SITE DEVELOPMENT PLANS

FOR

PROGRESS910

4055 EMERSON STREET

CITY OF WILMINGTON, NORTH CAROLINA

PREPARED FOR:

PROGRESS BUILDERS, LLC
709 NORTH MAIN STREET
PO BOX 303
AYNOR, SOUTH CAROLINA 29511

SEPTEMBER 24, 2013
LAST REVISED: NOVEMBER 7, 2013

J-24436.0000

PREPARED BY:

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting

Savannah, GA | Brunswick, GA | Charleston, SC | Myrtle Beach, SC | Wilmington, NC

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VICINITY MAP
SCALE: 1" = 1000'

PROGRESS910
4055 EMERSON STREET
J-24436.0000
9/24/13

WILMINGTON
Public Services ◆ Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date _____ Permit # _____
Signed _____

Approved Construction Plan

	Sign	Date
Planning		
Public Utilities		
Traffic		
Fire		

Preliminary
For Review Only

REVISION HISTORY

2	REVISED LIMITS OF DISTURBANCE FOR TRACT B	JBJ	11-1-13
1	REVISED PER WIC ENGINEERING COMMENTS DATED 10-8-13	JBJ	10-14-13
REV. NO.	REVISION	BY	DATE

SUBMITTAL HISTORY

CITY OF WILMINGTON	9-17-13
CITY OF WILMINGTON	9-24-13
SUBMITTED TO	DATE

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DRAINAGE LEGEND

DESCRIPTION	EXISTING	PROPOSED
PIPE		
DITCH		
CURB INLET		
GRATE INLET		
JUNCTION BOX		
OUTLET STRUCTURE		

OTHER UTILITIES LEGEND

DESCRIPTION	EXISTING
NATURAL GAS	
TELEPHONE	
UNDERGROUND TELEPHONE	
ELECTRICITY	
UNDERGROUND ELECTRICITY	

WATER LEGEND

DESCRIPTION	EXISTING	PROPOSED
WATER MAIN	12"W	12"W
SINGLE SERVICE LATERAL		
DOUBLE SERVICE LATERAL		
VALVE AND BOX		
FIRE HYDRANT W/VALVE & BOX		
POST HYDRANT		
REDUCER		
BACKFLOW PREVENTOR		
CROSS		
TEE		
90° BEND - HORIZONTAL		
45° BEND - HORIZONTAL		
22-½° BEND - HORIZONTAL		
11-¼° BEND - HORIZONTAL		
BEND - VERTICAL		
CAP		

SEWER LEGEND

DESCRIPTION	EXISTING	PROPOSED
GRAVITY PIPE		
SINGLE SERVICE LATERAL		
DOUBLE SERVICE LATERAL		
MANHOLE		
CLEANOUT		
FORCEMAIN	12"FM	12"FM
VALVE AND BOX		
FLUSH HYDRANT		
REDUCER		
BACKFLOW PREVENTOR		
CROSS		
TEE		
90° BEND - HORIZONTAL		
45° BEND - HORIZONTAL		
22-½° BEND - HORIZONTAL		
11-¼° BEND - HORIZONTAL		
BEND - VERTICAL		
PLUG		

ABBREVIATIONS

HDPE	HIGH DENSITY POLYETHYLENE	LF	LINEAR FEET	SD	STORM DRAINAGE
BOT	BOTTOM	INV	INVERT ELEVATION	SDMH	STORM DRAINAGE MANHOLE
CI	CURB INLET	JB	JUNCTION BOX	SF	SQUARE FEET
CPP	CORRUGATED PLASTIC PIPE	MAX	MAXIMUM	SS	SANITARY SEWER
DIP	DUCTILE IRON PIPE	MIN	MINIMUM	TC	TOP OF CURB
EL	ELEVATION	MH	MANHOLE	TG	TOP OF GUTTER
FF	FINISH FLOOR	OC	ON CENTER	TP	TOP OF PAVEMENT
FG	FINISH GRADE	PC	POINT OF CURVE	TW	TOP OF WALK
FH	FIRE HYDRANT	PH	POST HYDRANT	TYP	TYPICAL
FM	FORCE MAIN (SANITARY SEWER)	PT	POINT OF TANGENT	W	WATER
FP	FINISH PAD	PVC	POLYVINYL CHLORIDE	W/	WITH
FR	FRAME	RCP	REINFORCED CONCRETE PIPE	WV	WATER VALVE
GI	GRATE INLET	RJP	RESTRAINED JOINT PIPE	YI	YARD INLET
GV	GATE VALVE	R/W	RIGHT-OF-WAY		

PAVEMENT LEGEND:

LIGHT DUTY ASPHALT PAVEMENT

HEAVY DUTY ASPHALT PAVEMENT

CONCRETE PAVEMENT

PERVIOUS PAVEMENT MATERIAL

GENERAL NOTES:

1. THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER 48 HOURS IN ADVANCE OF ALL REQUIRED TESTS AND INSPECTIONS.
2. THE CONTRACTOR WILL NOTIFY THE ENGINEER IF UNSUITABLE MATERIAL IS DISCOVERED PRIOR TO BEGINNING ANY REMOVAL OPERATION.
3. ALL ELEVATIONS SHOWN ARE BASED ON NGVD88.
4. ALL BEARINGS AND COORDINATES SHOWN ARE BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM NAD83.
5. CONTRACTOR IS TO VERIFY ACCURACY OF ANY TEMPORARY BENCHMARKS SHOWN PRIOR TO UTILIZING THEM FOR CONSTRUCTION.
6. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES OTHER THAN THOSE SHOWN ARE ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY AND TAKE STEPS TO PROTECT THE LINE(S) AND ENSURE CONTINUED SERVICE. DAMAGE CAUSED TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR. ADDITIONALLY, THE CONTRACTOR SHALL CONFIRM THE CONNECTION POINTS OF NEW UTILITIES TO EXISTING UTILITIES PRIOR TO BEGINNING NEW CONSTRUCTION.
7. CONTACT NORTH CAROLINA ONE CALL CENTER PRIOR TO ANY DIGGING 1-800-632-4949.
8. PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES AND NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
9. IF WORK IS SUSPENDED OR DELAYED FOR 14 DAYS, THE CONTRACTOR SHALL TEMPORARILY STABILIZE THE DISTURBED AREA AT NO ADDITIONAL COST TO THE OWNER.
10. THE CONTRACTOR SHALL INSTALL ANY BARRICADES PRIOR TO BEGINNING CONSTRUCTION.
11. ANY DAMAGE TO EXISTING PAVEMENT MUST BE REPAIRED AT CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF NCDOT.
12. ALL PAVEMENTS MARKINGS IN PUBLIC RIGHTS-OF-WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS.
13. IT IS THE RESPONSIBILITY OF THE SUBDIVIDER TO ERECT OFFICIAL STREET NAME SIGNS AT ALL INTERSECTIONS ASSOCIATED WITH THE SUBDIVISION IN ACCORDANCE WITH THE CITY OF WILMINGTON TECHNICAL STANDARDS AND SPECIFICATIONS MANUAL. THE SUBDIVIDER MAY ACQUIRE AND ERECT OFFICIAL STREET NAME SIGNS OR MAY CHOOSE TO CONTRACT WITH THE CITY TO INSTALL THE STREET SIGNS. SUBDIVIDER SHALL PAY THE COST OF SUCH INSTALLATION.
14. ALL TRAFFIC CONTROL DEVICES (INCLUDING SIGNS AND PAVEMENT MARKINGS) IN AREAS OPEN TO PUBLIC TRAFFIC SHALL BE IN ACCORDANCE WITH THE MANUAL ON "UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", CURRENT EDITION.
15. CONTACT CITY OF WILMINGTON TRAFFIC ENGINEERING, 341-7888, TO ENSURE ALL TRAFFIC SIGNAL FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLAN.
16. CONTACT TRAFFIC ENGINEERING AT 341-7888 48 HOURS IN ADVANCE PRIOR TO ANY EXCAVATION IN THE PUBLIC RIGHT-OF-WAY.
17. ANY BROKEN OR MISSING SIDEWALK PANELS WILL BE REPLACED.
18. CONTACT KAREN DIXON AT 341-7888 TO DISCUSS STREET LIGHTING OPTIONS.
19. ALL RIGHT-OF-WAY SHALL MEET CITY OF WILMINGTON STANDARD SPECIFICATIONS. A PRE-CONSTRUCTION MEETING MUST BE HELD WITH NCDOT PRIOR TO BEGINNING ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY.
20. ALL LOTS WITHIN THE DEVELOPMENT SHALL BE FILLED AND HAVE POSITIVE DRAINAGE TO THE APPROPRIATE EASEMENT OR RIGHT-OF-WAY AS APPROVED ON THE PLANS PRIOR TO THE ISSUANCE OF ANY BUILDING PERMITS OR FINAL ACCEPTANCE OF THE RIGHT-OF-WAYS BY THE CITY/COUNTY WHERE FIELD INSPECTIONS ARE REQUIRED. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS IN ADVANCE TO SCHEDULE SUCH INSPECTIONS.
21. A COMPLETE SET OF APPROVED DRAWINGS AND SPECIFICATIONS MUST BE MAINTAINED ON SITE AT ALL TIMES THAT THE CONTRACTOR IS PERFORMING WORK. THESE DRAWINGS SHALL BE MADE AVAILABLE UPON REQUEST.
22. ANY REVISIONS DURING CONSTRUCTION WHICH ALTER THE LAYOUT, CONSTRUCTION METHODS, RIGHT-OF-WAY LOCATION OR UTILITIES MUST BE SUBMITTED AND APPROVED IN WRITING BY THE ENGINEER.
23. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL CONSTRUCTION PERMITS NECESSARY FROM OTHER RESPONSIBLE AGENCIES.
24. ALL TREES SHOWING DISTURBANCE WITHIN THE PROTECTED ROOT ZONE SHALL BE PRUNED AND FERTILIZED AT THE DIRECTION OF A CERTIFIED ARBORIST.
25. STORMWATER POND CONTOURS SHOWN HEREON WILL PROVIDE A DEPTH ONE FOOT GREATER THAN NECESSARY FOR STORM WATER MANAGEMENT. THIS IS TO PROVIDE FOR ONE FOOT OF SILT BUILDUP DURING CONSTRUCTION OF ANY AREA OF ANY POND WHICH SILTS MORE THAN ONE FOOT ABOVE DESIGNED BOTTOM ELEVATION SHALL BE RESTORED TO THE MINIMUM ACCEPTABLE DEPTH OF ONE FOOT LESS THAN ORIGINAL CONSTRUCTED DEPTH.
26. ALL AT GRADE UTILITIES ARE TO BE OUT OF THE CURB LINE.
27. CONTRACTOR WILL BE REQUIRED TO ADJUST MANHOLE FRAMES TO MATCH FINAL GRADE AT NO ADDITIONAL COST.
23. CONTRACTOR SHALL GRADE AREAS TO DRAIN FOR POSITIVE FLOW PRIOR TO FINAL APPROVAL.
24. ALL DRAINAGE WILL BE MADE FUNCTIONAL DAILY AS WORK PROGRESSES.
25. EACH EXISTING ROAD WILL BE CLEANED OF [illegible] AND RESTORED DAILY.
26. NEW PAVEMENT TO BE FLUSH WITH EDGE OF EXISTING PAVEMENT.
27. ALL STORM DRAIN PIPE INVERTS IN AND OUT ARE THE SAME AS THE BOX INVERT UNLESS OTHERWISE NOTED ON THE PLAN SHEETS AND/OR PROFILES.
28. ALL WATER AND SEWER MATERIALS AND CONSTRUCTION SHALL COMPLY WITH CFPUA STANDARDS AND SPECIFICATIONS.
29. DRY UTILITY PLACEMENT SEQUENCE:
    - 29.1 COORDINATE SCHEDULE WITH ALL UTILITY PROVIDERS.
    - 29.2 ESTABLISH FINAL GRADE.
    - 29.3 POWER WILL PLACE THEIR CABLE FIRST (APPROX. 30" COVER)
    - 29.4 CABLE/TELEPHONE WILL THEN PLACE THEIR CABLE (APPROX. 24" COVER)
30. SEE INDIVIDUAL PLAN SHEETS FOR ADDITIONAL NOTES.

PROJECT CONTACTS:

OWNER:
PROGRESS BUILDERS, LLC
704 NORTH MAIN STREET
AYNOR, SOUTH CAROLINA 29511
843-260-3750

ENGINEER:
THOMAS & HUTTON
213 SOUTH KERR AVENUE
WILMINGTON, NC 28403
(910) 332-3360

SURVEYOR:
THOMAS & HUTTON
213 SOUTH KERR AVENUE
WILMINGTON, NC 28403
(910) 332-3360

PLANNING & ZONING:
CITY OF WILMINGTON
305 CHESTNUT STREET
WILMINGTON, NC 28402
(910) 254-0900

STORMWATER:
CITY OF WILMINGTON
248 OPERATIONS CENTER DRIVE
WILMINGTON, NC 28412
(910) 341-4646

WATER/SEWER:
CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPUA)
235 GOVERNMENT CENTER DRIVE
WILMINGTON, NC 28403
(910) 332-6560

EROSION CONTROL:
NEW HANOVER COUNTY
230 GOVERNMENT CENTER DRIVE
WILMINGTON, NC 28403
(910) 798-7139

AT&T:
LINDA LASHLEY - (910) 341-1624
STEVE DAYVAULT - (910) 392-8712
102 NORTH 4TH STREET
WILMINGTON, NC 28401

TIME WARNER:
BILL DYKES
3809 SHIPYARD BOULEVARD
WILMINGTON, NC 28403
(910) 772-5771

DUKE ENERGY:
MARK HATFIELD
404 RALEIGH STREET
WILMINGTON, NC 28412
(910) 604-2547

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APPROVED STORMWATER MANAGEMENT PLAN
Date: ______ Permit #: ______
Signed: ______

Approved Construction Plan
Name Date
Planning ______
Public Utilities ______
Traffic ______
Fire ______

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CITY OF WILMINGTON, NORTH CAROLINA

PROGRESS BUILDERS, LLC

GENERAL NOTES AND LEGEND

G1.1

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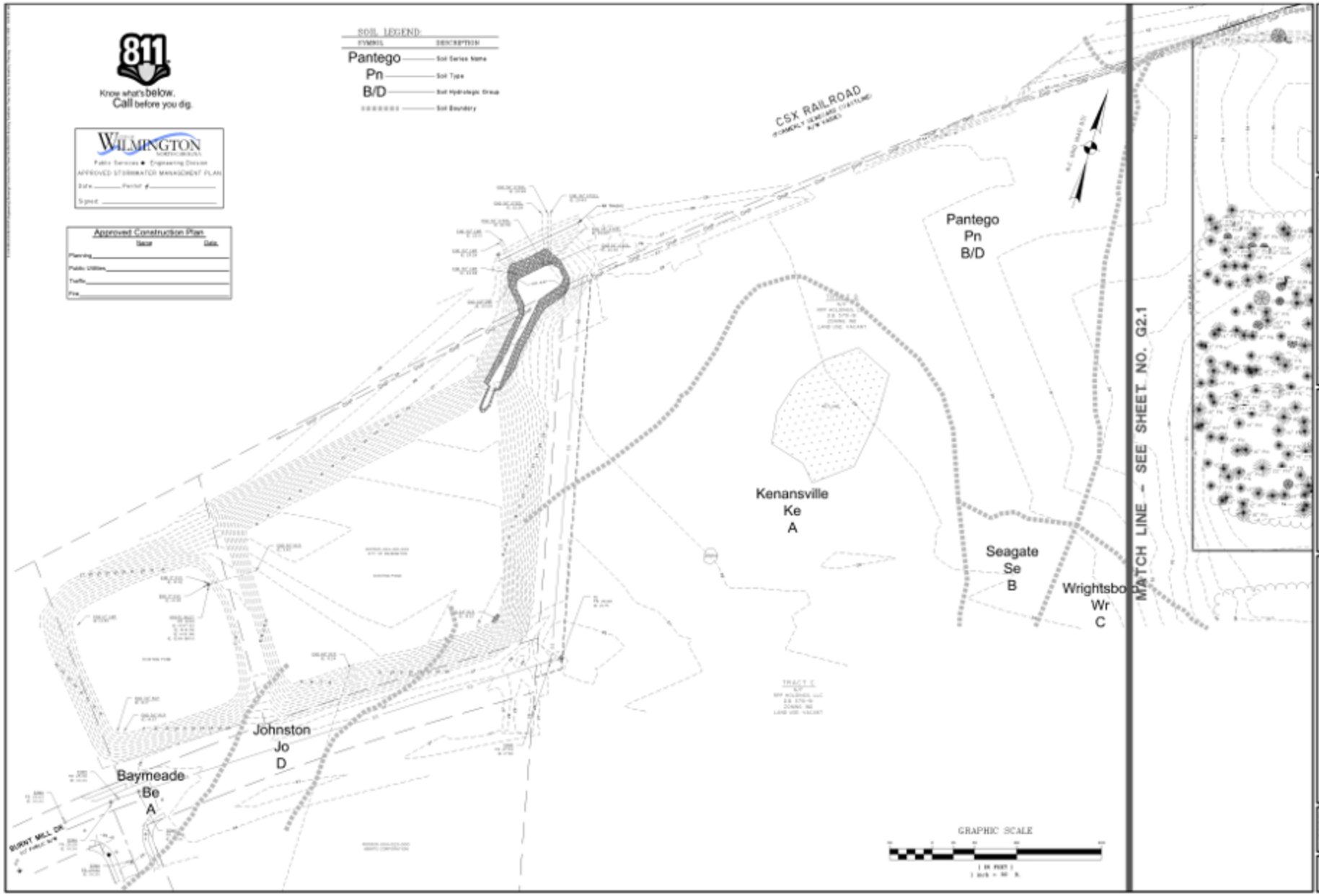
PROGRESS BUILDERS, LLC

EXISTING CONDITIONS-TREE SURVEY-SITE INVENTORY PLAN

G2.1



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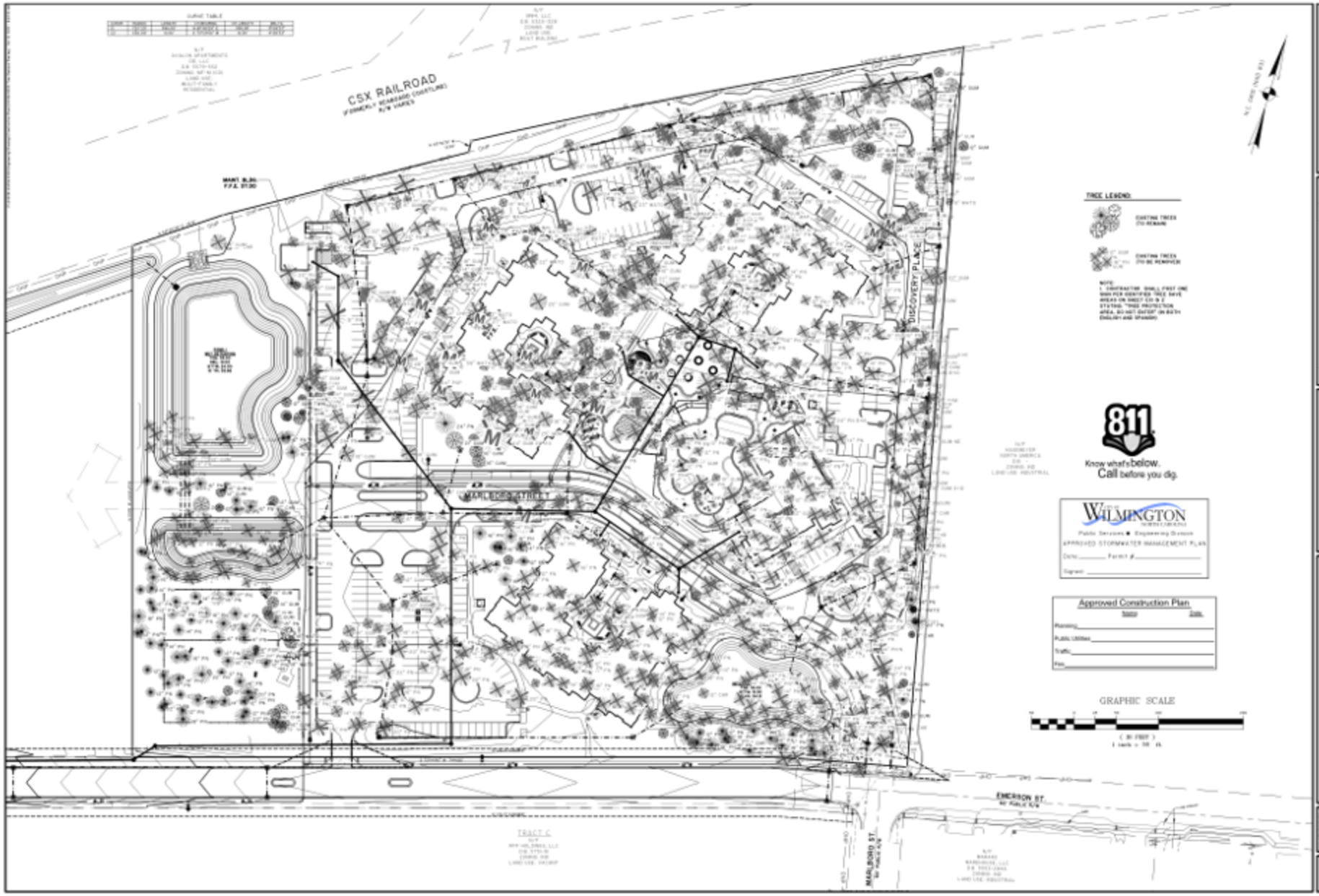
4055 EMERSON STREET

PROGRESS BUILDERS, LLC

EXISTING CONDITIONS-TREE SURVEY-SITE INVENTORY PLAN

G2.2



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PROGRESS BUILDERS, LLC

TREE REMOVAL PLAN

G2.3

DEVELOPMENT DATA:
DEVELOPMENT AREA = 18.00 AC
PERMITTED DENSITY (@ 17 UNITS/AC) = 272 UNITS
PROPOSED DENSITY: 168 UNITS = 10.6 UNITS/AC

BUILDING COVERAGE = 81,342 S.F.± (11.7%)
2 X 23,108 S.F. = 46,217 S.F.±
+ CLUBHOUSE = 9,842 S.F.±
+ POOL HOUSE = 850 S.F.±
+ MAINTENANCE = 1,253 S.F.±

TOTAL HEATED GROSS FLOOR AREA = 238,155 S.F.± SFA
(APPROX. 23,108 S.F./FLOOR X 10) +
9,842 S.F. FOR CLUBHOUSE
1,253 S.F. FOR MAINT. BLDG
850 S.F. FOR POOL HOUSE

TOTAL BEDROOMS = 328
45 X 1 BR = 45 BR
45 X 2 BR = 144 BR
72 X 4 BR = 288 BR

MAX. BLDG. HGT. = 4-STORY / 54'-0" MAX
ADD'L SETBACKS FOR HGT. OVER 35' = +10'

PARKING =
45 – 1 BR UNITS X 1.00 MIN. SP./UNIT = 45
45 – 2 BR UNITS X 1.25 MIN. SP./UNIT = 108
72 – 4 BR UNITS X 1.50 MIN. SP./UNIT = 216
9,842 S.F. CLUBHOUSE @ 1 MIN. SP./400 S.F. = 25
MINIMUM TOTAL SPACES REQ'D. = 445
168 UNITS X 2.0 MAX. SP./UNIT = 400
9,842 S.F. CLUBHOUSE @ 1 MAX. SP./200 S.F. = 49
MAXIMUM TOTAL SPACES PROV'D. = 449
** 328 TOTAL SPACES PROV'D. (77 H/C) **
DWN. SITE HYDRAULIC REQ'D. TO BE PERVIOUS = 47,MIN.
70 SPACES ARE DESIGNATED AS PERVIOUS
BIKE PARKING REQ'D. = 25 MIN.
BIKE PARKING PROV'D. = 50

DEVELOPMENT DATA (CONTINUED):
IMPERVIOUS SURFACES –
BUILDINGS = 90,877 S.F.
PAVEMENT = 211,741 S.F.
WALKS & POOL PATIO = 30,429 S.F.
TOTAL 303,047 S.F. (52.0%)

OPEN SPACE = (MIN. 35% REQ'D.)
10.00 AC. X 35% = 3.50 AC. (243,530 S.F.)
** 279,706 S.F. (38.5%) OPEN SPACE PROV'D. **

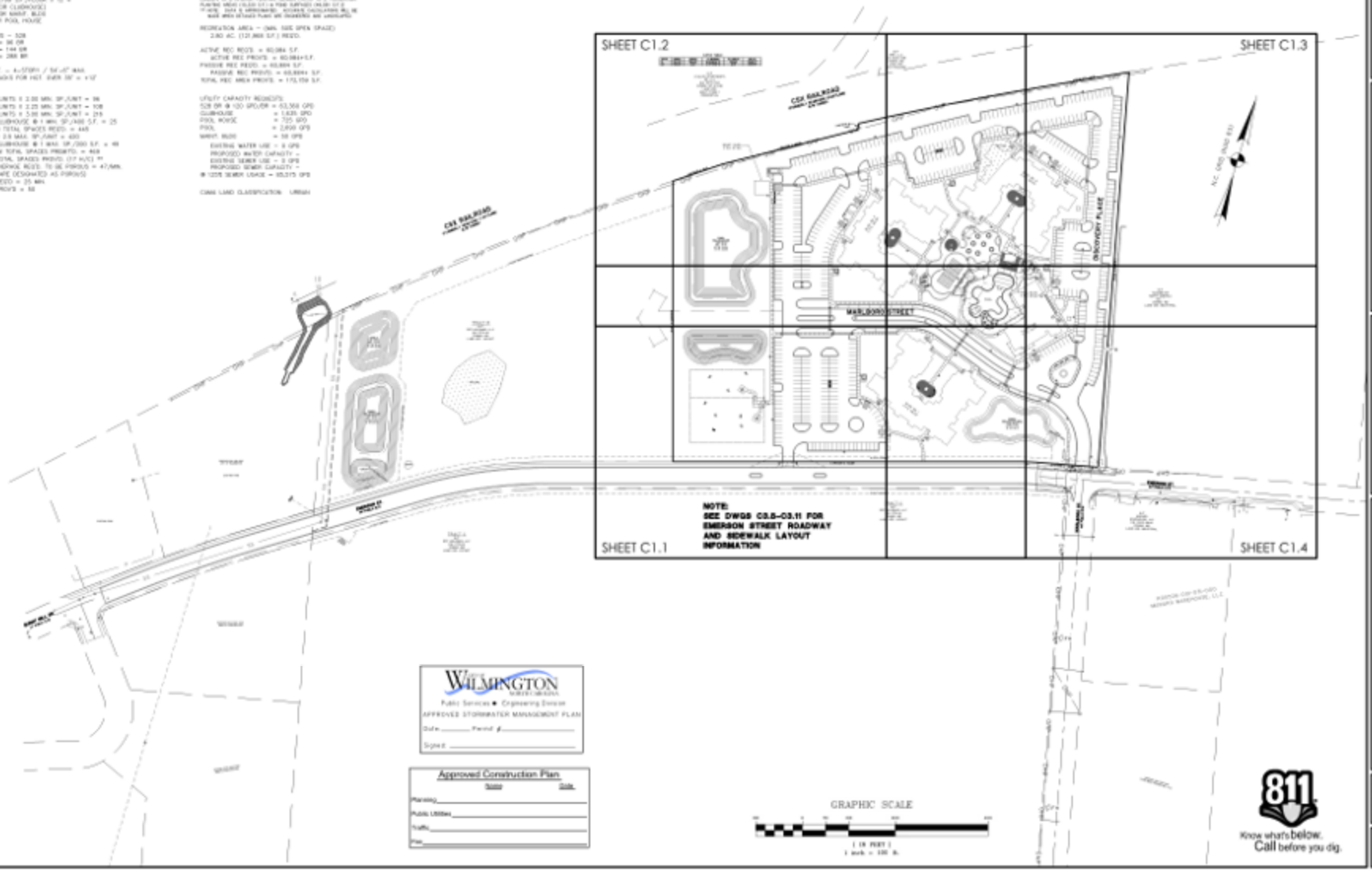
(AREA PROV'D. IS TOTAL TRACT AREA MINUS COVERED SURFACES (90,877 S.F.), INTERIOR PLANTING ISLANDS (15,750 S.F.), FOUNDATION PLANTING AREAS (15,000 S.F.) & POOL SURFACES (14,180 S.F.). IF NOTE: DATA IS APPROXIMATED. ACCURATE CALCULATIONS WILL BE MADE WHEN DETAILED PLANS ARE ENGINEERED AND LANDSCAPED.)

RECREATION AREA = (MIN. SIZE OPEN SPACE)
2.80 AC. (121,968 S.F.) REQ'D.

ACTIVE REC REQ'D. = 60,984 S.F.
ACTIVE REC PROV'D. = 60,984+S.F.
PASSIVE REC REQ'D. = 60,984 S.F.
PASSIVE REC PROV'D. = 60,984+ S.F.
TOTAL REC AREA PROV'D. = 175,759 S.F.

UTILITY CAPACITY REQUIRED:
328 DR @ 120 GPD/DR = 53,358 GPD
CLUBHOUSE = 1,635 GPD
POOL HOUSE = 725 GPD
POOL = 2,850 GPD
MAINT. BLDG = 50 GPD
EXISTING WATER USE = 0 GPD
PROPOSED WATER CAPACITY =
EXISTING SEWER USE = 0 GPD
PROPOSED SEWER CAPACITY =
@ 120% SEWER USAGE = 65,575 GPD

CAMA LAND CLASSIFICATION: URBAN



WILMINGTON NORTH CAROLINA
Public Services ★ Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date _____ Permit # _____
Signed _____

Approved Construction Plan
Name Date
Planning _____
Public Utilities _____
Traffic _____
Fire _____

GRAPHIC SCALE
1 IN (PDF) =
1 inch = 100 ft.

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PROGRESS910
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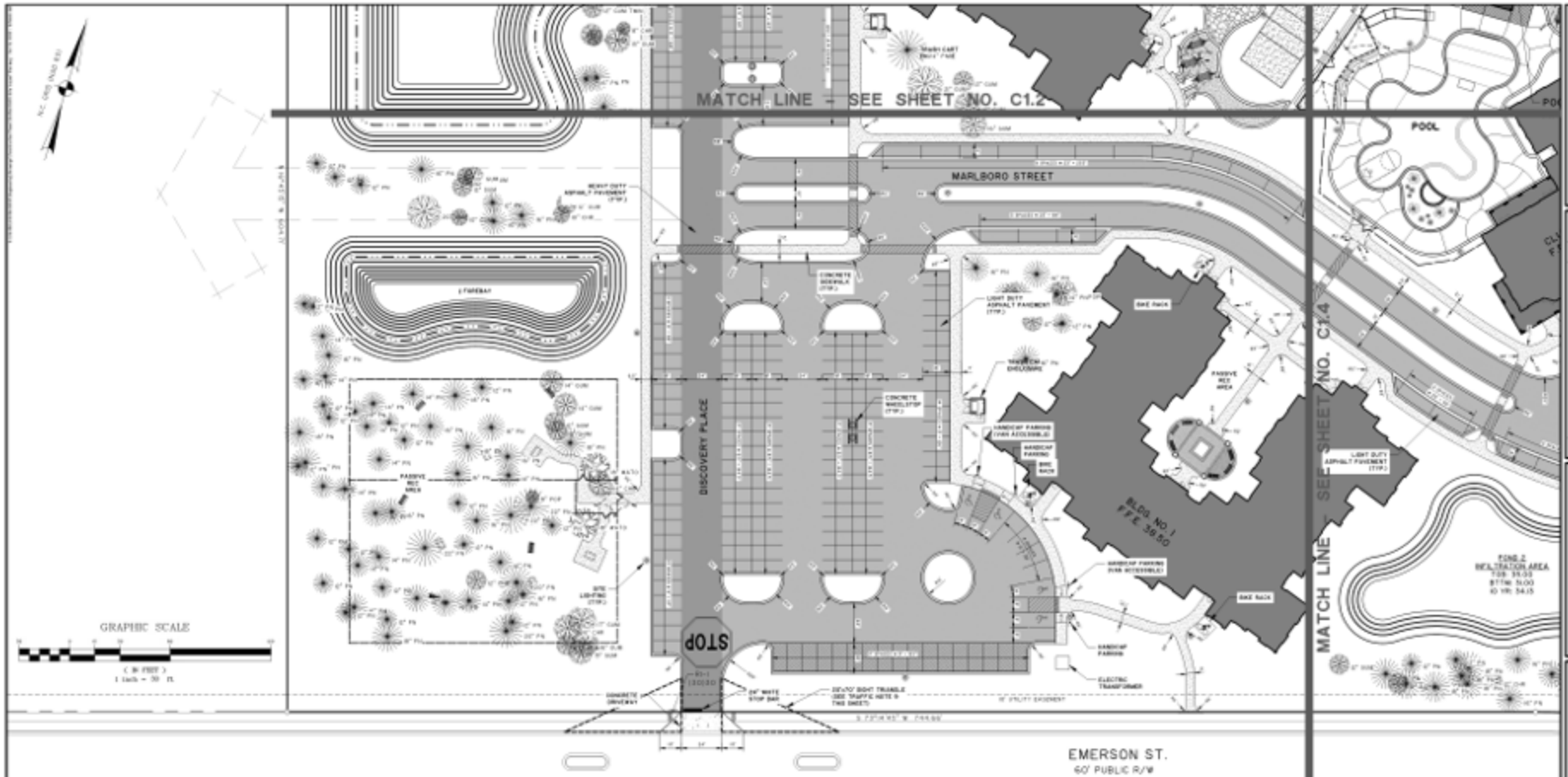
SITE LAYOUT SHEET INDEX

C1.0



DEVELOPMENT NOTES

1. ALL DEVELOPMENT SHALL BE IN ACCORDANCE WITH CITY OF WILMINGTON TECHNICAL STANDARDS AND SUBDIVISION REGULATIONS.
2. ALL DEVELOPMENT SHALL MEET APPLICABLE COUNTY, STATE, AND/OR FEDERAL REGULATIONS REQUIRED PRIOR TO FULL CONSTRUCTION RELEASE.
3. PROPOSED STREETS AND INTERNAL DRIVE AISLES TO BE PRIVATELY MAINTAINED.
4. ALL COMMON AREAS INCLUDING OF RECREATIONAL AREAS SHALL BE PRIVATELY MAINTAINED.
5. THE PROPOSED DEVELOPMENT WILL BE COMPLETED IN ONE PHASE.
6. EXTERIOR SITE LIGHTING SHALL BE INSTALLED SO AS NOT TO SHINE DIRECTLY ONTO ADJACENT PARCELS.
7. ANY FREESTANDING SIGNS ON THE SITE SHALL BE MONUMENT STYLE WITH LANDSCAPING AROUND THE BASE OF SAME. CONTACT ZONING AT 254-3600 FOR SIGN PERMIT. SIGN PERMITS ARE SEPARATE FROM THE APPROVED PLAN.
8. THE PROJECT WILL NOT BE PERMITTED FOR A GATE RESTRICTED ACCESS WITHIN THE SITE UNLESS A MODIFICATION IS GRANTED TO THE CONDITIONAL DISTRICT SITE PLAN.

TRAFFIC NOTES

1. ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY & FOR DRIVEWAY ARE TO BE THERMOPLASTIC & MEET CITY AND/OR NCDOT STANDARDS.
2. TRAFFIC CONTROL DEVICES INCLUDING SIGNS AND PAVEMENT MARKINGS IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES STANDARDS.
3. CONTACT WILMINGTON TRAFFIC ENGINEERING AT 341-7866 TO ENSURE THAT ALL TRAFFIC SIGNAL FACILITIES AND EQUIPMENT (SEE SHOWN ON THE PLAN) ARE 3 NOTE TO CALL TRAFFIC ENGINEERING FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION IN THE R/W.
4. ANY BROKEN OR MISSING SIDEWALK PANELS AND/OR CURBING SHALL BE REPLACED.
5. CONTACT KAREN CHENEY AT 341-7888 TO DISCUSS STREET LIGHTING OPTIONS. THE LANDSCAPING PLAN WILL BE NEEDED TO DETERMINE STREET LIGHT LOCATIONS.
6. TACTILE WARNING MATS TO BE INSTALLED AT ALL WHEELCHAIR RAMPS.
7. ONCE STREETS ARE READY TO BE OPEN TO PUBLIC TRAFFIC, CONTACT THE TRAFFIC ENGINEERING DIVISION TO REQUEST INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
8. A LANDSCAPING PLAN, INDICATING THE LOCATION OF REQUIRED STREET TREES SHALL BE SUBMITTED TO THE TRAFFIC ENGINEERING DIVISION AND PARKS & RECREATION DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE RECORDING OF THE FINAL PLAT. PLAN SHALL ADHERE TO 30-8-7.
9. ALL PROPOSED VEGETATION AND SIGNAGE WITHIN SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 30"-60".

TRACT C
N/F
RPP HOLDINGS, LLC
D.B. 5754-91
ZONING: IND
LAND USE: VACANT

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Traffic: _____
Fire: _____

Preliminary
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PROGRESS910
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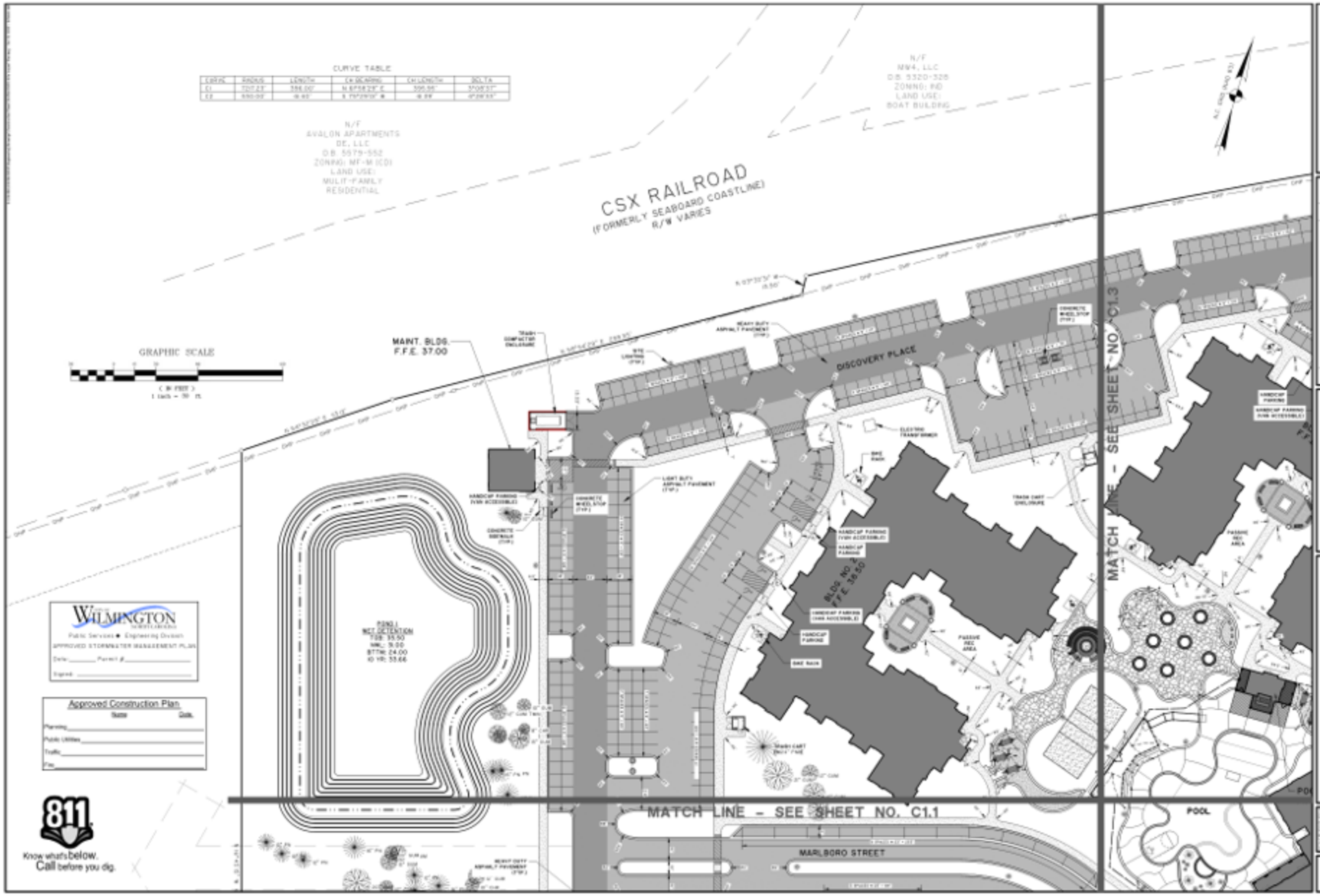
CITY OF WILMINGTON, NORTH CAROLINA

PROGRESS BUILDERS, LLC

SITE LAYOUT PLAN

C1.1



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PROGRESS BUILDERS, LLC

SITE LAYOUT PLAN

C1.2

Approved Stormwater Management Plan

Date: _____ Permit #: _____

Signed: _____

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

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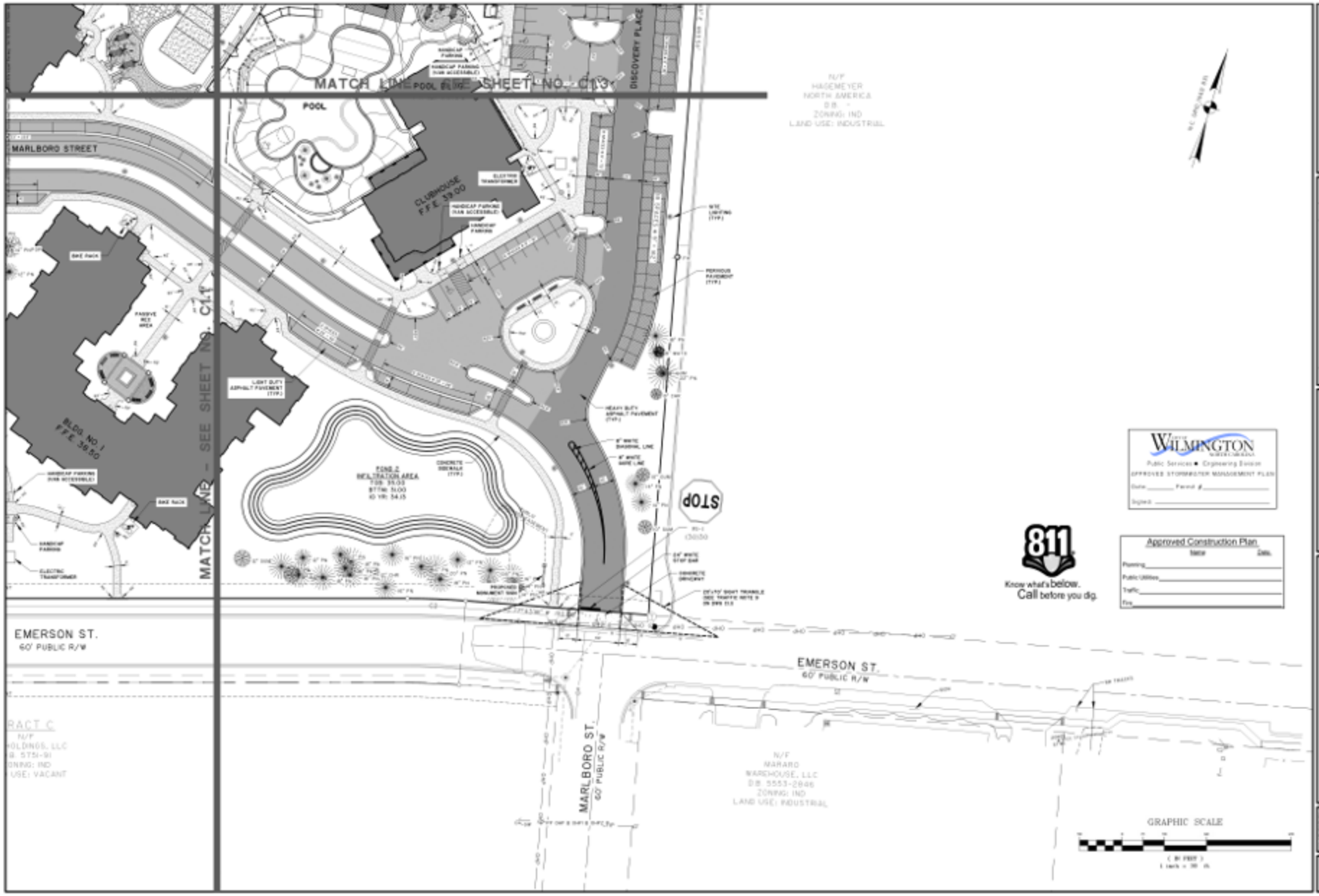
SITE LAYOUT PLAN

C1.3



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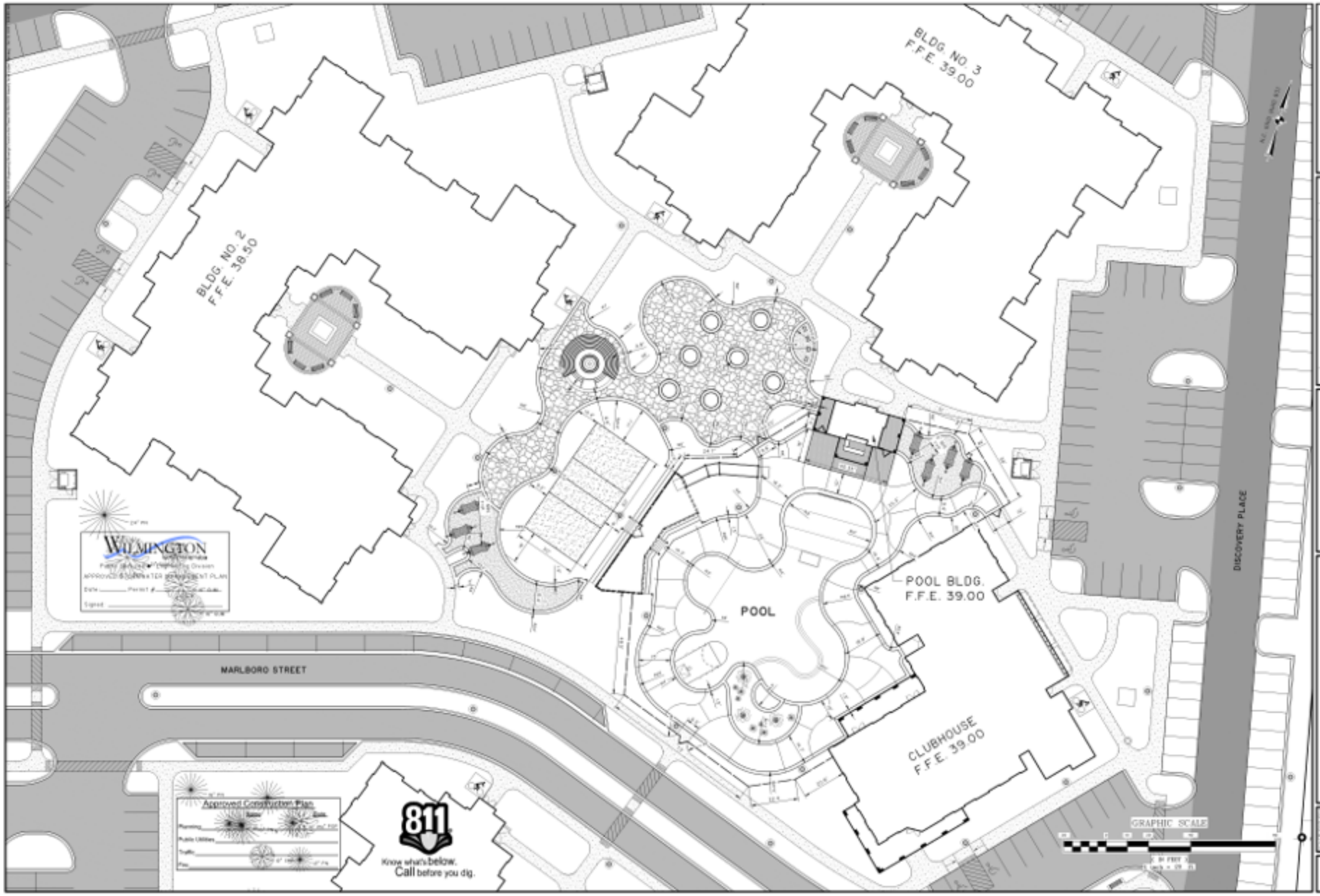
SITE LAYOUT PLAN

C1.4



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4055 EMERSON STREET

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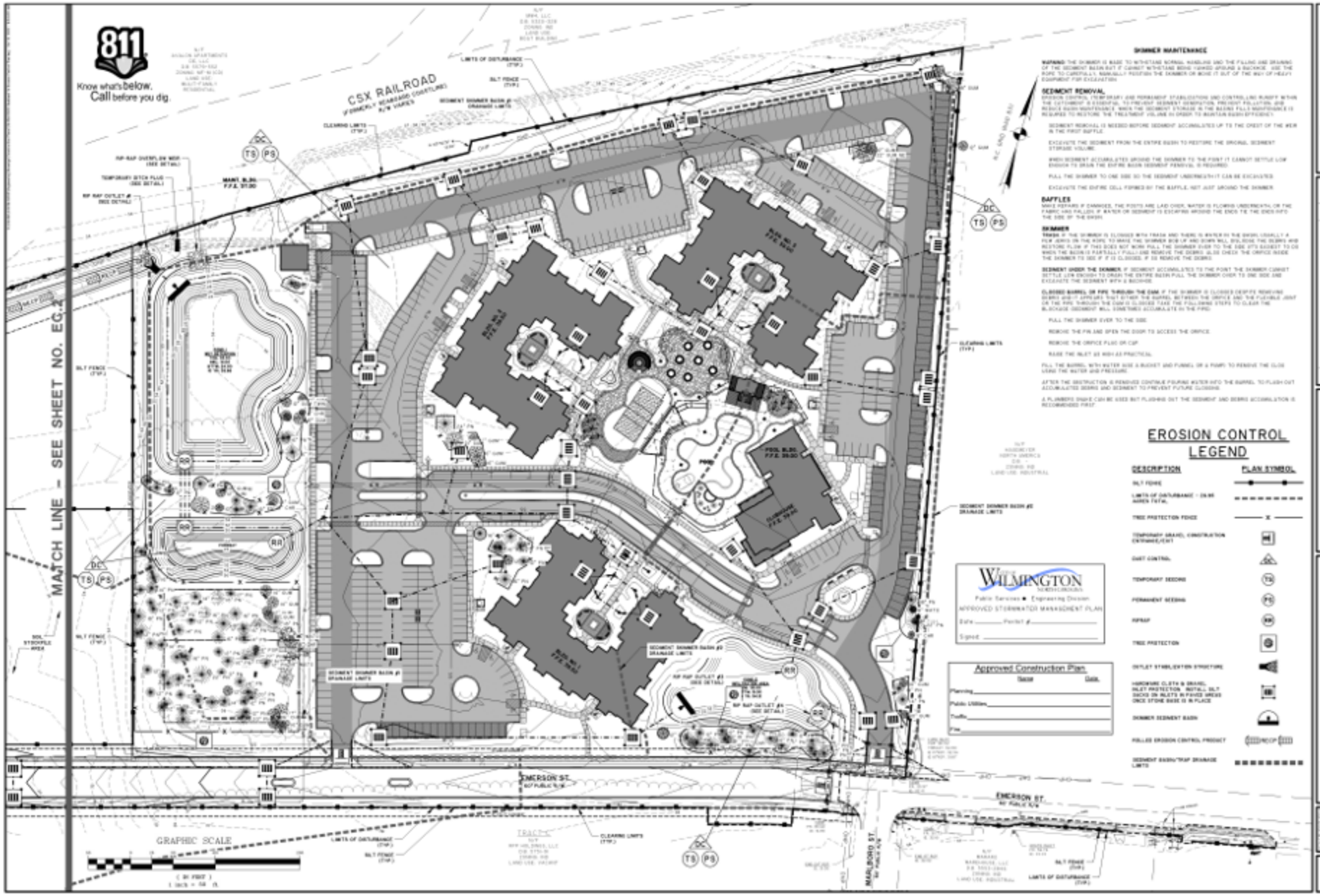
AMENITY AREA LAYOUT PLAN

C1.5


811
Know what's below.
Call before you dig.
CSX RAILROAD
(FORMERLY SEABOARD COASTLINE)
R/W VARIES
MATCH LINE – SEE SHEET NO. EC.2
EMERSON ST.
MARLBORO ST.
GRAPHIC SCALE
(IN FEET)
1 inch = 50 ft.
SILT FENCE (TYP.)
CLEARING LIMITS (TYP.)
LIMITS OF DISTURBANCE (TYP.)
SEDIMENT SKIMMER BASIN #2 DRAINAGE LIMITS
RIP-RAP OUTLET #2 (SEE DETAIL)
TEMPORARY DITCH PLUG (SEE DETAIL)
RIP-RAP OVERFLOW WEIR (SEE DETAIL)
SOIL STOCKPILE AREA
TRACTS
DC
TS
PS
RR
SKIMMER MAINTENANCE
WARNING: THE SKIMMER IS MADE TO WITHSTAND NORMAL HANDLING AND THE FILLING AND DRAINING OF THE SEDIMENT BASIN BUT IT CANNOT WITHSTAND BEING HANDED GROUND & BACKHOE. USE THE ROPE TO CAREFULLY MANUALLY POSITION THE SKIMMER OR MOVE IT OUT OF THE WAY OF HEAVY EQUIPMENT FOR EXCAVATION
SEDIMENT REMOVAL
EROSION CONTROL (TEMPORARY AND PERMANENT STABILIZATION AND CONTROL) AND RUNOFF WITHIN THE DETENTION BASIN IS ESSENTIAL TO PREVENT SEDIMENT MIGRATION, PREVENT POLLUTION, AND REDUCE BASIN MAINTENANCE. WHEN THE SEDIMENT STORAGE IN THE BASIN FILLS MAINTENANCE IS REQUIRED TO RESTORE THE TREATMENT VOLUME IN ORDER TO MAINTAIN BASIN EFFICIENCY.
SEDIMENT REMOVAL IS NEEDED BEFORE SEDIMENT ACCUMULATES UP TO THE CREST OF THE WEIR IN THE FIRST BAFFLE.
EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN TO RESTORE THE ORIGINAL SEDIMENT STORAGE VOLUME.
WHEN SEDIMENT ACCUMULATES AROUND THE SKIMMER TO THE POINT IT CANNOT SETTLE LOW ENOUGH TO DRAIN THE ENTIRE BASIN (SEDIMENT PENDING) IS REQUIRED.
PULL THE SKIMMER TO ONE SIDE SO THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED.
EXCAVATE THE ENTIRE CELL FORMED BY THE BAFFLE, NOT JUST AROUND THE SKIMMER.
BAFFLES
MINOR REPAIRS IF DAMAGED, THE POSTS ARE LAID OVER, WATER IS FLOWING UNDERNEATH, OR THE FABRIC HAS FALLEN IF WATER OR SEDIMENT IS ESCAPING AROUND THE ENDS TIE THE ENDS INTO THE SIDE OF THE BASIN.
SKIMMER
TRASH IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN USUALLY A FLAW (BRIDE) ON THE ROPE TO MAKE THE SKIMMER BOB UP AND DOWN WILL DISLODGE THE DEBRIS AND RESTORE FLOW. IF THIS DOES NOT WORK PULL THE SKIMMER OVER TO THE SIDE (IT'S EASIEST TO DO WHEN THE BASIN IS PARTIALLY FULL) AND REMOVE THE DEBRIS. ALSO CHECK THE ORIFICE INSIDE THE SKIMMER TO SEE IF IT IS CLOGGED. IF SO REMOVE THE DEBRIS.
SEDIMENT UNDER THE SKIMMER IF SEDIMENT ACCUMULATES TO THE POINT THE SKIMMER CANNOT SETTLE LOW ENOUGH TO DRAIN THE ENTIRE BASIN PULL THE SKIMMER OVER TO ONE SIDE AND EXCAVATE THE SEDIMENT WITH A BACKHOE.
CLOGGED BARREL OR PIPE THROUGH THE DAM IF THE SKIMMER IS CLOGGED DESPITE REMOVING DEBRIS AND IT APPEARS THAT EITHER THE BARREL BETWEEN THE ORIFICE AND THE FLEXIBLE JOINT OR THE PIPE THROUGH THE DAM IS CLOGGED TAKE THE FOLLOWING STEPS TO CLEAR THE BLOCKAGE. SEDIMENT WILL SOMETIMES ACCUMULATE IN THE PIPE.
PULL THE SKIMMER OVER TO THE SIDE.
REMOVE THE PIN AND OPEN THE DOOR TO ACCESS THE ORIFICE.
REMOVE THE ORIFICE PLUG OR CAP.
RAISE THE INLET AS HIGH AS PRACTICAL.
FILL THE BARREL WITH WATER SIDE A BUCKET AND FUNNEL OR A PUMP TO REMOVE THE CLOG USING THE WATER AND PRESSURE.
AFTER THE OBSTRUCTION IS REMOVED CONTINUE POURING WATER INTO THE BARREL TO FLUSH OUT ACCUMULATED DEBRIS AND SEDIMENT TO PREVENT FUTURE CLOGGING.
A PLUMBER'S SNAKE CAN BE USED BUT FLUSHING OUT THE SEDIMENT AND DEBRIS ACCUMULATION IS RECOMMENDED FIRST.
EROSION CONTROL LEGEND
DESCRIPTION
PLAN SYMBOL
SILT FENCE
LIMITS OF DISTURBANCE – ON-SITE AREA TOTAL
TREE PROTECTION FENCE
TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT
DUST CONTROL
TEMPORARY SEEDING
PERMANENT SEEDING
RIPRAP
TREE PROTECTION
OUTLET STABILIZATION STRUCTURE
HARDWARE CLOTH & GRAVEL INLET PROTECTION. INSTALL SILT SACKS ON INLETS IN PAVED AREAS ONCE STONE BASE IS IN PLACE
SKIMMER SEDIMENT BASIN
ROLLED EROSION CONTROL PRODUCT
SEDIMENT BASIN/TRAP DRAINAGE LIMITS
WILMINGTON
Public Services ★ Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date _____ Permit # _____
Signed _____
Approved Construction Plan
Name
Date
Planning
Public Utilities
Traffic
Fire
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SEDIMENT & EROSION CONTROL PLAN
EC.1

I. GENERAL NOTES

1. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, UNLESS ACTIVITY IN THAT PORTION OF THE SITE WILL RESUME WITHIN TWENTY-ONE (21) DAYS.
2. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED EVERY SEVEN (7) DAYS OR AFTER EACH RAINFALL OCCURRENCE THAT EXCEEDS ONE HALF (0.5) INCH. DAMAGED OR INEFFECTIVE DEVICES SHALL BE REPAIRED OR REPLACED, AS NECESSARY.
3. 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.
4. 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.
5. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO THE PAVED ROADWAY FROM CONSTRUCTION AREAS. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT AS MAY BE REQUIRED.
6. THE FOLLOWING NOTES ARE SPECIFIED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR) AND ARE TO BE EXECUTED BY THE CONTRACTOR.
   A. ALL SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER ANY STORM EVENT OF GREATER THAN 0.5 INCHES OF PRECIPITATION DURING ANY 24-HOUR PERIOD. ALL SEDIMENT CONTROL FEATURES SHALL BE MAINTAINED UNTIL FINAL STABILIZATION HAS BEEN OBTAINED.
   B. 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 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED, UNLESS ACTIVITY IN THAT PORTION OF THE SITE WILL RESUME WITHIN 21 DAYS.
7. ADDITIONAL MEASURES TO CONTROL EROSION AND SEDIMENT MAY BE REQUIRED BY THE CITY, PROJECT ENGINEER AND/OR NHC ENGINEERING.
8. ANY GRADING BEYOND WHAT IS DEPICTED IN THE APPROVED AND PERMITTED PLANS IS A VIOLATION OF NHC AND THE STATE'S EROSION CONTROL AND GRADING REQUIREMENTS AND MAY BE SUBJECT TO A FINE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF ALL FINES DUE TO VIOLATIONS.
9. GRADING MORE THAN ONE ACRE WITHOUT AN APPROVED EROSION CONTROL PLAN IS A VIOLATION OF SEDIMENT POLLUTION CONTROL ACT AND MAY BE SUBJECT TO A FINE.
10. ALL OFF SITE BORROW MUST COME FROM A STATE APPROVED SOURCE. CONTRACTOR TO SUBMIT WRITTEN DOCUMENTATION IDENTIFYING SOURCE.
11. ALL SURPLUS MATERIAL AND DEMOLITION DEBRIS SHALL BE HAULED OFF SITE TO AN APPROVED WASTE SITE. CONTRACTOR TO SUBMIT WRITTEN DOCUMENTATION IDENTIFYING APPROVED WASTE SITE.

II. CONSTRUCTION SEQUENCE

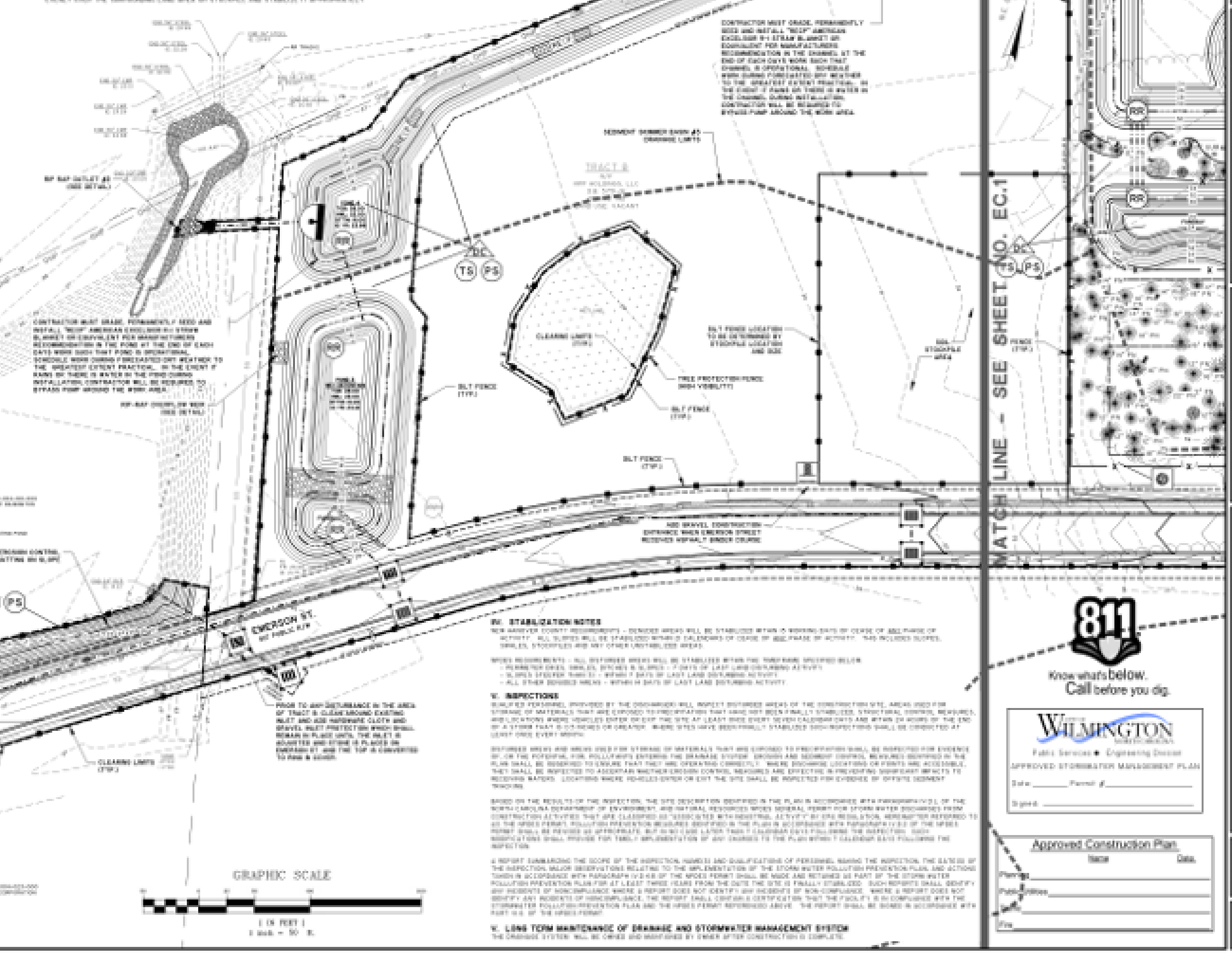
1. INSTALL GRAVEL CONSTRUCTION ENTRANCE/EXIT, SILT FENCING, TREE PROTECTION AND TEMPORARY DITCH PLUG.
2. CLEARING AND GRUBBING.
3. CONSTRUCT SEDIMENT BASIN AND TRAPS.
4. INSTALL REMAINING DRAINAGE CONVEYANCES AND EROSION CONTROL.
5. SITE ROUGH GRADING & INFRASTRUCTURE.
6. BEGIN BUILDING CONSTRUCTION CONCURRENTLY WITH PARKING LOT CONSTRUCTION.
7. SIDEWALKS AND PAVING. INSTALL SILT SACKS ON INLETS WITHIN PAVED AREAS ONCE STONE BASE IS IN PLACE.
8. FINAL GRADING & STABILIZATION.
9. RESTORE DRAINAGE CONVEYANCES TO DESIGN SPECIFICATIONS, CONVERT SEDIMENT BASINS TO PERMANENT WATER QUALITY/QUANTITY PONDS AND REMOVE TEMPORARY EROSION CONTROL MEASURE ONCE SITE IS PERMANENTLY STABILIZED.

III. MAINTENANCE PLAN

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL, BUT IN NO CASE, LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. ALL CONSTRUCTION ENTRANCES WILL BE PERIODICALLY TOP-DRESSED WITH AN ADDITIONAL TWO (2) INCHES OF #4 STONE TO MAINTAIN PROPER DEPTH. ANY SEDIMENT THAT IS TRACKED INTO THE STREET WILL BE IMMEDIATELY REMOVED.
3. SEDIMENT WILL BE REMOVED FROM THE SEDIMENT TRAPS AND BASINS WHEN STORAGE CAPACITY HAS BEEN APPROXIMATELY 50% FILLED. GRAVEL WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS PROPERLY.
4. SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT BECOMES 0.5 FEET DEEP AT THE FENCE. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. SILT FENCE STAKES WILL BE SPACED 6 FEET APART UNLESS A WIRE BACKING IS USED WITH 8 FOOT STAKE SPACING.
5. ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE COVER.
6. SEDIMENT, STRAW, LIMBS OR OTHER DEBRIS WILL BE REMOVED FROM THE CHECK DAMS TO PREVENT CLOGGING. STONES WILL BE ADDED AS NECESSARY TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.
7. SILT SACKS MUST BE INSPECTED ONCE A WEEK AND AFTER EVERY RAINFALL. REMOVE SEDIMENT BUILD UP AFTER EACH INSPECTION OR AT THE INTERVAL SPECIFIED BY THE MANUFACTURER, WHICH EVER IS MORE RESTRICTIVE.
8. HARDWARE CLOTH AND GRAVEL INLET PROTECTION MAINTENANCE: INSPECT, CLEAN, AND PROPERLY MAINTAIN THE EXCAVATED BASIN AFTER EVERY STORM UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED. TO PROVIDE SATISFACTORY BASIN EFFICIENCY, REMOVE SEDIMENT WHEN THE VOLUME OF THE BASIN HAS BEEN REDUCED BY ONE-HALF. SPREAD ALL EXCAVATED MATERIAL EVENLY OVER THE SURROUNDING LAND AREA OR STOCKPILE AND STABILIZE IT APPROPRIATELY.

NOTES:

1. ALL SLOPES EXCEEDING 4:1 OR GREATER SHALL BE STABILIZED WITH EROSION CONTROL MATTING. CONTRACTOR RESPONSIBLE FOR MAINTENANCE, REPAIR AND/OR REPLACEMENT OF ALL EROSION CONTROL MEASURES AS REQUIRED THROUGHOUT CONSTRUCTION.
2. ALL TREES WITHIN DISTURBANCE LIMITS ARE TO BE REMOVED UNLESS OTHERWISE NOTED.



IV. STABILIZATION NOTES

NEW HANOVER COUNTY REQUIREMENTS – DENUDED AREAS WILL BE STABILIZED WITHIN 15 WORKING DAYS OF CEASE OF ANY PHASE OF ACTIVITY. ALL SLOPES WILL BE STABILIZED WITHIN 21 CALENDARS OF CEASE OF ANY PHASE OF ACTIVITY. THIS INCLUDES SLOPES, SWALES, STOCKPILES AND ANY OTHER UNSTABILIZED AREAS.

NPDES REQUIREMENTS – ALL DISTURBED AREAS WILL BE STABILIZED WITHIN THE TIMEFRAME SPECIFIED BELOW:
- PERIMETER DIKES, SWALES, DITCHES & SLOPES – 7 DAYS OF LAST LAND DISTURBING ACTIVITY
- SLOPES STEEPER THAN 3:1 – WITHIN 7 DAYS OF LAST LAND DISTURBING ACTIVITY
- ALL OTHER DENUDED AREAS – WITHIN 14 DAYS OF LAST LAND DISTURBING ACTIVITY

V. INSPECTIONS

QUALIFIED PERSONNEL (PROVIDED BY THE DISCHARGER) WILL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE, AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION THAT HAVE NOT BEEN FINALLY STABILIZED, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES OR GREATER. WHERE SITES HAVE BEEN FINALLY STABILIZED SUCH INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH.

DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFFSITE SEDIMENT TRACKING.

BASED ON THE RESULTS OF THE INSPECTION, THE SITE DESCRIPTION IDENTIFIED IN THE PLAN IN ACCORDANCE WITH PARAGRAPH IV.D.1 OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, AND NATURAL RESOURCES NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES THAT ARE CLASSIFIED AS "ASSOCIATED WITH INDUSTRIAL ACTIVITY" BY EPA REGULATION, HEREINAFTER REFERRED TO AS THE NPDES PERMIT, POLLUTION PREVENTION MEASURES IDENTIFIED IN THE PLAN IN ACCORDANCE WITH PARAGRAPH IV.D.2 OF THE NPDES PERMIT SHALL BE REVISED AS APPROPRIATE, BUT IN NO CASE LATER THAN 7 CALENDAR DAYS FOLLOWING THE INSPECTION. SUCH MODIFICATIONS SHALL PROVIDE FOR TIMELY IMPLEMENTATION OF ANY CHANGES TO THE PLAN WITHIN 7 CALENDAR DAYS FOLLOWING THE INSPECTION.

A REPORT SUMMARIZING THE SCOPE OF THE INSPECTION, NAME(S) AND QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN, AND ACTIONS TAKEN IN ACCORDANCE WITH PARAGRAPH IV.D.4.B OF THE NPDES PERMIT SHALL BE MADE AND RETAINED AS PART OF THE STORM WATER POLLUTION PREVENTION PLAN FOR AT LEAST THREE YEARS FROM THE DATE THE SITE IS FINALLY STABILIZED. SUCH REPORTS SHALL IDENTIFY ANY INCIDENTS OF NONCOMPLIANCE. WHERE A REPORT DOES NOT IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE, THE REPORT SHALL CONTAIN A CERTIFICATION THAT THE FACILITY IS IN COMPLIANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN AND THE NPDES PERMIT REFERENCED ABOVE. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART II.G. OF THE NPDES PERMIT.

V. LONG TERM MAINTENANCE OF DRAINAGE AND STORMWATER MANAGEMENT SYSTEM

THE DRAINAGE SYSTEM WILL BE OWNED AND MAINTAINED BY OWNER AFTER CONSTRUCTION IS COMPLETE.

811
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CITY OF WILMINGTON
NORTH CAROLINA
Public Services ● Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: ________ Permit #: ____________
Signed: ____________________

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

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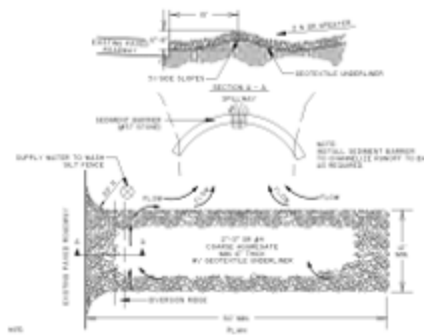
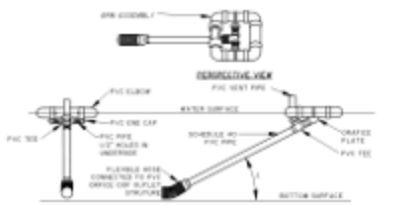
EC.2



TEMPORARY CONSTRUCTION EXIT

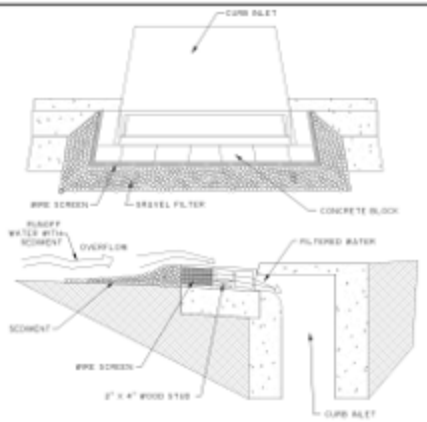
NOT TO SCALE



FAIRCLOTH SKIMMER DETAIL

(BY J.W. FAIRCLOTH & SON, INC.)

NOT TO SCALE



CURB INLET PROTECTION

SD 13-02

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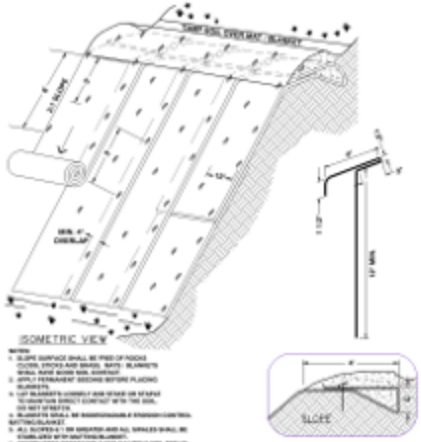
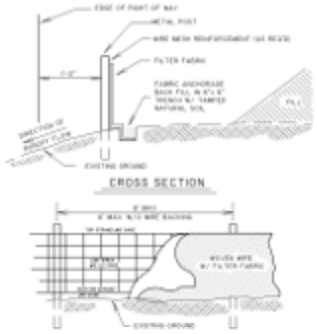


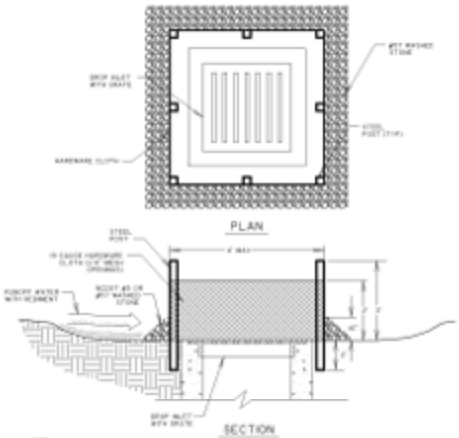
EROSION CONTROL MATTING

NOT TO SCALE



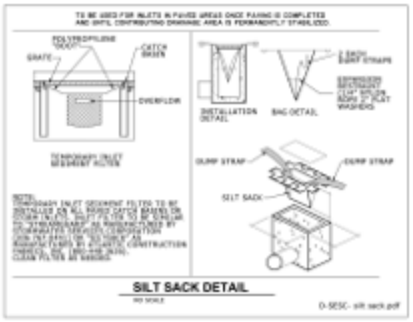
TEMPORARY SILT FENCE DETAIL

NOT TO SCALE



HARDWARE CLOTH AND GRAVEL INLET PROTECTION

NOT TO SCALE



SILT SACK DETAIL

NO SCALE

D-SESC- silt sack.pdf

FERTILIZER REQUIREMENTS

TYPE OF SPECIES	YEAR	ANALYSIS OF EQUIVALENT N-P-K	RATE	% TOP DRESSING RATE
1. COOL SEASON GRASSES	FIRST	8-10-10	150lbs/ac (lb)	50-100 lbs/ac. * 1 & 2
	SECOND MAINTENANCE	8-10-10	100 lbs/ac (lb)	50
2. COOL SEASON GRASSES AND LEGUMES	FIRST	5-10-10	150lbs/ac (lb)	50-100 lbs/ac. * 1
	SECOND MAINTENANCE	5-10-10	100 lbs/ac (lb)	
3. GROUND COVERS	FIRST	8-10-10	150lbs/ac (lb) * 3	-
	SECOND MAINTENANCE	8-10-10	100 lbs/ac (lb) * 3	-
4. PINE SEEDLINGS	FIRST	20-10-5	150lbs/ac (lb) (APPLY 1/2 LBS PER PLANTING HOLE)	-
5. SHRUB LEGUMES	FIRST	8-10-10	150lbs/ac (lb)	-
	SECOND MAINTENANCE	8-10-10	100lbs/ac (lb) * 4	
6. TEMPERATE TREES & SHRUBS (BARE ROOT)	FIRST	8-10-10	150lbs/ac (lb)	50 lbs/ac * 5
7. WARM SEASON GRASSES	FIRST	8-10-10	150lbs/ac (lb)	50-100 lbs/ac * 2 & 6
	SECOND MAINTENANCE	8-10-10	100lbs/ac (lb)	50-100 lbs/ac * 2 & 6
8. WARM SEASON GRASSES AND LEGUMES	FIRST	5-10-10	150lbs/ac (lb)	50-100 lbs/ac * 6
	SECOND MAINTENANCE	5-10-10	100lbs/ac (lb)	

*1. APPLY IN SPRING FOLLOWING SEEDING.
*2. APPLY IN SPLIT APPLICATIONS WHEN HIGH RATES ARE USED.
*3. APPLY IN 3 SPLIT APPLICATIONS.
*4. APPLY WHEN PLANTS ARE PRUNED.
*5. APPLY TO GRASS SPECIES ONLY.
*6. APPLY WHEN PLANTS GROW TO A HEIGHT OF 2 TO 4 INCHES.

NOTE: SPREAD AGRICULTURAL LIMESTONE EVENLY OVER ALL DISTURBED AREAS AT A RATE OF OF 1.5 TONS/ACRE.

SEEDING RATES FOR TEMPORARY & PERMANENT COVER

MONTH	TEMPORARY COVER	RATE PER 1000 SQ. FT.	RATE PER ACRE	PERMANENT COVER	RATE PER 1000 SQ. FT.	RATE PER ACRE
JANUARY	1. CONTAINER - HARDIGRASS	3 PLUGS	1 Bu.	* BAHIA, PENSACOLA	90 lbs.	20 lbs.
	2. RYE	3 lbs.	3 bu.	DEHULLED, UNHULLED	10 lbs.	8 lbs.
	3. RYE GRASS, ANNUAL	40 lbs.	1 bu.	* CENTIPEDE, SEEDED	1 lb.	-
	4. WHEAT	2 bu.	2 bu.	* LEMPEDEZA, SEEDED	75 lbs.	-
FEBRUARY	1. LEMPEDEZA, ANNUAL	40 lbs.	10 bu.	* BAHIA, PENSACOLA	90 lbs.	20 lbs.
	2. RYE	3 bu.	3 bu.	UNHULLED, SEE	10 lbs.	-
	3. RYE GRASS, ANNUAL	40 lbs.	1 bu.	* CENTIPEDE, SEEDED	1 lb.	-
				* LEMPEDEZA, SEEDED	75 lbs.	-
MARCH	1. LEMPEDEZA, ANNUAL	40 lbs.	10 bu.	* BAHIA, PENSACOLA	90 lbs.	20 lbs.
	2. RYE GRASS, ANNUAL	40 lbs.	-	DEHULLED, UNHULLED	10 lbs.	8 lbs.
	3. CLOVER (RED)	40 lbs.	-	* CENTIPEDE, SEEDED	1 lb.	-
				* LEMPEDEZA, SEEDED	75 lbs.	-
APRIL	1. MILLET, BROWN TOP	40 lbs.	10 lbs.	* BAHIA, PENSACOLA	90 lbs.	20 lbs.
	2. MILLET, PEARL	50 lbs.	-	DEHULLED, UNHULLED	10 lbs.	8 lbs.
	3. CLOVER (RED)	40 lbs.	-	* CENTIPEDE, SEEDED	1 lb.	-
				* LEMPEDEZA, SEEDED	75 lbs.	-
MAY	1. MILLET, BROWN TOP	40 lbs.	10 lbs.	* BAHIA, PENSACOLA	90 lbs.	20 lbs.
	2. MILLET, PEARL	50 lbs.	-	DEHULLED, UNHULLED	10 lbs.	8 lbs.
	3. CLOVER (RED)	40 lbs.	-	* CENTIPEDE, SEEDED	1 lb.	-
				* LEMPEDEZA, SEEDED	75 lbs.	-
JUNE	1. MILLET, BROWN TOP	40 lbs.	10 lbs.	* BAHIA, PENSACOLA	90 lbs.	20 lbs.
	2. MILLET, PEARL	50 lbs.	-	DEHULLED, UNHULLED	10 lbs.	8 lbs.
	3. CLOVER (RED)	40 lbs.	-	* CENTIPEDE, SEEDED	1 lb.	-
				* LEMPEDEZA, SEEDED	75 lbs.	-
JULY	1. MILLET, BROWN TOP	40 lbs.	10 lbs.	* BAHIA, PENSACOLA	90 lbs.	20 lbs.
	2. MILLET, PEARL	50 lbs.	-	* CENTIPEDE, SEEDED	1 lb.	-
	3. RYE GRASS, ANNUAL	40 lbs.	-	* LEMPEDEZA, SEEDED	75 lbs.	-
AUGUST	1. MILLET, PEARL	50 lbs.	-	* BAHIA, PENSACOLA	90 lbs.	20 lbs.
	2. RYE GRASS, ANNUAL	40 lbs.	-	* LEMPEDEZA, SEEDED	75 lbs.	-
SEPTEMBER	1. BARLEY	3 bu.	3 bu.	* BAHIA, PENSACOLA	90 lbs.	20 lbs.
	2. OATS	4 bu.	3 bu.	* LEMPEDEZA, SEEDED	75 lbs.	-
	3. RYE	3 bu.	3 bu.			
	4. RYE GRASS, ANNUAL	40 lbs.	-			
	5. WHEAT	2 bu.	2 bu.			
OCTOBER	1. BARLEY	3 bu.	3 bu.	* BAHIA, PENSACOLA	90 lbs.	20 lbs.
	2. OATS	4 bu.	3 bu.	* LEMPEDEZA, SEEDED	75 lbs.	-
	3. RYE	3 bu.	3 bu.			
	4. RYE GRASS, ANNUAL	40 lbs.	-			
	5. WHEAT	2 bu.	2 bu.			
NOVEMBER	1. BARLEY	3 bu.	3 bu.	* BAHIA, PENSACOLA	90 lbs.	20 lbs.
	2. OATS	4 bu.	3 bu.	DEHULLED, UNHULLED	10 lbs.	8 lbs.
	3. RYE	3 bu.	3 bu.	* CENTIPEDE, SEEDED	1 lb.	-
	4. RYE GRASS, ANNUAL	40 lbs.	-	* LEMPEDEZA, SEEDED	75 lbs.	-
	5. WHEAT	2 bu.	2 bu.			
DECEMBER	1. BARLEY	3 bu.	3 bu.	* BAHIA, PENSACOLA	90 lbs.	20 lbs.
	2. OATS	4 bu.	3 bu.	DEHULLED, UNHULLED	10 lbs.	8 lbs.
	3. RYE	3 bu.	3 bu.	* CENTIPEDE, SEEDED	1 lb.	-
	4. RYE GRASS, ANNUAL	40 lbs.	-	* LEMPEDEZA, SEEDED	75 lbs.	-
	5. WHEAT	2 bu.	2 bu.			

NOTES:
ALL PERMANENT GRASS PLANTINGS SHALL BE MULCHED AND FERTILIZED AS PER PLAN AND MAINTAINED UNTIL A GOOD STAND IS ESTABLISHED. TO ENSURE PROPER STABILIZATION, AGGREGATE OR OTHER MULCH MUST BE PLACED ON ALL DISTURBED SURFACES.

* PLANTS TO BE SUBMITTED AND APPROVED BY THE ENGINEER
1. CROWN VETCH
2. BUCKWHEAT
3. CLOVER (RED) OR ONE OF THE ABOVE ALL PERMANENT COVER AFTER THE EXCEPTIONAL DATE OCTOBER

Approved Construction Plan

Name Date

Planning _____

Public Utilities _____

Traffic _____

Fire _____

CITY OF WILMINGTON NORTH CAROLINA

Public Services ★ Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date _____ Permit # _____

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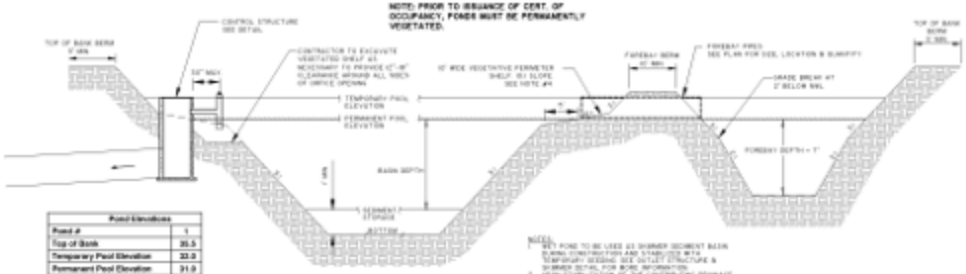
EC2.1

NOTE: PRIOR TO ISSUANCE OF CERT. OF OCCUPANCY, PONDS MUST BE PERMANENTLY VEGETATED.



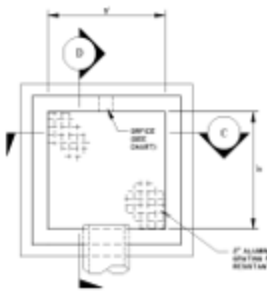
Pond Elevations	
Pond #	1
Top of Bank	35.5
Temporary Pool Elevation	32.0
Permanent Pool Elevation	31.0
Top of Vegetative Shelf	31.5
Bottom of Vegetative Shelf	30.5
Bottom of Pond	24.0
Sediment Cleanout Elevation	25.0
Forebay Weir Elevation	31.0
SHWT Elevation	30.5

NOTES:
1. THIS POND TO BE USED AS SKIMMER SEDIMENT BASIN DURING CONSTRUCTION AND STABILIZED WITH TEMPORARY SEEDING. SEE OUTLET STRUCTURE & SKIMMER DETAIL FOR MORE INFORMATION.
2. UPON STABILIZATION OF THE CONTRIBUTING DRAINAGE AREA, CONTRACTOR SHALL CONVERT TEMPORARY SEDIMENT BASIN TO WET DETENTION POND. ALL SEDIMENT SHALL BE REMOVED AND POND SHALL BE REGRADED AS NECESSARY TO ACHIEVE ORIGINAL DESIGN ELEVATIONS.
3. SEE GRADING PLAN FOR ELEVATIONS.
4. SEE LANDSCAPE PLANS FOR THE REQUIRED PLANTS ON THE 10' VEGETATED SHELF AND PERMANENT POND BANK STABILIZATION.
5. A TEMPORARY PUMP SHALL BE USED TO DRAIN PONDS FOR MAINTENANCE OR IN CASE OF EMERGENCY.

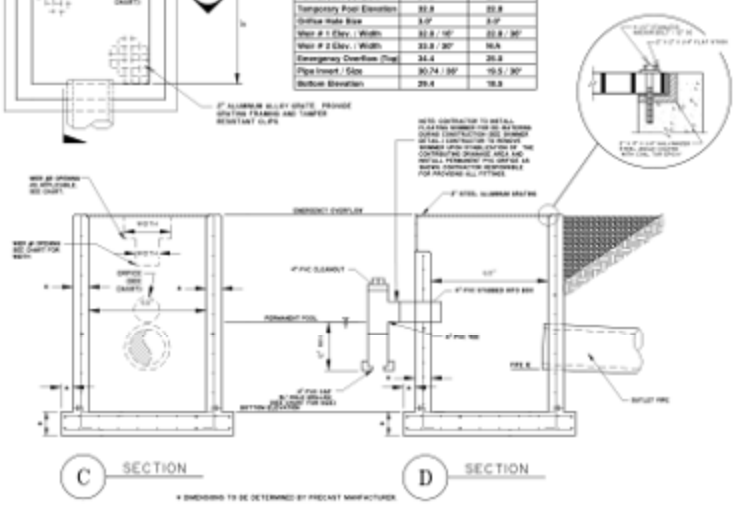
POND #1 - WET DETENTION POND DETAIL

NOT TO SCALE

NOTE: THE PRECAST MANUFACTURER IS TO PREPARE AND SUBMIT TO THE ENGINEER DESIGN DETAILS AND CALCULATIONS FOR THE STRUCTURES SHOWN BASED ON THE DESIGN CRITERIA SPECIFIED. THE DESIGN SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH OR SOUTH CAROLINA EXPERIENCED IN THE DESIGN OF PRECAST CONCRETE. THE DESIGN SHALL INCLUDE PROVISIONS FOR HANDLING STRESSES AND CONSTRUCTION LOADS. REPRODUCED COPIES OF ASTM C789 "STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE BOX SECTIONS FOR CULVERTS, STORM DRAINS, AND SEWERS" WILL NOT BE ACCEPTED AS A SUBSTITUTE FOR DESIGN.



Outlet Structure Dimensions		
Pond #	1	3 (CITY)
Permanent Pool Elev.	31.0	22.0
Temporary Pool Elevation	32.0	22.0
Orifice Hole Size	3.0'	3.0'
Weir # 1 Elev. / Width	32.0 / 10'	22.0 / 30'
Weir # 2 Elev. / Width	33.0 / 30'	16.5
Emergency Overflow (Top)	34.0	25.0
Pipe Invert / Size	30.74 / 30'	19.5 / 30'
Bottom Elevation	29.4	18.0



* DIMENSIONS TO BE DETERMINED BY PRECAST MANUFACTURER.

POND 1 & 3 OUTLET STRUCTURE DETAIL

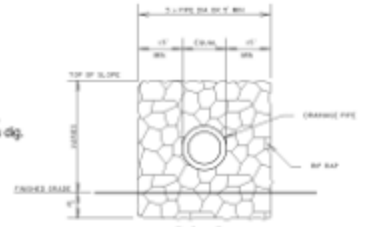
NOT TO SCALE

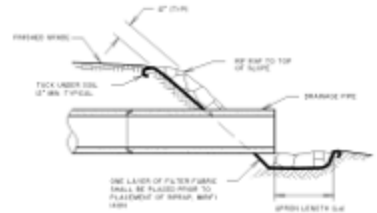
NOTE: PRIOR TO ISSUANCE OF CERT. OF OCCUPANCY, PONDS MUST BE PERMANENTLY VEGETATED.

Basin Elevations	
Top of Bank	25.0
Permanent Pool	22.0
Bottom Elevation	16.0
SHWT Elevation	22.0

POND 4 DETAIL

NOT TO SCALE





DESIGN CRITERIA

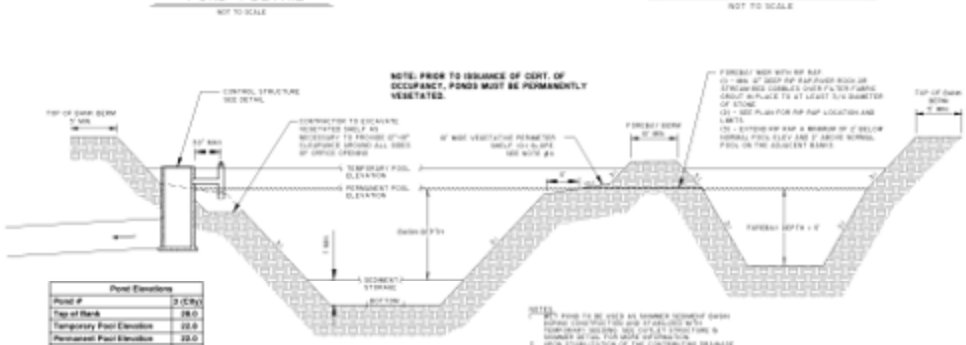
NAMETO	RIP RAP TYPE	RIP RAP SIZE (IN)	RIP RAP DEPTH (IN)	UPSTREAM APRON WIDTH (FT)	DOWNSTREAM APRON WIDTH (FT)	APRON LENGTH (L) (FT)
1 (EXISTING CULVERT)	B	6	12	6	6	8
2 (NEW CULVERT)	B	6	12	6	6	8
3 (NEW CULVERT)	B	6	12	6	6	8
4 (NEW FIVEW VALVE)	B	6	12	6	6	8

NOTE: STRUCTURE #3 & 4 SHOULD BE PERMANENTLY CONSTRUCTED FOR THE RIP RAP PRE-TREATMENT DETAIL. THE DIMENSIONS ABOVE MAY SERVE AS A TEMPORARY MEASURE IF NEEDED.

RIP RAP OUTLET STABILIZATION STRUCTURE

NOT TO SCALE

NOTE: PRIOR TO ISSUANCE OF CERT. OF OCCUPANCY, PONDS MUST BE PERMANENTLY VEGETATED.



Pond Elevations	
Pond #	3 (City)
Top of Bank	28.0
Temporary Pool Elevation	22.0
Permanent Pool Elevation	22.0
Top of Vegetative Shelf	22.5
Bottom of Vegetative Shelf	21.5
Bottom of Pond	16.0
Sediment Cleanout Elevation	17.0
Forebay Weir Elevation	22.0
SHWT Elevation	22.0

NOTES:
1. THIS POND TO BE USED AS SKIMMER SEDIMENT BASIN DURING CONSTRUCTION AND STABILIZED WITH TEMPORARY SEEDING. SEE OUTLET STRUCTURE & SKIMMER DETAIL FOR MORE INFORMATION.
2. UPON STABILIZATION OF THE CONTRIBUTING DRAINAGE AREA, CONTRACTOR SHALL CONVERT TEMPORARY SEDIMENT BASIN TO WET DETENTION POND. ALL SEDIMENT SHALL BE REMOVED AND POND SHALL BE REGRADED AS NECESSARY TO ACHIEVE ORIGINAL DESIGN ELEVATIONS.
3. SEE GRADING PLAN FOR ELEVATIONS.
4. SEE LANDSCAPE PLANS FOR THE REQUIRED PLANTS ON THE 10' VEGETATED SHELF AND PERMANENT POND BANK STABILIZATION.
5. A TEMPORARY PUMP SHALL BE USED TO DRAIN PONDS FOR MAINTENANCE OR IN CASE OF EMERGENCY.

POND #3 - WET DETENTION POND DETAIL

NOT TO SCALE

WILMINGTON NORTH CAROLINA
Public Services ◆ Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date _____ Permit #_____
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Approved Construction Plan

Name	Date
Planning	
Public Utilities	
Traffic	
Fire	

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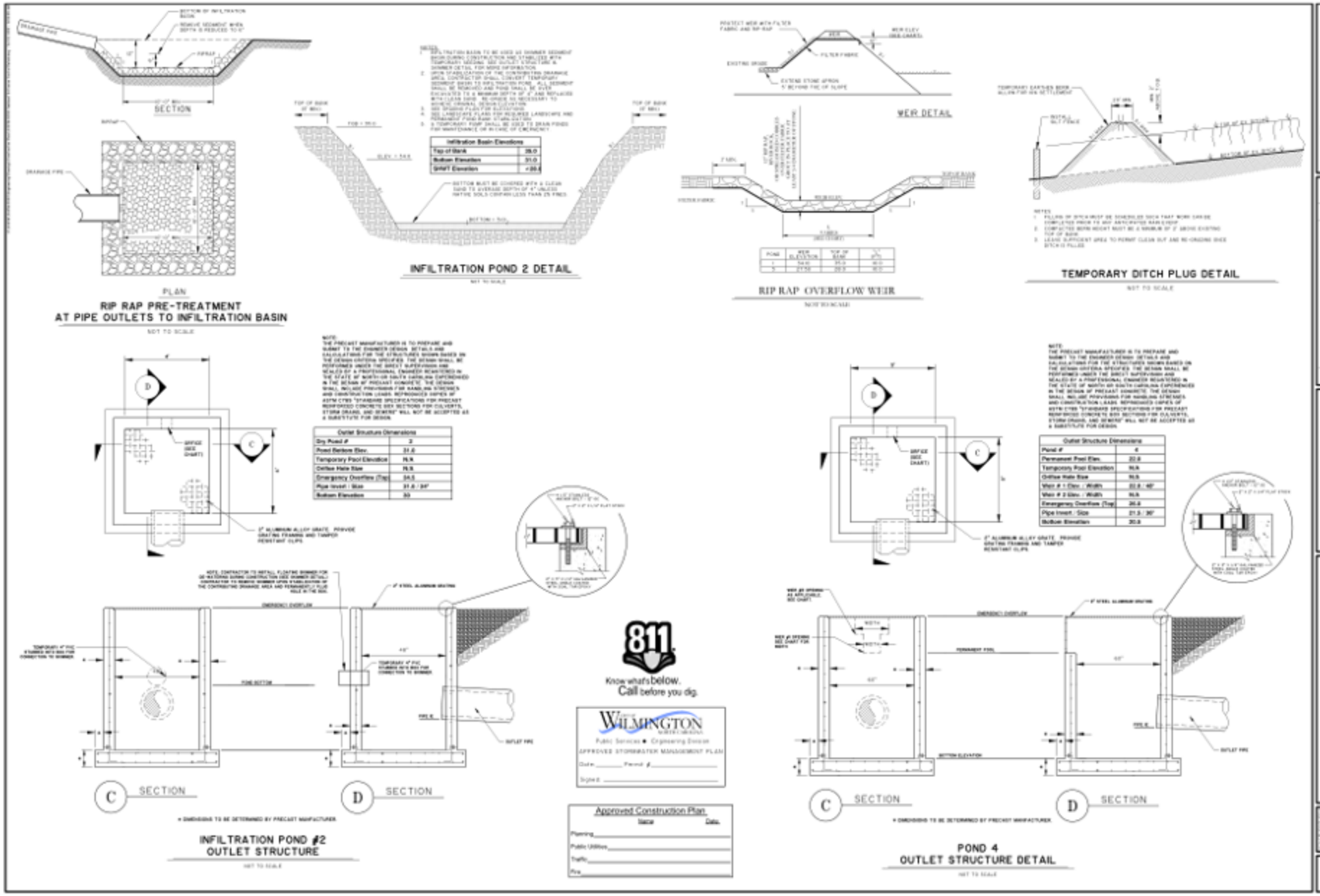
SEDIMENT & EROSION CONTROL DETAILS

EC2.2


SECTION
PLAN
RIP RAP PRE-TREATMENT
AT PIPE OUTLETS TO INFILTRATION BASIN
NOT TO SCALE
INFILTRATION POND 2 DETAIL
NOT TO SCALE
WEIR DETAIL
RIP RAP OVERFLOW WEIR
NOT TO SCALE
TEMPORARY DITCH PLUG DETAIL
NOT TO SCALE
C SECTION
D SECTION
INFILTRATION POND #2
OUTLET STRUCTURE
NOT TO SCALE
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Date
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Traffic
Fire
C SECTION
D SECTION
POND 4
OUTLET STRUCTURE DETAIL
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EC2.3

UTILITY NOTES:

1. EXISTING WATER AND SANITARY SEWER SERVICES ARE CURRENTLY AVAILABLE TO THE SITE FROM CITY PUBLIC UTILITY AUTHORITY PUBLIC MAINS.
2. ALL UTILITY SERVICES, SUCH AS ELECTRIC POWER, CATV, GAS & TELEPHONE SHALL BE INSTALLED UNDERGROUND.
3. ALL WATER & SEWER UTILITIES TO BE INSTALLED PER CFPUA "STANDARD SPECIFICATIONS & STANDARDS".
4. PROJECT SHALL COMPLY WITH CFPUA CROSS CONNECTION CONTROL REQUIREMENTS. WATER METERS CANNOT BE RELEASED UNTIL ALL REQUIREMENTS ARE MET AND A LICENSE HAS ISSUED THEIR "FINAL APPROVAL" (ALL 343-1300 FOR INFORMATION).
5. ANY BACKFLOW PREVENTION DEVICES REQUIRED BY THE CFPUA WILL NEED TO BE ON THE LIST OF APPROVED DEVICES BY USCFCCCHR OR ASSE.
6. WATER & SEWER SERVICES CAN NOT BE ACTIVATED IN NEW MAINS UNTIL THE ENGINEER'S CERTIFICATION AND AS-BUILTS ARE RECEIVED AND "FINAL APPROVAL" ISSUED BY THE PUBLIC WATER SUPPLY SECTION OF NCDENR, AND "FINAL ENGINEERING CERTIFICATION" ISSUED BY DIVISION OF WATER QUALITY SECTION OF NCDENR.
7. IF CONTRACTOR DESIRES CFPUA WATER FOR CONSTRUCTION, HE SHALL APPLY IN ADVANCE FOR THIS SERVICE AND MUST PROVIDE A REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTION DEVICE ON THE DEVELOPER'S SIDE OF THE WATER METER BOX.
8. WHEN PVC WATER MAIN AND SERVICES ARE PROPOSED, THE PIPES ARE TO BE MARKED WITH NO 10 INSULATED, SINGLE-STRAND COPPER WIRE INSTALLED & STRAPPED TO THE PIPES WITH BUTT TAPE. THIS IS TO BE ACCESSIBLE IN ALL VALVES AND METER BOXES TO AID IN FUTURE LOCATION OF THOSE PIPES.
9. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF EXISTING UTILITIES DURING CONSTRUCTION. CALL U-LOCK AT 1-800-632-4949.
10. CONTRACTOR IS RESPONSIBLE FOR THE REPAIR AND REPLACEMENT OF ANY UTILITIES, CURB & GUTTER, PAVEMENT, ETC. THAT MAY BE BE DAMAGED DURING CONSTRUCTION. DAMAGED ITEMS SHALL BE REPAIRED TO AT LEAST THE QUALITY OR MINIMUM SHAP FOUND IN THE ORIGINAL ITEM.
11. THE BELLSOUTH CONTACT IS STEVE SUTVULT, BUILDING INDUSTRY CONSULTANT, AT 910-392-8212. CONTACT HIM PRIOR TO STARTING THE PROJECT IN ORDER TO FACILITATE SOME COORDINATION AND MAXIMUM FLEXIBILITY.
12. THE PROCESS FOR TELEPHONE CABLE PLACEMENT:
    - FINAL GRADE WILL NEED TO BE ESTABLISHED
    - POWER WILL PLACE THEIR CABLE FIRST - APPROXIMATELY 3' DEEP
    - BELLSOUTH & CABLE TV WILL THEN PLACE THEIR CABLE AT APPROXIMATELY 2' DEEP
13. SOLID WASTE DISPOSAL WILL BE HANDLED BY AN ON-SITE COMPACTOR & SERVICED BY A PRIVATELY CONTRACTED HAULER.

FIRE AND LIFE SAFETY NOTES:

1. NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDINGS WITHIN ANY DEVELOPMENT.
2. HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB.
3. TEMPORARY STREET SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHEN CONSTRUCTION OF NEW HIGHWAYS ALLOWS PASSAGE BY VEHICLES.
4. CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
5. A MINIMUM OF 5' SHALL SEPARATE UNDERGROUND FIRE LINES OR PRIVATE WATER MAINS FROM OTHER UNDERGROUND UTILITIES.
6. UNDERGROUND FIRE LINE & PRIVATE WATER MAINS MUST BE PERMITTED & INSPECTED BY THE WILMINGTON FIRE DEPARTMENT FROM THE PUBLIC RIGHT-OF-WAY TO THE BUILDING. CONTACT THE WFD - DIVISION OF FIRE & LIFE SAFETY AT 910-343-3696 FOR ADDITIONAL INFORMATION.
7. CONSTRUCTION TYPE - 5B
8. BUILDINGS WILL BE SPRINKLED.
9. THE FDC MUST BE WITHIN 100' OF A FIRE HYDRANT & WITHIN 40' OF FIRE APPARATUS PLACEMENT.
10. LANDSCAPING OR PARKING CAN NOT BLOCK OR IMPEDE THE FDC OR FIRE HYDRANTS. A 3-FOOT (3') CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF HYDRANTS AND FDC.
11. INSTALLATION OF SECURITY GATES ACROSS A FIRE APPARATUS ROAD OF PARKING LOT SHALL BE APPROVED BY THE FIRE DEPARTMENT.

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Public Services ♦ Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date _____ Permit # _____
Signed _____

Approved Construction Plan

	Name	Date
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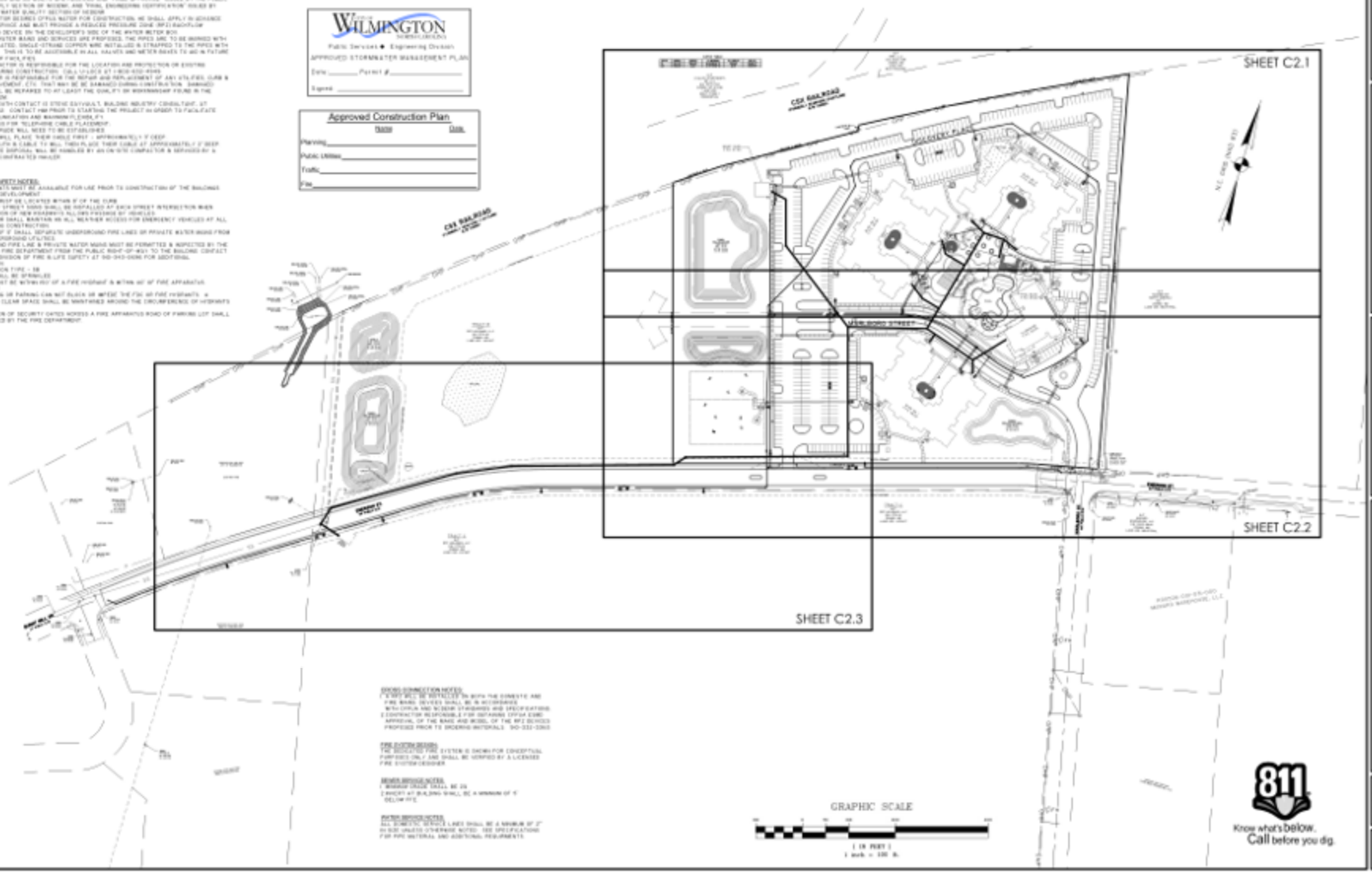
Public Utilities		
Traffic		
Fire		



DRAINAGE CONNECTION NOTES:
1. A RPZ WILL BE REQUIRED ON BOTH THE DOMESTIC AND FIRE MAIN. DEVICES SHALL BE IN ACCORDANCE WITH CFPUA AND NCDENR STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR RESPONSIBLE FOR OBTAINING CFPUA EXPRESS APPROVAL OF THE MAKE AND MODEL OF THE RPZ DEVICES PROPOSED PRIOR TO ORDERING MATERIALS. 910-332-3360

FIRE SYSTEM DESIGN:
THE DEDICATED FIRE SYSTEM IS SHOWN FOR CONCEPTUAL PURPOSES ONLY AND SHALL BE VERIFIED BY A LICENSED FIRE SYSTEM DESIGNER.

SEWER SERVICE NOTES:
1. SEWER GRADE SHALL BE 2%
2. INVERT AT BUILDING SHALL BE A MINIMUM OF 1' BELOW FFE.

WATER SERVICE NOTES:
ALL DOMESTIC SERVICE LINES SHALL BE A MINIMUM OF 2" IN SIZE UNLESS OTHERWISE NOTED. SEE SPECIFICATIONS FOR PIPE MATERIAL AND ADDITIONAL REQUIREMENTS.

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WATER & SEWER SHEET INDEX

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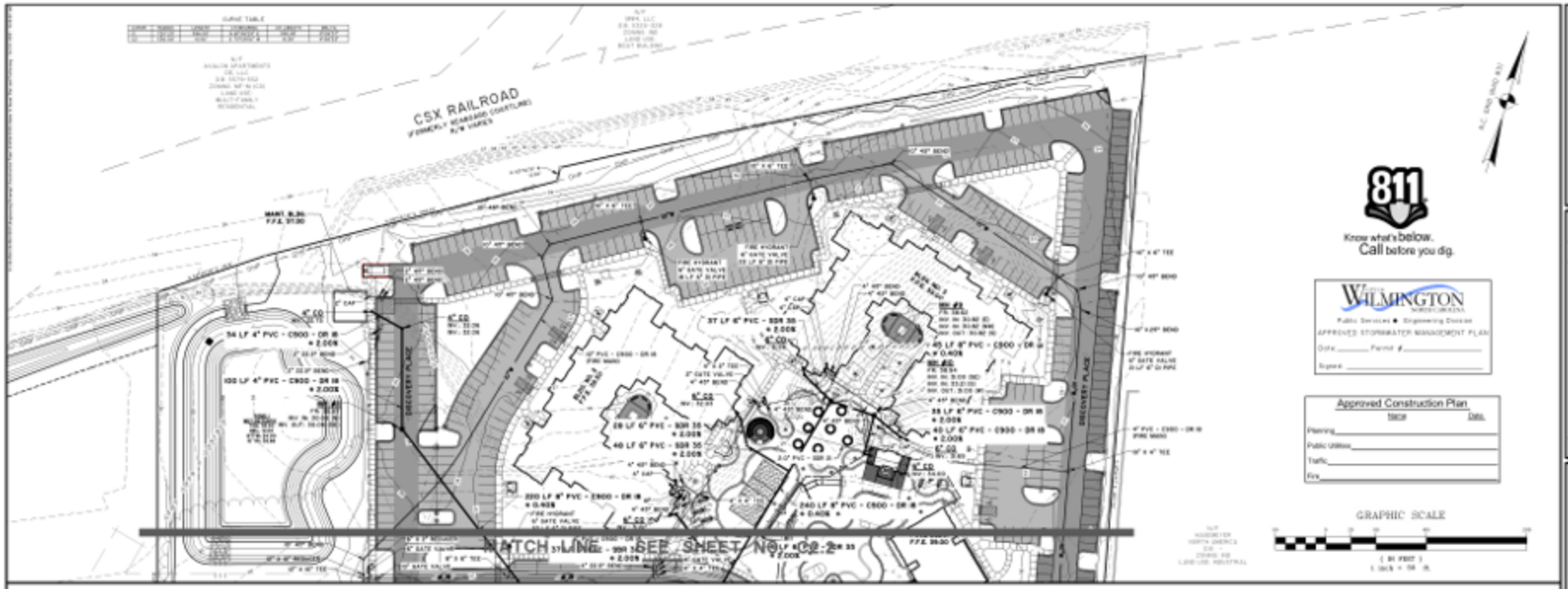

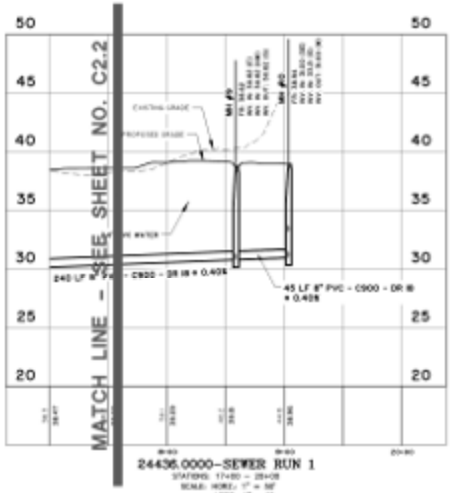

NOTE:
SEWER MAIN LENGTHS SHOWN ARE TO CENTER OF MANHOLE. ACCORDINGLY, SEWER MANHOLE INVERTS SHOWN ARE FOR THE CENTER OF THE MANHOLE. PER CFPUA DETAIL, CARRY SAME SLOPE AS ADJOINING MAINS THROUGH MANHOLES.

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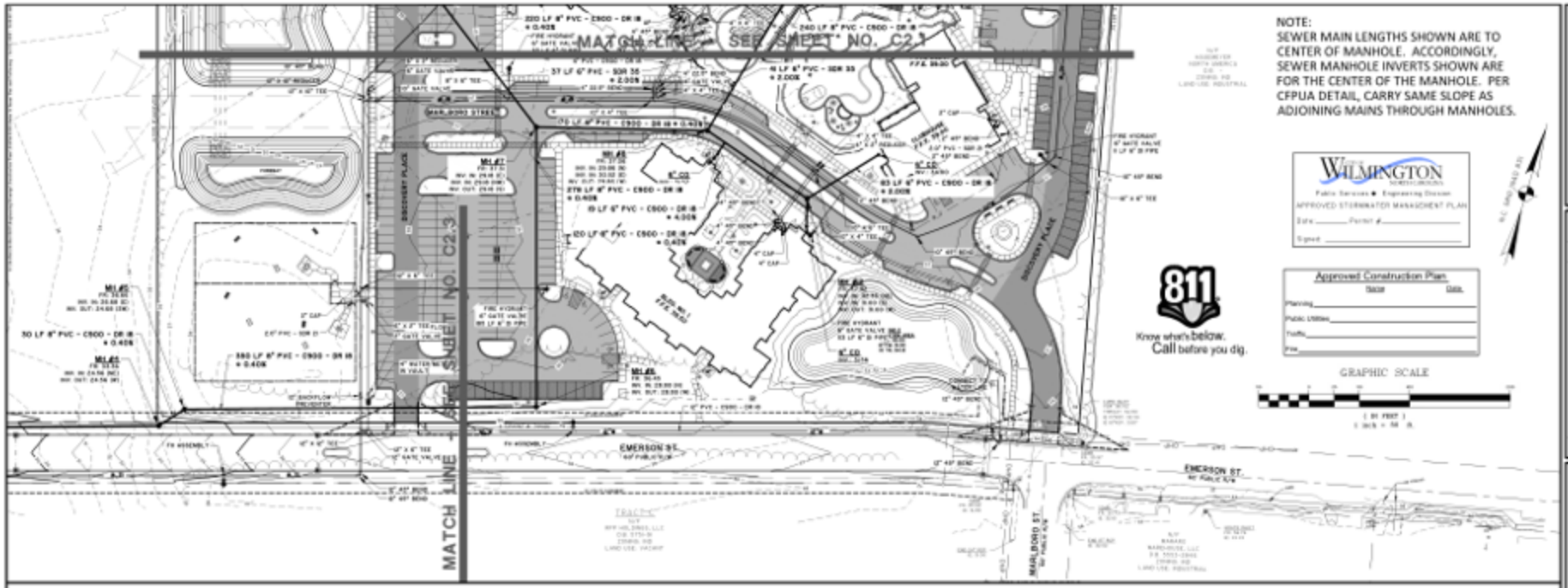
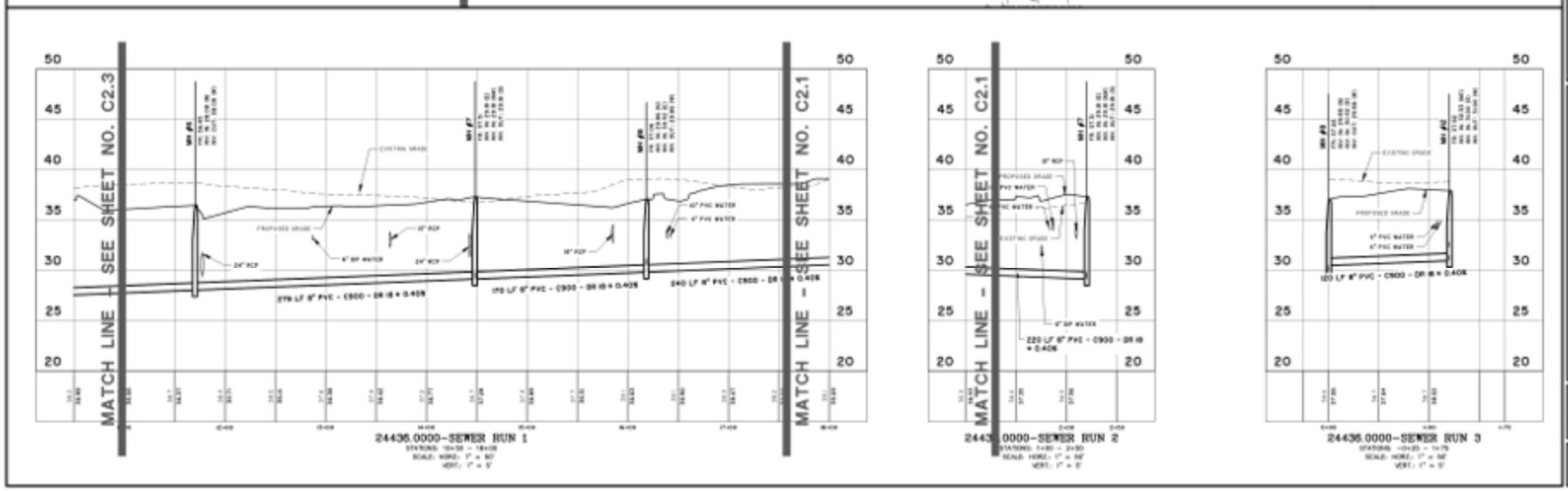
WATER & SEWER PLAN AND PROFILE

C2.1





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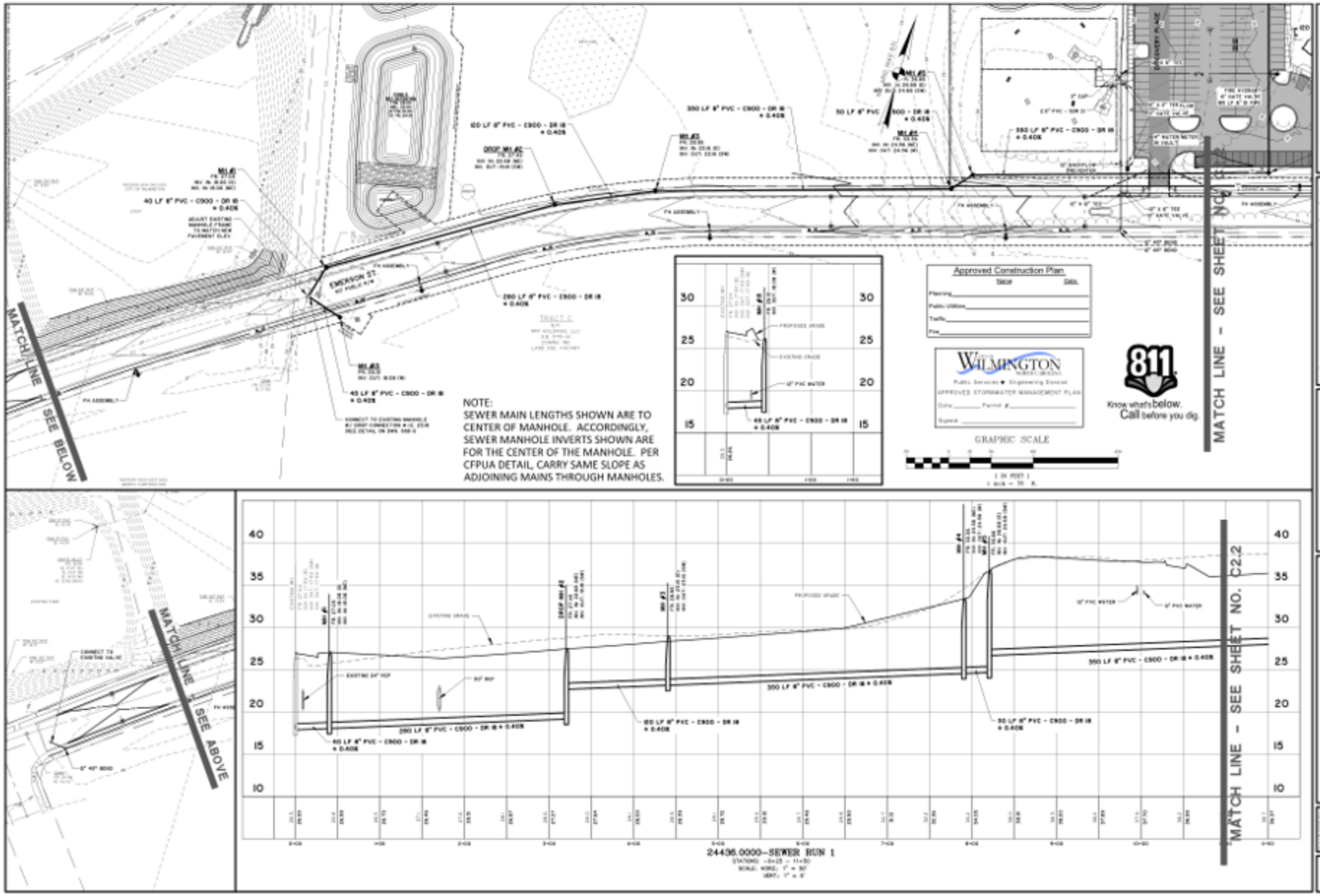

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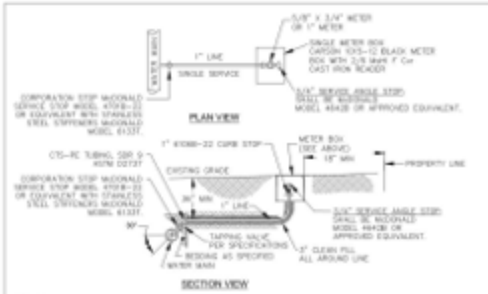
WATER & SEWER PLAN AND PROFILE

C2.3

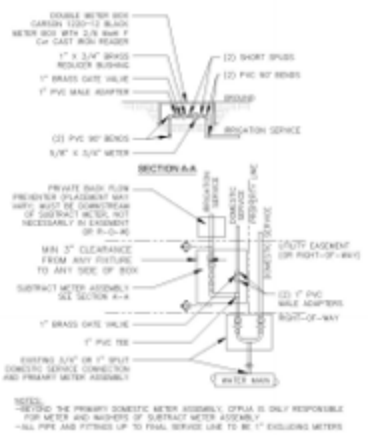


NOTES:
1. NO JOINT SHALL BE INSTALLED BETWEEN THE MAIN SERVICE TAP AND THE METER STOP. ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
2. SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY. SADDLE McDONALD 3501 OR EQUIVALENT
3. METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ASTM A48, CLASS 350 AND AASHTO H20 LOAD RATING STANDARDS (SIP MODEL 4240 OR APPROVED EQUIVALENT)

SINGLE SERVICE CONNECTION

TYPICAL WATER SERVICE CONNECTION FOR RESIDENTIAL SINGLE FAMILY HOME ON CFPUA WATER SYSTEM

NOT TO SCALE

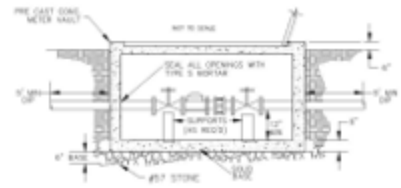


NOTES:
-BEYOND THE PRIMARY DOMESTIC METER ASSEMBLY, CFPUA IS ONLY RESPONSIBLE FOR METER AND WASHERS OF SUBTRACT METER ASSEMBLY
-ALL PIPE AND FITTINGS UP TO FINAL SERVICE LINE TO BE 1" EXCLUDING METERS

DOUBLE SERVICE CONNECTION USING SUBTRACT METER

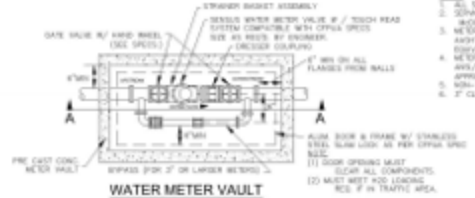
(MULTIPLE DOMESTIC SERVICES PER TAP)

NOT TO SCALE



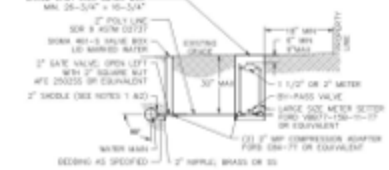
METER VAULT SECTION A-A

NOT TO SCALE



WATER METER VAULT

FOR WATER METERS LARGER THAN 2"



NOTES:
1. ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
2. SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY. McDONALD 3501, FORD S90 (DOUBLE STRAP) OR EQUIVALENT
3. METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ASTM A48, CLASS 350 AND AASHTO H20 LOAD RATING STANDARDS (CLOCKSTILE PRECAST MODEL B1730 OR APPROVED EQUIVALENT)
4. METER BOXES SUSCEPTIBLE TO ACCIDENTAL, NON-DELIBERATE TRAFFIC SHALL CONFORM TO ANSI/SCTE 77 TIER 15 LOAD RATING STANDARDS (SYNERTECH MODEL BUS 17x30 OR APPROVED EQUIVALENT)
5. NON-TRAFFIC METER BOXES SHALL BE SIGMA MB2203 OR APPROVED EQUIVALENT.
6. 3" CLEAN FILL REQUIRED ALL AROUND 2" POLY SERVICE LINE.

LARGE METER

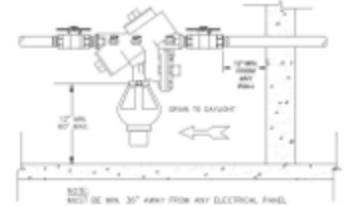
FOR 1 1/2" OR 2" WATER SERVICES

NOT TO SCALE

DOUBLE SERVICE CONNECTION

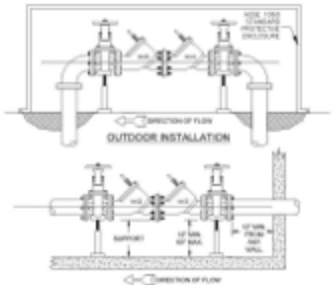
(ONE DOMESTIC SERVICE PER TAP)

NOT TO SCALE



NOTE:
MUST BE MIN. 30" AWAY FROM ANY ELECTRICAL PANEL

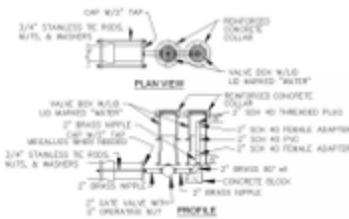
INDOOR HORIZONTAL INSTALLATION



NOTE:
1. MUST BE MIN. 30" AWAY FROM ANY ELECTRICAL PANEL
2. VALVE REQ'D DOWNSTREAM OF BACKFLOW ASSEMBLY
3. VERTICAL INSTALLATION SHALL BE DESIGNED AND SUBMITTED TO CFPUA ESMD FOR APPROVAL

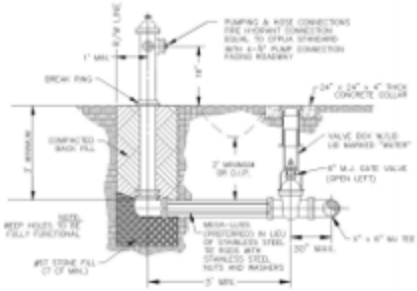
DOUBLE CHECK VALVE ASSEMBLY

NOT TO SCALE



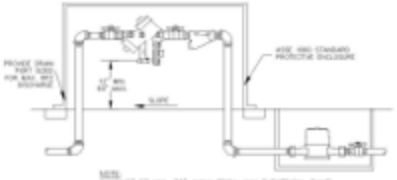
2" BLOW-OFF

NOT TO SCALE



FIRE HYDRANT ASSEMBLY

NOT TO SCALE

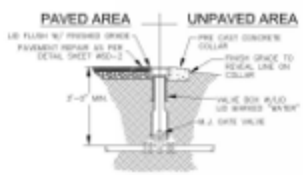


NOTE:
1. MUST BE MIN. 30" AWAY FROM ANY ELECTRICAL PANEL
2. VALVE REQ'D DOWNSTREAM OF BACKFLOW ASSEMBLY
3. VERTICAL INSTALLATION SHALL BE DESIGNED AND SUBMITTED TO CFPUA ESMD FOR APPROVAL

OUTDOOR HORIZONTAL INSTALLATION

REDUCED PRESSURE PRINCIPLE ASSEMBLY

NOT TO SCALE



VALVE DETAIL

NOT TO SCALE

GENERAL NOTES:

1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
3. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
4. THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
5. THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN & STOCKPILE AREAS (TO ARRANGE AND ENSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

REV.	DESCRIPTION	DATE
1	Single Service Connection, Double Service Connection, and Large Meter Revised	10/2012

CFPUA WATER DISTRIBUTION SYSTEM

STANDARD DETAILS

CAPE FEAR PUBLIC UTILITY AUTHORITY
235 GOVERNMENT CENTER DRIVE
WILMINGTON, NC 28403
OFFICE: (910)332-6500

SHEET NO: WSD-1

Preliminary
For Review Only

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215 South Kerr Avenue • Unit B
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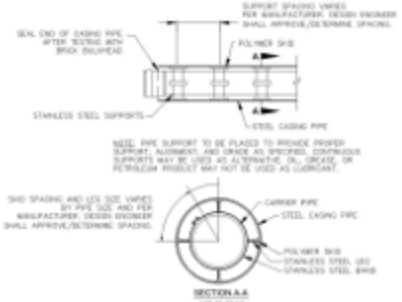
www.thomasandhutton.com

PROGRESS910
4055 EMERSON STREET
CITY OF WILMINGTON, NORTH CAROLINA

PROGRESS BUILDERS, LLC

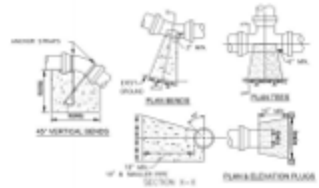
WATER SYSTEM DETAILS

WSD-1



PIPE CASING SUPPORT DETAIL

NOT TO SCALE

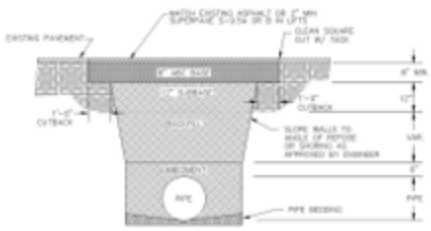


SIZE	90° BENDS A	90° BENDS B	45° BENDS A	45° BENDS B	22 1/2° BENDS A	22 1/2° BENDS B	TEES/PLUGS A	TEES/PLUGS B	45° VERT. BENDS
4"	8"	8"	5"	8"	4"	11"	8"	8"	21"
6"	8"	8"	5"	8"	4"	11"	8"	8"	26"
8"	10"	10"	7"	10"	5"	13"	10"	10"	31"
10"	12"	12"	8"	12"	6"	15"	12"	12"	37"
12"	14"	14"	9"	14"	6"	17"	14"	14"	42"
14"	15"	15"	10"	15"	7"	18"	15"	15"	47"
16"	17"	17"	11"	17"	7"	20"	17"	17"	52"
18"	19"	19"	12"	19"	8"	21"	19"	19"	58"
20"	20"	20"	13"	20"	8"	23"	20"	20"	63"
24"	24"	24"	15"	24"	9"	26"	24"	24"	68"

NOTES:
1. BASED ON 150 PSI TEST PRESSURE AND 2000 PSF SOIL BEARING CAPACITY.
2. ALL BEARING SURFACES TO BE CURBED TO UNDISTURBED GROUND.
3. USE MEG-A-LUG (PREFERRED) IN LIEU OF BLOCKING AND RODDING.

THRUST BLOCK DETAIL

NOT TO SCALE

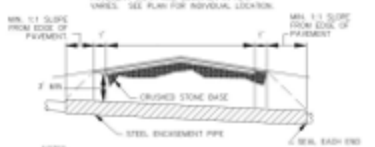


NOTES:
1. BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND UTILIZE TO NO EXCESSIVE MOISTURE.
2. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION. (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
3. 8-INCH OF ABC BASE MATERIAL SHALL BE USED ON CITY STREETS.
4. BACKFILL AND BASE MATERIALS SHALL BE COMPACTED 12" MINIMUM LIFTS.
5. SOIL SHALL BE COMPACTED BY A MECHANIZED TAMPER (I.E. JUMPING JACK), HOMEMADE, VIBRATORY ROLLERS > 36" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
6. ALL APPROVED CUTBACK SHALL BE NOT FLOW TO DRAIN AND SUPPORTED IF APPLICABLE.
7. ABC BASE AND SUBBASE COMPACTED TO 98% AND BACKFILL AND EMBEDMENT COMPACTED TO 90% AS DETERMINED BY THE MODIFIED PROCTOR (ASTM METHOD T-180).
8. 1-FOOT CUTBACKS OF ASPHALT SHALL BE PREPARED ON UNDISTURBED SOIL. MINIMUM ASPHALT DENSITY IS 92%.

PAVEMENT REPAIR WHERE PIPE INSTALLED

(FOR PRIVATE ROADS AND PAVED AREAS)
CONTRACTOR TO MEET MIN. REQUIREMENTS AS DEFINED BY RIGHT-OF-WAY OWNER (FOR PUBLIC ROAD REPAIRS)

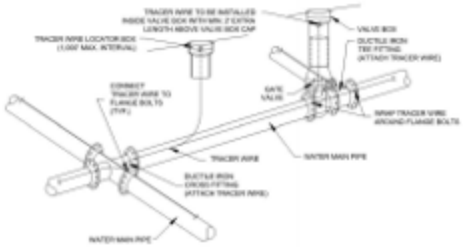
NOT TO SCALE



NOTES:
1. CASING WILL BE INSTALLED AT LINE AND GRADE SHOWN ON INDIVIDUAL PROFILE FOR EACH CROSSING. BORING/JACKING TO LINE AND GRADE IS REQUIRED.
2. TRACER WIRE SHALL BE CONTINUED THROUGH CASING.

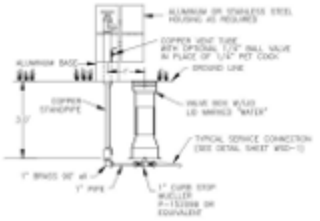
TYPICAL BORING/JACKING DETAIL

NOT TO SCALE



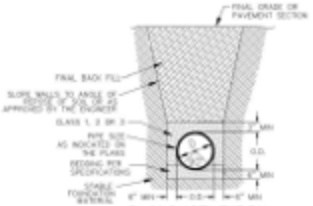
NOTES:
1. TRACER WIRE SHALL BE #10 COPPER SOLID CORE COPPER WIRE WITH GAS AND OIL RESISTANT INSULATION.
2. WIRE SHALL BE STRAPPED TO ALL PVC WATER MAIN PIPING WITH BLUE TAPE AT 12-FT. INTERVALS.
3. SECURE WIRE TO ALL TEE AND CROSS FITTINGS.
4. ALL WIRE SPLICES SHALL HAVE WATER-PROOF WIRE CONNECTIONS.

TRACER WIRE DETAIL



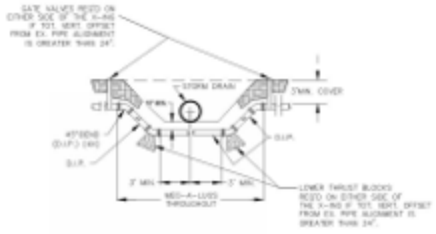
SAMPLING STATION

NOT TO SCALE



CL 50 DUCTILE IRON DR 18 PVC PIPE TRENCH DETAIL

NOT TO SCALE



NOTE: USE D.I.P. (CLSO OR BETTER)

WATER MAIN DITCH & STORM DRAIN CROSSING

NOT TO SCALE

GENERAL NOTES:

1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
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5. THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN & STOCKPILE AREAS (TO ARRANGE AND ENSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

REV.	DESCRIPTION	DATE

CFPUA WATER DISTRIBUTION SYSTEM

STANDARD DETAILS

CAPE FEAR PUBLIC UTILITY AUTHORITY
250 GOVERNMENT CENTER DRIVE
WILMINGTON, NC 28403
OFFICE: (910)332-6500

SHEET NO.: WSD-2

Preliminary For Review Only

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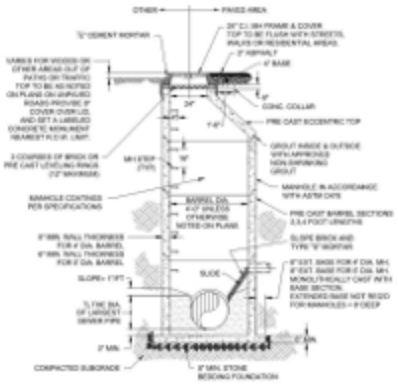
www.thomasandhutton.com
Charleston, SC | Mechanicsville, VA | Greenville, SC | North Myrtle Beach, SC

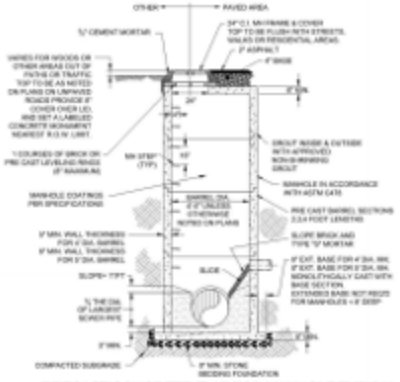
PROGRESS910
4055 EMERSON STREET
LOT 1 OF A SUBDIVISION, NORTH CAROLINA
PROGRESS BUILDERS, LLC
WATER SYSTEM DETAILS

WSD-2



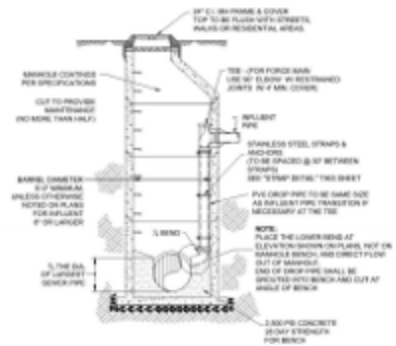
PRECAST CONCRETE OFFSET MANHOLE TYPICAL

(LESS THAN 30" DROP)



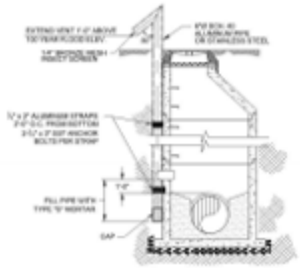
PRECAST CONCRETE FLAT TOP MANHOLE TYPICAL

(LESS THAN 30" DROP)

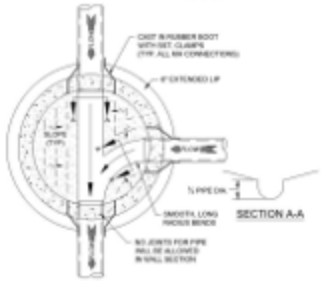


DROP MANHOLE

(MORE THAN 30" DROP)



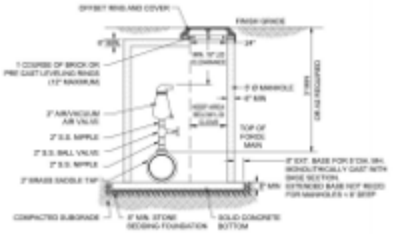
STANDARD VENT MANHOLE



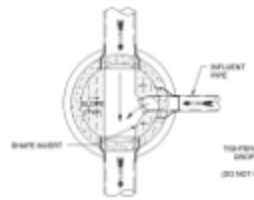
SECTION A-A

MANHOLE FLOOR PLAN

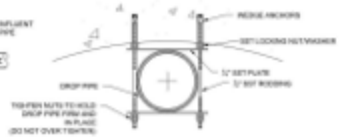
NOT TO SCALE



AIR / VACUUM AND AIR RELEASE COMBINATION VALVE



DROP MANHOLE FLOOR PLAN



STRAP DETAIL

CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD SEWER NOTES:

1. SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
2. SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT RIGHT-OF-WAY LINE. SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
3. ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
4. MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
5. NO FLEXIBLE COUPLINGS SHALL BE USED.
6. ALL STAINLESS STEEL FASTENERS SHALL BE 316.

STANDARD SEWER NOTES

(REQUIRED ON ALL SEWER PLAN AND PROFILE SHEETS)

GENERAL NOTES:

1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE WAY.
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
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5. THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN & STOCKPILE AREAS (TO MINIMIZE AND INSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

REV.	DESCRIPTION	DATE
1	AIR / VACUUM AND AIR RELEASE COMBINATION VALVE REVISED	12/09/12
2	STANDARD SEWER NOTE IN REVISED	12/12/12

CFPUA SANITARY SEWER

STANDARD DETAILS

CAPE FEAR PUBLIC UTILITY AUTHORITY
235 GOVERNMENT CENTER DRIVE
WILMINGTON, NC 28403
OFFICE: (910) 332-6500

SHEET NO: SSD-1

Preliminary
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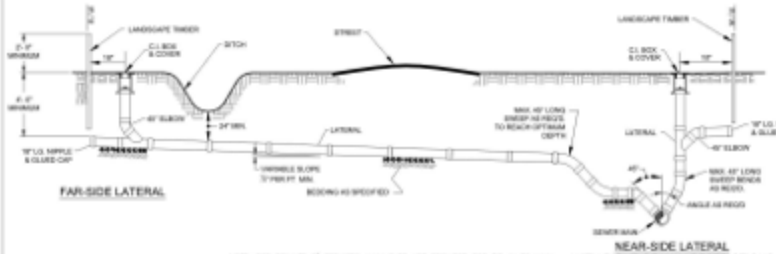
PROGRESS910
4055 EMERSON STREET
CITY OF WILMINGTON, NORTH CAROLINA

PROGRESS BUILDERS, LLC

SANITARY SEWER SYSTEM DETAILS

SSD-1



NOTE: FOR PRIVATE 6" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN

STANDARD SERVICE CONNECTION TO SANITARY SEWER

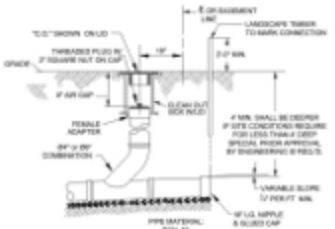
NOT TO SCALE

NOTE: FOR PRIVATE 6" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN

STANDARD SERVICE LATERAL

(MAIN DEPTH LESS THAN 8ft)

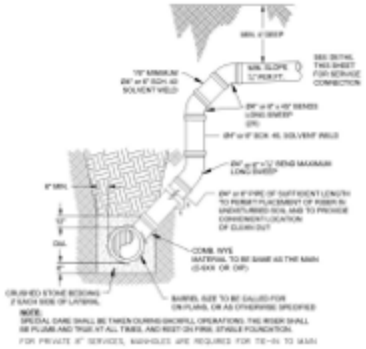
NOT TO SCALE



NOTE: FOR PRIVATE 6" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN

SERVICE CONNECTION & CLEAN-OUT

NOT TO SCALE



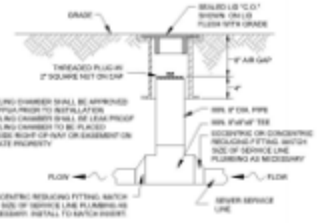
NOTE:
SPECIAL CARE SHALL BE TAKEN DURING BACKFILL OPERATIONS. THE RISER SHALL BE PLUMB AND TRUE AT ALL TIMES, AND REST ON FIRM, STABLE FOUNDATION.

FOR PRIVATE 6" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN

DEEP SERVICE LATERAL

(MAIN DEPTH GREATER THAN 8ft)

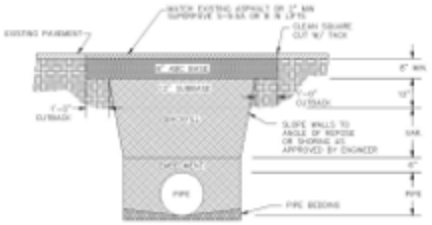
NOT TO SCALE



NOTES:
1. SAMPLING CHAMBER SHALL BE APPROVED BY CFPUA PRIOR TO INSTALLATION.
2. SAMPLING CHAMBER SHALL BE LEAK PROOF.
3. SAMPLING CHAMBER TO BE PLACED OUTSIDE RIGHT-OF-WAY OR EASEMENT ON PRIVATE PROPERTY.

SAMPLING CHAMBER

NOT TO SCALE

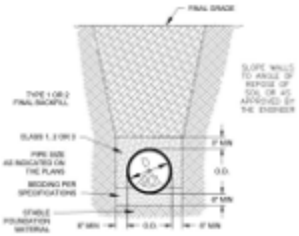


NOTES:
1. BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, BOBBYS, ORGANICS AND UTILE TO NO EXCESSIVE MOISTURE.
2. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION, (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
3. 6-INCH OF ABC BASE MATERIAL SHALL BE USED ON CITY STREETS.
4. BACKFILL AND BASE MATERIALS SHALL BE COMPACTED 12" MINIMUM LIFTS.
5. SOIL SHALL BE COMPACTED BY A MECHANIZED TAMPER (I.E. JUMPING JACK). HOWEVER, VIBRATORY ROLLERS > 36" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
6. ALL APPROVED CUTTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
7. ABC BASE AND SUBBASE COMPACTED TO 98% AND BACKFILL AND EMBEDMENT COMPACTED TO 90% AS DETERMINED BY THE MODIFIED PROCTOR AASHTO METHOD T-180.
8. 1-FOOT CUTBACKS OF ASPHALT SHALL BE PREPARED ON UNDISTURBED SOIL. MINIMUM ASPHALT DENSITY IS 92%.

PAVEMENT REPAIR WHERE PIPE INSTALLED

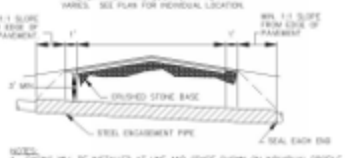
(FOR PRIVATE ROADS AND PAVED AREAS;
CONTRACTOR TO MEET MIN. REQUIREMENTS AS DEFINED BY
RIGHT-OF-WAY OWNER FOR PUBLIC ROAD REPAIRS)

NOT TO SCALE



CL 50 DUCTILE IRON DR 18 PVC PIPE TRENCH DETAIL

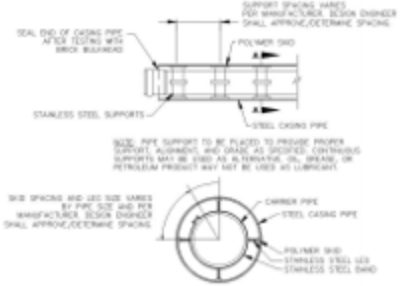
NOT TO SCALE



NOTES:
1. CASING WILL BE INSTALLED AT LINE AND GRADE SHOWN ON INDIVIDUAL PROFILE FOR EACH CROSSING. BORING/JACKING TO LINE AND GRADE IS REQUIRED.
2. TRACER WIRE SHALL BE CONTINUED THROUGH CASING.

TYPICAL BORING/JACKING DETAIL

NOT TO SCALE



NOTE: PIPE SUPPORT TO BE PLACED TO PROVIDE PROPER SUPPORT, ALIGNMENT, AND GRADE AS SPECIFIED. CONTINUOUS SUPPORTS MAY BE USED AS IN FORMATION, OIL, GREASE, OR PETROLEUM PRODUCT MAY NOT BE USED AS LUBRICANT.

PIPE CASING SUPPORT DETAIL

NOT TO SCALE

GENERAL NOTES:

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3. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
4. THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
5. THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN & STOCKPILE AREAS (TO MINIMIZE AND INSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

REV.	DESCRIPTION	DATE
1	SAMPLING CHAMBER REVISED	12/09/12

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STANDARD DETAILS

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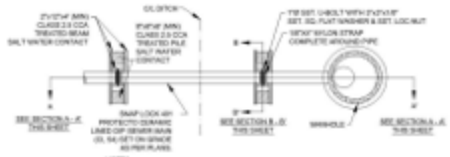
SANITARY SEWER SYSTEM DETAILS

SSD-2



NOTES:

(1) PILES AND PILE DRIVING SHALL CONFORM TO NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, JANUARY 2002, SECTIONS 445, 450, 1082-2 & 1084-2

(2) CENTERLINE OF BOLTS TO BE A MINIMUM OF 3" FROM OUTSIDE EDGE OF TIMBER. BOLTS TO BE A MINIMUM OF 3" CENTERLINE TO CENTERLINE

(3) ALL STAINLESS STEEL SHALL BE 316. STAINLESS STRAP TO BE COLD FORMED.

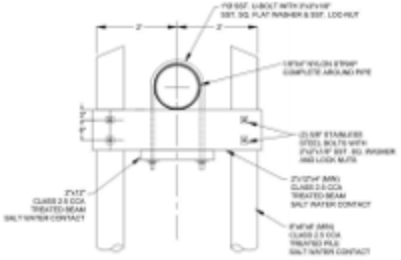
(4) PILE SHALL NOT OBSTRUCT FLOW OR CAUSE EROSION OF DITCH OR REAR BANK.

(5) MIN. CLASS 54 DIP ENGINEERS MUST DESIGN LOADING.

(6) DESIGN SHALL BE APPROVED BY CFPUA

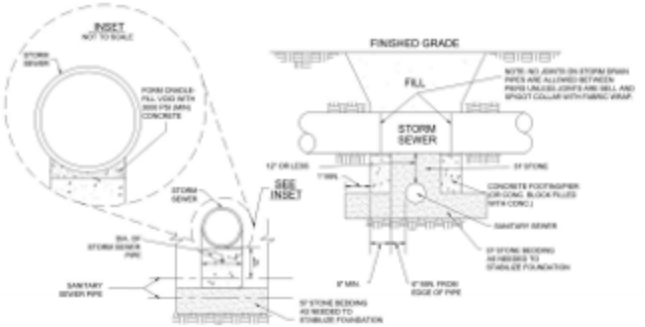
PILE AND BENT

NOT TO SCALE



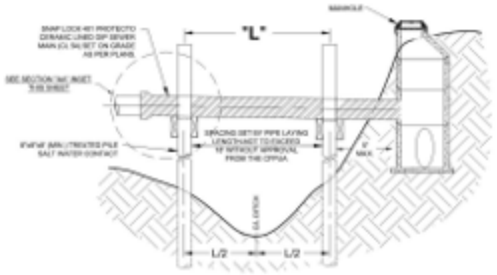
PILE AND BENT SECTION B - B'

NOT TO SCALE



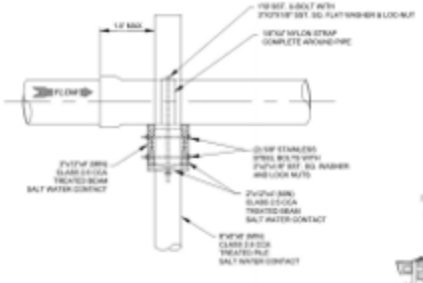
STRUCTURAL BRIDGING DETAIL FOR STORMWATER OVER GRAVITY SEWER INSTALLATIONS WITH LESS THAN 12" SEPARATION

NOT TO SCALE



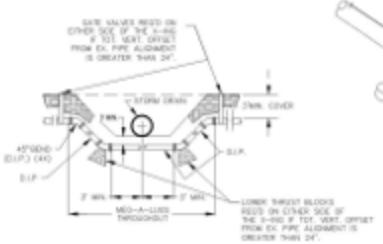
PILE AND BENT SECTION A - A'

NOT TO SCALE



PILE AND BENT SECTION A - A' INSET

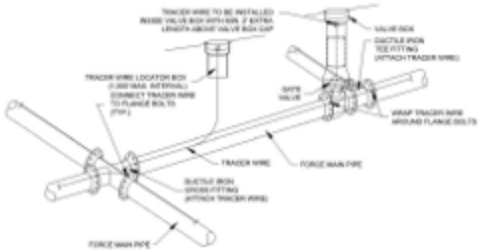
NOT TO SCALE



NOTE: USE D.I.P. (CLASS OR BETTER)

FORCE MAIN DITCH
& STORM DRAIN CROSSING

NOT TO SCALE



TRACER WIRE DETAIL

NOT TO SCALE

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REV.	DESCRIPTION	DATE

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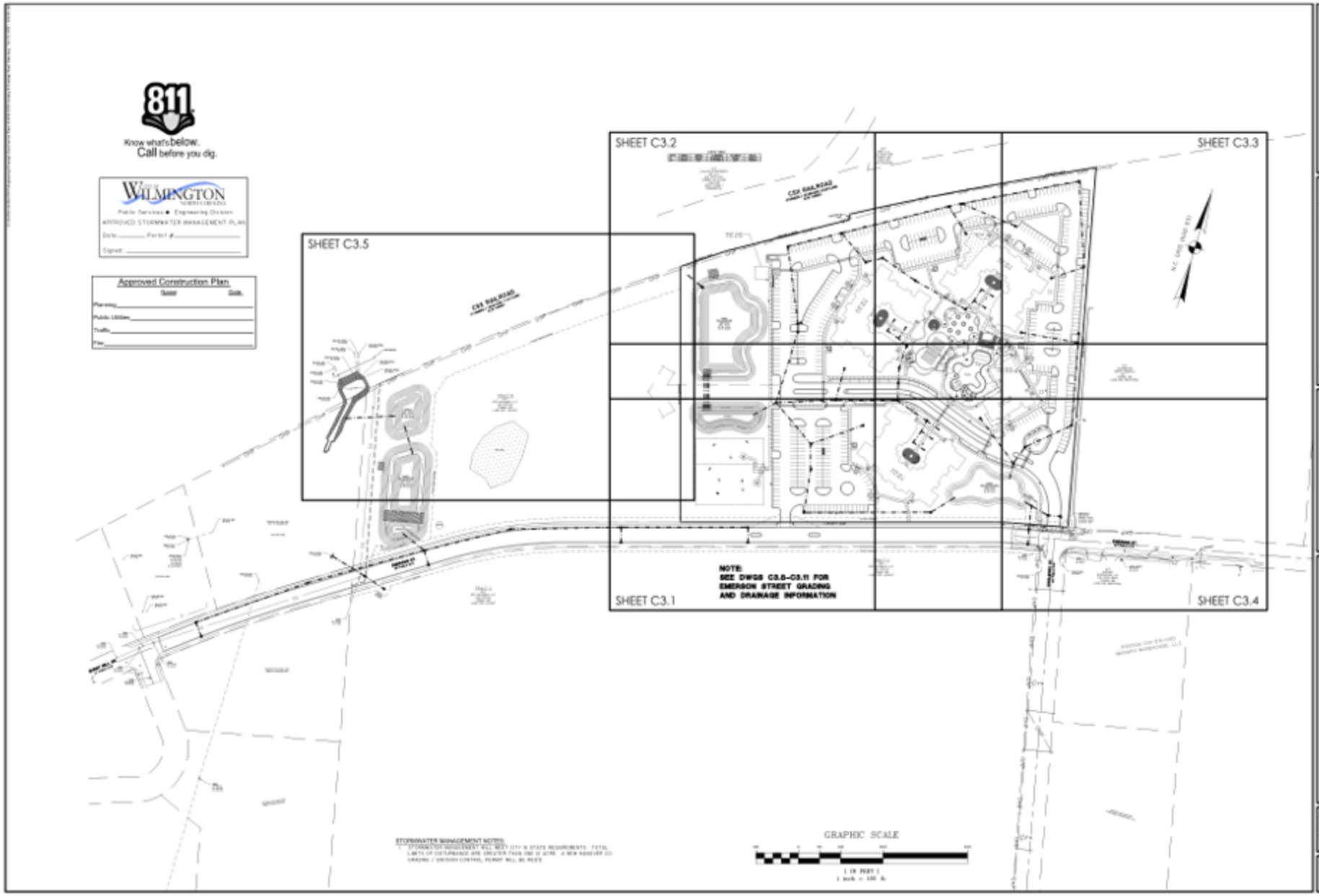
SANITARY SEWER SYSTEM DETAILS

SSD-3



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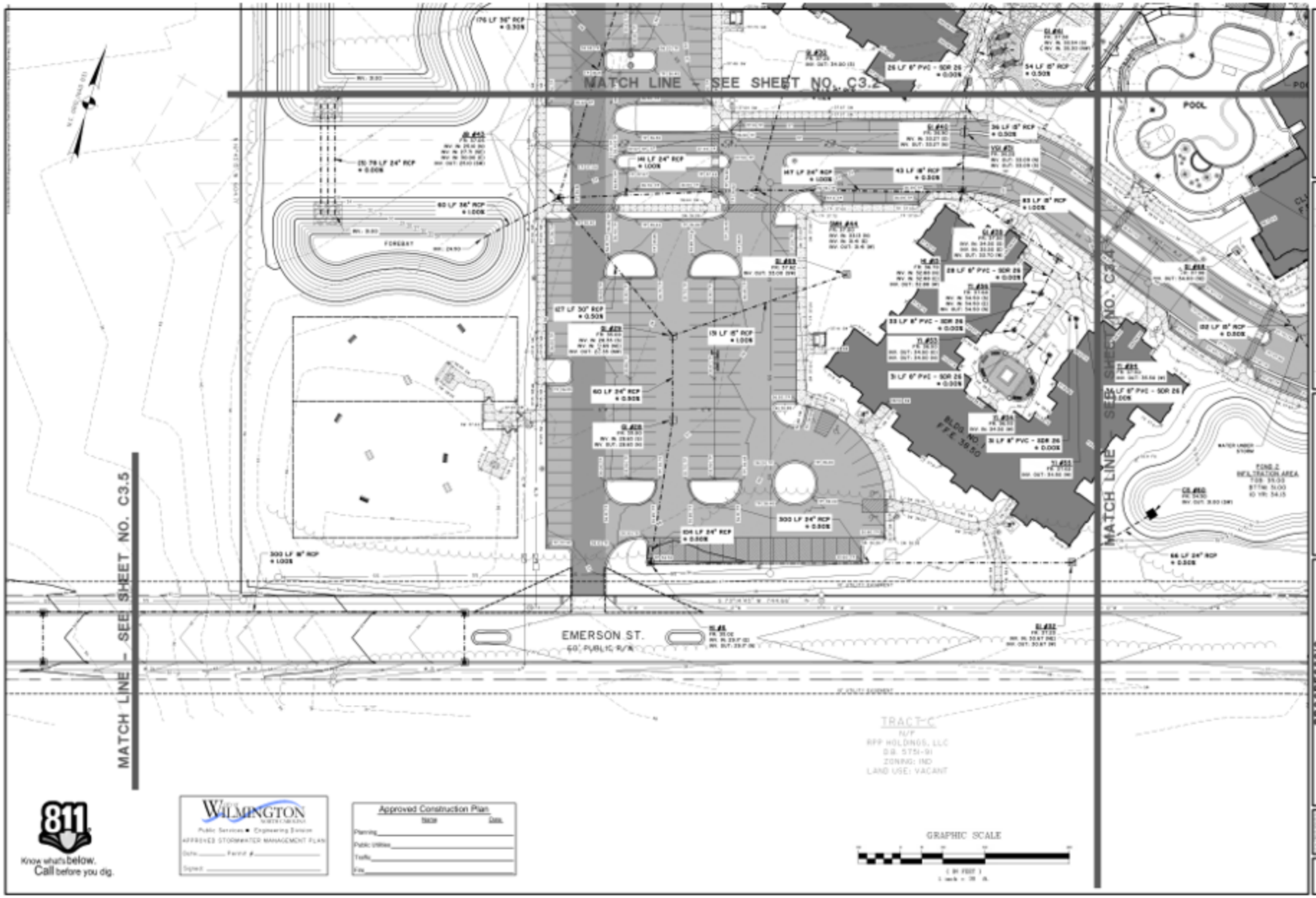
GRADING & DRAINAGE SHEET INDEX

C3.0



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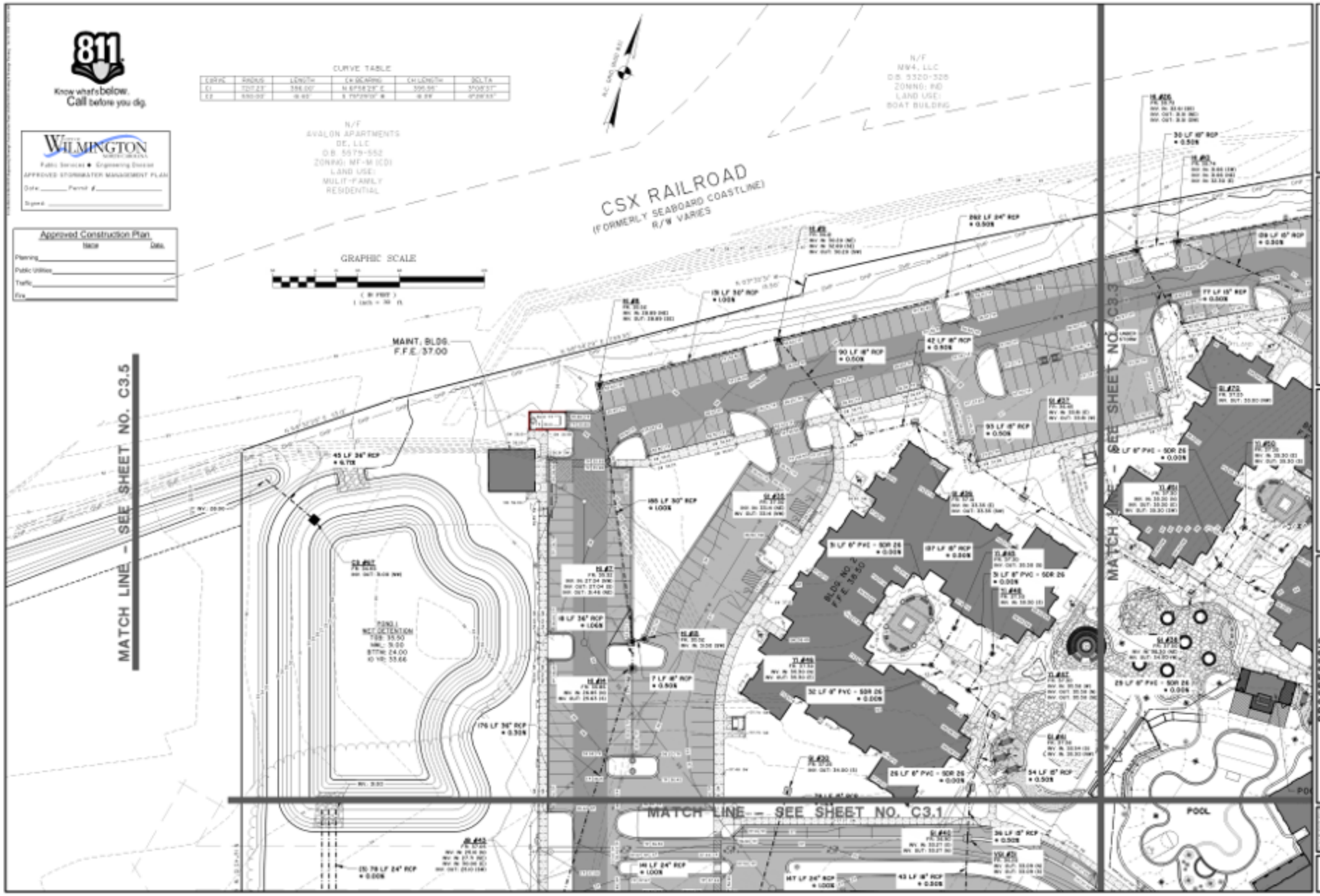
GRADING & DRAINAGE PLAN

C3.1



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C3.2

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C3.3

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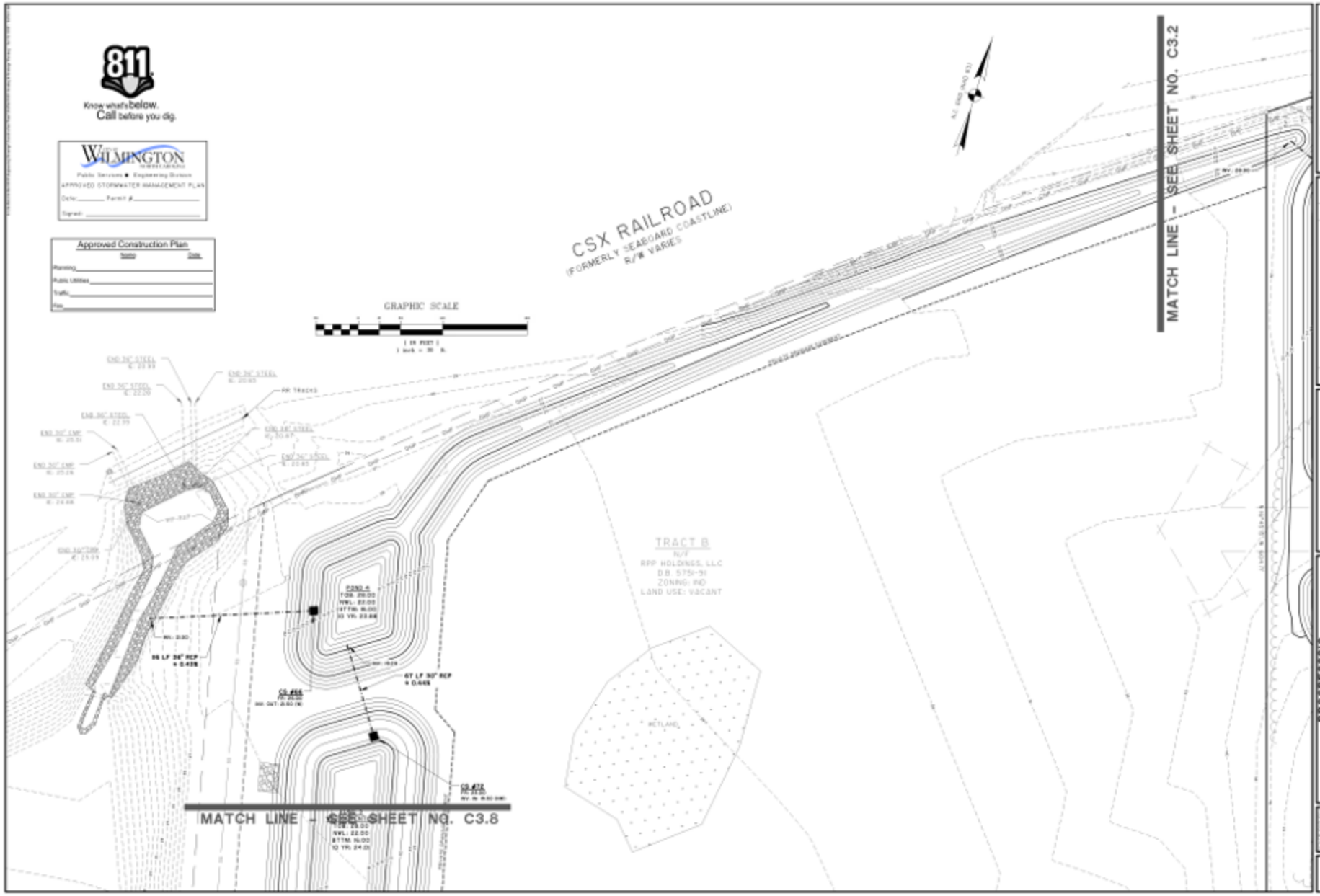
GRADING & DRAINAGE PLAN

C3.4



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GRADING & DRAINAGE PLAN

C3.5

GRADING NOTES:

1. CONTRACTOR SHALL VERIFY ALL ELEVATIONS PRIOR TO CONSTRUCTION AND NOTIFY OWNER OF DISCREPANCIES. SEE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION I.E. FRAME & INVERT ELEVATIONS & ETC.
2. IF DISCREPANCIES DEVELOP BETWEEN THE PROPOSED GRADES AS SHOWN ON THE PLAN AND THE EXISTING GROUND SURFACE, THE CONTRACTOR, WITH PRIOR APPROVAL FROM THE OWNER SHALL MAKE GRADING ADJUSTMENTS NECESSARY TO MAINTAIN THE GENERAL INTENT OF THE DESIGN.
3. ALL WALKS SHALL HAVE A CROSS SLOPE OF 1.0% UNLESS NOTED OTHERWISE.
4. ALL WALKS SHALL NOT EXCEED A LONGITUDINAL SLOPE OF 5.0% WITH A MAX. CROSS SLOPE OF 2.0%
5. ADA RAMPS SHALL NOT EXCEED 8.33%.
6. PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND NEW PAVEMENT. FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY.

GRADING LEGEND:

	DRAINAGE ARROWS
FG	FINISH GRADE
PC	POOL COPING
SD	SUN DECK
DI	DRAINAGE STRUCTURE
GF	GRANITE FINES
TG/SW	TOP OF DECK/SIDEWALK
FFE	FINISH FLOOR ELEVATION

POOL

POOL BLDG.
F.F.E. 39.00

CLUBHOUSE
F.F.E. 39.00

MARLBORO STREET

DISCOVERY PLACE

GRAPHIC SCALE

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Public Services ◆ Engineering Division
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Signed _____

Approved Construction Plan
Name Date
Planning _____
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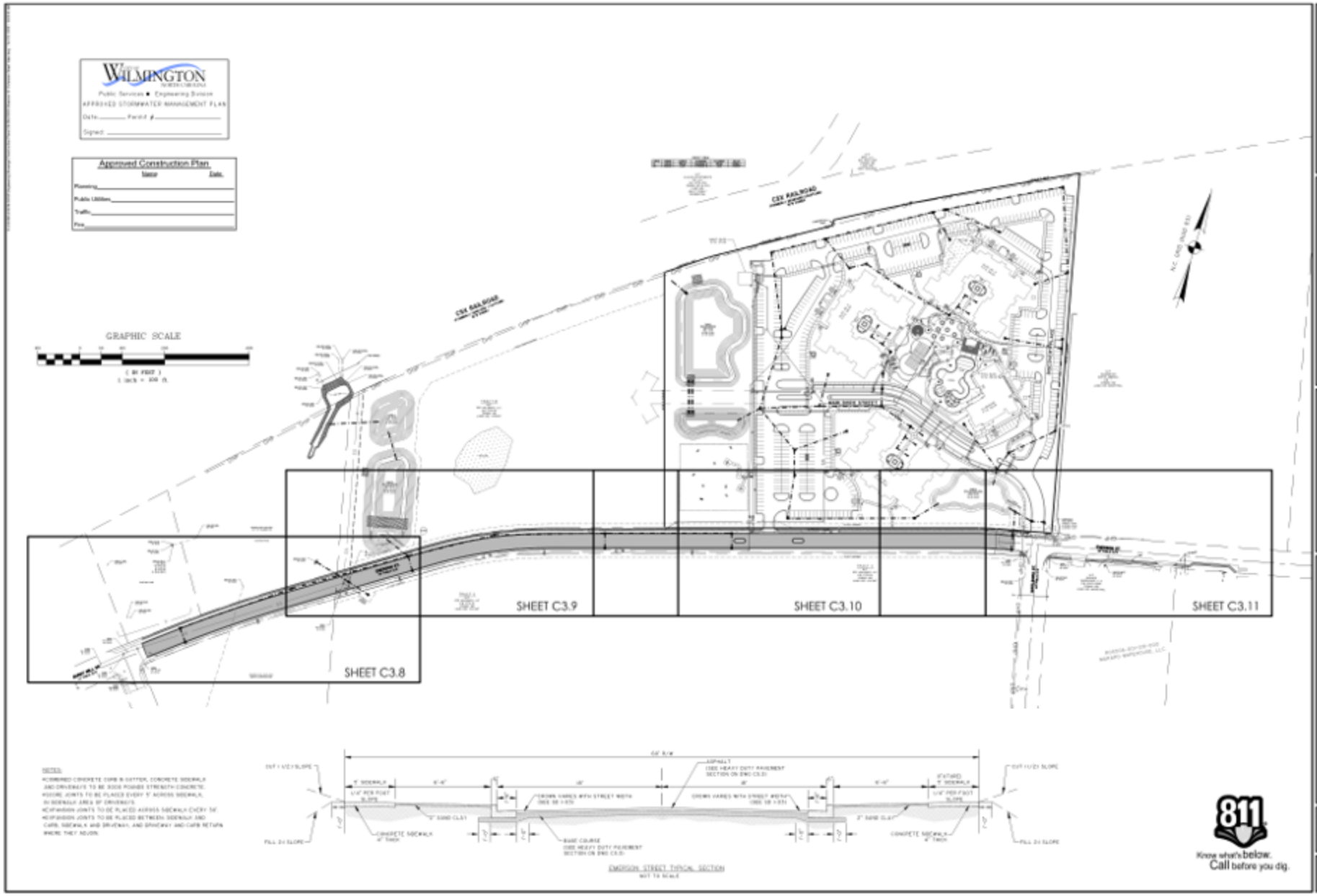
AMENITY AREA GRADING & DRAINAGE PLAN

C3.6



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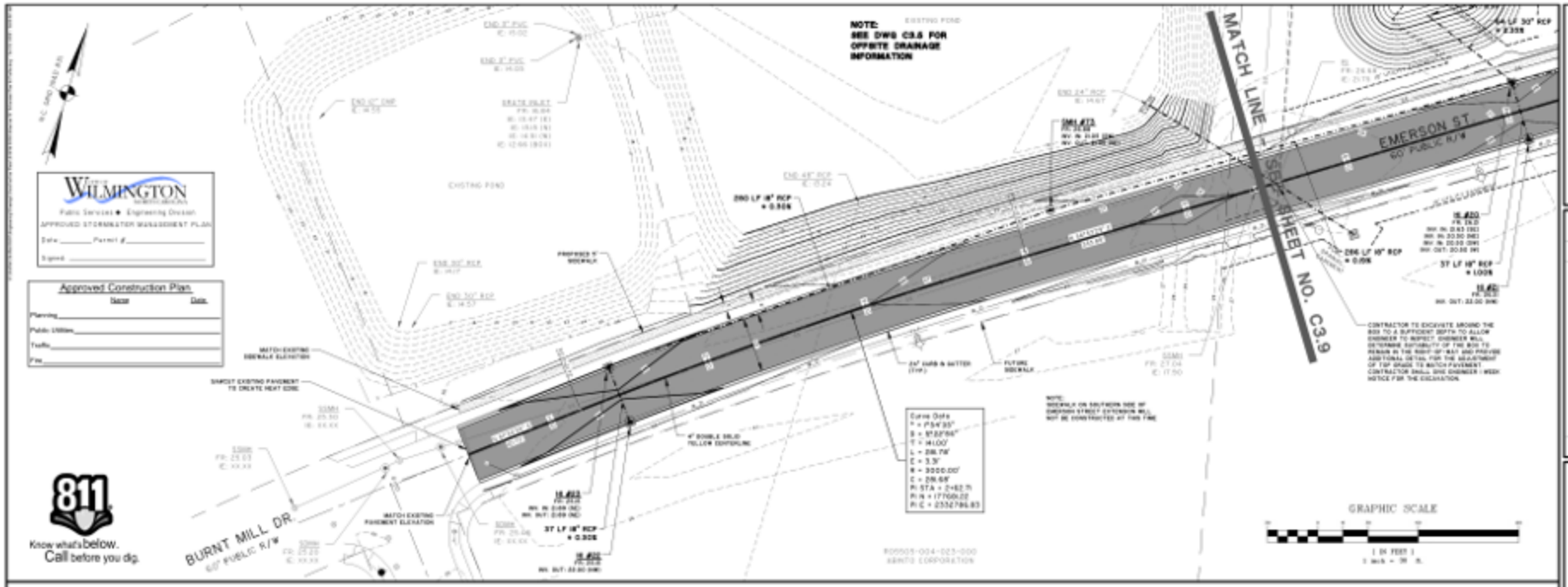
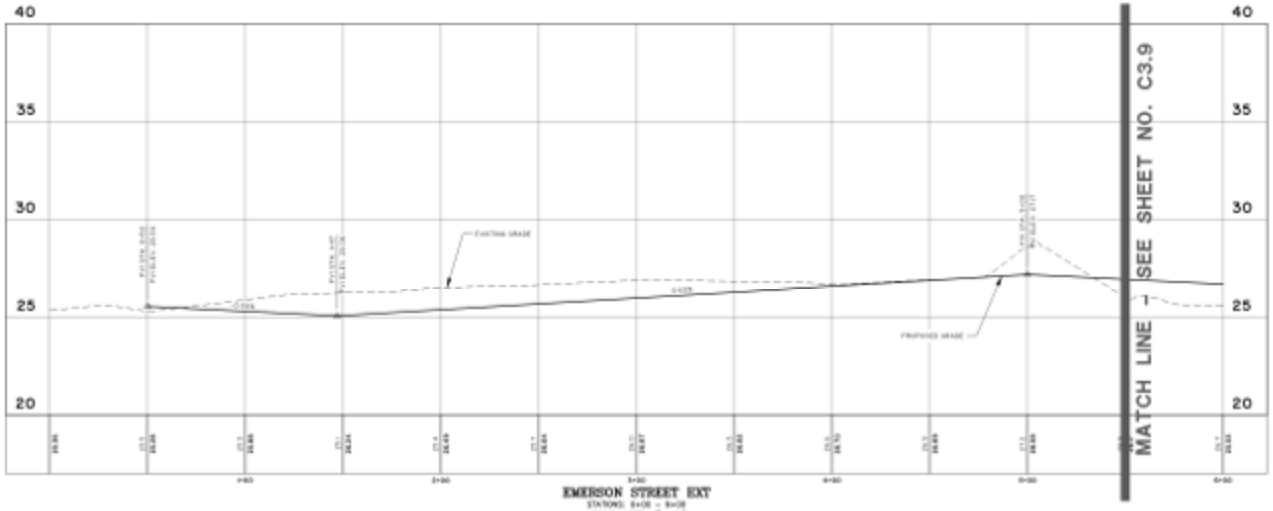
EMERSON ST. EXTENSION SHEET INDEX

C3.7





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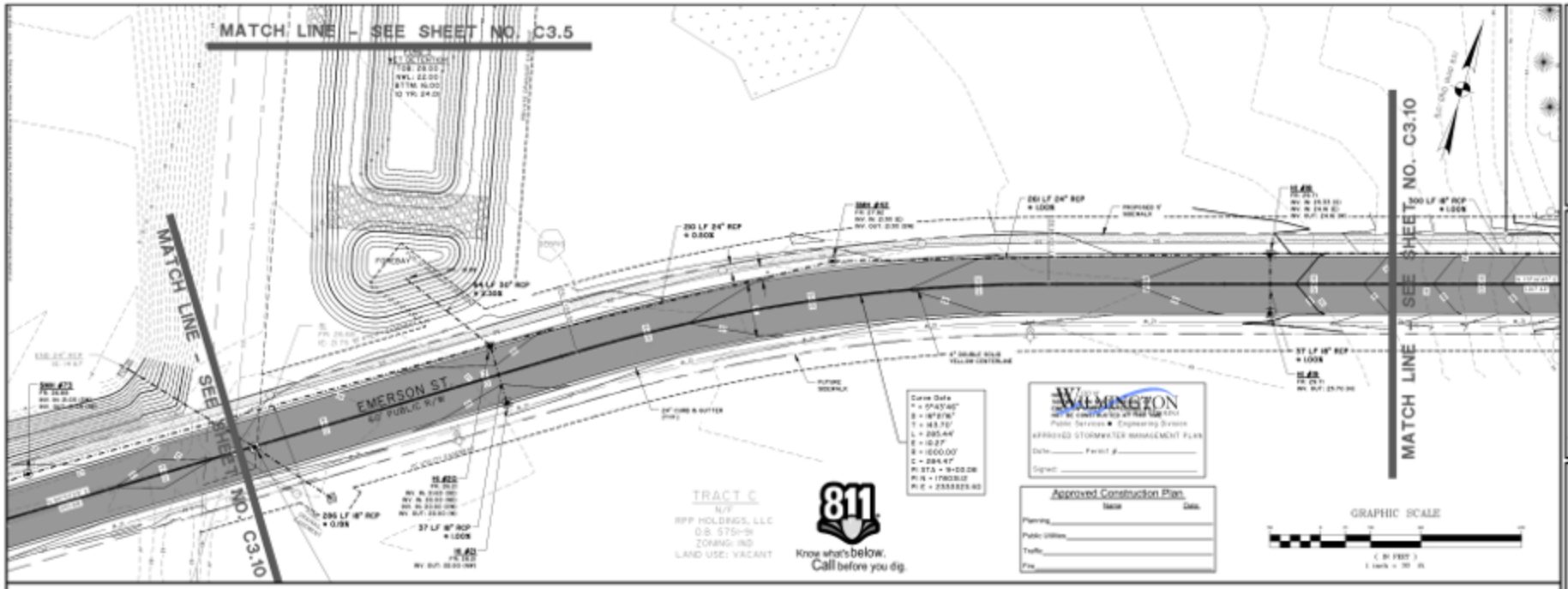
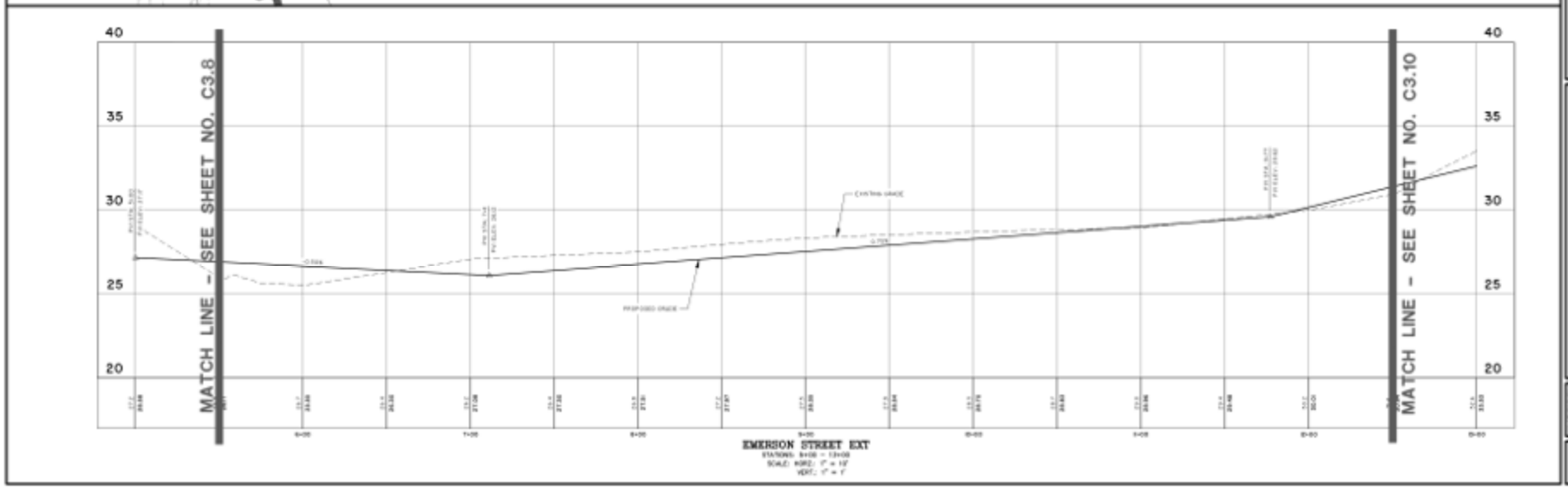
EMERSON ST. EXTENSION PLAN & PROFILE

C3.8





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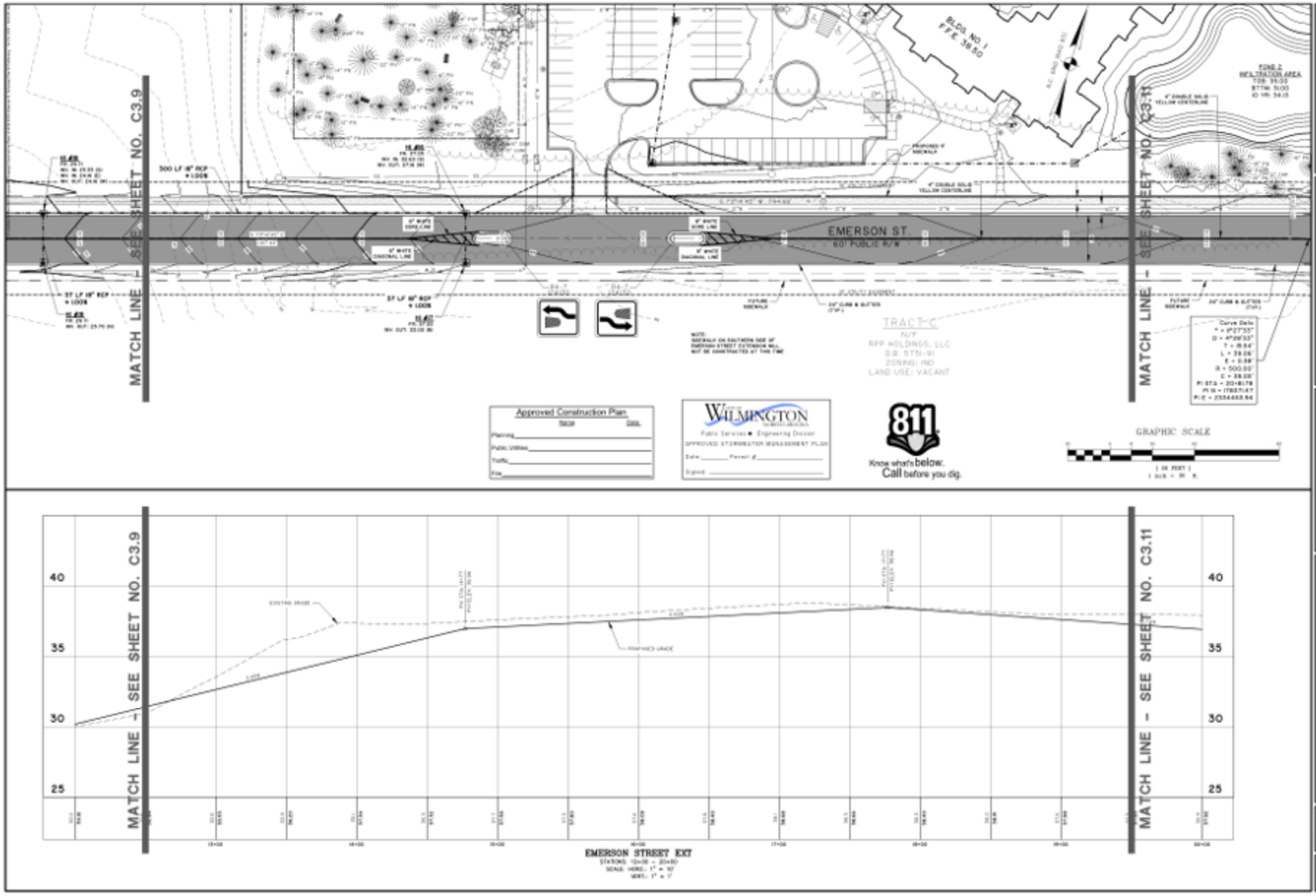
EMERSON ST. EXTENSION PLAN & PROFILE

C3.9



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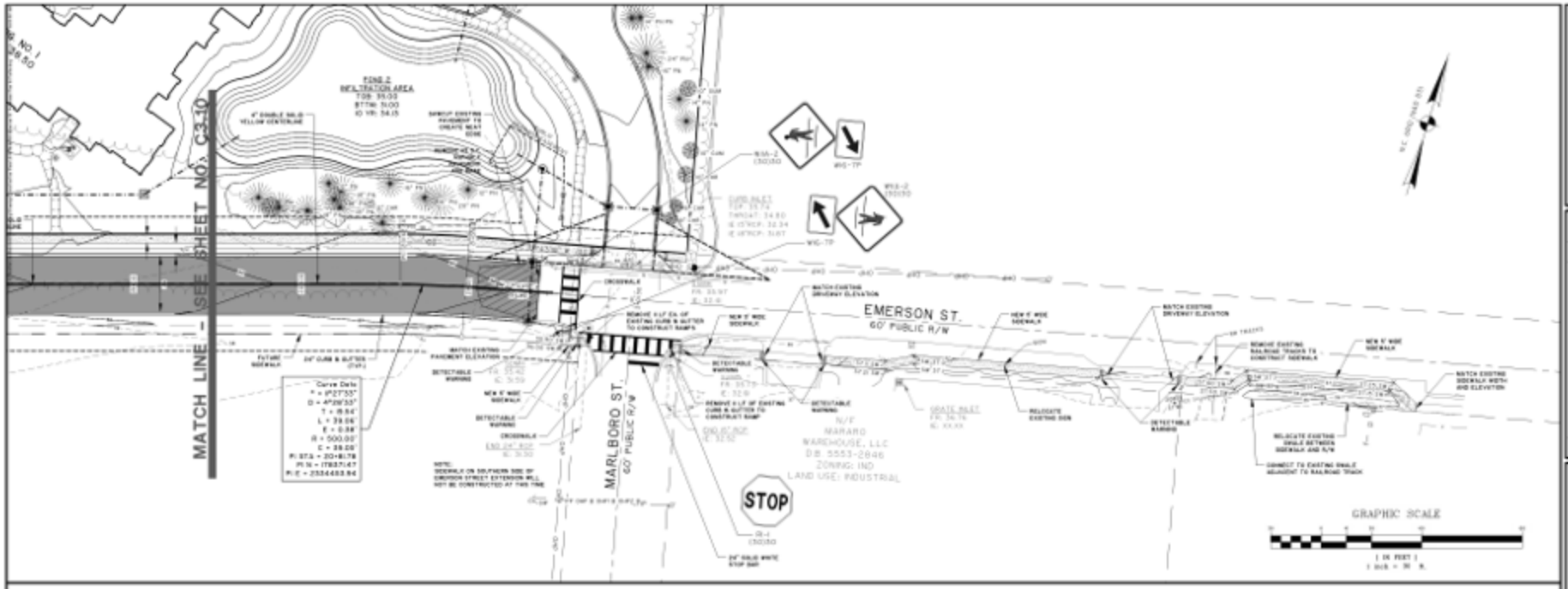
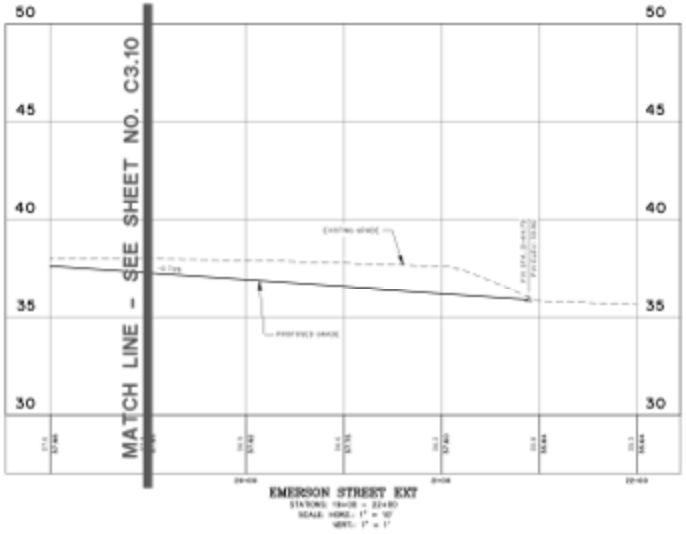
EMERSON ST. EXTENSION PLAN & PROFILE

C3.10





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	Sign	Date
Planning		
Public Utilities		
Traffic		
Fire		

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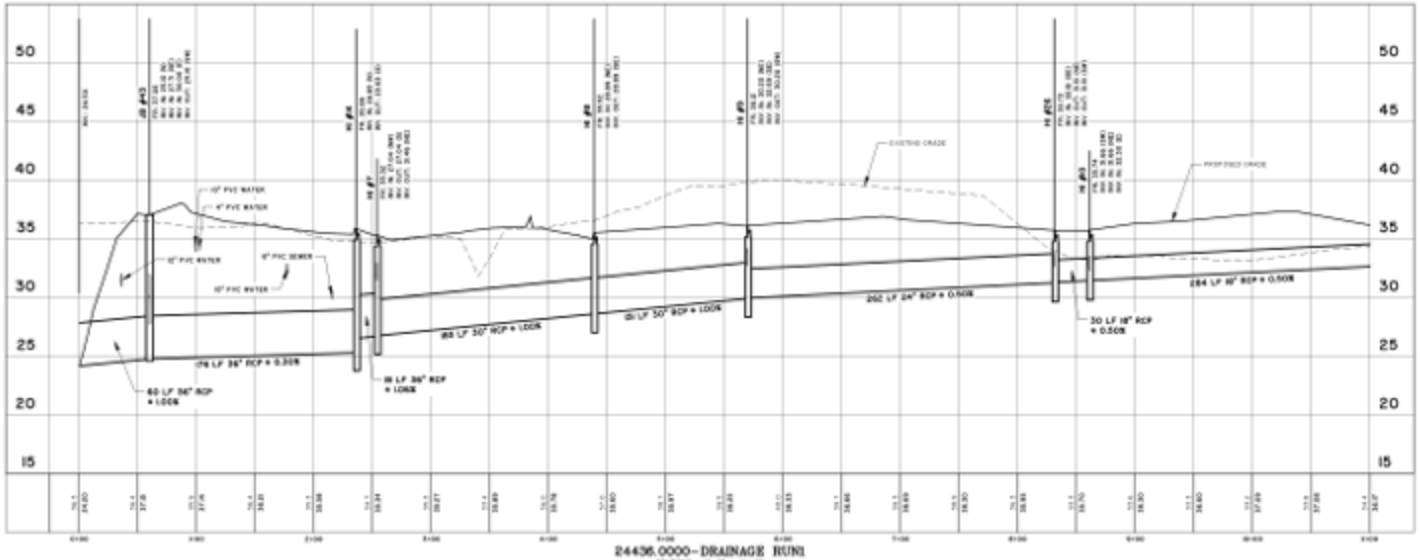
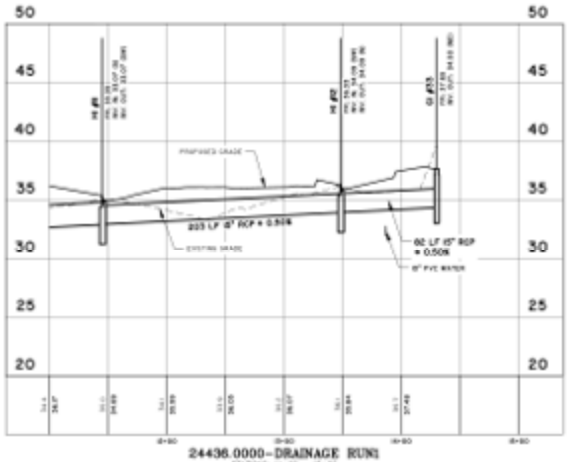
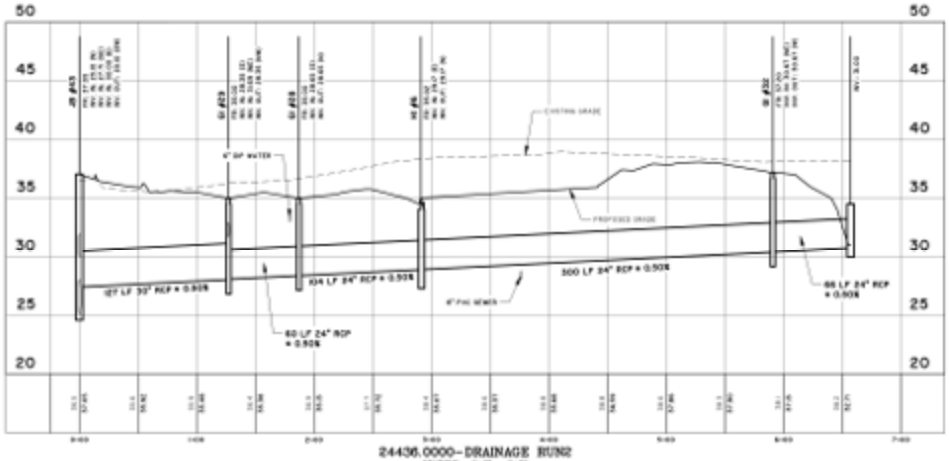
C3.11



24436.0000-DRAINAGE RUN1
STATIONS: -0+25 - 11+00
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 5'



24436.0000-DRAINAGE RUN1
STATIONS: 11+00 - 15+80
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



24436.0000-DRAINAGE RUN2
STATIONS: -0+25 - 7+60
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'

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	Name	Date
Planning		
Public Utilities		
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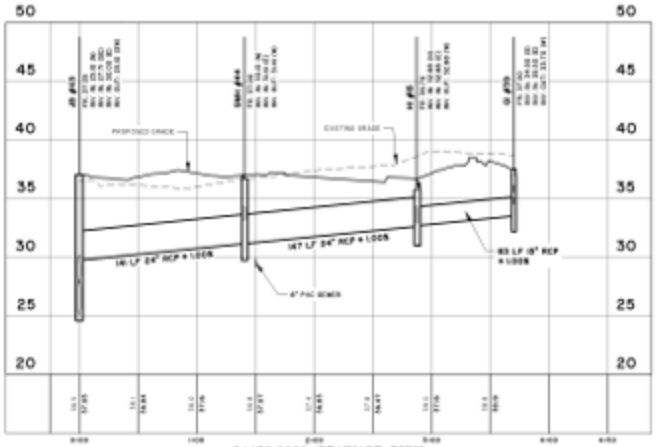
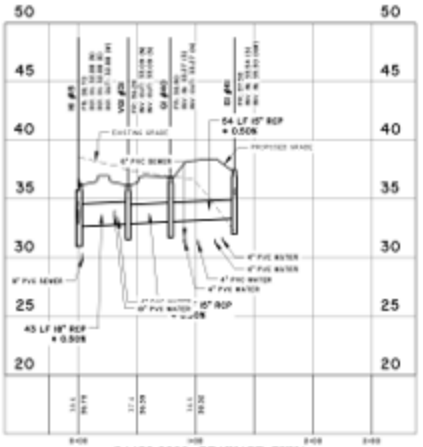
CITY OF WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA
PROGRES3391O
STORM DRAINAGE PROFILES

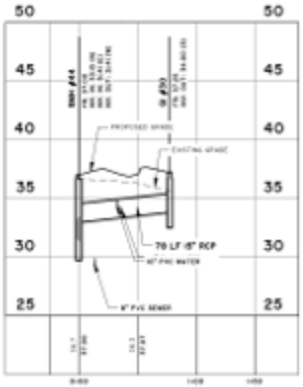
C3.12



24436.0000-DRAINAGE RUN3
STATIONS: -0+25 - 4+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



24436.0000-DRAINAGE RUN4
STATIONS: -0+25 - 2+60
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



24436.0000-DRAINAGE RUN5
STATIONS: -0+25 - 1+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'

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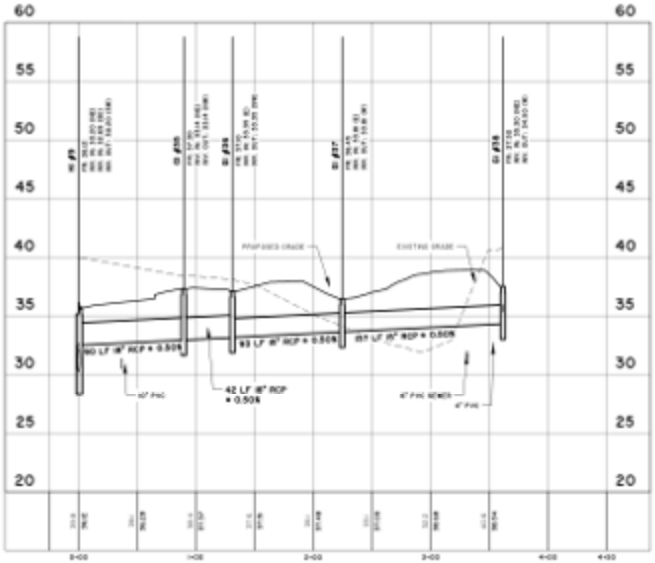
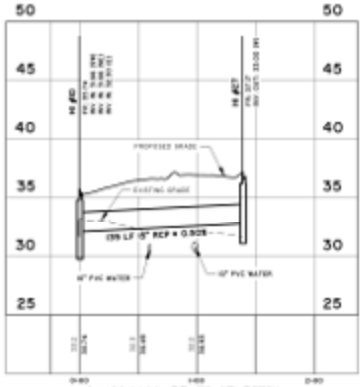
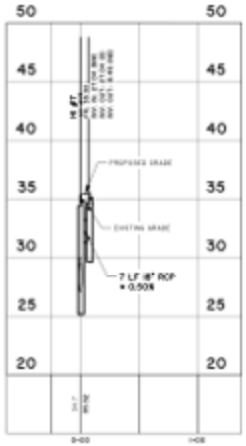


24436.0000-DRAINAGE RUN6
STATIONS: -0+25 - 4+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



24436.0000-DRAINAGE RUN7
STATIONS: -0+25 - 2+00
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



24436.0000-DRAINAGE RUN8
STATIONS: -0+25 - 1+00
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'

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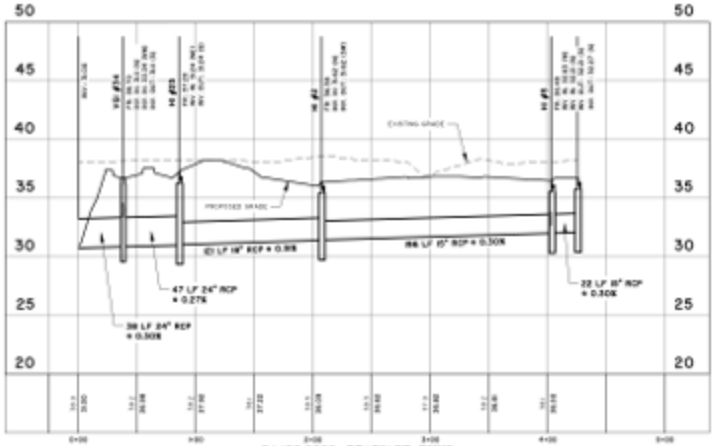
PROGRE5391O
STORM DRAINAGE PROFILES

C3.13



24436.0000-DRAINAGE RUN9
STATIONS: -0+25 - 5+00
SCALE: HORZ: 1" = 50'
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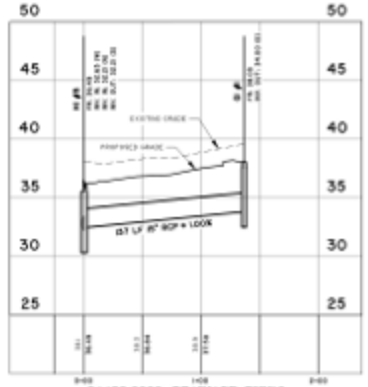
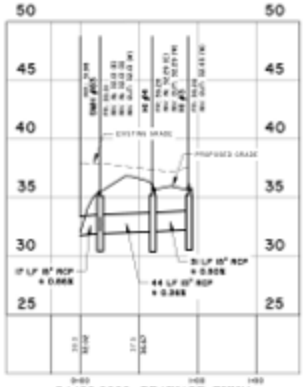
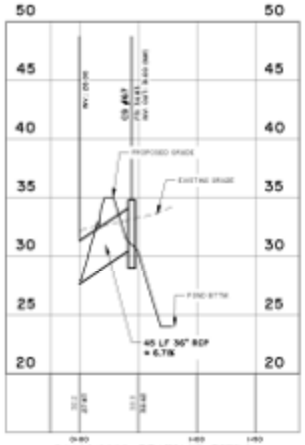


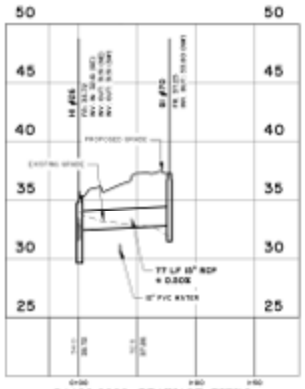
24436.0000-DRAINAGE RUN10
STATIONS: -0+25 - 2+80
SCALE: HORZ: 1" = 50'
VERT: 1" = 5'



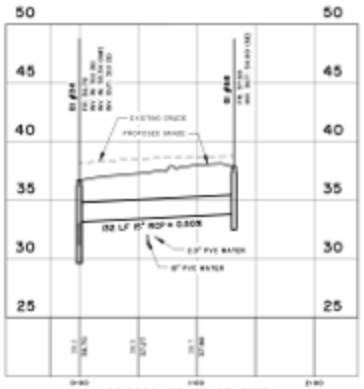
24436.0000-DRAINAGE RUN11
STATIONS: -0+25 - 1+50
SCALE: HORZ: 1" = 50'
VERT: 1" = 5'



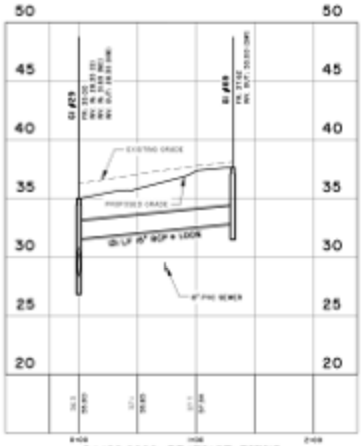
24436.0000-DRAINAGE RUN12
STATIONS: -0+25 - 1+50
SCALE: HORZ: 1" = 50'
VERT: 1" = 5'



24436.0000-DRAINAGE RUN13
STATIONS: -0+25 - 1+50
SCALE: HORZ: 1" = 50'
VERT: 1" = 5'



24436.0000-DRAINAGE RUN14
STATIONS: -0+25 - 2+00
SCALE: HORZ: 1" = 50'
VERT: 1" = 5'



24436.0000-DRAINAGE RUN15
STATIONS: -0+25 - 2+00
SCALE: HORZ: 1" = 50'
VERT: 1" = 5'

24436.0000-DRAINAGE RUN16
STATIONS: -0+25 - 1+50
SCALE: HORZ: 1" = 50'
VERT: 1" = 5'

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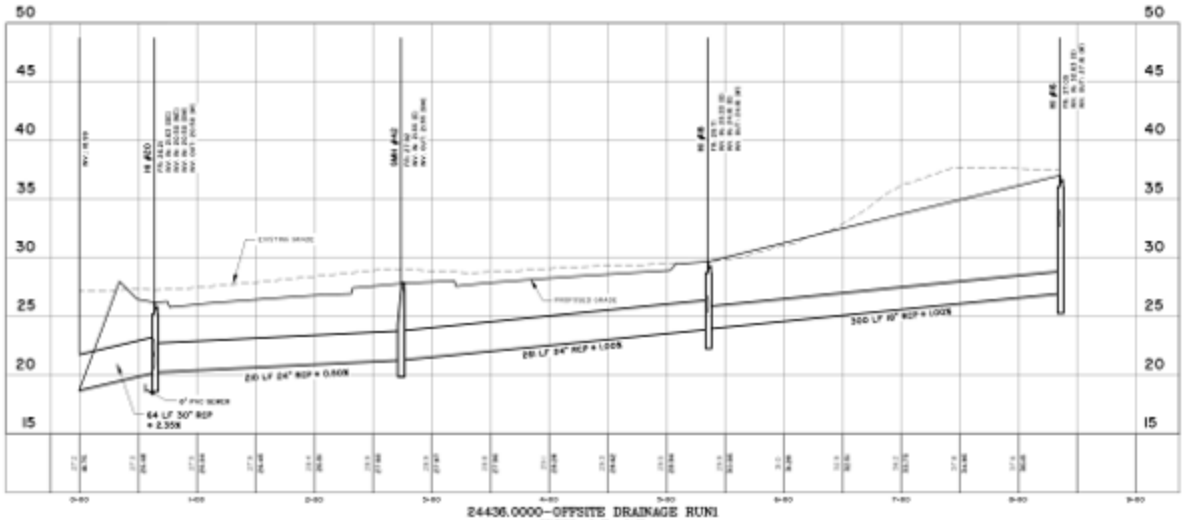
CITY OF WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA

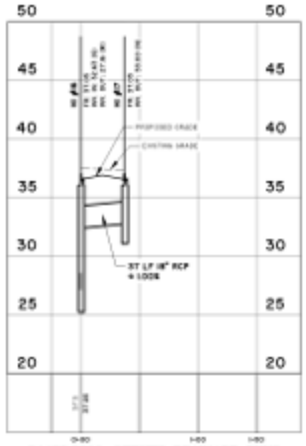
PROGRE5391O

STORM DRAINAGE PROFILES

C3.14



24436.0000-OFFSITE DRAINAGE RUN1
STATIONS: -0+25 - 8+00
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



24436.0000-OFFSITE DRAINAGE RUN2
STATIONS: -0+25 - 1+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

811
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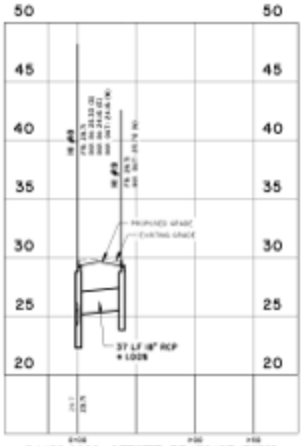
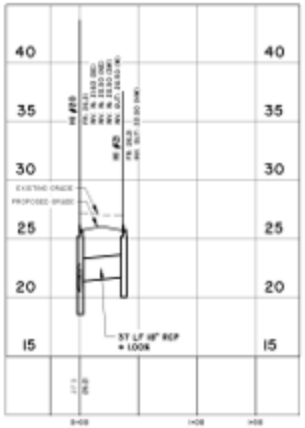
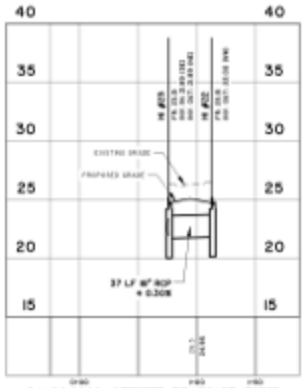
City of Wilmington
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: _____ Permit # _____
Signed: _____



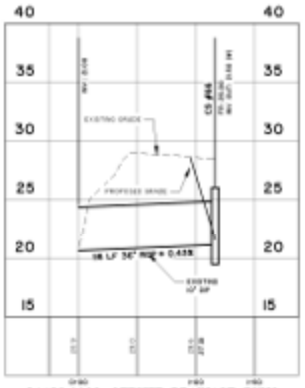
24436.0000-OFFSITE DRAINAGE RUN3
STATIONS: -0+25 - 1+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



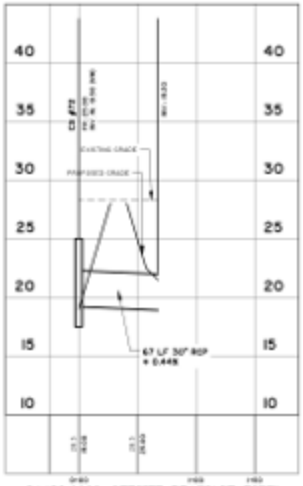
24436.0000-OFFSITE DRAINAGE RUN4
STATIONS: -0+25 - 1+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



24436.0000-OFFSITE DRAINAGE RUN5
STATIONS: -0+25 - 1+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



24436.0000-OFFSITE DRAINAGE RUN6
STATIONS: -0+25 - 1+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'



24436.0000-OFFSITE DRAINAGE RUN7
STATIONS: -0+25 - 1+50
SCALE: HORZ.: 1" = 50'
VERT.: 1" = 5'

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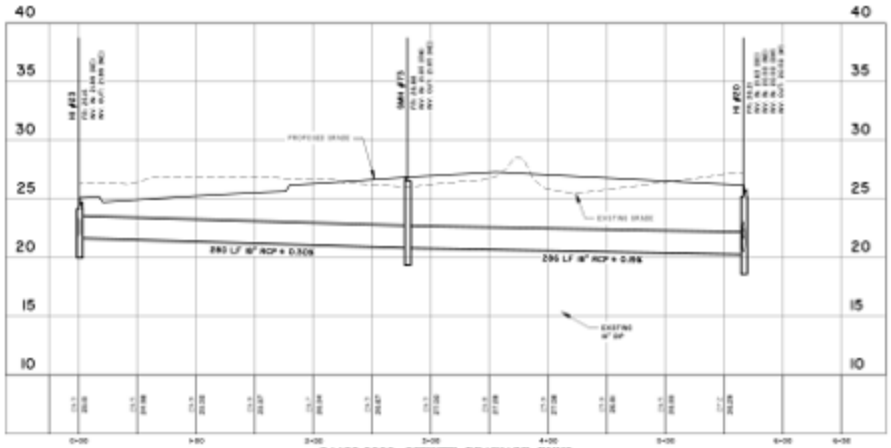
CITY OF WILMINGTON, NORTH CAROLINA

PROGRES3391O

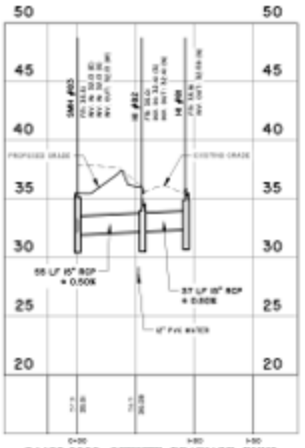
STORM DRAINAGE PROFILES

C3.15



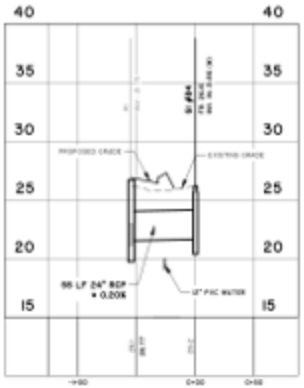
24436.0000–OFFSITE DRAINAGE RUN8

STATIONS: -0+25 – 8+50
SCALE: HORZ: 1" = 50'
VERT: 1" = 5'



24436.0000–OFFSITE DRAINAGE RUN9

STATIONS: -0+25 – 1+50
SCALE: HORZ: 1" = 50'
VERT: 1" = 5'



24436.0000–OFFSITE DRAINAGE RUN10

STATIONS: -1+25 – 0+50
SCALE: HORZ: 1" = 50'
VERT: 1" = 5'

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WILMINGTON
Public Services ■ Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date _____ Permit #_____
Signed _____

Approved Construction Plan
Name Date
Planning _____
Public Utilities _____
Traffic _____
File _____

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CITY OF WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA
PROGRESS3910
STORM DRAINAGE PROFILES

C3.16

NOTES:

1. ACCESSIBLE ROUTE - EXTERIOR:
   MINIMUM CLEAR WIDTH IS 3'-0". IF AN ACCESSIBLE ROUTE WAS LESS THAN 6' CLEAR WIDTH, THEN PASSING SPACES AT LEAST 5'X5' SHALL BE LOCATED EVERY 200' OR LESS INTERSECTING SIDEWALKS MEET THIS REQUIREMENT. LONGITUDINAL (RUNNING) SLOPE MAY NOT EXCEED 5% UNLESS RAMP WITH HANDRAIL IS INSTALLED WITH COMPLIANT LANDING (RAMP) MAY NOT EXCEED 8.33% & COMPLIANT LANDING MAY NOT EXCEED 2% SLOPE IN ALL DIRECTIONS. CROSS SLOPE ALONG ACCESSIBLE ROUTE MAY NOT EXCEED 2% SLOPE IN ROUTE MAY NOT EXCEED 1/2" IN WIDTH.

2. FINISHED SURFACE HEIGHT DIFFERENCE REQUIREMENTS:
   A. 0 TO 1/4" - NO REQUIREMENTS
   B. 1/4" TO 1/2" - BEVEL WITH 1:2 SLOPE
   C. LARGER THAN 1/2" - CONFORM TO REQUIREMENTS FOR RAMP

3. RAMPS:
   - MAX RAMP SLOPE 8.33% (1:12)
   - RAMPS STEEPER THAN 8.33% ARE NOT ACCEPTABLE
   - MAX RISE FOR ANY RAMP RUN IS 30" (AT 8.33% SLOPE, MAXIMUM RUN OF RAMP IS 30')
   - MAX CROSS SLOPE OF RAMP 2% (1:50)

   A. LANDINGS:
   - RAMPS SHALL HAVE LEVEL LANDINGS AT BOTTOM AND TOP OF EACH RAMP
   - LANDING SHALL BE AT LEAST AS WIDE AS RAMP LEADING TO IT
   - LANDING LENGTH SHALL BE MINIMUM 5' CLEAR
   - IF RAMPS CHANGE DIRECTION AT LANDING, MINIMUM LANDING SIZE SHALL BE 5'X5'
   - ALL LANDINGS ARE TO BE NO MORE THAN 2% SLOPE IN ANY DIRECTION

   B. HANDRAILS:
   - HANDRAILS REQUIRED ON BOTH SIDES (MIN. 36" CLEAR BETWEEN HANDRAILS) WHEN RAMP RISE IS GREATER THAN 6"
   - PROVIDE MINIMUM 12" LONG HANDRAIL EXTENSIONS AT TOP AND BOTTOM LANDINGS
   - PROVIDE MINIMUM 2" HIGH EDGE PROTECTION OR RAIL WITH LESS THAN 4" CLEAR TO RAMP IF RAMP HAS DROP-OFFS
   - RAMPS BETWEEN BUILDINGS WITH ONLY DWELLING UNITS DO NOT HAVE TO HAVE HANDRAILS
   - STAIRS NOT ALLOWED AS PART OF ACCESSIBLE ROUTE BUT IF ADJACENT TO ROUTE OR PART OF "SHARE" SPACE MUST MEET REQUIREMENTS FOR STAIR RAILS

4. CURB RAMPS:
   - MAX CROSS SLOPE 2% FOR ALL CURB RAMPS
   - MAX LONGITUDINAL SLOPE OF CURB RAMP 8.33%
   - MAX LONGITUDINAL SLOPE OF SIDE FLARES 8.33% (W/ 5% WITH A 4' WIDE PASSING SPACE)
   - MAX LONGITUDINAL SLOPE OF ADJOINING SURFACE, ROAD SURFACE, OR ACCESSIBLE ROUTE 5%
   - MIN WIDTH 36" (NOT INCLUDING SIDE FLARES)
   - DETECTABLE WARNING IS REQUIRED ON CURB RAMPS IN PUBLIC RIGHTS OF WAY, AND SHALL BE 24" MINIMUM IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLOOR SURFACE. DETECTABLE WARNINGS SHALL BE LOCATED SO THE EDGE NEAREST THE CURB LINE IS 6" TO 8" FROM THE CURB LINE.

5. PAVEMENT MARKINGS:
   AS REQUIRED BY LOCAL JURISDICTIONAL AUTHORITY (RECOMMENDED CROSSWALK MARKING TO DEMARCATE ACCESSIBLE PEDESTRIAN ROUTE)

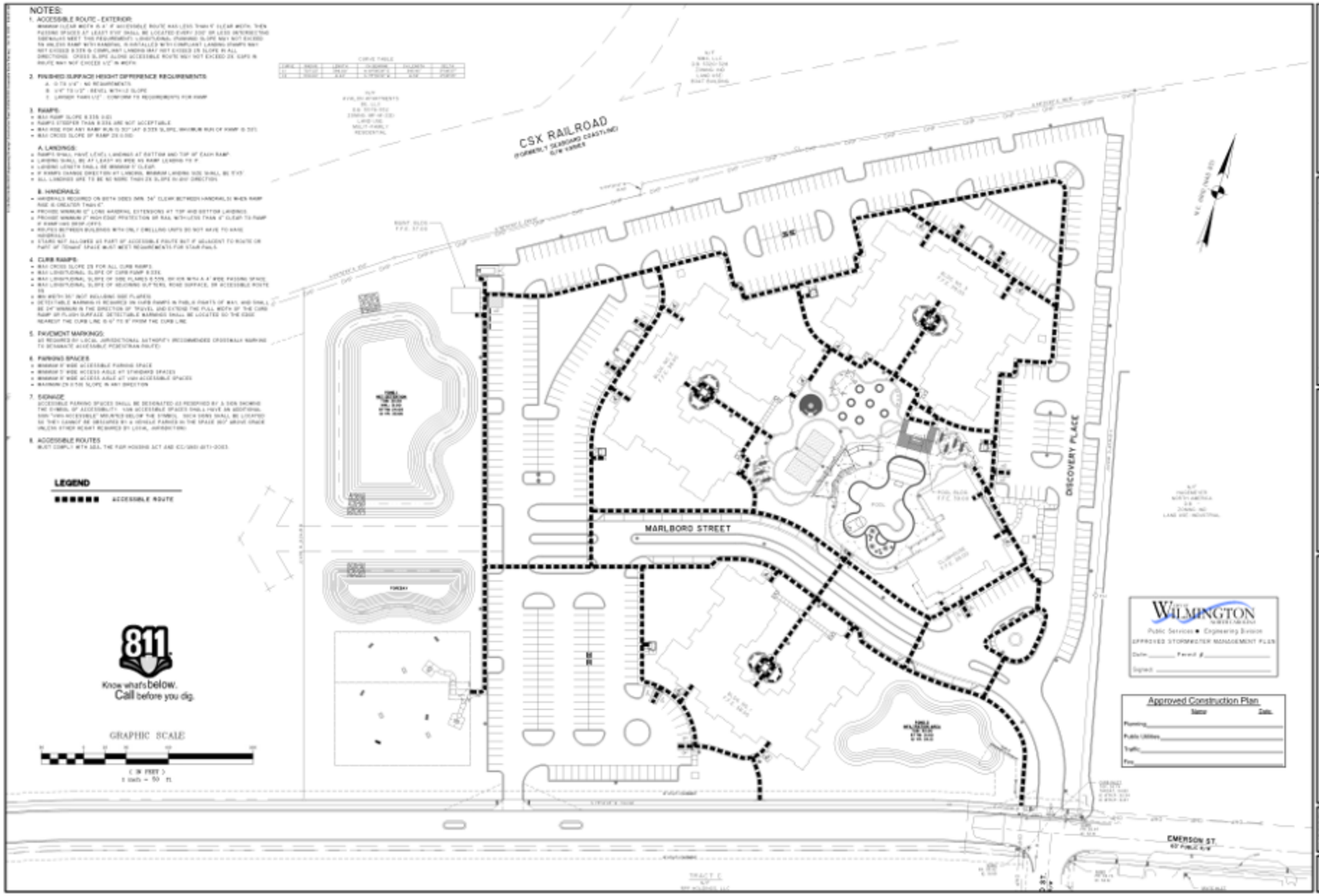
6. PARKING SPACES:
   - MINIMUM 8' WIDE ACCESSIBLE PARKING SPACE
   - MINIMUM 5' WIDE ACCESS AISLE AT STANDARD SPACES
   - MINIMUM 8' WIDE ACCESS AISLE AT VAN ACCESSIBLE SPACES
   - MAXIMUM 2% (1:50) SLOPE IN ANY DIRECTION

7. SIGNAGE:
   ACCESSIBLE PARKING SPACES SHALL BE DESIGNATED AS RESERVED BY A SIGN SHOWING THE SYMBOL OF ACCESSIBILITY. VAN ACCESSIBLE SPACES SHALL HAVE AN ADDITIONAL SIGN "VAN ACCESSIBLE" MOUNTED BELOW THE SYMBOL. SUCH SIGNS SHALL BE LOCATED SO THEY CANNOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE (60" ABOVE GRADE UNLESS OTHER HEIGHT REQUIRED BY LOCAL JURISDICTION).

8. ACCESSIBLE ROUTES
   MUST COMPLY WITH ADA, THE FAIR HOUSING ACT AND ICC/ANSI A117.1-2003.

LEGEND

ACCESSIBLE ROUTE



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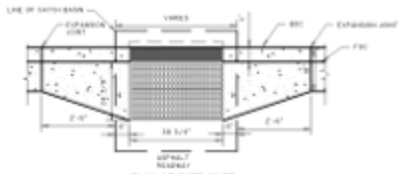
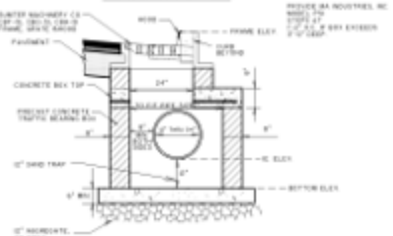
PROGRESS BUILDERS, LLC

ACCESSIBLE ROUTE PLAN

C4.0



PLAN AT CURB INLET

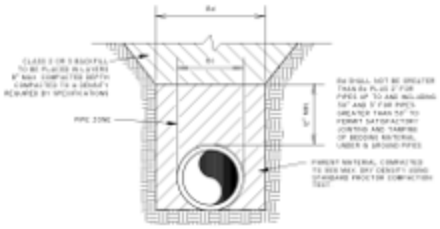


NOTE: THE PRECAST MANUFACTURER IS TO PREPARE AND SUBMIT TO THE ENGINEER DESIGN DETAILS AND CALCULATIONS FOR THE PRECAST STRUCTURES SPECIFIED ON THE DESIGN CRITERIA SPECIFIED. THE DESIGN SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA EXPERIENCED IN THE DESIGN OF PRECAST CONCRETE. THE DESIGN SHALL INCLUDE PROVISIONS FOR HANDLING STRESSES AND CONSTRUCTION LOADS. REPRODUCED COPIES OF ASTM C789 "STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE BOX SECTIONS FOR CULVERTS, STORM DRAINS, AND SEWERS" WILL NOT BE ACCEPTED AS A SUBSTITUTE FOR DESIGN.

USE MORTAR TYPE S OR M MORTAR ON ALL BOXES.

HOODED INLET

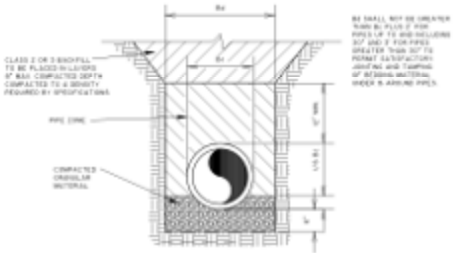
NOT TO SCALE



ALL STORM PIPE SHALL BE REINFORCED CONCRETE PIPE (RCP), CONFORMING TO ASTM C-76, CLASS III, UNLESS OTHERWISE NOTED

STORM LINE BEDDING DETAIL

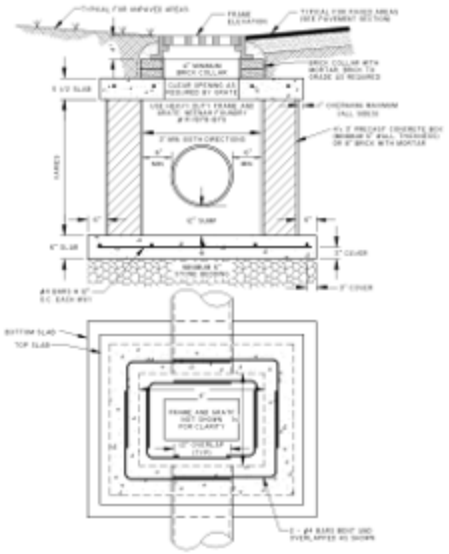
NOT TO SCALE



NOTE: TO BE USED WHERE WHERE SUBGRADE DRAIN IS REQUIRED. (SEE GRATE INLET DETAIL)

ALTERNATE STORM LINE BEDDING DETAIL

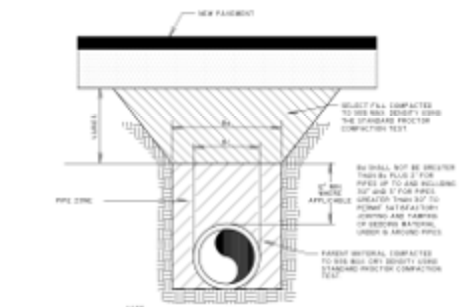
NOT TO SCALE



NOTES:
1. CHAMFER ALL EXPOSED CONCRETE EDGES 3/4".
2. WHERE BRICK IS USED, ALL EXPOSED SURFACES SHALL BE POINTED WITH 1/2" (12 MORTAR INSIDE AND OUTSIDE.
3. IF PRECAST BOX IS USED, TOP, WIDER, AND BARE SHALL CONFORM TO THE LATEST REVISION OF ASTM C-478. THE PRECAST MANUFACTURER IS TO PREPARE AND SUBMIT TO THE ENGINEER DESIGN DETAILS AND CALCULATIONS FOR THE STRUCTURES SHOWN BASED ON THE DESIGN CRITERIA SPECIFIED. THE DESIGN SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH OR SOUTH CAROLINA EXPERIENCED IN THE DESIGN OF PRECAST CONCRETE. THE DESIGN SHALL INCLUDE PROVISIONS FOR HANDLING STRESSES AND CONSTRUCTION LOADS. REPRODUCED COPIES OF ASTM C789 "STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE BOX SECTIONS FOR CULVERTS, STORM DRAINS, AND SEWERS" WILL NOT BE ACCEPTED AS A SUBSTITUTE FOR DESIGN.

STANDARD GRATE INLET

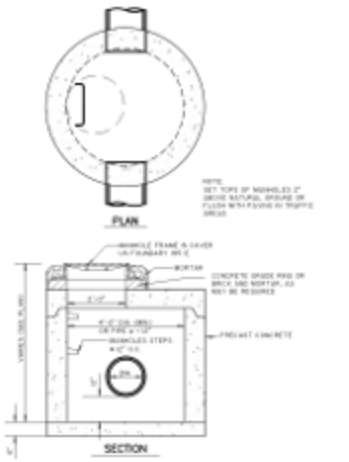
NOT TO SCALE



NOTE:
ALL JOINTS SHALL BE WRAPPED WITH FILTER FABRIC

STORM LINE BEDDING DETAIL FOR PAVED AREAS

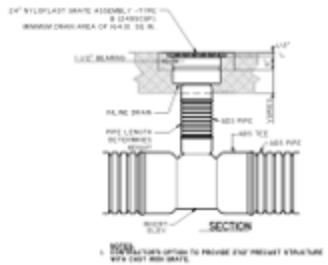
NOT TO SCALE



NOTE:
THE PRECAST MANUFACTURE IS TO PREPARE AND SUBMIT TO THE ENGINEER DESIGN DETAILS AND CALCULATIONS FOR THE STRUCTURES SHOWN BASED ON THE DESIGN CRITERIA SPECIFIED. THE DESIGN SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA EXPERIENCED IN THE DESIGN OF PRECAST CONCRETE. THE DESIGN SHALL INCLUDE PROVISIONS FOR HANDLING STRESSES AND CONSTRUCTION LOADS. REPRODUCED COPIES OF ASTM C789 "STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE BOX SECTIONS FOR CULVERTS, STORM DRAINS, AND SEWERS" WILL NOT BE ACCEPTED AS A SUBSTITUTE FOR DESIGN.

STORM MANHOLE

NOT TO SCALE



SPECIAL YARD INLET

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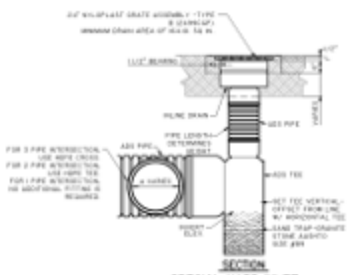
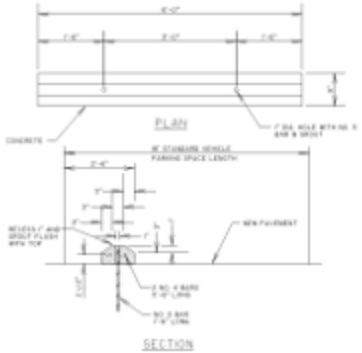


SPECIAL YARD INLET END OF LINE SCENARIO

NOT TO SCALE



HEAVY DUTY WHEEL STOP DETAIL

NOT TO SCALE

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Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date _____ Permit # _____
Signed _____

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

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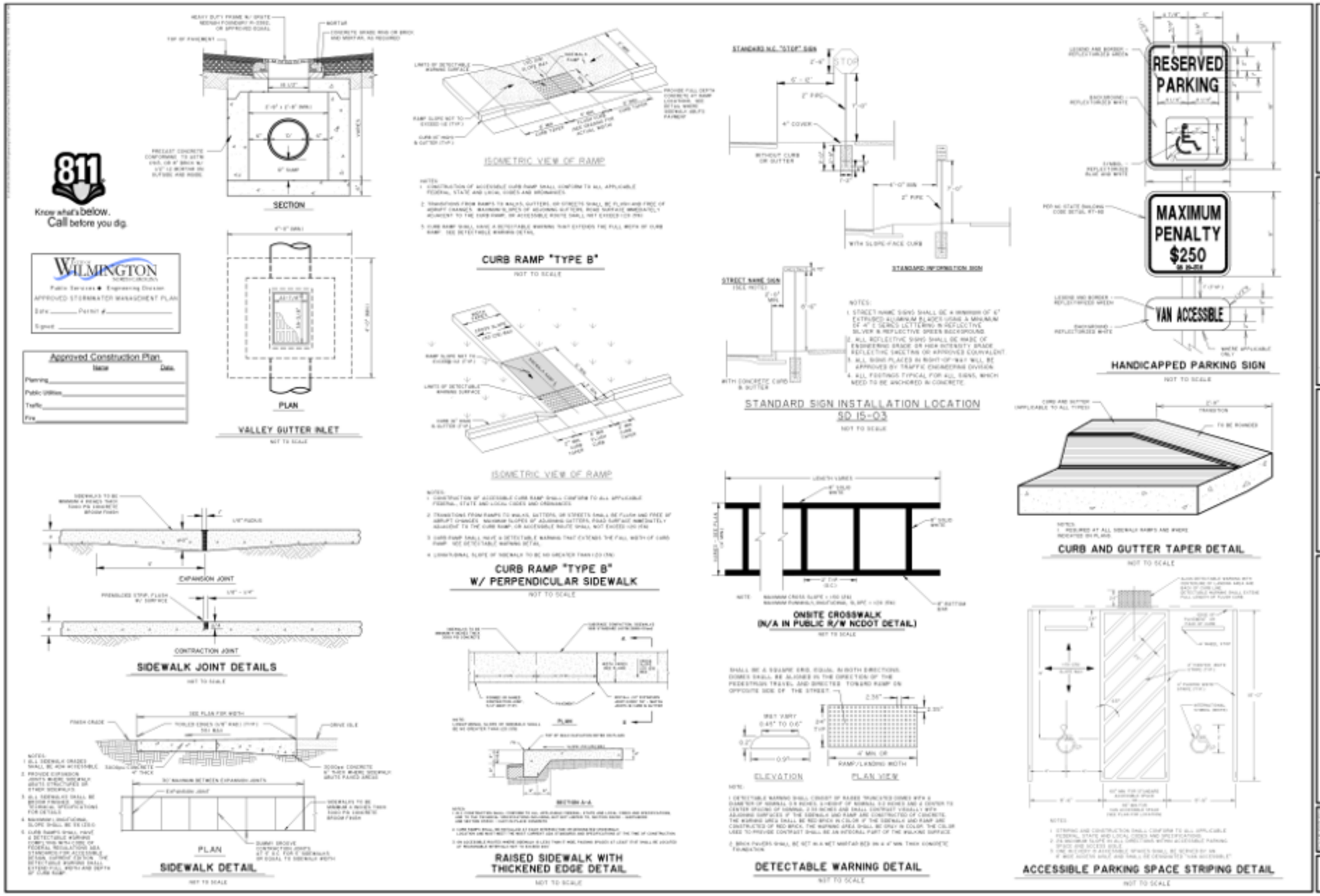
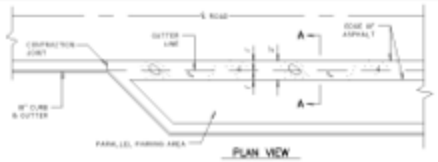
PROGRESS910
4055 EMERSON STREET
CITY OF WILMINGTON, NORTH CAROLINA

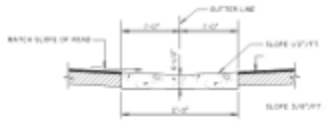
PROGRESS BUILDERS, LLC

SITE DETAILS

C5.1

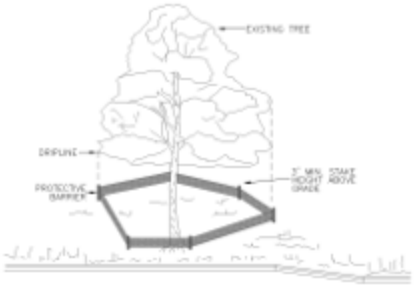

811
Know what's below.
Call before you dig.
WILMINGTON
Public Services ● Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Approved Construction Plan
Name
Date
Planning
Public Utilities
Traffic
Fire
SECTION
PLAN
VALLEY GUTTER INLET
NOT TO SCALE
ISOMETRIC VIEW OF RAMP
CURB RAMP "TYPE B"
NOT TO SCALE
ISOMETRIC VIEW OF RAMP
CURB RAMP "TYPE B"
W/ PERPENDICULAR SIDEWALK
NOT TO SCALE
STANDARD N.C. "STOP" SIGN
STANDARD INFORMATION SIGN
STREET NAME SIGN
STANDARD SIGN INSTALLATION LOCATION
SD 15-03
NOT TO SCALE
RESERVED PARKING
MAXIMUM PENALTY $250
VAN ACCESSIBLE
HANDICAPPED PARKING SIGN
NOT TO SCALE
CURB AND GUTTER TAPER DETAIL
NOT TO SCALE
EXPANSION JOINT
CONTRACTION JOINT
SIDEWALK JOINT DETAILS
NOT TO SCALE
ONSITE CROSSWALK
(N/A IN PUBLIC R/W NCDOT DETAIL)
NOT TO SCALE
PLAN
SIDEWALK DETAIL
NOT TO SCALE
RAISED SIDEWALK WITH
THICKENED EDGE DETAIL
NOT TO SCALE
ELEVATION
PLAN VIEW
DETECTABLE WARNING DETAIL
NOT TO SCALE
ACCESSIBLE PARKING SPACE STRIPING DETAIL
NOT TO SCALE
THOMAS & HUTTON
PROGRESS910
4055 EMERSON STREET
PROGRESS BUILDERS, LLC
SITE DETAILS
C5.2





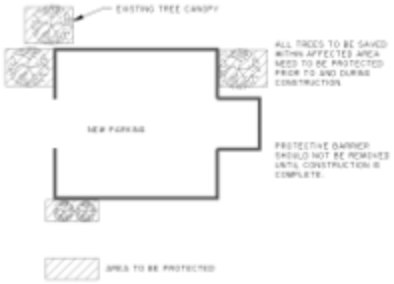
CONCRETE SWALE

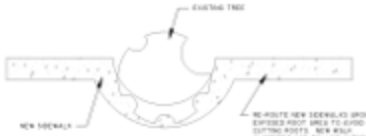
NOT TO SCALE



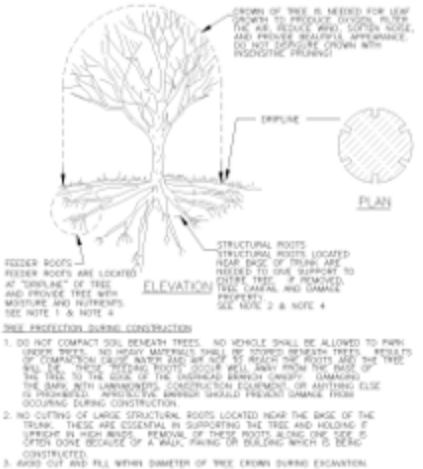
NOTE:
TREES TO BE SAVED WILL BE FIELD-VERIFIED PRIOR TO CONSTRUCTION AND A PROTECTIVE BARRIER IS TO BE INSTALLED AT THE DRIPLINE.
DRIP LINE – THE AREA OF SOIL DIRECTLY BENEATH THE TREE EXTENDING OUT TO THE TIPS OF THE OUTERMOST BRANCHES.

METHOD OF TREE PROTECTION DURING CONSTRUCTION
SD 15-08
NOT TO SCALE

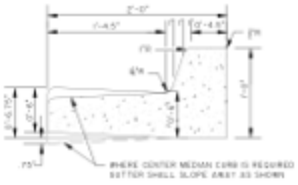




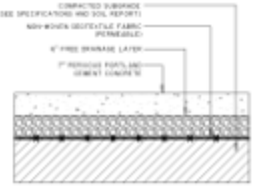
EXISTING TREE PROTECTIVE BARRIERS
SD 15-15



METHOD OF TREE PROTECTION DURING CONSTRUCTION
SD 15-09
NOT TO SCALE

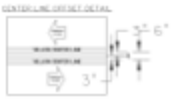


STANDARD CURB SECTION TYPE "A"
SD 7-01
NOT TO SCALE

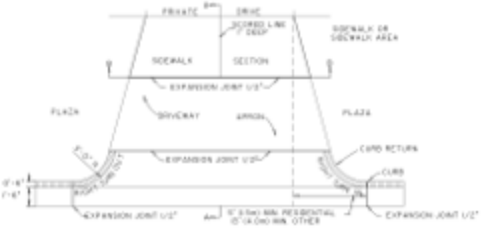


STANDARD DUTY PERVIOUS CONCRETE PAVEMENT SECTION

NOT TO SCALE

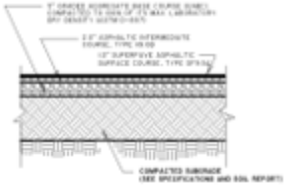


PAVEMENT MARKINGS
OFFSETS
SD 11-02



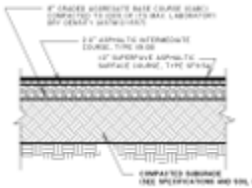
CONSTRUCTION/EMERGENCY ACCESS
STANDARD DRIVEWAY DETAIL
SD 8-02
NOT TO SCALE

PAVEMENT MARKINGS
LINE TYPES
SD 11-01



LIGHT DUTY
ASPHALT PAVING SECTION

NOT TO SCALE



HEAVY DUTY
ASPHALT PAVING SECTION

NOT TO SCALE

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Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

WILMINGTON
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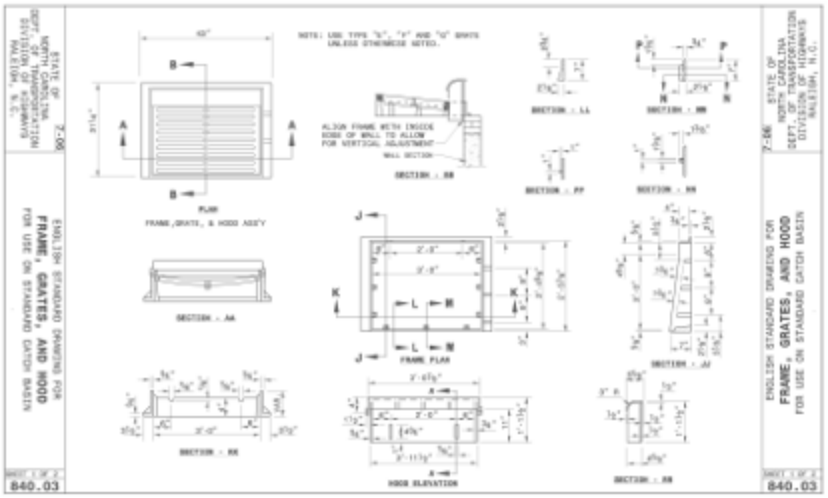
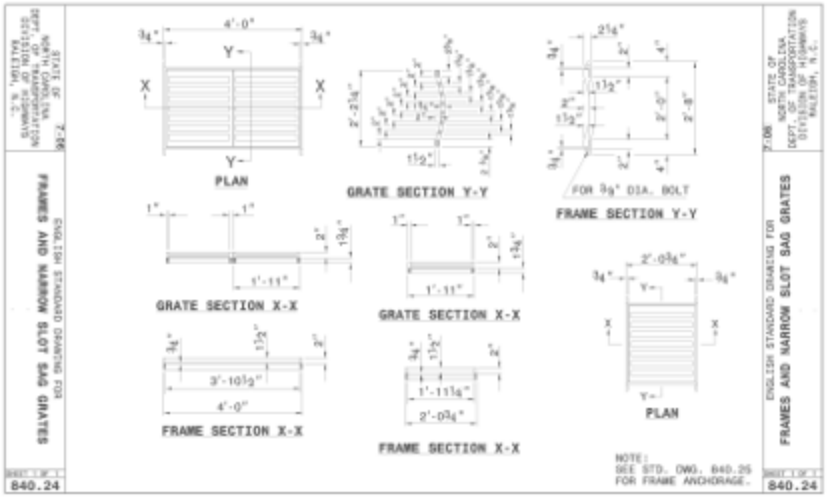
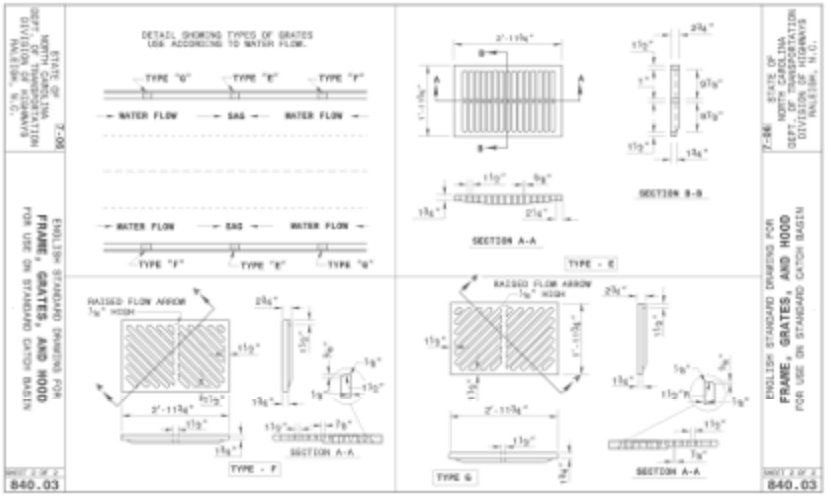
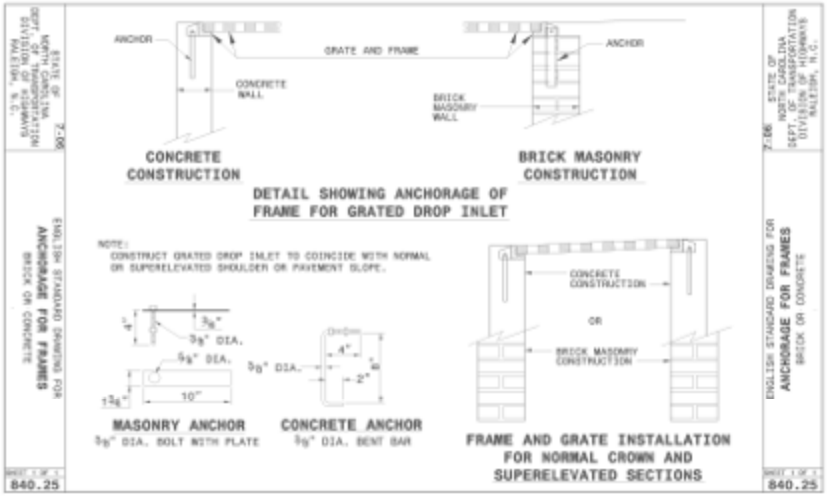
CITY OF WILMINGTON, NORTH CAROLINA
PROGRESS BUILDERS, LLC
SITE DETAILS

C5.3









WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date _____ Permit # _____
Signed _____

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

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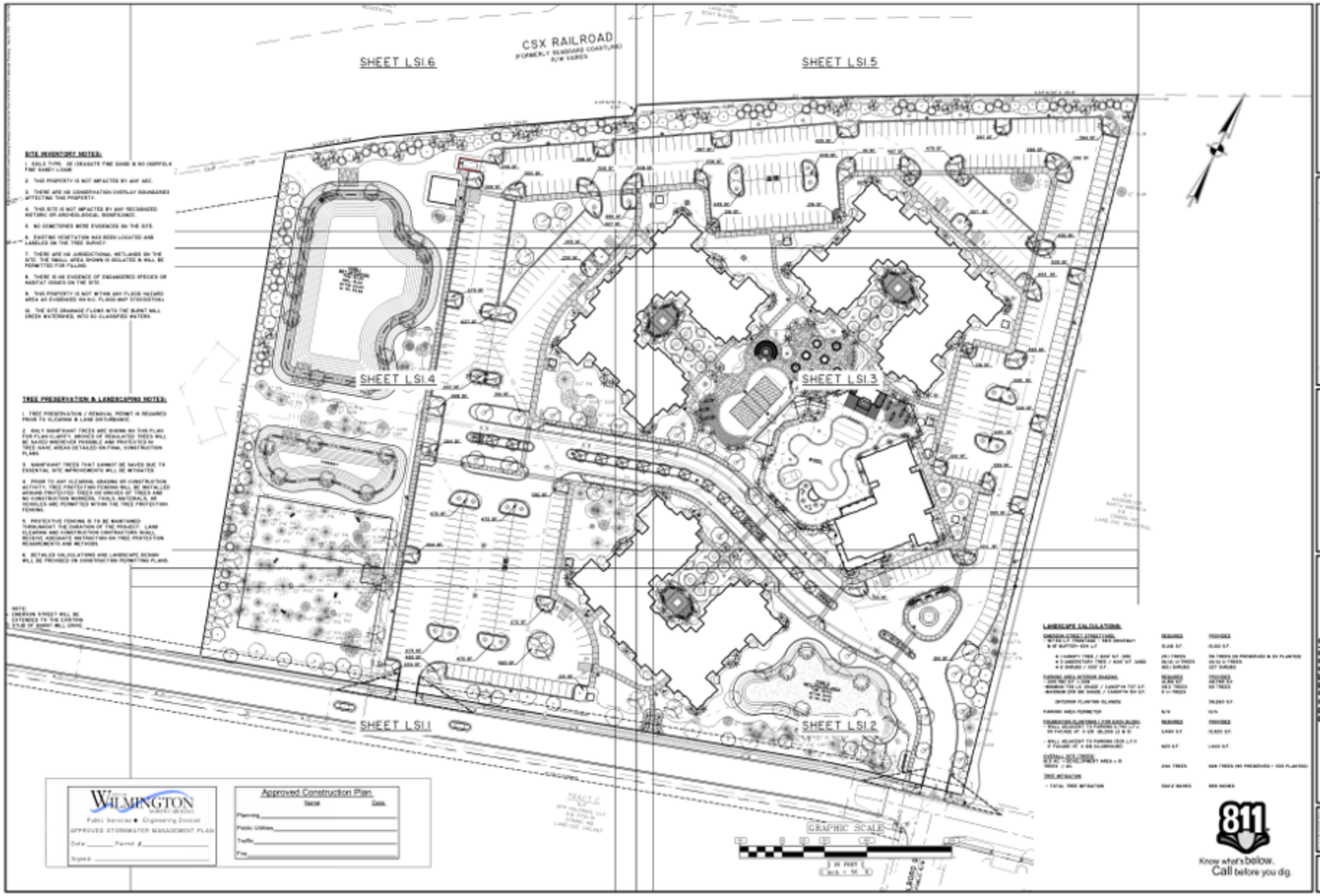
PROGRESS BUILDERS, LLC
SITE DETAILS

C5.4



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PROGRESS 5910
4055 EMERSON STREET

PROGRESS BUILDERS, LLC

LANDSCAPE SHEET INDEX, NOTES & MITIGATION

LG1.1

All Regulated Trees to be Removed (Includes Significant Trees as well)	Size																																
Species	1	4	6	8	10	11	12	13	14	15	16	17	18	20	21	22	23	24	25	26	27	28	30	31	33	35	39	41	44	48	(blank)	Grand Total
CHR				4	13		8	1	1	2	2		1																1			33
CYP																														1		1
DW					1																											1
ELM											1																					1
GUM	1			37	49	1	98	3	38	7	35	1	45	13	1	7	5	1	3	1	1	2		1				1	1			352
LAO					2				1																							3
LO							1																									1
MAG		3	4	1	2		2														1											13
MAP			1	6	20		10		9	1	6		4			2				1		1				1						62
MUL													1																			1
OAK					1																											1
PEC							1																									1
PIN							101		142	4	113		92	34	1	10		5	1	5	1	1	1	1	1							513
POP					1		1		2	1				1																		6
RO							2				1			1																		4
SYC																1				1				1								3
WATO				1			1		2		5		2	2		1	2			1	2	2					1					22
WILO					1						1											1										3
(blank)																																
Grand Total	1	3	5	50	89	1	225	4	195	15	164	1	145	51	2	21	7	6	4	9	5	7	1	3	1	1	1	1	2	1		1021

Count of Significant Pines (32" of greater)to be removed

Row Labels	33	Grand Total
PN	1	1
Grand Total	1	1

Mitigation required for removal of Significant Pines (32" and greater)	Caliper Inches			
Row Labels	33	Sub - Total	Mitigation % required	Inches of Mitigation required ((Sub - Total * % Mit. Req.)*2 / 3)
PN	33	33	50%	11
Sub - Total	33	33		11

Count of Significant Small Flowering Trees to be Removed (8" and greater)

Row Labels	8	10	12	27	Grand Total
DW		1			1
MAG	1	2	2	1	6
Grand Total	1	3	2	1	7

Mitigation required for removal of Significant Small Flowering Trees (8" and greater)	Caliper Inches							
Row Labels	8	10	12	27	Sub-Total	Mitigation % required	Inches of Mitigation required ((Sub - Total * % Mit. Req. * 2 / 3)
DW		10			10	100%	6.7
MAG	8	20	24	27	79	100%	52.7
Sub-Total	8	30	24	27	89		59.3

Significant Pine	11.0
Significant Hardwood	431.8
Significant Flowering Tree	59.3
Total Significant Tree Mitigation Required	502.2

Total Regulated Trees removed within area of disturbance necessary for essential site improvements (Exempt from mitigation)	988

Count of Significant Hardwoods to be Removed (24" and greater)

Row Labels	24	25	26	27	28	31	35	39	41	44	48	Grand Total
CHR										1		1
CYP											1	1
GUM	1	3	1	1	2	1			1	1		11
MAP			1		1		1					3
SYC			1			1						2
WATO			1	2	2			1				6
WILO					1							1
Grand Total	1	3	4	3	6	2	1	1	1	2	1	25

Mitigation required for removal of Significant Hardwoods (24" and greater)	Caliper Inches												
Row Labels	24	25	26	27	28	31	35	39	41	44	48	Sub-Total	Mitigation % required	Inches of Mitigation required ((Sub - Total * % Mit. Req. * 2 / 3)
CHR										44		44	50%	14.7
CYP											48	48	100%	32
GUM	24	75	26	27	56	31			41	44		324	75%	162.0
MAP			26		28		35					89	100%	59.3
SYC			26			31						57	75%	28.5
WATO			26	54	56			39				175	100%	116.7
WILO					28							28	100%	18.7
Sub-Total	24	75	104	81	168	62	35	39	41	88	48	765		431.8

All Remaing Trees	Caliper Inches															
Row Labels	8	10	12	14	16	19	20	22	23	24	25	26	27	28	30	Grand Total
CHR	4	1	3		3		1									12
GUM	1	7	12	1	2	2	3	1	1	1	2		1			34
PN			30		23		27	15	3	4		5				103
POP	1		3				1									5
WATO	1							2								3
Grand Total	7	8	46	1	26	2	32	18	4	5	2	5	1			159

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Approved Construction Plan
Name Date
Planning _____
Public Utilities _____
Traffic _____
Fire _____

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PROGRESS910
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CITY OF WILMINGTON, NORTH CAROLINA
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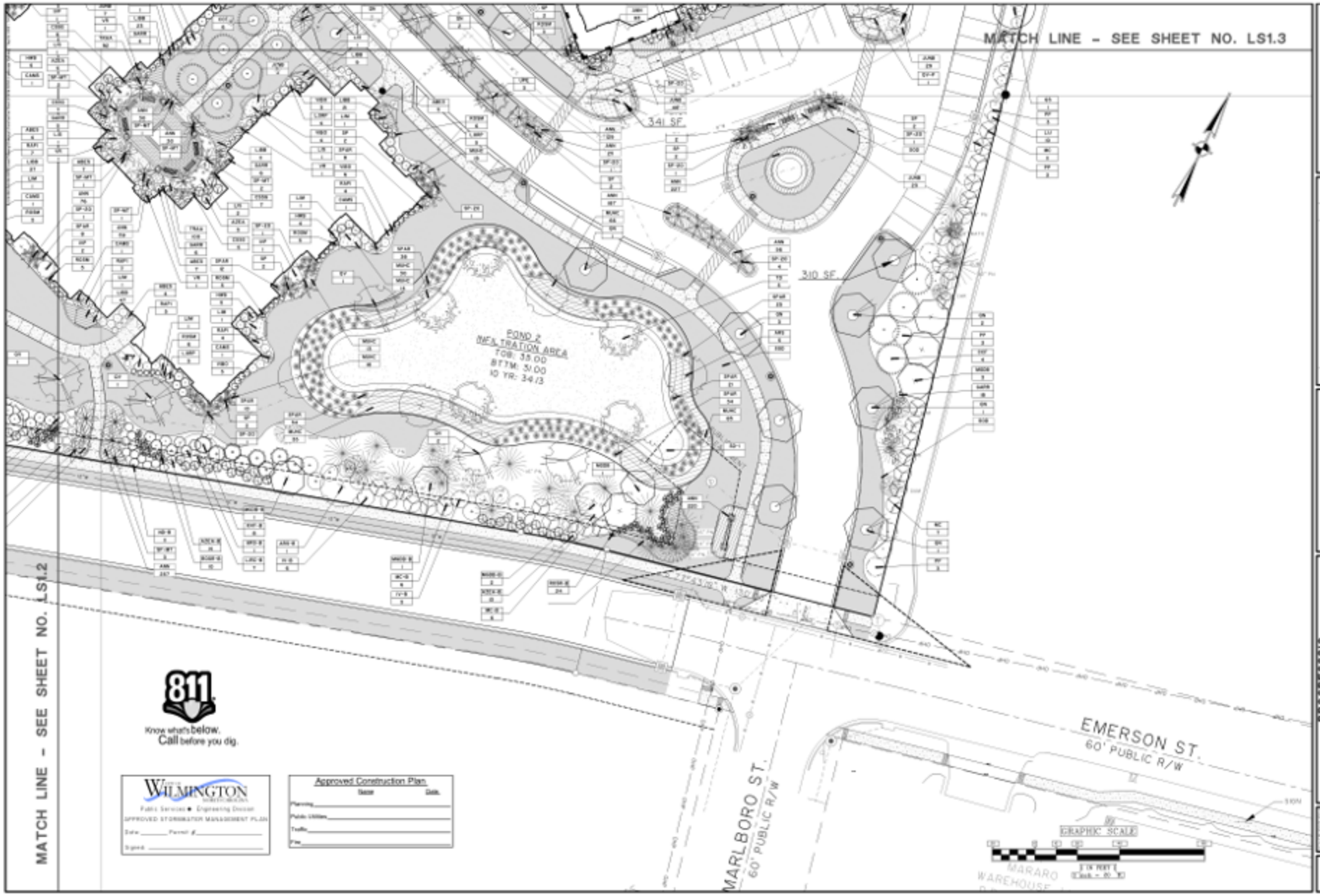
TREE SUMMARY & MITIGATION CHARTS

LG1.2



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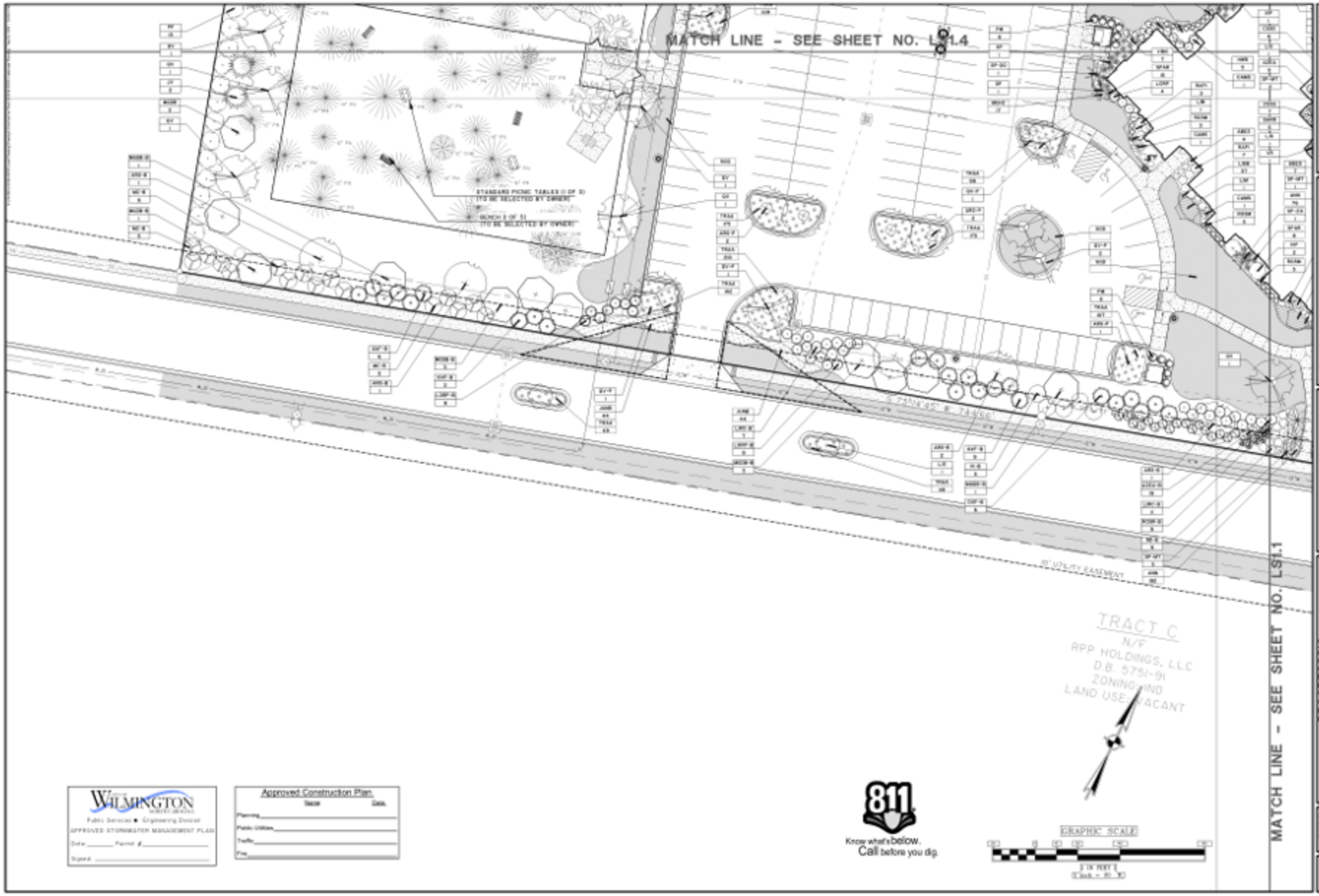
CITY OF WILMINGTON, NORTH CAROLINA

PROGRESS BUILDERS, LLC

LANDSCAPE PLAN

LS1.1



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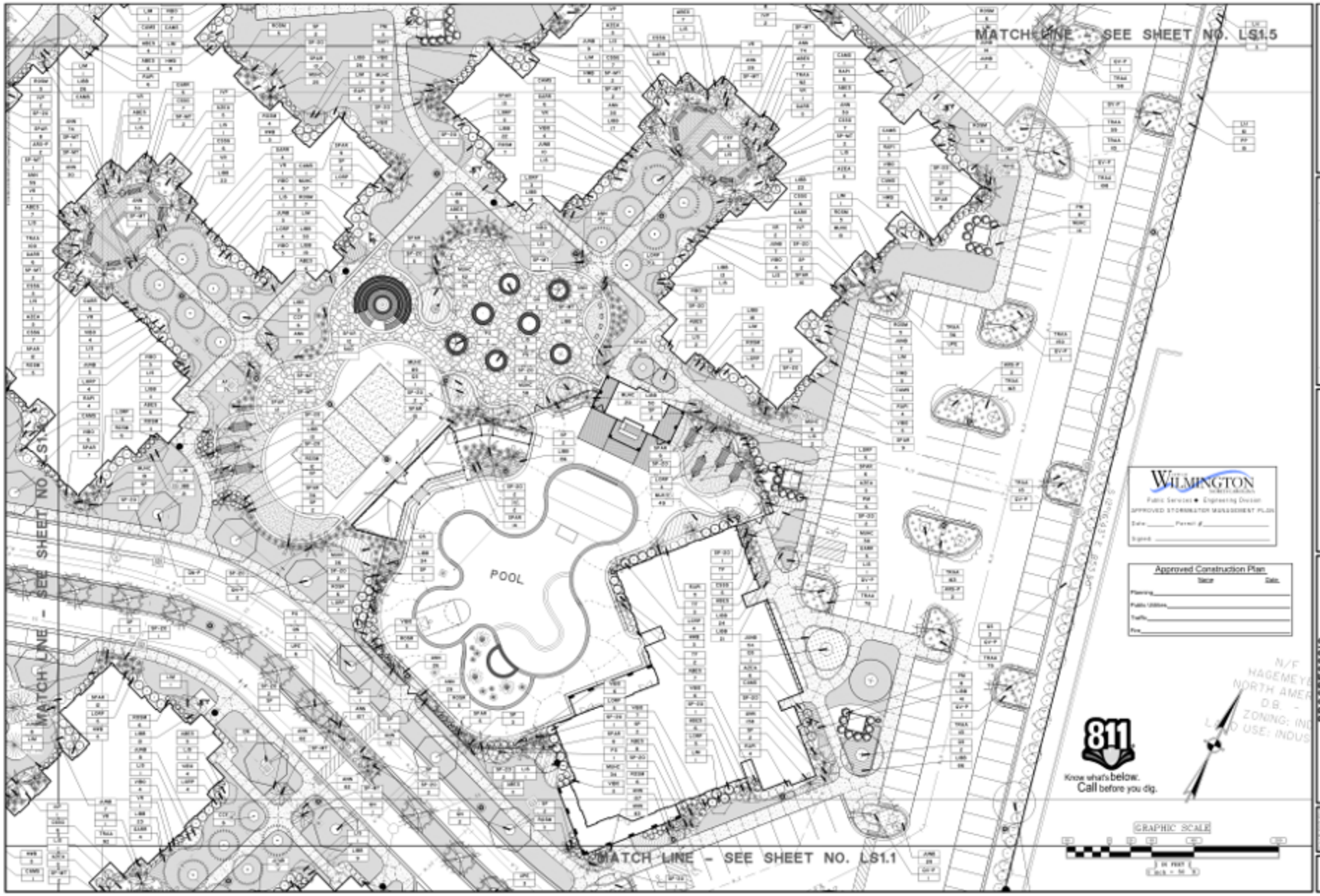
CITY OF WILMINGTON, NORTH CAROLINA

PROGRESS BUILDERS, LLC

LANDSCAPE PLAN

LS1.2



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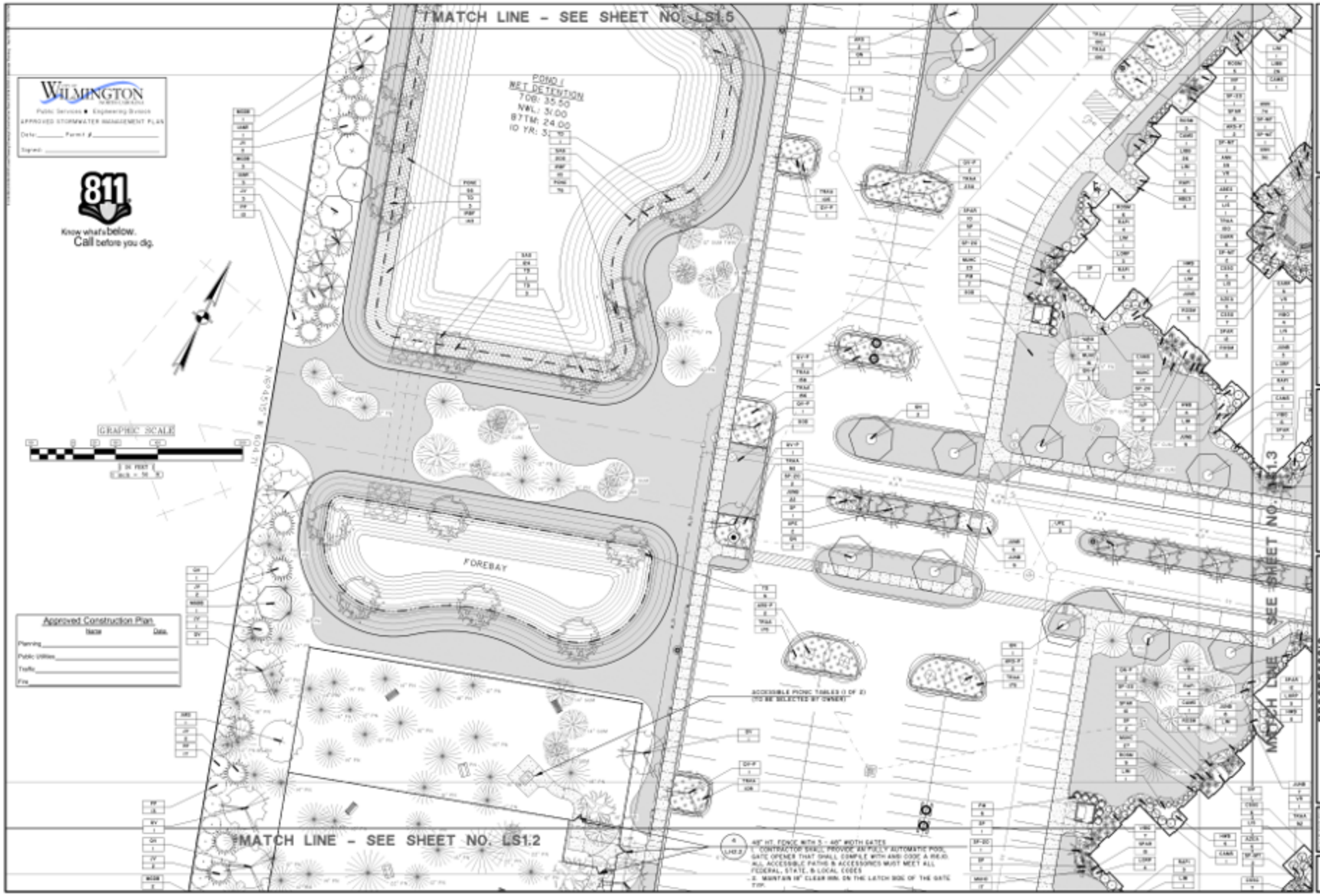
PROGRESS910
4055 EMERSON STREET
CITY OF WILMINGTON, NORTH CAROLINA

PROGRESS BUILDERS, LLC

LANDSCAPE PLAN

LS1.3


MATCH LINE - SEE SHEET NO. LS1.5
MATCH LINE - SEE SHEET NO. LS1.2
MATCH LINE - SEE SHEET NO. LS1.3
POND I
WET DETENTION
7DB: 35.50
NWL: 31.00
87TM: 24.00
10 YR: 3
FOREBAY
WILMINGTON
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
811
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Planning
Public Utilities
Traffic
Fire
ACCESSIBLE PICNIC TABLES (1 OF 2)
(TO BE SELECTED BY OWNER)
48" HT. FENCE WITH 3 - 48" WIDTH GATES
1. CONTRACTOR SHALL PROVIDE AN FULLY AUTOMATIC POOL GATE OPENER THAT SHALL COMPILE WITH ANSI CODE A RIGID. ALL ACCESSIBLE PATHS & ACCESSORIES MUST MEET ALL FEDERAL, STATE, & LOCAL CODES
2. MAINTAIN 18" CLEAR MIN. ON THE LATCH SIDE OF THE GATE TOP.
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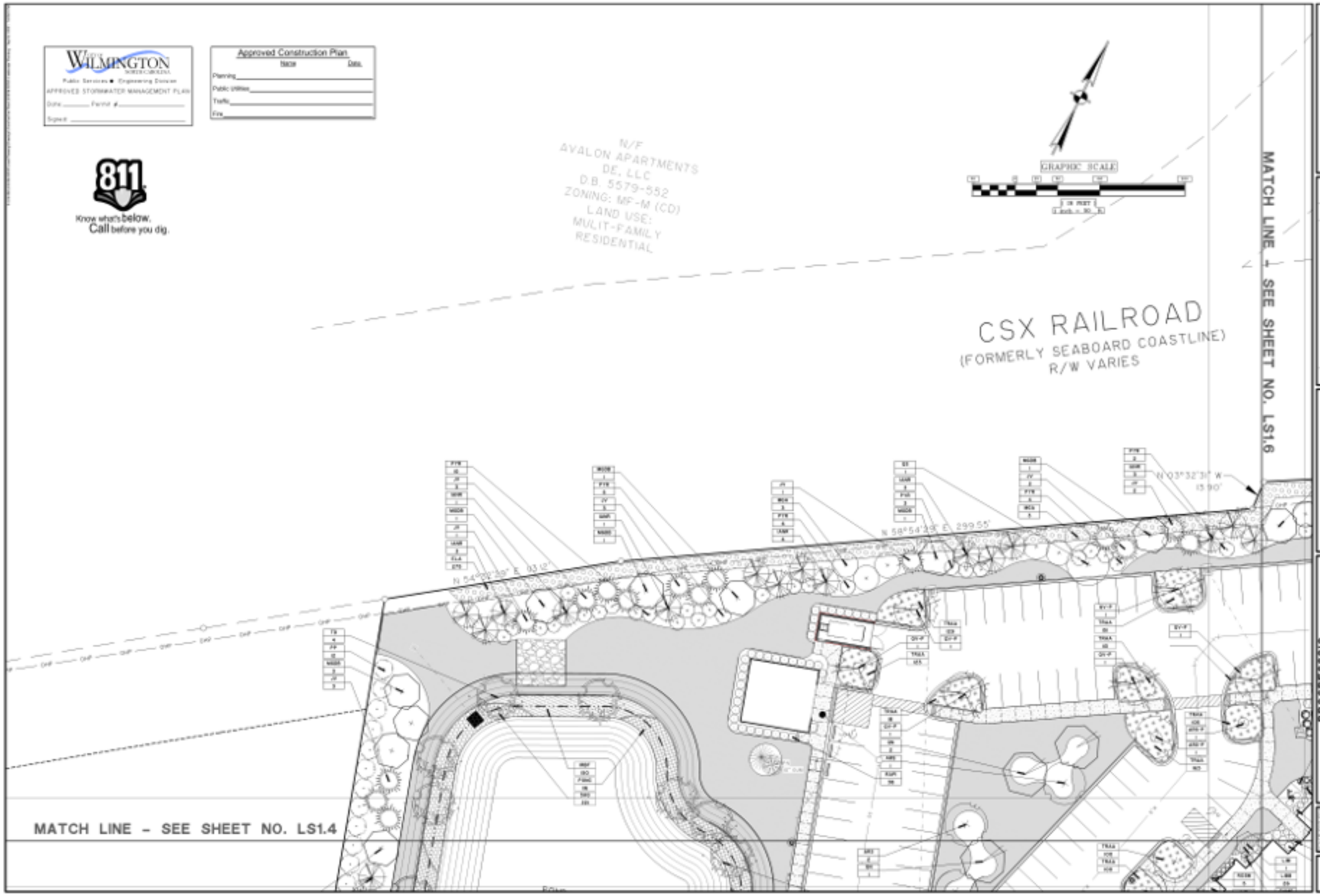
CITY OF WILMINGTON, NORTH CAROLINA
PROGRESS BUILDERS, LLC
LANDSCAPE PLAN AND DOG PARK LAYOUT AND CALLOUT
LS1.4


CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date _____ Permit # _____
Signed _____
Approved Construction Plan
Name Date
Planning
Public Utilities
Traffic
Fire
811
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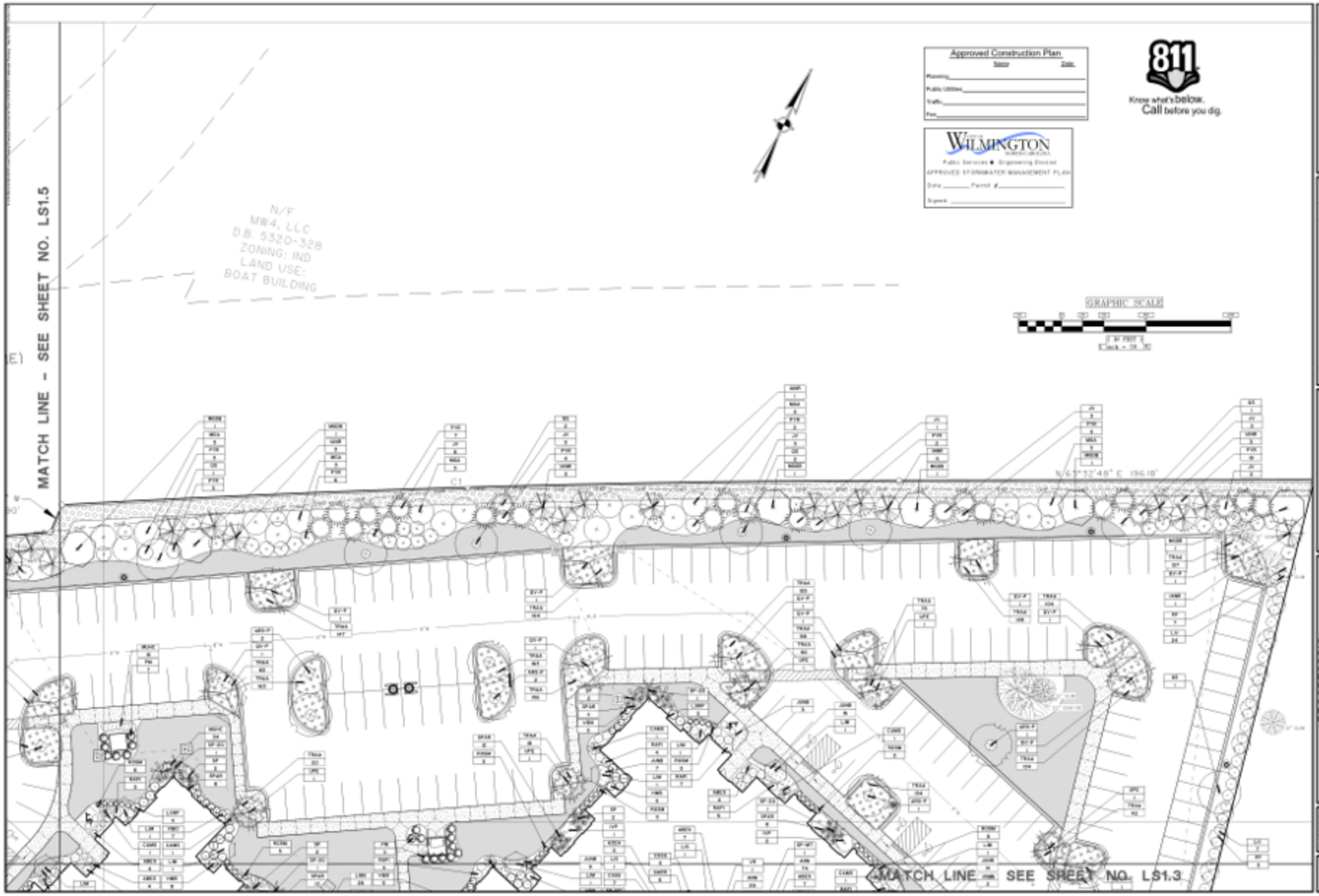
N/F
AVALON APARTMENTS
DE, LLC
D.B. 5579-552
ZONING: MF-M (CD)
LAND USE:
MULIT-FAMILY
RESIDENTIAL
GRAPHIC SCALE
CSX RAILROAD
(FORMERLY SEABOARD COASTLINE)
R/W VARIES
MATCH LINE - SEE SHEET NO. LS1.6
N 58°54'23" E 299.55'
N 03°32'31" W
15.90'
MATCH LINE - SEE SHEET NO. LS1.4
THOMAS & HUTTON
PROGRESS910
4055 EMERSON STREET
PROGRESS BUILDERS, LLC
LANDSCAPE PLAN
LS1.5



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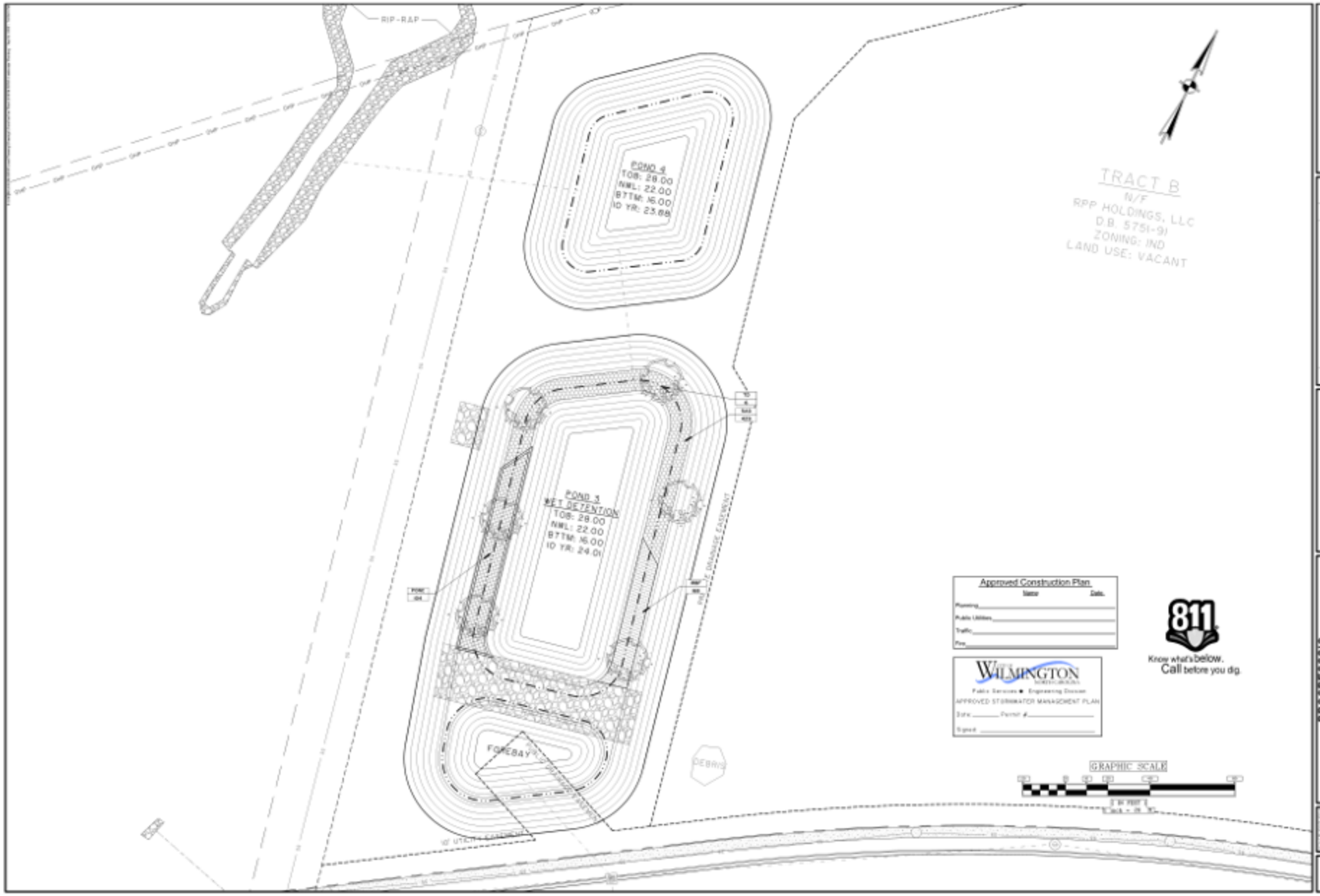
CITY OF WILMINGTON, NORTH CAROLINA

PROGRESS BUILDERS, LLC

LANDSCAPE PLAN

LS1.6



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PROGRESS BUILDERS, LLC

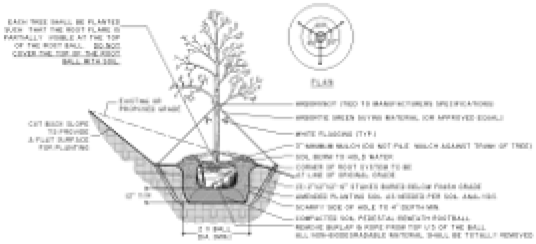
LANDSCAPE PLAN

LS1.7

CITY OF WILMINGTON
NORTH CAROLINA
Public Services ■ Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: ________ Permit #: ________
Signed: ________

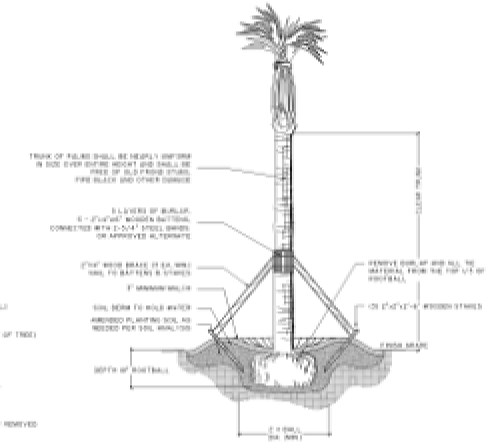
Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		



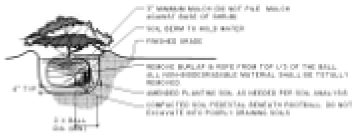
NOTES:
1) SEE LANDSCAPE NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.
2) ONLY GUY TREES WHEN SITE CONDITIONS REQUIRE IT.
3) PLANT ROOT BALL FLUSH WITH FINISHED GRADE UNLESS AREA HAS POOR DRAINAGE, IN WHICH CASE PLANT ROOTBALL 2" ABOVE GRADE.
4) REMOVE ALL BRANCHES THAT ARE DAMAGED, RUBBING, OR CROSSING OTHER BRANCHES.
5) NEVER CUT A CENTRAL LEADER.
6) FINAL TREE STAKING AND PLACEMENT TO BE APPROVED BY OWNER'S REP.
7) CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.

TREE PLANTING ON A SLOPE
NOT TO SCALE



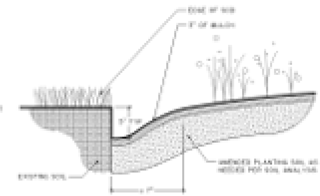
NOTES:
1) SEE LANDSCAPE NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.
2) PLANT ROOT BALL FLUSH WITH FINISHED GRADE UNLESS AREA HAS POOR DRAINAGE, IN WHICH CASE PLANT ROOTBALL 2" ABOVE GRADE.
3) SABAL PALMETTOS SHALL BE DEFOLIATED; PROTECT CABBAGE HEAD FROM DAMAGE. ALL OTHER PALM SPECIES MUST HAVE FRONDS TIED W/BIODEGRADABLE STRAP OR TWINE.
4) FINAL TREE STAKING AND PLACEMENT TO BE APPROVED BY OWNER'S REP.
5) CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.

PALM TREE PLANTING
NOT TO SCALE



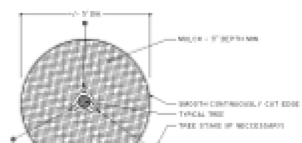
1) SEE LANDSCAPE NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.
2) WHEN GROUNDCOVER AND SHRUBS ARE USED IN MASSES, DO NOT FORM SOIL BERMS ON INDIVIDUAL PLANTS AND ENTIRE PLANTING BED SHALL BE EXCAVATED TO RECEIVE PLANTING SOIL AND PLANT MATERIAL.
3) PLANT ROOT BALL FLUSH WITH FINISHED GRADE UNLESS AREA HAS POOR DRAINAGE, IN WHICH CASE PLANT ROOTBALL 2" ABOVE GRADE. COORDINATE WITH OWNER'S REP. PRIOR TO SETTING ROOTBALL ELEVATIONS.
4) CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.

SHRUB PLANTING
NOT TO SCALE



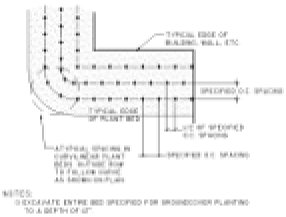
NOTES:
1) TRENCH EDGE TO BE LOCATED BETWEEN PLANTING BEDS AND ALL LAWN AREAS.

SOD TO PLANT BED EDGE
NOT TO SCALE



NOTES:
1) SEE LANDSCAPE NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.
2) APPLY MULCH IN A +/- 5' DIAMETER WHERE PROPOSED TREE PLANTINGS OCCUR IN SOD OR SEEDED AREA.

TREE RING
NOT TO SCALE



NOTES:
1) EXCAVATE ENTIRE BED SPECIFIED FOR GROUNDCOVER PLANTING TO A DEPTH OF 12"

PLANT SPACING DETAIL
NOT TO SCALE

GENERAL PLANTING / IRRIGATION NOTES:

1. REQUIREMENTS FOR THE MEASUREMENTS, BRANCHING, GRADING, QUALITY, BALLING AND BURLAPPING OF PLANTS IN THE PLANT LIST SHOULD FOLLOW OR EXCEED THE STANDARDS CURRENTLY RECOMMENDED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. IN THE AMERICAN STANDARD FOR NURSERY STOCKS (ASNS) UNLESS OTHERWISE SPECIFIED. ANY SIZE SPECIFIED SHALL BE CONSIDERED MINIMUM. MINIMUMS FOR HEIGHT, SPREAD, CALIPER, ETC. SHALL TAKE PRECEDENT OVER A SPECIFIED CONTAINER SIZE. (I.E. - IF 7 GALLON IS REQUIRED TO PROVIDE A SPECIFIED HEIGHT OR SPREAD THAT IS SPECIFIED AS A 3 GALLON, THEN THE 7 GALLON SHALL BE SHALL BE REQUIRED AND INCLUDED IN THE BASIC BID AND SHALL NOT BE CONSIDERED A CHANGE ORDER.

2. ALL PLANTS SHALL HAVE A WELL FORMED HEAD WITH MINIMUM CALIPER, HEIGHT AND SPREAD OF THE SIDE BRANCHES AS SHOWN ON THE PLANT LIST. TRUNKS SHALL BE UNDAMAGED AND SHAPE SHALL BE TYPICAL OF THE SPECIES.

3. MEASUREMENT OF CONIFER HEIGHT SHALL INCLUDE NOT MORE THAN FIFTY (50) PER CENT OF THIS YEARS' VERTICAL GROWTH (TOP CANDLE).

4. THE LANDSCAPE CONTRACTOR IS HEREBY NOTIFIED OF THE EXISTENCE OF UNDERGROUND UTILITIES WITHIN THE LIMITS OF THE PROJECT AREA. THE CONTRACTOR SHOULD VERIFY THE EXACT LOCATION OF ALL UTILITY LINES PRIOR TO COMMENCEMENT OF DIGGING OPERATIONS. CONTRACTOR RESPONSIBLE FOR LOCATING, PROTECTING, AND REPAIRING ALL DAMAGE TO BUILDINGS, UTILITIES, PAVEMENT, AND CURB & GUTTER. ANY REPAIRS SHALL BE DONE PROMPTLY AT CONTRACTOR'S EXPENSE.

5. THE CONTRACTOR WILL BE RESPONSIBLE FOR STAKING AND LAYOUT OF PLANTINGS ON THIS PROJECT. THE LANDSCAPE ARCHITECT OR OWNER SHALL BE ADVISED WHEN STAKES ARE READY FOR INSPECTION ON VARIOUS PLANTING AREAS. ALL LAYOUT WORK SHALL BE INSPECTED AND APPROVED BY THE LANDSCAPE ARCHITECT AND OWNER PRIOR TO OPENING ANY PLANTING PITS.

6. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO VERIFY THAT EACH EXCAVATED TREE OR SHRUB PIT WILL PERCOLATE (DRAIN) PRIOR TO ADDING TOPSOIL AND INSTALLING TREES OR SHRUBS. THE CONTRACTOR SHALL FILL THE BOTTOM OF HOLES WITH SIX (6) INCHES OF WATER. THIS WATER SHOULD PERCOLATE WITHIN A TWENTY-FOUR (24) HOUR PERIOD. IF WATER DOESN'T PERC, CONTRACTOR SHALL NOTIFY THE OWNER'S REP PRIOR TO INSTALLING PLANTS.

7. SHOULD THE LANDSCAPE CONTRACTOR ENCOUNTER UNSATISFACTORY SURFACE OR SUBSURFACE DRAINAGE CONDITIONS, SOIL DEPTH, LATENT SOILS, HARD PANS, STEAM OR OTHER UTILITY LINES OR OTHER CONDITIONS THAT WILL JEOPARDIZE THE HEALTH AND VIGOR OF THE PLANTS, HE MUST ADVISE THE LANDSCAPE ARCHITECT IN WRITING OF THE CONDITIONS PRIOR TO INSTALLING THE PLANTS. OTHERWISE, THE LANDSCAPE CONTRACTOR WARRANTS THAT THE PLANTING AREAS ARE SUITABLE FOR PROPER GROWTH AND DEVELOPMENT OF THE PLANTS TO BE INSTALLED.

8. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING UP THE SITE AT THE COMPLETION OF THE PROJECT AND SHALL MAINTAIN THE SITE IN A REASONABLY NEAT AND CLEAN STATE THROUGHOUT THE INSTALLATION PROCESS. STREETS AND PAVED AREAS SHALL BE CLEANED REGULARLY TO REMOVE CONSTRUCTION MATERIALS AND OTHER DEBRIS RESULTING FROM WORK OF THE PROJECT.

9. PLANTS SHALL BE GUARANTEED FOR THE LENGTH OF TIME REQUIRED BY THE LOCAL JURISDICTION (MIN. OF TWO (2) FULL YEARS) AFTER THE FORMAL ACCEPTANCE OF THE PLANTING BY THE OWNER AND SHALL BE ALIVE AND IN SATISFACTORY GROWTH AT THE END OF THE GUARANTEE PERIOD. ANY PLANT NOT IN A HEALTHY AND VIGOROUS STATE AT THE END OF THE GUARANTEE PERIOD SHALL BE REPLACED AT NO COST TO THE OWNER. PLANTS SEVERELY DAMAGED BY VANDALS ARE NOT SUBJECT TO REPLACEMENT BY THE CONTRACTOR.

10. REPLACEMENTS OF DEAD OR UNSATISFACTORY MATERIAL SHALL BE MADE AS SPECIFIED IN THE PLANT LIST. THE OWNER OR LANDSCAPE ARCHITECT SHALL INSPECT REPLACED PLANTS WHEN ALL REPLACEMENTS HAVE BEEN MADE. REPLACEMENTS ARE TO BE ALIVE AND IN A HEALTHY CONDITION WHEN THE REPLACEMENTS ARE COMPLETE. REPLACEMENTS ARE NOT SUBJECT TO AN ADDITIONAL GUARANTEE, BUT THE LANDSCAPE CONTRACTOR SHALL CONSULT WITH THE LANDSCAPE ARCHITECT ON REASON FOR PLANT DECLINE/DEATH AND HOW TO AVOID FUTURE INSTANCES.

11. SHOULD THE CONTRACTOR NOT MAKE REPLACEMENTS IN A SATISFACTORY AND TIMELY FASHION IN ACCORD WITH THE PLANTING NOTES, THE OWNER, AFTER PROPER NOTIFICATION TO THE CONTRACTOR MAY UTILIZE THE FUNDS OF THE RETAINAGE TO HAVE THE REPLACEMENTS MADE IN ACCORDANCE WITH THE SPECIFICATIONS BY ANOTHER CONTRACTOR.

12. NO EXCAVATION OR PLANTING PIT SHALL BE LEFT UNATTENDED OVERNIGHT.

13. PLANT MATERIAL QUANTITIES PROVIDED IN THE PLANT LIST ARE FOR REFERENCE ONLY AND THE CONTRACTOR IS RESPONSIBLE FOR THE ACTUAL PLANT MATERIAL COUNTS. DISCREPANCIES BETWEEN QUANTITIES SHOWN ON THE PLANTING PLAN AND THOSE IN THE PLANT LIST SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR CLARIFICATION. IF CLARIFICATION OF DISCREPANCIES FROM THE LANDSCAPE ARCHITECT IS NOT POSSIBLE, THEN QUANTITIES SHOWN ON THE PLANTING PLAN SHALL TAKE PRECEDENCE.

14. REMOVE BURLAP/STRAPPING AND WIRE BASKET FROM TOP ⅓ OF ROOT BALL ON TREES.

15. REMOVE PAPER, PLASTIC OR METAL AROUND ROOT BALLS OF SHRUBS.

16. DO NOT WRAP TREES.

17. WATER ALL PLANT MATERIAL IMMEDIATELY AFTER PLANTING.

18. TREE GUYING MATERIAL SHALL BE "ARBOR-TIE" OR EQUIVALENT.

19. ALL PLANT BEDS TO BE MULCHED WITH 3" OF DOUBLE SHREADED HARDWOOD MULCH.

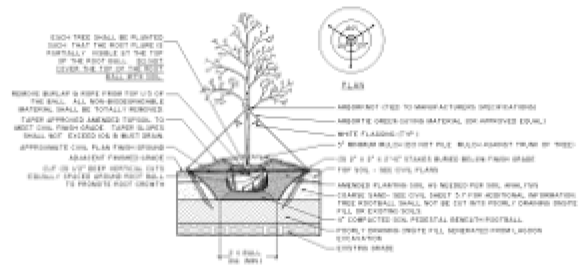
20. ALL AREAS OF PLANTING, INCLUDING AREAS OF GRASS SEEDING AND SOD, SHALL BE GRADED TO PROVIDE POSITIVE DRAINAGE AND SHALL BE PROVIDED APPROPRIATE SOIL FOR THE PROPOSED PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL ADJUST PH AND / OR SOIL FERTILITY BY UNIFORMLY INCORPORATING REQUIRED SOIL CONDITIONING MATERIALS AT THE RATE AND DEPTH DETERMINED BY THE ANALYSIS OF THE SOIL TEST (AS REQUIRED IN 3.02 AND 3.12 OF THE LANDSCAPING SPECIFICATIONS). EACH SOIL TEST SHALL BE SPECIFIC TO THE PROPOSED PLANT MATERIAL TO BE INSTALLED IN A GIVEN AREA.

21. ALL EXISTING VEGETATION WITHIN AREAS TO BE PLANTED / SODDED / SEEDED SHALL BE REMOVED PRIOR TO PLANTING / SODDING / SEEDING. ALL AREAS INDICATED TO BE GRASS SEED SHALL BE HYDROSEEDED PER EROSION SEDIMENT CONTROL SPECIFICATIONS FOR PERMANENT STABILIZATION.

22. CONTRACTOR TO SUPPLY AUTOMATIC IRRIGATION SYSTEMS, COMPLETE AND INSTALLED. SYSTEM TO INCLUDE ALL VALVES, PIPES, HEADS, FITTINGS, RAIN SENSOR, AND CLOCK AND TO PROVIDE 100% COVERAGE OF ALL NEW SODDED AREAS, TREES, SHRUBS AND PLANTING BEDS. COORDINATE IRRIGATION WITH OWNER'S REPRESENTATIVE. (CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF PROPOSED IRRIGATION SYSTEM FOR OWNER ACCEPTANCE).

23. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR AUTOMATIC IRRIGATION SYSTEMS. CONTRACTOR SHALL PROVIDE ELECTRIC METER AND SERVICE IN ACCORDANCE WITH STATE AND LOCAL CODES FOR IRRIGATION SYSTEM. LOCATION OF METERS AND CONTROL PANELS FOR IRRIGATION SHALL BE APPROVED BY OWNER'S REP. PRIOR TO INSTALLATION.

24. ALL TREES SHALL BE INSTALLED PER THE REQUIREMENTS OF THE CITY OF WILMINGTON, NORTH CAROLINA APPLICABLE ORDINANCES.



NOTES:
1) SEE LANDSCAPE NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.
2) ONLY GUY TREES WHEN SITE CONDITIONS REQUIRE IT.
3) PLANT ROOT BALL A MINIMUM OF 2" OR HIGHER AS DICTATED BY SITE CONDITIONS TO PREVENT ANY CUT INTO POORLY DRAINING SOILS.
4) REMOVE ALL BRANCHES THAT ARE DAMAGED, RUBBING, OR CROSSING OTHER BRANCHES.
5) NEVER CUT A CENTRAL LEADER.
6) FINAL TREE STAKING AND PLACEMENT TO BE APPROVED BY OWNER'S REP.
7) CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.

TREE PLANTING
NOT TO SCALE

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PROGRESS BUILDERS, LLC
PLANT SCHEDULE, NOTES & DETAILS

LS2.1

PLANT SCHEDULE

TREES

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS	MITIGATION INCHES PROVIDED
23	acrr-P	Acer rubrum 'Summers Red'	'Summers Red' Red Maple	B & B OR CONT. ; 2.5" Cal. Min., 14-16' Ht.	AS SHOWN	Specimen	0
3	acrr	Acer rubrum 'Summers Red'	'Summers Red' Red Maple	B & B OR CONT. ; 2.5" Cal. Min., 14-16' Ht.	AS SHOWN	Specimen	22.5
22	ccr	Cercis canadensis 'Forest Pansy'	'Forest Pansy' Redbud	B & B ; 2.5" Cal (2" HT) 8-10' SPD.	AS SHOWN	Specimen, single trunk	55
34	ilcrn	Ilex aquifolium x cornuta 'Nellie R. Stevens'	'Nellie R. Stevens Holly	2.5" Cal., 12-14' O.A. HT	AS SHOWN	Specimen, Full to ground	0
12	ilcr	Ilex cornuta 'Pendula'	'Weeping Yaupon Holly	CONT. 6-8' O.A. HT	AS SHOWN	Specimen, Full to ground	0
50	jvi	Juniperus virginiana 'Burkii'	'Eastern Red Cedar	B & B OR CONT. ; 2.5" Cal., 10 TO 12' Ht.	AS SHOWN	Full to ground	100
30	LGM	Lagerstroemia indica 'Muskogee'	'Muskogee' Crape Myrtle	CONT. 10' - 12' HT.	AS SHOWN	Specimen, multi-trunk, 3 trunk min. 7" Cal. per cane	90
37	LGS	Lagerstroemia indica 'Sarah's Favorite'	'Sarah's Favorite Crape Myrtle White	CONT. 2.5" CAL. 8' - 10' HT. O.A.HT.	AS SHOWN	Specimen, Inspired	92.5
23	MGS	Magnolia grandiflora 'SLTD'	'SLTD' Southern Magnolia	B & B OR CONT. ; 2.5" Cal. Min., 14-16' Ht.	AS SHOWN	Specimen, Full to Ground	0
23	MGDB	Magnolia grandiflora 'D.B. Blanchard'	'D.B. Blanchard' Southern Magnolia	B & B OR CONT. ; 2.5" Cal. Min., 14-16' Ht.	AS SHOWN	Specimen, Full to Ground	57.5
32	PP	Pinus palustris	'Longleaf Pine	B & B OR CONT. ; 2.5" Cal. Min., 14-16' Ht.	AS SHOWN	Specimen	80
5	PPS	Prunus serrulata 'Kwanzan'	'Kwanzan Cherry	B & B OR CONT. ; 2.5 Cal., 6' SPD.,8' O.A. HT.	AS SHOWN	Specimen	12.5
8	QPL-P	Quercus palustris	'Pallid Oak	B & B OR CONT. ; 2.5" Cal. Min., 14-16' Ht.	AS SHOWN	Specimen	0
52	QPL	Quercus palustris	'Pallid Oak	B & B OR CONT. ; 2.5" Cal. Min., 14-16' Ht.	AS SHOWN	Specimen	52.5
20	QS	Quercus shumardii	'Shumard Oak	B & B OR CONT. ; 2.5" Cal. Min., 12-14' Ht.	AS SHOWN	Specimen	50
13	QV	Quercus virginiana 'Cathedral'	'Cathedral' Live Oak	B & B OR CONT. ; 2.5" Cal. Min., 12-14' Ht.	AS SHOWN	Specimen	32.5
38	QV-P	Quercus virginiana 'Cathedral'	'Cathedral' Live Oak	B & B OR CONT. ; 2.5" Cal. Min., 12-14' Ht.	AS SHOWN	Specimen	0
68	SP	Sabal palmetto	Sabal Palm	BR 15-20', DA HT	AS SHOWN	Stagger 10%	0
62	SP-ES	Sabal palmetto	Sabal Palm	BR 20' DA HT	AS SHOWN	Stagger 10%	0
16	SP-MT	Sabal palmetto	Sabal Palm	BR 20' DA HT	AS SHOWN	Matching Hts.	0
32	TD	Taxodium distichum	Bald Cypress	B & B or CONT. 2.5" Cal.6' HT. 3.5' SPD.	AS SHOWN	Specimen	80
6	TH	Trachycarpus fortunei	Windmill Palm	B & B ; 6-8' DA HT	AS SHOWN	Multi-stem 3 Stagger Ht. Trunks	0
20	UPC	Ulmus parvifolia 'DENLIPP' PP17,855	'Corniche' Elm	RMB OR CONT. ; 2.5" Cal., 4'SPD. 10' HT.	AS SHOWN	Specimen	50

BUFFER TREES

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS	MITIGATION INCHES PROVIDED
7	acrr-B	Acer rubrum 'Summers Red'	'Summers Red' Red Maple	B & B OR CONT. ; 2.5 " Cal Min. 14-16' Ht	AS SHOWN	Specimen	0
15	MGDB-B	Magnolia grandiflora 'D.B. Blanchard'	'D.B. Blanchard' Southern Magnolia	B & B OR CONT. ; 2.5" Cal. Min., 14-16' Ht	AS SHOWN	Specimen, Full to Ground	0

SHRUBS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
128	abfs	Abelia x grandiflora 'Frances Mason'	'Frances Mason' Abelia	CONT. 18" X 18"	AS SHOWN	Fall
61	aclw	Aralia x 'Sunny' WRIGHT	'Sunny Aralia Ruffle Khaffyd'™	CONT. 20" x 20"	AS SHOWN	Fall to Ground
82	LSSG	Camellia sasanqua 'Shishi Gashira'	'Shishi Gashira Camellia	CONT. 24" O.A. HT.	AS SHOWN	Fall to ground
33	LSWD	Camellia sinensis 'White Doves'	'White Doves Camellia	CONT. 24" O.A. HT.	AS SHOWN	Fall
275	ILA	Ilex vomitoria 'nana'	'Dwarfyaupon	7 GAL. ; 12" HT	5'	Fall
66	GJGB	Gardenia jasminoides 'Radicans'	'Dwarf Gardenia	CONT. 18" X 18"	AS SHOWN	Fall
64	HMB	Hebe 'Wiri Blush'	'Wiri Blush Hebe	CONT. 24" X 24"	AS SHOWN	Fall
102	LJJ	Ligustrum japonicum	'Japanese Privet'	CONT. 36" O.A. HT.	AS SHOWN	Fall
108	LJPP	Loropetalum chinense 'Purple Diamond'	'Purple Diamond Loropetalum	CONT. 22" X 20"	AS SHOWN	Fall
45	MC	Myrica cerifera	'Wax Myrtle	CONT. 36" O.A. HT.	AS SHOWN	Fall to Ground
28	PM	Pittosporum tobira 'Wheeler's Gem'	'Wheeler's Gem	CONT. 36" O.A. HT.	AS SHOWN	Fall to Ground
68	PTN	Pyracantha koidzumii	'Fortune Firethorn	CONT. 48" O.A. HT.	AS SHOWN	Fall
149	RIaFr	Raphiolepis indica	'Indian Hawthorn	CONT. 22" x 20"	AS SHOWN	Fall
16	RCGR	Rosa 'Radtko'	'The Double Knock Out®Rose	CONT. 18" X 18"	AS SHOWN	Fall to Ground
220	RCGM	Rosa 'Meidiland'	'Coral Drift®	CONT. 22" X 20"	AS SHOWN	Fall to Ground
148	VSSC	Viburnum Sterilum 'Mrs. Schiller's Delight'	'Viburnum 'Mrs. Schillers Delight'	CONT. 22" X 20"	AS SHOWN	Fall
15	vrh	Viburnum rhytidophyllum	'Leatherleaf Viburnum	CONT. 48" O.A. HT.	AS SHOWN	Fall

BUFFER SHRUBS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANT SIZE	SPACING	MISCELLANEOUS / REMARKS
46	aclw-B	Aralia x 'Sunny' WRIGHT	'Sunny Aralia Ruffle Khaffyd'™	CONT. 36" x 20"	AS SHOWN	Fall to Ground
16	Ilcr-B	Ilex cornuta	'Yaupon Holly	CONT. 36" O.A. HT.	AS SHOWN	Specimen, Full to ground
29	LJPC-B	Ligustrum japonicum	'Japanese Privet'	CONT. 36" X 24"	AS SHOWN	Fall
11	LJPP-B	Loropetalum chinense 'Purple Diamond'	'Purple Diamond Loropetalum	CONT. 36" x 20"	AS SHOWN	Fall
28	MC-B	Myrica cerifera	'Wax Myrtle	CONT. 36" O.A. HT.	AS SHOWN	Fall to Ground
20	NI-B	Nandina domestica 'Harbour Dwarf'	'Harbour Dwarf Nandina	CONT. 18" X 18"	AS SHOWN	Fall to ground
32	EAF-B	Euonymus x fortunei	'Fortune's Tea Olive	CONT. 48" DA HT	AS SHOWN	Specimen, Full to ground
43	RCGR-B	Rosa 'Radtko'	'The Double Knock Out®Rose	CONT. 18" X 18"	AS SHOWN	Fall to Ground

ORNAMENTAL GRASSES AND GROUNDCOVERS

QNTY	ABBRV	SCIENTIFIC NAME	COMMON NAME	PLANTING SIZE	SPACING	MISCELLANEOUS / REMARKS
1858 S.F. 14830 S.F.	ANN	.....	Seasonal Color	CONT. 12" O.A. HT.	12"	Species to be selected by owner. Plant at appropriate spacing to create immediate solid mass. Plant in 6 to 9" garden soil mixture
1470 S.F. 147000 S.F.	SOD	.....	Bermudagrass Sod	.....	12"	See Grassing Specifications
	SOD	Cynodon dactylon 'Celebration'	'Celebration' Bermuda Grass	.....		Dense roots
676	IRV	Iris virginica	Blue Flag Iris	CONT. 12" O.A. HT.	2'	Fall
389	JUND	Juniperus squamata expansa 'Parsoni'	'Parson's Juniper	CONT. 12" X 2.5"	2.5'	Fall
846	LIBB	Liriope muscari 'Big Blue'	'Big Blue Liriope	CONT. 4" O.A. HT.	18"	Fall
387	MUHC	Muhlenbergia capillaris	'Pink Muhly Grass	1 GAL. 8" X 12"	2'	Fall
38	PRHC	Pennisetum Caudata	'Fountaingrass	CONT. 3' O.A. HT.	3'	
674	LAG	Lagerstroemia indica	'Dwarf crape	CONT. 24" O.A. HT.	2'	
188	SPGR	Spartina bakeri	'Cord Grass	CONT. 12 HT	12 SHOWN	Fall
6436	TRAA	Trachelospermum asiaticum	'Asiatic jasmine	CONT. 4" X 12"	18"	Fall

WILMINGTON NORTH CAROLINA
Public Services ■ Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: _____ Permit #: _____
Signed: _____

Approved Construction Plan
Name Date
Planning _____
Public Utilities _____
Traffic _____
Fire _____

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CITY OF WILMINGTON, NORTH CAROLINA
PROGRESS BUILDERS, LLC
PLANT SCHEDULE

LS2.2

LANDSCAPING SPECIFICATION

LANDSCAPING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The work covered in this section consists of soil preparation, fine grading, lawns, trees, shrubs and ground cover plantings, their protection and maintenance of planted areas until acceptance.

1.2 RELATED WORK

A. See Civil and Landscape plans and specifications.

1.3 QUALITY ASSURANCE

A. Qualifications of Workmen: Contractor shall provide at least one person present at all times during execution of work that is thoroughly familiar with the type of materials being installed and proper equipment and methods for their installation and who shall direct all work performed under this section.

B. Standards: All seed, sod, trees, shrubs, and ground covers shall meet or exceed the specifications of Federal, State, County and / or Municipality laws requiring inspection for disease and insect control.

1. Plants and planting methods shall conform to the latest edition of American Standard for Nursery Stock, American Nursery & Landscape Association, 1000 Vermont Avenue, NW, Suite 300, Washington, DC 20005.

2. Plants shall be true and representative of their genus, species, cultivar or variety. Nursery stock shipped in accordance with the required specifications shall be deemed to be acceptable within the terms of this section if it is typical in size and habit for the species in the region of the country in which it is grown unless the specifications include additional details.

3. One of each bundle or lot shall be tagged with name and size of the plant in accordance with American Nursery & Landscape Association standards. In all cases, botanical names shall take precedence over common names. Landscape Architect should be consulted in the event questions arise about nomenclature of plants to be used and their availability.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed in original containers showing analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging and location of packaging. Damaged packages are not acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

C. Deliver sod on pallets.

D. Handling of plants shall be by lifting the root mass or container and not by lifting plant by trunk or branches. Handling of plants in an improper fashion shall be cause for rejection of plant materials. Care must be taken during all phases of the location and planting procedures not to damage root system, trunk or branches. All plant materials shall be planted as soon after arrival at the site as possible. Contractor is responsible for keeping plants safe from injury by the construction activity and watered to prevent drying out before planting. Balled and burlapped plants shall be "heeled-in" and protected with burlap or other accepted material if they cannot be planted upon delivery. Plants with broken major branches, badly bruised or damaged bark are not acceptable and will be rejected.

1.5 PLANTING DATES

A. The planting season for trees, shrubs and groundcovers is between October 1st and June 1st of the following year. Do not plant if temperature is below freezing or above 90 degrees. Planting at any other time other than the planting season is the Contractor's option and full responsibility and without additional compensation. Planting may, at the option of the Contractor, be postponed into the following planting season but without additional compensation provided the Owner and local governing jurisdiction have approved.

C. Planting dates for sod, sprigging or seeding shall be per the grassing specification.

1.6 MEASUREMENT AND PAYMENT

A. Measurement - The items listed in the proposal shall be considered as sufficient to complete the work in accordance with the plans and specifications. Any portion of the work not listed in bid form, but required to complete the work, shall be deemed to be a part of the item with which it is associated and shall be included in the cost of the unit shown on the bid form.

B. Payment - Payment for the unit shown on the bid form shall be considered to cover the cost of all labor, materials, equipment, and performing all operations necessary to complete the work in place. No payment will be made for any material wasted, used for the convenience of the Contractor, unused or rejected.

1. Trees, Shrubs, and Groundcovers - Will be paid for at the contract unit price for planted/installed and accepted trees, shrubs, and groundcovers.

2. Payment for grassing will be made per the grassing specification.

3. Clearing - Will be paid for at the lump sum price for clearing.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Contractor shall, at time of delivery, furnish Owner and / or Landscape Architect with invoices of all materials received; in order the quality and source of materials may be reviewed.

2.2 TOPSOIL

A. See Earthwork specification for topsoil / topsoil soil specification.

2.3 SEED

A. See grassing specification.

2.4 SPRIG

A. See grassing specification.

2.5 SOD

A. See grassing specification.

2.6 PLANT MATERIALS

A. Provide all plant materials as indicated on the plans. In the event of any discrepancies between quantities of plants indicated on the plant schedule and those indicated on the plan, plan quantities shall govern.

B. Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insect pests, eggs or larvae, and shall have healthy, well developed root systems. Plants shall be from a nursery within 500 miles north or south of the project location and shall have been grown under climatic conditions similar to those in the locality of project. Trees for planting in rows shall be uniform in size and shape.

B. Plants shall possess a normal balance between height and width. Plants shall be measured when branches are in their normal position. Height and spread dimensions specified refer to the main body of plant and not from branch tip to tip. Plants larger in size than specified may be used with no change in contract price.

C. Plants shall be dug with firm natural balls of earth, of diameter not less than recommended by American Standard for Nursery Stock and of sufficient depth to include fibrous and feeding roots. Plants will not be accepted if ball is cracked or broken before or during planting operations.

D. Trees specified for Street Tree Grade shall conform to standards of the A.N.L.A.:

1. Suitable for planting as street trees.

2. Free of branches to approximately 50% of height from ground.

3. Crown of tree shall be in good balance with the trunk.

2.7 FERTILIZER

A. Commercial fertilizer shall be slow release 5-10-10 or 6-12-12 (or as recommended by soil test), uniform in composition, free flowing, and suitable for application with appropriate equipment. Deliver to site unopened in manufacturer's standard containers showing weight, analysis and name of manufacturer. If stored on site, protect from the elements.

2.8 PEAT MOSS

A. Peat moss shall be finely shredded, 90% organic moss peat, brown in color and suitable for horticultural purposes. Peat shall be measured in air dry condition, containing not more than 35% moisture by weight. Ash content shall not exceed 10%.

2.9 MULCH FOR TREES, SHRUBS, AND GROUND COVERS

A. Mulch for non bio-retention areas shall be as shown on plans.

B. Mulch for bio-retention areas shall be shredded hardwood.

2.10 STAKING EQUIPMENT

A. Trees and palms shall be staked as shown in landscape plans.

2.11 WATER

A. Permanent water source for this project shall coordinated with the Owner. Contractor shall be responsible for any temporary water needs.

PART 3 - EXECUTION

3.1 FINE GRADING

A. All areas within limits of construction shall be fine graded to the desired grades. All areas within limits of construction are to be fine graded, free of rocks, debris and/or other objectionable material, before planting or grassing commence. Any additional fill material needed to fill low or uneven areas shall be provided by the Contractor. Positive drainage away from structures shall be provided in all plant beds so standing water does not occur. Planting beds shall be raised above adjacent lawn areas to provide good drainage conditions.

B. Planting and grassed areas, if not loose, shall be loosened to a minimum depth of 3-inches before fertilizer, seed or sod is applied.

3.2 FERTILIZER

A. Contractor shall provide Topsoil Analysis Tests that has been performed by a State Agricultural Experiment Station, Soil and Water Conservation District, State University, or other qualified private testing laboratory, as approved by Landscape Architect.

B. Apply fertilizer after fine grading and mix thoroughly into upper 2 inches of soil.

C. Fertilizer shall be applied at the rate recommended by Topsoil Analysis Test.

3.3 SODDING

A. See grassing specification.

3.4 SPRIGGING

A. See grassing specification.

3.5 SEEDING

A. See grassing specification.

3.6 SEED PROTECTION

A. See grassing specification.

3.7 LAYOUT OF TREES, SHRUBS, AND GROUND COVERS

A. All plants shall be placed in the proper location as shown on construction plans, allowing Landscape Architect to review all plant locations prior to actual planting. Landscape Architect may make minor adjustments which shall not be cause for changes to the contract price.

3.8 OBSTRUCTIONS BELOW GROUND

A. Prior to excavating planting holes, Contractor shall determine the exact location of electrical, phone, or television cables or conduits, water, drainage or sewer lines, and any other subsurface structures and take precautions to protect them. Any damage to underground utilities shall be repaired immediately at the Contractor's expense.

B. In the event rock, underground construction work, or other obstructions are encountered in any plant hole excavation under this contract, alternate locations may be selected. Where locations cannot be changed, the obstructions shall be removed to a depth of not less than three (3) feet below grade and not less than six (6) inches below bottom of ball or roots when plant is properly set at the required grade. The Contractor shall be responsible for the removal of such rock or other underground obstruction encountered.

3.9 PLANTING HOLES

A. For trees, shrubs and ground covers the planting hole shall be as shown on planting details in the plans. Do not leave planting holes open overnight. In the event that plant holes are dug and not planted in a timely manner, install four (4) foot high orange safety fencing around all excavated areas.

3.10 PLANTING TREES AND SHRUBS

A. Shall be same as grown in the nursery and/or container soil level. Adjust bottom soil mix to insure proper planting level with the proposed surrounding grades. Check plants to insure proper vertical alignment.

B. Fill holes to proper height to receive plant, and thoroughly tamp before setting the plant. Set plant in upright position in the center of the hole, and compact the backfill mixture around the ball or roots. Add soil amendments as required to improve fertility of existing soil and plant growing conditions.

1. When balled or burlapped trees are set, compact topsoil around base of ball to fill all voids. All bindings shall be removed and the top half of burlap removed from around root ball. If burlap is made of natural fibers it can be laid back from the root mass or can be cut away. Remove all burlap if it is made of non-degradable material/fabric. All weeds growing on the root mass shall be removed prior to planting.

2. Containerized plants shall have the container removed prior to planting. Care shall be taken to protect root mass from injury and the root mass intact. If root mass shows evidence of being bound or matted, three vertical 1/2" deep cuts shall be made on alternate sides of the root mass and roots pulled away slightly. This is to untangle roots which have begun to "circle" the root mass and to encourage new root growth. All weeds growing in the root mass shall be removed prior to planting.

3. Roots of bare root plants shall be spread out and topsoil carefully worked in among them. Remove with a clean cut, any broken or frayed roots.

3.11 PLANTING GROUND COVERS

A. Planting beds shall be thoroughly worked to a depth of twelve (12) inches incorporating fertilizer at the recommended rate suggest by the soils test. Rake prepared planting bed until level, smooth and free from all soil, lumps, rocks, sticks and other deleterious materials. Bed area should be neatly outlined. Space the plants evenly as indicated on the drawings. Plant only in soil that is moist and friable, and not wet or soggy. In the case of planting in the open on hot days, shorten the time between planting and watering.

3.12 WATERING

A. Thoroughly water each plant when the hole is 1/3 full, again at 2/3 full and then complete backfilling. Once backfilling is complete, water again, then tamp the soil in place until the surface of the backfill is level with the surrounding area and the plant bears the same relation of finished grade as it bore to existing grade before being dug.

B. Earth saucers shall be constructed around the perimeter of planting holes of all trees and all single planted shrubs. Earth saucers shall be minimum 3" high and compacted to retain water. Earth saucers shall not be installed in areas where the subsoil is very poorly drained or around mass shrub / groundcover plantings.

C. All trees and shrubs to be hand watered on a regular basis as necessary during the warranty period.

3.13 SOIL MIX

A. Shall be per Earthwork specification.

3.14 STAKING OF TALL PLANTS

A. Shall be done only if site / environment conditions make it required. If required, trees and palms shall be staked as indicated on the plans.

3.15 MULCHING

A. All plants shall be mulched with an evenly thick layer of clean mulch immediately after planting. Mass plant beds shall be completely mulched to the limits of the bed as shown on the plans. Limit of mulching for individual trees and shrubs shall be slightly beyond the saucer berm. The areas mulched shall be tidy and clean in appearance.

3.16 PRUNING

A. Remove dead, broken or bruised branches after planting using clean, sharp tools.

3.17 WEEDING

A. All planted areas shall be kept free from weeds and undesirable grasses until final acceptance by the Owner. See General notes on plans for additional information.

3.18 INSECT AND DISEASE CONTROL

A. All plant materials shall be disease or insect free upon arrival to the site, however, should any plants show signs of insect or disease infestations, Contractor shall identify nature of infestation and submit to Architect a proposed method of control. Contractor shall treat all infected plants at its expense. Should the infestation be wide-spread and uncontrollable, plants affected shall be removed from site, fresh plants brought in and all other plants treated to prevent infestation of remaining plants at Contractor's expense.

3.19 CLEAN UP

A. Contractor is responsible for removing all trash, debris, rubbish and all other materials associated with the construction from site on a daily basis. All tags, flags, and labels will be removed from plants and trees. The site shall be left broom clean and tidy. Clean up of the site is a prerequisite to final acceptance by the Owner.

PART 4 - MAINTENANCE AND WARRANTY

4.1 MAINTENANCE

A. Protect all plantings (grass, plants and trees) until accepted by Owner. All damage, regardless of cause, shall be immediately repaired and plants replaced if necessary. Erect temporary fences, barricades, signs and other protection as needed to prevent trampling. Contractor is not responsible for replacement of damaged or missing plants and plant materials due to vandalism or other acts beyond the control of the Contractor if proper barriers or other safeguards have been maintained.

B. Maintenance shall include but is not limited to watering, weeding, cultivating, removal of dead material, mulch reapplication, resetting plants to proper grades or upright position, lawn mowing, fertilizing, and other necessary operations.

C. The Contractor shall repair immediately any areas damaged as a result of construction operations or erosion.

E. The Contractor shall maintain all proposed plantings until substantial completion is issued by the Owner.

F. At the end of the maintenance period, all plants shall be in a healthy growing condition. During the maintenance period, should the appearance of any plant indicate weakness and probability of dying, immediately replace without additional cost to the Owner. Replacements required because of vandalism or other causes beyond the control of the Contractor are not part of this contract.

4.2 WARRANTY

A. All shrubs, ground cover, and trees shall be guaranteed by the Contractor to be alive and healthy for a one year period after substantial completion is issued by the Owner. A final inspection with the Owner shall be conducted at the end of the warranty period to determine if any plants will be required to be replaced.

B. Any lawn, plant, or tree which is dead or not showing satisfactory growth shall be replaced at Contractor's expense at the end of warranty period. All replacements shall be of original quality and of a size equal to adjacent plants or trees of the same kind.

END OF SECTION

CITY OF WILMINGTON
NORTH CAROLINA
Public Services ■ Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: ______ Permit #______
Signed: ______

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

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PROGRESS BUILDERS, LLC
LANDSCAPE SPECIFICATIONS

JOB NO.	[illegible]
DATE	8/24/15
DRAWN	JLS
DESIGNED	JLS
REVIEWED	BMD
APPROVED	JBR
SCALE	

LS2.3

GRASSING SPECIFICATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Seeding, planting grass, and fertilizing graded areas around buildings, structures, soccer fields and sidewalk shoulders and other disturbed areas.

B. Seed protection.

C. Maintaining grassed areas until final acceptance.

1.2 RELATED WORK

A. Civil and Landscape plans and specifications.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed in original containers showing analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging, and location of packaging. Damaged packages are not acceptable. Store in cool, dry locations away from contaminants.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer. Damaged bags are not acceptable. Store in cool, dry locations away from contaminants.

C. Deliver sod on pallets.

D. All material shall be acceptable to Engineer prior to use.

1.4 PLANTING DATES

A. This specification provides for establishment of a permanent grass cover between the dates of March 1 and September 30. If finished earth grades are not completed in time to permit planting and establishment of permanent grass during the favorable season between dates specified above unless otherwise accepted, Contractor will be required to plant a temporary cover to protect new graded areas from erosion and to keep windblown dust to a minimum. The temporary cover shall be planted between October 1 and February 28 unless otherwise permitted.

1.5 MEASUREMENT AND PAYMENT

A. When the season or stage of project is such results of grassing work cannot be determined, conditional acceptance will be made on work completed. When conditional acceptance is made for items of work covered, Contractor shall be entitled to 50% of bid price for the actual work placed and shall receive remaining 50% of bid price when final acceptance is made. Conditional acceptance shall not apply to the remaining items of work, and full bid price payment shall be made where work is acceptably placed and completed in accordance with specifications.

B. Payment for grassing will be made at contract unit price for the item "Grassing" and such payment shall constitute full compensation for furnishing and placing seed and fertilizer or sod where directed and protecting and maintaining seed and sod in all graded and disturbed areas.

PART 2 - PRODUCTS

Contractor shall submit source and species certification documents to Engineer and Owner's Representative for review prior to installation. Supply complete information on all analysis / test methodologies and results: laboratory certifications, manufacturer's specifications, and agency approvals to the Landscape Architect prior to placement of soil mixtures. In addition, provide the Landscape Architect with thoroughly mixed sample of soil mixes for approval prior to placement. Landscape Contractor shall make modifications and improvements to soil mixes deemed necessary by the soil analysis to meet requirements specified here in before, and to ensure proper growing medium for plant material.

2.1 SEED

A. All seed shall conform to all State Laws and to all requirements and regulations of the State Department of Agriculture.

B. The varieties of seed, as specified in Section 2.2, shall be individually packaged or bagged, and tagged to show name of seed, net weight, origin, germination, lot number, and other information required by the State Department of Agriculture.

C. The Engineer reserves the right to test, reject, or accept all seed before seeding.

2.2 SEEDING SCHEDULE

A.

	SEED	RATE	PLANTING DATES
SD-1	Roundstone Seed (or accept equal) Retention basin mix - 135	2.75 lbs/ acre (drilled) 3.5 lbs./ acre (hydroseeded)	March 1 - September 30
	Annual Rye (Temp only)	75 lbs/acre	October 1 - February 28

2.3 FERTILIZER

A. Commercial fertilizer of approved type, conforming to state fertilizer laws at the rate as recommended by soils test.

2.4 LIME

A. Agricultural grade, ground limestone at the rate as recommended by soils test.

2.5 SPRIG

A. Healthy living stems, stolons, or rhizomes and attached roots of locally adapted grass without adhering soil, including two to three nodes and from 4 to 6 inches long. Obtain from heavy, dense certified sod. Provide sprigs which have been grown under climatic conditions similar to those in the locality of the project. Coordinate harvesting and planting operations to prevent exposure of sprigs to the sun for more than 30 minutes before covering and moistening. Sprigs showing signs of wilt, mold, containing weeds or other detrimental material or that are heat damaged will be rejected.

B. The varieties of sprig, as specified in section 2.6, shall be individually packaged or bagged, and tagged to show name of sprig, net weight, origin and other information required by the State Department of Agriculture.

C. Sprigs shall be pure to variety specified and shall be free of other grass species, weeds or foreign matter.

D. Sprigs shall be harvested by digging (not collected above soil level) shredding sod, by rototilling sod and raking, by verticutting or by a sprig harvester. Sprigs shall consist of mostly rhizomes and crowns with only a few green leaves.

2.6 SPRIGGING SCHEDULE

A.

SPRIG	RATE	PLANTING DATES
'Tifway 419' Bermuda (or approved equal)	1,000 Bushels / ac. (Coverage in 3 months)	April 1 - August 31
Stabilize site with temporary grass seed (See section 2.2)		September 1 - March 31

B. In areas where existing grass is to be matched, Contractor shall sprig at the rate and dates recommended by sprig distributor.

2.7 SOD

A. Sod shall be premium grade, densely rooted, good quality grass of the species and certified variety as shown on the plans, free from noxious weeds with no surface soil being visible. The sod shall be obtained from areas where the soil is reasonably fertile. Sod of specified species with not less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed. The sod shall be machine cut to a uniform soil thickness that shall contain practically all of the dense root system and not be less than 1 inch thick.

B. Before cutting, sod shall be mowed to a height of not less that 1-1/2" or more than 2". Sod shall be cut in uniform widths min. 12" and in lengths min. 24 inches.

C. Sod shall be delivered to site in a fresh, moist condition with healthy green foliage. It shall be unloaded from delivery trucks on pallets or rolls and placed in final position within 24 hours of delivery. Sod shall be protected from wind and sun and shall not be allowed to dry out before planting.

D. Sod shall be strong enough to support its own weight and retain its size and shape when suspended vertically from a firm grasp on the upper 10 percent of the section.

2.8 ACCESSORIES

A. Straw Mulch: Oat or wheat straw, reasonably free from weeds, foreign matter detrimental to plant life, and in dry condition.

B. Excelsior Mulch: Excelsior mulch shall consist of wood fibers cut from sound, green timber. The average length of fibers shall be 4 to 6 inches. Cut shall be made in such a manner as to provide maximum strength of fiber, but at a slight angle to natural grain of the wood to cause splintering of fibers when weathering in order to provide adherence to each other and to soil.

C. Wood cellulose fiber shall be made from wood chip particles manufactured particularly for discharging uniformly on the ground surface when dispersed by a hydraulic water sprayer. It shall remain in uniform suspension in water under agitation and blend with grass seed and fertilizer to form a homogenous slurry. Mulch fibers shall intertwine physically to form a strong moisture holding mat on the ground surface and allow rainfall to percolate into underlying soil. The mulch shall be heat processed to contain no germination or growth inhibiting factors. It shall be dyed (non toxic) an appropriate color to facilitate metering of material.

2.9 PRODUCT REVIEW

A. Contractor shall provide the Engineer with a complete description of all products before ordering. The Engineer will review all products before they are ordered.

PART 3 - EXECUTION

3.1 PREPARATION

A. Areas to be seeded or sprigged shall be made smooth and uniform and shall conform to the finished grade indicated on plans.

B. Remove foreign materials, plants, roots, stones, and debris from surfaces to be seeded.

C. Grassing areas, if not loose, shall be loosened to a minimum depth of 3 inches before fertilizer, seed, sprig or sod is applied.

D. Amendments to soils shall be incorporated into loosened 3 inch top soil layer as recommended by soils test.

3.2 STAND OF GRASS

A. Before acceptance of seeding or sprigging is performed for the establishment of permanent vegetation, Contractor will be required to produce a satisfactory stand of perennial grass whose root system shall be developed sufficiently to survive dry periods and winter weather and be capable of re-establishment in spring.

B. Before acceptance of seeding performed for the establishment of temporary vegetation, Contractor will be required to produce a stand of grass sufficient to control erosion for a given area and length of time before the next phase of construction or establishment of permanent vegetation is to commence.

3.3 SEEDING AND SPRIGGING DATES

A. Seeding and sprigging shall be performed during periods and at rates specified in their respective schedules. Seeding and sprigging work may, at discretion of Contractor, be performed throughout the year using schedule prescribed for given period. Seeding and sprigging work shall not be conducted when the ground is frozen or excessively wet. Contractor will be required to produce a satisfactory stand of grass regardless of the period of year work is performed.

3.4 APPLYING LIME AND FERTILIZER

A. Following advance preparation and placing selected material for shoulders and slopes, lime and fertilizer, if called for based on soil tests, shall be spread uniformly over the designated areas, and shall be thoroughly mixed with the soil to a depth of approximately 2 inches. Fertilizer and lime shall be applied at the rate of the rate recommended by required soils test. Unless otherwise provided, lime will not be applied for temporary seeding. In all cases where practicable, acceptable mechanical spreaders shall be used for spreading fertilizer. On steep slopes subject to slides and inaccessible to power equipment, the slopes shall be adequately scarified. Fertilizer may be applied on steep slopes by hydraulic methods as a mixture of fertilizer and seed. When fertilizer is applied with combination seed and fertilizer drills, no further incorporation will be necessary. The fertilizer and seed shall be applied together when Wood Cellulose Fiber Mulch is used. Any stones larger than 2 ½ inches in any dimension, larger clods, roots, or other debris brought to the surface shall be removed.

3.5 SEEDING

A. Seed shall be sown within 24 hours following application of fertilizer and lime and preparation of the seedbed as specified in Section 3.4. Seed shall be uniformly sown at rate specified by the use of acceptable mechanical seed drills. Rotary hand seeders, power sprayers or other satisfactory equipment may be used on steep slopes or on other areas inaccessible to seed drills.

B. Seeds shall be covered and lightly compacted by means of cultipacker or light roller if the drill does not perform this operation. On slopes inaccessible to compaction equipment, the seed shall be covered by dragging spiked chains, by light harrowing or by other satisfactory methods.

C. Apply water with fine spray immediately after each area has been sown.

D. Do not sow seed when ground is too dry, during windy periods or immediately following a rain.

E. If permitted by the special provisions, wood cellulose fiber mulch or excelsior fiber mulch may be used.

3.6 SEED PROTECTION (STRAW MULCH)

A. All seeded areas seeded with permanent grasses shall be uniformly mulched in a continuous blanket immediately following seeding and compacting operations, using at least 2 tons of straw per acre.

3.7 SEED PROTECTION (EXCELSIOR MULCH)

A. Seed shall be sown as specified in Section 3.5. Within 24 hours after covering of seed, excelsior mulch shall be uniformly applied at the rate of 2 tons per acre. The mulch may be applied hydraulically or by other acceptable methods. Should the mulch be placed in a dry condition, it shall be thoroughly wetted immediately after placing. Engineer may require light rolling of the mulch to form a tight mat.

3.8 SEED PROTECTION (WOOD CELLULOSE FIBER MULCH)

A. After the lime has been applied and ground prepared as specified in Section 3.4, wood cellulose fiber mulch shall be applied at a rate of 1,500 pounds per acre in a mixture of seed and fertilizer. Hydraulic equipment shall be used for application of fertilizer, seed, and slurry of the prepared wood pulp. This equipment shall have a built-in agitation system with an operating capacity sufficient to agitate, suspend, and homogeneously mix a slurry of the specified amount of fiber, fertilizer, seed, and water. The slurry distribution lines shall be large enough to prevent stoppage. The discharge line shall be equipped with a set of hydraulic spray nozzles which will provide an even distribution of slurry on various areas to be seeded. The slurry tank shall have a minimum capacity of 1,000 gallons.

Seed, fertilizer, wood pulp mulch, and water shall all be combined into the slurry tank for distribution of all ingredients in one operation by hydraulic seeding method specified herein. Materials shall be combined in a manner recommended by the manufacturer. The slurry mixture shall be regulated so amounts and rates of application shall result in a uniform application of all materials at rates not less than amount specified. Using the color of wood pulp as a guide, equipment operator shall spray prepared seedbed with a uniform visible coat. The slurry shall be applied in a sweeping motion, in an arched stream to fall like rain, allowing wood fibers to build upon each other until an even coat is achieved.

3.9 SPRIGGING

A. Sprigs shall be placed at the date and rates as shown in section 2.6. The sprigging method shall be by broadcast sprigging, hydroplanting or row planter. Sprigging procedure shall ensure even coverage.

B. Sprigs applied by broadcast over the site with a distributor or hydroseeder shall be planted at the rates listed in section 2.6. Cover broadcast sprigs with straw mulch immediately after broadcast and water in immediately (within 2 hours).

C. Sprigs installed by row planter creating a narrow furrow that covers 50 to 80% of the sprig with soil may use less sprig material. Rate shall be as recommended by sprig supplier to provide a solid stand of turf within the time required in Section 2.6. Water in immediately (within 1 hour).

3.10 SODDING

A. Sod shall be placed between March 1st and December 1st. However, if sod is to be placed during periods of temperatures over 90 degrees F, the contractor shall take extra care for quick placement of sod with adequate, consistent watering necessary to ensure sod thrives as planted.

B. Sod shall be placed within 24 hours of cutting.

C. Place top elevation of sod 1/2 inch below adjoining paving or curbs.

D. All areas to be sodded shall be brought to the proper line grade or cross section as was existing prior to construction. Sod shall be placed so that, upon completion, the edges of the sodded areas will be smooth and will conform to the proposed finished grade. Sod shall be laid smooth, edge to edge, with staggered joints. Sod shall be immediately pressed firmly into contact with the sod bed by tamping or rolling, to eliminate any air pockets. A true and even surface shall be provided, to insure knitting without displacement of the sod or deformation of the surfaces of the sodded areas. Do not stretch or overlap sod pieces. Following compaction, screened soil of good quality shall be used to fill all cracks, and excess soil shall be worked into the grass with rakes or other suitable equipment. On slopes steeper than 3 to 1, the sod shall be fastened in place with suitable wood or metal pins to hold the sod in place. Any damage by erosion or other causes that may have occurred after completion of grading operations shall be repaired, before commencing with the sodding operations.

E. Immediately before sodding, moisten topsoil with a fine spray to a minimum 1" depth. Sod shall not be laid on soil that is dry and powdery.

F. Sod shall be moist when laid and placed on moist ground. The sod shall be carefully placed by hand, beginning at the toe of slopes and working upwards. The length of the strips shall be at right angles to the flow of surface water. All joints shall be tightly butted and end joints shall be staggered at least 12 inches. The sod shall be immediately pressed firmly into the ground by tamping or rolling. Fill all joints between strips with fine screened soil. Sod on slopes shall be pegged with sod pegs to prevent movement. The sod shall be watered, mowed, weeded, repaired, or otherwise maintained, to insure the establishment of a uniform healthy stand of grass until acceptance.

G. Within 2 hours after sod has been placed, thoroughly water to a minimum depth of 4". After sod and soil have dried, roll sodded areas to ensure good bond between sod and soil and to remove depressions and irregularities. Roll sodded areas with a roller not exceeding 150 lbs. per foot of roller width.

PART 4 - MAINTENANCE, WARRANTY AND ACCEPTANCE

4.1 MAINTENANCE

A. Maintenance shall consist of providing protection against traffic, watering to ensure uniform seed germination and to keep surface of soil damp, and repairing any areas damaged as a result of construction operations or erosion. Maintenance shall also include, but is not limited to, watering, weeding, cultivating, removal of dead material, lawn mowing, fertilizing, and other necessary operations.

B. The Contractor shall maintain all proposed plantings until the date of final acceptance by the Owner.

4.2 WARRANTY

A. All grassed areas shall be guaranteed by the Contractor to be alive and healthy for a one year period from the date of substantial completion issued by the Owner. A final inspection with the Owner shall be conducted at the end of the warranty period to determine if any areas require replanting. At the end of the warranty period, the sod shall show evidence of rooting to the underlying soil and shall have no competitive weed growth from either the sod or from between the sod joints.

B. Any grassed area which is dead or not showing satisfactory growth shall be replaced at Contractor's expense at the end of warranty period. All replacements shall be of original quality and of a size equal to adjacent plants or trees of the same kind. Replacements required because of vandalism, excessive use or other causes beyond the control of the Contractor are not part of the contract.

4.3 ACCEPTANCE

A. Before acceptance of seeding performed for the establishment of permanent vegetation, Contractor will be required to produce a satisfactory stand of perennial grass whose root system shall be developed sufficiently to survive dry periods and winter weather and be capable of reestablishment in spring.

B. A minimum coverage of 80% density over 100% of the disturbed area is required for seeded areas before project acceptance. Sprig and sod areas shall have 95 % coverage over 100% of the disturbed area prior project acceptance.

END OF SECTION

CITY OF WILMINGTON NORTH CAROLINA
Public Services ■ Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: ______ Permit #: ______
Signed: ______

Approved Construction Plan	Name	Date
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GRASSING SPECIFICATION

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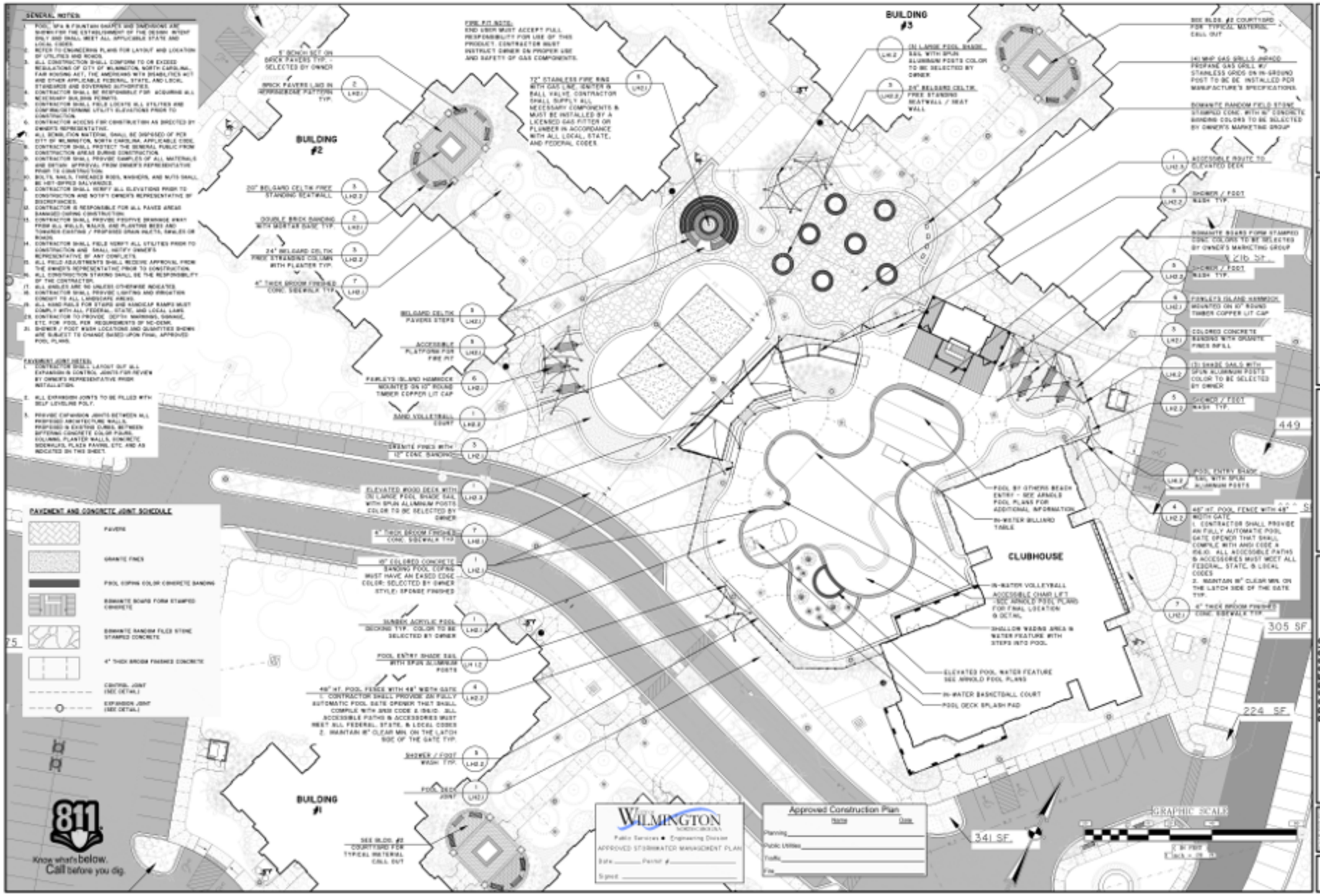
GENERAL NOTES:
PAVEMENT JOINT NOTES:
PAVEMENT AND CONCRETE JOINT SCHEDULE
PAVERS
GRANITE FINES
POOL COPING COLOR CONCRETE BANDING
BONWITE BOARD FORM STAMPED CONCRETE
BONWITE RANDOM FILED STONE STAMPED CONCRETE
4" THICK BROOM FINISHED CONCRETE
CONTROL JOINT (SEE DETAIL)
EXPANSION JOINT (SEE DETAIL)
BUILDING #1
BUILDING #2
BUILDING #3
CLUBHOUSE
FIRE PIT NOTE:
END USER MUST ACCEPT FULL RESPONSIBILITY FOR USE OF THIS PRODUCT. CONTRACTOR MUST INSTRUCT OWNER ON PROPER USE AND SAFETY OF GAS COMPONENTS.
72" STAINLESS FIRE RING WITH CUT LINE. OWNER'S BALL VALVE. CONTRACTOR SHALL SUPPLY ALL NECESSARY COMPONENTS & MUST BE INSTALLED BY A LICENSED GAS FITTER OR PLUMBER IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL CODES.
6" BONCHI SET ON BRICK PAVERS TYP. - SELECTED BY OWNER
BRICK PAVERS LAID IN HERRINGBONE PATTERN TYP.
20" BELGARD CELTIK FREE STANDING SEATWALL
DOUBLE BRICK BANDING WITH MORTAR BASE TYP.
24" BELGARD CELTIK FREE STANDING SEATWALL WITH PLANTER TYP.
4" THICK BROOM FINISHED CONC. SIDEWALK TYP.
BELGARD CELTIK PAVERS STEPS
ACCESSIBLE PLATFORM FOR FIRE PIT
PAWLEYS ISLAND HAMMOCK MOUNTED ON 10" ROUND TIMBER COPPER LIT CAP
SAND VOLLEYBALL COURT
GRANITE FINES WITH 12" CONC. BANDING
ELEVATED WOOD DECK WITH (5) LARGE POOL SHADE SAIL WITH SPUN ALUMINUM POSTS. COLOR TO BE SELECTED BY OWNER
4" THICK BROOM FINISHED CONC. SIDEWALK TYP.
48" COLORED CONCRETE BANDING POOL COPING MUST HAVE AN EASED EDGE COLOR: SELECTED BY OWNER STYLE: SPONGE FINISHED
RUBBER ACRYLIC POOL DECKING TYP. COLOR TO BE SELECTED BY OWNER
POOL ENTRY SHADE SAIL WITH SPUN ALUMINUM POSTS
48" HT. POOL FENCE WITH 48" WIDTH GATE
1. CONTRACTOR SHALL PROVIDE AN FULLY AUTOMATIC POOL GATE OPENER THAT SHALL COMPLIE WITH 2010 CODE & (NEC). ALL ACCESSIBLE PATHS & ACCESSORIES MUST MEET ALL FEDERAL, STATE, & LOCAL CODES
2. MAINTAIN 18" CLEAR MIN. ON THE LATCH SIDE OF THE GATE TYP.
SHOWER / FOOT WASH TYP.
POOL DECK JOINT
SEE BLDG. #2 COURTYARD FOR TYPICAL MATERIAL CALL OUT
(5) LARGE POOL SHADE SAIL WITH SPUN ALUMINUM POSTS COLOR TO BE SELECTED BY OWNER
24" BELGARD CELTIK FREE STANDING SEATWALL / HEAT WALL
SEE BLDG. #2 COURTYARD FOR TYPICAL MATERIAL CALL OUT
(4) MHP GAS GRILLS (WRAPPED PROPANE GAS GRILL W/ STAINLESS GRIDS ON IN-GROUND POST TO BE BE INSTALLED PER MANUFACTURE'S SPECIFICATIONS.
BONWITE RANDOM FIELD STONE STAMPED CONC. WITH 16" CONCRETE BANDING COLORS TO BE SELECTED BY OWNER'S MARKETING GROUP
ACCESSIBLE ROUTE TO ELEVATED DECK
SHOWER / FOOT WASH TYP.
BONWITE BOARD FORM STAMPED CONC. COLORS TO BE SELECTED BY OWNER'S MARKETING GROUP
SHOWER / FOOT WASH TYP.
PAWLEYS ISLAND HAMMOCK MOUNTED ON 10" ROUND TIMBER COPPER LIT CAP
COLORED CONCRETE BANDING WITH GRANITE FINES INFILL
(3) SHADE SAILS WITH SPUN ALUMINUM POSTS COLOR TO BE SELECTED BY OWNER
SHOWER / FOOT WASH TYP.
POOL ENTRY SHADE SAIL WITH SPUN ALUMINUM POSTS
48" HT. POOL FENCE WITH 48" WIDTH GATE
1. CONTRACTOR SHALL PROVIDE AN FULLY AUTOMATIC POOL GATE OPENER THAT SHALL COMPLIE WITH 2010 CODE & (NEC). ALL ACCESSIBLE PATHS & ACCESSORIES MUST MEET ALL FEDERAL, STATE, & LOCAL CODES
2. MAINTAIN 18" CLEAR MIN. ON THE LATCH SIDE OF THE GATE TYP.
4" THICK BROOM FINISHED CONC. SIDEWALK TYP.
POOL BY OTHERS BEACH ENTRY - SEE ARNOLD POOL PLANS FOR ADDITIONAL INFORMATION
IN-WATER BILLIARD TABLE
IN-WATER VOLLEYBALL
ACCESSIBLE CHAIR LIFT - SEE ARNOLD POOL PLANS FOR FINAL LOCATION & DETAIL
SHALLOW WADING AREA & WATER FEATURE WITH STEPS INTO POOL
ELEVATED POOL WATER FEATURE SEE ARNOLD POOL PLANS
IN-WATER BASKETBALL COURT
POOL DECK SPLASH PAD
449
305 SF
224 SF
341 SF
811
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APPROVED STORMWATER MANAGEMENT PLAN
Date _____ Permit # _____
Signed _____
Approved Construction Plan
Name Date
Planning
Public Utilities
Traffic
File
GRAPHIC SCALE
Preliminary
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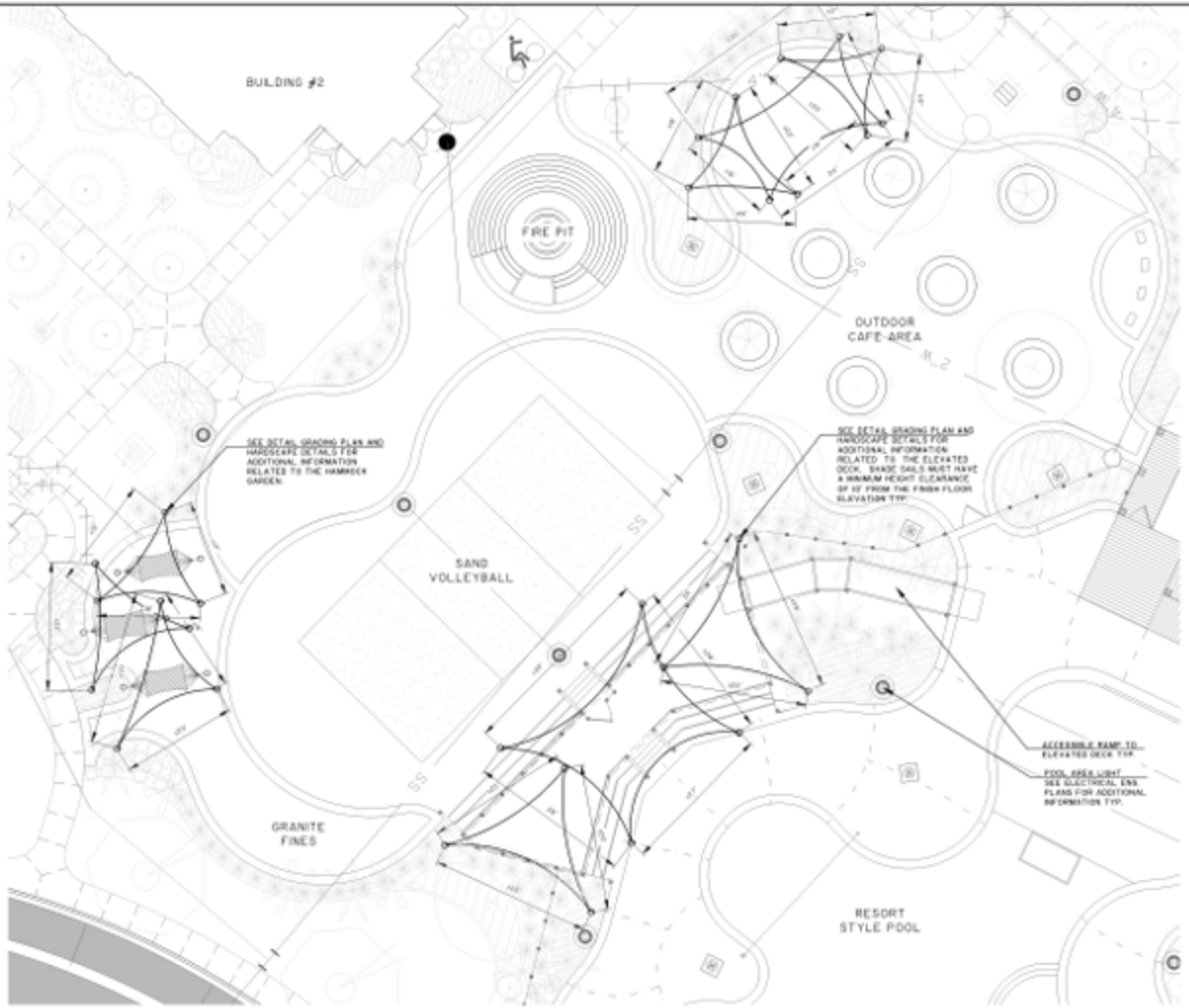
HARDSCAPE CALL-OUT PLAN
LH1.1



CONCEPTUAL SHADE SAIL LAYOUT (HAMMOCK GARDEN, RAISED DECK & CAFE AREAS)

SCALE: 1" = 10'-0"

GRAPHIC SCALE

1 IN FEET 1
SCALE: 1" = 10' 10

NOTES:

1. CONTRACTOR SHALL SUBMIT MANUFACTURE'S SHOP DRAWINGS FOR REVIEW AND ACCEPTANCE FOR ALL SHADE SAILS AND STEEL SUPPORT ELEMENTS FOR REMOVAL DESIGN INTENT.
2. CONTRACTOR IS RESPONSIBLE FOR STRUCTURAL ENGINEERING TO MEET ALL APPLICABLE BUILDING CODES.
3. COORDINATE WITH OWNER FINAL SHADE SAIL FABRIC AND POST COLOR.
4. FINAL POST LOCATIONS SHALL MAINTAIN 5' CLEAR MIN. PATH FOR ACCESSIBLE ROUTE TYP.

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CONCEPTUAL SHADE SAIL (AMENITY–NORTH EAST)

SCALE: 1" = 10'-0"

CONCEPTUAL SHADE SAIL (AMENITY– SOUTH WEST)

SCALE: 1" = 10'-0"

CONCEPTUAL SHADE SAIL (DOG PARK)

SCALE: 1" = 10'-0"

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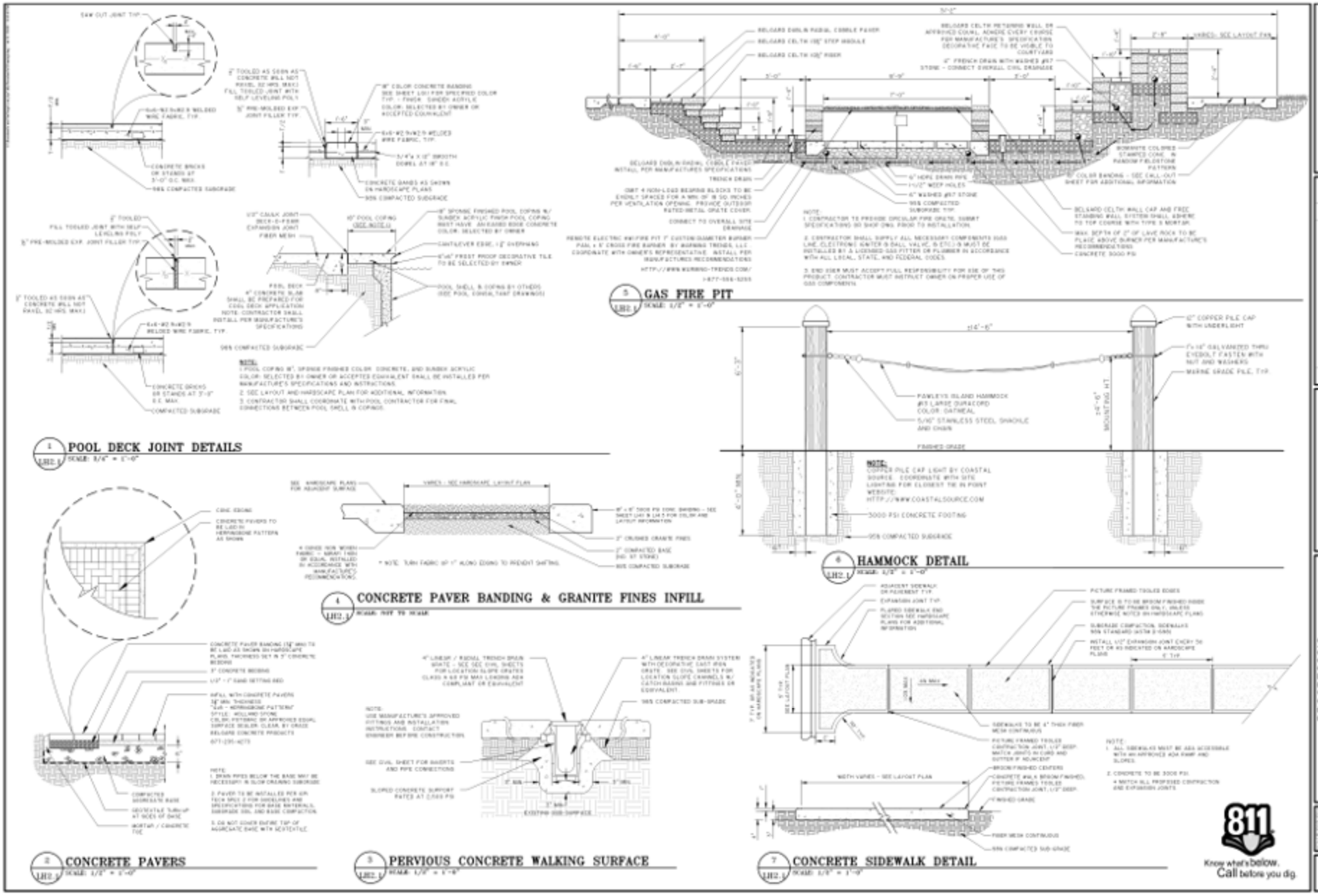
SHADE-SAIL CALL-OUT PLAN

LH1.2



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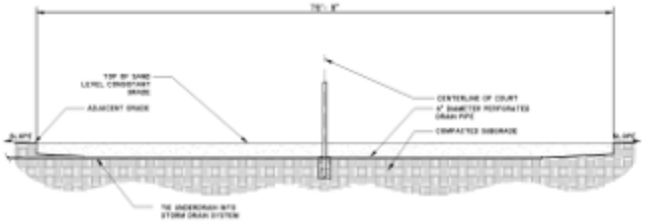
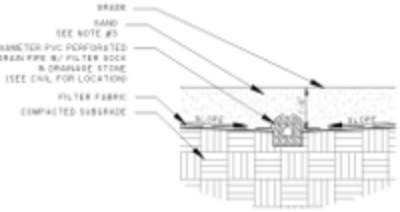
HARDSCAPE DETAILS

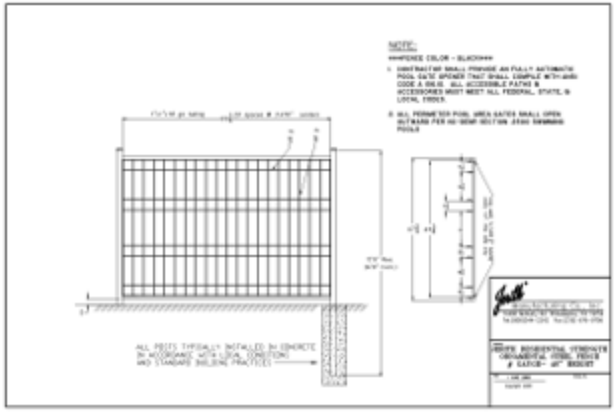
LH2.1



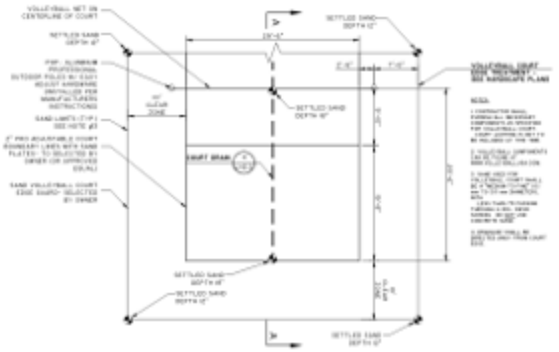
1 LH2.2 **VOLLEYBALL COURT SECTION A–A'**
SCALE: 1/8" = 1'-0"



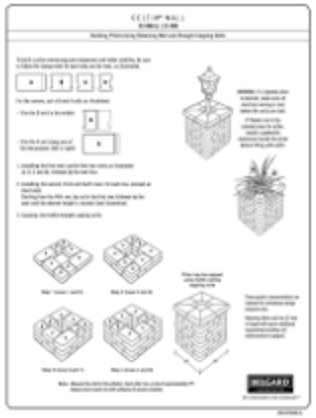
4 LH2.2 **VOLLEYBALL COURT CENTER DRAIN DETAIL**
SCALE: 1/8" = 1'-0"

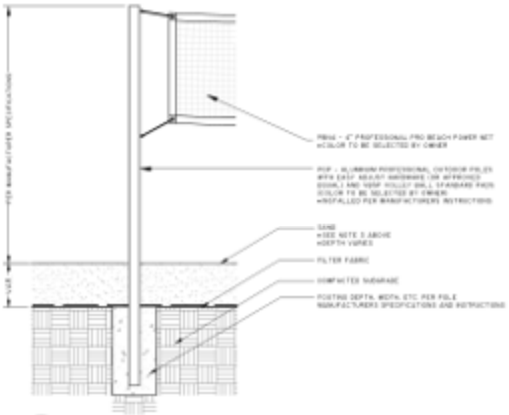


1 LH2.2 **48" POOL FENCE**
SCALE: 1/8" = 1'-0"

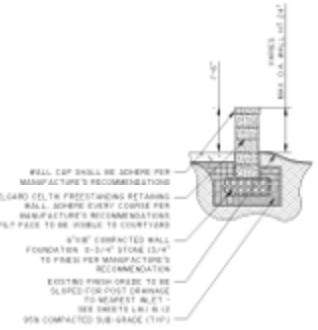


2 LH2.2 **VOLLEYBALL COURT SECTION A–A'**
SCALE: 1" = 10'-0"

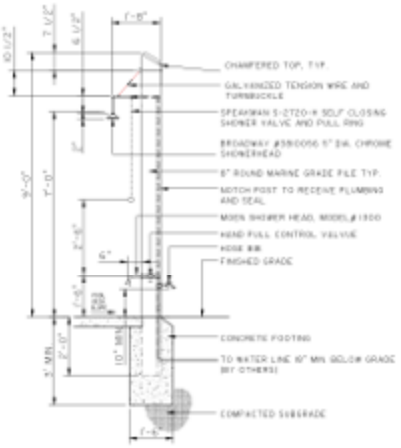


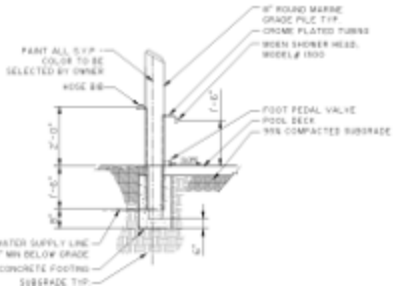


3 LH2.2 **VOLLEYBALL COURT POLE DETAIL**
SCALE: 1/8" = 1'-0"



1 LH2.2 **FREE STANDING RAISED PLANTER**
SCALE: 1/2" = 1'-0"





FOOT WASH & SPIGOT SECTION / ELEV.

NOTES:
1. SHOWER HEAD SHALL BE MOEN 1300 SHOWER OR EQUAL APPROVAL BY OWNER'S REP.
2. LOCATE PLUMBING ON BACK OF POST, AWAY FROM PRIMARY VIEW
3. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL PLUMBING FIXTURES FOR OWNER'S REP. ACCEPTANCE PRIOR TO CONSTRUCTION

2 LH2.2 **POOL SHOWER ASSEMBLY & FOOT WASH DETAIL**
SCALE: 1/2" = 1'-0"

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HARDSCAPE DETAILS

LH2.2

GENERAL NOTES:

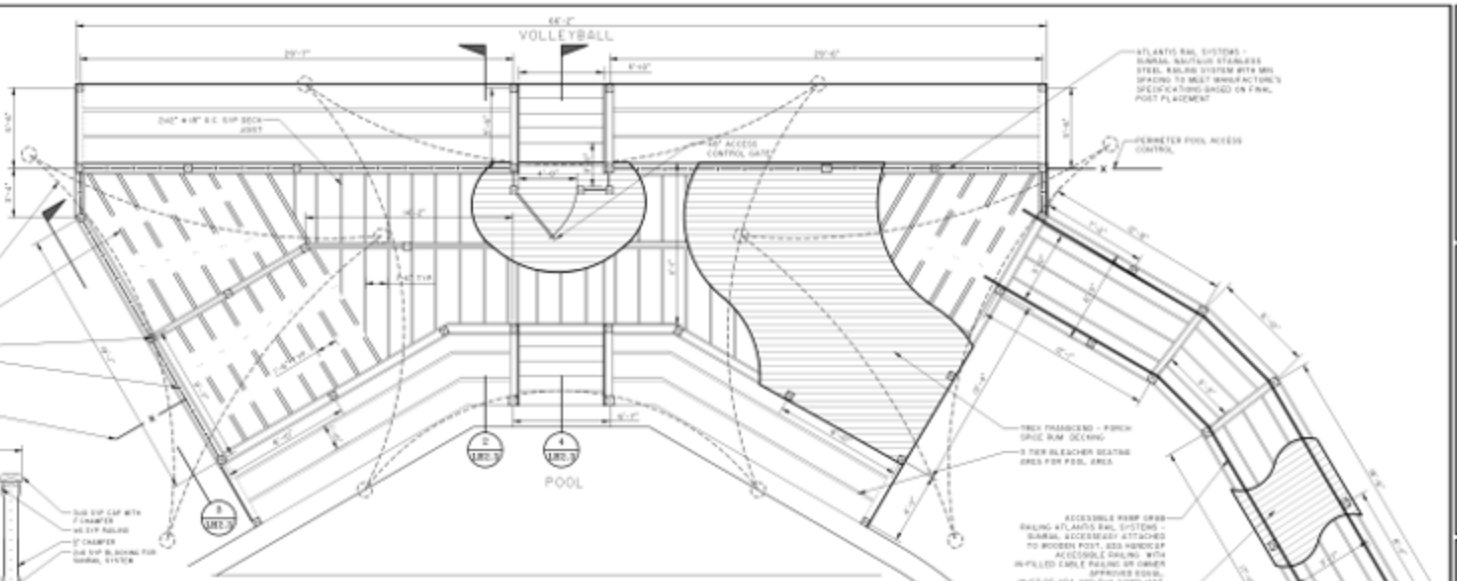
1. ALL TIMBER SHALL BE SOUTHERN PINE, NO. 1 OR BETTER IN ACCORDANCE WITH SPIB GRADING RULES, TREATED WITH ACQ PRESERVATIVE TREATMENT TO 0.25 POUNDS PER CUBIC FOOT.

2. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153-GRADE 0R.

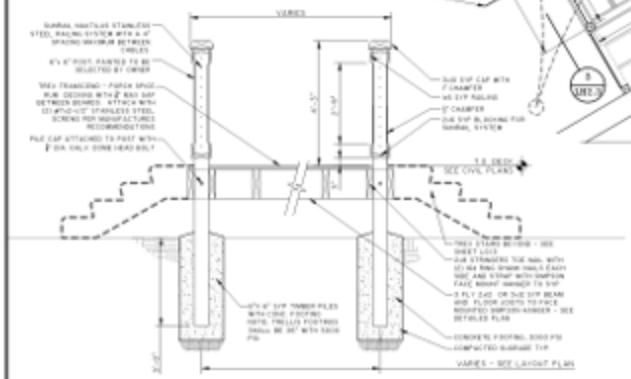
3. ALL NAILS SHALL BE GALVANIZED AND SHALL BE CERTIFIED BY MANUFACTURER FOR USE IN ACQ TREATED LUMBER.

4. ALL DETAILS THAT REFER TO WOODEN MEMBERS TO BE PAINTED COLOR TO BE SELECTED BY OWNER AND SHALL RECEIVE (1)PRIMER COAT & 2 FINISH COATS OF PAINT.

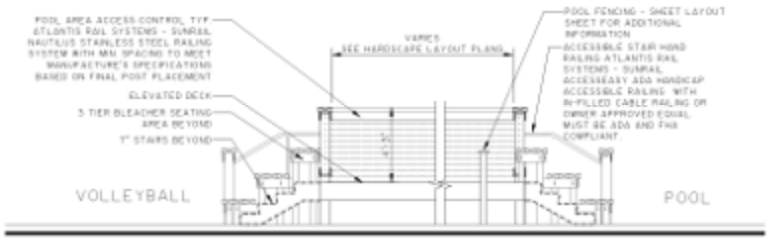
5. POST SHOWN ARE FOR STRUCTURAL COMPONENTS OF DECK ONLY. ADDITIONAL POST WILL BE REQUIRED FOR TENSIONED STEEL RAILING SYSTEM PROVIDE AS NECESSARY PER MANUFACTURE'S LOCAL CODE REQUIREMENTS.



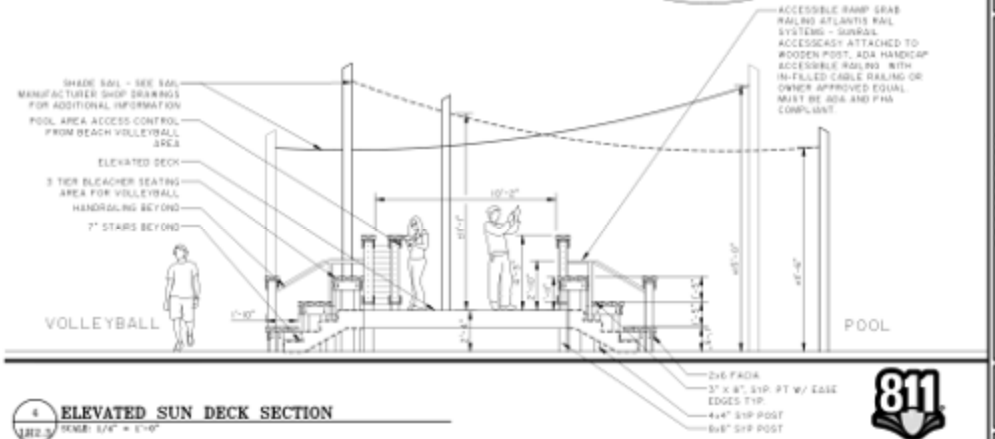
1 LH2.3 **ELEVATED SUN DECK WITH SHADE SAILS ABOVE**
SCALE: 1/4" = 1'-0"



2 LH2.3 **ELEVATED SUN DECK SECTION CABLE RAILING**
SCALE: 1/4" = 1'-0"



3 LH2.3 **ELEVATED SUN DECK SECTION CABLE RAILING**
SCALE: 1/4" = 1'-0"



4 LH2.3 **ELEVATED SUN DECK SECTION**
SCALE: 1/4" = 1'-0"

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HARDSCAPE DETAILS

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MASONRY SPECIFICATION

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LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
	A	25	LIGHTSOURCE 70W-CM-MP1-B3 JO1JC LIGHTSOURCE 8010-02-01-BCH2	DECORATIVE POST TOP	ONE 150-WATT CLEAR ED17 METAL HALIDE, BOWLS/ENTIL POST	347_150_HS_JJ1.ies	12000	0.74	162
	B1	4	LED 8BC 1000 30K TBM WXS_T RTXP25-3-XXX-XXXC-LED WSLARGE 6.2 SMALL LIGHT ENGINES, TYPE TBM OPTICS BC PMAR	LED		LED_8BC_1K_3_30K_TBM_IV_VOLT.ies	24000	0.90	275
	B2	7	LED 8BC 1000 30K TBM WXS_T1-06 RTXP25-3-XXX-XXXC-LED WSLARGE 6.2 SMALL LIGHT ENGINES, TBM OPTICS, WITH FRAME BOX SHIELD	LED		LED_8BC_1K_3_30K_TBM_IV_VOLT_WS.ies	18480	0.90	275
	C1	4	LED 8BC 1000 30K TBM WXS_T RTXP25-3-XXX-XXXC-LED WSLARGE 6.2 SMALL LIGHT ENGINES, TYPE TBM OPTICS BC PMAR	LED		LED_8BC_1K_3_30K_TBM_IV_VOLT.ies	26000	0.90	275
	C2	3	LED 8BC 1000 30K TBM WXS_T RTXP25-3-XXX-XXXC-LED WSLARGE 6.2 SMALL LIGHT ENGINES, TYPE TBM OPTICS BC PMAR	LED		LED_8BC_1K_3_30K_TBM_IV_VOLT.ies	26000	0.90	300
	V	2	LED 8BC 1000 30K TBM WXS_T1-06 RTXP25-3-XXX-XXXC-LED WSHTV-CS 30 LED LIGHT ENGINES, TYPE HS/SB SIDE BC PMAR SHIELD	LED		LED COURT_8BC_1_30K_NW_TBM_IV_VOLT_HS.ies	10913	0.90	209
	S	2	WALL LIGHT TCP 4100ST 120 LR	WALL LIGHT	2 - 13 WATT CFT	8W4100-1.IES	2000	1.00	30

STATISTICS

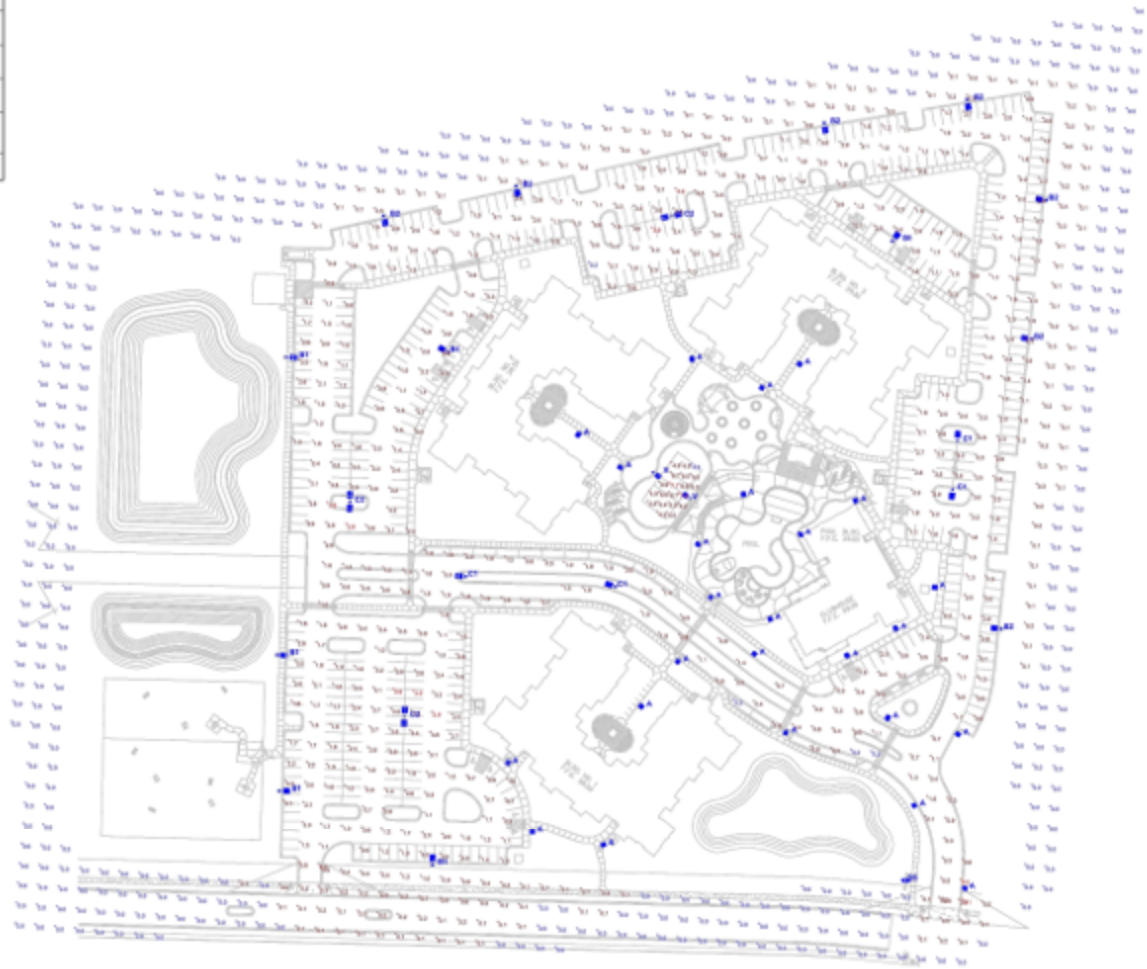
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
DRIVEWAY	+	1.0 fc	3.0 fc	0.0 fc	35.0:1	0.0:1
PARKING	+	1.8 fc	3.9 fc	0.2 fc	19.5:1	9.0:1
PROPERTY LINE	+	0.1 fc	0.1 fc	0.0 fc	N/A	N/A
VOLLEYBALL COURT	+	6.7 fc	7.1 fc	4.2 fc	1.7:1	1.6:1

NOTES

1. ALL FOOTCANDLE VALUES ARE MAINTAINED.
2. LUMINAIRES ARE MOUNTED ON 20 FT STEEL POLES WITH 3 FT BASE.

DECORATIVE FIXTURE

LED FIXTURE



Plan View
Scale 1"=10'

CITY OF WILMINGTON NORTH CAROLINA
Public Services ★ Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date _____ Permit # _____
Signed _____

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

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LIGHTSOURCE

PROGRESS 910 - 4055 EMERSON STREET

WILMINGTON, NC
PROGRESS BUILDERS

Designer
JGMS
Date
Oct 16 2013
Scale
AS SHOWN
Drawing No.
005PXP

3 of 3

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SITE LIGHTING PLAN

SL.1