BRIAR CHAPEL

COMMERCIAL SD NORTH

PRELIMINARY PLAT SUBMITTAL

U.S. HWY 15-501 and BRIAR CHAPEL PARKWAY
CHATHAM COUNTY, NORTH CAROLINA

DATE: JANUARY 20, 2015
REVISED: MARCH 27, 2015

COUNTY AND AGENCY CONTACTS

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

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

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

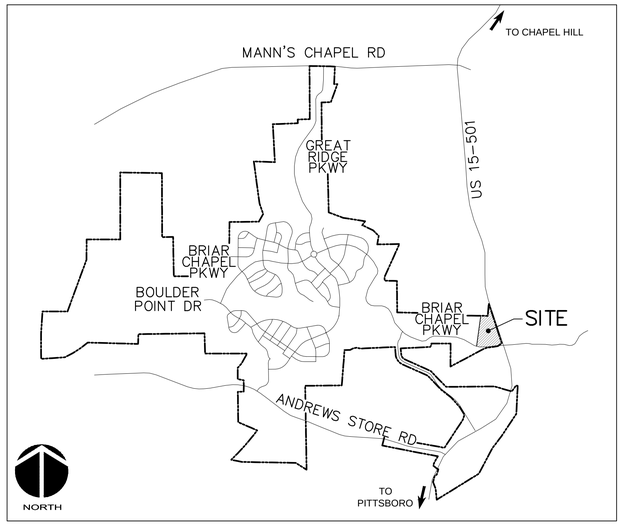
D. Chatham County
Public Works
964 East Street, 2nd Floor, Suite 205
Pittsboro, NC 27312
(919) 545-8530 phone
Contact: Dan LaMontagne, III
Email: dan.lamontagne@chathamnc.org

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

F. NCDENR
Division of Water Quality
512 N. Salisbury St
Archdale Building, 9th Floor
Raleigh, NC 27604
(919) 807-6373 phone
Contact: Boyd Devane
Email: boyd.devane@ncdenr.gov

G. NCDENR
Division of Environmental Health
Public Water Supply Section
1634 Mail Service Center
Raleigh, NC 27699-1634
(919) 707-9074 phone
Contact: Richard Dickie
Email: richard.dickie@ncdenr.gov

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



VICINITY MAP
NTS

PROJECT DATA

NAME OF PROJECT:

COMMERCIAL SD NORTH
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: 7.39 ACRES

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

SHEET INDEX

BRIAR CHAPEL®
by Newland COMMUNITIES

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

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036348 03/27/2015 GARETH C AVANT

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

FINAL DRAWINGS
FOR REVIEW PURPOSES ONLY

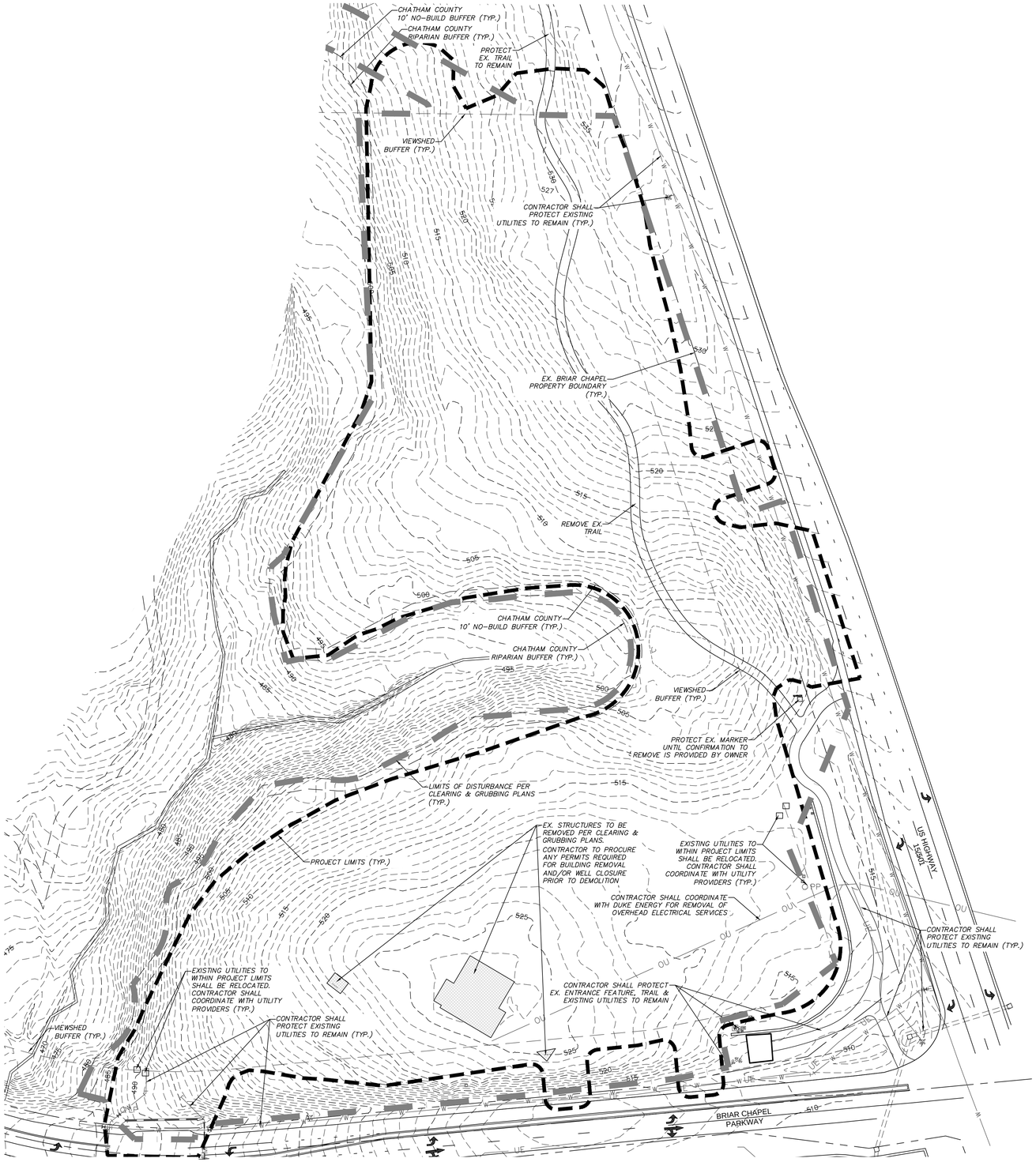
COMMERCIAL SD NORTH
02735-0128
FINAL DRAWINGS - FOR REVIEW PURPOSES ONLY

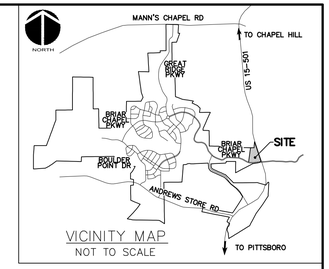
GENERAL NOTES:

1. REFER TO THE FOLLOWING JOHN R. MCADAMS COMPANY, INC. CONSTRUCTION PLANS, AND ALL SUBSEQUENT CONSTRUCTION BULLETINS FOR INFORMATION ON EXISTING SITE INFRASTRUCTURE:
   - BRIAR CHAPEL – RECLAMATION FACILITY EROSION CONTROL PLAN SEALED JULY 29, 2005
   - BRIAR CHAPEL – PHASE 1 CONSTRUCTION PLANS SEALED OCTOBER 21, 2005.
   - BRIAR CHAPEL – WEST EXTENSION GRADING PLAN (INTERIM) SEALED MARCH 1, 2007.
   - BRIAR CHAPEL – PHASE 3 CONSTRUCTION PLANS SEALED DECEMBER 4, 2006.
   - BRIAR CHAPEL – PHASE 4 CONSTRUCTION PLANS SEALED JANUARY 15, 2007.
   - BRIAR CHAPEL – WATER QUALITY PONDS 5 AND 6 CONSTRUCTION PLANS SEALED AUGUST 24, 2006.
   - BRIAR CHAPEL – PUMP STATION CONSTRUCTION PLANS DATED APRIL 3, 2006.
   - BRIAR CHAPEL – PHASE 4 – POD D CONSTRUCTION PLANS SEALED SEPT. 17, 2007.
   - BRIAR CHAPEL – PHASE 3 & 4 EROSION CONTROL PLANS SEALED JULY 26, 2007.
   - BRIAR CHAPEL – PHASE 5 SOUTH SECTION 1 CONSTRUCTION PLANS SEALED NOVEMBER 9, 2009.
   - BRIAR CHAPEL – PHASE 5 SOUTH SECTION 2 CONSTRUCTION PLANS SEALED OCTOBER 8, 2009.
   - BRIAR CHAPEL – PHASE 6 NORTH SECTIONS 1 AND 2 CONSTRUCTION PLANS SEALED OCTOBER 8, 2012.
2. THIS PROPERTY IS ZONED CC–CUD.
3. ALL DISTANCES SHOWN ARE HORIZONTAL GROUND MEASUREMENTS.
4. 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.
5. EXISTING TOPOGRAPHIC DATA IS BASED ON AERIAL MAPPING PERFORMED BY AVIOIMAGE MAPPING SERVICES IN FEBRUARY 2010. ELEVATIONS ARE BASED ON NAVD 88 NCGS MONUMENT "F–92" WITH AN ELEVATION OF 476.06'.
6. HORIZONTAL AND VERTICAL CONTROL FOR THIS SITE WAS INSTALLED BY GPA PROFESSIONAL LAND SURVEYORS OF NC.
7. PROJECT IS LOCATED IN THE CAPE FEAR RIVER BASIN.
8. STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY SOIL AND ENVIRONMENTAL CONSULTANTS IN RALEIGH, NC – CONTACT NIKKI THOMSON AT 919–846–5900.
9. 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.





VICINITY MAP
NOT TO SCALE

LEGEND:

- EXISTING WETLANDS
- AREA OF DEMOLITION
- OVERALL PROPERTY BOUNDARY
- VIEWSHED BUFFER
- 10' NO BUILD BUFFER LINE
- STREAM BUFFER LINE
- 480 EX. CONTOUR
- EX. POWER LINE EASEMENT
- OE EX. OVERHEAD POWER LINE
- ELEC EX. UNDERGROUND POWER LINE
- FM EX. SANITARY SEWER FORCE MAIN
- IRR EX. REUSE IRRIGATION MAIN
- W EX. WATER MAIN
- X EX. FENCE
- TWC EX. TIME WARNER CABLE UTILITY LINE
- AT&T EX. AT&T UTILITY LINE
- EX. STORM DRAINAGE PIPE
- PROJECT LIMITS
- APPROVED LIMITS OF DISTURBANCE

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

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

REV.NO.	DESCRIPTIONS	DATE
1	1st SUBMITTALS TO REVIEWERS	2015.01.20

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL
036348
01/20/2015
GARETH C. AYAN
ENGINEER

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BRIAR CHAPEL™ by Newland COMMUNITIES

BRIAR CHAPEL
COMMERCIAL SD NORTH
CHATHAM COUNTY, NORTH CAROLINA

EXISTING CONDITIONS/DEMOLITION PLAN

DATE:	JANUARY 20, 2015
MCE PROJ. #	02735-0128
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: N/A

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

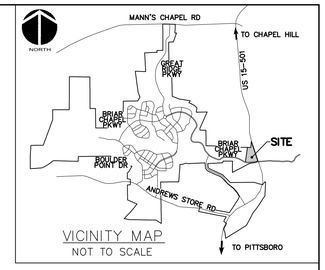
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 1

SITE GENERAL NOTES:

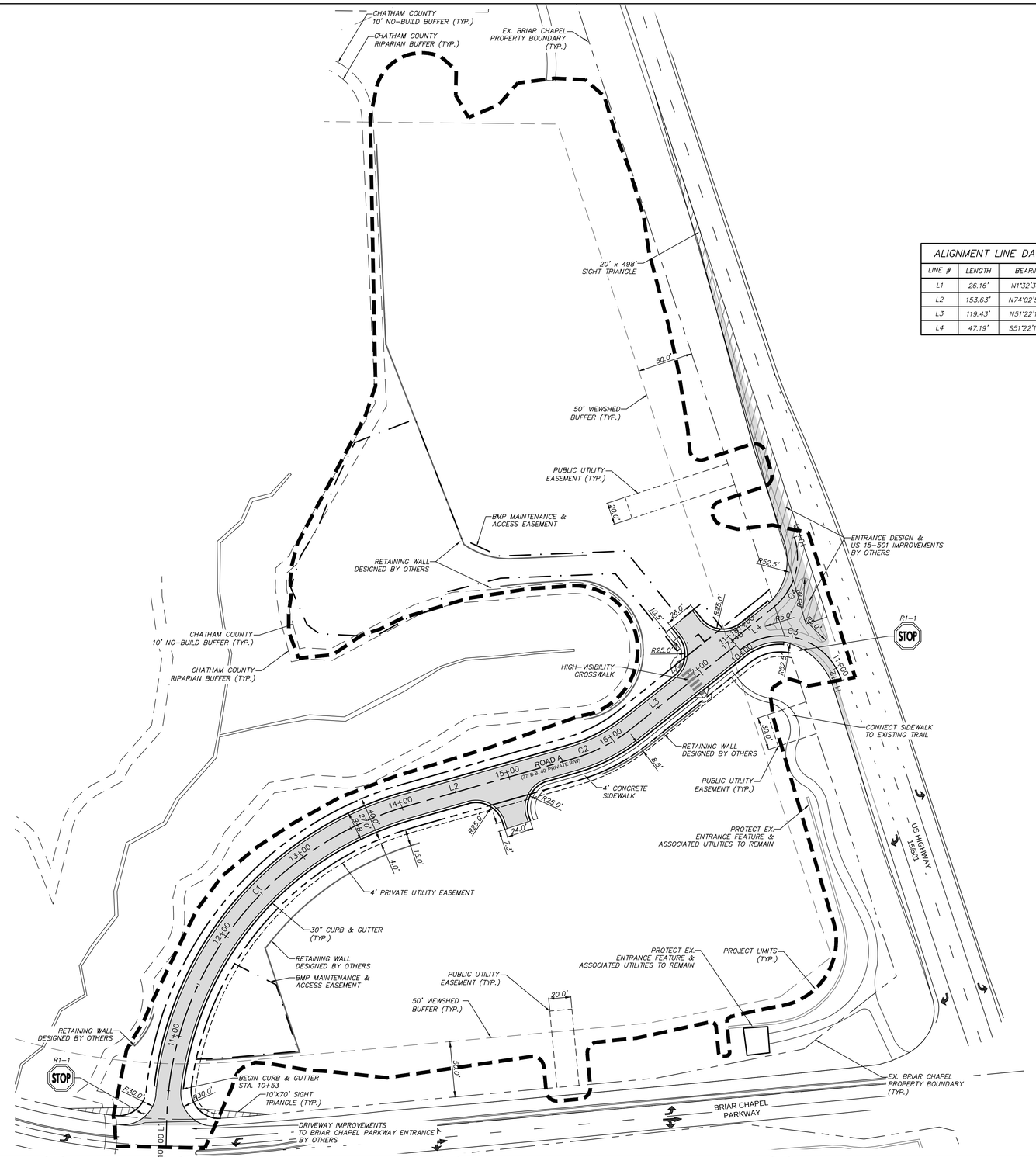
1. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER IF ANY DISCREPANCIES EXIST PRIOR TO CONSTRUCTION. NO ADDITIONAL COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
2. NO PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #3710977500J DATED FEBRUARY 2, 2007.
3. 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.
4. 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.
5. REFER TO PLAN AND PROFILE SHEETS FOR DETAILED SANITARY SEWER AND STORM DRAINAGE INFORMATION WITHIN PUBLIC ROADS AND PRIVATE ALLEYS.

CHATHAM COUNTY REQUIRED SITE NOTES

1. PROPERTY OWNER/DEVELOPER:
   NNP BRIAR CHAPEL, LLC
   16 WINDY KNOLL CIRCLE
   CHAPEL HILL, NC 27516
   PHONE: (919) 951-0700
2. SITE AKPAR #: 85632



VICINITY MAP
NOT TO SCALE



ALIGNMENT LINE DATA

LINE #	LENGTH	BEARING
L1	26.16'	N1°32'33"E
L2	153.63'	N74°02'57"E
L3	119.43'	N51°22'18"E
L4	47.19'	S51°22'18"W

ALIGNMENT CURVE DATA

CURVE #	ARCH LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH	DELTA
C1	379.64'	300.00'	N37°47'45"E	354.81'	72°30'24"
C2	61.35'	155.00'	N62°42'37"E	60.95'	22°40'40"
C3	112.14'	58.00'	S73°14'13"E	95.47'	110°46'55"
C4	70.38'	57.99'	S16°36'31"W	66.14'	69°32'07"

LEGEND

- ROADWAY CENTERLINE
- PRIVATE ROW
- CHATHAM COUNTY STREAM BUFFER
- 10' NO BUILD ZONE BUFFER
- 4' PRIVATE UTILITY EASEMENT
- BMP MAINTENANCE & ACCESS EASEMENT
- SIDEWALK EASEMENT
- PROJECT LIMITS
- SIGN
- SIGHT TRIANGLE
- NEW ROADWAY PAVEMENT

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

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

REV.NO.	DESCRIPTIONS	DATE
4	REVISED PER COMMENTS FROM CHATHAM COUNTY PLANNING	2015.03.23
3	REVISED PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.03.02
2	REVISED PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.02.09
1	1st SUBMITTALS TO REVIEWERS	2015.01.20

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036348 GREGORY C. AVANT 03/23/2015

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BRIAR CHAPEL™
by Newland COMMUNITIES

BRIAR CHAPEL
COMMERCIAL SD NORTH
CHATHAM COUNTY, NORTH CAROLINA

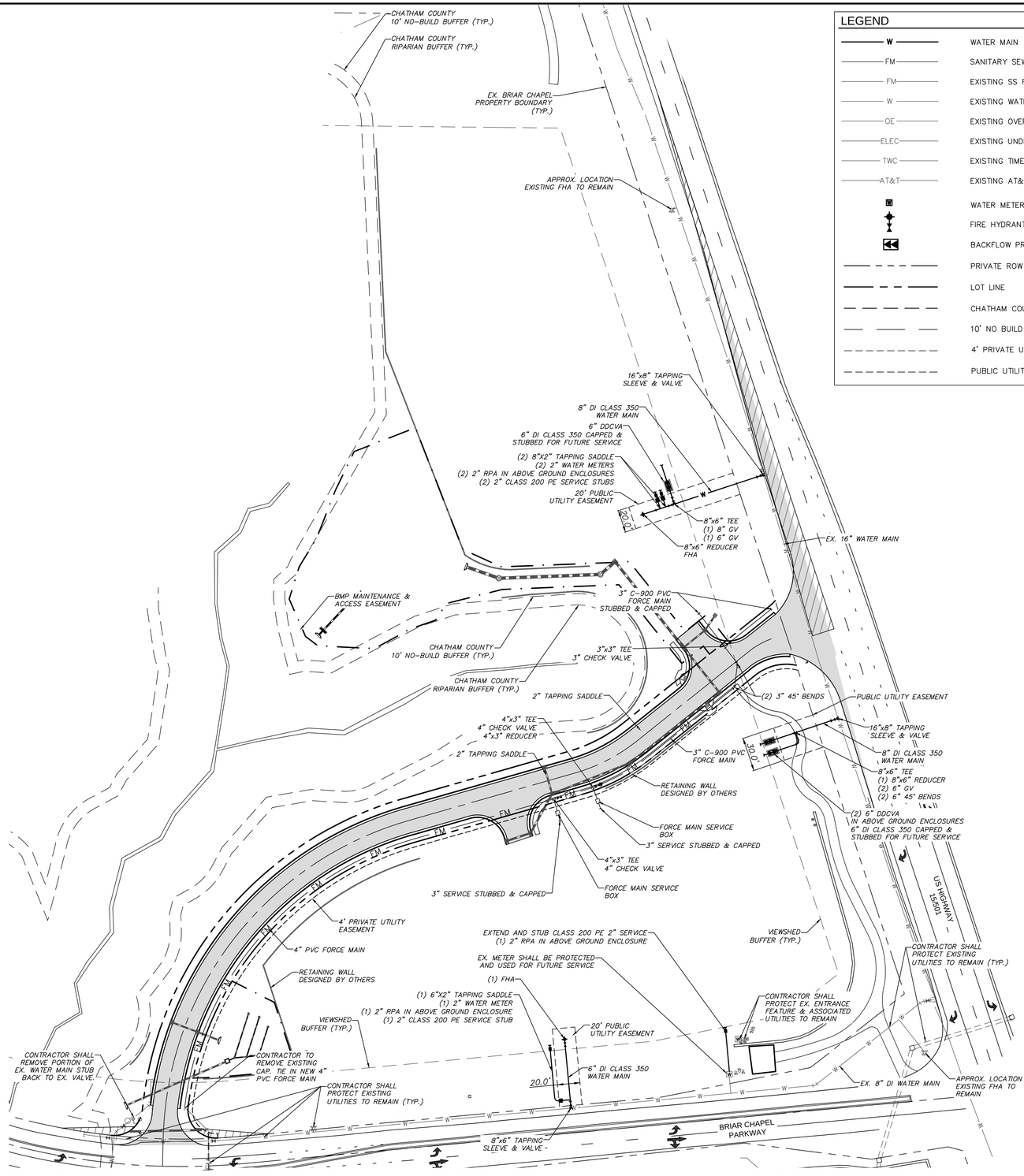
SITE PLAN

DATE:	JANUARY 20, 2015
MCE PROJ. #	02735-0128
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: N/A

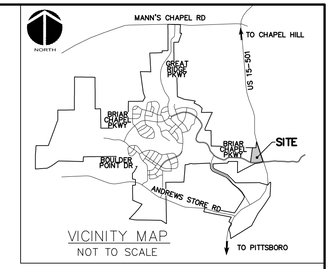
M&C FILE NUMBER C1.X
DRAWING NUMBER C1.0

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION 4



LEGEND

W	WATER MAIN
FM	SANITARY SEWER FORCE MAIN
FM	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
	WATER METER
	FIRE HYDRANT ASSEMBLY (FHA)
	BACKFLOW PREVENTER
	PRIVATE ROW
	LOT LINE
	CHATHAM COUNTY STREAM BUFFER
	10' NO BUILD ZONE BUFFER
	4' PRIVATE UTILITY EASEMENT
	PUBLIC UTILITY EASEMENT



VICINITY MAP
NOT TO SCALE

NORTH

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

50 0 50 100
SCALE: 1"=60' (Horiz.)

UTILITY NOTES:

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

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

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

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

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

REV.NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.03.02
2	REVISED PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.02.09
1	1st SUBMITTALS TO REVIEWERS	2015.01.20

REVISIONS

SEAL

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
036348
03/02/2015
ENGINEER
GARETH C. AVANT

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www.mckimcreed.com

BRIAR CHAPEL™
by
Newland COMMUNITIES

BRIAR CHAPEL
COMMERCIAL SD NORTH
CHATHAM COUNTY, NORTH CAROLINA

UTILITY PLAN

DATE:	JANUARY 20, 2015
MCE PROJ. #	02735-0128
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: N/A

M&C FILE NUMBER: C2.X
DRAWING NUMBER: C2.0

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 3

STAGE 2 CONSTRUCTION SEQUENCE:

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

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

   SLOPES ARE AS DEFINED IN THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
6. CONTRACTOR TO POST EROSION CONTROL PERMIT PROMINENTLY ON SITE AT ALL TIMES.
7. TEMPORARY CONSTRUCTION ENTRANCES, TEMPORARY DIVERSION DITCHES, SILT FENCING, TREE PROTECTION FENCING AND TEMPORARY SKIMMER BASINS WERE INSTALLED AS PART OF THE STAGE 1 CLEARING & GRUBBING PLANS. CONTRACTOR SHALL INSPECT THESE DEVICES TO ENSURE COMPLIANCE PRIOR TO FINAL GRADING OPERATIONS.
8. BEGIN FINAL GRADING OPERATIONS FOR COMMERCIAL SD NORTH.
9. DURING THE TRANSITION FROM STAGE 1 EROSION CONTROL WORK TO STAGE 2 GRADING, AND AS SITE BEGINS TO REACH FINAL GRADES, EROSION CONTROL DEVICES INSTALLED IN STAGE 1 (SUCH AS TDD'S AND TSB'S) SHALL BE REVIEWED AND REMOVED IF THEY ARE IN CONFLICT WITH STAGE 2 WORK SO LONG AS THE AREAS CAN BE IMMEDIATELY STABILIZED OR ADDITIONAL MEASURES INSTALLED TO PREVENT SEDIMENT LADEN RUNOFF. REMOVAL SHOULD ONLY BE COMPLETED WITH APPROVAL FROM CHATHAM COUNTY.
10. 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.
11. ANY AREAS WITH FINAL GRADES OF 3:1 OR GREATER SHALL BE TREATED WITH MATTING INSTALLED PER DETAIL ON SHEET D1.1.
12. 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.
13. UPON REMOVAL OF ANY TEMPORARY DEVICE, CONTRACTOR SHALL IMMEDIATELY STABLIZE ANY RESULTING BARE AREAS.
14. 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.

LIMITS OF DISTURBANCE NOTES:

1. SILT FENCE AND TREE PROTECTION FENCE LINES ALSO DELINEATE THE LIMITS OF DISTURBANCE. ALL SILT FENCING OR TREE PROTECTION FENCING SHALL BE INSTALLED INSIDE LIMITS OF DISTURBANCE.
2. TOTAL PROJECT AREA: 7.39 ACRES

RETAINING WALL NOTES:

1. RETAINING WALL DESIGN IS BY OTHERS. OWNER SHALL PROCURE A QUALIFIED RETAINING WALL DESIGNER FOR THE PROJECT. RETAINING WALL INFORMATION SHOWN ON THESE PLANS ARE FOR LOCATION AND GRADE INFORMATION ONLY. OWNER RESPONSIBLE FOR PROVIDING NECESSARY INFORMATION TO WALL DESIGNER AS REQUIRED FOR PROPER DESIGN OF RETAINING WALLS.
2. TOP GRADE OF WALL AND BOTTOM GRADE OF WALL SPECIFIED IN PLANS ARE INTENDED TO BE THE FINISHED PAVEMENT OR EARTH GRADE. THE WALL DESIGNER SHALL ADJUST SHOP DRAWING WALL ELEVATIONS FOR THE TOP AND BOTTOM OF WALL TO MEET SPECIFIC PRODUCT DESIGN CRITERIA AND WALL GEOMETRY AS NECESSARY TO ACHIEVE DESIRED FINISHED GRADES. THE HORIZONTAL WALL LOCATION AS SHOWN IS THE FINISHED LOCATION OF THE BOTTOM OF WALL. THE WALL DESIGNER SHALL COORDINATE WITH THE ENGINEER TO VERIFY WHETHER CONFLICTS EXIST. THE WALL DESIGNER SHALL NOTIFY THE ENGINEER IN CASE OF ANY CONFLICTS, INCLUDING BUT NOT LIMITED TO EXISTING OR PROPOSED UTILITIES, WALL BATTER, GEOGRID PLACEMENT, ETC., OR IF ANY ASPECT OF WALL PLACEMENT CAN NOT BE ACCOMPLISHED. ALL WORK RELATED TO THE RETAINING WALL CONSTRUCTION SHALL BE ACCOMPLISHED WITHIN THE BOUNDARIES OF THE PROJECT PROPERTY, WITHOUT IMPACTING BUFFERS.
3. IT IS THE RESPONSIBILITY OF THE OWNER AND WALL DESIGNER TO ASSURE THAT THE REQUIRED SOIL BEARING PRESSURE, SUBSURFACE DRAINAGE AND SURFACE DRAINAGE ARE ACHIEVED AS RELATED TO THE RETAINING WALL DESIGN. THIS SHOULD BE VERIFIED BY A GEOTECHNICAL ENGINEER. SPECIAL ATTENTION IS REQUIRED TO ENSURE BEARING CAPACITY HAS BEEN ACHIEVED AT LOCATIONS WHERE PIPE PENETRATIONS ARE TO OCCUR. IT SHALL BE THE RESPONSIBILITY OF THE CLIENT TO PROVIDE QUALITY CONTROL / QUALITY ASSURANCE TESTING ASSOCIATED WITH THE WALL CONSTRUCTION. THE GEOTECHNICAL ENGINEER OR WALL DESIGNER SHALL PROVIDE ANY CERTIFICATIONS AS MAY BE REQUIRED TO SHOW COMPLIANCE WITH ORIGINAL DESIGN DOCUMENTS AS RELATED TO THE WALL DESIGN AND CONSTRUCTION.

STORM DRAINAGE NOTES:

1. STORM DRAINAGE PIPES SHALL BE:
   - RCP/CLASS III FOR STORM DRAINAGE INSIDE PRIVATE RIGHT-OF-WAY OR CONNECTING INTO STRUCTURE INSIDE PRIVATE RIGHT-OF-WAY IN ACCORDANCE WITH NCDOT STANDARDS UNLESS NOTED OTHERWISE.
2. ALL CONCRETE SHALL MEET A MINIMUM 3,000 PSI COMPRESSIVE STRENGTH.
3. ALL PIPE IN STORM DRAIN STRUCTURES SHALL BE STRUCK EVEN WITH INSIDE WALL.
4. THE INTERIOR SURFACES OF ALL STORM DRAINAGE STRUCTURES SHALL BE POINTED UP AND SMOOTHED TO AN ACCEPTABLE STANDARD USING MORTAR MIXED TO MANUFACTURER'S SPECIFICATIONS.
5. ALL BACKFILL SHALL BE NON-PLASTIC IN NATURE, FREE FROM ROOTS, VEGETATION MATTER, WASTE CONSTRUCTION MATERIAL OR OTHER OBJECTIONABLE MATERIAL. UTILIZED MATERIAL SHALL BE CAPABLE OF BEING COMPACTED BY MECHANICAL MEANS AND SHALL HAVE NO TENDENCY TO FLOW OR BEHAVE IN A PLASTIC MANNER UNDER THE TAMPING BLOWS OR PROOF ROLLING.
6. MATERIALS DEEMED AS UNSUITABLE FOR BACKFILL PURPOSES BY THE OWNER'S REPRESENTATIVE SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL.
7. BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE THOROUGHLY COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY OBTAINABLE WITH THE STANDARD PROCTOR TEST. THE TOP EIGHT (8) INCHES SHALL BE COMPACTED TO 100% STANDARD PROCTOR.
8. UNDER NO CIRCUMSTANCES SHALL WATER BE ALLOWED TO RISE IN UNBACKFILLED TRENCHES AFTER PIPE HAS BEEN PLACED.
9. ALL FLARED END SECTIONS DISCHARGING INTO WATER QUALITY PONDS WILL HAVE A CONCRETE PAD POURED UNDERNEATH THE FLARED END SECTION IN ACCORDANCE WITH PROVIDED CONSTRUCTION DETAILS.
10. RIM ELEVATIONS OF STORM DRAIN STRUCTURES SHALL BE FIELD VERIFIED.
11. STORM DRAINAGE WITHIN PRIVATE EASEMENTS TO BE OWNED, OPERATED AND MAINTAINED BY HOME OWNER'S ASSOCIATION OR AGENT THEREOF.
12. LENGTHS SHOWN FOR STORM DRAINAGE PIPES ARE MEASURED FROM CENTER OF STORM STRUCTURES AND TO ENDS OF FLARED END SECTIONS. SLOPES CALCULATED ARE BASED ON THIS LENGTH.
13. CB DENOTES CATCH BASINS TO BE INSTALLED IN NON-PAVED AREAS. REFER TO NCDOT DETAILS 840.19 AND 840.24 ON SHEET D-2.2.
14. CI DENOTES CURB INLETS TO BE INSTALLED IN THE CURB LINES OF ROADWAYS. REFER TO NCDOT DETAILS 840.02 AND 840.03 ON SHEET D-2.2.

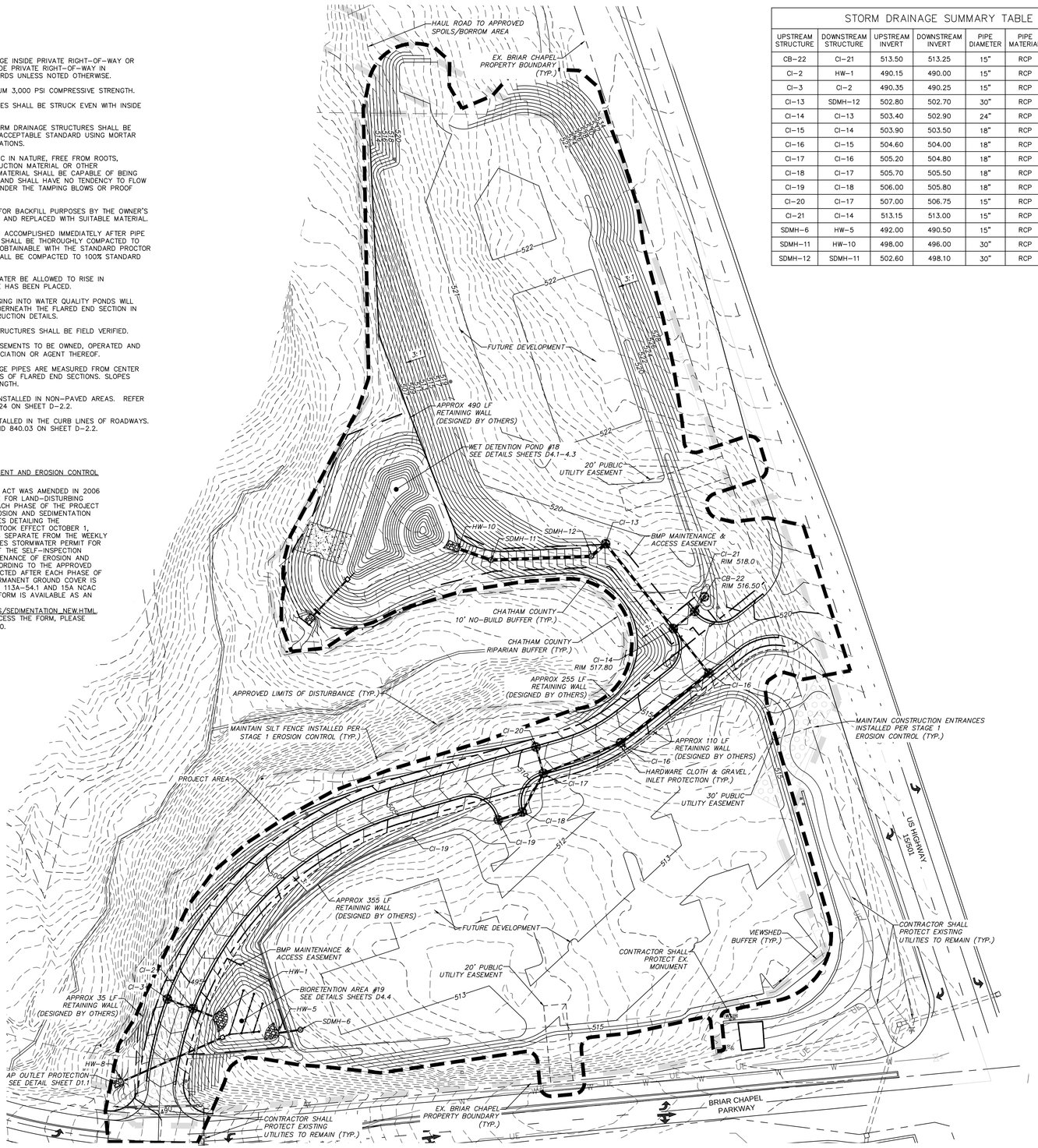
SELF INSPECTION NOTICE:

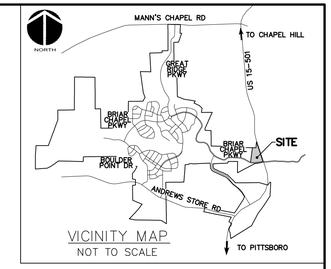
NOTIFICATION OF LAND RESOURCES SEDIMENT AND EROSION CONTROL SELF-INSPECTION PROGRAM:

THE SEDIMENTATION POLLUTION CONTROL ACT WAS AMENDED IN 2006 TO REQUIRE THAT PERSONS RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES INSPECT A PROJECT AFTER EACH PHASE 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 PHASE OF THE PROJECT, AND CONTINUED UNTIL PERMANENT GROUND COVER IS ESTABLISHED IN ACCORDANCE WITH NCGS 113A-54.1 AND 15A NCAC 4B.0131. THE SELF-INSPECTION REPORT FORM IS AVAILABLE AS AN EXCEL SPREADSHEET FROM HTTP://WWW.DLR.ENR.STATE.NC.US/PAGES/SEDIMENTATION_NEW.HTML. IF YOU HAVE QUESTIONS OR CANNOT ACCESS THE FORM, PLEASE CONTACT THIS OFFICE AT (919) 791-4200.

STORM DRAINAGE SUMMARY TABLE

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CB-22	CI-21	513.50	513.25	15"	RCP	15.9	1.58%
CI-2	HW-1	490.15	490.00	15"	RCP	19.7	0.76%
CI-3	CI-2	490.35	490.25	15"	RCP	24.5	0.41%
CI-13	SDMH-12	502.80	502.70	30"	RCP	17.2	0.58%
CI-14	CI-13	503.40	502.90	24"	RCP	97.3	0.51%
CI-15	CI-14	503.90	503.50	18"	RCP	51.2	0.78%
CI-16	CI-15	504.60	504.00	18"	RCP	100.8	0.60%
CI-17	CI-16	505.20	504.80	18"	RCP	74.5	0.54%
CI-18	CI-17	505.70	505.50	18"	RCP	39.6	0.51%
CI-19	CI-18	506.00	505.80	18"	RCP	22.5	0.89%
CI-20	CI-17	507.00	506.75	15"	RCP	24.5	1.02%
CI-21	CI-14	513.15	513.00	15"	RCP	24.5	0.61%
SDMH-6	HW-5	492.00	490.50	15"	RCP	19.5	7.71%
SDMH-11	HW-10	498.00	496.00	30"	RCP	29.8	6.71%
SDMH-12	SDMH-11	502.60	498.10	30"	RCP	90.1	4.99%





VICINITY MAP
NOT TO SCALE

GENERAL NOTES:

1. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER IF ANY DISCREPANCIES EXIST PRIOR TO CONSTRUCTION. NO ADDITIONAL COMPENSATION WILL BE PAID TO CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
2. CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL AT 1-800-632-4949 AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR TO CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL".
3. OVERHEAD ELECTRIC LINES MAY EXIST ON THE SITE. CONTRACTOR SHALL CONTACT DUKE POWER AT (336) 634-4633 PRIOR TO COMMENCING ANY ACTIVITY WITHIN 200-FT OF DUKE POWER RIGHT OF WAY.
4. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL ARRANGE AND ATTEND A PRECONSTRUCTION CONFERENCE WITH CHATHAM COUNTY, OWNER AND ENGINEER.
5. EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON BEST AVAILABLE RECORD DRAWINGS.
6. SOIL UNDER 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.
7. 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.
8. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL PROPERTY CORNERS AND SHALL REPLACE ALL MARKERS REMOVED IF DAMAGED DURING CONSTRUCTION.
9. CONTRACTOR IS RESPONSIBLE FOR ALL DEWATERING AS NECESSARY THROUGHOUT CONSTRUCTION.
10. CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL PERMIT CONDITIONS, MONITORING AND REPORTING REQUIREMENTS.
11. REFER TO SHEET D-2.1 FOR PROPOSED ROAD CROSS SECTION DETAILS AND PAVEMENT SCHEDULE.
13. GRADED SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH CURLEX SINGLE NET (CURLEX I) MATTING BY AMERICAN EXCELSIOR COMPANY OR APPROVED EQUAL.
14. STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY SOIL AND ENVIRONMENTAL CONSULTANTS IN RALEIGH, NC - CONTACT SEAN CLARK AT 919-846-5900.
15. NO PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #3710977500J DATED FEBRUARY 2, 2007.
17. 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 AND KEEP COPIES ON CONSTRUCTION SITE AT ALL TIMES. ALSO CONTACT NCDOT DISTRICT OFFICE 24 HOURS IN ADVANCE BEFORE PLACING CURB AND GUTTER AT (336) 629-1423.

LEGEND:

- TEMPORARY CONSTRUCTION ENTRANCE
- RIPRAP OUTLET PROTECTION
- SF — COMBINATION SILT/TREE PROTECTION FENCE
- TEMPORARY DIVERSION DITCH
- 535 — EXISTING CONTOUR
- 535 — PROPOSED CONTOUR
- EX. LIMITS OF DISTURBANCE
- PROJECT AREA
- HARDWARE CLOTH & GRAVEL INLET INLET PROTECTION

NPDES GROUNDCOVER STABILIZATION TIMEFRAMES

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

NORTH

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

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

REV.NO.	DESCRIPTIONS REVISIONS	DATE
4	REVISED PER COMMENTS FROM CHATHAM COUNTY PLANNING	2015.03.27
3	REVISED PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.03.02
2	REVISED PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.02.09
1	1st SUBMITTALS TO REVIEWERS	2015.01.20

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT
03/27/2015

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

BRIAR CHAPEL™ by Newland COMMUNITIES

BRIAR CHAPEL
COMMERCIAL SD NORTH
CHATHAM COUNTY, NORTH CAROLINA

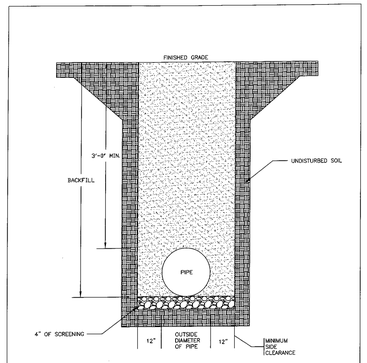
GRADING, DRAINAGE &
STAGE 2 EROSION CONTROL PLAN

DATE:	JANUARY 20, 2015
MCE PROJ. #	02735-0128
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: 1" = 50'
VERTICAL: N/A

M&C FILE NUMBER C3.X
DRAWING NUMBER C3.0

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION 4

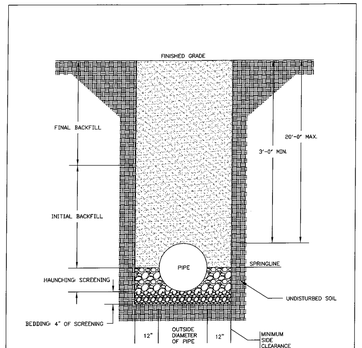


NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 2" OR LARGER IN DIAMETER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
5.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

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

DUCTILE IRON PIPE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS

CHATHAM COUNTY
PUBLIC UTILITIES & WATER DIVISION
P.O. BOX 910
PITTSBORO, NC 27312
984 EAST STREET, SUITE 205
PITTSBORO, NC 27312
(919) 663-5270 (BOS)
(919) 663-5286 (FAX)
CHATHAM COUNTY



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

PVC PIPE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS

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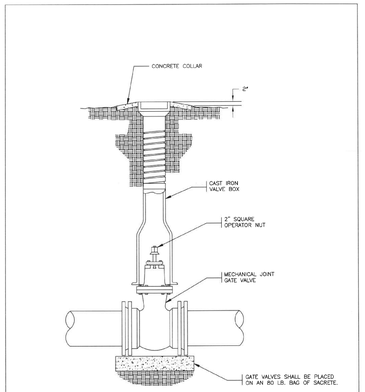

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GATE VALVE ASSEMBLY

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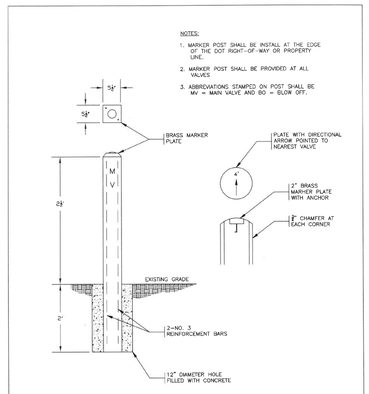
CHATHAM COUNTY



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

VALVE MARKER POST

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PUBLIC UTILITIES & WATER DIVISION
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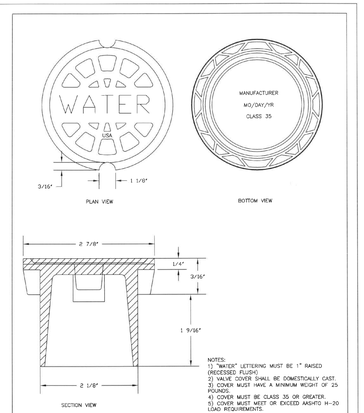

NOTES:
1) "WATER" LETTERING MUST BE 1" RAISED (RECESSED PLUSH)
2) VALVE COVER SHALL BE DOMESTICALLY CAST.
3) COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
4) COVER MUST BE CLASS 35 OR GREATER.
5) COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

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

VALVE BOX COVER

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(919) 663-5270 (BOS)
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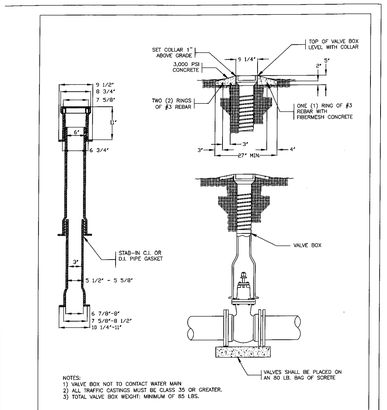
CHATHAM COUNTY



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

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

VALVE BOX AND COLLAR

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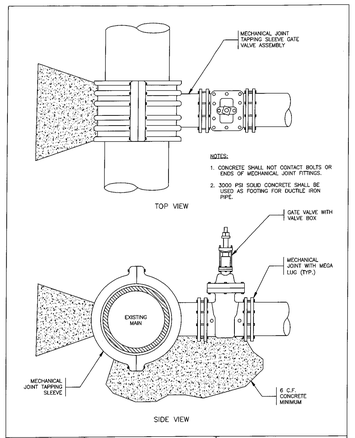
CHATHAM COUNTY

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.



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

4" - 24" TAPPING SLEEVE ASSEMBLY

CHATHAM COUNTY
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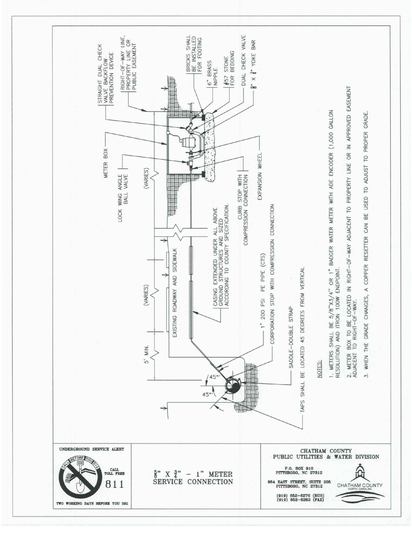

NOTES:
1. METERS SHALL BE 5/8"X3/4" OR 1" DISPLACEMENT BADGER METER WITH ADE ENCODER (1,000 GALLON.
2. METER BOX TO BE LOCATED IN RIGHT-OF-WAY ADJACENT TO PROPERTY LINE OR IN APPROVED EASEMENT ADJACENT TO RIGHT-OF-WAY.
3. WHEN THE GRADE CHANGES, A COPPER RESETTER CAN BE USED TO ADJUST TO PROPER GRADE.

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

1" X 2" - 1" METER SERVICE CONNECTION

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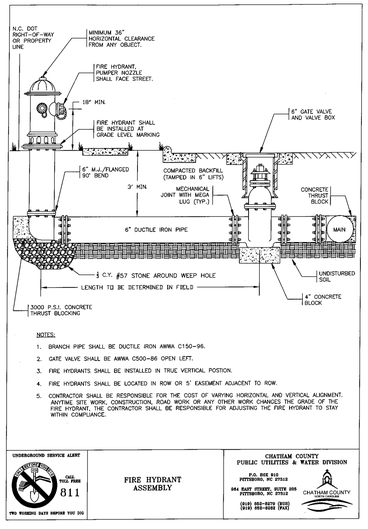
CHATHAM COUNTY



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

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

FIRE HYDRANT ASSEMBLY

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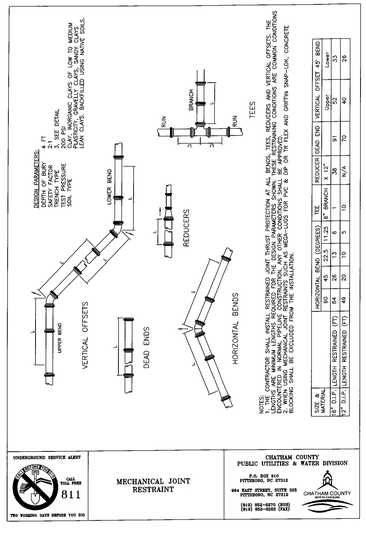

SIZE & MATERIAL	HORIZONTAL BEND DEGREE	TEE BRANCH	REDUCER	DEAD END	VERTICAL OFFSET 22 1/2 BEND	VERTICAL OFFSET 45° BEND
6" DIP	90°	36	24" X 12"	1	33	26
	45°	22.5	11.25		91	52
	22 1/2°	11.25	5.5		75	40
8" DIP	90°	54	36	1	91	75
	45°	26	13	6	36	N/A
	22 1/2°	13	6	5	13	
12" DIP	90°	84	54	10	202	
	45°	40	20			
	22 1/2°	19	10			

NOTES:
1. THE CONTRACTOR SHALL INSTALL RESTRAINED JOINT THRUST PROTECTION AT ALL BENDS, TEES, REDUCERS AND VERTICAL OFFSETS. THE RESTRAINED JOINT LENGTHS SHOWN ARE MINIMUM REQUIREMENTS. IF UNSUITABLE SOIL CONDITIONS ARE ENCOUNTERED IN NORMAL PIPELINE CONSTRUCTION, ANY UNDERCUT BACKFILL SHALL BE APPROVED BY THE ENGINEER AND THE RESTRAINED JOINT LENGTHS ADJUSTED AS NECESSARY.
2. ANY VALVES USED WITHIN THE BLOCKING SHALL BE RESTRAINED AND THE BLOCKING SHALL BE EXCLUDED FROM THE INSTALLATION.

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

MECHANICAL JOINT RESTRAINT

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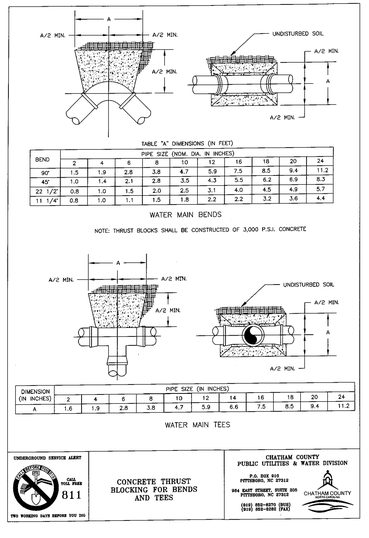

BEND	PIPE SIZE (NOM. DIA. IN INCHES)								
	2	4	6	8	10	12	16	18	20	24
90°	1.5	1.9	2.8	3.8	4.7	5.9	7.5	8.5	9.4	11.2
45°	1.0	1.4	2.1	2.8	3.5	4.3	5.5	6.2	6.9	8.3
22 1/2°	0.8	1.0	1.5	2.0	2.5	3.1	4.0	4.5	4.9	5.7
11 1/4°	0.8	1.0	1.1	1.5	1.8	2.2	2.2	3.2	3.6	4.4

TABLE "A" DIMENSIONS (IN FEET)

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

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

CONCRETE THRUST BLOCKING FOR BENDS AND TEES

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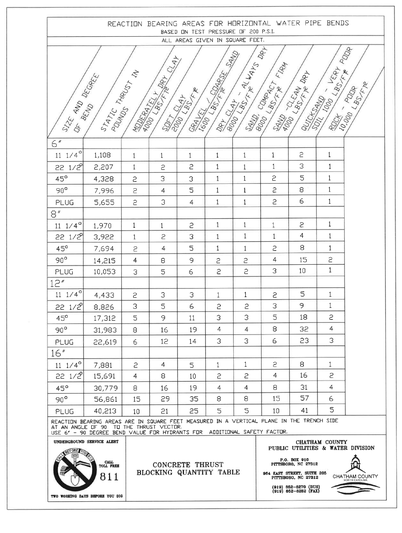

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS
BASED ON TEST PRESSURE OF 200 P.S.I.
ALL AREAS GIVEN IN SQUARE FEET.

SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY FIRM GRAVEL 1000 lbs/ft²	SOFT CLAY 1000 lbs/ft²	ORDINARY FIRM CLAY OR COMPACT SAND 2000 lbs/ft²	SOFT CLAY OR SAND - ALWAYS DRY 2000 lbs/ft²	LOOSE COMPACT FIRM CLEAN DRY 3000 lbs/ft²	SOLID ROCK TIGHT CLAY 4000 lbs/ft²	VERY FIRM CLAY 5000 lbs/ft²	ROCK 10,000 lbs/ft²
6"									
11 1/4°	1,108	1	1	1	1	1	1	2	1
22 1/2°	2,207	1	2	2	1	1	1	3	1
45°	4,328	2	3	3	1	1	2	5	1
90°	7,996	2	4	5	1	1	2	8	1
PLUG	5,655	2	3	4	1	1	2	6	1
8"									
11 1/4°	1,970	1	1	2	1	1	1	2	1
22 1/2°	3,922	1	2	3	1	1	1	4	1
45°	7,694	2	4	5	1	1	2	8	1
90°	14,215	4	8	9	2	2	4	15	2
PLUG	10,053	3	5	6	2	2	3	10	1
12"									
11 1/4°	4,433	2	3	3	1	1	2	5	1
22 1/2°	8,826	3	5	6	2	2	3	9	1
45°	17,312	5	9	11	3	3	5	18	2
90°	31,983	8	16	19	4	4	8	32	4
PLUG	22,619	6	12	14	3	3	6	23	3
16"									
11 1/4°	7,881	2	4	5	1	1	2	8	1
22 1/2°	15,691	4	8	10	2	2	4	16	2
45°	30,779	8	16	19	4	4	8	31	4
90°	56,861	15	29	35	8	8	15	57	6
PLUG	40,213	10	21	25	5	5	10	41	5

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

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

CONCRETE THRUST BLOCKING QUANTITY TABLE

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REV.NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.03.02
2	REVISED PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.02.09
1	1st SUBMITTALS TO REVIEWERS	2015.01.20

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER CARLETTE C. GAIA
03/02/2015

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Raleigh, North Carolina 27606
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www.mckimcreed.com

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by Newland COMMUNITIES

BRIAR CHAPEL
COMMERCIAL SD NORTH
CHATHAM COUNTY, NORTH CAROLINA

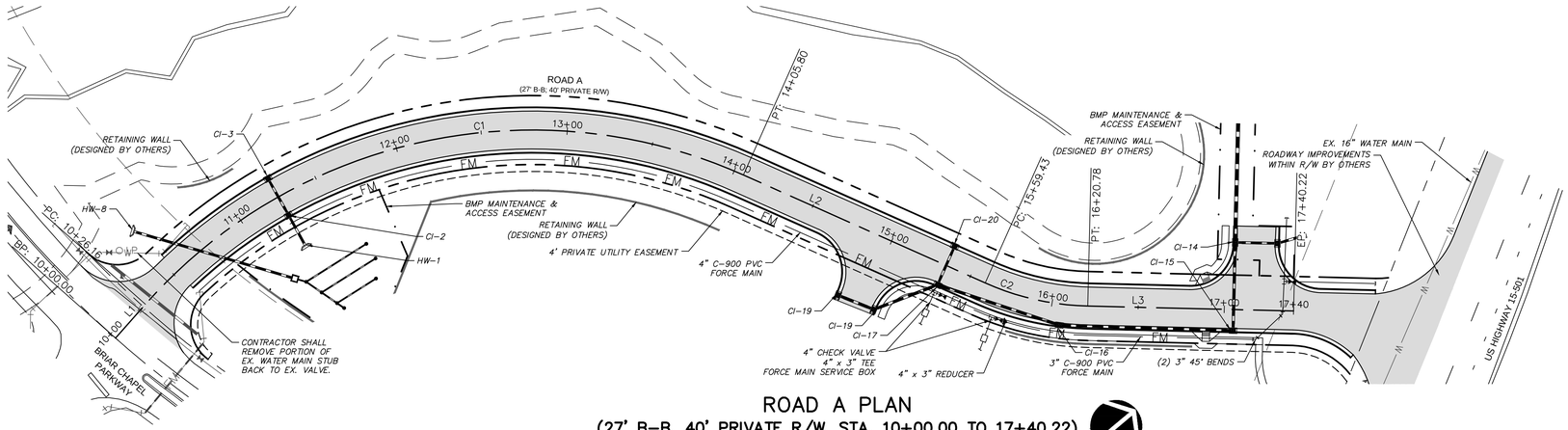
UTILITY DETAILS

DATE:	JANUARY 20, 2015
MCE PROJ. #	02735-0128
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

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

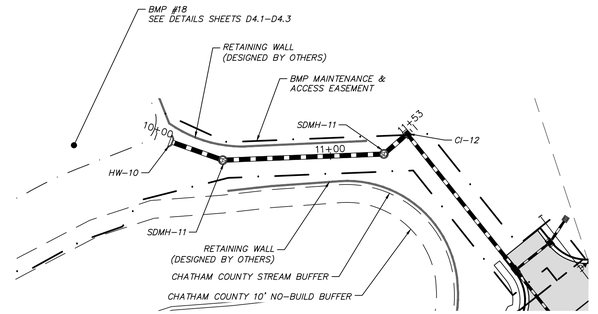
M&C FILE NUMBER: D3.X
DRAWING NUMBER: D3.1

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 3



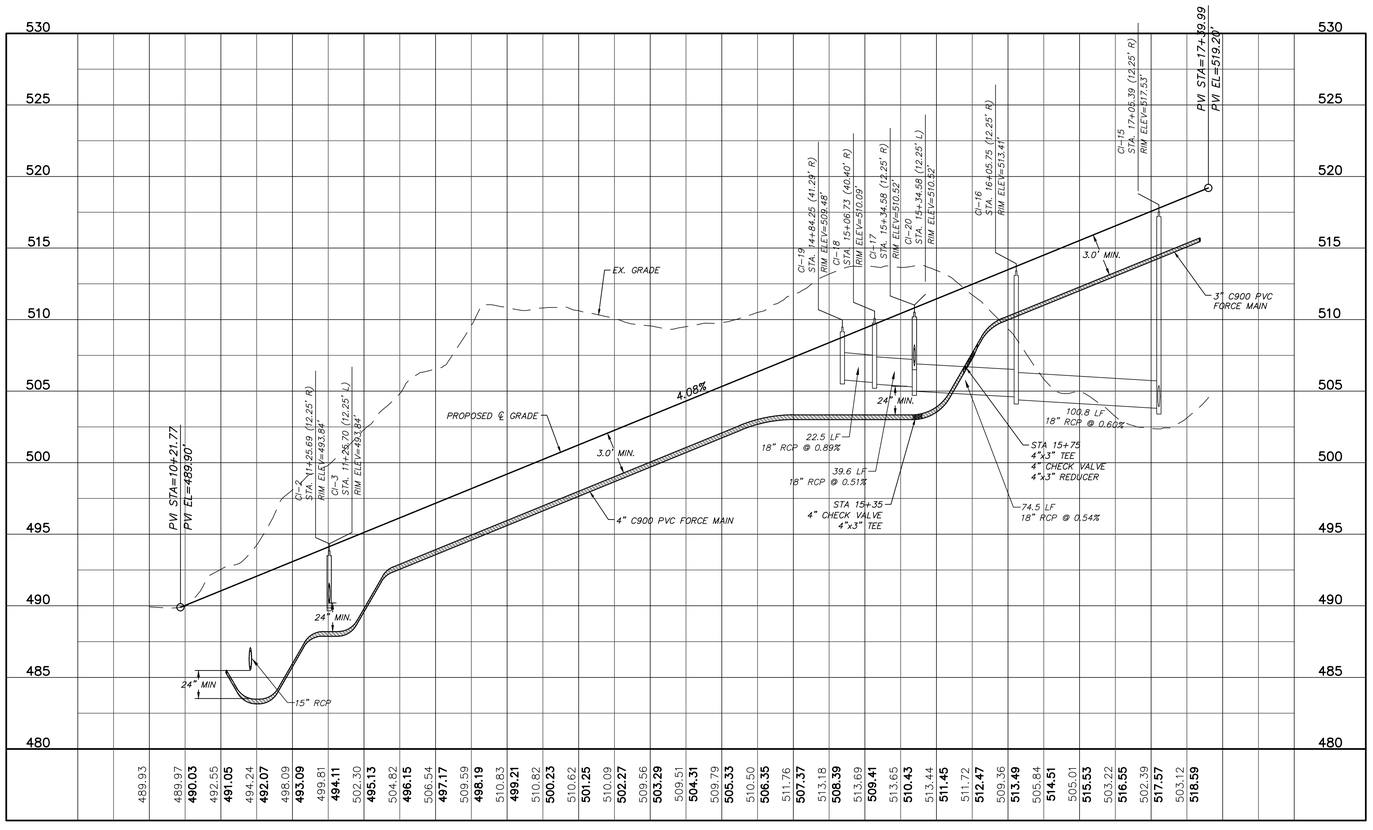
ROAD A PLAN
(27' B–B, 40' PRIVATE R/W, STA. 10+00.00 TO 17+40.22)
SCALE: 1"=40'

NORTH



STORM DRAINAGE OUTFALL PLAN
(STA. 10+00.00 TO 11+52.882)
SCALE: 1"=40'

NORTH



ROAD A PROFILE
(27' B–B, 40' PRIVATE R/W, STA. 10+00.00 TO 17+40.22)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

STORM DRAINAGE OUTFALL PROFILE
(STA. 10+00.00 TO 11+52.88)
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

REV.NO.	DESCRIPTIONS	DATE
3	REVISED PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.03.02
2	REVISED PER COMMENTS FROM CHATHAM COUNTY PUBLIC UTILITIES	2015.02.09
1	1st SUBMITTALS TO REVIEWERS	2015.01.20

REVISIONS

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NORTH CAROLINA PROFESSIONAL
036348
03/02/2015
ENGINEER
GARETH C. AVANT

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CHATHAM COUNTY, NORTH CAROLINA

PLAN & PROFILE
ROAD A
STORM DRAINAGE OUTFALL

DATE:	JANUARY 20, 2015
MCE PROJ. #	02735-0128
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

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

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

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION 3

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE

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

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

SEEDING DATES:

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

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

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

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

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

RECOMMENDATIONS FOR GRASS-LINED CHANNELS

SEEDING MIXTURE

SPECIES	RATE (lb/acre)
TALL FESCUE	200

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

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

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

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

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

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

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

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

PERMANENT SEEDING SCHEDULE
NTS

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

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

SEEDBED PREPARATION
NTS

RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE

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

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

SEEDING DATES:

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

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

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

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

RECOMMENDATIONS FOR SUMMER

SEEDING MIXTURE

SPECIES	RATE (lb/acre)
GERMAN MILLET	40

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

SEEDING DATES:

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

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

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

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

RECOMMENDATIONS FOR FALL

SEEDING MIXTURE

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

SEEDING DATES:

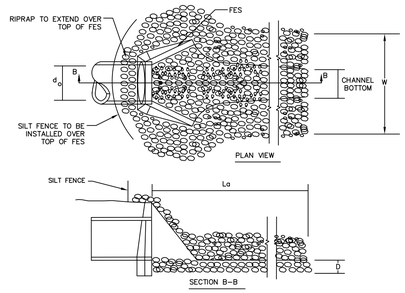
MOUNTAINS:	AUG. 15 – DEC. 15
COASTAL PLAIN AND PIEDMONT:	AUG. 15 – DEC. 30

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

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

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

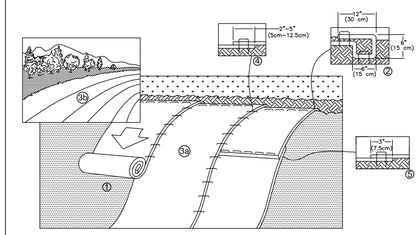
TEMPORARY SEEDING SCHEDULE
NTS



OUTLET NO.	Do (IN.)	La (FT.)	W (FT.)	DEPTH (IN.)	LINING CLASSIFICATION
HW-1	15	7.5	4.0	22	CLASS B
HW-5	15	7.5	4.0	22	CLASS B
HW-8	15	7.5	4.0	22	CLASS B
HW-10	30	20.0	8.0	24	CLASS 1

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

RIPRAP OUTLET PROTECTION
NTS



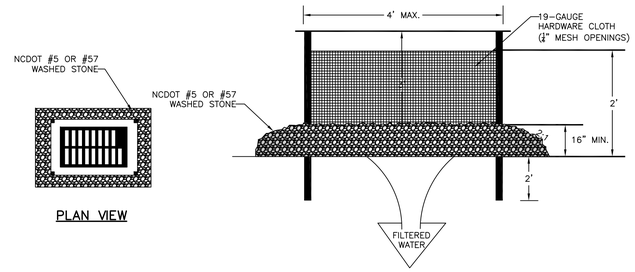
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECPS EXTENDED BEYOND THE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

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

TEMPORARY STABILIZATION FOR SLOPES GREATER THAN 10 FEET
NTS

NOTES:

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



PLAN VIEW

CROSS SECTION

HARDWARE CLOTH & GRAVEL INLET PROTECTION
NTS

REV.NO.	DESCRIPTIONS	DATE
1	1st SUBMITTALS TO REVIEWERS	2015.01.20

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. KVANT
01/20/2015

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BRIAR CHAPEL
COMMERCIAL SD NORTH
CHATHAM COUNTY, NORTH CAROLINA

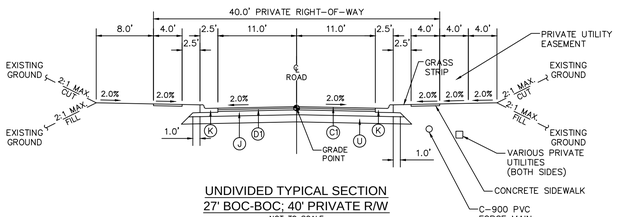
EROSION CONTROL DETAILS

DATE:	JANUARY 20, 2015
MCE PROJ. #	02735-0128
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: AS NOTED
VERTICAL: N/A

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

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 1

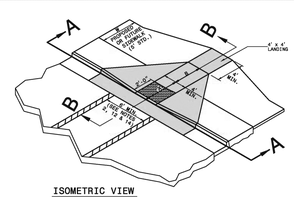


UNDIVIDED TYPICAL SECTION
27' BOC-BOC; 40' PRIVATE R/W
NOT TO SCALE

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

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

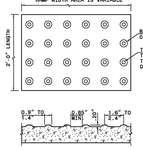
ENGLISH STANDARD DRAWING FOR
CURB RAMP
PROPOSED CURB AND GUTTER



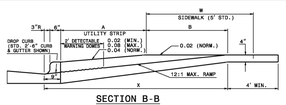
ISOMETRIC VIEW

PAY LIMITS FOR CURB RAMP

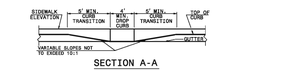
NOTES:
1. DETECTABLE WARNING DOMES WILL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.
2. DETECTABLE WARNING DOMES WILL CONTRAST VISIBILITY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



DETECTABLE WARNING DOMES



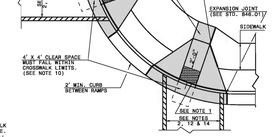
SECTION B-B



SECTION A-A

W	A	W=A+9"	X	B
5'	0.0'	5.8'	5.6'	3.0"*
6'	0.0'	6.8'	6.6'	6.0"*
7'	0.0'	7.8'	7.3'	6.5"*
8'	0.0'	8.8'	7.3'	8.5"*
5'	2.0'	7.8'	7.8'	5.0'
5'	2.5'	8.3'	8.1'	4.8'
5'	3.0'	8.8'	8.3'	4.4'
5'	3.5'	9.3'	8.4'	4.1'
5'	4.0'	9.8'	8.6'	3.8'
5'	4.5'	10.3'	8.7'	3.6'
5'	5.0'	10.8'	8.9'	3.1'

B = X-(A+9")
B = DISTANCE FROM FRONT EDGE OF SIDEWALK TO BACK POINT OF 12:1 (8.33%) SLOPE.
* BACK OF SIDEWALK DROP REQUIRED FOR ALL SIDEWALK SLOPES.
** BACK OF SIDEWALK DROP REQUIRED FOR SIDEWALK SLOPES 0.04.



PLAN VIEW
DUAL RAMPS
ANY RADII
(4' MIN. FLOOR WIDTH)

SHEET 1 OF 3
848.05

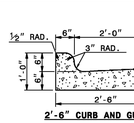
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-12

ENGLISH STANDARD DRAWING FOR
CURB RAMP
PROPOSED CURB AND GUTTER

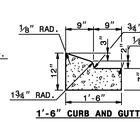
SHEET 1 OF 3
848.05

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

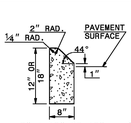
ENGLISH STANDARD DRAWING FOR
CONCRETE CURB, GUTTER AND CURB & GUTTER



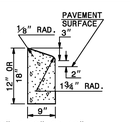
2'-6" CURB AND GUTTER



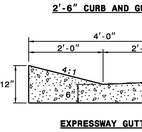
1'-6" CURB AND GUTTER



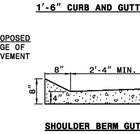
8" X 12" OR 18" CONCRETE CURB



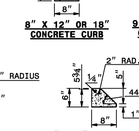
9" X 12" OR 18" CONCRETE CURB



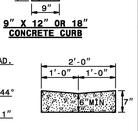
EXPRESSWAY GUTTER



SHOULDER BERM GUTTER



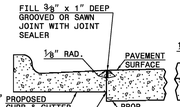
8" X 6" MEDIAN CURB



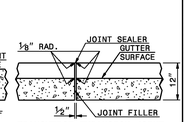
VALLEY GUTTER

SECTION VIEW OF CURBS OR CURBS AND GUTTERS

GENERAL NOTES:
-PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
-JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
-CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS.
CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
-FILL ALL CONSTRUCTION JOINTS, EXCEPT IN 8"x6" MEDIAN CURB, WITH JOINT FILLER AND SEALER.
-SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



LONGITUDINAL JOINT



TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER

SECTION VIEW OF JOINTS

SHEET 1 OF 3
846.01

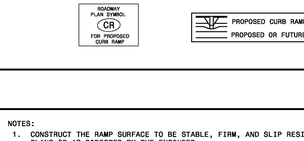
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE CURB, GUTTER AND CURB & GUTTER

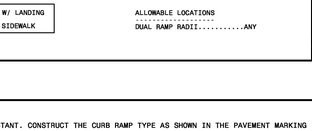
SHEET 1 OF 3
846.01

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

ENGLISH STANDARD DRAWING FOR
CURB RAMP
PROPOSED CURB AND GUTTER



DETAIL SHOWING TYPICAL LOCATION OF CURB RAMPS, PEDESTRIAN CROSSWALKS AND STOP LINES FOR TEE INTERSECTIONS



DETAIL SHOWING TYPICAL LOCATION OF CURB RAMPS, PEDESTRIAN CROSSWALKS AND STOP LINES

ROADWAY PLAN SYMBOL
CR
FOR PROPOSED CURB RAMP

PROPOSED CURB RAMP W/ LANDING

PROPOSED OR FUTURE SIDEWALK

ALLOWABLE LOCATIONS
DUAL RAMP RADII.....ANY

SHEET 2 OF 3
848.05

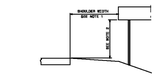
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-12

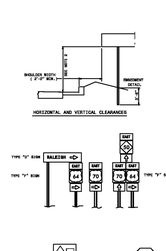
ENGLISH STANDARD DRAWING FOR
CURB RAMP
PROPOSED CURB AND GUTTER

SHEET 2 OF 3
848.05

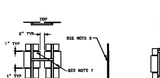
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-12

ENGLISH STANDARD DRAWING FOR
MOUNTING OF TYPE 'D','E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

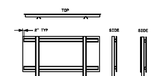




TYPICAL SIGN SHAPES AND COMBINATIONS



FRAMING AND CROSS-BRACING DETAILS TYPE "F" SIGNS



TYPE "SC" & "A" SIGN CROSS BRACING

BACK-TO-BACK MOUNT

FRAMING AND CROSS BRACE DETAILS FOR COMBINATION TYPE "D" & "E" SIGNS
WIDE SIDE OF CROSS BRACE GOES TO BACK OF SIGN

FRAMING AND CROSS BRACE DETAILS FOR COMBINATION TYPE "D" & "F" SIGNS
WIDE SIDE OF FLANGE TO BACK OF "F" SIGN

NOTES:
1. SHEET TYPE "D", "E", AND "F" SIGNS ON FREEWAYS WITH THE NEAR EDGE OF THE SIGN 20 FT. FROM THE TRAVEL LANE. ERECT ALL OTHER "D", "E", AND "F" SIGNS WITH THE NEAR EDGE OF THE SIGN AT THE EDGE OF THE SHOULDER BREAK (8 FT. MINIMUM CLEARANCE, 12 FT. DESIRABLE, FROM THE EDGE OF TRAVEL LANE), OR AS DIMENSIONED ON PLAN SHEETS.
2. ERECT TYPE "D", "E", AND "F" SIGNS WITH THE BOTTOM OF SIGN ASSEMBLY AT LEAST 7 FT. ABOVE THE EDGE OF THE TRAVEL LANE ON ROADS WITH 2 OR MORE LANES AND AT LEAST 5 FT. ON OTHER ROUTES. THE VERTICAL CLEARANCE IS 7 FT. WHERE REQUIRED FOR PEDESTRIAN TRAFFIC AND/OR PARKED VEHICLES.
3. THE VERTICAL DIMENSION BETWEEN MOUNTING HOLE CENTERS ON ALL TYPES "D", "E", AND "F" SIGNS IS 30" MAXIMUM. THE VERTICAL AND HORIZONTAL DIMENSIONS BETWEEN MOUNTING HOLES IS TO THE WHOLE INCH. EACH SIGN PANEL HAS A MINIMUM OF 2 BOLTS PER SUPPORT.
4. ATTACH SIGN W/ ⅜" HEX HEAD BOLT, NYLON WASHER, BRSM, FLAT WASHER, LOCK WASHER, HEX.NUT NO BUCKLING OF THE SIGN WILL BE PERMITTED. SEE ASSEMBLY DETAIL SHEET# 2 OF 904.50.
5. FURNISH AND INSTALL CROSS-BRACING AS SHOWN IN DETAIL. PAINT ENDS OF CROSS BRACES W/ APPROVED. ZINC PAINT
6. INSTALL POST AND CROSS-BRACING WITH THE WIDE SIDE OF THE FLANGE TOWARD THE BACK OF SIGN(S) FOR COMBINATION TYPE "D" AND "F" SIGNS.
7. THE BACKLO HEIGHTS IN THESE ASSEMBLIES CAN NOT BE LARGER THAN 24".

SHEET 1 OF 2
904.50

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

ENGLISH STANDARD DRAWING FOR
MOUNTING OF TYPE 'D','E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

SHEET 1 OF 2
904.50

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

ENGLISH STANDARD DRAWING FOR
CURB RAMPS
NOTES

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

SHEET 3 OF 3
848.05

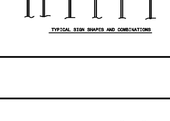
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 1-12

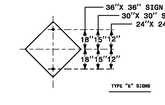
ENGLISH STANDARD DRAWING FOR
CURB RAMPS
NOTES

SHEET 3 OF 3
848.05

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

ENGLISH STANDARD DRAWING FOR
MOUNTING OF TYPE 'D','E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

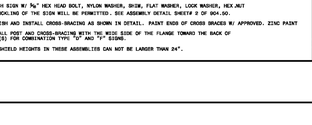




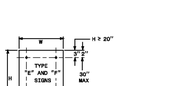
NO. SUPPORTS	2	3	4
P	.207W	.140W	.107W
R	.586W	.355W	.202W

UNITS ON ATTACHED SHEET
*MINIMUM 4 FT. BETWEEN CHANNEL POSTS

HOLE PUNCHING DETAIL



ASSEMBLY DETAIL



DETAIL FOR INSTALLATION OF CHANNEL POST IN CONCRETE

SHEET 2 OF 2
904.50

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

ENGLISH STANDARD DRAWING FOR
MOUNTING OF TYPE 'D','E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

SHEET 2 OF 2
904.50

REV.NO.	DESCRIPTIONS	DATE
1	1st SUBMITTALS TO REVIEWERS	2015.01.20

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT
01/20/2015

McKIM & CREED
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Raleigh, North Carolina 27606
Phone: (919)233-8091, Fax: (919)233-8031
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BRIAR CHAPEL
COMMERCIAL SD NORTH
CHATHAM COUNTY, NORTH CAROLINA

NCDOT ROADWAY DETAILS

DATE:	JANUARY 20, 2015
MCE PROJ. #	02735-0128
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

MSC FILE NUMBER
D2.X
DRAWING NUMBER
D2.1

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

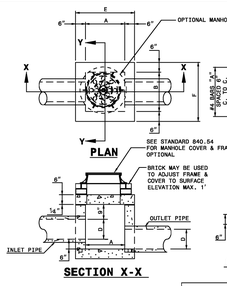
REVISION 1

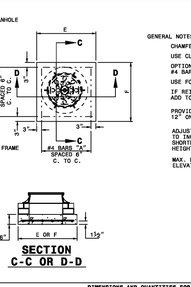
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

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

SHEET 1 OF 1
840.31





GENERAL NOTES:

CHAMFER ALL EXPOSED CORNERS 1".

USE CLASS "B" CONCRETE THROUGHOUT.

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

USE FORMS TO CONSTRUCT THE BOTTOM SLAB.

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

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

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

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

DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES

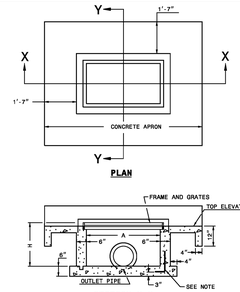
DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND SLABS		DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	WALL/ FT. OF Y.	LBS. REINF	CU. YDS. MIN. "n"	C.S.	R.C.
12"	2'-0"	2'-0"	2'-3"	12	2'-9"	3'-0"	3'-0"	0.167	0.167	0.185	22	0.750	0.015	0.024
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.196	0.196	0.204	24	0.902	0.023	0.038
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.227	0.222	30	1.065	0.033	0.049
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	4'-0"	4'-0"	0.296	0.296	0.259	40	1.434	0.059	0.085
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.375	0.375	0.296	51	1.860	0.092	0.127
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	0.463	0.463	0.333	64	2.341	0.132	0.178
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.560	0.560	0.370	77	2.878	0.180	0.243
48"	5'-0"	5'-0"	5'-3"	26	6'-3"	6'-0"	6'-0"	0.743	0.743	0.407	111	3.623	0.235	0.317
54"	5'-10"	5'-10"	5'-9"	28	6'-7"	6'-10"	6'-10"	0.865	0.865	0.444	126	4.283	0.297	0.401
60"	6'-6"	6'-6"	6'-3"	30	7'-3"	7'-6"	7'-6"	1.042	1.042	0.481	145	5.090	0.367	0.496
66"	7'-1"	7'-1"	6'-9"	32	7'-10"	8'-1"	8'-1"	1.210	1.210	0.518	169	5.917	0.444	0.589

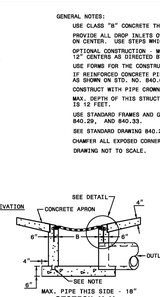
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

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

SHEET 1 OF 1
840.19





GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

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

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

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

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

CONSTRUCT WITH PIPE CROWNS MATCHING.

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

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

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

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE GRATED DROP INLET

PIPE	SPAN	WIDTH	HEIGHT	CUBIC YARDS OF CONCRETE IN BOX				DEDUCTIONS FOR ONE PIPE	
D	A	B	H	BOTTOM SLAB	H PER FT. HT.	H MIN. TOTAL	TOTAL	C.S.	R.C.
12"	3'-8"	2'-0"	1'-8"	0.362	0.247	0.391	0.753	0.020	0.032
15"	3'-8"	2'-0"	1'-11"	0.362	0.247	0.453	0.815	0.023	0.038
18"	3'-8"	2'-0"	2'-2"	0.362	0.247	0.515	0.877	0.033	0.049
24"	3'-8"	2'-0"	2'-8"	0.362	0.247	0.659	1.021	0.059	0.085
30"	3'-8"	2'-0"	3'-2"	0.362	0.247	0.782	1.144	0.092	0.127
36"	3'-8"	2'-0"	3'-8"	0.362	0.247	0.906	1.268	0.132	0.178

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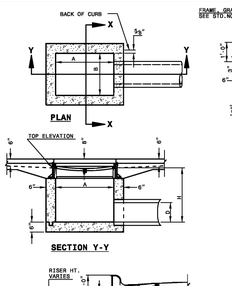
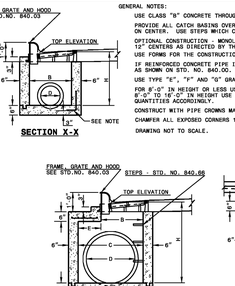
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

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

SHEET 2 OF 2
840.02





GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

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

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

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

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

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

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

CONSTRUCT WITH PIPE CROWNS MATCHING.

CHAMFER ALL EXPOSED CORNERS 1".

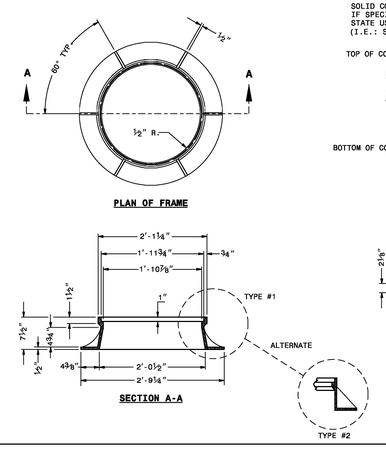
DRAWING NOT TO SCALE.

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

1-12

ENGLISH STANDARD DRAWING FOR
MANHOLE FRAME AND COVER

SHEET 1 OF 1
840.54



STATE OF NORTH CAROLINA
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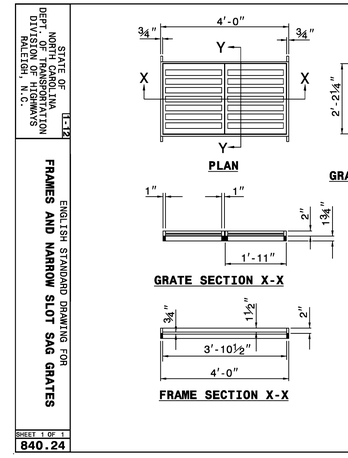
1-12

ENGLISH STANDARD DRAWING FOR
FRAMES AND NARROW SLOT SAG GRATES

SHEET 1 OF 1
840.24



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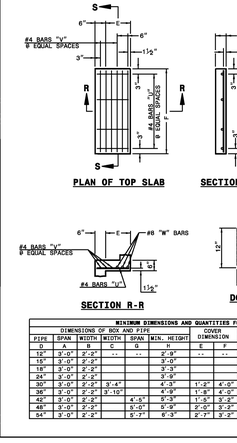
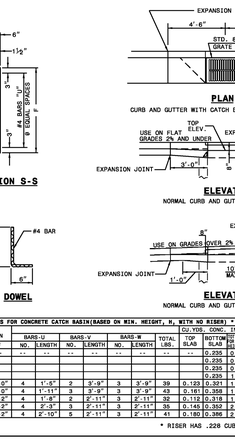
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

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

SHEET 2 OF 2
840.02





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

DIMENSIONS OF BOX AND PIPE						COVER DIMENSION		BARS-U		BARS-V		BARS-W		TOTAL LBS.	TOP SLAB	BOTTOM SLAB	CU.YDS. CONC. IN BOX	DEDUCTIONS ONE PIPE	
PIPE	SPAN	WIDTH	WIDTH	SPAN	MIN. HEIGHT	E	F	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH				BOTTOM SLAB & WALLS	C.S.	R.C.
12"	3'-0"	2'-2"	--	--	2'-9"	--	--	--	--	--	--	--	--	--	--	--	0.235	0.772	0.015	0.026
15"	3'-0"	3'-2"			3'-0"												0.235	0.829	0.023	0.038
18"	3'-0"	3'-2"			3'-3"												0.235	0.887	0.033	0.049
24"	3'-0"	3'-2"			3'-9"												0.235	1.001	0.059	0.085
30"	3'-0"	3'-2"	3'-4"		4'-3"	1'-2"	4'-0"	4	1'-5"	2	3'-9"	3	3'-9"	39	0.123	0.201	1.433	0.092	0.127
36"	3'-0"	3'-2"	3'-10"		4'-9"	1'-8"	4'-0"	4	1'-11"	3	3'-9"	3	3'-9"	43	0.161	0.358	1.714	0.132	0.178
42"	3'-0"	4'-2"		4'-5"	5'-3"	1'-5"	3'-3"	4	1'-8"	2	2'-11"	3	2'-11"	32	0.112	0.318	1.736	0.180	0.243
48"	3'-0"	5'-2"		5'-0"	5'-9"	2'-0"	3'-3"	4	2'-3"	3	2'-11"	3	2'-11"	35	0.145	0.352	2.052	0.235	0.317
54"	3'-0"	6'-2"		5'-7"	6'-3"	2'-7"	3'-3"	4	2'-10"	5	2'-11"	3	2'-11"	41	0.180	0.386	2.387	0.297	0.401

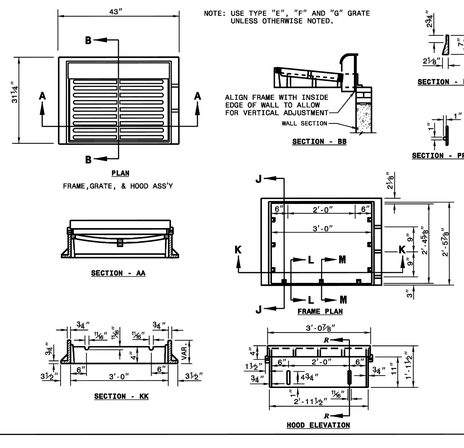
* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

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

1-12

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

SHEET 1 OF 2
840.03

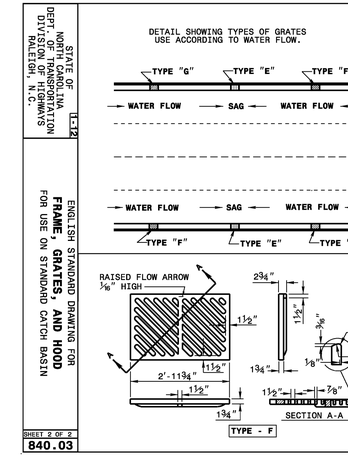


STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

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

SHEET 2 OF 2
840.03



1	1st SUBMITTALS TO REVIEWERS		2015.01.20
REV.NO.	DESCRIPTIONS	REVISIONS	DATE

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT
Gareth Avant
01/20/2015

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Raleigh, North Carolina 27606
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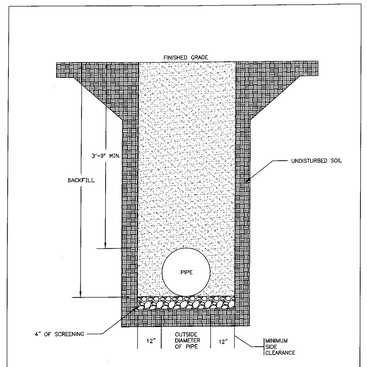
NCDOT DRAINAGE DETAILS

DATE:	JANUARY 20, 2015
MCE PROJ. #	02735-0128
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

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

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY
REVISION: 1



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

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

DUCTILE IRON PIPE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS

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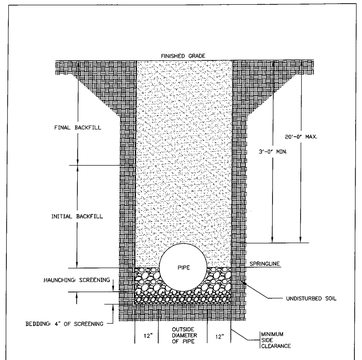
P.O. BOX 910
PITTSBORO, NC 27312
984 EAST STREET, SUITE 205
PITTSBORO, NC 27312
(919) 663-5570 (VOICE)
(919) 663-5586 (FAX)



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

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

PVC PIPE TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS

CHATHAM COUNTY
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PITTSBORO, NC 27312
(919) 663-5570 (VOICE)
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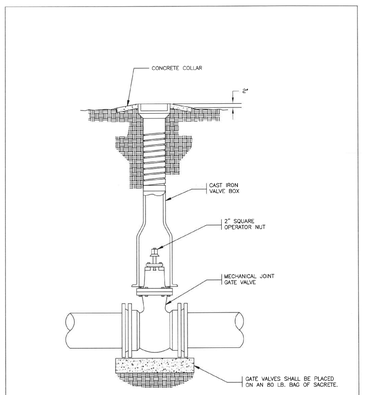

UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

GATE VALVE ASSEMBLY

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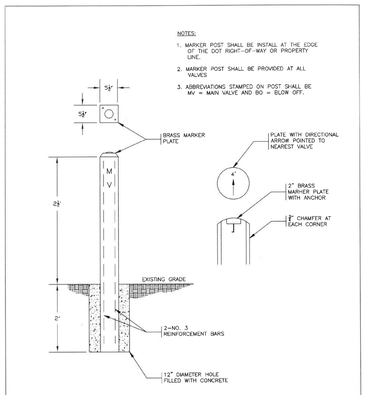

UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

VALVE MARKER POST

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PUBLIC UTILITIES & WATER DIVISION
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984 EAST STREET, SUITE 205
PITTSBORO, NC 27312
(919) 663-5570 (VOICE)
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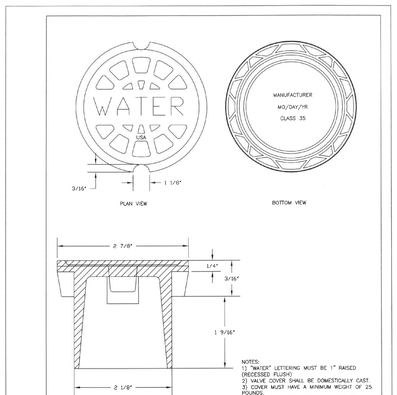

NOTES:
1) "WATER" LETTERING MUST BE 1" RAISED (RECESSED PLUSH)
2) VALVE COVER SHALL BE DOMESTICALLY CAST.
3) COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
4) COVER MUST BE CLASS 35 OR GREATER.
5) COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

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

VALVE BOX COVER

CHATHAM COUNTY
PUBLIC UTILITIES & WATER DIVISION
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PITTSBORO, NC 27312
984 EAST STREET, SUITE 205
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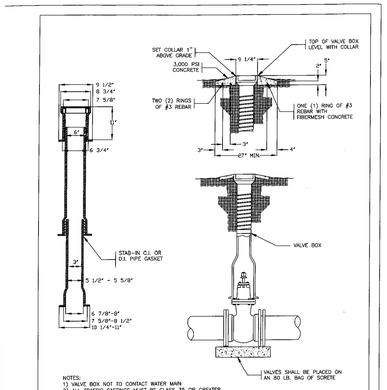
(919) 663-5570 (VOICE)
(919) 663-5586 (FAX)



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

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

VALVE BOX AND COLLAR

CHATHAM COUNTY
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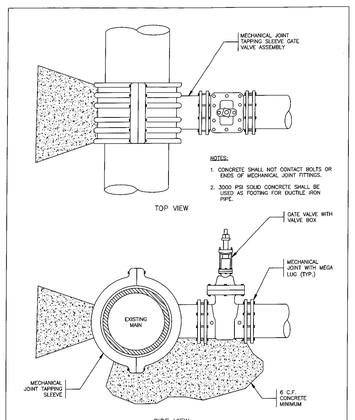
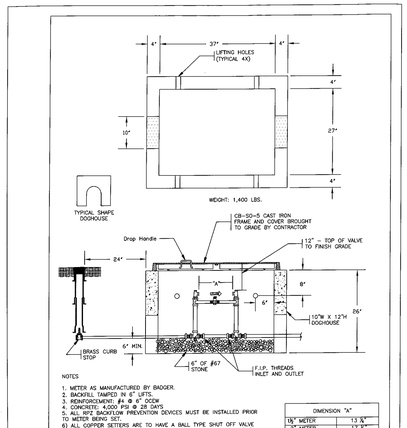


UNDERGROUND SERVICE ALERT — CALL TOLL FREE 811 — TWO WORKING DAYS BEFORE YOU DIG

4" – 24" TAPPING SLEEVE ASSEMBLY

CHATHAM COUNTY
PUBLIC UTILITIES & WATER DIVISION
P.O. BOX 910
PITTSBORO, NC 27312
984 EAST STREET, SUITE 205
PITTSBORO, NC 27312
(919) 663-5570 (VOICE)
(919) 663-5586 (FAX)



NOTES
1. METER AS MANUFACTURED BY BADGER.
2. BACKFILL TAMPED IN 6" LIFTS.
3. REINFORCEMENT: #4 @ 6" OCCW
4. CONCRETE - 4,000 PSI @ 28 DAYS
5. ALL RPZ BACKFLOW PREVENTION DEVICES MUST BE INSTALLED PRIOR TO METER BEING SET.
6) ALL COPPER SETTERS ARE TO HAVE A BALL TYPE SHUT OFF VALVE ON BOTH SIDES OF COPPER SETTER WITH HIGH RISE BYPASS THAT IS MANUFACTURED BY FORD, MUELLER, OR AY McDONALD. (NO EXCEPTIONS)

DIMENSION "A"	
1½" METER	13 ¾"
2" METER	17 ¾"

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

1 ½" – 2" METER SERVICE CONNECTION

CHATHAM COUNTY
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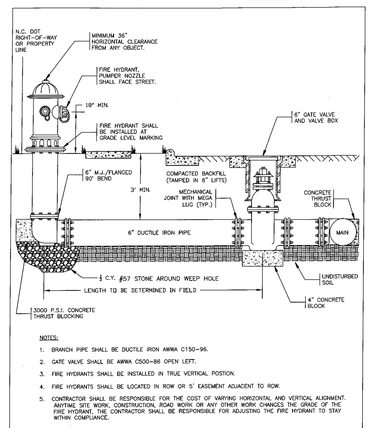
984 EAST STREET, SUITE 205
PITTSBORO, NC 27312
(919) 663-5570 (VOICE)
(919) 663-5586 (FAX)



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

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

FIRE HYDRANT ASSEMBLY

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(919) 663-5570 (VOICE)
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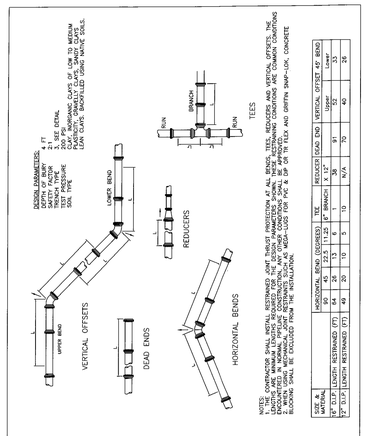

NOTES:
1) THE CONTRACTOR SHALL INSTALL RESTRAINED JOINT THRUST PROTECTION AT ALL BENDS, TEES, REDUCERS AND VERTICAL OFFSETS. THE RESTRAINED JOINT LENGTHS SHOWN ARE BASED ON THE FOLLOWING CONDITIONS: NORMAL CONSTRUCTION, ANY OTHER CONDITIONS ENCOUNTERED IN NORMAL PIPELINE CONSTRUCTION, ANY OTHER CONDITIONS SHALL BE APPROVED BY THE ENGINEER. ANY CONCRETE USED FOR THRUST BLOCKING SHALL BE EXCLUDED FROM THE INSTALLATION.

SIZE & MATERIAL	HORIZONTAL BEND DEGREE	LENGTH RESTRAINED (FT)	TEE BRANCH	REDUCER X 12"	DEAD END	VERTICAL OFFSET 22½° BEND	VERTICAL OFFSET 45° BEND
6" D.I.P. CLASS 350	90	64	1	1	91	52	33
	45	29	13	6	51	29	18
	22.5	13	6	5	29	16	10
	11.25	6	5	10	16	9	6
8" D.I.P. CLASS 350	90	84	1	1	158	92	58
	45	38	20	20	88	51	32
	22.5	17	10	10	50	28	18
	11.25	8	10	10	28	16	10
12" D.I.P. CLASS 350	90	149	1	1	325	189	119
	45	67	30	30	181	105	66
	22.5	30	15	15	103	60	38
	11.25	14	15	15	58	33	21

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

MECHANICAL JOINT RESTRAINT

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PITTSBORO, NC 27312
(919) 663-5570 (VOICE)
(919) 663-5586 (FAX)

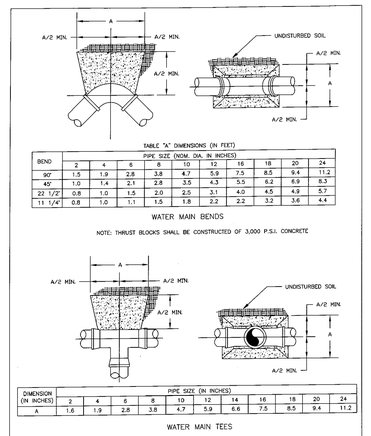

TABLE "A" DIMENSIONS (IN FEET)

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

WATER MAIN BENDS

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

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

WATER MAIN TEES

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

CONCRETE THRUST BLOCKING FOR BENDS AND TEES

CHATHAM COUNTY
PUBLIC UTILITIES & WATER DIVISION
P.O. BOX 910
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984 EAST STREET, SUITE 205
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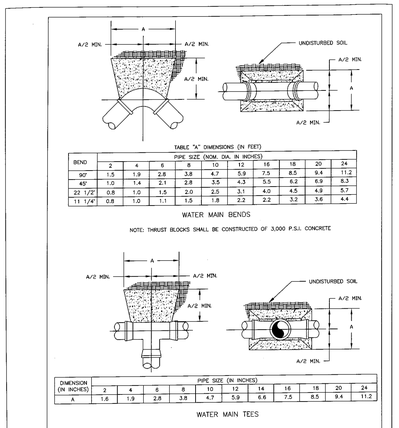

TABLE "A" DIMENSIONS (IN FEET)

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

WATER MAIN BENDS

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

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

WATER MAIN TEES

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

CONCRETE THRUST BLOCKING FOR BENDS AND TEES

CHATHAM COUNTY
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PITTSBORO, NC 27312
(919) 663-5570 (VOICE)
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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.

REV.NO.	DESCRIPTIONS	DATE
1	1st SUBMITTALS TO REVIEWERS	2015.01.20

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER CLAIRE T. C. VAN'T
01/20/2015

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www.mckimcreed.com

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BRIAR CHAPEL
COMMERCIAL SD NORTH
CHATHAM COUNTY, NORTH CAROLINA

UTILITY DETAILS

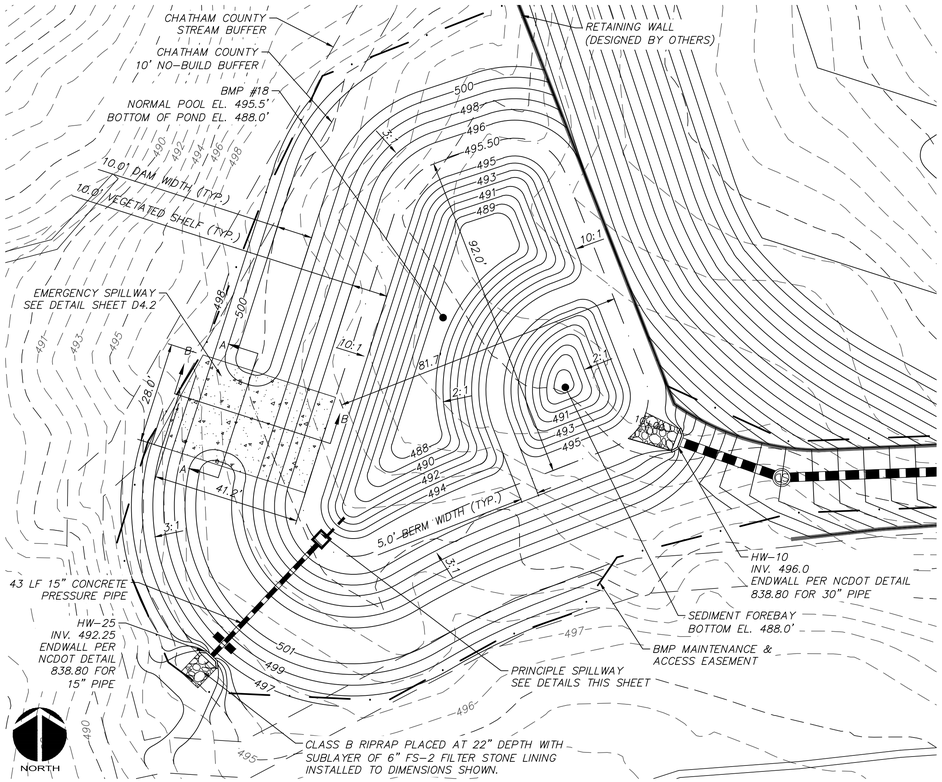
DATE:	JANUARY 20, 2015
MCE PROJ. #	02735-0128
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

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

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

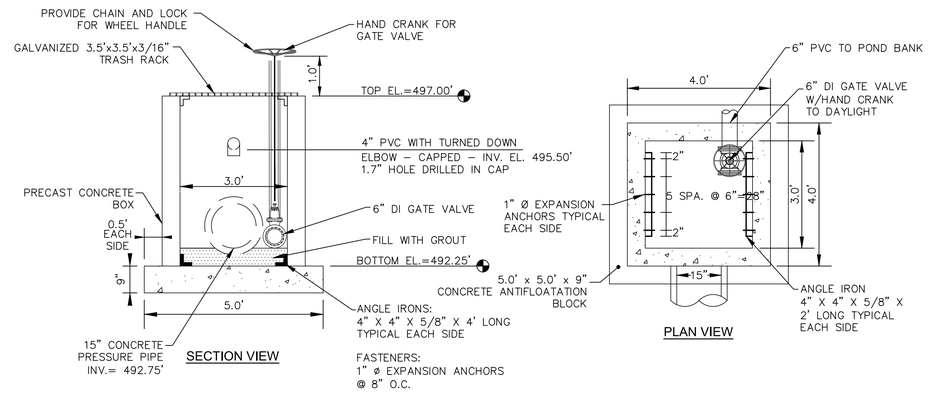
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

REVISION 1



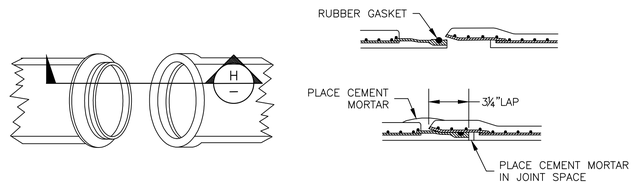
WET DETENTION POND #18 PLAN VIEW

SCALE = 1" = 20'



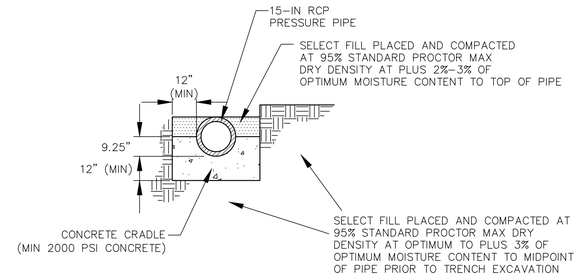
PRINCIPLE SPILLWAY

SCALE = 1" = 2'



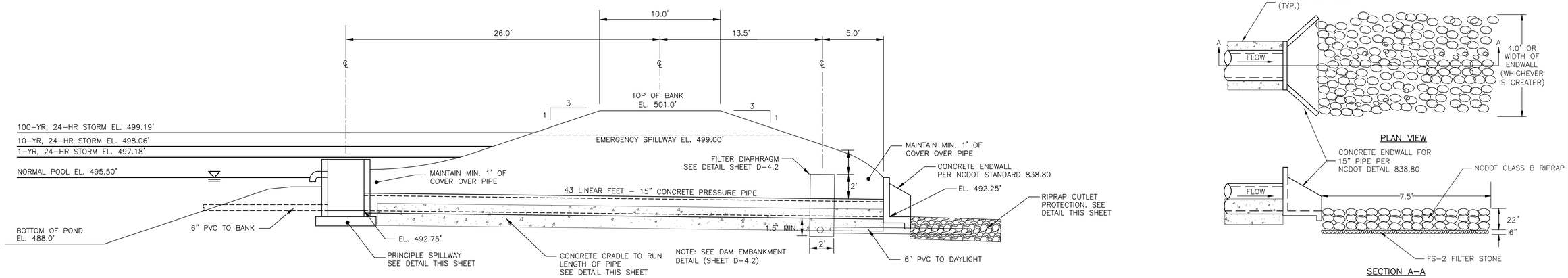
CONCRETE PRESSURE PIPE JOINT DETAIL

NTS



CONCRETE CRADLE DETAIL

NTS



SECTION AT PRINCIPLE SPILLWAY

SCALE = 1" = 4'

RIPRAP OUTLET PROTECTION

NTS

REV.NO.	DESCRIPTIONS	DATE
1	1st SUBMITTALS TO REVIEWERS	2015.01.20

REVISIONS

SEAL

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NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AVANT
Gareth Avant
01/20/2015

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CHATHAM COUNTY, NORTH CAROLINA

BMP #18 PLAN & DETAILS

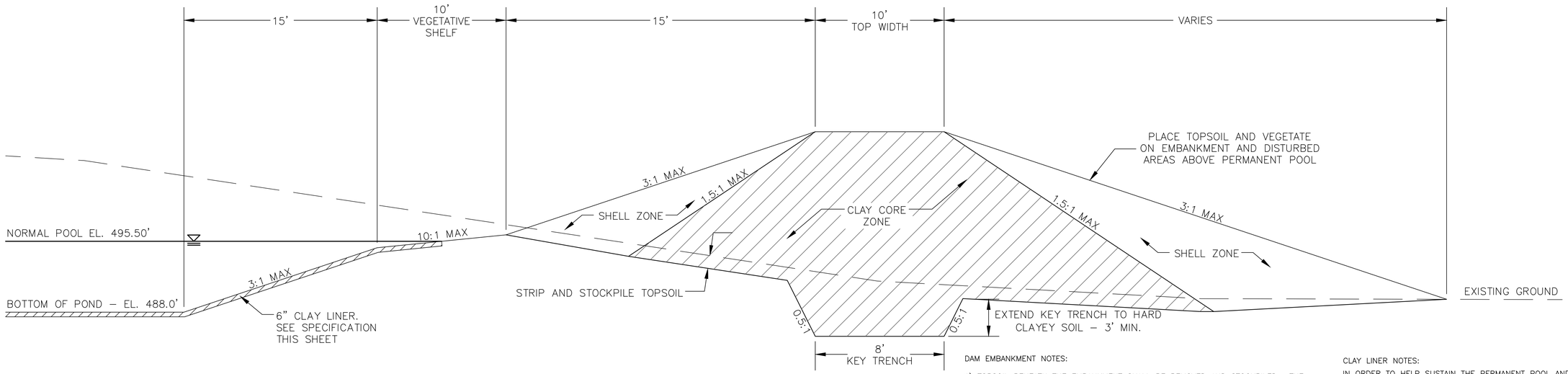
DATE:	JANUARY 20, 2015
MCE PROJ. #	02735-0128
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

SCALE
HORIZONTAL: AS NOTED
VERTICAL: N/A

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

STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

REVISION: 1



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

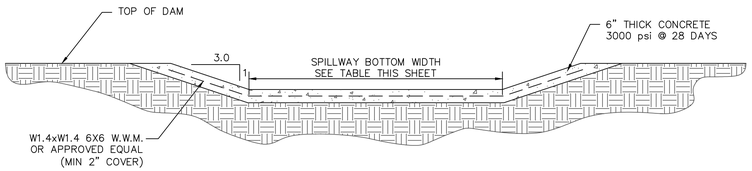
4) NO FILL SHALL CONTAIN ROCKS OR GRAVEL LARGER THAN 4 INCHES IN DIAMETER.

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

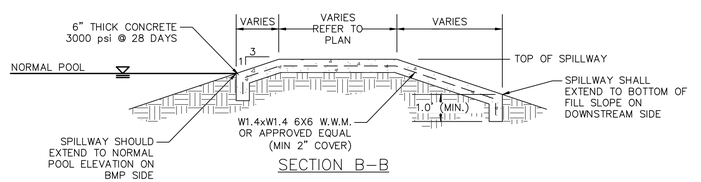
6) ALL DISTURBED AREAS ABOVE PERMANENT POOL SHALL BE SEEDED USING THE FOLLOWING GRASS SEED MIX MANUFACTURED BY ERNST SEED COMPANY: Carolina FACW Meadow Mix ERNMX–182

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 WET DETENTION POND AREA UP TO ELEVATION 454.50. THE LINER CAN BE ACCOMPLISHED BY BLENDING EXISTING SITE SOILS WITH CLAY TO ACHIEVE A LOW PERMEABILITY MIXTURE OR BY INSTALLING A GEOSYNTHETIC LINER MADE OF A BENTOMAT CL. IF THE CONTRACTOR CHOOSES TO BLEND THE EXISTING SITE SOILS WITH CLAY, THE ONSITE GEOTECHNICAL ENGINEER SHALL DETERMINE THE AMOUNT OF CLAY TO ADD, THE DEGREE OF COMPACTION, AND WILL OVERSEE THE INSTALLATION OF THE CLAY LINER. THE MAXIMUM PERMEABILITY RATE FOR THE LINER SHALL BE 0.72 CM/DAY. 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 LAYER OF TOPSOIL MAY BE ADDED OVER THE LINER TO PROVIDE A HEALTHY MEDIA FOR VEGETATION GROWTH.



SECTION A–A



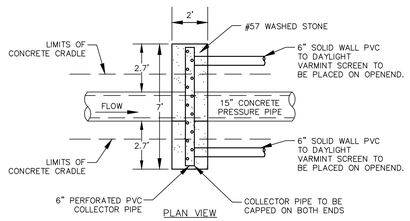
SECTION B–B

	NORMAL POOL EL.	TOP DAM EL.	SPILLWAY BOTTOM EL.	SPILLWAY BOTTOM WIDTH
BMP #18	495.50	501.00	499.00	20'

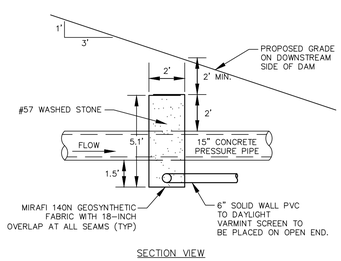
NOTE:
EXPANSION/CONTRACTION JOINTS PER AMERICAN CONCRETE INSTITUTE (ACI) STANDARDS FOR SLABS ON GRADE.

EMERGENCY SPILLWAY DETAIL

NTS



PLAN VIEW



SECTION VIEW

FILTER DIAPHRAGM DETAIL

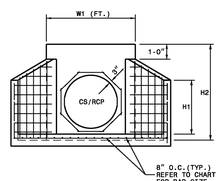
NTS

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

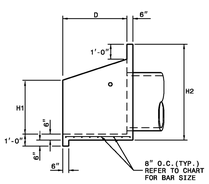
1-12

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

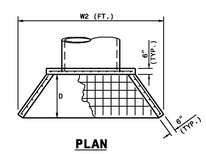
SHEET 1 OF 1
838.80



ELEVATION



SIDE



PLAN

NOTES:

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

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

ENDWALL DIMENSIONS

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

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

1-12

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

SHEET 1 OF 1
838.80

REV.NO.	DESCRIPTIONS	DATE
1	1st SUBMITTALS TO REVIEWERS	2015.01.20

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AYANT
01/20/2015

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Raleigh, North Carolina 27606
Phone: (919)233-8091, Fax: (919)233-8031
F-1222

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by Newland COMMUNITIES

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COMMERCIAL SD NORTH
CHATHAM COUNTY, NORTH CAROLINA

BMP #18 PLAN & DETAILS

DATE:	JANUARY 20, 2015
MCE PROJ. #	02735-0128
DRAWN	BSS
DESIGNED	BSS
CHECKED	GCA
PROJ. MGR.	CHS

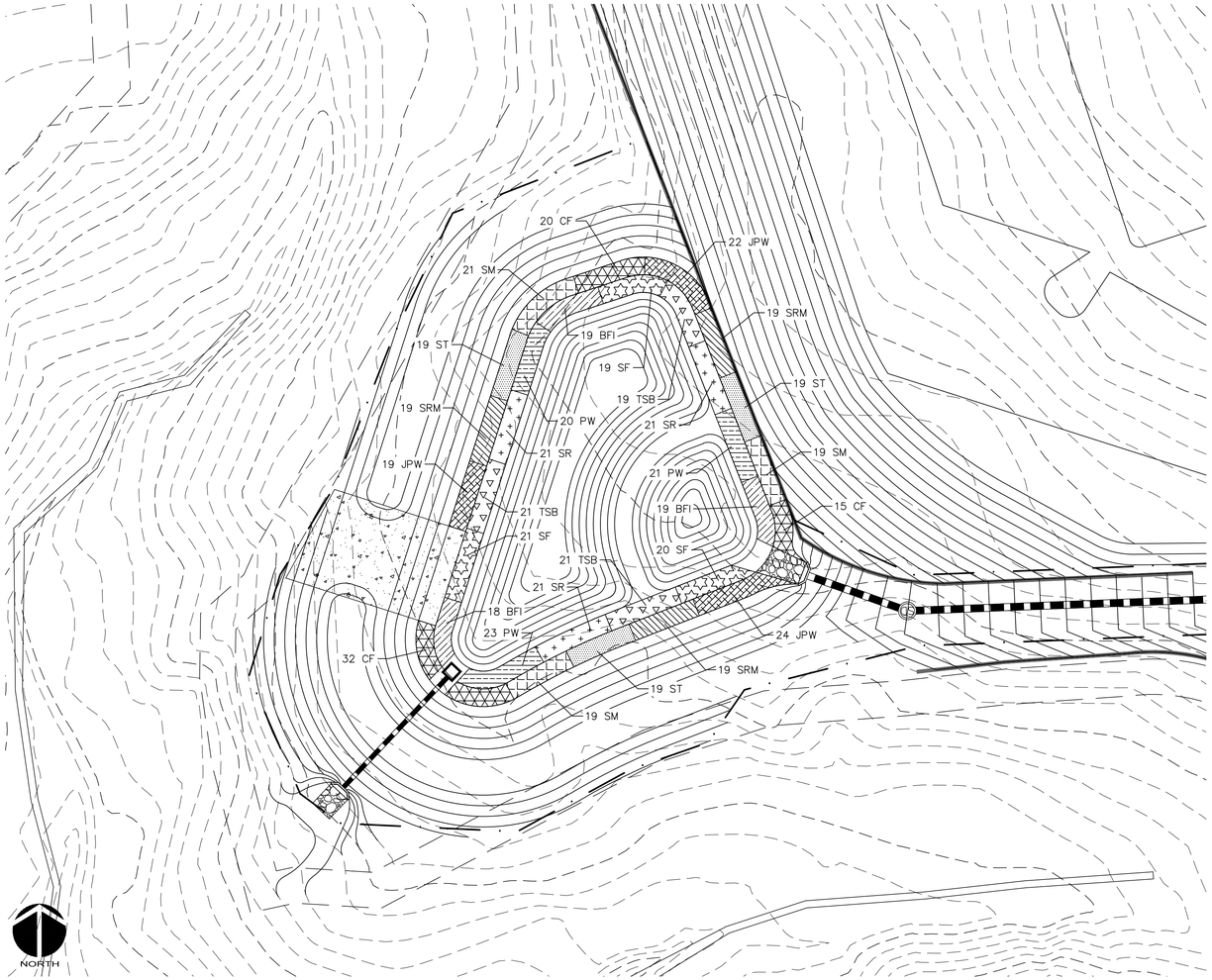
STATUS: FINAL DRAWINGS FOR REVIEW PURPOSES ONLY

REVISION 1

SCALE
HORIZONTAL: AS NOTED
VERTICAL: N/A

M&C FILE NUMBER D4.X

DRAWING NUMBER D4.2

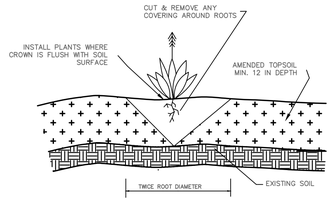


WET DETENTION POND #18 PLANTING PLAN

SCALE = 1" = 20'

PLANTING SCHEDULE

SYM.	ABB.	COMMON NAME	BOTANICAL NAME	QUANTITY	SPACING	CONTAINER SIZE AT PLANTING
SHALLOW WATER PLANTINGS						
	SF	SWEETFLAG	*Acorus subcordatum*	60	24"–30" O.C.	1 QT.
	PW	PICKERELWEED	*Pontederia cordata*	64	24"–30" O.C.	1 QT.
	BFI	BLUE FLAG IRIS	*Iris virginica*	56	24"–30" O.C.	1 QT.
	SR	SOFT RUSH	*Juncus effusus var. pylaei or solutus*	63	24"–30" O.C.	1 QT.
	TSB	THREE SQUARE BULRUSH	*Schoenoplectus americanus*	61	24"–30" O.C.	1 QT.
SHALLOW LAND PLANTINGS						
	SM	SWAMP MILKWEED	*Asclepias incarnata*	59	24"–30" O.C.	1 QT.
	CF	CARDINAL FLOWER	*Lobelia cardinalis*	67	24"–30" O.C.	1 QT.
	SRM	SCARLET ROSE MALLOW	*Hibiscus coccineus*	57	24"–30" O.C.	1 QT.
	JPW	DWARF JOE PYE WEED	*Eupatoriadelphus dubius*	65	24"–30" O.C.	1 QT.
	ST	SPOTTED TRUMPETWEED	*Eupatoriadelphus maculatus*	57	24"–30" O.C.	1 QT.



GENERAL PLANTING DETAIL

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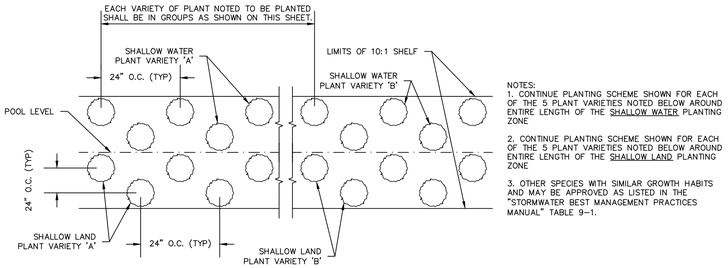

NOTES:
1. CONTINUE PLANTING SCHEME SHOWN FOR EACH OF THE 5 PLANT VARIETIES NOTED BELOW AROUND ENTIRE LENGTH OF THE SHALLOW WATER PLANTING ZONE.

2. CONTINUE PLANTING SCHEME SHOWN FOR EACH OF THE 5 PLANT VARIETIES NOTED BELOW AROUND ENTIRE LENGTH OF THE SHALLOW LAND PLANTING ZONE.

3. OTHER SPECIES WITH SIMILAR GROWTH HABITS AND MAY BE APPROVED AS LISTED IN THE "STORMWATER BEST MANAGEMENT PRACTICES MANUAL" TABLE 9-1.

VEGETATED PLANTING SHELF DETAIL

NTS

GENERAL PLANTING NOTES:

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

SHALLOW WATER PLANTING NOTES:

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

SHALLOW LAND PLANTING NOTES:

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

REV.NO.	DESCRIPTIONS	DATE
1	1st SUBMITTALS TO REVIEWERS	2015.01.20

REVISIONS

SEAL

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NORTH CAROLINA PROFESSIONAL SEAL 036348 ENGINEER GARETH C. AYANT 01/20/2015

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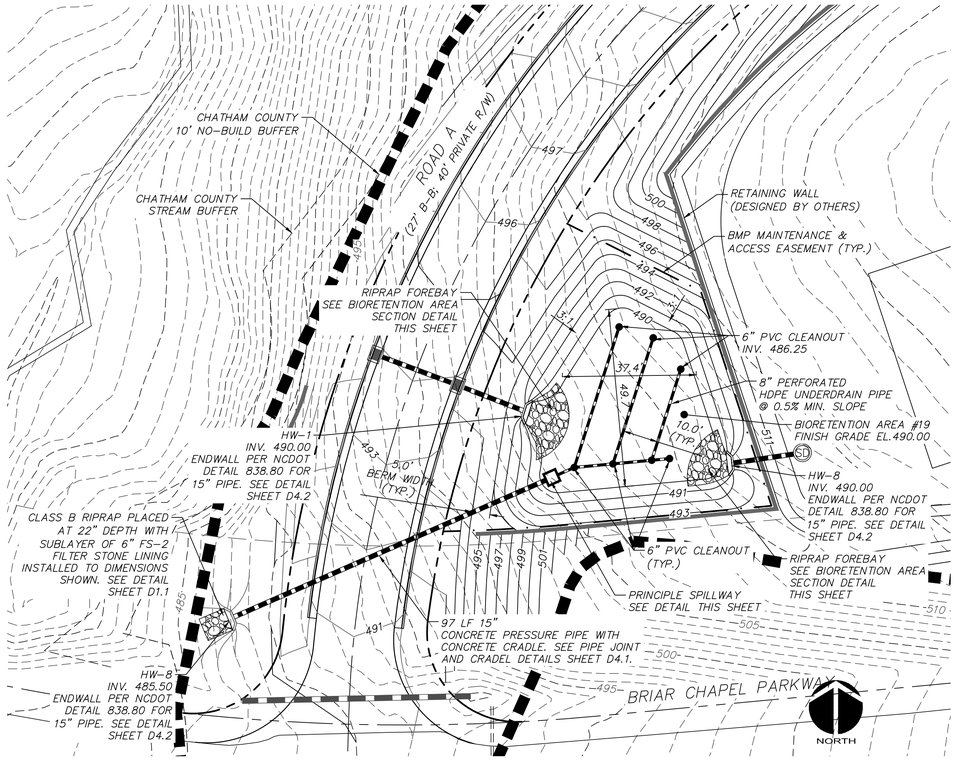


BIORETENTION AREA #19 PLAN VIEW

SCALE = 1" = 20'

BIORETENTION AREA NOTES:

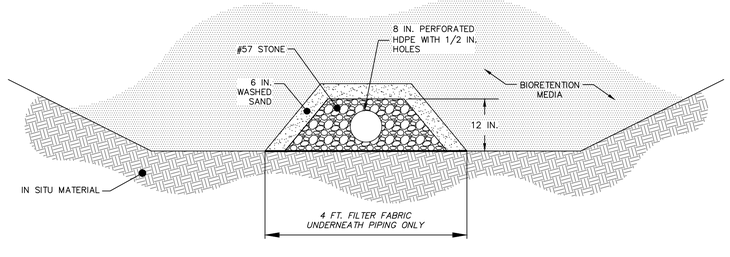
1. ALL CONCRETE TO BE 3000 PSI @ 28 DAYS.
2. ALL STORM DRAIN CLEANOUTS ARE TO BE SPACED AT 75' MAX.
3. CONTRACTOR SHALL CALL ENGINEER FOR ON-SITE INSPECTION OF BIORETENTION AREA DURING CONSTRUCTION.
4. BIORETENTION AREA TO BE PROTECTED FROM SEDIMENT ACCUMULATION DURING ALL PHASES OF CONSTRUCTION.
5. BIORETENTION MEDIA SHALL NOT TO BE PLACED UNTIL 100% OF DRAINAGE AREA TO POND IS STABILIZED WITH HARDSCAPE, TURF, ETC.
6. BIORETENTION MEDIA IS TO BE PLACED AND RAKED IN BY HAND. AT NO TIME SHALL LARGE EQUIPMENT DRIVE OVER THE MEDIA AFTER IT HAS BEEN PLACED. THE MEDIA SHALL NOT BE COMPACTED OVER 85% STANDARD PROCTOR IN ORDER TO MAINTAIN PROPER INFILTRATION RATES.
7. MAXIMUM TIME WATER SHOULD POND IS 12 HOURS.
8. IF SOD IS TO BE INSTALLED, ONLY SOD GROWN IN SANDY SOILS ARE TO BE ALLOWED. SOD GROWN IN CLAY SOILS WILL NOT BE ALLOWED.

ENGINEERED BIORETENTION AREA MEDIA:

1. THE PLANTING SOIL SHALL MEET THE FOLLOWING CRITERIA:

A) PH RANGE:	5.5 – 6.5	ASTM D4972
B) ORGANIC MATTER:	3 – 5%	AASHTO T194
C) SAND CONTENT	85 – 88%	AASHTO T88
D) FINES (SILT AND CLAY) CONTENT	8 – 12%	AASHTO T88
E) PHOSPHOROUS INDEX (P-I)	10 – 30	NCDA

2. BIORETENTION MEDIA SHALL HAVE A MINIMUM INFILTRATION RATE OF 1.0"/HR.
3. BIORETENTION MEDIA SHALL HAVE A MAXIMUM INFILTRATION RATE OF 6.0"/HR.
4. THE MEDIA SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS.
5. PLANTING MEDIA SHALL BE TESTED PRIOR TO INSTALLATION TO MEET THE CRITERIA LISTED ABOVE AND RESULTS SENT TO CIVIL ENGINEER FOR REVIEW AND APPROVAL.
6. BIORETENTION MEDIA SHALL BE 'BIORETENTION MIX' FROM WADE MOORE EQUIPMENT COMPANY, INC. IN LOUISBURG, NC. (919) 496-3794.



8 IN. PERFORATED HDPE SECTION

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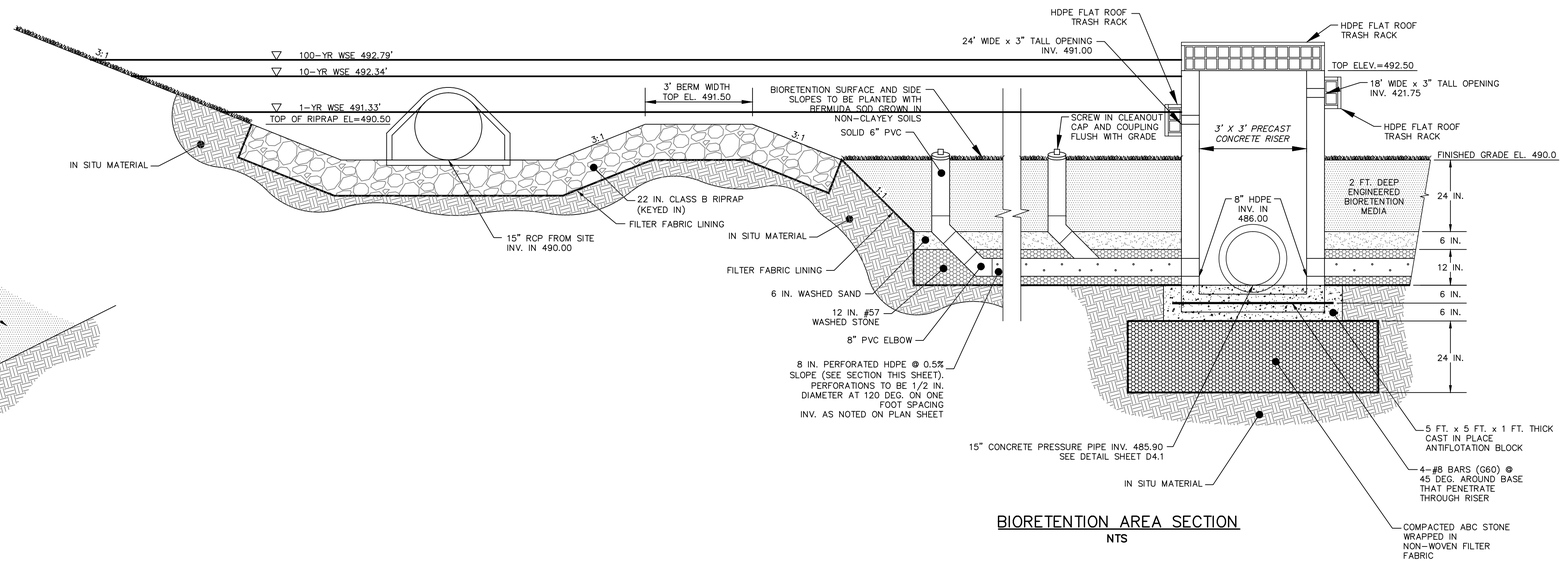

BIORETENTION AREA SECTION

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