

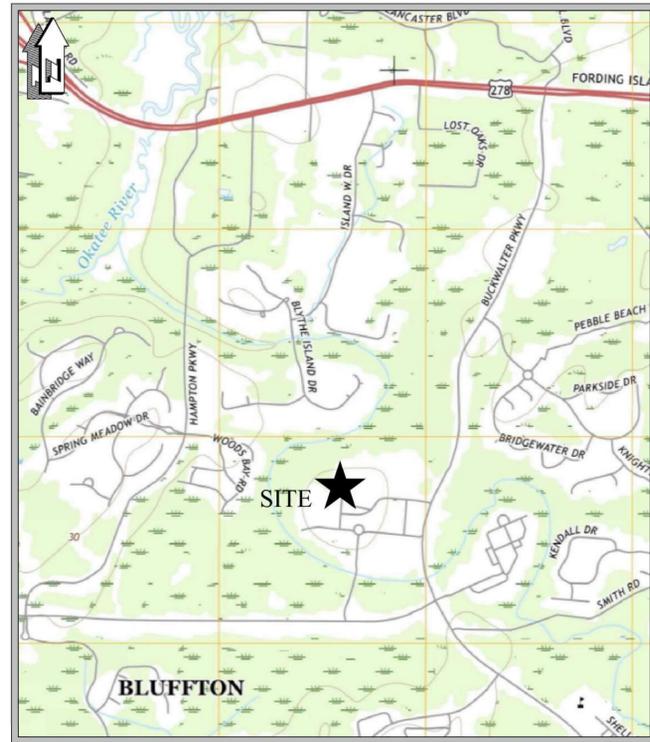
PERMIT PLANS FOR

BUCKWALTER PLACE LEC EXPANSION - PHASE 1

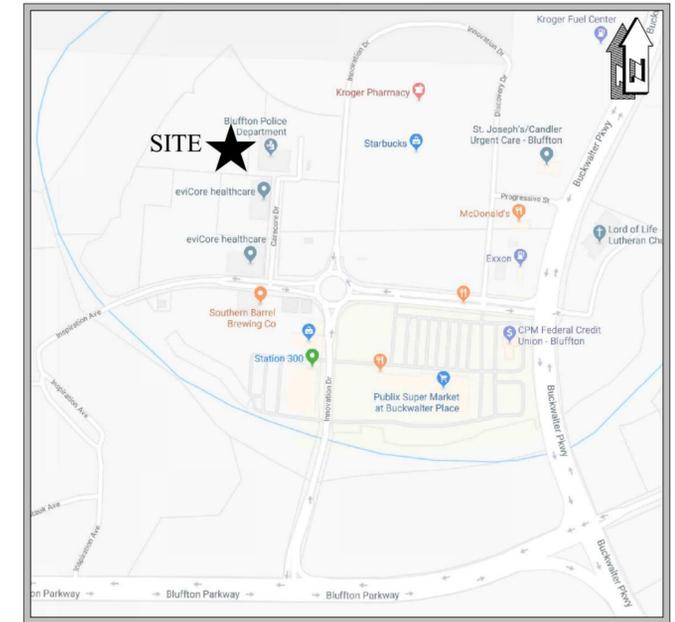
PREPARED FOR

TOWN OF BLUFFTON

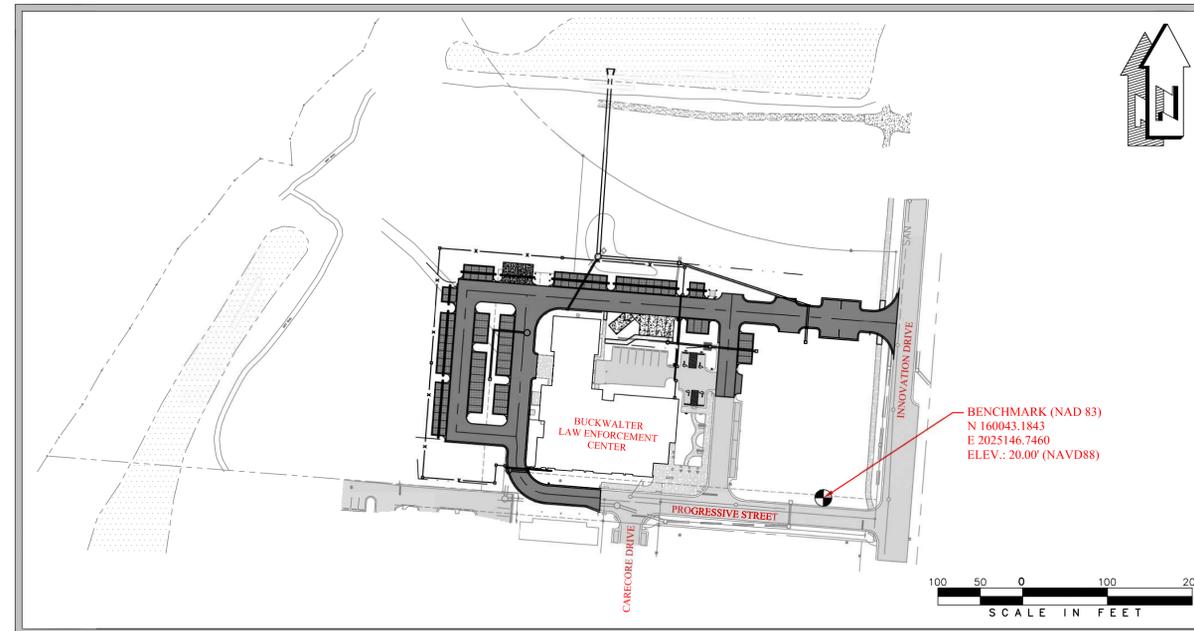
20 BRIDGE STREET
BLUFFTON, SC 29910



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.



BENCHMARK (NAD 83)
N 160043.1843
E 2025146.7460
ELEV.: 20.00' (NAVD88)

SCALE IN FEET
100 50 0 100 200

PREPARED BY



ENGINEERS - PLANNERS - SURVEYORS

14 Westbury Park Way, Suite 202
Bluffton, South Carolina 29910
Telephone 849-815-3191
CranstonEngineering.com

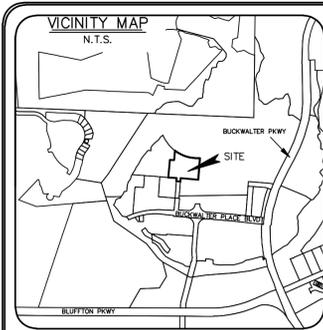
03/10/2020

Sheet Number	Sheet Title
C1.0	TITLE SHEET
C2.0	GENERAL NOTES, LEGEND & SUMMARY OF QUANTITIES
C3.0	EXISTING CONDITIONS
C4.0	DEMOLITION PLAN
C5.0	SWPP PLAN
C5.1	SWPPP DETAILS
C5.2	SWPPP DETAILS
C6.0	SITE IMPROVEMENTS PLAN
C7.0	GRADING AND DRAINAGE PLAN
C8.0	SITE DETAILS
C8.1	SITE DETAILS
C8.2	SITE DETAILS
C8.3	SITE DETAILS
C9.0	UTILITY PLAN

PROJECT DATA:

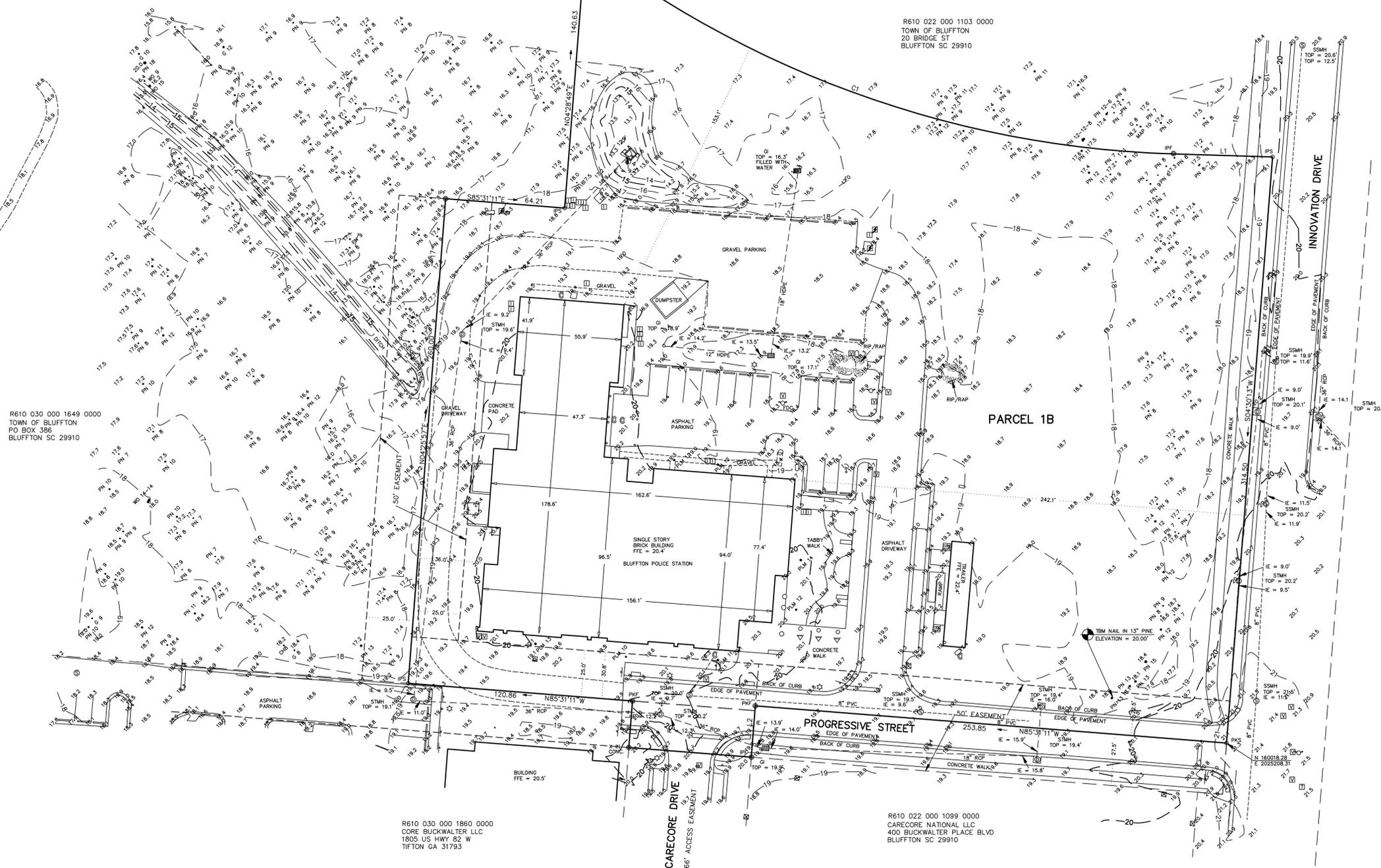
- ACREAGE OF PROPERTY: 8.2 ACRES (TWO PARCELS)
- ACREAGE OF DEVELOPMENT: 94.0 ACRES
- OWNER/DEVELOPER:
TOWN OF BLUFFTON
20 BRIDGE STREET
BLUFFTON, SC 29910
PHONE: (843) 706-4521
- 24 HOUR CONTACT:
NAME: PAT ROONEY
PHONE: (843) 706-4521
- TAX MAP & PARCEL NUMBERS:
R610 030 000 1649 0000 & R610 030 000 1848 000
- ZONING: PUD
- PROVIDED PARKING
PARKING REQUIRED PER BUCKWALTER PUD: 66 SPACES
PARKING PROVIDED: 96 SPACES
HANDICAP PARKING REQUIRED: 4 SPACES
HANDICAP PARKING PROVIDED: 4 SPACES
- DISTURBED AREA: 2.6 ACRES
- IMPERVIOUS AREA:
EXISTING: 1.30 ACRES
PROPOSED: 2.11 ACRES
- PERVIOUS AREA:
EXISTING: 6.90 ACRES
PROPOSED: 6.09 ACRES
- RECEIVING STREAM: TRIB TO OKATIE RIVER
- ULTIMATE STREAM: OKATIE RIVER
- EXISTING LAND USE: PUD
- PROPOSED LAND USE: PUD





LINE TABLE		
LINE	LENGTH	BEARING
L1	53.22	S 88°19'47" E
L2	27.50	N 04°30'13" E
L3	66.01	N 85°31'11" W
L4	25.00	N 04°30'13" E

CURVE TABLE					
CURVE	LENGTH	RADIUS	CHORD	BEARING	DELTA
C1	340.38	550.00	334.97	S70°36'02"E	35°27'30"



R610 030 000 1649 0000
TOWN OF BLUFFTON
PO BOX 386
BLUFFTON SC 29910

R610 030 000 1860 0000
CORE BUCKWALTER, LLC
1805 US HWY 82 W
TIFTON GA 31793

R610 022 000 1103 0000
TOWN OF BLUFFTON
20 BRIDGE ST
BLUFFTON SC 29910

R610 022 000 1099 0000
CARECORE NATIONAL LLC
400 BUCKWALTER PLACE BLVD
BLUFFTON SC 29910

REFERENCE PLAT
1) A SUBDIVISION PLAT OF 23.05 ACRES, BUCKWALTER PARKWAY, BLUFFTON TECH PARK, TOWN OF BLUFFTON, BEAUFORT COUNTY, S.C. DRAWN: 5/30/07, LAST REVISED: 7/18/07 RECORDED IN BOOK 120, PAGE 177, DATED 7/18/07 ROD. BEAUFORT COUNTY, SC BY: MICHAEL JIM GARDNER S.C.R.L.S. # 12239

PROPERTY AREA = 3.31 AC. 144,303 S.F.
ADDRESS: 101 PROGRESSIVE STREET
DISTRICT: 610, MAP: 30, PARCEL: 1848

THIS PROPERTY LIES IN F.E.M.A. ZONE C
BASE FLOOD ELEVATION = NO MINIMUM ELEVATION
COMMUNITY NO. 450251, MAP NO. 450025, PANEL 0065D, DATED: 9/29/86

LEGEND & SYMBOLS:	
TREE SIZES ARE INCHES IN DIAMETER	
9.5	SPOT ELEVATION
—	CONTOUR
IPF	1/2" IRON PIN FOUND
IPS	1/2" IRON PIN SET
PKS	P.K. NAIL SET
TBM	TEMPORARY BENCH MARK
IE	INVERT ELEVATION
FEE	FINISHED FLOOR ELEVATION
PVC	POLYVINYL CHLORIDE
CPP	CORRUGATED PLASTIC PIPE
ROP	REINFORCED CONCRETE PIPE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
LO	LIVE OAK
MAP	MAPLE
PN	PINE
PLM	PALM
WO	WATER OAK
G	GUM
TUP	TUPELO
⊕	ELECTRIC SERVICE
⊕	ELECTRIC TRANSFORMER
☎	TELEPHONE SERVICE
⊕	TELEVISION SERVICE
⊕	WATER METER
⊕	VALVE BOX
⊕	IRRIGATION CONTROL VALVE
⊕	SANITARY MANHOLE
⊕	STORM MANHOLE
⊕	FIRE HYDRANT
⊕	UTILITY POLE
⊕	GUY
⊕	SIGN
⊕	LIGHT POLE
⊕	CATCH BASIN
⊕	MAIL BOX

- NOTES:**
- UNDERGROUND UTILITIES NOT LOCATED EXCEPT AS SHOWN.
 - SEA ISLAND LAND SURVEY, LLC. CERTIFIES TO THE BOUNDARY, TOPOGRAPHIC AND ASBUILT INFORMATION PROVIDED HEREON AS THE DATE OF THE SURVEY. THIS SURVEY MAY BE USED IN DIGITAL FORMAT AS A BASE FOR OTHERS AND ANY REVISIONS OR ADDITIONS MADE HEREAFTER IS NOT THE RESPONSIBILITY OF SEA ISLAND LAND SURVEY, LLC. A HARD COPY AVAILABLE FROM SEA ISLAND LAND SURVEY, LLC. WILL BE THE ONLY OFFICIAL DOCUMENT.
 - HORIZONTAL DATUM IS S.C. STATE PLANE NAD 83.
 - VERTICAL DATUM IS NAVD88.
 - CONTOUR INTERVAL IS 1'.
 - USE OF THIS PROPERTY MAY BE AFFECTED BY THE TERMS OF COVENANTS RELATING TO THIS PLANNED COMMERCIAL DEVELOPMENT.
 - BUILDING SETBACKS, WHETHER SHOWN OR NOT, SHOULD BE VERIFIED BY THE LOCAL BUILDING AUTHORITY OR ARCHITECTURAL REVIEW BOARD.
 - THIS SURVEY HAS BEEN PREPARED WITHOUT BENEFIT OF A COMPLETE TITLE SEARCH AND IS SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.
 - THIS SURVEY DOES NOT CERTIFY TO THE EXISTENCE OR ABSENCE OF FRESHWATER WETLANDS.
 - IF IDENTIFICATION OF TREES IS CRITICAL TO DEVELOPMENT, AN ARBORIST SHOULD BE CONSULTED TO VERIFY SUCH TREE IDENTIFICATION.

**ASBUILT, TREE AND TOPOGRAPHIC SURVEY OF:
PARCEL 1B, BLUFFTON TECH PARK,
BUCKWALTER PARKWAY, TOWN OF BLUFFTON,
BEAUFORT COUNTY, SOUTH CAROLINA**

PREPARED FOR: THE TOWN OF BLUFFTON

DATE: 12/14/18 SCALE: 1" = 30'

SILS Sea Island Land Survey, LLC.
10 Oak Park Drive, Unit C1, Hilton Head Island, SC 29926
Tel (843) 681-3248 Fax (843) 689-3871
E-mail: sils@sprynet.com

FILE No.: 18245 DWG No.: 9-1745

COPYRIGHT © BY SEA ISLAND LAND SURVEY, LLC. CAD: BA, FLD: VRO

THIS DOCUMENT ORIGINALLY ISSUED AND SEALED BY MARK R. RENEW S.C.R.L.S. # 25437 THIS ELECTRONIC MEDIA SHALL NOT BE CONSIDERED A CERTIFIED DOCUMENT. A CERTIFIED HARDCOPY MAY BE OBTAINED FROM SEA ISLAND LAND SURVEY UPON REQUEST

DESCRIPTION	SYMBOL
TREE PROTECTION	
SILT FENCE	
TURBIDITY CURTAIN	
TYPE A - INLET PROTECTION	
TYPE E - CURB INLET FILTER	
TYPE F - INLET TUBE	
DUST CONTROL	
TEMPORARY SEEDING	
PERMANENT SEEDING	
CONCRETE WASHOUT	

STANDARD NOTES

- IF NECESSARY, SLOPES, WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.
- STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW.
 - WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.
 - WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.
- ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK, IF PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY, OR INCORRECTLY INSTALLED, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.
- PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE SEDIMENT BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.
- ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
- THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.
- RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C. REG. 72-300 E.T. SE. AND SCRI00000.
- TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR DIVERT SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.
- ALL WATERS OF THE STATE (WOS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE CLEARLY MARKED IN THE FIELD. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50-FOOT BUFFER CAN'T BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WOS. A 10-FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WOS.
- LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.
- A COPY OF THE SWPPP, INSPECTIONS RECORDS, AND RAINFALL DATA MUST BE RETAINED AT THE CONSTRUCTION SITE OR A NEARBY LOCATION EASILY ACCESSIBLE DURING NORMAL BUSINESS HOURS FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE THAT FINAL STABILIZATION IS REACHED.
- INITIATE STABILIZATION MEASURES ON ANY EXPOSED STEEP SLOPE (3H:1V OR GREATER) WHERE LAND-DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF 7 CALENDAR DAYS.
- MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.
- MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATERS. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE.
- MINIMIZE THE DISCHARGE OF POLLUTANTS FROM DEWATERING OF TRENCHES AND EXCAVATED AREAS. THESE DISCHARGES ARE TO BE ROUTED THROUGH APPROPRIATE BMPs (SEDIMENT BASIN, FILTER BAG, ETC.).
- THE FOLLOWING DISCHARGES FROM SITES ARE PROHIBITED:
 - WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL.
 - WASTEWATER FROM WASHOUT AND CLEANOUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS.
 - FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; AND
 - SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.
- AFTER CONSTRUCTION ACTIVITIES BEGIN, INSPECTIONS MUST BE CONDUCTED AT A MINIMUM OF AT LEAST ONCE EVERY CALENDAR WEEK AND MUST BE CONDUCTED UNTIL FINAL STABILIZATION IS REACHED ON ALL AREAS OF THE CONSTRUCTION SITE.
- IF EXISTING BMPs NEED TO BE MODIFIED OR IF ADDITIONAL BMPs ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS OF THIS PERMIT AND/OR SC'S WATER QUALITY STANDARDS, IMPLEMENTATION MUST BE COMPLETED BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICABLE, THE SITUATION MUST BE DOCUMENTED IN THE SWPPP AND ALTERNATIVE BMPs MUST BE IMPLEMENTED AS SOON AS REASONABLY POSSIBLE.
- A PRE-CONSTRUCTION CONFERENCE MUST BE HELD FOR EACH CONSTRUCTION SITE WITH AN APPROVED ON-SITE SWPPP PRIOR TO THE IMPLEMENTATION OF CONSTRUCTION ACTIVITIES. FOR NON-LINEAR PROJECTS THAT DISTURB 10 ACRES OR MORE THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.

GRASSING REQUIREMENTS

- SEEDING SCHEDULE: TEMPORARY SEEDING: APRIL 15 - AUGUST 31, BROWNTOP MILLET @ 40 LBS/ACRE, SEPTEMBER 1, - DECEMBER 15, RYE GRAIN @ 56 LBS/ACRE, PERMANENT SEEDING: APRIL 1 - OCTOBER 15, A MIXTURE OF KENTUCKY 31 FESCUE @ 20 LBS/ACRE AND CREEPING RED FESCUE @ 20 LBS/ACRE, SEPTEMBER 1 TO OCTOBER 15, ADD A NURSE CROP OF ABRUZZI RYE @ 75 LBS/ACRE, OCTOBER 15 TO MARCH 30 SEED ABRUZZI RYE AT 100 LBS/ACRE. DOLOMITE LIME WILL BE INCORPORATED AT THE RATE OF 3000 POUNDS/ACRE.
- FERTILIZER WILL BE A COMMERCIAL GRADE 10-10-10 INCORPORATED INTO THE SOIL AT A RATE OF 1500 POUNDS/ACRE.
- FROM JUNE THROUGH AUGUST AND NOT LESS THAN 30 DAYS AFTER SEEDING, APPLY AMMONIUM NITRATE (NOT LESS THAN 20% NITRATE) AT A RATE EQUAL TO 60 POUNDS OF AVAILABLE NITROGEN/ACRE.
- ALL SEEDED AREAS WILL BE MULCHED WITH HAY OR STRAW AT A RATE OF 1500 POUNDS/ACRE.
- SEEDING AND MULCHING MAY BE ACCOMPLISHED IN A SINGLE HYDROSEEDING OPERATION. SEEDED AREAS WILL BE MULCHED WITH HAY, STRAW OR WOOD CELLULOSE AT A RATE OF 1500 LBS/ACRE.

% COMPLETE OF CONSTRUCTION ACTIVITIES

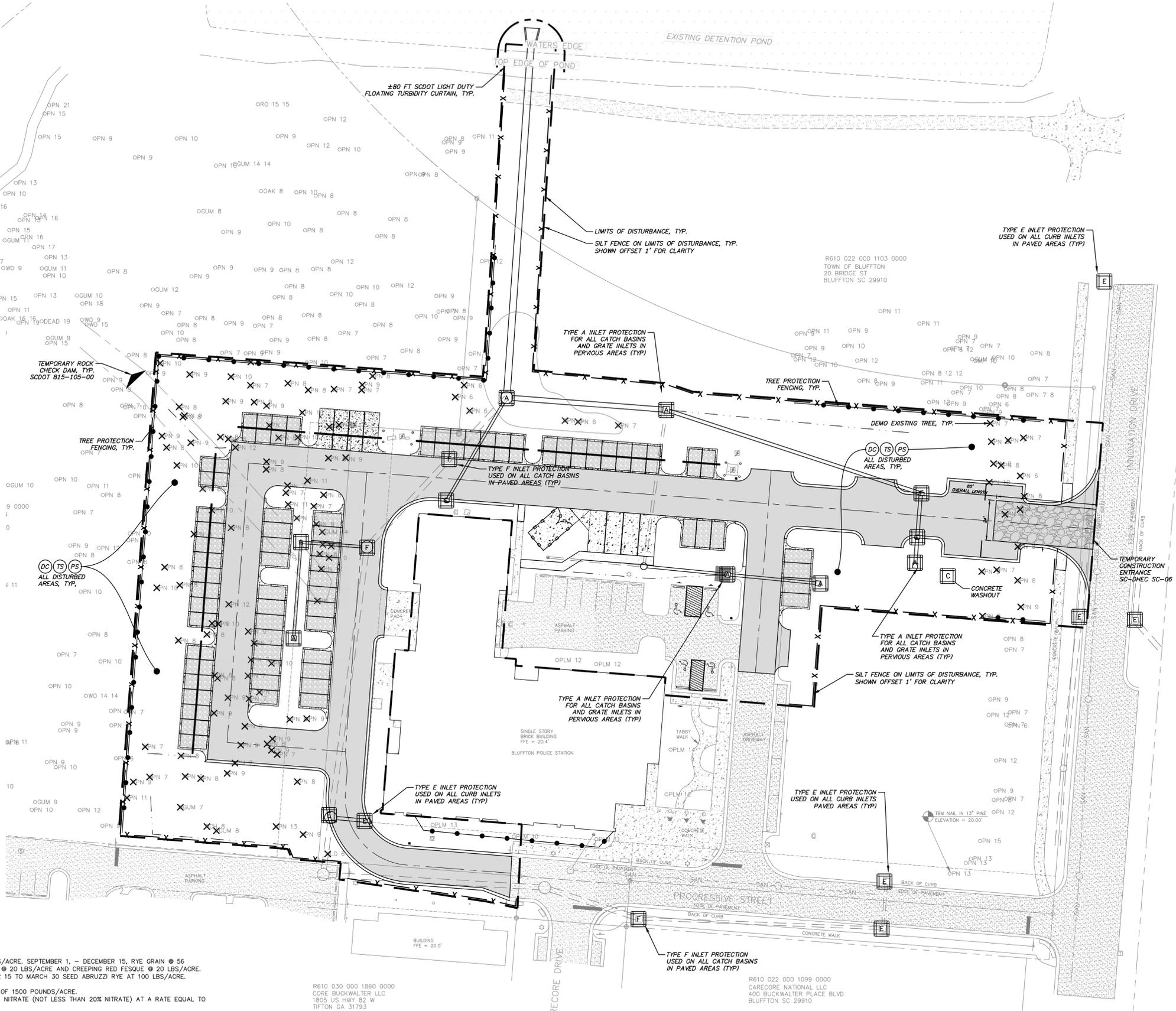
	25%	50%	75%	100%
INSTALL SILT FENCE & TREE PROTECTION FENCE				
INSTALL INLET PROTECTION & PERFORM SITE DEMOLITION				
TREE REMOVAL				
GRADING				
PAVING				
TEMPORARY SEEDING				
PERMANENT SEEDING				
FINAL GRASSING				
BUILDING CONSTRUCTION				
REMOVAL OF SEDIMENT CONTROL STRUCTURES				

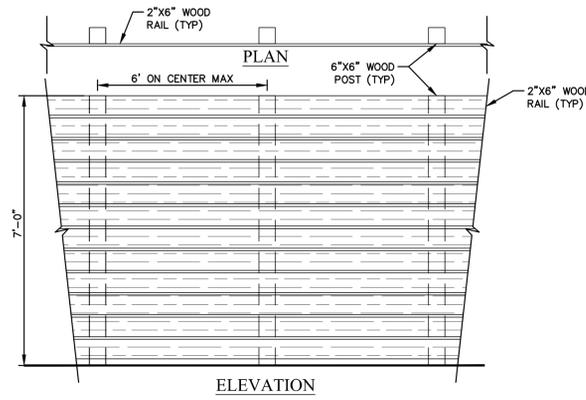
- MARCH 1-AUGUST 14 SHALL BE PEARL MILLET 50 LBS./ACRE COVERED WITH HEAVY MULCH. AUGUST 15-FEBRUARY 28 SHALL BE RYE GRASS 40 LBS./ACRE AND RYE GRAIN SIMULTANEOUSLY.

- THE TIME AND PERIODS SHOWN ARE NOT EXACT OR READILY DETERMINABLE BUT IN ALL CASES SOIL EROSION AND SEDIMENT CONTROL STRUCTURES WILL BE INCORPORATED INTO THE CONSTRUCTION IN THE SEQUENCE AS SHOWN ABOVE AND/OR AS DIRECTED BY TOWN OF BLUFFTON OR SCDEH.
- GRASSING WILL BE ACCEPTED WHEN A 95% COVER BY PERMANENT GRASSES IS OBTAINED AND WEEDS ARE NOT DOMINANT.
- GRASSING OF CONSTRUCTION AREAS WILL COMMENCE AT COMPLETION OF EACH PHASE OF CONSTRUCTION OR IN THE SEQUENCE AS SHOWN ABOVE. IN ANY CASE GRASSING OF ANY CONSTRUCTION AREA WILL BEGIN AT THE EARLIEST POSSIBLE DATE.

DISTURBED AREA = 2.60 AC

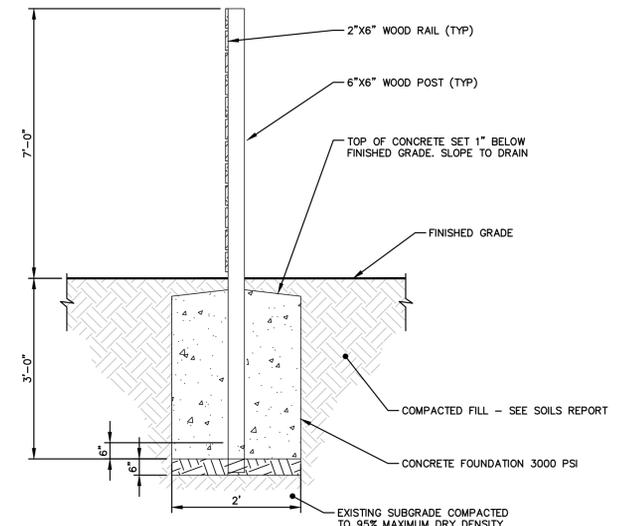
SEE SHEET C5.1 & C5.2 FOR SWPPP DETAILS



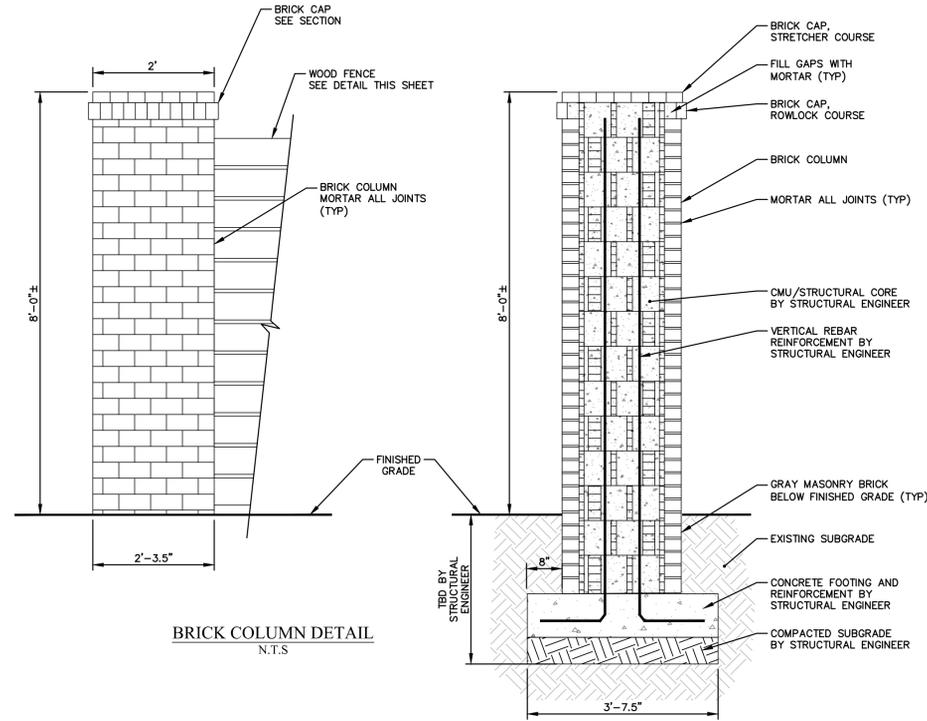


- NOTES:**
1. ALL LUMBER SHALL BE PRESSURE TREATED SOUTHERN YELLOW PINE.
 2. ALL ATTACHMENTS SHALL BE WITH STAINLESS STEEL SCREWS SUITABLE FOR PRESSURE TREATED WOOD, NO NAILS SHALL BE USED.
 3. CONTRACTOR SHALL SUBMIT COLOR SAMPLES TO OWNER FOR APPROVAL.

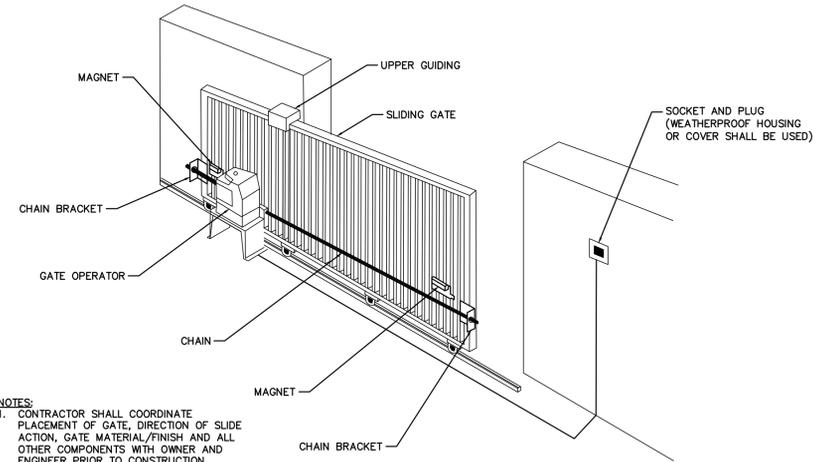
WOOD FENCE DETAIL
N.T.S.



SECTION



BRICK COLUMN DETAIL
N.T.S.



- NOTES:**
1. CONTRACTOR SHALL COORDINATE PLACEMENT OF GATE, DIRECTION OF SLIDE ACTION, GATE MATERIAL/FINISH AND ALL OTHER COMPONENTS WITH OWNER AND ENGINEER PRIOR TO CONSTRUCTION.
 2. CONTRACTOR SHALL SUBMIT CONDUIT PLAN AND ANTICIPATED POWER REQUIREMENTS FOR AUTOMATED GATES AND FOB LOCATIONS FOR REVIEW BY OWNER, PALMETTO ELECTRIC AND ENGINEER PRIOR TO CONSTRUCTION.

SLIDE GATE DETAIL
N.T.S.



REV #	DATE	DESCRIPTION

**BUCKWALTER PLACE LEC
EXPANSION - PHASE 1**

SITE DETAILS

DRAWN BY:	NLS
CHECKED BY:	AJB
APPROVED BY:	AJB
DATE:	03/10/2020
SCALE:	1" = 20'
JOB No.	2019-0441
DRAWING No.	

REFERENCES

NATIONAL DOCUMENTS
ASHTO M 198, M 252, M 710, M 718, M 221, M 225, M 228, M 302, M 315, T 96, T 104, ASTM A 706

SCDOT DOCUMENTS
SCDOT SUPPLEMENTAL TECHNICAL SPECIFICATION SC-M-714
SCDOT SUPPLEMENTAL TECHNICAL SPECIFICATION SC-M-714

RELATED DRAWINGS & KEYWORDS
714-205-01
714-205-02
714-205-03
714-205-04

THIS DRAWING IS ONLY VALID FOR CONSTRUCTION WHEN SEALED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF SOUTH CAROLINA. CHECK WWW.SCDOT.GOV FOR LATEST UPDATE.

NO. 21242

Ames W. Kendall
DATE 9-26-12

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING
PIPE CULVERTS
SMOOTH WALL
(RIGID REINFORCED CONCRETE PIPE (RCP) DETAILS & FILL HEIGHT)

714-205-01
EFFECTIVE LISTING DATE: JANUARY 2015

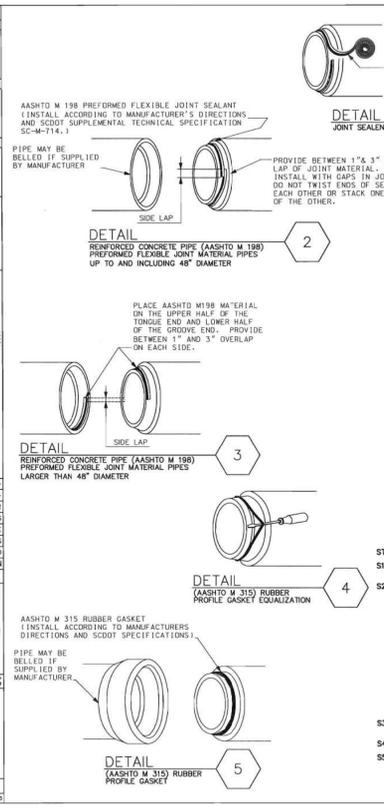


TABLE 714-205A: REINFORCED CONCRETE PIPE FILL HEIGHT TABLE

PIPE DIAMETER [IN]	HYDRAULIC AREA [FT ²]	MANNING'S ROUGHNESS COEFFICIENT [n]	CASE 1: MINIMUM COVER HIGHWAY VEHICLE LOADING [FT]		CASE 2: MINIMUM COVER HIGHWAY VEHICLE LOADING [FT]		CASE 3: MINIMUM COVER FOR CONSTRUCTION VEHICLE [FT] (ASHTO 215.4.4)		CASE 4: UNIVERSAL DRIVEWAY MINIMUM COVER [FT]		CASE 5: MAXIMUM COVER WITH INVERT AT 2' X 0.0' BELOW GROUNDWATER [FT]								
			CLASS III	CLASS IV	CLASS III	CLASS IV	CLASS III	CLASS IV	CLASS III	CLASS IV	CLASS III	CLASS IV							
12	0.78	0.012	42	16	25	30	1.75	1.00	1.00	3	3	3	1.75	1.00	0.00	---	20	30	
15	1.22	0.012	45	16	25	30	1.50	1.00	1.00	3	3	3	1.50	1.00	0	---	13	21	30
18	1.78	0.012	49	16	25	30	1.50	1.00	1.00	3	3	3	1.50	1.00	0.75	---	13	21	30
24	3.14	0.012	60	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	13	21	30
30	4.90	0.012	70	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	13	21	30
36	7.08	0.012	81	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	14	20	28
42	9.82	0.012	91	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	14	20	27
48	12.56	0.012	102	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	14	20	26
54	15.80	0.012	112	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	14	20	25
60	19.63	0.012	123	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	14	20	24
66	23.75	0.012	133	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	12	15	25
72	28.27	0.012	144	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	12	18	23
78	33.18	0.012	154	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	12	17	---
84	38.44	0.012	165	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	12	17	---
90	44.17	0.012	175	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	13	---	---
96	50.74	0.012	186	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	13	---	---
108	63.81	0.012	207	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	13	---	---
120	78.54	0.012	228	16	25	30	1.00	1.00	1.00	3	3	3	1.00	1.00	0	---	13	---	---

NOTES:
1. SEE SHEET 714-205-00, 714-205-01, 714-105-00, & 714-105-00 FOR GENERAL NOTES, AND TRENCH INSTALLATION REQUIREMENTS.
2. USE ONLY PIPE CLASSES LISTED IN TABLES 714-205A & 714-205B.
3. USE B WALL PIPE FOR SIZES AND CLASSES INDICATED IN TABLES 714-205A & 714-205B. C WALL PIPE MAY BE SUBSTITUTED FOR B WALL PIPE ONLY FOR SIZES AND CLASSES INDICATED IN TABLES 714-205A & 714-205B.
4. USE PIPE AND JOINT MATERIAL FROM A MANUFACTURER COMBINATION SHOWN ON QUALIFIED PRODUCT LIST 69.
5. WHEN DEFORMED BUILT-UP REBAR IS USED FOR CUSTOM PIPE, OBTAIN REBAR FROM A MANUFACTURER LISTED ON SCDOT QUALIFIED PRODUCT LIST 69. FOLLOW INSTRUCTIONS IN 2010-11 AND 2010-12 EDITIONS OF RECORD RECOMMENDATIONS TO DETERMINE LOADING FOR CUSTOM PIPE.
6. SEE 714-990-MO FOR RESIDENTIAL DRIVEWAY INSTALLATION FOR MAINTENANCE APPLICATIONS.

PRECAST ITEMS:
4'x4' SHALLOW JUNCTION BOX TOP (64"x64"x8")
5'x5' SHALLOW JUNCTION BOX TOP (76"x76"x8")
6'x6' SHALLOW JUNCTION BOX TOP (88"x88"x8")
SEE ALSO 719-310-00, 719-305-00, & 719-330-01
USE SHEETS 719-310-01 THROUGH 719-330-02 FOR THIS ITEM.
THIS DRAWING IS NOT TO SCALE.

REFERENCES

NATIONAL DOCUMENTS
ASHTO M 198, M 252, M 710, M 718, M 221, M 225, M 228, M 302, M 315, T 96, T 104, ASTM A 706

SCDOT DOCUMENTS
SCDOT SUPPLEMENTAL TECHNICAL SPECIFICATION SC-M-714
SCDOT SUPPLEMENTAL TECHNICAL SPECIFICATION SC-M-714

RELATED DRAWINGS & KEYWORDS
714-205-01
714-205-02
714-205-03
714-205-04

THIS DRAWING IS ONLY VALID FOR CONSTRUCTION WHEN SEALED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF SOUTH CAROLINA. CHECK WWW.SCDOT.GOV FOR LATEST UPDATE.

NO. 21242

Ames W. Kendall
DATE 9-26-12

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING
PIPE CULVERTS
SMOOTH WALL
(RIGID REINFORCED CONCRETE PIPE (RCP) DETAILS & FILL HEIGHT)

714-205-01
EFFECTIVE LISTING DATE: JANUARY 2015

TABLE 714-205B: REINFORCED CONCRETE PIPE (RCP) SMOOTH WALL PIPE ASHTO M170 B & C WALL PIPE WITH CIRCULAR REINFORCEMENT ONLY (AS NOTED) LOADING FROM SCODT INSTRUCTIONAL BULLETIN 2010-01 HL-93 LOAD CASES 1, 2, AND 4.

INDIRECT DESIGN PIPE DIAMETER [IN]

PIPE DIAMETER [IN]	PIPE DIAMETER [IN]																	
	12	15	18	24	30	36	42	48	54	60	66	72	78	84	90	96	108	120
0.00	IA	VA	VA	VA	VA	IB	IB											
0.50	VA	VA	VA	VA	VA	IB	IB											
0.75	VA	VA	VA	VA	VA	IB	IB											
1.00	IV	IV	IV	IV	IV	IB	IB											
1.25	IV	IV	IV	IV	IV	IB	IB											
1.50	IV	IV	IV	IV	IV	IB	IB											
1.75	III	III	III	III	III	IB	IB											
2.00	III	III	III	III	III	IB	IB											
2.25	III	III	III	III	III	IB	IB											
2.50	III	III	III	III	III	IB	IB											
2.75	III	III	III	III	III	IB	IB											
3.00	III	III	III	III	III	IB	IB											
4.00	III	III	III	III	III	IB	IB											
5.00	III	III	III	III	III	IB	IB											
6.00	III	III	III	III	III	IB	IB											
7.00	III	III	III	III	III	IB	IB											
8.00	III	III	III	III	III	IB	IB											
9.00	III	III	III	III	III	IB	IB											
10.00	III	III	III	III	III	IB	IB											
11.00	III	III	III	III	III	IB	IB											
12.00	III	III	III	III	III	IB	IB											
13.00	III	III	III	III	III	IB	IB											
14.00	III	III	III	III	III	IB	IB											
15.00	III	III	III	III	III	IB	IB											
16.00	III	III	III	III	III	IB	IB											
17.00	IV	IV	IV	IV	IV	IB	IB											
18.00	IV	IV	IV	IV	IV	IB	IB											
20.00	IV	IV	IV	IV	IV	IB	IB											
21.00	IV	IV	IV	IV	IV	IB	IB											
22.00	IV	IV	IV	IV	IV	IB	IB											
23.00	IV	IV	IV	IV	IV	IB	IB											
24.00	IV	IV	IV	IV	IV	IB	IB											
25.00	IV	IV	IV	IV	IV	IB	IB											
26.00	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
27.00	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
28.00	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
29.00	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
30.00	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V

NOTES:
1. ALLOWED UNDER RIGID PAVEMENT ONLY OR DRIVEWAY.
2. LOAD CASE 4: UNIVERSAL DRIVEWAY APPLICATION (NOT ALLOWED UNDER ROADWAY CROSSINGS).
3. B WALL ONLY, C WALL IS NOT ALLOWED FOR THIS DIAMETER AND CLASS.
4. CUSTOM - DESIGN REINFORCED CONCRETE PIPE USING THE DIRECT DESIGN METHOD IN ACCORDANCE WITH ASHTO LRFD BRIDGE DESIGN SPECIFICATION SECTION 12. DESIGN CALCULATIONS MUST BE SEALED AND SIGNED BY A SOUTH CAROLINA PROFESSIONAL ENGINEER AND SUBMITTED TO THE DEPARTMENT FOR REVIEW PRIOR TO PIPE FABRICATION.

REFERENCES

NATIONAL DOCUMENTS
ASHTO M 198, M 252, M 710, M 718, M 221, M 225, M 228, M 302, M 315, T 96, T 104, ASTM A 706

SCDOT DOCUMENTS
SCDOT SUPPLEMENTAL TECHNICAL SPECIFICATION SC-M-714
SCDOT SUPPLEMENTAL TECHNICAL SPECIFICATION SC-M-714

RELATED DRAWINGS & KEYWORDS
714-205-01
714-205-02
714-205-03
714-205-04

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STANDARD DRAWING
PIPE CULVERTS
SMOOTH WALL
(RIGID REINFORCED CONCRETE PIPE (RCP) FILL HEIGHT CHART)

714-205-02
EFFECTIVE LISTING DATE: JANUARY 2015

CRANSTON ENGINEERING

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SOUTH CAROLINA PROFESSIONAL ENGINEER
NO. 21242
Ames W. Kendall
DATE 9-26-12

SOUTH CAROLINA PROFESSIONAL ENGINEER
NO. 33285
MURRAY JOHN BAJO CLARK
DATE 10/10/2010

