

BY	REVISIONS	DESCRIPTION	DATE	SYMBOL

**INVENTORY SITE PLAN**  
**LIVE OAK BANKING COMPANY 3/FITPARK**  
 1741 TIBURON DRIVE  
 WILMINGTON, NORTH CAROLINA 28403

**OWNER/DEVELOPER**  
 W. LEE WILLIAMS  
 EXECUTIVE VICE PRESIDENT  
 LIVE OAK BANKING COMPANY  
 1741 TIBURON DRIVE  
 WILMINGTON, NC 28403  
 910-796-1647  
 866-570-5526

**NORRIS & TUNSTALL**  
 CONSULTING ENGINEERS P.C.  
 1420 ASH-LITTLE RIVER RD. NW  
 ASH, NC 28420  
 PHONE (910) 287-5900  
 902 MARKET STREET  
 WILMINGTON, NC 28401  
 PHONE (910) 343-9653

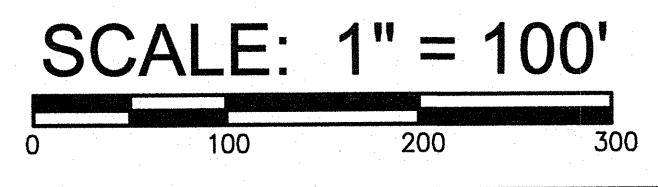
License #C-3641  
**16169**  
 DES: JST  
 CHD: JPN  
 DRWN: NKS  
 DATE: 11/3/17  
  
**I.1**

**SITE DATA**

<b>OWNER:</b>	LIVE OAK BANCSHARES, INC.
<b>PARCEL ADDRESS:</b>	1741 TIBURON DR.
<b>PARCEL ID#:</b>	R06109-004-034-000
<b>MAP ID#:</b>	313609.15.2860.000
<b>ZONING:</b>	O&I-1 (CD)
<b>PARCEL AREA BR CURRENT:</b>	11.09 AC (483,295 SF)
<b>PARCEL AREA BR PROPOSED:</b>	24.75 AC (1,068,156 SF)
(PARCEL BR+PARCEL D4+POND EXPANSION SEE SURVEY BY HANOVER DESIGN)	

NOT LOCATED WITH 100 YEAR FLOOD ZONE  
 SOIL TYPES: Le, Rm, Kr, Mu, Se  
 CAMA LAND CLASSIFICATION: URBAN  
 PROPERTY LINE FOR PARCEL'S ARE IN PROXIMITY TO A WETLANDS/CONSERVATION RESOURCE AREA AND ARE SUBJECT TO A 50' NON RESIDENTIAL SETBACK PURSUANT TO MUNICODER SECTION 18-34.1.

<b>HISTORICAL/ARCHEOLOGICAL SITE:</b>	NONE
<b>CEMETARY:</b>	NONE
<b>FORESTED AREA:</b>	SEE PLAN FOR TREE SURVEY
<b>WETLANDS:</b>	NONE WITHIN SITE AREA
<b>ENDANGERED SPECIES/HABITAT:</b>	NONE REPORTED



**SURVEYOR:**  
 TOPOGRAPHIC SURVEY & COMPOSIT MAP BY:  
**HANOVER DESIGN SERVICES, P.A.**  
 LAND SURVEYORS ENGINEERS LAND PLANNERS  
 310 WALNUT STREET  
 WILMINGTON, N.C. 28401  
 PHONE: 910 343-9922  
 FAX: 910 343-9941

DATE	DESCRIPTION
11/3/17	FINAL

**Approved Construction Plan**

Name	Date

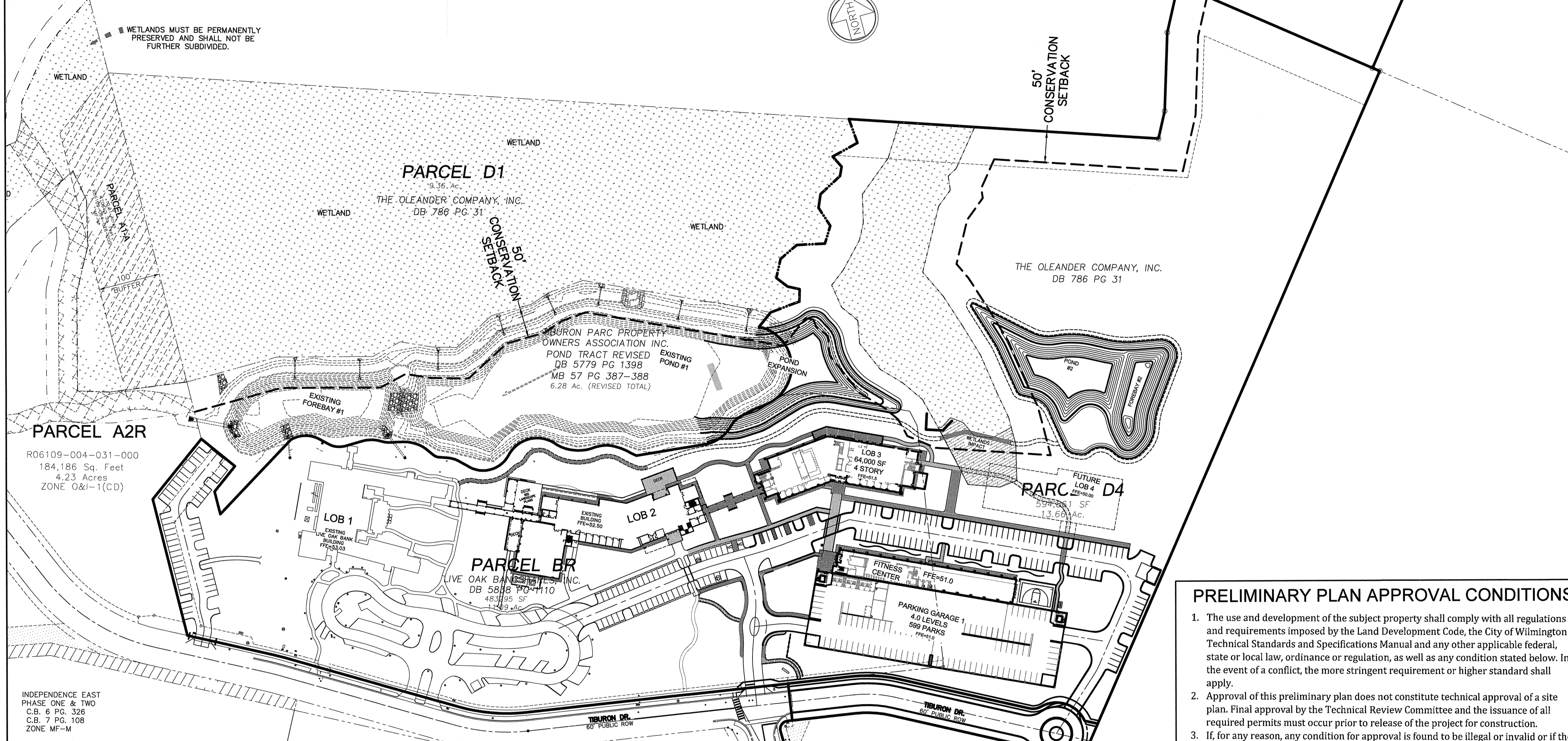
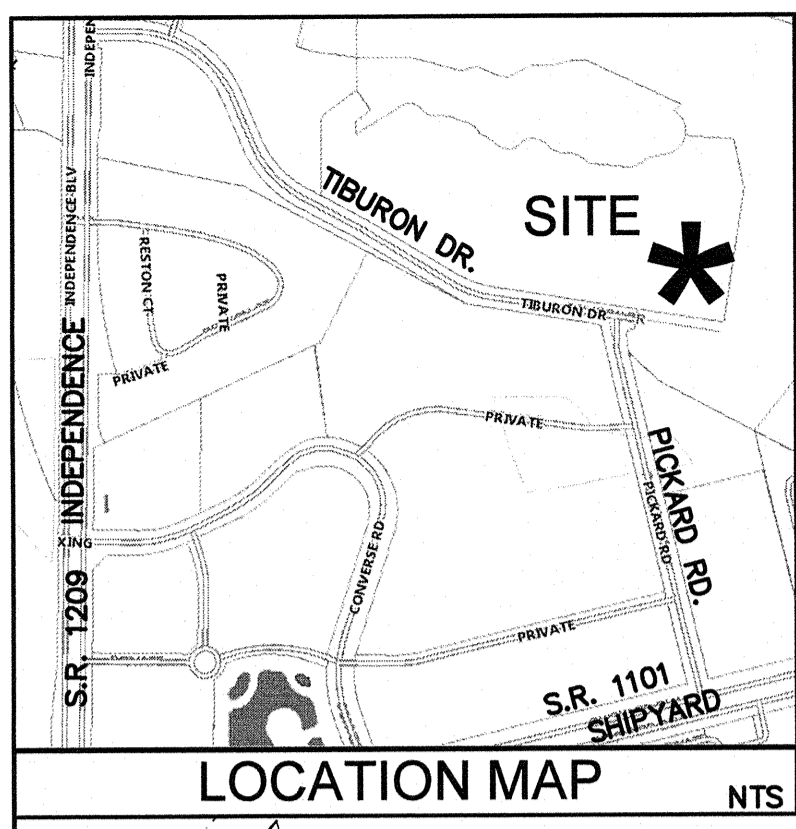
Planning \_\_\_\_\_  
 Traffic \_\_\_\_\_  
 Fire \_\_\_\_\_

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

**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.





**SITE DATA LIVE OAK BANK III**

<b>USE:</b>	OFFICE/PARKING DECK/FITNESS CENTER
<b>OWNER:</b>	LIVE OAK BANCSHARES, INC.
<b>PARCEL ADDRESS:</b>	1741 TIBURON DR.
<b>PARCEL ID#:</b>	R06109-004-031-000
<b>MAP ID#:</b>	313609.15.2860.000
<b>ZONING:</b>	O&I-1 (CD)
<b>PARCEL AREA BR CURRENT:</b>	11.09 AC (483,295 SF)
<b>PARCEL AREA BR PROPOSED:</b>	24.75 AC (1,078,156 SF)
	(PARCEL BR+PARCEL D4 SEE SURVEY BY HANOVER DESIGN)
<b>ROW AREA PROPOSED:</b>	0.73 AC (31,831 SF)
<b>WETLANDS:</b>	1.78 AC
<b>WETLANDS TO BE IMPACTED:</b>	0.20 AC
<b>CAMA LAND USE:</b>	URBAN
<b>BUILDING SETBACKS O&amp;I-1:</b>	FRONT SETBACK: 20' INTERIOR SIDE SETBACK: 10' CORNER SIDE SETBACK: 20' REAR SETBACKS: 20'
<b>BUILDING SETBACKS LOB III: (PROPOSED)</b>	FRONT SETBACK: 290'± SIDE SETBACK EAST: 425'± SIDE SETBACK WEST: 950'± REAR SETBACK: 80'±
<b>BUILDING SETBACKS PARKING DECK I: (PROPOSED)</b>	FRONT SETBACK: 22.87'± SIDE SETBACK EAST: 77'± SIDE SETBACK WEST: 957'± REAR SETBACK: 695'±
<b>MAX. LOT COVERAGE O&amp;I-1:</b>	40%
<b>PROPOSED LOT COVERAGE:</b>	12.37%
<b>MAX. BUILDING HEIGHT O&amp;I-1:</b>	45'/UP TO 75' WITH SPECIAL USE PERMIT, LOT COVERAGE AND SETBACK CONDITIONS
<b>BUILDING HEIGHT LOB III:</b>	58'
<b>BUILDING HEIGHT PARKING DECK I:</b>	45'
<b>BUILDING HEIGHT FITNESS CENTER:</b>	45'
<b>EXISTING BUILDING:</b>	LIVE OAK BANK I
<b>BUILDING SIZE:</b>	34,059 SF
<b>BUILDING FOOTPRINT:</b>	19,358 SF
<b>NUMBER OF STORIES:</b>	2
<b>SQUARE FOOTAGE PER FLOOR:</b>	FIRST FLOOR: 17,118 SF SECOND FLOOR: 14,808 SF
<b>EXISTING BUILDING:</b>	LIVE OAK BANK II
<b>BUILDING SIZE:</b>	55,140 SF (OFFICE 48,941 SF, CAFETERIA 3,912 SF, KITCHEN 2,287)
<b>BUILDING FOOTPRINT:</b>	23,600 SF FOOTPRINT
<b>NUMBER OF STORIES:</b>	3
<b>SQUARE FOOTAGE PER FLOOR:</b>	1ST FLOOR: 17,347 SF OFFICE 2ND FLOOR: 15,923 SF OFFICE 3RD FLOOR: 15,871 SF OFFICE
<b>PROPOSED BUILDING 1:</b>	LIVE OAK BANK III
<b>BUILDING SIZE:</b>	65,985 SF
<b>BUILDING FOOTPRINT:</b>	17,665 SF
<b>NUMBER OF STORIES:</b>	4
<b>SQUARE FOOTAGE PER FLOOR:</b>	FIRST FLOOR: 17,184 SF SECOND FLOOR: 15,983 SF THIRD FLOOR: 16,414 SF FOURTH FLOOR: 16,414 SF
<b>CONSTRUCTION TYPE:</b>	IB
<b>PROPOSED BUILDING 2:</b>	PARKING DECK I (PD I)
<b>BUILDING SIZE:</b>	185,987 SF
<b>BUILDING FOOTPRINT:</b>	50,500 SF
<b>NUMBER OF STORIES:</b>	4
<b>SQUARE FOOTAGE PER FLOOR:</b>	FIRST FLOOR: 37,722 SF SECOND FLOOR: 48,415 SF THIRD FLOOR: 49,415 SF FOURTH FLOOR: 49,415 SF
<b>CONSTRUCTION TYPE:</b>	IB
<b>OCCUPANCY:</b>	599 SPACES (593 REGULAR/6 HC)
<b>PROPOSED BUILDING 3:</b>	FITNESS CENTER
<b>BUILDING SIZE:</b>	17,108 SF
<b>BUILDING FOOTPRINT:</b>	11,435 SF
<b>NUMBER OF STORIES:</b>	2
<b>SQUARE FOOTAGE PER FLOOR:</b>	FIRST FLOOR: 11,151 SF SECOND FLOOR: 5,957 SF
<b>CONSTRUCTION TYPE:</b>	VB
<b>OCCUPANCY:</b>	80-90±

**IMPERVIOUS AREA:**

EXISTING SITE AREA:	11.09 AC (483,295 SF)
NEW SITE AREA PROPOSED:	13.66 AC (594,861 SF)
TOTAL SITE AREA PROPOSED:	24.75 AC (1,078,156 SF)
ROW AREA PROPOSED:	0.73 AC (31,831 SF)
<b>EXISTING IMPERVIOUS AREA LOB I:</b>	
BUILDING:	25,750 SF
CONCRETE DRIVE ISLE:	29,942 SF
PERVIOUS CONCRETE PAVING:	23,613 SF
CONCRETE SIDEWALK:	9,085 SF
TOTAL:	88,385 SF
<b>EXISTING IMPERVIOUS AREA LOB II:</b>	
BUILDING:	26,500 SF
COVERED WALKWAY:	1,170 SF
ASPHALT PAVING:	32,870 SF
CONCRETE PAVING:	22,045 SF
PERVIOUS CONCRETE PAVING:	15,223 SF
BRICK PAVERS:	8,670 SF
TOTAL:	106,578 SF
<b>EXISTING IMPERVIOUS AREA REMOVED LOB II:</b>	
ASPHALT PAVING:	33,103 SF
CONCRETE PAVING:	2,840 SF
PERVIOUS CONCRETE PAVING:	5,900 SF
TOTAL IMPERVIOUS REMOVED:	41,843 SF
<b>PROPOSED IMPERVIOUS AREA ADDED LOB 3 FITPARK:</b>	
BUILDING LOB III:	17,665 SF (FOOTPRINT)
BUILDING PD I:	50,500 SF (FOOTPRINT)
BUILDING FITNESS CENTER:	11,435 SF (FOOTPRINT)
DRIVE ISLES/PARKING:	39,488 SF
WALKWAYS/SIDEWALK:	2,781 SF
MUP (HALF):	2,781 SF
TOTAL:	143,924 SF
<b>PROPOSED SITE TOTAL:</b>	297,024 SF
<b>PROPOSED SITE PERCENT IMPERVIOUS:</b>	27.55%
<b>PROPOSED IMPERVIOUS AREA ADDED ROW EXTENSION:</b>	
ASPHALT CONCRETE CURB AND GUTTER:	20,500 SF
MUP (HALF):	2,781 SF
PROPOSED SITE TOTAL:	23,281 SF

MILWAUKEE MI HOLDINGS, LLC  
BK 5265 PG 118  
R06113-001-010-000  
ZONE RB

**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: \_\_\_\_\_

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

**PRELIMINARY PLAN APPROVAL CONDITIONS**

- The use and development of the subject property shall comply with all regulations and requirements imposed by the Land Development Code, the City of Wilmington Technical Standards and Specifications Manual and any other applicable federal, state or local law, ordinance or regulation, as well as any condition stated below. In the event of a conflict, the more stringent requirement or higher standard shall apply.
- Approval of this preliminary plan does not constitute technical approval of a site plan. Final approval by the Technical Review Committee and the issuance of all required permits must occur prior to release of the project for construction.
- If, for any reason, any condition for approval is found to be illegal or invalid or if the applicant should fail to accept any condition following approval, the approval of the preliminary plan shall be null and void.
- The use and development of the subject property shall be in accordance with the approved preliminary plan as submitted and approved.
- A 5-foot wide public access easement shall be provided for the portion of the multi-use path located on the subject site.
- Utilities shall be placed in appropriate locations relative to the public rights of way and co-location of water and sewer utilities with the required street trees (per the City TSSM) shall be pursued by the applicant and designer.
- A tree preservation plan and tree removal permit shall be required for this project and city staff shall issue these based on acceptable limits of clearing and tree preservation.
- All existing protected trees not located within the building foot print or impacted by essential site improvements, shall be preserved or mitigated.
- Trees designated to be preserved shall be properly protected during construction and tree protection fencing shall be noted on the construction plans. Tree clearing will be limited to essential site improvements within the project limits as shown on the approved site plan.
- If necessary, resource areas, buffers and setbacks per requirements of the LDC shall be shown and labeled on the Preliminary Plan.
- All existing and proposed public and non-municipal easements shall be added as necessary to the Preliminary Plan.
- An acceptable Preliminary Plan which adequately addresses all TRC/SRB comments shall be submitted for signature within thirty (30) calendar days of SRB approval.
- The applicant shall work with TRC to install adequate traffic calming measures within the proposed public right-of-way.
- All conditions and recommendations of the traffic impact analysis (TIA), as reviewed and approved by the Wilmington Metropolitan Planning Organization (WMPO), the NCDOT, and staff shall be implemented accordingly.
- All recommendations of the TIA shall be constructed prior to a Certificate of Occupancy being issued.
- All city, state and federal regulations shall be followed.

**PARKING:**

<b>PARKING REQ'D:</b>	BANK/OFFICE	1 PER 200 SF MAX., 1 PER 300 SF MIN.
<b>REQUIRED PARKING LOB I:</b>		170 MAX./114 MIN.
<b>REQUIRED PARKING LOB II:</b>		281 MAX./173 MIN.
<b>REQUIRED PARKING LOB III:</b>		320 MAX./213 MIN.
<b>REQUIRED TOTAL:</b>		751 MAX./500 MIN.
<b>PROPOSED PARKING:</b>		70 REG. 2 HC 72 TOTAL
<b>EX. PARKING LOB I:</b>		42 REG. 0 HC 42 TOTAL
<b>EX. PARKING LOB II:</b>		44 REGULAR 2 HC 46 TOTAL
<b>PROPOSED PARKING LOB III:</b>		694 REGULAR 13 HC 707 TOTAL
<b>PROVIDED TOTAL:</b>		850 REGULAR 17 HC 867 TOTAL
<b>TOTAL ACCESSIBLE PARKING REQUIRED (2%):</b>	17 SPACES	
<b>TOTAL ACCESSIBLE PARKING PROVIDED:</b>	18 SPACES	
<b>TOTAL BICYCLE PARKING REQUIRED:</b>	20 SPACES	
<b>TOTAL BICYCLE PARKING PROVIDED:</b>	20 SPACES (LOB I: 10/LOB II: 10) 5 SPACES (LOB 3 SEE PLAN)	
<b>LANDSCAPING REQUIREMENTS (REFER TO LANDSCAPE PLAN)</b>		
<b>15 TREES PER DISTURBED ACRE REQUIRED</b>		
<b>DISTURBED AREA = AC X 15 = TREES</b>		
<b>INTERIOR LANDSCAPING O&amp;I-1: 20% CANOPY COVER OF INTERIOR AREA OF PARKING FACILITY BASED ON AMOUNT OF PARKING AREA IMPERVIOUS SURFACE.</b>		
<b>STREETYARD LANDSCAPING: 18 MULTIPLIER</b>		
<b>595-24X18=10,278 SF REQUIRED</b>		10,278 SF PROVIDED
<b>FOUNDATION PLANTINGS: FACE OF BUILDING X LENGTH X 12%</b>		
<b>SOLID WASTE DISPOSAL: DUMPSTER AREA PROVIDED</b>		
<b>WATER AND SEWER CAPACITY:</b>		
<b>EMPLOYEES (LOB3): 375 X 25 GPD PER EMPLOYEE=9,375 GPD</b>		
<b>FITNESS CENTER: 50 GPD PER 100 SF=8,554 GPD</b>		
<b>TOTAL: 17,929 GPD</b>		
<b>DISTURBED AREA:</b>		
<b>TOTAL DISTURBED AREA FOR LOB3 PROJECT: 12.94 AC</b>		
<b>TOTAL NEW DISTURBED AREA FOR LOB3 PROJECT: 10.36 AC</b>		

FOR PERMIT ONLY  
NOT FOR CONSTRUCTION

**SCALE: 1" = 100'**

SYMBOL	DATE	DESCRIPTION	BY
REVISIONS			
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**OVERALL SITE PLAN**  
LIVE OAK BANKING COMPANY 3/FITPARK  
1741 TIBURON DRIVE  
WILMINGTON, NORTH CAROLINA 28403

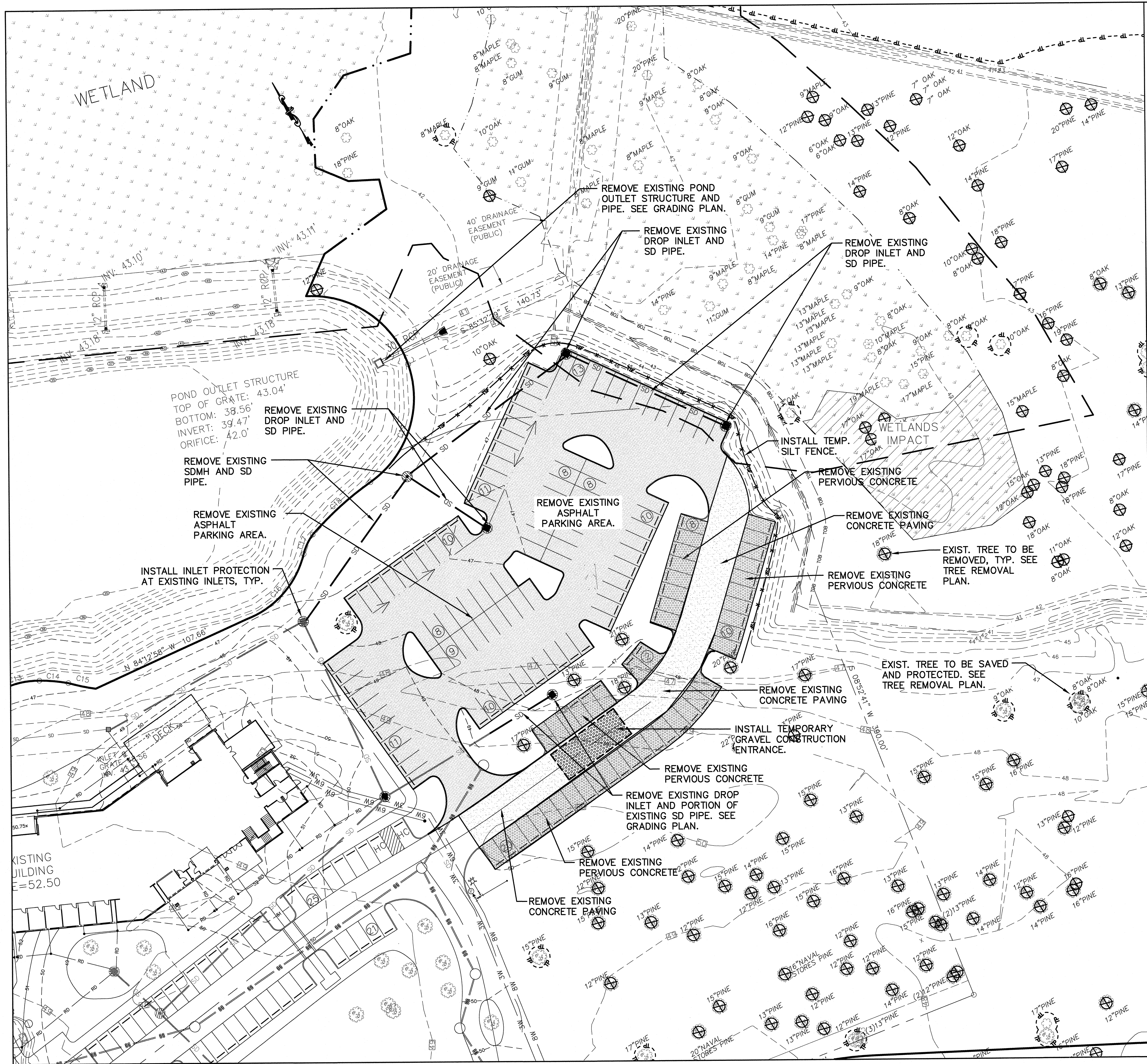
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ASH, NC 28420  
PHONE (910) 287-5900

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**CO**





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**DEMOLITION PLAN**  
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SCALE: 1" = 30'

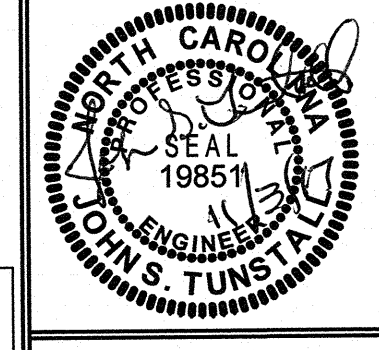
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WATER CAPACITY:	_____ GPD
DWQ SEWER PERMIT #:	_____
SEWER CAPACITY:	_____ GPD
SEWER SHED # AND PLANT:	_____
SEWER TO FLOW THROUGH NEI:	YES or NO (CIRCLE ONE)

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

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

Licence #C-3641  
**16169**  
 DES. JST  
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**C1**

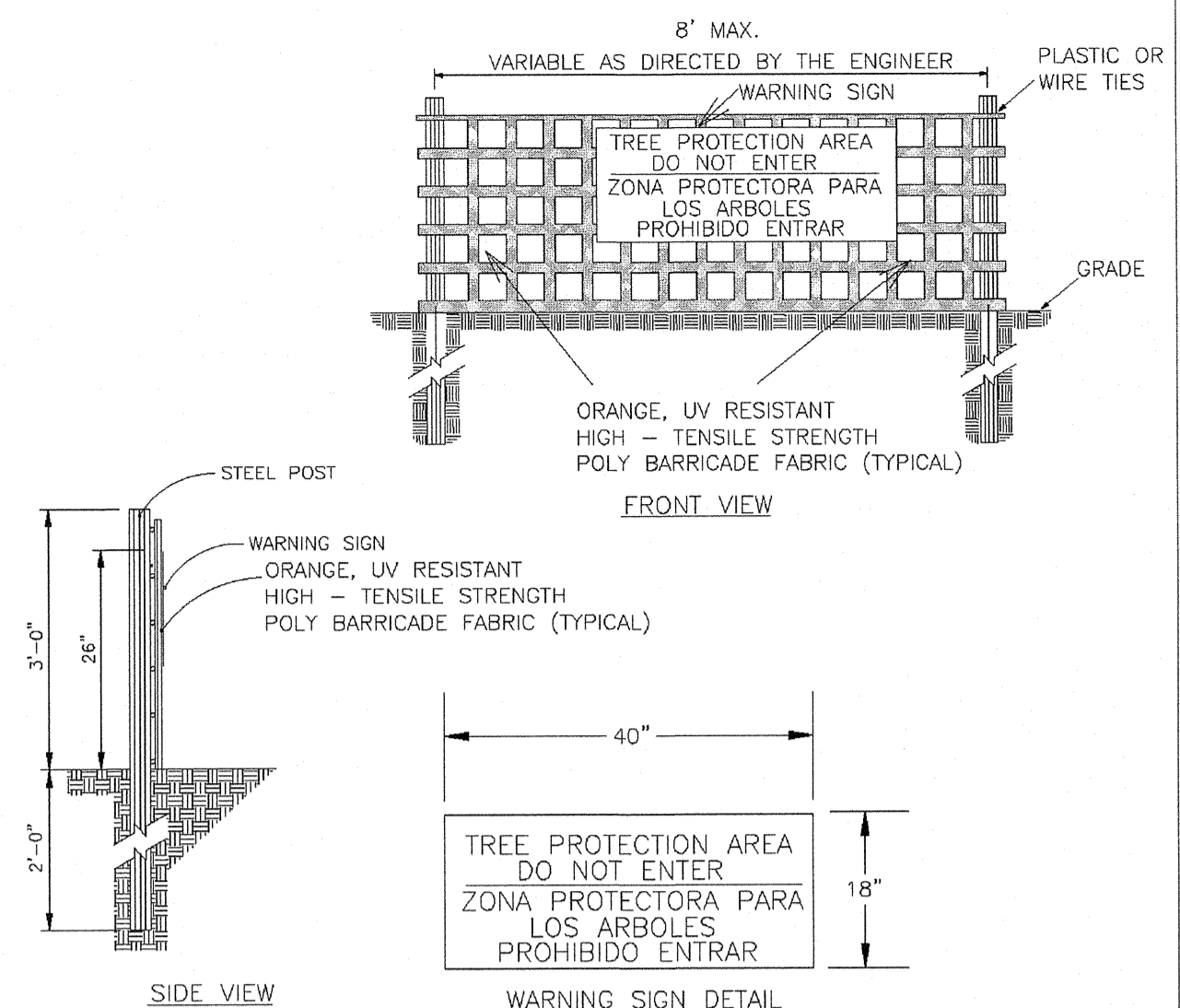
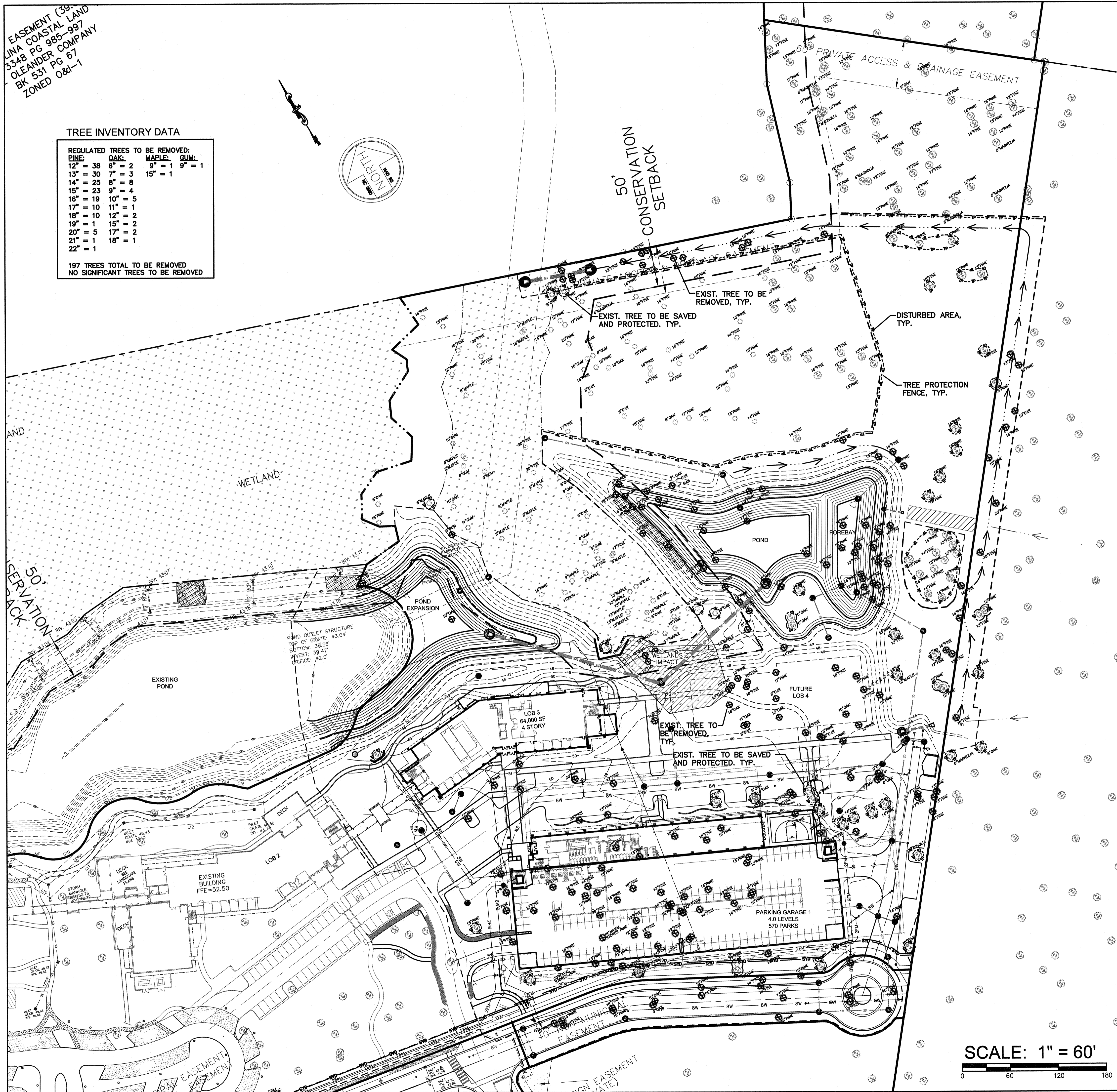


EASEMENT (39'-  
LINA COASTAL LAND  
3348 PG 985-997  
OLEANDER COMPANY  
BK 531 PG 67  
ZONED O&I-1

**TREE INVENTORY DATA**

REGULATED TREES TO BE REMOVED:			
PINE	OAK	MAPLE	GUM
12" = 38	6" = 2	9" = 1	9" = 1
13" = 30	7" = 3	15" = 1	
14" = 25	8" = 8		
15" = 23	9" = 4		
16" = 19	10" = 5		
17" = 10	11" = 1		
18" = 10	12" = 2		
19" = 1	15" = 2		
20" = 5	17" = 2		
21" = 1	18" = 1		
22" = 1			

197 TREES TOTAL TO BE REMOVED  
NO SIGNIFICANT TREES TO BE REMOVED



- NOTES:
1. THE TREE PROTECTION FENCING SHALL NOT BE VIOLATED FOR THE ENTIRE DURATION OF THE PROJECT WITHOUT APPROVAL FROM URBAN FORESTRY STAFF.
  2. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL. LETTERS TO BE 3" HIGH, MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
  3. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER. FOR TREE PROTECTION AREAS LESS THAN 100' IN PERIMETER, PROVIDE NO LESS THAN TWO SIGNS PER PROTECTION AREA.
  4. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC. MAINTAIN TREE PROTECTION FENCE AND SIGNS THROUGHOUT DURATION OF PROJECT.
  5. TREE PROTECTION FENCING AND SIGNAGE SHALL BE REMOVED AFTER CONSTRUCTION.
  6. ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF WILMINGTON, BASED ON ACTUAL FIELD CONDITIONS.

NOTE: THE CRITICAL ROOT ZONE (CRZ) OF A TREE IS WHERE THE MAJORITY OF A TREE'S ROOTS LAY. 85% OF MOST TREE ROOTS ARE FOUND IN THE TOP 24" OF THE SOIL AND SUPPLY THE MAJORITY OF NUTRIENTS AND WATER. GENERALLY, ROOTS SPREAD OUT 2-3X THE HEIGHT OF THE TREE.

NOTE: CROWN OF THE TREE IS NEEDED FOR LEAF GROWTH TO PRODUCE OXYGEN, FILTER THE AIR, REDUCE WIND AND SOFTEN NOISE. DO NOT DISFIGURE CROWN WITH INTENSIVE PRUNING.

- NOTES:
1. PROTECT CRITICAL ROOT ZONE (CRZ) OF TREES PRIOR TO CONSTRUCTION. CLEARLY MARK THE TREES AND ERECT A PROTECTIVE BARRIER AT THE CRZ. BARRIER SHALL BE MAINTAINED UNTIL CONSTRUCTION IS COMPLETE.
  2. CRZ RADIUS IS 1 FT PER INCH OF TREE DIAMETER AT BREAST HEIGHT (DBH).
  3. IF CONSTRUCTION OCCURS WITHIN THE CRZ, AT LEAST 12" OF MULCH AND/OR LOGGING MATS SHALL BE PLACED WHERE MACHINERY MANEUVERS TO REDUCE SOIL COMPACTION IN THIS ZONE.
  4. WHERE SIDEWALKS AND PATHWAYS PASS WITHIN CRZ, EXTRA CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE ROOTS. ALTERNATE CONSTRUCTION METHODS, SUCH AS A REINFORCED SIDEWALK, SHALL BE IMPLEMENTED AS NECESSARY.
  5. FOR ALL TREES, CUTTING OF LARGE STRUCTURAL ROOTS LOCATED NEAR THE BASE OF THE TRUNK IS PROHIBITED. DO NOT COMPACT SOIL BENEATH TREES. NO VEHICLE SHALL BE ALLOWED TO PARK UNDER TREES. NO MATERIALS OR EQUIPMENT SHALL BE STORED BENEATH TREES. DAMAGING THE BARK WITH LAWNMOWERS, CONSTRUCTION EQUIPMENT, OR ANYTHING ELSE IS PROHIBITED. CONTRACTOR SHALL REPAIR DAMAGE TO TREES.
  6. FAILING TO INSTALL OR MAINTAIN PROTECTION MEASURES SHALL RESULT IN A STOP WORK ORDER AND FINE OF \$500/DAY. DISTURBANCE OTHER THAN THAT ALLOWED ON THE APPROVED PLAN WILL REQUIRE OWNER TO POST A LETTER OF CREDIT FOR 3 YRS FOR TREE MITIGATION.

**TREE PROTECTION DETAILS**

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**WILMINGTON**  
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Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

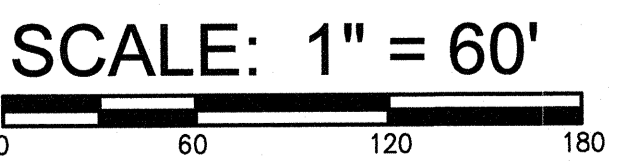
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Signed: \_\_\_\_\_

**Approved Construction Plan**

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

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



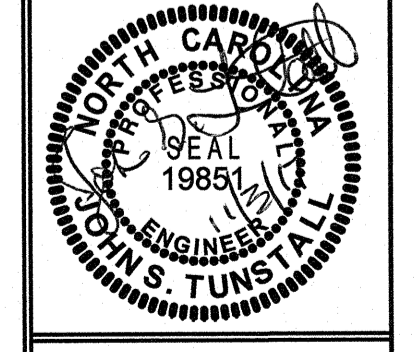
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**TREE REMOVAL PLAN**  
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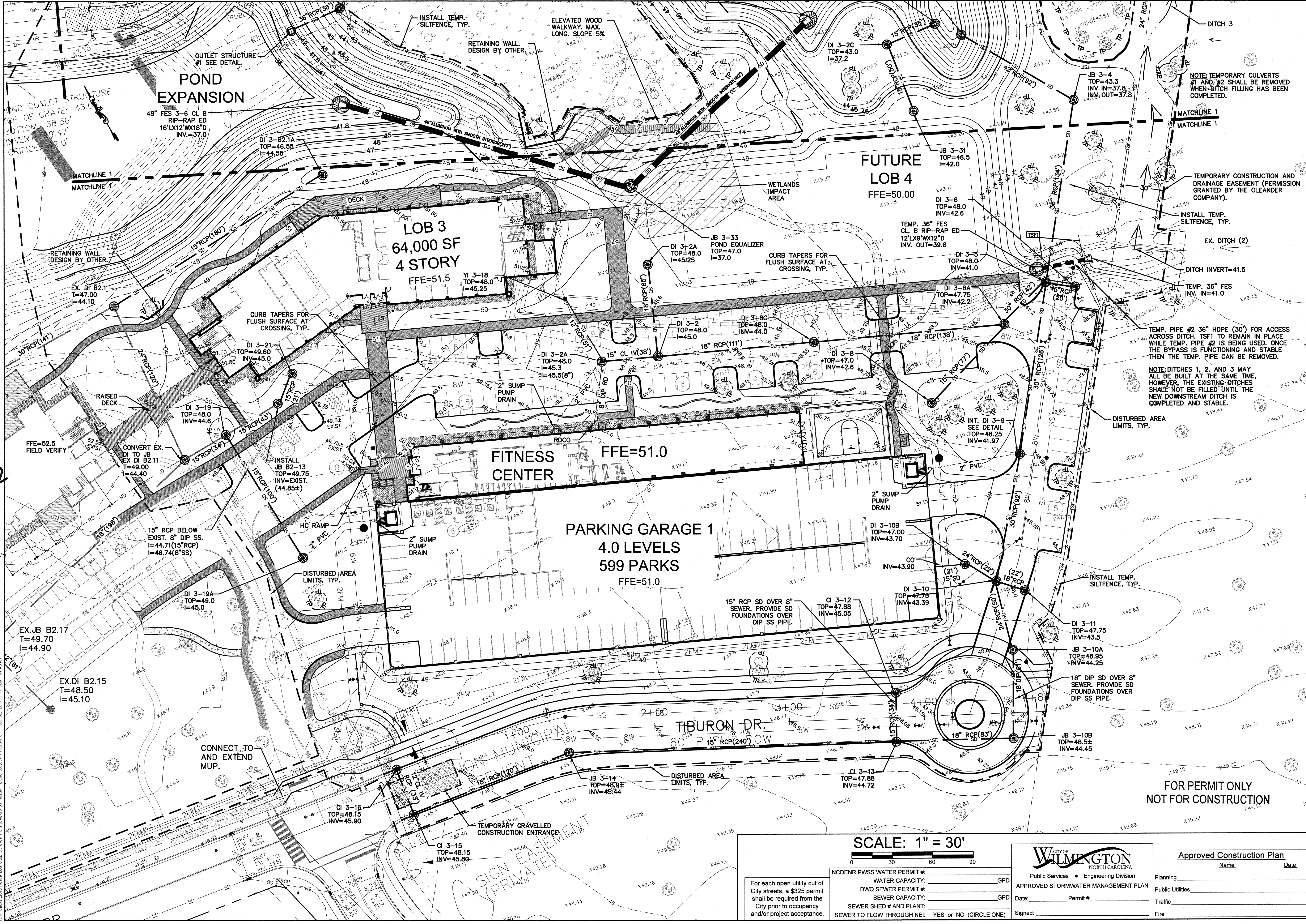
**NORRIS & TUNSTALL**  
CONSULTING ENGINEERS P.C.  
1429 ASH-LITTLE RIVER RD. NW  
ASH, NC 28402  
PHONE (910) 287-5900

License #C-3641  
16169  
DES: JST  
CHK: JPN  
DRWL: NKS  
DATE: 11/3/17



**C1.1**



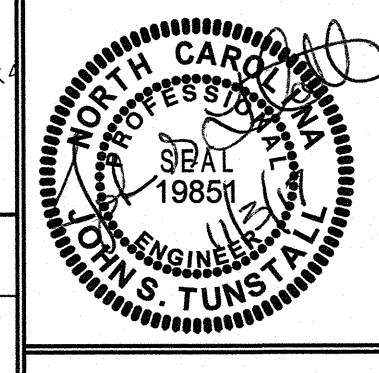


GRADING, DRAINAGE AND EROSION CONTROL PLAN  
 LIVE OAK BANKING COMPANY 3/FITPARK  
 1741 TIBURON DRIVE  
 WILMINGTON, NORTH CAROLINA 28403

OWNER/DEVELOPER  
 W. LEE WILLIAMS  
 EXECUTIVE VICE PRESIDENT  
 LIVE OAK BANKSHARES, INC.  
 1741 TIBURON DRIVE  
 WILMINGTON, NC 28403  
 910-796-1647  
 910-790-5686

**NORRIS & TUNSTALL**  
 CONSULTING ENGINEERS P.C.  
 1429 ASH-LITTLE RIVER RD. NW  
 WILMINGTON, NC 28401  
 ASH, NC 28420  
 PHONE (910) 343-9653

License #C-3641  
**16169**  
 DES. JST  
 CDR. JPN  
 DRWN. NKS  
 DATE 11/3/17



**C2**

FOR PERMIT ONLY  
 NOT FOR CONSTRUCTION

SCALE: 1" = 30'  
 0 30 60 90

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

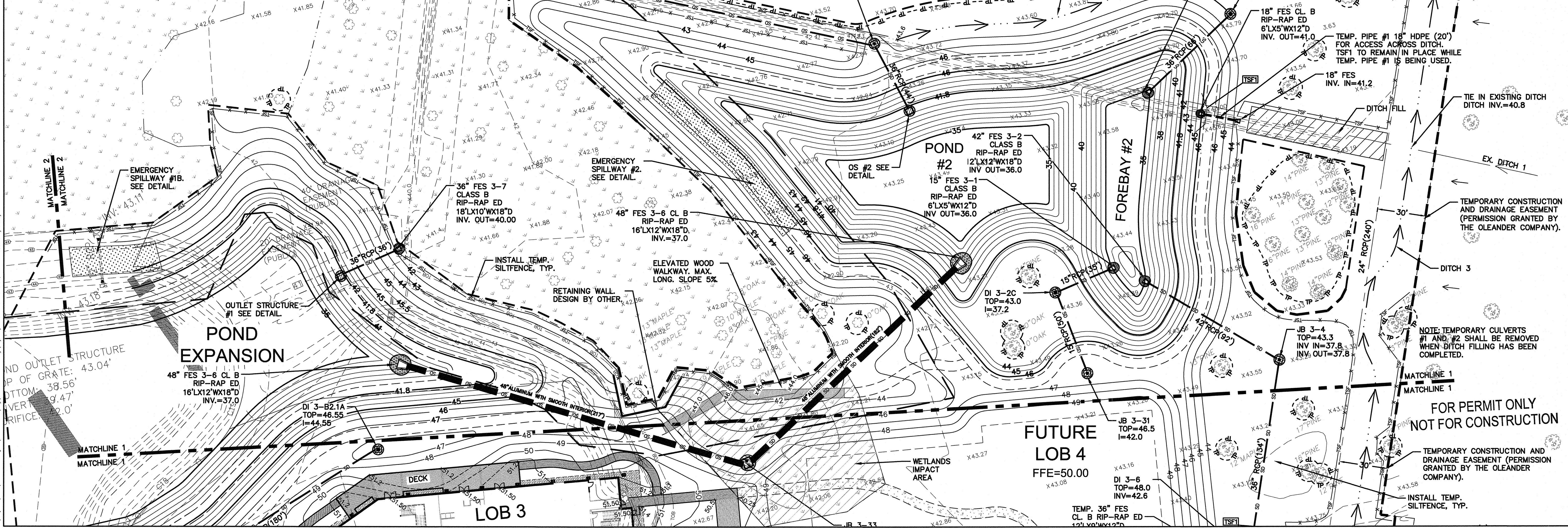
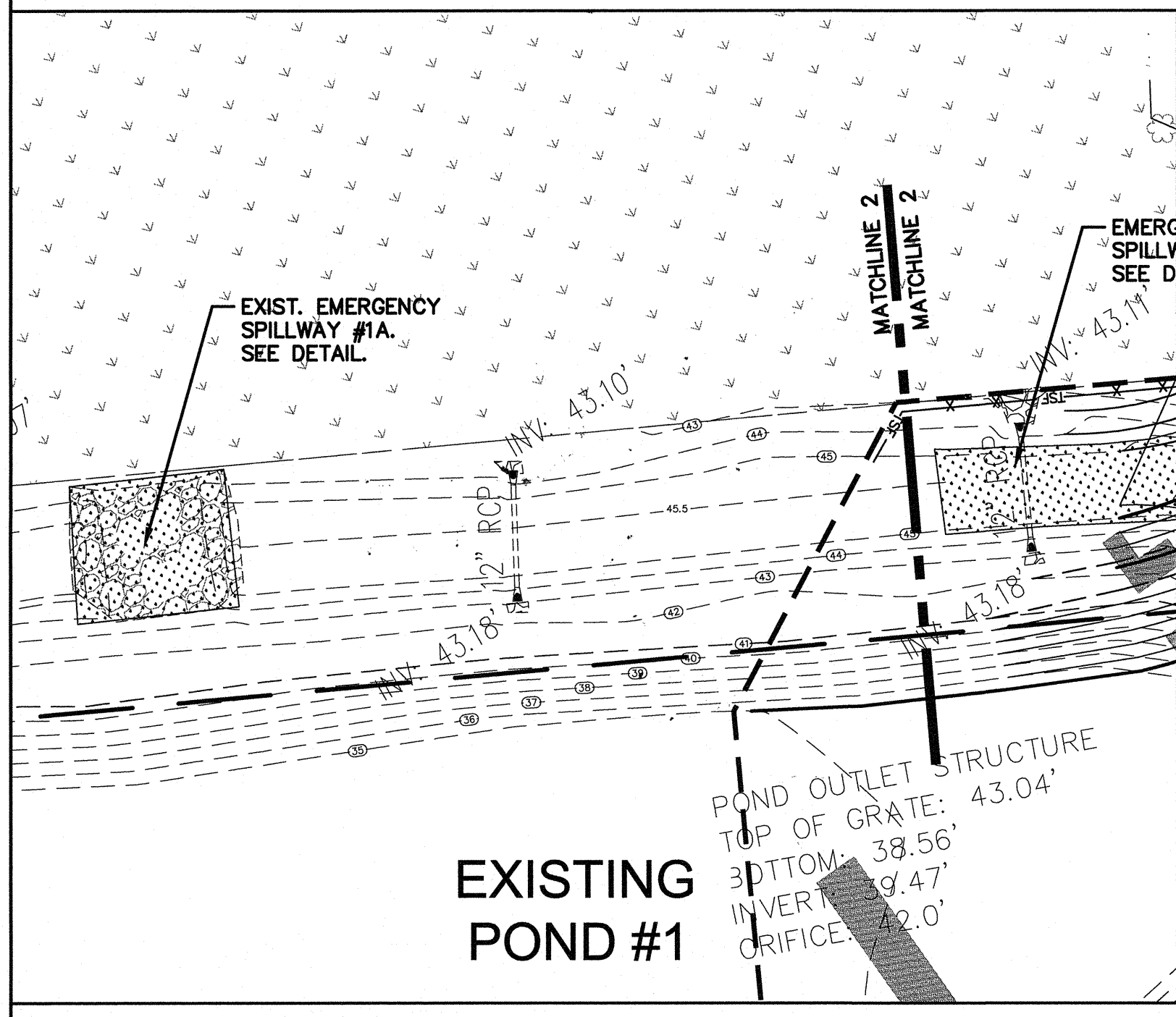
NCDENR PWSS WATER PERMIT # \_\_\_\_\_ GPD  
 WATER CAPACITY: \_\_\_\_\_ GPD  
 DWQ SEWER PERMIT # \_\_\_\_\_ GPD  
 SEWER CAPACITY: \_\_\_\_\_ GPD  
 SEWER SHED # AND PLAN: \_\_\_\_\_  
 SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)

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

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



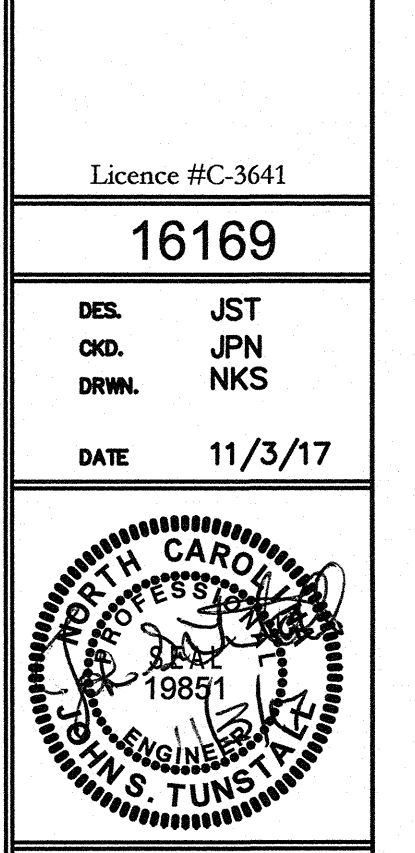
NC DENR PWSS WATER PERMIT # \_\_\_\_\_  
WATER CAPACITY: \_\_\_\_\_ GPD  
DWQ SEWER PERMIT # \_\_\_\_\_  
SEWER CAPACITY: \_\_\_\_\_ GPD  
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**GRADING, DRAINAGE AND EROSION CONTROL PLAN**  
LIVE OAK BANKING COMPANY 3/FITPARK  
1741 TIBURON DRIVE  
WILMINGTON, NORTH CAROLINA 28403

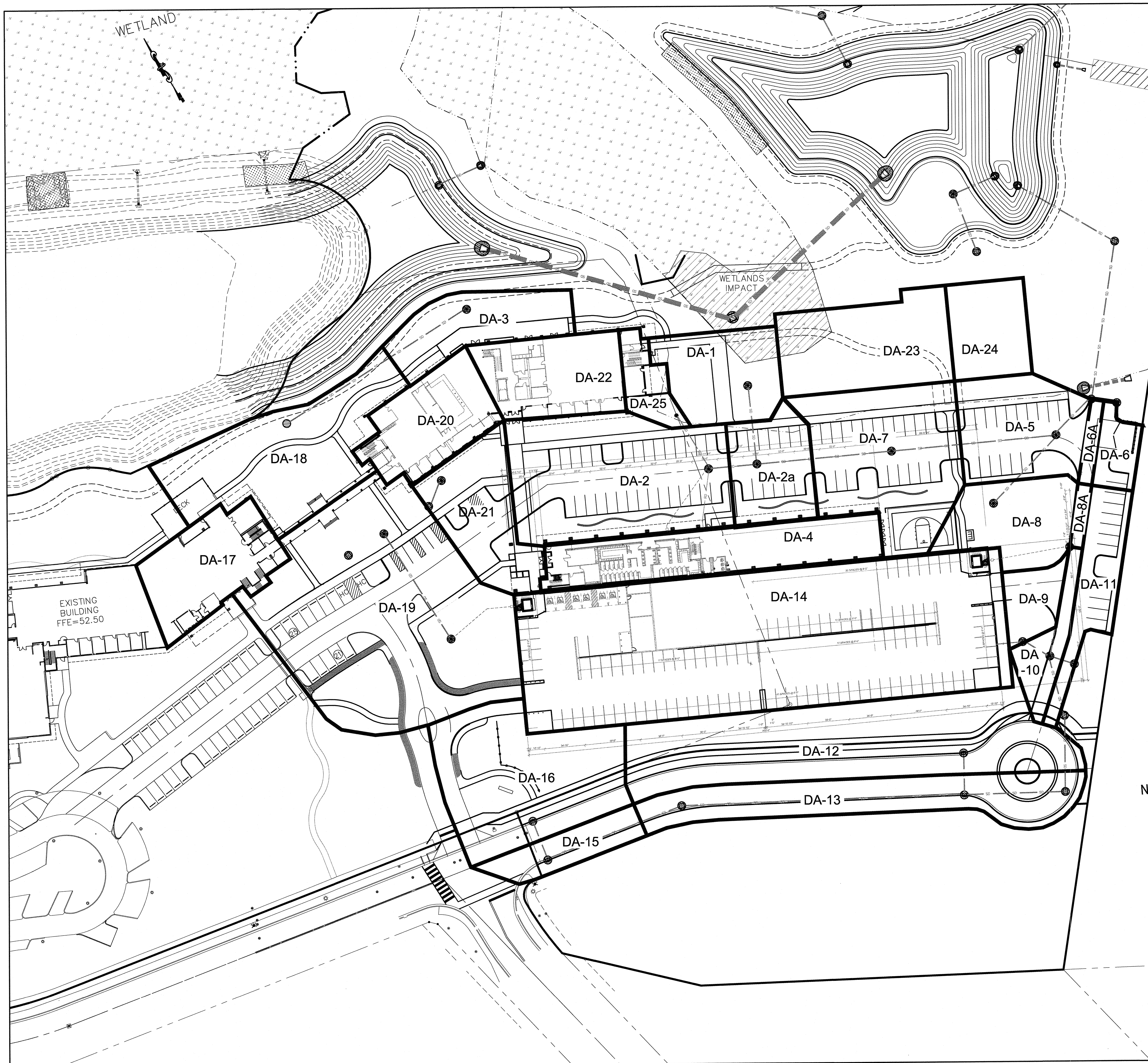
**OWNER/DEVELOPER**  
W. LEE WILLIAMS  
EXECUTIVE VICE PRESIDENT  
LIVE OAK BANKSHARES, INC.  
1741 TIBURON DRIVE  
WILMINGTON, NC 28403  
910-796-1647  
910-796-5868

**NORRIS & TUNSTALL**  
CONSULTING ENGINEERS P.C.  
Licence #C-3641  
16169  
DES: JST  
CAD: JFN  
DRWN: NKS  
DATE: 11/3/17  
902 MARKET STREET  
WILMINGTON, NC 28401  
PHONE (910) 345-9653  
1429 ASH-LITTLE RIVER RD. NW  
ASH, NC 28420  
PHONE (910) 281-5900



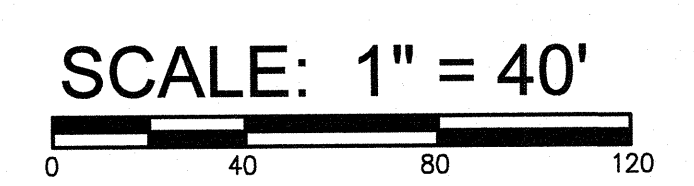
**C2.1**





FOR PERMIT ONLY  
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Drainage Areas				
DA #	Imp. Conc.	Sidewalks	Bldg.	Total
1	0	2,004	0	7,631
2	9,410	1,958	0	19,262
2a	3,823	507	0	6,517
3	0	195	0	7,325
4	0	0	11,491	11,491
5	5,552	1,166	0	9,263
6	1,613	0	0	2,244
6a	840	0	0	840
7	8,320	1,757	0	15,851
8	549	0	0	7,408
8a	628	0	0	628
9	1,588	0	0	2,890
10	1,794	0	0	3,140
11	4,434	0	0	5,428
12	7,561	1,790	0	24,425
13	7,561	0	0	12,435
14	50,211	0	0	50,211
15	2,710	0	0	3,920
16	5,167	726	0	16,335
17	0	0	8,707	8,707
18	0	1,874	443	15,581
19	12,482	4,133	813	35,039
20	0	0	8,008	8,008
21	2,530	1,741	0	8,495
22	0	0	8,082	8,082
23	0	0	11,064	11,064
24	0	0	5,534	5,534
25	0	135	1,640	2,781
Totals	126,773	17,986	55,781	310,534



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

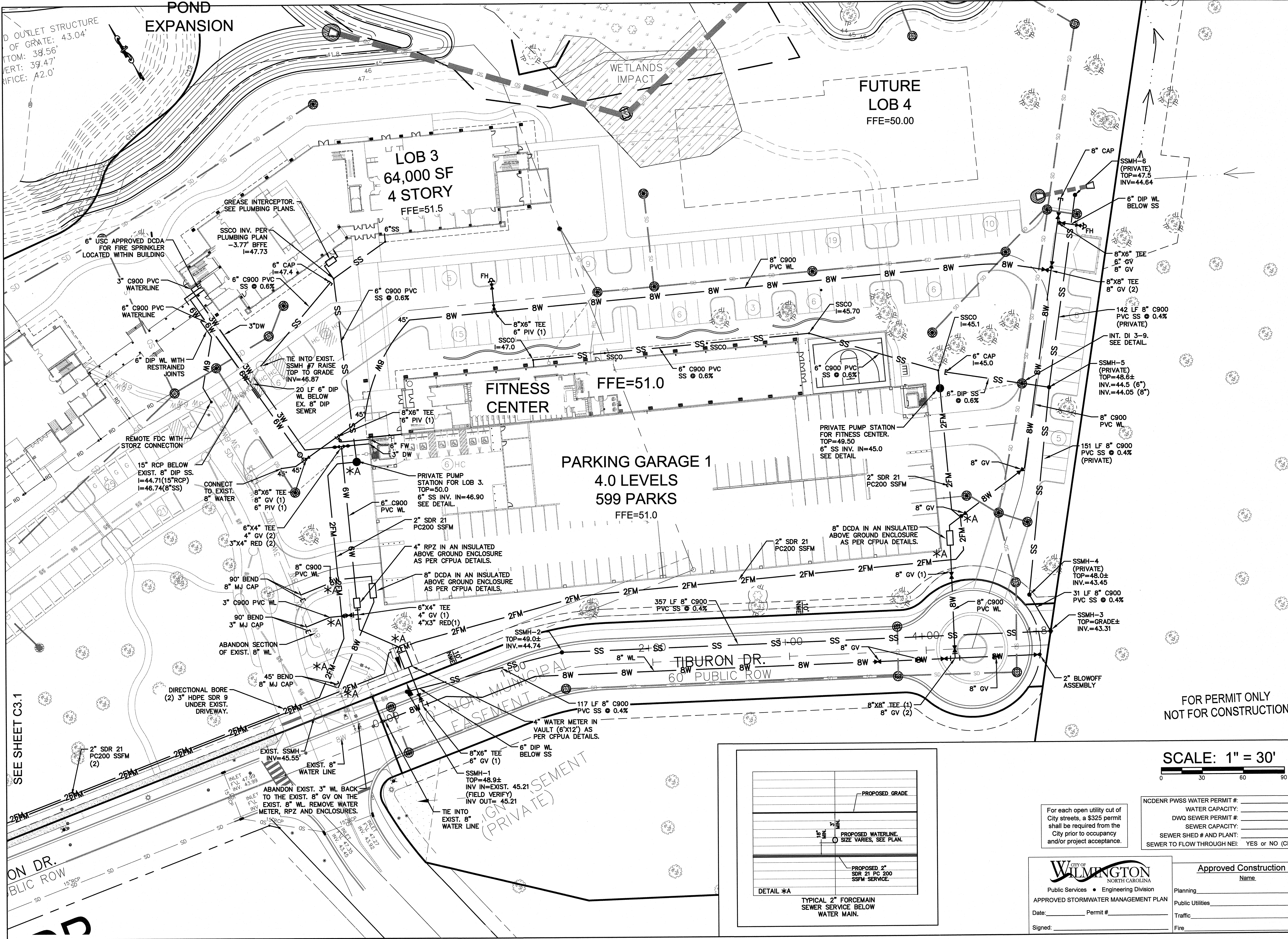
**Approved Construction Plan**  
 Name \_\_\_\_\_ Date \_\_\_\_\_  
 Planning \_\_\_\_\_  
 Public Utilities \_\_\_\_\_  
 Traffic \_\_\_\_\_  
 Fire \_\_\_\_\_

SYMBOL DATE DESCRIPTION REVISIONS ©2017 NORRIS & TUNSTALL BY	<b>NORRIS &amp; TUNSTALL</b> CONSULTING ENGINEERS P.C. 902 MARKET STREET WILMINGTON, NC 28401 PHONE (910) 345-9653	OWNER/DEVELOPER W. LEE WILLIAMS EXECUTIVE VICE PRESIDENT LIVE OAK BANCSHARES, INC. 1741 TIBURON DRIVE WILMINGTON, NC 28403 910-796-1647 910-790-5868	DRAINAGE AREA PLAN LIVE OAK BANKING COMPANY 3/FITPARK 1741 TIBURON DRIVE WILMINGTON, NORTH CAROLINA 28403
---	--	---	--

Licence #C-3641  
**16169**  
 DES: JST  
 CKD: JPN  
 DRWN: NKS  
 DATE: 11/3/17

**C2.2**





OUTLET STRUCTURE OF GRATE: 43.04'  
 BOTTOM: 38.56'  
 VERT: 39.47'  
 OFFICE: 42.0'

**POND EXPANSION**

WETLANDS IMPACT

**FUTURE LOB 4**  
 FFE=50.00

**LOB 3**  
 64,000 SF  
 4 STORY  
 FFE=51.5

**FITNESS CENTER**  
 FFE=51.0

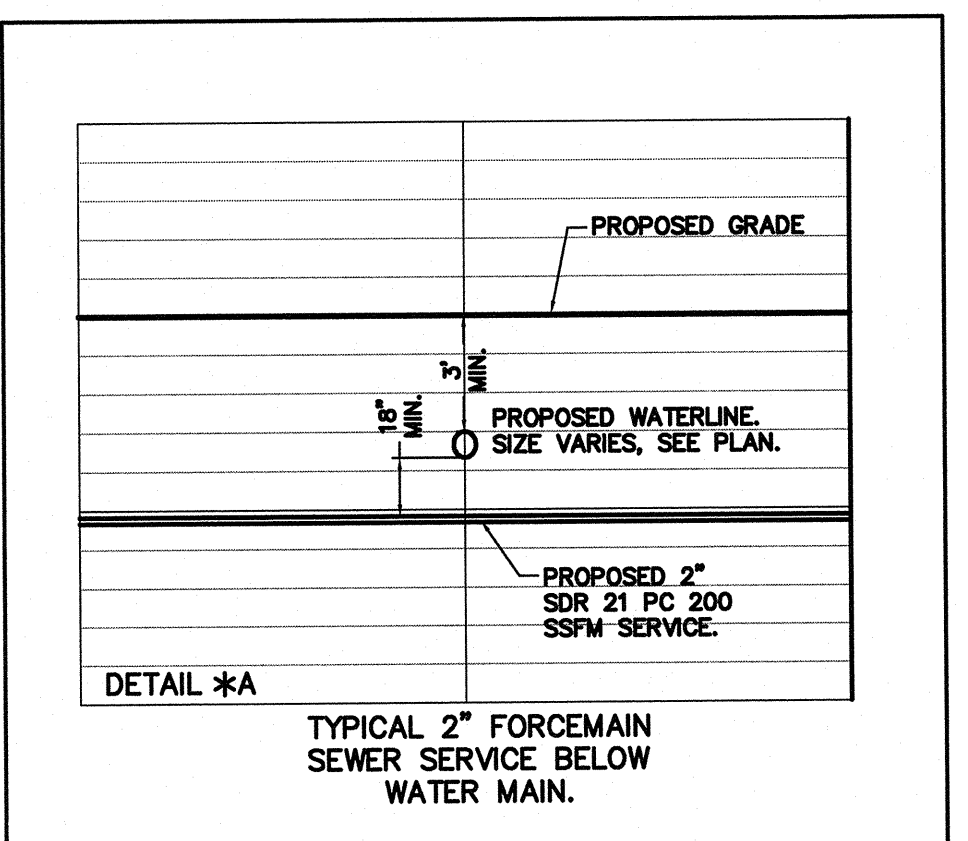
**PARKING GARAGE 1**  
 4.0 LEVELS  
 599 PARKS  
 FFE=51.0

**TIBURON DR.**  
 60' PUBLIC ROW

FOR PERMIT ONLY  
 NOT FOR CONSTRUCTION

SEE SHEET C3.1

**SCALE: 1" = 30'**



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**WILMINGTON**  
 NORTH CAROLINA  
 Public Services • Engineering Division  
 APPROVED STORMWATER MANAGEMENT PLAN  
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 Planning \_\_\_\_\_  
 Public Utilities \_\_\_\_\_  
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 Fire \_\_\_\_\_

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

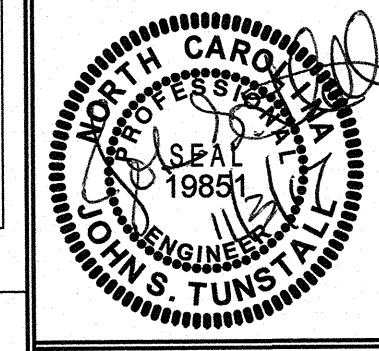
UTILITY PLAN  
**LIVE OAK BANKING COMPANY 3/FITPARK**  
 1741 TIBURON DRIVE  
 WILMINGTON, NORTH CAROLINA 28403

OWNER/DEVELOPER  
 W. LEE WILLIAMS  
 EXECUTIVE VICE PRESIDENT  
 LIVE OAK BANKSHARES, INC.  
 1741 TIBURON DRIVE  
 WILMINGTON, NC 28403  
 910-796-1847  
 910-790-5668

**NORRIS & TUNSTALL**  
 CONSULTING ENGINEERS P.C.  
 1429 ASH-LITTLE RIVER RD. NW  
 ASH, NC 28420  
 910-345-9653  
 PHONE (910) 287-3900

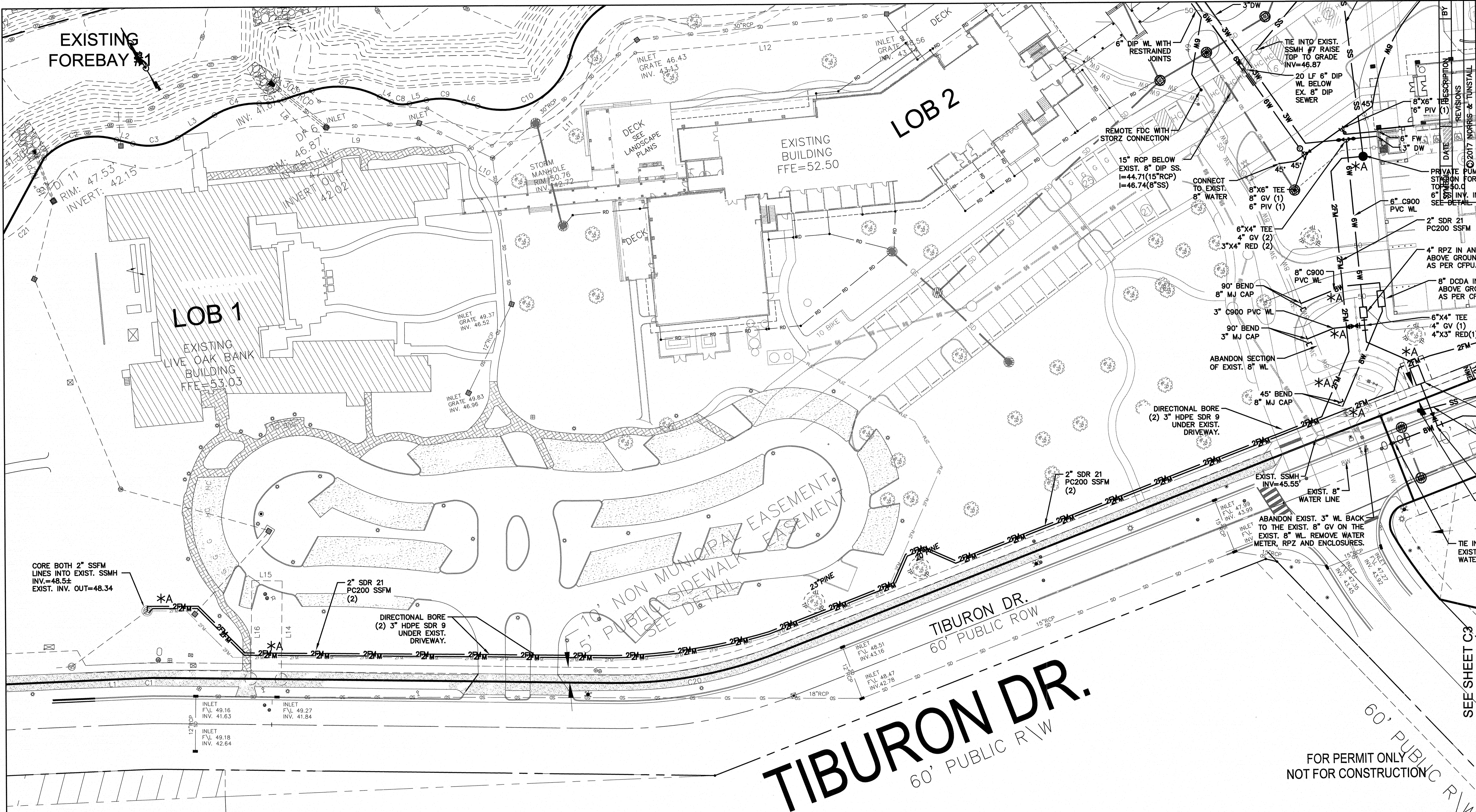
Licence #C-3641

16169  
 DES: JST  
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**C3**



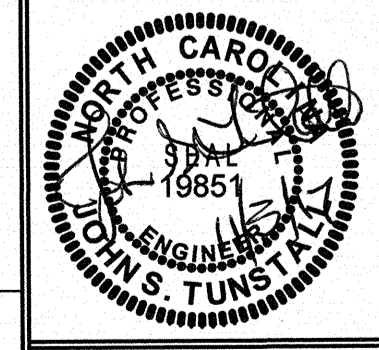


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 WILMINGTON, NORTH CAROLINA 28403

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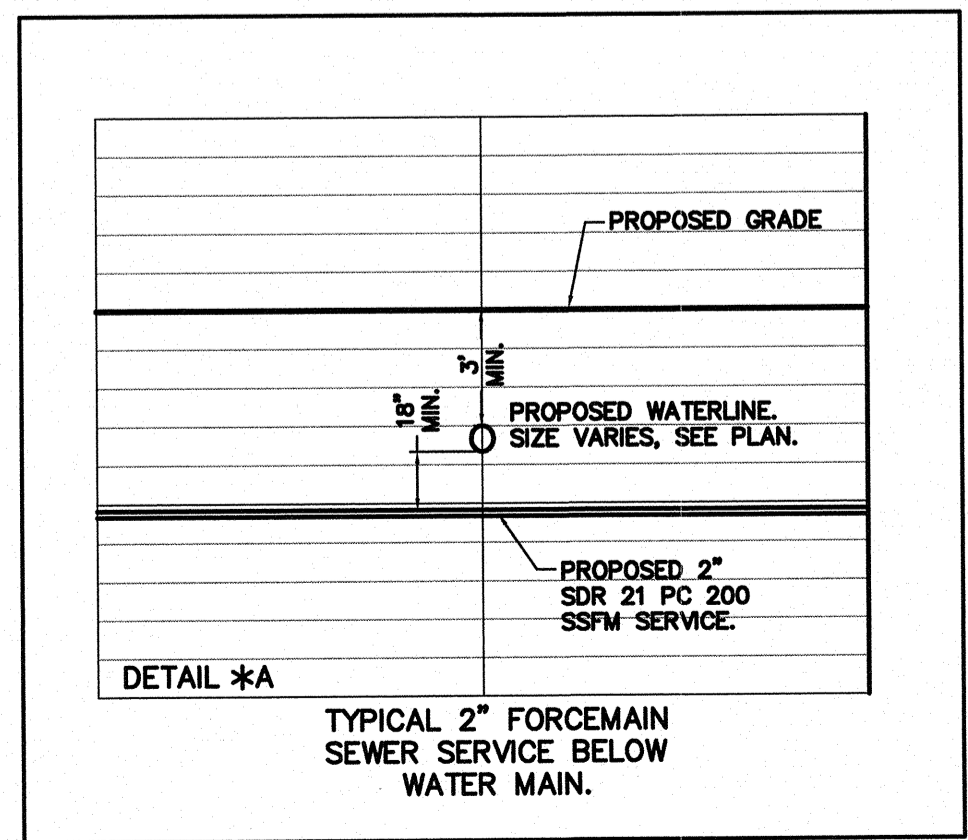
**NORRIS & TUNSTALL**  
 CONSULTING ENGINEERS P.C.  
 902 MARKET STREET  
 WILMINGTON, NC 28401  
 PHONE (910) 343-9653  
 1429 ASH-LITTLE RIVER RD. NW  
 ASH, NC 28420  
 PHONE (910) 287-5900

16169  
 DATE 11/3/17



**C3.1**

SCALE: 1" = 30'



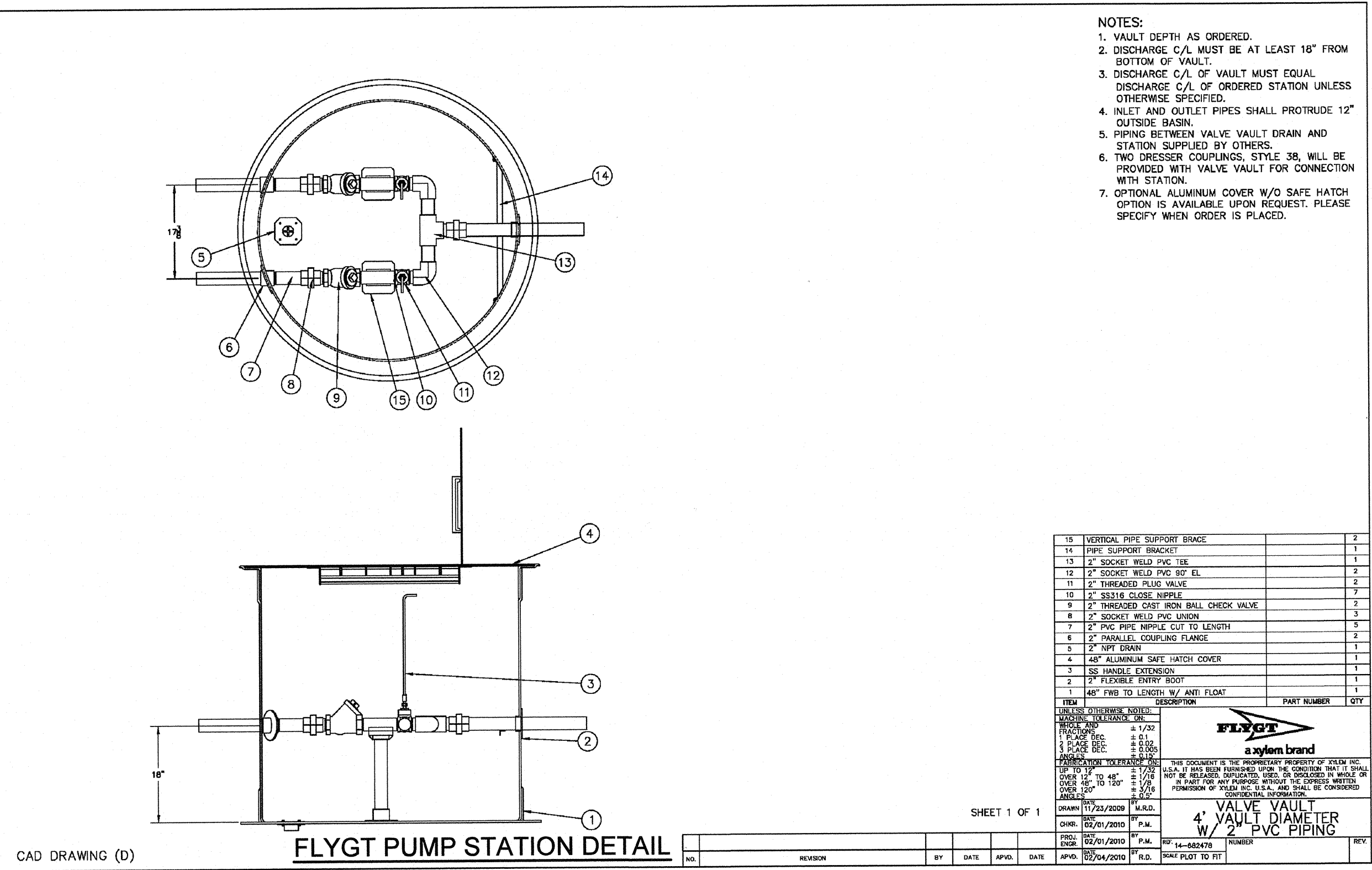
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 DWQ SEWER PERMIT #: \_\_\_\_\_ GPD  
 SEWER CAPACITY: \_\_\_\_\_ GPD  
 SEWER SHED # AND PLANT: \_\_\_\_\_  
 SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)

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

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

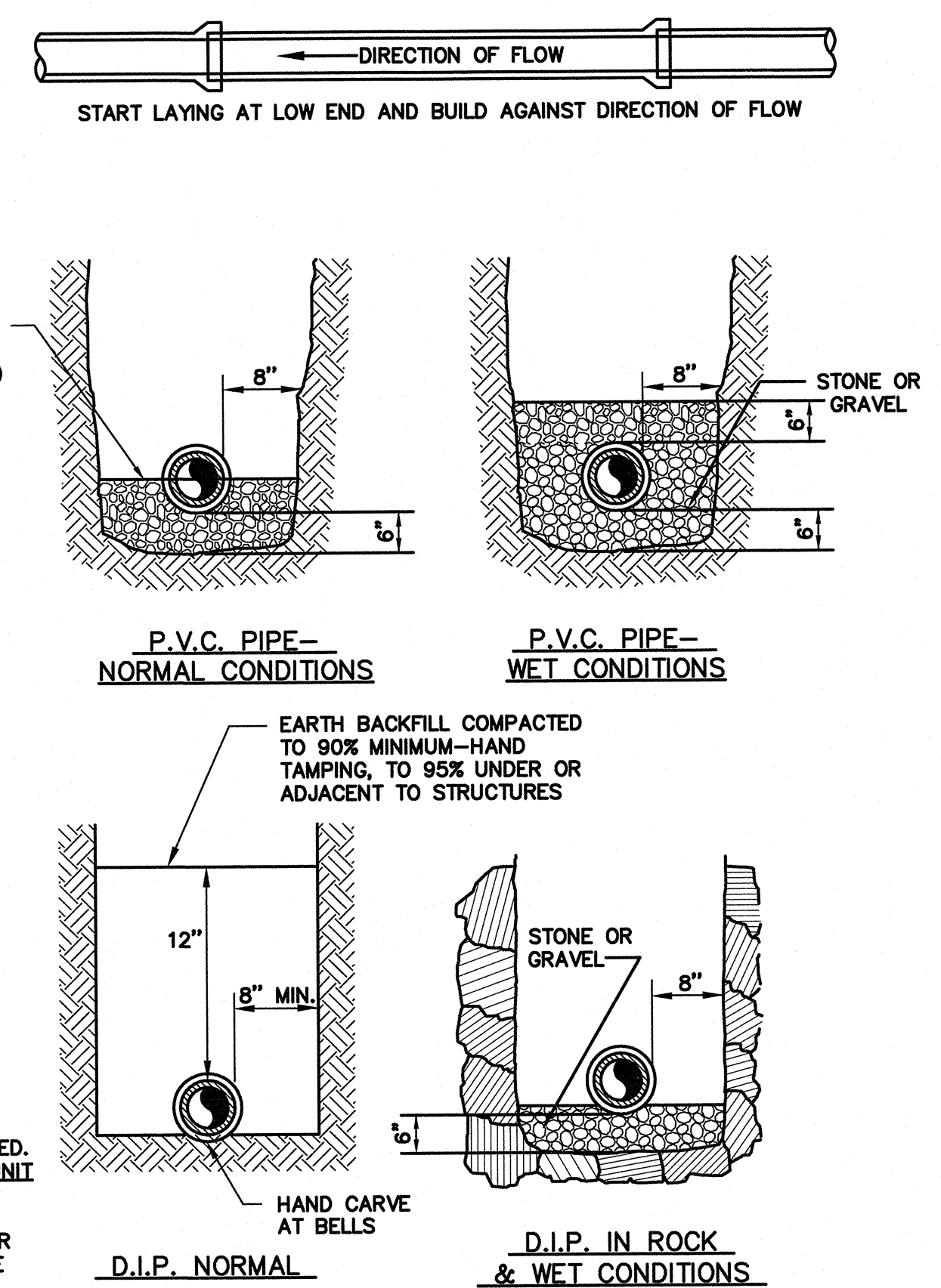




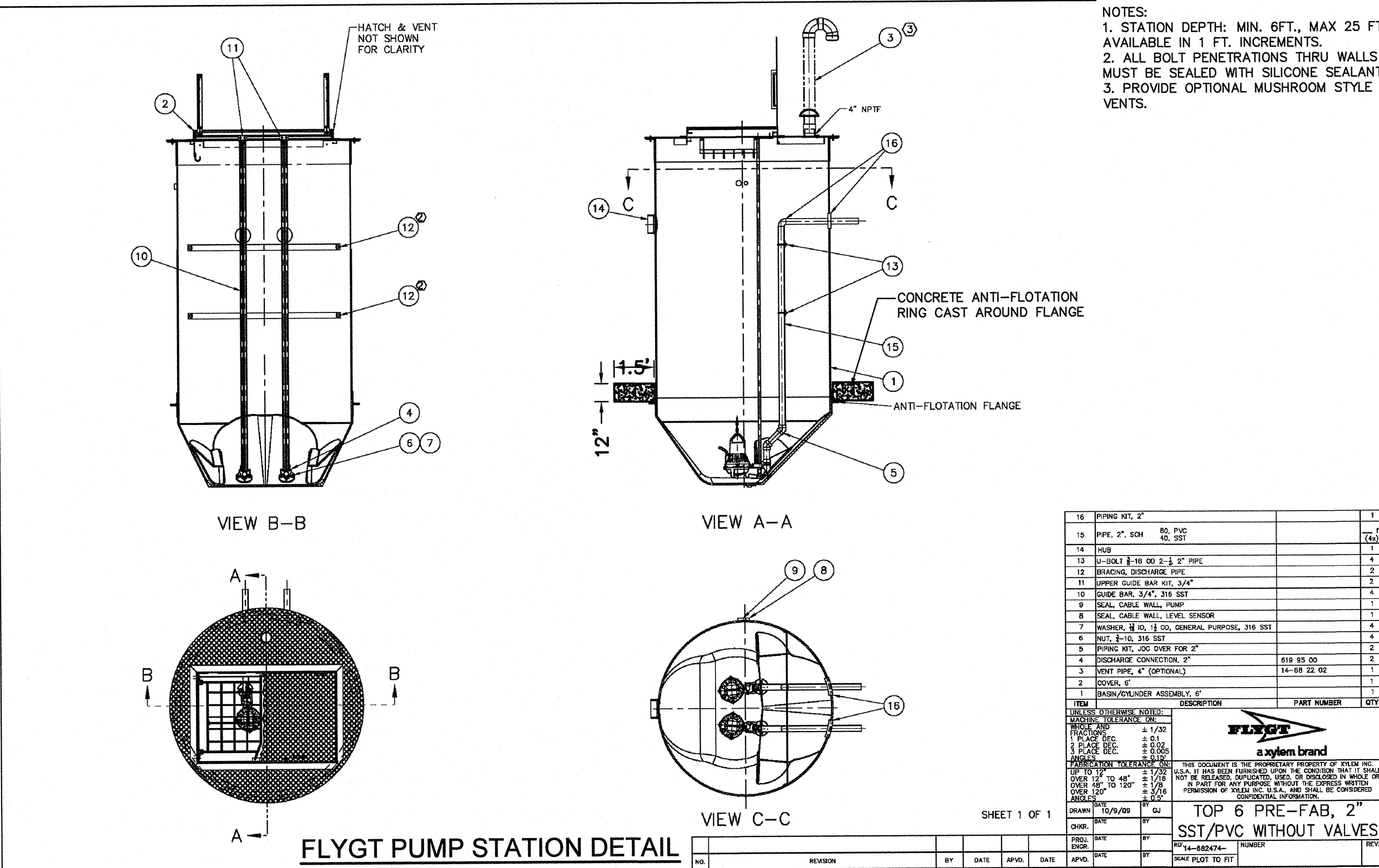
- NOTES:
1. VAULT DEPTH AS ORDERED.
  2. DISCHARGE C/A MUST BE AT LEAST 16" FROM BOTTOM OF VAULT.
  3. DISCHARGE C/A OF VAULT MUST EQUAL DISCHARGE C/A OF ORDERED STATION UNLESS OTHERWISE SPECIFIED.
  4. INLET AND OUTLET PIPES SHALL PROTRUDE 12" OUTSIDE BASIN.
  5. PIPING BETWEEN VALVE VAULT DRAIN AND STATION SUPPLIED BY OTHERS.
  6. TWO DRESSER COUPLINGS, STYLE 308, WILL BE PROVIDED WITH VALVE VAULT FOR CONNECTION WITH STATION.
  7. OPTIONAL ALUMINUM COVER W/O SAFE HATCH OPTION IS AVAILABLE UPON REQUEST. PLEASE SPECIFY WHEN ORDER IS PLACED.

ITEM	DESCRIPTION	PART NUMBER	QTY
15	VERTICAL PIPE SUPPORT BRIDGE		2
16	PIPE SUPPORT BRACKET		1
17	1/2" SOCKET WELD PVC 3/4" EL.		1
18	1/2" THREADED PLUG VALVE		2
19	1/2" 3/8" NPT GLOBE VALVE		2
20	1/2" THREADED CHECK BALL CHECK VALVE		2
21	1/2" SOCKET WELD PVC UNION		2
22	1/2" PVC PIPE W/PLEG CUT TO LENGTH		1
23	1/2" PARALLEL COUPLING FLANGE		2
24	1/2" NPT GLOBE VALVE		1
25	1/2" ALUMINUM SAFE HATCH COVER		1
26	1/2" HATCH COVER		1
27	1/2" REMOVABLE TIGHT STOP		1
28	1/2" PVC TO LENGTH W/ ANTI FLOAT		1

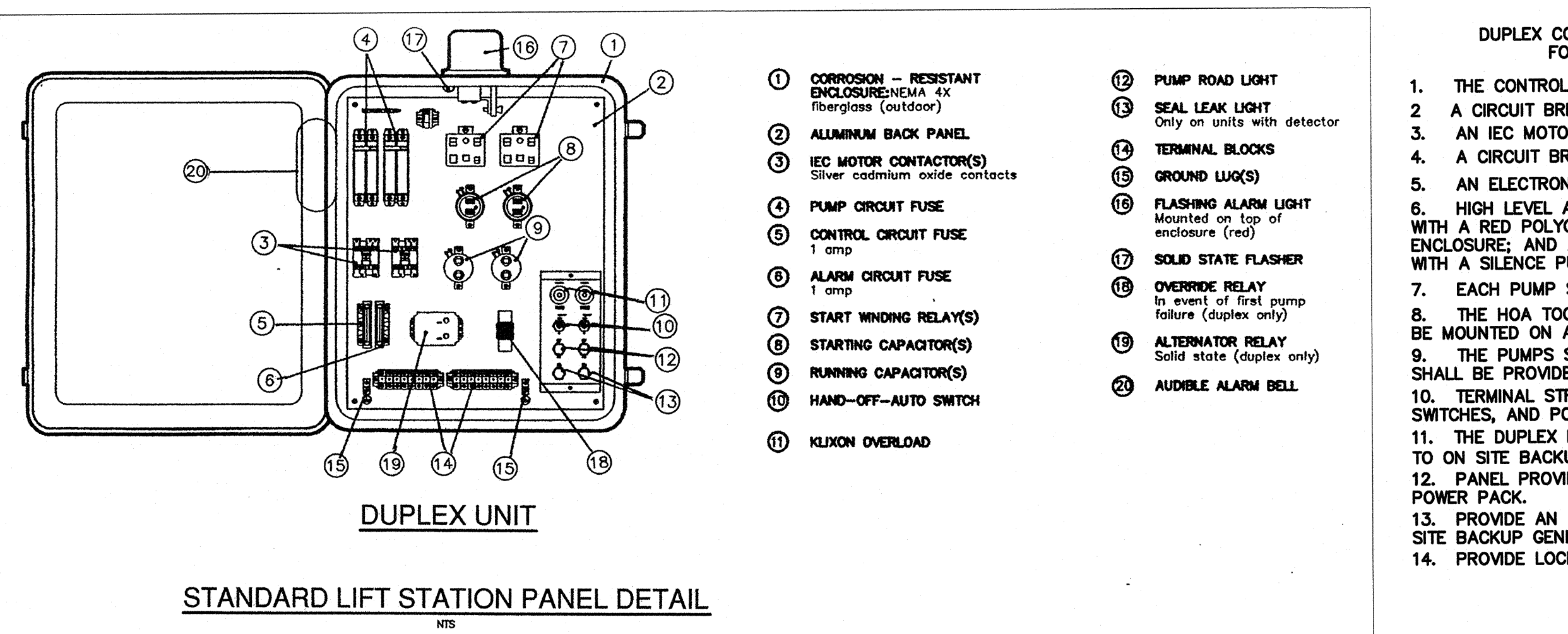
CAD DRAWING (D) SHEET 1 OF 1



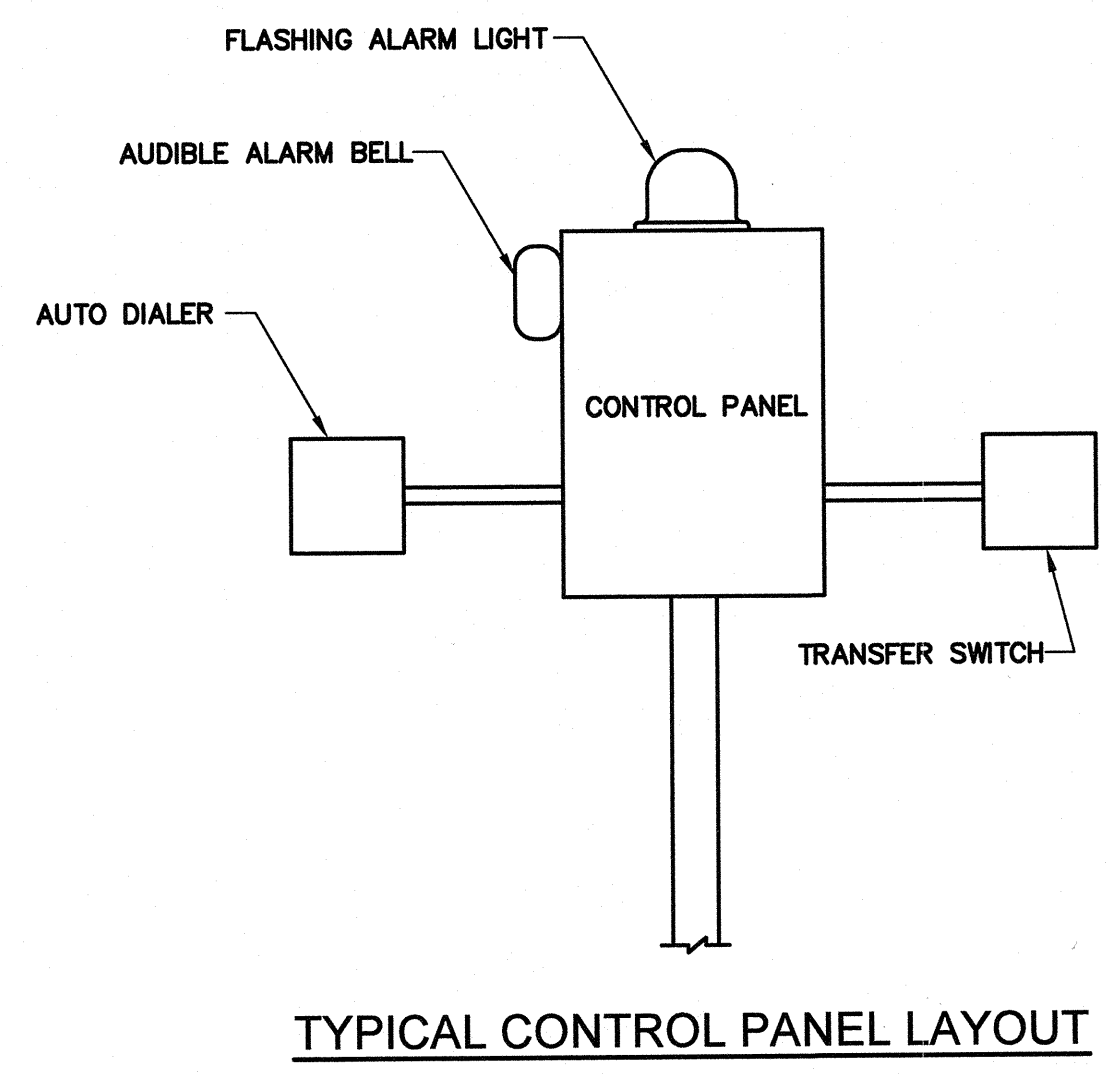
STANDARD SEWER LINE TRENCH NTS



CAD DRAWING (D) SHEET 1 OF 1



CAD DRAWING (D) SHEET 1 OF 1



TYPICAL CONTROL PANEL LAYOUT NTS

NOTE: 1. THE PANEL SHALL BE MOUNTED TO ADJACENT STRUCTURE OR MOUNTED FREE STANDING ON PRESSURE TREATED POST.

LIVE OAK BANK 3

FLYGT TOP PRE-ENGINEERED FIBERGLASS PACKAGE LIFT STATION (SEE SPECIFICATIONS)

ITEM	ELEVATION
TOP ELEV.	50.00
INFLUENT PIPE (INVERT)	46.90
HIGH WATER ALARM	46.25
START LAG PUMP	45.50
START LEAD PUMP	44.75
PUMP OFF	44.00
BOTTOM OF WETWELL	42.00
BOTTOM OF STATION SLAB	PER DETAIL
WET WELL DIAMETER	6.00

ITEM	VALUE
DESIGN FLOW	25 GPM/MIN.
DESIGN HEAD (FROM PUMP CURVE)	34 FT.
REQUIRED FLOW	25 GPM/MIN.
REQUIRED HEAD (TDH)	34 FT.
VOLTAGE	460
PHASE	3 PHASE
HORSEPOWER	2 HP
RPM	3450 RPM

PREFERRED PUMP IS A FLYGT GRINDER PUMP STATION M-3068

AN AUTO DIALER AND CONNECTION TO ON SITE BACKUP GENERATOR ARE REQUIRED. AN AUTOMATIC TRANSFER SWITCH SHALL BE PROVIDED FOR GENERATOR CONNECTION.

FITPARK

FLYGT TOP PRE-ENGINEERED FIBERGLASS PACKAGE LIFT STATION (SEE SPECIFICATIONS)

ITEM	ELEVATION
TOP ELEV.	49.50
INFLUENT PIPE (INVERT)	45.00
HIGH WATER ALARM	44.35
START LAG PUMP	43.70
START LEAD PUMP	43.05
PUMP OFF	42.40
BOTTOM OF WETWELL	40.40
BOTTOM OF STATION SLAB	PER DETAIL
WET WELL DIAMETER	6.00

ITEM	VALUE
DESIGN FLOW	25 GPM/MIN.
DESIGN HEAD (FROM PUMP CURVE)	48 FT.
REQUIRED FLOW	25 GPM/MIN.
REQUIRED HEAD (TDH)	48 FT.
VOLTAGE	460
PHASE	3 PHASE
HORSEPOWER	2 HP
RPM	3450 RPM

PREFERRED PUMP IS A FLYGT GRINDER PUMP STATION M-3068

AN AUTO DIALER AND CONNECTION TO ON SITE BACKUP GENERATOR ARE REQUIRED. AN AUTOMATIC TRANSFER SWITCH SHALL BE PROVIDED FOR GENERATOR CONNECTION.

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APPROVED STORMWATER MANAGEMENT PLAN  
 Date: \_\_\_\_\_ Permit # \_\_\_\_\_  
 Signed: \_\_\_\_\_

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

UTILITY PLAN  
 LIVE OAK BANKING COMPANY 3/FITPARK  
 1741 TIBURON DRIVE  
 WILMINGTON, NORTH CAROLINA 28403

OWNER/DEVELOPER  
 W. LEE WILLIAMS  
 EXECUTIVE VICE PRESIDENT  
 LIVE OAK BANKSHARES, INC.  
 1741 TIBURON DRIVE  
 WILMINGTON, NC 28403  
 910-796-1947  
 910-790-5868

NORRIS & TUNSTALL  
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 902 MARKET STREET  
 WILMINGTON, NC 28401  
 PHONE (910) 348-9653

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 16169  
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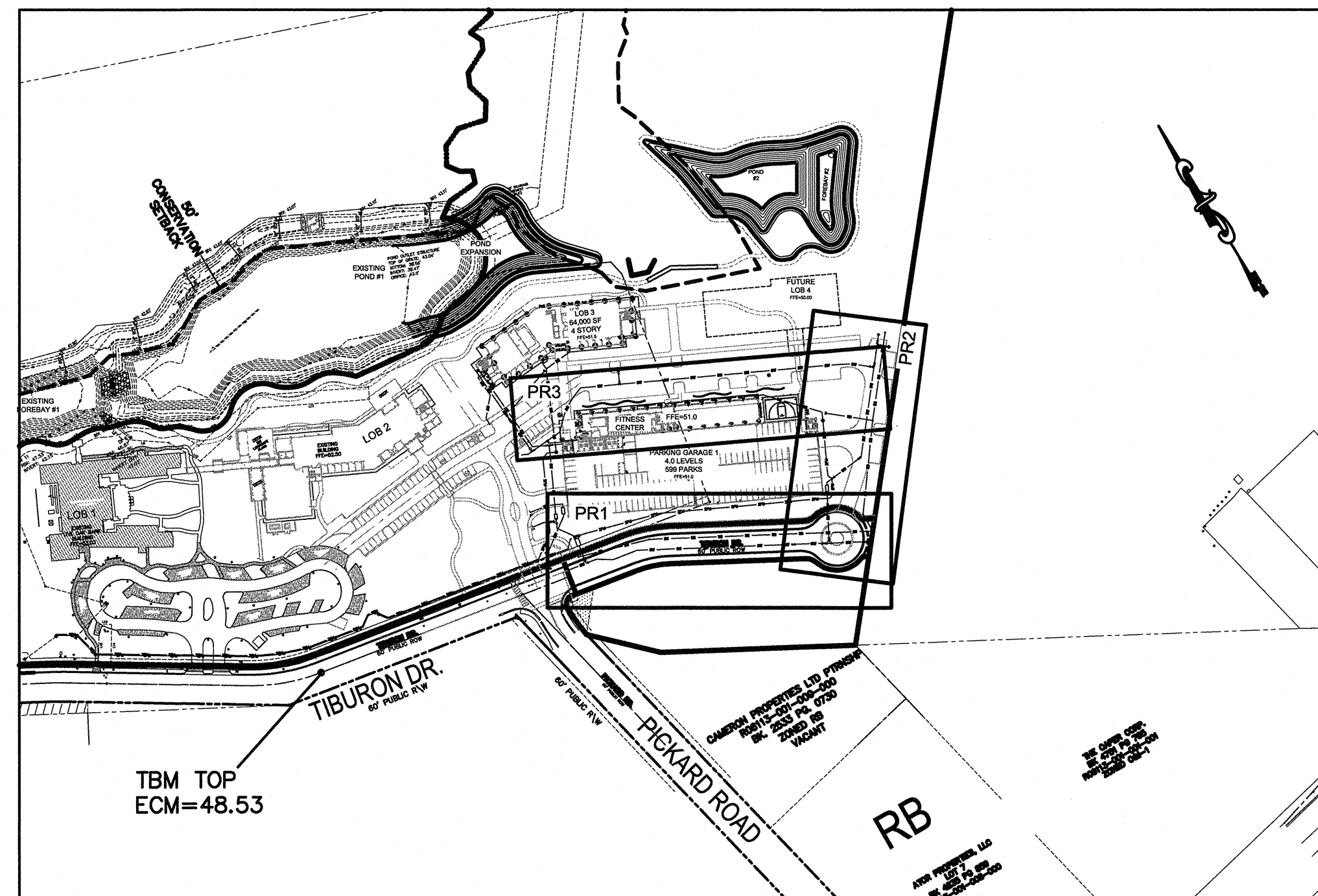
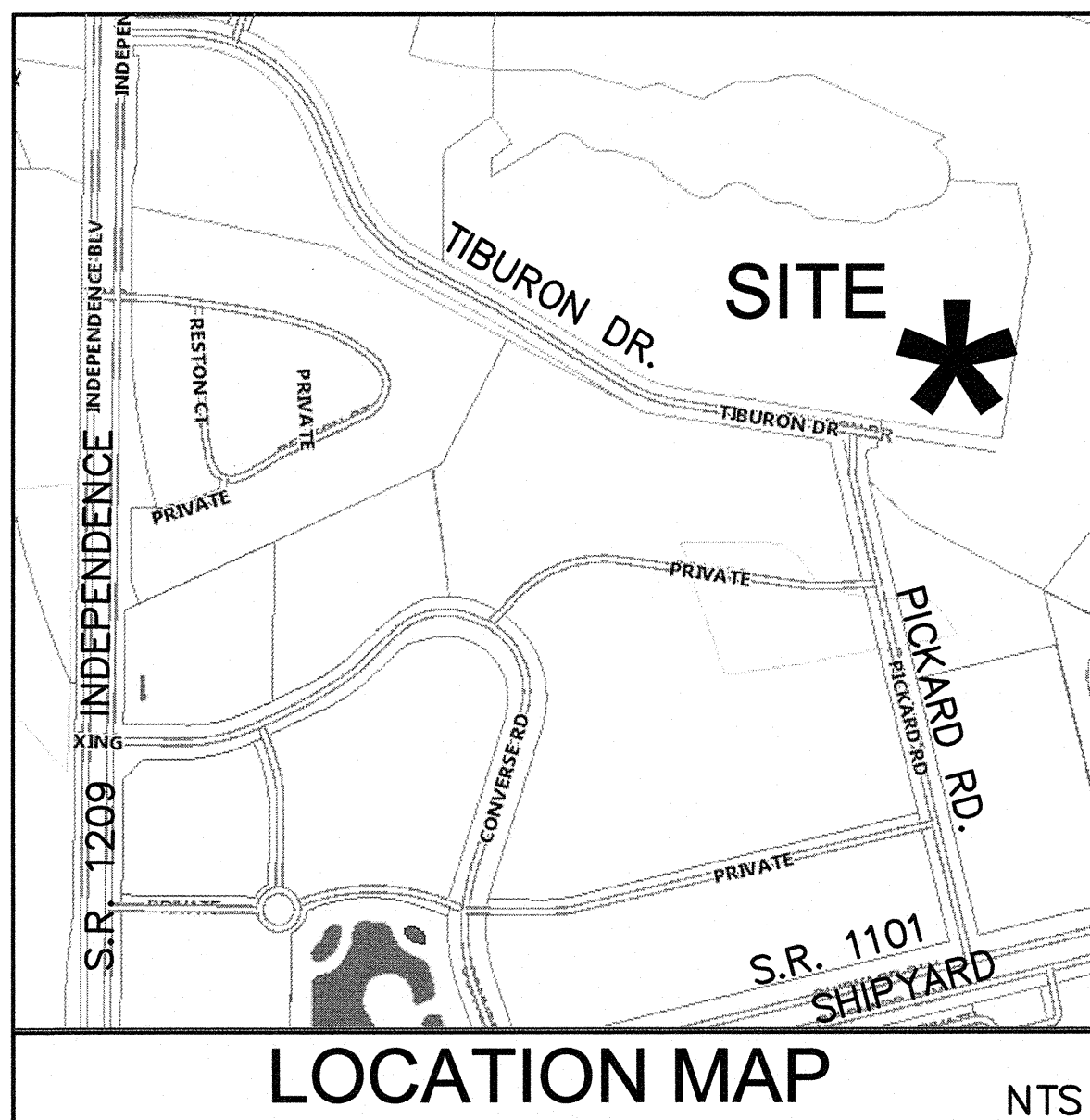
City of WILMINGTON  
 NORTH CAROLINA  
 Public Services • Engineering Division  
 Approved Construction Plan  
 Name: \_\_\_\_\_ Date: \_\_\_\_\_  
 Planning \_\_\_\_\_  
 Public Utilities \_\_\_\_\_  
 Traffic \_\_\_\_\_  
 Fire \_\_\_\_\_

C3.2



# LIVE OAK BANKING COMPANY 3/FITPARK

WILMINGTON, NC  
NEW HANOVER COUNTY



SCALE: 1" = 200'

## INDEX OF SHEETS

COVER SHEET	
PR1:	WATER/SEWER/ROAD PLAN AND PROFILE LINE 1
PR2:	WATER/SEWER PLAN AND PROFILE LINE 2
PR3:	WATER PLAN AND PROFILE LINE 3
WSD-1	CFPUA WATER DISTRIBUTION SYSTEM STANDARD DETAILS
WSD-2	CFPUA WATER DISTRIBUTION SYSTEM STANDARD DETAILS
SSD-1:	SANITARY SEWER STANDARD DETAILS
SSD-2:	SANITARY SEWER STANDARD DETAILS
SSD-3:	SANITARY SEWER STANDARD DETAILS

**PUBLIC WATER:**  
546 LF 8" WATER LINE  
30 LF 6" WATER LINE

**PUBLIC SEWER:**  
505 LF 8" SEWER LINE

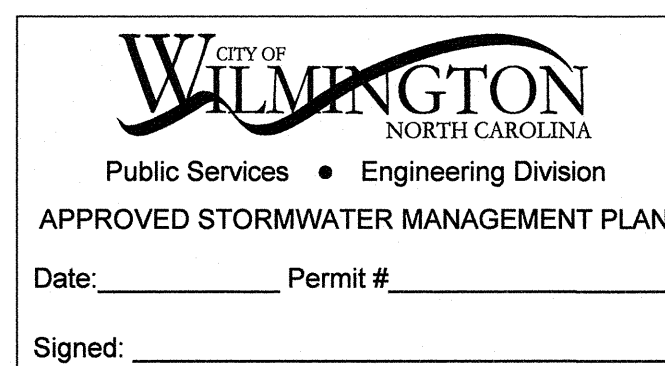
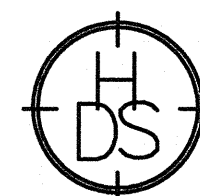
**PRIVATE WATER:**  
1,078 LF 8" WATER LINE  
490 LF 6" WATER LINE  
241 LF 3" WATER LINE  
*SERVICES*

**PRIVATE SEWER:**  
293 LF 8" SANITARY SEWER  
652 LF 6" SANITARY SEWER *SERVICES*  
2,463 LF 2" SEWER FORCEMAIN *SERVICES*

**OWNER/DEVELOPER**  
W. LEE WILLIAMS  
EXECUTIVE VICE PRESIDENT  
LIVE OAK BANCSHARES, INC.  
1741 TIBURON DRIVE  
WILMINGTON, NC 28403  
910-796-1647  
910-790-5868

**SITE SURVEYOR:**  
**HANOVER DESIGN SERVICES, P.A.**  
LAND SURVEYORS ENGINEERS LAND PLANNERS

1123 FLORAL PARKWAY  
WILMINGTON, N.C. 28403  
PHONE: 910 343-8002  
FAX: 910 343-9941



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

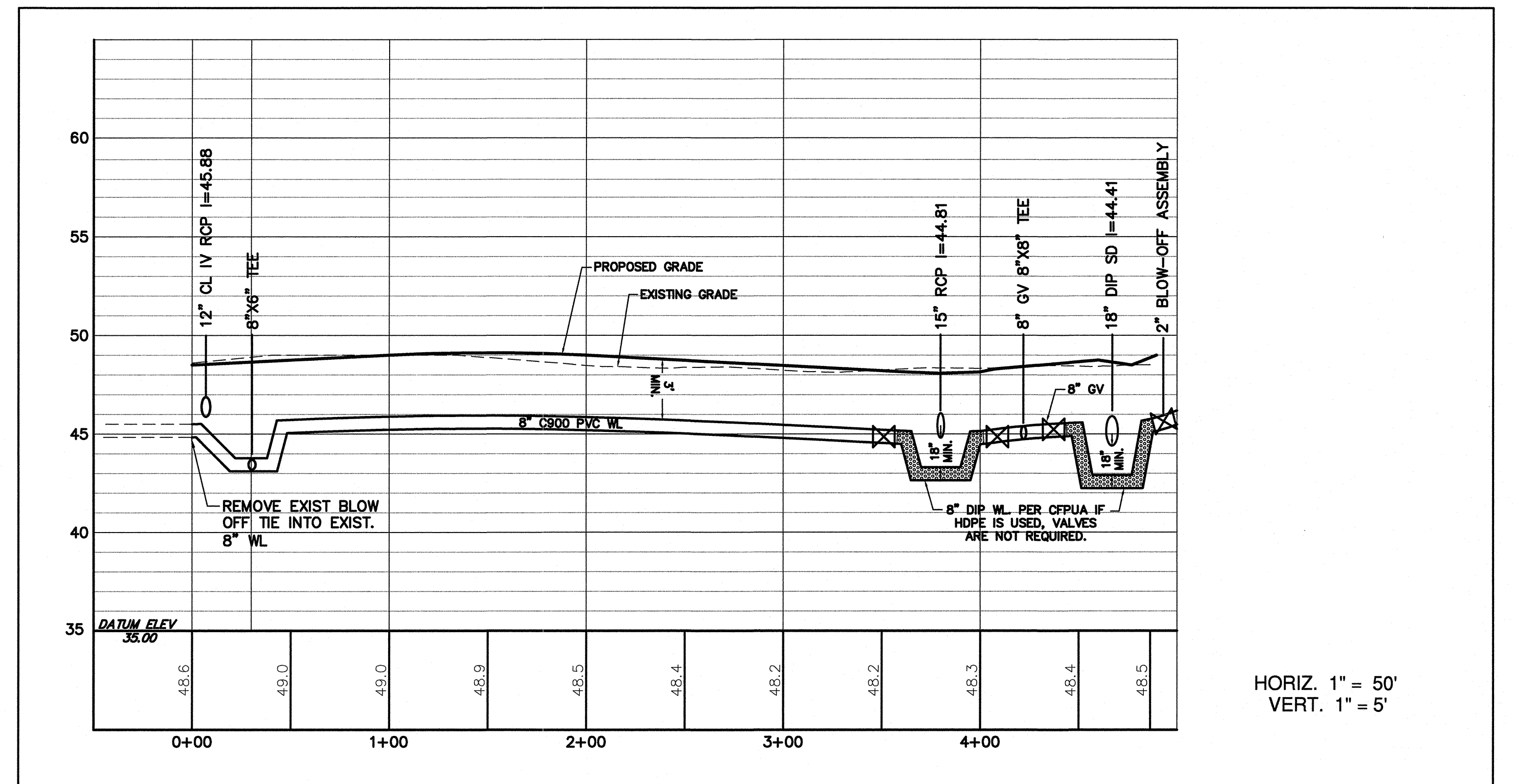
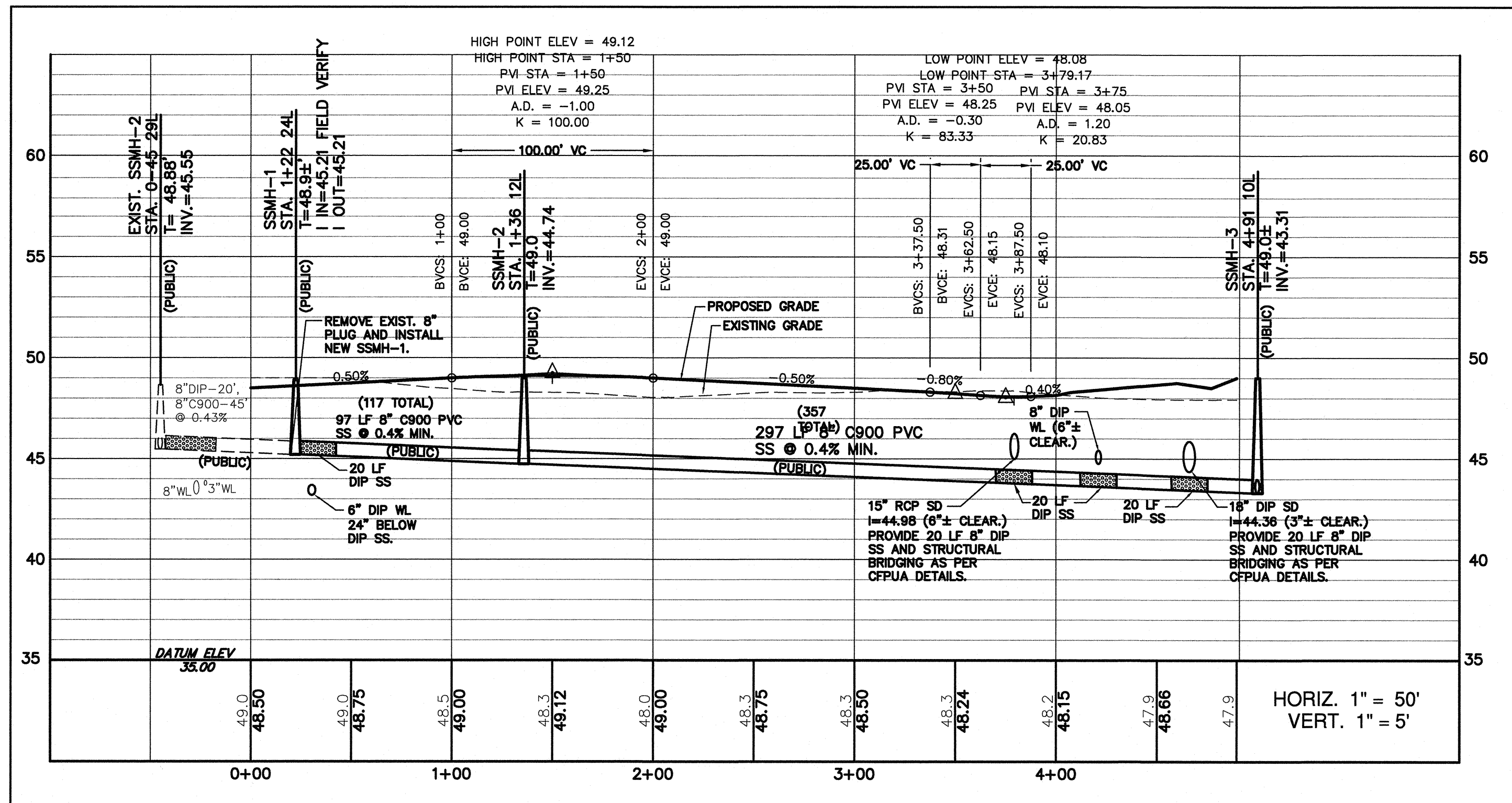
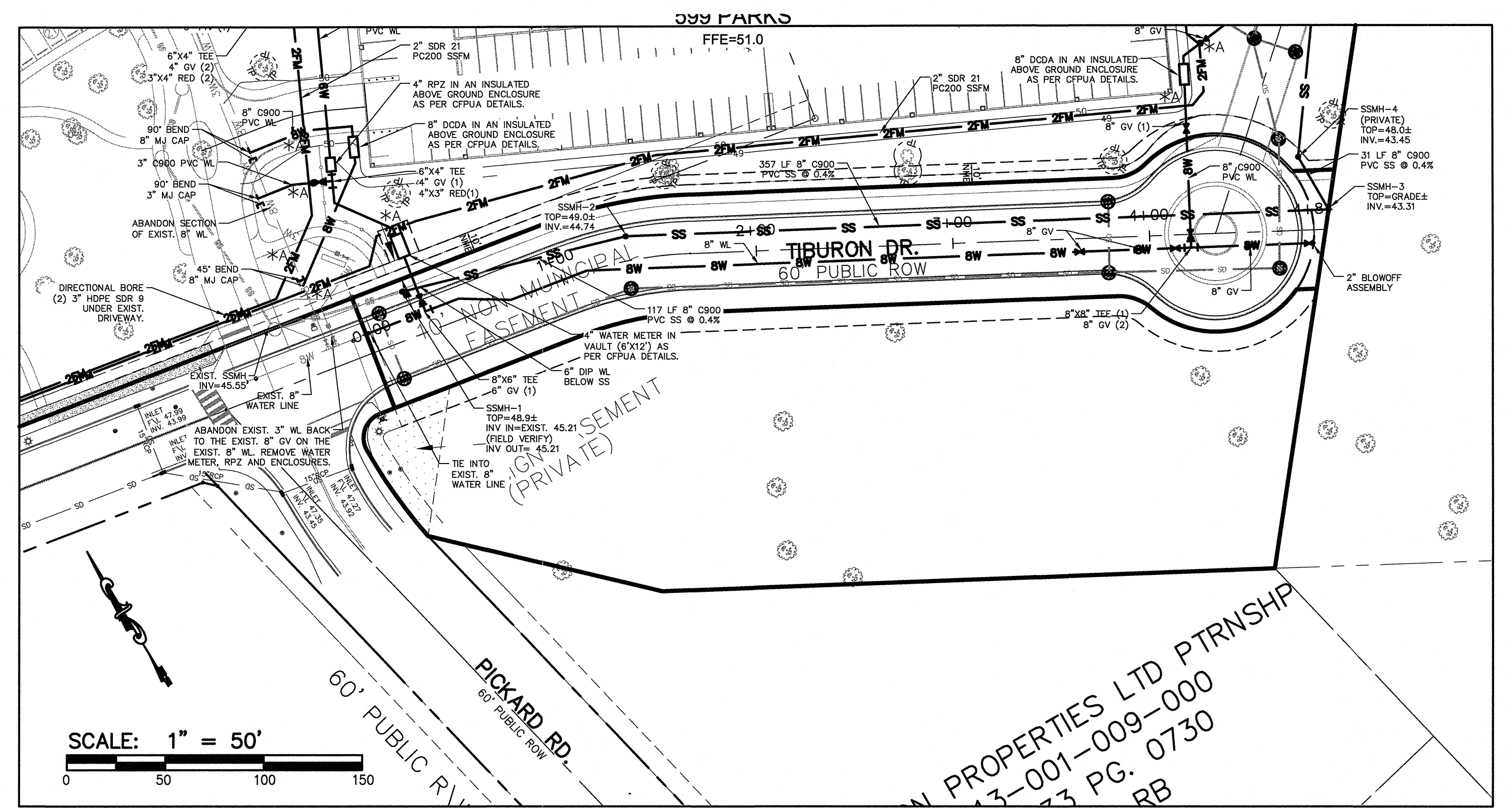
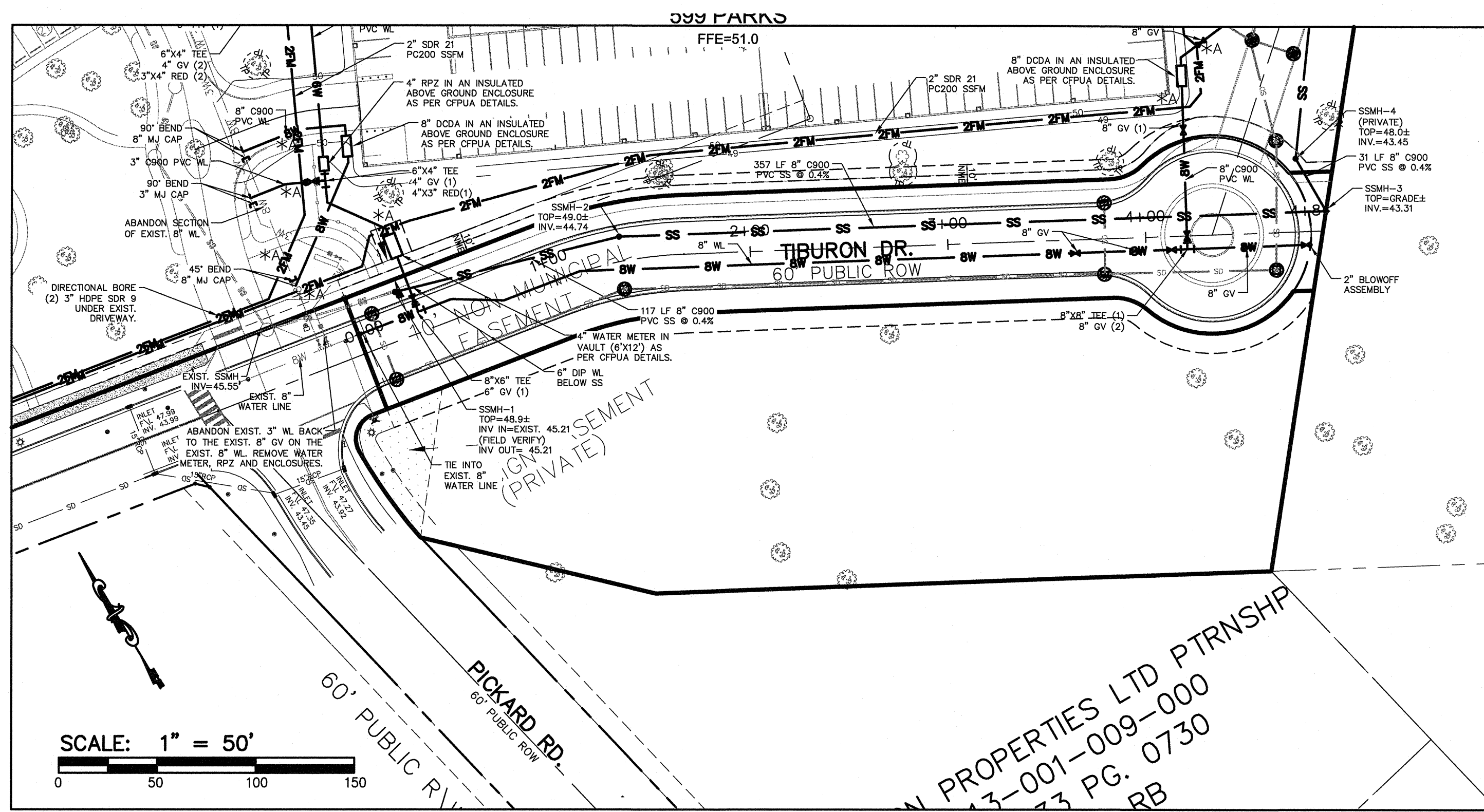
FOR PERMIT ONLY  
NOT FOR CONSTRUCTION

**NORRIS & TUNSTALL**  
CONSULTING ENGINEERS P.C.

902 MARKET STREET  
WILMINGTON, NC 28401  
PHONE (910) 343-9653

1429 ASH-LITTLE RIVER RD. NW  
ASH, NC 28420  
PHONE (910) 287-5900





**SANITARY SEWER AND ROAD PROFILE LINE 1**

**WATER LINE PROFILE LINE 1**

- CFPUA STANDARD SEWER NOTES:**
- SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
  - WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT RIGHT-OF-WAY LINE. SEWER SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN END OF LINE 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.
  - MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
  - NO FLEXIBLE COUPLINGS SHALL BE USED.
  - ALL STAINLESS STEEL FASTENERS SHALL BE 316.
  - CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.

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

Name: \_\_\_\_\_ Date: \_\_\_\_\_  
Permit # \_\_\_\_\_  
Signed: \_\_\_\_\_

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

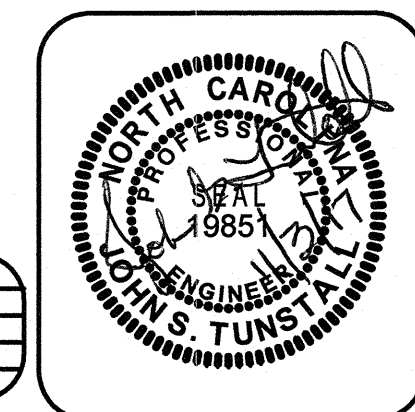
**Approved Construction Plan**

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

Planning: \_\_\_\_\_  
Traffic: \_\_\_\_\_  
Fire: \_\_\_\_\_

REV NO.	DESCRIPTION	DATE

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**NORRIS & TUNSTALL**  
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902 MARKET STREET  
WILMINGTON, NC 28401  
PHONE (910) 343-9653 License #C-3641 PHONE (910) 287-5900

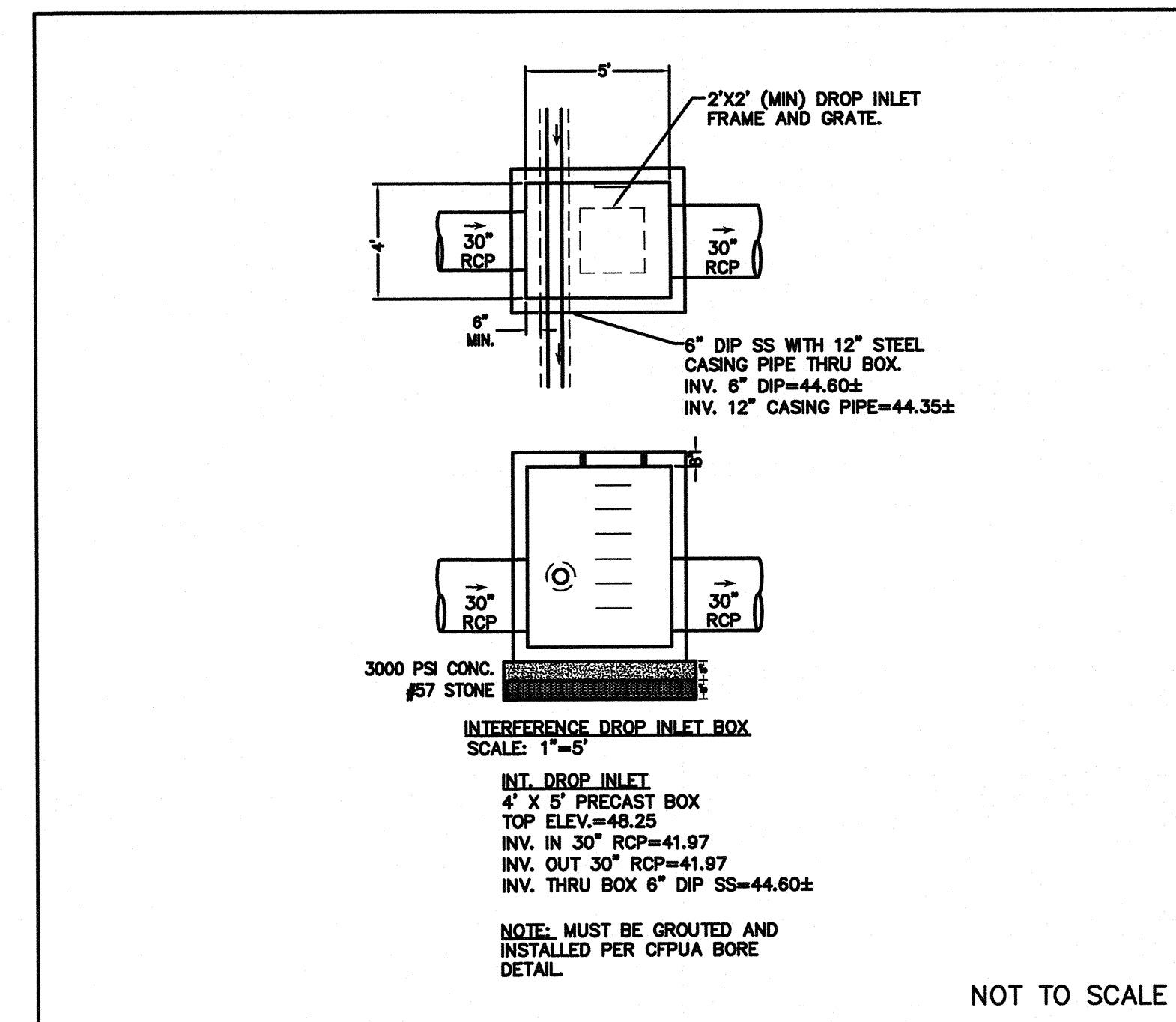
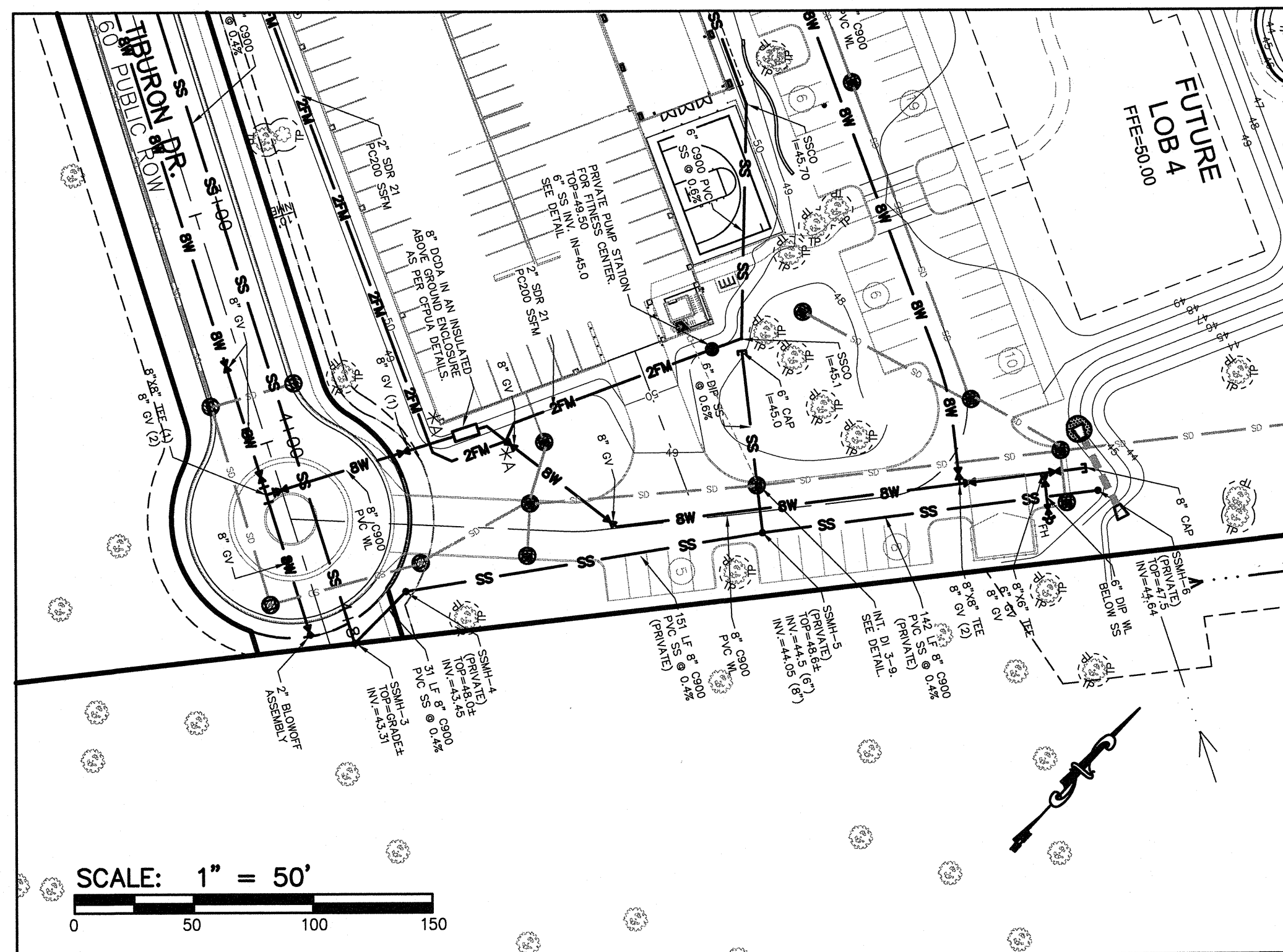
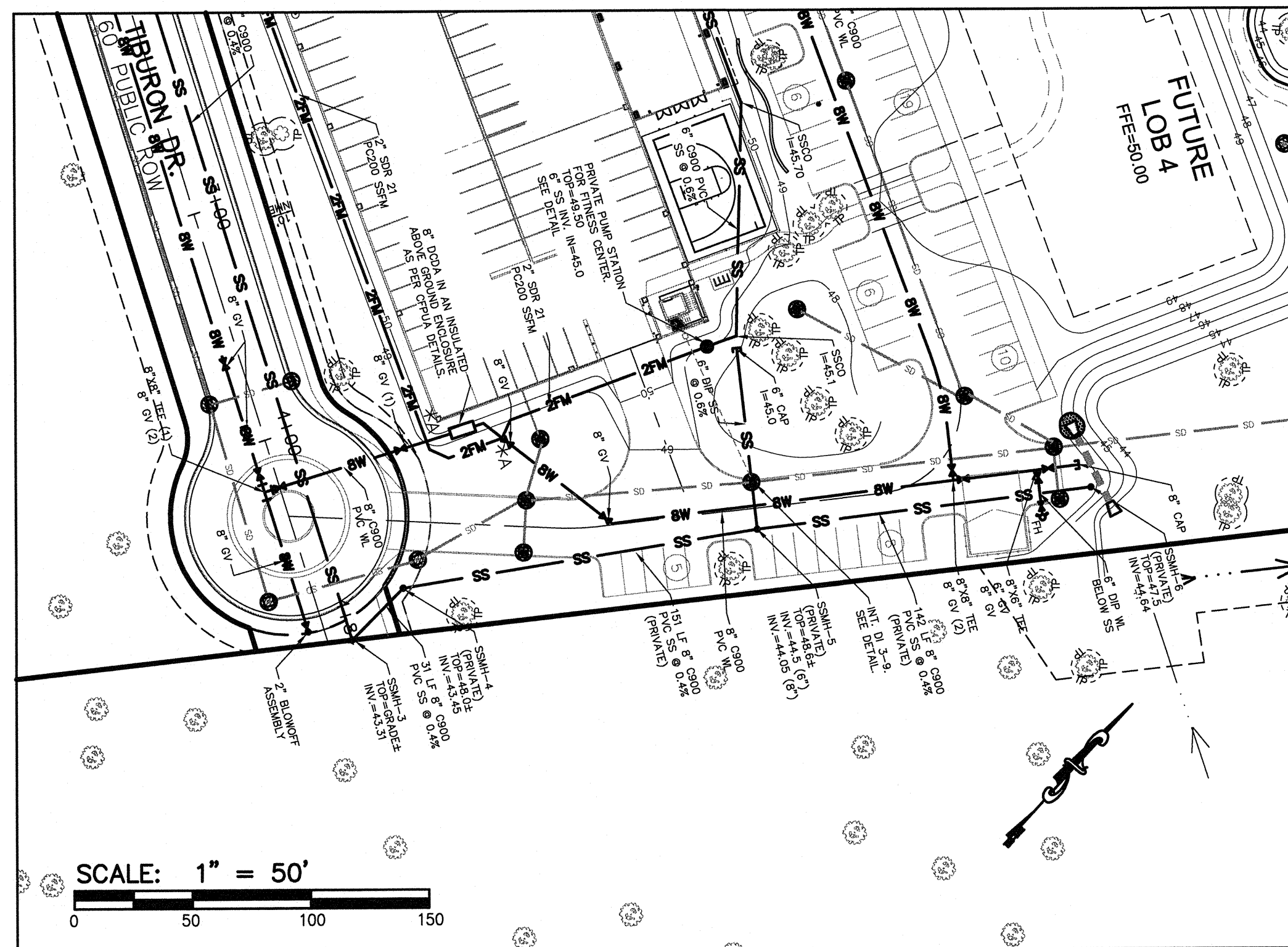
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SCALE: 1" = 50'  
1" = 5'

DRAWN: NKS  
CHECKED: JST  
PROJECT NO: 16169

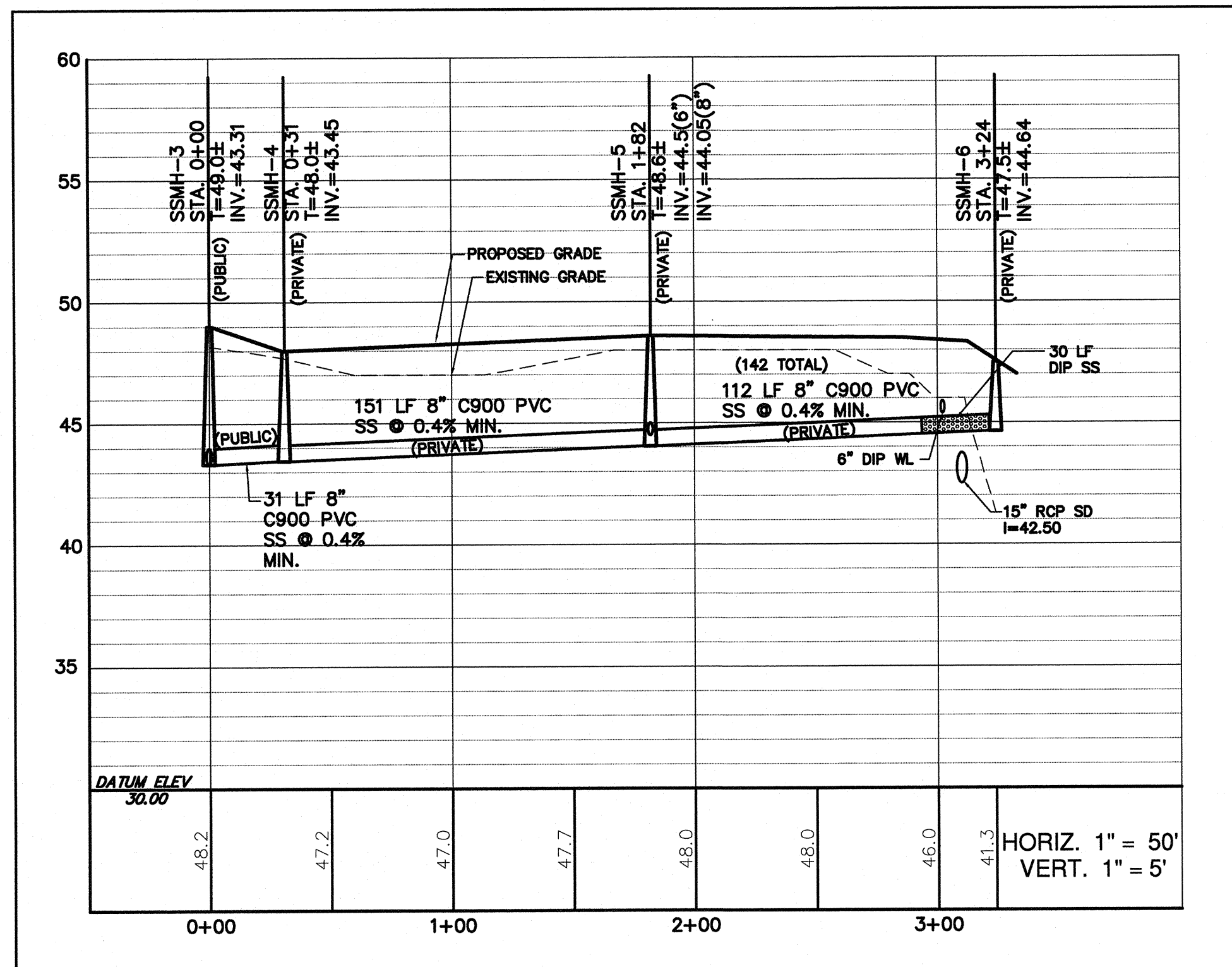
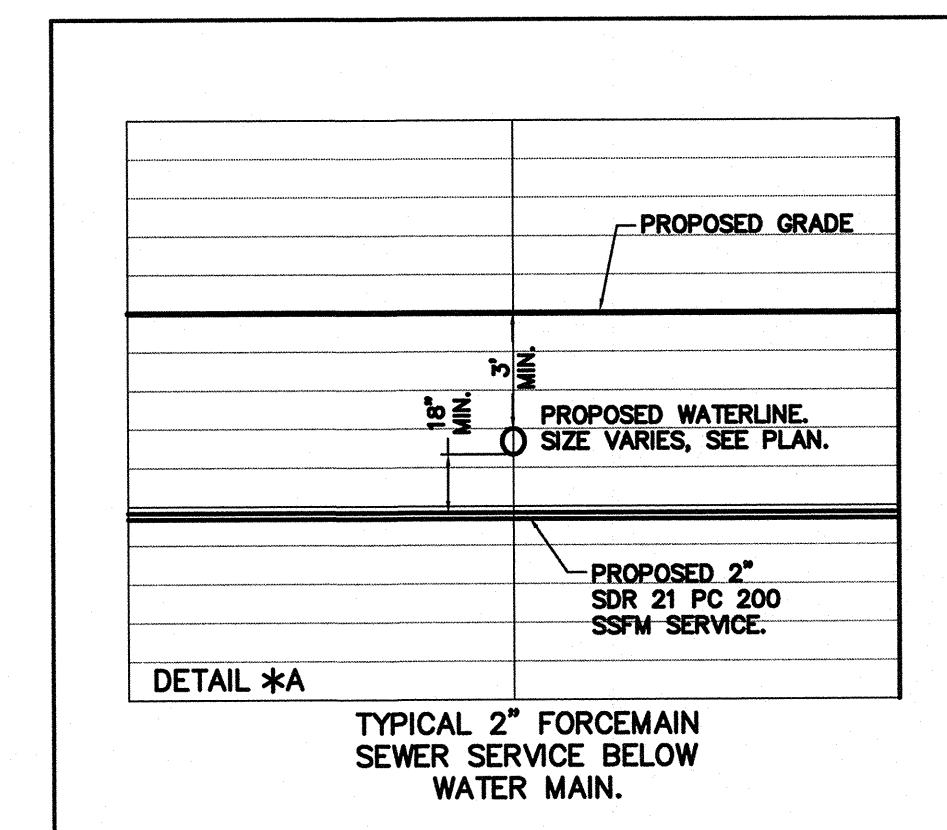
**LIVE OAK BANKING COMPANY 3/FITPARK**  
SANITARY SEWER AND ROAD  
PLAN & PROFILE

SHEET NO:  
**PR1**

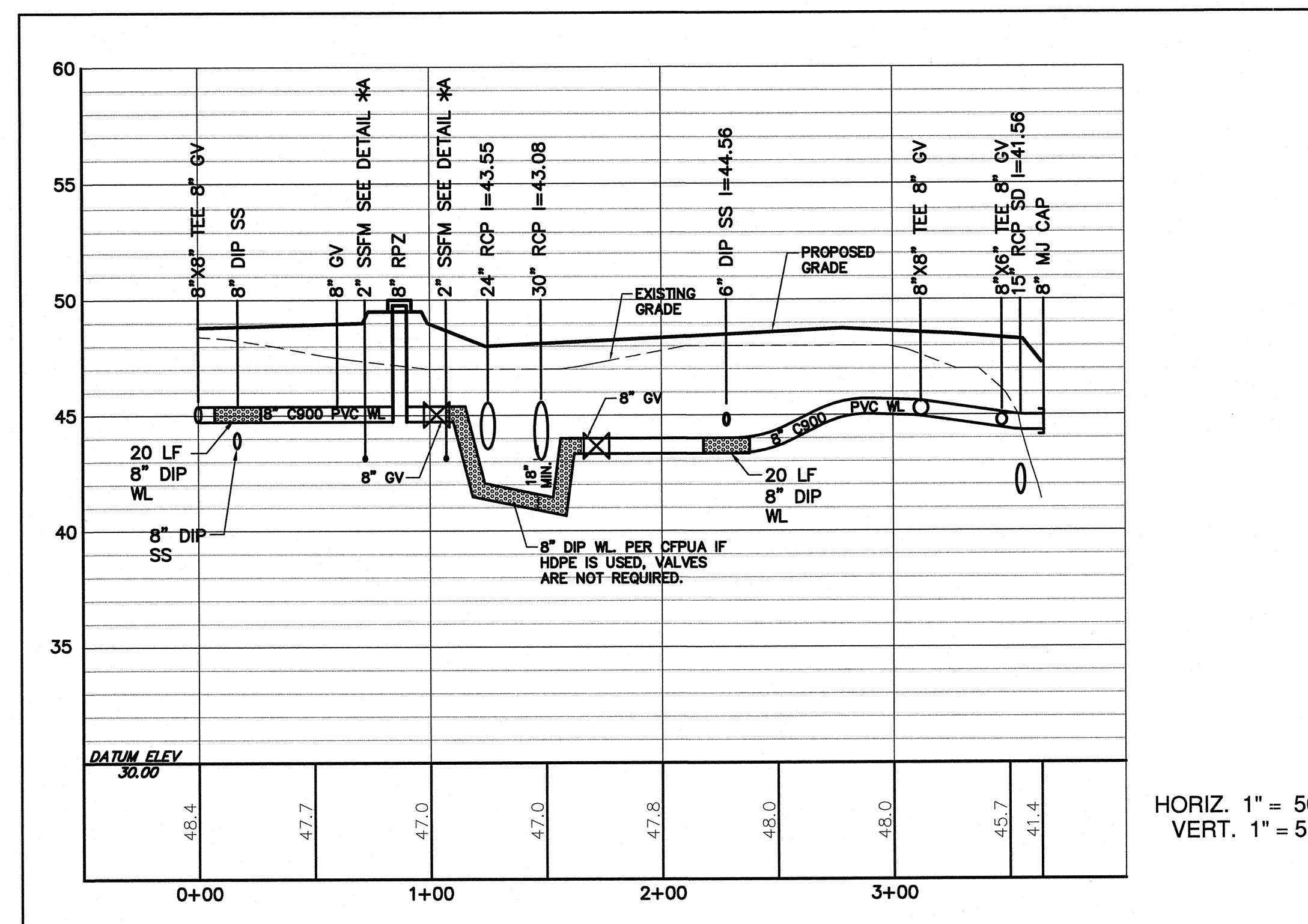




INTERFERENCE DROP INLET DETAIL



SANITARY SEWER PROFILE LINE 2



WATER LINE PROFILE LINE 2

- CFPWA STANDARD SEWER NOTES:
- SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
  - WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT RIGHT-OF-WAY LINE. SEWER SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN END OF LINE 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.
  - MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
  - NO FLEXIBLE COUPLINGS SHALL BE USED.
  - ALL STAINLESS STEEL FASTENERS SHALL BE 316.
  - CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.

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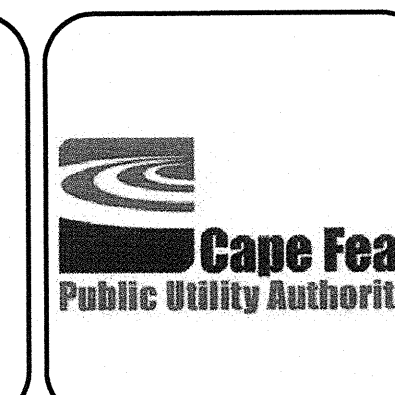
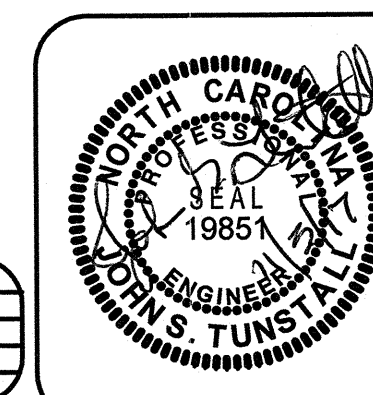
For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

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 STORMWATER MANAGEMENT PLAN  
Date: \_\_\_\_\_ Permit # \_\_\_\_\_  
Signed: \_\_\_\_\_

Approved Construction  
Name \_\_\_\_\_ Date \_\_\_\_\_  
Planning \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_

REV NO.	DESCRIPTION	DATE



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LIVE OAK BANKING COMPANY 3/FITPARK  
WATER LINE  
PLAN & PROFILE

DATE: 11/3/17  
SCALE: 1" = 50'  
1" = 5'  
DRAWN: NKS  
CHECKED: JST  
PROJECT NO: 16169

SHEET NO:  
**PR2**

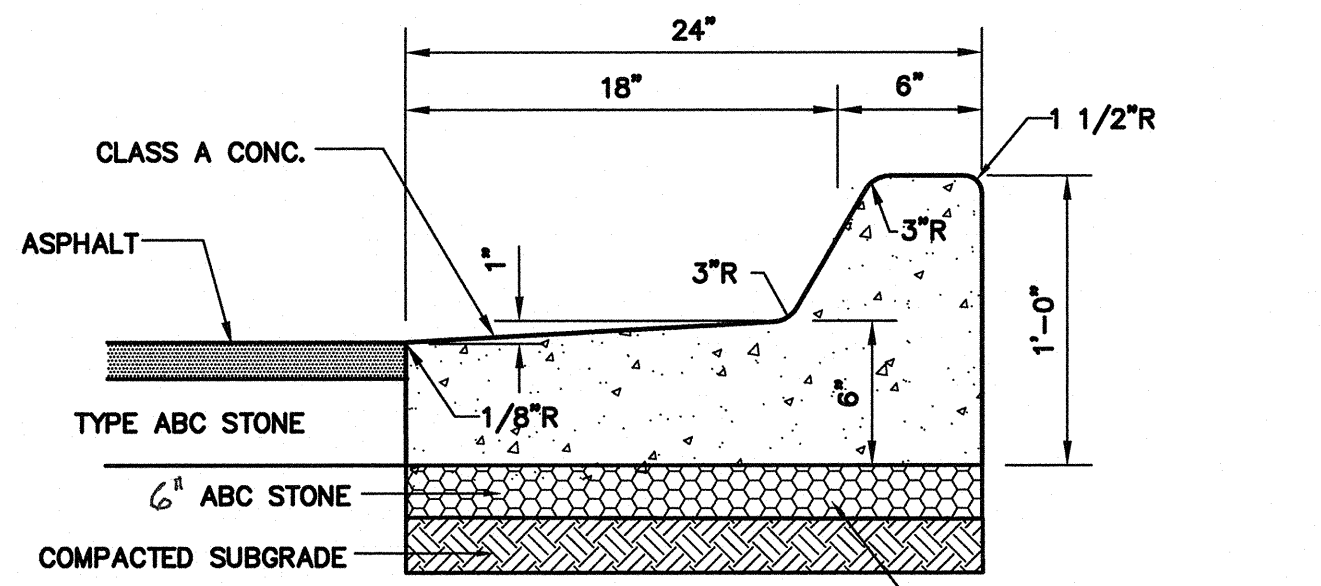






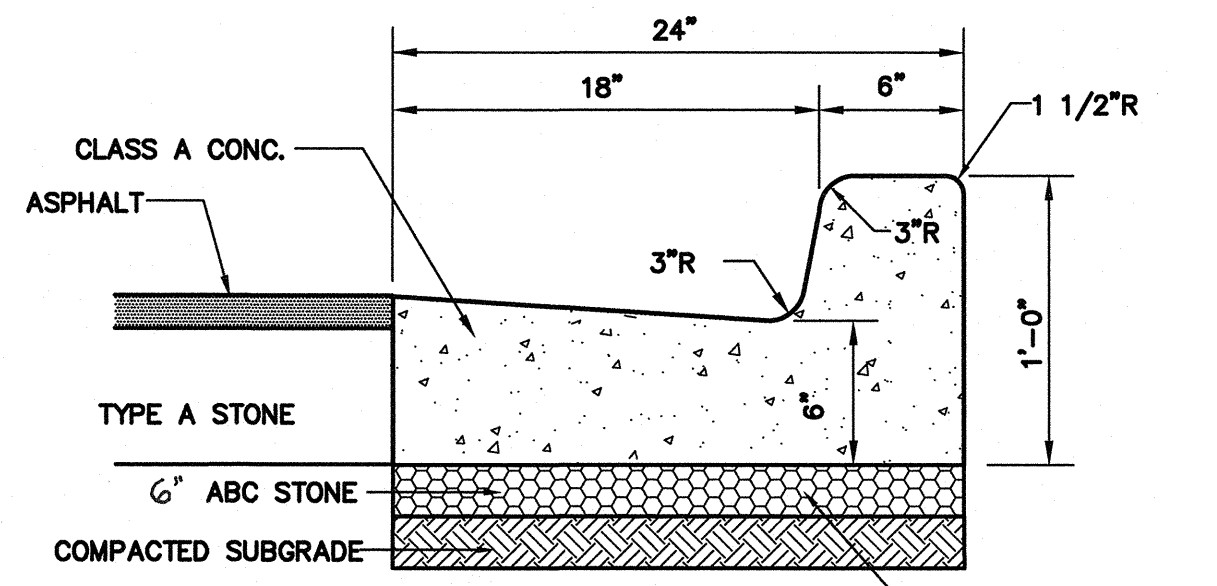






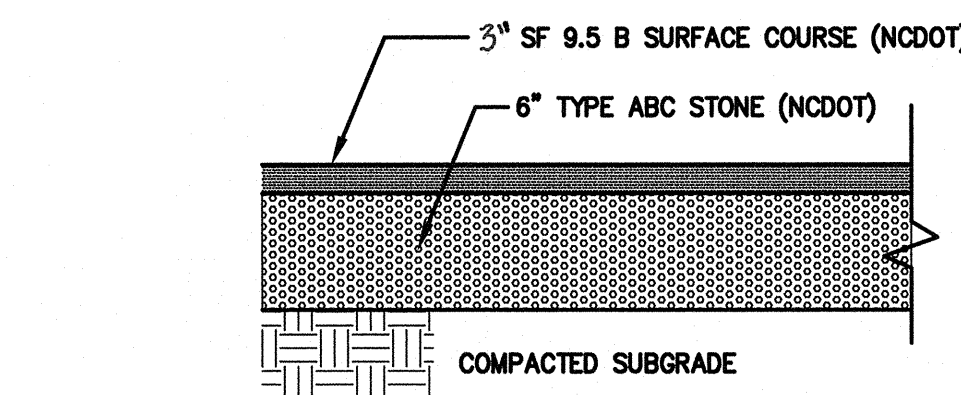
NOTE: CURB TYPE DEPENDS ON GRADES SHOWN ON GRADING PLAN. GRADES INDICATING FALL AWAY FROM CURB SHALL BE SPILL OFF TYPE CURB. GRADES INDICATING CURB ACCEPTING FLOW SHALL BE FLOW LINE TYPE.

NOT TO SCALE



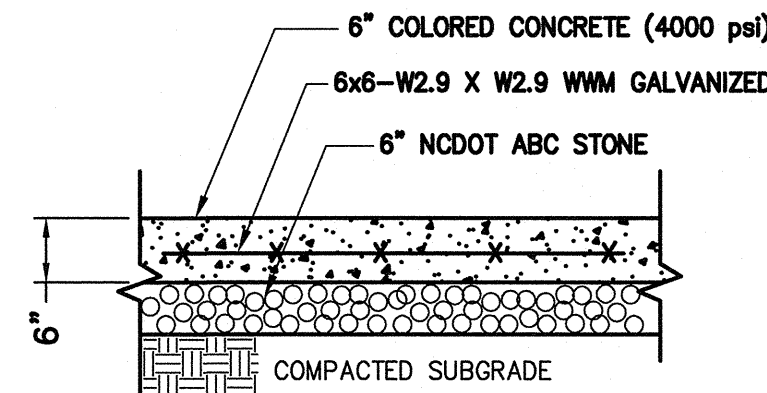
NOTE: CURB TYPE DEPENDS ON GRADES SHOWN ON GRADING PLAN. GRADES INDICATING FALL AWAY FROM CURB SHALL BE SPILL OFF TYPE CURB. GRADES INDICATING CURB ACCEPTING FLOW SHALL BE FLOW LINE TYPE.

NOT TO SCALE



NOTE: PAVEMENT SECTION MAY VARY DEPENDING UPON FIELD CONDITIONS. CONTRACTOR SHALL COORDINATE w/OWNER & GEOTECHNICAL ENGINEER TO DETERMINE ACTUAL PAVEMENT SECTION.

NOT TO SCALE

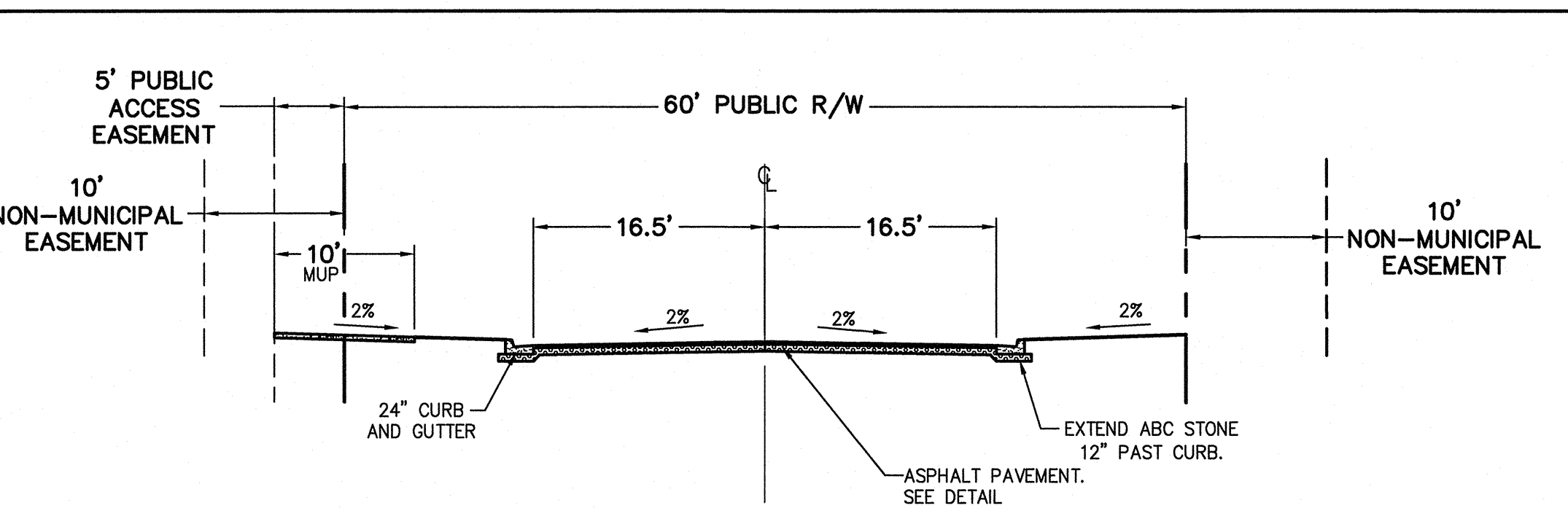


NOTES:  
1. CONTROL JOINTS SHALL BE EVERY 15 FT. (MAX.) AND EXPANSION JOINTS SHALL BE EVERY 50 FT. (MAX.)  
2. PAVEMENT SECTION MAY VARY DEPENDING UPON FIELD CONDITIONS. THE PAVING CONTRACTOR SHALL COORDINATE WITH OWNER REPRESENTATIVE AND GEOTECHNICAL ENGINEER TO DETERMINE ACTUAL PAVEMENT SECTION.  
3. MATCH COLOR OF EXISTING CONCRETE ON SITE.

NOT TO SCALE

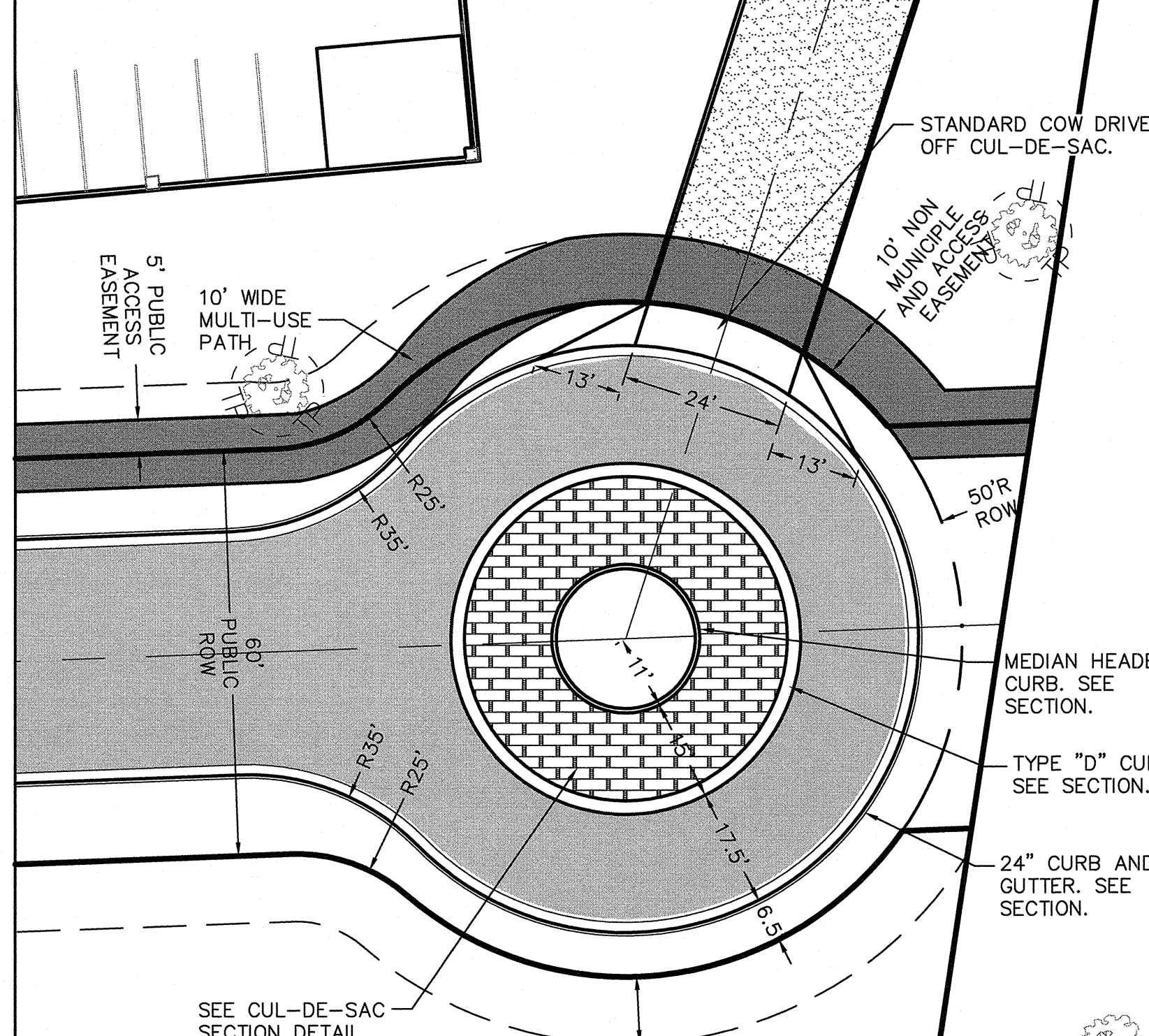
3 ASPHALT PAVEMENT SECTION

4 HEAVY DUTY CONCRETE PAVEMENT SECTION



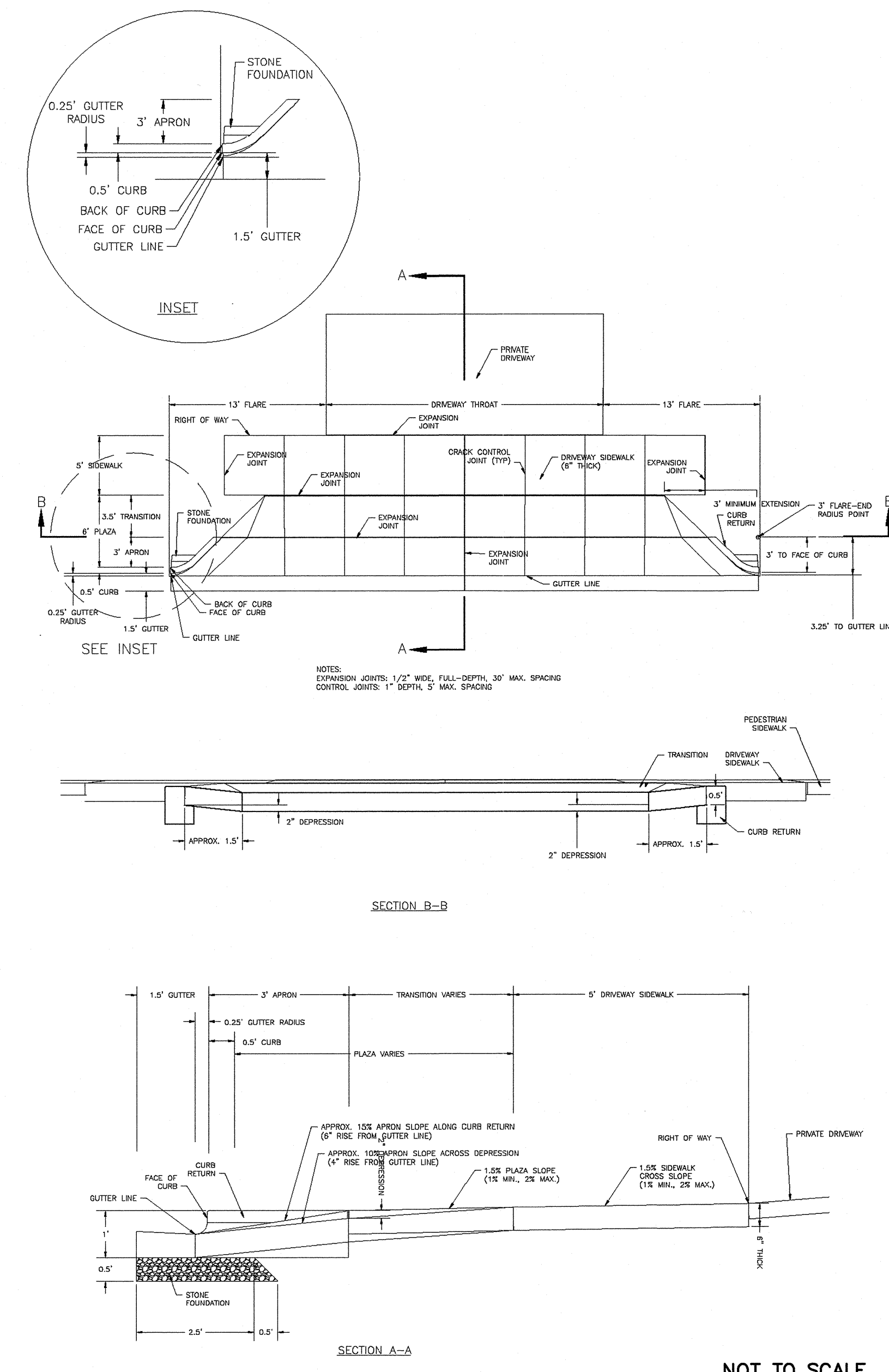
TIBURON DRIVE SECTION DETAIL

6 TIBURON DRIVE SECTION DETAIL



7 CUL-DE-SAC DETAIL

SCALE: 1"=20'



5 STANDARD CITY OF WILMINGTON DRIVE WAY DETAIL

NOTES:  
1. WHENEVER CATCH BASINS ARE TO BE INSTALLED WITHIN CUL-DE-SAC USING TYPE "A" CURB, THE RADIUS FROM THE CENTER POINT TO THE FACE OF CURB IS 43.6', AND THE RIGHT-OF-WAY IS 50'.  
2. BOTH SIDES ARE SYMMETRICAL.

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

CITY OF WILMINGTON STANDARD NOTES:

- CONTACT THE NORTH CAROLINA ONE CALL CENTER PRIOR TO DOING ANY DIGGING AT 1-800-632-4949.
- 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.
- ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS.
- ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
- INSTALL REFLECTORS PER CITY AND NCDOT STANDARDS. TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING LAYOUT PRIOR TO ACTUAL STRIPING.
- ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
- 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.
- 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.
- CONTACT TRAFFIC ENGINEERING AT 341-7888 FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT-OF-WAY.
- 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.
- ANY BROKEN OR MISSING SIDEWALK PANELS, DRIVEWAY PANELS, AND CURBING WILL BE REPLACED.
- CONTACT TRAFFIC ENGINEERING AT 341-7888 TO DISCUSS STREET LIGHTING OPTIONS.
- 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.
- 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.
- ANY IRRIGATION SYSTEM SUPPLIED BY CFPWA WATER SHALL COMPLY WITH CFPWA CROSS CONNECTION CONTROL REGULATIONS. CALL 332-6558 FOR INFORMATION.
- ANY BACKFLOW PREVENTION DEVICES REQUIRED BY CFPWA WILL NEED TO BE ON THE LIST OF APPROVED DEVICES BY USFCCOHR OR ASSE.
- WHEN PVC WATER MAINS AND/OR POLYETHYLENE SERVICES ARE PROPOSED, THE PIPES ARE TO BE MARKED WITH NO. 10 INSULATED SINGLE STRAND COILED 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.
- THE NUMBER AND SPACING OF DRIVEWAYS FOR ALL INTERCONNECTED SITES WILL BE DETERMINED BY THE COMBINED FRONTAGE OF THE INTERCONNECTED PROPERTIES.
- 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.
- 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.
- IF AN IRRIGATION SYSTEM IS PLANNED FOR THE SITE, UTILIZE MOISTURE SENSORS.
- ALL PROPOSED VEGETATION WITHIN THE SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 30'-10'.

UTILITY NOTES FOR FIRE HYDRANTS:

- FIRE HYDRANTS MUST BE WITHIN 150' OF THE FIRE DEPARTMENT CONNECTION.
- THE FIRE DEPARTMENT CONNECTION MUST BE WITHIN 40' OF FIRE APPARATUS PLACEMENT.
- LANDSCAPING AND PARKING CANNOT BLOCK OR IMPEDE THE FIRE DEPARTMENT CONNECTIONS OR FIRE HYDRANTS. A 3' CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE FIRE HYDRANT CONNECTION AND THE FIRE HYDRANT.
- FIRE HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB.
- NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDINGS.
- NEW HYDRANTS MUST BE BROUGHT INTO SERVICE PRIOR TO COMBUSTIBLE MATERIALS BEING DELIVERED TO THE JOB SITE.
- THE CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
- TEMPORARY STREET SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHEN CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE BY VEHICLES.
- UNDERGROUND FIRE LINE AND PRIVATE WATER MAINS 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 910-343-0696 FOR ADDITIONAL INFORMATION.
- A MINIMUM OF 5' SHALL SEPARATE UNDERGROUND FIRE LINES OR PRIVATE WATER MAINS FROM OTHER UNDERGROUND UTILITIES.
- HYDRANTS SHALL BE OF SUFFICIENT NUMBERS TO ACCOMMODATE BASE FIRE REQUIREMENTS OF THE STRUCTURE.
- BUILDING CONSTRUCTION TYPE:

Approved Construction Plan  
Name \_\_\_\_\_ Date \_\_\_\_\_  
FOR PERMIT ONLY  
NOT FOR CONSTRUCTION  
Planning \_\_\_\_\_  
Fire \_\_\_\_\_

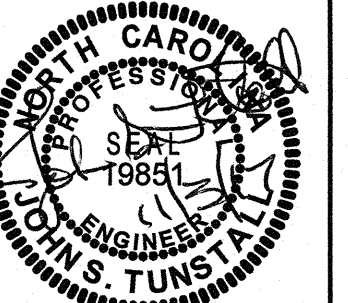
SYMBOL	DATE	DESCRIPTION	BY
REVISIONS			
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NOTES AND DETAILS  
LIVE OAK BANKING COMPANY 3/FITPARK  
1741 TIBURON DRIVE  
WILMINGTON, NORTH CAROLINA 28403

OWNER/DEVELOPER  
W. LEE WILLIAMS  
EXECUTIVE VICE PRESIDENT  
LIVE OAK BANKSHARES, INC.  
1741 TIBURON DRIVE  
WILMINGTON, NC 28403  
910-798-1647  
910-790-5668

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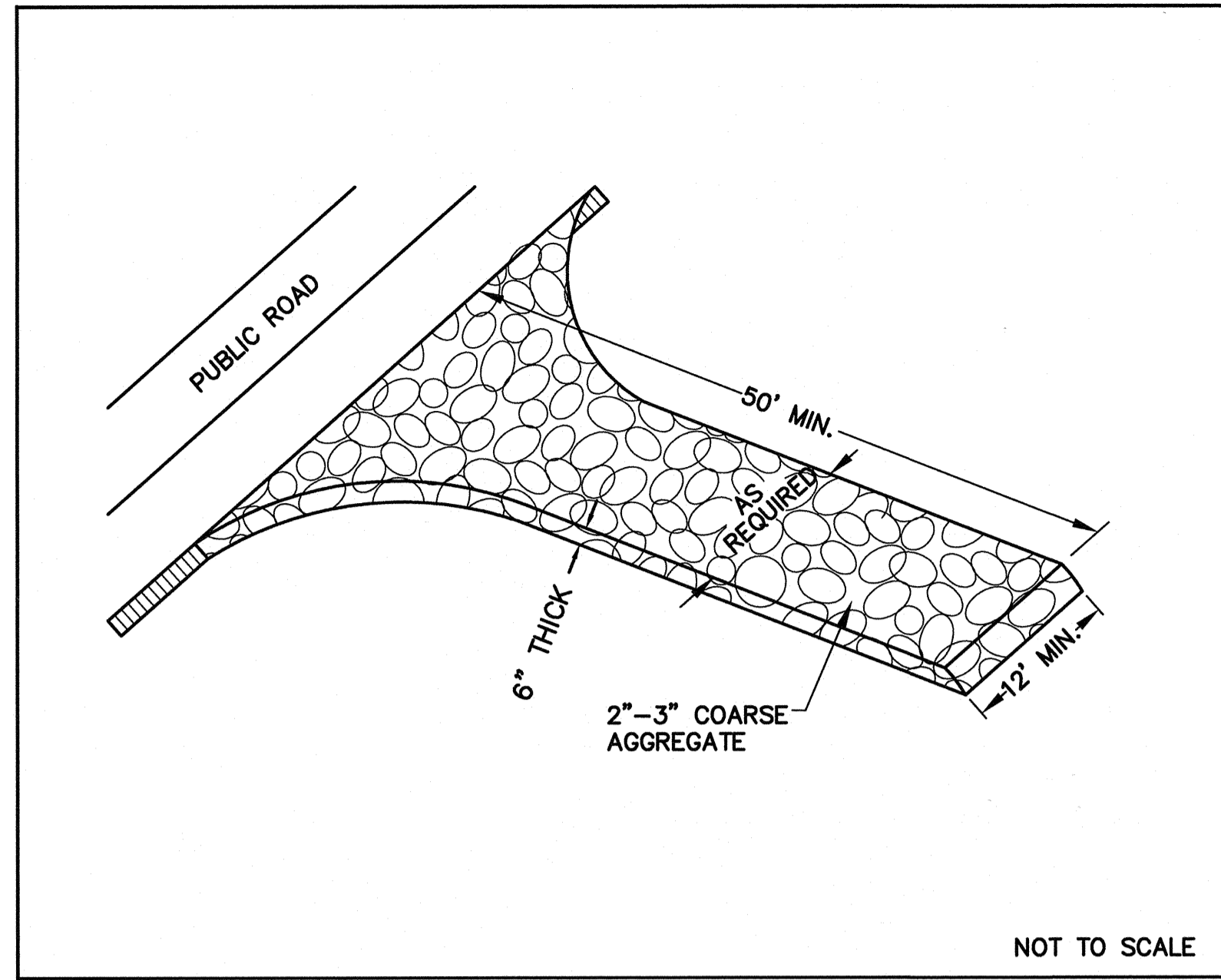
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DATE 10/13/17



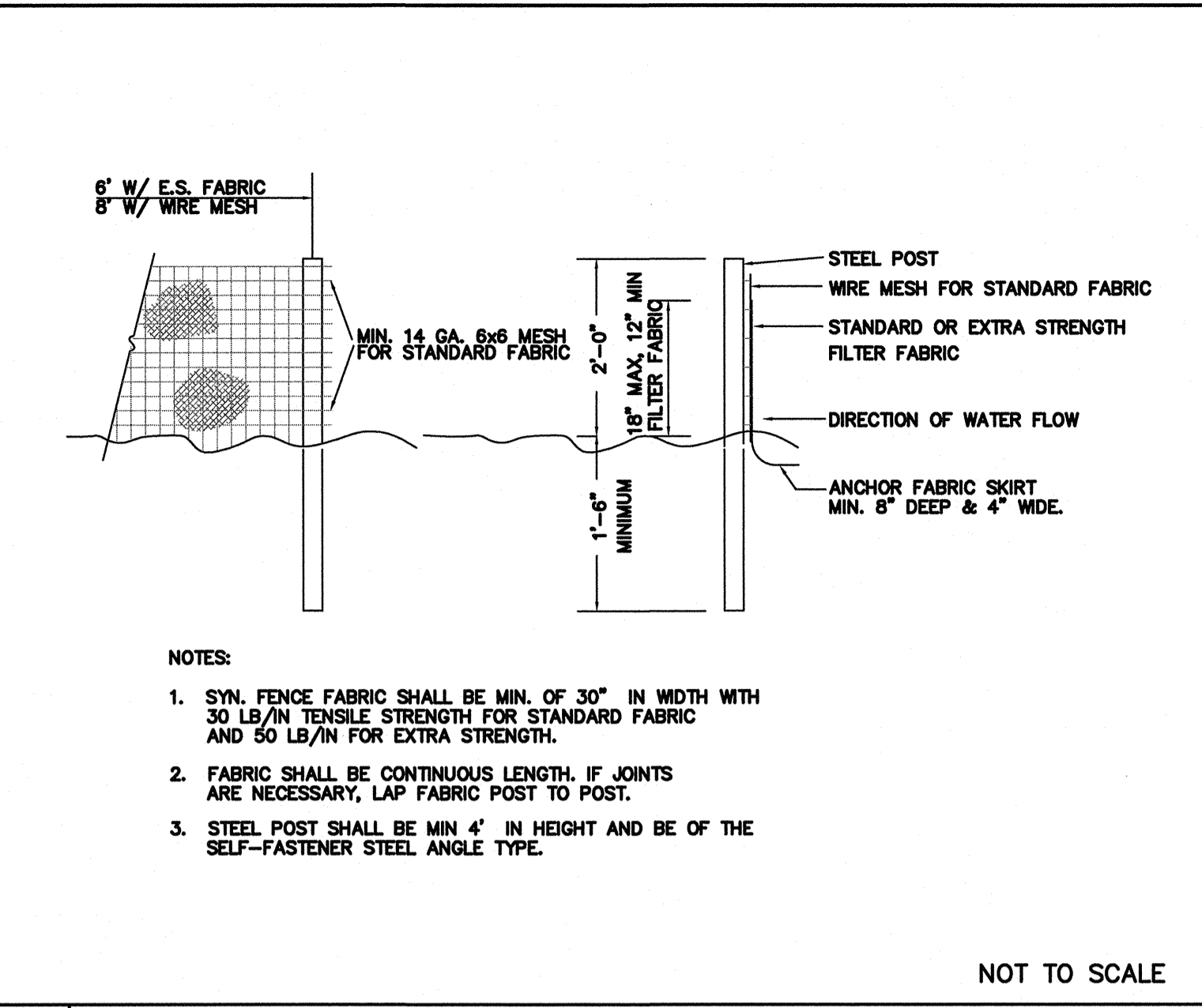
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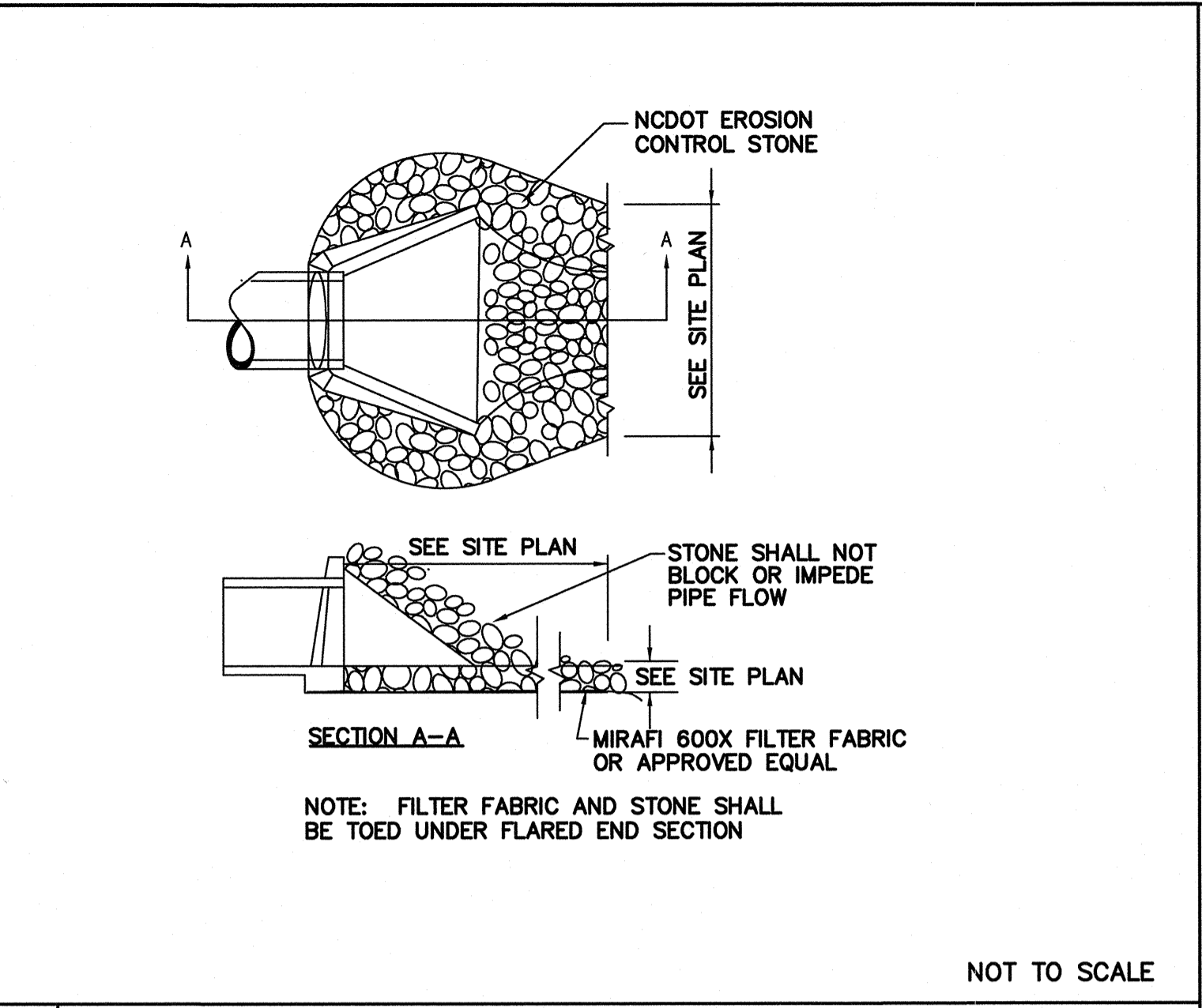




1 TEMPORARY GRAVELLED CONSTRUCTION ENTRANCE



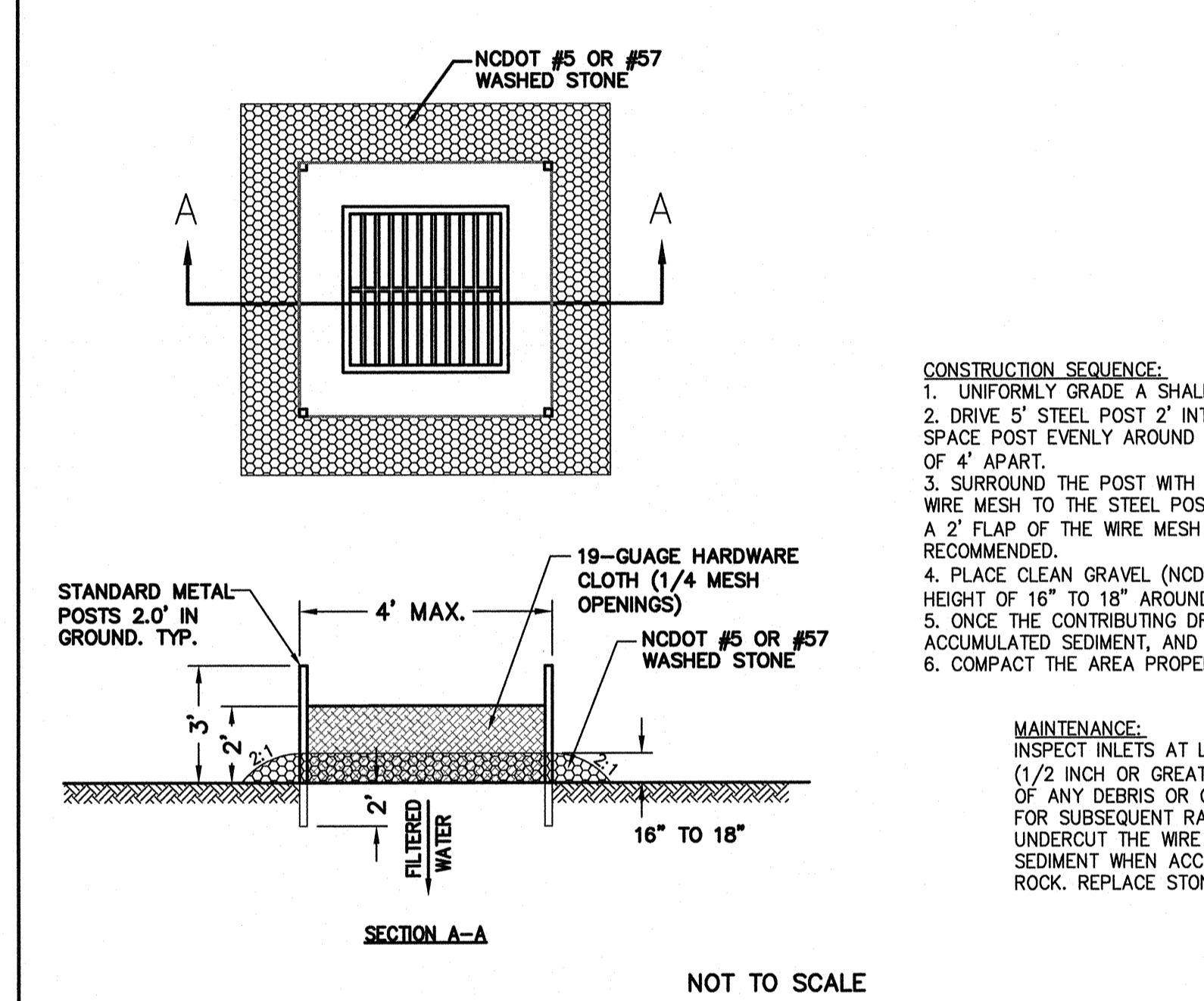
2 TEMPORARY SILT FENCE



3 ENERGY DISSIPATOR

**EROSION CONTROL NOTES AND MAINTENANCE PLAN:**

- 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.
- 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.
- 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.
- 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.
- 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 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.
- 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 DISLOADED. 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 1ST BAFFLE. FLOATING SKIMMERS WILL BE INSPECTED AND KEPT CLEAN WEEKLY.
- SEDIMENT WILL BE REMOVED FROM THE SEDIMENT BASIN WHEN THE DESIGN STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR IF THE ROCK IS DISLOADED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED FROM BAFFLES WHEN DEPOSITS REACH HALF THE HEIGHT OF THE 1ST BAFFLE. FLOATING SKIMMERS WILL BE INSPECTED WEEKLY AND WILL BE KEPT CLEAN.
- LAND QUALITY REQUIRES:**  
ALL SEEDING 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 14 WORKING DAYS.  
**WATER QUALITY REQUIRES:**  
ALL SEEDING 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.
- FLOCCULANTS WILL BE USED TO ADDRESS TURBIDITY ISSUES. THE PUMPS, TANKS, HOSES AND INJECT SYSTEMS WILL BE CHECKED FOR PROBLEMS OR TURBID DISCHARGES DAILY.
- BASIN OUTLET STRUCTURES AND SKIMMERS SHALL WITHDRAW WATER FROM THE SURFACE.



4 HARDWARE CLOTH AND GRAVEL INLET PROTECTION

**PERMANENT SEEDING RECOMMENDATIONS FOR FALL AND EARLY SPRING**

SEEDING MIXTURE SPECIES	RATE (lb/acre)	
TALL FESCUE	80	1.84
PENSACOLA BAHIAGRASS	50	1.15
SERICEA LESPEDEZA	30	0.69
KOBE LESPEDEZA	10	0.23

**SEEDING NOTES:**  
1. FROM SEPT. 1 THRU MAR. 1, USE UNSCARIFIED SERICEA SEED.  
2. ON POORLY DRAINED SITES OMIT SERICEA AND INCREASE KOBE TO 30 lbs/acre.  
3. WHERE A NEAT APPEARANCE IS DESIRED, OMIT SERICEA AND INCREASE KOBE TO 40 lbs/acre.

**NURSE PLANTS:** BETWEEN APR. 15 AND AUG. 15, ADD 10 lbs/acre GERMAN MILLET OR 15 lbs/acre SUDANGRASS. PRIOR TO MAY 1 OR AFTER AUG. 15 ADD 25 lbs/acre RYE (GRAIN).

SEEDING DATES	BEST	POSSIBLE
EARLY SPRING	FEB 15-MAR. 20	FEB.15-APR. 30
FALL	SEPT. 1-SEPT. 30	SEPT. 1-OCT. 31

**SOIL AMENDMENTS:**  
APPLY LIME AND FERTILIZE ACCORDING TO SOIL TESTS, OR APPLY 3,000-5,000 lbs/acre (88.9-114.8 lbs/1,000 sf) GROUND AGRICULTURAL LIMESTONE (USE THE LOWER RATE ON SANDY SOILS) AND 1,000 lbs/acre (22.9 lbs/1,000 sf) 10-10-10 FERTILIZER.

**MULCH:**  
APPLY 4,000 lb/acre (91.8 lbs/1,000 sf) GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR ROVING OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

**MAINTENANCE:**  
IF GROWTH IS LESS THAN FULLY ADEQUATE, REFERTILIZE IN THE SECOND YEAR, ACCORDING TO SOIL TESTS OR TOPDRESS WITH 500 lbs/acre (11.5 lbs/1,000 sf) 10-10-10 FERTILIZER. MOW AS NEEDED WHEN SERICEA IS OMITTED FROM THE MIXTURE. RESEED, FERTILIZE, AND MULCH DAMAGED AREAS IMMEDIATELY.

**PERMANENT SEEDING RECOMMENDATIONS FOR LATE SPRING AND EARLY SUMMER**

SEEDING MIXTURE SPECIES	RATE (lb/acre)	
PENSACOLA BAHIAGRASS	50	1.15
SERICEA LESPEDEZA	30	0.69
COMMON BERMUDA	10	0.23
GERMAN MILLET	10	0.23

**SEEDING NOTES:**  
1. WHERE A NEAT APPEARANCE IS DESIRED, OMIT SERICEA.  
2. USE COMMON BERMUDAGRASS ONLY ON ISOLATED SITES WHERE IT CANNOT BECOME A PEST. BERMUDAGRASS MAY BE REPLACED WITH 5 lbs/acre CENTIPEDEGRASS.

**SEEDING DATES:**  
APRIL 1-JULY 15

**SOIL AMENDMENTS:**  
APPLY LIME AND FERTILIZE ACCORDING TO SOIL TESTS, OR APPLY 3,000 lbs/acre (88.9 lbs/1,000 sf) GROUND AGRICULTURAL LIMESTONE AND 500 lbs/acre (11.5 lbs/1,000 sf) 10-10-10 FERTILIZER.

**MULCH:**  
APPLY 4,000 lb/acre (91.8 lbs/1,000 sf) GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR ROVING OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

**MAINTENANCE:**  
REFERTILIZE THE FOLLOWING APRIL WITH 50 lbs/acre (11.5 lbs/1,000 sf) NITROGEN. REPEAT AS GROWTH REQUIRES. MAY BE MOWED ONLY ONCE A YEAR, WHERE A NEAT APPEARANCE IS DESIRED, OMIT SERICEA AND MOW AS OFTEN AS NEEDED.

**TEMPORARY SEEDING RECOMMENDATIONS FOR FALL**

SEEDING MIXTURE SPECIES	RATE (lb/acre)
RYE (GRAIN)	120

**SEEDING DATES:**  
MOUNTAINS - AUG. 15 - DEC. 15  
COASTAL PLAIN AND PIEDMONT - AUG. 15 - DEC. 15

**SOIL AMENDMENTS:**  
FOLLOW SOIL TEST OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 1,000 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:**  
REPAIR AND REFERTILIZE DAMAGE AREAS IMMEDIATELY. TOP DRESS WITH 50 lb/acre OF NITROGEN IN MARCH, IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 lb/acre KOBE (PIEDMONT AND COASTAL PLAIN) OR KOREAN (MOUNTAINS) LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

**TEMPORARY SEEDING RECOMMENDATIONS FOR WINTER AND EARLY SPRING**

SEEDING MIXTURE SPECIES	RATE (lb/acre)
RYE (GRAIN)	120
ANNUAL LESPEDEZA (KOBE IN PIEDMONT AND COASTAL PLAIN, KOREAN IN MOUNTAINS)	50

**SEEDING DATES:**  
MOUNTAINS - ABOVE 2,500 FEET: FEB. 15 - MAY 15  
MOUNTAINS - BELOW 2,500 FEET: FEB. 1 - MAY 1  
PIEDMONT - COASTAL PLAIN - JAN. 1 - MAY 1  
COASTAL PLAIN - APR. 1 - APRIL 15

**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.

**TEMPORARY SEEDING RECOMMENDATIONS FOR SUMMER**

SEEDING MIXTURE SPECIES	RATE (lb/acre)
GERMAN MILLET	40

**IN THE PIEDMONT AND MOUNTAINS, A SMALL-STEMMED SUDANGRASS MAY BE SUBSTITUTED AT A RATE OF 50 lb/acre.**

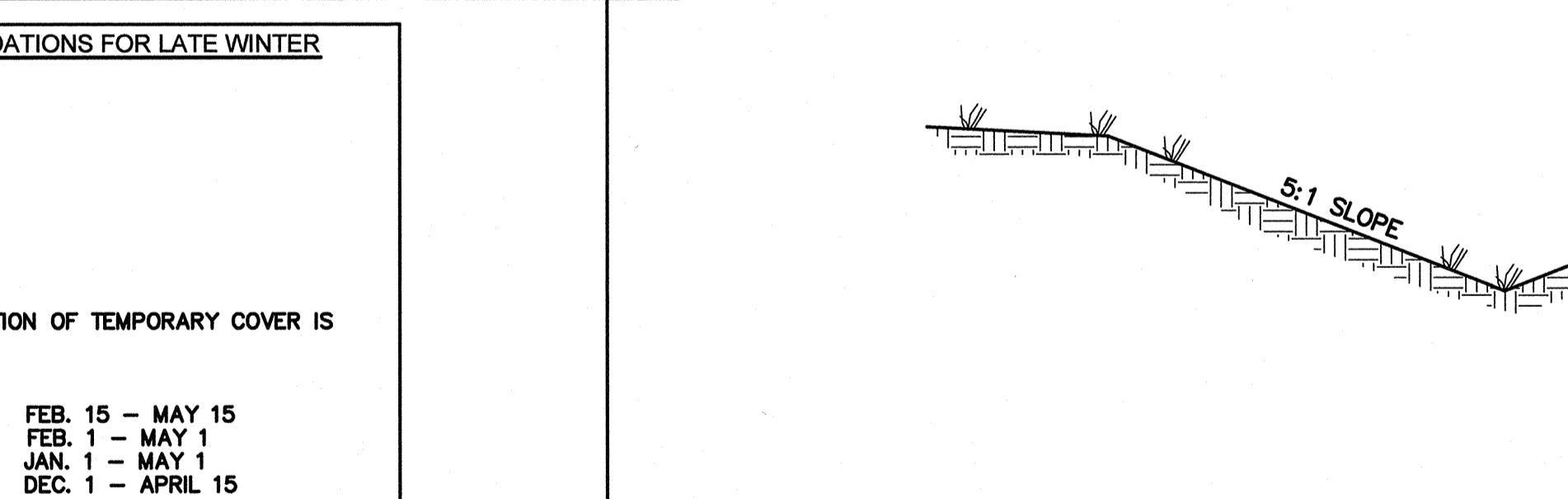
**SEEDING DATES:**  
MOUNTAINS - MAY 15 - AUG. 15  
PIEDMONT - MAY 1 - AUG. 15  
COASTAL PLAIN - APR. 15 - AUG. 15

**SOIL AMENDMENTS:**  
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10-10-10 FERTILIZER.

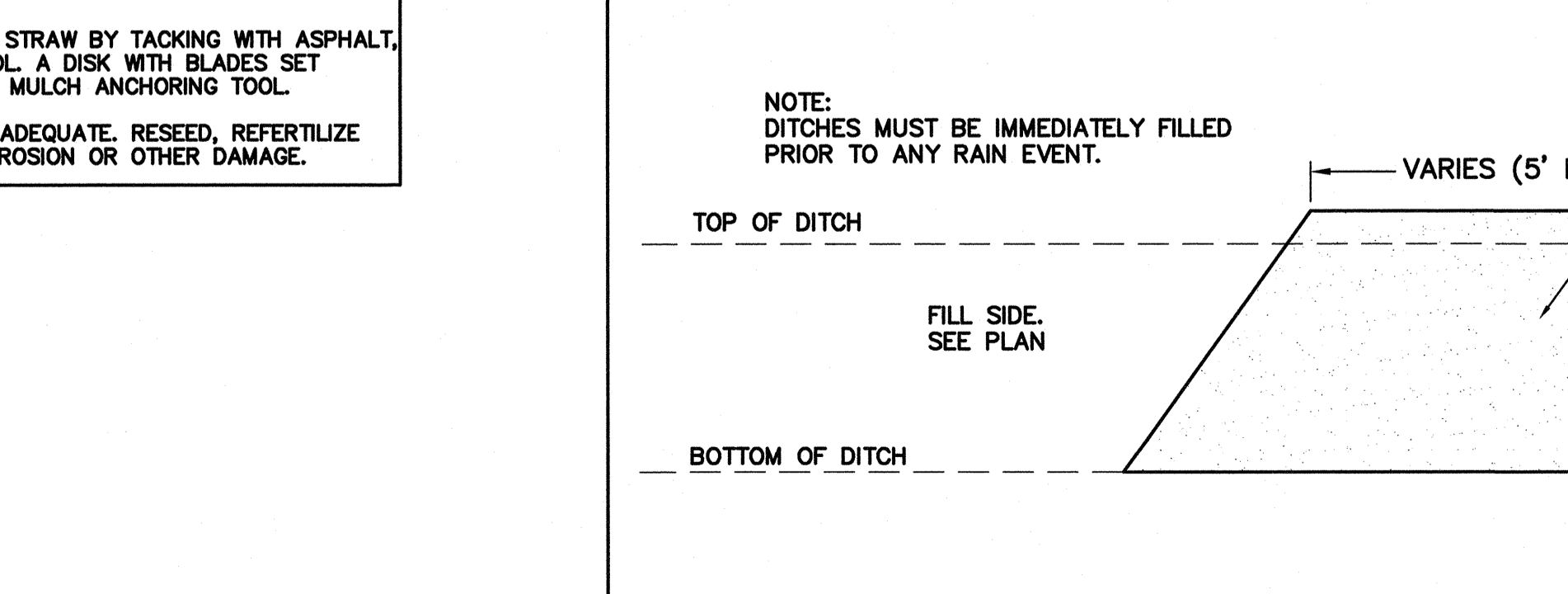
**MULCH:**  
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

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

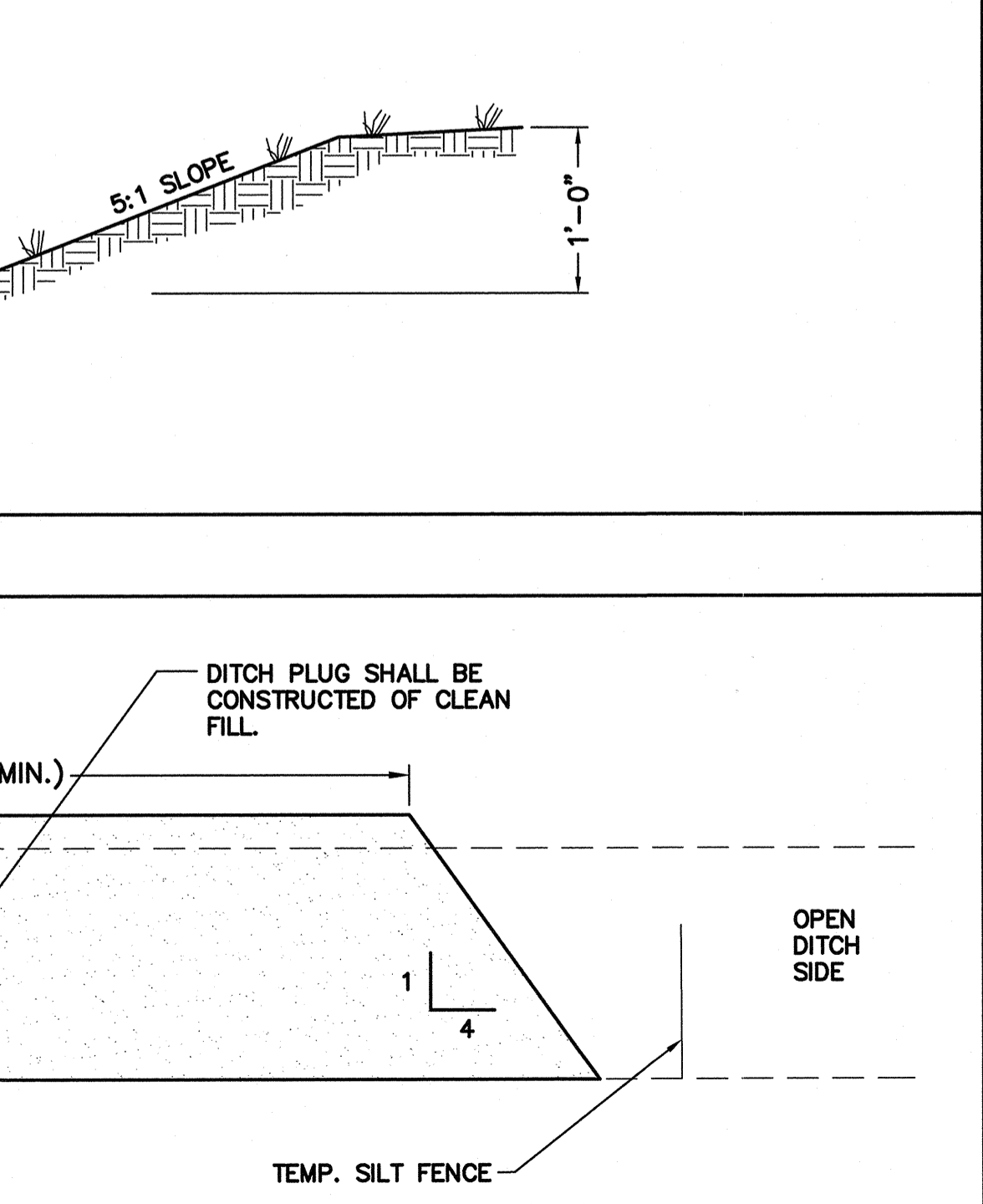
6 TEMPORARY SEEDING SPECS.



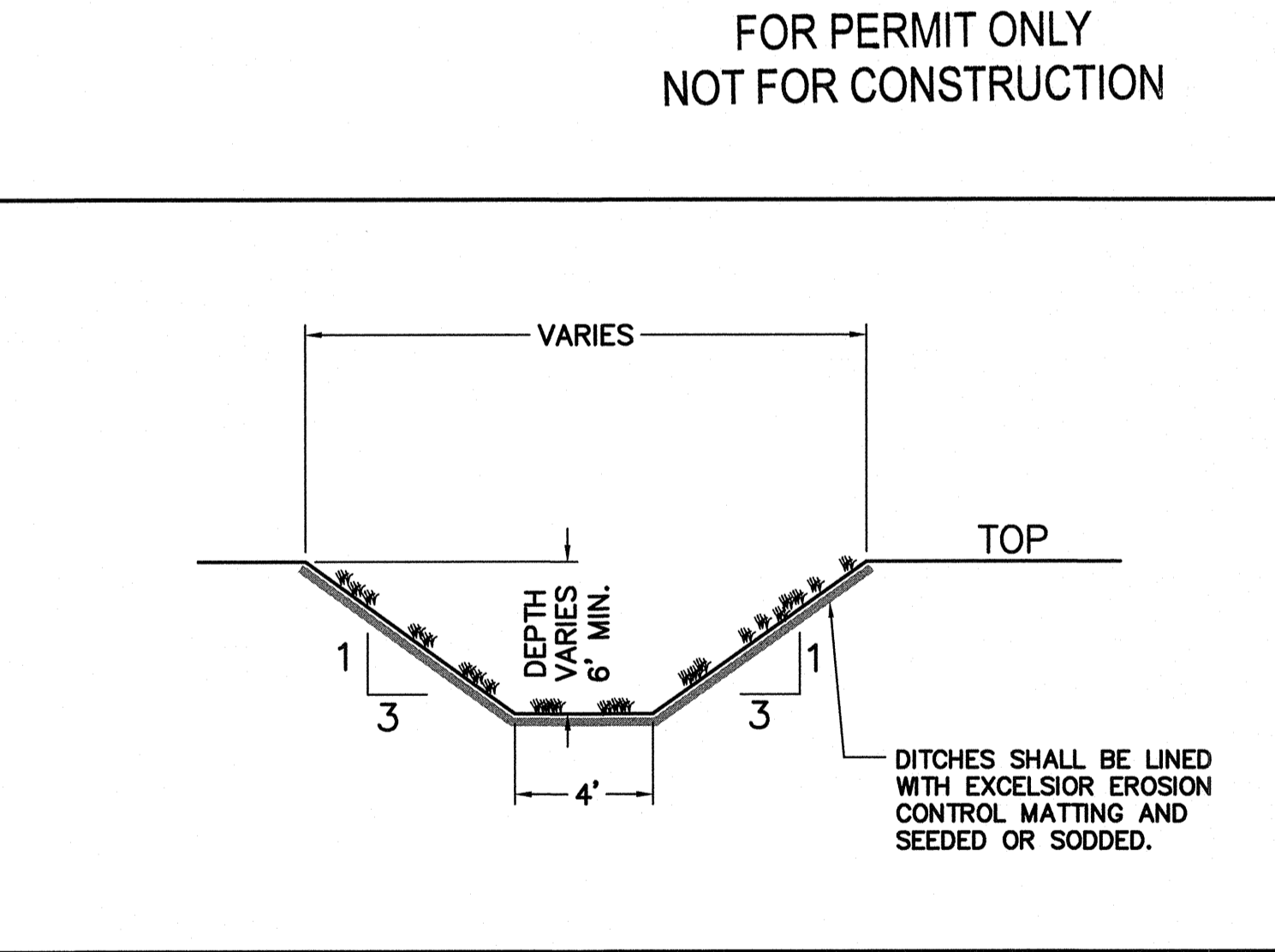
5 PERMANENT SEEDING SPECS.



7 TEMPORARY DIVERSION DITCH



8 DITCH PLUG DETAIL



9 DITCH #1, #2, #3 CROSS SECTION

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 #: \_\_\_\_\_ GPD  
WATER CAPACITY: \_\_\_\_\_ GPD  
DWQ SEWER PERMIT #: \_\_\_\_\_ GPD  
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: \_\_\_\_\_

APPROVED STORMWATER MANAGEMENT PLAN  
Date: \_\_\_\_\_ Permit #: \_\_\_\_\_  
Signed: \_\_\_\_\_

SYMBOL	DATE	DESCRIPTION	BY
REVISIONS			
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**NOTES AND DETAILS**  
LIVE OAK BANKING COMPANY 3/FITPARK  
1741 TIBURON DRIVE  
WILMINGTON, NORTH CAROLINA 28403

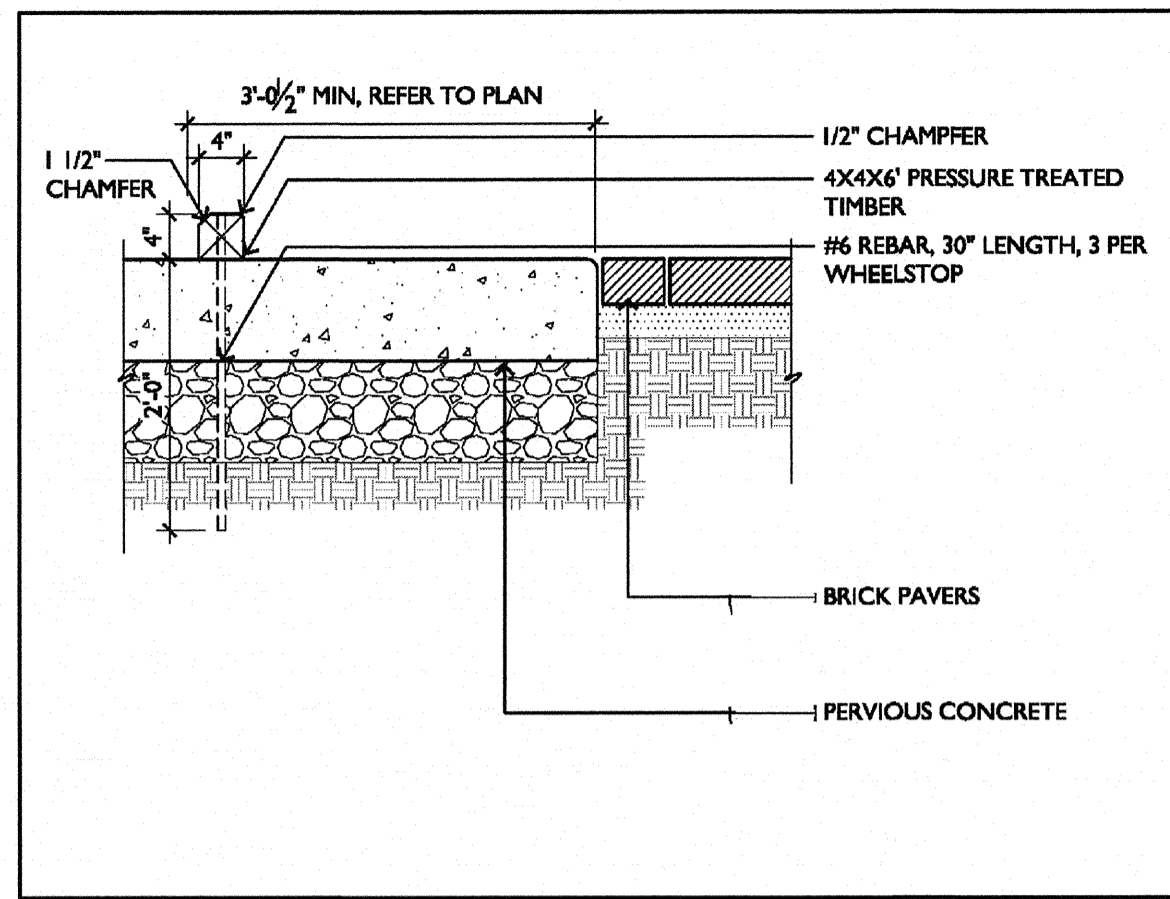
OWNER/DEVELOPER  
W. LEE WILLIAMS  
EXECUTIVE VICE PRESIDENT  
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1741 TIBURON DRIVE  
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910-790-8686

**NORRIS & TUNSTALL**  
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1429 ASH-LITTLE RIVER RD. NW  
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WILMINGTON, NC 28401  
PHONE (910) 343-9653

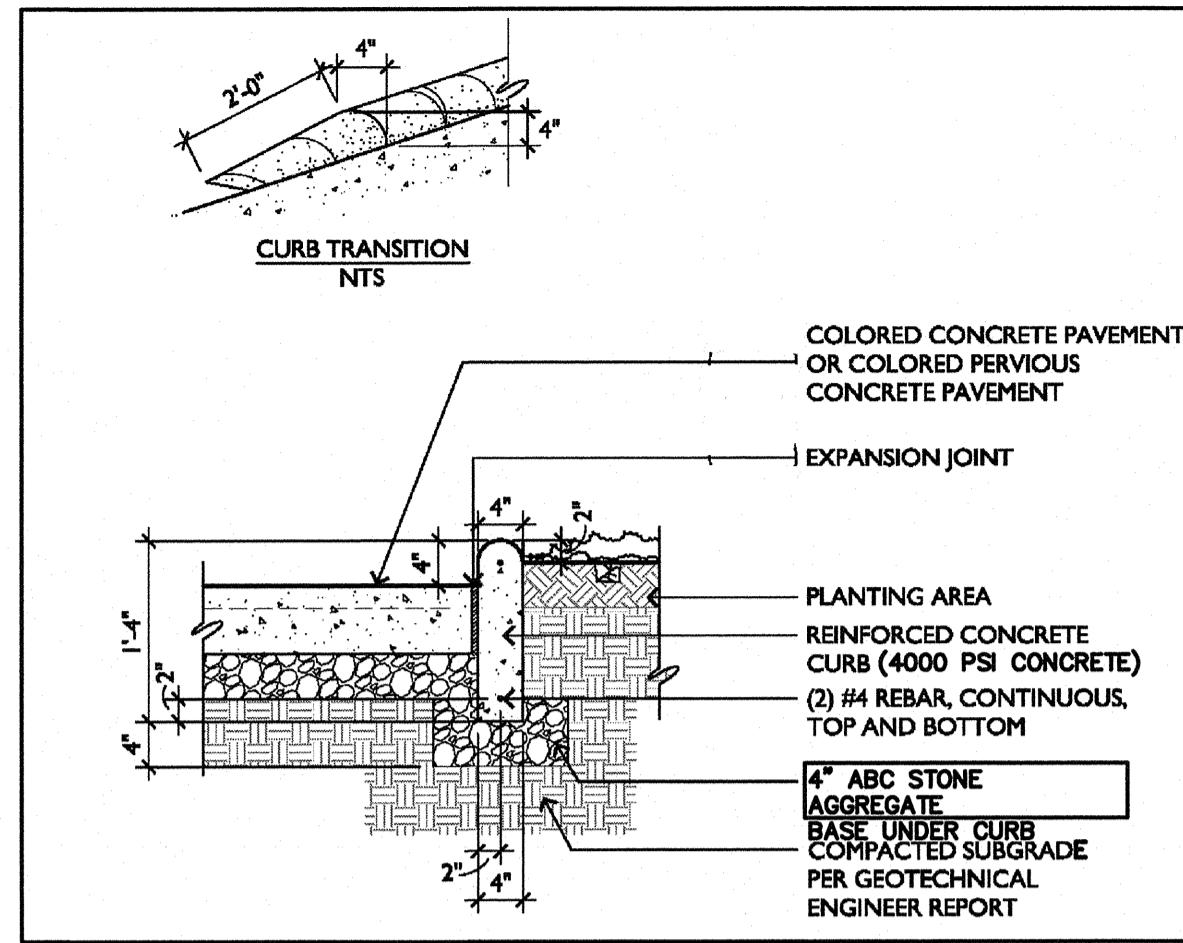
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DATE 10/13/17

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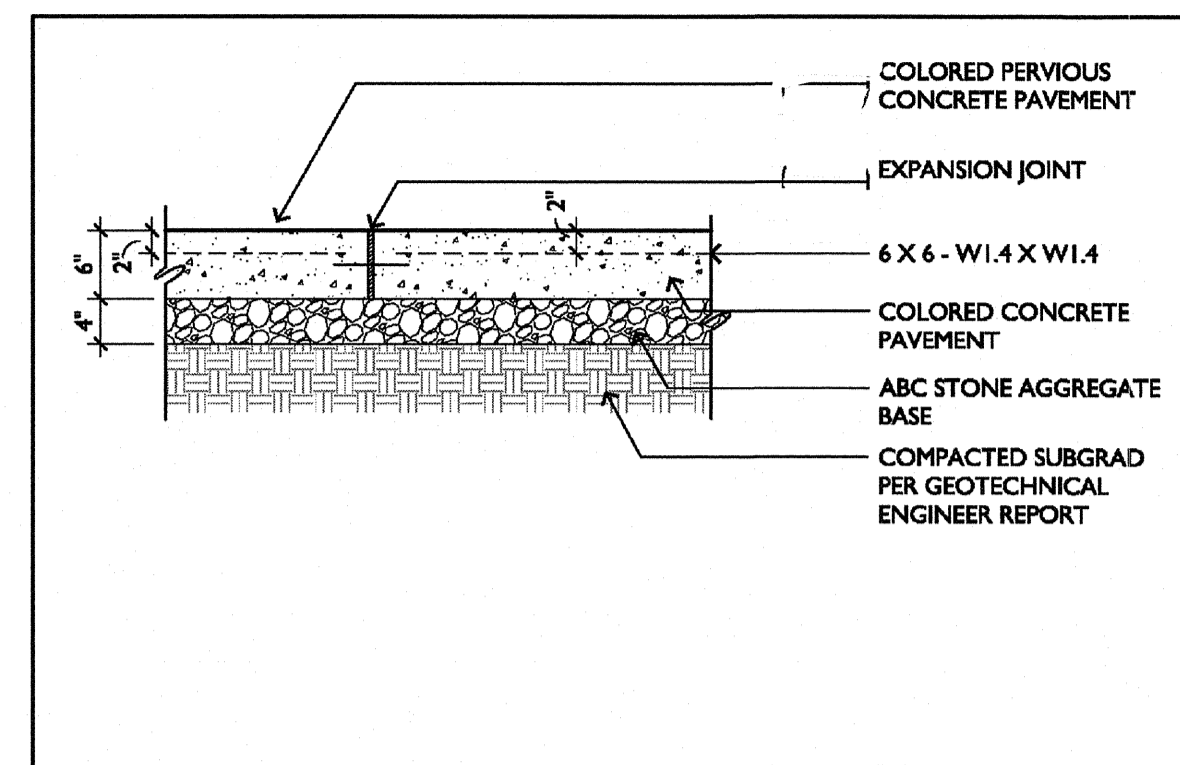




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**SITE WORK NOTES:**

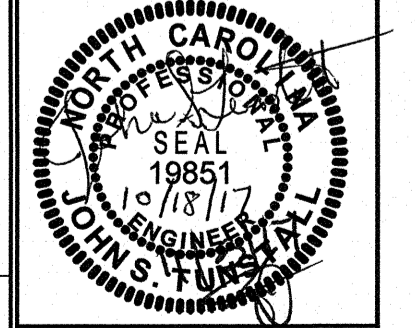
1. THE CONTRACTOR SHALL VISIT THE SITE TO BECOME FAMILIAR WITH FIELD CONSTRUCTION CONDITIONS.
2. CONTRACTOR SHALL COORDINATE WORK WITH NCDOT AND LOCAL RIGHT OF WAYS WITH PROPER AUTHORITIES AND SHALL MEET ANY REQUIREMENTS AS TO TRAFFIC CONTROL AND CONNECTION TO EXISTING STREETS.
3. CLEARING AND GRUBBING: REMOVE ALL TREES AS REQUIRED UNLESS OTHERWISE NOTED TO REMAIN, STUMPS, ROOTS, SHRUBBERY, ASPHALT, CONCRETE, STRUCTURES, BURIED UTILITIES, STORAGE TANKS, ETC. WITHIN LIMITS OF CONSTRUCTION.
4. STRIPPING: BEFORE EXCAVATING OR FILLING, REMOVE ALL TOPSOIL, WOOD, LEAVES, AND ANY OTHER UNSUITABLE MATERIAL.
5. MUCKING: REMOVE ANY SOFT, ORGANIC SILT MATERIALS AND EXISTING BURIED CONSTRUCTION DEBRIS AS REQUIRED AND FILL TO SUBGRADE ELEVATIONS WITH A CLEAN SELECT-FILL COMPACTED AS SPECIFIED.
6. DISPOSAL: CLEARED, GRUBBED, STRIPPED OR EXCAVATED SPOIL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL AND STATE CODES.
7. BORROW MATERIAL: THE CONTRACTOR SHALL FURNISH BORROW MATERIAL REQUIRED FROM OFF SITE AND OBTAIN ALL REQUIRED PERMITS ASSOCIATED WITH BORROW OPERATIONS.
8. FILL AND COMPACTION: AFTER STRIPPING THOSE AREAS DESIGNATED TO RECEIVE FILL SHOULD BE PROFFERED, THE TOP 8" OF SUBGRADE SHALL BE COMPACTED TO AT LEAST 98% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT. ANY AREA WHICH PUMPS OR RUNS EXCESSIVELY SHOULD BE UNDERCUT AND REPLACED WITH A CLEAN, SILTY OR CLAYEY SAND HAVING A UNIFIED SOIL CLASSIFICATION OF SP, SM, OR SC. FILL MATERIAL 5" OUTSIDE OF BUILDING AREAS SHALL THEN BE PLACED IN LAYERS NOT TO EXCEED 8" AND COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D-698) WITH THE UPPER 12 INCHES OF SUBGRADE BEING COMPACTED TO 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. FILL MATERIALS WITHIN BUILDING AREAS TO A LINE OUTSIDE THE BUILDING AREAS SHALL BE PLACED IN LAYERS NOT TO EXCEED 8" AND COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D-698) WITH THE UPPER 12 INCHES OF SUBGRADE BEING COMPACTED IN 6 INCH LAYERS TO 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. IN AREAS WHERE NO STRUCTURAL FILL IS TO BE PLACED THE UPPER 12 INCHES OF IN-PLACE SUBGRADE SHOULD BE COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. IF THE MATERIAL IS TOO DRY TO COMPACT TO THE REQUIRED DENSITY EACH LAYER SHALL BE WETTED IN ACCORDANCE WITH COMPACTION REQUIREMENTS. IF THE MATERIAL IS TOO WET TO SECURE PROPER COMPACTION, IT SHALL BE HARROWED REPEATEDLY OR OTHERWISE AERATED WITH SUITABLE EQUIPMENT UNTIL OPTIMUM MOISTURE CONTENT IS OBTAINED. FILL SHALL BE PLACED IN SUCH A MANNER THAT THE SURFACE WILL DRAIN READILY AT ALL TIMES. SEE STRUCTURAL NOTES AND SOILS REPORT FOR ADDITIONAL REQUIREMENTS.
9. LAYOUT: THE CONTRACTOR SHALL PROVIDE ALL LAYOUT REQUIRED TO CONSTRUCT HIS WORK.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF EXISTING UTILITIES DURING CONSTRUCTION.
11. EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION FROM SURVEY BY HANOVER DESIGN SERVICES, P.A. AND PROVIDED BY OWNER.
12. THE CONTRACTOR SHALL VERIFY DIMENSIONS AT JOBSITE.
13. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF RELOCATION OR DISCONNECTION OF ALL EXISTING UTILITIES WITH APPLICABLE AGENCIES AND AUTHORITIES.
14. ALL PAVEMENT AND BASE MATERIALS AND WORKMANSHIP SHALL CONFORM TO NCDOT STANDARDS.
15. WATER AND SEWER SERVICES SHALL BE INSTALLED TO MEET LOCAL AND STATE PLUMBING CODES. METER AND TAPS SHALL MEET ALL LOCAL REQUIREMENTS.
16. ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE.
17. SEE SOILS REPORT FOR ADDITIONAL REQUIREMENTS.
18. CONTRACTOR SHALL NOTE THAT EARTHWORK QUANTITIES ARE HIS RESPONSIBILITY. PLANS DO NOT REPRESENT A BALANCED EARTHWORK CONDITION.
19. REINF. CONC. PIPE SHALL BE CLASS III W/RUBBER GASKETED JOINT OR "RAM NECK". INSTALL PER MANUFACTURER'S REQUIREMENTS.
20. USE WHITE LANE MARKING PAINT FOR ALL PAVEMENT MARKINGS. PAINT SHALL BE A CHLORINATED RUBBER ALKYL, FS TT-P-115, TYPE III, FACTORY MIXED, QUICK DRYING, NON-BLEEDING.
21. REFER TO THE PLUMBING DRAWINGS FOR LOCATION AND INVERTS OF NEW WASTE, WATER AND ROOF DRAIN LINES.

NOTES AND DETAILS  
 LIVE OAK BANKING COMPANY 3/FITPARK  
 1741 TIBURON DRIVE  
 WILMINGTON, NORTH CAROLINA 28403

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 PHONE (910) 387-5900

License #C-3641  
**16169**  
 DES. JST  
 CKD. JPN  
 DRWN. NKS  
 DATE 10/13/17

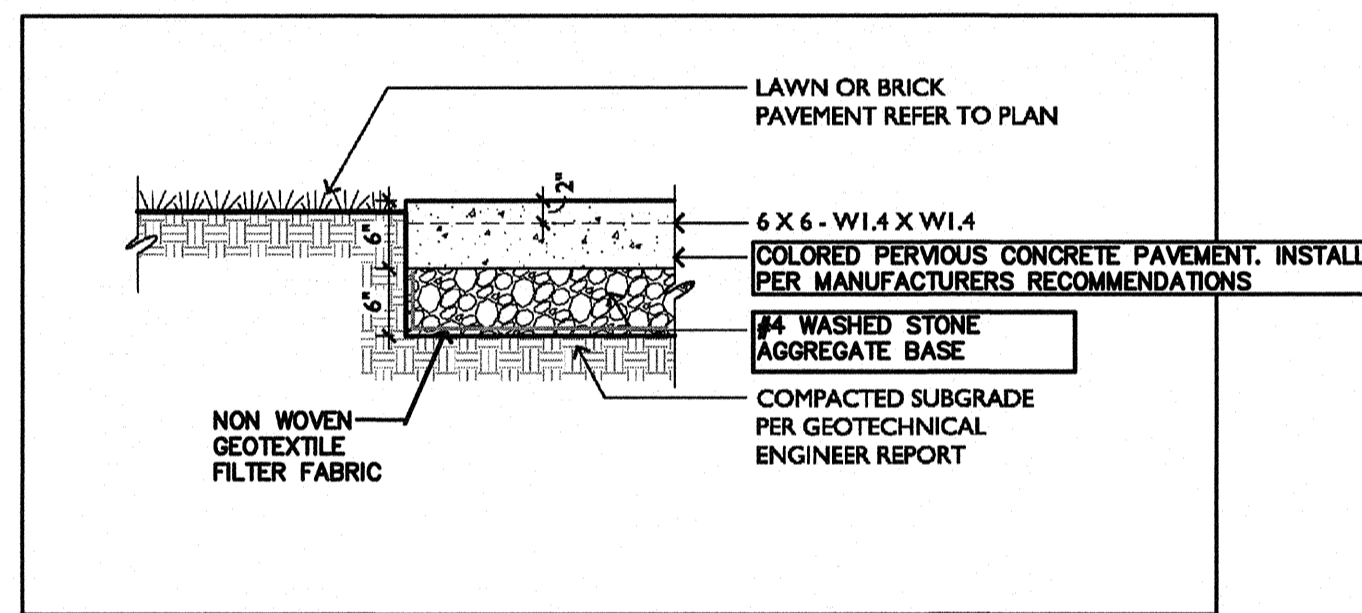


**C7**

1 WOOD WHEEL STOP DETAIL

2 CONCRETE CURB DETAIL

3 COLORED CONCRETE PAVEMENT DETAIL

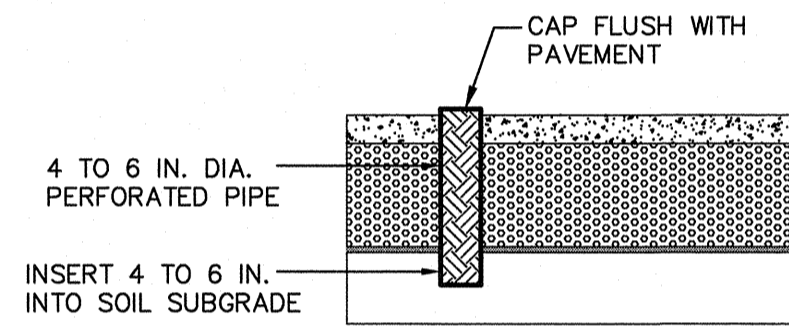


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NOTES:  
 1. THE PERMEABLE PAVEMENT SIGN IS BASED ON AN 18" X 24" STANDARD SIZE FOR SIGN PRODUCTION.  
 2. A HIGH-RESOLUTION IMAGE FILE CAN BE PROVIDED BY THE DWG FOR USE IN FABRICATING THE SIGN. THE GRAPHIC IS IN COLOR BUT COLOR SIGNS ARE NOT REQUIRED.

NOT TO SCALE



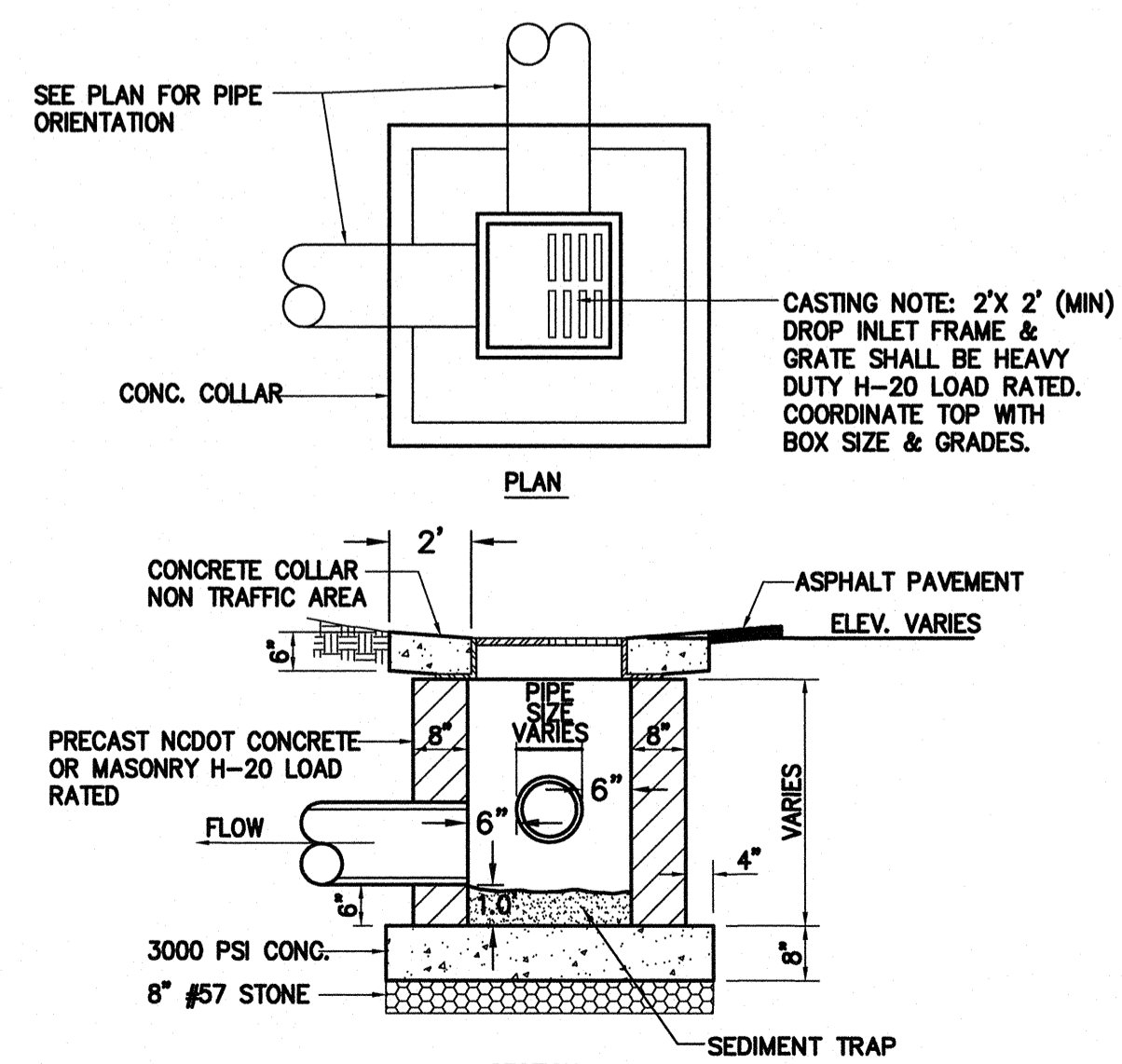
**PERVIOUS PAVEMENT OBSERVATION WELL NOTES:**  
 1. THE OBSERVATION WELL SHALL BE PLACED AT THE LOW END OF THE SUBGRADE SLOPE.  
 2. OBSERVATION WELLS SHALL BE FITTED WITH A LOCKABLE CAP INSTALLED PLACED EVEN WITH THE PAVEMENT SURFACE TO FACILITATE QUARTERLY INSPECTION AND MAINTENANCE.  
 3. THE OBSERVATION WELL SHALL CONSIST OF A RIGID 4 TO 6 IN. DIAMETER PERFORATED PVC PIPE.

NOT TO SCALE

4 COLORED PERVIOUS CONCRETE PAVEMENT DETAIL

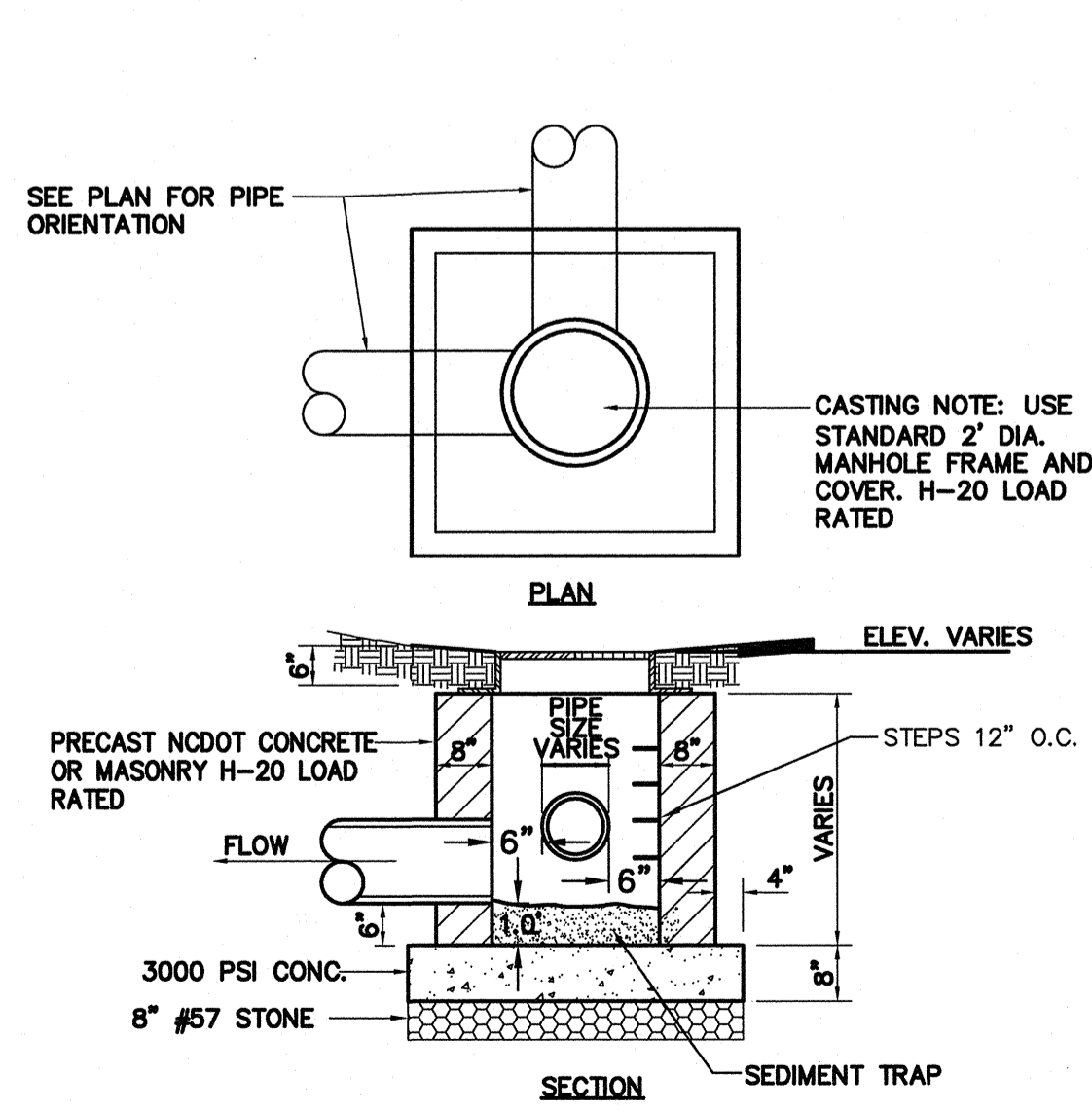
5 PERMEABLE PAVEMENT SIGNAGE DETAIL

6 PERVIOUS PAVEMENT OBSERVATION WELL DETAIL



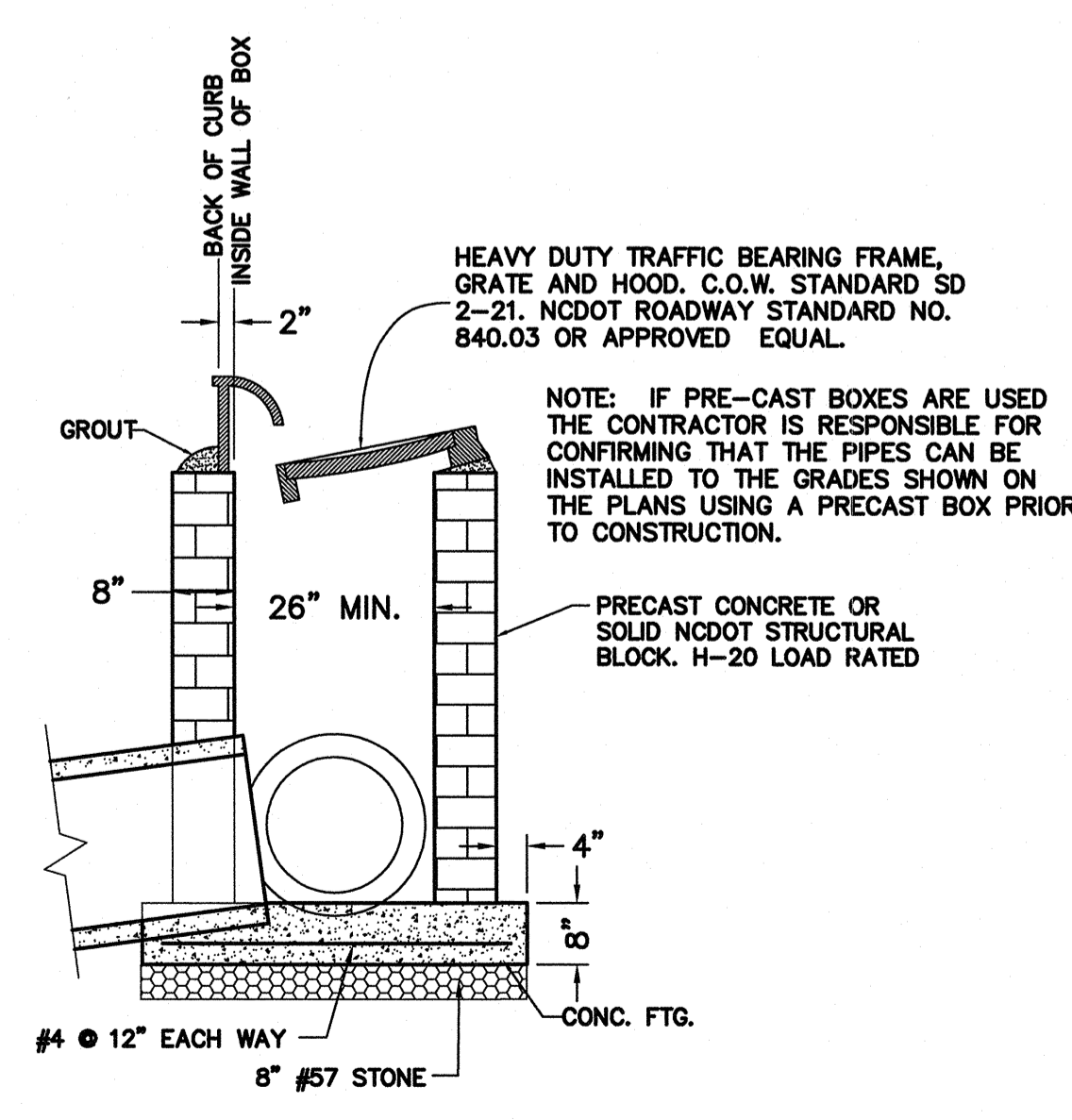
MUST COMPLY WITH CITY OF WILMINGTON STANDARDS NOT TO SCALE

7 DROP INLET DETAIL



MUST COMPLY WITH CITY OF WILMINGTON STANDARDS NOT TO SCALE

8 JUNCTION BOX DETAIL



MUST COMPLY WITH CITY OF WILMINGTON STANDARDS NOT TO SCALE

9 CATCH BASIN DETAIL

**PERMEABLE PAVEMENT CONSTRUCTION SEQUENCE:**

- The following is a typical construction sequence to properly install pervious concrete. The means and methods of installation shall be determined by the contractor and shall be installed per the manufacturer recommendations, product standards and industry guidelines.
- Step 1. Construction of the permeable pavement shall only begin after the entire contributing drainage area has been stabilized. The proposed site should be checked for existing utilities prior to any excavation. Do not install the system in rain or snow.
  - Step 2. Temporary erosion and sediment (E&S) controls (silt fence) are needed during installation to divert stormwater away from the permeable pavement area until it is completed. The proposed permeable pavement area must be kept free from sediment during the entire construction process. Construction materials that are contaminated by sediments must be removed and replaced with clean materials.
  - Step 3. Where possible, excavators or backhoes should work from the sides to excavate the aggregate layer to its appropriate design depth and dimensions.
  - Step 4. In-situ soil testing shall be done after excavation to verify existing infiltration rate. Soils testing shall be conducted by an appropriately qualified professional, the testing can be done by the contractor, the designer, or a third party hired by owner. The results of the testing shall be given to the designer of record for review. If results show a lower infiltration rate than the rate of design the depth of aggregate must be revised.
  - Step 5. The native soils along the bottom and sides of the permeable pavement system should be scarified or tilled to a depth of 3 to 4 inches prior to the placement of the filter layer or filter fabric.
  - Step 6. Filter fabric should be installed on the bottom and the sides of the aggregate layer.
  - Step 7. Place observation wells as shown on plans.
  - Step 8. Inspect all aggregate prior to placement. Ensure aggregate is clean, free of fines and conform to the plans and specifications. All aggregate shall be spread (not dumped). Moisten and spread the washed stone without driving on the soil subgrade, being careful not to damage the observation wells. Follow compaction recommendations by the permeable pavement manufacturer or that from industry guidelines.
  - Step 9. Ensure edge restraints and barriers between permeable pavement are installed per design.
  - Step 10. Contractor is to follow standard installation procedures for the specific type of pervious pavement that is being installed. For this project pervious concrete will be installed. Only certified and experienced contractors shall install the pervious concrete and installation shall be per the manufacturer recommendations, product standards and industry guidelines. Pervious concrete shall be constructed in accordance with the latest version of ACI 522.1, Specifications for Pervious Concrete.
  - Step 11. After installation, protect the installed pervious concrete until project completion, including routing construction traffic away from the installed pervious concrete. Contractor shall provide protection techniques including mats, plastic sheeting and barriers to ensure the pervious concrete remains protected until project completion.

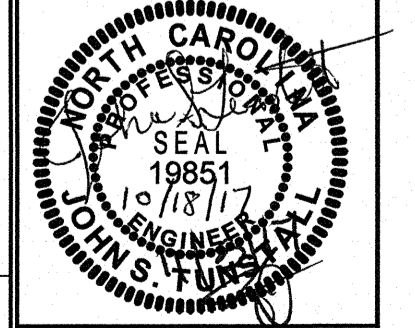
FOR PERMIT ONLY  
 NOT FOR CONSTRUCTION

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

Approved Construction Plan  
 Name \_\_\_\_\_ Date \_\_\_\_\_

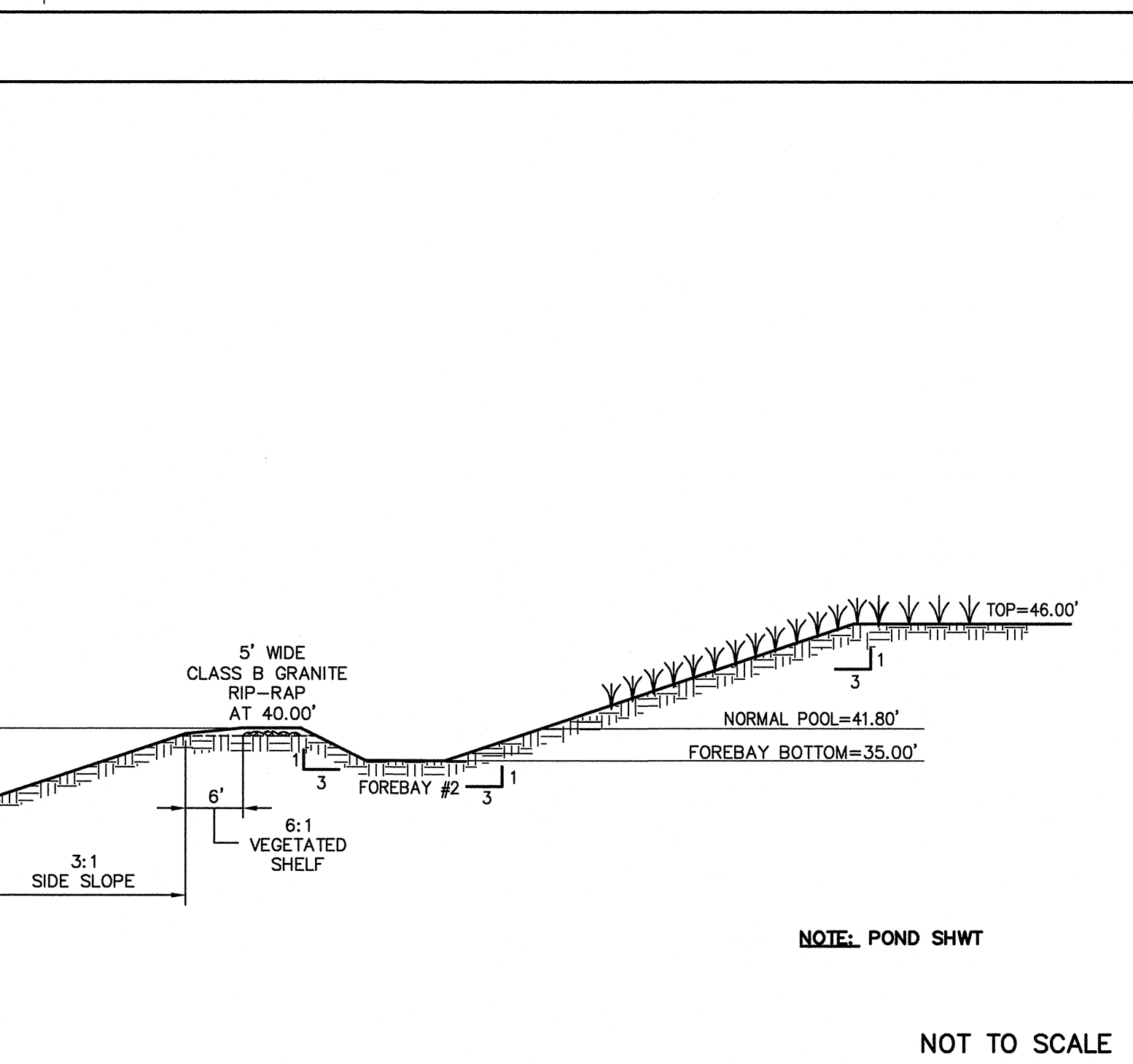
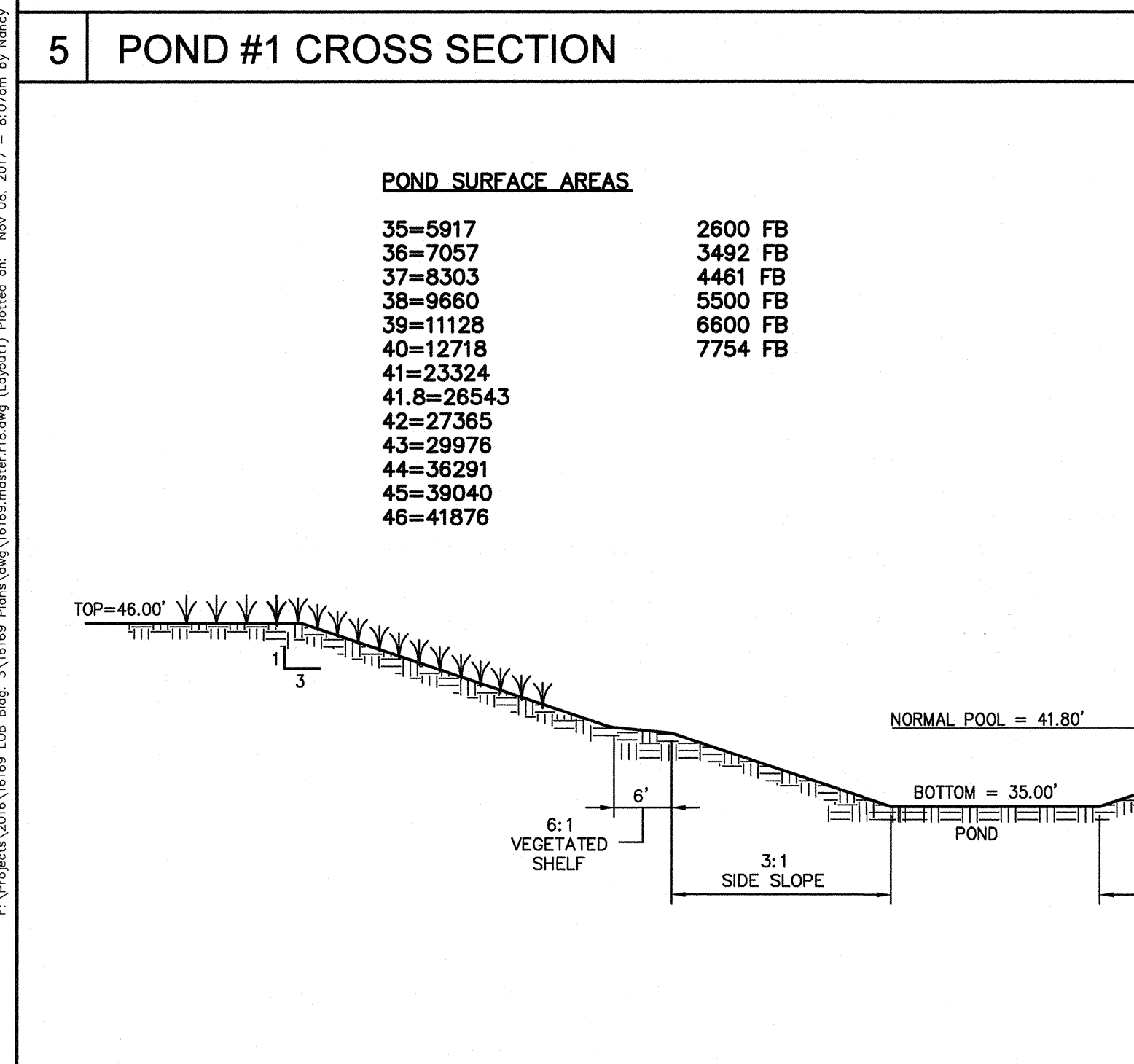
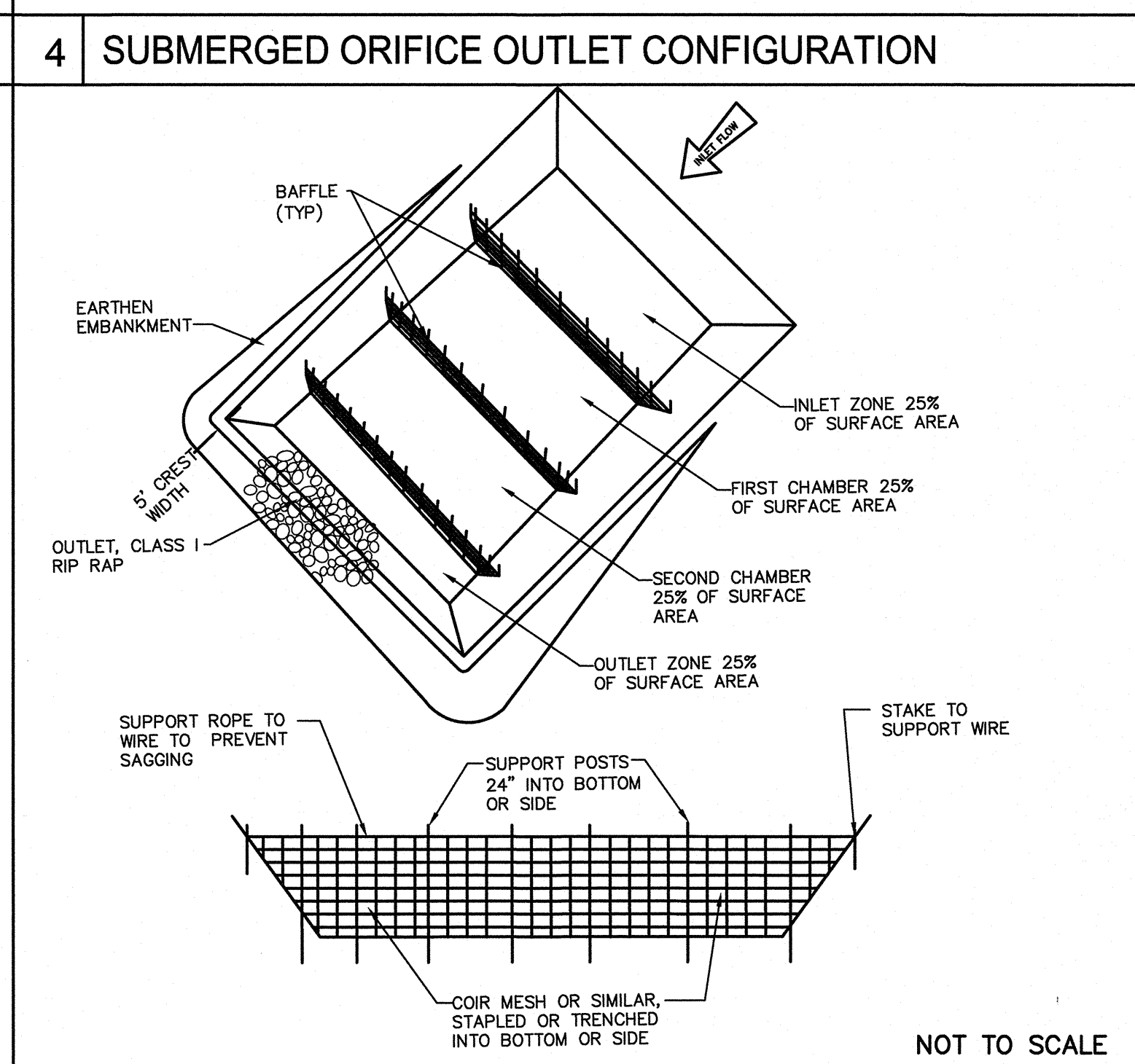
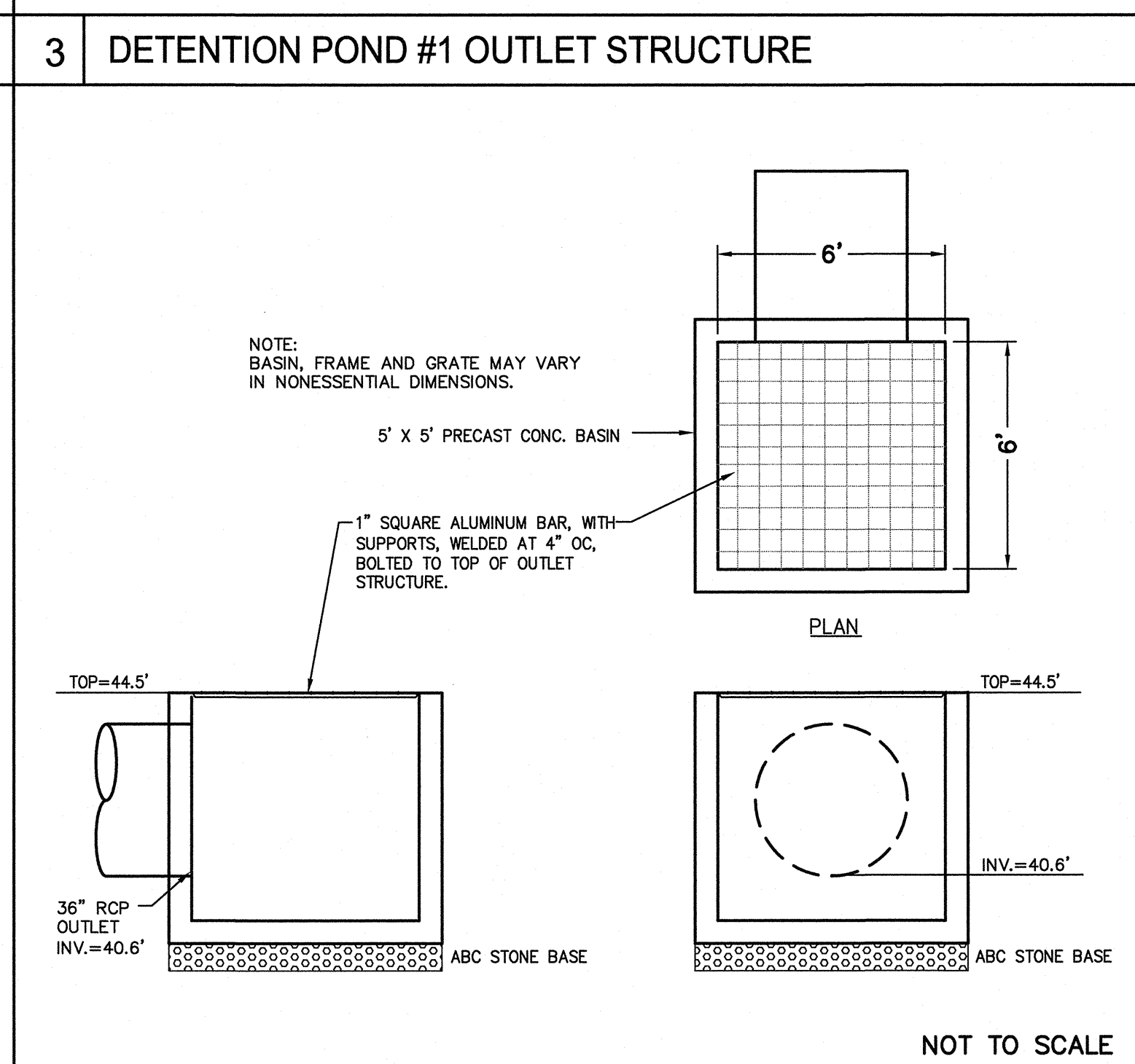
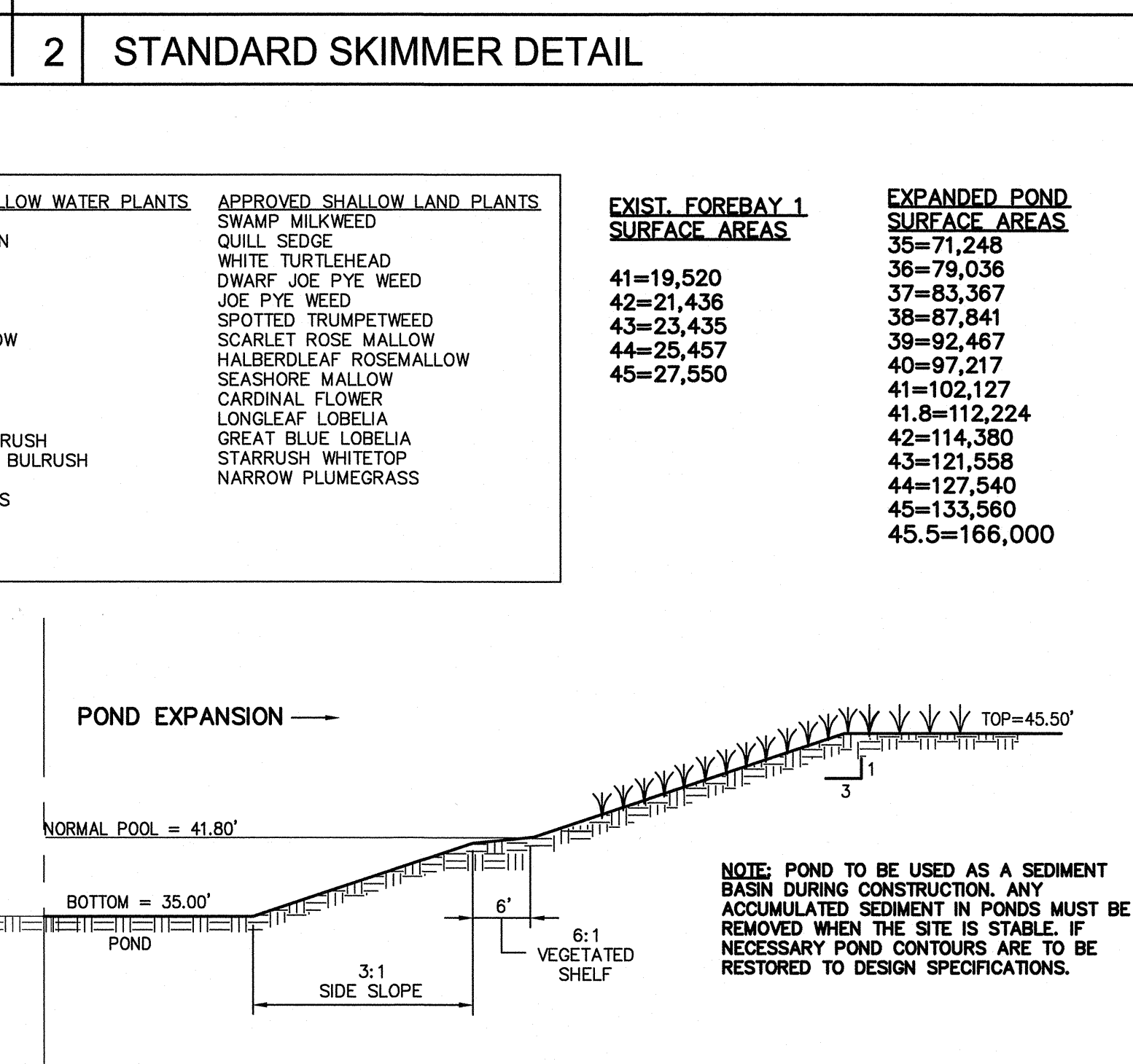
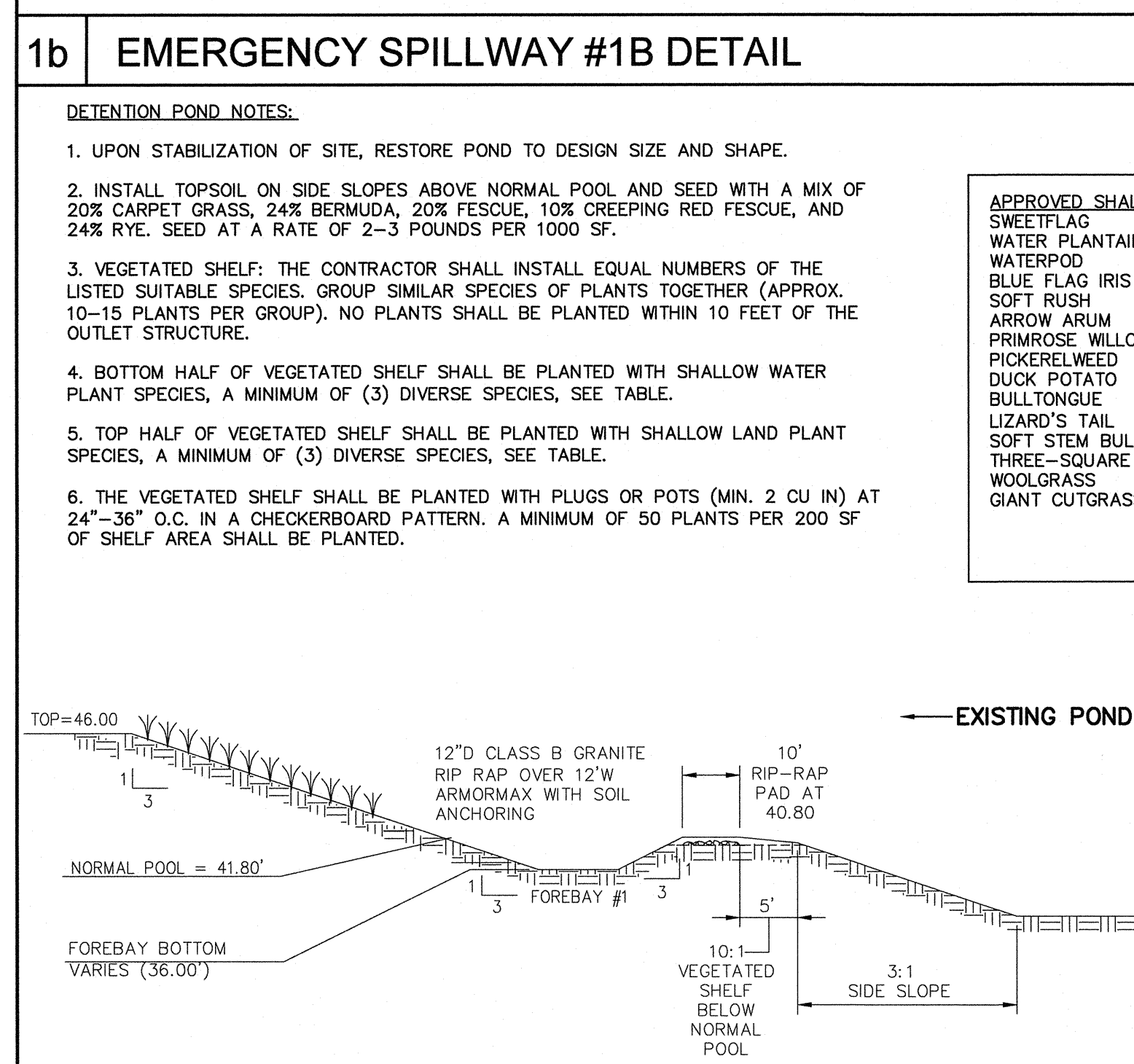
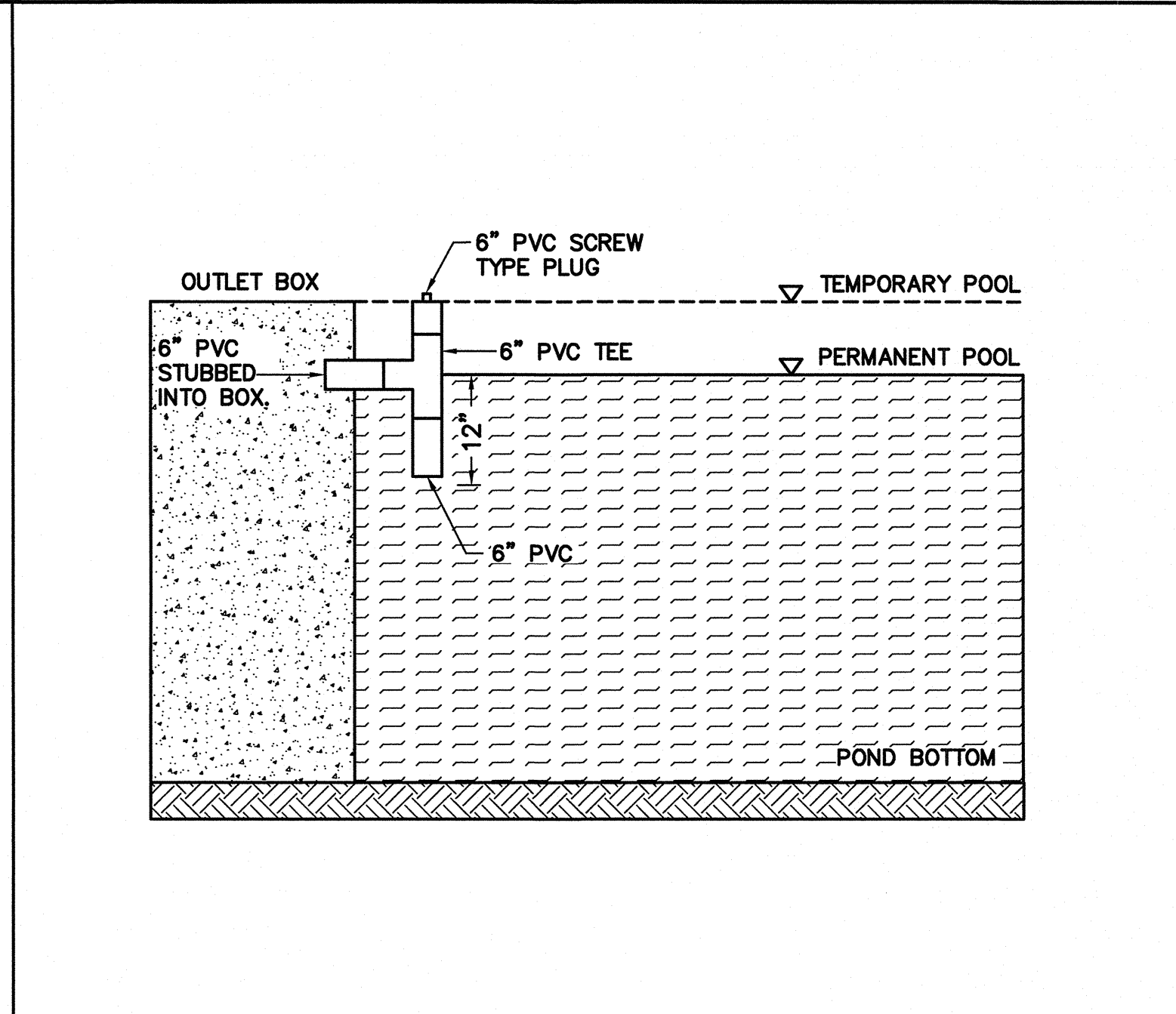
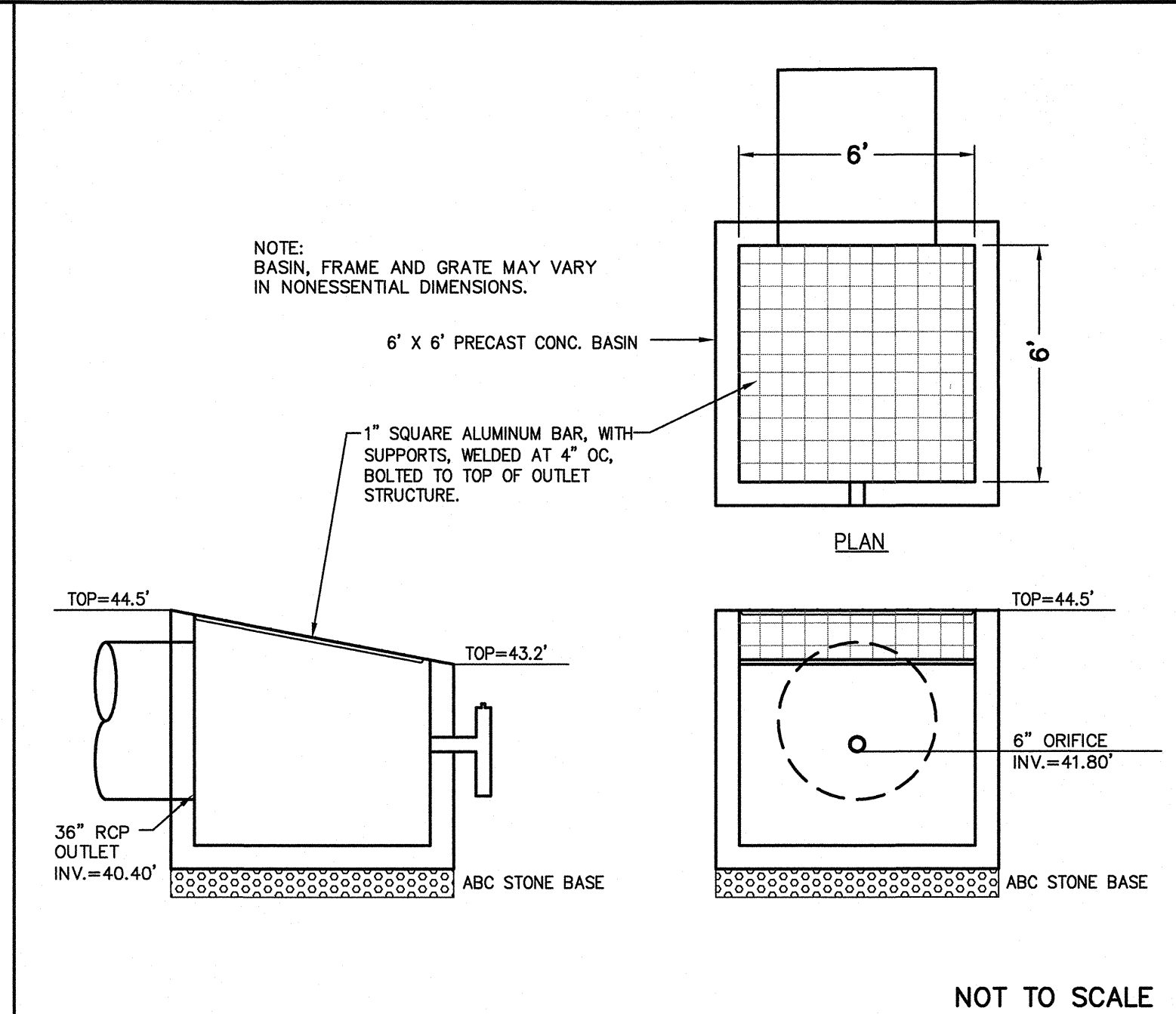
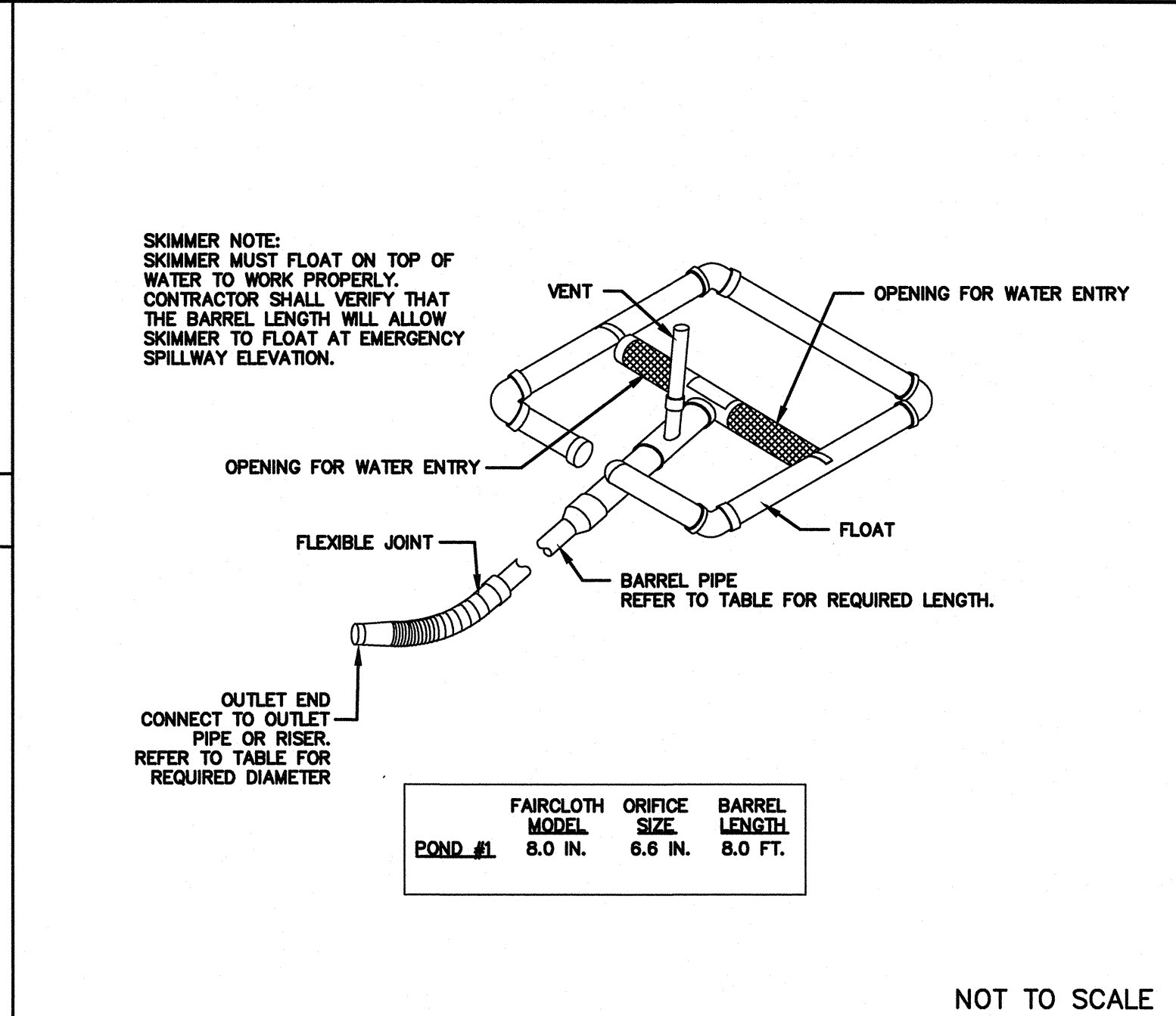
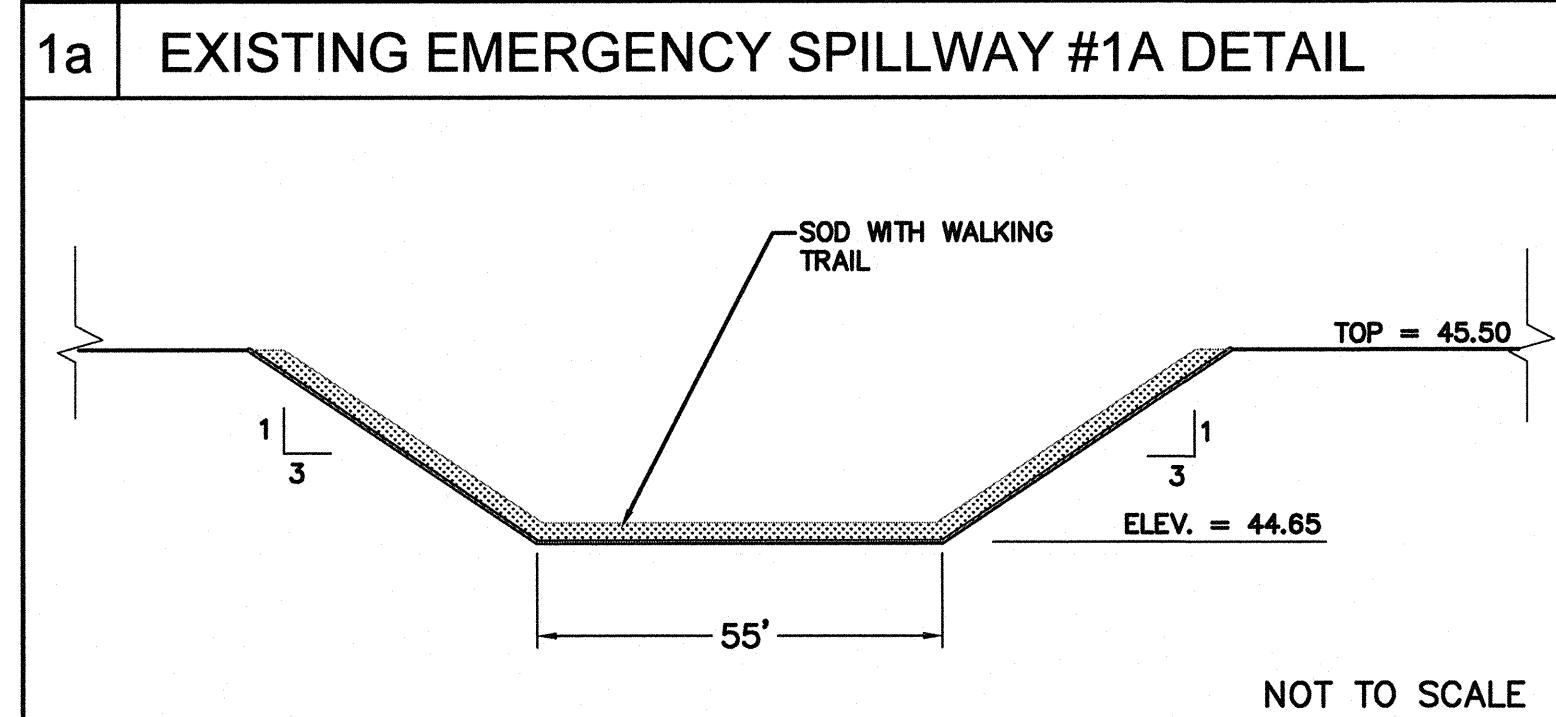
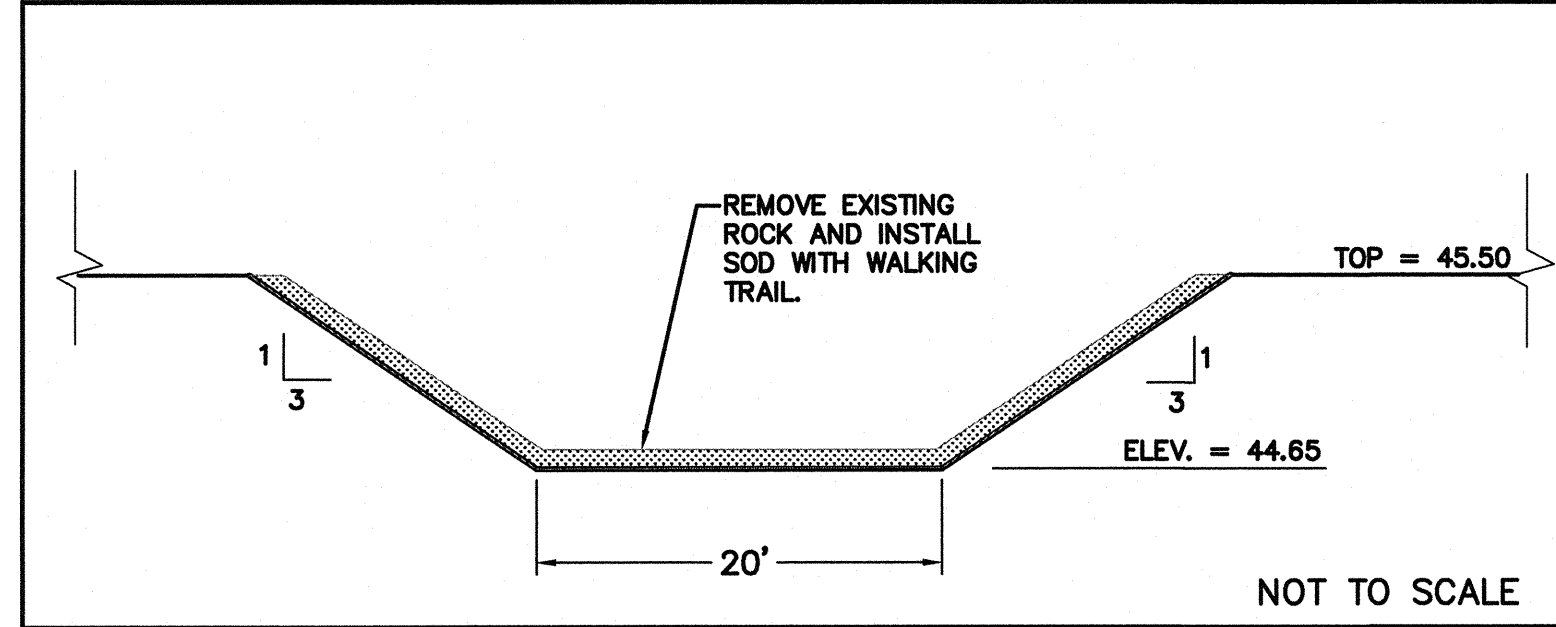
Planning \_\_\_\_\_  
 Traffic \_\_\_\_\_  
 Fire \_\_\_\_\_

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



**C7**





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

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

Planning \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_

Signed: \_\_\_\_\_ Permit # \_\_\_\_\_

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	
		© 2014 NORRIS & TUNSTALL	

NOTES AND DETAILS  
LIVE OAK BANKING COMPANY 3/FITPARK  
1741 TIBURON DRIVE  
WILMINGTON, NORTH CAROLINA 28403

OWNER/DEVELOPER  
W. LEE WILLIAMS  
EXECUTIVE VICE PRESIDENT  
LIVE OAK BANKSHARES, INC.  
1741 TIBURON DRIVE  
WILMINGTON, NC 28403  
910-798-1647  
910-790-5666

**NORRIS & TUNSTALL**  
CONSULTING ENGINEERS P.C.  
1429 ASH-LITTLE RIVER RD. NW  
ASH, NC 28420  
PHONE (910) 287-5900

902 MARKET STREET  
WILMINGTON, NC 28401  
PHONE (910) 343-9653

License #C-3641  
16169  
DES. JST  
CKD. JPN  
DRWN. NKS  
DATE 11/3/17

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City of WILMINGTON, NORTH CAROLINA  
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Name: \_\_\_\_\_ Date: \_\_\_\_\_

Planning \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_

Signed: \_\_\_\_\_ Permit # \_\_\_\_\_

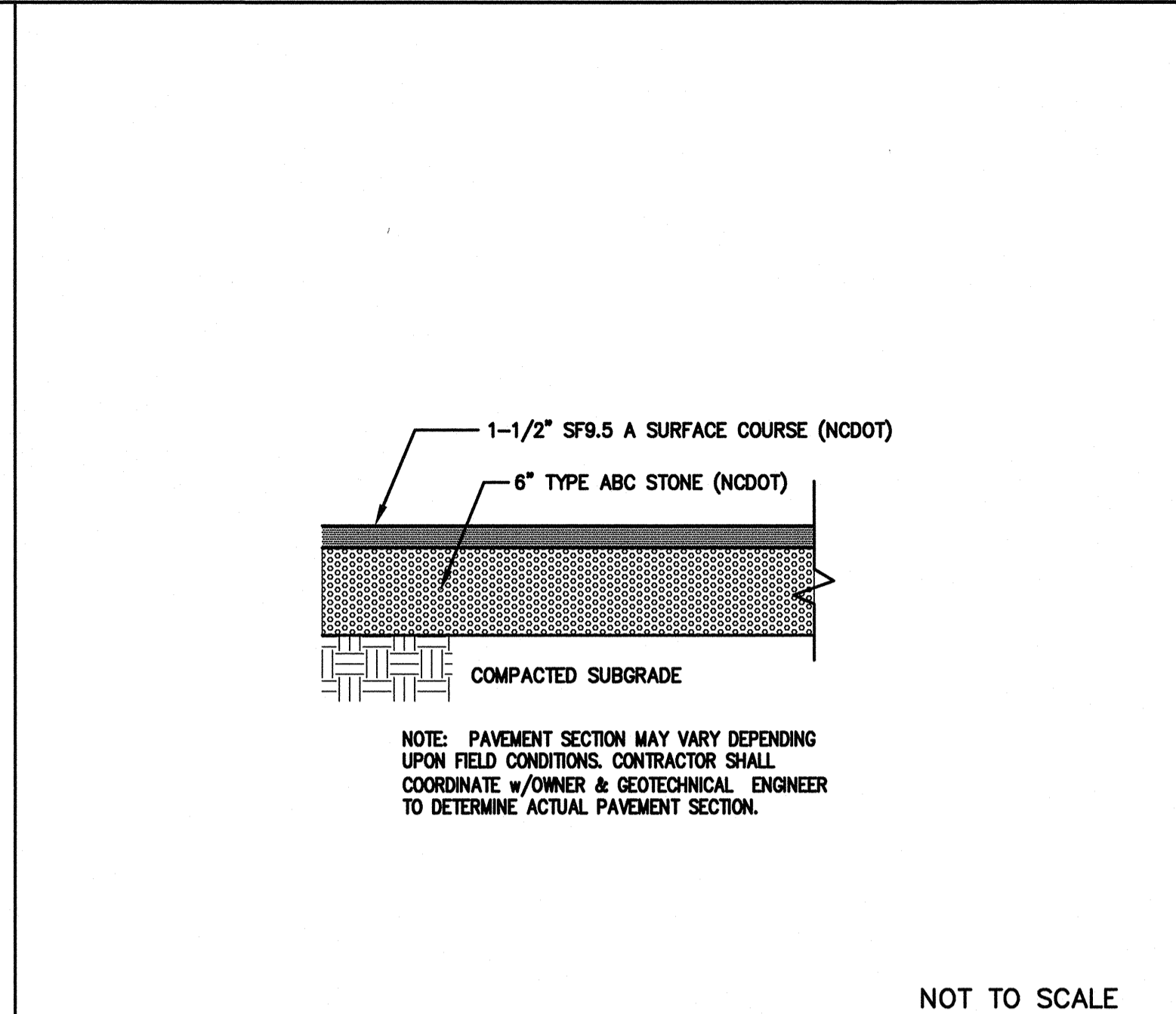
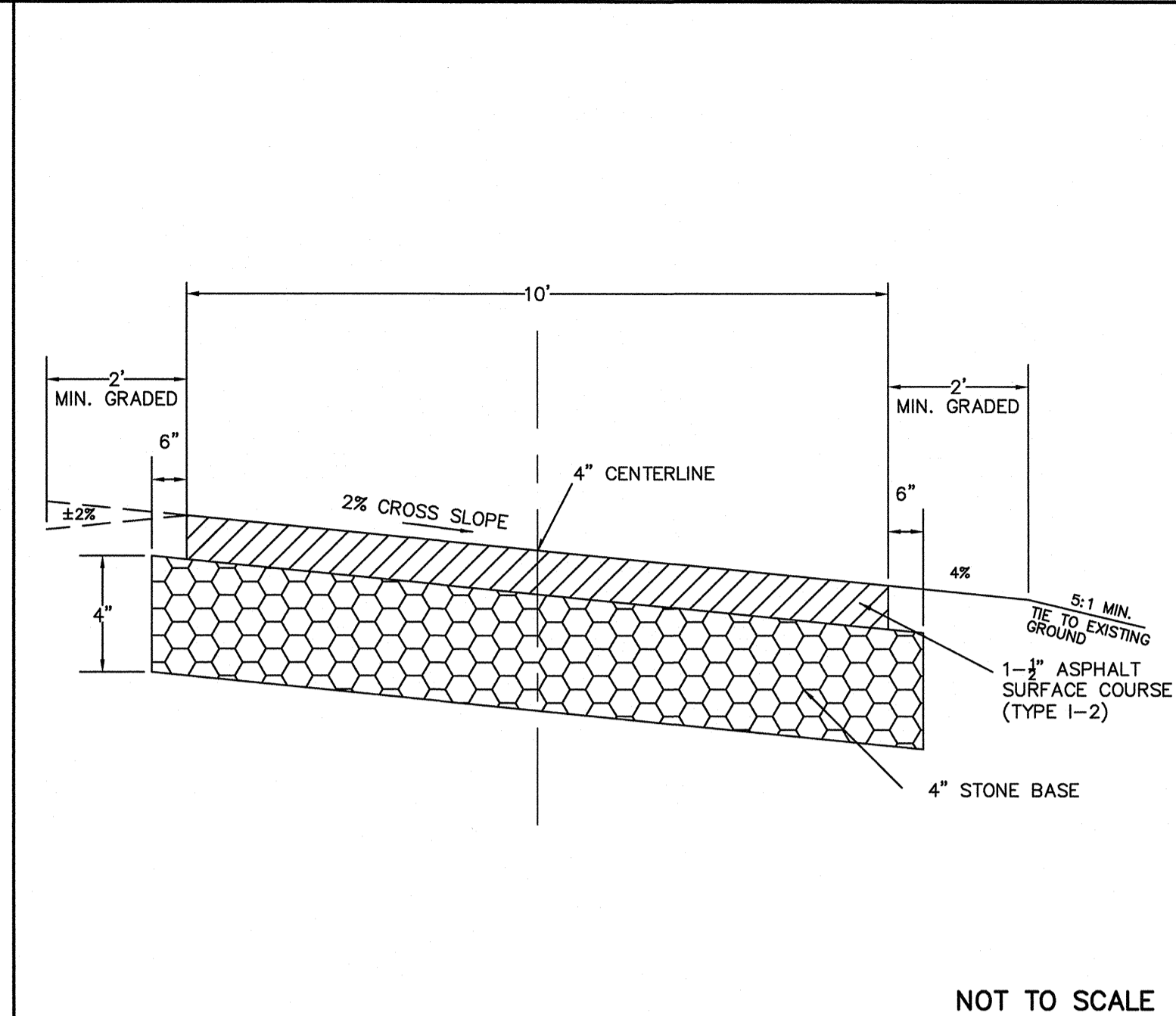
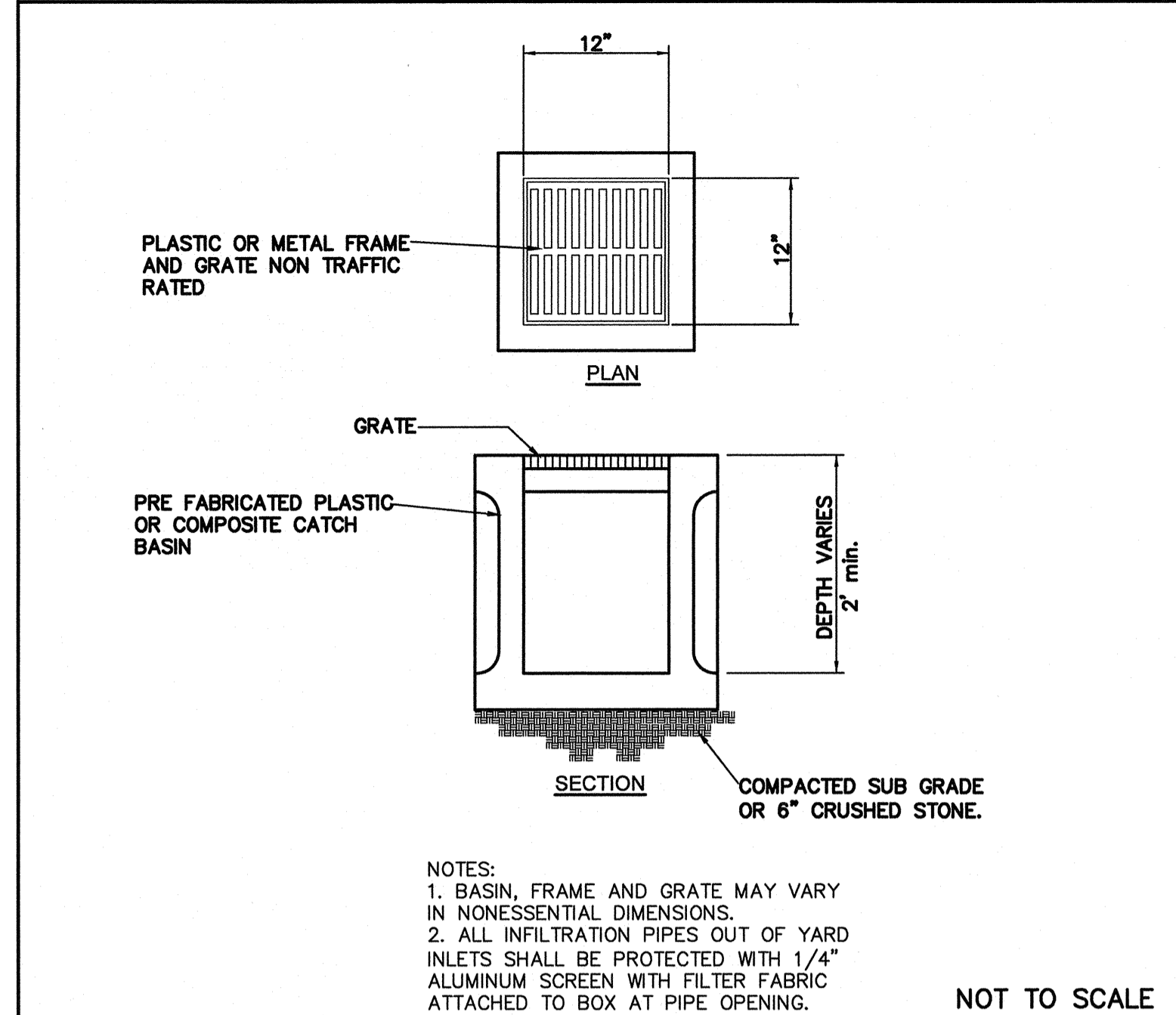
SYMBOL DATE DESCRIPTION BY

REVISIONS  
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C8

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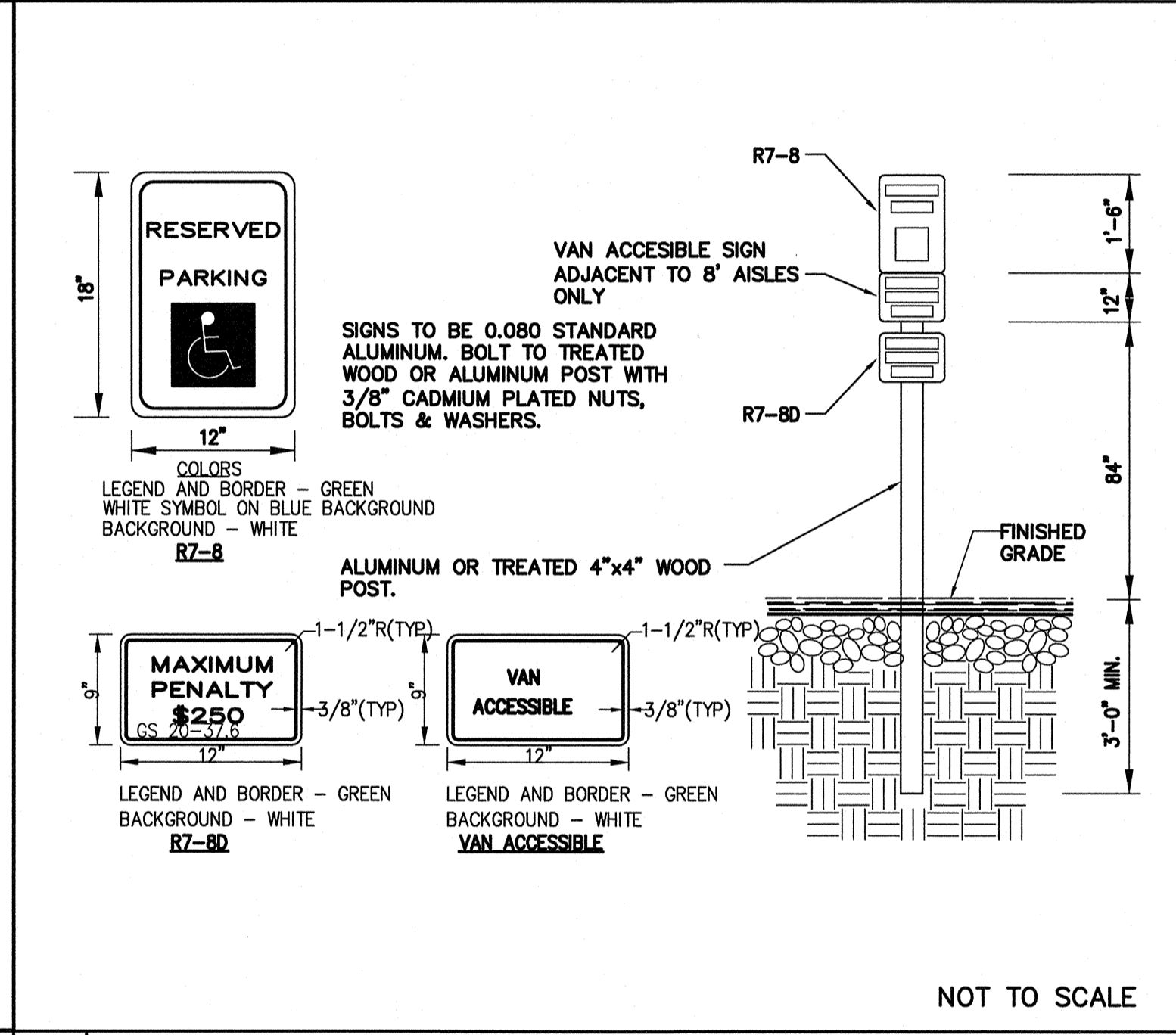
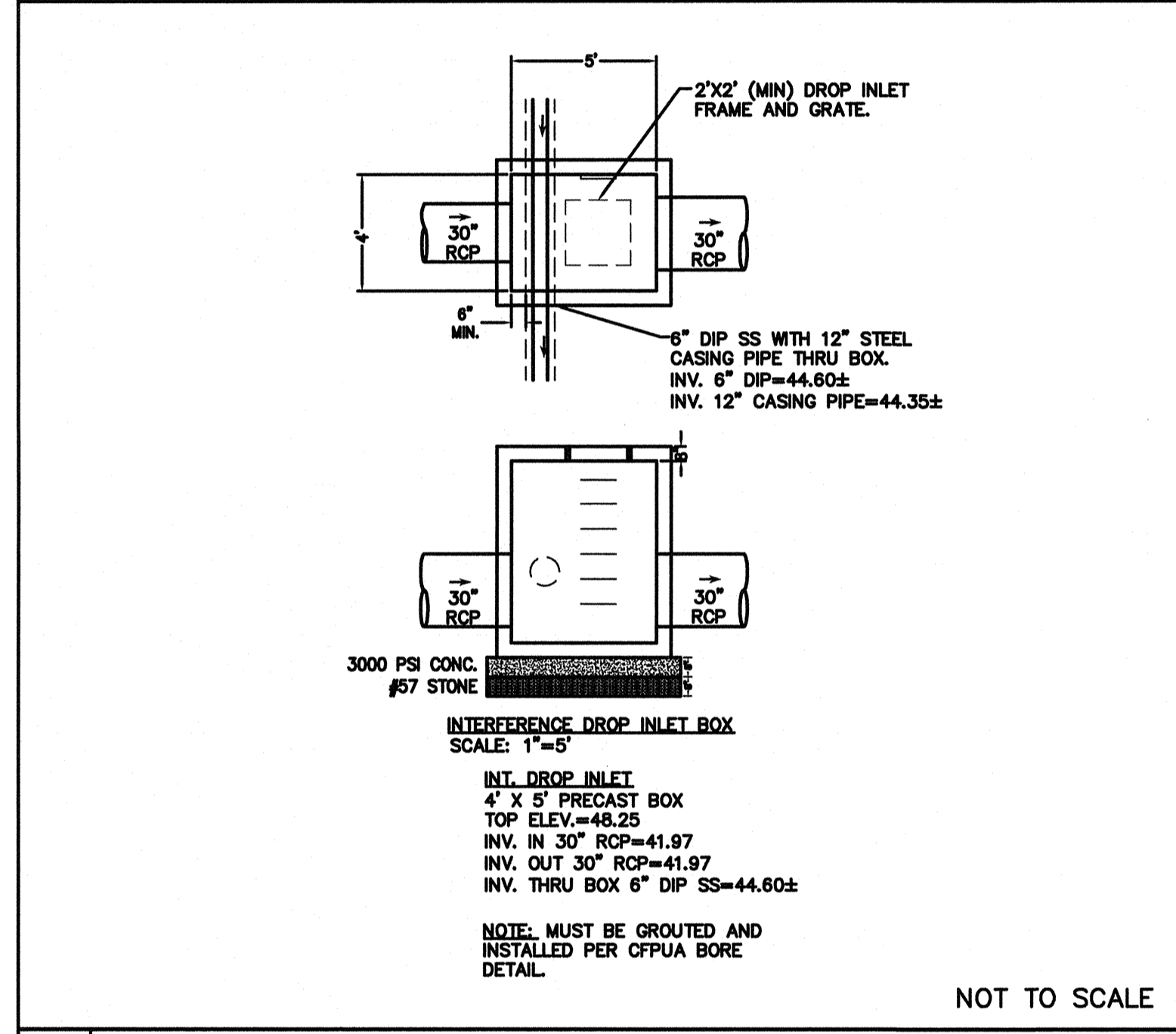




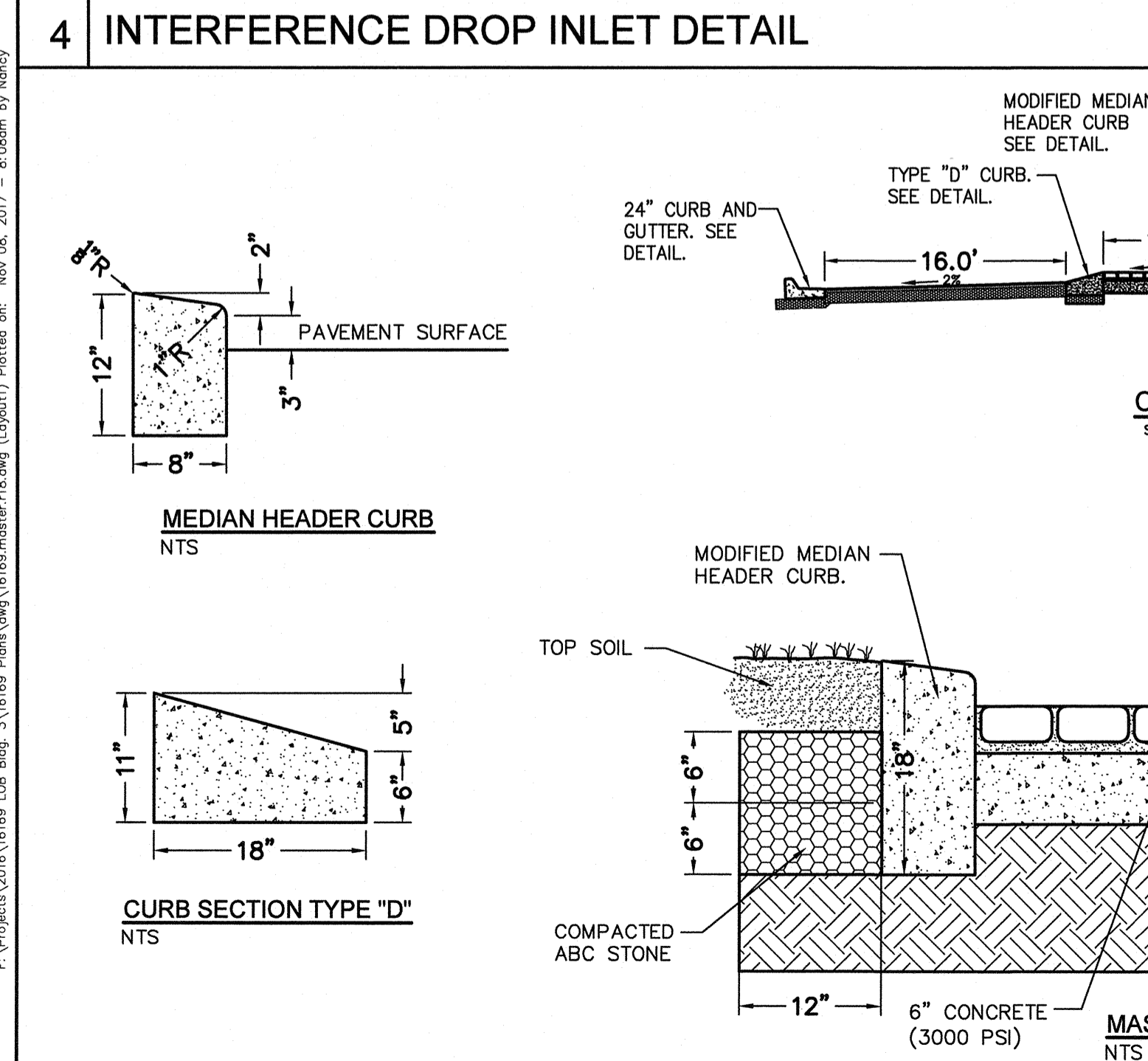
1 YARD INLET DETAIL NOT TO SCALE

2 MULTI-USE PATH (MUP) TYPICAL SECTION NOT TO SCALE

3 ASPHALT PAVEMENT SECTION FOR BASKETBALL COURT NOT TO SCALE



6 NOT TO SCALE



7 CUL-DE-SAC DETAIL NOT TO SCALE

8 NOT TO SCALE

NOTES AND DETAILS  
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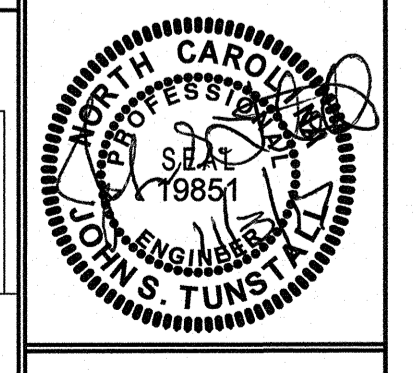
**NORRIS & TUNSTALL**  
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Licence #C-3641  
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DES. JST  
CHK. JPN  
DRWN. NKS  
DATE 10/13/17

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**CITY OF WILMINGTON**  
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Public Services • Engineering Division  
APPROVED STORMWATER MANAGEMENT PLAN  
Date: \_\_\_\_\_ Permit # \_\_\_\_\_  
Signed: \_\_\_\_\_

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



**C9**

F:\Projects\2016\16169\_L08\_Bldg\_3\16169 Plans\dwg\16169main.rvt (copy) Printed on: Nov 08, 2017 - 8:08am by Nancy