

# BRIAR CHAPEL GREAT RIDGE PARKWAY EXTENSION

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

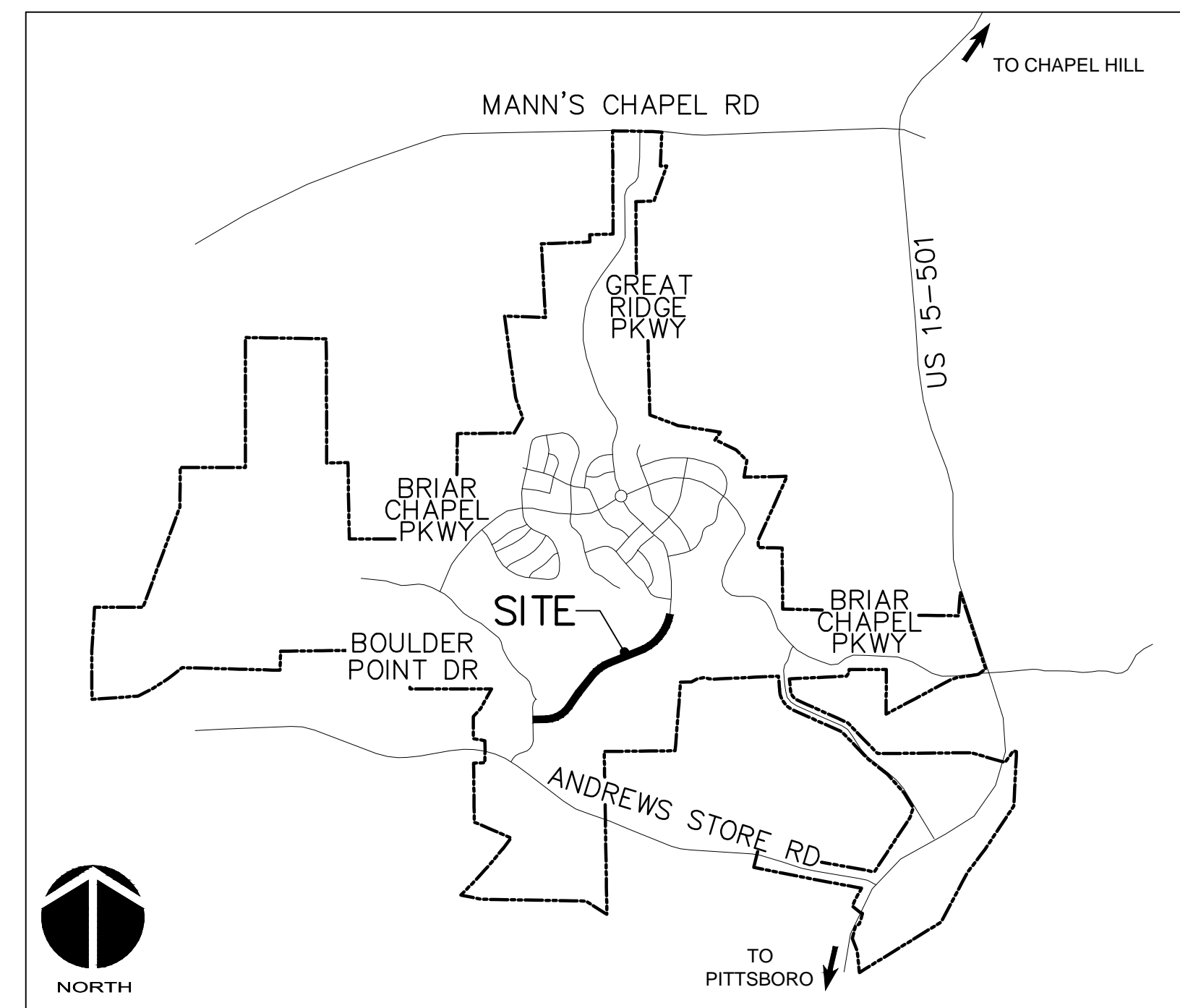
DATE: FEBRUARY 15, 2013

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### COUNTY AND AGENCY CONTACTS

- |   |  |
|---|--|
| <p><b>A. Chatham County</b><br/>Planning Department<br/>Dunlap Building<br/>80 East Street<br/>Pittsboro, NC 27312<br/>(919) 542-8204 phone<br/>Contact: Jason Sullivan<br/>Email: jason.sullivan@chathamnc.org</p> <p><b>B. Chatham County</b><br/>Environmental Services<br/>Dunlap Building<br/>80 East Street<br/>Pittsboro, NC 27312<br/>(919) 542-0945 phone<br/>Contact: Dan LaMontagne, PE<br/>Email: dan.lamontagne@chathamnc.org</p> <p><b>C. Chatham County</b><br/>Soil Erosion and Sedimentation Control<br/>Dunlap Building<br/>80 East Street<br/>Pittsboro, NC 27312<br/>(919) 545-8339 phone<br/>Contact: Rachael Thorn<br/>Email: rachael.thorn@chathamnc.org</p> | <p><b>D. NCDOT</b><br/>Division 8, District 1<br/>300 DOT Drive<br/>P.O. Box 1164<br/>Asheboro, NC 27204<br/>(336) 318-4000 phone<br/>Contact: Jeff B. Loflin, PE<br/>Email: jloflin@ncdot.gov</p> <p><b>E. NCDENR</b><br/>Division of Water Quality<br/>2321 Crabtree Blvd., Suite 250<br/>Raleigh, NC 27604<br/>(919) 791-4200 phone<br/>Contact: Annette Lucas<br/>Email: Annette.Lucas@ncdenr.gov</p> <p><b>F. NCDENR</b><br/>Division of Environmental Health<br/>Public Water Supply Section<br/>1634 Mail Service Center<br/>Raleigh, NC 27699-1634<br/>(919) 715-3226 phone<br/>Contact: Heinrich Ou<br/>Email: heinrich.ou@ncdenr.gov</p> |
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### VICINITY MAP

NTS

### PROJECT DATA

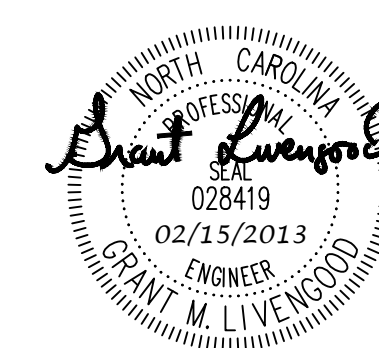
NAME OF PROJECT:  
GREAT RIDGE PARKWAY EXTENSION  
CHATHAM COUNTY, NORTH CAROLINA

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

PREPARED BY:  
McKIM & CREED  
1730 VARSITY DRIVE, SUITE 500  
RALEIGH, NORTH CAROLINA 27606  
PHONE: (919) 233-8091  
FAX: (919) 233-8031  
CONTACT: GRANT LIVENGOOD, PE  
EMAIL: glivengood@mckimcreed.com





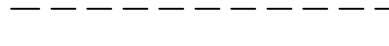

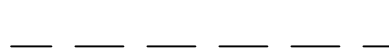
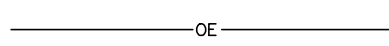







PROJECT AREA: 14.44 AC

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



RELEASED FOR  
CONSTRUCTION

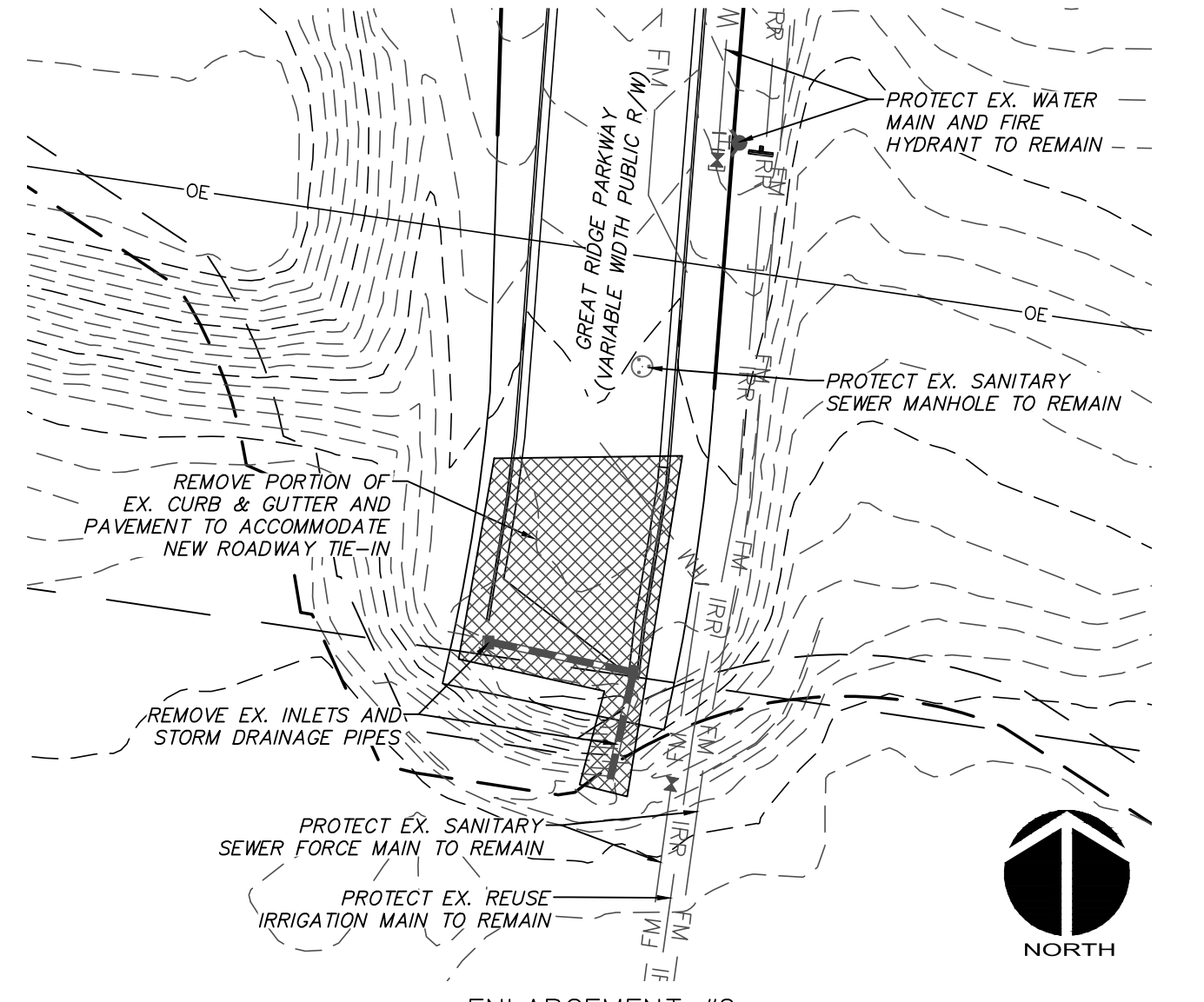
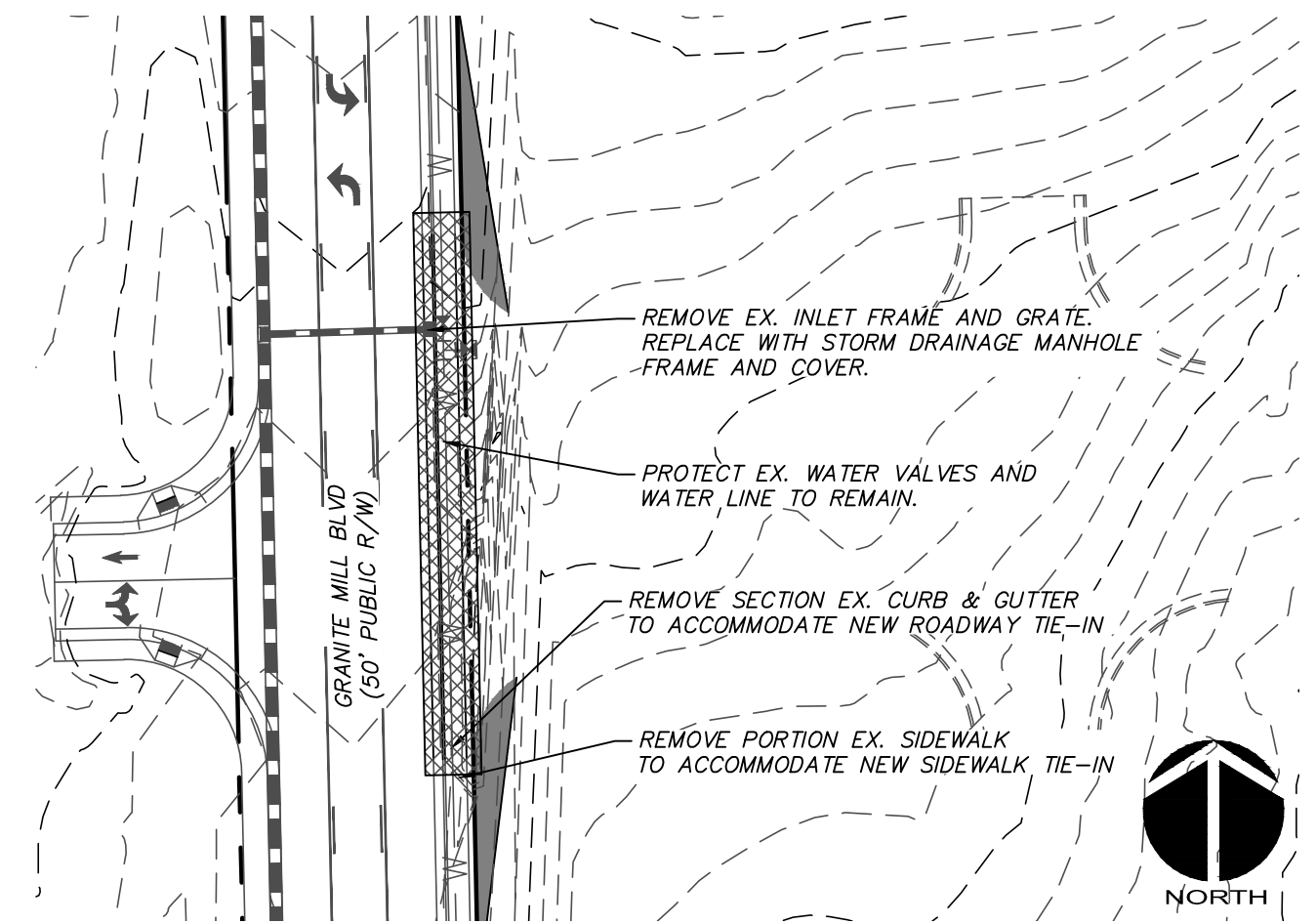
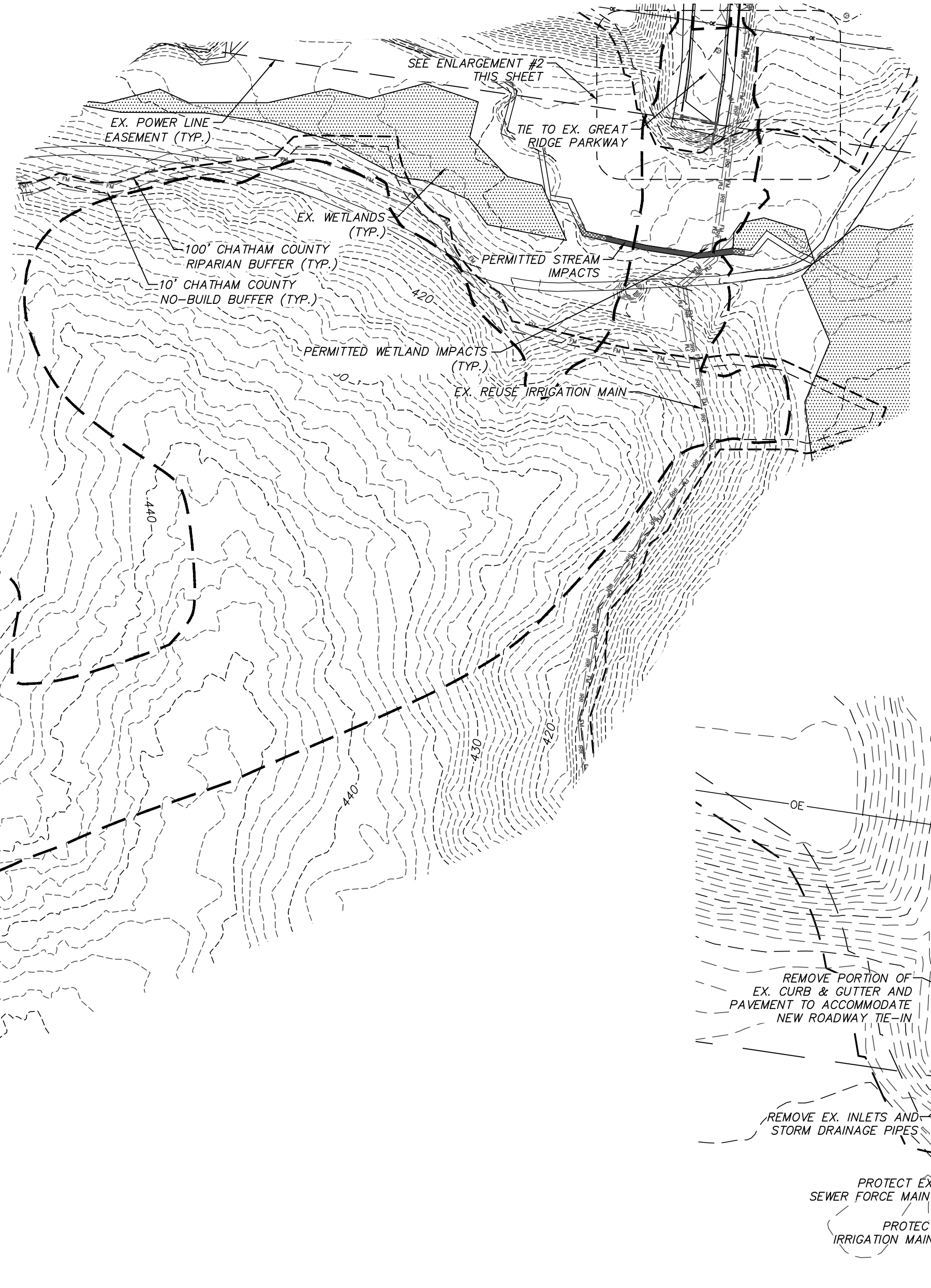
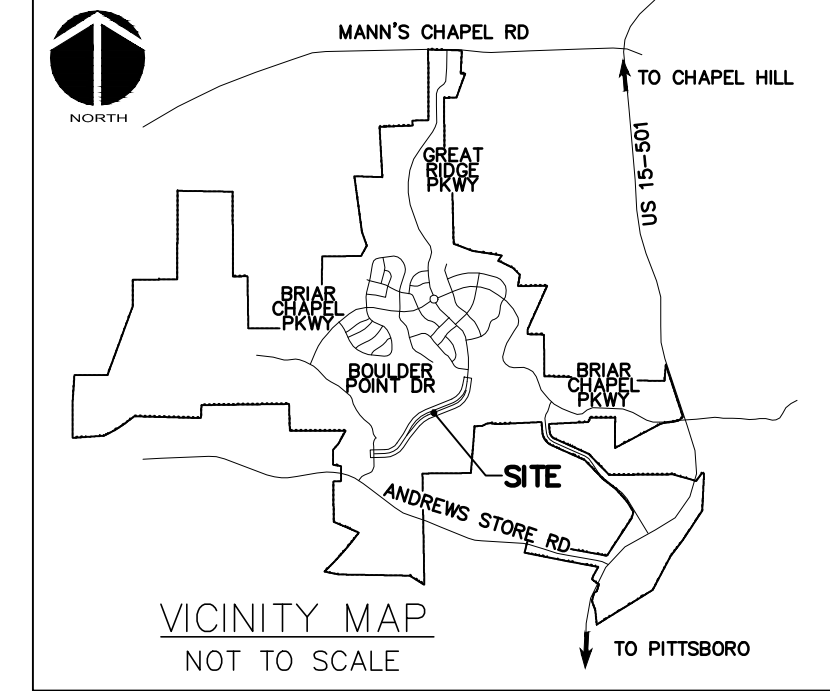
**LEGEND:**

-  EXISTING WETLANDS
-  PERMITTED WETLAND IMPACTS
-  PERMANENT PERMITTED STREAM IMPACTS
-  TEMPORARY PERMITTED STREAM IMPACTS
-  10' NO BUILD BUFFER LINE
-  RIPARIAN BUFFER LINE
-  EX. CONTOUR
-  EX. POWER LINE EASEMENT
-  OVERHEAD POWER LINE
-  EX. FORCE MAIN EASEMENT
-  EX. SANITARY SEWER FORCE MAIN
-  EX. REUSE IRRIGATION MAIN
-  EX. WATER MAIN
-  EX. STORM DRAINAGE PIPE
-  PROPOSED LIMITS OF DISTURBANCE

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

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

**SURVEY REFERENCES:**  
 DEED BOOK 1492, PAGE 581  
 DEED BOOK 1198, PAGE 510  
 DEED BOOK 833, PAGE 752  
 DEED BOOK 1461, PAGE 244

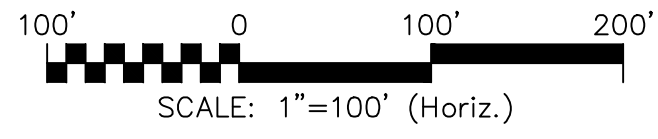


**GENERAL NOTES:**

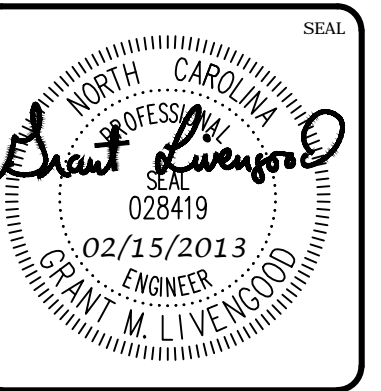
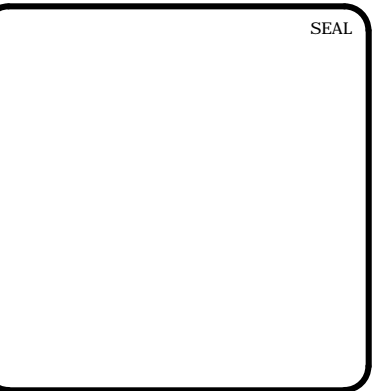
1. REFER TO THE FOLLOWING MCKIM & CREED, INC. CONSTRUCTION PLANS, AND ALL SUBSEQUENT CONSTRUCTION BULLETINS FOR INFORMATION ON EXISTING SITE INFRASTRUCTURE:
  - BRIAR CHAPEL - GRANITE MILL BOULEVARD AND BOULDER POINT DRIVE CONSTRUCTION PLANS SEALED JUNE 8, 2010
  - BRIAR CHAPEL - PHASE 5 NORTH CONSTRUCTION PLANS SEALED MARCH 30, 2012
  - BRIAR CHAPEL - PHASE 6 SOUTH CONSTRUCTION PLANS SEALED JANUARY 27, 2012
  - BRIAR CHAPEL - BRIAR CHAPEL PARKWAY AND BOULDER POINT DRIVE EXTENSION SEALED JANUARY 1, 2012
2. 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
3. THIS PROPERTY IS ZONED CC-CUD.
4. ALL DISTANCES SHOWN ARE HORIZONTAL GROUND MEASUREMENTS.
5. 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.
6. EXISTING TOPOGRAPHIC DATA IS BASED ON AERIAL MAPPING PERFORMED BY AVOIAGE MAPPING SERVICES IN FEBRUARY 2010. ELEVATIONS ARE BASED ON NAVD 88 NCGS MONUMENT "F-92" WITH AN ELEVATION OF 476.06'.
7. HORIZONTAL AND VERTICAL CONTROL FOR THIS SITE WAS INSTALLED BY GPA PROFESSIONAL LAND SURVEYORS OF NC.
8. PROJECT IS LOCATED IN THE CAPE FEAR RIVER BASIN.
9. STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY SOIL AND ENVIRONMENTAL CONSULTANTS IN RALEIGH, NC - CONTACT NIKKI THOMSON AT 919-846-5900.
10. 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.



REV. NO.	DESCRIPTIONS	DATE
2	RELEASED FOR CONSTRUCTION	2013.02.15
1	ISSUED FOR PERMITTING	2012.12.19



**MCKIM & CREED**

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

[www.mckimcreed.com](http://www.mckimcreed.com)

**BRIAR CHAPEL™**

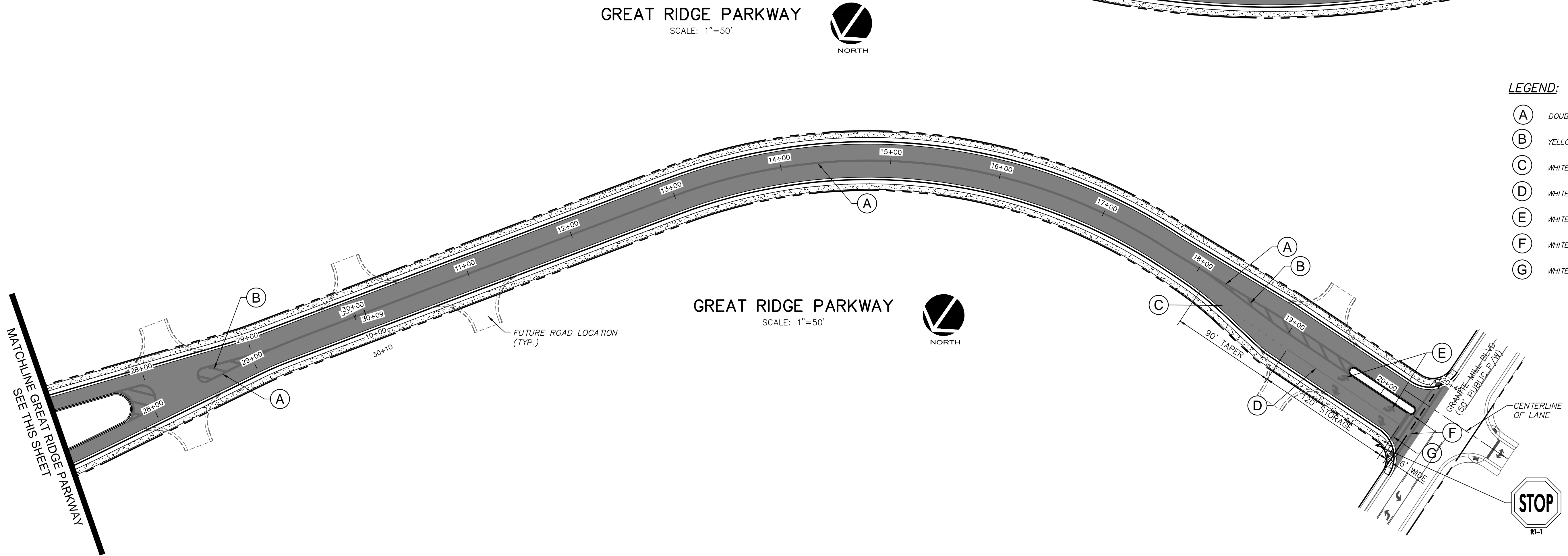
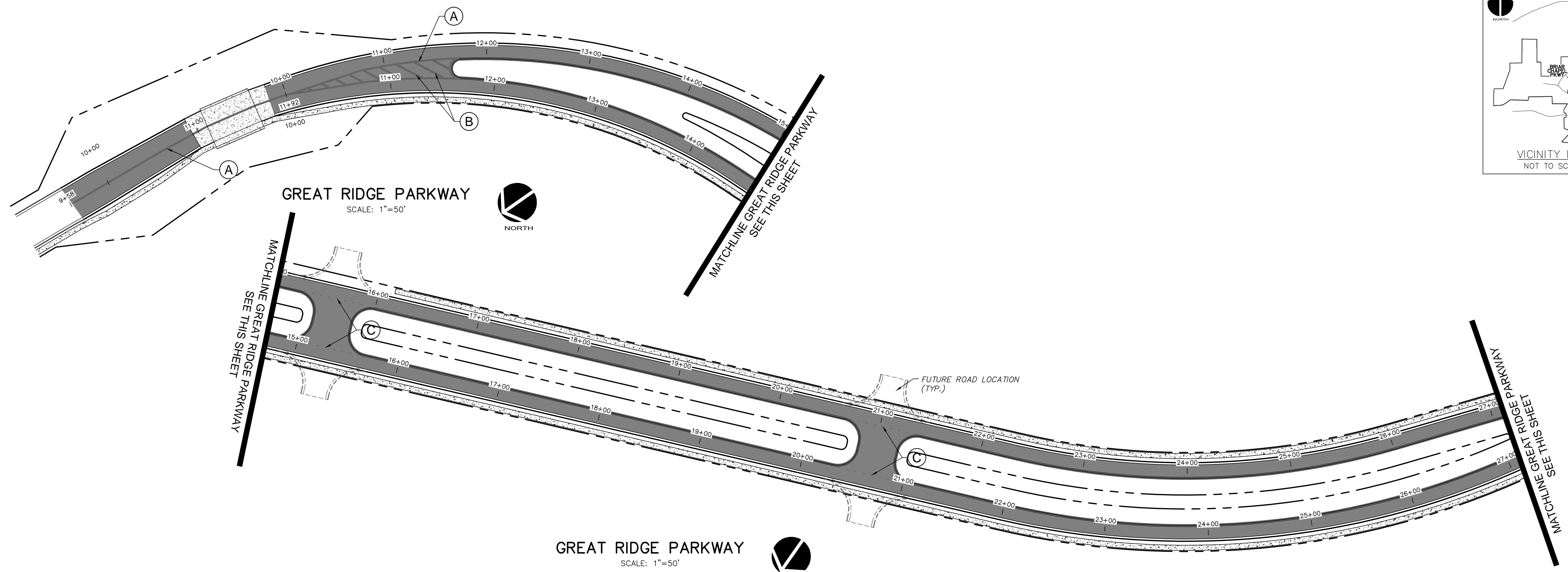
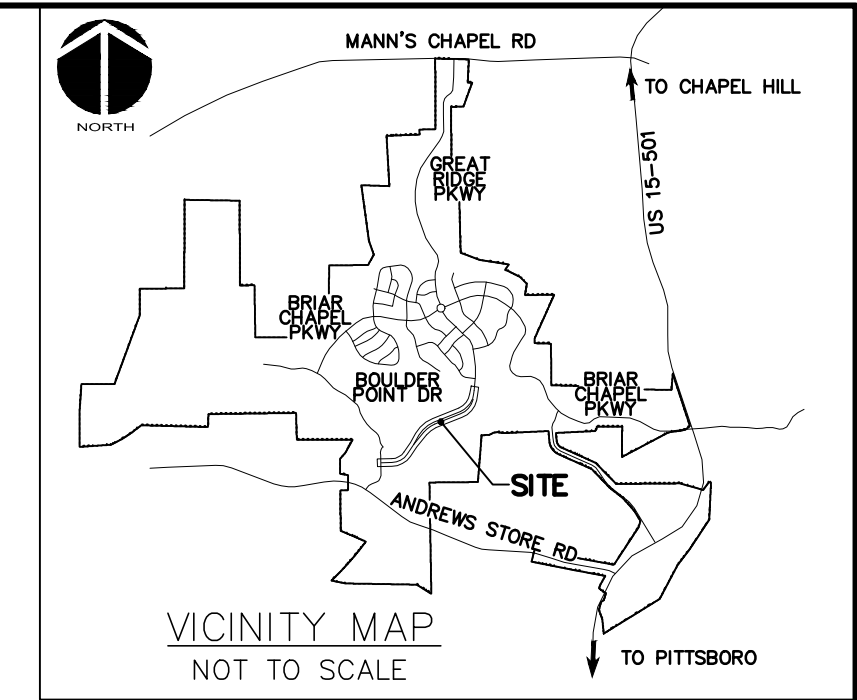
by  
**Newland COMMUNITIES**

**BRIAR CHAPEL**  
**GREAT RIDGE PARKWAY EXTENSION**  
**CHATHAM COUNTY, NORTH CAROLINA**

**EXISTING CONDITIONS/  
 DEMOLITION PLAN**

DATE: DECEMBER 19, 2012	SCALE: HORIZONTAL: 1" = 50'	MSC FILE NUMBER: C0.2
MCE PROJ. # 02735-0080	VERTICAL: N/A	DRAWING NUMBER: C0.2
DRAWN: GCA		
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR. CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 2	

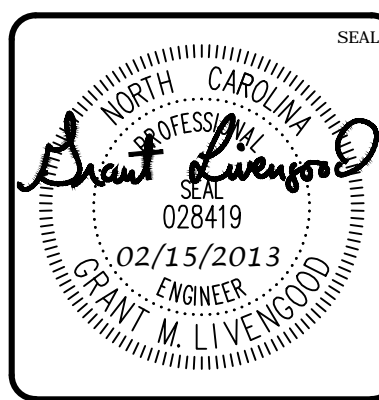
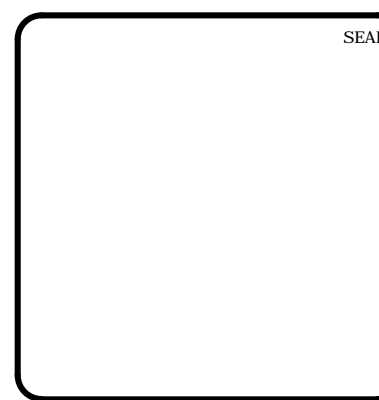




**LEGEND:**

- (A) DOUBLE YELLOW THERMOPLASTIC CENTER LINES (4") (120 MIL)
- (B) YELLOW THERMOPLASTIC DIAGONAL LINE (8") (90 MIL)
- (C) WHITE THERMOPLASTIC MINI-SKIP LINE (4") (120 MIL)
- (D) WHITE THERMOPLASTIC TURN LANE LINE (4") (120 MIL)
- (E) WHITE LEFT TURN, RIGHT TURN SYMBOLS (90 MIL)
- (F) WHITE CROSSWALK LINE (8") (120 MIL)
- (G) WHITE STOP BAR LINE (24") (120 MIL)

REV. NO.	DATE	DESCRIPTIONS
2	2013.02.15	REVISIONS PER NCDOT COMMENTS/RELEASED FOR CONSTRUCTION
1	2012.12.19	ISSUED FOR PERMITTING
		REVISIONS



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

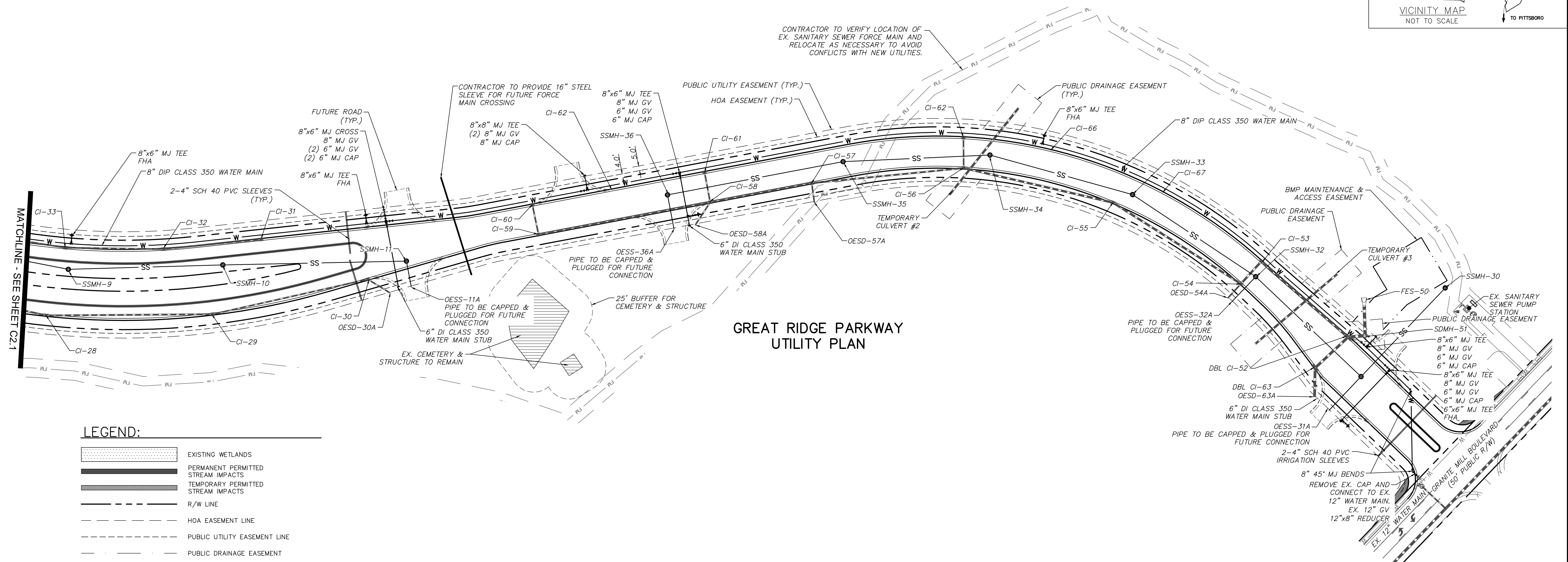
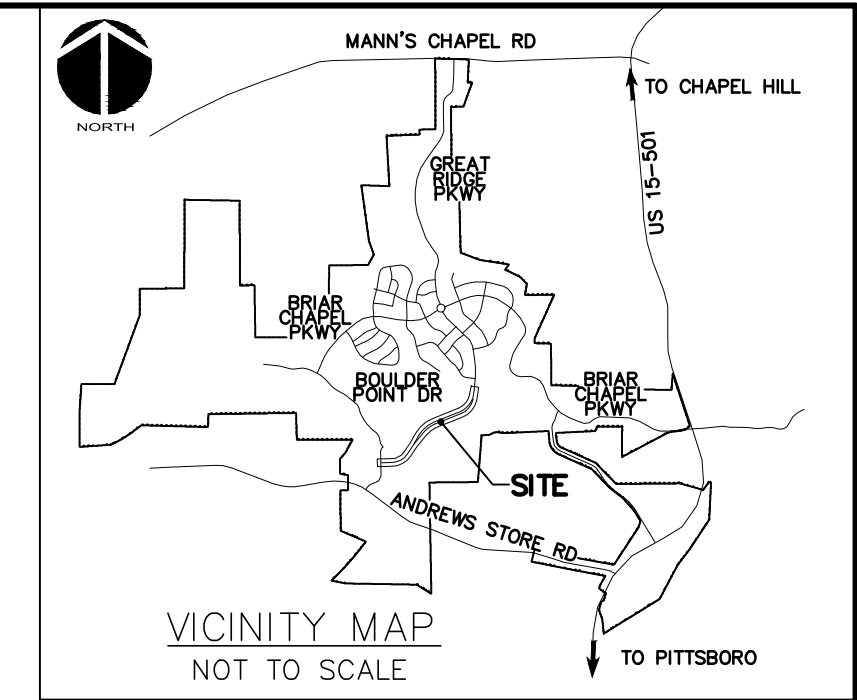
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 by  
**Newland COMMUNITIES**

**BRIAR CHAPEL  
 GREAT RIDGE PARKWAY EXTENSION  
 CHATHAM COUNTY, NORTH CAROLINA**

**SIGNAGE AND STRIPING PLAN**

DATE: DECEMBER 19, 2012	SCALE: HORIZONTAL: AS NOTED VERTICAL: N/A	MSC FILE NUMBER: C1.X
MCE PROJ. # 02735-0080		DRAWING NUMBER: C1.2
DRAWN: GCA		
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 2	

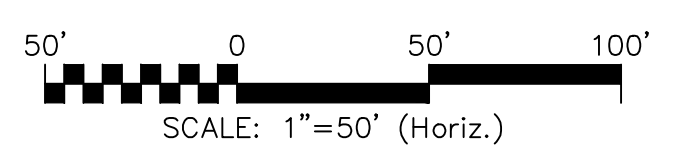




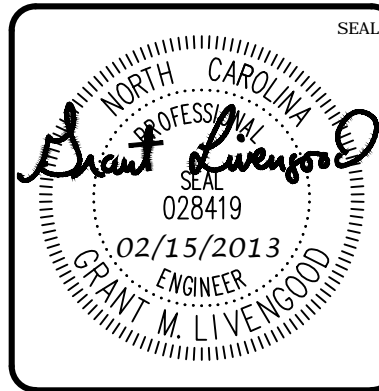
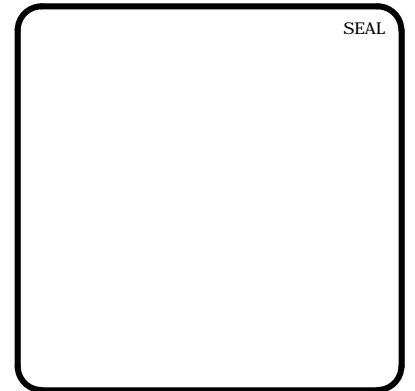
**GREAT RIDGE PARKWAY  
UTILITY PLAN**

**LEGEND:**

- EXISTING WETLANDS
- PERMANENT PERMITTED STREAM IMPACTS
- TEMPORARY PERMITTED STREAM IMPACTS
- R/W LINE
- HOA EASEMENT LINE
- PUBLIC UTILITY EASEMENT LINE
- PUBLIC DRAINAGE EASEMENT
- EX. POWER LINE EASEMENT
- OVERHEAD POWER LINE
- BMP MAINTENANCE & ACCESS EASEMENT
- 10' NO BUILD BUFFER LINE
- RIPARIAN BUFFER LINE
- EX. SANITARY SEWER FORCE MAIN
- EX. REUSE IRRIGATION MAIN
- EX. WATER MAIN
- NEW WATER MAIN
- NEW STORM DRAINAGE PIPE
- MECHANICAL JOINT
- GATE VALVE
- OPEN END SANITARY SEWER
- OPEN END STORM DRAIN



REV. NO.	DESCRIPTIONS	DATE
5	REVISIONS PER NCDOT COMMENTS, RELEASED FOR CONSTRUCTION	2013.02.15
4	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS, PLAN COORDINATION WITH PHASE 7 DRAWINGS	2013.01.29
3	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.15
2	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.09
1	ISSUED FOR PERMITTING	2012.12.19



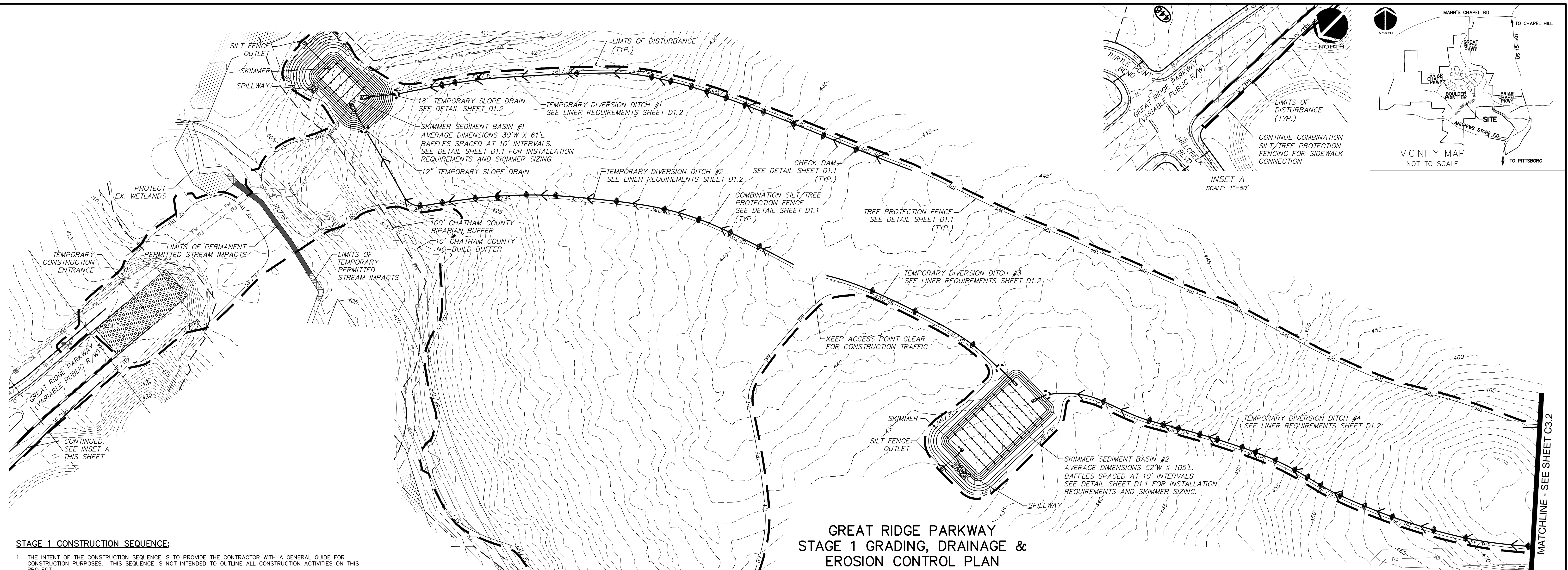
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 by  
**Newland COMMUNITIES**

**BRIAR CHAPEL  
 GREAT RIDGE PARKWAY EXTENSION  
 CHATHAM COUNTY, NORTH CAROLINA**

**UTILITY PLAN**

DATE: DECEMBER 19, 2012	SCALE: HORIZONTAL: 1" = 50'	MISC FILE NUMBER: C2.X
MCE PROJ. # 02735-0080	VERTICAL: N/A	DRAWING NUMBER: C2.2
DRAWN: GCA		
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION		REVISION: 5



**STAGE 1 CONSTRUCTION SEQUENCE:**

- THE INTENT OF THE CONSTRUCTION SEQUENCE IS TO PROVIDE THE CONTRACTOR WITH A GENERAL GUIDE FOR CONSTRUCTION PURPOSES. THIS SEQUENCE IS NOT INTENDED TO OUTLINE ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
- ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS. NEEDED REPAIRS SHALL BE MADE IMMEDIATELY.
- IF IT IS DETERMINED DURING CONSTRUCTION THAT SIGNIFICANT SEDIMENT IS LEAVING THE SITE, DESPITE PROPER IMPLEMENTATION AND MAINTENANCE, THE CONTRACTOR IS OBLIGATED TO TAKE ADDITIONAL CORRECTIVE ACTION. CONTACT CHATHAM COUNTY ENVIRONMENTAL QUALITY DEPARTMENT, OWNER'S REPRESENTATIVE, AND ENGINEER WITH ANY ADDITIONAL MEASURES NEEDED.
- CONTRACTOR SHALL ESTABLISH GROUND COVER ON DISTURBED AREAS WITHIN THE NUMBER OF CALENDAR DAYS AFTER COMPLETION OF GRADING PER THE SCHEDULE BELOW:
  - GRADUAL SLOPES: (14) CALENDAR DAYS
  - MODERATE SLOPES: (10) CALENDAR DAYS
  - STEEP SLOPES: (7) CALENDAR DAYS
 SLOPES ARE AS DEFINED IN THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
- CONTRACTOR SHALL ARRANGE PRE-CONSTRUCTION MEETING WITH THE OWNER'S REPRESENTATIVE, ENGINEER AND CHATHAM COUNTY.
- OBTAIN LETTER OF PLAN APPROVAL FOR SEDIMENTATION AND EROSION CONTROL FROM CHATHAM COUNTY SOIL EROSION & SEDIMENTATION CONTROL.
- CONTRACTOR TO POST EROSION CONTROL PERMIT PROMINENTLY ON SITE AT ALL TIMES.
- CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES TO AVOID CONFLICT DURING INSTALLATION OF EROSION CONTROL MEASURES AND STORM DRAINAGE. CONTRACTOR IS TO CALL 1-800-632-4949 FOR "NO ONE CALL" TO HAVE UTILITIES LOCATED.
- CONTRACTOR TO HAVE A PROFESSIONAL LAND SURVEYOR FLAG PROPERTY LINES, EASEMENTS, LANDSCAPE BUFFERS, STREAM BUFFERS, TREE PROTECTION AREAS AND LIMITS OF DISTURBANCE.
- INSTALL TEMPORARY CONSTRUCTION ENTRANCES.
- INSTALL TREE PROTECTION AND SILT FENCING AS SHOWN AND DETAILED ON PLAN. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES.
- INSTALL INLET PROTECTION DEVICES AS DETAILED IN THESE PLANS ON EXISTING OPEN ENDED PIPES AND INLETS.
- CONSTRUCT TEMPORARY SKIMMER SEDIMENT BASINS TO THE REQUIRED DIMENSIONS AND ELEVATIONS AS DETAILED IN THESE PLANS. CLEAR ONLY AS NECESSARY TO INSTALL THE BASINS. INSTALL BAFFLES PER PLAN. SEED AND MULCH SIDE SLOPES OF SEDIMENT BASINS UPON COMPLETION. INSTALL BIODEGRADABLE MATTING ON SIDE SLOPES OF BASINS IF NECESSARY TO ESTABLISH COVER.
- CONSTRUCT STAGE 1 TEMPORARY AND CLEAN WATER DIVERSION DITCHES AS SHOWN AND DETAILED IN THESE PLANS. SEED, MULCH AND INSTALL REQUIRED LINERS IN THESE DITCHES. INSTALL CHECK DAMS IN DITCHES AS SHOWN AND DETAILED ON PLANS. CLEAR ONLY AS NECESSARY TO INSTALL THESE EROSION CONTROL MEASURES.
- INSTALL TEMPORARY CULVERTS #2 AND #3 ALONG WITH INLET AND OUTLET PROTECTION DEVICES AS SHOWN IN THESE PLANS.
- CONTACT CHATHAM COUNTY SOIL EROSION & SEDIMENTATION AT 919-545-8339 AND ENGINEER UPON COMPLETION OF INITIAL EROSION CONTROL MEASURES.
- ONCE CHATHAM COUNTY HAS APPROVED THESE MEASURES, THE CONTRACTOR SHALL BEGIN CLEARING AND GRUBBING WITHIN THE LIMITS OF DISTURBANCE FOR SECTION 1.
- THE CONTRACTOR SHALL REMOVE ALL ROOT MATTER AND ORGANICS FROM WITHIN THE CLEARING LIMITS.

**STAGE 1 CONSTRUCTION SEQUENCE CONTINUED:**

- THE CONTRACTOR SHALL BEGIN STRIPPING TOPSOIL. STOCKPILE TOPSOIL AT A LOCATION AS DIRECTED BY OWNER
- BEGIN GRADING AND EARTHWORKS OPERATIONS IN THE AREA OF BMP #11.
- BEGIN REMAINDER OF SITE GRADING OPERATIONS.
- MAINTAIN AND PROTECT ALL EXISTING UTILITIES AT ALL TIMES.
- CONTRACTOR IS TO MAINTAIN ALL THE DIVERSION DITCHES, BASINS, SILT FENCE AND OTHER EROSION CONTROL MEASURES UNTIL THEY ARE APPROVED TO BE REMOVED.
- PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH THE PLANS.
- ONCE GROUND COVER HAS BEEN ESTABLISHED AND OTHER CONSTRUCTION IS COMPLETE, CONTACT CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION AND ENGINEER FOR SITE INSPECTION BEFORE REMOVING ANY TEMPORARY EROSION CONTROL MEASURES.

**LIMITS OF DISTURBANCE NOTES:**

- LIMITS OF DISTURBANCE LINES ARE CLEARING LIMIT LINES WHICH WILL BE FLAGGED FOR A MINIMUM OF ONE PER 50-FT OR CLOSER DEPENDING ON VISIBILITY.
- SILT FENCE AND TREE PROTECTION FENCE LINES ALSO DELINEATE THE LIMITS OF DISTURBANCE. ALL SILT FENCING OR TREE PROTECTION FENCING SHALL BE INSTALLED INSIDE LIMITS OF DISTURBANCE.
- TOTAL DISTURBED AREA: 14.47 ACRES

**SELF INSPECTION NOTICE:**

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

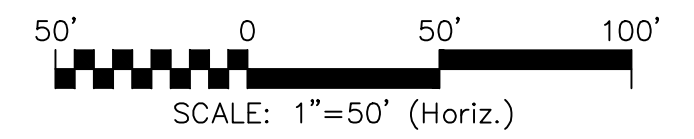
**GREAT RIDGE PARKWAY  
STAGE 1 GRADING, DRAINAGE &  
EROSION CONTROL PLAN**

**GENERAL NOTES:**

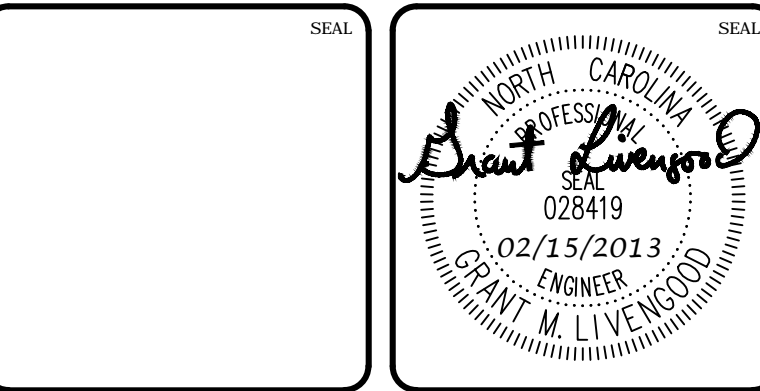
- ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER IF ANY DISCREPANCIES EXIST PRIOR TO CONSTRUCTION. NO ADDITIONAL COMPENSATION WILL BE PAID TO CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
- CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL AT 1-800-632-4949 AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR TO CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL".
- OVERHEAD ELECTRIC LINES MAY EXIST ON THE SITE. CONTRACTOR SHALL CONTACT DUKE POWER AT (336) 634-4633 PRIOR TO COMMENCING ANY ACTIVITY WITHIN 200-FT OF DUKE POWER RIGHT OF WAY.
- PRIOR TO CONSTRUCTION, CONTRACTOR SHALL ARRANGE AND ATTEND A PRECONSTRUCTION CONFERENCE WITH CHATHAM COUNTY, OWNER AND ENGINEER.
- EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON BEST AVAILABLE RECORD DRAWINGS.
- 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.
- 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.
- CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL PROPERTY CORNERS AND SHALL REPLACE ALL MARKERS REMOVED IF DAMAGED DURING CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR ALL DEWATERING AS NECESSARY THROUGHOUT CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL PERMIT CONDITIONS, MONITORING AND REPORTING REQUIREMENTS.
- STREAM AND WETLAND LOCATIONS ARE BASED ON DELINEATIONS PROVIDED BY SOIL AND ENVIRONMENTAL CONSULTANTS IN RALEIGH, NC - CONTACT SEAN CLARK AT 919-846-5900.
- A PORTION OF THIS PROPERTY IS LOCATED IN SPECIAL FLOOD HAZARD AREA "AE" AS SHOWN ON FEMA FIRM MAP #3710976500J DATED FEBRUARY 2, 2007.
- GRADED SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH CURLEX SINGLE NET (CURLEX I) MATTING BY AMERICAN EXCELSIOR COMPANY OR APPROVED EQUAL.

**LEGEND:**

- EXISTING WETLANDS
- PERMANENT PERMITTED STREAM IMPACTS
- TEMPORARY PERMITTED STREAM IMPACTS
- EXISTING POWER LINE EASEMENT
- OVERHEAD POWER LINE
- 10' NO BUILD BUFFER LINE
- RIPARIAN BUFFER LINE
- COMBINATION SILT/TREE PROTECTION FENCING
- TREE PROTECTION FENCING
- EXISTING CONTOUR
- PROPOSED CONTOUR
- LIMITS OF DISTURBANCE
- STAGE 1 DIVERSION DITCH
- TEMPORARY CONSTRUCTION ENTRANCE
- STAGE 1 CHECK DAM
- STAGE 1 ARC FILTER INLET PROTECTION
- STAGE 1 RIPRAP OUTLET PROTECTION
- STAGE 1 STORM DRAINAGE PIPE



REV. NO.	DATE	DESCRIPTIONS	REVISIONS
3	2013.02.15	REVISED PER NCDOT COMMENTS/RELEASED FOR CONSTRUCTION	
2	2013.01.31	REVISED PER CHATHAM COUNTY ESC COMMENTS	
1	2012.12.19	ISSUED FOR PERMITTING	

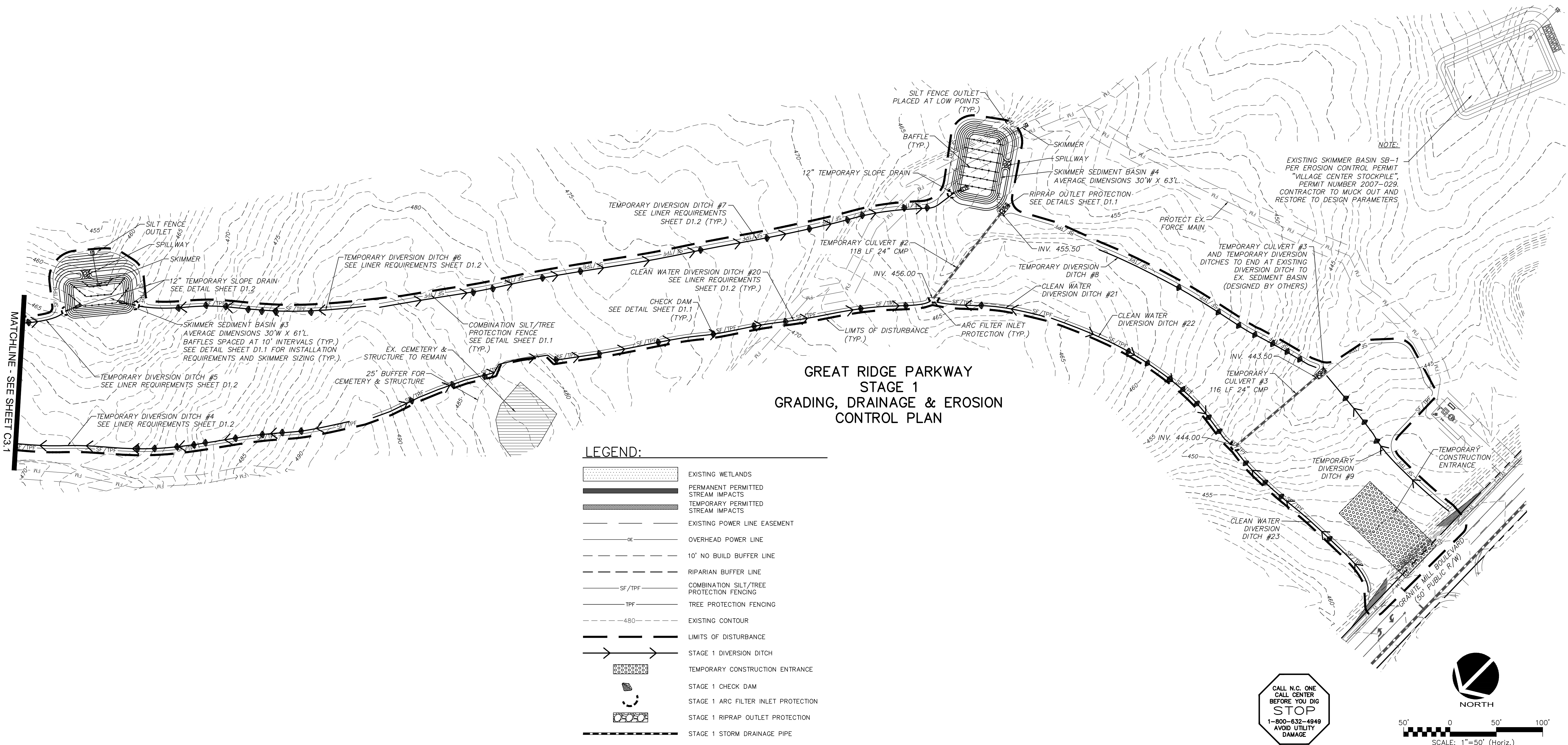
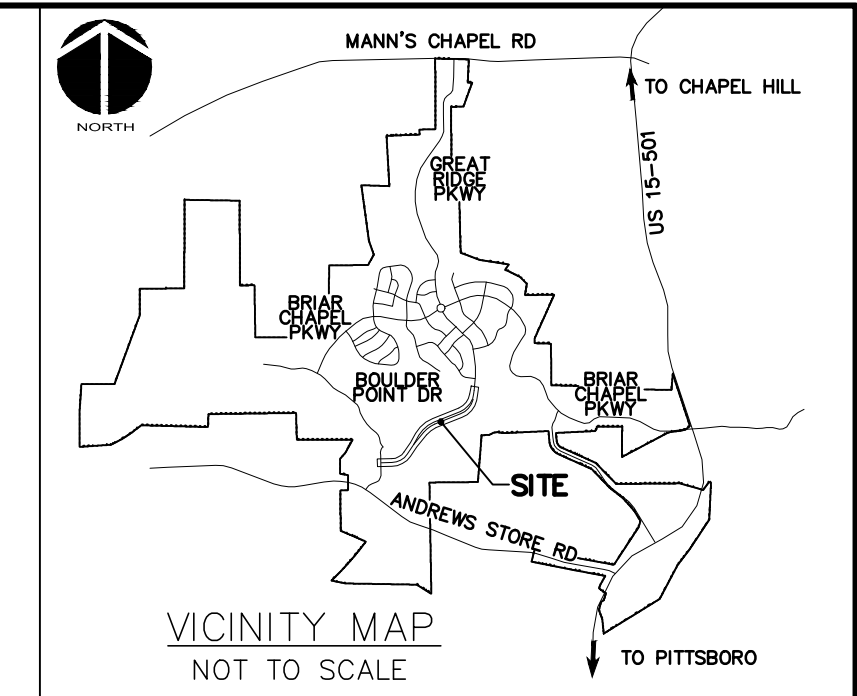


**MCKIM & CREED**  
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[www.mckimcreed.com](http://www.mckimcreed.com)

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**Newland COMMUNITIES**

**BRIAR CHAPEL  
GREAT RIDGE PARKWAY EXTENSION  
CHATHAM COUNTY, NORTH CAROLINA**  
**STAGE 1  
GRADING, DRAINAGE & EROSION  
CONTROL PLAN**

DATE: DECEMBER 19, 2012	SCALE: 1" = 50'	MISC FILE NUMBER: C3.X
MCE PROJ. # 02735-0080	HORIZONTAL: 1" = 50'	DRAWING NUMBER: C3.1
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 3	



**NOTE:**

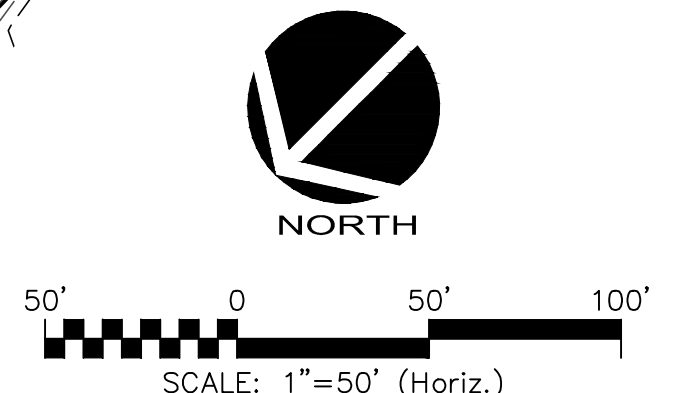
EXISTING SKIMMER BASIN SB-1 PER EROSION CONTROL PERMIT "VILLAGE CENTER STOCKPILE", PERMIT NUMBER 2007-029. CONTRACTOR TO MUCK OUT AND RESTORE TO DESIGN PARAMETERS

### GREAT RIDGE PARKWAY STAGE 1 GRADING, DRAINAGE & EROSION CONTROL PLAN

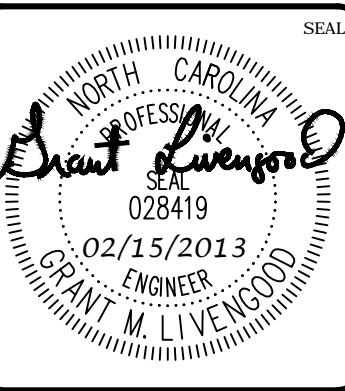
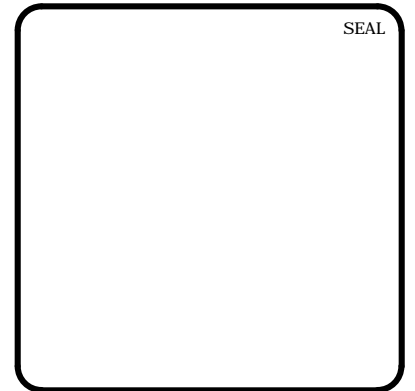
**LEGEND:**

- EXISTING WETLANDS
- PERMANENT PERMITTED STREAM IMPACTS
- TEMPORARY PERMITTED STREAM IMPACTS
- EXISTING POWER LINE EASEMENT
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- STAGE 1 CHECK DAM
- STAGE 1 ARC FILTER INLET PROTECTION
- STAGE 1 RIPRAP OUTLET PROTECTION
- STAGE 1 STORM DRAINAGE PIPE

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



REV. NO.	DATE	DESCRIPTIONS	REVISIONS
3	2013.02.15	REVISED PER NCOTD COMMENTS/RELEASED FOR CONSTRUCTION	
2	2013.01.31	REVISED PER CHATHAM COUNTY ESC COMMENTS	
1	2012.12.05	PRELIMINARY REVIEW BY CLIENT	



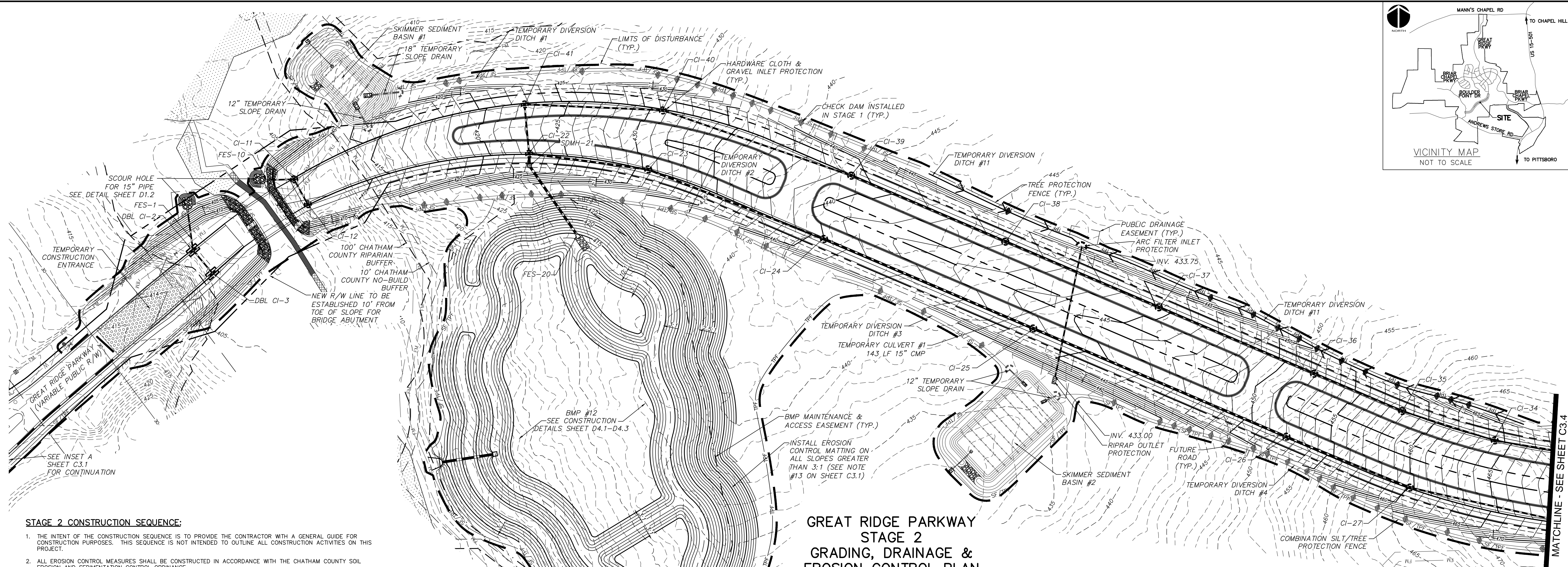
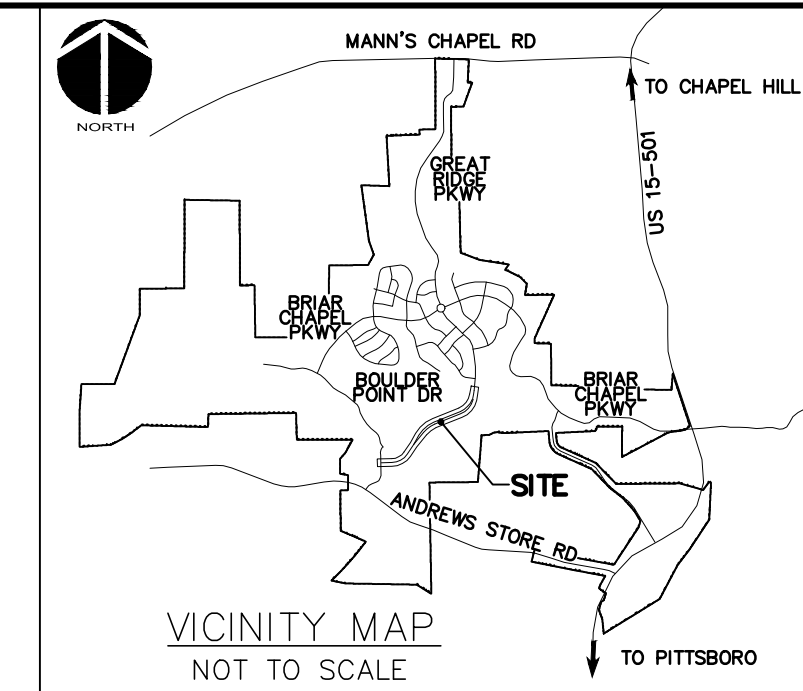
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GRADING, DRAINAGE & EROSION  
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DATE: DECEMBER 19, 2012	SCALE: 1" = 50'	MSC FILE NUMBER: C3.X
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DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 3	





**STAGE 2 CONSTRUCTION SEQUENCE:**

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

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

- SLOPES ARE AS DEFINED IN THE CHATHAM COUNTY SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE.
- CONTRACTOR SHALL ARRANGE PRE-CONSTRUCTION MEETING WITH THE OWNER'S REPRESENTATIVE, ENGINEER AND CHATHAM COUNTY.
- OBTAIN LETTER OF PLAN APPROVAL FOR SEDIMENTATION AND EROSION CONTROL FROM CHATHAM COUNTY SOIL EROSION & SEDIMENTATION CONTROL.
- CONTRACTOR TO POST EROSION CONTROL PERMIT PROMINENTLY ON SITE AT ALL TIMES.
- CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES TO AVOID CONFLICT DURING INSTALLATION OF EROSION CONTROL MEASURES AND STORM DRAINAGE. CONTRACTOR IS TO CALL 1-800-632-4949 FOR "NO ONE CALL" TO HAVE UTILITIES LOCATED.
- CONTRACTOR TO HAVE A PROFESSIONAL LAND SURVEYOR FLAG PROPERTY LINES, EASEMENTS, LANDSCAPE BUFFERS, STREAM BUFFERS, TREE PROTECTION AREAS AND LIMITS OF DISTURBANCE.
- AS SITE GRADING PERMITS, INSTALL TEMPORARY CULVERT #3 ALONG WITH INLET AND OUTLET PROTECTION DEVICES AS SHOWN IN THESE PLANS.
- INSTALL TEMPORARY DIVERSION DITCHES #11 AND #12. SEED, MULCH AND INSTALL REQUIRED LINERS IN THESE DITCHES. INSTALL CHECK DAMS IN DITCHES AS SHOWN AND DETAILED ON PLANS.
- PRIOR TO GRADING NEAR STREAM CROSSING, CONTRACTOR SHALL INSTALL WATER MAIN BY DIRECTIONAL BORE. REFER TO SHEET C3.1 FOR APPROXIMATE BORE PIT LOCATIONS AND SHEET D3.1 FOR BORING CONSTRUCTION DETAILS. CONTRACTOR SHALL ENSURE THAT NO SEDIMENT LEAVES THE CONSTRUCTION SITE DURING THIS PROCESS.
- INSTALL BMP #12 PER GRADES SHOWN ON PLAN AND SHEETS D4.1 THRU D4.3. CONTRACTOR TO INSTALL SKIMMER AND BAFFLES IN BMP #12 IF THE CONTRIBUTING DRAINAGE AREA IS NOT STABILIZED BEFORE THE BMP IS CONSTRUCTED.
- INSTALL STORM DRAINAGE, SANITARY SEWER, AND WATER MAIN PIPING AND STRUCTURES AS SPECIFIED IN THESE PLANS. AS STORM DRAINAGE INLETS ARE COMPLETED, INSTALL INLET PROTECTION DEVICES TO ENSURE NO SEDIMENT ENTERS THE SYSTEM.
- AS FINAL GRADES AND SLOPES ARE ESTABLISHED, THE CONTRACTOR SHALL SEED, MULCH AND INSTALL ROLLED EROSION CONTROL PRODUCTS ON SLOPES GREATER THAN 10 FEET IN HEIGHT.
- MUCK OUT VILLAGE CENTER STOCKPILE SKIMMER BASIN SB-1 AND RESTORE TO DESIGN PARAMETERS.
- CONSTRUCT ROAD BEDS. INSTALL ABC STONE FOR ROADS AS SHOWN ON PLANS. INSTALL SIDEWALKS AND MULTI-USE TRAIL AS SHOWN ON PLANS.
- REMOVE TEMPORARY CONSTRUCTION ENTRANCES AND INSTALL BINDER COURSE OF ASPHALT PAVING.
- CARRY OUT FINAL GRADING. RESPREAD TOPSOIL IN NON-STRUCTURAL LOCATIONS. CONTRACTOR TO REFER TO GEOTECHNICAL RECOMMENDATIONS FOR DEPTH COMPACTION REQUIREMENTS FOR TOPSOIL SPREADING.

**STAGE 2 CONSTRUCTION SEQUENCE (CONT.):**

- PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH REQUIREMENTS SHOWN ON THESE PLANS.
- REMOVE SKIMMER SEDIMENT BASINS ONLY AFTER ENSURING THAT CONTRIBUTING DRAINAGE AREAS ARE STABILIZED.
- ONCE ALL UPSTREAM AREAS HAVE BEEN SIGNIFICANTLY STABILIZED WITH IMPERVIOUS COVER OR VEGETATION, CONSTRUCT THE LEVEL SPREADERS/VEGETATED FILTER STRIPS. NO SEDIMENT SHALL DRAIN INTO THE LEVEL SPREADERS/VEGETATED FILTER STRIPS ONCE CONSTRUCTED. IF SEDIMENT ENTERS THE LEVEL SPREADERS/VEGETATED FILTER STRIPS AFTER THEY ARE CONSTRUCTED, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ALL SEDIMENT LADEN SOIL AT NO ADDITIONAL COST TO THE OWNER.
- ONCE ALL GROUND COVER HAS BEEN ESTABLISHED, AND OTHER CONSTRUCTION IS COMPLETE, CONTACT CHATHAM COUNTY EROSION CONTROL OFFICER AND ENGINEER BEFORE REMOVING ANY TEMPORARY EROSION CONTROL MEASURES.
- AFTER SITE IS COMPLETELY STABILIZED, REMOVE ALL TEMPORARY MEASURES AND INSTALL PERMANENT VEGETATION AS REQUIRED AND ON ANY RESULTING BARE AREAS.
- EROSION CONTROL DEVICES SHALL REMAIN IN PLACE AND SHALL BE MAINTAINED UNTIL SOIL IS NEEDED AT OTHER LOCATIONS THROUGHOUT THE BRIAR CHAPEL DEVELOPMENT, WHICH WILL BE PERMITTED SEPARATELY.

**TREE SAVE NOTE:**

- CONTRACTOR SHALL SAVE EXISTING SPECIMEN TREES ALONG BRIAR CHAPEL PARKWAY MEDIAN WHERE DEEMED FEASIBLE AS DIRECTED BY OWNER.

**STORM DRAINAGE NOTES:**

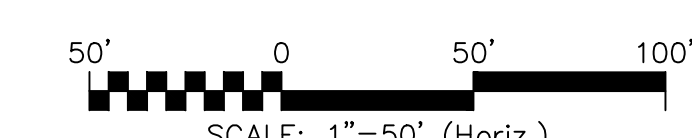
- STORM DRAINAGE PIPES SHALL BE:
  - RCP/CLASS III FOR STORM DRAINAGE INSIDE PUBLIC RIGHT-OF-WAY OR CONNECTING INTO STRUCTURE INSIDE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH NCDOT STANDARDS.
  - A-2000 PVC FOR PRIVATE STORM LINES WITHIN PRIVATE ALLEYS. ALL STORM DRAINAGE CONSTRUCTION FOR A-2000 PVC SHALL BE IN ACCORDANCE WITH PIPE MANUFACTURER'S SPECIFICATIONS. PIPE JOINTS SHALL BE WATERTIGHT PER ASTM D3212. PIPE AND FITTINGS SHALL BE INSTALLED PER AASHTO SECTION 30 AND AASHTO SECTION 12.
- ALL CONCRETE SHALL MEET A MINIMUM 3,000 PSI COMPRESSIVE STRENGTH.
- ALL PIPE IN STORM DRAIN STRUCTURES SHALL BE STRUCK EVEN WITH INSIDE WALL.
- THE INTERIOR SURFACES OF ALL STORM DRAINAGE STRUCTURES SHALL BE POINTED UP AND SMOOTHED TO AN ACCEPTABLE STANDARD USING MORTAR MIXED TO MANUFACTURER'S SPECIFICATIONS.
- ALL BACKFILL SHALL BE NON-PLASTIC IN NATURE, FREE FROM ROOTS, VEGETATION MATTER, WASTE CONSTRUCTION MATERIAL OR OTHER OBJECTIONABLE MATERIAL. UTILIZED MATERIAL SHALL BE CAPABLE OF BEING COMPACTED BY MECHANICAL MEANS AND SHALL HAVE NO TENDENCY TO FLOW OR BEHAVE IN A PLASTIC MANNER UNDER THE TAMPING BLOWS OR PROOF ROLLING.
- MATERIALS DEEMED AS UNSUITABLE FOR BACKFILL PURPOSES BY THE OWNER'S REPRESENTATIVE SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL.
- BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE THOROUGHLY COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY OBTAINABLE WITH THE STANDARD PROCTOR TEST. THE TOP EIGHT (8) INCHES SHALL BE COMPACTED TO 100% STANDARD PROCTOR.
- UNDER NO CIRCUMSTANCES SHALL WATER BE ALLOWED TO RISE IN UNBACKFILLED TRENCHES AFTER PIPE HAS BEEN PLACED.
- ALL FLARED END SECTIONS DISCHARGING INTO WATER QUALITY PONDS WILL HAVE A CONCRETE PAD POURED UNDERNEATH THE FLARED END SECTION IN ACCORDANCE WITH PROVIDED CONSTRUCTION DETAILS.
- RIM ELEVATIONS OF STORM DRAIN STRUCTURES SHALL BE FIELD VERIFIED.
- RIM ELEVATIONS FOR GRATE INLETS WITHIN ALLEYS SHALL MATCH INITIAL LIFT OF BINDER COURSE. AT TIME OF FINAL SURFACE LIFT OF ASPHALT, CONTRACTOR SHALL RAISE GRATE INLET TOPS TO MATCH FLUSH WITH FINAL SURFACE PAVEMENT ELEVATION.
- STORM DRAINAGE WITHIN PRIVATE EASEMENTS TO BE OWNED, OPERATED AND MAINTAINED BY HOME OWNER'S ASSOCIATION OR AGENT THEREOF.
- LENGTHS SHOWN FOR STORM DRAINAGE PIPES ARE MEASURED FROM CENTER OF STORM STRUCTURES AND TO ENDS OF FLARED END SECTIONS. SLOPES CALCULATED ARE BASED ON THIS LENGTH.
- GB DENOTES CATCH BASINS TO BE INSTALLED IN THE CENTERS OF PAVED ALLEYS AND NON-PAVED AREAS. REFER TO NCDOT DETAILS 840.19 AND 840.22 ON SHEET D-3.
- 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-3.
- CONTRACTOR TO INSTALL SKIMMER AND BAFFLES IN BMP #12 IF THE CONTRIBUTING DRAINAGE AREA IS NOT STABILIZED BEFORE THE BMP IS CONSTRUCTED.

**GREAT RIDGE PARKWAY  
STAGE 2  
GRADING, DRAINAGE &  
EROSION CONTROL PLAN**

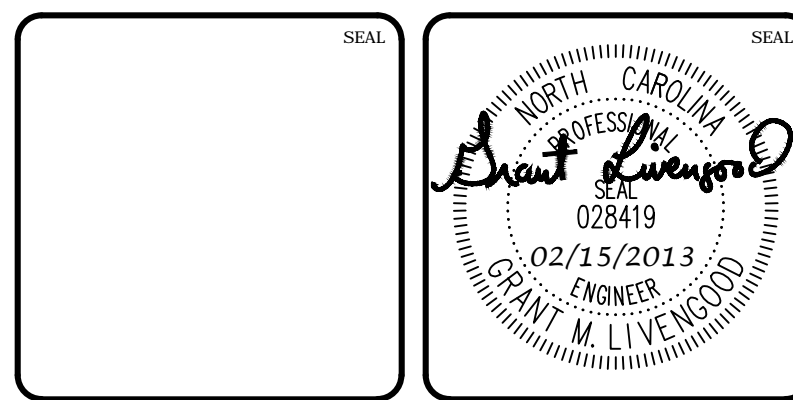
**LEGEND:**

	EXISTING WETLANDS		LIMITS OF DISTURBANCE
	PERMANENT PERMITTED STREAM IMPACTS		STAGE 1 DIVERSION DITCH
	TEMPORARY PERMITTED STREAM IMPACTS		STAGE 2 DIVERSION DITCH
	R/W LINE		TEMPORARY CONSTRUCTION ENTRANCE
	HOA EASEMENT LINE		STAGE 1 CHECK DAM
	PRIVATE UTILITY EASEMENT LINE		STAGE 2 CHECK DAM
	PUBLIC DRAINAGE EASEMENT		STAGE 1 ARC FILTER INLET PROTECTION
	EXISTING POWER LINE EASEMENT		STAGE 2 ARC FILTER INLET PROTECTION
	OVERHEAD POWER LINE		HARDWARE CLOTH & GRAVEL INLET PROTECTION
	BMP MAINTENANCE & ACCESS EASEMENT		STAGE 1 RIPRAP OUTLET PROTECTION
	10' NO BUILD BUFFER LINE		STAGE 2 RIPRAP OUTLET PROTECTION
	RIPARIAN BUFFER LINE		STAGE 1 STORM DRAINAGE PIPE
	COMBINATION SILT/TREE PROTECTION FENCING		STAGE 2 STORM DRAINAGE PIPE
	TREE PROTECTION FENCING		OPEN ENDED STORM DRAIN
	EXISTING CONTOUR		
	PROPOSED CONTOUR		

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



REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER NCDOT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
2	REVISED PER CHATHAM COUNTY ESC COMMENTS	2013.01.31
1	ISSUED FOR PERMITTING	2012.12.19

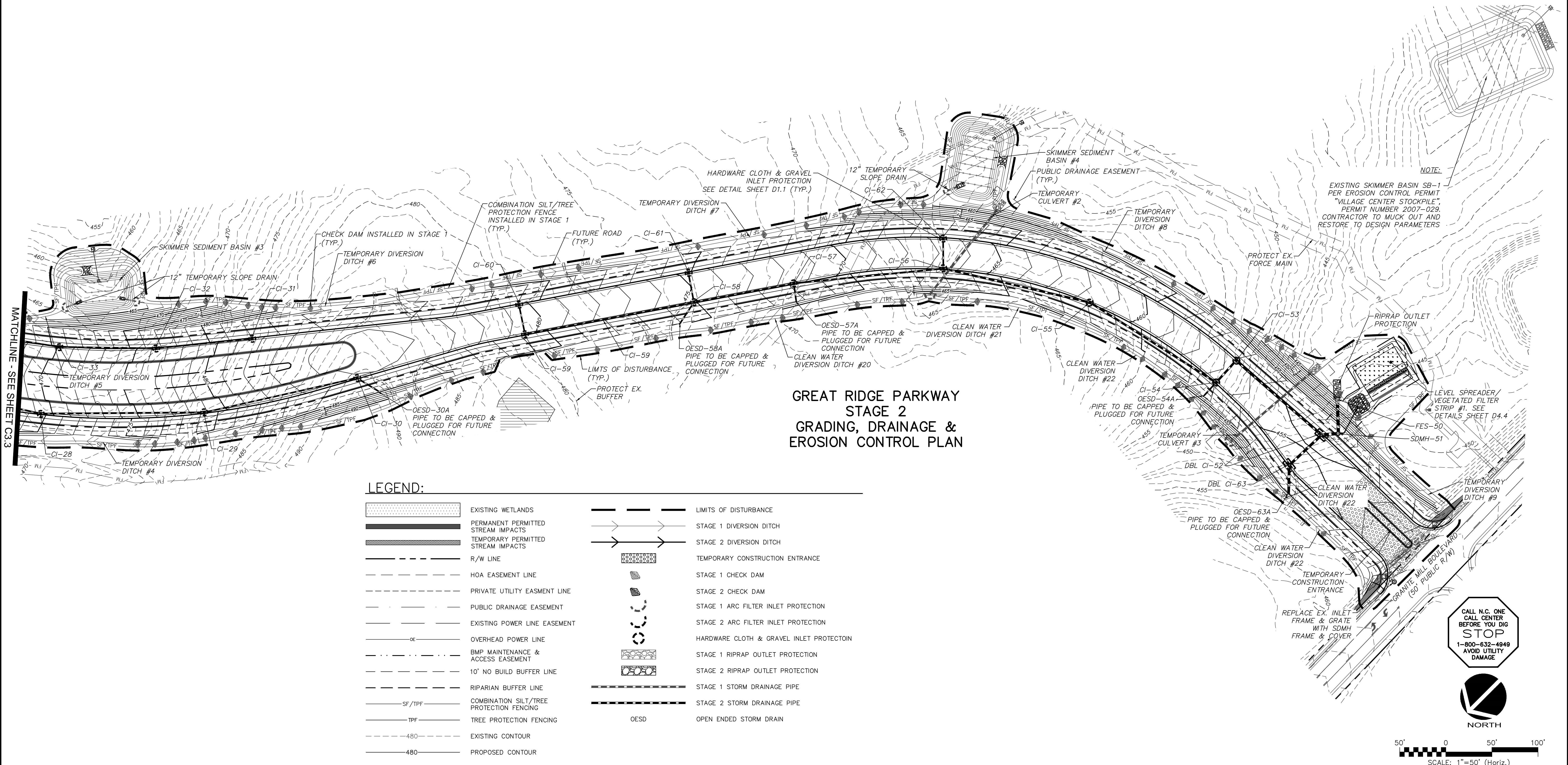
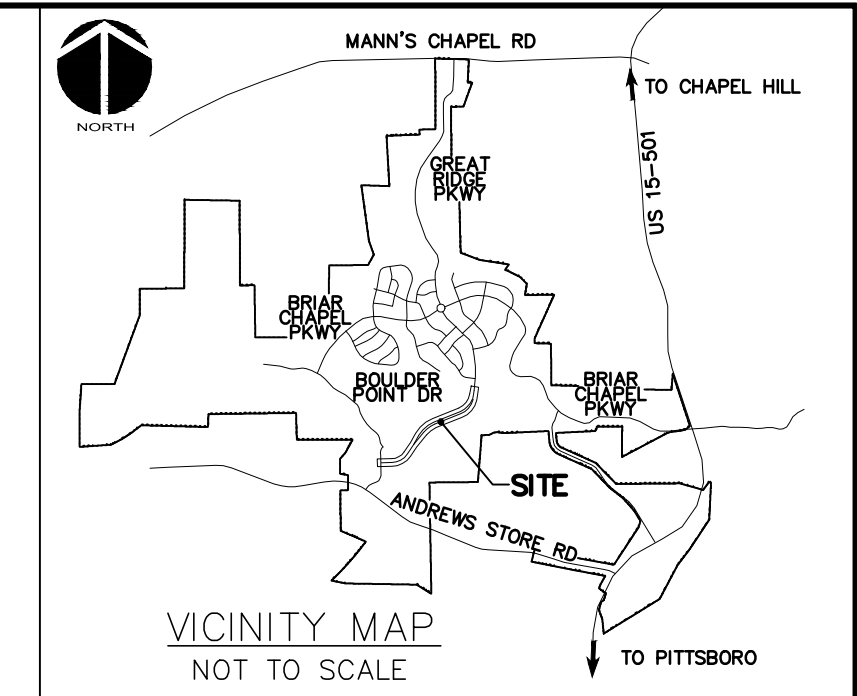


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DATE: DECEMBER 19, 2012	SCALE: C3.X	MISC FILE NUMBER: C3.X
MCE PROJ. # 02735-0080	HORIZONTAL: 1" = 50'	DRAWING NUMBER: C3.3
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 3	



**GREAT RIDGE PARKWAY  
STAGE 2  
GRADING, DRAINAGE &  
EROSION CONTROL PLAN**

**LEGEND:**

	EXISTING WETLANDS		LIMITS OF DISTURBANCE
	PERMANENT PERMITTED STREAM IMPACTS		STAGE 1 DIVERSION DITCH
	TEMPORARY PERMITTED STREAM IMPACTS		STAGE 2 DIVERSION DITCH
	R/W LINE		TEMPORARY CONSTRUCTION ENTRANCE
	HOA EASEMENT LINE		STAGE 1 CHECK DAM
	PRIVATE UTILITY EASEMENT LINE		STAGE 2 CHECK DAM
	PUBLIC DRAINAGE EASEMENT		STAGE 1 ARC FILTER INLET PROTECTION
	EXISTING POWER LINE EASEMENT		STAGE 2 ARC FILTER INLET PROTECTION
	OVERHEAD POWER LINE		HARDWARE CLOTH & GRAVEL INLET PROTECTION
	BMP MAINTENANCE & ACCESS EASEMENT		STAGE 1 RIPRAP OUTLET PROTECTION
	10' NO BUILD BUFFER LINE		STAGE 2 RIPRAP OUTLET PROTECTION
	RIPARIAN BUFFER LINE		STAGE 1 STORM DRAINAGE PIPE
	COMBINATION SILT/TREE PROTECTION FENCING		STAGE 2 STORM DRAINAGE PIPE
	TREE PROTECTION FENCING		OESD OPEN ENDED STORM DRAIN
	EXISTING CONTOUR		
	PROPOSED CONTOUR		

CALL N.C. ONE CALL CENTER BEFORE YOU DIG  
STOP  
1-800-632-4849  
AVOID UTILITY DAMAGE

**NORTH**

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

REV. NO.	DESCRIPTIONS	DATE
3	REVISED PER NCDOT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
2	REVISED PER CHATHAM COUNTY ESC COMMENTS	2013.01.31
1	ISSUED FOR PERMITTING	2012.12.19

SEAL

**Grant M. Livingston**  
ENGINEER  
02/15/2013

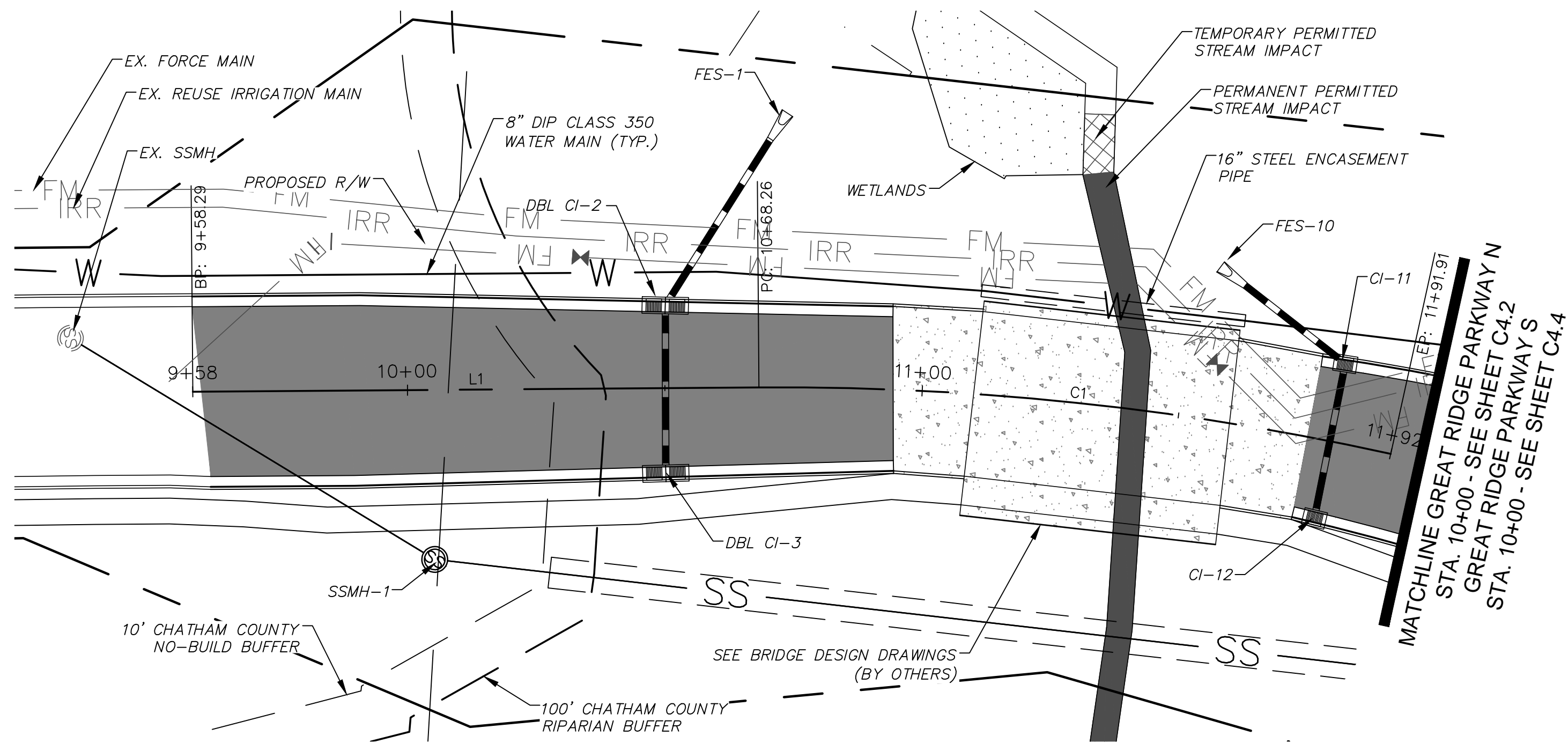
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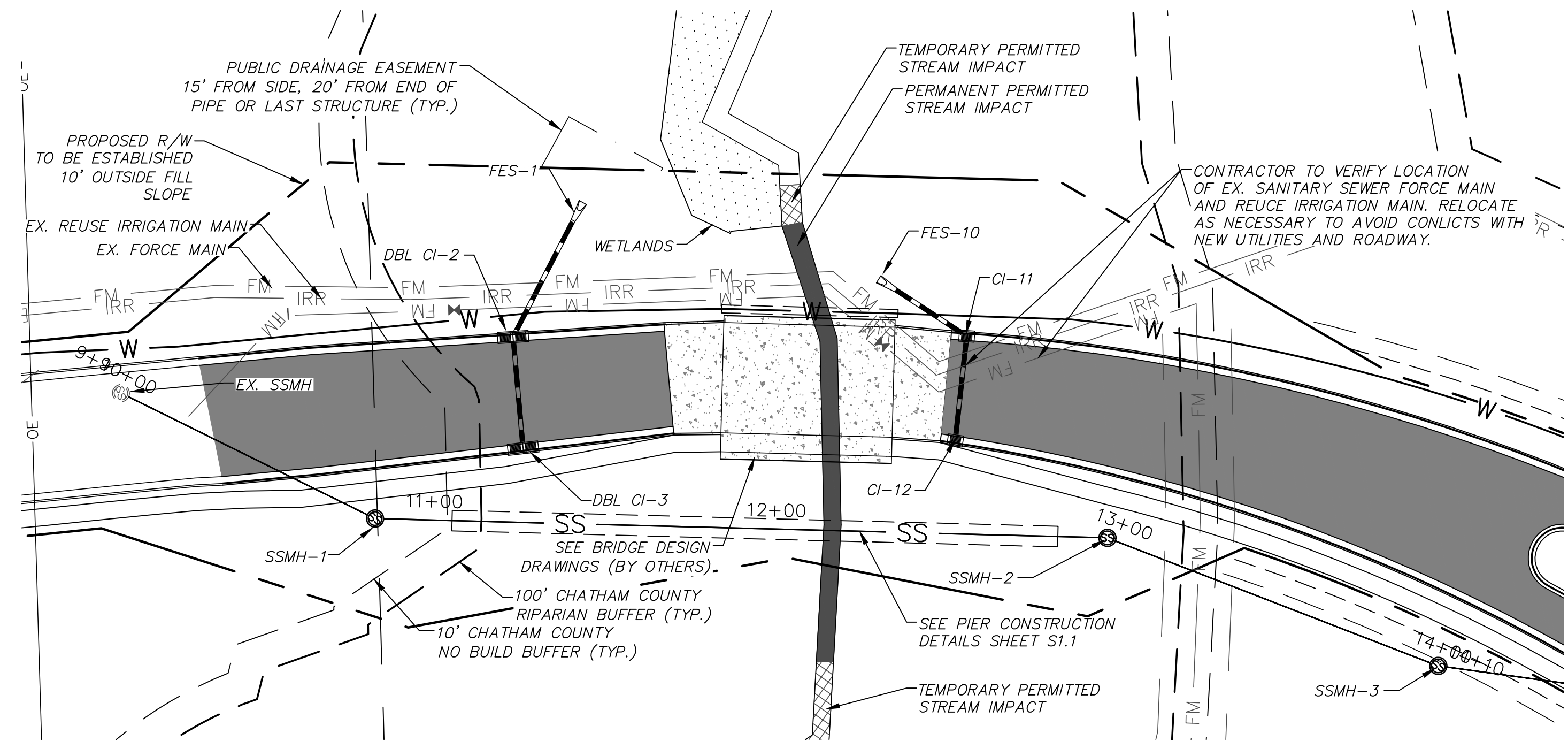
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GREAT RIDGE PARKWAY EXTENSION  
CHATHAM COUNTY, NORTH CAROLINA  
STAGE 2  
GRADING, DRAINAGE & EROSION  
CONTROL PLAN**

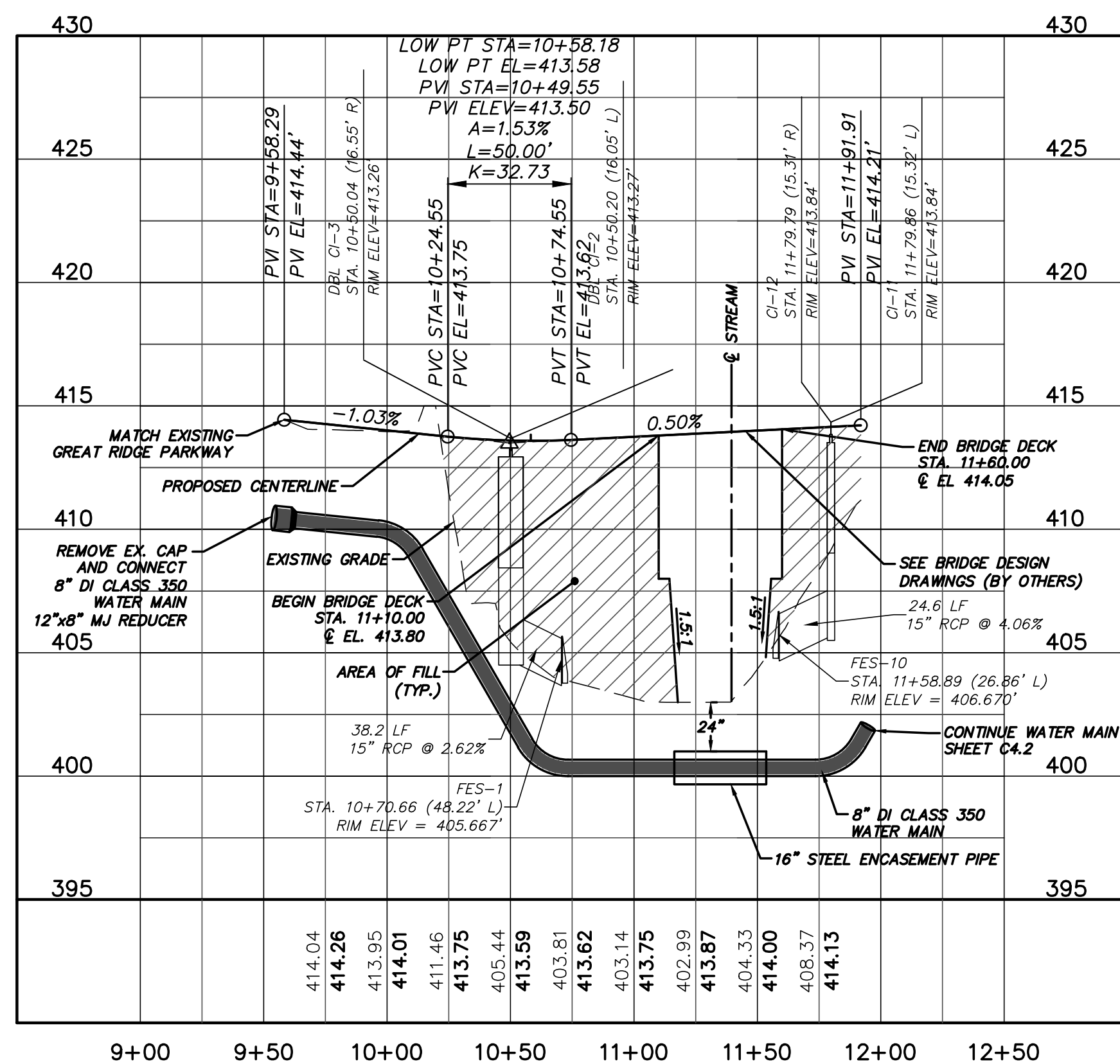
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DRAWN: GCA		
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 3	



**GREAT RIDGE PARKWAY STREAM CROSSING PLAN**  
 (VARIABLE WIDTH PUBLIC R/W, STA. 10+00 TO 11+91.91)  
 SCALE: 1"=20'



**GREAT RIDGE PARKWAY SANITARY SEWER CROSSING PLAN**  
 (VARIABLE WIDTH PUBLIC R/W, STA. 10+00 TO 14+10.45)  
 SCALE: 1"=30'



**GREAT RIDGE PARKWAY STREAM CROSSING PROFILE**  
 (STA. 10+00 TO 11+91.91)  
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

**ALIGNMENT LINE DATA**

LINE #	LENGTH	BEARING
L1	109.97	S4°33'29"W

**ALIGNMENT CURVE DATA**

CURVE #	RADIUS	LENGTH	BEARING
C1	550.00'	123.65'	S10°59'55"W

**STORM DRAINAGE SUMMARY TABLE**

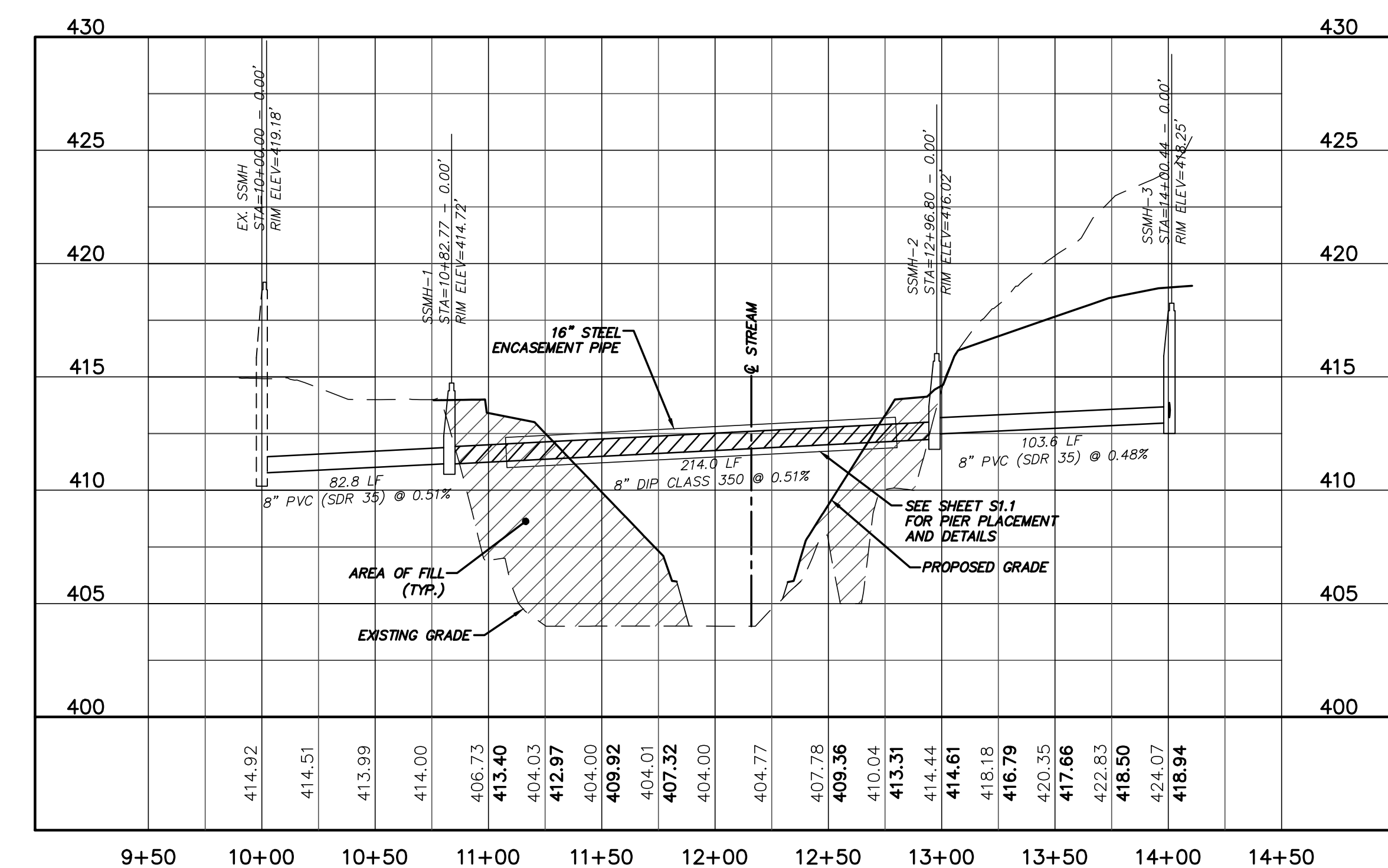
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
DBL CI-2	FES-1	405.00	404.00	15"	RCP	38.2	2.62%
DBL CI-3	DBL CI-2	408.94	408.59	15"	RCP	32.6	1.07%

**STORM DRAINAGE SUMMARY TABLE**

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-11	FES-10	406.00	405.00	15"	RCP	24.6	4.06%
CI-12	CI-11	409.54	408.50	15"	RCP	30.6	3.40%

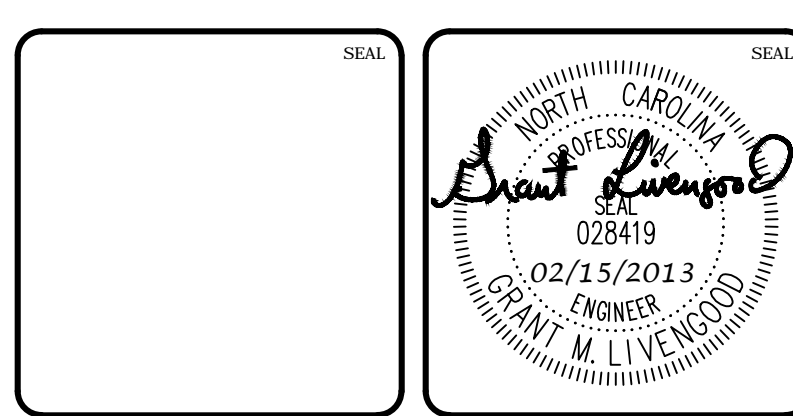
**SANITARY SEWER SUMMARY TABLE**

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
SSMH-1	EX. SSMH	411.20	410.78	8"	PVC	82.8	0.51%
SSMH-2	SSMH-1	412.30	411.20	8"	Ductile Iron	214.0	0.51%
SSMH-3	SSMH-2	413.00	412.50	8"	PVC	103.6	0.48%



**GREAT RIDGE PARKWAY SANITARY SEWER CROSSING PROFILE**  
 (STA. 10+00 TO 14+10.45)  
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

REV. NO.	DESCRIPTIONS	DATE
3	REVISIONS PER MDT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
2	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.09
1	ISSUED FOR PERMITTING	2012.12.19

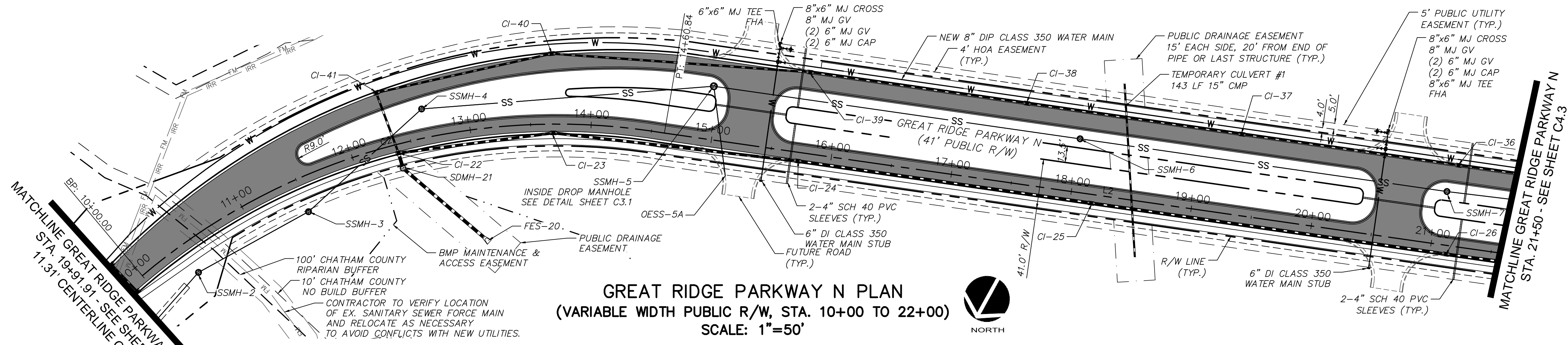


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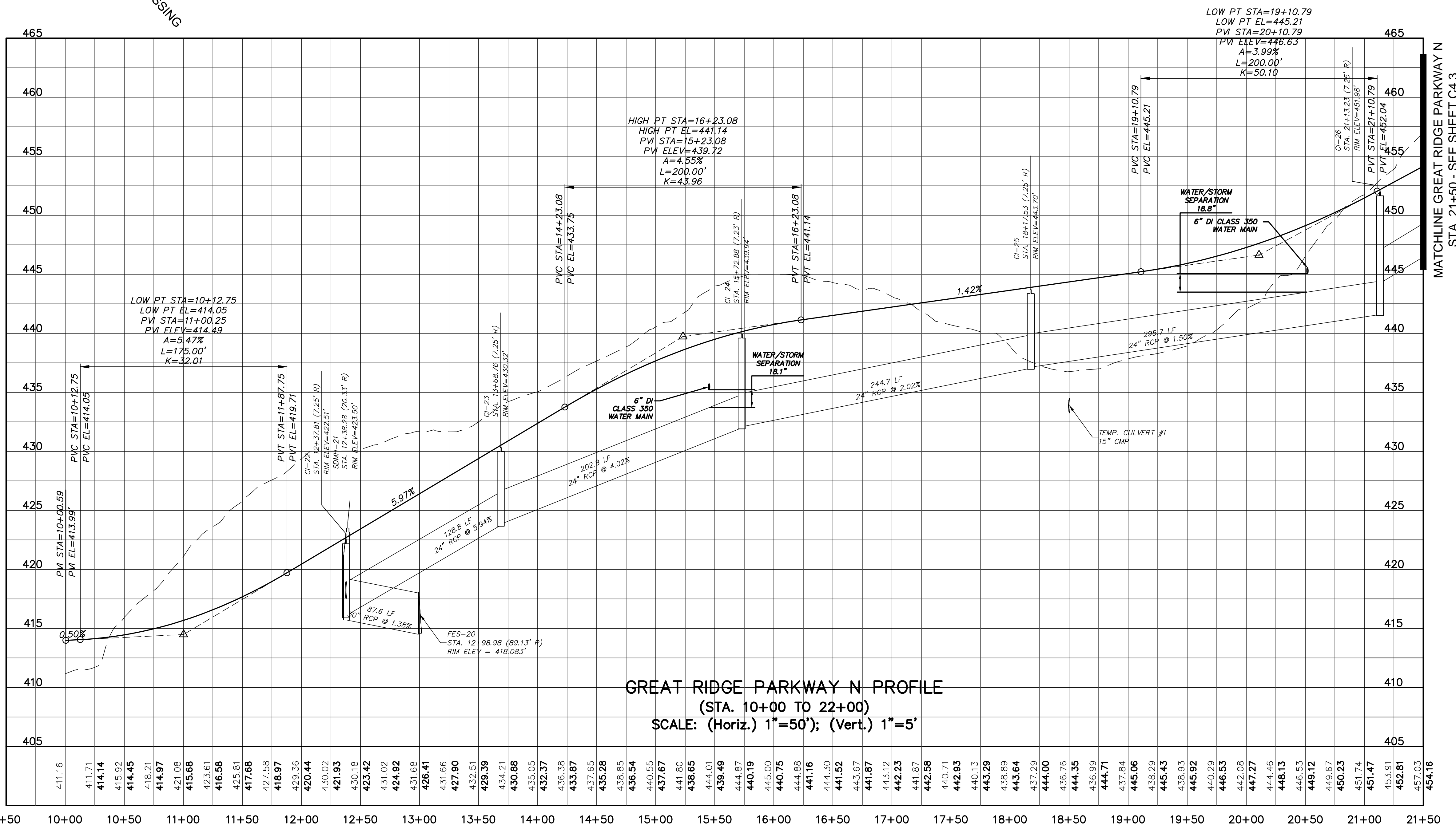
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**CHATHAM COUNTY, NORTH CAROLINA**  
**PLAN & PROFILE**  
**STREAM CROSSING**

DATE: DECEMBER 19, 2012	SCALE: 1"=50'	MISC FILE NUMBER: C4.X
MCE PROJ. # 02735-0080	HORIZONTAL: 1"=50'	DRAWING NUMBER: C4.1
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR. CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 3	



**GREAT RIDGE PARKWAY N PLAN**  
 (VARIABLE WIDTH PUBLIC R/W, STA. 10+00 TO 22+00)  
 SCALE: 1"=50'



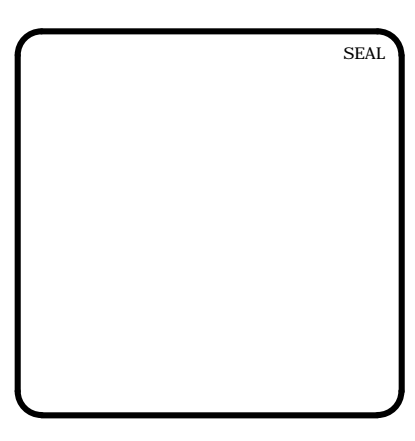
**GREAT RIDGE PARKWAY N PROFILE**  
 (STA. 10+00 TO 22+00)  
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

ALIGNMENT LINE DATA		
LINE #	LENGTH	BEARING
L2	738.67	S68°09'36"W

ALIGNMENT CURVE DATA			
CURVE #	RADIUS	LENGTH	BEARING
C2	531.57'	460.84'	S44°44'33"W

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-22	SDMH-21	416.40	416.31	30"	RCP	13.1	0.69%
CI-23	CI-22	424.15	416.50	24"	RCP	128.8	5.94%
CI-24	CI-23	432.40	424.25	24"	RCP	202.8	4.02%
CI-25	CI-24	437.45	432.50	24"	RCP	244.7	2.02%
CI-26	CI-25	442.00	437.55	24"	RCP	295.7	1.50%
SDMH-21	FES-20	416.21	415.00	30"	RCP	87.6	1.38%

REV. NO.	DESCRIPTIONS	DATE
5	REVISIONS PER NDOT COMMENTS, RELEASED FOR CONSTRUCTION	2013.02.15
4	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS, PLAN COORDINATION WITH PHASE 7 DRAWINGS	2013.01.29
3	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.15
2	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.08
1	ISSUED FOR PERMITTING	2012.12.19

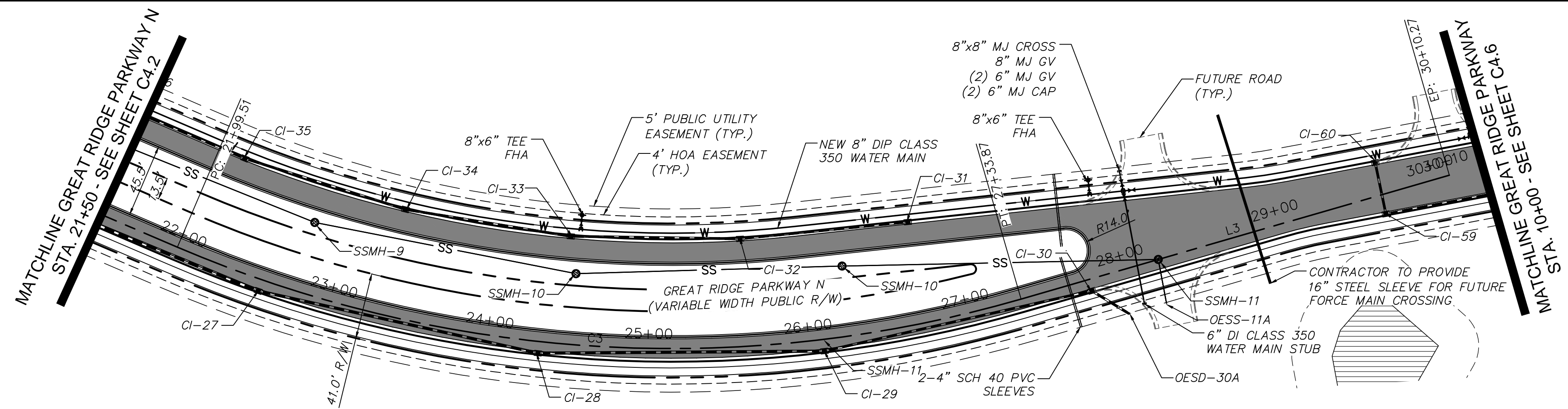


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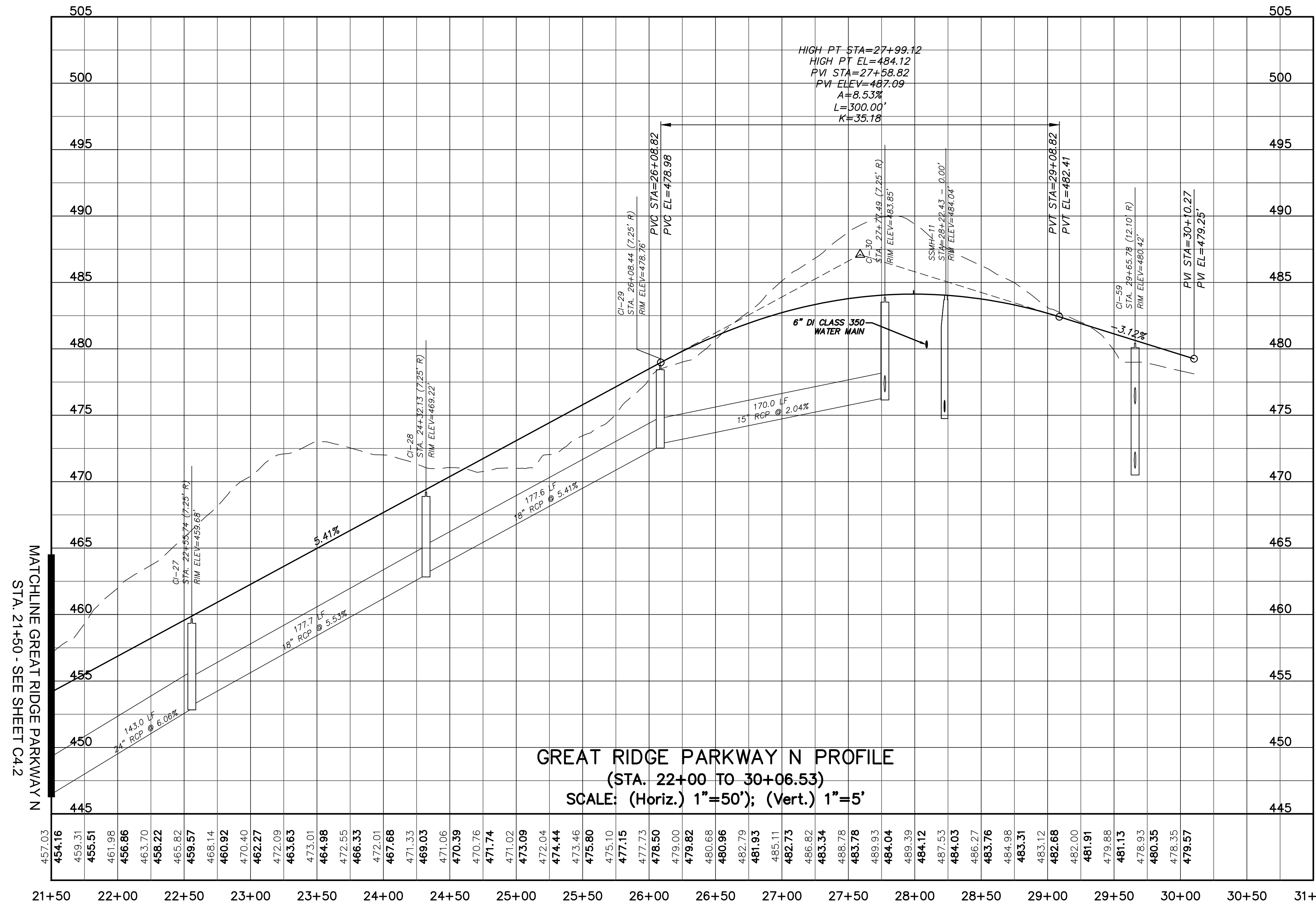
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 CHATHAM COUNTY, NORTH CAROLINA  
**PLAN & PROFILE**  
 GREAT RIDGE PARKWAY N  
 STA. 10+00 TO STA. 21+50

DATE: DECEMBER 19, 2012	SCALE: 1" = 50'	M&C FILE NUMBER: C4.X
M&C PROJ. # 02735-0080	HORIZONTAL: 1" = 50'	DRAWING NUMBER: C4.2
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 5	



**GREAT RIDGE PARKWAY N PLAN**  
 (VARIABLE WIDTH PUBLIC R/W, STA. 21+50 TO 30+06.53)  
 SCALE: 1"=50'



**GREAT RIDGE PARKWAY N PROFILE**  
 (STA. 22+00 TO 30+06.53)  
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

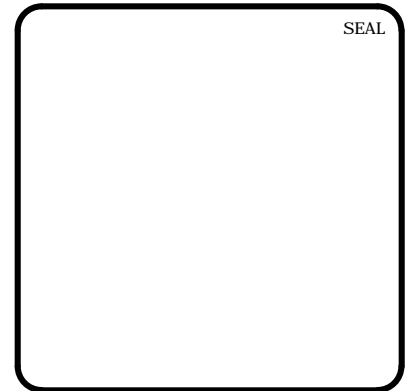
ALIGNMENT LINE DATA		
LINE #	LENGTH	BEARING
L3	276.40	S28°52'58"W

ALIGNMENT CURVE DATA			
CURVE #	RADIUS	LENGTH	BEARING
C3	779.50'	534.36'	S48°31'17"W

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-27	CI-26	453.32	444.66	24"	RCP	143.0	6.06%
CI-28	CI-27	463.33	453.50	18"	RCP	177.7	5.53%
CI-29	CI-28	473.03	463.43	18"	RCP	177.6	5.41%
CI-30	CI-29	476.65	473.19	15"	RCP	170.0	2.04%
OESD-30A	CI-30	476.90	476.75	15"	RCP	28.1	0.53%

SANITARY SEWER SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
OESS-11A	SSMH-11	475.80	475.45	8"	PVC	28.1	1.24%
SSMH-11	SSMH-10	475.25	471.40	8"	PVC	196.1	1.96%

REV. NO.	DESCRIPTIONS	DATE
4	REVISED PER NCDOT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
3	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS/PLAN COORDINATION WITH PHASE 7 DRAWINGS	2013.01.29
2	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.08
1	ISSUED FOR PERMITTING	2012.12.19

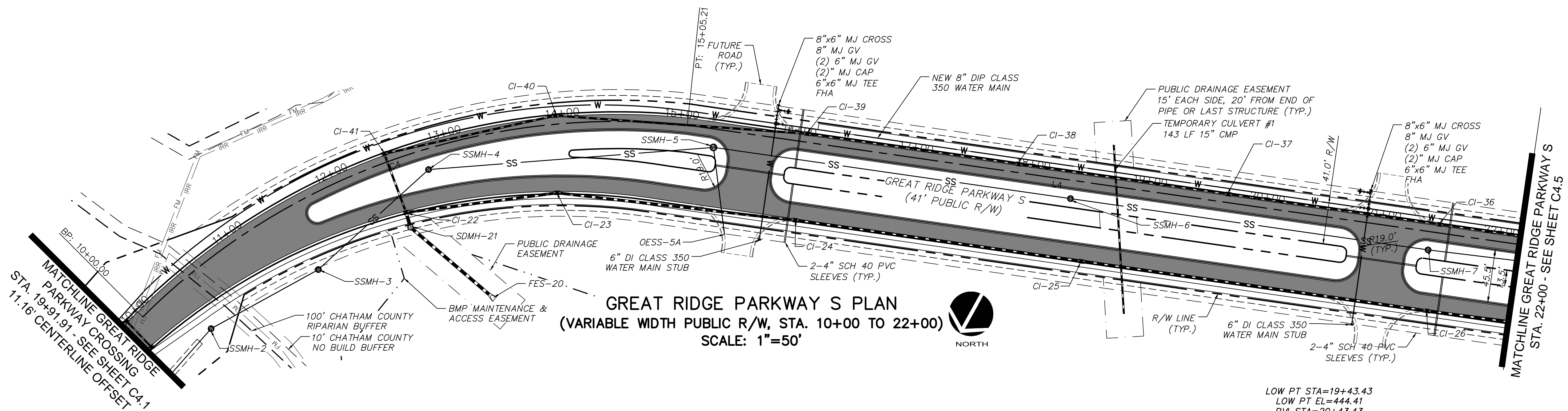


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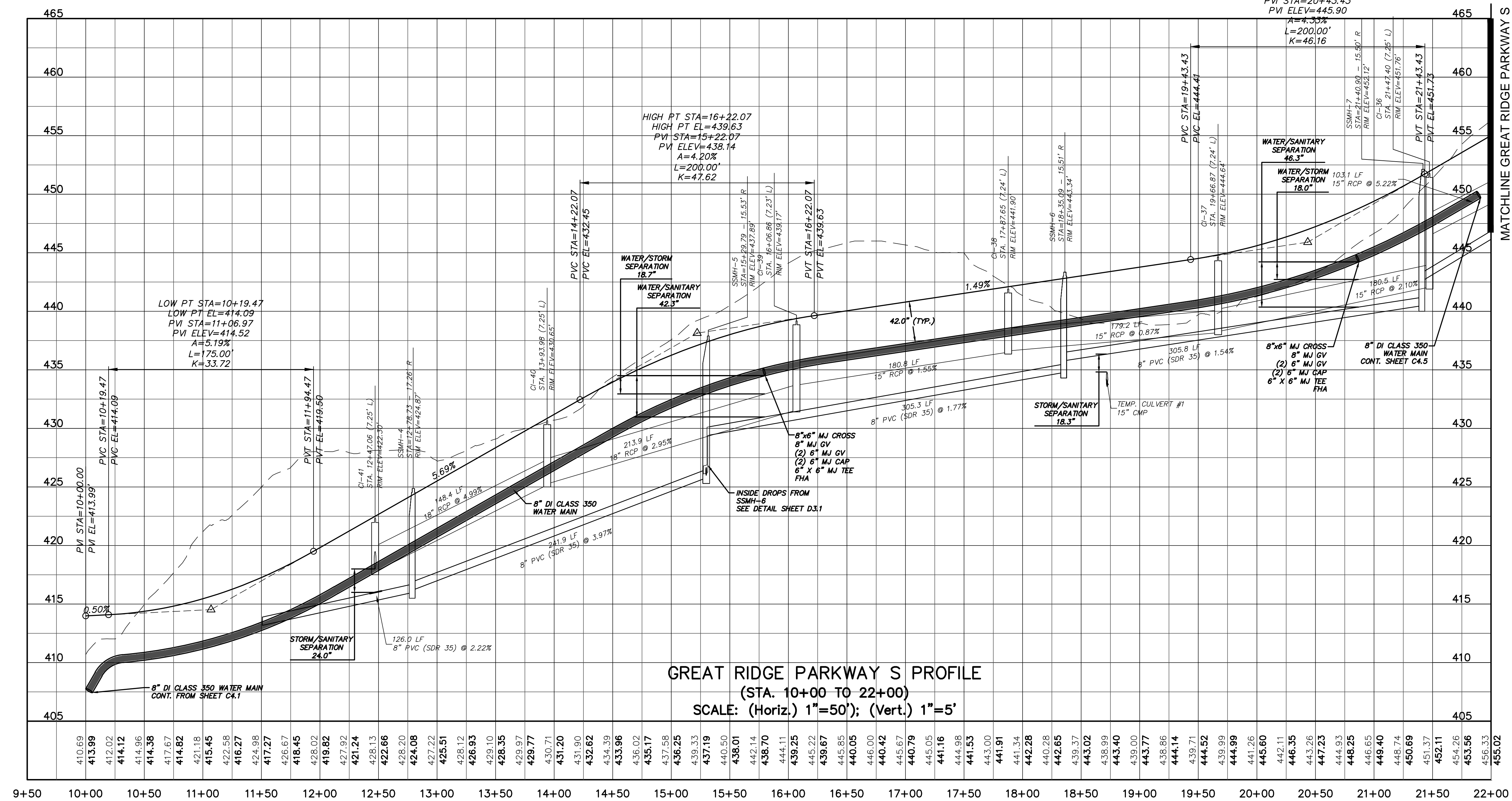
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**PLAN & PROFILE**  
**GREAT RIDGE PARKWAY N**  
**STA. 21+50 TO STA. 30+06.53**

DATE: DECEMBER 19, 2012	SCALE: 1"=50'	MISC FILE NUMBER: C4.X
MCE PROJ. # 02735-0080	HORIZONTAL: 1"=50'	DRAWING NUMBER: C4.3
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION		REVISION: 4



**GREAT RIDGE PARKWAY S PLAN**  
 (VARIABLE WIDTH PUBLIC R/W, STA. 10+00 TO 22+00)  
 SCALE: 1"=50'



**GREAT RIDGE PARKWAY S PROFILE**  
 (STA. 10+00 TO 22+00)  
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

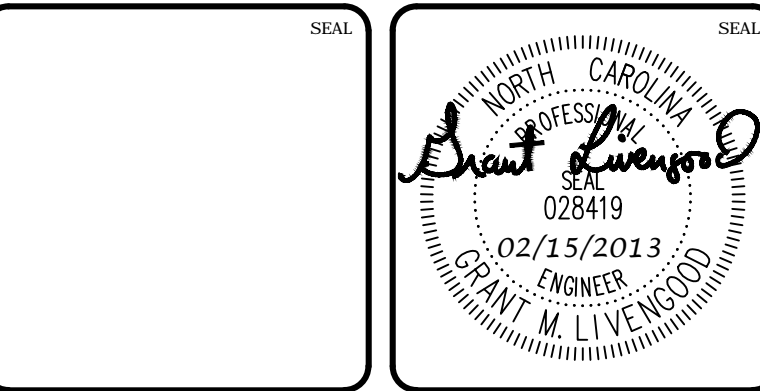
ALIGNMENT LINE DATA		
LINE #	LENGTH	BEARING
L4	728.36	S68°09'45"W

ALIGNMENT CURVE DATA			
CURVE #	RADIUS	LENGTH	BEARING
C4	569.22'	505.21'	S40°35'52"W

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-36	CI-37	442.40	438.60	15"	RCP	180.5	2.10%
CI-37	CI-38	438.50	436.95	15"	RCP	179.2	0.87%
CI-38	CI-39	436.84	434.04	15"	RCP	180.8	1.55%
CI-39	CI-40	431.90	425.60	18"	RCP	213.9	2.95%
CI-40	CI-41	425.50	418.10	18"	RCP	148.4	4.99%
CI-41	CI-22	418.00	417.50	18"	RCP	53.0	0.94%

SANITARY SEWER SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
OESS-5A	SSMH-5	426.40	426.00	8"	PVC	74.7	0.54%
SSMH-4	SSMH-3	416.00	413.20	8"	PVC	126.0	2.22%
SSMH-5	SSMH-4	425.80	416.20	8"	PVC	241.9	3.97%
SSMH-6	SSMH-5	434.80	429.40	8"	PVC	305.3	1.77%
SSMH-7	SSMH-6	440.50	435.80	8"	PVC	305.8	1.54%

REV. NO.	DESCRIPTIONS	DATE
5	REVISED PER NCDOT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
4	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS/PLAN COORDINATION WITH PHASE 7 DRAWINGS	2013.01.29
3	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.15
2	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.09
1	ISSUED FOR PERMITTING	2012.12.19

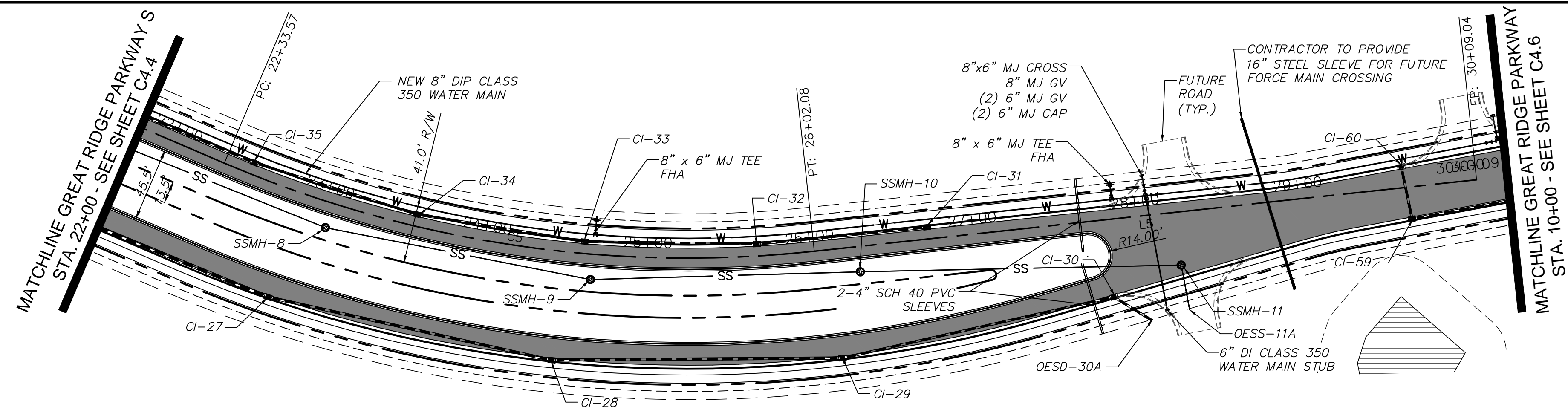


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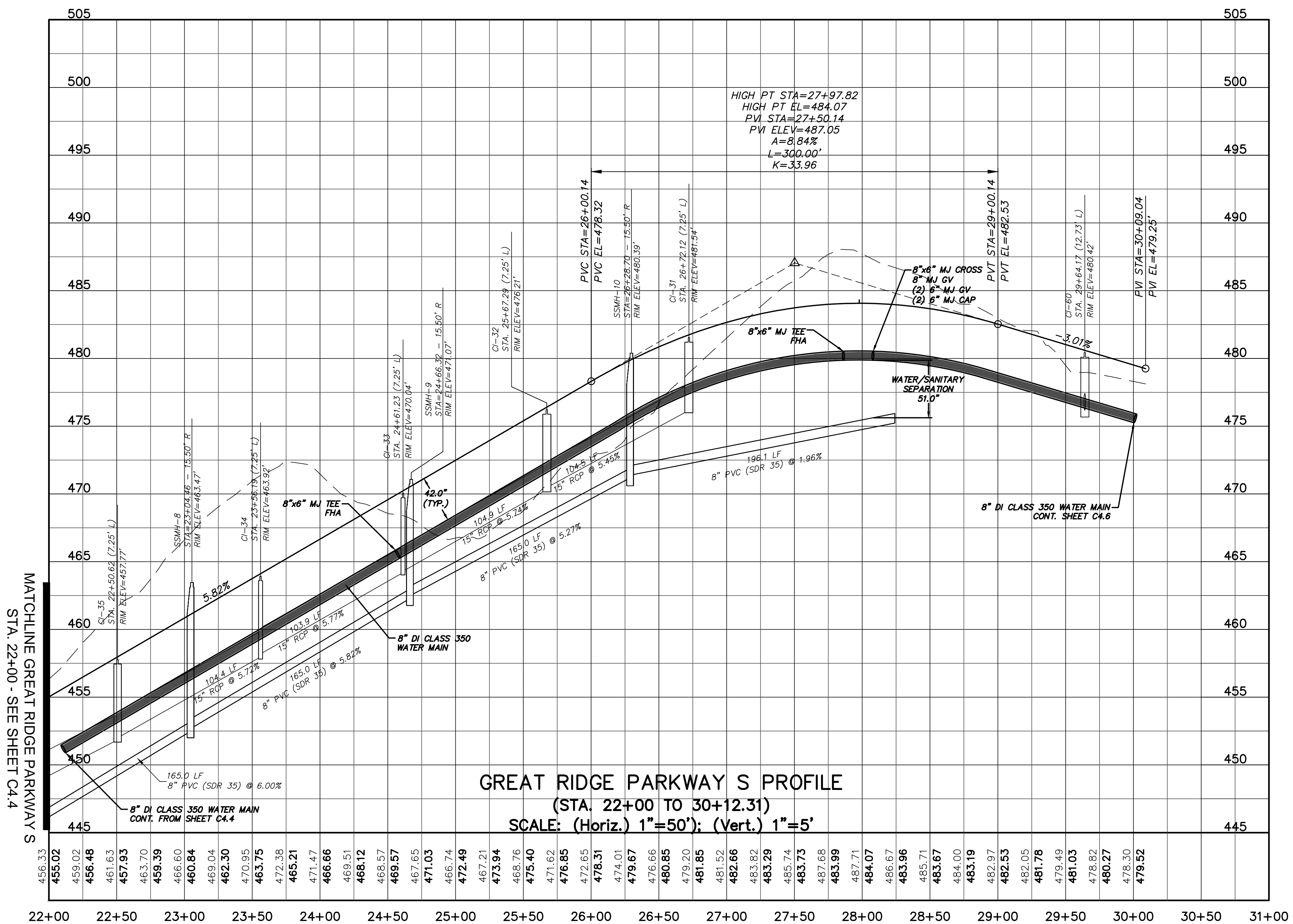
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**PLAN & PROFILE**  
**GREAT RIDGE PARKWAY S**  
**STA. 10+00 TO STA. 22+00**

DATE: DECEMBER 19, 2012	SCALE: 1"=50'	MISC FILE NUMBER: C4.X
MCE PROJ. # 02735-0080	HORIZONTAL: 1"=50'	DRAWING NUMBER: C4.4
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 5	



**GREAT RIDGE PARKWAY S PLAN**  
 (VARIABLE WIDTH PUBLIC R/W, STA. 21+50 TO 30+12.31)  
 SCALE: 1"=50'



**GREAT RIDGE PARKWAY S PROFILE**  
 (STA. 22+00 TO 30+12.31)  
 SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

ALIGNMENT LINE DATA		
LINE #	LENGTH	BEARING
L5	406.96	S38°50'06"W

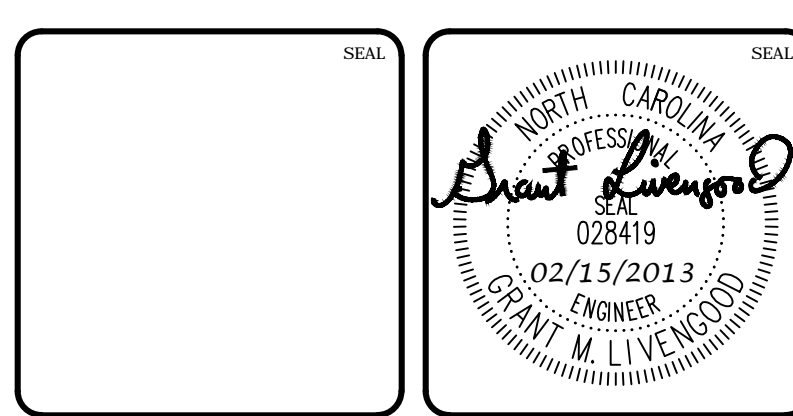
ALIGNMENT CURVE DATA			
CURVE #	RADIUS	LENGTH	BEARING
C5	720.00'	368.51'	S53°29'52"W

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-31	CI-32	476.50	470.80	15"	RCP	104.5	5.45%
CI-32	CI-33	470.65	464.63	15"	RCP	104.9	5.74%
CI-33	CI-34	464.52	458.53	15"	RCP	103.9	5.77%
CI-34	CI-35	458.30	452.33	15"	RCP	104.4	5.72%
CI-35	CI-36	452.18	446.80	15"	RCP	103.1	5.22%

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-59	CI-58	471.00	467.95	15"	RCP	186.5	1.64%
CI-60	CI-59	476.17	475.85	15"	RCP	32.5	0.98%

SANITARY SEWER SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
SSMH-8	SSMH-7	452.50	442.60	8"	PVC	165.0	6.00%
SSMH-9	SSMH-8	462.30	452.70	8"	PVC	165.0	5.82%
SSMH-10	SSMH-9	471.20	462.50	8"	PVC	165.0	5.27%

REV. NO.	DESCRIPTIONS	DATE
4	REVISED PER NCDOT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
3	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS/PLAN COORDINATION WITH PHASE 7 DRAWINGS	2013.01.29
2	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.08
1	ISSUED FOR PERMITTING	2012.12.19

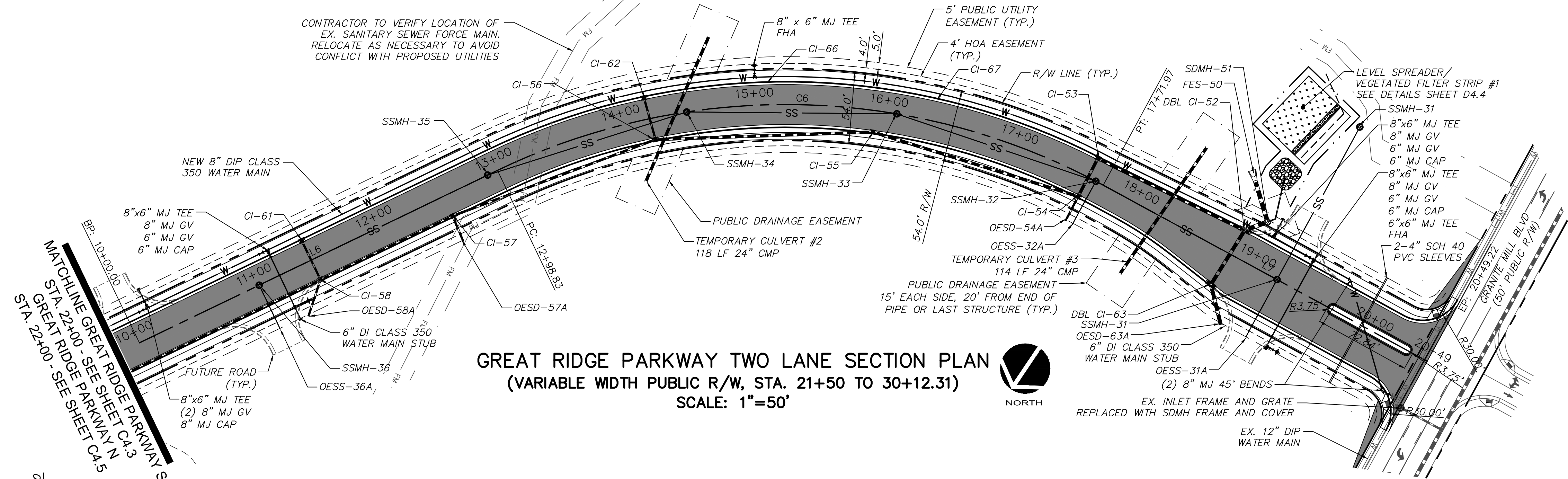


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**PLAN & PROFILE**  
**GREAT RIDGE PARKWAY S**  
**STA. 22+00 TO STA. 30+12.31**

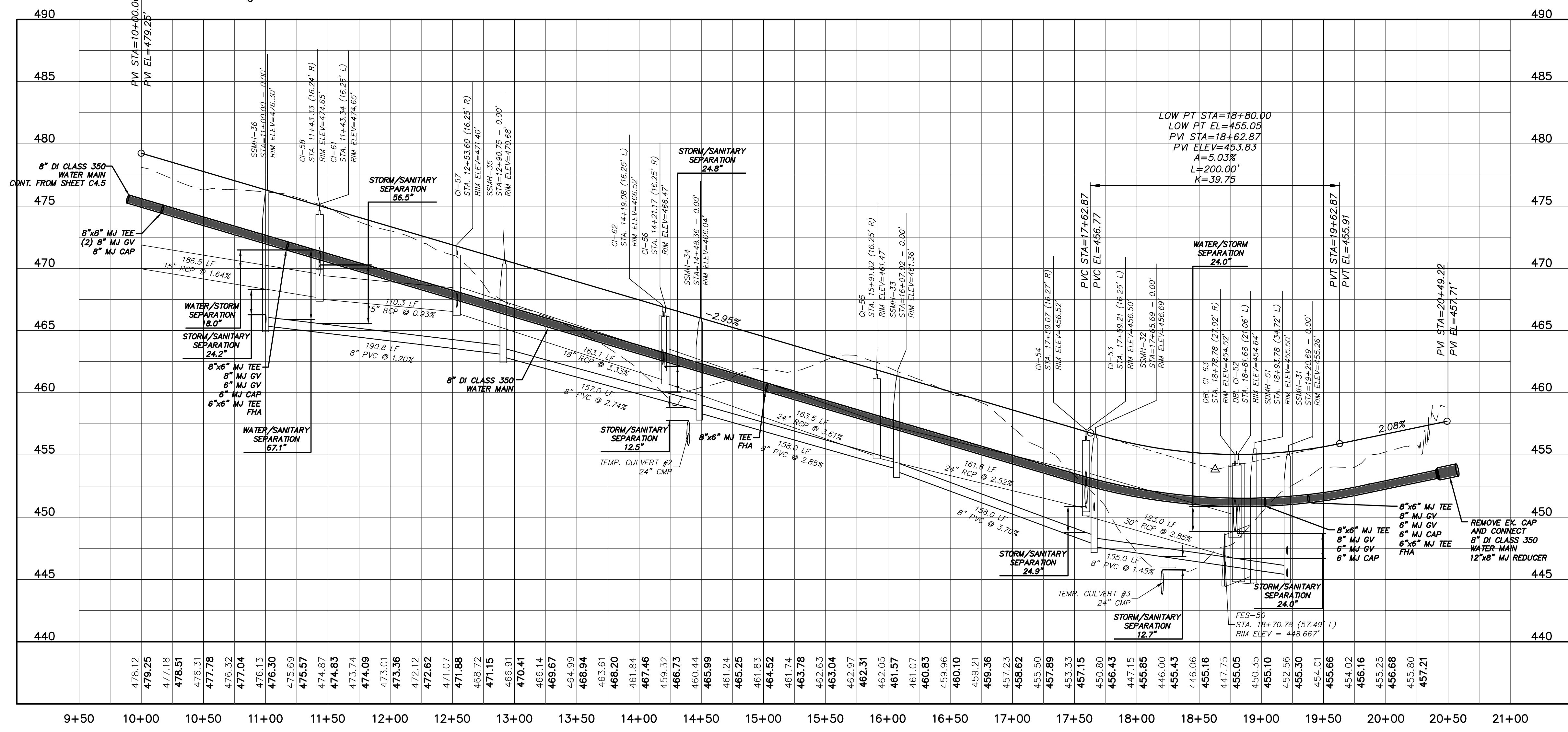
DATE: DECEMBER 19, 2012	SCALE: HORIZONTAL: 1"=50' VERTICAL: N/A	MISC FILE NUMBER: C4.X
MCE PROJ. # 02735-0080	DRAWN: GCA	DRAWING NUMBER: C4.5
DESIGNED: GCA	CHECKED: CHS	
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 4	



**GREAT RIDGE PARKWAY TWO LANE SECTION PLAN**  
(VARIABLE WIDTH PUBLIC R/W, STA. 21+50 TO 30+12.31)  
SCALE: 1"=50'

ALIGNMENT LINE DATA		
LINE #	LENGTH	BEARING
L6	298.83	S34°17'15"W
L7	277.25	S88°30'21"W

ALIGNMENT CURVE DATA			
CURVE #	RADIUS	LENGTH	BEARING
C6	500.00'	473.14'	S61°23'48"W

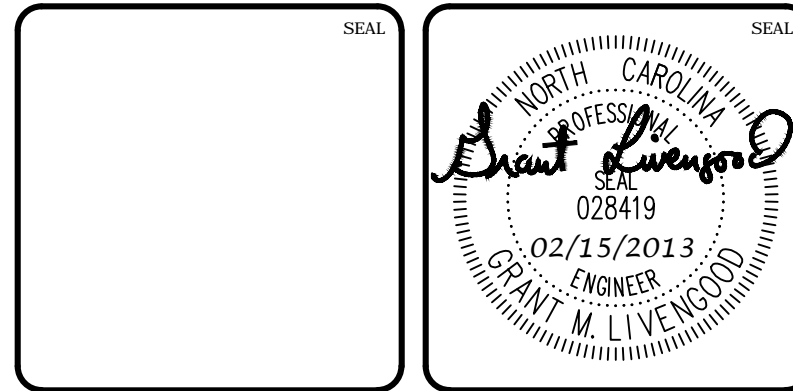


**GREAT RIDGE PARKWAY TWO LANE SECTION PROFILE**  
(STA. 10+00 TO 20+49.22)  
SCALE: (Horiz.) 1"=50'; (Vert.) 1"=5'

STORM DRAINAGE SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
CI-53	DBL CI-52	450.60	447.10	30"	RCP	123.0	2.85%
CI-54	CI-53	451.02	450.70	24"	RCP	32.5	0.98%
CI-55	CI-54	455.19	451.12	24"	RCP	161.8	2.52%
CI-56	CI-55	461.20	455.29	24"	RCP	163.5	3.61%
CI-57	CI-56	466.73	461.30	18"	RCP	163.1	3.33%
CI-58	CI-57	467.85	466.83	15"	RCP	110.3	0.93%
CI-61	CI-58	470.43	470.10	15"	RCP	32.5	1.02%
CI-62	CI-56	462.25	462.00	15"	RCP	32.6	0.77%
DBL CI-52	SSMH-51	445.31	445.22	36"	RCP	18.3	0.49%
DBL CI-63	DBL CI-52	448.85	448.50	30"	RCP	48.2	0.73%
OESD-54A	CI-54	453.20	452.50	15"	RCP	20.7	3.38%
OESD-57A	CI-57	467.40	466.83	15"	RCP	20.8	2.74%
OESD-58A	CI-58	469.60	469.40	15"	RCP	28.8	0.69%
OESD-63A	DBL CI-63	449.20	448.95	30"	RCP	30.9	0.81%
SSMH-51	FES-50	445.92	445.00	36"	RCP	32.4	2.84%

SANITARY SEWER SUMMARY TABLE							
UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	PIPE DIAMETER	PIPE MATERIAL	LENGTH (ft)	SLOPE
OESS-31A	SSMH-31	449.00	447.00	8"	PVC	49.9	4.01%
OESS-36A	SSMH-32	451.60	450.50	8"	PVC	37.0	2.97%
OESS-32A	SSMH-36	466.70	465.60	8"	PVC	37.0	2.97%
SSMH-31	SSMH-30	445.20	443.90	8"	PVC	130.5	1.00%
SSMH-32	SSMH-31	447.65	445.40	8"	PVC	155.0	1.45%
SSMH-33	SSMH-32	453.70	447.85	8"	PVC	158.0	3.70%
SSMH-34	SSMH-33	458.40	453.90	8"	PVC	158.0	2.85%
SSMH-35	SSMH-34	462.90	458.60	8"	PVC	157.0	2.74%
SSMH-36	SSMH-35	465.39	463.10	8"	PVC	190.8	1.20%

REV. NO.	DESCRIPTIONS	DATE
5	REVISED PER NCDOT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
4	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS/PLAN COORDINATION WITH PHASE 7 DRAWINGS	2013.01.29
3	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.15
2	REVISIONS PER CHATHAM COUNTY PUBLIC UTILITIES DEPARTMENT COMMENTS	2013.01.09
1	ISSUED FOR PERMITTING	2012.12.19



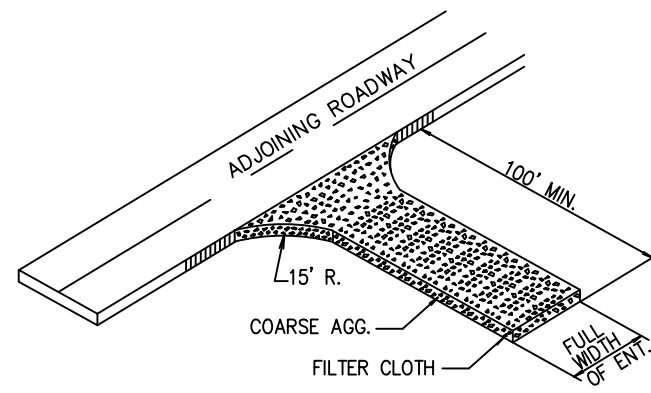
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**GREAT RIDGE PARKWAY EXTENSION**  
**CHATHAM COUNTY, NORTH CAROLINA**  
**PLAN & PROFILE**  
**TWO LANE SECTION**  
**STA. 10+00 TO STA. 20+49.22**

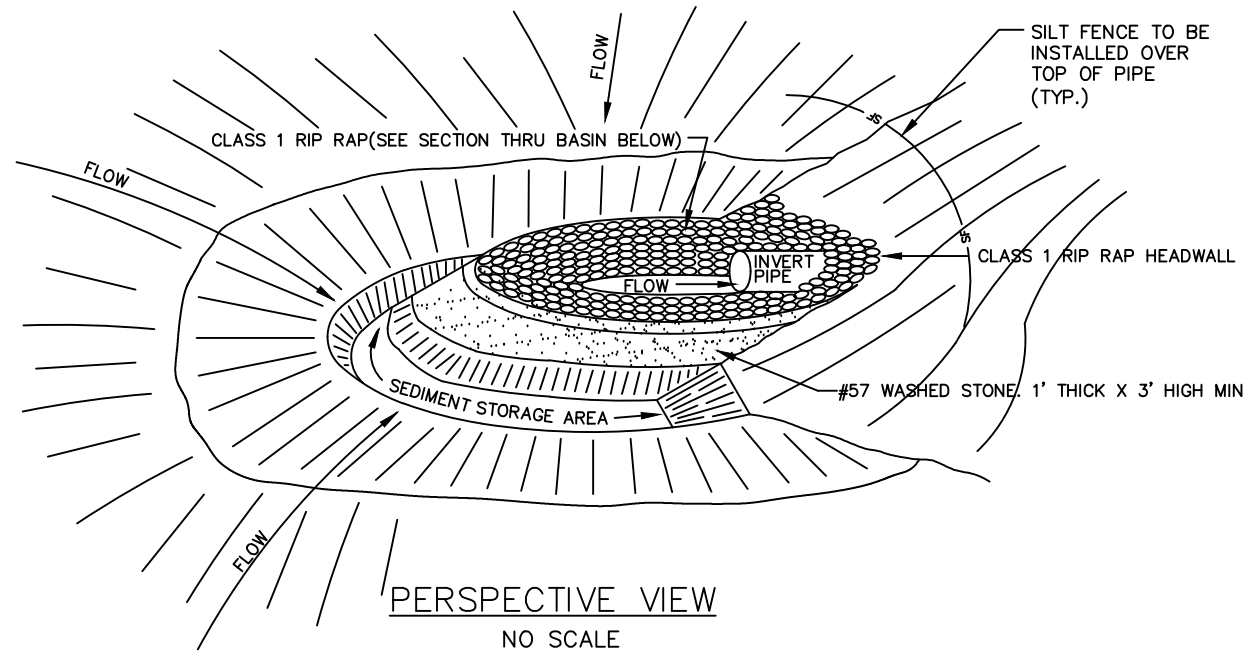
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CHECKED: CHS		
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STATUS: RELEASED FOR CONSTRUCTION	REVISION: 5	



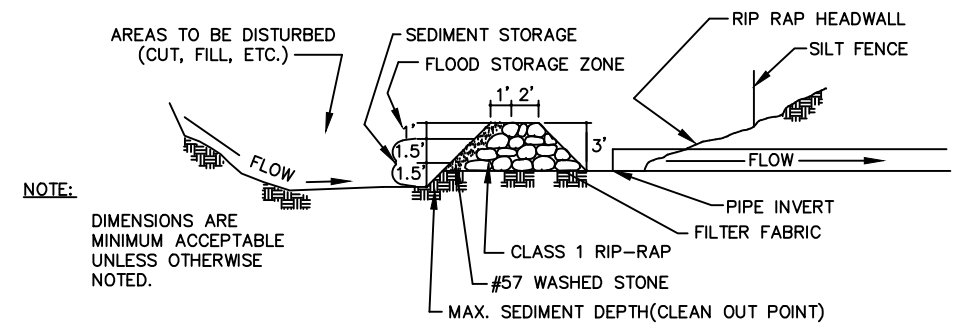


- COARSE AGGREGATE (2"-3" STONE) SHALL BE USED. PAD TO BE 100' X 25' X 6" MIN. PLACE A MINIMUM OF 3" OF STONE IN A CUT SECTION TO HELP SECURE FILTER CLOTH.
- TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS IS TO BE PROVIDED.
- ENTRANCES SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES.
- MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOP DRESSING MAY BE NECESSARY. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.
- TEMPORARY PADS MUST BE LOCATED ON EACH SIDE OF ADJOINING ROADWAY.

**TEMPORARY CONSTRUCTION ENTRANCE**  
NTS

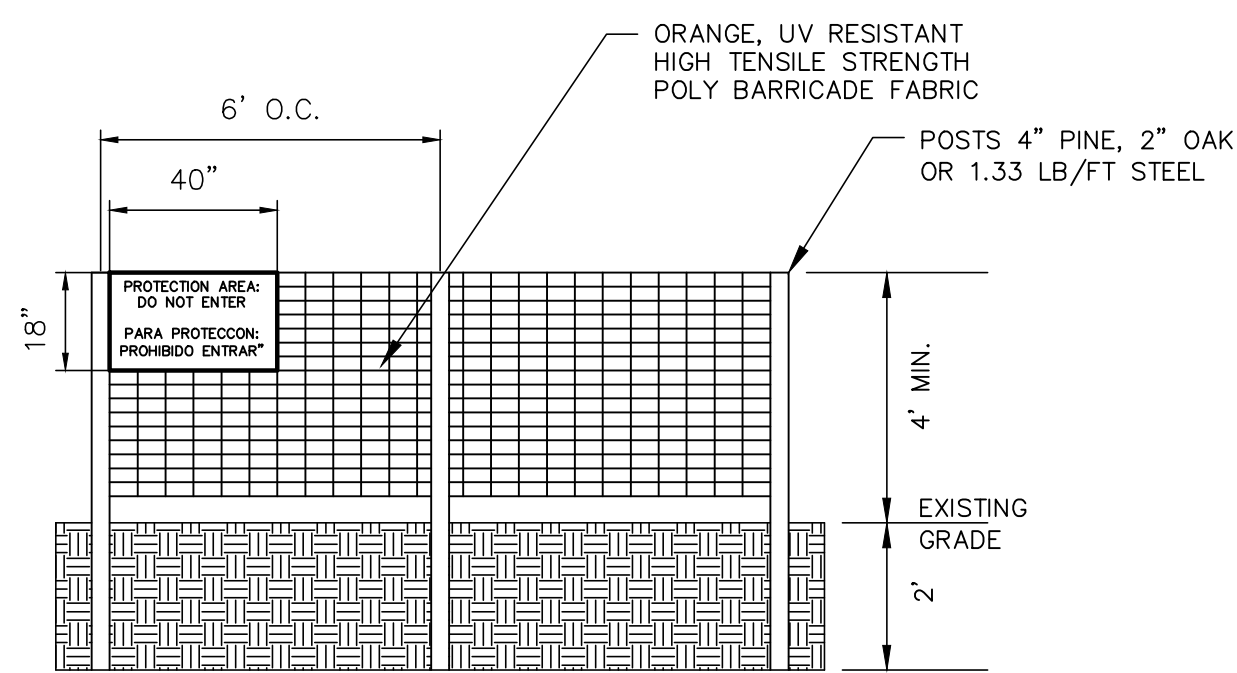


PERSPECTIVE VIEW  
NO SCALE



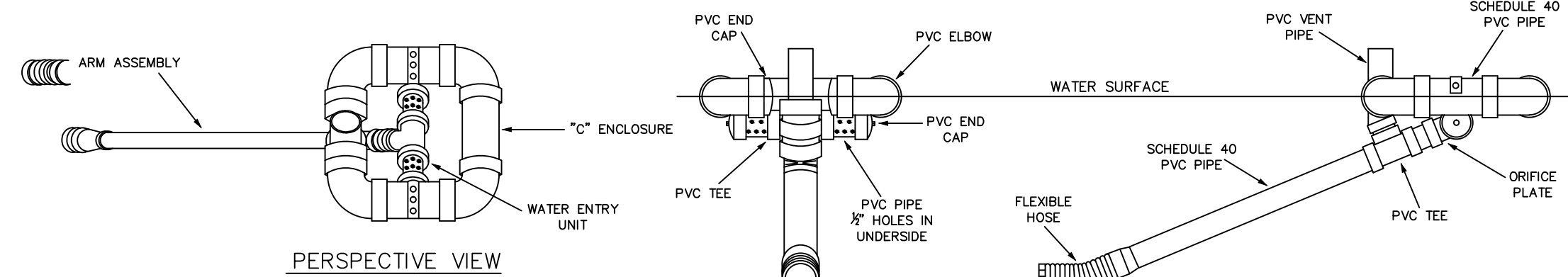
SECTION THRU BASIN, FILTER AND CULVERT PIPE  
NO SCALE

**ARC FILTER INLET PROTECTION**  
NTS



- WARNING SIGNS TO BE MADE OF DURABLE WATERPROOF PLASTIC.
- ALL LETTERS TO BE AT LEAST 3" HIGH, CLEARLY LEGIBLE AND SPACED APPROPRIATELY.
- SIGNS TO BE PLACED AT EACH END OF LINER PROTECTION AREA AND 200' ON CENTER (MAX.) THEREAFTER FOR PROTECTION AREA LESS THAN 200' IN PERIMETER. PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA AND/OR SIDE.
- ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC. FABRIC MUST BE ATTACHED TO APPROVED POSTS ONLY. DO NOT ATTACH TO TREES.
- ADDITIONAL FENCING MAY BE REQUIRED BASED ON FIELD CONDITIONS.
- FAILURE TO MAINTAIN PROTECTION FENCING MAY RESULT IN CIVIL PENALTIES.

**TREE PROTECTION FENCE**  
NTS

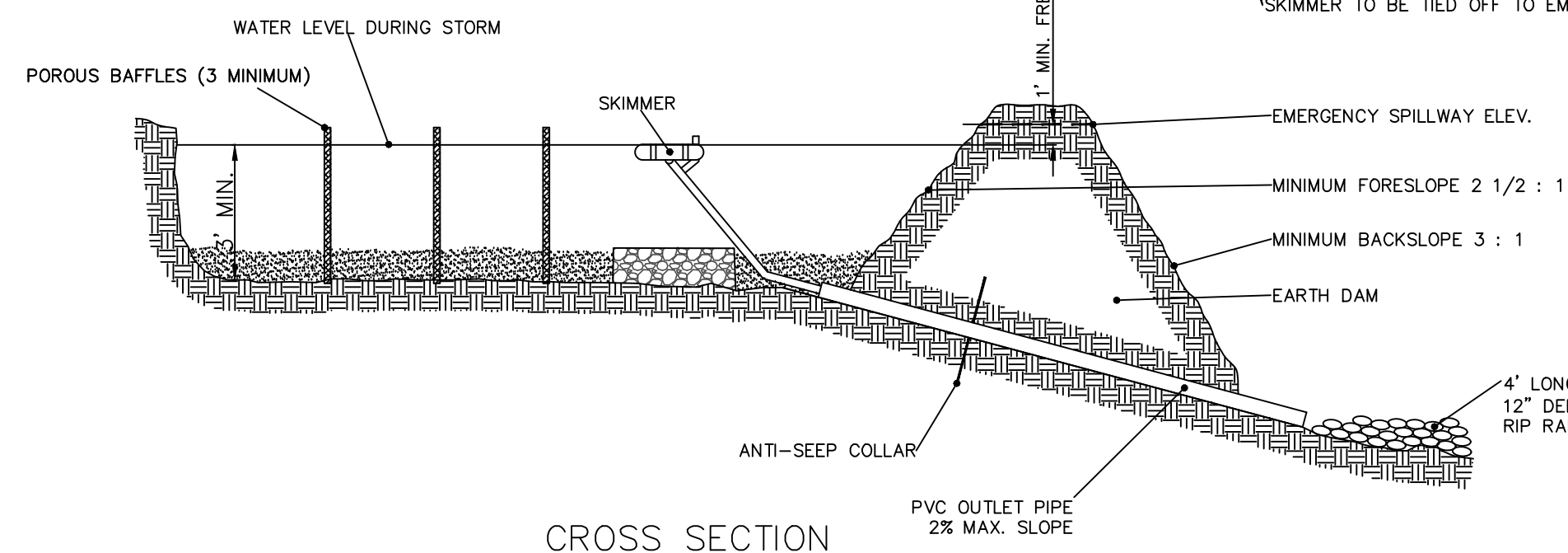
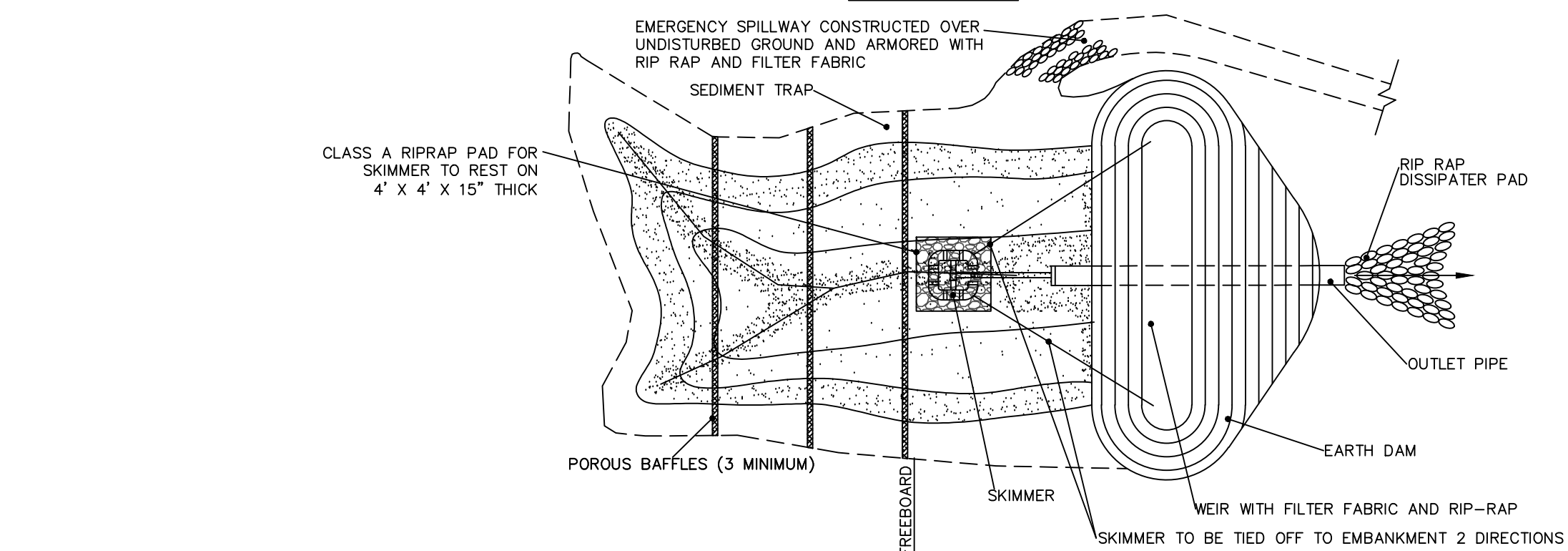


PERSPECTIVE VIEW

END VIEW  
SKIMMER DETAIL

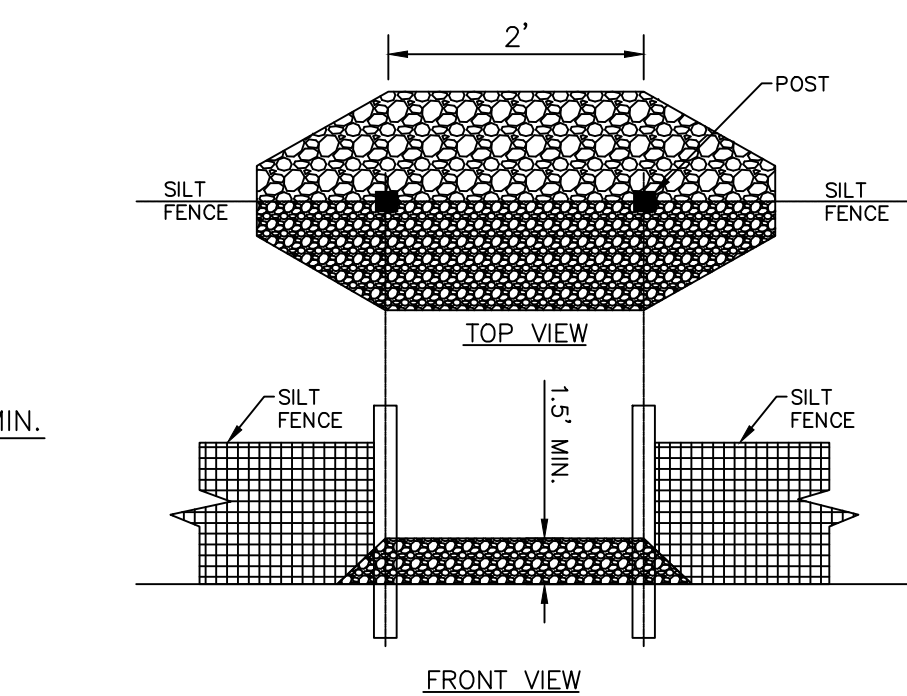
FRONT VIEW

PLAN VIEW

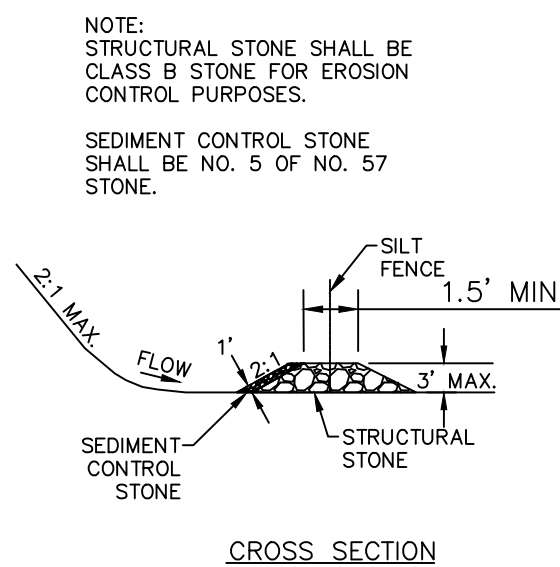


CROSS SECTION

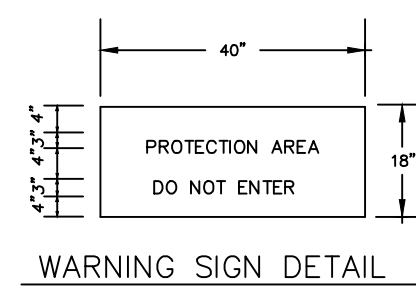
BASIN #	DISTURBED AREA (ac)	TOTAL DRAINAGE AREA (ac)	REQUIRED STORAGE	REQUIRED SURFACE AREA	MINIMUM DEPTH	BOTTOM ELEVATION	TOP WIDTH	TOP LENGTH	PROVIDED STORAGE	PROVIDED SURFACE AREA	SPILLWAY/ SPILLWAY ELEVATION	SPILLWAY WIDTH	TOP OF DAM ELEVATION	SKIMMER SIZE	SKIMMER ORIFICE DIAMETER
1	1.51	1.51	5,440 CF	2,660 SF	3.0'	405.0'	42'	73'	5,490 CF	3,066 SF	408.0'	7.0'	410.0'	2.0"	1.4"
2	2.28	4.19	8,210 CF	7,390 SF	3.0'	432.0'	64'	117'	16,380 CF	7,488 SF	435.0'	18.0'	436.0'	2.5"	2.3"
3	1.51	1.51	5,440 CF	2,660 SF	3.0'	459.0'	42'	73'	5,490 CF	3,066 SF	462.0'	7.0'	464.0'	2.0"	1.4"
4	1.57	1.57	5,650 CF	2,770 SF	3.0'	455.0'	42'	75'	5,670 CF	3,150 SF	458.0'	7.0'	459.0'	2.0"	1.5"



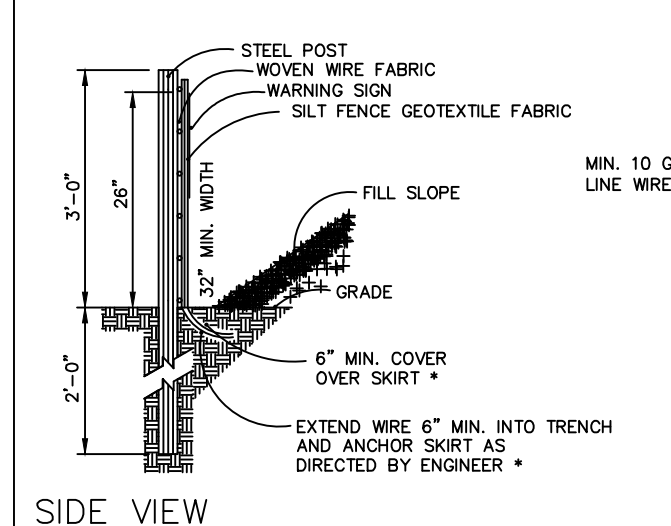
**SILT FENCE OUTLET**  
NTS



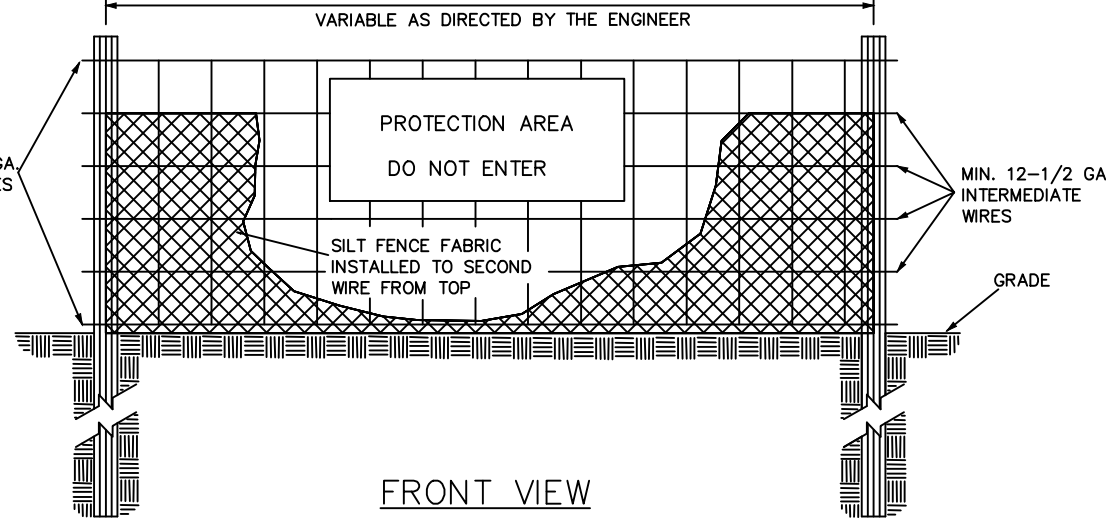
CROSS SECTION



WARNING SIGN DETAIL



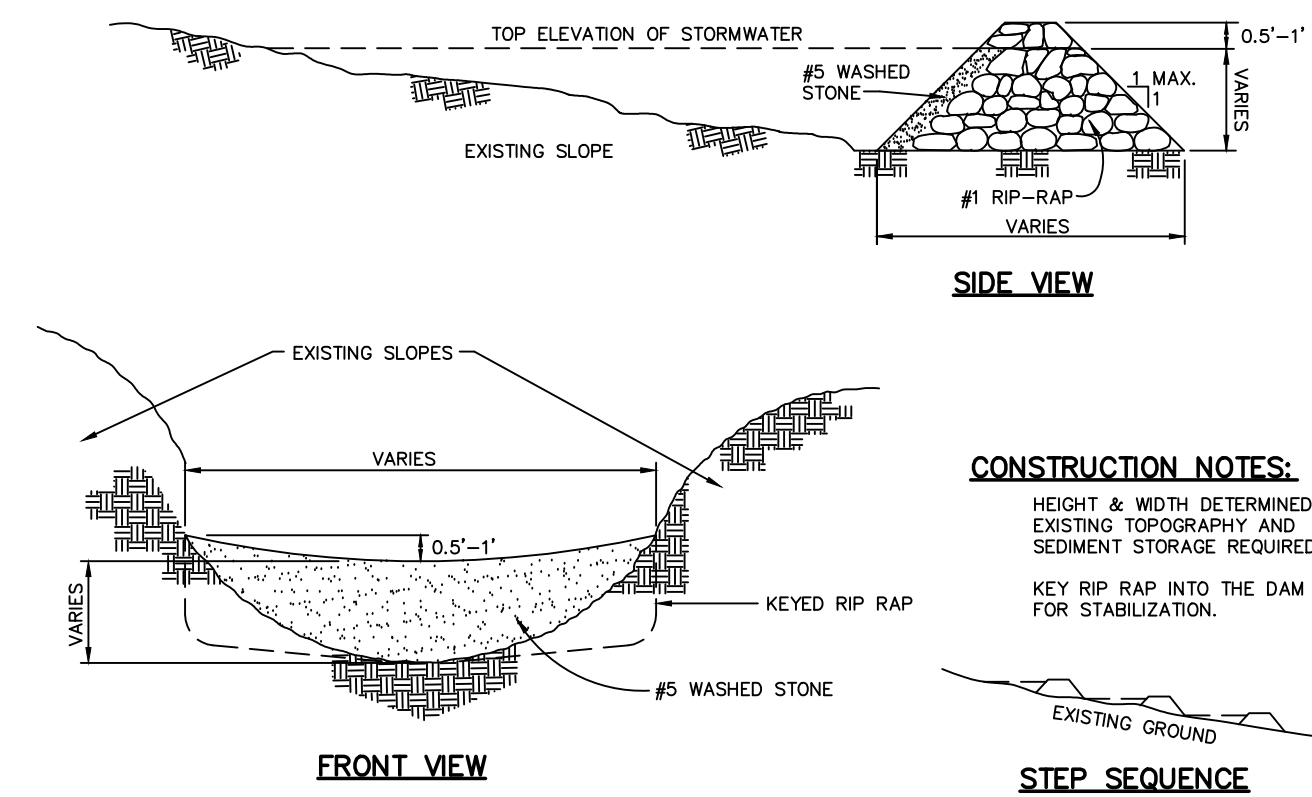
SIDE VIEW



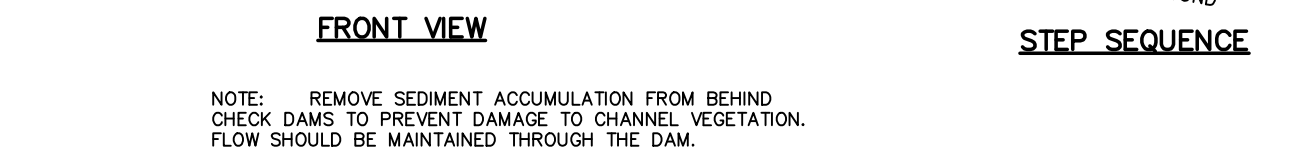
FRONT VIEW

**COMBINATION SILT/TREE PROTECTION FENCE**  
NTS

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



- CONSTRUCTION NOTES:**  
HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.  
KEY RIP-RAP INTO THE DAM FOR STABILIZATION.



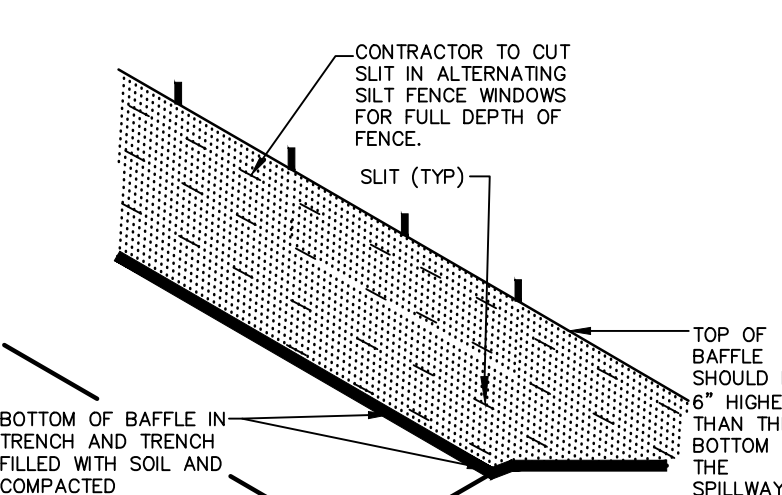
FRONT VIEW

STEP SEQUENCE

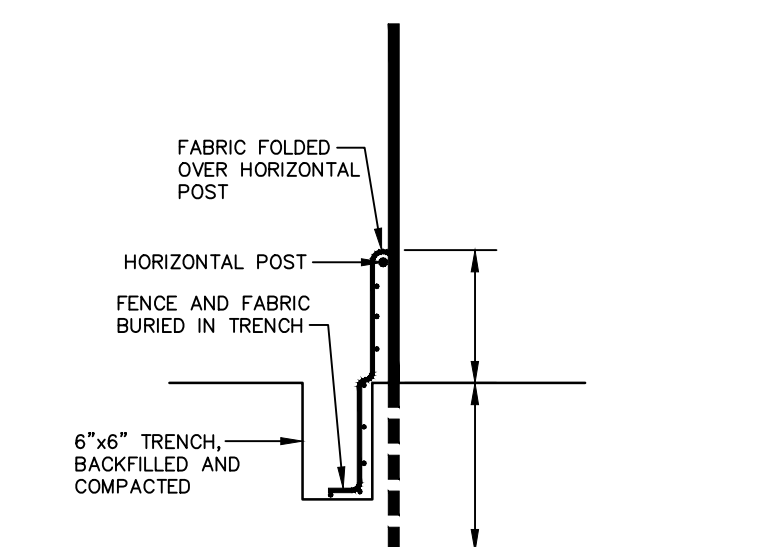
- NOTE: REMOVE SEDIMENT ACCUMULATION FROM BEHIND CHECK DAMS TO PREVENT DAMAGE TO CHANNEL VEGETATION. FLOW SHOULD BE MAINTAINED THROUGH THE DAM.

**CHECK DAM**  
NTS

**BAFFLE INSTALLATION - STEP 1**



**BAFFLE INSTALLATION - STEP 2**



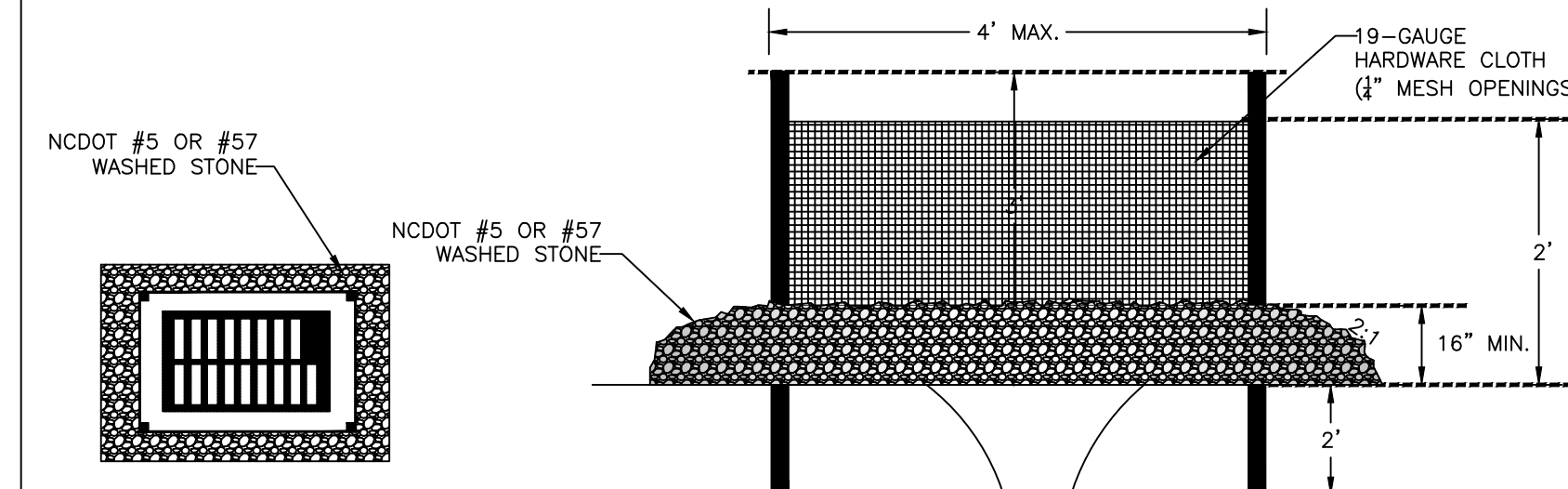
SECTION AT OPENING

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

**BAFFLE INSTALLATION DETAIL**

**NOTES:**

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

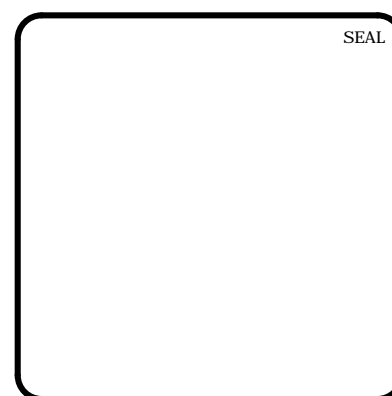


PLAN VIEW

CROSS SECTION

**HARDWARE CLOTH & GRAVEL INLET PROTECTION**  
NTS

REV. NO.	DESCRIPTIONS	DATE
2	RELEASED FOR CONSTRUCTION	2013.02.15
1	ISSUED FOR PERMITTING	2012.12.19



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by **Newland COMMUNITIES**

**BRIAR CHAPEL**  
**GREAT RIDGE PARKWAY EXTENSION**  
**CHATHAM COUNTY, NORTH CAROLINA**  
**EROSION AND SEDIMENTATION**  
**CONTROL DETAILS**

DATE: DECEMBER 19, 2012	SCALE: 1" = 50'	MISC FILE NUMBER: D1.X
MCE PROJ. # 02735-0080	HORIZONTAL: 1" = 50'	DRAWING NUMBER: D1.1
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR. CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 2	

**RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING**

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

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

SEEDING DATES:  
BEST: AUG. 15 - SEPT. 15 POSSIBLE: 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

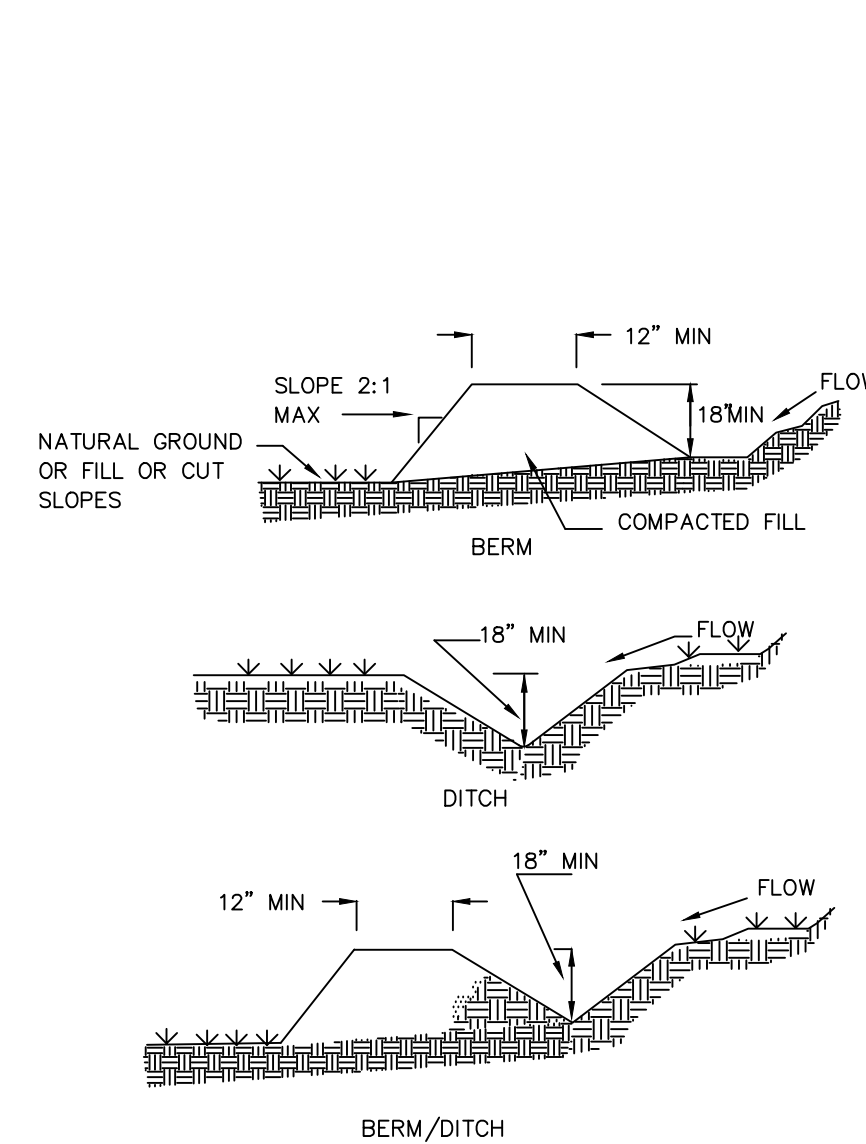
MULCH:  
USE ROLLED EROSION CONTROL PRODUCT TO COVER THE BOTTOM OF THE CHANNELS AND DITCHES, AND STAPLE SECURELY. THE LINING SHOULD EXTEND ABOVE THE HIGHEST CALCULATED DEPTH OF FLOW. ON CHANNEL SIDE SLOPES ABOVE THIS HEIGHT, AND IN DRAINAGES NOT REQUIRING TEMPORARY LININGS, APPLY 4,000 lb/acre GRAIN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



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

a. MACHINE COMPACTION OF ALL FILL IS REQUIRED. DIVERSIONS SUFFICIENT TO DIRECT ALL SEDIMENT- LADEN STORMWATER INTO A SEDIMENT CONTROL DEVICE MUST BE INSTALLED PRIOR TO CLEARING AND GRUBBING OF THE AREA (OR IN CONJUNCTION WITH THIS OPERATION) IF SEDIMENT CONTROLS AND DIVERSIONS ARE INSTALLED AS EACH CRITICAL POINT IS REACHED).

b. DIVERSIONS SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION OPERATIONS. DIVERSIONS SHOULD BE SEEDED AND MULCHED IF THEY ARE TO REMAIN IN PLACE OVER 30 DAYS.

c. CHECK DEVICE AFTER EACH RAIN, BUT ONCE A WEEK REGARDLESS. REPAIR AS NECESSARY.

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

TDD #	TOTAL LENGTH	SLOPE (%)	LINER
<b>PHASE 1</b>			
1	575'	4.8	SYNTHETIC MAT
2	519'	5.3	SYNTHETIC MAT
3	237'	3.0	STRAW W/NET
4	916'	6.0	SC250
5	153'	2.3	ALUTE NET
6	245'	8.4	SYNTHETIC MAT
7	635'	4.0	SYNTHETIC MAT
8	266'	6.3	SYNTHETIC MAT
9	198'	5.8	STRAW W/NET
<b>PHASE 2</b>			
11	177'	3.7	STRAW W/NET
12	507'	5.6	SC250
<b>CLEAN WATER DIVERSION</b>			
20	619'	4.6	SYNTHETIC MAT
21	112'	2.2	ALUTE NET
22	230'	7.6	SYNTHETIC MAT
23	213'	4.7	SYNTHETIC MAT

**TEMPORARY DIVERSION/CLEAN WATER DIVERSION DITCH**  
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

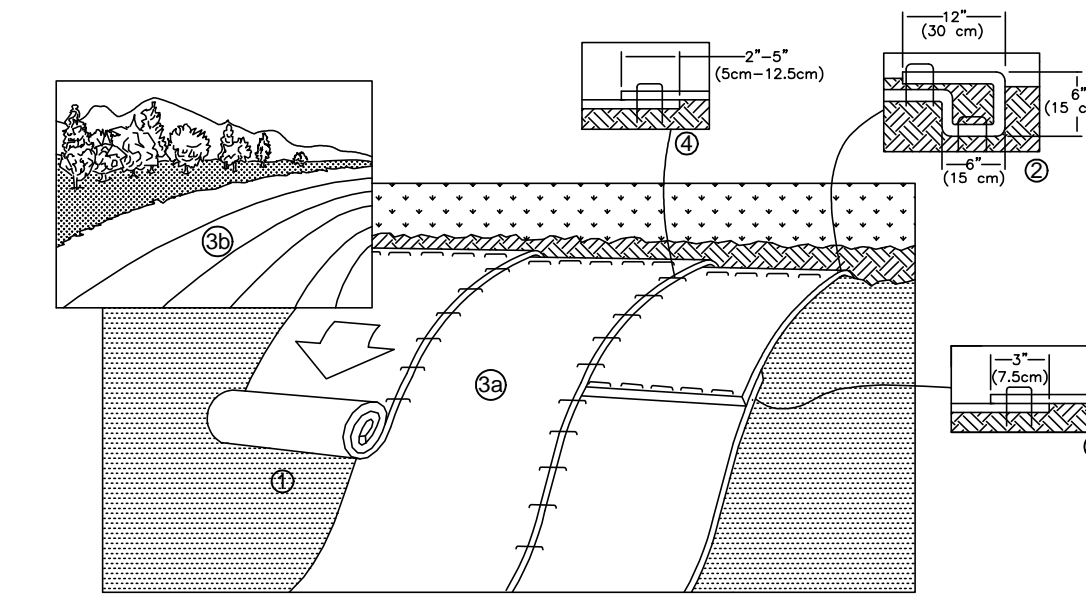
MULCH:  
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

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

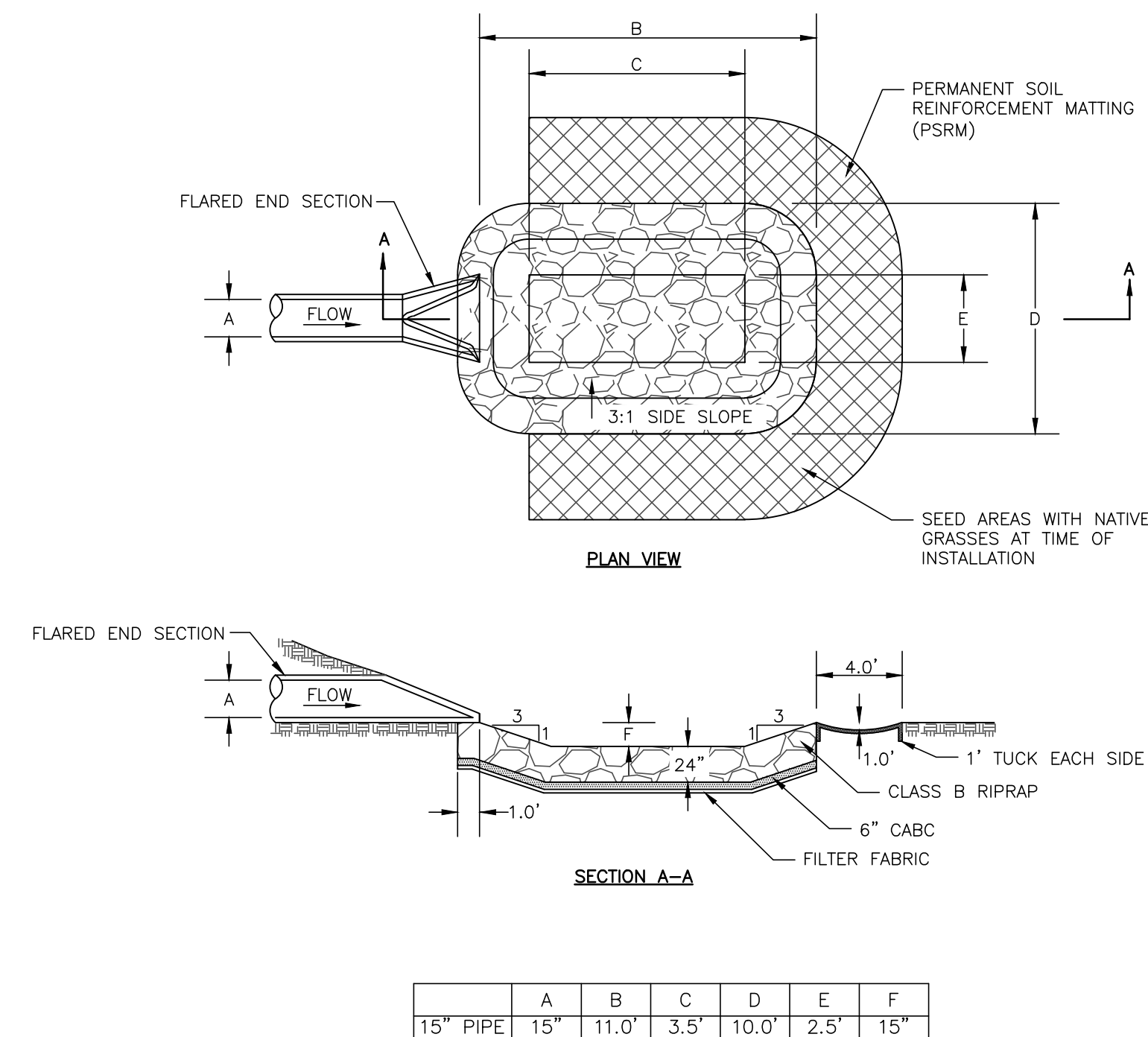
- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
  - RIIP THE ENTIRE AREA TO 6 INCHES DEPTH.
  - REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
  - APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW\*).
  - CONTINUE TILLAGE UNTIL A WELL - PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
  - SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
  - MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
  - INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
  - CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.
- \* APPLY: AGRICULTURAL LIMESTONE - 2 TONS/ACRE OR 3 TONS/ACRE IN CLAY SOILS  
FERTILIZER - 1000 LBS/ACRE (10-10-10)  
SUPERPHOSPHATE - 500 LBS/ACRE (20%)  
MULCH - 2 TONS/ACRE (SMALL GRAIN STRAW)ANCHOR - ASPHALT EMULSION AT 450 GAL./ACRE

**SEEDBED PREPARATION**  
NTS



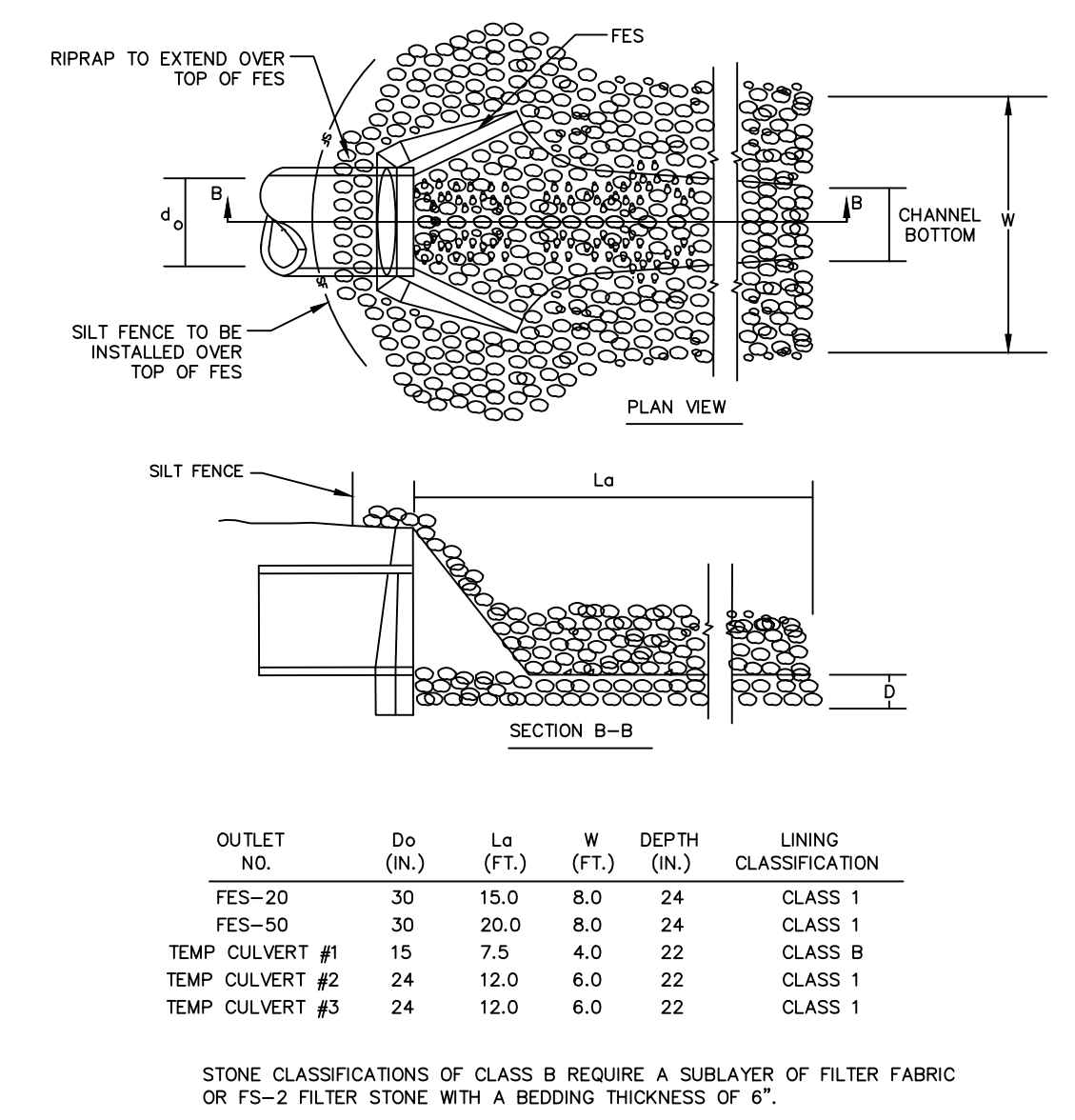
- PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPs), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
  - BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPs IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECPs EXTENDED BEYOND THE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



15" PIPE	A	B	C	D	E	F
	15"	11.0'	3.5'	10.0'	2.5'	15"

**SCOUR HOLE**  
NTS

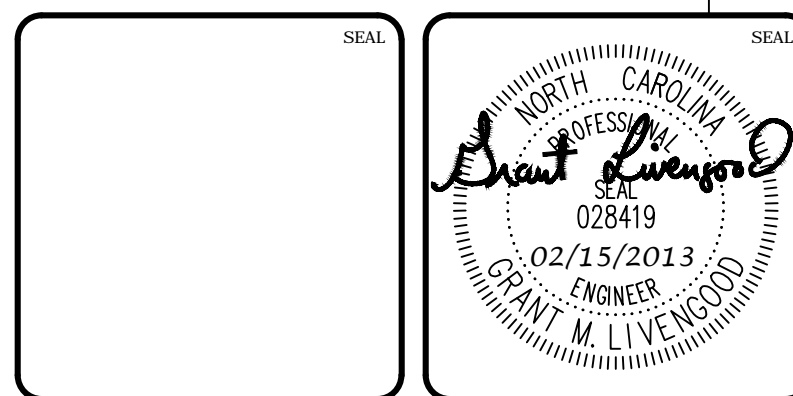


OUTLET NO.	Do (IN.)	Lo (FT.)	W (FT.)	DEPTH (IN.)	LINING CLASSIFICATION
FES-20	30	15.0	8.0	24	CLASS 1
FES-50	30	20.0	8.0	24	CLASS 1
TEMP CULVERT #1	15	7.5	4.0	22	CLASS B
TEMP CULVERT #2	24	12.0	6.0	22	CLASS 1
TEMP CULVERT #3	24	12.0	6.0	22	CLASS 1

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

REV. NO.	DESCRIPTIONS	DATE
2	RELEASED FOR CONSTRUCTION	2013.02.15
1	ISSUED FOR PERMITTING	2012.12.19



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**EROSION AND SEDIMENTATION CONTROL DETAILS**

DATE:	DECEMBER 19, 2012	SCALE:	HORIZONTAL:	1" = 50'	VERTICAL:	N/A			
MCE PROJ. #	02735-0080	DRAWN:	GCA	DESIGNED:	GCA	CHECKED:	CHS	PROJ. MGR.:	CHS
STATUS:	RELEASED FOR CONSTRUCTION	REVISION:	2						

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

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

GENERAL NOTES:  
CHAMFER ALL EXPOSED CORNERS 1".  
USE CLASS "B" CONCRETE THROUGHOUT.  
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.  
USE FORMS TO CONSTRUCT THE BOTTOM SLAB.  
IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO RISE 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 WEIGHT BRICK MASONRY, ORIENTED TO 10:00 AND 4:00).  
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

BEFORE MAY BE USED TO ADJUST FRAME & COVER TO RISE AND ELEVATION MAX. 1".

PIPE	DIMENSIONS OF BOX AND PIPE			REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CURB YARDS IN BOX		TOTAL QUANTITIES FOR ONE BOX AND SLAB		REDUCTIONS FOR ONE PIPE (C.U. YDS.)		
	D	A	H	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	WELLS PER FEET	LSB.		C.U. YDS.	C.S.
12"	2'-0"	2'-0"	2'-3"	12	2'-9"	3'-0"	3'-0"	0.167	0.167	22	0.750	0.015	0.024	
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.186	0.186	24	0.902	0.022	0.036	
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.227	30	1.066	0.033	0.049	
24"	3'-0"	3'-0"	3'-3"	16	3'-6"	4'-0"	4'-0"	0.268	0.268	40	1.434	0.058	0.085	
30"	3'-6"	3'-6"	3'-9"	18	4'-0"	4'-6"	4'-6"	0.375	0.375	51	1.860	0.082	0.127	
36"	4'-0"	4'-0"	4'-3"	20	4'-6"	5'-0"	5'-0"	0.463	0.463	64	2.341	0.132	0.178	
42"	4'-6"	4'-6"	4'-9"	22	5'-0"	5'-6"	5'-6"	0.560	0.560	77	2.876	0.160	0.240	
48"	5'-0"	5'-0"	5'-3"	24	5'-6"	6'-0"	6'-0"	0.674	0.674	87	3.420	0.188	0.283	
54"	5'-6"	5'-6"	5'-9"	26	6'-0"	6'-6"	6'-6"	0.805	0.805	106	4.283	0.227	0.401	
60"	6'-0"	6'-0"	6'-3"	30	7'-0"	7'-6"	7'-6"	1.042	1.042	145	5.090	0.367	0.485	
66"	7'-0"	7'-0"	7'-3"	32	7'-6"	8'-0"	8'-0"	1.210	1.210	169	5.917	0.444	0.589	

SHEET 1 OF 1 840.31

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

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

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 DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.  
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.  
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.  
CONSTRUCT WITH PIPE CHAINS MATCHING.  
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.  
USE STANDARD FRAMES AND GRATINGS 840.22 (SHOWN), 840.24 (SHOWN), 840.20, 840.26, AND 840.33.  
SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATINGS NOT SHOWN.  
CHAMFER ALL EXPOSED CORNERS 1".  
DRAWING NOT TO SCALE.

PIPE	DIMENSIONS OF BOX AND PIPE			REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CURB YARDS IN BOX		TOTAL QUANTITIES FOR ONE BOX		REDUCTIONS FOR ONE PIPE (C.U. YDS.)
	D	A	H	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	WELLS PER FEET	LSB.	
12"	3'-8"	2'-0"	1'-8"	0.362	0.247	0.361	0.753	0.020	0.032			
15"	3'-8"	2'-0"	1'-11"	0.362	0.247	0.453	0.815	0.033	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'-5"	0.362	0.247	0.659	1.021	0.059	0.065			
30"	3'-8"	2'-0"	3'-2"	0.362	0.247	0.782	1.144	0.082	0.127			
36"	3'-8"	2'-0"	3'-6"	0.362	0.247	0.906	1.268	0.132	0.178			

SHEET 1 OF 1 840.19

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

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

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

DETAIL SHOWING METHOD OF RISER CONSTRUCTION

WHERE 30" TO 36" PIPE IS USED

WHERE 42" TO 54" PIPE IS USED

SHEET 1 OF 2 840.02

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

ENGLISH STANDARD DRAWING FOR MANHOLE FRAME AND COVER

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

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

SHEET 1 OF 1 840.54

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

ENGLISH STANDARD DRAWING FOR FRAMES AND NARROW SLOT SAG GRATINGS

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

SHEET 1 OF 1 840.24

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

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

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

PIPE	DIMENSIONS OF BOX AND PIPE			REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CURB YARDS IN BOX		TOTAL QUANTITIES FOR ONE PIPE		REDUCTIONS FOR ONE PIPE (C.U. YDS.)
	D	A	H	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	WELLS PER FEET	LSB.	
12"	3'-0"	2'-2"	2'-0"	0.235	0.167	0.235	0.494	0.014	0.025			
15"	3'-0"	2'-2"	2'-3"	0.235	0.167	0.235	0.529	0.023	0.036			
18"	3'-0"	2'-2"	2'-6"	0.235	0.167	0.235	0.563	0.033	0.049			
24"	3'-0"	2'-2"	3'-0"	0.235	0.167	0.235	0.600	0.042	0.066			
30"	3'-0"	2'-2"	3'-6"	0.235	0.167	0.235	0.638	0.051	0.082			
36"	3'-0"	2'-2"	4'-0"	0.235	0.167	0.235	0.677	0.060	0.100			
42"	3'-0"	2'-2"	4'-6"	0.235	0.167	0.235	0.717	0.070	0.130			
48"	3'-0"	2'-2"	5'-0"	0.235	0.167	0.235	0.758	0.080	0.160			
54"	3'-0"	2'-2"	5'-6"	0.235	0.167	0.235	0.800	0.090	0.190			

\* RISER HAS .228 CURB YARDS OF CONCRETE PER FOOT HEIGHT

SHEET 2 OF 2 840.02

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

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

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

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

SHEET 1 OF 2 840.03

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

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

DETAIL SHOWING TYPES OF GRATINGS USE ACCORDING TO WATER FLOW.

RAISED FLOW ARROW 3/16" HIGH

SHEET 2 OF 2 840.03

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

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

NOTE: THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 838.01, 838.11, 838.21, 838.27, 838.33, 838.39, 838.41, 838.57, 838.63, 838.69.

INSTALL PRECAST ENDWALLS WITH WEIGS AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 838.

USE 4000 PSI CONCRETE.

PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM #615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM #18 WITH 2" MIN. CLEARANCE.

PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.

PIPE TO BE GRADED INTO HEADWALL AT JOB SITE BY CONTRACTOR.

ALL ELEMENTS PRECAST TO MEET ASTM 6913.

WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.

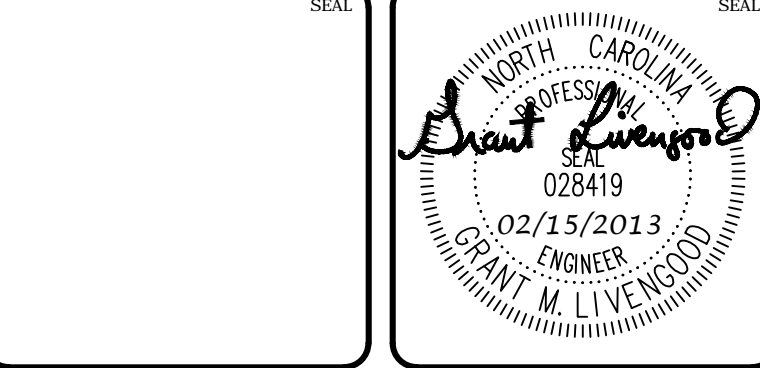
CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".

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.

PIPE DIA.	BAR SIZE	H1 (FT.)	H2 (FT.)	D (FT.)	W1	W2
1.0	#5 @ 8"	1.25/2.00	3.00/3.75	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	3.00/3.75	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"	2.50/3.00	4.00/6.00	2.50/3.00	4.50/5.00	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

SHEET 1 OF 1 838.80

REV. NO.	DESCRIPTIONS	DATE
2	RELEASED FOR CONSTRUCTION	2013.02.15
1	ISSUED FOR PERMITTING	2012.12.19

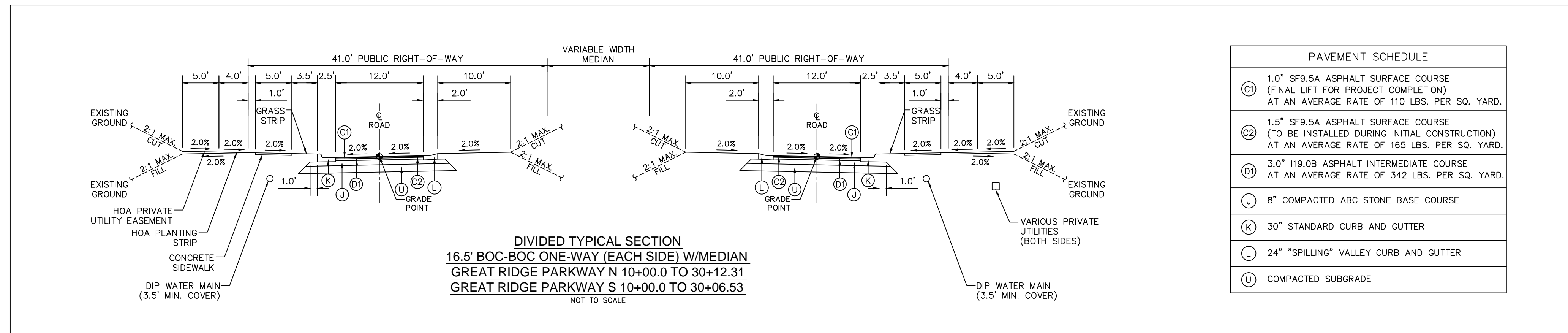


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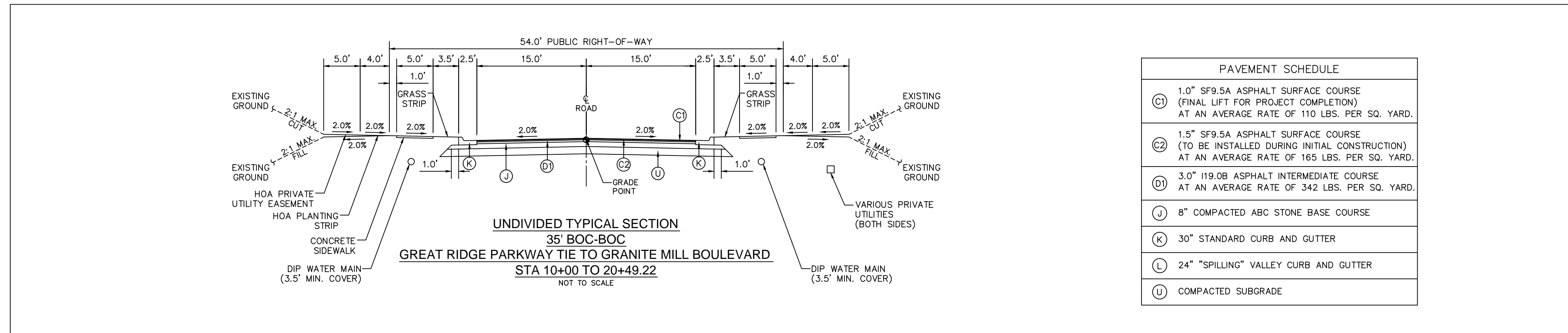
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GREAT RIDGE PARKWAY EXTENSION  
CHATHAM COUNTY, NORTH CAROLINA  
NCDOT DRAINAGE DETAILS

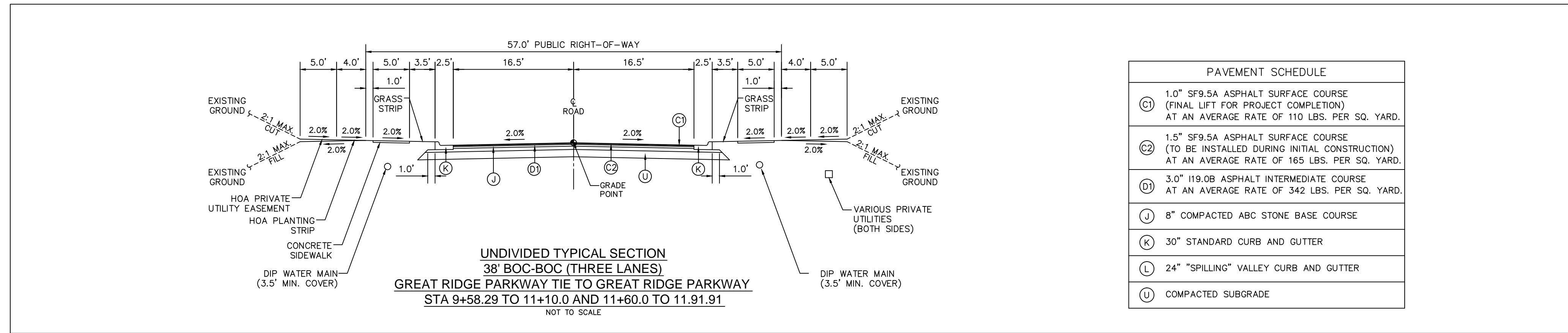
DATE: DECEMBER 19, 2012	SCALE: D2.X	MFC FILE NUMBER: D2.1
MCE PROJ. # 02735-0080	HORIZONTAL: N/A	DRAWING NUMBER: D2.1
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 2	



PAVEMENT SCHEDULE	
C1	1.0" SF9.5A ASPHALT SURFACE COURSE (FINAL LIFT FOR PROJECT COMPLETION) AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD.
C2	1.5" SF9.5A ASPHALT SURFACE COURSE (TO BE INSTALLED DURING INITIAL CONSTRUCTION) AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD.
D1	3.0" 119.0B ASPHALT INTERMEDIATE COURSE AT AN AVERAGE RATE OF 342 LBS. PER SQ. YARD.
J	8" COMPACTED ABC STONE BASE COURSE
K	30" STANDARD CURB AND GUTTER
L	24" "SPILLING" VALLEY CURB AND GUTTER
U	COMPACTED SUBGRADE

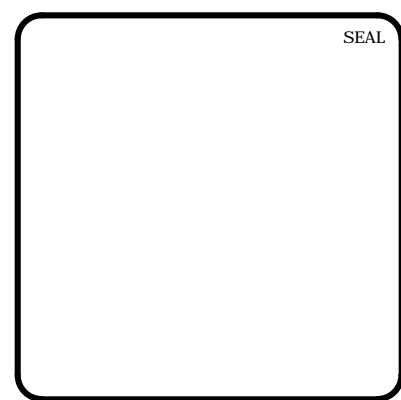


PAVEMENT SCHEDULE	
C1	1.0" SF9.5A ASPHALT SURFACE COURSE (FINAL LIFT FOR PROJECT COMPLETION) AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD.
C2	1.5" SF9.5A ASPHALT SURFACE COURSE (TO BE INSTALLED DURING INITIAL CONSTRUCTION) AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD.
D1	3.0" 119.0B ASPHALT INTERMEDIATE COURSE AT AN AVERAGE RATE OF 342 LBS. PER SQ. YARD.
J	8" COMPACTED ABC STONE BASE COURSE
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U	COMPACTED SUBGRADE



PAVEMENT SCHEDULE	
C1	1.0" SF9.5A ASPHALT SURFACE COURSE (FINAL LIFT FOR PROJECT COMPLETION) AT AN AVERAGE RATE OF 110 LBS. PER SQ. YARD.
C2	1.5" SF9.5A ASPHALT SURFACE COURSE (TO BE INSTALLED DURING INITIAL CONSTRUCTION) AT AN AVERAGE RATE OF 165 LBS. PER SQ. YARD.
D1	3.0" 119.0B ASPHALT INTERMEDIATE COURSE AT AN AVERAGE RATE OF 342 LBS. PER SQ. YARD.
J	8" COMPACTED ABC STONE BASE COURSE
K	30" STANDARD CURB AND GUTTER
L	24" "SPILLING" VALLEY CURB AND GUTTER
U	COMPACTED SUBGRADE

REV. NO.	DESCRIPTIONS	DATE
2	REVISIONS PER NCDOT COMMENTS/RELEASED FOR CONSTRUCTION	2013.02.15
1	ISSUED FOR PERMITTING	2012.12.19



**MCKIM & CREED**  
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**Newland COMMUNITIES**

**BRIAR CHAPEL**  
 GREAT RIDGE PARKWAY EXTENSION  
 CHATHAM COUNTY, NORTH CAROLINA

**ROADWAY TYPICAL SECTIONS**

DATE: DECEMBER 19, 2012	SCALE: D2.X	MSC FILE NUMBER: D2.X
MCE PROJ. # 02735-0080	HORIZONTAL: N/A	DRAWING NUMBER: D2.2
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		

STATUS: RELEASED FOR CONSTRUCTION	REVISION: 2
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STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR PROPOSED CURB AND GUTTER

**CURB RAMP**

SECTION B-B  
SECTION A-A  
ISOMETRIC VIEW  
PLAN VIEW

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 CONTAIN VERTICALLY WITH GRABBING SURFACE, EITHER LIGHT OR DARK, OR DARK ON LIGHT SEQUENCE COVERING THE ENTIRE RAMP.  
3. RAMP WIDTH AREA IS VARIABLE.

W	A	MINUS	Y	4
1.0	0.0	0.0	0.0	0.0
1.5	0.0	0.0	0.0	0.0
2.0	0.0	0.0	0.0	0.0
2.5	0.0	0.0	0.0	0.0
3.0	0.0	0.0	0.0	0.0
3.5	0.0	0.0	0.0	0.0
4.0	0.0	0.0	0.0	0.0
4.5	0.0	0.0	0.0	0.0
5.0	0.0	0.0	0.0	0.0
5.5	0.0	0.0	0.0	0.0
6.0	0.0	0.0	0.0	0.0
6.5	0.0	0.0	0.0	0.0
7.0	0.0	0.0	0.0	0.0
7.5	0.0	0.0	0.0	0.0
8.0	0.0	0.0	0.0	0.0
8.5	0.0	0.0	0.0	0.0
9.0	0.0	0.0	0.0	0.0
9.5	0.0	0.0	0.0	0.0
10.0	0.0	0.0	0.0	0.0
10.5	0.0	0.0	0.0	0.0
11.0	0.0	0.0	0.0	0.0
11.5	0.0	0.0	0.0	0.0
12.0	0.0	0.0	0.0	0.0

DETECTABLE WARNING DOMES

SHEET 1 OF 3  
848.05

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

ENGLISH STANDARD DRAWING FOR CONCRETE CURB AND GUTTER

**CONCRETE CURB & GUTTER**

SECTION B-B  
SECTION A-A  
EXPRESSWAY GUTTER  
SHOULDER BERM GUTTER  
VALLEY GUTTER  
SECTION VIEW OF JOINTS

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 1 1/2" 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.

SHEET 1 OF 3  
846.01

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

ENGLISH STANDARD DRAWING FOR PAVEMENT MARKINGS

**PAVEMENT MARKINGS**

CONTINUOUS LINES  
10'-30"/SP SKIP LINE  
2'-6"/SP MINI-SKIP LINE  
3'-3"/SP MINI-SKIP LINE  
3'-9"/SP MINI-SKIP LINE

GENERAL NOTES:  
1. USE 6" LANE, EDGE, AND CENTER LINES ON ALL FULL CONTROL OF ACCESS FACILITIES AND OTHER ROUTES AS DIRECTED BY THE ENGINEER.  
2. LANE LINES INDICATED AS "WIDE" ON THE ROADWAY STANDARD DRAWINGS SHALL BE AT LEAST TWICE THE WIDTH OF THE NORMAL LINE.  
3. GORE LINES SHALL BE TWICE THE WIDTH OF THE NORMAL LINE.

SHEET 1 OF 2  
1205.01

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

ENGLISH STANDARD DRAWING FOR PROPOSED CURB AND GUTTER

**CURB RAMP**

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

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.

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

FRONT AND CROSS BRACE DETAILS  
FRONT AND CROSS BRACE DETAILS

NOTES:  
1. ERECT TYPE "D", "E" AND "F" SIGNS ON PRECAST WITH THE REAR EDGE OF THE SIGN 20 FT. FROM THE TRAVEL LANE. ERECT TYPE "D", "E" AND "F" SIGNS WITH THE REAR EDGE OF THE SIGN AT THE EDGE OF THE SHOULDER BREAK (SEE MINIMUM CLEARANCE, 12 FT.) DETERMINED FROM THE EDGE OF TRAVEL LANE, OR AS OTHERWISE INDICATED ON PLAN SHEETS.  
2. ERECT TYPE "D", "E" AND "F" SIGNS WITH THE BOTTOM OF SIGN ASSEMBLY AT LEAST 5 FT. ABOVE THE EDGE OF THE TRAVEL LANE OR EDGE OF SHOULDER AND AT LEAST 5 FT. ON OTHER SIDING. THE VERTICAL CLEARANCE IS 7 FT. WHERE REQUIRED FOR PEDESTRIAN TRAFFIC AND/OR PARKED VEHICLES.  
3. THE VERTICAL DIMENSION BETWEEN MARKING HOLES CENTERED ON ALL TYPES "D", "E" AND "F" SIGNS IS 80 INCHES. THE VERTICAL AND HORIZONTAL DIMENSIONS BETWEEN MARKING HOLES IS TO THE MARKING HOLES. SIGN BRACE PANEL AND BRACE IS TO BE SUPPORTED BY THE SIGN.  
4. ATTACH SIGN BY 3/4" HEX HEAD BOLT, NYLON WASHER, BRUSH FLAT WASHER, LOCK WASHER, HEX NUT NO BUCKLING OF THE SIGN WILL BE PERMITTED. SEE ASSEMBLY DETAIL SHEET 2 OF 2 OF 848.05.  
5. FRONT AND REAR CROSS BRACE AS SHOWN IN DETAIL. PAINT BODY OF CROSS BRACE BY APPROVED ZINC PAINT.  
6. INITIAL POST AND CROSS-BRACE WITH THE WIDE SIDE OF THE FLANGE TOWARD THE BACK OF SIGN.  
7. THE SIGNS HEIGHT 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.

ENGLISH STANDARD DRAWING FOR PAVEMENT MARKINGS

**PAVEMENT MARKINGS**

EDGE LINE OFFSET DETAIL  
CENTER LINE OFFSET DETAIL  
LANE LINE OFFSET DETAIL

TABLE 1  
EDGE LINE OFFSETS FOR 2-LANE, 2-WAY ROADWAYS WITH UNPAVED SHOULDERS

WIDTH (W) OF TRAVEL LANE	MAX. EDGE LINE OFFSET FROM E.O.T.	MINIMUM LANE WIDTH (W)
10'	4"	9'
12'	6"	9.5'
14'	8"	10'
16'	10"	10.5'
18'	12"	11'
20'	14"	11.5'
22'	16"	12'
24'	18"	12.5'
26'	20"	13'
28'	22"	13.5'
30'	24"	14'
32'	26"	14.5'

LEGEND  
W = WIDTH OF TRAVEL LANE  
E.O.T. = EDGE OF TRAVEL  
DIRECTION OF TRAFFIC FLOW

SHEET 2 OF 2  
1205.01

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

ENGLISH STANDARD DRAWING FOR CURB RAMPS

**CURB RAMPS**

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 THROUGH THE ISLAND.  
14. SMALL CHANNELIZATION ISLANDS THAT CAN NOT PROVIDE A 5'x5' LANDING AT THE TOP OF A RAMP, 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 1/2" 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.

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

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SHEET 2 OF 2  
904.50

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

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

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904.50

REV. NO.	DATE	DESCRIPTIONS	REVISIONS
2	2013.02.15	RELEASED FOR CONSTRUCTION	
1	2012.12.19	ISSUED FOR PERMITTING	

SEAL

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

02/15/2013  
ENGINEER  
CRAIG M. LIVINGOOD

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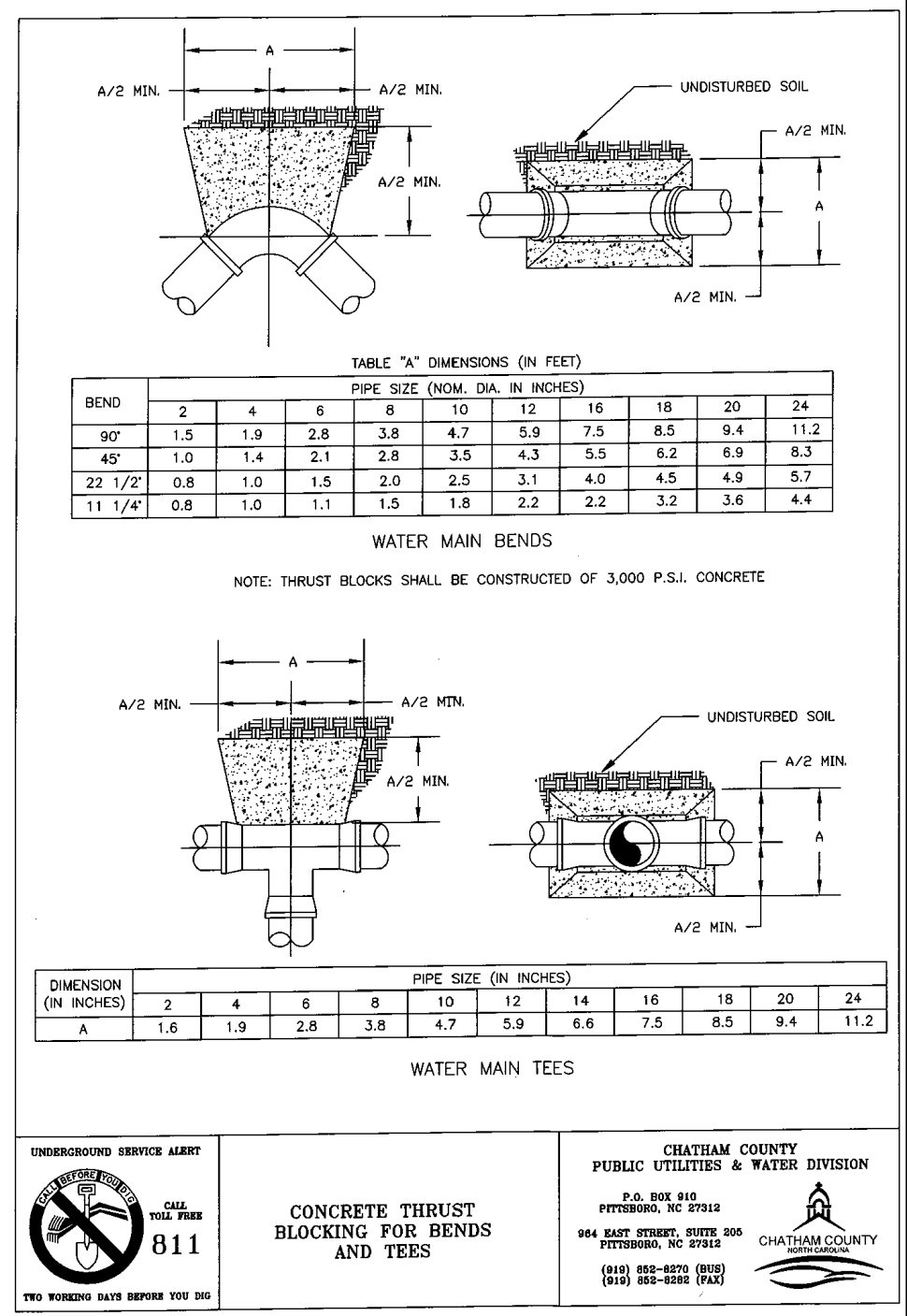
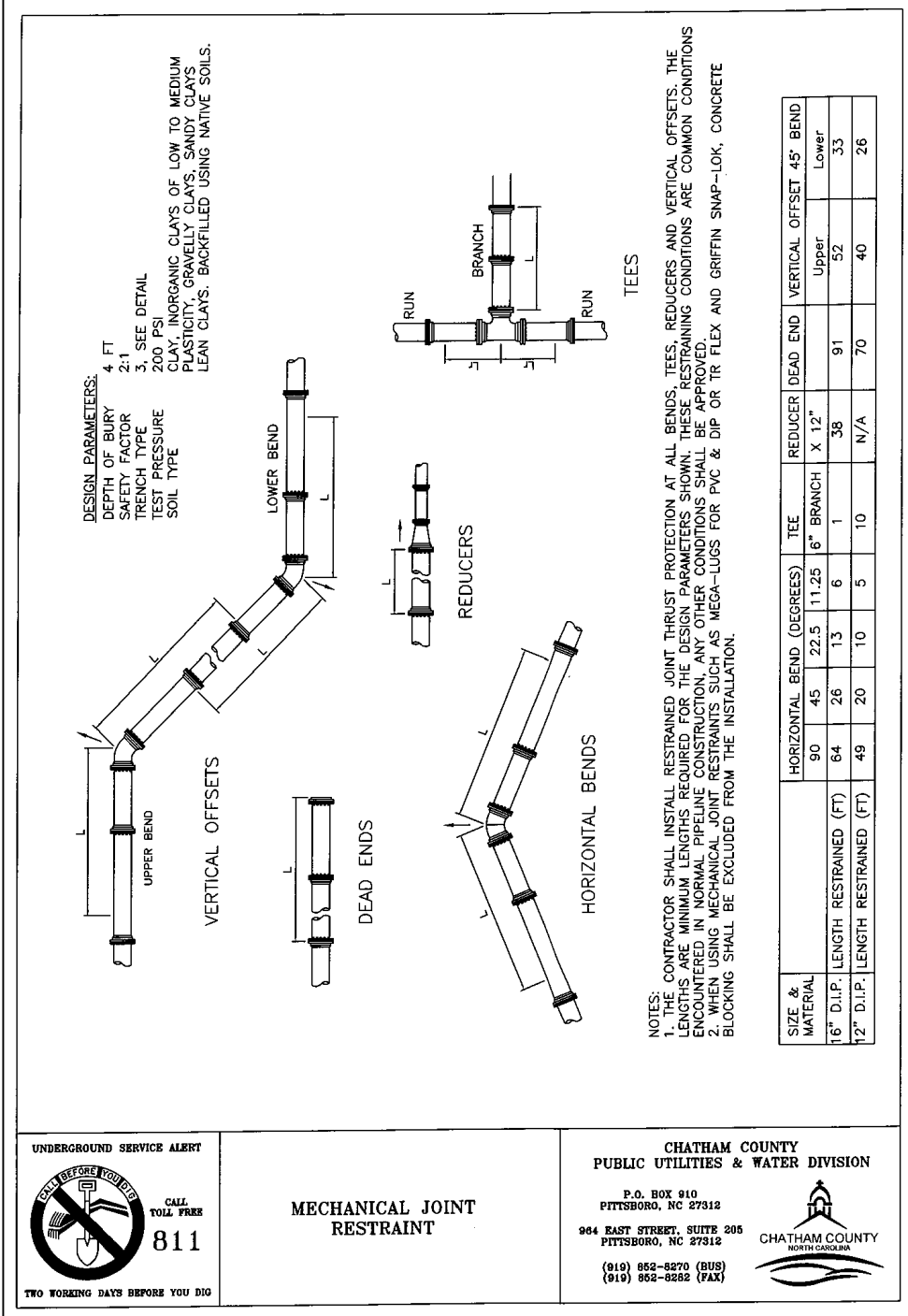
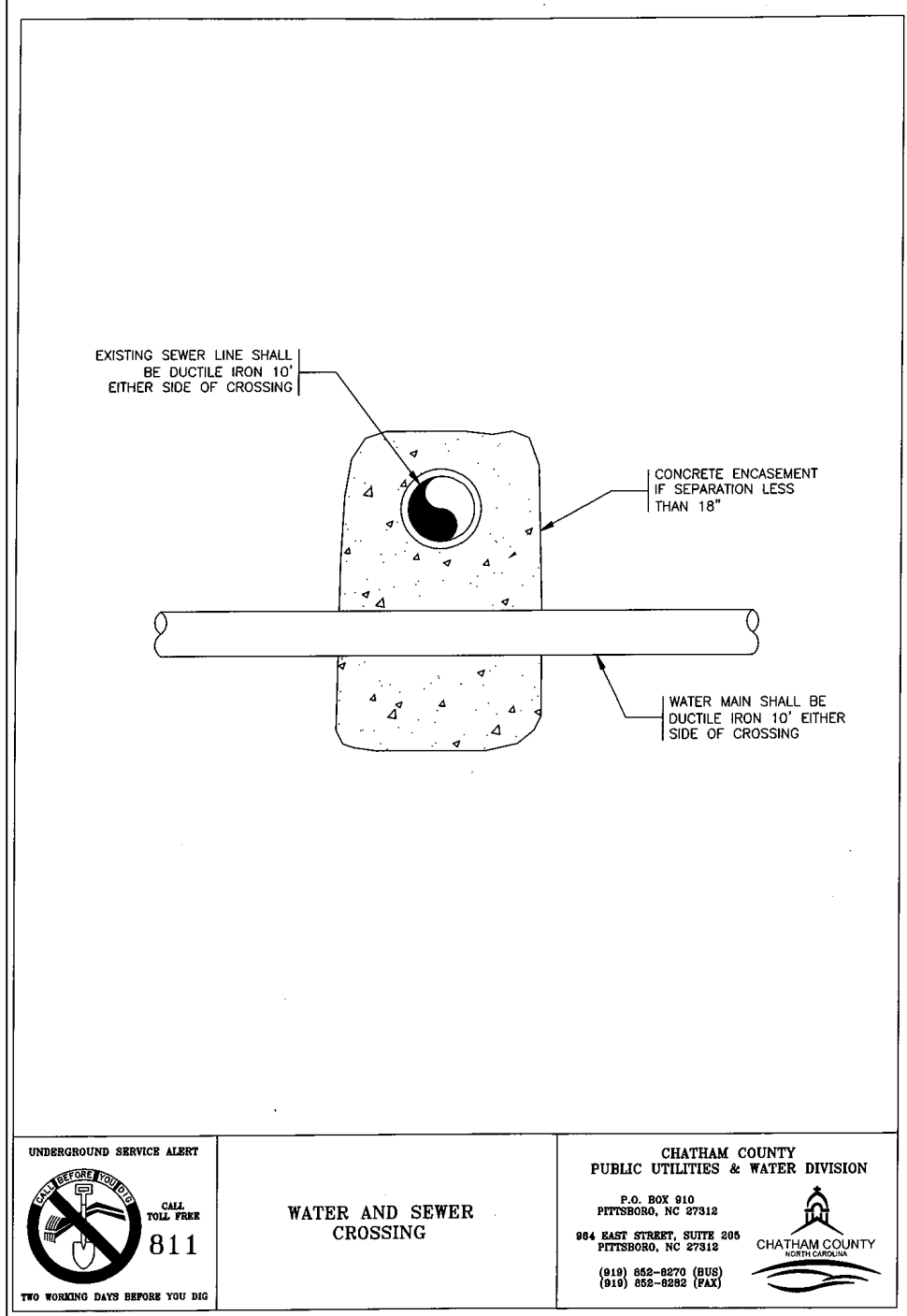
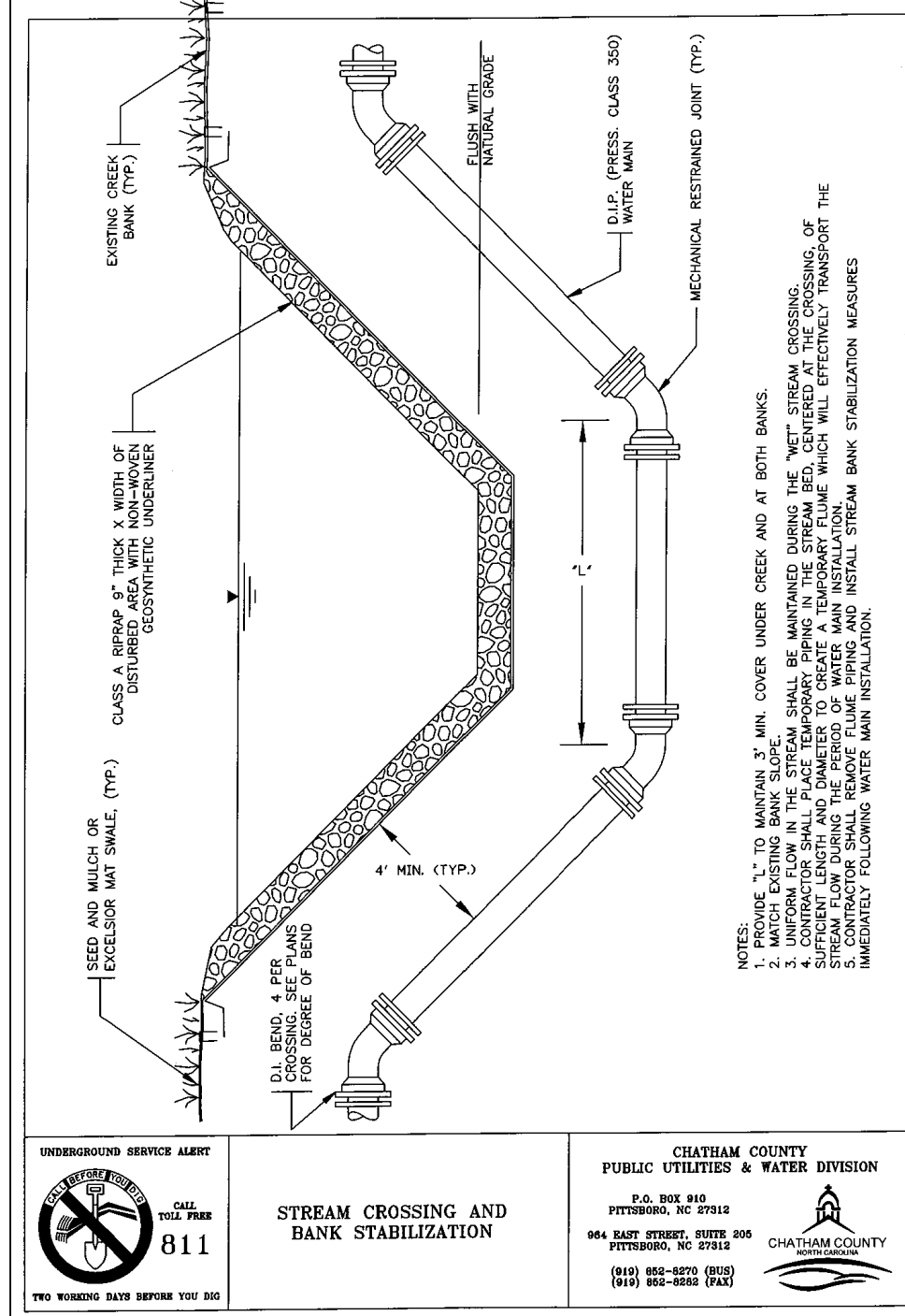
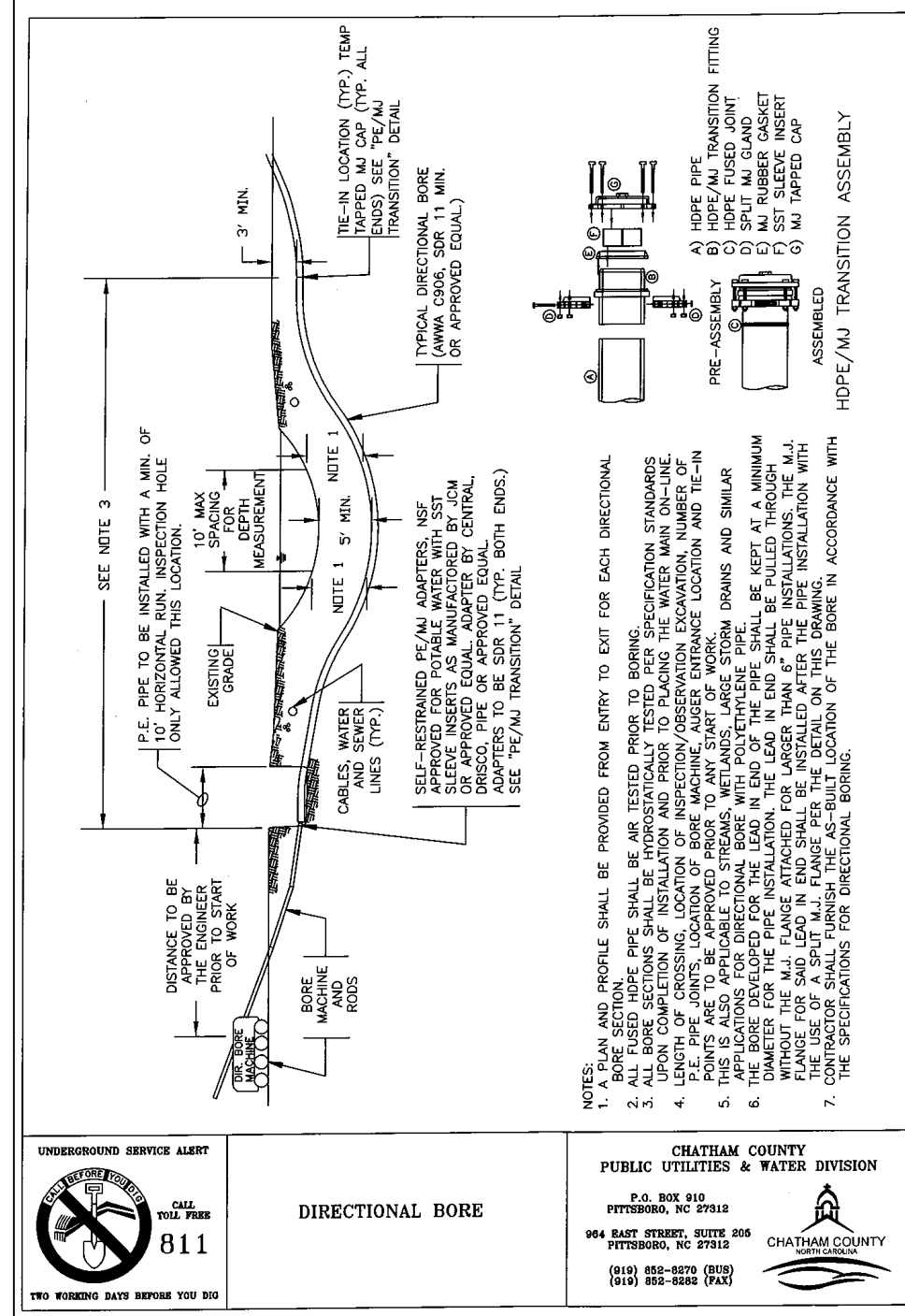
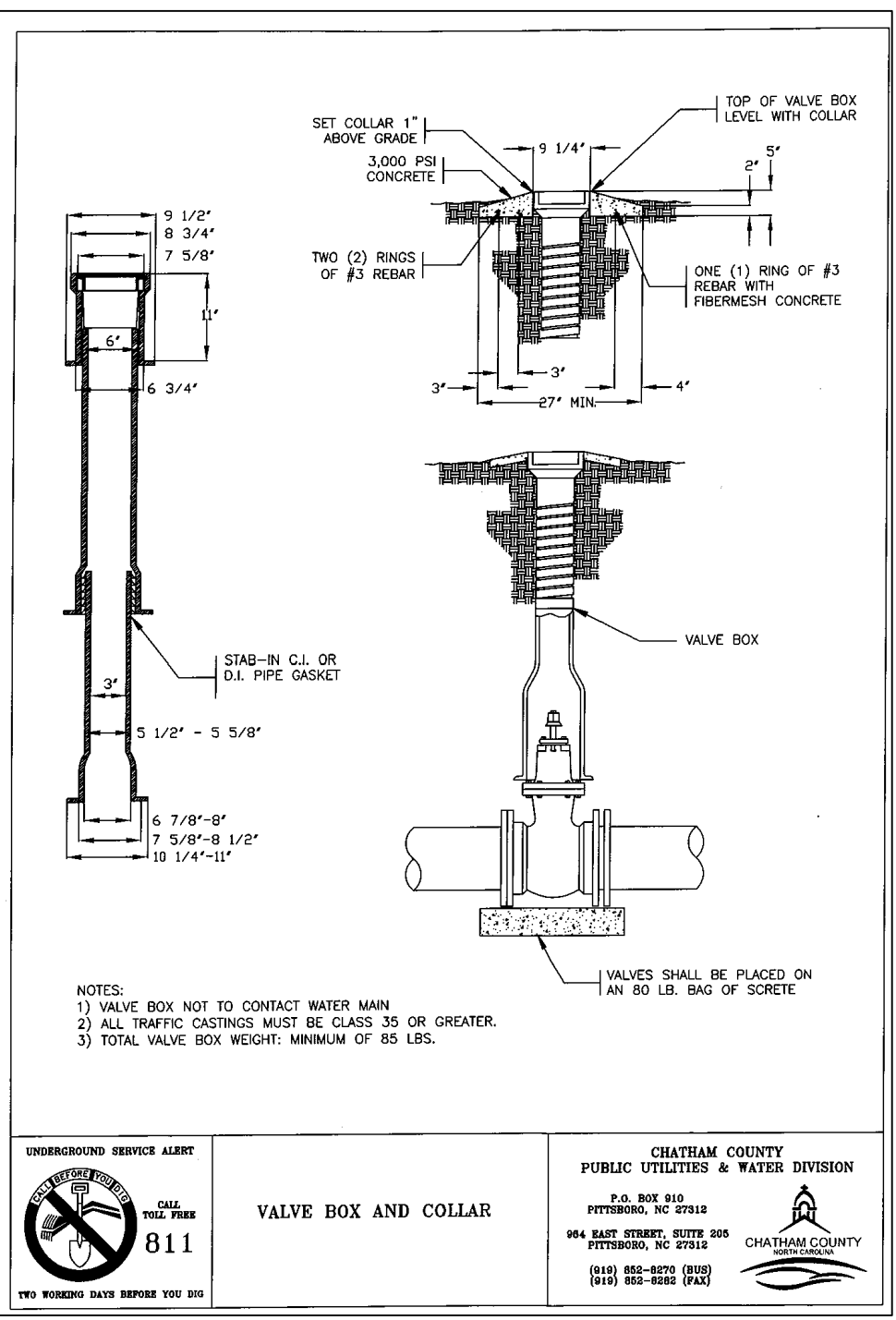
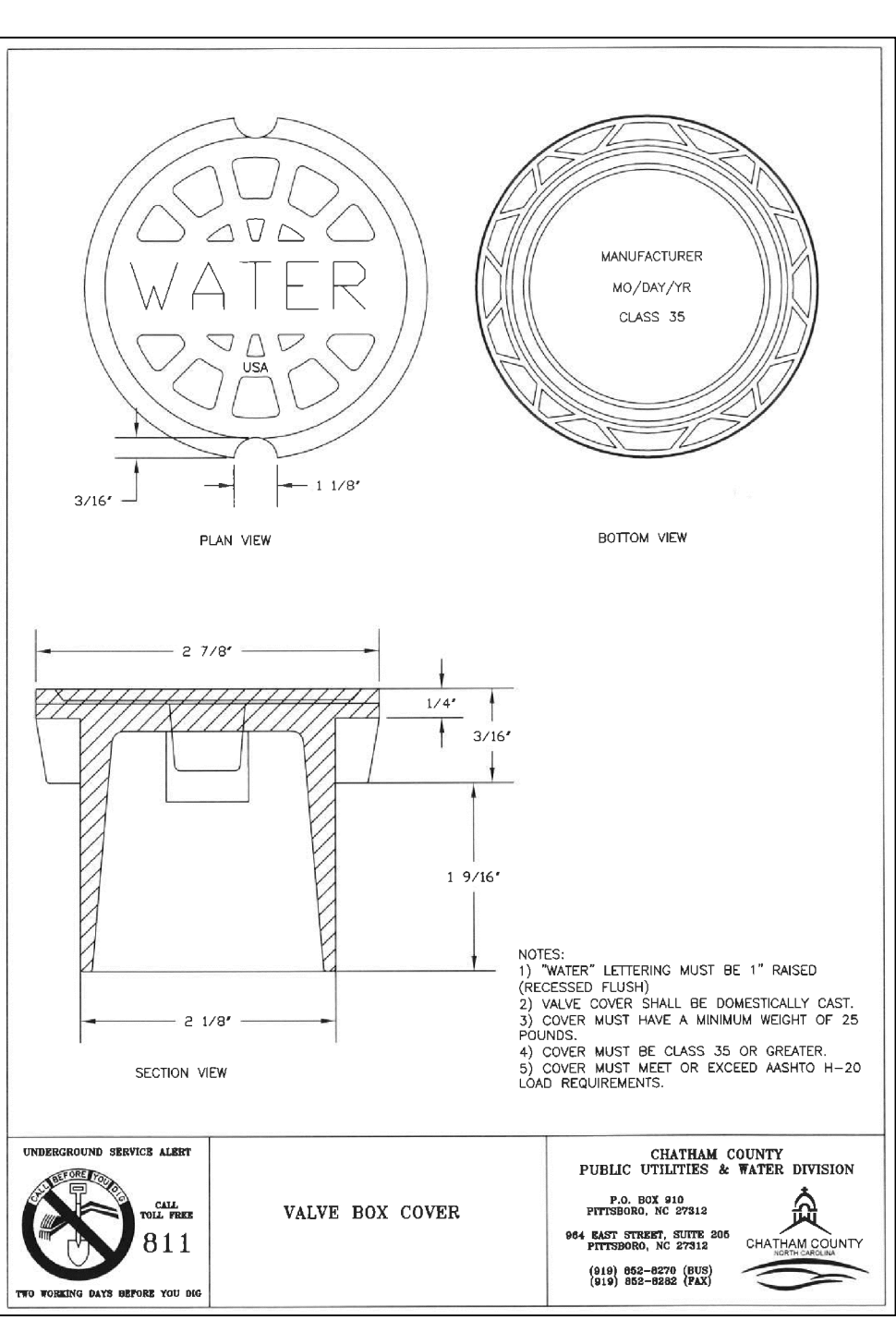
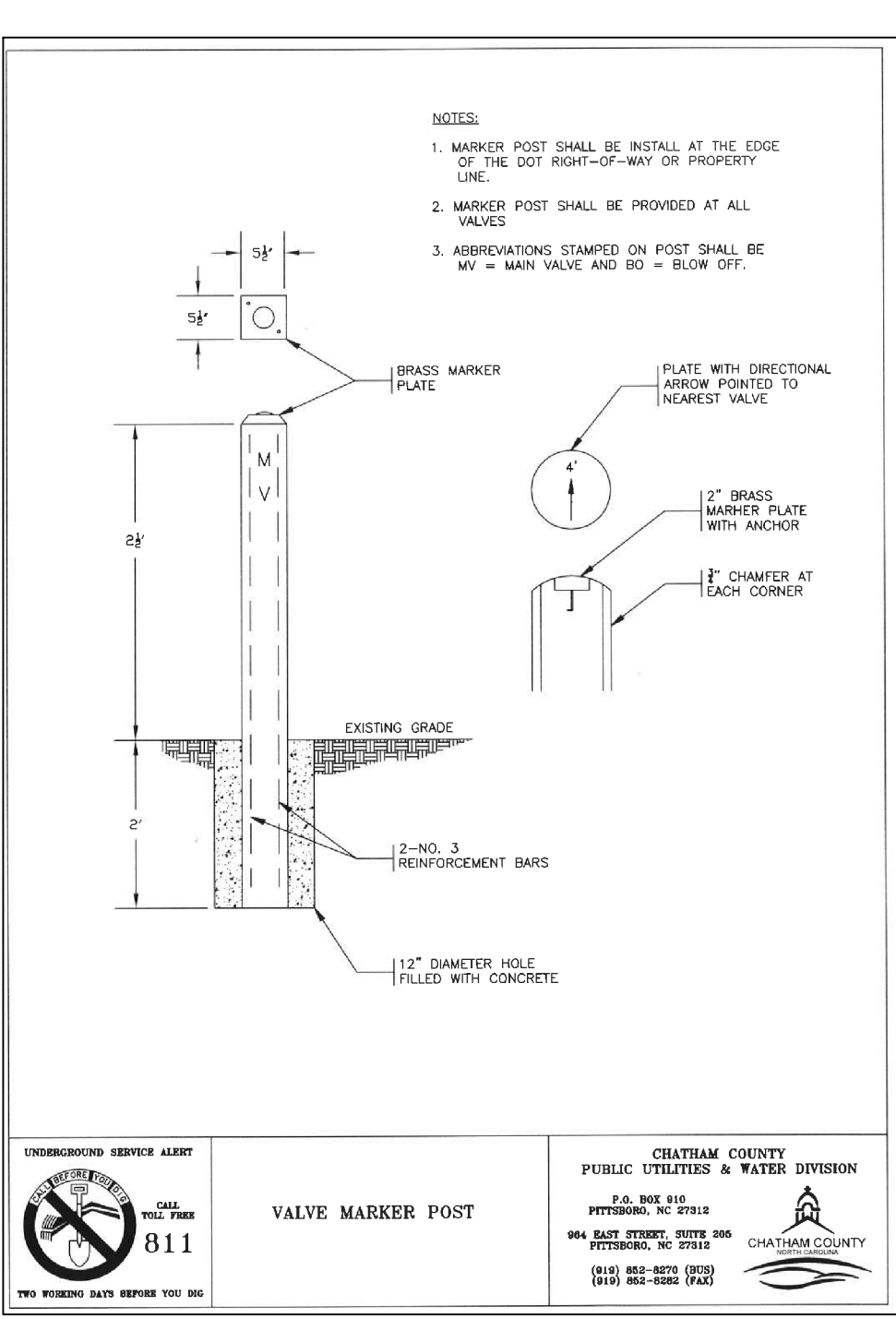
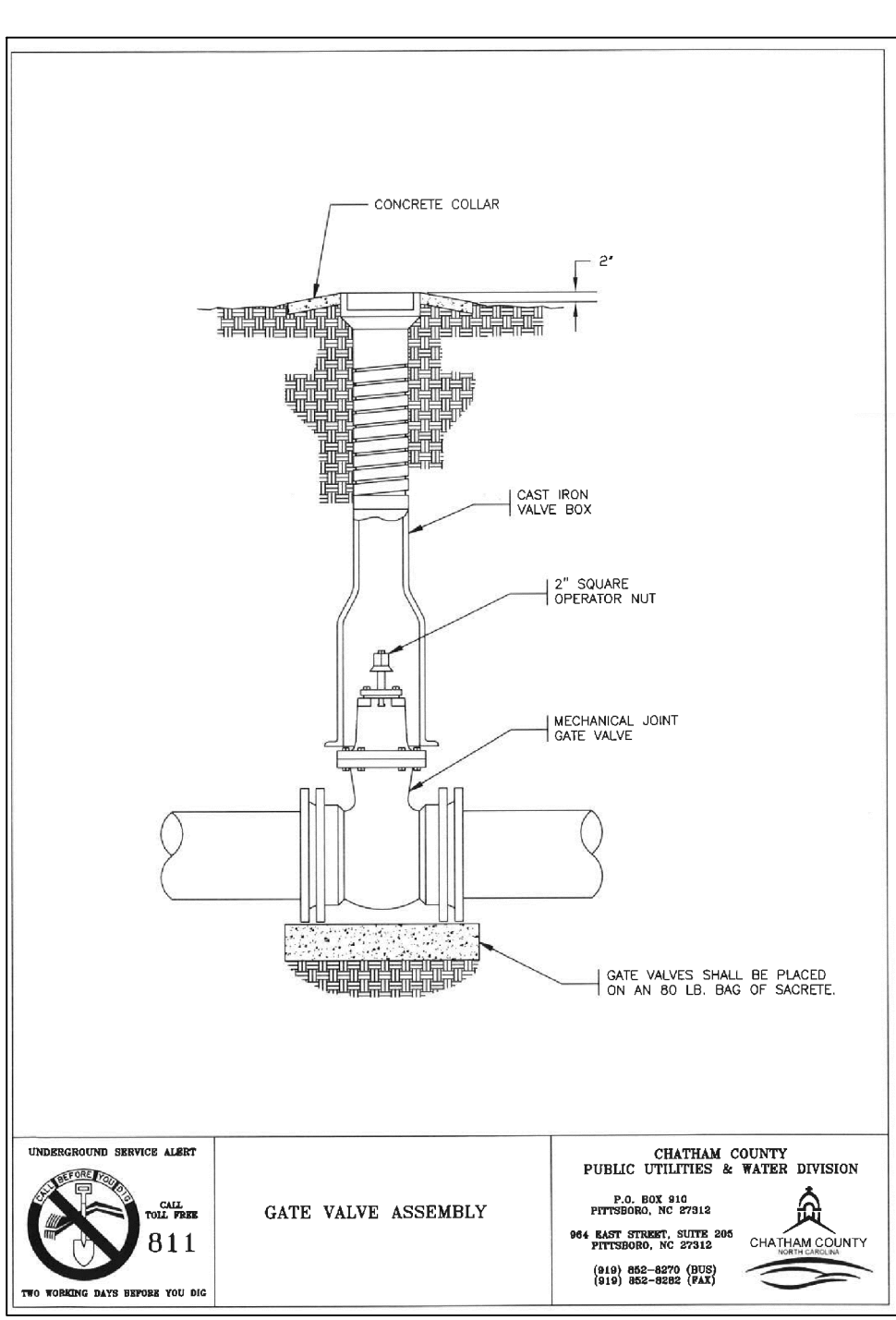
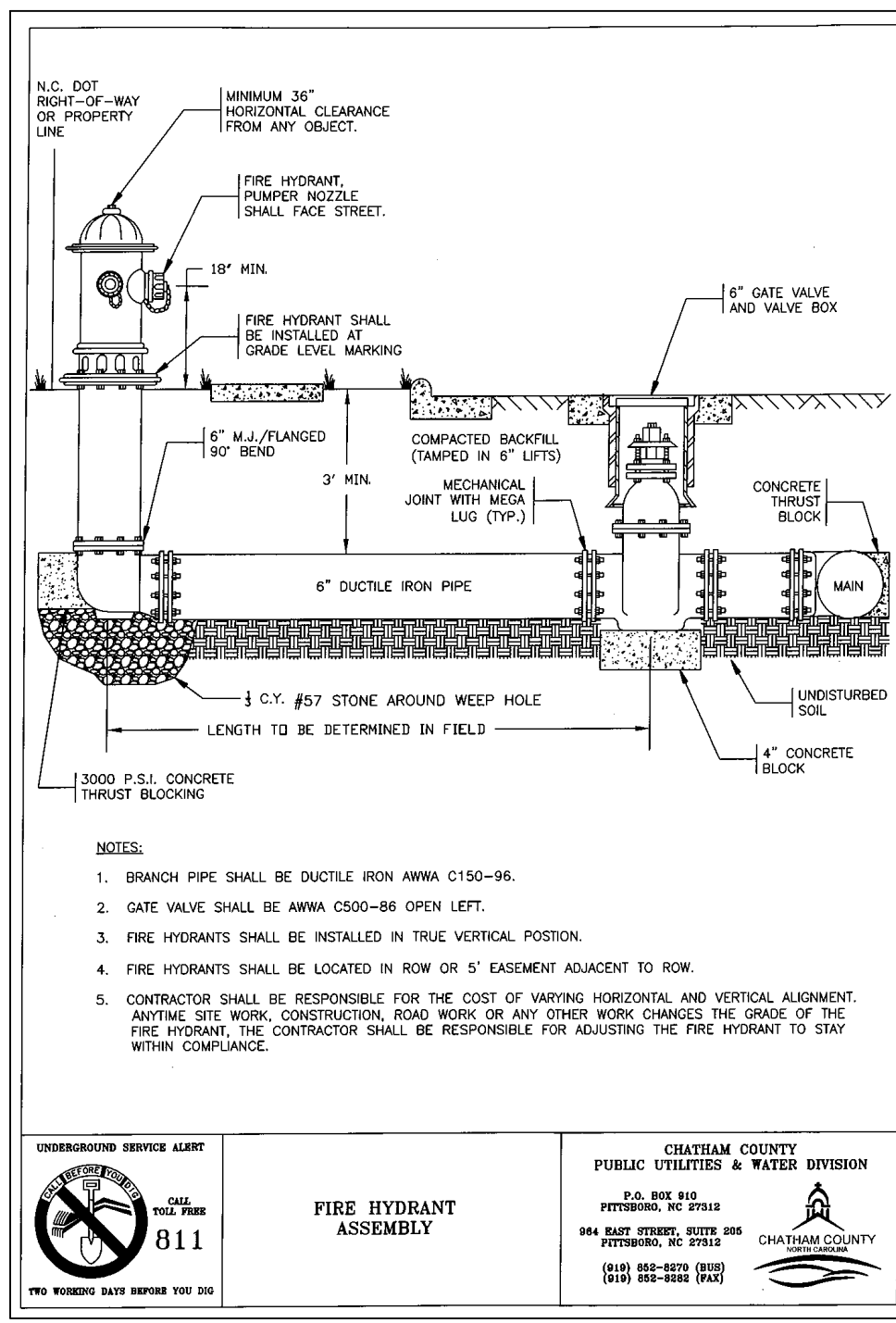
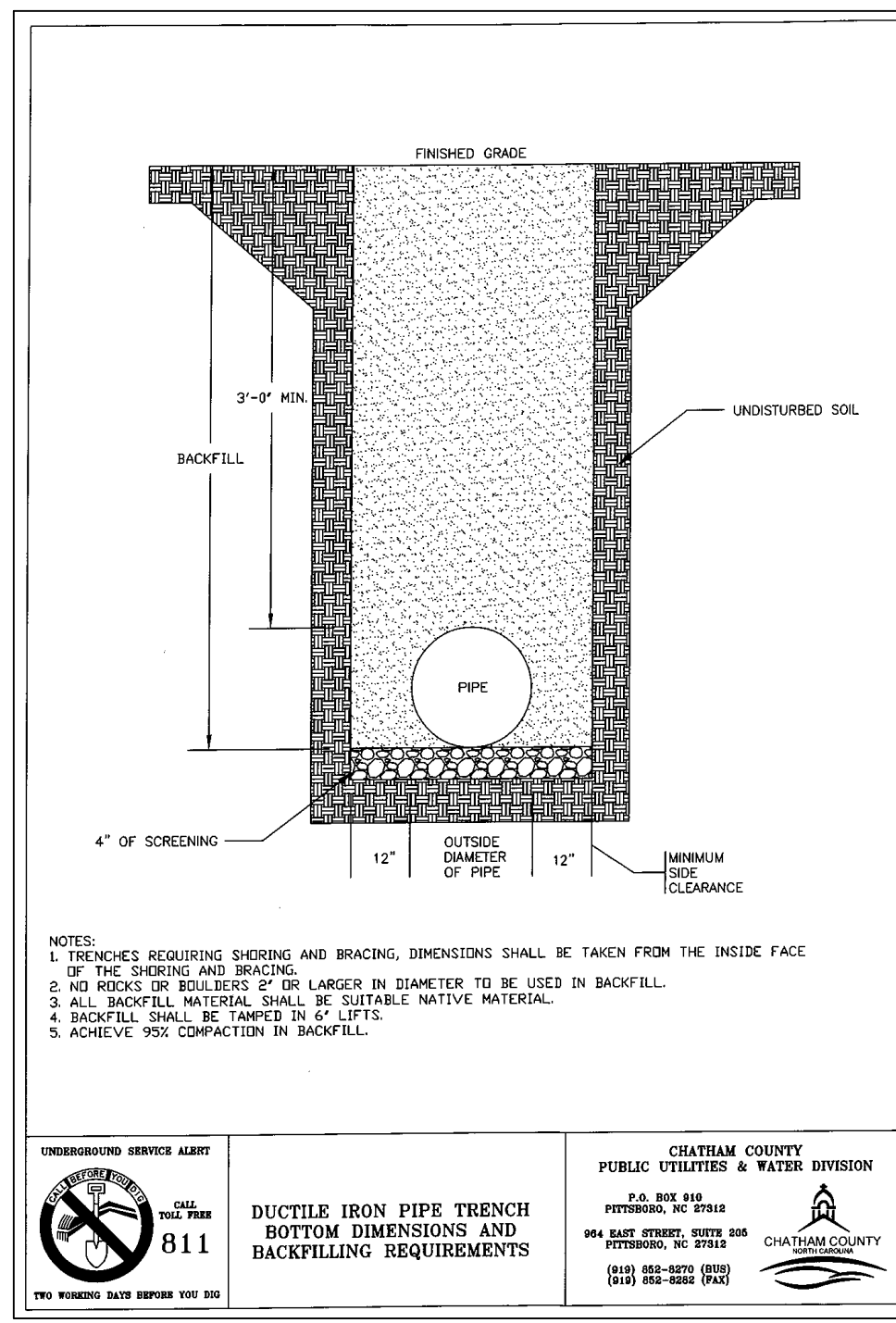
BRIAR CHAPEL

by  
Newland COMMUNITIES

BRIAR CHAPEL  
GREAT RIDGE PARKWAY EXTENSION  
CHATHAM COUNTY, NORTH CAROLINA

NCDOT ROADWAY DETAILS

DATE:	DECEMBER 19, 2012	SCALE:	N/A
MCE PROJ. #	02735-0080	HORIZONTAL:	D2.X
DRAWN	GCA	VERTICAL:	D2.3
DESIGNED	GCA		
CHECKED	CHS		
PROJ. MGR.	CHS		
STATUS:	RELEASED FOR CONSTRUCTION	REVISION:	2



**REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS**  
BASED ON TEST PRESSURE OF 300 P.S.I.  
ALL AREAS GIVEN IN SQUARE FEET.

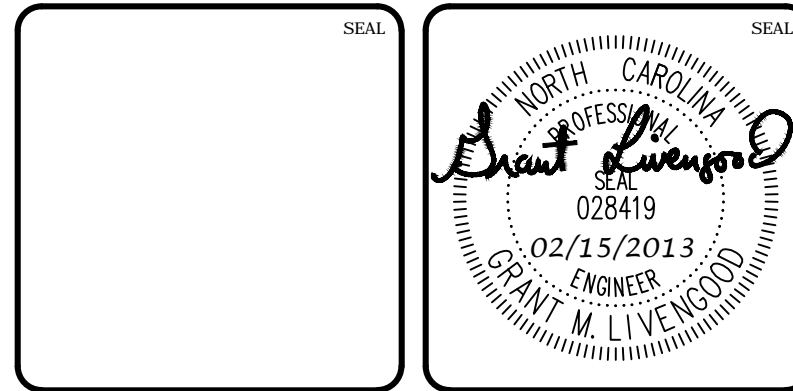
SIZE AND READER	STATIC THRUST IN POUNDS	MONUMENTAL BENT	90° BENT	45° BENT	45° BENT	90° BENT	45° BENT	90° BENT	45° BENT
6"									
11 1/4"	1,108	1	1	1	1	1	1	2	1
22 1/2"	2,207	1	2	2	1	1	1	3	1
45"	4,326	2	3	3	1	1	2	5	1
90"	7,996	4	4	5	1	1	2	8	1
PLUG	5,655	2	3	4	1	1	2	6	1
12"									
11 1/4"	1,970	1	1	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	4	9	2	2	4	15	2
PLUG	10,053	3	5	6	2	2	3	10	1
16"									
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
20"									
11 1/4"	7,891	2	4	5	1	1	2	8	1
22 1/2"	15,691	4	8	10	2	2	4	16	2
45"	30,779	8	16	19	4	4	8	31	4
90"	56,861	15	29	35	8	8	15	57	6
PLUG	40,213	10	21	25	5	5	10	41	5

REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.  
USE 6" - 30 BEARING AREA VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

UNDEGROUND SERVICE ALERT  
811  
THE WISDOMS DATE BEHIND YOU IS 811

CHATHAM COUNTY  
PUBLIC UTILITIES & WATER DIVISION  
P.O. BOX 210  
PETERSBURG, NC 27581  
919.447.5700, 919.447.5711  
(919) 447-5700 (TDD), (919) 447-5711 (V)

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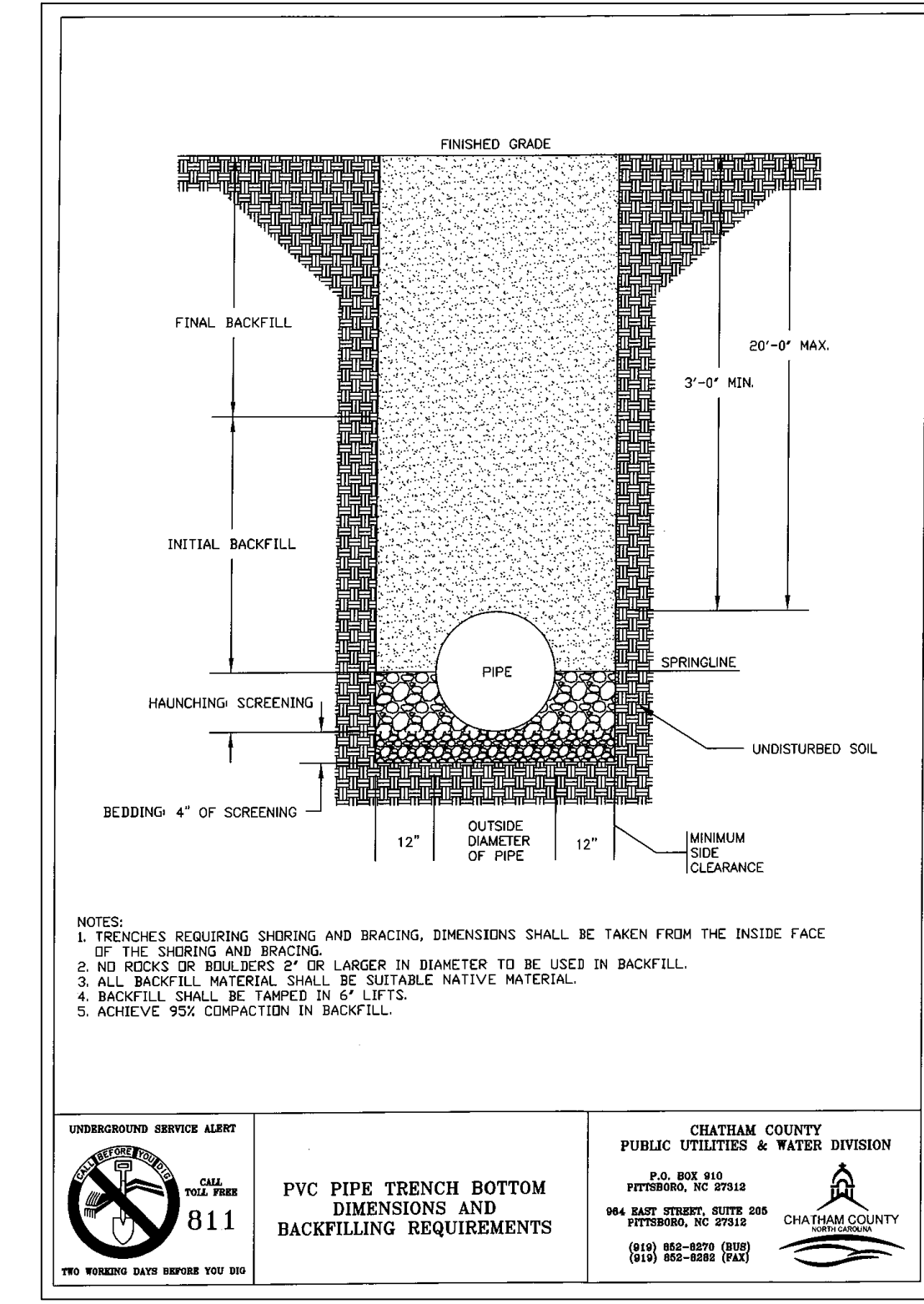
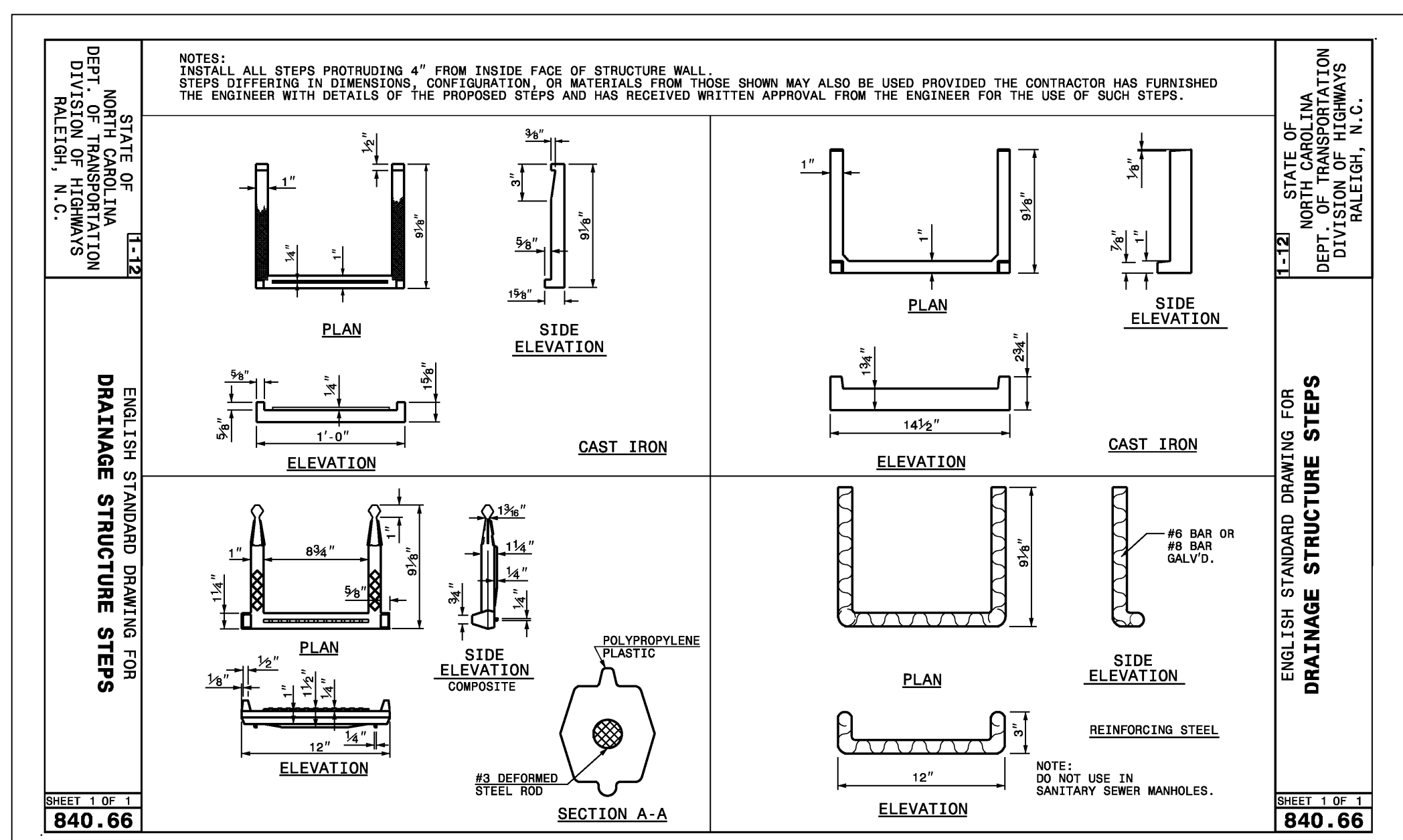
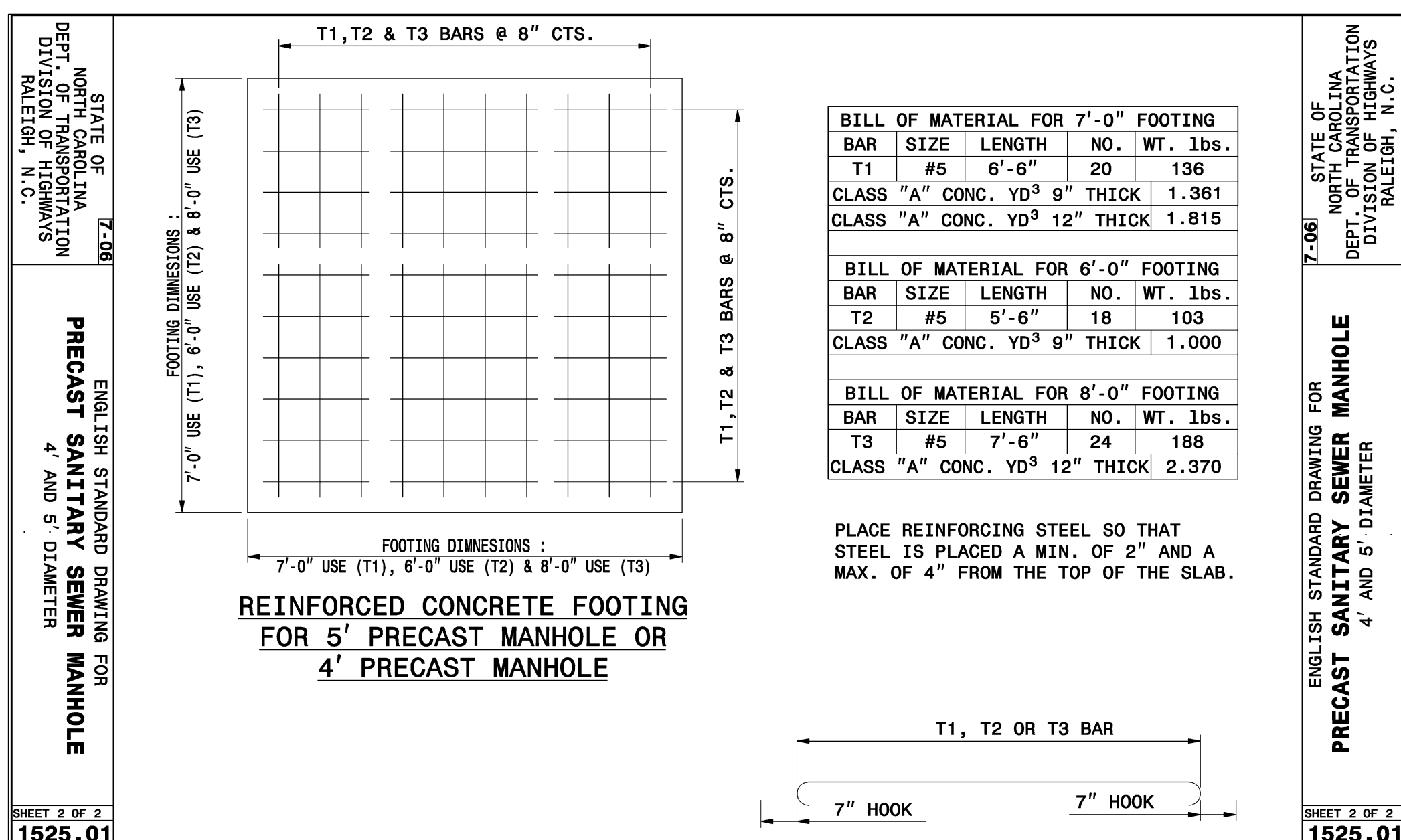
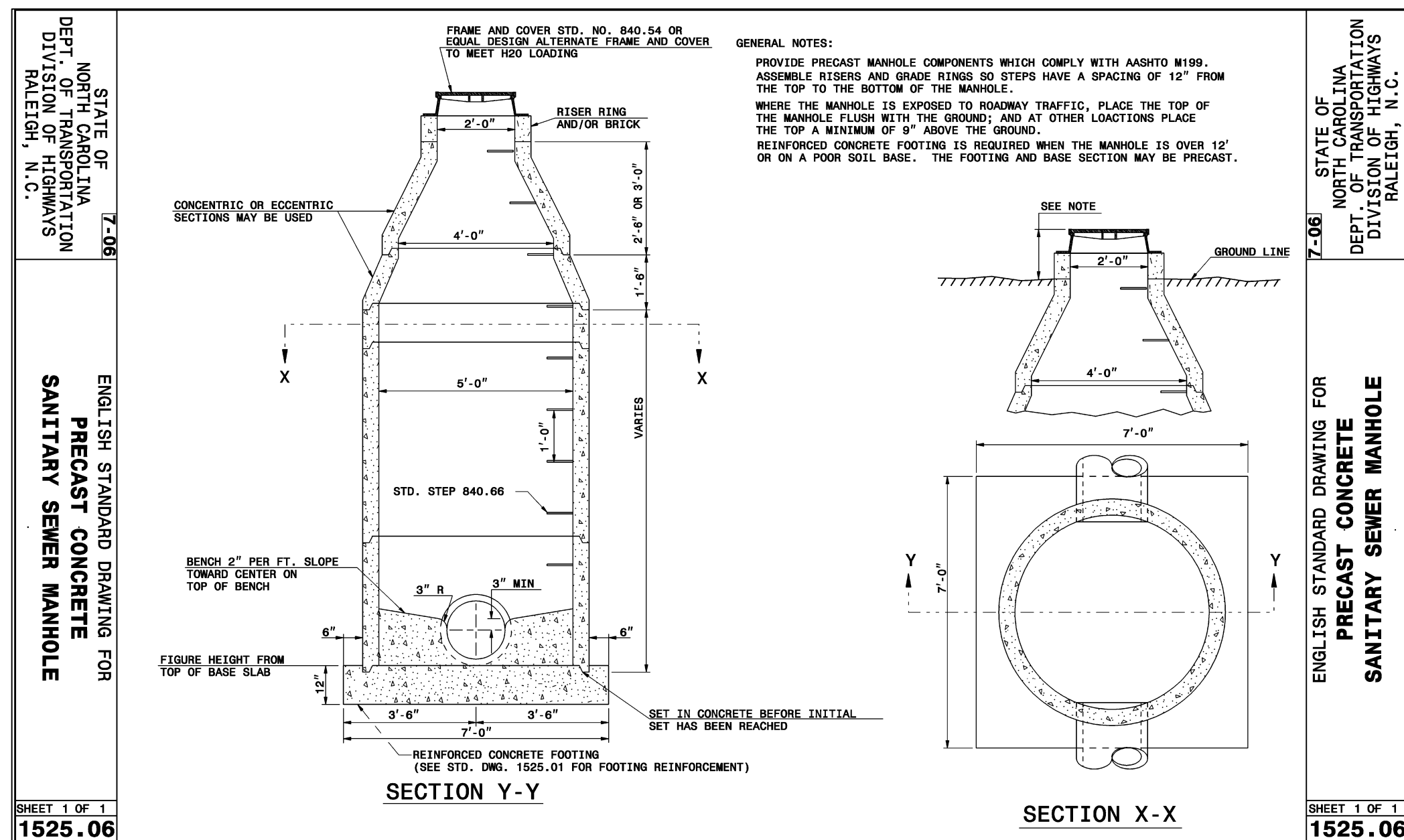
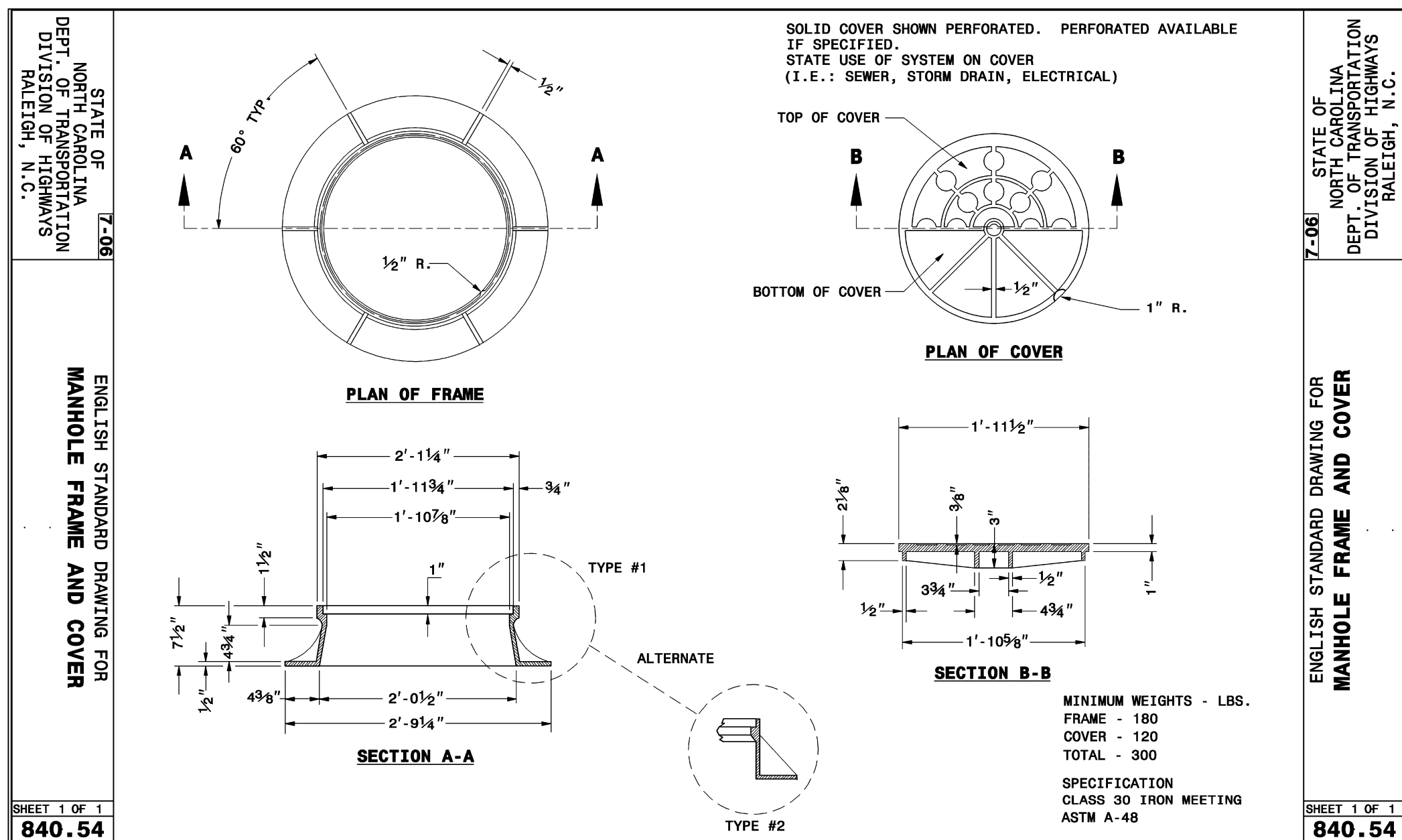
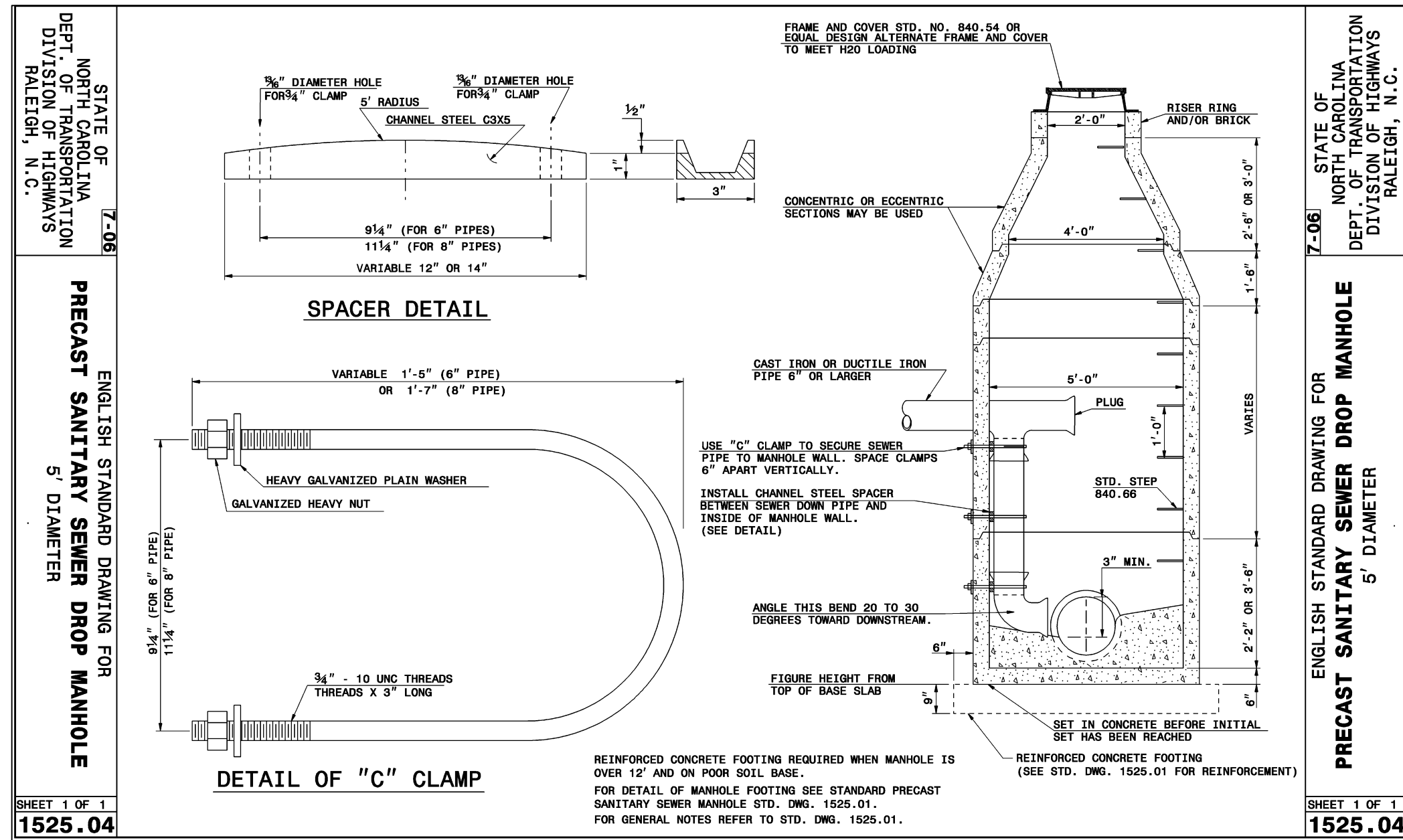
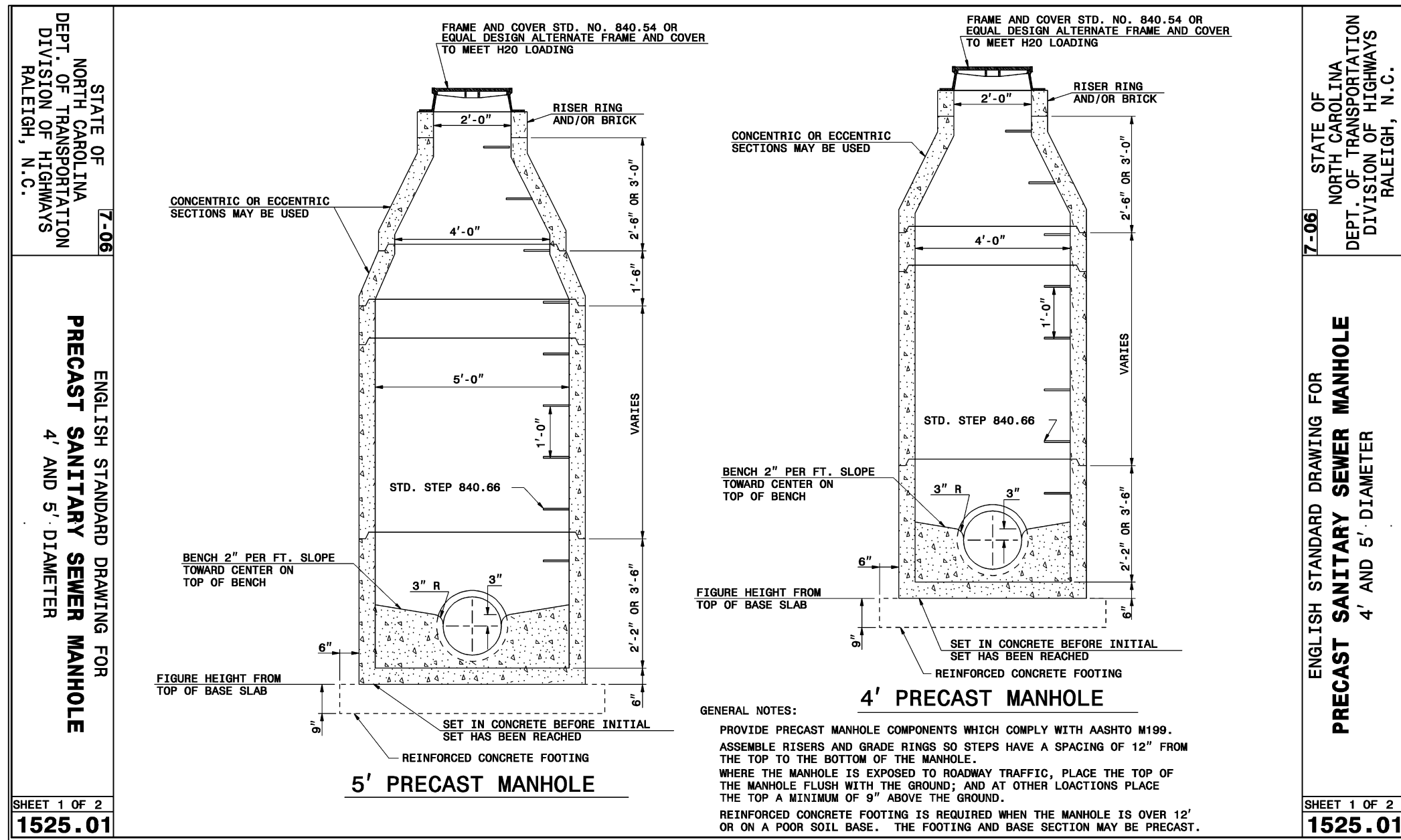
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by  
**Newland COMMUNITIES**

**BRIAR CHAPEL  
GREAT RIDGE PARKWAY EXTENSION  
CHATHAM COUNTY, NORTH CAROLINA**

**UTILITY DETAILS**

DATE: DECEMBER 19, 2012	SCALE: HORIZONTAL: 1" = 50'	MISC FILE NUMBER: D3.X
MCE PROJ. # 02735-0080	VERTICAL: N/A	DRAWING NUMBER: D3.1
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DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 2	

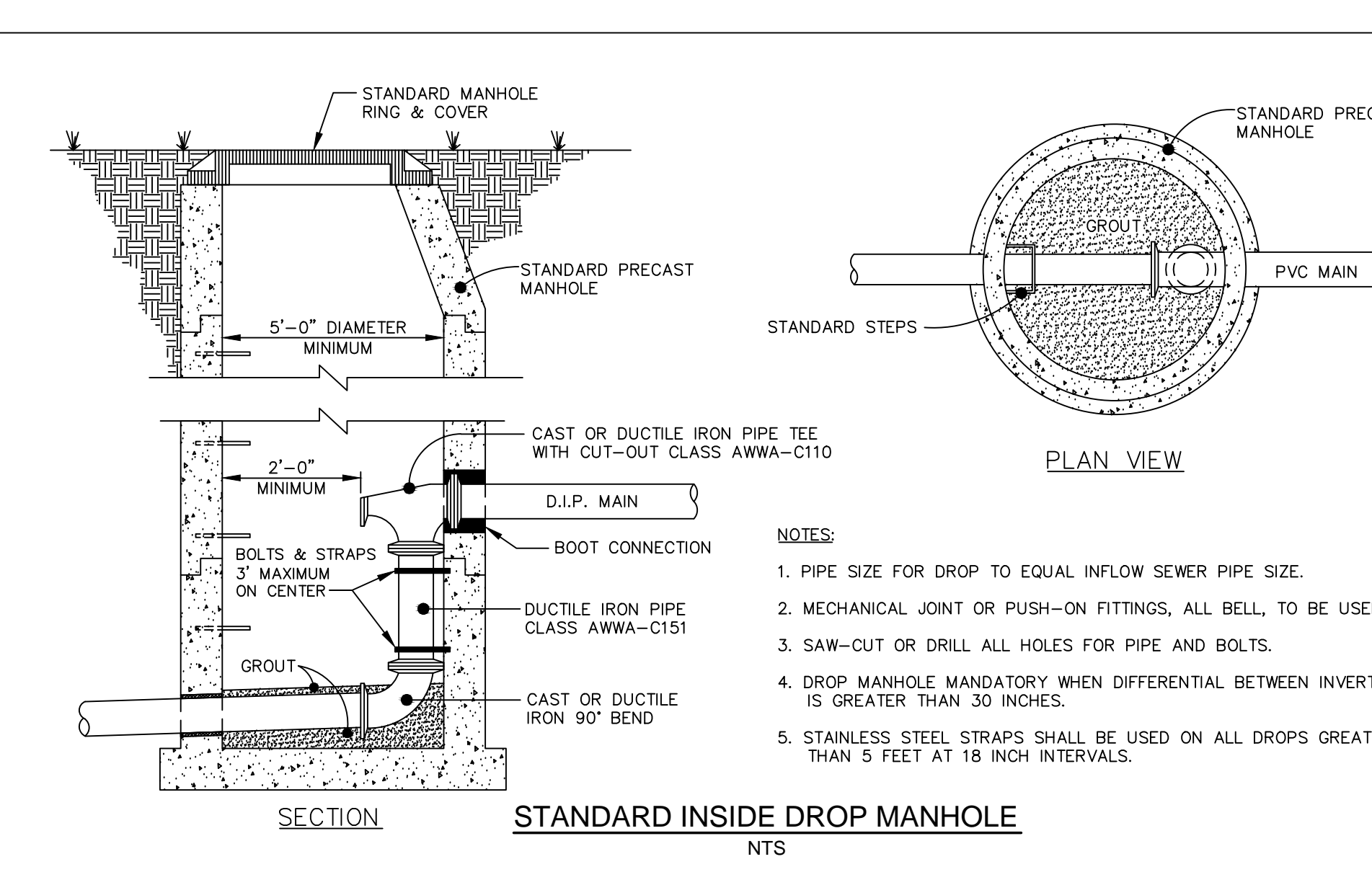
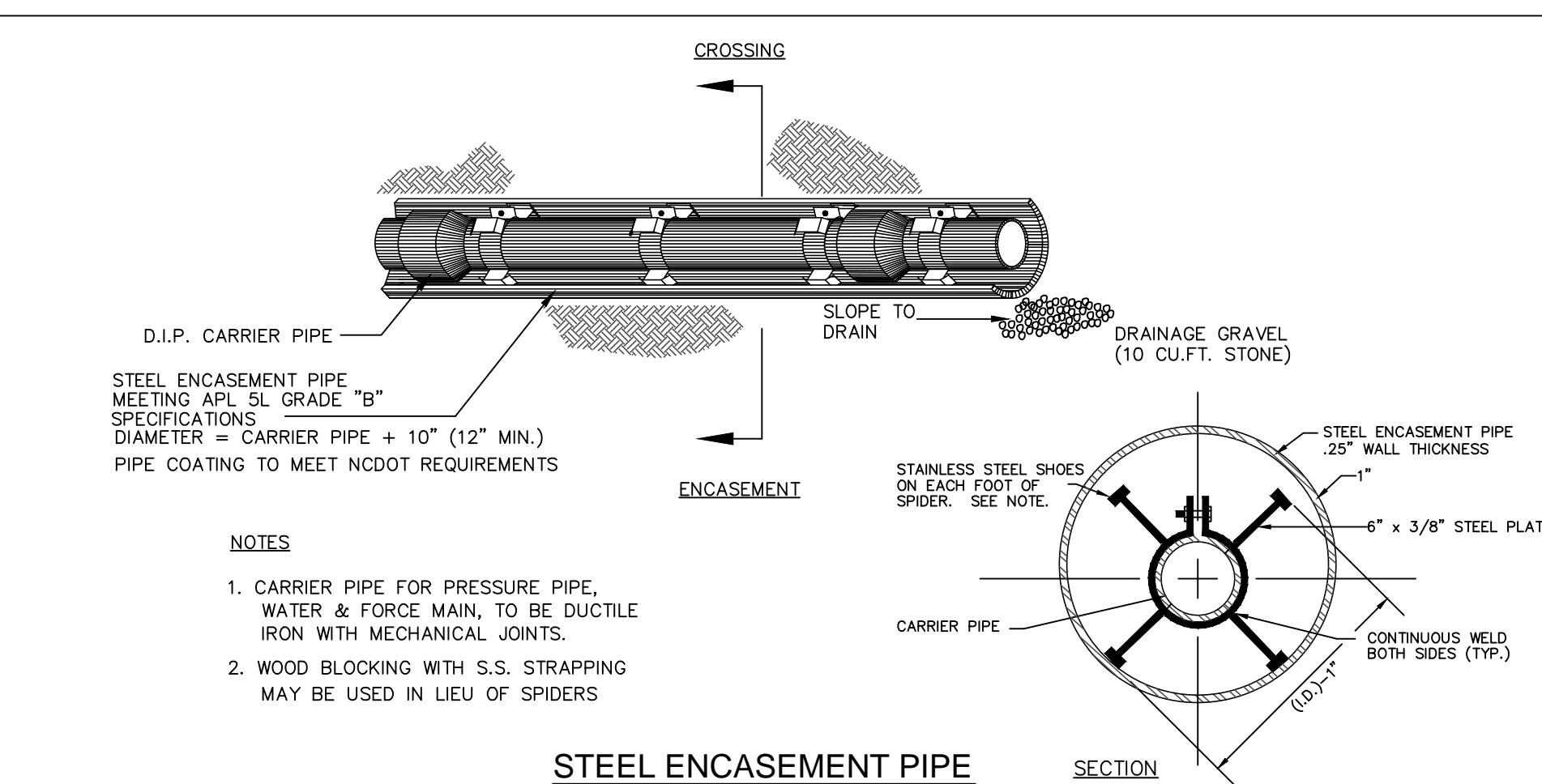


**DETECTABLE WARNING TAPE NOTES:**

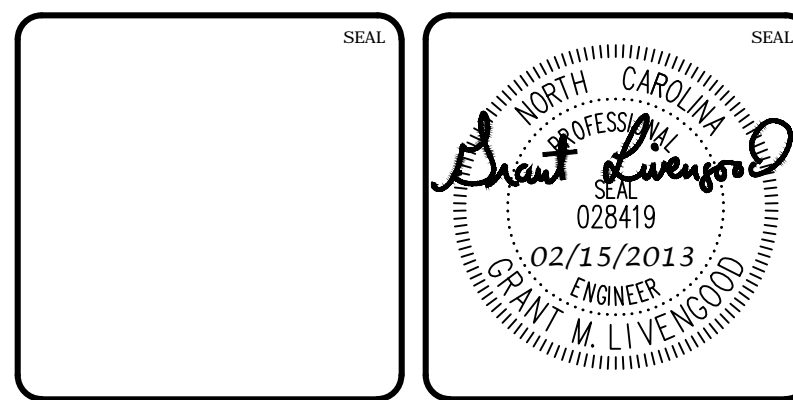
1. THE TAPE SHALL BE AN INERT, BONDED LAYER PLASTIC WITH A METALIZED FOIL CORE AND SHALL BE HIGHLY RESISTANT TO ALKALIS, ACID, OR OTHER DESTRUCTIVE CHEMICAL COMPONENTS LIKELY TO BE ENCOUNTERED IN SOILS.
2. THE TAPE SHALL BE BRIGHTLY COLORED TO CONTRAST WITH SOIL AND SHALL BEAR AN IMPRINT IDENTIFYING 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.	DATE	DESCRIPTIONS	REVISIONS
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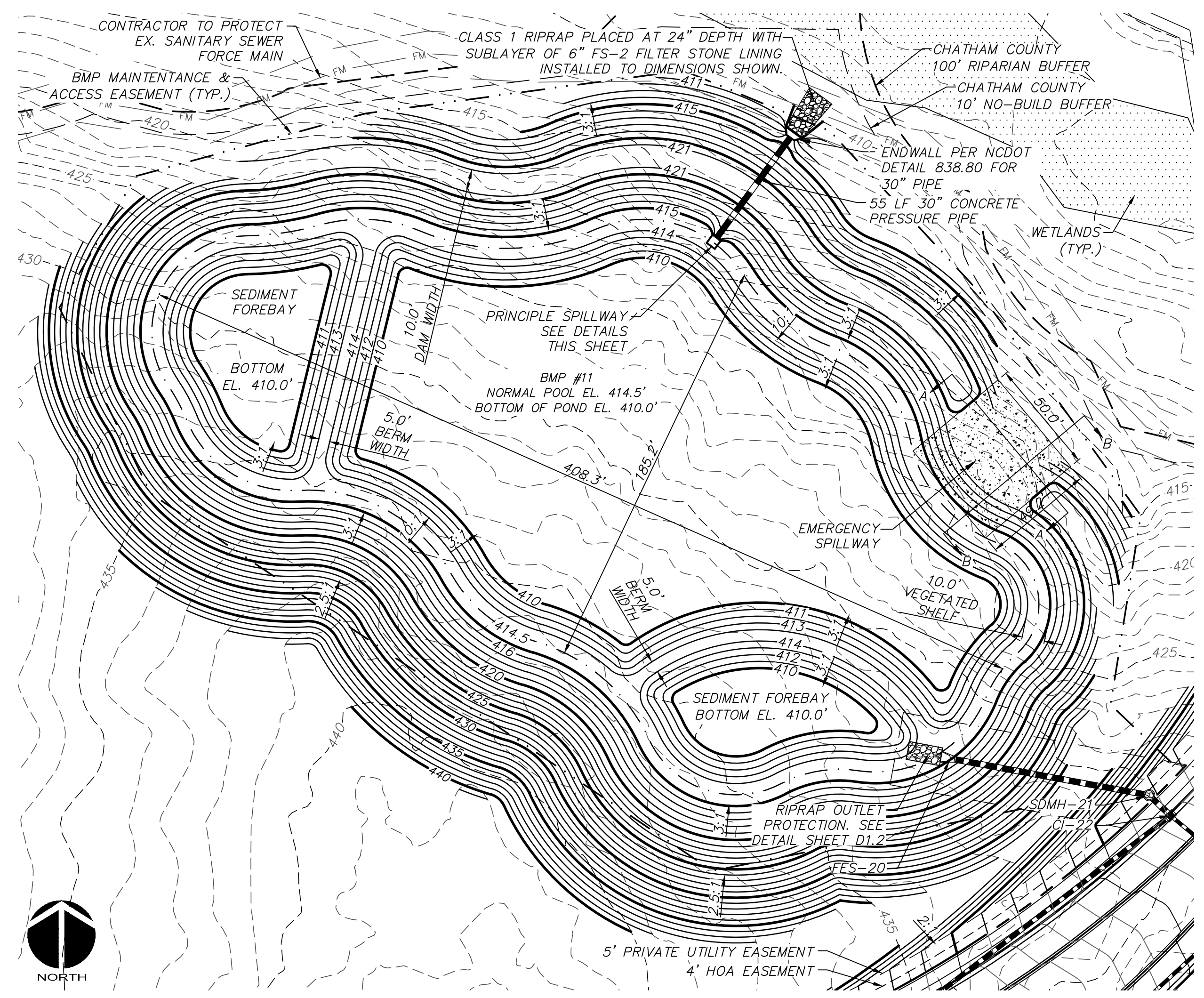
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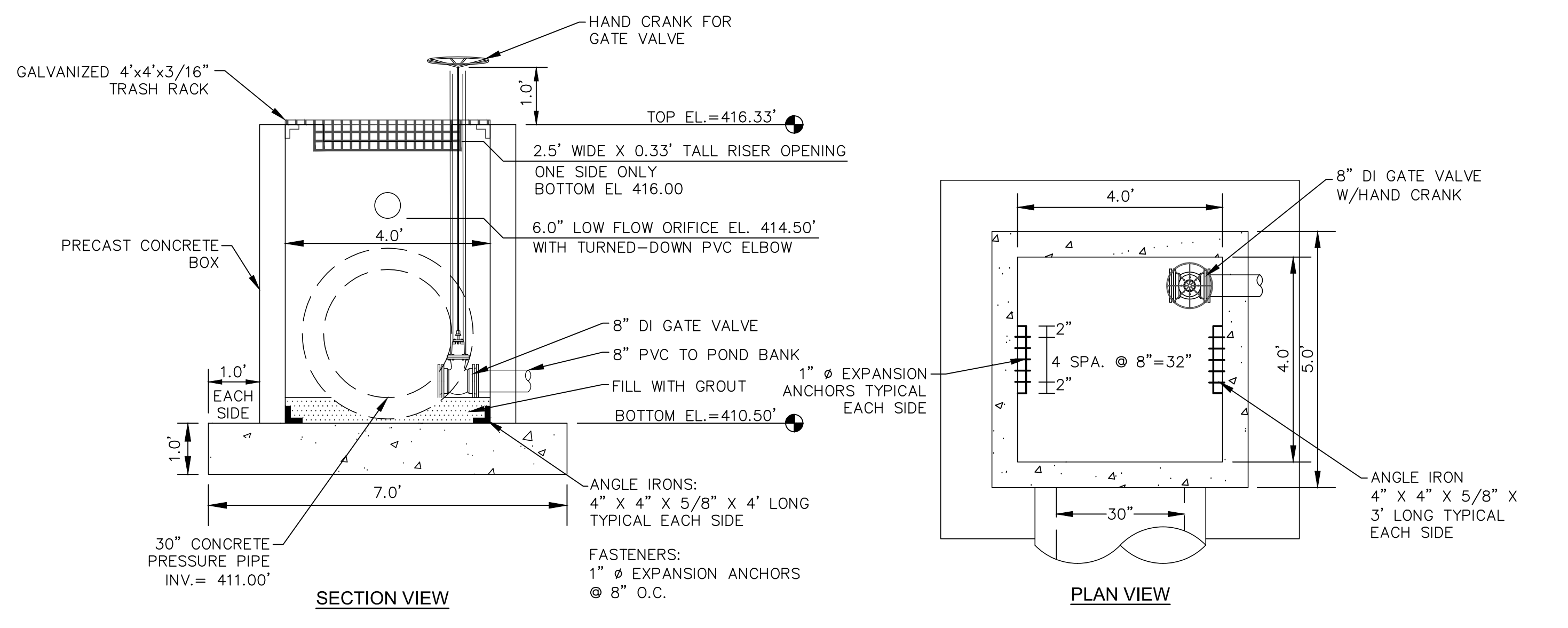
**BRIAR CHAPEL  
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 CHATHAM COUNTY, NORTH CAROLINA**

**UTILITY DETAILS**

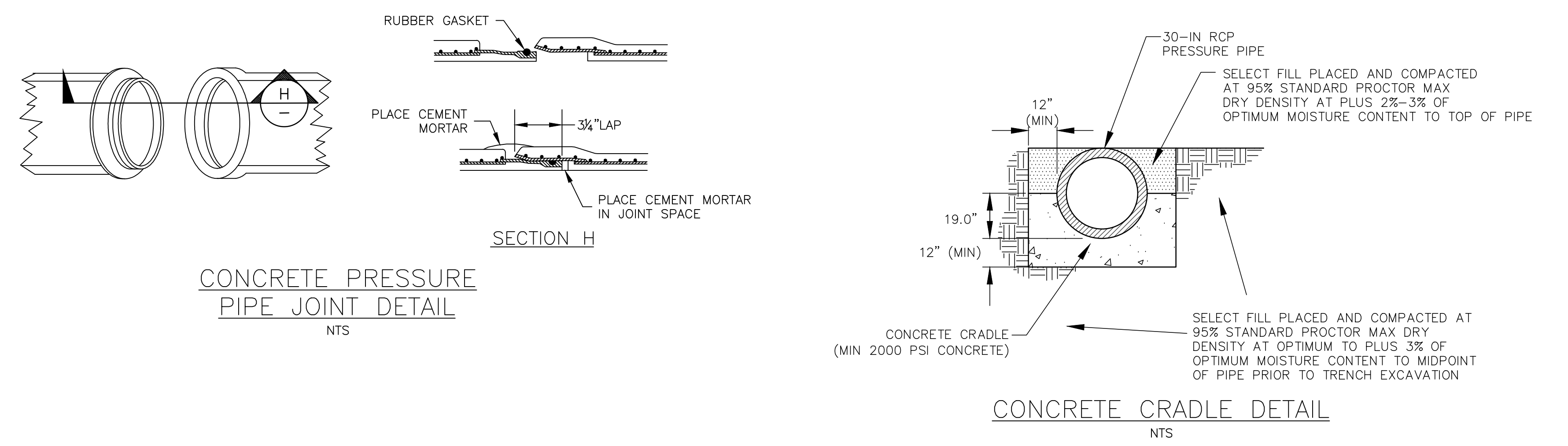
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CHECKED: CHS	PROJ. MGR. CHS	VERTICAL: N/A
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 2	



WET DETENTION POND #12 PLAN VIEW  
SCALE = 1" = 40'

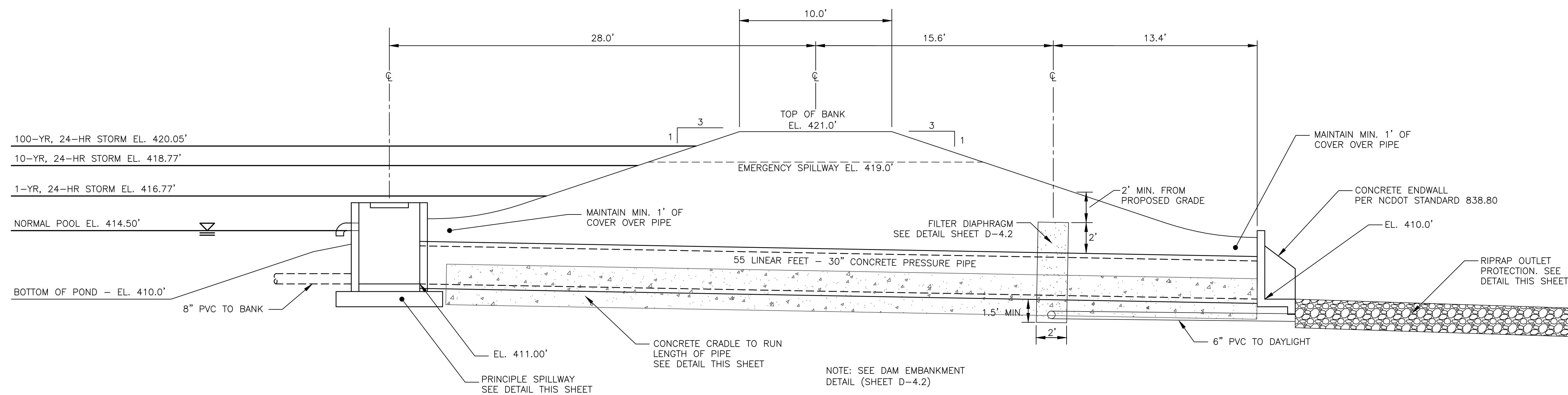


PRINCIPLE SPILLWAY  
SCALE = 1" = 2'

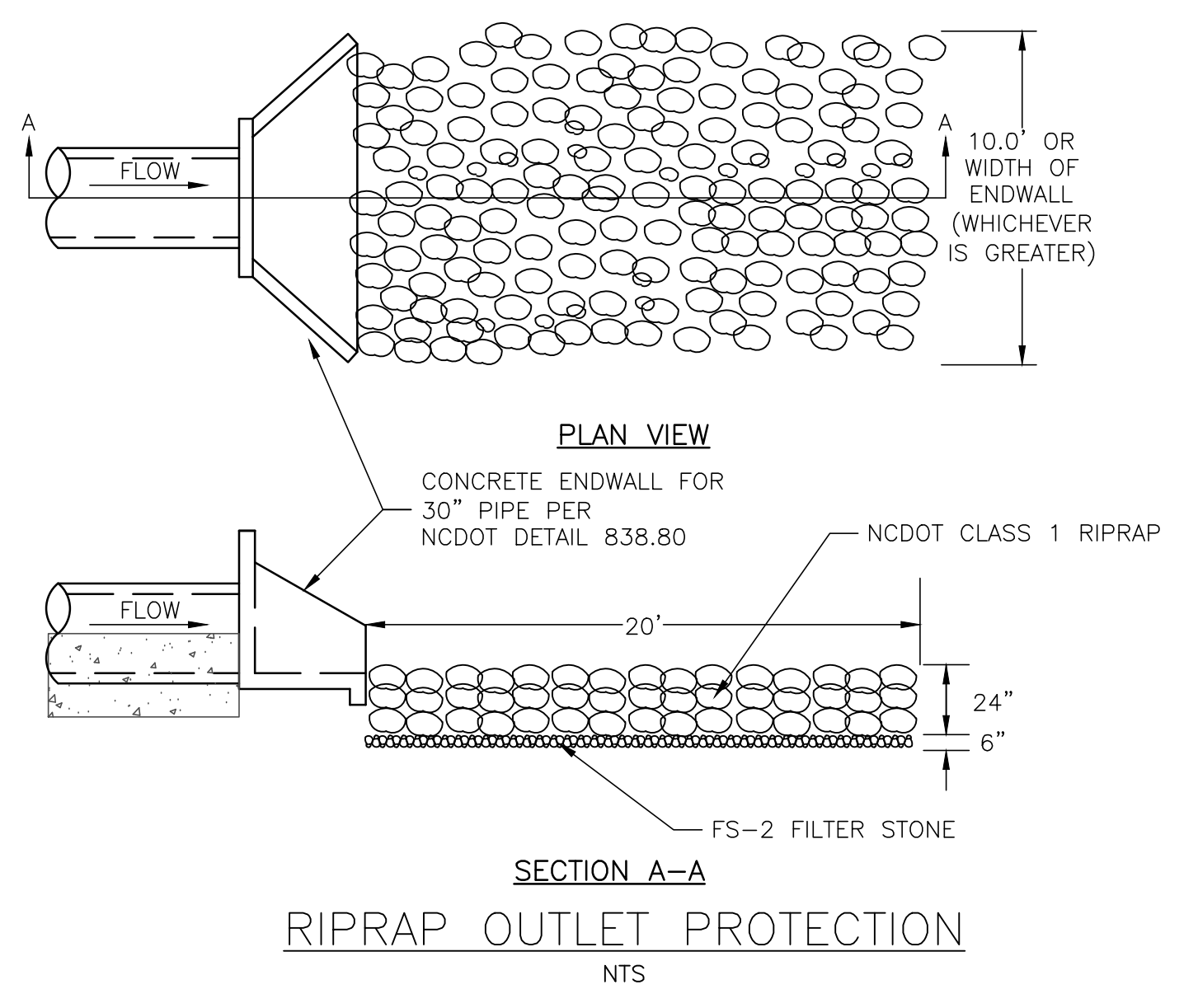


CONCRETE PRESSURE PIPE JOINT DETAIL  
NTS

CONCRETE CRADLE DETAIL  
NTS

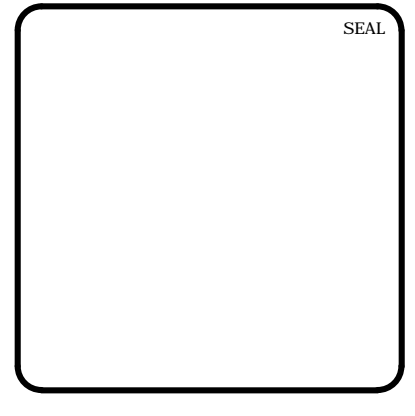


SECTION AT PRINCIPLE SPILLWAY  
SCALE = 1" = 4'



RIPRAP OUTLET PROTECTION  
NTS

REV. NO.	DATE	DESCRIPTIONS	REVISIONS
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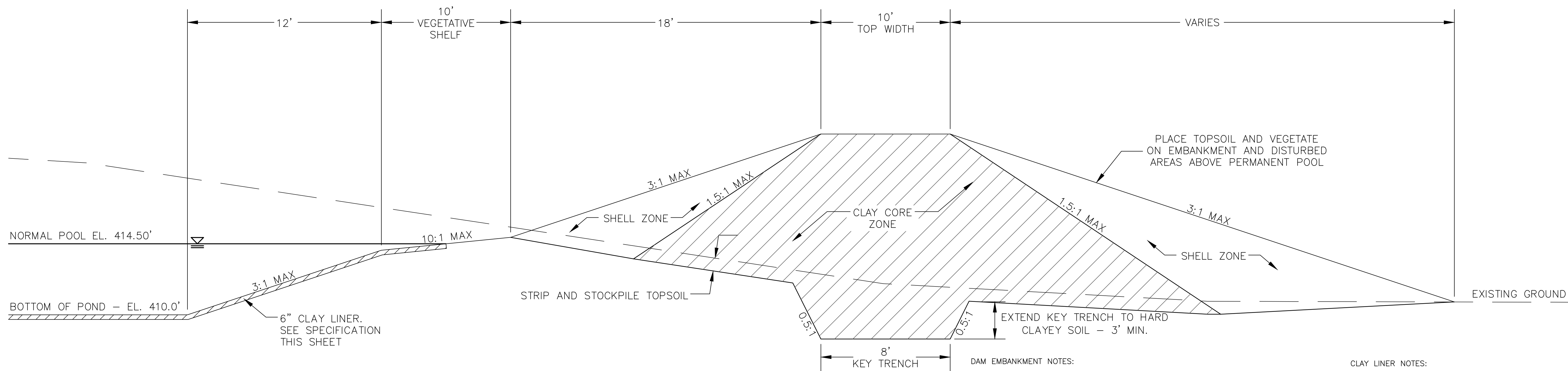
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CHATHAM COUNTY, NORTH CAROLINA**

**BMP #12 PLAN & DETAILS**

DATE: DECEMBER 19, 2012	SCALE: D4.X	MSC FILE NUMBER: D4.X
MCE PROJ. # 02735-0080	HORIZONTAL: AS NOTED	DRAWING NUMBER: D4.1
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 2	





**DAM EMBANKMENT DETAIL**

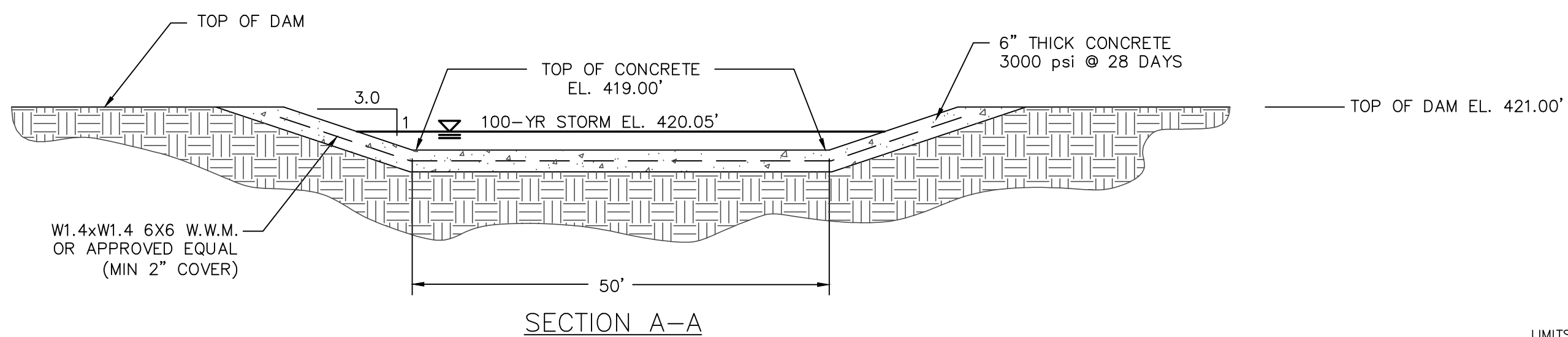
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**DAM EMBANKMENT NOTES:**

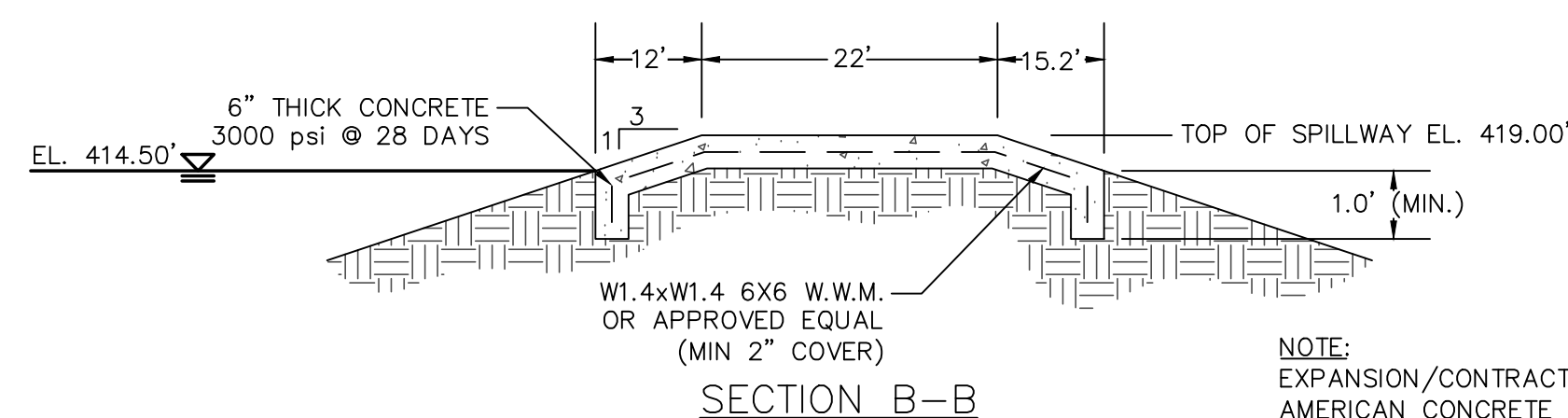
- 1) TOPSOIL BENEATH THE EMBANKMENT SHALL BE REMOVED AND STOCKPILED. THE FOUNDATION WILL BE PROOF ROLLED AND ANY SOFT OR ORGANIC MATERIALS WILL BE REMOVED.
- 2) ALL MATERIAL SHALL BE COMPACTED IN 6-8 INCH LIFTS TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY OR HIGHER (ASTM D-698). THE CLAY CORE ZONE 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 SEEDDED USING THE FOLLOWING GRASS SEED MIX MANUFACTURED BY ERNST SEED COMPANY: Carolina Fac 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**

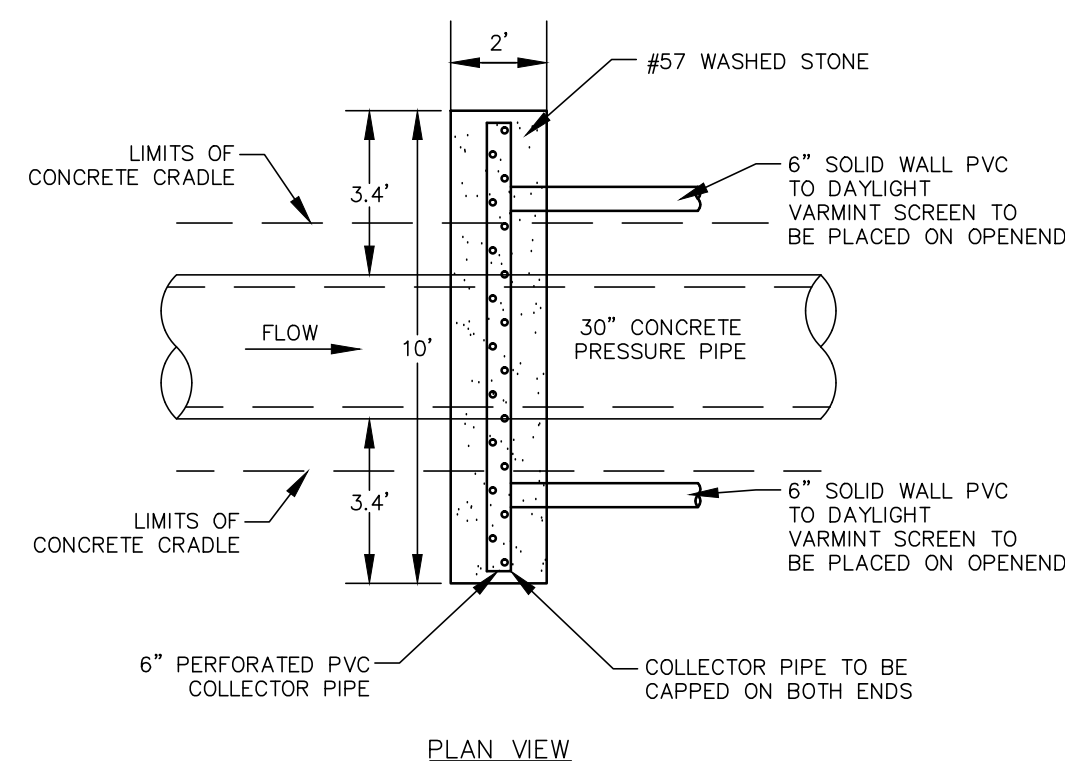


**SECTION B-B**

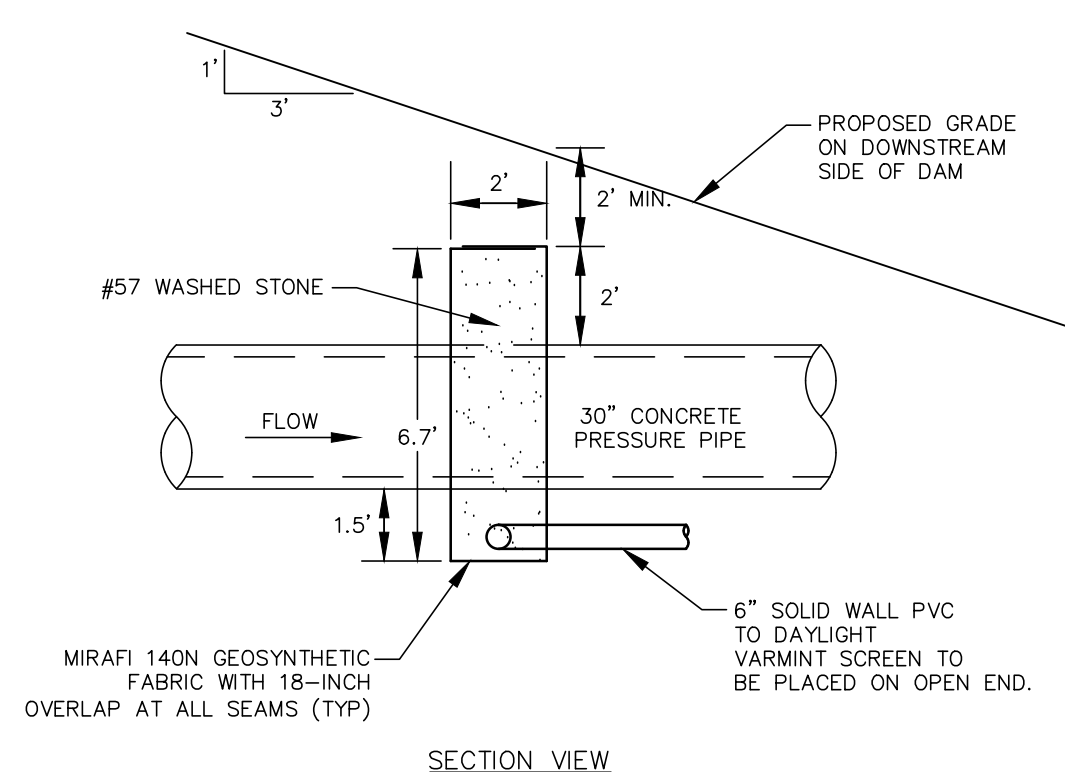
NOTE: EXPANSION/CONTRACTION JOINTS PER AMERICAN CONCRETE INSTITUTE (ACI) STANDARDS FOR SLABS ON GRADE.

**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.

7-081  
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR  
PRECAST CONCRETE ENDWALL  
FOR SINGLE 12" THRU 24" PIPE - 90° SKEW

838.80

838.80

NOTES:  
 \* THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 838.21, 838.27, 838.33 AND 838.39.  
 \* INITIAL PRECAST ENDWALLS WITH WINGS AND RAY 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 1926.754.  
 \* PIPE TO BE GROUDED INTO HEADWALL AT JOB SITE BY CONTRACTOR.  
 \* ALL ELEMENTS PRECAST TO MEET ASTM C913.  
 \* WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.  
 \* CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".

NOTE: THE MINIMUM BAR SIZE SHALL BE #5 BARS AT 9" CTR. THE CONTRACTOR WILL HAVE THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

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

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SEAL

STATE OF NORTH CAROLINA  
PROFESSIONAL ENGINEER  
028419  
02/15/2013  
GRANT M. LIVENGOOD  
ENGINEER

**MCKIM & CREED**

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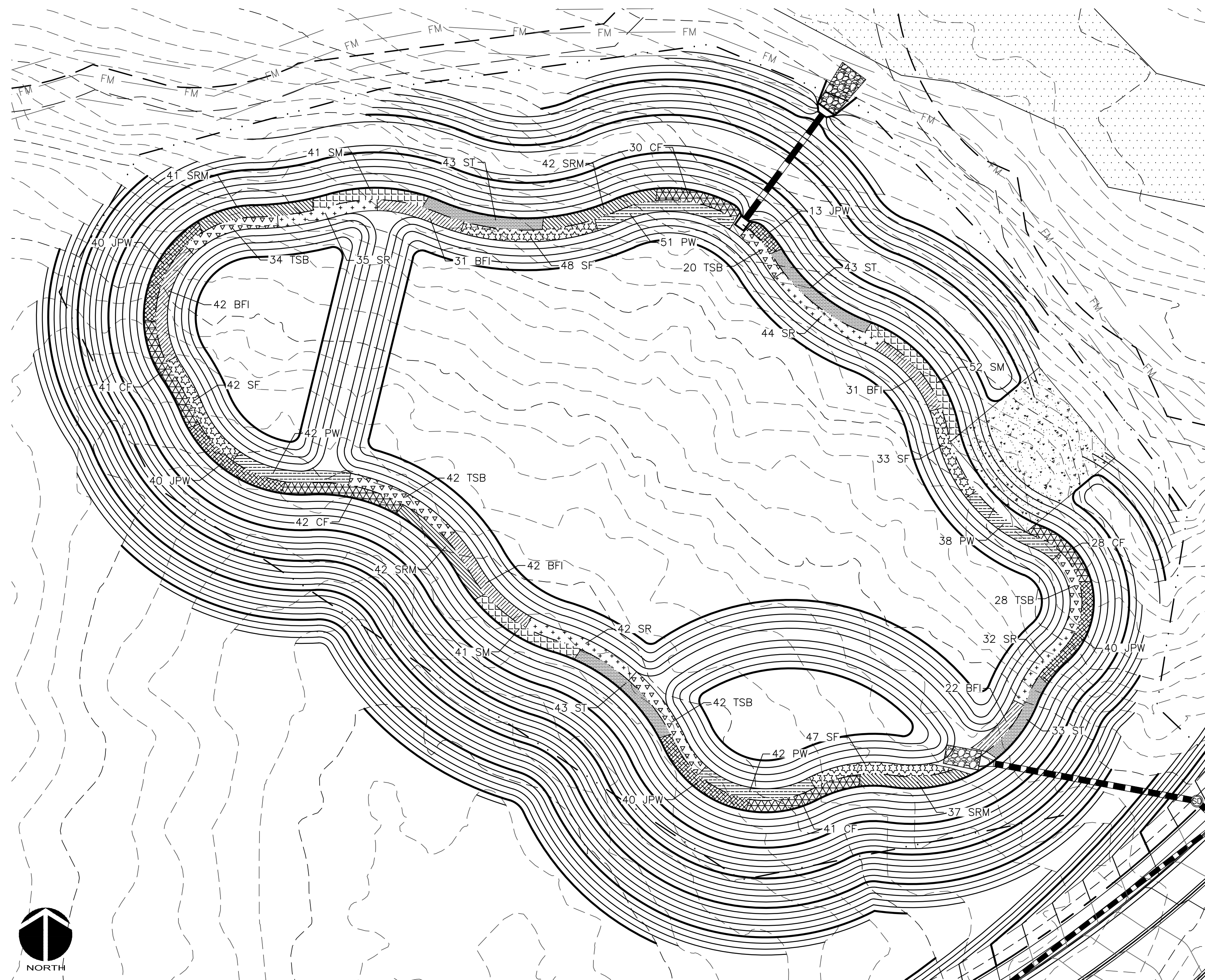
**BMP #12 PLAN & DETAILS**

DATE: DECEMBER 19, 2012  
MCE PROJ. # 02735-0080  
DRAWN: GCA  
DESIGNED: GCA  
CHECKED: CHS  
PROJ. MGR.: CHS

SCALE: HORIZONTAL: AS NOTED  
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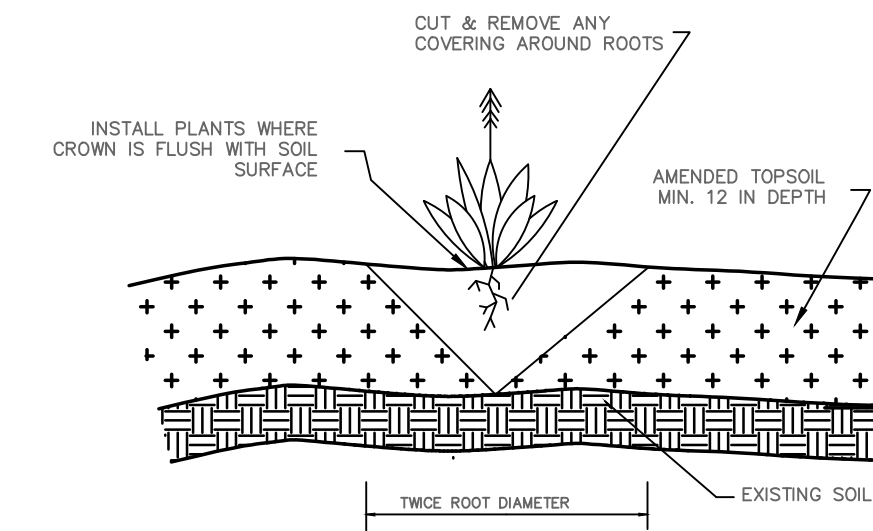
MISC FILE NUMBER: D4.X  
DRAWING NUMBER: D4.2

STATUS: RELEASED FOR CONSTRUCTION  
REVISION: 2



WET DETENTION POND #12 PLANTING PLAN  
SCALE = 1" = 30'

PLANTING SCHEDULE						
SYM.	ABB.	COMMON NAME	BOTANICAL NAME	QUANTITY	SPACING	CONTAINER SIZE AT PLANTING
SHALLOW WATER PLANTINGS						
	SF	SWEETFLAG	<i>Acorus subcordatum</i>	170	24"-30" O.C.	1 QT.
	PW	PICKERELWEED	<i>Pontederia cordata</i>	173	24"-30" O.C.	1 QT.
	BFI	BLUE FLAG IRIS	<i>Iris virginica</i>	168	24"-30" O.C.	1 QT.
	SR	SOFT RUSH	<i>Juncus effusus var. pylaei or solutus</i>	153	24"-30" O.C.	1 QT.
	TSB	THREE SQUARE BULRUSH	<i>Schoenoplectus americanus</i>	166	24"-30" O.C.	1 QT.
SHALLOW LAND PLANTINGS						
	SM	SWAMP MILKWEED	<i>Asclepias incarnata</i>	134	24"-30" O.C.	1 QT.
	CF	CARDINAL FLOWER	<i>Labellia cardinalis</i>	182	24"-30" O.C.	1 QT.
	SRM	SCARLET ROSE MALLOW	<i>Hibiscus coccineus</i>	162	24"-30" O.C.	1 QT.
	JPW	DWARF JOE PYE WEED	<i>Eupatoriadelphus dubius</i>	173	24"-30" O.C.	1 QT.
	ST	SPOTTED TRUMPETWEED	<i>Eupatoriadelphus maculatus</i>	162	24"-30" O.C.	1 QT.



GENERAL PLANTING 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 D-2 FOR SEEDBED PREPARATION AND SEEDING SCHEDULES FOR AREAS NOT SPECIFIED IN THIS PLAN.

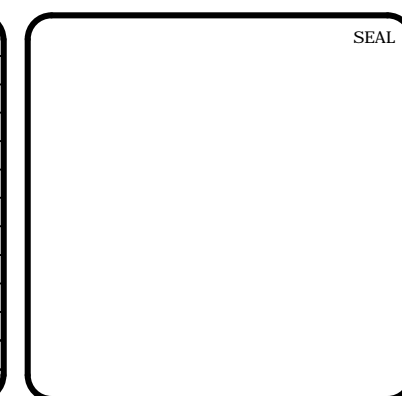
SHALLOW WATER PLANTING NOTES:

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

SHALLOW LAND PLANTING NOTES:

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

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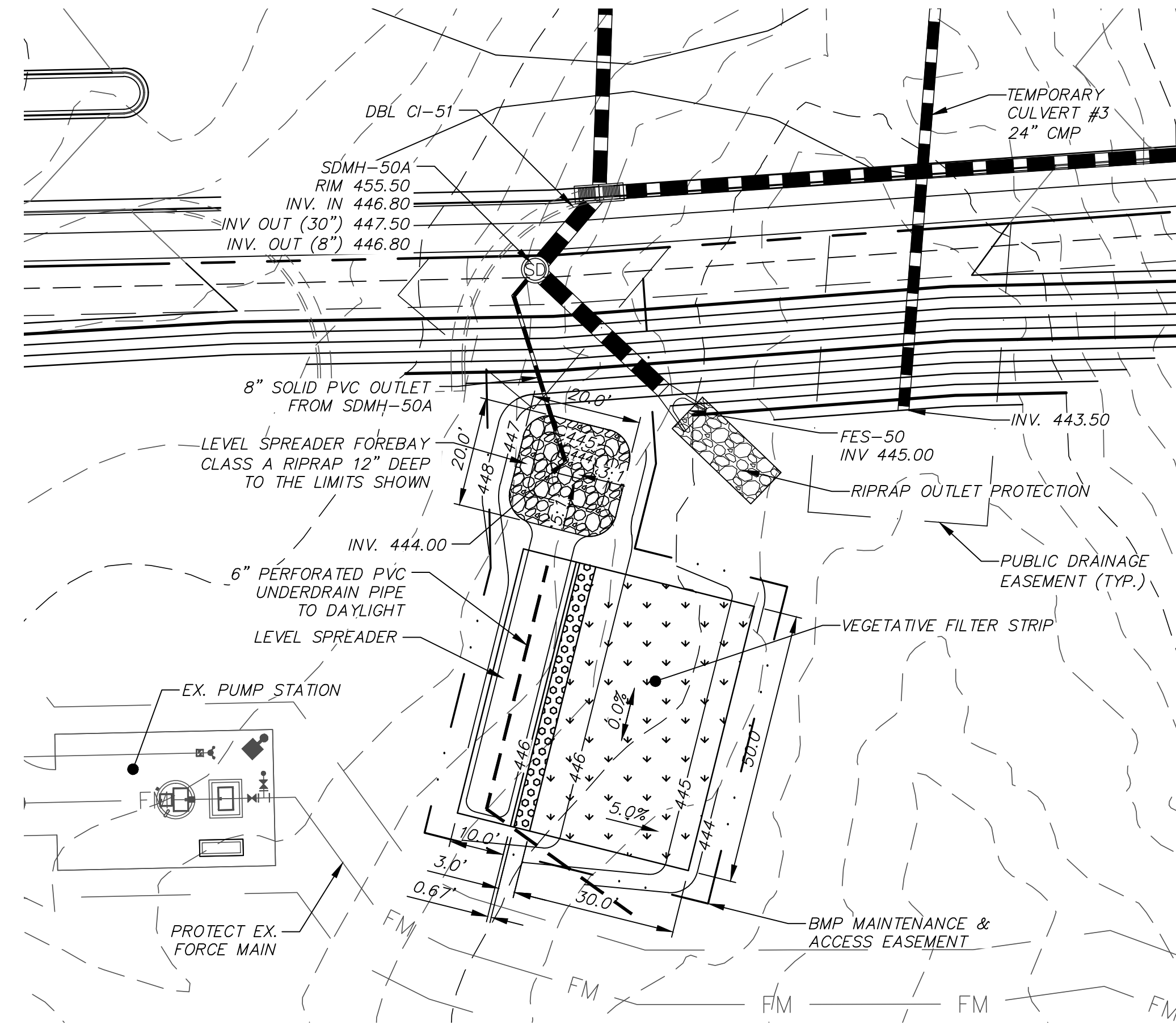


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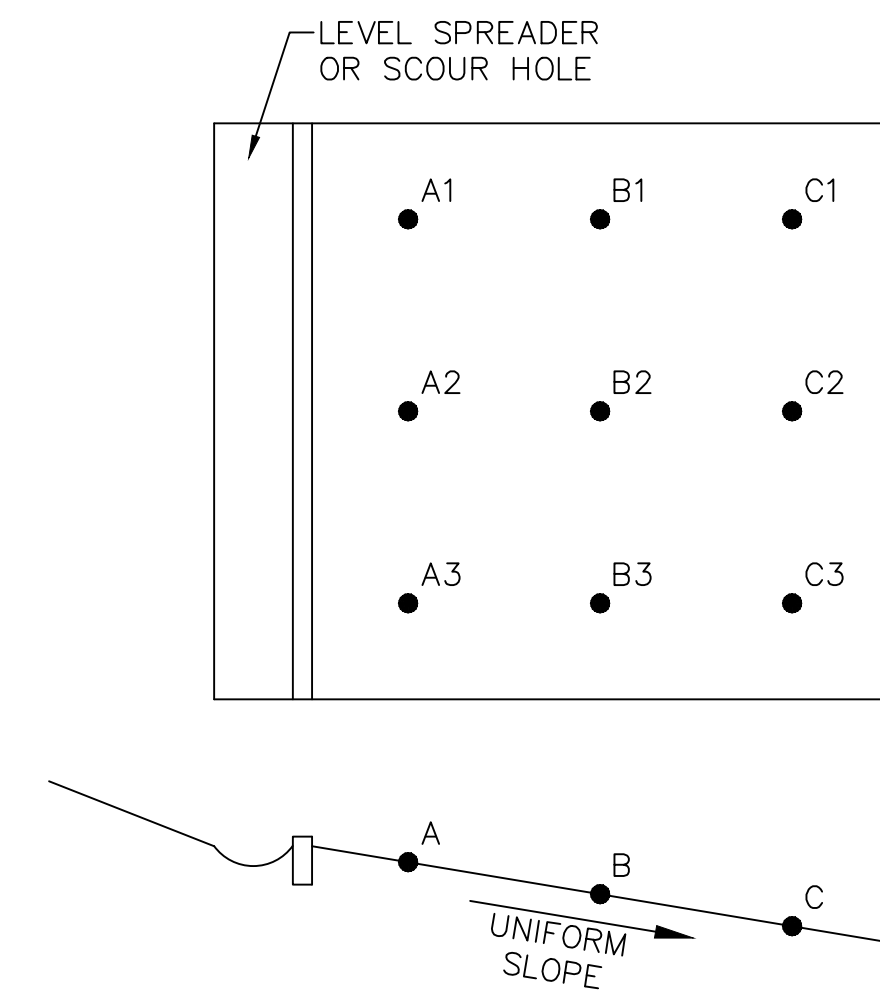
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**CHATHAM COUNTY, NORTH CAROLINA**  
  
**BMP #12 PLAN & DETAILS**

DATE: DECEMBER 19, 2012	SCALE: D4.X	MSC FILE NUMBER: D4.X
MCE PROJ. # 02735-0080	HORIZONTAL: AS NOTED	DRAWING NUMBER: D4.3
DRAWN: GCA	VERTICAL: N/A	
DESIGNED: GCA		
CHECKED: CHS		
PROJ. MGR.: CHS		
STATUS: RELEASED FOR CONSTRUCTION	REVISION: 2	



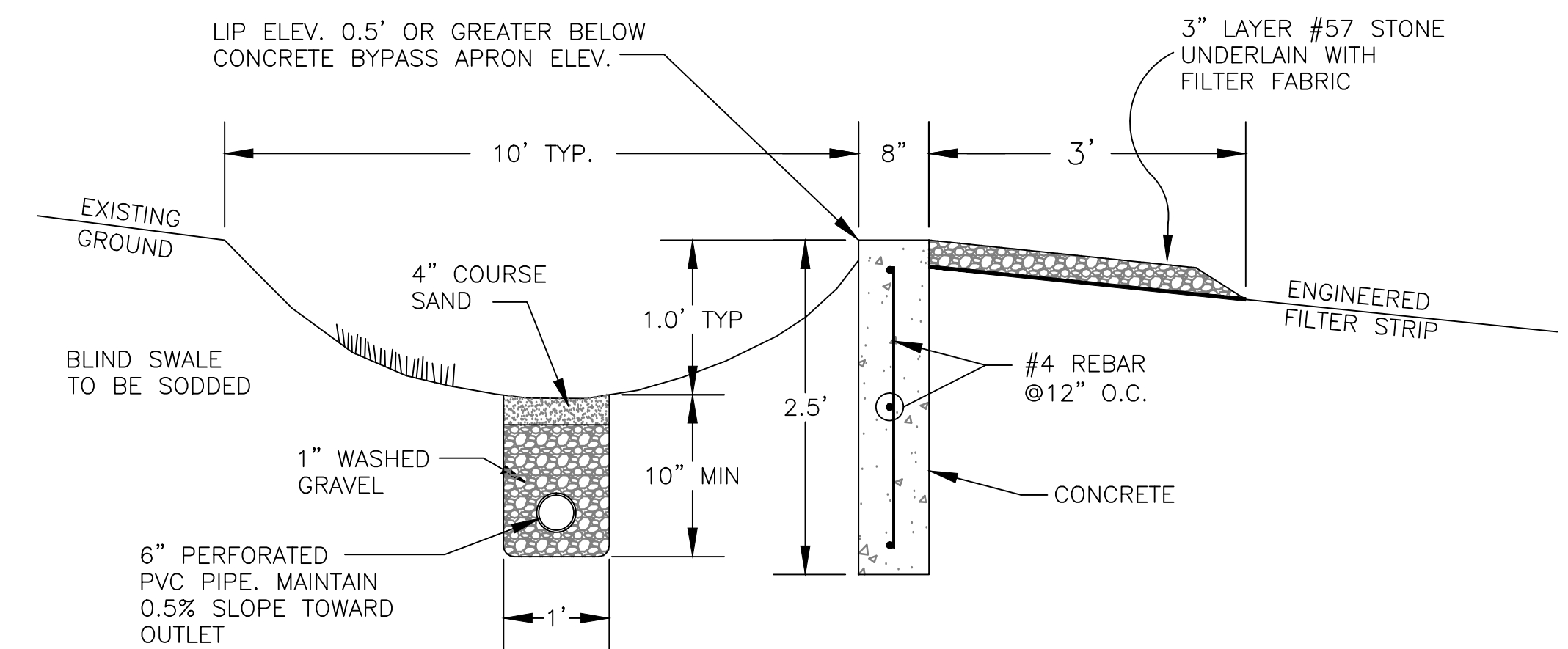
LEVEL SPREADER/VEGETATIVE FILTER STRIP #1  
SCALE: 1"=20'



**NOTES:**

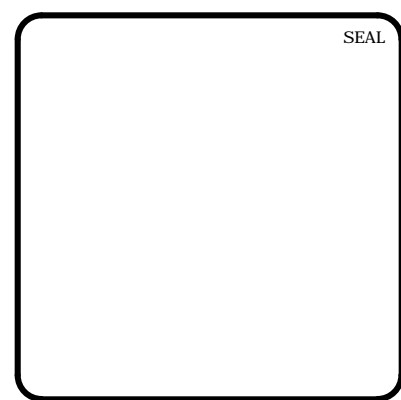
1. THE VEGETATED FILTER STRIP SHALL HAVE A UNIFORMLY GRADED SLOPE. ALL SLOPES A1-A3, B1-B3 & C1-C3 SHALL HAVE EQUAL ELEVATIONS.
2. THE VEGETATED FILTER STRIP SHALL BE GRADED PER THE SLOPES SHOWN ON THE PLAN VIEWS.
3. THE VEGETATED FILTER STRIP AND ANY ADJOINING SIDE SLOPES SHOULD BE COVERED WITH A MINIMUM OF 6" OF TOPSOIL.
4. THE TOPSOIL SHOULD BE AMENDED WITH:  
-2 CUBIC YARDS OF PEAT MOSS/1,000 SF OF TOPSOIL  
-75 LBS GROUND LIMESTONE/1,000 SF OF TOPSOIL  
-40 LBS 5-10-10 STARTER FERTILIZER/1,000 SF OF TOPSOIL
5. VEGETATED FILTER STRIP SHALL BE PLANTED WITH TALL FESCUE SOD ON TOP OF AMENDED TOPSOIL. SOD SHOULD BE GROWN IN NON-CLAYEY SOILS OR SHOULD BE WASHED SOD.
6. THE SOD SHOULD BE WATERED SEVERAL TIMES A WEEK FOR 1 TO 3 WEEKS, KEEPING THE TOP 1.5 INCHES OF SOIL MOIST, UNTIL ROOTS BEGIN TO BECOME ESTABLISHED.

VEGETATIVE FILTER STRIP  
NTS



LEVEL SPREADER SECTION VIEW  
NTS

REV. NO.	DESCRIPTIONS	DATE
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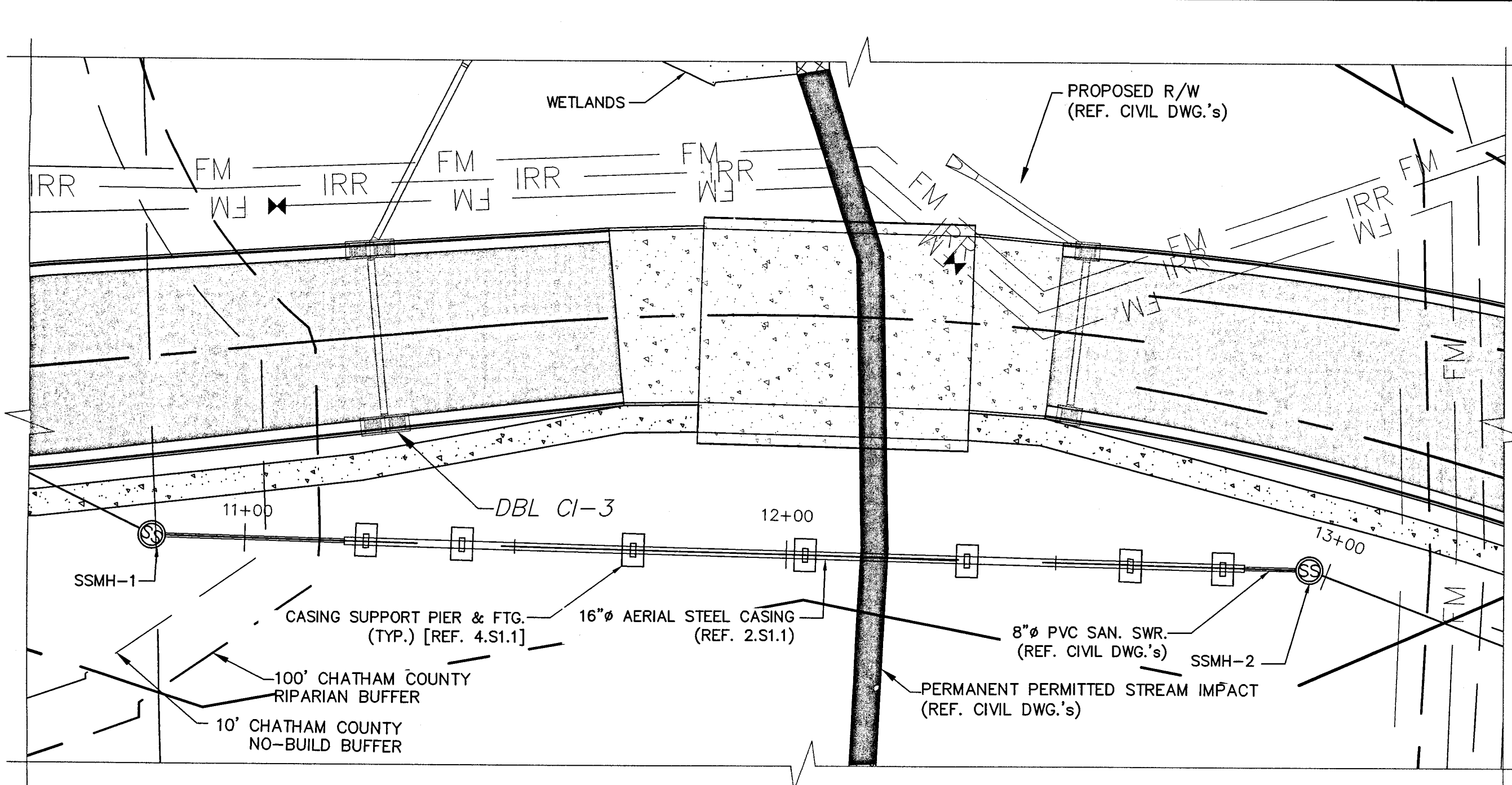
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**CHATHAM COUNTY, NORTH CAROLINA**  
**BMP DETAILS**  
**LEVEL SPREADER/**  
**VEGETATIVE FILTER STRIP #1**

DATE:	DECEMBER 19, 2012
MCE PROJ. #	02735-0080
DRAWN	GCA
DESIGNED	GCA
CHECKED	CHS
PROJ. MGR.	CHS

SCALE	D4.X
HORIZONTAL:	AS NOTED
VERTICAL:	N/A
DRAWING NUMBER	D4.4
REVISION	2

STATUS: RELEASED FOR CONSTRUCTION

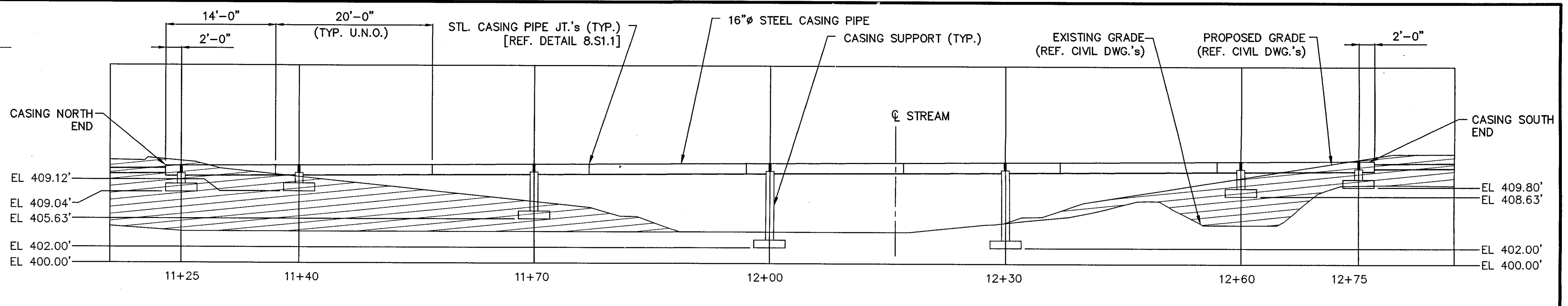


**1 - PLAN - GREAT RIDGE PARKWAY SANITARY SEWER CROSSING PLAN**  
SCALE: 1" = 20'  
NORTH

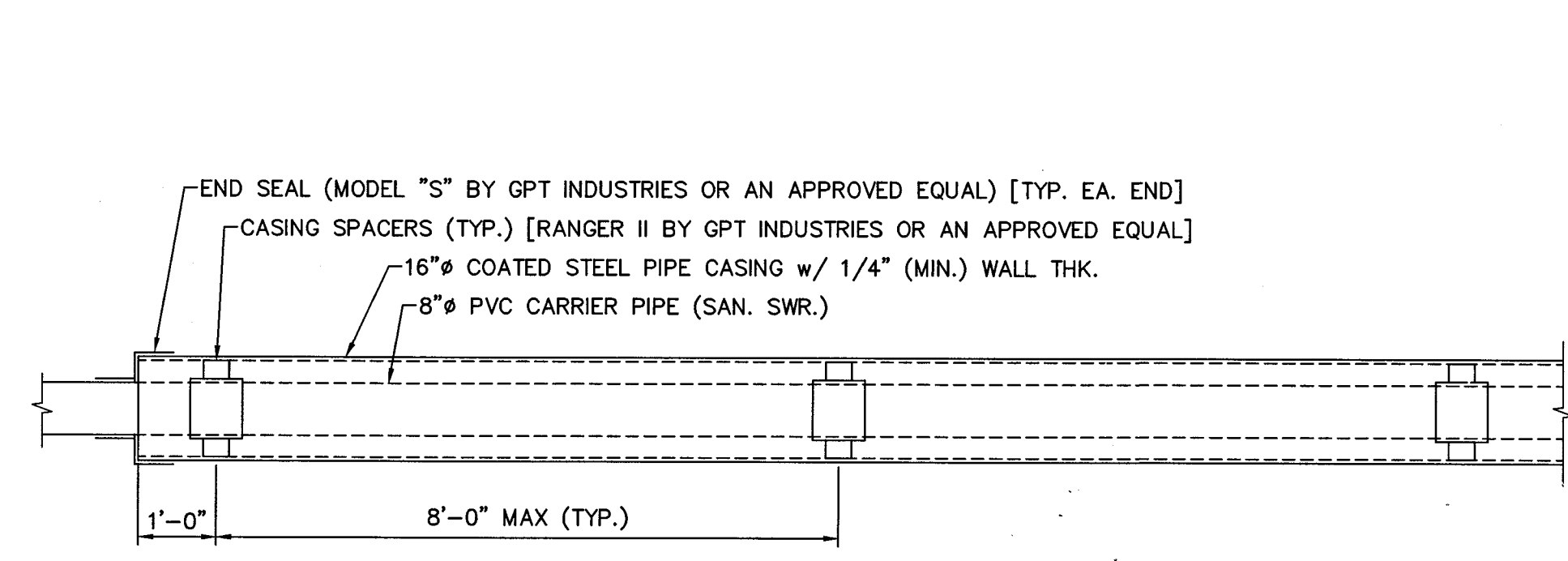
**GENERAL NOTES & MATERIAL SPECIFICATIONS:**

- 1.0 FOUNDATIONS**
- DESIGN ALLOWABLE SOIL BEARING PRESSURE - 1,500 PSF. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THIS VALUE PRIOR TO FOUNDATION CONSTRUCTION. IN AREAS WHERE THE SOIL DOES NOT YIELD THIS BEARING STRESS VALUE, ADJUSTMENT IN THE FOOTING DEPTHS AND FOUNDATION DIMENSIONS MAY BE MADE BY THE ENGINEER BEFORE WORK PROCEEDS. CONTRACTOR IS RESPONSIBLE FOR PERFORMING ANY SUCH ADJUSTMENTS.
  - PREPARE THE EXISTING SUBGRADE AS SHOWN ON THIS DRAWING. IN THE EVENT UNUSUAL SOIL CONDITIONS ARE UNCOVERED, NOTIFY THE OWNER AND ENGINEER PRIOR TO FOUNDATION CONSTRUCTION FOR INSTRUCTIONS HOW TO PROCEED. ADJUSTMENT IN THE FOOTING DEPTHS AND GENERAL FOUNDATION CONSTRUCTION MAY BE MADE BY THE ENGINEER BEFORE WORK PROCEEDS. CONTRACTOR IS RESPONSIBLE FOR PERFORMING ANY SUCH ADJUSTMENTS.
  - ALL FILL BELOW FOUNDATIONS AND AS REQUIRED SHALL BE SELECT MATERIAL FREE FROM ROOTS, TRASH, WOOD SCRAPS, AND OTHER EXTRANEIOUS MATERIALS. PLACE FILL IN LIFTS NOT EXCEEDING THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER.
  - FOOTING ELEVATIONS SHALL NOT BE RAISED OR LOWERED WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.
  - ALL EXCAVATIONS SHALL BE ADEQUATELY DEWATERED BEFORE PLACEMENT OF REINFORCING STEEL AND CONCRETE. NO CONCRETE OR CONCRETE FILL SHALL BE PLACED IN STANDING WATER.
  - FOOTING EXCAVATIONS AND FORMS SHALL BE REVIEWED BY AN OWNER'S CONSTRUCTION REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE.
  - ALL FOOTINGS SHALL BE CENTERED UNDER THE SUPPORTING MEMBER UNLESS NOTED OTHERWISE.
  - ANCHOR BOLTS SHALL BE SET BY MEANS OF TEMPLATE. "FLOATING" ANCHOR BOLTS INTO PLACE IS PROHIBITED.
- 2.0 REINFORCING STEEL**
- REINFORCING STEEL FOR ALL CONCRETE WORK SHALL BE GRADE 60 STEEL CONFORMING TO ASTM A615
  - DETAIL AND FABRICATE REINFORCING STEEL IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "ACI DETAILING MANUAL," LATEST PUBLICATION.
  - REINFORCING STEEL IN PLACE SHALL BE REVIEWED BY THE OWNER'S CONSTRUCTION REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE. IN GENERAL "CLR" DISTANCES FOR CONCRETE COVER ARE AS FOLLOWS:  
A) SURFACES CAST AGAINST SOIL 3" MIN  
B) ALL OTHER SURFACES 2" MIN.
  - BARS SHALL BE COLD BENT AND SHALL NOT BE HEATED FOR ANY REASON.
  - REFERENCE DRAWINGS FOR REQUIREMENTS FOR LAP REINFORCING STEEL IN CONCRETE.
  - LAP SPLICED BARS IN CONCRETE ARE TO BE WIRE TIED.
  - FABRICATOR/CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR OWNER/ENGINEER APPROVAL PRIOR TO FABRICATION.
- 3.0 CONCRETE**
- THE C.I.P. REINF. CONCRETE SUPPORTS SHALL HAVE A MINIMUM (28) DAY COMPRESSIVE STRENGTH OF 4,000 PSI, IN ADDITION THE CONCRETE MIX/WORK SHALL INCLUDE THE FOLLOWING:  
a. CEMENT MATERIAL SUPPLIED SHALL BE TYPE I OR TYPE II PORTLAND CEMENT THAT IS IN CONFORMANCE W/ ASTM C150.  
b. FLY ASH THAT IS IN CONFORMANCE W/ ASTM C618, CLASS F MAY BE INCLUDED IN THE MIX. FLY ASH SHALL USED AS A PARTIAL CEMENT REPLACEMENT & NOT EXCEED 20% OF THE TOTAL CEMENTITIOUS CONTENT.  
c. AGGREGATE SHALL BE "NORMAL" WEIGHT THAT IS IN CONFORMANCE W/ ASTM C33.  
d. WATER SHALL BE IN CONFORMANCE W/ ASTM C94.  
e. AIR ENTRAINING ADMIXTURE IS ALLOWED PROVIDED IT IS IN CONFORMANCE W/ASTM C260. THE TOTAL AIR CONTENT REQUIRED IS 5% ± 1%.  
f. WATER REDUCING ADMIXTURE IS ALLOWED PROVIDED IT IS IN CONFORMANCE W/ASTM C494, TYPE A OR D.  
g. MAXIMUM SLUMP = 3" w/OUT WATER REDUCING ADMIXTURE & 6" w/ A WATER REDUCING ADMIXTURE.  
h. WATER/CEMENT RATIO (w/c) = 0.45 MAXIMUM.  
i. SMOOTH FORMED FINISHES ARE REQUIRED FOR THE PIPE SUPPORT SIDES.
  - CONCRETE WORK SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318 (LATEST EDITION).
  - CHAMFER EXPOSED EDGES OF CONCRETE 3/4 INCH, UNLESS NOTED OTHERWISE.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER CURING OF ALL CONCRETE. ALL CONCRETE WORK IS TO BE MOISTURE CURED.
  - CONTRACTOR SHALL SUBMIT REBAR SHOP DRAWINGS FOR APPROVAL TO OWNER PRIOR TO FABRICATION. DO NOT FABRICATE REINFORCING PRIOR TO RECEIPT OF APPROVED SHOP DRAWINGS.
  - CONCRETE MIXES TO BE REVIEWED BY THE OWNER'S CONSTRUCTION REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE. COMPRESSIVE STRENGTH TEST CYLINDERS TO BE REVIEWED BY THE OWNER'S CONSTRUCTION REPRESENTATIVE THROUGHOUT CONCRETE CONSTRUCTION OF THE PROJECT.
  - ROUGHEN THE "BASE" CONCRETE POUR SURFACE TO A FULL AMPLITUDE OF 1/4" MINIMUM, WHERE NOTED ON THE CONSTRUCTION DRAWINGS.
  - CONCRETE ACCESSORIES, BONDING AGENT - SHALL BE STRUCTURAL EPOXY ADHESIVE CONFORMING TO ASTM C-881 TYPE I AND II, GRADE 2, CLASS B AND C WITH A MINIMUM BOND STRENGTH OF 1900 PSI. USE SIKKA ARMATEC 110 EpoCem OR AN APPROVED EQUAL.
- 4.0 STRUCTURAL STEEL**
- STEEL SHALL CONFORM TO "STANDARD SPECIFICATION FOR STRUCTURAL STEEL," ASTM A-36 (F<sub>y</sub>=36 ksi) FOR PLATES; STEEL PIPE SHALL CONFORM TO ASTM A-53, GRADE B, (F<sub>y</sub>=35 ksi).
  - WELDING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY AWS D1.1 "STRUCTURAL WELDING CODE". WELDING SHALL BE PERFORMED BY CERTIFIED PERSONNEL WHO HAVE BEEN PREVIOUSLY QUALIFIED BY TEST PRESCRIBED IN THE AWS "STRUCTURAL WELDING CODE". ELECTRODES SHALL CONFORM TO AWS 5.5, E70XX.

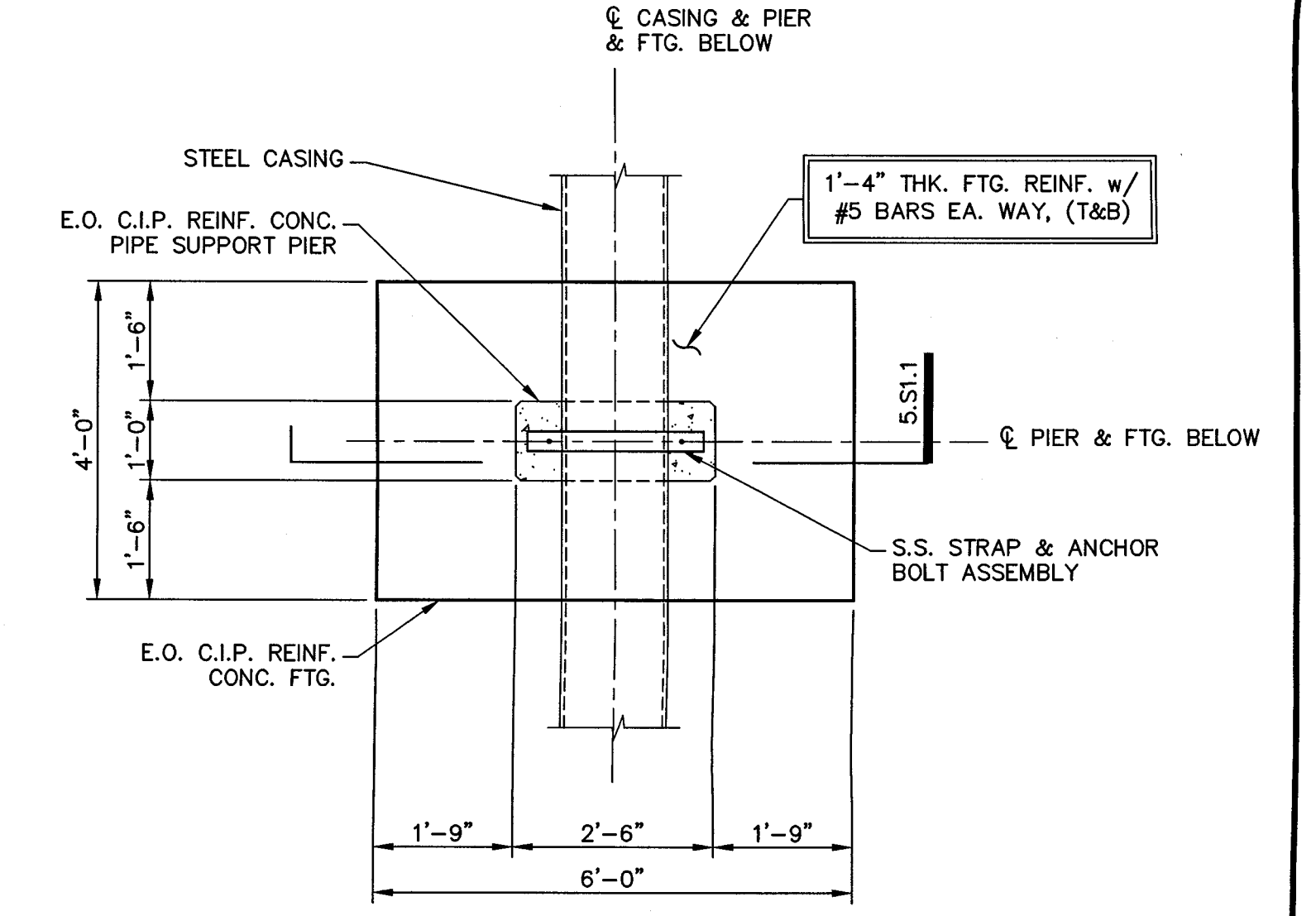
- ALL DESIGN, DETAILING, FABRICATION, COATING AND ERECTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION.
  - IN GENERAL SHOP CONNECTIONS SHALL BE WELDED AND FIELD CONNECTIONS SHALL BE WELDED.
  - FABRICATOR/CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR OWNER/ENGINEER APPROVAL PRIOR TO FABRICATION.
  - ALL WELDED JOINTS SHALL BE BUTT JOINTS WITH FULL PENETRATION V-GROOVE WELD.
- 5.0 COATINGS**
- EXTERIOR & INTERIOR COATING ON PIPE CASING AS FOLLOWS:  
EXTR. SURFACE = PRIMER COAT OF ZINC CHROMATE PRIMER IN CONFORMANCE W/ FED SPEC. TT-86-A AND COAL TAR ENAMEL COATING IN CONFORMANCE W/ AWWA C203.  
INTR. SURFACE = INTERIOR OF PIPE LINED W/ COAL TAR ENAMEL COATING IN CONFORMANCE W/ AWWA C203.



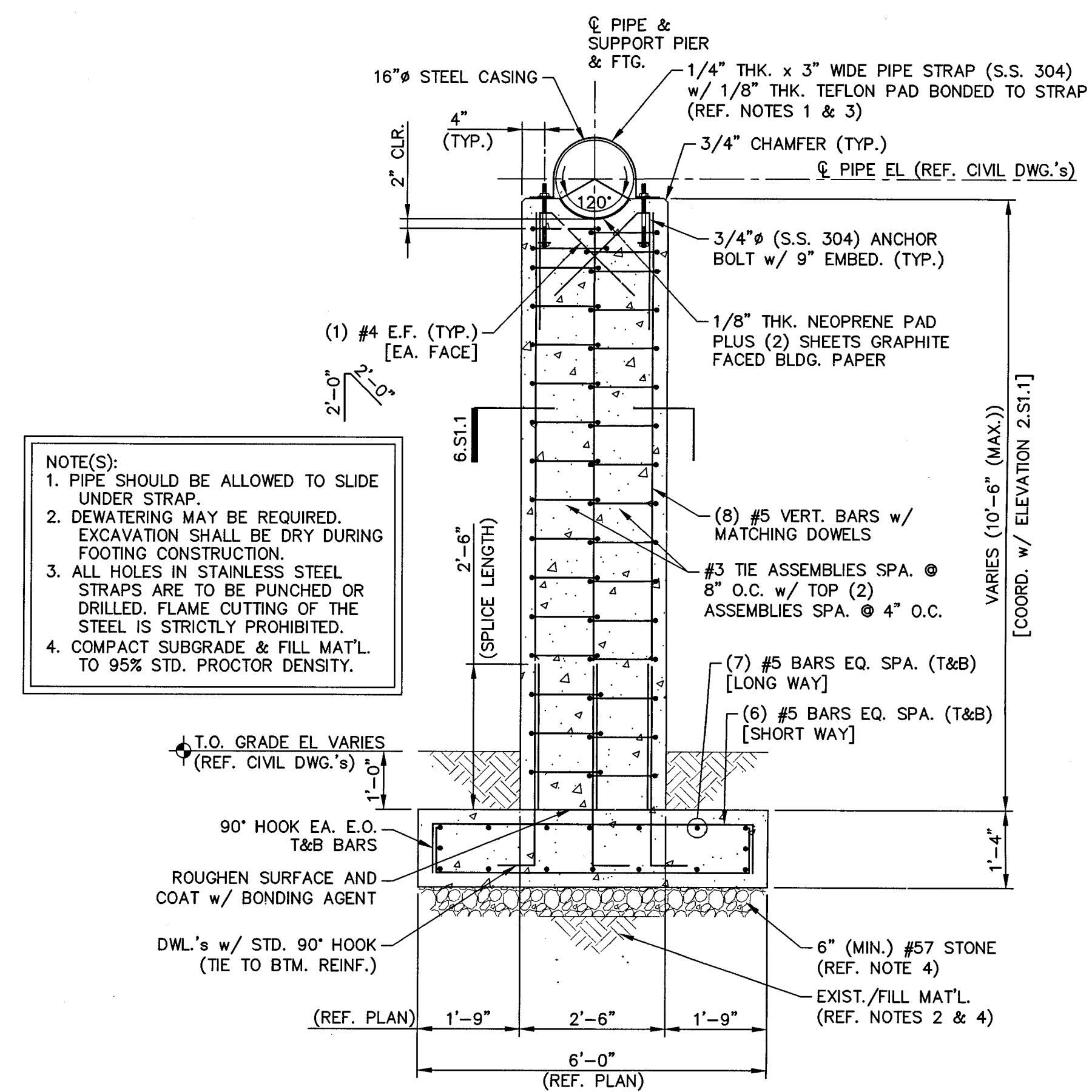
**2 - ELEVATION - GREAT RIDGE PARKWAY SANITARY SEWER CROSSING**  
SCALE: 1" = 10'



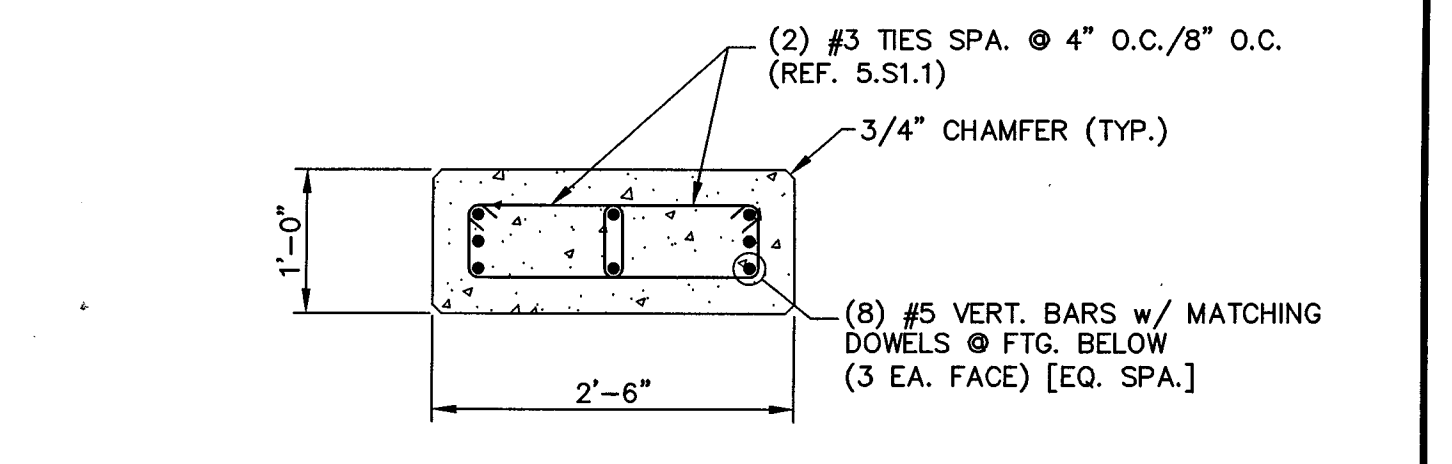
**3 - DETAIL - CASING**  
SCALE: 1/2" = 1'-0"



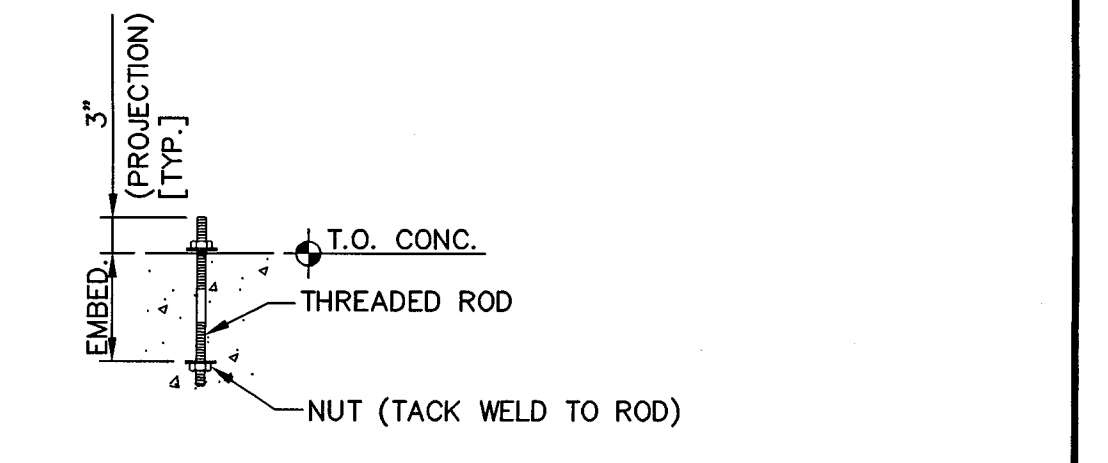
**4 - PLAN - CASING SUPPORT**  
SCALE: 1/2" = 1'-0"



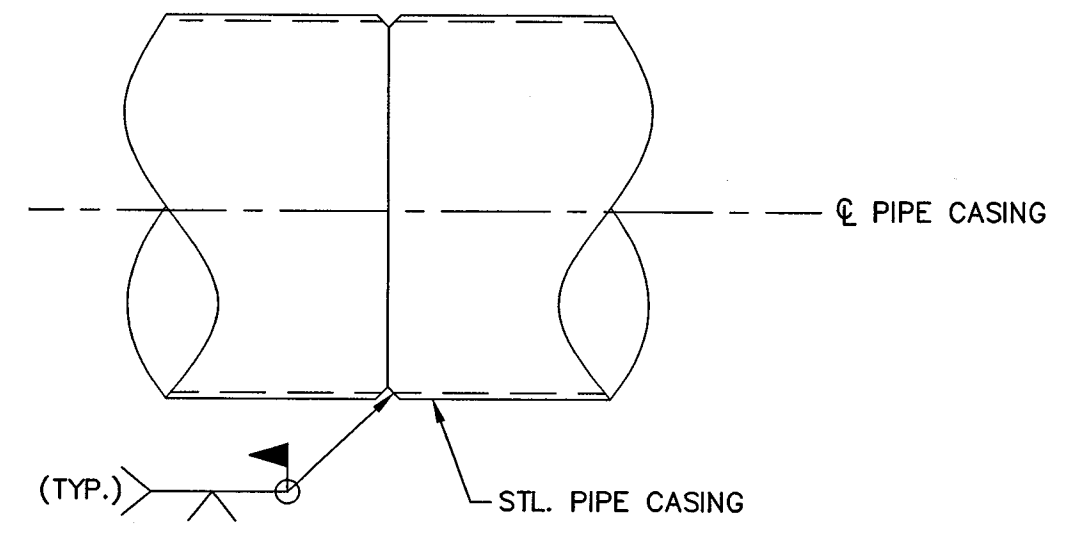
**5 - SECTION - SUPPORT PIER & FTG.**  
SCALE: 1/2" = 1'-0"



**6 - DETAIL - TYP. SUPPORT REINF.**  
SCALE: 3/4" = 1'-0"

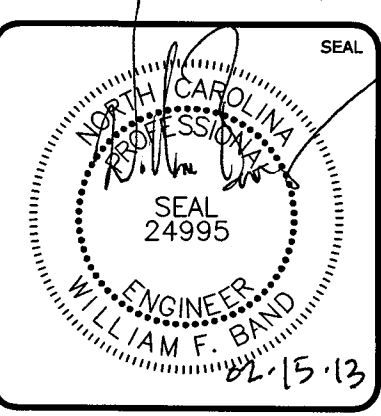
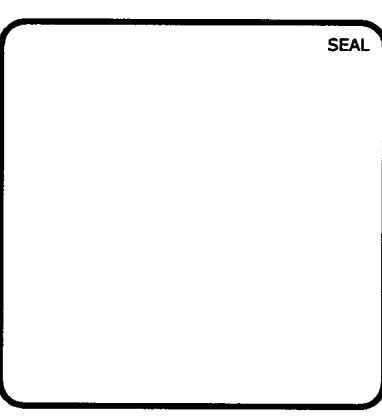


**7 - DETAIL - TYP. ANCHOR BOLT**  
SCALE: 3/4" = 1'-0"



**8 - DETAIL - PIPE CASING JOINT**  
SCALE: 1 1/2" = 1'-0"

2	RELEASED FOR CONSTRUCTION	2013.02.15
1	ISSUED FOR PERMITTING	2012.12.19
REV. NO.	DESCRIPTION	DATE
	REVISIONS	



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**BRIAR CHAPEL**  
GREAT RIDGE PARKWAY EXTENSION  
CHATHAM COUNTY, NORTH CAROLINA  
SANITARY SEWER CROSSING  
AERIAL CASING SUPPORT  
PLANS, SECTIONS & DETAILS

DATE: DECEMBER 19, 2012	SCALE	M&C FILE NUMBER
MCE PROJ. # 02735-0080	HORIZONTAL: AS NOTED	SC101
DRAWN SWF/SH	VERTICAL: N/A	DRAWING NUMBER
DESIGNED SH		S1.1
CHECKED WFB		
PROJ. MGR. CHS		
STATUS: RELEASED FOR CONSTRUCTION		REVISION
		2