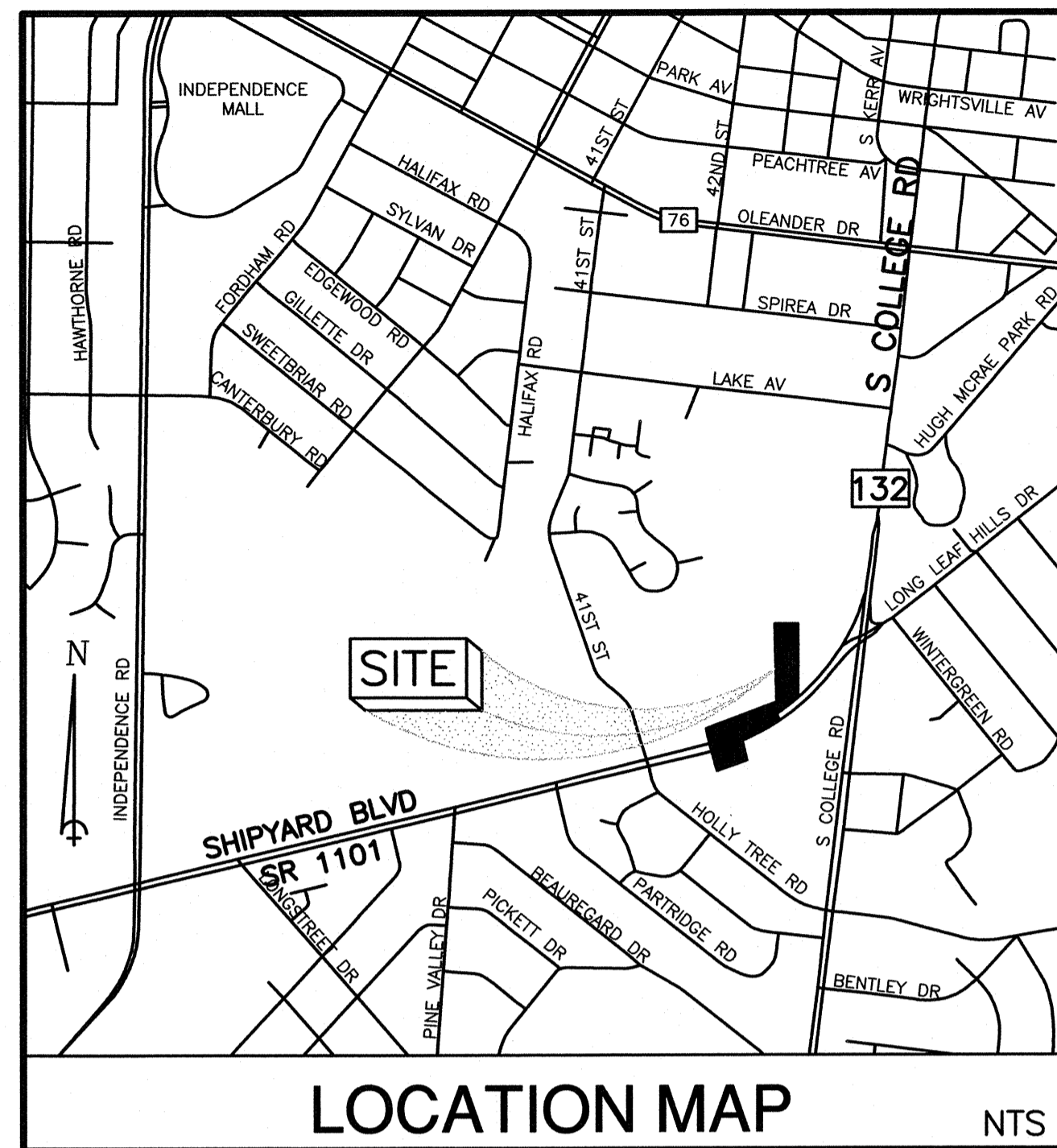


# CAPE FEAR PUBLIC UTILITY AUTHORITY PUMP STATION 8 DESIGN

CFPUA CIP #14S283  
CFPUA MAP #131611.002  
SHIPYARD BOULEVARD  
NEW HANOVER COUNTY  
WILMINGTON, N. C.  
15 JULY 2016



## PROJECT LEGEND

	RIGHT-OF-WAY
	DISTURBED AREA LIMITS
	PROPOSED EASEMENT
	TEMPORARY SILT FENCE
	PROPOSED GRAVITY SEWER
	PROPOSED FORCEMAIN
	PROPOSED FINISH GRADE SPOT ELEVATION
	INLET PROTECTION
	EXISTING CONTOUR
	EXISTING TREE TO BE SAVED
	EXISTING TREE TO BE REMOVED

## SURVEY LEGEND

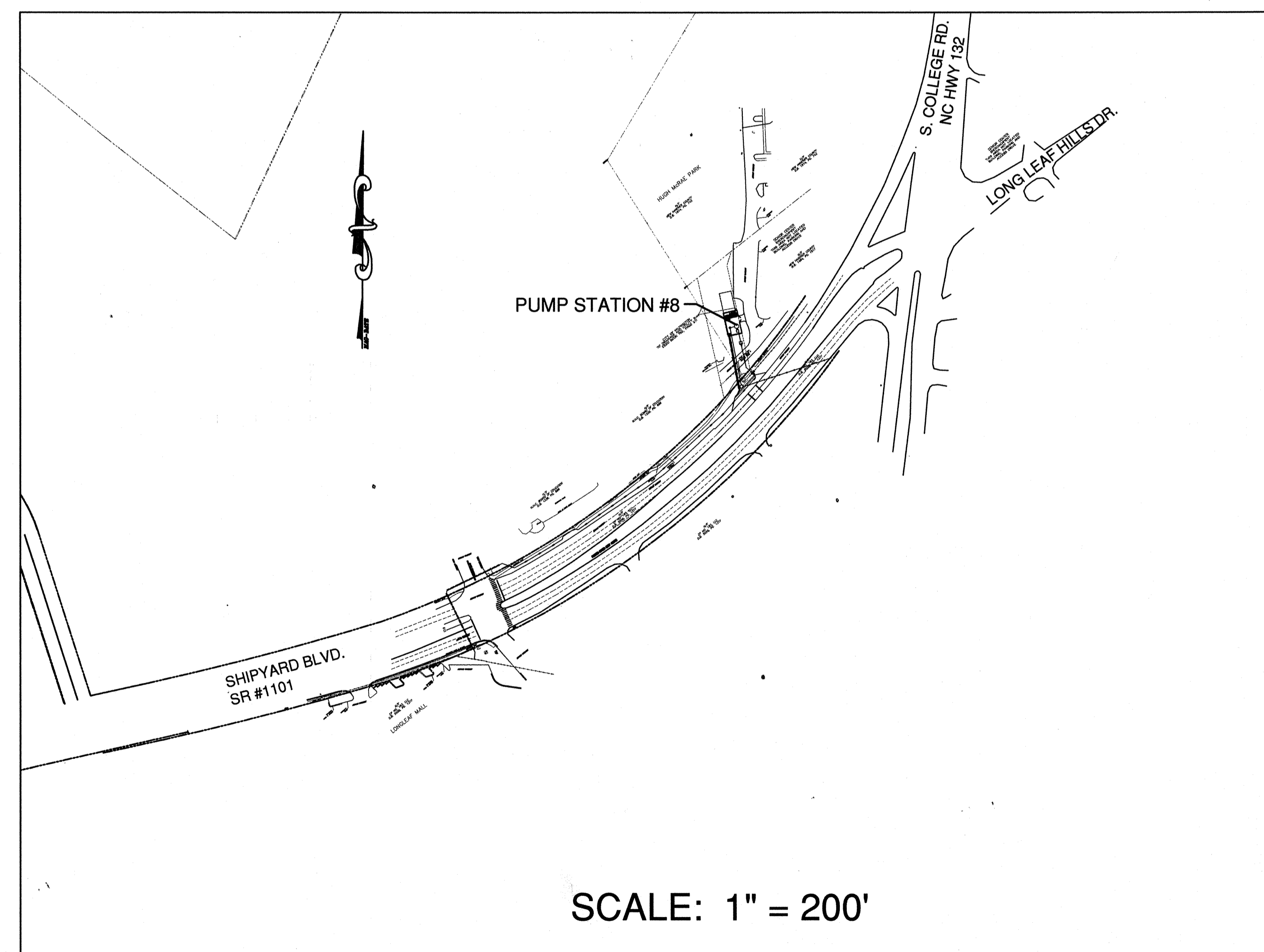
	RIGHT OF WAY
	EDGE OF PAVEMENT LINE
	EASEMENT LINE
	FENCE
	GUARD RAIL
	OVERHEAD POWER LINE
	UNDERGROUND CABLE TV LINE
	UNDERGROUND ELECTRIC LINE
	UNDERGROUND FIBER OPTIC LINE
	UNDERGROUND GAS LINE
	UNDERGROUND TELEPHONE
	UNDERGROUND TRAFFIC SIGNAL
	UNDERGROUND WATER LINE
	STORM SEWER PIPE
	SANITARY SEWER PIPE
	FORCE MAIN PIPE
	UNDERGROUND TRAFFIC LINE

## INDEX OF SHEETS

COVER SHEET	
C1:	EROSION CONTROL AND TREE REMOVAL PLAN
C2:	EROSION CONTROL AND TREE REMOVAL PLAN
C3:	NOTES AND DETAILS
PR1:	SSFM PLAN AND PROFILE
PR2:	SSFM PLAN AND PROFILE
PR3:	GRAVITY SEWER PLAN AND PROFILE
PR4:	LIFT STATION SITE PLAN
PR5:	LIFT STATION DETAILS
SSD-1:	SANITARY SEWER STANDARD DETAILS
SSD-2:	SANITARY SEWER STANDARD DETAILS
SSD-3:	SANITARY SEWER STANDARD DETAILS

### SUPPLEMENTAL SHEETS:

- (1) EXISTING LIFT STATION #8 AS BUILT DETAILS
- (2) EXISTING LIFT STATION #8 AS BUILT PROFILES



SCALE: 1" = 200'

## DESIGN TEAM:

LEAD DESIGN ENGINEER  
**NORRIS & TUNSTALL**

CONSULTING ENGINEERS, P.C.

902 MARKET STREET WILMINGTON, NC 28401  
PHONE (910) 343-9653  
FAX (910) 343-9604  
office@nkteng.com  
licence #C-3641

## OWNER

CFPUA

JEFF THEBERGE PROJECT MANAGER  
235 GOVERNMENT CENTER DR.  
WILMINGTON, NC 28403  
910 332-6673

## ELECTRICAL

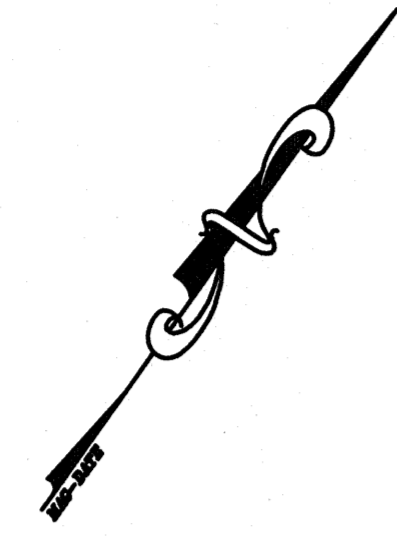
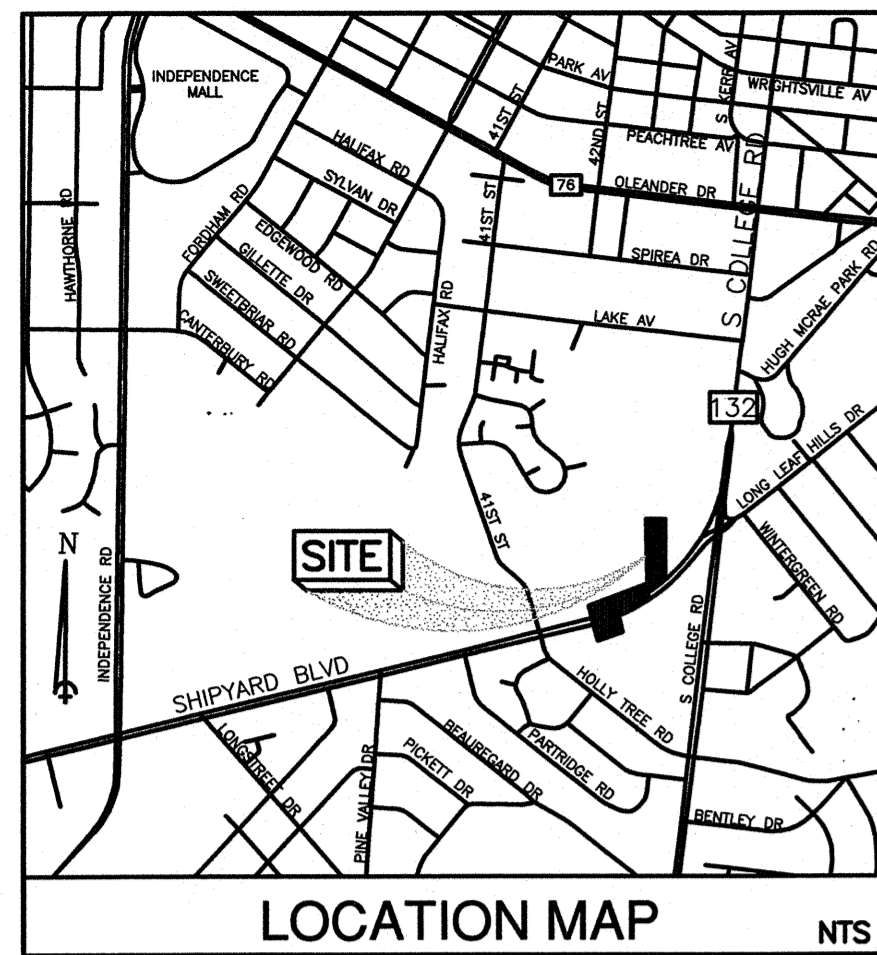
CHEATHAM & ASSOCIATES, PA  
CONSULTING ENGINEERS  
3412 ENTERPRISE DRIVE  
WILMINGTON, NC 28405  
910 452-4210

## SURVEYOR

ROBERT H. GOSLEE & ASSOCIATES, PA  
LAND SURVEYORS - LAND PLANNERS  
FIRM LICENSE NUMBER: C-1167  
513 CHESTNUT STREET  
WILMINGTON, NORTH CAROLINA 28401  
910-763-1941  
rhgilm@bellsouth.net  
FILE No.: 61100101

## SEWER QUANTITIES FOR PROJECT

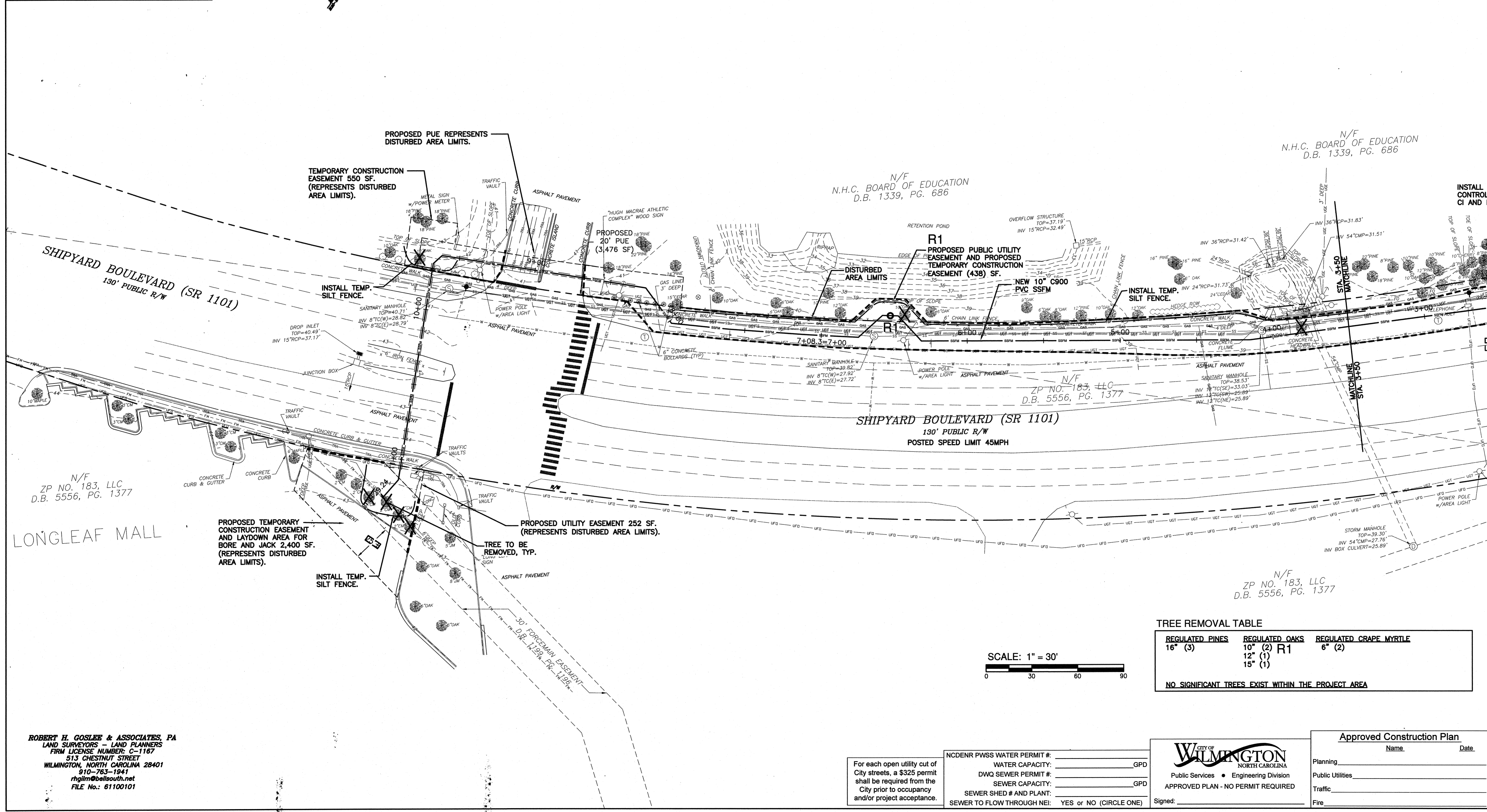
GRAVITY SANITARY SEWER:	130 LF 12"
GRAVITY SANITARY SEWER:	10 LF 18"
SANITARY SEWER FORCEMAIN:	1,130 LF 10"



R1	2/24/17	REVISED SSFM FROM STA. 1+00 THRU 6+40 WITH 12" HDPE DIRECTIONAL DRILL. CANK TO BE REMOVED.	BY
SYMBOL	DATE	DESCRIPTION	
			REVISIONS

© 2015 NORRIS & TUNSTALL  
**EROSION CONTROL AND TREE REMOVAL PLAN**  
 PUMP STATION 8 DESIGN  
 SHIPYARD BOULEVARD  
 NEW HANOVER COUNTY  
 WILMINGTON, N. C.

**OWNER/DEVELOPER**  
 CPFLA  
 JEFF THEBERGE  
 PROJECT MANAGER  
 235 GOVERNMENT CENTER DR.  
 WILMINGTON, NC 28403  
 910-332-6673

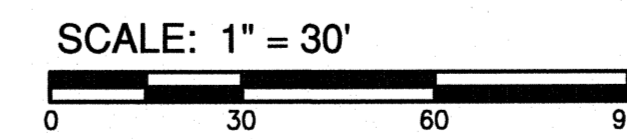


N/F  
 ZP NO. 183, LLC  
 D.B. 5556, PG. 1377

N/F  
 N.H.C. BOARD OF EDUCATION  
 D.B. 1339, PG. 686

N/F  
 ZP NO. 183, LLC  
 D.B. 5556, PG. 1377

N/F  
 ZP NO. 183, LLC  
 D.B. 5556, PG. 1377



**TREE REMOVAL TABLE**

REGULATED PINES	REGULATED OAKS	REGULATED CRAPE MYRTLE
16" (3)	10" (2) R1	6" (2)
	12" (1)	
	15" (1)	

NO SIGNIFICANT TREES EXIST WITHIN THE PROJECT AREA

**ROBERT H. GOSLEE & ASSOCIATES, PA**  
 LAND SURVEYORS - LAND PLANNERS  
 FIRM LICENSE NUMBER: C-1167  
 513 CHESTNUT STREET  
 WILMINGTON, NORTH CAROLINA 28401  
 910-783-1941  
 rhg@rhgllc.com  
 FILE No.: 61100101

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

NCDENR PWSS WATER PERMIT #:  
 WATER CAPACITY: \_\_\_\_\_ GPD  
 DVQ SEWER PERMIT #:  
 SEWER CAPACITY: \_\_\_\_\_ GPD  
 SEWER SHED # AND PLANT:  
 SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)

**CITY OF WILMINGTON**  
 NORTH CAROLINA  
 Public Services • Engineering Division  
 APPROVED PLAN - NO PERMIT REQUIRED  
 Signed: \_\_\_\_\_

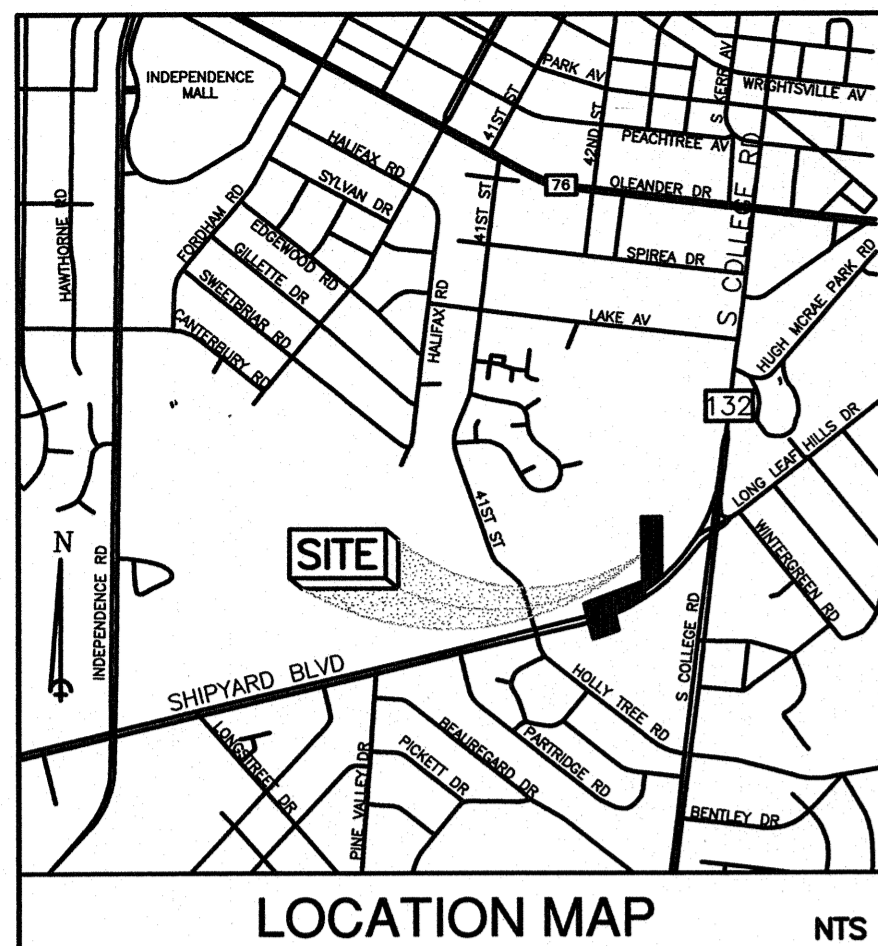
**Approved Construction Plan**  
 Name \_\_\_\_\_ Date \_\_\_\_\_  
 Planning \_\_\_\_\_  
 Public Utilities \_\_\_\_\_  
 Traffic \_\_\_\_\_  
 Fire \_\_\_\_\_

**NORRIS & TUNSTALL**  
**CONSULTING ENGINEERS, P.C.**  
 902 MARKET STREET  
 WILMINGTON, NC 28401  
 PHONE (910) 343-9653  
 FAX (910) 343-9604  
 office@nrteng.com  
 license #C-3641

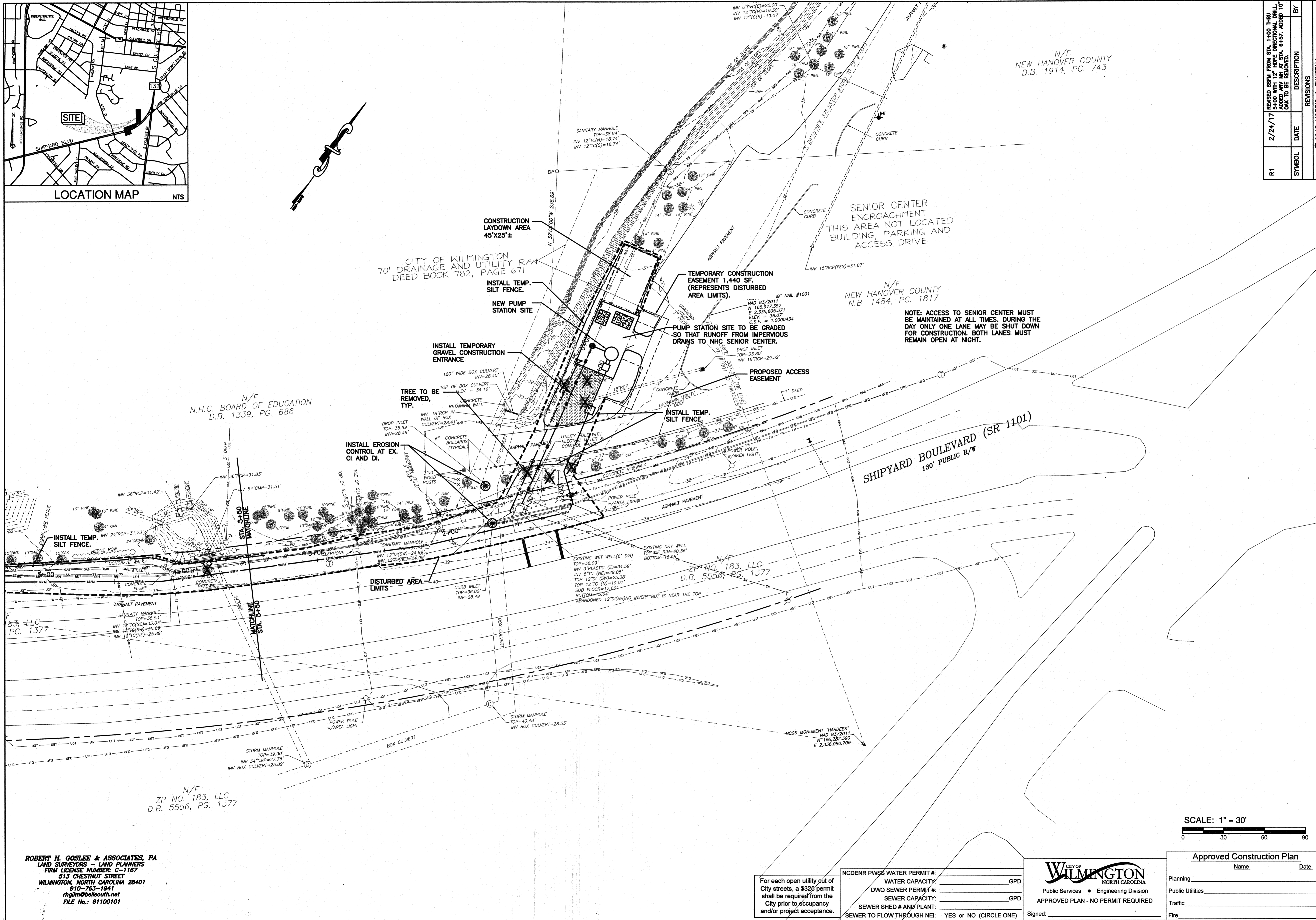
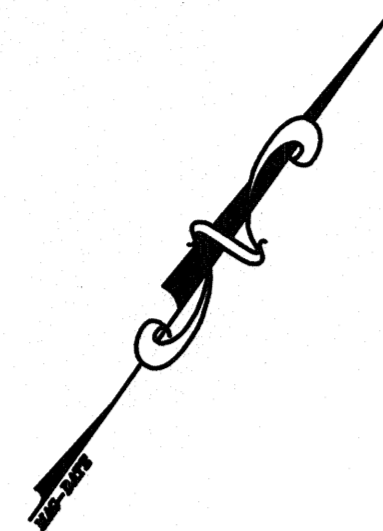
15048  
 DES. JST  
 ORG. JPN  
 DRWL. NKS  
 DATE 7/15/16



**C1**



LOCATION MAP NTS



N/F  
NEW HANOVER COUNTY  
D.B. 1914, PG. 743

SENIOR CENTER ENCROACHMENT  
THIS AREA NOT LOCATED  
BUILDING, PARKING AND  
ACCESS DRIVE

N/F  
NEW HANOVER COUNTY  
N.B. 1484, PG. 1817

NOTE: ACCESS TO SENIOR CENTER MUST  
BE MAINTAINED AT ALL TIMES. DURING THE  
DAY ONLY ONE LANE MAY BE SHUT DOWN  
FOR CONSTRUCTION. BOTH LANES MUST  
REMAIN OPEN AT NIGHT.

N/F  
N.H.C. BOARD OF EDUCATION  
D.B. 1339, PG. 686

N/F  
ZP NO. 183, LLC  
D.B. 5556, PG. 1377

N/F  
ZP NO. 183, LLC  
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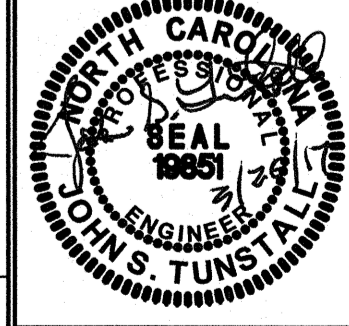
REVISIONS	DATE	DESCRIPTION	BY
R1	2/24/17	REVISED SSFM FROM STA. 1+00 THRU 6+00 WITH 12" HDPE DIRECTIONAL DRILL. ALL DIMENSIONS TO BE MAINTAINED. 6+57. ADD 10' OAK TO BE REMOVED.	

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EROSION CONTROL AND TREE REMOVAL PLAN  
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WILMINGTON, N. C.

OWNER/DEVELOPER  
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JEFF THEBERGE  
PROJECT MANAGER  
235 GOVERNMENT CENTER DR.  
WILMINGTON, NC 28403  
910 932-6673

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**CONSULTING ENGINEERS, P.C.**  
902 MARKET STREET  
WILMINGTON, NC 28401  
PHONE (910) 343-9853  
FAX (910) 343-9804  
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license #C-3041

15048  
DES. JST  
CHK. JPN  
DRWN. NKS  
DATE 7/15/16



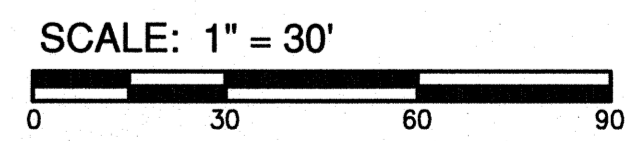
C2

ROBERT H. GOSLEE & ASSOCIATES, PA  
LAND SURVEYORS - LAND PLANNERS  
FIRM LICENSE NUMBER: C-1167  
513 CHESTNUT STREET  
WILMINGTON, NORTH CAROLINA 28401  
910-763-1941  
rhg@mbsouth.net  
FILE No.: 61100101

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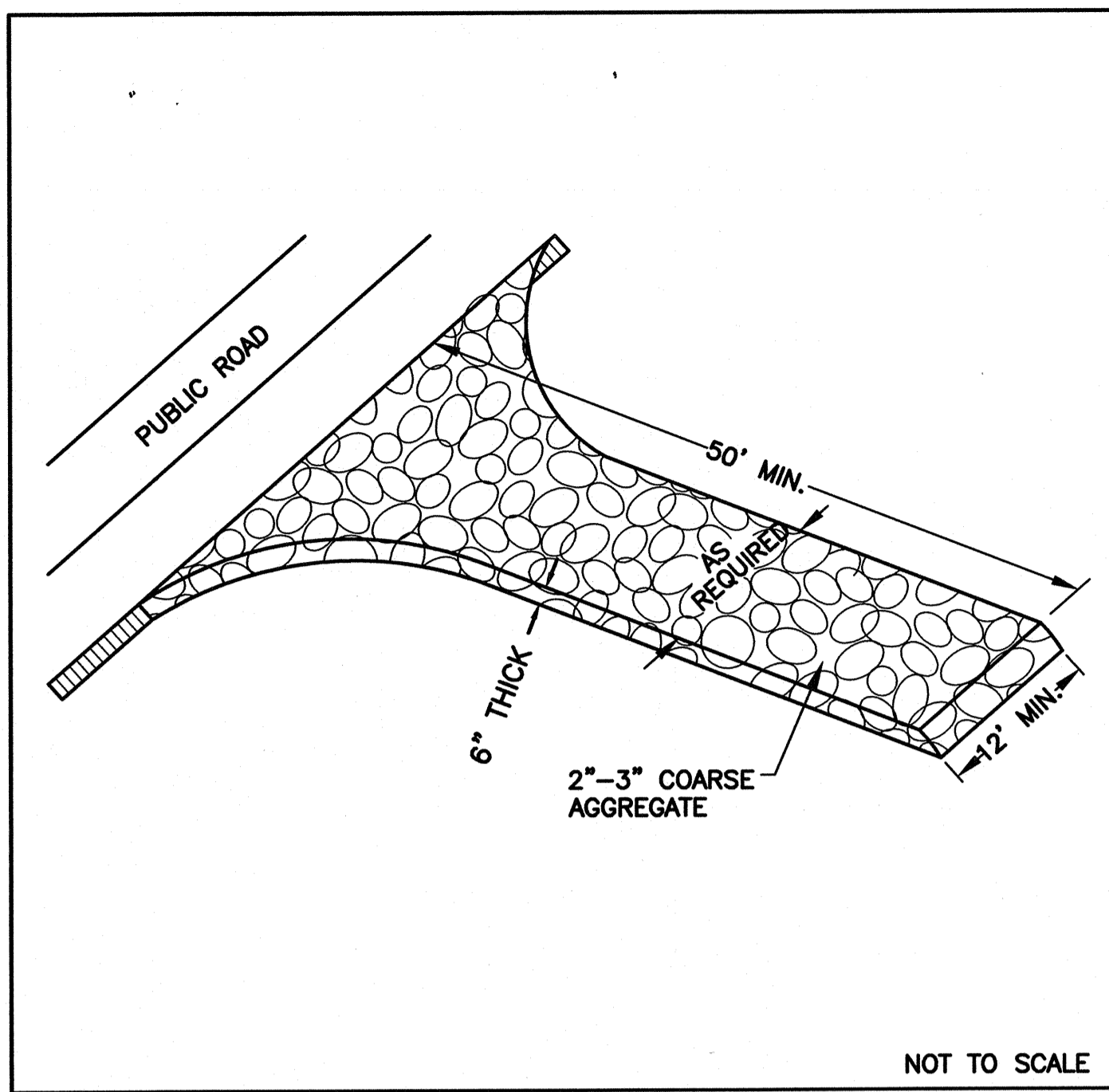
NCDENR PWSS WATER PERMIT #:	_____
WATER CAPACITY:	_____ GPD
DWQ SEWER PERMIT #:	_____
SEWER CAPACITY:	_____ GPD
SEWER SHED # AND PLANT:	_____
SEWER TO FLOW THROUGH NEI:	YES or NO (CIRCLE ONE)

City of WILMINGTON  
NORTH CAROLINA  
Public Services • Engineering Division  
APPROVED PLAN - NO PERMIT REQUIRED  
Signed: \_\_\_\_\_



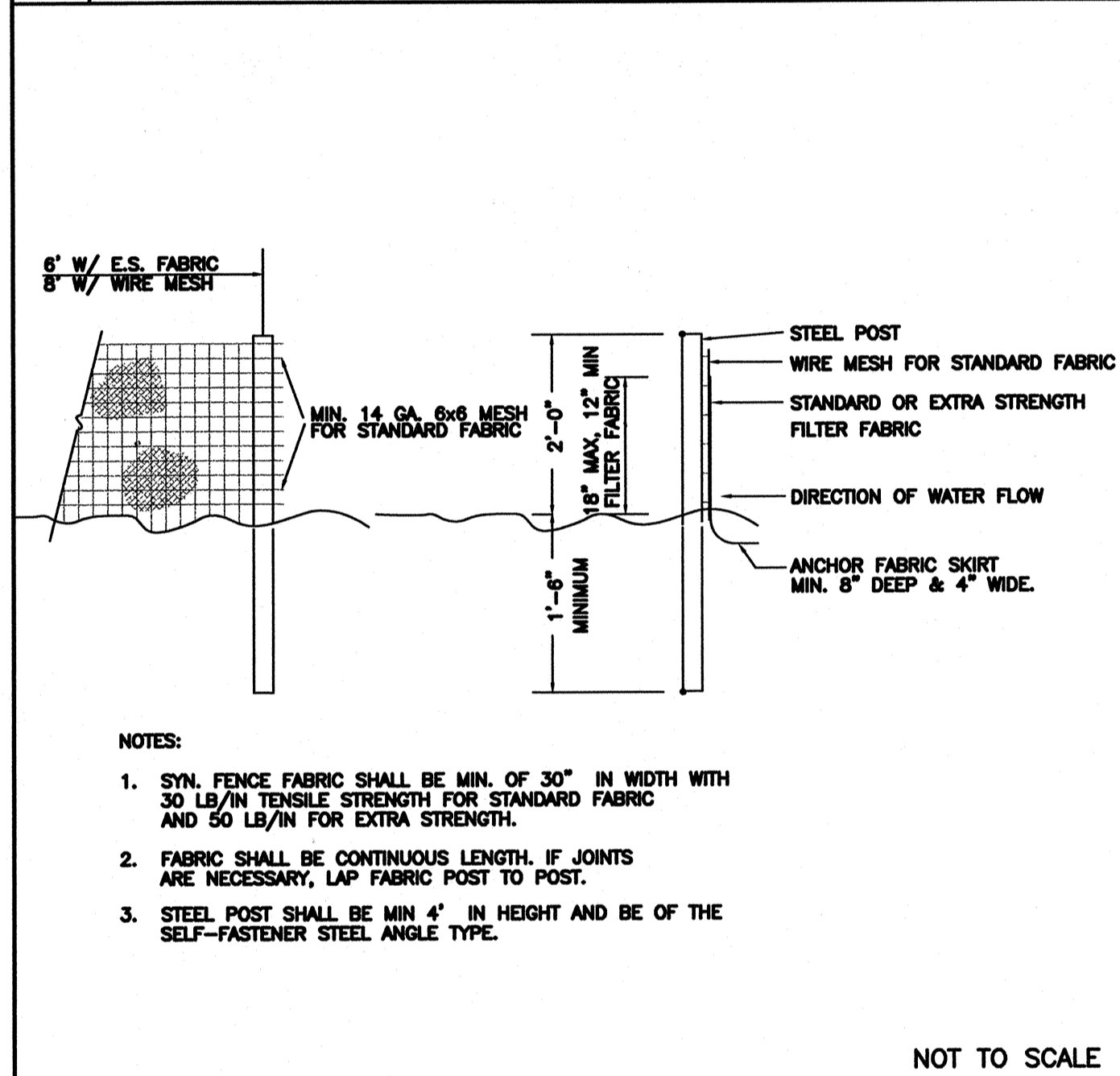
Approved Construction Plan

Name	Date
Planning	_____
Public Utilities	_____
Traffic	_____
Fire	_____



NOT TO SCALE

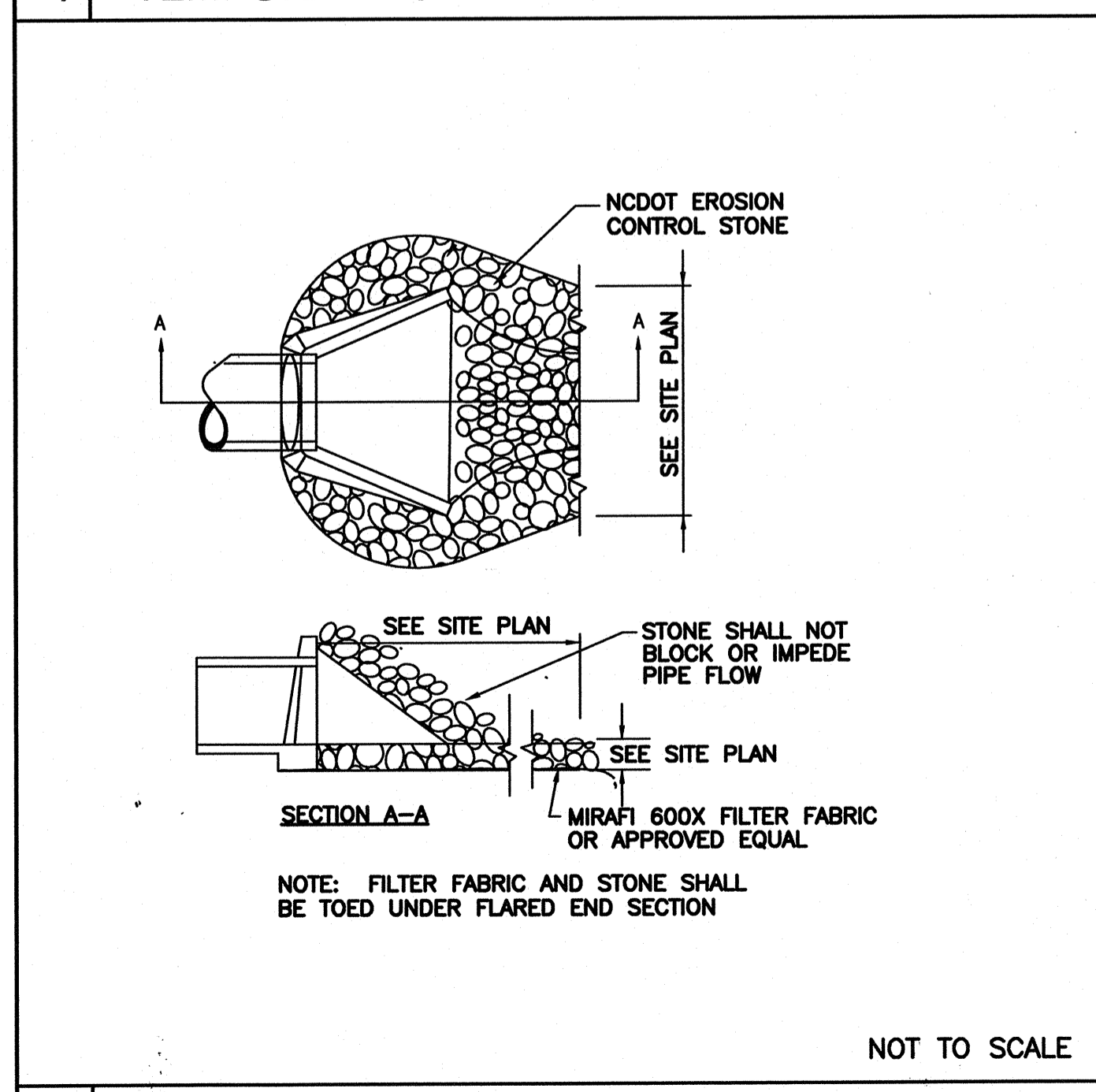
1 TEMPORARY GRAVELLED CONSTRUCTION ENTRANCE



- NOTES:
1. SYN. FENCE FABRIC SHALL BE MIN. OF 30" IN WIDTH WITH 30 LB/IN TENSILE STRENGTH FOR STANDARD FABRIC AND 50 LB/IN FOR EXTRA STRENGTH.
  2. FABRIC SHALL BE CONTINUOUS LENGTH. IF JOINTS ARE NECESSARY, LAP FABRIC POST TO POST.
  3. STEEL POST SHALL BE MIN 4' IN HEIGHT AND BE OF THE SELF-FASTENER STEEL ANGLE TYPE.

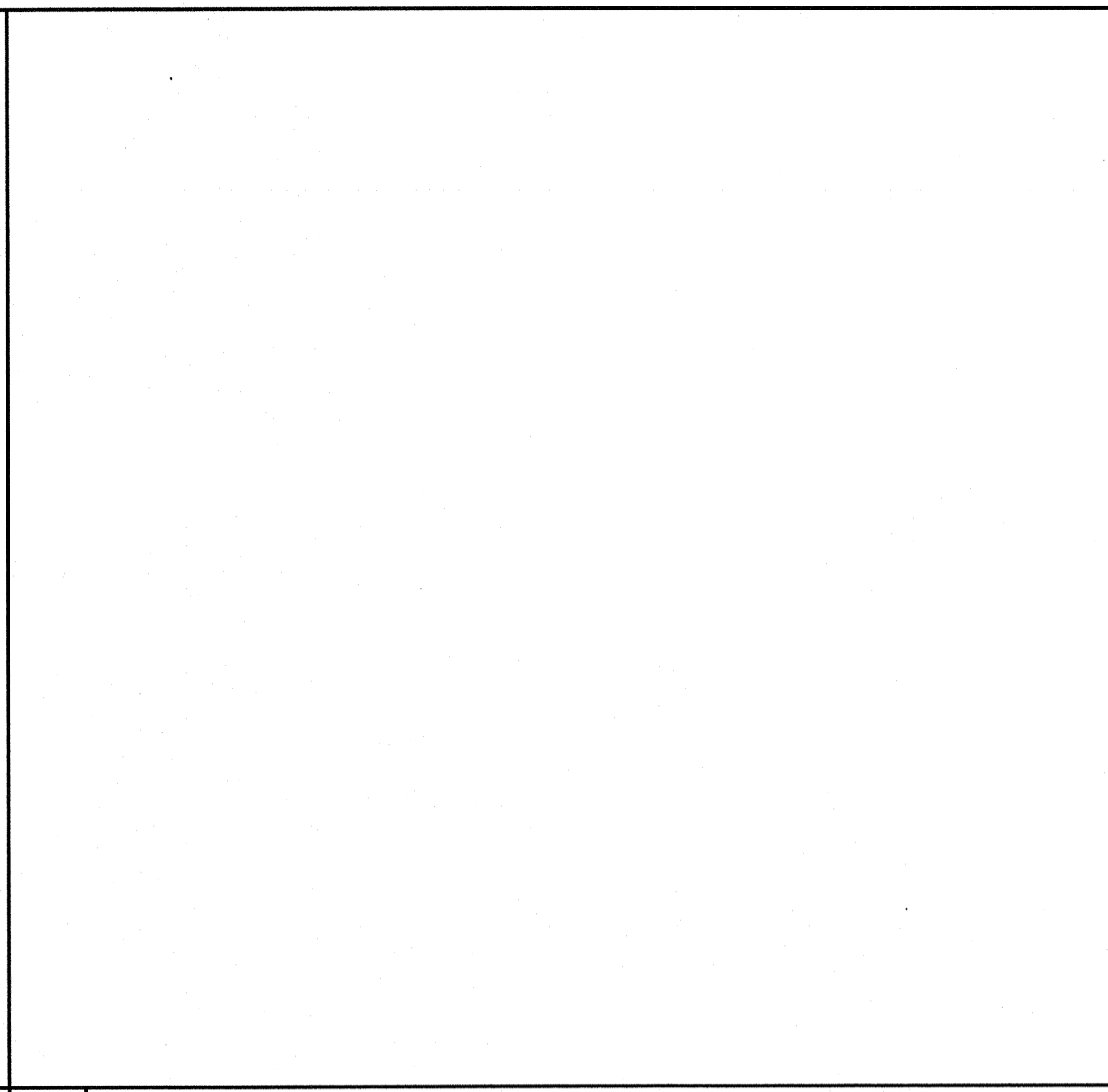
NOT TO SCALE

4 TEMPORARY SILT FENCE

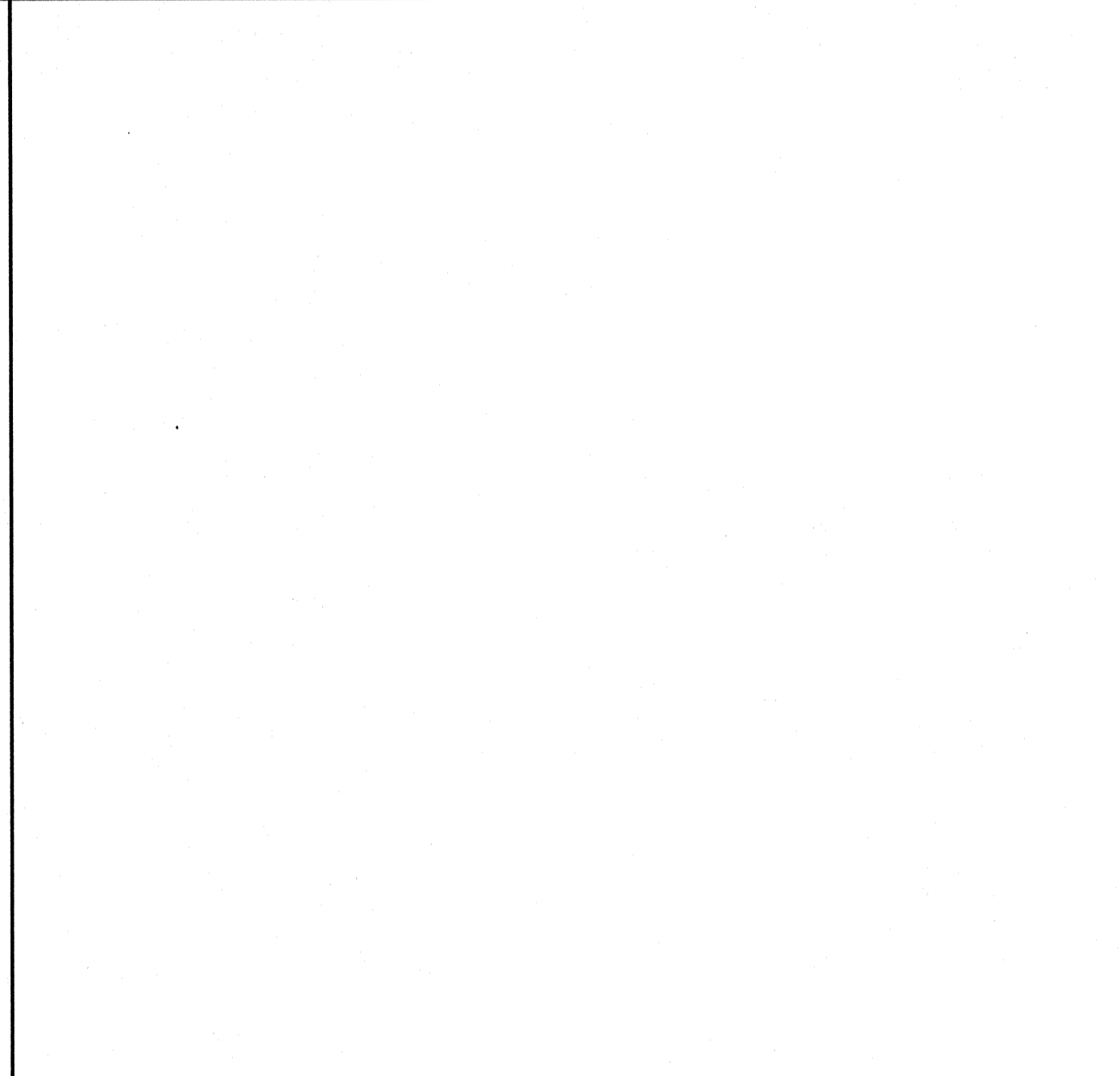


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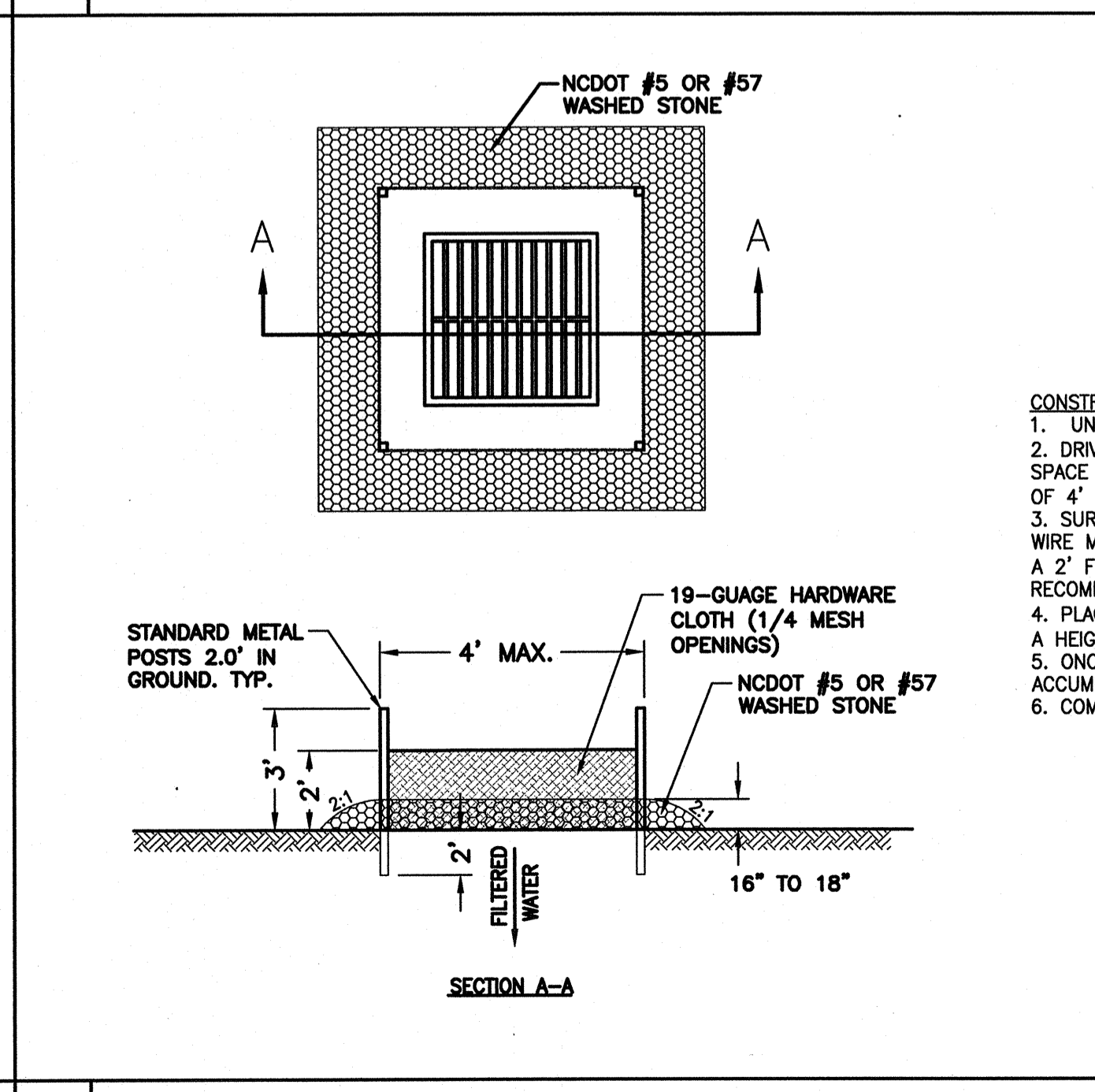
7 ENERGY DISSIPATOR



2



5



NOT TO SCALE

8 HARDWARE CLOTH AND GRAVEL INLET PROTECTION

**SITE WORK NOTES:**

1. THE CONTRACTOR SHALL VISIT THE SITE TO BECOME FAMILIAR WITH FIELD CONSTRUCTION CONDITIONS.
2. CONTRACTOR SHALL COORDINATE WORK WITHIN NCDOT AND LOCAL RIGHT OF WAYS WITH PROPER AUTHORITIES AND SHALL MEET ANY REQUIREMENTS AS TO TRAFFIC CONTROL AND CONNECTION TO EXISTING STREETS.
3. EARTH WORK AND GRADING: SEE PROJECT SPECIFICATIONS.
4. LAYOUT: THE CONTRACTOR SHALL PROVIDE ALL LAYOUT REQUIRED TO CONSTRUCT HIS WORK.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF EXISTING UTILITIES DURING CONSTRUCTION.
6. EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION FROM SURVEY BY ROBERT H. GOSLEE AND ASSOC. AND PROVIDED BY OWNER.
7. THE CONTRACTOR SHALL VERIFY DIMENSIONS AT JOBSITE.
8. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF RELOCATION OR DISCONNECTION OF ALL EXISTING UTILITIES WITH APPLICABLE AGENCIES AND AUTHORITIES.
9. ALL PAVEMENT AND BASE MATERIALS AND WORKMANSHIP SHALL CONFORM TO NCDOT STANDARDS.
10. ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE.
11. SEE SOILS REPORT FOR ADDITIONAL REQUIREMENTS.
12. IF SIDEWALK IS CLOSED, REMOVED, OR BLOCKED, PLEASE COORDINATE BETWEEN THE PROJECT, C.O.W., AND THE PROPERTY OWNER TO PROVIDE ADEQUATE SIDEWALK CLOSURE SIGNAGE, PROPOSED PEDESTRIAN DETOURS AND BARRIER TAPE/MARKINGS/FENCING AT THE SITE.

**EROSION CONTROL NOTES AND MAINTENANCE PLAN:**

1. ALL EROSION AND SEDIMENT 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.
2. ALL POINTS OF EGRESS WILL HAVE CONSTRUCTION ENTRANCES THAT WILL BE PERIODICALLY TOP-DRESSED WITH AN ADDITIONAL 2 INCHES 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.
3. SEDIMENT WILL BE REMOVED FROM HARDWARE CLOTH AND GRAVEL INLET PROTECTION, BLOCK AND GRAVEL INLET PROTECTION, ROCK DOUGHNUT INLET PROTECTION AND ROCK PIPE 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 WATTLES, BEAVER DAMS, DANDY SACKS AND SOCKS ONCE A WEEK AND AFTER EVERY RAIN EVENT.
4. 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 TEMPORARILY STABILIZED WITHIN 21 CALENDAR DAYS OF CEASE OF ANY PHASE OF ACTIVITY ASSOCIATED WITH A SWALE.
5. 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 8 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 DESIGNED 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.
6. LAND QUALITY REQUIRES: 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.

**WATER QUALITY REQUIRES:**

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 PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, ALL SLOPES STEEPER THAN 3' HORIZONTAL TO 1' VERTICAL (3:1) AND ALL HIGH QUALITY WATER (HOW) ZONES SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN SEVEN (7) CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY. ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN FOURTEEN (14) CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.

**TEMPORARY/PERMANENT GRASS SPECIFICATION:**

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS.
2. RIP THE ENTIRE AREA TO A 6 INCH DEPTH.
3. REMOVE ALL ROCKS, ROOTS AND OTHER OBSTRUCTIONS LEAVING SURFACES SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME AND FERTILIZER UNIFORMLY AND MIX WITH SOIL.
  - LIME: 45 LBS. PER 1000 S.F.
  - PHOSPHOROUS: 20 LBS. PER 1000 S.F.
  - FERTILIZER: 17 LBS. PER 1000 S.F.
5. CONTINUE TILLAGE UNTIL A WELL PULVERIZED, FIRM, UNIFORM SEED BED IS PREPARED 4-6 INCHES DEEP.
6. SEED ON A FRESHLY PREPARED SEED BED AND COVER SEED LIGHTLY.
  - 2 - 3 LBS PER 1000 S.F. (SEE MIXTURE BELOW)
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
  - GRAIN STRAW & HAY AT 75 TO 100 LBS PER 1000 S.F.
  - WOOD CHIPS AT 500 LBS. PER 1000 S.F.
  - JUTE & MESH AS PER MANUFACTURER
8. ASPHALT FOR ANCHORING MULCH SHALL BE TYPE SS-1 EMULSION AND APPLIED AT A RATE OF 1000 GAL. PER ACRE FOR SLOPE STABILIZATION, AND 150 GAL. PER TON OF STRAW FOR ANCHORING STRAW.
9. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEED WITHIN THE PLANTING SEASON, IF POSSIBLE. IF GRASS STAND SHOULD BE OVER 60% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
10. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE, TREATMENT, AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.
11. SEED FOR TEMPORARY AND PERMANENT APPLICATIONS SHALL BE:
  - 20% CARPET GRASS
  - 28% BERMUDA GRASS
  - 20% TURF FESCUE
  - 10% CREEPING RED FESCUE
  - 20% ANNUAL RYE GRASS

\*BERMUDA SEED SHALL BE HULLED FOR WARM WEATHER PLANTING. PURITY OF SEED SHALL BE A MIN. OF 98% AND GERMINATION SHALL BE A MIN. OF 85%.

ALL DISTURBED AREA SHALL BE SEEDED WITHIN 7-14 DAYS OF THE COMPLETION OF GRADING. SEE EROSION CONTROL AND MAINTENANCE NOTES. CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDEED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS, OTHER SEEDING SCHEDULES MAY BE POSSIBLE.

NOT TO SCALE

6

**CITY OF WILMINGTON STANDARD NOTES:**

1. CONTACT THE NORTH CAROLINA ONE CALL CENTER PRIOR TO DOING ANY DIGGING AT 1-800-632-4949.
2. PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES AND NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
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 PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
5. INSTALL REFLECTORS PER CITY AND NCDOT STANDARDS. TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING LAYOUT PRIOR TO ACTUAL STRIPING.
6. ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
7. 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.
8. 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. POSTED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
9. CONTACT TRAFFIC ENGINEERING AT 341-7888 FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT-OF-WAY.
10. A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET. CONTACT 341-5888 FOR MORE DETAILS. IN CERTAIN CASES AN ENTIRE RESURFACING OF THE AREA BEING OPEN CUT MAY BE REQUIRED.
11. ANY BROKEN OR MISSING SIDEWALK PANELS, DRIVEWAY PANELS, AND CURBING WILL BE REPLACED.
12. CONTACT KAREN DIXON AT 341-7888 TO DISCUSS STREET LIGHTING OPTIONS.
13. PROJECT SHALL COMPLY WITH CFPWA CROSS CONNECTION CONTROL REQUIREMENTS. WATER METER(S) CANNOT BE RELEASED UNTIL ALL REQUIREMENTS ARE MET AND THE STATE HAS GIVEN THEIR FINAL APPROVAL. CALL 343-3910 FOR INFORMATION.
14. IF THE CONTRACTOR DESIRES CFPWA WATER FOR CONSTRUCTION HE SHALL APPLY IN ADVANCE FOR THIS SERVICE AND MUST PROVIDE A REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTION DEVICE ON THE DEVELOPER'S SIDE OF THE WATER METER BOX.
15. ANY IRRIGATION SYSTEM SUPPLIED BY CFPWA WATER SHALL COMPLY WITH CFPWA CROSS CONNECTION CONTROL REGULATIONS. CALL 332-6558 FOR INFORMATION.
16. ANY BACKFLOW PREVENTION DEVICES REQUIRED BY CFPWA WILL NEED TO BE ON THE LIST OF APPROVED DEVICES BY USCFCCHR OR ASSE.
17. WHEN PVC WATER MAINS AND/OR POLYETHYLENE SERVICES ARE PROPOSED, THE PIPES ARE TO BE MARKED WITH NO. 10 INSULATED SINGLE STRAND COPPER WIRE INSTALLED THE ENTIRE LENGTH AND SECURED TO ALL VALVES. THIS WIRE IS TO BE ACCESSIBLE AT ALL FIRE HYDRANTS AND WATER METER BOXES TO AID IN FUTURE LOCATION OF FACILITIES.
18. THE NUMBER AND SPACING OF DRIVEWAYS FOR ALL INTERCONNECTED SITES WILL BE DETERMINED BY THE COMBINED FRONTAGE OF THE INTERCONNECTED PROPERTIES.
19. UNDERGROUND FIRE LINE MUST BE PERMITTED AND INSPECTED BY THE WILMINGTON FIRE DEPARTMENT FROM THE PUBLIC ROW TO THE BUILDING. CONTACT THE WILMINGTON FIRE DEPARTMENT DIVISION OF FIRE AND LIFE SAFETY AT 910-343-0696 FOR ADDITIONAL INFORMATION.
20. A LANDSCAPE PLAN INDICATING THE LOCATION OF REQUIRED STREET TREES SHALL BE SUBMITTED TO THE CITY OF WILMINGTON TRAFFIC ENGINEER DIVISION AND PARKS AND RECREATION DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE RECORDING OF THE FINAL PLAN.
21. IF AN IRRIGATION SYSTEM IS PLANNED FOR THE SITE, UTILIZE MOISTURE SENSORS.
22. ALL PROPOSED VEGETATION WITHIN THE SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 30"-10'.

**NOTES AND DETAILS**

**PUMP STATION 8 DESIGN**

**SHIPYARD BOULEVARD**

**NEW HANOVER COUNTY**

**WILMINGTON, N. C.**

**OWNER/DEVELOPER**

**CERVA**

**JEFF THERBERG**

**PROJECT MANAGER**

**235 GOVERNMENT CENTER DR.**

**WILMINGTON, NC 28403**

**910 332-9673**

**NORRIS & TUNSTALL**

**CONSULTING ENGINEERS, P.C.**

**902 MARKET STREET**

**WILMINGTON, NC 28401**

**PHONE (910) 343-9653**

**FAX (910) 343-9604**

**office@nkteng.com**

**license #C-3641**

**15048**

**DES. JUST**

**ORD. JPN**

**DRWN. NKS**

**DATE 4/25/17**

**APPROVED PLAN - NO PERMIT REQUIRED**

**WILMINGTON NORTH CAROLINA**

**Public Services • Engineering Division**

**APPROVED PLAN - NO PERMIT REQUIRED**

Signed: \_\_\_\_\_

**Approved Construction Plan**

Name \_\_\_\_\_ Date \_\_\_\_\_

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

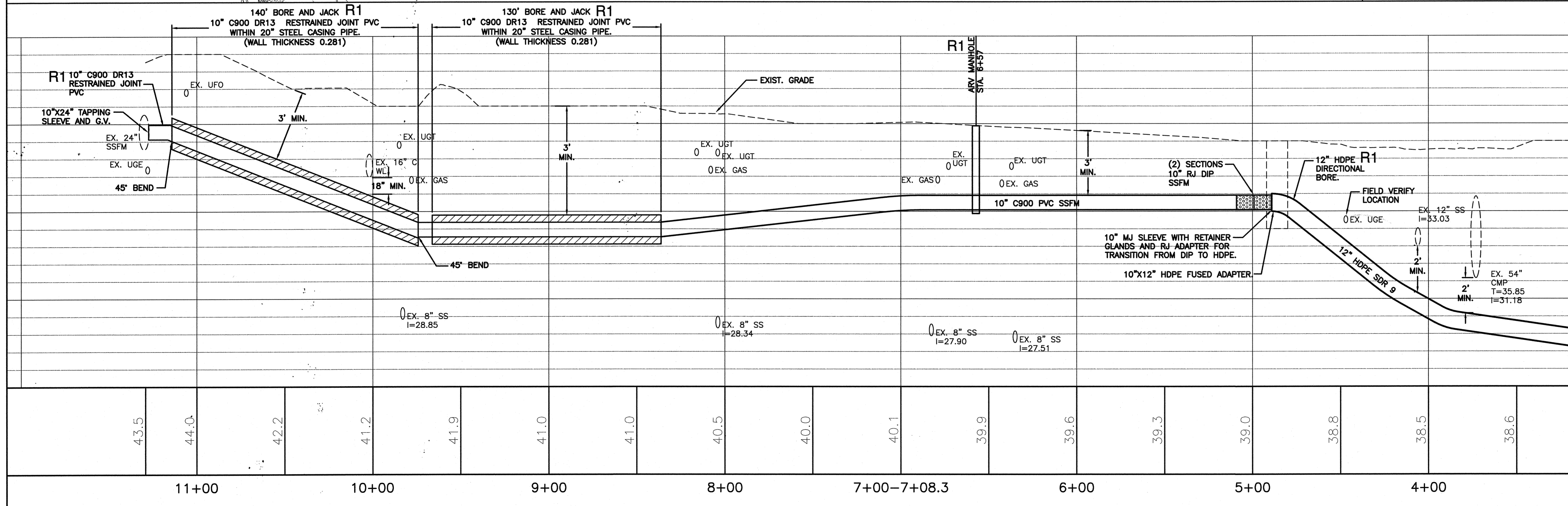
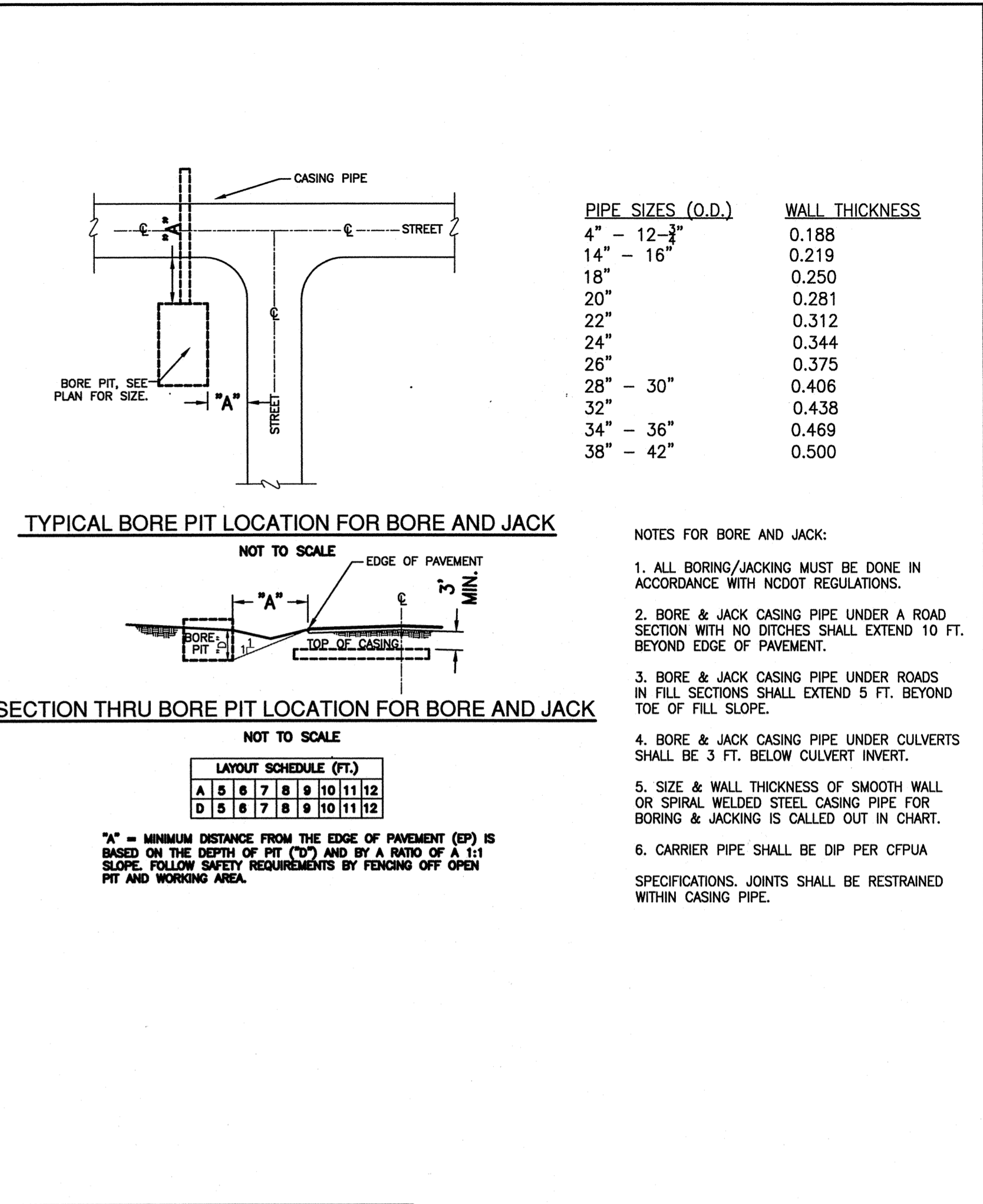
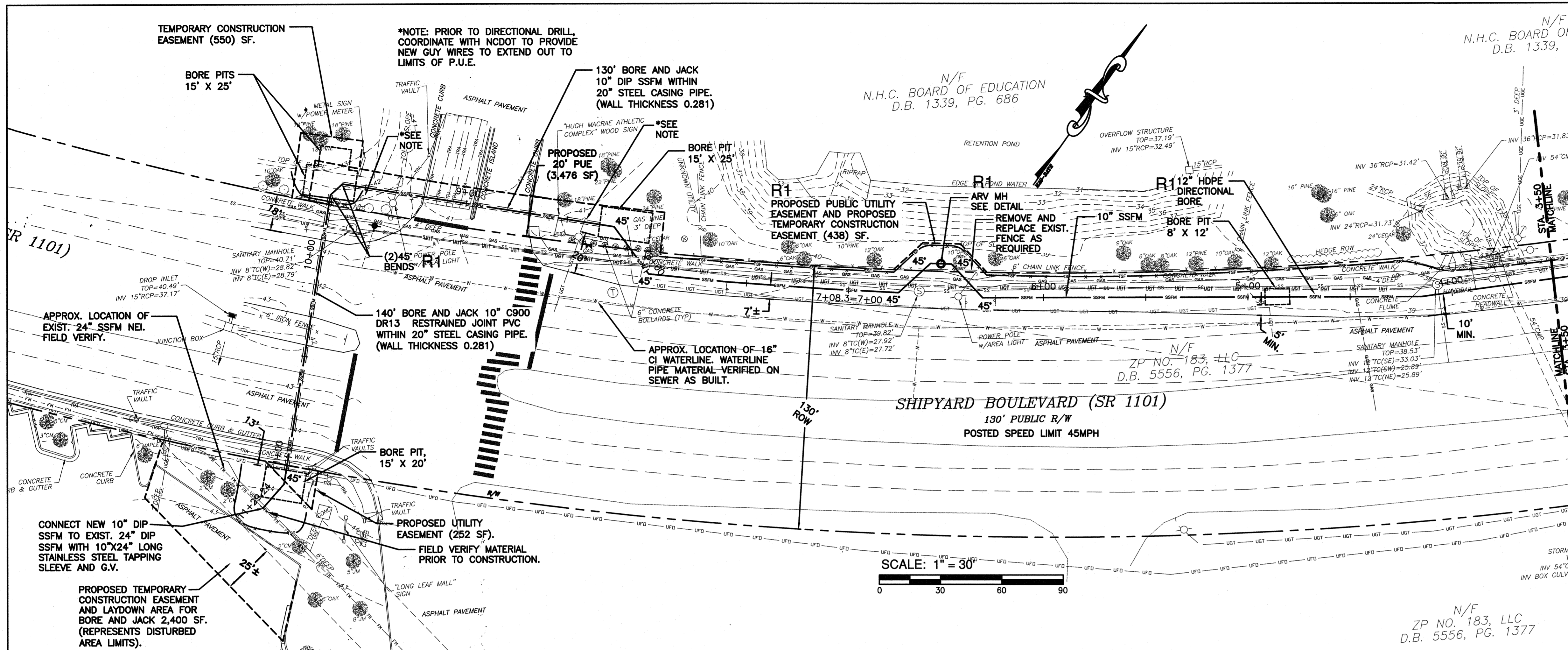
Fire \_\_\_\_\_

**REVISIONS**

SYMBOL	DATE	DESCRIPTION	BY

© 2014 NORRIS & TUNSTALL

**C3**



SCALE: 1" = 30" HORIZONTAL  
1" = 3" VERTICAL

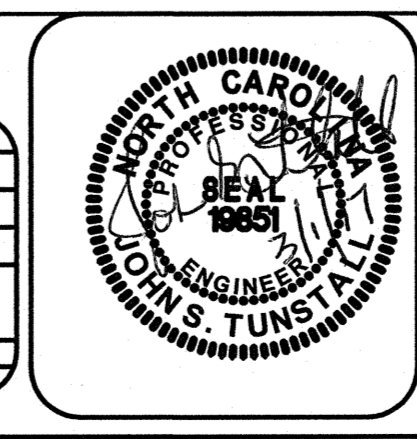
For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

NCDENR PWSS WATER PERMIT # \_\_\_\_\_  
WATER CAPACITY: \_\_\_\_\_ GPD  
DWQ SEWER PERMIT # \_\_\_\_\_  
SEWER CAPACITY: \_\_\_\_\_ GPD  
SEWER SHED # AND PLANT: \_\_\_\_\_  
SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)

**CITY OF WILMINGTON**  
NORTH CAROLINA  
Public Services • Engineering Division  
APPROVED PLAN - NO PERMIT REQUIRED  
Signed: \_\_\_\_\_

**Approved Construction Plan**  
Name \_\_\_\_\_ Date \_\_\_\_\_  
Planning \_\_\_\_\_  
Public Utilities \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_

REV. NO.	DESCRIPTION	DATE
R1	REVISED SSFM FROM STA. 1+00 THRU 5+00 WITH 12" HDPE DIRECTIONAL DRILL ADDED ARV MH AT STA. 6+57. REV. PIPE MATERIAL FOR BORE AND JACK.	2/24/17
	REVISIONS	

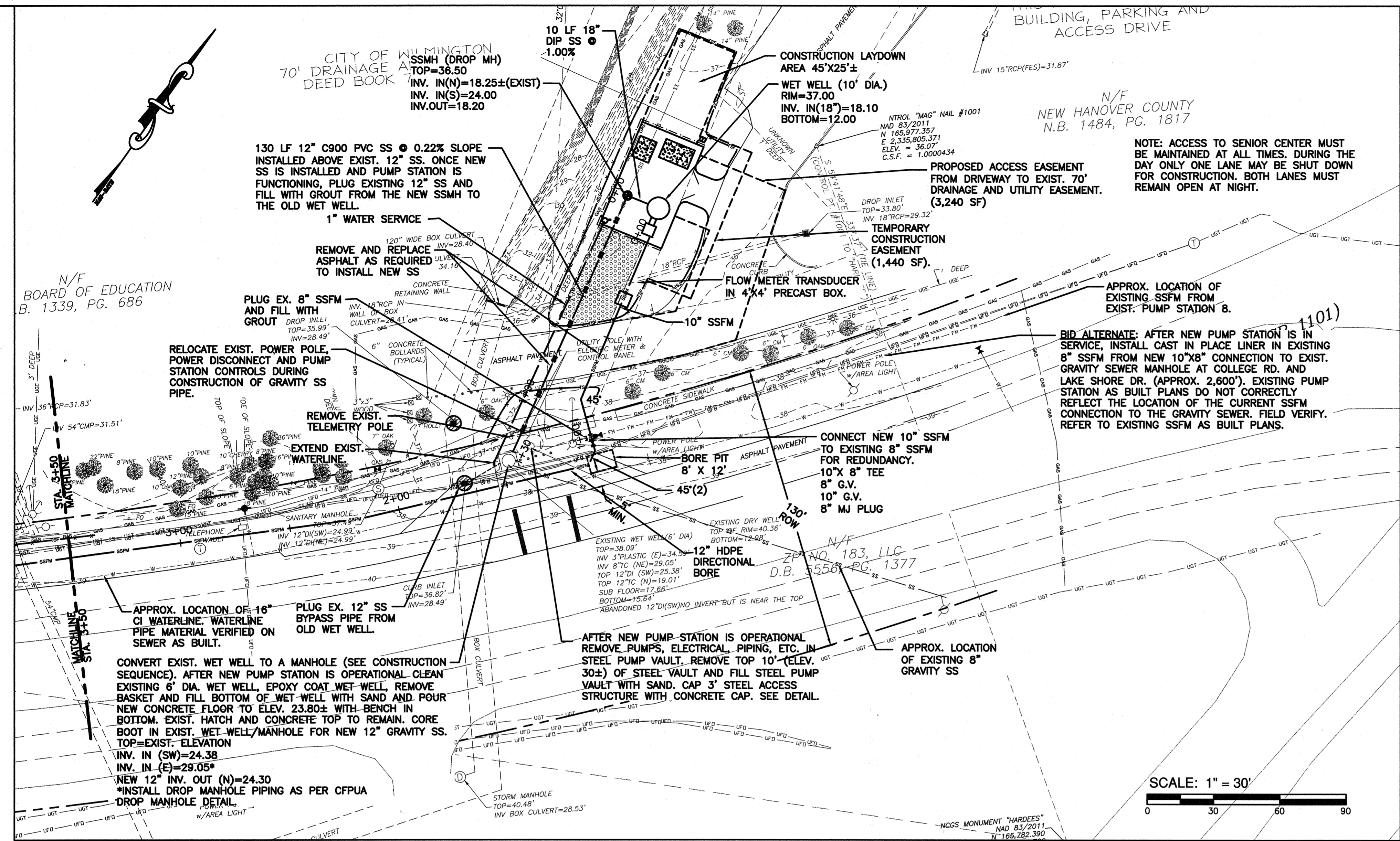


**NORRIS & TUNSTALL**  
CONSULTING ENGINEERS, INC.  
902 MARKET STREET WILMINGTON, NC 28401  
PHONE (910) 343-0653 FAX (910) 343-0604  
LICENSE #C-0220

PLAN AND PROFILE  
PUMP STATION 8 DESIGN  
SHIPYARD BOULEVARD  
NEW HANOVER COUNTY

DATE: 7/15/16  
SCALE: 1" = 30"  
1" = 3"  
DRAWN: NKS  
CHECKED: JST  
PROJECT NO: 15048

SHEET NO:  
**PR1**



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

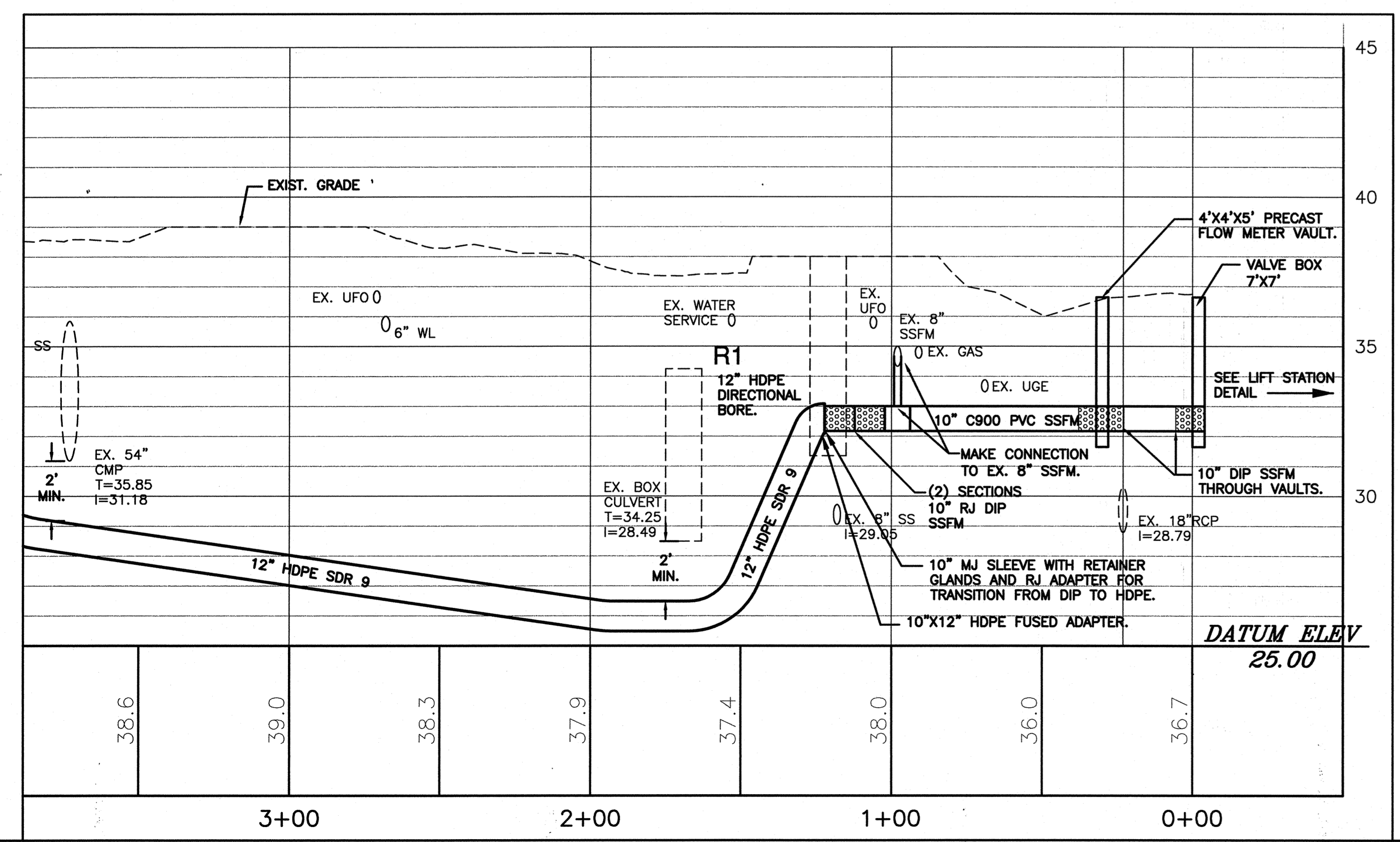
NCDENR PWSS WATER PERMIT #: \_\_\_\_\_  
WATER CAPACITY: \_\_\_\_\_ GPD  
DWQ SEWER PERMIT #: \_\_\_\_\_  
SEWER CAPACITY: \_\_\_\_\_ GPD  
SEWER SHED # AND PLANT: \_\_\_\_\_  
SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)

**Approved Construction Plan**  
Name: \_\_\_\_\_ Date: \_\_\_\_\_

Planning: \_\_\_\_\_  
Public Utilities: \_\_\_\_\_  
Traffic: \_\_\_\_\_  
Fire: \_\_\_\_\_

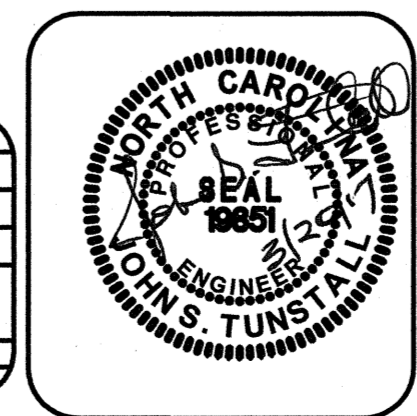
Signed: \_\_\_\_\_

**CITY OF WILMINGTON**  
NORTH CAROLINA  
Public Services • Engineering Division  
APPROVED PLAN - NO PERMIT REQUIRED



SCALE: 1" = 30' HORIZONTAL  
1" = 3' VERTICAL

REV NO.	DESCRIPTION	DATE
R1	REVISED SSMF FROM STA. 1+00 THRU 5+00 WITH 12" HDPE DIRECTIONAL DRILL ADDED ARV MH AT STA. 6+57. REV. PIPE MATERIAL FOR BORE AND JACK.	2/24/17
	REVISIONS	



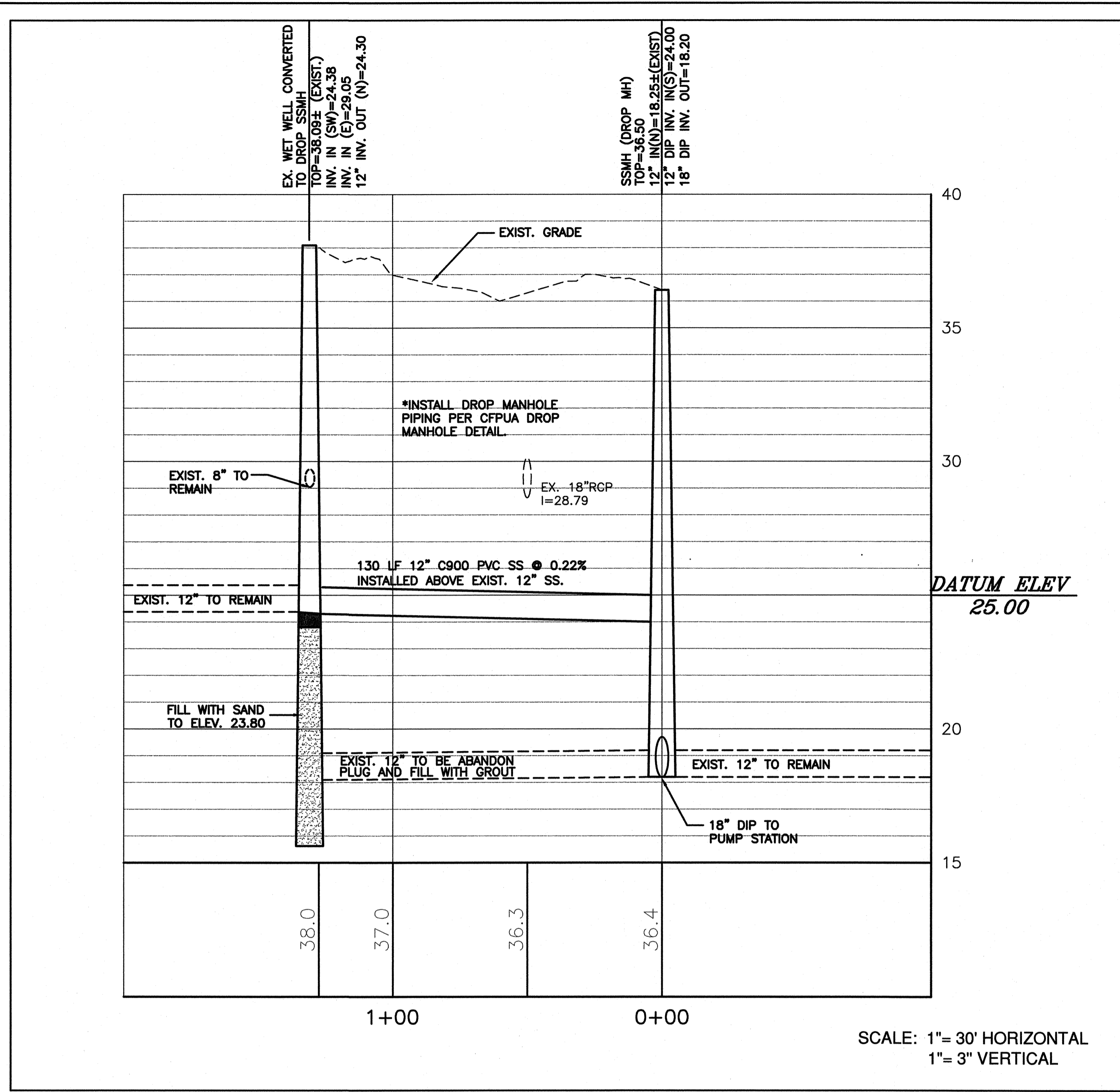
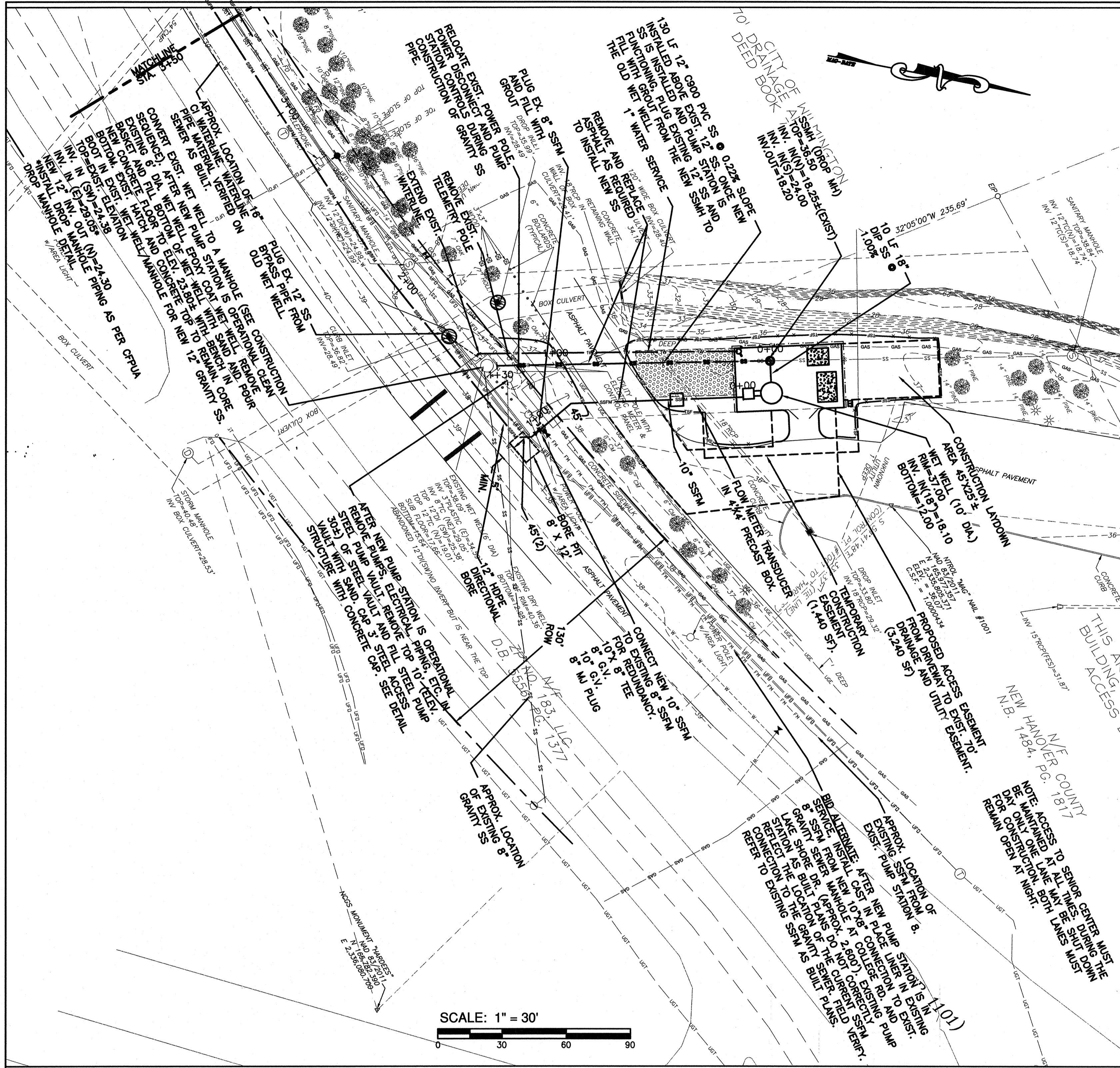
**NORRIS & TUNSTALL**  
CONSULTING ENGINEERS, INC.  
902 MARKET STREET  
WILMINGTON, NC 28401  
PHONE (910) 343-0853  
FAX (910) 343-8004  
LICENSE #C-5520

PLAN AND PROFILE  
PUMP STATION 8 DESIGN  
SHIPYARD BOULEVARD  
NEW HANOVER COUNTY

DATE: 7/15/16  
SCALE: 1" = 30'  
1" = 3'

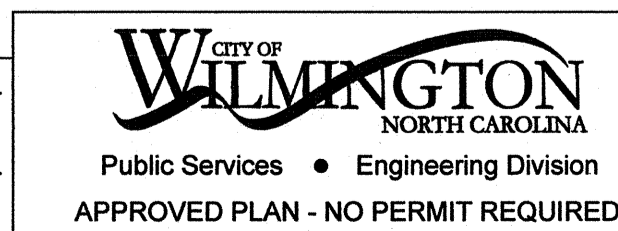
DRAWN: NKS  
CHECKED: JST  
PROJECT NO: 15048

SHEET NO:  
**PR2**



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

NCDENR PWSS WATER PERMIT # \_\_\_\_\_  
 WATER CAPACITY: \_\_\_\_\_ GPD  
 DWQ SEWER PERMIT # \_\_\_\_\_  
 SEWER CAPACITY: \_\_\_\_\_ GPD  
 SEWER SHED # AND PLANT: \_\_\_\_\_  
 SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)



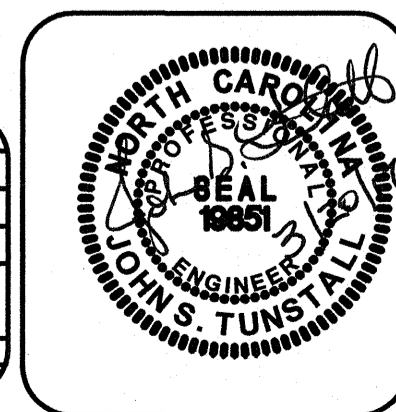
Approved Construction Plan

Name \_\_\_\_\_ Date \_\_\_\_\_

Planning \_\_\_\_\_  
 Public Utilities \_\_\_\_\_  
 Traffic \_\_\_\_\_  
 Fire \_\_\_\_\_

Signed: \_\_\_\_\_

REV. NO.	DESCRIPTION	DATE
R1	REVISED SSFM FROM STA. 1+00 THRU 5+00 WITH 12\"/>	2/24/17
	ADDED ARV MH AT STA. 8+57	

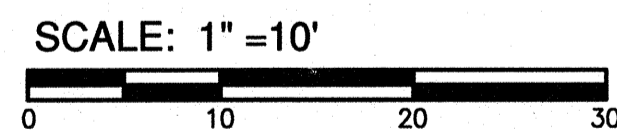
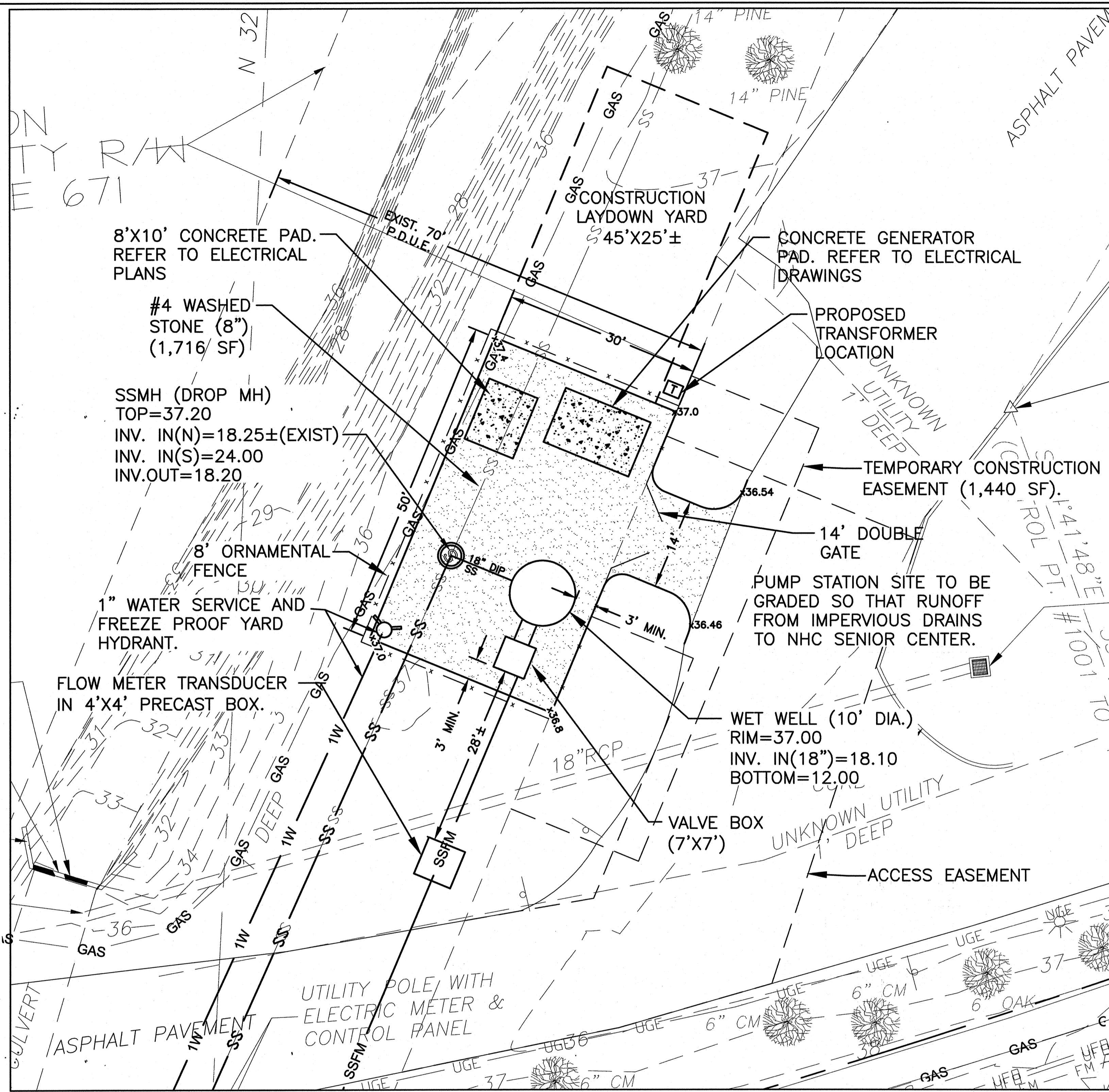


**NORRIS & TUNSTALL**  
**CONSULTING ENGINEERS, INC.**  
 902 MARKET STREET WILMINGTON, NC 28401  
 PHONE (910) 343-0053 FAX (910) 343-0004  
 License #C-5920

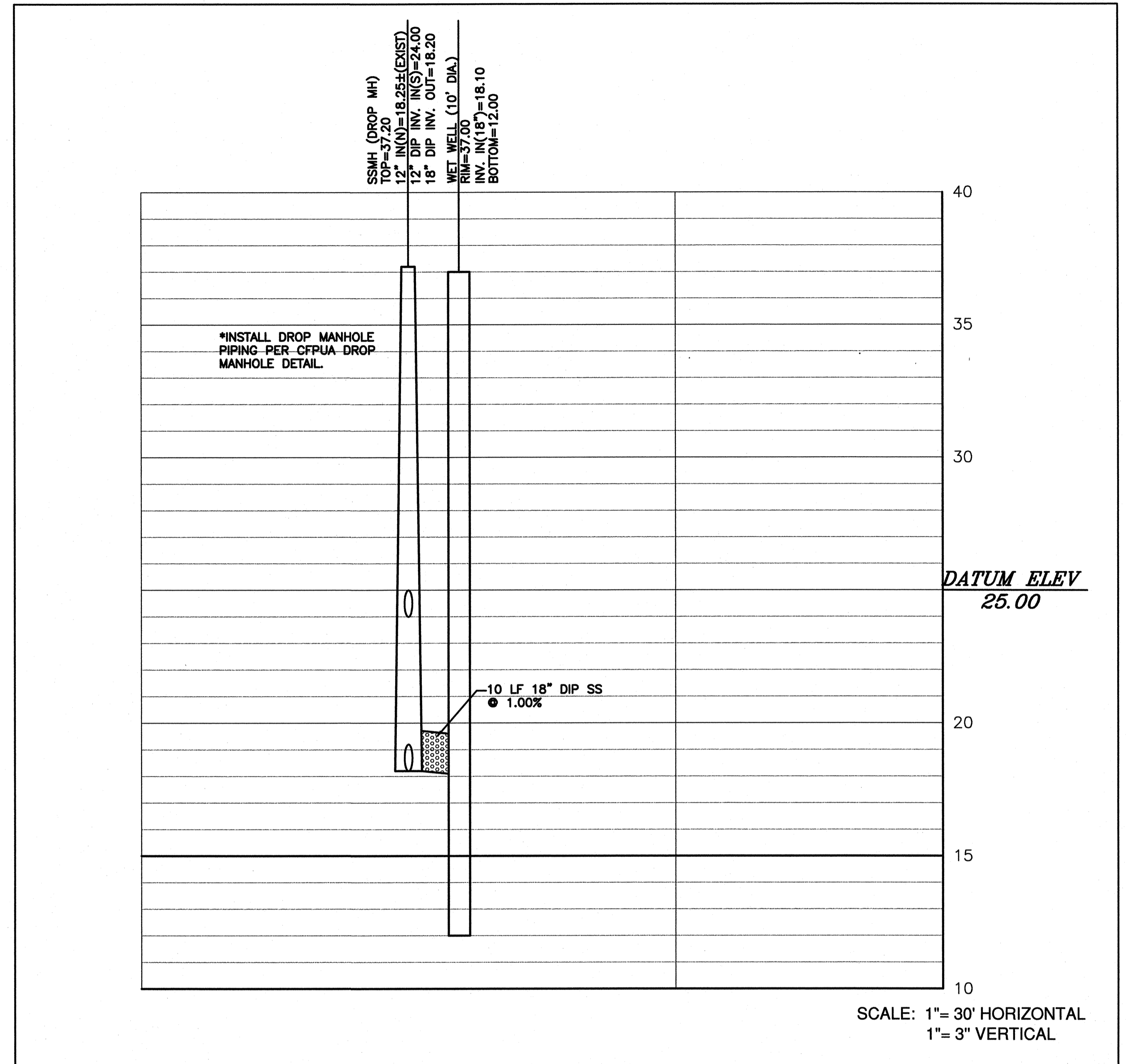
PLAN AND PROFILE  
 PUMP STATION 8 DESIGN  
 SHIPYARD BOULEVARD  
 NEW HANOVER COUNTY

DATE: 7/15/16  
 SCALE: 1" = 30'  
 1" = 3'  
 DRAWN: NKS  
 CHECKED: JST  
 PROJECT NO: 15048

SHEET NO:  
**PR3**



NOTE: ACCESS TO SENIOR CENTER MUST BE MAINTAINED AT ALL TIMES. DURING THE DAY ONLY ONE LANE MAY BE SHUT DOWN FOR CONSTRUCTION. BOTH LANES MUST REMAIN OPEN AT NIGHT.



SCALE: 1" = 30' HORIZONTAL  
1" = 3" VERTICAL

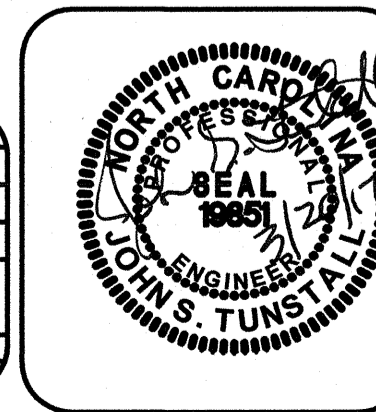
For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

NC DENR PWSS WATER PERMIT # \_\_\_\_\_  
WATER CAPACITY: \_\_\_\_\_ GPD  
DWQ SEWER PERMIT # \_\_\_\_\_  
SEWER CAPACITY: \_\_\_\_\_ GPD  
SEWER SHED # AND PLANT: \_\_\_\_\_  
SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)

**CITY OF WILMINGTON**  
NORTH CAROLINA  
Public Services • Engineering Division  
APPROVED PLAN - NO PERMIT REQUIRED

Approved Construction Plan  
Name \_\_\_\_\_ Date \_\_\_\_\_  
Planning \_\_\_\_\_  
Public Utilities \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_

REV. NO.	DESCRIPTION	DATE
R1	REVISED SSFM FROM STA. 1+00 THRU 5+00 WITH 12" HDPE DIRECTIONAL DRILL ADDED ARV MH AT STA. 8+57	2/24/17
	REVISIONS	



**Cape Fear**  
Public Utility Authority

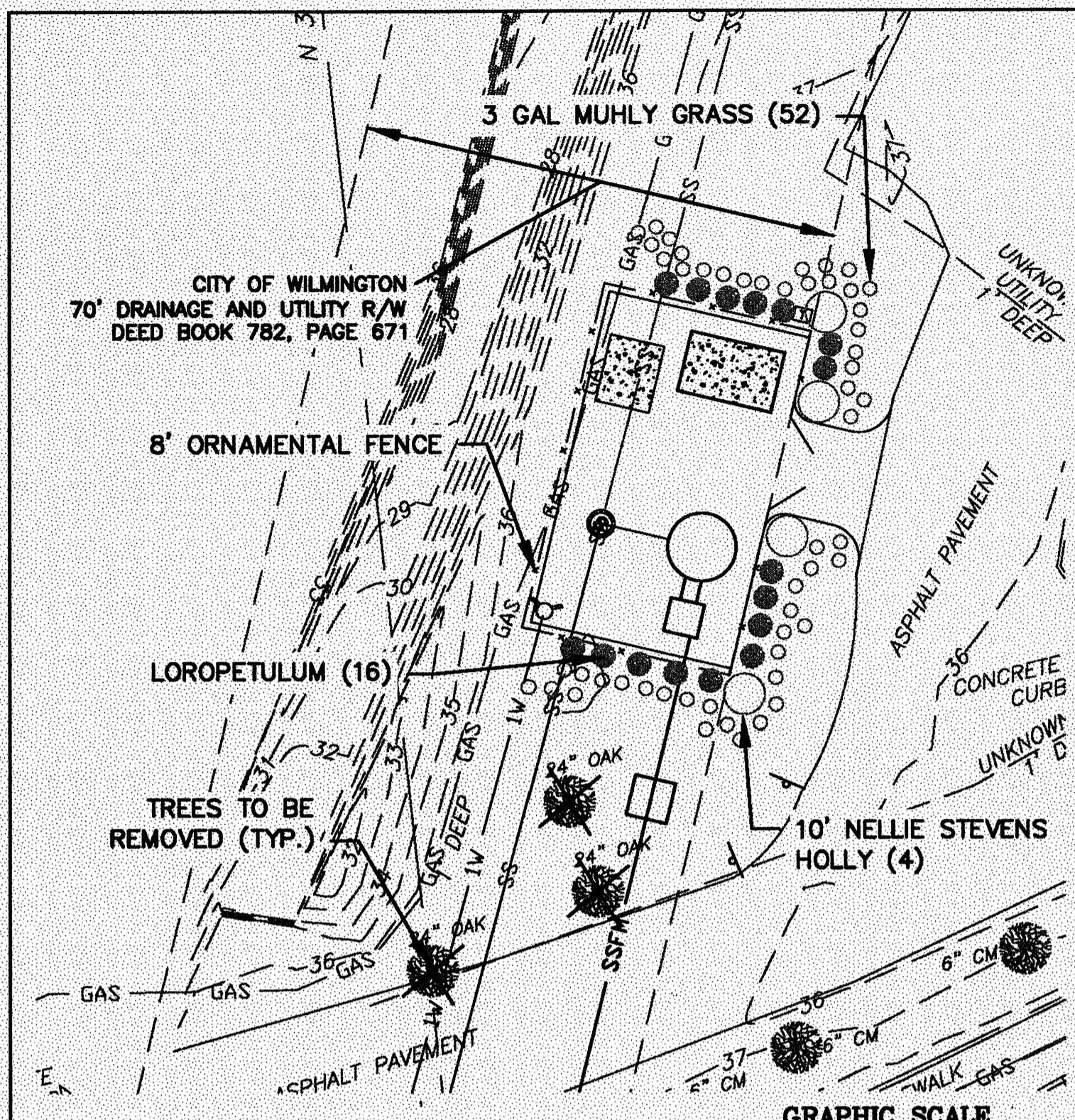
**NORRIS & TUNSTALL**  
CONSULTING ENGINEERS, INC.  
902 MARKET STREET WILMINGTON, NC 28401  
PHONE (910) 343-0853 FAX (910) 343-0804  
License EC-0520

PLAN AND PROFILE  
PUMP STATION 8 DESIGN  
SHIPYARD BOULEVARD  
NEW HANOVER COUNTY

DATE: 7/15/16  
SCALE: 1" = 30'  
1" = 3"  
DRAWN: NKS  
CHECKED: JST  
PROJECT NO: 15048

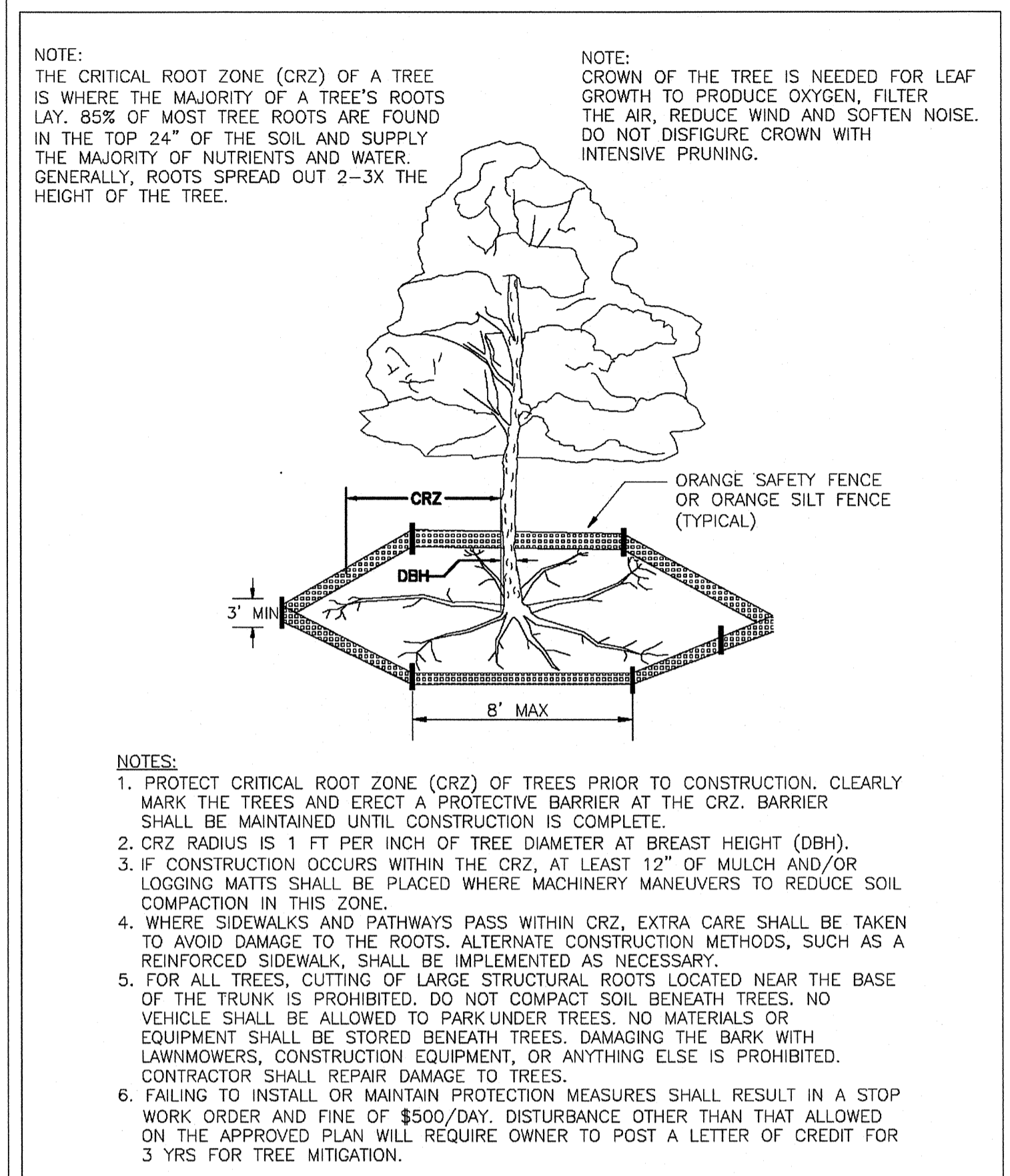
SHEET NO:  
**PR4**



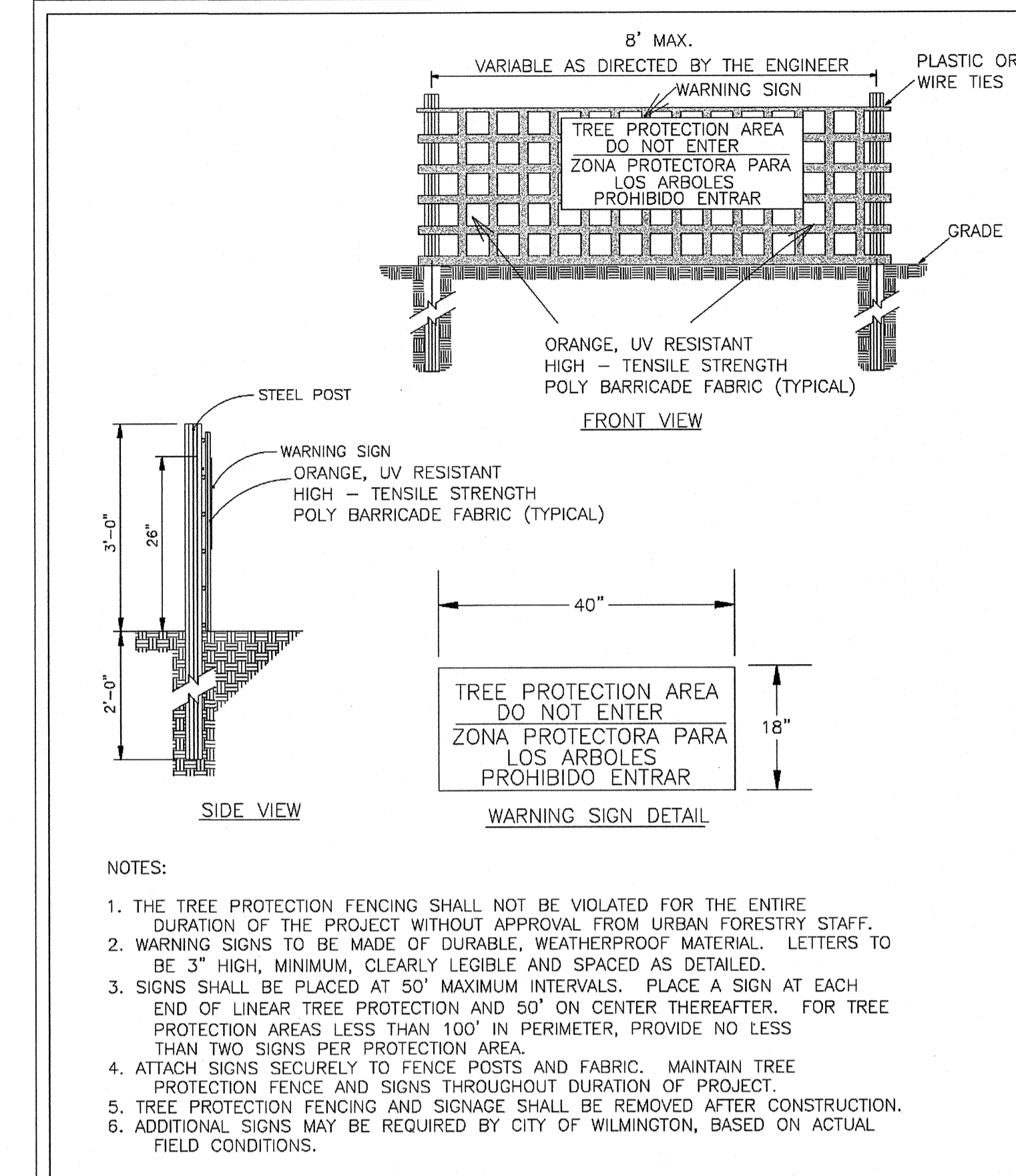


NOTE:  
THIS MAP IS NOT DONE  
FROM A FIELD SURVEY

PROJECT: PS-008 REPLACEMENT	SHEET TITLE: LANDSCAPING PLAN	<p>CAPE FEAR PUBLIC UTILITY AUTHORITY 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560</p>
<p>Stewardship, Sustainability, Service.</p>		



DATE: JAN, 2015	STANDARD DETAIL	<p>CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807</p>
DRAWN BY: JSR	<b>TREE PROTECTION DURING CONSTRUCTION</b>	
CHECKED BY: RDG, P.E.	SHEET 1 of 2	SD 15-09
SCALE: NOT TO SCALE		



DATE: JAN, 2015	STANDARD DETAIL	<p>CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807</p>
DRAWN BY: JSR	<b>TREE PROTECTION DURING CONSTRUCTION</b>	
CHECKED BY: RDG, P.E.	SHEET 2 of 2	SD 15-09
SCALE: NOT TO SCALE		

LANDSCAPE PLAN  
PUMP STATION 8 DESIGN  
SHIPYARD BOULEVARD  
NEW HANOVER COUNTY  
WILMINGTON, N. C.

OWNER/DEVELOPER  
CEPLIA  
JEFF THERBERG  
PROJECT MANAGER  
235 GOVERNMENT CENTER DR.  
WILMINGTON, NC 28403  
910 332-6673

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

15048

DES.  
C.D.  
DRWN.

DATE: 4/25/17

NORTH CAROLINA  
Public Services • Engineering Division  
APPROVED PLAN - NO PERMIT REQUIRED

Signed: \_\_\_\_\_

Approved Construction Plan

Name \_\_\_\_\_ Date \_\_\_\_\_

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

SYMBOL	DATE	DESCRIPTION	BY
REVISIONS			

L1