gov

F. NCDENR
Division of Environmental Health
Public Water Supply Section
1634 Mail Service Center
Raleigh, NC 27699-1634
(919) 707-9064 phone
Contact: Shashi Bhatta
Email: shashi.bhatta@ncdenr.gov

H. NCDENR
Division of Water Quality
Surface Water Protection
3800 Barrett Drive
Raleigh, NC 27609
(919) 791-4200 phone
Contact: Danny Smith
Email: danny.smith@ncdenr.gov



VICINITY MAP
NTS

PROJECT DATA

NAME OF PROJECT:

US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

OWNER:

NNP BRIAR CHAPEL, LLC
16 WINDY KNOLL CIRCLE
CHAPEL HILL, NC 27516
PHONE: (919) 951-0700
FAX: (919) 240-4963
CONTACT: LEE BOWMAN
EMAIL: lbowman@newlandco.com

PREPARED BY:

McKIM & CREED
1730 VARSITY DRIVE, SUITE 500
RALEIGH, NORTH CAROLINA 27606
PHONE: (919) 233-8091
FAX: (919) 233-8031
CONTACT: GARETH AVANT, PE
EMAIL: gavant@mckimcreed.com

PROJECT AREA: 33.43 AC

These improvements shall be constructed in accordance with the following plans, and the Standard Specifications of NCDOT and Chatham County.

SHEET INDEX

C0.1	COVER SHEET
C0.2	EXISTING CONDITIONS/DEMOLITION PLAN
C1.0	OVERALL SITE PLAN
C1.1	SITE PLAN - WEST
C1.2	SITE PLAN - EAST
C2.1	UTILITY PLAN
C2.2	UTILITY PLAN
C3.0	OVERALL STAGE 1 EROSION CONTROL PLAN
C3.1	STAGE 1 EROSION CONTROL PLAN
C3.2	STAGE 1 EROSION CONTROL PLAN
C3.3	GRADING, DRAINAGE & STAGE 2 EROSION CONTROL PLAN
C3.4	GRADING, DRAINAGE & STAGE 2 EROSION CONTROL PLAN
C4.1	PLAN & PROFILE CLIFFDALE ROAD
C4.2	PLAN & PROFILE ASHWOOD DRIVE
C4.3	PLAN & PROFILE WHISPERING WIND DRIVE STA. 10+00 TO 23+50
C4.4	PLAN & PROFILE WHISPERING WIND DRIVE STA. 23+50 TO 34+20
C4.5	PLAN & PROFILE FOXBROOK PLACE STA 10+00 TO 11+50 SWEET SPRING AVE
D1.1	EROSION AND SEDIMENTATION CONTROL DETAILS
D1.2	EROSION AND SEDIMENTATION CONTROL DETAILS
D2.1	NCDOT ROADWAY DETAILS
D2.2	NCDOT DRAINAGE DETAILS
D3.1	UTILITY DETAILS
D3.2	UTILITY DETAILS
D4.1	BMP #21 PLAN & DETAILS
D4.2	BMP #21 PLAN & DETAILS
D4.3	BMP #21 PLAN & DETAILS
D4.4	BMP #22 PLAN & DETAILS
D4.5	STORM DRAINAGE & SANITARY SEWER TABLES

BRIAR CHAPEL®
by Newland COMMUNITIES

McKIM & CREED
1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
Phone: (919)233-8091, Fax: (919)233-8031
F-1222

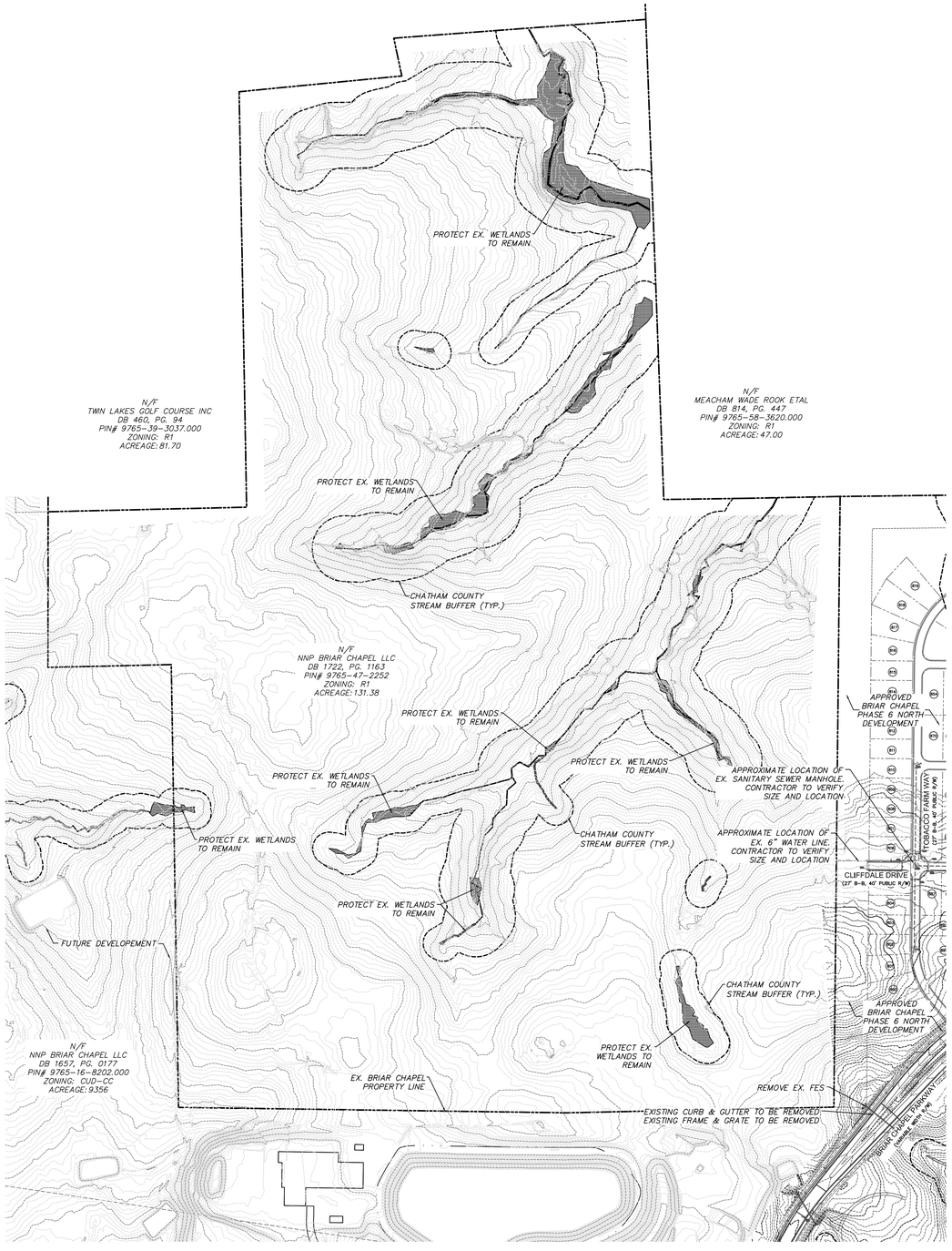
www.mckimcreed.com

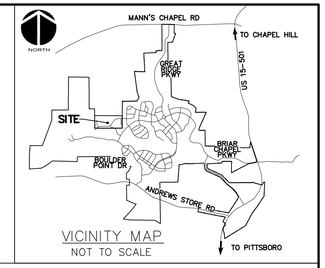
NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT 07/22/2015

CALL N.C. ONE CALL CENTER BEFORE YOU DIG
STOP
1-800-632-4949
AVOID UTILITY DAMAGE

FINAL DRAWINGS
FOR REVIEW PURPOSES ONLY

US STEEL - SECTION 1
02735-0130
FINAL DRAWINGS - FOR REVIEW PURPOSES ONLY





VICINITY MAP
NOT TO SCALE

GENERAL NOTES:

1. THIS PROPERTY IS ZONED R-1.
2. ALL DISTANCES SHOWN ARE HORIZONTAL GROUND MEASUREMENTS.
3. BEARINGS SHOWN HEREON ARE BASED ON NC GRID NAD83. THIS PROJECT IS LOCALIZED ABOUT NCGS MONUMENT "MEACHAM" HAVING NC GRID COORDINATES N: 768,395.12', E: 1,963,424.93' USING A COMBINED FACTOR OF 0.99990676.
4. EXISTING TOPOGRAPHIC DATA IS BASED ON AERIAL MAPPING PERFORMED BY AVIOIMAGE MAPPING SERVICES IN FEBRUARY 2010. ELEVATIONS ARE BASED ON NAVD 88 NCGS MONUMENT "F-92" WITH AN ELEVATION OF 476.06'.
5. HORIZONTAL AND VERTICAL CONTROL FOR THIS SITE WAS INSTALLED BY GPA PROFESSIONAL LAND SURVEYORS OF NC.
6. PROJECT IS LOCATED IN THE WSIV-PA JORDAN LAKE BUFFER AREA WATERSHED DISTRICT.
7. STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY WETLAND AND NATURAL RESOURCES CONSULTANTS – CONTACT CHRIS HUYSMAN AT 336-406-0906.
8. A PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #3710976500J DATED FEBRUARY 2, 2007.

DEMOLITION NOTES:

1. NO EARTH-DISTURBING ACTIVITIES SHALL COMMENCE UNTIL ALL PERIMETER EROSION CONTROL MEASURES ARE IN PLACE IN ACCORDANCE WITH THE EROSION CONTROL SEQUENCE SHOWN IN THESE PLANS.
2. NO EARTH-DISTURBING ACTIVITY OR OTHER WORK SHALL TAKE PLACE WITHIN WETLAND AREAS NOTED ON SURVEY. CONTRACTOR SHALL FIELD VERIFY WETLAND LIMITS FLAGGING IS IN PLACE AND SHALL NOT ENTER WETLAND AREAS. IF WETLAND FLAGGING IS MISSING OR OTHERWISE DAMAGED, IT IS CONTRACTOR'S RESPONSIBILITY TO NOTE WETLAND LIMITS AND PREVENT DISTURBANCE OR OTHER ACTIVITY WITHIN WETLANDS.
3. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL PROPERTY CORNER MONUMENTS, AND SHALL HAVE, AT HIS EXPENSE, ALL CORNER MONUMENTS REPLACED WHICH ARE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING IMPROVEMENTS, AT HIS EXPENSE, DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE PUBLIC DURING CONSTRUCTION, WHICH INCLUDES, BUT IS NOT LIMITED TO, CONSTRUCTION FENCING, BARRICADES, SIGNAGE, ETC.
6. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH ALL REGULATIONS GOVERNING THE DEMOLITION, REMOVAL, TRANSPORTATION AND DISPOSAL OF ALL DEMOLITION DEBRIS.
7. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST OSHA STANDARDS FOR EXCAVATION AND TRENCHING PROCEDURES. CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING, ETC. AS NECESSARY FOR THESE OPERATIONS, AND SHALL COMPLY WITH ALL OSHA PERFORMANCE CRITERIA.
8. CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT ALL UTILITIES AND APPURTENANCES TO REMAIN.

LEGEND:

- EXISTING WETLANDS
- AREA OF DEMOLITION
- OVERALL PROPERTY BOUNDARY
- 100' PROPERTY BOUNDARY BUFFER
- STREAM BUFFER LINE
- 480 EX. CONTOUR
- EX. POWER LINE EASEMENT
- IRR EX. REUSE IRRIGATION MAIN
- W EX. WATER MAIN
- X EX. FENCE
- TWC EX. TIME WARNER CABLE UTILITY LINE
- AT&T EX. AT&T UTILITY LINE
- EX. STORM DRAINAGE PIPE
- PROJECT LIMITS

NORTH
200' 0 200' 400'
SCALE: 1"=200' (Horiz.)

CALL N.C. ONE CALL CENTER BEFORE YOU DIG
811
1-800-632-4949
AVOID UTILITY DAMAGE

REV.NO.	DESCRIPTIONS	DATE
4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
3	REVISIONS PER COMMENTS FROM CHATHAM COUNTY AND NCDOT	2015.07.01
2	REVISIONS PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.06.01
1	INITIAL SUBMITTAL	2015.05.01

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT
07/22/2015

McKIM&CREED
1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
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BRIAR CHAPEL™
by Newland COMMUNITIES

BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

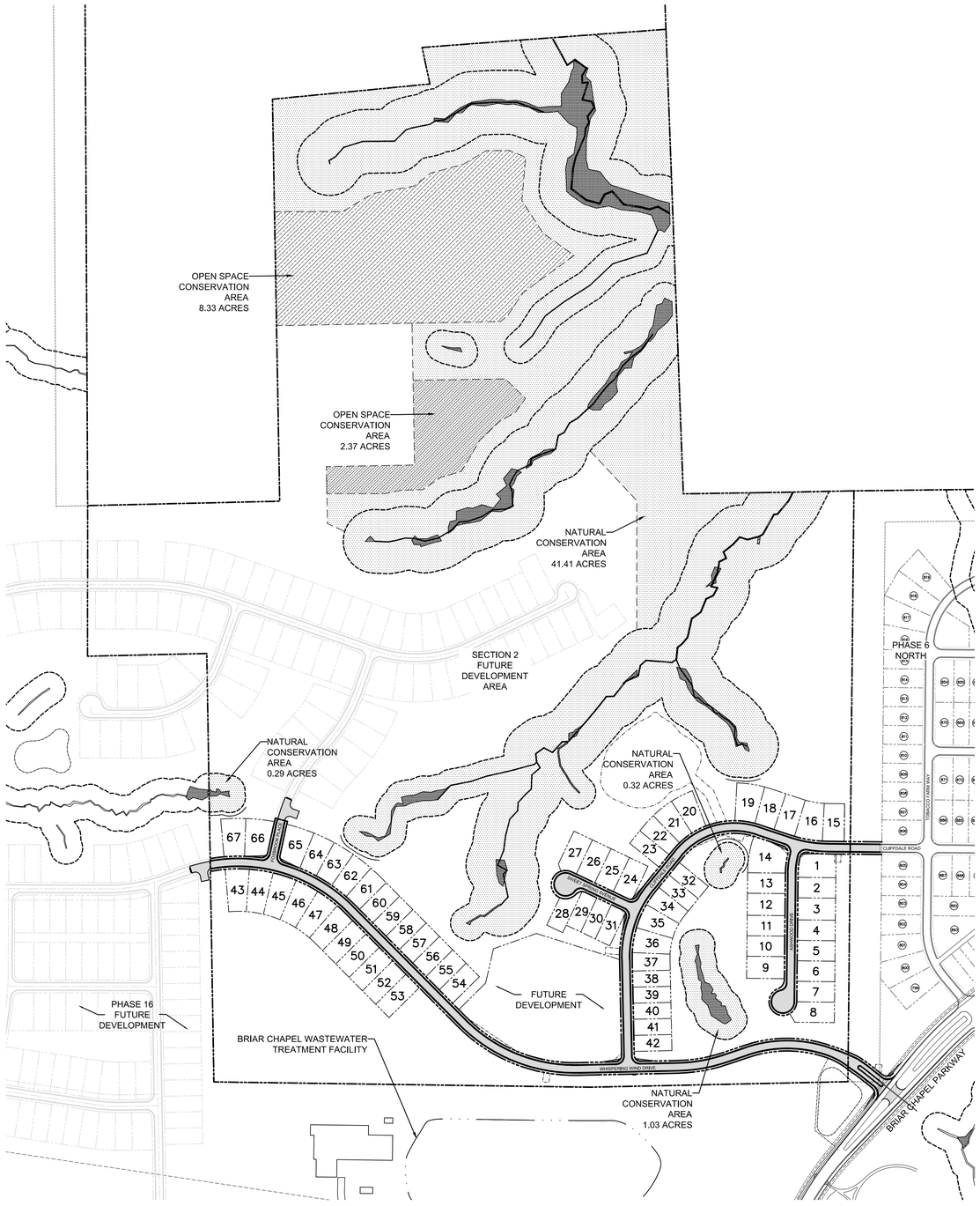
EXISTING CONDITIONS/DEMOLITION PLAN

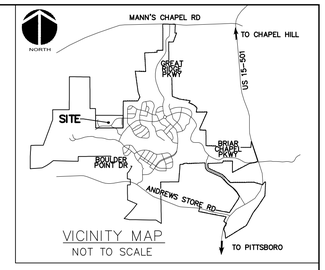
DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: AS NOTED
VERTICAL: N/A

M&C FILE NUMBER: CR101
DRAWING NUMBER: C0.2

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 4





VICINITY MAP
NOT TO SCALE

SITE GENERAL NOTES:

1. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER IF ANY DISCREPANCIES EXIST PRIOR TO CONSTRUCTION. NO ADDITIONAL COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
2. STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY WETLAND AND NATURAL RESOURCES CONSULTANTS – CONTACT CHRIS HUNTSMAN AT 336-406-0906.
3. NO PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #3710976500J DATED FEBRUARY 2, 2007.
4. ALL PROPOSED ROADWAY DIMENSIONS AS SHOWN ARE MEASURED FROM BACK OF CURB TO BACK OF CURB, ALL PROPOSED ALLEY DIMENSIONS AS SHOWN ARE MEASURED FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT, UNLESS NOTED OTHERWISE.
5. BEFORE STARTING ANY CONSTRUCTION OF IMPROVEMENTS WITHIN ANY NCDOT STREET OR HIGHWAY RIGHT-OF-WAY, CONTACT NCDOT DISTRICT OFFICE AND OBTAIN ALL PERMITS AND ENCROACHMENTS. KEEP COPIES ON CONSTRUCTION SITE. ALSO CONTACT NCDOT DISTRICT OFFICE 24 HOURS IN ADVANCE BEFORE PLACING CURB AND GUTTER AT 336-629-1423.
6. REFER TO PLAN AND PROFILE SHEETS FOR DETAILED SANITARY SEWER AND STORM DRAINAGE INFORMATION WITHIN PUBLIC ROADS AND PRIVATE ALLEYS.

CHATHAM COUNTY REQUIRED SITE NOTES

1. PROPERTY OWNER/DEVELOPER:
   NNP BRIAR CHAPEL, LLC
   16 WINDY KNOLL CIRCLE
   CHAPEL HILL, NC 27516
   PHONE: (919) 951-0700
2. SITE AKPAR #: 2177
3. TOTAL ENTITLED LOTS: 127
4. TOTAL LOTS THIS PHASE: 67
5. CONSERVATION ACREAGE TOTALS:

–TOTAL PARCEL ACREAGE 131.384		
–TOTAL NATURAL SPACE	1,875,360 SF	43.05 AC
–TOTAL OPEN SPACE	466,255 SF	10.71 AC
TOTAL CONSERVATION AREA	2,341,615 SF	53.76 AC
ADDITIONAL CONSIDERATIONS		
–WITHIN RIPARIAN BUFFERS AND FLOODPLAIN	1,307,540 SF	30.02 AC
–CONTIGUOUS NATURAL SPACE	1,803,968 SF	41.41 AC

6. BUILT UPON AREA CALCULATIONS – SECTION 1

–ROADWAYS:	127,908 SF	2.93 AC
–SIDEWALKS	46,632 SF	1.07 AC
–ROOF	171,203 SF	3.93 AC
–DRIVEWAYS	33,195 SF	0.76 AC
TOTALS	378,938 SF	8.70 AC

IMPERVIOUS % FOR SECTION 1 DEVELOPMENT: 6.62%

LEGEND

- ROADWAY CENTERLINE
- ROW
- LOT LINE
- CHATHAM COUNTY STREAM BUFFER
- 4' H.O.A. EASEMENT
- 4' PRIVATE UTILITY EASEMENT
- BMP MAINTENANCE & ACCESS EASEMENT
- SIDEWALK EASEMENT
- SIGN
- EXISTING WETLANDS
- 10'x70' SIGHT TRIANGLE
- NEW ROADWAY PAVEMENT

NORTH

CALL N.C. ONE CALL CENTER BEFORE YOU DIG STOP 1-800-632-4949 AVOID UTILITY DAMAGE

200 0 200 400
SCALE: 1"=200' (Horiz.)

REV.NO.	DESCRIPTIONS	DATE
4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
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1	INITIAL SUBMITTAL	2015.05.01

REVISIONS

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NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT 07/22/2015

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BRIAR CHAPEL™ by Newland COMMUNITIES

BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

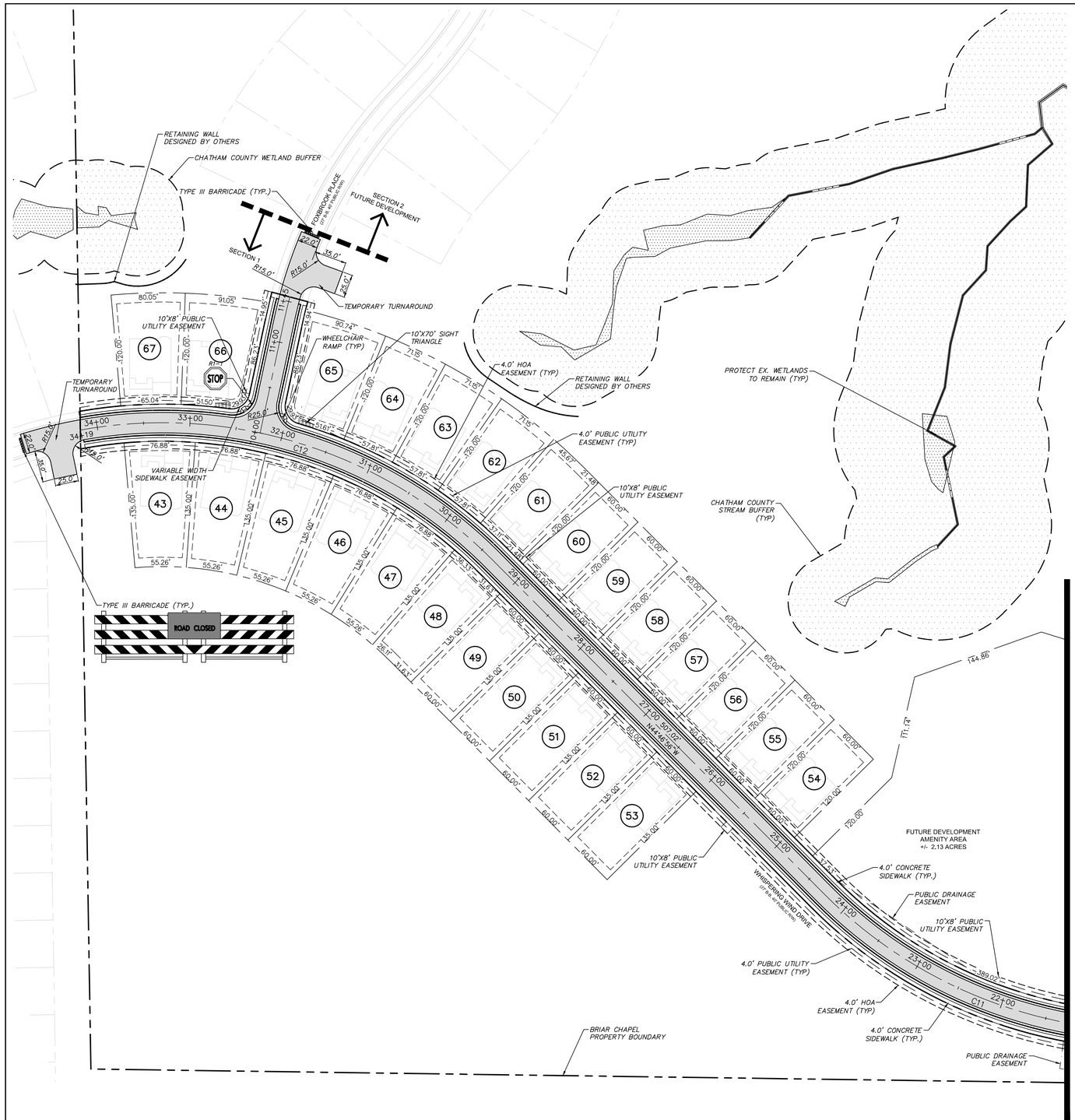
OVERALL SITE PLAN

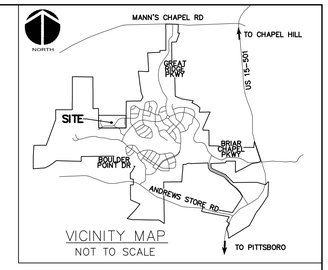
DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 200'
VERTICAL: N/A

M&C FILE NUMBER: C1.0
DRAWING NUMBER: C1.0

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 4





VICINITY MAP
NOT TO SCALE

ALIGNMENT CURVE DATA					
CURVE #	RADIUS	ARCH LENGTH	CHORD BEARING	CHORD LENGTH	DELTA
C11	500.00'	405.23'	N68°00'01"W	394.23'	46°26'09"
C12	500.00'	483.99'	N72°30'46"W	465.31'	55°27'40"
C13	400.00'	399.52'	N80°00'35"W	383.12'	57°13'40"
C14	500.00'	151.89'	S80°04'45"W	151.31'	17°24'20"
C15	400.00'	124.36'	N80°30'31"W	123.86'	17°48'50"
C16	230.00'	277.79'	S73°47'51"W	261.21'	69°12'05"
C17	350.00'	246.88'	S18°59'21"W	241.79'	40°24'53"
C18	250.00'	60.90'	S7°33'45"W	60.75'	13°57'23"
C19	500.00'	20.25'	N13°14'47"E	20.25'	2°19'15"

LOT AREA TABLE		
LOT #	AREA (SF)	AREA (AC)
1	8978.61	0.21
2	7800.00	0.18
3	8400.00	0.19
4	7800.00	0.18
5	7800.00	0.18
6	7800.00	0.18
7	7800.00	0.18
8	8400.17	0.19
9	8400.00	0.19
10	7800.00	0.18
11	7800.00	0.18
12	8400.00	0.19
13	7800.00	0.18
14	11847.81	0.27
15	8030.35	0.18
16	9097.63	0.21
17	7969.73	0.18
18	8072.97	0.19
23	6120.00	0.14
24	7785.94	0.18
25	7800.00	0.18
26	7800.00	0.18
27	7992.58	0.18
28	6367.36	0.15
29	6113.46	0.14

LOT AREA TABLE		
LOT #	AREA (SF)	AREA (AC)
30	6120.00	0.14
31	6109.98	0.14
32	6120.00	0.14
33	6120.00	0.14
34	6960.61	0.16
35	7888.04	0.18
36	7888.04	0.18
37	6583.75	0.15
38	6120.00	0.14
39	6120.00	0.14
40	6120.00	0.14
41	6120.00	0.14
42	6120.00	0.14
43	8919.53	0.20
44	8919.53	0.20
45	8919.53	0.20
46	8919.53	0.20
47	8919.53	0.20
48	8485.53	0.19
49	8100.00	0.19
50	8100.00	0.19
51	8100.00	0.19
52	8100.00	0.19
53	8100.00	0.19
54	7200.00	0.17

LOT AREA TABLE		
LOT #	AREA (SF)	AREA (AC)
55	7200.00	0.17
56	7200.00	0.17
57	7200.00	0.17
58	7200.00	0.17
59	7200.00	0.17
60	7200.00	0.17
61	7544.56	0.17
62	7737.32	0.18
63	7737.32	0.18
64	7737.32	0.18
65	9592.42	0.22
66	9580.38	0.22
67	8705.67	0.20

LEGEND

- ROADWAY CENTERLINE
- ROW
- LOT LINE
- CHATHAM COUNTY STREAM BUFFER
- 4' H.O.A. EASEMENT
- 4' PRIVATE UTILITY EASEMENT
- BMP MAINTENANCE & ACCESS EASEMENT
- SIDEWALK EASEMENT
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- EXISTING WETLANDS
- 10'x70' SIGHT TRIANGLE
- NEW ROADWAY PAVEMENT

NORTH

60 0 60 120

SCALE: 1"=60' (Horiz.)

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AVOID UTILITY DAMAGE

REVISIONS		
REV.NO.	DESCRIPTIONS	DATE
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1	INITIAL SUBMITTAL	2015.05.01

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BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

SITE PLAN - WEST

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 60'
VERTICAL: N/A

M&C FILE NUMBER C1.1
DRAWING NUMBER C1.1

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

REVISION 4

ALIGNMENT CURVE DATA					
CURVE #	RADIUS	ARCH LENGTH	CHORD BEARING	CHORD LENGTH	DELTA
C11	500.00'	405.23'	N68°00'01"W	394.23'	46°26'09"
C12	500.00'	483.99'	N72°30'46"W	465.31'	55°27'40"
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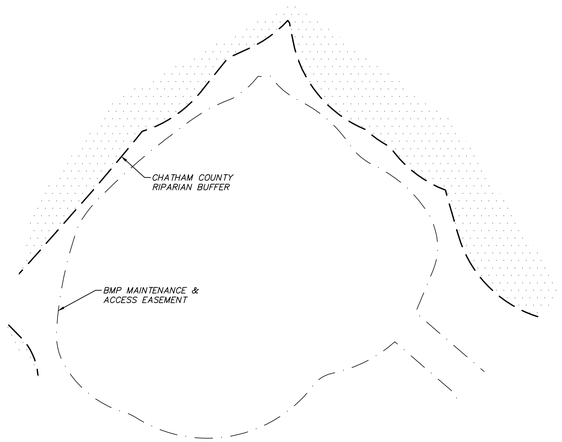
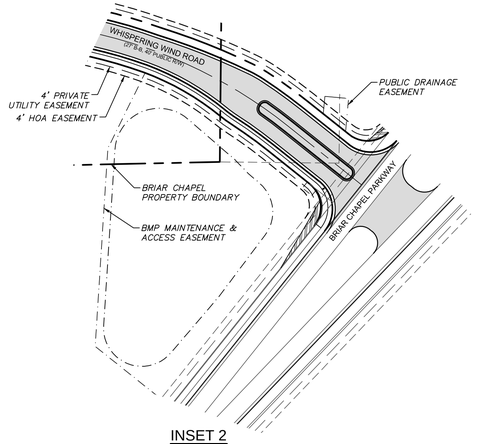
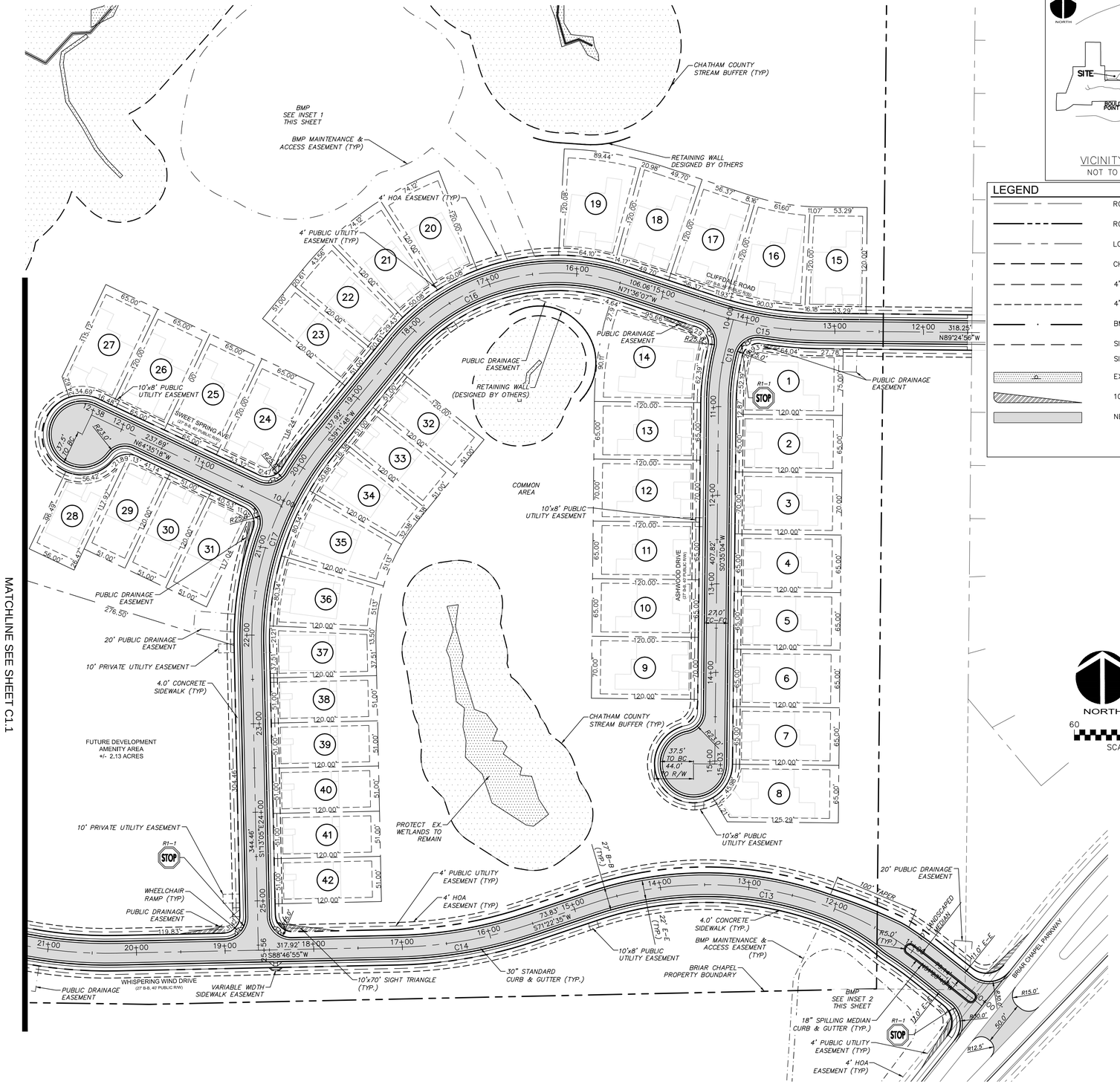
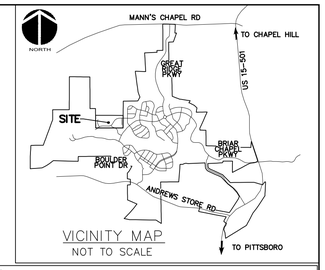


INSET 1



INSET 2





VICINITY MAP
NOT TO SCALE

LEGEND

- ROADWAY CENTERLINE
- ROW
- LOT LINE
- CHATHAM COUNTY STREAM BUFFER
- 4' H.O.A. EASEMENT
- 4' PRIVATE UTILITY EASEMENT
- BMP MAINTENANCE & ACCESS EASEMENT
- SIDEWALK EASEMENT
- SIGN
- EXISTING WETLANDS
- 10'x70' SIGHT TRIANGLE
- NEW ROADWAY PAVEMENT

NORTH
60 0 60 120
SCALE: 1"=60' (Horiz.)

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AVOID UTILITY
DAMAGE

REVISIONS		
REV.NO.	DESCRIPTIONS	DATE
4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
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SEAL

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BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

SITE PLAN - EAST

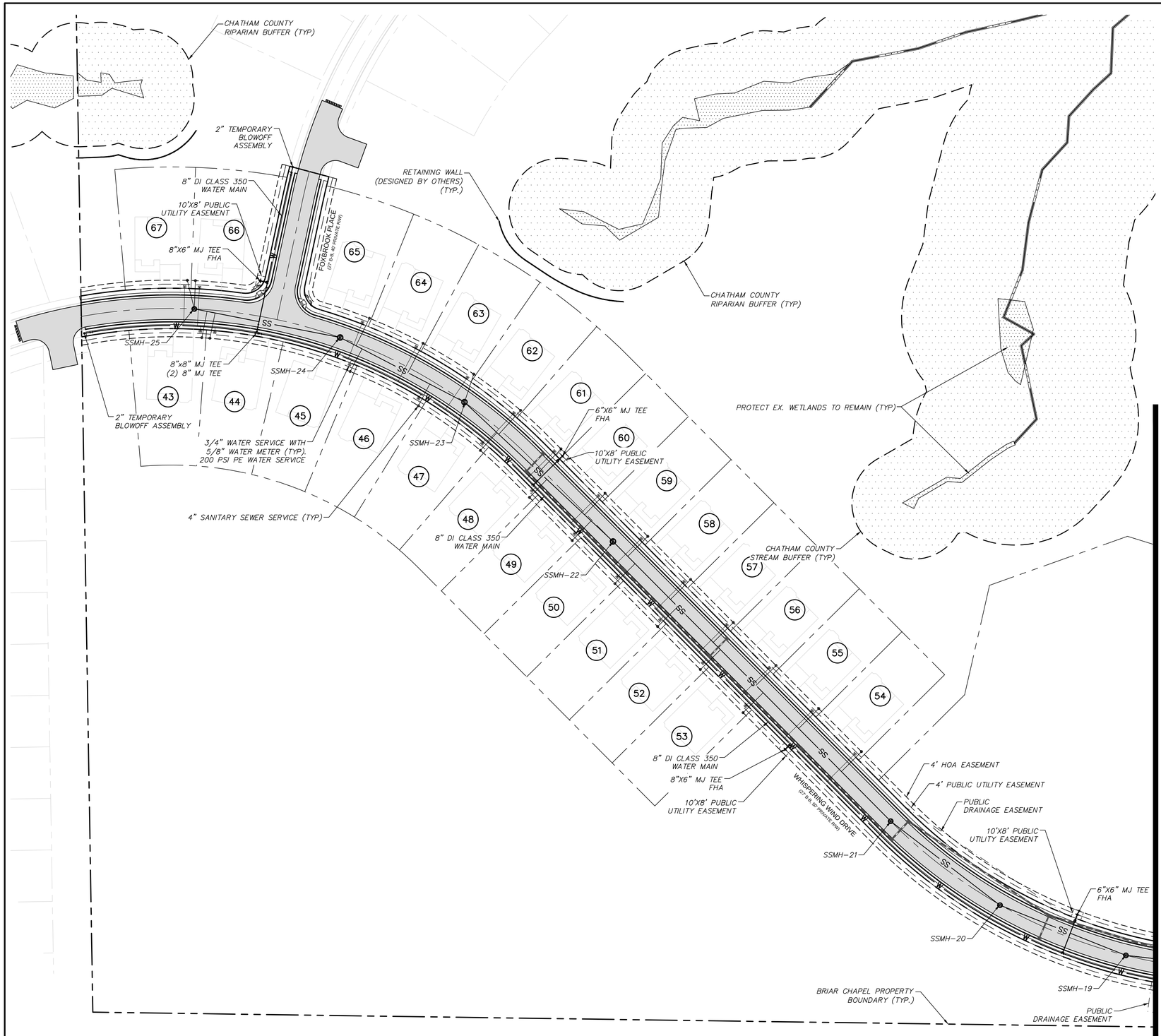
DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 60'
VERTICAL: N/A

M&C FILE NUMBER C1.1
DRAWING NUMBER C1.2

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

REVISION 4



MATCHLINE SEE SHEET C2.2

UTILITY NOTES:

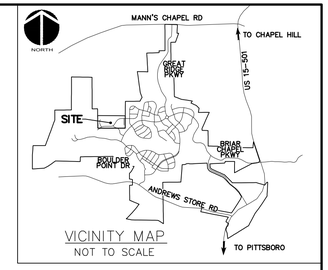
1. ALL SANITARY SEWER CONSTRUCTION IS TO BE PERFORMED IN ACCORDANCE WITH CURRENT NCDENR & CHATHAM COUNTY STANDARDS, SPECIFICATIONS & DETAILS.
2. ALL WATER MAIN CONSTRUCTION IS TO BE PERFORMED IN ACCORDANCE WITH CURRENT CHATHAM COUNTY STANDARDS, SPECIFICATIONS & DETAILS.
3. ALL PERMITS RELATING TO THIS PROJECT MUST BE OBTAINED PRIOR TO CONSTRUCTION.
4. ALL WATER MAINS SHALL HAVE A MIN. OF 3'-6" OF COVER AS MEASURED FROM FINISHED GRADE TO TOP OF PIPE AT THE LOCATION WHERE INSTALLED.
5. WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWERS, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION, IN WHICH CASE:

   (1) THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER; OR

   (2) THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH, AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.

   WHERE A WATER MAIN CROSSES OVER A SANITARY SEWER, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18-INCH VERTICAL SEPARATION – IN WHICH CASE BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.

   WHERE A WATER MAIN CROSSES UNDER A SANITARY SEWER, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
   SEE NCAC 15A, 18C, SECTION .0906.
6. CONTRACTOR SHALL USE A MIN. 20' SECTION DIP CLASS 350 CENTERED UNDER STORMWATER PIPE WHERE 18" MIN. VERTICAL CLEARANCE CANNOT BE MET BETWEEN STORMWATER AND WATER.
7. TRACER WIRE AND TRACER WRE TEST STATIONS ARE TO BE INSTALLED ON ALL WATER MAINS. TRACER WIRE TEST STATIONS ARE TO BE LOCATED AT ALL FIRE HYDRANTS WITHIN A 3 FOOT RADIUS OF THE HYDRANT AND PREFERABLY TO THE REAR OF THE HYDRANT.
8. WATER SERVICES SHALL BE EXTENDED FROM THE MAIN TO A METER BOX LOCATED WITHIN THE RIGHT OF WAY. THE METER SHALL BE PLACED AT THE EDGE OF THE SERVICED LOT'S RIGHT OF WAY LINE OR EASEMENT. SERVICE LINE SHALL BE RUN ON A TRUE LINE FROM THE WATER MAIN TO THE METER BOX, AND WHERE POSSIBLE, SERVICE LINE SHALL BE PERPENDICULAR TO THE MAIN LINE. NO WATER BOXES OR VAULTS SHALL BE PLACED IN STREETS, SIDEWALKS, PARKING AREAS, OR DRIVEWAYS.
9. MANHOLES SHALL BE SPACED A MAXIMUM DISTANCE OF 400 FEET APART.
10. MANHOLES SHALL BE INSTALLED AT EACH DEFLECTION OF LINE AND/OR GRADE WITH A MINIMUM DROP OF 0.2 FEET. MANHOLES FOR SEWERS GREATER THAN 21 INCHES IN DIAMETER SHALL BE 5 FOOT MANHOLES. MANHOLES FOR SEWERS 12 FEET OR DEEPER SHALL BE MINIMUM 5 FOOT DIAMETER. MANHOLE TOPS SHALL BE SET FLUSH WITH PAVEMENT WHERE INSTALLED IN A STREET.
11. SERVICE CONNECTIONS FOR THE SANITARY SEWER LINES SHOULD BE PERPENDICULAR FROM THE MAIN LINE TO THE EDGE OF THE SERVICED LOT'S RIGHT OF WAY LINE OR EASEMENT WITH A MINIMUM GRADE OF 1/4 INCH/FOOT FOR 4 INCH AND .6 FOOT/100 FOOT FOR 6 INCH. ALL CLEANOUTS SHALL EXTEND A MINIMUM OF 6 INCHES ABOVE THE FINISHED GRADE. WHERE A SERVICE LINE IS CONNECTED TO A MANHOLE, THE LINE SHALL TERMINATE AT THE EDGE OF THE INVERT IN THE MANHOLE. NO CLEANOUTS SHALL BE PLACED IN STREETS, SIDEWALKS, PARKING AREAS, OR DRIVEWAYS.
12. ALL SANITARY SEWER LINES ARE 8" PVC SDR 35 UNLESS OTHERWISE NOTED AND ALL WATER MAIN LINES ARE 6" DI CLASS 350 UNLESS OTHERWISE NOTED. ALL SANITARY SEWER SERVICES ARE 4" SCHEDULE 40 PVC AND ALL WATER MAIN SERVICES ARE 3/4" WITH 5/8" METERS.
13. MINIMUM COVER OF 5 FEET IN TRAFFIC AREAS TO BE PROVIDED FOR ALL COLLECTOR LINES 4 INCHES AND LARGER. IF LESS THAN 5 FEET, DUCTILE IRON PIPE SHALL BE REQUIRED.
14. SANITARY SEWER WITHIN PRIVATE EASEMENTS TO BE OWNED, OPERATED AND MAINTAINED BY HOME OWNERS ASSOCIATION OR AGENT THEREOF.
15. WATER MAINS WILL BE 3.5' OFF CURB AND GUTTER UNLESS SHOWN OTHERWISE.
16. ALL WATER MAINS WITHIN PUBLIC EASEMENTS AND PUBLIC RIGHT-OF-WAY TO BE OWNED, OPERATED AND MAINTAINED BY CHATHAM COUNTY, AND WILL BE CONTAINED WITHIN 20' WIDE PUBLIC WATER LINE EASEMENT (MINIMUM) CENTERED ON THE PROPOSED WATER MAIN.
17. CONTRACTOR TO COORDINATE WITH CHATHAM COUNTY PUBLIC WORKS FOR ALL IRRIGATION SLEEVE SIZING.



VICINITY MAP
NOT TO SCALE

LEGEND

SS	SANITARY SEWER LINE
W	WATER MAIN
FM	SANITARY SEWER FORCE MAIN (DESIGNED BY OTHERS)
SS	EXISTING SANITARY SEWER LINE
W	EXISTING SS FORCE MAIN
W	EXISTING WATER MAIN
OE	EXISTING OVERHEAD ELECTRIC
ELEC	EXISTING UNDERGROUND ELECTRIC
TWC	EXISTING TIME WARNER CABLE LINE
AT&T	EXISTING AT&T LINE
	SANITARY SEWER MANHOLE
	SANITARY SEWER CLEANOUT
	WATER METER
	FIRE HYDRANT ASSEMBLY (FHA)
	ROW
	LOT LINE
	CHATHAM COUNTY STREAM BUFFER
	4' H.O.A. EASEMENT
	4' PRIVATE UTILITY EASEMENT
	EXISTING WETLANDS

NORTH

CALL N.C. ONE CALL CENTER BEFORE YOU DIG STOP 1-800-632-4949 AVOID UTILITY DAMAGE

60 0 60 120
SCALE: 1"=60' (Horiz.)

REV.NO.	DESCRIPTIONS	DATE
4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
3	REVISIONS PER COMMENTS FROM CHATHAM COUNTY AND NCDOT	2015.07.01
2	REVISIONS PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.06.01
1	INITIAL SUBMITTAL	2015.05.01

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AYAN 07/22/2015

McKIM&CREED
1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
Phone: (919)233-8091, Fax: (919)233-8031
F-1222

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BRIAR CHAPEL™
by Newland COMMUNITIES

BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

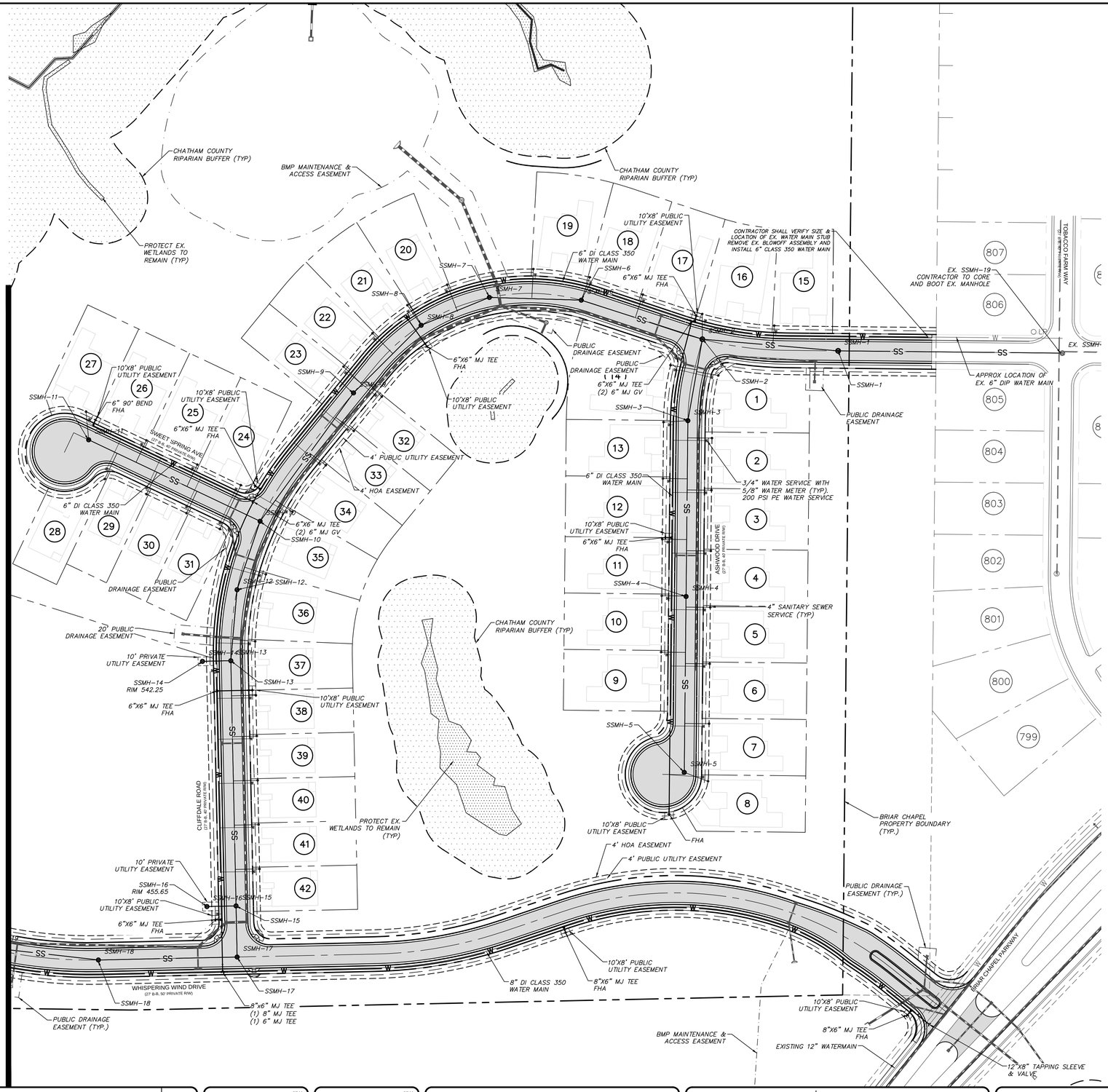
UTILITY PLAN

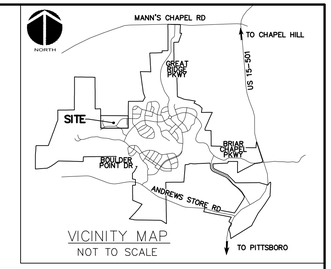
DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 60'
VERTICAL: N/A

M&C FILE NUMBER C2.X
DRAWING NUMBER C2.1

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION 4





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- FIRE HYDRANT ASSEMBLY (FHA)
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- CHATHAM COUNTY STREAM BUFFER
- 4' H.O.A. EASEMENT
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- EXISTING WETLANDS

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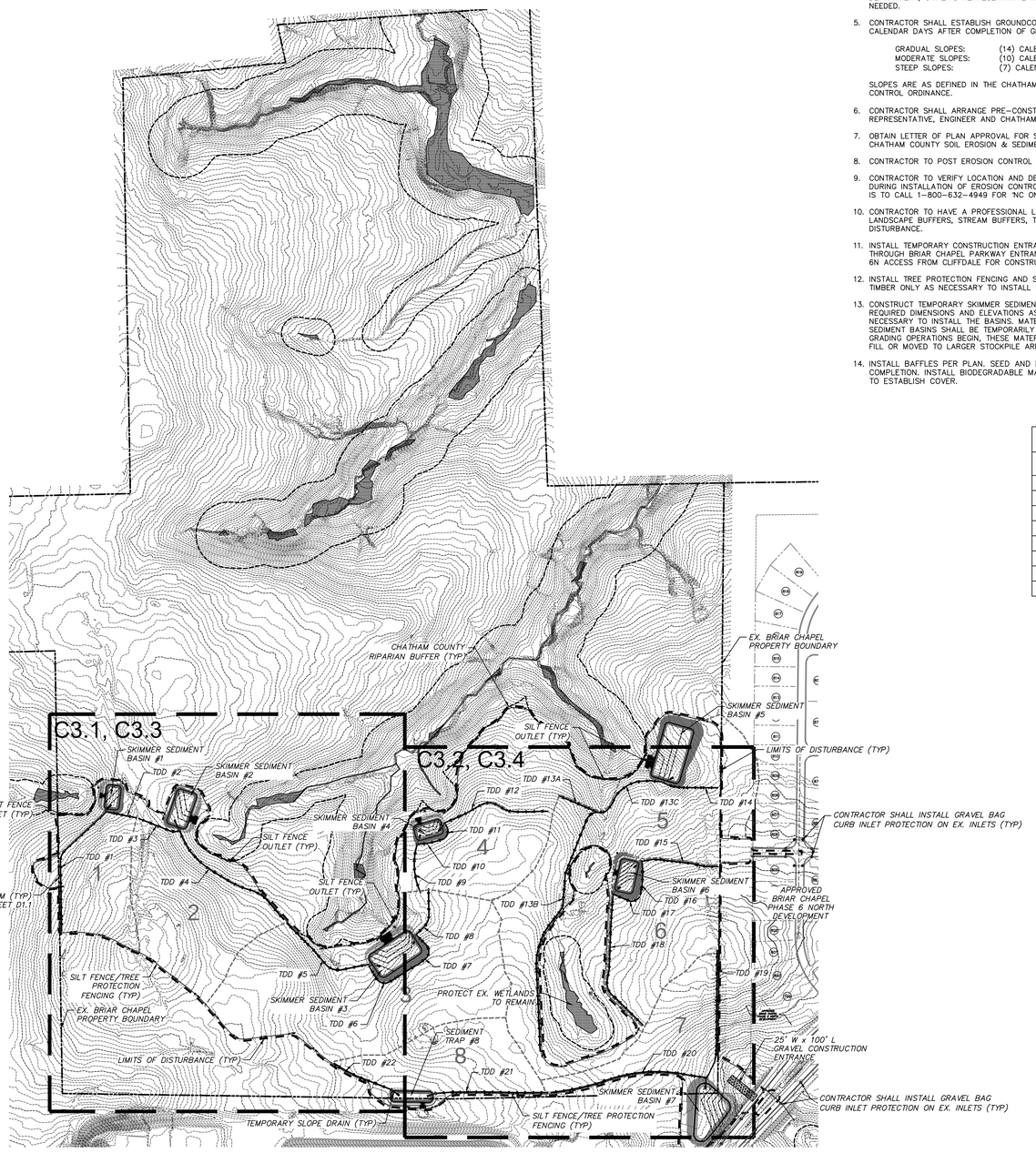


STAGE 1 CONSTRUCTION SEQUENCE;

1. THE INTENT OF THE CONSTRUCTION SEQUENCE IS TO PROVIDE THE CONTRACTOR WITH A GENERAL GUIDE FOR CONSTRUCTION PURPOSES. THIS SEQUENCE IS NOT INTENDED TO OUTLINE ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
2. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
3. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS. NEEDED REPAIRS SHALL BE MADE IMMEDIATELY.
4. IF IT IS DETERMINED DURING CONSTRUCTION THAT SIGNIFICANT SEDIMENT IS LEAVING THE SITE, DESPITE PROPER IMPLEMENTATION AND MAINTENANCE, THE CONTRACTOR IS OBLIGATED TO TAKE ADDITIONAL CORRECTIVE ACTION. CONTACT CHATHAM COUNTY ENVIRONMENTAL QUALITY DEPARTMENT, OWNER'S REPRESENTATIVE AND ENGINEER WITH ANY ADDITIONAL MEASURES NEEDED.
5. CONTRACTOR SHALL ESTABLISH GROUNDCOVER ON DISTURBED AREAS WITHIN THE NUMBER OF CALENDAR DAYS AFTER COMPLETION OF GRADING PER THE SCHEDULE BELOW:

GRADUAL SLOPES:	(14) CALENDAR DAYS
MODERATE SLOPES:	(10) CALENDAR DAYS
STEEP SLOPES:	(7) CALENDAR DAYS

SLOPES ARE AS DEFINED IN THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.

6. CONTRACTOR SHALL ARRANGE PRE-CONSTRUCTION MEETING WITH THE OWNER'S REPRESENTATIVE, ENGINEER AND CHATHAM COUNTY.
7. OBTAIN LETTER OF PLAN APPROVAL FOR SEDIMENTATION AND EROSION CONTROL FROM CHATHAM COUNTY SOIL EROSION & SEDIMENTATION CONTROL.
8. CONTRACTOR TO POST EROSION CONTROL PERMIT PROMINENTLY ON SITE AT ALL TIMES.
9. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES TO AVOID CONFLICT DURING INSTALLATION OF EROSION CONTROL MEASURES AND STORM DRAINAGE. CONTRACTOR IS TO CALL 1-800-632-4949 FOR 'NC ONE CALL' TO HAVE UTILITIES LOCATED.
10. CONTRACTOR TO HAVE A PROFESSIONAL LAND SURVEYOR FLAG PROPERTY LINES, EASEMENTS, LANDSCAPE BUFFERS, STREAM BUFFERS, TREE PROTECTION AREAS AND LIMITS OF DISTURBANCE.
11. INSTALL TEMPORARY CONSTRUCTION ENTRANCES. CONTRACTOR SHALL ONLY ACCESS SITE THROUGH BRIAR CHAPEL PARKWAY ENTRANCE. NO CONSTRUCTION TRAFFIC SHALL USE PHASE 6N ACCESS FROM CLIFFDALE FOR CONSTRUCTION ACTIVITIES.
12. INSTALL TREE PROTECTION FENCING AND SILT FENCING AS SHOWN AND DETAILED ON PLAN. TIMBER ONLY AS NECESSARY TO INSTALL THESE DEVICES.
13. CONSTRUCT TEMPORARY SKIMMER SEDIMENT BASINS & TEMPORARY SEDIMENT TRAPS TO THE REQUIRED DIMENSIONS AND ELEVATIONS AS DETAILED IN THESE PLANS. GRUB ONLY AS NECESSARY TO INSTALL THE BASINS. MATERIAL EXCAVATED DURING THE CONSTRUCTION OF SEDIMENT BASINS SHALL BE TEMPORARILY STOCKPILED ADJACENT TO BASINS. ONCE ROUGH GRADING OPERATIONS BEGIN, THESE MATERIALS SHALL BE PLACED AS NEEDED IN AREAS OF FILL OR MOVED TO LARGER STOCKPILE AREAS.
14. INSTALL BAFFLES PER PLAN. SEED AND MULCH SIDE SLOPES OF SEDIMENT BASINS UPON COMPLETION. INSTALL BIODEGRADABLE MATTING ON SIDE SLOPES OF BASINS IF NECESSARY TO ESTABLISH COVER.

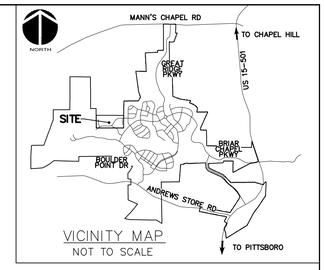
US STEEL DRAINAGE AREAS	
DRAINAGE AREA NUMBER	TOTAL AREA WITHIN DRAINAGE AREA
1	1.8 ACRES
2	3.3 ACRES
3	6.3 ACRES
4	2.3 ACRES
5	8.9 ACRES
6	3.1 ACRES
7	1.8 ACRES
8	2.3 ACRES

STAGE 1 CONSTRUCTION SEQUENCE (CONT.);

15. CONSTRUCT DIVERSION DITCHES AS SHOWN AND DETAILED IN THESE PLANS. SEED, MULCH AND INSTALL REQUIRED LINERS IN THESE DITCHES. INSTALL CHECK DAMS IN DITCHES AS SHOWN AND DETAILED ON PLANS. CLEAR ONLY AS NECESSARY TO INSTALL THESE EROSION CONTROL MEASURES.
16. CONTACT CHATHAM COUNTY SOIL EROSION & SEDIMENTATION AT 919-545-8339 AND ENGINEER UPON COMPLETION OF INITIAL EROSION CONTROL MEASURES.
17. ONCE TEMPORARY SKIMMER SEDIMENT BASINS AND DIVERSION DITCHES HAVE BEEN INSTALLED, GRUB WITHIN DELINEATED DRAINAGE AREAS ASSOCIATED WITH THE INSTALLED TEMPORARY SKIMMER SEDIMENT BASINS.
18. CONTRACTOR SHALL STRIP TOPSOIL AND STORE AT DESIGNATED LOCATION. PROVIDE SILT FENCE AROUND PERIMETER OF SLOPE OF ANY STOCKPILE LOCATIONS. CONTRACTOR SHALL REMOVE ALL ROOT MATTER AND ORGANICS FROM WITHIN THE CLEARING LIMITS.
19. AFTER COMPLETION OF CLEARING AND GRUBBING, THE SITE SHALL BE TEMPORARILY STABILIZED EXCEPT IN AREAS OF ACTIVE CUT/FILL. ACTIVE AREAS SHOULD NOT EXCEED 25 ACRES AT ONE TIME.
20. BEGIN ROUGH GRADING WITHIN CLEARING LIMITS, INCLUDING GRADING FOR PERMANENT WET DETENTION POND.
21. MAINTAIN AND PROTECT EXISTING UTILITIES AT ALL TIMES. MAINTAIN DIVERSION DITCHES, BASINS, SILT FENCE AND OTHER EROSION CONTROL MEASURES UNTIL THEY ARE APPROVED TO BE REMOVED.
22. PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH THE PLANS.
23. ONCE GROUNDCOVER HAS BEEN ESTABLISHED AND OTHER CONSTRUCTION IS COMPLETE, CONTACT CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION AND ENGINEER FOR SITE INSPECTION BEFORE REMOVING ANY TEMPORARY EROSION CONTROL MEASURES.

GENERAL NOTES:

1. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER IF ANY DISCREPANCIES EXIST PRIOR TO CONSTRUCTION. NO ADDITIONAL COMPENSATION WILL BE PAID TO CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
2. CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL AT 1-800-632-4949 AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR TO CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL".
3. OVERHEAD ELECTRIC LINES MAY EXIST ON THE SITE. CONTRACTOR SHALL CONTACT DUKE POWER AT (336) 634-4633 PRIOR TO COMMENCING ANY ACTIVITY WITHIN 200-FT OF DUKE POWER RIGHT OF WAY.
4. EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON BEST AVAILABLE RECORD DRAWINGS.
5. SOIL UNDER PROPOSED BUILDINGS, PAVED AREAS AND WITHIN SLOPES GREATER THAN 3:1 (H:V) SHALL BE APPROVED, PLACED AND COMPACTED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER. THESE SOILS SHALL BE COMPACTED TO THE STANDARD PROCTOR MAXIMUM DRY DENSITY UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
6. ALL GRADED AREAS SHALL BE SLOPED SUCH THAT NO AREAS OF STANDING WATER OCCUR AND ALL AREAS POSITIVELY DRAIN TO DRAINAGE STRUCTURES, SWALES OR STORMWATER MANAGEMENT FACILITIES.
7. GRADED SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH CURLEX SINGLE NET (CURLEX I) MATTING BY AMERICAN EXCELSIOR COMPANY OR APPROVED EQUAL.
8. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL PROPERTY CORNERS AND SHALL REPLACE ALL MARKERS REMOVED IF DAMAGED DURING CONSTRUCTION.
9. CONTRACTOR IS RESPONSIBLE FOR DEWATERING AS NECESSARY THROUGHOUT CONSTRUCTION.
10. CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL PERMIT CONDITIONS, MONITORING AND REPORTING REQUIREMENTS.
11. STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY WETLAND AND NATURAL RESOURCES CONSULTANTS – CONTACT CHRIS HUYSMAN AT 336-406-0906.
12. NO PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #3710976500J DATED FEBRUARY 2, 2007.



VICINITY MAP
NOT TO SCALE

LIMITS OF DISTURBANCE NOTES;

1. LIMITS OF DISTURBANCE LINES ARE CLEARING LIMIT LINES WHICH WILL BE FLAGGED FOR A MINIMUM OF ONE PER 50-FT OR CLOSER DEPENDING ON VISIBILITY.
2. SILT FENCE AND TREE PROTECTION FENCE LINES ALSO DELINEATE THE LIMITS OF DISTURBANCE. ALL SILT FENCING OR TREE PROTECTION FENCING SHALL BE INSTALLED INSIDE LIMITS OF DISTURBANCE.
3. TOTAL DISTURBED AREA: 33.43 ACRES

SELF INSPECTION NOTICE;

NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM:

THE SEDIMENTATION POLLUTION CONTROL ACT WAS AMENDED IN 2006 TO REQUIRE THAT PERSONS RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES INSPECT A PROJECT AFTER EACH STAGE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. RULES DETAILING THE DOCUMENTATION OF THESE INSPECTIONS TOOK EFFECT OCTOBER 1, 2010. THE SELF-INSPECTION PROGRAM IS SEPARATE FROM THE WEEKLY SELF-MONITORING PROGRAM OF THE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES. THE FOCUS OF THE SELF-INSPECTION REPORT IS THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES ACCORDING TO THE APPROVED PLAN. THE INSPECTIONS MUST BE CONDUCTED AFTER EACH STAGE OF THE PROJECT, AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH NCGS 113A-54.1 AND 15A NCAC 4B.0131. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FROM HTTP://WWW.DLR.ENR.STATE.NC.US/PAGES/SEDIMENTATION_NEW.HTML. IF YOU HAVE QUESTIONS OR CANNOT ACCESS THE FORM, PLEASE CONTACT THIS OFFICE AT (919) 791-4200.

NPDES GROUNDCOVER STABILIZATION TIMEFRAMES		
SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES, SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	14 DAYS FOR SLOPES 10' OR LESS IN LENGTH AND NOT STEEPER THAN 2:1
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES

LEGEND:

- EXISTING WETLANDS
- EX. R/W LINE
- RIPARIAN BUFFER LINE
- SF/TPF — COMBINATION SILT/TREE PROTECTION FENCING
- TPF — TREE PROTECTION FENCING
- 480 — EXISTING CONTOUR
- NEW LIMITS OF DISTURBANCE
- NEW DIVERSION DITCH
- NEW CHECK DAM
- TEMPORARY CONSTRUCTION ENTRANCE
- SLOPE DRAIN
- TDD — TEMPORARY DIVERSION DITCH
- SILT FENCE OUTLET
- INLET PROTECTION
- EXISTING DRAINAGE DIVIDE
- 5 — DRAINAGE AREA

NORTH

200' 0 200' 400'
SCALE: 1"=200' (Horiz.)

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AVOID UTILITY DAMAGE

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US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

STAGE 1
OVERALL EROSION CONTROL PLAN

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 200'
VERTICAL: N/A

MSC FILE NUMBER C3.X
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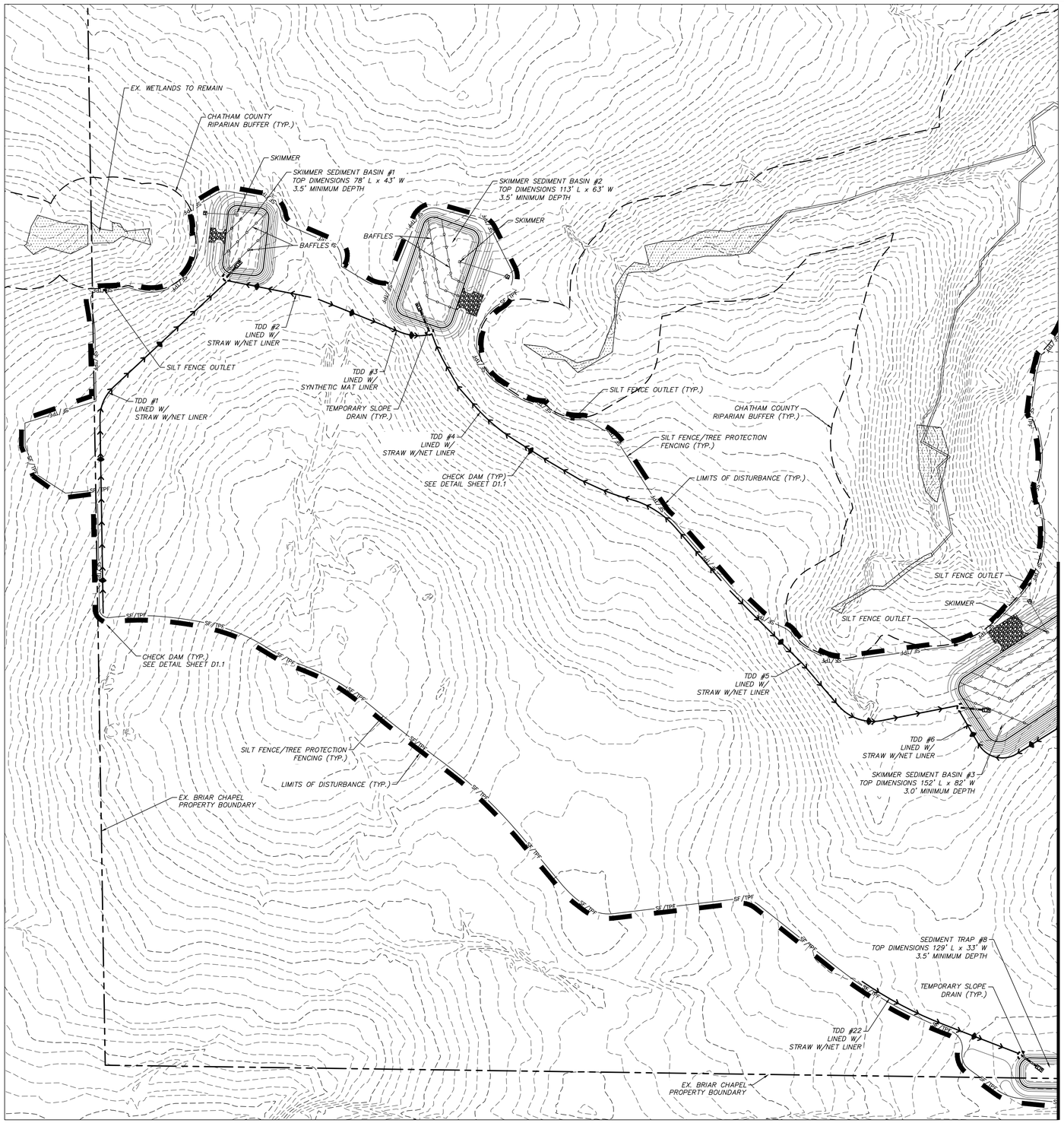
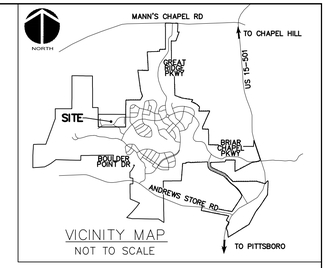


MATCHLINE - SEE SHEET C3.2



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STAGE 1
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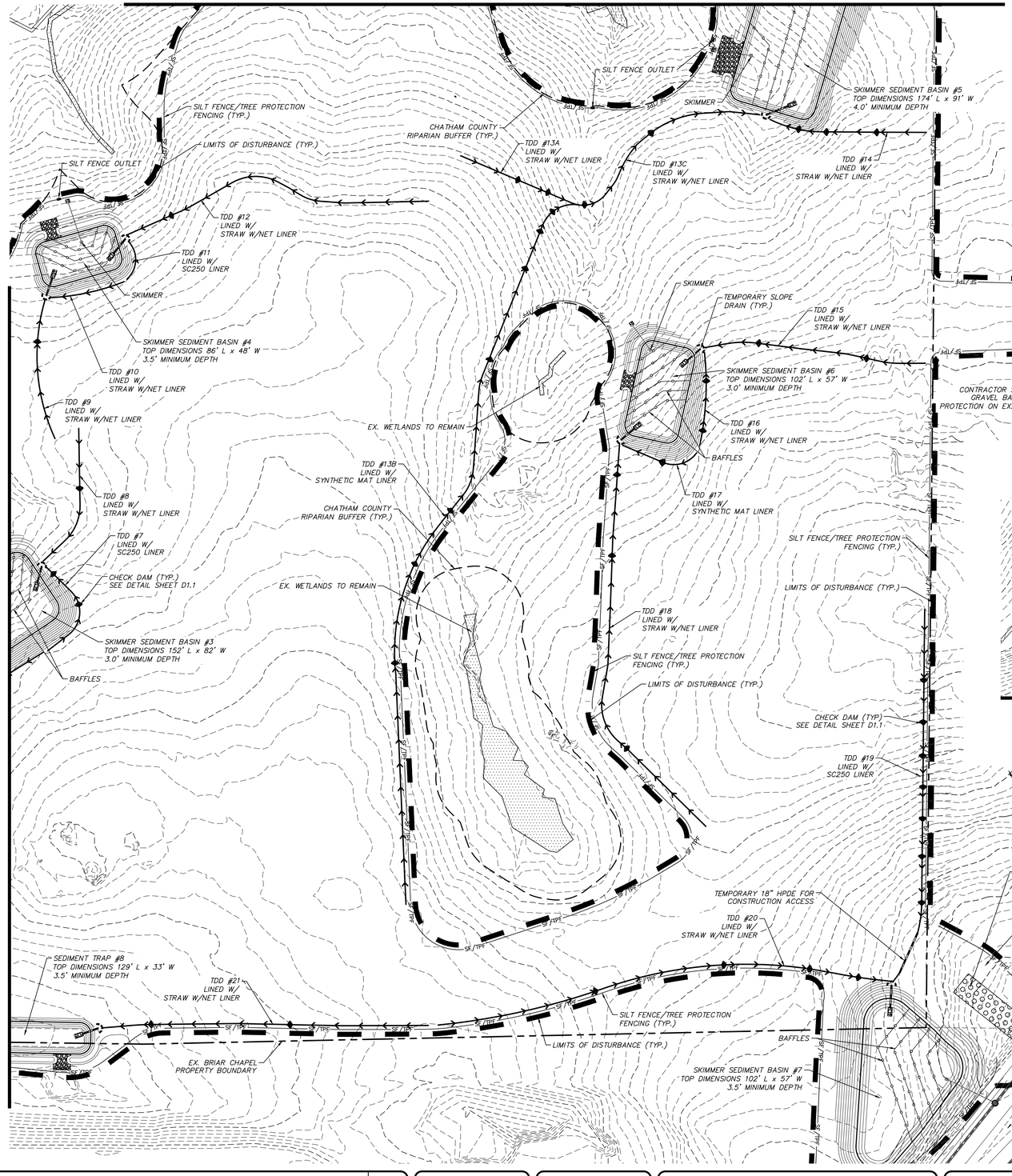

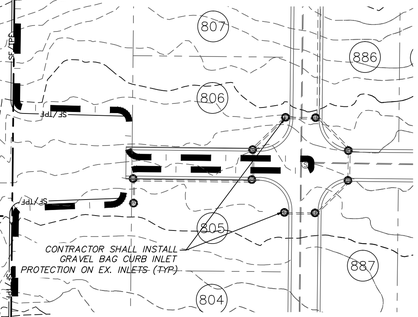

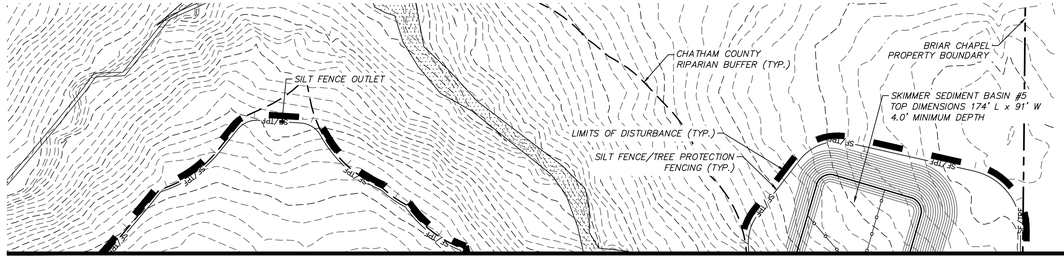

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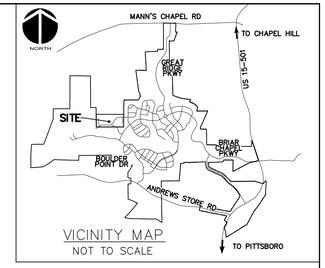

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M&C FILE NUMBER C3.X
DRAWING NUMBER C3.2

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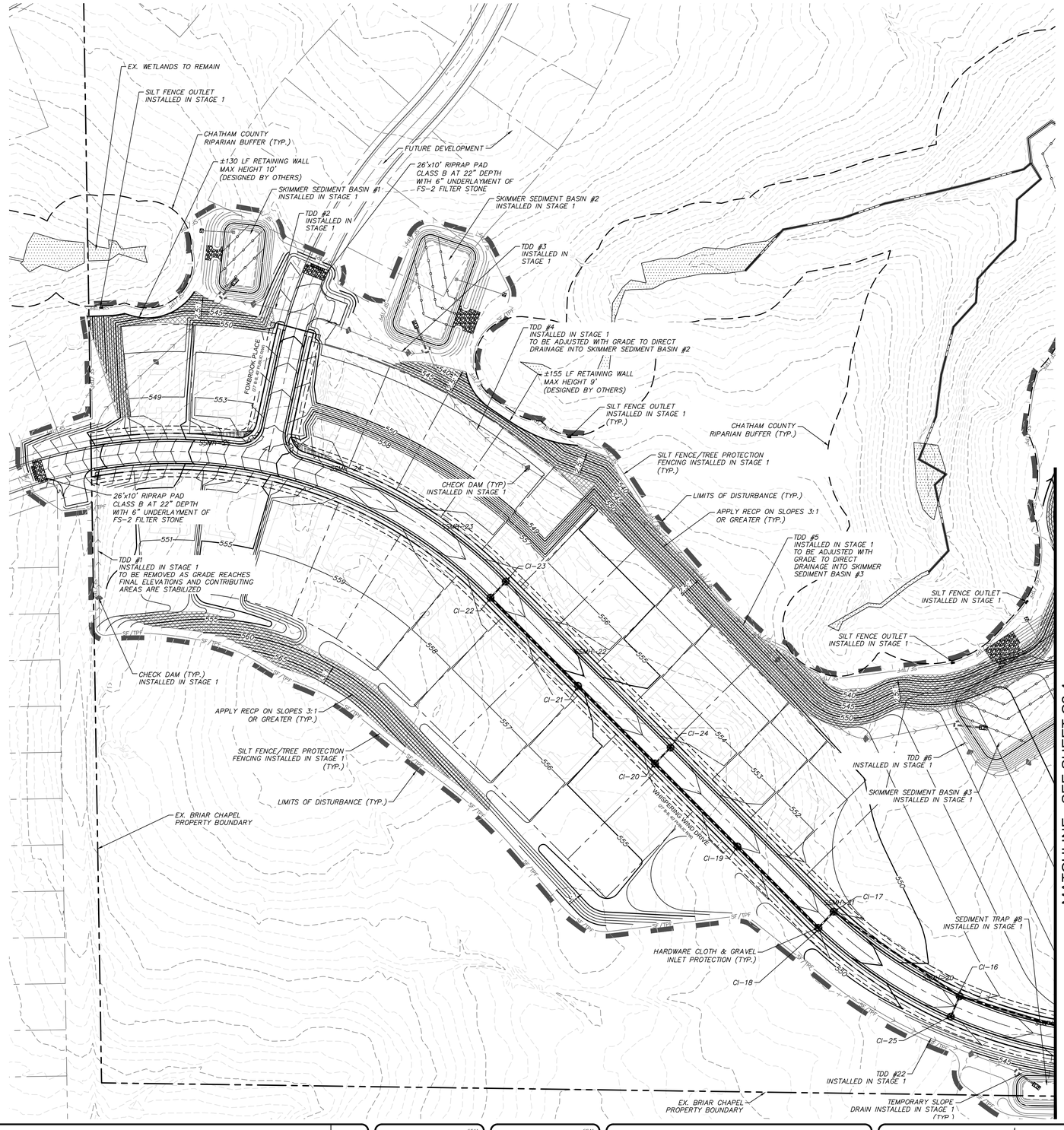


STAGE 2 CONSTRUCTION SEQUENCE:

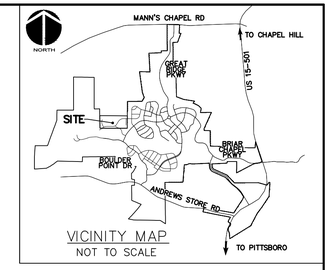
1. THE INTENT OF THE CONSTRUCTION SEQUENCE IS TO PROVIDE THE CONTRACTOR WITH A GENERAL GUIDE FOR CONSTRUCTION PURPOSES. THIS SEQUENCE IS NOT INTENDED TO OUTLINE ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
2. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
3. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS. NEEDED REPAIRS SHALL BE MADE IMMEDIATELY.
4. IF IT IS DETERMINED DURING CONSTRUCTION THAT SIGNIFICANT SEDIMENT IS LEAVING THE SITE, DESPITE PROPER IMPLEMENTATION AND MAINTENANCE, THE CONTRACTOR IS OBLIGATED TO TAKE ADDITIONAL CORRECTIVE ACTION. CONTACT CHATHAM COUNTY ENVIRONMENTAL QUALITY DEPARTMENT, OWNER'S REPRESENTATIVE AND ENGINEER WITH ANY ADDITIONAL MEASURES NEEDED.
5. CONTRACTOR SHALL ESTABLISH GROUNDCOVER ON DISTURBED AREAS WITHIN THE NUMBER OF CALENDAR DAYS AFTER COMPLETION OF GRADING PER THE SCHEDULE BELOW:

   GRADUAL SLOPES: (14) CALENDAR DAYS
   MODERATE SLOPES: (10) CALENDAR DAYS
   STEEP SLOPES: (7) CALENDAR DAYS

   SLOPES ARE AS DEFINED IN THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
6. CONTRACTOR TO POST EROSION CONTROL PERMIT PROMINENTLY ON SITE AT ALL TIMES.
7. TEMPORARY CONSTRUCTION ENTRANCES, TEMPORARY DIVERSION DITCHES, SILT FENCING, TREE PROTECTION FENCING AND TEMPORARY SKIMMER BASINS WERE INSTALLED AS PART OF THE STAGE 1 EROSION CONTROL PLANS. CONTRACTOR SHALL INSPECT THESE DEVICES TO ENSURE COMPLIANCE PRIOR TO FINAL GRADING OPERATIONS.
8. BEGIN FINAL GRADING OPERATIONS FOR US STEEL – SECTION 1 INCLUDING GRADING FOR BMP #21.
9. DURING THE TRANSITION FROM STAGE 1 EROSION CONTROL WORK TO STAGE 2 GRADING, AND AS SITE BEGINS TO REACH FINAL GRADES, EROSION CONTROL DEVICES INSTALLED IN STAGE 1 (SUCH AS TDD'S AND TSB'S) SHALL BE REVIEWED AND REMOVED IF THEY ARE IN CONFLICT WITH STAGE 2 WORK SO LONG AS THE AREAS CAN BE IMMEDIATELY STABILIZED OR ADDITIONAL MEASURES ARE INSTALLED TO PREVENT SEDIMENT LADEN RUNOFF. SPECIFICALLY, ONCE FINAL GRADES HAVE BEEN REACHED FOR THE BMP #21 AND SKIMMER, BAFFLES AND SLOPE DRAINS HAVE BEEN INSTALLED, TDDS #23 & #24 SHALL BE INSTALLED AND SKIMMER BASIN #4 SHALL BE REMOVED IN ORDER TO REDIRECT DRAINAGE INTO BMP #21. ONCE THESE MEASURES HAVE BEEN COMPLETED AND ARE FUNCTIONING AS INTENDED, SKIMMER SEDIMENT BASIN #7 CAN ALSO BE REMOVED.
10. ANY ADDITIONAL BASINS MEASURES THAT CONFLICT WITH GRADING OPERATIONS SHALL ONLY BE REMOVED WITH APPROVAL FROM CHATHAM COUNTY
11. CONTRACTOR SHALL ENSURE THAT ALL SEDIMENT LADEN RUNOFF IS DIRECTED TO APPROVED MEASURES AND AREAS OF NON-ACTIVE CUT AND FILL SHOULD BE STABILIZED AS THE SITE IS REACHES FINAL GRADES.
12. ANY AREAS WITH FINAL GRADES OF 3:1 OR GREATER SHALL BE TREATED WITH MATTING INSTALLED PER DETAIL ON SHEET D1.1.
13. PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH THE TEMPORARY AND PERMANENT SEEDING SCHEDULES LOCATED ON SHEET D1.1 AND NOTE #5 OF THIS SEQUENCE.
14. UPON REMOVAL OF ANY TEMPORARY DEVICE, CONTRACTOR SHALL IMMEDIATELY STABLIZE ANY RESULTING BARE AREAS.
15. ONCE GROUNDCOVER HAS BEEN ESTABLISHED AND OTHER CONSTRUCTION IS COMPLETE, CONTACT CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION AND ENGINEER FOR SITE INSPECTION BEFORE REMOVING ANY TEMPORARY EROSION CONTROL MEASURES.
16. PERMANENT BMPS #21 & #22 CAN BE CONVERTED FROM SEDIMENT STORAGE DEVICES TO STORMWATER MANAGEMENT FACILITIES ONCE ALL UPSTREAM CONTRIBUTING AREAS HAVE BEEN STABILIZED. ONCE CONVERSION HAS BEEN COMPLETED, CONSTRUCTION DETAILS FOR THESE DEVICES ARE PROVIDED ON SHEETS D4.1 THROUGH D4.4.

STORM DRAINAGE NOTES:

1. STORM DRAINAGE PIPES SHALL BE:
   - RCP/CLASS III UNLESS OTHERWISE NOTED IN THESE PLANS. ALL PIPES INSIDE THE PUBLIC RIGHT-OF-WAY SHALL ADHERE TO PIPE DEPTH, COVER AND MATERIAL REQUIREMENTS IN ACCORDANCE WITH THE NCDOT PIPE MATERIAL SELECTION GUIDE AS LOCATED ON THE NCDOT HYDRAULICS WEBSITE.
2. ALL CONCRETE SHALL MEET A MINIMUM 3,000 PSI COMPRESSIVE STRENGTH.
3. ALL PIPE IN STORM DRAIN STRUCTURES SHALL BE STRUCK EVEN WITH INSIDE WALL.
4. THE INTERIOR SURFACES OF ALL STORM DRAINAGE STRUCTURES SHALL BE POINTED UP AND SMOOTHED TO AN ACCEPTABLE STANDARD USING MORTAR MIXED TO MANUFACTURER'S SPECIFICATIONS.
5. ALL BACKFILL SHALL BE NON-PLASTIC IN NATURE, FREE FROM ROOTS, VEGETATION MATTER, WASTE CONSTRUCTION MATERIAL OR OTHER OBJECTIONABLE MATERIAL. UTILIZED MATERIAL SHALL BE CAPABLE OF BEING COMPACTED BY MECHANICAL MEANS AND SHALL HAVE NO TENDENCY TO FLOW OR BEHAVE IN A PLASTIC MANNER UNDER THE TAMPING BLOWS OR PROOF ROLLING.
6. MATERIALS DEEMED AS UNSUITABLE FOR BACKFILL PURPOSES BY THE OWNER'S REPRESENTATIVE SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL.
7. BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE THOROUGHLY COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY OBTAINABLE WITH THE STANDARD PROCTOR TEST. THE TOP EIGHT (8) INCHES SHALL BE COMPACTED TO 100% STANDARD PROCTOR.
8. UNDER NO CIRCUMSTANCES SHALL WATER BE ALLOWED TO RISE IN UNBACKFILLED TRENCHES AFTER PIPE HAS BEEN PLACED.
9. ALL FLARED END SECTIONS DISCHARGING INTO WATER QUALITY PONDS WILL HAVE A CONCRETE PAD POURED UNDERNEATH THE FLARED END SECTION IN ACCORDANCE WITH PROVIDED CONSTRUCTION DETAILS.
10. RIM ELEVATIONS OF STORM DRAIN STRUCTURES SHALL BE FIELD VERIFIED.
11. STORM DRAINAGE WITHIN PRIVATE EASEMENTS TO BE OWNED, OPERATED AND MAINTAINED BY HOME OWNER'S ASSOCIATION OR AGENT THEREOF.
12. LENGTHS SHOWN FOR STORM DRAINAGE PIPES ARE MEASURED FROM CENTER OF STORM STRUCTURES AND TO ENDS OF FLARED END SECTIONS. SLOPES CALCULATED ARE BASED ON THIS LENGTH.
13. CB DENOTES CATCH BASINS TO BE INSTALLED NON-PAVED AREAS. REFER TO NCDOT DETAILS 840.18 AND 840.24 ON SHEET D-2.2.
14. CI DENOTES CURB INLETS TO BE INSTALLED IN THE CURB LINES OF ROADWAYS. REFER TO NCDOT DETAILS 840.02 AND 840.03 ON SHEET D-2.2.



VICINITY MAP
NOT TO SCALE

SELF INSPECTION NOTICE:

NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM:

THE SEDIMENTATION POLLUTION CONTROL ACT WAS AMENDED IN 2006 TO REQUIRE THAT PERSONS RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES INSPECT A PROJECT AFTER EACH STAGE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. RULES DETAILING THE DOCUMENTATION OF THESE INSPECTIONS TOOK EFFECT OCTOBER 1, 2010. THE SELF-INSPECTION PROGRAM IS SEPARATE FROM THE WEEKLY SELF-MONITORING PROGRAM OF THE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES. THE FOCUS OF THE SELF-INSPECTION REPORT IS THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES ACCORDING TO THE APPROVED PLAN. THE INSPECTIONS MUST BE CONDUCTED AFTER EACH STAGE OF THE PROJECT, AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH NCGS 113A-54.1 AND 15A NCAC 4B.0131. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FROM HTTP://WWW.DLR.ENR.STATE.NC.US/PAGES/SEDIMENTATION_ NEW.HTML IF YOU HAVE QUESTIONS OR CANNOT ACCESS THE FORM, PLEASE CONTACT THIS OFFICE AT (919) 791-4200.

NPDES GROUNDCOVER STABILIZATION TIMEFRAMES

SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES, SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	14 DAYS FOR SLOPES 10' OR LESS IN LENGTH AND NOT STEEPER THAN 2:1
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES

LEGEND:

- EXISTING WETLANDS
- EX. R/W LINE
- RIPARIAN BUFFER LINE
- SF/TPF — COMBINATION SILT/TREE PROTECTION FENCING
- TPF — TREE PROTECTION FENCING
- 480 — EXISTING CONTOUR
- 480 — PROPOSED CONTOUR
- NEW LIMITS OF DISTURBANCE
- STAGE 1 DIVERSION DITCH
- STAGE 1 CHECK DAM
- STAGE 1 CONSTRUCTION ENTRANCE
- STAGE 1 SLOPE DRAIN
- TDD — TEMPORARY DIVERSION DITCH
- SF/TPF — STAGE 1 SILT FENCE OUTLET

NORTH

CALL N.C. ONE CALL CENTER BEFORE YOU DIG STOP 1-800-632-4949 AVOID UTILITY DAMAGE

60' 0 60' 120'
SCALE: 1"=60' (Horiz.)

REV.NO.	DESCRIPTIONS	DATE
4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
3	REVISIONS PER COMMENTS FROM CHATHAM COUNTY AND NCDOT	2015.07.01
2	REVISIONS PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.06.01
1	INITIAL SUBMITTAL	2015.05.01

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US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

GRADING, DRAINAGE & STAGE 2 EROSION CONTROL PLAN

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

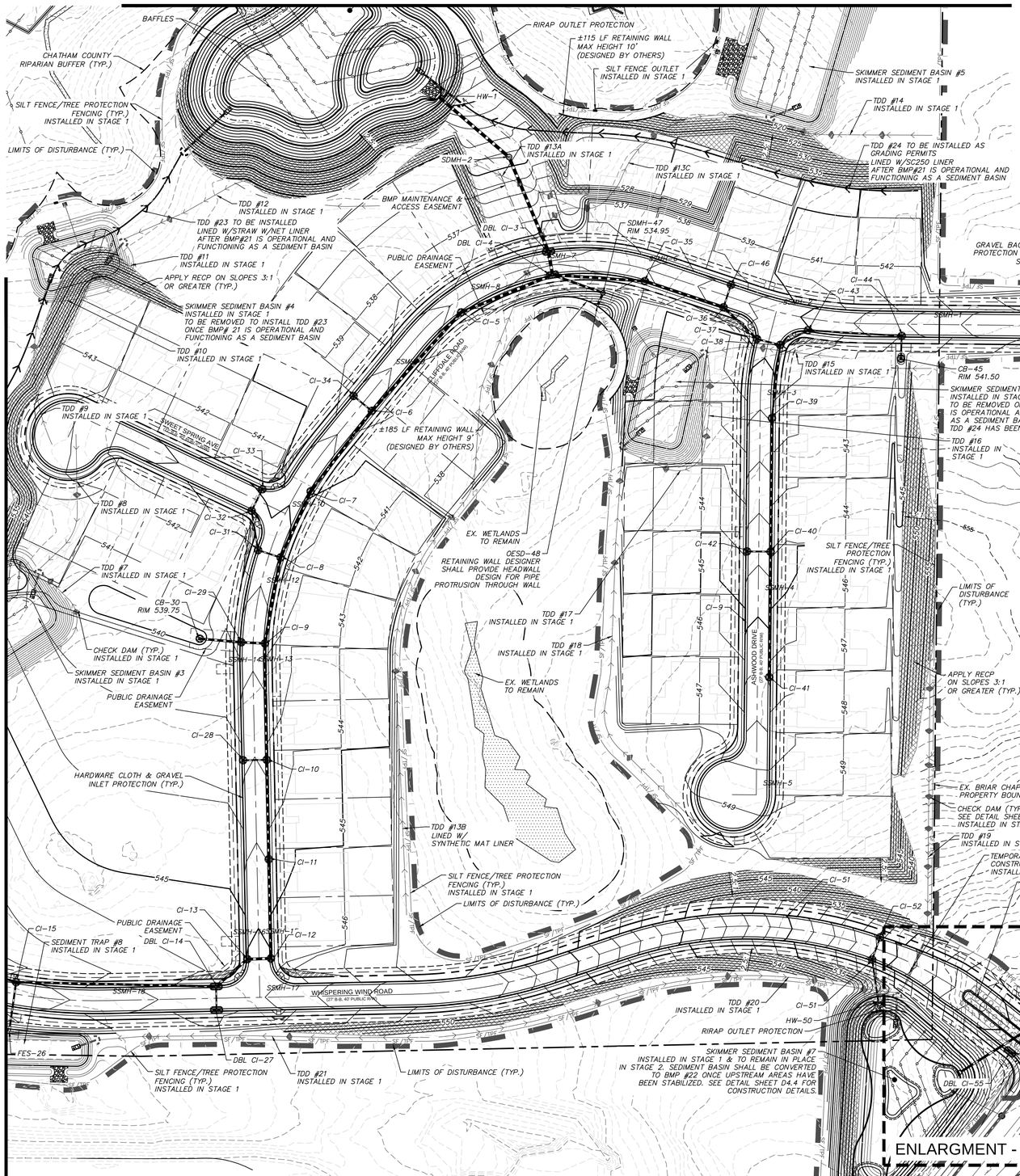
SCALE
HORIZONTAL: 1" = 60'
VERTICAL: N/A

M&C FILE NUMBER C3.3
DRAWING NUMBER C3.3

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION 4

MATCHLINE - THIS SHEET

MATCHLINE - SEE SHEET C3.3



NORTH

60' 0 60' 120'

SCALE: 1"=60' (Horiz.)

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LEGEND:

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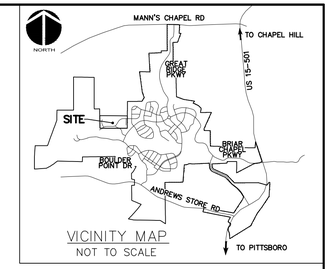
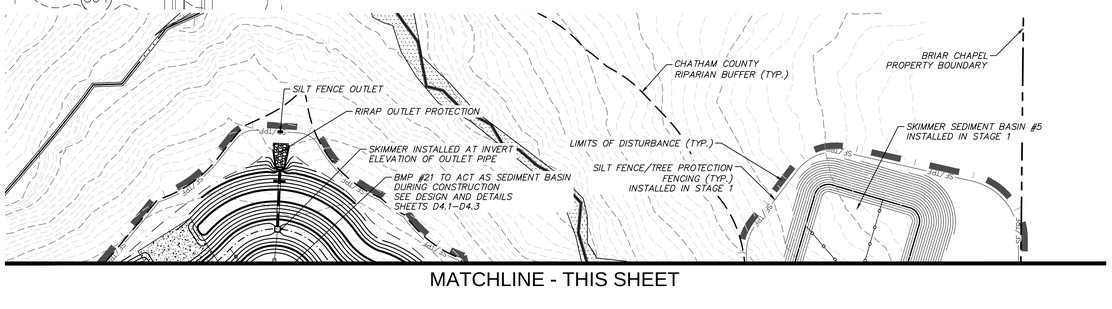
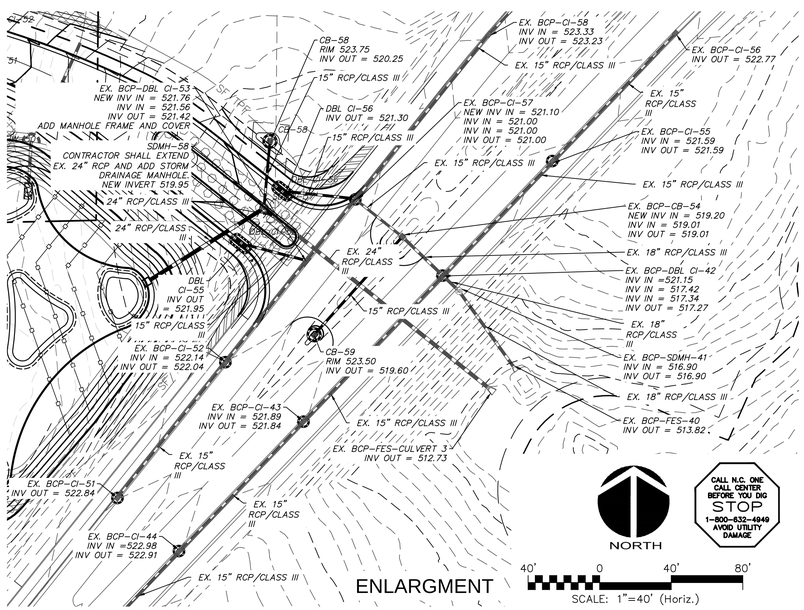


VICINITY MAP
NOT TO SCALE



ENLARGMENT - THIS SHEET

MATCHLINE - THIS SHEET



NORTH

CALL N.C. ONE CALL CENTER BEFORE YOU DIG STOP 1-800-632-4949 AVOID UTILITY DAMAGE

ENLARGMENT

40' 0 40' 80'

SCALE: 1"=40' (Horiz.)

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GRADING, DRAINAGE & STAGE 2 EROSION CONTROL PLAN

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MCE PROJ. #	02735-0130
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CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 60'
VERTICAL: N/A

M&C FILE NUMBER C3.3

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STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

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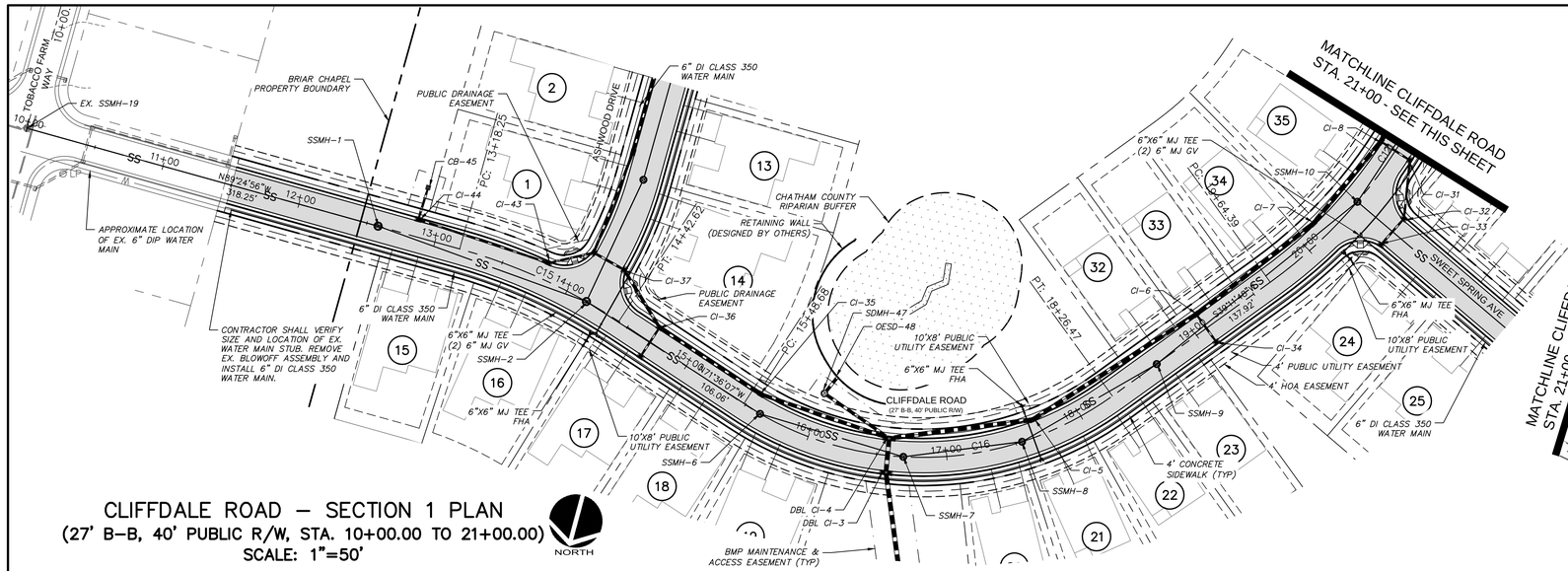
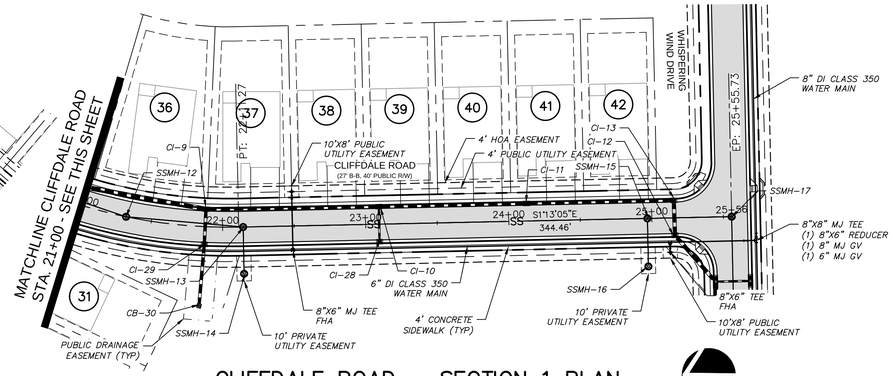


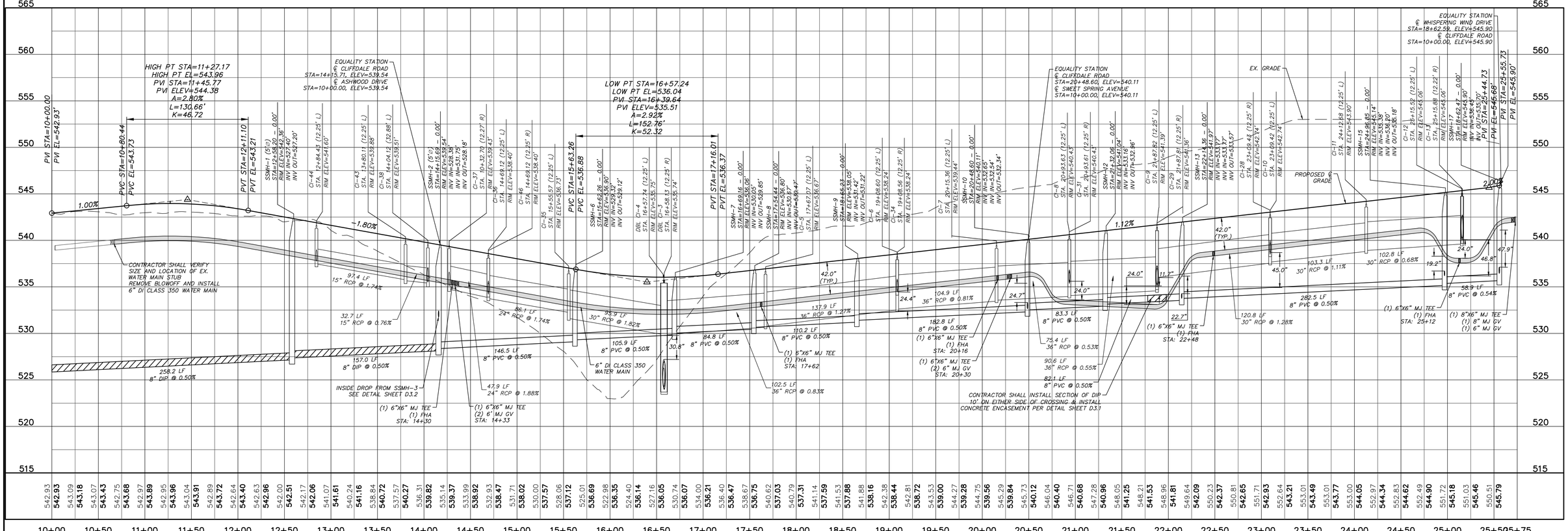
CLIFFDALE ROAD – SECTION 1 PLAN
(27' B–B, 40' PUBLIC R/W, STA. 10+00.00 TO 21+00.00)
SCALE: 1"=50'

NORTH



CLIFFDALE ROAD – SECTION 1 PLAN
(27' B–B, 40' PUBLIC R/W, STA. 21+00.00 TO 25+56.00)
SCALE: 1"=50'

NORTH



CLIFFDALE ROAD – PROFILE
(27' B–B, 40' PUBLIC R/W, STA. 10+00.00 TO 25+56)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

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2	REVISIONS PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.06.01
1	INITIAL SUBMITTAL	2015.05.01

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PLAN & PROFILE
CLIFFDALE ROAD
STA. 10+00.00 TO STA. 25+56

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'

M&C FILE NUMBER: C4.X
DRAWING NUMBER: C4.1

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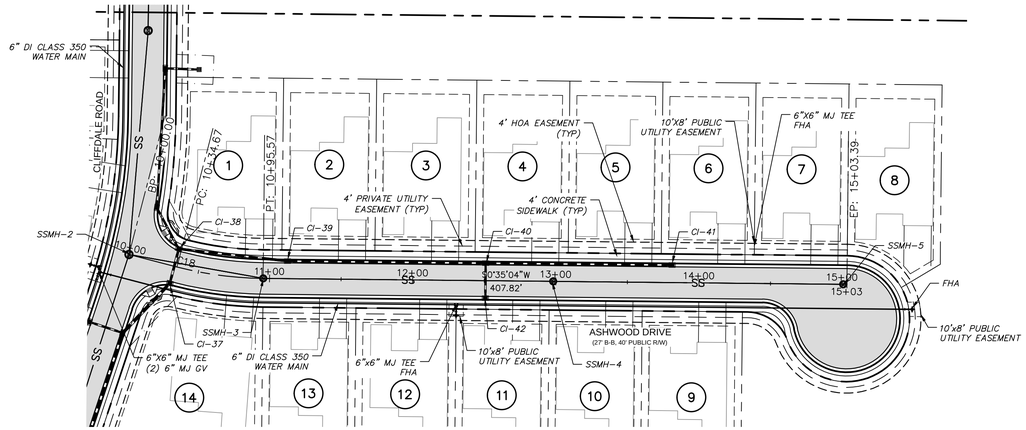
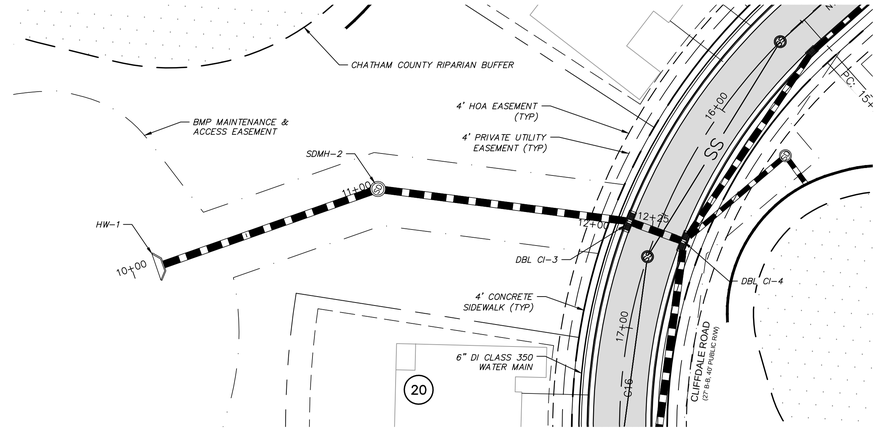


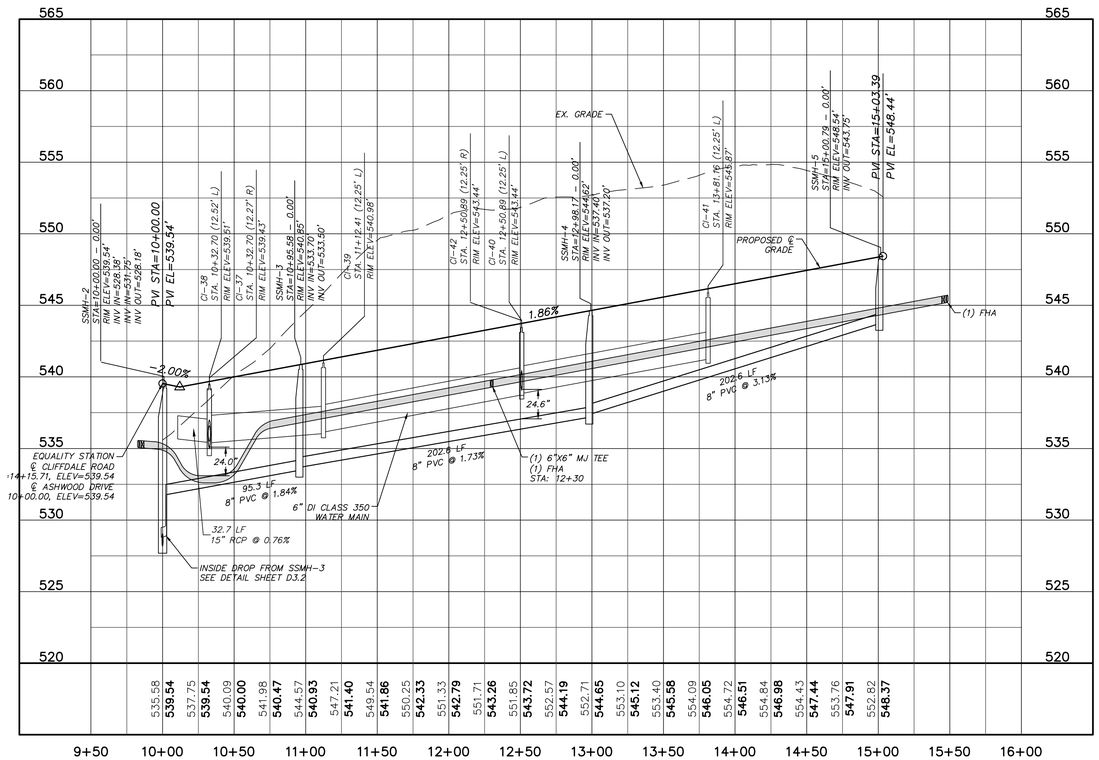
ASHWOOD DRIVE – SECTION 1 PLAN
(27' B–B, 40' PUBLIC R/W, STA. 10+00.00 TO 14+53.73)
SCALE: 1"=50'

NORTH

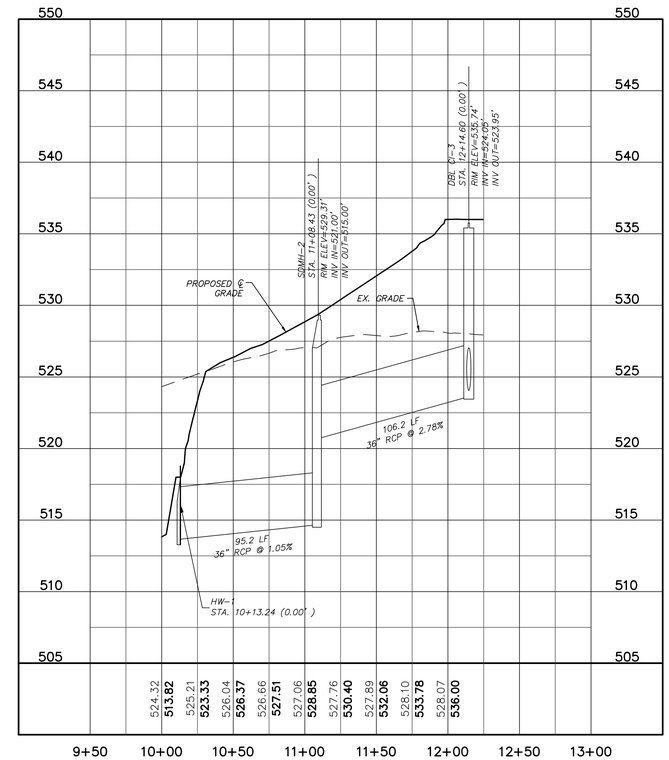


STORM DRAINAGE OUTFALL – PLAN
(STA. 10+00.00 TO 12+25)
SCALE: 1"=30'

NORTH



ASHWOOD DRIVE – SECTION 1 PROFILE
(27' B–B, 40' PUBLIC R/W, STA. 10+00.00 TO 14+53.73)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'



STORM DRAINAGE OUTFALL – PROFILE
(STA. 10+00.00 TO 12+25)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

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PLAN & PROFILE
ASHWOOD DRIVE
STORM DRAINAGE OUTFALL

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
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PROJ. MGR.	CHS

SCALE
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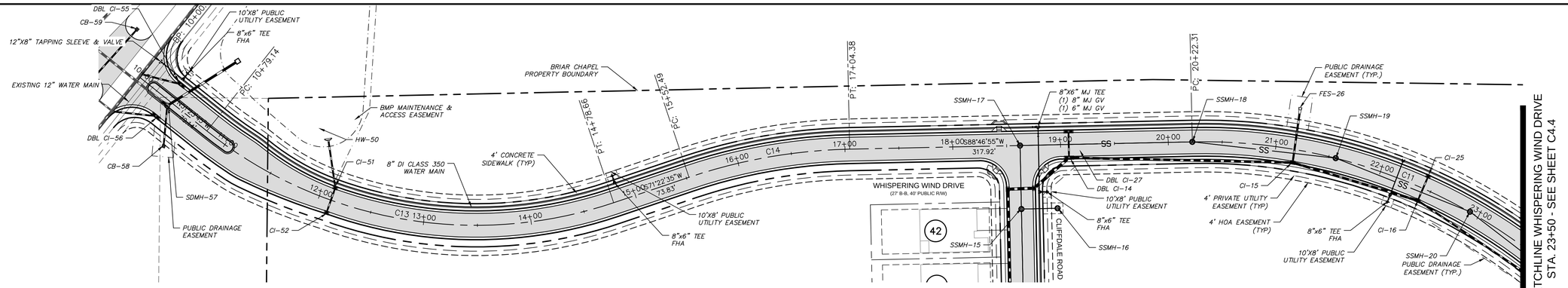
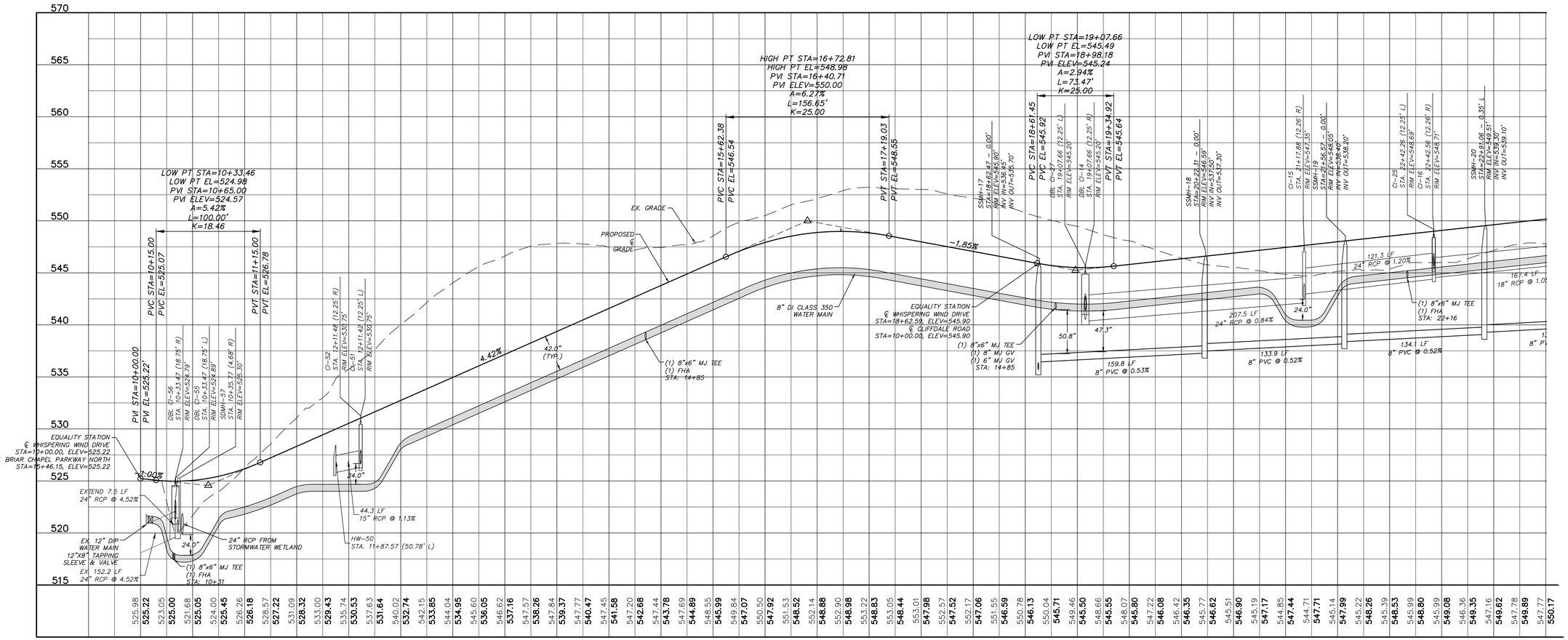


WHISPERING WIND DRIVE – SECTION 1 PLAN
(27' B–B, 40' PUBLIC R/W, STA. 10+00.00 TO 23+50.00)
SCALE: 1"=50'

NORTH



WHISPERING WIND DRIVE – SECTION 1 PROFILE
(27' B–B, 40' PUBLIC R/W, STA. 10+00.00 TO 23+50.00)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

REV.NO.	DESCRIPTIONS	DATE
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CHATHAM COUNTY, NORTH CAROLINA

PLAN & PROFILE
WHISPERING WIND DRIVE
STA. 10+00TO STA. 23+50

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
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PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'

M&C FILE NUMBER C4.X
DRAWING NUMBER C4.3

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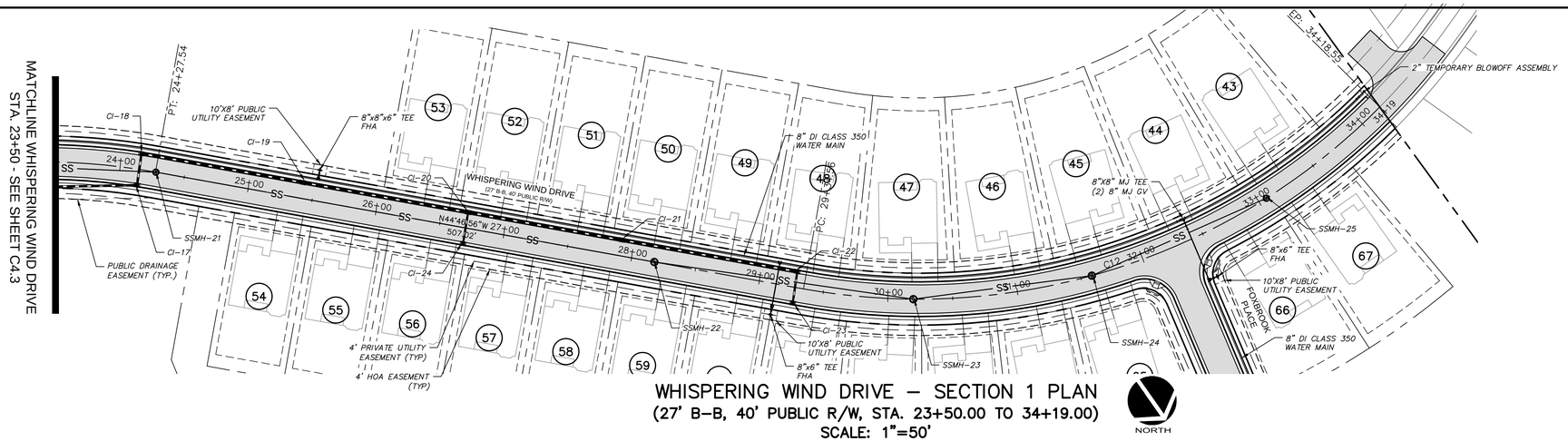
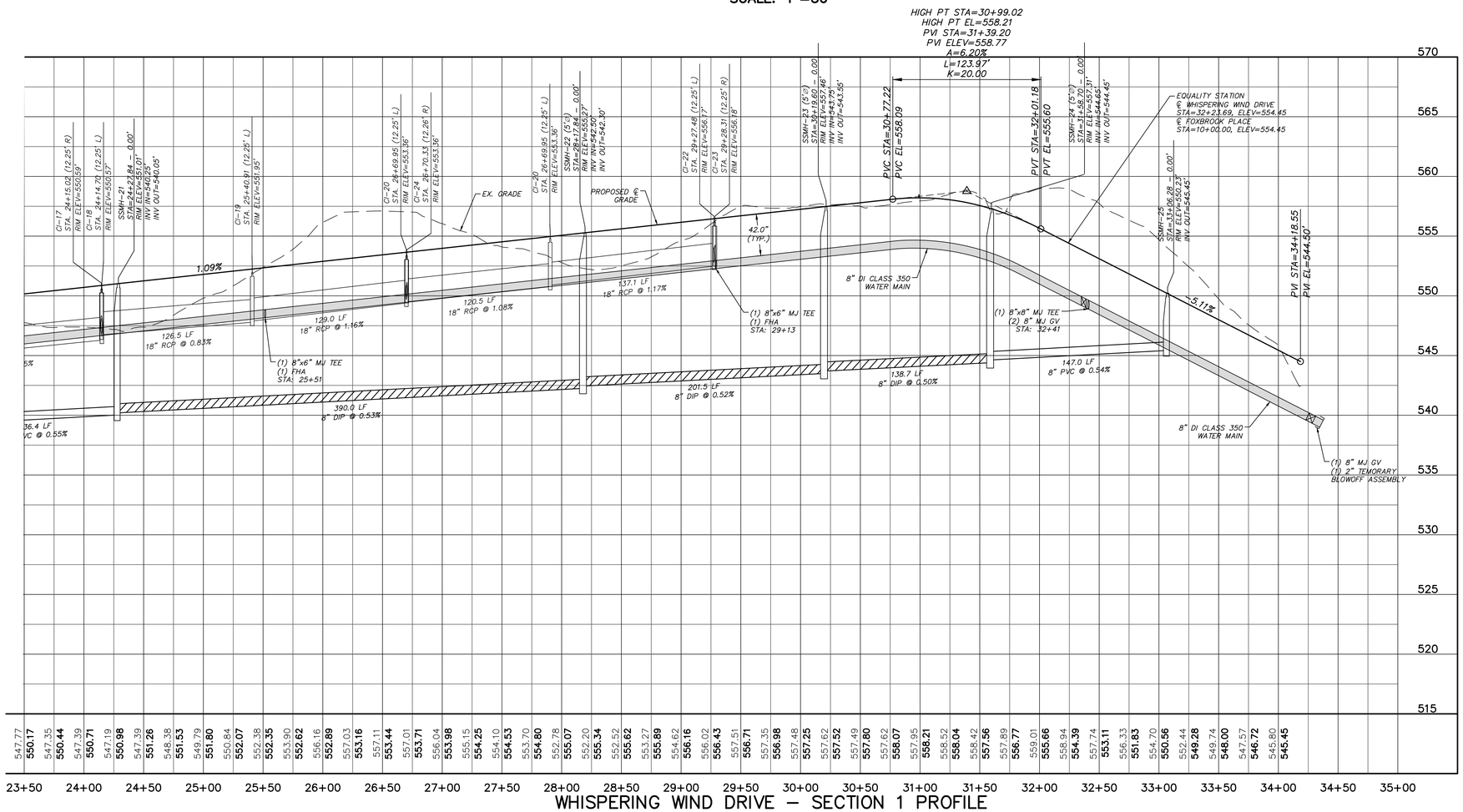


WHISPERING WIND DRIVE – SECTION 1 PLAN
(27' B–B, 40' PUBLIC R/W, STA. 23+50.00 TO 34+19.00)
SCALE: 1"=50'



WHISPERING WIND DRIVE – SECTION 1 PROFILE
(27' B–B, 40' PUBLIC R/W, STA. 23+50.00 TO 34+19.00)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

REV.NO.	DESCRIPTIONS	DATE
4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
3	REVISIONS PER COMMENTS FROM CHATHAM COUNTY AND NCDOT	2015.07.01
2	REVISIONS PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.06.01
1	INITIAL SUBMITTAL	2015.05.01

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT
07/22/2015

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1730 Varsity Drive, Suite 500
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BRIAR CHAPEL™ by Newland COMMUNITIES

BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

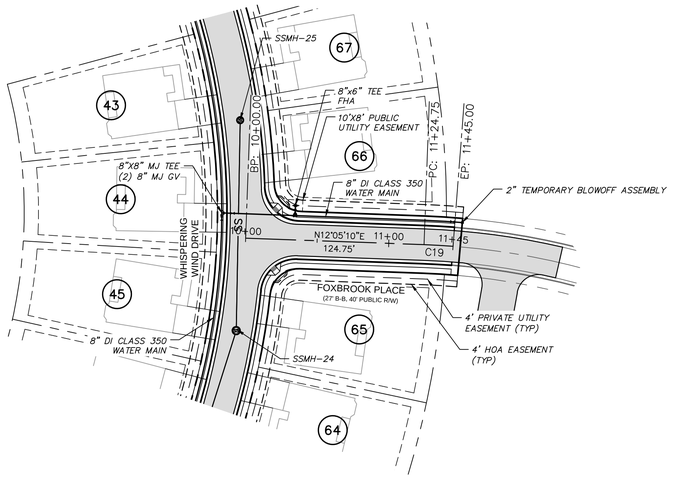
PLAN & PROFILE
WHISPERING WIND DRIVE
STA. 23+50 TO STA. 34+20

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'

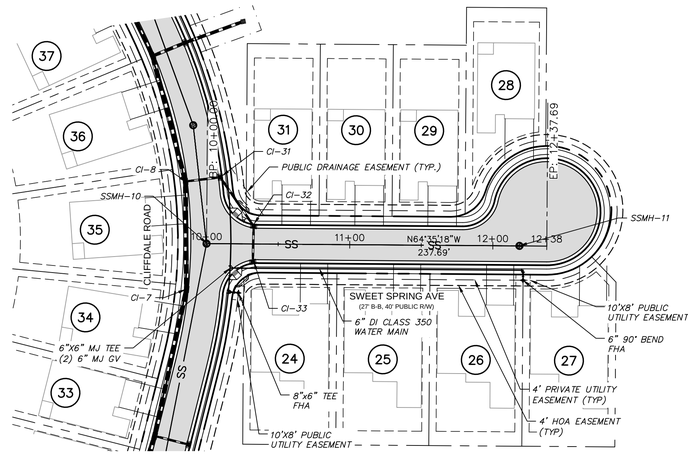
M&C FILE NUMBER: C4.X
DRAWING NUMBER: C4.4

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 4



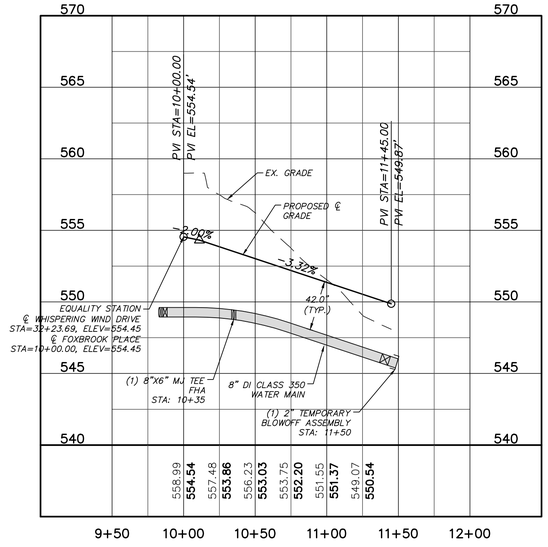
FOXBROOK PLACE PLAN
(27' B–B, 40' PUBLIC R/W, STA. 10+00.00 TO 11+45.00)
SCALE: 1"=50'

NORTH

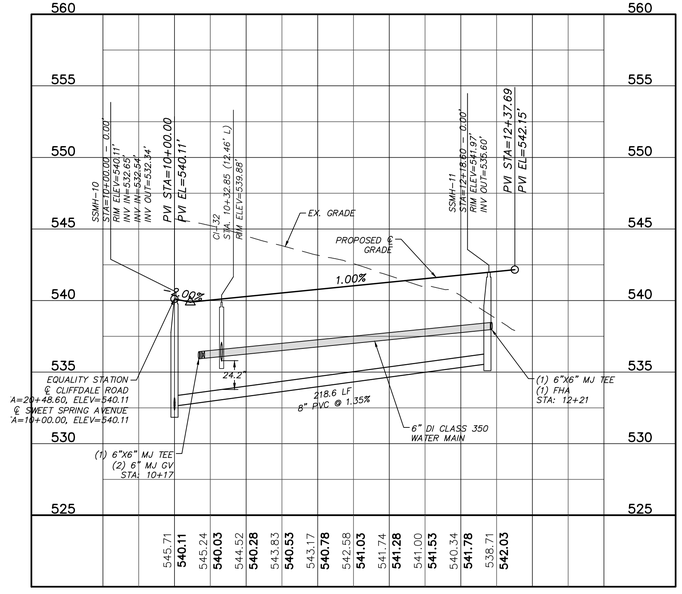


SWEET SPRING AVENUE – PROFILE
(27' B–B, 40' PUBLIC R/W, STA. 10+00.00 TO 12+38.00)
SCALE: 1"=50'

NORTH



FOXBROOK PLACE PROFILE
(27' B–B, 40' PUBLIC R/W, STA. 10+00.00 TO 11+45.00)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'



SWEET SPRING AVENUE – PROFILE
(27' B–B, 40' PUBLIC R/W, STA. 10+00.00 TO 12+38.00)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

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BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

PLAN & PROFILE
FOXBROOK PLACE
SWEET SPRING AVENUE

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'

M&C FILE NUMBER: C4.X
DRAWING NUMBER: C4.5

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

REVISION 4

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE

SPECIES	RATE (lb/acre)
TALL FESCUE	80
KOBE LESPEDEZA	40

NURSE PLANTS:
BETWEEN MAY 1 AND AUG. 15, ADD 10 lb/acre GERMAN MILLET OR 15 lb/acre SUDANGRASS. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 lb/ac RYE (GRAIN)

SEEDING DATES:

	BEST	POSSIBLE
FALL	AUG. 15 – SEPT. 15	AUG. 20 – OCT. 25
LATE WINTER:	FEB. 15 – MAR. 21	FEB. 1 – APR. 15.

FALL IS BEST FOR TALL FESCUE AND LATER WINTER FOR LESPEDEZAS. OVERSEEDING OF KOBE LESPEDEZA OVER FALL–SEEDED TALL FESCUE IS VERY EFFECTIVE.

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10–10–10 FERTILIZER

MULCH:
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REFERTILIZE IN THE SECOND YEAR UNLESS GROWTH IS FULLY ADEQUATE. MAY BE MOWED ONCE OR TWICE A YEAR, BUT MOWING IS NOT NECESSARY. RESEED, FERTILIZE AND MULCH DAMAGED AREAS IMMEDIATELY.

RECOMMENDATIONS FOR GRASS–LINED CHANNELS

SEEDING MIXTURE

SPECIES	RATE (lb/acre)
TALL FESCUE	200

NURSE PLANTS:
BETWEEN MAY 1 AND AUG. 15, ADD 10 lb/acre SUDANGRASS OR 15 lb/acre GERMAN MILLET. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 lb/ac RYE (GRAIN)

SEEDING DATES:
BEST: AUG. 25 – OCT.
POSSIBLE: FEB. – APR. 15

AVOID SEEDING FROM NOV. TO JAN. IF SEEDING MUST BE DONE AT THIS TIME, ADD 40 lb/acre RYE GRAIN AND USE A CHANNEL LINING THAT OFFERS MAXIMUM PROTECTION

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 4,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 1,000 lb/acre 10–10–10 FERTILIZER

MULCH:
USE ROLLED EROSION CONTROL PRODUCT TO COVER THE BOTTOM OF THE CHANNELS AND DITCHES, AND STAPLE SECURELY. THE LINING SHOULD EXTEND ABOVE THE HIGHEST CALCULATED DEPTH OF FLOW. ON CHANNEL SIDE SLOPES ABOVE THIS HEIGHT, AND IN DRAINAGES NOT REQUIRING TEMPORARY LININGS, APPLY 4,000 lb/acre GRAIN STRAW, AND ANCHOR STRAW BY STAPLING NETTING OVER THE TOP.

MULCH AND ANCHORING MATERIALS MUST NOT BE ALLOWED TO WASH DOWN SLOPES WHERE THEY CAN CLOG DRAINAGE DEVICES.

MAINTENANCE:
INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE IN LATE WINTER OF THE FOLLOWING YEAR; USE SOIL TESTS OR APPLY 150 lb/acre 10–10–10. MOW REGULARLY TO A HEIGHT OF 2–4 INCHES.

NOTE:
SEE NCDENR'S EROSION AND SEDIMENT CONTROL PLANNING DESIGN MANUAL SECTION 6.11 FOR ADDITIONAL PERMANENT SEEDING OPTIONS.

PERMANENT SEEDING SCHEDULE
NTS

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2. RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW*).
5. CONTINUE TILLAGE UNTIL A WELL – PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
9. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

* APPLY: AGRICULTURAL LIMESTONE – 2 TONS/ACRE OR 3 TONS/ACRE IN CLAY SOILS
FERTILIZER – 1000 LBS/ACRE (10–10–10)
SUPERPHOSPHATE – 500 LBS/ACRE (20%)
MULCH – 2 TONS/ACRE (SMALL GRAIN STRAW)ANCHOR – ASPHALT EMULSION AT 450 GAL./ACRE

SEEDBED PREPARATION
NTS

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE

SPECIES	RATE (lb/acre)
RYE (GRAIN)	120
ANNUAL LESPEDEZA (KOBE IN PIEDMONT & COASTAL PLAIN, KOREAN IN MOUNTAINS	50

OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE

SEEDING DATES:

MOUNTAINS	(ABOVE 2,500'):	FEB. 15 – MAY 15
	(BELOW 2,500'):	FEB. 1 – MAY 1
PIEDMONT:		JAN. 1 – MAY 1
COASTAL PLAIN:		DEC. 1 – APR. 15

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10–10–10 FERTILIZER

MULCH:
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

RECOMMENDATIONS FOR SUMMER

SEEDING MIXTURE

SPECIES	RATE (lb/acre)
GERMAN MILLET	40

IN THE PIEDMONT AND MOUNTAINS, A SMALL–STEMMED SUDANGRASS MAY BE SUBSTITUTED AT A RATE OF 50 lb/acre.

SEEDING DATES:

MOUNTAINS	MAY 15 – AUG. 15
PIEDMONT:	MAY 1 – AUG. 15
COASTAL PLAIN:	APR. 15 – AUG. 15

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10–10–10 FERTILIZER

MULCH:
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

RECOMMENDATIONS FOR FALL

SEEDING MIXTURE

SPECIES	RATE (lb/acre)
RYE (GRAIN)	120

SEEDING DATES:

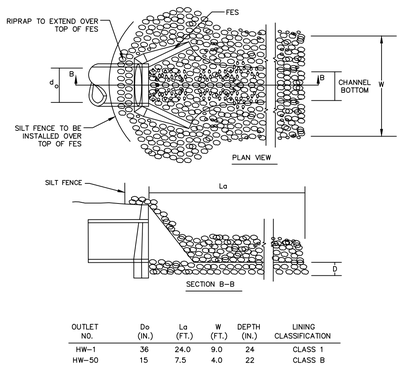
MOUNTAINS:	AUG. 15 – DEC. 15
COASTAL PLAIN AND PIEDMONT:	AUG. 15 – DEC. 30

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10–10–10 FERTILIZER

MULCH:
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOPDRESS WITH 50 lb/acre OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 lb/acre KOBE (PIEDMONT AND COASTAL PLAIN) OR KOREAN (MOUNTAINS) LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

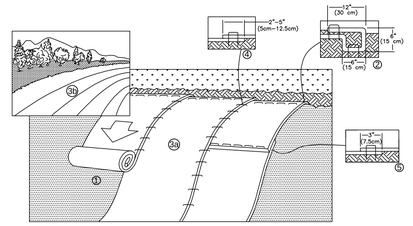
TEMPORARY SEEDING SCHEDULE
NTS



OUTLET NO.	Do (IN.)	La (FT.)	W (FT.)	DEPTH (IN.)	LINING CLASSIFICATION
HW–1	36	24.0	9.0	24	CLASS 1
HW–50	15	7.5	4.0	22	CLASS B

STONE CLASSIFICATIONS OF CLASS B REQUIRE A SUBLAYER OF FILTER FABRIC OR FS–2 FILTER STONE WITH A BEDDING THICKNESS OF 6".

RIPRAP OUTLET PROTECTION
NTS



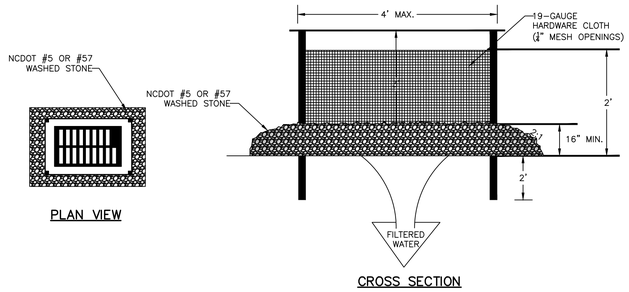
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECPS EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPS WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECPS BACK OVER SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECPS.
3. ROLL THE RECPS (A.) DOWN (FOR SLOPES 3:1 OR GREATER) OR (B.) HORIZONTALLY (FOR SLOPES LESS THAN 3:1) ACROSS THE SLOPE. RECPS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECPS MUST BE STAPLED WITH APPROXIMATELY 2" –5" (5 CM –12.5 CM) OVERLAP DEPENDING ON RECP'S TYPE.
5. CONSECUTIVE RECPS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP'S WIDTH.

NOTE: *IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECPS.

TEMPORARY STABILIZATION FOR SLOPES GREATER THAN 10 FEET
NTS

NOTES:

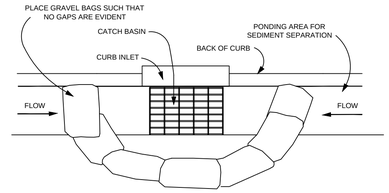
1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5–FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
3. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM. PLACING A 2–FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. PLACE CLEAN GRAVEL (NC DOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.
5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
6. COMPACT THE AREA PROPERLY AND STABILIZED IT WITH GROUNDCOVER.

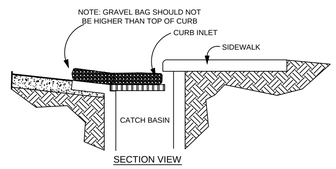


HARDWARE CLOTH & GRAVEL INLET PROTECTION
NTS

NOTES:

1. PLACE GRAVEL BAG BARRIER ON GENTLY SLOPING STREET, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNNOFF.
2. USE SAND BAGS OF WOVEN GEOTEXTILE FABRIC (NOT BURLAP) AND FILL WITH ¾ INCH (OR SMALLER) GRAVEL. BAGS MUST BE LAYERED SUCH THAT NO GAPS ARE EVIDENT.
3. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.
4. WHEN INSTALLING CURB INLET PROTECTION DEVICES, **NEVER** BLOCK THE CURB INLET.





GRAVEL BAG CURB INLET PROTECTION
NTS

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US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

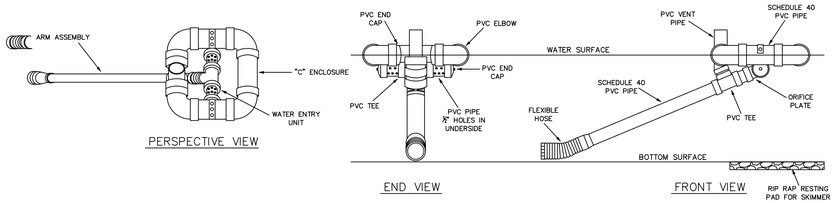
EROSION AND SEDIMENTION CONTROL DETAILS

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: AS NOTED
VERTICAL: N/A

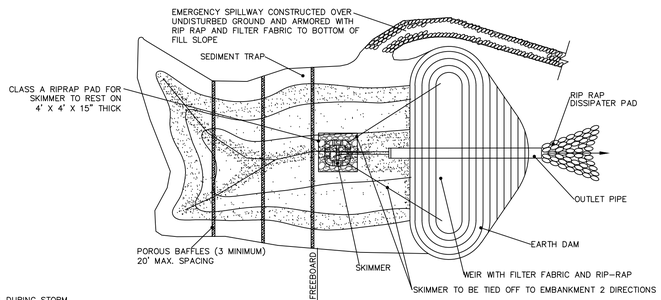
M&C FILE NUMBER D1.X
DRAWING NUMBER D1.1

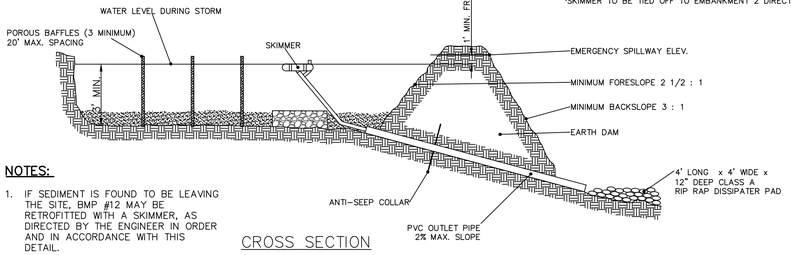
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION 4



SKIMMER DETAIL

PLAN VIEW





CROSS SECTION

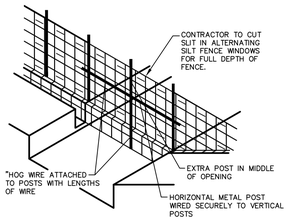
NOTES:

1. IF SEDIMENT IS FOUND TO BE LEAVING THE SITE, BMP #12 MAY BE RETROFITTED WITH A SKIMMER, AS DIRECTED BY THE ENGINEER IN ORDER AND IN ACCORDANCE WITH THIS DETAIL.
2. ANY EXISTING SKIMMER SEDIMENT BASINS PREVIOUSLY APPROVED SHALL MAINTAINED PER THEIR ORIGINAL DIMENSIONS AND IN ACCORDANCE WITH THIS DETAIL.

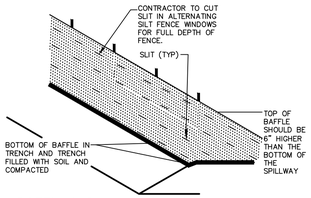
TEMPORARY SKIMMER SEDIMENT BASIN

NTS

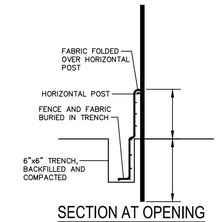
BASIN #	DISTURBED AREA (ac)	TOTAL DRAINAGE AREA (ac)	REQUIRED STORAGE	REQUIRED SURFACE AREA	MINIMUM DEPTH	BOTTOM ELEVATION	TOP WIDTH	TOP LENGTH	PROVIDED STORAGE	PROVIDED SURFACE AREA	STORAGE/ SPILLWAY ELEVATION	SPILLWAY WIDTH	TOP OF DAM ELEVATION	SKIMMER SIZE	SKIMMER ORIFICE DIAMETER
1	1.76	1.76	6,340 CF	2,850 SF	3.5'	534.5'	43'	78'	6,825 CF	2,183 SF	538.0'	8.0'	540.0'	2.0"	1.6"
2	3.31	3.31	11,920 CF	5,370 SF	3.5'	534.5'	63'	113'	17,500 CF	7,936 SF	538.0'	14.0'	540.0'	2.5"	2.4"
3	6.28	6.28	22,610 CF	10,190 SF	3.0'	531.0'	82'	152'	29,400 CF	14,104 SF	534.0'	26.0'	536.0'	4.0"	2.8"
4	2.32	2.62	8,350 CF	3,760 SF	3.5'	522.5'	48'	86'	8,943 CF	10,508 SF	526.0'	10.0'	528.0'	2.0"	1.8"
5	6.00	8.90	21,600 CF	14,440 SF	4.0'	511.0'	91'	174'	49,280 CF	15,660 SF	514.0'	37.0'	516.0'	4.0"	3.6"
6	3.09	3.09	11,120 CF	5,010 SF	3.0'	530.0'	57'	102'	12,150 CF	10,138 SF	533.0'	13.0'	535.0'	2.5"	2.0"
7	1.81	1.81	6,520 CF	2,940 SF	3.5'	525.0'	PER PLAN		52,073 CF	13,266 SF	528.0'	N/A	530.0'	4.0"	3.7"
BMP #21	16.02	18.92	57,670 CF	22,470 SF	5.0'	508.0'	PER PLAN		92,565 CF	25,170 SF	515.0'	40.0'	520.0'	5.0"	4.9"



BAFFLE INSTALLATION - STEP 1



BAFFLE INSTALLATION - STEP 2

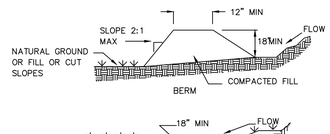


SECTION AT OPENING

NOTES:

1. DRIVE STEEL FENCE POST AT LEAST 18" INTO SOLID GROUND
2. WOOD POSTS ARE NOT ACCEPTABLE
3. USE STAPLES 1' APART TO ATTACH FABRIC TO "HOG WIRE"
4. BAFFLE SPACED AS PER APPROVED PLAN.

BAFFLE INSTALLATION DETAIL



NOTES:

POSITIVE GRADE MUST BE PROVIDED TO ASSURE DRAINAGE. IF SLOPE EXCEEDS 2%, SEED AND MULCH DIVERSION. TRY NOT TO EXCEED 5% MAXIMUM D.A.= 5 ACRES WITHOUT SUPPORTING CALCS.. DIVERSIONS AT THE TOP OF SLOPES MUST EMPTY INTO AN APPROVED SLOPE DRAIN. BERM/DITCH IS MOST COMMONLY USED.

a. MACHINE COMPACTION OF ALL FILL IS REQUIRED. DIVERSIONS SUFFICIENT TO DIRECT ALL SEDIMENT- LADEN STORMWATER INTO A SEDIMENT CONTROL DEVICE MUST BE INSTALLED PRIOR TO CLEARING AND GRUBBING OF THE AREA (OR IN CONJUNCTION WITH THIS OPERATION) IF SEDIMENT CONTROLS AND DIVERSIONS ARE INSTALLED AS EACH CRITICAL POINT IS REACHED).
b. DIVERSIONS SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION OPERATIONS.
c. DIVERSIONS SHOULD BE SEEDED AND MULCHED IF THEY ARE TO REMAIN IN PLACE OVER 30 DAYS.
d. CHECK DEVICE AFTER EACH RAIN, BUT ONCE A WEEK REGARDLESS. REPAIR AS NECESSARY.

MAINTENANCE

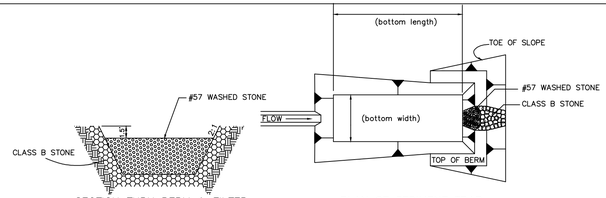
1. INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.

2. ALL TEMPORARY DIVERSION AND CLEAN WATER DITCHES SHALL BE MAINTAINED PER THEIR ORIGINAL DESIGN DIMENSIONS DURING CONSTRUCTION ACTIVITIES. ANY DITCHES THAT REQUIRE REMOVAL OR RELOCATION SHALL RECEIVE APPROVAL FROM CHATHAM COUNTY EROSION CONTROL INSPECTOR.

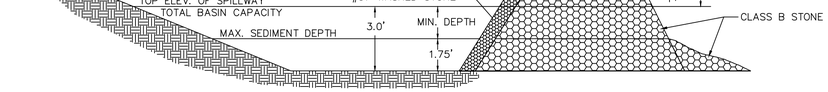
TDD #	TOTAL LENGTH	SLOPE (%)	LINER	RECEIVING SLOPE DRAIN SIZE (IN.)
STAGE 1 DIVERSIONS				
1	423'	2.6	STRAW W/NET	24
2	92'	7.6	STRAW W/NET	24
3	131'	5.3	SYNTHETIC MAT	24
4	431'	0.7	STRAW W/NET	24
5	312'	2.2	STRAW W/NET	24
6	186'	4.6	SYNTHETIC MAT	30
7	116'	7.3	SC250	24
8	153'	1.3	STRAW W/NET	24
9	150'	4.0	STRAW W/NET	15
10	80'	1.3	STRAW W/NET	15
11	44'	9.1	SC250	18
12	337'	2.1	STRAW W/NET	18
13A	133'	7.2	STRAW W/NET	N/A
13B	793'	3.9	SYNTHETIC MAT	N/A
13C	233'	1.7	STRAW W/NET	30
14	166'	7.8	SC250	30
15	235'	3.6	STRAW W/NET	18
16	99'	8.6	STRAW W/NET	18
17	86'	7.0	SYNTHETIC MAT	24
18	446'	2.6	STRAW W/NET	24
19	340'	7.4	SC250	24
20	482'	4.1	STRAW W/NET	24
21	349'	2.6	STRAW W/NET	18
22	198'	2.5	STRAW W/NET	12
STAGE 2 DIVERSIONS				
23	359'	1.7	STRAW W/NET	24
24	484'	3.1	SC250	30

TEMPORARY DIVERSION/CLEAN WATER DIVERSION DITCH

NTS



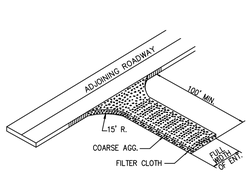
TRAP #	DISTURBED AREA (ac)	TOTAL DRAINAGE AREA (ac)	REQUIRED STORAGE	REQUIRED SURFACE AREA	MINIMUM DEPTH	BOTTOM ELEVATION	TOP WIDTH	TOP LENGTH	PROVIDED STORAGE	PROVIDED SURFACE AREA	STORAGE/ SPILLWAY ELEVATION	SPILLWAY WIDTH	TOP OF DAM ELEVATION
1	2.25	2.25	8,100 CF	3,970 SF	3.5'	539.5'	33'	129'	8,120 CF	4,257 SF	543.0'	10.0'	545.0'



SECTION THRU SEDIMENT TRAP

TEMPORARY SEDIMENT TRAP

NTS



A. COARSE AGGREGATE (2"-3" STONE) SHALL BE USED. PAD TO BE 100'L X 25'W X 6"D MIN. PLACE A MINIMUM OF 3" OF STONE IN A CUT SECTION TO HELP SECURE FILTER CLOTH.

B. TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS IS TO BE PROVIDED.

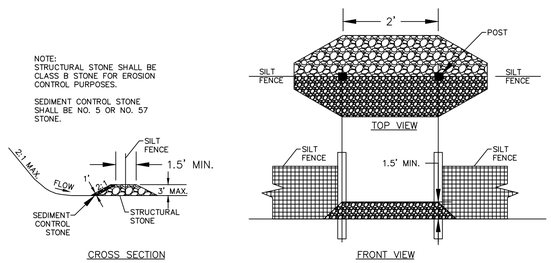
C. ENTRANCES SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES.

D. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOP DRESSING MAY BE NECESSARY. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

E. TEMPORARY PADS MUST BE LOCATED ON EACH SIDE OF ADJOINING ROADWAY.

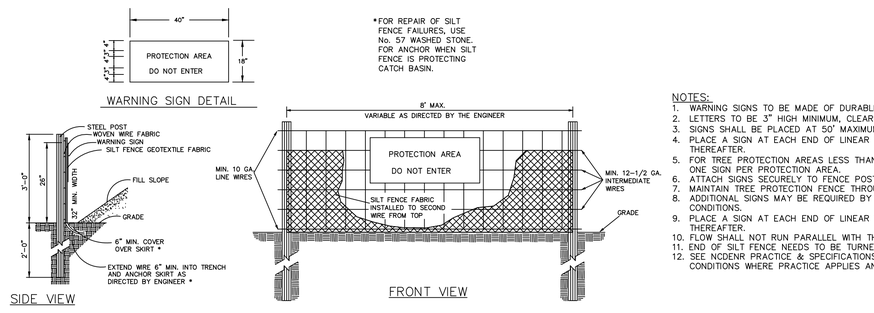
TEMPORARY CONSTRUCTION ENTRANCE

NTS



SILT FENCE OUTLET

NTS



NOTES:

1. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL.
2. LETTERS TO BE 3" HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
3. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS.
4. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.
5. FOR TREE PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA.
6. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
7. MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.
8. ADDITIONAL SIGNS MAY BE REQUIRED BY CHATHAM COUNTY BASED ON ACTUAL FIELD CONDITIONS.
9. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER.
10. FLOW SHALL NOT RUN PARALLEL WITH THE FENCE.
11. END OF SILT FENCE NEEDS TO BE TURNED UPHILL.
12. SEE NCDENR PRACTICE & SPECIFICATIONS MANUAL SEDIMENTS FENCE SECTION FOR CONDITIONS WHERE PRACTICE APPLIES AND DESIGN CRITERIA.

COMBINATION SILT/TREE PROTECTION FENCE

NTS

REV.NO.	DESCRIPTIONS	DATE
4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
3	REVISIONS PER COMMENTS FROM CHATHAM COUNTY AND NCDOT	2015.07.01
2	REVISIONS PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.06.01
1	INITIAL SUBMITTAL	2015.05.01

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT
07/22/2015

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BRIAR CHAPEL™
by Newland COMMUNITIES

BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

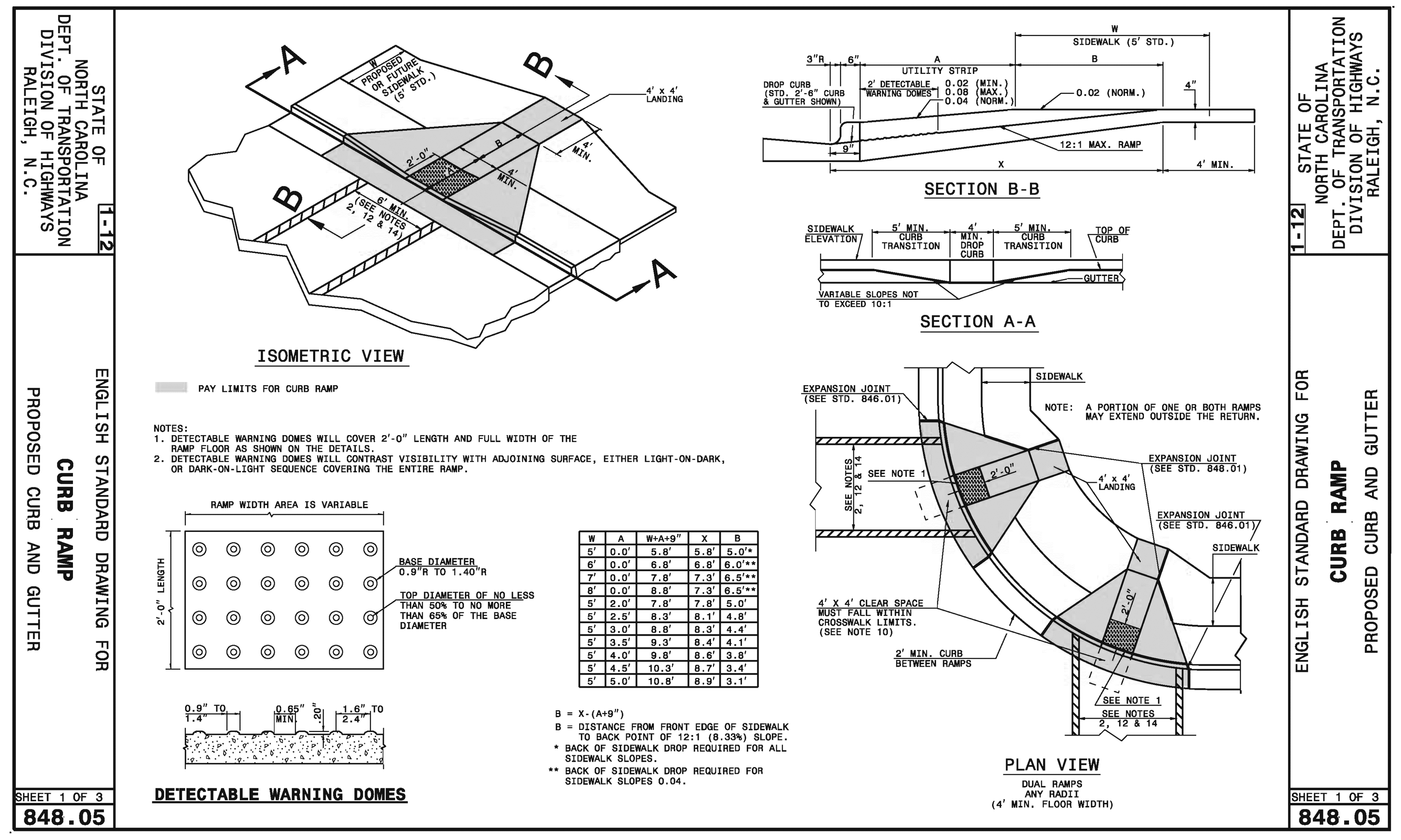
EROSION AND SEDIMENTION CONTROL DETAILS

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

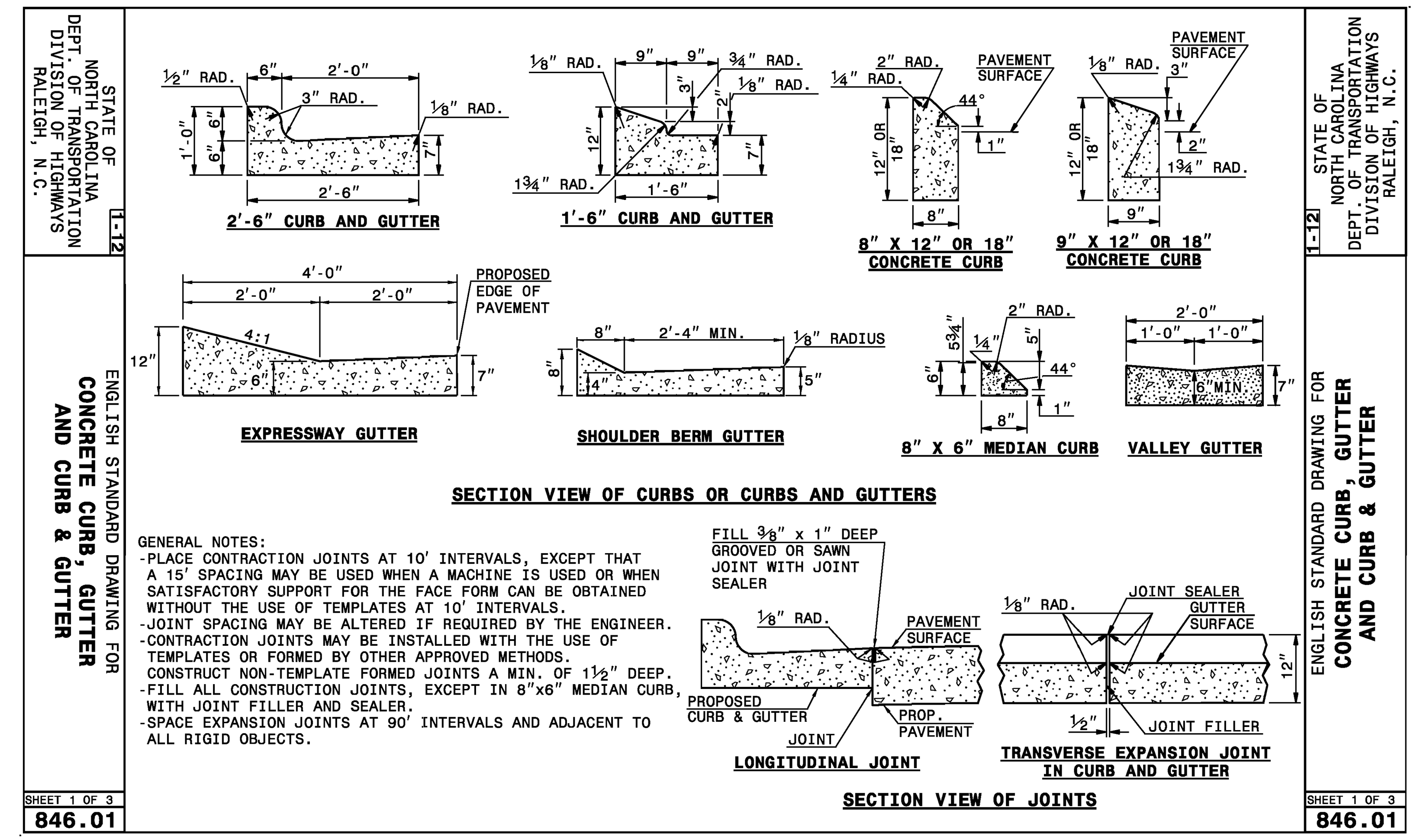
SCALE
HORIZONTAL: AS NOTED
VERTICAL: N/A

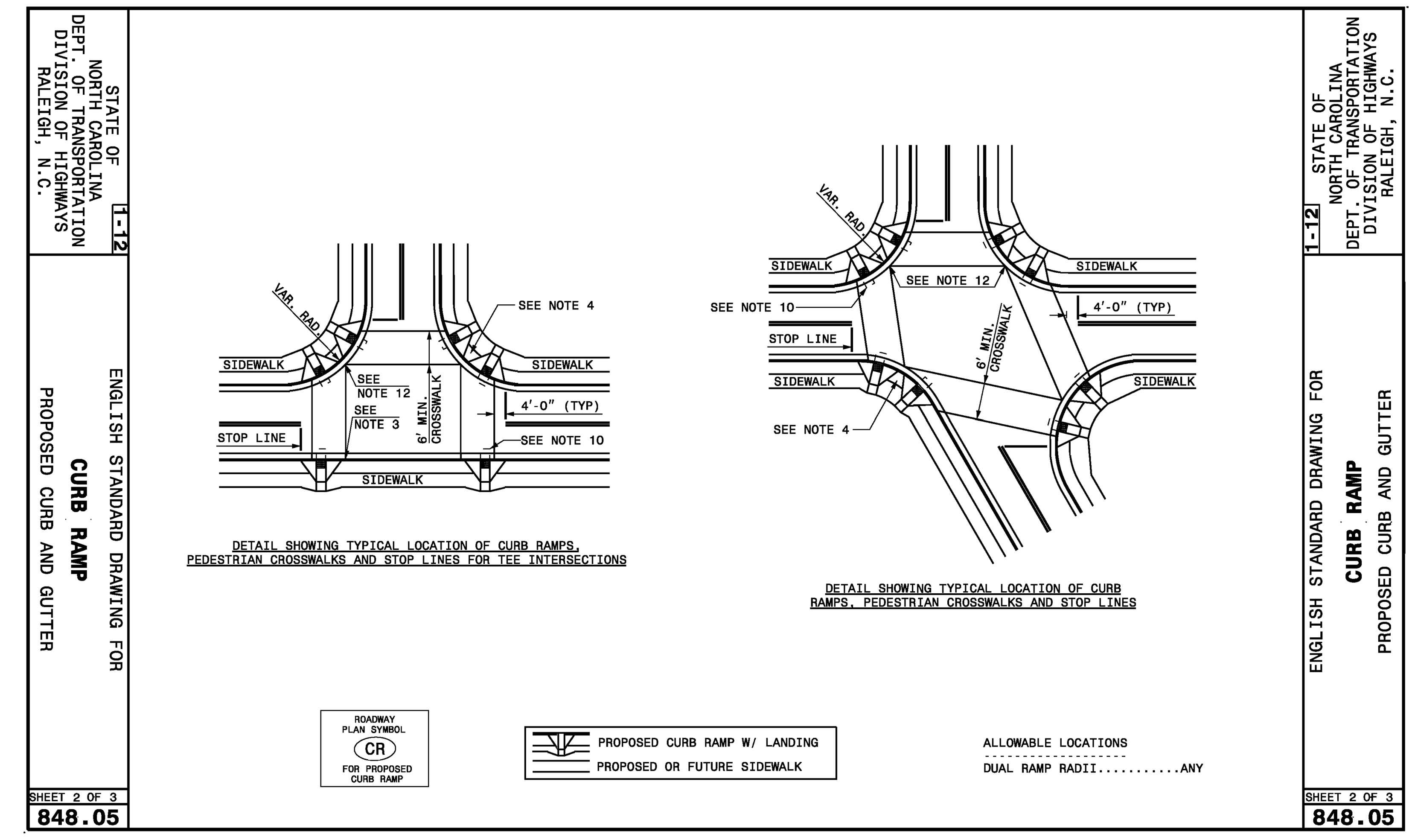
M&C FILE NUMBER D1.X
DRAWING NUMBER D1.2

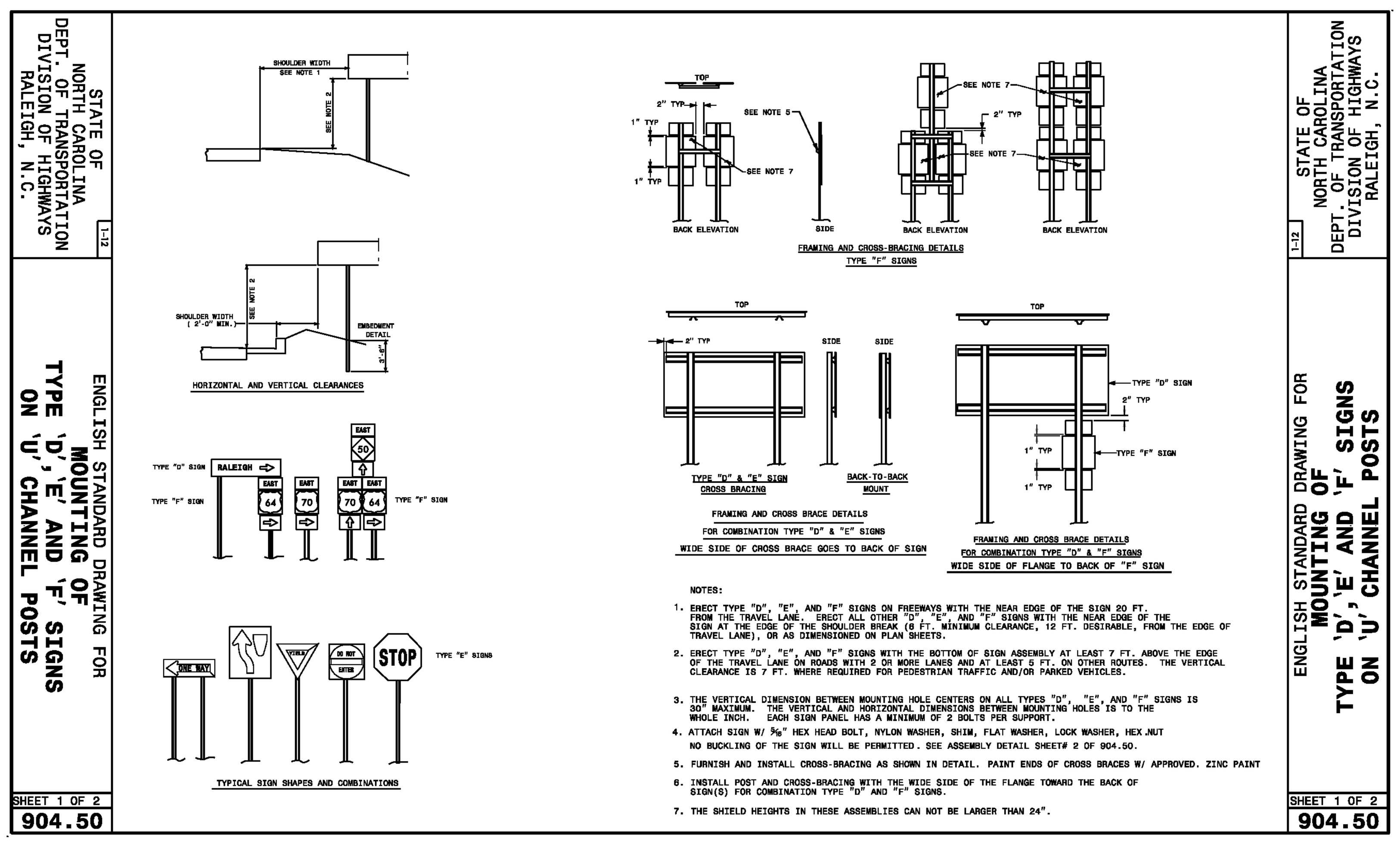
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION 4



W	A	W+A+9"	X	B
5'	0.0'	5.8'	5.8'	5.0'*
6'	0.0'	6.8'	6.8'	6.0'**
7'	0.0'	7.8'	7.3'	6.5'**
8'	0.0'	8.8'	7.3'	6.5'**
5'	2.0'	7.8'	7.8'	5.0'
5'	2.5'	8.3'	8.1'	4.8'
5'	3.0'	8.8'	8.3'	4.4'
5'	3.5'	9.3'	8.4'	4.1'
5'	4.0'	9.8'	8.6'	3.8'
5'	4.5'	10.3'	8.7'	3.4'
5'	5.0'	10.8'	8.9'	3.1'







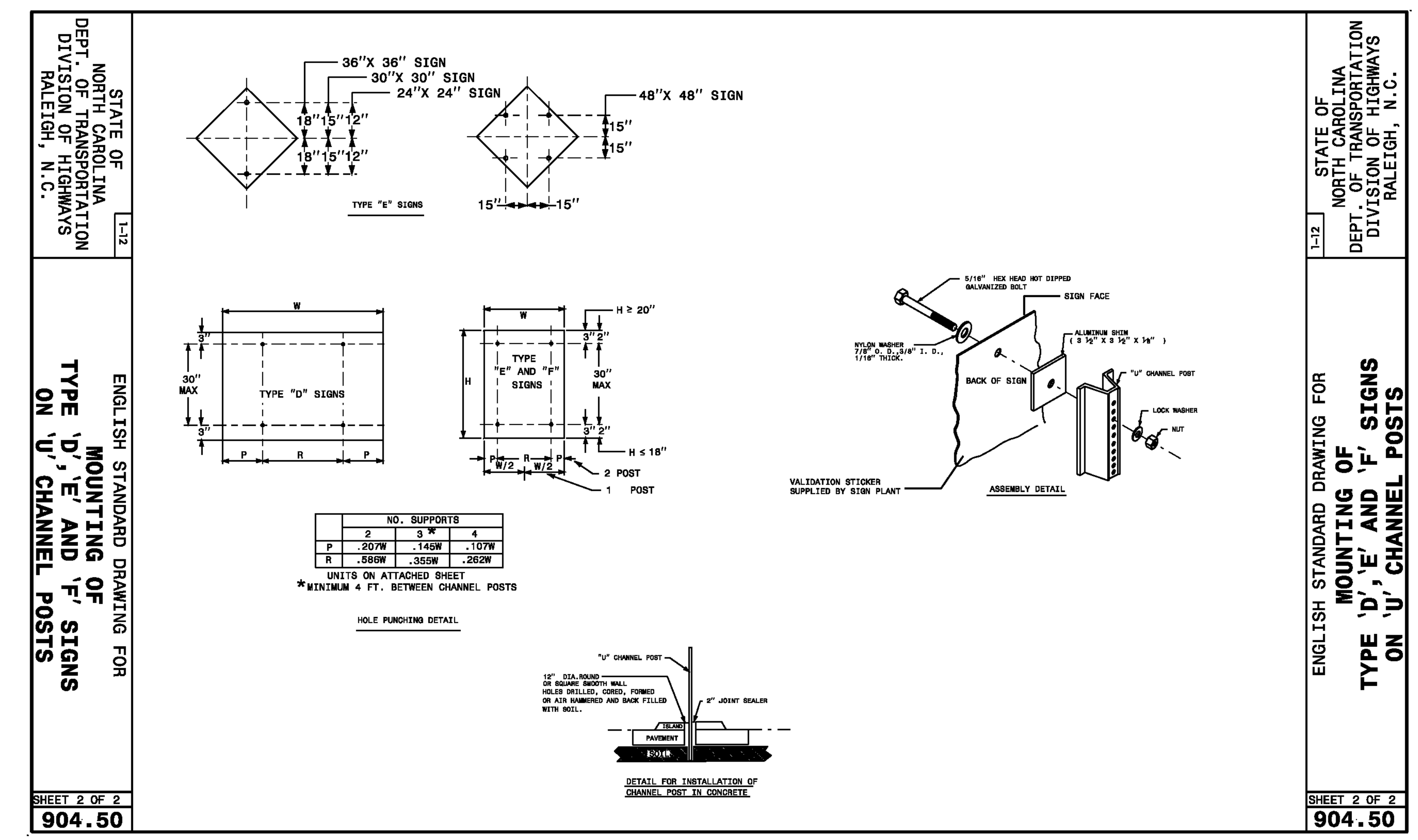
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-12

ENGLISH STANDARD DRAWING FOR **CURB RAMPS** NOTES

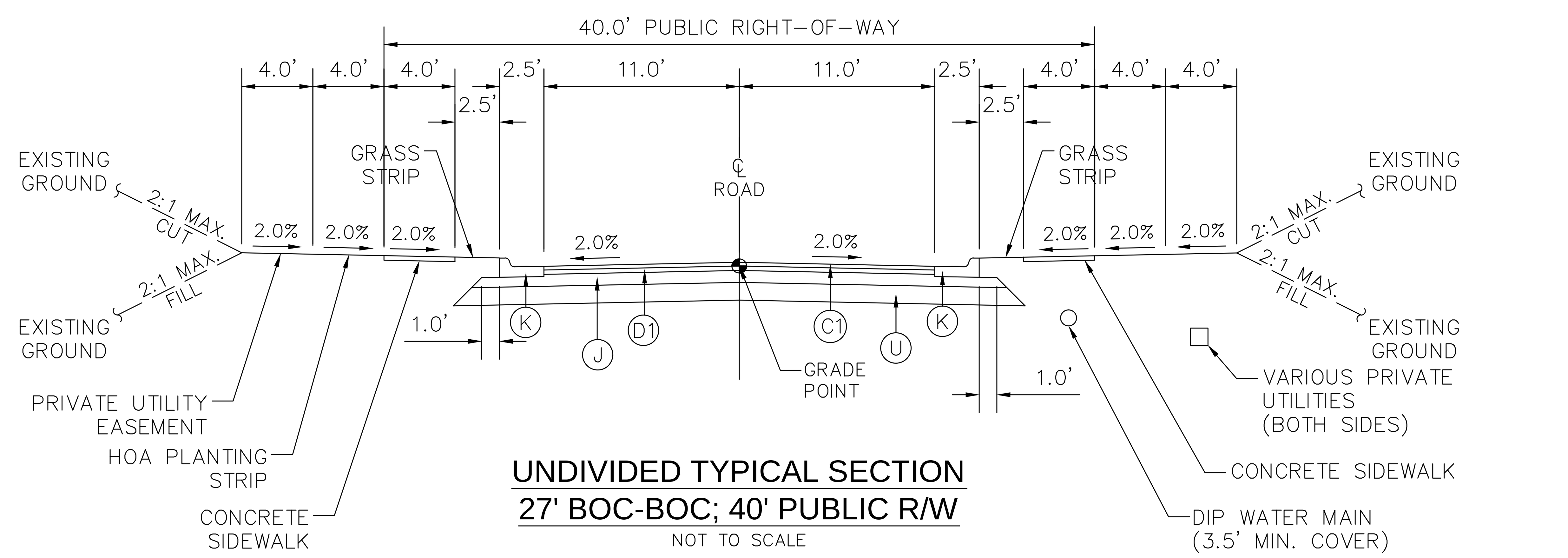
NOTES:

1. CONSTRUCT THE RAMP SURFACE TO BE STABLE, FIRM, AND SLIP RESISTANT. CONSTRUCT THE CURB RAMP TYPE AS SHOWN IN THE PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER.
2. LOCATE CURB RAMPS AND PLACE PEDESTRIAN CROSSWALK MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLANS. WHEN FIELD ADJUSTMENTS REQUIRE MOVING CURB RAMPS OR MARKINGS AS SHOWN, CONTACT THE SIGNING AND DELINEATION UNIT OR LOCATE AS DIRECTED BY THE ENGINEER.
3. COORDINATE THE CURB RAMP AND THE PEDESTRIAN CROSSWALK MARKINGS SO A 4'x4' CLEAR SPACE AT THE BASE OF THE CURB RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES.
4. SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL LANE IS 4' MINIMUM.
5. REFER TO THE PAVEMENT MARKING PLANS FOR STOP BAR LOCATIONS AT SIGNALIZED INTERSECTIONS. IF A PAVEMENT MARKING PLAN IS NOT PROVIDED, CONTACT THE SIGNAL DESIGN SECTION FOR THE STOP BAR LOCATIONS OR LOCATE AS DIRECTED BY THE ENGINEER.
6. TERMINATE PARKING A MINIMUM OF 20' BACK OF A PEDESTRIAN CROSSWALK.
7. CONSTRUCT CURB RAMPS A MINIMUM OF 4' WIDE.
8. CONSTRUCT THE RUNNING SLOPE OF THE RAMP 8.33% MAXIMUM.
9. ALLOWABLE CROSS SLOPE ON SIDEWALKS AND CURB RAMPS WILL BE 2% MAXIMUM.
10. CONSTRUCT THE SIDE FLARE SLOPE A MAXIMUM OF 10% MEASURED ALONG THE CURB LINE.
11. CONSTRUCT THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE BASE OF THE CURB RAMP A MAXIMUM OF 5% AND MAINTAIN A SMOOTH TRANSITION.
12. CONSTRUCT LANDINGS FOR SIDEWALK A MINIMUM OF 4'x4' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION. CONSTRUCT LANDINGS FOR MEDIAN ISLANDS A MINIMUM OF 5'x5' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
13. TO USE A MEDIAN ISLAND AS A PEDESTRIAN REFUGE AREA, MEDIAN ISLANDS WILL BE A MINIMUM OF 6' WIDE. CONSTRUCT MEDIAN ISLANDS TO PROVIDE PASSAGE OVER OR THROUGHT THE ISLAND.
14. SMALL CHANNELIZATION ISLANDS THAT CAN NOT PROVIDE A 5'X5' LANDING AT THE TOP OF A RAMPS, WILL BE CUT THROUGH LEVEL WITH THE SURFACE STREET.
15. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED.
16. PLACE A ½" EXPANSION JOINT WHERE THE CONCRETE CURB RAMP JOINS THE CURB AS SHOWN IN ROADWAY STANDARD DRAWING 848.01
17. PLACE ALL PEDESTRIAN PUSH BUTTON ACTUATORS AND CROSSING SIGNALS AS SHOWN IN THE PLANS OR AS SHOWN IN THE MUTCD.
18. CURB RAMPS THROUGH MEDIAN ISLANDS, SINGLE RAMPS AT DUAL CROSSWALKS OR LIMITED R/W SITUATIONS, WILL BE HANDLED BY SPECIAL DETAILS. CONTACT THE CONTRACT STANDARDS AND DEVELOPMENT UNIT FOR THE DETAILS OR FOR A SPECIAL DESIGN.

SHEET 3 OF 3 848.05



	NO. SUPPORTS		
	2	3*	4
P	.207W	.145W	.107W
R	.586W	.355W	.262W



UNDIVIDED TYPICAL SECTION
27' BOC-BOC; 40' PUBLIC R/W
NOT TO SCALE

PAVEMENT SCHEDULE	
(C1)	1.0" SF9.5A ASPHALT SURFACE COURSE AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD.
(D1)	2.0" S9.5B ASPHALT SURFACE COURSE AT AN AVERAGE RATE OF 224 LBS. PER SQ. YARD.
(J)	8" COMPACTED ABC STONE BASE COURSE
(K)	30" CURB AND GUTTER
(U)	COMPACTED SUBGRADE
(G)	GEOTEXTILE FABRIC (IF NECESSARY) COORDINATE WITH GEOTECHNICAL ENGINEER

REV.NO.	DESCRIPTIONS	DATE
4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
3	REVISIONS PER COMMENTS FROM CHATHAM COUNTY AND NCDOT	2015.07.01
2	REVISIONS PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.06.01
1	INITIAL SUBMITTAL	2015.05.01

REVISIONS

SEAL

SEAL

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F-1222
www.mckimcreed.com

BRIAR CHAPEL™ by Newland COMMUNITIES

BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

NCDOT ROADWAY DETAILS

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

M&C FILE NUMBER D2.X
DRAWING NUMBER D2.1

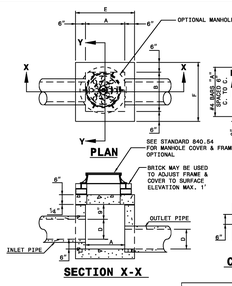
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION 4

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE JUNCTION BOX
(WITH OPTIONAL MANHOLE)
12" THRU 66" PIPE

SHEET 1 OF 1
840.31



GENERAL NOTES:

CHAMFER ALL EXPOSED CORNERS 1".

USE CLASS "B" CONCRETE THROUGHOUT.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS TO CONSTRUCT THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.

PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.

ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. DIAGONAL BARS SHORTENED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.)

MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES

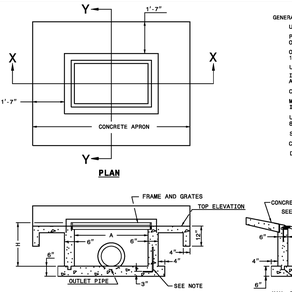
DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND SLABS		DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	WALL (T. OF W.)	LBS. REINF	CU. YDS. CONC. IN BOX	C.S.	R.C.
D	A	B	H									MIN. "H"		
12"	2'-0"	2'-0"	2'-3"	12	2'-9"	3'-0"	3'-0"	0.167	0.167	0.185	22	0.750	0.015	0.024
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.196	0.196	0.204	24	0.902	0.023	0.036
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.227	0.222	30	1.065	0.033	0.049
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	4'-0"	4'-0"	0.296	0.296	0.259	40	1.434	0.059	0.085
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.375	0.375	0.296	51	1.860	0.092	0.127
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	0.463	0.463	0.333	64	2.341	0.132	0.178
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.560	0.560	0.370	77	2.878	0.180	0.243
48"	5'-0"	5'-0"	5'-3"	26	6'-3"	6'-0"	6'-0"	0.743	0.743	0.407	111	3.623	0.235	0.317
54"	5'-10"	5'-10"	5'-9"	28	6'-7"	6'-10"	6'-10"	0.865	0.865	0.444	126	4.283	0.297	0.401
60"	6'-6"	6'-6"	6'-3"	30	7'-3"	7'-6"	7'-6"	1.042	1.042	0.481	145	5.090	0.367	0.490
66"	7'-1"	7'-1"	6'-9"	32	7'-10"	8'-1"	8'-1"	1.210	1.210	0.518	169	5.917	0.444	0.589

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE GRATED DROP INLET TYPE 'B'
12" THRU 36" PIPE

SHEET 1 OF 1
840.18



GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL GRATED DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

CONSTRUCT WITH PIPE CROWNS MATCHING.

MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

USE STANDARD FRAMES AND GRATES 840.22 (SHOWN), 840.24(SHOWN), 840.20, 840.29, AND 840.33.

SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE GRATED DROP INLET

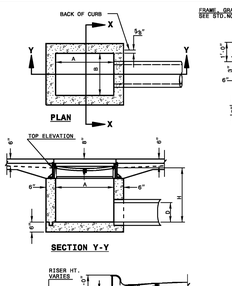
PIPE	SPAN	WIDTH	HEIGHT	CUBIC YARDS OF CONCRETE IN BOX				DEDUCTIONS FOR ONE PIPE	
D	A	B	H	BOTTOM SLAB	H PER FT. - HT.	H MIN. CONST.	TOTAL	C.S.	R.C.
12"	3'-8"	2'-0"	2'-6"	0.382	0.247	0.597	0.998	0.020	0.032
15"	3'-8"	2'-0"	2'-9"	0.382	0.247	0.659	1.021	0.023	0.036
18"	3'-8"	2'-0"	3'-0"	0.382	0.247	0.720	1.082	0.033	0.049
24"	3'-8"	2'-0"	3'-6"	0.382	0.247	0.865	1.227	0.059	0.085
30"	3'-8"	2'-0"	4'-0"	0.382	0.247	0.988	1.350	0.092	0.127
36"	3'-8"	2'-0"	4'-6"	0.382	0.247	1.112	1.474	0.132	0.178

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

SHEET 2 OF 2
840.02



GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 12'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.

CONSTRUCT WITH PIPE CROWNS MATCHING.

CHAMFER ALL EXPOSED CORNERS 1".

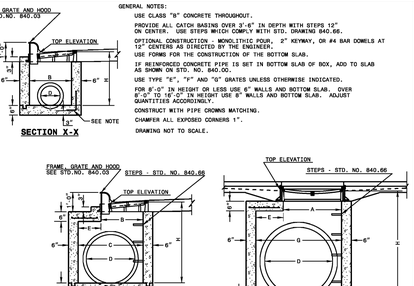
DRAWING NOT TO SCALE.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

SHEET 2 OF 2
840.02



MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN(BASED ON MIN. HEIGHT, H, WITH NO RISER) *

DIMENSIONS OF BOX AND PIPE						COVER DIMENSION		BARS-U		BARS-V		BARS-W		TOTAL	TOP SLAB	BOTTOM SLAB	CU.YDS. CONC. IN BOX		DEDUCTIONS ONE PIPE	
PIPE	SPAN	WIDTH	WIDTH	SPAN	MIN. HEIGHT	E	F	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	LBS.			TOP SLAB	BOTTOM SLAB	C.S.	R.C.
D	A	B	C	G	H															
12"	3'-0"	2'-2"	--	--	2'-9"	--	--	--	--	--	--	--	--	--	--	--	0.235	0.772	0.015	0.026
15"	3'-0"	2'-2"			3'-0"												0.235	0.829	0.023	0.036
18"	3'-0"	2'-2"			3'-3"												0.235	0.887	0.033	0.049
24"	3'-0"	2'-2"			3'-9"												0.235	1.001	0.059	0.085
30"	3'-0"	2'-2"	3'-4"		4'-3"	1'-2"	4'-0"	4	1'-5"	2	3'-9"	3	3'-9"	39	0.123	0.321	1.433	0.092	0.127	
36"	3'-0"	2'-2"	3'-10"		4'-9"	1'-8"	4'-0"	4	1'-11"	3	3'-9"	3	3'-9"	43	0.161	0.358	1.714	0.132	0.178	
42"	3'-0"	2'-2"		4'-5"	5'-3"	1'-5"	3'-5"	4	1'-8"	2	2'-11"	3	2'-11"	32	0.112	0.318	1.736	0.180	0.243	
48"	3'-0"	2'-2"		5'-0"	5'-9"	2'-0"	3'-2"	4	2'-3"	3	2'-11"	3	2'-11"	35	0.145	0.352	2.052	0.235	0.317	
54"	3'-0"	2'-2"		5'-7"	6'-3"	2'-7"	3'-2"	4	2'-10"	5	2'-11"	3	2'-11"	41	0.180	0.386	2.387	0.297	0.401	

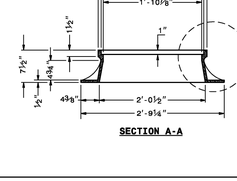
* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
MANHOLE FRAME AND COVER

SHEET 1 OF 1
840.54



SOLID COVER SHOWN PERFORATED. PERFORATED AVAILABLE IF SPECIFIED.
STATE USE OF SYSTEM ON COVER (I.E.: SEWER, STORM DRAIN, ELECTRICAL)

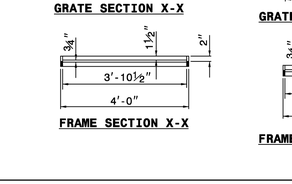
MINIMUM WEIGHTS - LBS.
FRAME - 180
COVER - 120
TOTAL - 300

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
FRAMES AND NARROW SLOT SAG GRATES

SHEET 1 OF 1
840.24



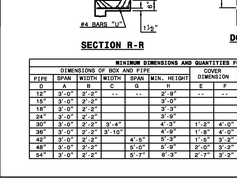
NOTE:
SEE STD. DWG. 840.25 FOR FRAME ANCHORAGE.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

SHEET 2 OF 2
840.02

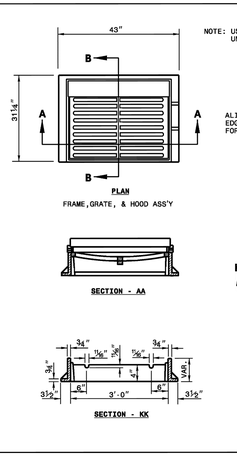


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

SHEET 1 OF 2
840.03

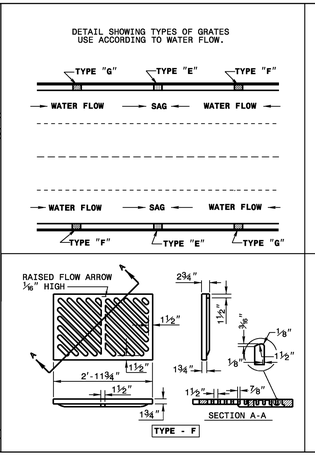


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

SHEET 2 OF 2
840.03



4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
3	REVISIONS PER COMMENTS FROM CHATHAM COUNTY AND NCDOT	2015.07.01
2	REVISIONS PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.06.01
1	INITIAL SUBMITTAL	2015.05.01
REV.NO.	DESCRIPTIONS	DATE

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036348 GARETH C. AVANT
07/22/2015

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Raleigh, North Carolina 27606
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US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

NCDOT DRAINAGE DETAILS

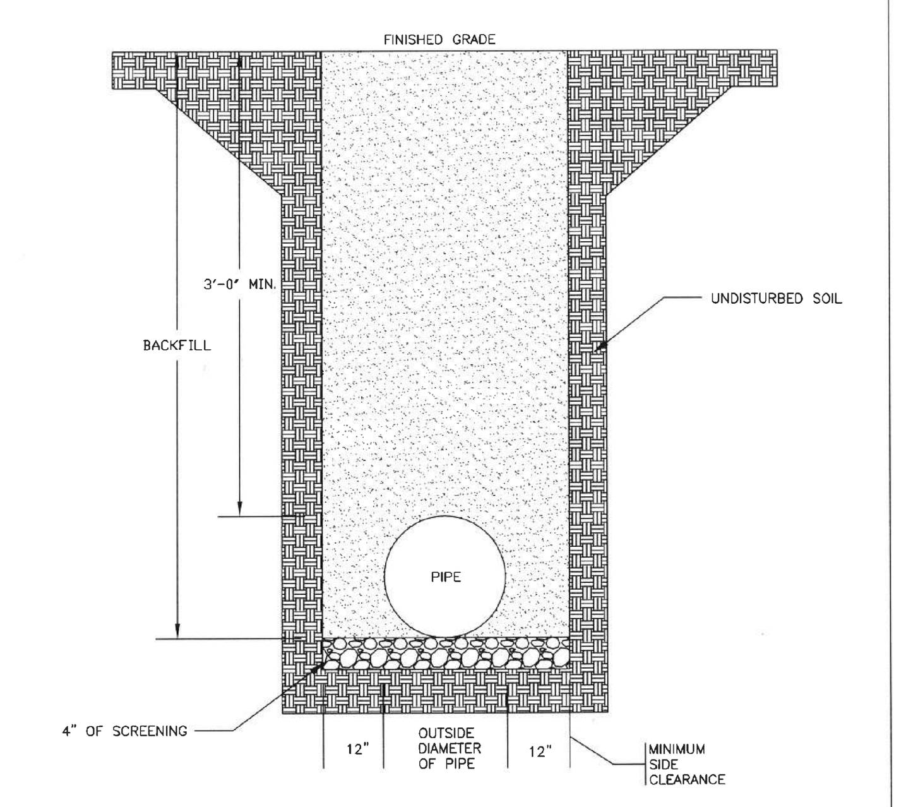
DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

M&C FILE NUMBER: D2.X
DRAWING NUMBER: D2.2

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

REVISION: 4



NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 2" OR LARGER IN DIAMETER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
5. ACHIEVE 95% COMPACTION IN BACKFILL.

UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

DUCTILE IRON PIPE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS

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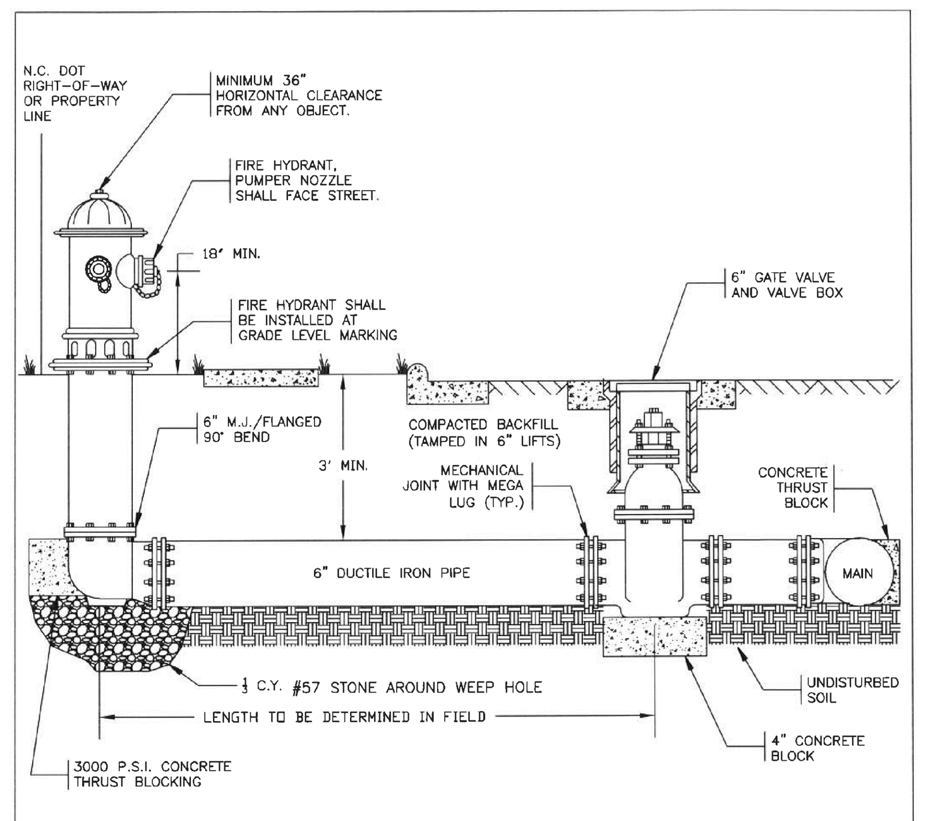
(919) 852-8270 (BUS) (919) 852-8282 (FAX)
CHATHAM COUNTY NORTH CAROLINA



NOTES:
1. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96.
2. GATE VALVE SHALL BE AWWA C500-86 OPEN LEFT.
3. FIRE HYDRANTS SHALL BE INSTALLED IN TRUE VERTICAL POSTION.
4. FIRE HYDRANTS SHALL BE LOCATED IN ROW OR 5' EASEMENT ADJACENT TO ROW.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF VARYING HORIZONTAL AND VERTICAL ALIGNMENT. ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.

UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

FIRE HYDRANT ASSEMBLY

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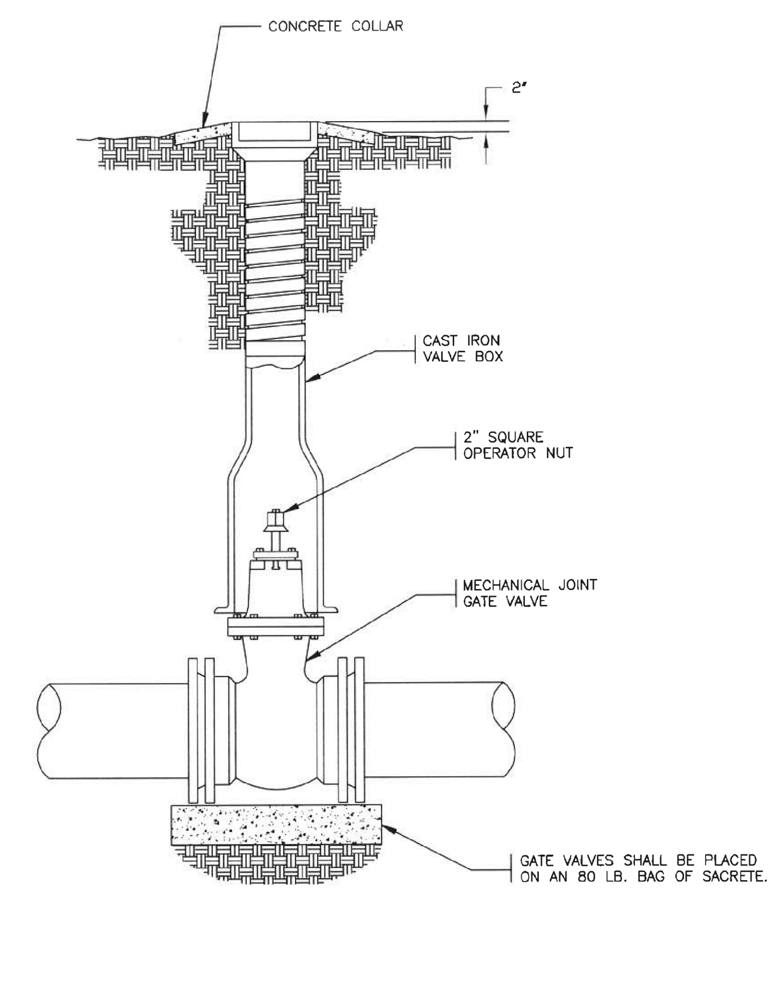

UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

GATE VALVE ASSEMBLY

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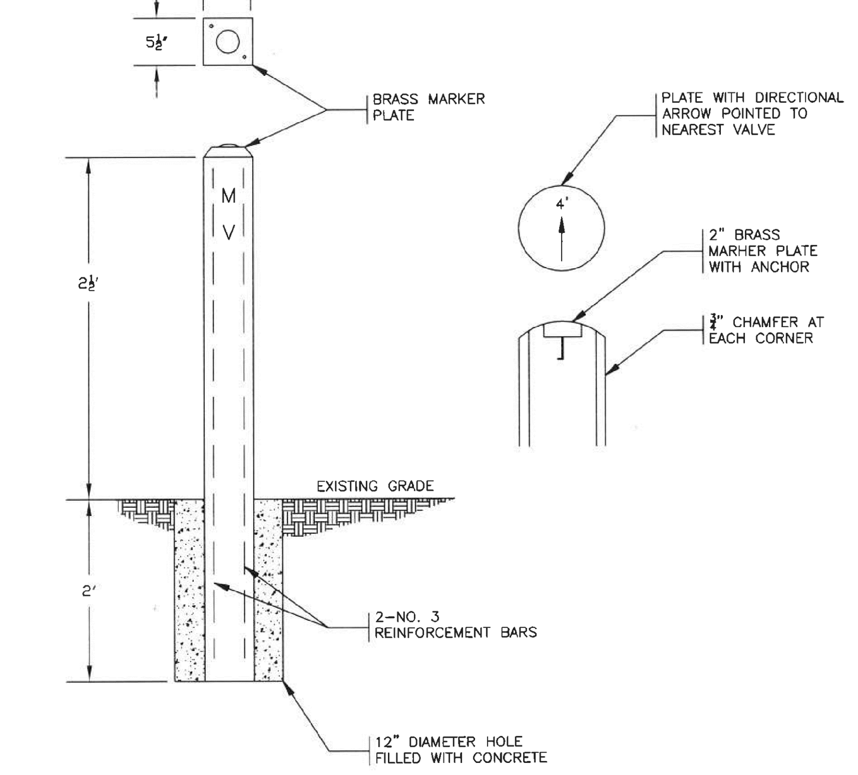
(919) 852-8270 (BUS) (919) 852-8282 (FAX)

NOTES:
1. MARKER POST SHALL BE INSTALL AT THE EDGE OF THE DOT RIGHT-OF-WAY OR PROPERTY LINE.
2. MARKER POST SHALL BE PROVIDED AT ALL VALVES
3. ABBREVIATIONS STAMPED ON POST SHALL BE MV = MAIN VALVE AND BO = BLOW OFF.



UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

VALVE MARKER POST

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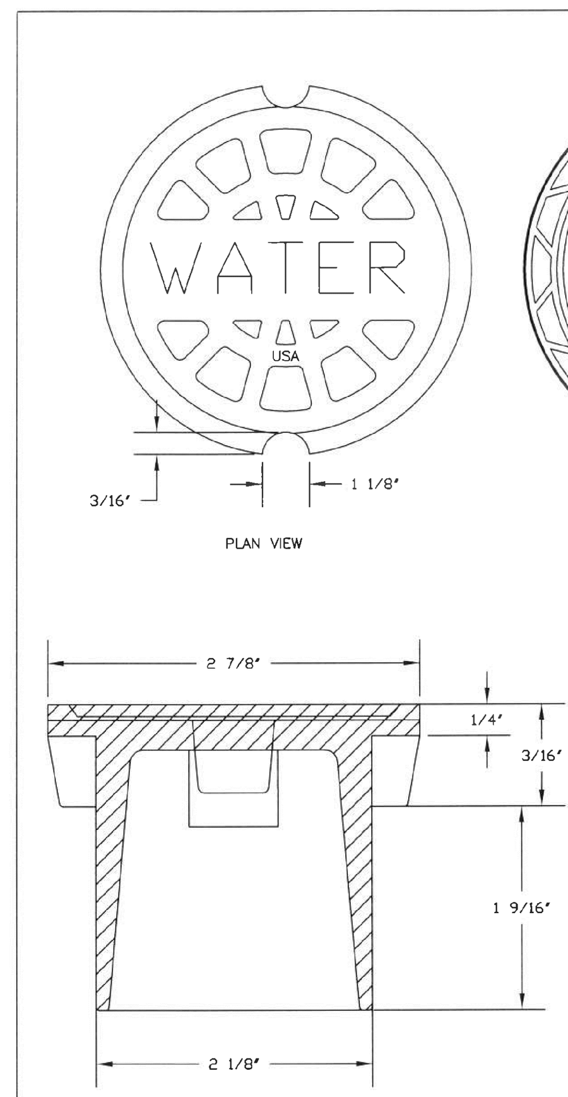

NOTES:
1) "WATER" LETTERING MUST BE 1" RAISED (RECESSED FLUSH)
2) VALVE COVER SHALL BE DOMESTICALLY CAST.
3) COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
4) COVER MUST BE CLASS 35 OR GREATER.
5) COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

VALVE BOX COVER

CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
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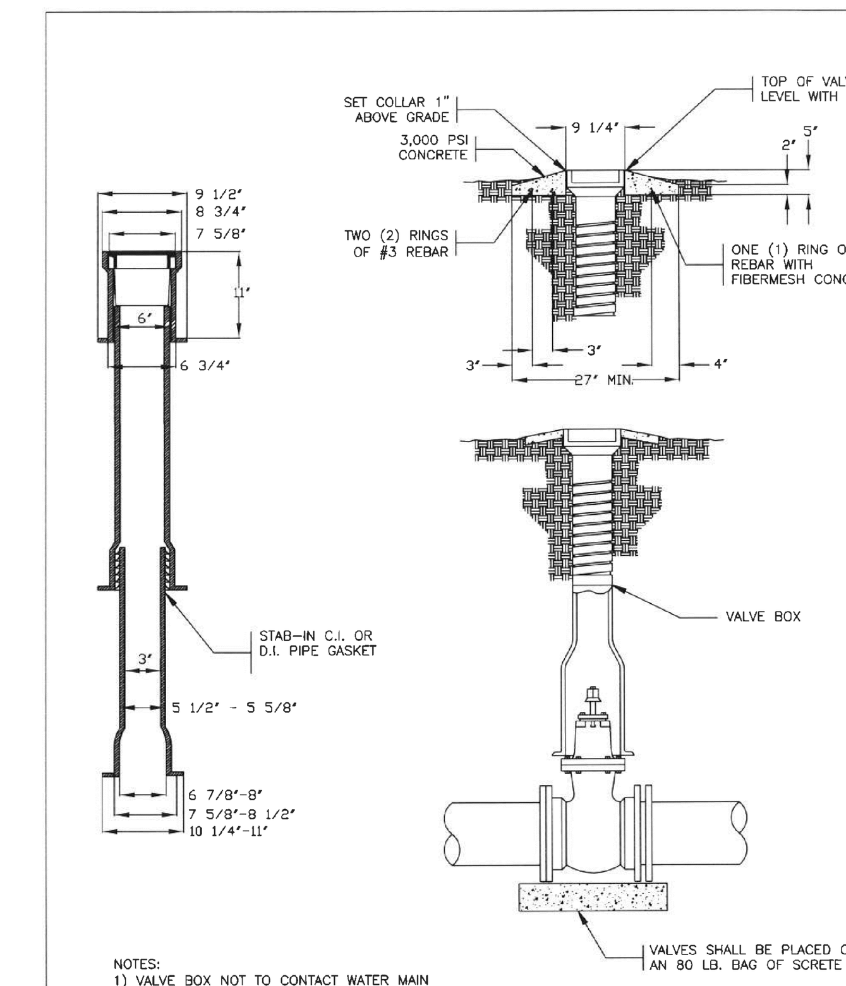

NOTES:
1) VALVE BOX NOT TO CONTACT WATER MAIN
2) ALL TRAFFIC CASTINGS MUST BE CLASS 35 OR GREATER.
3) TOTAL VALVE BOX WEIGHT: MINIMUM OF 85 LBS.

UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

VALVE BOX AND COLLAR

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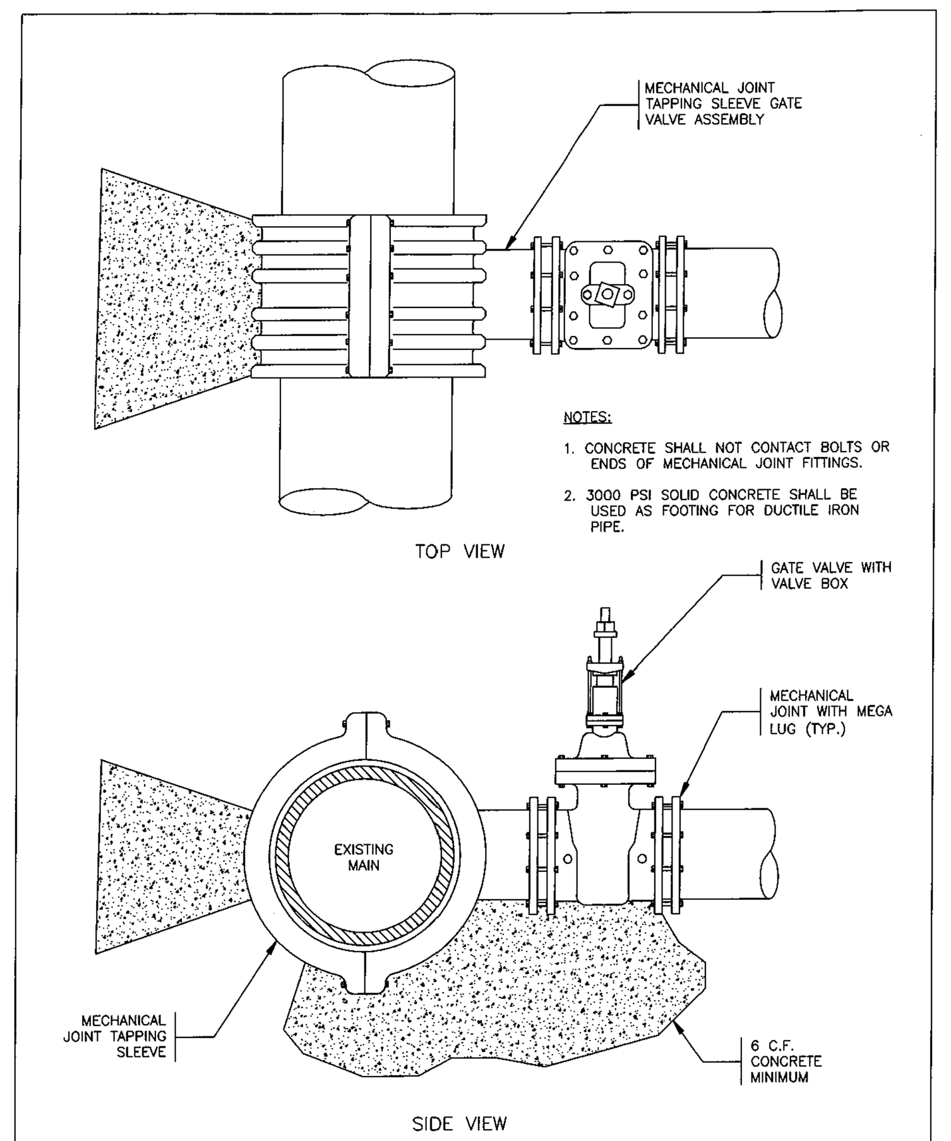

NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
2. 3000 PSI SOLID CONCRETE SHALL BE USED AS FOOTING FOR DUCTILE IRON PIPE.

UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

4" - 24" TAPPING SLEEVE ASSEMBLY

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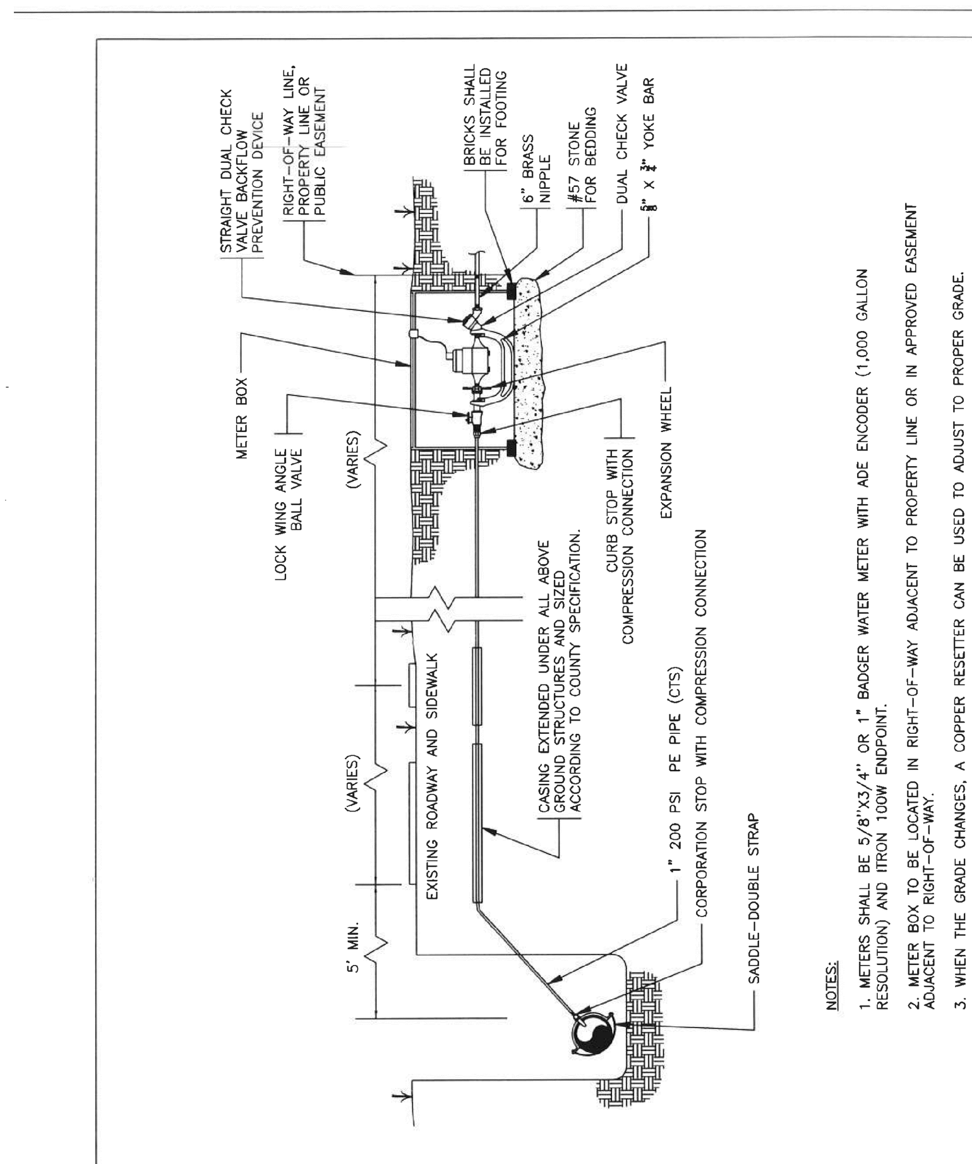

NOTES:
1. METERS SHALL BE 5/8"X3/4" OR 1" BADGER WATER METER WITH ADE ENCODER (1,000 GALLON RESOLUTION) AND ITRON 100W ENDPOINT.
2. METER BOX TO BE LOCATED IN RIGHT-OF-WAY ADJACENT TO PROPERTY LINE OR IN APPROVED EASEMENT ADJACENT TO RIGHT-OF-WAY.
3. WHEN THE GRADE CHANGES, A COPPER RESETTER CAN BE USED TO ADJUST TO PROPER GRADE.

UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

⅝" X ¾" - 1" METER SERVICE CONNECTION

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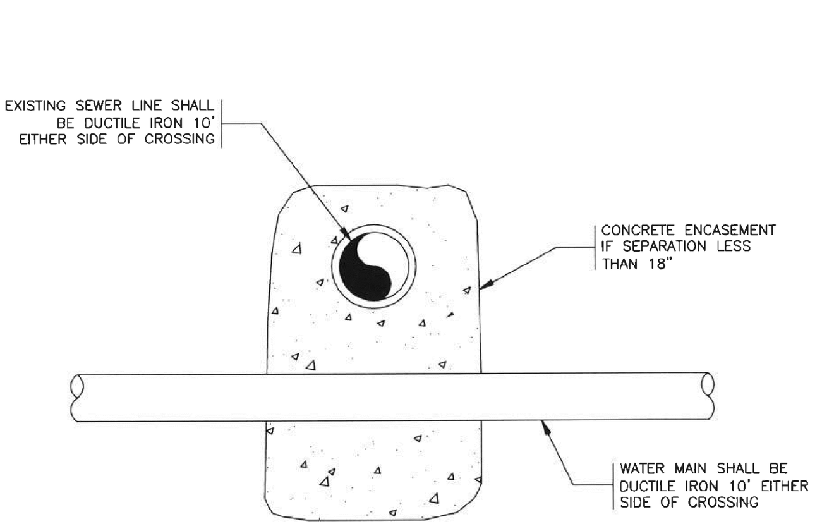

UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

WATER AND SEWER CROSSING

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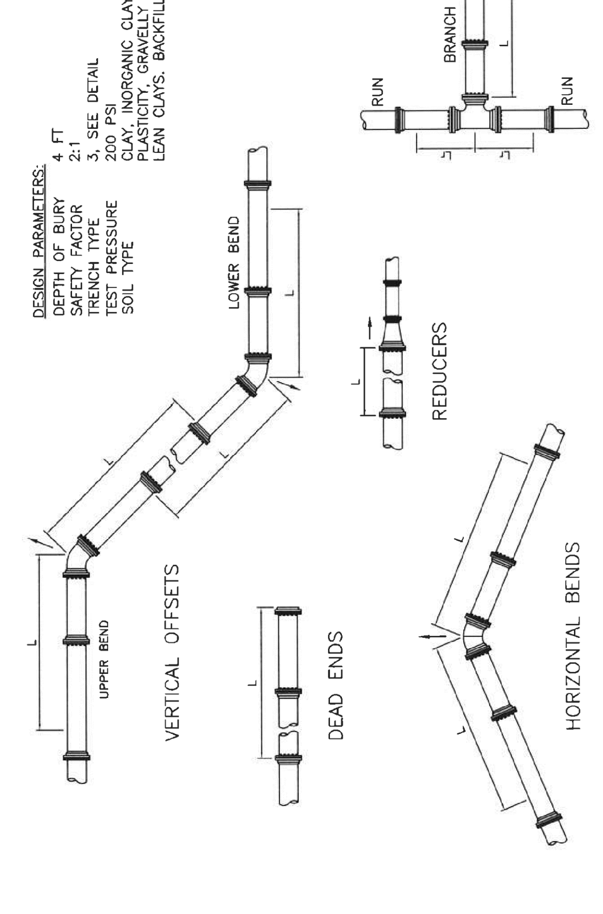
(919) 852-8270 (BUS) (919) 852-8282 (FAX)

DESIGN PARAMETERS:
DEPTH OF BURY 4 FT
SAFETY FACTOR 2:1
TRENCH TYPE 3, SEE DETAIL
TEST PRESSURE 200 PSI
SOIL TYPE CLAY, INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, LEAN CLAYS. BACKFILLED USING NATIVE SOILS.



NOTES:
1. THE CONTRACTOR SHALL INSTALL RESTRAINED JOINT THRUST PROTECTION AT ALL BENDS, TEES, REDUCERS AND VERTICAL OFFSETS. THE LENGTHS ARE MINIMUM LENGTHS REQUIRED FOR THE DESIGN PARAMETERS SHOWN. THESE RESTRAINING CONDITIONS ARE COMMON CONDITIONS ENCOUNTERED IN NORMAL PIPELINE CONSTRUCTION. ANY OTHER CONDITIONS SHALL BE APPROVED.
2. WHEN USING MECHANICAL JOINT RESTRAINTS SUCH AS MEGA-LUGS FOR PVC & DIP OR TR FLEX AND GRIFFIN SNAP-LOK, CONCRETE BLOCKING SHALL BE EXCLUDED FROM THE INSTALLATION.

SIZE & MATERIAL		HORIZONTAL BEND (DEGREES) 90	45	22.5	11.25	TEE 6" BRANCH	REDUCER X 12"	DEAD END	VERTICAL OFFSET 45° BEND Upper	Lower
16" D.I.P.	LENGTH RESTRAINED (FT)	64	26	13	6	1	38	91	52	33
12" D.I.P.	LENGTH RESTRAINED (FT)	49	20	10	5	10	N/A	70	40	26

UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

MECHANICAL JOINT RESTRAINT

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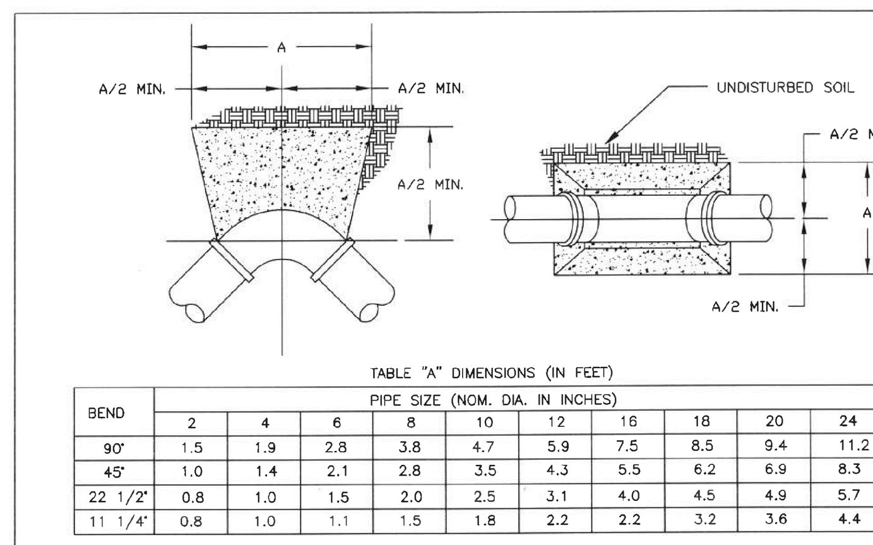
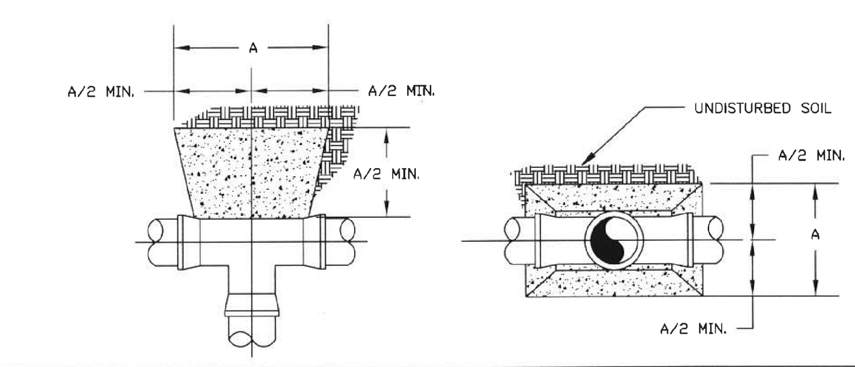


TABLE "A" DIMENSIONS (IN FEET)

BEND	PIPE SIZE (NOM. DIA. IN INCHES) 2	4	6	8	10	12	16	18	20	24
90°	1.5	1.9	2.8	3.8	4.7	5.9	7.5	8.5	9.4	11.2
45°	1.0	1.4	2.1	2.8	3.5	4.3	5.5	6.2	6.9	8.3
22 1/2°	0.8	1.0	1.5	2.0	2.5	3.1	4.0	4.5	4.9	5.7
11 1/4°	0.8	1.0	1.1	1.5	1.8	2.2	2.2	3.2	3.6	4.4

WATER MAIN BENDS

NOTE: THRUST BLOCKS SHALL BE CONSTRUCTED OF 3,000 P.S.I. CONCRETE



DIMENSION (IN INCHES)	PIPE SIZE (IN INCHES) 2	4	6	8	10	12	14	16	18	20	24
A	1.6	1.9	2.8	3.8	4.7	5.9	6.6	7.5	8.5	9.4	11.2

WATER MAIN TEES

UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

CONCRETE THRUST BLOCKING FOR BENDS AND TEES

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REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS
BASED ON TEST PRESSURE OF 200 P.S.I.
ALL AREAS GIVEN IN SQUARE FEET.

SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY 4000 LBS/FT²	SOFT CLAY 2000 LBS/FT²	GRAVEL / COARSE SAND 1600 LBS/FT²	DRY CLAY - ALWAYS DRY 8000 LBS/FT²	SAND, COMPACT FIRM 8000 LBS/FT²	SAND -CLEAN DRY 4000 LBS/FT²	QUICKSAND - VERY POOR SOIL 1000 LBS/FT²	ROCK - POOR 10,000 LBS/FT²
6"									
11 1/4°	1,108	1	1	1	1	1	1	2	1
22 1/2°	2,207	1	2	2	1	1	1	3	1
45°	4,328	2	3	3	1	1	2	5	1
90°	7,996	2	4	5	1	1	2	8	1
PLUG	5,655	2	3	4	1	1	2	6	1
8"									
11 1/4°	1,970	1	1	2	1	1	1	2	1
22 1/2°	3,922	1	2	3	1	1	1	4	1
45°	7,694	2	4	5	1	1	2	8	1
90°	14,215	4	8	9	2	2	4	15	2
PLUG	10,053	3	5	6	2	2	3	10	1
12"									
11 1/4°	4,433	2	3	3	1	1	2	5	1
22 1/2°	8,826	3	5	6	2	2	3	9	1
45°	17,312	5	9	11	3	3	5	18	2
90°	31,983	8	16	19	4	4	8	32	4
PLUG	22,619	6	12	14	3	3	6	23	3
16"									
11 1/4°	7,881	2	4	5	1	1	2	8	1
22 1/2°	15,691	4	8	10	2	2	4	16	2
45°	30,779	8	16	19	4	4	8	31	4
90°	56,861	15	29	35	8	8	15	57	6
PLUG	40,213	10	21	25	5	5	10	41	5

REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90 TO THE THRUST VECTOR.
USE 6" - 90 DEGREE BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

CONCRETE THRUST BLOCKING QUANTITY TABLE

CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
P.O. BOX 910 PITTSBORO, NC 27312
964 EAST STREET, SUITE 205 PITTSBORO, NC 27312
(919) 852-8270 (BUS) (919) 852-8282 (FAX)

REV.NO.	DESCRIPTIONS	DATE
4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
3	REVISIONS PER COMMENTS FROM CHATHAM COUNTY AND NCDOT	2015.07.01
2	REVISIONS PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.06.01
1	INITIAL SUBMITTAL	2015.05.01

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT
Gareth Avant
07/22/2015

McKIM&CREED
1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
Phone: (919)233-8091, Fax: (919)233-8031
F-1222
www.mckimcreed.com

BRIAR CHAPEL™
by Newland COMMUNITIES

BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

UTILITY DETAILS

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" N/A0'
VERTICAL: N/A

M&C FILE NUMBER D3.X
DRAWING NUMBER D3.1

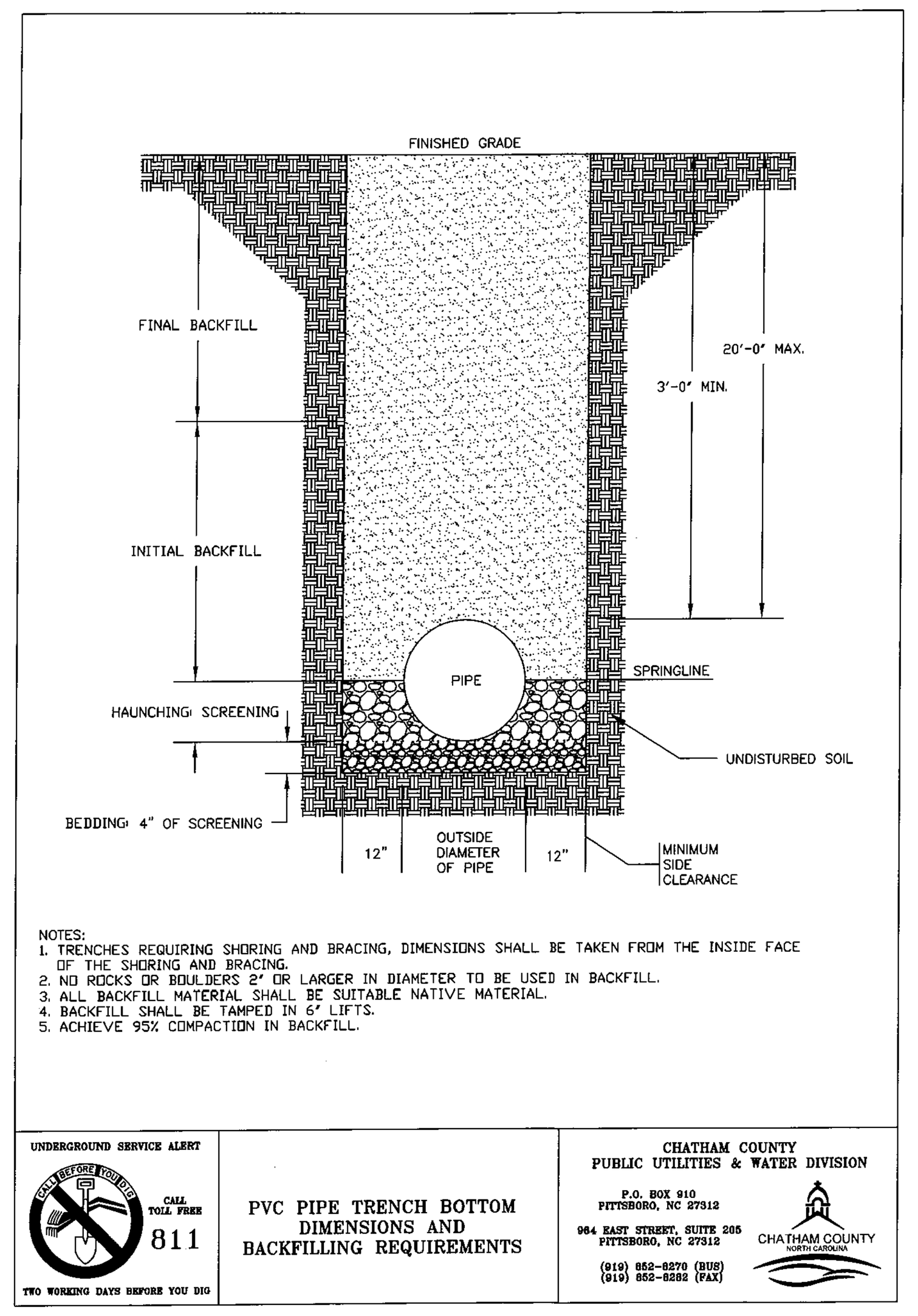
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION 4

DETECTABLE WARNING TAPE NOTES:

1. THE TAPE SHALL BE AN INERT, BONDED LAYER PLASTIC WITH A METALIZED FOIL CORE AND SHALL BE HIGHLY RESISTANT TO ALKALIS, ACID, OR OTHER DESTRUCTIVE CHEMICAL COMPONENTS LIKELY TO BE ENCOUNTERED IN SOILS.
2. THE TAPE SHALL BE BRIGHTLY COLORED TO CONTRAST WITH SOIL AND SHALL BEAR AN IMPRINT IDENTIFYING THE TYPE OF LINE BURIED BELOW. THE TAPE SHALL BE A MINIMUM OF 2" WIDE.
3. THE TAPE SHALL BE BURIED A MINIMUM OF 6" AND A MAXIMUM OF 12" BELOW THE GROUND SURFACE DIRECTLY ABOVE THE WATER LINE WITH PRINTED SIDE UP.

TRACER WIRE NOTES:

1. TRACER WIRE IS TO BE STANDARD NO. 12 GAUGE COATED COPPER WIRE.
2. LOCATION WIRE CONNECTIONS ARE TO BE A WATER TIGHT CONNECTION USING TWISTER DB PLUS WATERPROOF WIRE CONNECTORS OR AN APPROVED EQUAL.



FINISHED GRADE
FINAL BACKFILL
20'-0" MAX.
3'-0" MIN.
INITIAL BACKFILL
PIPE
SPRINGLINE
HAUNCHING: SCREENING
UNDISTURBED SOIL
BEDDING: 4" OF SCREENING
12"
OUTSIDE DIAMETER OF PIPE
12"
MINIMUM SIDE CLEARANCE
NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 2' OR LARGER IN DIAMETER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6' LIFTS.
5. ACHIEVE 95% COMPACTION IN BACKFILL.
UNDERGROUND SERVICE ALERT
CALL TOLL FREE
811
TWO WORKING DAYS BEFORE YOU DIG
PVC PIPE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS
CHATHAM COUNTY
PUBLIC UTILITIES & WATER DIVISION
P.O. BOX 910
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964 EAST STREET, SUITE 205
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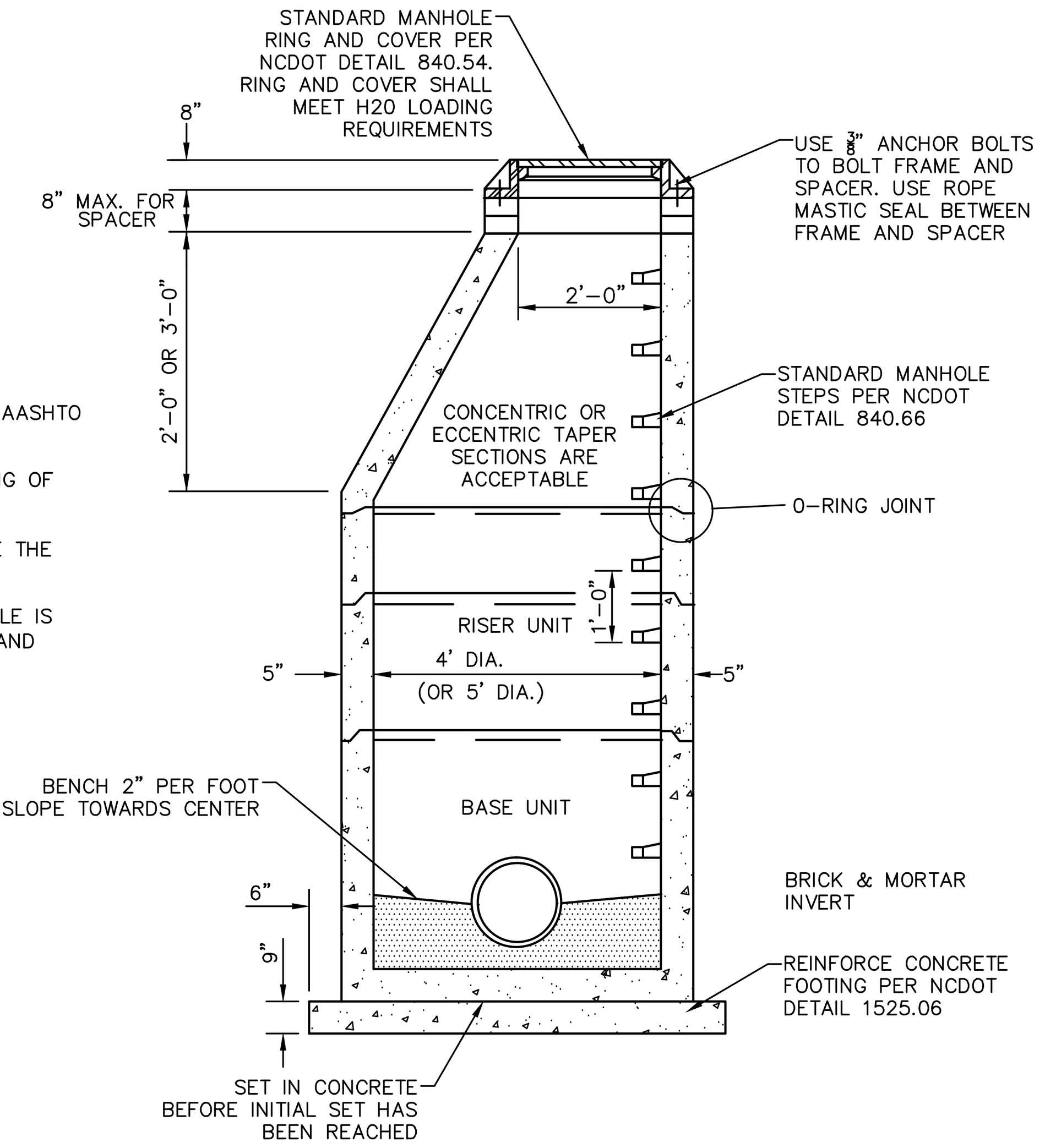
(919) 652-8270 (BUS)
(919) 652-8282 (FAX)
CHATHAM COUNTY

NOTES:

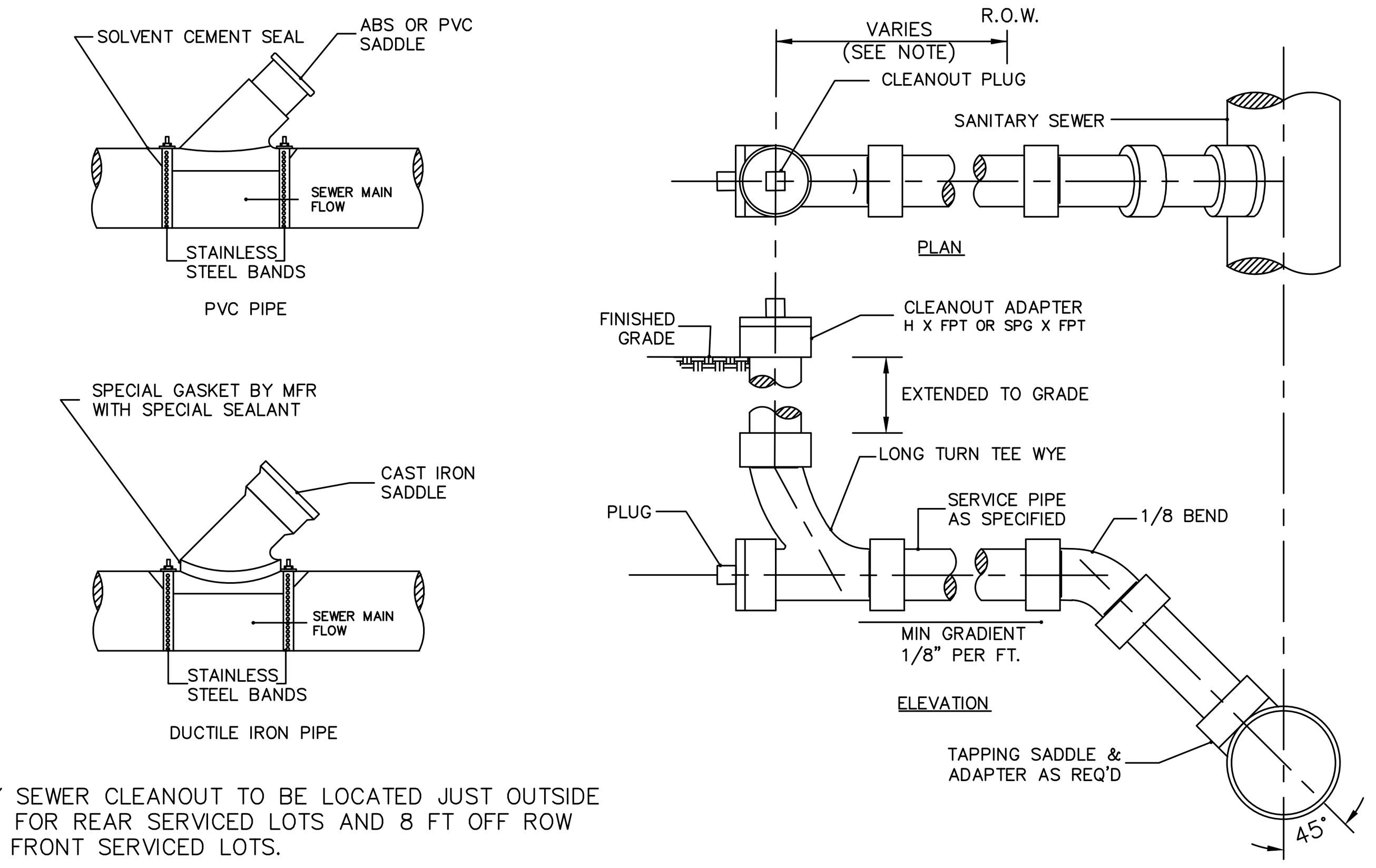
1. PROVIDE PRECAST MANHOLE COMPONENTS WHICH COMPLY WITH AASHTO M199.
2. ASSEMBLE RISERS AND GRADE RINGS SO STPES HAVE A SPACING OF 12" FROM THE TOP TO THE BOTTOM OF THE MANHOLE.
3. WHERE THE MANHOLE IS EXPOSED TO ROADWAY TRAFFIC, PLACE THE TOP OF THE MANHOLE FLUSH WITH THE GROUND.
4. REINFORCED CONCRETE FOOTING IS REQUIRED WHEN THE MANHOLE IS OVER 12' IN DEPTH OR ON A POOR SOIL BASE. THE FOOTING AND BASE SECTION MAY BE PRECAST.



STANDARD MANHOLE RING AND COVER PER NCDOT DETAIL 840.54. RING AND COVER SHALL MEET H20 LOADING REQUIREMENTS
8"
8" MAX. FOR SPACER
2'-0" OR 3'-0"
USE ⅜" ANCHOR BOLTS TO BOLT FRAME AND SPACER. USE ROPE MASTIC SEAL BETWEEN FRAME AND SPACER
2'-0"
STANDARD MANHOLE STEPS PER NCDOT DETAIL 840.66
CONCENTRIC OR ECCENTRIC TAPER SECTIONS ARE ACCEPTABLE
O-RING JOINT
RISER UNIT
1'-0"
4' DIA.
(OR 5' DIA.)
5"
5"
BENCH 2" PER FOOT SLOPE TOWARDS CENTER
BASE UNIT
BRICK & MORTAR INVERT
6"
9"
REINFORCE CONCRETE FOOTING PER NCDOT DETAIL 1525.06
SET IN CONCRETE BEFORE INITIAL SET HAS BEEN REACHED

STANADARD SANITARY SEWER PRECAST CONCRETE MANHOLE

NTS



SOLVENT CEMENT SEAL
ABS OR PVC SADDLE
SEWER MAIN FLOW
STAINLESS STEEL BANDS
PVC PIPE
SPECIAL GASKET BY MFR WITH SPECIAL SEALANT
CAST IRON SADDLE
SEWER MAIN FLOW
STAINLESS STEEL BANDS
DUCTILE IRON PIPE
VARIES (SEE NOTE)
R.O.W.
CLEANOUT PLUG
SANITARY SEWER
PLAN
FINISHED GRADE
CLEANOUT ADAPTER H X FPT OR SPG X FPT
EXTENDED TO GRADE
LONG TURN TEE WYE
PLUG
SERVICE PIPE AS SPECIFIED
1/8 BEND
MIN GRADIENT 1/8" PER FT.
ELEVATION
TAPPING SADDLE & ADAPTER AS REQ'D
45°

NOTES:

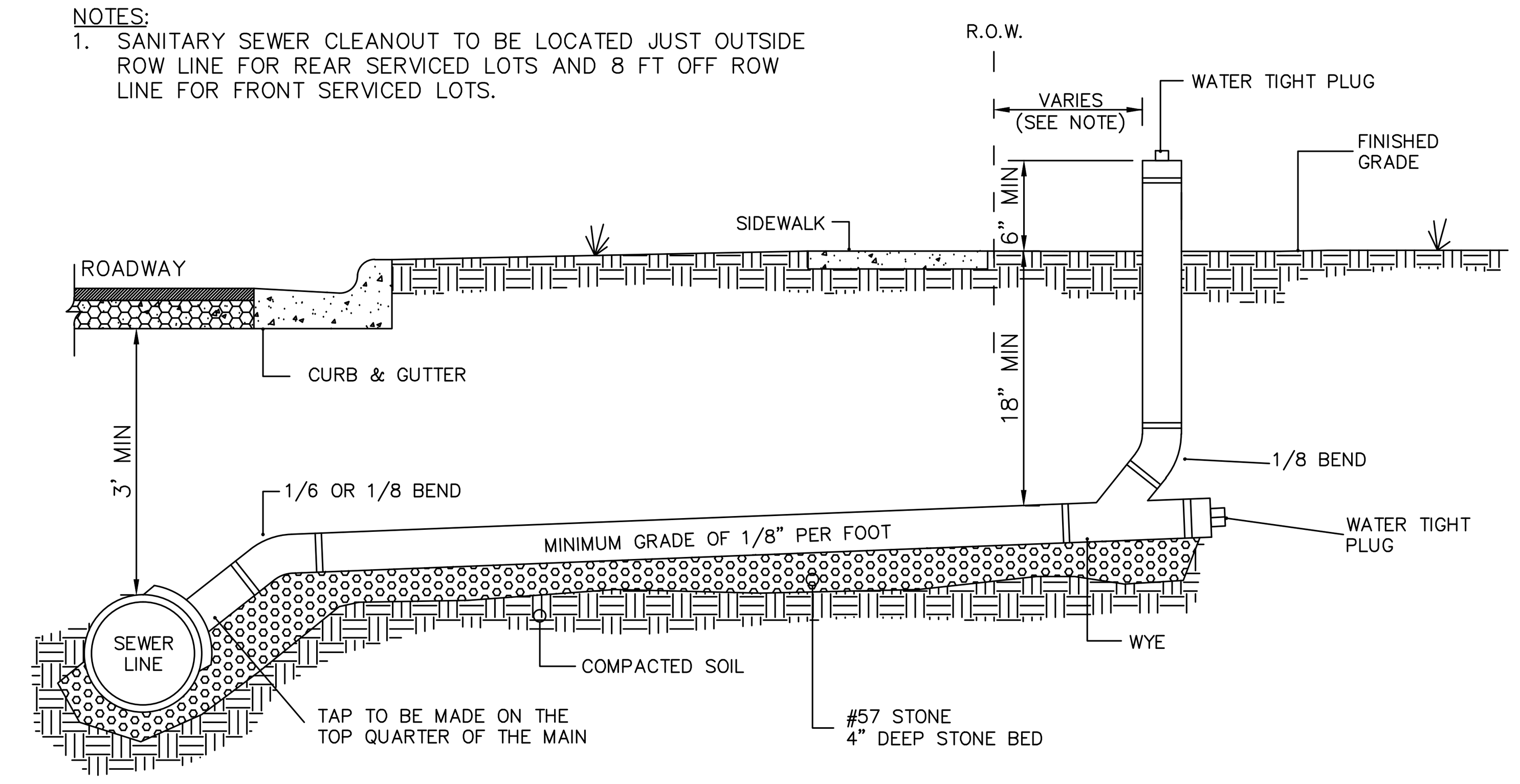
1. SANITARY SEWER CLEANOUT TO BE LOCATED JUST OUTSIDE ROW LINE FOR REAR SERVICED LOTS AND 8 FT OFF ROW LINE FOR FRONT SERVICED LOTS.

SANITARY SEWER SERVICE CONNECTIONS

NTS

NOTES:

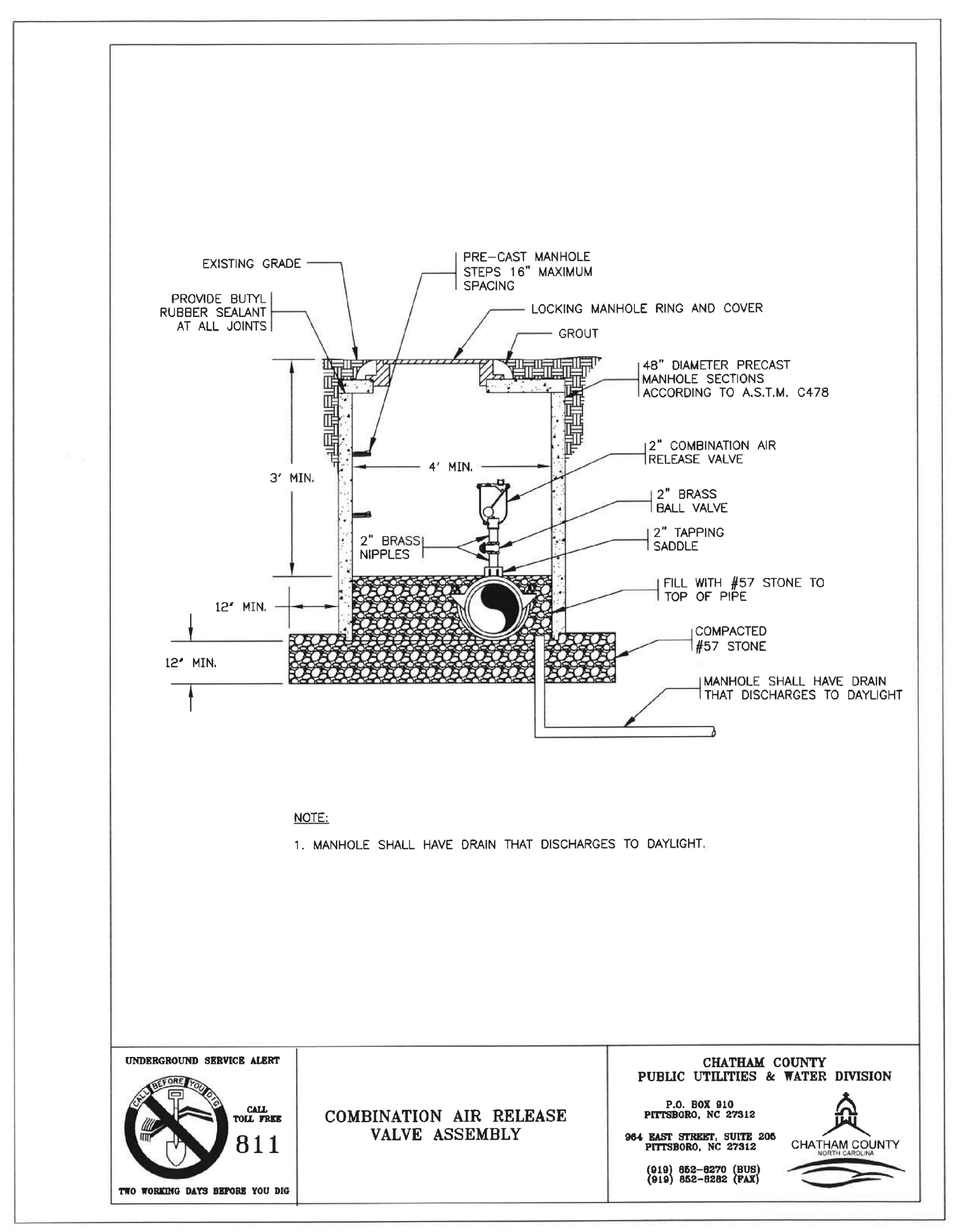
1. SANITARY SEWER CLEANOUT TO BE LOCATED JUST OUTSIDE ROW LINE FOR REAR SERVICED LOTS AND 8 FT OFF ROW LINE FOR FRONT SERVICED LOTS.



R.O.W.
WATER TIGHT PLUG
VARIES (SEE NOTE)
FINISHED GRADE
6" MIN
SIDEWALK
ROADWAY
CURB & GUTTER
18" MIN
3' MIN
1/8 BEND
1/6 OR 1/8 BEND
MINIMUM GRADE OF 1/8" PER FOOT
WATER TIGHT PLUG
SEWER LINE
COMPACTED SOIL
WYE
TAP TO BE MADE ON THE TOP QUARTER OF THE MAIN
#57 STONE 4" DEEP STONE BED

STANDARD SANITARY SEWER TAP AND SERVICE

NTS



EXISTING GRADE
PRE-CAST MANHOLE STEPS 16" MAXIMUM SPACING
PROVIDE BUTYL RUBBER SEALANT AT ALL JOINTS
LOCKING MANHOLE RING AND COVER
GROUT
48" DIAMETER PRECAST MANHOLE SECTIONS ACCORDING TO A.S.T.M. C478
3' MIN.
4' MIN.
2" COMBINATION AIR RELEASE VALVE
2" BRASS BALL VALVE
2" BRASS NIPPLES
2" TAPPING SADDLE
12" MIN.
FILL WITH #57 STONE TO TOP OF PIPE
12" MIN.
COMPACTED #57 STONE
MANHOLE SHALL HAVE DRAIN THAT DISCHARGES TO DAYLIGHT
NOTE:
1. MANHOLE SHALL HAVE DRAIN THAT DISCHARGES TO DAYLIGHT.
UNDERGROUND SERVICE ALERT
CALL TOLL FREE
811
TWO WORKING DAYS BEFORE YOU DIG
COMBINATION AIR RELEASE VALVE ASSEMBLY
CHATHAM COUNTY
PUBLIC UTILITIES & WATER DIVISION
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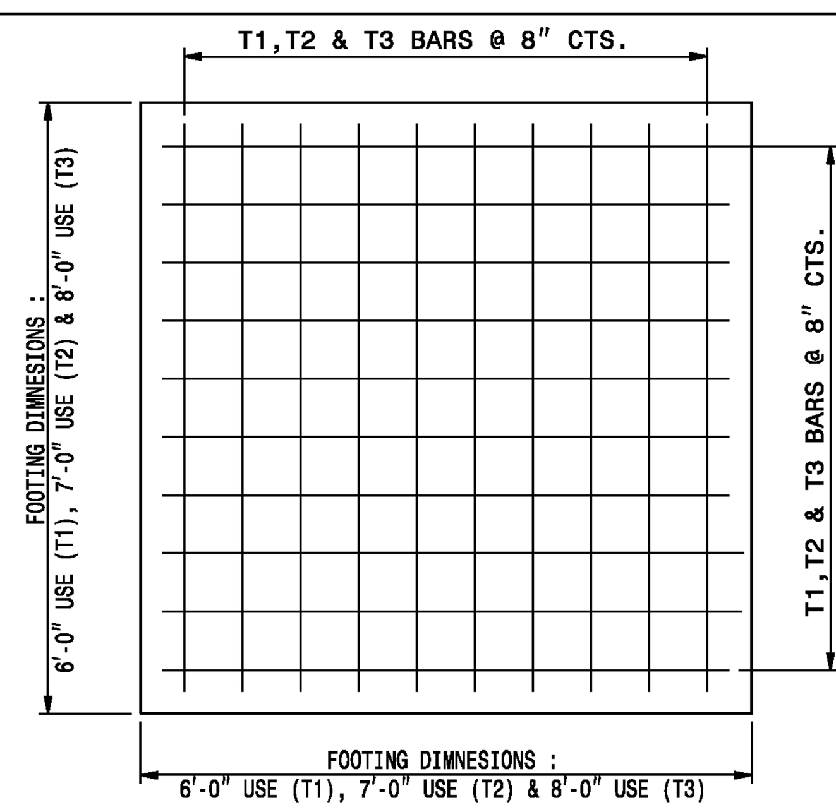
CHATHAM COUNTY

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
PRECAST CONCRETE SANITARY SEWER MANHOLE WITH CAST-IN-PLACE BOTTOM



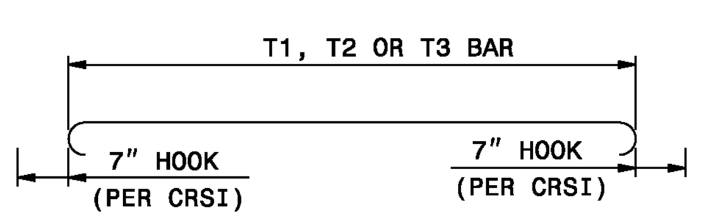
REINFORCED CONCRETE FOOTING FOR 5' PRECAST MANHOLE OR 4' PRECAST MANHOLE

BILL OF MATERIAL FOR 6'-0" FOOTING				
BAR	SIZE	LENGTH	NO.	WT. lbs.
T1	#5	5'-6"	18	103
CLASS "A" CONC. YD³ 9" THICK				1.00

BILL OF MATERIAL FOR 7'-0" FOOTING				
BAR	SIZE	LENGTH	NO.	WT. lbs.
T2	#5	6'-6"	20	136
CLASS "A" CONC. YD³ 9" THICK				1.36
CLASS "A" CONC. YD³ 12" THICK				1.82

BILL OF MATERIAL FOR 8'-0" FOOTING				
BAR	SIZE	LENGTH	NO.	WT. lbs.
T3	#5	7'-6"	24	188
CLASS "A" CONC. YD³ 12" THICK				2.37

PLACE REINFORCING STEEL SO THAT STEEL IS PLACED A MIN. OF 2" AND A MAX. OF 4" FROM THE TOP OF THE SLAB.



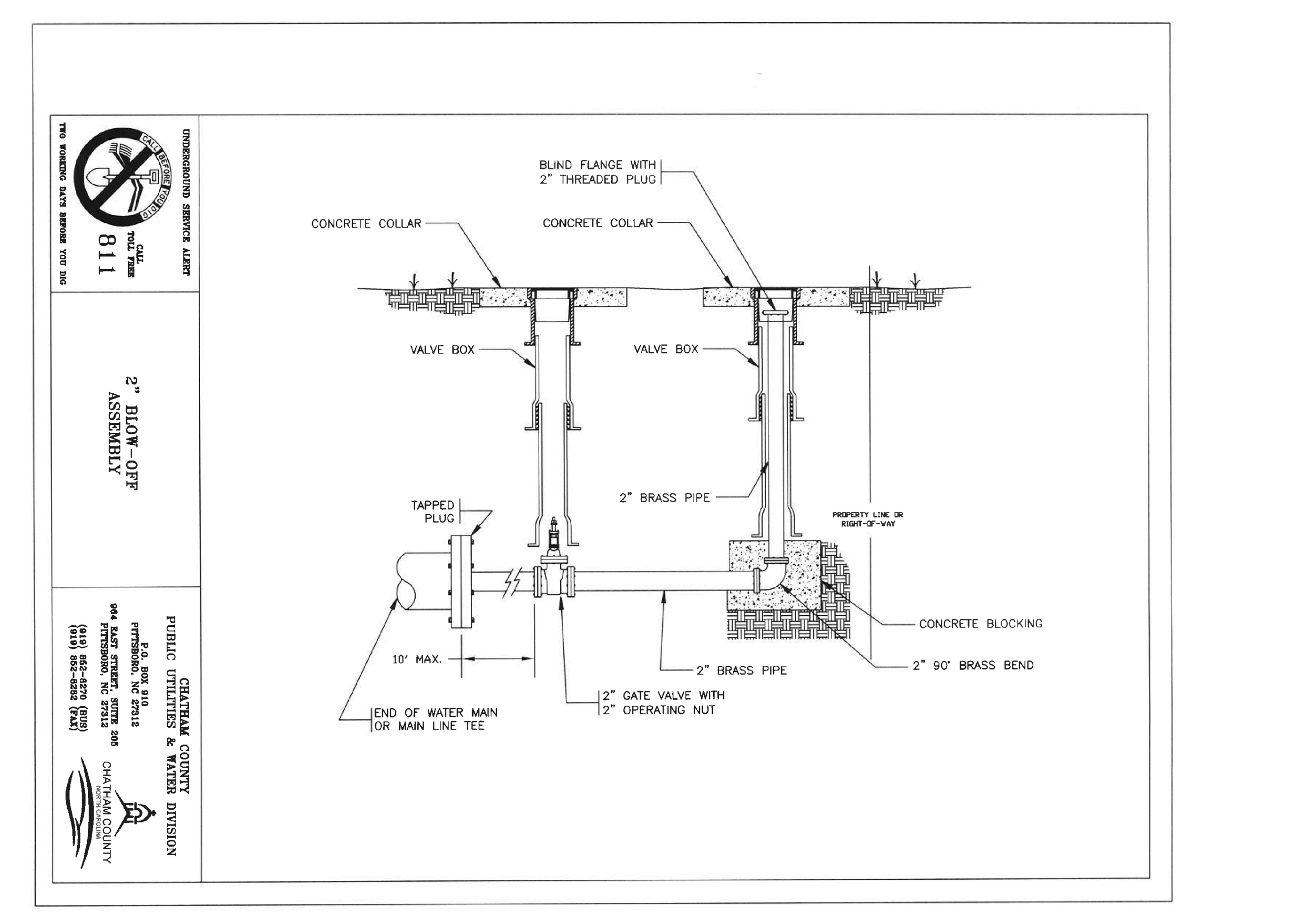
SHEET 2 OF 2
1525.06

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
PRECAST CONCRETE SANITARY SEWER MANHOLE WITH CAST-IN-PLACE BOTTOM

SHEET 2 OF 2
1525.06



BLIND FLANGE WITH 2" THREADED PLUG
CONCRETE COLLAR
CONCRETE COLLAR
VALVE BOX
VALVE BOX
2" BRASS PIPE
TAPPED PLUG
PROPERTY LINE OR RIGHT-OF-WAY
CONCRETE BLOCKING
10' MAX.
2" BRASS PIPE
2" 90° BRASS BEND
END OF WATER MAIN OR MAIN LINE TEE
2" GATE VALVE WITH 2" OPERATING NUT
UNDERGROUND SERVICE ALERT
CALL TOLL FREE
811
TWO WORKING DAYS BEFORE YOU DIG
2" BLOW-OFF ASSEMBLY
CHATHAM COUNTY
PUBLIC UTILITIES & WATER DIVISION
P.O. BOX 910
PITTSBORO, NC 27312
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CHATHAM COUNTY

REV.NO.	DESCRIPTIONS	DATE
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2	REVISIONS PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.06.01
1	INITIAL SUBMITTAL	2015.05.01

REVISIONS

SEAL

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT
07/22/2015
Gareth Avant

McKIM&CREED
1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
Phone: (919)233-8091, Fax: (919)233-8031
F-1222

www.mckimcreed.com

BRIAR CHAPEL™
by Newland COMMUNITIES

BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

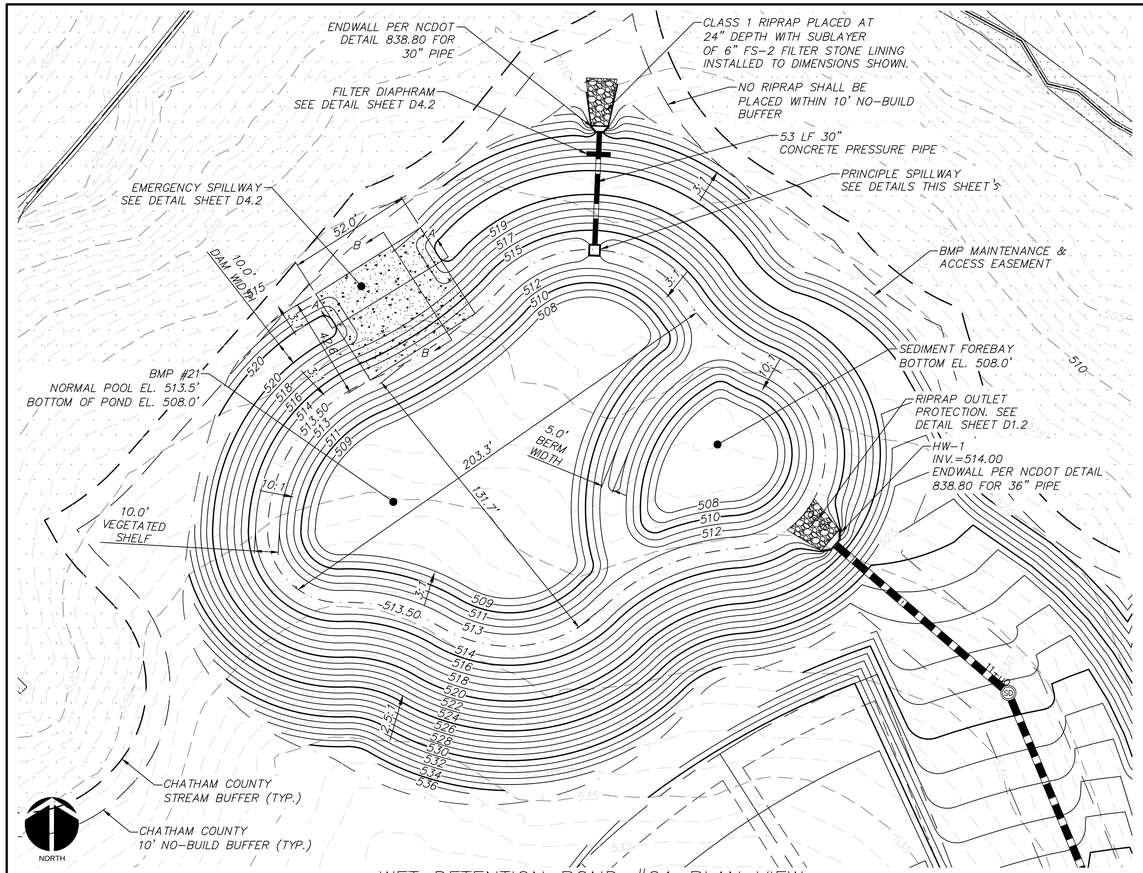
UTILITY DETAILS

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = N/A 0'
VERTICAL: N/A

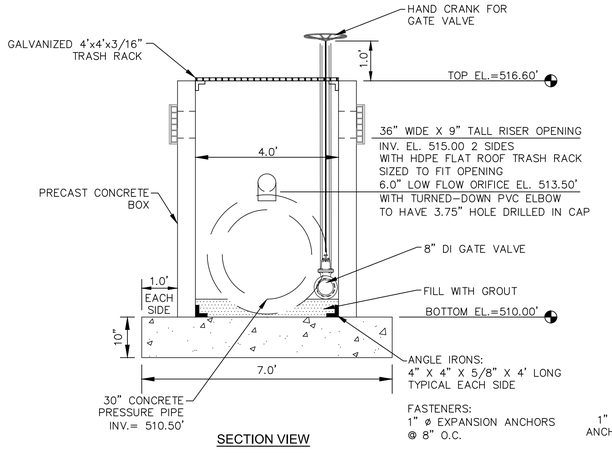
M&C FILE NUMBER D3.X
DRAWING NUMBER D3.2

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION 4



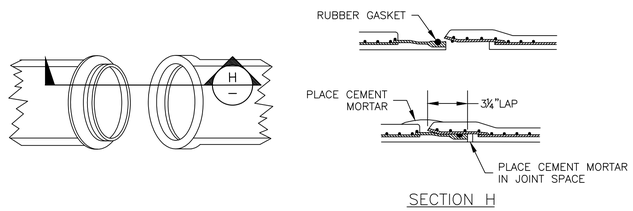
WET DETENTION POND #21 PLAN VIEW

SCALE = 1" = 30'



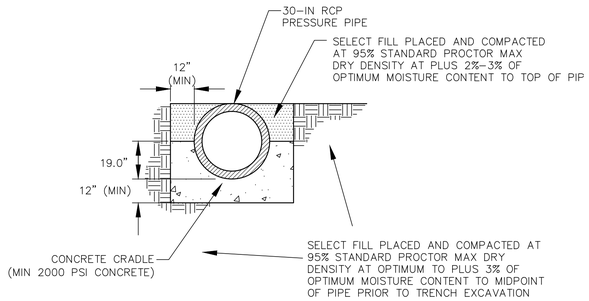
PRINCIPLE SPILLWAY

SCALE = 1" = 2'



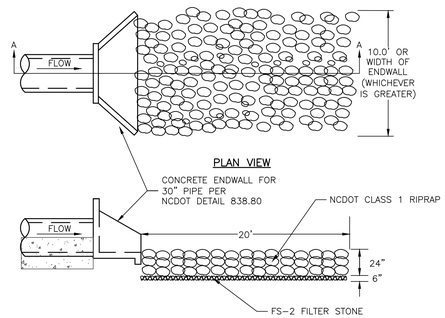
CONCRETE PRESSURE PIPE JOINT DETAIL

NTS



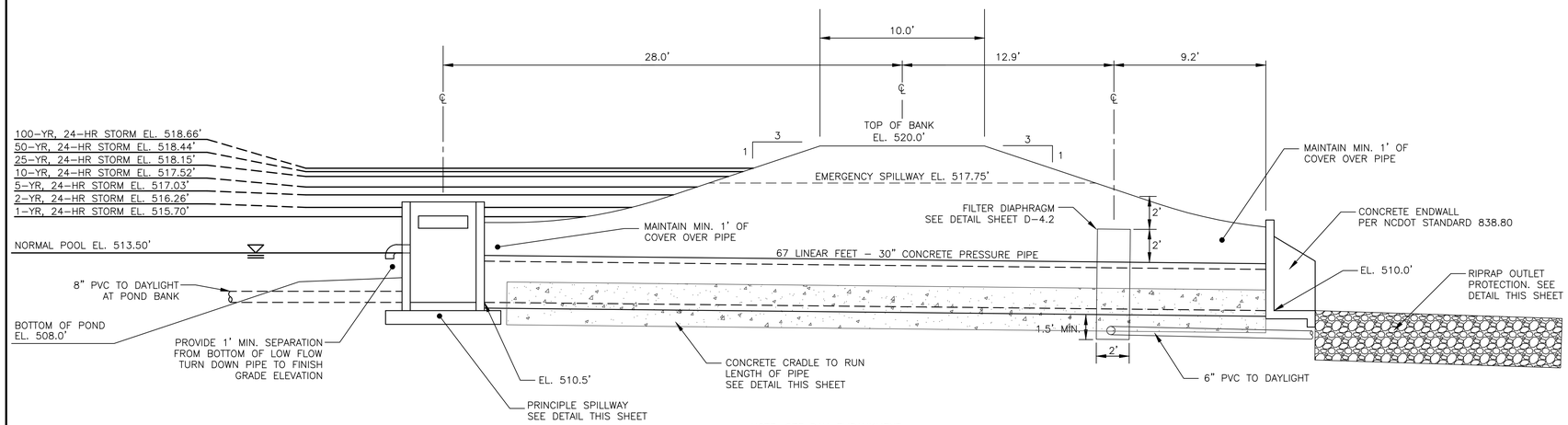
CONCRETE CRADLE DETAIL

NTS



RIPRAP OUTLET PROTECTION

NTS



NOTE: SEE DAM EMBANKMENT DETAIL (SHEET D-4.2)

SECTION AT PRINCIPLE SPILLWAY

SCALE = 1" = 4'

DESIGNER'S CERTIFICATION:

THE DESIGN OF STORMWATER MANAGEMENT FACILITIES AND PRACTICES WILL CONTROL AND TREAT THE RUNOFF FROM THE 1-YEAR/1-HOUR STORM OF THE ASSOCIATED DRAINAGE AREA. THESE DESIGNS AND PLANS ARE SUFFICIENT TO COMPLY WITH THE APPLICABLE STANDARDS AND POLICIES FOUND IN THE NCDENR STORMWATER BMP DESIGN MANUAL AND CHATHAM COUNTY'S STORMWATER ORDINANCE.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036348 07/01/2015 GARETH C. AVANT

REV.NO.	DESCRIPTIONS	DATE
4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
3	REVISIONS PER COMMENTS FROM CHATHAM COUNTY AND NCDOT	2015.07.01
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1	INITIAL SUBMITTAL	2015.05.01

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036348 07/22/2015 GARETH C. AVANT

McKIM&CREED
1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
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US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

BMP #21 PLAN & DETAILS

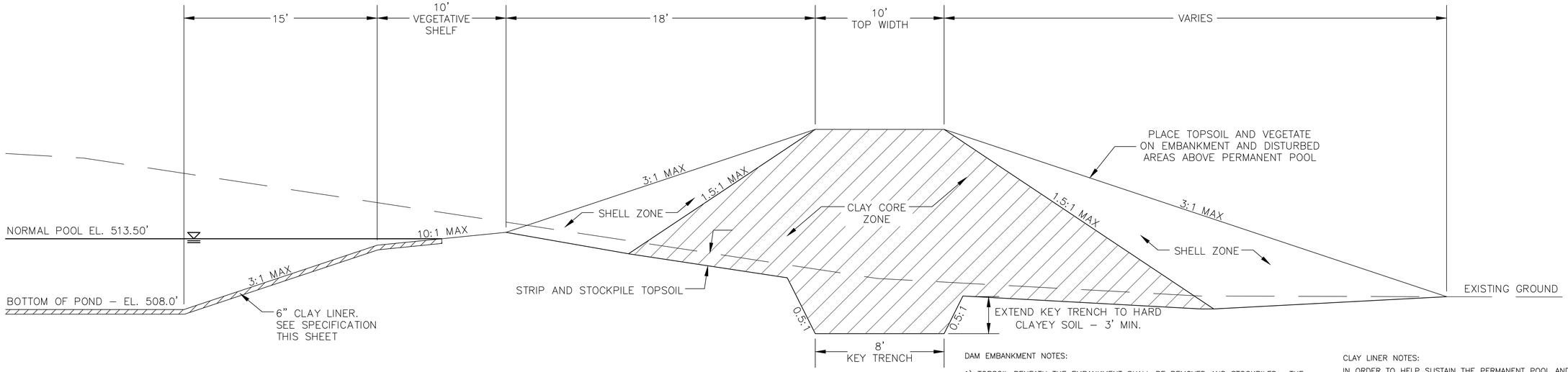
DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: AS NOTED
VERTICAL: N/A

M&C FILE NUMBER: D4.X
DRAWING NUMBER: D4.1

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

REVISION: 4



DAM EMBANKMENT DETAIL

NTS

DAM EMBANKMENT NOTES:

1) TOPSOIL BENEATH THE EMBANKMENT SHALL BE REMOVED AND STOCKPILED. THE FOUNDATION WILL BE PROOF ROLLED AND ANY SOFT OR ORGANIC MATERIALS WILL BE REMOVED.

2) ALL MATERIAL SHALL BE COMPACTED IN 6–8 INCH LIFTS TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY OR HIGHER (ASTM D–698). THE CLAY CORE ZONE WILL HAVE A MOISTURE CONTENT OF OPTIMUM TO 4 PERCENT ABOVE OPTIMUM MOISTURE CONTENT. THE SHELL ZONE FILL WILL HAVE A MOISTURE CONTENT FROM 2 PERCENT BELOW OPTIMUM MOISTURE CONTENT TO 4 PERCENT ABOVE OPTIMUM.

3) EMBANKMENT FILL:

SHELL ZONE: SOILS WITH LESS THAN 30% PASSING THE NO. 200 SIEVE OR A PI OF LESS THAN 10 WHEN THE PERCENTAGE OF MATERIAL PASSING THE NO. 200 SIEVE IS GREATER THAN 30 PERCENT. SOILS WHICH ARE CLASSIFIED AS CLAYS (CH OR CL) SHOULD NOT BE USED AT THE FACE OF THE SHELL ZONES.

CLAY CORE ZONE: CH, CL OR SC MATERIAL WITH A PI RANGING BETWEEN 15 AND 60

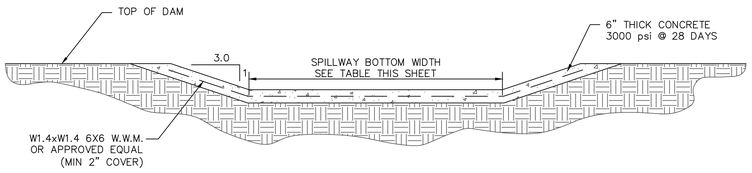
4) NO FILL SHALL CONTAIN ROCKS OR GRAVEL LARGER THAN 4 INCHES IN DIAMETER.

5) A PROFESSIONAL GEOTECHNICAL ENGINEER SHALL APPROVE ALL MATERIALS USED FOR THE EMBANKMENT AND SUPERVISE CONSTRUCTION.

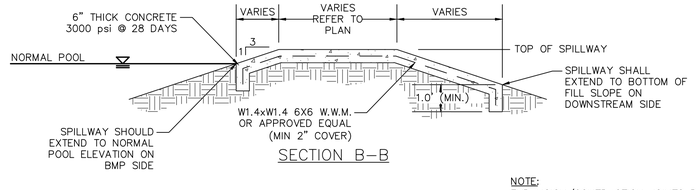
6) ALL DISTURBED AREAS ABOVE PERMANENT POOL SHALL BE SEEDED USING THE FOLLOWING GRASS SEED MIX MANUFACTURED BY ERNST SEED COMPANY: Carolina FACW Meadow Mix ERNMX–182

CLAY LINER NOTES:

IN ORDER TO HELP SUSTAIN THE PERMANENT POOL AND TO PREVENT WATER FROM INFILTRATING TOO QUICKLY INTO THE UNDERLYING SOIL, THE CONTRACTOR SHALL INSTALL A 6" THICK CLAY LINER ON THE BOTTOM OF THE BMP AREA UP TO THE NORMAL POOL ELEVATION. THE LINER CAN BE ACCOMPLISHED BY BLENDING EXISTING SITE SOILS WITH CLAY TO ACHIEVE A LOW PERMEABILITY MIXTURE OR BY INSTALLING A GEOSYNTHETIC LINER MADE OF A BENTOMAT CL. IF THE CONTRACTOR CHOOSES TO BLEND THE EXISTING SITE SOILS WITH CLAY, THE ONSITE GEOTECHNICAL ENGINEER SHALL DETERMINE THE AMOUNT OF CLAY TO ADD, THE DEGREE OF COMPACTION, AND WILL OVERSEE THE INSTALLATION OF THE CLAY LINER. THE MAXIMUM PERMEABILITY RATE FOR THE LINER SHALL BE 0.01 IN/HR IN ACCORDANCE WITH THE NCDENR BMP MANUAL. THE PROPOSED MATERIAL FOR THIS LINER SHALL BE TESTED BY THE ONSITE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. THE RESULTS OF THIS TESTING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR REVIEW PRIOR TO PLACEMENT. UPON COMPLETION OF LINER INSTALLATION, A 4" MINIMIMUM LAYER OF TOPSOIL SHALL BE ADDED OVER THE LINER TO PROVIDE A HEALTHY MEDIA FOR VEGETATION GROWTH.



SECTION A–A



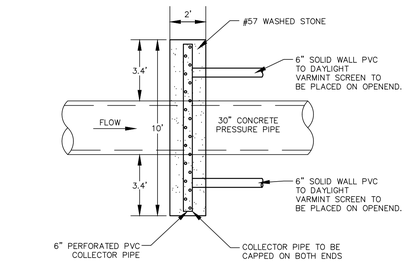
SECTION B–B

	NORMAL POOL EL.	TOP DAM EL.	SPILLWAY BOTTOM EL.	SPILLWAY BOTTOM WIDTH
BMP #21	513.50	520.00	517.75	40'

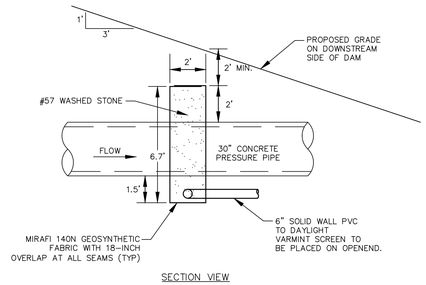
NOTE:
EXPANSION/CONTRACTION JOINTS PER AMERICAN CONCRETE INSTITUTE (ACI) STANDARDS FOR SLABS ON GRADE.

EMERGENCY SPILLWAY DETAIL

NTS



PLAN VIEW



SECTION VIEW

FILTER DIAPHRAGM DETAIL

NTS

DESIGNER'S CERTIFICATION:

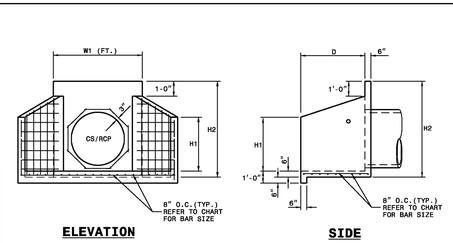
THE DESIGN OF STORMWATER MANAGEMENT FACILITIES AND PRACTICES WILL CONTROL AND TREAT THE RUNOFF FROM THE 1–YEAR/1–HOUR STORM OF THE ASSOCIATED DRAINAGE AREA. THESE DESIGNS AND PLANS ARE SUFFICIENT TO COMPLY WITH THE APPLICABLE STANDARDS AND POLICIES FOUND IN THE NCDENR STORMWATER BMP DESIGN MANUAL AND CHATHAM COUNTY'S STORMWATER ORDINANCE.

NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER Gareth C. Avant 07/01/2015

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-12

ENGLISH STANDARD DRAWING FOR **PRECAST CONCRETE ENDWALL** FOR SINGLE 12" THRU 72" PIPE - 90° SKEW

SHEET 1 OF 1 **838.80**



NOTES:

- THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 838.01, 838.11, 838.21, 838.27, 838.33, 838.39, 838.51, 838.57, 838.63 AND 838.69.
- INSTALL PRECAST ENDWALLS WITH WINGS AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 838.
- USE 4000 PSI CONCRETE.
- PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A185 WITH 2" MIN. CLEARANCE.
- PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
- PIPE TO BE GROUTED INTO HEADWALL AT JOB SITE BY CONTRACTOR
- ALL ELEMENTS PRECAST TO MEET ASTM C913.
- WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
- CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".

NOTE: THE MINIMUM BAR SIZE SHALL BE #5 BARS AT 8" CTS.THE CONTRACTOR WILL HAVE THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

ENDWALL DIMENSIONS

FT.	MINIMUM	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.
PIPE DIA.	BAR SIZE	H1(FT.)	H2(FT.)	D (FT.)	W1	W2
1.0	#5 @ 8"	1.25/2.00	2.00/3.75	1.25/1.75	3.00/3.75	5.50/6.00
1.25	#5 @ 8"	1.25/2.00	3.00/3.75	1.25/2.00	3.50/3.75	6.50/6.75
1.50	#5 @ 8"	1.25/2.00	3.00/4.25	1.50/2.50	3.50/3.75	6.50/6.75
2.0	#5 @ 8"	1.50/2.50	4.00/4.75	1.75/2.50	4.00/4.25	7.50/8.25
2.5	#5 @ 8"	2.50/3.50	4.00/6.00	2.00/3.00	4.50/5.50	10.00/11.50
3.0	#5 @ 8"	3.00/3.50	5.00/6.00	2.75/3.50	5.25/5.75	11.50/11.75
3.5	#5 @ 8"	3.25/4.50	6.00/6.75	3.25/3.50	6.00/6.75	12.00/13.25
4.0	#5 @ 8"	3.50/4.50	6.50/7.00	3.25/3.50	6.50/6.75	13.00/13.25
4.5	#5 @ 8"	4.00/5.00	6.50/8.50	3.25/4.00	7.00/9.25	13.50/15.75
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/9.25	13.75/15.75
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/9.25	14.00/15.75
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/9.25	14.75/16.75

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-12

ENGLISH STANDARD DRAWING FOR **PRECAST CONCRETE ENDWALL** FOR SINGLE 12" THRU 72" PIPE - 90° SKEW

SHEET 1 OF 1 **838.80**

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	
4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
3	REVISIONS PER COMMENTS FROM CHATHAM COUNTY AND NCDOT	2015.07.01
2	REVISIONS PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.06.01
1	INITIAL SUBMITTAL	2015.05.01

SEAL

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NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER Gareth C. Avant 07/22/2015

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BRIAR CHAPEL™ by Newland COMMUNITIES

BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

BMP #21 PLAN & DETAILS

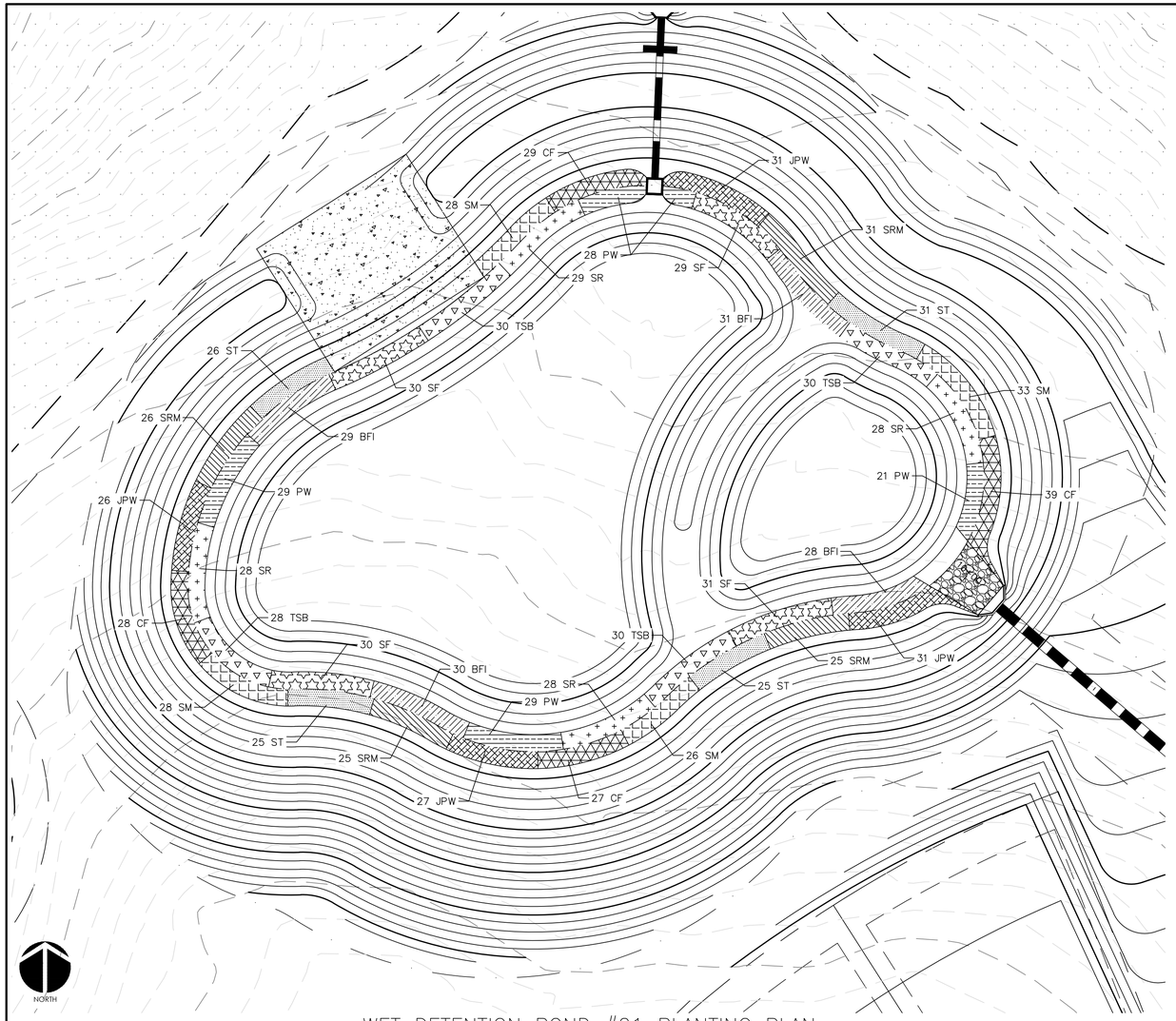
DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: AS NOTED
VERTICAL: N/A

M&C FILE NUMBER D4.X
DRAWING NUMBER D4.2

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

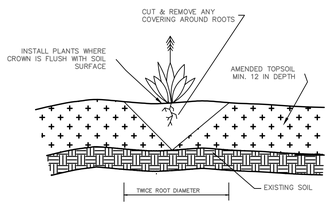
REVISION 4



WET DETENTION POND #21 PLANTING PLAN

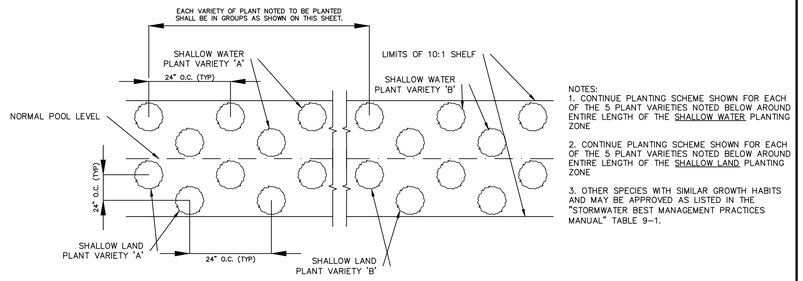
SCALE = 1" = 20'

PLANTING SCHEDULE						
SYM.	ABB.	COMMON NAME	BOTANICAL NAME	QUANTITY	SPACING	CONTAINER SIZE AT PLANTING
SHALLOW WATER PLANTINGS						
	SF	SWEETFLAG	*Acorus subcordatum*	120	24"–30" O.C.	1 QT.
	PW	PICKERELWEED	*Pontederia cordata*	107	24"–30" O.C.	1 QT.
	BFI	BLUE FLAG IRIS	*Iris virginica*	118	24"–30" O.C.	1 QT.
	SR	SOFT RUSH	*Juncus effusus var. pylaei or solutus*	113	24"–30" O.C.	1 QT.
	TSB	THREE SQUARE BULRUSH	*Schoenoplectus americanus*	118	24"–30" O.C.	1 QT.
SHALLOW LAND PLANTINGS						
	SM	SWAMP MILKWEED	*Asclepias incarnata*	115	24"–30" O.C.	1 QT.
	CF	CARDINAL FLOWER	*Lobelia cardinalis*	123	24"–30" O.C.	1 QT.
	SRM	SCARLET ROSE MALLOW	*Hibiscus coccineus*	107	24"–30" O.C.	1 QT.
	JPW	DWARF JOE PYE WEED	*Eupatoriadelphus dubius*	115	24"–30" O.C.	1 QT.
	ST	SPOTTED TRUMPETWEED	*Eupatoriadelphus maculatus*	107	24"–30" O.C.	1 QT.



GENERAL PLANTING DETAIL

NTS



NOTES:
1. CONTINUE PLANTING SCHEME SHOWN FOR EACH OF THE 5 PLANT VARIETIES NOTED BELOW AROUND ENTIRE LENGTH OF THE SHALLOW WATER PLANTING ZONE
2. CONTINUE PLANTING SCHEME SHOWN FOR EACH OF THE 5 PLANT VARIETIES NOTED BELOW AROUND ENTIRE LENGTH OF THE SHALLOW LAND PLANTING ZONE.
3. OTHER SPECIES WITH SIMILAR GROWTH HABITS AND MAY BE APPROVED AS LISTED IN THE "STORMWATER BEST MANAGEMENT PRACTICES MANUAL" TABLE 9–1.

VEGETATED PLANTING SHELF DETAIL

NTS

GENERAL PLANTING NOTES:

1. AVOID COMPACTING TOPSOIL TO PROMOTE HEALTHY ENVIRONMENTAL CONDITIONS FOR THE PLANTS.
2. ALL PLANTS SHOULD BE PLANTED IN THE INDICATED RANGE TO ENSURE SURVIVAL.
3. SHALLOW WATER AND SHALLOW LAND AREAS TO BE PLANTED WITH BARE ROOT, PLUGS, OR CONTAINER LIVE PLANTINGS AS SPECIFIED.
4. EXCAVATE A HOLE TWICE THE DIAMETER OF ROOT BALL AND EQUAL TO THE ROOT DEPTH OF THE INDIVIDUAL PLANT. PLACE PLANT IN HOLE WITH CROWN FLUSH WITH SOIL SURFACE. BACKFILL WITH TOPSOIL AND LIGHTLY PLANT.
5. BEGIN PLANTING DURING LOCAL GROWING SEASON IN ORDER TO ENSURE THAT PLANTS HAVE ADEQUATE TIME TO ESTABLISH BEFORE WINTER MONTHS.
6. OBTAIN PLANTS FROM: COASTAL PLAIN CONSERVATION NURSERY (252–482–5707), MELLOW MARSH FARMS (919–742–1200), CURE NURSERY (919–542–6186) OR ENGINEER APPROVED SUBSTITUTE.
7. REFER TO EROSION CONTROL DETAIL SHEET D1.2 FOR SEEDBED PREPARATION AND SEEDING SCHEDULES FOR AREAS NOT SPECIFIED IN THIS PLAN.

SHALLOW WATER PLANTING NOTES:

1. 70% OF PICKERELWEED SHOULD BE PLANTED WITHIN 5–6 INCHES BELOW NORMAL POOL.
2. 70% OF SWEETFLAG AND 70% OF SOUTHERN BLUE FLAG IRIS SHOULD BE PLANTED IN THE 2–3 INCHES BELOW NORMAL POOL.
3. 70% OF SOFT RUSH SHOULD BE PLANTED AT THE NORMAL POOL ELEVATION.

SHALLOW LAND PLANTING NOTES:

1. PLANTS IN THIS GROUP SHOULD NOT BE PLANTED IN AREAS THAT ARE INUNDATED FOR EXTENDED PERIODS.

DESIGNER'S CERTIFICATION:

THE DESIGN OF STORMWATER MANAGEMENT FACILITIES AND PRACTICES WILL CONTROL AND TREAT THE RUNOFF FROM THE 1–YEAR/1–HOUR STORM OF THE ASSOCIATED DRAINAGE AREA. THESE DESIGNS AND PLANS ARE SUFFICIENT TO COMPLY WITH THE APPLICABLE STANDARDS AND POLICIES FOUND IN THE NCDENR STORMWATER BMP DESIGN MANUAL AND CHATHAM COUNTY'S STORMWATER ORDINANCE.

NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT
07/01/2015

REV.NO.	DESCRIPTIONS	DATE
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3	REVISIONS PER COMMENTS FROM CHATHAM COUNTY AND NCDOT	2015.07.01
2	REVISIONS PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.06.01
1	INITIAL SUBMITTAL	2015.05.01

REVISIONS

SEAL

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NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT
07/22/2015

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BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

BMP #21 PLAN & DETAILS

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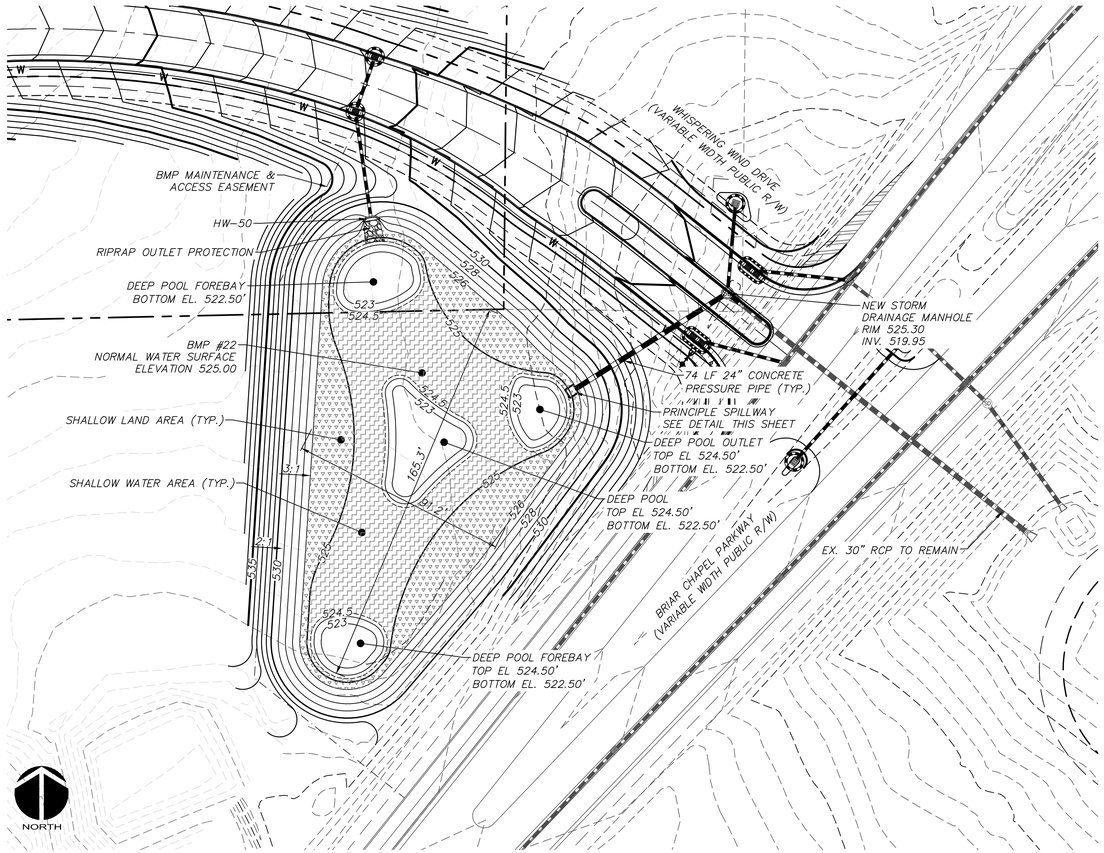
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: AS NOTED
VERTICAL: N/A

M&C FILE NUMBER: D4.X
DRAWING NUMBER: D4.3

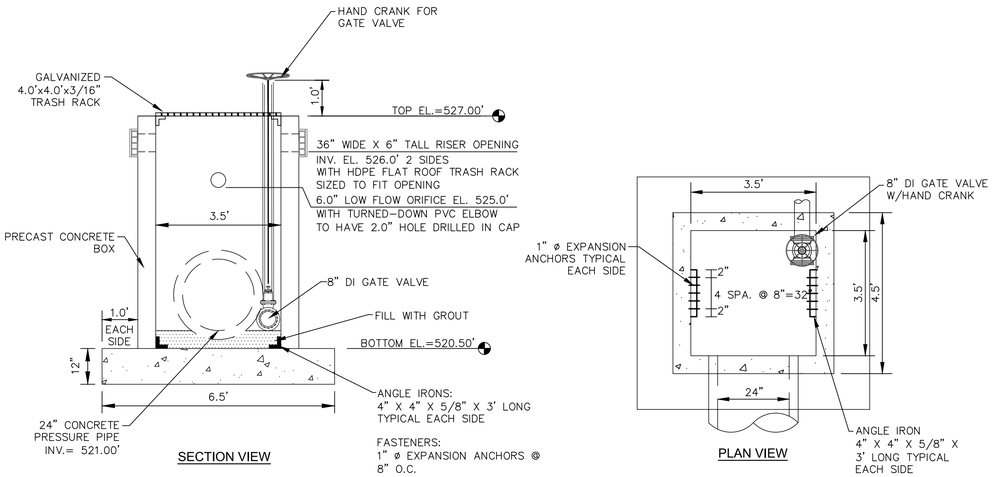
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

REVISION 4



STORMWATER WETLAND #22 PLAN VIEW

SCALE = 1" = 30'



PRINCIPLE SPILLWAY

SCALE = 1" = 2'

STORMWATER WETLAND PLANTING SCHEDULE

DEEP POOL ZONE: ALLOWABLE PLANT SPECIES (ELEVATION 524.5' – 523.0')

COMMON NAME	BOTANICAL NAME	DEPTH RANGE (INCHES BELOW NORMAL POOL)	SPACING (O.C., FT)	QUANTITY	PERCENTAGE	SIZE
SPATTERDOCK	NUPHAR POLYESPALUM	6–18	5	20	33%	2 IN PLUG (MIN)
FRAGRANT WHITE LILY	NYMPHAEA LUTEA	6–18	5	20	33%	2 IN PLUG (MIN)
AMERICAN LOTUS	NELUMBO LUTEA	6–18	5	20	33%	2 IN PLUG (MIN)

SHALLOW WATER ZONE: ALLOWABLE PLANT SPECIES (ELEVATION 525.0' – 524.5')

COMMON NAME	BOTANICAL NAME	DEPTH RANGE (INCHES BELOW NORMAL POOL)	SPACING (O.C., FT)	QUANTITY	PERCENTAGE	SIZE
ARROW ARUM	PELTANDRA VIRGINICA	0–6	3.0	150	10%	PINT
PICKERELWEED	PONTEDERIA CORDATA	0–6	3.0	150	10%	2 IN PLUG (MIN)
DUCK POTATO	SAGITTARIA LATIFOLIA	0–6	3.0	150	10%	BARE ROOT
SOFTSTEM BULRUSH	SCHOENOPLECTUS TABERNAEMONTANI	0–6	3.0	150	10%	2 IN PLUG (MIN)
SWEETFLAG	ACORUS CALAMUS	0–6	3.0	150	10%	BARE ROOT
THREE WAY SEDGE	DULICHIUM ARUNDINACEUM	0–6	3.0	150	10%	BARE ROOT
SPIKERUSH	ELEOCHARIS OBTUSA	0–6	3.0	150	10%	2 IN PLUG (MIN)
SOUTHERN BLUE FLAG IRIS	IRIS VIRGINICA	0–6	3.0	150	10%	2 IN PLUG (MIN)
LIZARD'S TAIL	SAURURUS CERNUUS	0–6	3.0	150	10%	3 IN PLUG (MIN)
SOFT RUSH	JUNCUS EFFUSUS	0–6	3.0	150	10%	2 IN PLUG (MIN)

SHALLOW LAND ZONE: ALLOWABLE PLANT SPECIES (ELEVATION 526.0' – 525.0')

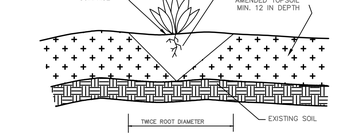
COMMON NAME	BOTANICAL NAME	DEPTH RANGE (INCHES ABOVE NORMAL POOL)	SPACING (O.C., FT)	QUANTITY	PERCENTAGE	SIZE
SWAMP MILKWEED	ASCLEPIAS INCARNATA	0–12	3.0	105	9.0%	2 IN PLUG (MIN)
FRINGED SEDGE	CAREX CRINITA	0–12	3.0	105	9.0%	2 IN PLUG (MIN)
GREAT BLADDER SEDGE	CAREX INTUMESCENS	0–12	3.0	105	9.0%	2 IN PLUG (MIN)
HOP SEDGE	CAREX LUPULINA	0–12	3.0	105	9.0%	2 IN PLUG (MIN)
SHALLOW SEDGE	CAREX LURIDA	0–12	3.0	105	9.0%	2 IN PLUG (MIN)
SCARLET ROSE MALLOW	HIBISCUS COCCINEUS	0–12	3.0	105	9.0%	2 IN PLUG (MIN)
ROSE MALLOW	HIBISCUS MOSCHEUTOS	0–12	3.0	105	9.0%	2 IN PLUG (MIN)
SPIDER LILY	HYMENOCALLIS EULAE	0–12	3.0	105	9.0%	2 IN PLUG (MIN)
SWAMP LILY	CRINUM ERUBESCENS	0–12	3.0	105	9.0%	2 IN PLUG (MIN)
CARDINAL FLOWER	LOBELIA CARDINALIS	0–12	3.0	105	9.0%	2 IN PLUG (MIN)
SWAMP SUNFLOWER	HELIANTHUS ANGUSTIFOLIUS	0–12	3.0	105	9.0%	2 IN PLUG (MIN)

STORMWATER WETLAND PLANTING LEGEND:

DEEP POOL (6" BELOW – 30" BELOW)

SHALLOW WATER (NORMAL POOL – 6" BELOW)

SHALLOW LAND (NORMAL POOL – 12" ABOVE)



GENERAL PLANTING DETAIL

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NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT 07/22/2015

STORMWATER WETLAND PLANTING NOTES

GENERAL PLANTING NOTES

1. AVOID COMPACTING TOPSOIL TO PROMOTE HEALTHY ENVIRONMENTAL CONDITIONS FOR THE PLANTS.
2. PLANTS OF THE SAME SPECIES SHOULD BE PLANTED IN CLUSTERS, THESE CLUSTERS SHOULD CONTAIN MIN. 4–6 PLANTS OF THAT SPECIES.
3. ALL PLANTS SHOULD BE PLANTED IN THE INDICATED RANGE TO ENSURE SURVIVAL.
4. AVOID PLANTING INDIVIDUAL SPECIES IN LARGE GROUPS BY SPACING CLUSTERS A MIN. OF 5' APART.
5. SHALLOW WATER AND SHALLOW LAND AREAS TO BE PLANTED WITH BARE ROOT, PLUGS, OR CONTAINER LIVE PLANTINGS AS SPECIFIED.
6. EXCAVATE A HOLE TWICE THE DIAMETER OF ROOT BALL AND EQUAL TO THE ROOT DEPTH OF THE INDIVIDUAL PLANT. PLACE PLANT IN HOLE WITH CROWN FLUSH WITH SOIL SURFACE. BACKFILL WITH TOPSOIL AND LIGHTLY PLANT.
7. BEGIN PLANTING DURING LOCAL GROWING SEASON IN ORDER TO ENSURE THAT PLANTS HAVE ADAQUET TIME TO ESTABLISH BEFORE WINTER MONTHS.
8. OBTAIN PLANTS FROM: COASTAL PLAIN CONSERVATION NURSERY (252–482–5707), MELLOW MARSH FARMS (919–742–1200), CURE NURSERY (919–542–6186) OR ENGINEER APPROVED SUBSTITUTE.

SHALLOW WATER PLANTING NOTES:

1. 70% OF SOFT STEM BULRUSH SHOULD BE PLANTED WITHIN 3–4 INCHES BELOW NORMAL POOL.
2. 70% OF PICKERELWEED AND 70% OF ARROW ARUM SHOULD BE PLANTED WITHIN 5–6 INCHES BELOW NORMAL POOL.
3. SEDGES SHOULD BE PLANTED WITHIN 0–2 INCHES BELOW NORMAL POOL.
4. 70% OF SWEETFLAG, 70% OF LIZARDS TAIL, AND 70% OF SOUTHERN BLUE FLAG IRIS SHOULD BE PLANTED IN THE 2–3 INCHES BELOW NORMAL POOL.
5. 70% OF SOFT RUSH SHOULD BE PLANTED AT THE NORMAL POOL ELEVATION.

SHALLOW LAND PLANTING NOTES:

1. PLANTS IN THIS GROUP SHOULD NOT BE PLANTED IN AREAS THAT ARE INUNDATED FOR EXTENDED PERIODS.
2. 70% OF CARDINAL FLOWER AND 70% OF BLUE LOBELIA SHOULD BE PLANTED WITHIN 0–1 INCH OF THE NORMAL POOL ELEVATION.

DEEP POOL PLANTING NOTES:

1. ENSURE ALL PLANTS ARE PLACED IN WATER NO DEEPER THAN 24 INCHES BELOW NORMAL POOL

GRADING PLAN NOTES:

1. WETLAND MUST BE STABILIZED WITHIN 14 DAYS OF CONSTRUCTION
2. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR LOCATING AND PROTECTION OF EXISTING ABOVE AND BELOW GROUND UTILITIES AND STRUCTURES. ANY AND ALL MAINS OR INDIVIDUAL SERVICES LINES PRESENTLY IN SERVICE WHICH ARE DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED IMMEDIATELY AT NO ADDITIONAL EXPENSE TO THE UTILITY OWNER.
3. CONTRACTOR SHALL KEEP ALL PARKING AREAS AND STREETS ADJACENT TO THE CONSTRUCTION SITE CLEAN AND OPEN AT ALL TIMES DURING CONSTRUCTION.
4. ALL SHALLOW WATER AND SHALLOW LAND AREAS WITHIN THE WETLAND CELL SHALL BE TOP DRESSED WITH A MINIMUM OF 12 IN OF TOPSOIL.
5. ALL ITEMS WHICH ARE SHOWN FOR REMOVAL SHALL BE REMOVED FROM THE CONSTRUCTION SITE AND LEGALLY DISPOSED OF OFF SITE.
6. ALL CONSTRUCTION TO BE PERFORMED IN ACCORDANCE WITH CURRENT CITY OF JACKSONVILLE STANDARDS, SPECIFICATIONS AND DETAILS; UNLESS OTHERWISE INDICATED ON PLANS.
7. CONTRACTOR SHALL AT ALL TIMES MAINTAIN ADEQUATE SAFETY MEASURES, ACTIVITIES, AND BARRICADES FOR THE PROTECTION OF ALL PERSONS ON OR ABOUT THE LOCATION OF THE SITE.
8. GRADE TO ELEVATIONS AND DIMENSIONS SHOWN ON DRAWINGS. ELEVATIONAL GRADING TOLERANCE IS ±0.1 FT.
9. NO GRADING IS TO OCCUR IN THE DEEP POOL AREAS BEYOND THE SPECIFIED GRADING LIMITS.

TOPSOIL SPECIFICATION:

1. TOPSOIL TO BE ADDED TO TOP OF WETLAND SHELF IS TO MEET CRITERIA SPECIFIED BELOW.
2. TOPSOIL SHALL BE WELL MIXED, FREE OF TRASH AND DEBRIS, UNCOMPACTED, AND VOID OF LARGE STONES (>2 INCHES) AND WOODY MATERIAL (>3 INCHES).
3. TOPSOIL SHALL MEET THE FOLLOWING SPECIFICATIONS:
   SOIL TYPE: CLAY < 60%, SAND < 80%, SILT < 80%
   ORGANIC CONTENT: 5–8%
   P–I: 20<50
   pH: 6.0–7.0
4. IN THE EVENT THAT SELECTED TOPSOIL DOES NOT MEET SPECIFICATION LISTED ABOVE, SOIL CAN BE AMENDED BY ADDITION OF APPROPRIATE MATERIALS (MASON SAND OR MATURE STABLE COMPOST, OR LIME).
5. UPON PLACEMENT OF TOPSOIL, AREA SHOULD BE LIGHTLY COMPACTED TO ENSURE STABILIZATION OF MATERIAL.
6. EXCESSIVE TRAFFICKING OF EQUIPMENT OVER WETLAND PLANTING AREAS SHOULD BE AVOIDED.
7. MINIMUM DEPTH OF TOPSOIL SHOULD BE 12 INCHES.

EARTHWORK SPECIFICATIONS

1. GRADE TO ELEVATIONS AND DIMENSIONS SHOWN ON DRAWINGS. GRADED ELEVATIONAL TOLERANCE SHALL BE ±0.1 FT.
2. TOPSOIL MATERIAL SHALL BE APPROVED BY ENGINEER PRIOR TO USE BASED ON SOIL PROPERTY TEST SUBMITTALS THAT INCLUDE STANDARD TEST METHOD FOR PARTICLE–SIZE ANALYSIS (ASTM D422), PARTICLE SIZE ANALYSIS OF SOILS (AASHTO T88), AND NCDA SOIL ANALYSIS.
3. INSTALL FINAL COVER IN ACCORDANCE WITH PERMANENT SEEDING SPECIFICATIONS WHERE APPLICABLE.

CLAY LINER SPECIFICATIONS

IN ORDER TO HELP SUSTAIN THE PERMANENT POOL AND TO PREVENT WATER FROM INFILTRATING TOO QUICKLY INTO THE UNDERLYING SOIL, THE CONTRACTOR SHALL INSTALL A 6" THICK CLAY LINER ON THE BOTTOM OF THE BMP AREA UP TO THE NORMAL POOL ELEVATION. THE LINER CAN BE ACCOMPLISHED BY BLENDING EXISTING SITE SOILS WITH CLAY TO ACHIEVE A LOW PERMEABILITY MIXTURE OR BY INSTALLING A GEOSYNTHETIC LINER MADE OF A BENTOMAT CL. IF THE CONTRACTOR CHOOSES TO BLEND THE EXISTING SITE SOILS WITH CLAY, THE ONSITE GEOTECHNICAL ENGINEER SHALL DETERMINE THE AMOUNT OF CLAY TO ADD, THE DEGREE OF COMPACTION, AND WILL OVERSEE THE INSTALLATION OF THE CLAY LINER. THE MAXIMUM PERMEABILITY RATE FOR THE LINER SHALL BE 0.01 IN/HR OR LESS IN ACCORDANCE WITH THE NCDENR BMP MANUAL. THE PROPOSED MATERIAL FOR THIS LINER SHALL BE TESTED BY THE ONSITE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. THE RESULTS OF THIS TESTING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR REVIEW PRIOR TO PLACEMENT. UPON COMPLETION OF LINER INSTALLATION, A 4" MINIMIMUM LAYER OF TOPSOIL SHALL BE ADDED OVER THE LINER TO PROVIDE A HEALTHY MEDIA FOR VEGETATION GROWTH.

REV.NO.	DESCRIPTIONS	DATE
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1	INITIAL SUBMITTAL	2015.05.01

SEAL

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NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT 07/22/2015

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BRIAR CHAPEL™ by Newland COMMUNITIES

BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA

BMP #22 PLAN & DETAILS

DATE:	JUNE 1, 2015
MCE PROJ. #	02735-0130
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: AS NOTED
VERTICAL: N/A

MSC FILE NUMBER D4.X
DRAWING NUMBER D4.4

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION 4

STORM DRAINAGE SUMMARY TABLE

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CB-30	CI-29	535.55	535.30	24"	RCP	43.2	0.58%
CB-45	CI-44	538.00	537.75	15"	RCP	23.6	1.06%
CB-58	SDMH-57	520.25	520.05	15"	RCP	37.6	0.53%
CB-59	EX BCP-CB-54	519.60	519.20	15"	RCP	72.2	0.55%
CI-5	DBL CI-4	531.00	530.15	36"	RCP	102.5	0.83%
CI-6	CI-5	532.85	531.10	36"	RCP	137.9	1.27%
CI-7	CI-6	533.80	532.95	36"	RCP	104.9	0.81%
CI-8	CI-7	534.30	533.90	36"	RCP	75.4	0.53%
CI-9	CI-8	534.90	534.40	36"	RCP	90.6	0.55%
CI-10	CI-9	537.85	536.30	30"	RCP	120.8	1.28%
CI-11	CI-10	539.10	537.95	30"	RCP	103.3	1.11%
CI-12	CI-11	539.90	539.20	30"	RCP	102.8	0.68%
CI-13	CI-12	540.15	540.00	30"	RCP	24.5	0.61%
CI-15	DBL CI-14	542.35	540.60	24"	RCP	207.5	0.84%
CI-16	CI-15	544.65	543.20	24"	RCP	121.3	1.20%
CI-17	CI-16	546.50	544.75	18"	RCP	167.4	1.05%
CI-18	CI-17	546.85	546.60	18"	RCP	24.5	1.02%
CI-19	CI-18	548.00	546.95	18"	RCP	126.5	0.83%
CI-20	CI-19	549.60	548.10	18"	RCP	129.0	1.16%
CI-21	CI-20	551.00	549.70	18"	RCP	120.5	1.08%

STORM DRAINAGE SUMMARY TABLE

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-22	CI-21	552.70	551.10	18"	RCP	137.1	1.17%
CI-23	CI-22	553.00	552.80	15"	RCP	24.5	0.82%
CI-24	CI-20	549.90	549.70	15"	RCP	24.5	0.82%
CI-25	CI-16	545.65	545.35	15"	RCP	24.5	1.22%
CI-28	CI-10	538.75	538.50	15"	RCP	24.5	1.02%
CI-29	CI-9	535.20	535.00	24"	RCP	24.5	0.82%
CI-31	CI-8	535.50	535.35	15"	RCP	24.5	0.61%
CI-32	CI-31	535.75	535.60	15"	RCP	41.4	0.36%
CI-33	CI-32	536.00	535.85	15"	RCP	25.0	0.60%
CI-34	CI-6	534.60	534.45	15"	RCP	24.5	0.61%
CI-35	DBL CI-4	531.90	530.15	30"	RCP	95.9	1.82%
CI-36	CI-35	534.00	532.50	24"	RCP	86.1	1.74%
CI-37	CI-36	535.00	534.10	24"	RCP	47.9	1.88%
CI-38	CI-37	535.50	535.10	18"	RCP	24.8	1.61%
CI-39	CI-38	536.25	535.60	18"	RCP	76.4	0.85%
CI-40	CI-39	538.95	536.35	18"	RCP	138.5	1.88%
CI-41	CI-40	541.45	539.05	18"	RCP	130.3	1.84%
CI-42	CI-40	539.20	539.05	15"	RCP	24.5	0.61%
CI-43	CI-38	535.85	535.60	15"	RCP	32.7	0.76%
CI-44	CI-43	537.65	535.95	15"	RCP	97.4	1.74%

STORM DRAINAGE SUMMARY TABLE

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-46	CI-36	534.40	534.20	15"	RCP	24.5	0.82%
CI-51	HW-50	526.50	526.00	15"	RCP	44.3	1.13%
CI-52	CI-51	526.75	526.60	15"	RCP	24.5	0.61%
DBL CI-3	SDMH-2	523.95	521.00	36"	RCP	106.2	2.78%
DBL CI-4	DBL CI-3	524.20	524.05	36"	RCP	24.5	0.61%
DBL CI-14	CI-13	540.50	540.25	30"	RCP	43.0	0.58%
DBL CI-27	DBL CI-14	541.50	541.35	15"	RCP	24.5	0.61%
DBL CI-55	BCP - EX. DBL CI-53	521.95	521.76	15"	RCP	36.6	0.52%
DBL CI-56	BCP - EX. CI-57	521.30	521.10	15"	RCP	39.9	0.50%
EX. CULVERT - UPSTREAM	EX. CULVERT - DOWNSTREAM	519.61	512.73	24"	RCP	152.2	4.52%
FES-26	CI-15	542.90	542.45	18"	RCP	45.5	0.99%
OESD-48	SDMH-47	524.95	524.85	24"	RCP	14.7	0.68%
SDMH-2	HW-1	515.00	514.00	36"	RCP	95.2	1.05%
SDMH-47	DBL CI-4	524.75	524.30	24"	RCP	55.8	0.81%
SDMH-57	EX. CULVERT - UPSTREAM	519.95	519.61	24"	RCP	7.5	4.52%

SANITARY SEWER SUMMARY TABLE

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
SSMH-1	EX. SSMH-19	527.20	525.90	8"	DIP	258.2	0.50%
SSMH-2	SSMH-1	528.18	527.40	8"	DIP	157.0	0.50%
SSMH-3	SSMH-2	533.50	531.75	8"	PVC	95.3	1.84%
SSMH-4	SSMH-3	537.20	533.70	8"	PVC	202.6	1.73%
SSMH-5	SSMH-4	543.75	537.40	8"	PVC	202.6	3.13%
SSMH-6	SSMH-2	529.12	528.38	8"	PVC	146.5	0.50%
SSMH-7	SSMH-6	529.85	529.32	8"	PVC	105.9	0.50%
SSMH-8	SSMH-7	530.47	530.05	8"	PVC	84.8	0.50%
SSMH-9	SSMH-8	531.22	530.67	8"	PVC	110.2	0.50%
SSMH-10	SSMH-9	532.34	531.42	8"	PVC	182.8	0.50%
SSMH-11	SSMH-10	535.60	532.65	8"	PVC	218.6	1.35%
SSMH-12	SSMH-10	532.96	532.54	8"	PVC	83.3	0.50%
SSMH-13	SSMH-12	533.57	533.16	8"	PVC	82.1	0.50%
SSMH-14	SSMH-13	533.95	533.77	6"	PVC	32.7	0.55%
SSMH-15	SSMH-13	535.18	533.77	8"	PVC	282.5	0.50%
SSMH-16	SSMH-15	536.40	536.20	6"	PVC	33.6	0.60%
SSMH-17	SSMH-15	535.70	535.38	8"	PVC	58.9	0.54%
SSMH-18	SSMH-17	537.30	536.45	8"	PVC	159.8	0.53%
SSMH-19	SSMH-18	538.20	537.50	8"	PVC	133.9	0.52%
SSMH-20	SSMH-19	539.10	538.40	8"	PVC	134.1	0.52%
SSMH-21	SSMH-20	540.05	539.30	8"	PVC	136.4	0.55%
SSMH-22	SSMH-21	542.30	540.25	8"	DIP	390.0	0.53%
SSMH-23	SSMH-22	543.55	542.50	8"	DIP	201.5	0.52%
SSMH-24	SSMH-23	544.45	543.75	8"	DIP	138.7	0.50%
SSMH-25	SSMH-24	545.45	544.65	8"	PVC	147.0	0.54%

REV.NO.	DESCRIPTIONS	DATE
4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
3	REVISIONS PER COMMENTS FROM CHATHAM COUNTY AND NCDOT	2015.07.01
2	REVISIONS PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.06.01
1	INITIAL SUBMITTAL	2015.05.01

REVISIONS

SEAL

SEAL

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07/22/2015

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STORM DRAINAGE &
SANITARY SEWER TABLES

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MCE PROJ. #	02735-0130
DRAWN	BSS
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SCALE
HORIZONTAL: N/A
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REVISION 4