

BRIAR CHAPEL

US STEEL - SECTION 1

CONSTRUCTION DRAWINGS

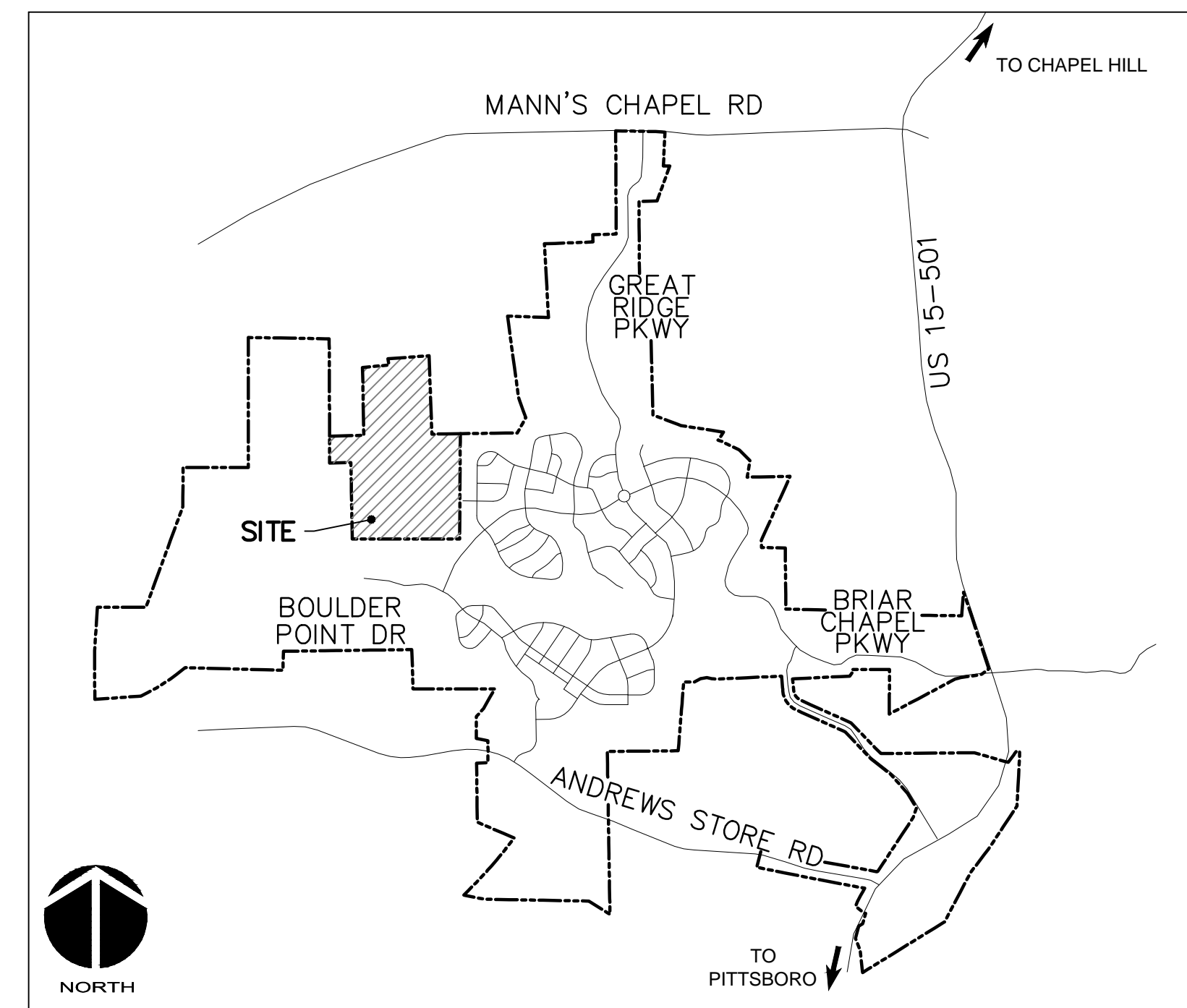
U.S. HWY 15-501 and MANN'S CHAPEL ROAD

CHATHAM COUNTY, NORTH CAROLINA

DATE: JULY 22, 2015

COUNTY AND AGENCY CONTACTS

- | | |
|---|---|
| <p>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</p> | <p>E. NCDOT
 Division 8, District 1
 300 DOT Drive
 P.O. Box 1164
 Asheboro, NC 27204
 (336) 318-4000 phone
 Contact: Jeff B. Loflin, PE
 Email: jloflin@ncdot.gov</p> |
| <p>B. Chatham County
 Environmental Services
 Dunlap Building
 80 East Street
 Pittsboro, NC 27312
 (919) 542-0945 phone
 Contact: Dan LaMontagne, PE
 Email: dan.lamontagne@chathamnc.org</p> | <p>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</p> |
| <p>C. Chatham County
 Soil Erosion and Sedimentation Control
 Dunlap Building
 80 East Street
 Pittsboro, NC 27312
 (919) 545-8339 phone
 Contact: Rachael Thorn
 Email: rachael.thorn@chathamnc.org</p> | <p>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</p> |
| <p>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</p> | |



VICINITY MAP

NTS

PROJECT DATA

NAME OF PROJECT:
 US STEEL - SECTION 1
 CHATHAM COUNTY, NORTH CAROLINA

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

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

PROJECT AREA: 33.43 AC

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

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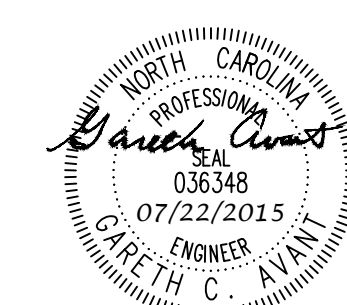


by
 Newland COMMUNITIES

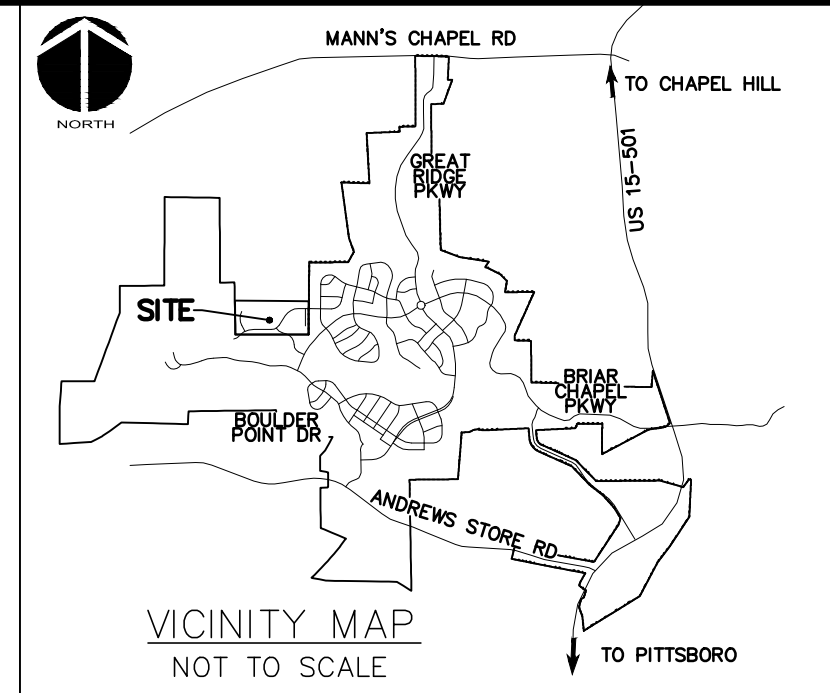


1730 Varsity Drive, Suite 500
 Raleigh, North Carolina 27606
 Phone: (919)233-8091, Fax: (919)233-8031
 F-1222

www.mckimcreed.com



FINAL DRAWINGS
 FOR REVIEW PURPOSES ONLY

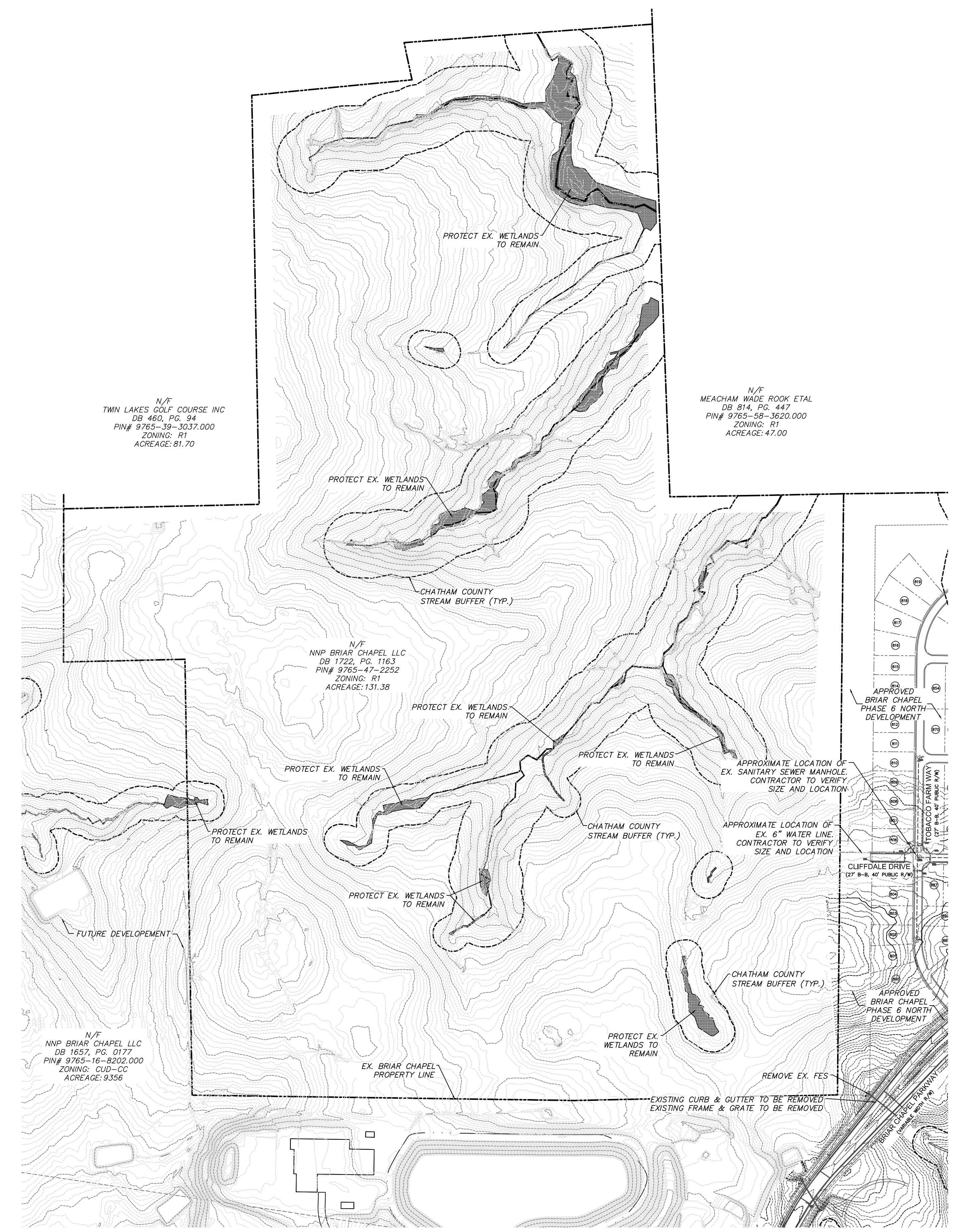


- GENERAL NOTES:**
1. THIS PROPERTY IS ZONED R-1.
 2. ALL DISTANCES SHOWN ARE HORIZONTAL GROUND MEASUREMENTS.
 3. BEARINGS SHOWN HEREON ARE BASED ON NC GRID NAD83. THIS PROJECT IS LOCALIZED ABOUT NCGS MONUMENT "MEACHAM" HAVING NC GRID COORDINATES N: 768,395.12', E: 1,963,424.93' USING A COMBINED FACTOR OF 0.99990676.
 4. EXISTING TOPOGRAPHIC DATA IS BASED ON AERIAL MAPPING PERFORMED BY AVIOMAGE 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 WSV-PA JORDAN LAKE BUFFER AREA WATERSHED DISTRICT.
 7. STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY WETLAND AND NATURAL RESOURCES CONSULTANTS - CONTACT CHRIS HUYSMAN AT 336-406-0906.
 8. A PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #3710976500J DATED FEBRUARY 2, 2007.

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

LEGEND:

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

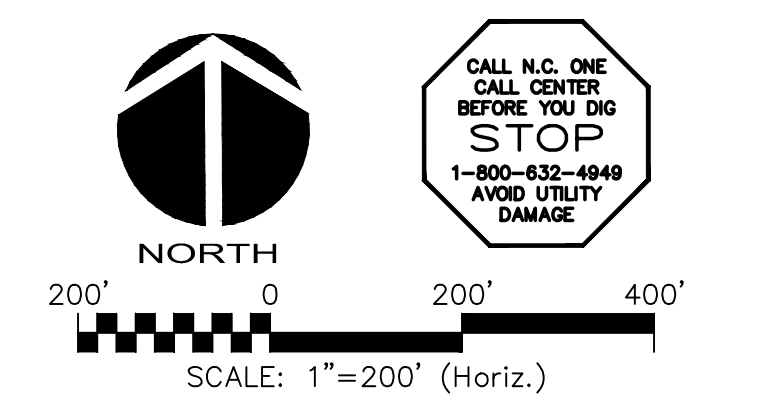


N/F
TWIN LAKES GOLF COURSE INC
DB 460, PG. 94
PIN# 9765-39-3037.000
ZONING: R1
ACREAGE: 81.70

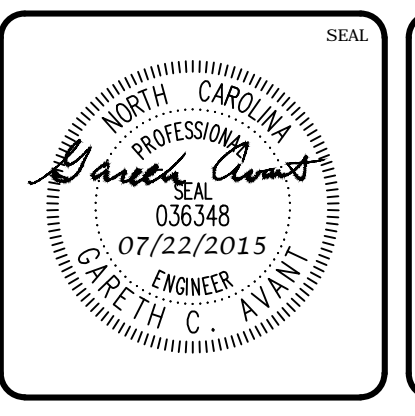
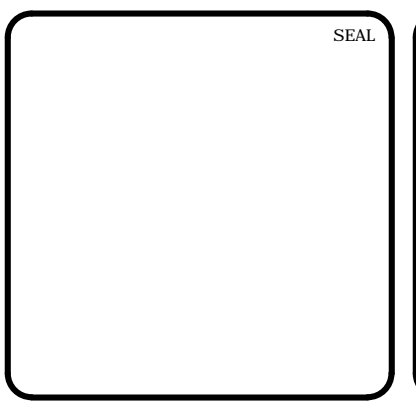
N/F
MEACHAM WADE ROOK ETAL
DB 814, PG. 447
PIN# 9765-58-3820.000
ZONING: R1
ACREAGE: 47.00

N/F
NRP BRIAR CHAPEL LLC
DB 1722, PG. 1163
PIN# 9765-47-2252
ZONING: R1
ACREAGE: 131.38

N/F
NRP BRIAR CHAPEL LLC
DB 1657, PG. 0177
PIN# 9765-16-8202.000
ZONING: CUD-CC
ACREAGE: 9356



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



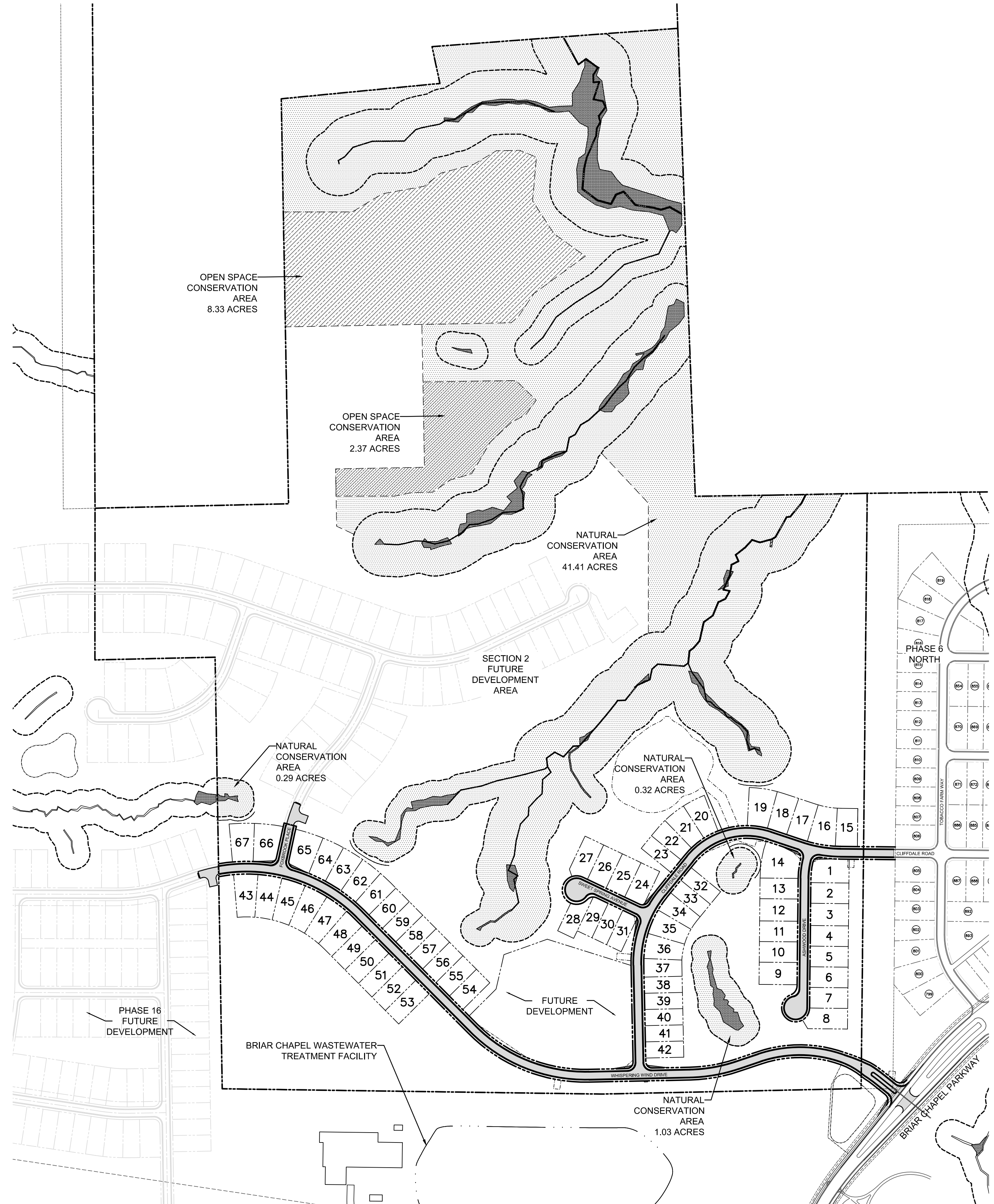
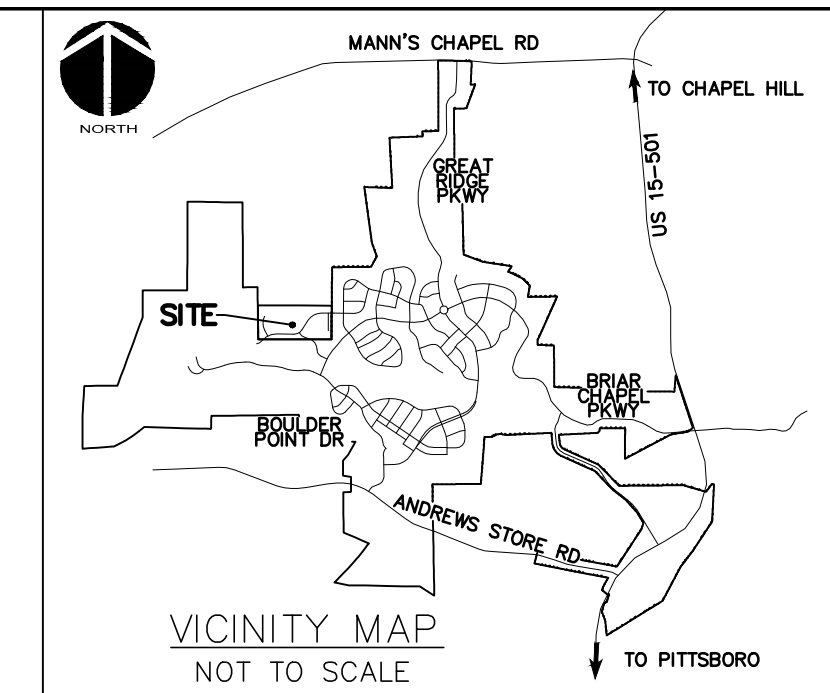
MCKIM & CREED
1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
Phone: (919)233-8091, Fax: (919)233-8031
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BRIAR CHAPEL™
by **Newland COMMUNITIES**

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

EXISTING CONDITIONS/DEMOLITION PLAN

DATE: JUNE 1, 2015	SCALE: HORIZONTAL: AS NOTED, VERTICAL: N/A	MISC FILE NUMBER: CR101
MCE PROJ. #: 02735-0130		DRAWING NUMBER: C0.2
DRAWN: BSS		
DESIGNED: BSS		
CHECKED: CCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 4	



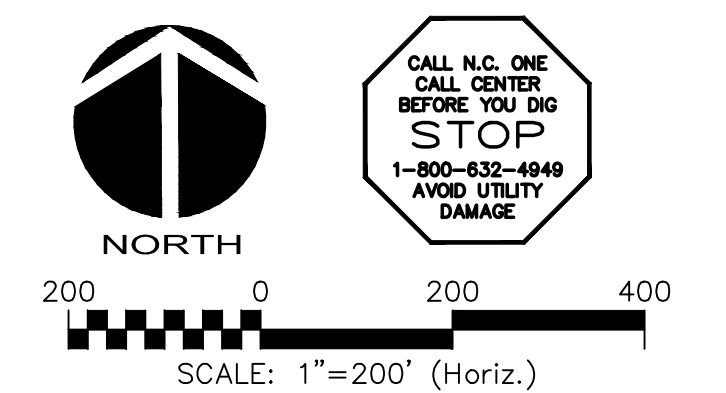
SITE GENERAL NOTES:

- 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 DELINEATIONS PROVIDED BY WETLAND AND NATURAL RESOURCES CONSULTANTS - CONTACT CHRIS HUNTSMAN AT 336-406-0906.
- NO PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #3710976500J DATED FEBRUARY 2, 2007.
- ALL PROPOSED ROADWAY DIMENSIONS AS SHOWN ARE MEASURED FROM BACK OF CURB TO BACK OF CURB, ALL PROPOSED ALLEY DIMENSIONS AS SHOWN ARE MEASURED FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT, UNLESS NOTED OTHERWISE.
- BEFORE STARTING ANY CONSTRUCTION OF IMPROVEMENTS WITHIN ANY NCDOT STREET OR HIGHWAY RIGHT-OF-WAY, CONTACT NCDOT DISTRICT OFFICE AND OBTAIN ALL PERMITS AND ENCROACHMENTS. KEEP COPIES ON CONSTRUCTION SITE. ALSO CONTACT NCDOT DISTRICT OFFICE 24 HOURS IN ADVANCE BEFORE PLACING CURB AND GUTTER AT 336-629-1423.
- REFER TO PLAN AND PROFILE SHEETS FOR DETAILED SANITARY SEWER AND STORM DRAINAGE INFORMATION WITHIN PUBLIC ROADS AND PRIVATE ALLEYS.

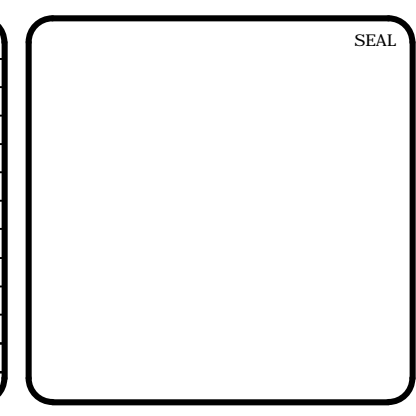
CHATHAM COUNTY REQUIRED SITE NOTES

- PROPERTY OWNER/DEVELOPER:
NNP BRIAR CHAPEL, LLC
16 WINDY KNOLL CIRCLE
CHAPEL HILL, NC 27516
PHONE: (919) 951-0700
- SITE AKPAR #: 2177
- TOTAL ENTITLED LOTS: 127
- TOTAL LOTS THIS PHASE: 67
- CONSERVATION ACREAGE TOTALS:
-TOTAL PARCEL ACREAGE 131.384
-TOTAL NATURAL SPACE 1,875,360 SF 43.05 AC
-TOTAL OPEN SPACE 466,255 SF 10.71 AC
TOTAL CONSERVATION AREA 2,341,615 SF 53.76 AC
ADDITIONAL CONSIDERATIONS
-WITHIN RIPARIAN BUFFERS AND FLOODPLAIN 1,307,540 SF 30.02 AC
-CONTIGUOUS NATURAL SPACE 1,803,968 SF 41.41 AC
- BUILT UPON AREA CALCULATIONS - SECTION 1
-ROADWAYS: 127,908 SF 2.93 AC
-SIDEWALKS 46,632 SF 1.07 AC
-ROOF 171,203 SF 3.93 AC
-DRIVEWAYS 33,195 SF 0.76 AC
TOTALS 378,938 SF 8.70 AC
IMPERVIOUS % FOR SECTION 1 DEVELOPMENT: 6.62%

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



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



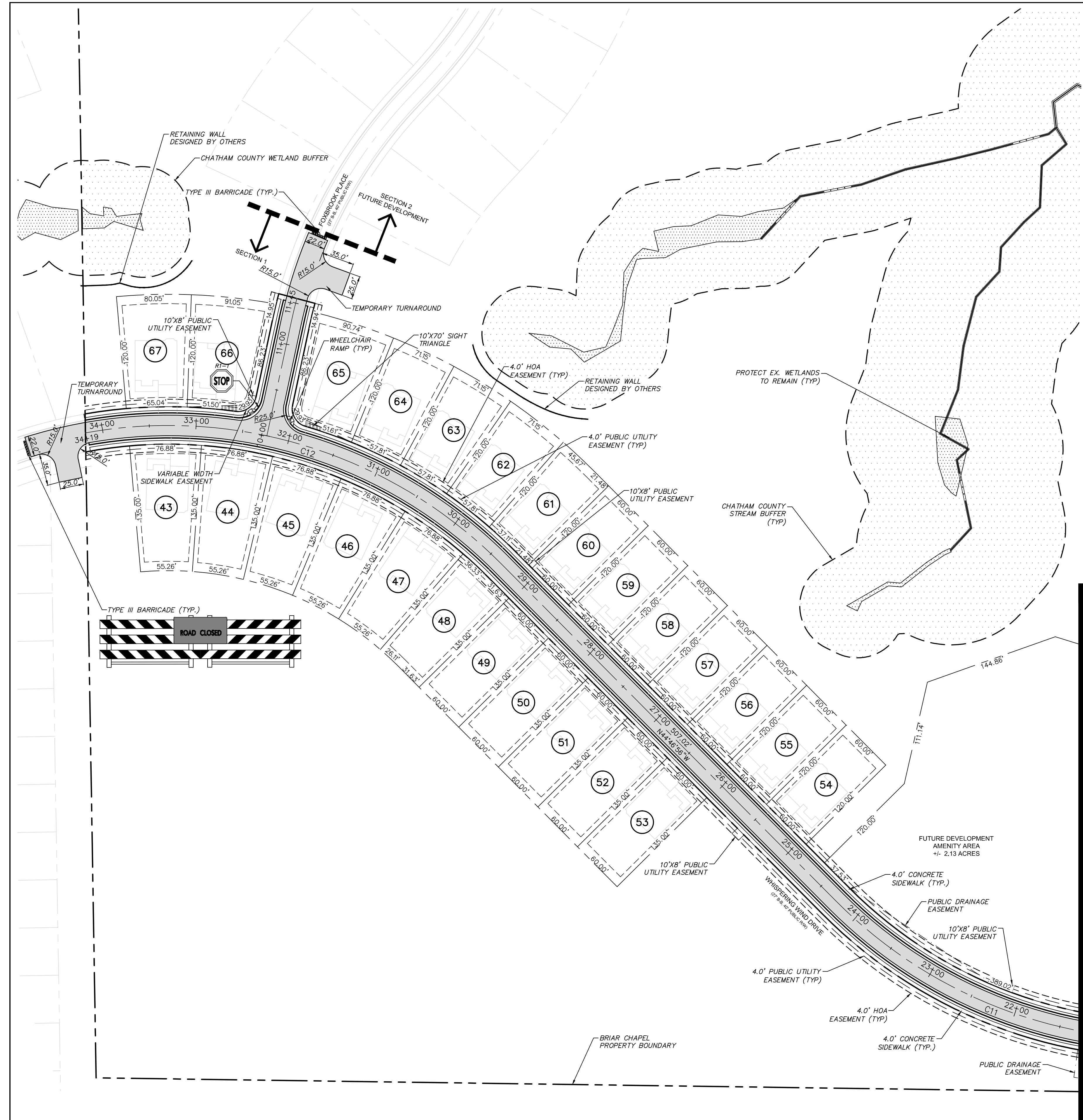
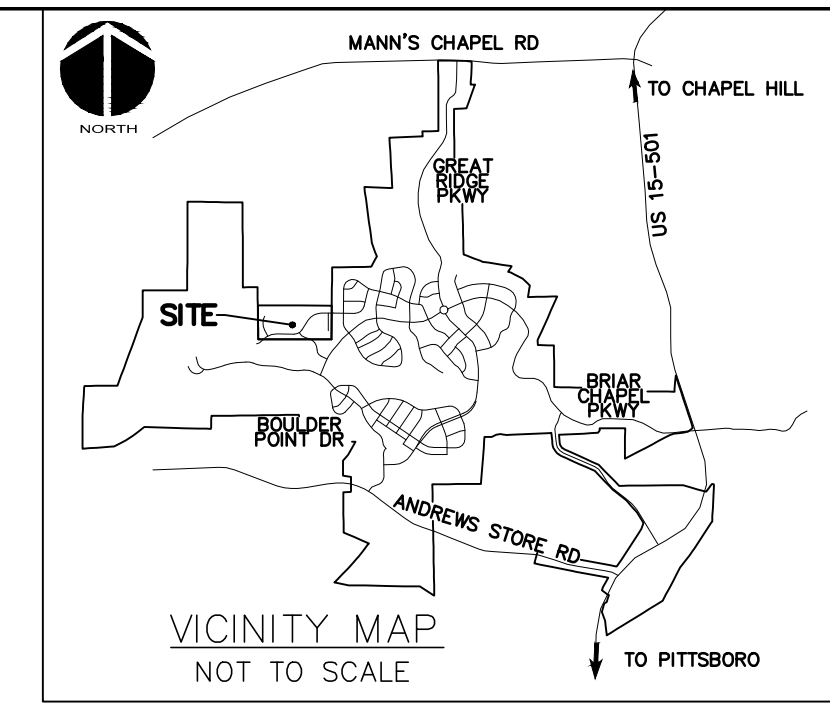
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**BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA**

OVERALL SITE PLAN

DATE: JUNE 1, 2015	SCALE: HORIZONTAL: 1" = 200'	H&C FILE NUMBER: C1.0
MCE PROJ. #: 02735-0130	VERTICAL: N/A	DRAWING NUMBER: C1.0
DRAWN: BSS		
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		REVISION: 4



ALIGNMENT CURVE DATA					
CURVE #	RADIUS	ARCH LENGTH	CHORD BEARING	CHORD LENGTH	DELTA
C11	500.00'	405.23'	N68°00'01"W	394.23'	46°26'09"
C12	500.00'	483.99'	N72°30'46"W	465.31'	55°27'40"
C13	400.00'	399.52'	N80°00'35"W	383.12'	57°13'40"
C14	500.00'	151.89'	S80°04'45"W	151.31'	17°24'20"
C15	400.00'	124.36'	N80°30'31"W	123.86'	17°48'50"
C16	230.00'	277.79'	S73°47'51"W	261.21'	69°12'05"
C17	350.00'	246.88'	S18°59'21"W	241.79'	40°24'53"
C18	250.00'	60.90'	S73°33'45"W	60.75'	13°57'23"
C19	500.00'	20.25'	N13°14'47"E	20.25'	21°9'15"

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

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

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

LEGEND

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

NORTH

60 0 60 120

SCALE: 1"=60' (Horiz.)

CALL N.C. ONE
CALL CENTER
BEFORE YOU DIG
STOP
1-800-632-4640
AVOID UTILITY
DAMAGE

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

SEAL

SEAL

MCKIM & CREED

1730 Varsity Drive, Suite 500
Raleigh, North Carolina 27606
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CHATHAM COUNTY, NORTH CAROLINA**

SITE PLAN - WEST

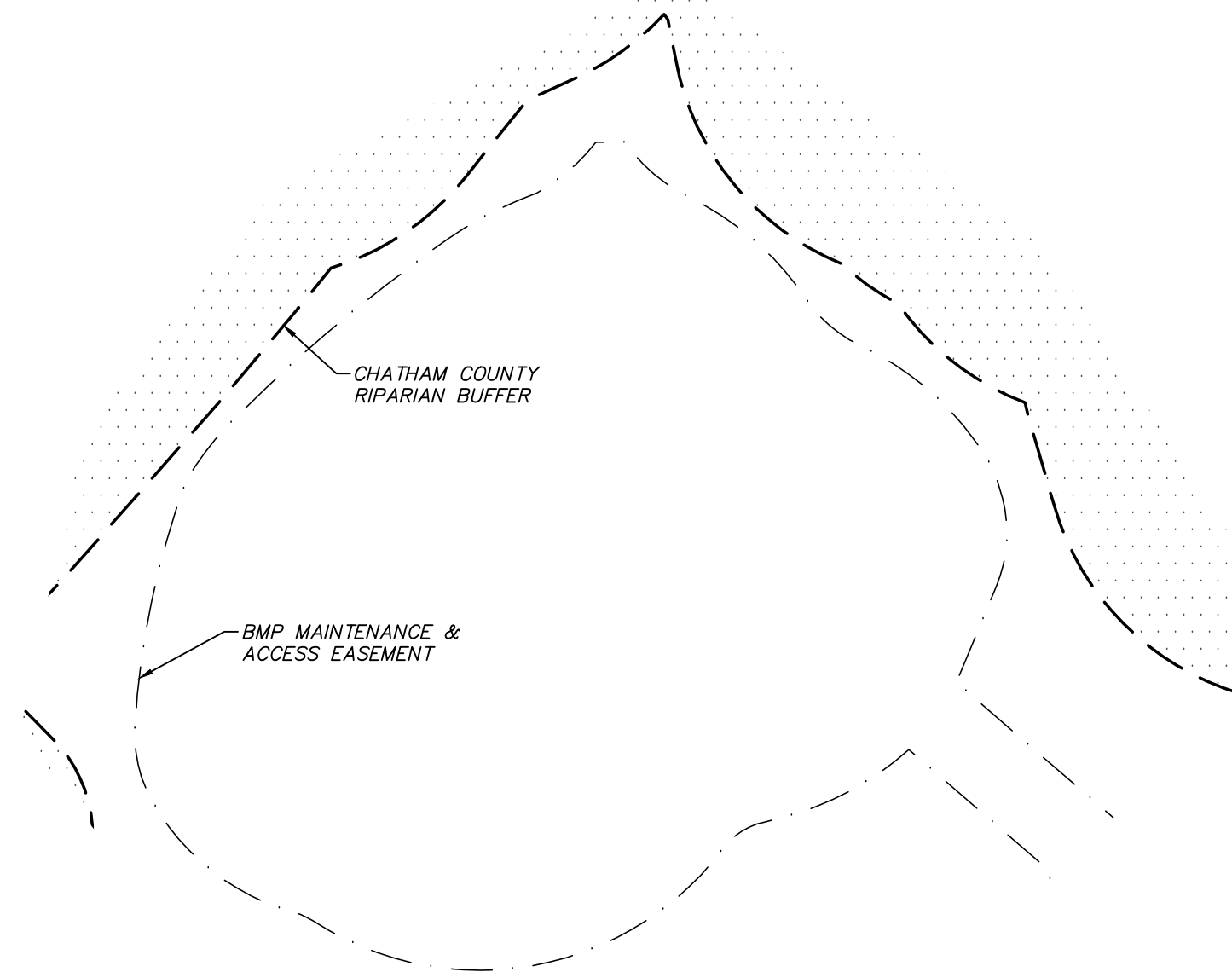
DATE: JUNE 1, 2015
MCE PROJ. # 02735-0130
DRAWN: BSS
DESIGNED: BSS
CHECKED: GCA
PROJ. MGR: CHS

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

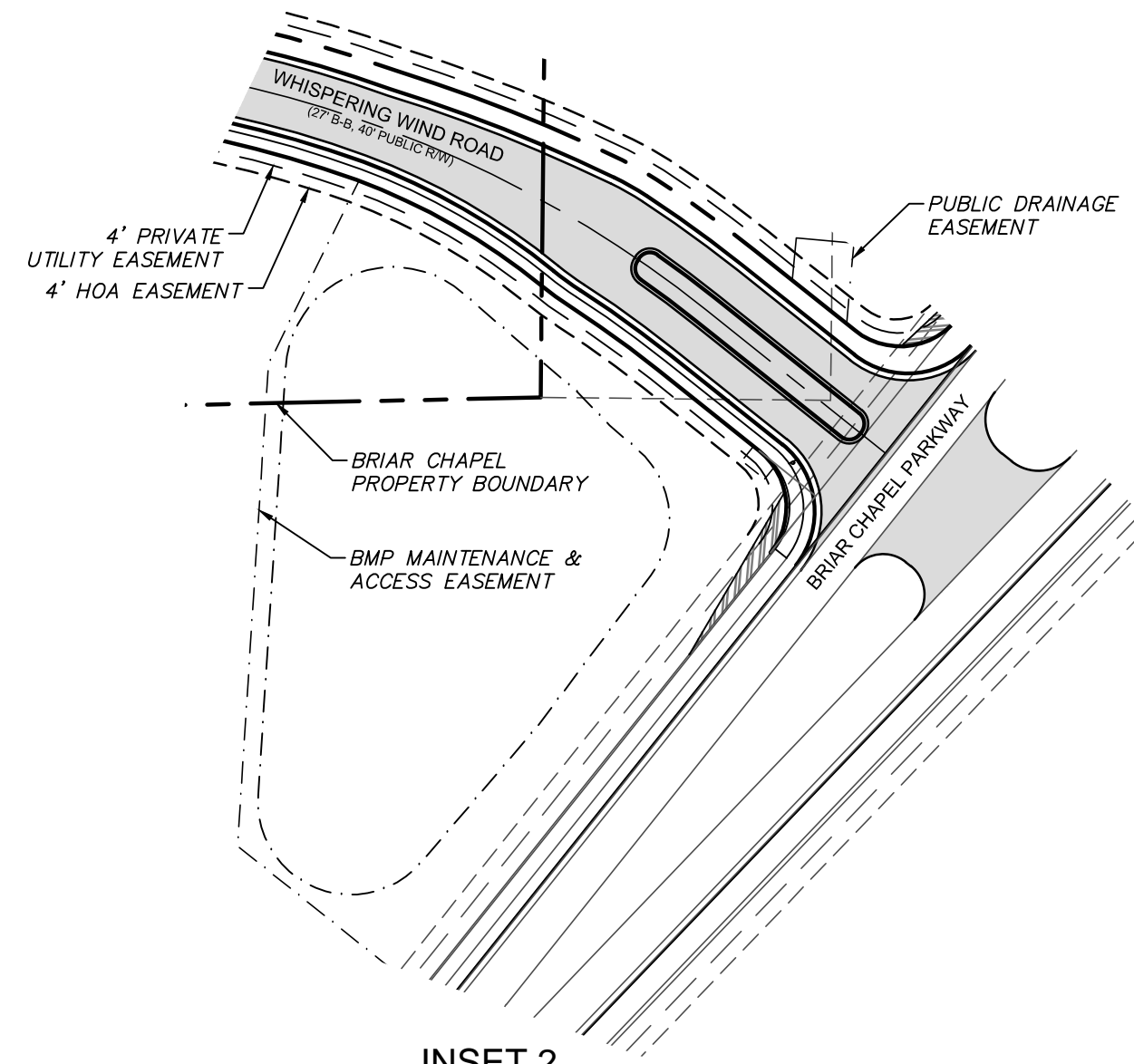
M&C FILE NUMBER: C1.1
DRAWING NUMBER: C1.1

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 4

ALIGNMENT CURVE DATA					
CURVE #	RADIUS	ARCH LENGTH	CHORD BEARING	CHORD LENGTH	DELTA
C11	500.00'	405.23'	N68°00'01"W	394.23'	46°26'09"
C12	500.00'	483.99'	N72°30'46"W	465.31'	55°27'40"
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C17	350.00'	246.88'	S18°59'21"W	241.79'	40°24'53"
C18	250.00'	60.90'	S73°33'45"W	60.75'	13°57'23"
C19	500.00'	20.25'	N13°14'47"E	20.25'	2°19'15"

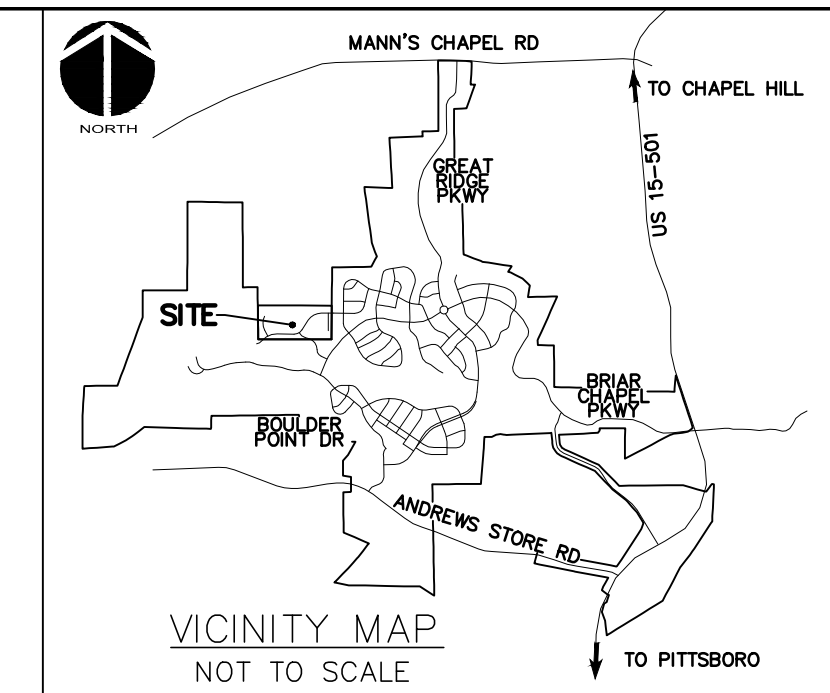
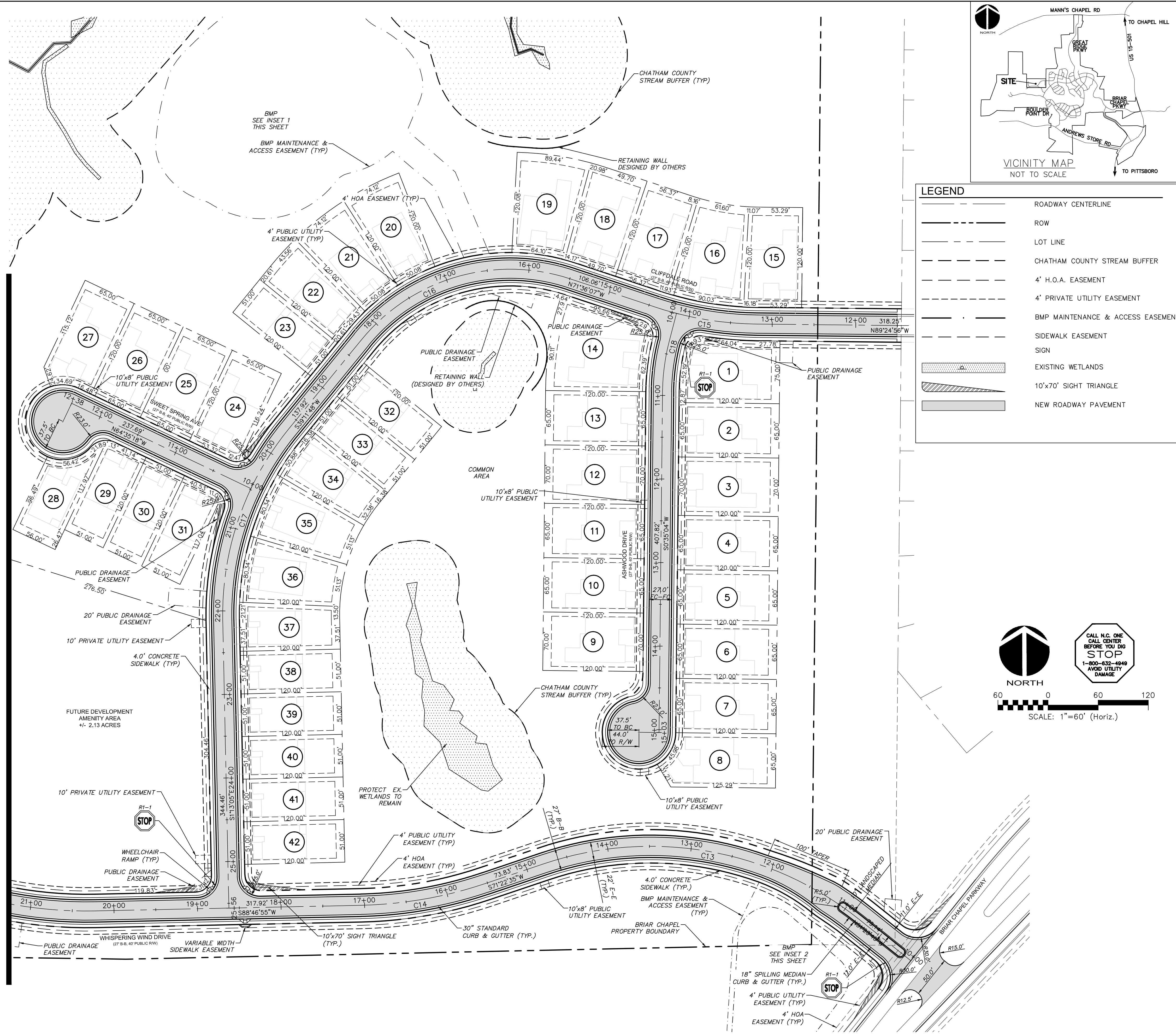


INSET 1

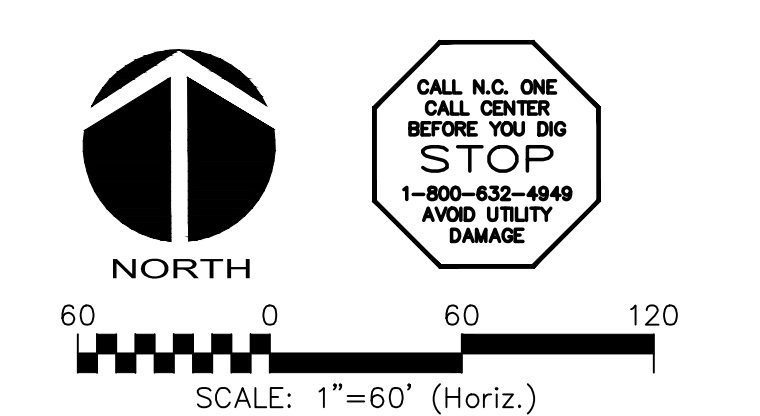


INSET 2

MATCHLINE SEE SHEET C1.1



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



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

SEAL

SEAL

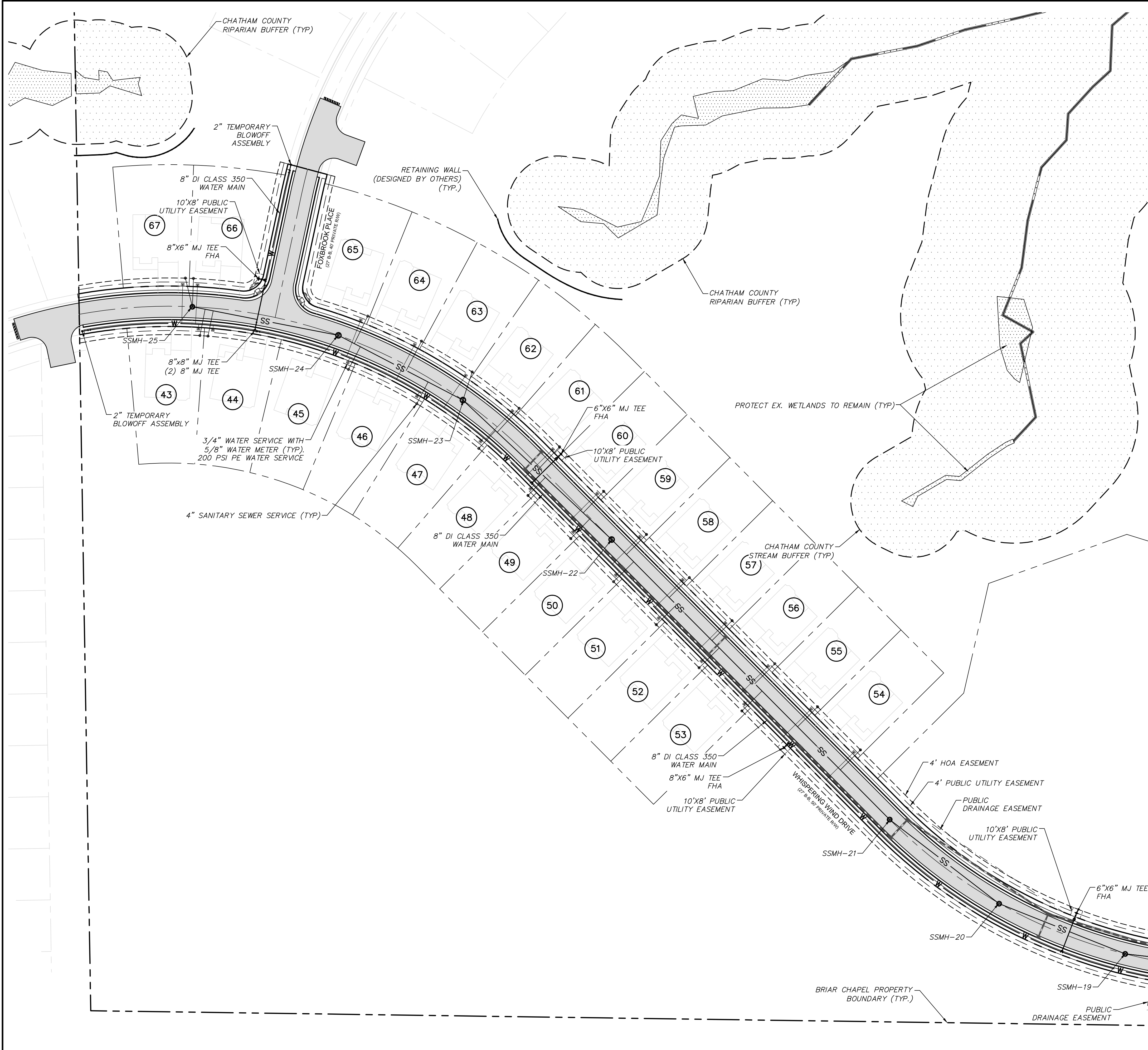
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**BRIAR CHAPEL
 US STEEL - SECTION 1
 CHATHAM COUNTY, NORTH CAROLINA**

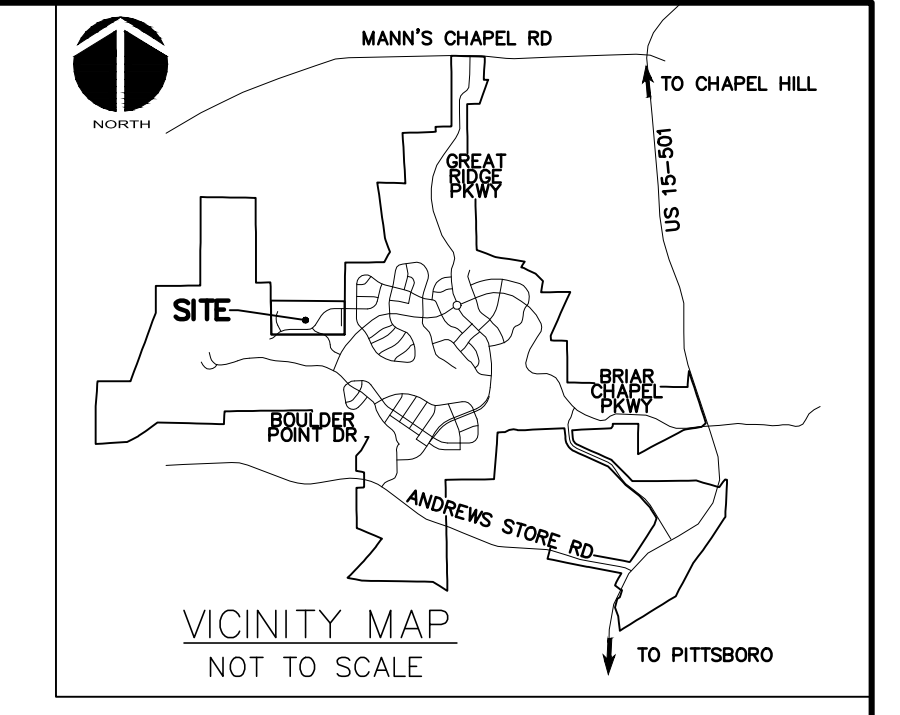
SITE PLAN - EAST

DATE:	JUNE 1, 2015	SCALE:	C1.1
MCE PROJ. #	02735-0130	HORIZONTAL:	1" = 60'
DRAWN:	BSS	VERTICAL:	N/A
DESIGNED:	BSS		
CHECKED:	GCA		
PROJ. MGR.:	CHS		
STATUS:	FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION	4



UTILITY NOTES:

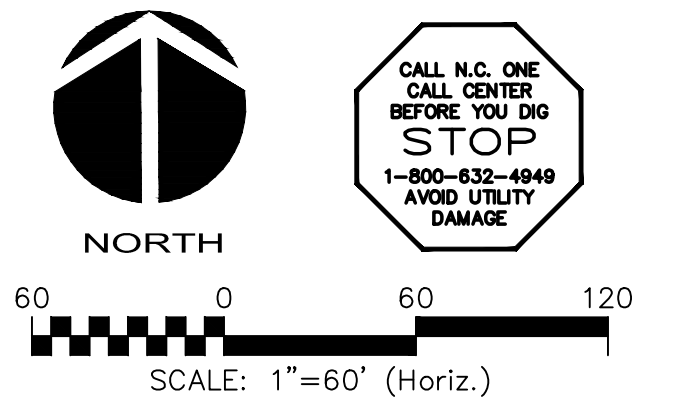
- ALL SANITARY SEWER CONSTRUCTION IS TO BE PERFORMED IN ACCORDANCE WITH CURRENT NCDENR & CHATHAM COUNTY STANDARDS, SPECIFICATIONS & DETAILS.
- ALL WATER MAIN CONSTRUCTION IS TO BE PERFORMED IN ACCORDANCE WITH CURRENT CHATHAM COUNTY STANDARDS, SPECIFICATIONS & DETAILS.
- ALL PERMITS RELATING TO THIS PROJECT MUST BE OBTAINED PRIOR TO CONSTRUCTION.
- 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.
- 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:
 - 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
 - THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH, AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.
- WHERE A WATER MAIN CROSSES OVER A SANITARY SEWER, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18-INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.
- WHERE A WATER MAIN CROSSES UNDER A SANITARY SEWER, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING. SEE NCAC 15A, 18C, SECTION .0906.
- 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.
- 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.
- WATER SERVICES SHALL BE EXTENDED FROM THE MAIN TO A METER BOX LOCATED WITHIN THE RIGHT OF WAY. THE METER SHALL BE PLACED AT THE EDGE OF THE SERVICED LOT'S RIGHT OF WAY LINE OR EASEMENT. SERVICE LINE SHALL BE RUN ON A TRUE LINE FROM THE WATER MAIN TO THE METER BOX; AND WHERE POSSIBLE, SERVICE LINE SHALL BE PERPENDICULAR TO THE MAIN LINE. NO WATER BOXES OR VAULTS SHALL BE PLACED IN STREETS, SIDEWALKS, PARKING AREAS, OR DRIVEWAYS.
- MANHOLES SHALL BE SPACED A MAXIMUM DISTANCE OF 400 FEET APART.
- 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.
- 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 5 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.
- 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" WITH 5/8" METERS.
- 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.
- SANITARY SEWER WITHIN PRIVATE EASEMENTS TO BE OWNED, OPERATED AND MAINTAINED BY HOME OWNERS ASSOCIATION OR AGENT THEREOF.
- WATER MAINS WILL BE 3.5' OFF CURB AND GUTTER UNLESS SHOWN OTHERWISE.
- ALL WATER MAINS WITHIN PUBLIC EASEMENTS AND PUBLIC RIGHT-OF-WAY TO BE OWNED, OPERATED AND MAINTAINED BY CHATHAM COUNTY, AND WILL BE CONTAINED WITHIN 20' WIDE PUBLIC WATER LINE EASEMENT (MINIMUM) CENTERED ON THE PROPOSED WATER MAIN.
- CONTRACTOR TO COORDINATE WITH CHATHAM COUNTY PUBLIC WORKS FOR ALL IRRIGATION SLEEVE SIZING.



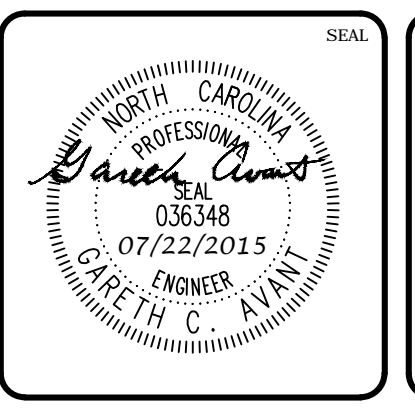
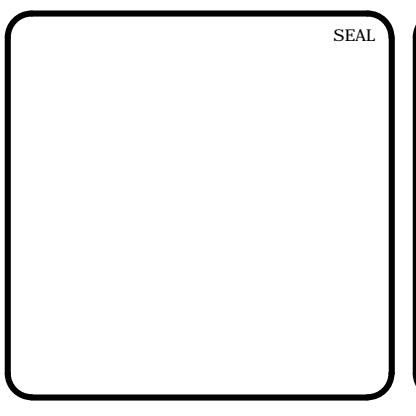
LEGEND

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

MATCHLINE SEE SHEET C2.2



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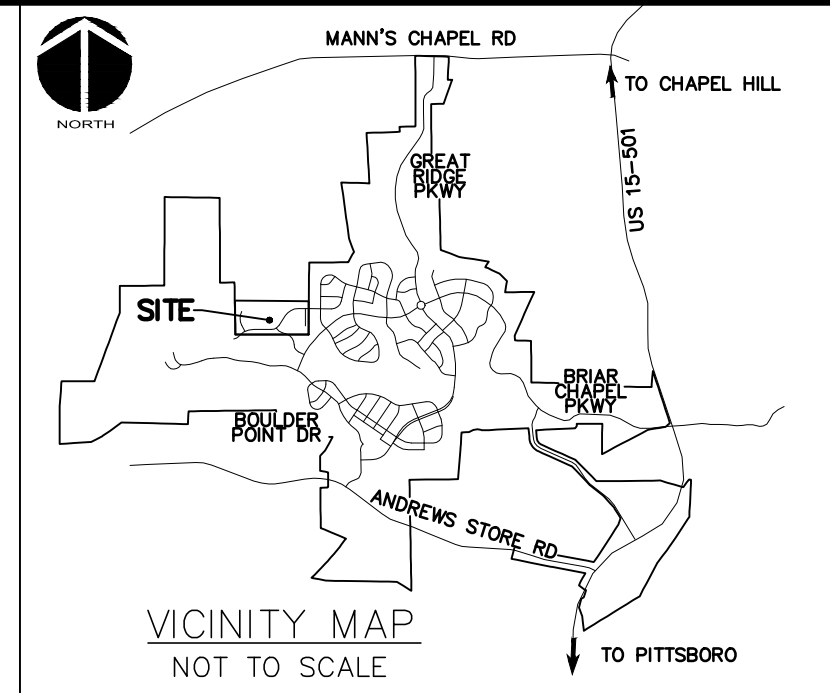
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 CHATHAM COUNTY, NORTH CAROLINA**

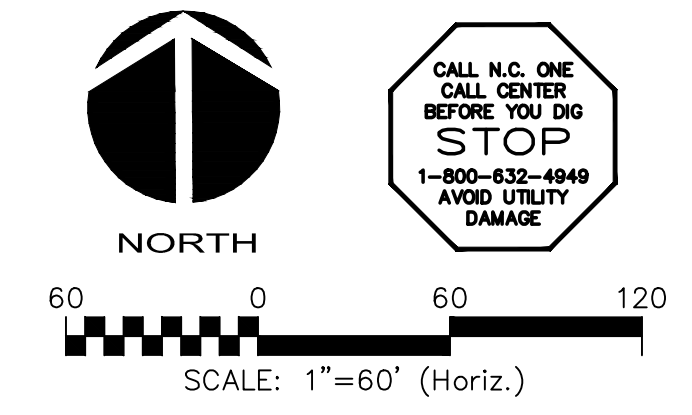
UTILITY PLAN

DATE: JUNE 1, 2015	SCALE: HORIZONTAL: 1" = 60'	MFC FILE NUMBER: C2.X
MCE PROJ. #: 02735-0130	VERTICAL: N/A	DRAWING NUMBER: C2.1
DRAWN: BSS		
DESIGNED: BSS		
CHECKED: CCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 4	

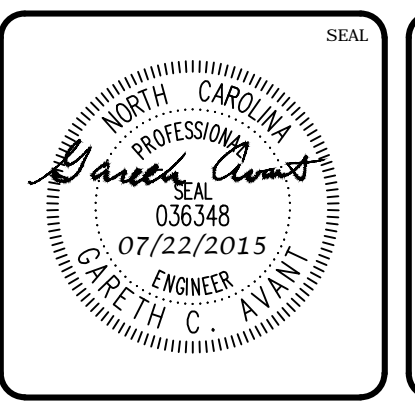
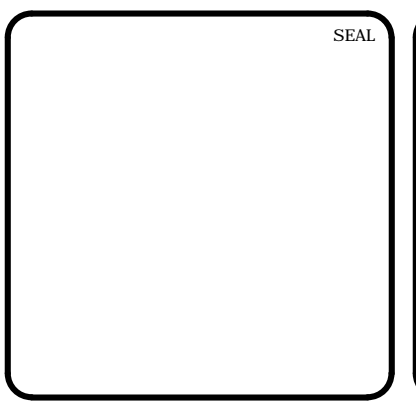


LEGEND	
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W	WATER MAIN
FM	SANITARY SEWER FORCE MAIN (DESIGNED BY OTHERS)
SS	EXISTING SANITARY SEWER LINE
W	EXISTING SS FORCE MAIN
W	EXISTING WATER MAIN
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ELEC	EXISTING UNDERGROUND ELECTRIC
TWC	EXISTING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

MATCHLINE SEE SHEET C2.1



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 CHATHAM COUNTY, NORTH CAROLINA**

UTILITY PLAN

DATE: JUNE 1, 2015	SCALE: HORIZONTAL: 1" = 60'	MFC FILE NUMBER: C2.X
MCE PROJ. #: 02735-0130	VERTICAL: N/A	DRAWING NUMBER: C2.2
DRAWN: BSS		
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 4	

STAGE 1 CONSTRUCTION SEQUENCE:

- 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.
- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
- ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS. NEEDED REPAIRS SHALL BE MADE IMMEDIATELY.
- 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.
- CONTRACTOR SHALL ESTABLISH GROUNDCOVER ON DISTURBED AREAS WITHIN THE NUMBER OF CALENDAR DAYS AFTER COMPLETION OF GRADING PER THE SCHEDULE BELOW:

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

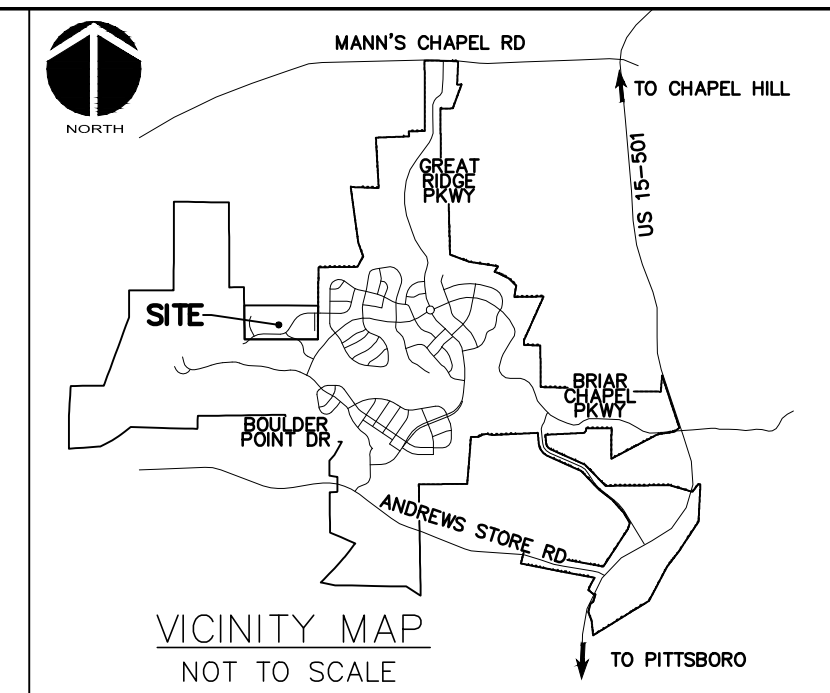
 SLOPES ARE AS DEFINED IN THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
- CONTRACTOR SHALL ARRANGE PRE-CONSTRUCTION MEETING WITH THE OWNER'S REPRESENTATIVE, ENGINEER AND CHATHAM COUNTY.
- OBTAIN LETTER OF PLAN APPROVAL FOR SEDIMENTATION AND EROSION CONTROL FROM CHATHAM COUNTY SOIL EROSION & SEDIMENTATION CONTROL.
- CONTRACTOR TO POST EROSION CONTROL PERMIT PROMINENTLY ON SITE AT ALL TIMES.
- 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 "NO ONE CALL" TO HAVE UTILITIES LOCATED.
- CONTRACTOR TO HAVE A PROFESSIONAL LAND SURVEYOR FLAG PROPERTY LINES, EASEMENTS, LANDSCAPE BUFFERS, STREAM BUFFERS, TREE PROTECTION AREAS AND LIMITS OF DISTURBANCE.
- INSTALL TEMPORARY CONSTRUCTION ENTRANCES. CONTRACTOR SHALL ONLY ACCESS SITE THROUGH BRIAR CHAPEL PARKWAY ENTRANCE. NO CONSTRUCTION TRAFFIC SHALL USE PHASE 6N ACCESS FROM CLIFFDALE FOR CONSTRUCTION ACTIVITIES.
- INSTALL TREE PROTECTION FENCING AND SILT FENCING AS SHOWN AND DETAILED ON PLAN. TIMBER ONLY AS NECESSARY TO INSTALL THESE DEVICES.
- CONSTRUCT TEMPORARY SKIMMER SEDIMENT BASINS & TEMPORARY SEDIMENT TRAPS TO THE REQUIRED DIMENSIONS AND ELEVATIONS AS DETAILED IN THESE PLANS. GRUB ONLY AS NECESSARY TO INSTALL THE BASINS. MATERIAL EXCAVATED DURING THE CONSTRUCTION OF SEDIMENT BASINS SHALL BE TEMPORARILY STOCKPILED ADJACENT TO BASINS. ONCE ROUGH GRADING OPERATIONS BEGIN, THESE MATERIALS SHALL BE PLACED AS NEEDED IN AREAS OF FILL OR MOVED TO LARGER STOCKPILE AREAS.
- INSTALL BARRIERS 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.

STAGE 1 CONSTRUCTION SEQUENCE (CONT.):

- 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.
- CONTACT CHATHAM COUNTY SOIL EROSION & SEDIMENTATION AT 919-545-8339 AND ENGINEER UPON COMPLETION OF INITIAL EROSION CONTROL MEASURES.
- ONCE TEMPORARY SKIMMER SEDIMENT BASINS AND DIVERSION DITCHES HAVE BEEN INSTALLED, GRUB WITHIN DELINEATED DRAINAGE AREAS ASSOCIATED WITH THE INSTALLED TEMPORARY SKIMMER SEDIMENT BASINS.
- 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.
- AFTER COMPLETION OF CLEARING AND GRUBBING, THE SITE SHALL BE TEMPORARILY STABILIZED EXCEPT IN AREAS OF ACTIVE CUT/FILL. ACTIVE AREAS SHOULD NOT EXCEED 25 ACRES AT ONE TIME.
- BEGIN ROUGH GRADING WITHIN CLEARING LIMITS, INCLUDING GRADING FOR PERMANENT WET DETENTION POND.
- 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.
- PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH THE PLANS.
- ONCE GROUNDCOVER HAS BEEN ESTABLISHED AND OTHER CONSTRUCTION IS COMPLETE, CONTACT CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION AND ENGINEER FOR SITE INSPECTION BEFORE REMOVING ANY TEMPORARY EROSION CONTROL MEASURES.

GENERAL NOTES:

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



LIMITS OF DISTURBANCE NOTES:

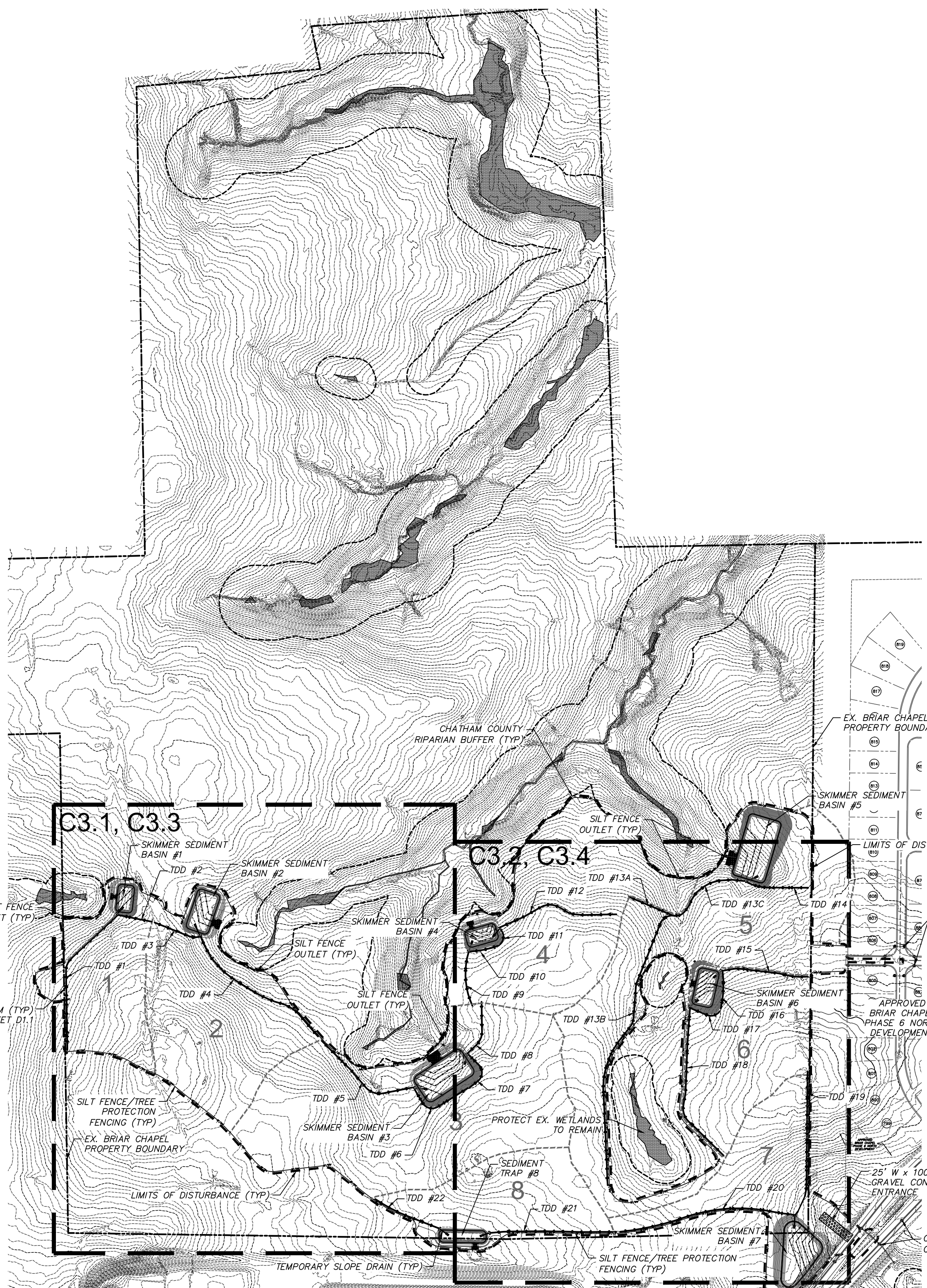
- LIMITS OF DISTURBANCE LINES ARE CLEARING LIMIT LINES WHICH WILL BE FLAGGED FOR A MINIMUM OF ONE PER 50-FT OR CLOSER DEPENDING ON VISIBILITY.
- SILT FENCE AND TREE PROTECTION FENCE LINES ALSO DELINEATE THE LIMITS OF DISTURBANCE. ALL SILT FENCING OR TREE PROTECTION FENCING SHALL BE INSTALLED INSIDE LIMITS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

SELF INSPECTION NOTICE:

NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM:
 THE SEDIMENTATION POLLUTION CONTROL ACT WAS AMENDED IN 2006 TO REQUIRE THAT PERSONS RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES INSPECT A PROJECT AFTER EACH STAGE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED. RULES DETAILING THE DOCUMENTATION OF THESE INSPECTIONS TOOK EFFECT OCTOBER 1, 2010. THE SELF-INSPECTION PROGRAM IS SEPARATE FROM THE WEEKLY SELF-MONITORING PROGRAM OF THE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES. THE FOCUS OF THE SELF-INSPECTION REPORT IS THE INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES ACCORDING TO THE APPROVED PLAN. THE INSPECTIONS MUST BE CONDUCTED AFTER EACH STAGE OF THE PROJECT, AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH NCGS 113A-54.1 AND 15A NCA 48.031. 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.

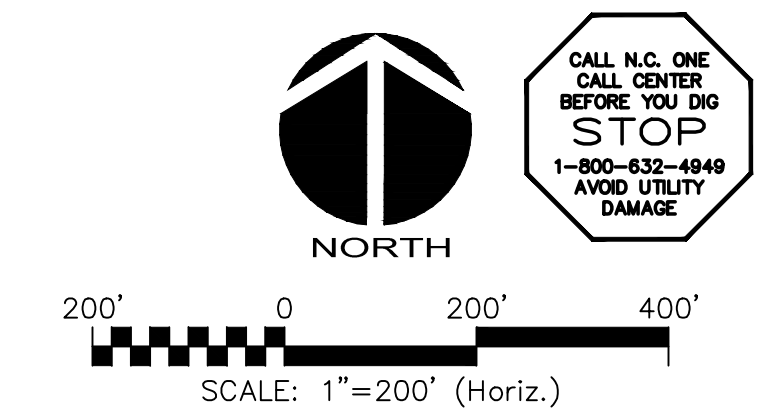
US STEEL DRAINAGE AREAS	
DRAINAGE AREA NUMBER	TOTAL AREA WITHIN DRAINAGE AREA
1	1.8 ACRES
2	3.3 ACRES
3	6.3 ACRES
4	2.3 ACRES
5	8.9 ACRES
6	3.1 ACRES
7	1.8 ACRES
8	2.3 ACRES

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

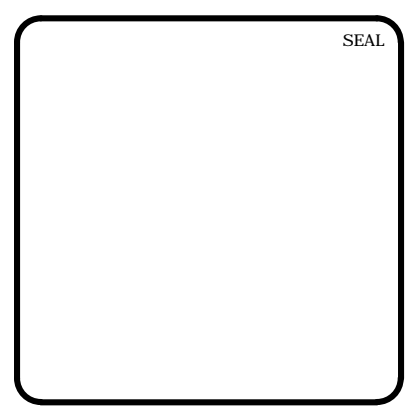


LEGEND:

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



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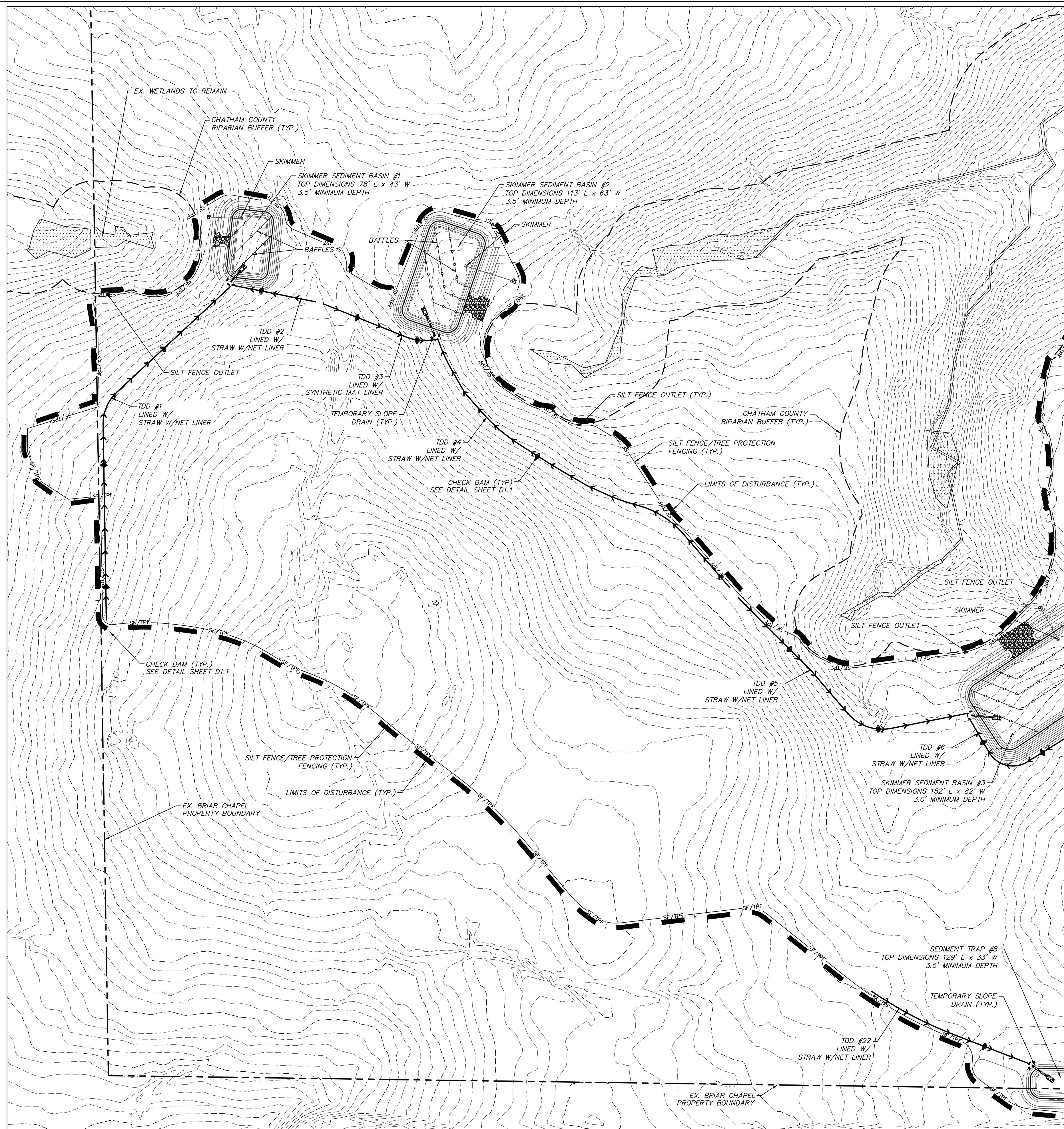
**BRIAR CHAPEL
 US STEEL - SECTION 1
 CHATHAM COUNTY, NORTH CAROLINA**

**STAGE 1
 OVERALL EROSION CONTROL PLAN**

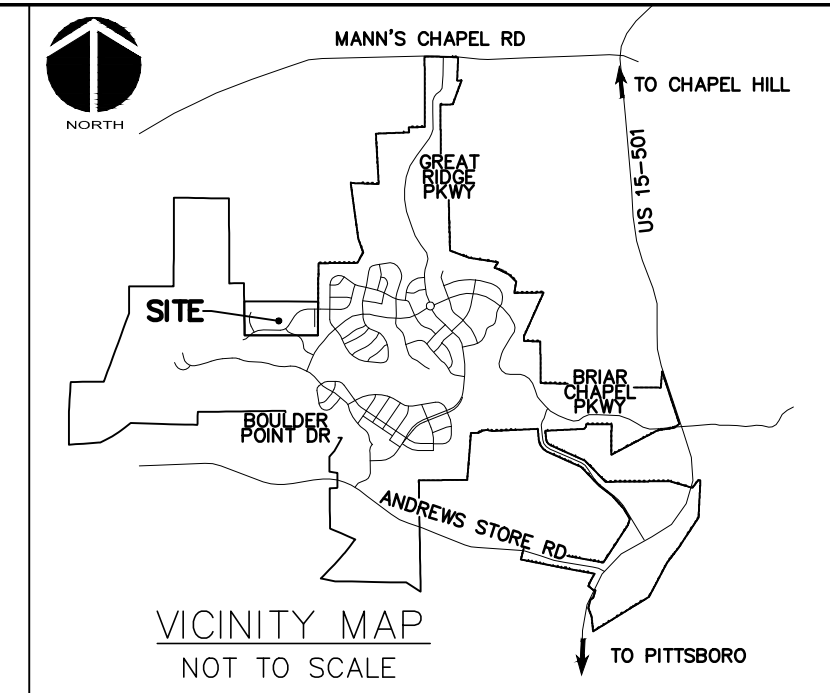
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CHECKED: GCA		
PROJ. MGR.: CHS		

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

REVISION: 4



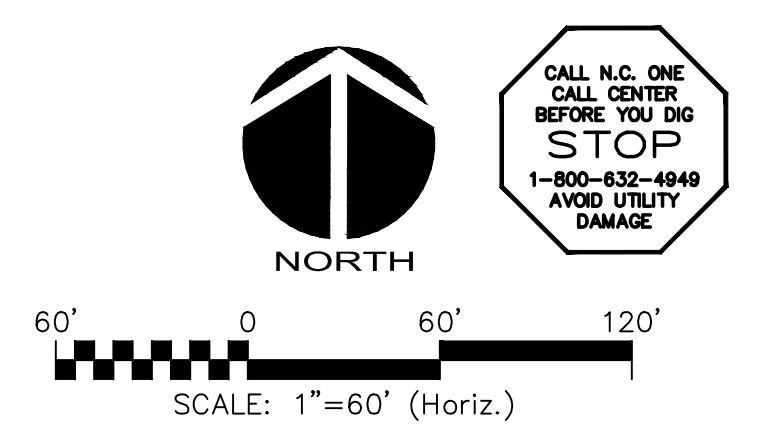
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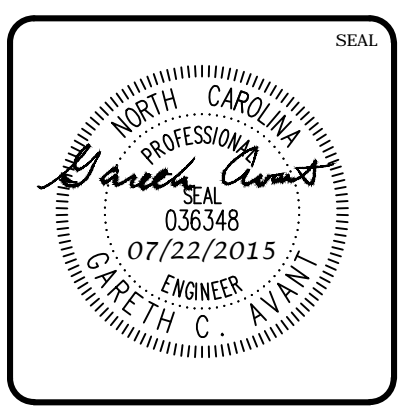
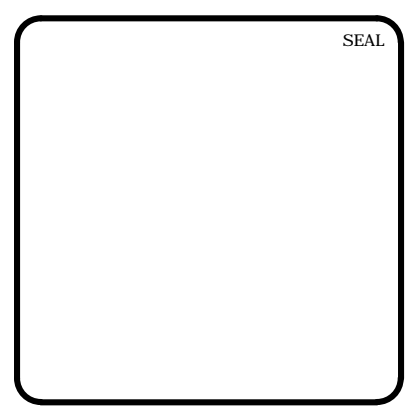
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- EXISTING WETLANDS
- EX. R/W LINE
- RIPARIAN BUFFER LINE
- COMBINATION SILT/TREE PROTECTION FENCING
- TREE PROTECTION FENCING
- EXISTING CONTOUR
- NEW LIMITS OF DISTURBANCE
- NEW DIVERSION DITCH
- NEW CHECK DAM
- TEMPORARY CONSTRUCTION ENTRANCE
-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

5



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



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BRIAR CHAPEL™

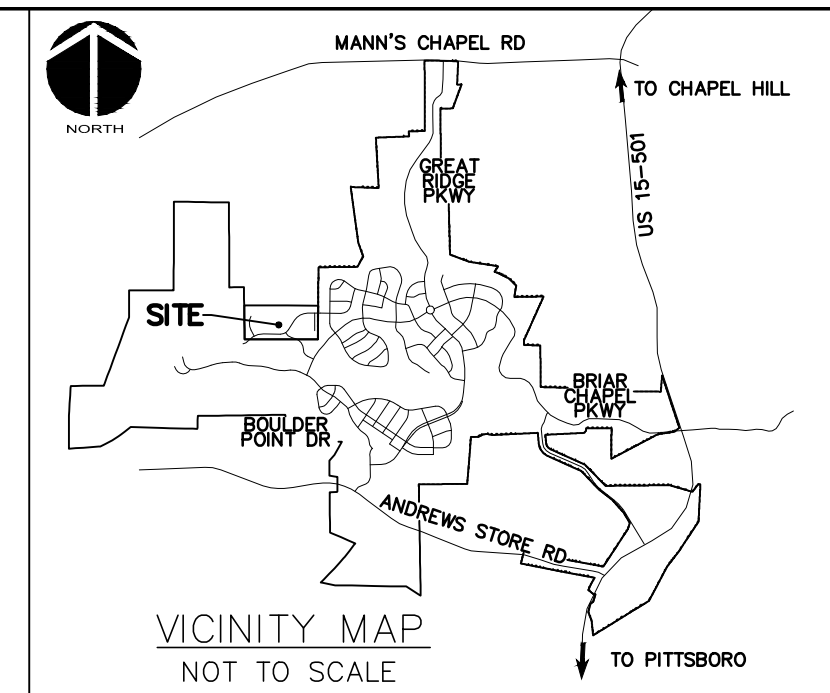
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**BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA**

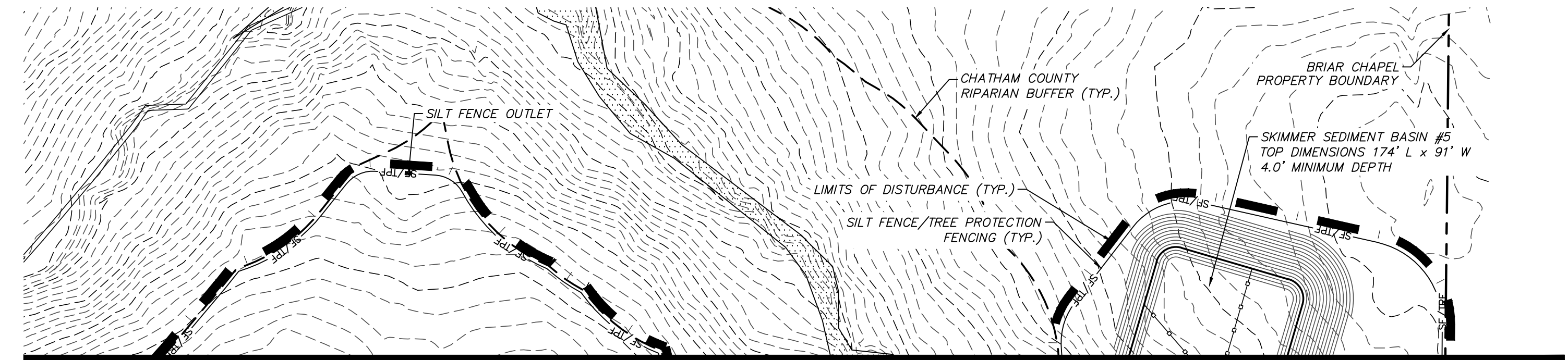
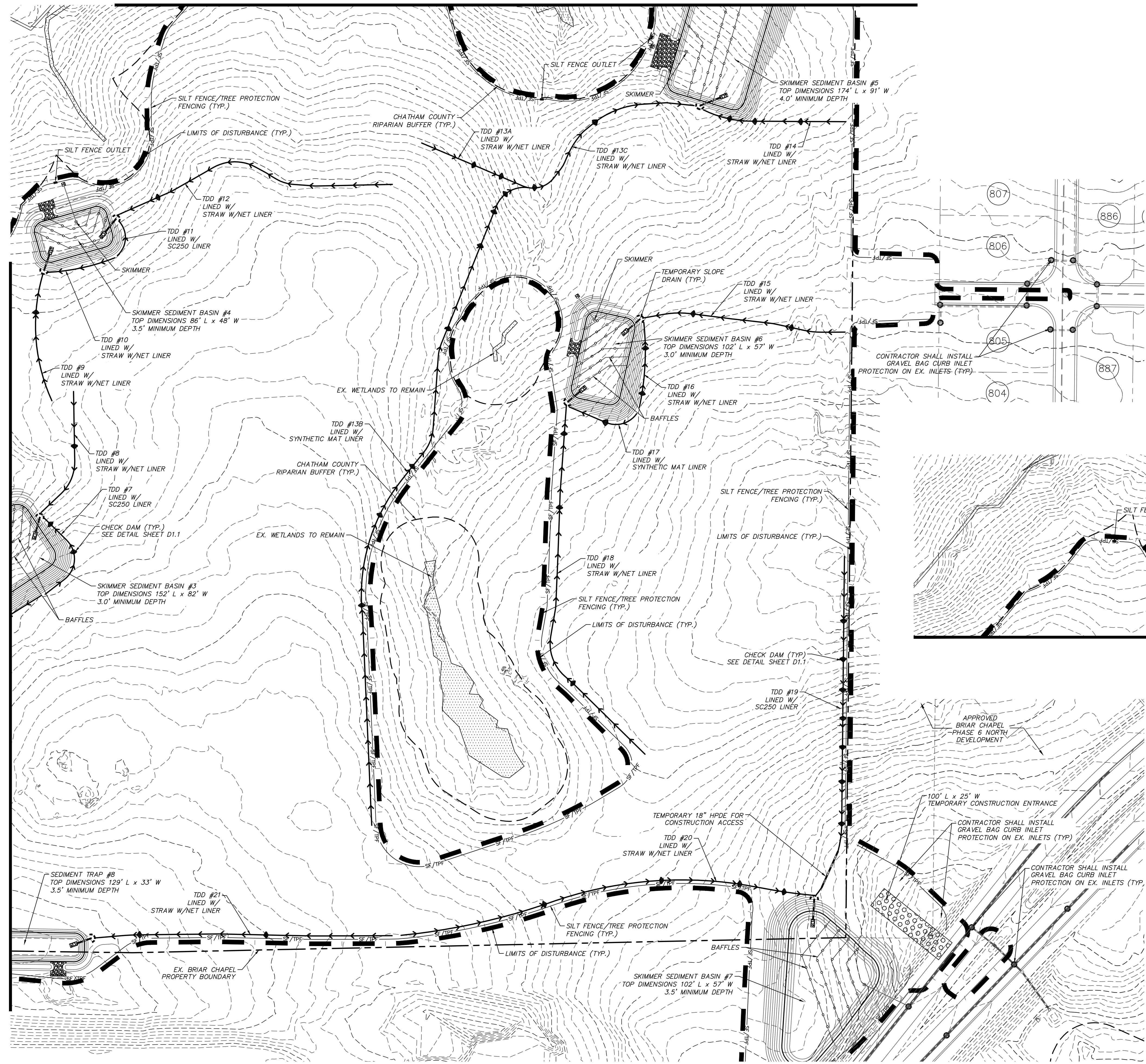
**STAGE 1
EROSION CONTROL PLAN**

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CHECKED: GCA		
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MATCHLINE - THIS SHEET



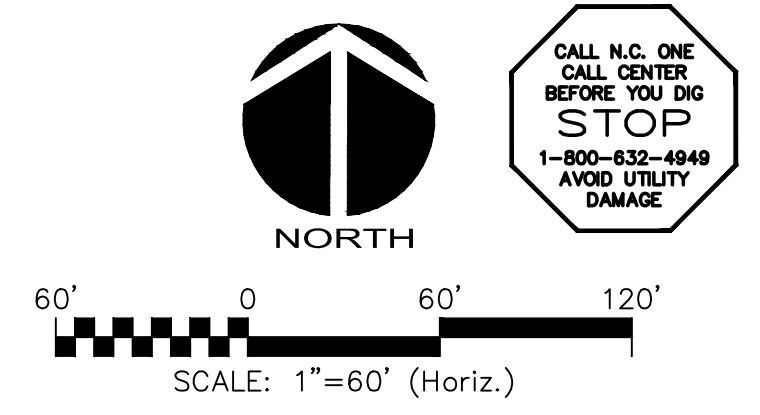
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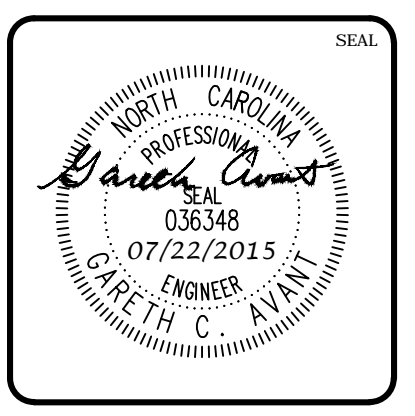
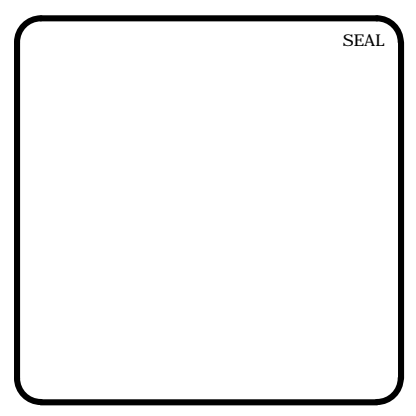
MATCHLINE - THIS SHEET

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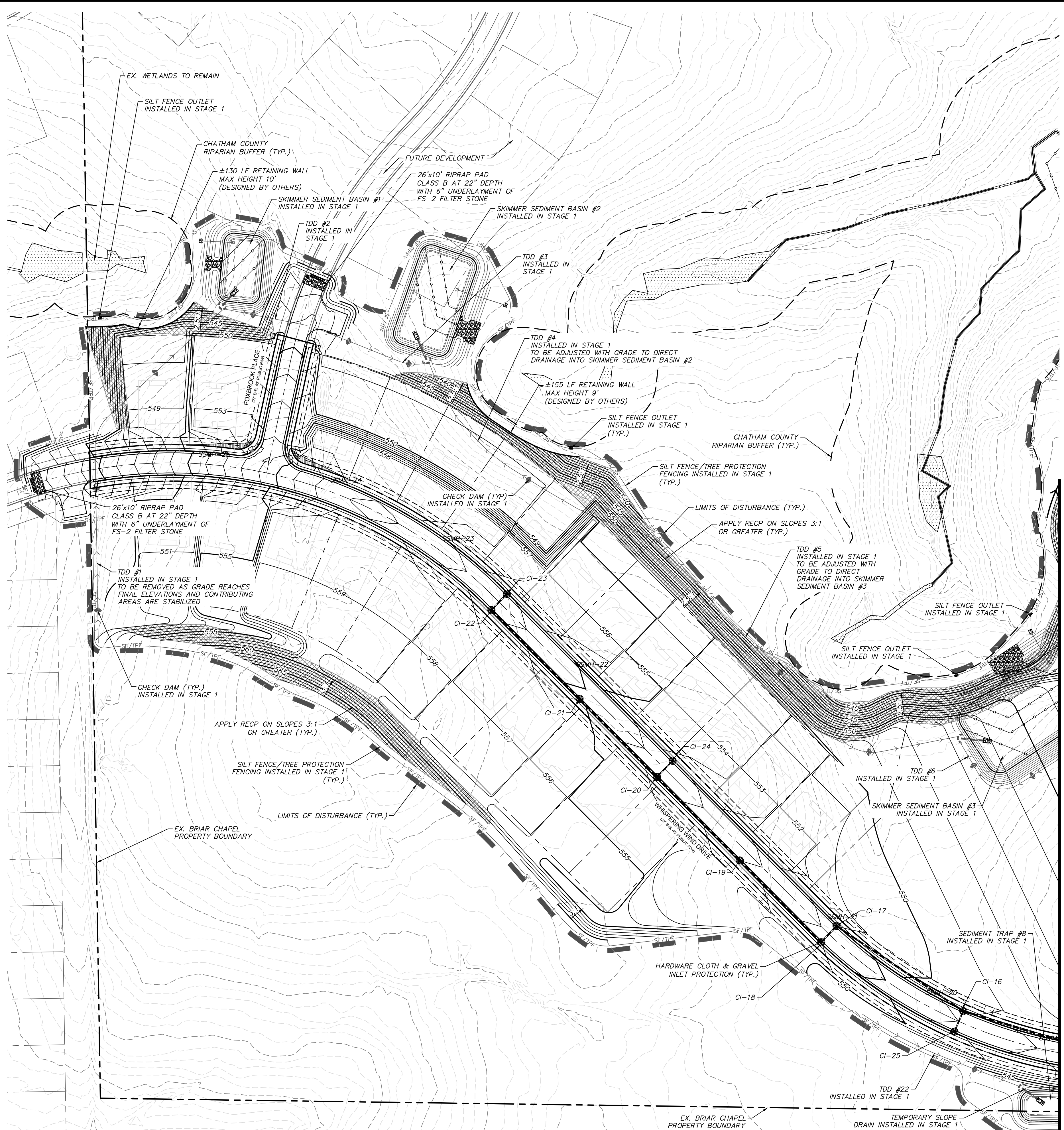
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**STAGE 1
 EROSION CONTROL PLAN**

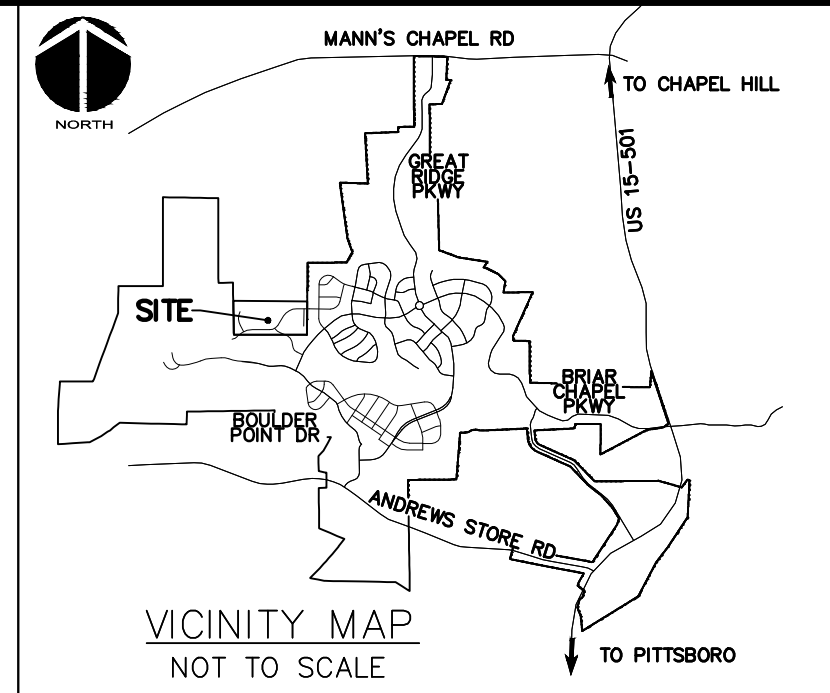
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DRAWN: BSS		
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		REVISION: 4



STAGE 2 CONSTRUCTION SEQUENCE:

- 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.
- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
- ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS. NEEDED REPAIRS SHALL BE MADE IMMEDIATELY.
- 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.
- CONTRACTOR SHALL ESTABLISH GROUNDCOVER ON DISTURBED AREAS WITHIN THE NUMBER OF CALENDAR DAYS AFTER COMPLETION OF GRADING PER THE SCHEDULE BELOW:

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



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 NCA 48.0131. 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.

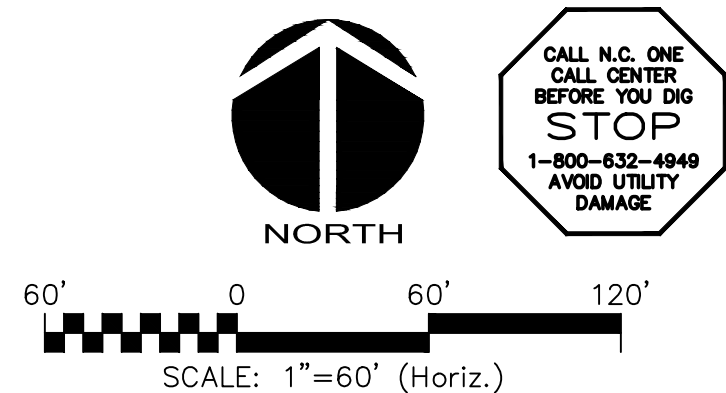
NPDES GROUNDCOVER STABILIZATION TIMEFRAMES		
SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERMETER DIKES, SWALES, DITCHES, SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	14 DAYS FOR SLOPES 10' OR LESS IN LENGTH AND NOT STEEPER THAN 2:1
SLOPES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

LEGEND:

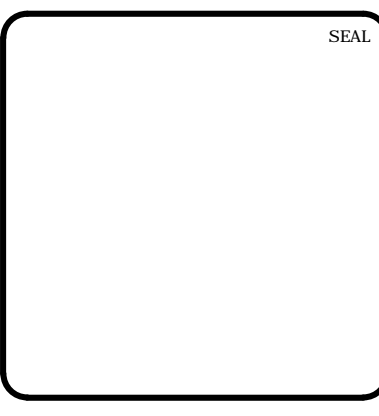
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- STAGE 1 CHECK DAM
- STAGE 1 CONSTRUCTION ENTRANCE
- STAGE 1 SLOPE DRAIN
- TEMPORARY DIVERSION DITCH
- STAGE 1 SILT FENCE OUTLET

STORM DRAINAGE NOTES:

- STORM DRAINAGE PIPES SHALL BE:
 - RCP/CLASS III UNLESS OTHERWISE NOTED IN THESE PLANS. ALL PIPES INSIDE THE PUBLIC RIGHT-OF-WAY SHALL ADHERE TO PIPE DEPTH, COVER AND MATERIAL REQUIREMENTS IN ACCORDANCE WITH THE NCDOT PIPE MATERIAL SELECTION GUIDE AS LOCATED ON THE NCDOT HYDRAULICS WEBSITE.
- ALL CONCRETE SHALL MEET A MINIMUM 3,000 PSI COMPRESSIVE STRENGTH.
- ALL PIPE IN STORM DRAIN STRUCTURES SHALL BE STRUCK EVEN WITH INSIDE WALL.
- 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.
- 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.
- MATERIALS DEEMED AS UNSUITABLE FOR BACKFILL PURPOSES BY THE OWNER'S REPRESENTATIVE SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL.
- 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.
- UNDER NO CIRCUMSTANCES SHALL WATER BE ALLOWED TO RISE IN UNBACKFILLED TRENCHES AFTER PIPE HAS BEEN PLACED.
- 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.
- RIM ELEVATIONS OF STORM DRAIN STRUCTURES SHALL BE FIELD VERIFIED.
- STORM DRAINAGE WITHIN PRIVATE EASEMENTS TO BE OWNED, OPERATED AND MAINTAINED BY HOME OWNER'S ASSOCIATION OR AGENT THEREOF.
- 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.
- CB DENOTES CATCH BASINS TO BE INSTALLED NON-PAVED AREAS. REFER TO NCDOT DETAILS 840.18 AND 840.24 ON SHEET D-2.2.
- 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.



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1	INITIAL SUBMITTAL	2015.05.01



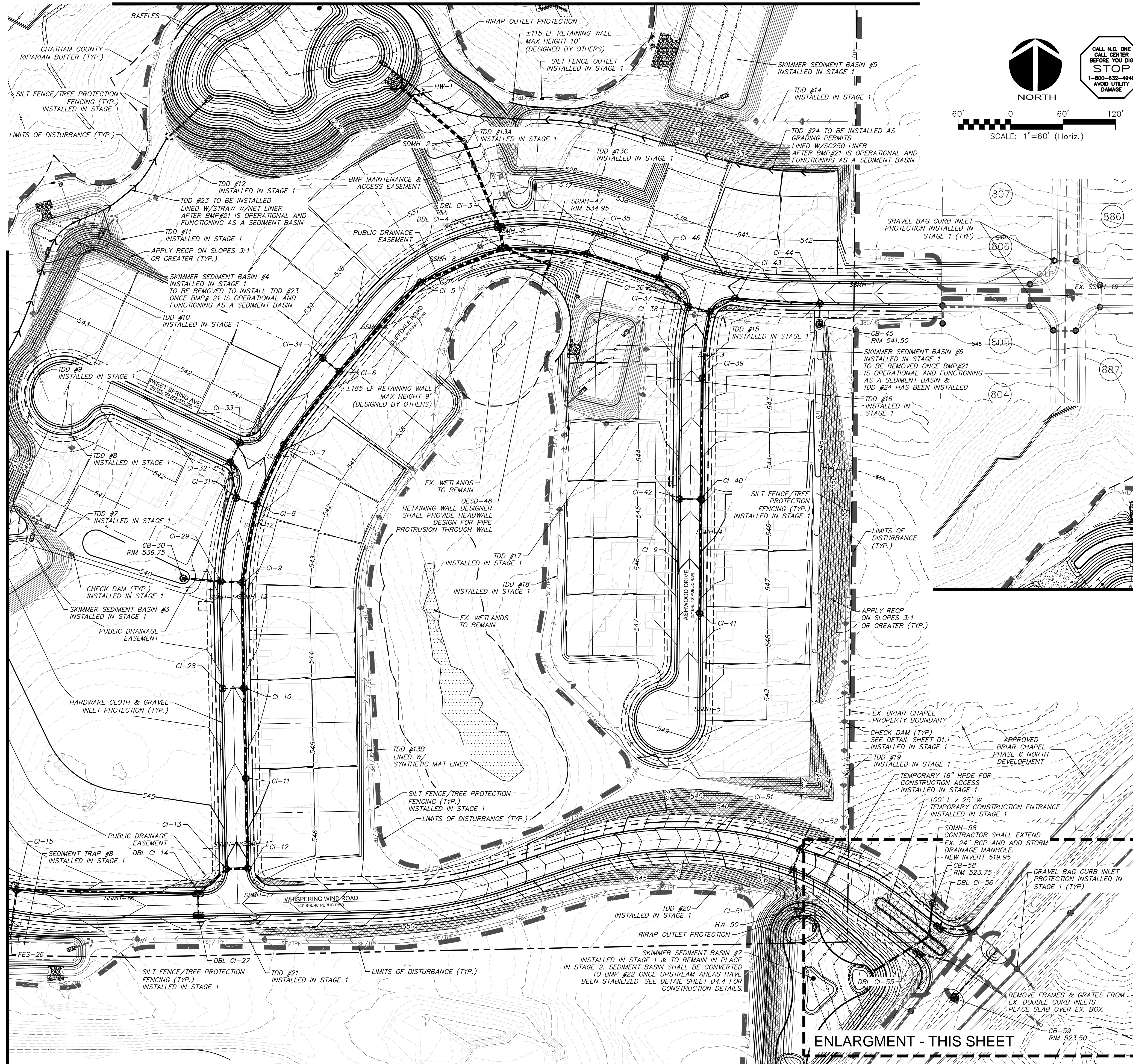
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 CHATHAM COUNTY, NORTH CAROLINA**
**GRADING, DRAINAGE &
 STAGE 2 EROSION CONTROL PLAN**

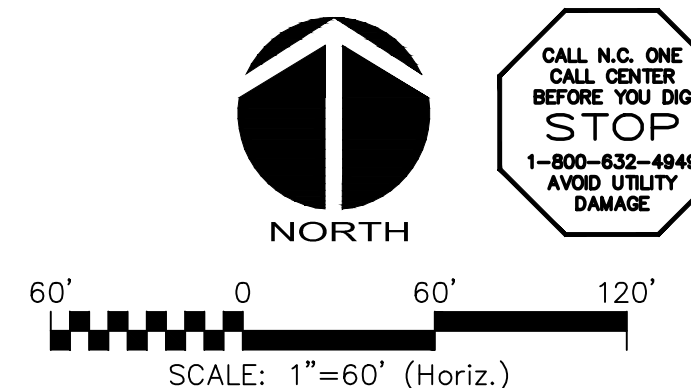
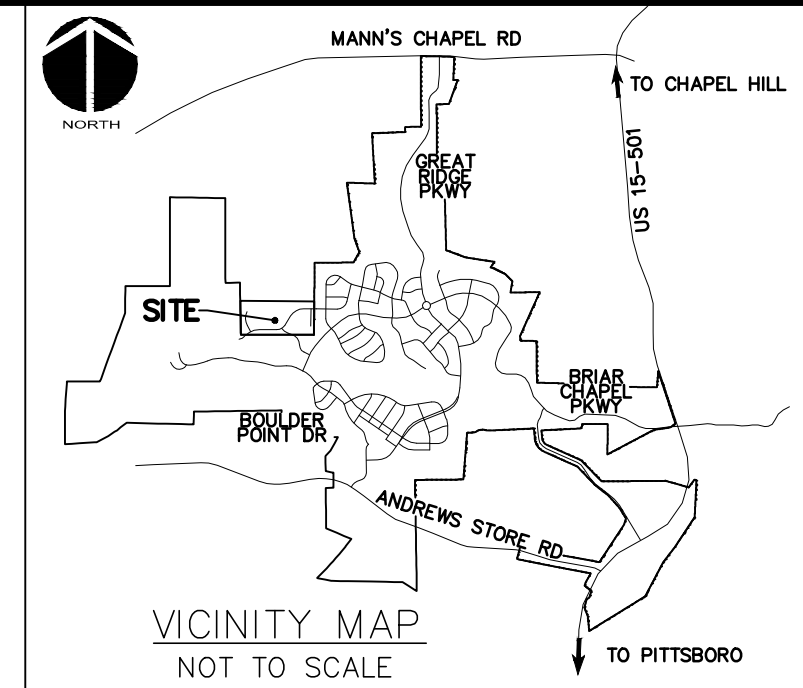
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DRAWN: BSS		
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PROJ. MGR: CHS		
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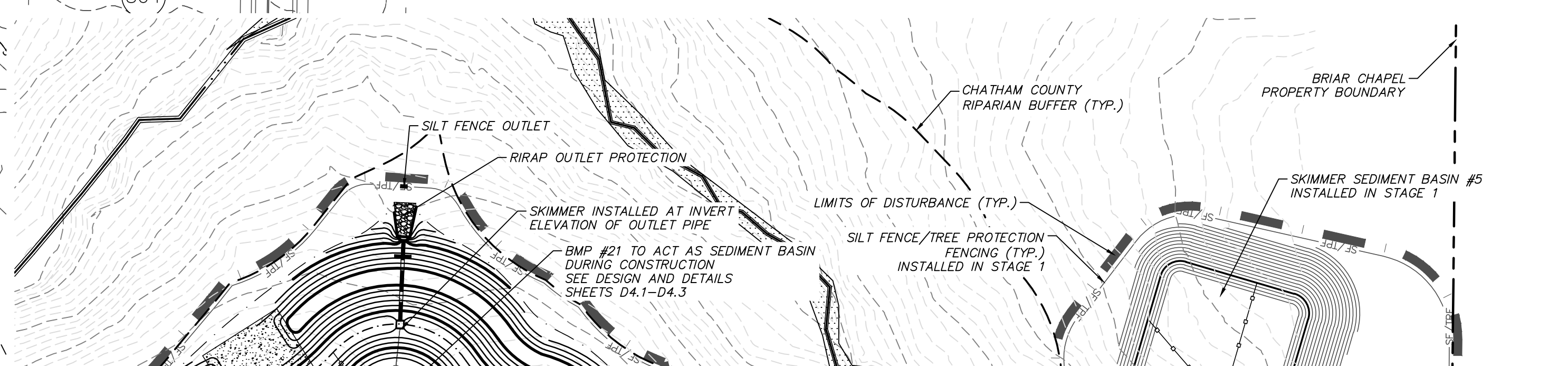
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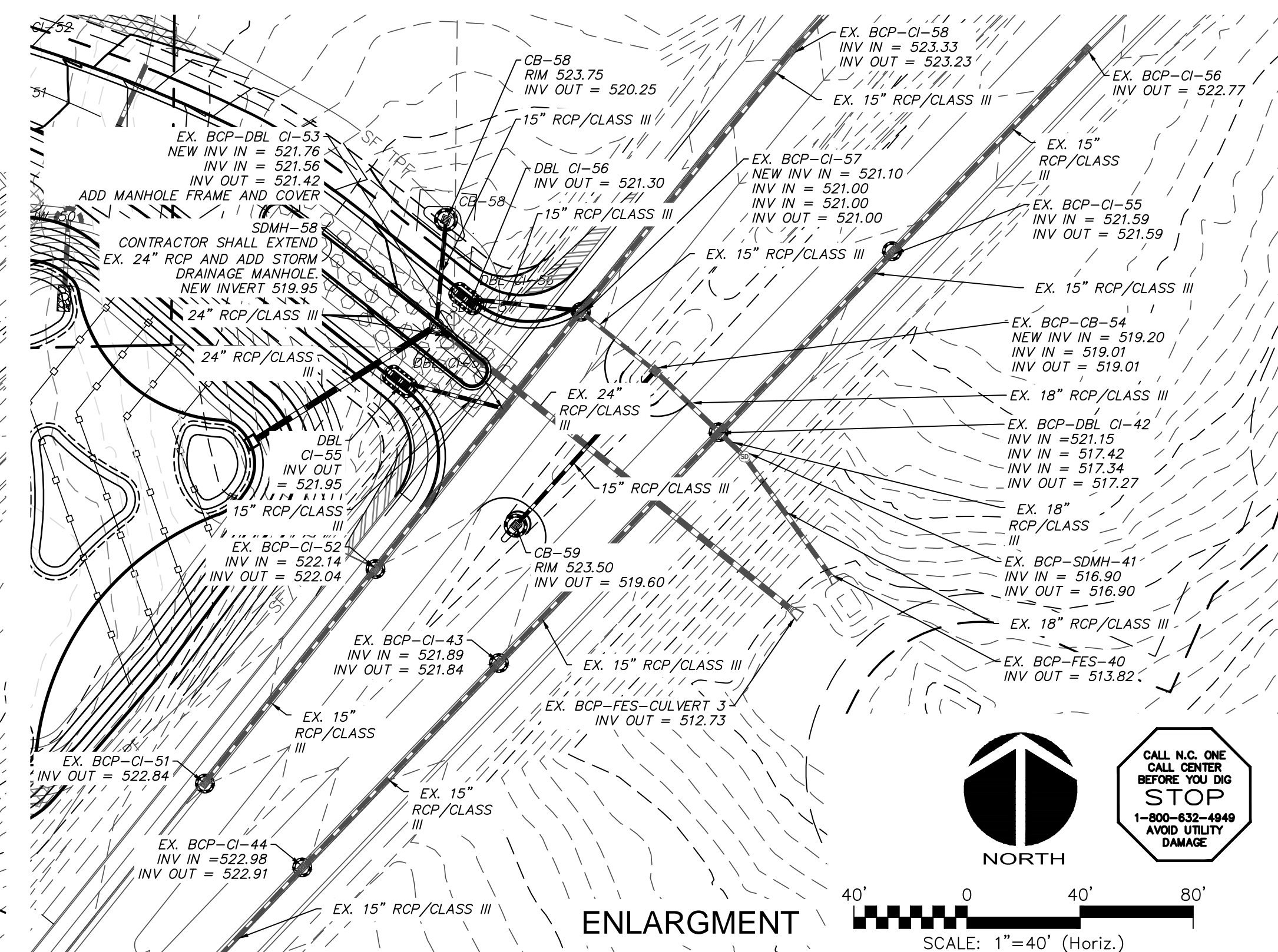


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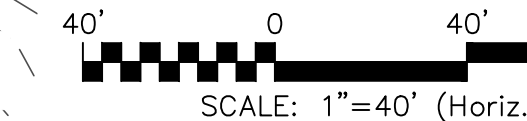
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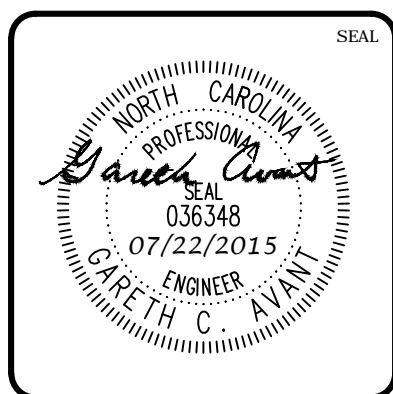
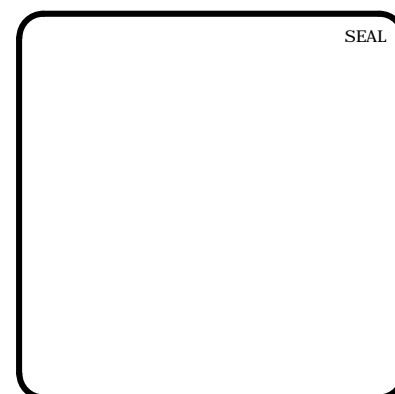
ENLARGMENT - THIS SHEET



ENLARGMENT



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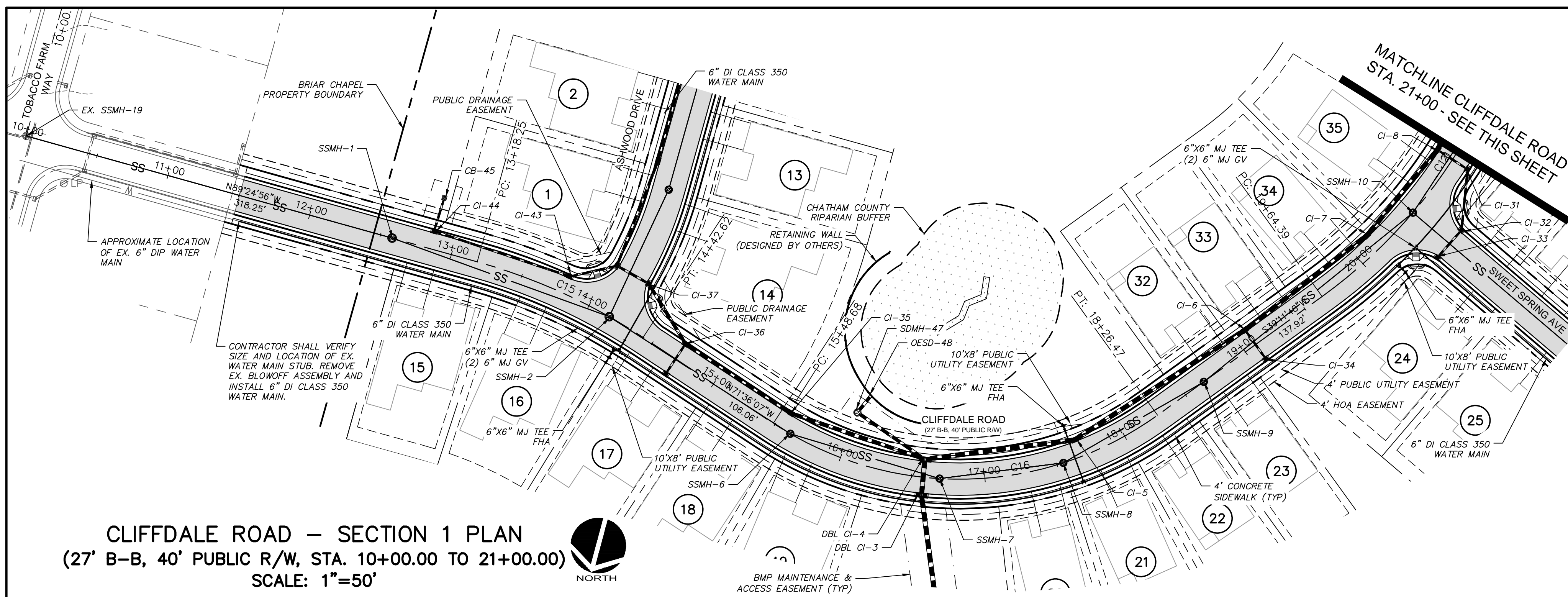


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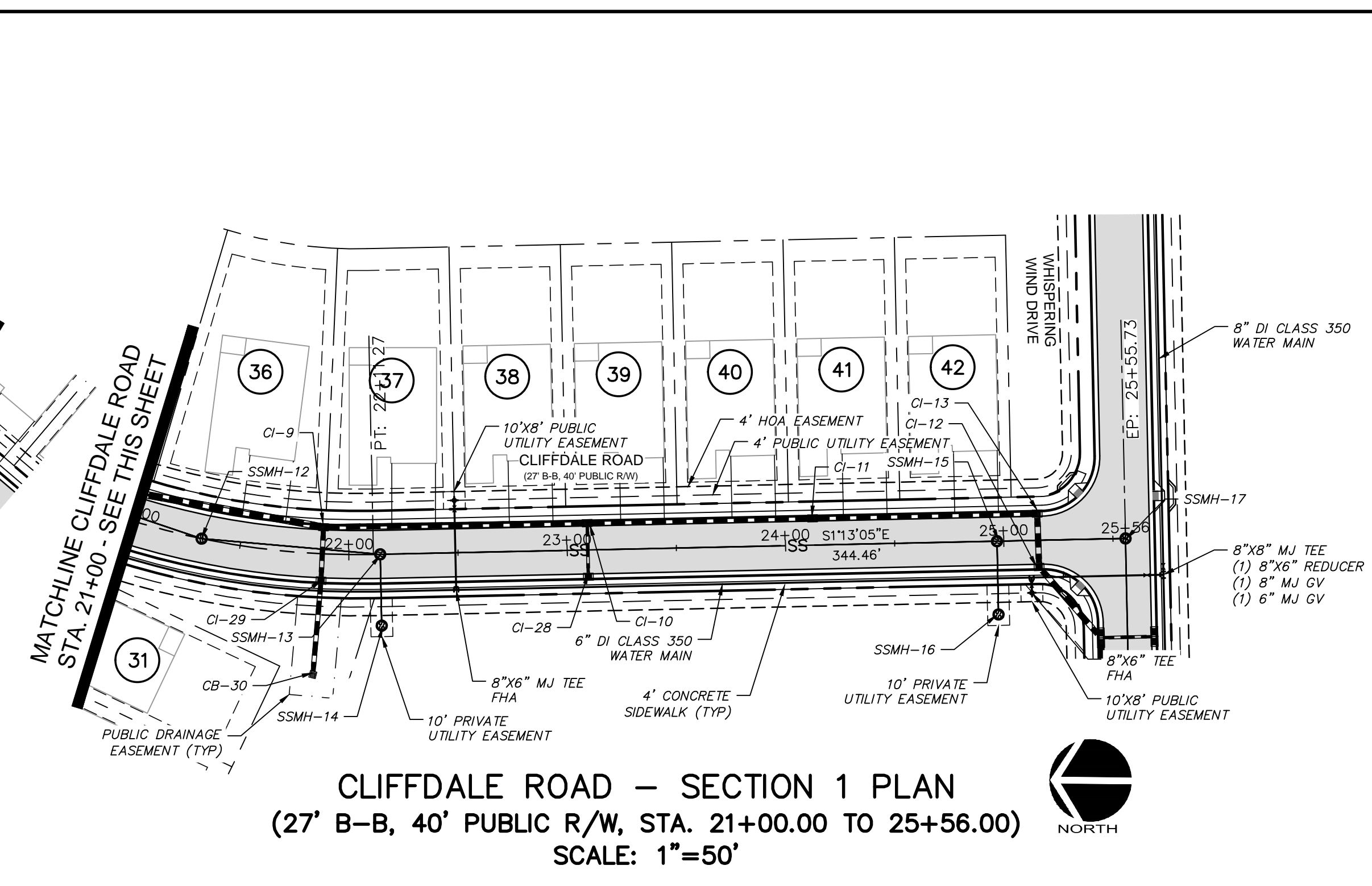
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**GRADING, DRAINAGE &
 STAGE 2 EROSION CONTROL PLAN**

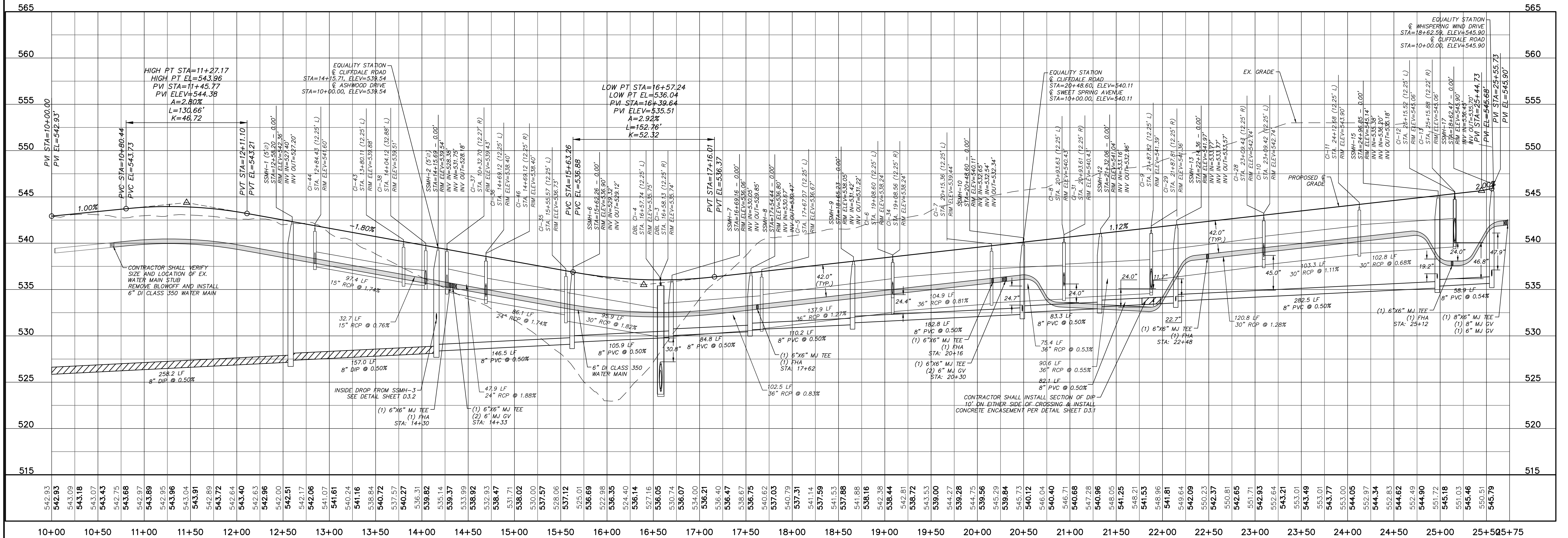
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CLIFFDALE ROAD – SECTION 1 PLAN
 (27' B-B, 40' PUBLIC R/W, STA. 10+00.00 TO 21+00.00)
 SCALE: 1"=50'

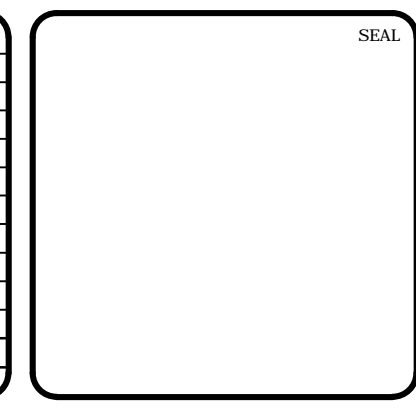


CLIFFDALE ROAD – SECTION 1 PLAN
 (27' B-B, 40' PUBLIC R/W, STA. 21+00.00 TO 25+56.00)
 SCALE: 1"=50'



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

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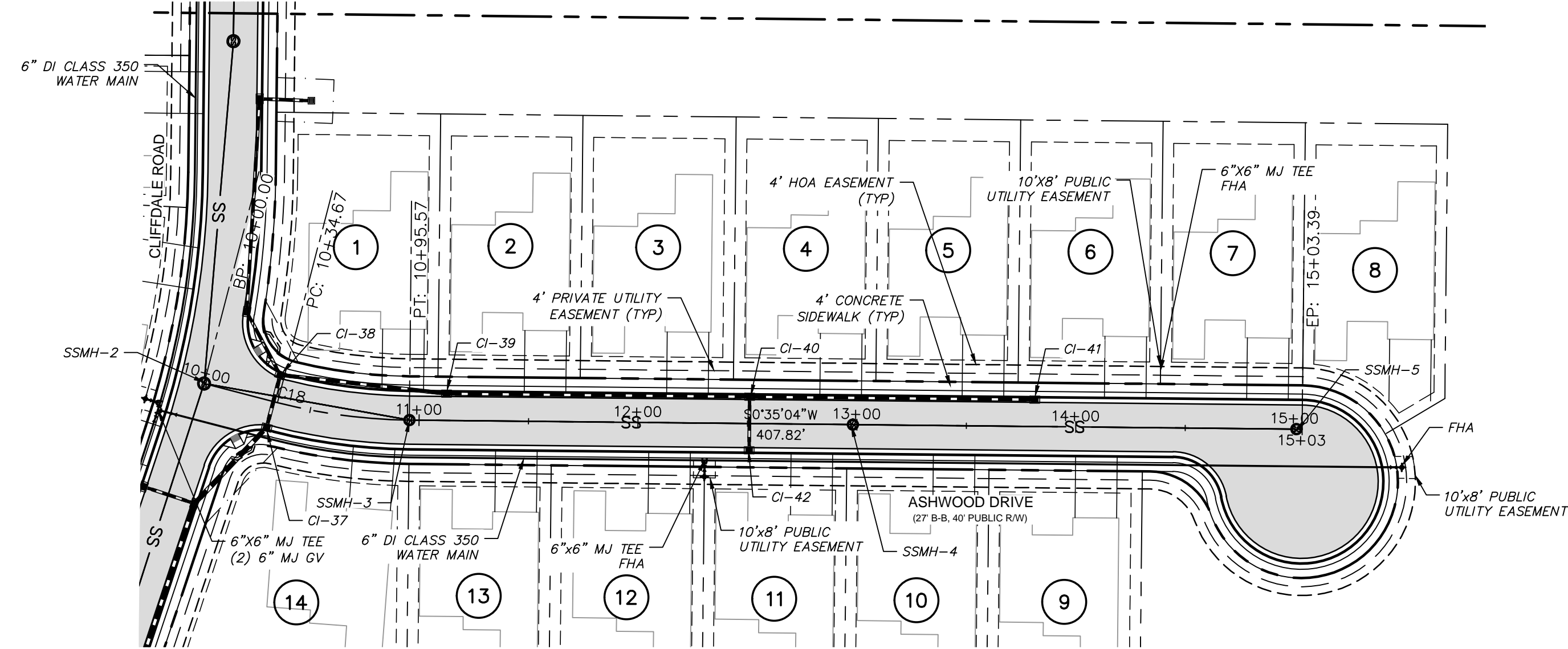


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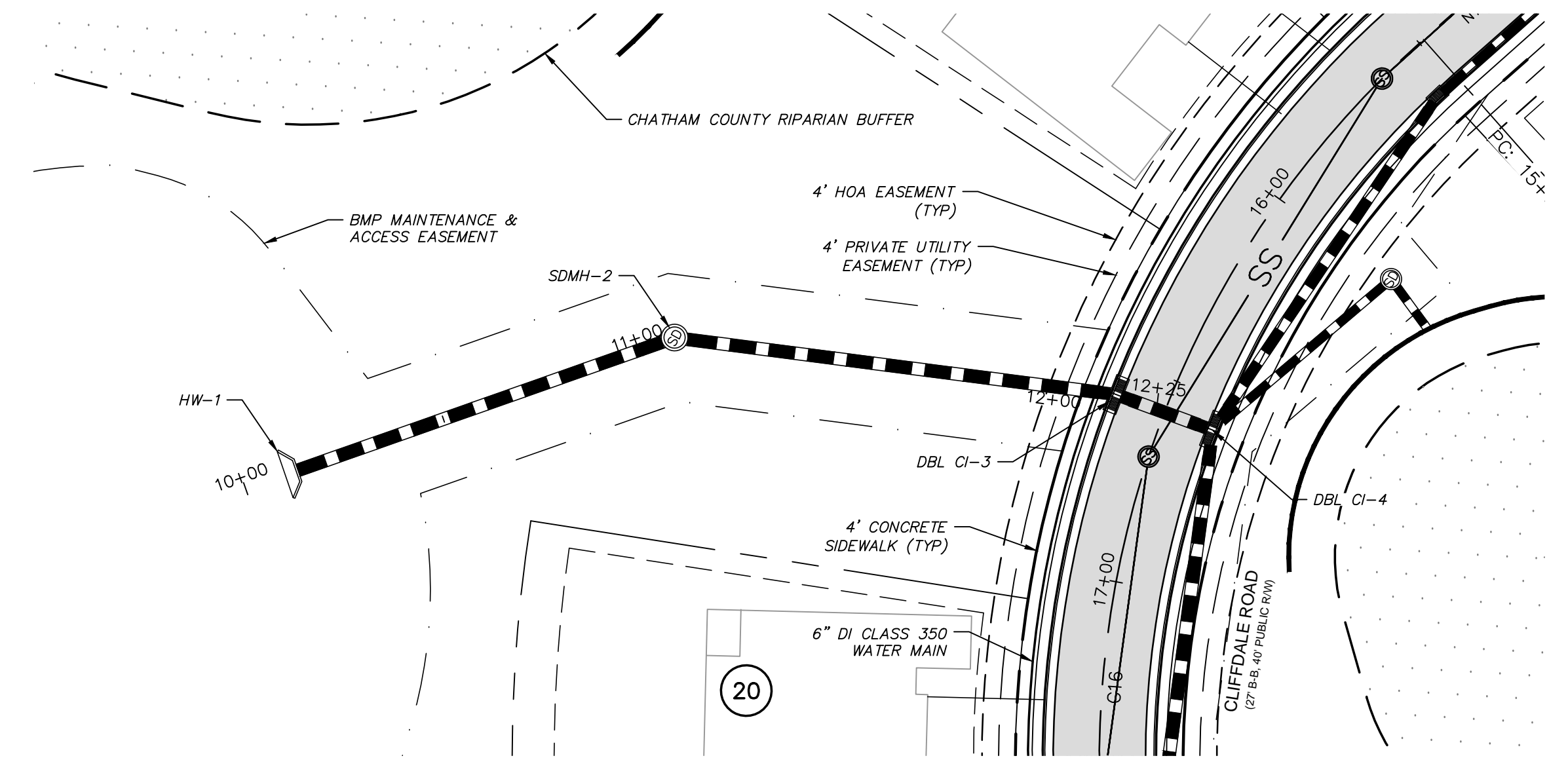
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BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA
PLAN & PROFILE
CLIFFDALE ROAD
STA. 10+00.00 TO STA. 25+56

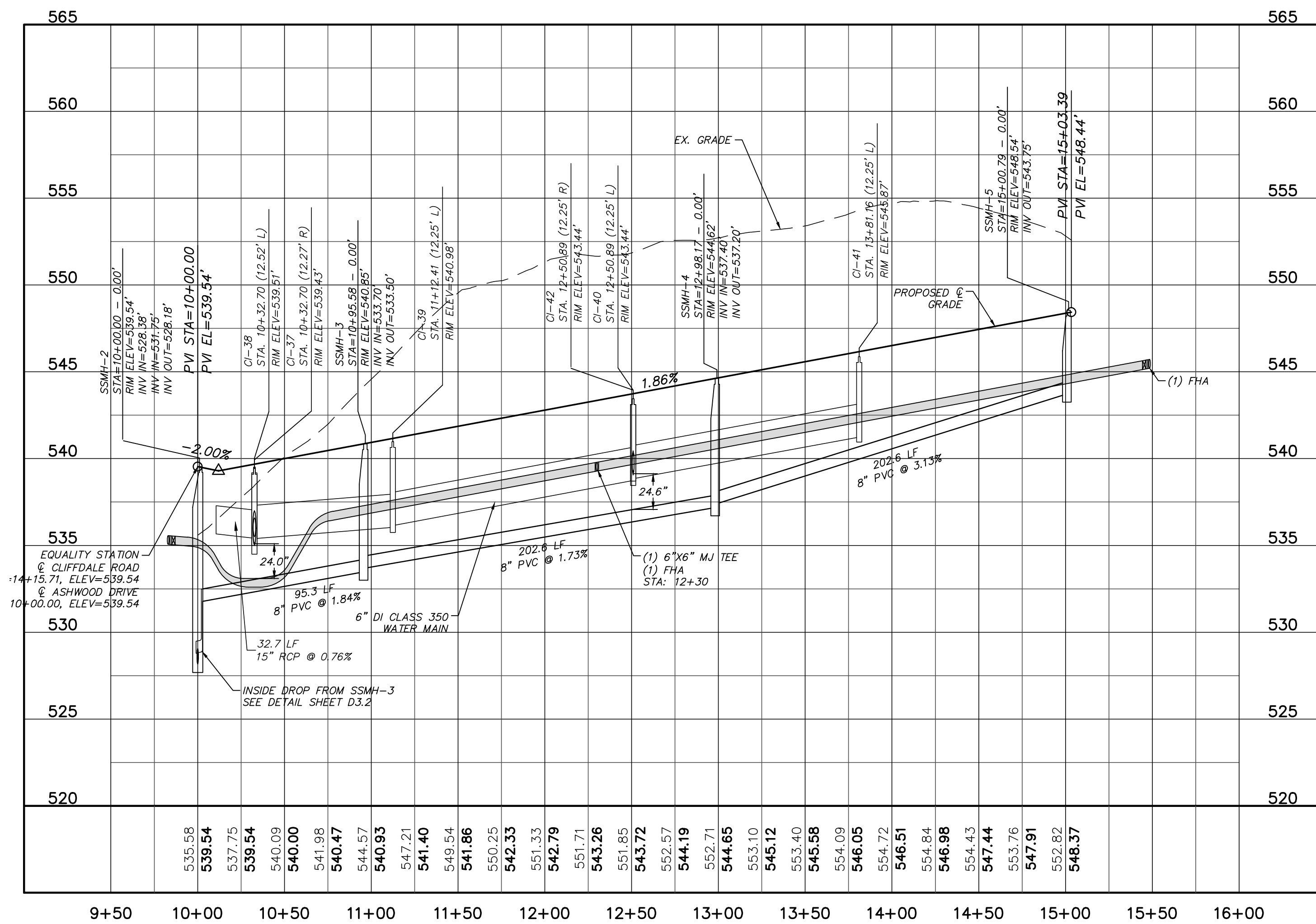
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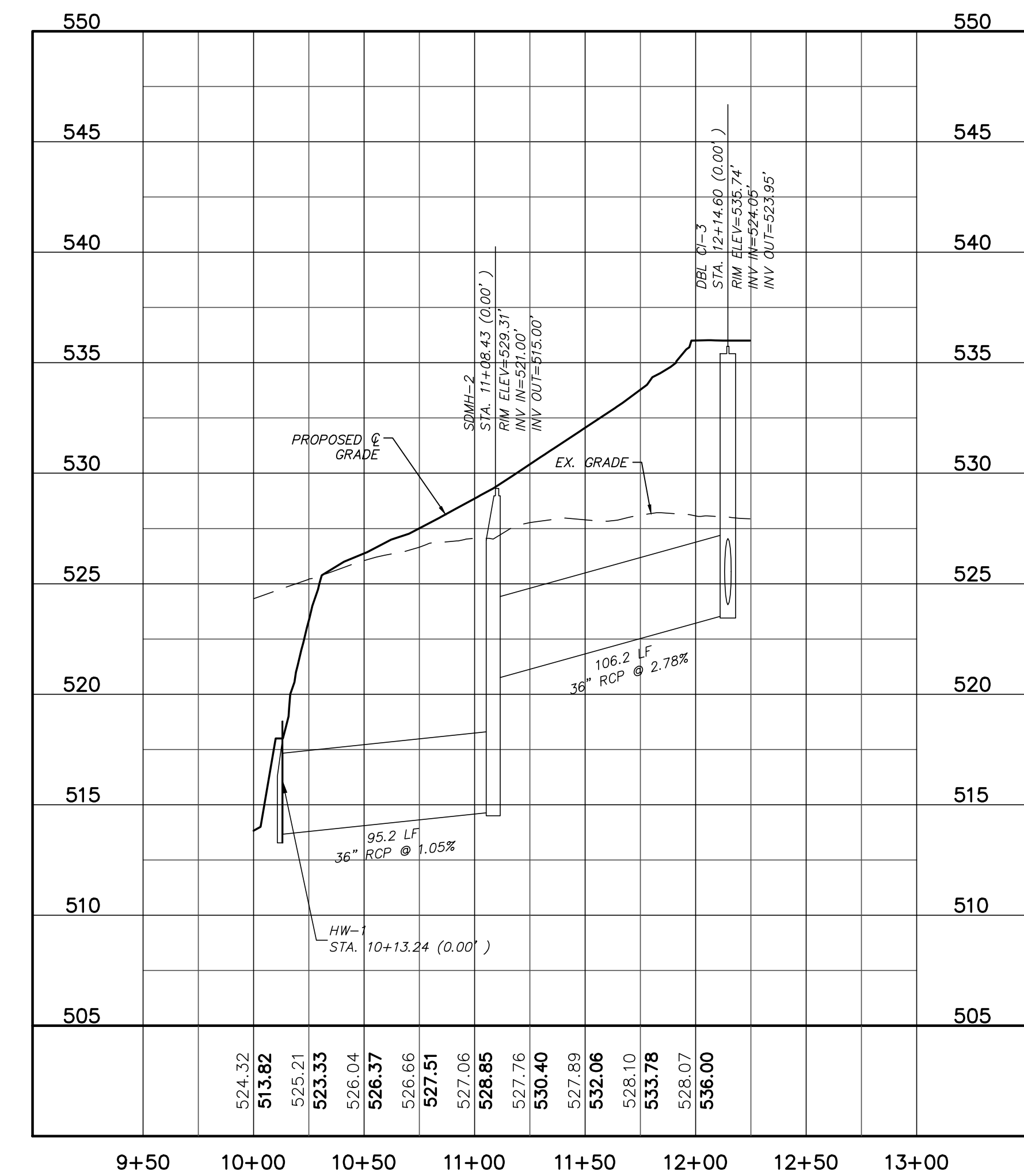
ASHWOOD DRIVE – SECTION 1 PLAN
 (27' B-B, 40' PUBLIC R/W, STA. 10+00.00 TO 14+53.73)
 SCALE: 1"=50'



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

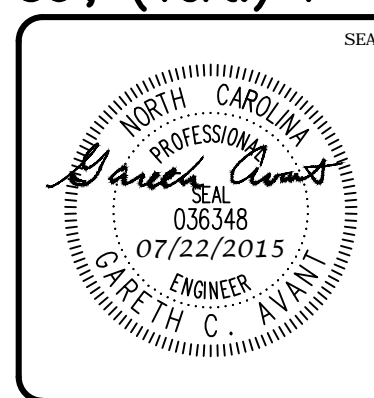
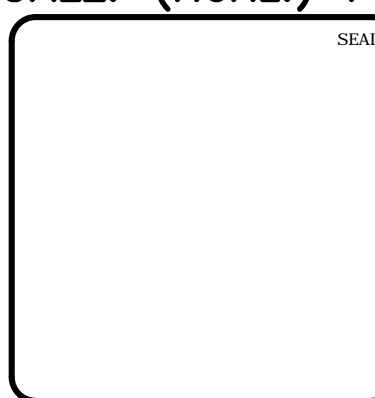


ASHWOOD DRIVE – SECTION 1 PROFILE
 (27' B-B, 40' PUBLIC R/W, STA. 10+00.00 TO 14+53.73)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'



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

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



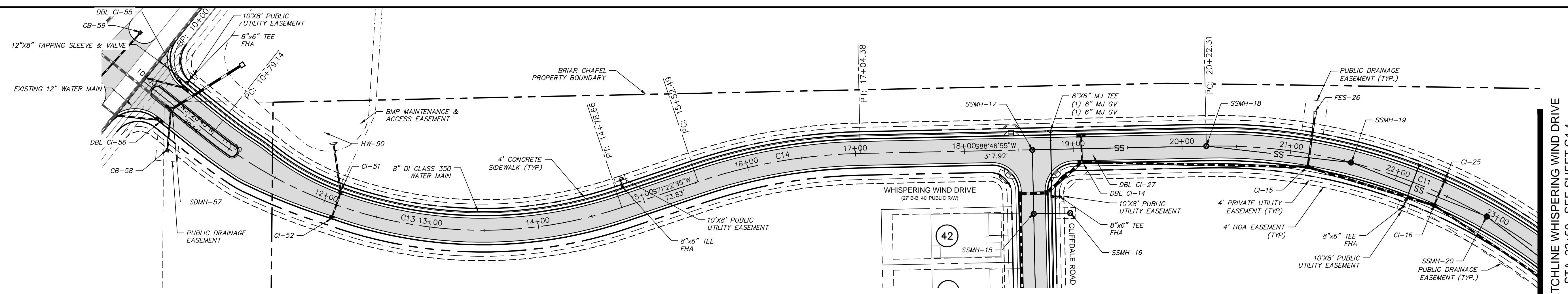
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BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA
PLAN & PROFILE
ASHWOOD DRIVE
STORM DRAINAGE OUTFALL

DATE: JUNE 1, 2015	SCALE: 1"=50'	PAC FILE NUMBER: C4.X
MCE PROJ. # 02735-0130	HORIZONTAL: 1"=50'	DRAWING NUMBER: C4.2
DRAWN: BSS	VERTICAL: 1"=5'	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		

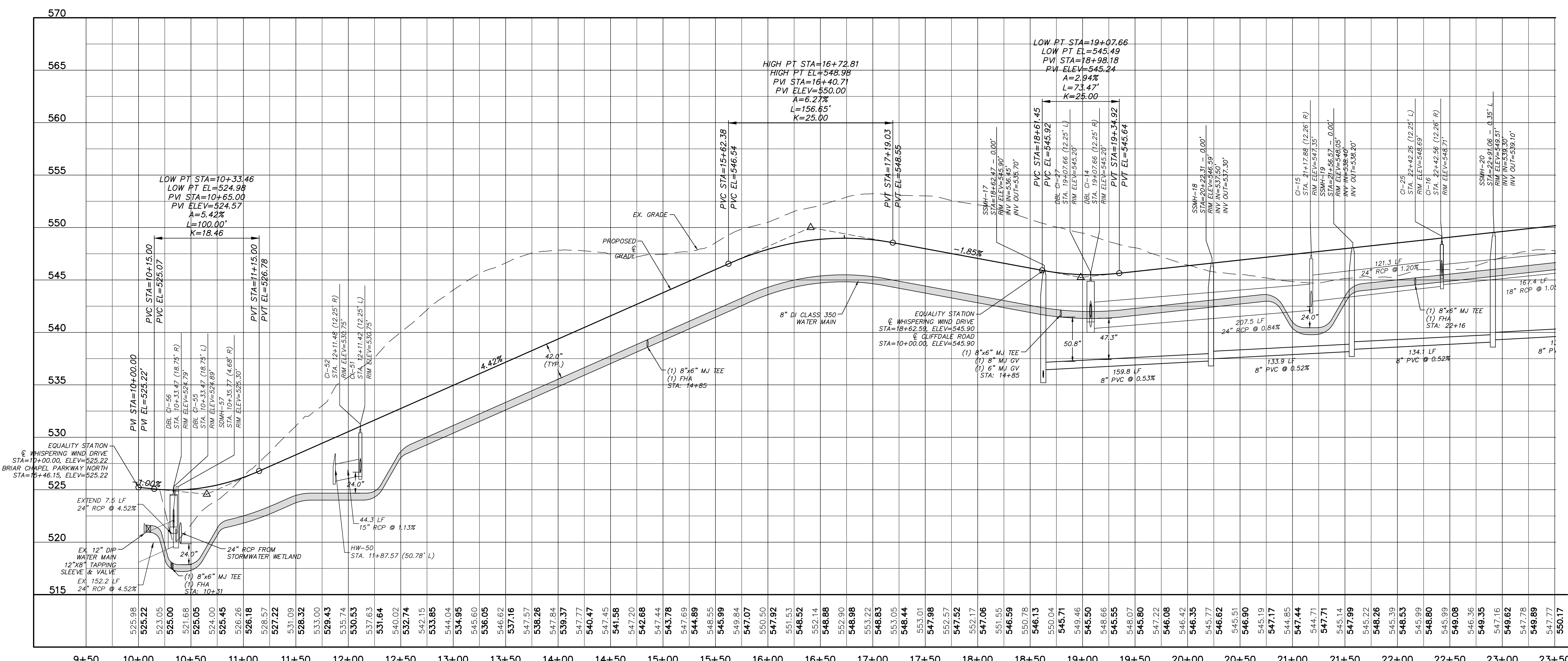
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WHISPERING WIND DRIVE - SECTION 1 PLAN
 (27' B-B, 40' PUBLIC R/W, STA. 10+00.00 TO 23+50.00)
 SCALE: 1"=50'

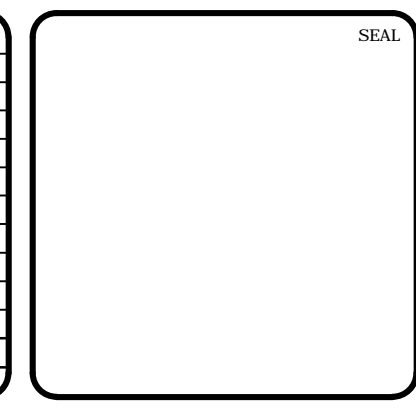


MATCHLINE WHISPERING WIND DRIVE
 STA. 23+50 - SEE SHEET C4.4



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

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1	INITIAL SUBMITTAL	2015.05.01



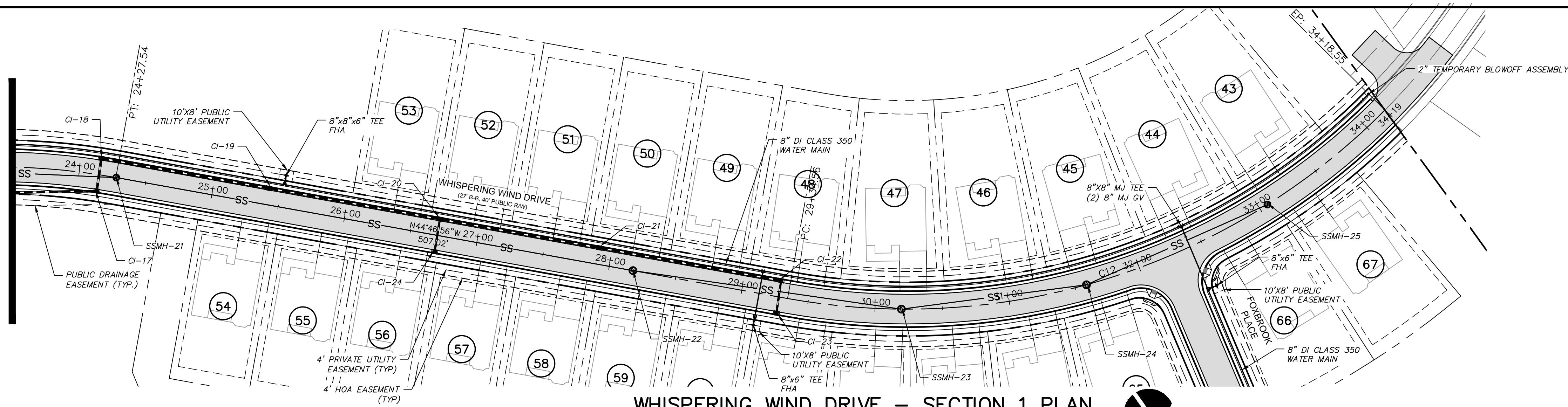
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 US STEEL - SECTION 1
 CHATHAM COUNTY, NORTH CAROLINA
 PLAN & PROFILE
 WHISPERING WIND DRIVE
 STA. 10+00 TO STA. 23+50

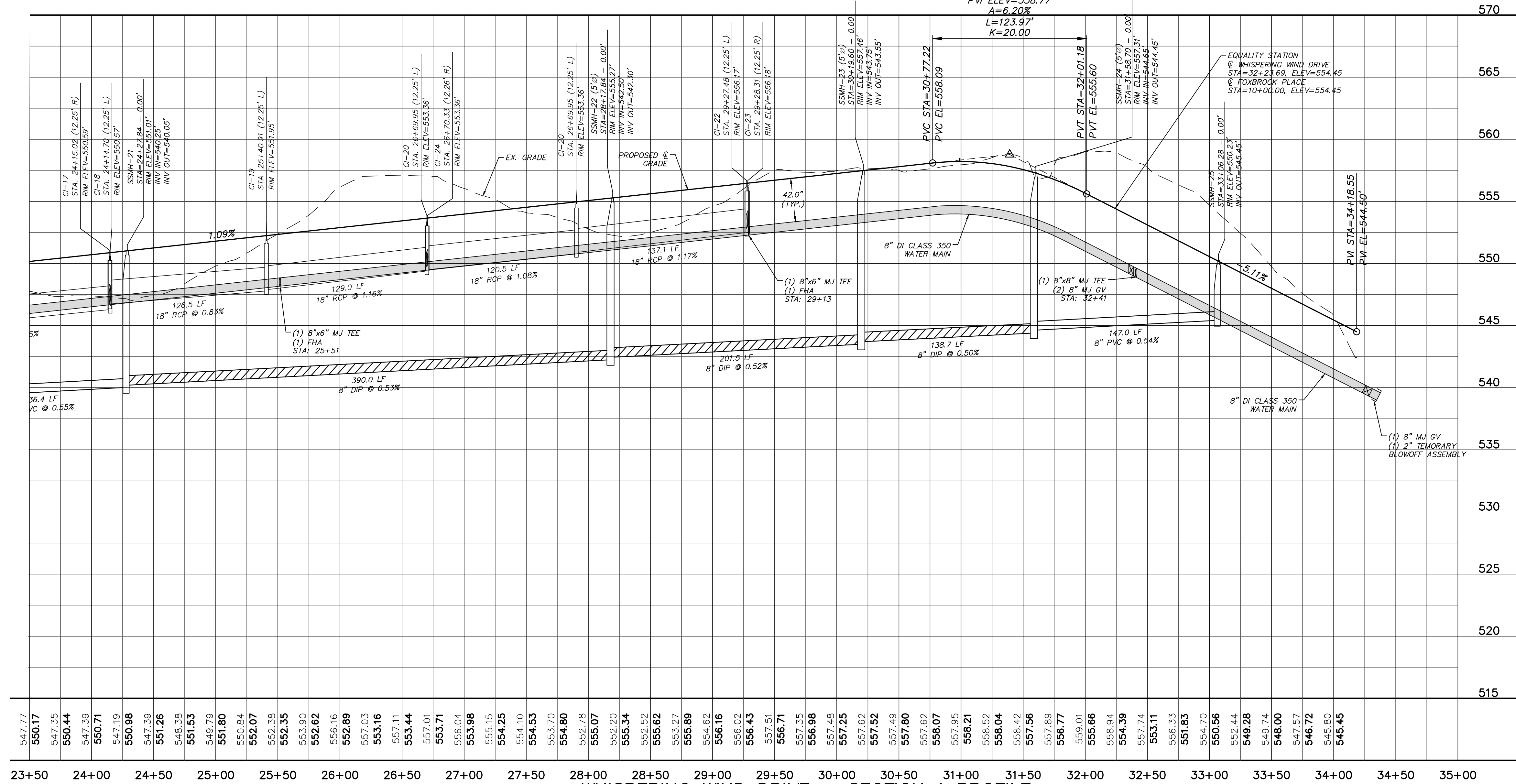
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DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 4	

MATCHLINE WHISPERING WIND DRIVE
STA. 23+50 - SEE SHEET C4.3



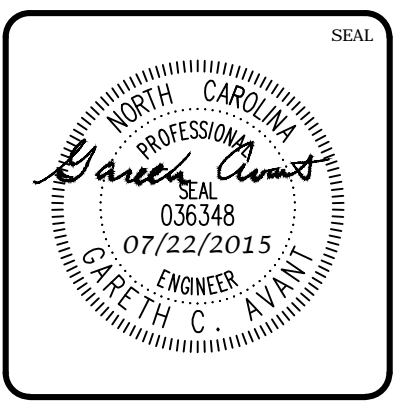
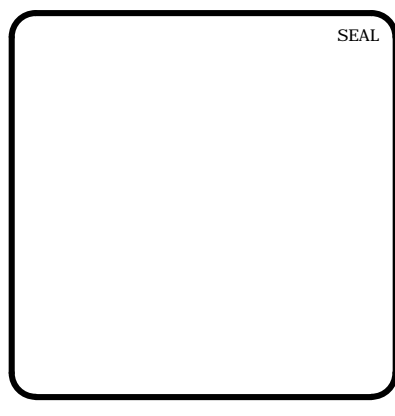
WHISPERING WIND DRIVE - SECTION 1 PLAN
(27' B-B, 40' PUBLIC R/W, STA. 23+50.00 TO 34+19.00)
SCALE: 1"=50'

HIGH PT STA=30+99.02
HIGH PT EL=558.21
PVI STA=31+39.20
PVI ELEV=558.77
A=6.20%
L=123.97'
K=20.00



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

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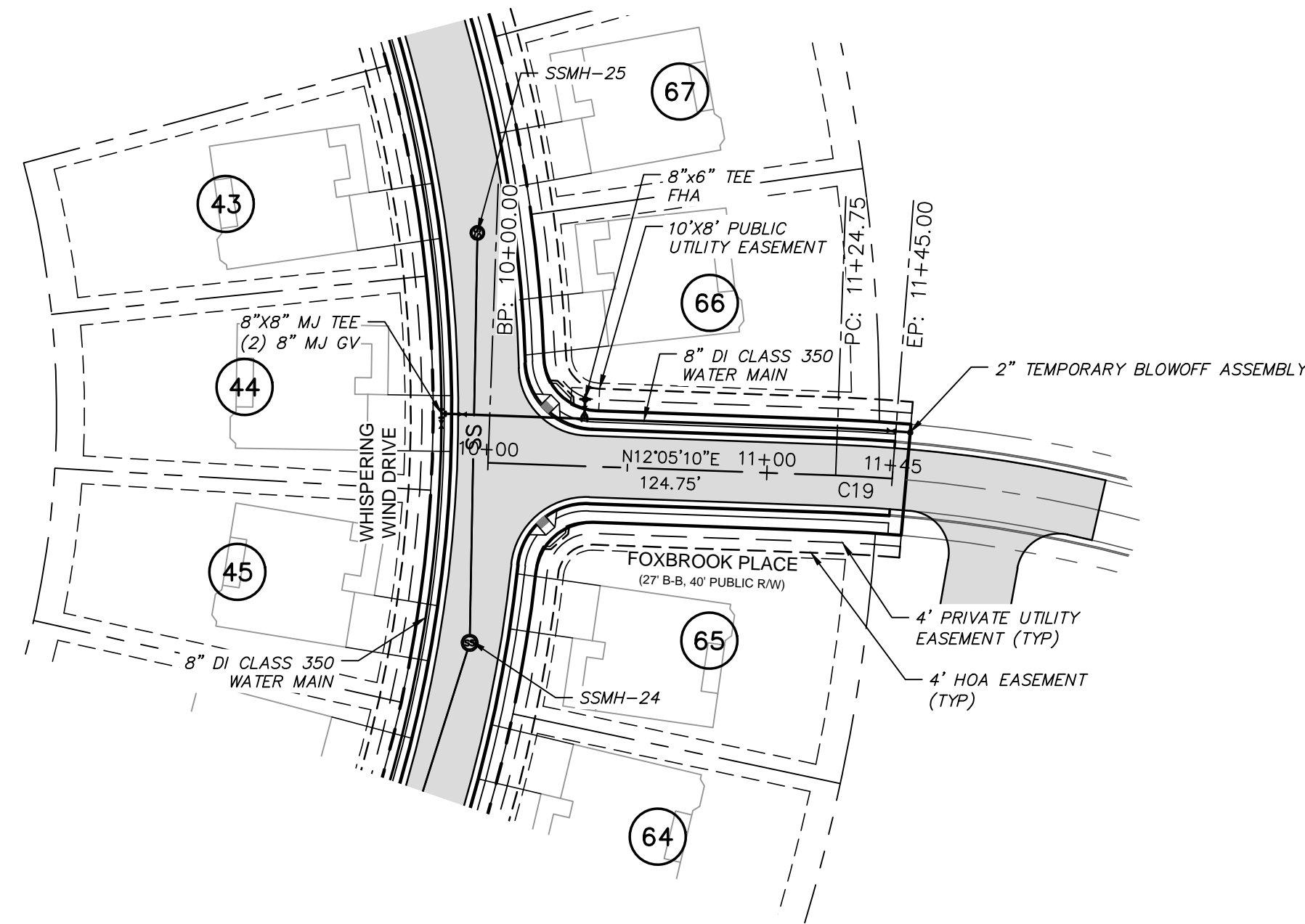


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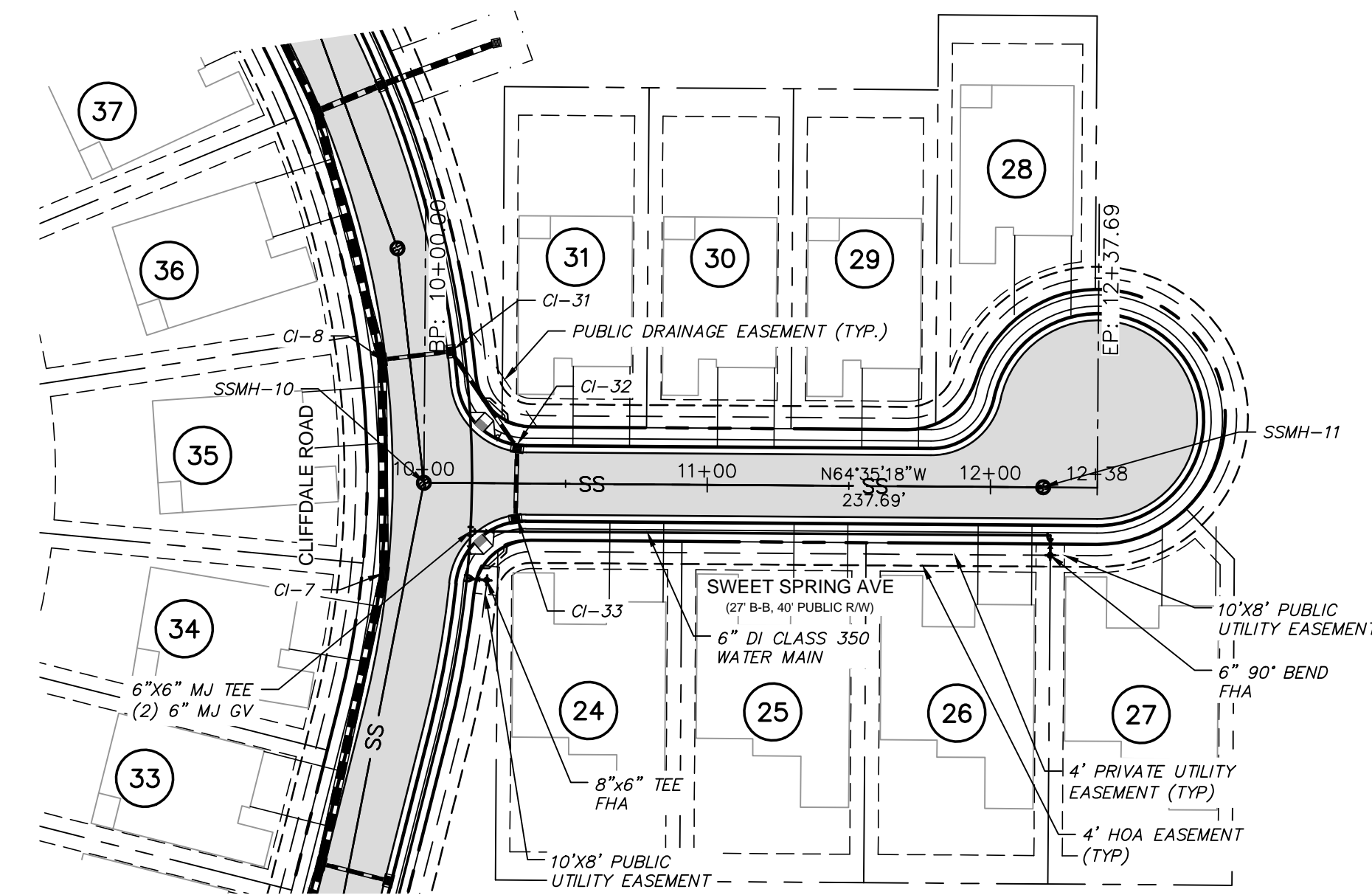
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**BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA**
PLAN & PROFILE
WHISPERING WIND DRIVE
STA. 23+50 TO STA. 34+20

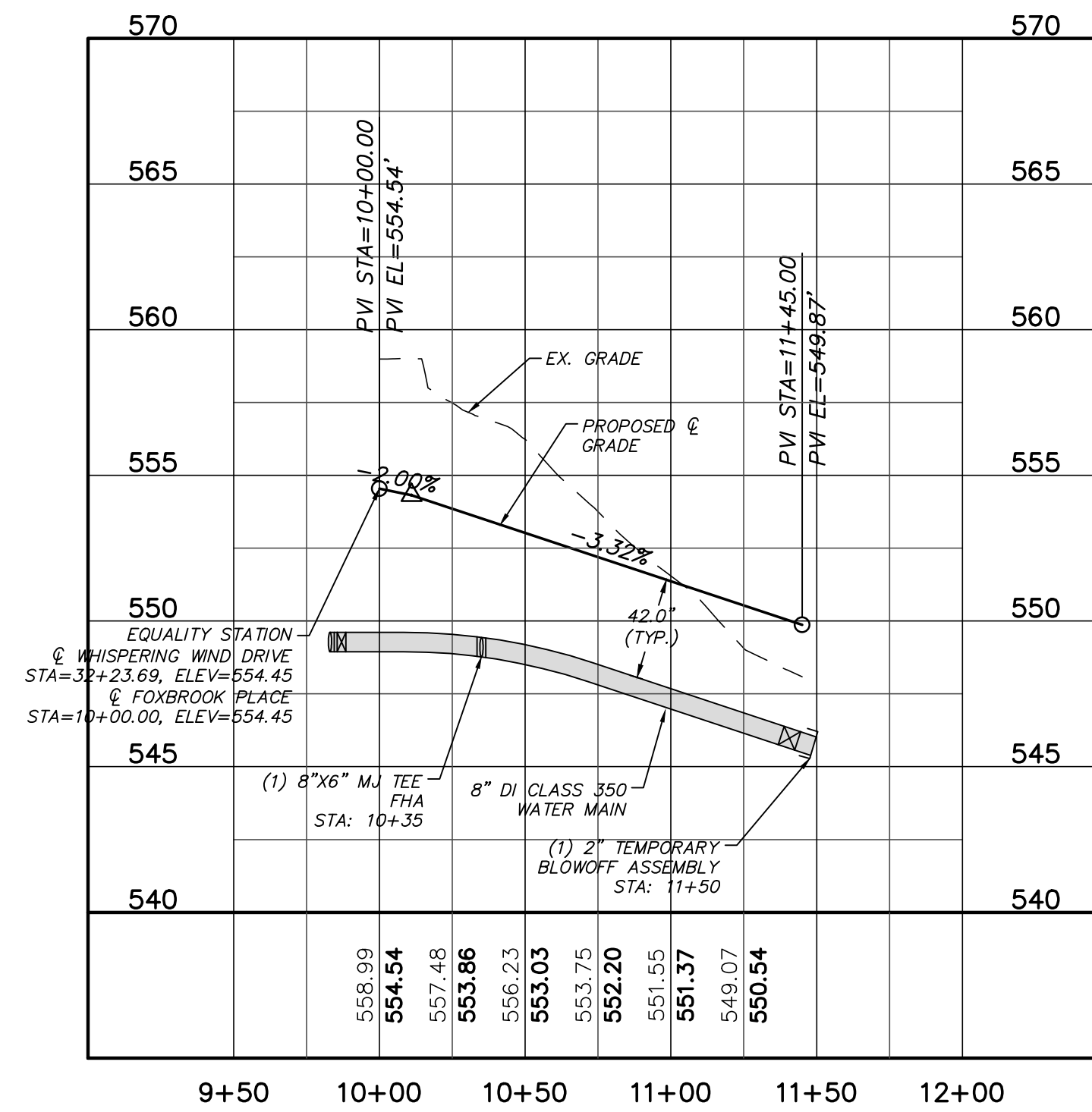
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DRAWN: BSS	VERTICAL: 1"=5'	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 4	



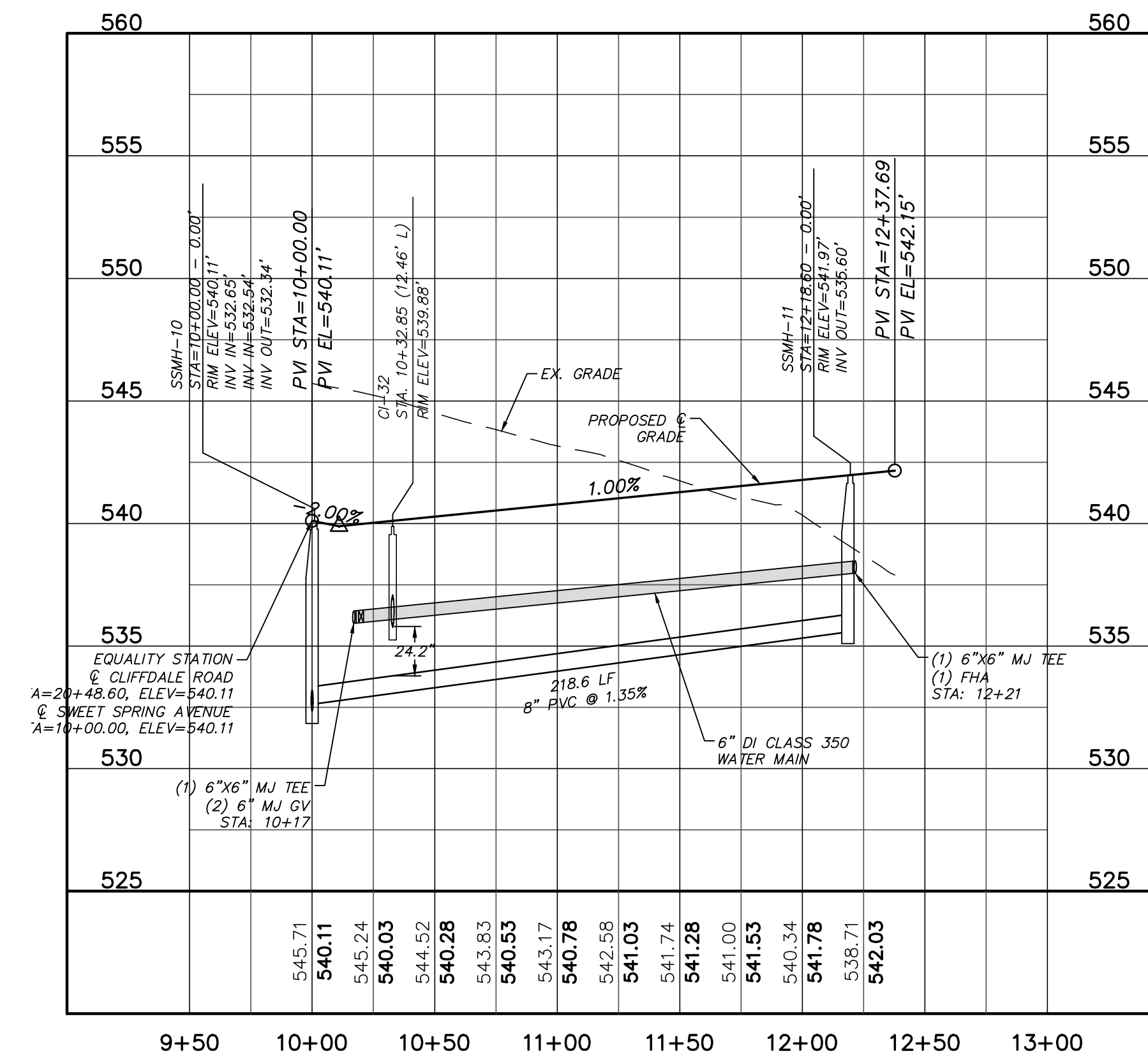
FOX BROOK PLACE PLAN
 (27' B-B, 40' PUBLIC R/W, STA. 10+00.00 TO 11+45.00)
 SCALE: 1"=50'



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

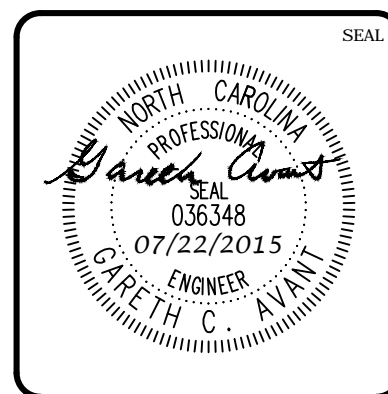
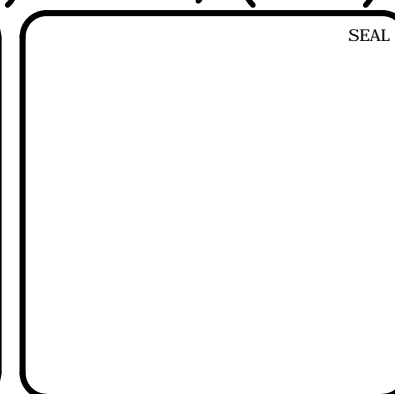


FOX BROOK PLACE PROFILE
 (27' B-B, 40' PUBLIC R/W, STA. 10+00.00 TO 11+45.00)
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'



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

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 CHATHAM COUNTY, NORTH CAROLINA**
**PLAN & PROFILE
 FOX BROOK PLACE
 SWEET SPRING AVENUE**

DATE: JUNE 1, 2015	SCALE: 1" = 50'	M&C FILE NUMBER: C4.X
M&C PROJ. #: 02735-0130	HORIZONTAL: 1" = 50'	DRAWING NUMBER: C4.5
DRAWN: BSS	VERTICAL: 1" = 5'	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY		REVISION: 4

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE
SPECIES — RATE (lb./acre)
TALL FESCUE — 80
KOBE LESPEDEZA 40

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

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

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

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

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

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

RECOMMENDATIONS FOR GRASS-LINED CHANNELS

SEEDING MIXTURE
SPECIES — RATE (lb./acre)
TALL FESCUE — 200

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

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

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

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

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

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

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

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

PERMANENT SEEDING SCHEDULE
NTS

- 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

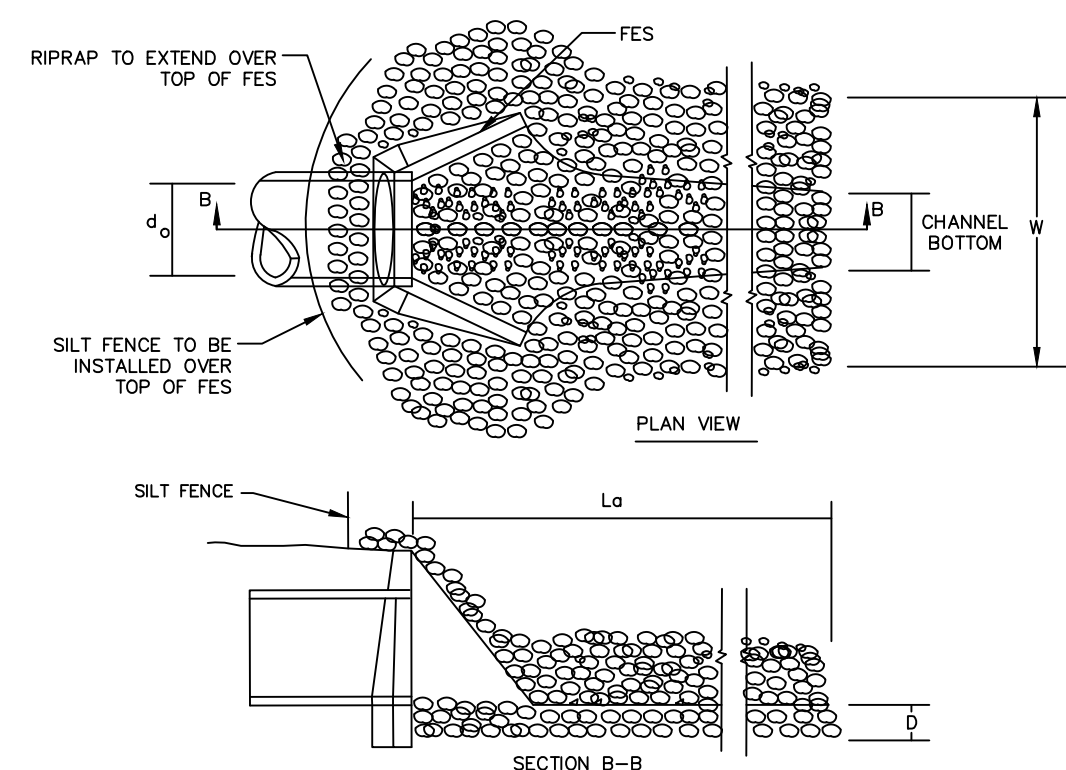
SEEDING DATES:
MOUNTAINS: AUG. 15 – DEC. 15
COASTAL PLAIN AND PIEDMONT: AUG. 15 – DEC. 30

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.

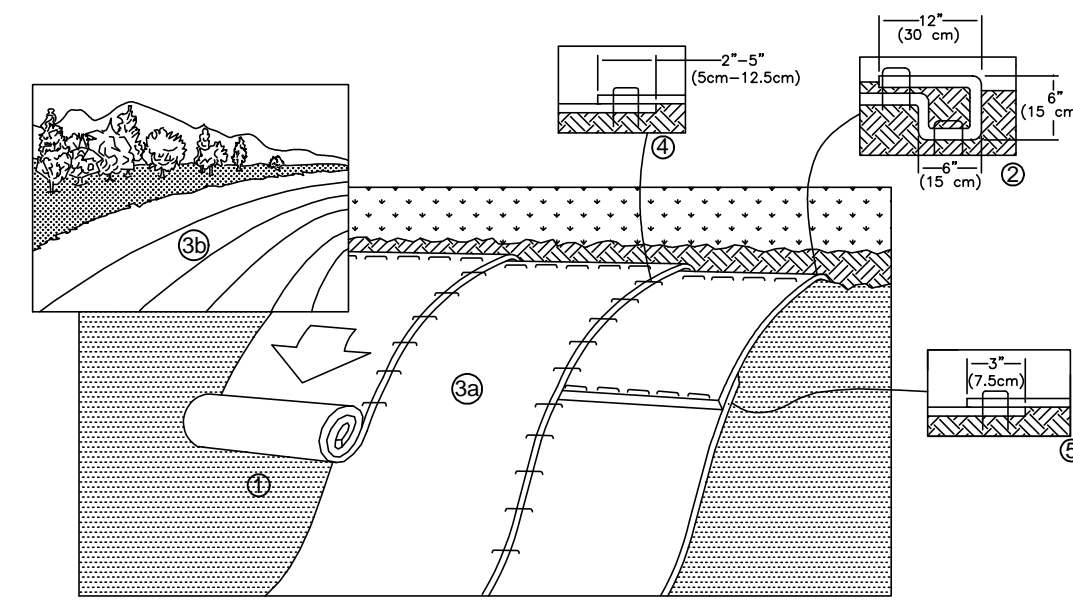
TEMPORARY SEEDING SCHEDULE
NTS



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

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

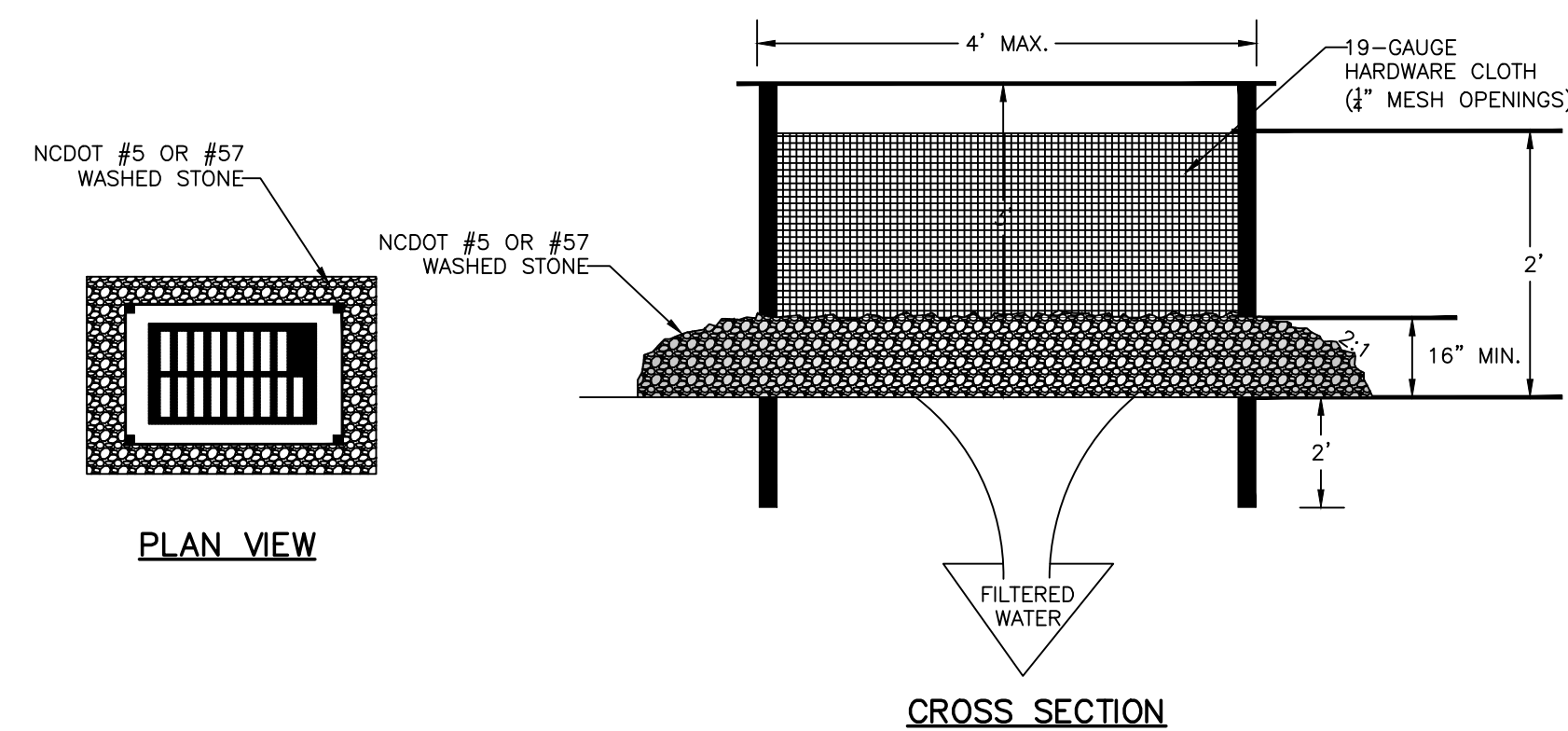
RIPRAP OUTLET PROTECTION
NTS



**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.

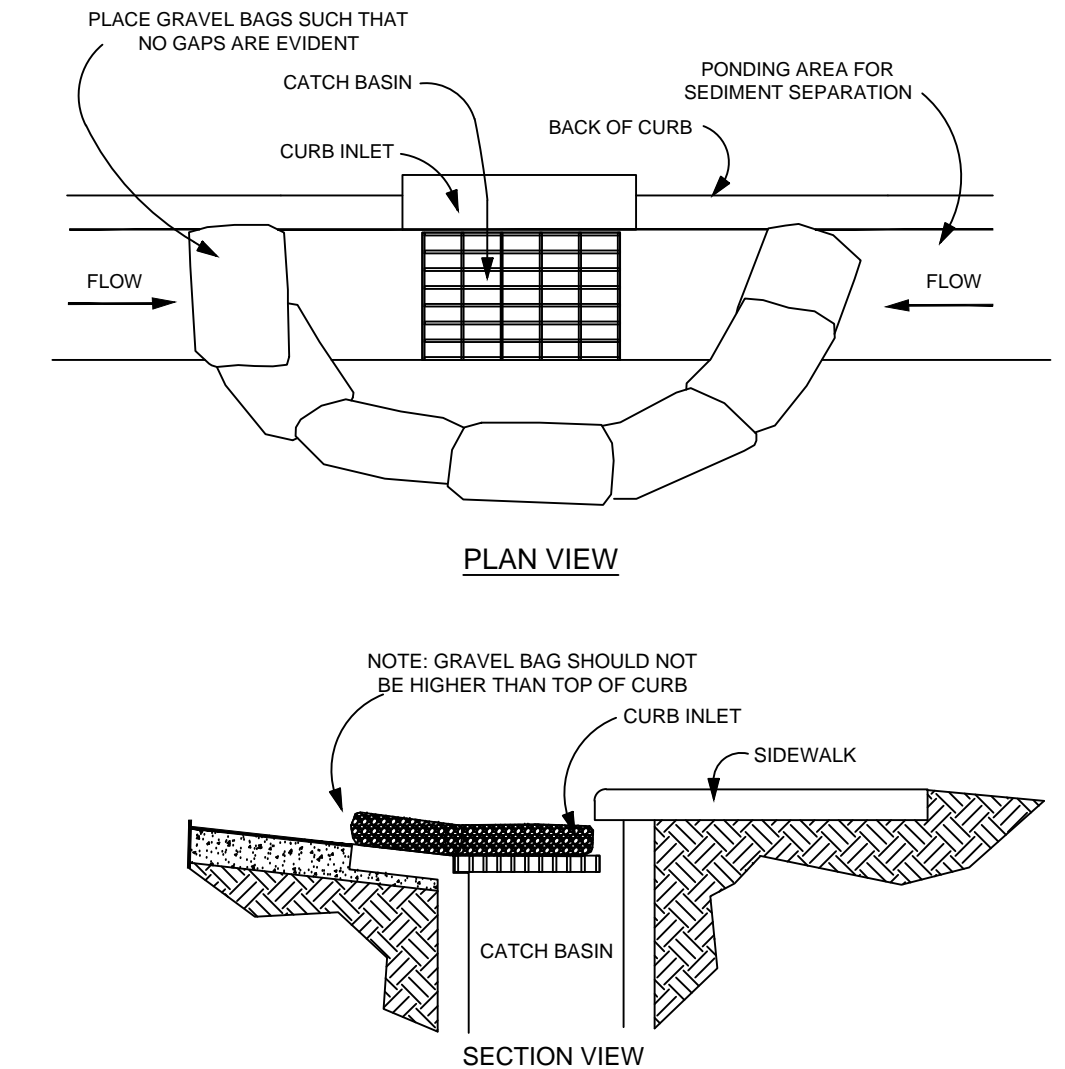


HARDWARE CLOTH & GRAVEL INLET PROTECTION
NTS

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

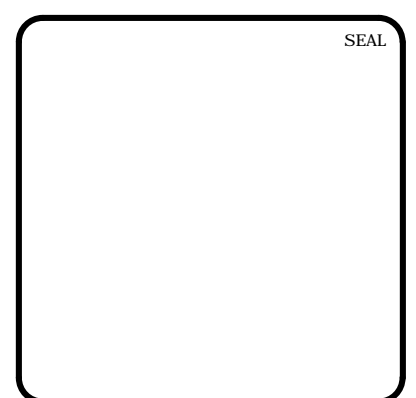
NOTES:

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



GRAVEL BAG CURB INLET PROTECTION
NTS

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

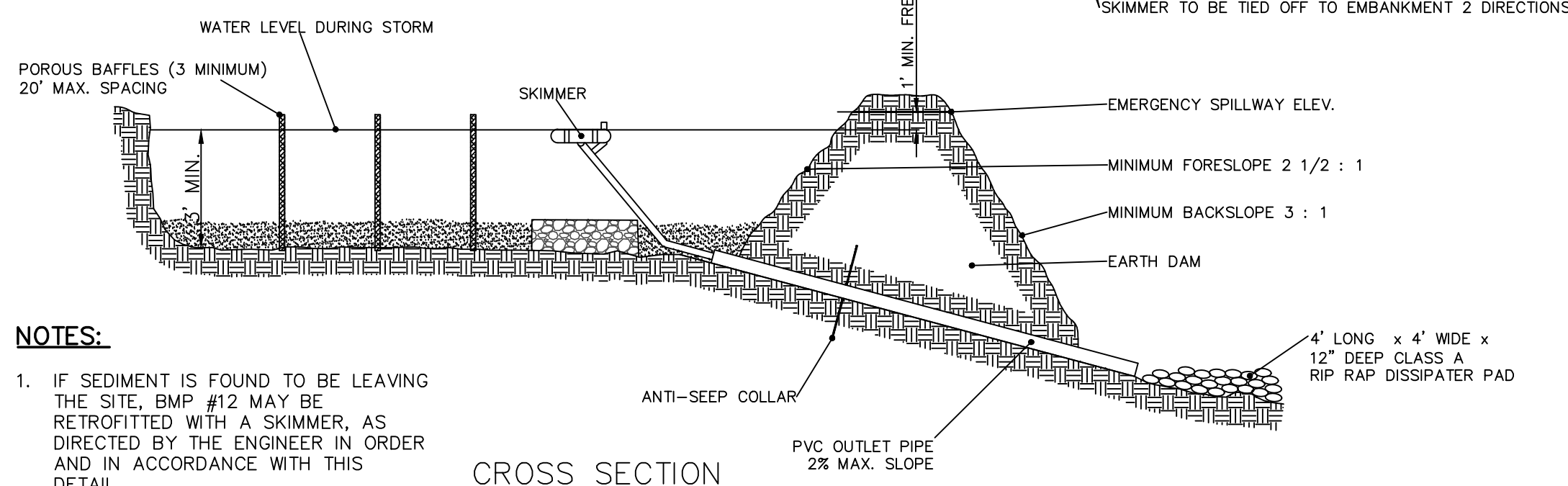
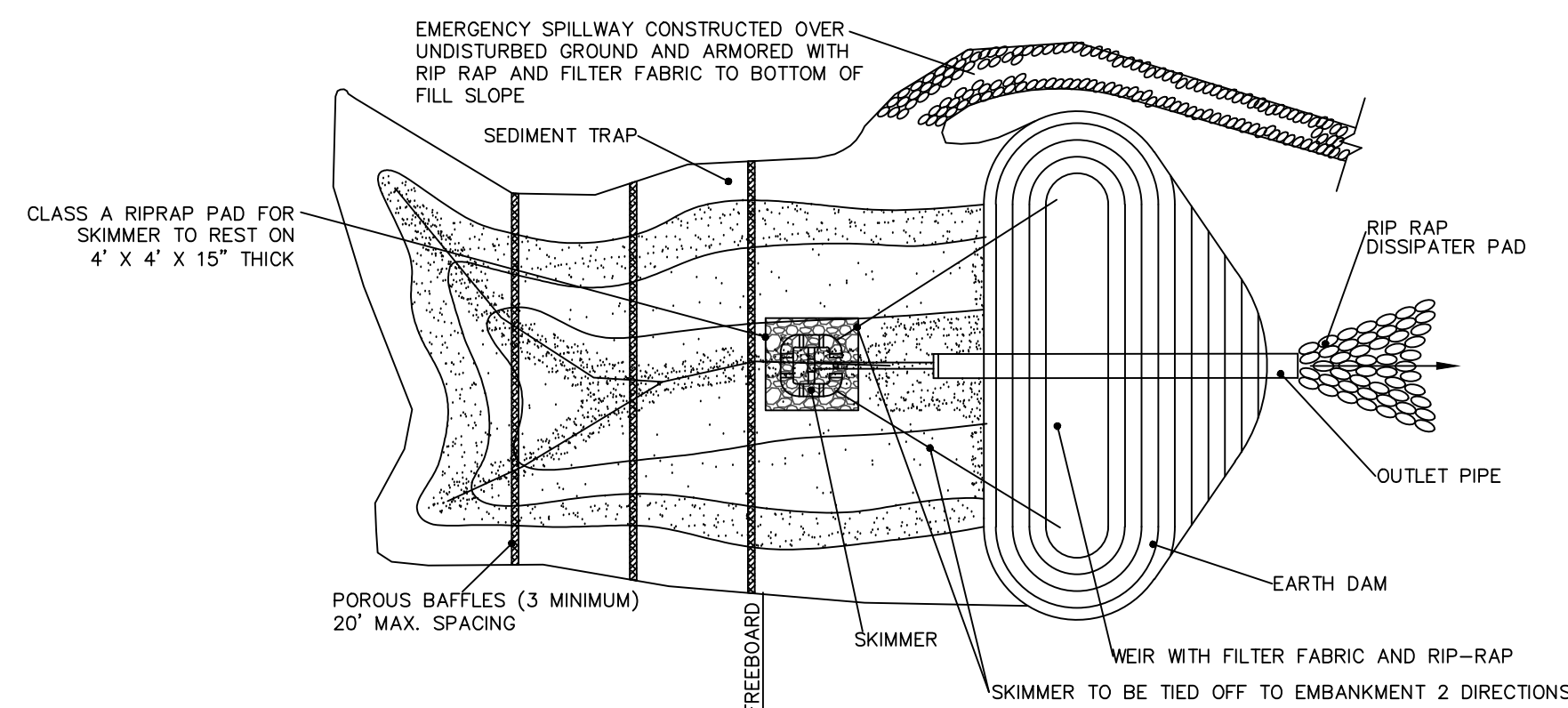
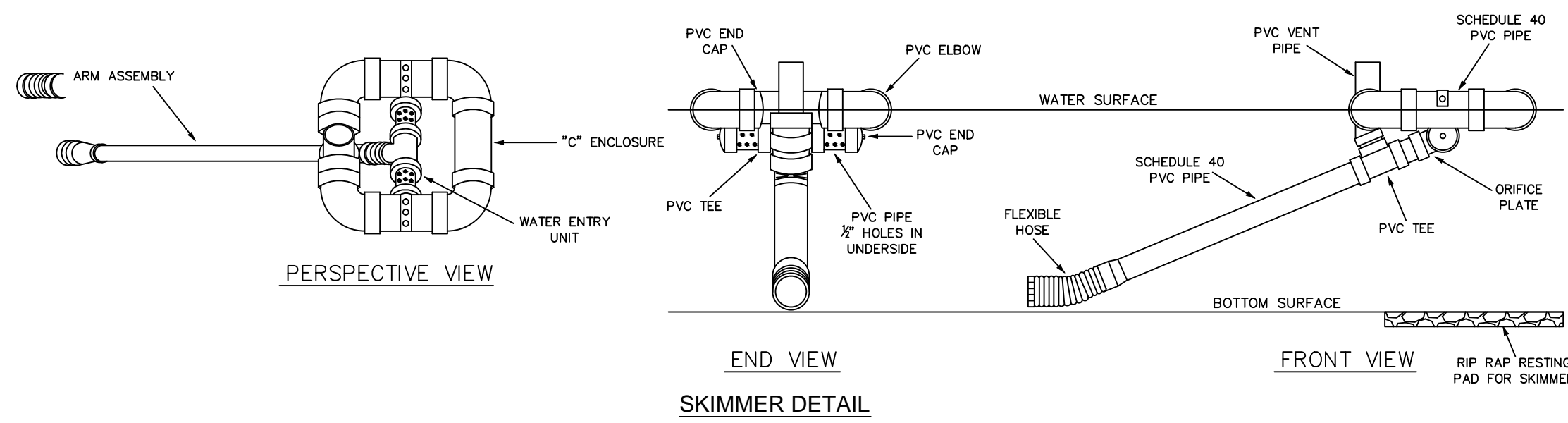


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BRIAR CHAPEL™
by
Newland COMMUNITIES

**BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA**
**EROSION AND SEDIMENTATION CONTROL
DETAILS**

DATE: JUNE 1, 2015	SCALE: D1.X	HBC FILE NUMBER: D1.X
MCE PROJ. # 02735-0130	HORIZONTAL: AS NOTED	DRAWING NUMBER: D1.1
DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR.: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 4	



NOTES:

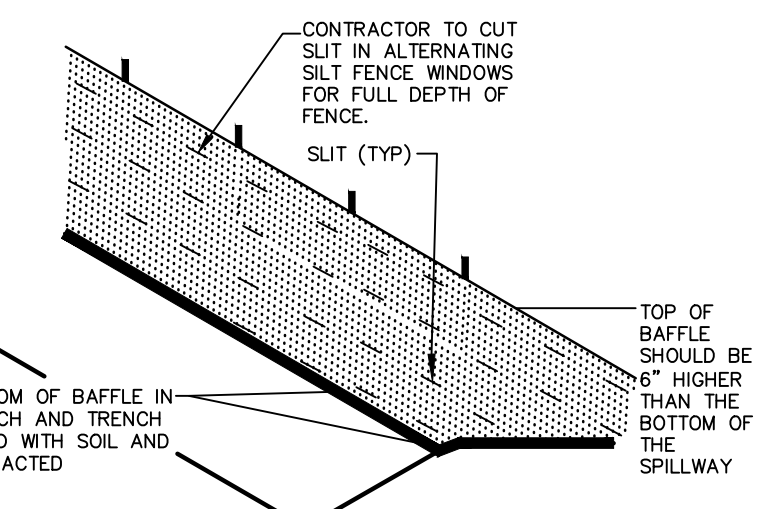
- IF SEDIMENT IS FOUND TO BE LEAVING THE SITE, BMP #12 MAY BE RETROFITTED WITH A SKIMMER, AS DIRECTED BY THE ENGINEER IN ORDER AND IN ACCORDANCE WITH THIS DETAIL.
- ANY EXISTING SKIMMER SEDIMENT BASINS PREVIOUSLY APPROVED SHALL MAINTAINED PER THEIR ORIGINAL DIMENSIONS AND IN ACCORDANCE WITH THIS DETAIL.

TEMPORARY SKIMMER SEDIMENT BASIN

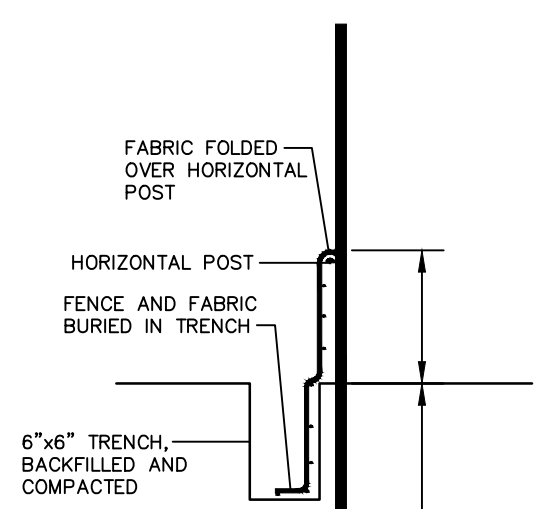
NTS

BASIN #	DISTURBED AREA (ac)	TOTAL DRAINAGE AREA (ac)	REQUIRED STORAGE	REQUIRED SURFACE AREA	MINIMUM DEPTH	BOTTOM ELEVATION	TOP WIDTH	TOP LENGTH	PROVIDED STORAGE	PROVIDED SURFACE AREA	STORAGE/SPILLWAY ELEVATION	SPILLWAY WIDTH	TOP OF DAM ELEVATION	SKIMMER SIZE	SKIMMER ORIFICE DIAMETER
1	1.76	1.76	6,340 CF	2,850 SF	3.5'	534.5'	43'	78'	6,825 CF	2,183 SF	538.0'	8.0'	540.0'	2.0"	1.6"
2	3.31	3.31	11,920 CF	5,370 SF	3.5'	534.5'	63'	113'	17,500 CF	7,936 SF	538.0'	14.0'	540.0'	2.5"	2.4"
3	6.28	6.28	22,610 CF	10,190 SF	3.0'	531.0'	82'	152'	29,400 CF	14,104 SF	534.0'	26.0'	536.0'	4.0"	2.8"
4	2.32	2.62	8,350 CF	3,760 SF	3.5'	522.5'	48'	86'	8,943 CF	10,508 SF	526.0'	10.0'	528.0'	2.0"	1.8"
5	6.00	8.90	21,800 CF	14,440 SF	4.0'	511.0'	91'	174'	49,280 CF	15,660 SF	514.0'	37.0'	516.0'	4.0"	3.6"
6	3.09	3.09	11,120 CF	5,010 SF	3.0'	530.0'	57'	102'	12,150 CF	10,138 SF	533.0'	13.0'	535.0'	2.5"	2.0"
7	1.81	1.81	6,520 CF	2,940 SF	3.5'	525.0'	PER PLAN		52,073 CF	13,266 SF	528.0'	N/A	530.0'	4.0"	3.7"
BMP #21	16.02	18.92	57,670 CF	22,470 SF	5.0'	508.0'	PER PLAN		92,565 CF	25,170 SF	515.0'	40.0'	520.0'	5.0"	4.9"

BAFFLE INSTALLATION - STEP 1



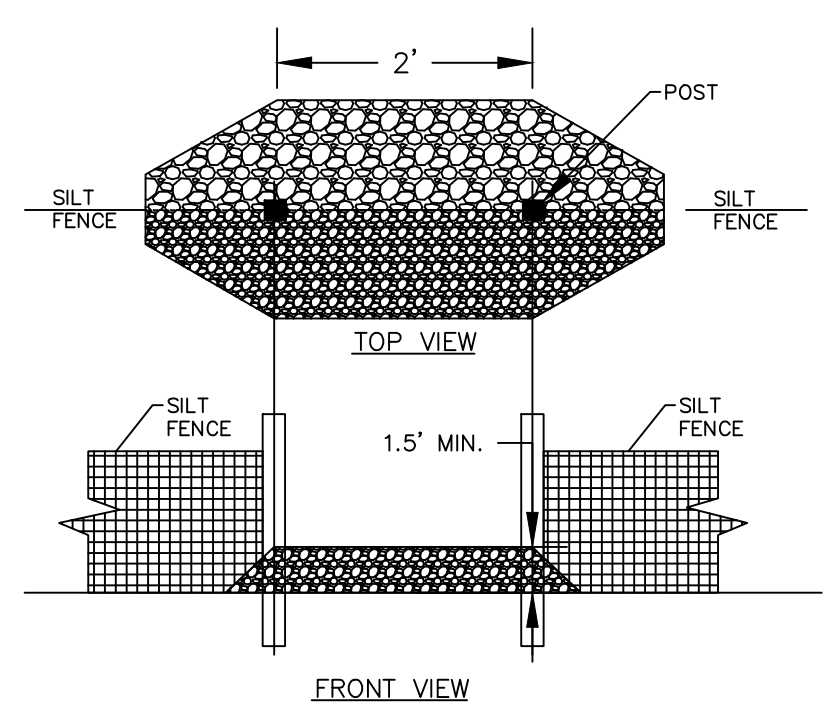
BAFFLE INSTALLATION - STEP 2



NOTES:

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

BAFFLE INSTALLATION DETAIL



SILT FENCE OUTLET

NTS

TEMPORARY CONSTRUCTION ENTRANCE

NTS

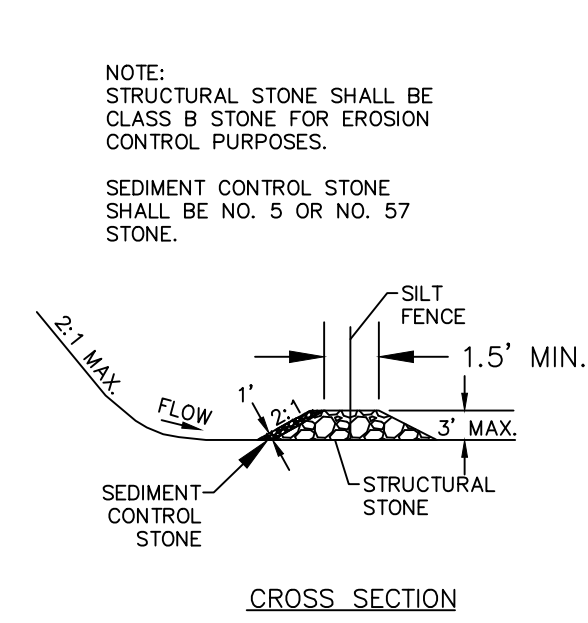
A. COARSE AGGREGATE (2"-3" STONE) SHALL BE USED. PAD TO BE 100'L X 25'W X 6"D MIN. PLACE A MINIMUM OF 3" OF STONE IN A CUT SECTION TO HELP SECURE FILTER CLOTH.

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

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

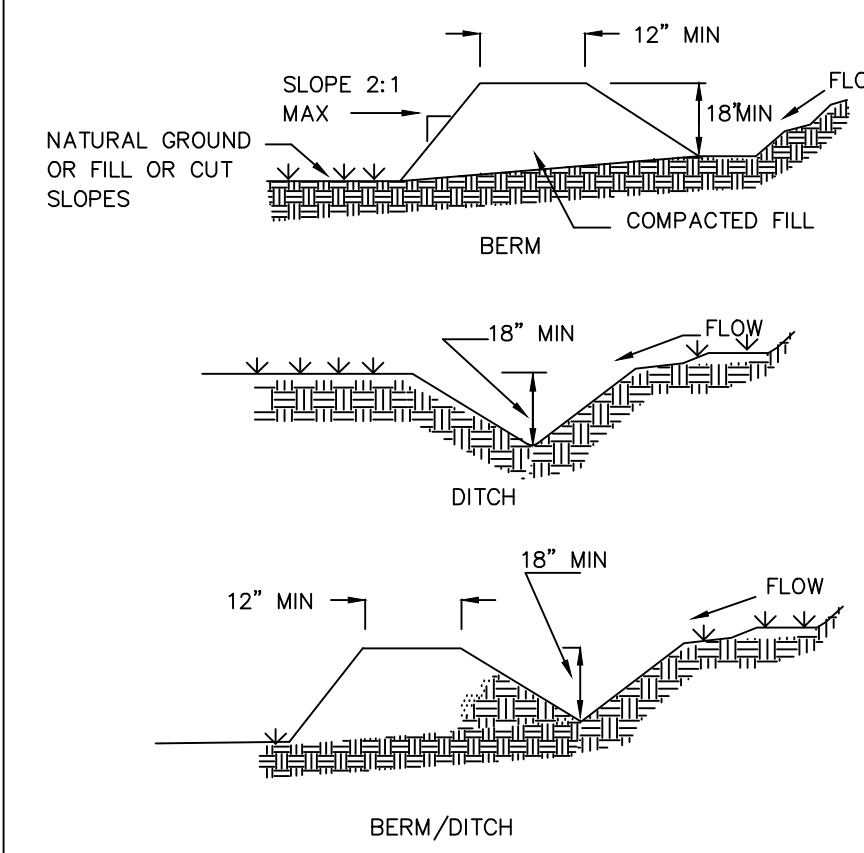
D. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOP DRESSING MAY BE NECESSARY. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEARED STONE. AS NECESSARY, IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED,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

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



TEMPORARY DIVERSION/CLEAN WATER DIVERSION DITCH

NTS



NOTES:

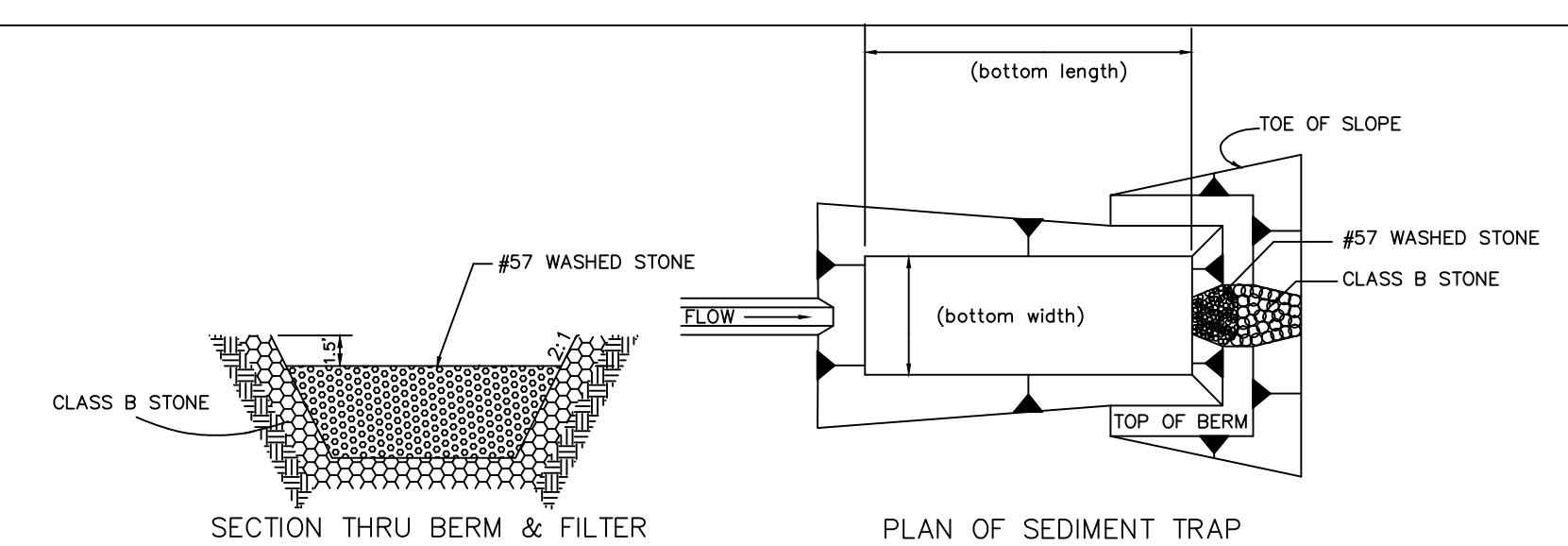
POSITIVE GRADE MUST BE PROVIDED TO ASSURE DRAINAGE. IF SLOPE EXCEEDS 2% SEED AND MULCH DIVERSION, TRY NOT TO EXCEED 5% MAXIMUM D.A. = 5 ACRES WITHOUT SUPPORTING CALC. DIVERSIONS AT THE TOP OF SLOPES MUST EMPTY INTO AN APPROVED SLOPE DRAIN. BERM/DITCH IS MOST COMMONLY USED.

- 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.
- DIVERSIONS SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION OPERATIONS.
- DIVERSIONS SHOULD BE SEEDED AND MULCHED IF THEY ARE TO REMAIN IN PLACE OVER 30 DAYS.
- CHECK DEVICE AFTER EACH RAIN, BUT ONCE A WEEK REGARDLESS. REPAIR AS NECESSARY.

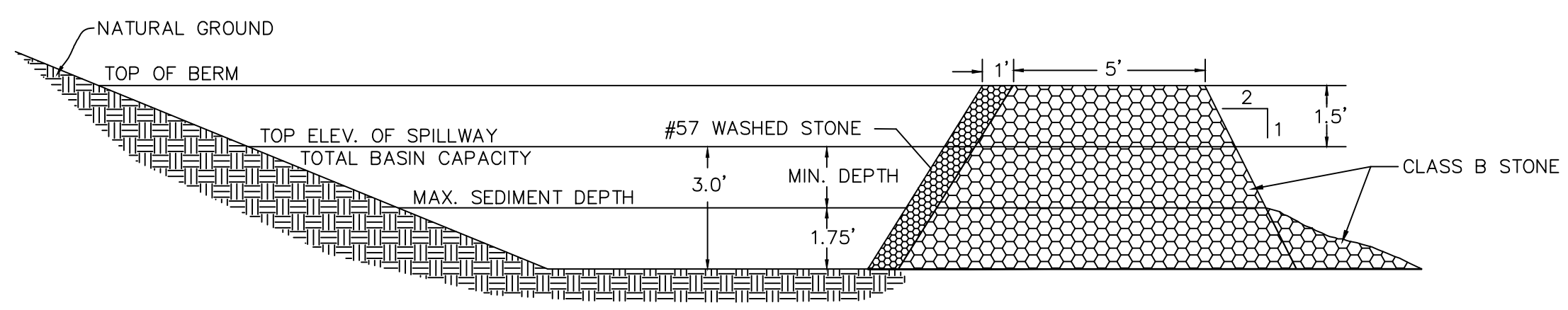
MAINTENANCE:

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

TDD #	TOTAL LENGTH	SLOPE (%)	LINER	RECEIVING SLOPE DRAIN SIZE (IN.)
STAGE 1 DIVERSIONS				
1	423'	2.6	STRAW W/NET	24
2	32'	7.6	STRAW W/NET	24
3	131'	5.3	SYNTHETIC MAT	24
4	431'	0.7	STRAW W/NET	24
5	312'	2.2	STRAW W/NET	24
6	186'	4.6	SYNTHETIC MAT	30
7	116'	9.1	SC250	24
8	153'	1.3	STRAW W/NET	24
9	150'	4.0	STRAW W/NET	15
10	80'	1.3	STRAW W/NET	15
11	44'	9.1	SC250	18
12	337'	2.1	STRAW W/NET	18
13A	133'	7.2	STRAW W/NET	N/A
13B	793'	3.9	SYNTHETIC MAT	N/A
13C	233'	1.7	STRAW W/NET	30
14	166'	7.8	SC250	30
15	235'	3.6	STRAW W/NET	18
16	99'	8.6	STRAW W/NET	18
17	86'	7.0	SYNTHETIC MAT	24
18	446'	2.6	STRAW W/NET	24
19	340'	7.4	SC250	24
20	482'	4.1	STRAW W/NET	24
21	349'	2.5	STRAW W/NET	18
22	198'	2.5	STRAW W/NET	12
STAGE 2 DIVERSIONS				
23	359'	1.7	STRAW W/NET	24
24	484'	3.1	SC250	30

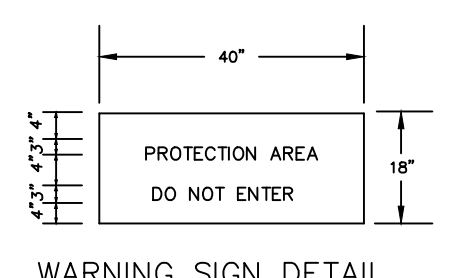


TRAP #	DISTURBED AREA (ac)	TOTAL DRAINAGE AREA (ac)	REQUIRED STORAGE	REQUIRED SURFACE AREA	MINIMUM DEPTH	BOTTOM ELEVATION	TOP WIDTH	TOP LENGTH	PROVIDED STORAGE	PROVIDED SURFACE AREA	STORAGE/SPILLWAY ELEVATION	SPILLWAY WIDTH	TOP OF DAM ELEVATION
1	2.25	2.25	8,100 CF	3,970 SF	3.5'	539.5'	33'	129'	8,120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

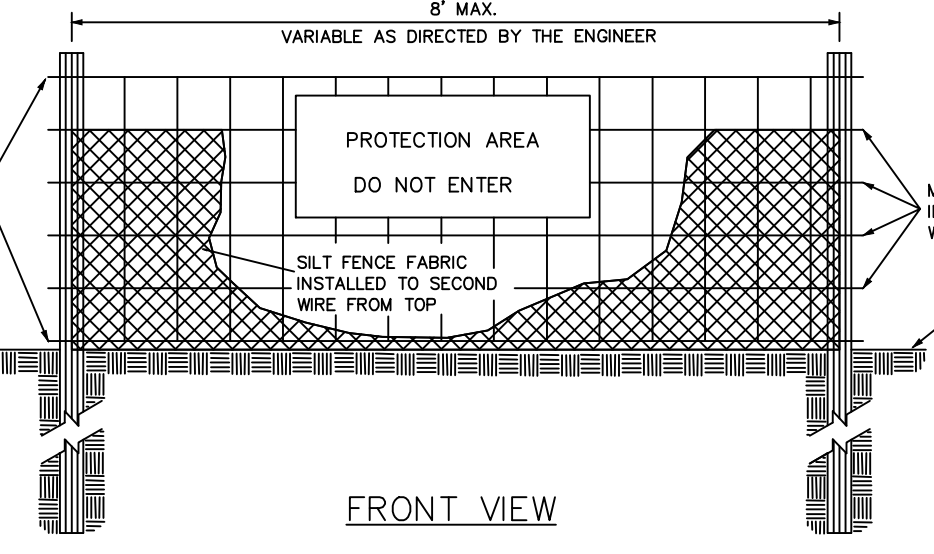
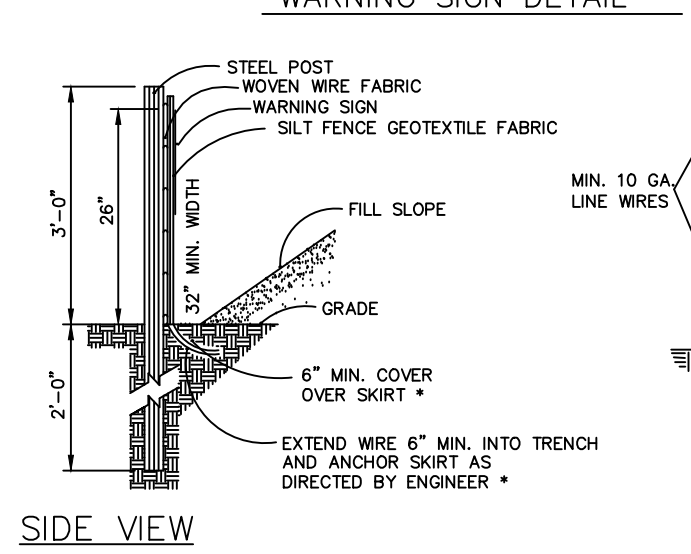


TEMPORARY SEDIMENT TRAP

NTS



*FOR REPAIR OF SILT FENCE FAILURES, USE NO. 57 WASHED STONE. FOR ANCHOR WHEN SILT FENCE IS PROTECTING CATCH BASIN.



COMBINATION SILT/TREE PROTECTION FENCE

NTS

NOTES:

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

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

SEAL

SEAL

PROFESSIONAL ENGINEER

07/22/2015

036348

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

EROSION AND SEDIMENTATION CONTROL
DETAILS

DATE: JUNE 1, 2015

MCE PROJ. # 02735-0130

DRAWN: BSS

DESIGNED: BSS

CHECKED: GCA

PROJ. MGR: CHS

SCALE: HORIZONTAL: AS NOTED

VERTICAL: N/A

HBC FILE NUMBER: D1.X

DRAWING NUMBER: D1.2

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

REVISION: 4

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

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

GENERAL NOTES:
 CHAMFER ALL EXPOSED CORNERS 1".
 USE CLASS "B" CONCRETE THROUGHOUT.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.
 PROVIDE ALL JUNCTION BOXES OVER 3' 6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.
 ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. STAINLESS STEEL SHORTENED AND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB).
 MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"				CUBIC YARDS OF CONCRETE IN BOX				TOTAL QUANTITIES FOR ONE PIPE				DEDUCTIONS FOR ONE PIPE				
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	TOTAL	C.S.	R.C.
12"	2'-0"	2'-0"	2'-3"	12	3'-0"	3'-0"	3'-0"	0.167	0.167	0.186	22	0.750	0.015	0.024						
18"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-0"	3'-0"	0.198	0.198	0.204	24	0.802	0.020	0.036						
24"	3'-0"	3'-0"	3'-3"	14	3'-3"	3'-6"	3'-6"	0.227	0.227	0.232	30	1.066	0.033	0.048						
30"	3'-6"	3'-6"	3'-9"	16	3'-9"	4'-0"	4'-0"	0.258	0.258	0.264	40	1.434	0.059	0.085						
36"	4'-0"	4'-0"	4'-3"	20	4'-3"	4'-6"	4'-6"	0.315	0.315	0.321	51	1.860	0.092	0.127						
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.360	0.360	0.370	77	2.878	0.180	0.243						
48"	5'-0"	5'-0"	5'-3"	26	6'-3"	6'-6"	6'-6"	0.423	0.423	0.434	111	3.623	0.235	0.317						
54"	5'-6"	5'-6"	5'-9"	30	7'-3"	7'-6"	7'-6"	0.495	0.495	0.507	136	4.293	0.297	0.401						
60"	6'-0"	6'-0"	6'-3"	34	8'-3"	8'-6"	8'-6"	0.576	0.576	0.589	165	5.090	0.367	0.495						
66"	6'-6"	6'-6"	6'-9"	38	9'-3"	9'-6"	9'-6"	0.663	0.663	0.677	199	5.917	0.444	0.589						

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

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

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL GRATED DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 CONSTRUCT WITH PIPE GRADING MATCHING.
 MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.
 USE STANDARD FRAMES AND GRATES 840.22 (SHOW), 840.24 (SHOW), 840.20, 840.29, AND 840.33.
 SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE GRATED DROP INLET				CUBIC YARDS OF CONCRETE IN BOX				DEDUCTIONS FOR ONE PIPE						
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	TOTAL	C.S.	R.C.
12"	3'-0"	2'-0"	2'-6"	0.362	0.247	0.597	0.508	0.020	0.032					
18"	3'-6"	2'-0"	2'-6"	0.362	0.247	0.659	0.521	0.023	0.036					
24"	4'-0"	2'-0"	3'-0"	0.362	0.247	0.720	0.582	0.033	0.048					
30"	4'-6"	2'-0"	3'-6"	0.362	0.247	0.883	0.527	0.059	0.085					
36"	5'-0"	2'-0"	4'-6"	0.362	0.247	0.988	0.592	0.127	0.178					

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

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

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 USE TYPE "E", "F", AND "G" GRATES UNLESS OTHERWISE INDICATED.
 FOR 4'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 4'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
 CONSTRUCT WITH PIPE GRADING MATCHING.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.

DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"				CUBIC YARDS OF CONCRETE IN BOX				TOTAL QUANTITIES FOR ONE PIPE				DEDUCTIONS FOR ONE PIPE				
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	TOTAL	C.S.	R.C.
12"	2'-0"	2'-0"	2'-3"	12	3'-0"	3'-0"	3'-0"	0.167	0.167	0.186	22	0.750	0.015	0.024						
18"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-0"	3'-0"	0.198	0.198	0.204	24	0.802	0.020	0.036						
24"	3'-0"	3'-0"	3'-3"	14	3'-3"	3'-6"	3'-6"	0.227	0.227	0.232	30	1.066	0.033	0.048						
30"	3'-6"	3'-6"	3'-9"	16	3'-9"	4'-0"	4'-0"	0.258	0.258	0.264	40	1.434	0.059	0.085						
36"	4'-0"	4'-0"	4'-3"	20	4'-3"	4'-6"	4'-6"	0.315	0.315	0.321	51	1.860	0.092	0.127						
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.360	0.360	0.370	77	2.878	0.180	0.243						
48"	5'-0"	5'-0"	5'-3"	26	6'-3"	6'-6"	6'-6"	0.423	0.423	0.434	111	3.623	0.235	0.317						
54"	5'-6"	5'-6"	5'-9"	30	7'-3"	7'-6"	7'-6"	0.495	0.495	0.507	136	4.293	0.297	0.401						

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

ENGLISH STANDARD DRAWING FOR MANHOLE FRAME AND COVER 12" THRU 54" PIPE

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

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

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

ENGLISH STANDARD DRAWING FOR FRAMES AND NARROW SLOT SAG GRATES 12" THRU 36" PIPE

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

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

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

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

DIMENSIONS OF BOX AND PIPE				COVER				SLOTTED				SLOTTED WITH NO RISER				TOTAL QUANTITIES FOR ONE PIPE				DEDUCTIONS FOR ONE PIPE			
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	TOTAL	C.S.	R.C.			
12"	3'-0"	2'-0"	2'-6"	0.362	0.247	0.597	0.508	0.020	0.032														
18"	3'-6"	2'-0"	2'-6"	0.362	0.247	0.659	0.521	0.023	0.036														
24"	4'-0"	2'-0"	3'-0"	0.362	0.247	0.720	0.582	0.033	0.048														
30"	4'-6"	2'-0"	3'-6"	0.362	0.247	0.883	0.527	0.059	0.085														
36"	5'-0"	2'-0"	4'-6"	0.362	0.247	0.988	0.592	0.127	0.178														

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

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

NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.

ALIGN FRAME WITH INSIDE EDGE OF WALL TO ALLOW FOR VERTICAL ADJUSTMENT

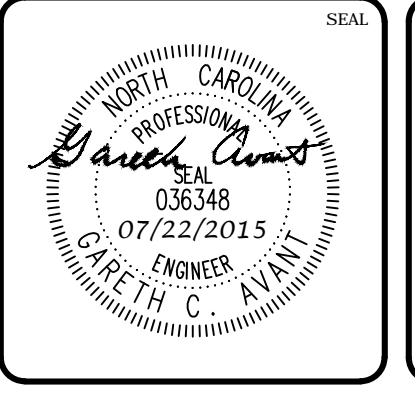
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

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

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

RAISED FLOW ARROW 1/8" HIGH

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



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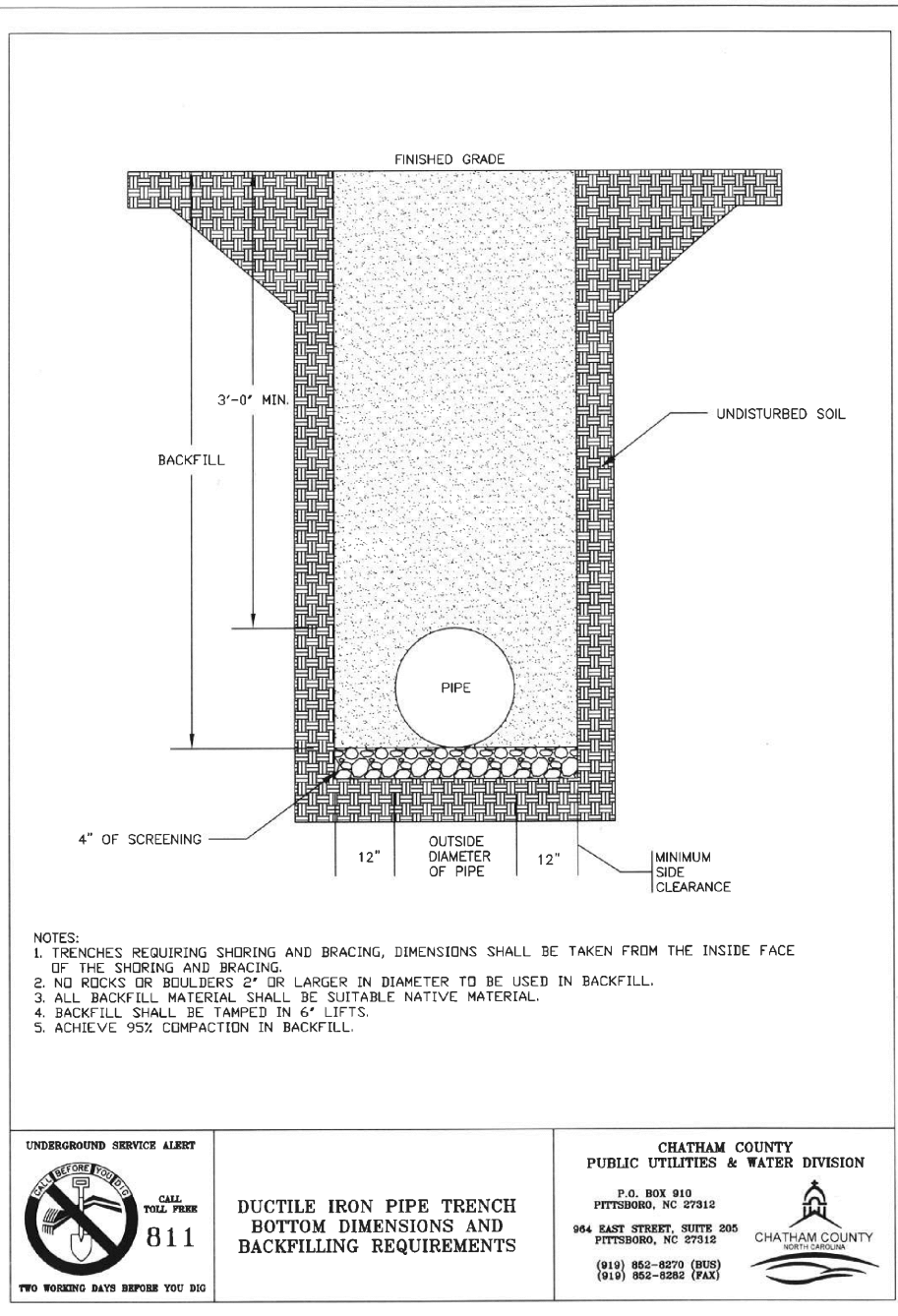
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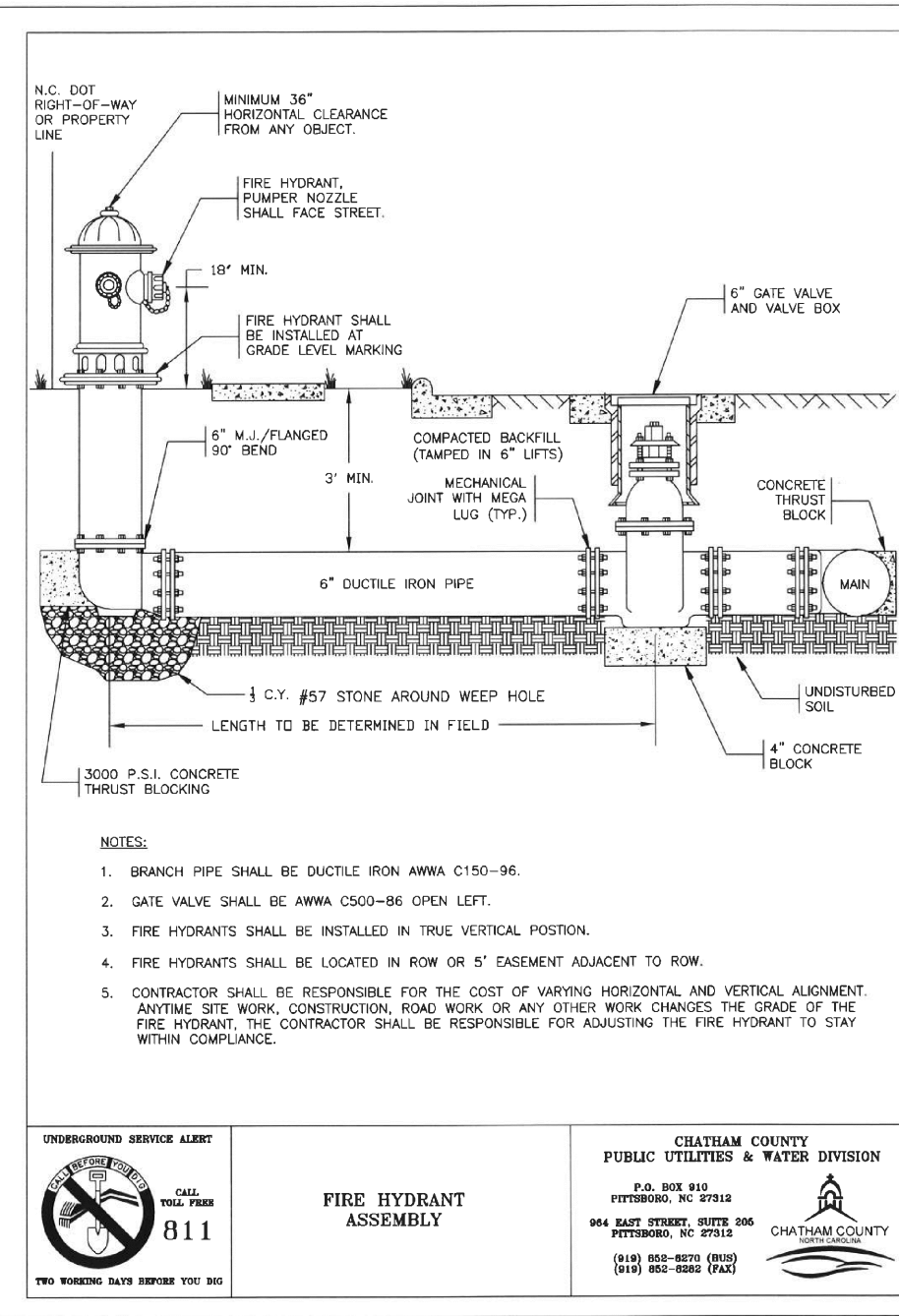
BRIAR CHAPEL
 US STEEL - SECTION 1
 CHATHAM COUNTY, NORTH CAROLINA

NCDOT DRAINAGE DETAILS

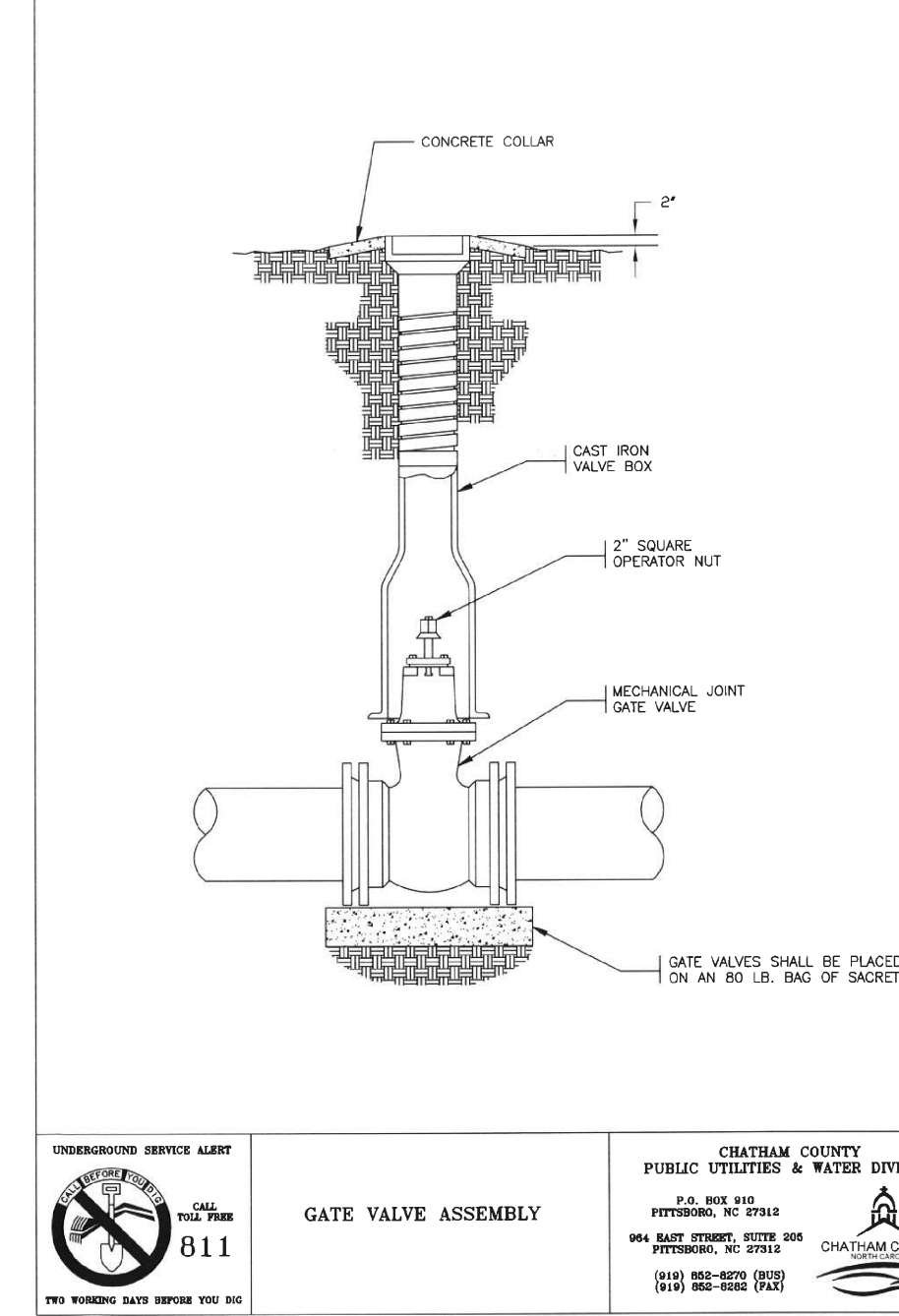
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DRAWN: BSS		
DESIGNED: BSS		
CHECKED: CCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 4	



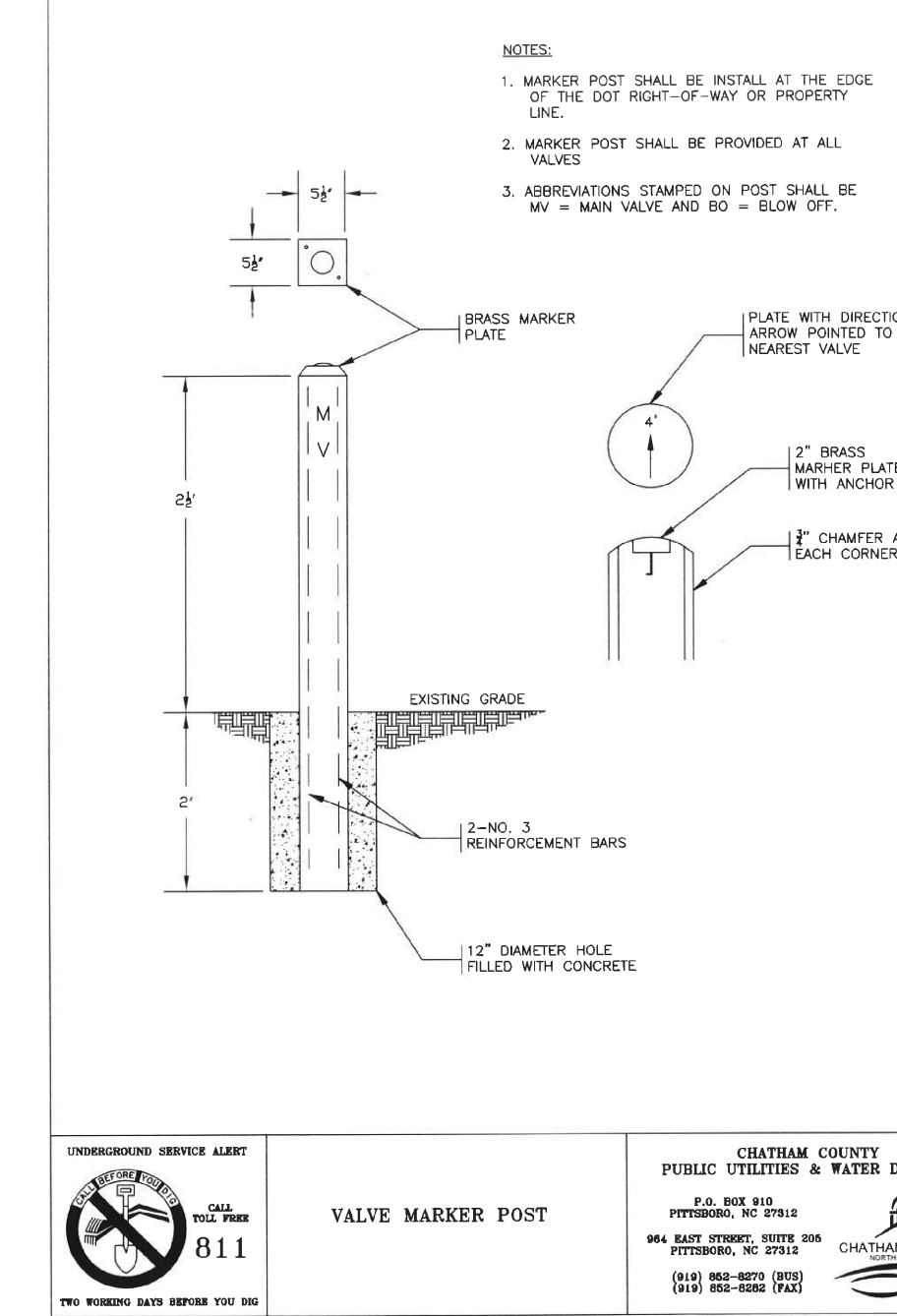
UNDERGROUND SERVICE ALERT
 CHATTAHOOCHEE COUNTY
 PUBLIC UTILITIES & WATER DIVISION
 811
 DUCTILE IRON PIPE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS



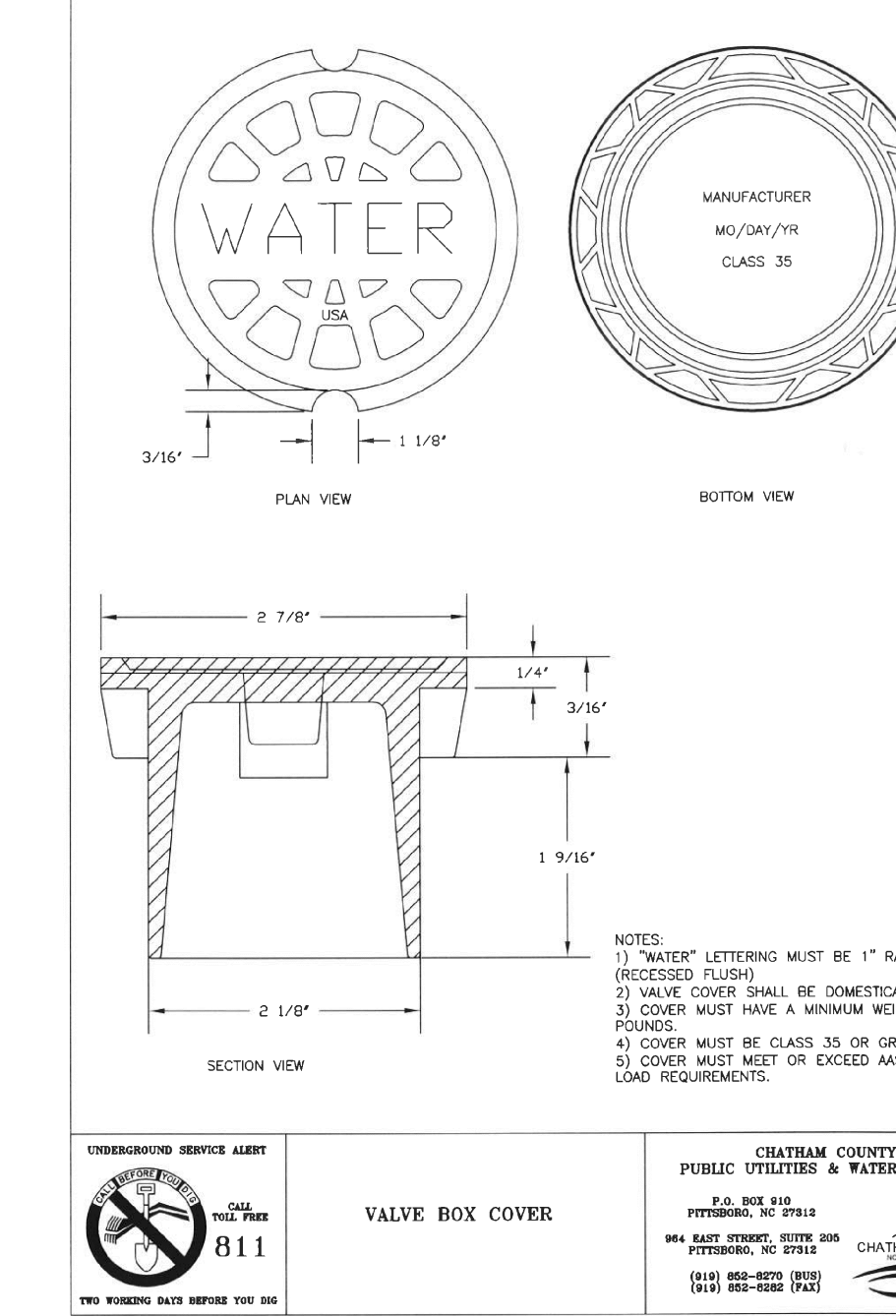
UNDERGROUND SERVICE ALERT
 CHATTAHOOCHEE COUNTY
 PUBLIC UTILITIES & WATER DIVISION
 811
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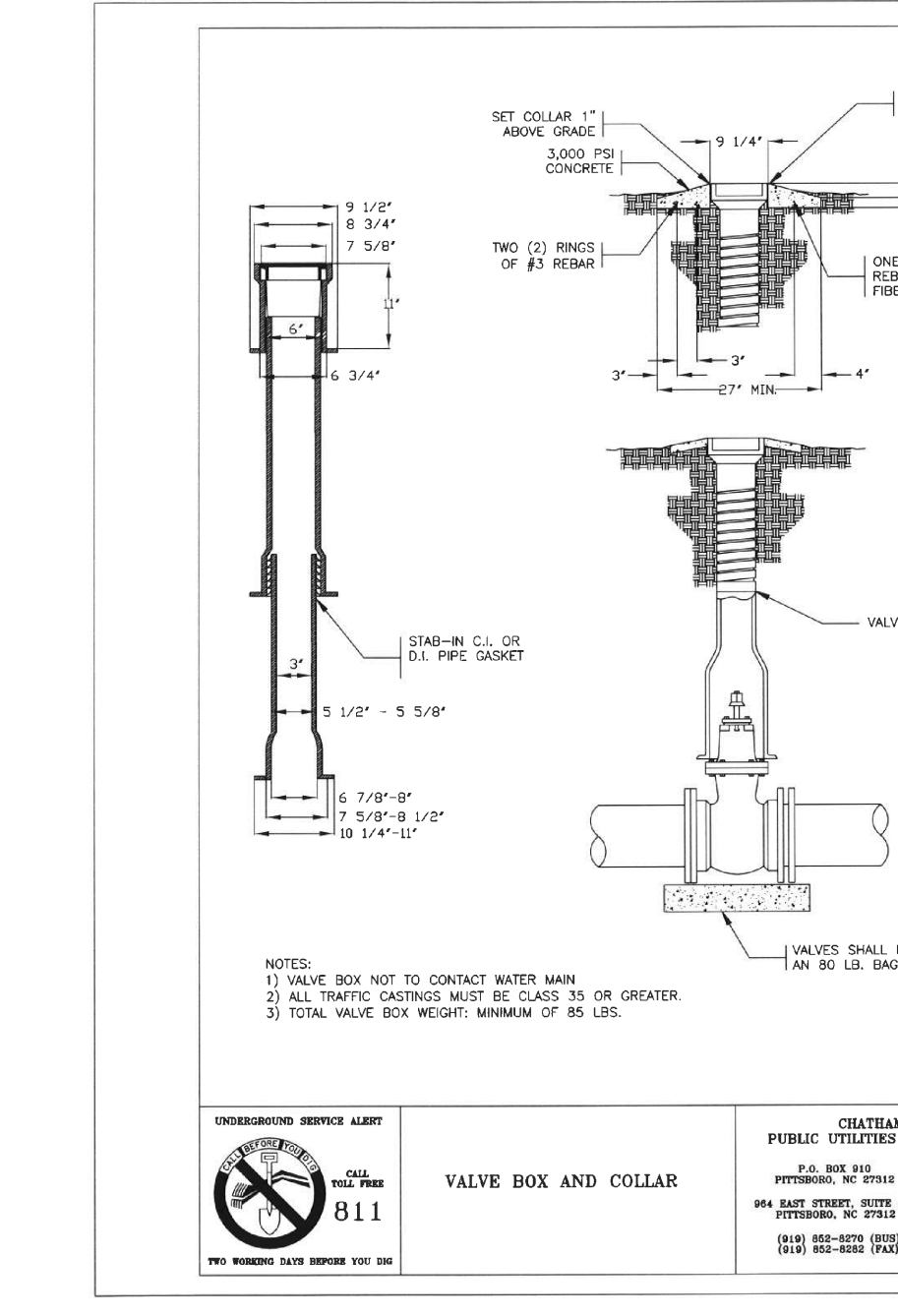
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 CHATTAHOOCHEE COUNTY
 PUBLIC UTILITIES & WATER DIVISION
 811
 GATE VALVE ASSEMBLY



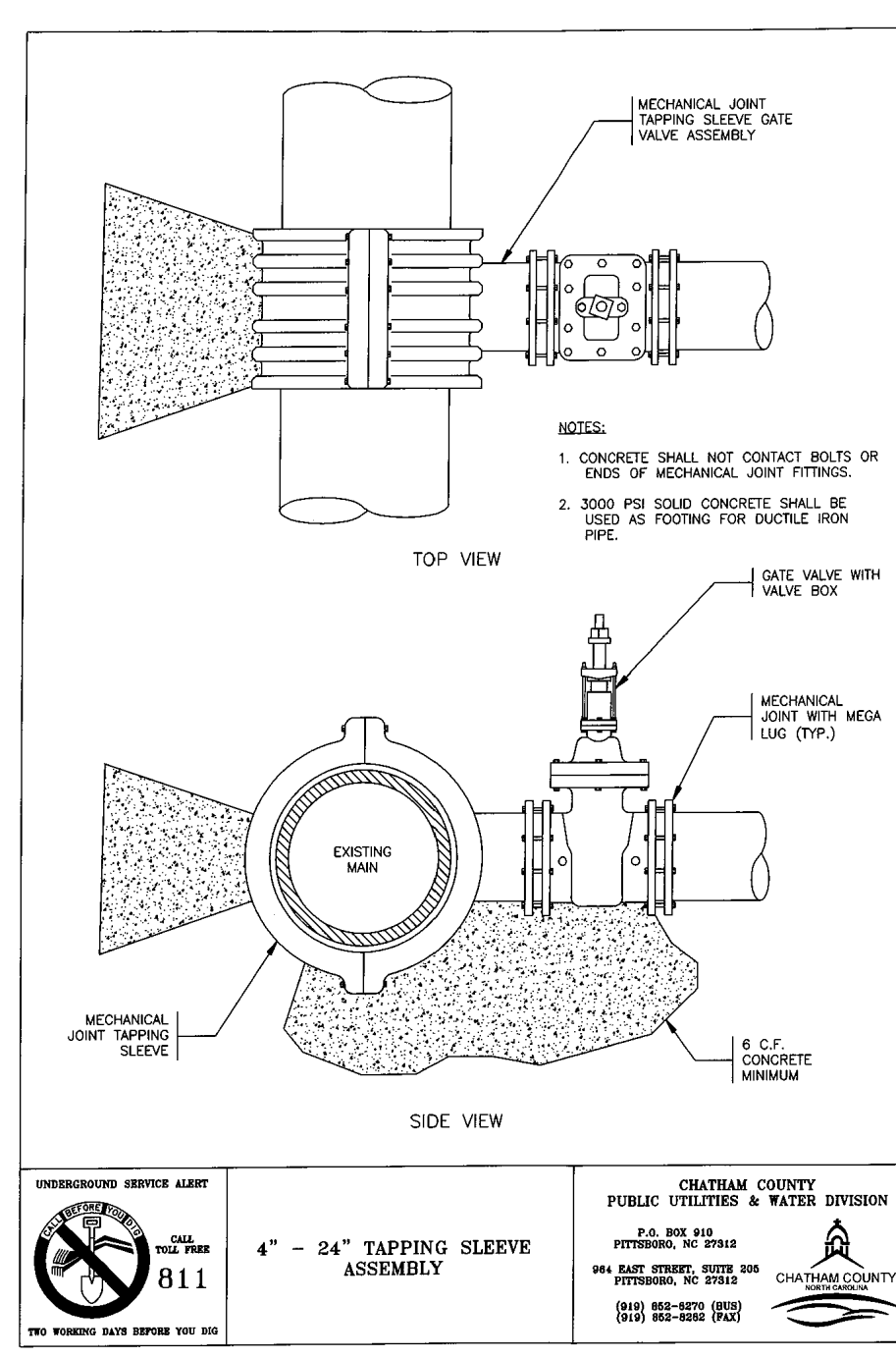
UNDERGROUND SERVICE ALERT
 CHATTAHOOCHEE COUNTY
 PUBLIC UTILITIES & WATER DIVISION
 811
 VALVE MARKER POST



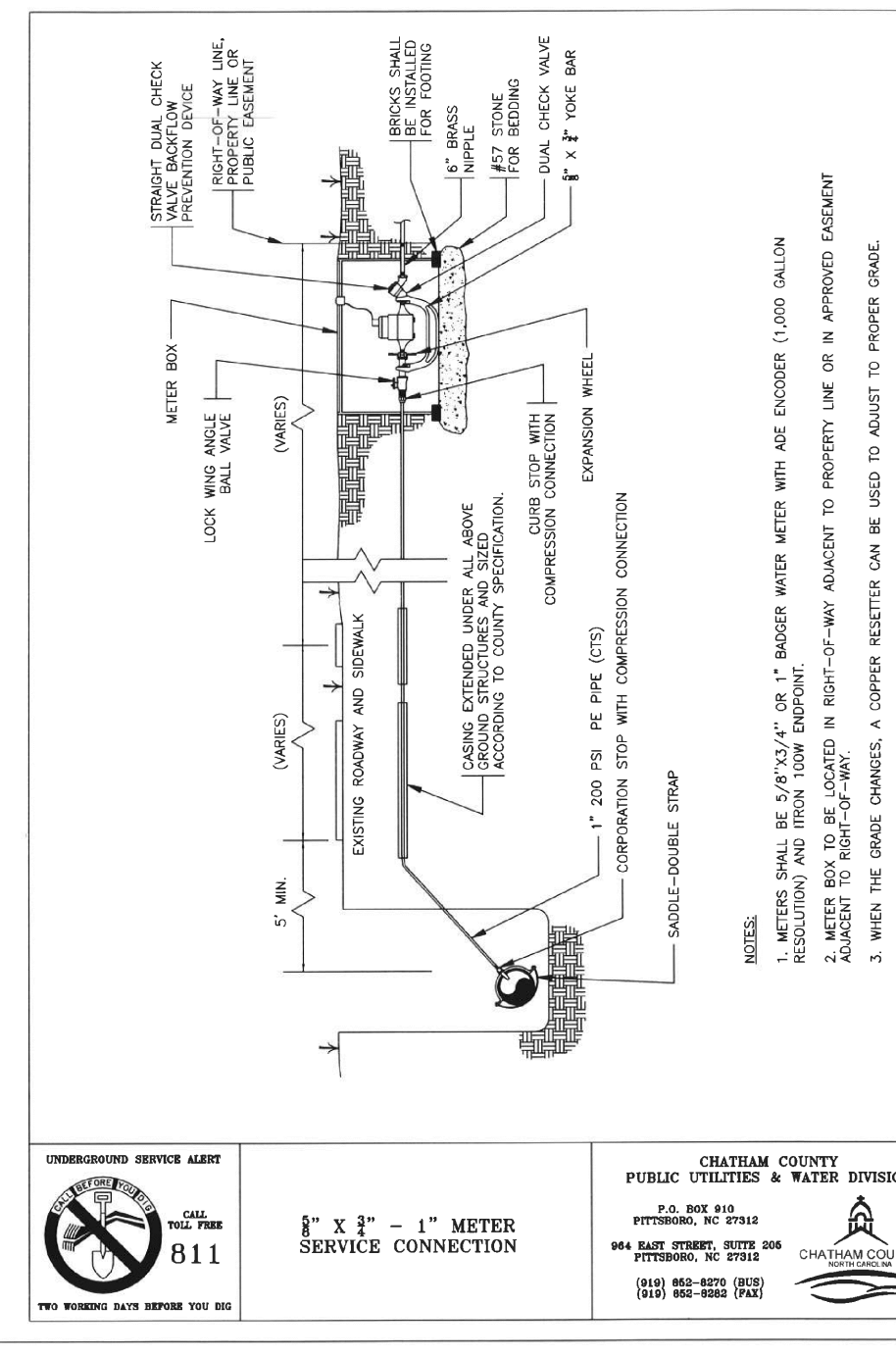
UNDERGROUND SERVICE ALERT
 CHATTAHOOCHEE COUNTY
 PUBLIC UTILITIES & WATER DIVISION
 811
 VALVE BOX COVER



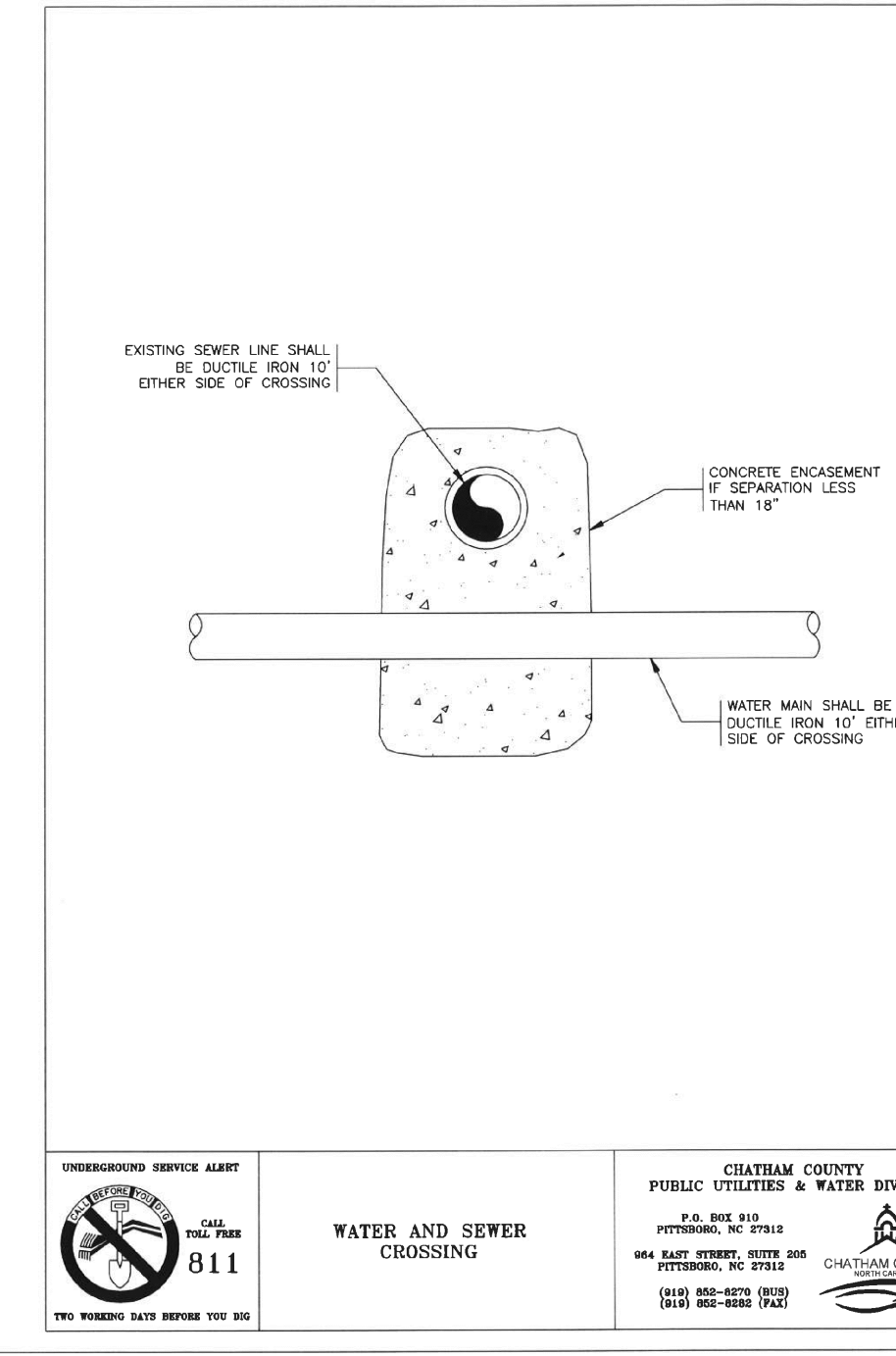
UNDERGROUND SERVICE ALERT
 CHATTAHOOCHEE COUNTY
 PUBLIC UTILITIES & WATER DIVISION
 811
 VALVE BOX AND COLLAR



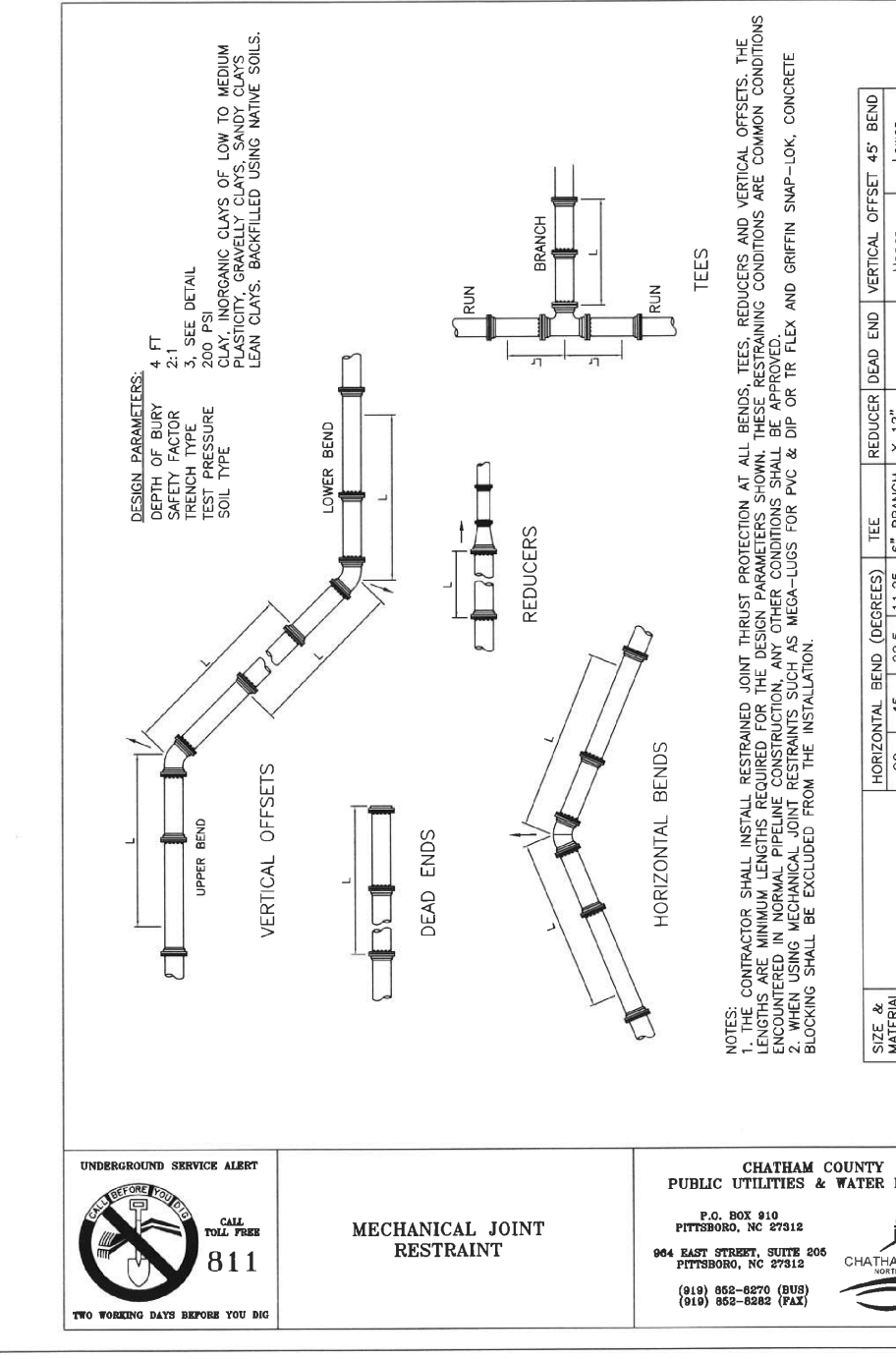
UNDERGROUND SERVICE ALERT
 CHATTAHOOCHEE COUNTY
 PUBLIC UTILITIES & WATER DIVISION
 811
 4" - 24" TAPPING SLEEVE ASSEMBLY



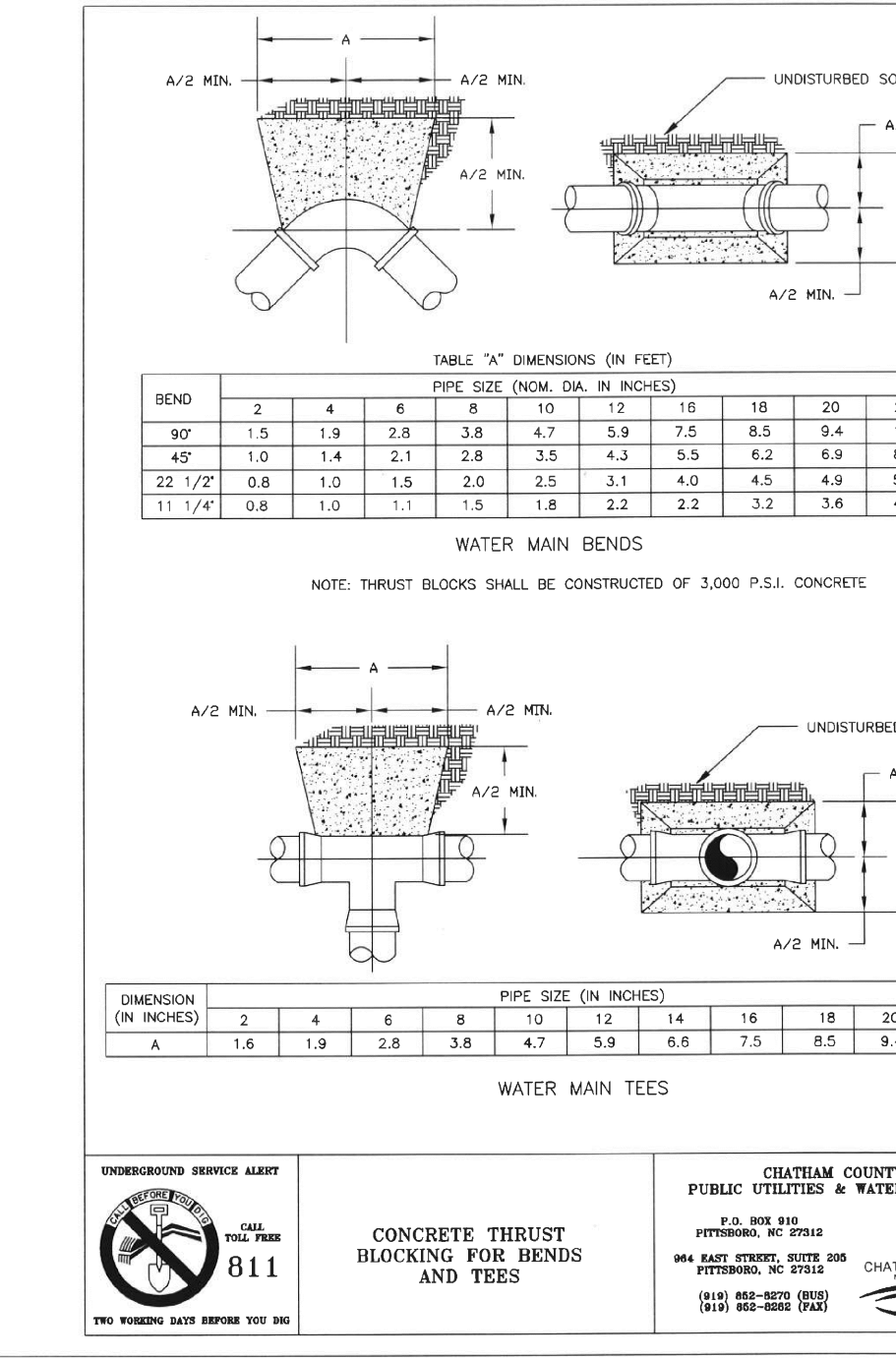
UNDERGROUND SERVICE ALERT
 CHATTAHOOCHEE COUNTY
 PUBLIC UTILITIES & WATER DIVISION
 811
 8" x 8" - 1" METER SERVICE CONNECTION



UNDERGROUND SERVICE ALERT
 CHATTAHOOCHEE COUNTY
 PUBLIC UTILITIES & WATER DIVISION
 811
 WATER AND SEWER CROSSING



UNDERGROUND SERVICE ALERT
 CHATTAHOOCHEE COUNTY
 PUBLIC UTILITIES & WATER DIVISION
 811
 MECHANICAL JOINT RESTRAINT



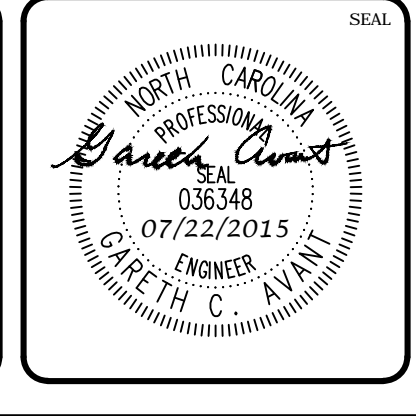
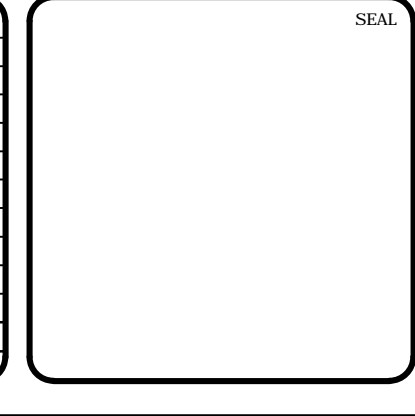
UNDERGROUND SERVICE ALERT
 CHATTAHOOCHEE COUNTY
 PUBLIC UTILITIES & WATER DIVISION
 811
 CONCRETE THRUST BLOCKING FOR BRNDS AND TEES

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

BEND	2	4	6	8	10	12	14	16	18	20	24
11 1/4°	1.108	1	1	1	1	1	1	1	1	2	1
22 1/2°	2.207	1	2	2	1	1	1	1	3	1	
45°	4.328	2	3	3	1	1	2	5	1		
90°	7.996	2	4	5	1	1	2	8	1		
PLUG	5.655	2	3	4	1	1	2	6	1		

BEND	2	4	6	8	10	12	14	16	18	20	24
11 1/4°	1.970	1	1	2	1	1	1	1	2	1	
22 1/2°	3.922	1	2	3	1	1	1	1	4	1	
45°	7.694	2	4	5	1	1	2	8	1		
90°	14.215	4	8	9	2	2	4	15	2		
PLUG	10.053	3	5	6	2	2	3	10	1		

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



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 UTILITY DETAILS

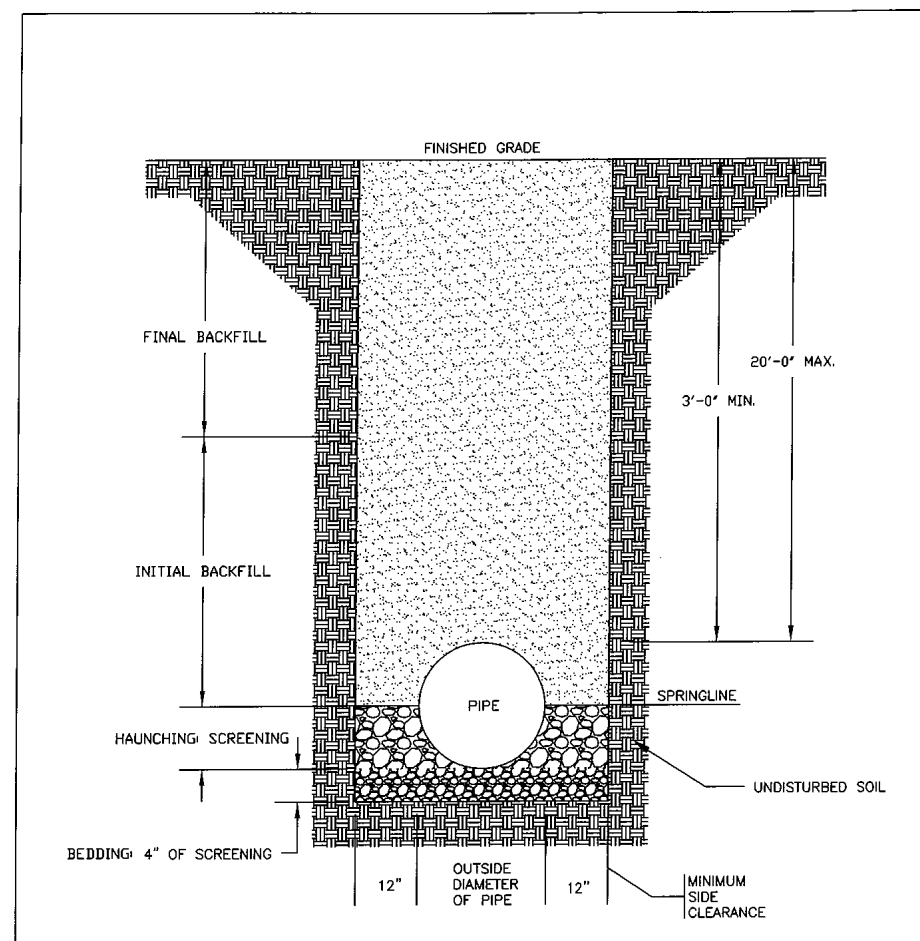
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 MCE PROJ. #: 02735-0130
 SCALE: HORIZONTAL: 1" = 40', VERTICAL: N/A
 DRAWN: BSS
 DESIGNED: BSS
 CHECKED: GCA
 PROJ. MGR: CHS
 STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
 REVISION: 4

DETECTABLE WARNING TAPE NOTES:

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

TRACER WIRE NOTES:

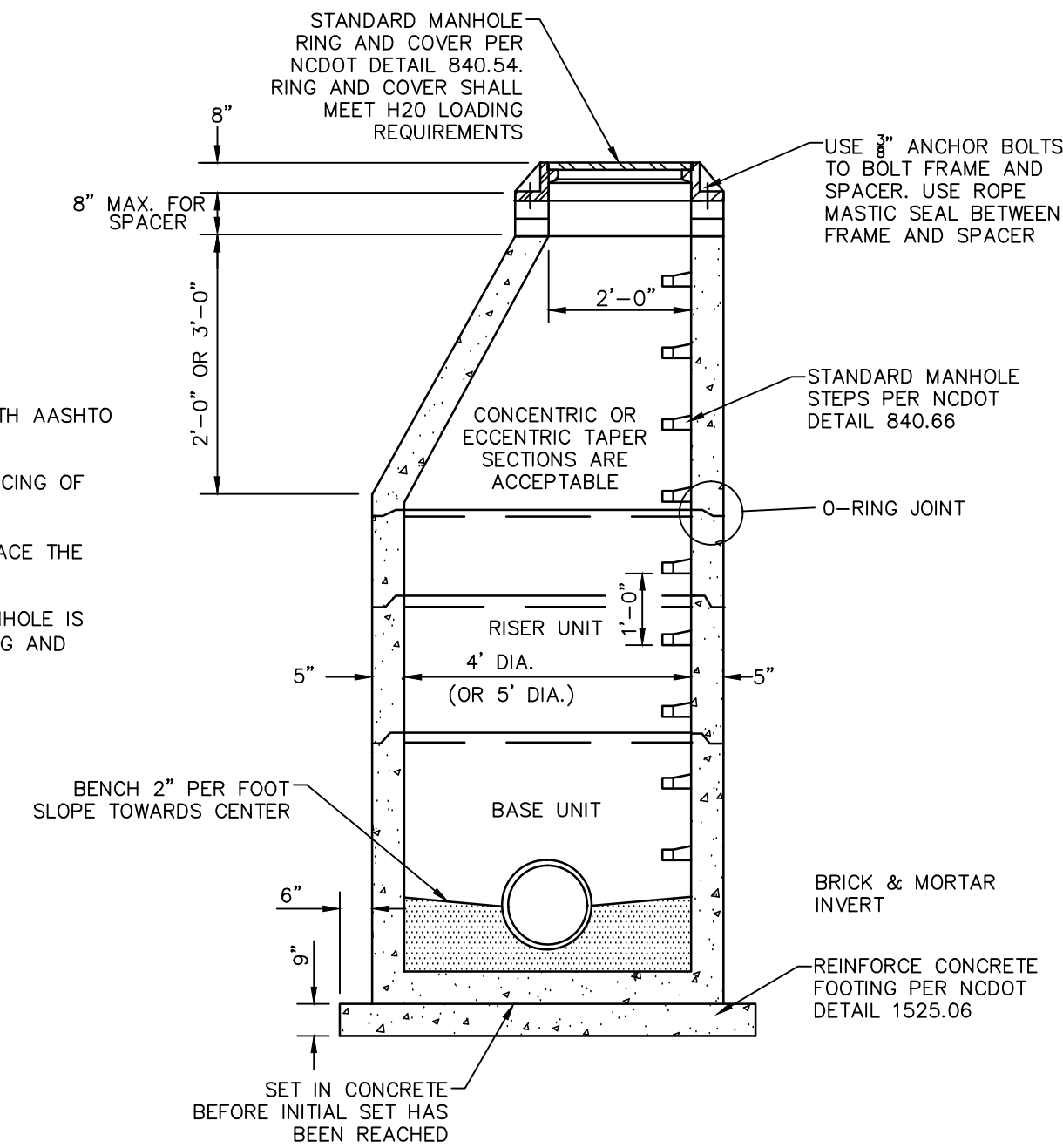
1. TRACER WIRE IS TO BE STANDARD NO. 12 GAUGE COATED COPPER WIRE.
2. LOCATION WIRE CONNECTIONS ARE TO BE A WATER TIGHT CONNECTION USING TWISTER DB PLUS WATERPROOF WIRE CONNECTORS OR AN APPROVED EQUAL.



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

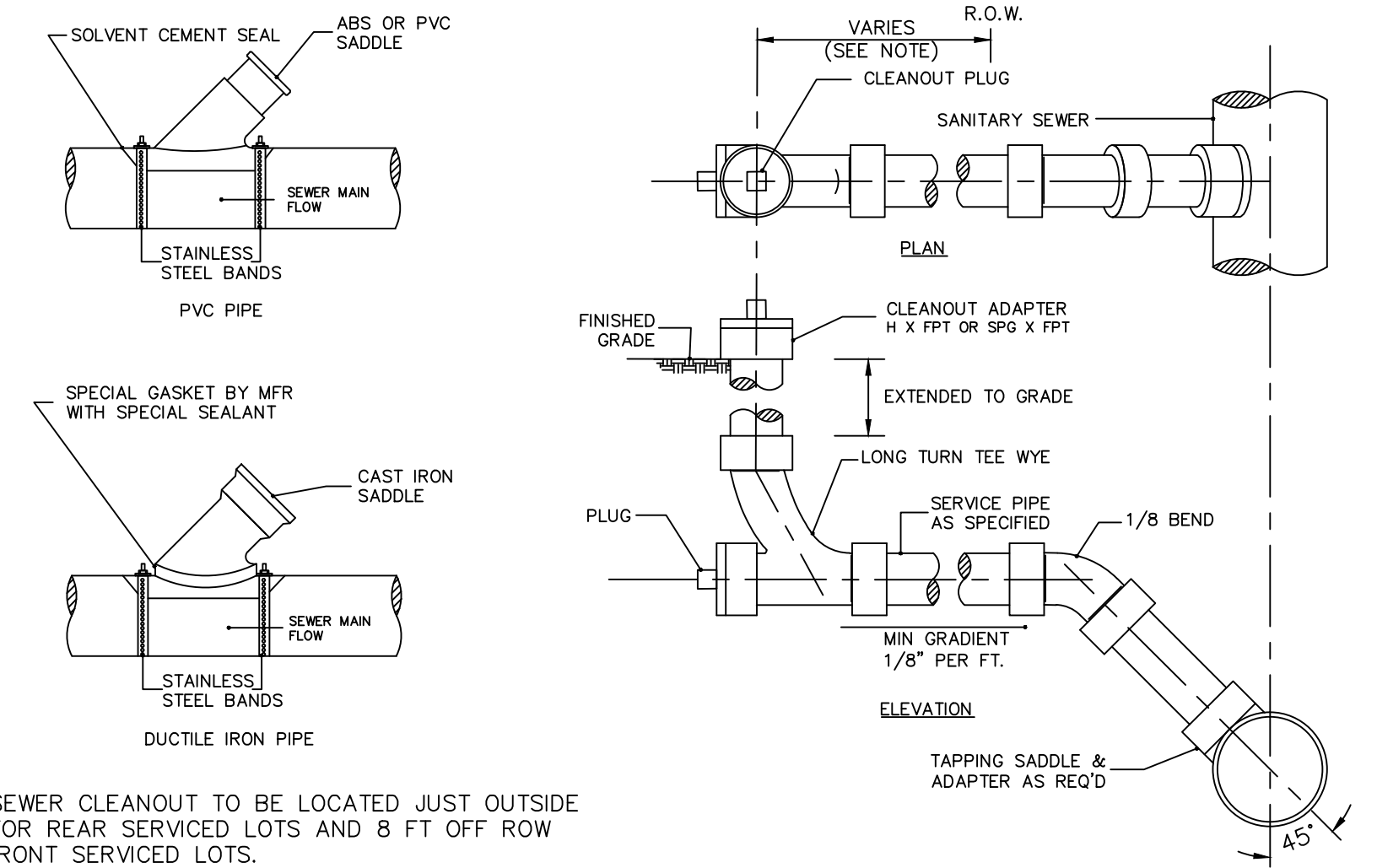
UNDERGROUND SERVICE ALERT
 811
 P.V.C. PIPE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS

CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
 811
 CHATHAM COUNTY



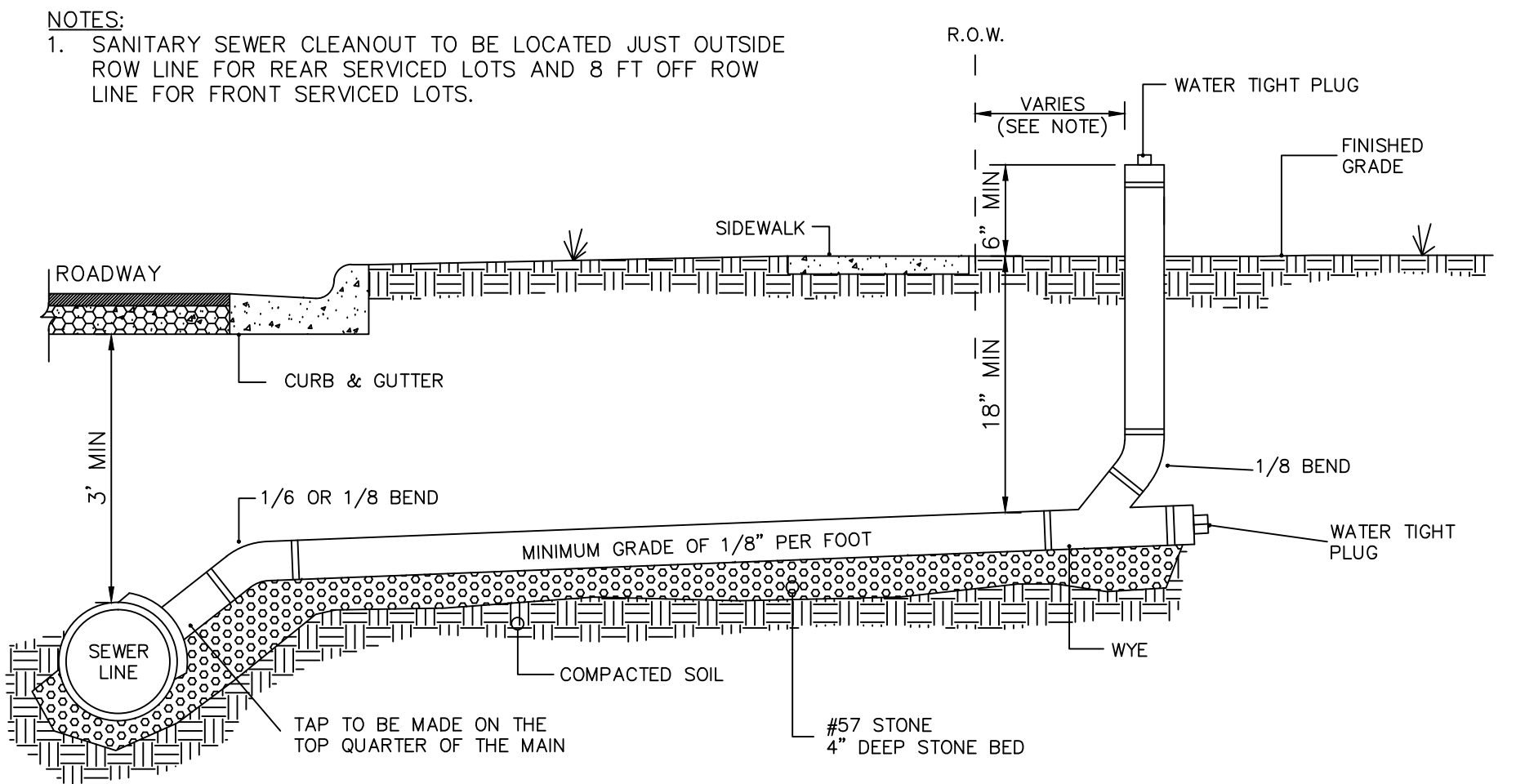
- NOTES:
1. PROVIDE PRECAST MANHOLE COMPONENTS WHICH COMPLY WITH AASHTO M199.
 2. ASSEMBLE RISERS AND GRADE RINGS SO STES HAVE A SPACING OF 12" FROM THE TOP TO THE BOTTOM OF THE MANHOLE.
 3. WHERE THE MANHOLE IS EXPOSED TO ROADWAY TRAFFIC, PLACE THE TOP OF THE MANHOLE FLUSH WITH THE GROUND.
 4. REINFORCED 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.

STANADARD SANITARY SEWER PRECAST CONCRETE MANHOLE
 NTS



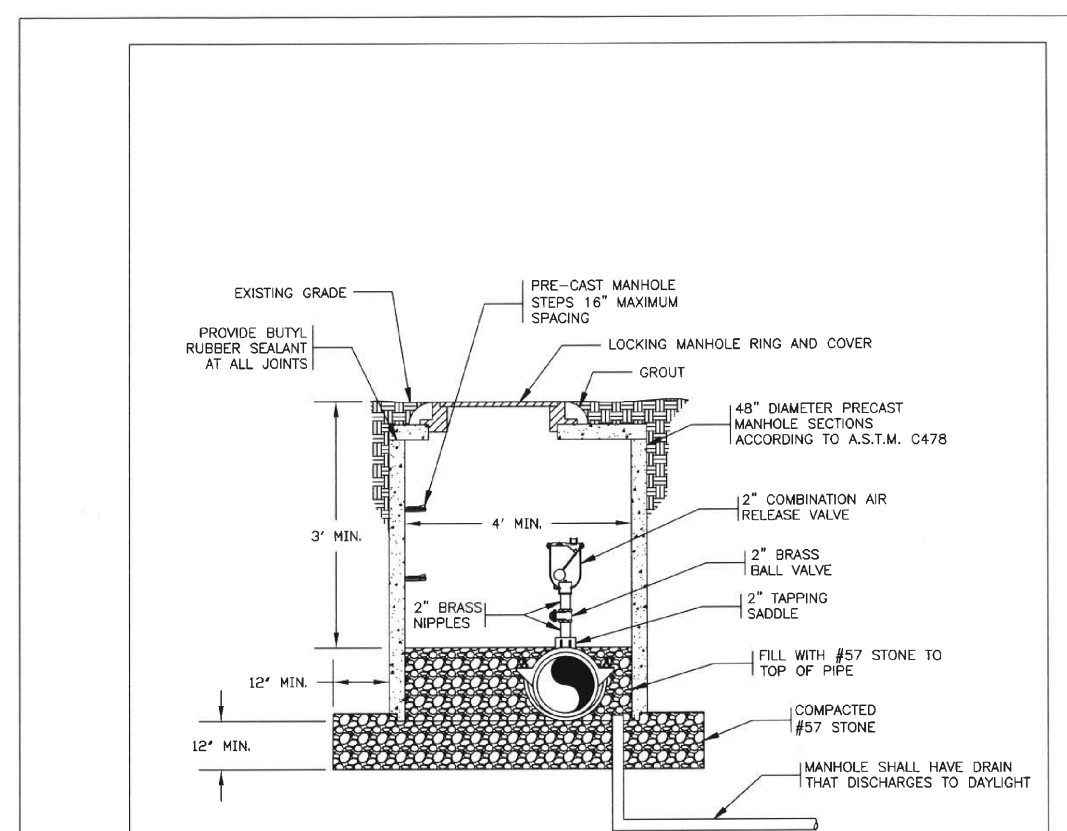
- NOTES:
1. SANITARY SEWER CLEANOUT TO BE LOCATED JUST OUTSIDE ROW LINE FOR REAR SERVICED LOTS AND 8 FT OFF ROW LINE FOR FRONT SERVICED LOTS.

SANITARY SEWER SERVICE CONNECTIONS
 NTS



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

STANDARD SANITARY SEWER TAP AND SERVICE
 NTS



- NOTE:
1. MANHOLE SHALL HAVE DRAIN THAT DISCHARGES TO DAYLIGHT.

UNDERGROUND SERVICE ALERT
 811
 COMBINATION AIR RELEASE VALVE ASSEMBLY

CHATHAM COUNTY PUBLIC UTILITIES & WATER DIVISION
 811
 CHATHAM COUNTY

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

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

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

BILL OF MATERIAL FOR 6'-0" FOOTING			
BAR SIZE	LENGTH	NO.	WT. lbs.
T1	#5 5'-6"	18	103
CLASS "A" CONC. YD ³ 9" THICK 1.00			
BILL OF MATERIAL FOR 7'-0" FOOTING			
BAR SIZE	LENGTH	NO.	WT. lbs.
T2	#5 6'-6"	20	136
CLASS "A" CONC. YD ³ 9" THICK 1.36			
CLASS "A" CONC. YD ³ 12" THICK 1.82			
BILL OF MATERIAL FOR 8'-0" FOOTING			
BAR SIZE	LENGTH	NO.	WT. lbs.
T3	#5 7'-6"	24	188
CLASS "A" CONC. YD ³ 12" THICK 2.37			

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

T1, T2 OR T3 BAR
 7" HOOK (PER CRSI) 7" HOOK (PER CRSI)

FOOTING DIMENSIONS: 6'-0" USE (T1), 7'-0" USE (T2) & 8'-0" USE (T3)

FOOTING DIMENSIONS: 6'-0" USE (T1), 7'-0" USE (T2) & 8'-0" USE (T3)

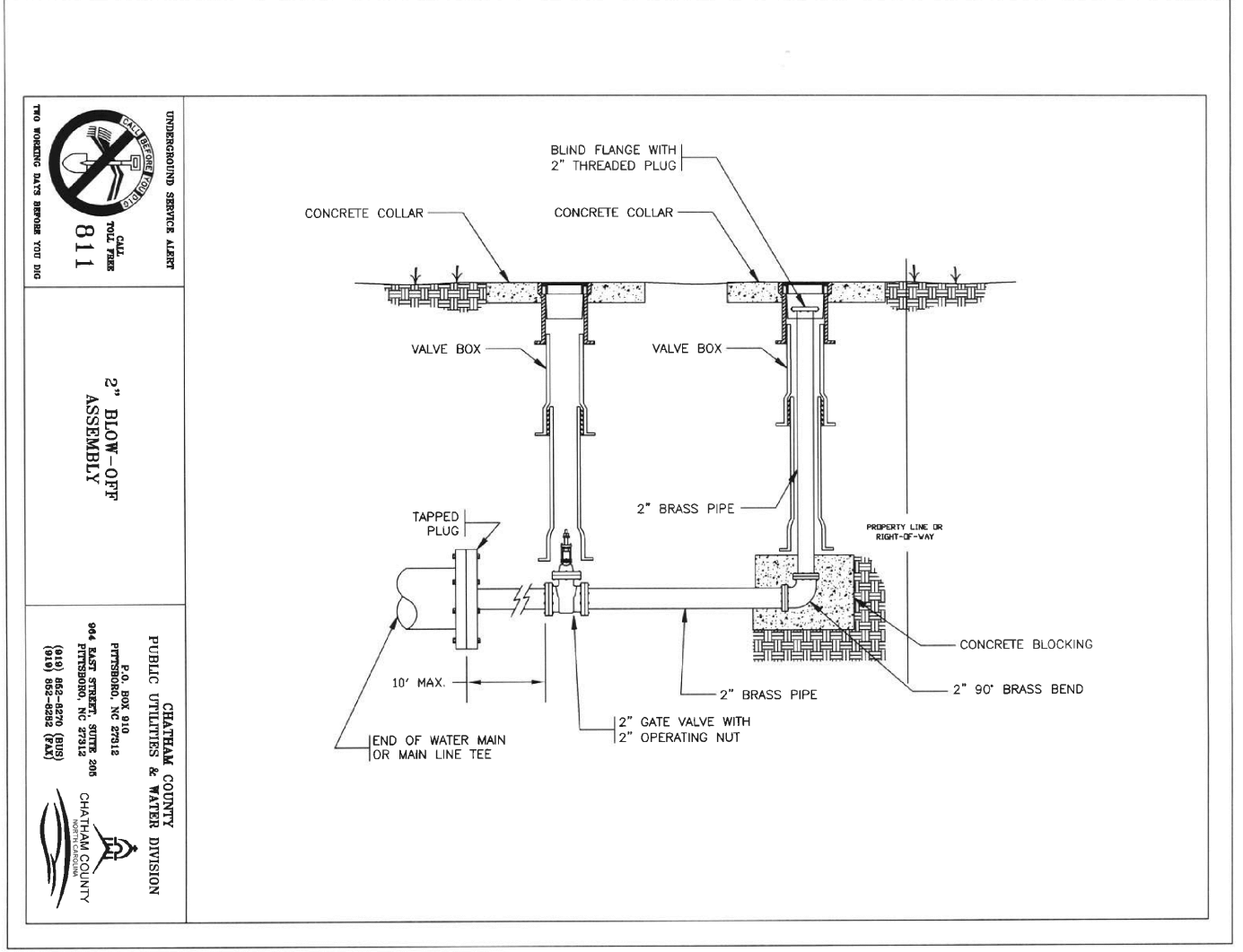
T1, T2 & T3 BARS @ 8" CTS.

T1, T2 & T3 BARS @ 8" CTS.

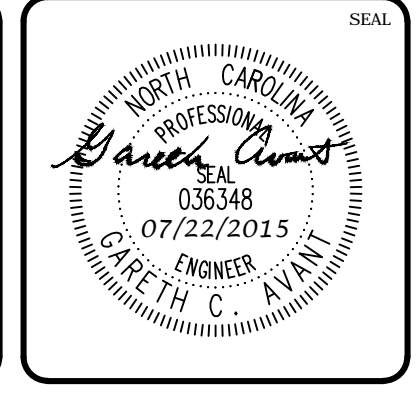
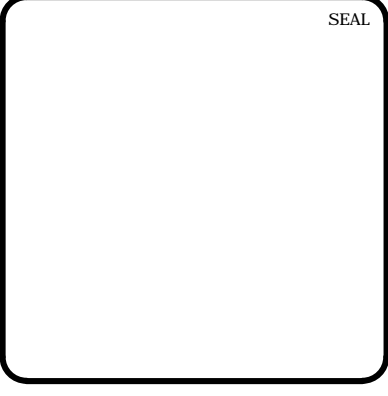
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

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

SHEET 2 OF 2 1525.06



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



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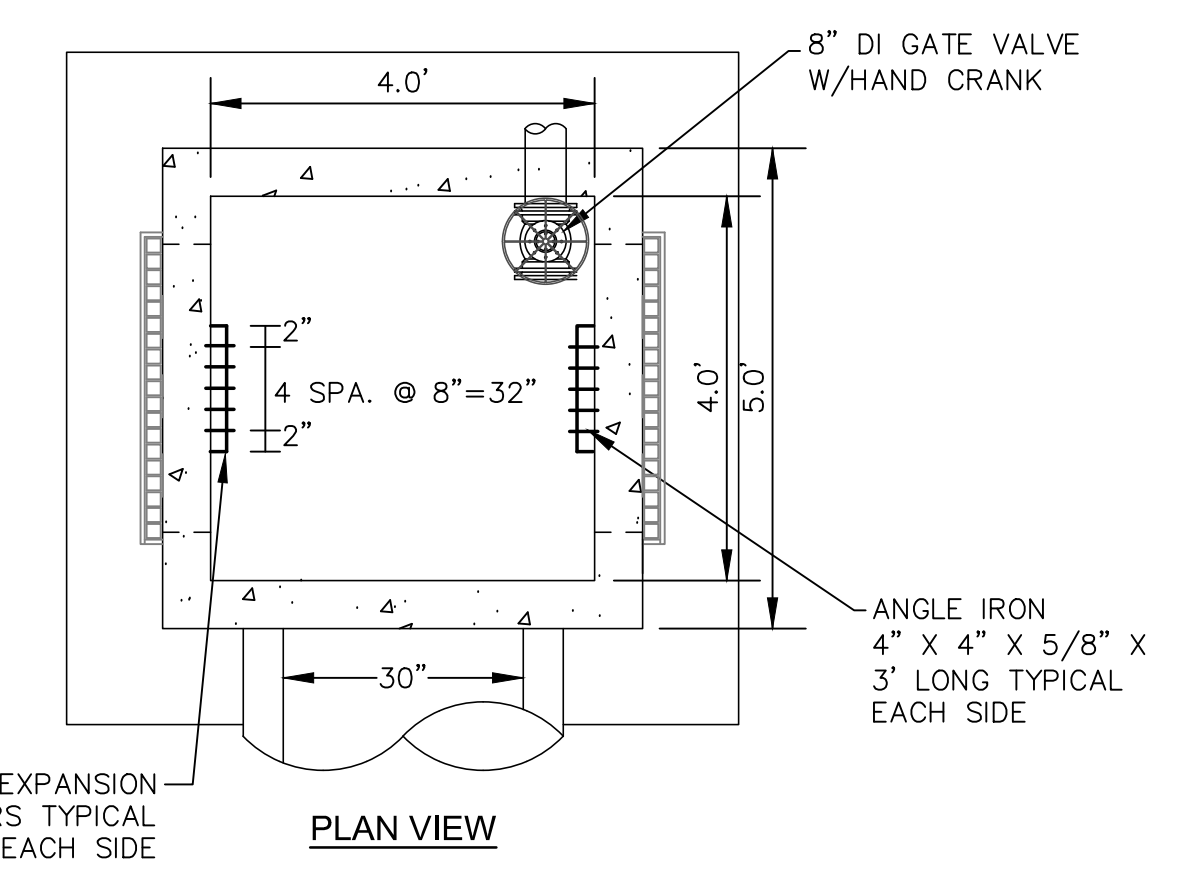
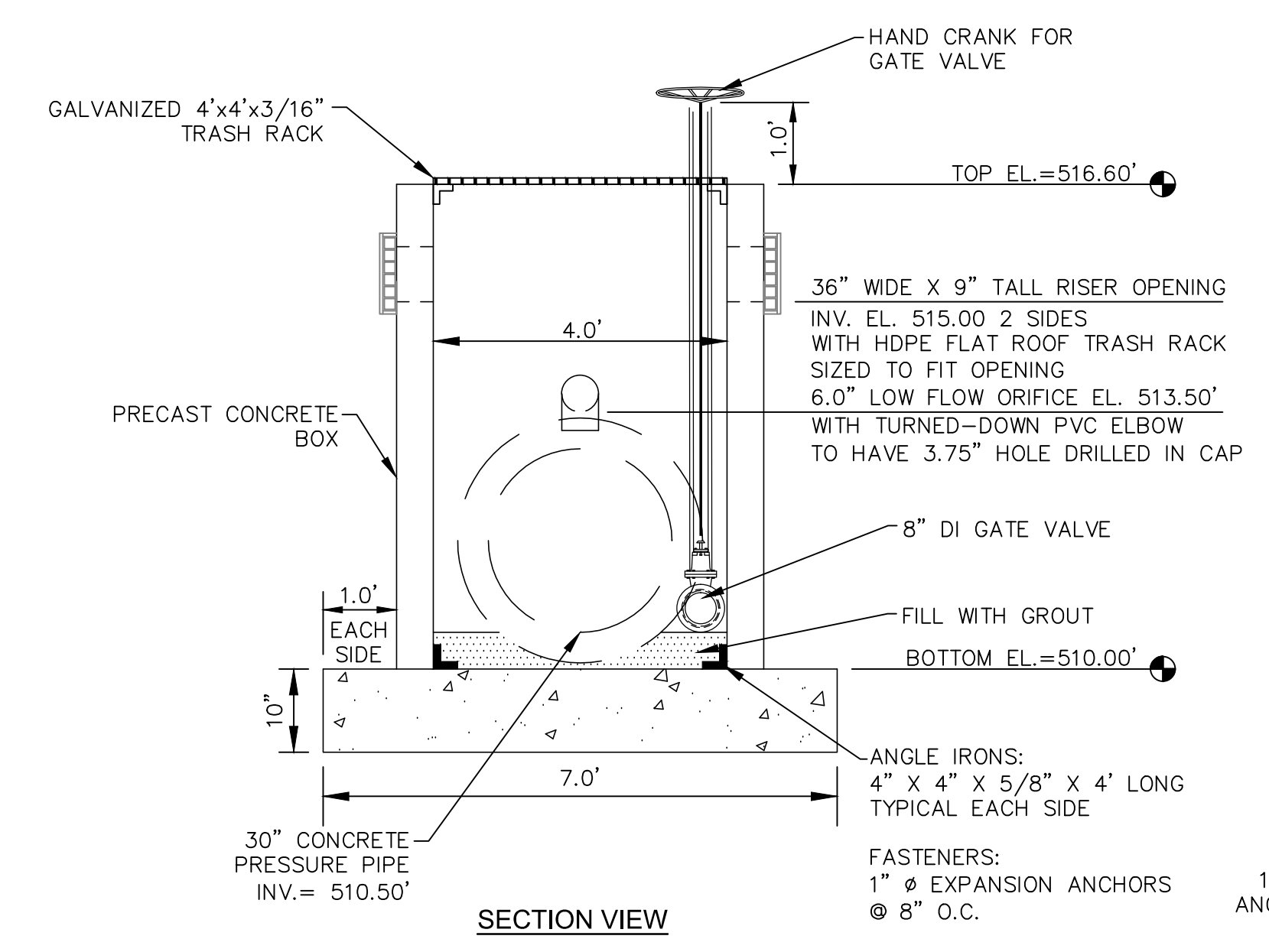
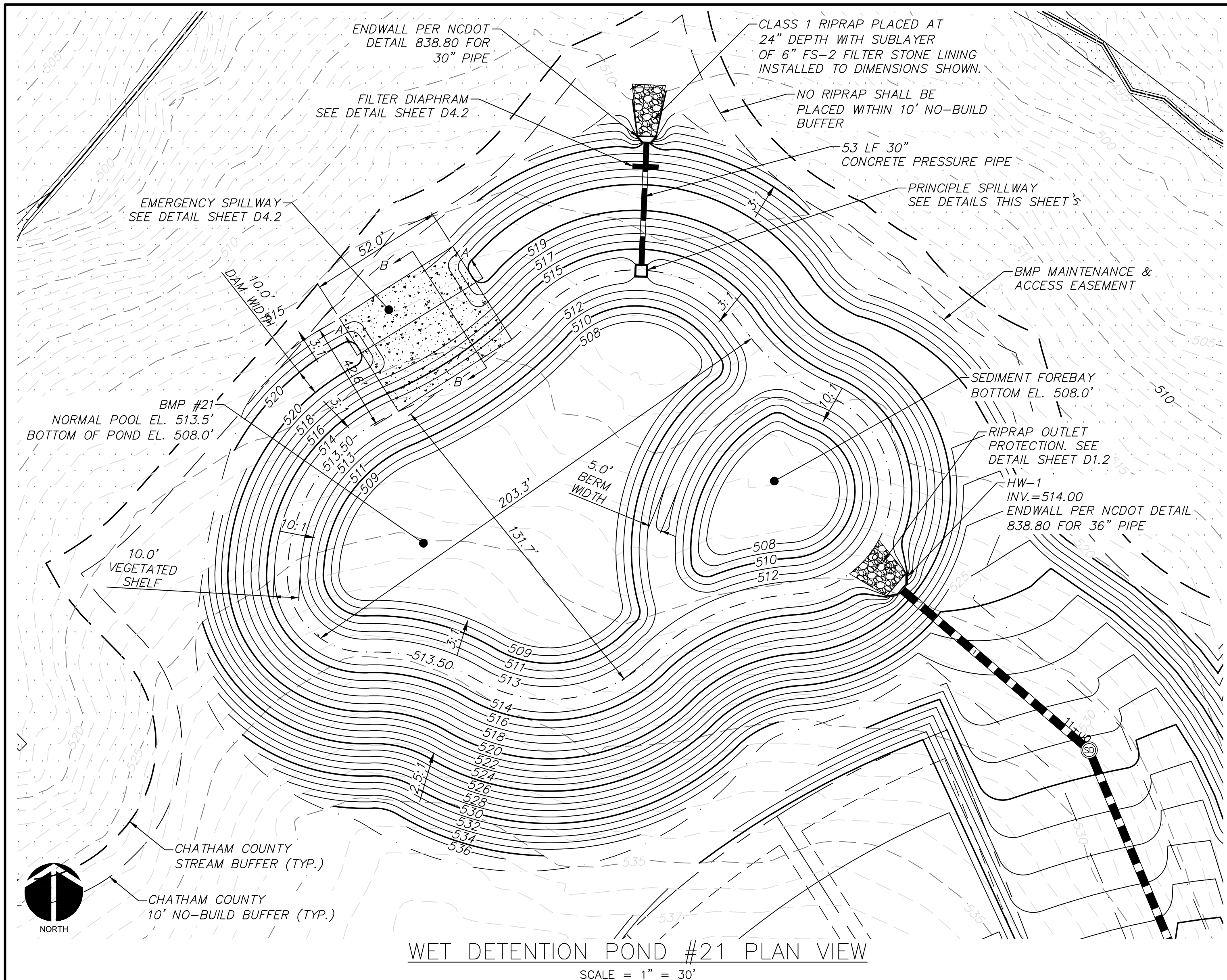
UTILITY DETAILS

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

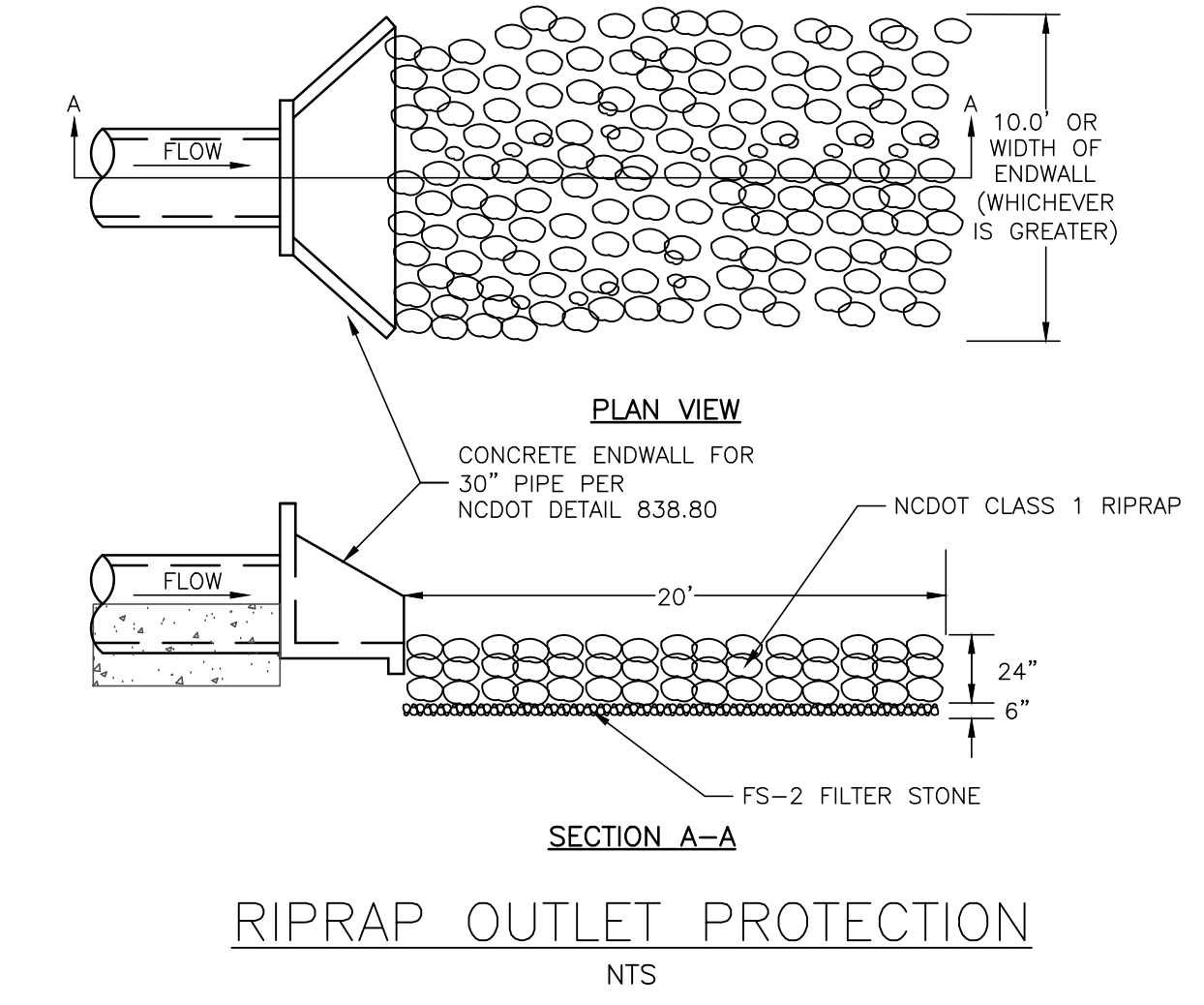
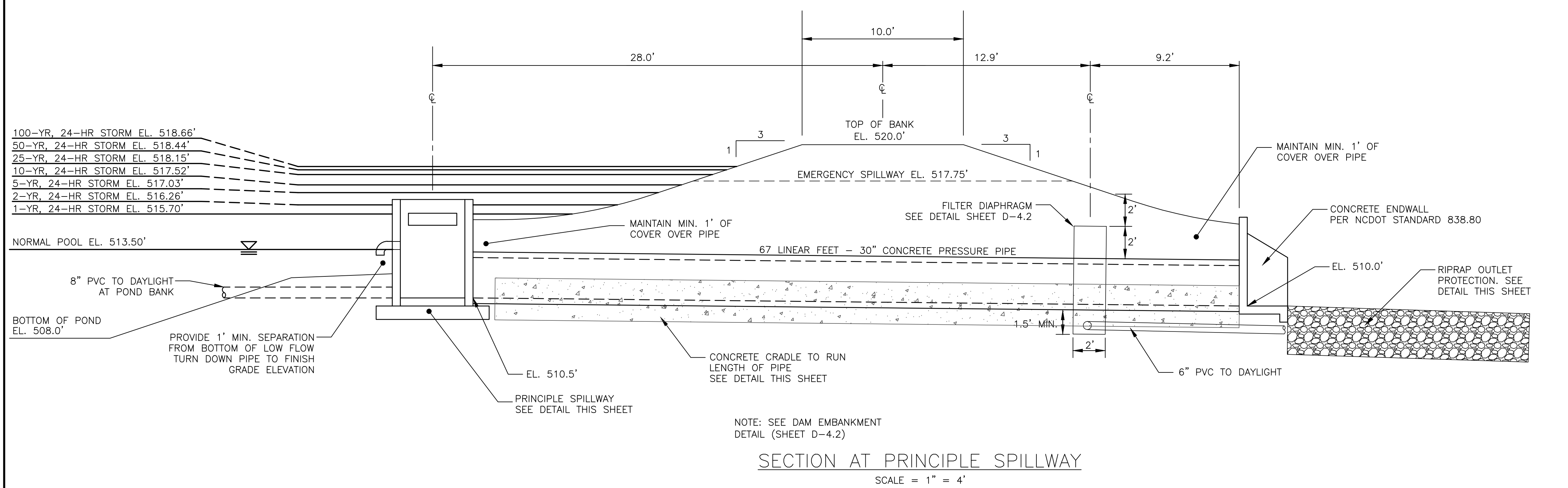
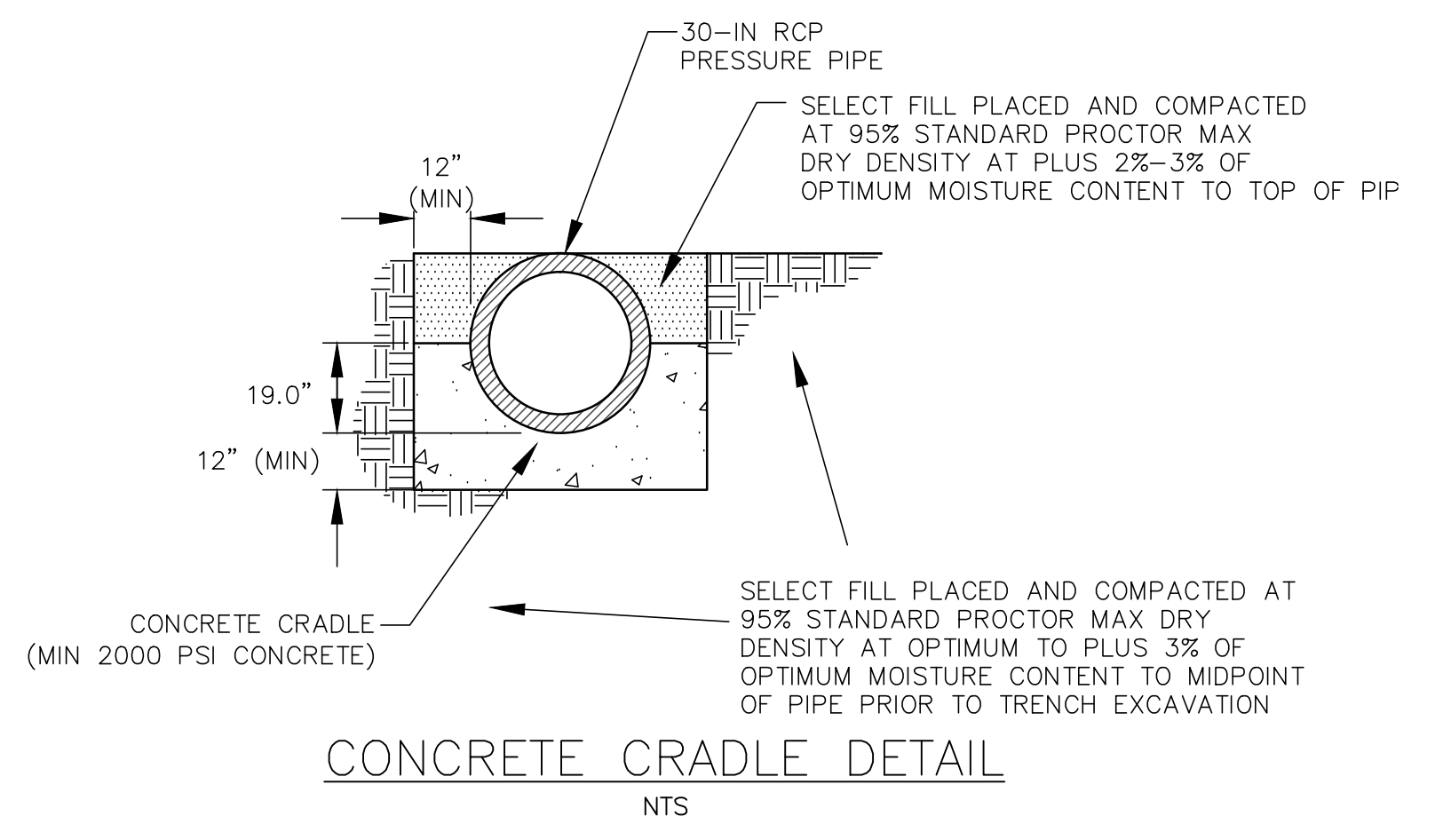
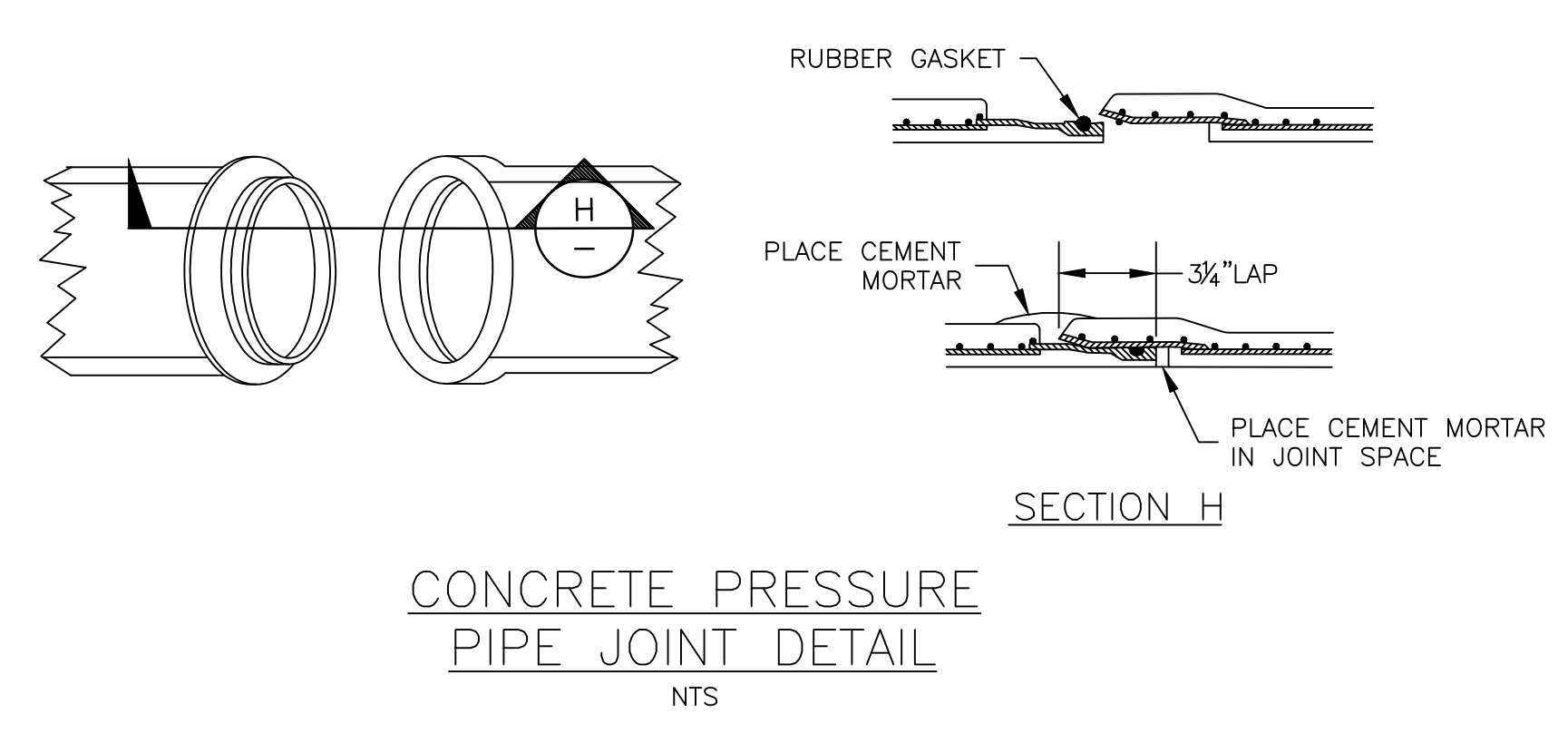
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 DRAWING NUMBER: D3.2

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
 REVISION: 4



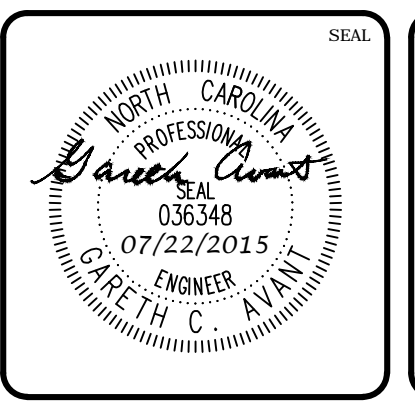
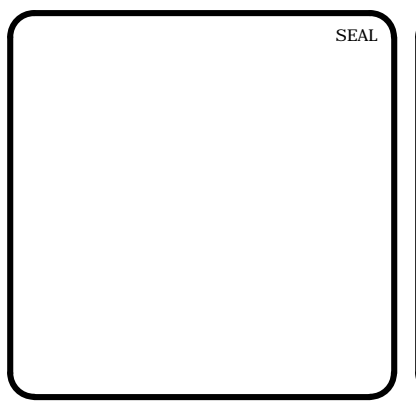
PRINCIPLE SPILLWAY
SCALE = 1" = 2'



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

North Carolina Professional Engineer
Dariusz Ciomak
036348
07/01/2015
ENGINEER
GARY H. C. AVANT

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



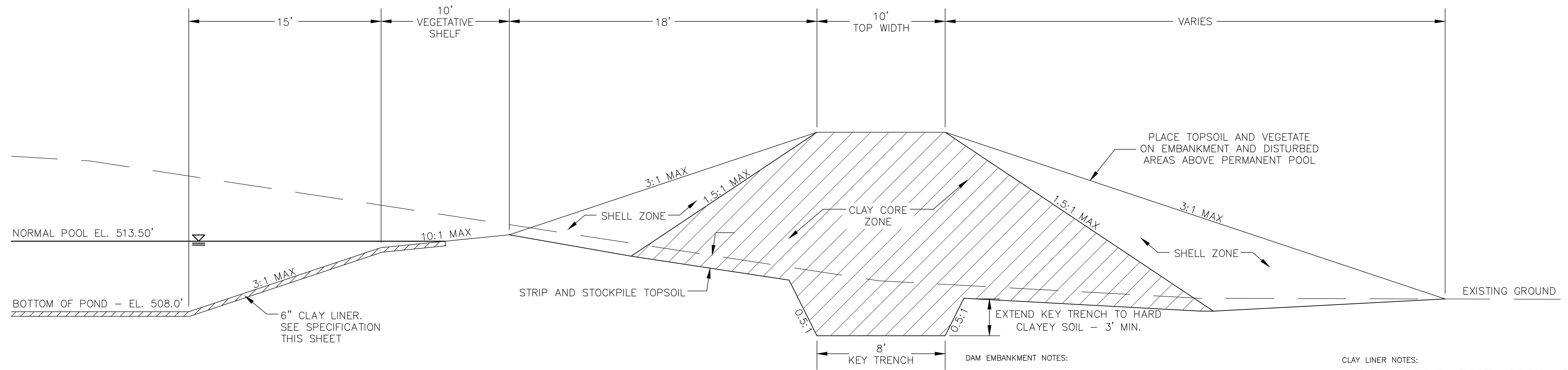
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BMP #21 PLAN & DETAILS

DATE: JUNE 1, 2015	SCALE: D4.X
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DESIGNED: BSS	DRAWING NUMBER: D4.1
CHECKED: GCA	
PROJ. MGR: CHS	
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 4



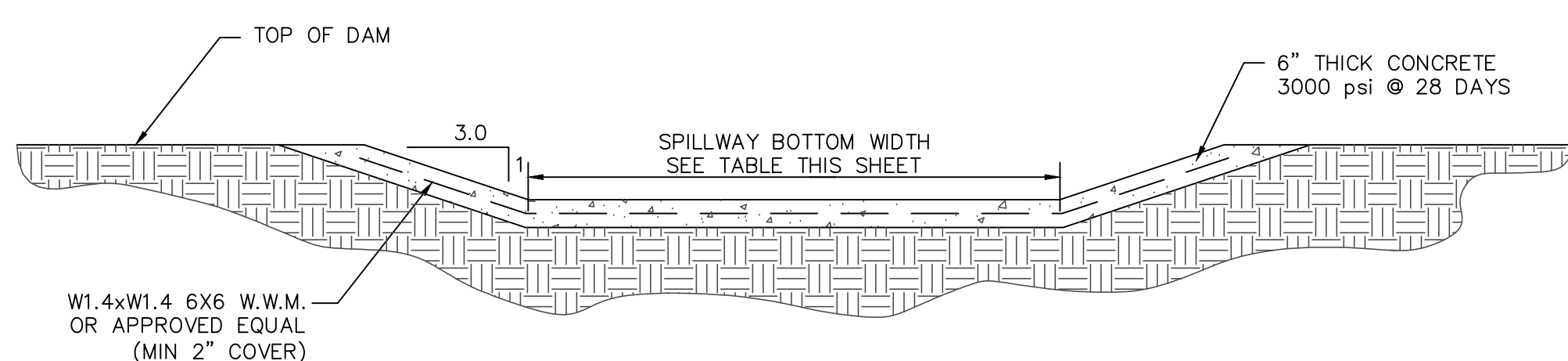
DAM EMBANKMENT DETAIL
NTS

DAM EMBANKMENT NOTES:

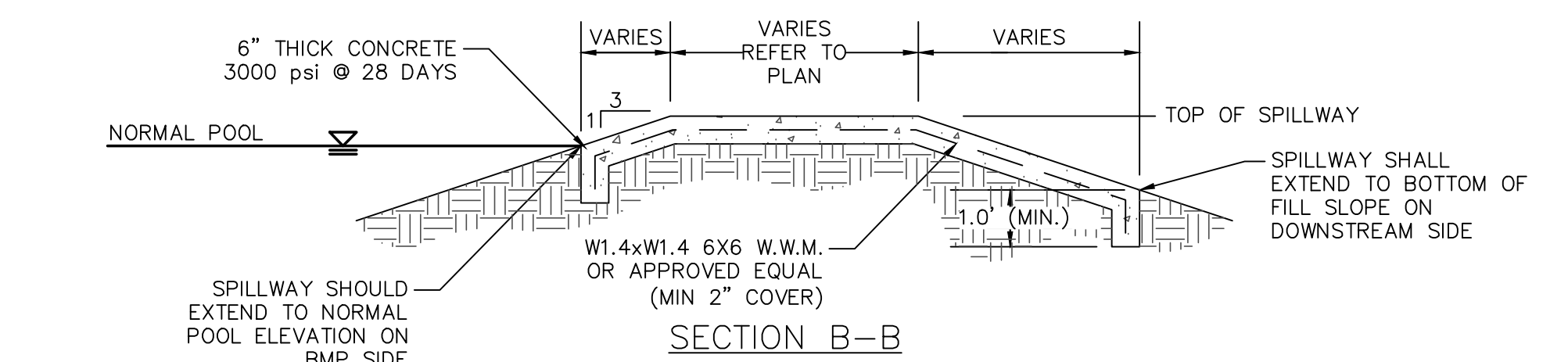
- 1) TOPSOIL BENEATH THE EMBANKMENT SHALL BE REMOVED AND STOCKPILED. THE FOUNDATION WILL BE PROOF ROLLED AND ANY SOFT OR ORGANIC MATERIALS WILL BE REMOVED.
- 2) ALL MATERIAL SHALL BE COMPACTED IN 6-8 INCH LIFTS TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY OR HIGHER (ASTM D-698). THE CLAY CORE ZONE WILL HAVE A MOISTURE CONTENT OF OPTIMUM TO 4 PERCENT ABOVE OPTIMUM MOISTURE CONTENT. THE SHELL ZONE FILL WILL HAVE A MOISTURE CONTENT FROM 2 PERCENT BELOW OPTIMUM MOISTURE CONTENT TO 4 PERCENT ABOVE OPTIMUM.
- 3) EMBANKMENT FILL:
SHELL ZONE: SOILS WITH LESS THAN 30% PASSING THE NO. 200 SIEVE OR A PI OF LESS THAN 10 WHEN THE PERCENTAGE OF MATERIAL PASSING THE NO. 200 SIEVE IS GREATER THAN 30 PERCENT. SOILS WHICH ARE CLASSIFIED AS CLAYS (CH OR CL) SHOULD NOT BE USED AT THE FACE OF THE SHELL ZONES.
CLAY CORE ZONE: CH, CL OR SC MATERIAL WITH A PI RANGING BETWEEN 15 AND 60
- 4) NO FILL SHALL CONTAIN ROCKS OR GRAVEL LARGER THAN 4 INCHES IN DIAMETER.
- 5) A PROFESSIONAL GEOTECHNICAL ENGINEER SHALL APPROVE ALL MATERIALS USED FOR THE EMBANKMENT AND SUPERVISE CONSTRUCTION.
- 6) ALL DISTURBED AREAS ABOVE PERMANENT POOL SHALL BE SEEDED USING THE FOLLOWING GRASS SEED MIX MANUFACTURED BY ERNST SEED COMPANY: Carolina FACW Meadow Mix ERNMX-182

CLAY LINER NOTES:

IN ORDER TO HELP SUSTAIN THE PERMANENT POOL AND TO PREVENT WATER FROM INFILTRATING TOO QUICKLY INTO THE UNDERLYING SOIL, THE CONTRACTOR SHALL INSTALL A 6" THICK CLAY LINER ON THE BOTTOM OF THE BMP AREA UP TO THE NORMAL POOL ELEVATION. THE LINER CAN BE ACCOMPLISHED BY BLENDING EXISTING SITE SOILS WITH CLAY TO ACHIEVE A LOW PERMEABILITY MIXTURE OR BY INSTALLING A GEOSYNTHETIC LINER MADE OF A 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

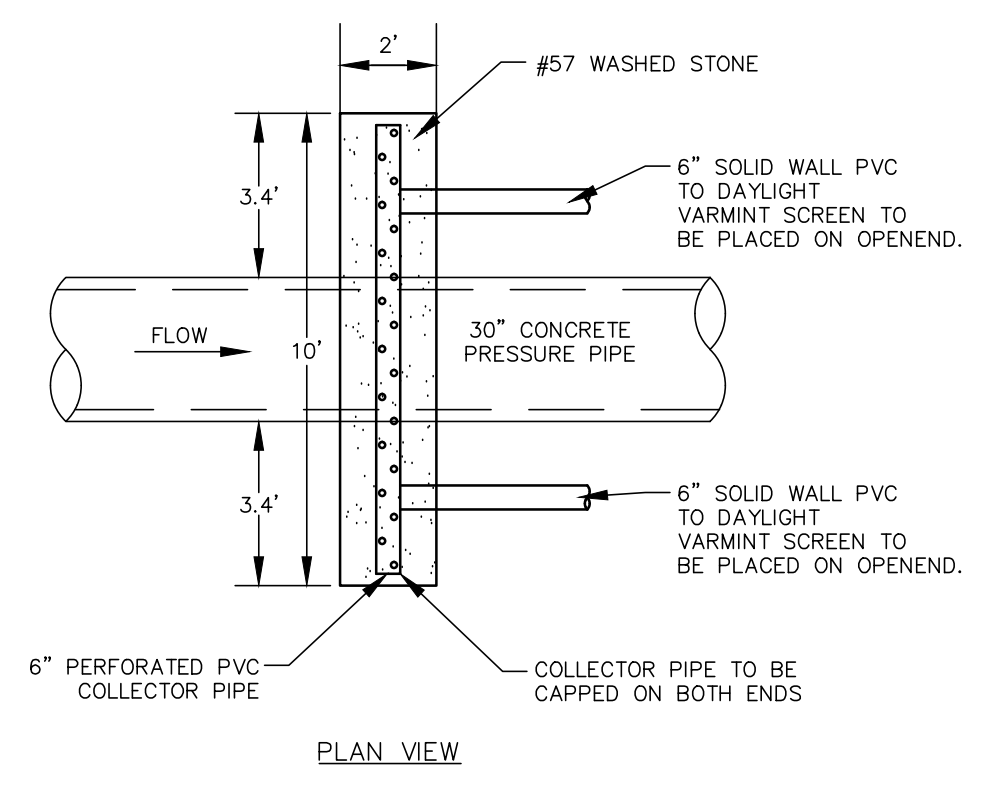


SECTION B-B

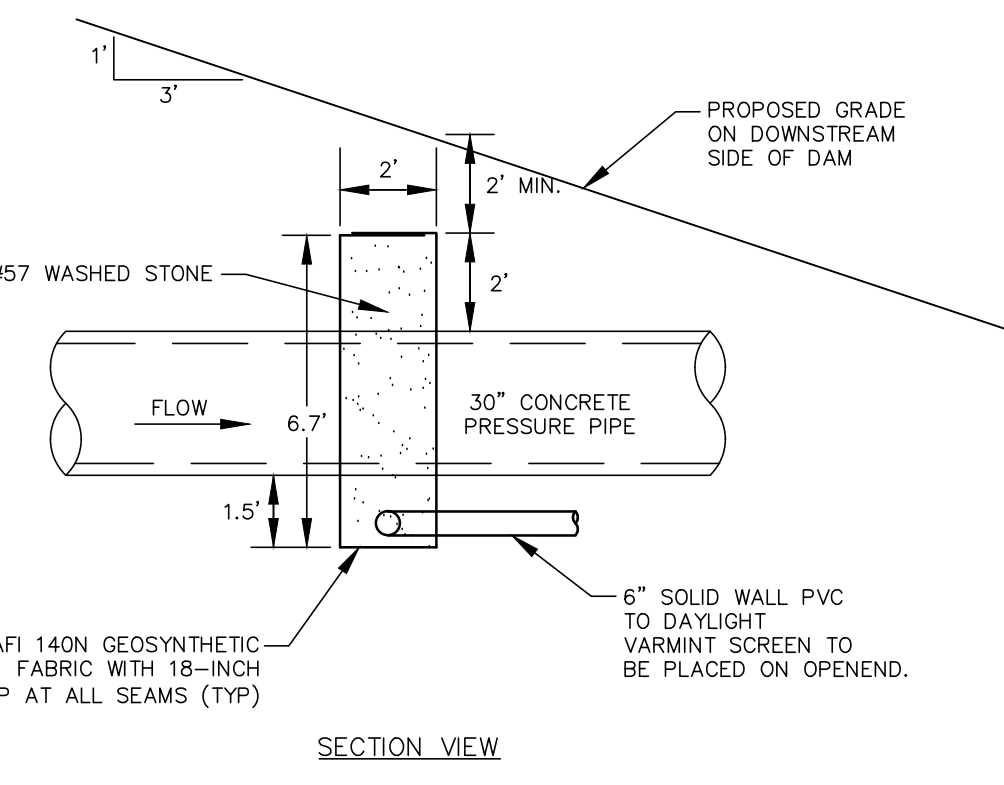
	NORMAL POOL EL.	TOP DAM EL.	SPILLWAY BOTTOM EL.	SPILLWAY BOTTOM WIDTH
BMP #21	513.50	520.00	517.75	40'

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

EMERGENCY SPILLWAY DETAIL
NTS



PLAN VIEW



SECTION VIEW

FILTER DIAPHRAGM DETAIL
NTS

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

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

SHEET 1 OF 1
838.80

ELEVATION

SIDE

NOTES:

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

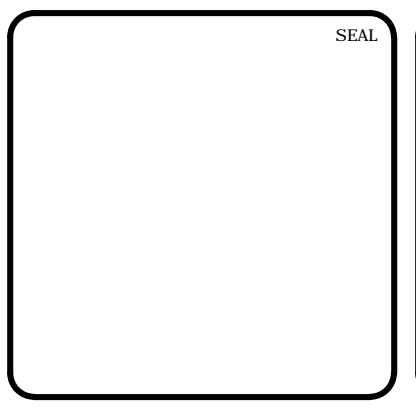
NOTE: THE MINIMUM BAR SIZE SHALL BE #5 BARS AT 6" CTS. THE CONTRACTOR WILL HAVE THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

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	7.00/9.25	13.50/15.75
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/9.25	13.75/15.75
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/9.25	14.00/15.75
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/9.25	14.75/16.75

DESIGNER'S CERTIFICATION:

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

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



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CHATHAM COUNTY, NORTH CAROLINA

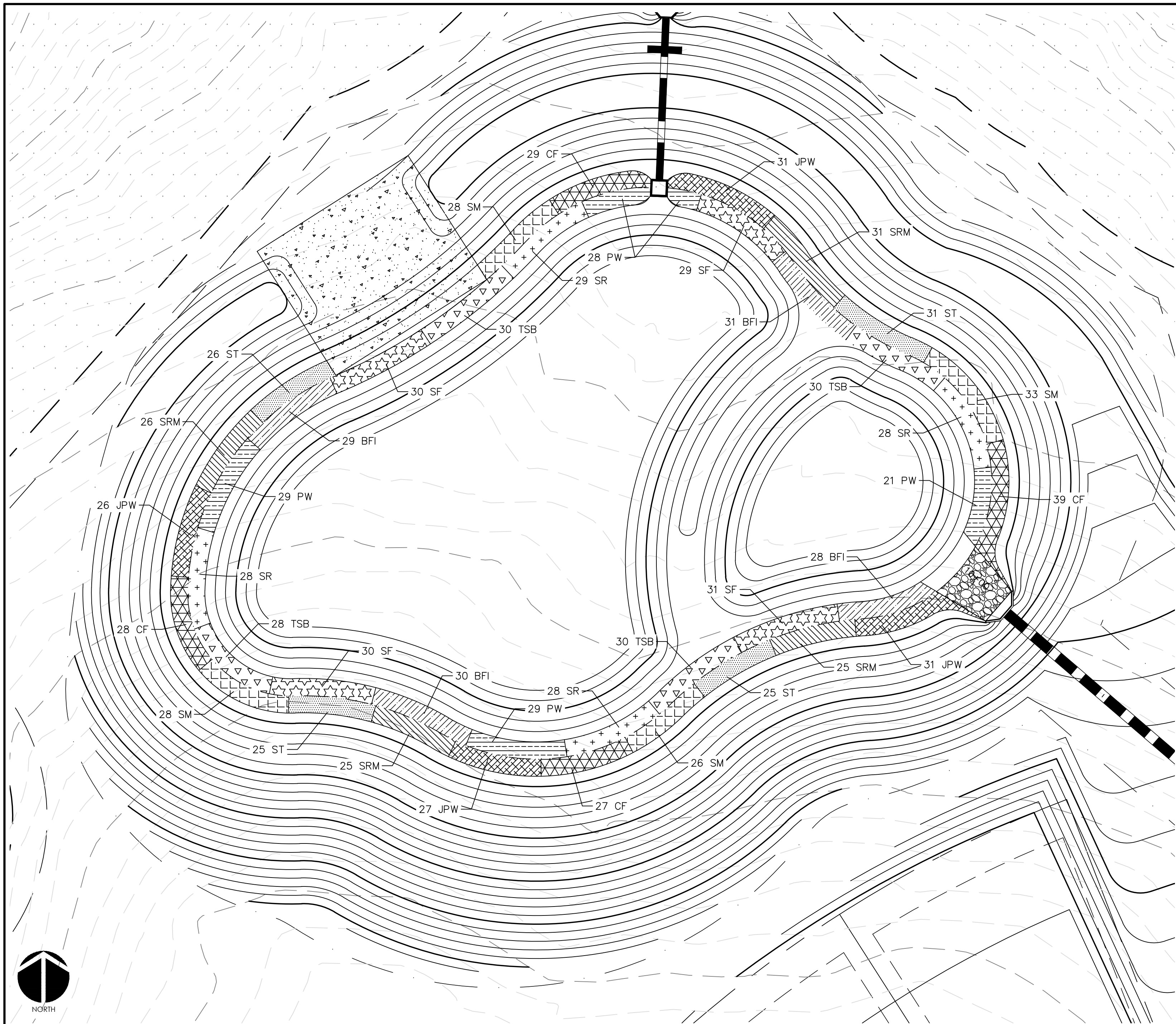
BMP #21 PLAN & DETAILS

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

SCALE: HORIZONTAL: AS NOTED
VERTICAL: N/A

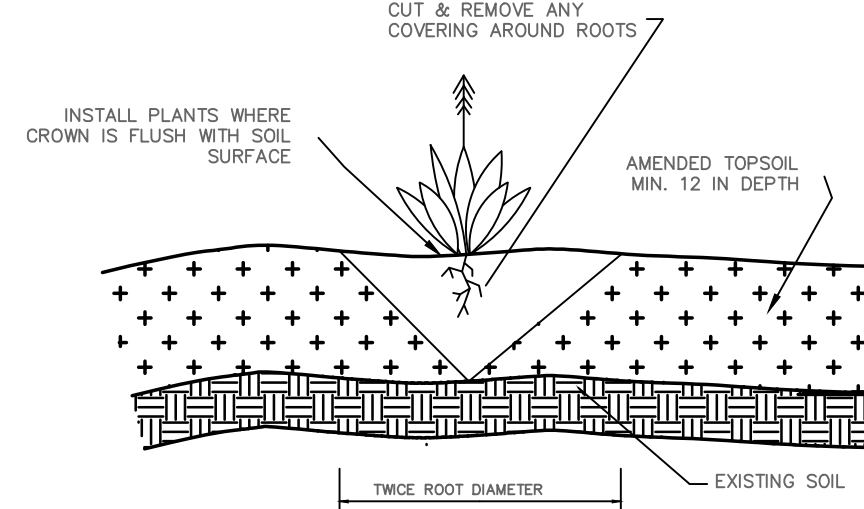
M&C FILE NUMBER: **D4.X**
DRAWING NUMBER: **D4.2**

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: **4**

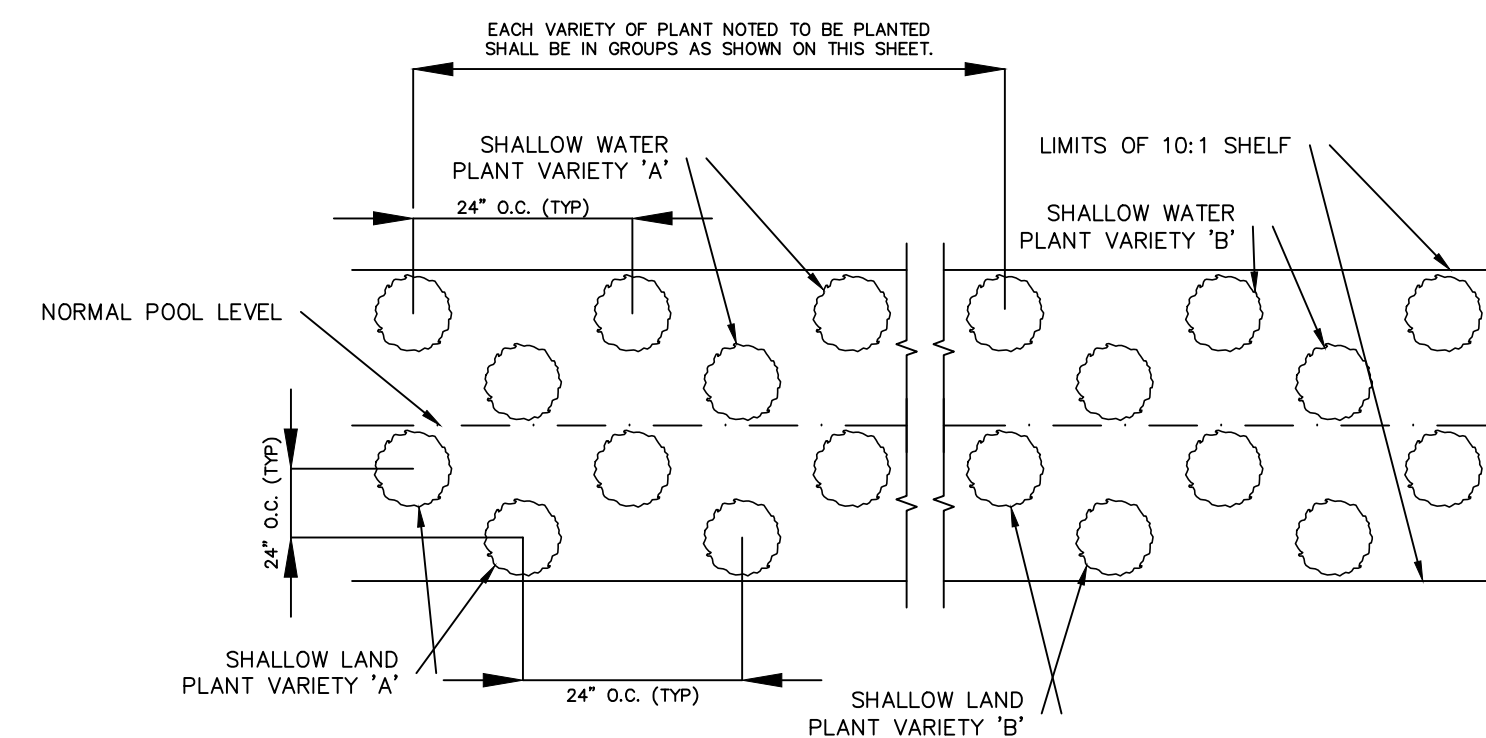


WET DETENTION POND #21 PLANTING PLAN
SCALE = 1" = 20'

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

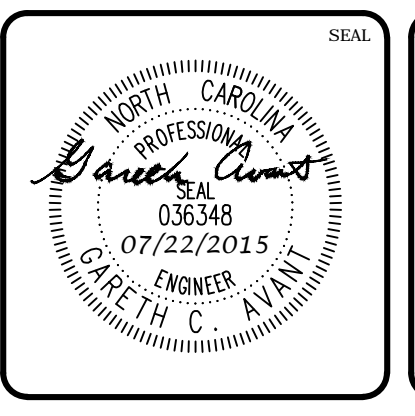
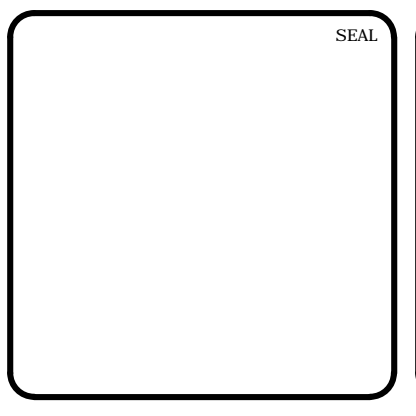
SHALLOW LAND PLANTING NOTES:

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

DESIGNER'S CERTIFICATION:
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Darcy Annis
NORTH CAROLINA PROFESSIONAL ENGINEER
036348
07/01/2015
CHATHAM COUNTY, NC

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



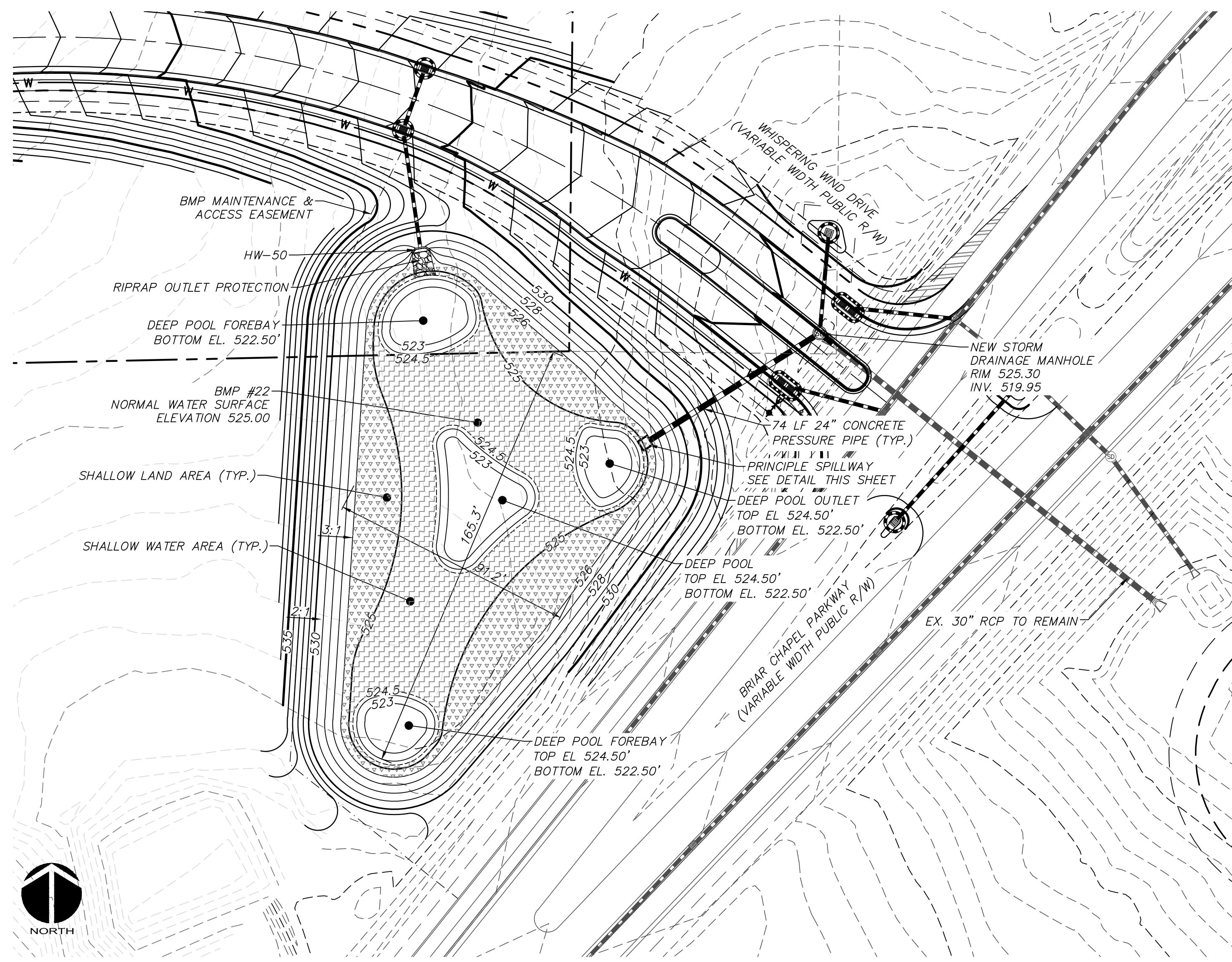
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BMP #21 PLAN & DETAILS

DATE: JUNE 1, 2015	SCALE: D4.X	M&C FILE NUMBER: D4.X
M&C PROJ. #: 02735-0130	HORIZONTAL: AS NOTED	DRAWING NUMBER: D4.3
DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 4	



STORMWATER WETLAND #22 PLAN VIEW
SCALE = 1" = 30'

STORMWATER WETLAND PLANTING SCHEDULE

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

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

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

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

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

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

STORMWATER WETLAND PLANTING LEGEND:

- DEEP POOL (6" BELOW - 30" BELOW)
- SHALLOW WATER (NORMAL POOL - 6" BELOW)
- SHALLOW LAND (NORMAL POOL - 12" ABOVE)

STORMWATER WETLAND PLANTING NOTES

GENERAL PLANTING NOTES

- AVOID COMPACTING TOPSOIL TO PROMOTE HEALTHY ENVIRONMENTAL CONDITIONS FOR THE PLANTS.
- PLANTS OF THE SAME SPECIES SHOULD BE PLANTED IN CLUSTERS, THESE CLUSTERS SHOULD CONTAIN MIN. 4-6 PLANTS OF THAT SPECIES.
- ALL PLANTS SHOULD BE PLANTED IN THE INDICATED RANGE TO ENSURE SURVIVAL.
- AVOID PLANTING INDIVIDUAL SPECIES IN LARGE GROUPS BY SPACING CLUSTERS A MIN. OF 5' APART.
- SHALLOW WATER AND SHALLOW LAND AREAS TO BE PLANTED WITH BARE ROOT, PLUGS, OR CONTAINER LIVE PLANTINGS AS SPECIFIED.
- 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.
- BEGIN PLANTING DURING LOCAL GROWING SEASON IN ORDER TO ENSURE THAT PLANTS HAVE ADOQUET TIME TO ESTABLISH BEFORE WINTER MONTHS.
- OBTAIN PLANTS FROM: COASTAL PLAIN CONSERVATION NURSERY (252-482-5707), MELLOW MARSH FARMS (919-742-1200), CURE NURSERY (919-542-6186) OR ENGINEER APPROVED SUBSTITUTE.

SHALLOW WATER PLANTING NOTES:

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

SHALLOW LAND PLANTING NOTES:

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

DEEP POOL PLANTING NOTES:

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

GRADING PLAN NOTES:

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

TOPSOIL SPECIFICATION:

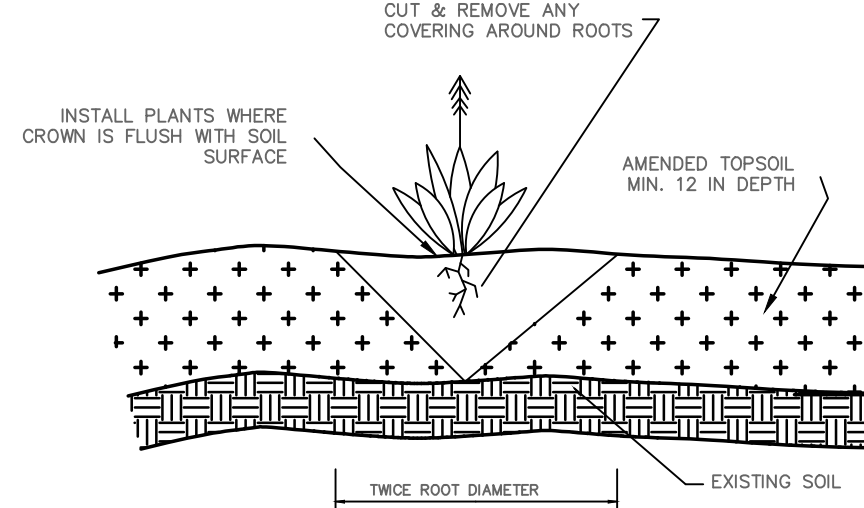
- TOPSOIL TO BE ADDED TO TOP OF WETLAND SHELF IS TO MEET CRITERIA SPECIFIED BELOW.
- TOPSOIL SHALL BE WELL MIXED, FREE OF TRASH AND DEBRIS, UNCOMPACTED, AND VOID OF LARGE STONES (>3 INCHES) AND WOODY MATERIAL (>3 INCHES).
- TOPSOIL SHALL MEET THE FOLLOWING SPECIFICATIONS:
SOIL TYPE: CLAY < 60%, SAND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

EARTHWORK SPECIFICATIONS

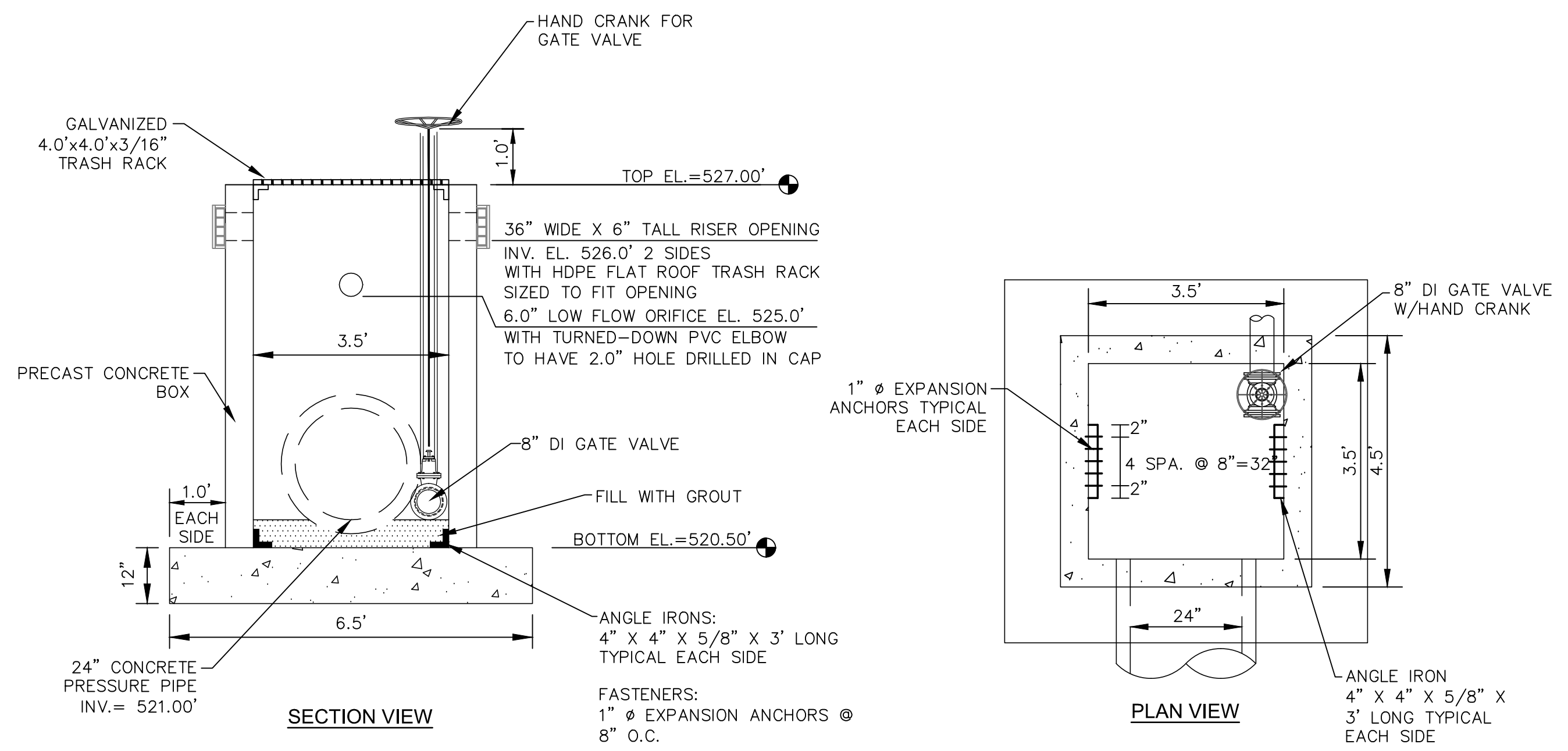
- GRADE TO ELEVATIONS AND DIMENSIONS SHOWN ON DRAWINGS. GRADED ELEVATIONAL TOLERANCE SHALL BE ±0.1 FT.
- TOPSOIL MATERIAL SHALL BE APPROVED BY ENGINEER PRIOR TO USE BASED ON SOIL PROPERTY TEST SUBMITTALS THAT INCLUDE STANDARD TEST METHOD FOR PARTICLE-SIZE ANALYSIS (ASTM D422), PARTICLE SIZE ANALYSIS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

CLAY LINER SPECIFICATIONS

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



GENERAL PLANTING DETAIL
NTS



PRINCIPLE SPILLWAY
SCALE = 1" = 2'

DESIGNER'S CERTIFICATION:
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Baruch Amis
PROFESSIONAL ENGINEER
036348
07/22/2015
NORTH CAROLINA
CIVIL ENGINEER

REV. NO.	DESCRIPTIONS	DATE
4	REVISIONS PER COMMENTS FROM NCDOT	2015.07.22
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SEAL
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PROFESSIONAL ENGINEER
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036348
07/22/2015
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CHATHAM COUNTY, NORTH CAROLINA**

BMP #22 PLAN & DETAILS

DATE: JUNE 1, 2015	SCALE: D4.X
MCE PROJ. # 02735-0130	HORIZONTAL: AS NOTED
DRAWN: BSS	VERTICAL: N/A
DESIGNED: BSS	REVISION: 4
CHECKED: GCA	FOR REVIEW PURPOSES ONLY
PROJ. MGR. CHS	

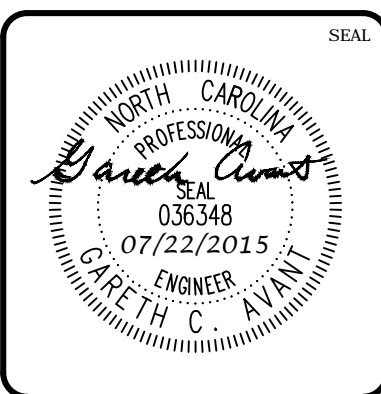
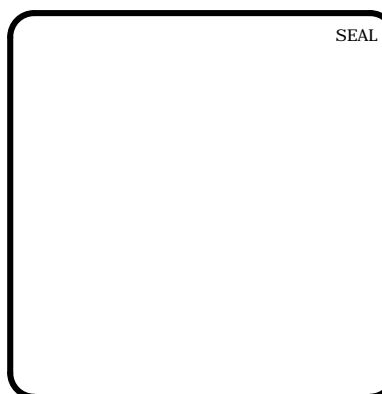
STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CB-30	CI-29	535.55	535.30	24"	RCP	43.2	0.58%
CB-45	CI-44	538.00	537.75	15"	RCP	23.6	1.06%
CB-58	SDMH-57	520.25	520.05	15"	RCP	37.6	0.53%
CB-59	EX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

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

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

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

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



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BRIAR CHAPEL
US STEEL - SECTION 1
CHATHAM COUNTY, NORTH CAROLINA
STORM DRAINAGE & SANITARY SEWER TABLES

DATE: JUNE 1, 2015	SCALE: D4.5	MAC FILE NUMBER: D4.5
MCE PROJ. # 02735-0130	HORIZONTAL: N/A	DRAWING NUMBER: D4.5
DRAWN: BSS	VERTICAL: N/A	
DESIGNED: BSS		
CHECKED: GCA		
PROJ. MGR: CHS		
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY	REVISION: 4	