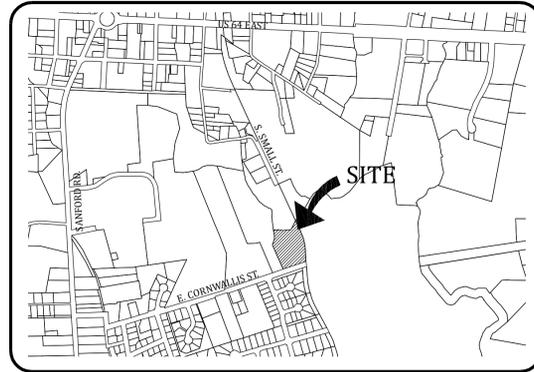


# CORNWALLIS COMMONS

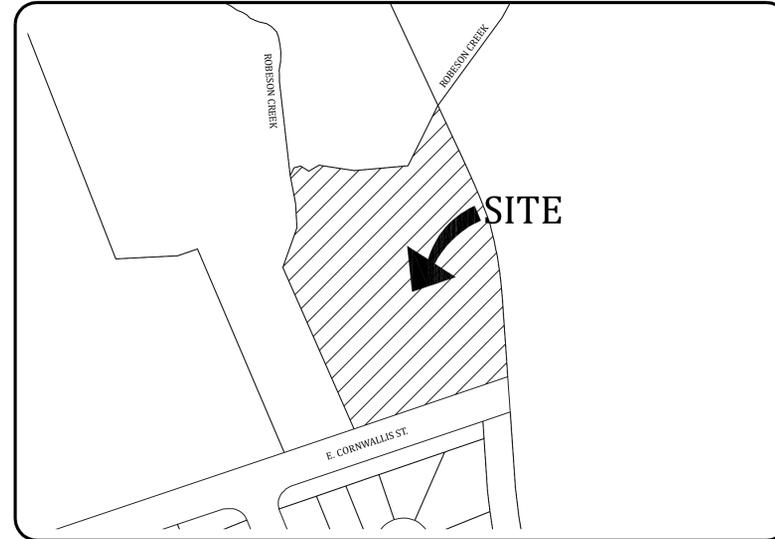
## CONSTRUCTION PLANS

### UNDERFOOT PROJECT # C13010.00



VICINITY MAP

SCALE: 1" = 1000'



SHEET INDEX	
COVER	COVER SHEET
C-100	EXISTING CONDITIONS PLAN
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C-400	UTILITY PLAN
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C-600	BMP PLAN (BMPs 1 & 2)
C-601	BMP PLAN (BMPs 3 & 4)
C-700	PLAN AND PROFILE
C-800	GRADING, DRAINAGE AND EROSION CONTROL DETAILS
C-801	UTILITY DETAILS
L-100	LANDSCAPE PLAN

SITE DATA	
Address:	463 E. CORNWALLIS STREET
PIN #:	9741-94-5478
Site Area: (ac.)	3.36
Right of Way Area: (ac.)	0.33
Zoning:	R-10
FEMA FLOODPLAIN	ZONE AE, 370420974100J, FEB. 2 2007
Existing # of Lots:	3
Proposed # of Lots:	12
Density: (Lots / AC)	3.57
Allowable Minimum Lot Size: (sf)	2,000
Proposed Minimum Lot Size: (sf)	2,730
Average Lot Size: (sf)	3,157
Setbacks:	
FY:	8'
SY:	5' MIN. (12' MIN. BETWEEN BUILDINGS)
RY:	8'
Parking:	
Required # of Spaces:	(.75 SPACES / BEDROOM) * 10 UNITS * 3 BEDROOMS / UNIT = 23 SPACES
Proposed # of Spaces:	27 SPACES
Open Space	
Common Required:	500 SF/LOT * 12 LOTS = 14 AC
Common Proposed:	2.12 AC
Private Required:	200 SF/LOT
Private Proposed:	200 SF/LOT
Infrastructure Quantities:	
4" Potable Waterline: (ft)	288
8" Public Sanitary Sewer: (ft)	453
6" Private Sanitary Sewer: (ft)	310
Average Sewer Flow: (gpd)	4,080 (12 UNITS * 340 GPD/UNIT)
Built Upon Area	
Streets / Parking Lot: (ac.)	0.45
Sidewalks: (ac.)	0.10
Lots (Max 1,500 sf per lot): (ac.)	0.43
Trails: (ac.)	0.06
Total: (ac.)	1.04
Total BUA: (ac.)	28%
*Percent impervious calculation includes additional impervious within the E. Cornwallis Street right of way.	

CONTACT INFORMATION	
DEVELOPER/OWNER	ORANGE COMMUNITIES LLC 73 HALEY MEADOW DRIVE MONCURE, NC 27559 MIKE DASHER MIKE.DASHER@ORANGECOMMUNITIES.COM 919.530.9511
CIVIL ENGINEER	UNDERFOOT ENGINEERING, INC. (NCBELS #C-3847) PO BOX 37781 RALEIGH, NC 27627 LONDON LOVELACE, PE, NCLD, LEED AP LLOVELACE@UNDERFOOTENGINEERING.COM 919.576.9733
LANDSCAPE ARCHITECT	ARNETTE B. CLARK DESIGN, INC CARY, NC ARNETTE B. CLARK, RLA, ASLA ARNETTE@NC-RR.COM 919.852.0670
ARCHITECT	HOBBS ARCHITECTS 480 HILLSBORO STREET, SUITE 400 PITTSBORO, NC 27312 G. TAYLOR HOBBS, III, AIA, LEED AP 919.545.2004

CORNWALLIS COMMONS  
CONSTRUCTION PLANS

UNDERFOOT PROJECT # C13010.00  
DATE: 2013.11.22

ALL CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH CURRENT TOWN OF PITTSBORO STANDARDS AND SPECIFICATIONS IN PLACE AT TIME OF PLAN APPROVAL.



CORNWALLIS COMMONS  
CONSTRUCTION PLANS  
PITTSBORO, NC

COVER SHEET

SUBMITTAL:	DRAWN BY:	CHECKED BY:	DATE:
1st SUBMITTAL	MAR	LML	2013.10.17
2nd SUBMITTAL	MAR	LML	2013.11.22

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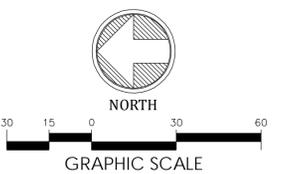
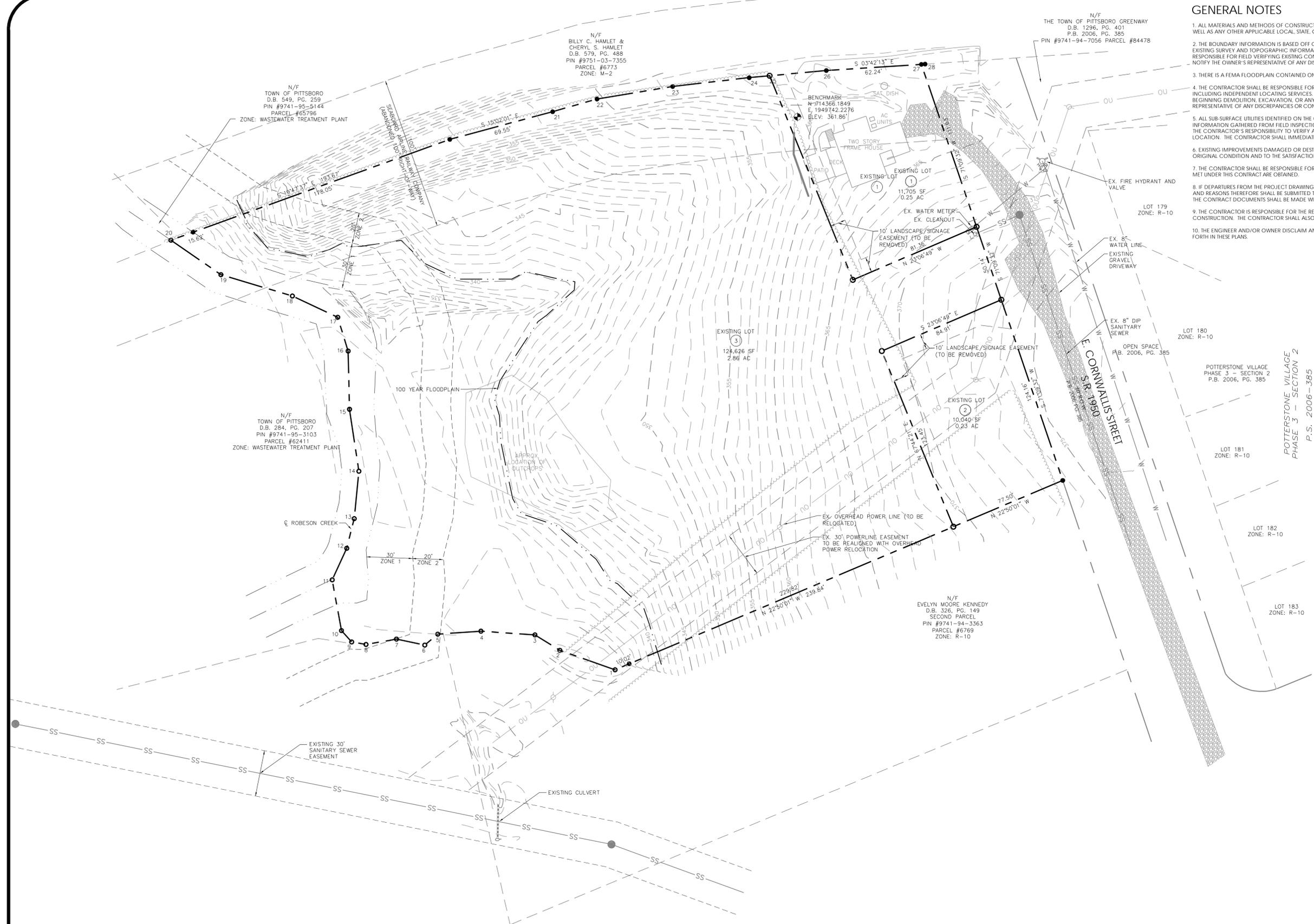
**GENERAL NOTES**

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH TOWN OF PITTSBORO STANDARDS AND SPECIFICATIONS, AS WELL AS ANY OTHER APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.
2. THE BOUNDARY INFORMATION IS BASED OFF OF PRELIMINARY PLAT PROVIDED BY VAN R. FINCH - LAND SURVEYS, P.A. ON NOVEMBER 15, 2012. EXISTING SURVEY AND TOPOGRAPHIC INFORMATION IS BASED ON FIELD SURVEY PROVIDED BY EDR AND VAN R. FINCH. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF ANY WORK. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.
3. THERE IS A FEMA FLOODPLAIN CONTAINED ON THIS SITE PER FIRM PANEL 370420974100J, EFFECTIVE FEBRUARY 2, 2007.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING, COORDINATING, AND PAYMENT FOR ALL NECESSARY LOCATING SERVICES INCLUDING INDEPENDENT LOCATING SERVICES. THE CONTRACTOR SHALL HAVE ALL EXISTING UTILITIES LOCATED AT LEAST 48 HOURS PRIOR TO BEGINNING DEMOLITION, EXCAVATION, OR ANY OTHER FORM OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.
5. ALL SUB-SURFACE UTILITIES IDENTIFIED ON THE CONSTRUCTION DOCUMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATION BASED ON SURVEY INFORMATION GATHERED FROM FIELD INSPECTION AND/OR ANY OTHER APPLICABLE RECORD DRAWINGS WHICH MAY BE AVAILABLE. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ACTUAL IN PLACE SUB-SURFACE UTILITY INFORMATION INCLUDING HORIZONTAL AND VERTICAL LOCATION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES OR CONFLICTS.
6. EXISTING IMPROVEMENTS DAMAGED OR DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED OR REPLACED TO ORIGINAL CONDITION AND TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING ALL PERMITS, INSPECTIONS, CERTIFICATIONS, AND OTHER REQUIREMENTS WHICH MUST BE MET UNDER THIS CONTRACT ARE OBTAINED.
8. IF DEPARTURES FROM THE PROJECT DRAWINGS OR SPECIFICATIONS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THEREFORE SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO CONSTRUCTION. NO DEPARTURES FROM THE CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE OWNER'S REPRESENTATIVE.
9. THE CONTRACTOR IS RESPONSIBLE FOR THE RELOCATION OF ANY EXISTING UTILITY INFRASTRUCTURE REQUIRED TO COMPLETE ANY PORTION OF CONSTRUCTION. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE COORDINATION AND COSTS OF ASSOCIATED WORK.
10. THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND/OR METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.

TOTAL SITE AREA = 3.36 AC.

**BOUNDARY LINE TABLE**

LINE	BEARING	DISTANCE
1 - 2	N19°17'15"E	38.00'
2 - 3	N31°46'29"E	19.15'
3 - 4	N03°54'06"E	35.39'
4 - 5	N03°57'24"W	28.26'
5 - 6	N40°02'29"W	11.07'
6 - 7	N11°53'24"E	18.95'
7 - 8	N09°53'39"W	20.15'
8 - 9	N09°47'12"E	9.51'
9 - 10	N48°00'16"E	9.94'
10 - 11	N79°35'17"E	33.57'
11 - 12	S48°08'02"E	22.61'
12 - 13	S75°46'02"E	19.89'
13 - 14	S84°23'00"E	30.99'
14 - 15	N81°21'10"E	40.76'
15 - 16	N88°38'55"E	37.87'
16 - 17	N72°46'35"E	23.00'
17 - 18	N25°03'16"E	32.69'
18 - 19	N16°50'54"E	48.71'
19 - 20	N34°30'12"E	39.60'
21 - 22	S15°50'24"E	30.11'
22 - 23	S09°21'52"E	50.15'
23 - 24	S06°34'25"E	50.28'
24 - 25	S05°12'16"E	13.41'
25 - 26	S05°12'16"E	37.18'
27 - 28	S03°44'47"E	2.39' (He)
32 - 30	N67°44'21"E	50.01' (He)



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 PO BOX 37781  
 RALEIGH, NC 27627  
 P:919.576.9733

**CORNWALLIS COMMONS  
 CONSTRUCTION PLANS**  
 PITTSBORO, NC

**EXISTING CONDITIONS PLAN**

SUBMITTAL:	DRAWN BY:	CHECKED BY:	DATE:
1st SUBMITTAL	MAR	LML	2013.10.17
2nd SUBMITTAL	MAR	LML	2013.11.22

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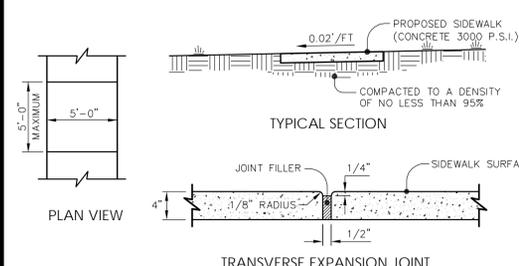
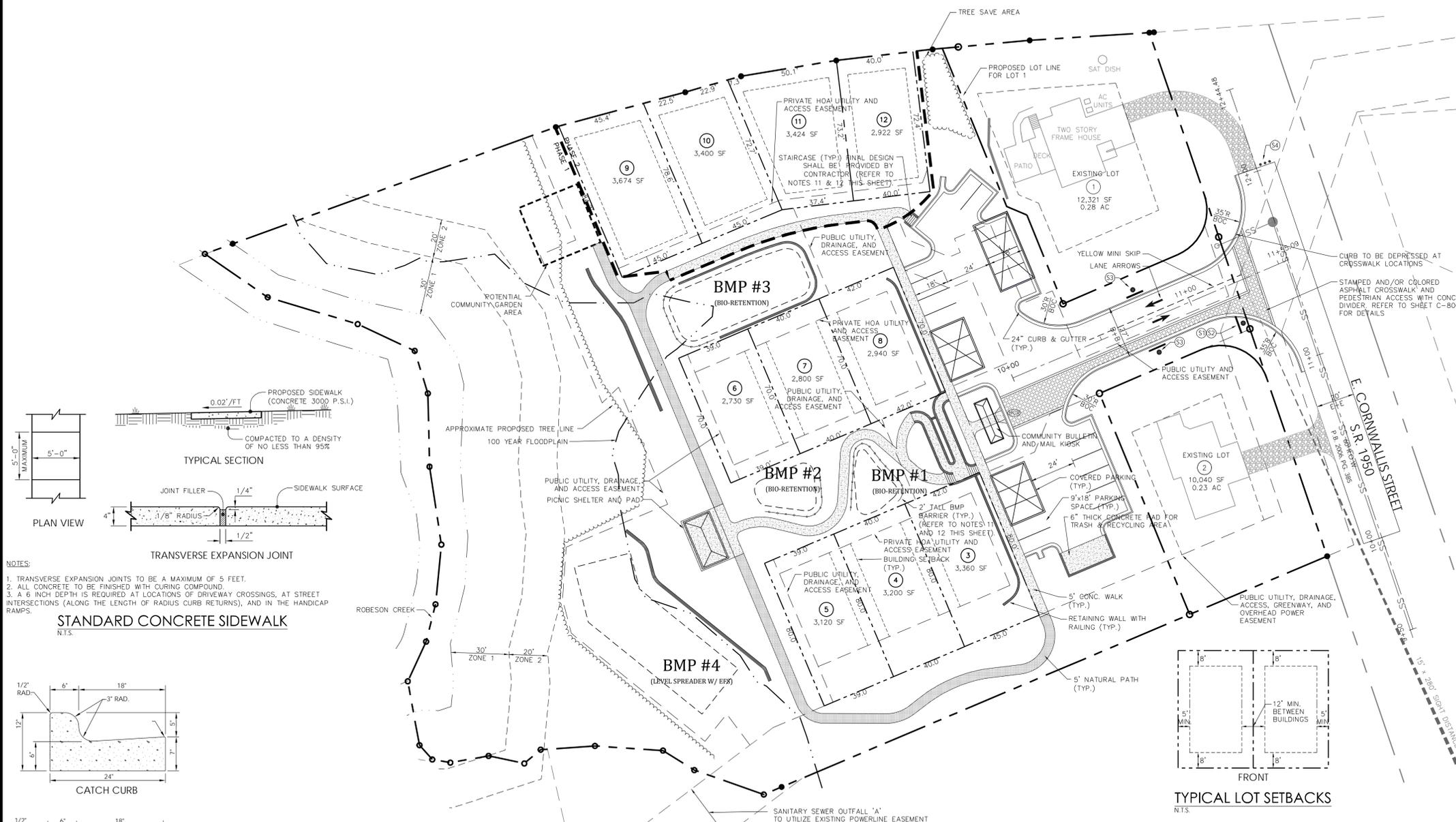
**C-100**

**SITE LAYOUT NOTES**

- REFER TO GENERAL NOTES ON SHEET C-100.
- SETBACKS ARE SHOWN IN ACCORDANCE WITH THE APPROVED TOWN OF PITTSBORO STANDARDS. REFER TO TOWN OF PITTSBORO ORDINANCE FOR PORCHES, DECKS, GARAGES, ETC.
- UTILITY AND PIPELINE EASEMENTS SHALL BE RECORDED AS PART OF THE SUBDIVISION PLAT AFTER CONSTRUCTION IS COMPLETED.
- ALL PAVEMENT MARKING AND STREET SIGNAGE SHALL BE IN ACCORDANCE WITH THE MUTCD. ALL SPECIALTY STREET SIGNS AND POSTS SHALL BE SUBMITTED TO THE TOWN OF PITTSBORO FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
- COMMON OPEN SPACE WILL BE RECORDED AS LOTS ARE RECORDED AND SHALL BE MAINTAINED BY THE NEIGHBORHOOD HOMEOWNERS ASSOCIATION.
- ALL SIGHT DISTANCE TRIANGLES ARE IN ACCORDANCE WITH AASHTO STANDARDS. REFER TO ROADWAY DATA TABLE THIS SHEET.
- ALL TRASH AND RECYCLING SHALL BE HANDLED AT THE WASTE AREA WITH SERVICE PROVIDED BY WASTE INDUSTRIES. DUMPSTERS / RECYCLING SHALL BE SCREENED FROM VIEW BY A STRUCTURAL ENCLOSURE. CONCRETE PAD SHALL BE 4" THICK, 4000 PSI CONCRETE WITH EXPANSION JOINTS SPACED NO MORE THAN 15' APART.
- A PRIVATE LANDSCAPE FEATURE SHALL BE PROVIDED FOR EACH LOT WITHIN THE P.O.S. AREA. REFER TO C-201 FOR DETAILS.
- EACH LOT SHALL HAVE A WALKWAY FROM THE MAIN PATH. MATERIAL FOR THE PATH MAY VARY FROM LOT TO LOT.
- SITE LIGHTING FOR PARKING & COMMON AREAS SHALL BE COORDINATED WITH DUKE-PROGRESS.
- ARCHITECTURAL PLANS FOR ALL THE SITE STRUCTURES INCLUDING KIOSK, SHELTER, TRASH AREA, COVERED PARKING, FENCING, RETAINING WALLS, RAILINGS, BARRIERS, AND STAIRCASES SHALL BE PROVIDED AT TIME OF BUILDING PERMIT.
- ALL SITE AMENITIES, INCLUDING PRIVATE SIGNAGE, SITE STRUCTURES (AS MENTIONED ABOVE), AND LANDSCAPED FEATURES, SHALL BE DESIGNED IN A COHESIVE MANNER USING SIMILAR COLORS, MATERIALS, AND THEMES.
- BUILDING AND DRIVEWAY SHOWN ON EXISTING LOT 2 ARE CURRENTLY UNDER CONSTRUCTION AND ARE SHOWN FOR REFERENCE PURPOSES ONLY.
- THE PHASELINE IS SHOWN ON THIS PLAN IN ORDER TO BUILD LOTS 9-12 AT A LATER DATE. ALTHOUGH SOME OF THE INFRASTRUCTURE IS REQUIRED TO BE BUILT FOR PHASE ONE, THE SEWER AND WATER SERVICES, SIDEWALK, AND LOT GRADING FOR LOTS 9-12 COULD BE DELAYED UNTIL PHASE TWO. THE SEWER WOULD BE CONSTRUCTED TO MH 102, AND THE WATERLINE CONSTRUCTED TO THE METER LOCATIONS. THE GRADING REQUIRED FOR THE CONSTRUCTION OF BMP #3 WOULD BE REQUIRED, BUT THE SIDEWALK COULD BE DELAYED AND THE GRADING EAST OF THE BMP WOULD BE TIED BACK TO EXISTING GROUND. ANY REQUIRED SEDIMENTATION AND EROSION CONTROL MEASURES WOULD HAVE TO STAY IN PLACE UNTIL LOTS 9-12 WERE CONSTRUCTED.
- THE HOA SHALL RESERVE FUNDS IN ESCROW FOR THE MAINTENANCE OF ALL SITE IMPROVEMENTS INCLUDING THE STAMPED ASPHALT THAT IS OFF-SITE IN THE RIGHT OF WAY, PRIVATE UTILITIES, STORMWATER PIPES AND BMPs, RETAINING WALLS, SIDEWALKS, STREETS AND PARKING LOTS, BUT NOT INCLUDING PUBLIC PORTIONS OF WATER AND SEWER. THE OWNER MUST AGREE TO THAT AMOUNT PRIOR TO PLAN APPROVAL.

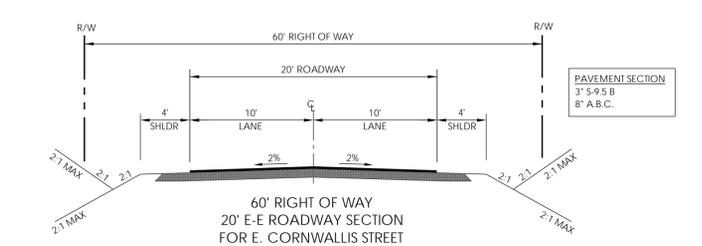
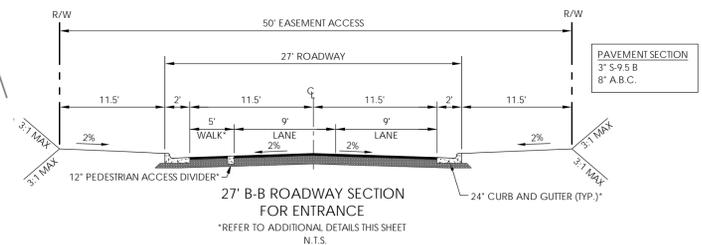
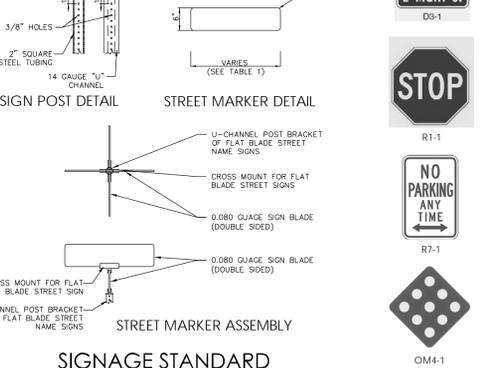
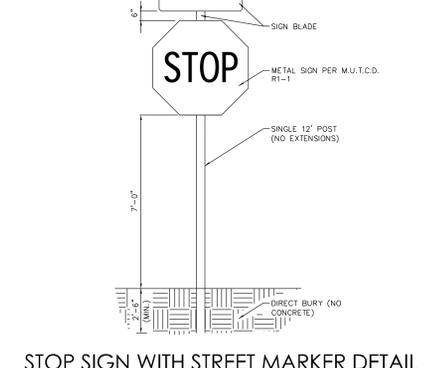
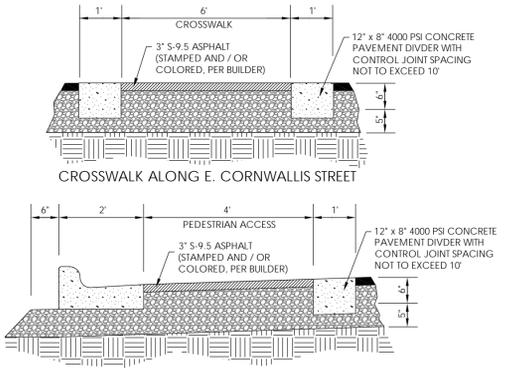
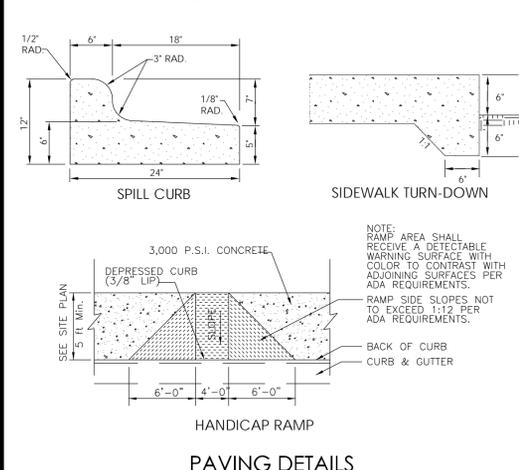
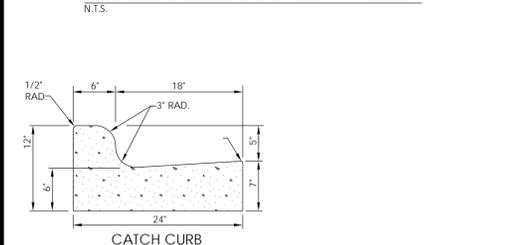
**PAVEMENT MARKING AND SIGNAGE NOTES**

- ALL SIGNAGE INSTALLED SHALL CONFORM TO STANDARDS SET FORTH BY THE LATEST PUBLISHED EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) STANDARD CONSTRUCTION DRAWINGS, AND THE TOWN OF PITTSBORO STANDARDS.
- SIGNAGE MATERIAL SHALL CONFORM TO MUTCD COLOR AND REFLECTIVITY STANDARDS AND SHALL AT A MINIMUM BE ENGINEERING GRADE REFLECTIVE MATERIAL, EXCEPT STOP SIGNS. STOP SIGNS SHALL BE CONSTRUCTED OF HI-INTENSITY GRADE MATERIAL ON A 30-INCH BY 30-INCH OCTAGONAL STOP SIGN BLANK.
- ALL SIGNS, EXCEPT STREET MARKERS, SHALL BE MOUNTED IN A MANNER THAT THE BOTTOM OF THE SIGN IS A MINIMUM OF 7 FEET ABOVE GROUND LEVEL. STREET MARKER SIGNS SHALL BE MOUNTED OVER THE TOP OF STOP SIGNS.
- GROUND MOUNTED SIGN POSTS USED TO INSTALL STREET SIGNAGE SHALL BE 12 FEET LONG AND CONSTRUCTED OF 14 GAUGE GALVANIZED STEEL "U" CHANNEL POSTS OR TWO INCH (2-IN) GALVANIZED SQUARE STEEL TUBING.
- GROUND MOUNTED SIGN POSTS SHALL BE DRIVEN TO A MINIMUM OF 30 INCHES BELOW GROUND LEVEL. ALL POSTS SHALL BE PLUMBED AND LEVELED AS THE POST IS INSTALLED.
- PAVEMENT MARKINGS MUST BE MADE OF A THERMOPLASTIC MATERIAL AND ADHERE TO SECTION 1200 OF THE NCDOT ROADWAY STANDARD DRAWINGS, 2002 EDITION.



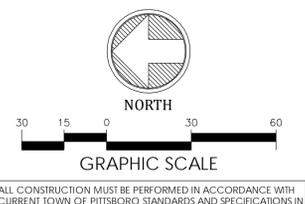
**NOTES:**

- TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 5 FEET.
- ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.
- A 6 INCH DEPTH IS REQUIRED AT LOCATIONS OF DRIVEWAY CROSSINGS, AT STREET INTERSECTIONS (ALONG THE LENGTH OF RADIUS CURB RETURNS), AND IN THE HANDICAP RAMPS.



**SIGNAGE LEGEND**

SYMBOL	SIGN	MUTCD #	DIMENSIONS
(S1)	STOP SIGN	R1-1	30" x 30"
(S2)	STREET MARKER	D-3-1	VARIES
(S3)	NO PARKING	R7-1	12" x 18"
(S4)	OBJECT MARKER	OM4-1 (3 TYP.)	18" x 18"



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**CORNWALLIS COMMONS CONSTRUCTION PLANS**  
 PITTSBORO, NC

**SITE LAYOUT PLAN**

SUBMITTAL:	DRAWN BY:	CHECKED BY:	DATE:
1st SUBMITTAL	MAR	LML	2013.10.17
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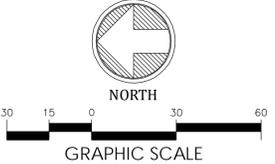
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**C-200**

**OPEN SPACE NOTES**

1. REFER TO GENERAL NOTES ON SHEET C-100.
2. OPEN SPACE AREAS ARE SHOWN IN ACCORDANCE WITH THE PITTSBORO ZONING ORDINANCE POCKET NEIGHBORHOOD (PN) ZONING. ADHERING TO THE FOLLOWING REQUIREMENTS:
  - A. REQUIRED OPEN SPACE: A MINIMUM OF 500 SQUARE FEET OF COMMON OPEN SPACE PER UNIT IS REQUIRED. AT LEAST 50% OF THE UNITS SHALL ABUT COMMON OPEN SPACE, AND THE COMMON OPEN SPACE SHALL HAVE DWELLING UNITS ABUTTING AT LEAST TWO SIDES. COMMON OPEN SPACE SHALL BE A CENTRALLY LOCATED, SHARED SPACE THAT MAY BE USED BY ALL OCCUPANTS OF THE NEIGHBORHOOD.
  - B. PRIVATE OPEN SPACE: EACH RESIDENTIAL UNIT SHALL BE PROVIDED AN AREA OF PRIVATE OPEN SPACE. THE PRIVATE OPEN SPACE SHALL SEPARATE THE PRIMARY ENTRANCE TO THE DWELLING UNIT FROM THE COMMON OPEN SPACE TO CREATE A SENSE OF PRIVACY AND SHALL BE ORIENTED TO TAKE ADVANTAGE OF SOLAR ORIENTATION AND OTHER NATURAL FEATURES TO CREATE A SMALL BUT PLEASANT PRIVATE YARD AREA. THE PRIVATE OPEN SPACE SHALL BE SEPARATED FROM THE COMMON OPEN SPACE WITH A SMALL HEDGE, PICKET FENCE, OR OTHER SIMILAR VISUAL SEPARATION TO CREATE A SENSE OF SEPARATE OWNERSHIP.
3. PRIVATE OPEN SPACE AREA FINAL LOCATION AND ORIENTATION WITHIN EACH LOT WILL BE DETERMINED AT TIME OF FINAL PLAT.
4. ALL OPEN SPACE AREAS ARE SUBJECT TO PUBLIC AND PRIVATE EASEMENTS AS SHOWN IN THESE PLANS.
5. ALL COMMON OPEN SPACE SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION (HOA) IN PERPETUITY.

**LEGEND**

-  PRIVATE OPEN SPACE (200 S.F. PER LOT)
-  COMMON OPEN SPACE (2.12 A.C.)
-  PRIVATE LOT



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CORNWALLIS COMMONS  
CONSTRUCTION PLANS  
PITTSBORO, NC

OPEN SPACE PLAN

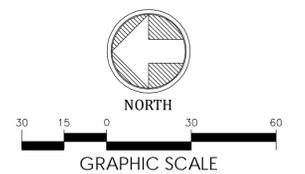
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C-201

**EASEMENT NOTES**

1. REFER TO GENERAL NOTES ON SHEET C-100.
2. THIS EXHIBIT IS INTENDED TO SHOW LIMITS AND USES OF PROPOSED EASEMENTS. FINAL LABELS AND DESCRIPTIONS SHALL BE PROVIDED BY A P.L.S. AT TIME OF PLAT.
3. PUBLIC EASEMENTS ENCOMPASS ACCESS TO ALL PUBLIC UTILITIES, DRAINAGE SYSTEMS, PRIVATE BMPS, AND ASSOCIATED RETAINING WALLS. EASEMENTS SHALL ALLOW TOWN STAFF AND/OR APPOINTED THIRD PARTIES, INCLUDING BUT NOT LIMITED TO PRIVATE CONTRACTORS, TO ACCESS, ASSESS, REPAIR, AND MAINTAIN FACILITIES AS NEEDED. PUBLIC EASEMENTS MAY SHARE CORRIDORS WITH OVERHEAD POWER. EASEMENTS MAY VARY IN WIDTH.
4. PRIVATE HOA EASEMENTS ENCOMPASS ACCESS TO ALL PRIVATE UTILITIES, DRAINAGE SYSTEMS, BMPS, AND RETAINING WALLS. EASEMENTS SHALL ALLOW HOA STAFF AND/OR APPOINTED THIRD PARTIES, INCLUDING BUT NOT LIMITED TO PRIVATE CONTRACTORS, TO ACCESS, ASSESS, REPAIR, AND MAINTAIN FACILITIES AS NEEDED. EASEMENTS MAY VARY IN WIDTH.



ALL CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH CURRENT TOWN OF PITTSBORO STANDARDS AND SPECIFICATIONS IN PLACE AT TIME OF PLAN APPROVAL.



**CORNWALLIS COMMONS  
CONSTRUCTION PLANS**  
PITTSBORO, NC

**PUBLIC AND PRIVATE  
EASEMENT PLAN**

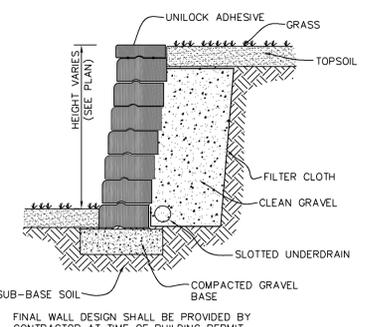
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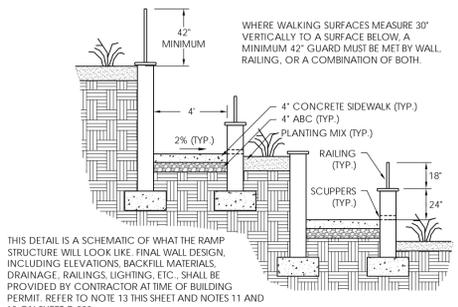
**C-202**

# GRADING & DRAINAGE NOTES

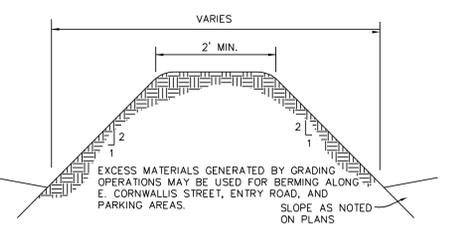
- REFER TO GENERAL NOTES ON SHEET C-100.
- ALL PROPOSED CONTOURS AND SPOT ELEVATIONS REFLECT FINISHED GRADES.
- ALL ELEVATIONS ARE IN REFERENCE TO THE CONTROL CORNER AT 714366.1849' N, 1949742.2276' E WITH AN ELEVATION OF 361.86'.
- ALL FILL SHALL BE COMPACTED IN ACCORDANCE WITH RECOMMENDATIONS OF GEOTECHNICAL ENGINEER.
- THE PROPOSED CONTOURS SHOWN IN ROADWAYS, DRIVES, AND SIDEWALKS ARE FINISHED ELEVATIONS. REFER TO PAVEMENT CROSS SECTION DATA TO ESTABLISH CORRECT SUBBASE OR AGGREGATE BASE COURSE ELEVATIONS TO BE CONSTRUCTED UNDER THIS CONTRACT.
- ALL STORM DRAINAGE PIPE SHALL BE HDPE, UNLESS OTHERWISE NOTED.
- ALL CATCH BASIN HOODS SHALL BE STAMPED WITH "DRAINS TO RIVER" IN 3/4" HIGH LETTERING.
- STORMWATER DISCHARGES INTO ROBESON CREEK (JORDAN LAKE WATERSHED, HAW RIVER SUB-BASIN). THIS PROJECT IS CONSIDERED HIGH DENSITY PER NCDWQ (24% IMPERVIOUS); WATERSHED PROTECTION IS PROVIDED THROUGH THE USE OF 3 ON 3 ON SITE BIO-RETENTION FACILITIES AND ONE LEVEL SPREADER WITH ENGINEERED FILTER STRIP.
- THE PROJECT WILL MEET ALL REQUIREMENTS RELATIVE TO BEST MANAGEMENT PRACTICES AND ENGINEERED STORMWATER CONTROL STRUCTURES AS OUTLINED IN NORTH CAROLINA DWQ STORMWATER BEST MANAGEMENT PRACTICES MANUAL.
- NO LOT SHALL BE BUILT UPON MORE THAN 60%. EACH LOT IS ALLOWED A MAXIMUM OF 1500 SF OF IMPERVIOUS SURFACE INCLUDING ROOFS, WALKS, AND PATIOS. A NOTE TO THIS EFFECT SHALL BE ADDED TO THE FINAL PLAT AND MAXIMUM IMPERVIOUS AREA PROPOSED FOR EACH INDIVIDUAL LOT SHALL BE ON EVERY PLOT PLAN AND VERIFIED AT THE TIME OF BUILDING PERMIT.
- ALL BMP'S SHALL BE LOCATED IN COMMON OPEN SPACE AND HAVE AN ACCESS AND MAINTENANCE EASEMENT LOCATED AROUND THEM. OPERATIONS AND MAINTENANCE MANUALS AND MAINTENANCE AGREEMENT SHALL BE IN PLACE FOR EACH BMP.
- TO MINIMIZE DAMAGE TO EXISTING TREES LOCATED NEAR THE INTERIOR EDGE OF TREE PROTECTION AREAS, THE CONTRACTOR SHALL CUT TRENCHES, A MINIMUM OF TWO FEET DEEP, ALONG THE LIMITS OF DISTURBANCE IN ORDER TO CUT, RATHER THAN TEAR, EXISTING ROOTS.
- FINAL RETAINING WALL DESIGN AND DRAWINGS SHALL BE PROVIDED BY CONTRACTOR AT TIME OF BUILDING PERMIT. OWNER SHALL APPROVE ALL MATERIALS BEFORE CONSTRUCTION. ANY RETAINING WALL IN THE FLOODPLAIN MUST TAKE INTO ACCOUNT THE WATER SURFACE ELEVATION DURING FLOOD CONDITIONS AND BE PREPARED BY A NORTH CAROLINA LICENSED PROFESSIONAL ENGINEER. RAILINGS SHALL BE PROVIDED AT THE TOP OF ALL WALLS THAT EXCEED 30" IN HEIGHT SHALL. RAILING ALONG THE TOP OF WALLS SHALL BE DESIGNED WITH INTERMEDIATE ELEMENTS SPACED NO FARTHER THAN 4' APART, AND SHALL MEET ALL OTHER STATE OF NORTH CAROLINA BUILDING CODES.
- EXCESS TOPSOIL MAY BE WASTED IN BERMING ALONG ENTRANCE ROAD. REFER TO DETAIL ON THIS SHEET.
- ALL WETLAND, STREAM, AND BUFFER DISTURBANCES SHALL BE PERMITTED THROUGH NCDWQ AND USACE, AS REQUIRED.
- GRADING FOR LOTS 9-12 MAY BE COMPLETED IN PHASE 2. CONTRACTOR SHALL ENSURE THAT TRANSITION FROM PHASE 1 GRADING IS ADEQUATELY PROTECTED IN ORDER TO PREVENT ANY SEDIMENTATION OR EROSION.
- RUNOFF GENERATED FROM LOTS SHALL BE DIRECTED TO THE APPROPRIATE BMP'S SHOWN IN THE ROOF DRAINAGE TABLE BELOW. ALL GUTTERS SHALL BE DIRECTED VIA UNDERGROUND HDPE LEADERS.
- APPROXIMATELY 260 CY OF FILL IN THE FLOODPLAIN IS REQUIRED IN ORDER TO CONSTRUCT THE DAM FOR BMP #3 AND THE SANITARY SEWER OUTFALL. APPROXIMATELY 280 CY OF SOIL REMOVAL IS PROPOSED IN ORDER TO CONSTRUCT THE RETAINING WALL AND LEVEL SPREADER WITH ENGINEERED FILTER STRIP AT BMP #4. THIS RESULTS IN A NET REMOVAL OF VOLUME FROM THE FLOODPLAIN OF +/- 20 CY.
- ALL PIPE, INCLUDING BMP OUTFALLS, SHALL BE SMOOTH WALLED INTERIOR HDPE (ADS N-12 WI OR EQUIVALENT), WITH EVERY JOINT DOUBLE WRAPPED WITH FILTER FABRIC.
- REFER TO NOTE 15 ON C-200 FOR PHASING REQUIREMENTS.
- ALL RIP-RAP DISSIPATORS SHALL BE UNDERLINED WITH A 6-8 OZ NON-WOVEN GEOTEXTILE FABRIC.



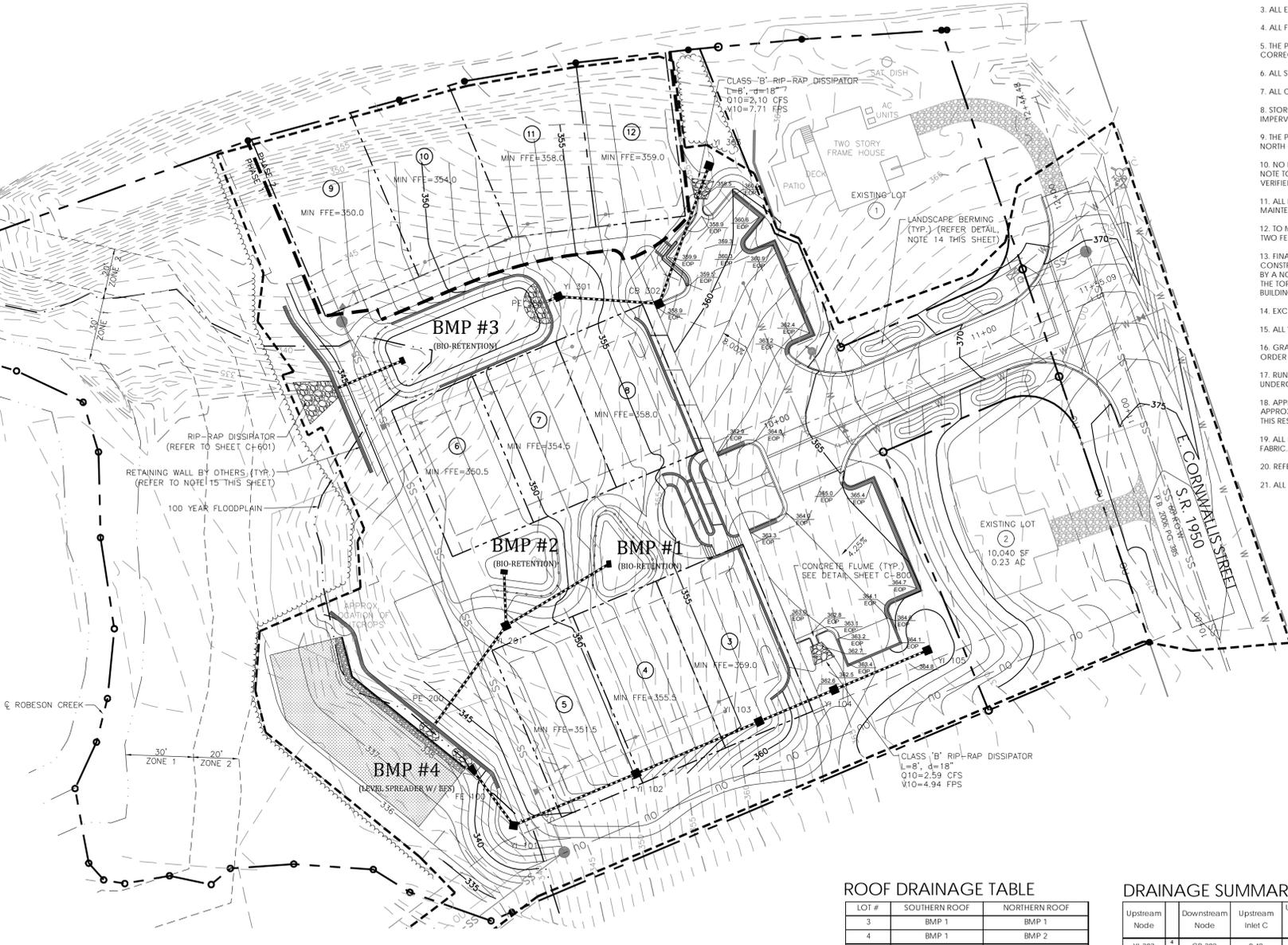
RETAINING WALL DETAIL  
N.T.S.



RAMP STRUCTURE DETAIL  
N.T.S.



LANDSCAPE BERM DETAIL  
N.T.S.



**LEGEND**

- XXX - EXISTING CONTOUR (MAJOR)
- XXX - EXISTING CONTOUR (MINOR)
- XXX - PROPOSED CONTOUR (MAJOR)
- XXX - PROPOSED CONTOUR (MINOR)
- XXX - PROPOSED FINISHED GRADE ELEVATION\*
- XXX - PROPOSED 24" CATCHING CURB AND GUTTER
- XXX - PROPOSED 24" SPILLING CURB AND GUTTER
- XXX - PROPOSED LIMITS OF DISTURBANCE

\*NOTE: TW AND BW ELEVATIONS DENOTE FINISHED GRADE AT TOP OF WALL AND BOTTOM OF WALL

**PRE-POST SUMMARY**

	Q <sub>1</sub> (cfs)	Q <sub>2</sub> (cfs)	Q <sub>10</sub> (cfs)	Q <sub>100</sub> (cfs)
PRE-DEVELOPMENT	1.78	4.28	11.54	24.45
POST DEVELOPMENT (BEFORE BMP'S)	4.06	7.39	16.05	30.17
POST DEVELOPMENT (AFTER BMP'S)	1.33	2.77	12.44	21.56

Notes:  
Attenuation is provided in three (3) bio-retention facilities and meets the overall pre-post requirement of the 1-year, 24-hour storm for the entire site. The 2, 10, and 100-year storms are shown for reference purposes only.  
Flows based on SCS method using a type II distribution for the Raleigh-Durham area.  
Rainfall<sub>1</sub> = 2.80 in.  
Rainfall<sub>2</sub> = 3.60 in.  
Rainfall<sub>10</sub> = 5.38 in.  
Rainfall<sub>100</sub> = 8.00 in.

## ROOF DRAINAGE TABLE

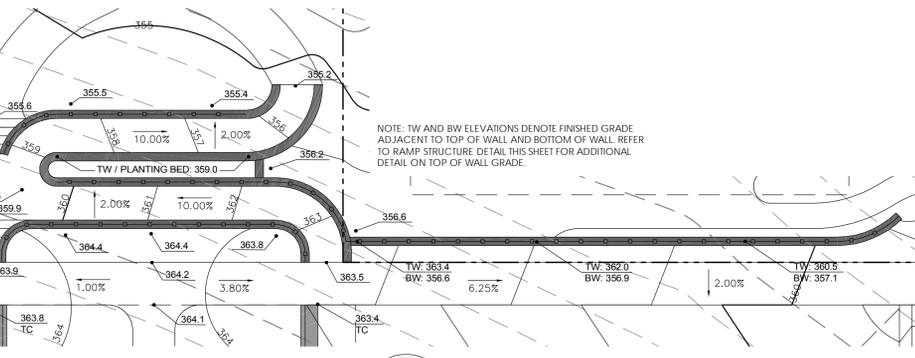
LOT #	SOUTHERN ROOF	NORTHERN ROOF
3	BMP 1	BMP 1
4	BMP 1	BMP 2
5	BMP 2	BMP 4
6	BMP 2	BMP 3
7	BMP 1	BMP 2
8	BMP 1	BMP 1
9	BMP 3	BMP 3
10	BMP 3	BMP 3
11	BMP 3	BMP 3
12	BMP 3	BMP 3

## DRAINAGE SUMMARY

Upstream Node	Downstream Node	Upstream Inlet C	Upstream Intensity (in/h)	Upstream Inlet Area (acres)	Pipe Diameter (in)	Material	Pipe Length (ft)	Total Pipe Flow (ft <sup>3</sup> /s)	Slope (ft/ft)	Invert (Upstream) (ft)	Invert (Downstream) (ft)	Inlet	Elevation (ft)	Inlet Type
YI-303	CB-302	0.48	7.22	0.60	12	HDPE	64.90	2.10	0.012	352.00	351.20	YI-303	355.5	NCDOT 840.15
CB-302	YI-301	0.80	7.18	0.16	12	HDPE	44.70	3.01	0.101	351.00	346.50	CB-302	359.0	NCDOT 840.03
YI-301	PE-300	0.72	7.16	0.12	12	HDPE	6.80	3.51	0.044	346.30	346.00	YI-301	353.0	NCDOT 840.15
YI-201	PE-200	0.72	7.19	0.03	15	HDPE	55.50	1.79	0.063	341.00	337.50	YI-201	347.7	NCDOT 840.15
YI-105	YI-104	0.40	7.22	0.14	12	HDPE	45.00	0.41	0.082	360.10	356.40	YI-105	364.6	NCDOT 840.15
YI-104	YI-103	0.70	7.20	0.43	12	HDPE	36.20	2.59	0.149	356.20	350.80	YI-104	362.4	NCDOT 840.15
YI-103	YI-102	0.33	7.19	0.03	12	HDPE	59.30	2.66	0.099	350.60	344.70	YI-103	356.0	NCDOT 840.15
YI-102	YI-101	0.30	7.17	0.06	12	HDPE	59.10	2.78	0.100	344.50	338.60	YI-102	350.1	NCDOT 840.15
YI-101	FE-100	0.30	7.15	0.07	12	HDPE	32.6	2.92	0.028	338.40	337.50	YI-101	342.8	NCDOT 840.15

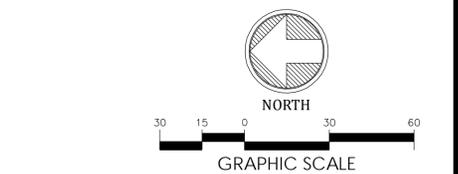
- NOTES:
- GUTTER SYSTEM AND ROOF LEADERS SHALL BE INSTALLED IN A MANNER AS TO DIRECT RUNOFF TO THE APPROPRIATE BMP'S LISTED IN THE TABLE ABOVE.
  - THE ROOF SIDES IN TABLE ARE BASED ON A PEAK ROOF DESIGN AS DEPICTED IN ARCHITECTURAL DRAWINGS.
  - LEADERS DISCHARGING INTO BIO-RETENTIONS SHALL HAVE A SEMI-CIRCLE CLASS A RIP-RAP FOREBAY. (REFER TO DETAIL ON C-600 & C-601)
  - LEADERS FROM LOT 5 SHALL DISCHARGE INTO YI 201.
  - LEADERS FROM LOT 10 SHALL DISCHARGE VIA PIPE END IN RETAINING WALL.
  - LEADERS FROM LOTS 11, 12 SHALL DISCHARGE INTO YI 301.

- Notes:
- HGL is dependent on tailwater from BMP. Pipe is o-ring gasketed.
  - YI-201 is subject to additional flow from BMP 1 and BMP 2.
  - Full length of pipe between structures shall be restrained with ADS split-band joint restraints.
  - Provide sump around inlet at given rim elevation for proximity drainage.
- Pipe sizing shown in this table is based on 10-yr storm intensity. Intensity shown in this table is based on a time of concentration (Tc) of 5 minutes.  
Catch Basin (CB) rim elevation is @ back of curb.  
Yard Inlet (YI) rim elevation is @ top of grate.  
PE: Pipe End Section, FE: Flared End Section



ENLARGED GRADING DETAIL  
NORTH  
GRAPHIC SCALE

TOTAL IMPERVIOUS AREA\* = 1.04 AC = 28% \* INCLUDES IMPERVIOUS AREA FROM RIGHT OF WAY



ALL CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH CURRENT TOWN OF PITTSBORO STANDARDS AND SPECIFICATIONS IN PLACE AT TIME OF PLAN APPROVAL

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**CORNWALLIS COMMONS CONSTRUCTION PLANS**  
PITTSBORO, NC

# GRADING AND DRAINAGE PLAN

SUBMITTAL:	DRAWN BY:	CHECKED BY:	DATE:
1st SUBMITTAL	MAR	LML	2013.10.17
2nd SUBMITTAL	MAR	LML	2013.11.22

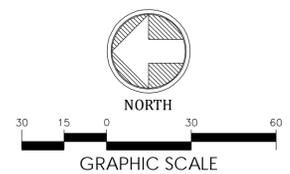
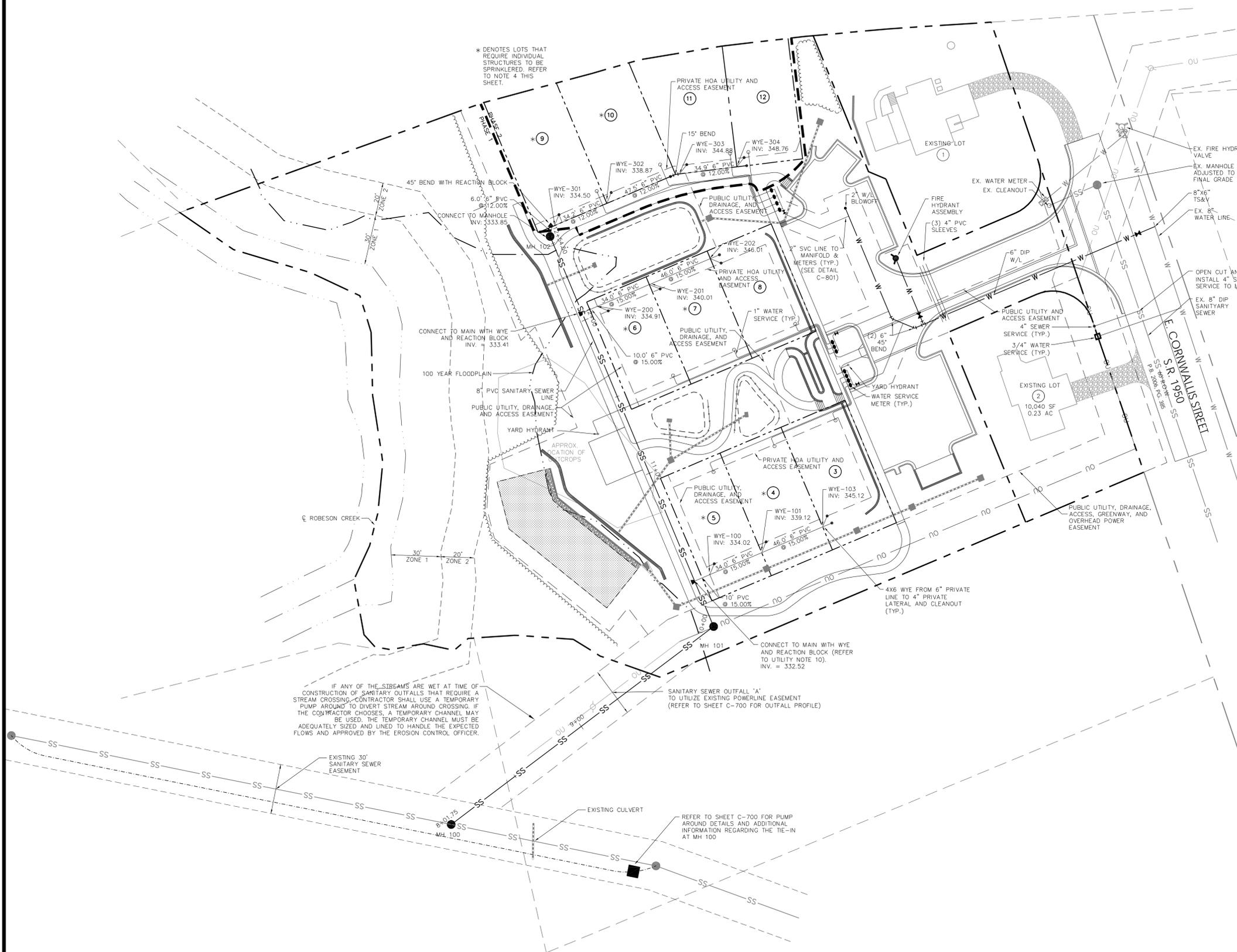
SEALED BY:  
  
**C-300**

**UTILITY NOTES**

1. REFER TO GENERAL NOTES SHEET C-100
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF PITTSBORO STANDARD SPECIFICATIONS AND DETAILS THAT IS CURRENT AT THE TIME OF PLAN APPROVAL.
3. ALL MAHOLES LOCATED OUTSIDE OF PAVED AREAS SHALL HAVE A RIM ELEVATION ONE FOOT ABOVE FINISHED GRADE. ALL MAHOLES WITHIN THE 100-YEAR FLOODPLAIN SHALL HAVE A RIM ELEVATION A MINIMUM OF TWO FEET ABOVE THE FLOODPLAIN ELEVATION.
4. A RESIDENTIAL SPRINKLER SYSTEM DESIGNED PER SECTION P2904 OF THE NORTH CAROLINA RESIDENTIAL BUILDING CODE AND NFPA IS REQUIRED FOR LOTS 4, 5, 6, 7, 9, AND 10. SPRINKLER SYSTEM DESIGN AND CALCULATIONS, AS WELL AS VERIFICATION OF ADEQUATE FLOW FROM 1" WATER SERVICE, MUST BE PREPARED BY A NORTH CAROLINA LICENSED PROFESSIONAL ENGINEER AND MUST BE SUBMITTED TO THE TOWN OF PITTSBORO AT TIME OF BUILDING PERMIT. FLOW PRESSURE MUST BE TESTED AT THE INSTALLED SERVICE LINE FOR EACH INDIVIDUAL LOT PRIOR TO SPRINKLER DESIGN. IF ADEQUATE FLOW AND PRESSURE CAN NOT BE VERIFIED FROM THE 1" SERVICE, A TALCOLSF COMPACT RESIDENTIAL FIRE PUMP AND TANK (OR APPROVED EQUAL) WILL BE REQUIRED.
5. ALL PRIVATE SEWER LINES SHALL BE 6" SCHEDULE 40 PVC. ALL PRIVATE SERVICE LATERALS SHALL BE 4" SCHEDULE 40 PVC UNLESS OTHERWISE NOTED. CLEANOUTS SHALL BE PROVIDED AS SHOWN ON THESE PLANS AND PER DETAIL ON C-801.
6. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHOWN ON PLANS IS BASED ON BEST AVAILABLE INFORMATION BUT CAN BE CONSIDERED ONLY AS APPROXIMATE.
7. FINAL OVERHEAD UTILITIES AND SITE LIGHTING PLAN SHALL BE PROVIDED BY DUKE ENERGY - PROGRESS.
8. REFER TO NOTE 15 ON C-200 FOR PHASING REQUIREMENTS.
9. WATER AND SEWER SERVICE CONNECTIONS SHOWN FOR LOT 2 ARE UNDER CONSTRUCTION AND ARE FOR REFERENCE ONLY.
10. THE DEVELOPER IS REQUESTING A WAIVER FROM THE TOWN UTILITY STANDARD THAT REQUIRES 6" SERVICE LATERALS TO TIE TO A MANHOLE. THIS WOULD REQUIRE THE UNNECESSARY ADDITION OF TWO MANHOLES ALONG THE SEWER OUTFALL AND TRAIL CORRIDOR THAT WOULD REQUIRE ADDITIONAL TOWN MAINTENANCE AND BE LESS AESTHETICALLY PLEASING. THE ALTERNATE DESIGN CRITERIA REQUIRES A MINIMUM 4" LATERAL TO HAVE A CLEANOUT (WITH MAXIMUM 100' SPACING) IN LIEU OF A MANHOLE. BASED ON CONVERSATIONS WITH TOWN STAFF, THE DESIGN SHOWN ON THESE PLANS IS AN ACCEPTABLE AND PREFERRED SOLUTION.
11. IF WATER IS DESIRED FOR CONSTRUCTION, THE DEVELOPER MUST APPLY FOR A HYDRANT METER ASSEMBLY PER TOWN OF PITTSBORO REQUIREMENTS.
12. WATER SERVICES PASSING BENEATH RETAINING WALLS MUST BE AT LEAST 18" BELOW THE BOTTOM OF THE FOOTING AND CONSTRUCTED IN A COMPACTED TYPE "B" SAND BEDDING FOR A MINIMUM OF 5' ON EITHER SIDE OF THE WALL.

**TOWN OF PITTSBORO UTILITY NOTES**

1. OWNER / CONTRACTOR SHALL NOTIFY TOWN OF PITTSBORO AT LEAST 48 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION WORK. ONCE WORK HAS BEGUN, AT LEAST 48 HOURS NOTICE SHALL BE GIVEN PRIOR TO ANY SORT OF DISRUPTION TO THE TOWN'S SERVICES SUCH AS TAPPING WATER MAINS, OPERATING VALVES, CLOSING STREETS, PLUGGING SEWER, ETC.
2. UTILITY SEPARATION REQUIREMENTS:
  - A) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATION. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
  - B) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10". IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
  - C) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASUREMENT EXTENDED 10" ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
  - D) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN AND RCP STORM DRAIN CROSSINGS. MAINTAIN 24" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE.
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE TOWN OF PITTSBORO PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 48 HOUR ADVANCE NOTICE TO THE TOWN OF PITTSBORO PUBLIC UTILITIES DEPARTMENT.
5. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS.
6. INSTALL 1" TYPE-K COPPER WATER SERVICES WITH NEPTUNE RADIO METERS LOCATED AT ROW OR WITHIN A WATERLINE EASEMENT IMMEDIATELY ADJACENT, AT A MINIMUM DEPTH OF 3'.
7. INSTALL 4" PVC SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75' LINEAR FEET MAXIMUM.
8. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI. BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE.
9. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE, AND/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND, &/OR FLOODPLAIN IMPACTS (RESPECTIVELY).



ALL CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH CURRENT TOWN OF PITTSBORO STANDARDS AND SPECIFICATIONS IN PLACE AT TIME OF PLAN APPROVAL.

**underfoot**  
ENGINEERING

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**CORNWALLIS COMMONS**  
CONSTRUCTION PLANS

PITTSBORO, NC

**UTILITY PLAN**

SUBMITTAL:	DRAWN BY:	CHECKED BY:	DATE:
1st SUBMITTAL	MAR	LML	2013.10.17
2nd SUBMITTAL	MAR	LML	2013.11.22

SEALED BY:

**C-400**

### EROSION CONTROL NOTES

- REFER TO GENERAL NOTES SHEET C100.
- A PRE-CONSTRUCTION MEETING IS REQUIRED FOR THIS PROJECT. A REPRESENTATIVE FROM DENR-DLO, TOWN OF PITTSBORO ENGINEERING, TOWN OF PITTSBORO PUBLIC UTILITIES, THE OWNER, AND PROJECT ENGINEER SHALL BE IN ATTENDANCE.
 

TOWN OF PITTSBORO ENGINEERING	FRED ROYAL PE	919.542.2063
TOWN OF PITTSBORO PUBLIC WORKS	JOHN POTEAT	919.542.2530
NC DENR-DLO	KARYN PAGEAU	919.791.4200
ENGINEER (UNDERFOOT ENGINEERING)	LANDON LOVELACE, PE	919.576.9733
OWNER (ORANGE COMMUNITIES, LLC)	MIKE DASHER	919.530.9511
- EROSION CONTROL MEASURES SHALL BE MAINTAINED DURING THE ENTIRE LIFE OF THE PROJECT.
- CONTRACTOR SHALL CONDUCT GRADING OPERATIONS IN A MANNER THAT ENSURES NO SEDIMENT IS ALLOWED OFF-SITE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO ENSURE THAT NO SEDIMENT IS ALLOWED OFF-SITE. IF ADDITIONAL MEASURES ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY TO DISCUSS DESIGN MODIFICATIONS.
- ALL STREETS ADJACENT TO AND IN FRONT OF THE PROJECT SHALL BE KEPT CLEAN AT ALL TIMES OR A WASH STATION MAY BE REQUIRED AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL CONSTRUCT DIVERSION DITCHES AND BERMS TO ENSURE ALL RUN-OFF IS DIRECTED TO AN EROSION CONTROL MEASURE.
- ALL TEMPORARY AND PERMANENT GROUND COVER SHALL BE ESTABLISHED PER THE UPDATED NCOWD REQUIREMENTS ON THIS SHEET.
- ALL CATCH BASINS AND YARD INLETS SHALL BE PROTECTED WITH WIRE AND GRAVEL PER DETAIL ON C-800, UNLESS NOTED OTHERWISE.
- TOPSOIL SHALL BE STRIPPED AND STOCKPILED AND MAY BE USED FOR BERMING ALONG ENTRANCE ROAD OR PLACED IN NON STRUCTURAL FILL AREAS.
- ANY CUT OR FILL SLOPE THAT IS 2:1 OR GREATER SHALL BE STABILIZED WITH PERMANENT SLOPE DETENTION DEVICES OR A SUITABLE COMBINATION OF PLANTINGS AND RETENTION DEVICES. SLOPES GREATER THAN 3:1 SHALL NOT BE STABILIZED WITH TURF GRASS BUT MUST BE STABILIZED WITH VEGETATIONS THAT REQUIRES MINIMAL MAINTENANCE SUCH AS WEEPING LOVE GRASS, RED FESCUE OR OTHER APPROVED VARIETY.
- IF EROSION OCCURS IN DIVERSIONS, DIVERSION DITCHES SHALL BE PROTECTED WITH A SUITABLE LINER SUCH AS NAG S75 OR EQUIVALENT.
- THE EROSION CONTROL INSPECTOR MAY REQUIRE ADDITIONAL MEASURES TO PROTECT THE SITE.
- REFER TO NOTE 15 ON C-200 FOR PHASING REQUIREMENTS.

### CONSTRUCTION SEQUENCE

- OBTAIN GRADING PERMIT.
- INSTALL TREE PROTECTION FENCE AND SILT FENCE. CLEARING ONLY AS NECESSARY TO INSTALL FENCING. ONCE FENCING IS INSTALLED, REQUEST A PRE-CONSTRUCTION MEETING AND INSPECTION.
- INSTALL REMAINDER OF EROSION CONTROL MEASURES PER THESE PLANS AND NOTES ON THIS SHEET.
- OBTAIN A CERTIFICATE OF COMPLIANCE THROUGH ON-SITE INSPECTION BY A DENR-DLO EROSION CONTROL OFFICER.
- BEGIN CLEARING AND GRUBBING. MAINTAINING ALL MEASURES AS REQUIRED. PROCEED WITH SITE GRADING AND STABILIZE AS AREAS ARE BROUGHT TO GRADE. PROCEED WITH REMAINDER OF INFRASTRUCTURE AND UTILITY CONSTRUCTION.
- CLEAN OUT SEDIMENT BASINS WHEN HALF-FULL.
- SEED AND MULCH DENUDE AREAS PER STABILITY TIME FRAMES NOTED ON THIS SHEET.
- MAINTAIN EROSION CONTROL MEASURES UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
- ONCE ALL UPSTREAM AREAS ARE STABILIZED, OBTAIN LETTER FROM DENR-DLO RELEASING THE EROSION CONTROL PERMIT AND THEN CONSTRUCT ALL BMPs.
- REQUEST AND OBTAIN FINAL APPROVAL BY EROSION CONTROL OFFICER.
- REMOVE EROSION CONTROL MEASURES AND STABILIZE FINAL AREAS.
- ONCE ALL UPSTREAM AREAS ARE STABILIZED, BASINS MAY BE REMOVED OR CONVERTED TO BIO-RETENTION CELLS ACCORDINGLY.

### SEEDBED PREPARATION

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF THEY OCCUR. AFTER ALL ROUGH GRADING IS COMPLETED, TILL SOIL AREAS TO BE SEEDBED AND PLANTED TO A DEPTH OF FIVE INCHES.
- REMOVE ALL LOOSE ROCKS, ROOTS, DIRT CLOUDS, AND OTHER OBSTRUCTIONS LEAVING GROUND SURFACE SMOOTH AND UNIFORM.
- TO PREPARE UNIFORM SEEDBED, INCORPORATE AGRICULTURAL LIME FERTILIZER AND SUPERPHOSPHATE INTO SOIL AREAS TO BE VEGETATED. DISK NUTRIENTS INTO SOIL UNTIL WELL PULVERIZED.
- SEED ON PREPARED SEEDBED AND COVER LIGHTLY WITH SEEDING EQUIPMENT OR CULPACK. APPLY TEMPORARY SEEDING TO SOIL STOCKPILE AREAS THAT WILL BE DISTURBED WITHIN 30 DAYS. APPLY PERMANENT SEEDING TO WHERE FINISH GRADES ARE ESTABLISHED.
- MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR WITH LIQUID ASPHALT AT 400 GAL/ACRE OR EMULSIFIED ASPHALT AT 300 GAL/ACRE.
- MULCH ALL SEEDBED AREAS WITH SMALL GRAIN STRAW AT 90 LBS/1000 SF AND SPREAD UNIFORMLY. GROUND SURFACE SHOULD BE VISIBLE TO ALLOW SUNLIGHT PENETRATION.
- MULCH AROUND SHRUBBERY AND TREES WITH SHREDDED HARDWOOD TO A DEPTH OF 3 INCHES.
- AFTER WORK IS COMPLETED AND AREAS ARE STABILIZED, CALL EROSION CONTROL OFFICER FOR SITE INSPECTION AND RECEIVE CERTIFICATE OF COMPLETION. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES, INSTALL RIP-RAP, AND SEED AND MULCH ANY REMAINING BARE AREAS.

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

TOTAL DISTURBED AREA = 2.67 AC

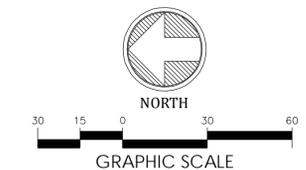
### SEDIMENT BASIN SCHEDULE

BASIN	BASIN TYPE	DRAINAGE AREA (ac)	Q25 (cfs)	BASIN DIMENSIONS			VOLUME		AREA		SKIMMER SIZE	ORIFICE SIZE
				DEPTH (FT)	LENGTH (FT)	WIDTH (FT)	PROP. (CF)	REQD. (CF)	PROP. (SF)	REQD. (SF)		
SB #1	SKIMMER	0.91	2.6	4	50	25	1700	1639	1250	848	1.5"	1.00"
RB #1	RISER	1.48	4.2	3	67	22	2628	2662	1474	1378	1.5"	1.00"

NOTES:

\*1/2 8.19 IN/HR  
-C 0.35

- REQUIRED SURFACE AREA BASED ON 325 SF PER CFS Q25
- REQUIRED VOLUME BASED ON 1800 CF/ ACRE OF DRAINAGE AREA
- VOLUMES SHOWN ARE FOR SEDIMENT STORAGE ZONE. FLOOD STORAGE ZONE IS ONE FOOT ABOVE SEDIMENT STORAGE ZONE.
- ORIFICE SIZED FOR 72 HOUR DRAW DOWN
- EROSION CONTROL INSPECTOR CAN REQUIRE ADDITIONAL EROSION CONTROL MEASURES AS NECESSARY.



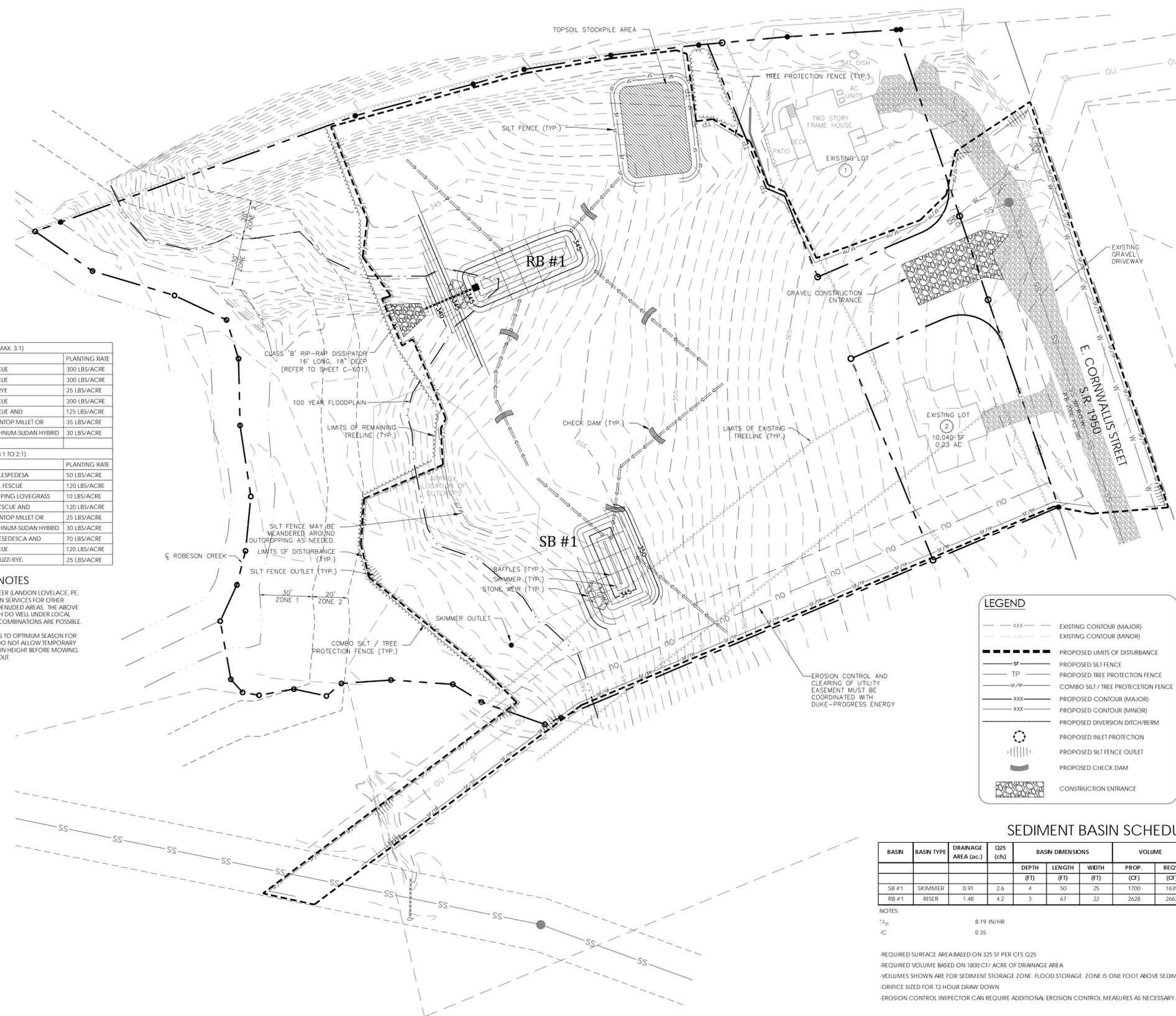
ALL CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH CURRENT TOWN OF PITTSBORO STANDARDS AND SPECIFICATIONS IN PLACE AT TIME OF PLAN APPROVAL

### SEEDING SCHEDULE

SHOULDERS, SIDE DITCHES, SLOPES (MAX. 3:1)		
DATE	TYPE	PLANTING RATE
AUG. 15 - NOV. 1	TALL FESCUE	300 LBS/ACRE
NOV. 1 - MAR. 1	TALL FESCUE	300 LBS/ACRE
	ABRUZZI RYE	25 LBS/ACRE
MAR. 1 - APR. 15	TALL FESCUE	300 LBS/ACRE
JUL. 1 - AUG. 15	TALL FESCUE AND ***BROWNTOP MILLET OR SOUGHNUM-SUDAN HYBRID	125 LBS/ACRE 35 LBS/ACRE 30 LBS/ACRE
SHOULDERS, SIDE DITCHES, SLOPES (3:1 TO 2:1)		
DATE	TYPE	PLANTING RATE
MAR. 1 - JUN. 1	SERICA LESEDESA	50 LBS/ACRE
AND MAR. 1 - APR. 15	ADD TALL FESCUE	120 LBS/ACRE
OR MAR. 1 - JUN. 30	ADD WEEPING LOVEGRASS	10 LBS/ACRE
JUN. 1 - SEP. 1	***TALL FESCUE AND ***BROWNTOP MILLET OR SOUGHNUM-SUDAN HYBRID	120 LBS/ACRE 25 LBS/ACRE 30 LBS/ACRE
SEP. 1 - MAR. 1	ERICA LESEDESA AND TALL FESCUE	70 LBS/ACRE 120 LBS/ACRE
NOV. 1 - MAR. 1	ADD ABRUZZI RYE	25 LBS/ACRE

### SEEDING SCHEDULE NOTES

CONSULT EROSION CONTROL ENGINEER (LANDON LOVELACE, PE, 919.576.9733) OR SOIL CONSERVATION SERVICES FOR OTHER ALTERNATIVES FOR VEGETATION OF DENUDE AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS. OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.  
\*\*\*TEMPORARY - RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12-INCHES IN HEIGHT BEFORE MOWING. OTHERWISE FESCUE MAY BE SHADED OUT.



#### LEGEND

- XXX --- EXISTING CONTOUR (MAJOR)
- XXX --- EXISTING CONTOUR (MINOR)
- --- PROPOSED LIMITS OF DISTURBANCE
- SF- PROPOSED SILT FENCE
- TP- PROPOSED TREE PROTECTION FENCE
- SF/TP- COMBO SILT / TREE PROTECTION FENCE
- XXX --- PROPOSED CONTOUR (MAJOR)
- XXX --- PROPOSED CONTOUR (MINOR)
- --- PROPOSED DIVERSION DITCH/BERM
- PROPOSED INLET PROTECTION
- PROPOSED SILT FENCE OUTLET
- PROPOSED CHECK DAM
- CONSTRUCTION ENTRANCE

**underfoot**  
ENGINEERING

PO BOX 37781  
RALEIGH, NC 27627  
P:919.576.9733

CORNWALLIS COMMONS  
CONSTRUCTION PLANS

PITTSBORO, NC

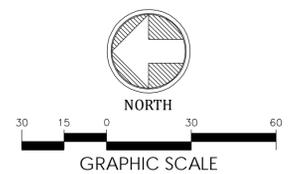
## EROSION CONTROL PLAN (STAGE 1)

SUBMITTAL:	DRAWN BY:	CHECKED BY:	DATE:
1st SUBMITTAL	MAR	LML	2013.10.17
2nd SUBMITTAL	MAR	LML	2013.11.22

SEALED BY:

C-500

REFER TO SHEET C-500 FOR SEDIMENT BASIN SUMMARY,  
EROSION CONTROL NOTES AND CONSTRUCTION  
SEQUENCE



ALL CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH  
CURRENT TOWN OF PITTSBORO STANDARDS AND SPECIFICATIONS IN  
PLACE AT TIME OF PLAN APPROVAL



CORNWALLIS COMMONS  
CONSTRUCTION PLANS

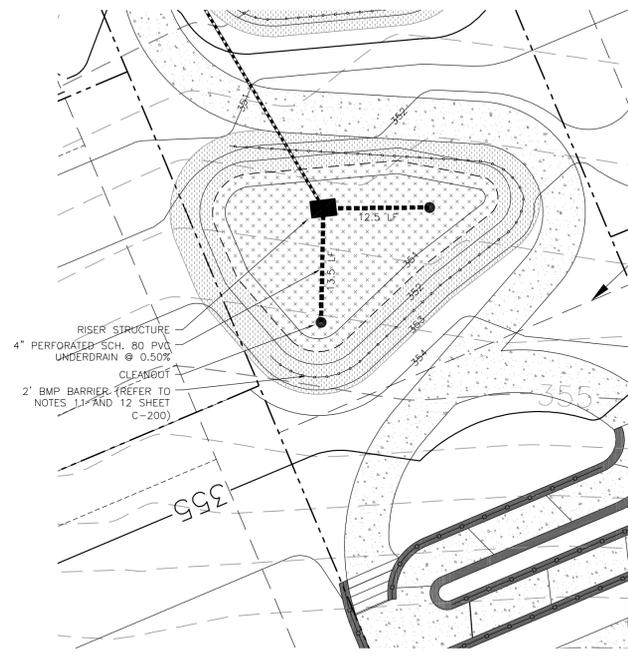
PITTSBORO, NC

EROSION CONTROL PLAN  
(STAGE 2)

SUBMITTAL:	DRAWN BY:	CHECKED BY:	DATE:
1st SUBMITTAL	MAR	LML	2013.10.17
2nd SUBMITTAL	MAR	LML	2013.11.22

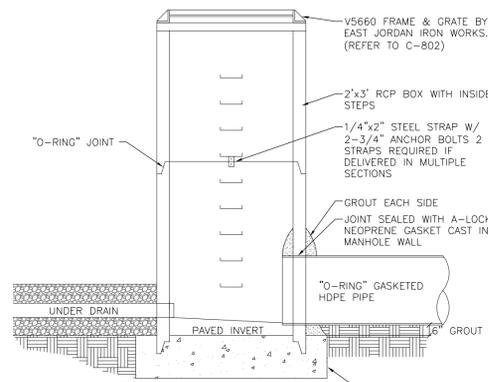


C-501



**BMP #1 - BIO RETENTION**

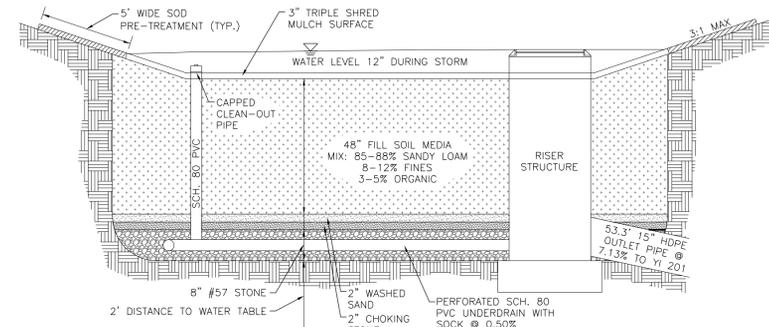
1" = 10'  
REFER TO L-100 FOR BMP PLANTINGS



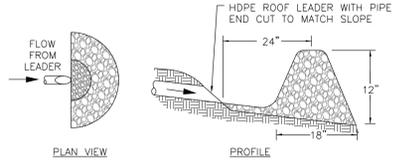
**RISER STRUCTURE DETAIL**

	DIMENSIONS	ELEV.
TOP OF DAM WIDTH	8 FT. MIN	352.00
TOP OF RISER	2' x 3'	351.50
TOP OF MULCH	3" DEEP	350.50
TOP OF SOIL MIX	4" DEEP	350.25
TOP OF SAND / CHOKING STONE	4" DEEP	346.25
TOP OF #57 STONE	8" DEEP	345.92
UNDERDRAIN INVERT IN	4" PVC	345.42
PSP UPSTREAM INVERT	15" HDPE	345.00
PSP DOWNSTREAM INVERT	15" HDPE	341.20
TOP OF ANTI-FLOTATION	4' x 5' x 18"	344.50

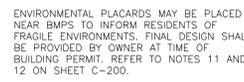
CAST IN PLACE ANTI-FLOTATION. RISER IS TO BE SET IN 4" DEEP TRENCH AND CONNECTED WITH 1/4" X 2" ANGLE IRONS WITH 2-3/4" ANCHOR BOLTS AT 18" O.C.



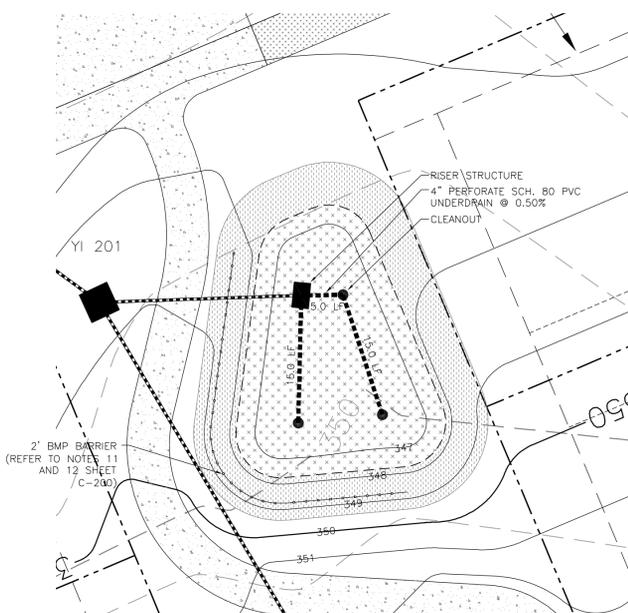
**TYPICAL CROSS SECTION**



**HDPE ROOF LEADER AND DISSIPATOR DETAIL**

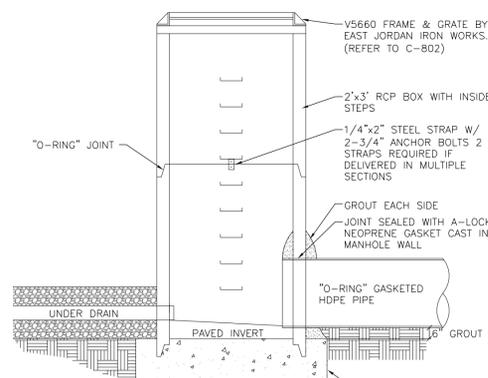


**ENVIRONMENTAL PLACARD**



**BMP #2 - BIO RETENTION**

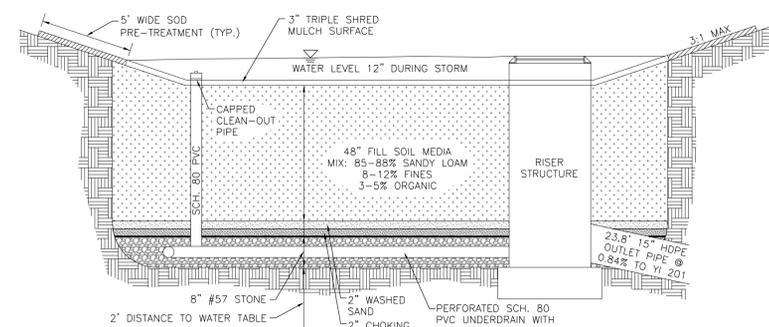
1" = 10'  
REFER TO L-100 FOR BMP PLANTINGS



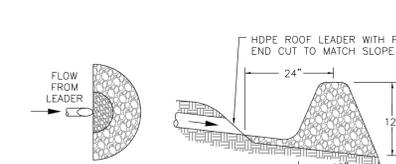
**RISER STRUCTURE DETAIL**

	DIMENSIONS	ELEV.
TOP OF DAM WIDTH	8 FT. MIN	348.00
TOP OF RISER	2' x 3'	347.50
TOP OF MULCH	3" DEEP	346.50
TOP OF SOIL MIX	4" DEEP	346.25
TOP OF SAND / CHOKING STONE	4" DEEP	342.25
TOP OF #57 STONE	8" DEEP	341.92
UNDERDRAIN INVERT IN	4" PVC	341.42
PSP UPSTREAM INVERT	15" HDPE	341.40
PSP DOWNSTREAM INVERT	15" HDPE	341.20
TOP OF ANTI-FLOTATION	4' x 5' x 18"	340.90

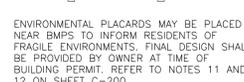
CAST IN PLACE ANTI-FLOTATION. RISER IS TO BE SET IN 4" DEEP TRENCH AND CONNECTED WITH 1/4" X 2" ANGLE IRONS WITH 2-3/4" ANCHOR BOLTS AT 18" O.C.



**TYPICAL CROSS SECTION**



**HDPE ROOF LEADER AND DISSIPATOR DETAIL**



**ENVIRONMENTAL PLACARD**

**BMP NOTES**

1. REFER TO GENERAL NOTES ON SHEET C-200.
2. REFER TO DAM EMBANKMENT AND SEED BED PREPARATION NOTES ON SHEET C-601.
3. REFER TO CONSTRUCTION SEQUENCE ON SHEET C-500 FOR TIMING OF BMP CONVERSIONS.
4. REFER TO NOTE 15 ON C-200 FOR PHASING REQUIREMENTS.
5. NO PLANTINGS OF ANY SORT SHALL BE PERMITTED WITHIN 5' OF THE RISER STRUCTURE.
6. A PE CERTIFICATION WILL BE REQUIRED AT TIME OF BMP AS-BUILT.

**BIORETENTION BACKFILLING SEQUENCE**

1. UNDERCUT BIORETENTION AREA TO NECESSARY DEPTH (SEE BIORETENTION AREA CROSS SECTION).
2. PLACE 4" SCH. 80 PVC UNDERDRAIN PIPES AND GRAVEL JACKET LAYER. UNDERDRAINS SHALL BE PLACED ON 3" WIDE SECTIONS OF FILTER CLOTH. THE ENDS OF THE UNDERDRAIN PIPES NOT TERMINATING IN AN OBSERVATION WELL SHALL BE CAPPED. THE COLLECTOR PIPES SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEANOUT PIPES SHALL BE PROVIDED AS SHOWN ON THIS PLAN.
3. PLACE 2" OF CHOKING STONE AND 2" OF WASHED SAND PER THE BIORETENTION AREA CROSS SECTION.
4. PLACE LAYER OF PLANTING SOIL (PER PLANTING SOIL SPECIFICATION) TO ELEVATION SHOWN. PLACEMENT OF THE SOIL IN THE BIORETENTION AREA SHOULD BE IN LIFTS OF 18" OR LESS AND NOT COMPACTED AT ALL.

**BIORETENTION COMPACTION NOTICE**

1. CONTRACTOR SHALL MINIMIZE THE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL. WHEN POSSIBLE, CONTRACTOR SHALL USE EXCAVATION HOES TO REMOVE THE ORIGINAL SOIL. IF THE BIORETENTION AREA IS EXCAVATED USING A LOADER, THE CONTRACTOR SHALL USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TUFF TIRE TIRES. COMPACTION AT THE BASE OF THE BIORETENTION AREA CAN BE ALLEVIATED BY USING A PRIMARY TILLING OPERATION SUCH AS A CHESS PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACATURE THE SOIL PROFILE THROUGH THE 12" COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
2. ROTOTILL 2" TO 3" OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE REQUIRED GRAVEL LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.
3. WHEN BACKFILLING THE BIORETENTION AREA, PLACE SOIL IN LIFTS OF 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION AREA. HEAVY EQUIPMENT CAN USE USED AROUND THE PERIMETER TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

**BIORETENTION MATERIAL SPECIFICATIONS**

1. THE GRAVEL LAYER SHALL MEET THE STANDARDS SET FORTH IN ASSHTO M-43. THE GRAVEL SHALL BE A POORLY GRADED MATERIALS WITH AN AVERAGE DIAMETER OF 0.25" TO 0.75".
2. THE WASHED SAND (SIZE = 0.02" TO 0.04") AND CHOKING STONE (#8 OR #9 WASHED) LAYERS BETWEEN THE PLANTING SOIL AND GRAVEL LAYER SHALL MEET REQUIREMENTS OF ASTM C-33.
3. THE UNDERDRAIN PIPING FOR THE BIORETENTION AREA SHALL BE 4" SCH 80 PVC. THE PIPE AND FITTINGS SHALL MEET THE REQUIREMENTS OF AASHTO M-304. PERFORATED PIPE SHALL CONTAIN CIRCULAR PERFORATIONS MEETING AASHTO M-304. OBSERVATION WELL/CLEANOUT SHALL EXTEND 6" ABOVE FINISHED GRADE.

**BIORETENTION PLANTING SOIL MIX**

1. THE PLANTING SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS, OR OTHER SIMILAR OBJECTS LARGER THAN ONE-HALF INCH IN DIAMETER. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERBERIS GRASS, JOHNSON GRASS, QUACK GRASS, MUGWORT, NUISSEGE, POISON IVY, CANADA THISTLE, OR OTHER NOXIOUS WEEDS.

2. THE CONTRACTOR SHALL PROVIDE A BIORETENTION SOIL MIX USING THE TWO COMPONENTS LISTED BELOW THAT WILL MEET THE ASTM STANDARDS AS FOLLOWS:

- A. SANDY LOAM TOPSOIL - 35%
  - B. COARSE SAND - 65%
  - C. PERMEABILITY - 2" PER HOUR MINIMUM
- NOTES:
- CLAY PERCENTAGE SHALL NOT EXCEED 8%
  - SILT PERCENTAGE SHALL NOT EXCEED 12%
  - SILT AND CLAY PERCENTAGE SHALL NOT EXCEED 12%
  - PHOSPHOROUS INDEX SHALL BE BETWEEN 10 AND 30

3. THE CONTRACTOR SHALL TEST THE PLANTING SOIL PRIOR TO PLACEMENT TO ENSURE THE FOLLOWING CRITERIA ARE MET:

- A. pH RANGE - 5.5 TO 6.5
- B. ORGANIC MATTER - 1.5% TO 5%
- C. MAGNESIUM - 35 LB/AC
- D. PHOSPHOROUS P205 - 100 LB/AC
- E. POTASSIUM K20 - 85 LB/AC
- F. SOLUBLE SALTS NOT TO EXCEED 500 PPM

4. THE FOLLOWING TEST FREQUENCIES SHALL APPLY TO THE ABOVE SOIL CONSTITUENTS: ALL BIORETENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST PER 200 CUBIC YARDS. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR pH, PHOSPHOROUS, AND POTASSIUM AND ADDITIONAL TESTS OF ORGANIC MATTER AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED BIORETENTION SOIL. SHOULD THE pH FALL OUT OF THE ACCEPTABLE RANGE, IT MAY BE MODIFIED (HIGHER) WITH LIME OR (LOWER) WITH IRON SULFATE PLUS SULFER.
5. IN-SITU PERMEABILITY TESTING MUST BE PERFORMED AFTER INSTALL. BMP WILL NOT BE ACCEPTED WITH A PERMEABILITY OF LESS THAN 2" PER HOUR. A MINIMUM OF TWO TESTS PER BMP IS REQUIRED.

**BIORETENTION PLANTING SOIL MIX COMPONENTS**

1. SANDY LOAM TOPSOIL MUST MEET THE TEXTURAL CLASS OF A SANDY LOAM (ACCORDING TO THE NRCS TEXTURAL TRIANGLE) MEETING THE FOLLOWING:
  - SAND - 50% TO 70%
  - SILT - 0% TO 50%
  - CLAY - 15% TO 20%
2. COURSE SAND GRAIN SIZE DISTRIBUTION SHALL FOLLOW ASTM C136-95A.
3. THE COMBINED MIXTURE OF THESE TWO COMPONENTS SHALL MEET THE FOLLOWING:
  - WASHED SAND - 85% TO 88%
  - SILT AND CLAY - 8% TO 12%
  - ORGANIC MATTER - 3% TO 5%
4. MECHANICALLY MIX THE MATERIALS TO PROVIDE A UNIFORM DISTRIBUTION OF THE COMPONENTS. DO NOT WORK MEDIUM WHEN MOISTURE CONTENT IS LOW SUCH THAT DUST WILL FORM IN THE AIR. APPLY WATER, IF NECESSARY, TO BRING THE MEDIUM TO AN OPTIMUM MOISTURE CONTENT FOR PLANTING. DO NOT WORK MEDIUM WHEN THE MOISTURE CONTENT IS HIGH ENOUGH THAT EXCESSIVE COMPACTION WILL OCCUR. AERATE MEDIUM UNTIL MOISTURE CONTENT IS UNIFORMLY REDUCED AS NECESSARY.

ALL CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH CURRENT TOWN OF PITTSBORO STANDARDS AND SPECIFICATIONS IN PLACE AT TIME OF PLAN APPROVAL



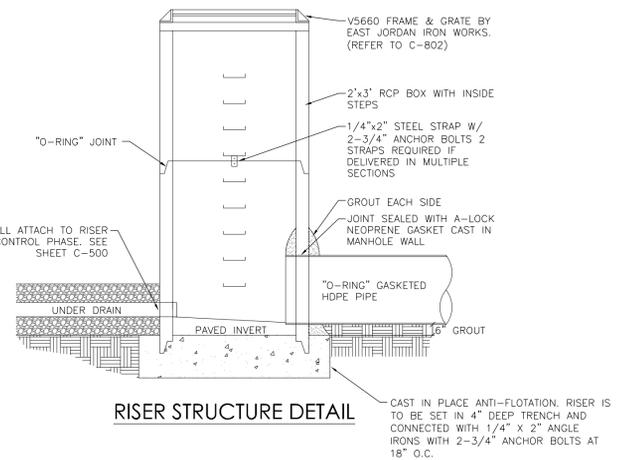
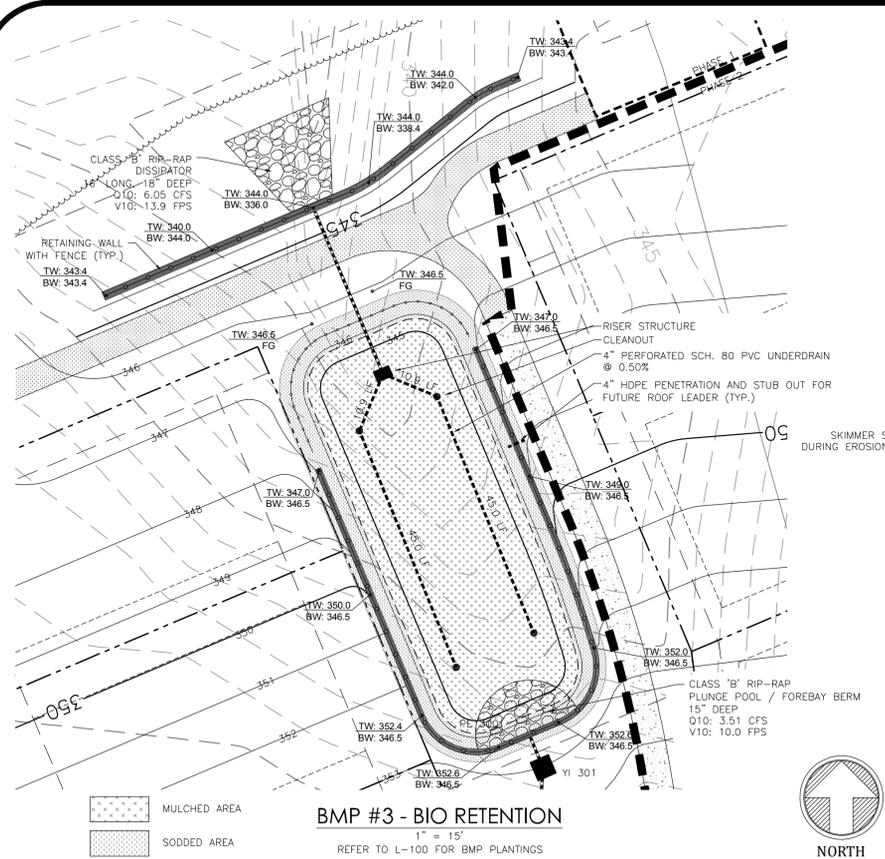
**CORNWALLIS COMMONS  
CONSTRUCTION PLANS**  
PITTSBORO, NC

**BMP PLAN  
(BMPs 1 & 2)**

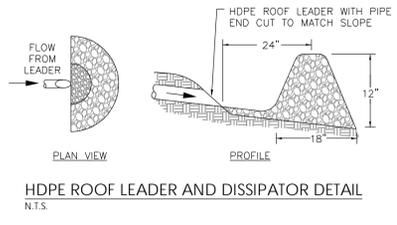
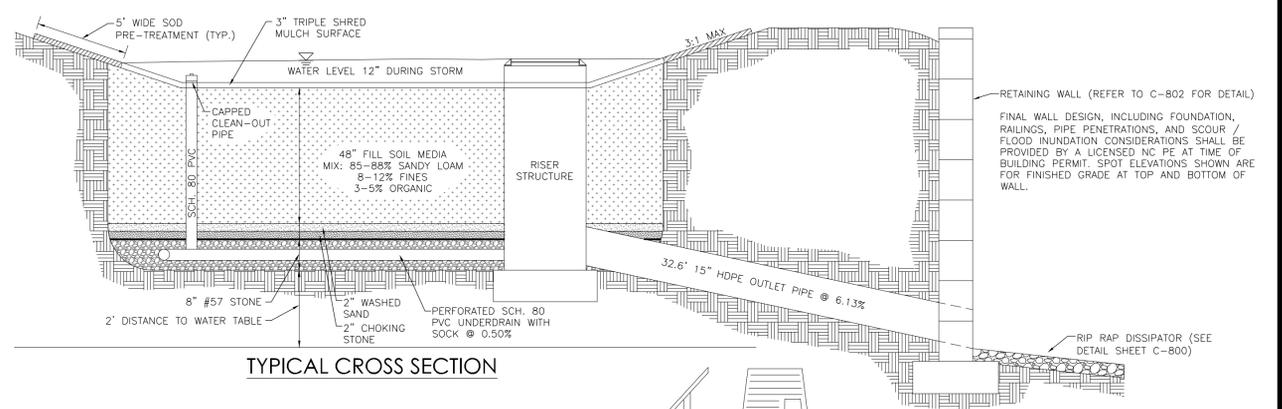
SUBMITTAL:	DRAWN BY:	CHECKED BY:	DATE:
1st SUBMITTAL	MAR	LML	2013.10.17
2nd SUBMITTAL	MAR	LML	2013.11.22



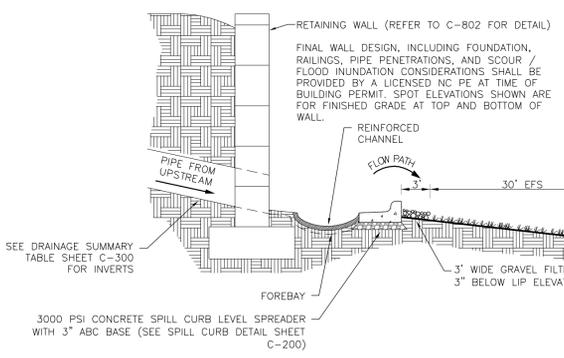
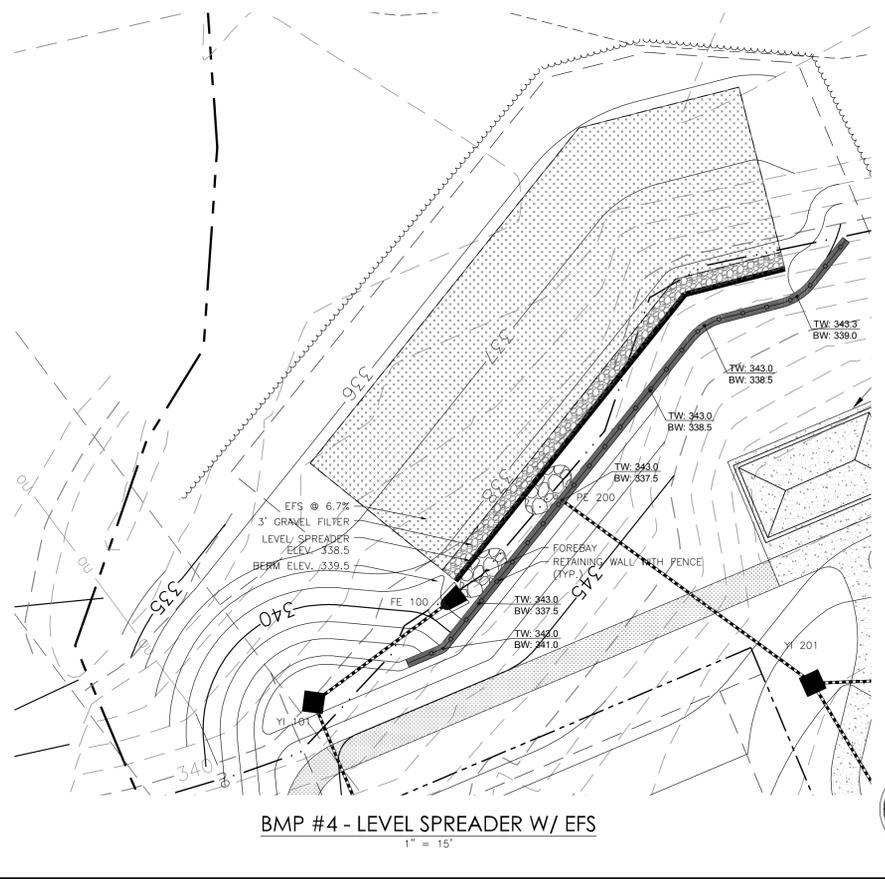
**C-600**



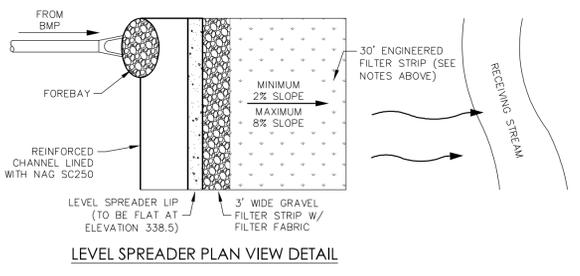
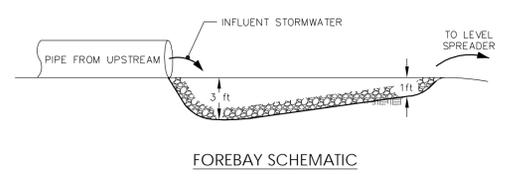
	DIMENSIONS	ELEV.
TOP OF DAM WIDTH	8 FT. MIN	346.50
TOP OF RISER	2' x 3'	345.75
TOP OF MULCH	3\"/>	



ENVIRONMENTAL PLACARDS MAY BE PLACED NEAR BMPs TO INFORM RESIDENTS OF FRAGILE ENVIRONMENTS. FINAL DESIGN SHALL BE PROVIDED BY OWNER AT TIME OF BUILDING PERMIT. REFER TO NOTES 11 AND 12 ON SHEET C-200.



	ELEV.
FOREBAY BOTTOM	336.00
CHANNEL BOTTOM	337.50
LEVEL SPREADER LIP	338.50
UPSTREAM EFS	338.00
DOWNSTREAM EFS	336.00
EFS SLOPE	6.7%



ENVIRONMENTAL PLACARDS MAY BE PLACED NEAR BMPs TO INFORM RESIDENTS OF FRAGILE ENVIRONMENTS. FINAL DESIGN SHALL BE PROVIDED BY OWNER AT TIME OF BUILDING PERMIT. REFER TO NOTES 11 AND 12 ON SHEET C-200.

**DAM EMBANKMENT NOTES**

1. CONTROLLED FILL, AS SPECIFIED BY THE GEOTECHNICAL ENGINEER, IN THE DAM EMBANKMENT SHALL BE PLACED IN 6-INCH LOOSE LAYERS (3-INCH LOOSE LAYERS WITHIN 3- FEET OF EITHER SIDE OF THE PRINCIPAL SPILLWAY PIPE TO A DEPTH OF 2- FEET OVER THE PIPE) AND SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY AT A MOISTURE CONTENT OF + OR - TWO PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D698.
2. ALL VISIBLE ORGANIC DEBRIS SUCH AS ROOTS AND LIMBS SHALL BE REMOVED FROM THE FILL MATERIAL PRIOR TO COMPACTION TO THE REQUIRED DENSITY. SOILS WITH ORGANIC MATTER CONTENT EXCEEDING 5% BY WEIGHT SHALL NOT BE USED. STONES GREATER THAN 3-INCH (IN ANY DIRECTION) SHALL BE REMOVED FROM THE FILL PRIOR TO COMPACTION.
3. FILL MATERIAL PLACED AT DENSITIES LOWER THAN SPECIFIED MINIMUM DENSITIES OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED RANGES OR OTHERWISE NOT CONFORMING TO SPECIFIED REQUIREMENTS SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE MATERIALS.
4. ANY FILL LAYER THAT IS SMOOTH DRUM ROLLED TO REDUCE MOISTURE PENETRATION DURING A STORM EVENT SHALL BE PROPERLY SCARIFIED PRIOR TO THE PLACEMENT OF THE NEXT SOIL LIFT.
5. SURFACE WATER AND STREAM FLOW SHALL BE CONTINUOUSLY CONTROLLED THROUGHOUT CONSTRUCTION AND THE PLACEMENT OF CONTROLLED FILL.
6. FOUNDATION AREAS MAY REQUIRE UNDERCUTTING OF COMPRESSIBLE AND/OR UNSUITABLE SOILS IN ADDITION TO THAT INDICATED ON THE PLANS. ALL SUCH UNDERCUTTING SHALL BE PERFORMED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER AND SHALL BE MONITORED AND DOCUMENTED. IN NO CASE SHALL THERE BE AN ATTEMPT TO STABILIZE ANY PORTIONS OF THE FOUNDATION SOILS WITH CRUSHED STONE.
7. TREATMENT OF SEEPAGE AREAS, SUBGRADE PREPARATION, FOUNDATION Dewatering AND ROCK FOUNDATION PREPARATION (I.E. TREATMENT WITH SLUSH GROUTING, DENTAL CONCRETE, ETC.) MAY BE REQUIRED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER. ALL SUCH ACTIVITIES SHALL BE CLOSELY MONITORED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER.
8. FILL ADJACENT TO THE RISER AND PRINCIPAL SPILLWAY PIPE SHALL BE PLACED SO THAT LIFTS ARE AT THE SAME LEVEL ON BOTH SIDES OF THE STRUCTURES.
9. EARTHWORK COMPACTION WITHIN 3- FEET OF ANY STRUCTURES SHALL BE ACCOMPLISHED BY MEANS OF HAND TAMPERS, MANUALLY DIRECTED POWER TAMPERS OR PLATE COMPACTORS OR MINIATURE SELF- PROPELLED ROLLERS.
10. COMPACTION BY MEANS OF DROP WEIGHTS FROM A CRANE OR HOIST SHALL NOT BE PERMITTED.
11. HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER CAST-IN- PLACE STRUCTURES (INCLUDING THE CRADLE) UNTIL ADEQUATE CURING TIME HAS ELAPSED.
12. TO RE- ESTABLISH VEGETATION AFTER CONSTRUCTION, A 2- TO 3- INCH LAYER OF TOPSOIL SHALL BE PLACED ON THE DISTURBED EMBANKMENT SURFACE AND THE AREA SEEDED AND MULCHED OR HYDROSEEDED.

**LEVEL SPREADER NOTES**

THE EFS SHALL CONSIST OF PROPERLY PREPARED SEED BED ACCORDING TO THE SEED BED PREPARATION NOTES (THIS SHEET), LINED WITH NAG SC250, AND SEEDED WITH TALL FESCUE AT A RATE OF 120 LBS/ACRE. IF A DENSE, VIGOROUS STAND OF GRASS IS NOT ACHIEVED AT TIME OF AS- BUILT, THE TOWN OF PITTSBORO MAY REQUIRE FESCUE SODDING.

**SEED BED PREPARATION**

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ENTIRE AREA. THEN RIP TO 6 INCHES DEEP.
2. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER DEBRIS LEAVING SURFACES SMOOTH AND UNIFORM.
3. APPLY LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL AT THE FOLLOWING RATES:  
LIME: 2 TONS/ACRE  
FERTILIZER (10-10-10): 0.5 TONS/ACRE  
SUPERPHOSPHATE (20%): 0.25 TONS/ACRE  
MULCH (SMALL GRAIN STRAW): 2 TONS/ACRE  
TACK (ASPHALT EMULSION): 300 GAL/ACRE
4. CONTINUE TILLING UNTIL A WELL- PULVERIZED, FIRM, UNIFORM SEED BED IS PREPARED 4-6 INCHES DEEP.
5. SEED FRESHLY PREPARED SEED BED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULT- PACK AFTER SEEDING.
6. MULCH AND TACK IMMEDIATELY AFTER SEEDING.
7. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS WITHIN PLANTING SEASON, IF POSSIBLE.



**CORNWALLIS COMMONS  
CONSTRUCTION PLANS**  
PITTSBORO, NC

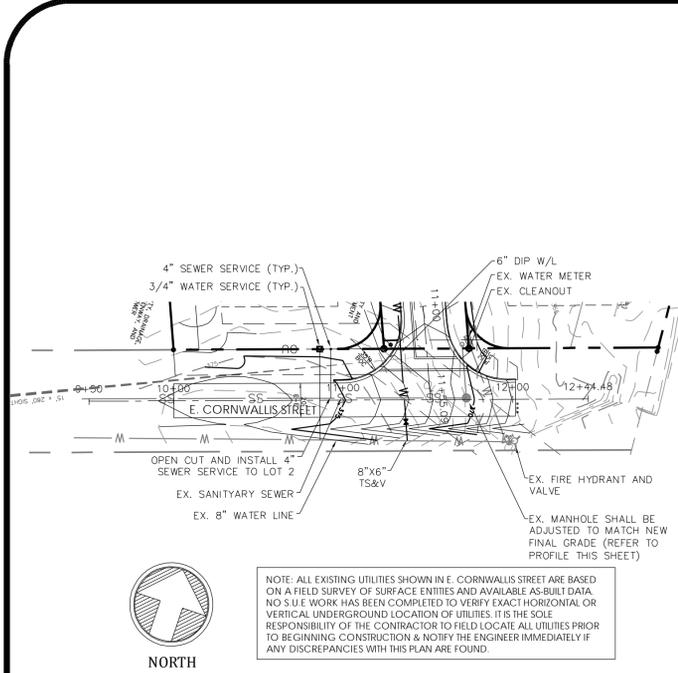
**BMP PLAN  
(BMPs 3 & 4)**

SUBMITTAL:	DRAWN BY:	CHECKED BY:	DATE:
1st SUBMITTAL	MAR	LML	2013.10.17
2nd SUBMITTAL	MAR	LML	2013.11.22

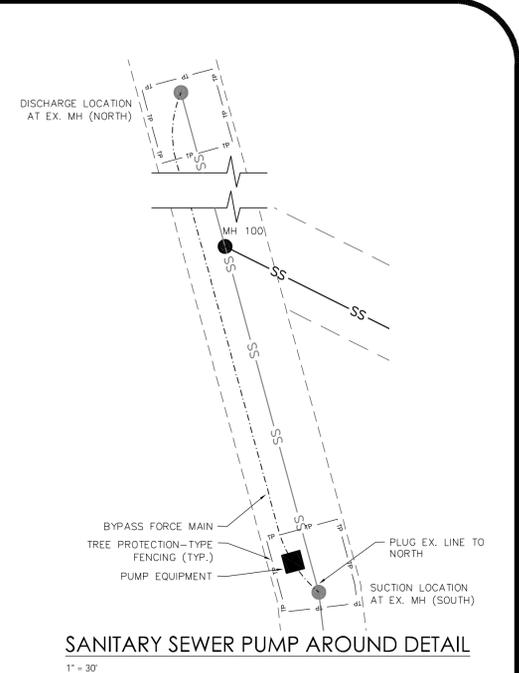
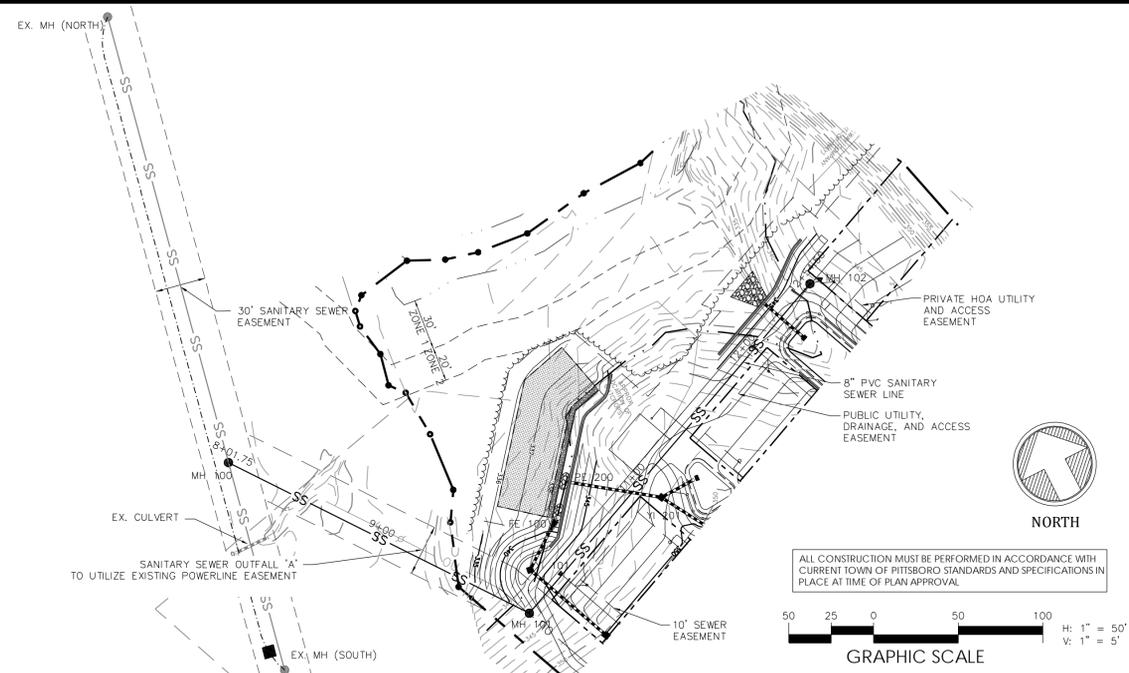
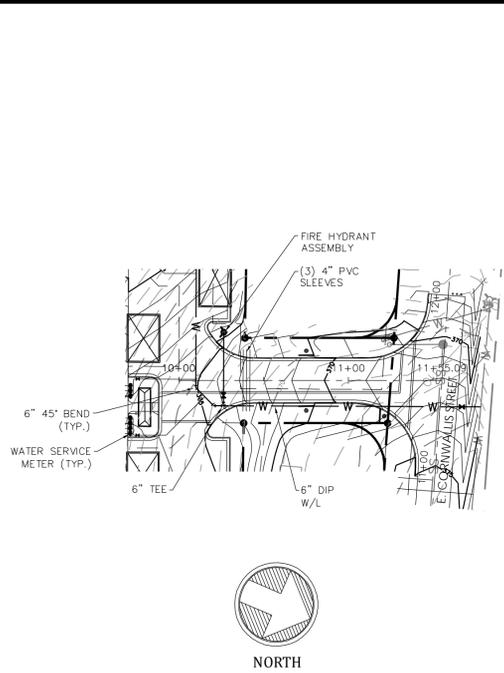


**C-601**

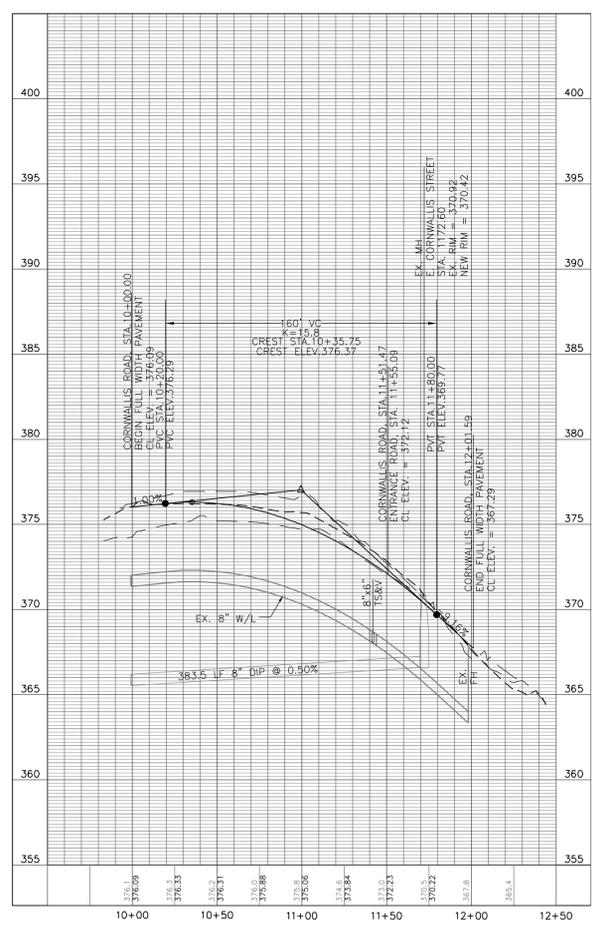
ALL CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH CURRENT TOWN OF PITTSBORO STANDARDS AND SPECIFICATIONS IN PLACE AT TIME OF PLAN APPROVAL.



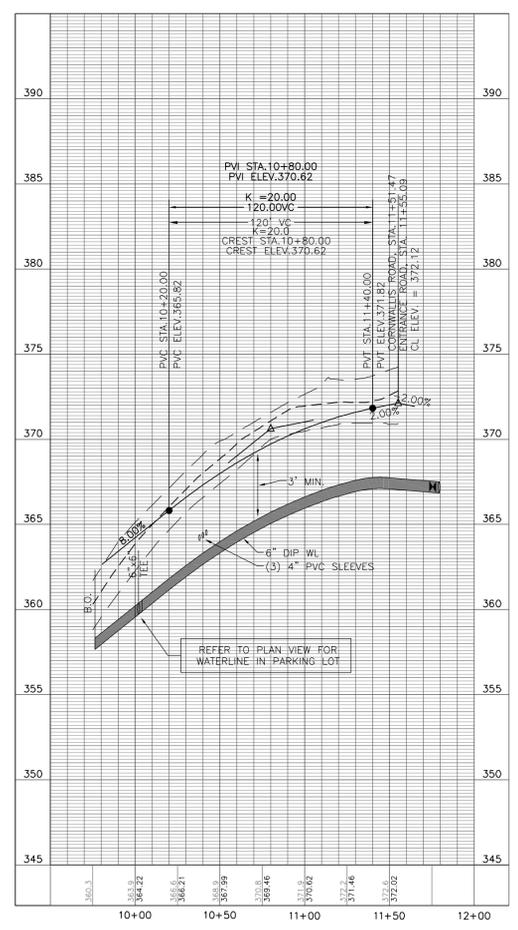
NOTE: ALL EXISTING UTILITIES SHOWN IN E. CORNWALLIS STREET ARE BASED ON A FIELD SURVEY OF SURFACE ENTITIES AND AVAILABLE AS-BUILT DATA. NO S.U.E. WORK HAS BEEN COMPLETED TO VERIFY EXACT HORIZONTAL OR VERTICAL UNDERGROUND LOCATION OF UTILITIES. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD LOCATE ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION & NOTIFY THE ENGINEER IMMEDIATELY IF ANY DISCREPANCIES WITH THIS PLAN ARE FOUND.



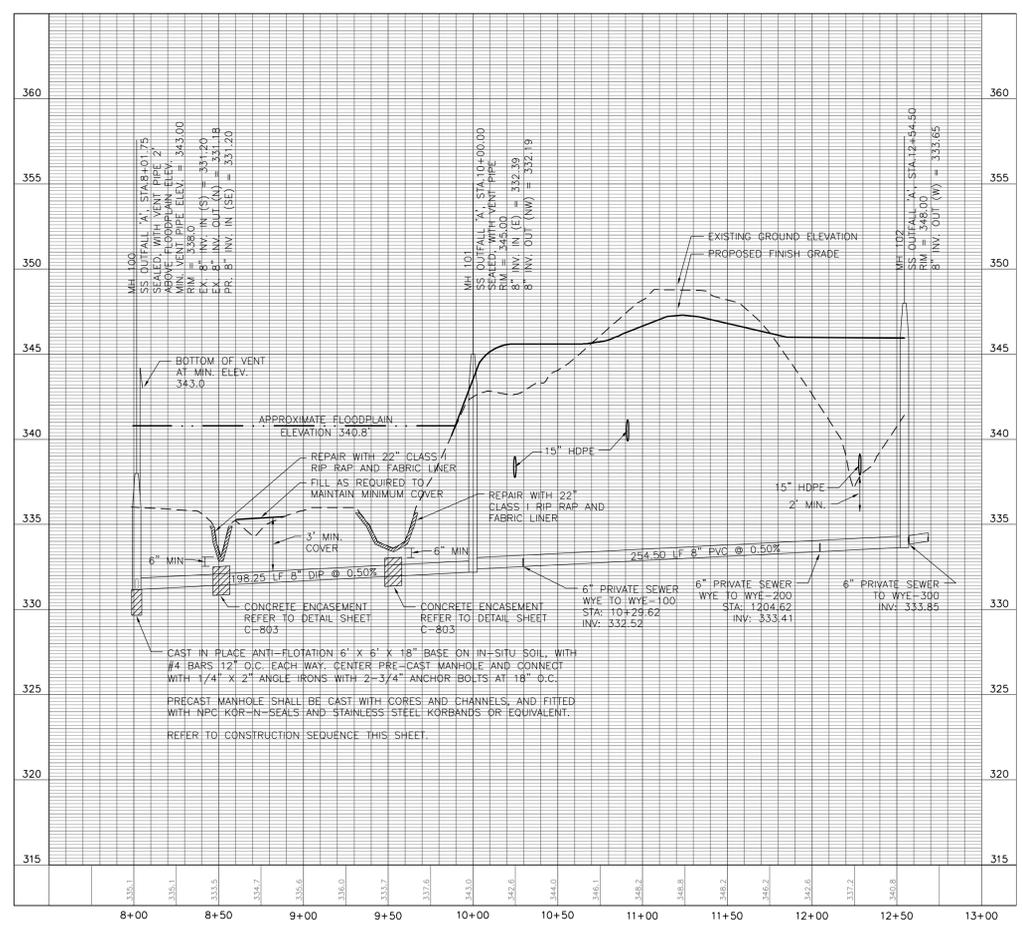
E. CORNWALLIS STREET  
(20' E-E, 60' R/W)



ENTRANCE ROAD  
(27' B-B, 50' EASEMENT)



SANITARY SEWER OUTFALL "A"



SANITARY SEWER PUMP NOTES AND SEQUENCE

A PUMP AROUND SHALL BE REQUIRED DURING THE TIE-IN OF MH-100 TO THE EXISTING SYSTEM. THE CONTRACTOR MUST SUBMIT PUMP AND HOSE SPECS TO THE ENGINEER AND THE TOWN OF PITTSBORO FOR APPROVAL PRIOR TO MAKING THE TIE. THE ANTICIPATED FLOW THAT THE PUMP MUST HANDLE IS 140 GPM. TWO INDIVIDUAL PUMPS THAT CAN HANDLE THIS FLOW MUST BE USED FOR REDUNDANCY, THOUGH ONLY ONE WILL BE OPERATING ANY GIVEN TIME.

PUMP AROUND SHALL FOLLOW ALL APPLICABLE LOCAL, STATE, AND FEDERAL LAWS AND SHALL BE IN ACCORDANCE WITH THE TOWN OF PITTSBORO STANDARDS AND PROJECT SPECIFICATIONS PREPARED BY UNDERFOOT ENGINEERING TITLED "TEMPORARY BYPASS PUMPING SPECIFICATIONS". NOTIFY THE ENGINEER IMMEDIATELY IF ANY DISCREPANCIES WITHIN THE SPECIFICATIONS OR THIS PLAN ARE FOUND.

REFER TO GENERAL NOTES SHEET C-100 AND UTILITY NOTES C-400.

- OBTAIN PUMP AROUND PLAN APPROVAL FROM TOWN OF PITTSBORO AND THE ENGINEER. COORDINATE WITH TOWN OF PITTSBORO AND ENGINEER TO SCHEDULE DATE OF TIE-IN. THE PRECAST MANHOLE, PIPING, AND ASSOCIATED MATERIALS MUST BE ON SITE BEFORE PLAN APPROVAL.
- ESTABLISH SUCTION AND DISCHARGE LOCATIONS WITH A TREE PROTECTION FENCE BARRICADE AS REQUIRED TO KEEP AREAS SAFE. ALL OPERATIONS AND EQUIPMENT SHALL BE WITHIN THE EXISTING 30' EASEMENT AT ALL TIMES.
- EXCAVATE A WORK AREA AROUND THE LOCATION OF THE TIE-IN. USE EXTREME CAUTION WHEN DIGGING ADJACENT TO EXISTING SEWER LINE. EXCAVATING DIRECTLY BELOW EXISTING SEWER LINE BY HAND. SUPPORT EXISTING SEWER LINE WITH BRICK PIERS AS NEEDED.
- PLACE PRECAST MANHOLE BASE IMMEDIATELY ADJACENT TO TIE-IN OPERATION. POUR CAST IN PLACE 6' X 6' X 18" CONCRETE BASE NO LESS THAN 24 HOURS BEFORE COMMENCING PUMP AROUND OPERATION. ENSURING CLEARANCE TO EXISTING PIPE MATCHES DISTANCE FROM BOTTOM OF PRECAST MANHOLE TO BOTTOM OF MANHOLE INVERT.
- SETUP PUMP EQUIPMENT, INCLUDING FORCE MAIN AND GENERATORS PER APPROVED PLAN. PREPARE PRECAST MANHOLE TO BE LOWERED ONTO CAST IN PLACE BASE PRIOR TO PERFORMING TIE-IN.
- OBTAIN APPROVAL FROM THE TOWN OF PITTSBORO AND THE ENGINEER.
- COMMENCE PUMP AROUND AND TIE-IN PER APPROVED PLAN.
- SHUTDOWN PUMPING OPERATIONS PER SPECIFICATIONS.

EMERGENCY ACTION PLAN

THE CONTRACTOR SHALL TAKE THE FOLLOWING ACTIONS AND MAKE CONTACT AS PRESCRIBED IN THE EVENT OF AN EMERGENCY DURING THE PUMP AROUND.

IF A LIFE THREATENING SITUATION OR INJURY OCCURS, CALL 911

IN THE EVENT OF BYPASS PUMPING SYSTEM FAILURE INCLUDING BUT NOT LIMITED TO LINE BLOCKAGE, PIPE COLLAPSE, MANHOLE FAILURE, LEAKS, OR SPILLS:

- TAKE IMMEDIATE ACTION TO INSURE THE SAFETY OF ALL PERSONNEL, RESIDENTS, OR BYSTANDERS.
  - TAKE IMMEDIATE ACTION TO RESTORE SYSTEMS TO PROPER WORKING CONDITION BY RESTARTING PUMPS, STABILIZING SLOPES, AND MINIMIZING LEAKS.
  - TAKE IMMEDIATE ACTION TO MINIMIZE DAMAGE TO NEARBY UTILITIES, STREETS, RESIDENCES, AND WILDLIFE.
  - CALL THE TOWN OF PITTSBORO PUBLIC WORKS  
JOHN POTEAU: 919.542.2530
  - CALL TOWN OF PITTSBORO ENGINEERING  
FRED ROYAL: 919.542.2063
  - CALL UNDERFOOT ENGINEERING  
LONDON LOVELACE: 919.576.9733
- THE TOWN OF PITTSBORO PUBLIC WORKS WILL BE RESPONSIBLE FOR SPILL CLEAN UP AND NOTIFICATION OF NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES. ALL COSTS OF CLEAN UP, FINES, AND PENALTIES SHALL BE PAID BY THE CONTRACTOR.



CORNWALLIS COMMONS  
CONSTRUCTION PLANS

PITTSBORO, NC

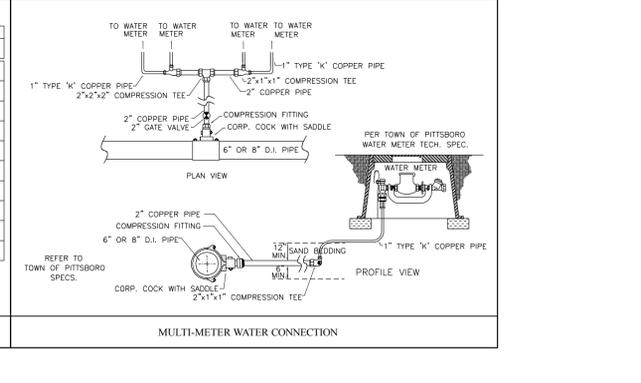
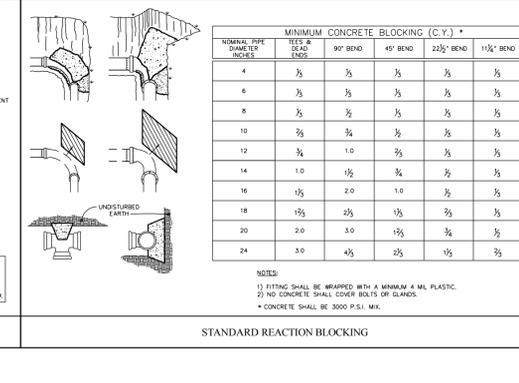
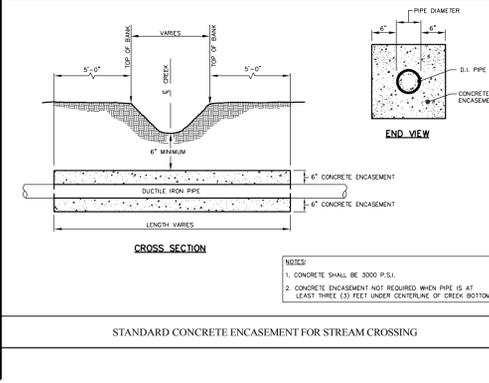
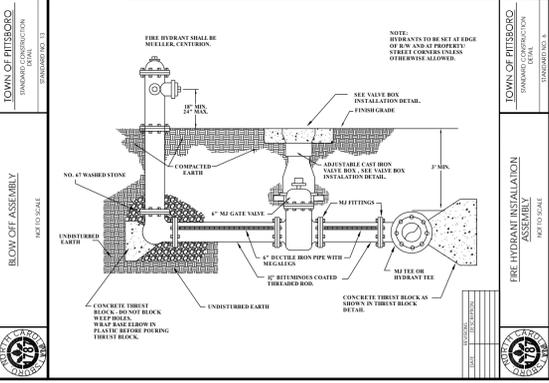
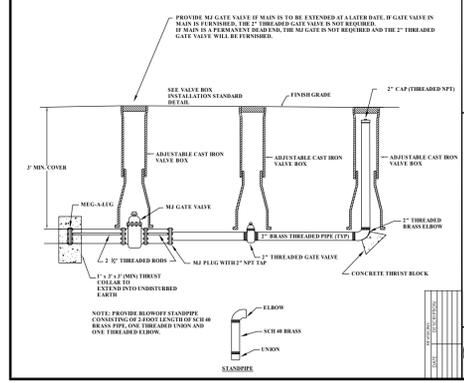
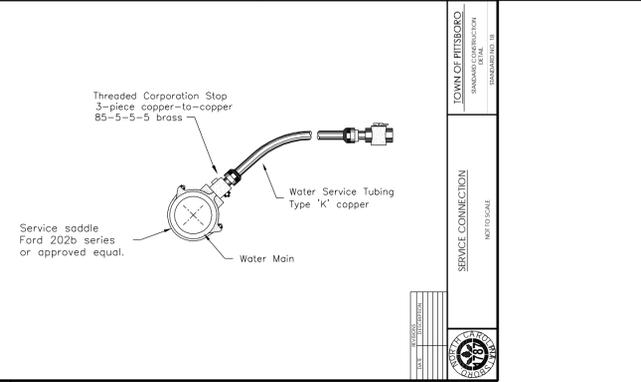
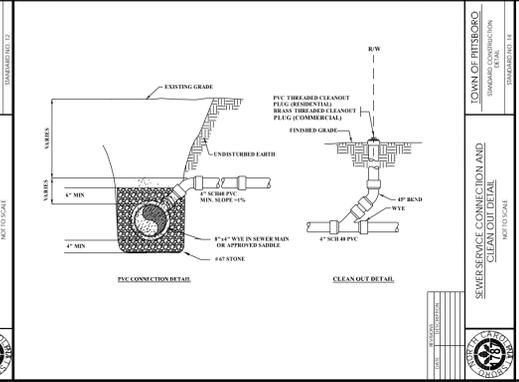
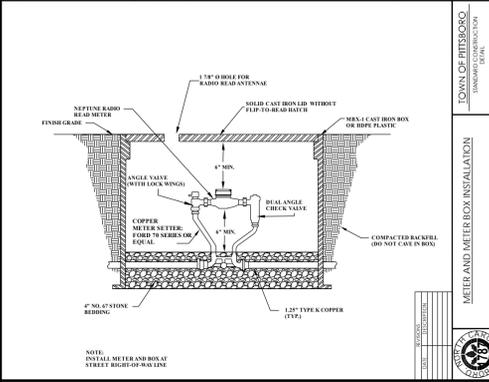
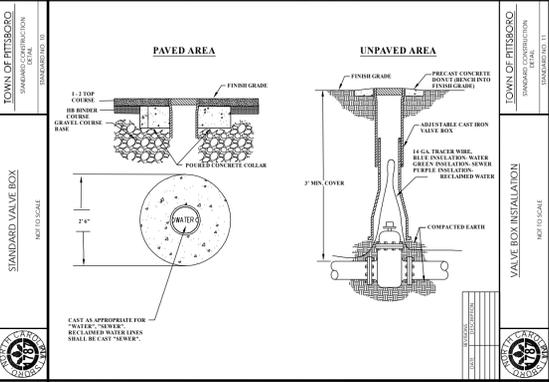
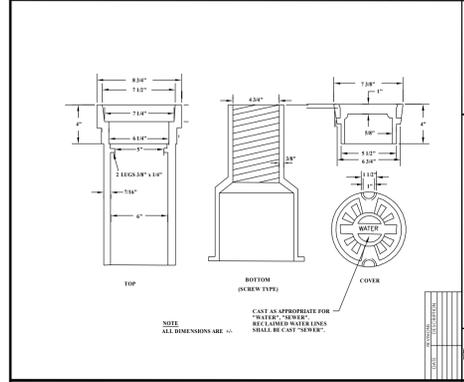
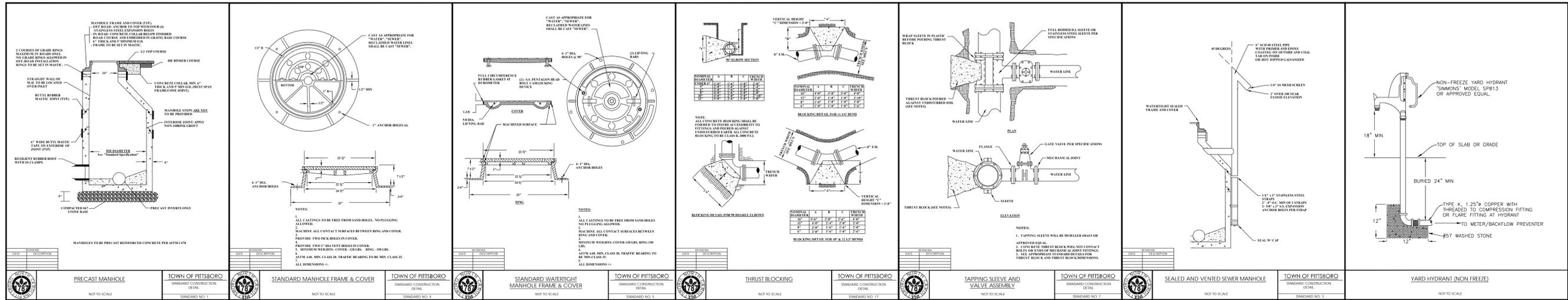
PLAN AND PROFILE

SUBMITTAL:	DRAWN BY:	CHECKED BY:	DATE:
1st SUBMITTAL	MAR	LML	2013.10.17
2nd SUBMITTAL	MAR	LML	2013.11.22



C-700





ALL CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH CURRENT TOWN OF PITTSBORO STANDARDS AND SPECIFICATIONS IN PLACE AT TIME OF PLAN APPROVAL.



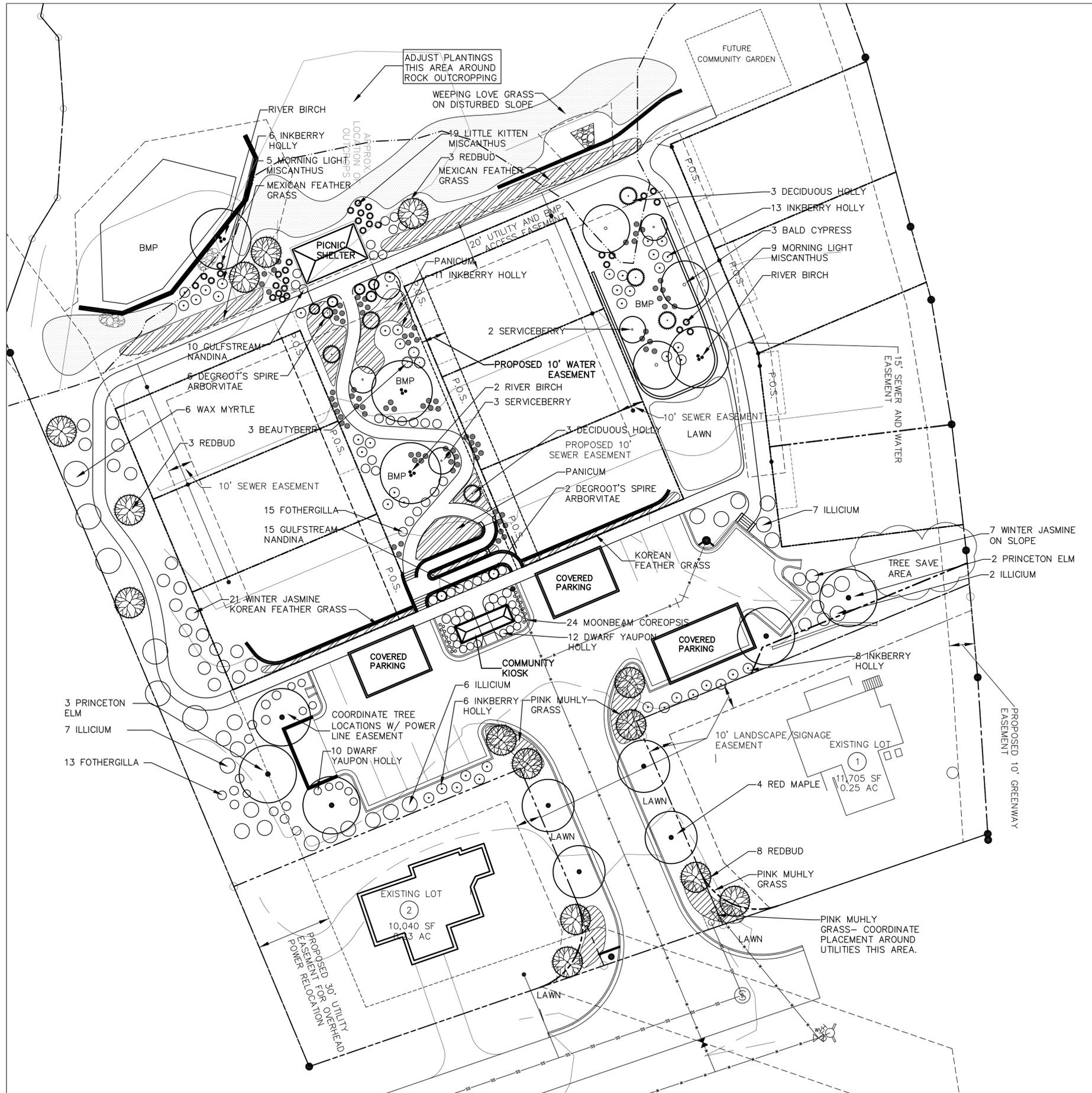
**CORNWALLIS COMMONS  
CONSTRUCTION PLANS**  
PITTSBORO, NC

**UTILITY DETAILS**

SUBMITTAL:	DRAWN BY:	CHECKED BY:	DATE:
1st SUBMITTAL	MAR	LML	2013.10.17
2nd SUBMITTAL	MAR	LML	2013.11.22

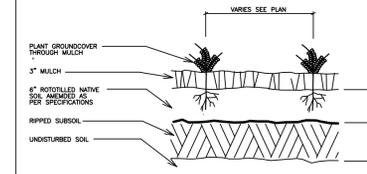


**C-801**



**PLANT LIST**

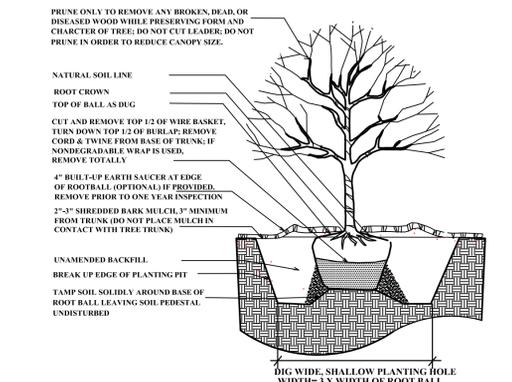
QTY	BOTANICAL/COMMON NAME	SIZE (MIN)	ROOT	REMARKS
<b>LARGE TREES</b>				
4	ACER RUBRUM 'RED SUNSET' / RED SUNSET MAPLE	3" CAL. 12' HT.	B&B OR CONT.	FULL, MATCHED SPECIMENS
5	ULMUS AMERICANA 'PRINCETON' / PRINCETON ELM	3" CAL. 12' HT.	B&B OR CONT.	FULL, MATCHED SPECIMENS
4	BETULA NIGRA 'HERITAGE' / RIVER BIRCH	3" CAL. 11'-12' HT.	B&B OR CONT.	FULL SPECIMEN, MULTI TRUNK
3	TAXODIUM DISTICHUM / BALD CYPRESS	8'-10' HT	B&B OR CONT.	FULL, SPECIMENS
<b>DECIDUOUS UNDERSTORY TREE</b>				
13	CERCIS CANADENSIS / REDBUD	9'-10' HT 2 1/2" CAL	B&B OR CONT.	FULL CANOPIES, SPRING BLOOM SINGLE STEM
5	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE' / SERVICEBERRY	9'-10' HT 2 1/2" CAL	B&B OR CONT.	FULL MATCHED SPECIMENS, SINGLE TRUNK, BERRY
<b>SHRUBS</b>				
13	FOTHERGILLA MAJOR / FOTHERGILLA	24" HT # SPD.	CONT.	FULL MATCHED SPECIMENS
22	ILLICIUM PARVIFLORUM / ILLICIUM	30" HT # SPD.	CONT.	FULL MATCHED SPECIMENS
20	JASMINUM NUDIFLORUM / WINTER JASMINE	15" HT. 24" SPD.	CONT.	FULL MATCHED SPECIMENS
6	MYRTICA CERIFERA / WAX MYRTLE	36" HT # SPD.	CONT.	FULL MATCHED SPECIMENS
25	NANDINA DOMESTICA 'GULFSTREAM' / GULFSTREAM NANDINA	18" HT. # SPD.	CONT.	FULL MATCHED SPECIMENS, EVERGREEN
8	THUJA OCCIDENTALIS 'DEGROOT'S SPIRE' / DEGROOT'S SPIRE ARBORVITAE	6'-7' HT.	CONT.	FULL MATCHED SPECIMENS, EVERGREEN
22	ILEX VOMITARIA 'NANA' / DWARF YAUPON HOLLY	15" HT # SPD.	CONT.	FULL MATCHED SPECIMENS, EVERGREEN
46	ILEX GLABRA 'SHAMROCK' / INKBERRY HOLLY	18" HT # SPD.	CONT.	FULL MATCHED SPECIMENS, EVERGREEN
6	ILEX DECIDUA / DECIDUOUS HOLLY	36" HT	CONT.	FULL MATCHED SPECIMENS, EVERGREEN
3	CALLICARPA AMERICANA 'ISAAC' / BEAUTYBUSH	30" HT	CONT.	FULL SPECIMENS, PURPLE BERRIES
<b>PERENNIALS / ORNAMENTAL GRASSES</b>				
19	MISCANTHUS SINENSIS 'LITTLE KITTEN' / LITTLE KITTEN MISCANTHUS	3 GAL	CONT.	FULL MATCHED SPECIMENS
775	MUHLENBERGIA CAPILLARIS / PINK MUHLY GRASS	3 GAL	CONT.	FULL MATCHED SPECIMENS
5521	ERAGROSTIS CURVULA / WEeping LOVE GRASS	SEED	CONT.	SEEDING TO OCCUR IN MAY OR JUNE, SPACE 1' O.C.
24	COREOPSIS VERTICILLATA 'MOONBEAM' / MOONBEAM COREOPSIS	1 GAL	CONT.	FULL MATCHED SPECIMENS
996	PANICUM VIRGATUM 'RUBY RIBBONS' / SWITCH GRASS	1 GAL	CONT.	FULL MATCHED SPECIMENS
14	MISCANTHUS SINENSIS 'MORNING LIGHT' / MORNING LIGHT MISCANTHUS	3 GAL	CONT.	FULL MATCHED SPECIMENS, FAST GROWING
1240	NASSELLA TENUISSIMA / MEXICAN FEATHER GRASS	1 GAL	CONT.	FULL MATCHED SPECIMENS, SPACE 2.5' O.C.
213	CALAMAGROSTIS BRACHYTRICA / KOREAN FEATHER GRASS	3 GAL	CONT.	FULL MATCHED SPECIMENS, SPACE 3' O.C.
<b>MIXED PERENNIALS</b>				
101	AMSONIA, LOBELIA CARDINALIS, COREOPSIS, EUPATORIUM, IRIS SP.	1 GAL	CONT.	FINAL SELECTIONS TO BE DETERMINED AT TIME OF INSTALLATION



**GROUND COVER PLANTING DETAIL**



**RAISED SHRUB PLANTING DETAIL**



**TREE PLANTING DETAIL**

- REFER TO CIVIL PLANS FOR LAYOUT AND GRADING NOTES.
- LANDSCAPE CONTRACTOR TO VERIFY LOCATION OF UNDERGROUND UTILITIES BEFORE BEGINNING ALL WORK.
- PLANT MATERIAL WILL BE REJECTED UNLESS ANY AND ALL PLANT MATERIAL ARE OF SIZE, SPREAD, CALIPER, GENUS, SPECIES AND VARIETY SHOWN. ANY MATERIAL WITH EVIDENCE OF DISEASE OR PEST INFESTATIONS WILL BE REJECTED. ALL REWORK WILL BE AT THE EXPENSE OF THE CONTRACTOR. SUBSTITUTIONS WILL BE PERMITTED ONLY UPON SUBMISSION OF WRITTEN PROOF TO THE ARCHITECT THAT A SPECIFIED PLANT IS NOT OBTAINABLE.
- ALL DISTURBED AREAS ARE TO BE STABILIZED WITH LAWN, PLANTINGS, OR MULCH.
- PLACE 3" SHREDDED HARDWOOD MULCH OR APPROVED EQUAL IN RETENTION PONDS, PLANT BEDS AND AROUND TREE AND SHRUB PLANTINGS NEAR BLDG. PINE STRAW TO BE PLACED 10 FT INTO LARGE NATURAL AREAS.
- TREE PLACEMENT AND LANDSCAPE BED LAYOUT TO BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- SOILS SHALL BE APPRECIABLY FREE OF GRAVEL, STONES, RUBBLE OR TRASH. ALL COMPACTED SOIL, CONTAMINATED SOIL OR ROADBASE FILL SHALL BE REMOVED.
- CONTRACTOR TO PREPARE ESTIMATE FOR OWNER TO REVIEW AND CONSIDER IRRIGATION OF ALL PROPOSED PLANTINGS.
- ALL PLANTINGS SHALL BE MAINTAINED IN AN ATTRACTIVE AND HEALTHY CONDITION BY THE OWNER AS REQUIRED BY THE TOWN OF PITTSBORO ORDINANCE.

**LANDSCAPE PLAN + BMP PLANTING**



FOR REVIEW ONLY-NOT FOR CONSTRUCTION

**Arnette Clark Design**  
 Landscape Architecture | Site Planning  
 Cary, NC | arnette@nc.rr.com | 919.852.0670

**CORNWALLIS COMMONS**  
 POCKET NEIGHBORHOOD  
 PITTSBORO, NORTH CAROLINA

DATE: 10.18.13  
 REVISIONS:  
 SCALE: NOTED  
 JOB: CORNWALLIS COMMONS  
 SHEET: L-1  
 OF: SHEETS