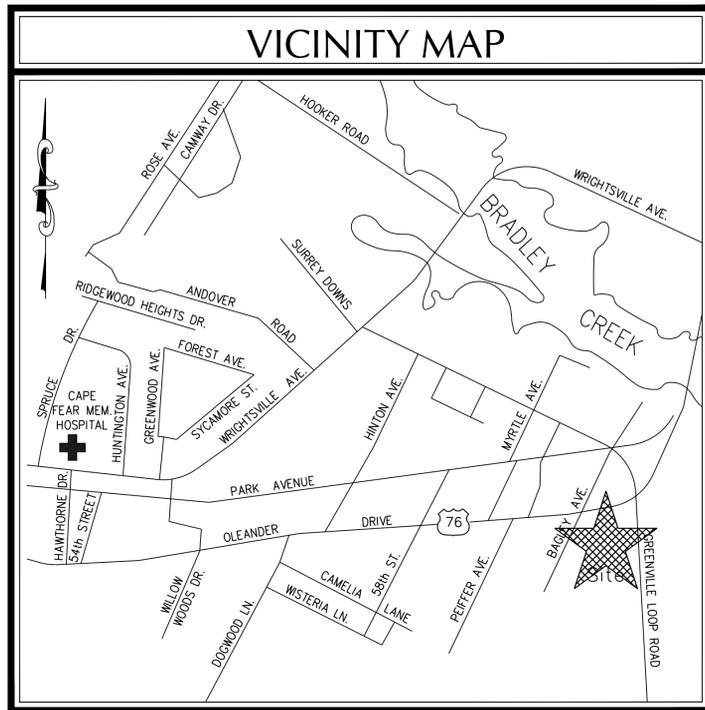
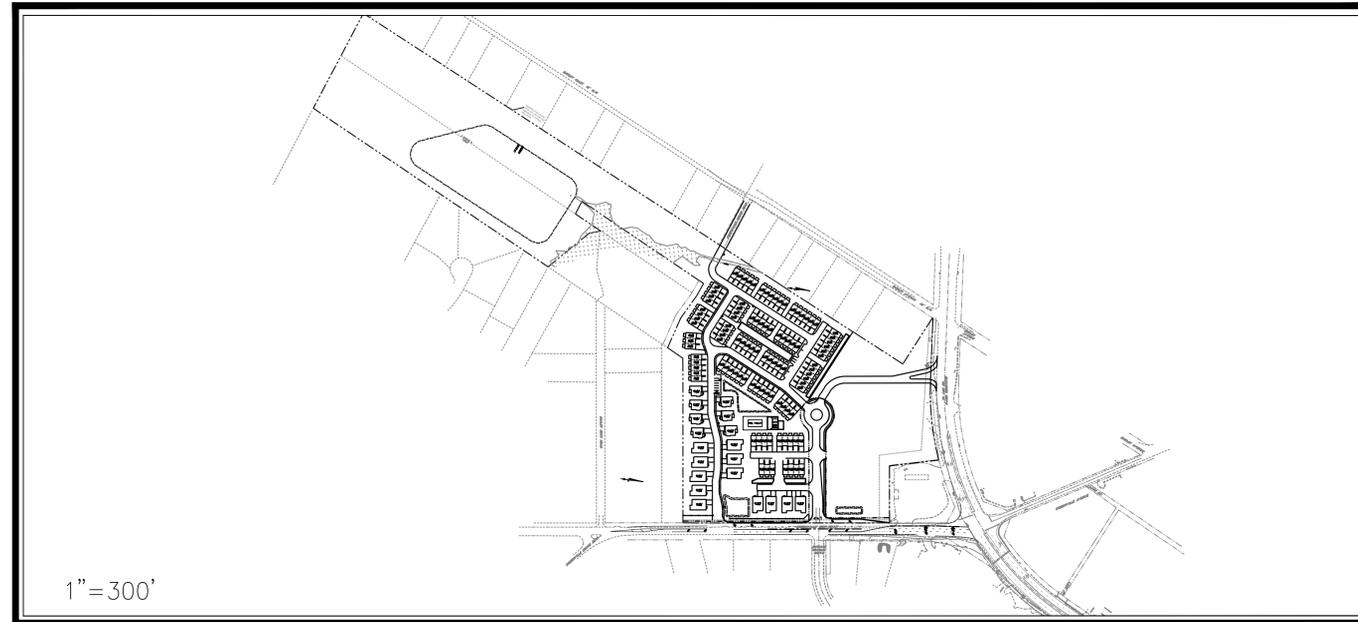


SITE DEVELOPMENT PLAN FOR SUMMERWALK - PHASE 1 WILMINGTON, NORTH CAROLINA OCTOBER 2015



VICINITY MAP
(NTS)



1"=300'

DESCRIPTION	EXISTING	PROPOSED
1' CONTOUR INTERVAL	— — — — —	— — — — —
5' CONTOUR INTERVAL	— — — — —	— — — — —
PROPERTY LINE	— · — · — · — · —	— · — · — · — · —
ROADWAY CENTERLINE	— — — — —	— — — — —
RIGHT OF WAY LIMITS	— · — · — · — · —	— · — · — · — · —
EASEMENT LINE	— · — · — · — · —	— · — · — · — · —
CURB & GUTTER	— · — · — · — · —	— · — · — · — · —
SANITARY SEWER FACILITIES	— — — — —	— — — — —
STORM SEWER FACILITIES	— — — — —	— — — — —
WATERLINE	— — — — —	— — — — —
FIRE HYDRANT ASSEMBLY		
WATERWAYS	— — — — —	N/A
PROPOSED LOT AND S.F.		
OPEN SPACE LABEL		
OPEN SPACE		
BUILDING SET BACKS	— — — — —	— — — — —
PRIVATE SANITARY SET BACKS	— — — — —	— — — — —
SKIMMER		
	PROPOSED	
	STREET SIGN	
	404 WETLANDS	
	FLOW DIRECTION	
	LEVEL SPREADER	

DEVELOPER/OWNER

Summerwalk Development, LLC.
6105 Oleander Drive, Suite 201
WILMINGTON, NC 28403
PHONE: (910) 452-1410

PREPARED BY:

GSP CONSULTING, PLLC
ENGINEERING
6626 Gordon Road, Unit C, Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659 License # P-0718

INDEX OF SHEETS	
SHT C-0	COVER SHEET
SHT C-1	GENERAL NOTES
SHT C-2	EXISTING CONDITIONS PLAN
SHT C-2.1	SITE INVENTORY PLAN
SHT C-3.1	SITE PLAN
SHT C-3.2	SITE PLAN
SHT C-4.1	UTILITY PLAN
SHT C-4.2	UTILITY PLAN
SHT C-4.3	UTILITY PROFILES
SHT C-4.4	UTILITY PROFILES
SHT C-4.5	UTILITY PROFILES
SHT C-5.1	GRADING & EROSION & SEDIMENT CONTROL PLAN
SHT C-5.2	GRADING & EROSION & SEDIMENT CONTROL PLAN
SHT C-6	STANDARD DETAILS
SHT C-7	STANDARD DETAILS

SITE DATA TABLE											
GENERAL NOTES:											
1. NEW HANOVER COUNTY PARCEL NOS.: PIN# R06208-013-012-000, R06208-013-010-001, R06208-013-009-000, R06208-013-008-000, R06208-013-007-000, R06208-013-006-000, R06208-013-010-002, R06211-003-004-000, R06207-008-008-002 SITE ADDRESS: 6120 OLEANDER DRIVE											
2. TOTAL AREA: 1,123,751 SF ± = 25.80 AC ±											
3. EXISTING ZONING: MF-L (CD) PHASE 1 & O&I (CD) PHASE 2 SETBACKS - 15' FRONT 15' REAR 5' SIDE											
4. CAMA LAND CLASSIFICATION: WATER RESOURCE PROTECTION											
5. THIS PROPERTY IS NOT WITHIN A SPECIAL FLOOD HAZARD ZONE.											
DEVELOPMENT DATA:											
TOTAL TRACT AREA (PHASE 1) = 879,625 SF ± = 20.19 AC ±											
PERMITTED DENSITY (@ 10 UNITS/AC) = 202 UNITS											
PROPOSED DENSITY 104 UNITS (2 BEDROOM TOWNHOMES) 19 SINGLE FAMILY HOMES											
PROPOSED - 123 UNITS TOTAL = 6.1 UNITS/AC.											
PARKING - MIN. REQUIRED - 2 P.S. / 2 BDRMS = 246 MAX REQUIRED - 2.5 P.S. / 2 BDRMS = 308											
PARKING PROVIDED : TOWNHOMES = 208 SPACES (1 GARAGE, 1 DRIVEWAY) + 14 SURFACE SPACES = 222 TOTAL SINGLE FAMILY = 38 SPACES (19 IN D/W, 19 IN GARAGE) ***260 TOTAL SPACES PROVIDED (1 H/C)***											
BLDG. HEIGHT - 35' MEAN ROOF											
OPEN SPACE - 35% TRACT AREA REQUIRED 35% X 20.19 AC. (TOTAL RESIDENTIAL AC.) = 7.07 AC. PROPOSED - 7.65 AC.											
BUILDING COVERAGE - 107,680 SF (12.2%)											
BUILDINGS - 22 TOWNHOME BUILDINGS, 19 SINGLE FAMILY HOMES & CLUBHOUSE = 42 TOTAL BUILDINGS											
TOTAL BEDROOMS - 104-2 BEDROOM TOWNHOMES 19-3 BEDROOM SINGLE FAMILY HOMES = 265 BEDROOMS											
IMPERVIOUS SURFACES - PROPOSED BUA - BUILDINGS - 105,960 S.F. DRIVEWAYS - 7,396 S.F. PAVEMENT - 73,223 S.F. SIDEWALKS - 9,576 S.F. PERVIOUS PAVEMENT - 10,149 S.F. (40,597 SF A-SOILS USE 25% IMP.) POOL FACILITY - 4,648 S.F. TOTAL - 210,952 S.F. (24.0%)											
UTILITY CAPACITY REQUESTS: PROPOSED SEWER CAPACITY - 104-2 BR @ 240 GPD/BR + 19-3 BR @ 360 GPD/UNIT + 30 PERSON CLUBHOUSE/POOL @ 10 GPD/PERSON = 32,100 GPD PROPOSED WATER CAPACITY - 123 UNITS @ 400 GPD/UNIT = 49,200 GPD											
<table border="1"> <thead> <tr> <th colspan="2">Approved Construction Plan</th> </tr> <tr> <th>Name</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>Planning</td> <td></td> </tr> <tr> <td>Traffic</td> <td></td> </tr> <tr> <td>Fire</td> <td></td> </tr> </tbody> </table>		Approved Construction Plan		Name	Date	Planning		Traffic		Fire	
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Planning											
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Fire											
<p>For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.</p>											
<table border="1"> <thead> <tr> <th colspan="2">CITY OF WILMINGTON NORTH CAROLINA</th> </tr> <tr> <th>Public Services</th> <th>Engineering Division</th> </tr> </thead> <tbody> <tr> <td colspan="2">APPROVED STORMWATER MANAGEMENT PLAN</td> </tr> <tr> <td>Date:</td> <td>Permit #</td> </tr> <tr> <td colspan="2">Signed: _____</td> </tr> </tbody> </table>		CITY OF WILMINGTON NORTH CAROLINA		Public Services	Engineering Division	APPROVED STORMWATER MANAGEMENT PLAN		Date:	Permit #	Signed: _____	
CITY OF WILMINGTON NORTH CAROLINA											
Public Services	Engineering Division										
APPROVED STORMWATER MANAGEMENT PLAN											
Date:	Permit #										
Signed: _____											
<p>NOTE: ALL DESIGN AND CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE CITY OF WILMINGTON LAND DEVELOPMENT CODE, TECHNICAL STANDARDS MANUAL & THE STATE OF NORTH CAROLINA.</p>											

COORDINATION NOTES

1. THE CONTRACTOR IS REQUIRED TO OBTAIN ANY/ALL PERMITS REQUIRED FOR CONSTRUCTION OF THESE PLANS.
2. ALL WORK IS TO BE IN ACCORDANCE WITH CITY OF WILMINGTON, NEW HANOVER COUNTY, THE CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPUA) AND THE STATE OF NORTH CAROLINA.
3. THE CONTRACTOR IS TO ESTABLISH AND CHECK ALL HORIZONTAL AND VERTICAL CONTROLS TO BE USED WITH THE PROJECT. IN ADDITION, THE CONTRACTOR IS TO COMPUTE THE LAYOUT OF THE ENTIRE SITE PLAN IN ADVANCE OF BEGINNING ANY WORK ASSOCIATED WITH THE SUBJECT PLANS. CONTRACTOR SHALL EMPLOY A PROFESSIONAL SURVEYOR TO PERFORM SITE IMPROVEMENT STAKEOUT(S).
4. ANYTIME WORK IS PERFORMED OFF-SITE OR WITHIN AN EXISTING EASEMENT, THE CONTRACTOR IS TO NOTIFY THE HOLDER OF SAID EASEMENT AS TO THE NATURE OF PROPOSED WORK, AND TO FOLLOW ANY GUIDELINES OR STANDARDS WHICH ARE ASSOCIATED WITH OR REFERENCED IN THE RECORDED EASEMENT.

GENERAL NOTES:

1. EXISTING TOPOGRAPHY, BOUNDARY AND UTILITIES, HAVE BEEN PREPARED BY FIELD SURVEYS BY JOHNNY J. WILLIAMS LAND SURVEYING, P.C., PENTON DEVELOPMENT, INC. AND OTHER AVAILABLE INFORMATION.
2. REASONABLE CARE HAS BEEN EXERCISED IN SHOWING THE LOCATION OF EXISTING UTILITIES ON THE PLANS. THE EXACT LOCATION OF ALL EXISTING UTILITIES IS NOT KNOWN IN ALL CASES. THE CONTRACTOR SHALL EXPLORE THE AREA AHEAD OF DITCHING OPERATIONS BY OBSERVATIONS, ELECTRONIC DEVICES, HAND DIGGING AND BY PERSONAL CONTACT WITH THE UTILITY COMPANIES. IN ORDER TO LOCATE EXISTING UTILITIES IN ADVANCE OF TRENCHING OPERATIONS SO AS TO ELIMINATE OR MINIMIZE DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS RESULTING FROM ANY DAMAGE TO THE EXISTING UTILITY LINES INCLUDING LOSS OF UTILITY REVENUES. CONTRACTOR SHALL ARRANGE FOR TEMPORARY SUPPORT OF EXISTING UTILITIES, SUCH AS POLES, CONDUITS, FIBER OPTIC CABLES, TELEPHONE CABLES, WATER LINES, ETC...
3. CONTRACTOR SHALL COMPLY WITH THE LATEST REVISIONS AND INTERPRETATIONS OF THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT.
4. CONTRACTOR SHALL PLAN AND CONSTRUCT WORK SO AS TO CAUSE MINIMUM INCONVENIENCE TO THE OWNER AND THE PUBLIC. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN AT ALL TIMES DURING THE PROGRESS OR TEMPORARY SUSPENSION OF WORK, SUITABLE BARRIERS, FENCES, SIGNS OR OTHER ADEQUATE PROTECTION, INCLUDING FLAGMEN AND WATCHMEN AS NECESSARY TO INSURE THE SAFETY OF THE PUBLIC AS WELL AS THOSE ENGAGED IN THE CONSTRUCTION WORK. CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "CONSTRUCTION AND MAINTENANCE OPERATIONS SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" BY THE DOT.
5. ALL MATERIAL CLEARED OR DEMOLISHED BY THE CONTRACTOR IN ORDER TO CONSTRUCT THE WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE.
6. ALL WORK BY THE CONTRACTOR SHALL BE WARRANTED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR AFTER THE OWNER ACCEPTS THE WORK.
7. CONTRACTOR SHALL CALL THE NORTH CAROLINA ONE-CALL CENTER AT 1 (800) 632-4949 AND ALLOW THE CENTER TO LOCATE EXISTING UTILITIES BEFORE DIGGING.
8. CONTRACTOR SHALL REMOVE ASPHALT, AGGREGATE BASE COURSE, AND CONCRETE CURB & GUTTER WITHIN LIMITS OF DEMOLITION AS SHOWN ON PLAN.

DEMOLITION NOTES

1. CONTRACTOR TO COORDINATE WITH THE OWNER TO PROPERLY MAINTAIN OR RELOCATE EXISTING SERVICE CONNECTIONS WHEN NECESSARY.
2. CONTRACTOR IS TO WALK THE SITE AND BECOME FAMILIAR WITH THE SCOPE OF DEMOLITION REQUIRED. ALL DEMOLITION WORK REQUIRED TO CONSTRUCT NEW SITE IMPROVEMENTS WILL BE PERFORMED BY THE CONTRACTOR AND WILL BE UNCLASSIFIED EXCAVATION.
3. DEMOLITION SHALL INCLUDE BUT IS NOT LIMITED TO THE EXCAVATION, HAULING AND OFFSITE DISPOSAL OF CONCRETE PADS, CONCRETE DITCHES, FOUNDATIONS, SLABS, STEPS, AND STRUCTURES; ABANDONED UTILITIES, BUILDINGS, PAVEMENTS AND ALL MATERIALS CLEARED AND STRIPPED TO THE EXTENT NECESSARY AS DIRECTED BY THE SOILS ENGINEER FOR THE INSTALLATION OF THE NEW IMPROVEMENTS AND WITHIN THE LIMITS OF CLEARING AND GRADING AND AS SHOWN ON THESE PLANS.
4. THE CONTRACTOR SHALL PROTECT ALL ADJACENT PROPERTY, STRUCTURES AND UTILITIES ON THE PROPERTY NOT TO BE DEMOLISHED. DAMAGE TO PROPERTIES OF OTHERS DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPLACED IN KIND BY THE CONTRACTOR AT NO COST TO OWNER.
5. ELECTRIC, TELEPHONE, SANITARY SEWER, WATER AND STORM SEWER UTILITIES THAT SERVICE OFF-SITE PROPERTIES SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS BY THE CONTRACTOR.
6. EXISTING UTILITIES NOT INTENDED FOR DEMOLITION SHALL BE MAINTAINED, PROTECTED AND UNDISTURBED DURING DEMOLITION.
7. ALL EXISTING IMPROVEMENTS INDICATED OR REQUIRED TO BE DEMOLISHED SHALL INCLUDE REMOVAL FROM THE PROPERTY AND PROPER DISPOSAL.
8. CONTRACTOR SHALL COORDINATE RELOCATION OF ALL EXISTING OVER HEAD AND UNDERGROUND UTILITIES INCLUDING CABLE, GAS, TELEPHONE AND ELECTRIC AND ANY OTHER UTILITIES THROUGH THE SITE WITH THE RESPECTIVE COMPANIES.
9. PROVIDE SMOOTH SAW CUT OF EXISTING PAVEMENTS, CURBS AND GUTTERS AND SIDEWALKS TO BE DEMOLISHED.
10. ALL DEMOLITION WORK SHALL BE DONE IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS AS WELL AS OSHA REGULATIONS.
11. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATIONS OF THE MAINS BY DIGGING TEST PITS BY HAND.
12. ANY BROKEN OR MISSING SIDEWALK PANELS, DRIVEWAY PANELS AND CURBING WILL BE REPLACED.

EROSION AND SEDIMENT CONTROL NOTES

GENERAL NOTES:

1. CLEAR AND REMOVE FROM SITE ALL TREES, ROOTS, ROOT MAT, ETC. FROM THE AREA WITHIN DESIGNATED CLEARING LIMITS.
2. PLANT GRASS OVER ALL GRADED AREAS AS SHOWN IN THE TABLE ON THIS SHEET OF CEASE OF ANY GRADING ACTIVITY.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND RESTORING TO PRE-CONSTRUCTION CONDITIONS ANY AREAS OUTSIDE THE PROJECT LIMITS THAT MAY INADVERTENTLY BE DAMAGED DUE TO THE FAILURE OF THE EROSION MEASURES.
4. DURING GRADING AND AFTER GRADING HAS BEEN COMPLETED, CONTRACTOR SHALL CONTINUE TO MAINTAIN PERMANENT AND TEMPORARY EROSION CONTROL MEASURES UNTIL FINAL INSPECTION AND APPROVAL BY NEW HANOVER COUNTY.
5. WATER, FERTILIZE, MOW AND MAINTAIN SPRIGGED, SOODED AND PLANTED AREAS UNTIL FINAL APPROVAL BY NEW HANOVER COUNTY.
6. ANY BORROW MATERIAL BROUGHT ONTO SITE MUST BE FROM A LEGALLY OPERATED MINE OR OTHER APPROVED SOURCE.
7. ANY EXCESS MATERIAL REMOVED FROM SITE MUST BE HAULED TO A LEGALLY OPERATED MINE OR OTHER APPROVED SOURCE.

MAINTENANCE PLAN

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION 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 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 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.
4. INSPECT INLET PROTECTION AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.

INSPECT SILT SACKS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT. CLEAR THE SILT SACK OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE THE SILT SACK DURING SEDIMENT REMOVAL. REPLACE AS NEEDED.
5. ALL SEEDED AREAS WILL BE FERTILIZED, RESEED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
6. INSPECT SKIMMER SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (ONE-HALF INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE DESIGN DEPTH. PULL THE SKIMMER TO ONE SIDE SO THAT THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN, NOT JUST AROUND THE SKIMMER OR THE FIRST CELL. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER.

IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, USUALLY JERKING ON THE ROPE WILL MAKE THE SKIMMER BOB UP AND DOWN AND DISLODGE THE DEBRIS AND RESTORE FLOW. IF THIS DOES NOT WORK, PULL THE SKIMMER OVER TO THE SIDE OF THE BASIN AND REMOVE THE DEBRIS.

IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, THE ORIFICE CAN BE REMOVED AND THE OBSTRUCTION CLEARED WITH A PLUMBER'S SNAKE OR BY FLUSHING WITH WATER. BE SURE AND REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.

CHECK THE FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS WITH FABRIC THAT SPANS THE FULL WIDTH OF THE SPILLWAY. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER AND POOL AREAS.

FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.
7. INSPECT EXCELSIOR MATTING AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT REPAIR IMMEDIATELY. GOOD CONTACT WITH THE GROUND MUST BE MAINTAINED, AND EROSION MUST NOT OCCUR BENEATH THE MATTING. ANY AREAS OF THE MATTING THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED. IF EROSION OCCURS DUE TO POORLY CONTROLLED DRAINAGE, THE PROBLEM SHALL BE FIXED AND THE ERODED AREA PROTECTED. MONITOR AND REPAIR THE MATTING AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.
8. INSPECT ROCK PIPE INLET PROTECTION AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE SEDIMENT STORAGE AREA TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN THE DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING. CHECK THE STRUCTURE FOR DAMAGE. ANY RIPRAP DISPLACED FROM THE STONE HORSESHOE MUST BE REPLACED IMMEDIATELY. AFTER ALL THE SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND PROVIDE PERMANENT GROUND COVER.
9. DURING ESTABLISHMENT PERIOD, CHECK GRASS-LINED CHANNELS AFTER EVERY RAINFALL. AFTER GRASS IS ESTABLISHED, PERIODICALLY CHECK THE CHANNEL. CHECK IT AFTER EVERY HEAVY RAINFALL EVENT. IMMEDIATELY MAKE REPAIRS. IT IS PARTICULARLY IMPORTANT TO CHECK THE CHANNEL OUTLET AND ALL ROAD CROSSING FOR BANK STABILITY AND EVIDENCE OF PIPING OR SCOUR HOLES. REMOVE ALL SIGNIFICANT SEDIMENT ACCUMULATIONS TO MAINTAIN THE DESIGNED CARRYING CAPACITY. KEEP THE GRASS IN A HEALTHY, VIGOROUS CONDITION AT ALL TIMES, SINCE IT IS THE PRIMARY EROSION PROTECTION FOR THE CHANNEL.

STABILIZATION NOTES

1. ALL DISTURBED AREAS WILL BE STABILIZED WITHIN 15 WORKING DAYS OF CEASE OF ANY PHASE OF ACTIVITY AND SLOPES WITHIN 21 CALENDAR DAYS.

PERMANENT SEEDING SCHEDULE – MIXTURE 5CP

SPECIES	RATE (LB/ACRE)
CENTPEDE GRASS	10-20

Seeding Dates
MARCH – JUNE

Soil Amendments
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 300 LB/ACRE 10-10-10 FERTILIZER.

Mulch
DO NOT MULCH.

Maintenance
FERTILIZE VERY SPARINGLY LB/ACRE NITROGEN IN SPRING WITH NO PHOSPHORUS. CENTPEDE GRASS CANNOT TOLERATE HIGH PH OR EXCESS FERTILIZER.

TEMPORARY SEEDING—LATE WINTER/EARLY SPRING

WINTER AND EARLY SPRING

SPECIES	RATE (LB/ACRE)
Rye (GRAIN)	120
*ANNUAL LESPEDEZA (KORE IN PIEDMONT AND COASTAL PLAIN, KOREAN IN MOUNTAINS)	50

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

SUMMER

SPECIES	RATE (LB/ACRE)
GERMAN MILLET	40

FALL

SPECIES	RATE (LB/ACRE)
RYE (GRAIN)	120

Seeding dates

COASTAL PLAIN – DEC.1-APR. 15 – LATE WINTER AND EARLY SPRING
APRIL 15 – AUG. 15 – SUMMER
AUG. 15 – DEC. 30 – FALL

Soil amendments
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

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

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

GENERAL GRADING NOTES

1. REASONABLE CARE HAS BEEN EXERCISED IN SHOWING THE LOCATION OF EXISTING UTILITIES ON THE PLANS. THE EXACT LOCATION OF SUCH UTILITIES IS NOT KNOWN IN ALL CASES. THE CONTRACTOR SHALL EXPLORE THE AREA AHEAD OF THE DITCHING OPERATION BY OBSERVATIONS, ELECTRONIC DEVICES, HAND DIGGING AND BY PERSONAL CONTACT WITH THE UTILITY COMPANIES IN ORDER TO LOCATE EXISTING UTILITIES IN ADVANCE OF THE TRENCHING OPERATIONS SO AS TO AVOID AND PREVENT DAMAGE TO THE EXISTING UTILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COST RESULTING FROM ANY DAMAGE TO THE EXISTING UTILITY LINES INCLUDING BUT NOT LIMITED TO REPAIRS AND LOSS SERVICE REVENUE. CONTRACTOR SHALL ARRANGE FOR TEMPORARY SUPPORT OF EXISTING UTILITIES, SUCH AS POLES, CONDUITS, FIBER OPTIC CABLES, TELEPHONE CABLES, WATER LINES, ETC...
2. CONTRACTOR SHALL COMPLY WITH THE LATEST REVISIONS AND INTERPRETATIONS OF THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT.
3. CONTRACTOR SHALL PLAN AND CONSTRUCT WORK SO AS TO CAUSE MINIMUM INCONVENIENCE TO THE OWNER AND THE PUBLIC. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN AT ALL TIMES DURING THE PROGRESS OR TEMPORARY SUSPENSION OF WORK, SUITABLE BARRIERS, FENCES, SIGNS OR OTHER ADEQUATE PROTECTION, INCLUDING FLAG MEN AND WATCHMEN AS NECESSARY TO INSURE THE SAFETY OF THE PUBLIC AS WELL AS THOSE ENGAGED IN THE CONSTRUCTION WORK. CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "CONSTRUCTION AND MAINTENANCE OPERATIONS SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" BY THE NCDOT.
4. ALL MATERIAL CLEARED AND GRUBBED BY THE CONTRACTOR IN ORDER TO CONSTRUCT THE WORK, SUCH AS TREES, VEGETATION, FENCING, ETC... SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE OR BURNED IF PROPER PERMITS ARE RECEIVED.

SITE NOTES

1. ANY DISCREPANCY IN THIS PLAN AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO START OF CONSTRUCTION. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL SETBACKS, EASEMENTS AND DIMENSIONS SHOWN HEREON BEFORE BEGINNING CONSTRUCTION.
2. THE GENERAL CONTRACTOR SHALL CONTACT ALL OWNERS OF EASEMENTS, UTILITIES AND R.O.W.'S PUBLIC OR PRIVATE, PRIOR TO WORKING IN THESE AREAS.
3. CONTRACTOR SHALL MAINTAIN THE SITE IN A MANNER SO THAT WORKMEN AND PUBLIC SHALL BE PROTECTED FROM INJURY, AND ADJOINING PROPERTY PROTECTED FROM DAMAGE.
4. ACCESS TO UTILITIES, FIRE HYDRANTS, STREET LIGHTING, ETC., SHALL REMAIN UNDISTURBED, UNLESS COORDINATED WITH THE RESPECTIVE UTILITY.
5. DO NOT SCALE THIS DRAWING AS IT IS A REPRODUCTION AND SUBJECT TO DISTORTION.
6. THE GENERAL CONTRACTOR SHALL REMOVE ALL DEBRIS FROM THE SITE UPON COMPLETION OF THE PROJECT AND AT LEAST ONCE A WEEK DURING CONSTRUCTION.
7. THE GENERAL CONTRACTOR SHALL KEEP THE AREA OUTSIDE THE "CONSTRUCTION LIMITS" BROOM CLEAN AT ALL TIMES.
8. CONTRACTOR SHALL MAINTAIN AN "AS-BUILT" SET OF DRAWINGS TO RECORD THE EXACT LOCATION OF ALL PIPING PRIOR TO CONCEALMENT. DRAWINGS SHALL BE GIVEN TO THE OWNER UPON COMPLETION OF THE PROJECT WITH A COPY OF THE TRANSMITTAL LETTER TO THE ENGINEER.
9. IF DEPARTURES FROM THE SPECIFICATIONS OR DRAWINGS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THEREOF SHALL BE GIVEN TO THE OWNER FOR REVIEW. NO DEPARTURES FROM THE CONTRACT DOCUMENT SHALL BE MADE WITHOUT THE PERMISSION OF THE OWNER.
10. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES. THE LOCATION OF ALL EXISTING UTILITIES ARE NOT NECESSARILY SHOWN ON PLANS AND WHERE SHOWN ARE ONLY APPROXIMATE. THE CONTRACTOR SHALL ON HIS INITIATIVE AND AT NO EXTRA COST HAVE LOCATED ALL UNDERGROUND LINES AND STRUCTURES AS NECESSARY. NO CLAIMS FOR DAMAGES OR EXTRA COMPENSATION SHALL ACCRUE TO THE CONTRACTOR FROM THE PRESENCE OF SUCH PIPE, OTHER OBSTRUCTIONS OR FROM DELAY DUE TO REMOVAL OR REARRANGEMENT OF THE SAME. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UNDERGROUND STRUCTURES. CONTACT NORTH CAROLINA ONE CALL TOLL FREE 1-800-632-4949 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL NONSUBSCRIBING UTILITIES.
11. ALL PERMITS RELATIVE TO PROJECT MUST BE OBTAINED, PRIOR TO CONSTRUCTION
12. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH PERMITS ISSUED AND APPLICABLE STATE, COUNTY, AND LOCAL CODES.
13. FOR BUILDING DIMENSIONS, SEE ARCHITECTURAL DRAWINGS.
14. ALL DIMENSIONS AND RADII ARE TO OUTSIDE FACE OF BUILDING OR TO FACE OF CURB UNLESS OTHERWISE NOTED.
15. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL INSPECTIONS, CERTIFICATIONS, EQUIPMENT, ETC., THAT MAY BE REQUIRED.
16. THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.

GENERAL STORM SEWER NOTES

1. ALL STORM SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF WILMINGTON AND THE STATE OF NORTH CAROLINA REQUIREMENTS AS SPECIFIED ON THE DRAWINGS AND IN THE PROJECT SPECIFICATIONS.
2. BEDDING FOR ALL STORM SEWER PIPE SHALL BE AS SPECIFIED ON THE DRAWINGS, PROJECT SPECIFICATIONS, AND MANUFACTURER SPECIFICATIONS.
3. ALL STORM SEWER PIPES TO BE HDPE ADS N-12 OR EQUIVALENT, UNLESS OTHERWISE SPECIFIED.
4. ALL STORM SEWER PIPES SHOWN AS RCP ON THE PLANS SHALL BE REINFORCED CONCRETE PIPE CONFORMING TO ASTM C-76, UNLESS INDICATED OTHERWISE ON PLANS.

EXISTING UTILITY NOTES

1. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO VERIFY THE ACTUAL LOCATION AND AVAILABILITY OF ALL EXISTING AND PROPOSED UTILITIES IN THE FIELD PRIOR TO GROUND BREAKING.
2. EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON A FIELD SURVEY AND THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY FIELD CONDITIONS PRIOR TO BEGINNING RELATED CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.

UTILITY CONTACTS:

1. CONTACT THE NORTH CAROLINA ONE CALL CENTER PRIOR TO DOING AND DIGGING. 1-800-632-4949

NOTICE REQUIRED

ALL EXISTING UNDERGROUND UTILITIES SHALL BE PHYSICALLY LOCATED BY CONTRACTOR PRIOR TO THE BEGINNING OF ANY CONSTRUCTION IN THE VICINITY OF SAID UTILITIES.

CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS PRIOR TO ANY EXCAVATION OR DEMOLITION.

CONTACT "CAROLINA ONE CALL" AT 1-800-632-4949
EMERGENCY DIAL 911 POLICE - FIRE - RESCUE

No.	Revision	Date	By

Designer	GSP	Scale	
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

Wilmington **New Hanover County** **North Carolina**

SUMMERWALK - PHASE 1

GENERAL NOTES

PREPARED FOR:
Summerwalk Development, LLC
6105 Oleander Drive
Suite 201
Wilmington, NC 28401

GSP CONSULTING, PLLC
ENGINEERING

6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-1

Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____

City of Wilmington
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit # _____

Signed: _____

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.





Approved Construction Plan		
Name	Date	
Planning		
Traffic		
Fire		

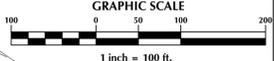
CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit # _____

Signed: _____

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No.	Revision	Date	By

Designer	GSP	Scale	1" = 100'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

SUMMERWALK - PHASE 1

Wilmington New Hanover County North Carolina

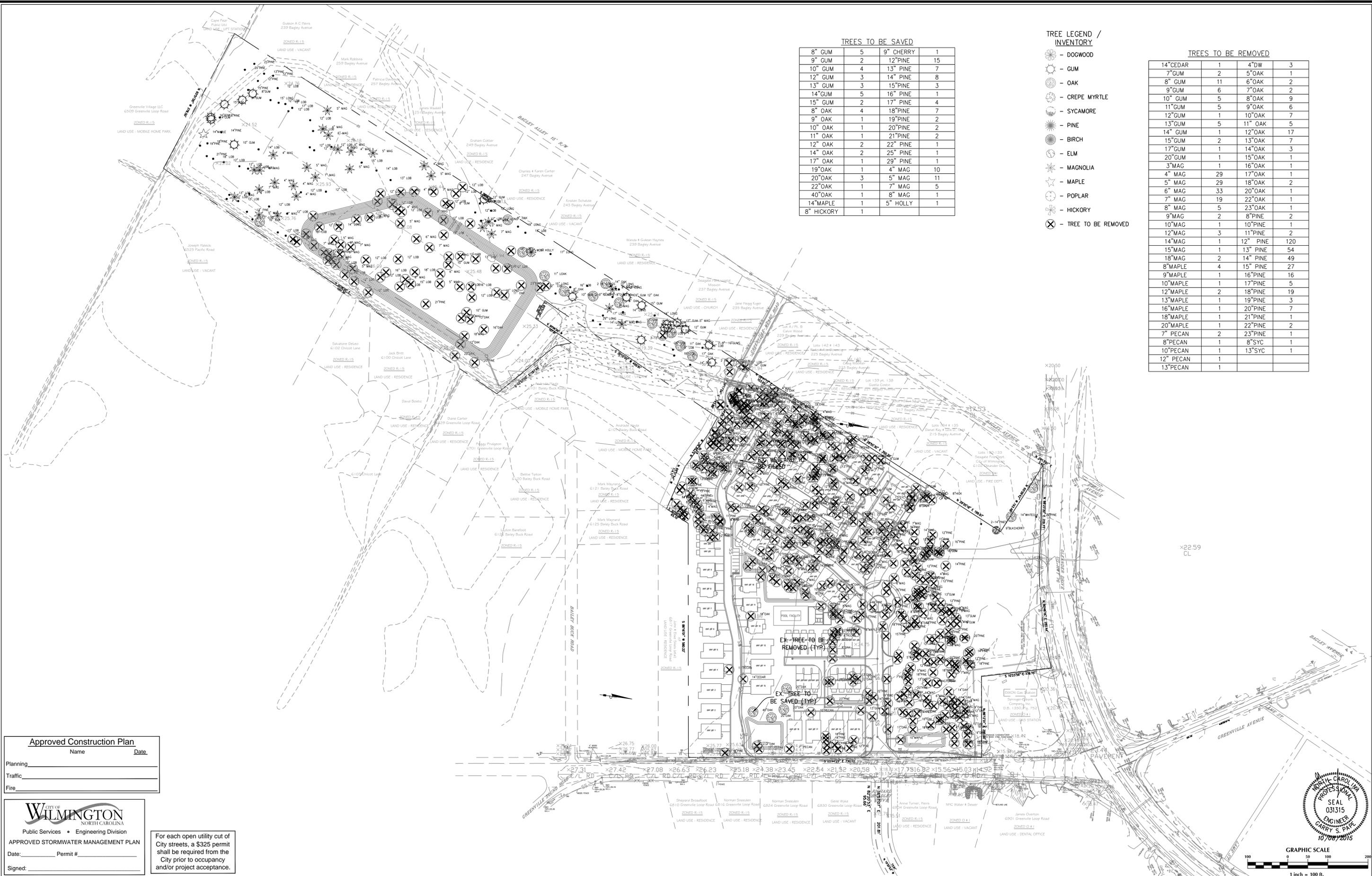
EXISTING CONDITIONS

PREPARED FOR:
Summerwalk Development, LLC
6105 Oleander Drive
Suite 201
Wilmington, NC 28401

GSP CONSULTING, PLLC
ENGINEERING

6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-2



TREES TO BE SAVED

8" GUM	5	9" CHERRY	1
9" GUM	2	12" PINE	15
10" GUM	4	13" PINE	7
12" GUM	3	14" PINE	8
13" GUM	3	15" PINE	3
14" GUM	5	16" PINE	1
15" GUM	2	17" PINE	4
8" OAK	4	18" PINE	7
9" OAK	1	19" PINE	2
10" OAK	1	20" PINE	2
11" OAK	1	21" PINE	2
12" OAK	2	22" PINE	1
14" OAK	2	25" PINE	1
17" OAK	1	29" PINE	1
19" OAK	1	4" MAG	10
20" OAK	3	5" MAG	11
22" OAK	1	7" MAG	5
40" OAK	1	8" MAG	1
14" MAPLE	1	5" HOLLY	1
8" HICKORY	1		

- TREE LEGEND / INVENTORY**
- ☉ - DOGWOOD
 - ☼ - GUM
 - ☽ - OAK
 - ☿ - CREPE MYRTLE
 - ♁ - SYCAMORE
 - ♂ - PINE
 - ♁ - BIRCH
 - ♁ - ELM
 - ♁ - MAGNOLIA
 - ♁ - MAPLE
 - ♁ - POPLAR
 - ♁ - HICKORY
 - ⊗ - TREE TO BE REMOVED

TREES TO BE REMOVED

14" CEDAR	1	4" DW	3
7" GUM	2	5" OAK	1
8" GUM	11	6" OAK	2
9" GUM	6	7" OAK	2
10" GUM	5	8" OAK	9
11" GUM	5	9" OAK	6
12" GUM	1	10" OAK	7
13" GUM	5	11" OAK	5
14" GUM	1	12" OAK	17
15" GUM	2	13" OAK	7
17" GUM	1	14" OAK	3
20" GUM	1	15" OAK	1
3" MAG	1	16" OAK	1
4" MAG	29	17" OAK	1
5" MAG	29	18" OAK	2
6" MAG	33	20" OAK	1
7" MAG	19	22" OAK	1
8" MAG	5	23" OAK	1
9" MAG	2	8" PINE	2
10" MAG	1	10" PINE	1
12" MAG	3	11" PINE	2
14" MAG	1	12" PINE	120
15" MAG	1	13" PINE	54
18" MAG	2	14" PINE	49
8" MAPLE	4	15" PINE	27
9" MAPLE	1	16" PINE	16
10" MAPLE	1	17" PINE	5
12" MAPLE	2	18" PINE	19
13" MAPLE	1	19" PINE	3
16" MAPLE	1	20" PINE	7
18" MAPLE	1	21" PINE	1
20" MAPLE	1	22" PINE	2
7" PECAN	2	23" PINE	1
8" PECAN	1	8" SYC	1
10" PECAN	1	13" SYC	1
12" PECAN	1		
13" PECAN	1		

Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____

CITY OF WILMINGTON
NORTH CAROLINA

Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit # _____

Signed: _____

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

No.	Revision	Date	By

Designer	GSP	Scale	1" = 100'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

SUMMERWALK - PHASE 1

Wilmington New Hanover County North Carolina

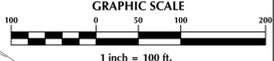
SITE INVENTORY PLAN

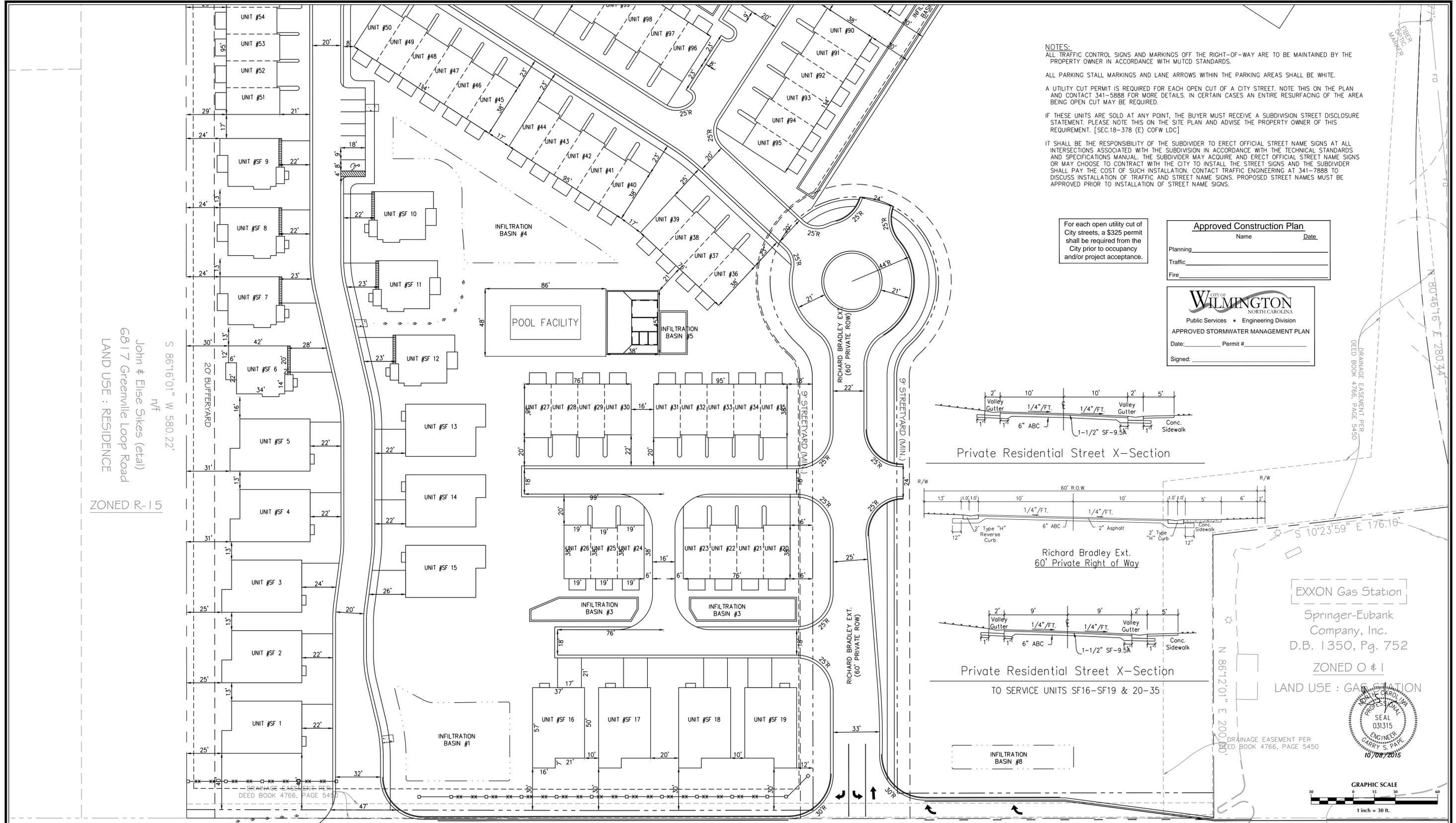
PREPARED FOR:
Summerwalk Development, LLC
6105 Oleander Drive
Suite 201
Wilmington, NC 28403

GSP CONSULTING, PLLC
ENGINEERING

6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-2.1



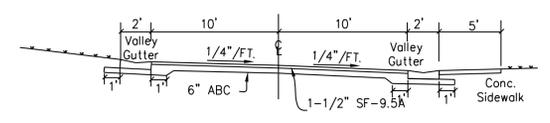


NOTES:
 ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
 ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
 A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET. NOTE THIS ON THE PLAN AND CONTACT 341-5888 FOR MORE DETAILS. IN CERTAIN CASES AN ENTIRE RESURFACING OF THE AREA BEING OPEN CUT MAY BE REQUIRED.
 IF THESE UNITS ARE SOLD AT ANY POINT, THE BUYER MUST RECEIVE A SUBDIVISION STREET DISCLOSURE STATEMENT. PLEASE NOTE THIS ON THE SITE PLAN AND ADVISE THE PROPERTY OWNER OF THIS REQUIREMENT. [SEC.18-378 (E) COFW LDC]
 IT SHALL BE THE RESPONSIBILITY OF THE SUBDIVIDER TO ERECT OFFICIAL STREET NAME SIGNS AT ALL INTERSECTIONS ASSOCIATED WITH THE SUBDIVISION IN ACCORDANCE WITH THE 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 AND THE SUBDIVIDER SHALL PAY THE COST OF SUCH INSTALLATION. CONTACT TRAFFIC ENGINEERING AT 341-7888 TO DISCUSS INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.

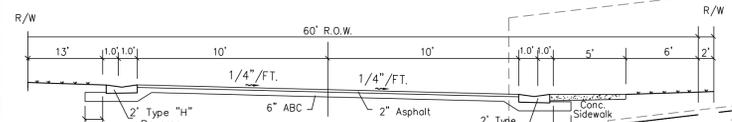
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Approved Construction Plan
 Name _____ Date _____
 Planning _____
 Traffic _____
 Fire _____

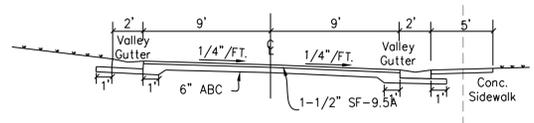
WILMINGTON
 NORTH CAROLINA
 Public Services • Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: _____ Permit # _____
 Signed: _____



Private Residential Street X-Section

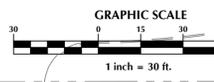


Richard Bradley Ext. 60' Private Right of Way



Private Residential Street X-Section
 TO SERVICE UNITS SF16-SF19 & 20-35

EXXON Gas Station
 Springer-Eubank Company, Inc.
 D.B. 1350, Pg. 752
 ZONED O # 1
 LAND USE : GAS STATION



John & Elise Sikes (eta)
 6817 Greenville Loop Road
 LAND USE : RESIDENCE
 ZONED R-15

No.	Revision	Date	By

Designer: GSP
 Drawn By: GSP
 License #: P-0718
 Scale: 1" = 30'
 Date: October 2015
 Job No.: 2015-0006

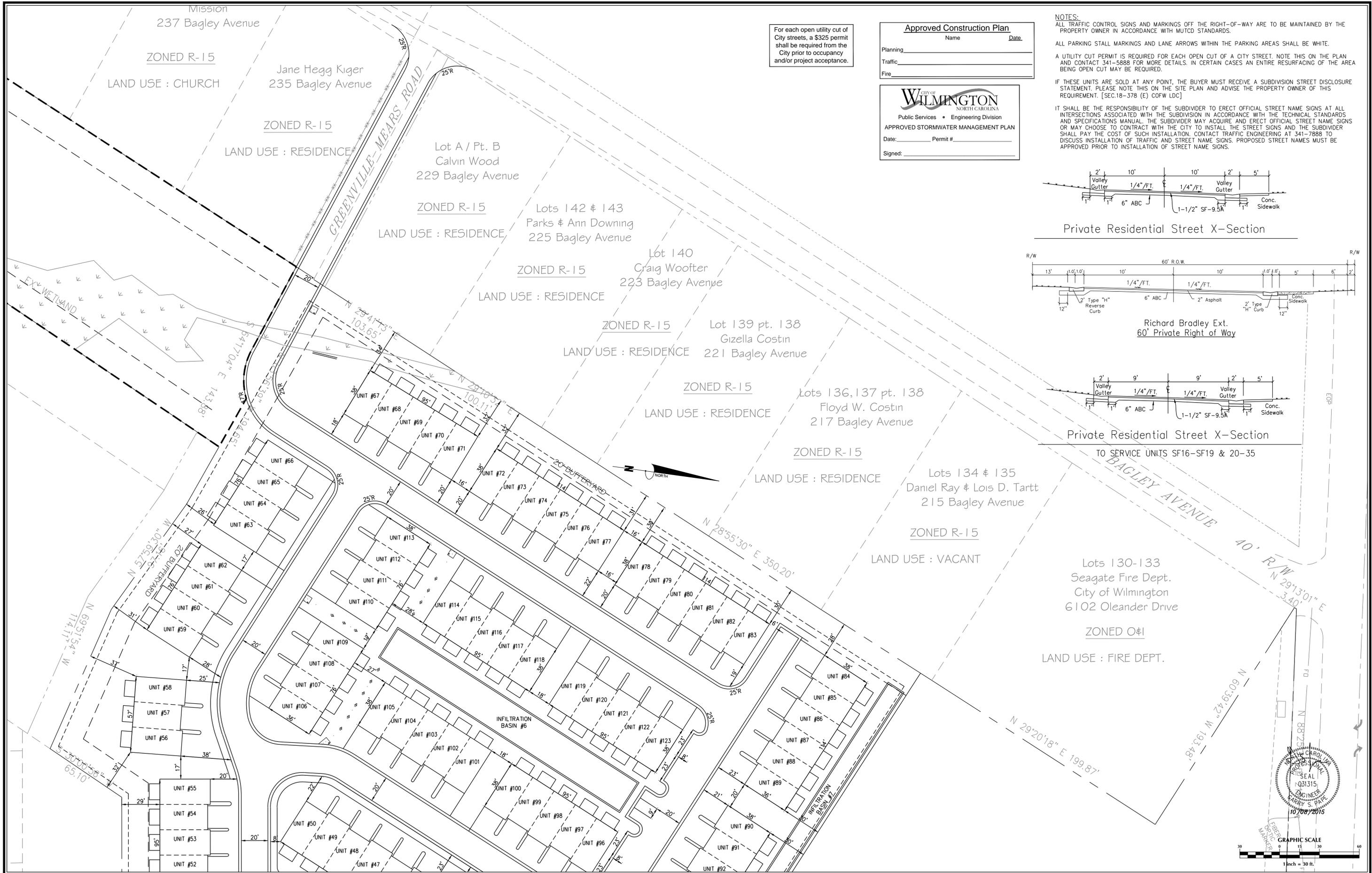
SUMMERWALK - PHASE 1
 SITE PLAN
 Wilmington New Hanover County North Carolina

SITE PLAN

PREPARED FOR:
 Summerwalk Development, LLC
 6105 Oleander Drive
 Suite 201
 Wilmington, NC 28403

GSP CONSULTING, PLLC
 ENGINEERING
 6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No. **C-3.1**



For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

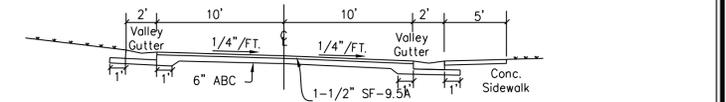
Fire _____

CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

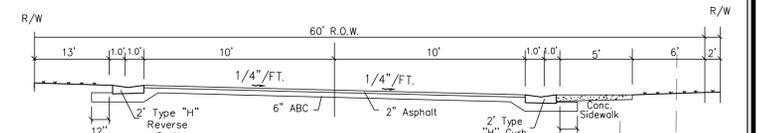
Date: _____ Permit # _____

Signed: _____

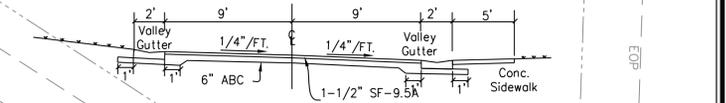
NOTES:
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Private Residential Street X-Section



Richard Bradley Ext. 60' Private Right of Way



Private Residential Street X-Section

TO SERVICE UNITS SF16-SF19 & 20-35

No.	Revision	Date	By

Designer	GSP	Scale	1" = 30'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

SUMMERWALK - PHASE 1

Wilmington New Hanover County North Carolina

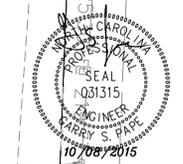
SITE PLAN

PREPARED FOR:
Summerwalk Development, LLC
6105 Oleander Drive
Suite 201
Wilmington, NC 28403

GSP CONSULTING, PLLC
ENGINEERING

6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-3.2



For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

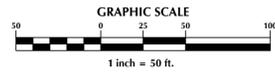
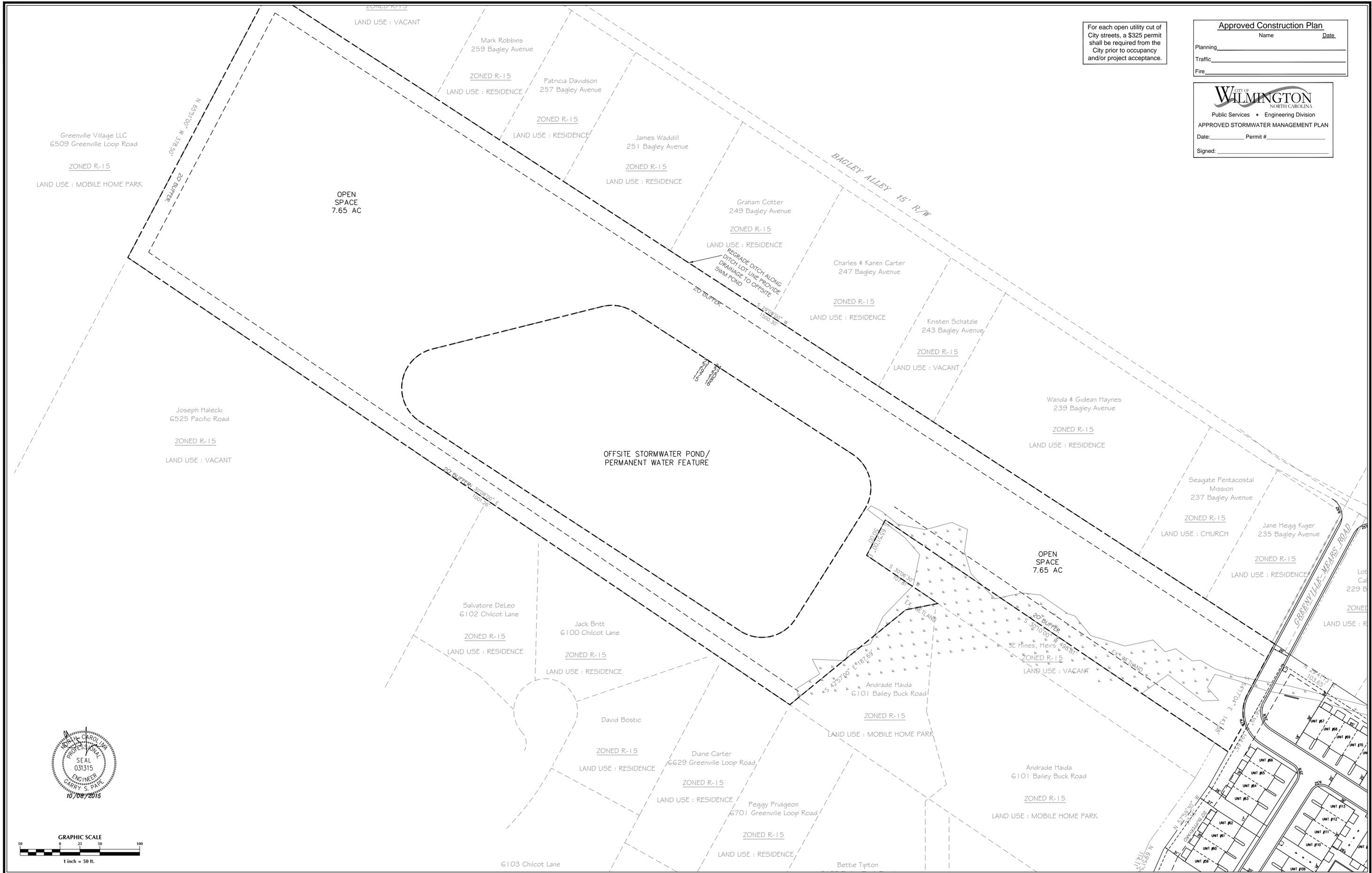
Fire _____

CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit # _____

Signed: _____



No.	Revision	Date	By

Designer	GSP	Scale	1" = 50'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

SUMMERWALK - PHASE 1

Wilmington New Hanover County North Carolina

SITE PLAN

PREPARED FOR:
Summerwalk Development, LLC
6105 Oleander Drive
Suite 201
Wilmington, NC 28403

GSP CONSULTING, PLLC
ENGINEERING

6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-3.3

GENERAL UTILITY NOTES:

- PROJECT SHALL COMPLY WITH CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPUA) CROSS CONNECTION REQUIREMENTS. WATER METER(S) CANNOT BE SET AND ACTIVATED ON NEW MAINS UNTIL ALL REQUIREMENTS ARE MET AND NCDENR HAS ISSUED THEIR "FINAL APPROVAL". CALL 332-6558 FOR INFORMATION.
- IF THE CONTRACTOR DESIRES CFPUA WATER FOR CONSTRUCTION HE SHALL APPLY IN ADVANCE FOR THIS SERVICE AND MUST PROVIDE A REDUCED PRESSURE ZONE (RRZ) BACKFLOW PREVENTION DEVICE ON THE DEVELOPER'S SIDE OF THE WATER METER BOX.
- TO USE CFPUA WATER FOR IRRIGATION IT MUST BE METERED SEPARATELY.
- WHEN PVC WATER MAINS AND/OR POLYETHYLENE SERVICES ARE PROPOSED, THE PIPES ARE TO BE MARKED WITH NO. 10 INSULATED COPPER WIRE INSTALLED THE ENTIRE LENGTH AND STRAPPED TO THE PIPES WITH DUCT TAPE. THE INSULATED WIRE IS TO BE STRIPPED TO BARE WIRE AND SECURED TO ALL VALVES AND FITTINGS. THIS WIRE IS TO BE ACCESSIBLE AT ALL VALVES, FIRE HYDRANTS, AND WATER METER BOXES TO AID IN FUTURE LOCATIONS OF FACILITIES.
- TREES ARE NOT TO BE PLANTED OVER WATER MAINS OR WITHIN UTILITY EASEMENTS.
- STATE WATER AND SEWER PERMITS SHALL BE OBTAINED PRIOR TO RELEASE OF THE PROJECT FOR CONSTRUCTION.
- ALL WATERMANS WITHIN PUBLIC RIGHT OF WAY TO BE PUBLIC AND ALL WATERMANS LOCATED ON PRIVATE PROPERTY TO BE PRIVATE.
- POOL IS NOT TO DISCHARGE INTO THE CFPUA SEWER SYSTEM. CFPUA WILL CONSIDER THIS DISCHARGE ONLY IF FLOW IS DENIED INTO THE STORM DRAIN SYSTEM.
- GATE VALVES TO BE LOCATED AT EACH DOMESTIC SERVICE LINE INTO BUILDINGS.
- ALL WATERLINES TO HAVE MINIMUM 10' SEPARATION FROM ALL SEWER LINES, MANHOLES AND CLEANOUTS & TO HAVE 3" OF COVER AND 18" CLEARANCE WHERE WATER CROSSES OTHER UTILITY LINES.
- ANY SANITARY SEWER SYSTEM OR ANY PORTION THEREOF, INCLUDING THE PUMP CHAMBER AND SERVICE CONNECTION PIPE TO THE COLLECTION MAIN, SHALL BE LOCATED AT LEAST A MINIMUM OF 10- FEET FROM ANY WATER LINE. SEWER LINES MAY CROSS A WATER LINE IF 18-INCH CLEAR SEPARATION DISTANCE IS MAINTAINED. WITH THE SEWER LINE CROSSING UNDER THE WATER LINE. WHEN CONDITIONS PREVENT AN 18-INCH CLEAR SEPARATION FROM BEING MAINTAINED OR WHENEVER IT IS NECESSARY FOR THE WATER LINE TO CROSS UNDER THE SEWER, THE SEWER LINE SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE OR ITS EQUIVALENT AND THE WATER LINE SHALL BE CONSTRUCTED OF FERROUS MATERIALS EQUIVALENT TO WATER MAIN STANDARDS WITH FOR A DISTANCE OF AT LEAST TEN FEET ON EACH SIDE OF THE POINT OF CROSSING, WITH FULL SECTIONS OF PIPE CENTERED AT THE POINT OF CROSSING.

SITE DATA:

123 TOTAL UNITS - 104 TOWNHOME UNITS (2 BEDROOM) & 19 SINGLE FAMILY UNITS (3 BEDROOM)
 PROPOSED - 104-2 BEDROOM * 240 GPD + 19-3 BEDROOM + 30 PERSON CLUBHOUSE/POOL @ 10 GPD = 32,100 GPD
 PUBLIC
 8" WATER = 3,075 LF
 9" FIRE HYDRANTS
 8" SEWER = 2,625 LF

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

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

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

NOTES:

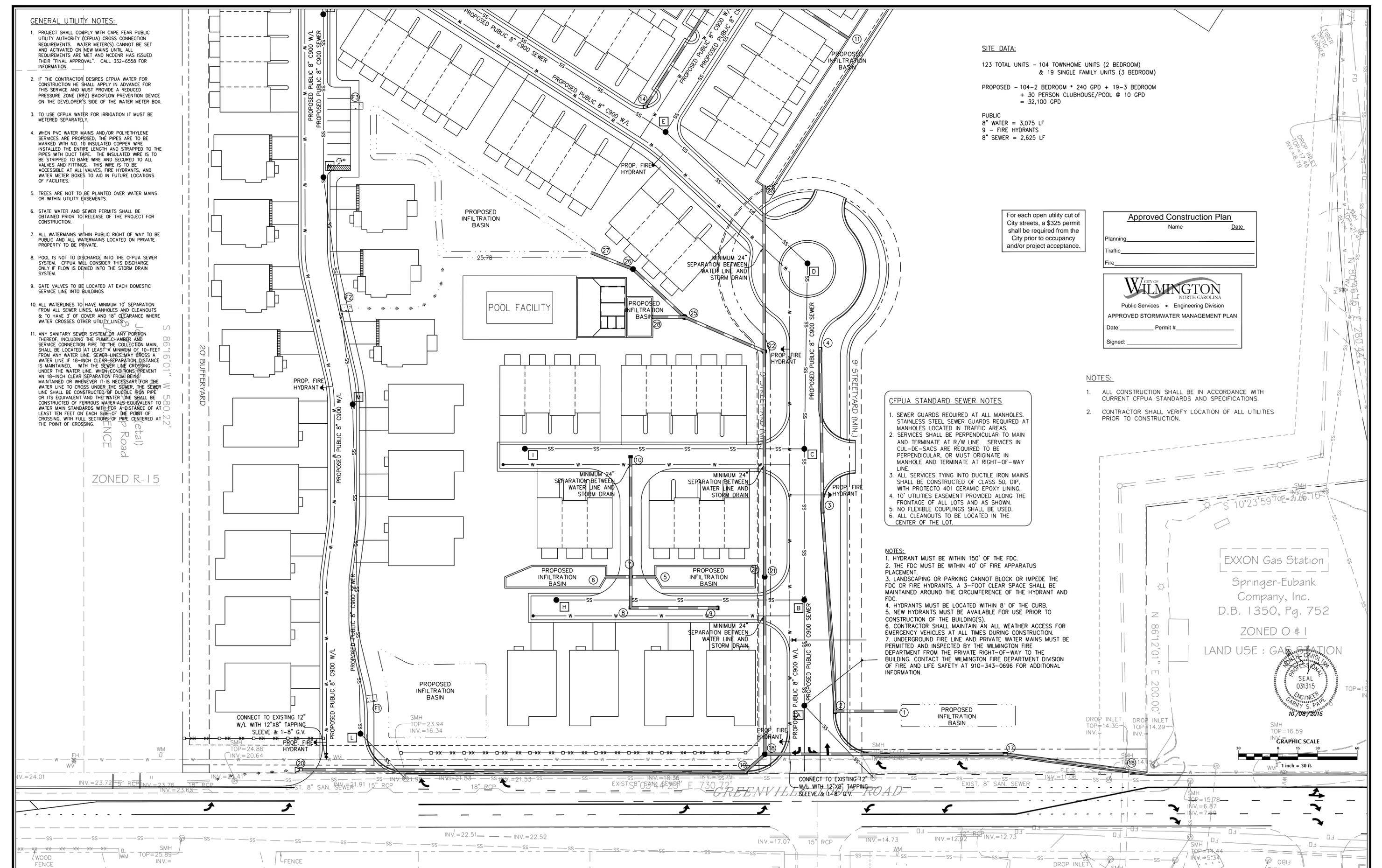
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT CFPUA STANDARDS AND SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

CFPUA STANDARD SEWER NOTES

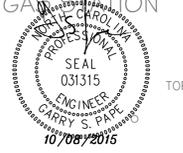
- SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
- SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT R/W LINE. SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
- ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
- 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN.
- NO FLEXIBLE COUPLINGS SHALL BE USED.
- ALL CLEANOUTS TO BE LOCATED IN THE CENTER OF THE LOT.

NOTES:

- HYDRANT MUST BE WITHIN 150' OF THE FDC.
- THE FDC MUST BE WITHIN 40' OF FIRE APPARATUS PLACEMENT.
- LANDSCAPING OR PARKING CANNOT BLOCK OR IMPEDE THE FDC OR FIRE HYDRANTS. A 3-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE HYDRANT AND FDC.
- HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB.
- NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDING(S).
- CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
- UNDERGROUND FIRE LINE AND PRIVATE WATER MAINS MUST BE PERMITTED AND INSPECTED BY THE WILMINGTON FIRE DEPARTMENT FROM THE PRIVATE RIGHT-OF-WAY TO THE BUILDING. CONTACT THE WILMINGTON FIRE DEPARTMENT DIVISION OF FIRE AND LIFE SAFETY AT 910-343-0696 FOR ADDITIONAL INFORMATION.



EXXON Gas Station
 Springer-Eubank Company, Inc.
 D.B. 1350, Pg. 752
 ZONED O # 1
 LAND USE : GAS STATION



No.	Revision	Date	By

Designer	GSP	Scale	1" = 30'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

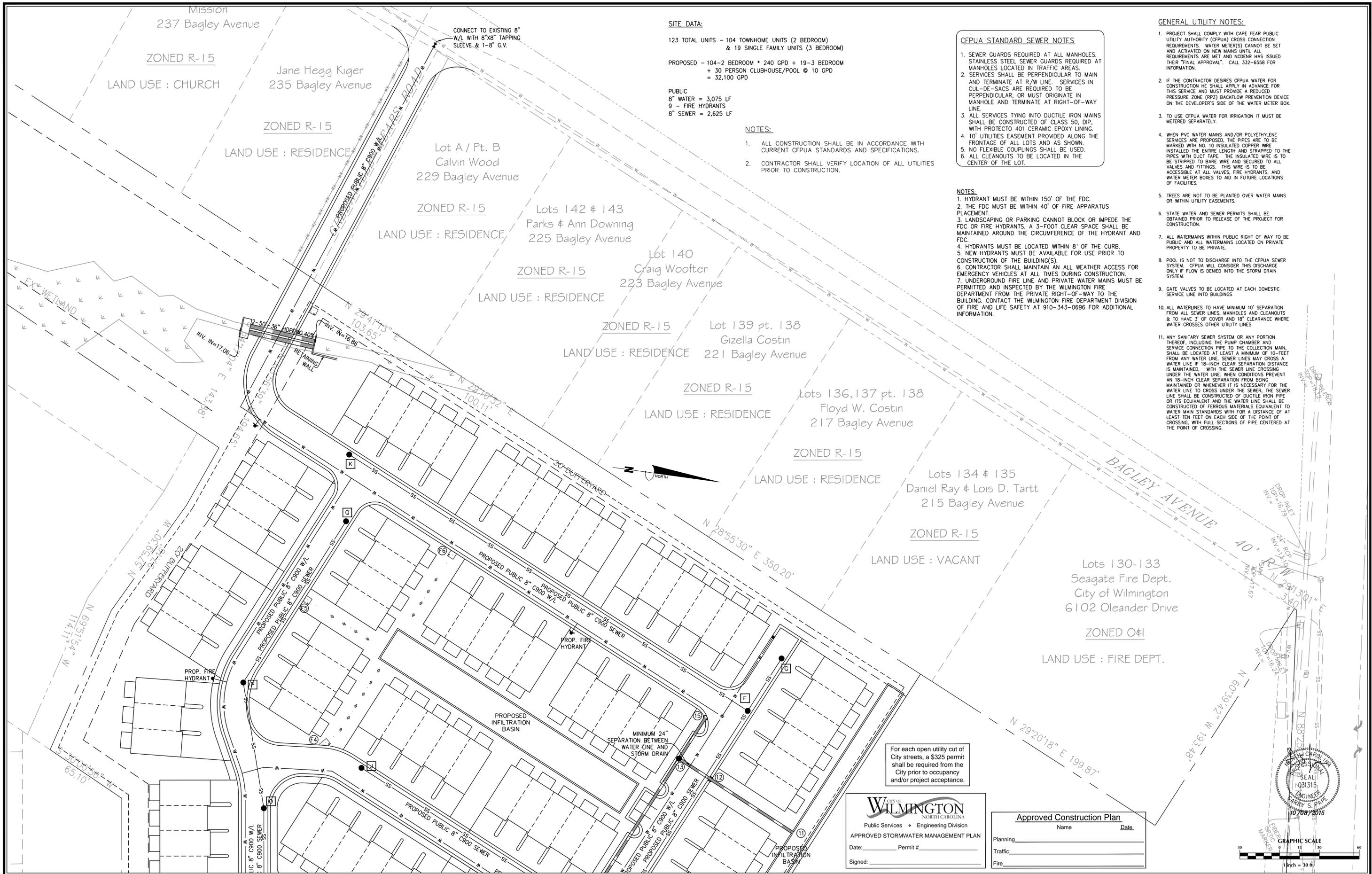
SUMMERWALK - PHASE 1
 Wilmington New Hanover County North Carolina

UTILITY PLAN

PREPARED FOR:
 Summerwalk Development, LLC
 6105 Oleander Drive
 Suite 201
 Wilmington, NC 28401

GSP CONSULTING, PLLC
 ENGINEERING
 6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-4.1



No.	Revision	Date	By

Designer: GSP
 Drawn By: GSP
 License #: P-0718
 Scale: 1" = 30'
 Date: October 2015
 Job No.: 2015-0006

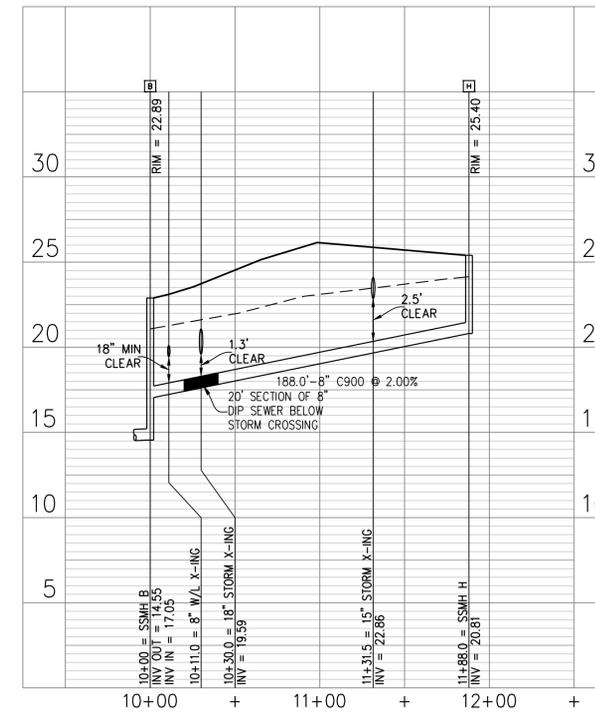
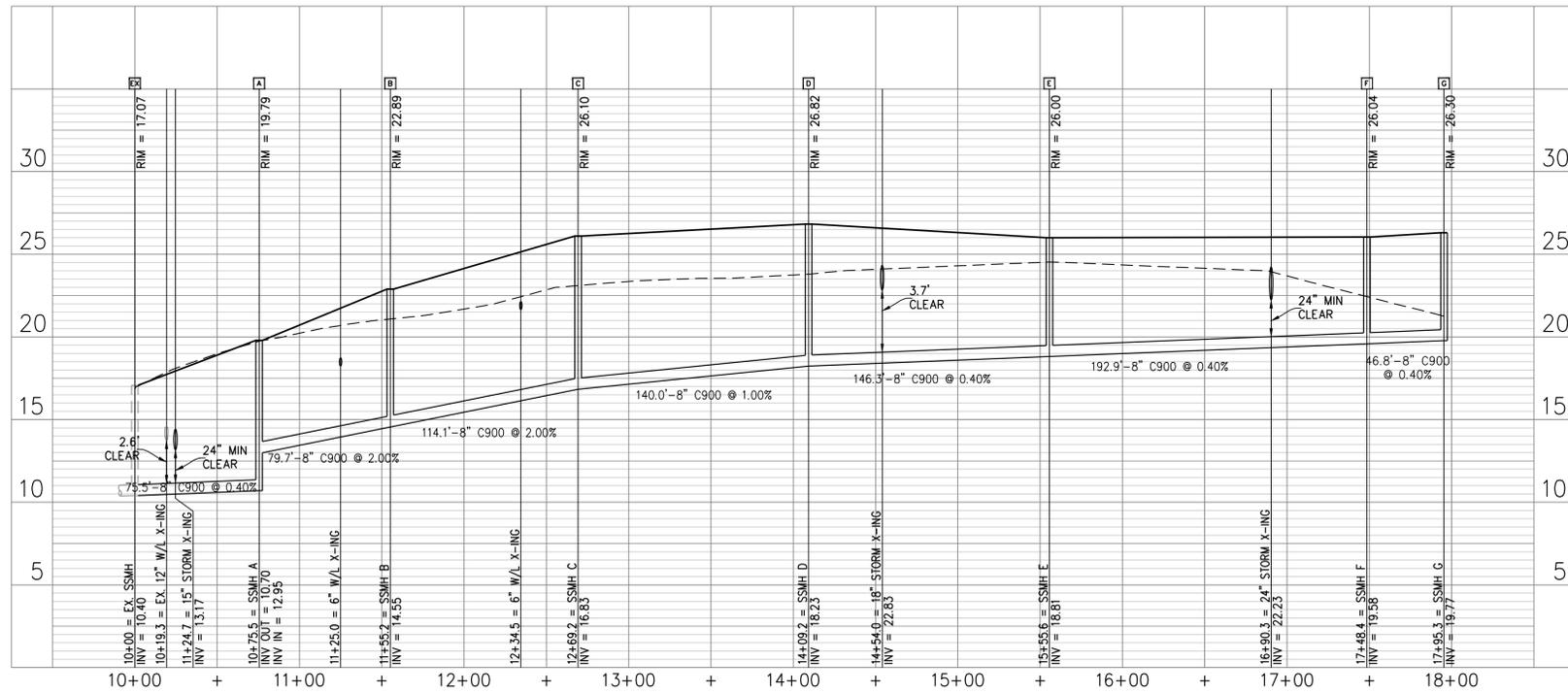
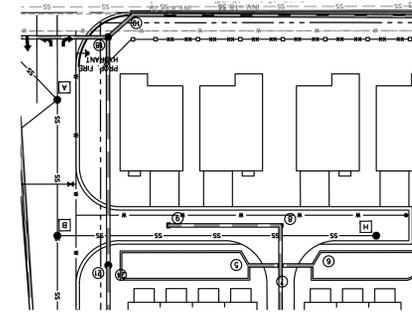
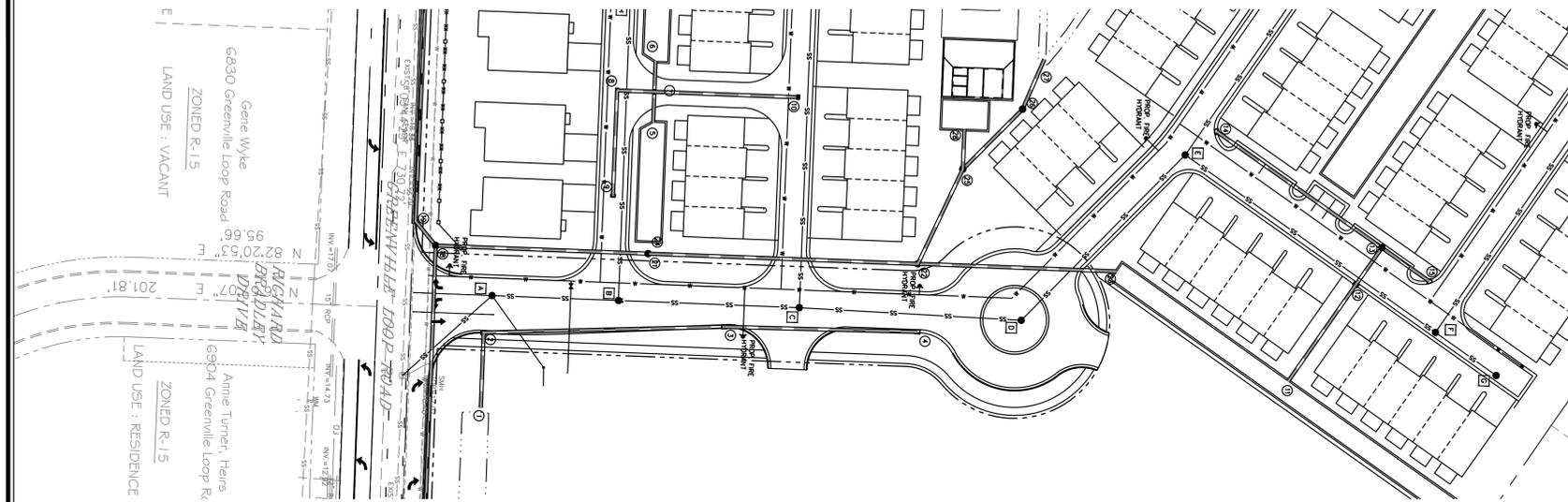
SUMMERWALK - PHASE 1
 Wilmington New Hanover County North Carolina

UTILITY PLAN

PREPARED FOR:
 Summerwalk Development, LLC
 6105 Oleander Drive
 Suite 201
 Wilmington, NC 28401

GSP CONSULTING, PLLC
 ENGINEERING
 6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No. **C-4.2**



Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____

CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

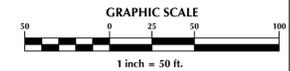
Date: _____ Permit # _____

Signed: _____

10/08/2015



For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



No.	Revision	Date	By

Designer	GSP	Scale	1" = 50'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

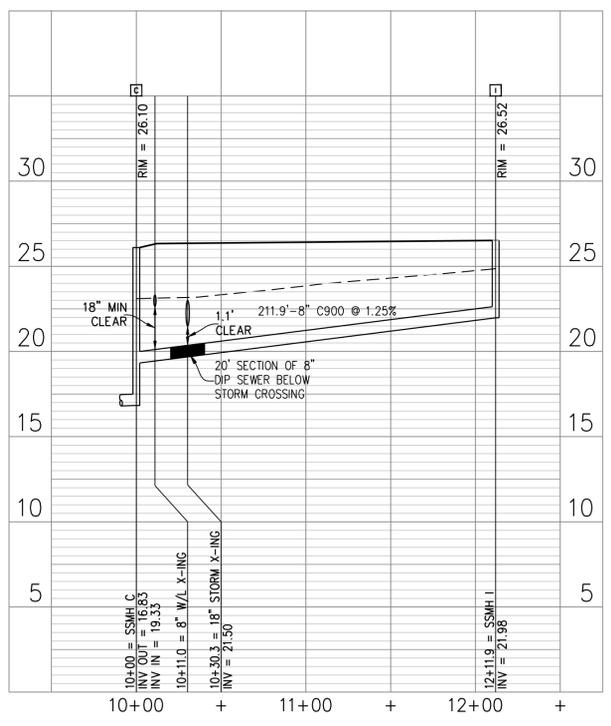
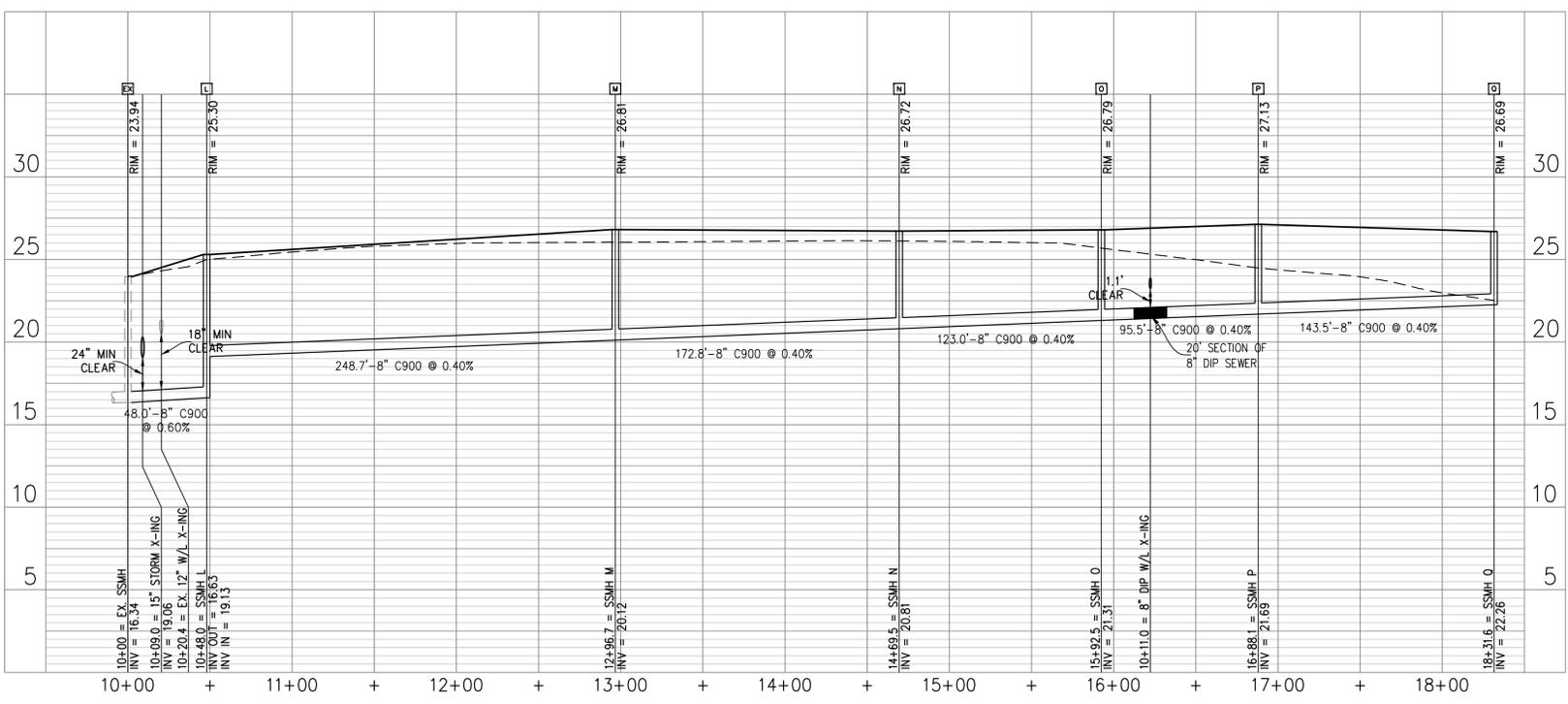
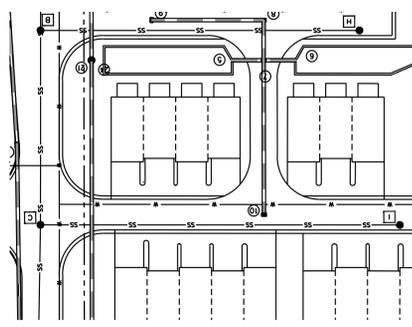
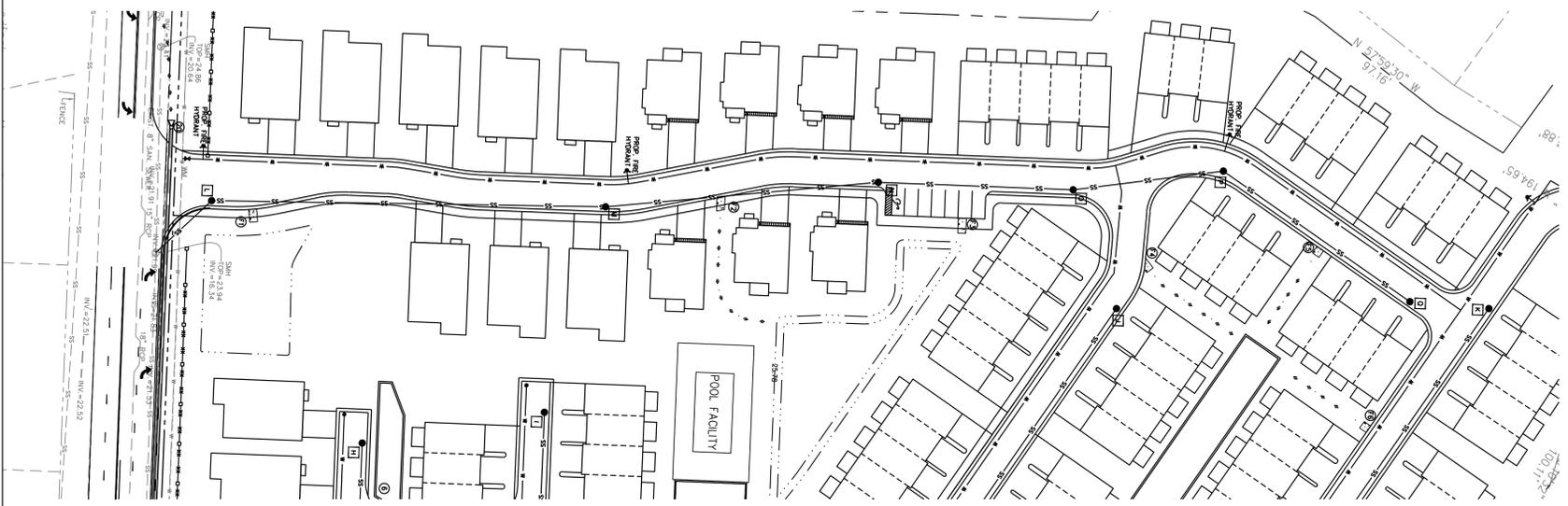
SUMMERWALK - PHASE 1
New Hanover County North Carolina

UTILITY PROFILES

PREPARED FOR:
Summerwalk Development, LLC
6105 Oleander Drive
Suite 201
Wilmington, NC 28401

GSP CONSULTING, PLLC
ENGINEERING
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-4.3



Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____

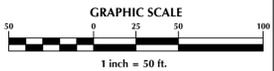
CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit # _____

Signed: _____

PROFESSIONAL SEAL
031315
ENGINEER
GARRY S. PATE
10/08/2015

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



No.	Revision	Date	By

Designer	GSP	Scale	1" = 50'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

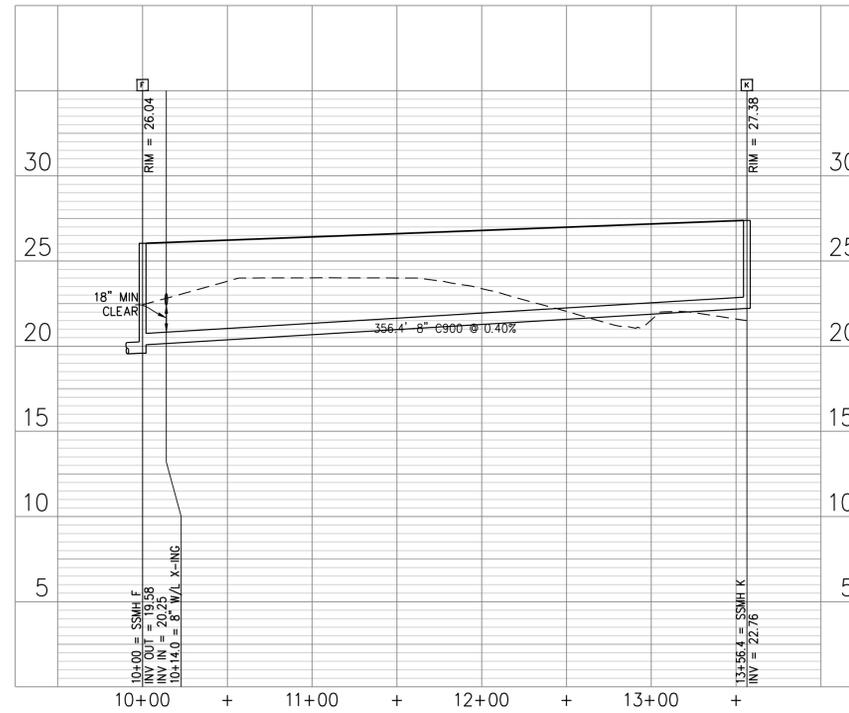
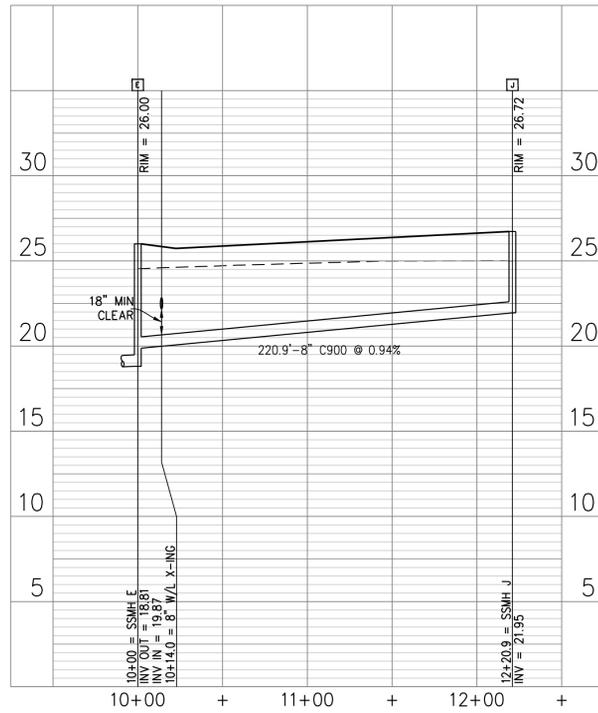
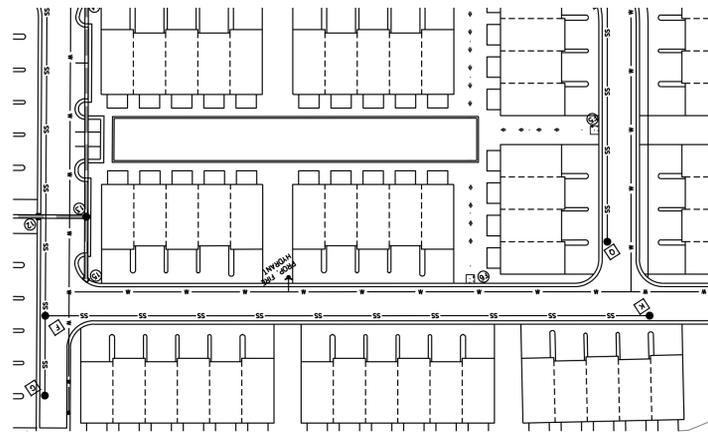
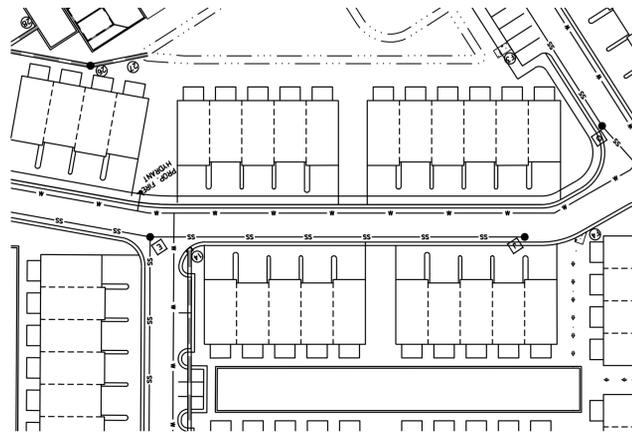
SUMMERWALK - PHASE 1
Wilmington New Hanover County North Carolina

UTILITY PROFILES

PREPARED FOR:
Summerwalk Development, LLC
6105 Oleander Drive
Suite 201
Wilmington, NC 28401

GSP CONSULTING, PLLC
ENGINEERING
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-4.4



Approved Construction Plan

Name _____ Date _____

Planning _____

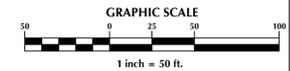
Traffic _____

Fire _____

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



For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



No.	Revision	Date	By

Designer	GSP	Scale	1" = 50'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

SUMMERWALK - PHASE 1
 Wilmington New Hanover County North Carolina

UTILITY PROFILES

PREPARED FOR:
 Summerwalk Development, LLC
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 Wilmington, NC 28401

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 ENGINEERING
 6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-4.5

PUMPING NOTES:

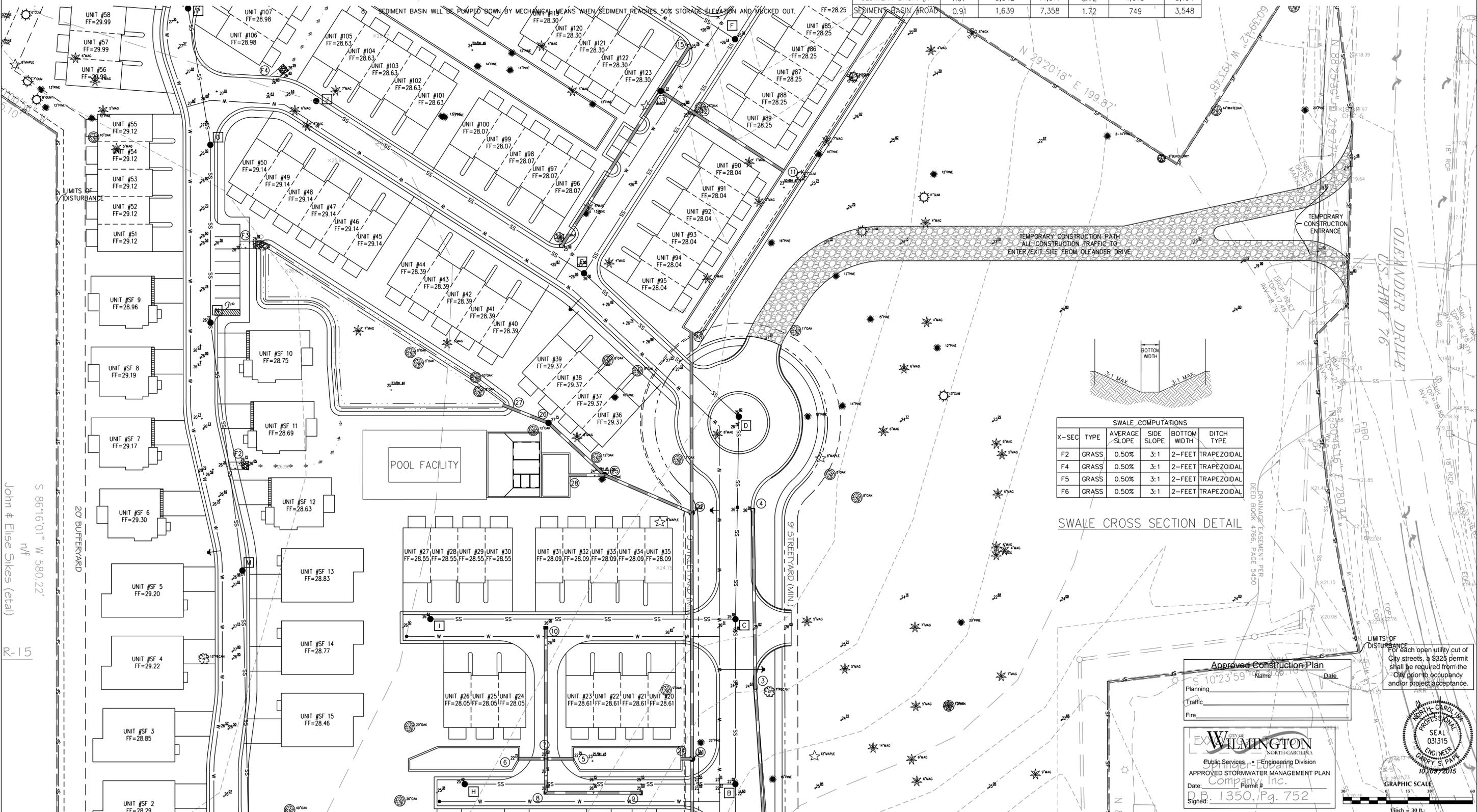
1. SEDIMENT LADEN PUMP DISCHARGE IS ONLY ALLOWED IF ITS DISCHARGED AT OR BELOW 50 NTU'S WITHOUT EROSION VELOCITY AT THE POINT OF DISCHARGE, INFILTRATED ON-SITE OUTSIDE ANY WETLANDS WITH NO RUNOFF, OR BY USING PAMS WITH A LIQUID INJECTION SYSTEM DISCHARGING INTO A DIRT BAG PLACED ON A STABLE SURFACE.

GRADING NOTES:

1. ALL SWALES TO BE SODDED WITH CENTIPEDE GRASS OR EQUIVALENT.
2. COMPOST FILTER SOCKS (OR OTHER COMPARABLE FLUME PROTECTION) TO BE INSTALLED AT FLUMES

NOTES:

1. ALL IMPERVIOUS SITE AREA TO BE DRAINED TO PROPOSED STORM SEWER SYSTEM AND DISCHARGED TO INFILTRATION BASIN.
2. INFILTRATION BASIN WILL BE PUMPED DOWN BY MECHANICAL MEANS IN CASE OF EMERGENCY.
3. PRIOR TO USE AS AN INFILTRATION BASIN, ALL ACCUMULATED SEDIMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF, THEN THE APPROPRIATE MODIFICATIONS TO THE BASIN CAN BE INCORPORATED.
4. THE SWALES DIRECTING THE RUNOFF TO THE INFILTRATION BASIN MUST BE REGULARLY MAINTAINED TO ENSURE THAT THE STORMWATER SYSTEM FUNCTIONS AS DESIGNED.
5. ALL DITCH WORK WITHIN ROW TO BE COMPLETED AND EXCELSIOR MAT TO BE INSTALLED PRIOR TO ANY RAIN EVENT.
6. PRIOR TO THE CREATION OF ANY IMPERVIOUS SURFACES THE FINAL DESIGN SHOULD BE BUILT. SEE SHEET C-6 FOR BASIN DETAILS.
7. ALL EXISTING/PROPOSED STORM INLETS WITHIN THE DISTURBANCE AREA TO HAVE EITHER INLET PROTECTION OR A SILT SACK INSTALLED.



SEDIMENT BASIN CALCULATIONS

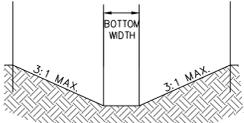
SEDIMENT TRAPPING DEVICE	DRAINAGE AREA (AC)	REQUIRED STORAGE (1,800CF/AC)	PROVIDED STORAGE (CF)	PEAK Q10 FLOW (CFS)	REQUIRED AREA (435 SF/CFS)	PROVIDED AREA (SF)
SEDIMENT BASIN #1	1.20	2,153	10,946	2.26	983	6,201
SEDIMENT BASIN #3	0.74	1,341	5,940	1.41	612	2,160
SEDIMENT BASIN #4	2.10	3,787	19,014	3.98	1,730	8,878
SEDIMENT BASIN #5	0.21	380	1,490	0.40	173	618
SEDIMENT BASIN #6	1.45	2,616	13,290	2.75	1,195	5,316
SEDIMENT BASIN #7	1.97	3,542	14,917	3.72	1,618	3,194
SEDIMENT BASIN #ROAD	0.91	1,639	7,358	1.72	749	3,548

- PER THE REQUIREMENTS OF THE STORMWATER PERMIT, THE FOLLOWING SHALL OCCUR PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY OR OPERATION OF THE PERMITTED FACILITY.
- AS-BUILT DRAWINGS FOR ALL STORMWATER MANAGEMENT FACILITIES SHALL BE SUBMITTED TO THE CITY OF WILMINGTON ENGINEERING DIVISION.
 - AN ENGINEER'S CERTIFICATION SHALL ALSO BE SUBMITTED, ALONG WITH ALL SUPPORTING DOCUMENTATION THAT SPECIFIES, UNDER SEAL THAT THE AS-BUILT STORMWATER MEASURES, CONTROLS AND DEVICES ARE IN COMPLIANCE WITH THE APPROVED STORMWATER MANAGEMENT PLANS.
 - A FINAL INSPECTION BY CITY OF WILMINGTON ENGINEERING PERSONNEL.

SWALE COMPUTATIONS

X-SEC	TYPE	AVERAGE SLOPE	SIDE SLOPE	BOTTOM WIDTH	DITCH TYPE
F2	GRASS	0.50%	3:1	2- FEET	TRAPEZOIDAL
F4	GRASS	0.50%	3:1	2- FEET	TRAPEZOIDAL
F5	GRASS	0.50%	3:1	2- FEET	TRAPEZOIDAL
F6	GRASS	0.50%	3:1	2- FEET	TRAPEZOIDAL

SWALE CROSS SECTION DETAIL



No.	Revision	Date	By

Designer: GSP
 Scale: 1" = 30'
 Drawn By: GSP
 Date: October 2015
 License #: P-0718
 Job No.: 2015-0006

SUMMERWALK - PHASE 1
 Wilmington, New Hanover County, North Carolina

GRADING & EROSION & SEDIMENT CONTROL PLAN

PREPARED FOR:
 Summerwalk Development, LLC
 6105 Oleander Drive
 Suite 201
 Wilmington, NC 28403

GSP CONSULTING, PLLC
 ENGINEERING
 6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No. **C-5.2**

Approved Construction Plan

Planning: _____ Date: _____
 Traffic: _____
 Fire: _____

EX-CITY OF WILMINGTON
 NORTH CAROLINA
 Public Services - Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Company, Inc.
 Date: 10/09/2015
 Signed: D.B. 1350, Pg. 752



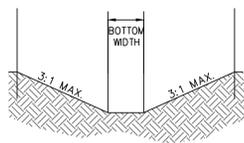
GRAPHIC SCALE
 1" = 30 ft.

PUMPING NOTES:

1. SEDIMENT LADEN PUMP DISCHARGE IS ONLY ALLOWED IF ITS DISCHARGED AT OR BELOW 50 NTU'S WITHOUT EROSION VELOCITY AT THE POINT OF DISCHARGE, INFILTRATED ON-SITE OUTSIDE ANY WETLANDS WITH NO RUNOFF, OR BY USING PAMS WITH A LIQUID INJECTION SYSTEM DISCHARGING INTO A DIRT BAG PLACED ON A STABLE SURFACE.

GRADING NOTES:

1. ALL SWALES TO BE SOEDED WITH CENTIPEDE GRASS OR EQUIVALENT.
2. COMPOST FILTER SOCKS (OR OTHER COMPARABLE FLUME PROTECTION) TO BE INSTALLED AT FLUMES



SWALE COMPUTATIONS					
X-SEC	TYPE	AVERAGE SLOPE	SIDE SLOPE	BOTTOM WIDTH	DITCH TYPE
F2	GRASS	0.50%	3:1	2-FEET	TRAPEZOIDAL
F4	GRASS	0.50%	3:1	2-FEET	TRAPEZOIDAL
F5	GRASS	0.50%	3:1	2-FEET	TRAPEZOIDAL
F6	GRASS	0.50%	3:1	2-FEET	TRAPEZOIDAL

SWALE CROSS SECTION DETAIL

NOTES:

1. ALL IMPERVIOUS SITE AREA TO BE DRAINED TO PROPOSED STORM SEWER SYSTEM AND DISCHARGED TO INFILTRATION BASIN.
2. INFILTRATION BASIN WILL BE PUMPED DOWN BY MECHANICAL MEANS IN CASE OF EMERGENCY.
3. PRIOR TO USE AS AN INFILTRATION BASIN, ALL ACCUMULATED SEDIMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF, THEN THE APPROPRIATE MODIFICATIONS TO THE BASIN CAN BE INCORPORATED.
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6. PRIOR TO THE CREATION OF ANY IMPERVIOUS SURFACES THE FINAL DESIGN SHOULD BE BUILT. SEE SHEET C-6 FOR BASIN DETAILS.
7. ALL EXISTING/PROPOSED STORM INLETS WITHIN THE DISTURBANCE AREA TO HAVE EITHER INLET PROTECTION OR A SILT SACK INSTALLED. SEE DETAILS ON SHEET C-8.
8. SEDIMENT BASIN WILL BE PUMPED DOWN BY MECHANICAL MEANS WHEN SEDIMENT REACHES 50% STORAGE ELEVATION AND MUCKED OUT.

SEDIMENT BASIN CALCULATIONS

SEDIMENT TRAPPING DEVICE	DRAINAGE AREA (AC)	REQUIRED STORAGE (1,800CF/AC)	PROVIDED STORAGE (CF)	PEAK Q10 FLOW (CFS)	REQUIRED AREA (435 SF/CFS)	PROVIDED AREA (SF)
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SEDIMENT BASIN #6	1.45	2,616	13,290	2.75	1,195	5,316
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SEDIMENT BASIN #ROAD	0.91	1,639	7,358	1.72	749	3,548

PER THE REQUIREMENTS OF THE STORMWATER PERMIT, THE FOLLOWING SHALL OCCUR PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY OR OPERATION OF THE PERMITTED FACILITY:

- AS-BUILT DRAWINGS FOR ALL STORMWATER MANAGEMENT FACILITIES SHALL BE SUBMITTED TO THE CITY OF WILMINGTON ENGINEERING DIVISION.
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- A FINAL INSPECTION BY CITY OF WILMINGTON ENGINEERING PERSONNEL.

Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____

WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division

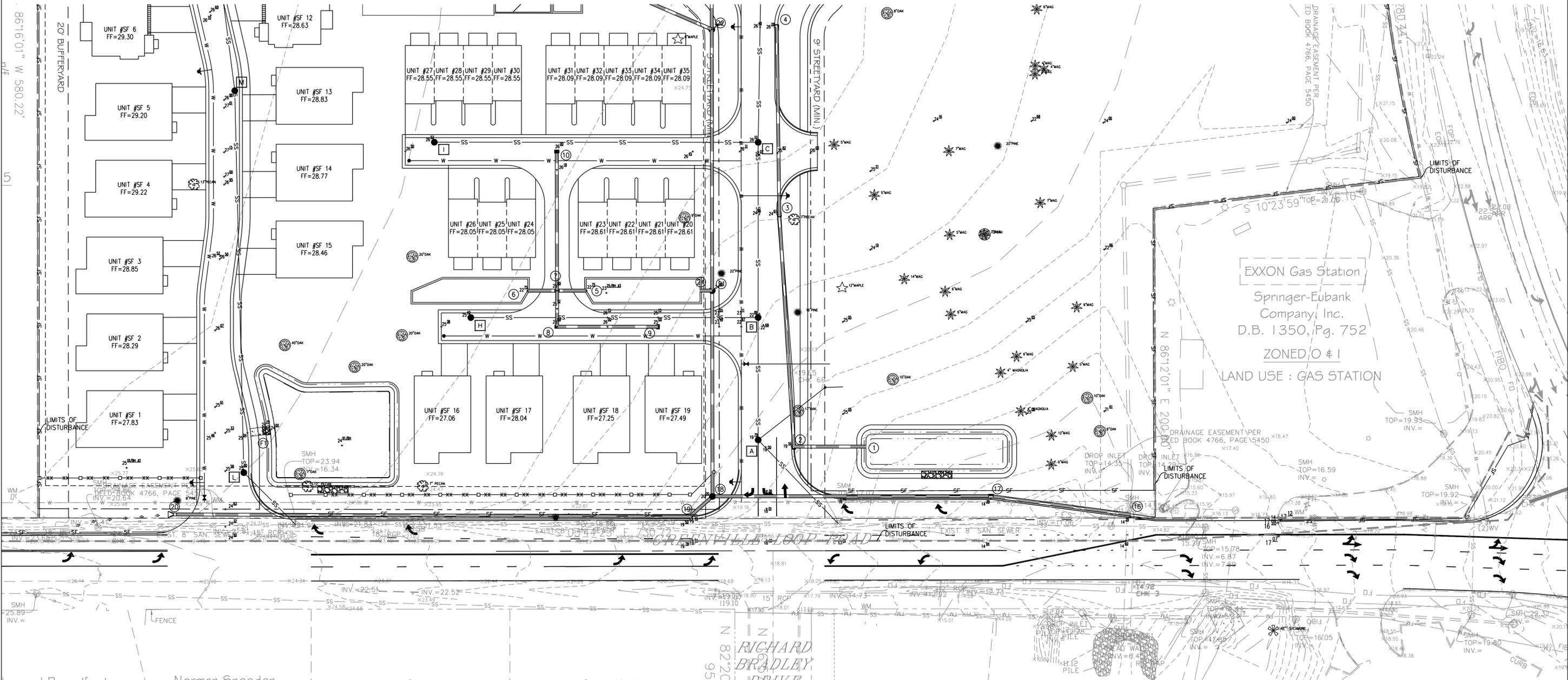
APPROVED STORMWATER MANAGEMENT PLAN

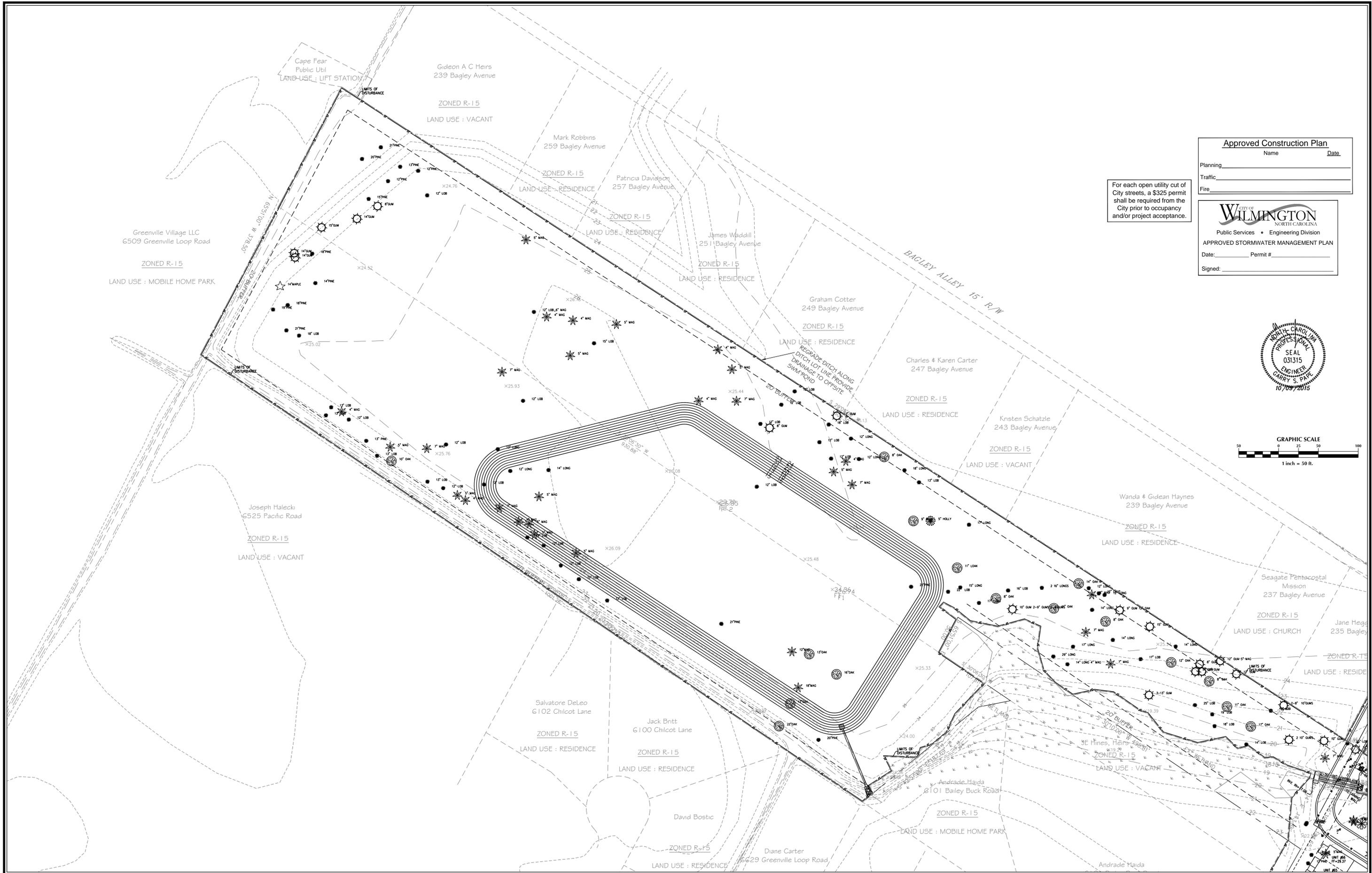
Date: _____ Permit #: _____

Signed: _____



For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.





Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

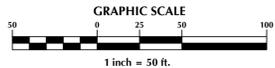
CITY OF WILMINGTON
NORTH CAROLINA

Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit #: _____

Signed: _____



No.	Revision	Date	By

Designer	GSP	Scale	1" = 50'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

SUMMERWALK - PHASE 1

Wilmington New Hanover County North Carolina

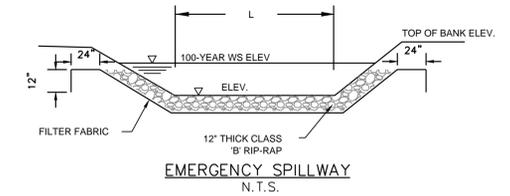
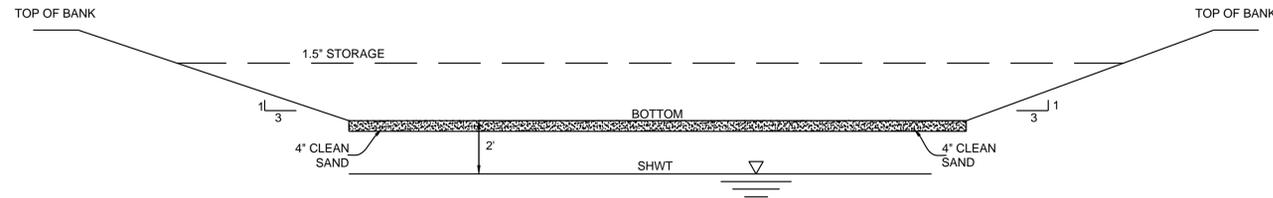
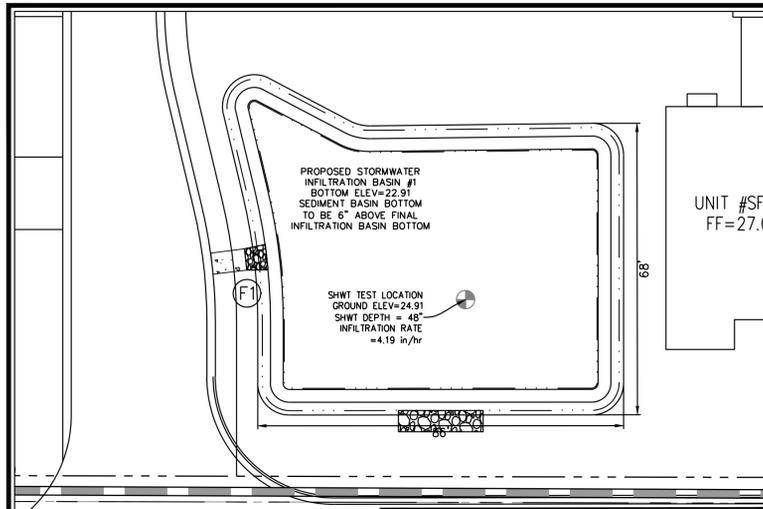
GRADING & EROSION & SEDIMENT CONTROL PLAN

PREPARED FOR:
Summerwalk Development, LLC
6105 Oleander Drive
Suite 201
Wilmington, NC 28403

GSP CONSULTING, PLLC
ENGINEERING

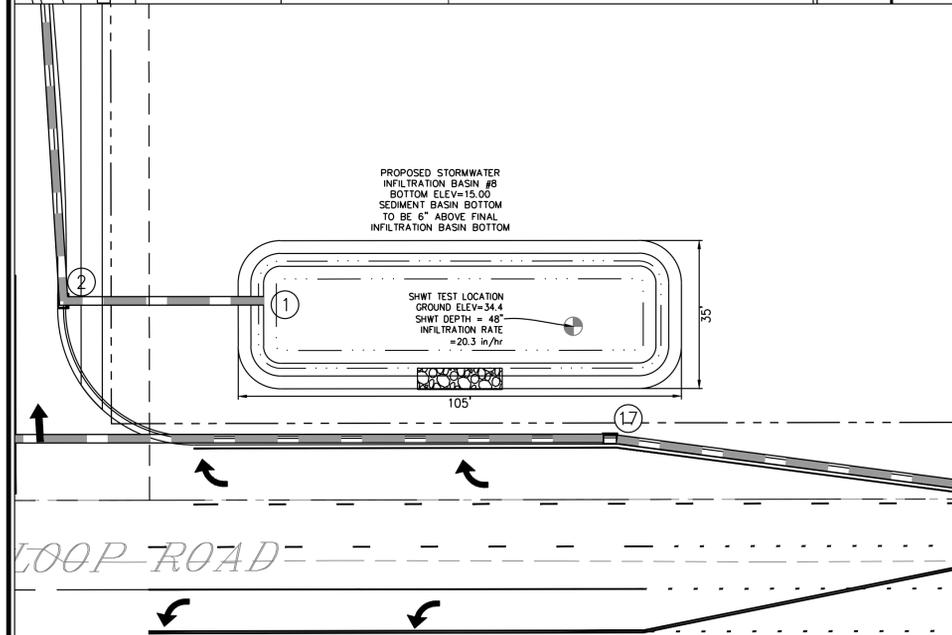
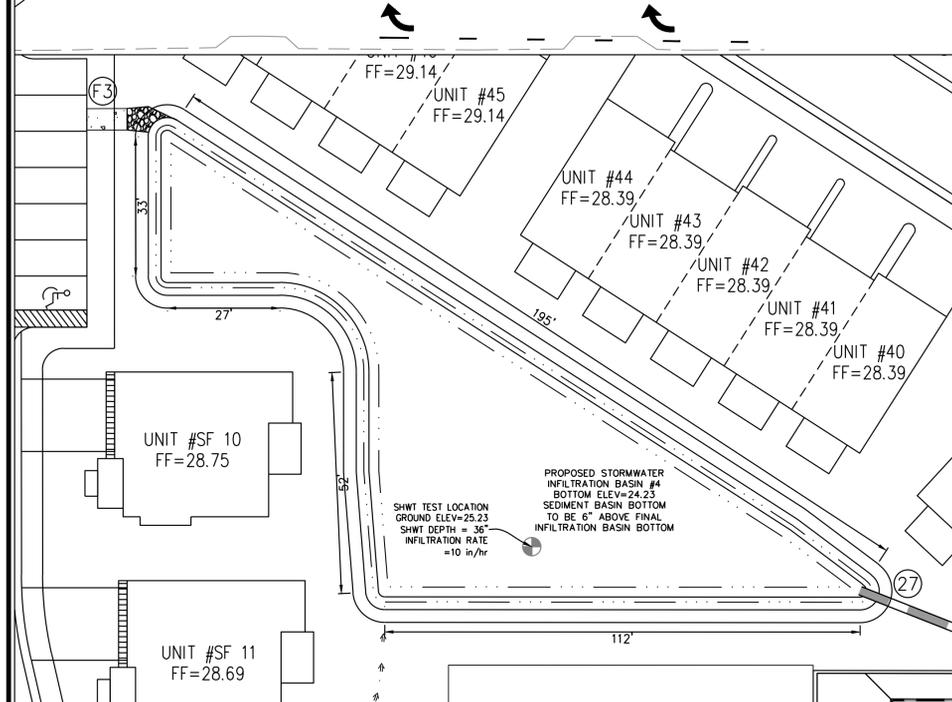
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-5.4



INFILTRATION BASIN	GROUND ELEVATION	SHWT DEPTH	SHWT ELEVATION	BASIN BOTTOM ELEVATION	BASIN DEPTH (FT)	1.5" STORAGE ELEVATION	1.5" STORAGE VOLUME REQ. (CF)	1.5" STORAGE VOLUME PROV. (CF)	EMERGENCY SPILLWAY ELEVATION	100-YEAR ELEVATION	TOP OF BANK ELEVATION
BASIN #1	24.91	48"	20.91	22.91	2.09	23.65	3,551	3,728	24.45	24.57	25.00
BASIN #4	25.23	36"	24.23	24.23	2.77	25.40	6,172	6,715	PIPE	26.39	27.00
BASIN #8	15.00	50"	12.83	15.00	3.00	16.40	2,439	2,663	17.26	17.38	18.00

INFILTRATION BASIN CROSS-SECTION
 N.T.S.



NOTES:

1. ALL IMPERVIOUS SITE AREA TO BE DRAINED TO PROPOSED STORM SEWER SYSTEM AND DISCHARGED TO INFILTRATION BASIN.
2. BASIN WILL BE PUMPED DOWN BY MECHANICAL MEANS IN CASE OF EMERGENCY.
3. PRIOR TO USE AS AN INFILTRATION BASIN, ALL ACCUMULATED SEDIMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF, THEN THE APPROPRIATE MODIFICATIONS TO THE BASIN CAN BE INCORPORATED.
4. ESTABLISHED GRASS REQUIRED IN THE SWALES, DITCHES & BANKS OF THE INFILTRATION BASIN PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY.

Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____

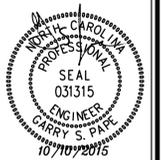
For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

CITY OF WILMINGTON
 NORTH CAROLINA
 Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit # _____

Signed: _____



No.	Revision	Date	By

Designer	GSP	Scale	1" = 20'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

SUMMERWALK - PHASE 1

Wilmington New Hanover County North Carolina

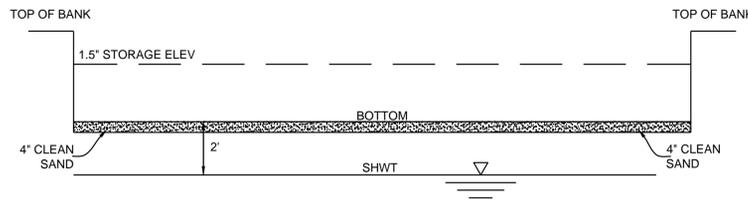
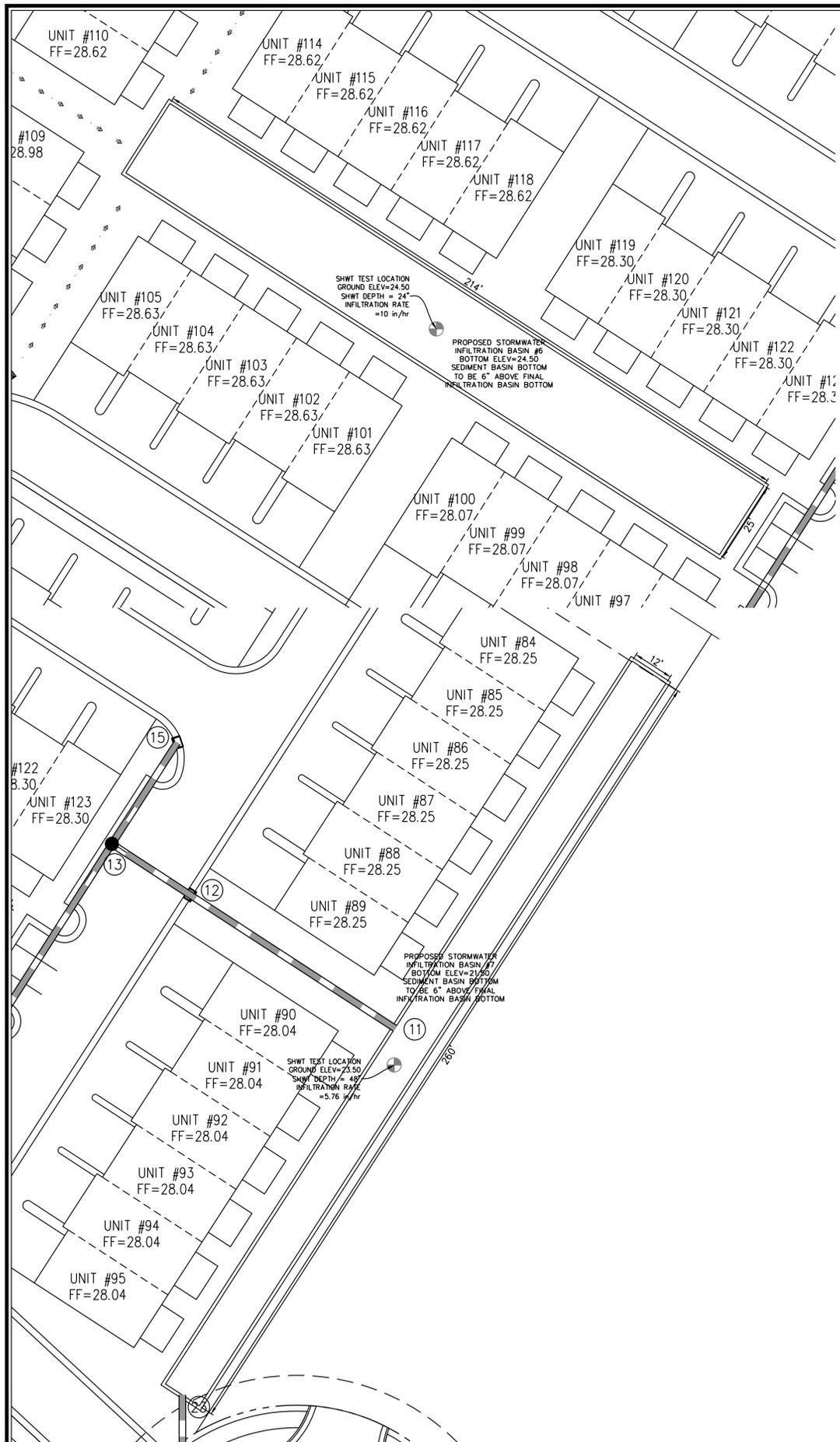
INFILTRATION BASIN DETAILS

PREPARED FOR:
 Summerwalk Development, LLC
 6105 Oleander Drive
 Suite 201
 Wilmington, NC 28403

GSP CONSULTING, PLLC
 ENGINEERING

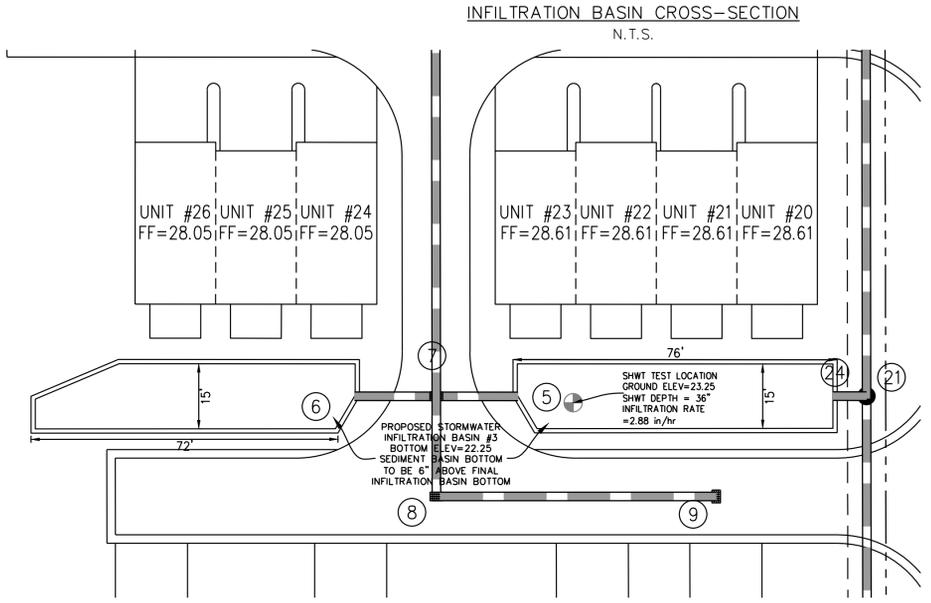
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-6.1



- NOTES:**
1. ALL IMPERVIOUS SITE AREA TO BE DRAINED TO PROPOSED STORM SEWER SYSTEM AND DISCHARGED TO INFILTRATION BASIN.
 2. BASIN WILL BE PUMPED DOWN BY MECHANICAL MEANS IN CASE OF EMERGENCY.
 3. PRIOR TO USE AS AN INFILTRATION BASIN, ALL ACCUMULATED SEDIMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF, THEN THE APPROPRIATE MODIFICATIONS TO THE BASIN CAN BE INCORPORATED.
 4. ESTABLISHED GRASS REQUIRED IN THE SWALES, DITCHES & BANKS OF THE INFILTRATION BASIN PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY.

BASIN	GROUND ELEVATION	SHWT DEPTH	SHWT ELEVATION	BASIN BOTTOM ELEVATION	BASIN DEPTH (FT)	1.5" STORAGE ELEVATION	1.5" STORAGE VOLUME REQ. (CF)	1.5" STORAGE VOLUME PROV. (CF)	EMERGENCY SPILLWAY ELEVATION	100-YEAR ELEVATION	TOP OF BANK ELEVATION
BASIN #3	23.25	26"	20.25	22.25	4.75	23.40	2,353	2,484	PIPE	25.95	27.00
BASIN #5	24.34	21"	22.59	24.59	2.41	25.40	480	501	PIPE	26.58	27.00
BASIN #6	24.50	24"	22.50	24.50	2.50	25.40	4,415	4,784	INF	23.74	27.00
BASIN #7	23.50	48"	19.50	21.50	5.50	23.60	6,623	6,707	PIPE	25.20	18.00



No.	Revision	Date	By

Designer: GSP
Scale: 1" = 20'
Drawn By: GSP
Date: October 2015
License #: P-0718
Job No.: 2015-0006

SUMMERWALK - PHASE 1
New Hanover County
North Carolina

INFILTRATION BASIN DETAILS

PREPARED FOR:
Summerwalk Development, LLC
6105 Oleander Drive
Suite 201
Wilmington, NC 28403

GSP CONSULTING, PLLC
ENGINEERING
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-6.2

Approved Construction Plan

Name: _____ Date: _____

Planning: _____

Traffic: _____

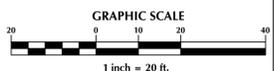
Fire: _____

City of Wilmington
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

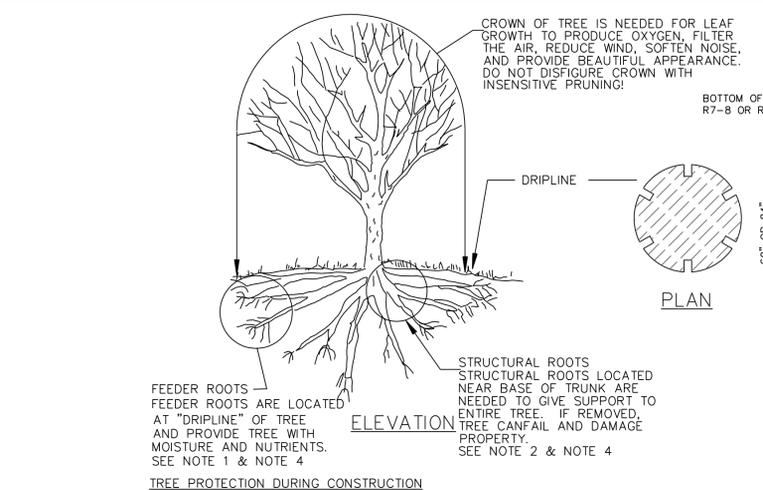
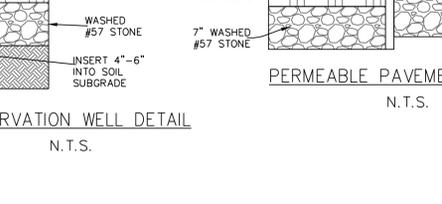
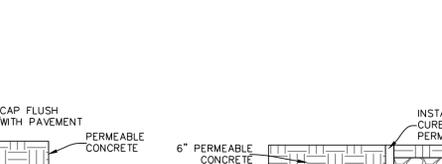
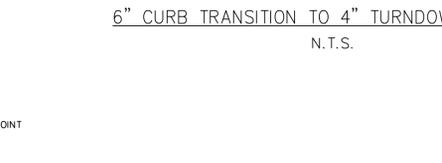
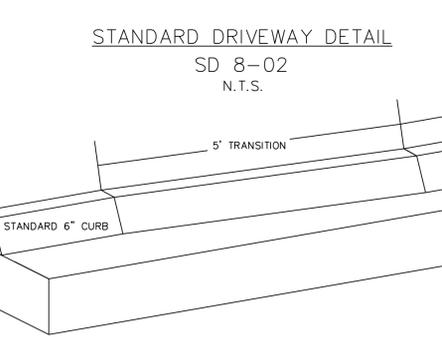
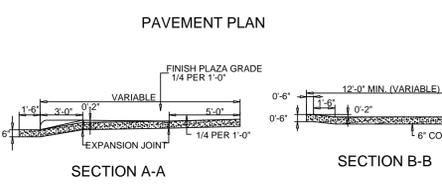
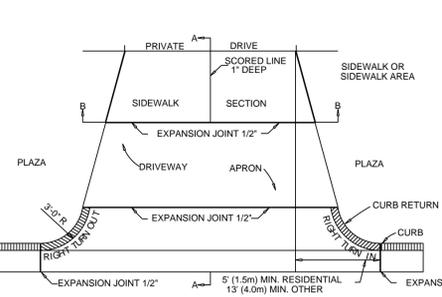
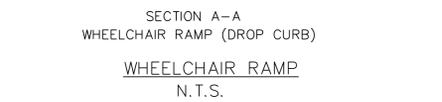
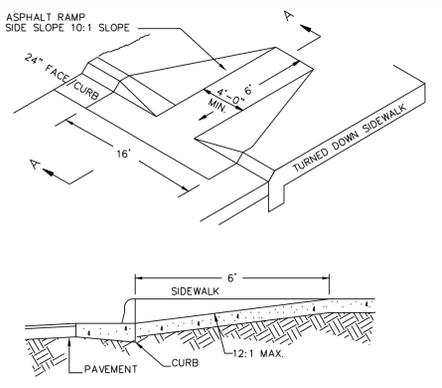
Date: _____ Permit #: _____

Signed: _____

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

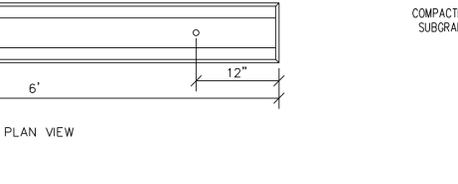
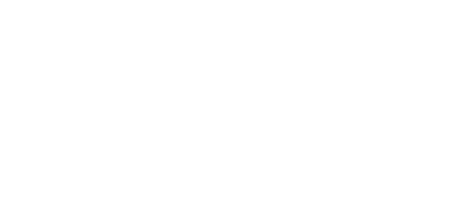
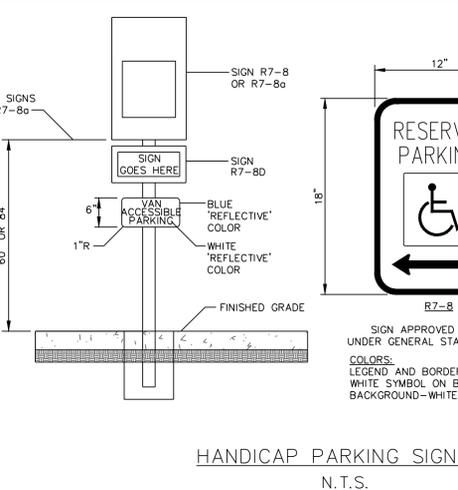
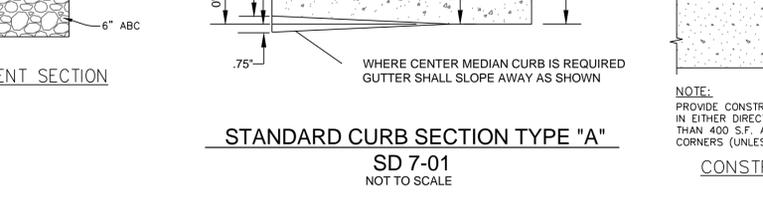
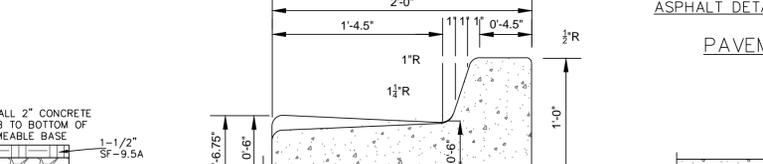
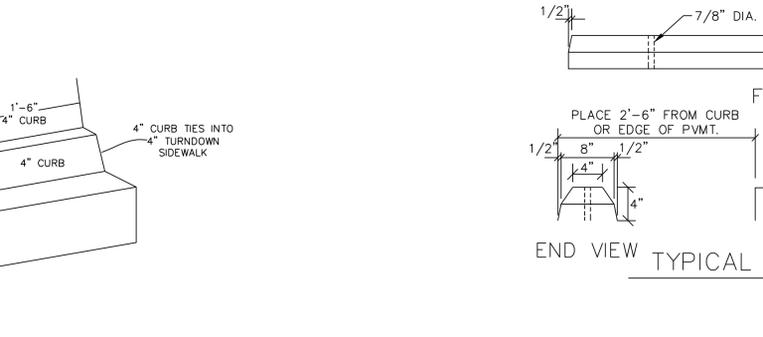


- GENERAL NOTES**
- LOCATION OF WHEELCHAIR RAMPS:
 - IN ACCORDANCE WITH THE RATIFIED HOUSE BILL 1296, ALL STREET CURBS IN NORTH CAROLINA BEING CONSTRUCTED OR RECONSTRUCTED FOR MAINTENANCE PROCEDURES, TRAFFIC OPERATIONS, REPAIRS, CORRECTION OF UTILITIES OR ALTERED FOR ANY REASON AFTER SEPTEMBER 1, 1973 SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY HANDICAPPED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTERS AND SIDEWALKS ARE PROVIDED AND AT OTHER MAJOR POINTS OF PEDESTRIAN FLOW.
 - WHEELCHAIR RAMPS SHOULD BE LOCATED AS INDICATED IN DETAIL DRAWINGS, HOWEVER EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. MAY AFFECT PLACEMENT.
 - CONSTRUCTION NOTES:
 - NO SLOPE SHALL EXCEED 1"-1" (12:1) ON THE RAMP OR SIDEWALK.
 - IN NO CASE SHALL THE WIDTH OF WHEELCHAIR RAMPS BE LESS THAN 40" (3'-4"), WIDTHS MAY EXCEED 40" IF NECESSARY.
 - USE CLASS "A" CONCRETE WITH THE SURFACE HAVING A ROUGH, NON-SKID TYPE FINISH.
 - 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE CONCRETE WHEELCHAIR RAMP JOINS ANY RIGID PAVEMENT OR STRUCTURE.
 - CONSTRUCTION METHODS SHALL CONFORM WITH THOSE OF THE GOVERNING BODY WHICH HAS JURISDICTION OF THE PARTICULAR STREET.
 - ADDITIONAL NOTES:
 - THE INSIDE PEDESTRIAN CROSSWALK LINES SHALL BE ESTABLISHED BY BISECTING THE INTERSECTION RADII WHERE MARKED (SEE NOTE 6).
 - THE WHEELCHAIR RAMP SHALL BE LOCATED SO THAT THE BEGINNING OF THE WHEEL CHAIR RAMP WILL BE TWO FEET FROM THE INSIDE PEDESTRIAN CROSSWALK LINE.
 - THE WIDTH OF THE PEDESTRIAN CROSSWALK SHALL BE 10 FEET UNLESS A GREATER WIDTH IS REQUIRED TO ACCOMMODATE THE PEDESTRIAN TRAFFIC.
 - STOP BARS SHALL BE USED WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN, OR OTHER LEGAL REQUIREMENTS.
 - PARKING SHALL BE ELIMINATED A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK.
 - ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION. THIS IS AVAILABLE FROM THE SUPERINTENDENT OF DOCUMENTS, U.S GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C. 20402.

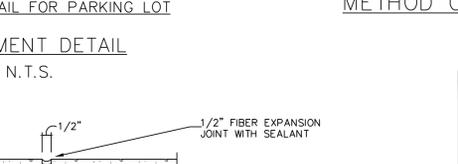
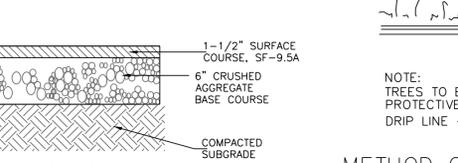


- TREE PROTECTION DURING CONSTRUCTION**
- DO NOT COMPACT SOIL BENEATH TREES. NO VEHICLE SHALL BE ALLOWED TO PARK UNDER TREES. NO HEAVY MATERIALS SHALL BE STORED BENEATH TREES. RESULTS OF COMPACTING CAUSE WATER AND AIR NOT TO REACH THE ROOTS AND THE TREE WILL DIE. THESE "FEEDING ROOTS" OCCUR WELL AWAY FROM THE BASE OF THE TREE TO THE EDGE OF THE OVERHEAD BRANCH CANOPY. DAMAGING THE BARK WITH LAWNMOWERS, CONSTRUCTION EQUIPMENT, OR ANYTHING ELSE IS PROHIBITED. A PROTECTIVE BARRIER SHOULD PREVENT DAMAGE FROM OCCURRING DURING CONSTRUCTION.
 - NO CUTTING OF LARGE STRUCTURAL ROOTS LOCATED NEAR THE BASE OF THE TRUNK. THESE ARE ESSENTIAL IN SUPPORTING THE TREE AND HOLDING IT UPRIGHT IN HIGH WINDS. REMOVAL OF THESE ROOTS ALONG ONE SIDE IS OFTEN DONE BECAUSE OF A WALK, PAVING OR BUILDING WHICH IS BEING CONSTRUCTED.
 - AVOID CUT AND FILL WITHIN DIAMETER OF TREE CROWN DURING EXCAVATION.

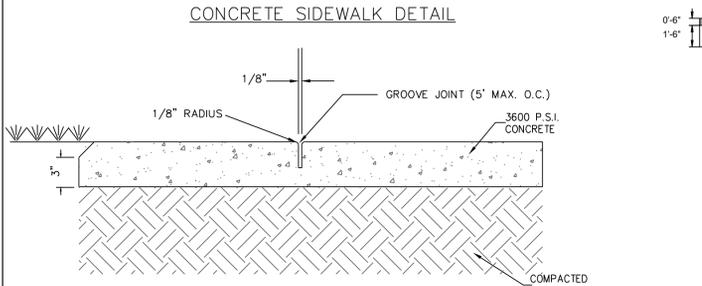
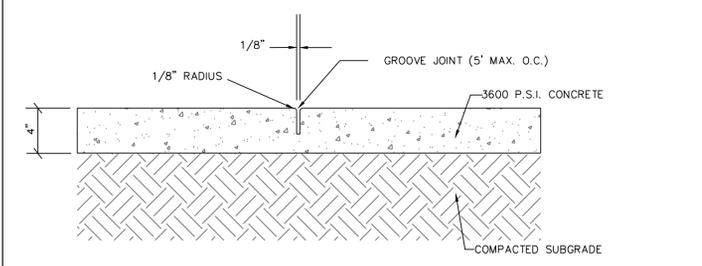
METHOD OF TREE PROTECTION DURING CONSTRUCTION
SD 15-09
NOT TO SCALE



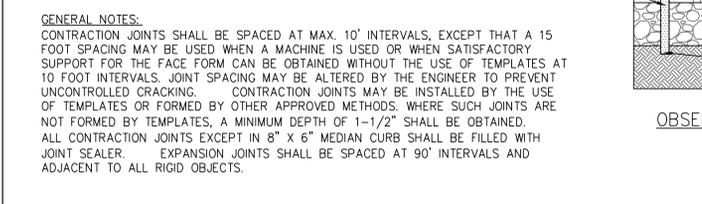
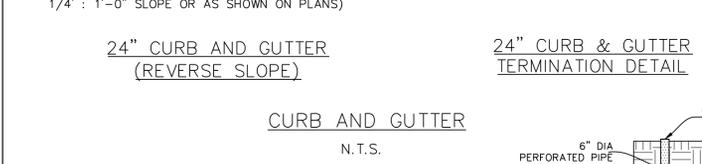
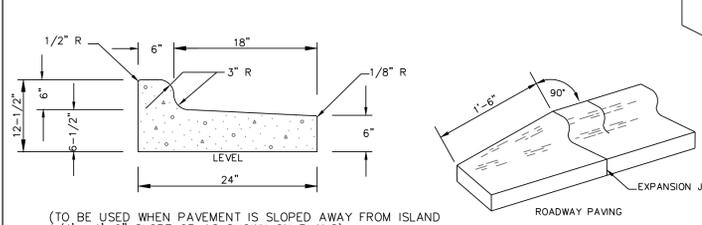
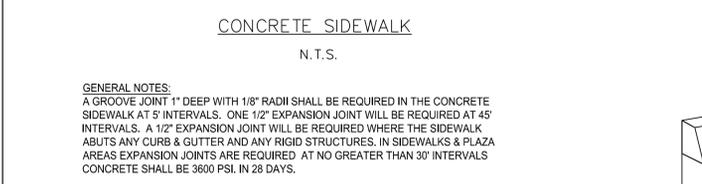
METHOD OF TREE PROTECTION DURING CONSTRUCTION
SD 15-08
NOT TO SCALE



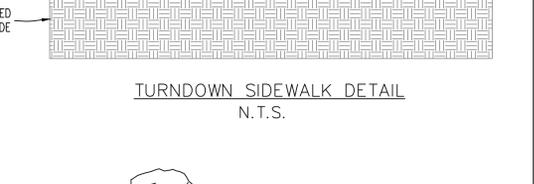
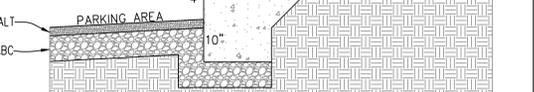
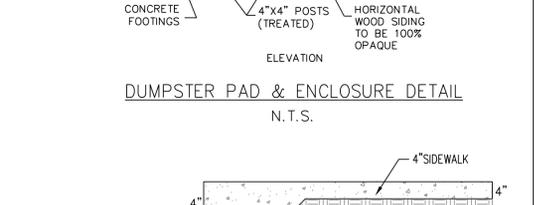
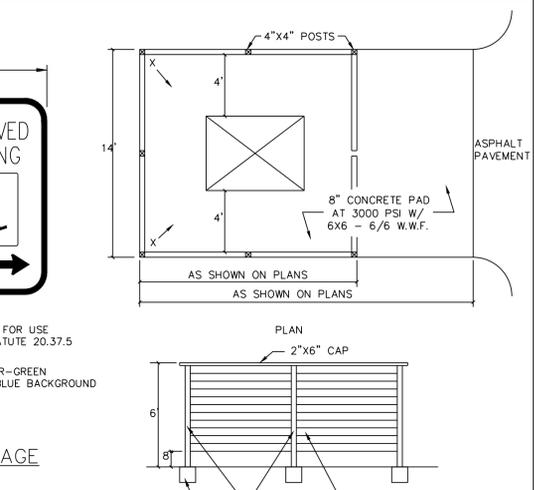
GUIDELINES FOR WHEELCHAIR RAMPS



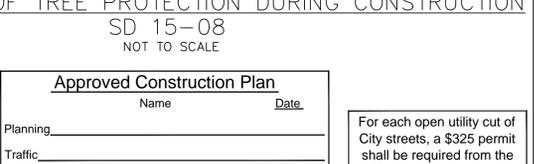
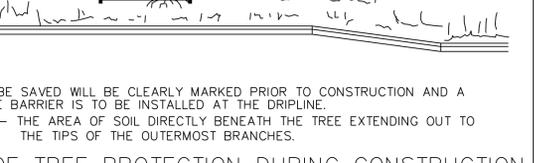
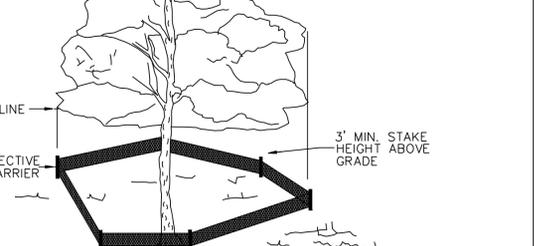
SIDEWALK ADJACENT TO GRASSED AREAS AND PLANTERS



GENERAL NOTES:
CONTRACTION JOINTS SHALL BE SPACED AT MAX. 10' INTERVALS, EXCEPT THAT A 15 FOOT SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10 FOOT INTERVALS. JOINT SPACING MAY BE ALTERED BY THE ENGINEER TO PREVENT UNCONTROLLED CRACKING. CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS, WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM DEPTH OF 1-1/2" SHALL BE OBTAINED. ALL CONTRACTION JOINTS EXCEPT IN 8" X 6" MEDIAN CURB SHALL BE FILLED WITH JOINT SEALER. EXPANSION JOINTS SHALL BE SPACED AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



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



No.	Revision	Date	By

Designer	GSP	Scale	1" = 30'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

SUMMERWALK - PHASE 1
Wilmington New Hanover County North Carolina

STANDARD DETAILS

PREPARED FOR:
Summerwalk Development, LLC
6105 Oleander Drive
Suite 201
Wilmington, NC 28403

GSP CONSULTING, PLLC
ENGINEERING
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-7

Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____

Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit # _____

Signed: _____

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

WILMINGTON NORTH CAROLINA
Professional Engineer
SEAL
031315
CARRY S. PARK
10/10/2015

PERVIOUS CONCRETE CONSTRUCTION SEQUENCE:

CONTRACTORS NOT FAMILIAR WITH PERMEABLE PAVEMENT ARE ACCUSTOMED TO COMPACTING PAVEMENT SOIL SUBGRADES TO INCREASE STRUCTURAL STRENGTH. HOWEVER, THIS IS IN DIRECT OPPOSITION TO THE CORRECT TREATMENT OF SOIL BENEATH PERMEABLE PAVEMENT FOR AN INFILTRATING DESIGN. A PRECONSTRUCTION MEETING IS HIGHLY RECOMMENDED TO ENSURE CONTRACTORS UNDERSTAND THE NEED TO PREVENT SUBGRADE COMPACTION AND CLOGGING OF THE PERMEABLE PAVEMENT AREAS. A DESIGN PROFESSIONAL FAMILIAR WITH PERMEABLE PAVEMENT INSTALLATION CAN HELP ENSURE THAT THE INVESTMENT RESULTS IN ADEQUATE LONG-TERM PERFORMANCE.

CONSTRUCTION STEP 1: ENSURE ACCEPTABLE CONDITIONS FOR CONSTRUCTION

DO NOT BEGIN CONSTRUCTION ON PERMEABLE PAVEMENT UNTIL ACCEPTABLE CONDITIONS ARE PRESENT. THIS INCLUDES THE FOLLOWING ITEMS:
 PERVIOUS SURFACES ARE GRADED SO THAT THEY DO NOT DISCHARGE TO THE PERMEABLE PAVEMENT, EXCEPT FOR INSTANCES WHEN THIS IS UNAVOIDABLE, SUCH AS REDEVELOPMENT PROJECTS.
 IMPERVIOUS AREAS THAT WILL DRAIN TO THE PERMEABLE PAVEMENT ARE COMPLETED.
 AREAS OF THE SITE ADJACENT TO THE PERMEABLE PAVEMENT ARE STABILIZED WITH VEGETATION, MULCH, STRAW, SEED, SOIL, FIBER BLANKETS OR OTHER APPROPRIATE COVER IN ORDER TO PREVENT EROSION AND POSSIBLE CONTAMINATION WITH SEDIMENTS.
 CONSTRUCTION ACCESS FOR OTHER PORTIONS OF THE SITE IS ESTABLISHED SO THAT NO CONSTRUCTION TRAFFIC PASSES THROUGH THE PERMEABLE PAVEMENT SITE DURING INSTALLATION. INSTALL BARRIERS OR FENCES AS NEEDED.
 THE FORECAST CALLS FOR A WINDOW OF DRY WEATHER TO PREVENT EXCESS COMPACTION OR SMEARING OF THE SOIL SUBGRADE WHILE IT IS EXPOSED.
 ALL PERMEABLE PAVEMENT AREAS ARE CLEARLY MARKED ON THE SITE.

CONSTRUCTION STEP 2: EXCAVATE THE PAVEMENT AREA AND PREPARE SUBGRADE SURFACE

CLEAR AND EXCAVATE THE AREA FOR PAVEMENT AND BASE COURSES WHILE PROTECTING AND MAINTAINING SUBGRADE INFILTRATION RATES USING FOLLOWING THESE STEPS:
 EXCAVATE IN DRY SUBGRADE CONDITIONS AND AVOID EXCAVATING IMMEDIATELY AFTER STORMS WITHOUT A SUFFICIENT DRYING PERIOD.
 DO NOT ALLOW EQUIPMENT TO CROSS THE PAVEMENT AREA AFTER EXCAVATION HAS BEGUN.
 OPERATE EXCAVATION EQUIPMENT FROM OUTSIDE THE PAVEMENT AREA OR FROM UNEXCAVATED PORTIONS OF THE AREA USING AN EXCAVATION STAGING PLAN.
 USE EQUIPMENT WITH TRACKS RATHER THAN TIRES TO MINIMIZE SOIL COMPACTION WHEN EQUIPMENT ON THE SUBGRADE SURFACE IS UNAVOIDABLE.
 DIG THE FINAL 9 TO 12 IN. BY USING THE TEETH OF THE EXCAVATOR BUCKET TO LOOSEN SOIL AND DO NOT SMEAR THE SUBGRADE SOIL SURFACE. FINAL GRADING OR SMOOTHING OF THE SUBGRADE SHOULD BE DONE BY HAND IF POSSIBLE.
 MINIMIZE THE TIME BETWEEN EXCAVATION AND PLACEMENT OF THE AGGREGATE.
 THE FINAL SUBGRADE SLOPE SHALL NOT EXCEED 0.5% THE SLOPE OF THE SUBGRADE SHALL BE CHECKED BEFORE PROCEEDING.

AFTER VERIFYING THE SUBGRADE SLOPE, SCARIFY, RIP OR TRENCH THE SOIL SUBGRADE SURFACE OF INFILTRATING PAVEMENT SYSTEMS TO MAINTAIN THE SOIL'S PRE-DISTURBANCE INFILTRATION RATE. THESE TREATMENTS MUST OCCUR WHILE THE SOIL IS DRY. TO SCARIFY THE PAVEMENT, USE BACKHOE BUCKET'S TEETH TO RAKE THE SURFACE OF THE SUBGRADE. TO RIP THE SUBGRADE, USE A SUBSOIL RIPPER TO MAKE PARALLEL RIPS 6 TO 9 IN. DEEP SPACED 3 FT APART ALONG THE LENGTH OF THE PERMEABLE PAVEMENT EXCAVATION AS SHOWN IN FIGURE 18-16. IN SILTY OR CLAYEY SOILS, CLEAN COARSE SAND MUST BE PLACED OVER THE RIPPED SURFACE TO KEEP IT FREE-FLOWING (BROWN AND HUNT 2009). THE SAND LAYER SHOULD BE ADEQUATE TO FILL THE RIPS.

AN ALTERNATIVE TO SCARIFICATION AND RIPPING IS TRENCHING. SEE FIGURE 18-17. IF TRENCHING, THEN PARALLEL TRENCHES 12 IN. WIDE BY 12 IN. DEEP SHALL BE MADE ALONG THE LENGTH OF THE PERMEABLE PAVEMENT EXCAVATION. EXCAVATE TRENCHES EVERY 6 FT (MEASURED FROM CENTER TO CENTER OF EACH TRENCH) AND FILL WITH 1/2 IN. OF CLEAN COARSE SAND AND 1 1/2 IN. OF ASTM NO. 67 AGGREGATE (BROWN AND HUNT 2009).

CONSTRUCTION STEP 3: PLACE GEOTEXTILES AND GEOMEMBRANE (IF APPLICABLE)

IF THE SOILS ENGINEER REQUIRES USING GEOTEXTILES OR GEOMEMBRANES, THEN FOLLOW THE MANUFACTURER'S RECOMMENDATIONS SO FOR THE APPROPRIATE OVERLAP BETWEEN ROLLS OF MATERIAL. SECURE GEOTEXTILE OR GEOMEMBRANE SO THAT IT WILL NOT MOVE OR WRINKLE WHEN PLACING AGGREGATE.

CONSTRUCTION STEP 4: PLACE OBSERVATION WELLS

PLACE THE OBSERVATION WELLS ACCORDING TO THE DESIGN PLANS AND VERIFY THAT THE ELEVATIONS ARE CORRECT.

CONSTRUCTION STEP 5: PLACE AGGREGATE BASE

INSPECT ALL STONE TO INSURE THAT IT IS CLEAN, FREE OF FINES AND CONFORMS TO THE PLANS AND SPECIFICATIONS. ALL AGGREGATES SHOULD BE STOCKPILED ON AN IMPERVIOUS SURFACE, GEOTEXTILE, OR OTHER IMPERVIOUS MATERIAL TO KEEP THE AGGREGATE FREE OF SEDIMENT. IF AGGREGATE BECOMES CONTAMINATED WITH SEDIMENT, THEN IT SHALL BE REPLACED WITH CLEAN MATERIALS. REMOVE ANY ACCUMULATION OF SEDIMENTS ON THE FINISHED SOIL SUBGRADE WITH LIGHT, TRACKED EQUIPMENT. IF THE EXCAVATED SUBGRADE SURFACE IS SUBJECTED TO RAINFALL BEFORE PLACEMENT OF THE AGGREGATE BASE, THE RESULTING SURFACE CRUST MUST BE EXCAVATED TO AT LEAST AN ADDITIONAL 2 IN. DEPTH, RAKED OR SCARIFIED TO BREAK UP THE CRUST. FOR SITES WITH AN IMPERMEABLE LINER OR GEOTEXTILES, REMOVE ANY ACCUMULATED SEDIMENTS AND CHECK PLACEMENT. SLOPES AND ELEVATIONS SHALL BE CHECKED ON THE SOIL SUBGRADE AND THE FINAL BEDDING MATERIAL TO ASSURE THEY CONFORM TO THE PLANS AND SPECIFICATIONS.

ALL AGGREGATE SHALL BE SPREAD (NOT DUMPED) BY A FRONT-END LOADER OR FROM DUMP TRUCKS DEPOSITING FROM NEAR THE EDGE OF THE EXCAVATED AREA OR RESTING DIRECTLY ON DEPOSITED AGGREGATE PILES. MOISTEN AND SPREAD THE WASHED STONE WITHOUT DRIVING ON THE SOIL SUBGRADE AND BEING CAREFUL NOT TO DAMAGE THE OBSERVATION WELLS.

CONSTRUCTION STEP 6: INSTALL CURB RESTRAINTS AND PAVEMENT BARRIERS

EDGE RESTRAINTS AND BARRIERS BETWEEN PERMEABLE AND IMPERVIOUS PAVEMENT SHALL BE INSTALLED. BEFORE MOVING ON TO CONSTRUCTION STEP 9, BE CERTAIN THAT THE DESIGN AND INSTALLATION ARE CONSISTENT.

CONSTRUCTION STEP 7: INSTALL BEDDING AND PAVEMENT COURSES

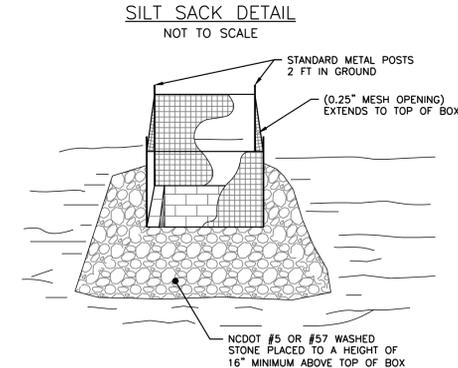
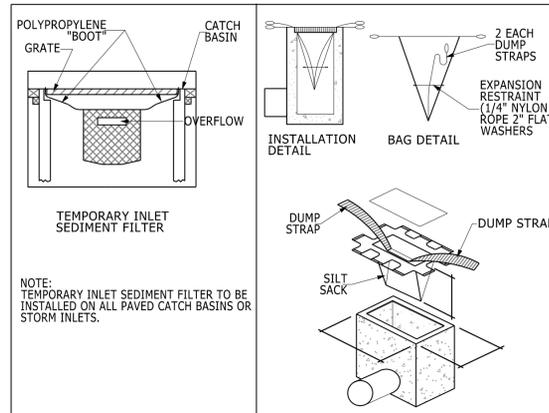
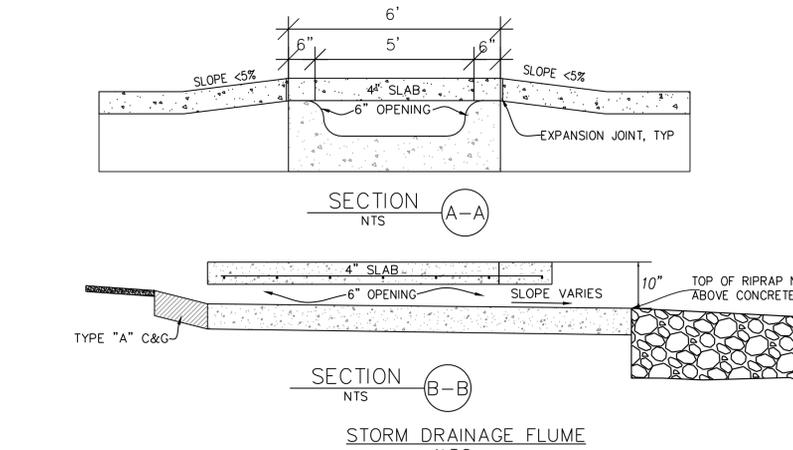
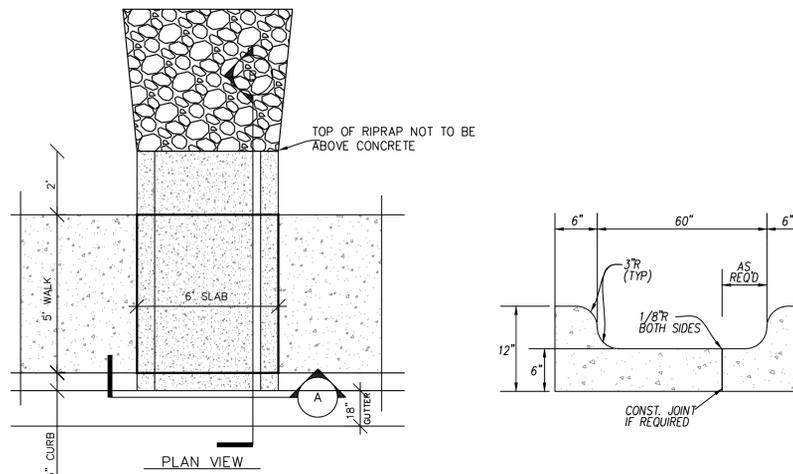
PC PAVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST VERSION OF AASHTO M 321 SPECIFICATION FOR PERVIOUS CONCRETE. IT IS REQUIRED THAT THE CONTRACTOR INSTALLING THE PERVIOUS CONCRETE MEET THE REQUIREMENTS OUTLINED IN THE LATEST VERSION OF AASHTO M 321. INSTALLATION OF PC MAY BE ACCOMPLISHED USING EITHER THE ONE-STEP OR THE TWO-STEP METHOD. THE TWO-STEP METHOD IS MORE COMMONLY USED AND CONSISTS OF THE STEPS OF STONE-OFF FROM PERVIOUS CONCRETE COMPACTION. IN THIS METHOD, THE PERVIOUS CONCRETE USUALLY REQUIRES A MORE TRADITIONAL, STIFFER MIX. THE ONE-STEP METHOD USES A COUNTER-ROTATING ROLLER SCREED TO SIMULTANEOUSLY STRIKE-OFF AND COMPACT THE PERVIOUS CONCRETE. THIS METHOD REQUIRES PERVIOUS CONCRETE WITH A MORE FLOWABLE MIX SO THAT THE SCREED CAN MORE ADEQUATELY COMPACT THE MIXTURE. BOTH METHODS REQUIRE DENSE- PASTE PERVIOUS CONCRETE MIXTURES. THESE MIXES ARE DEFINED BY CHEMICAL ADJUTURES THAT REDUCE THE VISCOSITY OF THE CEMENT PASTE SO THAT IT WILL STICK TO AND NOT RUN OFF THE AGGREGATES. THE MIXES PROVIDE GREATER COHESION THAT INCREASES STRENGTH AND DURABILITY.

CONSTRUCTION STEP 8: PROTECT THE PAVEMENT THROUGH PROJECT COMPLETION

THE PERMEABLE PAVEMENT SHALL BE INSTALLED AT THE END OF THE SITE CONSTRUCTION TIMELINE. THE SITE CONTRACTOR MUST PROTECT THE PERMEABLE PAVEMENT UNTIL PROJECT COMPLETION. THIS SHALL BE DONE BY:
 ROUTE CONSTRUCTION ACCESS THROUGH OTHER PORTIONS OF THE SITE SO THAT NO CONSTRUCTION TRAFFIC PASSES THROUGH THE PERMEABLE PAVEMENT SITE. INSTALL BARRIERS OR FENCES AS NEEDED. PROTECT THE PAVEMENT PER THE CONSTRUCTION DOCUMENTS. TECHNIQUES THAT MAY BE SPECIFIED INCLUDE MATS, PLASTIC SHEETING, BARRIERS TO LIMIT ACCESS, OR MOVING THE STABILIZED CONSTRUCTION ENTRANCE. SCHEDULE STREET SWEEPING DURING AND AFTER CONSTRUCTION TO PREVENT SEDIMENT FROM ACCUMULATING ON THE PAVEMENT.

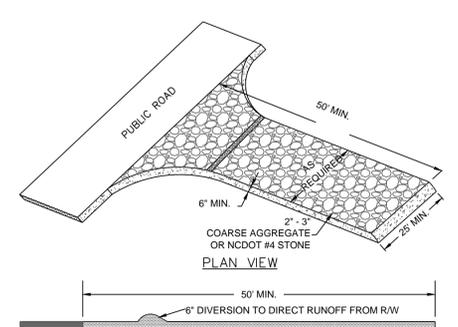
CONSTRUCTION STEP 9: AS-BUILT INSPECTION

AFTER INSTALLATION, AN APPROPRIATELY LICENSED NC DESIGN PROFESSIONAL SHALL PERFORM A FINAL AS-BUILT INSPECTION AND CERTIFICATION THAT INCLUDES:
 ENSURING THAT THE PAVEMENT IS INSTALLED PER THE PLANS AND SPECIFICATIONS.
 ENSURING THAT THE SURFACE IS NOT DAMAGED, FREE FROM FINES AND SEDIMENT.
 CHECKING THAT ALL PERVIOUS SURFACES DRAIN AWAY FROM THE PAVEMENT AND THAT SOIL AROUND THE PAVEMENT IS STABILIZED WITH VEGETATION.
 PREPARING THE AS-BUILT PLANS THAT INCLUDE ANY CHANGES TO THE OBSERVATION WELL LOCATIONS, TERRACE LAYOUTS, AGGREGATE DEPTH OR STORAGE STRUCTURES, ANY REVISED CALCULATIONS, ETC.
 TESTING THE PAVEMENT SURFACE PERMEABILITY USING THE NC SU SAMPLE INFILTRATION TEST (SEE MAINTENANCE SECTION 18.6.4) OR OTHER APPROPRIATE TEST SUCH AS ASTM C1701 STANDARD TEST METHOD FOR INFILTRATION RATE OF IN-PLACE PERVIOUS CONCRETE. ANY DEFICIENCIES FOUND DURING THE AS-BUILT INSPECTION SHALL BE PROMPTLY ADDRESSED AND CORRECTED.

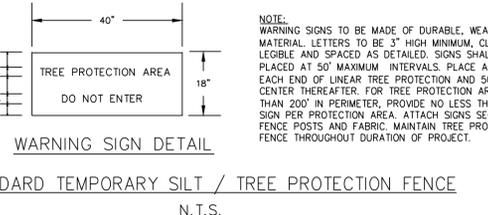
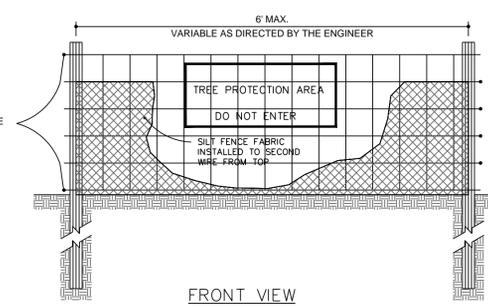


- NOTES:**
1. DRIVE 5-FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
 2. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM. PLACING A 1-FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
 3. PLACE CLEAN GRAVEL (NC DOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A MIN HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.

STANDARD INLET PROTECTION
NOT TO SCALE

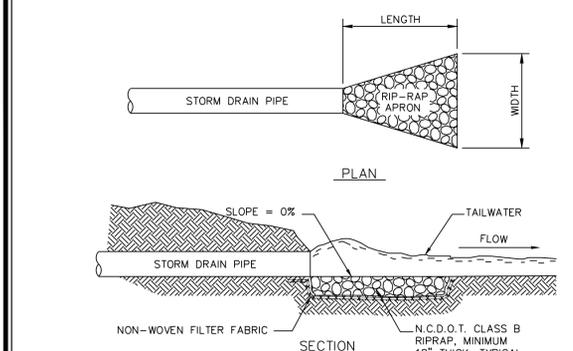
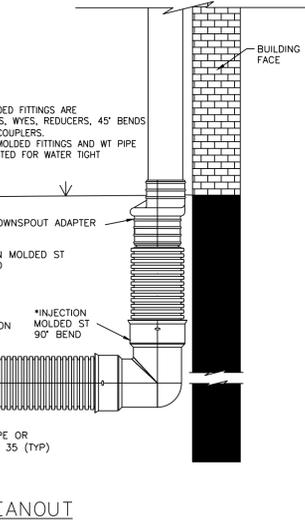


TEMPORARY CONSTRUCTION ENTRANCE
N.T.S.



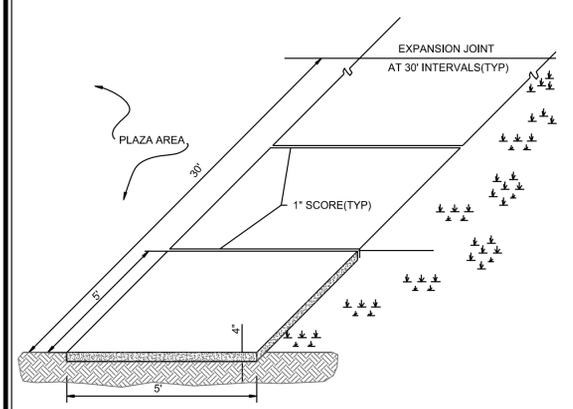
SEQUENCE OF CONSTRUCTION
LIMITS OF CONSTRUCTION = 1.85 ACRES

1. INSTALL TEMPORARY CONSTRUCTION ENTRANCE AS SHOWN ON EROSION & SEDIMENT CONTROL PLAN.
2. INSTALL PERIMETER CONTROLS (TEMPORARY SILT FENCE, TREE PROTECTION FENCING, SEDIMENT BASIN) AS SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN. THIS STEP NEEDS TO BE COMPLETED PRIOR TO UPSLOPE LAND DISTURBING ACTIVITIES.
3. THE PROPOSED INFILTRATION BASIN WILL ACT AS A SEDIMENT BASIN DURING CONSTRUCTION ACTIVITIES.
4. ONCE PERIMETER CONTROLS AND SEDIMENT TRAPPING MEASURES ARE INSTALLED CLEAR AND GRUB SITE WITHIN LIMITS OF DISTURBANCE. THE SEDIMENT BASIN WILL BE PUMPED DOWN BY MECHANICAL MEANS AS NEEDED TO MURK OUT SEDIMENT WHEN THE SEDIMENT REACHES 50% CAPACITY.
5. UPON BRINGING THE SITE TO ROUGH GRADE, STABILIZE ALL AREAS WITH TEMPORARY VEGETATION IF LEFT UNDISTURBED FOR 15 WORKING DAYS AND ALL SLOPES WITHIN 21 CALENDAR DAYS.
6. ONCE THE PARKING AREAS, SANITARY SEWERS, WATERLINES AND STORM SEWERS ARE IN PLACE, INSTALL INLET PROTECTION AS SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN.
7. UPON BRINGING THE PARKING AREA TO SUBGRADE ELEVATIONS, STABILIZE THE AREAS BY PLACING STONE BASE AS EARLY AS POSSIBLE. PERMEABLE PAVEMENT TO BE INSTALLED AS CLOSE TO THE END OF CONSTRUCTION AS POSSIBLE IN ORDER TO AVOID CLOGGING OF THE SYSTEM.
8. FOR TEMPORARY VEGETATIVE STABILIZATION OF ALL DENUDED AREAS SEE NOTE REFERENCING THE EROSION CONTROL PROGRAM AND SPECIFICATIONS ON SHEET C-1.
9. AFTER CONSTRUCTION OPERATIONS HAVE ENDED AND ALL DISTURBED AREAS HAVE BEEN STABILIZED, MECHANICAL SEDIMENT CONTROLS SHALL BE REMOVED. SEDIMENT FROM TEMPORARY SEDIMENT TRAPPING DEVICES SHALL BE DISPOSED OF BY SPREADING ON THE SITE OR HAULING AWAY IF NOT SUITABLE FOR FILL. ALL DENUDED AREAS ARE TO BE PERMANENTLY STABILIZED WITH PERMANENT VEGETATION.

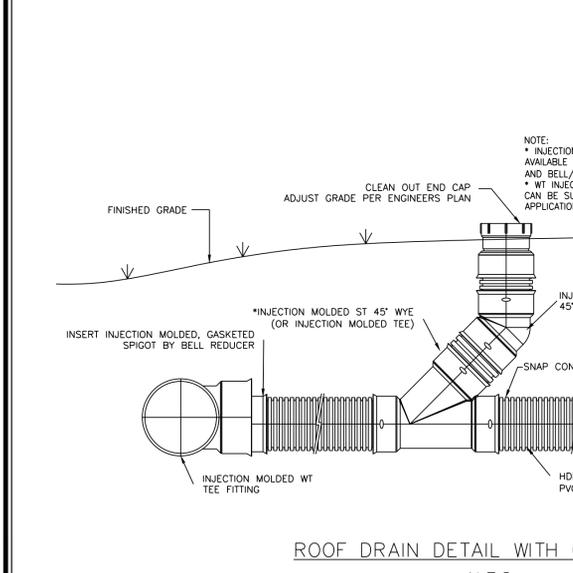


RIPRAP LOCATIONS	LENGTH (FT.)	UPSTREAM WIDTH (FT.)	DOWNSTREAM WIDTH (FT.)
CONC FLUMES	5	5	6
SWALES	8	5	6

RIP-RAP OUTLET PROTECTION
N.T.S.



STANDARD SIDEWALK DETAIL
SD 8-15
NOT TO SCALE



No.	Revision	Date	By

SUMMERWALK - PHASE 1
Wilmington North Carolina
New Hanover County

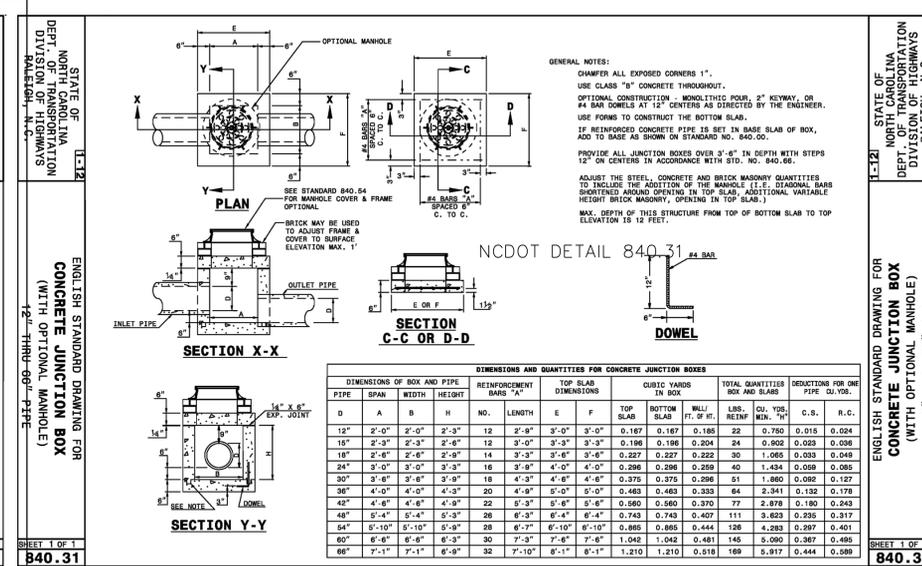
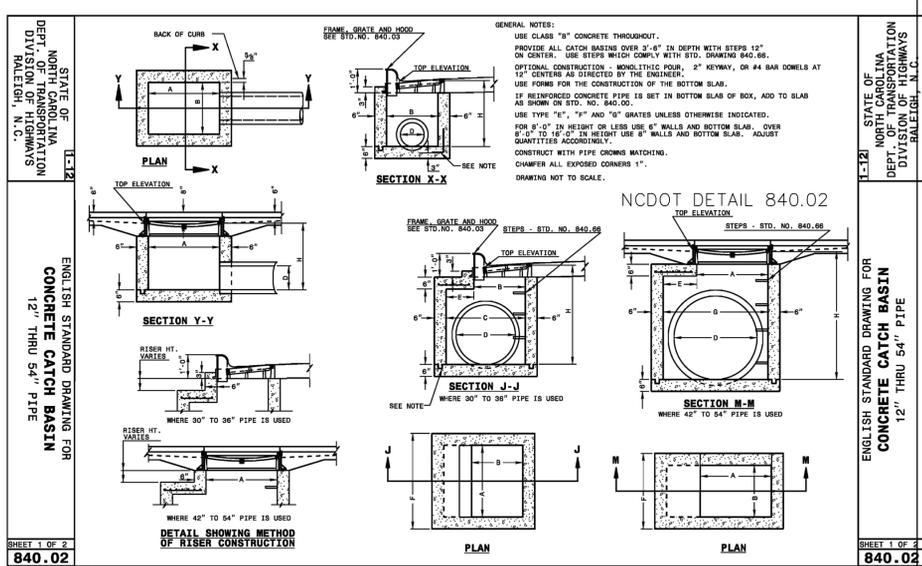
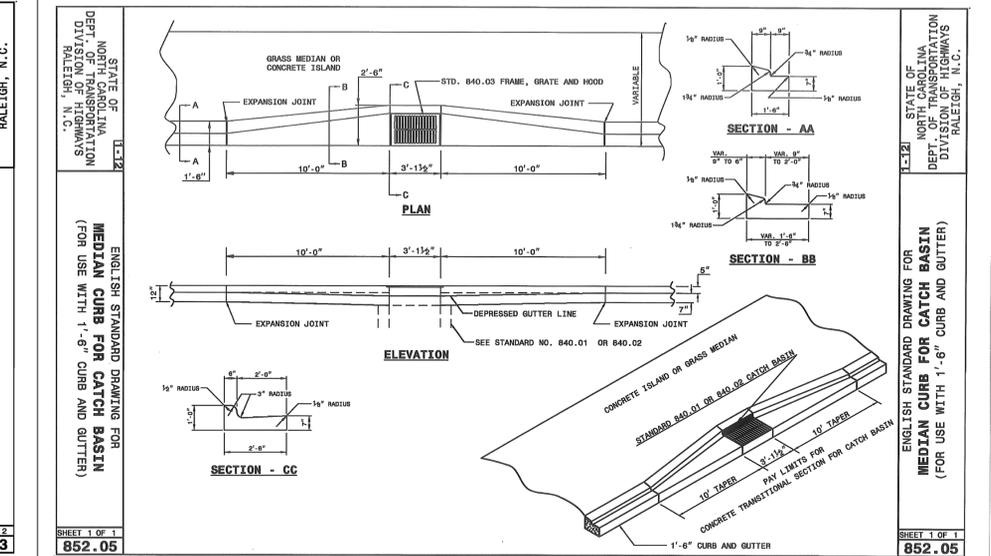
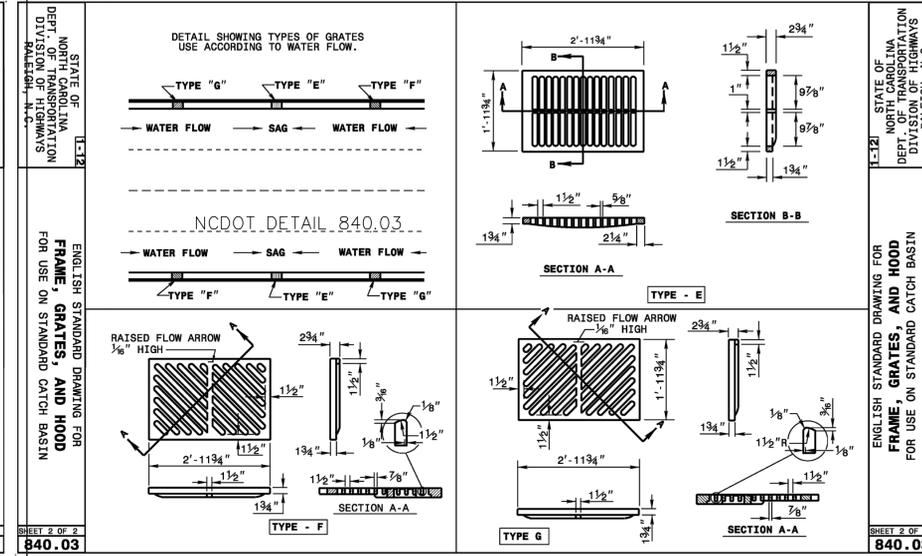
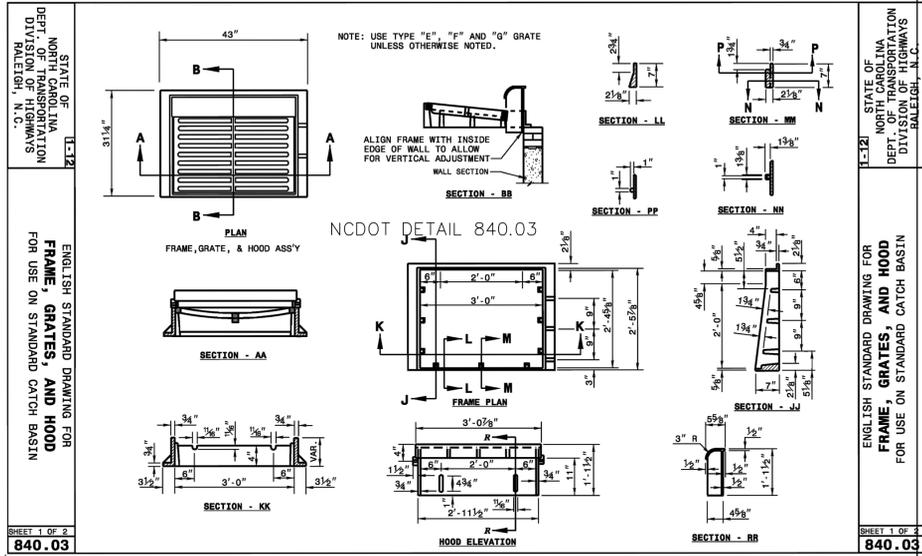
STANDARD DETAILS

PREPARED FOR:
Summerwalk Development, LLC
6105 Oleander Drive
Suite 201
Wilmington, NC 28403

GSP CONSULTING, PLLC
ENGINEERING
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-8

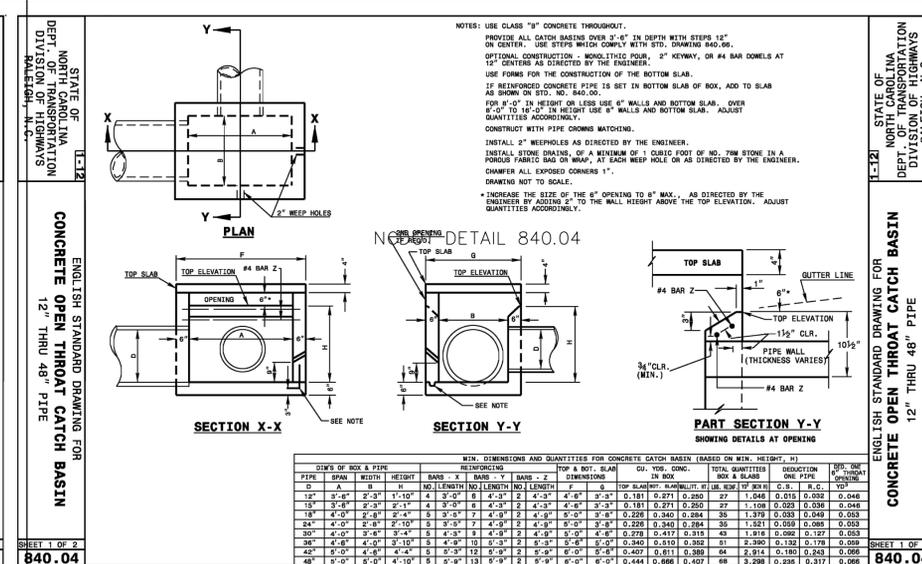
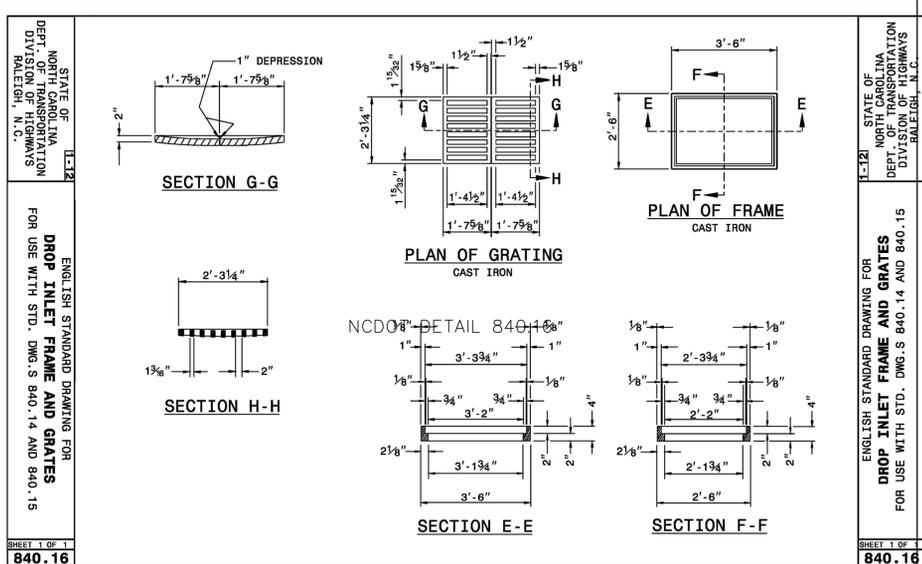
Approved Construction Plan
Name _____ Date _____
Planning _____
Traffic _____
Fire _____
For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.
WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: _____ Permit # _____
Signed: _____
10/10/2015



STORM TABLE

FROM	TO	LENGTH (ft)	DIAMETER (in)	SLOPE (%)	INV. DN (ft)	INV. UP (ft)	RIM (ft)	MATERIAL
2	1	47	18	0.30	15.33	15.47	18.97	HDPE
3	2	152	15	3.51	15.47	20.79	24.42	HDPE
4	3	122	15	1.60	20.79	22.74	26.09	HDPE
7	5	19	15	0.31	22.75	22.81	25.00	HDPE
8	7	24	15	0.30	22.81	22.88	25.00	HDPE
9	8	66	15	0.30	22.88	23.08	25.00	HDPE
10	7	91	15	0.30	22.81	23.08	26.00	HDPE
12	11	74	18	0.30	22.00	22.22	25.68	HDPE
13	12	27	18	0.30	22.22	22.30	26.22	HDPE
14	13	127	15	0.30	22.30	22.68	25.40	HDPE
15	13	36	15	0.30	22.30	22.41	25.59	HDPE
16	EX	82	54	0.30	6.45	6.70	14.10	HDPE
17	16	92	24	0.30	9.90	10.18	14.20	HDPE
18	17	182	15	2.55	10.18	14.82	20.00	HDPE
19	18	20	15	1.51	14.82	15.12	19.31	HDPE
20	19	341	15	1.49	15.12	20.20	0.00	HDPE
21	18	134	18	3.08	16.00	20.13	24.66	HDPE
22	21	170	18	1.42	20.13	22.54	27.37	HDPE
23	22	125	18	0.30	22.54	22.92	27.00	HDPE
24	21	7	15	3.02	22.29	22.50	25.75	HDPE
25	22	66	15	0.50	23.99	24.32	27.50	HDPE
26	25	53	15	0.51	24.32	24.59	27.75	HDPE
27	26	34	15	0.50	24.59	24.76	27.00	HDPE
28	25	25	15	0.52	24.32	24.45	27.00	HDPE

SECTION 1 OF 2
840.04



Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

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

SEAL 031315
ENGINEER
CARY S. PIPER
10/17/2015

Sheet No. C-9

No.	Revision	Date	By

Designer: GSP
Scale: 1" = 30'
Drawn By: GSP
Date: October 2015
License #: P-0718
Job No.: 2015-0006

Wilmington New Hanover County North Carolina

SUMMERWALK - PHASE 1

STANDARD DETAILS

PREPARED FOR:
Summerwalk Development, LLC
6105 Oleander Drive
Suite 201
Wilmington, NC 28403

GSP CONSULTING, PLLC
ENGINEERING

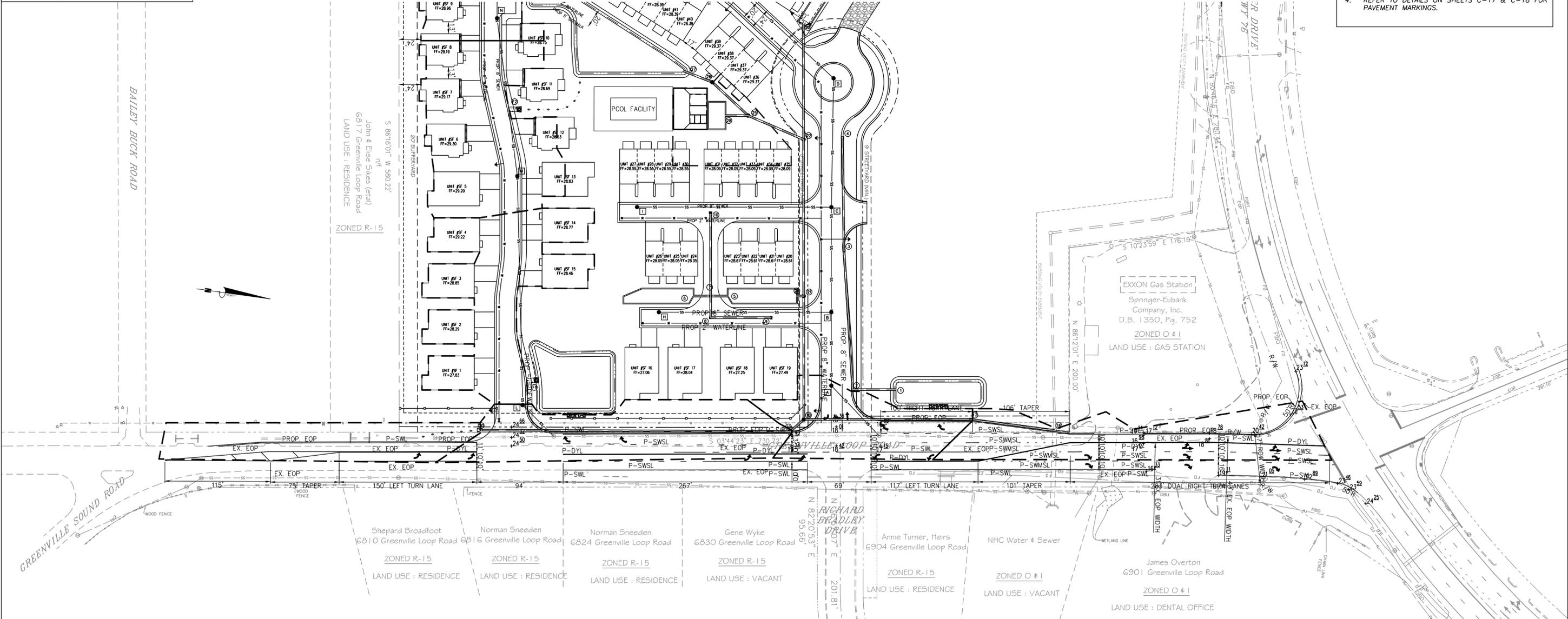
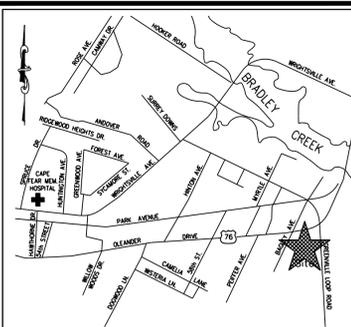
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No. C-9

PAVEMENT MARKING LEGEND

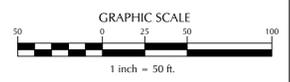
- P-DYL = PROPOSED NEW DOUBLE YELLOW LINE
- P-SWL = PROPOSED SINGLE WHITE LINE
- P-SWSL = PROPOSED NEW WHITE SKIP LINE
- P-SWMSL = PROPOSED SINGLE WHITE MINI SKIP LINE
- P-SYL = PROPOSED SINGLE YELLOW LINE
- P-SYSL = PROPOSED NEW YELLOW SKIP LINE
- P-SYMSL = PROPOSED SINGLE YELLOW MINI SKIP LINE

- NOTES:
1. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
 2. ALL PAVEMENT MARKINGS SHALL BE TIED TO EXISTING MARKINGS.
 3. ALL STRIPING TO BE PREMARKED AND INSPECTED BY TRAFFIC SERVICES.
 4. REFER TO DETAILS ON SHEETS C-17 & C-18 FOR PAVEMENT MARKINGS.



- NOTES:
1. TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING LAYOUT PRIOR TO ACTUAL STRIPING. CONTACT TRAFFIC ENGINEERING FOR PAVEMENT MARKING AND SIGN PLACEMENT DETAILS.
 2. INSTALL REFLECTORS PER CITY AND NCDOT STANDARDS.
 3. ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS.
 4. ALL PAVEMENT MARKINGS REGULATING TRAFFIC FLOW MUST BE THERMOPLASTIC.
 5. ALL SIGNS AND PAVEMENT MARKINGS IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.
 6. A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET. CONTACT SKEET CARR AT 341-5888 FOR MORE DETAILS. IN CERTAIN CASES AN ENTIRE RESURFACING OF THE AREA BEING OPEN CUT MAY BE REQUIRED.
 7. CALL TRAFFIC ENGINEERING AT 341-7888 FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT OF WAY.
 8. REFER TO SHEET C-10 FOR PAVEMENT MARKINGS AND STRIPING DETAILS.

- NOTES:
1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT NCDOT STANDARDS AND SPECIFICATIONS.
 2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.
 3. SPEED LIMIT ON OLEANDER DRIVE IS 45 MPH.
 4. SPEED LIMIT ON GREENVILLE LOOP ROAD IS 45 MPH.



No.	Revision	Date	By

Designer	GSP	Scale	1" = 50'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

SUMMERWALK - PHASE 1
 Wilmington New Hanover County North Carolina

GREENVILLE LOOP ROADWAY IMPROVEMENTS PLAN

PREPARED FOR:
 Summerwalk Development, LLC
 6105 Oleander Drive
 Suite 201
 Wilmington, NC 28403

GSP CONSULTING, PLLC
 ENGINEERING
 6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-1