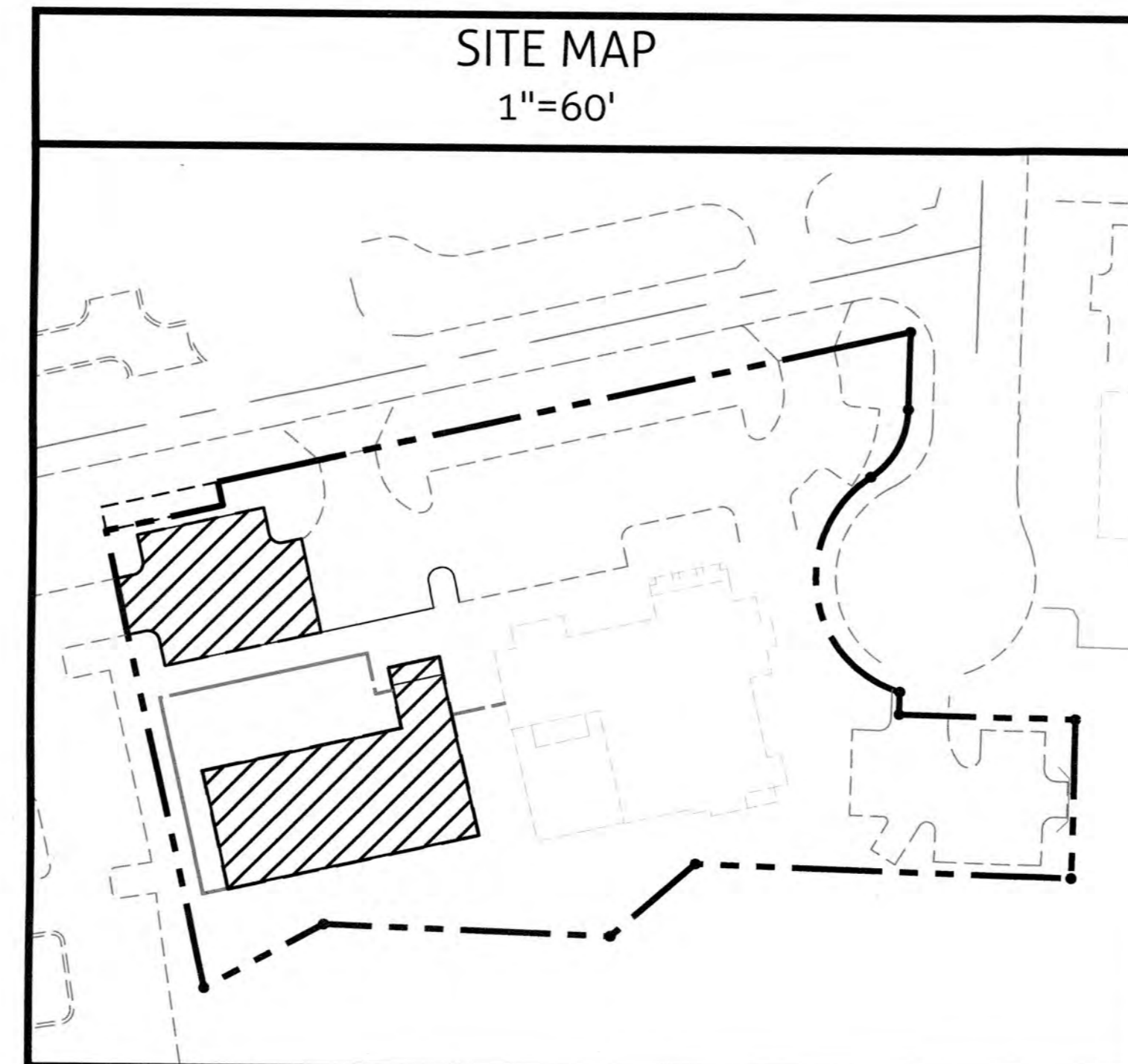
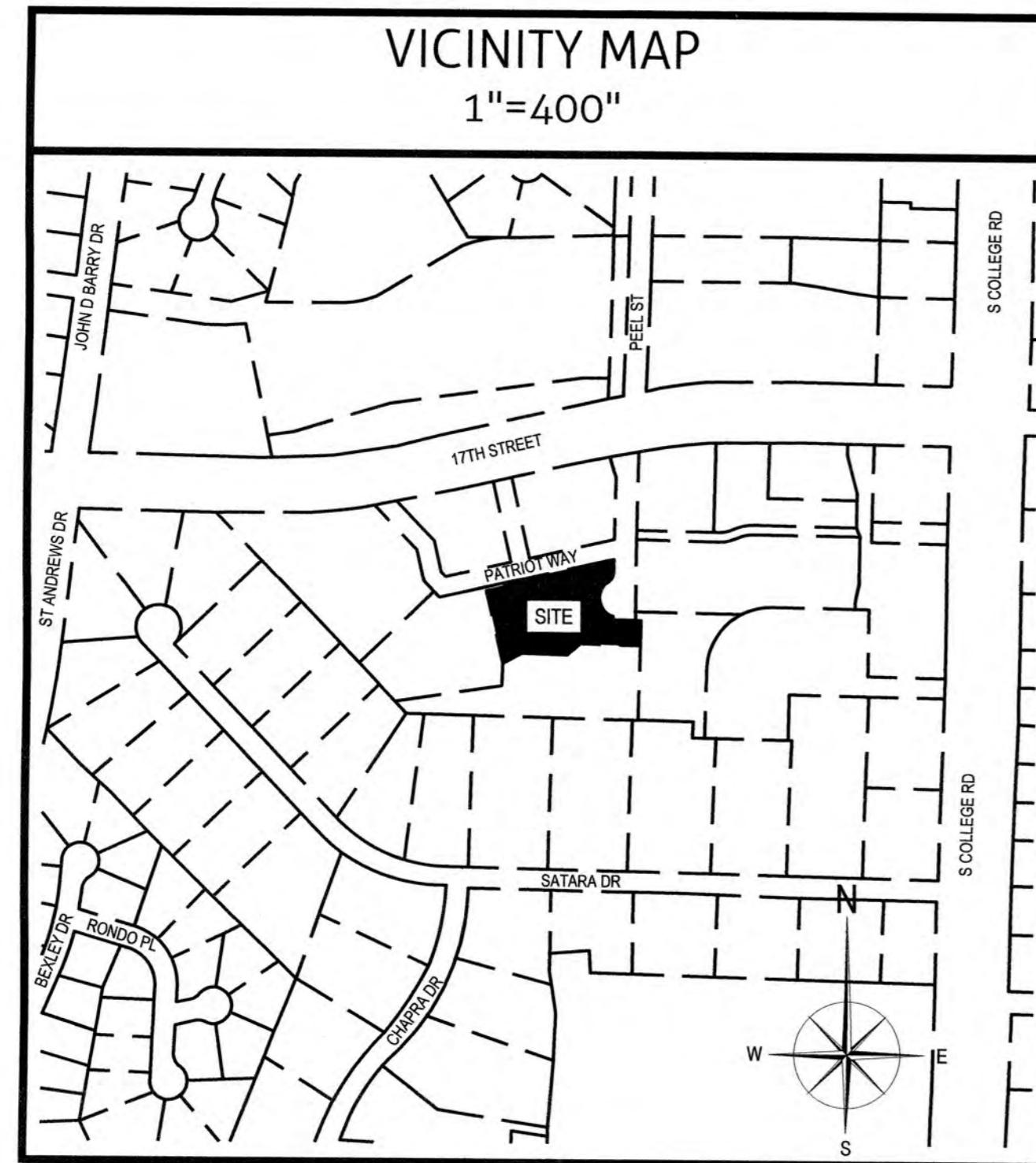


# CONSTRUCTION DRAWINGS FOR NEEDHAM ANIMAL HOSPITAL EXPANSION

WILMINGTON, NC  
JULY 2019

CONSTRUCTION DRAWINGS  
FOR: NEEDHAM ANIMAL HOSPITAL EXPANSION  
W&R PROJECT NO: 170948



| SHEET LIST TABLE |                                      |
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| C0.0             | COVER                                |
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| C0.2             | NCG01 PROJECT NOTES                  |
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| C2.0             | SITE PLAN                            |
| C3.0             | GRADING PLAN                         |
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| C4.0             | UTILITY PLAN                         |
| C5.0             | EROSION CONTROL PLAN                 |
| C6.0             | EROSION CONTROL DETAILS              |
| C6.1             | STORM DRAIN DETAILS                  |
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| C6.3             | PAVEMENT MARKING DETAILS             |
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| LEGEND                        |                               |
|-------------------------------|-------------------------------|
| LINE TYPE DESCRIPTION         | LINE TYPE DESCRIPTION         |
| EXISTING WATERLINE            | PROPOSED UNDERGROUND ELECTRIC |
| PROPOSED WATERLINE            | EXISTING GASLINE              |
| EXISTING STORM DRAINAGE       | PROPOSED GASLINE              |
| PROPOSED STORM DRAINAGE       | SILT FENCE                    |
| EXISTING SANITARY SEWER       | TREE PROTECTION & SILT FENCE  |
| PROPOSED SANITARY SEWER       | FENCE                         |
| EXISTING FORCE MAIN           | TREE PROTECTION               |
| PROPOSED FORCE MAIN           | TEMP. DIVERSION SWALE         |
| EXISTING ELECTRIC (OVERHEAD)  | RIGHT-OF-WAY                  |
| PROPOSED ELECTRIC (OVERHEAD)  | EXISTING WETLANDS             |
| EXISTING UNDERGROUND ELECTRIC | 1' CONTOUR                    |
| EXISTING EASEMENT             | 5' CONTOUR                    |
| PROJECT BOUNDARY              | PROPOSED EASEMENT             |

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.



PREPARED BY:



**WithersRavenel**  
Engineers | Planners | Surveyors  
219 Station Road | Ste 101 | Wilmington, NC 28405 | t: 910.256.9277 | license #: C-0832 | www.withersravenel.com

DEVELOPER/OWNER

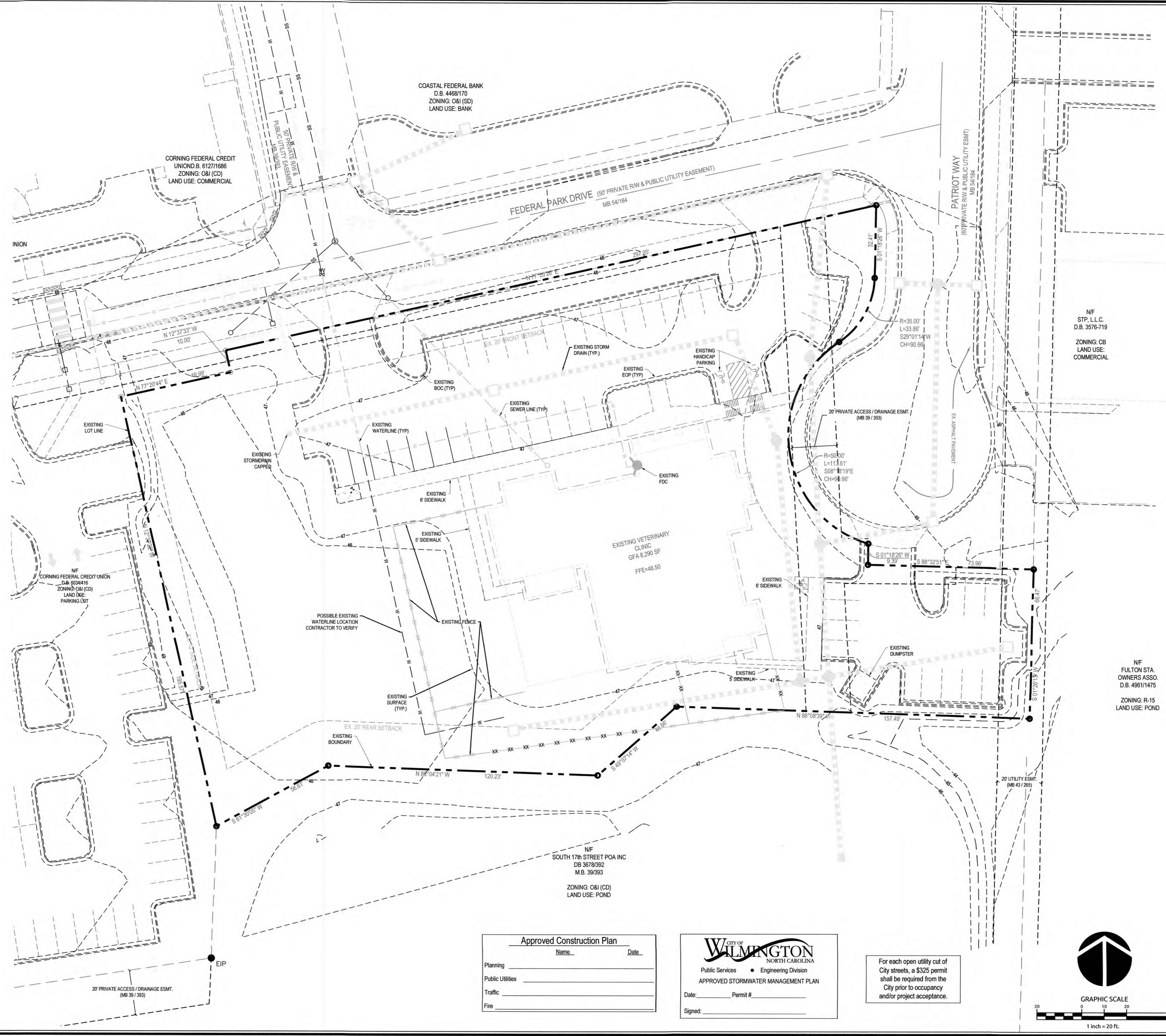
**SLA PROPERTY, LLC**  
3720 FEDERAL PARK DRIVE  
WILMINGTON, NC 28412  
PHONE: (910) 799-2970

ATTN: DR. CHRISTOPHER BATTS





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COASTAL FEDERAL BANK  
D.B. 4468/170  
ZONING: O&I (SD)  
LAND USE: BANK

CORNING FEDERAL CREDIT  
UNION D.B. 6127/1686  
ZONING: O&I (CD)  
LAND USE: COMMERCIAL

NF  
STP, L.L.C.  
D.B. 3576-719  
ZONING: CB  
LAND USE:  
COMMERCIAL

NF  
CORNING FEDERAL CREDIT UNION  
D.B. 6034/416  
ZONING: O&I (CD)  
LAND USE:  
PARKING LOT

EXISTING VETERINARY  
CLINIC  
GFA 8,290 SF  
FFE=48.50

NF  
FULTON STA.  
OWNERS ASSO.  
D.B. 4961/1475  
ZONING: R-15  
LAND USE: POND

NF  
SOUTH 17th STREET POA INC  
D.B. 3678/392  
M.B. 39/393  
ZONING: O&I (CD)  
LAND USE: POND

**Approved Construction Plan**

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

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

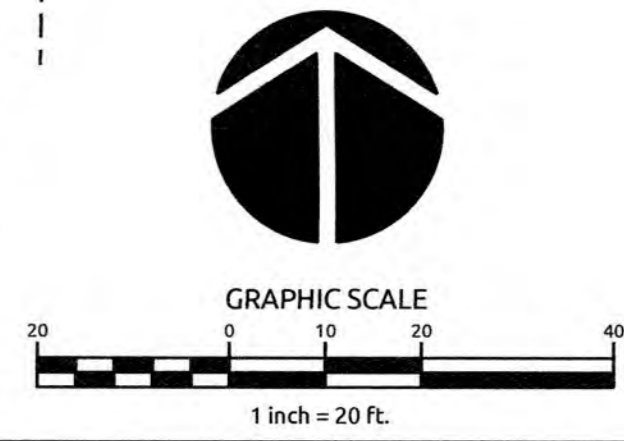
Fire \_\_\_\_\_

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

Date: \_\_\_\_\_ Permit # \_\_\_\_\_

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

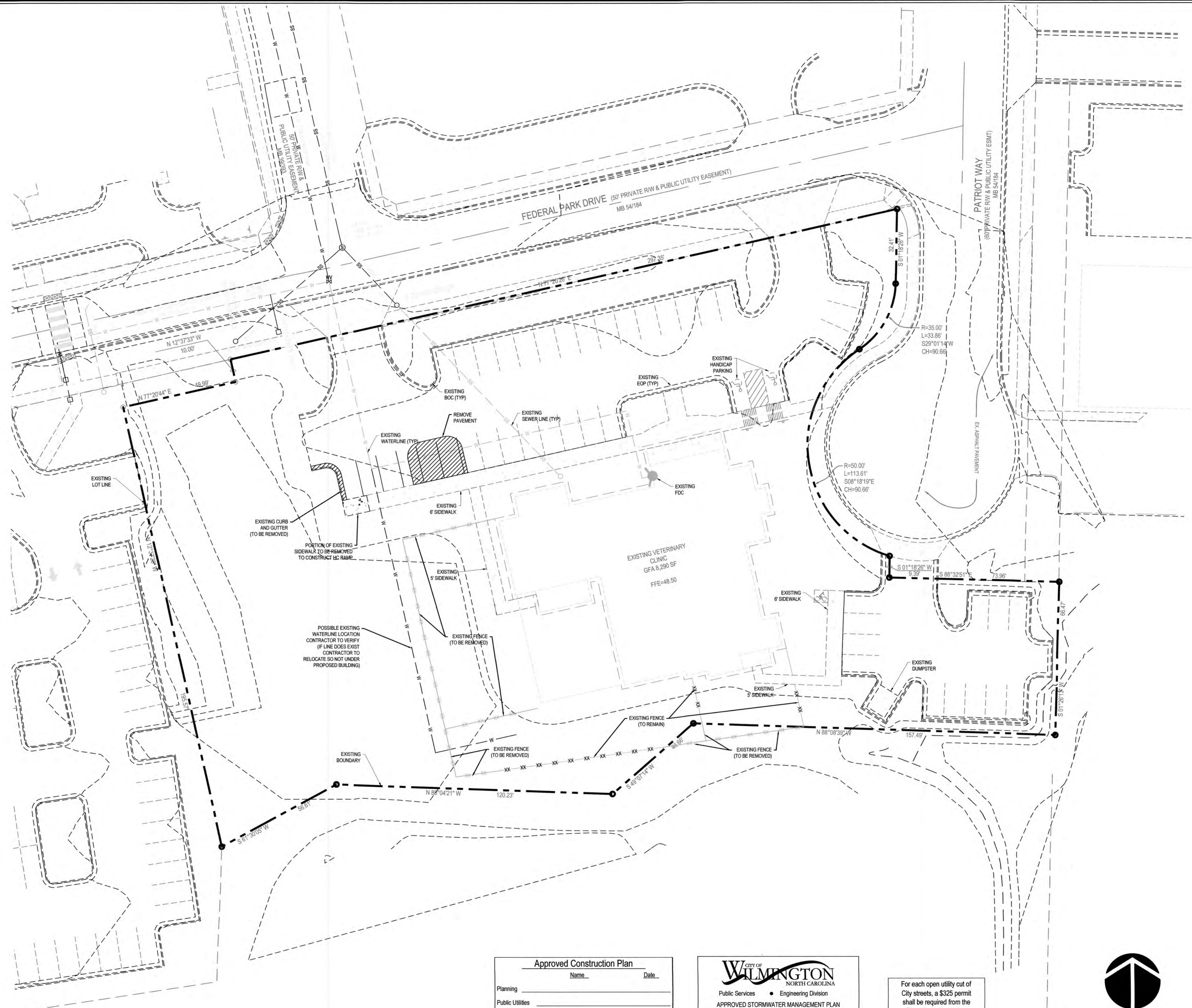
For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



|         |           |          |     |
|---------|-----------|----------|-----|
| Job No. | 03-170548 | Drawn By | TMG |
| Date    | 03/29/18  | Designer | JSB |

|           |                           |          |
|-----------|---------------------------|----------|
| Revisions |                           |          |
| 1         | COW & NHC REVIEW COMMENTS | 10.05.18 |

W:\17\0403\170403-needham animal hospital expansion\CAD\civil\demolition\CLL DEMOLITION PLAN.dwg, Monday, July 8, 2013 2:52:30 PM, GARIBOLDI, TOM



**Approved Construction Plan**

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

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

**CITY OF WILMINGTON**  
NORTH CAROLINA

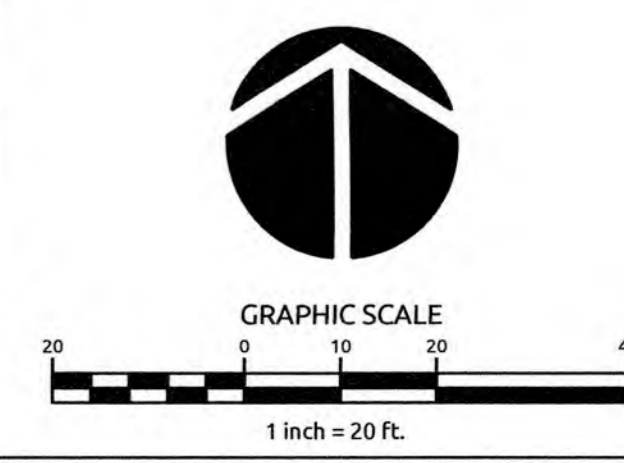
Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: \_\_\_\_\_ Permit # \_\_\_\_\_

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

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|         |           |          |     |
|---------|-----------|----------|-----|
| Job No. | 03-170548 | Drawn By | TMG |
| Date    | 03/29/18  | Designer | JSB |

|           |                                    |
|-----------|------------------------------------|
| Revisions |                                    |
| 1         | COW & NHC REVIEW COMMENTS 10.05.18 |

|           |      |
|-----------|------|
| Sheet No. | C1.1 |
|-----------|------|

**KENNELS SHALL COMPLY WITH THE FOLLOWING:**

1. ALL PENS SHALL BE ENCLOSED.
2. LIMITED OUTDOOR EXERCISE RUNS OR FACILITIES SHALL BE PERMITTED SO LONG AS THEIR HOURS OF USE ARE RESTRICTED TO THE HOURS BETWEEN 8:00 A.M. AND 5:00 P.M.
3. EXERCISE RUNS OR FACILITIES SHALL BE A MINIMUM OF FOUR (4) FEET BY TEN (10) FEET.
4. THE FACILITY SHALL MAINTAIN A MINIMUM TOTAL OF TWENTY-FIVE (25) SQUARE FEET OF KENNEL AREA PER ANIMAL THIS AREA MAY BE COMPRISED OF CAGE AREA, RUNS, OR EXERCISE FACILITIES.

**SITE DEVELOPMENT DATA**

**GENERAL NOTES:**

OWNER: SLA PROPERTY, LLC  
 ADDRESS: 3720 FEDERAL PARK DRIVE  
 WILMINGTON, NC 28412  
 PHONE: (910) 799-2970  
 ATTN: DR. CHRISTOPHER BATTS

NEW HANOVER COUNTY PARCEL NO.: R006600-001-031-000

ALT ID NO.: 313510.46.2257.000

TOTAL TRACT AREA: 1.56 AC±  
 ZONING DISTRICT: O & I-1 (CD-5-1107-M409-M1217)  
 PROPOSED ZONING DISTRICT: CB (PENDING)  
 LAND CLASSIFICATION: 804-OTHER MEDICAL & HEALTH  
 CAMA LAND CLASSIFICATION: URBAN

**DEVELOPMENT DATA:**

BUILDINGS: 2  
 BUILDING CONSTRUCTION TYPE: V-B

**BUILDING AREAS:**  
 EXISTING BUILDING AREA (WITH OVERHANG) = 10,170 SF  
 EXISTING REMAINING IMPERVIOUS PLAY AREA = 500 SF  
 PROPOSED BUILDING AREA (WITH OVERHANG) = 6,786 SF  
 BUILDING LOT COVERAGE = 16,893 SF (24.9%)  
 EXISTING PARKING AREA = 16,455 SF  
 PROPOSED PARKING AREA = 4,130 SF  
 EXISTING SIDEWALK AREA = 2,397 SF  
 PROPOSED SIDEWALK AREA = 1,289 SF  
 PROPOSED WALL AREA = 158 SF  
 TOTAL SITE IMPERVIOUS AREA = 41,885 SF  
 PERMITTED ALLOWABLE IMPERVIOUS AREA = 42,000 SF

**BUILDING HEIGHTS:**

EXISTING BUILDING: 2 STORY - 35' HEIGHT  
 PROPOSED BUILDING: 1 STORY - 25' HEIGHT

**BUILDING COVERAGES:**

EXISTING BUILDING:  
 1ST FLOOR: 7,413 SF  
 2ND FLOOR: 877 SF  
 TOTAL: 8,290 SF

PROPOSED BUILDING:  
 1ST FLOOR: 5,865 SF  
 TOTAL: 5,865 SF

**PARKING:**

PROPOSED (KENNEL USE):  
 MAXIMUM SPACES REQUIRED (5,865 SF/250) = 23 SPACES  
 MINIMUM SPACES REQUIRED (5,865 SF/400) = 15 SPACES  
 PARKING SPACES PROVIDED = 18 SPACES  
 HANDICAP SPACES REQUIRED = 3 (1 VAN ACCESSIBLE)  
 HANDICAP SPACES PROVIDED = 3 (ALL VAN ACCESSIBLE)  
 EXISTING PARKING SPACES = 46 SPACES

**BICYCLE PARKING:**

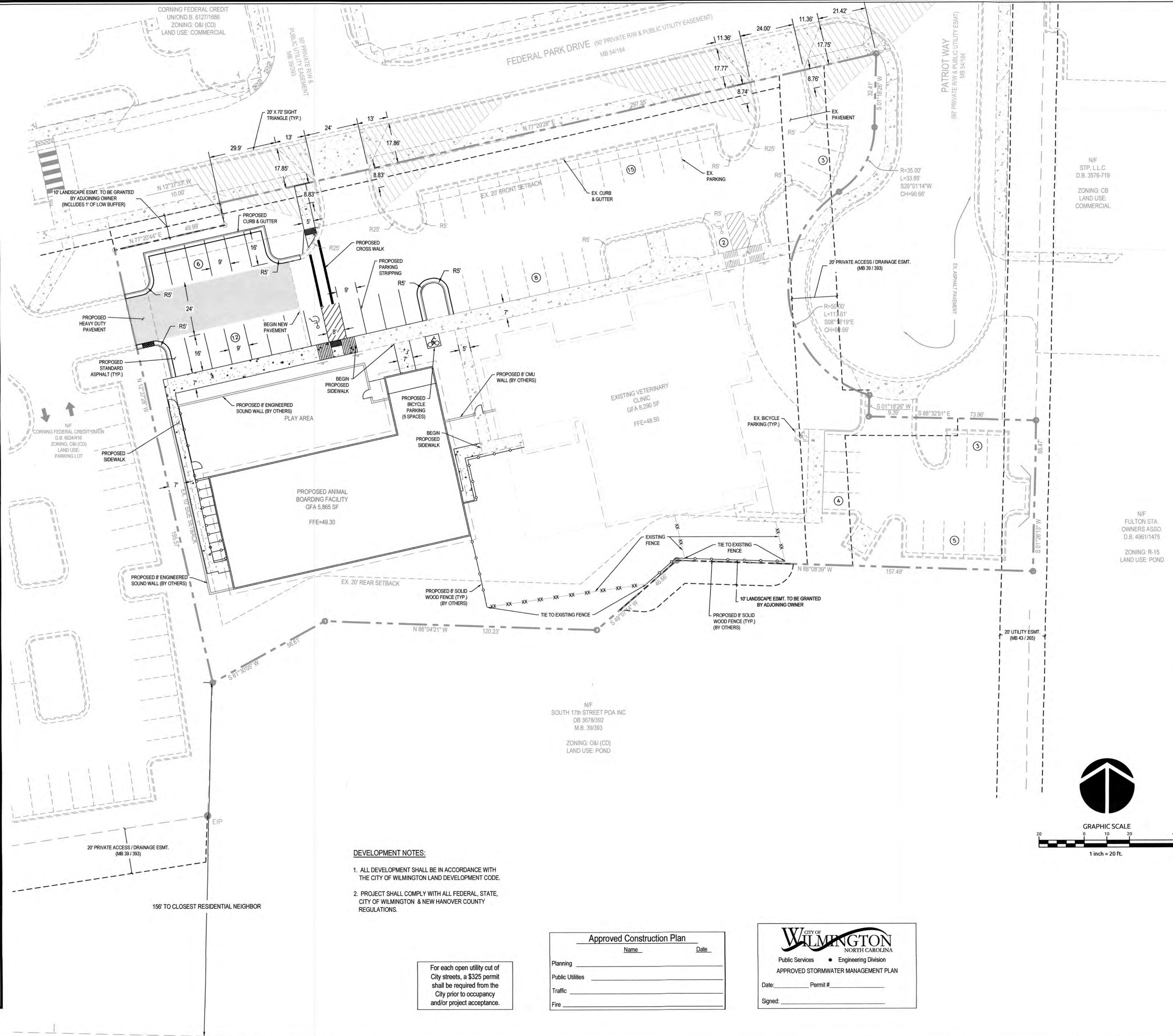
EXISTING: 5 SPACES  
 PROPOSED: 5 SPACES  
 TOTAL: 10 SPACES

**BUILDING SETBACKS:**

FRONT - 20 FT  
 SIDES - 10 FT  
 REAR - 20 FT

**PROPOSED BUILDING DISTANCES:**

FRONT - 106 FT  
 SIDE - 20 FT  
 REAR - 22 FT



**DEVELOPMENT NOTES:**

1. ALL DEVELOPMENT SHALL BE IN ACCORDANCE WITH THE CITY OF WILMINGTON LAND DEVELOPMENT CODE.
2. PROJECT SHALL COMPLY WITH ALL FEDERAL, STATE, CITY OF WILMINGTON & NEW HANOVER COUNTY REGULATIONS.

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

**Approved Construction Plan**

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

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

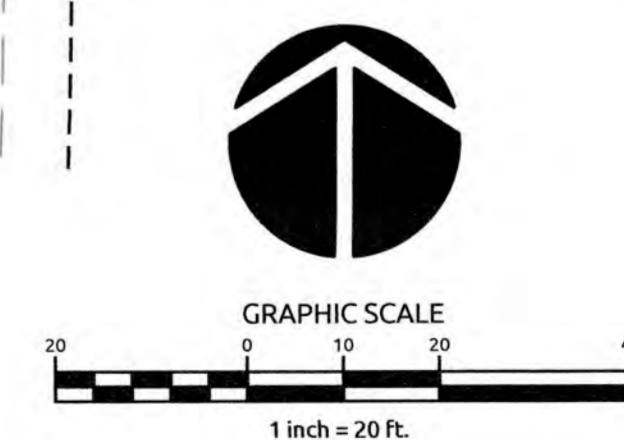
**CITY OF WILMINGTON**  
 NORTH CAROLINA

Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: \_\_\_\_\_ Permit # \_\_\_\_\_

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



**WithersRavenel**  
 Engineers | Planners | Surveyors

219 Station Road | Ste 101 | Wilmington, NC 28403 | t: 910.254.9277 | license #: C-0632 | www.withersravenel.com

**NEEDHAM ANIMAL HOSPITAL EXPANSION**

WILMINGTON, NC

**SITE PLAN**

|         |           |          |     |
|---------|-----------|----------|-----|
| Job No. | 03-170548 | Drawn By | TMG |
| Date    | 03/29/18  | Designer | JSB |

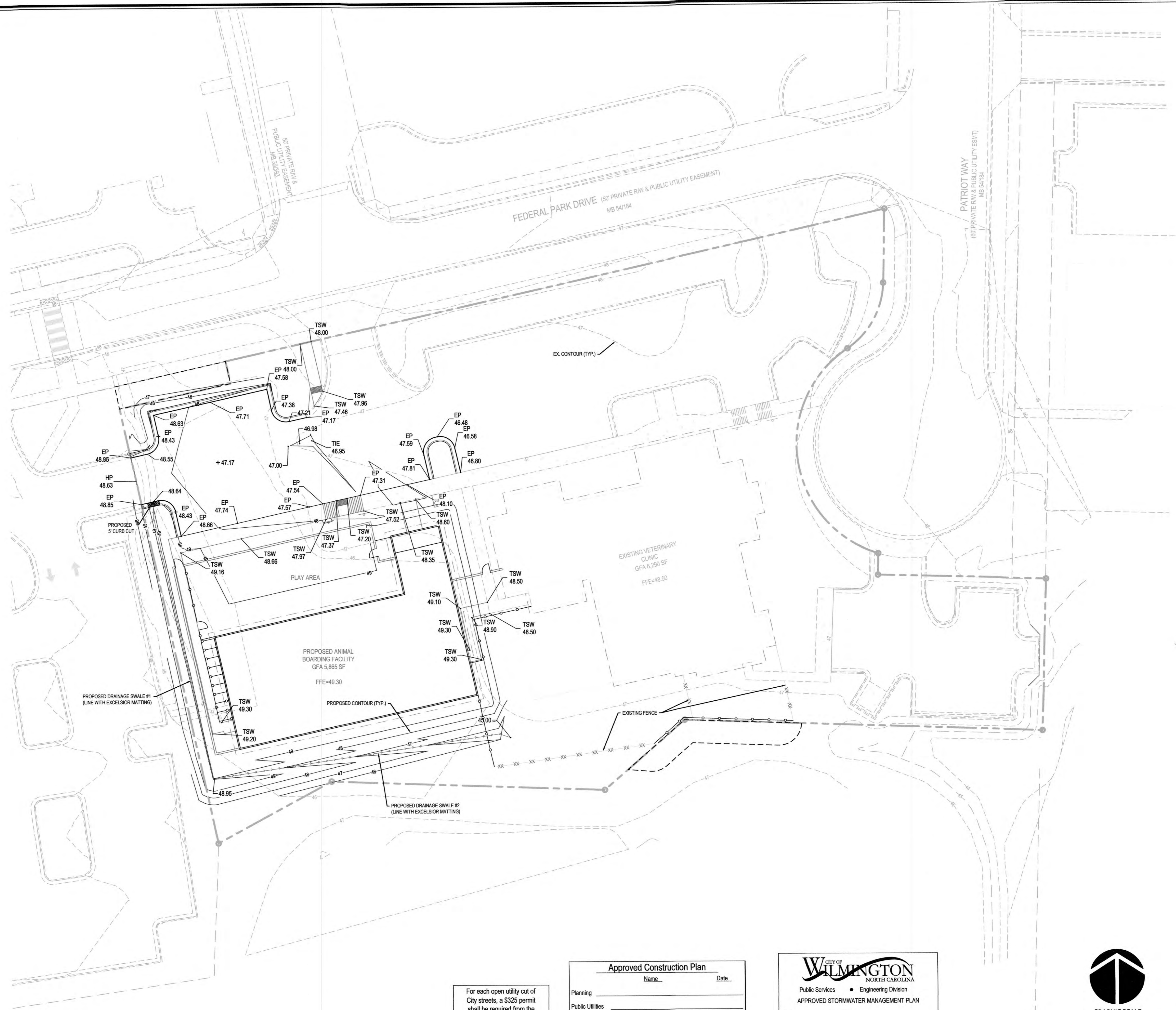
| Revisions |   |          |
|-----------|---|----------|
| 1         | COW & NHC REVIEW COMMENTS               | 10.05.18 |
| 2         | REVISIONS PER REZONING AND COW COMMENTS | 07.10.19 |

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Sheet No.  
**C2.0**

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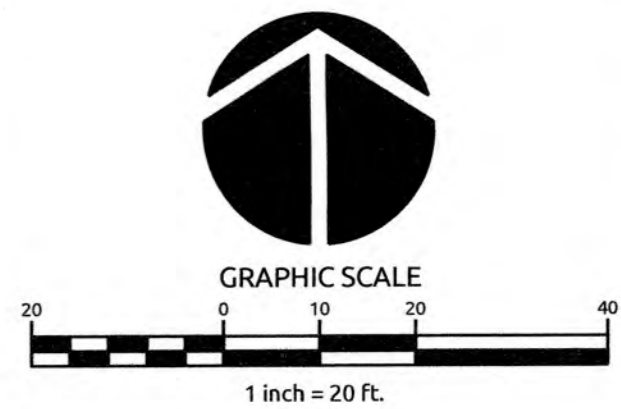
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**Approved Construction Plan**  
 Name \_\_\_\_\_ Date \_\_\_\_\_  
 Planning \_\_\_\_\_  
 Public Utilities \_\_\_\_\_  
 Traffic \_\_\_\_\_  
 Fire \_\_\_\_\_

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



**NEEDHAM ANIMAL  
 HOSPITAL EXPANSION**  
 WILMINGTON, NC

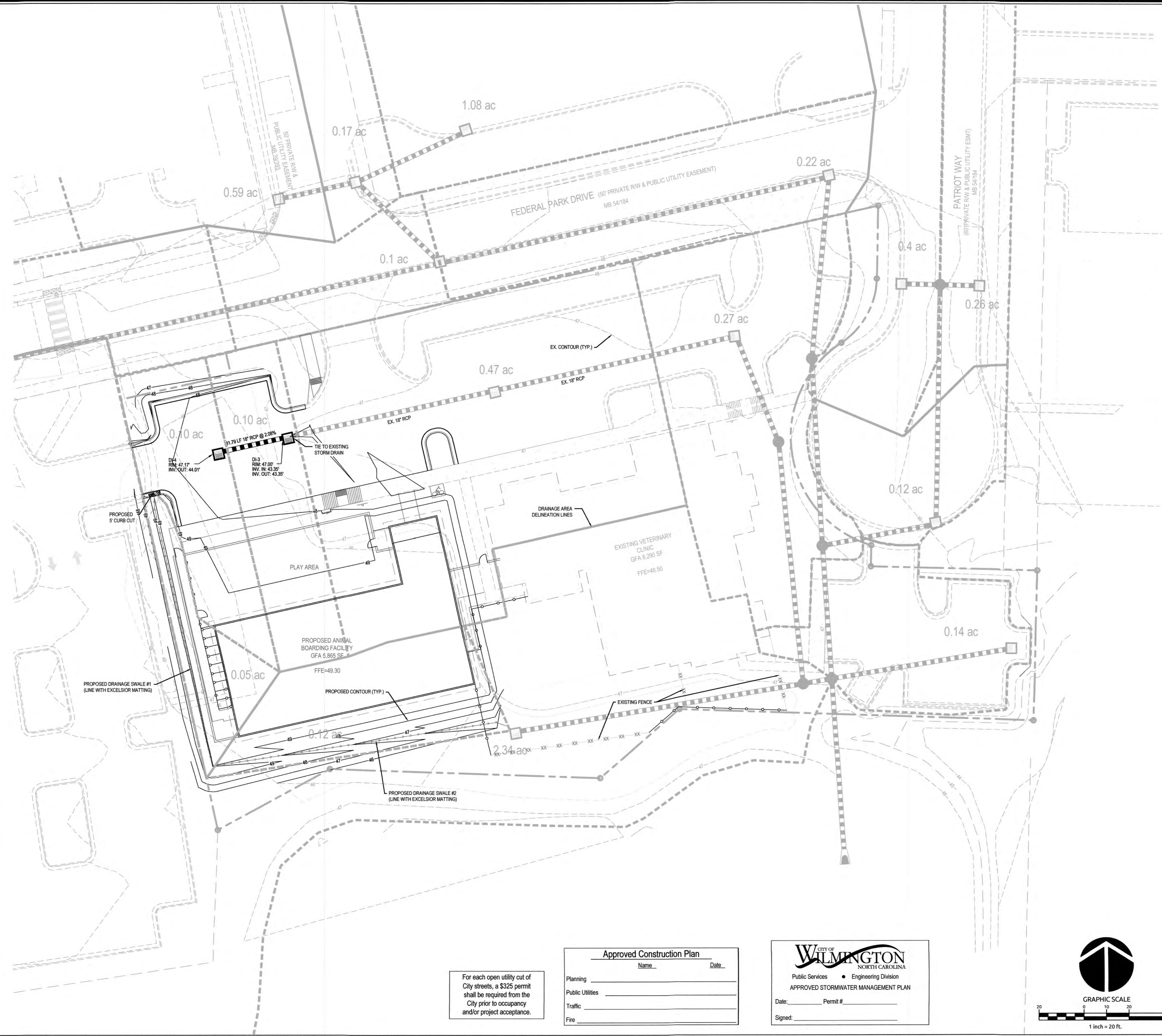
**GRADING PLAN**

|         |           |          |     |
|---------|-----------|----------|-----|
| Job No. | 03-170548 | Drawn By | TMG |
| Date    | 03/29/18  | Designer | JSB |

| Revisions |  |
|-----------|--|
| 1         | COW & NHC REVIEW COMMENTS 10.05.18               |
| 2         | REVISIONS PER REZONING AND COW COMMENTS 07.10.19 |

Job No. 03-170548 Drawn By TMG  
Date 03/29/18 Designer JSB

| Revisions |   |          |
|-----------|---|----------|
| 1         | COW & NHC REVIEW COMMENTS               | 10.05.18 |
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| IMPERVIOUS SURFACES |                  |
|---------------------|------------------|
| ON-SITE BUILDINGS:  | 16,956 SF        |
| ON-SITE STREETS:    | 0 SF             |
| ON-SITE PARKING:    | 20,585 SF        |
| ON-SITE SIDEWALK:   | 3,686 SF         |
| OTHER ON-SITE:      | 658 SF           |
| FUTURE:             | 115 SF           |
| OFF-SITE:           | 0 SF             |
| <b>TOTAL:</b>       | <b>42,000 SF</b> |

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**Approved Construction Plan**

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

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

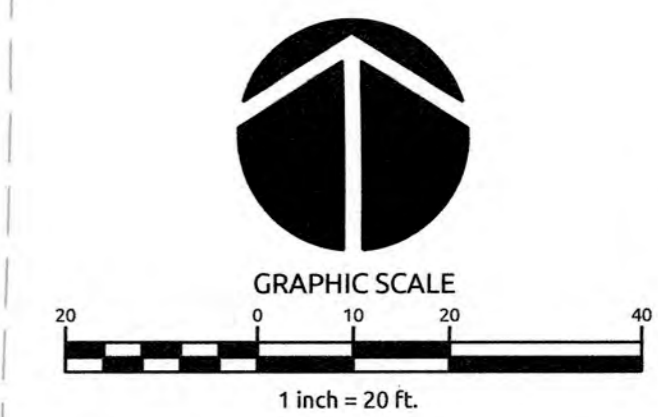
**CITY OF WILMINGTON**  
NORTH CAROLINA

Public Services • Engineering Division

**APPROVED STORMWATER MANAGEMENT PLAN**

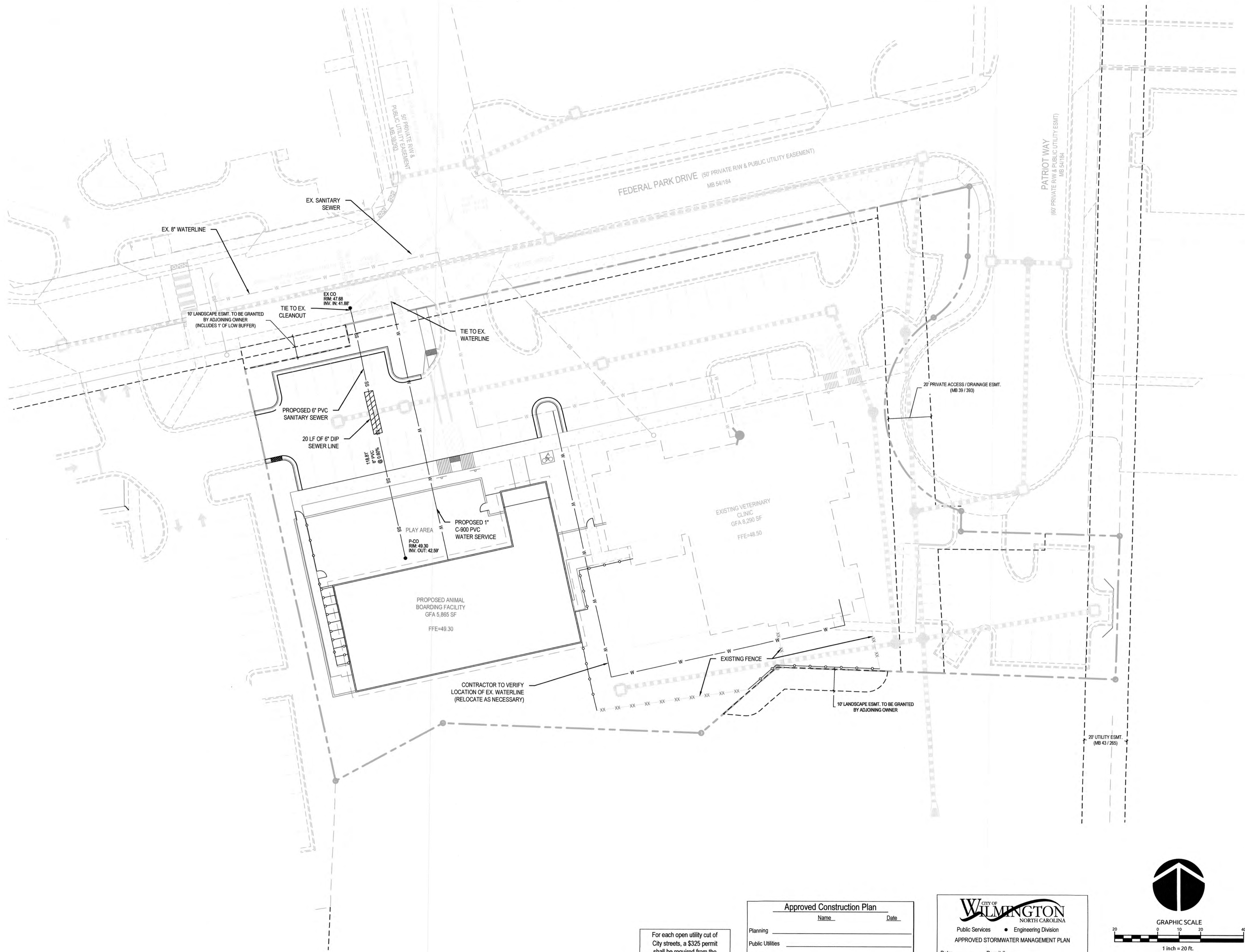
Date: \_\_\_\_\_ Permit # \_\_\_\_\_

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



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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.

**Approved Construction Plan**

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

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

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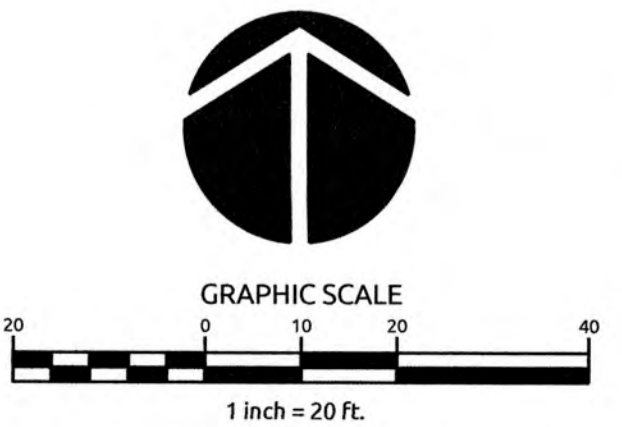
**CITY OF WILMINGTON**  
NORTH CAROLINA

Public Services • Engineering Division

**APPROVED STORMWATER MANAGEMENT PLAN**

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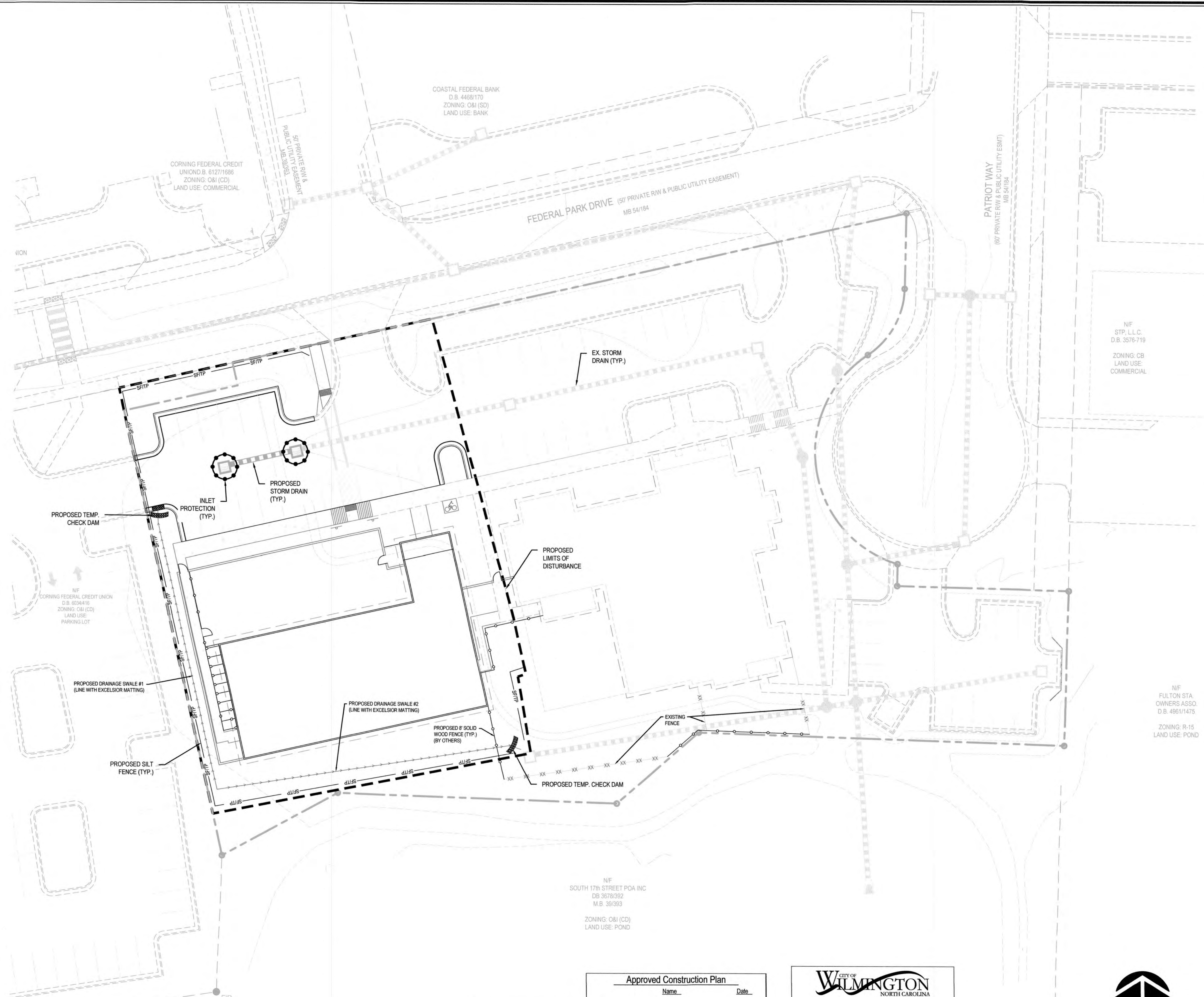


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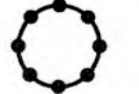
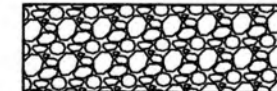

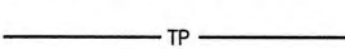
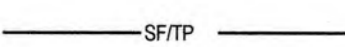
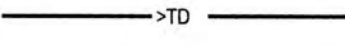


| Revisions |   |          |
|-----------|---|----------|
| 1         | COW & NHC REVIEW COMMENTS               | 10.05.18 |
| 2         | REVISIONS PER REZONING AND COW COMMENTS | 07.10.19 |

TOTAL AREA DISTURBED = 0.60 AC



**LEGEND**

-  TEMPORARY INLET PROTECTION
-  TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
-  CONSTRUCTION DISTURBANCE LIMIT
-  TEMPORARY TREE PROTECTION FENCE
-  TEMPORARY SILT/TREE PROTECTION FENCE
-  TEMPORARY DIVERSION DITCH

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**Approved Construction Plan**

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

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

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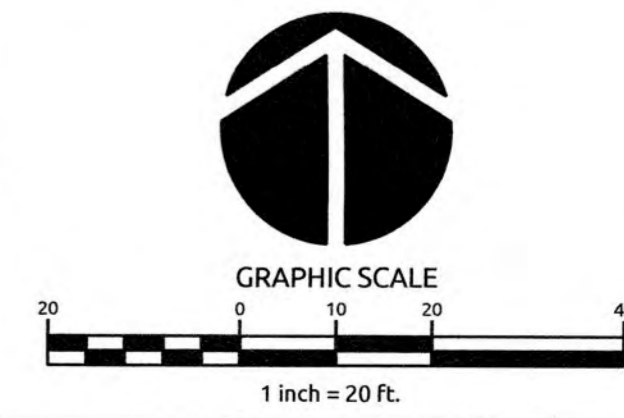
**CITY OF WILMINGTON**  
NORTH CAROLINA

Public Services • Engineering Division

**APPROVED STORMWATER MANAGEMENT PLAN**

Date: \_\_\_\_\_ Permit # \_\_\_\_\_

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



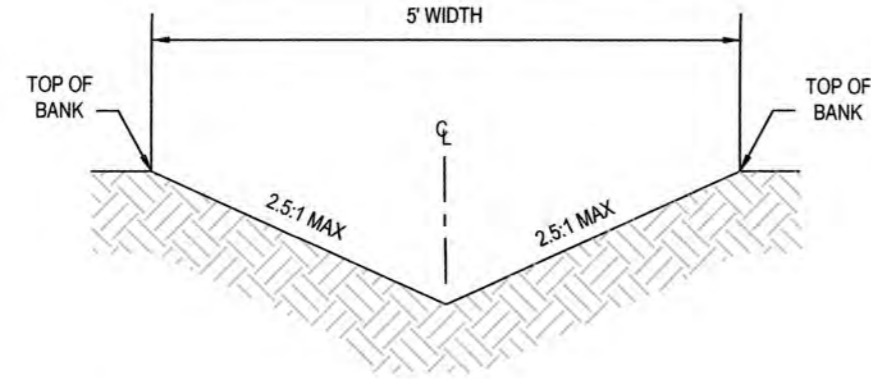
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|---------|-----------|----------|-----|
| Job No. | 03-170548 | Drawn By | TMG |
| Date    | 03/29/18  | Designer | JSB |

|           |                           |          |
|-----------|---------------------------|----------|
| Revisions |                           |          |
| 1         | COW & NHC REVIEW COMMENTS | 10.05.18 |

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| Sheet No. |  |
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### 5' TRIANGULAR SWALE CROSS SECTION DETAIL

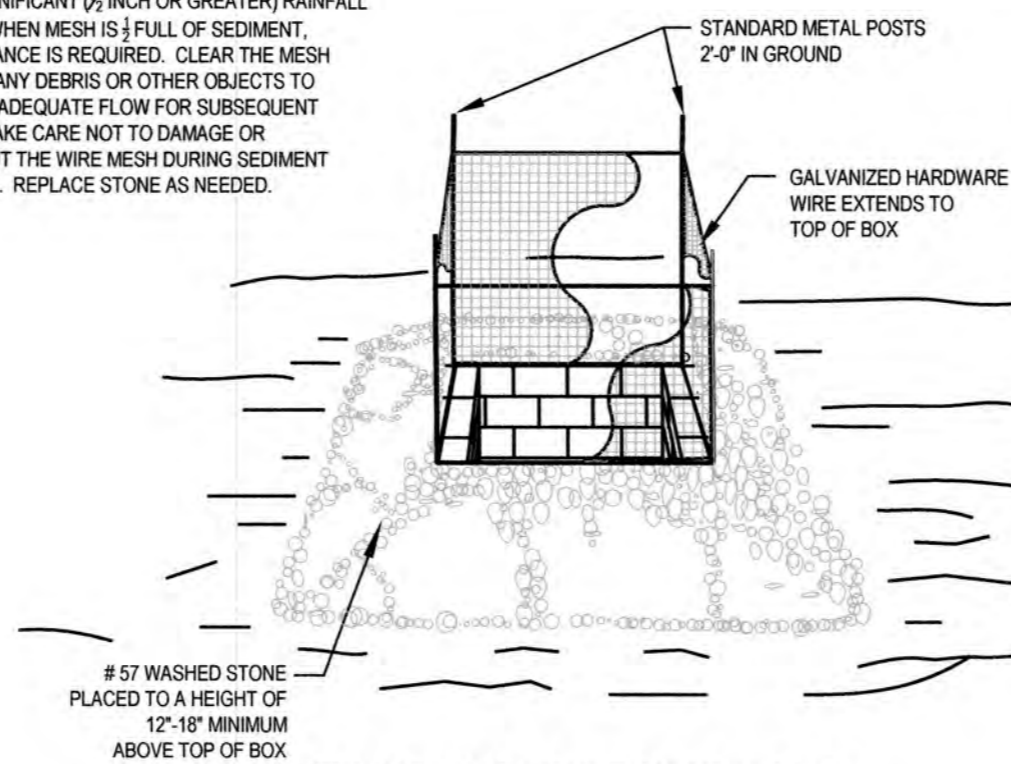


NOT TO SCALE

#### SWALE CALCULATIONS

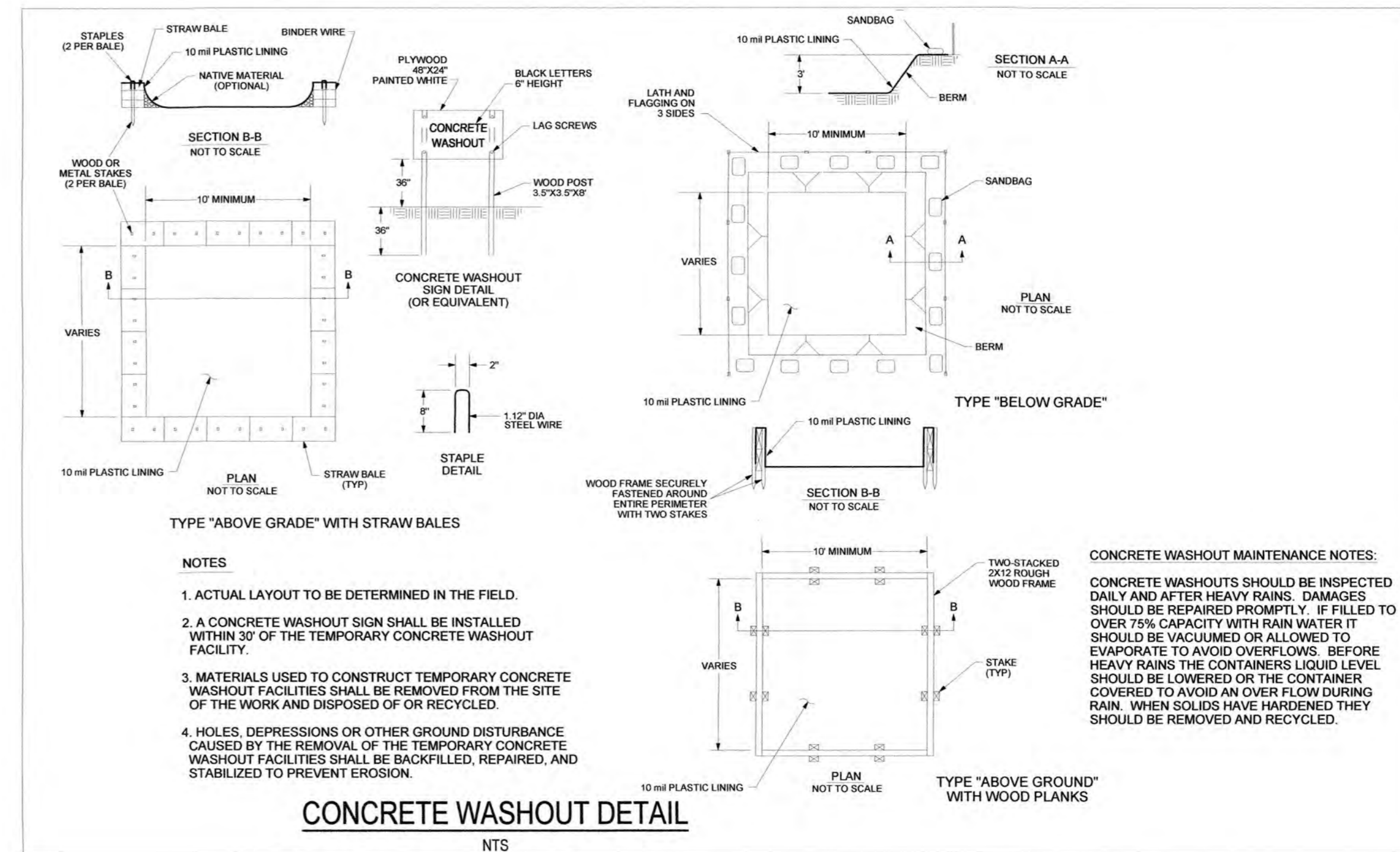
| SWALE NO. | DRAINAGE AREA (AC.) | STARTING ELEV. | ENDING ELEV. | LENGTH | AVERAGE SLOPE | CROSS SLOPE | SWALE TYPE | TEMPORARY LINER   | SWALE LINER |
|-----------|---------------------|----------------|--------------|--------|---------------|-------------|------------|-------------------|-------------|
| 1         | 0.05                | 48.64'         | 48.95'       | 125'   | 0.25%         | 2.5:1       | TRIANGULAR | EXCELSIOR MATTING | GRASS       |
| 2         | 0.12                | 48.95'         | 45.00'       | 133'   | 3.10%         | 2.5:1       | TRIANGULAR | EXCELSIOR MATTING | GRASS       |

**MAINTENANCE:**  
INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT. WHEN MESH IS FULL OF SEDIMENT, MAINTENANCE IS REQUIRED. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.



### STANDARD CATCH BASIN/ YARD INLET PROTECTION

NTS

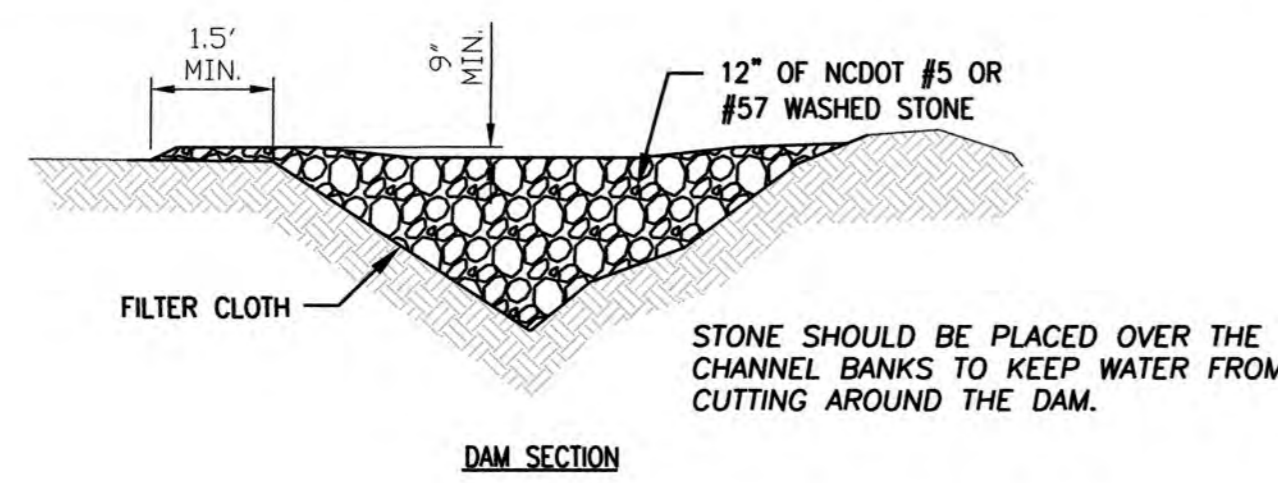


### CONCRETE WASHOUT DETAIL

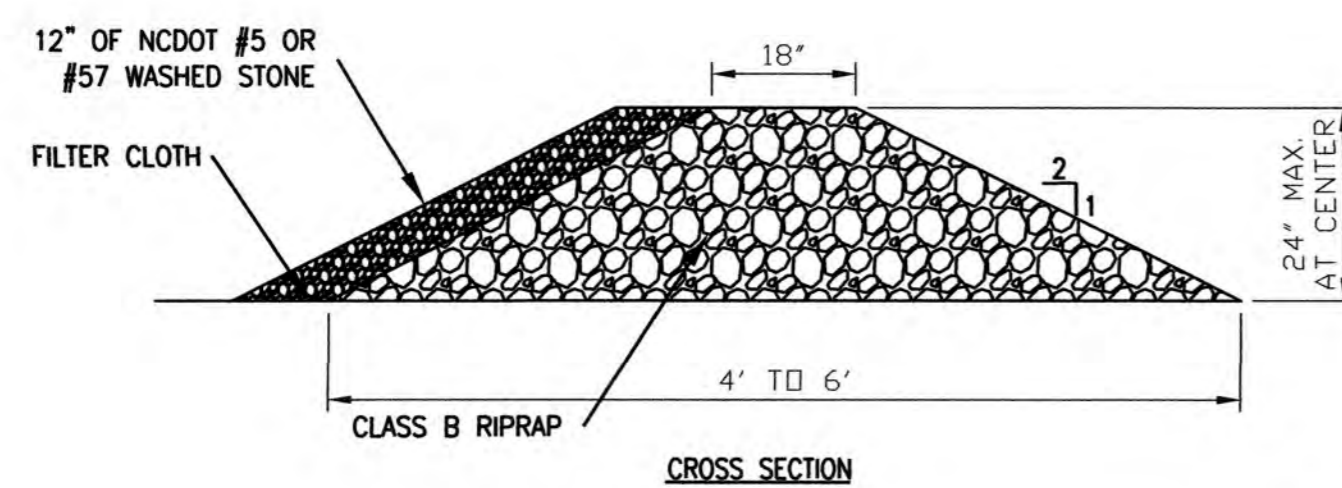
NTS

- NOTES**
1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
  2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
  3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.
  4. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.

**CONCRETE WASHOUT MAINTENANCE NOTES:**  
CONCRETE WASHOUTS SHOULD BE INSPECTED DAILY AND AFTER HEAVY RAINS. DAMAGES SHOULD BE REPAIRED PROMPTLY. IF FILLED TO OVER 75% CAPACITY WITH RAIN WATER IT SHOULD BE VACUUMED OR ALLOWED TO EVAPORATE TO AVOID OVERFLOWS. BEFORE HEAVY RAINS THE CONTAINERS LIQUID LEVEL SHOULD BE LOWERED OR THE CONTAINER COVERED TO AVOID AN OVER FLOW DURING RAIN. WHEN SOLIDS HAVE HARDENED THEY SHOULD BE REMOVED AND RECYCLED.



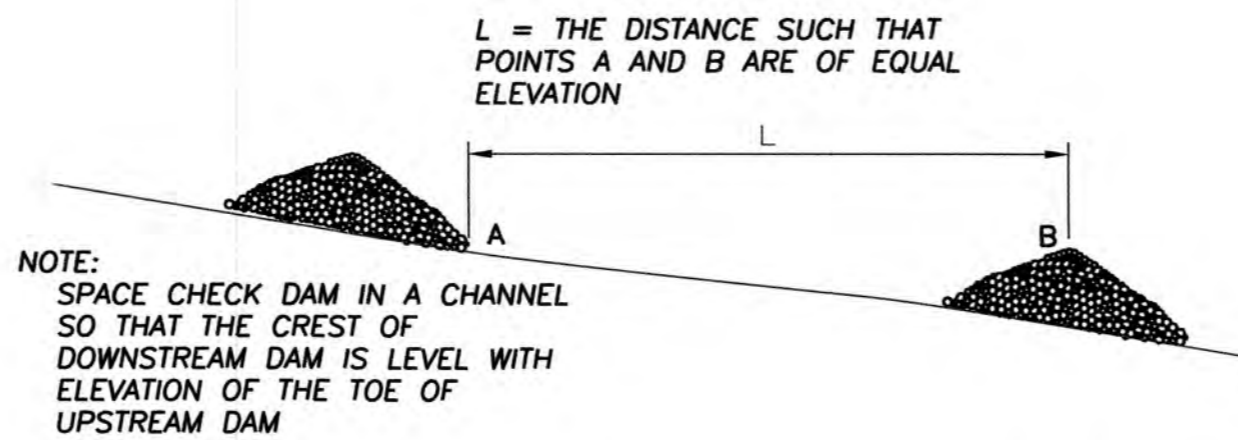
### DAM SECTION



### CROSS SECTION

### TEMPORARY CHECK DAM

NTS



#### MAINTENANCE

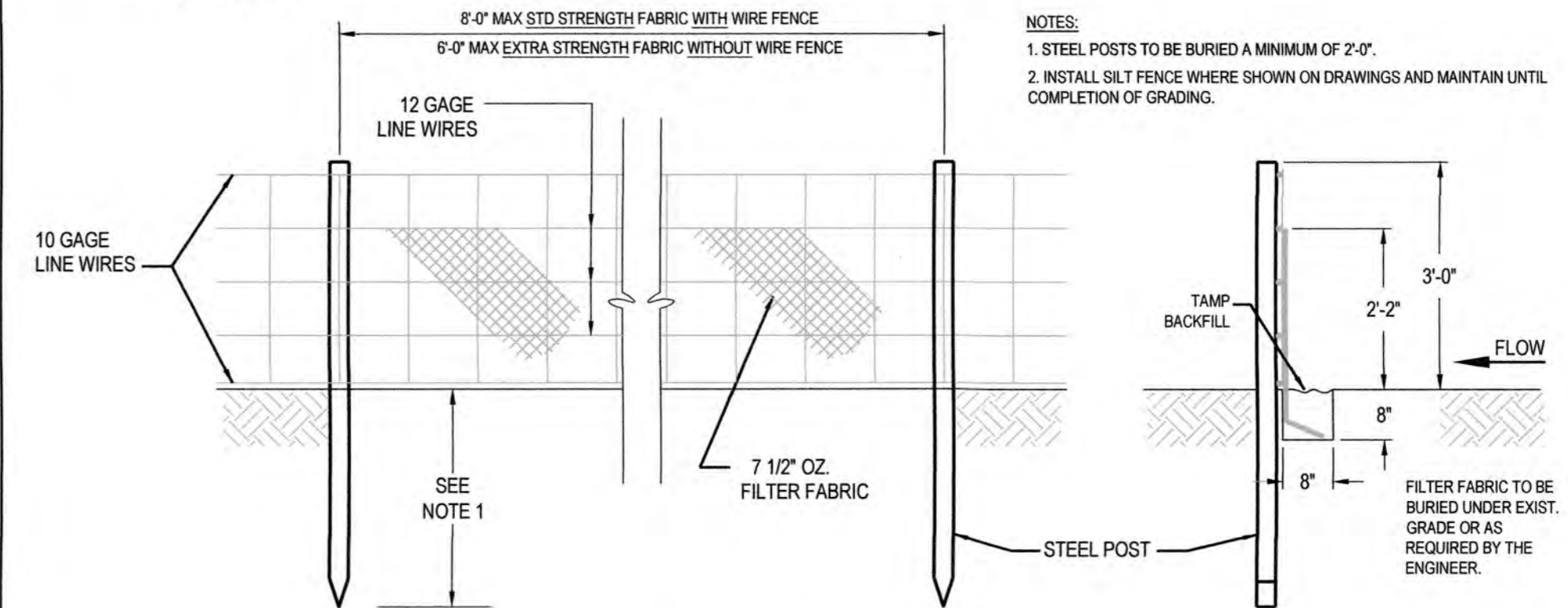
INSPECT CHECK DAMS AND CHANNELS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. CLEAN OUT SEDIMENT, STRAW, LIMBS, OR OTHER DEBRIS THAT COULD CLOG THE CHANNEL WHEN NEEDED.

ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS ROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, ADDITIONAL MEASURES CAN BE TAKEN SUCH AS, INSTALLING A PROTECTIVE RIP RAP LINER IN THE THAT PORTION OF THE CHANNEL.

REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION. ALLOW THE CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM, AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM. ADD STONES TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.

#### MAINTENANCE:

1. INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. SHOULD THE FABRIC OF THE SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
3. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.
4. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.



### SILT FENCE

NTS

#### SEEDBED PREPARATION:

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2. RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL.
5. CONTINUE TILLAGE UNTIL A WELL PULVERIZED, FIRM REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDBED AREAS AND MAKE NECESSARY REPAIRS OR RE-SEEDINGS WITHIN THE PLANTING SEASON. IF POSSIBLE IF STAND SHOULD BE OVER 60% DAMAGED, RE-ESTABLISH FOLLOWING ORIGINAL LIME FERTILIZER AND SEEDING RATES.
9. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATES COMBINATIONS ARE POSSIBLE.

\*TEMPORARY-RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING.

**Approved Construction Plan**

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

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

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

**CITY OF WILMINGTON**  
NORTH CAROLINA

Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: \_\_\_\_\_ Permit # \_\_\_\_\_

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

NEEDHAM ANIMAL  
HOSPITAL EXPANSION

EROSION CONTROL  
DETAILS

Job No. 03-170548  
Date 03/29/18

Drawn By TMG  
Designer JSB

Revisions  
1 COW & NHC REVIEW COMMENTS 10.05.18

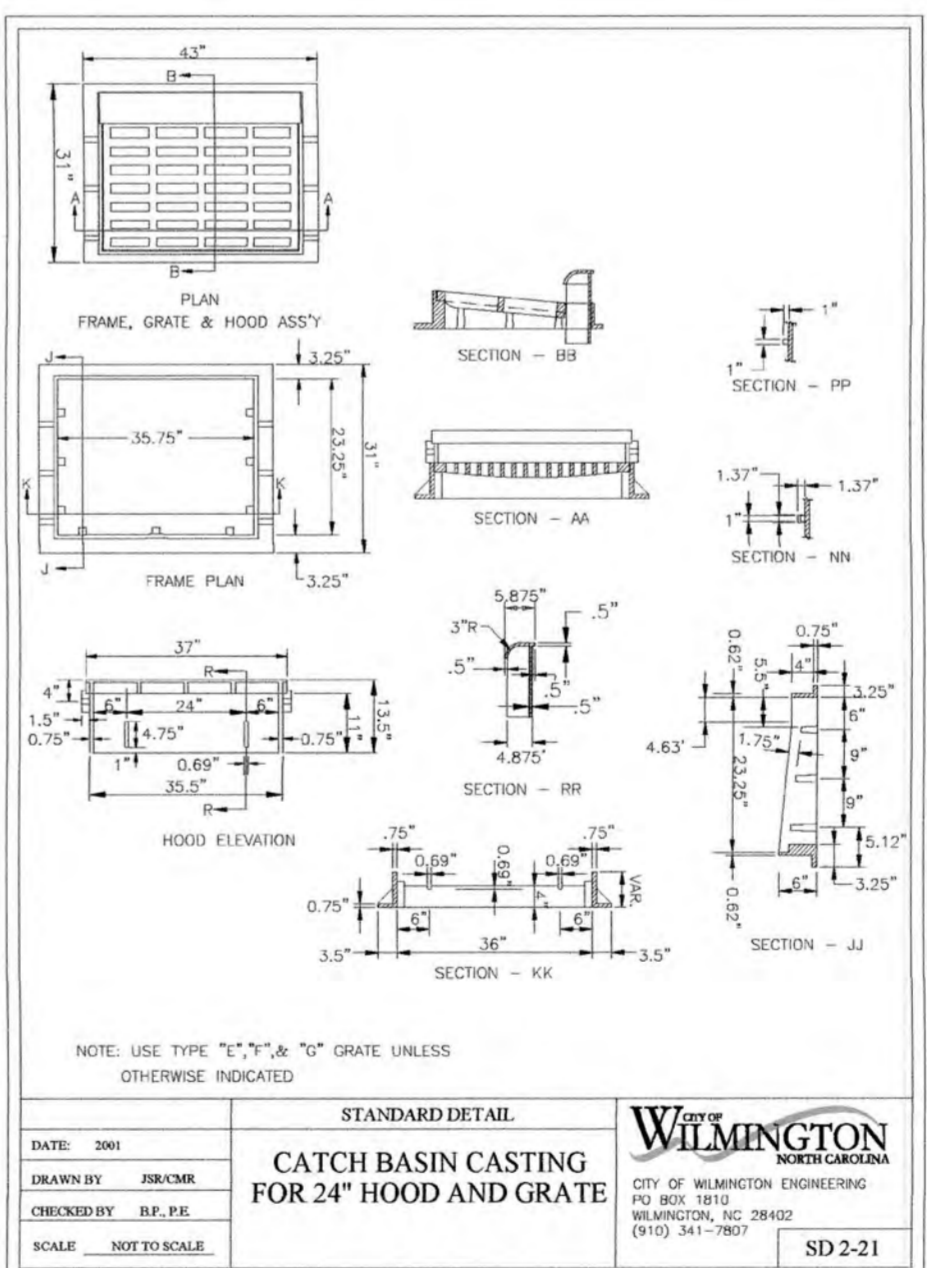
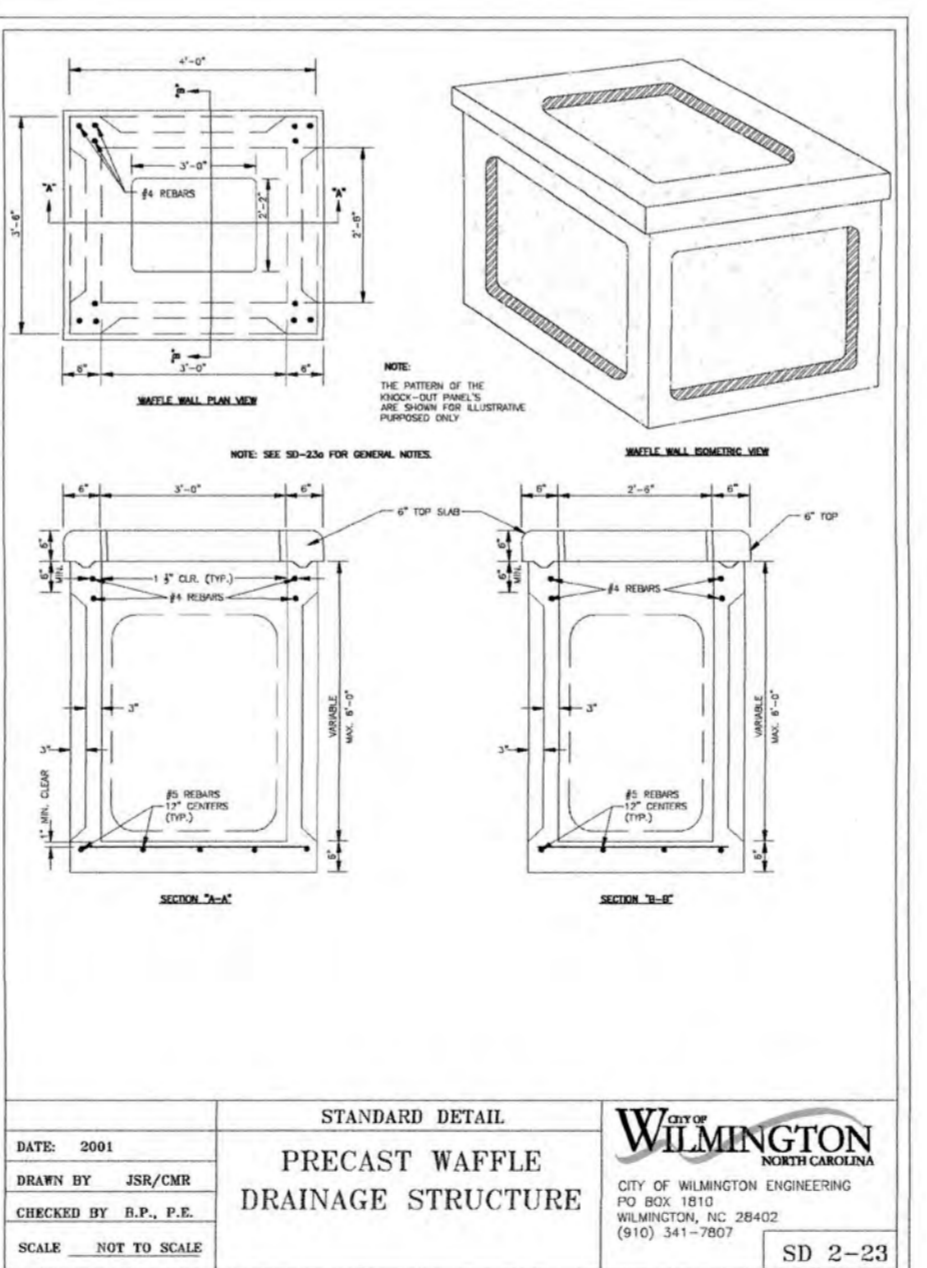
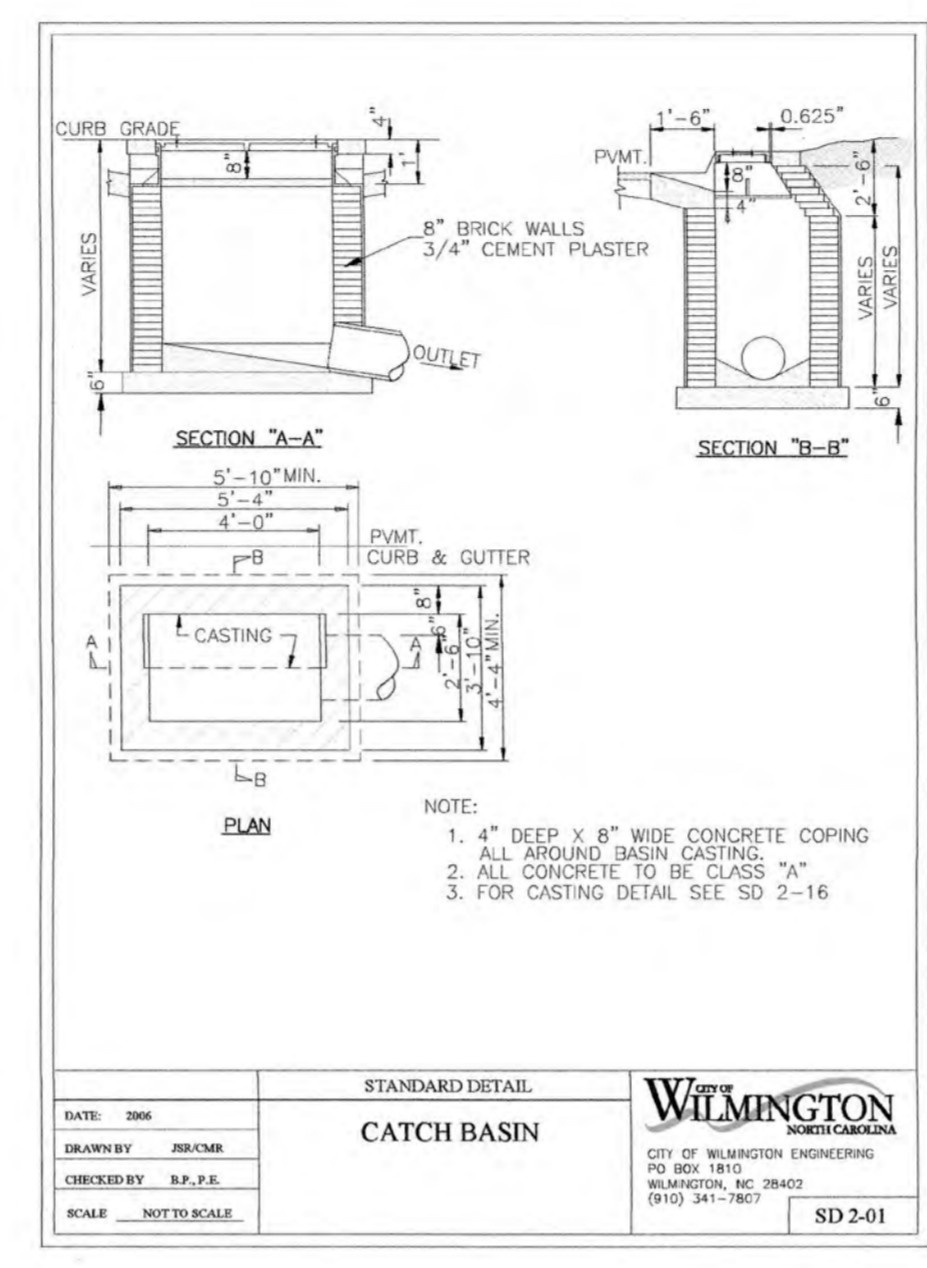
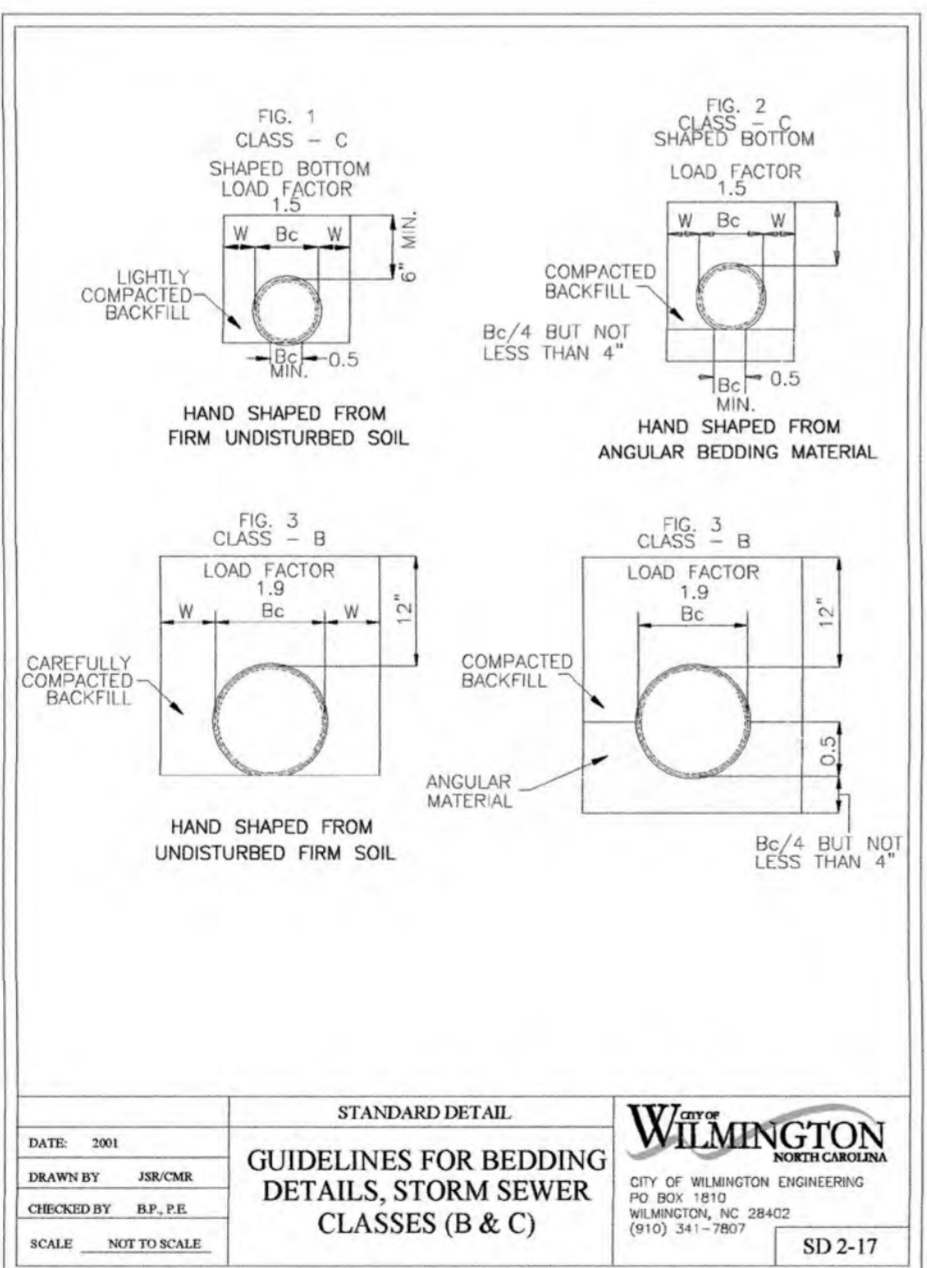
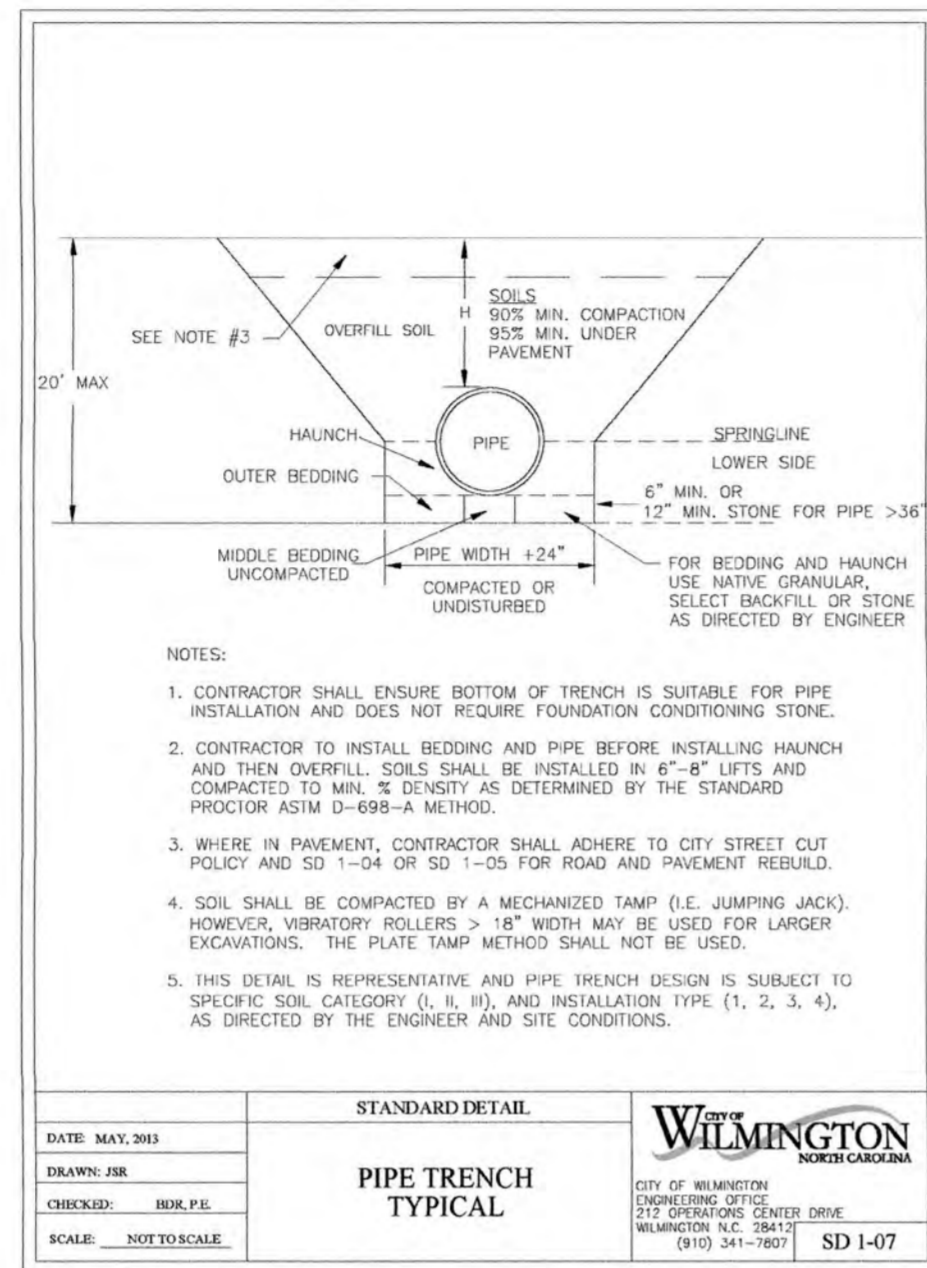
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**WithersRavenel**  
Engineers | Planners | Surveyors

WILMINGTON, NC

219 Station Road | Ste. 101 | Wilmington, NC 28405 | t: 910.256.9277 | license #: C-0832 | www.withersravenel.com

W:\17-0540\170548-needham animal hospital expansion\CAD\civil\dwg\SD 2-17.dwg, Monday, July 8, 2019 2:22:53 PM, GARRICH, TOM



TYPICAL DETAILS NOTE:  
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**Approved Construction Plan**

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

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

**CITY OF WILMINGTON**  
 NORTH CAROLINA

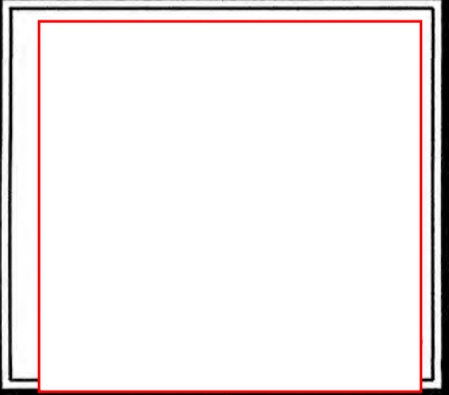
Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

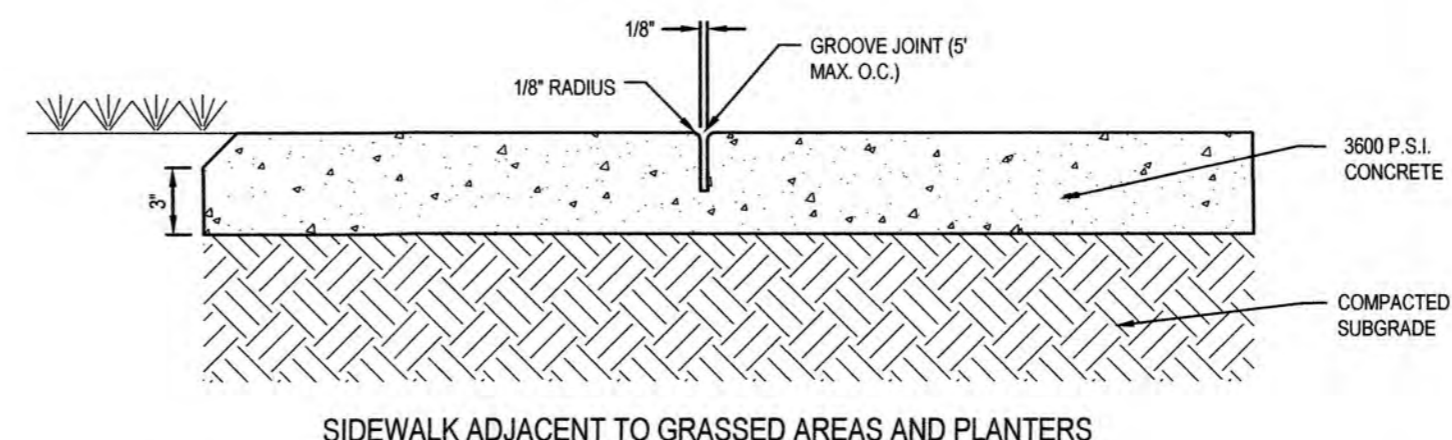
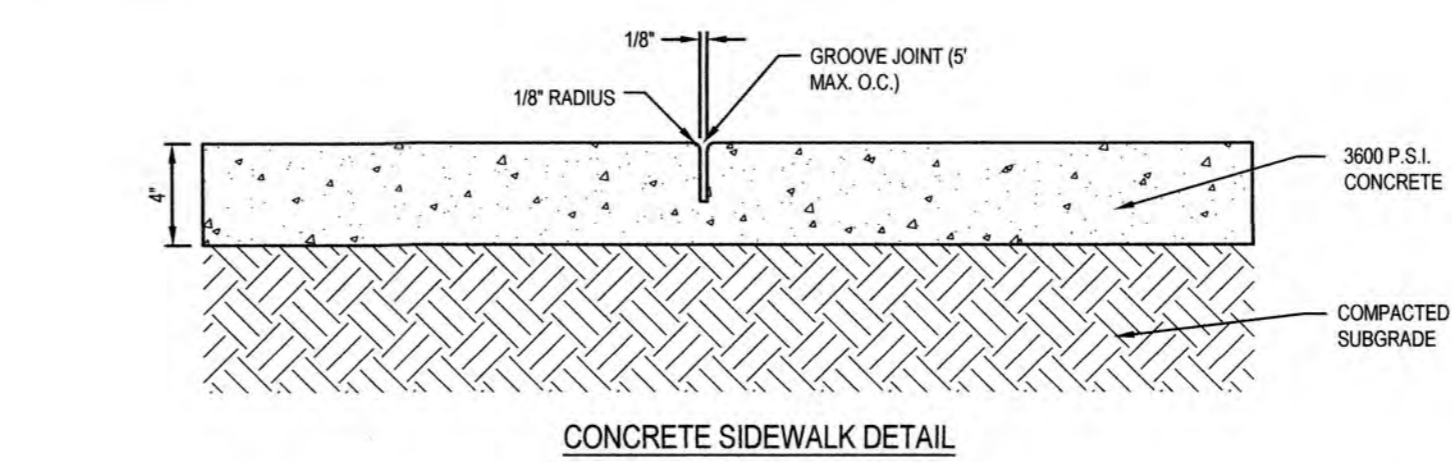
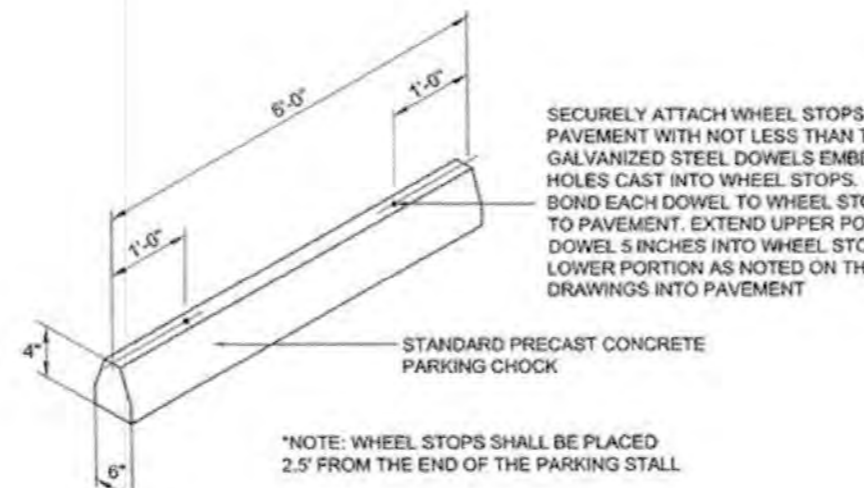
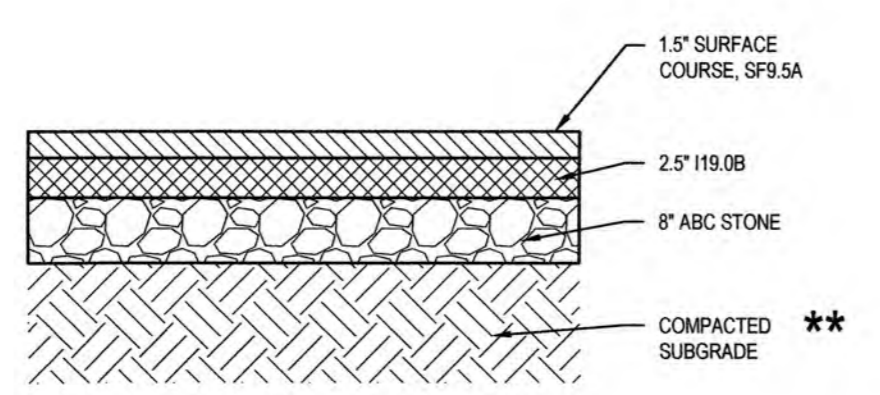
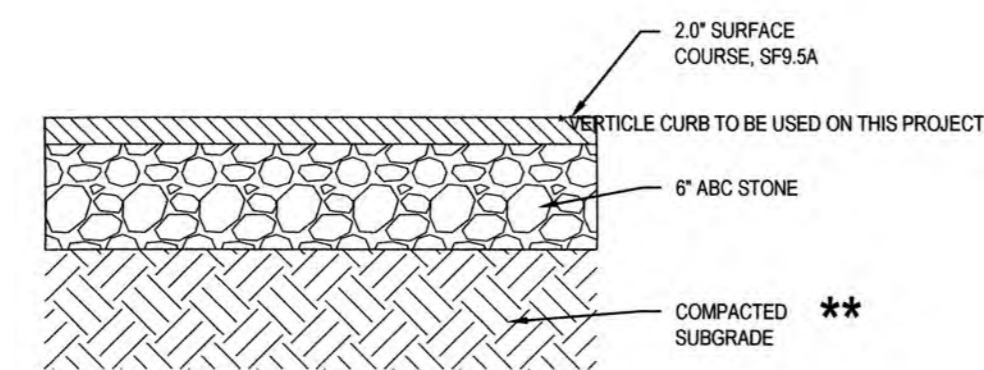
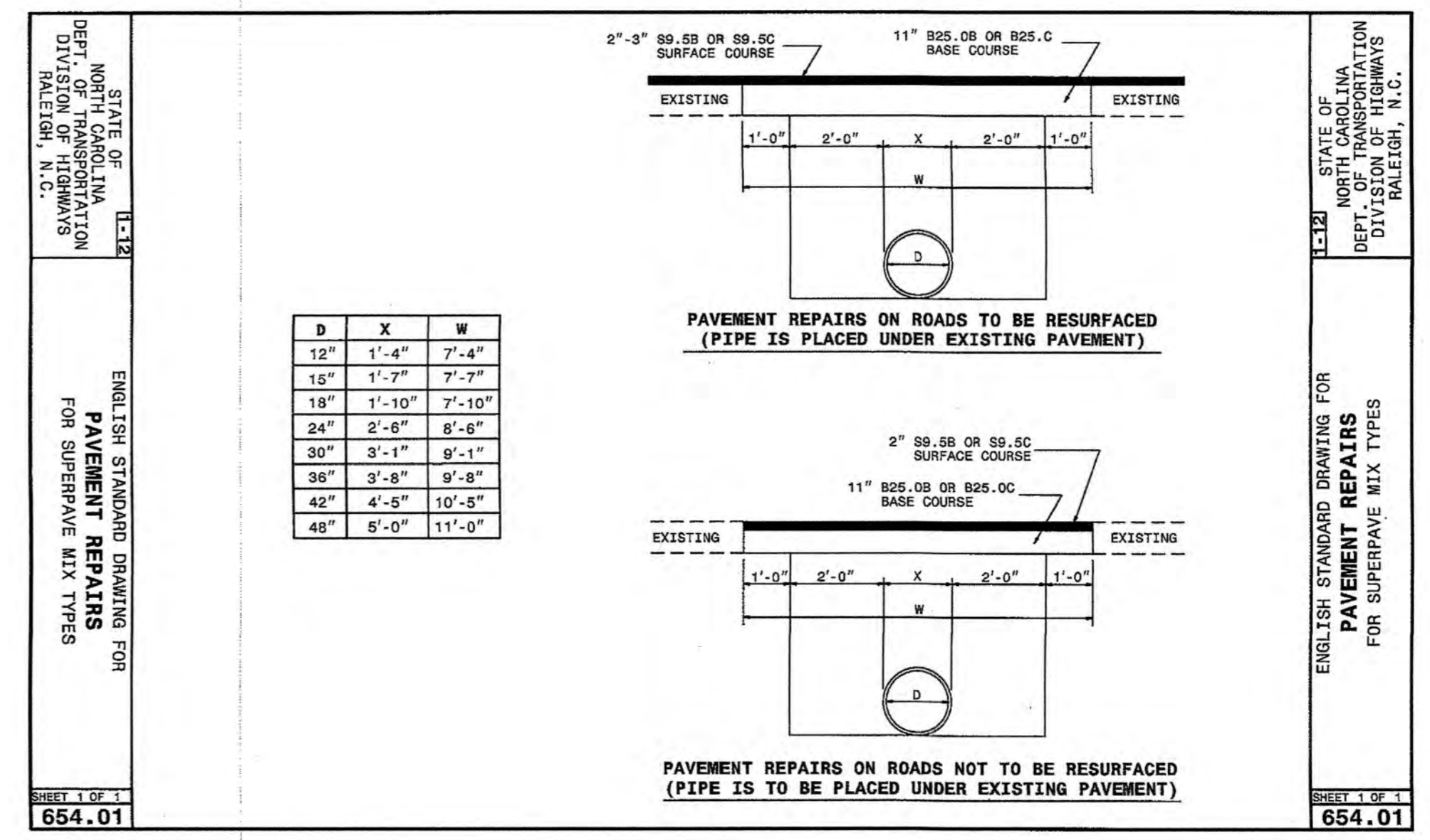
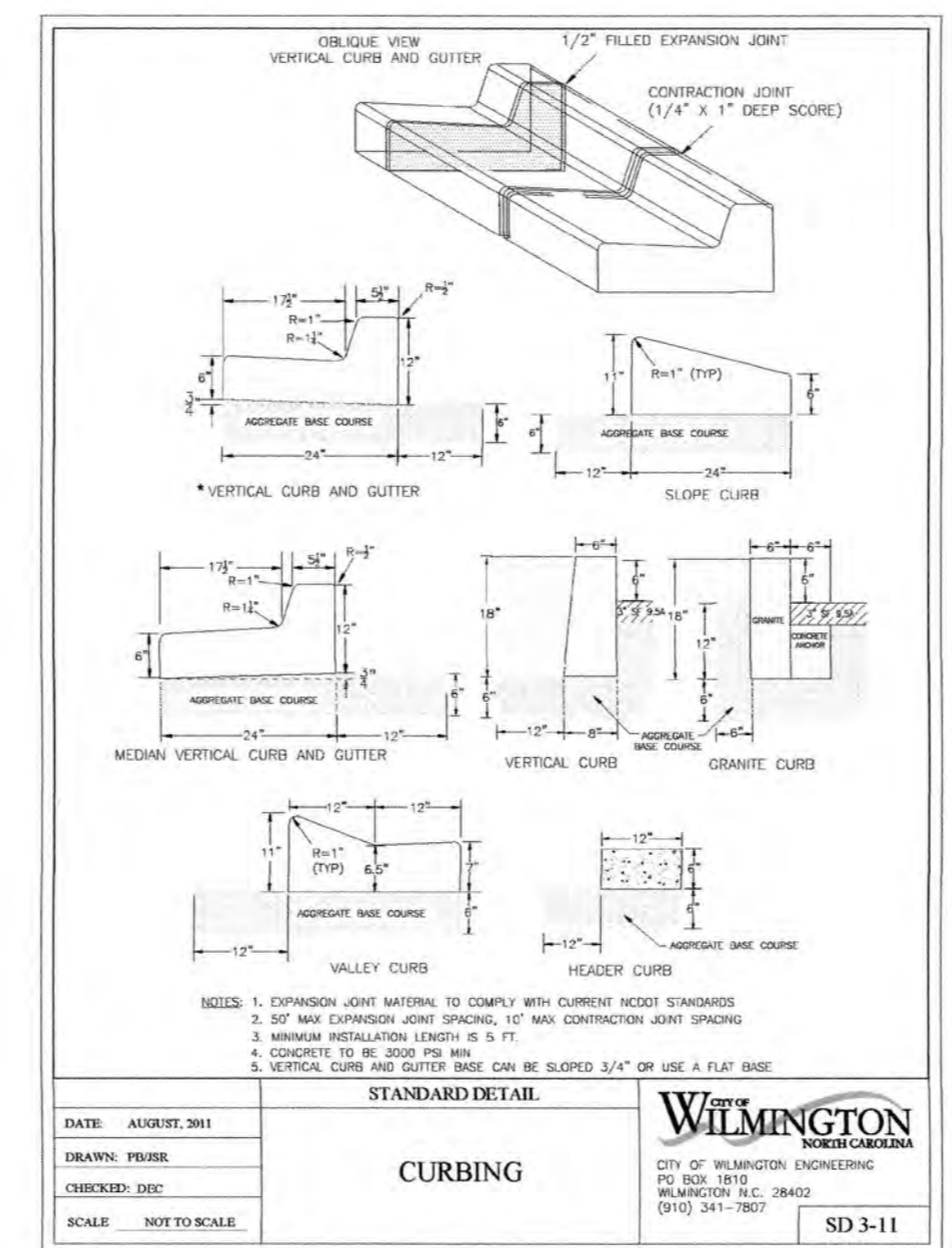
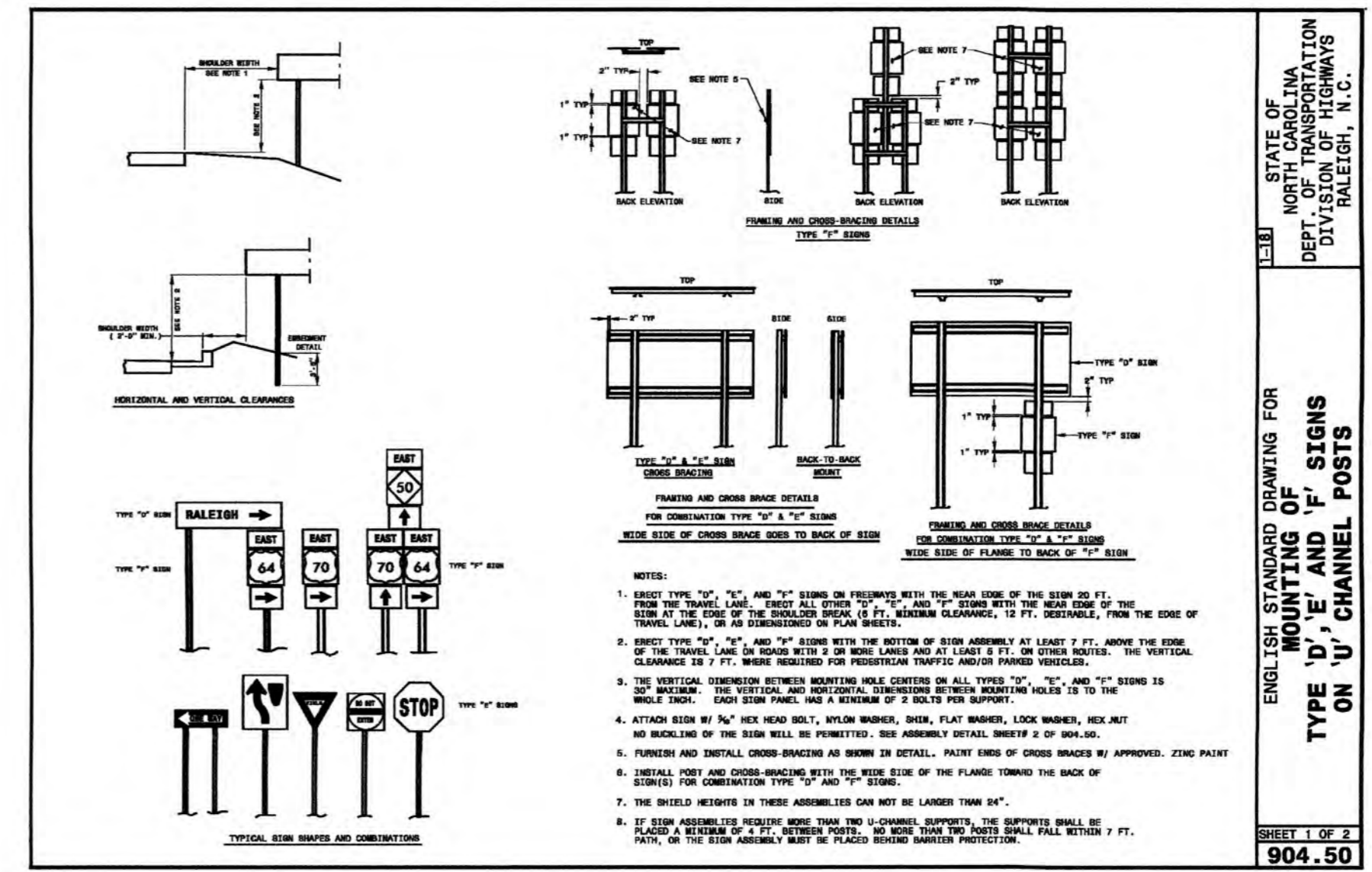
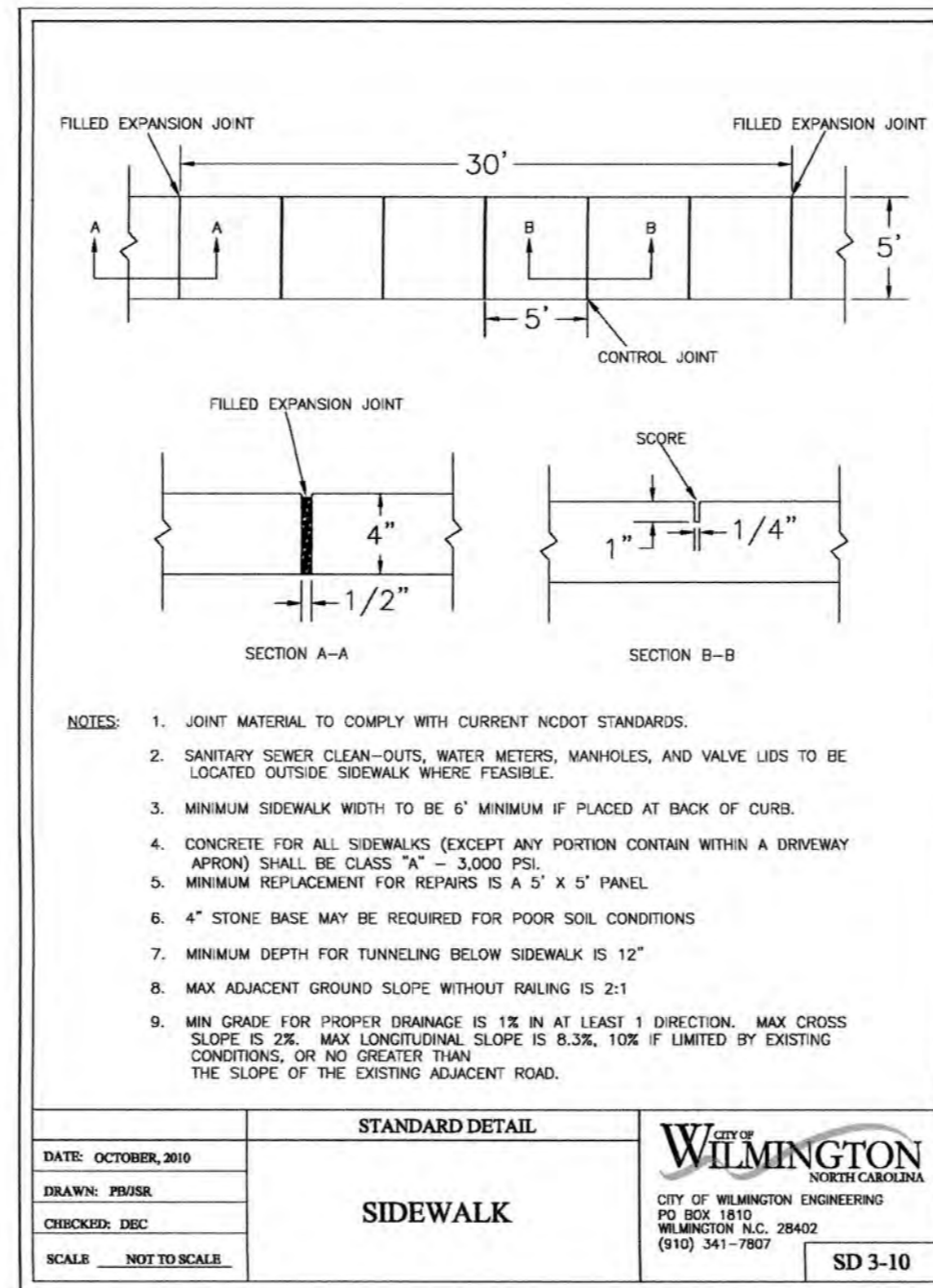
Date: \_\_\_\_\_ Permit # \_\_\_\_\_

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

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|---------|-----------|-----------|-----|
| Job No: | 03-170548 | Drawn By: | TMG |
| Date:   | 03/29/18  | Designer: | JSB |



| Revisions |                           |          |
|-----------|---------------------------|----------|
| 1         | COW & NHC REVIEW COMMENTS | 10.05.18 |
|           |                           |          |
|           |                           |          |
|           |                           |          |
|           |                           |          |



- GENERAL NOTES:**
- A GROOVE JOINT 1" DEEP WITH 1/8" RADI SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS.
  - ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 45' INTERVALS.
  - A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK ABUTS ANY CURB AND GUTTER AND ANY RIGID STRUCTURES.
  - IN SIDEWALKS AND PLAZA AREAS EXPANSION JOINTS ARE REQUIRED AT NO GREATER THAN 30' INTERVALS.
  - CONCRETE SHALL BE 3600 PSI. IN 28 DAYS.

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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 \_\_\_\_\_

**WithersRavenel**  
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**NEEDHAM ANIMAL HOSPITAL EXPANSION**

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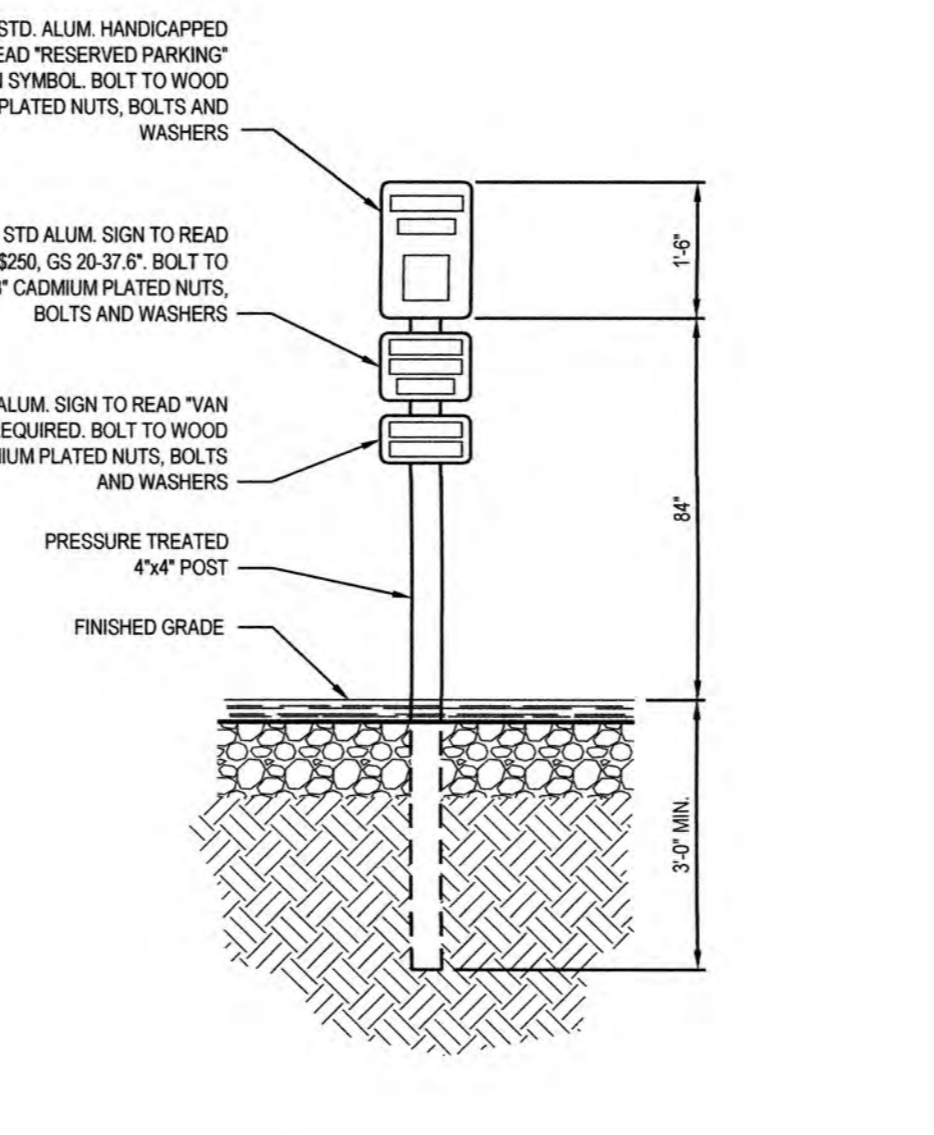
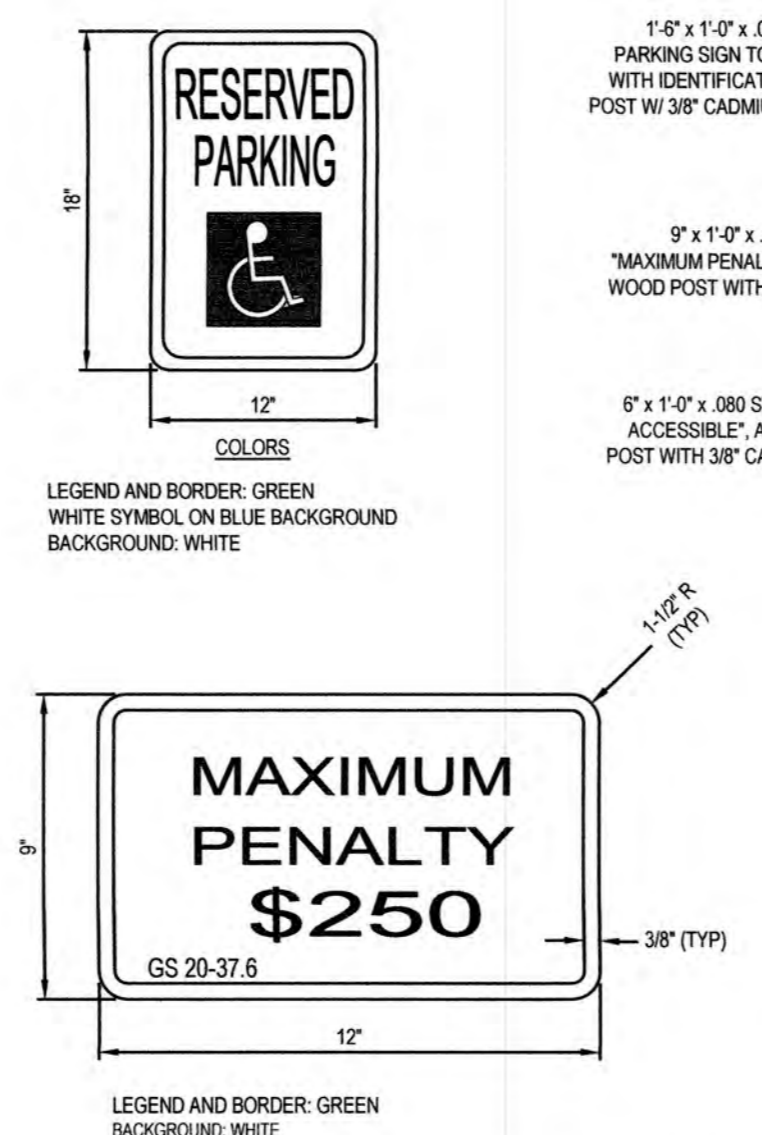
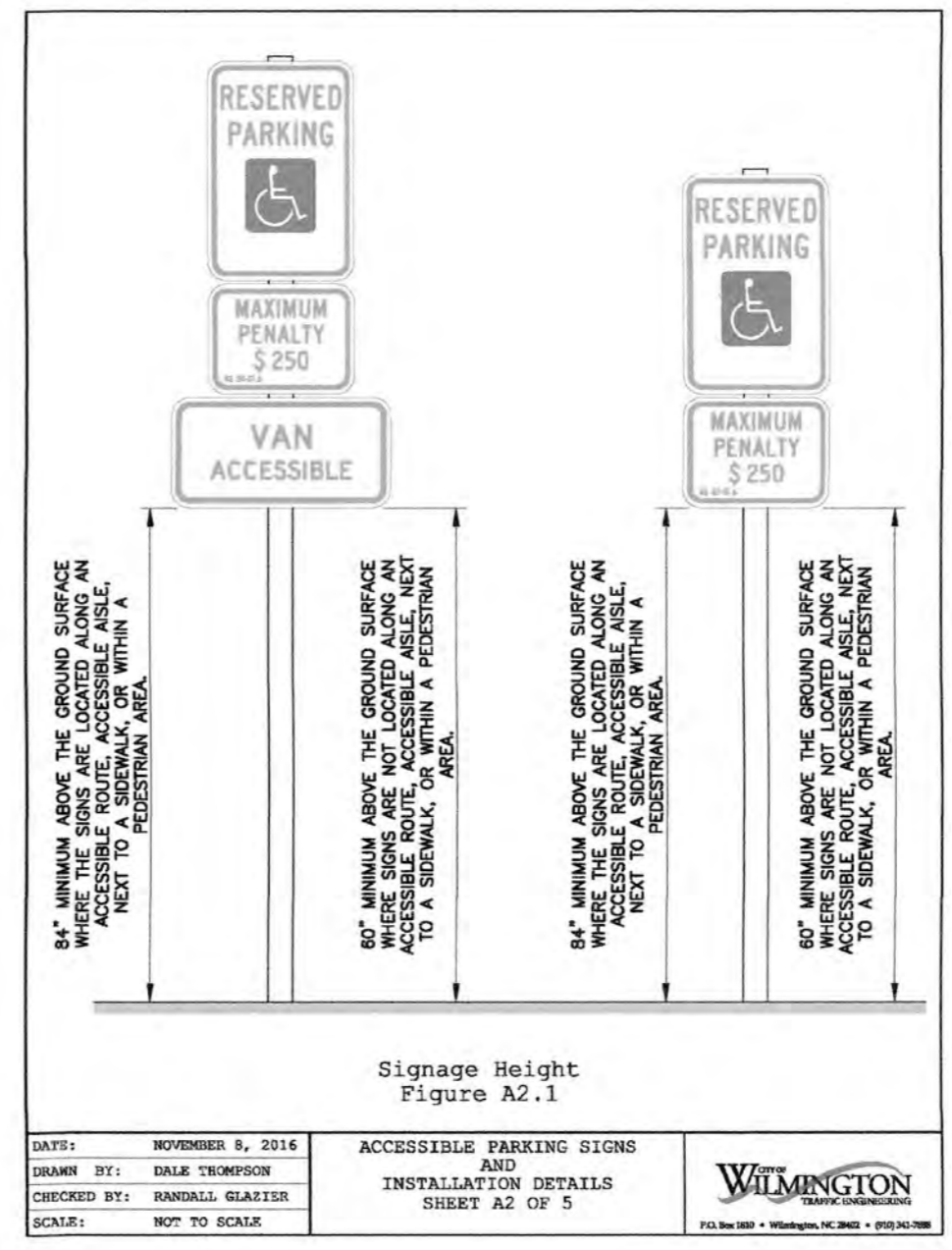
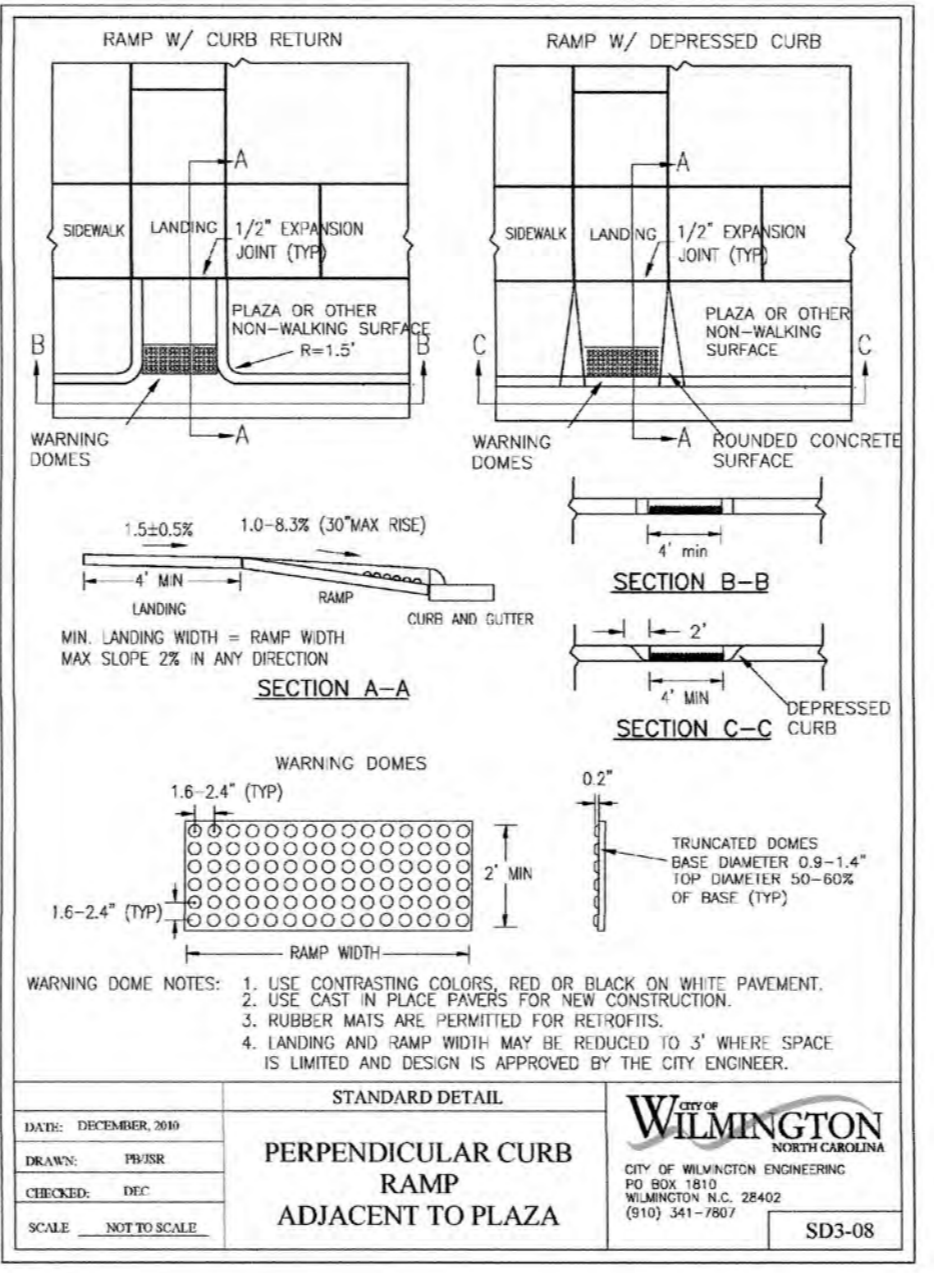
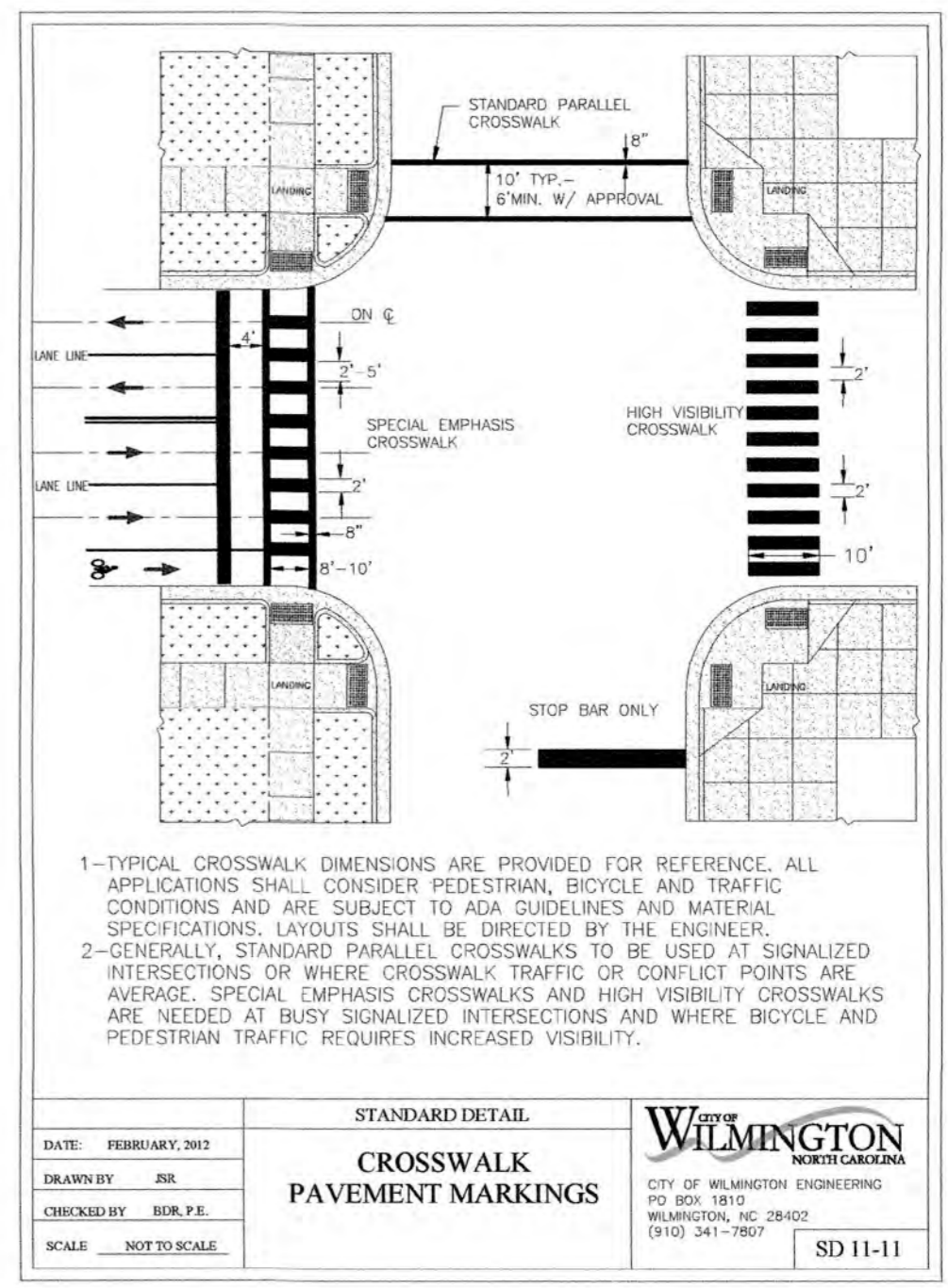
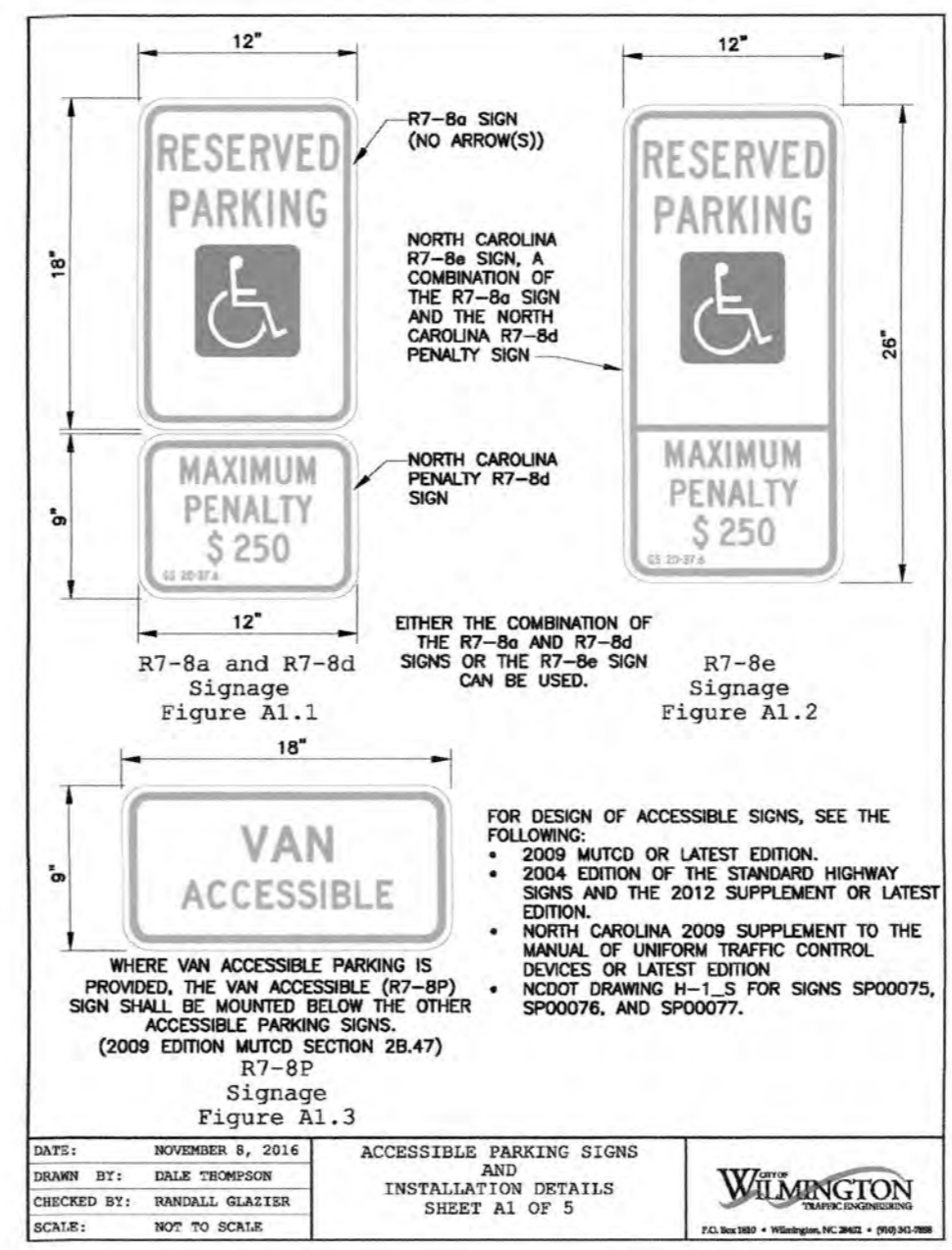
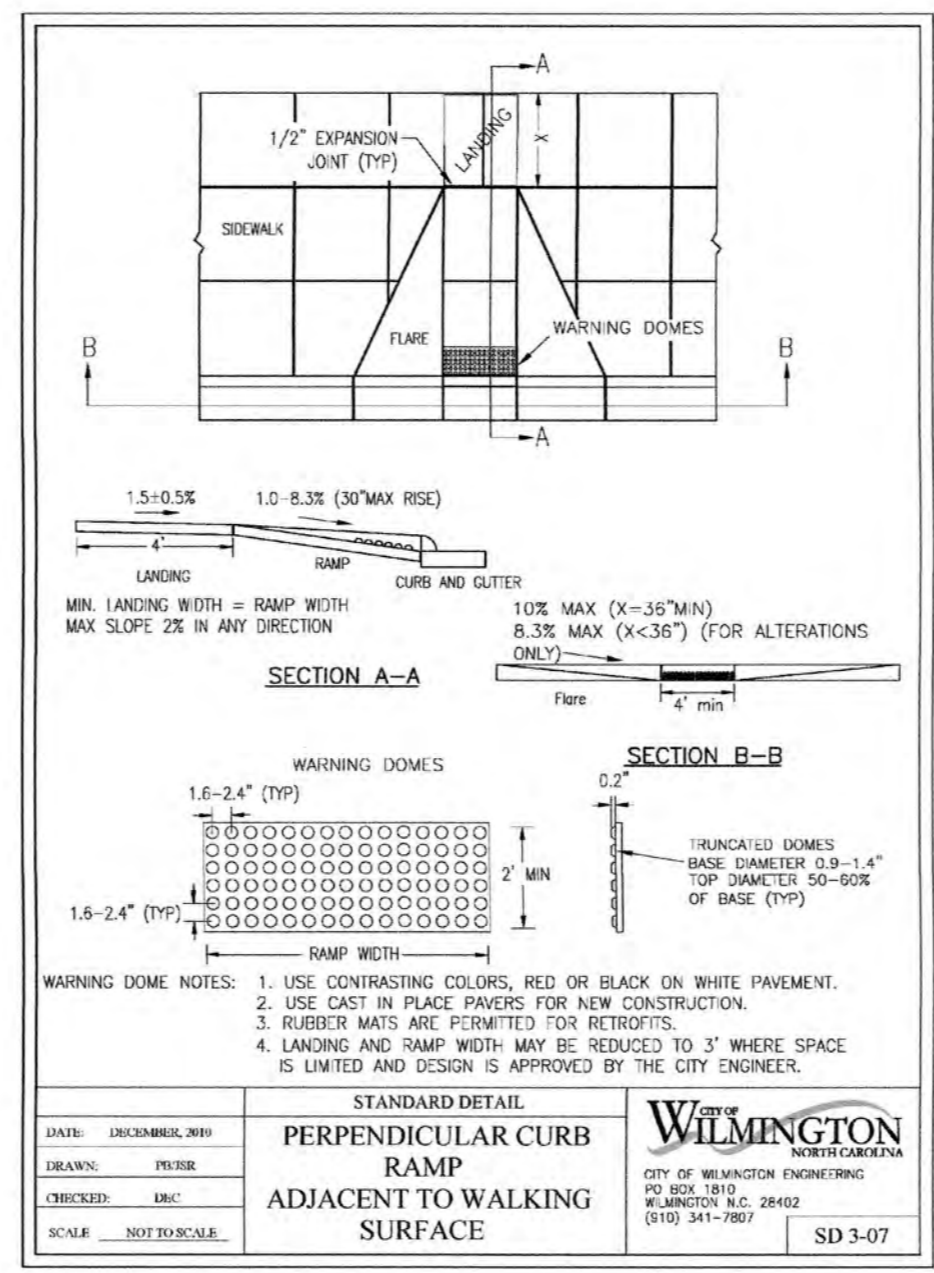
**PAVEMENT DETAILS**

Job No: 03-170548 Drawn By: TMG  
Date: 03/29/18 Designer: JSB

Revisions  
1 COW & NHC REVIEW COMMENTS 10.05.18

Sheet No.  
**C6.2**

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

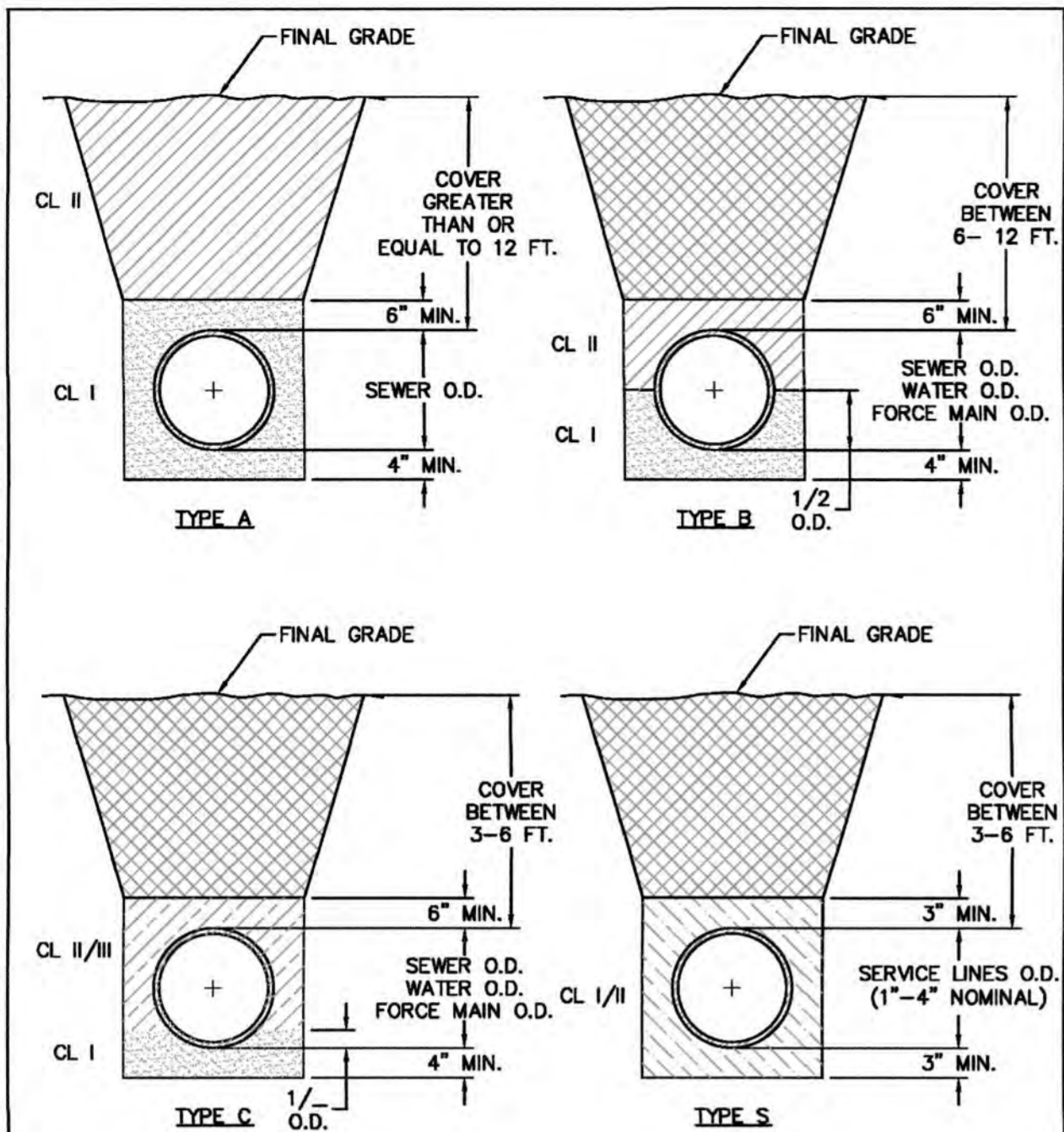
**Approved Construction Plan**  
 Name \_\_\_\_\_ Date \_\_\_\_\_  
 Planning \_\_\_\_\_  
 Public Utilities \_\_\_\_\_  
 Traffic \_\_\_\_\_  
 Fire \_\_\_\_\_

Job No: 03-170548 Drawn By: TMG  
 Date: 03/29/18 Designer: JSB



Revisions  
 1 COW & NHC REVIEW COMMENTS 10.05.18

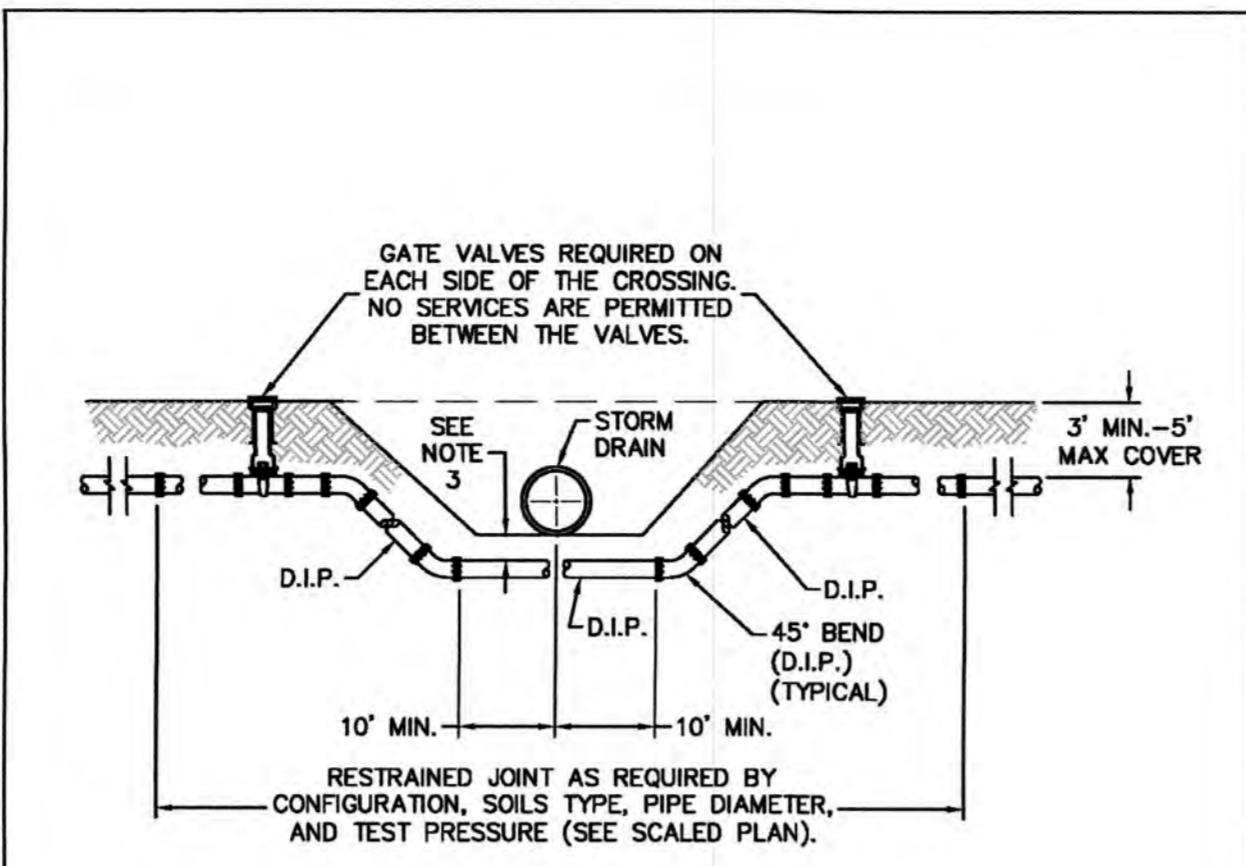
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**COMPACTION NOTES:**

1. ALL ZONES: 95% STD EFFORT PER ASTM D698, EXCEPT AS STATED IN COMPACTION NOTE 2.
2. 12" SUBGRADE UNDER PAVEMENT: 98% STD EFFORT PER ASTM D698.

|                              |  |                        |
|------------------------------|--|------------------------|
| DETAIL: PIPE EMBEDMENT TYPES | CAPE FEAR PUBLIC UTILITY AUTHORITY<br>235 GOVERNMENT CENTER DRIVE<br>WILMINGTON, NC 28403<br>OFFICE: (910)332-6560 | DETAIL NO: <b>WS-4</b> |
| SCALE: NOT TO SCALE          | CFPUA DETAIL DATE: 01/01/19  | SHEET NO: -            |
| CFPUA REV. No: 1             | Stewardship, Sustainability, Service.  |                        |



**NOTES:**

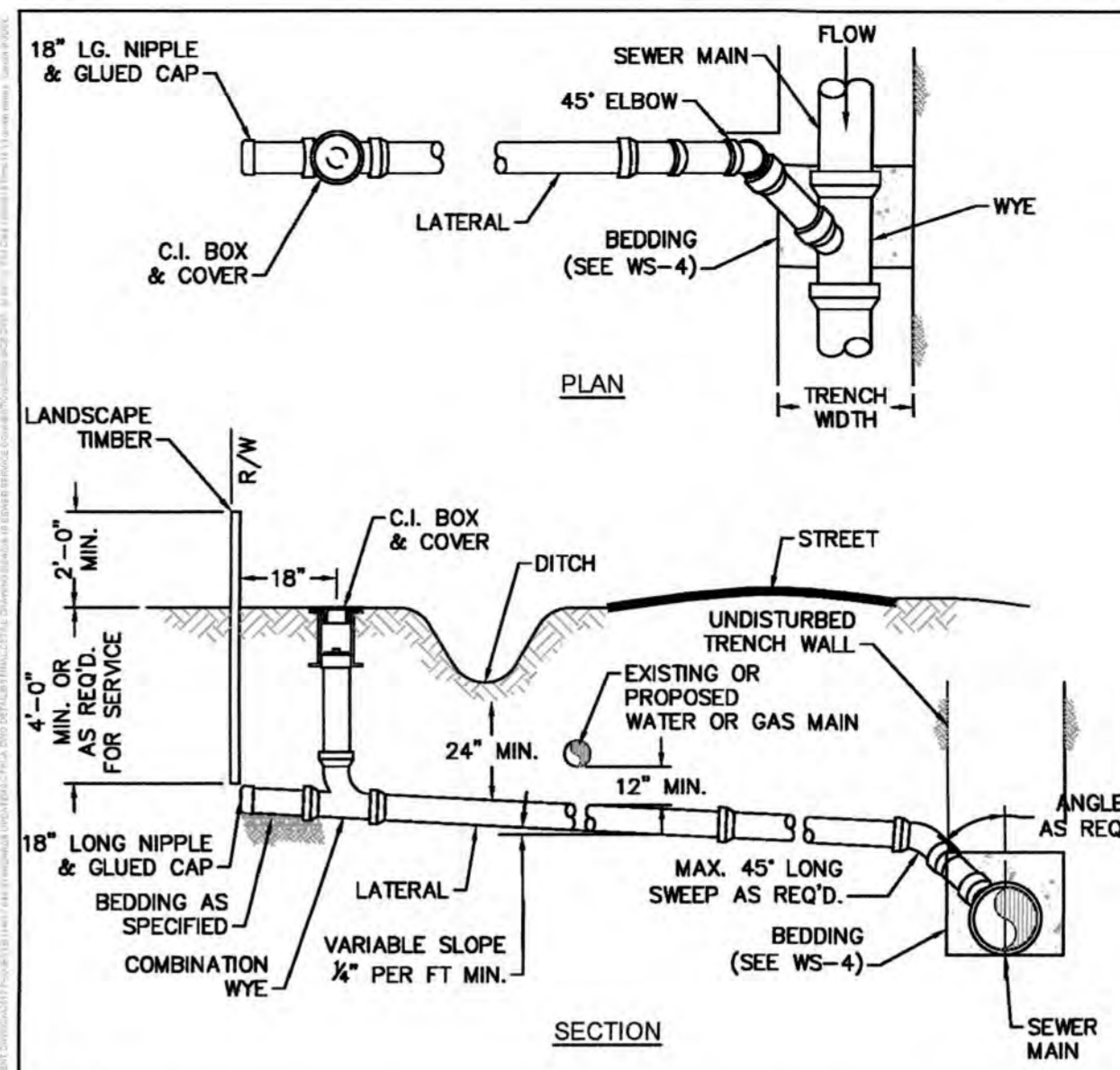
1. USE PRESSURE CLASS 350 DIP, UNLESS SPECIFIED OTHERWISE.
2. ALL BURIED PIPES, VALVES AND FITTINGS SHALL BE RESTRAINED.
3. MINIMUM DEPTH REQUIRED, UNLESS SPECIFIED OTHERWISE BY CFPUA:
  - a. IN DOT R/W, 36" MIN. TYPICAL, OR 24" MIN. WHEN CROSSING A DITCH LINE.
  - b. ALL OTHER LOCATIONS, 30" MIN.
  - c. WHEN STORM DRAIN INVERT IS BURIED AT OR BELOW ABOVE DEPTHS, WATER MAIN AND STORM DRAIN SHALL BE CONSTRUCTED OF FERROUS MATERIALS WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10- FEET EACH SIDE OF THE POINT OF CROSSING.

|  |  |                         |
|--|--|-------------------------|
| DETAIL: PRESSURE MAIN DITCH AND STORM DRAIN CROSSING-DIP | CAPE FEAR PUBLIC UTILITY AUTHORITY<br>235 GOVERNMENT CENTER DRIVE<br>WILMINGTON, NC 28403<br>OFFICE: (910)332-6560 | DETAIL NO: <b>WS-10</b> |
| SCALE: NOT TO SCALE                                      | CFPUA DETAIL DATE: 01/01/19  | SHEET NO: -             |
| CFPUA REV. No: 1   | Stewardship, Sustainability, Service.  |                         |

**CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD NOTES:**

1. ALL PROPOSED ADDITIONS TO THE CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPUA) WATER DISTRIBUTION AND SANITARY SEWER COLLECTION SYSTEMS, AS SHOWN AND SPECIFIED HEREIN, SHALL BE DESIGNED AND CONSTRUCTED TO CONFORM TO STATE RULES AND THE CFPUA'S MINIMUM TECHNICAL STANDARDS. THE CFPUA MINIMUM TECHNICAL STANDARDS ARE CONTAINED IN THE CURRENT DESIGN GUIDANCE MANUAL, MATERIAL SPECIFICATION MANUAL, TECHNICAL SPECIFICATIONS FOR CONSTRUCTION, AND STANDARD DRAWING DETAILS.
2. SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
3. WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE 18" INSIDE 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 18" INSIDE RIGHT-OF-WAY LINE.
4. ALL SEWER SERVICES CONNECTING INTO DUCTILE IRON MAINS SHALL ALSO BE CONSTRUCTED OF DIP.
5. MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
6. NO FLEXIBLE COUPLINGS SHALL BE USED.
7. ALL STAINLESS STEEL FASTENERS SHALL BE TYPE 316.
8. CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS.
9. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.
10. UNUSED SERVICES SHALL BE ABANDONED. ABANDONED WATER SERVICES SHALL BE DISCONNECTED FROM MAIN.
11. A MINIMUM OF 10' OF MAIN LINE SHALL BE REPLACED FOR NEW CONNECTIONS TO EXISTING CLAY GRAVITY SEWER MAINS.

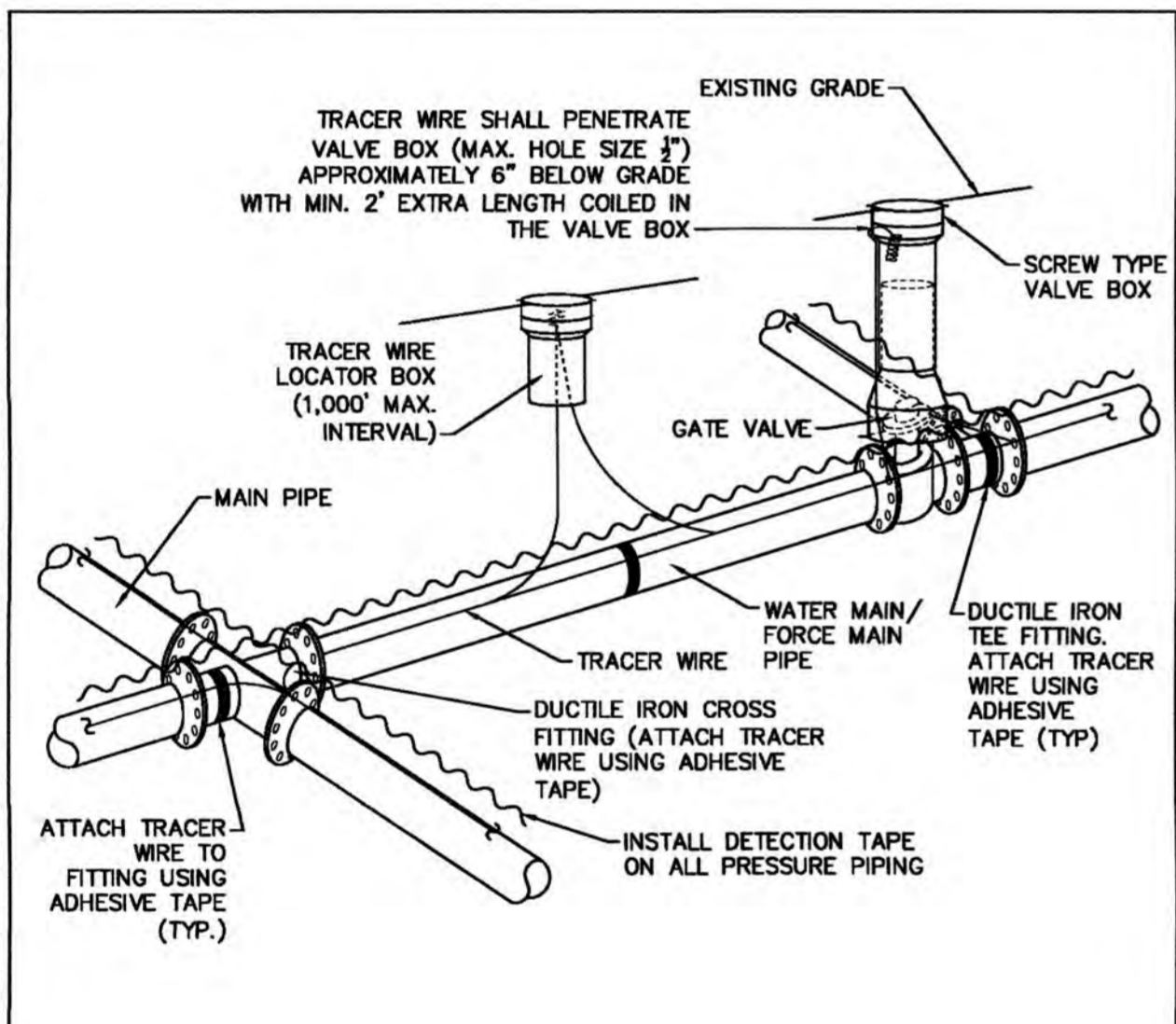
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| DETAIL: STANDARD NOTES (REQUIRED ON ALL PLANS AND PROFILE SHEETS) | CAPE FEAR PUBLIC UTILITY AUTHORITY<br>235 GOVERNMENT CENTER DRIVE<br>WILMINGTON, NC 28403<br>OFFICE: (910)332-6560 | DETAIL NO: <b>WS-14</b> |
| SCALE: NOT TO SCALE   | CFPUA DETAIL DATE: 01/01/19  | SHEET NO: -             |
| CFPUA REV. No: 2  | Stewardship, Sustainability, Service.  |                         |



**NOTES:**

1. SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN. 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.
2. ALL SERVICES CONNECTING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF DIP, WITH PROTECTIVE LINING.
3. CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS.
4. MINIMUM 1'-6" NIPPLE SPACING BETWEEN FITTINGS.
5. FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR CONNECTION TO MAIN.

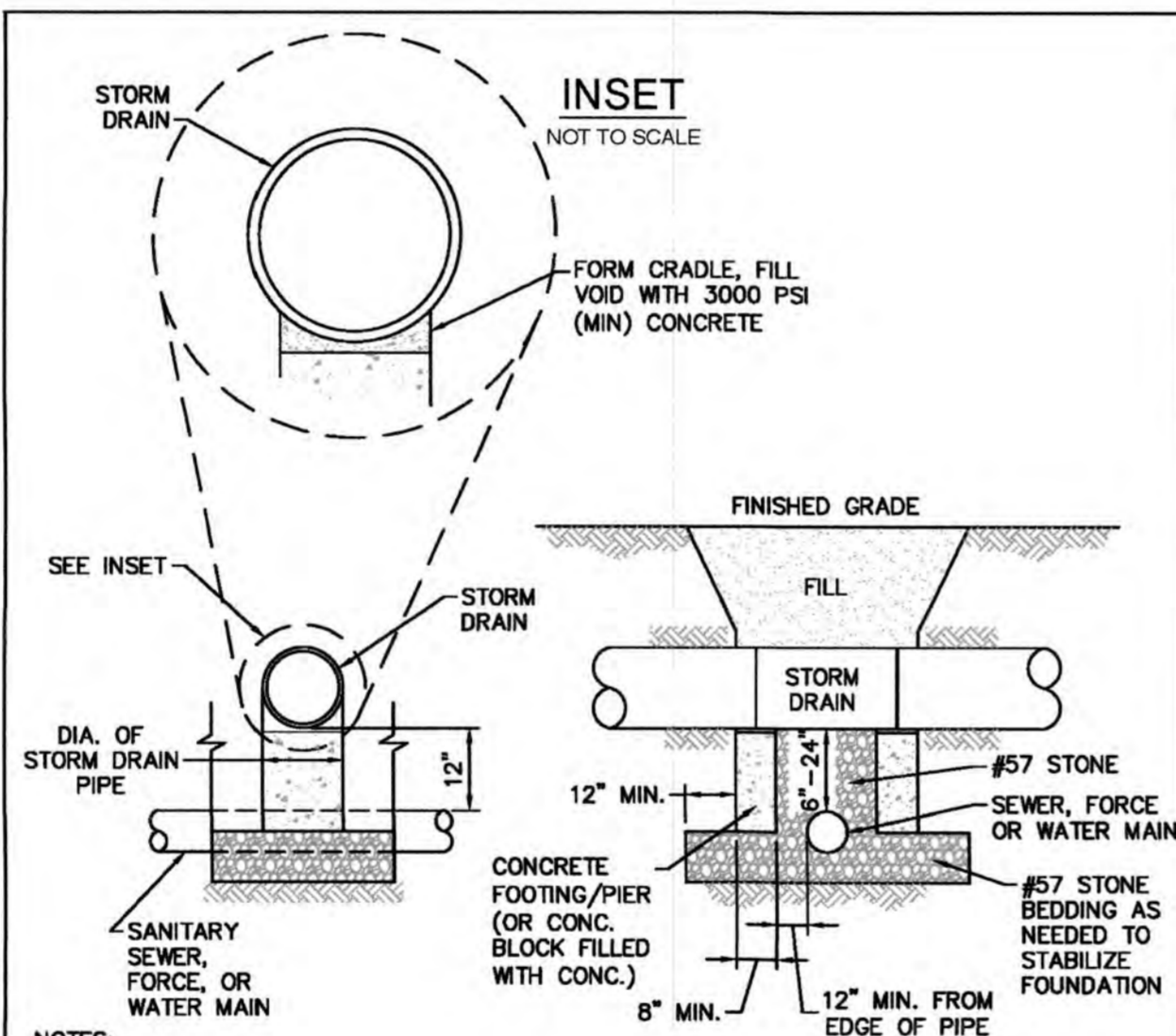
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| DETAIL: SEWER SERVICE CONNECTION - LONG-SIDE | CAPE FEAR PUBLIC UTILITY AUTHORITY<br>235 GOVERNMENT CENTER DRIVE<br>WILMINGTON, NC 28403<br>OFFICE: (910)332-6560 | DETAIL NO: <b>S-10</b> |
| SCALE: NOT TO SCALE                          | CFPUA DETAIL DATE: 01/01/19  | SHEET NO: -            |
| CFPUA REV. No: 1                             | Stewardship, Sustainability, Service.  |                        |



**NOTES:**

1. TRACER WIRE SHALL BE #10 COPPER SOLID CORE COPPER WIRE WITH GAS AND OIL RESISTANT INSULATION AND DIRECT BURY RATING.
2. WIRE SHALL BE STRAPPED TO ALL PVC PIPING WITH ADHESIVE TAPE AT 12 FOOT INTERVALS.
3. SECURE WIRE TO ALL TEE AND CROSS FITTINGS WITH ADHESIVE TAPE.
4. ALL SPLICES IN THE WIRE SHALL BE MADE WITH 3M DBR DIRECT BURY SPLICE KITS.

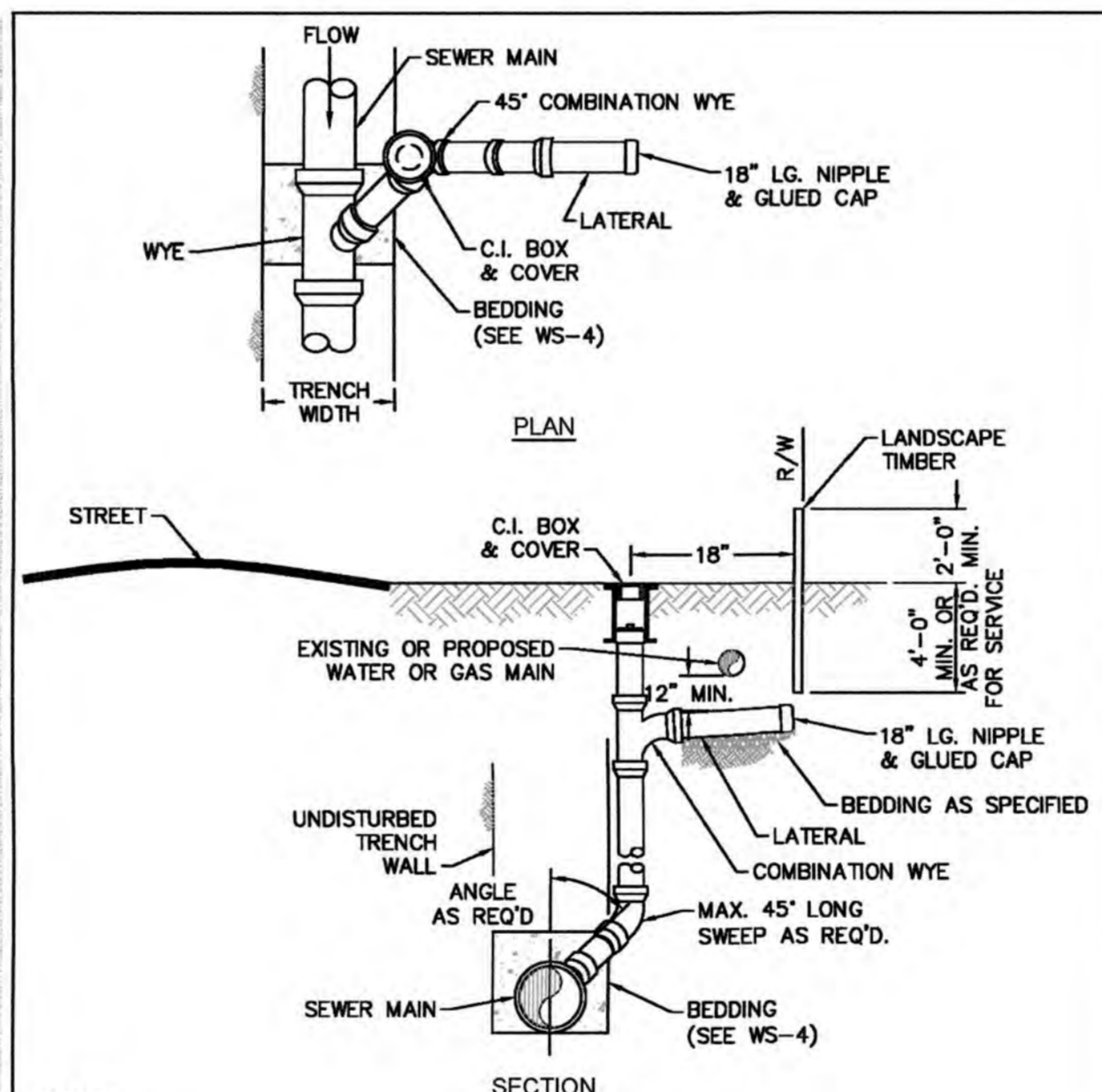
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| DETAIL: TRACER WIRE DETAIL | CAPE FEAR PUBLIC UTILITY AUTHORITY<br>235 GOVERNMENT CENTER DRIVE<br>WILMINGTON, NC 28403<br>OFFICE: (910)332-6560 | DETAIL NO: <b>WS-6</b> |
| SCALE: NOT TO SCALE        | CFPUA DETAIL DATE: 01/01/19  | SHEET NO: -            |
| CFPUA REV. No: 1           | Stewardship, Sustainability, Service.  |                        |



**NOTES:**

1. PIPELINE BRIDGING REQUIRED FOR VERTICAL SEPARATION 6"-24".
2. VERTICAL SEPARATION LESS THAN 6" IS NOT PERMITTED.
3. NO PIPE JOINTS ON STORM DRAINS BETWEEN PIERS.
4. WHEN SANITARY SEWER CROSSES OVER A WATER MAIN, BOTH PIPELINES SHALL BE PRESSURE RATED DUCTILE IRON PIPE AND JOINTS FOR 10' (MINIMUM) ON EACH SIDE OF THE POINT OF CROSSING.

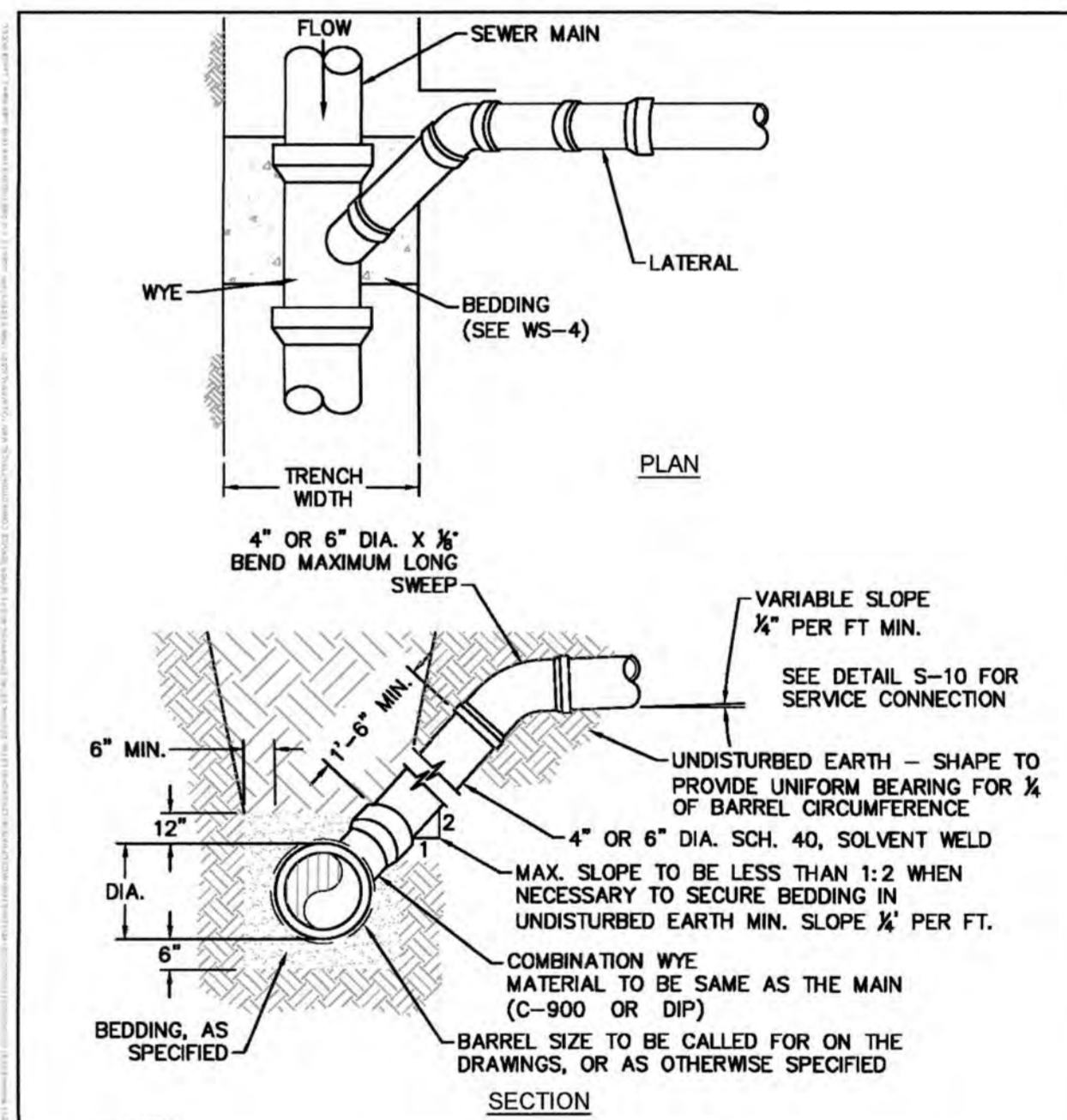
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| DETAIL: STRUCTURAL BRIDGING OVER WATER & SEWER PIPELINES | CAPE FEAR PUBLIC UTILITY AUTHORITY<br>235 GOVERNMENT CENTER DRIVE<br>WILMINGTON, NC 28403<br>OFFICE: (910)332-6560 | DETAIL NO: <b>WS-12</b> |
| SCALE: NOT TO SCALE                                      | CFPUA DETAIL DATE: 01/01/19  | SHEET NO: -             |
| CFPUA REV. No: 1   | Stewardship, Sustainability, Service.  |                         |



**NOTES:**

1. SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN. 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.
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3. CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS.
4. FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR CONNECTION TO MAIN.

|   |  |                       |
|---|--|-----------------------|
| DETAIL: SEWER SERVICE CONNECTION - SHORT-SIDE | CAPE FEAR PUBLIC UTILITY AUTHORITY<br>235 GOVERNMENT CENTER DRIVE<br>WILMINGTON, NC 28403<br>OFFICE: (910)332-6560 | DETAIL NO: <b>S-9</b> |
| SCALE: NOT TO SCALE                           | CFPUA DETAIL DATE: 01/01/19  | SHEET NO: -           |
| CFPUA REV. No: 1                              | Stewardship, Sustainability, Service.  |                       |



**NOTES:**

1. FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR CONNECTION TO SYSTEM AND AT THE PROPERTY LINE, WITH REQUIRED EASEMENT.
2. ALL SERVICES CONNECTING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF DIP, WITH PROTECTIVE LINING.

|  |  |                        |
|--|--|------------------------|
| DETAIL: SEWER SERVICE CONNECTION - MAIN TO LATERAL (LESS THAN 8' DEEP) | CAPE FEAR PUBLIC UTILITY AUTHORITY<br>235 GOVERNMENT CENTER DRIVE<br>WILMINGTON, NC 28403<br>OFFICE: (910)332-6560 | DETAIL NO: <b>S-11</b> |
| SCALE: NOT TO SCALE  | CFPUA DETAIL DATE: 01/01/19  | SHEET NO: -            |
| CFPUA REV. No: 1   | Stewardship, Sustainability, Service.  |                        |

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

| Revisions | Comments                                | Date     |
|-----------|---|----------|
| 1         | COW & NHC REVIEW COMMENTS               | 10.05.18 |
| 2         | REVISIONS PER REZONING AND COW COMMENTS | 07.10.19 |

w:\1713-0460\170548-needham animal hospital expansion\CAD content drawings\C6.0 DETAIL.dwg - Thursday, July 11, 2019 2:56:47 PM - 18/07/2019 2:56:47 PM

TYPICAL DETAILS NOTE:  
THE TYPICAL DETAILS ON THIS SHEET WERE DESIGNED AND PREPARED BY OTHERS.

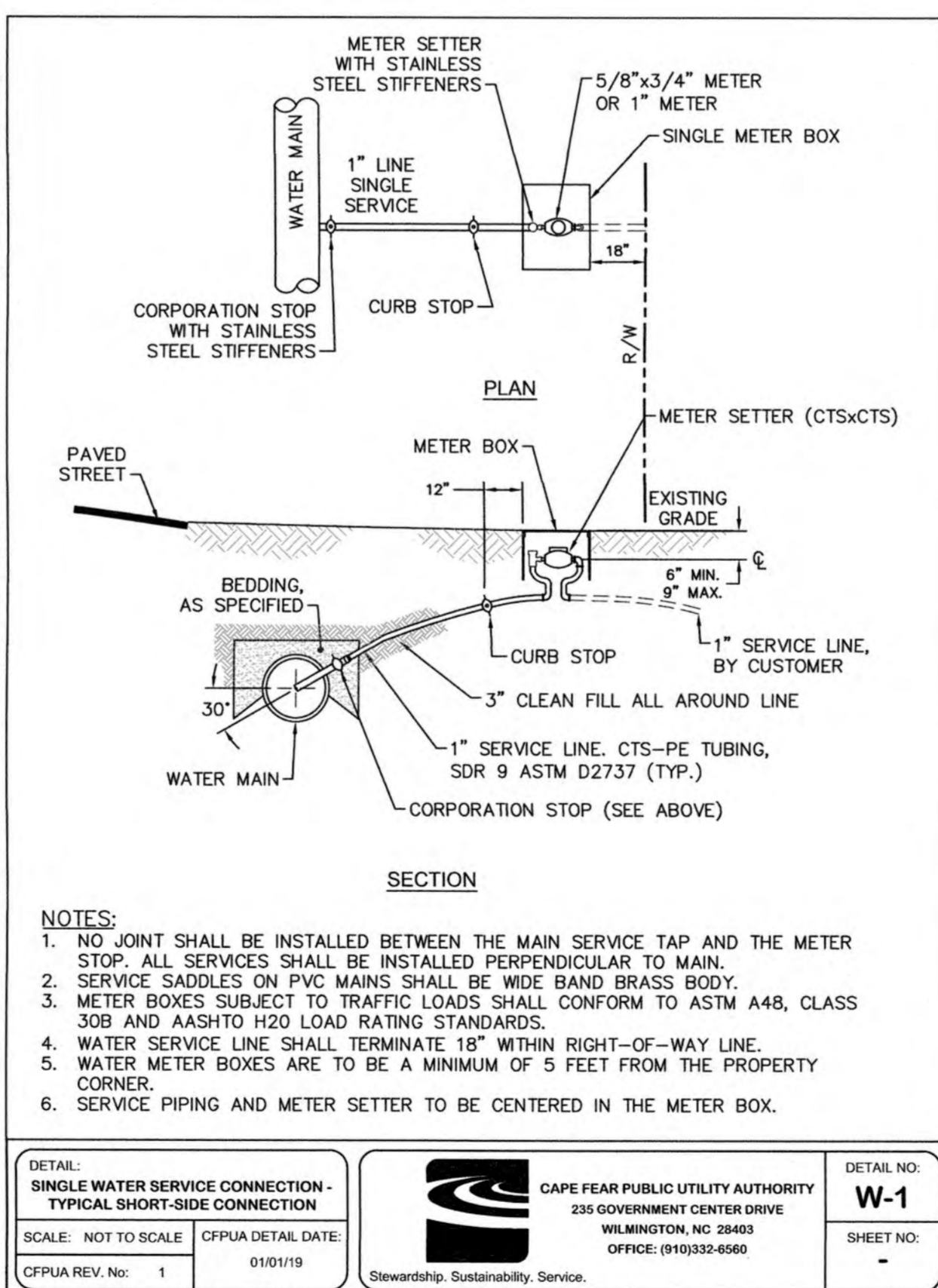
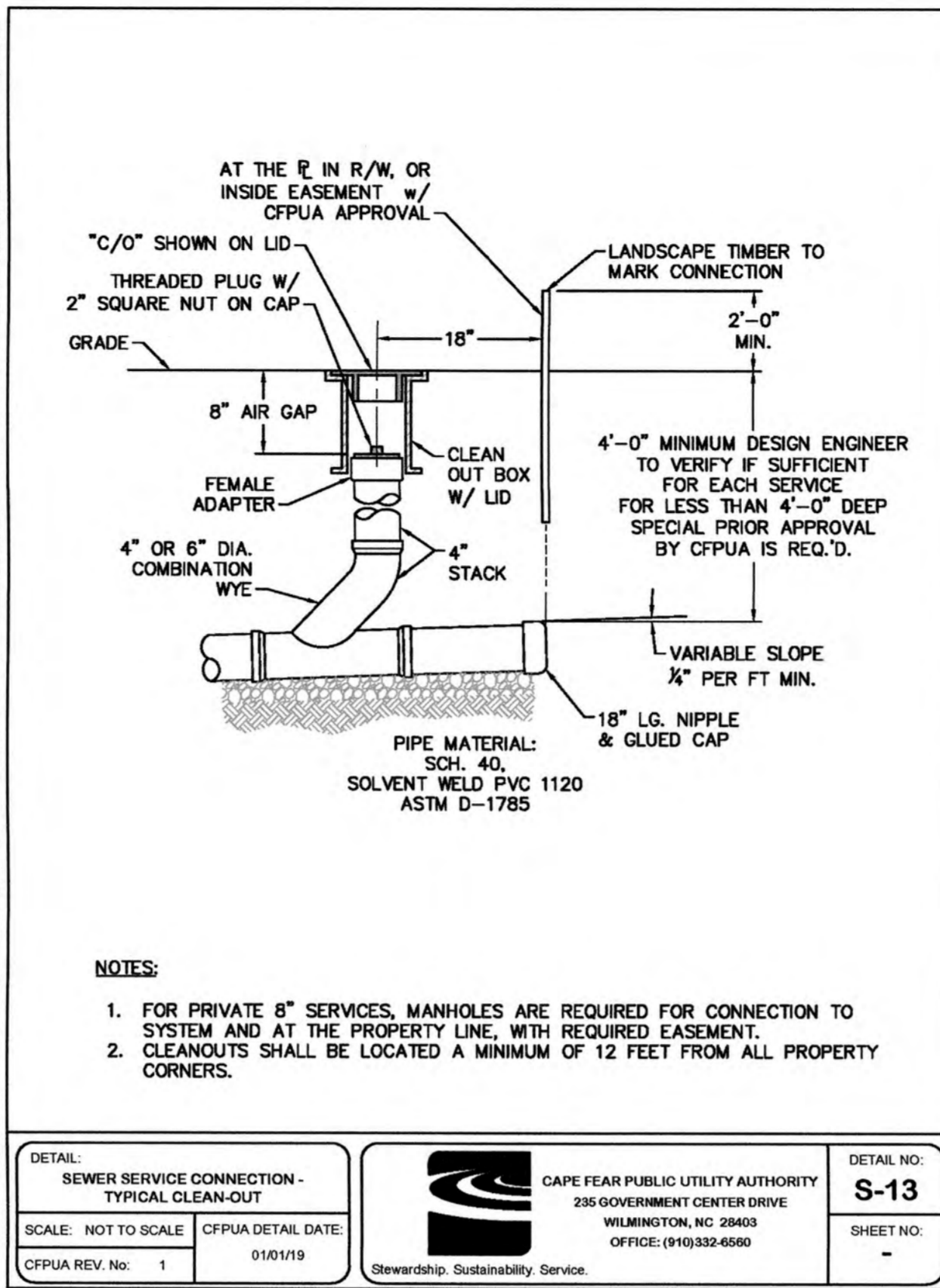
**NEEDHAM ANIMAL HOSPITAL EXPANSION**

WILMINGTON, NC

**CFPUA DETAILS**

|         |           |          |     |
|---------|-----------|----------|-----|
| Job No. | 03-170548 | Drawn By | TMG |
| Date    | 03/29/18  | Designer | JSB |

| Revisions |   |          |
|-----------|---|----------|
| 1         | COW & NHC REVIEW COMMENTS               | 10.05.18 |
| 2         | REVISIONS PER REZONING AND COW COMMENTS | 07.10.19 |

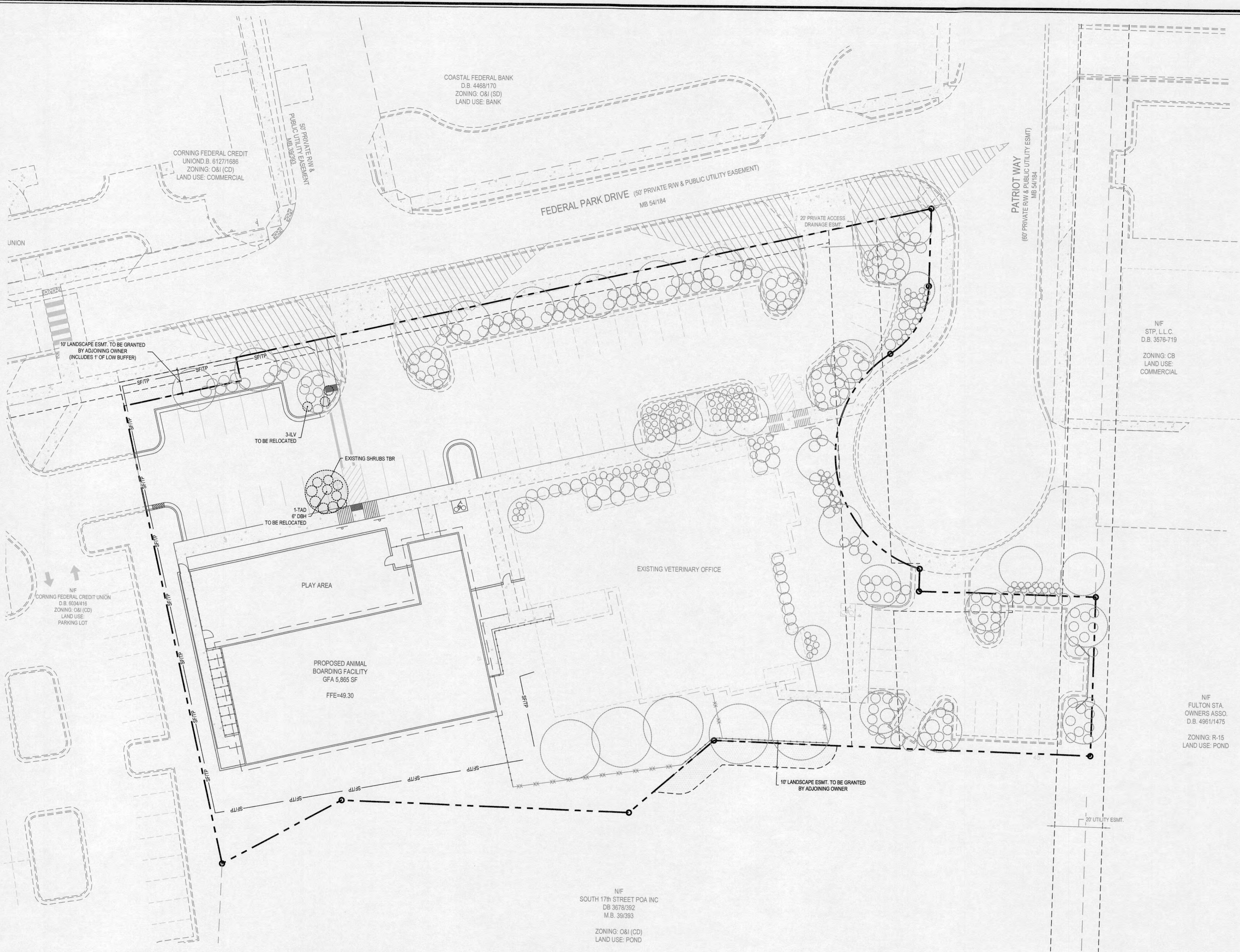


- NOTES:**
1. NO JOINT SHALL BE INSTALLED BETWEEN THE MAIN SERVICE TAP AND THE METER STOP. ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
  2. SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY.
  3. METER BOXES SUBJECT TO TRAFFIC LOADS SHALL CONFORM TO ASTM A48, CLASS 30B AND AASHTO H20 LOAD RATING STANDARDS.
  4. WATER SERVICE LINE SHALL TERMINATE 18" WITHIN RIGHT-OF-WAY LINE.
  5. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.
  6. SERVICE PIPING AND METER SETTER TO BE CENTERED IN THE METER BOX.

TYPICAL DETAILS NOTE:  
THE TYPICAL DETAILS ON THIS SHEET WERE  
DESIGNED AND PREPARED BY OTHERS.

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





PLANT SCHEDULE - EXISTING PLANTS TO BE RELOCATED

| PLANT TYPE   | QTY | KEY | BOTANICAL NAME     | COMMON NAME  | SIZE   |
|--------------|-----|-----|--------------------|--------------|--------|
| CANOPY TREES | 1   | TAD | Taxodium distichum | Bald Cypress | 6" DBH |
| SHRUBS       | 3   | ILV | Ilex vomitoria     | Yaupon Holly |        |

N/F  
SOUTH 17TH STREET POA INC  
DB 3678/392  
M.B. 39/393  
ZONING: O&I (CD)  
LAND USE: POND

N/F  
FULTON STA. OWNERS ASSO.  
D.B. 4961/1475  
ZONING: R-15  
LAND USE: POND

N/F  
STP, L.L.C.  
D.B. 3576-719  
ZONING: CB  
LAND USE: COMMERCIAL

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

Approved Construction Plan

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

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

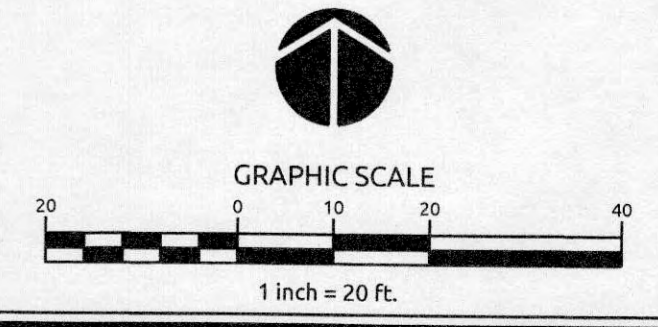
CITY OF WILMINGTON  
NORTH CAROLINA

Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: \_\_\_\_\_ Permit # \_\_\_\_\_

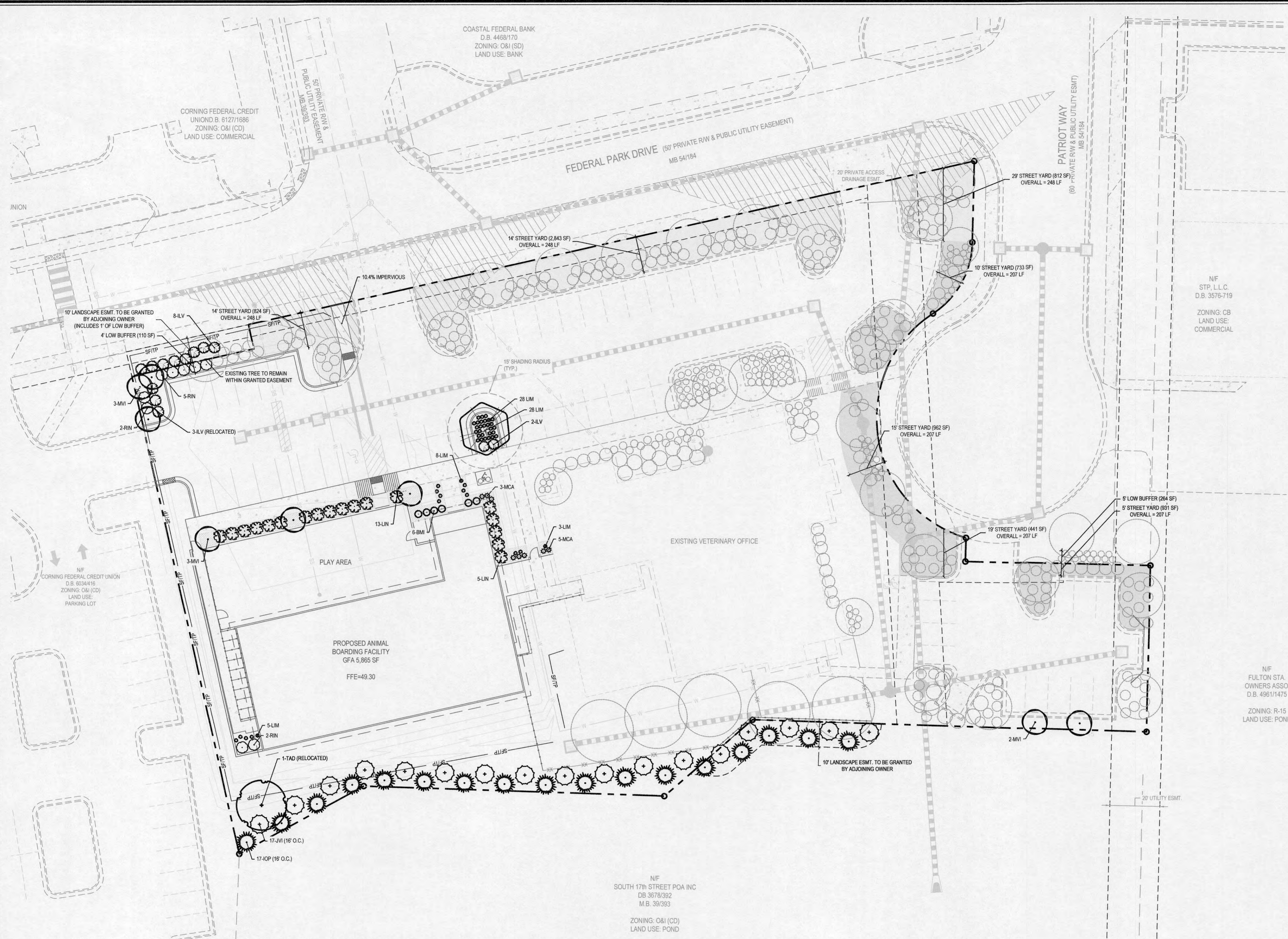
Signed: \_\_\_\_\_



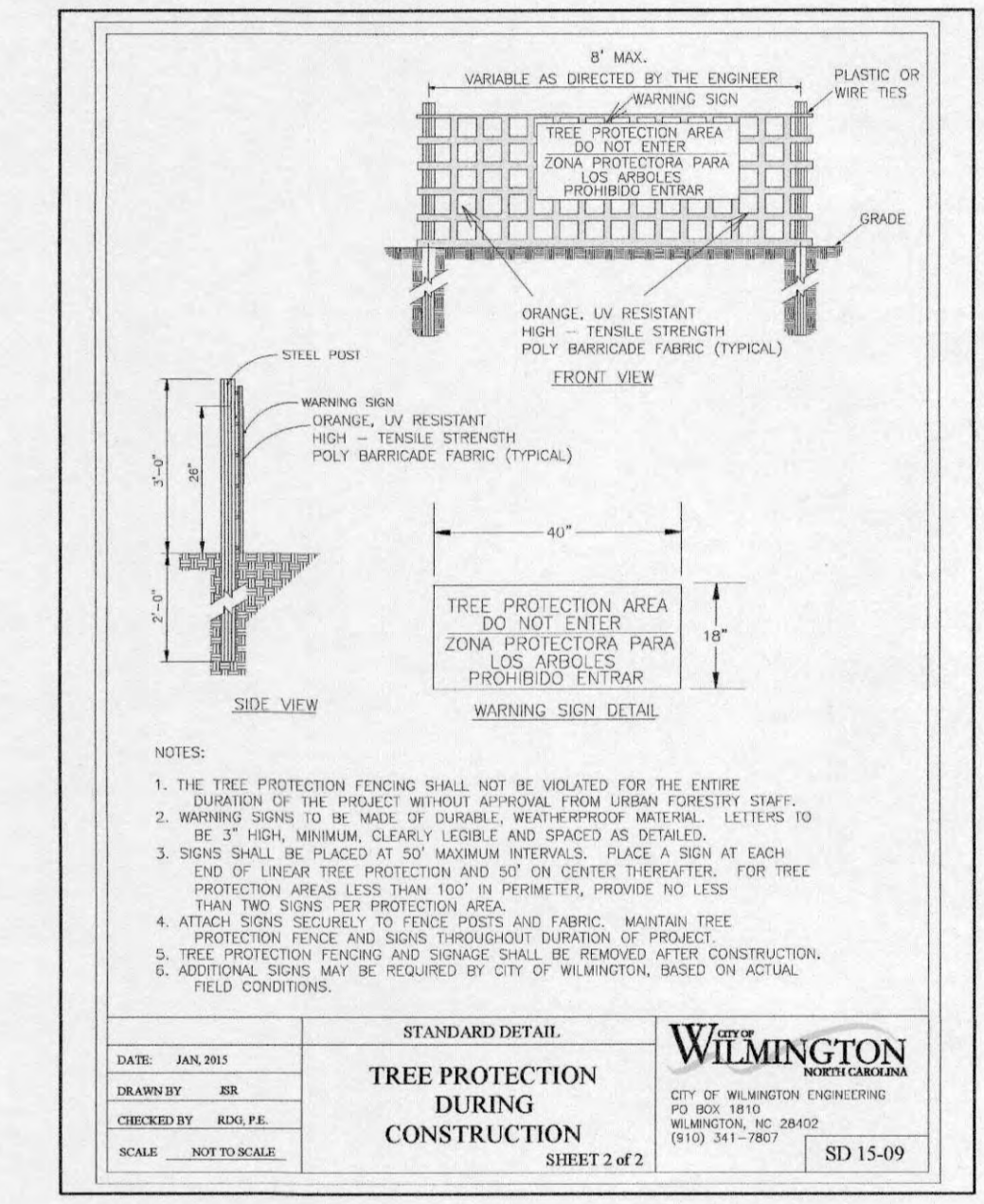
|         |           |          |     |
|---------|-----------|----------|-----|
| Job No. | 03-170548 | Drawn By | TMG |
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| Revisions | Comments                                | Date     |
|-----------|---|----------|
| 1         | COW & NHC REVIEW COMMENTS               | 10.05.18 |
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- LANDSCAPE NOTES:**
- ALL PLANTS SHALL MEET OR EXCEED THE MINIMUM STANDARDS SET FORTH IN THE AMERICAN STANDARD FOR NURSERY STOCK BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
  - ALL AREAS DISTURBED AND NOT SPECIFIED AS MULCHED PLANTING BEDS WILL BE GRASSSED. LAWN AREAS MAY BE ESTABLISHED WITH EITHER SOD OR SEED AT THE CONTRACTOR'S DISCRETION. HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FULL STAND OF GRASS AT THE TIME OF COMPLETION.
  - CONTRACTOR SHALL USE WHATEVER METHOD OF TREE STAKING HE DEEMS FIT. HOWEVER, HE WILL BE HELD LIABLE FOR ANY DAMAGES CAUSED TO TREES BY IMPROPER STAKING METHODS (OR ABSENCE OF STAKING) AND IS RESPONSIBLE FOR UPRIGHTING AND REPLANTING TREES WHICH ARE BLOWN OVER.
  - CONTRACTOR SHALL WARRANTY ALL TREES AND SHRUBS FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK OF THE LANDSCAPE PLAN.
  - IF DISCREPANCIES OR AVAILABILITY ARE FOUND IN THE PLANT SPECIES AND/OR MIN. SIZES REQ'D., CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT. SUBSTITUTIONS MAY BE MADE WITH AUTHORIZATION AS LONG AS THE PLANTS FOLLOW THE INTENDED FORM AND FUNCTION.
  - THE DEVELOPER SHALL NOTIFY LANDSCAPE DESIGNER PRIOR TO INSTALLATION TO ENSURE PROPER TREE SELECTION & SPACING.
  - EACH TREE SHALL BE A MINIMUM OF 2" CALIPER AS MEASURED FROM THE DIAMETER AT BREAST HEIGHT (DBH).
  - TREES WITHIN THE SAME BLOCKS SHALL BE THE SAME SPECIES.
  - ALL PLANTINGS SHALL BE CURBED OR OTHERWISE PHYSICALLY PROTECTED FROM VEHICULAR TRAFFIC.
  - THE OWNER IS RESPONSIBLE FOR MAINTAINING ALL REQUIRED PLANT MATERIAL AND PLANTING AREAS IN GOOD HEALTH AND APPEARANCE. ANY DEAD, UNHEALTHY OR MISSING PLANTS MUST BE REPLACED WITHIN 60 DAYS WITH VEGETATION WHICH CONFORMS TO THE INITIAL PLANTING RATES AND STANDARDS.
  - NO PLANTINGS OVER 30' IN HEIGHT SHALL BE ALLOWED IN VISION CLEARANCE EXISTING TREES IN THE SIGHT DISTANCE TRIANGLE SHOULD BE LINED UP TO ACCOMMODATE THE CODE REGARDING SIGHT DISTANCE TRIANGLES. ALL PROPOSED VEGETATION WITHIN SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 30' TO 10'.
  - 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.
  - A LANDSCAPING PLAN INDICATING THE LOCATION OF REQUIRED STREET TREES SHALL BE SUBMITTED TO THE CITY OF WILMINGTON TRAFFIC ENGINEERING DIVISION AND PARKS AND RECREATION DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE RECORDING OF THE FINAL PLAT. (SD 15-14 CORWTECH STS)
  - THERE IS NO CONSERVATION RESOURCES ASSOCIATED WITH THE PARCELS INCLUDING ANY RARE OR ENDANGERED SPECIES IN ACCORDANCE WITH THE NC WILDLIFE RESOURCES COMMISSION.
  - THE CRITICAL ROOT ZONE (CRZ) SHALL BE PROTECTED DURING CONSTRUCTION BY APPROVED TREE PROTECTION FENCING AND PRACTICES. TREE PROTECTIVE FENCING SHALL BE SHOWN ON SITE PLANS AND GRADING PLANS AROUND EACH TREE CLUSTER OF TREES AT PERIMETER OF TREE-SAVE AREAS, AND AT LIMITS OF DISTURBANCE. NO EQUIPMENT IS ALLOWED ON THE SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED. TREE PROTECTIVE FENCING SHALL REMAIN IN PLACE THROUGH COMPLETION OF CONSTRUCTION ACTIVITIES.
  - IF THE ENTIRE CRZ CANNOT BE PRESERVED, THE DISTURBED AREA SHALL EXTEND NO CLOSER TO THE PROTECTED TREE TRUNK THAN ONE HALF (1/2) THE RADIUS OF THE CRZ. IN NO CASE CAN MORE THAN 40% OF THE CRZ BE DISTURBED.



**LANDSCAPE CALCULATIONS:**

|  |   |
|--|---|
| <b>FEDERAL PARK STREET YARD:</b>               | 288 LF - 50 (2 DRIVES) = 248 LF                             |
| 248' * 18' (O&I DISTRICT) =                    | 4,464 SF REQUIRED   |
|  | 4,479 SF PROVIDED   |
| 1 TREE / 600 SF                                | 8 TREES REQUIRED  |
| 9 EXISTING TREES PROVIDED                      |   |
| 6 SHRUBS / 600 SF                              | 45 SHRUBS REQUIRED  |
| 1 SHRUB PROVIDED + 92 EXISTING SHRUBS PROVIDED |   |
| <b>PATRIOT WAY STREET YARD:</b>                | 232 LF - 25' (1 DRIVE) = 207 LF                             |
| 207' * 9' (O&I DISTRICT) =                     | 1,863 SF REQUIRED (SECONDARY STREET - 18' * 50%)            |
|  | 3,615 SF PROVIDED + LOW BUFFER (264 SF) = 3,879 SF PROVIDED |
| 1 TREE / 600 SF                                | 7 TREES REQUIRED  |
| 10 EXISTING TREES PROVIDED                     |   |
| 6 SHRUBS / 600 SF                              | 39 SHRUBS REQUIRED  |
| 132 EXISTING SHRUBS PROVIDED                   |   |
| <b>FRONT VUA (INTERIOR):</b>                   | 16,191 SF   |
| 25% SHADING:                                   | 4,048 SF REQUIRED   |
|  | 12,864 SF PROVIDED  |
| 75% SHADE / CANOPY TREE:                       | 1 (TAD) = 18 EXISTING                                       |
| 25% SMALL TREES:                               | 6 (PCT)   |
| <b>REAR VUA (INTERIOR):</b>                    | 4,393 SF  |
| 25% SHADING:                                   | 1,099 SF REQUIRED   |
|  | 4,934 SF PROVIDED   |
| 75% SHADE / CANOPY TREE:                       | 6 EXISTING  |
| 25% SMALL TREES:                               | 2 (PCT)   |
| <b>FOUNDATION:</b>                             | 181 LF  |
| 181' x 12' x 12% =                             | 261 SF REQUIRED   |
|  | 830 SF PROVIDED   |

**PLANT SCHEDULE**

| QTY                             | KEY | BOTANICAL NAME                           | COMMON NAME                 | ROOT  | SIZE        | HEIGHT      | NOTES         |
|---------------------------------|-----|--|-----------------------------|-------|-------------|-------------|---------------|
| <b>CANOPY TREES</b>             |     |  |                             |       |             |             |               |
| 1                               | TAD | <i>Taxodium distichum</i>                | Bald Cypress                | B&B   | 6" DBH      |             | EX. RELOCATED |
| 1                               | QLY | <i>Quercus lyrata</i> 'Highbeam'         | Highbeam Overcup Oak        | B&B   | 2 1/2" CAL. |             |               |
| <b>UNDERSTORY TREES</b>         |     |  |                             |       |             |             |               |
| 17                              | IOP | <i>Ilex opaca</i> 'Sally Hill'           | Sally Hill American Holly   | B&B   |             | 8-10' HT.   |               |
| 17                              | JVI | <i>Juniperus virginiana</i> 'Brodie'     | Brodie Eastern Red Cedar    | B&B   |             | 8-10' HT.   |               |
| 8                               | MVI | <i>Magnolia virginiana</i>               | Sweetbay Magnolia           | B&B   |             | 8-10' HT.   |               |
| <b>SHRUBS</b>                   |     |  |                             |       |             |             |               |
| 6                               | BMI | <i>Buxus microphylla</i> 'Green Velvet'  | Littleday Boxwood           | CONT. | 3 GAL.      |             | EX. RELOCATED |
| 3                               | ILV | <i>Ilex vomitoria</i> 'Nana'             | Dwarf Yaupon Holly          | CONT. | 7 GAL.      | 3' HT. MIN. | LOW BUFFER    |
| 10                              | ILV | <i>Ilex vomitoria</i> 'Nana'             | Dwarf Yaupon Holly          | CONT. | 7 GAL.      | 3' HT. MIN. | LOW BUFFER    |
| 18                              | LN  | <i>Lagerstromia indica</i> 'Pocomoke'    | Pocomoke Crape Myrtle       | CONT. | 3 GAL.      |             |               |
| 9                               | RN  | <i>Rhaphirolepis indica</i> 'Snow White' | Snow White Indian Hawthorne | CONT. | 3 GAL.      |             |               |
| <b>GRASSES and GROUNDCOVERS</b> |     |  |                             |       |             |             |               |
| 44                              | LM  | <i>Liriope muscari</i>                   | Liriope                     | CONT. | 1 GAL. MIN. |             |               |
| 8                               | MCA | <i>Muhlenbergia capillaris</i>           | Pink Muhly Grass            | CONT. | 1 GAL. MIN. |             |               |

**LEGEND:**

- PROPOSED FOUNDATION PLANTING AREA
- STREET YARD AREA (FEDERAL PARK STREET)
- STREET YARD AREA (PATRIOT WAY)

TOTAL DISTURBED AREA: 0.60 AC.  
 15 TREES / ACRE = 9 TREES REQUIRED  
 9 TREES PROVIDED + 34 EXISTING TREES

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**Approved Construction Plan**

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

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

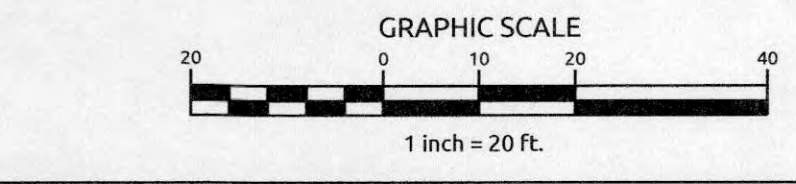
Fire \_\_\_\_\_

**WILMINGTON**  
 NORTH CAROLINA

Public Services • Engineering Division  
 APPROVED STORMWATER MANAGEMENT PLAN

Date: \_\_\_\_\_ Permit # \_\_\_\_\_

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



Revisions

|   |   |          |
|---|---|----------|
| 1 | COW & NHC REVIEW COMMENTS               | 10.05.18 |
| 2 | REVISIONS PER REZONING AND COW COMMENTS | 07.10.19 |