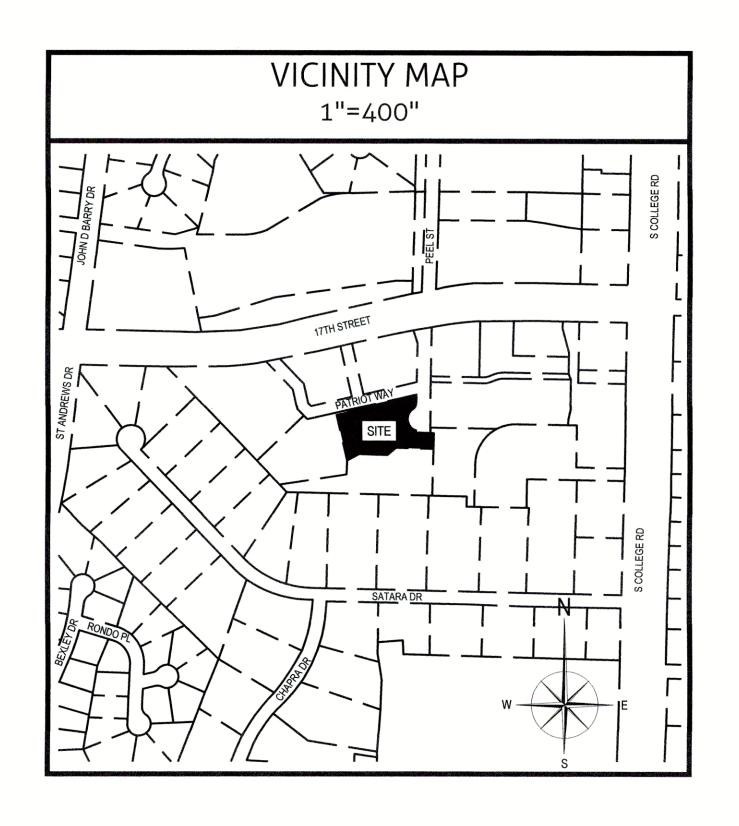
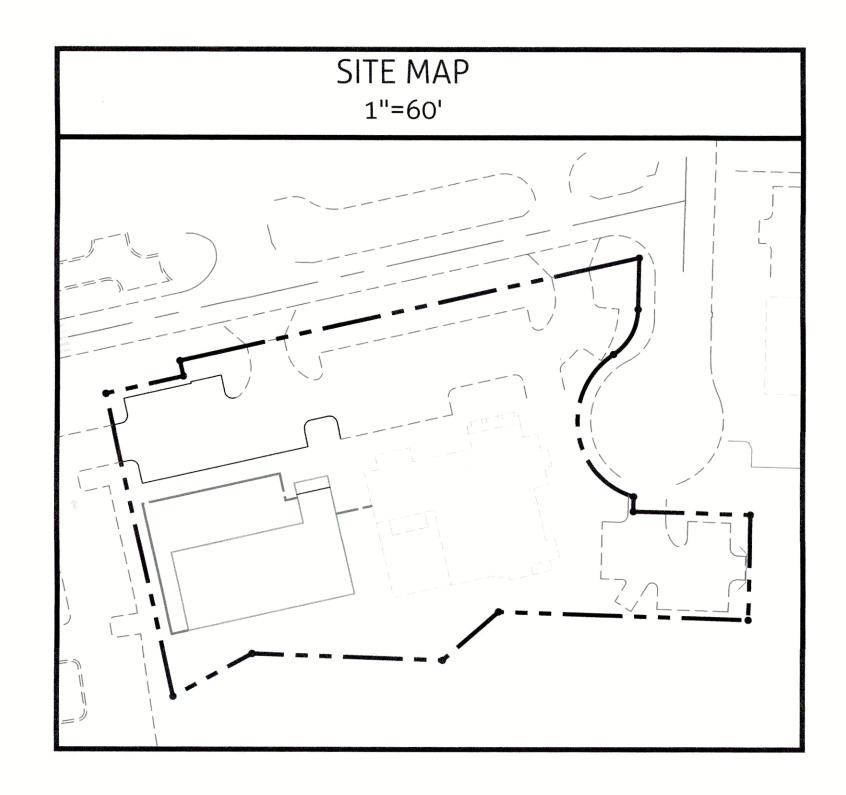
# CONSTRUCTION DRAWING S: NEEDHAM ANIMAL HOSPITAL EXPASIO

# NEEDHAM ANIMAL HOSPITAL EXPANSION

WILMINGTON, NC MAY 2018

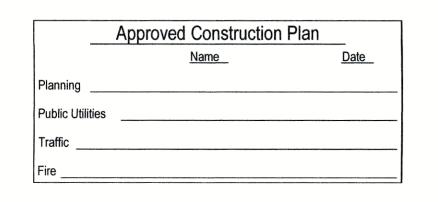


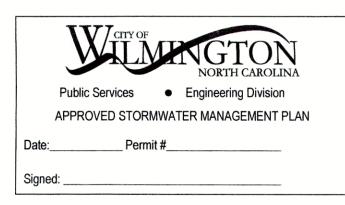
	LEG	END	
LINETYPE DESCRIPTION		LINETYPE DESCRIPTION	
EXISTING WATERLINE	w	PROPOSED UNDERGROUND ELECTRIC	
PROPOSED WATERLINE	w	EXISTING GASLINE	G
EXISTING STORM DRAINAGE		PROPOSED GASLINE	G
PROPOSED STORM DRAINAGE		SILT FENCE	
EXISTING SANITARY SEWER	ss	TREE PROTECTION & SILT FENCE	SF/TP
PROPOSED SANITARY SEWER	ss	FENCE	
EXISTING FORCE MAIN	FM	TREE PROTECTION	ТР
PROPOSED FORCE MAIN	FM	TEMP. DIVERSION SWALE	
EXISTING ELECTRIC (OVERHEAD)	Е	RIGHT-OF-WAY	
PROPOSED ELECTRIC (OVERHEAD)	——— Е ———	EXISTING WETLANDS	
EXISTING UNDERGROUND ELECTRIC	UE	1' CONTOUR	1
EXISTING EASEMENT		5' CONTOUR	5
PROJECT BOUNDARY		PROPOSED EASEMENT	











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

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L1.0	LANDSCAPE DEMOLITION PLAN
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# DEVELOPER/OWNER

## SLA PROPERTY, LLC

3720 FEDERAL PARK DRIVE WILMINGTON, NC 28412 PHONE; (910) 799-2970

ATTN: DR. CHRISTOPHER BATTS

AND THE STATE OF NORTH CAROLINA. THE CONTRACTOR IS TO ESTABLISH AND CHECK ALL HORIZONTAL AND VERTICAL CONTROLS TO BE USED WITH THE PROJECT. IN ADDITION. THE CONTRACTOR IS TO COMPUTE THE LAYOUT OF THE ENTIRE SITE PLAN IN ADVANCE OF BEGINNING ANY WORK ASSOCIATED WITH THE SUBJECT PLANS. CONTRACTOR SHALL EMPLOY A PROFESSIONAL SURVEYOR TO PERFORM SITE

- ANY TIME WORK IS PERFORMED OFF-SITE OR WITHIN AN EXISTING EASEMENT, THE CONTRACTOR IS TO NOTIFY THE HOLDER OF SAID EASEMENT AS TO THE NATURE OF PROPOSED WORK, AND TO FOLLOW ANY GUIDELINES OR STANDARDS WHICH ARE ASSOCIATED WITH OR REFERENCED IN THE RECORDED EASEMENT.
- THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE NEW HANOVER COUNTY INSPECTOR AND NOTIFY THE ENGINEER AT LEAST 48 HOURS PRIOR TO THE MEETING. AT A MINIMUM; THE CONTRACTOR, COUNTY INSPECTOR, AND ENGINEER SHALL ATTEND THIS MEETING.
- CONTRACTOR TO COORDINATE WITH NCDOT FOR THE REMOVAL AND STORAGE OF ANY TRAFFIC EQUIPMENT OR SIGNS DURING DEMOLITION, CONSTRUCTION, AND OPENING OF THIS DEVELOPMENT.
- CONTRACTOR TO COORDINATE WITH NEW HANOVER COUNTY ABOUT ANY COUNTY EQUIPMENT REMOVED, RELOCATED, OR DEMOLISHED DURING THE DEMOLITION, CONSTRUCTION AND OPENING OF THIS DEVELOPMENT.
- CONTRACTOR TO COORDINATE DIRECTLY WITH NCDOT TO DETERMINE IF ANY DRIVEWAY PERMITS/REVISIONS/REVIEW PROCESSES ARE REQUIRED.
- CONTRACTOR TO COORDINATE WITH NCDOT AT TRAFFIC PLAN FOR THE CLOSURE OF STREETS, SIDEWALKS, OR DRIVEWAYS AND IMPLEMENTATIONS OF THE VEHICLE AND PEDESTRIAN TRAFFIC PLAN TO BE USED FOR THE DURATION OF THIS PROJECT. THE PLAN MUST INCLUDE LOCATIONS OF SIDEWALKS AND CROSSWALKS THAT WILL BE CLOSED. AS WELL AS, LOCATION OF CONSTRUCTION FENCING, AND PROTECTION AREAS.
- 10. A TEMPORARY DETOUR AND CLOSURE PLAN WILL NEED TO BE FILED WITH NHC 911 FOR THE CLOSURE OF ANY PUBLIC STREETS

#### GENERAL NOTES:

- ALL DEVELOPMENT SHALL BE IN ACCORDANCE WITH CITY OF WILMINGTON ZONING ORDINANCE AND SUBDIVISION REGULATIONS
- THE BOUNDARY, TOPOGRAPHY AND UTILITIES SURVEY HAVE BEEN PROVIDED BY WITHERSRAVENEL. THE VERTICAL DATUM FOR THE GROUND SURVEY FOR THIS PROJECT IS NAVD 88. CONTRACTOR TO VERIFY ALL ELEVATIONS IN THE FIELD.
- REASONABLE CARE HAS BEEN EXERCISED IN SHOWING THE LOCATION OF EXISTING UTILITIES ON THE PLANS. THE EXACT LOCATION OF ALL EXISTING UTILITIES IS NOT KNOWN IN ALL CASES. THE CONTRACTOR SHALL EXPLORE THE AREA AHEAD OF DITCHING OPERATIONS BY OBSERVATIONS, ELECTRONIC DEVICES, HAND DIGGING AND BY PERSONAL CONTACT WITH THE UTILITY COMPANIES. IN ORDER TO LOCATE EXISTING UTILITIES IN ADVANCE OF TRENCHING OPERATIONS SO AS TO ELIMINATE OR MINIMIZE DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS RESULTING FROM ANY DAMAGE TO THE EXISTING UTILITY LINES INCLUDING LOSS OF UTILITY REVENUES. CONTRACTOR SHALL ARRANGE FOR TEMPORARY SUPPORT OF EXISTING UTILITIES. SUCH AS POLES. CONDUITS, FIBER OPTIC CABLES, TELEPHONE CABLES, WATER LINES, ETC.
- CONTRACTOR SHALL COMPLY WITH THE LATEST REVISIONS AND INTERPRETATIONS OF THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT. CONTRACTOR SHALL PLAN AND CONSTRUCT WORK SO AS TO CAUSE MINIMUM INCONVENIENCE TO THE OWNER AND THE PUBLIC.
- CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN AT ALL TIMES DURING THE PROGRESS OR TEMPORARY SUSPENSION OF WORK SUITABLE BARRIERS, FENCES, SIGNS OR OTHER ADEQUATE PROTECTION, INCLUDING FLAGMEN AND WATCHMEN AS NECESSARY TO INSURE THE SAFETY OF THE PUBLIC AS WELL AS THOSE ENGAGED IN THE CONSTRUCTION WORK. CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "CONSTRUCTION AND MAINTENANCE OPERATIONS SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" BY THE DOT.
- ALL MATERIAL CLEARED OR DEMOLISHED BY THE CONTRACTOR IN ORDER TO CONSTRUCT THE WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE.
- ALL WORK BY THE CONTRACTOR SHALL BE WARRANTED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR AFTER THE OWNER ACCEPTS
- 8. CONTRACTOR SHALL CALL THE NORTH CAROLINA ONE-CALL CENTER AT 811 AND ALLOW THE CENTER TO LOCATE EXISTING UTILITIES
- 9. IF THESE UNITS ARE SOLD AT ANY POINT, THE BUYER MUST RECEIVE A SUBDIVISION STREET DISCLOSURE STATEMENT. PLEASE NOTE THIS ON THE SITE PLAN AND ADVISE THE PROPERTY OWNER OF THIS REQUIREMENT.
- NO GATES, TRAFFIC CALMING DEVICES OR ON-STREET PARKING (PRIVATE ROADS) PERMITTED UNLESS REVIEWED BY TRC.

#### SITE INVENTORY NOTES:

- SOILS TYPE: Le (LEON SAND).
- 2. THIS PROPERTY IS NOT IMPACTED BY ANY AEC.
- 3. THIS SITE IS NOT IMPACTED BY ANY RECOGNIZED HISTORIC OR ARCHEOLOGICAL SIGNIFICANCE.
- 4. NO CEMETERIES WERE EVIDENCE ON THE SITE.
- 5. EXISTING VEGETATION HAS BEEN LOCATED AND LABELED ON THE TREE SURVEY PROVIDED BY WITHERSRAVENEL.
- 6. THE SITE DRAINAGE FLOWS INTO THE BARNARDS CREEK WATERSHED INTO C:SW CLASSIFIED WATERS.
- 10. THIS PROPERTY IS NOT WITHIN ANY FLOOD HAZARD AREA AS EVIDENCED ON N.C. FLOOD MAP 3720313500J.
- 11. THERE IS NO EVIDENCE OF JURISDICTIONAL WETLANDS ON SITE
- THERE IS NO EVIDENCE OF ENDANGERED SPECIES OR HABITAT ISSUES ON THE SITE
- THERE ARE CONSERVATION RESOURCE AREAS AFFECTING THIS PROPERTY

#### **DEMOLITION NOTES:**

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

#### **EROSION AND SEDIMENT CONTROL NOTES**

#### **EROSION CONTROL CONSTRUCTION NOTES**

- CLEAR AND REMOVE FROM SITE ALL TREES, ROOTS, ROOT MAT, ETC. FROM THE AREA WITHIN DESIGNATED CLEARING LIMITS.
- 2. PLANT GRASS OVER ALL GRADED AREAS AS NOTED IN STABILIZATION NOTES.
- 3. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND RESTORING TO PRE-CONSTRUCTION CONDITIONS ANY AREAS OUTSIDE THE PROJECT LIMITS THAT MAY INADVERTENTLY BE DAMAGED DUE TO THE FAILURE OF THE EROSION MEASURES
- 4. DURING GRADING AND AFTER GRADING HAS BEEN COMPLETED, CONTRACTOR SHALL CONTINUE TO MAINTAIN PERMANENT AND TEMPORARY EROSION CONTROL MEASURES UNTIL FINAL INSPECTION AND APPROVAL BY THE NEW HANOVER COUNTY ENGINEERING DEPARTMENT.
- 5. WATER, FERTILIZE, MOW AND MAINTAIN SPRIGGED, SODDED AND PLANTED AREAS UNTIL FINAL APPROVAL BY NEW HANOVER COUNTY.
- 6. 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.

#### MAINTENANCE PLAN

- 1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFAL BUT IN NO CASE LESS THAN ONCE EVERY WEEK AND WITHIN 24 HOURS OF EVERY HALF INCH RAINFALL. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
- 2. ALL POINTS OF EGRESS WILL HAVE CONSTRUCTION ENTRANCES THAT WILL BE PERIODICALLY TOP-DRESSED WITH AN ADDITIONAL 2 INCHES OF #4 STONE TO 5. DO NOT SCALE THIS DRAWING AS IT IS A REPRODUCTION AND SUBJECT TO DISTORTION. MAINTAIN PROPER DEPTH. THEY WILL BE MAINTAINED IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. IMMEDIATELY REMOVE OBJECTIONABLE MATERIAL SPILLED WASHED OR TRACKED ONTO THE CONSTRUCTION ENTRANCE OR ROADWAYS.
- 3. SEDIMENT WILL BE REMOVED BEHIND THE SEDIMENT FENCE WHEN IT BECOMES 0.5 FEET DEEP AT THE FENCE. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. SILT FENCE STAKES WILL BE SPACED 6 FEET APART UNLESS A WIRE BACKING IS USED WITH 8 FOOT STAKE SPACING.
- 4. SEDIMENT WILL BE REMOVED FROM SEDIMENT TRAPS WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. THE ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR WHEN THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE 1ST BAFFLE.
- ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER. ALL SLOPES WILL BE STABILIZED WITHIN 21 CALENDAR DAYS. ALL OTHER AREAS WILL BE STABILIZED WITHIN 15 WORKING DAYS.
- SEDIMENT WILL BE REMOVED FROM AROUND TEMPORARY ROCK CHECK DAMS ONCE A WEEK AND AFTER EVERY RAIN EVENT

#### STABILIZATION NOTES

- SLOPES LEFT EXPOSED WILL, WITHIN 21 CALENDAR DAYS OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH GROUND COVER, DEVICES, OR STRUCTURES TO RESTRAIN EROSION.
- ALL OTHER DISTURBED AREAS SHALL BE PLANTED OR OTHERWISE PROVIDED PERMANENT GROUND COVER WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT WHICHEVER PERIOD IS SHORTER.

#### **BUILDING WASTES HANDLING**

- NO PART OR LIQUID WASTES IN STREAM OR STORM DRAINS.
- DEDICATED AREAS FOR DEMOLITION, CONSTRUCTION AND OTHER WASTES MUST BE LOCATED 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES AVAILABLE.
- 3. EARTHEN-MATERIALS STOCKPILES MUST BE LOCATED 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES AVAILABLE

#### CONCRETE MATERIALS MUST BE CONTROLLED TO AVOID CONTACT WITH SURFACE WATERS, WETLANDS, OR BUFFERS

- SAME WEEKLY INSPECTION REQUIREMENTS.
- SAME RAIN GAUGE & INSPECTIONS AFTER 0.5" RAIN EVENT.
- INSPECTIONS ARE ONLY REQUIRED DURING "NORMAL BUSINESS HOURS". INSPECTION REPORTS MUST BE AVAILABLE ON-SITE DURING BUSINESS HOURS UNLESS A SITE-SPECIFIC EXEMPTION IS APPROVED
- RECORDS MUST BE KEPT FOR 3 YEARS AND AVAILABLE UPON REQUEST ELECTRONICALLY AVAILABLE RECORDS MAY BE SUBSTITUTED UNDER CERTAIN CONDITIONS

#### SEDIMENT BASINS

- OUTLET STRUCTURES MUST WITHDRAW FROM BASIN SURFACE UNLESS DRAINAGE AREA IS LESS THAN 1 ACRE.
- USE ONLY DWQ-APPROVED FLOCCULENTS.

#### NPDES-SPECIFIC PLAN SHEETS NOTES

- 1. THIS PAGE IS SUBMITTED TO COMPLY WITH NPDES GENERAL STORMWATER PERMIT NCG010000.
- THIS PAGE CAN BE APPROVED BY THE COUNTY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000 ONLY
- THIS PAGE OF THE APPROVED PLANS IS ENFORCEABLE ELUSIVELY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000.
- 4. THE COUNTY IS NOT AUTHORIZED TO ENFORCE THIS PAGE OF THE PLANS AND IT NOT PART OF THE APPROVED PLANS FOR THE PURPOSED OF ENFORCEMENT ACTION UNDER THE COUNTY CODE.

GROUND STABILIZATION

TIME FRAME

7 DAYS

7 DAYS

14 DAYS

14 DAYS

Extensions of time may be approved by the permitting authority based on weather or other site-specific conditions that make compliance

DESCRIPTION

PERIMETER DIKES

SWALES, DITCHES

AND SLOPES

HIGH QUALITY

WATER (HQW)

SLOPES STEEPER

SLOPES FLATTER

ALL OTHER AREAS

WITH SLOPES

FLATTER THAN 4:

impracticable. (Section 11.B(2)(b))

THAN 3:1

THAN 3:1

STABILIZATION STABILIZATION TIME

FRAME EXCEPTIONS

NONE

NONE

IF SLOPES ARE 10' OR

ESS IN LENGTH AND ARE

NOT STEEPER THAN 2:1

14 DAYS ARE ALLOWED

7 DAYS FOR SLOPES

REATER THAN 50 FEET

LENGTH

NONE

AND HQW ZONES)

XCEPT FOR PERIMETERS

#### PERMANENT SEEDING SCHEDULE - MIXTURE 5CP Seeding Mixture

Seeding Dates
MARCH - JUNE
Soil Amendments

SPECIES

CENTIPEDE GRASS

APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 300 LB/ACRE 10-10-1- FERTILIZER.

#### DO NOT MULCH

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

#### TEMPORARY SEEDING-LATE WINTER/EARLY SPRING Seeding Mixture

WI	NTER AND EARLY SPRIN	G
SPECIES	R	ATE (LB/ACRE)
Rye (GRAIN)		120
ANNUAL LESPEDEZA (KOBE	IN PIEDMONT	50

AND COASTAL PLAIN, KOREAN IN MOUNTAINS) END BEYOND JUNE.

OMIT ANNUAL LESPEDEZA	WHEN DURATION OF TEMP	PORARY COVER IS NOT TO EXTE
SPECIES	SUMMER	RATE (LB/ACRE)
GERMAN MILLET		40

#### FALL RYE (GRAIN)

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

AUG. 15 - DEC. 30 - FALL Soil amendments FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

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.

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

#### **GRADING NOTES:**

- TREE PRESERVATION / REMOVAL PERMIT IS REQUIRED PRIOR TO CLEARING AND LAND DISTURBANCE.
- NO EQUIPMENT IS ALLOWED ON THE SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED.
- 3. PROTECTIVE FENCING IS TO BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. LAND CLEARING AND CONSTRUCTION CONTRACTORS SHALL RECEIVE ADEQUATE INSTRUCTION ON TREE PROTECTION REQUIREMENTS AND METHODS.

#### SITE NOTES

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

#### TRAFFIC NOTES

- ALL PAVEMENT MARKINGS IN PUBLIC RIGHT-OF-WAYS AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS. [DETAIL SD-13 CofW TECH STDS]
- ALL SIGNS AND PAVEMENT MARKINGS IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS. [DETAIL SD 15-13 CofW TECH STDS]
- 3. STREET NAME SIGNS FOR PUBLIC AND PRIVATE STREETS MUST BE ERECTED BEFORE A CERTIFICATE OF OCCUPANCY IS ISSUED. CONTACT TRAFFIC ENGINEERING AT 910-341-7888 FOR INFORMATION ABOUT STREET SIGNS FOR THIS PROJECT
- 4. ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
- ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
- 6. CONTACT TRAFFIC ENGINEERING AT 341-7888 TO ENSURE THAT ALL TRAFFIC SIGNAL FACILITIES AND EQUIPMENT ARE
- 7. CONTACT TRAFFIC ENGINEERING AT A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT OF WAY.
- 8. CONTACT TRAFFIC ENGINEERING AT 341-7888 TO DISCUSS STREET LIGHTING OPTIONS. THE LANDSCAPING PLAN WILL BE
- NEED TO DETERMINE STREET LIGHT LOCATIONS. 9. TACTILE WARNING MATS TO BE INSTALLED AT ALL WHEELCHAIR RAMPS.

MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.

- 10. A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT IN A CITY STREET. NOTE THIS ON THE PLAN AND CONTACT 341-5888 FOR MORE DETAILS. IN CERTAIN CASES AN ENTIRE RESURFACING OF THE AREA BEING OPEN CUT MAY BE
- 11. 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 SUDIVIDER SHALL PAY THE COST OF SUCH INSTALLATION. CONTRACT TRAFFIC ENGINEERING AT 341-7888 TO DISCUSS INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES
- 12. ONCE STREETS ARE READY TO BE OPEN TO PUBLIC TRAFFIC. CONTACT THE TRAFFIC ENGINEERING DIVISION TO REQUEST. INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
- 13. ANY BROKEN OR MISSING SIDEWALK PANELS, DRIVEWAY PANELS AND CURBING WITH BE REPLACED.
- 14. A LANDSCAPING PLAN, INDICATING THE LOCATION OR REQUIRED STREET TREES SHALL BE SUBMITTED TO THE TRAFFIC ENGINEERING DIVISION AND PARKS AND RECREATION DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE RECORDING OF THE FINAL PLAT. PLAN SHALL ADHERE TO SD 15-17.
- 15. PERMITTING OF BUSINESS IDENTIFICATION SIGNAGE IS A SEPARATE PROCESS. CITY OF WILMINGTON WILL NOT ALLOW OBSTRUCTIONS WITHIN THE RIGHT OF WAY.

## SEQUENCE OF CONSTRUCTION:

- FLAG THE CLEARING LIMITS AND INSTALL ALL SILT AND TREE PROTECTION FENCE.
- HOLD PRE-CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION
- INSTALL SILT FENCE.
- CLEAR AND REMOVE FROM SITE ALL TREES, ROOTS, ROOT MAT, ETC. FROM THE AREA WITHIN THE DESIGNATED CLEARING

INSTALL STORM DRAINAGE, INCLUDING INLET PROTECTION, SANITARY SEWER AND WATER AS SHOWN ON THE PLANS. ALL

5. ROUGH GRADE THE REMAINING AREA WITHIN THE DESIGNATED CLEARING LIMITS.

TRENCHES SHALL BE BACKFILLED AND STABILIZED DAILY.

- 7. DIRECT RUNOFF FROM PARKING LOT INTO STORM DRAINAGE SYSTEM. CONTRACTOR SHALL VERIFY STORM WATER IS ROUTED THROUGH A BASIN OR SILT FENCE PRIOR TO LEAVING SITE.
- COMPLETE FINE GRADING SITE.
- MAINTAIN SEDIMENTATION AND EROSION CONTROL MEASURES UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
- REQUEST FINAL APPROVAL OF GROUND COVER BY THE EROSION CONTROL INSPECTOR.
- ONCE SITE IS FULLY STABILIZED, REMOVE ALL REMAINING TEMPORARY MEASURES AND IMMEDIATELY REPAIR, DRESS-OUT. AND SEED & MULCH THESE AREAS.

#### **EXISTING UTILITY NOTES:**

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

#### NOTICE REQUIRED

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

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

#### UTILITY NOTES:

- EXISTING WATER AND SANITARY SEWER SERVICES ARE CURRENTLY AVAILABLE TO THE SITE FROM PUBLIC SYSTEMS. WATER SERVICE AND SANITARY SEWER SERVICE WILL BE PROVIDED BY CAPE FEAR PUBLIC UTILITY AUTHORITY.
- ALL UTILITY SERVICES, SUCH AS ELECTRIC POWER, CATV, GAS, AND TELEPHONE SHALL BE INSTALLED UNDERGROUND.
- 3. ALL WATER & SEWER UTILITIES TO BE INSTALLED PER CFPUA TECHNICAL SPECIFICATIONS & STANDARDS
- PROJECT SHALL COMPLY WITH CAPE FEAR PUBLIC UTILITY AUTHORITY CROSS CONNECTION CONTROL REQUIREMENTS. WATER METER(S) CANNOT BE RELEASED UNTIL ALL REQUIREMENTS ARE MET AND N.C.D.E.N.R. HAS ISSUED THEIR "FINAL APPROVAL". CALL 332-6560 FOR INFORMATION.
- HAVE A BACKFLOW PREVENTION DEVICE ACCEPTABLE TO THE COUNTY AND APPROVED BY USCFCCCHR OR ASSE. CALL 332-6560 FOR INFORMATION. WATER AND SEWER SERVICES CAN NOT BE ACTIVATED ON NEW MAINS UNTIL THE ENGINEER'S CERTIFICATION

ALL COMMERCIAL WATER SERVICES AND ANY IRRIGATION SYSTEMS SUPPLIED BY C.F.P.U.A. WATER SHALL

AND AS-BUILTS ARE RECEIVED AND "FINAL APPROVAL" ISSUED BY THE PUBLIC WATER SUPPLY SECTION OF

NCDENR, AND "FINAL ENGINEERING CERTIFICATION" ISSUED BY DIVISION OF WATER QUALITY SECTION OF

- N.C.D.E.N.R. IF CONTRACTOR DESIRES 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. WHEN PVC WATER MAINS AND SERVICES ARE PROPOSED, THE PIPES ARE TO BE MARKED WITH NO. 10 INSULATED COPPER WIRE INSTALLED AND STRAPPED TO THE PIPES WITH DUCT TAPE. THE INSULATED WIRE IS TO BE STRIPPED TO BARE WIRE AND SECURED TO ALL VALVES AND FITTINGS. THIS WIRE IS TO BE ACCESSIBLE
- 9. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OR EXISTING UTILITIES DURING CONSTRUCTION. DAMAGED ITEMS SHALL BE REPAIRED TO AT LEAST THE QUALITY OR WORKMANSHIP FOUND

THE BELLSOUTH CONTACT IS STEVE DAYVAULT, BUILDING INDUSTRY CONSULTANT, AT 910-392-8712. CONTACT

- HIM PRIOR TO STARTING THE PROJECT IN ORDER TO FACILITATE GOOD COMMUNICATION AND MAXIMUM
- 11. THE PROCESS FOR TELEPHONE CABLE PLACEMENT:
- 11.1. FINAL GRADE WILL NEED TO BE ESTABLISHED. POWER WILL PLACE THEIR CABLE FIRST - APPROXIMATELY 3' DEEP.
- 11.3. BELLSOUTH & CABLE TV WILL THEN PLACE THEIR CABLE AT APPROXIMATELY 2' DEEP. 12. SOLID WASTE DISPOSAL TO BE SERVED BY PRIVATELY CONTRACTED DUMPSTER PICKUP

IN ALL VALVE AND METER BOXES TO AID IN FUTURE LOCATION OF FACILITIES.

#### LANE & SHOULDER CLOSURE REQUIREMENTS:

1. REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE

CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.

- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR AN LAND CLOSURE IS INSTALLED.
- FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR **GUARDRAIL** WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN DIVIDED FACILITY

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED

- AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN
- 6. DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

# FIRE & LIFE SAFETY NOTES:

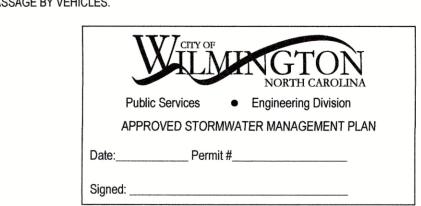
UNDERGROUND UTILITIES.

WITH THE CLOSED TRAVEL LANE.

1. LANDSCAPING OR PARKING CANNOT BLOCK OR IMPEDE THE FDC OR FIRE HYDRANTS. A 3-FOOT (3') CLEAR

SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE HYDRANT AND FDC.

- 2. HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB. 3. A MINIMUM OF 5' SHALL SEPARATE UNDERGROUND FIRE LINES OR PRIVATE WATER MAINS FROM OTHER
- 4. NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDING(S). 5. CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING
- 6. TEMPORARY STREET SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHEN CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE BY VEHICLES.



Approved Construction Plan

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

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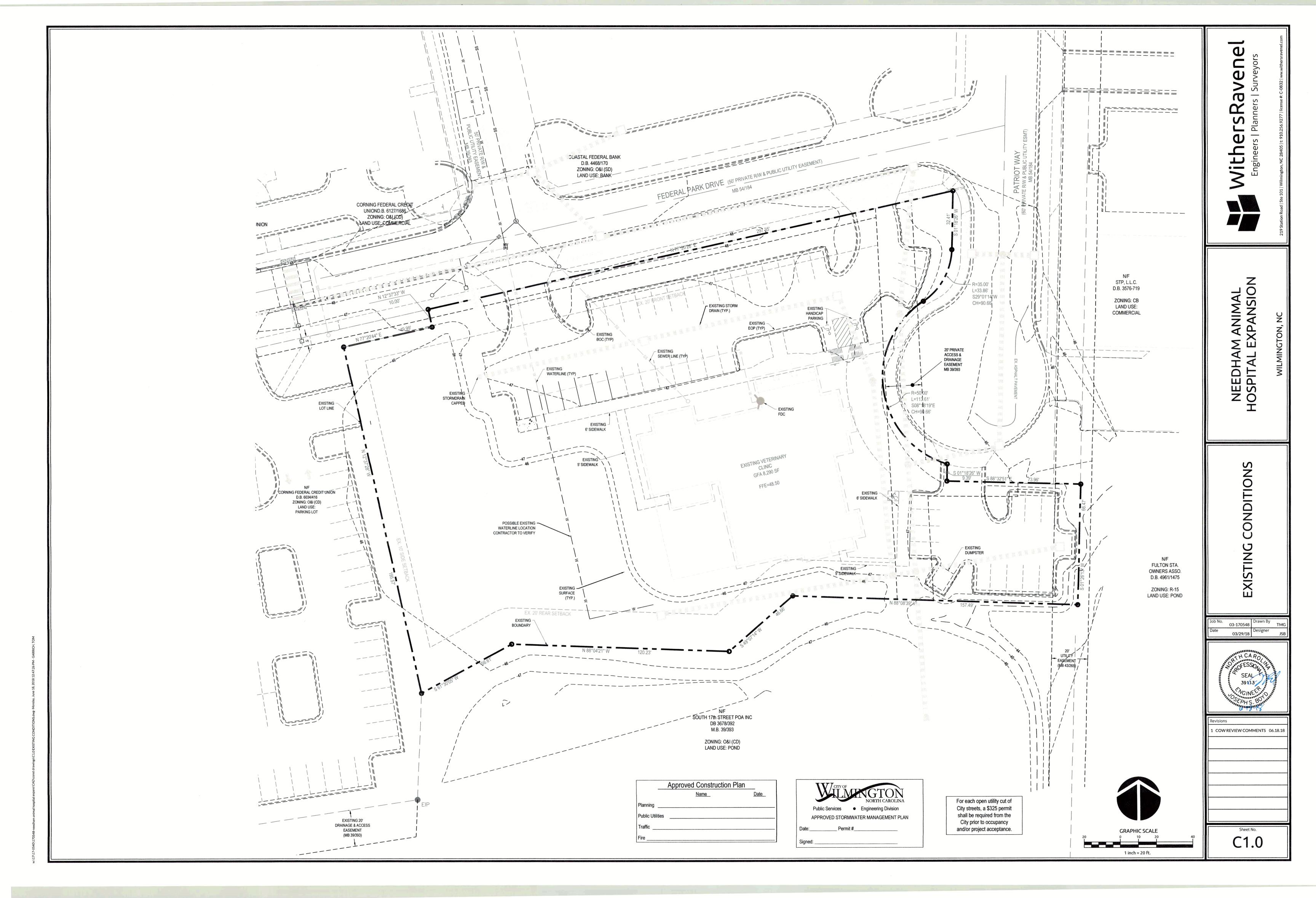
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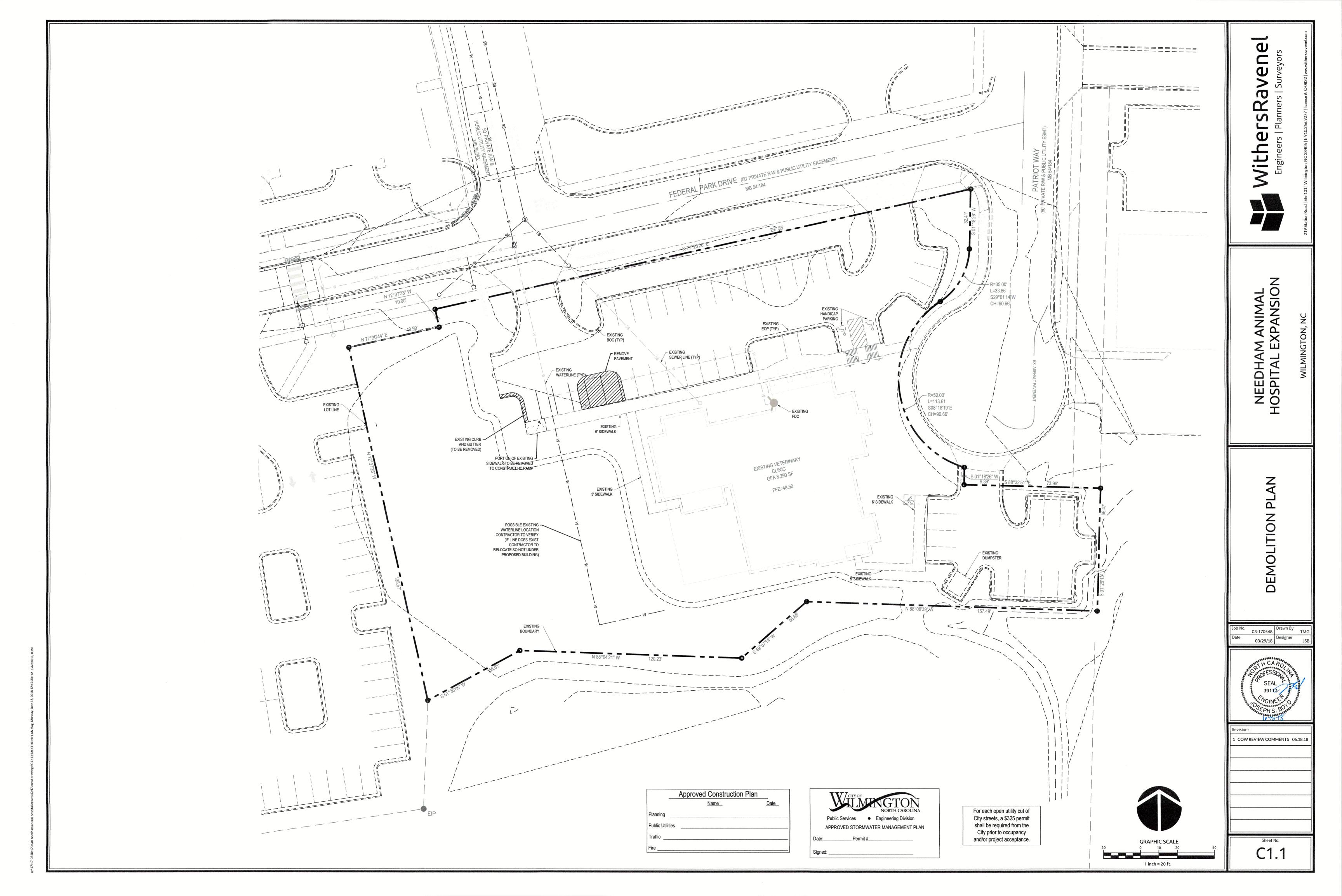
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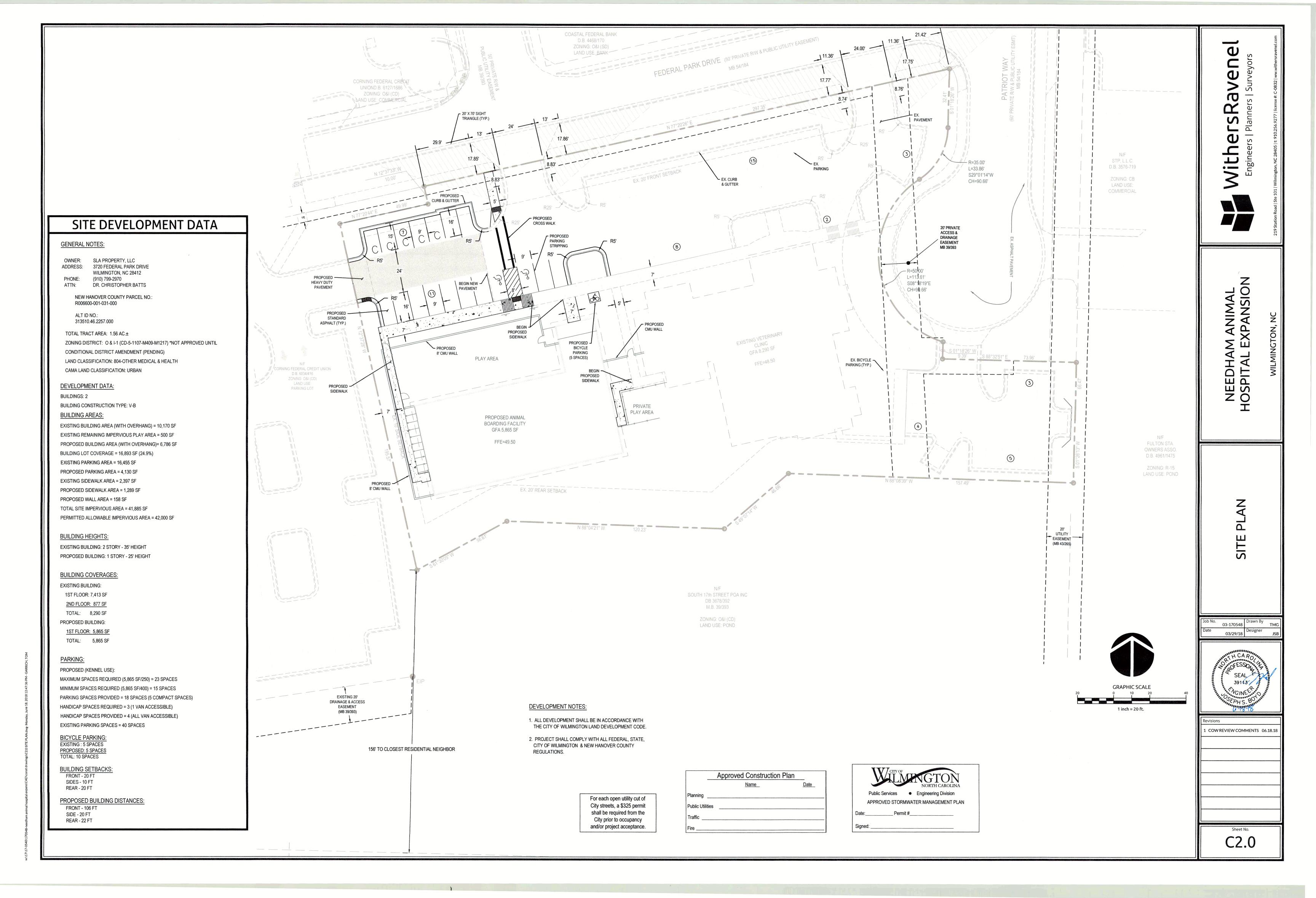
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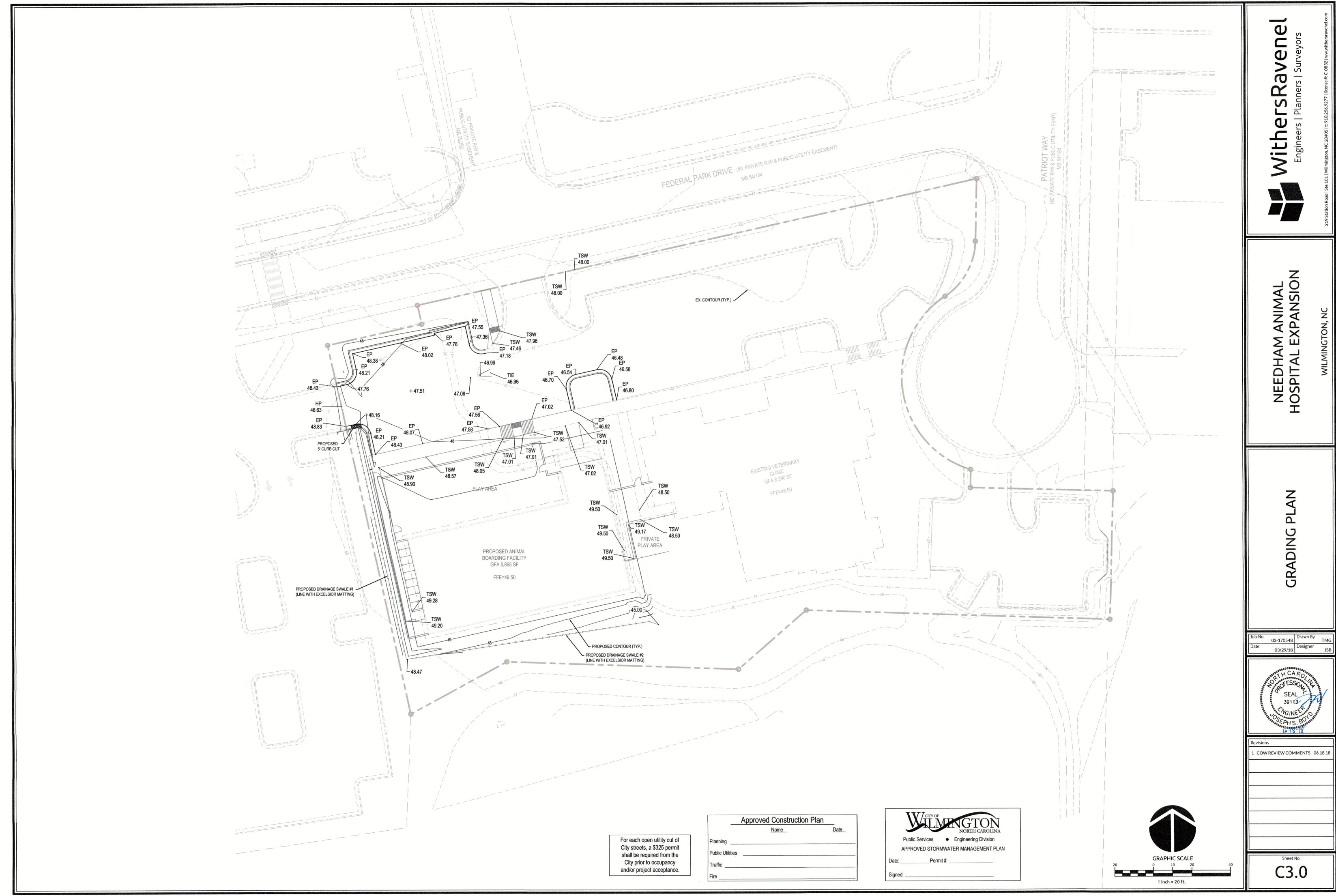
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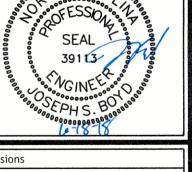
COW REVIEW COMMENTS 06.18.18

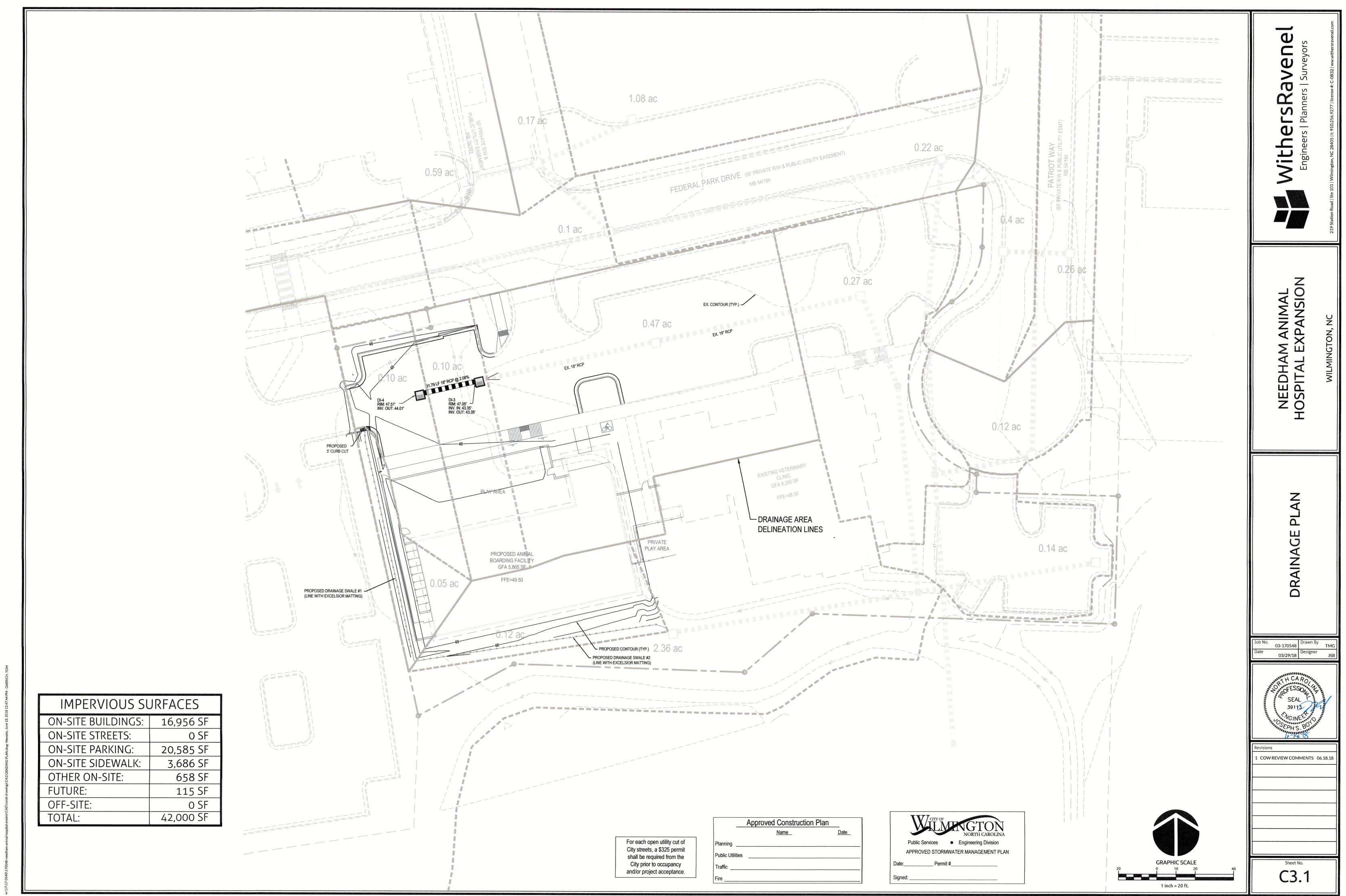


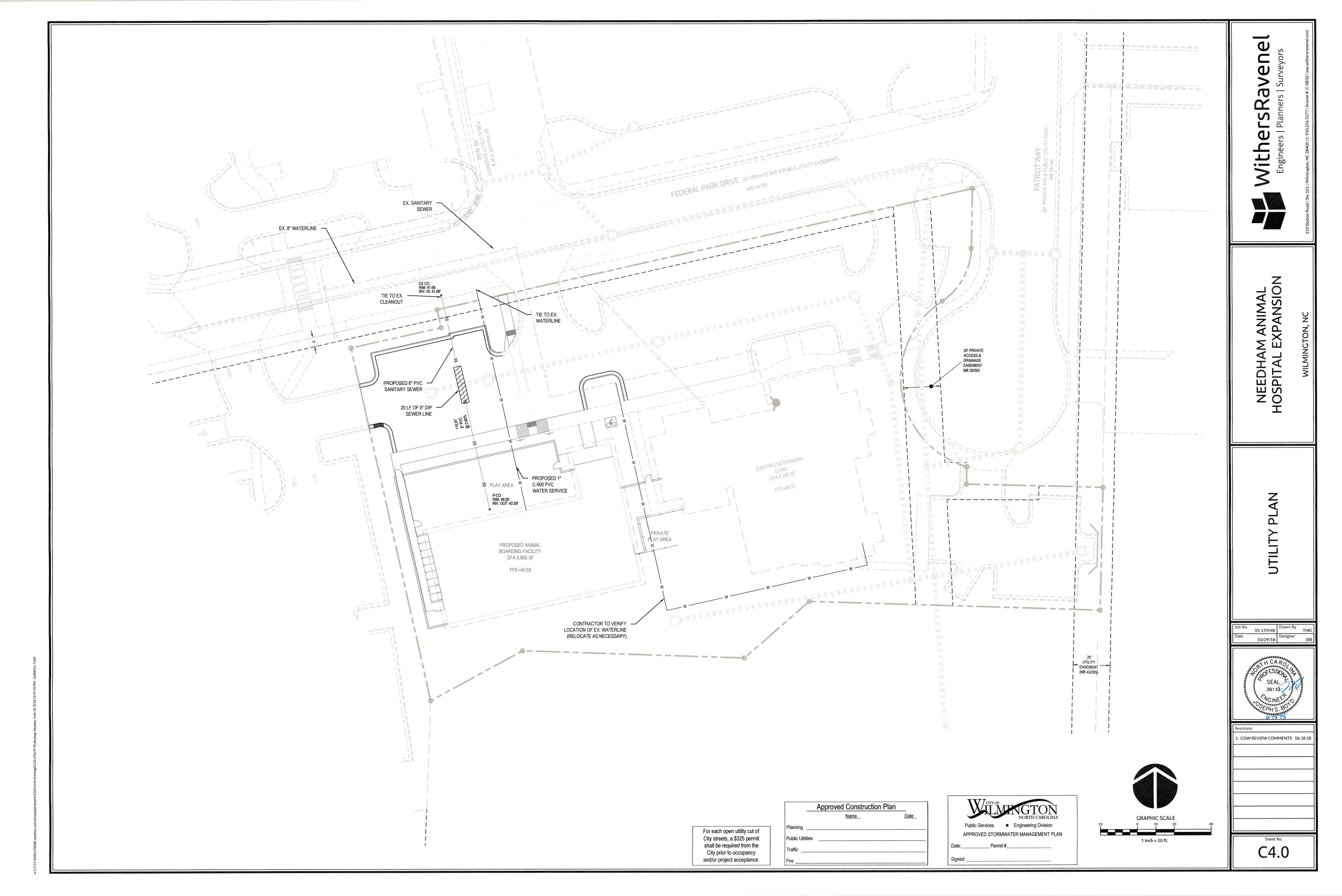


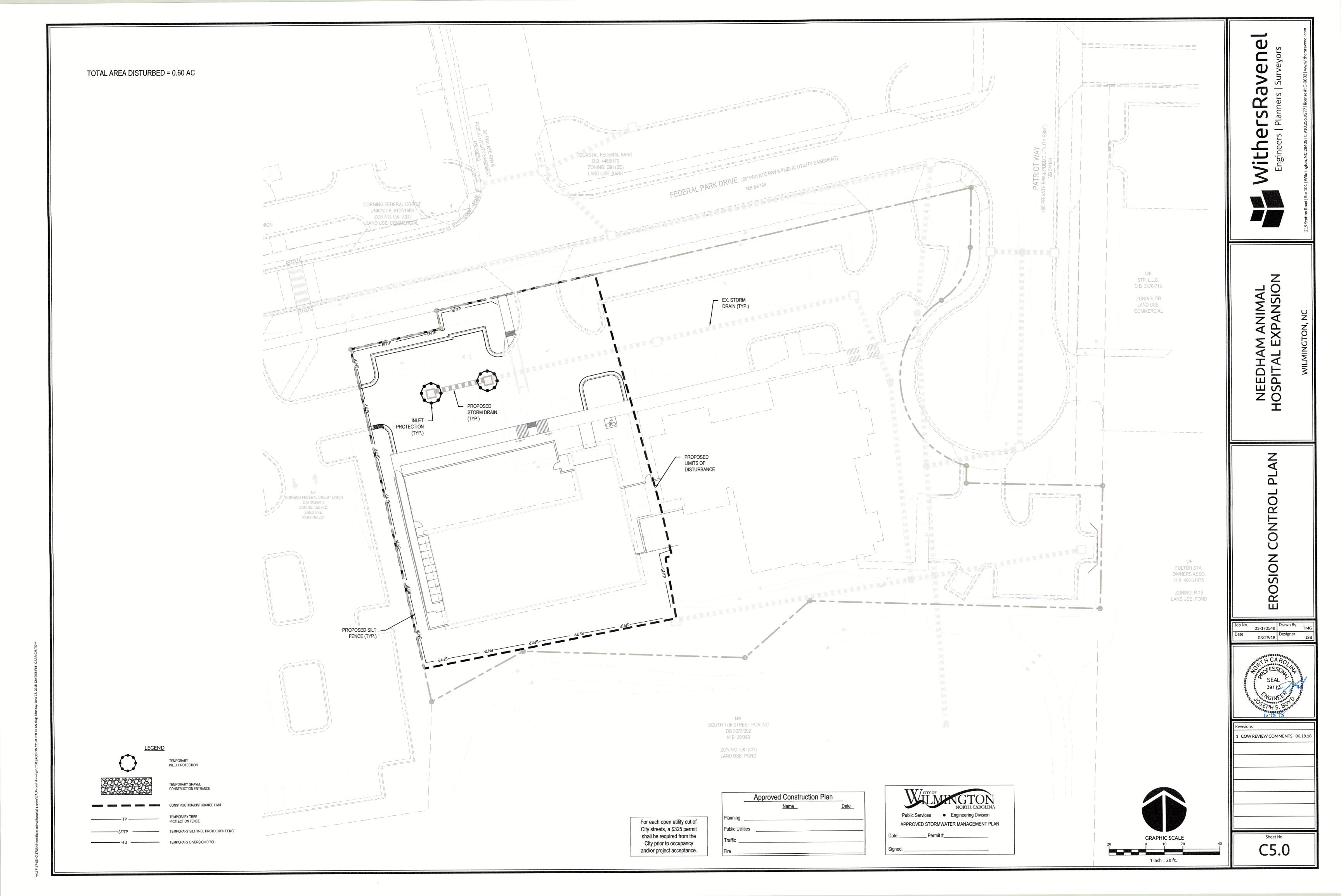


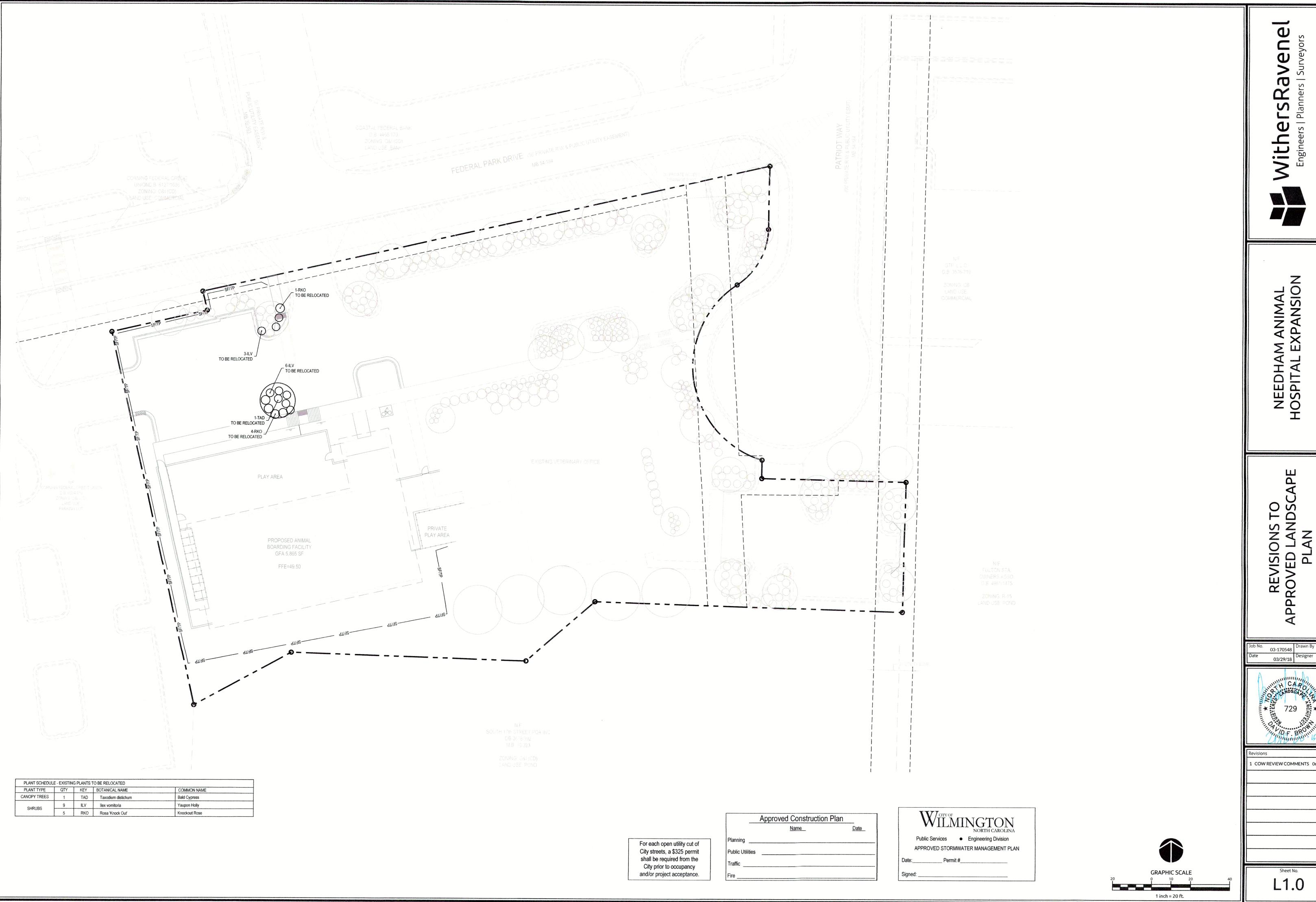








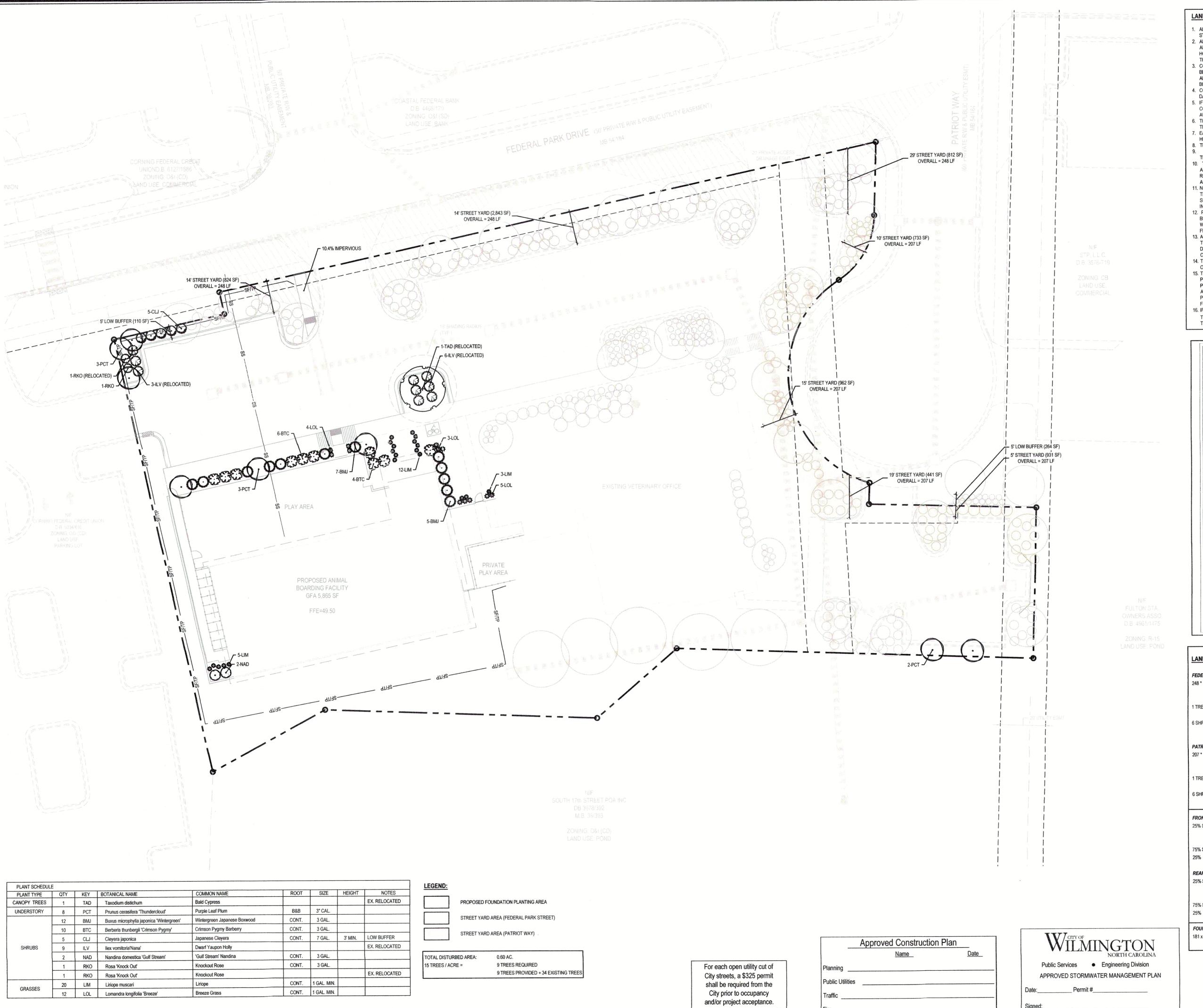






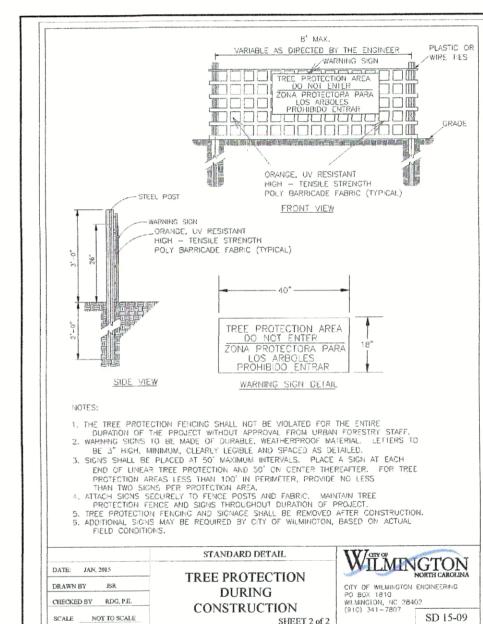


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	Revisions
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No. of Contrasts	

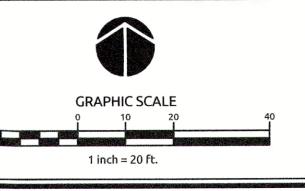


#### LANDSCAPE NOTES:

- . ALL PLANTS SHALL MEET OR EXCEED THE MINIMUM STANDARDS SET FORTH IN "THE AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN. 2. ALL AREAS DISTURBED AND NOT SPECIFIED AS MULCHED PLANTING BEDS WILL BE GRASSED. 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. 4. 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. 5. IF DISCREPANCIES OR AVAILABILITIES 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. 5. THE DEVELOPER SHALL NOTIFY LANDSCAPE DESIGNER PRIOR TO INSTALLATION TO ENSURE PROPER TREE SELECTION & SPACING.
  - 7. EACH TREE SHALL BE A MINIMUM OF 2" CALIPER AS MEASURED FROM THE DIAMETER AT BREAST
  - TREES WITHIN THE SAME BLOCKS SHALL BE THE SAME SPECIES. . ALL PLANTINGS SHALL BE CURBED OR OTHERWISE PHYSICALLY PROTECTED FROM VEHICULAR
  - 10. 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. 11. NO PLANTINGS OVER 30" IN HEIGHT SHALL BE ALLOWED IN VISION CLEARANCE, EXISTING TREES IN THE SIGHT DISTANCE TRIANGLE SHOULD BE LIMBED 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'. 12. 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
  - 13. 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 COFW TECH STDS] 14. THERE IS NO CONSERVATION RESOURCES ASSOCIATED WITH THE PARCELS INCLUDING ANY RARE
  - OR ENDANGERED SPECIES IN ACCORDANCE WITH THE NC WILDLIFE RESOURCES COMMISSION. 15. 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. 16. IF THE ENTIRE CRZ CANNOT BE PRESERVED, THE DISTURBED AREA SHALL EXTEND NO CLOSER TO THE PROTECTED TREE TRUNK THAN ONE HALF (+) THE RADIUS OF THE CRZ. IN NO CASE CAN MORE THAN 40% OF THE CRZ BE DISTURBED.



#### LANDSCAPE CALCULATIONS: FEDERAL PARK STREET YARD: 298 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 PATRIOT WAY STREET YARD: 232 LF - 25' (1 DRIVE) = 207 LF 207 \* 18 (O&I DISTRICT) = 3,726 SF REQUIRED 3,615 SF PROVIDED + LOW BUFFER (264 SF) = 3,879 SF PROVIDED 7 TREES REQUIRED 1 TREE / 600 SF 10 EXISTING TREES PROVIDED 6 SHRUBS / 600 SF 39 SHRUBS REQUIRED 132 EXISTING SHRUBS PROVIDED 16,191 SF FRONT VUA (INTERIOR): 4,048 SF REQUIRED 25% SHADING: 12,664 SF PROVIDED 1 (TAD) + 18 EXISTING 75% SHADE / CANOPY TREE: 6 (PCT) 25% SMALL TREES: REAR VUA (INTERIOR) 4,393 SF 1,099 SF REQUIRED 25% SHADING: 4,934 SF PROVIDED 6 EXISTING 75% SHADE / CANOPY TREE: 25% SMALL TREES: 2 (PCT) 181 LF FOUNDATION: 261 SF REQUIRED 181 x 12' x 12% = 830 SF PROVIDED



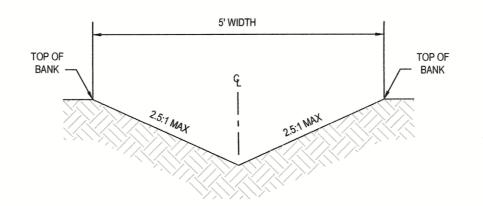
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1 ANIMAL EXPANSIO EDH/ PITA

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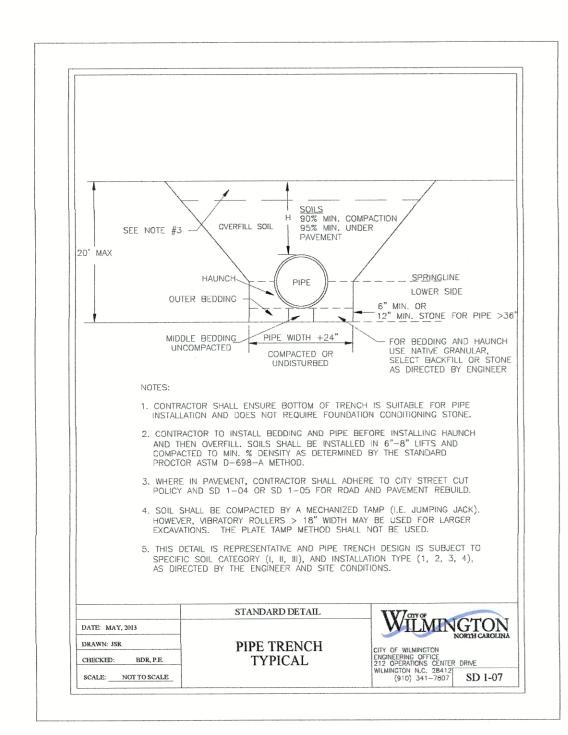
1 COW REVIEW COMMENTS 06.01.18

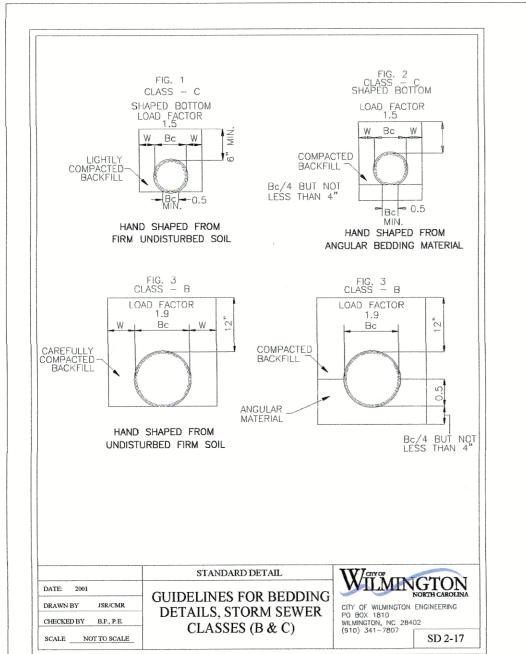


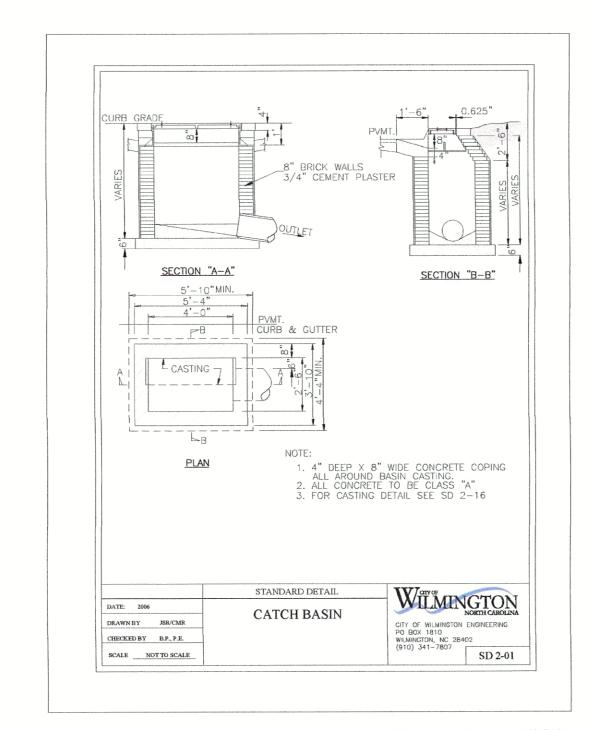
# 5' TRIANGULAR SWALE CROSS SECTION DETAIL NOT TO SCALE

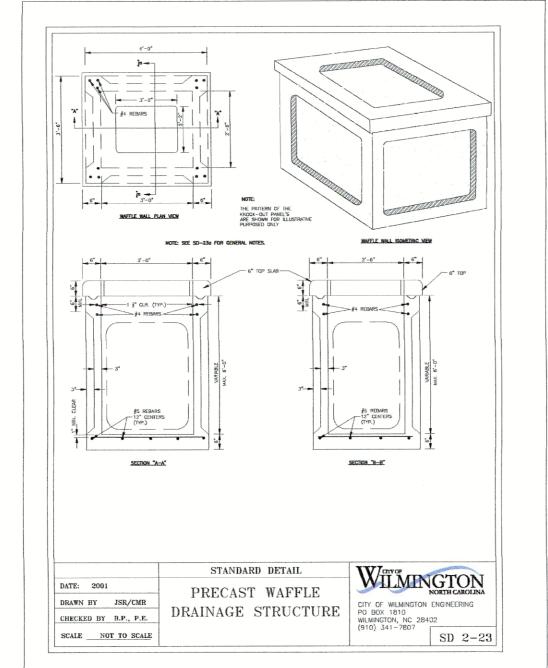
#### SWALE CALCULATIONS

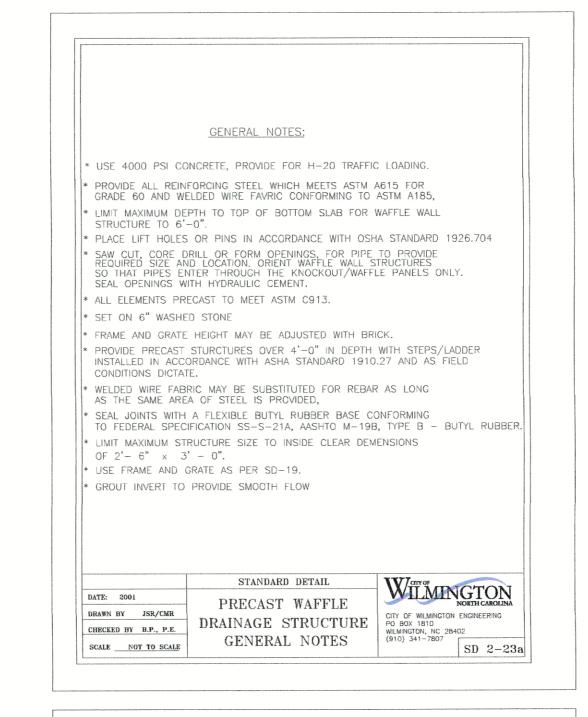
SWALE NO.	DRAINAGE AREA (AC.)	STARTING ELEV.	ENDING ELEV.	LENGTH	AVERAGE SLOPE	CROSS SLOPE	SWALE TYPE	TEMPORARY LINER	SWALE LINER
1	0.05	48.16'	48.47'	125'	0.25%	2.5:1	TRIANGULAR	EXCELSIOR MATTING	GRASS
2	0.12	48.47'	45.00'	133'	2.72%	2.5:1	TRIANGULAR	EXCELSIOR MATTING	GRASS

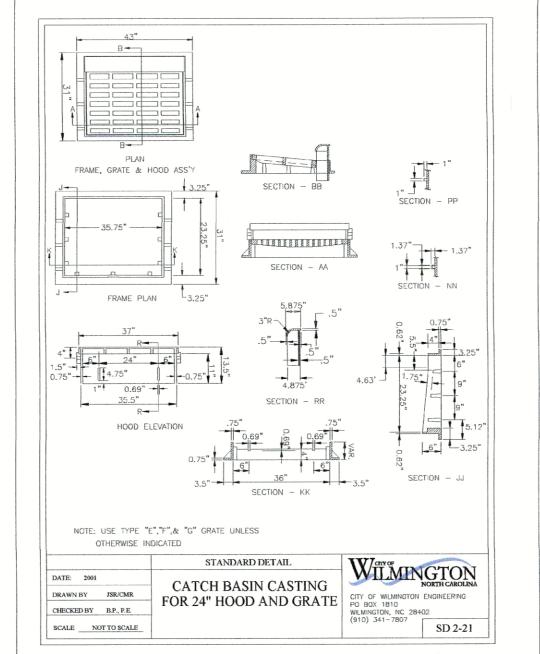


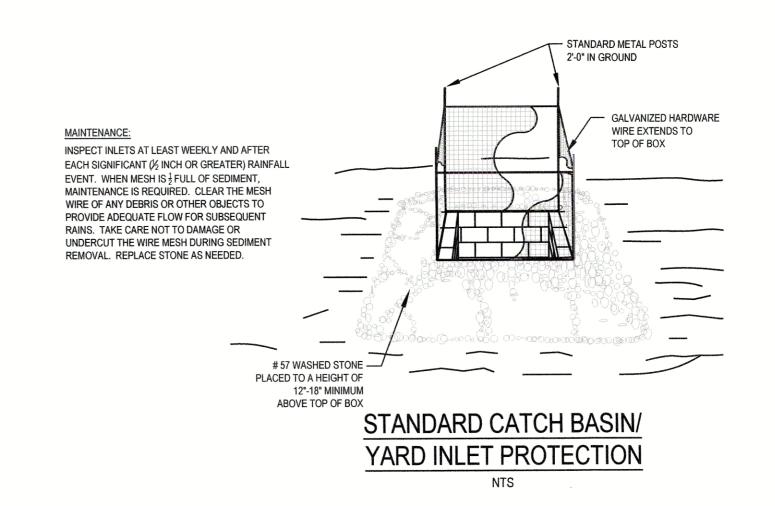












1. INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY. 2. SHOULD THE FABRIC OF THE SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY. 3. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME 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. 8'-0" MAX STD STRENGTH FABRIC WITH WIRE FENCE 1. STEEL POSTS TO BE BURIED A MINIMUM OF 2'-0". 6'-0" MAX EXTRA STRENGTH FABRIC WITHOUT WIRE FENCE 2. INSTALL SILT FENCE WHERE SHOWN ON DRAWINGS AND MAINTAIN UNTIL COMPLETION OF GRADING. 12 GAGE LINE WIRES 10 GAGE LINE WIRES -3'-0" 2'-2" BACKFILL FLOW

7 1/2" OZ.

FILTER FABRIC

NTS

— STEEL POST —

#### SEEDBED PREPARATION:

NOTE 1

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.

 APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL.
 CONTINUE TILLAGE UNTIL A WELL PULVERIZED, FIRM REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.

 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 SEEDED 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.

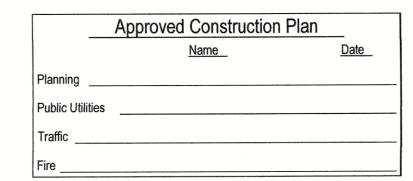
9. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

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.

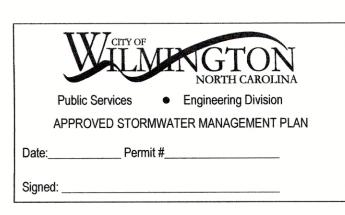
\* TEMPORARY-RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy

and/or project acceptance.



ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING.



Withers Raven
Engineers | Planners | Surveyor

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HAM ANIMAL AL EXPANSION

EROSION CONTROL & STORM DRAIN DETAIL!

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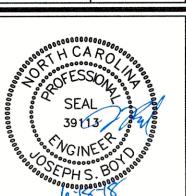
BURIED UNDER EXIST.

GRADE OR AS

ENGINEER.

REQUIRED BY THE

					W. W. T.
-		Job No.	03-170548	Drawn By	TM
-		Date	03/29/18	Designer	JS
	(S. 18.00)				



Revisions

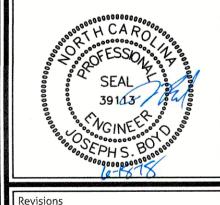
1 COW REVIEW COMMENTS 06.18.18

Shoot No.

C6.0

1 ANIMAL EXPANSIO NEEDHAM, IOSPITAL EX

03-170548 Drawn By 03/29/18 Designer



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Revisions	
1 COW REVIEW COMMENTS	06.18.1

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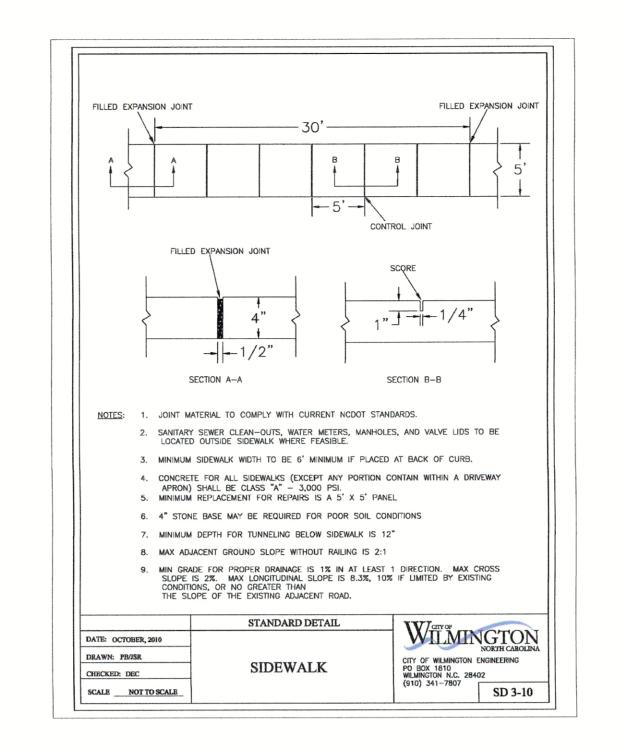
**Approved Construction Plan** <u>Date</u>

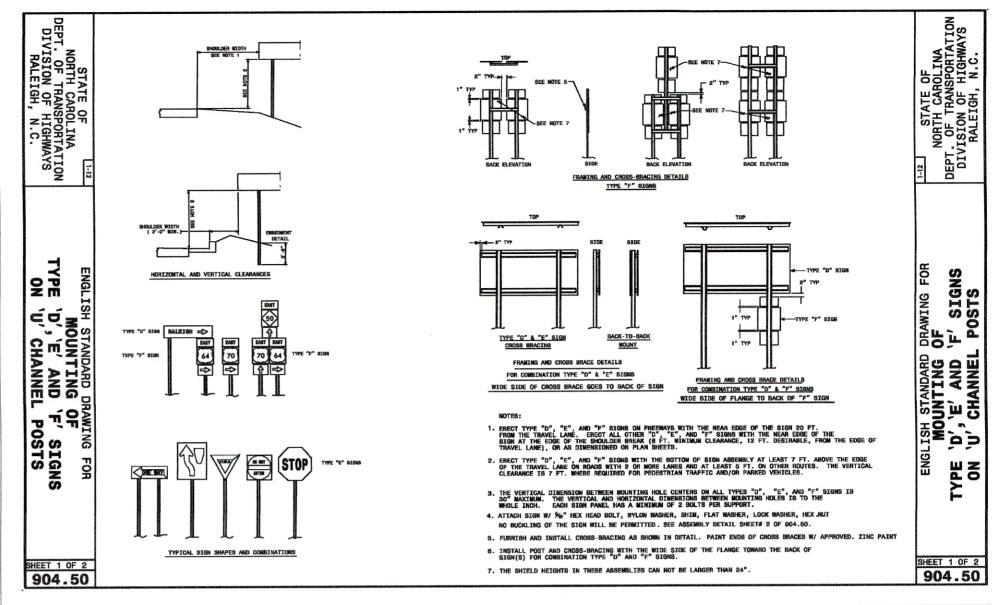
For each open utility cut of

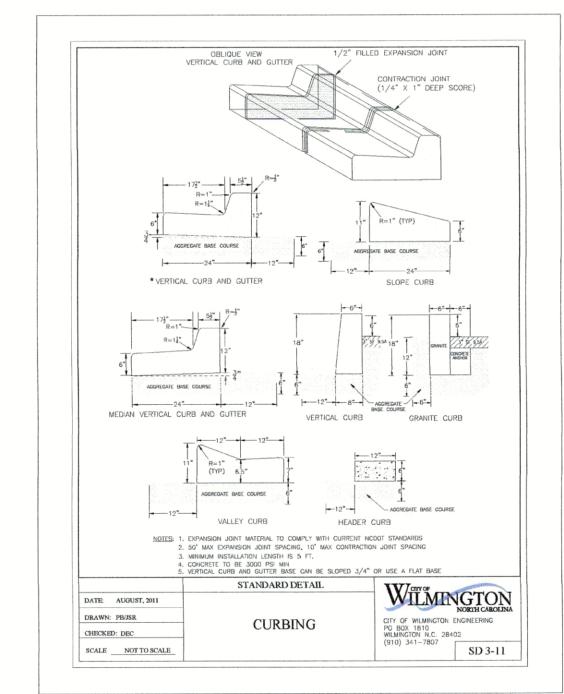
City streets, a \$325 permit shall be required from the City prior to occupancy

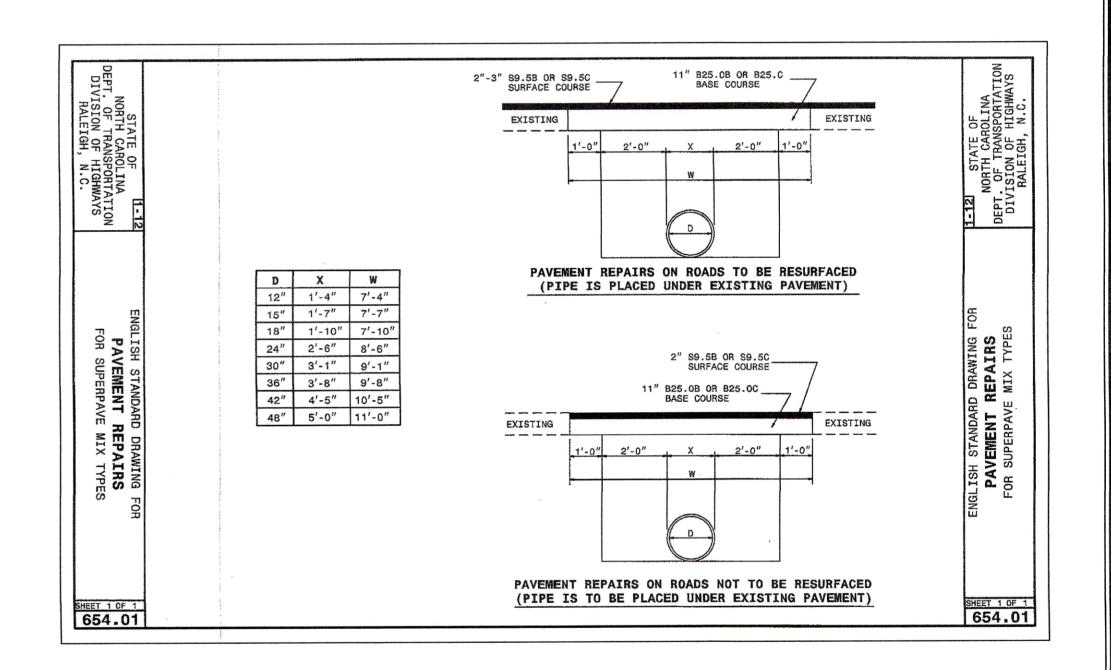
and/or project acceptance.

Public Services • Engineering Division APPROVED STORMWATER MANAGEMENT PLAN

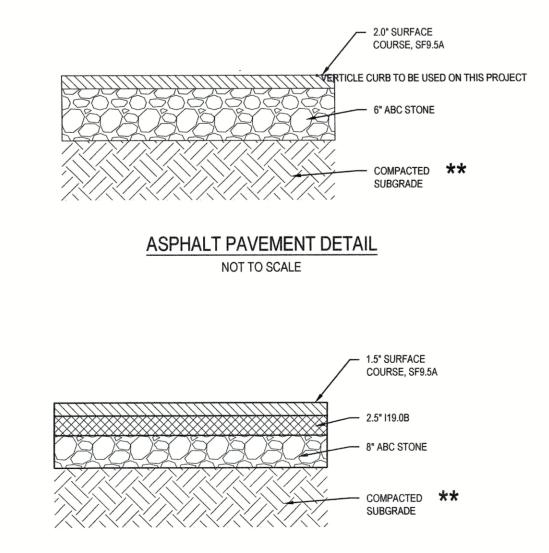






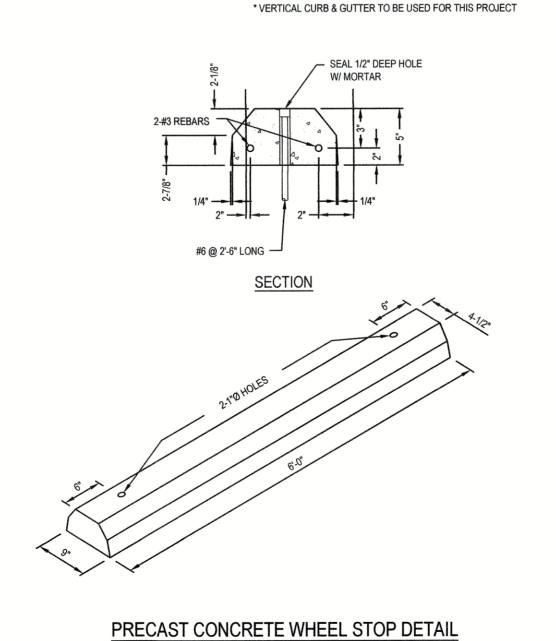


CONCRETE

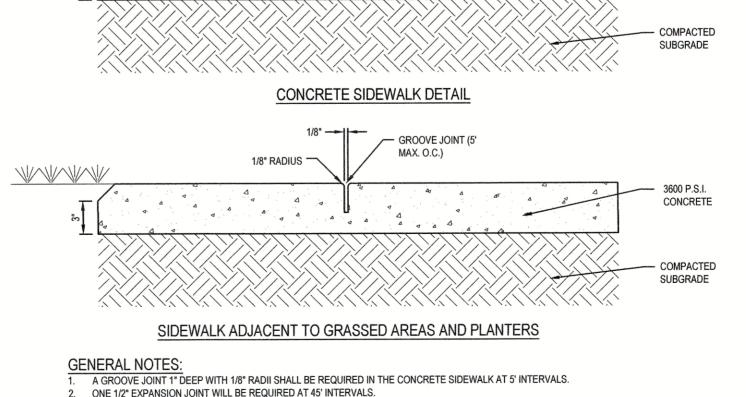


HEAVY DUTY PAVEMENT DETAIL

NOT TO SCALE



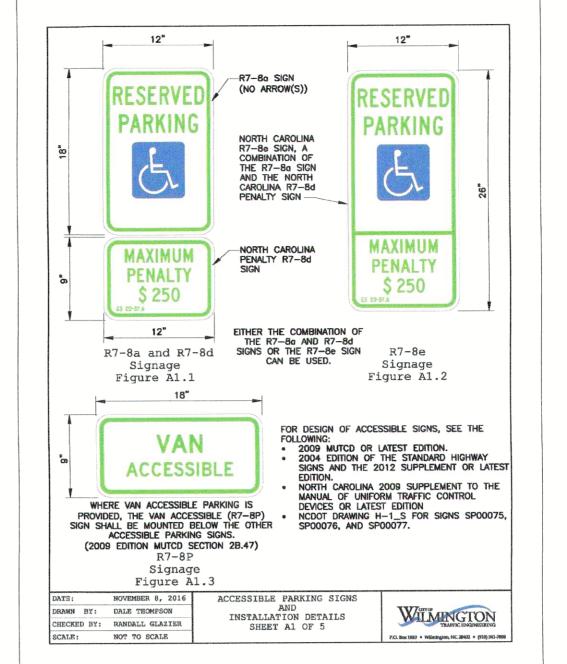
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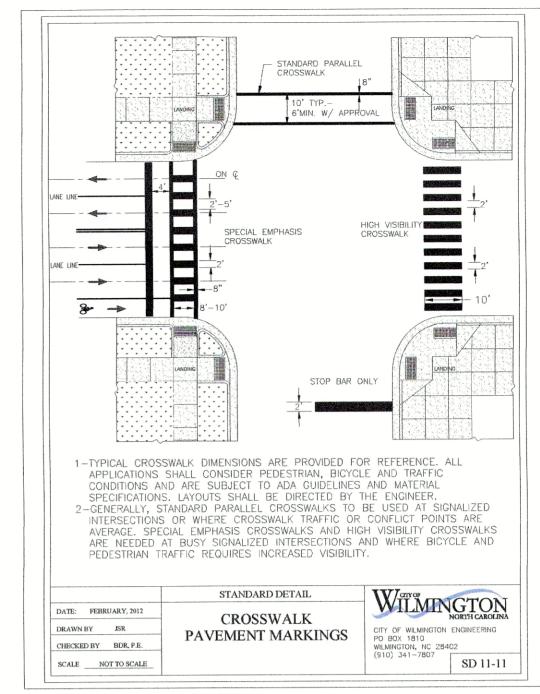


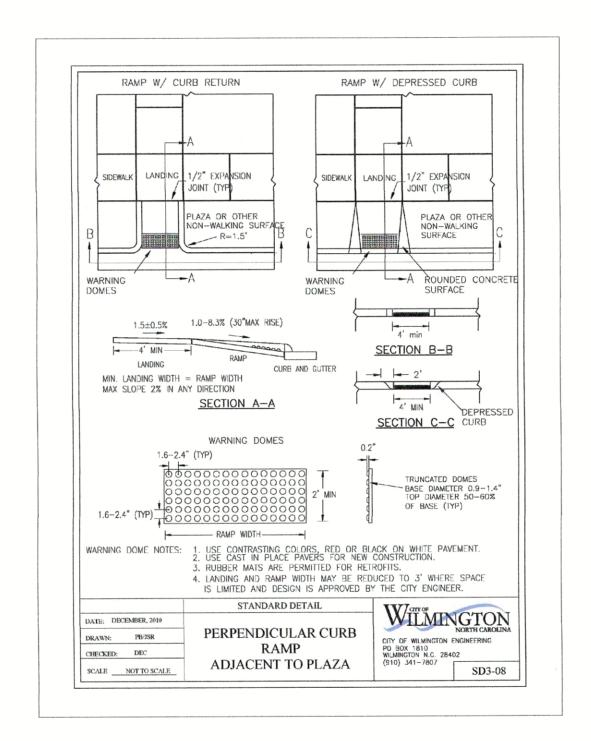
- GROOVE JOINT (5'

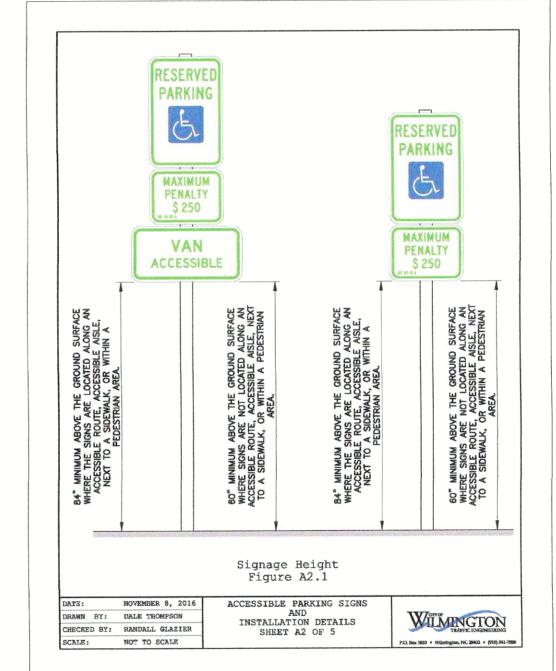
 A GROOVE JOINT 1" DEEP WITH 1/8" RADII SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS.
 ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 45' INTERVALS. 3. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK ABUTS ANY CURB AND GUTTER AND ANY RIGID STRUCTURES. 4. IN SIDEWALKS AND PLAZA AREAS EXPANSION JOINTS ARE REQUIRED AT NO GREATER THAN 30' INTERVALS. CONCRETE SHALL BE 3600 PSI. IN 28 DAYS.

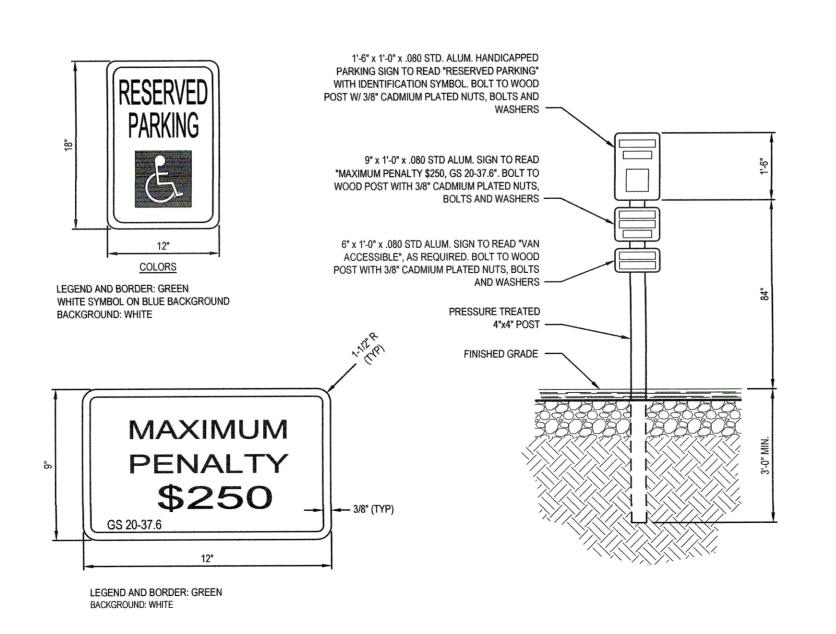
> CONCRETE SIDEWALK DETAIL NOT TO SCALE

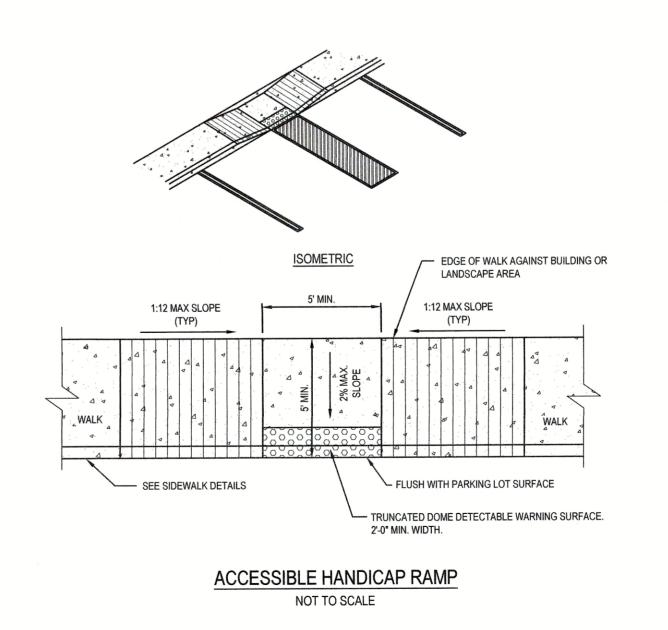












For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

Public Services  • Engineering Division	
APPROVED STORMWATER MANAGEMENT PLAN	
Date:Permit #	
Signed:	

Аррі	roved Construction	Plan
	Name	<u>Date</u>
lanning		
Public Utilities	and the second s	
Traffic		
Fire		

03-170548 Drawn By

SEAL  SEAL  SOLUTION  Revisions
Revisions
1 COW REVIEW COMMENTS 06.18.18

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1 ANIMAL EXPANSION

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T MARKING FAILS

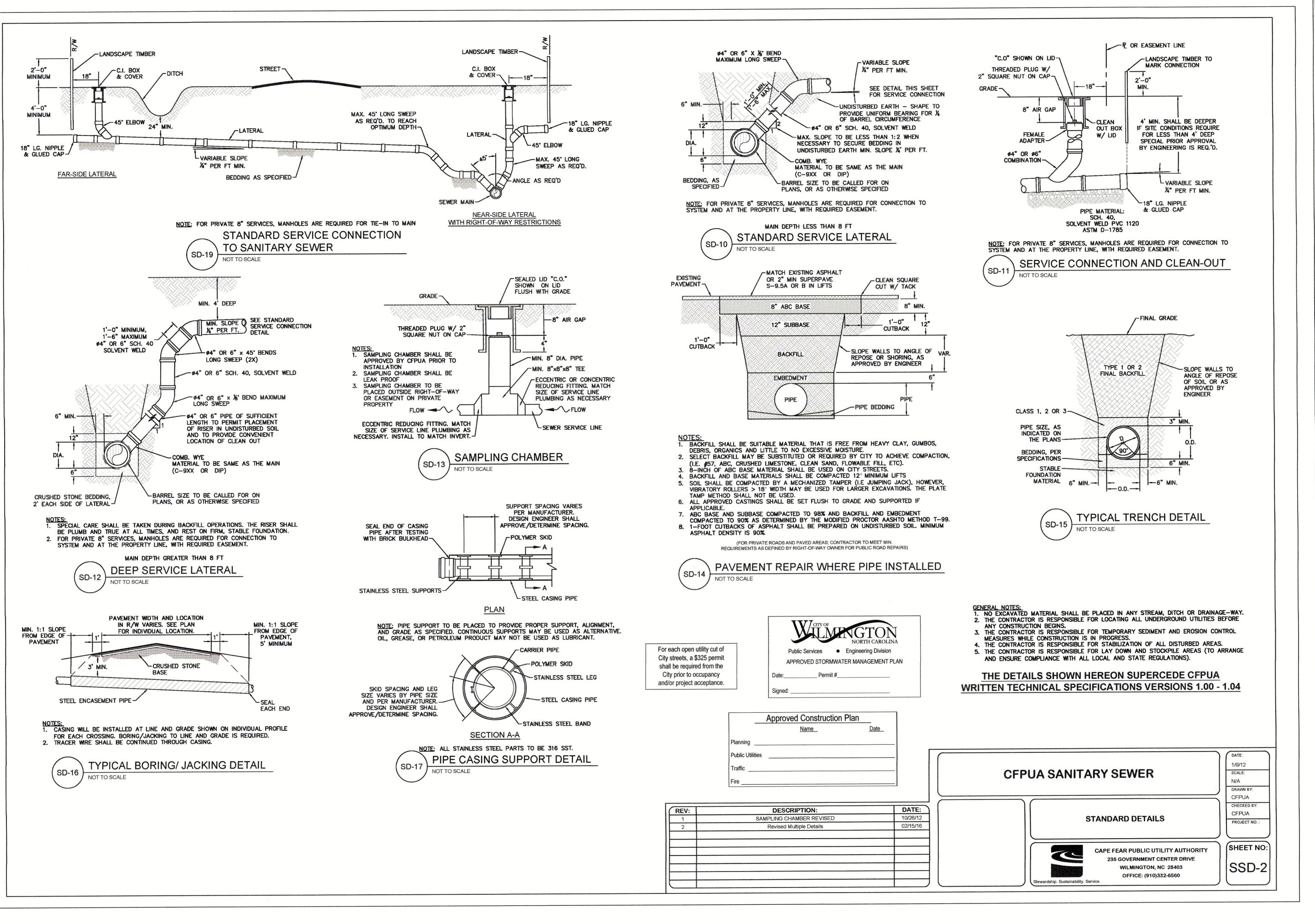
PAVEMENT | DETA

03/29/18 Designer

C6.2

TYPICAL HANDICAPPED SIGN DETAIL

NOT TO SCALE



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

thersRavene

Eng

EDHAM ANIMAL PITAL EXPANSION

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PUA DETAILS

 Job No.
 O3-170548
 Drawn By TN

 Date
 03/29/18
 Designer
 J

SEAL SOLVENER OF SOLVEN SOLVEN

COW REVIEW COMMENTS 06.18.18

C6.3

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

TYPICAL DETAILS NOTE:

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1 ANIMAL EXPANSION EDH, PITA

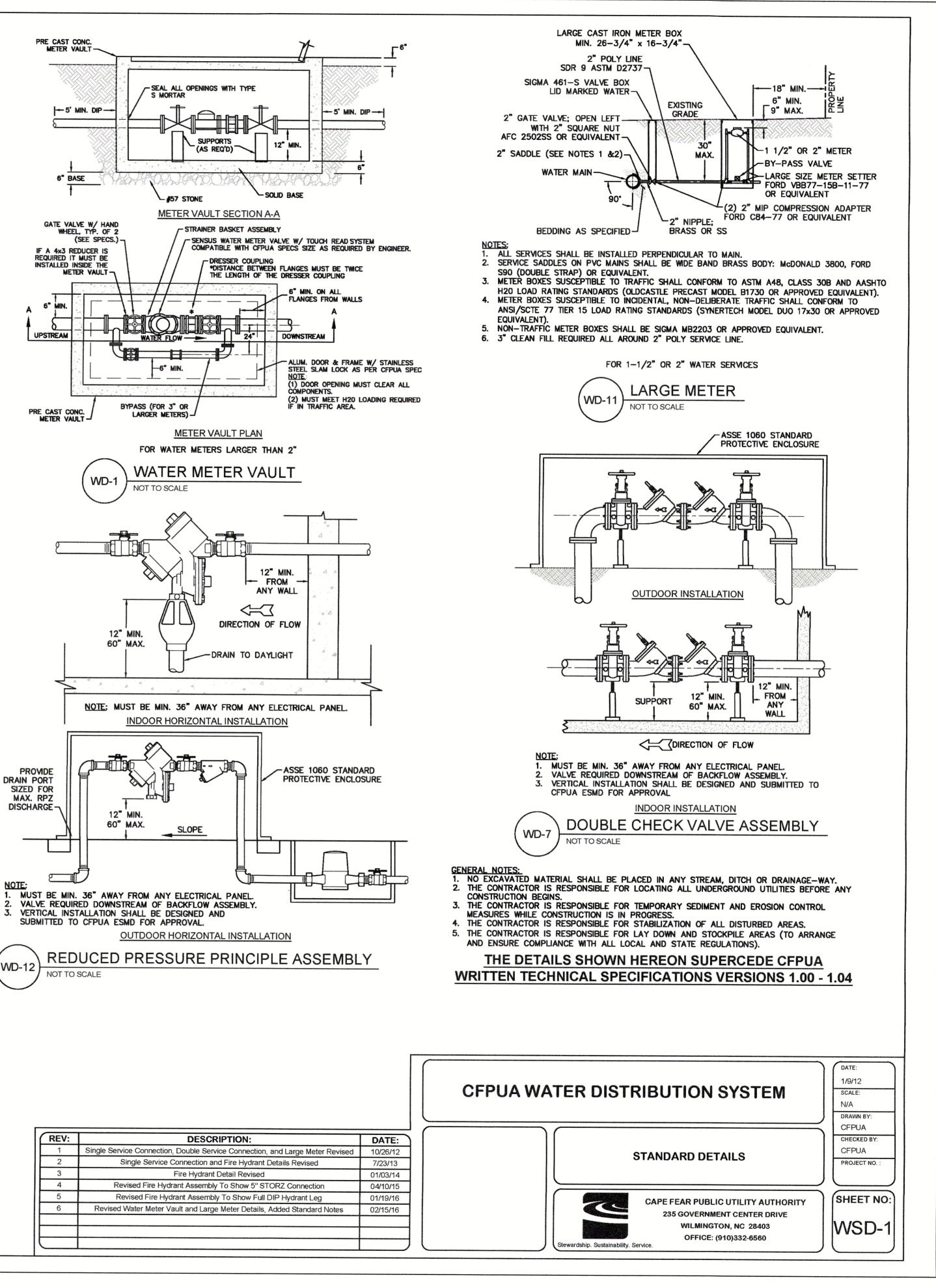
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03-170548 03/29/18 Designer

COW REVIEW COMMENTS 06.18.18

C6.4



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

NOTES:

1. NO JOINT SHALL BE INSTALLED BETWEEN THE MAIN SERVICE TAP AND

2. SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY:

A48, CLASS 30B AND AASHTO H20 LOAD RATING STANDARDS (SIP

LONG SIDE SERVICE

3. METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ASTM

THE METER STOP. ALL SERVICES SHALL BE INSTALLED

SADDLE McDONALD 3801 OR EQUIVALENT.

MODEL 4242, OR APPROVED EQUIVALENT).

1" X 3/4" BRASS

REDUCER BUSHING-

5/8"x3/4" METER-/

PRIVATE BACK FLOW

OR R-O-W)-

----

1" BRASS GATE VALVE

1" PVC TEE-

NOTES:

1. BEYOND THE PRIMARY DOMESTIC METER ASSEMBLY, CFPUA IS ONLY RESPONSIBLE FOR

PLAN VIEW

(MULTIPLE DOMESTIC SERVICES PER TAP)

**USING SUBTRACT METER** 

DOUBLE SERVICE CONNECTION

Public Utilities

2. ALL PIPE AND FITTINGS UP TO FINAL SERVICE LINE TO BE 1" EXCLUDING METERS.

MIN 3" CLEARANCE

FROM ANY FIXTURE

TO ANY SIDE OF BOX

PREVENTER (PLACEMENT MAY

OF SUBTRACT METER, NOT NECESSARILY IN EASEMENT

VARY; MUST BE DOWNSTREAM

SEE SECTION A-A-

EXISTING 3/4" OR 1" SPLIT

METER AND WASHERS OF SUBTRACT METER ASSEMBLY.

NOT TO SCALE

For each open utility cut of

City streets, a \$325 permit

shall be required from the

City prior to occupancy

and/or project acceptance.

DOMESTIC SERVICE CONNECTION

AND PRIMARY METER ASSEMBLY-

SUBTRACT METER ASSEMBLY

1" BRASS GATE VALVE -

1" PVC MALE ADAPTER-

(2) PVC 90° BENDS —

PERPENDICULAR TO MAIN.

\_5/8"x3/4" METER

GRADE

-1" SERVICE LINE, CTS-PE TUBING

-TAPPING VALVE, PER SPECIFICATIONS

SDR 9 ASTM D2737 (TYP.)

-BEDDING, AS SPECIFIED

SHORT SIDE SERVICE

SINGLE METER BOX

3/4" SERVICE ANGLE STOP: SHALL BE McDONALD MODEL

MCDONALD MODEL 6133T.

CARSON 1015-12 BLACK

F CVr CAST IRON READER

METER BOX WITH 2/6 MsHI

WITH STAINLESS STEEL STIFFENERS

-METER BOX (SEE ABOVE)

~3" CLEAN FILL ALL AROUND LINE

PUMPING AND HOSE FIRE HYDRANT CONNECTION EQUAL TO CFPUA

STANDARD WITH 5" STORZ

2' MINIMUM BURY

(SEE NOTE 4)

1. JOINT RESTRAINT SYSTEMS SHALL BE WEDGE ACTION STYLE FOR DI PIPE AS MANUFACTURED

2. WHEN HYDRANT LEGS REQUIRE FULL LENGTH PIPE SECTIONS, OVER BELL RESTRAINT SYSTEM

3. CONTINUOUS 316 STAINLESS STEEL RODS (TEE TO VALVE AND VALVE TO HYDRANT) MAY BE

FIRE HYDRANT ASSEMBLY

BY EBAA IRON, SIGMA, STAR PIPE PRODUCTS OR APPROVED EQUAL.

CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD NOTES:

SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE

MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.

4. MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE

FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW

STANDARD NOTES

ALL STAINLESS STEEL FASTENERS SHALL BE 316.

NO FLEXIBLE COUPLINGS SHALL BE USED.

PERPENDICULAR, OR MUST ORIGINATE IN END OF LINE

3. ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE

CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401

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.

REQUIRED ON ALL PLAN AND PROFILE SHEETS)

SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN

2. WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT RIGHT-OF-WAY LINE. SEWER

USED WITH COR-BLUE MJ T-BOLT AND GASKET KITS, AS AN ALTERNATIVE.

SHALL HAVE 316 STAINLESS STEEL HARNESS AND FASTENERS.

4. HYDRANT AND VALVE SHALL BE PLACED OUTSIDE DITCH LIMITS.

NOT TO SCALE

5. WEEP HOLES OPEN AND UNBLOCKED TO DRAIN.

TRAFFIC AREAS.

CERAMIC EPOXY LINING.

DEVELOPMENTS.

WD-19

FIELD APPLIED JOINT RESTRAINT-

(SEE NOTE 1)

CONNECTION FACING ROADWAY

1" SERVICE LINE, BY CUSTOMER

-24"x24"x4" THICK

CONCRETE COLLAR

-SEE NOTE 3

- VALVE BOX W/LID,

LID MARKED "WATER"

-6" M.J. GATE VALVE

PROVIDE

DRAIN PORT

SIZED FOR

MAX. RPZ

74642B-22, OR APPROVED EQUIVALENT,

OR 1" METER

SINGLE

SERVICE

CORPORATION STOP McDONALD SERVICE STOP MODEL 74701B-22 OR

EQUIVALENT WITH STAINLESS STEEL

STIFFENERS McDONALD MODEL 6133T.

3/4" SERVICE ANGLE STOP: SHALL BE McDONALD MODEL 74642B-22, OR

STIFFENERS MCDONALD MODEL 6133T.

(TYP.) T

CORPORATION STOP McDONALD SERVICE STOP

STEEL STIFFENERS McDONALD MODEL 6133T.

1' MIN./

18" MAX.

BREAK RING-

BACK FILL

#57 STONE FILL

(7 CF MIN.)

MODEL 74701B-22 OR EQUIVALENT WITH STAINLESS

TYPICAL WATER SERVICE CONNECTION FOR RESIDENTIAL SINGLE

SINGLE SERVICE CONNECTION

SECTION VIEW

FAMILY HOME ON CFPUA WATER SYSTEM

NOT TO SCALE

APPROVED EQUIVALENT, WITH STAINLESS STEEL

STREET

1" SERVICE LINE, BORED

-DOUBLE METER BOX CARSON 1220-12

CAST IRON READER

-(2) SHORT SPUDS

(2) PVC 90° BENDS

WATER MAIN

SECTION A-A

IRRIGATION SERVICE

BLACK METER BOX WITH 2/6 MsHI F CVr

UTILITY EASEMENT

MALE ADAPTERS

Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Approved Construction Plan

(OR RIGHT-OF-WAY)

RIGHT-OF-WAY

C6.5

03-170548

03/29/18 Designer

COW REVIEW COMMENTS 06.18.18

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SEAL

1 COW REVIEW COMMENTS 06.18.18

SHEET NO: WSD-2

CHECKED BY:

PROJECT NO.

CFPUA

STANDARD DETAILS

Stewardship. Sustainability. Service.

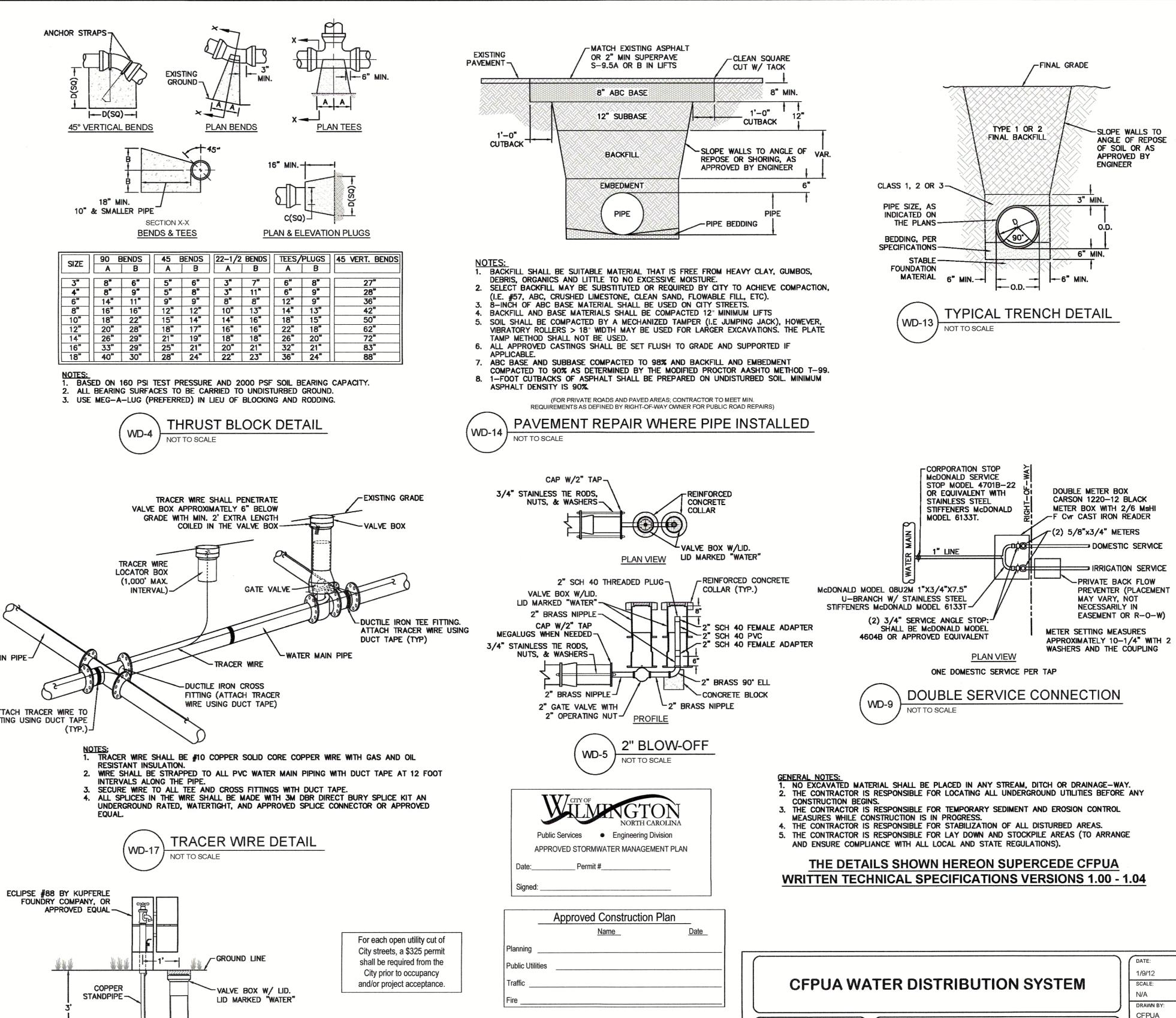
CAPE FEAR PUBLIC UTILITY AUTHORITY

235 GOVERNMENT CENTER DRIVE

WILMINGTON, NC 28403

OFFICE: (910)332-6560

C6.6



PAVED AREA , UNPAVED AREA LID FLUSH W/ FINISHED GRADE --PRE CAST CONCRETE COLLAR PAVEMENT REPAIR AS PER -FINISH GRADE TO REVEAL DETAIL SHEET WSD-2-LINE ON COLLAR VALVE BOX W/LID. 3'-0" MIN. LID MARKED "WATER" M.J. GATE VALVE VALVE DETAIL WD-3

NOT TO SCALE

SUPPORT SPACING VARIES

PER MANUFACTURER. DESIGN ENGINEER SHALL

APPROVE/DETERMINE SPACING.

STEEL CASING PIPE

POLYMER SKID

STAINLESS STEEL BAND

STAINLESS STEEL LEG

FROM EDGE OF

PAVEMENT,

5' MINIMUM

EACH END

-POLYMER SKID

NOTE: PIPE SUPPORT TO BE PLACED TO PROVIDE PROPER SUPPORT, ALIGNMENT, AND GRADE AS SPECIFIED. CONTINUOUS SUPPORTS MAY BE USED AS ALTERNATIVE.

SECTION A-A

NOTE: ALL STAINLESS STEEL PARTS TO BE 316 SST.

-CRUSHED STONE

1. CASING WILL BE INSTALLED AT LINE AND GRADE SHOWN ON INDIVIDUAL PROFILE

FOR EACH CROSSING. BORING/JACKING TO LINE AND GRADE IS REQUIRED.

2. TRACER WIRE SHALL BE CONTINUED THROUGH CASING.

GATE VALVES REQUIRED ON

NO SERVICES ARE PERMITTED

BETWEEN THE VALVES.

RESTRAINED JOINT AS REQUIRED BY

AND TEST PRESSURE (SEE SCALED PLAN).

DEPTHS, 18" MIN. CLEARANCE IS REQUIRED.

WATER MAIN DITCH

-CONFIGURATION, SOILS TYPE, PIPE DIAMETER,-

TYPICAL BORING/ JACKING DETAIL

DRAIN

LD.I.P.

1. USE PRESSURE CLASS 350 DIP, UNLESS SPECIFIED OTHERWISE.
2. MINIMUM DEPTH REQUIRED, UNLESS SPECIFIED OTHERWISE BY CFPUA:

ALL OTHER LOCATIONS, 30" MIN.
 WHEN STORM DRAIN INVERT IS BURIED AT OR BELOW ABOVE

AND STORM DRAIN CROSSING

a. IN DOT R/W, 36" MIN. TYPICAL, OR 24" MIN. WHEN CROSSING A

₹45° BEND

NOT TO SCALE

PAVEMENT WIDTH AND LOCATION

IN R/W VARIES. SEE PLAN

FOR INDIVIDUAL LOCATION.

PIPE CASING SUPPORT DETAIL

OIL, GREASE, OR PETROLEUM PRODUCT MAY NOT BE USED AS LUBRICANT.

SEAL END OF CASING PIPE AFTER TESTING

WITH BRICK BULKHEAD-

STAINLESS STEEL SUPPORTS

SKID SPACING AND LEG

AND PER MANUFACTURER.--

STEEL ENCASEMENT PIPE

NOT TO SCALE

DITCH LINE.

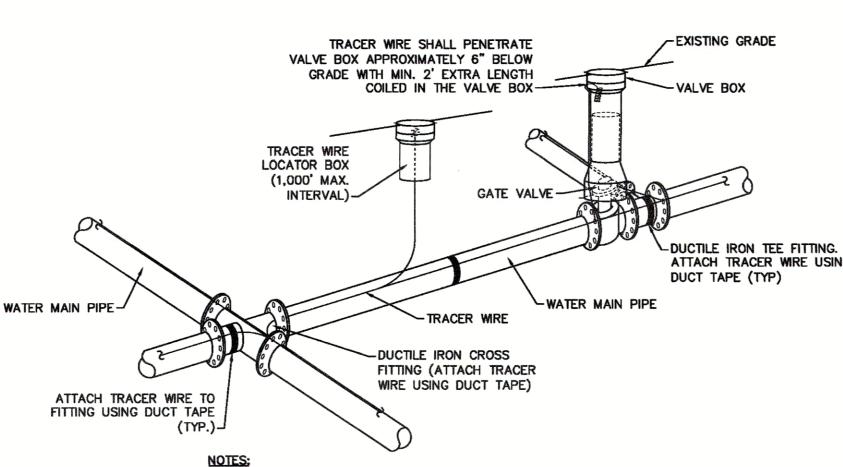
SIZE VARIES BY PIPE SIZE

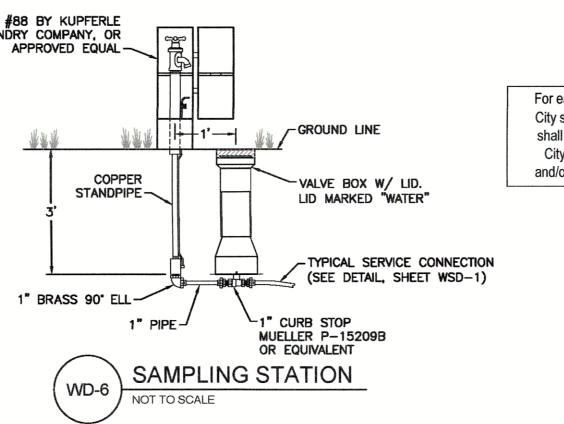
DESIGN ENGINEER SHALL

APPROVE/DETERMINE SPACING.

FROM EDGE OF -

PAVEMENT





DATE: DESCRIPTION: 11/12/13 05/05/14 Revised Tracer Wire Detail 10/20/15 02/01/16 Revised Sampling Station Detail 02/15/16

REV: Revised Water Main Ditch and Storm Crossing Detail Revised Water Main Ditch and Storm Crossing Detail Added Backflow Preventer to Double Service Connection Detail

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