



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

August 9, 2019

Chatham County

Subject: Subdivision Plan Approval – Briar Chapel Subdivision Phase 14 off of Catullo Run in Chatham County

Chris Seamster, PE
1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
CSEAMSTER@MCKIMCREED.COM

Dear Mr. Seamster:

The N. C. Department of Transportation, Division of Highways has reviewed the construction plans signed and sealed by Gareth Avant, P.E. on 7/25, and incorporated revised sheets signed 8/6 and 8/9 of 2019 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 required for the connection of Phase 14 roads to Catullo Run (non-system portion).
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 (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 piped ditches or other installed encroachment prior to addition to the State maintained system are

Mailing Address:
NC DEPARTMENT OF
TRANSPORTATION
DIVISION 8, DISTRICT 1
POST OFFICE BOX 1164
ASHEBORO, NC 27204

Telephone: (336) 318-4000
Fax: (336) 318-4573
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
300 DOT DRIVE
ASHEBORO, NC 27204

subject to an encroachment agreement, as are utility company installations when the road is added.

6. The typicals as shown in the attached 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 Morgan DeWit, P.E., Erosion Control and Stormwater, 12 East Street, P.O. Box 1809, Pittsboro, N.C. 27312, phone (919) 542-8268 morgan.dewit@chathamnc.org for 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 one copy 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 or the party responsible for maintenance of the right of way 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 Environmental Quality (f.k.a. DENR), copy 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. Permanent easements for drainage throughout the development.
 - C. All roads shall be shown as public and the right of way width shown
9. 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 to the State maintenance system.
10. 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 utilities should be located at the back of ditch (outside the shoulders and ditches) and as close to the right of way line as possible. 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

Sincerely,

DocuSigned by:

DE44C69F4BC74D9...
Matthew Kitchen, PE
District Engineer

Attachments

cc: Brandon Jones, PE, Division Engineer
Justin Bullock, P.E., Chatham County Maintenance Engineer
Kimberly Tyson, Chatham County Subdivision Administrator (kimberly.tyson@chathamnc.org)
Bill Scholl, Division Right of Way Agent
File



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
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: _____

Professional Engineer Seal

SIGNATURE: _____

NC PE LICENSE #: _____

Mailing Address:
NC DEPARTMENT OF
TRANSPORTATION
DIVISION 8, DISTRICT 1
POST OFFICE BOX 1164
ASHEBORO, NC 27204

Telephone: (336) 318-4000
Fax: (336) 318-4573
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
300 DOT DRIVE
ASHEBORO, NC 27204

**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: _____

Applicant's Name: _____

P.E. SEAL

Date Submitted: _____

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: _____

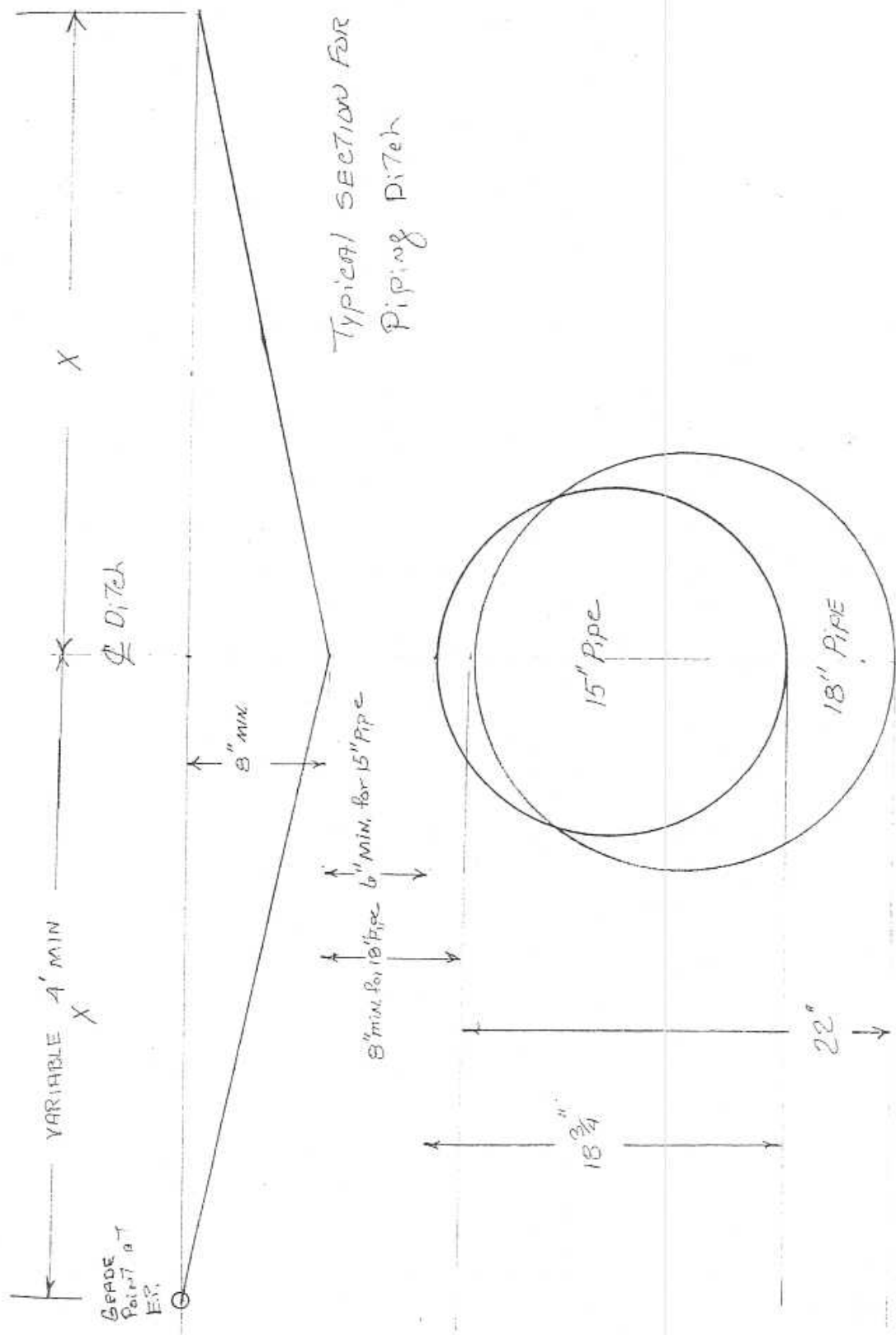
Street Address: _____

Mailing Address: _____

PROPERTY OWNERS

<u>Name</u>	<u>Mailing Address</u>	<u>Telephone</u>
-------------	------------------------	------------------

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____



**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

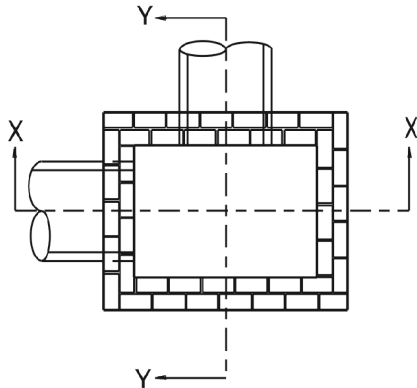
SUPER CAST, INC.
1104 US HWY. 117 BYPASS, S.
GOLDSBORO, N.C. 27530
(919)736-9010 FAX (919)736-0290

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

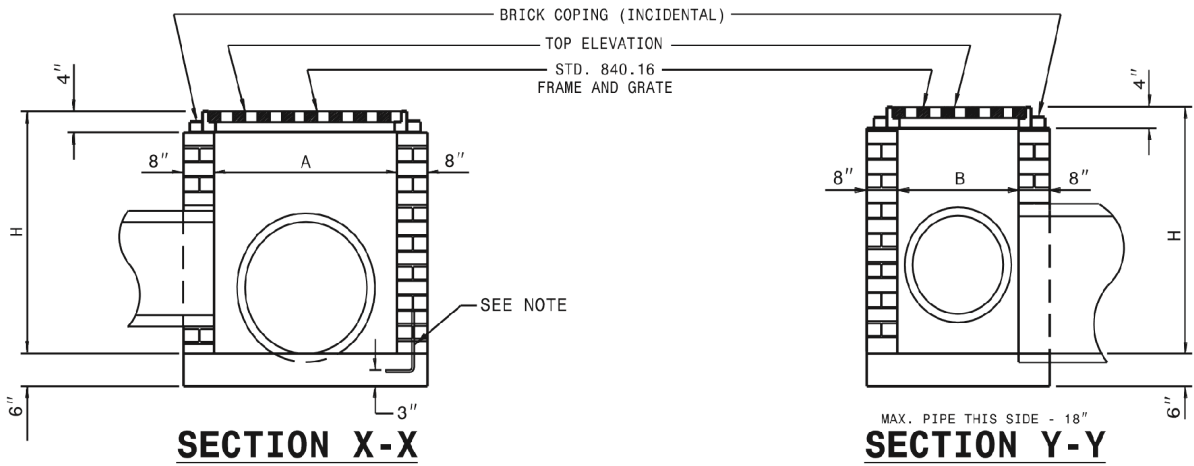
ENNIS ENTERPRISES
P.O. BOX 931
WILMINGTON, N.C. 28402
(910) 371-9323



PLAN
WITH COPING REMOVED

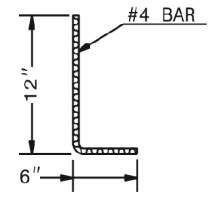
GENERAL NOTES:

- MORTAR JOINTS $\frac{1}{2}$ " +/- $\frac{1}{8}$ " 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 8'-0" IN HEIGHT OR LESS, USE 8" WALL. OVER 8'-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.



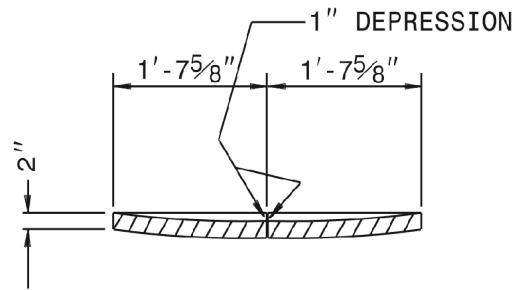
SECTION X-X

SECTION Y-Y

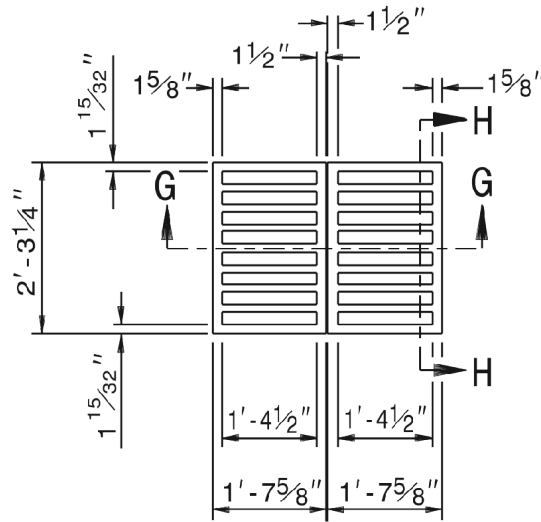


DOWEL

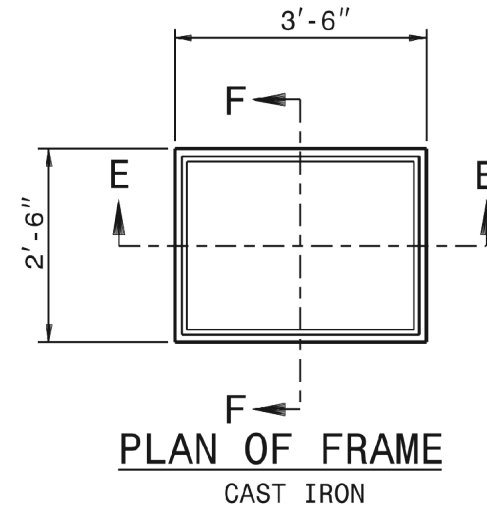
DIMENSIONS AND QUANTITIES FOR DROP INLET (BASED ON MIN. HEIGHT, H)									
DIMENSIONS OF BOX & PIPE				CUBIC YARDS CONCRETE	CUBIC YARDS BRICK MASONRY			DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	MIN. HEIGHT		BOTTOM SLAB	WALL PER FOOT HT.	TOTAL BRICK MASONRY FOR MIN. HEIGHT, H	C.S.	R.C.
12"	3'-0"	2'-0"	2'-0"	0.268	0.313	0.522	0.020	0.032	
15"	/	/	2'-3"	0.268	0.313	0.600	0.031	0.047	
18"	/	/	2'-6"	0.268	0.313	0.678	0.044	0.065	
24"	/	/	3'-0"	0.268	0.313	0.835	0.078	0.113	
30"	3'-0"	2'-0"	3'-6"	0.268	0.313	0.991	0.122	0.170	



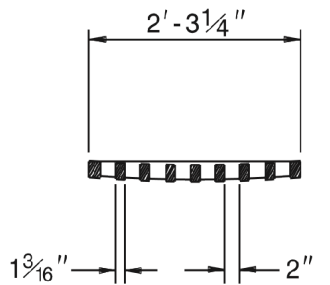
SECTION G-G



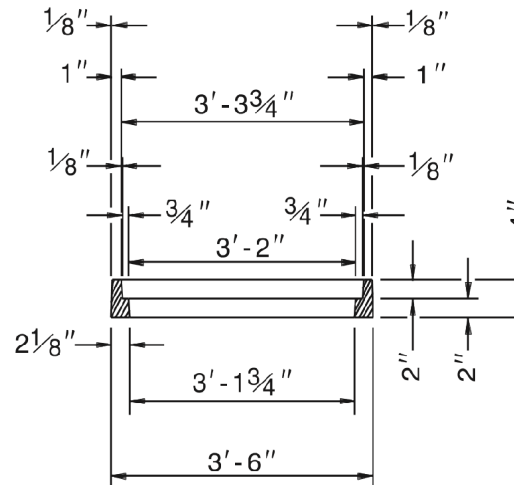
PLAN OF GRATING
CAST IRON



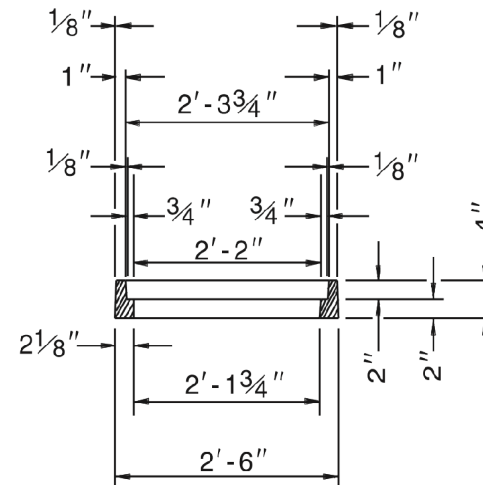
PLAN OF FRAME
CAST IRON



SECTION H-H



SECTION E-E



SECTION F-F

1-18

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

ROADWAY 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

STABILIZATION REQUIREMENTS:

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective August 3, 2011 issued by the North Carolina Department of Environment and Natural Resources Division of Water Quality. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land- disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 3:1 or flatter, with a slope of length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 04A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

NATIVE GRASS SEEDING AND MULCHING:

(West)

Native Grass Seeding and Mulching shall be performed on the disturbed areas of wetlands and riparian areas, and adjacent to Stream Relocation and/or trout stream construction within a 50 foot zone on both sides of the stream or depression, measured from top of stream bank or center of depression. The stream bank of the stream relocation shall be seeded by a method that does not alter the typical cross section of the stream bank. Native Grass Seeding and Mulching shall also be performed in the permanent soil reinforcement mat section of preformed scour holes, and in other areas as directed.

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

August 1 - June 1		May 1 – September 1	
18#	Creeping Red Fescue	18#	Creeping Red Fescue
8#	Big Bluestem	8#	Big Bluestem
6#	Indiangrass	6#	Indiangrass
4#	Switchgrass	4#	Switchgrass
35#	Rye Grain	25#	German or Browntop Millet
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000	Limestone

Approved Creeping Red Fescue Cultivars: Aberdeen

Boreal

Epic

Cindy Lou

Fertilizer shall be 10-20-20 analysis. 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 and as directed.

Temporary Seeding

Fertilizer shall be the same analysis as specified for *Seeding and Mulching* and applied at the rate of 400 pounds and seeded at the rate of 50 pounds per acre. German Millet or Browntop Millet shall be used in summer months and rye grain during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

Fertilizer Topdressing

Fertilizer used for topdressing shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

Supplemental Seeding

The kinds of seed and proportions shall be the same as specified for *Seeding and Mulching*, and the rate of application may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

Mowing

The minimum mowing height shall be 6 inches.

Measurement and Payment

Native Grass *Seeding and Mulching* will be measured and paid for in accordance with Article 1660-8 of the *Standard Specifications*.

BRIAR CHAPEL

PHASE 14

CONSTRUCTION DRAWINGS

CATULLO RUN

CHATHAM COUNTY, NORTH CAROLINA

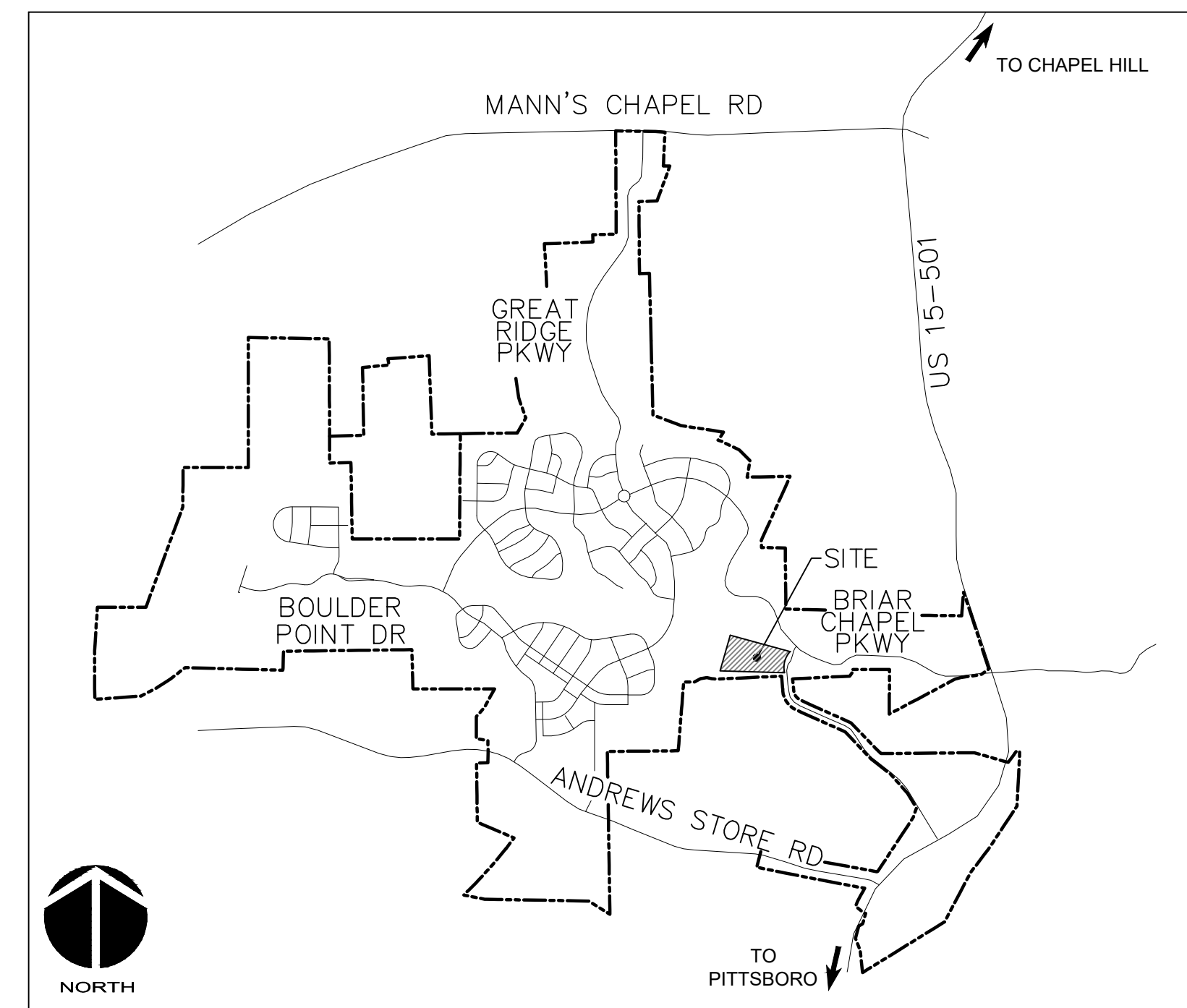
DATE: AUGUST 9, 2019

SHEET INDEX

NO.	DESCRIPTION	REVISION DATE
C0.1	COVER SHEET	
C0.2	EXISTING CONDITIONS & DEMOLITION PLAN	2019.07.25
C1.0	OVERALL SITE PLAN	2019.08.09
C1.1	SITE PLAN	2019.08.09
C1.2	SITE PLAN	2019.08.09
C2.1	UTILITY PLAN	2019.08.09
C2.2	UTILITY PLAN	2019.08.09
C3.1	STAGE 1 GRADING, DRAINAGE, AND EROSION CONTROL PLAN	2019.08.05
C3.2	STAGE 1 GRADING, DRAINAGE, AND EROSION CONTROL PLAN	2019.08.05
C3.3	STAGE 2 GRADING, DRAINAGE, AND EROSION CONTROL PLAN	2019.08.09
C3.4	STAGE 2 GRADING, DRAINAGE, AND EROSION CONTROL PLAN	2019.08.09
C3.5	STORM DRAIN TABLES	2019.06.05
C4.1	PLAN & PROFILE ROAD A, STA 10+00.00 TO STA 22+00.00	2019.08.09
C4.2	PLAN & PROFILE ROAD A, STA 22+00.00 TO STA 26.67.48 ROAD B, STA 10+00.00 TO STA 14+20.63	2019.08.09
C4.3	PLAN & PROFILE SEWER OUTFALL, STA 10+00.00 TO STA 14+30.93 STORM OUTFALL #1, STA 10+00.00 ST STA 12+63.56	2019.07.25
C4.4	PLAN & PROFILE STORM OUTFALL #2, STA 10+00.00 TO STA 12+18.87 STORM OUTFALL #3, STA 10+00.00 TO STA 11+47.78	2019.07.25
C4.5	PLAN & PROFILE ROAD A CULVERT, STA 10+00 TO STA 11+13.86 WATER MAIN OUTFALL, STA 10+00 TO STA 14+56.71	2019.07.25
D1.1	EROSION AND SEDIMENTATION CONTROL DETAILS	2019.07.25
D1.2	EROSION AND SEDIMENTATION CONTROL DETAILS	2019.07.25
D1.3	EROSION AND SEDIMENTATION CONTROL DETAILS	2019.07.25
D2.1	NCDOT ROADWAY DETAILS	2019.08.06
D2.2	NCDOT DRAINAGE DETAILS	2019.07.25
D2.3	NCDOT DRAINAGE DETAILS	2019.07.25
D3.1	UTILITY DETAILS	2019.07.25
D3.2	UTILITY DETAILS	2019.07.25
D4.1	BMP #45 PLAN & DETAILS	2019.07.25
D4.2	BMP #45 PLAN & DETAILS	2019.07.25
D4.3	BMP #45 PLAN & DETAILS	2019.07.25
D4.4	BMP #46 PLAN & DETAILS	2019.07.25
D4.5	BMP #46 PLAN & DETAILS	2019.07.25
D4.6	BMP #42 PLAN & DETAILS	2019.07.25

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) 542-8268 phone
Contact: Morgan DeWit, PE
Email: morgan.dewit@chathamnc.org
- C. Chatham County
Soil Erosion and Sedimentation Control
Dunlap Building
80 East Street
Pittsboro, NC 27312
(919) 542-8268 phone
Contact: Morgan DeWit, PE
Email: morgan.dewit@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: Matthew Kitchen, PE
Email: mwkitchen@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
- G. NCDEQ
Division of Water Quality
512 N. Salisbury St
Archdale Building, 9th Floor
Raleigh, NC 27604
(919) 807-6373 phone
Contact: Karen Higgins
Email: karen.higgins@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:
BRIAR CHAPEL PHASE 14
CHATHAM COUNTY, NORTH CAROLINA

OWNER:
NNP BRIAR CHAPEL, LLC
4020 WESTCHASE BLVD, SUITE 150
RALEIGH, NC 27607
PHONE: (919) 951-0702
FAX: (919) 240-4963
CONTACT: GARRETSON BROWNE
EMAIL: gbrowne@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: 31.82 AC

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

All plan Sheets electronically Received by Division 8/ District 1 office 07/26/2019 unless otherwise noted

Received by Division 8/ District 1 office 08/09/2019

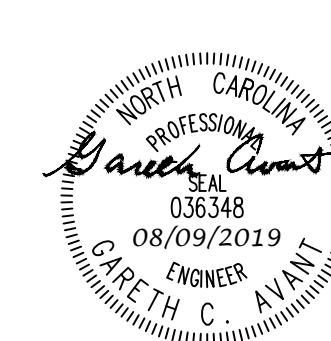


by
Newland COMMUNITIES



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

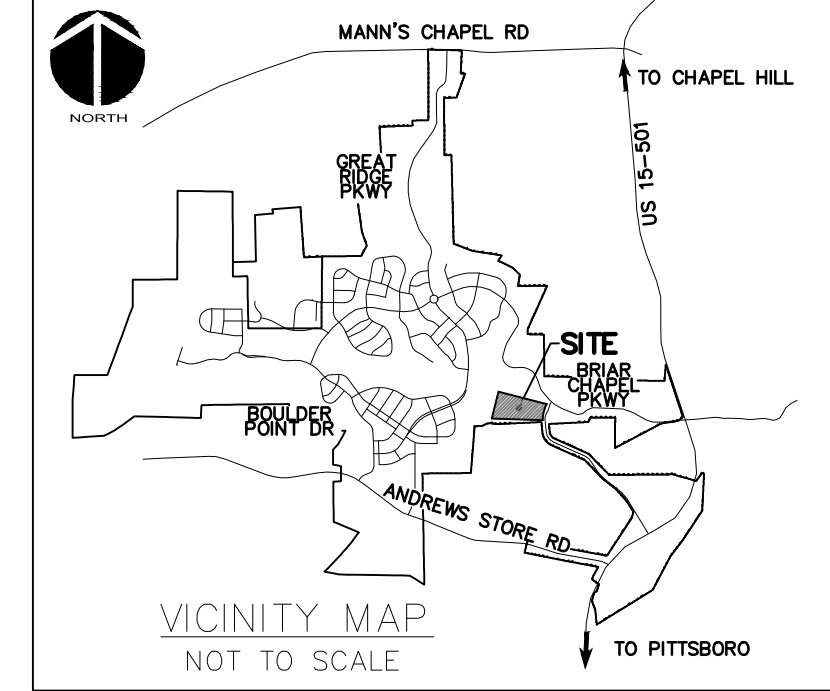
www.mckimcreed.com



FINAL DRAWINGS
FOR CONSTRUCTION

***** NOTICE TO CONTRACTOR *****

THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY, IN WRITING, OF ANY DISCREPANCIES OR OMISSIONS TO THE TOPOGRAPHIC INFORMATION. THE CONTRACTOR(S) SHALL BE RESPONSIBLE FOR CONFIRMING THE LOCATION (HORIZONTAL AND VERTICAL) OF ANY BURIED CABLES, CONDUITS, PIPES, AND STRUCTURES (STORM SEWER, SANITARY SEWER, WATER, GAS, TELEVISION, TELEPHONE, ETC.) WHICH IMPACT THE CONSTRUCTION SITE. THE CONTRACTOR(S) SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES ARE FOUND BETWEEN THE ACTUAL CONDITIONS VERSUS THE DATA CONTAINED IN THE CONSTRUCTION PLANS. ANY COSTS INCURRED AS THE RESULT OF NOT CONFIRMING THE CONDUITS, PIPES, AND STRUCTURES SHALL BE BORNE BY THE CONTRACTOR.

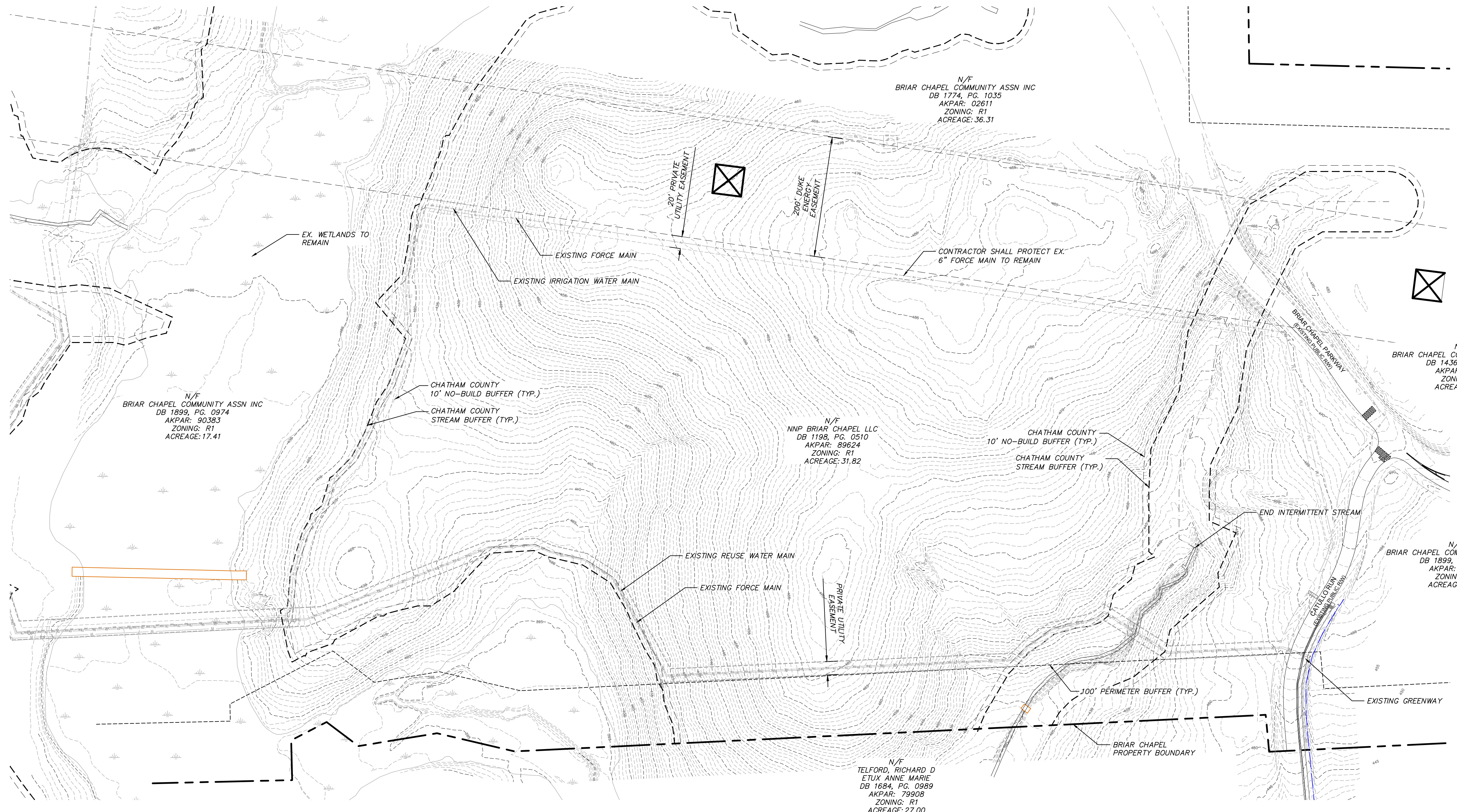


GENERAL NOTES:

1. THIS PROPERTY IS ZONED CUD-CC.
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 "MAGNUM" HAVING NO 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 AVOIDANCE 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 CAPE FEAR RIVER BASIN.
7. STREAM AND WETLAND LOCATIONS ARE BASED ON INFORMATION PROVIDED BY WETLANDS AND WATERS, INC. - CONTACT CHRIS HUYSMAN AR 336-306-0906.
8. NO PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAPS #3710976500K DATED NOVEMBER 17, 2017 AND #3710976600K DATED NOVEMBER 17, 2017.

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 PLANS. 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.

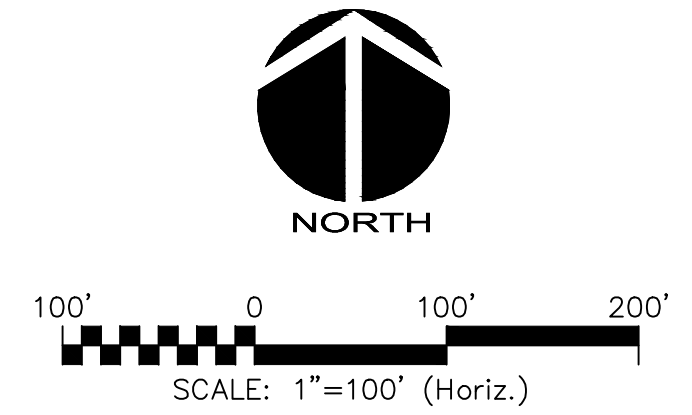


LEGEND:

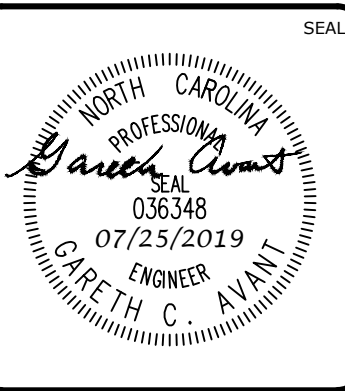
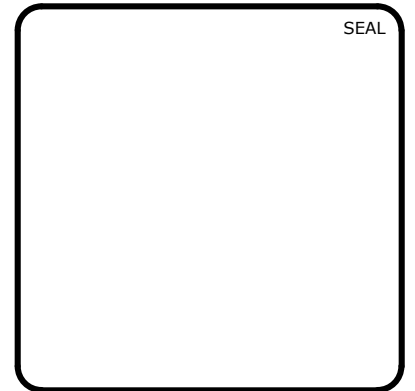
- 10' NO BUILD BUFFER LINE
- RIPARIAN BUFFER LINE
- EX. WETLANDS
- 480 --- EX. CONTOUR
- OVERALL PROPERTY BOUNDARY
- W W EX. WATER MAIN
- EX. STORM DRAINAGE PIPE

***** NOTICE TO CONTRACTOR *****

THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY, IN WRITING, OF ANY DISCREPANCIES OR OMISSIONS TO THE TOPOGRAPHIC INFORMATION. THE CONTRACTOR(S) SHALL BE RESPONSIBLE FOR CONFIRMING THE LOCATION (HORIZONTAL AND VERTICAL) OF ANY BURIED CABLES, CONDUITS, PIPES, AND STRUCTURES (STORM SEWER, SANITARY SEWER, WATER, GAS, TELEVISION, TELEPHONE, ETC.) WHICH IMPACT THE CONSTRUCTION SITE. THE CONTRACTOR(S) SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES ARE FOUND BETWEEN THE ACTUAL CONDITIONS VERSUS THE DATA CONTAINED IN THE CONSTRUCTION PLANS. ANY COSTS INCURRED AS THE RESULT OF NOT CONFIRMING THE CONDUITS, PIPES, AND STRUCTURES SHALL BE BORNE BY THE CONTRACTOR.



REV. NO.	DESCRIPTIONS	DATE
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09



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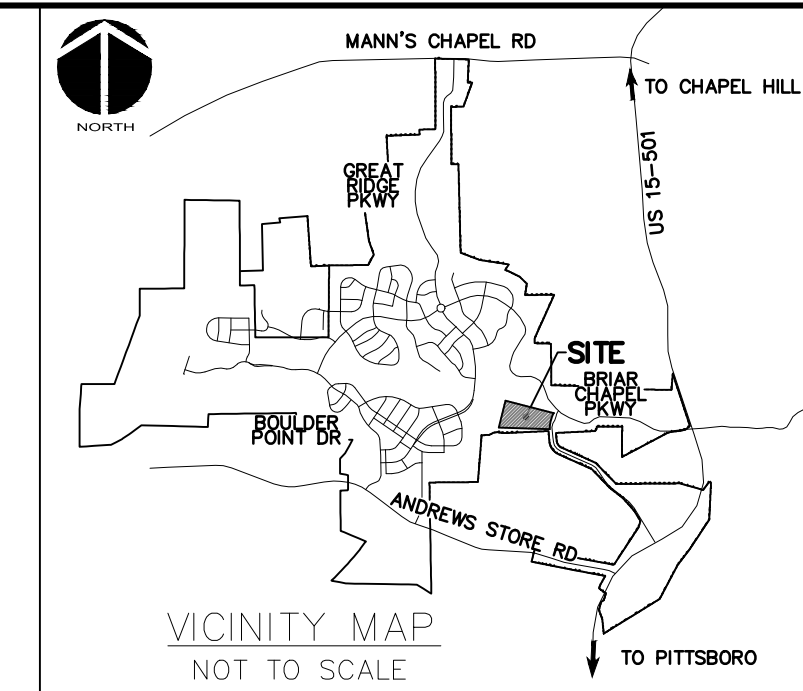
BRIAR CHAPEL™

by **Newland COMMUNITIES**

**BRIAR CHAPEL
PHASE 14
CHATHAM COUNTY, NORTH CAROLINA**

EXISTING CONDITIONS & DEMOLITION PLAN

DATE: MAY 9, 2019	SCALE: C0.2
MCE PROJ. # 02735-0239	DRAWING NUMBER: C0.2
DRAWN: DCR	HORIZONTAL: 1" = 100'
DESIGNED: DCR	VERTICAL: N/A
CHECKED: GCA	
PROJ. MGR.: CHS	
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION	REVISION: 3



SITE GENERAL NOTES:

- 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.
- STREAM AND WETLAND LOCATIONS ARE BASED ON INFORMATION PROVIDED BY WETLANDS AND WATERS, INC. - CONTACT CHRIS HUYSMAN AT 336-306-0906.
- A PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAPS #3710976500K DATED NOVEMBER 17, 2017 AND #3710977500K DATED NOVEMBER 17, 2017.
- ALL PROPOSED ROADWAY DIMENSIONS AS SHOWN ARE MEASURED FROM BACK OF CURB TO BACK OF CURB UNLESS OTHERWISE NOTED.
- 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 336-316-4000.
- REFER TO PLAN AND PROFILE SHEETS FOR DETAILED SANITARY SEWER AND STORM DRAINAGE INFORMATION WITHIN PUBLIC ROADS.

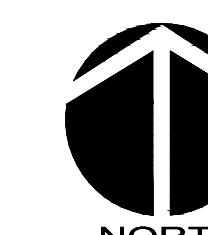
CHATHAM COUNTY REQUIRED SITE NOTES

- PROPERTY OWNER/DEVELOPER:
NIP BRIAR CHAPEL, LLC
1342 BRIAR CHAPEL PARKWAY
CHAPEL HILL, NC 27516
PHONE: (919) 951-0700
- SITE AKPAR #: 89624

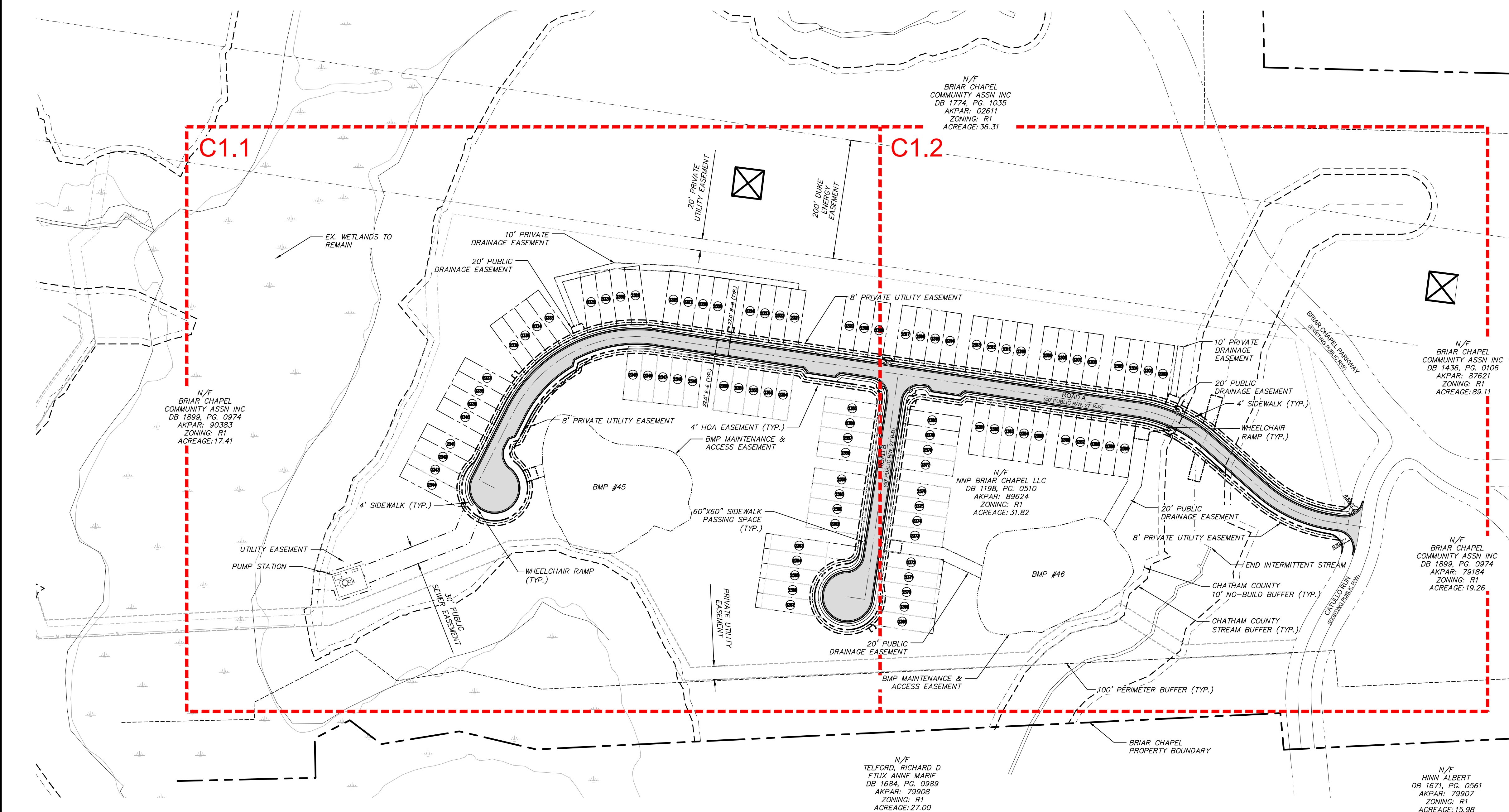
LEGEND:

- NEW R/W LINE
- OVERALL PROPERTY BOUNDARY
- EXISTING R/W LINE
- HOA EASEMENT LINE
- PUBLIC UTILITY EASEMENT LINE
- PRIVATE UTILITY EASEMENT LINE
- PERMANENT DRAINAGE EASEMENT
- PRIVATE DRAINAGE EASEMENT
- 10' NO BUILD BUFFER LINE
- RIPARIAN BUFFER LINE
- 100' PERIMETER BUFFER
- EX. WETLANDS
- FLOODWAY
- 100-YEAR FLOODPLAIN
- 500-YEAR FLOODPLAIN

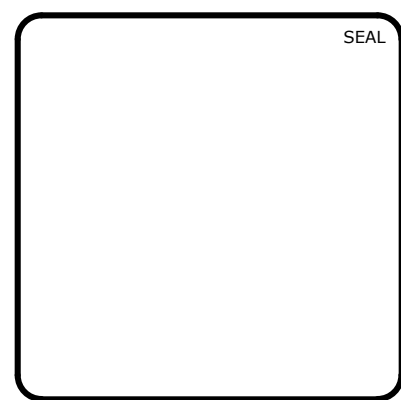
Received
by Division 8/
District 1 office
08/09/2019



100' 0 100' 200'
SCALE: 1"=100' (Horiz.)



REV. NO.	DESCRIPTIONS	DATE
6	REVISIONS PER NCDOT COMMENTS	2019.08.09
5	REVISIONS PER NCDOT COMMENTS	2019.08.06
4	LIMITS OF DISTURBANCE REVISION	2019.08.05
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09



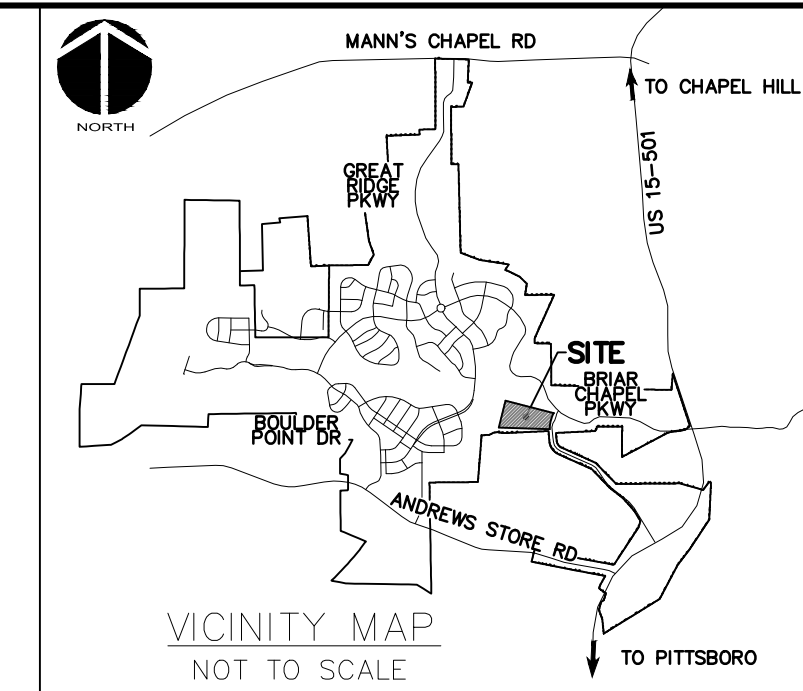
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**BRIAR CHAPEL
PHASE 14
CHATHAM COUNTY, NORTH CAROLINA**

OVERALL SITE PLAN

DATE: MAY 9, 2019	SCALE: AS NOTED	MSC FILE NUMBER: C1.0
MCE PROJ. # 02735-0239	HORIZONTAL: AS NOTED	DRAWING NUMBER: C1.0
DRAWN: DCR	VERTICAL: N/A	
DESIGNED: DCR		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION		REVISION: 6



VICINITY MAP
NOT TO SCALE

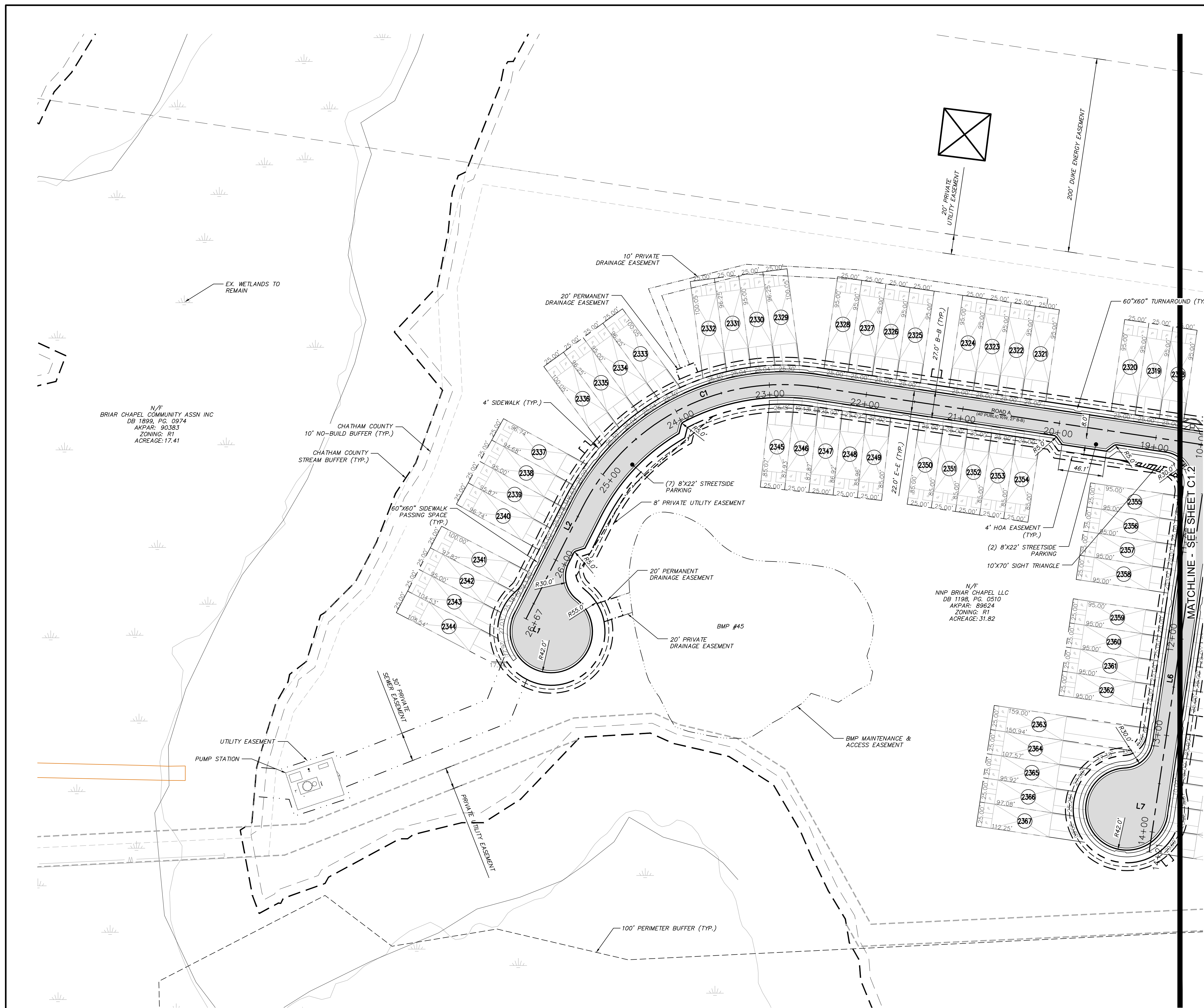
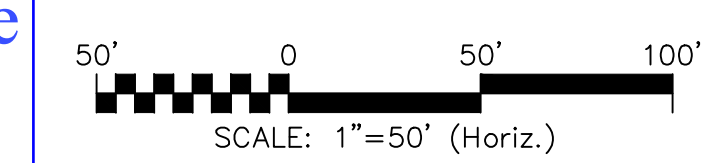
Line Table		
LINE #	LENGTH	DIRECTION
L1	29.000	N63° 08' 44.08"W
L2	127.602	N26° 51' 15.92"E
L3	812.524	S81° 31' 57.34"E
L4	117.772	S48° 34' 21.99"E
L5	57.737	S81° 21' 29.90"E
L6	380.628	N08° 28' 02.66"E
L7	20.000	S81° 21' 29.90"E

Curve Table					
CURVE #	RADIUS	ARCH LENGTH	CHORD BEARING	CHORD LENGTH	DELTA
C1	230.000	287.473	N62° 39' 39.29"E	269.123	071.6130
C2	230.000	132.309	S65° 03' 09.67"E	130.492	032.9598
C3	230.000	131.610	S64° 57' 55.95"E	129.821	032.7855

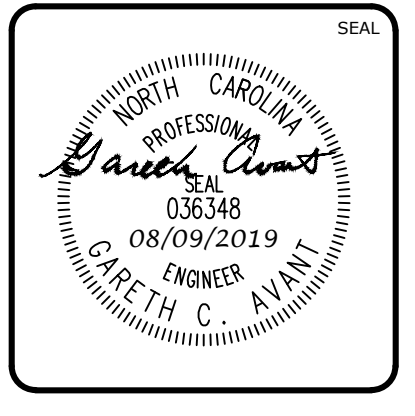
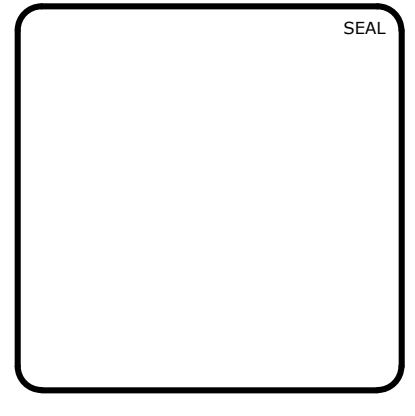
LEGEND:

- NEW R/W LINE
- OVERALL PROPERTY BOUNDARY
- 4' HOA EASEMENT
- 4' PRIVATE UTILITY EASEMENT
- PRIVATE UTILITY EASEMENT LINE
- PRIVATE UTILITY EASEMENT LINE
- PERMANENT DRAINAGE EASEMENT
- PRIVATE DRAINAGE EASEMENT
- 10' NO BUILD BUFFER LINE
- RIPARIAN BUFFER LINE
- 100' PERIMETER BUFFER
- EX. WETLANDS
- BMP MAINTENANCE & ACCESS EASEMENT
- ROADWAY CENTERLINE

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REV. NO.	DESCRIPTIONS	DATE
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**BRIAR CHAPEL
PHASE 14
CHATHAM COUNTY, NORTH CAROLINA**

SITE PLAN

DATE:	MAY 9, 2019
MCE PROJ. #	02735-0239
DRAWN	DCR
DESIGNED	DCR
CHECKED	GCA
PROJ. MGR.	CHS

SCALE	HORIZONTAL: AS NOTED VERTICAL: N/A	MSC FILE NUMBER C1.1 DRAWING NUMBER C1.1
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION		REVISION 6

Curve Table					
CURVE #	RADIUS	ARCH LENGTH	CHORD BEARING	CHORD LENGTH	DELTA
C1	230.000	287.473	N62° 39' 39.29"E	269.123	071.6130
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L5	57.737	S81° 21' 29.90"E
L6	380.628	N08° 28' 02.66"E
L7	29.000	S61° 31' 57.34"E

LOT AREA TABLE		
LOT #	AREA (SF)	AREA (AC)
2302	2432.12	0.06
2303	2380.69	0.05
2304	2375.00	0.05
2305	2375.00	0.05
2306	2375.00	0.05
2307	2375.00	0.05
2308	2375.00	0.05
2309	2375.00	0.05
2310	2375.00	0.05
2311	2375.00	0.05
2312	2375.00	0.05
2313	2375.00	0.05
2314	2375.00	0.05
2315	2375.00	0.05
2316	2375.00	0.05
2317	2375.00	0.05
2318	2375.00	0.05
2319	2375.00	0.05
2320	2375.00	0.05
2321	2375.00	0.05
2322	2375.00	0.05
2323	2375.00	0.05
2324	2375.00	0.05

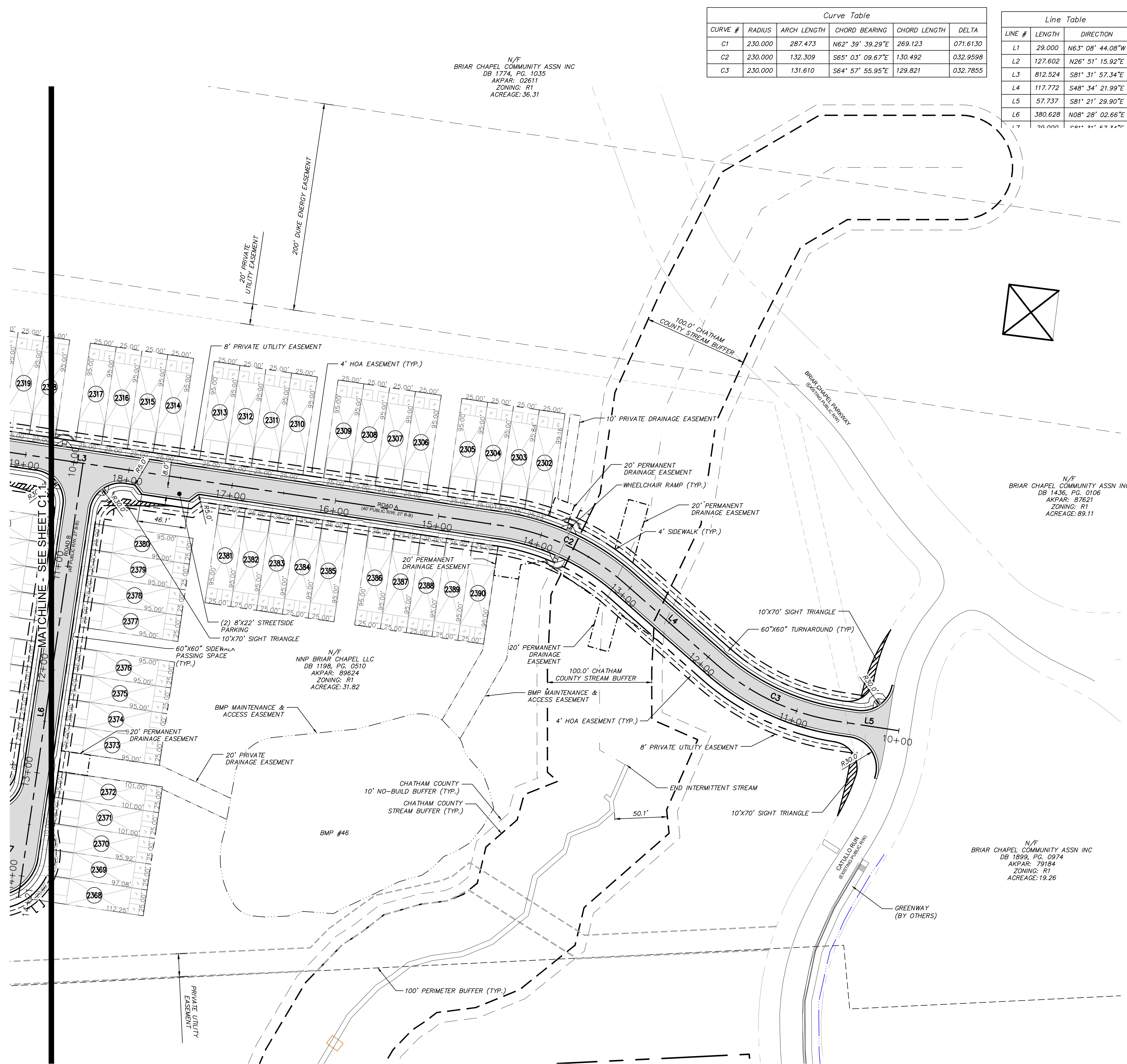
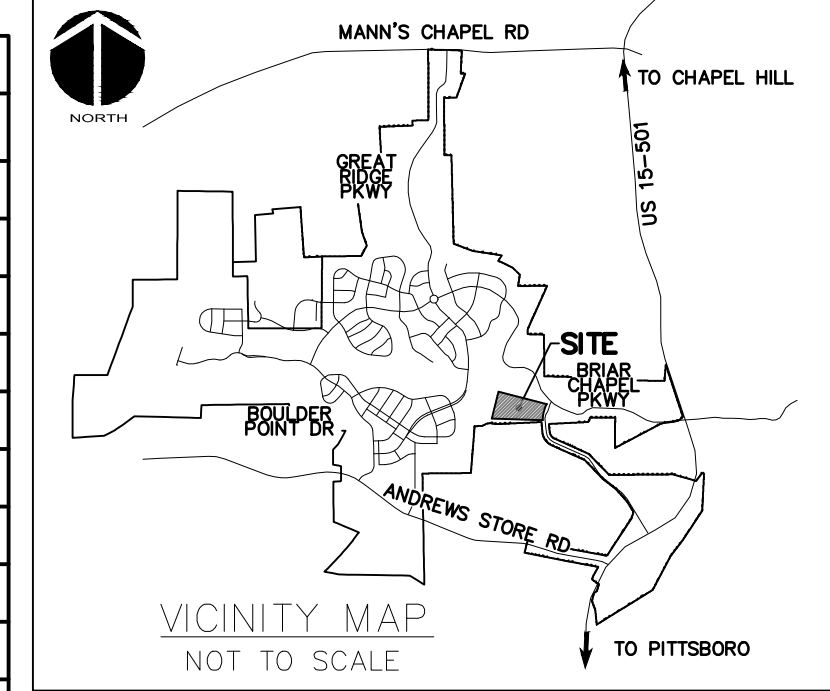
LOT AREA TABLE		
LOT #	AREA (SF)	AREA (AC)
2325	2375.00	0.05
2326	2375.00	0.05
2327	2375.00	0.05
2328	2375.00	0.05
2329	2448.41	0.06
2330	2385.43	0.05
2331	2385.43	0.05
2332	2448.41	0.06
2333	2448.41	0.06
2334	2385.43	0.05
2335	2385.43	0.05
2336	2448.41	0.06
2337	2387.51	0.05
2338	2367.20	0.05
2339	2385.86	0.05
2340	2407.59	0.06
2341	2494.72	0.06
2342	2385.71	0.05
2343	2464.58	0.06
2344	2845.49	0.07
2345	2168.83	0.05
2346	2203.01	0.05
2347	2184.87	0.05

LOT AREA TABLE		
LOT #	AREA (SF)	AREA (AC)
2348	2160.92	0.05
2349	2136.97	0.05
2350	2125.00	0.05
2351	2125.00	0.05
2352	2125.00	0.05
2353	2125.00	0.05
2354	2125.00	0.05
2355	2375.00	0.05
2356	2375.00	0.05
2357	2375.00	0.05
2358	2375.00	0.05
2359	2375.00	0.05
2360	2375.00	0.05
2361	2375.00	0.05
2362	2375.00	0.05
2363	3929.32	0.09
2364	3145.58	0.07
2365	2511.21	0.06
2366	2388.39	0.05
2367	2577.98	0.06
2371	2525.00	0.06
2372	2525.00	0.06
2373	2375.00	0.05

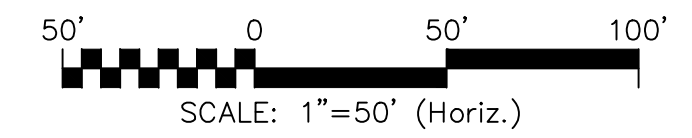
LOT AREA TABLE		
LOT #	AREA (SF)	AREA (AC)
2374	2375.00	0.05
2375	2375.00	0.05
2376	2375.00	0.05
2377	2375.00	0.05
2378	2375.00	0.05
2379	2375.00	0.05
2380	2375.00	0.05
2381	2375.00	0.05
2382	2375.00	0.05
2383	2375.00	0.05
2384	2375.00	0.05
2385	2375.00	0.05
2386	2375.00	0.05
2387	2375.00	0.05
2388	2375.00	0.05
2389	2375.00	0.05
2390	2374.99	0.05

LEGEND:

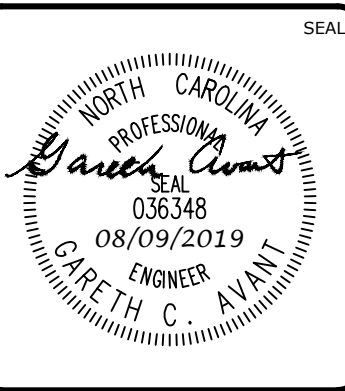
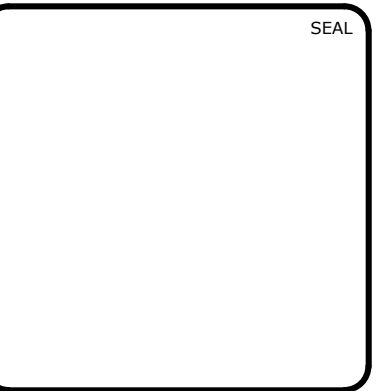
- NEW R/W LINE
- OVERALL PROPERTY BOUNDARY
- 4' HOA EASEMENT
- 4' PRIVATE UTILITY EASEMENT
- PRIVATE UTILITY EASEMENT LINE
- PRIVATE UTILITY EASEMENT LINE
- PERMANENT DRAINAGE EASEMENT
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- 10' NO BUILD BUFFER LINE
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- 100' PERIMETER BUFFER
- EX. WETLANDS
- BMP MAINTENANCE & ACCESS EASEMENT



Received
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REV. NO.	DESCRIPTIONS	DATE
6	REVISIONS PER NCDOT COMMENTS	2019.08.09
5	REVISIONS PER NCDOT COMMENTS	2019.08.06
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1	INITIAL SUBMITTAL	2019.05.09



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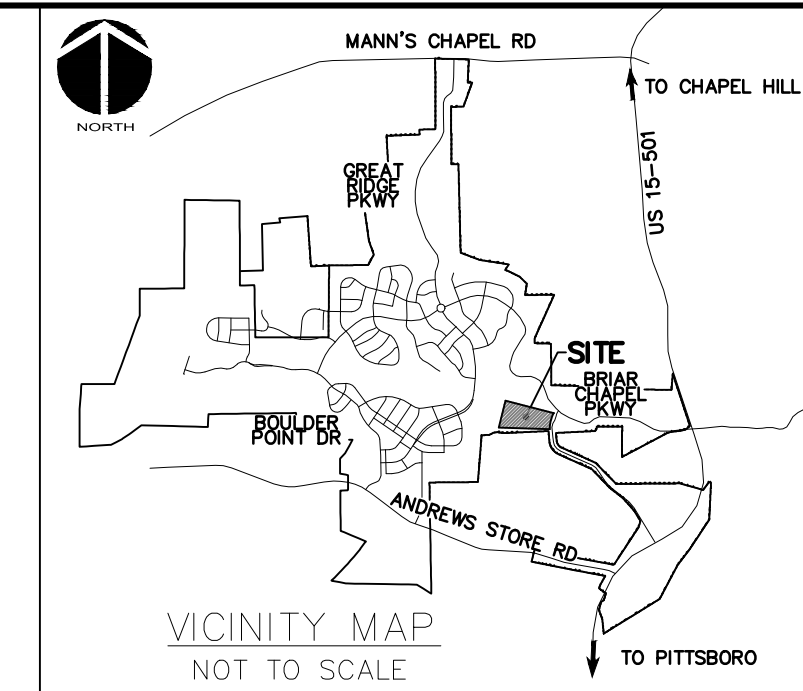
**BRIAR CHAPEL
PHASE 14
CHATHAM COUNTY, NORTH CAROLINA**

SITE PLAN

DATE: MAY 9, 2019	SCALE: HORIZONTAL: AS NOTED	MSC FILE NUMBER: C1.1
MCE PROJ. # 02735-0239	VERTICAL: N/A	DRAWING NUMBER: C1.2
DRAWN: DCR		
DESIGNED: DCR		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION	REVISION: 6	

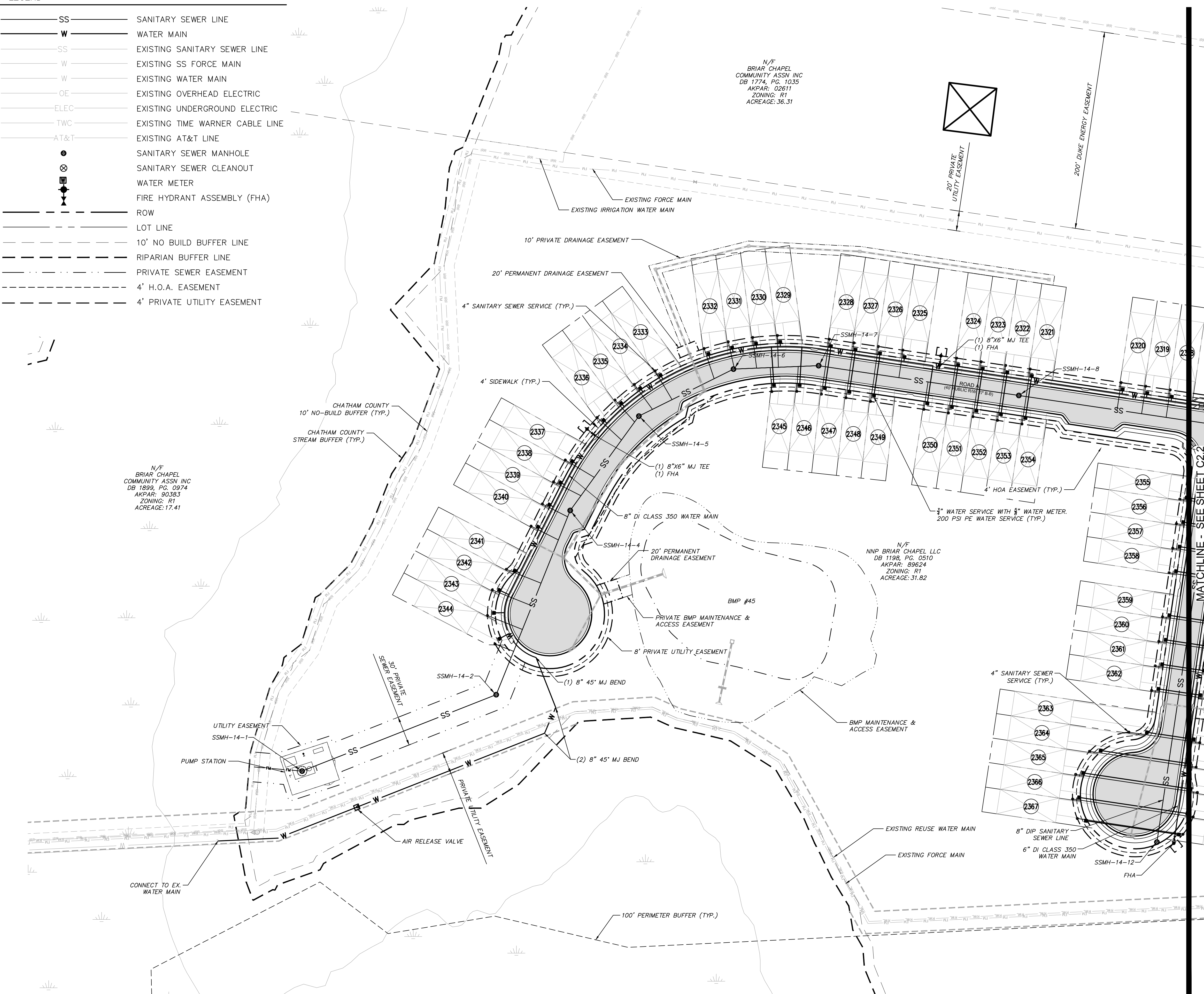
LEGEND

- SS ——— SANITARY SEWER LINE
- W ——— WATER MAIN
- 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
- - - - 10' NO BUILD BUFFER LINE
- - - - RIPARIAN BUFFER LINE
- - - - PRIVATE SEWER EASEMENT
- - - - 4' H.O.A. EASEMENT
- - - - 4' PRIVATE UTILITY EASEMENT



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 OR 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.
6. 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.
7. 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.
8. 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.
9. TRACER WIRE AND TRACER WIRE 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.
10. WATER SERVICES SHALL BE EXTENDED FROM THE MAIN TO A METER BOX LOCATED OUTSIDE 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.
11. MANHOLES SHALL BE SPACED A MAXIMUM DISTANCE OF 400 FEET APART.
12. 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.
13. 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.
14. ALL SANITARY SEWER LINES ARE 8" PVC SDR 35 UNLESS OTHERWISE NOTED AND ALL WATER MAIN LINES ARE 8" DI CLASS 350 UNLESS OTHERWISE NOTED. ALL SANITARY SEWER SERVICES ARE 4" SCHEDULE 40 PVC AND ALL WATER MAIN SERVICES ARE 3/4".
15. 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.
16. SANITARY SEWER WITHIN PRIVATE EASEMENTS TO BE OWNED, OPERATED AND MAINTAINED BY OLD NORTH STATE WATER COMPANY, LLC.
17. WATER MAINS WILL BE 3.5' OFF CURB AND GUTTER UNLESS SHOWN OTHERWISE.
18. ALL WATER MAINS WITHIN PRIVATE EASEMENTS AND PUBLIC RIGHT-OF-WAY TO BE OWNED, OPERATED AND MAINTAINED BY CHATHAM COUNTY. ALL WATER MAINS OUTSIDE OF PUBLIC RIGHT-OF-WAY WILL BE CONTAINED WITHIN 20' WIDE PUBLIC WATER LINE EASEMENT (MINIMUM) CENTERED ON THE PROPOSED WATER MAIN. PUBLIC WATER EASEMENTS SHALL NOT OVERLAP PUBLIC RIGHT-OF-WAY.
19. CONTRACTOR TO COORDINATE WITH CHATHAM COUNTY PUBLIC WORKS FOR ALL IRRIGATION SLEEVE SIZING.
20. ALL SERVICE CONNECTIONS SHALL BE MADE PRIOR TO PLACING THE LAST LIFT OF SURFACE ASPHALT.
21. AT POINTS WHERE UTILITY IS PLACED UNDER EXISTING STORM DRAINS, THE TRENCH SHALL BE BACKFILLED WITH CLASS B CONCRETE UP TO THE OUTSIDE DIAMETER OF THE EXISTING PIPE.
22. VALVES SHALL BE LOCATED OUTSIDE THE PAVEMENT, CURB AND GUTTER, AND AS CLOSE TO THE RIGHT OF WAY LINE AS POSSIBLE.



Received
by Division 8/
District 1 office
08/09/2019

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

NORTH

50' 0 50' 100'
SCALE: 1"=50' (Horiz.)

REV. NO.	DESCRIPTIONS	DATE
6	REVISIONS PER NCDOT COMMENTS	2019.08.09
5	REVISIONS PER NCDOT COMMENTS	2019.08.06
4	LIMITS OF DISTURBANCE REVISION	2019.08.05
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09

SEAL

PROFESSIONAL ENGINEER
GARETH C. AVANT
08/09/2019
036348

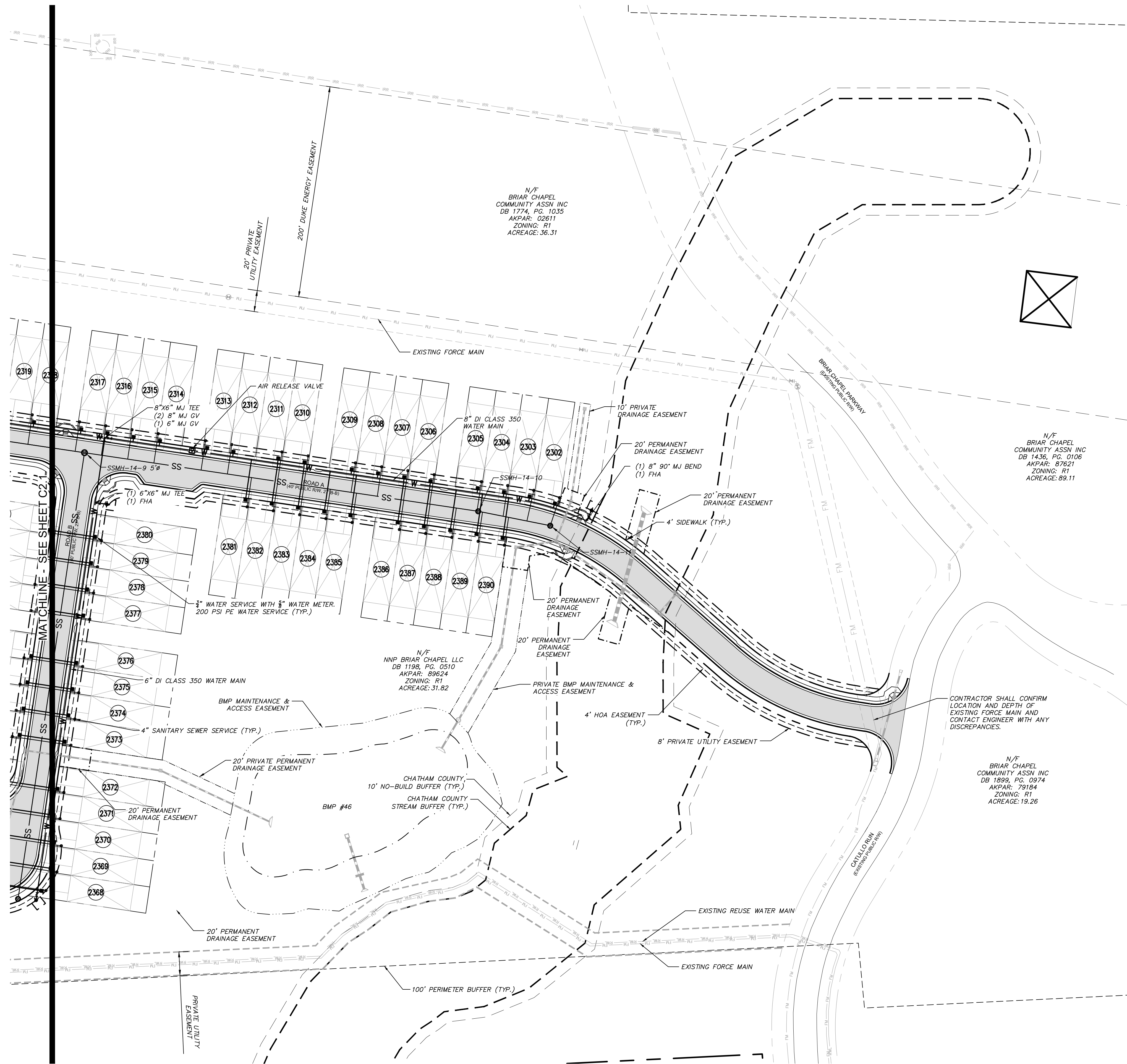
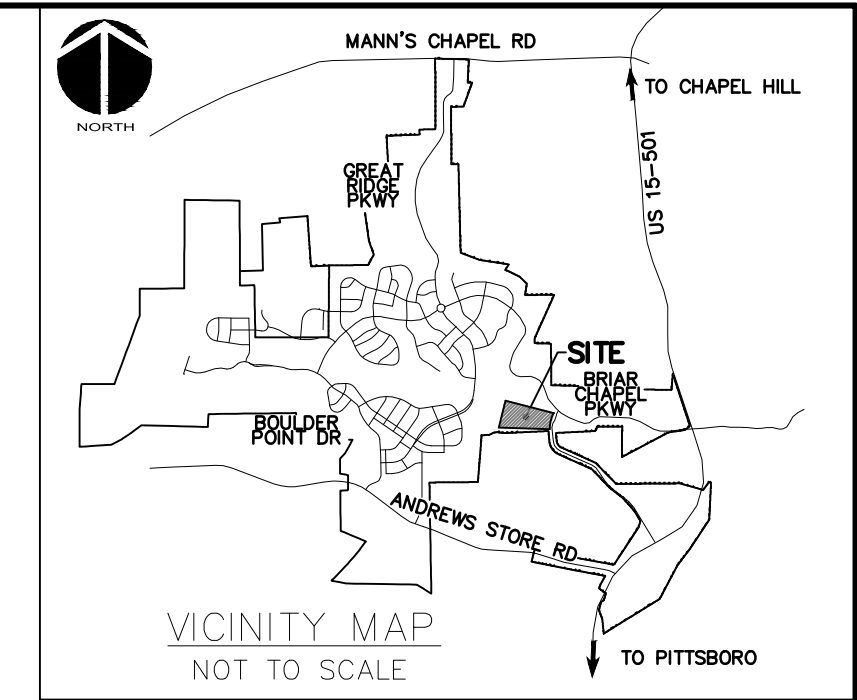
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www.mckimcreed.com

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Newland COMMUNITIES

**BRIAR CHAPEL
PHASE 14
CHATHAM COUNTY, NORTH CAROLINA**

UTILITY PLAN

DATE:	MAY 9, 2019	SCALE:	AS NOTED	MSC FILE NUMBER:	C2.1
MCE PROJ. #	02735-0239	HORIZONTAL:	AS NOTED	DRAWING NUMBER:	C2.1
DRAWN:	DCR	VERTICAL:	N/A		
DESIGNED:	DCR				
CHECKED:	GCA				
PROJ. MGR.:	CHS				
STATUS:	FINAL DRAWINGS RELEASED FOR CONSTRUCTION	REVISION:	6		



LEGEND

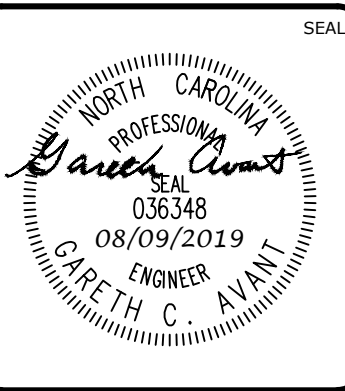
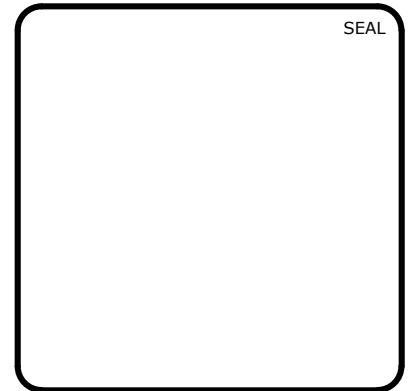
SS	SANITARY SEWER LINE
W	WATER MAIN
SS	EXISTING SANITARY SEWER LINE
W	EXISTING SS FORCE MAIN
W	EXISTING WATER MAIN
OE	EXISTING OVERHEAD ELECTRIC
ELEC	EXISTING UNDERGROUND ELECTRIC
TWC	EXISTING TIME WARNER CABLE LINE
AT&T	EXISTING AT&T LINE
●	SANITARY SEWER MANHOLE
⊗	SANITARY SEWER CLEANOUT
⊕	WATER METER
⊕	FIRE HYDRANT ASSEMBLY (FHA)
---	ROW
---	LOT LINE
---	10' NO BUILD BUFFER LINE
---	RIPARIAN BUFFER LINE
---	PRIVATE SEWER EASEMENT
---	4' H.O.A. EASEMENT
---	4' PRIVATE UTILITY EASEMENT

Received
by Division 8/
District 1 office
08/09/2019



50' 0 50' 100'
SCALE: 1"=50' (Horiz.)

REV. NO.	DESCRIPTIONS	DATE
6	REVISIONS PER NCDOT COMMENTS	2019.08.09
5	REVISIONS PER NCDOT COMMENTS	2019.08.06
4	LIMITS OF DISTURBANCE REVISION	2019.08.05
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09



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**BRIAR CHAPEL
PHASE 14
CHATHAM COUNTY, NORTH CAROLINA**

UTILITY PLAN

DATE: MAY 9, 2019	SCALE: C2.1	MISC FILE NUMBER: C2.1
MCE PROJ. # 02735-0239	HORIZONTAL: AS NOTED	DRAWING NUMBER: C2.2
DRAWN: DCR	VERTICAL: N/A	
DESIGNED: DCR		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION	REVISION: 6	

LEGEND:

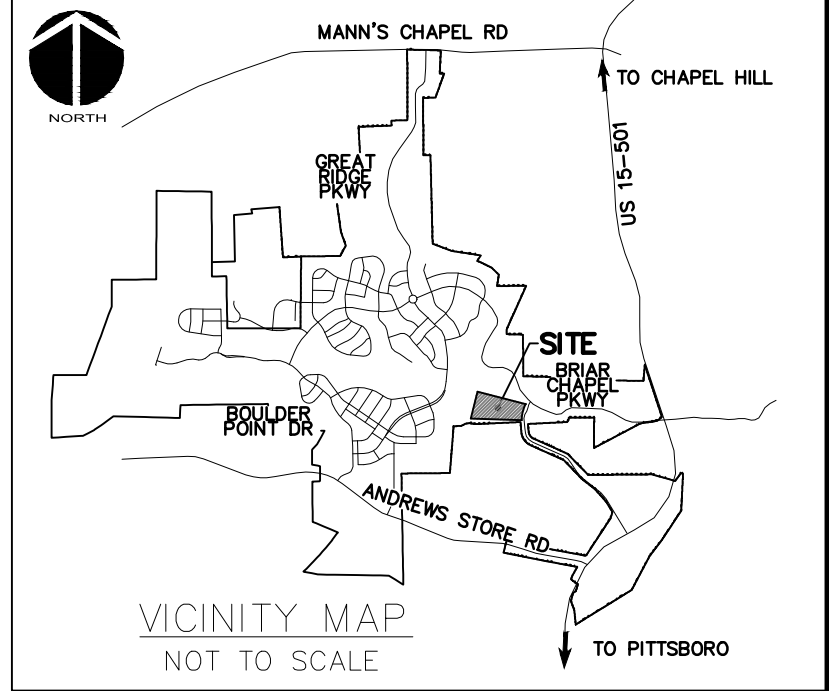
- OVERALL PROPERTY BOUNDARY
- NEW R/W LINE
- - - - - LIMITS OF DISTURBANCE
- SF/TPF COMBINATION SILT/TREE PROTECTION FENCING
- 480' EXISTING CONTOUR
- NEW DIVERSION DITCH
- TEMPORARY CONSTRUCTION ENTRANCE
- NEW CHECK DAM
- ARC FILTER INLET PROTECTION
- SILT FENCE OUTLET
- NEW BAFFLE
- RIPARIAN BUFFER LINE
- 10' NO BUILD RIPARIAN BUFFER LINE
- EX. WETLANDS
- EXISTING DRAINAGE DIVIDE
- DRAINAGE AREA

2

1

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.NC.GOV/PAGES/SEDIMENTATION_NEW.HTML](http://www.dlr.nc.gov/PAGES/SEDIMENTATION_NEW.HTML) IF YOU HAVE QUESTIONS OR CANNOT ACCESS THE FORM, PLEASE CONTACT THIS OFFICE AT (919) 791-4200.



EROSION CONTROL NOTES:

1. PRIOR TO BEGINNING CONSTRUCTION, AN ON SITE PRE-CONSTRUCTION MEETING SHALL BE HELD. CHATHAM COUNTY OFFICIALS, THE ENGINEER, OWNER'S REPRESENTATIVE AND CONTRACTOR MUST ATTEND. NOTICE MUST BE GIVEN 48 HOURS NOTICE PRIOR TO SCHEDULING DISTURBING ACTIVITIES.
2. THE CONTRACTOR IS TO NOTIFY CHATHAM COUNTY PUBLIC WORKS REPRESENTATIVES 48 HOURS PRIOR TO COMMENCING WITH LAND DISTURBING ACTIVITIES.
3. ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL MANUAL.
4. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
5. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN FOURTEEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE, SEVEN DAYS WHERE SLOPES ARE 3:1 OR STEEPER. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE LEFT TO BE DORMANT FOR MORE THAN ONE YEAR.
6. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES ONCE PER WEEK AND AFTER EVERY HALF INCH OF RAINFALL. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY. ANY MEASURE THAT FAILS TO FUNCTION AS INTENDED SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER OR OWNER'S REPRESENTATIVE.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED TO BE NECESSARY DURING CONSTRUCTION ACTIVITIES.
8. NO PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAPS #3710976500K DATED NOVEMBER 17, 2017.

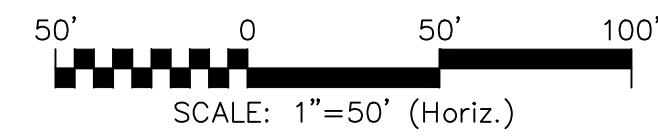
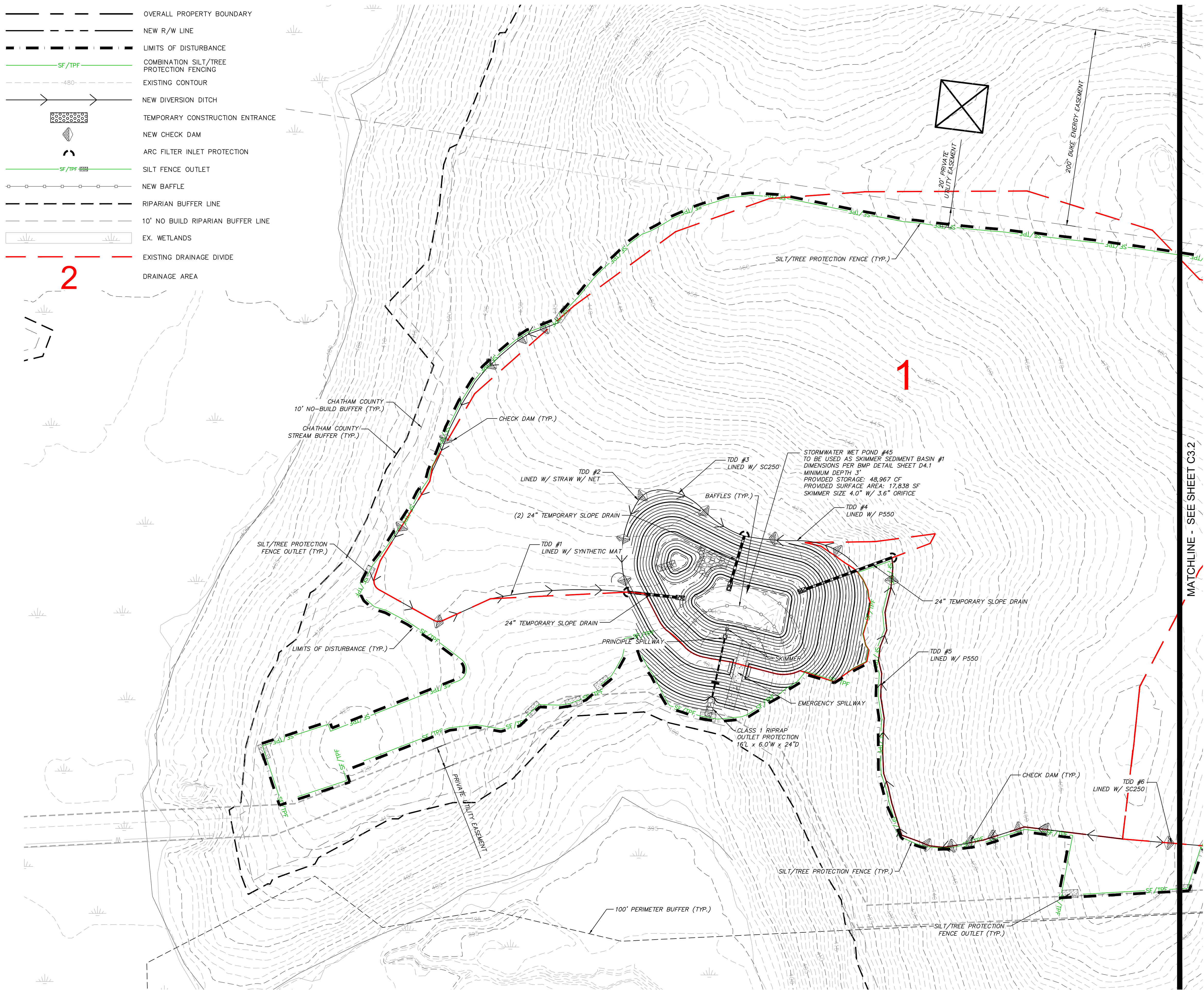
LIMITS OF DISTURBANCE NOTES:

1. 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.
2. LIMITS OF DISTURBANCE BEYOND PREVIOUSLY APPROVED AREAS: 15.90 ACRES.

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 GROUND COVER 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 LAND DISTURBING PERMIT 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 TREE PROTECTION FENCING AND SILT FENCING AS SHOWN AND DETAILED ON PLAN. TIMER ONLY AS NECESSARY TO INSTALL THESE DEVICES. INSTALL TEMPORARY STREAM CROSSINGS AS NEEDED IN ORDER TO ACCESS THE SITE.
12. CONSTRUCT TEMPORARY SKIMMER SEDIMENT BASINS & BMPs ACTING AS SEDIMENT SKIMMER BASINS 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.
13. 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.
14. 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.
15. CONTACT CHATHAM COUNTY SOIL EROSION & SEDIMENTATION AND ENGINEER UPON COMPLETION OF INITIAL EROSION CONTROL MEASURES.
16. ONCE TEMPORARY SKIMMER SEDIMENT BASINS AND DIVERSION DITCHES HAVE BEEN INSTALLED, GRUB WITHIN DELINEATED DRAINAGE AREAS ASSOCIATED WITH THE INSTALLED TEMPORARY SKIMMER SEDIMENT BASINS.
17. 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.
18. AFTER COMPLETION OF CLEARING AND GRUBBING, THE SITE SHALL BE TEMPORARILY STABILIZED EXCEPT IN AREAS OF ACTIVE CUT/FILL. ACTIVE AREAS SHOULD NOT EXCEED 15 ACRES AT ONE TIME.
19. BEGIN ROUGH GRADING WITHIN CLEARING LIMITS.
20. 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.
21. PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH THE PLANS.
22. ONCE GROUND COVER 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.

MATCHLINE - SEE SHEET C32



REV. NO.	DESCRIPTIONS	DATE
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09

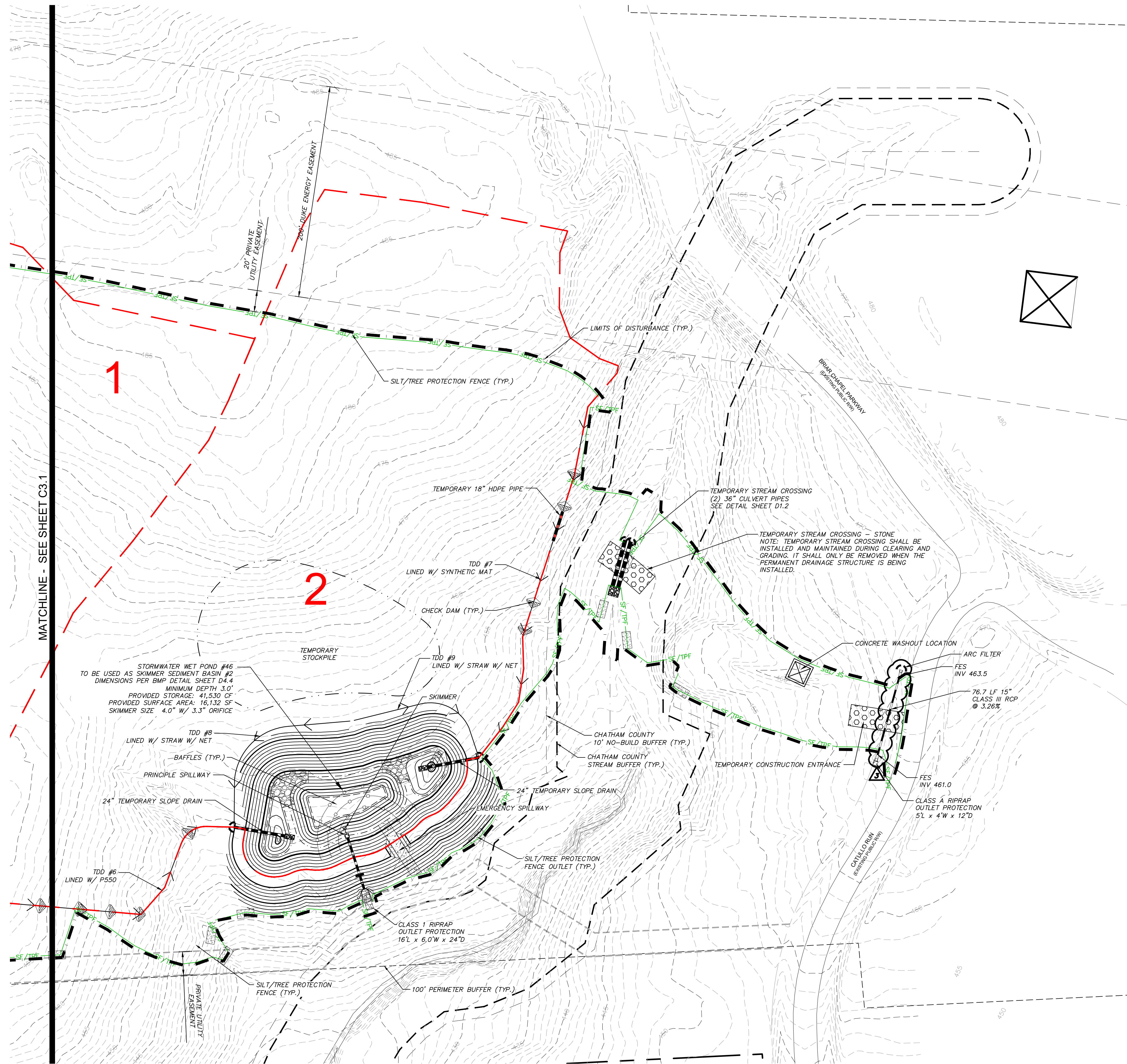
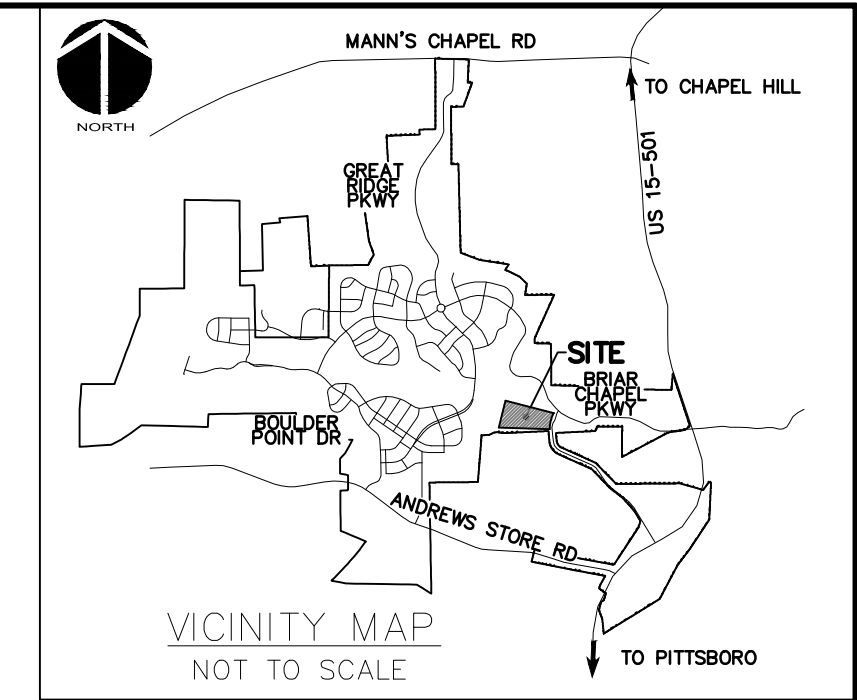
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**BRIAR CHAPEL
 PHASE 14
 CHATHAM COUNTY, NORTH CAROLINA**
**STAGE 1 GRADING, DRAINAGE, AND EROSION
 CONTROL PLAN**

DATE: MAY 9, 2019	SCALE: AS NOTED	MSC FILE NUMBER: C3.1
MCE PROJ. # 02735-0239	HORIZONTAL: AS NOTED	DRAWING NUMBER: C3.1
DRAWN: DCR	VERTICAL: N/A	
DESIGNED: DCR		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION	REVISION: 3	



LEGEND:

	OVERALL PROPERTY BOUNDARY
	NEW R/W LINE
	LIMITS OF DISTURBANCE
	COMBINATION SILT/TREE PROTECTION FENCING
	EXISTING CONTOUR
	NEW DIVERSION DITCH
	TEMPORARY CONSTRUCTION ENTRANCE
	NEW CHECK DAM
	ARC FILTER INLET PROTECTION
	SILT FENCE OUTLET
	NEW BAFFLE
	RIPARIAN BUFFER LINE
	10' NO BUILD RIPARIAN BUFFER LINE
	EX. WETLANDS
	EXISTING DRAINAGE DIVIDE
	DRAINAGE AREA

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

NORTH

50' 0 50' 100'
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REV. NO.	DESCRIPTIONS	DATE
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09

SEAL

North Carolina
 PROFESSIONAL ENGINEER
 036348
 07/25/2019
 GARETH C. AVANT

MCKIM & CREED

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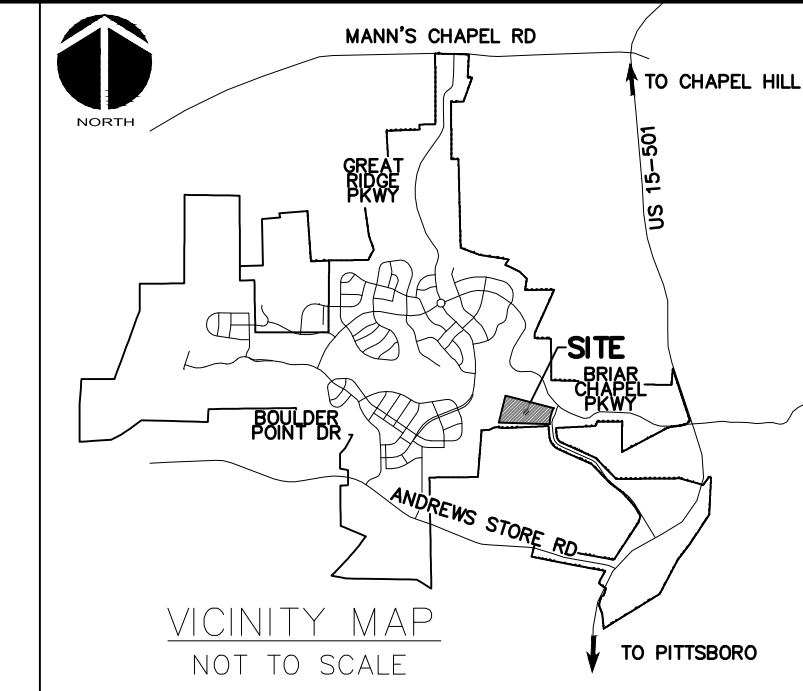
BRIAR CHAPEL
 PHASE 14
 CHATHAM COUNTY, NORTH CAROLINA
 STAGE 1 GRADING, DRAINAGE, AND EROSION
 CONTROL PLAN

DATE: MAY 9, 2019	SCALE: C3.1	MSC FILE NUMBER: C3.1
MCE PROJ. # 02735-0239	HORIZONTAL: AS NOTED	DRAWING NUMBER: C3.2
DRAWN: DCR	VERTICAL: N/A	
DESIGNED: DCR		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION	REVISION: 3	

LEGEND:

- OVERALL PROPERTY BOUNDARY
- NEW R/W LINE
- - - - - LIMITS OF DISTURBANCE
- SF/TPF COMBINATION SILT/TREE PROTECTION FENCING
- - - - - EXISTING CONTOUR
- → → NEW DIVERSION DITCH
- □ □ □ □ TEMPORARY CONSTRUCTION ENTRANCE
- ○ ○ ○ ○ NEW STRAW WATTLE
- ○ ○ ○ ○ HARDWARE CLOTH & GRAVEL INLET PROTECTION
- ○ ○ ○ ○ SILT FENCE OUTLET
- ○ ○ ○ ○ NEW BAFFLE
- ▨ ▨ ▨ ▨ ▨ SLOPE MATTING
- - - - - RIPARIAN BUFFER LINE
- - - - - 10' NO BUILD RIPARIAN BUFFER LINE
- ▨ ▨ ▨ ▨ ▨ EX. WETLANDS
- - - - - EXISTING DRAINAGE DIVIDE
- ▨ ▨ ▨ ▨ ▨ DRAINAGE AREA

2



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 GROUND COVER 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
6. SLOPES ARE AS DEFINED IN THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
7. MAINTAIN ALL EXISTING EROSION CONTROL MEASURES THAT WILL REMAIN THROUGHOUT STAGE 2 EROSION CONTROL. THIS INCLUDES EXISTING DIVERSION DITCHES, EXISTING SKIMMER SEDIMENT BASINS, EXISTING SILT FENCE AND SILT FENCE OUTLETS, AND TREE PROTECTION.
8. ENSURE LOW FLOW ORIFICE OF BMP #45 AND THE LOW FLOW AND SECONDARY ORIFICES OF BMP #46 ARE PLUGGED AND FUNCTIONING AS NECESSARY IN ORDER TO MAINTAIN THE REQUIRED SURFACE AREA AND VOLUME TO ACT AS SEDIMENT BASINS IN STAGE 2. PERFORM REPAIRS TO PLUG/PLYWOOD AS NEEDED.
9. BEGIN FINAL GRADING OPERATIONS FOR ROADWAY AND LOTS.
10. CONTRACTOR IS TO INSTALL THE PUMP, COFFER DAM, AND FILTER BAG AS SHOWN AND DETAILED IN THE PLANS PRIOR TO REMOVAL OF TEMPORARY CULVERT AT THE STREAM CROSSING. CONTRACTOR MUST HAVE PUMP AROUND INSTALLED PRIOR TO THE INSTALLATION OF THE PERMANENT STREAM CROSSING CULVERT.
11. UPON COMPLETION OF PERMANENT STREAM CROSSING CULVERT INSTALLATION, CONTRACTOR IS TO KEY-IN CLASS 1 RIP RAP AROUND INLET AND OUTLET HEADWALLS FOR BANK STABILIZATION AS SHOWN AND DETAILED IN THE PLANS.
12. AS ELEVATIONS ARE BROUGHT TO FINAL GRADES AND STORM PIPING IS INSTALLED IN ROADWAYS AND LOTS, CONTRACTOR SHALL INSTALL HARDWARE CLOTH AND GRAVEL INLET PROTECTION AND INSTALL LINERS IN PERMANENT SWALES AS SPECIFIED IN THESE PLANS.
13. CONSTRUCT ADDITIONAL 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.
14. 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.
15. PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH THE PLANS.
16. ONCE GROUND COVER 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.
17. AFTER UPSTREAM AREAS HAVE BEEN SUBSTANTIALLY STABILIZED, CONVERT SEDIMENT BASINS INTO BMPs PER BMP DETAIL SHEETS D4.1-4.6. BASINS SHALL NOT BE CONVERTED WITHOUT APPROVAL FROM CHATHAM COUNTY.

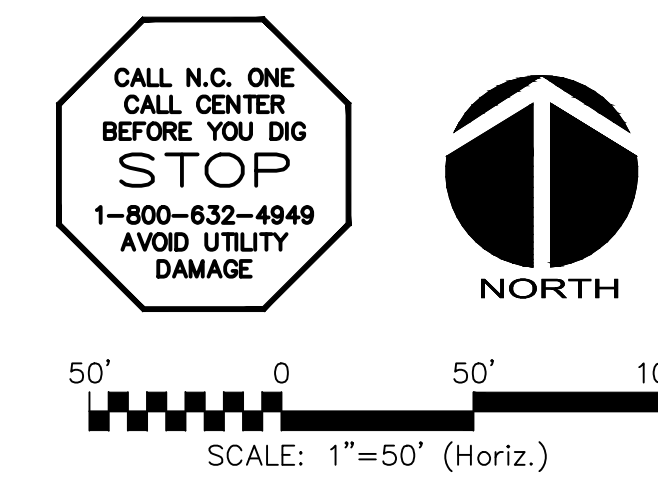
STORM DRAINAGE NOTES:

1. STORM DRAINAGE PIPES SHALL BE:
 - RCP/CLASS III FOR STORM DRAINAGE INSIDE PUBLIC RIGHT-OF-WAY OR CONNECTING INTO STRUCTURE INSIDE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH NCDOT STANDARDS UNLESS NOTED OTHERWISE.
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 MEASURED AT THE FLOW LINE OF CURB AND GUTTER.
11. STORM DRAINAGE OUTSIDE PUBLIC RIGHT-OF-WAY AND PERMANENT DRAINAGE 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 IN NON-PAVED AREAS. REFER TO NCDOT DETAILS 840.19 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.
15. ALL CLASS III PIPES CROSSING UNDER THE ROAD MUST MEET MINIMUM COVER OF 2 FT. BELOW THE ROADWAY SUBGRADE. IF 2 FT. OF COVER CANNOT BE MAINTAINED, CLASS IV RCP SHOULD BE USED.

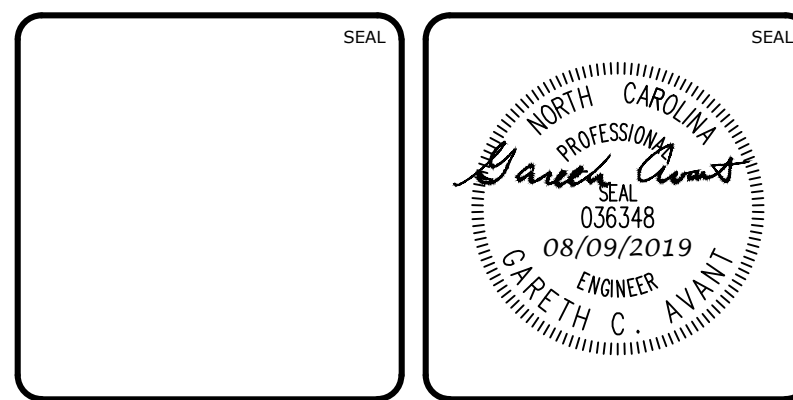
SELF INSPECTION NOTICE:

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 115A-54.1 AND 15A NCGS 48-01.31. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FROM [HTTP://WWW.DLR.ENR.STATE.NC.US/PAGES/SEDIMENTATION_NEW.HTML](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.

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REV. NO.	DESCRIPTIONS	DATE
6	REVISIONS PER NCDOT COMMENTS	2019.08.09
5	REVISIONS PER NCDOT COMMENTS	2019.08.06
4	LIMITS OF DISTURBANCE REVISION	2019.08.05
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09

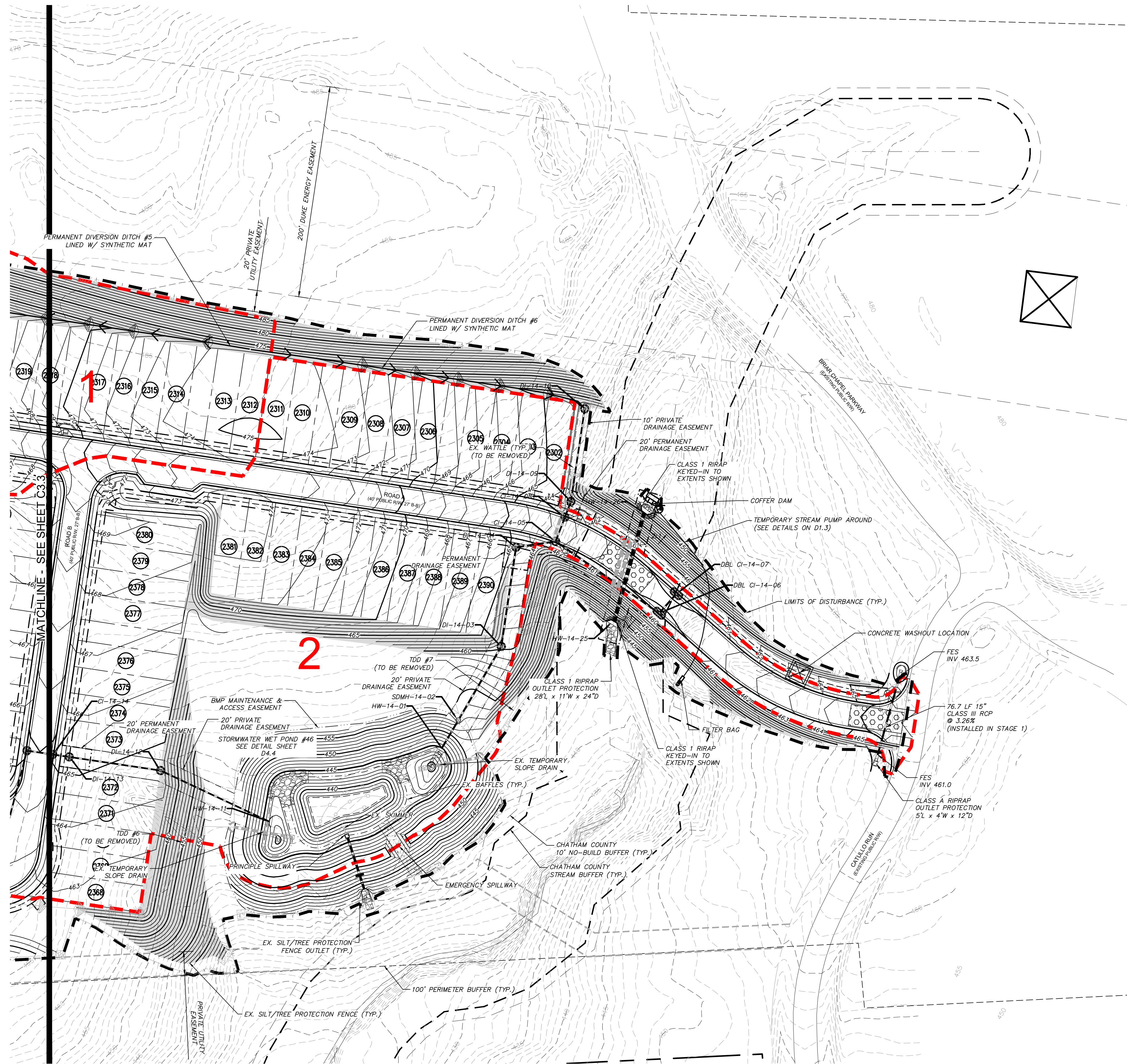
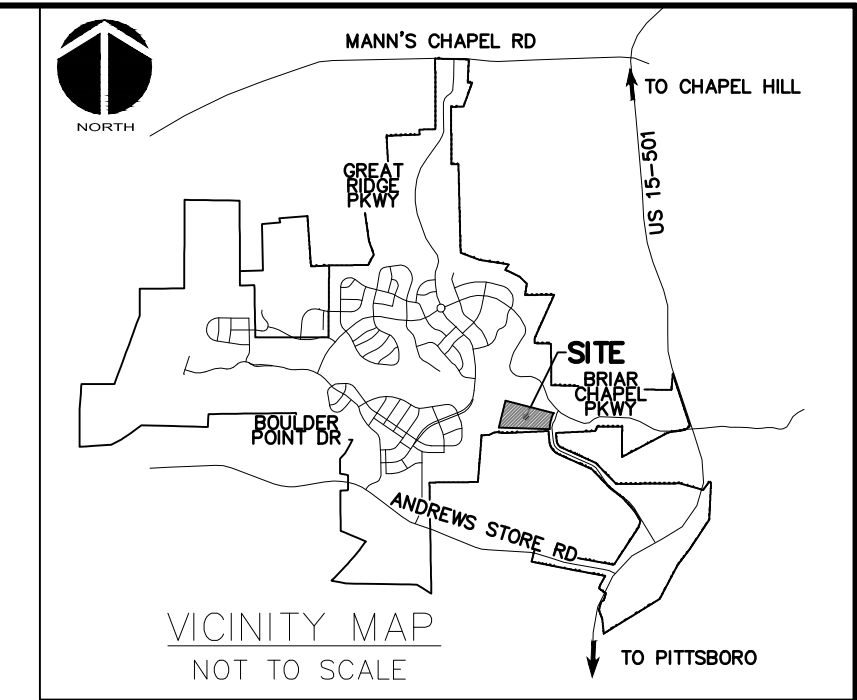


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**BRIAR CHAPEL
 PHASE 14
 CHATHAM COUNTY, NORTH CAROLINA**
**STAGE 2 GRADING, DRAINAGE, AND EROSION
 CONTROL PLAN**

DATE: MAY 9, 2019	SCALE: HORIZONTAL: AS NOTED	MISC FILE NUMBER: C3.3
MCE PROJ. # 02735-0239	VERTICAL: N/A	DRAWING NUMBER: C3.3
DRAWN: DCR		
DESIGNED: DCR		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION	REVISION: 6	



- LEGEND:**
- OVERALL PROPERTY BOUNDARY
 - NEW R/W LINE
 - LIMITS OF DISTURBANCE
 - COMBINATION SILT/TREE PROTECTION FENCING
 - EXISTING CONTOUR
 - NEW DIVERSION DITCH
 - TEMPORARY CONSTRUCTION ENTRANCE
 - NEW STRAW WATTLE
 - HARDWARE CLOTH & GRAVEL INLET PROTECTION
 - SILT FENCE OUTLET
 - NEW BAFFLE
 - SLOPE MATTING
 - RIPARIAN BUFFER LINE
 - 10' NO BUILD RIPARIAN BUFFER LINE
 - EX. WETLANDS
 - EXISTING DRAINAGE DIVIDE
 - DRAINAGE AREA

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

NORTH

50' 0 50' 100'
SCALE: 1"=50' (Horiz.)

REV. NO.	DESCRIPTIONS	DATE
6	REVISIONS PER NCDOT COMMENTS	2019.08.09
5	REVISIONS PER NCDOT COMMENTS	2019.08.06
4	LIMITS OF DISTURBANCE REVISION	2019.08.05
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09

SEAL

Greth C. Avant
PROFESSIONAL ENGINEER
08/09/2019
036348
CHATHAM COUNTY, N.C.

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CHATHAM COUNTY, NORTH CAROLINA

STAGE 2 GRADING, DRAINAGE, AND EROSION
CONTROL PLAN

DATE: MAY 9, 2019	SCALE: N/A	MSC FILE NUMBER: C3.3
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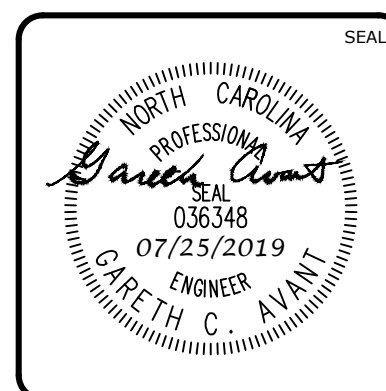
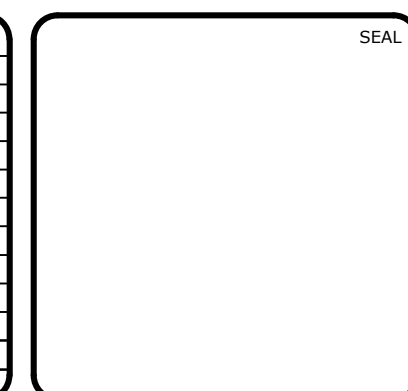
STORM DRAINAGE STRUCTURE TABLE	
STRUCTURE NAME	RIM ELEVATION
CI-14-05	462.57
CI-14-08	462.58
CI-14-14	464.99
CI-14-15	464.99
CI-14-21	424.89
CI-14-22	424.70
CI-14-23	432.94
CI-14-24	440.99
CI-14-25	440.99
DBL CI-14-06	460.00
DBL CI-14-07	460.00
DBL CI-14-17	462.09
DBL CI-14-20	419.59
DI-14-03	460.41
DI-14-04	464.68
DI-14-09	462.41
DI-14-10	462.88
DI-14-12	464.14
DI-14-13	465.03
DI-14-26	441.65

STORM DRAINAGE STRUCTURE TABLE	
STRUCTURE NAME	RIM ELEVATION
DI-14-27	440.79
DI-14-28	445.00
DI-14-29	450.00
DI-14-30	460.00
HW-14-01	447.24
HW-14-11	444.44
HW-14-18	411.75
HW-14-25	444.56
HW-14-26	446.79
SDMH-14-02	453.89
SDMH-14-19	422.00

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-14-05	DI-14-04	454.4	454.2	18"	RCP	37.8	0.50%
CI-14-08	CI-14-05	457.6	457.4	15"	RCP	24.5	0.50%
CI-14-14	DI-14-13	454.4	454.3	15"	RCP	15.8	0.50%
CI-14-15	CI-14-14	454.6	454.5	15"	RCP	24.5	0.50%
CI-14-21	SDMH-14-19	419.1	417.5	18"	RCP	52.9	3.04%
CI-14-22	CI-14-21	419.3	419.2	15"	RCP	27.7	0.50%
CI-14-23	CI-14-21	427.6	419.2	24"	RCP	112.6	7.44%
CI-14-24	CI-14-23	434.5	427.7	24"	RCP	110.2	6.16%
CI-14-25	CI-14-24	434.7	434.6	24"	RCP	24.5	0.50%
DBL CI-14-06	CI-14-05	455.0	454.5	18"	RCP	118.7	0.50%
DBL CI-14-07	DBL CI-14-06	455.2	455.0	18"	RCP	24.5	0.50%
DBL CI-14-17	CI-14-15	455.6	454.9	15"	RCP	137.0	0.50%
DBL CI-14-20	SDMH-14-19	414.2	412.0	15"	RCP	62.0	3.58%
DI-14-03	SDMH-14-02	452.1	448.1	18"	RCP	80.4	5.00%
DI-14-04	DI-14-03	454.1	452.2	18"	RCP	94.5	2.00%
DI-14-09	CI-14-08	457.7	457.7	15"	RCP	15.7	0.50%
DI-14-10	DI-14-09	458.3	457.8	15"	RCP	88.3	0.50%
DI-14-12	HW-14-11	449.9	442.0	15"	RCP	113.0	7.00%
DI-14-13	DI-14-12	454.2	453.8	15"	RCP	87.0	0.50%
DI-14-26	CI-14-25	434.9	434.8	18"	RCP	15.8	0.50%

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
DI-14-27	DI-14-26	435.4	435.0	18"	RCP	92.0	0.50%
DI-14-28	DI-14-27	440.4	435.5	15"	RCP	96.9	5.02%
DI-14-29	DI-14-28	445.4	440.5	15"	RCP	112.0	4.37%
DI-14-30	DI-14-29	455.4	445.5	15"	RCP	192.8	5.14%
HW-14-26	HW-14-25	444.8	441.8	42"	RCP	105.9	2.74%
SDMH-14-02	HW-14-01	448.0	444.5	18"	RCP	30.6	11.32%
SDMH-14-19	HW-14-18	411.9	408.5	24"	RCP	65.6	5.21%

REV. NO.	DESCRIPTIONS	DATE
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09



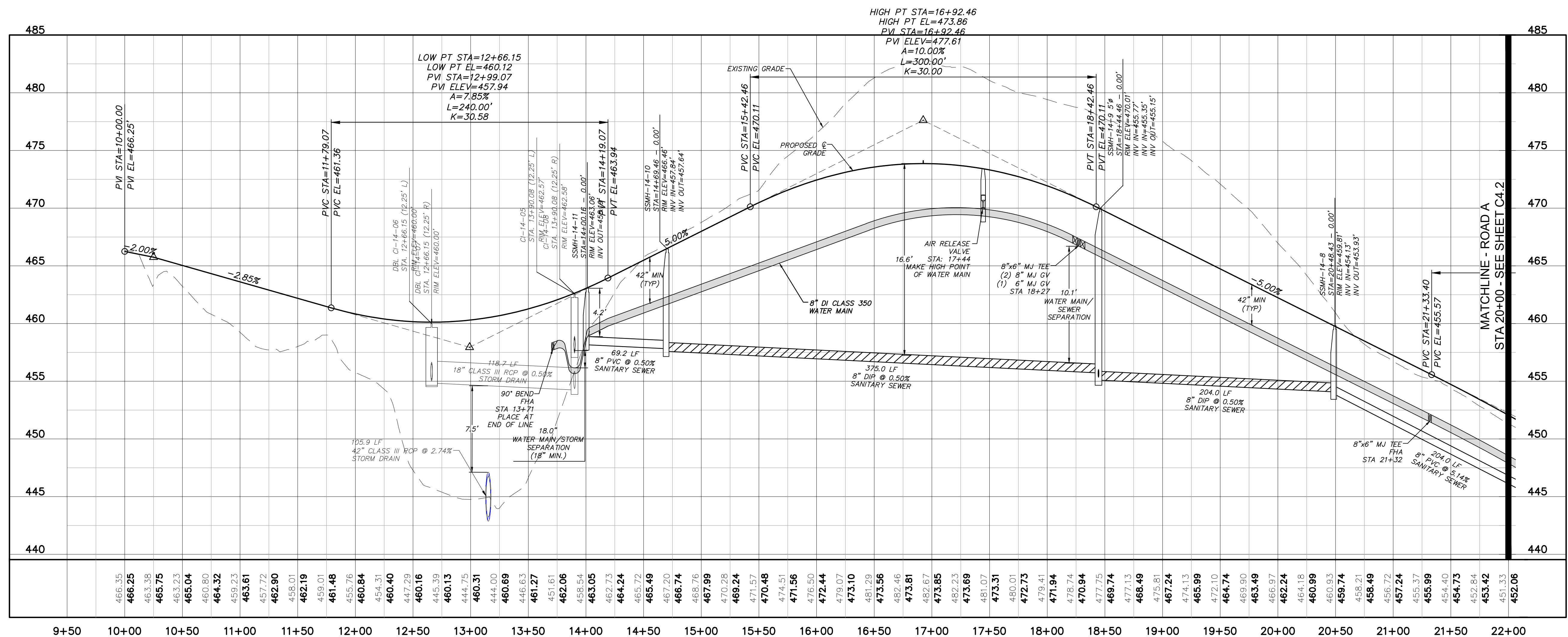
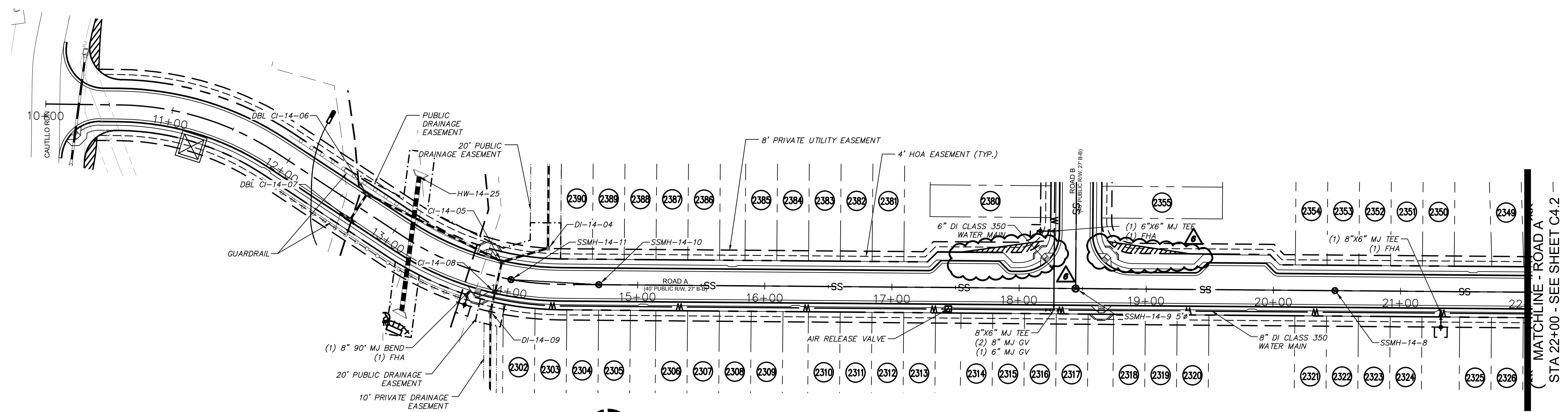
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STORM DRAIN TABLES

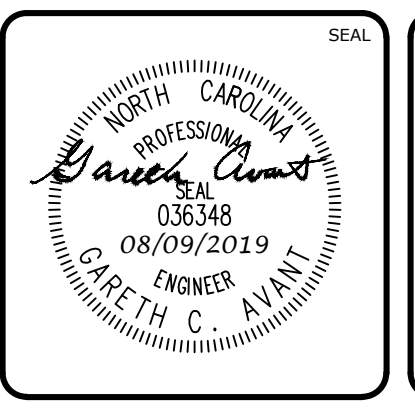
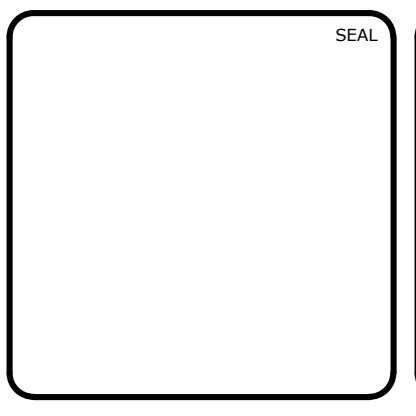
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DESIGNED: DCR		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION		REVISION: 3



ROAD A PROFILE
(STA 10+00.00 TO 22+00.00)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

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REV. NO.	DESCRIPTIONS	DATE
6	REVISIONS PER NCDOT COMMENTS	2019.08.09
5	REVISIONS PER NCDOT COMMENTS	2019.08.06
4	LIMITS OF DISTURBANCE REVISION	2019.08.05
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09



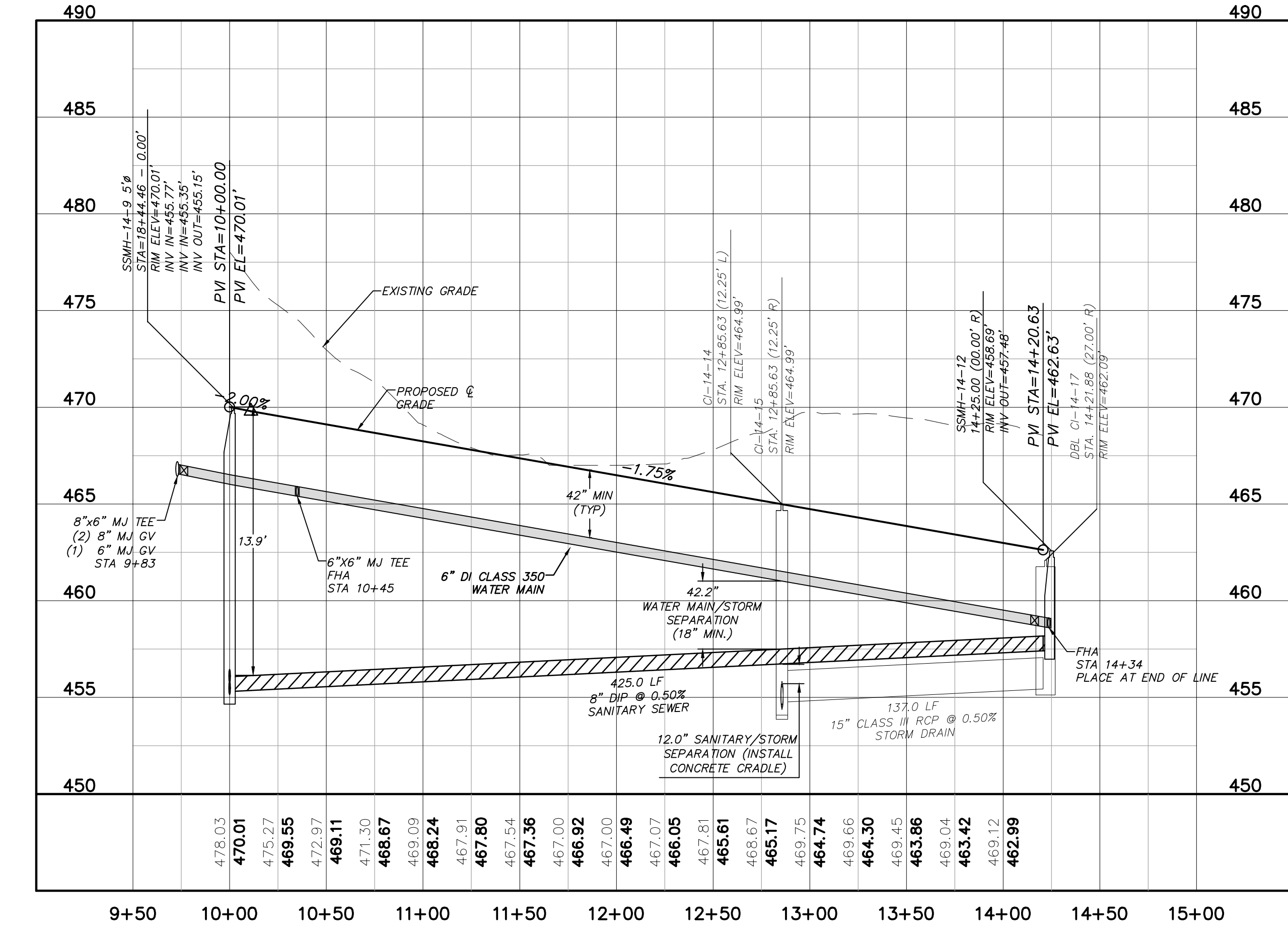
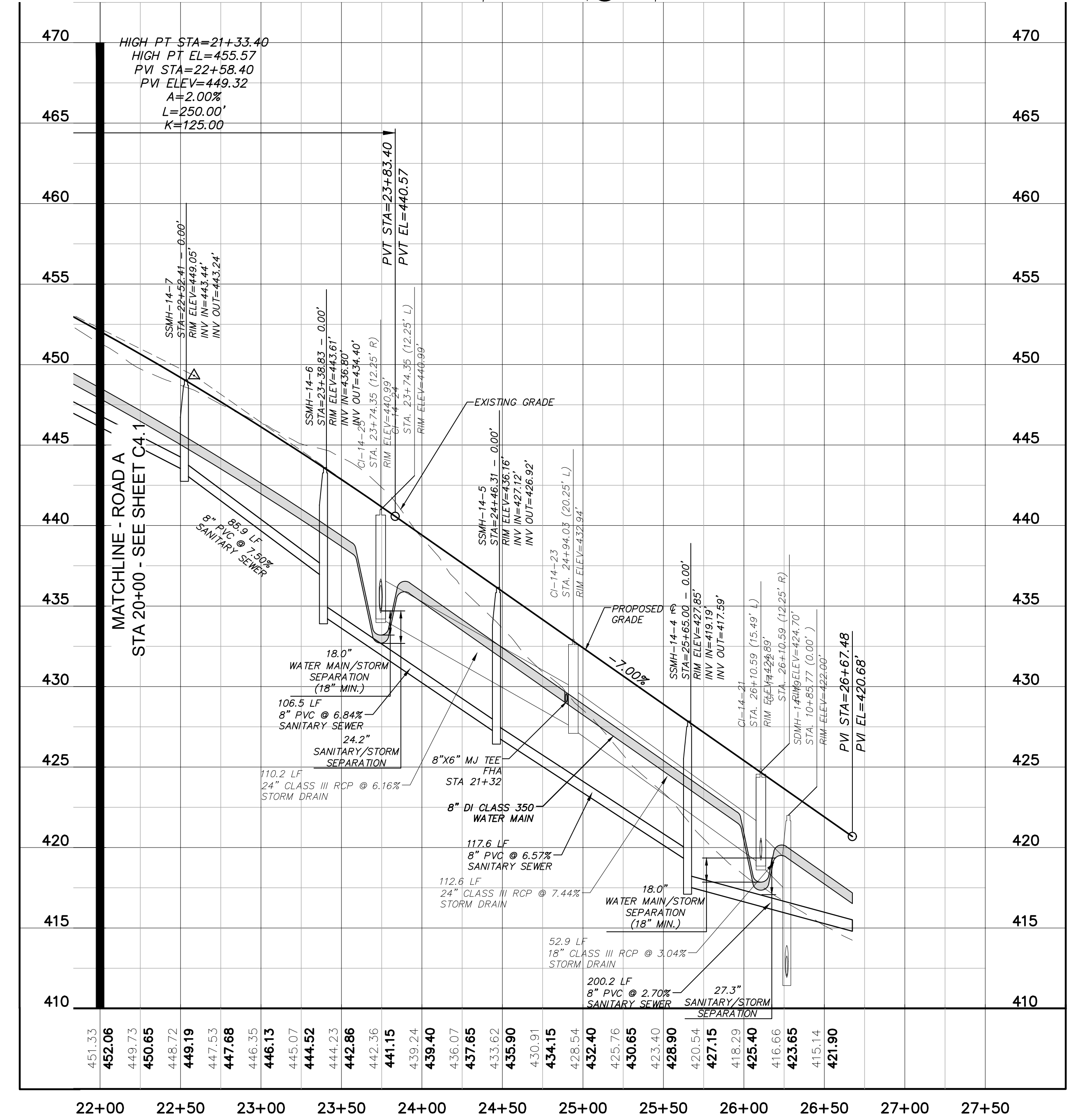
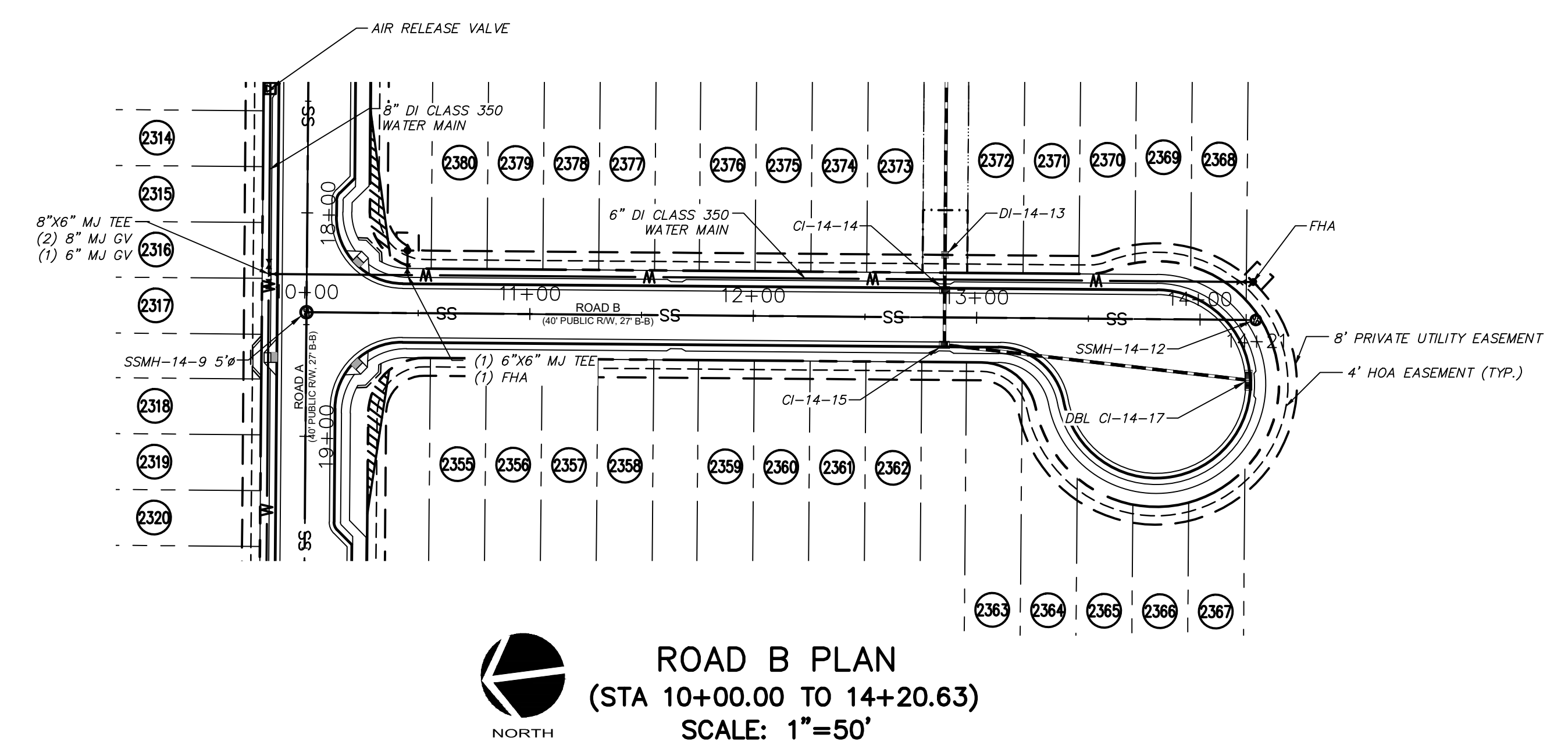
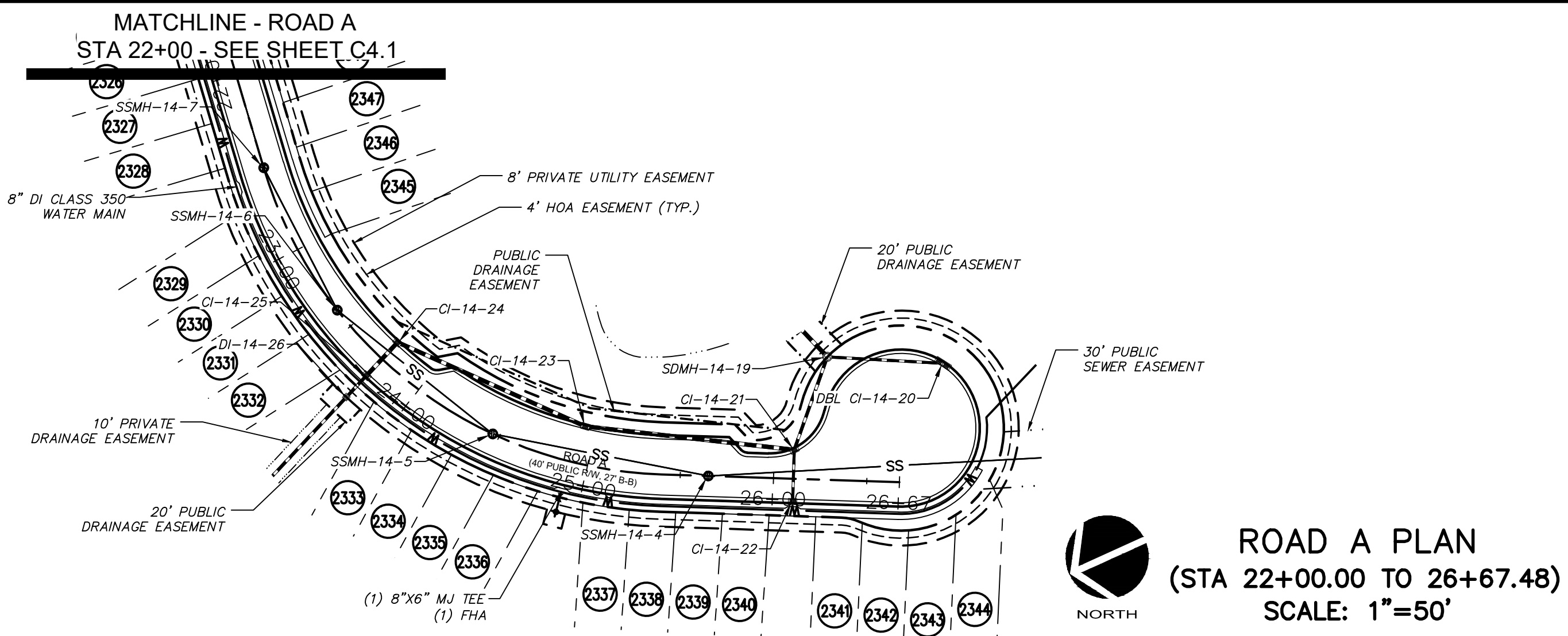
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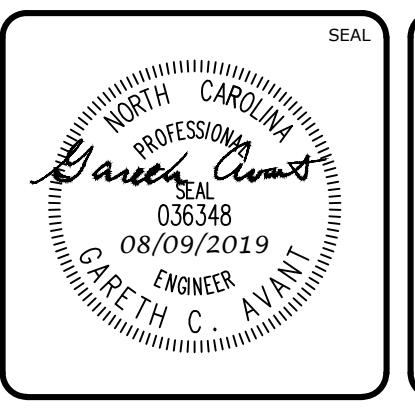
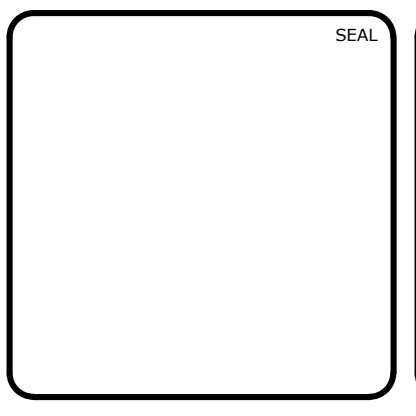
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PLAN & PROFILE
ROAD A, STA 10+00.00 TO STA 22+00.00

DATE: MAY 9, 2019	SCALE: AS NOTED	MFC FILE NUMBER: C4.X
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DESIGNED: DCR		
CHECKED: GCA		
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STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION		REVISION: 6



REV. NO.	DESCRIPTIONS	DATE
1	INITIAL SUBMITTAL	2019.05.09
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
4	LIMITS OF DISTURBANCE REVISION	2019.08.05
5	REVISIONS PER NCDOT COMMENTS	2019.08.06
6	REVISIONS PER NCDOT COMMENTS	2019.08.09



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CHATHAM COUNTY, NORTH CAROLINA
 PLAN & PROFILE
 ROAD A, STA 22+00.00 TO STA 26+67.48
 ROAD B, STA 10+00.00 TO STA 14+20.63

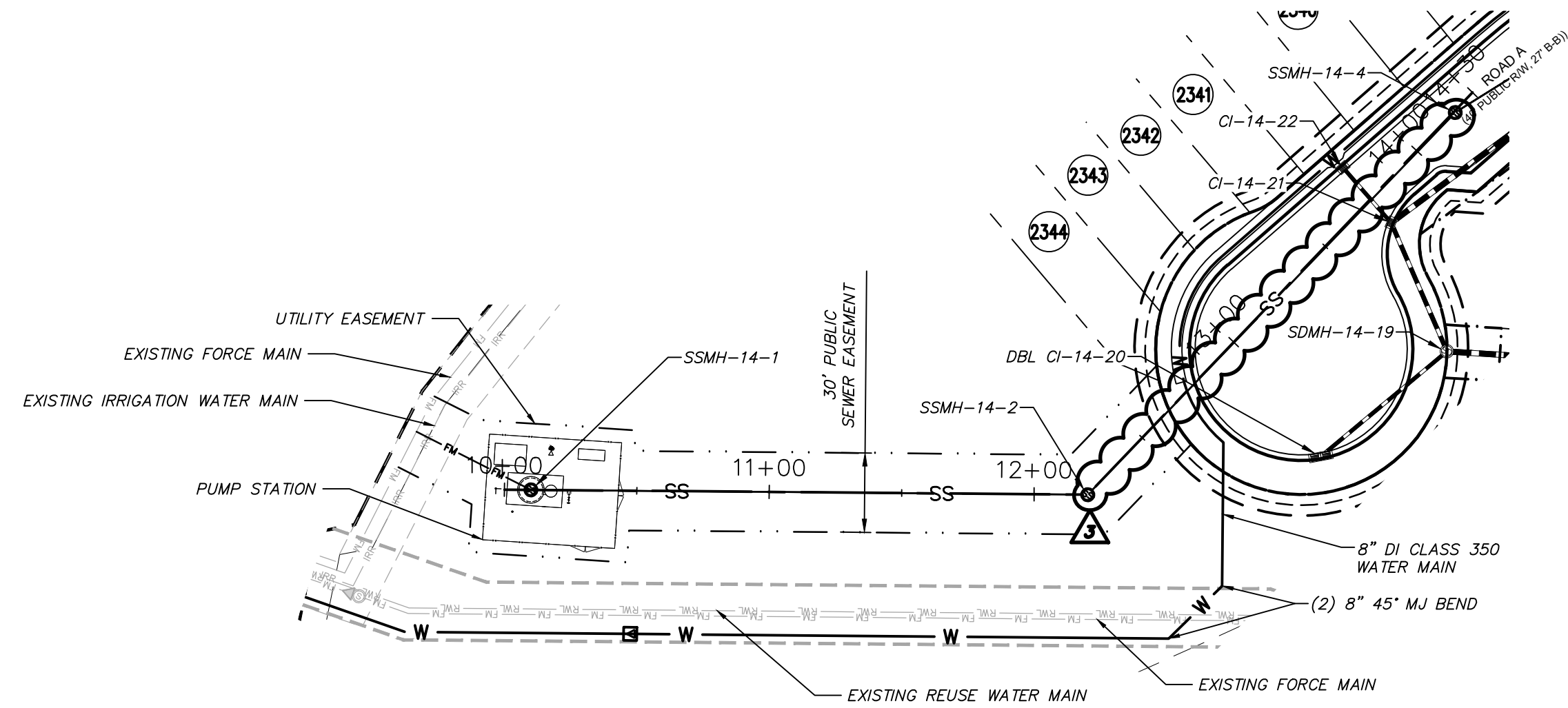
DATE: MAY 9, 2019
 MCE PROJ. #: 02735-0239
 DRAWN: DCR
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 CHECKED: GCA
 PROJ. MGR.: CHS

SCALE: HORIZONTAL: AS NOTED; VERTICAL: 1" = 5'

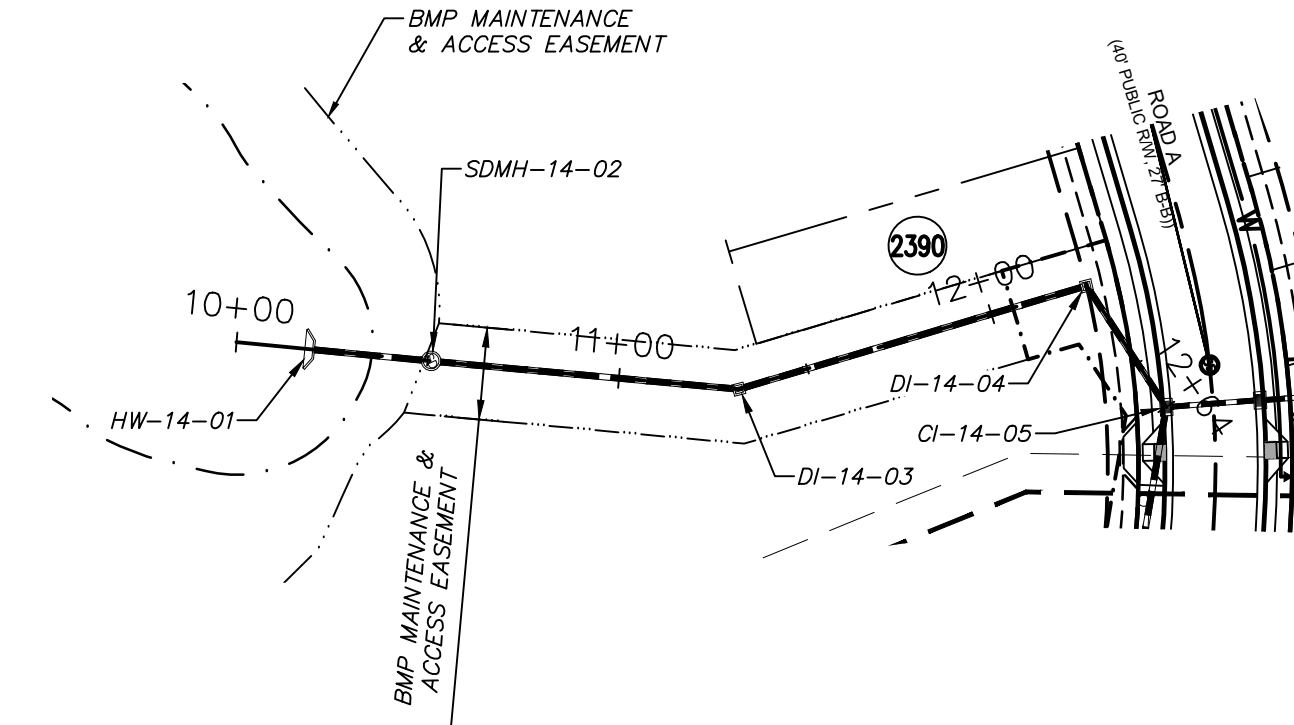
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 REVISION: 6

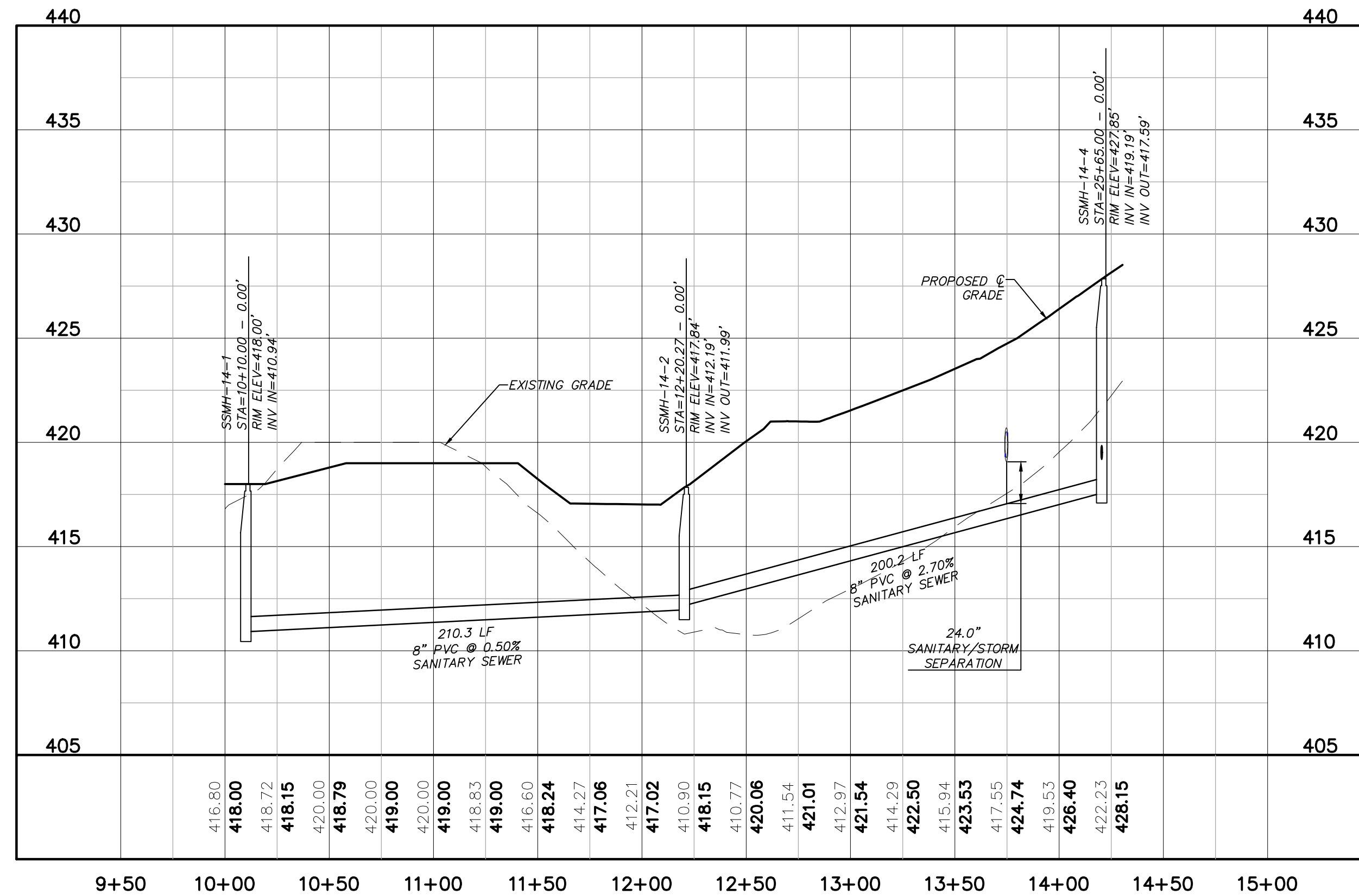
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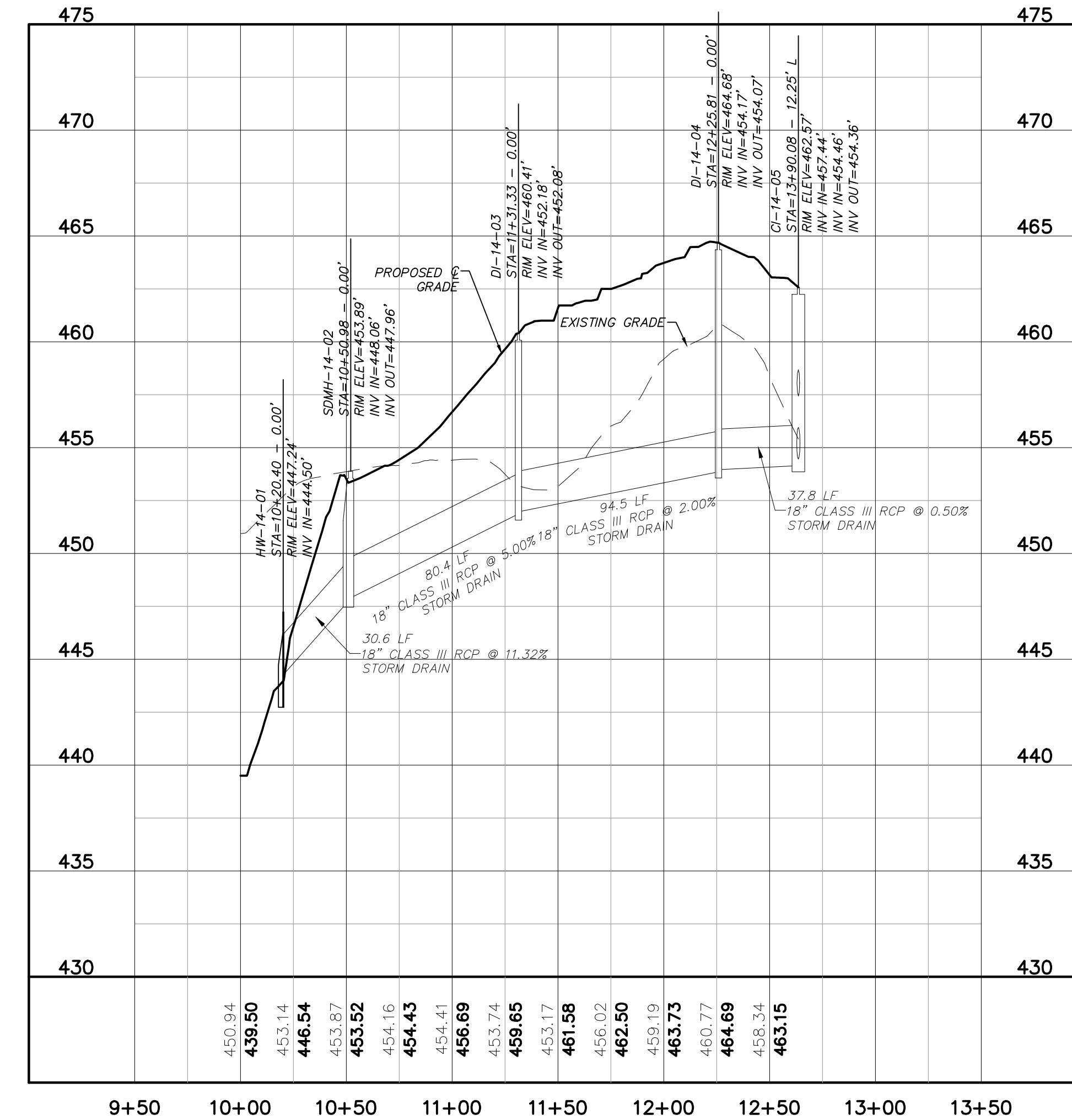
SEWER OUTFALL PLAN
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SCALE: 1"=50'



STORM OUTFALL #1 PLAN
(STA 10+00.00 TO 12+63.56)
SCALE: 1"=50'

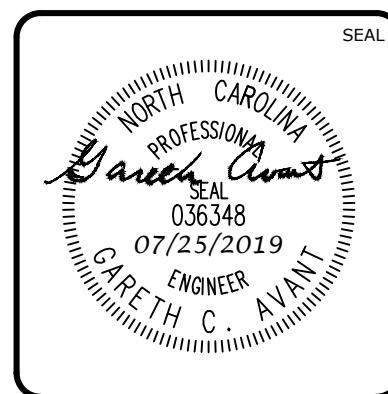
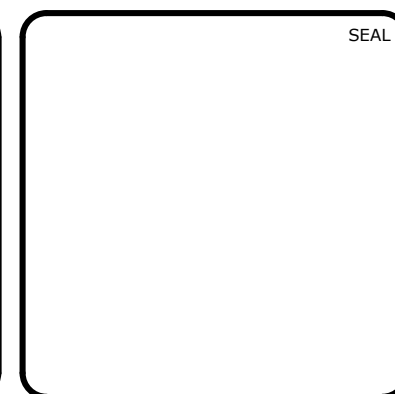


SEWER OUTFALL PROFILE
(STA 10+00.00 TO 14+30.93)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'



STORM OUTFALL #1 PROFILE
(STA 10+00.00 TO 12+63.56)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

REV. NO.	DESCRIPTIONS	DATE
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09



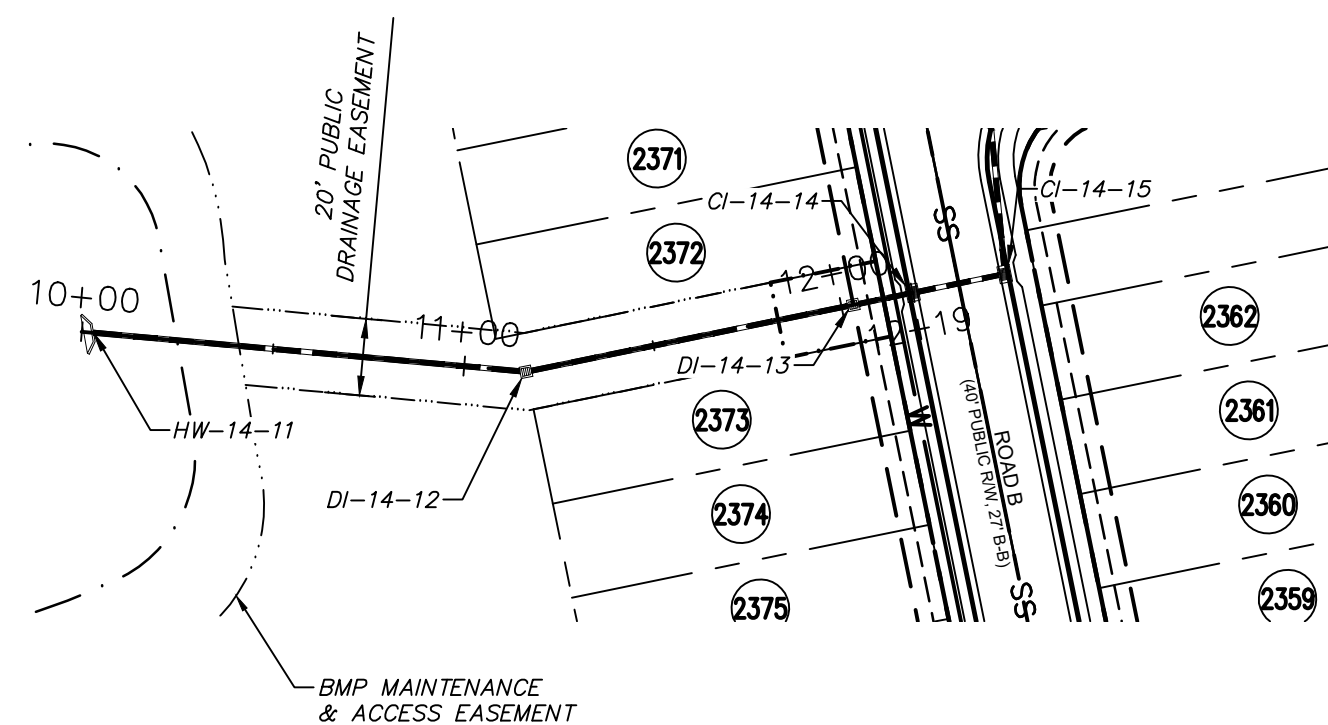
MCKIM & CREED
1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
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BRIAR CHAPEL™
by **Newland COMMUNITIES**

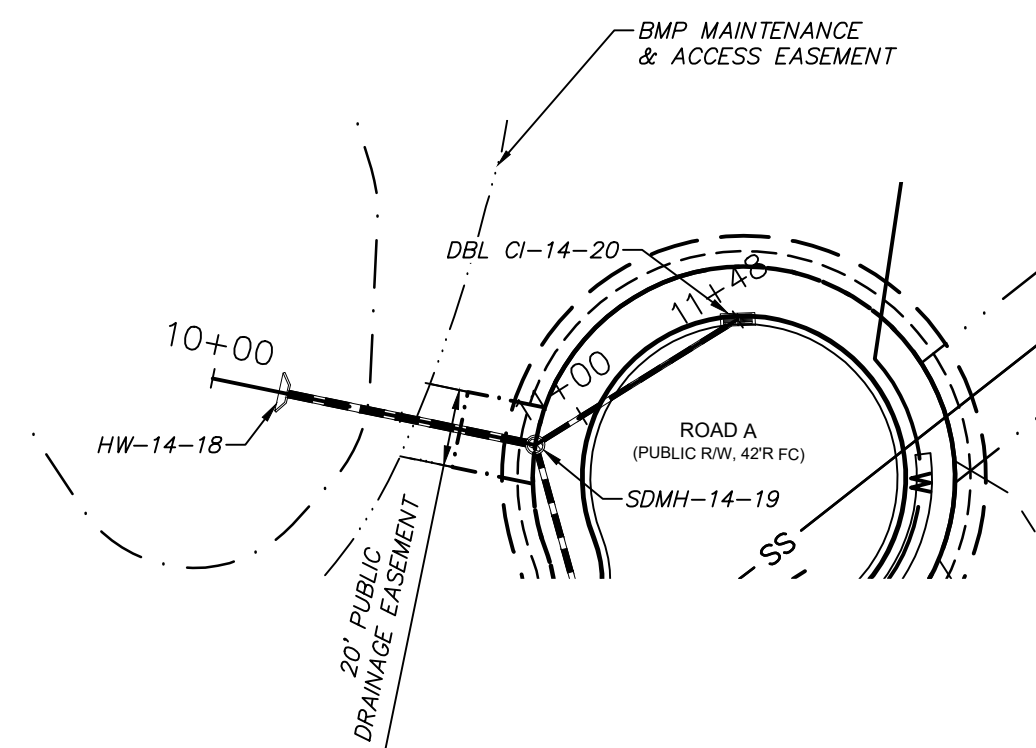
**BRIAR CHAPEL
PHASE 14
CHATHAM COUNTY, NORTH CAROLINA**

PLAN & PROFILE
SEWER OUTFALL, STA 10+00.00 TO STA 14+30.93
STORM OUTFALL #1, STA 10+00.00 TO STA 12+63.56

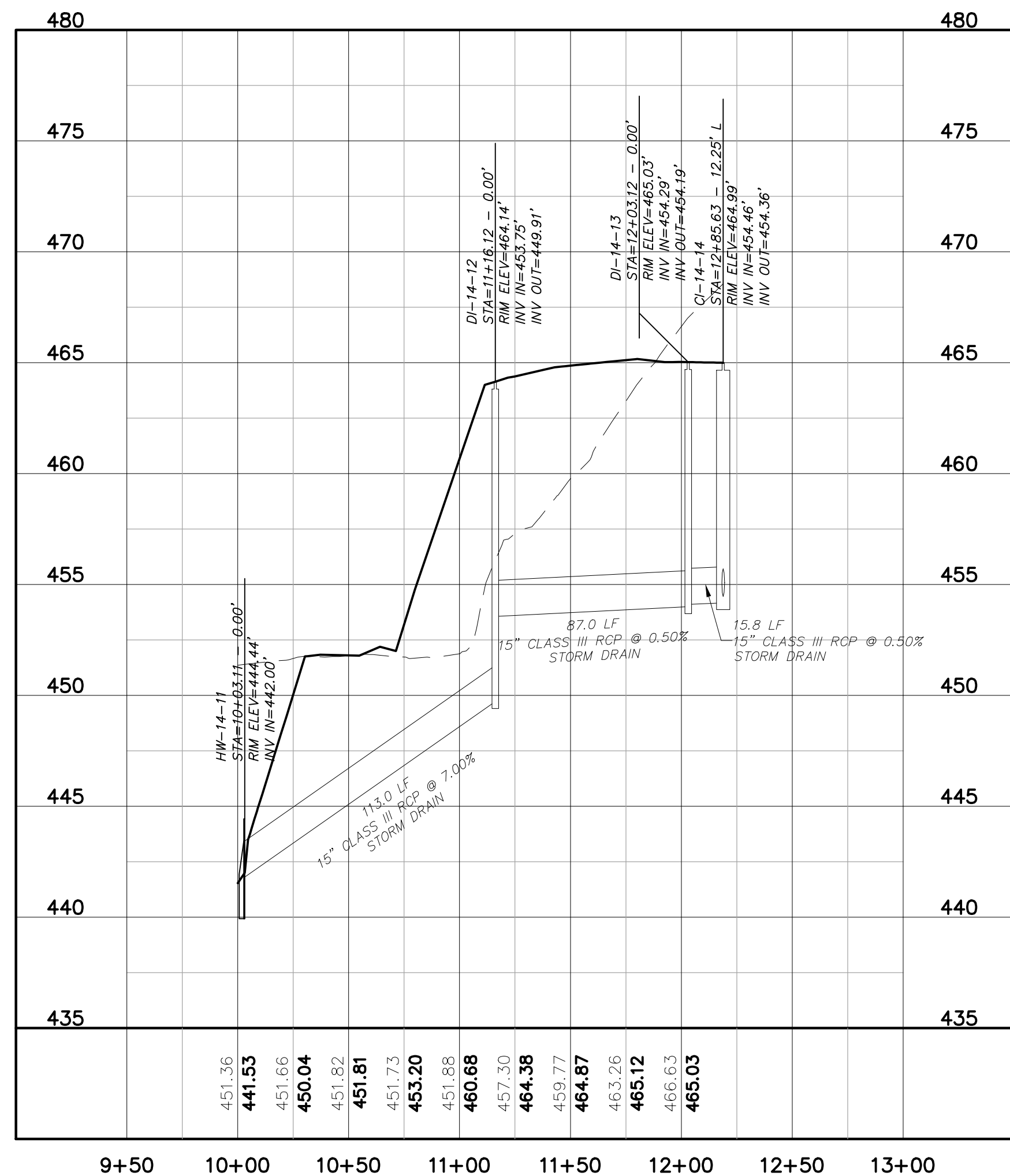
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DRAWN: DCR	VERTICAL: 1" = 5'	
DESIGNED: DCR		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION		REVISION: 3



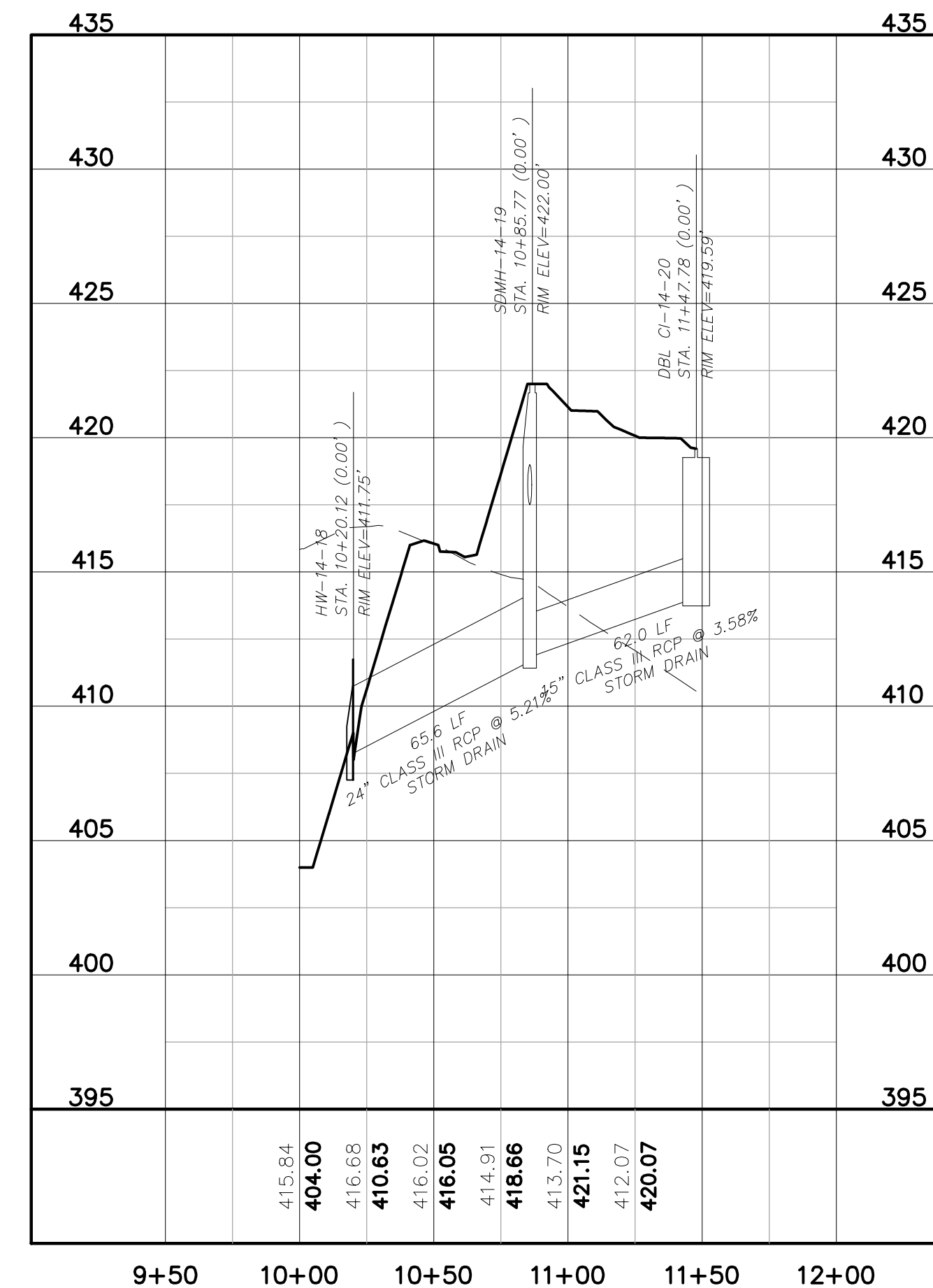
STORM OUTFALL #2 PLAN
 (STA 10+00.00 TO 12+18.87)
 SCALE: 1"=50'



STORM OUTFALL #3 PLAN
 (STA 10+00.00 TO 11+47.78)
 SCALE: 1"=50'

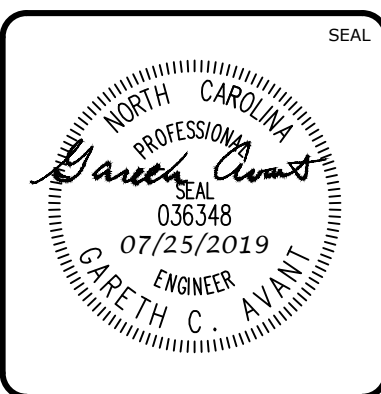
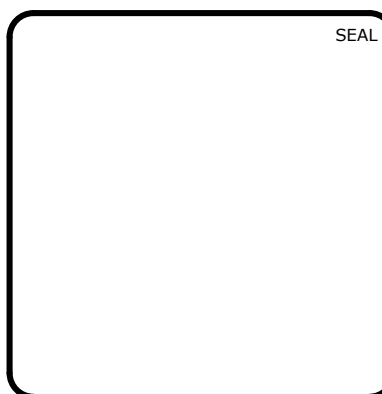


STORM OUTFALL #2 PROFILE
 (STA 10+00.00 TO 12+18.87)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'



STORM OUTFALL #3 PROFILE
 (STA 10+00.00 TO 11+47.78)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

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3	REVISIONS PER NCDOT COMMENTS	2019.07.25
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**BRIAR CHAPEL
 PHASE 14
 CHATHAM COUNTY, NORTH CAROLINA**

PLAN & PROFILE
 STORM OUTFALL #2, STA 10+00.00 TO STA 12+18.87
 STORM OUTFALL #3, STA 10+00.00 TO STA 11+47.78

DATE:	MAY 9, 2019
MCE PROJ. #	02735-0239
DRAWN	DCR
DESIGNED	DCR
CHECKED	GCA
PROJ. MGR.	CHS

SCALE	C4.X
HORIZONTAL:	AS NOTED
VERTICAL:	C4.4
1" = 5'	

STATUS:	FINAL DRAWINGS RELEASED FOR CONSTRUCTION
REVISION	3

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE
SPECIES — RATE (lb./acre)
TALL FESCUE — 60
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: FALL: AUG. 15 – SEPT. 15 POSSIBLE: AUG. 20 – OCT. 25
LATE WINTER: FEB. 15 – MAR. 21 FEB. 1 – APR. 15.

FALL IS BEST FOR TALL FESCUE AND LATE 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

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
- RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
- REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW).
- CONTINUE TILLAGE UNTIL A WELL - PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
- SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
- MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- 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.
- 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

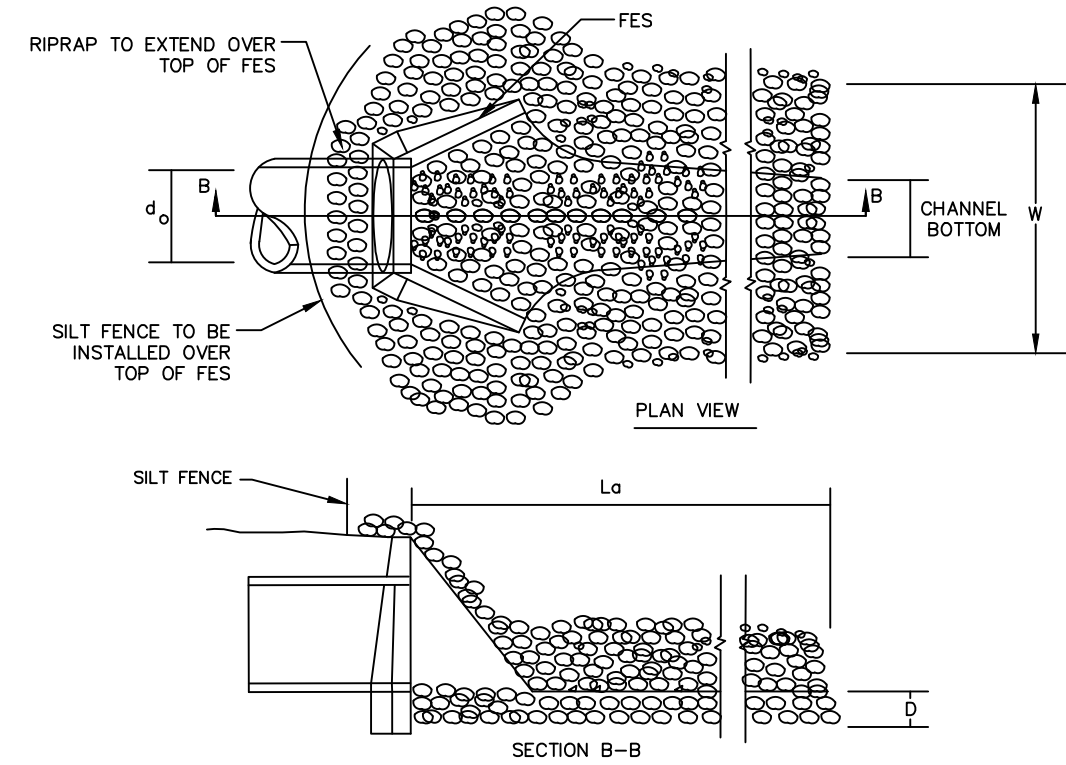
SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER

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

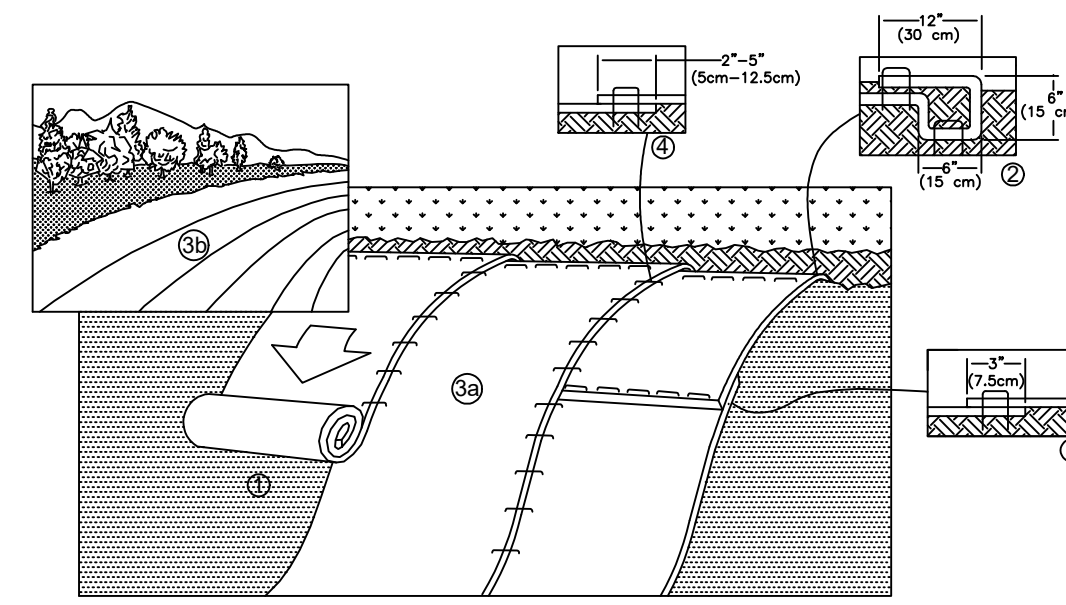


OUTLET NO.	Do (IN.)	Lo (FT.)	W (FT.)	DEPTH (IN.)	LINING CLASSIFICATION
HW-14-01	18	12.0	5.0	24	CLASS 1
HW-14-11	15	10.0	4.0	24	CLASS 1
HW-14-18	24	16.0	6.0	24	CLASS 1
CULVERT	42	28.0	11.0	24	CLASS 1

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



TEMPORARY STABILIZATION FOR SLOPES

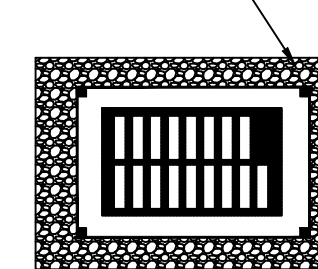
GREATER THAN 10 FEET

NTS

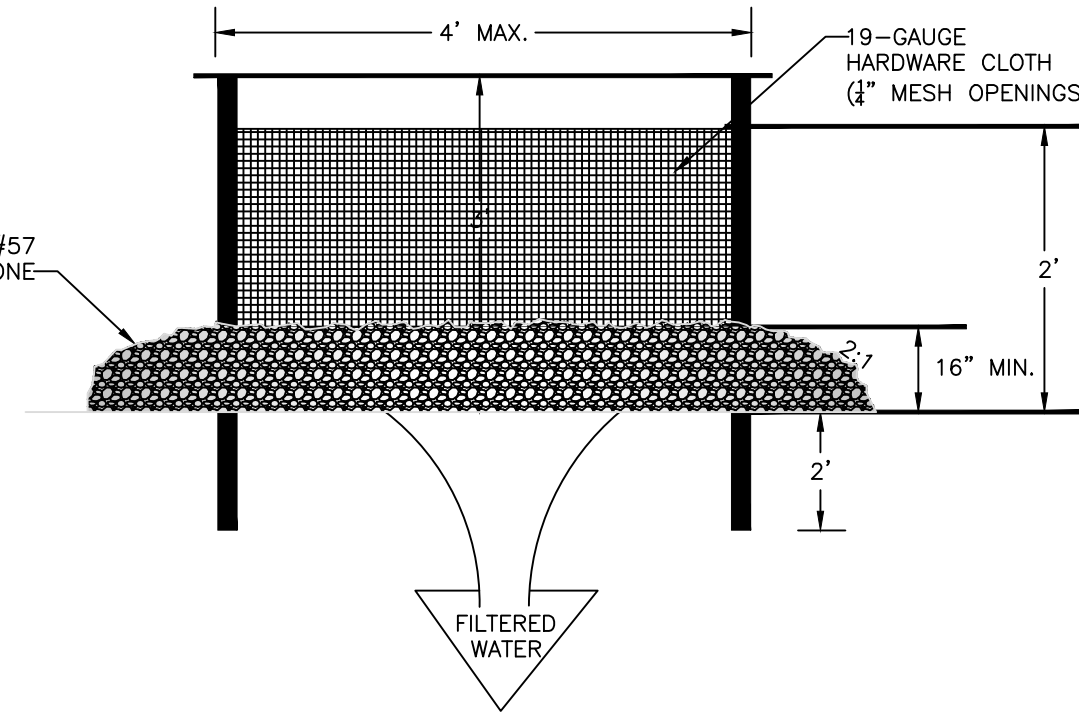
NOTES:

- UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
- 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.
- 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.
- 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.
- ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
- COMPACT THE AREA PROPERLY AND STABILIZED IT WITH GROUND COVER.

NCDOT #5 OR #57 WASHED STONE



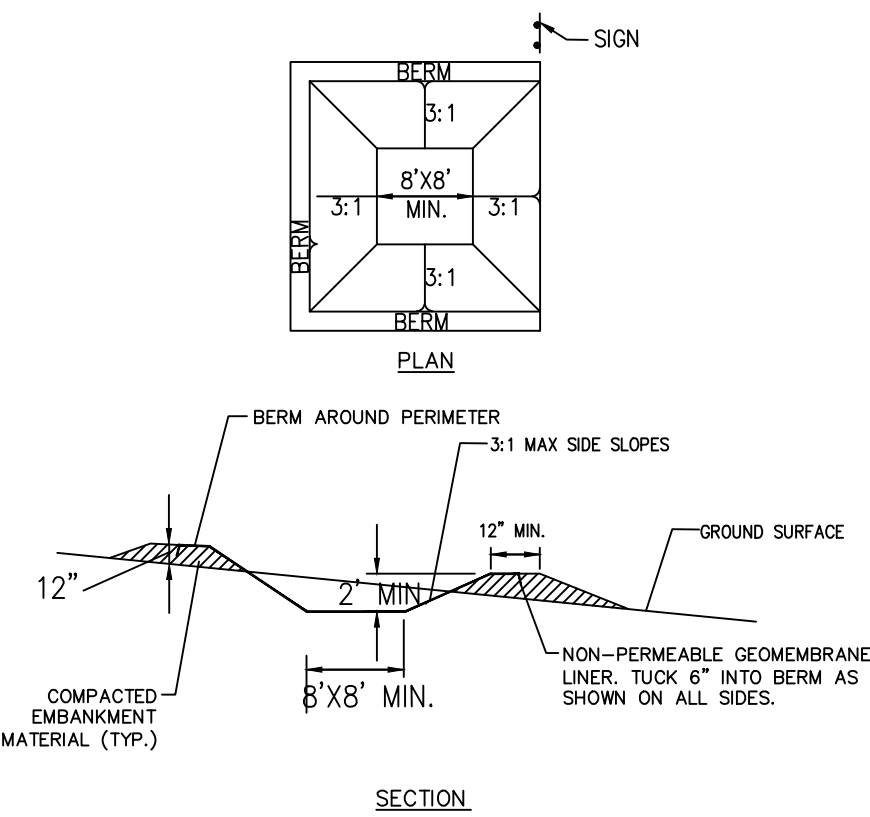
PLAN VIEW



CROSS SECTION

HARDWARE CLOTH & GRAVEL INLET PROTECTION

NTS



CONCRETE WASHOUT AREA INSTALLATION NOTES:

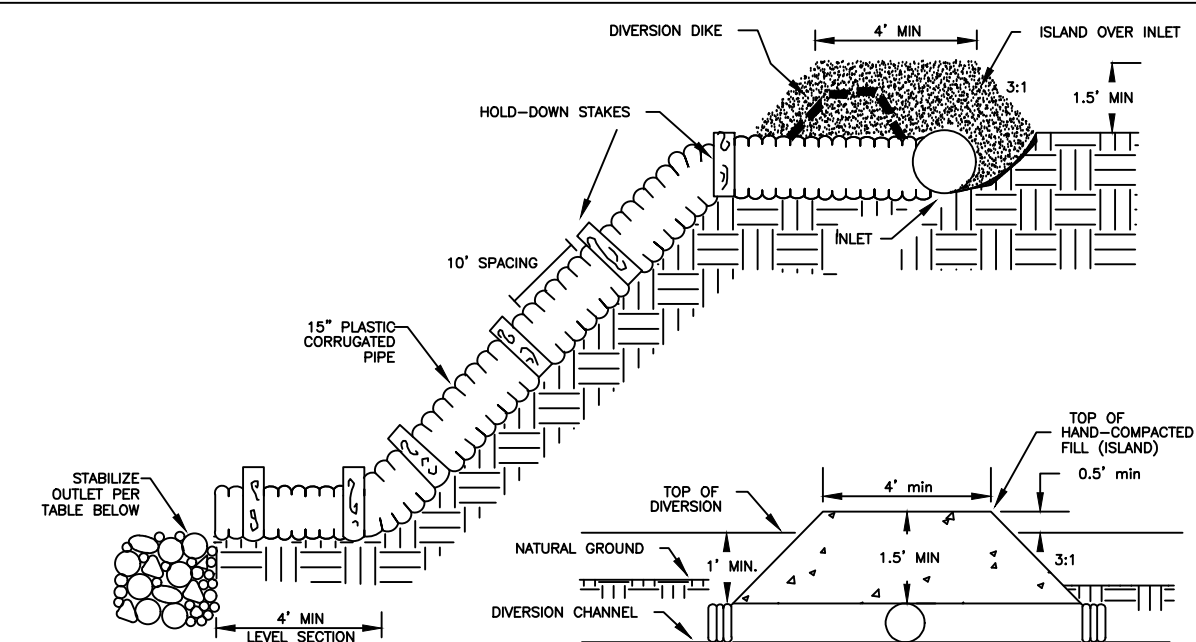
- SEE PLAN FOR LOCATION OF CONCRETE WASHOUT AREA. (TO BE PLACED A MINIMUM OF 50 FT FROM INLETS, BODIES OF WATER, AND DRAINAGEWAYS.)
- THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP TRIGS.
- EXCAVATED MATERIAL SHALL BE USED IN PERIMETER BERM CONSTRUCTION.

CONCRETE WASHOUT AREA MAINTENANCE NOTES:

- THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
- AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED AND DISPOSED OF AT APPROVED WASTE SITE.
- AFTER REMOVAL OF CONCRETE WASHOUT AREA, SEED DISTURBED AREA.
- INSPECT WEEKLY, DURING AND AFTER ANY STORM EVENT.

CONCRETE WASHOUT AREA

NTS



OUTLET PROTECTION SIZING

OUTLET SIZE	Lo (FT.)	W (FT.)	DEPTH (IN.)	LINING CLASSIFICATION
12"	6.0	3.0	22	CLASS B
15"	7.5	3.75	22	CLASS B
18"	9.0	4.5	22	CLASS B
24"	12.0	6.0	22	CLASS B

TEMPORARY SLOPE DRAIN

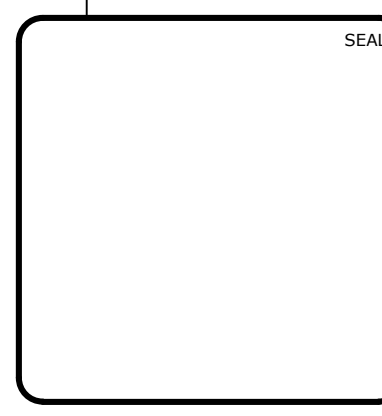
NTS

- 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 OUT SECTION TO HELP SECURE FILTER CLOTH.
- TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS IS TO BE PROVIDED.
- ENTRANCES SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES.
- 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.
- TEMPORARY PADS MUST BE LOCATED ON EACH SIDE OF ADJOINING ROADWAY.

TEMPORARY CONSTRUCTION ENTRANCE

NTS

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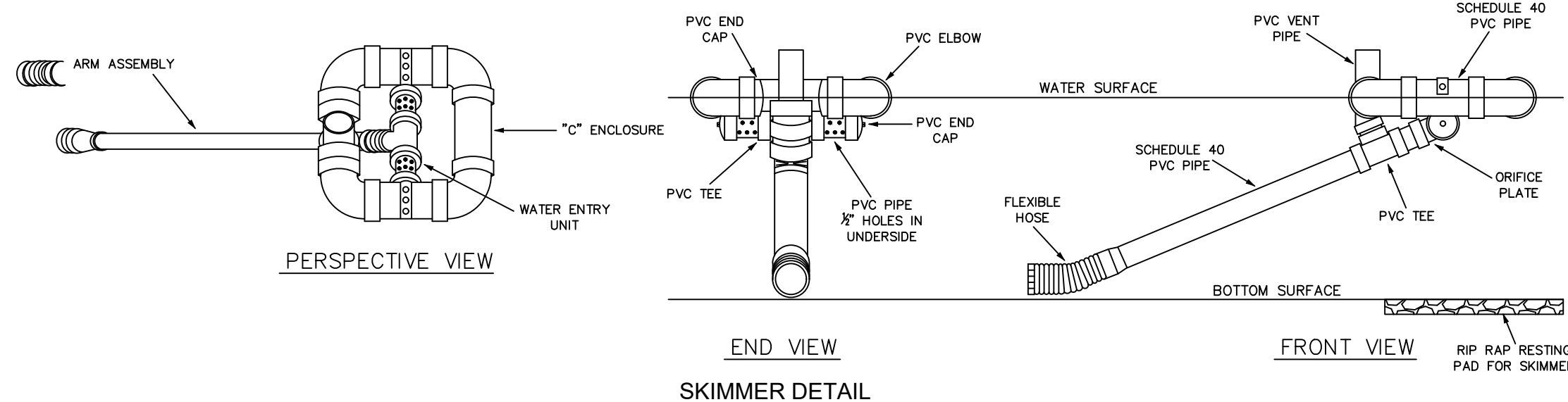
**BRIAR CHAPEL
PHASE 14
CHATHAM COUNTY, NORTH CAROLINA**
**EROSION AND SEDIMENTATION CONTROL
DETAILS**

DATE: MAY 9, 2019
MCE PROJ. # 02735-0239
DRAWN: DCR
DESIGNED: DCR
CHECKED: GCA
PROJ. MGR.: CHS

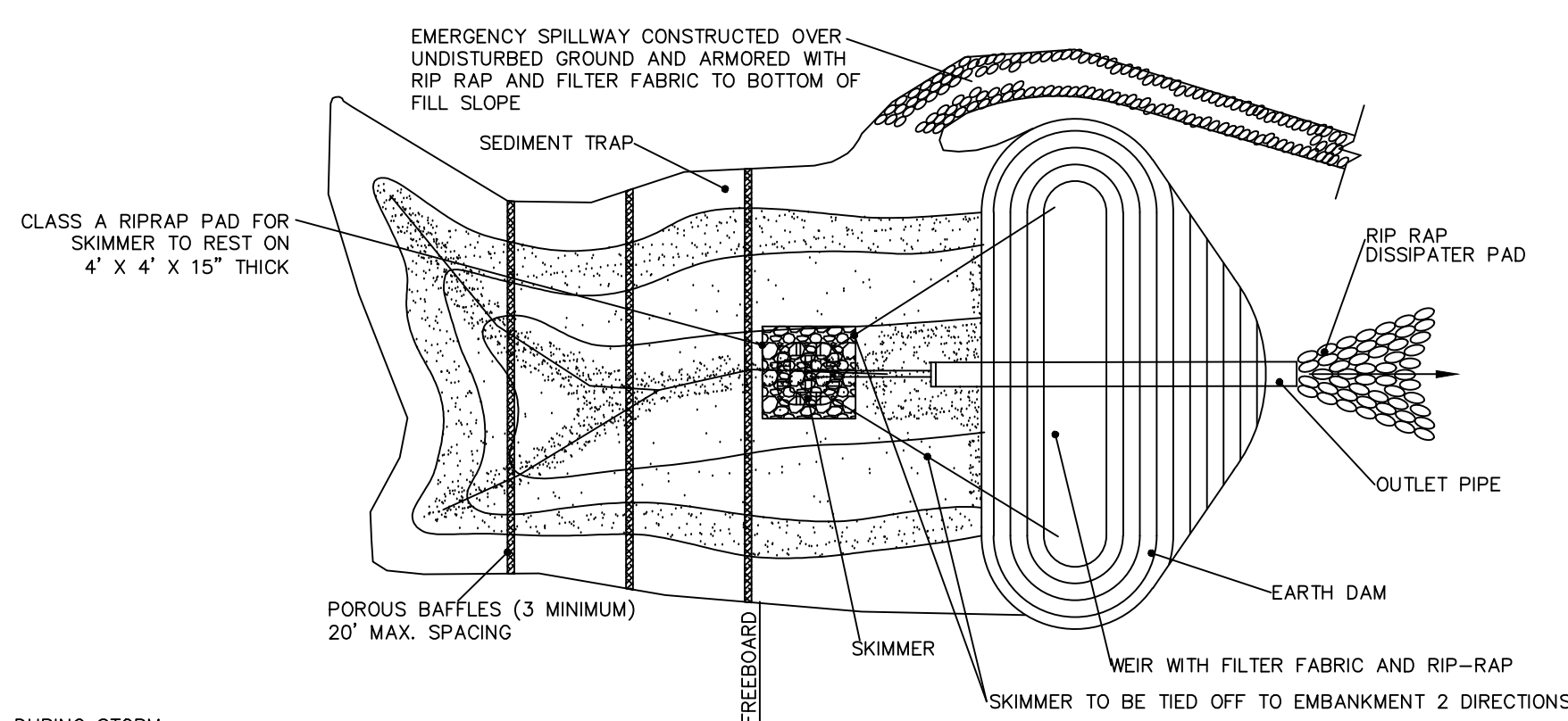
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VERTICAL: N/A

HBC FILE NUMBER: D1.X
DRAWING NUMBER: D1.1

STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION
REVISION: 3



SKIMMER DETAIL
PLAN VIEW

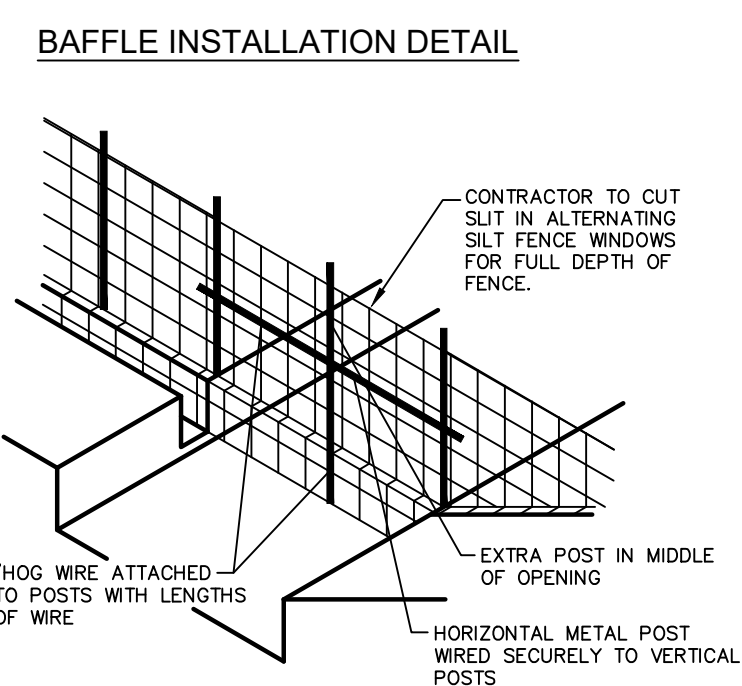


CROSS SECTION
TEMPORARY SKIMMER SEDIMENT BASIN
NTS

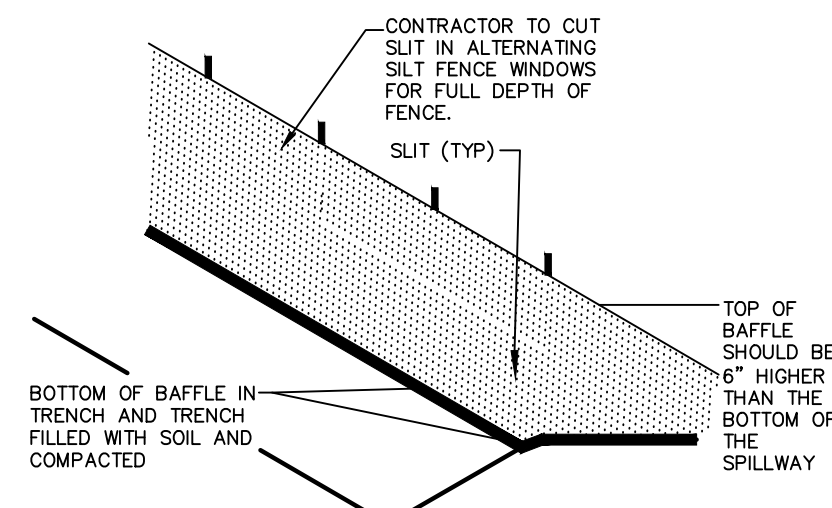
- NOTES:
1. ANY EXISTING SKIMMER SEDIMENT BASINS PREVIOUSLY APPROVED SHALL MAINTAINED PER THEIR ORIGINAL DIMENSIONS AND IN ACCORDANCE WITH THIS DETAIL.

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
STAGE 1 & 2															
BMP #45	8.58	8.58	30,890 CF	15,270 SF	3.0'	411.0'	PER PLAN	PER PLAN	48,967 CF	17,838 SF	414.0'	22.0'	489.25'	4.0"	3.6"
BMP #46	5.43	5.43	19,550 CF	9,660 SF	3.0'	445.0'	PER PLAN	PER PLAN	41,530 CF	16,132 SF	448.0'	22.0'	497.0'	4.0"	3.3"

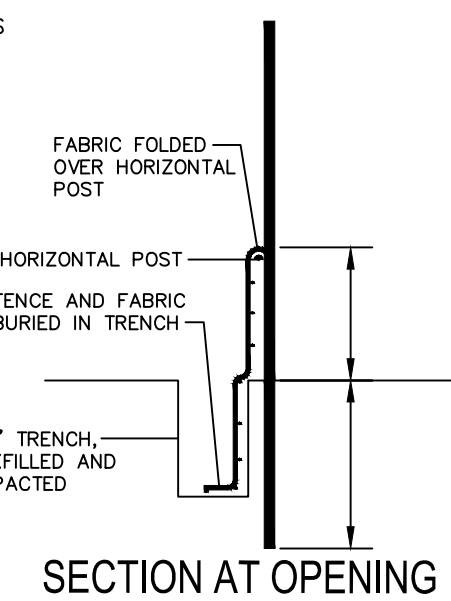
- *SKIMMER SHALL ATTACH TO PERMANENT RISER AT THE LOW FLOW ORIFICE ELEVATION ON BMP #45 AND BMP #46.
 **CONTRACTOR SHALL PLUG THE LOW FLOW AND SECONDARY ORIFICES OF BMP #41 AND THE LOW FLOW ORIFICE OF BMP #42 THROUGH STAGE 2 EROSION CONTROL.



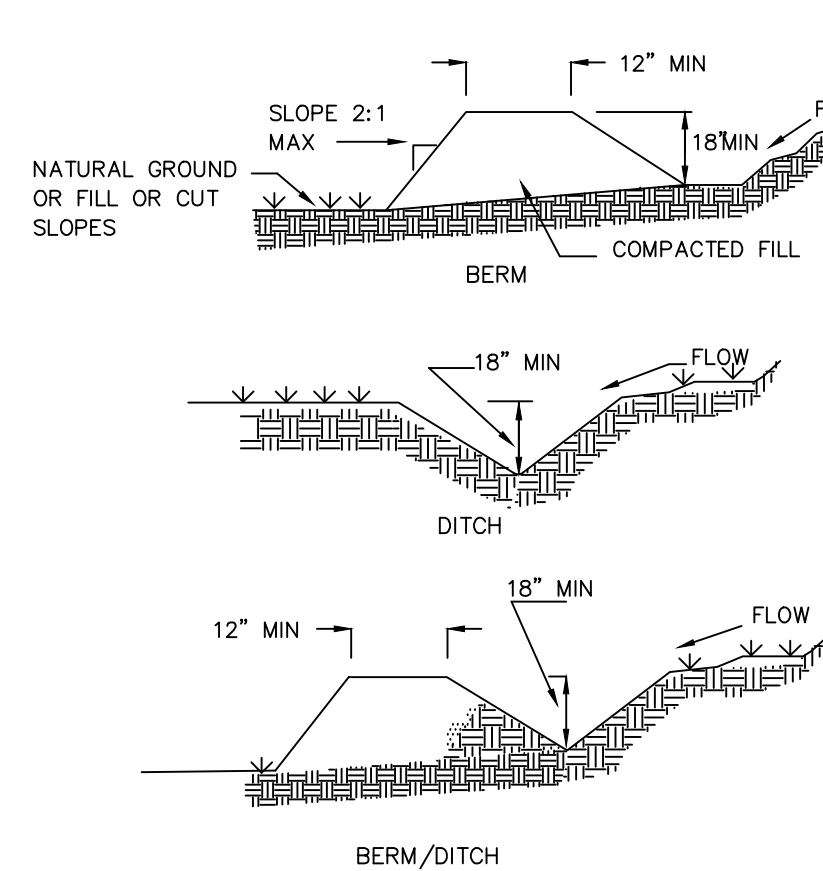
BAFFLE INSTALLATION - STEP 1



BAFFLE INSTALLATION - STEP 2



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

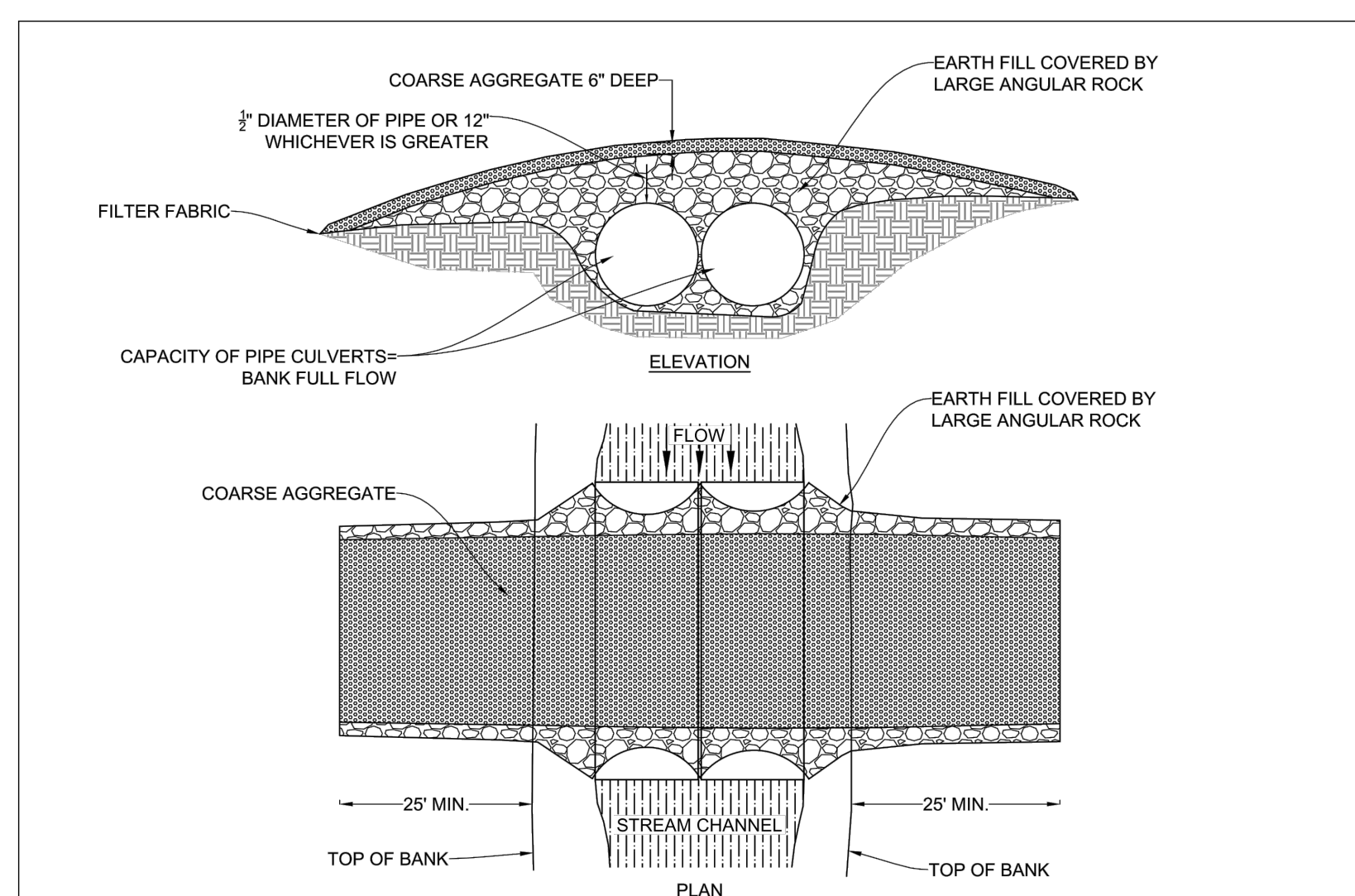


TEMPORARY DIVERSION/CLEAN WATER DIVERSION DITCH
NTS

- 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 BE EMPTY INTO AN APPROVED SLOPE DRAIN. BERM/DITCH IS MOST COMMONLY USED.
1. 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).
 2. DIVERSIONS SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION OPERATIONS.
 3. DIVERSIONS SHOULD BE SEEDED AND MULCHED IF THEY ARE TO REMAIN IN PLACE OVER 30 DAYS.
 4. 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.

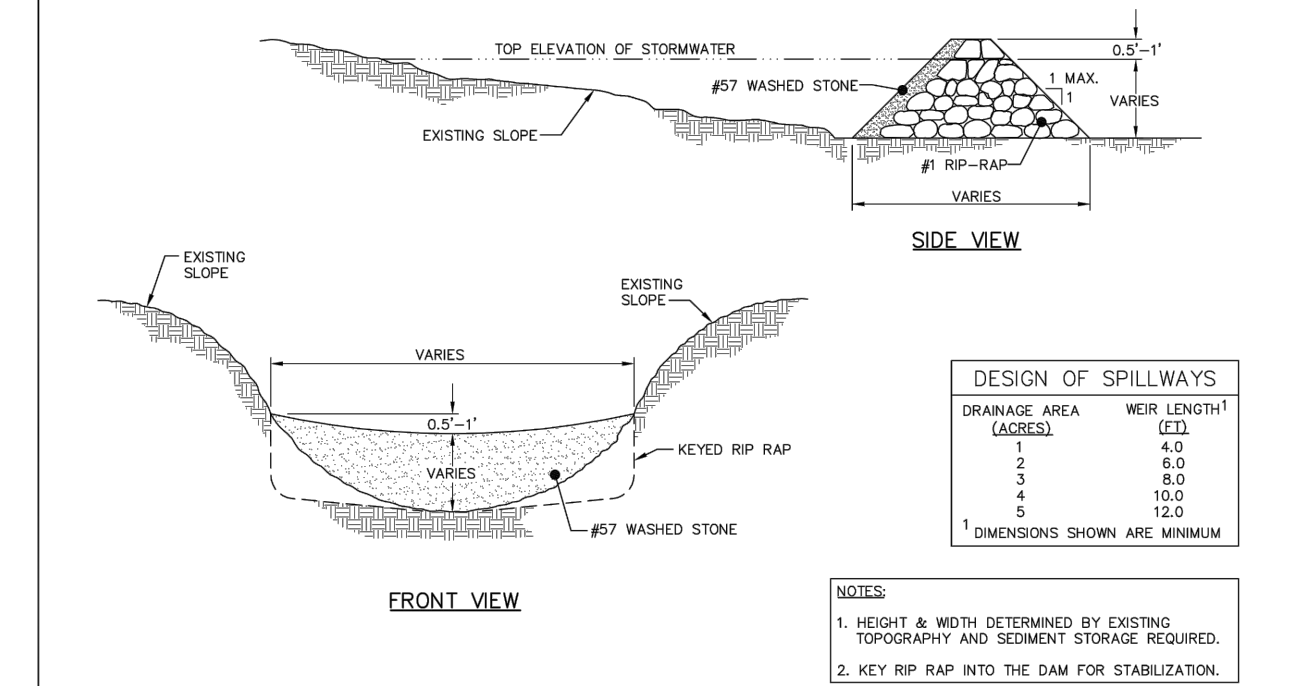
TDD #	TOTAL LENGTH	SLOPE (%)	LINER	RECEIVING SLOPE DRAIN SIZE (IN.)
STAGE 1 DIVERSIONS				
1	610'	3.3	SYNTHETIC MAT	24
2	118'	8.5	STRAW W/NET	24
3	103'	6.8	SC250	(2) 24
4	122'	7.4	RIPRAP	(2) 24
5	516'	7.0	RIPRAP	(2) 24
6	277'	7.2	SC250	24
7	398'	3.8	SYNTHETIC MAT	24
8	181'	4.4	STRAW W/NET	24
9	149'	5.4	STRAW W/NET	24
STAGE 2 DIVERSIONS				
10	215'	15.8	RIPRAP	24

TEMPORARY DIVERSION DITCHES



TEMPORARY STREAM CROSSING

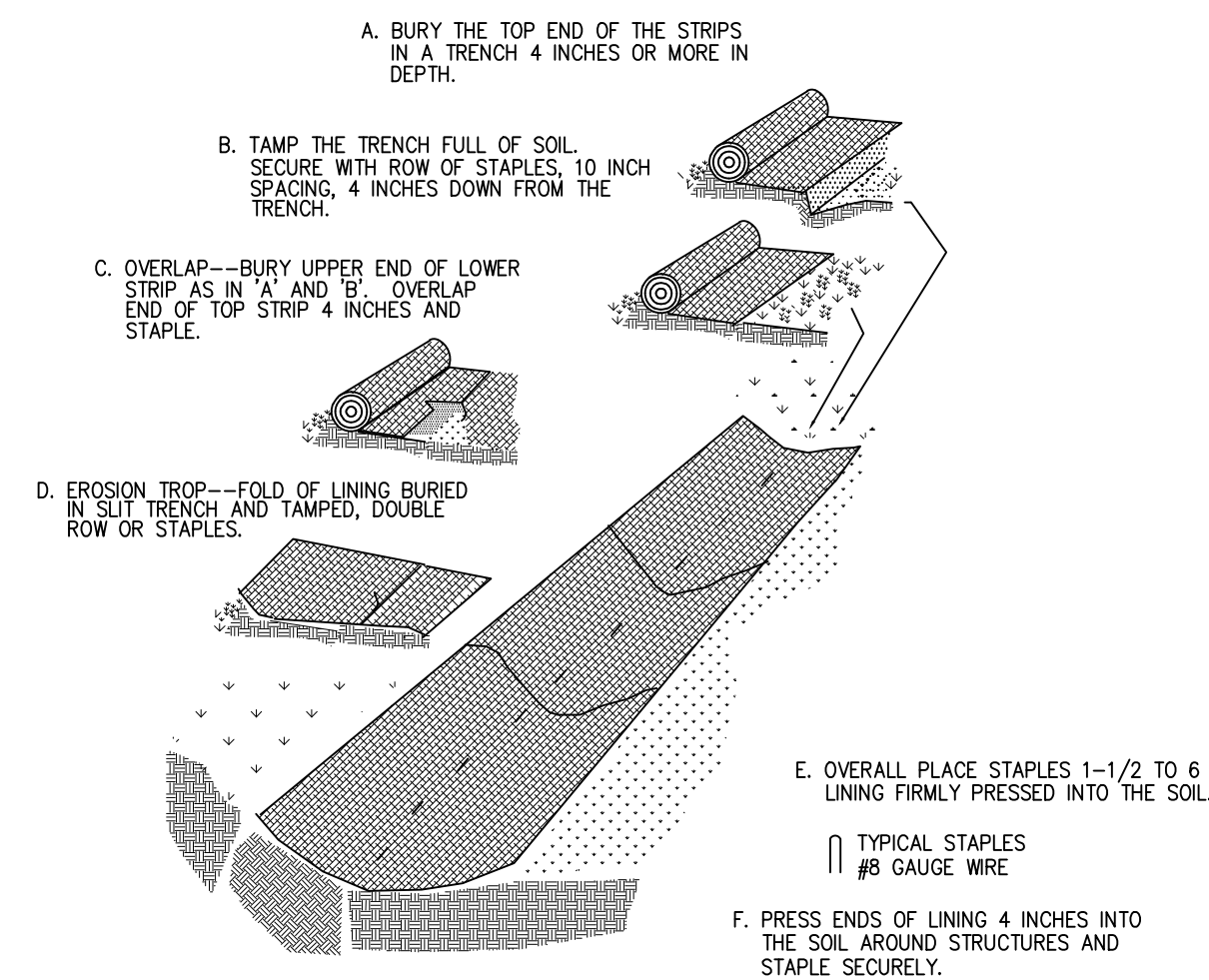
STD. NO.
400.11
SHEET 2 OF 2



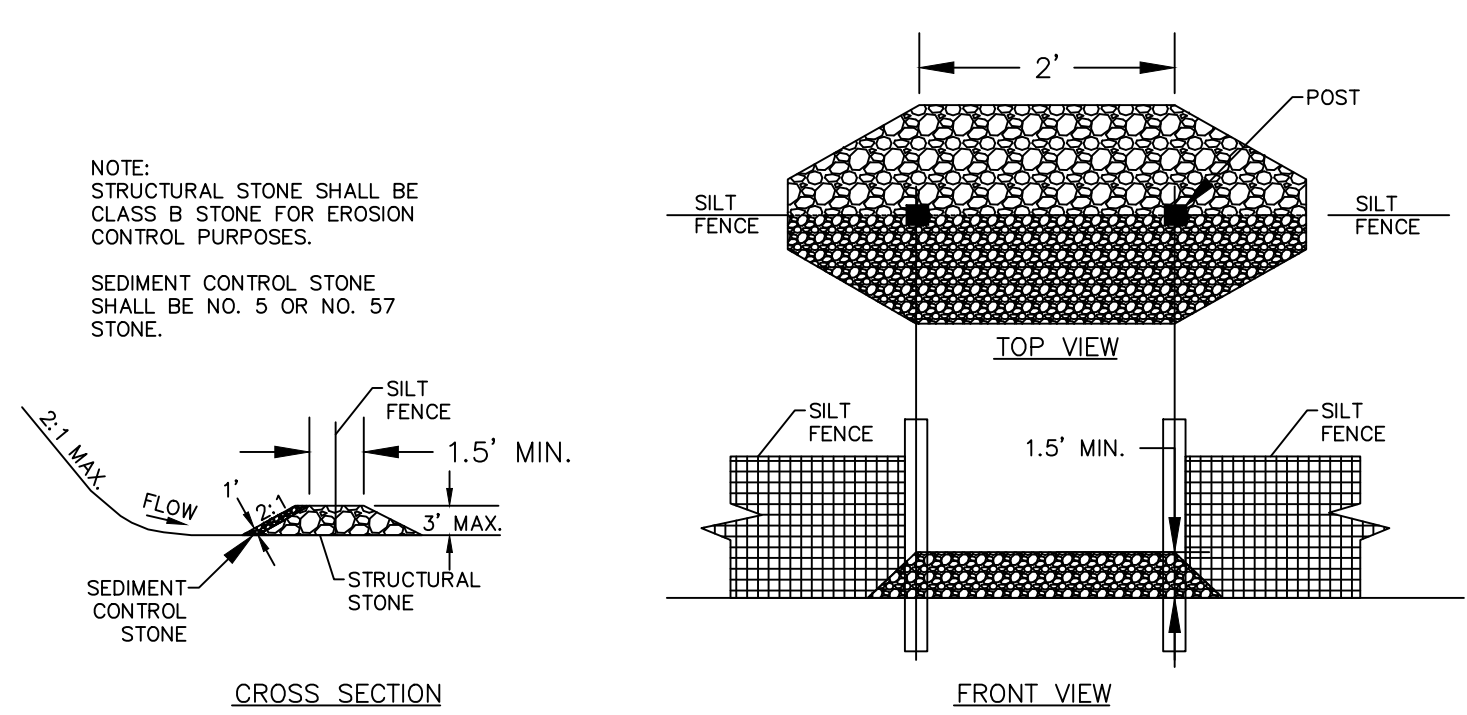
STANDARD ROCK CHECK DAM

REVISION NUMBER
388440
SHEET 1 of 1

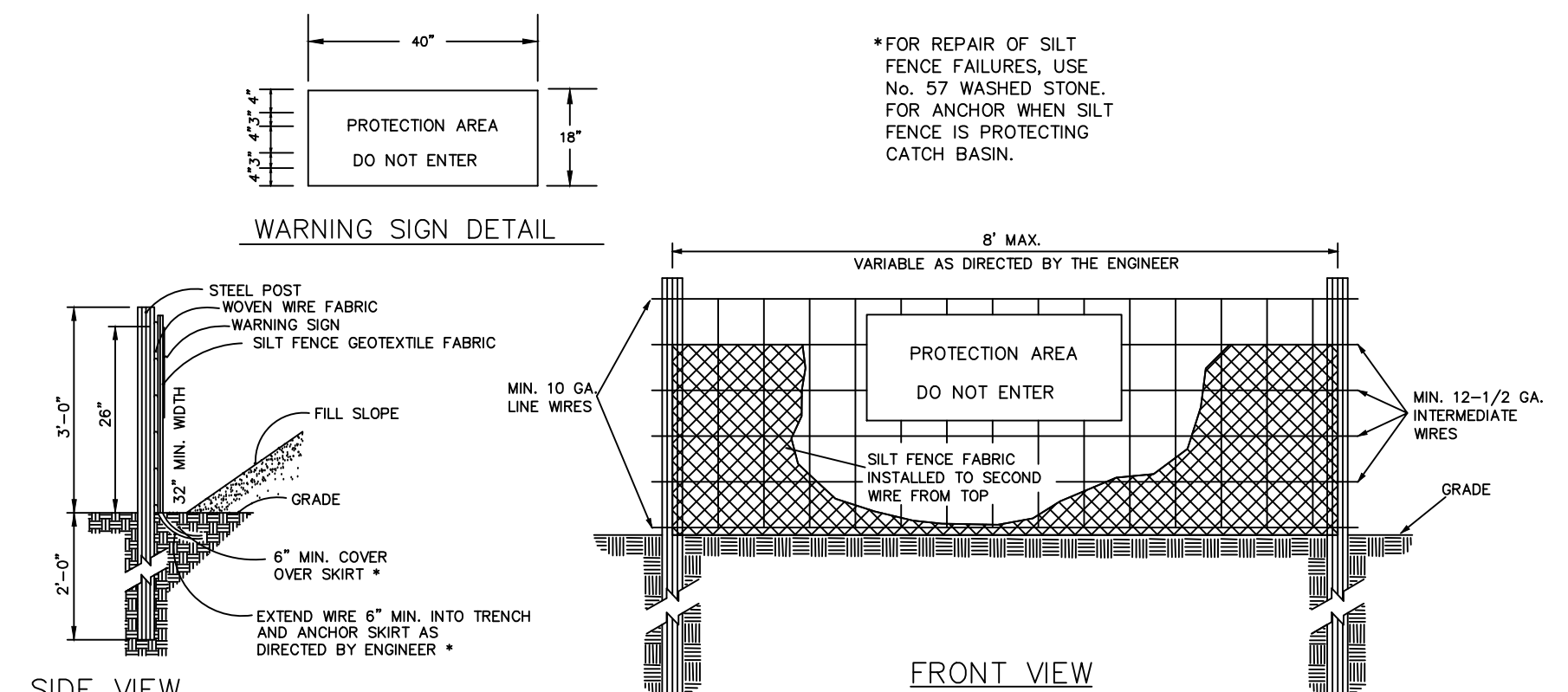
SWALE #	TOTAL LENGTH	LINER
PERMANENT SWALES		
1	102	STRAW W/NET
2	97	STRAW W/NET
3	112	STRAW W/NET
4	193	SYNTHETIC MAT
5	330	SYNTHETIC MAT
6	320	SYNTHETIC MAT



LINER INSTALLATION IN PERMANENT SWALES/DITCHES
NTS



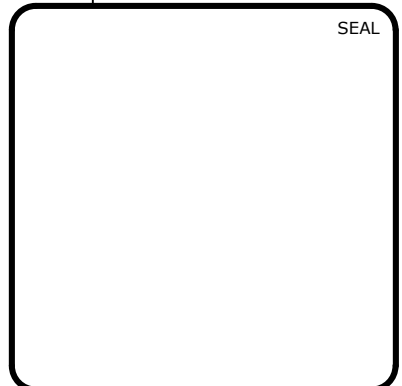
SILT FENCE OUTLET
NTS



COMBINATION SILT/TREE PROTECTION FENCE
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.
- DOUBLE ROW SILT FENCE:
1. DOUBLE ROW SILT FENCE LOCATIONS CALLED OUT ON PLANS.
 2. ALL DOUBLE ROW SILT FENCE SHALL BE PLACED A MINIMUM OF 6 FEET APART AND SHALL BE STABILIZED WITHIN THE TWO ROWS.
 3. ALL DOUBLE ROW SILT FENCE MUST START AT THE BOTTOM OF THE SLOPE AND MUST NOT CONTINUE UP SLOPE.
 4. DOUBLE ROW SILT FENCE AT STREAM CROSSING MAY BE PLACED AT 2-3' APART IN WHERE SPACE IS LIMITED DUE TO LIMITING STREAM IMPACTS. AREA WITHIN ROWS MUST BE STABILIZED.

REV. NO.	DESCRIPTIONS	DATE
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09



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**BRIAR CHAPEL
 PHASE 14
 CHATHAM COUNTY, NORTH CAROLINA**
**EROSION AND SEDIMENTATION CONTROL
 DETAILS**

DATE: MAY 9, 2019	SCALE: D1.X	RBC FILE NUMBER: N/A
MCE PROJ. #: 02735-0239	HORIZONTAL: N/A	DRAWING NUMBER: D1.2
DRAWN: DCR	VERTICAL: N/A	
DESIGNED: DCR		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION	REVISION: 3	

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT
Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

Temporary and Permanent Groundcover*

STABILIZATION TIMEFRAMES (Effective Aug. 3, 2015)		
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	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed.
Slopes 3:1 or flatter	14 days	7 days for slopes greater than 60' in length.
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW Zones.

*For Falls Lake watershed, in disturbed areas where grading activities are incomplete, provide temporary groundcover no later than seven (7) days for slopes steeper than 3:1; ten (10) days for slopes equal to or flatter than 3:1; fourteen (14) days for areas with no slope.

GROUND STABILIZATION SPECIFICATION
Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> Temporary grass seed covered with straw or other mulches and tackifiers Hydroseeding Roll-on erosion control products with or without temporary grass seed Appropriately applied straw or other mulch Plastic sheeting 	<ul style="list-style-type: none"> Permanent grass seed covered with straw or other mulches and tackifiers Geotextile fabrics such as permanent soil reinforcement matting Hydroseeding Shrubs or other permanent plantings covered with mulch Uniform and evenly distributed ground cover sufficient to restrain erosion Structural methods such as concrete, asphalt or retaining walls

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
- Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
- Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
- Provide ponding area for containment of treated stormwater before discharging offsite.
- Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.



NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 03/01/19

EQUIPMENT AND VEHICLE MAINTENANCE

- Maintain vehicles and equipment to prevent discharge of fluids.
- Provide drip pans under any stored equipment.
- Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

- Never bury or burn waste. Place litter and debris in approved waste containers.
- Provide a sufficient number of waste containers on site to manage the quantity of waste produced.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
- Cover waste containers at the end of each workday and before storm events. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow.
- Dispose waste off-site at an approved disposal facility.

PAINT AND OTHER LIQUID WASTE

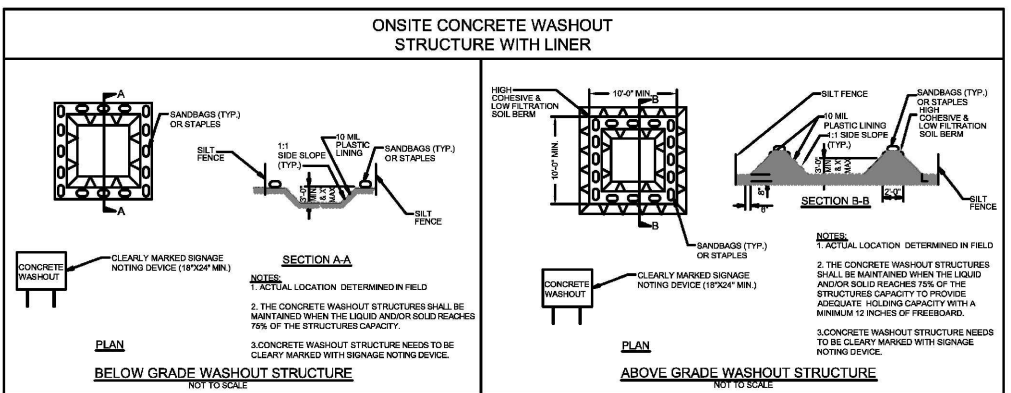
- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled, sized and placed appropriately for the needs of site.
- Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.
- Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle/strengthen, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
- Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
- Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
- Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
- Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
- Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags and other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
- At the completion of the concrete work, remove remaining leavings and dispose in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
- Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into lines, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
- Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include [40 CFR 122.41]:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekdays or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&S Measures	At least once per 7 calendar days and within 24 hours of a rain event > 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Corrective actions taken, and 7. Date of actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event > 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Actions taken to correct/prevent sedimentation, and 7. Date of actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event > 1.0 inch in 24 hours	1. Identification of the perimeter of the site, 2. Date of actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or within 24 hours of a rain event > 1.0 inch in 24 hours (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event > 1.0 inch in 24 hours	1. Evidence and actions taken to reduce sediment contributions, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit of this permit.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.



NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&S Plan Documentation
The approved E&S plan as well as any approved deviation shall be kept on the site. The approved E&S plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&S plan shall be documented in the manner described:

Item to Document	Documentation Requirements
(a) Each E&S Measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&S Plan.	Initial and date each E&S Measure on a copy of the approved E&S Plan or complete, date and sign an inspection report that lists each E&S Measure shown on the approved E&S Plan. This documentation is required upon the initial installation of the E&S Measures or if the E&S Measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&S Plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&S Plan.	Initial and date a copy of the approved E&S Plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&S Measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&S Measures.	Initial and date a copy of the approved E&S Plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation
In addition to the E&S Plan documents above, the following items shall be kept on the site and available for agency inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- This general permit as well as the certificate of coverage, after it is received.
- Records of inspections made during the previous 30 days. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.
- All data used to complete the Notice of Intent and other inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that must be reported
Permittees shall report the following occurrences:

- Visible sediment deposition in a stream or wetland.
- Oil spills if:
 - They are 25 gallons or more,
 - They are less than 25 gallons but cannot be cleaned up within 24 hours,
 - They cause sheen on surface waters (regardless of volume), or
 - They are within 100 feet of surface waters (regardless of volume).
- Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
- Anticipated bypasses and unanticipated bypasses.
- Noncompliance with the conditions of this permit that may endanger health or the environment.

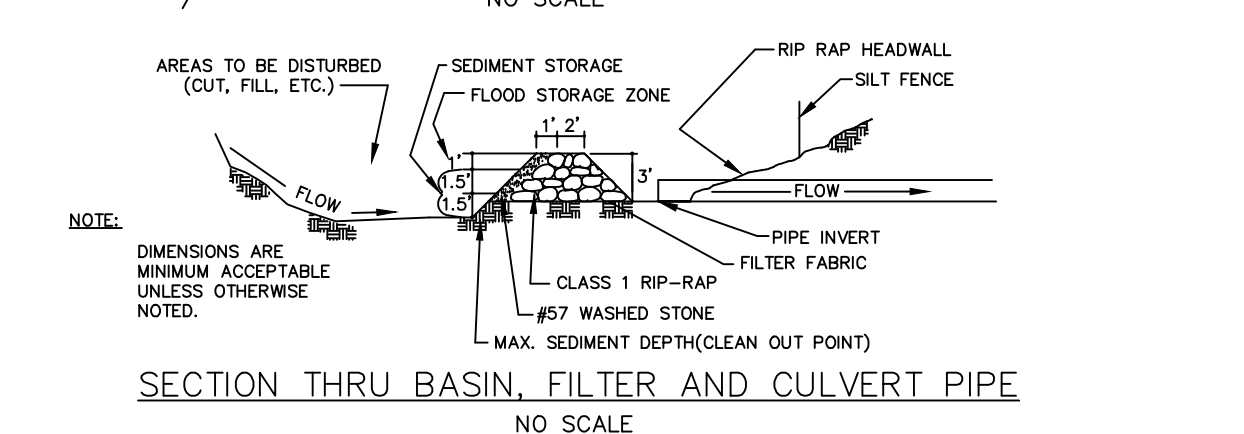
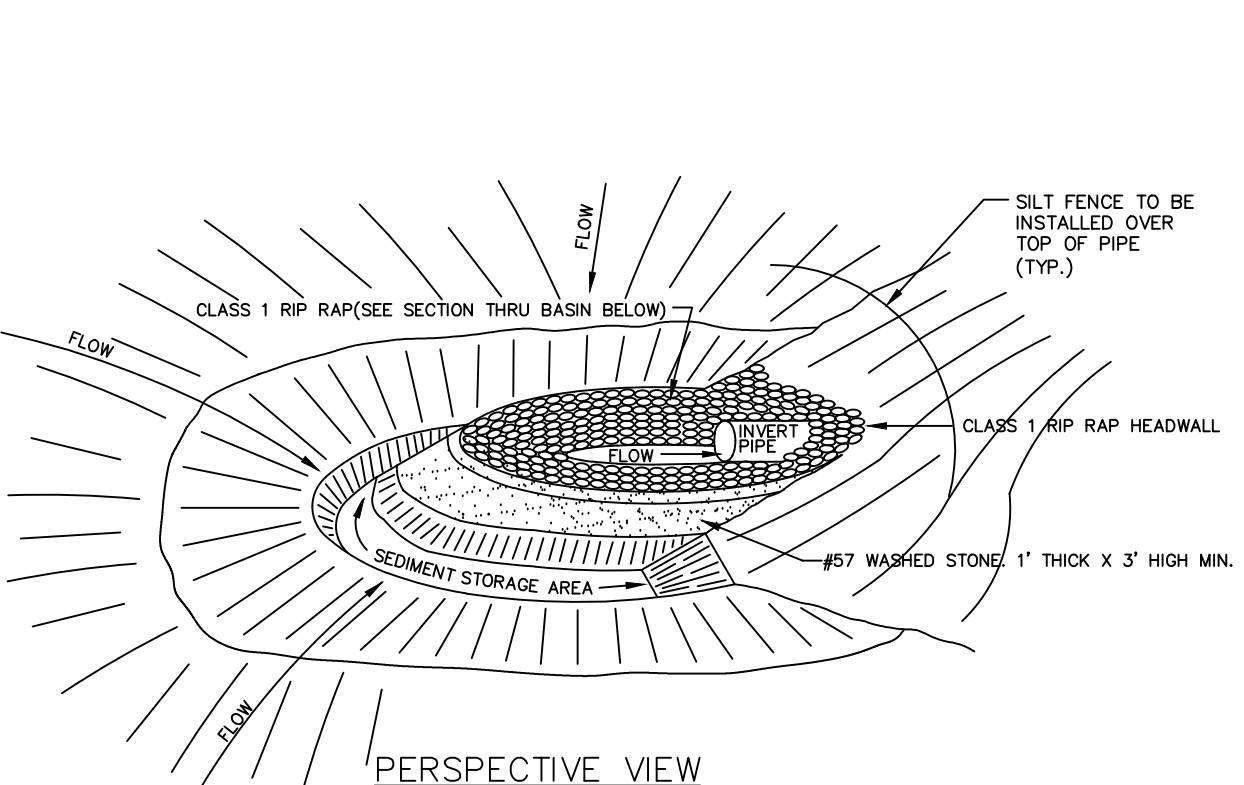
2. Reporting Timeframes and Other Requirements
After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Division's Emergency Response personnel at (800) 662-7956, (800) 858-0368 or (919) 733-3300.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal and state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> A report at least ten days before the date of the bypass, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(j)(7)]	<ul style="list-style-type: none"> Within 24 hours, an oral or electronic notification. Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance [40 CFR 122.41(j)(6)]. Division staff may waive the requirement for a written report on a case-by-case basis.

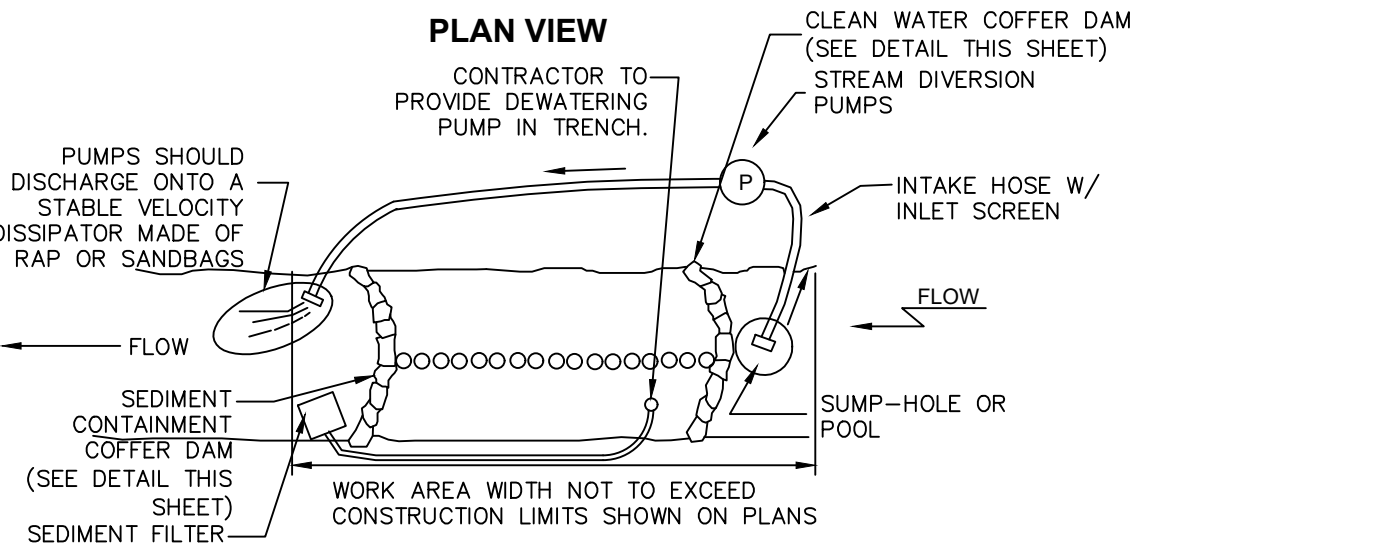


NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 03/01/19



ARC FILTER INLET PROTECTION
NTS

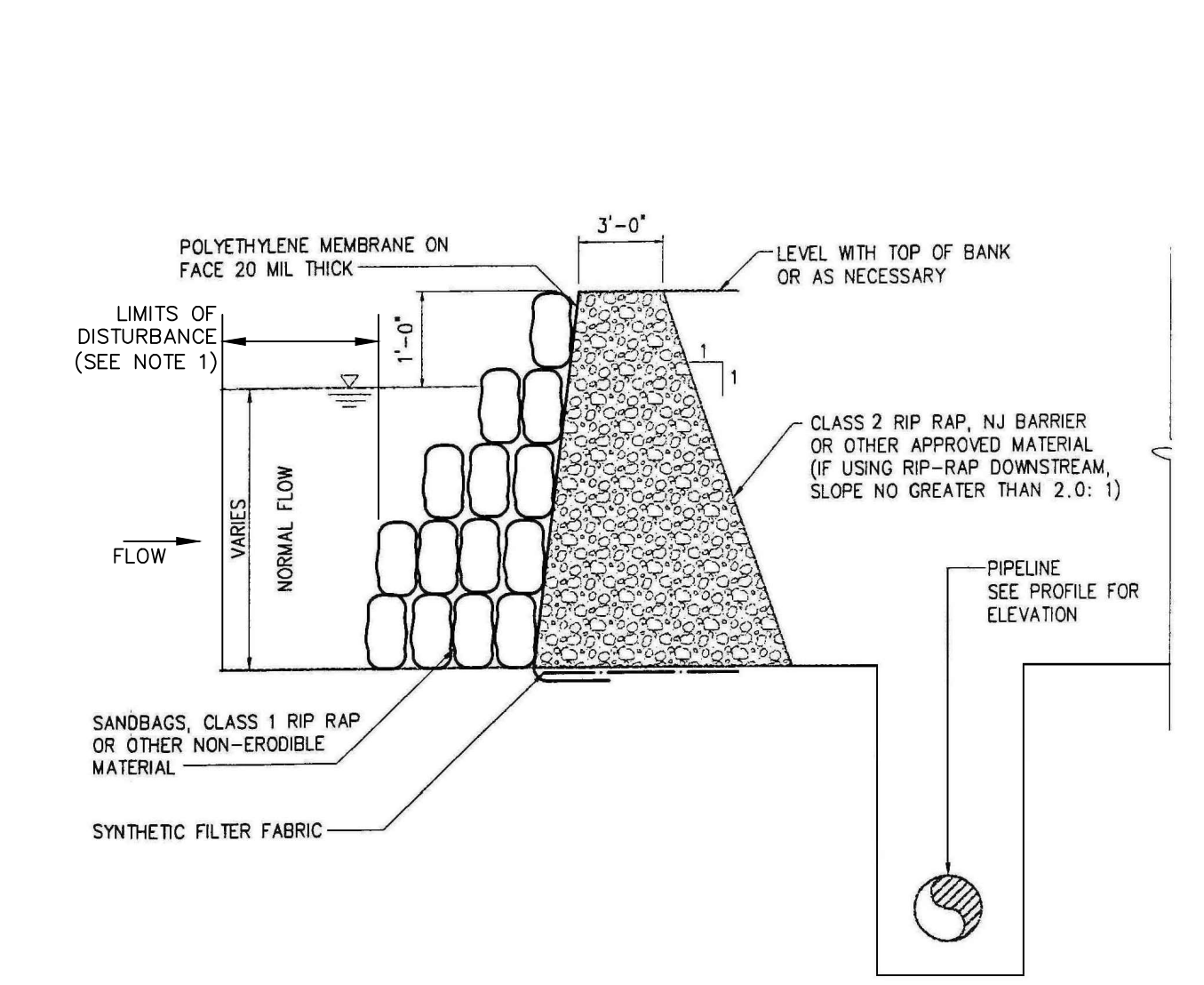


DESCRIPTION:
THE WORK SHOULD CONSIST OF INSTALLING A TEMPORARY PUMP AROUND AND SUPPORTING MEASURES TO DIVERT FLOW AROUND CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING PUMPS TO ENSURE ADEQUATE CAPACITY TO KEEP FLOW FROM ENTERING WORK AREA.

IMPLEMENTATION SEQUENCE:
SEDIMENT CONTROL MEASURES, PUMP-AROUND PRACTICES, AND ASSOCIATED CONSTRUCTION SHOULD BE COMPLETED IN THE FOLLOWING SEQUENCE (REFER TO DETAIL).

- INSTALL SCOUR HOLE AND FILTER BAGS WHERE SHOWN ON PLANS.
- COFFER DAMS SHOULD BE SITUATED AT THE ENDS OF THE WORK AREA AS SHOWN ON THE PLANS, AND WATER ON THE UPSIDE OF THE DAM AREA SHOULD BE PUMPED AROUND THE WORK AREA.
- THE PUMP SHOULD DISCHARGE INTO THE FILTER BAGS AND SCOUR HOLES.
- WATER FROM THE WORK AREA SHOULD BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A TEMPORARY WOOD CHIP DEWATERING BASIN, FILTER BAG OR OTHER APPROVED SEDIMENT FILTERING MEASURE.
- AFTER THE CULVERT IS INSTALLED AND THE SLOPES HAVE BEEN STABILIZED, THE PUMP INTAKE HOSES, SCOUR HOLES AND FILTER BAGS SHOULD BE REMOVED AND THEN THE COFFER DAMS SHOULD BE REMOVED.
- A PUMP AROUND MUST BE INSTALLED ON ANY TRIBUTARY OR STORM DRAIN OUTFALL WHICH CONTRIBUTES BASEFLOW TO THE WORK AREA. THIS SHOULD BE ACCOMPLISHED BY LOCATING A COFFER DAM AT THE DOWNSTREAM END OF THE TRIBUTARY OR STORM DRAIN OUTFALL AND PUMPING THE STREAM FLOW AROUND THE WORK AREA. THIS WATER SHOULD DISCHARGE ONTO THE SAME VELOCITY DISSIPATER USED FOR THE MAIN STREAM PUMP AROUND.

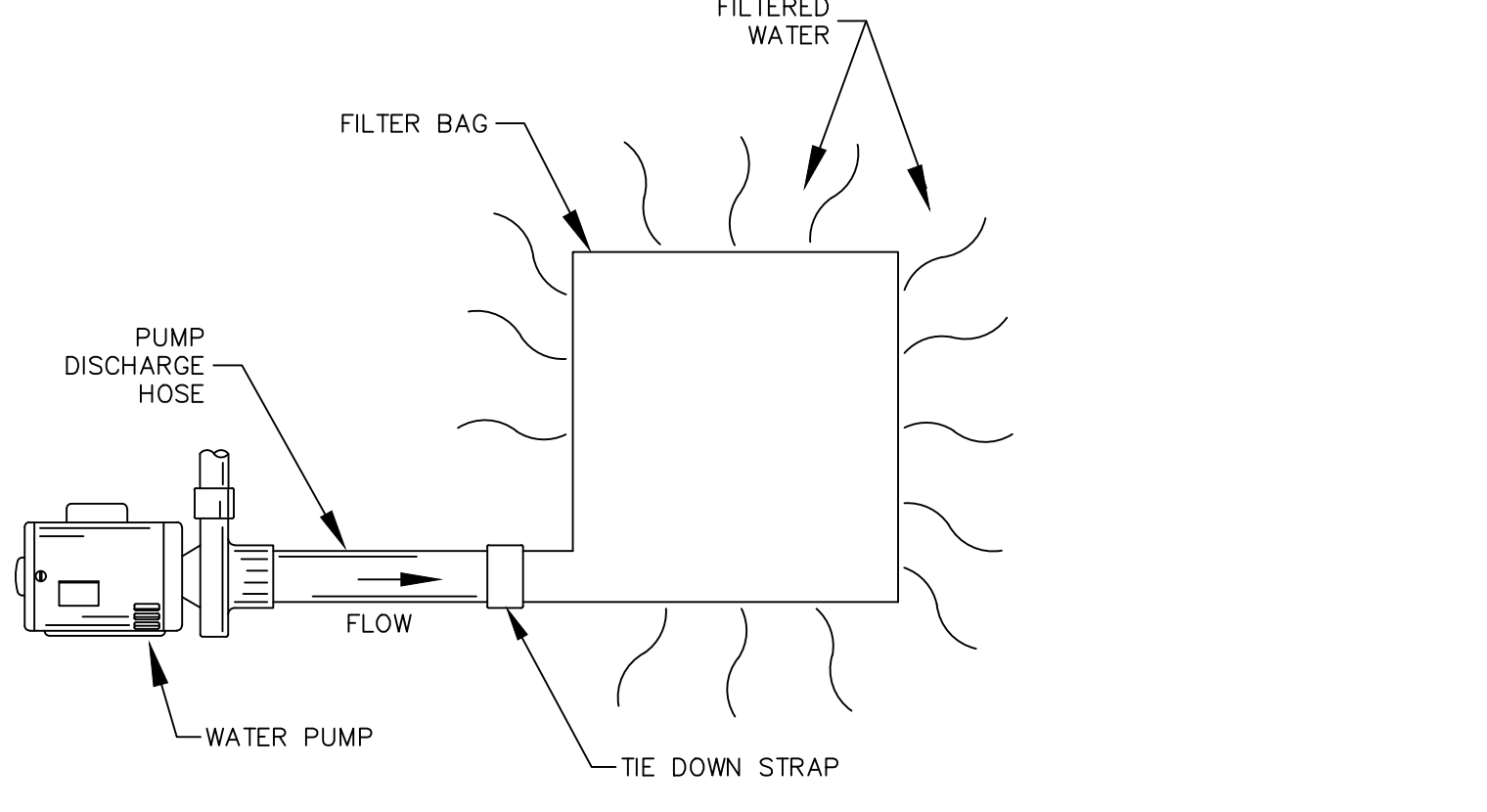
TEMPORARY PUMP AROUND DETAIL
NTS



NOTES:

- CONTRACTOR SHALL INSTALL COFFER DAMS WITH ENOUGH SEPARATION FROM THE PROJECT CONSTRUCTION LIMITS OF DISTURBANCE TO PLACE PUMP INTAKE AND DISCHARGE HOSES, DISSIPATORS AND FILTER BAGS WITHOUT BEING REMOVED.
- TEMPORARY PRE-FABRICATED COFFER DAMS SUCH AS PORT-A-DAM AND OTHERS MAY BE USED IN SUBSTITUTION TO THE SANDBAG/RIP-RAP DAM WITH PRIOR APPROVAL BY THE OWNER AND ENGINEER.

TEMPORARY COFFER DAM DETAIL
NTS



INSTALLATION AND MAINTENANCE GUIDELINES

INSERT DISCHARGE HOSE FROM PUMP INTO FILTER BAG A MINIMUM OF SIX INCHES (6") AND TIGHTLY SECURE WITH THE ATTACHED STRAP TO PREVENT WATER FROM FLOWING OUT OF THE UNIT WITHOUT BEING FILTERED. IF USING OPTIONAL ABSORBENTS, PLACE ABSORBENT BOOM TETHER PROVIDED INSIDE THE UNIT.

MAINTENANCE: REPLACE THE UNIT WHEN 1/2 FULL OF SEDIMENT OR WHEN SEDIMENT HAS REDUCED THE FLOW RATE OF THE PUMP DISCHARGE TO AN IMPRACTICAL RATE. IF USING OPTIONAL OIL ABSORBENTS, REMOVE AND REPLACE ABSORBENT WHEN NEAR SATURATION.

- NOTES:**
- LAY DOWN PLASTIC ON GROUND IN AREA WHERE BAG WILL SIT AND DISCHARGE PATH.
 - PLACE BAG ON LEVEL GRAVEL PAD TO ENSURE MAXIMUM DRAINAGE AND ALLOW EQUIPMENT TO PICK UP TO HAUL OFF.
 - PROP BAG UP AT SLIGHT ANGLE SO WATER DISCHARGES TOWARD RIVER AND DOES NOT CREATE A POOL WHEN DRAINING.
 - WHEN INSTALLING NEW BAG MOVE LOCATION OVER AS NOT TO KILL GRASS AND PLANTINGS.
 - CONTRACTOR TO RETURN AREA TO EXISTING CONDITIONS AFTER BAGS ARE NO LONGER NEEDED.

FILTER BAG DETAIL
NTS

REV. NO.	DESCRIPTIONS	DATE
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09



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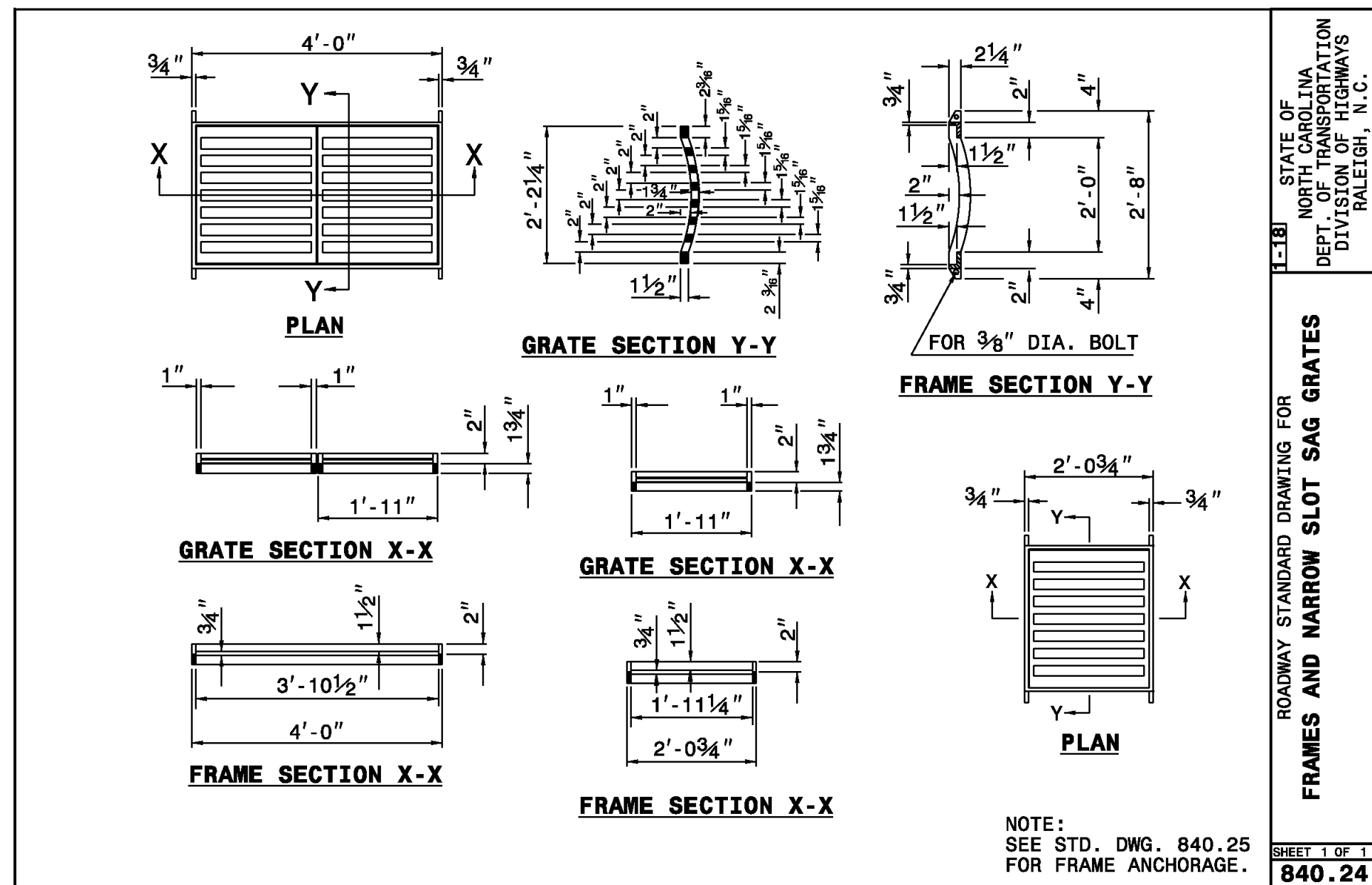
BRIAR CHAPEL PHASE 14
CHATHAM COUNTY, NORTH CAROLINA
EROSION AND SEDIMENTATION CONTROL DETAILS

DATE: MAY 9, 2019
MCE PROJ. #: 02735-0239
DRAWN: DCR
DESIGNED: DCR
CHECKED: GCA
PROJ. MGR.: CHS

SCALE: HORIZONTAL: N/A
VERTICAL: N/A

HBC FILE NUMBER: D1.X
DRAWING NUMBER: D1.3

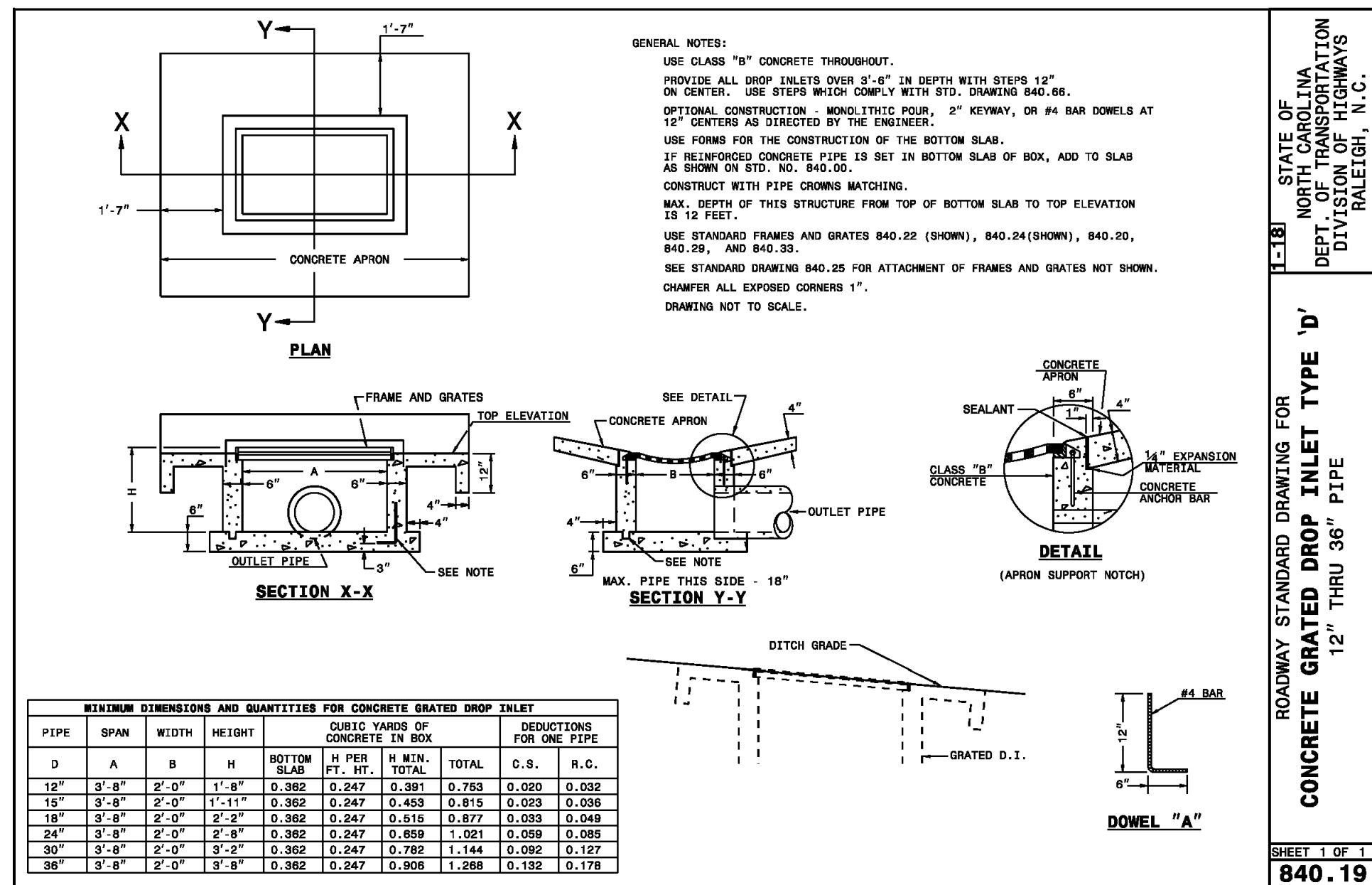
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION
REVISION: 3



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

ROADWAY STANDARD DRAWING FOR
FRAMES AND NARROW SLOT SAG GRATES

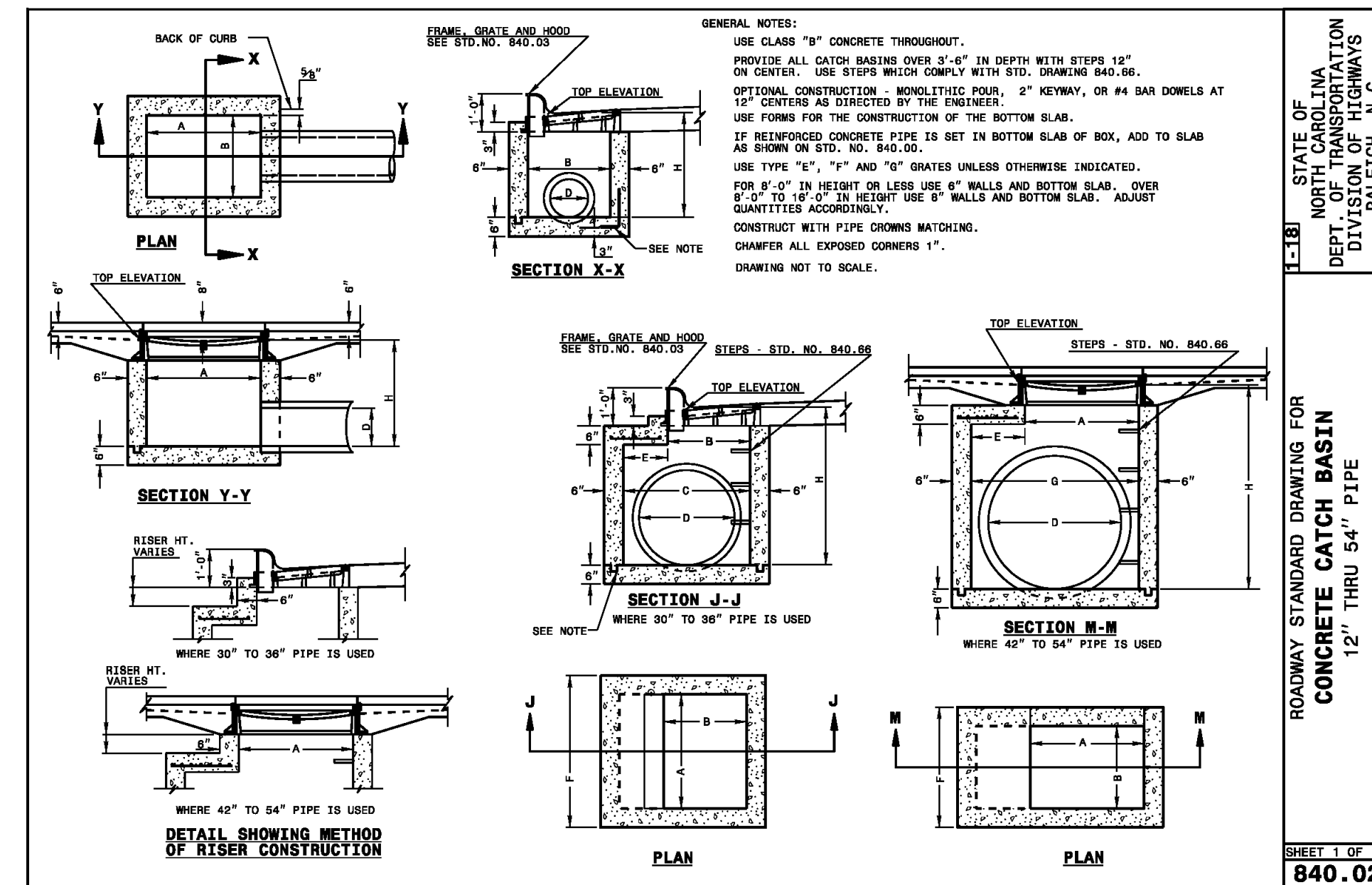
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STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR
CONCRETE GRATED DROP INLET TYPE 'D'
12" THRU 36" PIPE

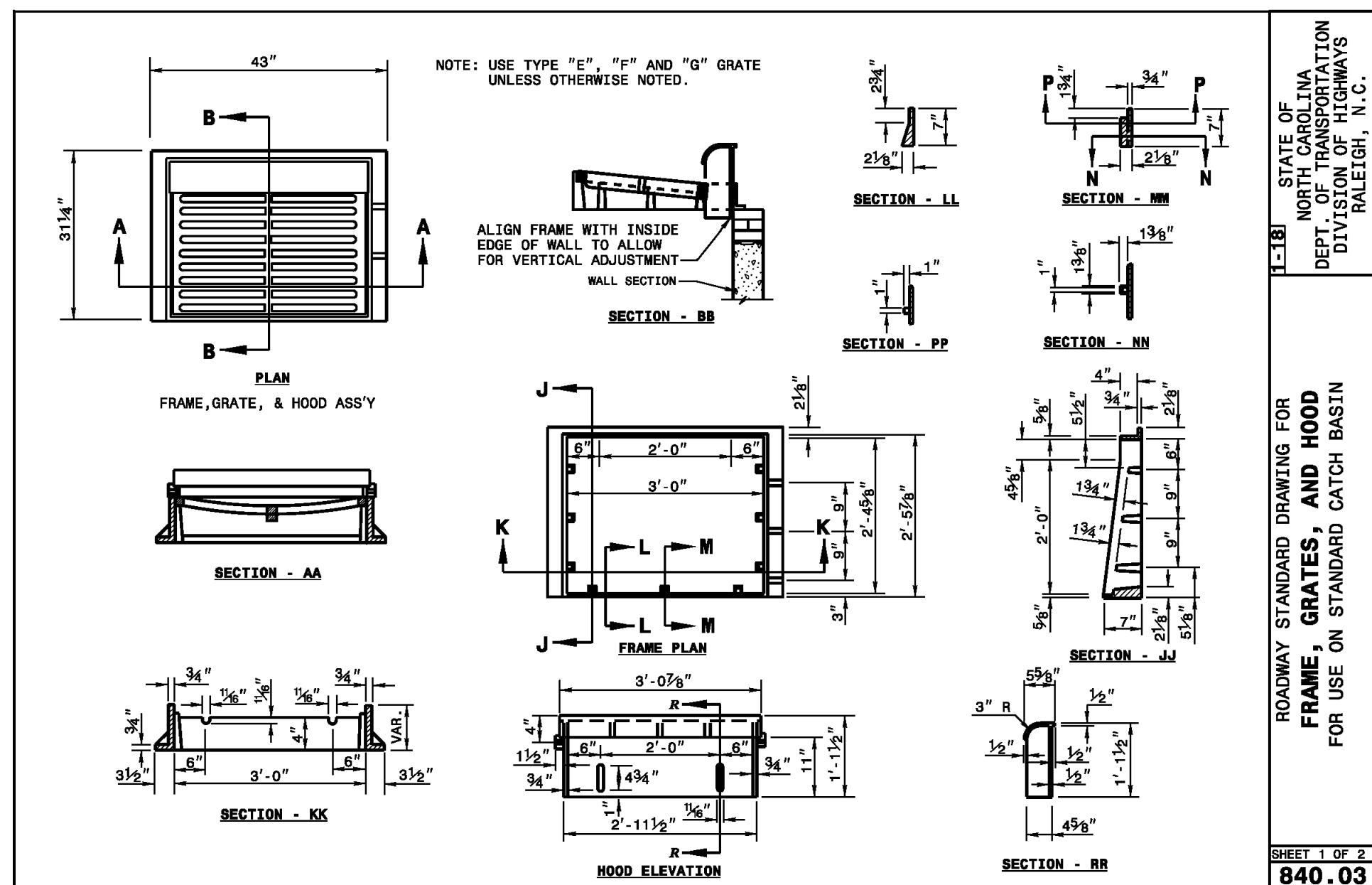
SHEET 1 OF 1
840.19



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

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

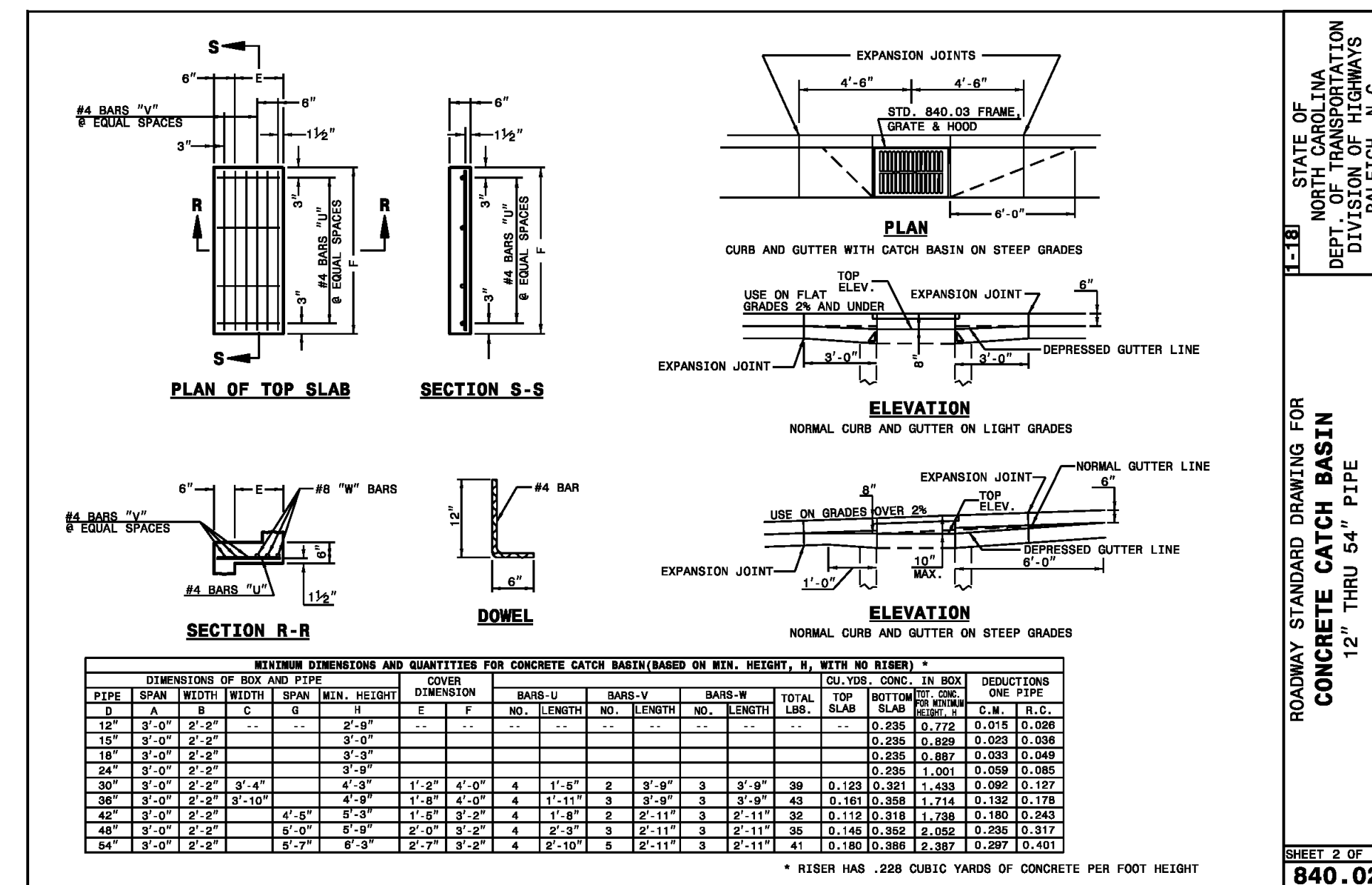
SHEET 1 OF 2
840.02



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

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

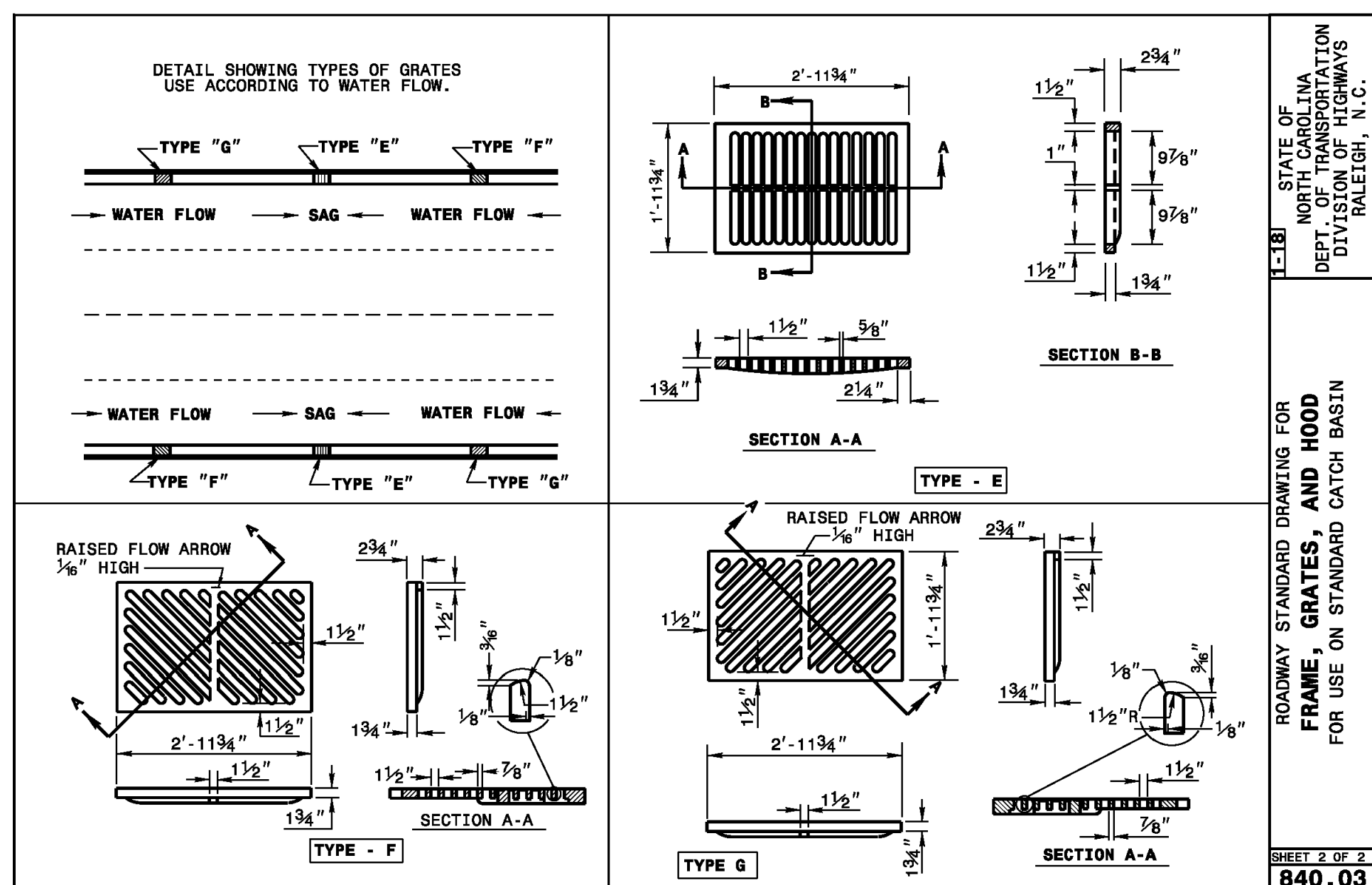
SHEET 1 OF 2
840.03



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

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

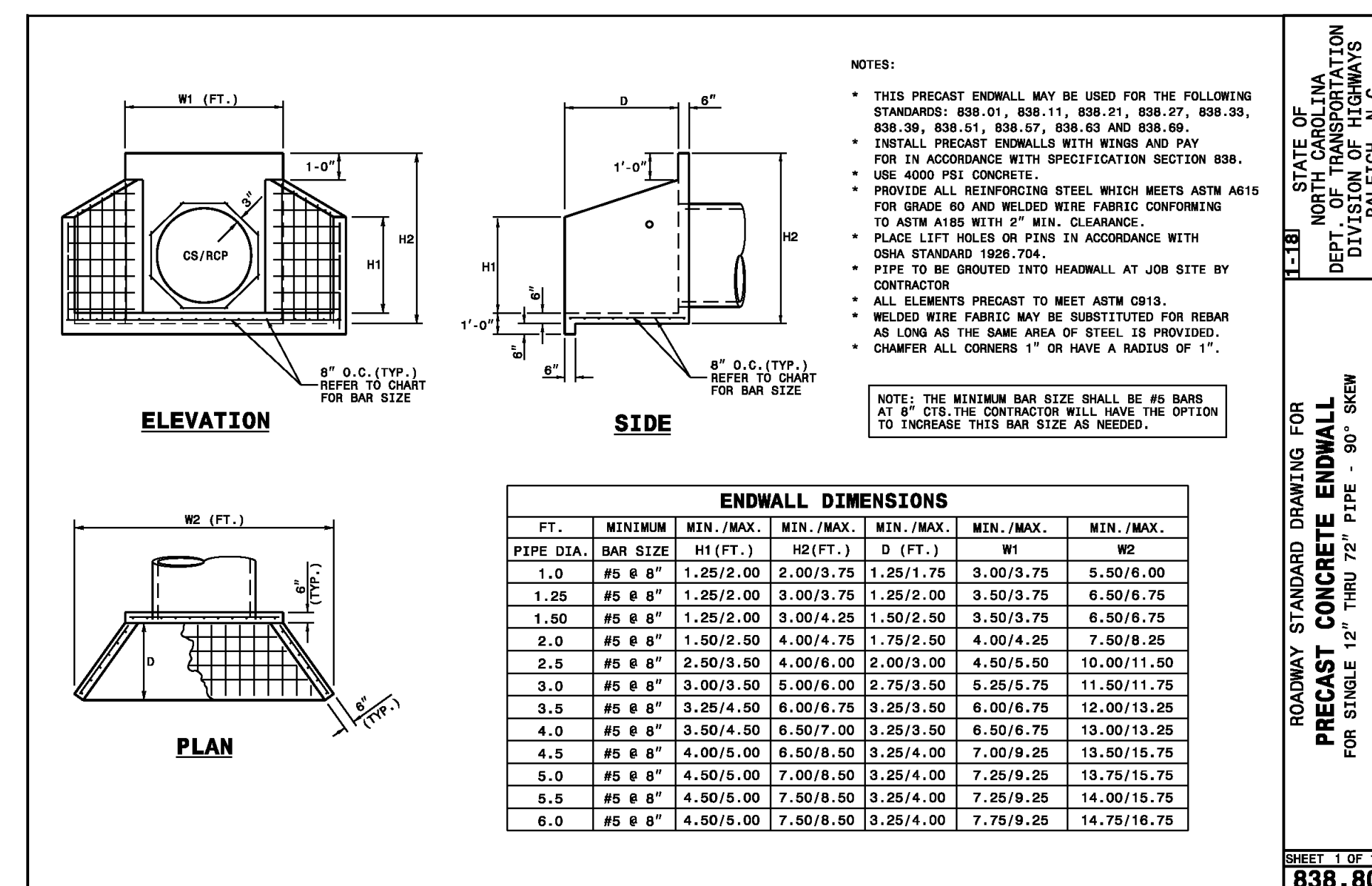
SHEET 2 OF 2
840.02



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

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

SHEET 2 OF 2
840.03

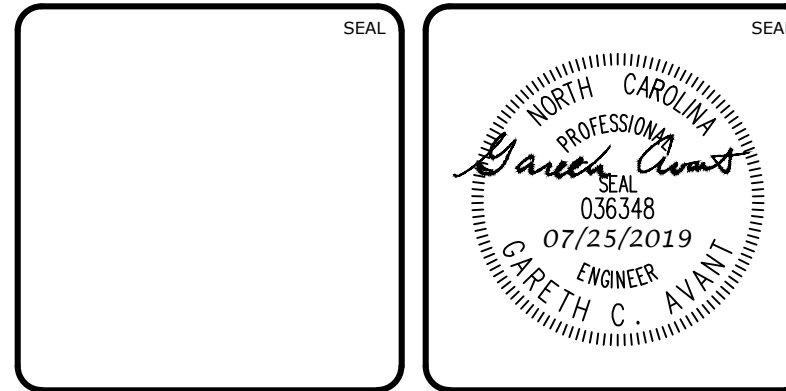


STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

SHEET 1 OF 1
838.80

REV. NO.	DESCRIPTIONS	DATE
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09



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**BRIAR CHAPEL
PHASE 14
CHATHAM COUNTY, NORTH CAROLINA**

NCDOT DRAINAGE DETAILS

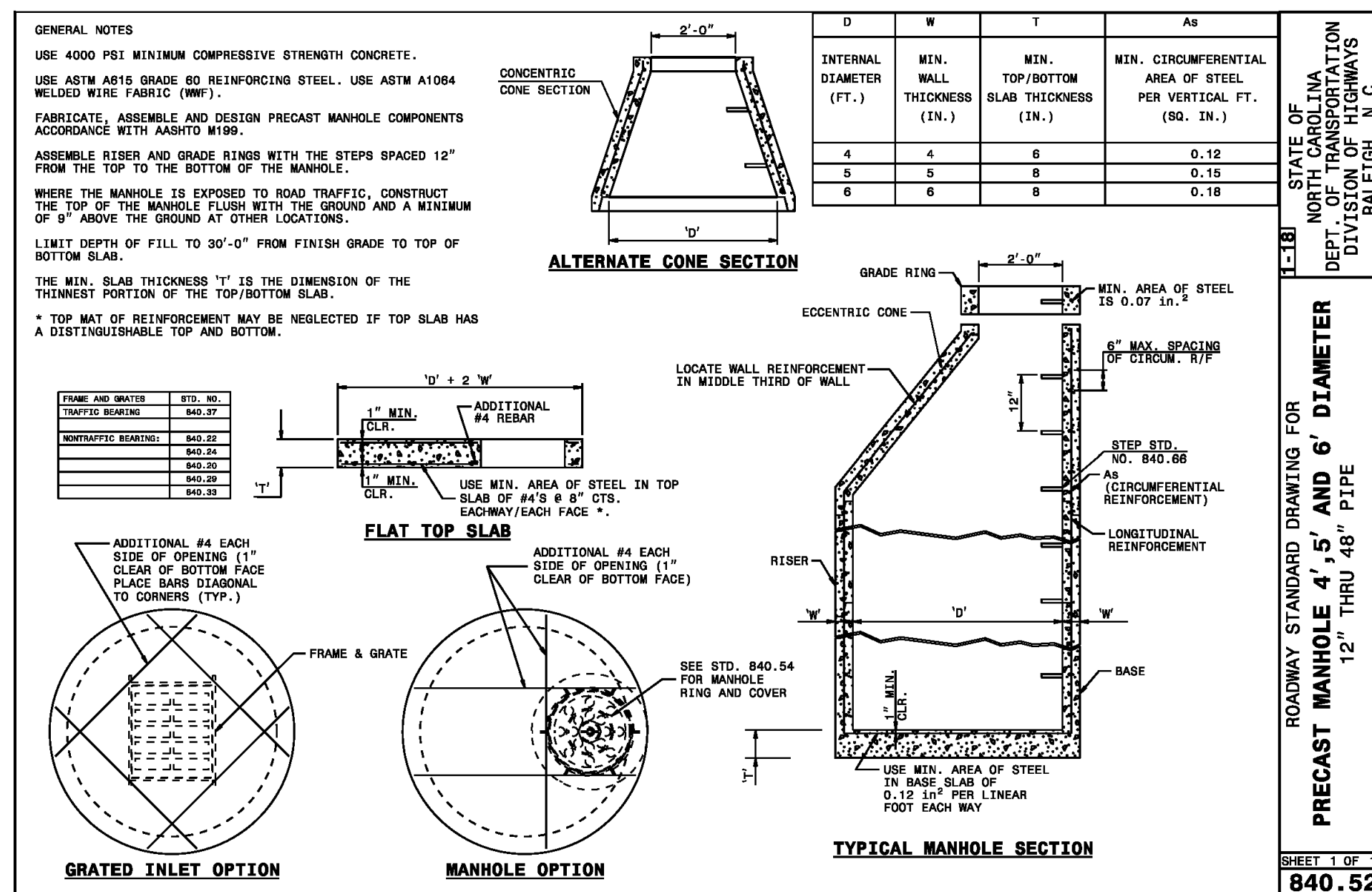
DATE: MAY 9, 2019
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DRAWN: DCR
DESIGNED: DCR
CHECKED: GCA
PROJ. MGR.: CHS

SCALE: HORIZONTAL: N/A, VERTICAL: N/A

MSC FILE NUMBER: D2.X
DRAWING NUMBER: D2.2

STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION

REVISION: 3

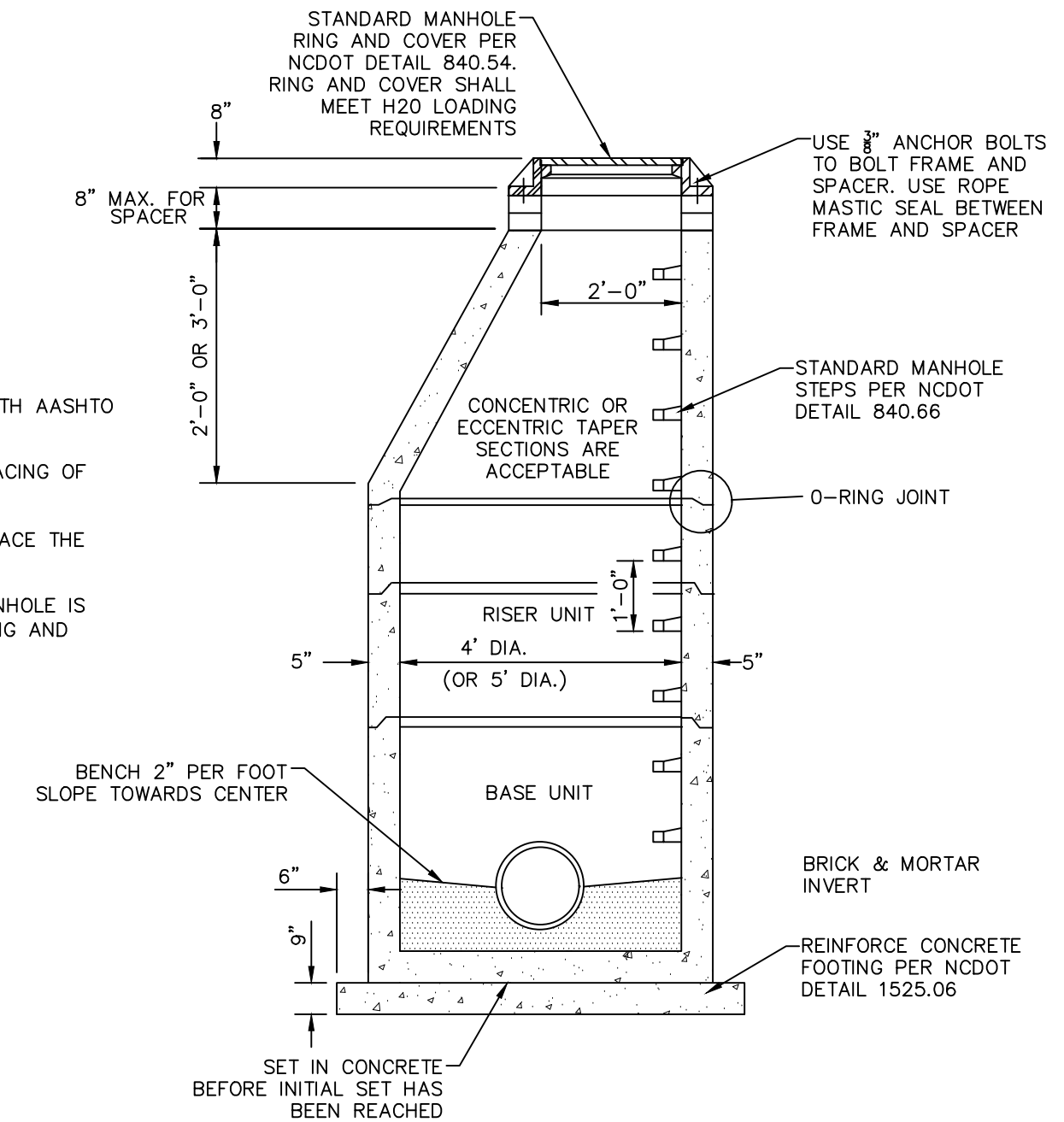


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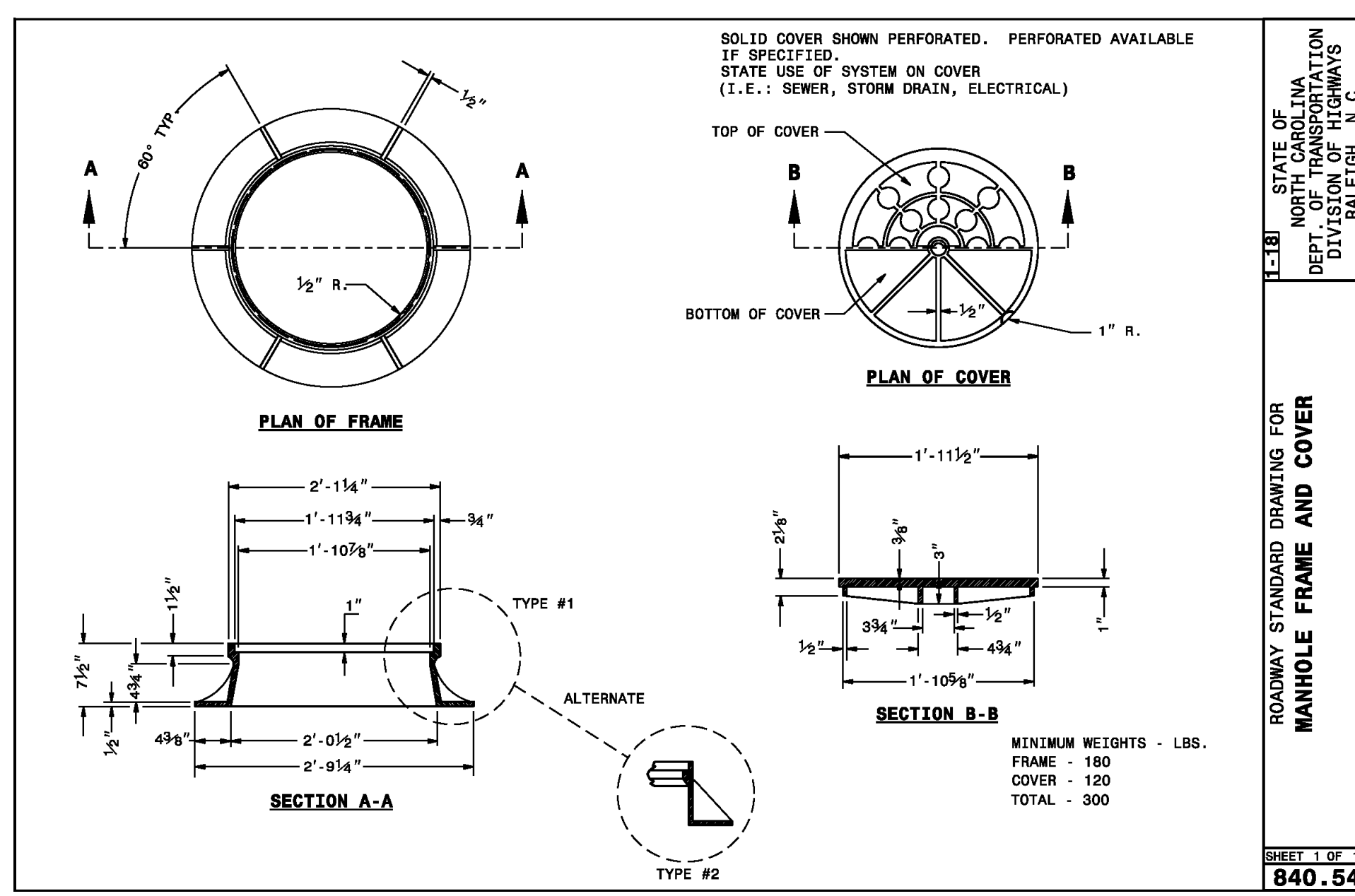
ROADWAY STANDARD DRAWING FOR
PRECAST MANHOLE 4', 5' AND 6' DIAMETER
12" THRU 48" PIPE

SHEET 1 OF 1
840.52

- NOTES:**
1. PROVIDE PRECAST MANHOLE COMPONENTS WHICH COMPLY WITH AASHTO M199.
 2. ASSEMBLE RISERS AND GRADE RINGS SO STEPS 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.



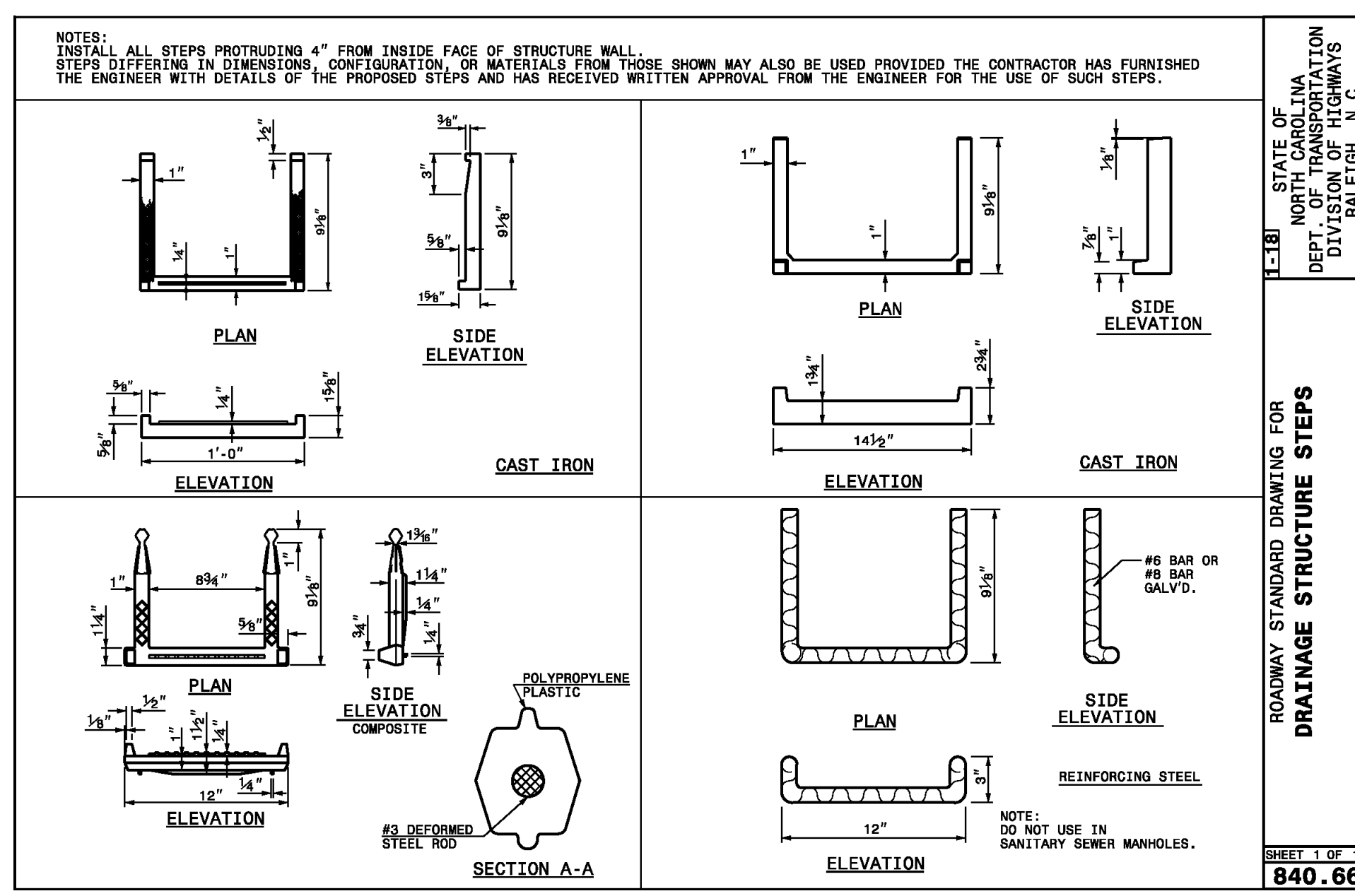
STANDARD STORM SEWER
PRECAST CONCRETE MANHOLE FOR OVER 12' IN DEPTH
NTS



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

ROADWAY STANDARD DRAWING FOR
MANHOLE FRAME AND COVER

SHEET 1 OF 1
840.54



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

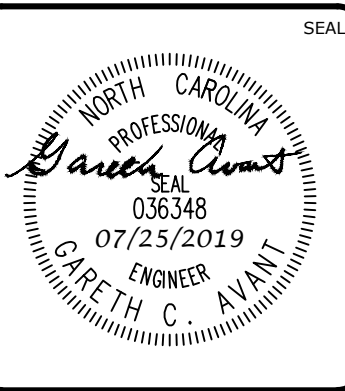
ROADWAY STANDARD DRAWING FOR
DRAINAGE STRUCTURE STEPS

SHEET 1 OF 1
840.66

REV. NO.	DESCRIPTIONS	DATE
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09

SEAL

STATE OF NORTH CAROLINA
PROFESSIONAL ENGINEER
GARETH C. AVANT
07/25/2019
036348



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Raleigh, North Carolina 27606
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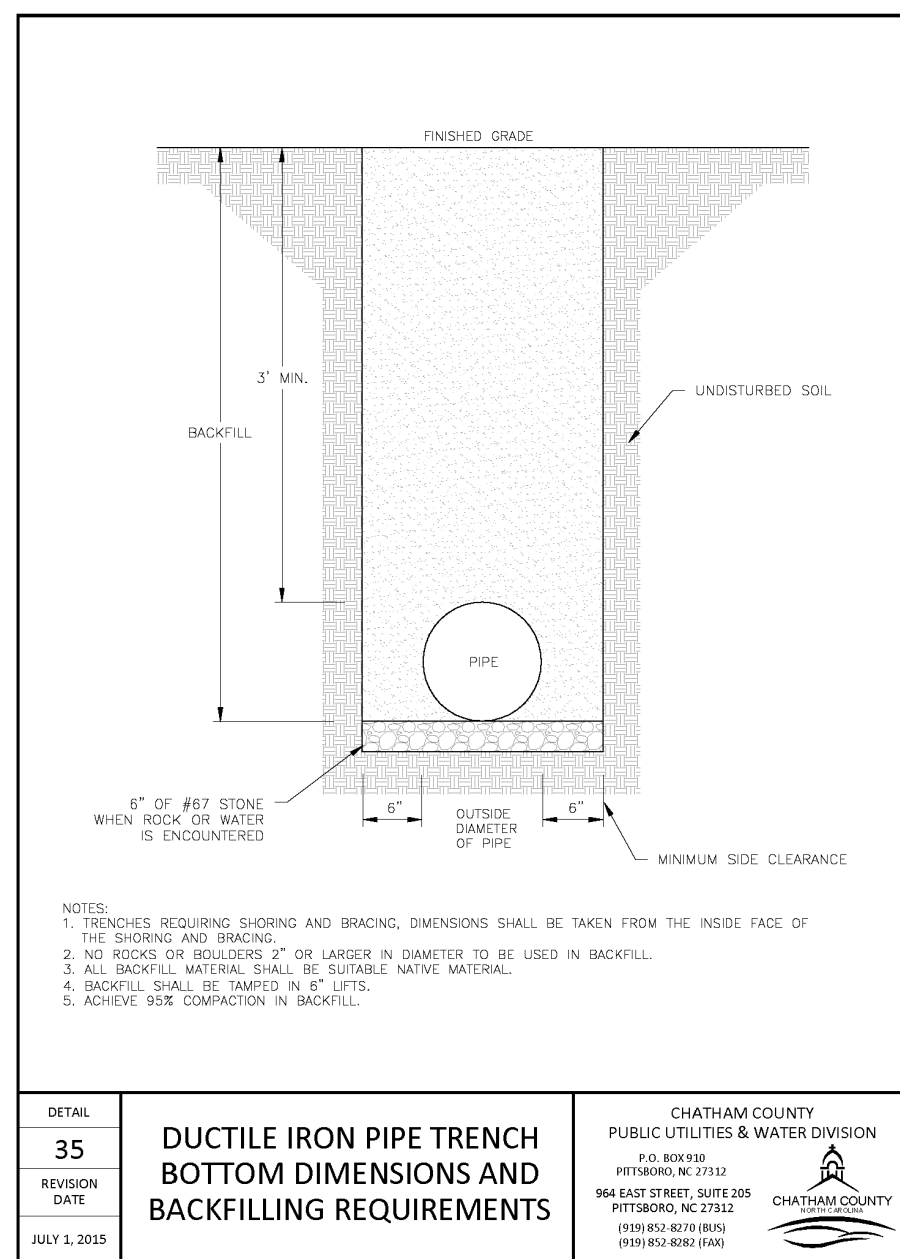
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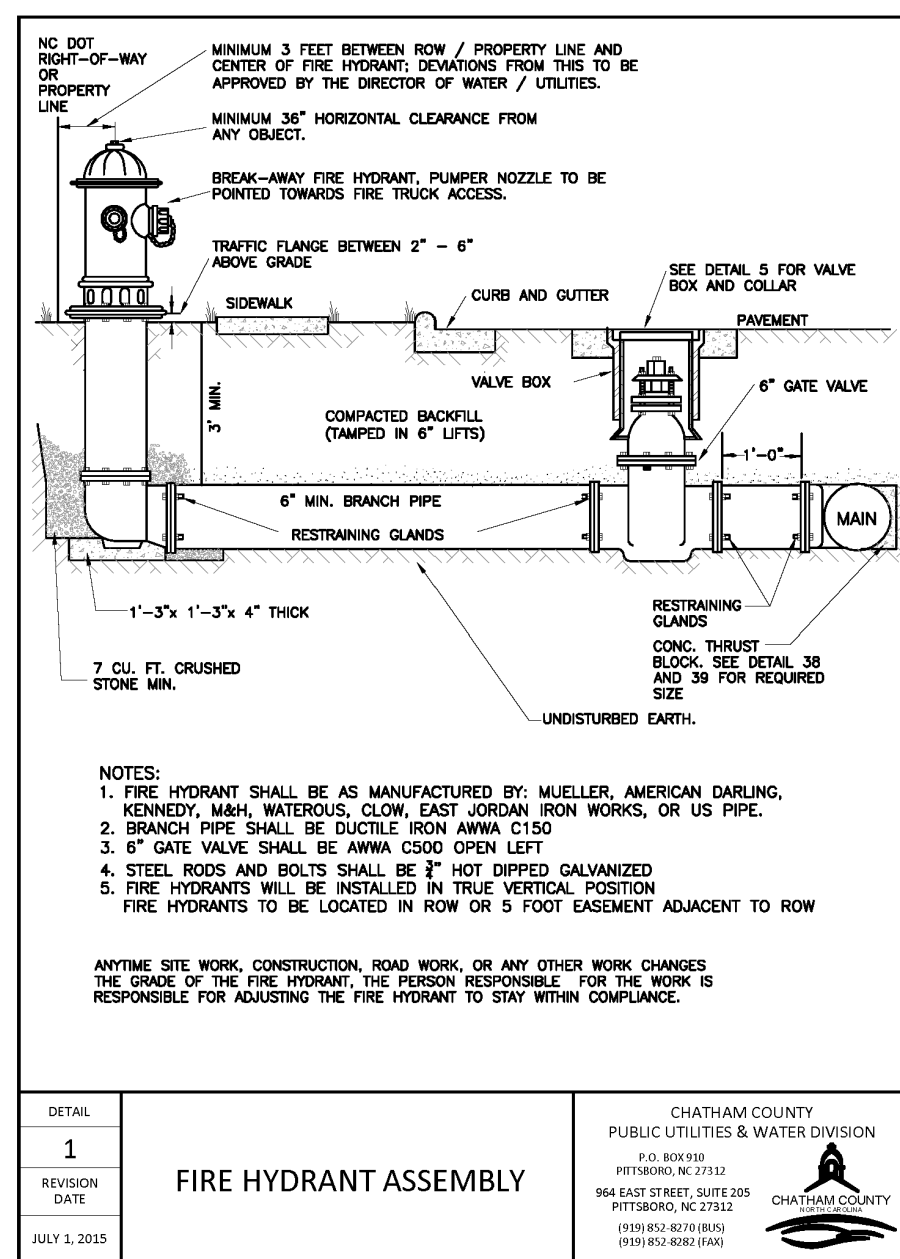
BRIAR CHAPEL
PHASE 14
CHATHAM COUNTY, NORTH CAROLINA

NCDOT DRAINAGE DETAILS

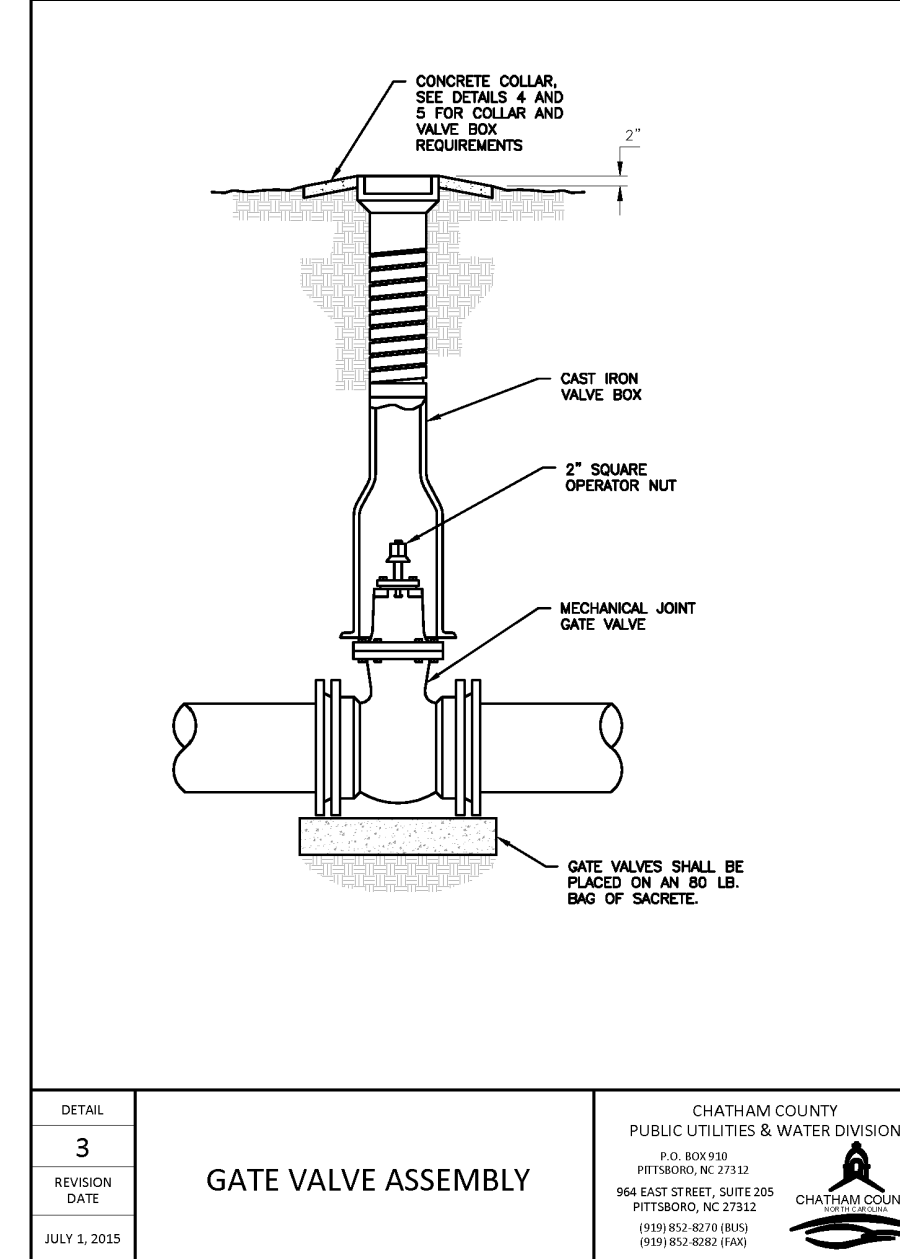
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DRAWN: DCR	VERTICAL: N/A	
DESIGNED: DCR		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION	REVISION: 3	



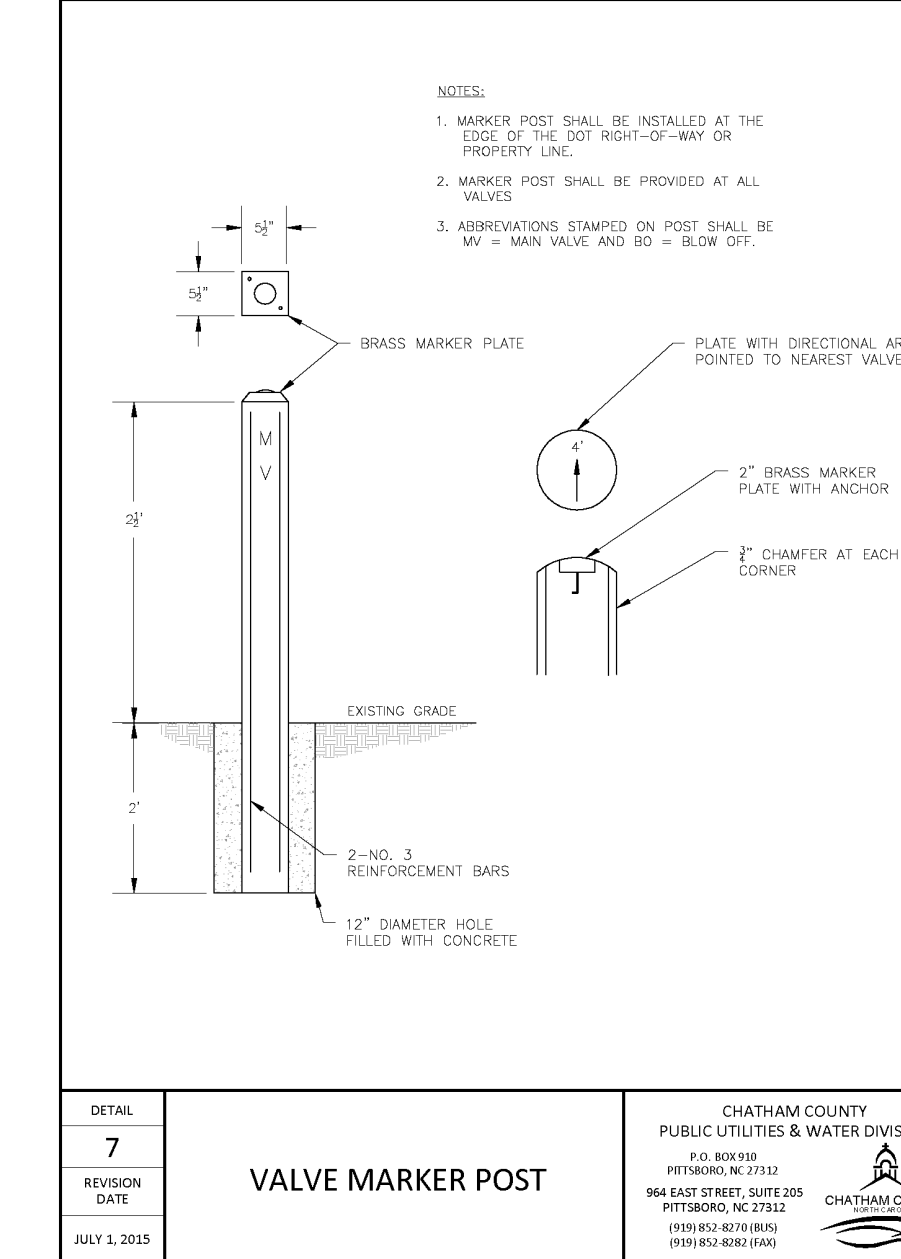
35
DUCTILE IRON PIPE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS
 CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
 P.O. BOX 939 PITTSBORO, NC 27312
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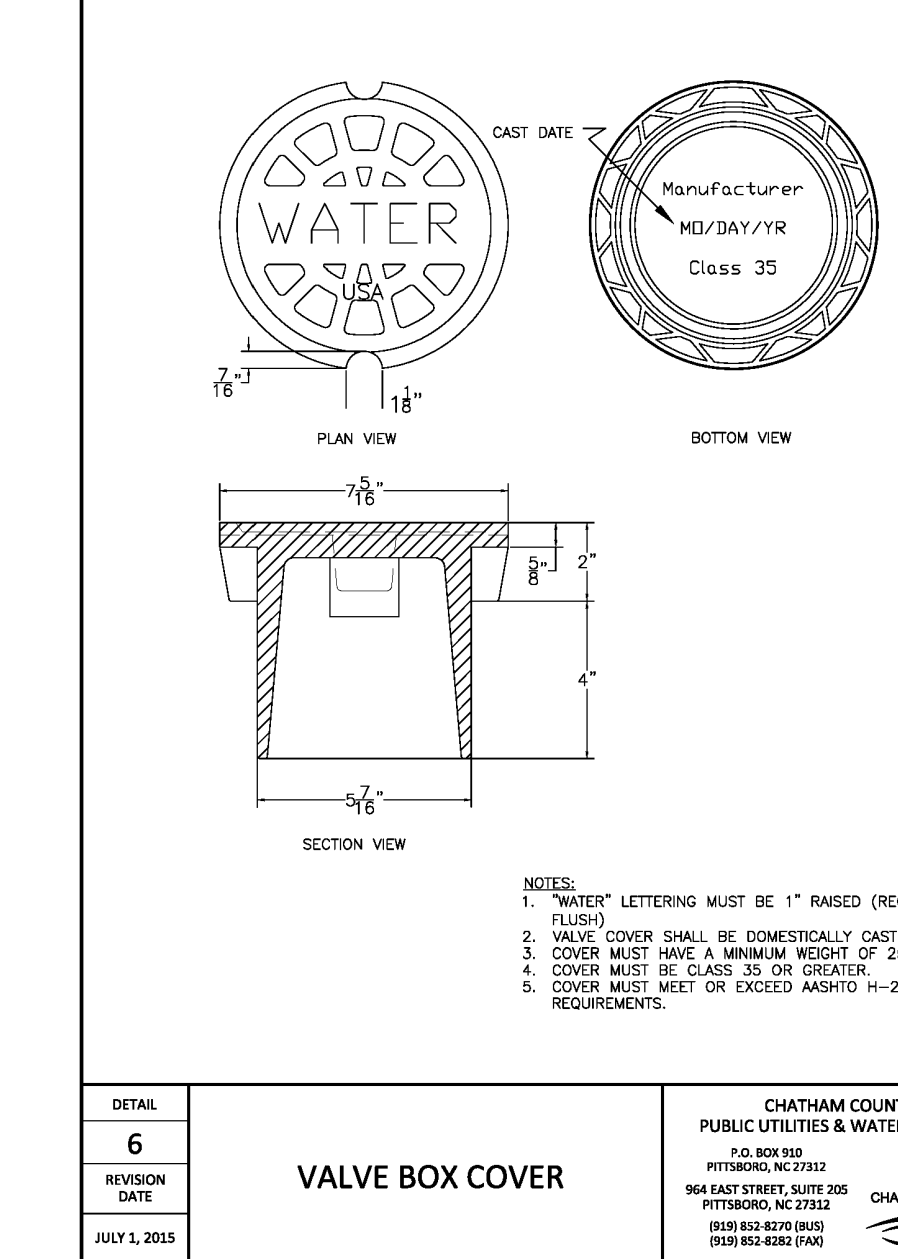
1
FIRE HYDRANT ASSEMBLY
 CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
 P.O. BOX 939 PITTSBORO, NC 27312
 964 EAST STREET, SUITE 205 PITTSBORO, NC 27312
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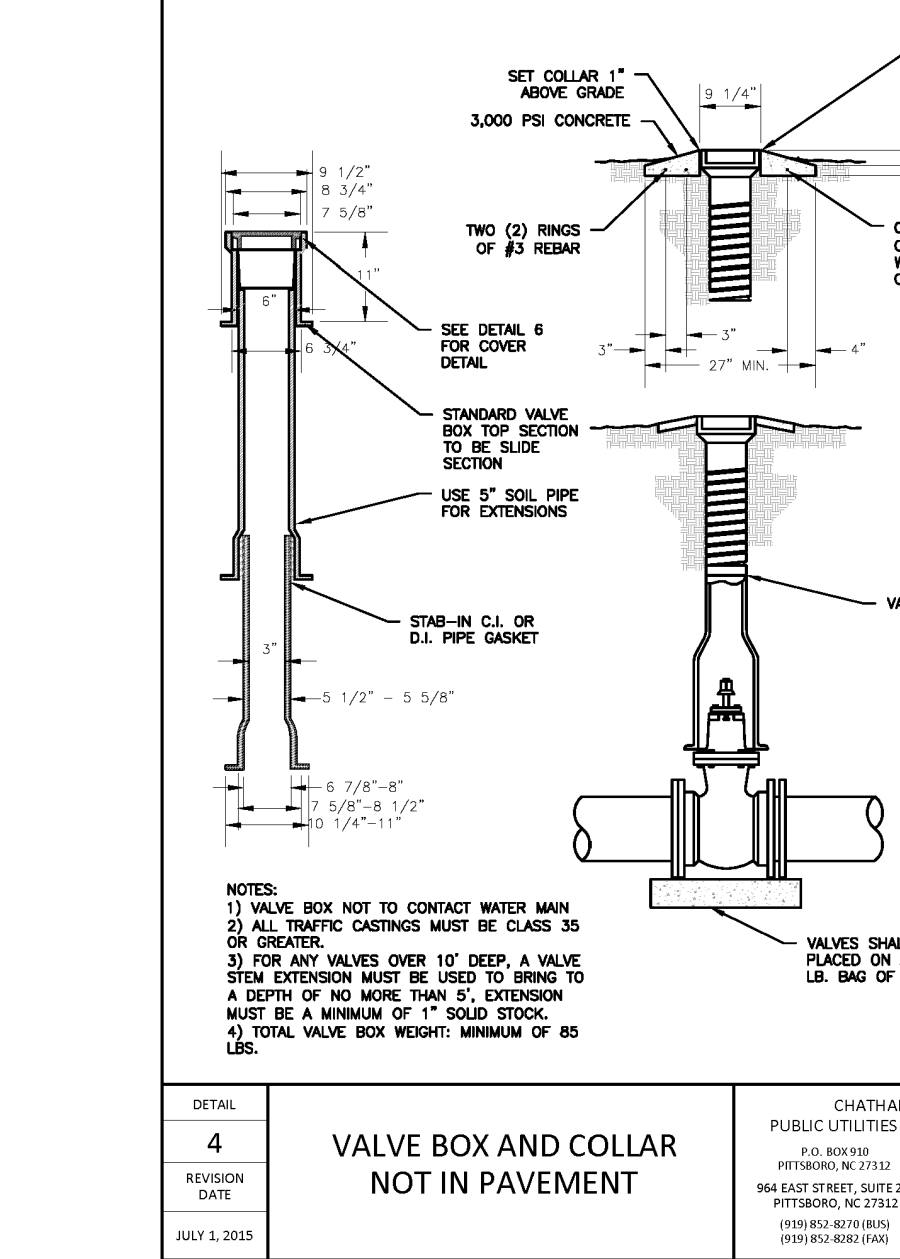
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GATE VALVE ASSEMBLY
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 P.O. BOX 939 PITTSBORO, NC 27312
 964 EAST STREET, SUITE 205 PITTSBORO, NC 27312
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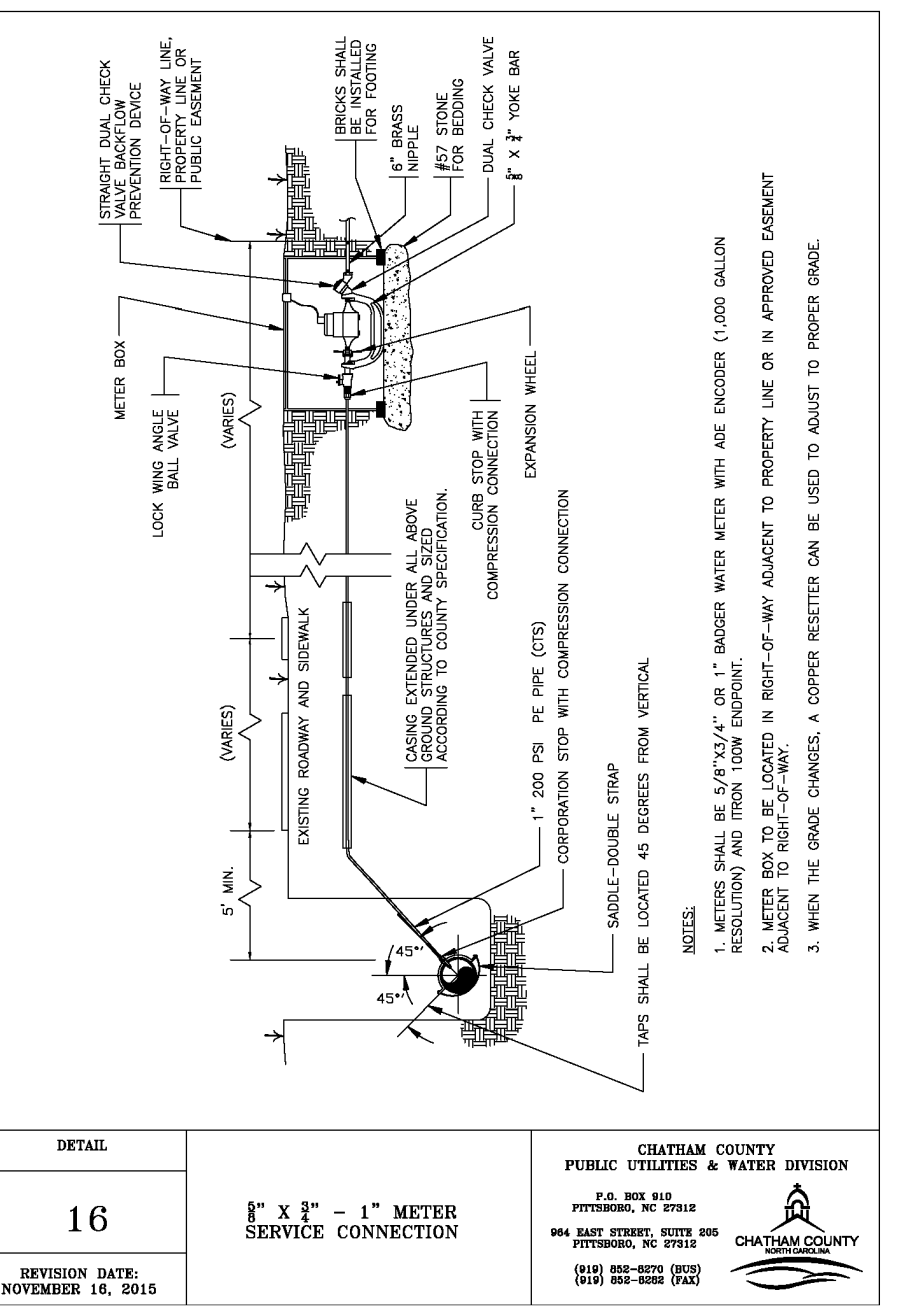
7
VALVE MARKER POST
 CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
 P.O. BOX 939 PITTSBORO, NC 27312
 964 EAST STREET, SUITE 205 PITTSBORO, NC 27312
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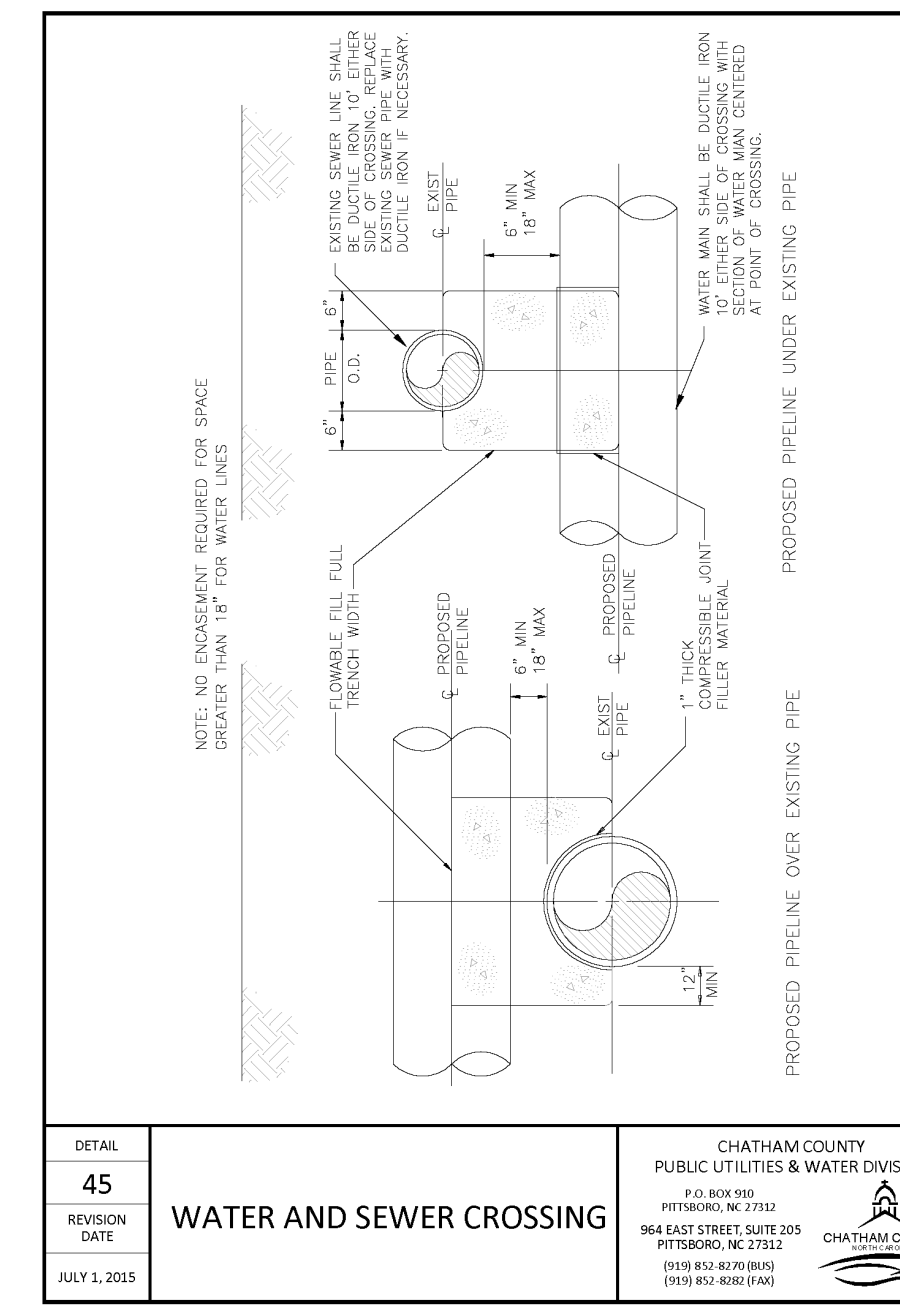
6
VALVE BOX COVER
 CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
 P.O. BOX 939 PITTSBORO, NC 27312
 964 EAST STREET, SUITE 205 PITTSBORO, NC 27312
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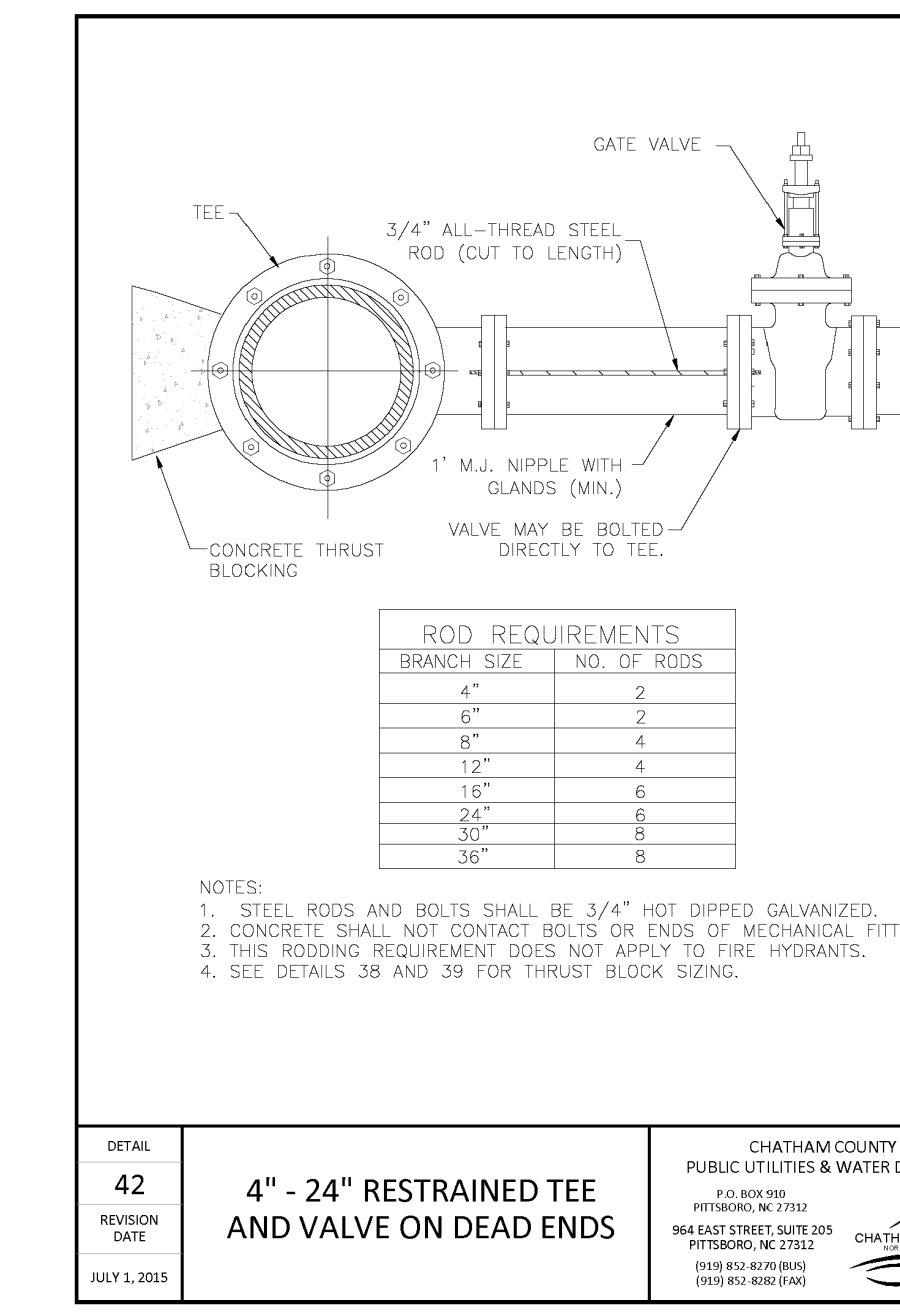
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VALVE BOX AND COLLAR NOT IN PAVEMENT
 CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
 P.O. BOX 939 PITTSBORO, NC 27312
 964 EAST STREET, SUITE 205 PITTSBORO, NC 27312
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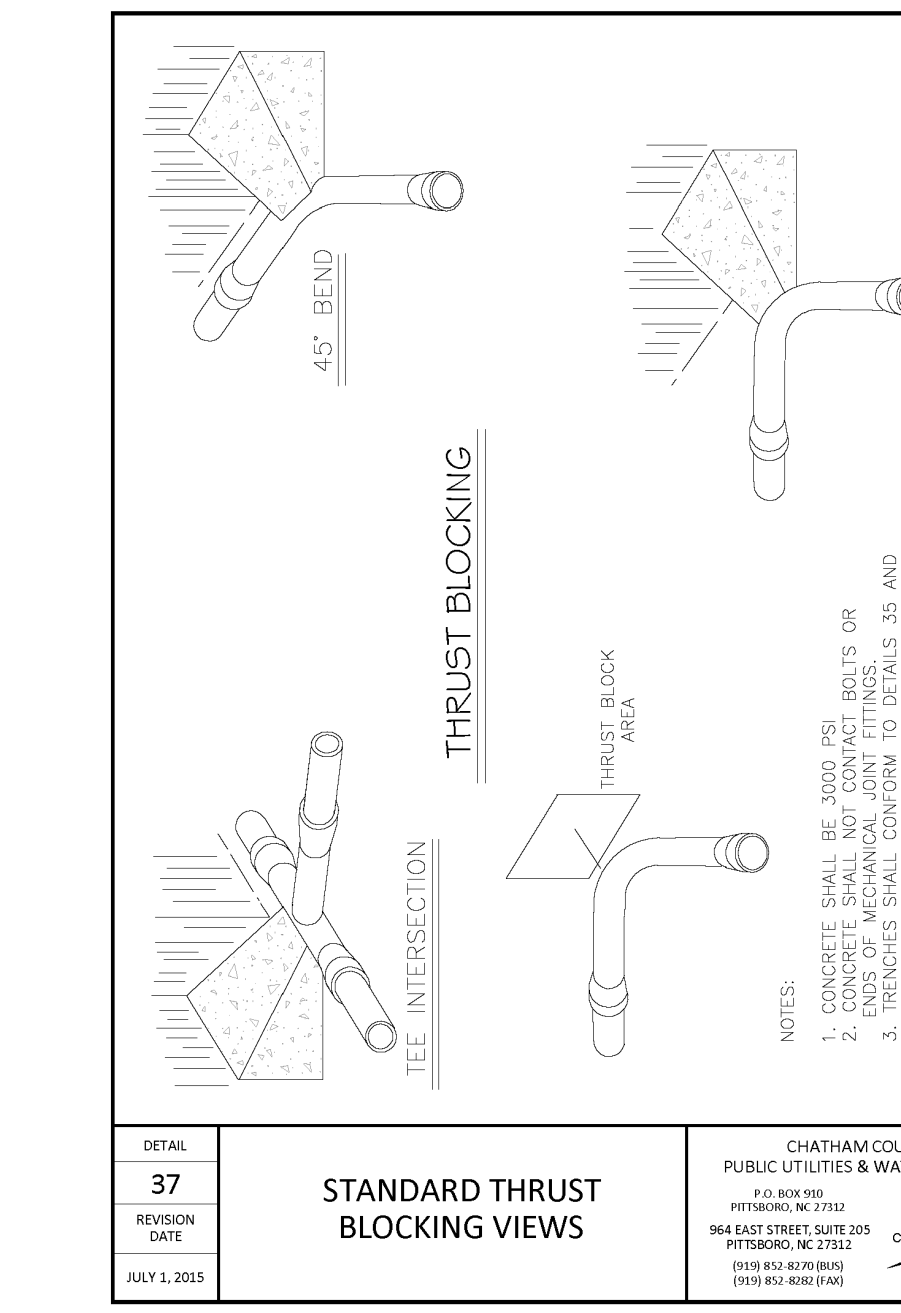
16
8" x 12" METER SERVICE CONNECTION
 CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
 P.O. BOX 939 PITTSBORO, NC 27312
 964 EAST STREET, SUITE 205 PITTSBORO, NC 27312
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45
WATER AND SEWER CROSSING
 CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
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42
4" - 24" RESTRAINED TEE AND VALVE ON DEAD ENDS
 CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
 P.O. BOX 939 PITTSBORO, NC 27312
 964 EAST STREET, SUITE 205 PITTSBORO, NC 27312
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37
STANDARD THRUST BLOCKING VIEWS
 CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
 P.O. BOX 939 PITTSBORO, NC 27312
 964 EAST STREET, SUITE 205 PITTSBORO, NC 27312
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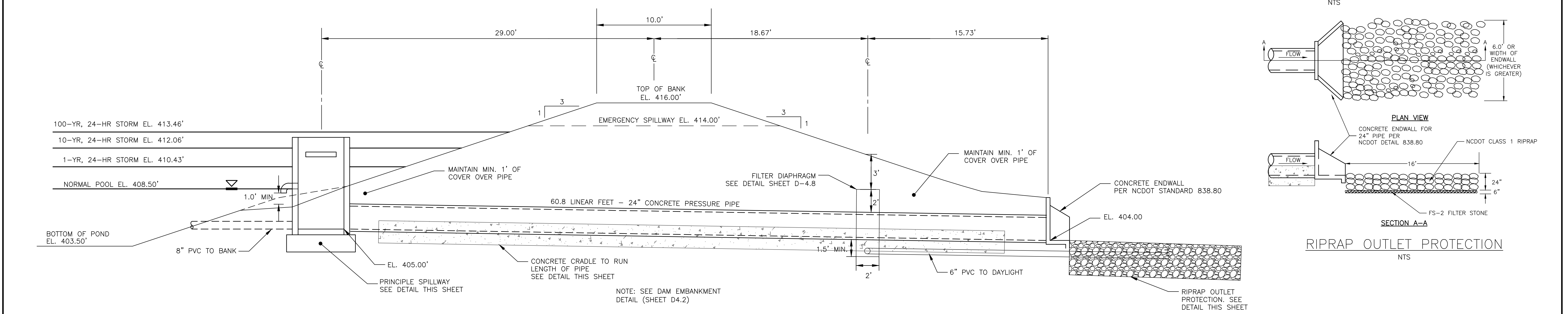
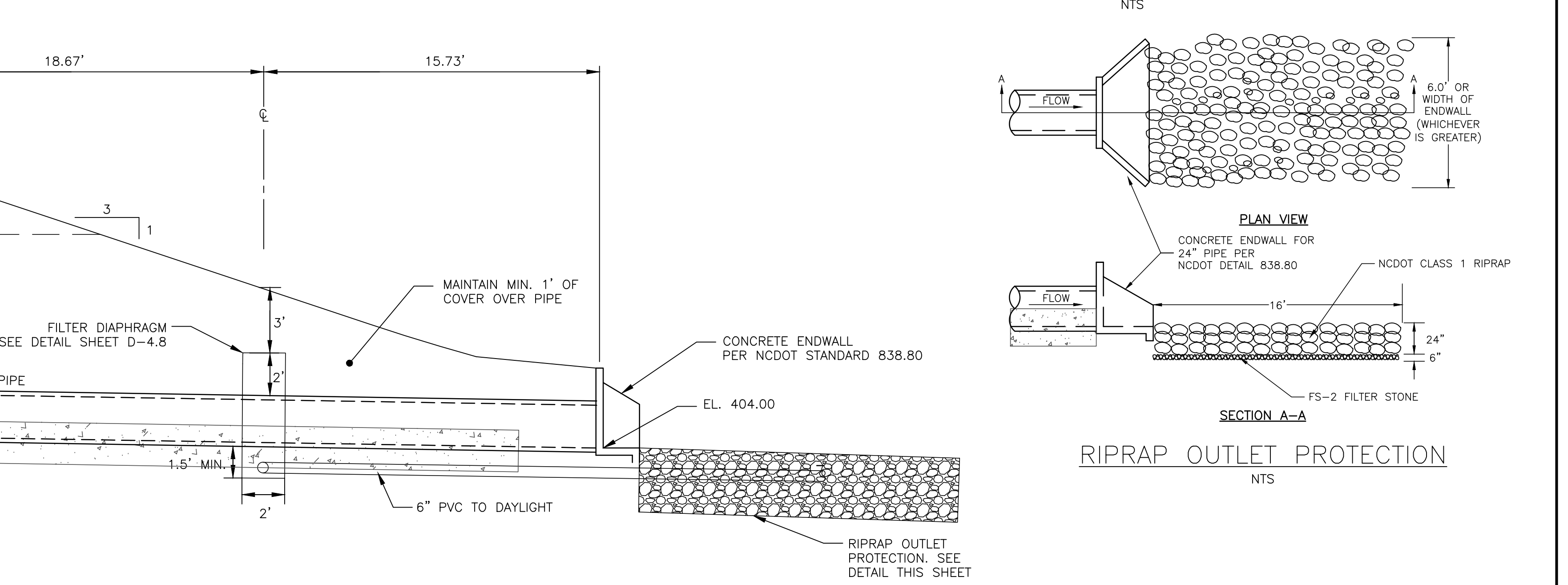
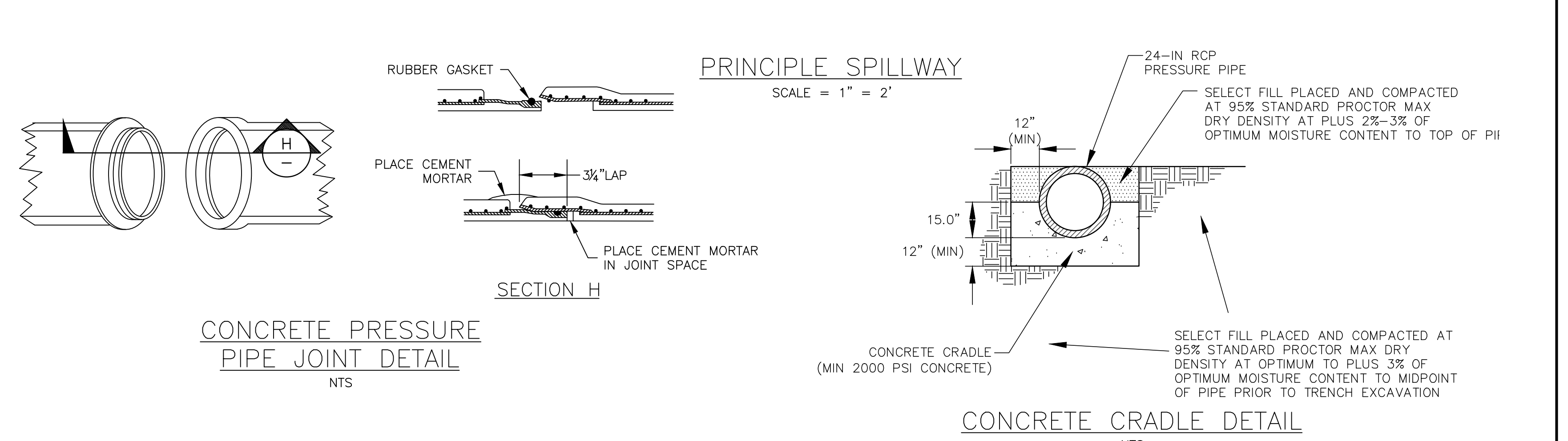
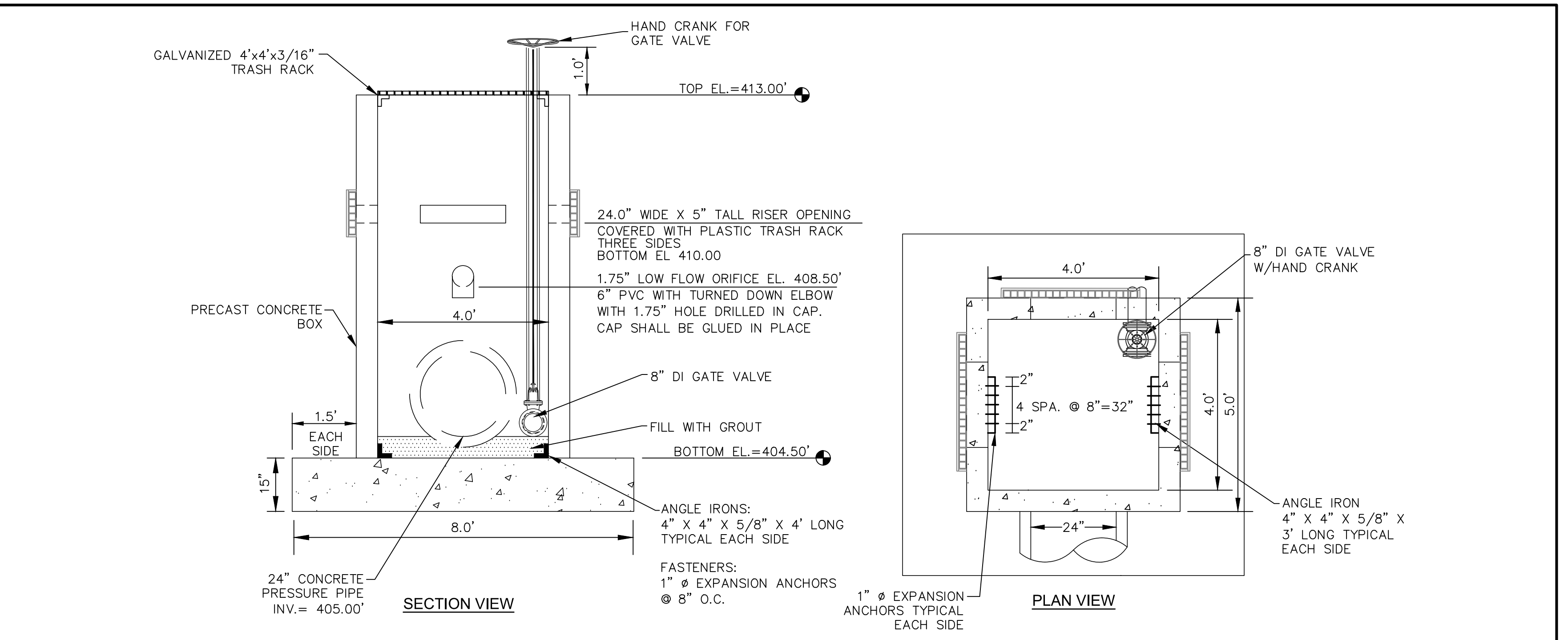
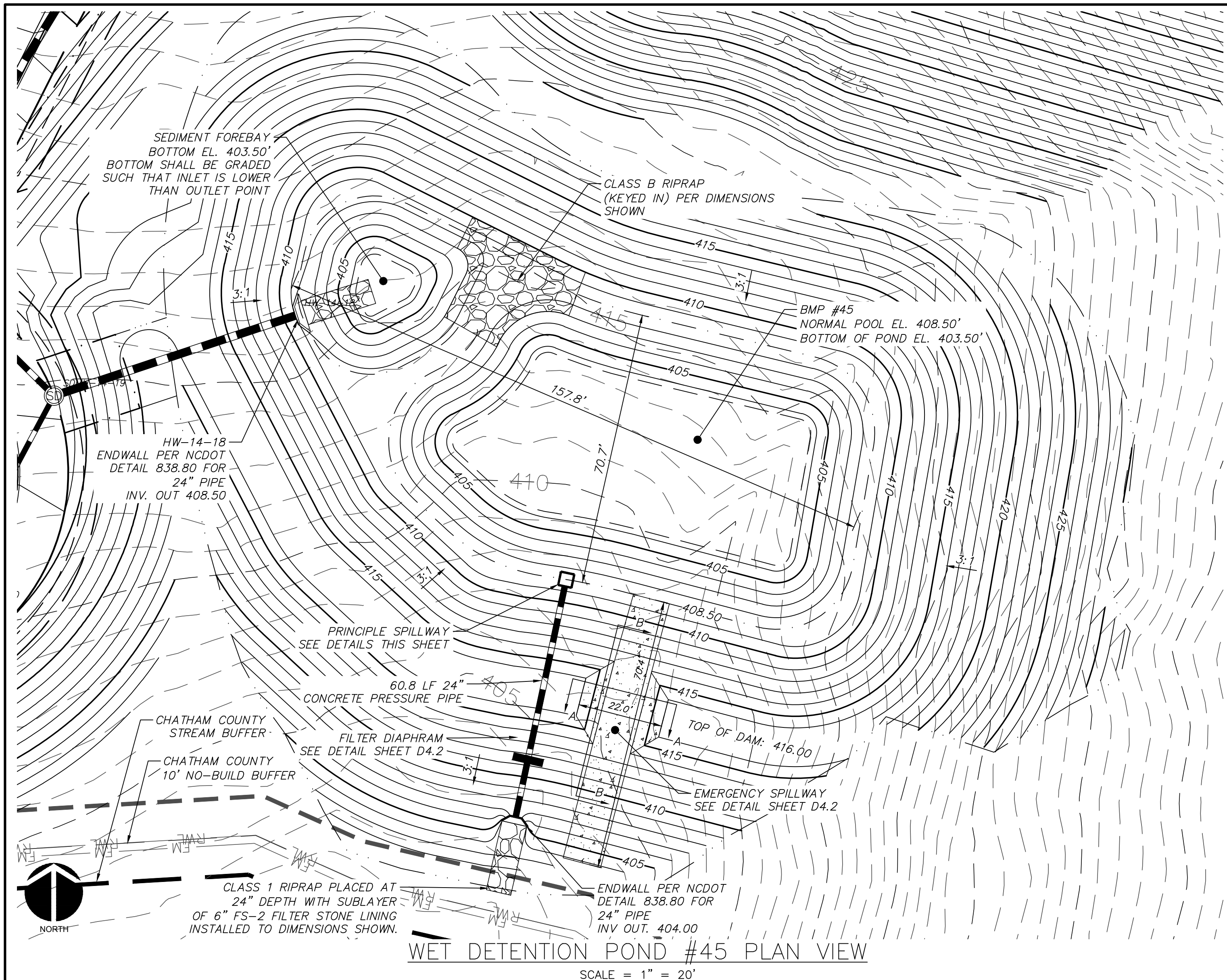
REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS (BASED ON TEST PRESSURE OF 200 P.S.I.) ALL AREAS GIVEN IN SQUARE FEET.

SIZE OF BEND	PIPE	THRUST IN	THRUST OUT	THRUST IN	THRUST OUT	THRUST IN	THRUST OUT
6"	11 1/4"	1,108	1	1	1	1	2
	22 1/2"	2,207	1	2	1	1	3
8"	11 1/4"	1,970	1	2	1	1	2
	22 1/2"	3,922	1	2	3	1	4
10"	11 1/4"	2,709	1	2	1	1	2
	22 1/2"	5,418	1	2	3	1	4
12"	11 1/4"	3,612	2	3	3	1	2
	22 1/2"	7,224	2	4	5	1	3
14"	11 1/4"	4,908	2	4	4	1	2
	22 1/2"	9,816	2	4	5	1	3
16"	11 1/4"	6,204	2	4	4	1	2
	22 1/2"	12,408	2	4	5	1	3
18"	11 1/4"	7,500	2	4	4	1	2
	22 1/2"	15,000	2	4	5	1	3
20"	11 1/4"	8,800	2	4	4	1	2
	22 1/2"	17,600	2	4	5	1	3
24"	11 1/4"	11,600	2	4	4	1	2
	22 1/2"	23,200	2	4	5	1	3

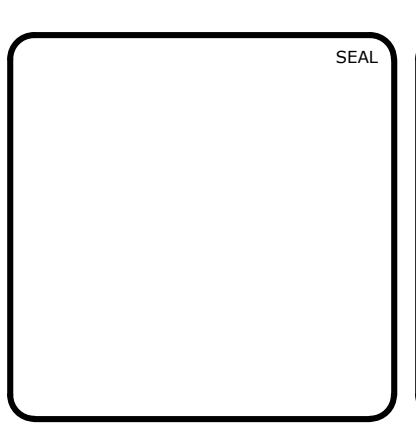
38
CONCRETE THRUST BLOCKING QUANTITY TABLE, 6" - 16" PIPE
 CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
 P.O. BOX 939 PITTSBORO, NC 27312
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REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS (BASED ON TEST PRESSURE OF 200 P.S.I.) ALL AREAS GIVEN IN SQUARE FEET.

SIZE OF BEND	PIPE	THRUST IN	THRUST OUT	THRUST IN	THRUST OUT	THRUST IN	THRUST OUT
24"	11 1/4"	17,234	5	9	11	3	5
	22 1/2"	34,468	5	9	11	3	5
30"	11 1/4"	27,709	7	14	17	4	7
	22 1/2"	55,418	7	14	17	4	7
36"	11 1/4"	39,901	10	20	24	5	10
	22 1/2"	79,802	10	20	24	5	10
42"	11 1/4"	52,394	13	26	31	7	14
	22 1/2"	104,788	13	26	31	7	14
48"	11 1/4"	64,887	16	32	38	9	18
	22 1/2"	129,774	16	32	38	9	18
54"	11 1/4"	77,380	19	38	46	11	22
	22 1/2"	154,760	19	38	46	11	22
60"	11 1/4"	89,873	22	44	54	13	26
	22 1/2"	179,746	22	44	54	13	26
66"	11 1/4"	102,366	25	50	62	15	30
	22 1/2"	204,732	25	50	62	15	30
72"	11 1/4"	114,859	28	56	70	17	34
	22 1/2"	229,718	28	56	70	17	34
78"	11 1/4"	127,352	31	62	78	19	38
	22 1/2"	254,704	31	62	78	19	38
84"	11 1/4"	139,845	34	68	84	21	42
	22 1/2"	279,690	34	68	84	21	42
90"	11 1/4"	152,338	37	74	90	23	46
	22 1/2"	304,676	37	74	90	23	46
96"	11 1/4"	164,831	40	80	96	25	50
	22 1/2"	329,662	40	80	96	25	50
102"	11 1/4"	177,324	43	86	102	27	54
	22 1/2"	354,648	43	86	102	27	54
108"	11 1/4"	189,817	46	92	108	29	58
	22 1/2"	379,634	46	92	108	29	58
114"	11 1/4"	202,310	49	98	114	31	62
	22 1/2"	404,620	49	98	114	31	62
120"	11 1/4"	214,803	52	104	120	33	66
	22 1/2"	429,606	52	104	120	33	66
126"	11 1/4"	227,296	55	110	126	35	70
	22 1/2"	454,592	55	110	126	35	70
132"	11 1/4"	239,789	58	116	132	37	74
	22 1/2"	479,578	58	116	132	37	74
138"	11 1/4"	252,282	61	122	138	39	78
	22 1/2"	504,564	61	122	138	39	78
144"	11 1/4"	264,775	64	128	144	41	82
	22 1/2"	529,550	64	128	144	41	82
150"	11 1/4"	277,268	67	134	150	43	86
	22 1/2"	554,536	67	134	150	43	86
156"	11 1/4"	289,761	70	140	156	45	90
	22 1/2"	579,522	70	140	156	45	90
162"	11 1/4"	302,254	73	146	162	47	94
	22 1/2"	604,508	73	146	162	47	94
168"	11 1/4"	314,747	76	152	168	49	98
	22 1/2"	629,494	76	152	168	49	98
174"	11 1/4"	327,240	79	158	174	51	102
	22 1/2"	654,480	79	158	174	51	102
180"	11 1/4"	339,733	82	164	180	53	106
	22 1/2"	679,466	82	164	180	53	106
186"	11 1/4"	352,226	85	170	186	55	110
	22 1/2"	704,452	85	170	186	55	110
192"	11 1/4"	364,719	88	176	192	57	114
	22 1/2"	729,438	88	176	192	57	114
198"	11 1/4"	377,212	91	182	198	59	118
	22 1/2"	754,424	91	182	198	59	118
204"	11 1/4"	389,705	94	188	204	61	122
	22 1/2"	779,410	94	188	204	61	122
210"	11 1/4"	402,198	97	194	210	63	126
	22 1/2"	804,396	97	194	210	63	126
216"	11 1/4"	414,691	100	200	216	65	130
	22 1/2"	829,382	100	200	216	65	130
222"	11 1/4"	427,184	103	206	222	67	134
	22 1/2"	854,368	103	206	222	67	134
228"	11 1/4"	439,677	106	212	228	69	138
	22 1/2"	879,354	106	212	228	69	138
234"	11 1/4"	452,170	109	218	234	71	142
	22 1/2"	904,340	109	218	234	71	142
240"	11 1/4"	464,663	112	224	240	73	146
	22 1/2"	929,326	112	224	240	73	146
246"	11 1/4"	477,156	115	230	246	75	150
	22 1/2"	954,312	115	230	246	75	150
252"	11 1/4"	489,649	118	236	252	77	154
	22 1/2"	979,298	118	236	252	77	154
258"	11 1/4"	502,142	121	242	258	79	158
	22 1/2"	1,004,284	121	242	258	79	158
264"	11 1/4"	514,635	124	248	264	81	162
	22 1/2"	1,029,270	124	248	264	81	162
270"	11 1/4"	527,128	127	254	270	83	166
	22 1/2"	1,054,256	127	254	270	83	166
276"	11 1/4"	539,621	130	260	276	85	170
	22 1/2"	1,079,242	130	260	276	85	170
282"	11 1/4"	552,114	133	266	282	87	174
	22 1/2"	1,104,228	133	266	282	87	174
288"	11 1/4"	564,607	136	272	288	89	178
	22 1/2"	1,129,214	136	272	288	89	178
294"	11 1/4"	577,100	139	278	294	91	182
	22 1/2"	1,154,200	139	278	294	91	182
300"	11 1/4"	589,593	142	284	300	93	186
	22 1/2"	1,179,186	142	284	300	93	



REV. NO.	DESCRIPTIONS	DATE
3	REVISIONS PER NCDOT COMMENTS	2019-07-25
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1	INITIAL SUBMITTAL	2019-05-09

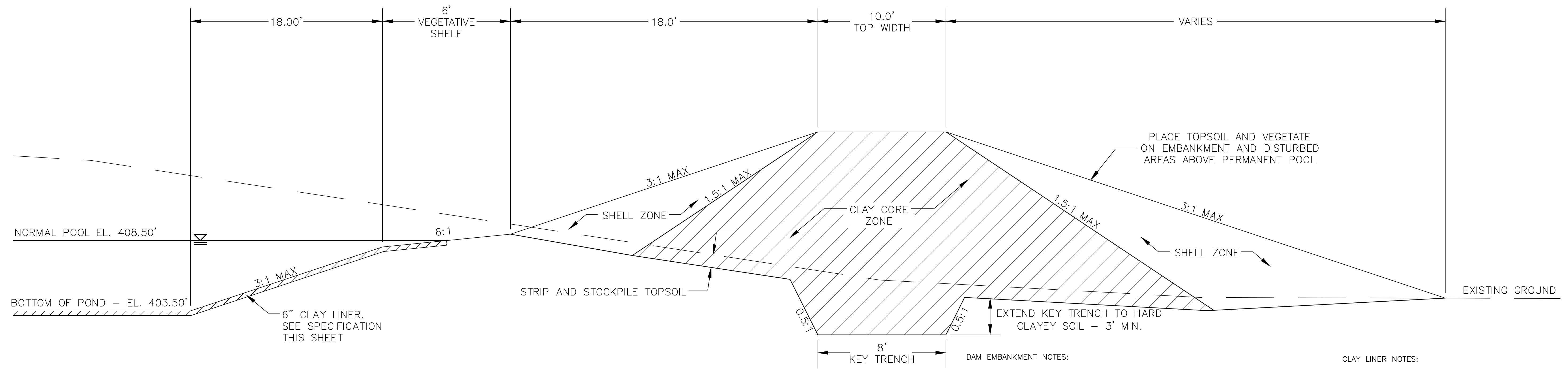


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**BRIAR CHAPEL
PHASE 14
CHATHAM COUNTY, NORTH CAROLINA**
BMP #45 PLAN & DETAILS

DATE: MAY 9, 2019	SCALE: HORIZONTAL: AS NOTED	M&C FILE NUMBER: D4.X
M&C PROJ. #: 02735-0239	VERTICAL: N/A	DRAWING NUMBER: D4.1
DRAWN: DCR		
DESIGNED: DCR		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION		REVISION: 3



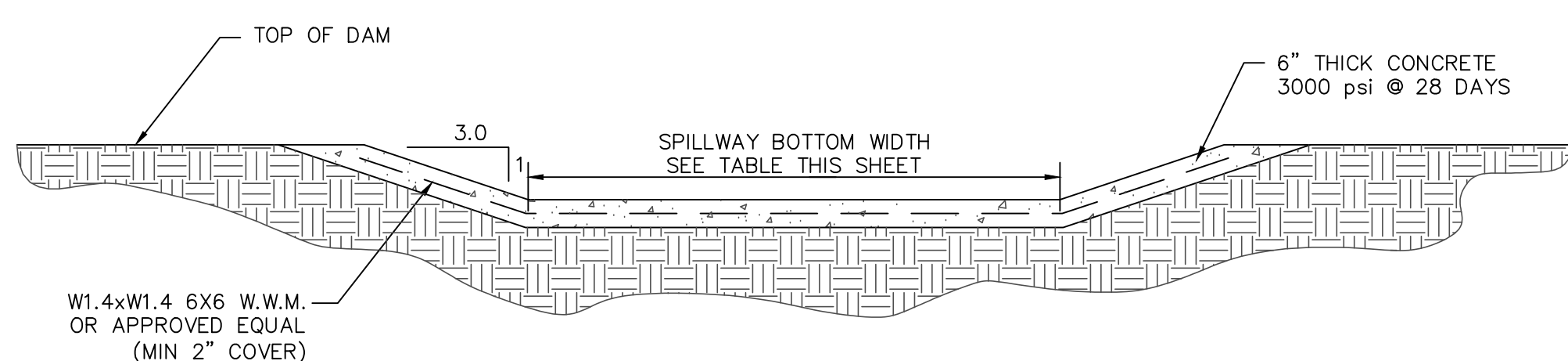
DAM EMBANKMENT DETAIL
NTS

DAM EMBANKMENT NOTES:

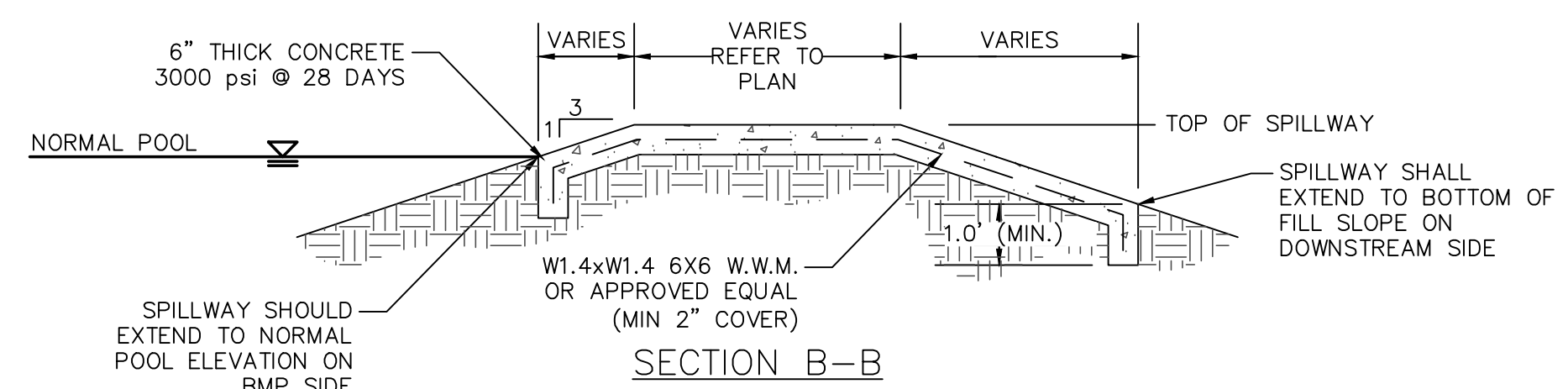
- 1) TOPSOIL BENEATH THE EMBANKMENT SHALL BE REMOVED AND STOCKPILED. THE FOUNDATION WILL BE PROOF ROLLED AND ANY SOFT OR ORGANIC MATERIALS WILL BE REMOVED.
- 2) ALL MATERIAL SHALL BE COMPACTED IN 6-8 INCH LIFTS TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY OR HIGHER (ASTM D-698). THE CLAY CORE ZONE 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.
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- 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 BENTONAT 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" MINIMUM LAYER OF TOPSOIL SHALL BE ADDED OVER THE LINER TO PROVIDE A HEALTHY MEDIA FOR VEGETATION GROWTH.



SECTION A-A

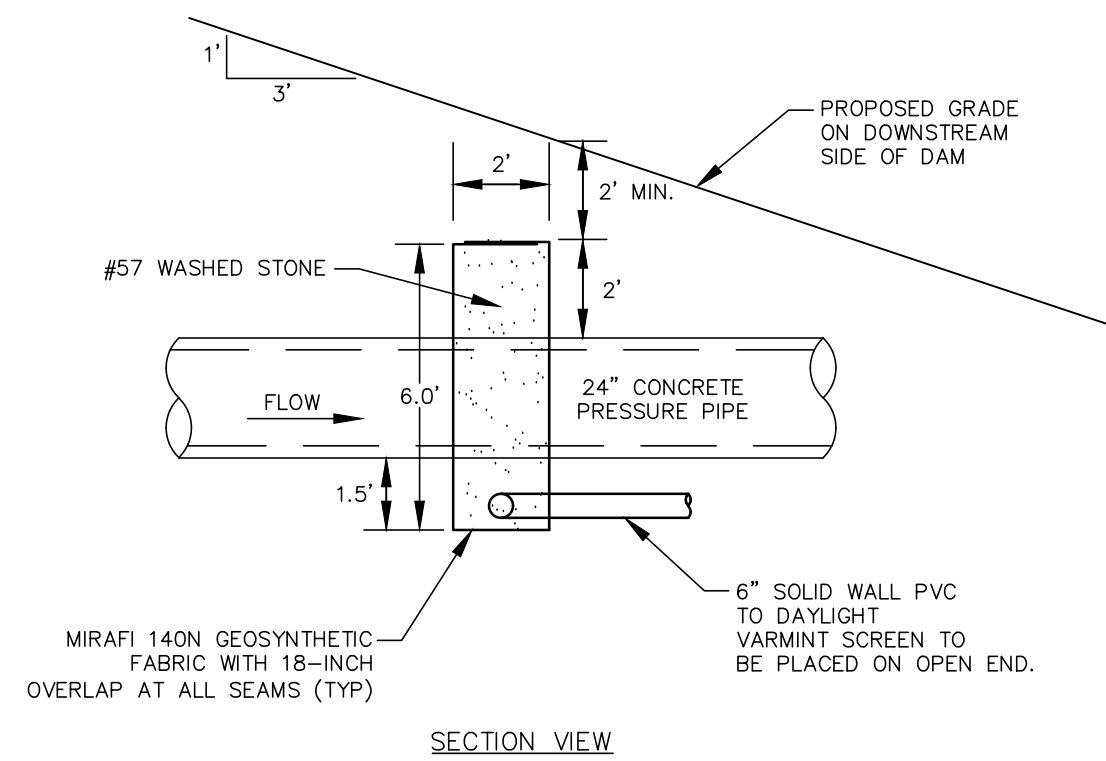
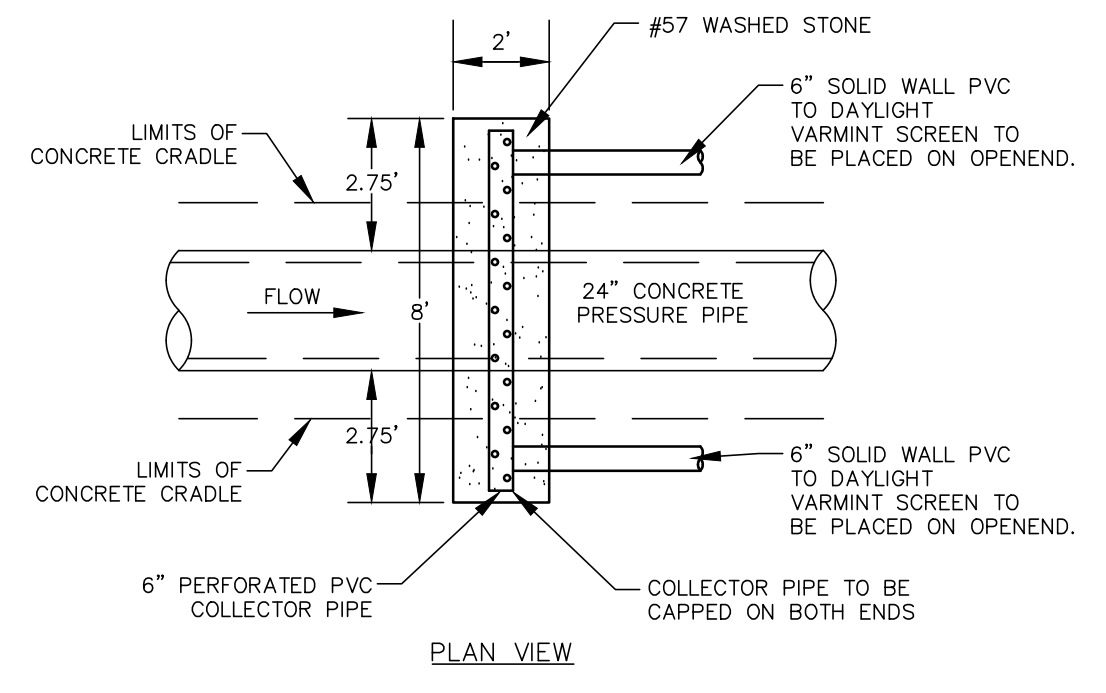


SECTION B-B

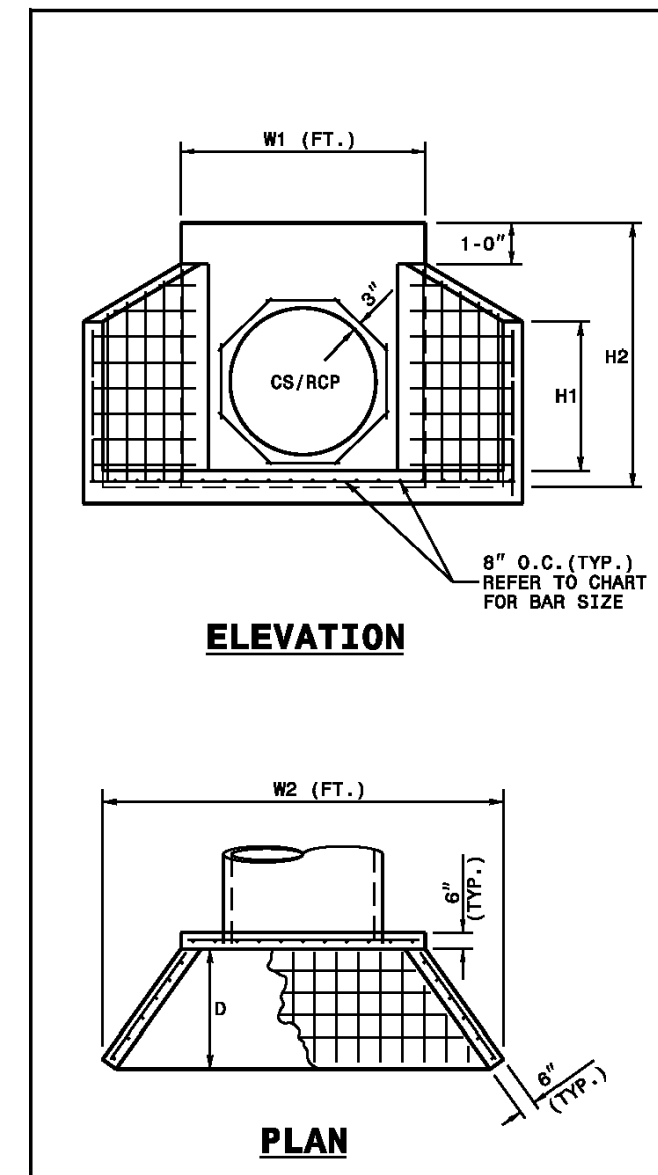
	NORMAL POOL EL.	TOP DAM EL.	SPILLWAY BOTTOM EL.	SPILLWAY BOTTOM WIDTH
BMP #45	408.50	416.00	414.00	10'

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

EMERGENCY SPILLWAY DETAIL
NTS



FILTER DIAPHRAGM DETAIL
NTS

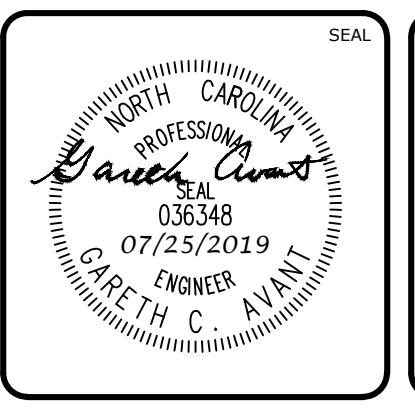
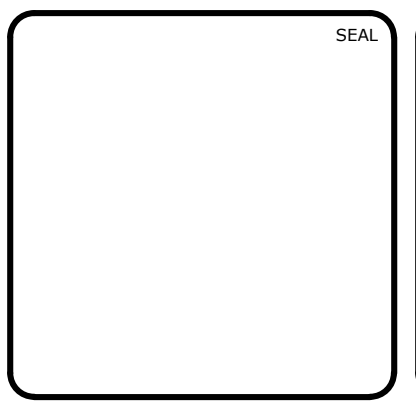


- NOTES:
- THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 838.01, 838.11, 838.21, 838.27, 838.35, 838.39, 838.51, 838.67, 838.63 AND 838.69.
 - INSTALL PRECAST ENDWALLS WITH WINGS AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 816.
 - USE 4000 PSI CONCRETE.
 - PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A618 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 ORIENTED INTO HEADWALL AT JOB SITE BY CONTRACTOR
 - ALL ELEMENTS PRECAST TO MEET ASTM C919.
 - 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 #6 BARS AT 6" O.C. THE CONTRACTOR WILL HAVE THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

ENDWALL DIMENSIONS							
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	7.00/8.25	13.50/15.75	
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/8.25	13.75/15.75	
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/8.25	14.00/15.75	
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/8.25	14.75/16.75	

ROADWAY STANDARD DRAWING FOR
 PRECAST CONCRETE ENDWALL
 FOR SINGLE 12" THRU 72" PIPE - 90° SKEN
 STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.
 SHEET 1 OF 1
638.80

REV. NO.	DESCRIPTIONS	DATE
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09



MCKIM & CREED
 1730 Varsity Drive, Suite 500
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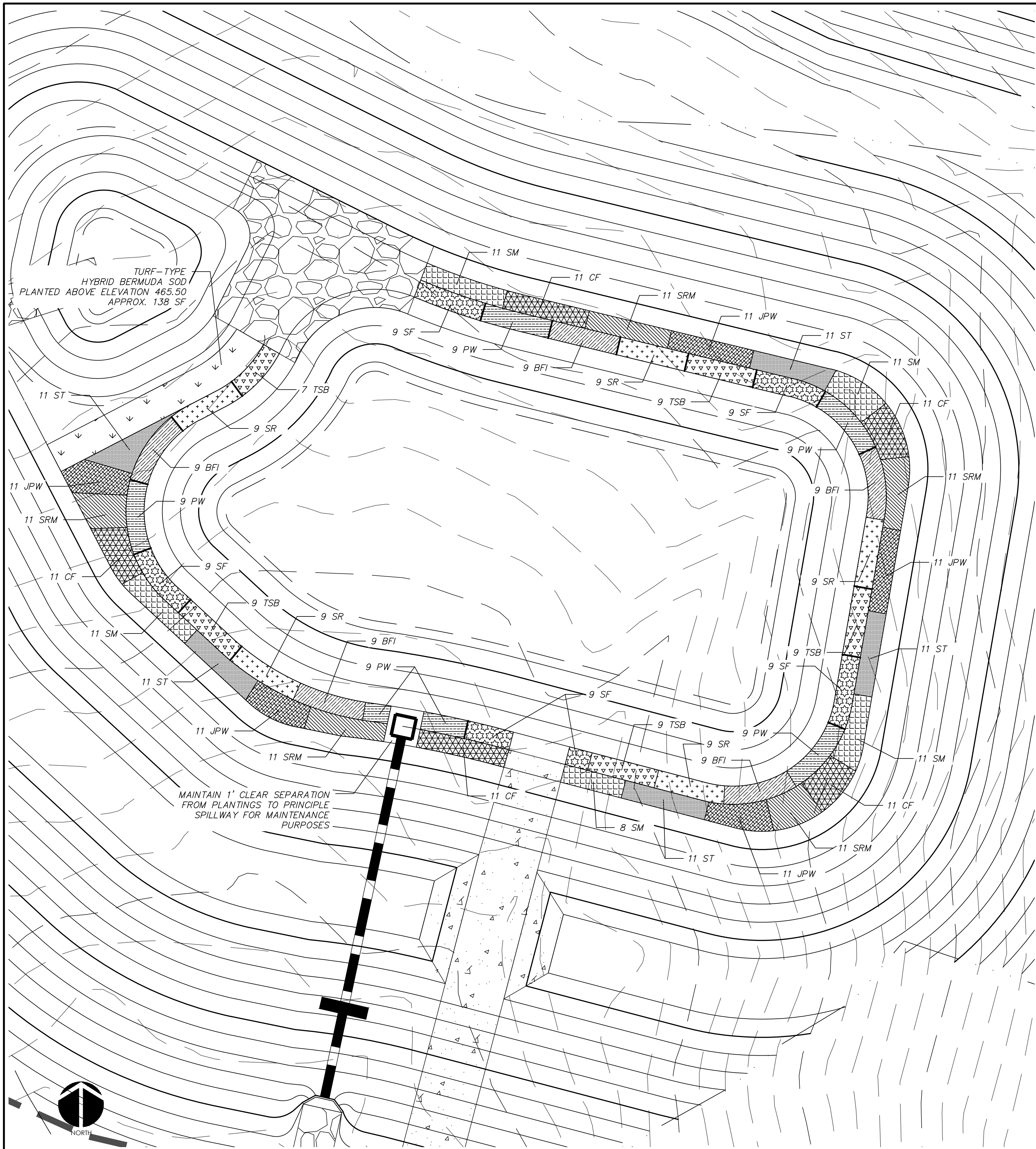
**BRIAR CHAPEL
 PHASE 14
 CHATHAM COUNTY, NORTH CAROLINA**
BMP #45 PLAN & DETAILS

DATE: MAY 9, 2019
 MCE PROJ. #: 02735-0239
 DRAWN: DCR
 DESIGNED: DCR
 CHECKED: GCA
 PROJ. MGR.: CHS

SCALE: HORIZONTAL: AS NOTED, VERTICAL: N/A

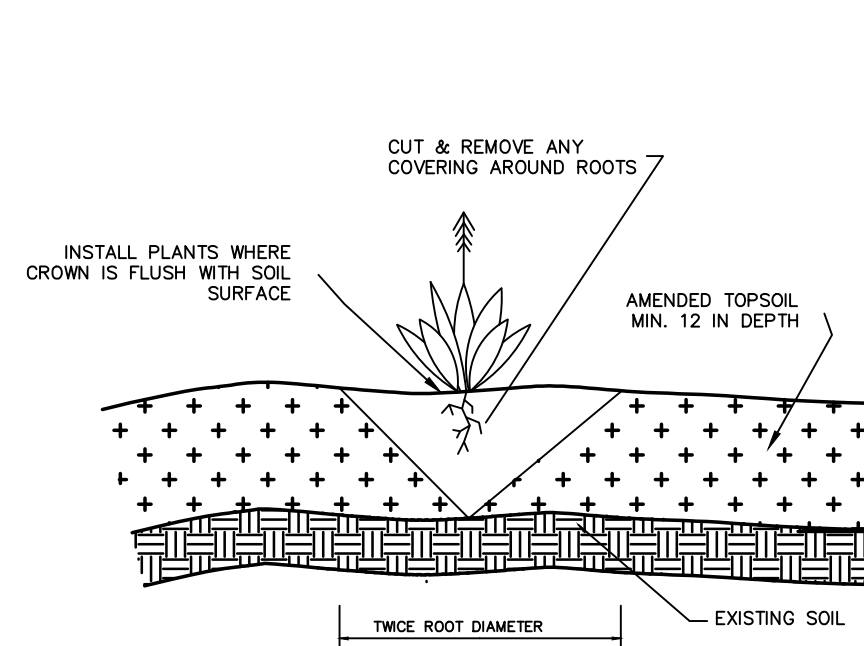
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 REVISION: 3

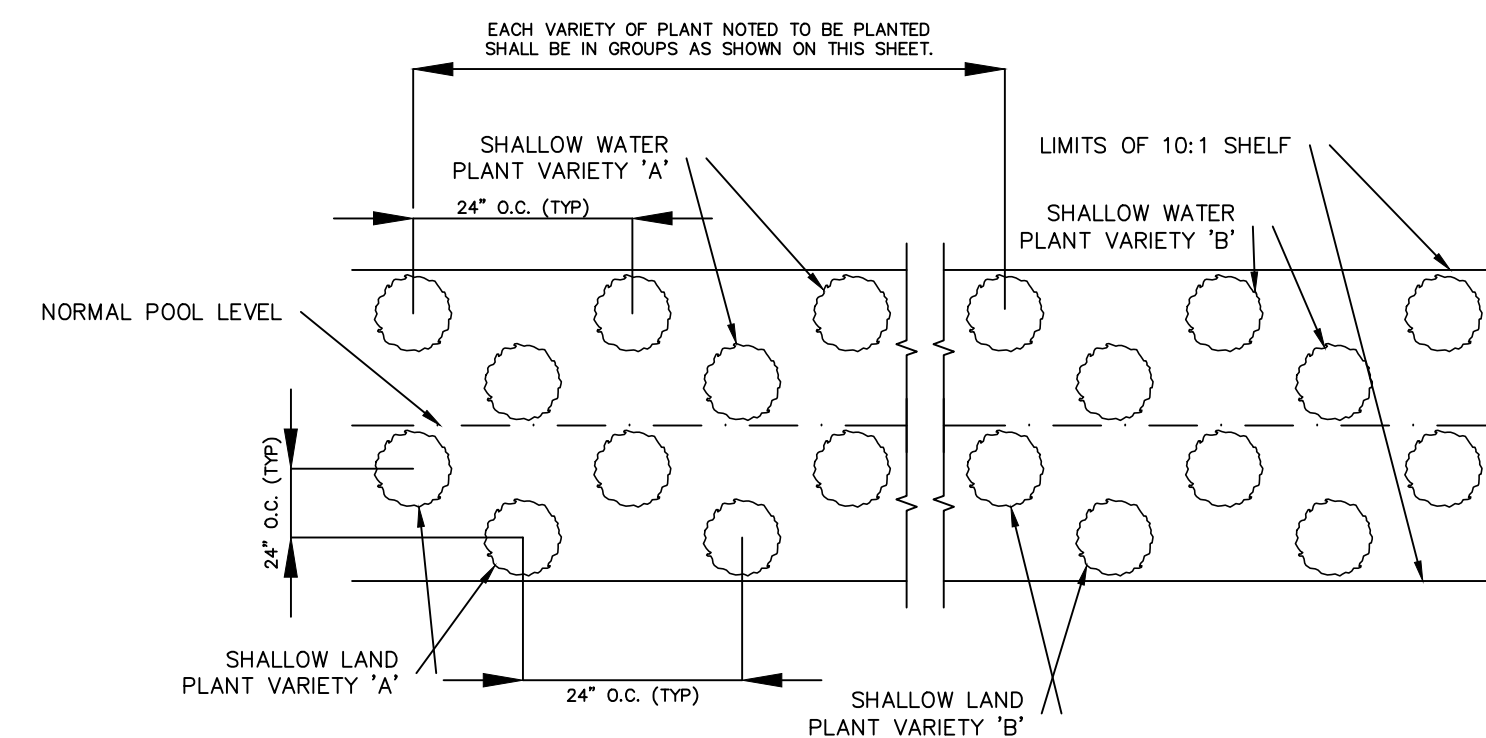


WET DETENTION POND #45 PLANTING PLAN
SCALE = 1" = 10'

PLANTING SCHEDULE						
SYM.	ABB.	COMMON NAME	BOTANICAL NAME	QUANTITY	SPACING	CONTAINER SIZE AT PLANTING
SHALLOW WATER PLANTINGS						
[Symbol]	SF	SWEETFLAG	<i>Acorus subcordatum</i>	45	24"-30" O.C.	1 QT.
[Symbol]	PW	PICKERELWEED	<i>Pontederia cordata</i>	45	24"-30" O.C.	1 QT.
[Symbol]	BFI	BLUE FLAG IRIS	<i>Iris virginica</i>	45	24"-30" O.C.	1 QT.
[Symbol]	SR	SOFT RUSH	<i>Juncus effusus var. pygmaei or solutus</i>	45	24"-30" O.C.	1 QT.
[Symbol]	TSB	THREE SQUARE BULRUSH	<i>Schoenoplectus americanus</i>	43	24"-30" O.C.	1 QT.
SHALLOW LAND PLANTINGS						
[Symbol]	SM	SWAMP MILKWEED	<i>Asclepias incarnata</i>	52	24"-30" O.C.	1 QT.
[Symbol]	CF	CARDINAL FLOWER	<i>Lobelia cardinalis</i>	55	24"-30" O.C.	1 QT.
[Symbol]	SRM	SCARLET ROSE MALLOW	<i>Hibiscus coccineus</i>	55	24"-30" O.C.	1 QT.
[Symbol]	JPW	DWARF JOE PYE WEED	<i>Eupatoriadelphus dubius</i>	55	24"-30" O.C.	1 QT.
[Symbol]	ST	SPOTTED TRUMPETWEED	<i>Eupatoriadelphus maculatus</i>	55	24"-30" O.C.	1 QT.



GENERAL PLANTING DETAIL
NTS



VEGETATED PLANTING SHELF 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.

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.

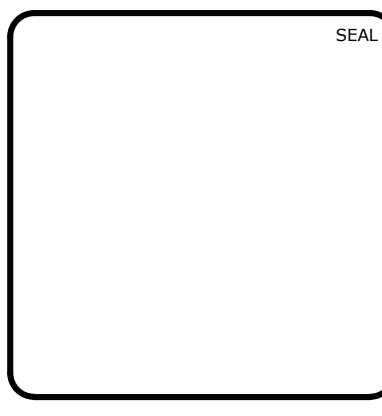
SHALLOW WATER PLANTING NOTES:

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.

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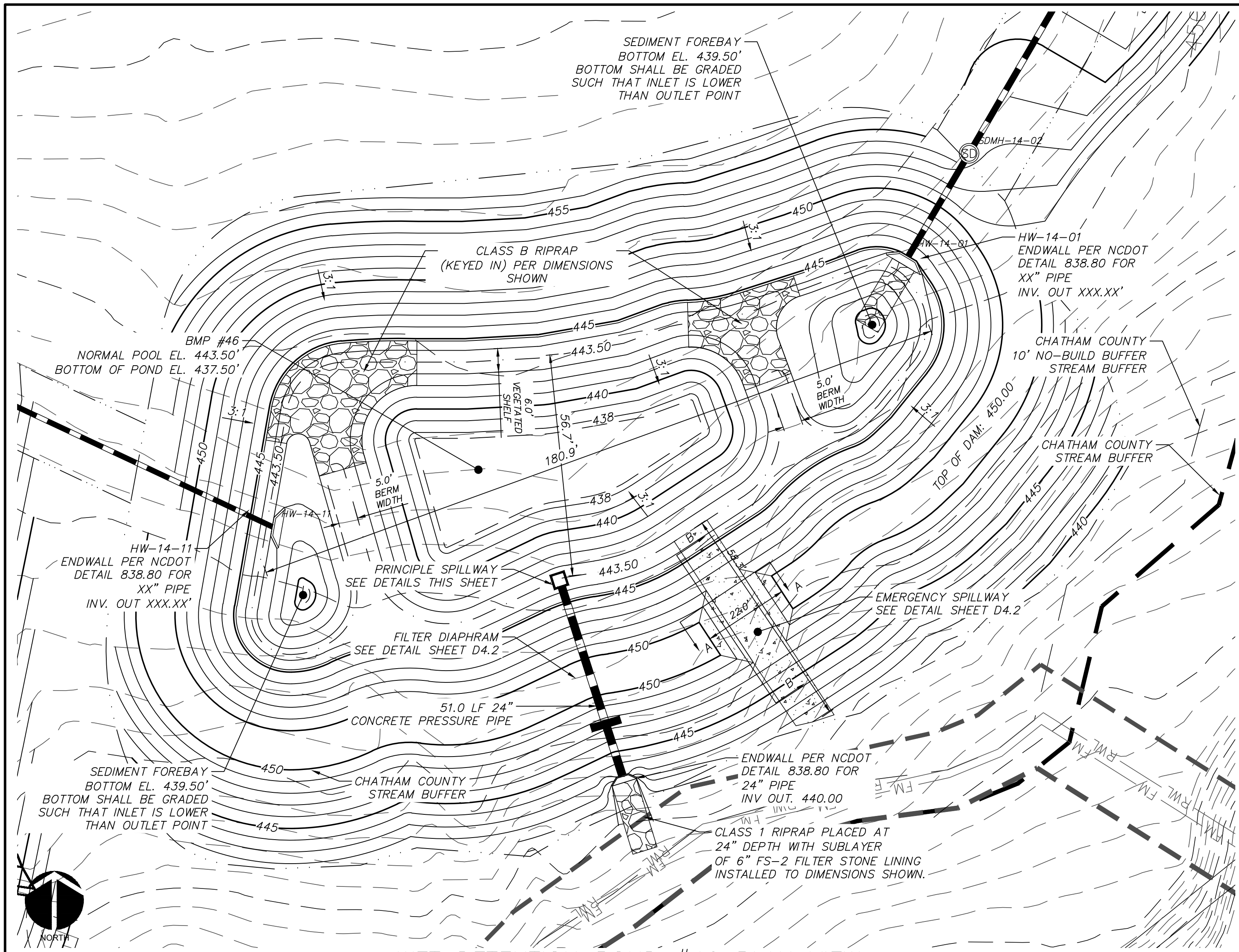


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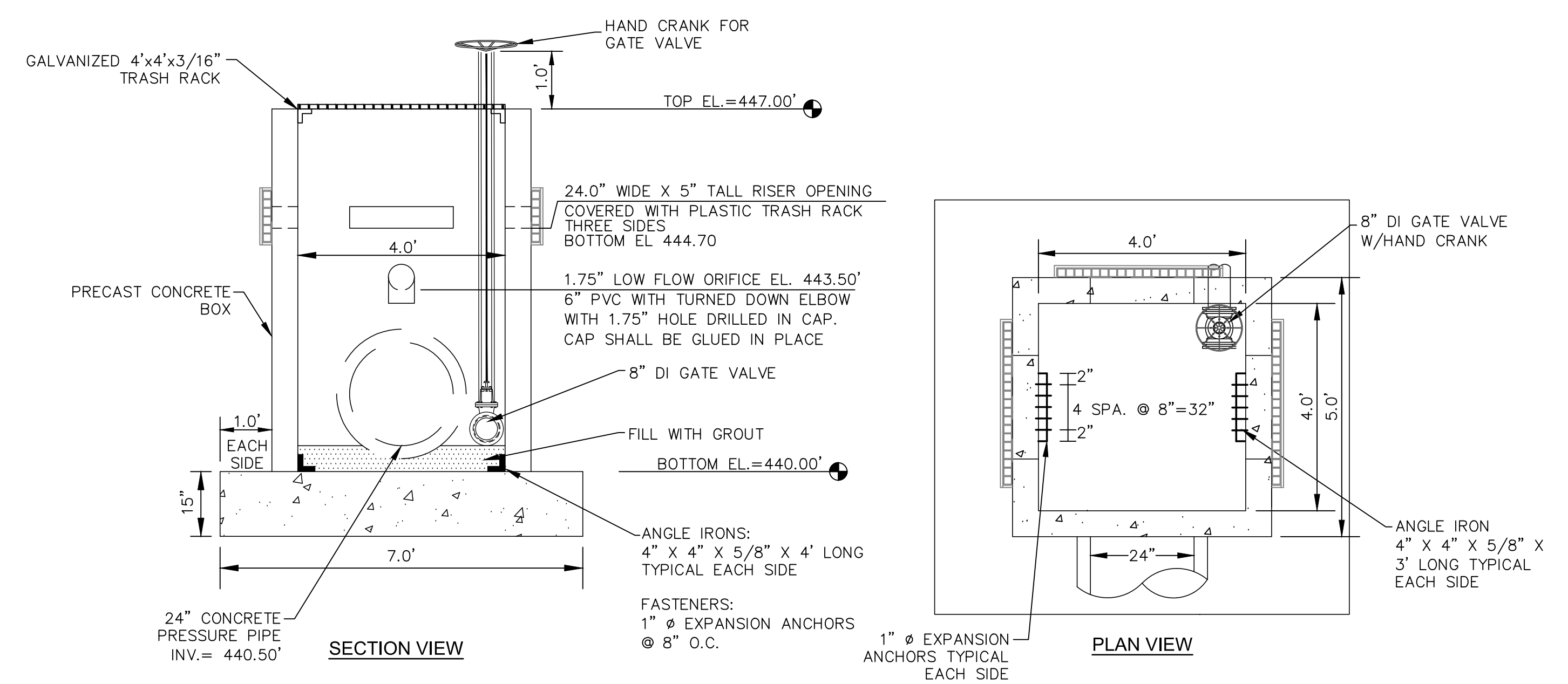
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**BRIAR CHAPEL
PHASE 14
CHATHAM COUNTY, NORTH CAROLINA**
BMP #45 PLAN & DETAILS

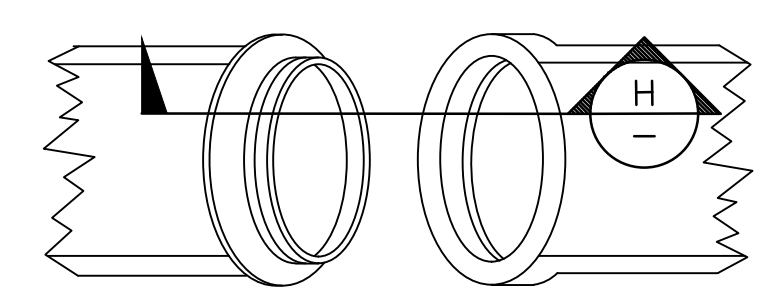
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PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION		REVISION: 3



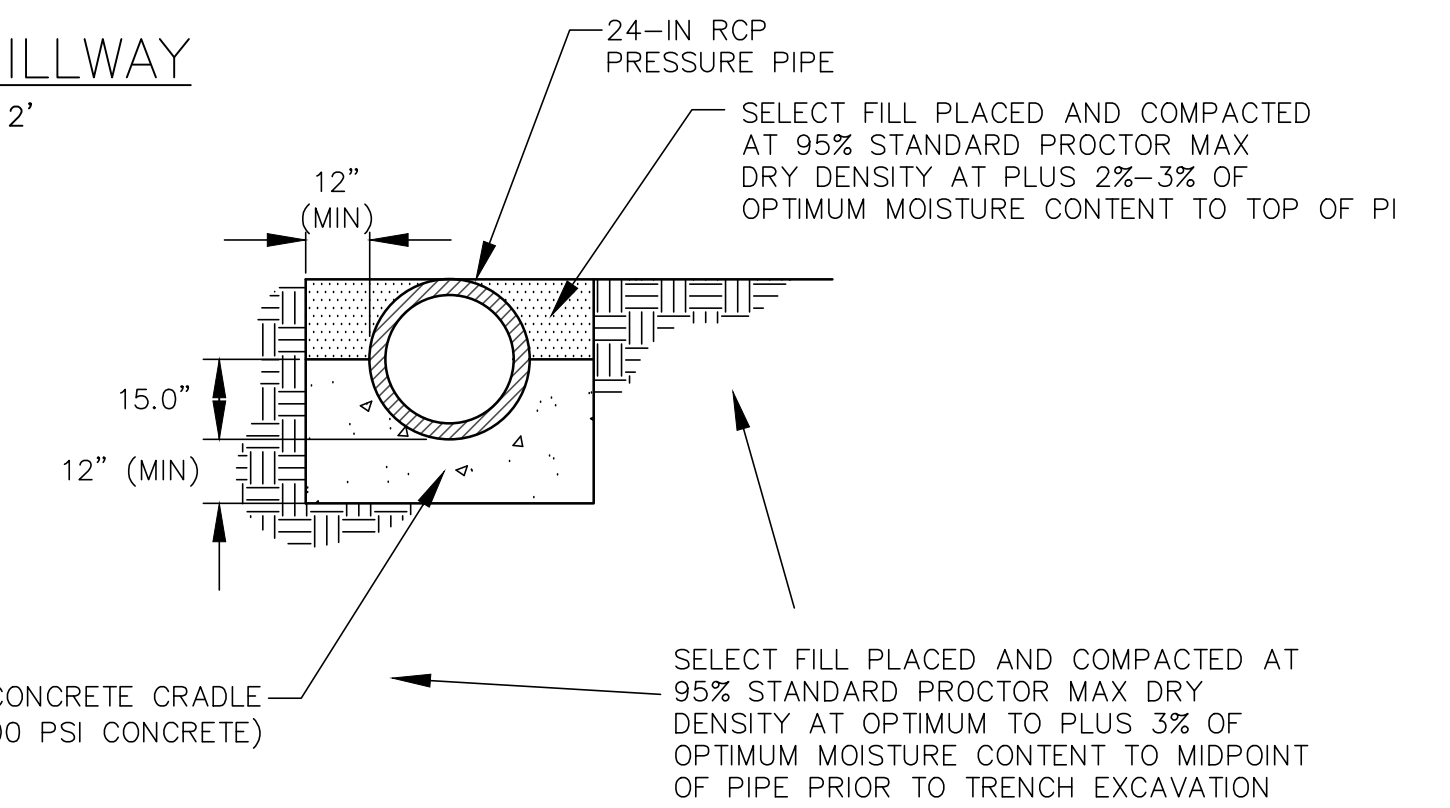
WET DETENTION POND #46 PLAN VIEW
SCALE = 1" = 20'



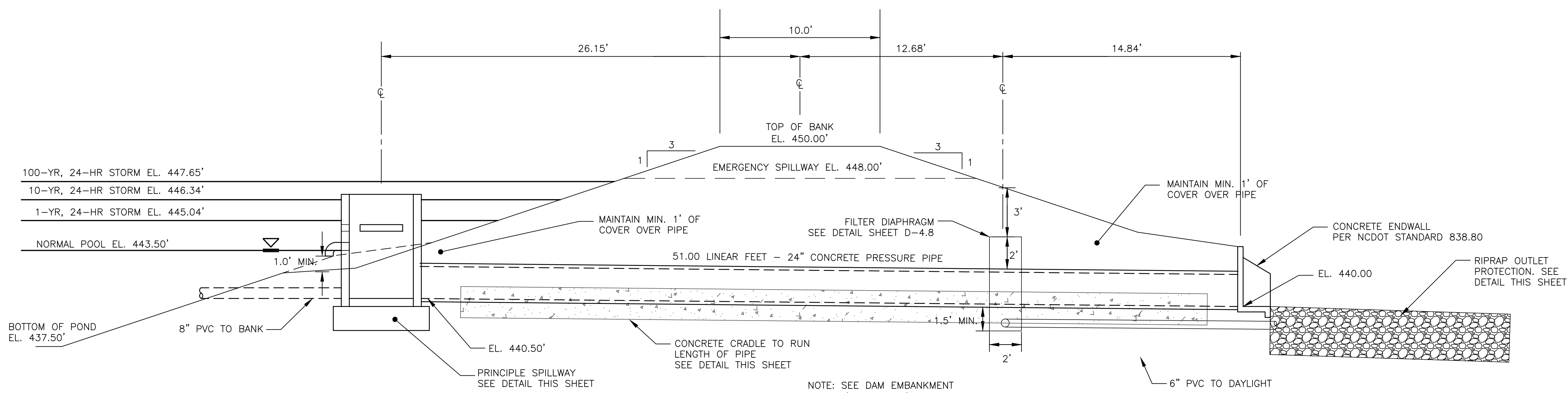
PRINCIPLE SPILLWAY
SCALE = 1" = 2'



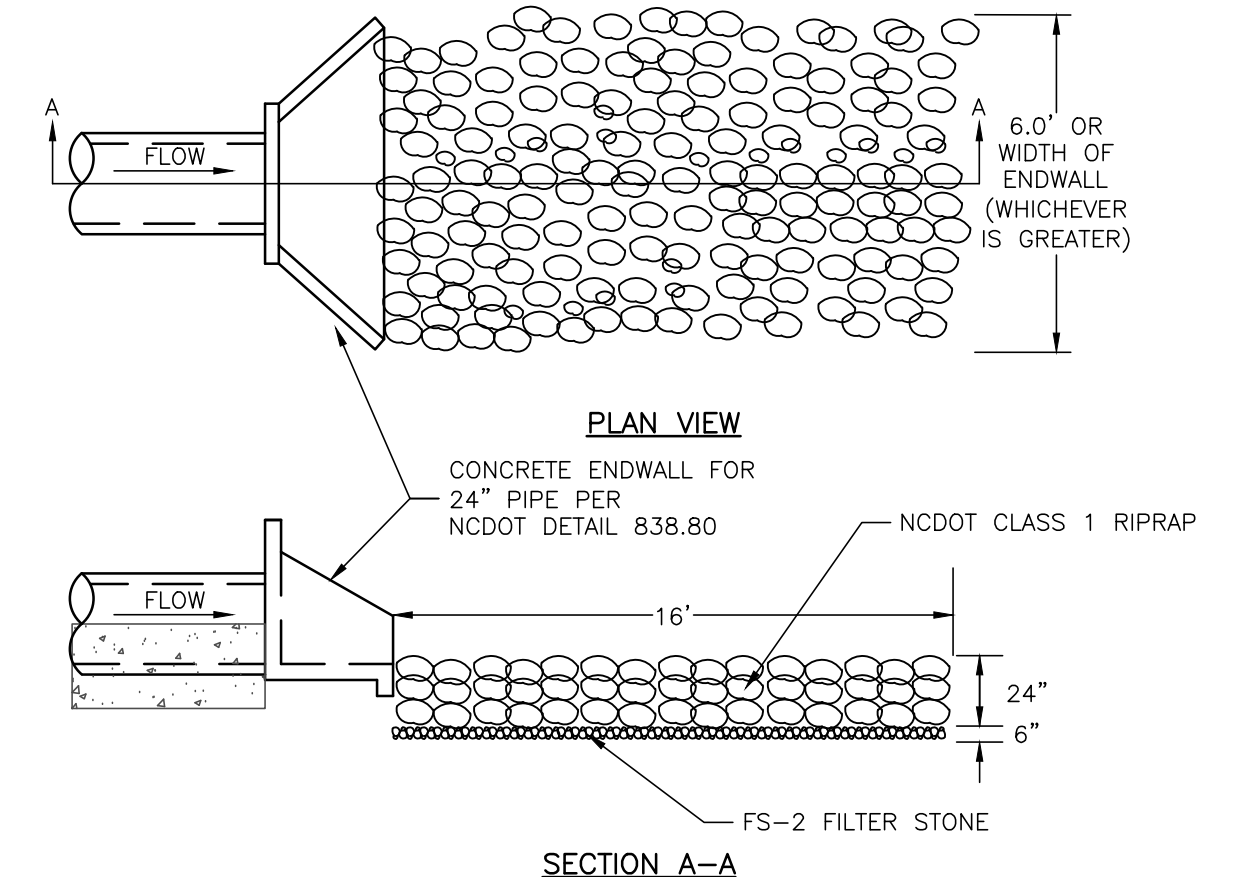
CONCRETE PRESSURE PIPE JOINT DETAIL
NTS



CONCRETE CRADLE DETAIL
NTS

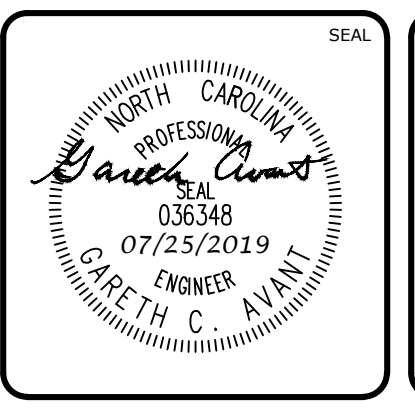
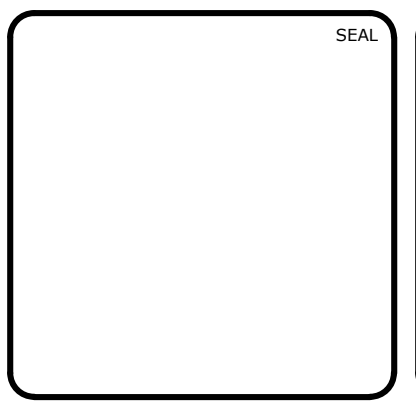


SECTION AT PRINCIPLE SPILLWAY
SCALE = NTS



RIPRAP OUTLET PROTECTION
NTS

REV. NO.	DESCRIPTION	DATE
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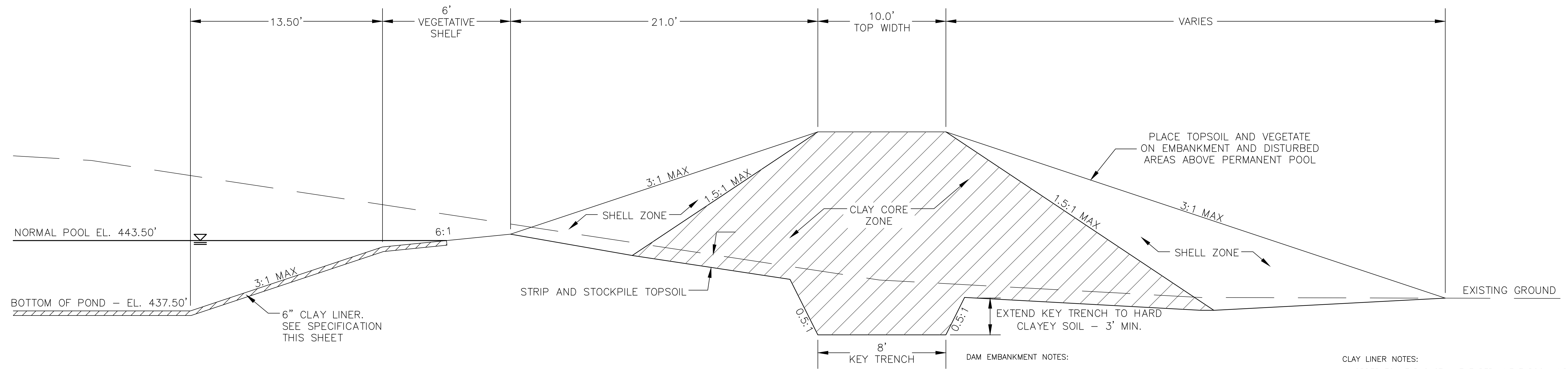


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**BRIAR CHAPEL
PHASE 14
CHATHAM COUNTY, NORTH CAROLINA**
BMP #46 PLAN & DETAILS

DATE: MAY 9, 2019	SCALE: HORIZONTAL: AS NOTED; VERTICAL: N/A	MAC FILE NUMBER: D4.X
MCE PROJ. #: 02735-0239	DESIGNED: DCR	DRAWING NUMBER: D4.4
DRAWN: DCR	CHECKED: GCA	
DESIGNED: DCR	PROJ. MGR.: CHS	
STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION		
REVISION: 3		



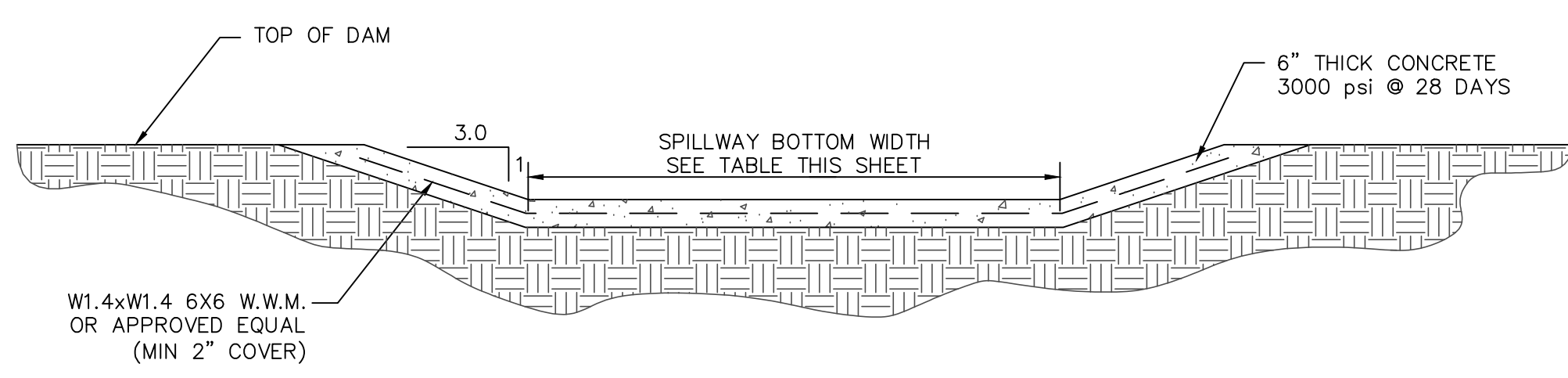
DAM EMBANKMENT DETAIL
NTS

DAM EMBANKMENT NOTES:

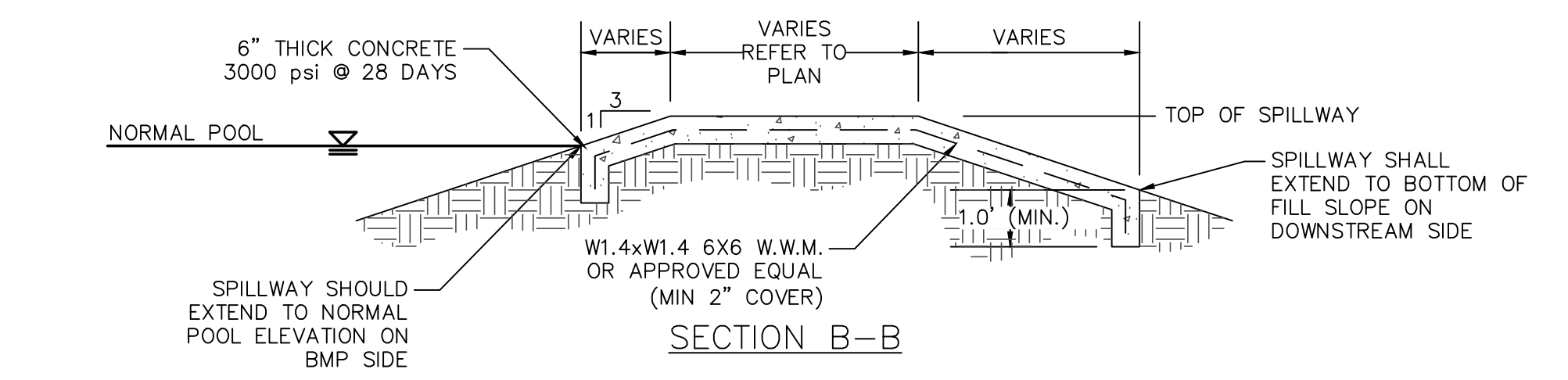
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SECTION A-A

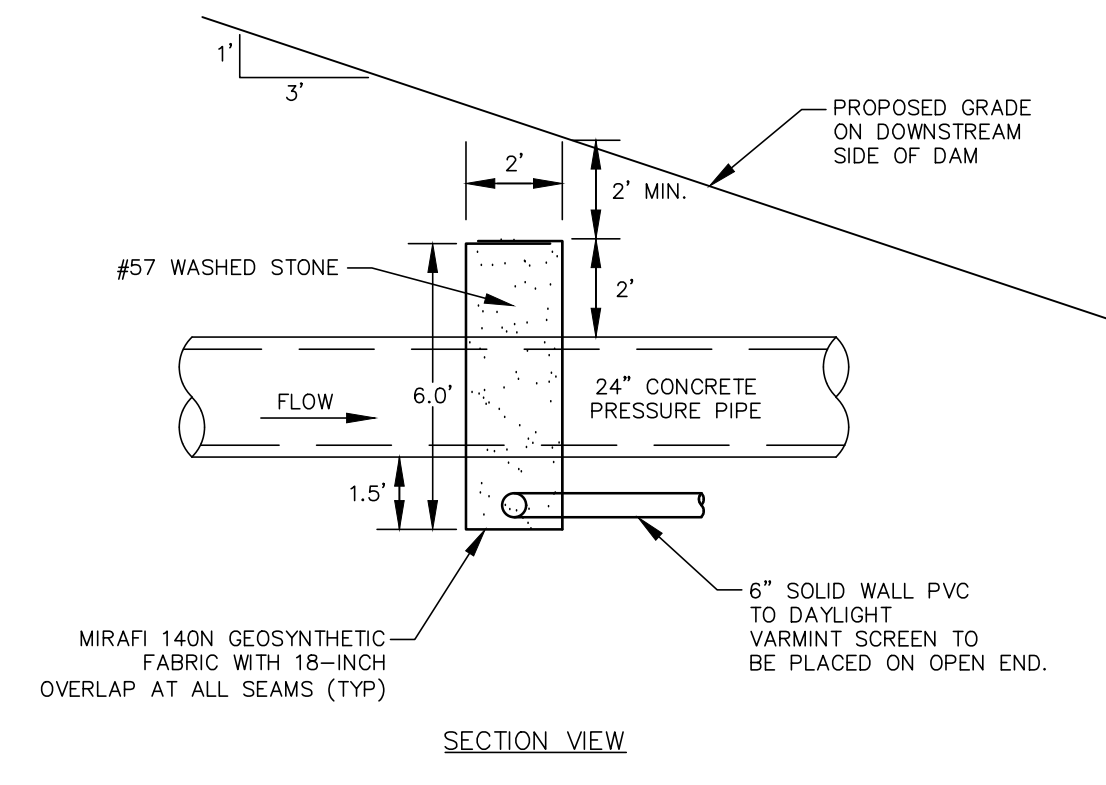
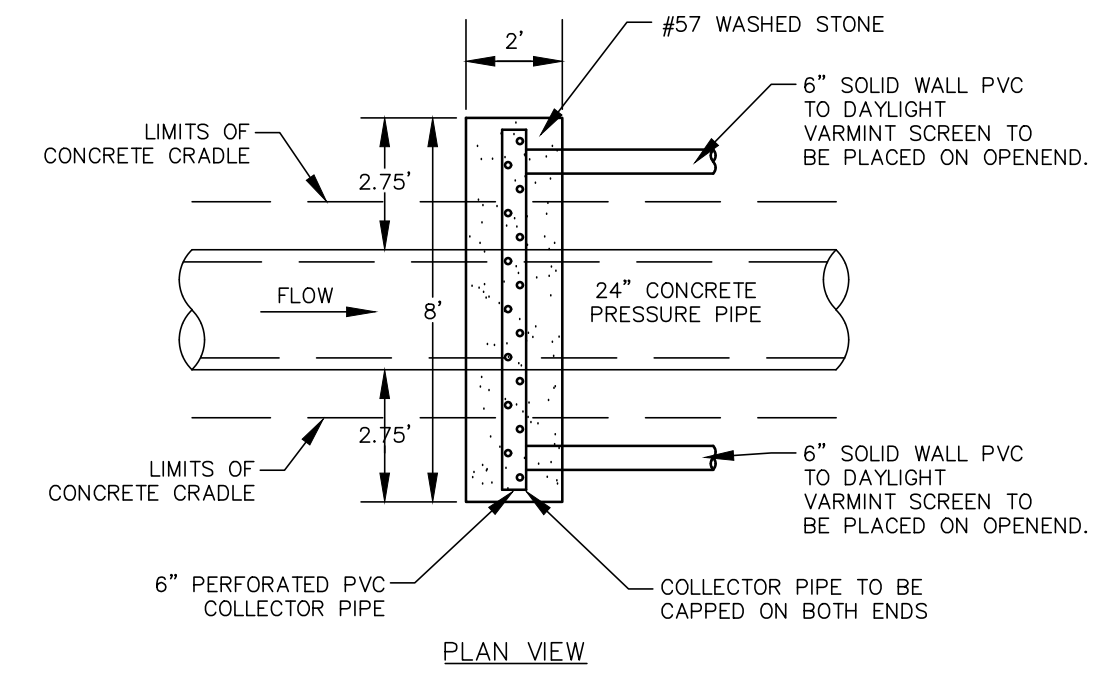


SECTION B-B

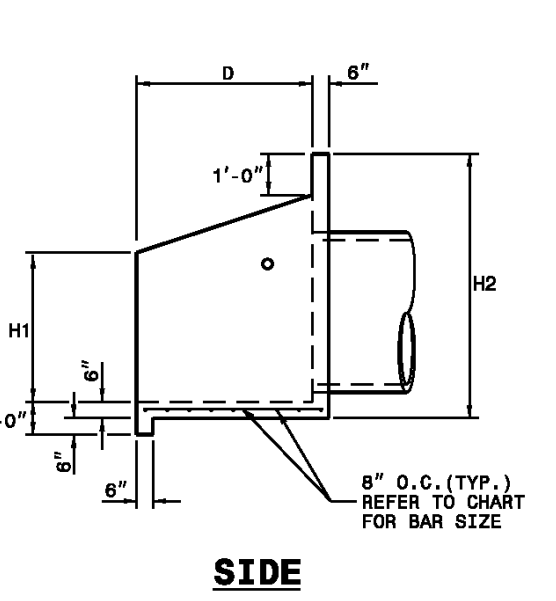
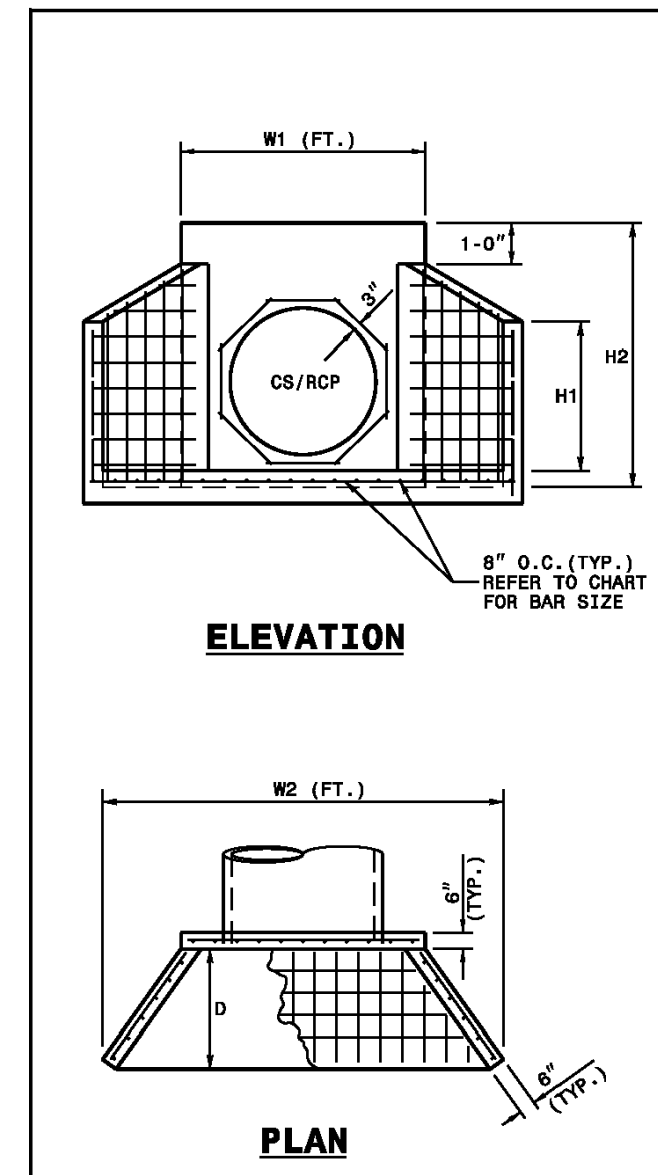
	NORMAL POOL EL.	TOP DAM EL.	SPILLWAY BOTTOM EL.	SPILLWAY BOTTOM WIDTH
BMP #46	443.50	450.00	448.00	10'

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

EMERGENCY SPILLWAY DETAIL
NTS



FILTER DIAPHRAGM DETAIL
NTS

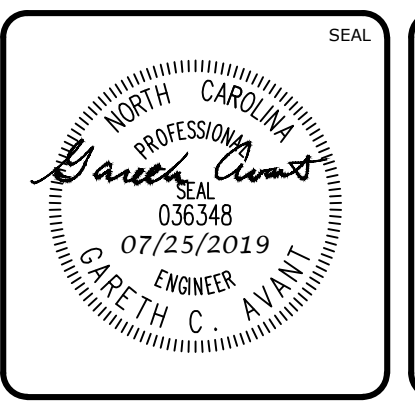
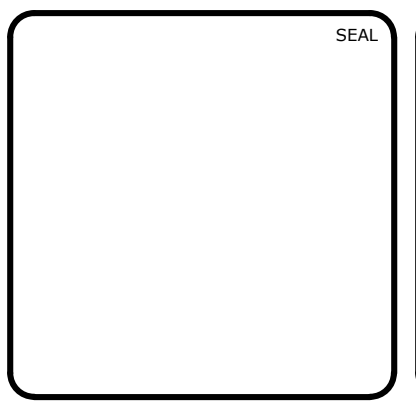


ENDWALL DIMENSIONS							
FT.	MINIMUM	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.	MIN./MAX.
PIPE DIA.							
1.0	#5 @ 8"	1.25/2.00	2.00/3.75	1.25/1.75	3.00/3.75	5.50/6.00	
1.25	#5 @ 8"	1.25/2.00	3.00/3.75	1.25/2.00	3.50/3.75	6.50/6.75	
1.50	#5 @ 8"	1.25/2.00	3.00/4.25	1.50/2.50	3.50/3.75	6.50/6.75	
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	7.00/8.25	13.50/15.75	
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/8.25	13.75/15.75	
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/8.25	14.00/15.75	
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/8.25	14.75/16.75	

- NOTES:**
- THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 838.01, 838.11, 838.21, 838.27, 838.35, 838.39, 838.51, 838.67, 838.68 AND 838.69.
 - INSTALL PRECAST ENDWALLS WITH WINGS AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 816.
 - 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 ORIENTED INTO HEADWALL AT JOB SITE BY CONTRACTOR
 - ALL ELEMENTS PRECAST TO MEET ASTM C919.
 - 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 #6 BARS AT 6" O.C. THE CONTRACTOR WILL HAVE THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

ROADWAY STANDARD DRAWING FOR
PRECAST CONCRETE ENDWALL
 FOR SINGLE 12" THRU 72" PIPE - 90° SKEN
 SHEET 1 OF 1
838.80

REV. NO.	DESCRIPTIONS	DATE
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
2	REVISIONS PER CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL COMMENTS	2019.06.05
1	INITIAL SUBMITTAL	2019.05.09



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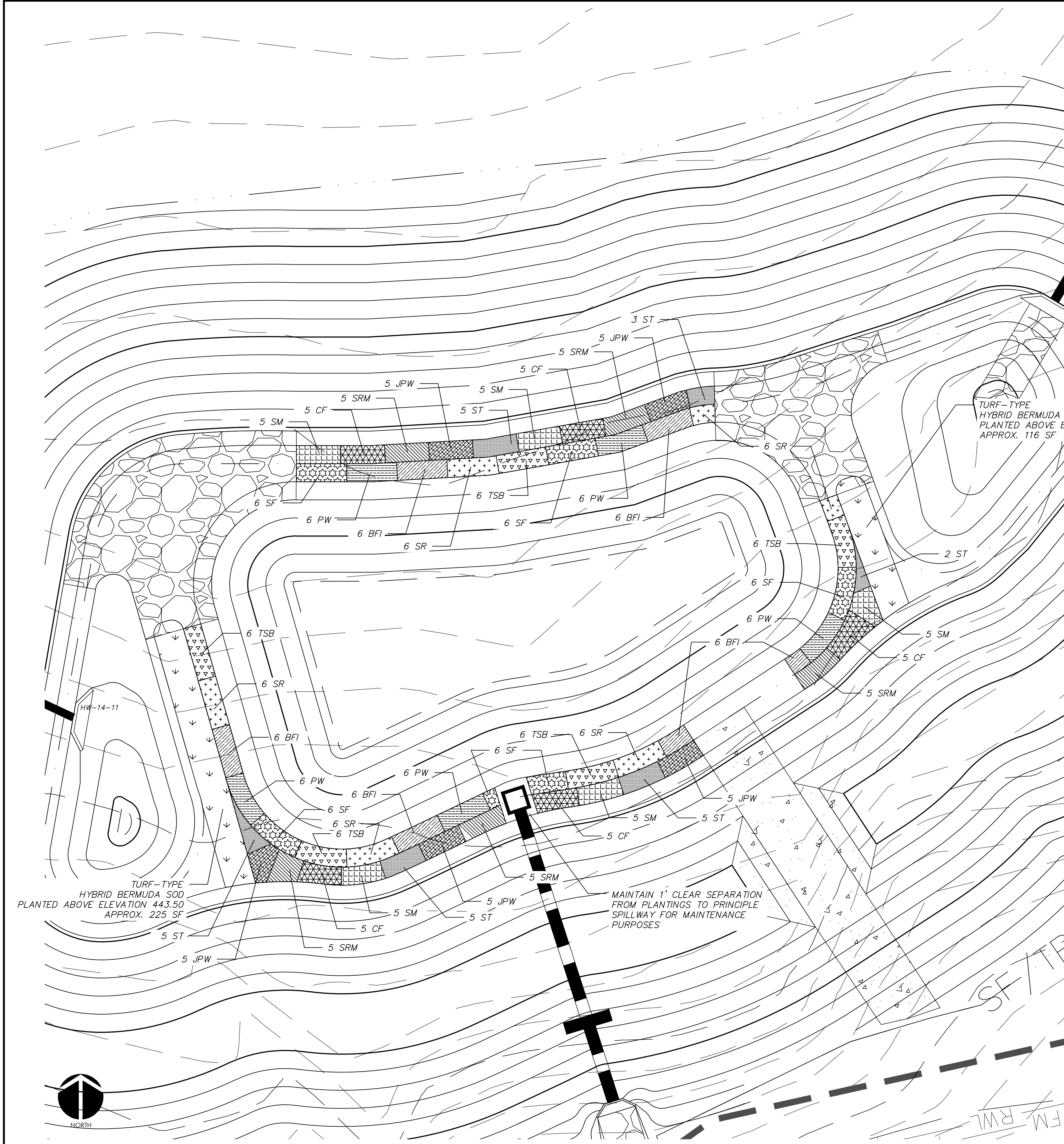
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Newland COMMUNITIES

**BRIAR CHAPEL
 PHASE 14
 CHATHAM COUNTY, NORTH CAROLINA**
BMP #46 PLAN & DETAILS

DATE:	MAY 9, 2019	SCALE:	N/A
MCE PROJ. #	02735-0239	HORIZONTAL:	AS NOTED
DRAWN	DCR	VERTICAL:	N/A
DESIGNED	DCR		
CHECKED	GCA		
PROJ. MGR.	CHS		

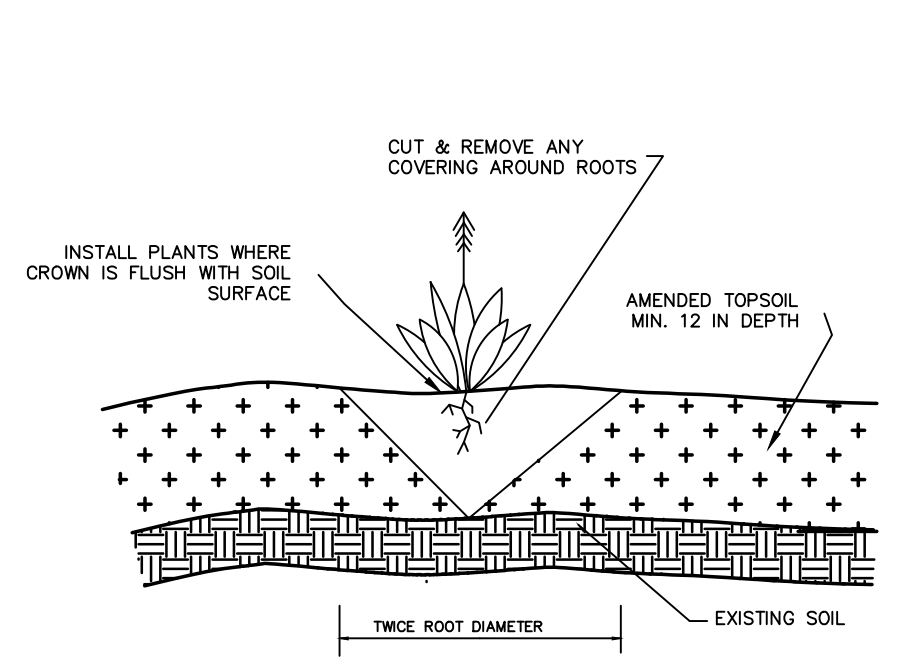
M&C FILE NUMBER	D4.X
DRAWING NUMBER	D4.5
REVISION	3

STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION

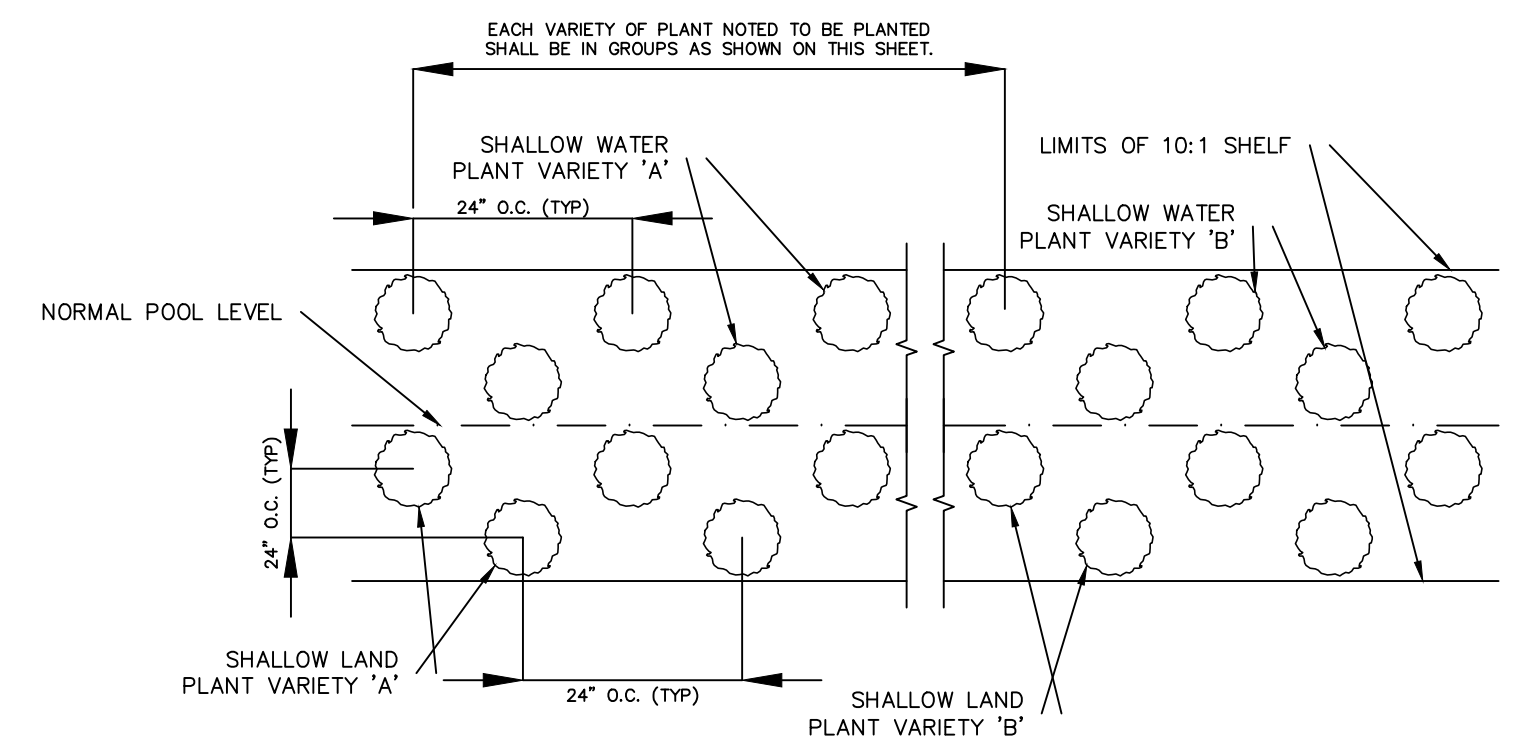


WET DETENTION POND #46 PLANTING PLAN
SCALE = 1" = 10'

PLANTING SCHEDULE						
SYM.	ABB.	COMMON NAME	BOTANICAL NAME	QUANTITY	SPACING	CONTAINER SIZE AT PLANTING
SHALLOW WATER PLANTINGS						
	SF	SWEETFLAG	<i>Acorus subcordatum</i>	30	24"-30" O.C.	1 QT.
	PW	PICKERELWEED	<i>Pontederia cordata</i>	30	24"-30" O.C.	1 QT.
	BFI	BLUE FLAG IRIS	<i>Iris virginica</i>	30	24"-30" O.C.	1 QT.
	SR	SOFT RUSH	<i>Juncus effusus var. pygmaei or solutus</i>	30	24"-30" O.C.	1 QT.
	TSB	THREE SQUARE BULRUSH	<i>Schoenoplectus americanus</i>	30	24"-30" O.C.	1 QT.
SHALLOW LAND PLANTINGS						
	SM	SWAMP MILKWEED	<i>Asclepias incarnata</i>	25	24"-30" O.C.	1 QT.
	CF	CARDINAL FLOWER	<i>Lobelia cardinalis</i>	25	24"-30" O.C.	1 QT.
	SRM	SCARLET ROSE MALLOW	<i>Hibiscus coccineus</i>	25	24"-30" O.C.	1 QT.
	JPW	DWARF JOE PYE WEED	<i>Eupatoriadelphus dubius</i>	25	24"-30" O.C.	1 QT.
	ST	SPOTTED TRUMPETWEED	<i>Eupatoriadelphus maculatus</i>	25	24"-30" O.C.	1 QT.



GENERAL PLANTING DETAIL
NTS



VEGETATED PLANTING SHELF 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.

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.

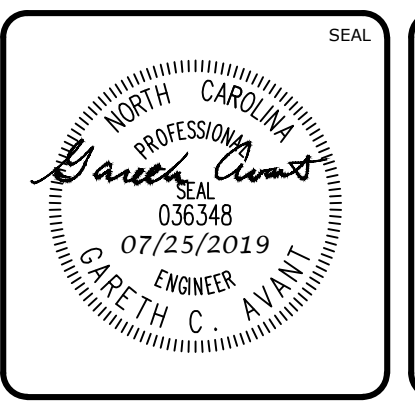
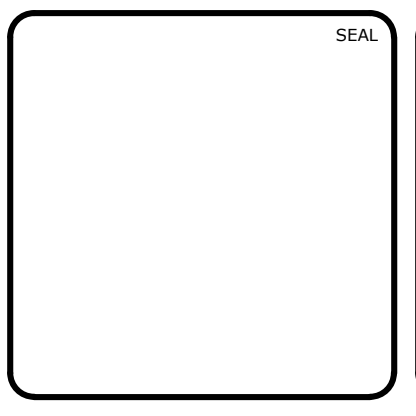
SHALLOW WATER PLANTING NOTES:

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.

REV. NO.	DESCRIPTION	DATE
3	REVISIONS PER NCDOT COMMENTS	2019.07.25
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1	INITIAL SUBMITTAL	2019.05.09



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BMP #46 PLAN & DETAILS

DATE: MAY 9, 2019	SCALE: D4.X
MCE PROJ. # 02735-0239	HORIZONTAL: AS NOTED
DRAWN: DCR	VERTICAL: D4.6
DESIGNED: DCR	
CHECKED: GCA	
PROJ. MGR.: CHS	

STATUS: FINAL DRAWINGS RELEASED FOR CONSTRUCTION

REVISION: 3