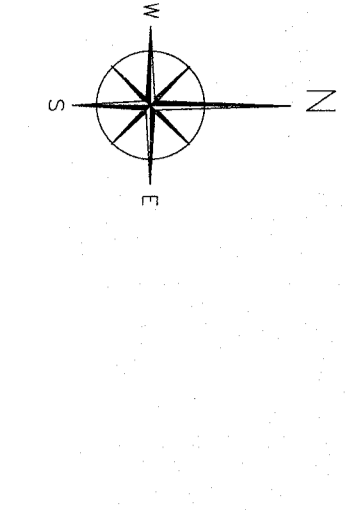
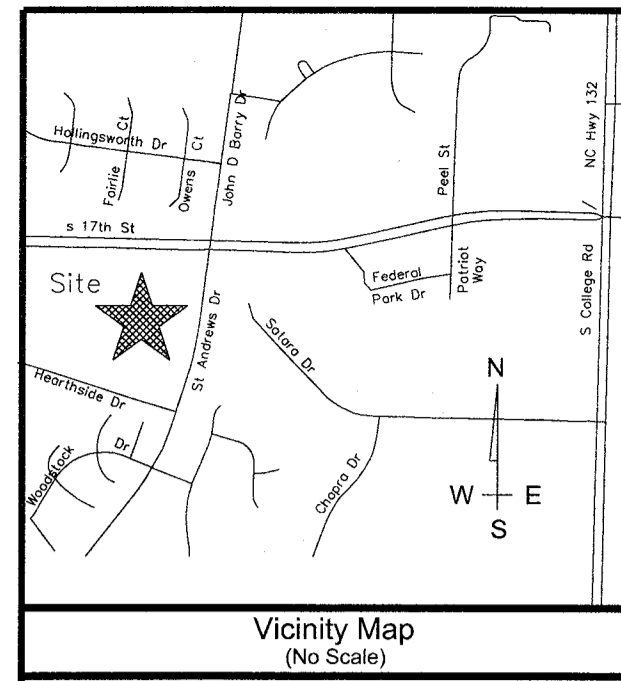
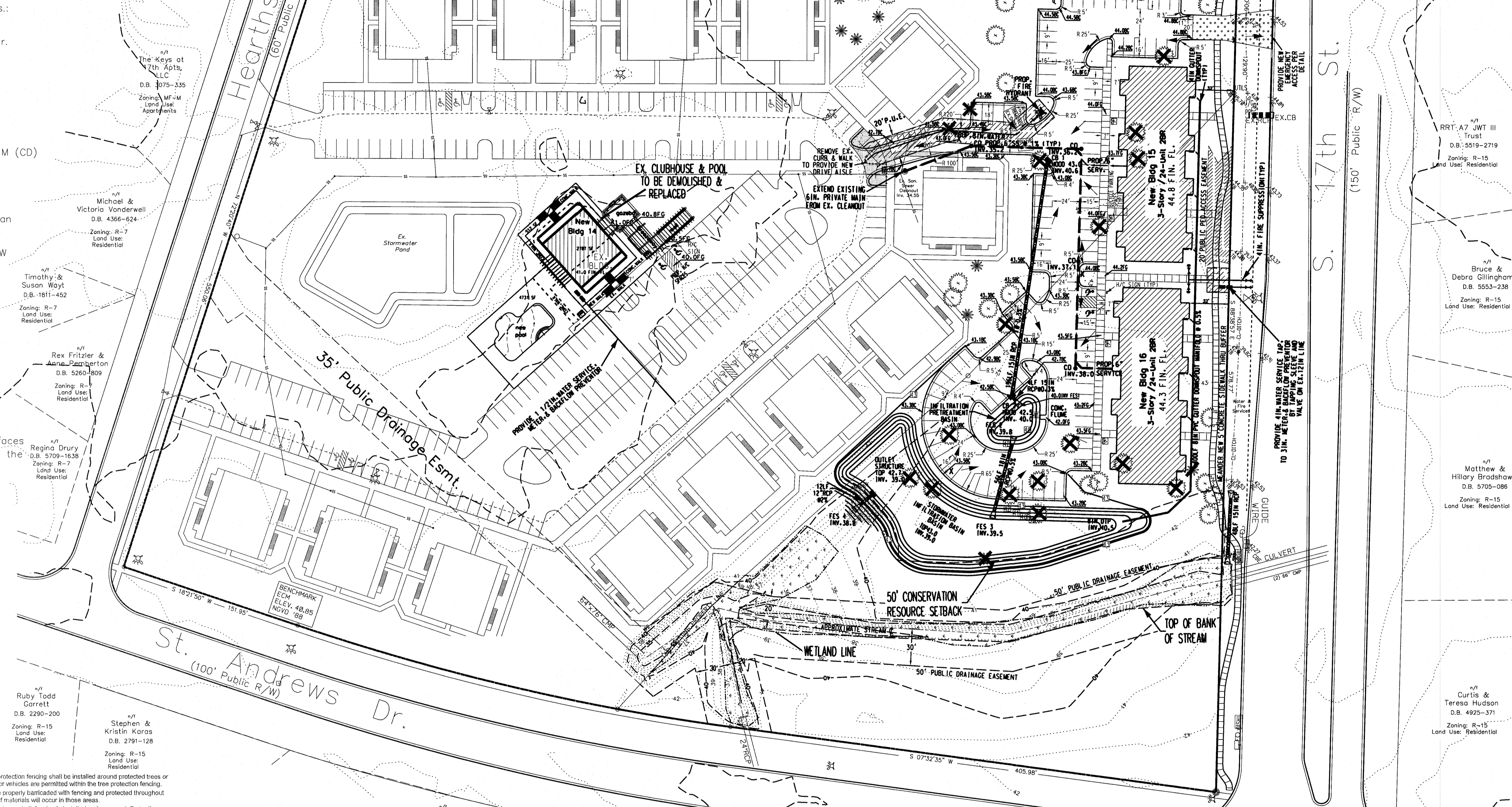


CONSTRUCTION PLAN SET



General Notes:

- New Hanover County Parcel Nos.: PIN 313509.26.4140 [PID 6617-002-001-003] Address: 1600 St. Andrews Dr. Existing Zone - MF-M (SD)
PIN 313510.26.7422 [PID 6600-001-005-005] Address: 4196 S. 17th St. Existing Zone - R-15
- Total Tract Area: 12.35 ac.±
- Proposed Zoning District: MF-M (CD)
Setbacks - Front - variable
20' Corner
25' Rear
10' Interior Side
- CAMA Land Classification: Urban
- Watershed Classification: Banard's Creek C-SW
- Proposed Land Disturbance: 2.5 Acres
- Plats & documents shall be recorded to provide perpetual protections for conservation resources & conservation buffers (if any) & prohibit impervious surfaces within the buffer setback, unless exceptions are provided by the LDC.
- Utilize moisture sensors for irrigation system.
- All runoff from impervious surfaces shall be collected and conveyed to the stormwater detention or infiltration devices



Development Data:

Zoning: MFM
Land Use: Residential
Development Area - 12.35 ac.
Permitted Density (@ 17 units/ac.) = 210 units
Proposed Density = 210 units (156 ex. + 54 new)
Building Coverage - 74,400 s.f.± (13.8%)
Total Heated Gross Floor Area - 182,900 s.f.± GFA
Total Bedrooms - 334
110 - 1BR = 110
84 - 2BR = 168
16 - 3BR = 48

Max. Bldg. Hgt. - 3-story / 35' Max.
Parking -
110 - 1BR @ 1.5/BR = 165
84 - 2BR @ 2.0/BR = 168
16 - 3BR @ 2.25/BR = 36
Total Parking Req'd = 369 Spaces
Max. spaces perm't. @ 2.5/unit = 525 spaces
** Total Spaces Prov'd = 369 **
Bike Parking req'd = 20 min.
Bike Parking prov'd = 20

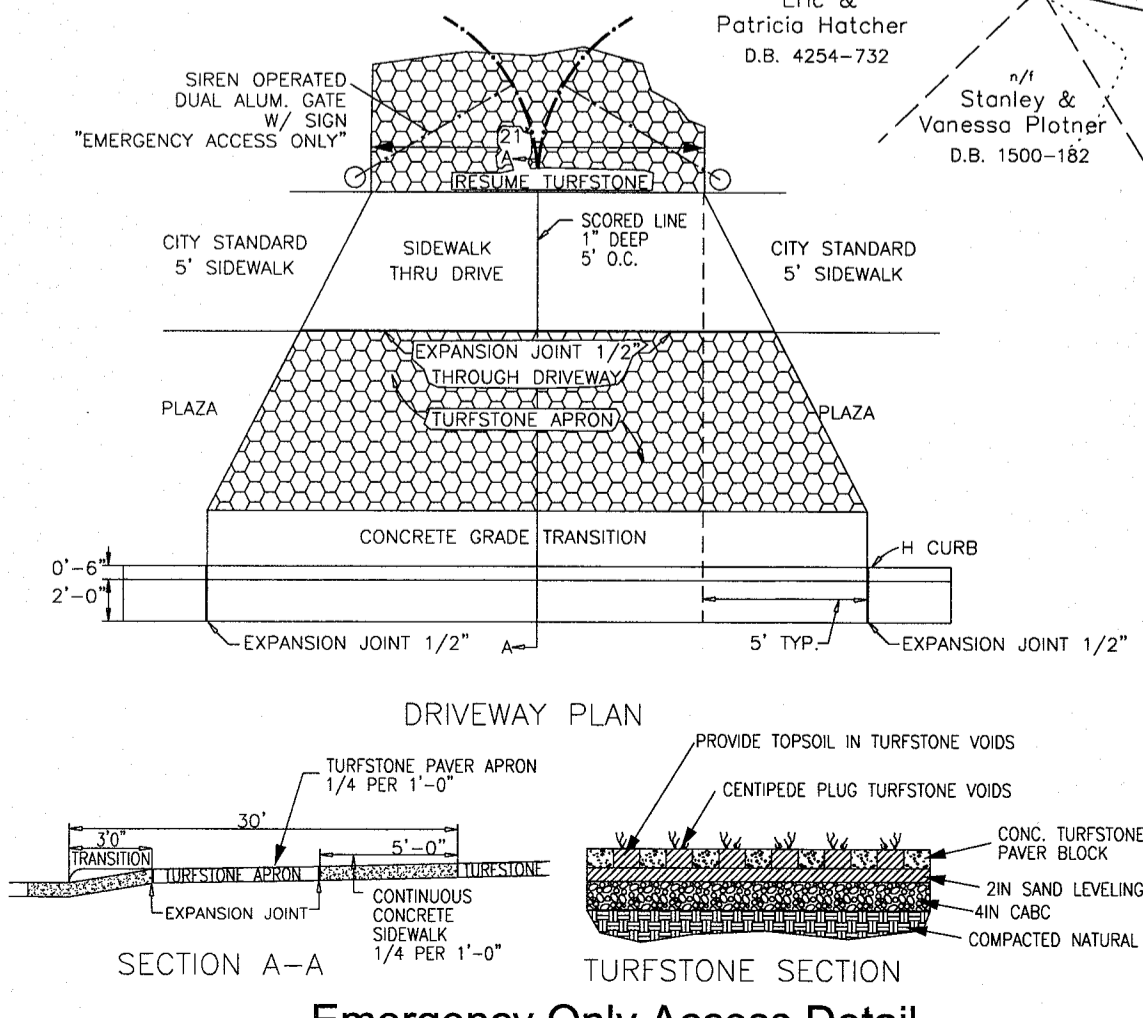
Impervious Surfaces -
Existing - 164,260 s.f.±
To be Removed - 5,363 s.f.±
New Rooftops - 22,098 s.f.±
New Pavmt - 39,391 s.f.±
New Walks & Deck - 12,310 s.f.±
Total - 232,696 s.f.± (43.3%)

Open Space - (min. 35% req'd.)
12.35 ac. - 0.4 ac. (Pond) X 35% = 4.18 ac. req'd.
6.5 ac. (52.3%) Open Space prov'd. **
Recreation Area - (min. 50% Open Space)
91,040 s.f. req'd.
Active Rec req'd. = 45,520 s.f.
Active Rec prov'd. = 45,600+ s.f.
Passive Rec req'd. = 45,520 s.f.
Passive Rec prov'd. = 45,600+ s.f.
** Total Rec Area prov'd. = 35,014+ s.f. **

Utility Capacity:
Existing Sewer Use - 24,960 GPD
New Sewer Use -
Total Sewer Capacity -
Existing Water Use - 31,200 GPD
New Water Use -
Total Water Capacity -

City of Wilmington Required Notes:

- Prior to any clearing, grading or construction activity, tree protection fencing shall be installed around protected trees or groves of trees. No construction workers, tools, materials, or vehicles are permitted within the tree protection fencing.
- Any trees and/or areas designated to be protected must be properly barricaded with fencing and protected throughout construction to insure that no clearing, grading or staging of materials will occur in these areas.
- No equipment is allowed on site until all tree protection fencing and all fencing is installed and approved. Protective fencing is to be maintained throughout the duration of the project, and contractors shall receive adequate instruction on tree protection methods.
- All pavement markings in public rights-of-way and for driveways are to be thermoplastic and meet City and/or NCDOT standards.
- Once streets are open to traffic, contact Traffic Engineering regarding the installation of traffic and street name signs. Proposed street names must be approved prior to installation of street name signs.
- Traffic control devices (including signs and pavement markings) in areas open to public traffic are to meet MUTCD (Manual on Uniform Traffic Control Devices) standards.
- Contact Traffic Engineering at 910-341-7888 to ensure that all traffic signal facilities and equipment are shown on the plan.
- Call Traffic Engineering at 910-341-7888 forty-eight (48) hours prior to any excavation in the right-of-way.
- Traffic Engineering must approve of pavement marking prior to actual striping.
- All parking stall markings and line arrows within the parking areas shall be white.
- All traffic control signs and markings on the right of way are to be activated by the property owner in accordance with MUTCD standards.
- Stop signs and street signs to remain in place during construction.
- Tackle warning mats will be installed on all wheelchair ramps.
- A utility cut permit is required for each open cut of a city street.
- Any bridge or existing sidewalk openings, view openings, and curbing will be replaced.
- Contact Traffic Engineering at 910-341-7888 to discuss street lighting options.
- Water and sewer surveys shall meet Cape Fear Public Utility Authority (CFPUA) details and specifications.
- Project shall comply with CFPUA Cross Connection Control requirements. Water meter(s) cannot be released until all requirements are met and the State has given their final approval.
- If the contractor desires CFPUA water for construction, they shall apply in advance for this service and must provide a reduced pressure zone (RPZ) backflow prevention device on the developer's side of the water meter box.
- Any irrigation system supplied by CFPUA water shall comply with the CFPUA Cross Connection Control regulations. Call **Contractor's Liability for Irrigation**.
- Any irrigation system shall be equipped with a rain and freeze sensor.
- Any backflow prevention devices required by the CFPUA will need to be on the list of approved devices by USFCCOCHR or ASSE.
- Contractor to field verify existing water and sewer service locations, sizes and materials prior to construction. Engineer to be notified of any conflicts.
- Contractor shall maintain all-weather access for emergency vehicles at all times during construction.
- Underground fire lines(s) must be permitted and inspected by the Wilmington Fire Department from the public right-of-way to the building. Contact the Wilmington Fire Department Division of Fire and Life Safety at 910-341-0686.
- No obstructions are permitted in the space between thirty (30) inches and ten (10) feet above the ground within the triangular sight distance.
- Contact the North Carolina One Call Center at 1-800-633-4949 prior to doing any digging, clearing, or grading.



Typical X-Section at Parking Area w/ Curb Drainage

REVISIONS			DESIGNED: JHF	DATE: 5/6/15	OWNER: Sea Pines Apartments, LLC
BY	NO.	DATE	DESCRIPTION	PER CITY STORM	ADDRESS: 10 S Cardinal Dr. Wilmington, NC 28403
JHF	1	10/29/15			PHONE: 910-251-5030
JHF	2	12/15/15			

DRAWN: KBN
SCALE: 1" = 50'
APPROVED: JHF
SHEET 1 OF 9

STROUD ENGINEERING, P.A.
102-D CINEMA DRIVE
WILMINGTON, NORTH CAROLINA 28403
(910) 815-0775 (910) 815-0593 FAX

SHEET INDEX

PRELIMINARY PLAN	1
EXISTING CONDITIONS	2
EROSION CONTROL PLAN	3
STORMWATER PLAN	4
UTILITY PLAN	5
PLAN/PROFILE	6
EROSION CONTROL DETAIL	7
STORMWATER DETAIL	8
LANDSCAPE PLAN	9

APPROVED CONSTRUCTION PLAN
Name: _____ Date: _____
Planning: _____
Public Utilities: _____
Traffic: _____
Fire: _____
Spring Arbor - Wilmington D.B. 1977-352
Zoning: R-15
Land Use: Health Care

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

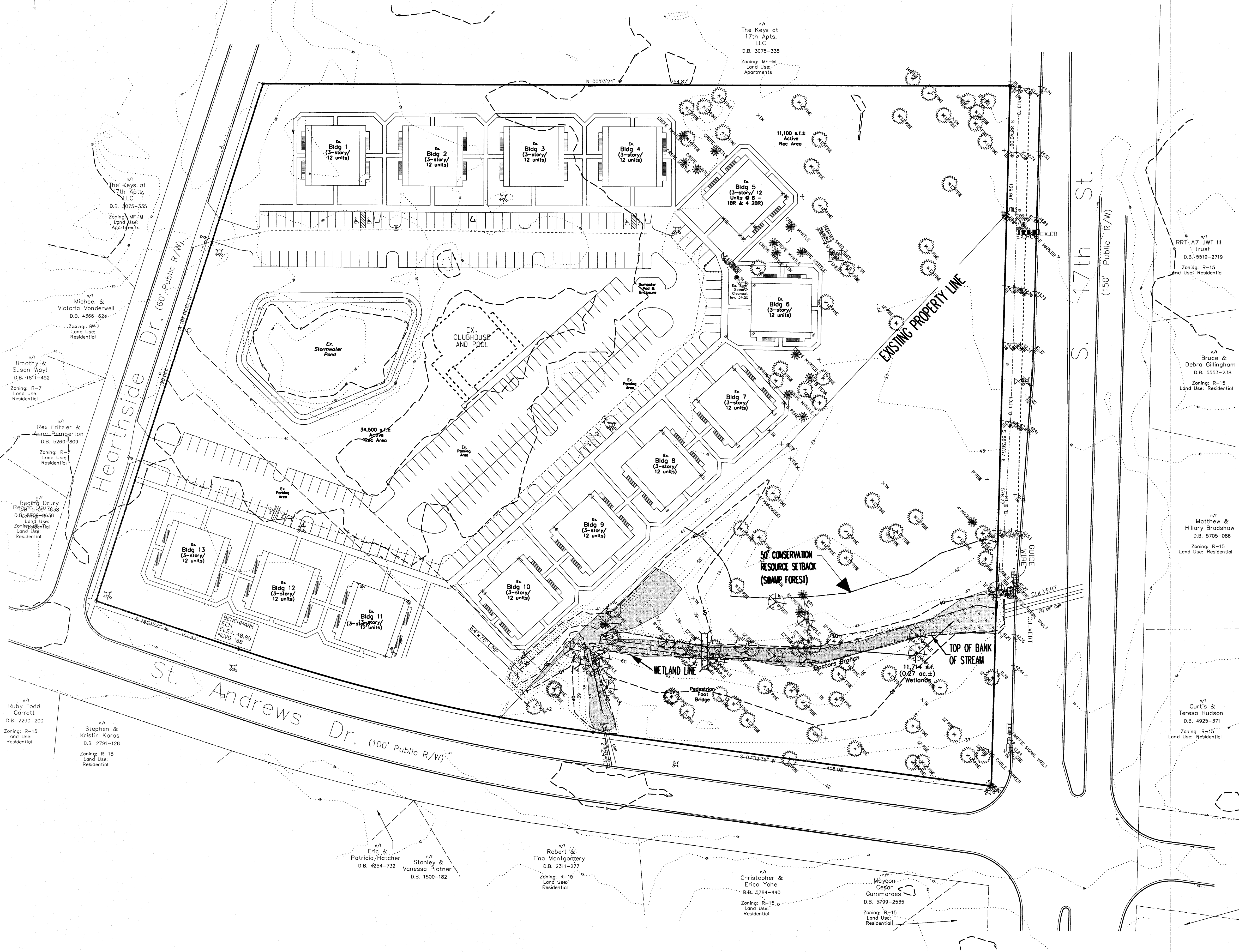
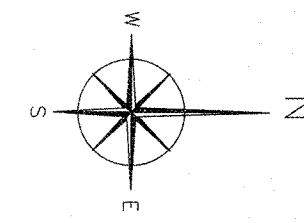
WILMINGTON
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

Sea Pines Apartments
FOR
WILMINGTON TOWNSHIP NORTH CAROLINA

LEGEND

- Grading High Point
- Drainage Direction
- Proposed Catch Basin
- Proposed Contours
- EX. NCDOT LIDAR CONTOUR
- PROP. 24" RCP STORM DRAIN
- Proposed Sewer Cleanout
- Iron Rebar Set
- EX. IRON PIPE
- Control Monument Set
- Control PK Nail Set
- EX. REG'D. HARDWOOD TREE
- EX. REG'D. PINE TREE
- EX. REG'D. FLOWERING TREE
- Proposed Compacta Juniper
- Proposed Pitsoporum Shrub
- Proposed Bradford Pear
- Proposed Live Oak
- Tree to be Removed

CONSTRUCTION PLAN SET



n/a The Keys at 17th Apts, LLC
 D.B. 3075-335
 Zoning: MF-M Land Use: Apartments

 n/a Michael & Victoria Vanderweil
 D.B. 4366-624
 Zoning: R-7 Land Use: Residential

 n/a Timothy & Susan Woyt
 D.B. 1811-452
 Zoning: R-7 Land Use: Residential

 n/a Rex Fritzer & Anne Pamperon
 D.B. 5260-809
 Zoning: R-7 Land Use: Residential

 n/a Regina Drury Reggs
 D.B. 1991-0838
 Land Use: Residential

 n/a Ruby Todd Garrett
 D.B. 2290-200
 Zoning: R-15 Land Use: Residential

 n/a Stephen & Kristin Karas
 D.B. 2791-128
 Zoning: R-15 Land Use: Residential

 n/a Eric & Patricia Hatcher
 D.B. 4254-732

 n/a Stanley & Vanessa Plotner
 D.B. 1500-182

 n/a Robert & Tina Montgomery
 D.B. 2311-277
 Zoning: R-15 Land Use: Residential

 n/a Christopher & Erica Yohe
 D.B. 5784-440
 Zoning: R-15 Land Use: Residential

 n/a Maycon & Cesar Gummaras
 D.B. 5799-2535
 Zoning: R-15 Land Use: Residential

 n/a Spring Arbor-Wilmington
 D.B. 1977-352
 Zoning: R-15 Land Use: Health Care

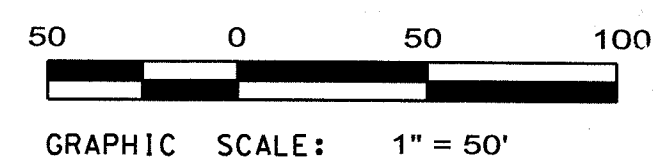
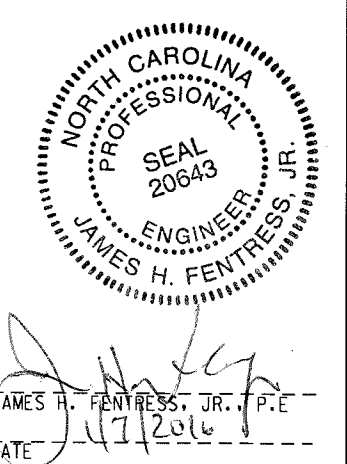
LEGEND	
○	EX. NCDOT LIDAR CONTOUR
○	EX. IRON PIPE
○	CONTROL PK NAIL SET
●	IRON REBAR SET
■	CONTROL MONUMENT SET
○	EX. REG'D. HARDWOOD TREE
○	EX. REG'D. PINE TREE
○	EX. REG'D. FLOWERING TREE
○	EX. REG'D. HARDWOOD TREE
○	EX. REG'D. PINE TREE
○	EX. REG'D. FLOWERING TREE
■	EX. REG'D. WETLANDS

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

Approved Construction Plan		
Planning	Name	Date
Public Utilities		
Traffic		
Fire		

n/a Spring Arbor-Wilmington
 D.B. 1977-352
 Zoning: R-15
 Land Use: Health Care

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



REVISIONS		
BY	NO.	DATE DESCRIPTION

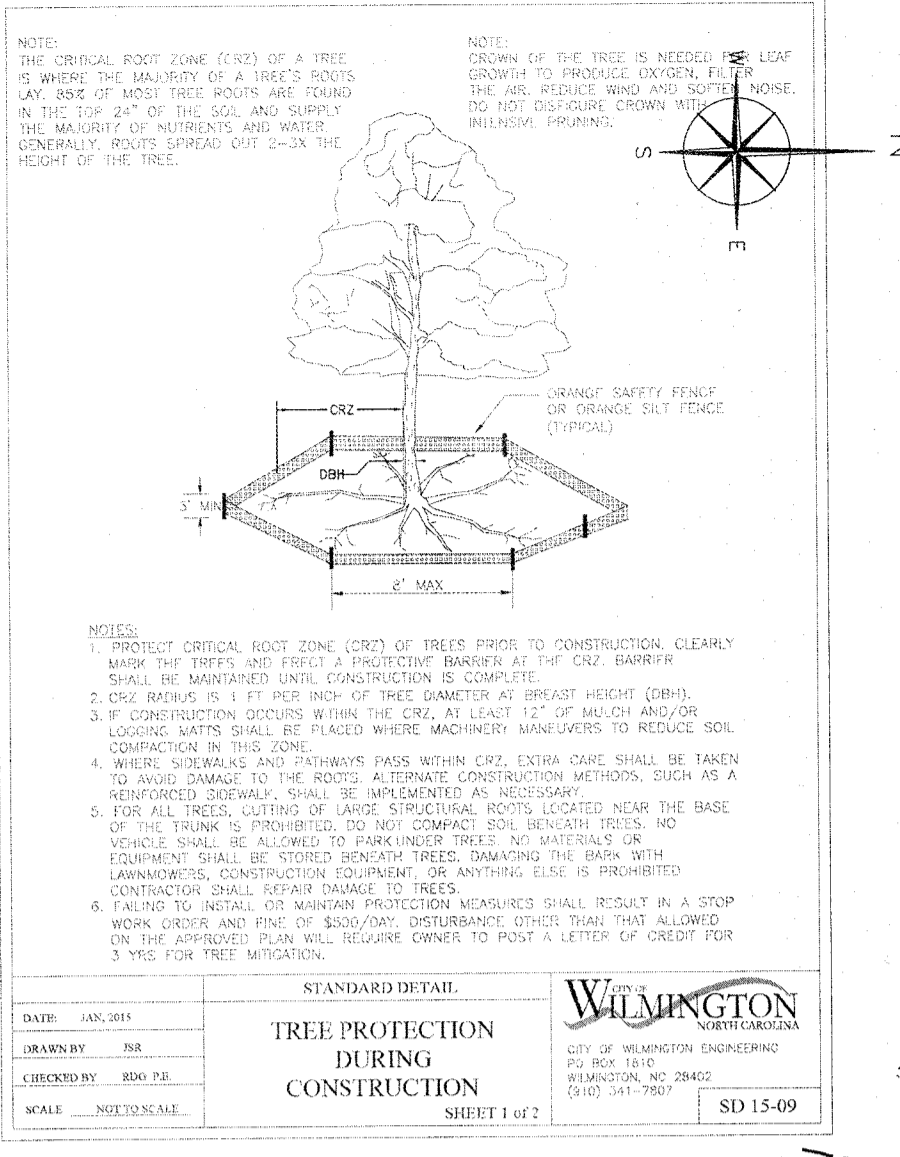
DESIGNED: JHF DATE: 9/4/15
 DRAWN: KBN SCALE: 1" = 50'
 APPROVED: JHF SHEET 2 OF 9

OWNER: Sea Pines Apartments, LLC
ADDRESS: 10 S Cardinal Dr.
 Wilmington, NC 28403
PHONE: 910-251-5030

STROUD ENGINEERING, P.A.
 102-D CINEMA DRIVE
 WILMINGTON, NORTH CAROLINA 28403
 (910) 615-0775 (910) 615-0583 FAX

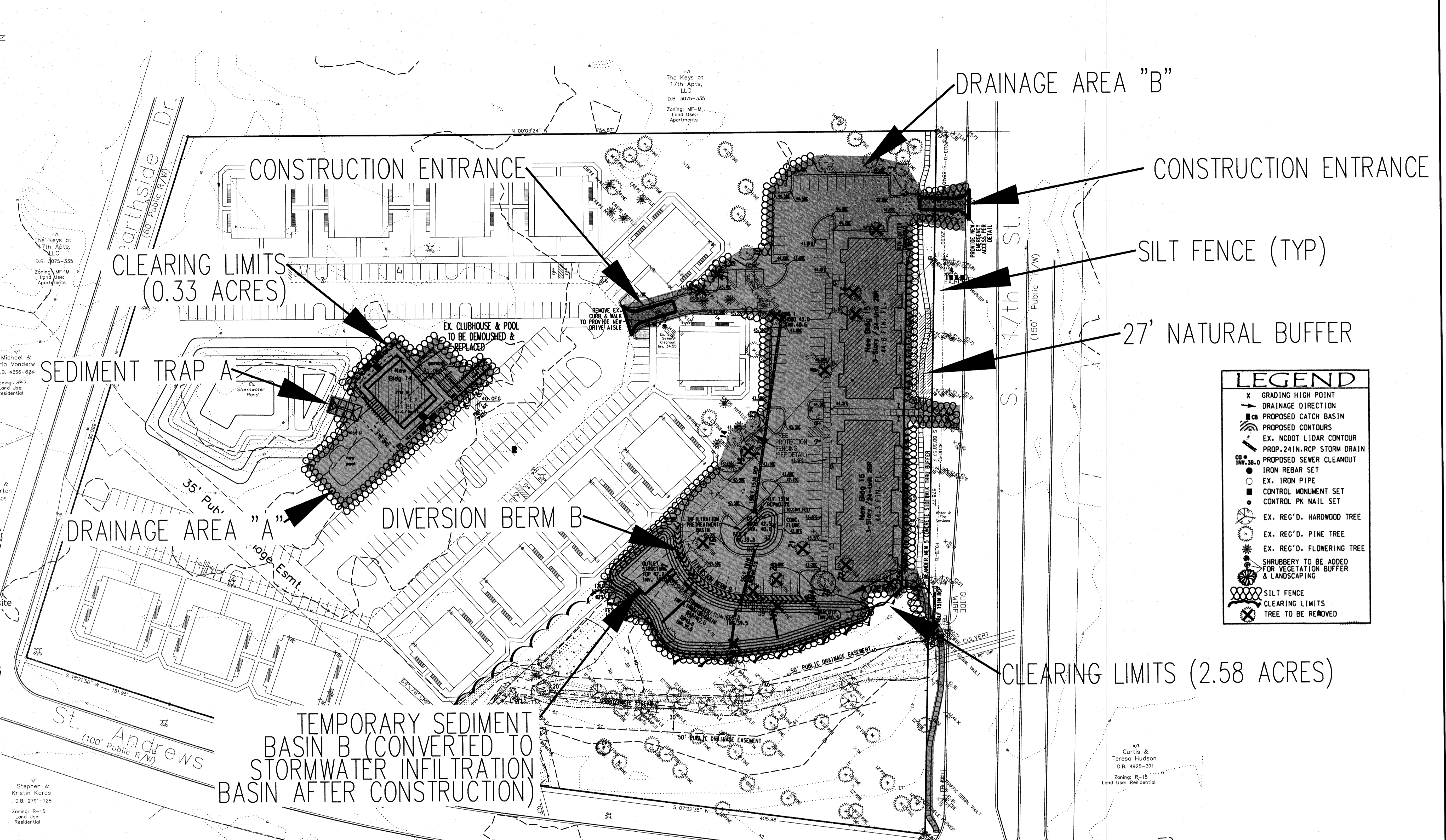
EXISTING CONDITIONS FOR
Sea Pines Apartments
 WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

CONSTRUCTION PLAN SET



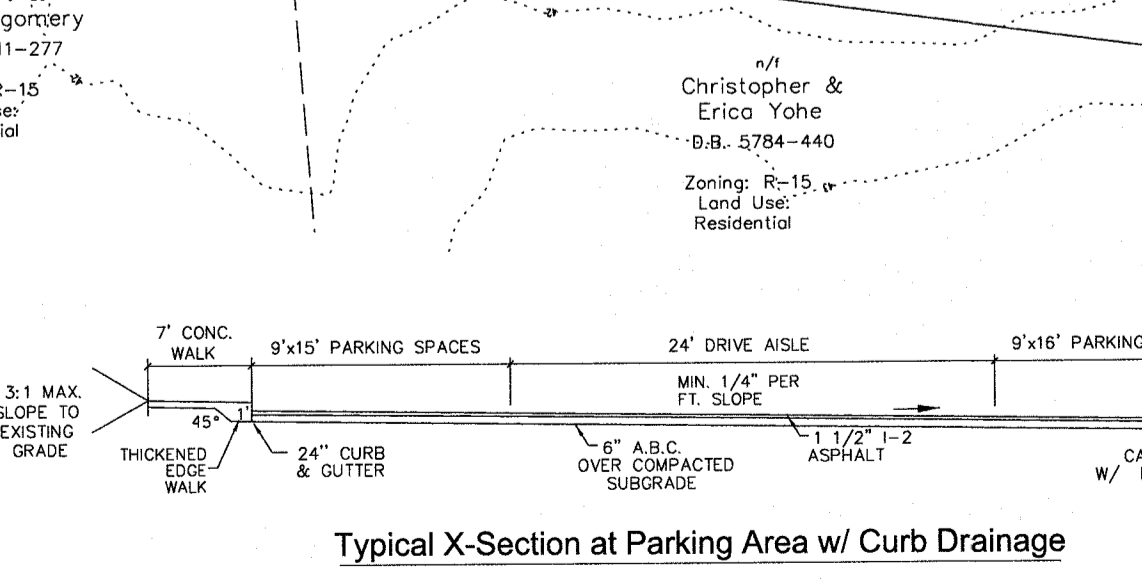
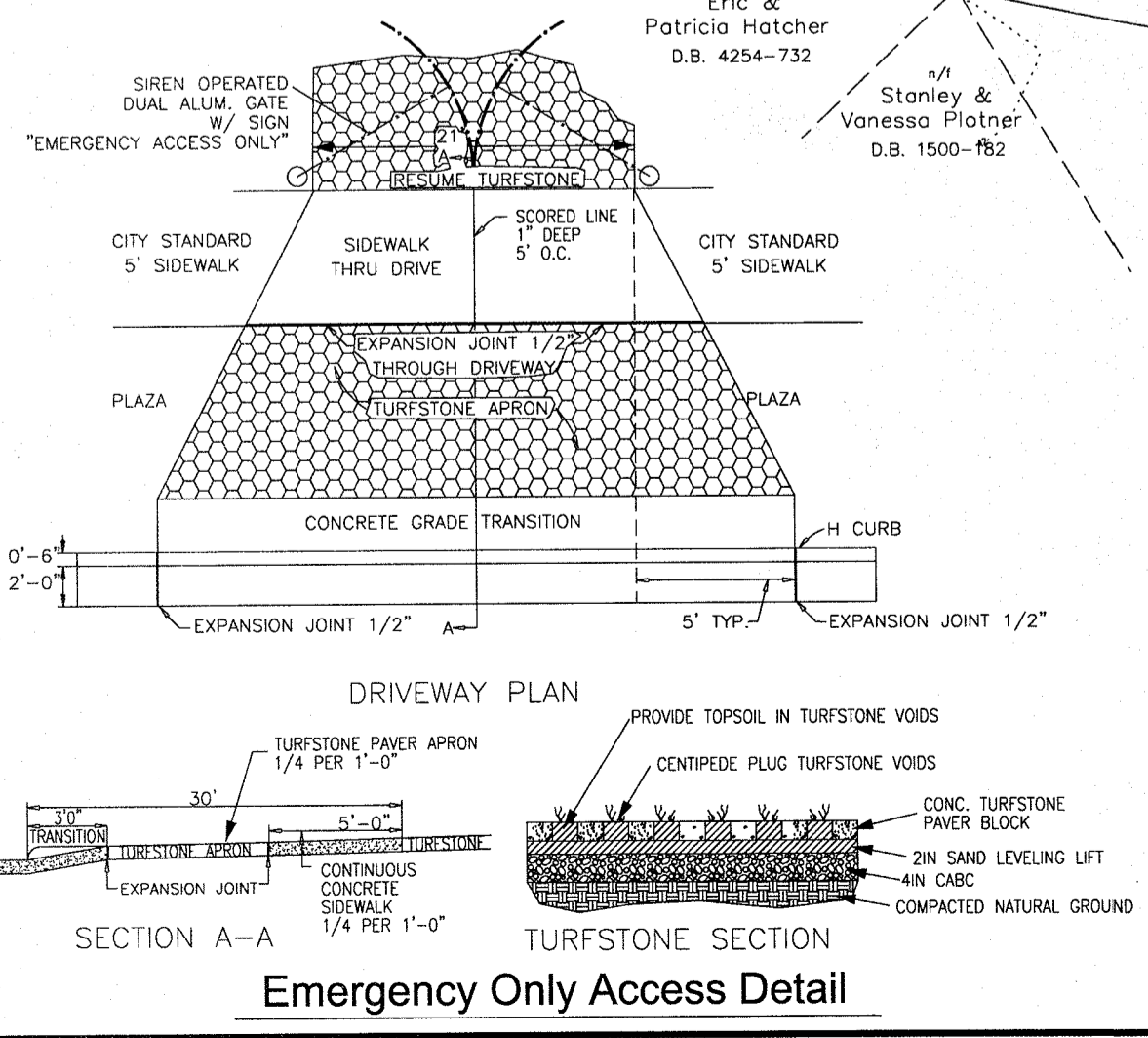
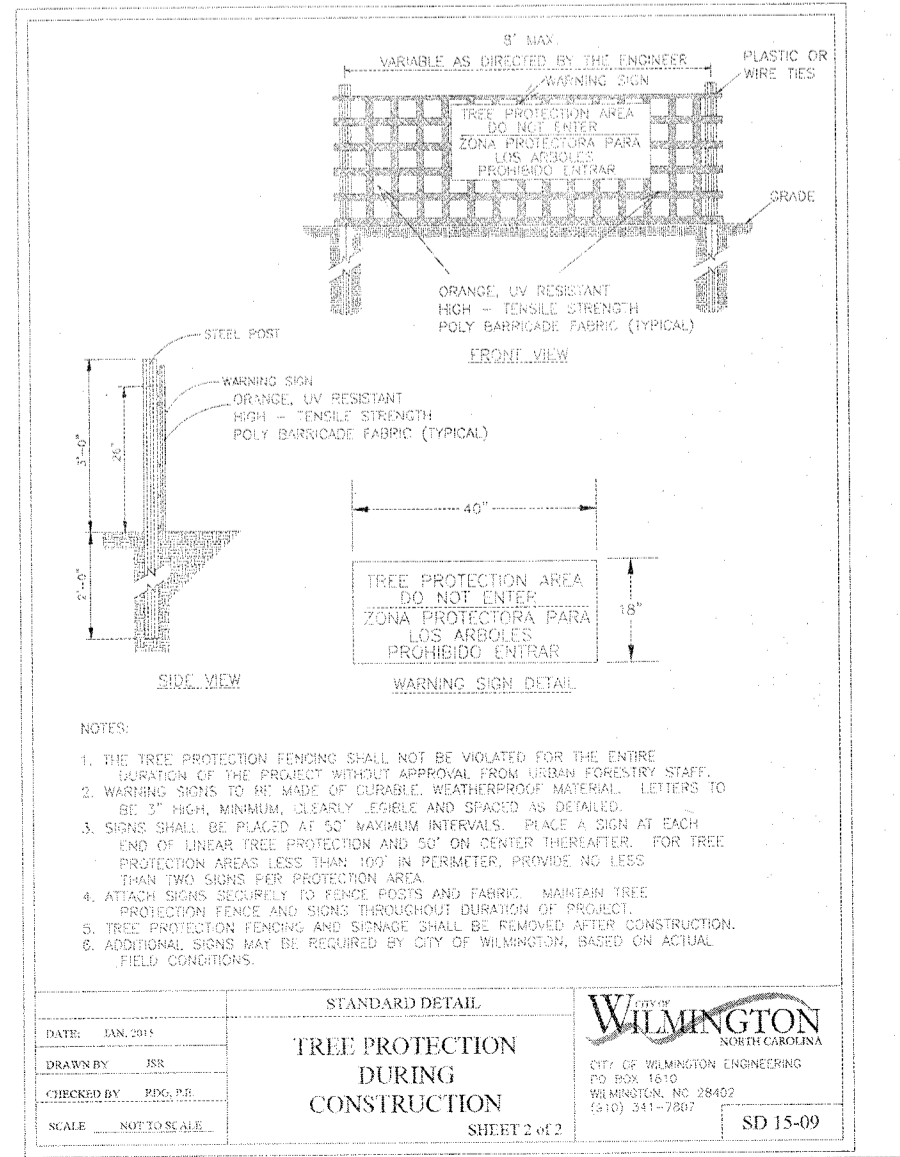
Regulated Tree Removal Schedule

Tree No.	Tree Type	Girth (in)
1	Pine	12
2	Pine	12
3	Pine	12
4	Pine	14
5	Pine	17
6	Pine	17
7	Pine	17
8	Pine	17
9	Pine	17
10	Pine	17
11	Crape Myrtle	12
12	Crape Myrtle	12
13	Pine	12
14	Pine	12
15	Pine	12
16	Pine	12
17	Pine	12
18	Pine	12
19	Pine	12
20	Pine	12
21	Pine	12
22	Pine	12
23	Pine	12
24	Pine	12
25	Magnolia	4
26	Pine	12
27	Pine	12
28	Bay	4
29	Hardwood	8



LEGEND

- X GRADING HIGH POINT
- DRAINAGE DIRECTION
- PROPOSED CATCH BASIN
- PROPOSED CONTOURS
- EX. NCDOT LIDAR CONTOUR
- PROP. 24IN. RCP STORM DRAIN
- PROPOSED SEWER CLEANOUT
- IRON REBAR SET
- EX. IRON PIPE
- CONTROL MONUMENT SET
- CONTROL PK NAIL SET
- EX. REG'D. HARDWOOD TREE
- EX. REG'D. PINE TREE
- EX. REG'D. FLOWERING TREE
- SHRUBBERY TO BE ADDED FOR VEGETATION BUFFER & LANDSCAPING
- SILT FENCE
- CLEARING LIMITS
- TREE TO BE REMOVED



REVISIONS

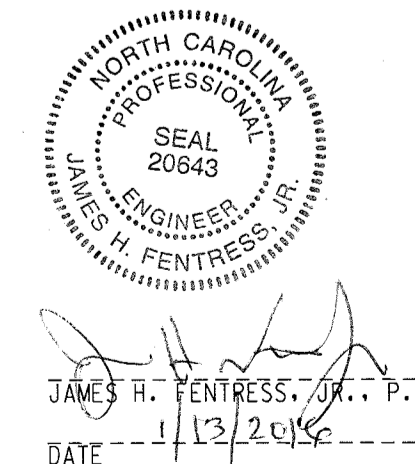
BY	NO.	DATE	DESCRIPTION
JHF	1	10/28/15	PER CITY STORM
JHF	2	12/15/15	PER CFPDA

DESIGNED: JHF DATE: 5/6/15
DRAWN: KBN SCALE: 1" = 50'
APPROVED: JHF SHEET 3 OF 9

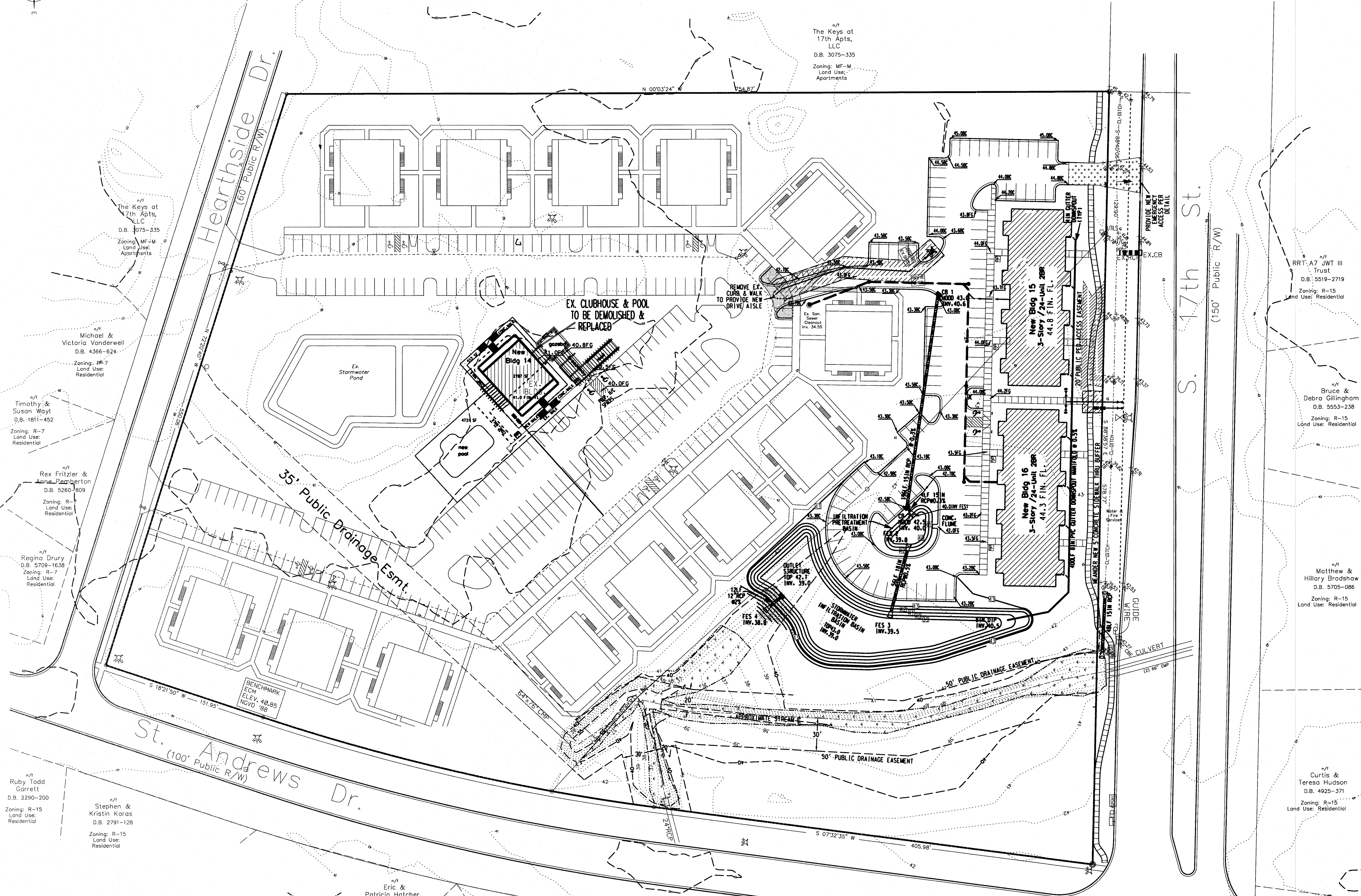
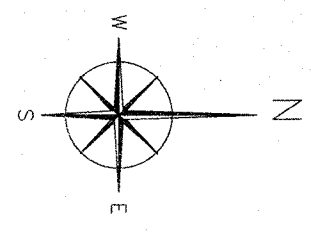
OWNER: Sea Pines Apartments, LLC
ADDRESS: 10 S Cardinal Dr, Wilmington, NC 28403
PHONE: 910-251-5030

STROUD ENGINEERING, P.A.
102-D CINEMA DRIVE
WILMINGTON, NORTH CAROLINA 28403
(910) 815-0775 (910) 815-0593 FAX

SOIL EROSION AND SEDIMENTATION CONTROL PLAN FOR
Sea Pines Apartments
WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA



CONSTRUCTION PLAN SET



n/a The Keys at 17th Apts, LLC
D.B. 3075-335
Zoning: MF-M
Land Use: Apartments

n/a Michael & Victoria Vanderweil
D.B. 4366-624
Zoning: R-7
Land Use: Residential

n/a Timothy & Susan Woyt
D.B. 1911-452
Zoning: R-7
Land Use: Residential

n/a Rex Fritzier & Anna Zamington
D.B. 8260-809
Zoning: R-7
Land Use: Residential

n/a Regina Drury
D.B. 5708-1638
Zoning: R-7
Land Use: Residential

n/a Ruby Todd Garrett
D.B. 2290-200
Zoning: R-15
Land Use: Residential

n/a Stephen & Kristin Koras
D.B. 2791-128
Zoning: R-15
Land Use: Residential

n/a The Keys at 17th Apts, LLC
D.B. 3075-335
Zoning: MF-M
Land Use: Apartments

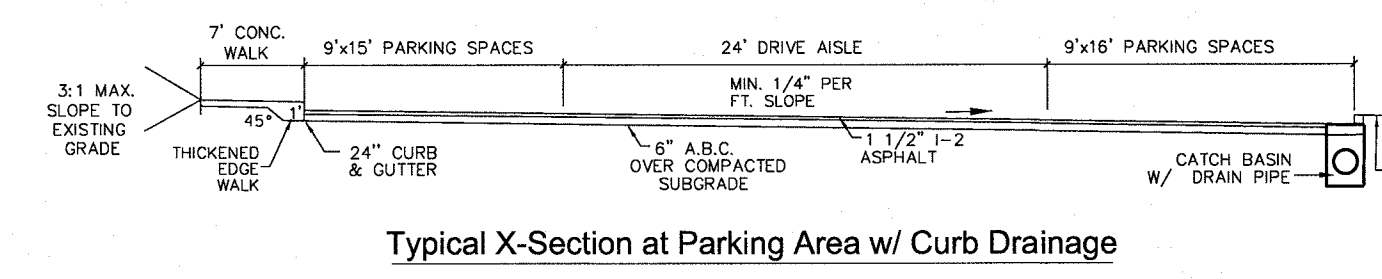
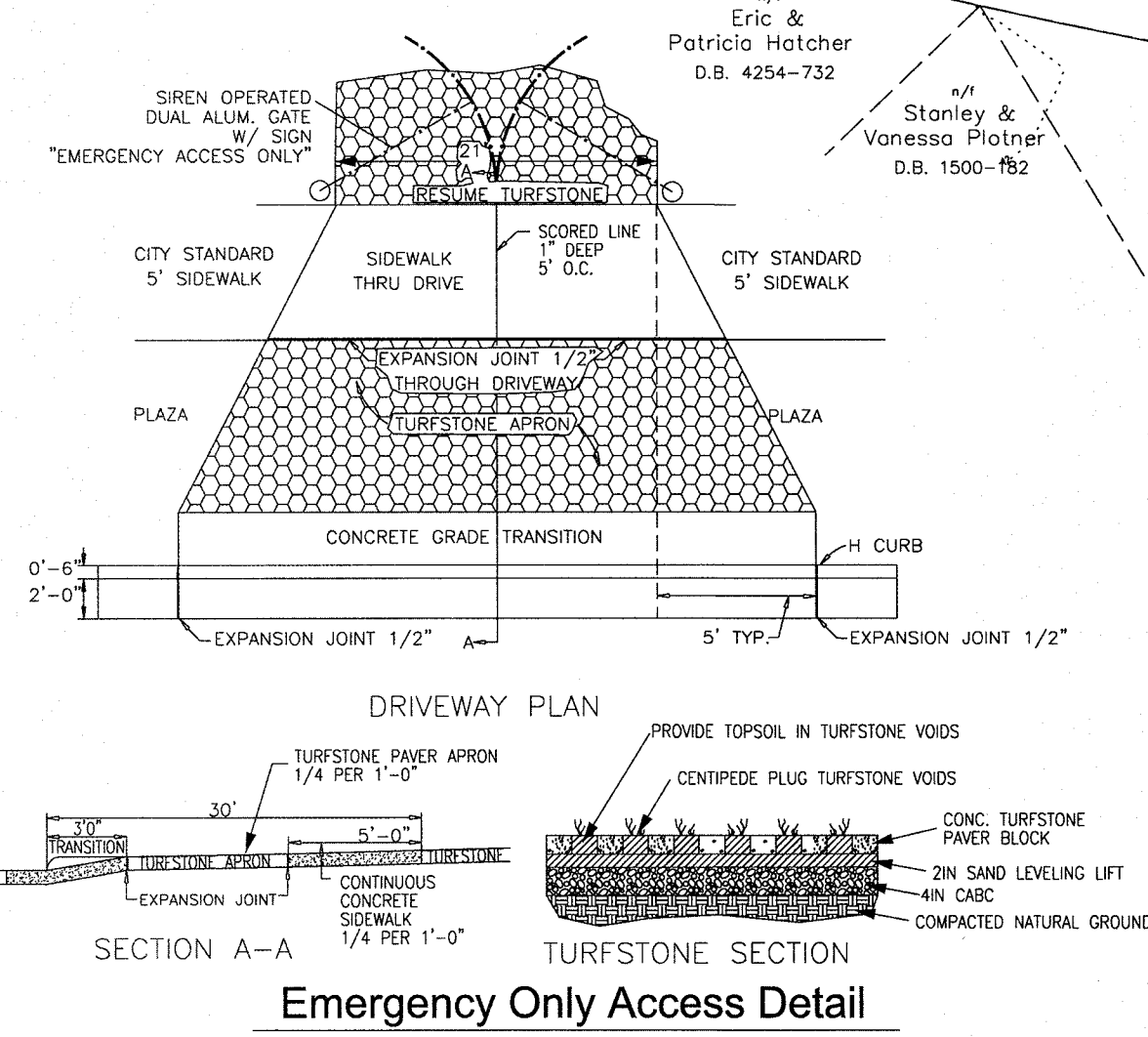
n/a RRT: A7 JNT III Trust
D.B. 5519-2719
Zoning: R-15
Land Use: Residential

n/a Bruce & Debra Gillingham
D.B. 5553-238
Zoning: R-15
Land Use: Residential

n/a Matthew & Hillary Bradshaw
D.B. 5705-086
Zoning: R-15
Land Use: Residential

n/a Curtis & Teresa Hudson
D.B. 4925-371
Zoning: R-15
Land Use: Residential

n/a Spring Arbor-Wilmington
D.B. 1977-352
Zoning: R-15
Land Use: Health Care



REVISIONS		DESIGNED:	DATE:	OWNER:
BY	NO. DATE DESCRIPTION	JHF	5/6/15	Sea Pines Apartments, LLC
JHF	1. 10/29/15 PER CITY STORM	DRAWN:	SCALE: 1" = 50'	ADDRESS: 10 S Cardinal Dr. Wilmington, NC 28403
JHF	2. 12/15/15 PER CFPWA	APPROVED:	SHEET 4 OF 9	PHONE: 910-251-6030

Approved Construction Plan

Name: _____ Date: _____

Planning: _____

Public Utilities: _____

Traffic: _____

Fire: _____

GRAPHIC SCALE: 1" = 50'

50 0 50 100

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: _____

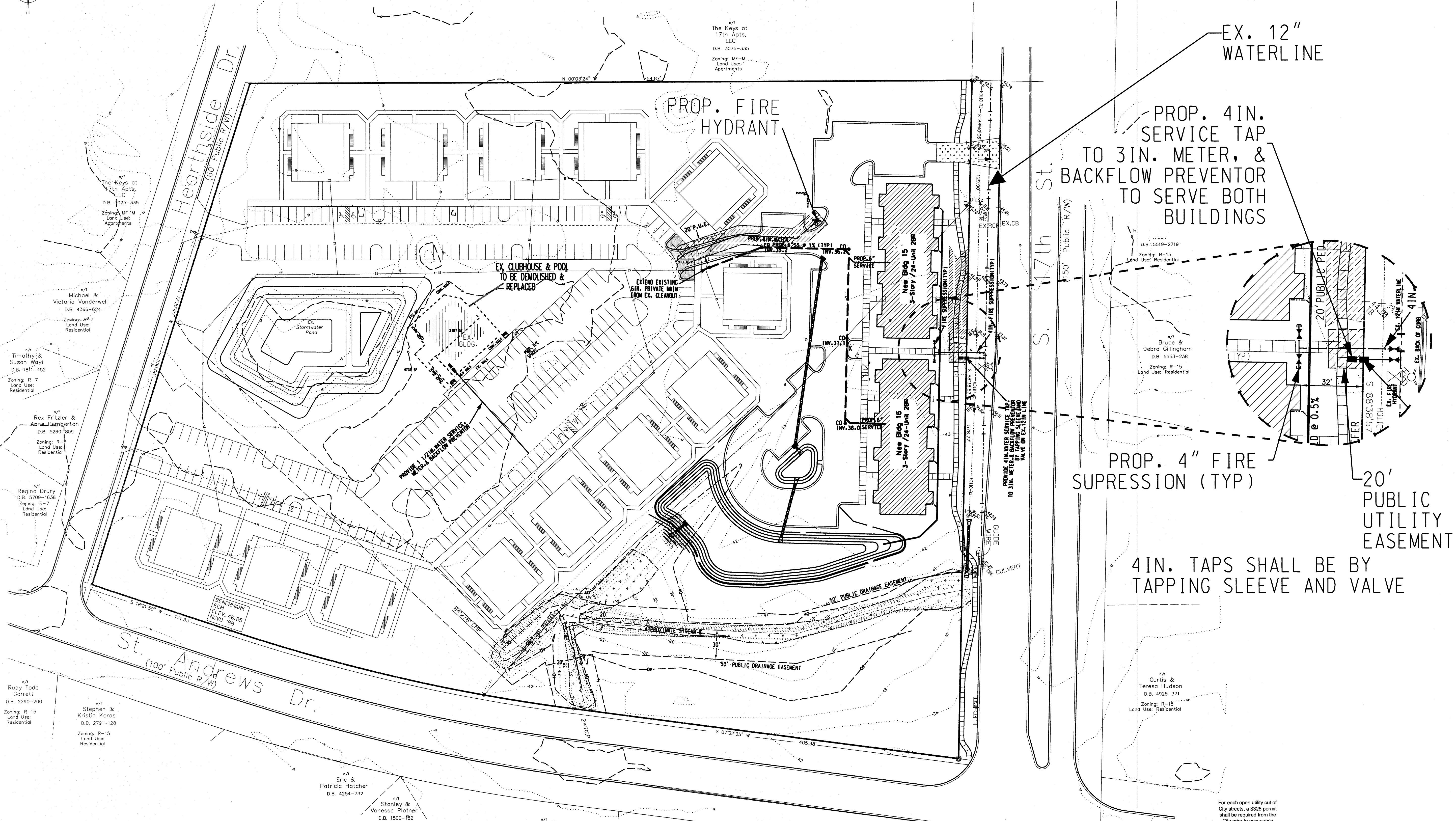
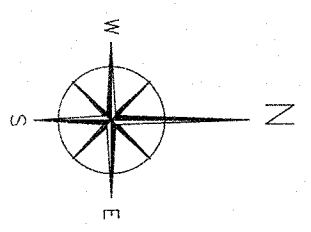
PROFESSIONAL SEAL
JAMES H. FEATNESS, JR., P.E.
DATE: 11/13/2015

STROUD ENGINEERING, P.A.
102-D CINEMA DRIVE WILMINGTON, NORTH CAROLINA 28403
(910) 815-0775 (910) 815-0593 FAX

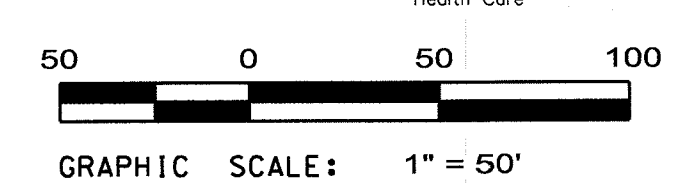
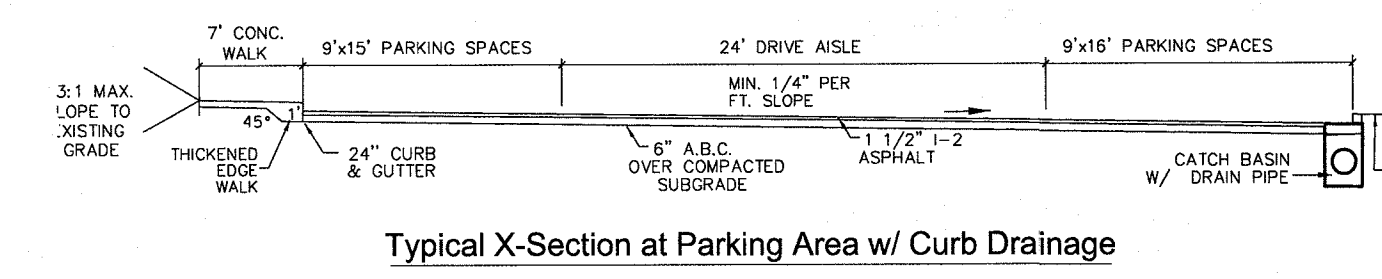
FOR **Sea Pines Apartments**

WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

CONSTRUCTION PLAN SET



WATER NOTES:
 PIPE SHALL BE C900 CLASS (150) (DR18) PVC.
 FITTINGS SHALL BE GRIP RING STYLE RESTRAINED JOINTS WITH APPROPRIATE RESTRAINED LENGTH.
 ONSITE WASTEWATER DISPOSAL IS PROPOSED.
 ALL MATERIALS USED SHALL CONFORM TO CAPE FEAR PUBLIC UTILITY AUTHORITY'S REQUIREMENTS. NON-CONFORMING MATERIAL WILL NOT BE ACCEPTED FOR FINAL CERTIFICATION.
 A ONE YEAR WARRANTY PERIOD APPLIES TO ALL UTILITIES CONSTRUCTION. THIS WARRANTY PERIOD DOES NOT BEGIN UNTIL NCDENR FINAL APPROVAL OF THE SYSTEM HAS BEEN RECEIVED. A WRITTEN COPY OF THE WARRANTY WILL BE REQUIRED PRIOR TO FINAL ACCEPTANCE.
 PROVIDE 36" (MIN) COVER OVER ALL WATER LINES.



REVISIONS		DESIGNED:	DATE:	OWNER:
BY	NO. DATE DESCRIPTION	JHF	5/6/15	Sea Pines Apartments, LLC
JHF	1. 10/29/15 PER CITY STORM PER CFPQA			ADDRESS: 10 S Cardinal Dr. Wilmington, NC 28403
JHF	2. 12/15/15	DRAWN: KBN	SCALE: 1" = 50'	PHONE: 910-251-6030
		APPROVED: JHF	SHEET 5 OF 9	

OWNER: Sea Pines Apartments, LLC
 ADDRESS: 10 S Cardinal Dr. Wilmington, NC 28403
 PHONE: 910-251-6030

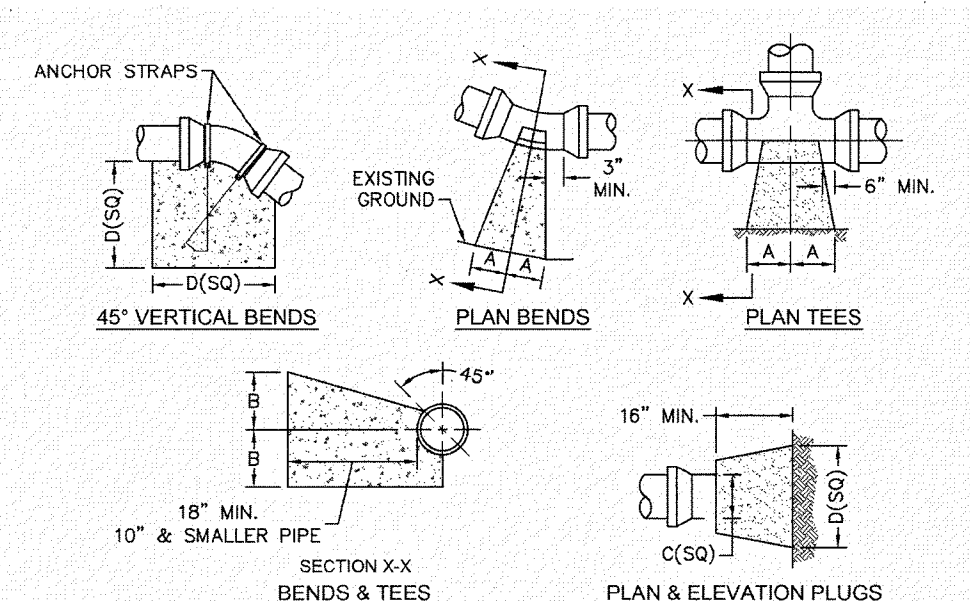
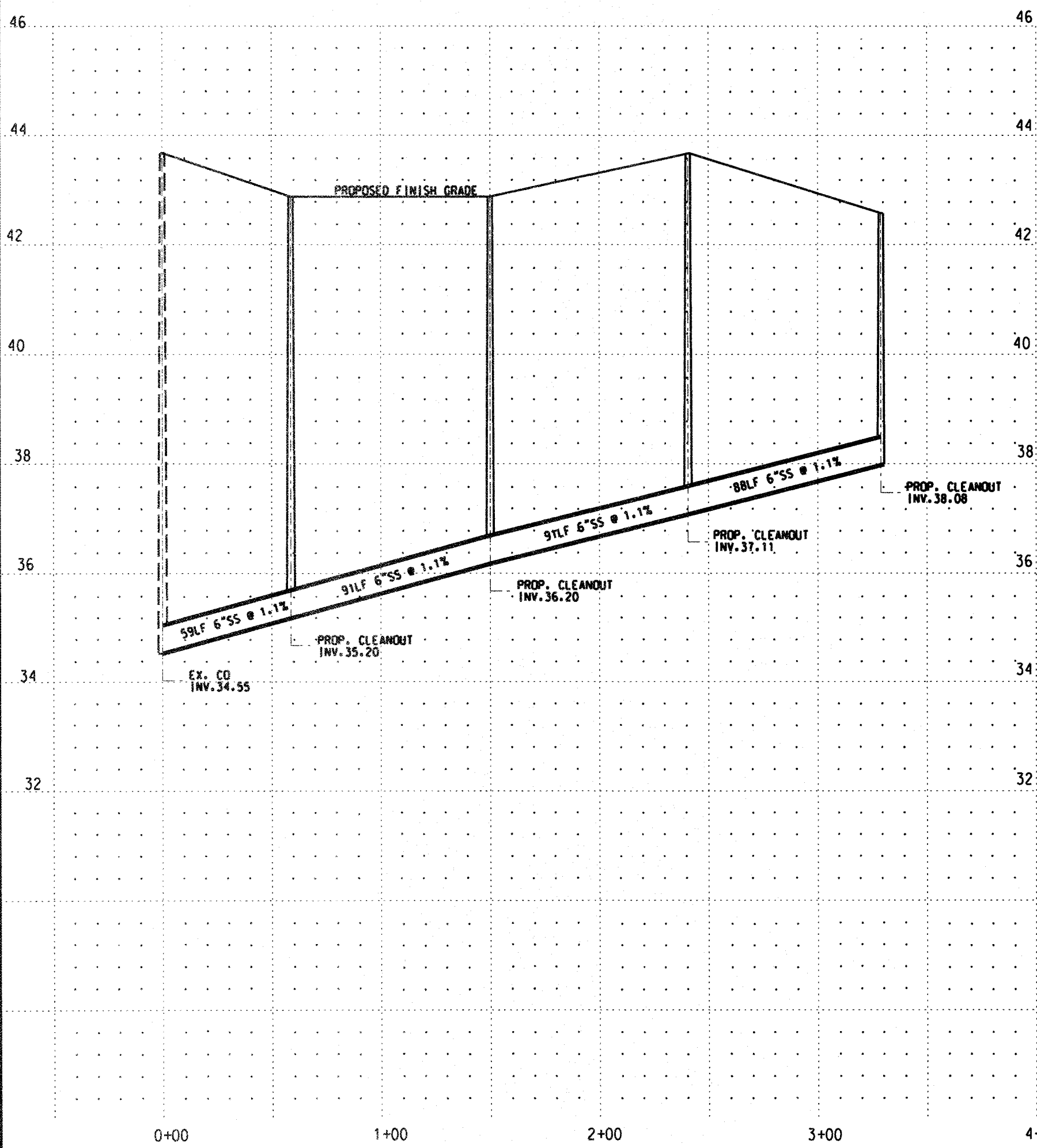
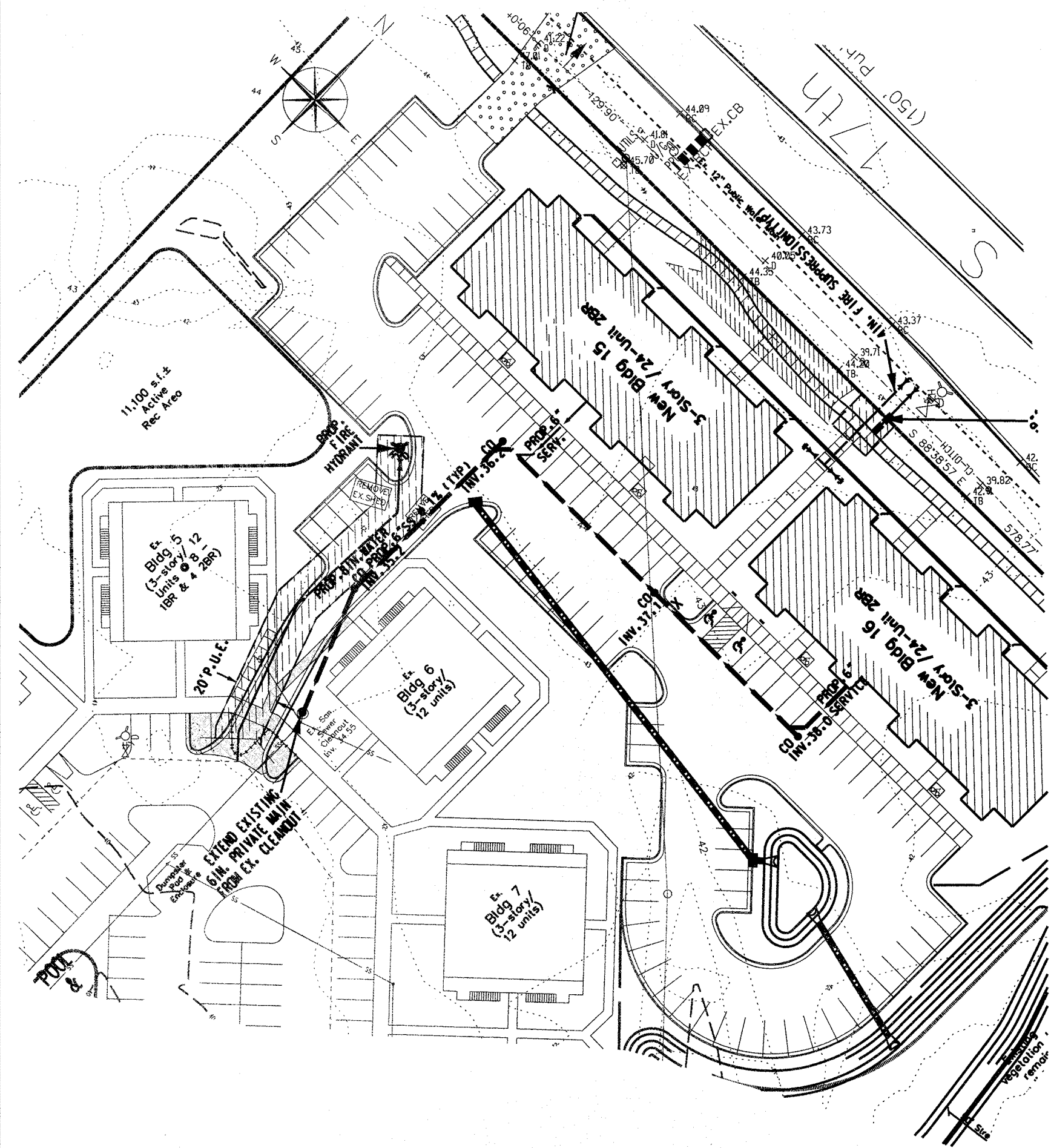
STROUD ENGINEERING, P.A.
 102-D CINEMA DRIVE WILMINGTON, NORTH CAROLINA 28403
 (910) 815-0775 (910) 815-0593 FAX

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

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: _____
 DATE: 11/3/2016

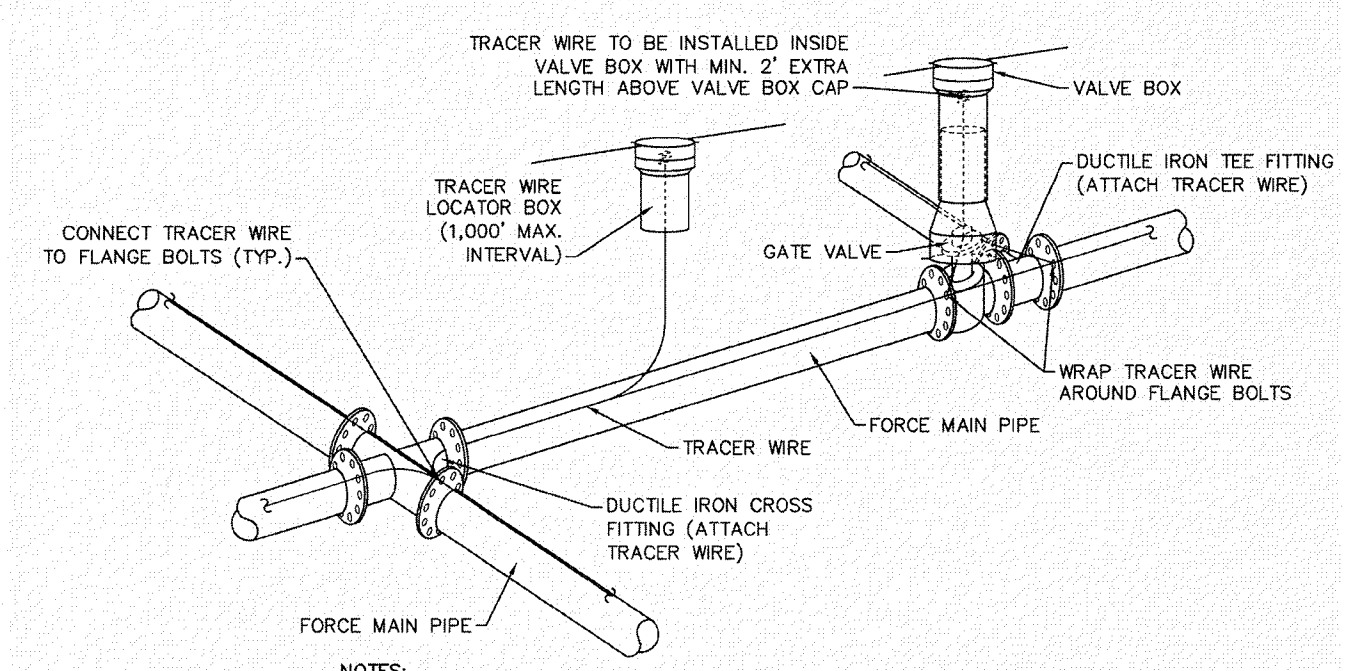
Professional Engineer Seal: JAMES H. FENTRESS, JR., P.E., No. 28845, State of North Carolina



SIZE	90° BENDS		45° BENDS		22 1/2° BENDS		TEES/PLUGS		45° VERT. BENDS
	A	B	A	B	A	B	A	B	
3"	8"	6"	5"	6"	3"	7"	6"	8"	27"
4"	8"	9"	5"	8"	3"	11"	6"	9"	28"
6"	14"	11"	9"	9"	6"	8"	12"	9"	36"
8"	16"	16"	12"	12"	10"	13"	14"	13"	42"
10"	18"	22"	15"	14"	14"	16"	18"	15"	50"
12"	20"	28"	18"	17"	16"	16"	22"	18"	60"
14"	26"	29"	21"	18"	18"	18"	26"	20"	72"
16"	33"	29"	25"	21"	20"	21"	32"	21"	85"
18"	40"	30"	26"	24"	22"	23"	36"	24"	98"

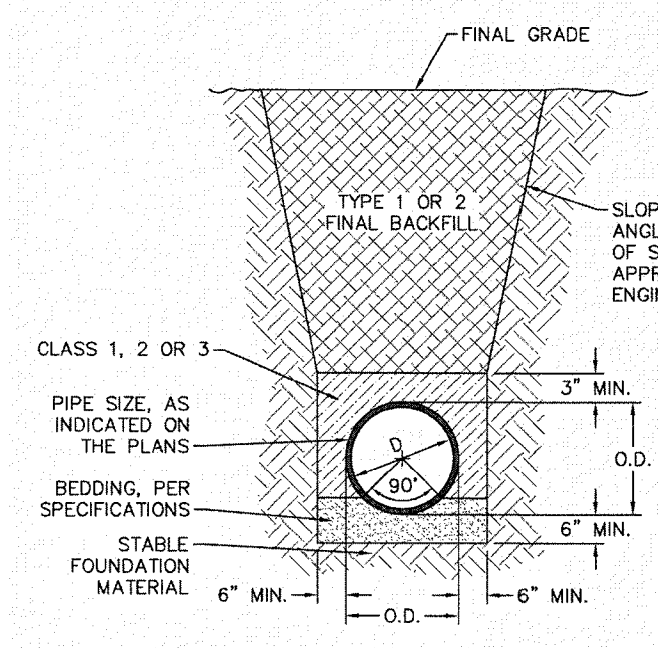
NOTES:
 1. BASED ON 160 PSI TEST PRESSURE AND 2000 PSF SOIL BEARING CAPACITY.
 2. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED GROUND.
 3. USE MEG-A-LUG (PREFERRED) IN LIEU OF BLOCKING AND RODDING.

THRUST BLOCK DETAIL
NOT TO SCALE

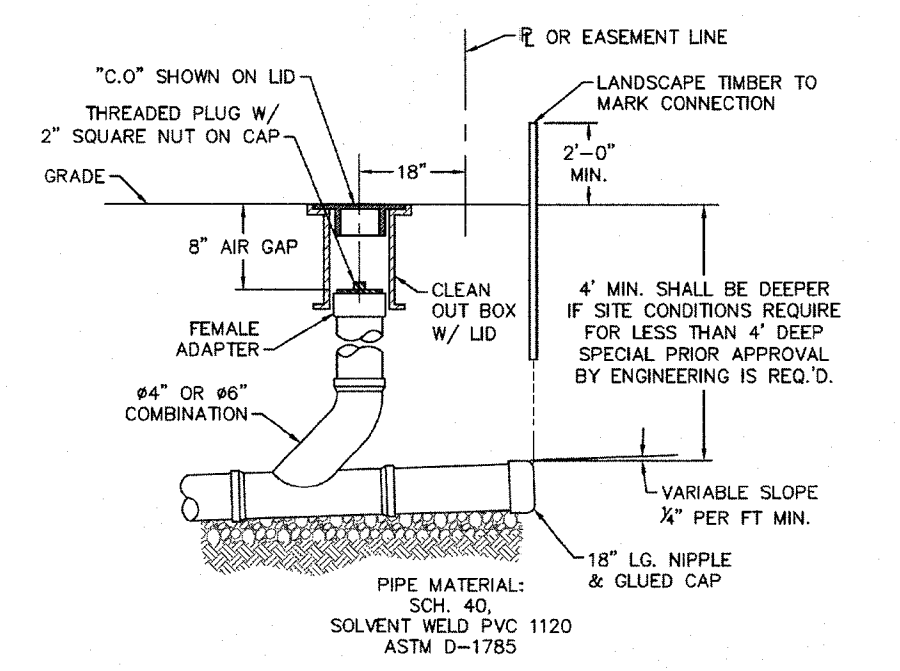


NOTES:
 1. TRACER WIRE SHALL BE #10 COPPER SOLID CORE COPPER WIRE WITH GAS AND OIL RESISTANT INSULATION.
 2. WIRE SHALL BE STRAPPED TO ALL PVC FORCE MAIN PIPING WITH DUCT TAPE AT 12-FT. INTERVALS.
 3. SECURE WIRE TO ALL TEE AND CROSS FITTINGS.
 4. ALL WIRE SPICES SHALL HAVE WATER PROOF WIRE CONNECTIONS.

TRACER WIRE DETAIL
NOT TO SCALE



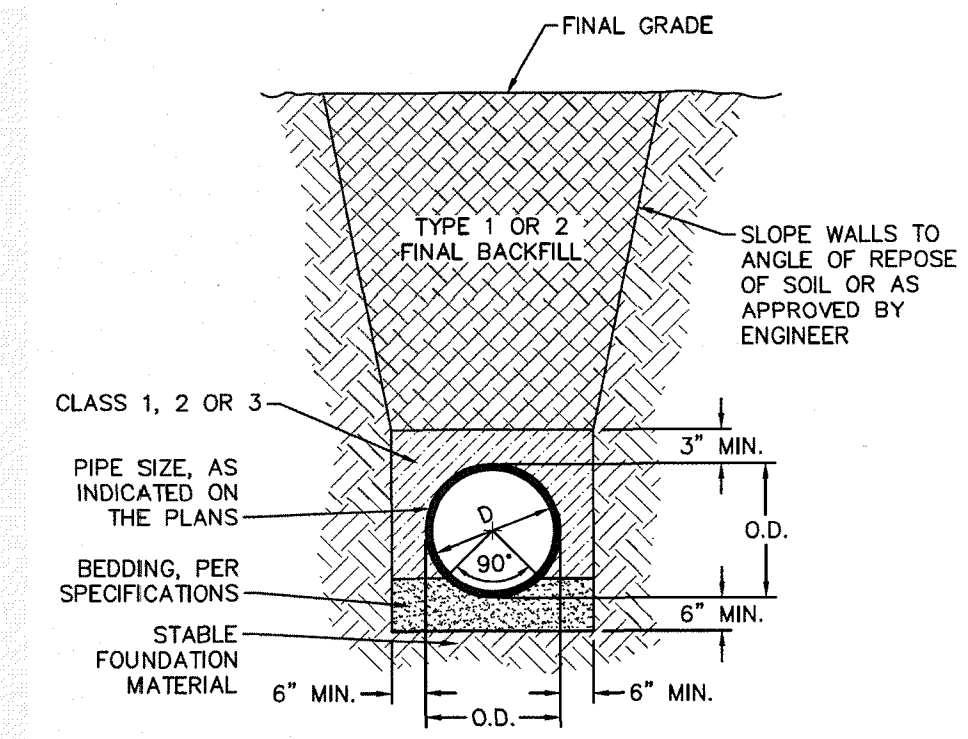
TYPICAL PVC SEWER TRENCH
NOT TO SCALE



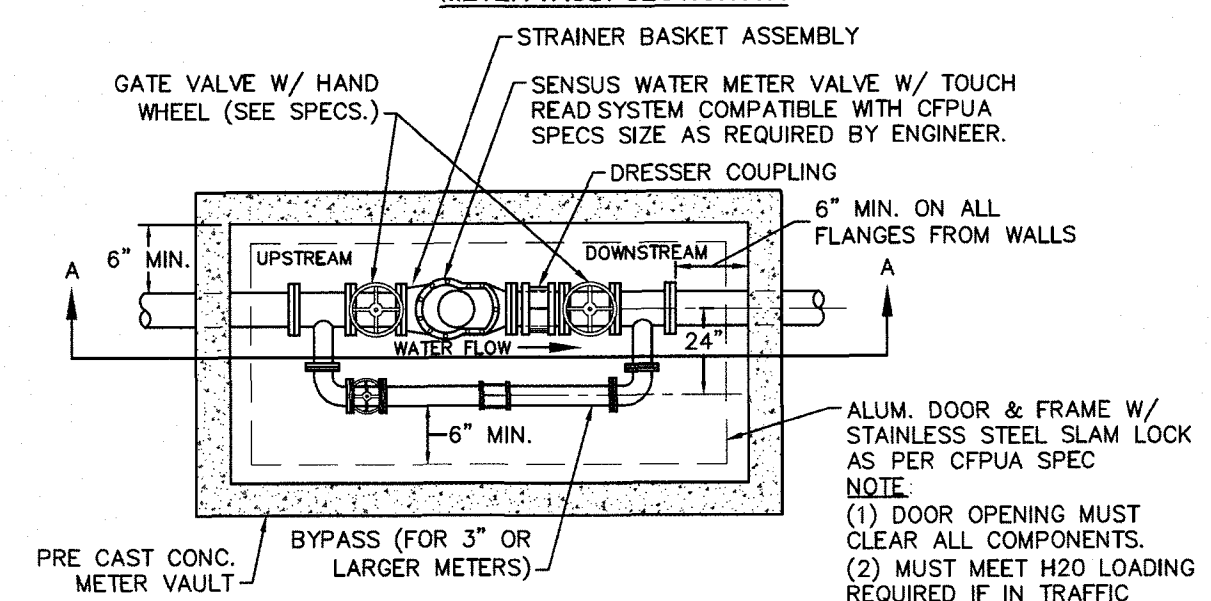
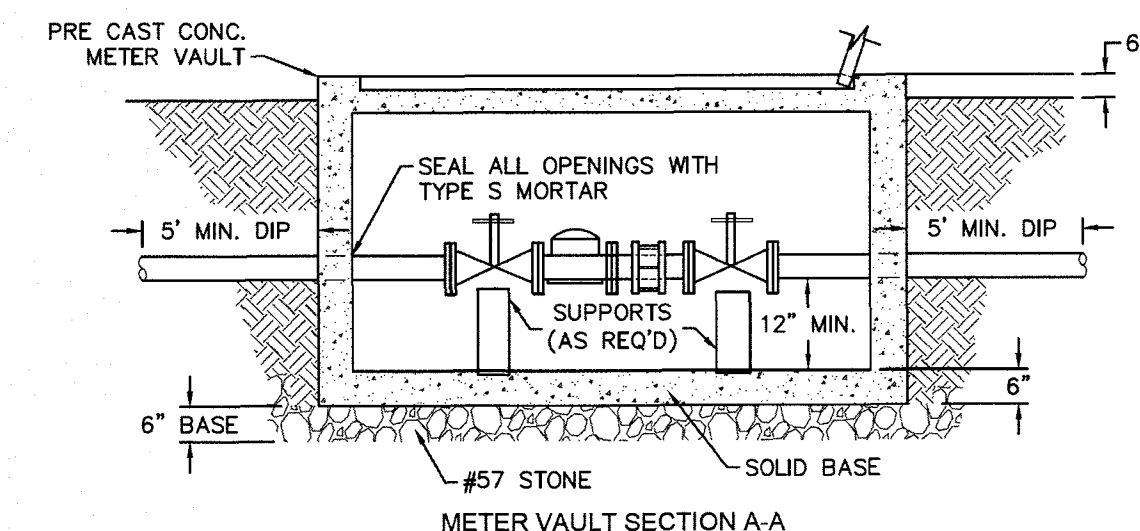
NOTE: FOR PRIVATE 6" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN
NOT TO SCALE

NOTES:
 1. CURB SHALL BE MARKED WITH AN "S" WHERE THE LATERAL CROSSES UNDER THE CURB.
 2. CLEANOUTS ARE TO BE LEFT 3'-4" ABOVE GRADE UNTIL LOT BUILDOUT AND THEN CUT AND CARPED AT FINISHED GRADE ALONG WITH A CONCRETE PAD.

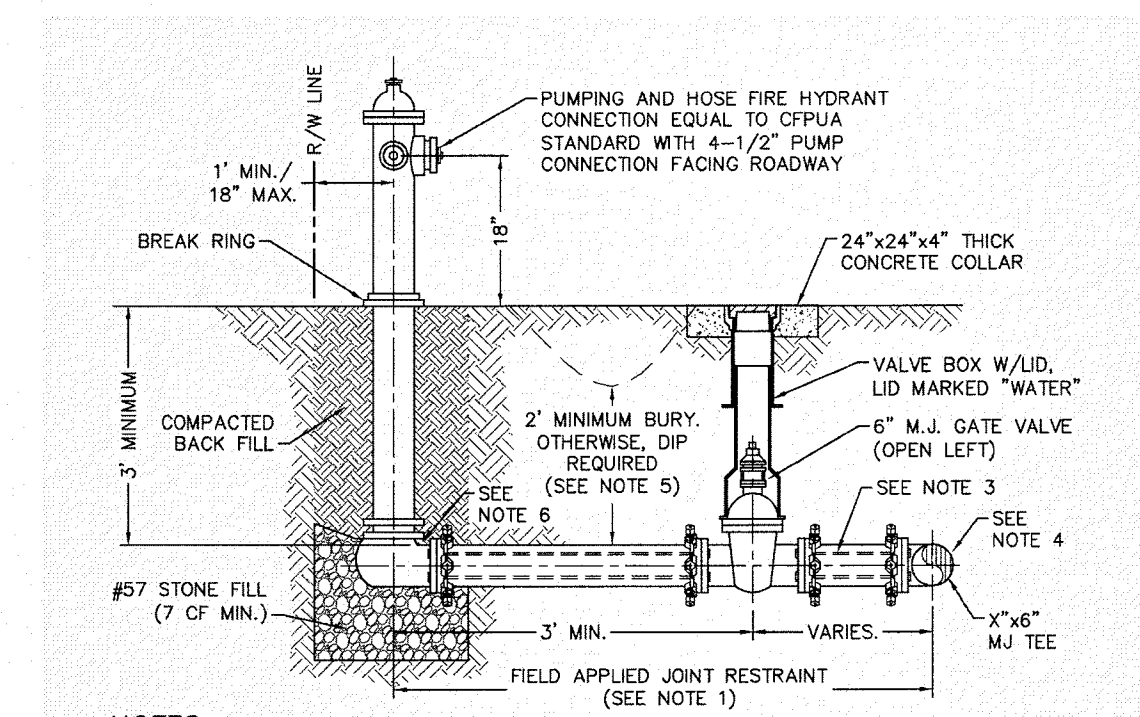
SERVICE CONNECTION & CLEAN-OUT
NOT TO SCALE



TYPICAL PVC WATERLINE TRENCH
NOT TO SCALE



WATER METER VAULT
NOT TO SCALE



FIRE HYDRANT ASSEMBLY
NOT TO SCALE

NOTES:
 1. JOINT RESTRAINT SYSTEMS SHALL BE WEDGE ACTION STYLE FOR DI OR C-900 PVC PIPE AS MANUFACTURED BY EBAA IRON, SIGMA, STAR PIPE PRODUCTS OR APPROVED EQUAL.
 2. WHEN HYDRANT LEGS REQUIRE FULL LENGTH PIPE SECTIONS, OVER BELL RESTRAINT SYSTEM SHALL HAVE 316 STAINLESS STEEL HARNESS AND FASTENERS.
 3. CONTINUOUS 316 STAINLESS STEEL RODS (TEE TO VALVE AND VALVE TO HYDRANT) MAY BE USED WITH COR-BLUE M-J-BOLT AND GASKET KITS, AS AN ALTERNATIVE.
 4. HYDRANT TEE SHALL BE RESTRAINED ON EACH SIDE OF MAIN PLUS ANY VALVE, FITTING, OR JOINT IN MAIN WITHIN 10'-FEET OF HYDRANT TEE.
 5. HYDRANT AND VALVE SHALL BE PLACED OUTSIDE DITCH LIMITS.
 6. WEEP HOLES OPEN AND UNBLOCKED TO DRAIN.

For each open utility cut of City streets, a \$225 permit shall be required from the City prior to occupancy and/or project acceptance.

Approved Construction Plan

Name: _____ Date: _____

Planning: _____

Public Utilities: _____

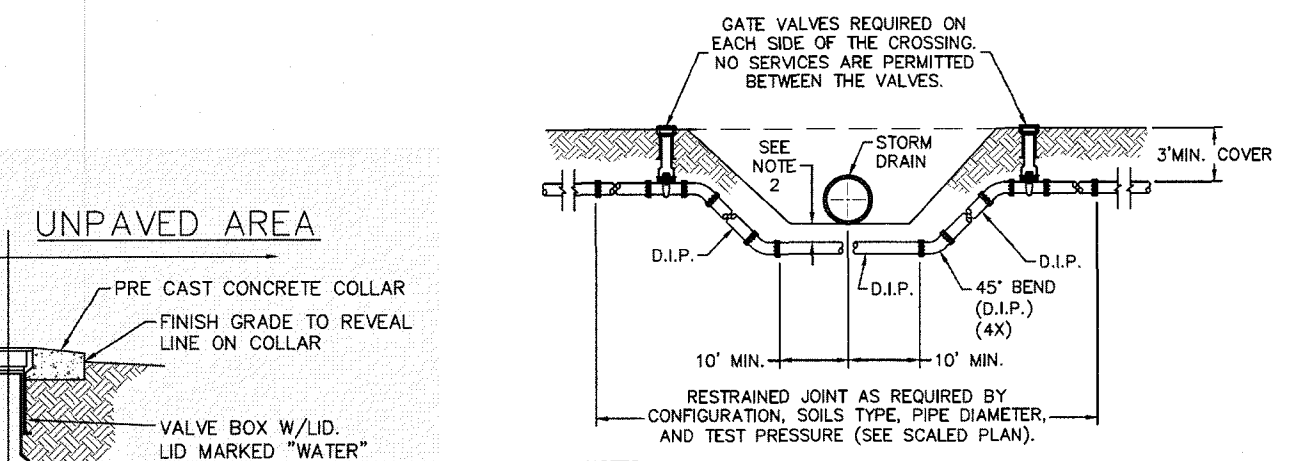
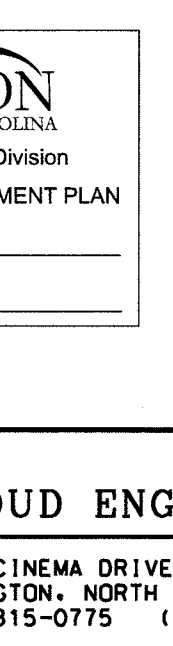
Traffic: _____

Fire: _____

APPROVED STORMWATER MANAGEMENT PLAN

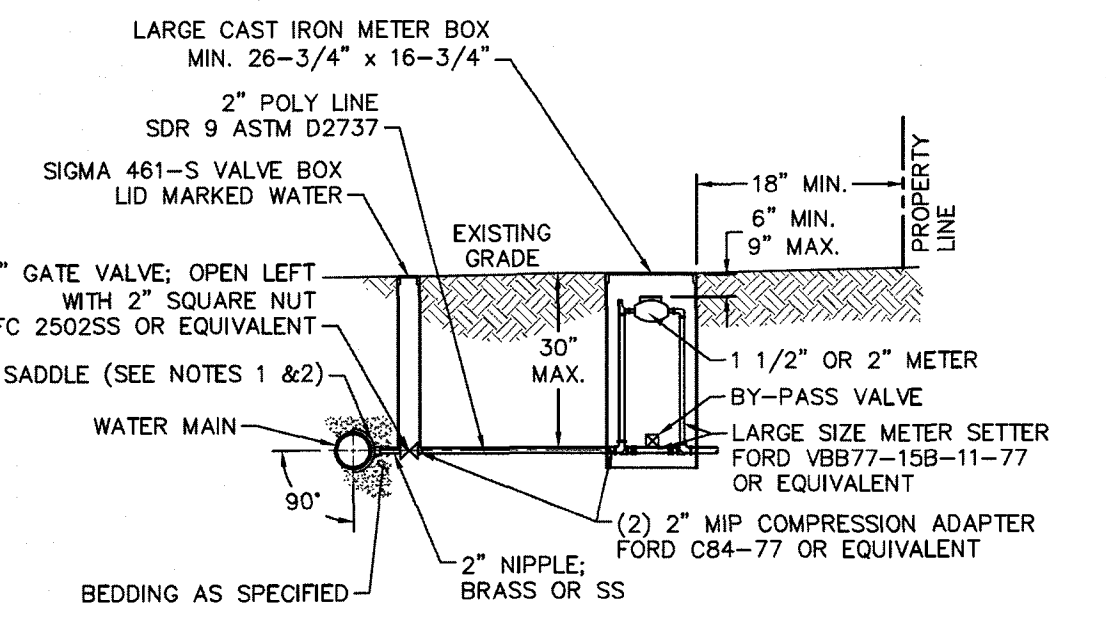
Date: _____ Permit # _____

Signed: _____



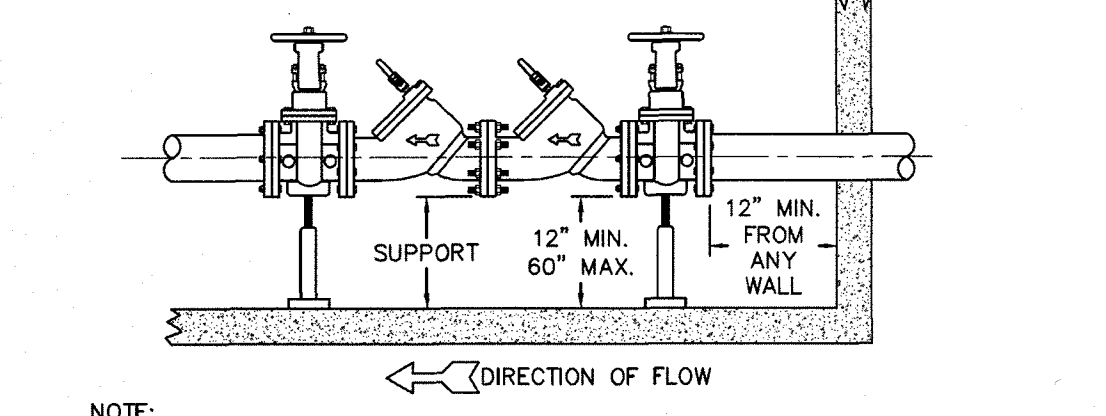
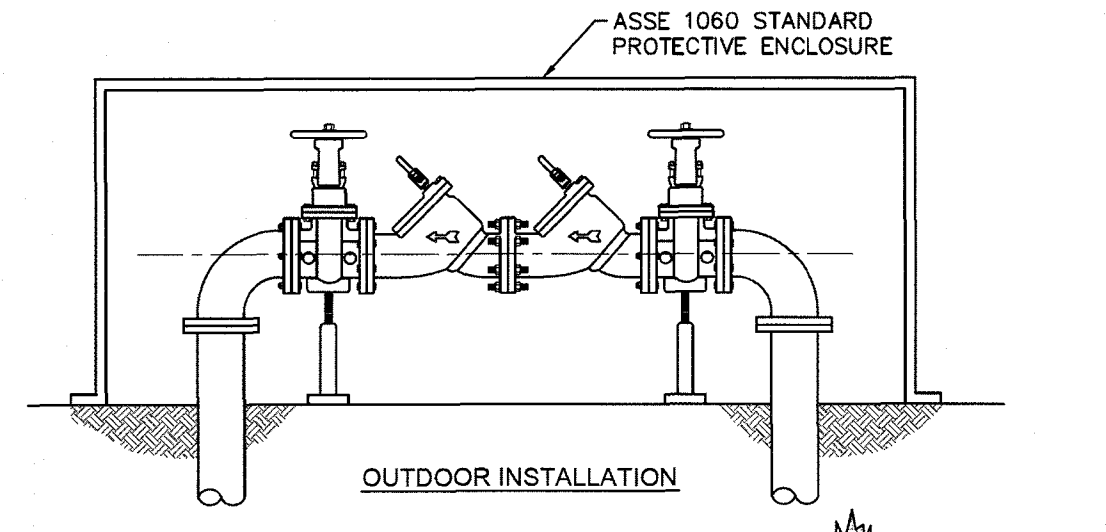
WATER MAIN DITCH AND STORM DRAIN CROSSING
NOT TO SCALE

NOTES:
 1. USE PRESSURE CLASS 350 DIP UNLESS SPECIFIED OTHERWISE.
 2. MINIMUM DEPTH REQUIRED, UNLESS SPECIFIED OTHERWISE BY CFPUA:
 a. IN SLOTTED 36" MIN. TYPICAL OR 24" MIN. WHEN CROSSING A DITCH LINE.
 b. ALL OTHER LOCATIONS, 30" MIN.
 c. WHEN STORM DRAIN INVERT IS BURIED AT OR BELOW ABOVE DEPTHS, 18" MIN. CLEARANCE IS REQUIRED.



LARGE METER
NOT TO SCALE

NOTES:
 1. ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
 2. SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY: McDONALD 3800, FORD S90 (DOUBLE STRAP) OR EQUIVALENT.
 3. METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ASTM A48, CLASS 30B AND AASHTO H20 LOAD RATING STANDARDS (COLDCASTLE PRECAST MODEL B1730 OR APPROVED EQUIVALENT).
 4. METER BOXES SUSCEPTIBLE TO INCIDENTAL, NON-DELIBERATE TRAFFIC SHALL CONFORM TO ANSI/SCTE 77 TIER 15 LOAD RATING STANDARDS (SYNERTECH MODEL DUO 17x30 OR APPROVED EQUIVALENT).
 5. NON-TRAFFIC METER BOXES SHALL BE SIGMA MB2203 OR APPROVED EQUIVALENT.
 6. 3" CLEAN FILL REQUIRED ALL AROUND 2" POLY SERVICE LINE.



DOUBLE CHECK VALVE ASSEMBLY
NOT TO SCALE

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

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

REVISIONS

BY	NO.	DATE	DESCRIPTION
JHF	1.	10/29/13	PER CITY STORM
JHF	2.	12/15/13	PER CFPUA

DESIGNED: JHF DATE: 5/6/15
 DRAWN: KBN SCALE: 1" = 50'H
 APPROVED: JHF SHEET 6 OF 9

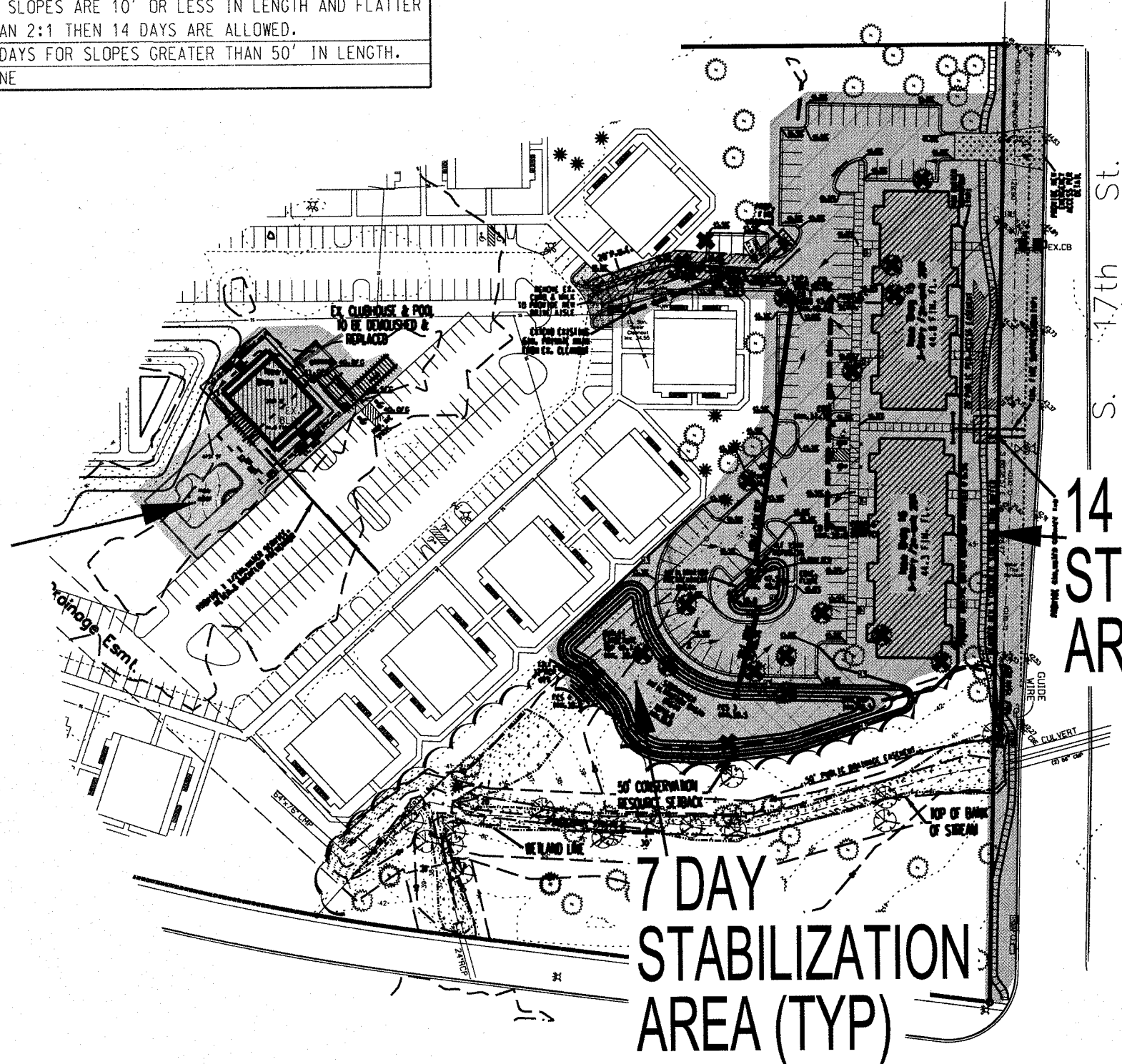
OWNER: Sea Pines Apartments, LLC
 ADDRESS: 10 S Cardinal Dr.
 WILMINGTON, NC 28403
 PHONE: 910-251-5030

STROUD ENGINEERING, P.A.
 102-D CINEMA DRIVE
 WILMINGTON, NORTH CAROLINA 28403
 (910) 815-0775 (910) 815-0593 FAX

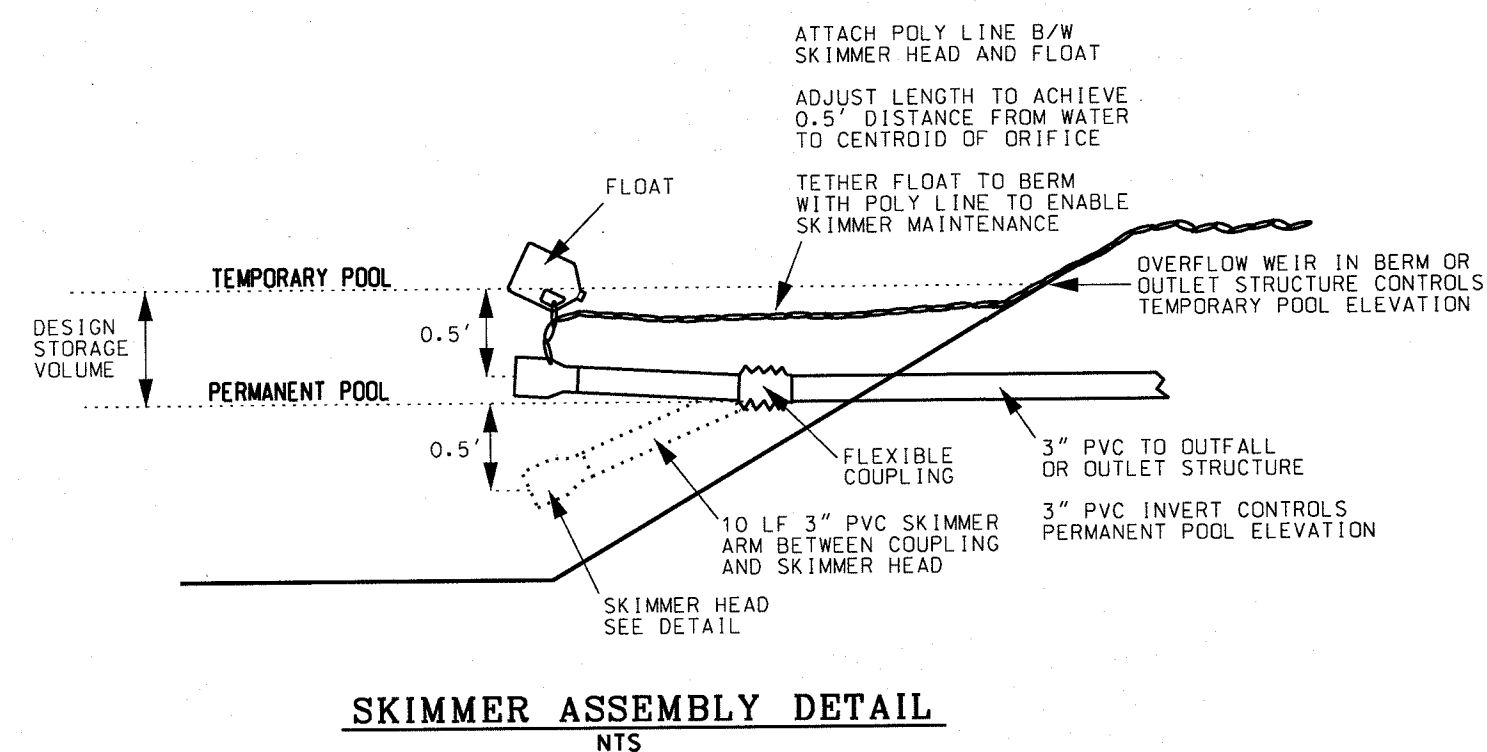
UTILITY DETAILS FOR
Sea Pines Apartments
 WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

NPDES STABILIZATION TIMEFRAMES		
SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, AND DITCHES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND FLATTER THAN 2:1 THEN 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE

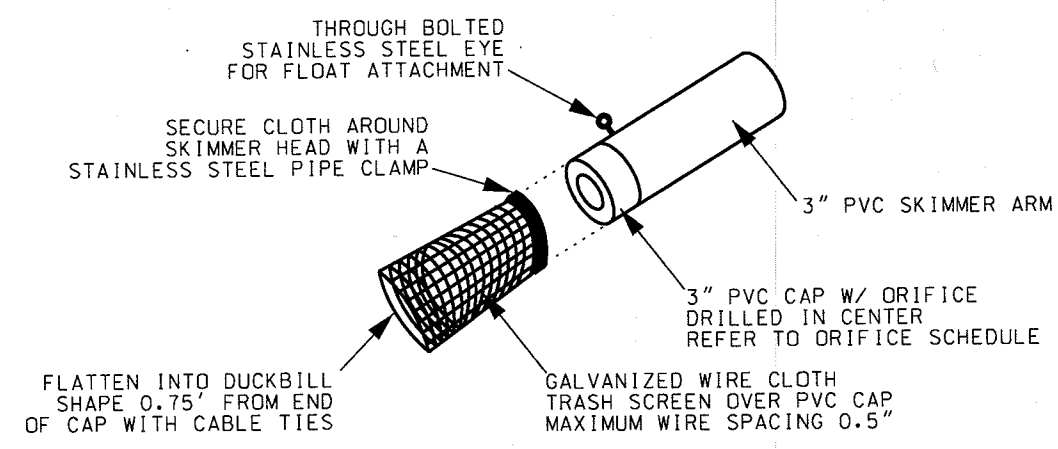
14 DAY STABILIZATION AREA (TYP)



NPDES SEEDING AREAS
NTS

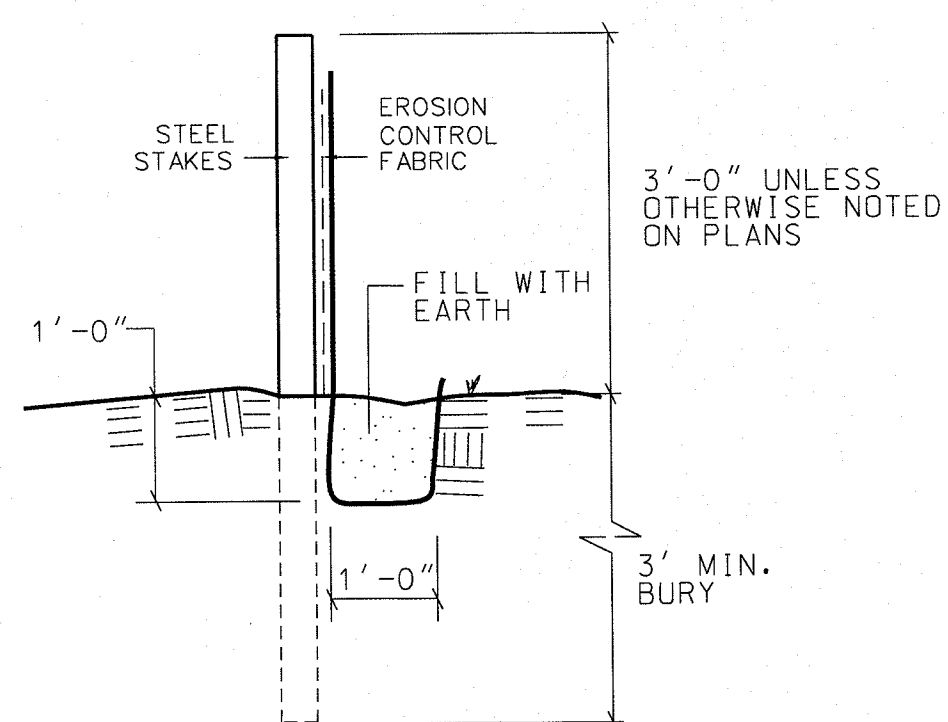


SKIMMER ASSEMBLY DETAIL
NTS



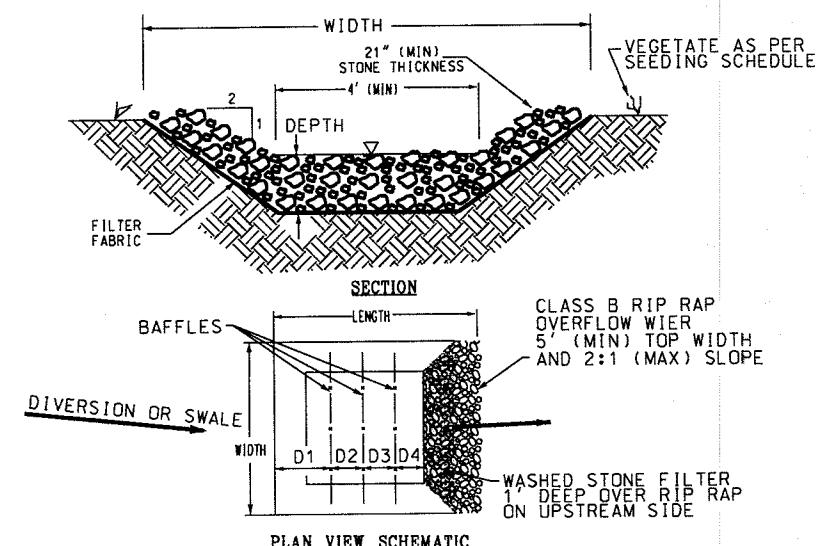
SKIMMER HEAD DETAIL
NTS

ORIFICE SCHEDULE	
Basin Diameter	B
1.5'	



TYPICAL SILT FENCE
NTS

NOTE: POSTS TO BE SPACED 6 FT O.C. OR 8 FT O.C. W/ 14 GAUGE 6 X 6 WIRE MESH REINFORCEMENT. WOODEN POSTS ARE NOT ACCEPTABLE.



SEDIMENT TRAP DETAIL
NTS

SEDIMENT TRAP SCHEDULE			
TST	LENGTH	WIDTH	DEPTH
A	35'	16'	3.5'
B	8'	7'	7'

NOTE: PROVIDE (3) BAFFLES ACROSS WIDTH OF TRAP SPACED PER THE SCHEDULE OF DIMENSIONS. REFER TO BAFFLE DETAILS

COASTAL PLAIN SITE STABILIZATION SCHEDULE

- Fertilize and lime per recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 150 lb/acre 10-10-10 fertilizer.
- Incorporate lime/fertilizer 4-6 inches.
- Roughen steep slopes by tracked machinery.
- Select species based on season. Refer to tables.
- Broadcast seeds evenly and cover by raking or dragging a chain. Firm soil by rolling.
- Apply straw mulch at a rate 1-2 tons per acre. 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.
- Re-fertilize if growth is not fully adequate. Re-seed, re-fertilize and mulch immediately following erosion or other damage.

PERMANENT SEEDING TABLE 1		
Seeding Dates	Recommended Planting	Rate (lb/acre)
Feb. 15 - Apr. 1	Tall Fescue Mixture	see table 2
Sep. 1 - Nov. 1	Tall Fescue Mixture	see table 2
Apr. 1 - Aug. 1	Hybrid Bermudagrass	see table 2
Apr. 1 - Jul. 15	Common Bermudagrass	see table 2
Mar. 1 - Jul. 1	Centipede grass	see table 2

PERMANENT SEEDING TABLE 2a-LOW MAINTENANCE MIXTURES		
Site Description	Recommended Planting	Rate (lb/acre)
Well to poorly drained soils	Tall Fescue Mixture	80
	Pensacola Bahiagrass	50
	Kobe Lespedeza	40
Dry to well drained soils	Pensacola Bahiagrass	50
	Common Bermudagrass	30
	Kobe Lespedeza	10
	German Millet	10
Swales	Common Bermudagrass	40-80

PERMANENT SEEDING TABLE 2b-HIGH MAINTENANCE MIXTURES		
Site Description	Recommended Planting	Rate (lb/acre)
Well to poorly drained soils	Tall Fescue Mixture	200
	Rye Grass	25
Dry to well drained soils	Hybrid Bermudagrass	50
Well drained sandy loam to sand, lawns.	Centipede grass	10-20

Notes: For seeding outside of recommended dates and/or for temporary stabilization, refer to temporary seeding table. For highly erosive areas or as directed by an engineer, sod shall be provided.

TEMPORARY SEEDING TABLE			
Seeding Dates	Recommended Planting	Rate (lb/acre)	
Dec. 1 - Apr. 15	Kobe Lespedeza with Rye Grain	50	
Apr. 15 - Aug. 15	German Millet	40	
Aug. 15 - Dec. 1	Rye Grain	120	

SOD INSTALLATION

- Fertilize and lime per recommendations of soil tests or apply 100 lb/1,000 sq ft ground agricultural limestone and 25 lb/1,000 sq ft fertilizer. In the fall, use 10-10-10. In the spring, use 5-10-10.
- Incorporate lime/fertilizer 4-6 inches.
- Rake or harrow to achieve a smooth final grade.
- Roll to achieve a smooth, firm surface on which to lay the sod.
- Lightly rake and irrigate top layer of soil just prior to installation.
- Lay sod in a staggered, brick-like pattern with the longest dimension perpendicular to the slope. Avoid gaps. Use a knife to fit irregular shapes.
- Roll sod lightly after installation to ensure good soil to soil contact.
- Irrigate initially to wet soil to a depth of 4". Keep soil moist for 2-3 weeks thereafter or until sod has taken root.

CONSTRUCTION SEQUENCE

- INSTALL INLET PROTECTION, SILT FENCE, AND STONE CONSTRUCTION ENTRANCES.
- CLEAR & GRADE
- INSTALL UNDERGROUND UTILITIES
- INSTALL PAVEMENT
- PROVIDE 100% VEGETATIVE COVER OF ALL DISTURBED SOILS.
- CLEAN SEDIMENT FROM PIPES AFTER STABILIZATION.

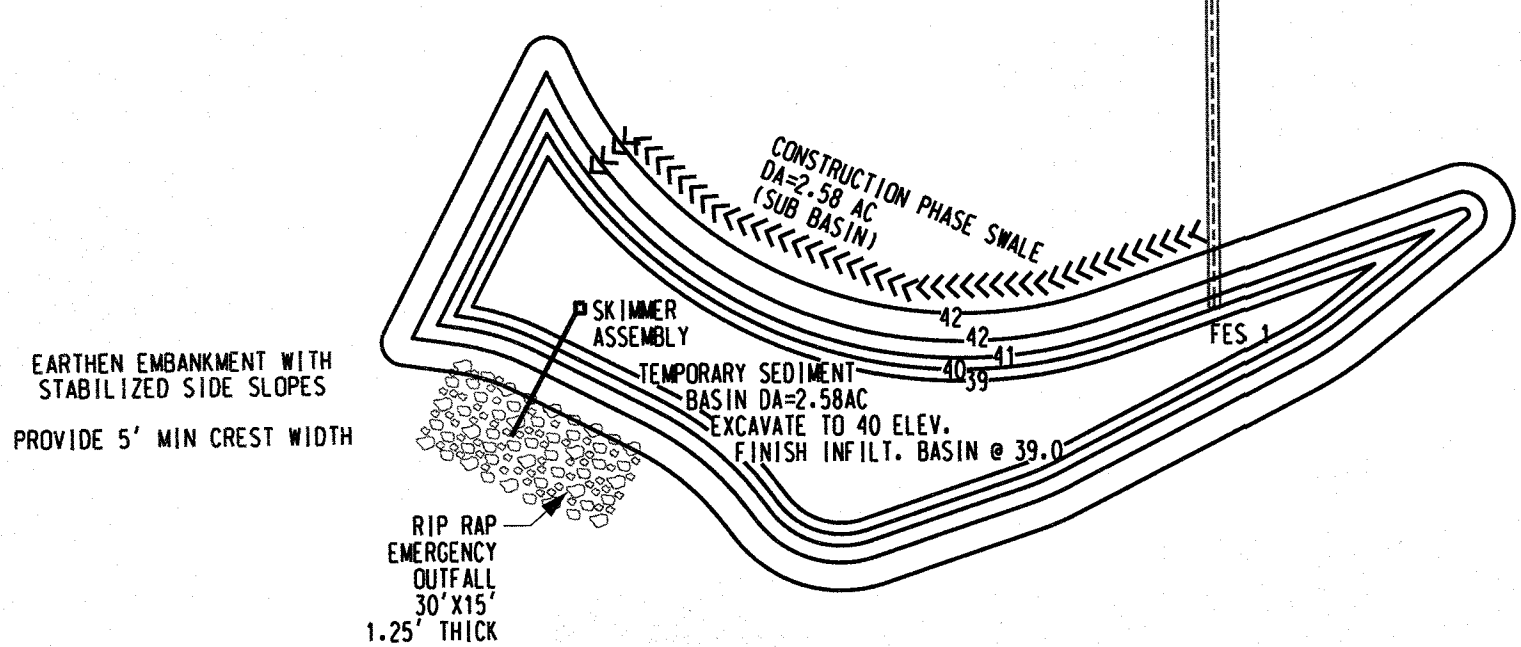
NOTE: NO WETLANDS EXIST IN DISTURBED PORTIONS OF SITE.

For each open utility cut of City streets, a \$225 permit shall be required from the City prior to occupancy and/or project acceptance.

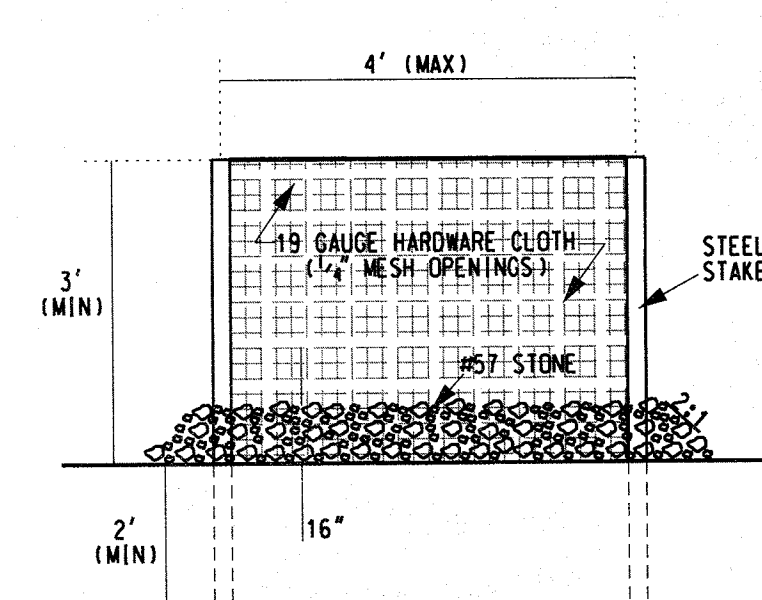
City of WILMINGTON, NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: _____ Permit #: _____
Signed: _____

Professional Engineer
JAMES H. PENTRESS, JR., P.E.
DATE: 1/13/2016

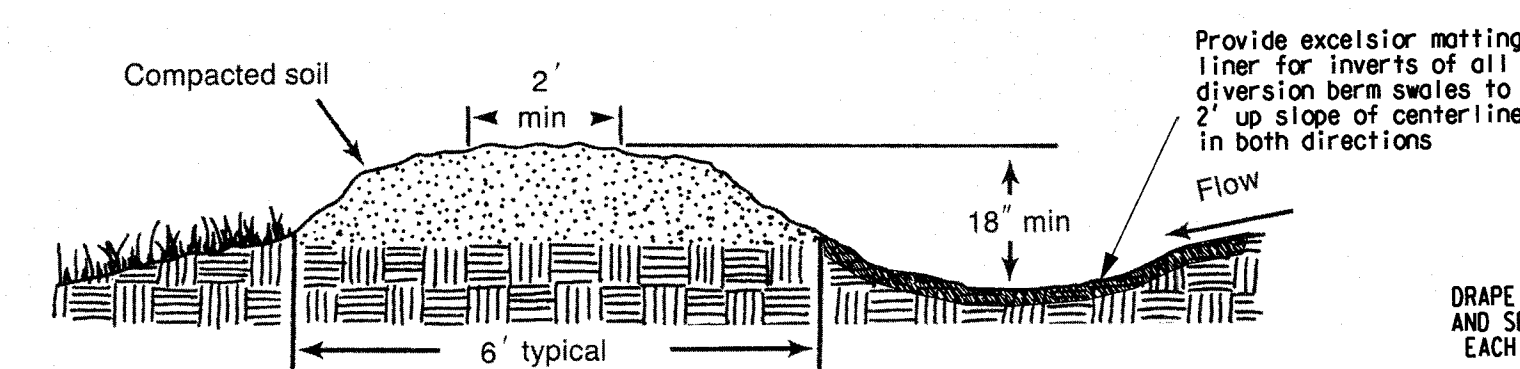
- EROSION & SEDIMENT CONTROL MAINTENANCE PLAN
- ALL EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK AND WITHIN 24 HOURS OF EVERY HALF INCH RAINFALL.
 - ALL POINTS OF EGRESS WILL HAVE CONSTRUCTION ENTRANCES THAT WILL BE PERIODICALLY TOP-DRESSED WITH AN ADDITIONAL 2" OF #4 STONE TO MAINTAIN PROPER DEPTH. THEY WILL BE MAINTAINED IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. IMMEDIATELY REMOVE OBJECTIONABLE MATERIAL SPILLED, WASHED, OR TRACKED ONTO THE CONSTRUCTION ENTRANCE OR ROADWAYS.
 - SEDIMENT WILL BE REMOVED FROM HARDWARE CLOTH AND GRAVEL INLET PROTECTION, BLOCK AND GRAVEL INLET PROTECTION, ROCK DOUGHNUT INLET PROTECTION, ROCK PIPE INLET PROTECTION, AND GUTTERBUDDY INLET PROTECTION WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS AS DESIGNED. DEBRIS WILL BE REMOVED FROM THE ROCK AND HARDWARE CLOTH TO ALLOW PROPER DRAINAGE. SILT SACKS WILL BE EMPTIED ONCE A WEEK AND AFTER EVERY RAIN EVENT. SEDIMENT WILL BE REMOVED FROM AROUND BEAVER DAMS, DANDY SACKS/SOCKS, AND GUTTERBUDDIES ONCE A WEEK AND AFTER EVERY RAIN EVENT. NOTE THAT THE GUTTERBUDDY IS REUSABLE SHOULD BE STORED OUT OF DIRECT SUNLIGHT BETWEEN JOBS.
 - DIVERSION DITCHES WILL BE CLEANED OUT IMMEDIATELY TO REMOVE SEDIMENT OR OBSTRUCTIONS FROM THE FLOW AREA. THE DIVERSION RIDGES WILL ALSO BE REPAIRED. SWALES MUST BE RESTABILIZED WITHIN 21 CALENDAR DAYS OF CEASE OF ANY PHASE OF PHASE OF ACTIVITY ASSOCIATED WITH A SWALE.
 - SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT BECOMES HALF FILLED. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. STAKES MUST BE STEEL. STAKE SPACING WILL BE 6 FEET (MAX) WITH THE USE OF EXTRA STRENGTH FABRIC WITHOUT WIRE BACKING. STAKE SPACING WILL BE 8 FEET (MAX) WHEN STANDARD STRENGTH FABRIC AND WIRE BACKING ARE USED. IF ROCK FILTERS ARE USED AT LOW POINTS IN THE SEDIMENT FENCE, THE ROCK WILL BE REPAIRED OR REPLACED IF IT BECOMES HALF FULL OF SEDIMENT. NO LONGER DRAINS AS DESIGNED, OR IS DAMAGED.
 - SEDIMENT WILL BE REMOVED FROM SEDIMENT TRAPS WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. THE ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR WHEN THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE FIRST BAFFLE. IF APPLICABLE, FLOATING SKIMMERS WILL BE INSPECTED WEEKLY AND WILL BE KEPT CLEAN.
 - SEDIMENT WILL BE REMOVED FROM THE SEDIMENT BASIN WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR WHEN THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE FIRST BAFFLE. FLOATING SKIMMERS WILL BE INSPECTED WEEKLY AND WILL BE KEPT CLEAN.
 - 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. ALL SLOPES WILL BE STABILIZED WITHIN 21 CALENDAR DAYS. ALL OTHER AREAS WILL BE STABILIZED WITHIN 15 WORKING DAYS.
 - FLOCCULANTS WILL BE USED TO ADDRESS TURBIDITY ISSUES. THE PUMPS, TANKS, HOSES AND INJECTION SYSTEMS WILL BE CHECKED FOR PROBLEMS OR TURBID DISCHARGES DAILY.



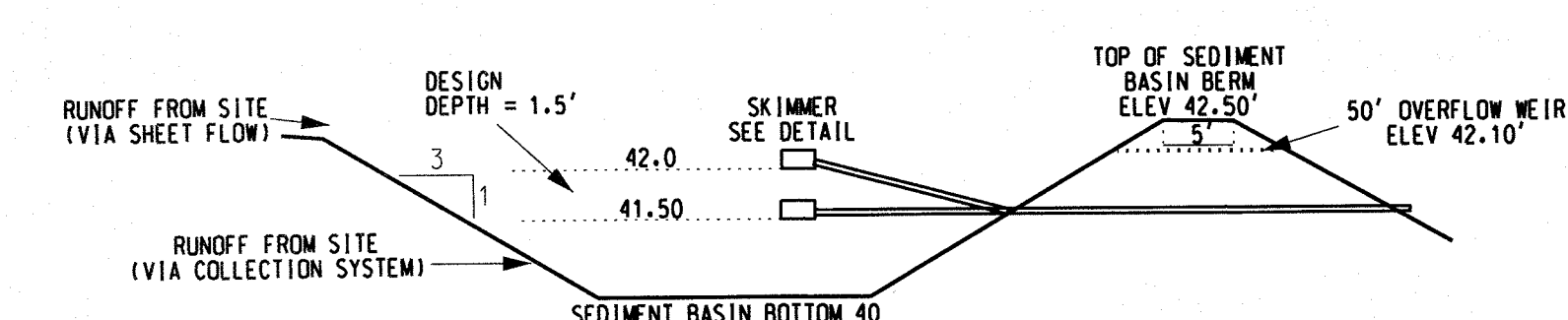
EARTHEN EMBANKMENT WITH STABILIZED SIDE SLOPES PROVIDE 5' MIN CREST WIDTH



TYPICAL INLET PROTECTION
NTS



TYPICAL DIVERSION BERM



SEDIMENT BASIN 1 DETAIL
NTS

NOTE: RETROFIT POND PER STORMWATER DETAILS ONCE SITE IS STABILIZED.

SEDIMENT TRAP SCHEDULE			
SB	LENGTH	WIDTH	DEPTH
A	194'	40'	2'
B	48.5'	48.5'	48.5' / 48.5'

REVISIONS			
BY	NO.	DATE	DESCRIPTION
JHF	1	3/15	NHC ENG.

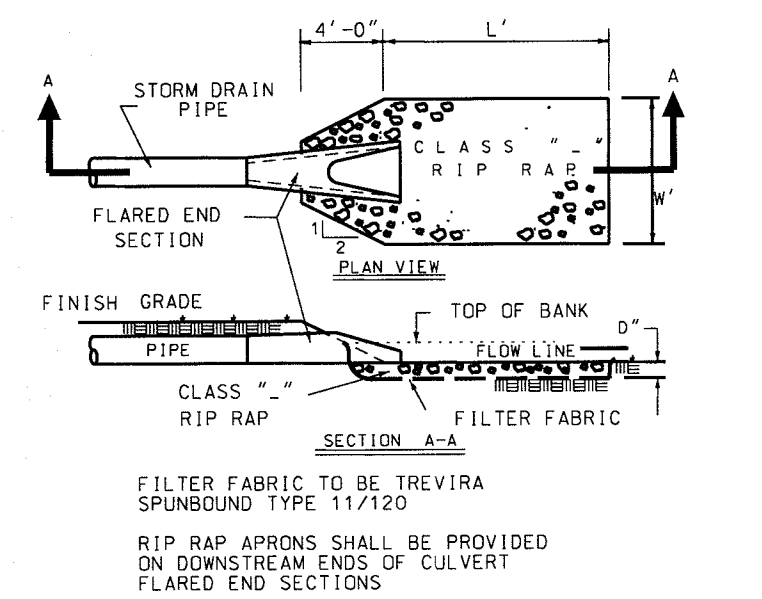
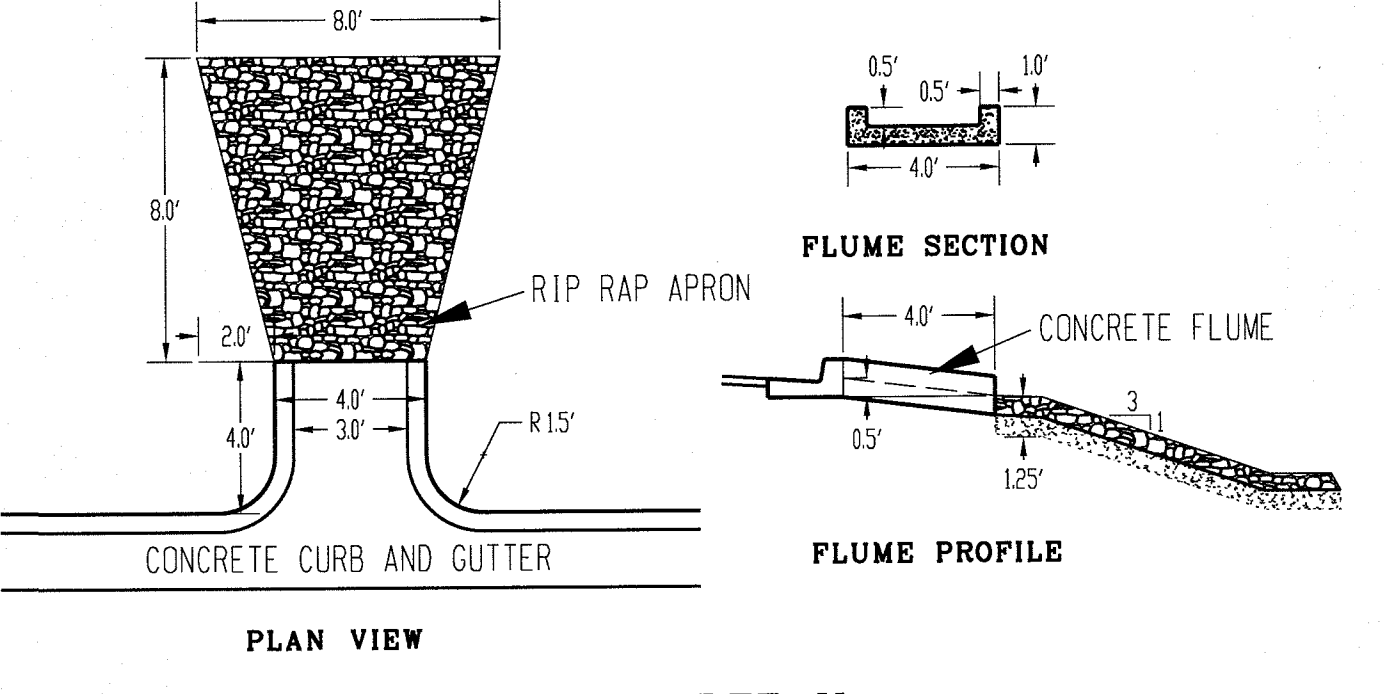
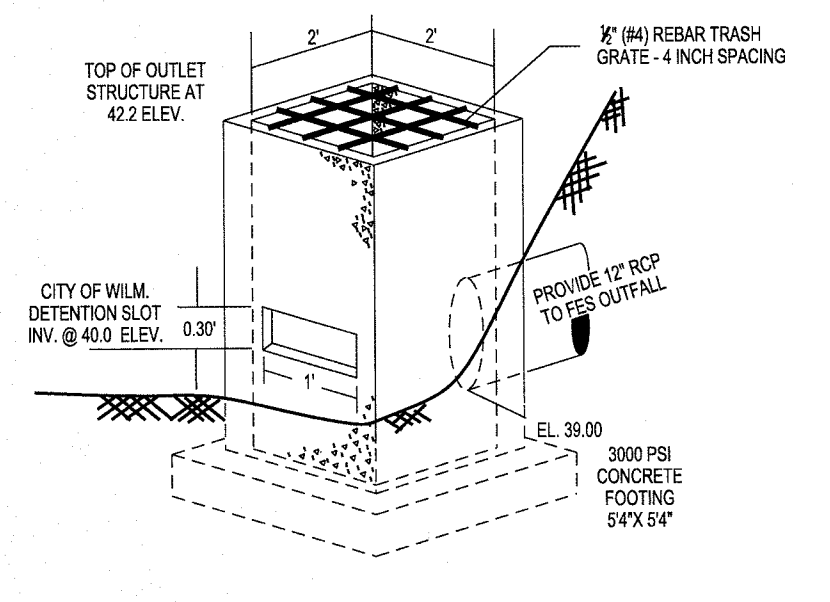
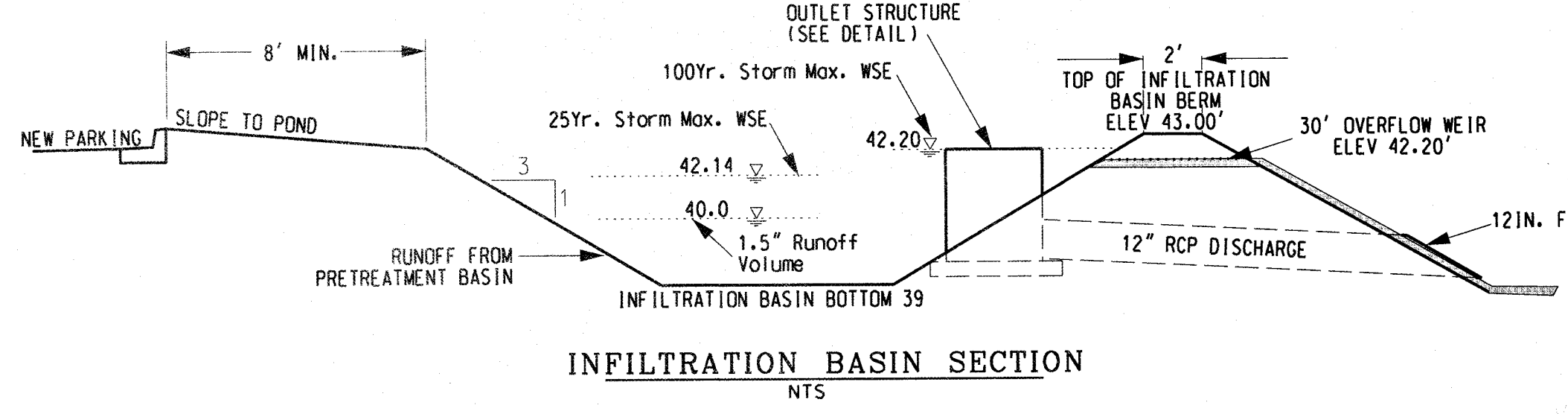
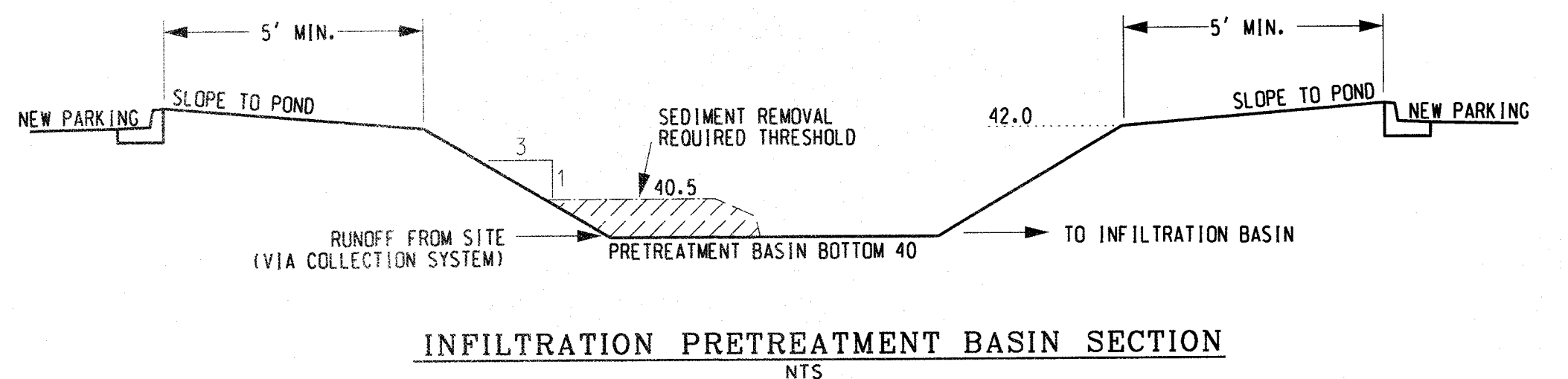
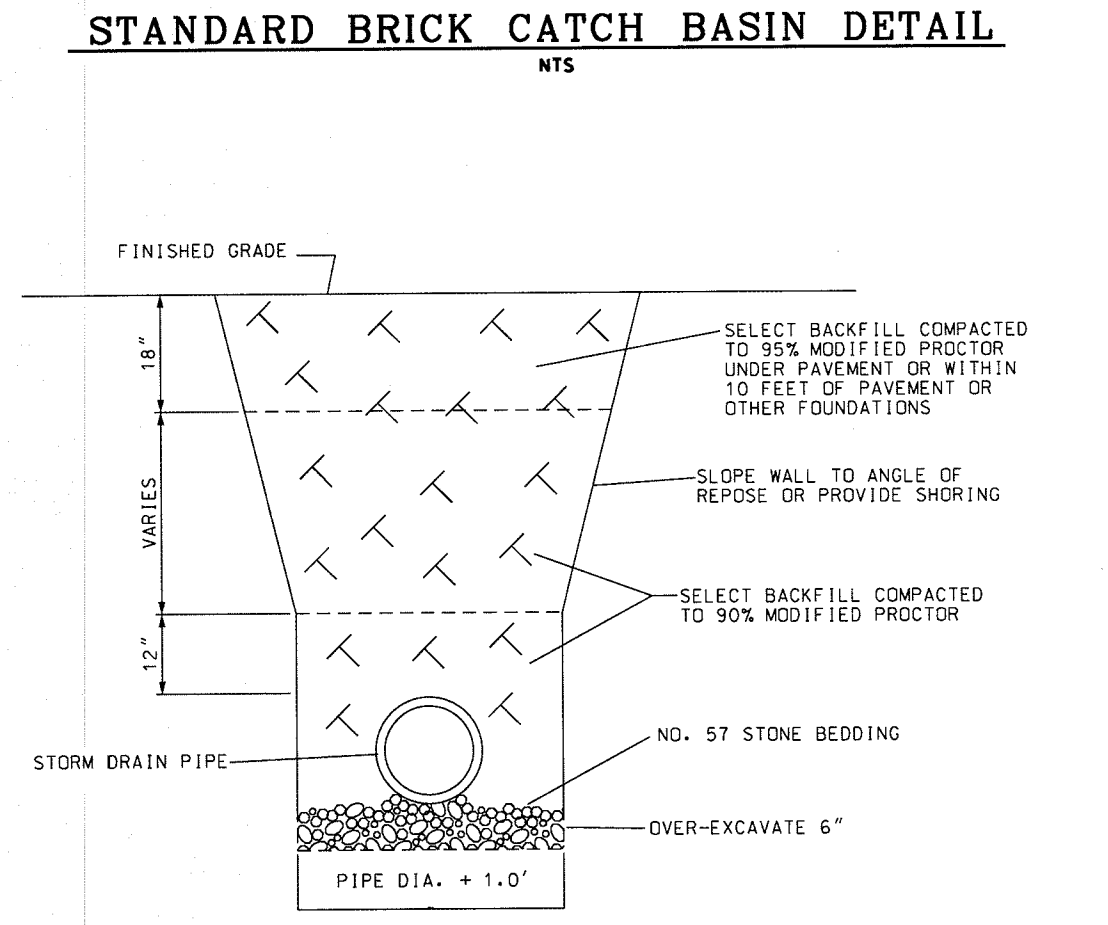
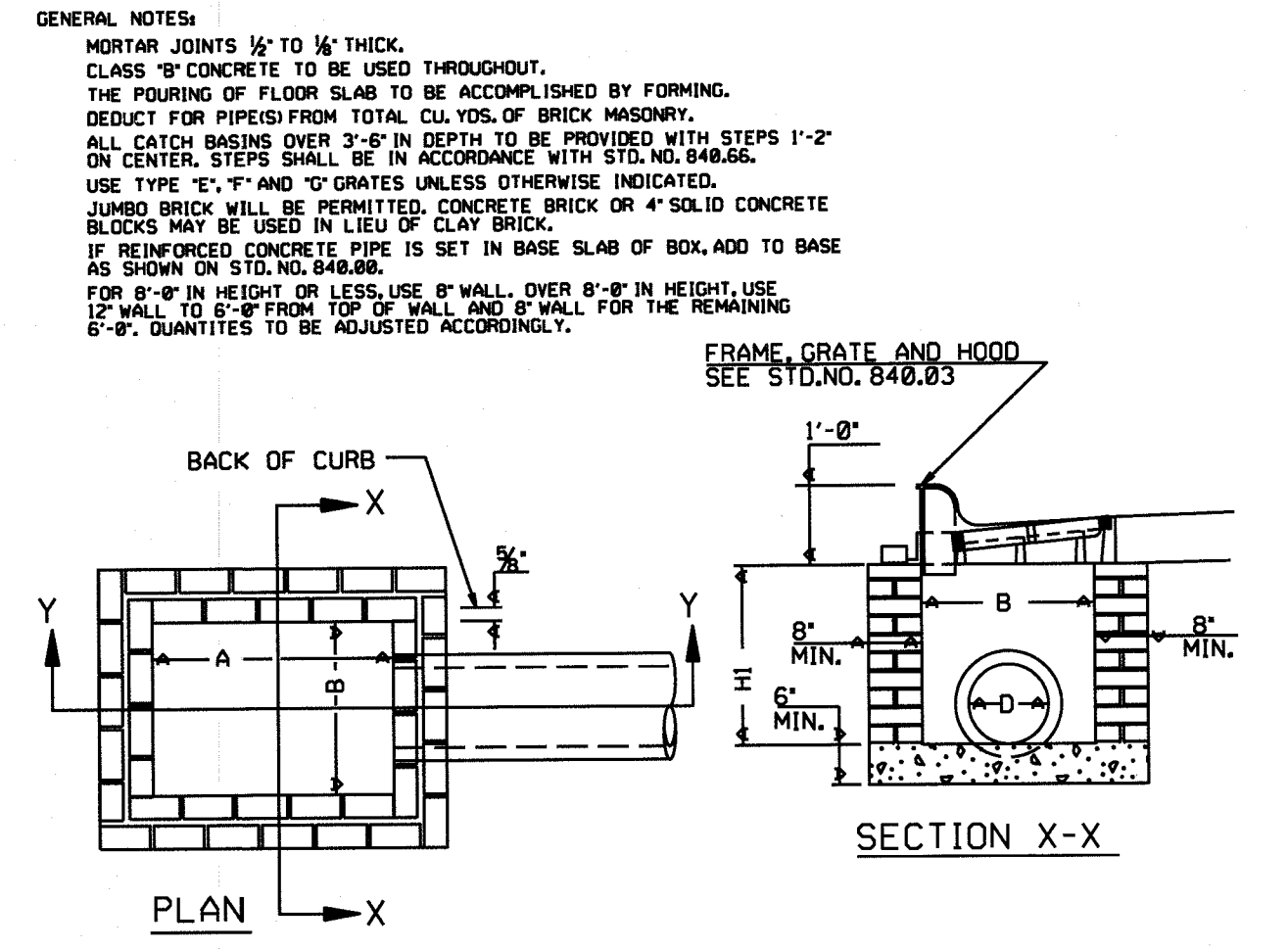
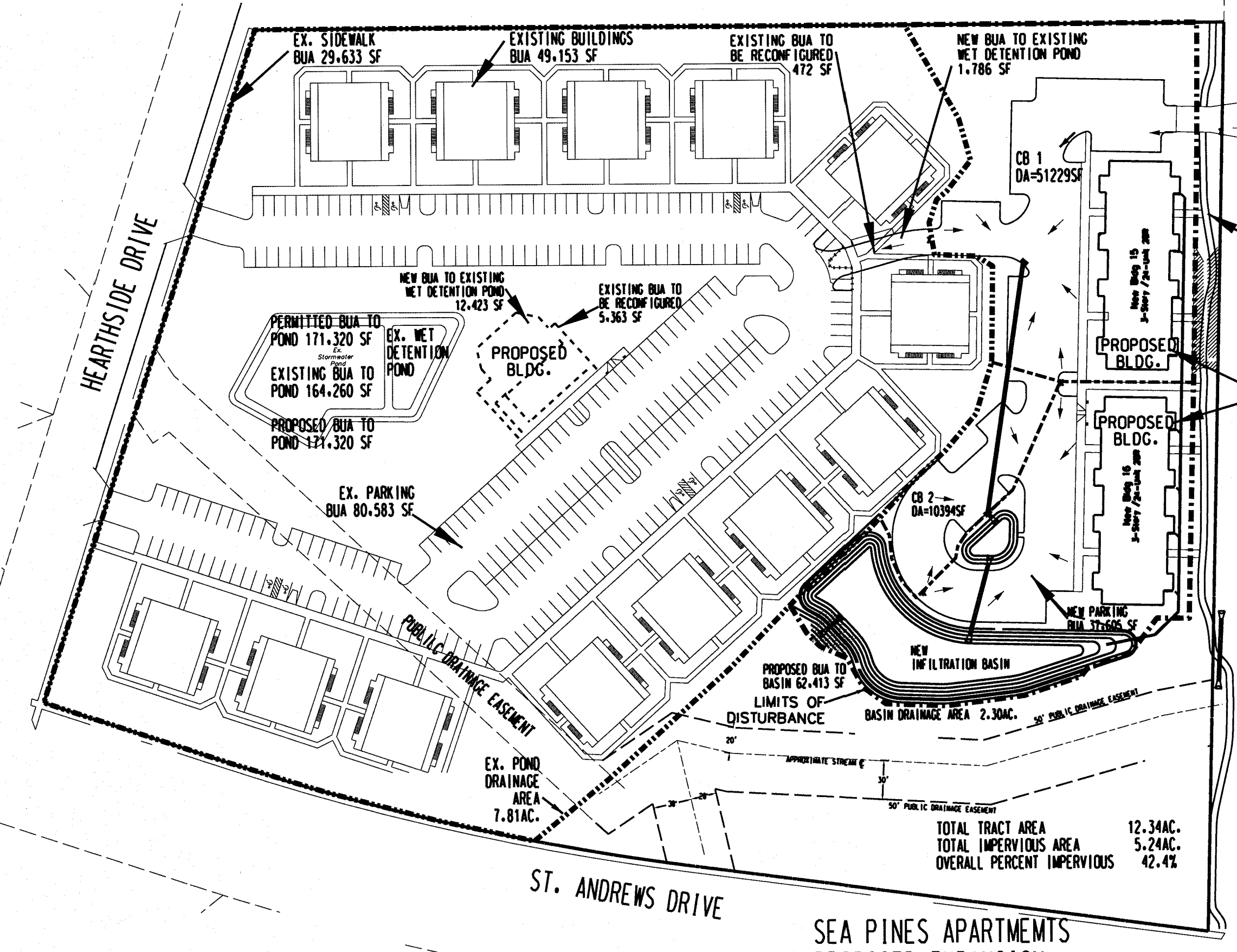
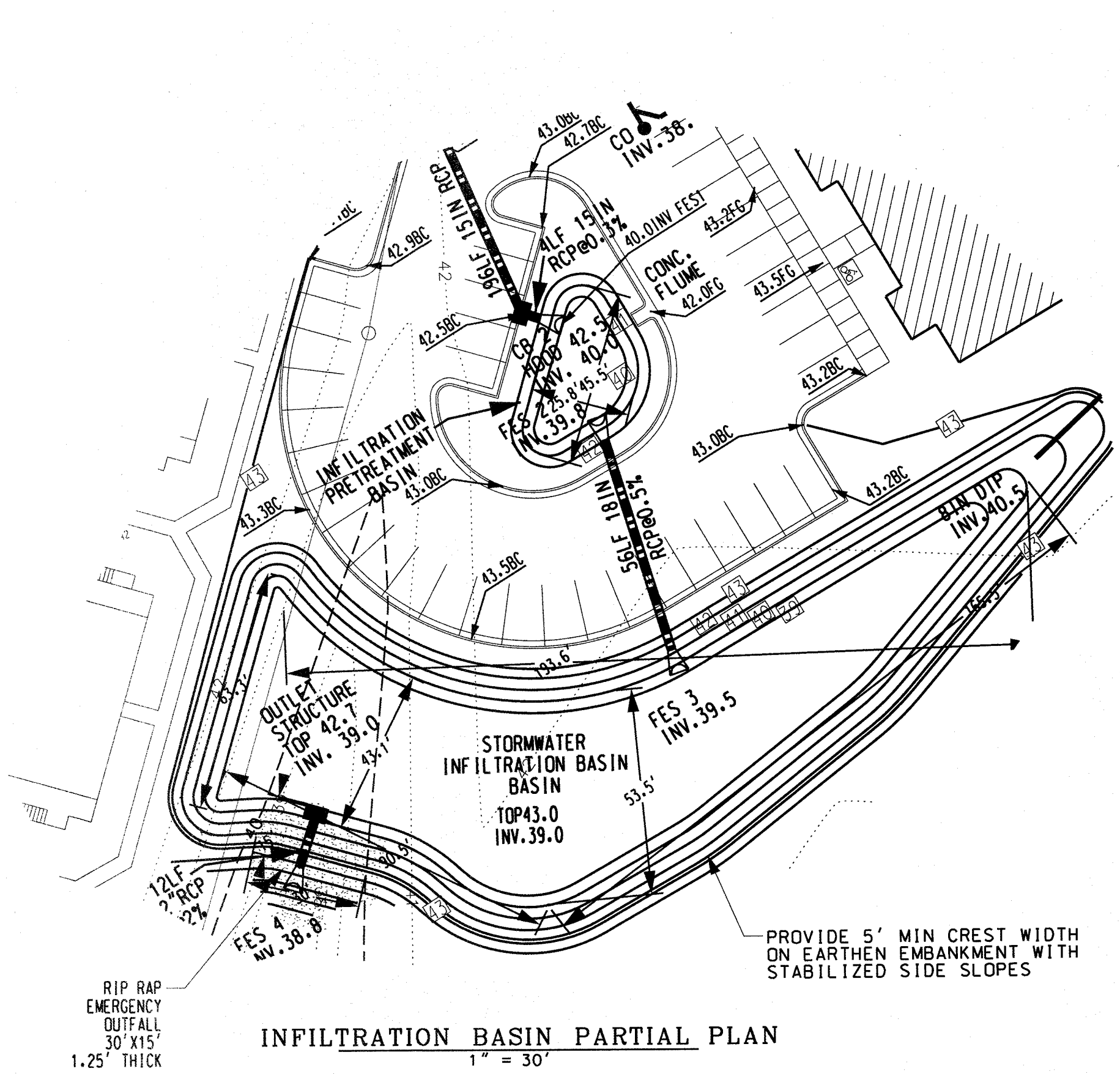
DESIGNED: JHF DATE: 5/6/15
DRAWN: KBN SCALE: 1" = 50'
APPROVED: JHF SHEET 7 OF 9

OWNER: Sea Pines Apartments, LLC
ADDRESS: 10 S Cardinal Dr.
Wilmington, NC 28403
PHONE: 910-251-5030

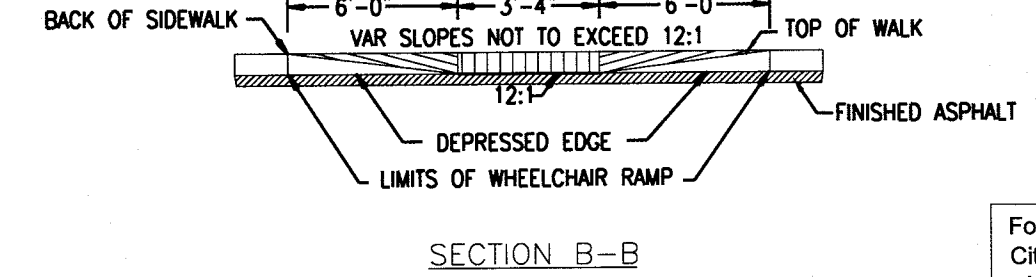
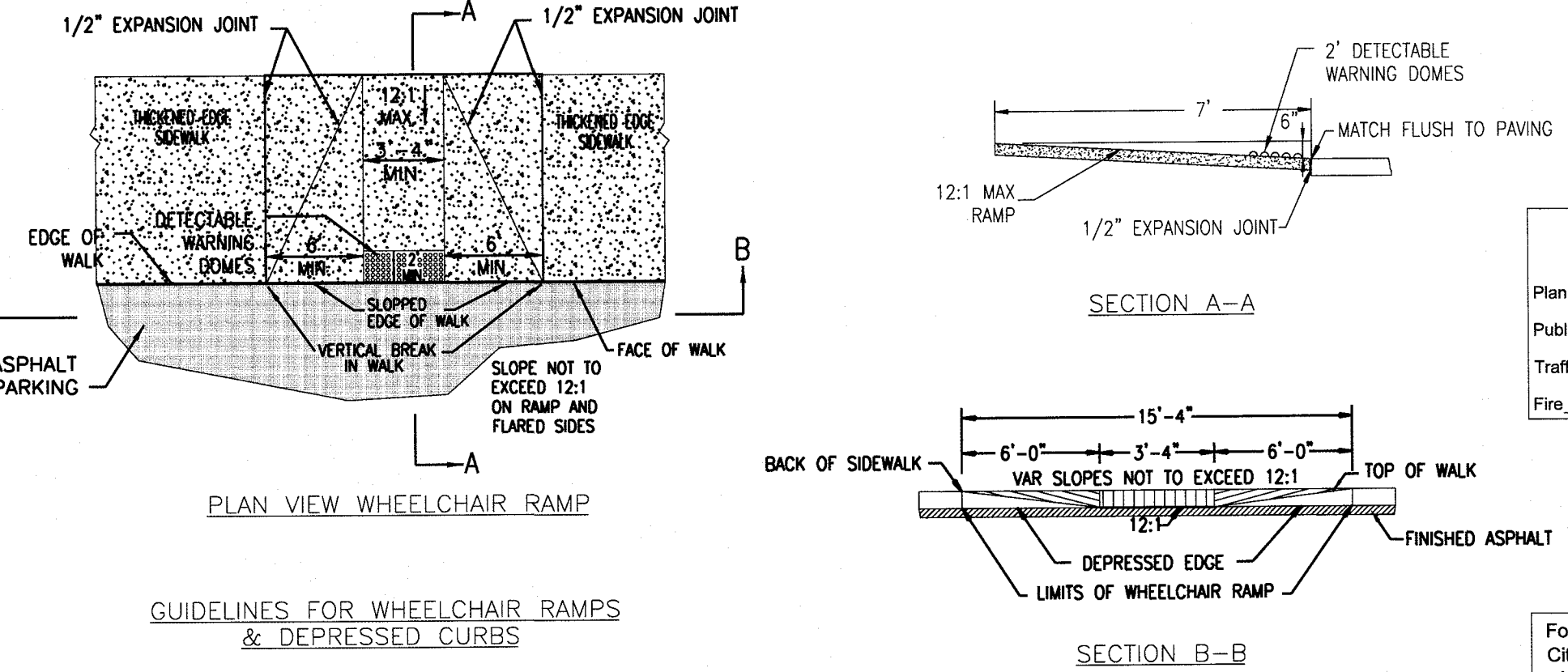
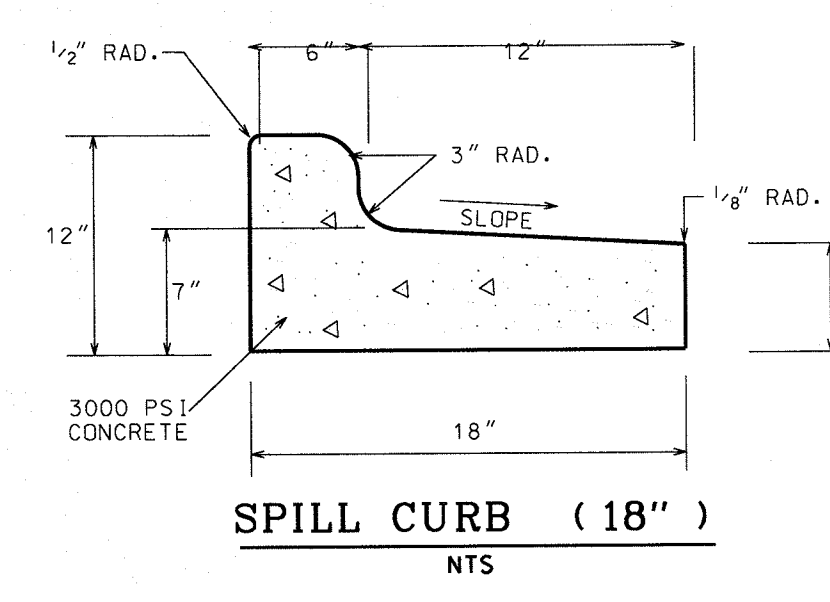
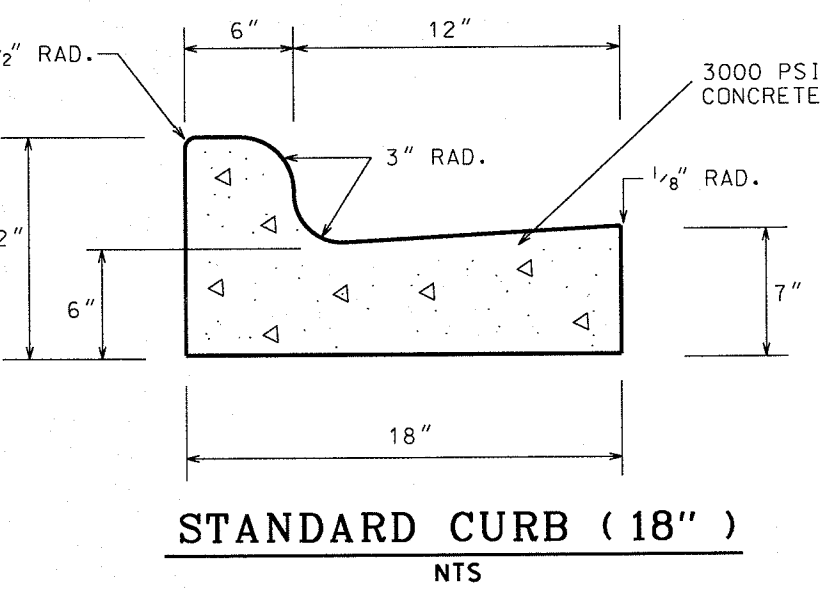
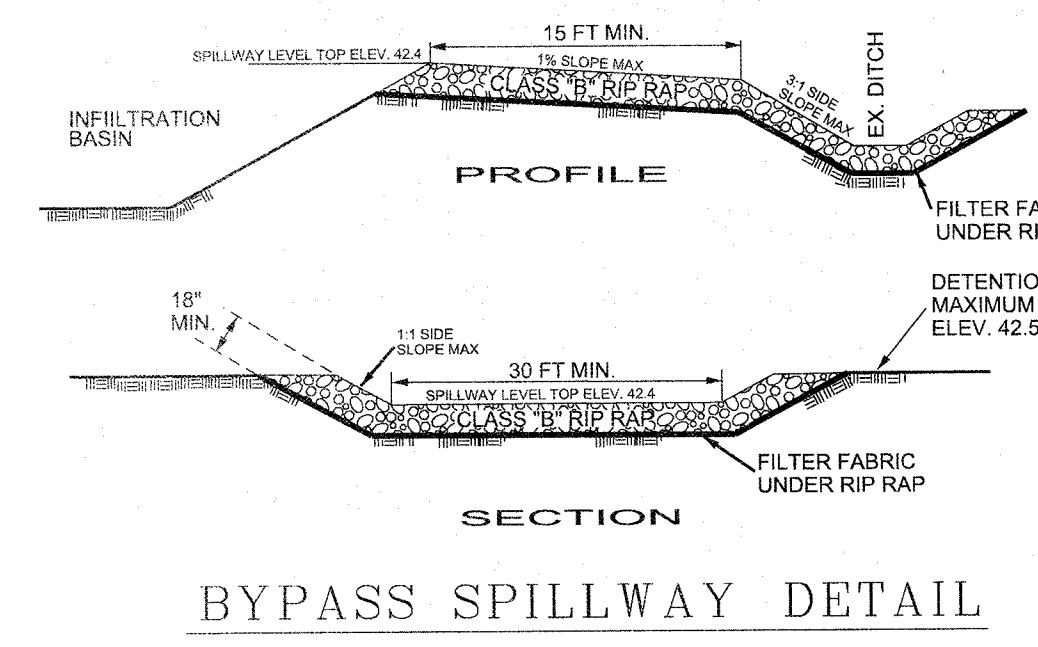
STROUD ENGINEERING, P.A.
102-D CINEMA DRIVE
WILMINGTON, NORTH CAROLINA 28403
(910) 815-0775 (910) 815-0593 FAX

SOIL EROSION AND SEDIMENTATION CONTROL PLAN FOR
Sea Pines Apartments
WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

CONSTRUCTION PLAN SET



RIP RAP APRON SCHEDULE				
FES#	STONE CLASS	DEPTH	WIDTH	LENGTH
1	B	15"	2'-0"	6'
2	B	15"	2'-0"	6'



NCDENR PWSS WATER PERMIT #:	07-00695
WATER CAPACITY:	21,800 GPD GPD
DWQ SEWER PERMIT #:	WQ0031430
SEWER CAPACITY:	19,440 GPD GPD
SEWER SHED # AND PLANT:	MOTT'S CREEK
SEWER TO FLOW THROUGH NEI:	YES or NO (CIRCLE ONE)

DESIGNED: JHF	DATE: 5/6/15	OWNER: Sea Pines Apartments, LLC
DRAWN: KBN	SCALE: 1" = 50'	ADDRESS: 10 S Cardinal Dr. Wilmington, NC 28403
APPROVED: JHF	SHEET 8 OF 9	PHONE: 910-251-5030

STROUD ENGINEERING, P.A.
102-D CINEMA DRIVE WILMINGTON, NORTH CAROLINA 28403
(910) 815-0775 (910) 815-0593 FAX

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

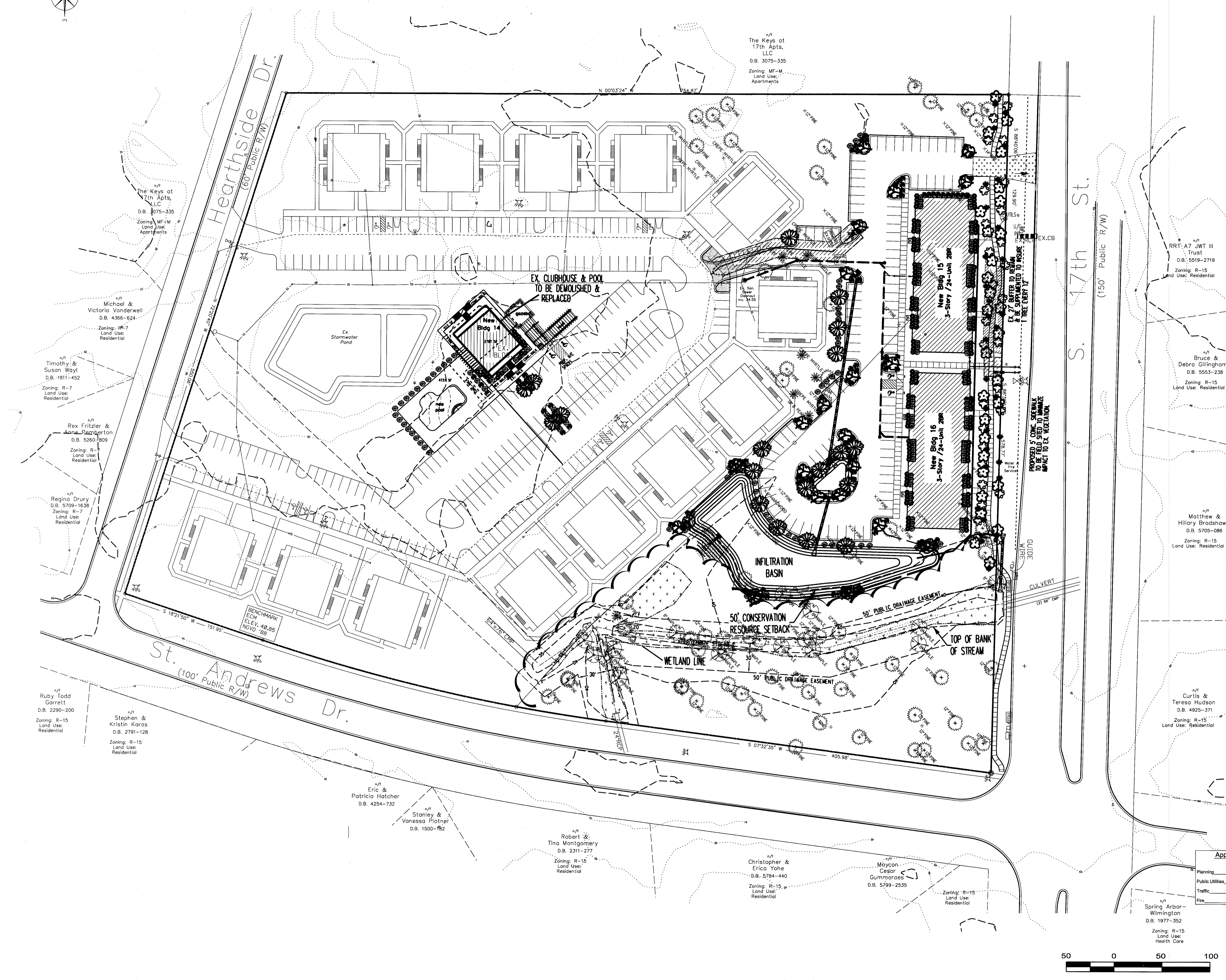
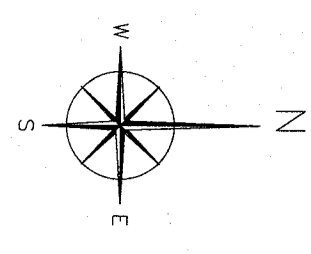
CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: _____ Permit # _____
Signed: _____

PROFESSIONAL SEAL
JAMES H. FENTRESS, JR., P.E.
DATE: 11/3/2016

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

STORMWATER DETAILS FOR **Sea Pines Apartments**
WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

CONSTRUCTION PLAN SET



Landscape Calculations

South 17th Streetyard	Required	Provided
5781 SF - 26 LF DRIVEWAY=5807 SF	9.9545F	12.7385F
1 TREE PER 600SF	17 TREES	99 SHRUBS
6 SHRUBS PER 600SF		
St. Andrews Streetyard		
938 LF X 18' WIDE	16.9025F	16.9025F
1 TREE PER 600SF	28 TREES	EX. STREETYARD
6 SHRUBS PER 600SF	169 SHRUBS	TO REMAIN ADEQUATE
Proposed Parking Area		
37.6055F @ 20% SHADING	7521SF	168707SF/EA 11.3125F
Foundation Plantings		
24.2555F OF BUILDING FACING ROADS	12% = 2911SF	3.1315F

LEGEND

- ▲ GRADING HIGH POINT
- DRAINAGE DIRECTION
- ▭ PROPOSED CATCH BASIN
- PROPOSED CONTOURS
- EX. NCDOT LIDAR CONTOUR
- PROP. 24 IN. RCP STORM DRAIN
- PROPOSED SEWER CLEANOUT
- IRON REBAR SET
- EX. IRON PIPE
- CONTROL MONUMENT SET
- CONTROL PK NAIL SET
- EX. REG'D. HARDWOOD TREE
- EX. REG'D. PINE TREE
- EX. REG'D. FLOWERING TREE
- PROPOSED COMPACTA JUNIPER
- PROPOSED PITSUDORUM SHRUB
- PROPOSED TRIDENT MAPLE
- PROPOSED LIVE OAK
- PROPOSED DOGWOOD TREE
- PROPOSED RED BUD
- PROPOSED WAX MYRTLE
- PROPOSED BLUE RUG JUNIPER
- TREE TO BE REMOVED

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

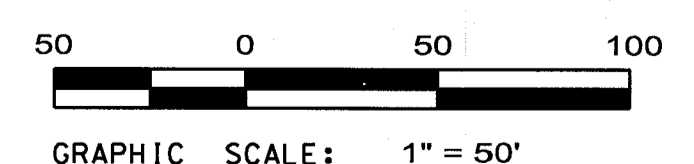
Name: _____ Date: _____

Planning: _____

Public Utilities: _____

Traffic: _____

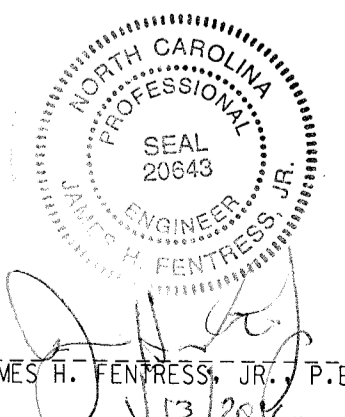
Fire: _____



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

Date: _____ Permit #: _____

Signed: _____



REVISIONS

BY	NO.	DATE	DESCRIPTION
JHF	1.	10/29/15	PER CITY STORM
JHF	2.	12/15/15	PER CFPA

DESIGNED: JHF DATE: 5/6/15 OWNER: Sea Pines Apartments, LLC

DRAWN: KBN SCALE: 1" = 50' ADDRESS: 10 S Cardinal Dr. Wilmington, NC 28403

APPROVED: JHF SHEET 9 OF 9 PHONE: 910-251-5030

STROUD ENGINEERING, P.A.
102-D CINEMA DRIVE WILMINGTON, NORTH CAROLINA 28403
(910) 815-0775 (910) 815-0593 FAX

LANDSCAPING PLAN FOR **Sea Pines Apartments**

WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA