

# WILMINGTON SUNSET PARK 115kV SUBSTATION

## CONSTRUCTION DRAWINGS NEW HANOVER COUNTY, NORTH CAROLINA PROJECT NUMBER: DKE-17010

DATE: MAY 15, 2017  
 REVISED: JULY 14, 2017  
 REVISED: AUGUST 9, 2017  
 REVISED: SEPTEMBER 15, 2017

LATITUDE: 34.1983  
 LONGITUDE: -77.9392  
 DUKE PROJECT NUMBER: 140606H03

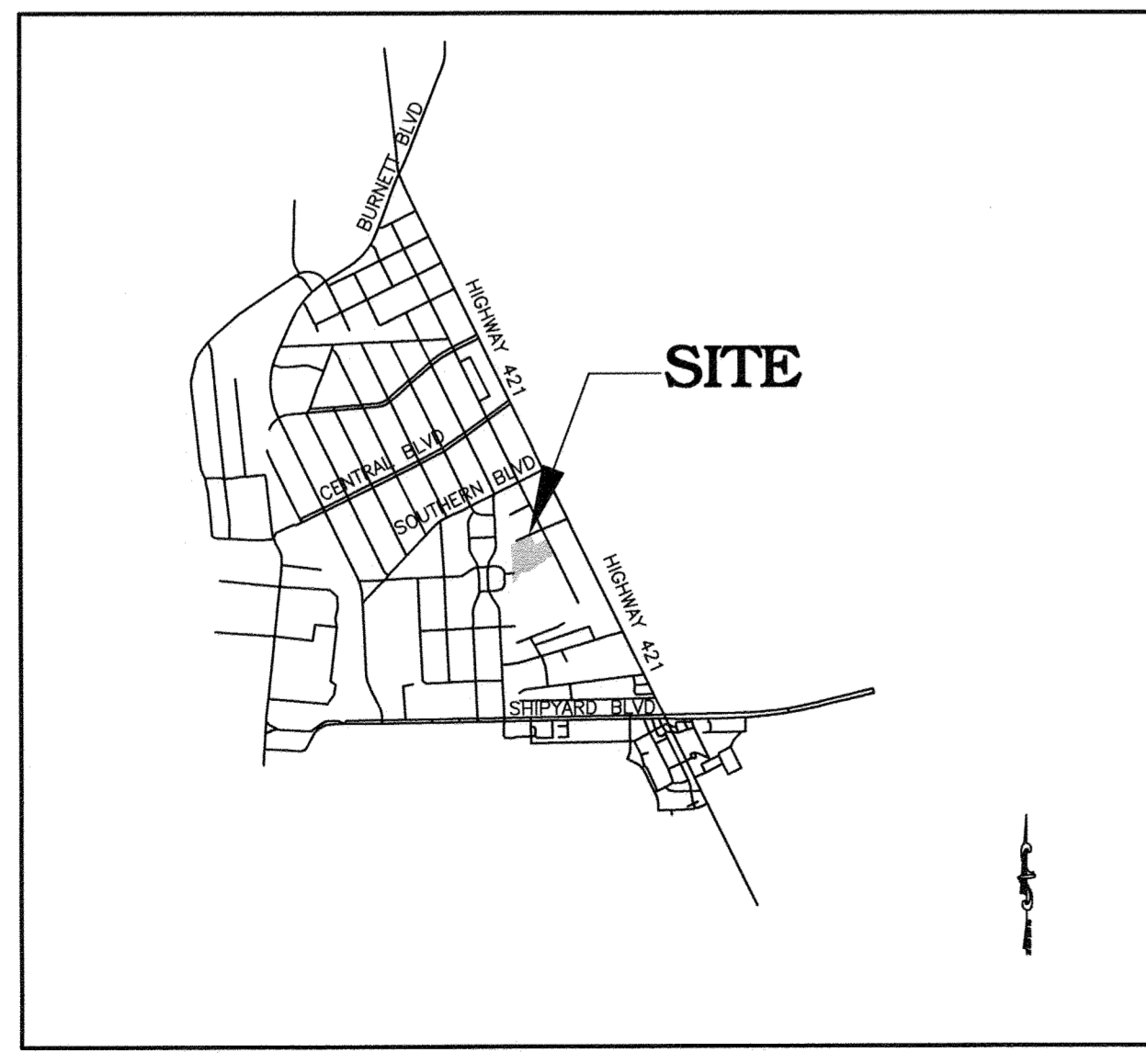
**OWNER:**  
**DUKE ENERGY PROGRESS**  
**410 S. WILMINGTON STREET**  
**RALEIGH, NC 27601**

**CONTACT: PETER SOKALSKI**  
**EMAIL: PETER.SOKALSKI@DUKE-ENERGY.COM**  
**PHONE: (919) 546-6123**

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SITE DATA TABLE	
PROJECT NAME:	WILMINGTON SUNSET PARK 115KV SUBSTATION
PHYSICAL ADDRESS:	317 BORDEAUX AVENUE WILMINGTON, NC 28401
OWNER/DEVELOPER:	DUKE ENERGY PROGRESS 410 S. WILMINGTON ST. RALEIGH, NC 27601 (919) 546-6123
PARCEL ID NUMBER:	PIN NUMBER: 06013-021-004-000
TOTAL PARCEL & IMPERVIOUS AREA:	4.53 AC (3.57 AC DISTURBED) EXISTING SITE IMPERVIOUS AREA: 3,423 SF/0.08 AC (1.8% PARCEL AREA) PROPOSED SITE IMPERVIOUS AREA: 9,160 SF/0.21 AC (4.8% PARCEL AREA) NET IMPERVIOUS AREA INCREASE: 5,737 SF/0.13 AC (2.8% PARCEL AREA)
PROPOSED HEIGHT:	10'
EXISTING BUILDING SQUARE FOOTAGE:	0
PROPOSED BUILDING SQUARE FOOTAGE:	432 SF
REQUIRED PARKING:	NONE
WETLANDS:	N/A
ZONING:	O&I-1
WATERSHED:	GREENFIELD LAKE - C; SW (CAPE FEAR RIVER BASIN)
CAMA LAND USE:	URBAN
FLOOD ZONE:	ZONE X PER FEMA MAP # 3720312600J REVISION 4/3/06
SURVEYOR:	ESP ASSOCIATES P.A. 211 RACINE DRIVE, SUITE 101 WILMINGTON, NORTH CAROLINA 28403 (910) 313-6648
ENGINEER:	MCADAMS 2905 MERIDIAN PKWY DURHAM, NC 27713 (919) 361-5000
SETBACKS	REQUIRED FRONT: 20' SIDE: 20' REAR: 20' PROPOSED FRONT: 20' SIDE: 20' REAR: 20'

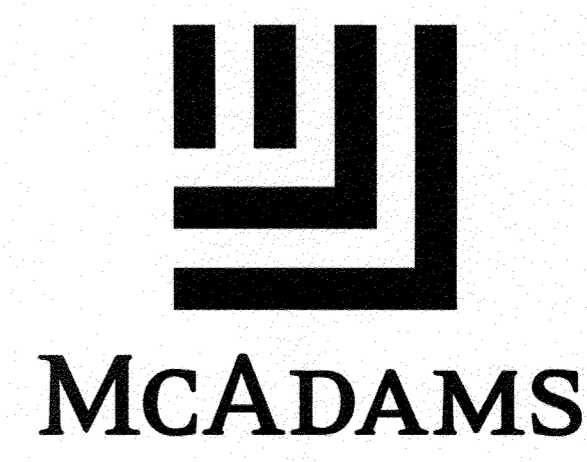
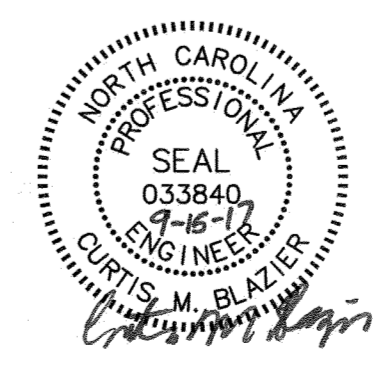


**VICINITY MAP**  
NTS



**Know what's below.  
Call before you dig.**

CONTRACTOR SHALL NOTIFY "NC811" (811) OR (1-800-632-4949) AT LEAST 3 FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NC811". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.



SHEET 1 OF 18  
**THE JOHN R. McADAMS COMPANY, INC.**  
 2905 Meridian Parkway  
 Durham, North Carolina 27713  
 License No.: C-0293  
 (800) 733-5646 • McAdamsCo.com  
 Contact: Daryl Riggins  
 Riggins@mcadamsco.com

Approved Construction Plan	
Name	Date
Planning	_____
Traffic	_____
Fire	_____





ESP Associates, P.A.  
211 Racine Drive, Suite 101  
Wilmington, NC 28403  
910-313-6648  
www.espassociates.com  
Telefax-910-313-6623  
License: C-0567

NEW DAWSON LIMITED PARTNERSHIP  
DB 3026 PG 165  
PARCEL ID: R06013-021-032-000

SUNSET SOUTH OWNERS ASSOCIATION  
DB 5639 PG 1199  
MB 45 PG 359  
PARCEL ID: R06013-016-003-000

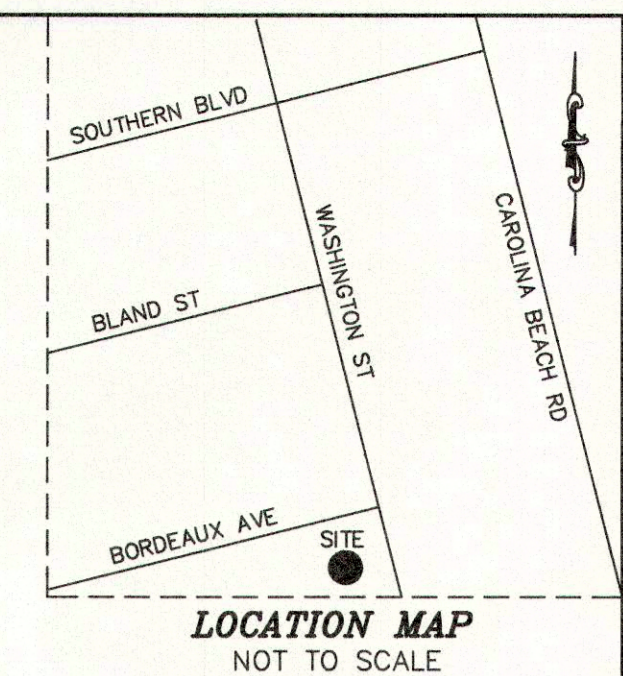
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED DEP MONUMENT "SUNSET PARK TAP" WITH NAD 83/2011 STATE PLANE GRID COORDINATES OF NORTHING: 164660.90(1) EASTING: 2320201.99(1) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.000044671 THE N.C. LAMBERT GRID BEARING AND HORIZONTAL GRID DISTANCE FROM "IPF1" TO "SUNSET PARK TAP" IS 547'37"20"W 233.87 FT ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES UNLESS OTHERWISE NOTED VERTICAL DATUM USED IS NAVD 88

- LEGEND**
- LINES SURVEYED
  - - - LINES NOT SURVEYED
  - - - RW LIMITS
  - - - O/HV CONDUCTOR LINE (OVERHEAD)
  - - - O/HV DISTRIBUTION LINE (OVERHEAD)
  - STATIC
  - - - ROAD R/W
  - - - FENCE LINE
  - - - ROAD CENTERLINE
  - - - TIE LINE
  - - - GROUNDING GRID
  - CONDUIT
  - ANCHOR
  - △ IRON PIPE FOUND (IPF)
  - △ IRON #5 REBAR FOUND (IRF)
  - IRON #5 REBAR SET (IRS)
  - CALCULATED POINT
  - STRUCTURE
  - NTS — NOT TO SCALE
  - "(F)" DENOTES "FOUND"
  - "(U/G)" DENOTES "UNDERGROUND"
  - DISTRIBUTION/TELEPHONE POLE
  - TELEPHONE PEDESTAL

NC GRID (NAD83/NSRS2011)  
NAV D 88  
CGF: 1.000044671

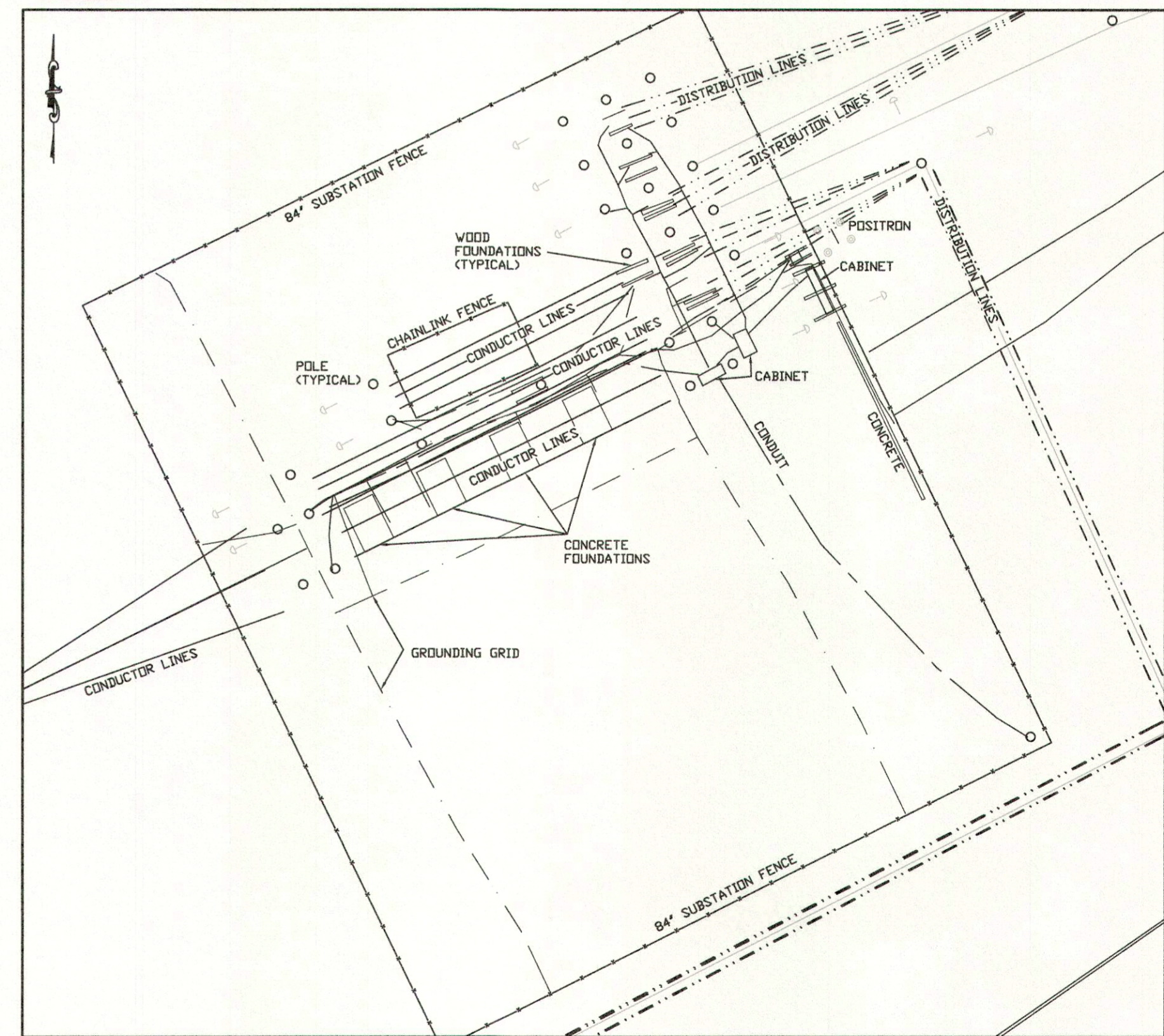


I, DWIGHT E. ASHLEY, CERTIFY THAT THIS PLAN WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION, RECORDED IN BOOK 836, PAGE 477 AS SHOWN); THAT THE BOUNDARIES NOT SURVEYED ARE INDICATED AS BROKEN LINES; THAT THE RATIO OF PRECISION OR POSITIONAL ACCURACY AS CALCULATED IS 1:10000+; AND THAT THIS PLAN MEETS THE REQUIREMENTS OF THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA (21 NCAC 58.1600); THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED.  
WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER AND SEAL THIS 23RD DAY OF JUNE, A.D., 2017.  
THIS SURVEY IS OF AN EXISTING PARCEL OR PARCELS OF LAND AND DOES NOT CREATE A NEW STREET OR CHANGE AN EXISTING STREET.  
*Dwight E. Ashley* 6/23/2017  
PROFESSIONAL LAND SURVEYOR L-5263 DATE



- NOTES:**
1. SURVEYED AND MAPPED FOR DUKE ENERGY PROGRESS, LLC.
  2. SURVEYED AND MAPPED BY ESP ASSOCIATES, PA.
  3. ALL AREAS COMPUTED BY COORDINATE COMPUTATION METHOD
  4. THIS SURVEY WAS EXECUTED WITHOUT THE BENEFIT OF A FULL TITLE REPORT AND IS SUBJECT TO ANY EASEMENTS, RIGHT OF WAY OR ENCUMBRANCES A FULL TITLE REPORT MAY REVEAL
  5. ALL DISTANCES SHOWN HEREON ARE HORIZONTAL GROUND SURVEY FOOT DISTANCES UNLESS OTHERWISE NOTED.
  6. THIS PARCEL LIES WITHIN FEMA FLOOD ZONE X (UNSHADED) AS REFERENCED FROM OFDM PANELS 3720312600K EFFECTIVE DATE 8-29-2014.
  7. THE PURPOSE OF THIS MAP IS TO DEPICT BOUNDARY LOCATION AND TOPOGRAPHIC FEATURES OF THE EXISTING WILMINGTON SUNSET PARK SUBSTATION SITE.
  8. NO SUE RECORD INVESTIGATION WAS PERFORMED WITH THIS SURVEY, UNDERGROUND UTILITIES MARKED AS FOUND DURING FIELD SURVEY
  9. CONTOUR INTERVAL=1.0'
  10. SEE SHEET 2 OF 2 FOR TREE SPECIES AND SIZE

**INSET "A" SUBSTATION DETAIL**  
SCALE: 1" = 30'



SITE: 105557 FOR SOURCE OF TITLE REFER TO DBK. 938 PG. 477

DUKE ENERGY PROGRESS, LLC.  
WILMINGTON SUNSET PARK SUBSTATION  
BOUNDARY & TOPOGRAPHIC SURVEY OF:  
**WILMINGTON SUNSET PARK SUBSTATION**  
WILMINGTON TOWNSHIP  
NEW HANOVER COUNTY, NORTH CAROLINA

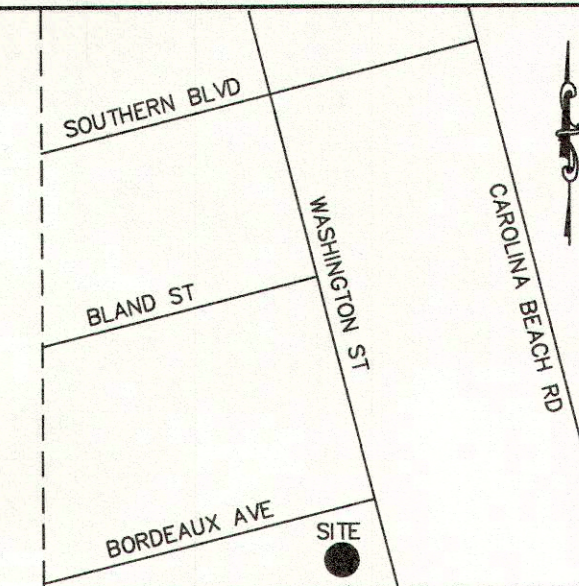
BOOK: 20170623 20 0 20 40 80 CREW: JRB  
DATE: 6/23/17 DRAWN BY: DEA  
SCALE: 1" = 40' SCALE IN FEET R.O.P. = 1:10000+  
LAND UNITS: 1186902, 1186903, 1186904, 1186905 MAP: 105557-456497

400 S. TRYON STREET  
PO BOX 1007  
CHARLOTTE, N.C. 28201-1007  
TELEPHONE NO. (704)382-2361

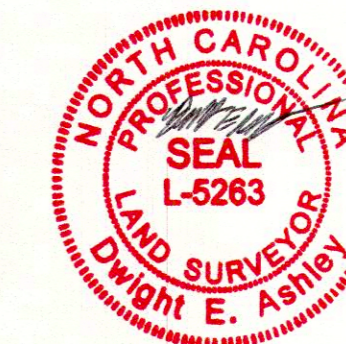




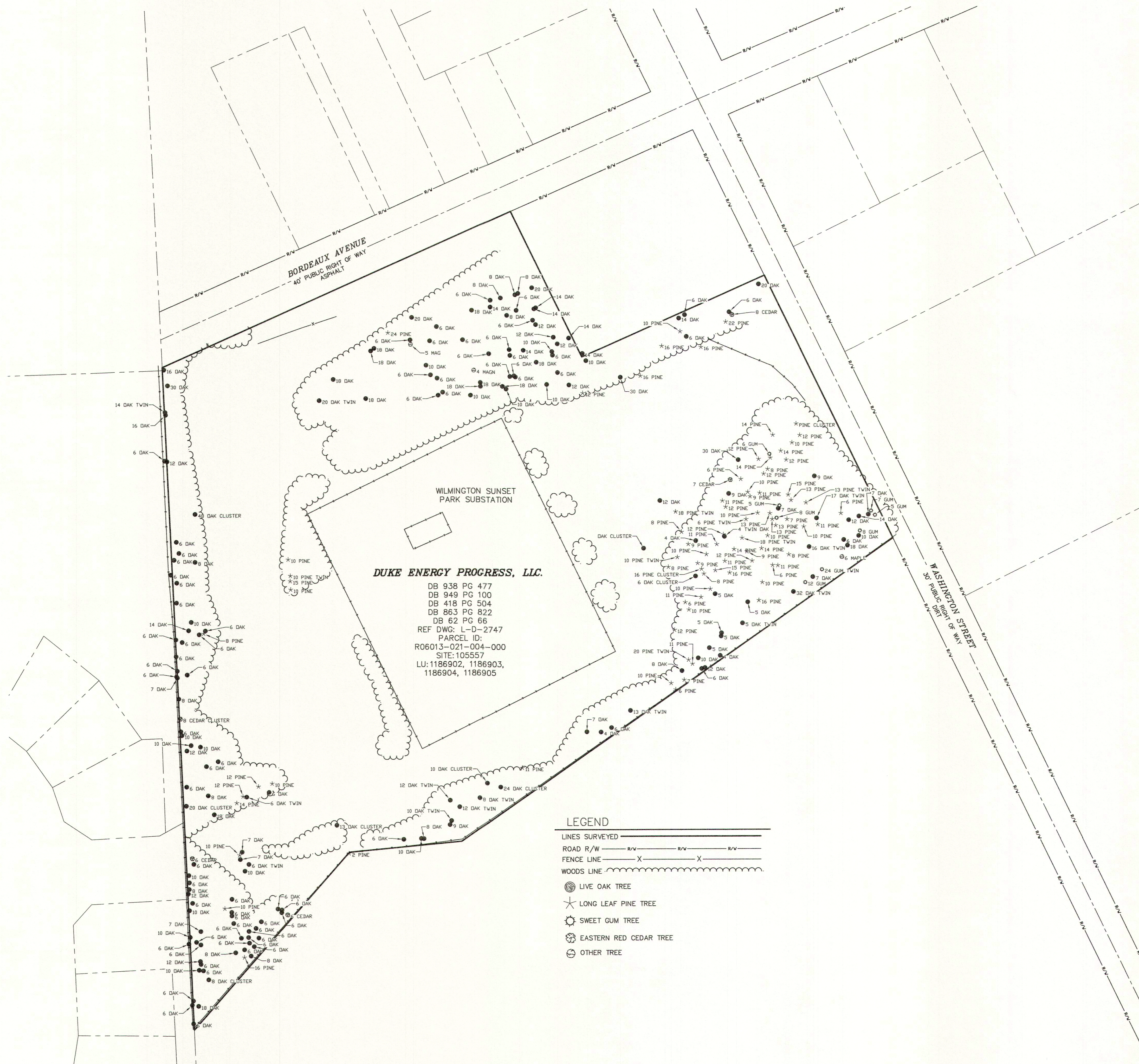
ESP Associates, P.A.  
 211 Racine Drive, Suite 101  
 Wilmington, NC 28403  
 910-313-8648  
 www.espassociates.com  
 Telefax-910-313-6823  
 License: C-0587



LOCATION MAP  
 NOT TO SCALE



NC GRID (NARS0011)/  
 NAD83 68  
 CGF:1.000044671



DUKE ENERGY PROGRESS, LLC.

DB 938 PG 477  
 DB 949 PG 100  
 DB 418 PG 504  
 DB 863 PG 822  
 DB 62 PG 66  
 REF DWG: L-D-2747  
 PARCEL ID:  
 R06013-021-004-000  
 SITE: 105557  
 LU: 1186902, 1186903,  
 1186904, 1186905

LEGEND

- LINES SURVEYED
- ROAD R/W
- FENCE LINE
- WOODS LINE
- LIVE OAK TREE
- \* LONG LEAF PINE TREE
- ⊙ SWEET GUM TREE
- ⊙ EASTERN RED CEDAR TREE
- ⊙ OTHER TREE

SITE: 105557		FOR SOURCE OF TITLE REFER TO DBK. 938 PG. 477	
DUKE ENERGY PROGRESS, LLC. WILMINGTON SUNSET PARK SUBSTATION			
TREE SURVEY OF: <b>WILMINGTON SUNSET PARK SUBSTATION</b>			
WILMINGTON TOWNSHIP NEW HANOVER COUNTY, NORTH CAROLINA			
BOOK: 20170623	DATE: 6/23/17	SCALE: 1" = 40'	CREW: JRB DRAWN BY: DEB
LAND UNIT: 1186902, 1186903, 1186904, 1186905		MAP: 105557-456497	



400 S. TRYON STREET  
 PO BOX 1007  
 CHARLOTTE, N.C. 28201-1007  
 TELEPHONE NO. (704)382-2361



**CITY OF WILMINGTON STANDARD NOTES**

- PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING SHALL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES. NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
- ANY TREES AND/OR AREAS DESIGNATED TO BE PROTECTED MUST BE PROPERLY BARRICADED WITH FENCING AND PROTECTED THROUGHOUT CONSTRUCTION TO INSURE THAT NO CLEARING, GRADING OR STAGING OF MATERIALS WILL OCCUR IN THOSE AREAS.
- NO EQUIPMENT IS ALLOWED ON SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING IS INSTALLED AND APPROVED. PROTECTIVE FENCING IS TO BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT, AND CONTRACTORS SHALL RECEIVE ADEQUATE INSTRUCTION ON TREE PROTECTION METHODS.
- ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS.
- ONCE STREETS ARE OPEN TO TRAFFIC, CONTACT TRAFFIC ENGINEERING REGARDING THE INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
- TRAFFIC CONTROL DEVICES (INCLUDING SIGNS AND PAVEMENT MARKINGS) IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.
- CONTACT TRAFFIC ENGINEERING AT 910-341-7888 TO ENSURE THAT ALL TRAFFIC SIGNAL FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLAN.
- CALL TRAFFIC ENGINEERING AT 910-341-7888 FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT-OF-WAY.
- TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING PRIOR TO ACTUAL STRIPING.
- ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
- ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER.
- STOP SIGNS AND STREET SIGNS TO REMAIN IN PLACE DURING CONSTRUCTION.
- TACTILE WARNING MATS WILL BE INSTALLED ON ALL WHEELCHAIR RAMPS.
- A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET.
- ANY BROKEN OR MISSING SIDEWALK PANELS, DRIVEWAY PANELS, AND CURBING WILL BE REPLACED.
- CONTACT TRAFFIC ENGINEERING AT 910-341-7888 TO DISCUSS STREET LIGHTING OPTIONS.
- WATER AND SEWER SERVICE SHALL MEET CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPUA) DETAILS AND SPECIFICATIONS.
- PROJECT SHALL COMPLY WITH CFPUA CROSS CONNECTION CONTROL REQUIREMENTS. WATER METER(S) CANNOT BE RELEASED UNTIL ALL REQUIREMENTS ARE MET AND THE STATE HAS GIVEN THEIR FINAL APPROVAL. CALL 910-343-3910 FOR INFORMATION.
- IF THE CONTRACTOR DESIRES CFPUA WATER FOR CONSTRUCTION, HE SHALL APPLY IN ADVANCE FOR THIS SERVICE AND MUST PROVIDE A REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTION DEVICE ON THE DEVELOPER'S SIDE OF THE WATER METER BOX.
- ANY IRRIGATION SYSTEM SUPPLIED BY CFPUA WATER SHALL COMPLY WITH THE CFPUA CROSS CONNECTION CONTROL REGULATIONS. CALL 919-343-3910 FOR INFORMATION.
- ANY IRRIGATION SYSTEM SHALL BE EQUIPPED WITH A RAIN AND FREEZER SENSOR.
- ANY BACKFLOW PREVENTION DEVICES REQUIRED BY THE CFPUA WILL NEED TO BE ON THE LIST OF APPROVED DEVICES BY USFPCOCHR OR ASSE.
- CONTRACTOR TO FIELD VERIFY EXISTING WATER AND SEWER SERVICE LOCATIONS, SIZES AND MATERIALS PRIOR TO CONSTRUCTION. ENGINEER TO BE NOTIFIED OF ANY CONFLICTS.
- CONTRACTOR SHALL MAINTAIN ALL-WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
- UNDERGROUND FIRE LINE(S) MUST BE PERMITTED AND INSPECTED BY THE WILMINGTON FIRE DEPARTMENT FROM THE PUBLIC RIGHT-OF-WAY TO THE BUILDING. CONTACT THE WILMINGTON FIRE DEPARTMENT DIVISION OF FIRE AND LIFE SAFETY AT 910-341-0696.
- NO OBSTRUCTIONS ARE PERMITTED IN THE SPACE BETWEEN THIRTY (30) INCHES AND TEN (10) FEET ABOVE THE GROUND WITHIN THE TRIANGULAR SIGHT DISTANCE.
- CONTACT THE NORTH CAROLINA ONE CALL CENTER AT 1-800-632-4949 PRIOR TO DOING ANY DIGGING, CLEARING, OR GRADING.
- EXTERIOR LIGHTING MUST BE INSTALLED SO AS NOT TO SHINE ONTO ADJACENT RESIDENTIALLY USED PROPERTY.

GROUND STABILIZATION		
SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7-DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HOW ZONES)

BUILDING WASTES HANDLING		
• NO PAINT 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.		
• EARTHEN-MATERIAL 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 WATER, WETLANDS, OR BUFFERS.		

**EROSION CONTROL NARRATIVE**

DUKE ENERGY PROJECT  
 WILMINGTON SUNSET PARK 115 KV SUBSTATION EXPANSION  
 RECEIVING STREAM – GREENFIELD LAKE  
 RIVER BASIN – CAPE FEAR  
 CLASSIFICATION – C,SW

PROJECT NUMBER: DKE-17010  
 DESIGNED BY: CURT BLAZIER, PE

**PROJECT DESCRIPTION**

THE PROPOSED PROJECT CONSISTS OF THE CONSTRUCTION OF A NEW TWO TRANSFORMER BANK SUBSTATION AND THE DEMOLITION OF THE EXISTING SUBSTATION. THE PROJECT WILL INCLUDE A STORMWATER MANAGEMENT FACILITY AND WILL COMPLY WITH CITY OF WILMINGTON ORDINANCE RUNOFF AND PEAK FLOW REGULATIONS. THIS SUBSTATION PROJECT IS BEING IMPLEMENTED TO MEET CURRENT AND FUTURE VOLTAGE LOAD DEMANDS IN THE SURROUNDING AREAS.

**SEEDBED PREPARATION**

AREAS TO BE SEED TO BE SCARIFIED 4" DEEP. A FIRM, WELL PULVERIZED, UNIFORM SEEDBED SHOULD BE PROVIDED. FERTILIZER SHALL BE PLACED DURING SCARIFICATION AS FOLLOWS:  
 LIME: 45 LBS / 1,000 SF  
 PHOSPHOROUS: 20 LBS / 1,000 SF  
 FERTILIZER: 17 LBS / 1,000 SF

PER NORTH CAROLINA SOIL AND SEDIMENTATION LAW, A VEGETATIVE GROUND COVER SUFFICIENT TO PERMANENTLY RESTRAIN EROSION SHALL BE RE-ESTABLISHED WITHIN 21 CALENDAR DAYS AFTER COMPLETION OF ANY PHASE OF GRADING. PERMANENT GROUND COVER FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.

**TEMPORARY AND PERMANENT SEEDING SCHEDULE**

SEE DETAIL ON SHEET 10 FOR SEASONAL RATES, APPLICATION PROCEDURES, AND MAINTENANCE NOTES.

**EROSION CONTROL NOTES**

- EROSION AND SEDIMENT CONTROL DEVICES MUST BE INSTALLED AND INSPECTED PRIOR TO ANY GRADING ON SITE. THE CONTRACTOR SHALL CALL FOR AN INSPECTION ONCE INITIAL MEASURES ARE IN PLACE.
- SEDIMENT/EROSION CONTROL DEVICES MUST BE CHECKED AFTER EACH STORM EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE HALF THE CAPACITY OF THE DEVICE.
- THE PERMANENT STORM DRAINAGE SWALES ARE TO BE MATTED IMMEDIATELY UPON CONSTRUCTION.
- A COPY OF THE APPROVED EROSION CONTROL PLAN MUST BE ON FILE AT THE JOB SITE AT ALL TIMES.
- INSTALL A RAIN GAUGE (6" CAPACITY OR GREATER) ON SITE.
- CONSTRUCTION, MAINTENANCE, AND REMOVAL OF ALL EROSION CONTROL DEVICES ARE THE RESPONSIBILITY OF THE GRADING CONTRACTOR UNLESS OTHERWISE NOTED.
- ANY GRADING BEYOND THE DENUDED LIMITS SHOWN ON THE PLAN IS A VIOLATION OF THE EROSION CONTROL PERMIT AND IS SUBJECT TO A FINE.
- DISTURBED AREAS MUST BE STABILIZED AS SOON AS POSSIBLE AND NO LATER THAN 14 DAYS. TEMPORARY SEEDING IS NECESSARY TO ACHIEVE EROSION CONTROL ON LARGE DENUDED AREAS AND ESPECIALLY WHEN SPECIFICALLY REQUIRED AS PART OF THE CONSTRUCTION SEQUENCE ON THE PLAN. ALL GRADED SLOPES STEEPER THAN 3:1 MUST BE SEED & MULCHED AND TACKIFIER PLACED WITHIN 7 DAYS OF COMPLETION OF GRADING. ALL REMAINING DISTURBED AREAS ARE TO BE SEED AND MULCHED WITHIN 14 DAYS. SEE THE GROUND STABILIZATION CHART FOR ADDITIONAL REQUIREMENTS.
- ADDITIONAL MEASURES TO CONTROL EROSION AND SEDIMENT MAY BE REQUIRED BY CITY OF WILMINGTON AND/OR A REPRESENTATIVE OF THE NCDENR DELR DEPARTMENT.
- PROTECTION OF EXISTING VEGETATION: AT THE START OF GRADING INVOLVING THE STRIPPING OF TOPSOIL OR LOWERING OF EXISTING GRADE AROUND A TREE, A CLEAN, SHARP, VERTICAL CUT SHALL BE MADE AT THE EDGE OF THE TREE SAVE AREA AT THE SAME TIME AS OTHER EROSION CONTROL MEASURES ARE INSTALLED. THE TREE PROTECTION FENCING SHALL BE INSTALLED ON THE SIDE OF THE CUT FARTHEST AWAY FROM THE TREE TRUNK AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREES IS COMPLETE. NO STORAGE OF MATERIALS, FILL, OR EQUIPMENT AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE PROTECTED AREA AND SHALL BE POSTED ON THE PROTECTION FENCE. A PROTECTION FENCE CONSTRUCTED OF MATERIAL RESISTANT TO DEGRADATION BY SUN, WIND, AND MOISTURE FOR THE DURATION OF THE CONSTRUCTION, SHALL BE INSTALLED AT THE SAME TIME AS THE EROSION CONTROL MEASURES AND SHALL BE IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREES IS COMPLETE.
- INSTALLATION AND MAINTENANCE OF ALL PROPOSED SEDIMENTATION & EROSION CONTROL MEASURES IS REQUIRED. THE CONTRACTOR MAY BE ALLOWED, WITH PRIOR APPROVAL FROM THE OWNER, TO COORDINATE CHANGES TO THE PLAN WITH THE ON-SITE NCDENR DELR INSPECTOR AND THE ENGINEER OR THE OWNER'S REPRESENTATIVE.
- CONTRACTOR WILL FIELD LOCATE SILT FENCE OUTLETS AT LOW POINTS IN SILT FENCE AS REQUIRED TO PROVIDE RELIEF FROM CONCENTRATED FLOWS.
- ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE OWNER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
- REQUIRED TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO BEGINNING LAND DISTURBANCE.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO KEEP ALL DIRT OFF PAVED ROADS. HEAVY MATS MAY BE USED IN LIEU OF ROCK CONSTRUCTION ENTRANCES AS DETERMINED BY THE ON-SITE INSPECTOR.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO KEEP ALL SEDIMENT ON SITE AND ENSURE NO SEDIMENT LEAVES THE LIMITS OF DISTURBANCE OF THE PROJECT. THIS MAY REQUIRE INSTALLATION OF ADDITIONAL EROSION CONTROL MEASURES ABOVE AND BEYOND WHAT IS SHOWN ON THE PLANS. IF ENVIRONMENTAL OR SITE CONDITIONS WARRANT ADDITIONAL EROSION CONTROL MEASURES, CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM DEP REPRESENTATIVE. EROSION CONTROL MEASURES DAMAGED OR REQUIRED DUE TO CONTRACTOR ACTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL EROSION CONTROL MEASURES SHALL BE PROPERLY MAINTAINED THROUGHOUT CONSTRUCTION AT NO ADDITIONAL COST TO DEP.
- ALL CONSTRUCTION DEBRIS SHALL BE TESTED AND DISPOSED OF OFF-SITE IN A STATE PERMITTED LINED LANDFILL.
- IMMEDIATE CLEANUP OF ANY MATERIAL BEING PLACED ON THE ROADWAY AS WELL AS IMMEDIATE SEEDING/COVER PLACED ON DISTURBED GROUND BETWEEN THE SILT FENCE AND SIDEWALK IS REQUIRED.

**MAINTENANCE PLAN**

- ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN ALL MEASURES AS DESIGNED.
- SEDIMENT FENCES SHALL BE INSPECTED AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. REPAIRS SHALL BE MADE IMMEDIATELY. SEDIMENT DEPOSITS SHALL BE REMOVED AS NEEDED TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAINFALL EVENT, AND TO REDUCE PRESSURE ON THE FENCE. FENCING MATERIALS AND SEDIMENT DEPOSITS SHALL BE REMOVED, AND THE AREA BROUGHT TO GRADE FOLLOWING STABILIZATION OF UPGRADIENT DISTURBED AREAS.

**SITE NOTES**

- LOCATION AND TOPOGRAPHICAL INFORMATION WAS TAKEN FROM AN ACTUAL FIELD SURVEY PERFORMED BY ESP ASSOCIATES P.A., DATED 01/12/2017. REFERENCE DATUM IS NAD 83 (2011) HORIZONTAL AND NAVD 88 FOR VERTICAL.
- PROPERTY LIES WITHIN FEMA ZONE X (OUTSIDE 500 YEAR FLOOD PLAIN) AS PER FEMA FIRM COMMUNITY PANEL NO. 3720312600J, REVISED DATE 04-03-06.
- PROJECT SITE IS LOCATED IN THE CAPE FEAR RIVER BASIN.
- ALL MATERIALS, CONSTRUCTION, WORKMANSHIP SHALL MEET CITY OF WILMINGTON, DUKE ENERGY PROGRESS, LLC (DEP), AND NCDOT (WHERE APPLICABLE) SPECIFICATIONS, STANDARDS AND DESIGN.
- CONTRACTOR SHALL COMPLY WITH ALL PERTINENT PROVISIONS OF THE "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" ISSUED BY AGC OF AMERICA, INC., AND THE SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION ISSUED BY THE U.S. DEPARTMENT OF LABOR.
- NOT ALL EXISTING UTILITIES ARE SHOWN. LOCATIONS SHOWN ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCURATELY LOCATE BOTH HORIZONTALLY AND VERTICALLY ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY SC811 OR THEIR SUCCESSOR AT 888-721-7877 PRIOR TO EXCAVATION. CONTRACTOR SHALL NOTIFY DUKE ENERGY PROGRESS, INC. IMMEDIATELY IN THE EVENT OF ENCOUNTERING ANY UNDERGROUND OBSTACLE REQUIRING DEVIATION FROM THE PLAN. COST TO REPAIR DAMAGED UTILITIES SHALL BE BORNE BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY PAVEMENT OR EXISTING UTILITIES THAT MAY BE DAMAGED DUE TO CONSTRUCTION ACTIVITY. EXERCISE CAUTION.
- SHOULD ANY GROUNDING BE CUT OR UNEARTHED, THE GROUNDING WILL NEED TO BE REPAIRED AND RECONNECTED. THE GROUNDING SHOULD BE BETWEEN 18" TO 24" DEPTH.
- ALL UTILITIES SHALL BE PROTECTED AND REMAIN ACTIVE UNLESS OTHERWISE NOTED. CONTRACTOR SHALL NOT DISTURB UTILITY POLES, GUY WIRES, OR ANCHORS WITHOUT PERMISSION FOR DUKE ENERGY PROGRESS, INC.
- EXISTING IMPROVEMENTS SLATED TO REMAIN THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED/RESTORED TO THEIR ORIGINAL CONDITION OR TO THE SATISFACTION OF THE OWNER BY THE CONTRACTOR RESPONSIBLE FOR THE DAMAGE.
- FOUNDATIONS, FENCES AND LIGHTING BY OTHERS.
- STRUCTURE LOCATIONS WERE PROVIDED BY DUKE ENERGY PROGRESS (DEP) AND ARE FOR REFERENCE ONLY. THESE DRAWINGS ARE FOR SITE GRADING, SUBSTATION PAD, AND ACCESS ROAD CONSTRUCTION ONLY AND SHALL NOT BE USED FOR LINE OR STRUCTURE CONSTRUCTION.
- ALL SITE WORK SHALL CONFORM TO DUKE ENERGY STANDARDS AND SPECIFICATIONS.
- DISTRIBUTION LINES ARE NOT SHOWN FOR CLARITY AT THIS TIME.
- ALL CONSTRUCTION DEBRIS SHALL BE TESTED AND DISPOSED OF OFF-SITE IN A STATE PERMITTED LINED LANDFILL OR AS DIRECTED BY DEP REPRESENTATIVE.
- DRIVEWAYS OF EXISTING LOTS ACROSS BORDEAUX AVENUE TO REMAIN OPEN DURING CONSTRUCTION.
- ALL PROPOSED VEGETATION WITHIN SIGHT DISTANCE TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 30 INCHES TO 10 FEET.
- EXTERIOR LIGHTING MUST BE INSTALLED SO AS NOT TO SHINE ONTO ADJACENT PROPERTIES OF RESIDENTIAL USE/ZONING.
- EXISTING OVERHEAD UTILITY POWER POLE TO REMAIN UNDISTURBED DURING SIDEWALK INSTALLATION ALONG BORDEAUX AVENUE. CONTRACTOR TO ADJUST CONCRETE FORMS AS NECESSARY TO WORK AROUND EXISTING POLE.

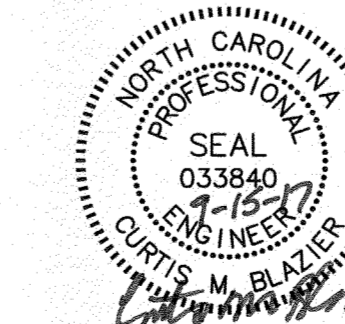
**GRADING NOTES**

- CONTRACTOR SHALL CALL "NC811" 811 OR (800-632-4949) AT LEAST 3 FULL BUSINESS DAYS PRIOR TO MOBILIZATION TO HAVE EXISTING UTILITIES LOCATED. REPORT ANY DISCREPANCIES TO THE ENGINEER.
- CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING UNDER, AROUND, AND/OR ADJACENT TO EXISTING POWER LINES.
- STORM DRAINAGE PIPE SHALL BE CLASS IV RCP MIN. UNLESS OTHERWISE NOTED.
- PROPOSED DRIVEWAY SHALL BE 12 INCHES OF COMPACTED ABC STONE.
- PROPOSED SUBSTATION SUBGRADE SHALL BE COMPACTED ABC. THE DEPTH OF THIS LAYER WILL VARY DEPENDING ON EXISTING SUBSTATION STONE GRADE. FINAL STONE WITHIN SUBSTATION FENCE SHALL BE AN ADDITIONAL 3" OF CLEAN #57 OVER 3" ABC (TOTAL OF 6" ADDITIONAL STONE).
- PROPOSED CONTOURS AND SPOT ELEVATIONS ARE FINISHED GRADE ELEVATIONS (TOP OF STONE, TOP OF GRASS, ETC) UNLESS OTHERWISE NOTED.
- ALL SOILS SHALL BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY OR AS SPECIFIED IN THE GEOTECHNICAL REPORT, THE MORE STRINGENT SHALL APPLY.
- FILL PLACEMENT SHOULD BE INITIATED AT THE TOE OF THE SLOPE, AND BENCHES SHALL BE CUT INTO EXISTING SOILS TO PROVIDE A HORIZONTAL SURFACE FOR COMPACTION. SLOPES SHALL BE OVERBUILT AND CUT BACK TO THE REQUIRED GRADE, LEAVING THE EXPOSED FACE WELL COMPACTED. VEGETATION SHALL BE ESTABLISHED AS SOON AS PRACTICAL ALONG ALL SLOPES. RAINWATER SHALL BE DIVERTED AWAY FROM THE CREST OF SLOPES TO REDUCE EROSION.
- CONTRACTOR TO REFER TO GEOTECHNICAL REPORT FOR GUIDANCE IN SITEWORK COMPLETED BY S&ME, INC. DATED 4/10/17.
- CUT MATERIAL SHALL BE STOCKPILED IN AREAS ON-SITE WHERE POSSIBLE. EXCESS MATERIAL THAT CANNOT BE SPOILED ON-SITE SHALL BE REMOVED AND DISPOSED OF PROPERLY OFFSITE.

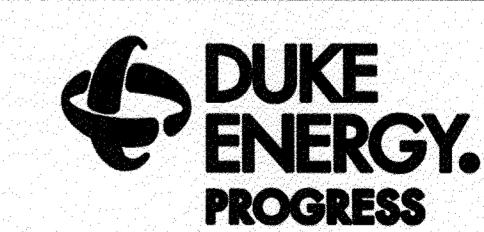
**STORM READY RESPONSIBILITIES**

- LEAVE ALL SITES WITH LAND DISTURBING ACTIVITY IN A "STORM READY STATE". CONTRACTORS SHOULD CONDUCT EXTRA INSPECTIONS TO ENSURE BMPs ARE IN PLACE BEFORE THEY LEAVE THE PROJECT SITE FOR THE DAY.
- ENSURE SEDIMENT BASINS OR CONTAINMENTS HAVE ENOUGH FREEBOARD TO ACCOMMODATE HEAVY RAINS WITHOUT OVERFLOWING.
- ONCE THE RAIN PASSES, ENSURE OPERATORS INSPECT AND DRAIN CONTAINMENTS AS NECESSARY. IF COLLECTED WATER IS SIGNIFICANTLY TURBID, CONSIDER A SLOW RELEASE RATE TO MINIMIZE ANY WATER QUALITY IMPACTS.
- ALSO, ONCE THE RAIN PASSES, INSPECT THE SITE AND ANY EROSION CONTROL MEASURES TO ENSURE THERE HAVE NO SEDIMENT RELEASES. REPAIR AND RETURN TO DESIGN CONDITION ANY EROSION CONTROL MEASURES OR BMPs.
- IF THERE IS POTENTIAL FOR GUSTY OR HIGH WINDS, MAKE SURE THAT ALL PORTABLE EQUIPMENT IS PROPERLY STORED OR TIED DOWN. THIS INCLUDES LIGHT EQUIPMENT OR SIMILAR EQUIPMENT WHICH COULD BLOW OVER IF THE MAST IS NOT LOWERED AS WELL AS PORTABLE TOILETS THAT COULD TIP OVER IF NOT TIED DOWN OR SECURED.

Approved Construction Plan	
Name	Date
Planning	
Traffic	
Fire	



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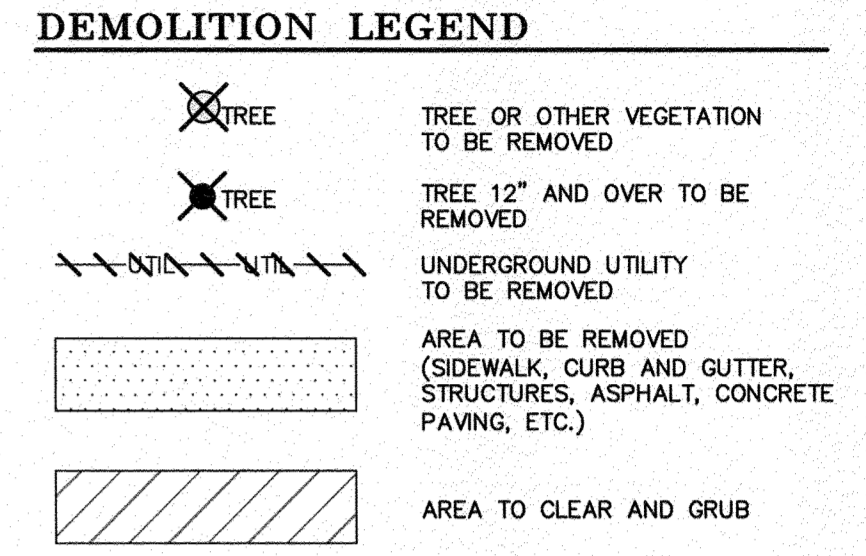
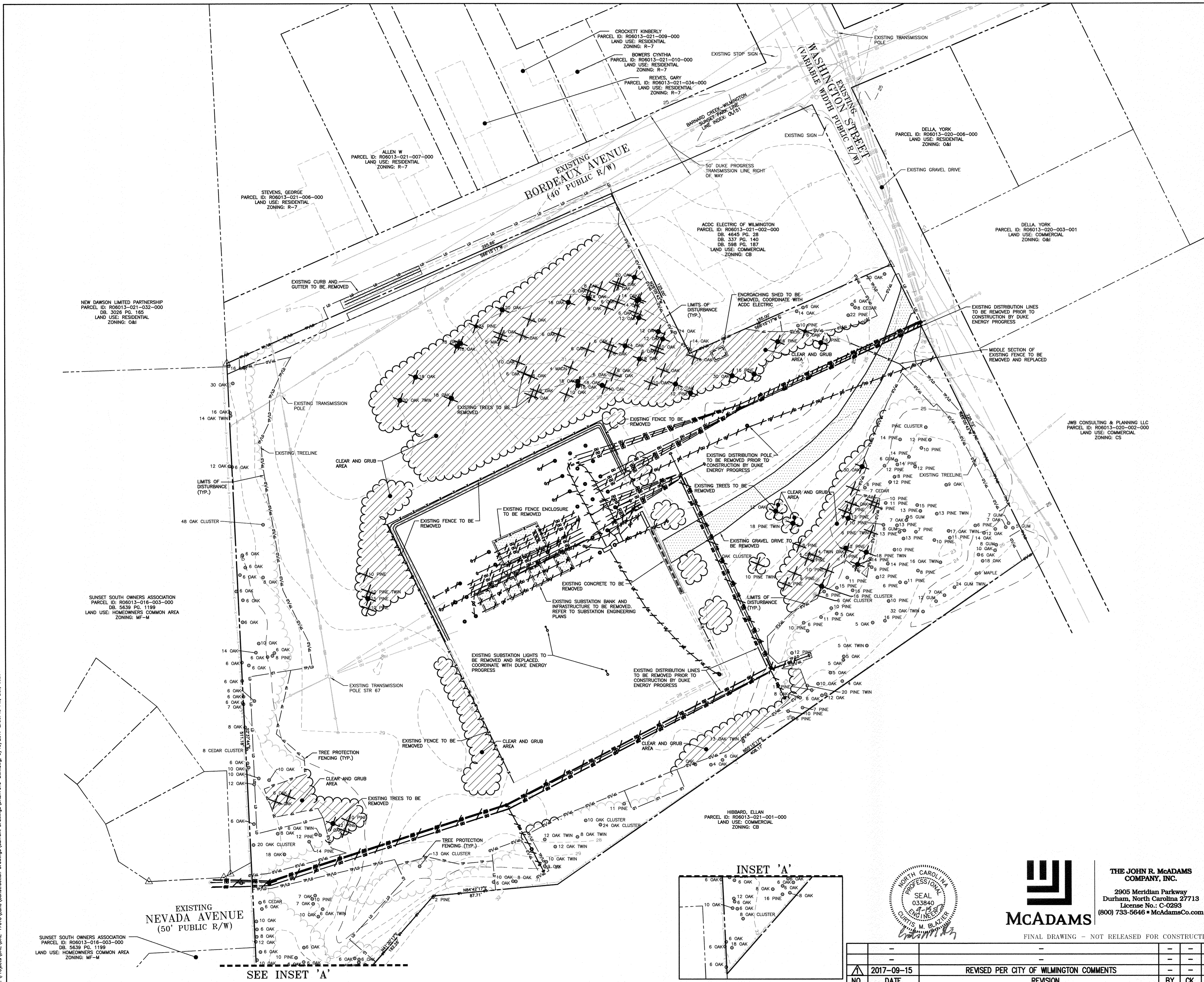


WILMINGTON SUNSET PARK 115 KV SUBSTATION  
 317 BORDEAUX AVENUE, WILMINGTON NC 27601  
 PROJECT NOTES

FINAL DRAWING – NOT RELEASED FOR CONSTRUCTION											
NO.	DATE	REVISION	BY	CK.	APP.	DATE	DWG. NO.	SHEET	PRJ. NO.	SCALE RATIO:	APP.
	2017-09-15	REVISED PER CITY OF WILMINGTON COMMENTS				05-15-17	70818	4 OF 18	DKE-17010	1:1	



X:\Projects\DKE-17010\Land\Construction Drawings\Current Drawings\DKE17010c-DMI.dwg, 9/15/2017 2:56:43 PM, Bel, Jobh



NOTE: SEE PLAN FOR DETAILED DEMOLITION PROCEDURES, SEQUENCING AND SPECIFICATIONS.

- ### DEMOLITION NOTES:
- IN ACCORDANCE WITH 40 CFR, PART 61, SUBPART M, A THOROUGH INSPECTION SHALL BE CONDUCTED FOR ASBESTOS-CONTAINING MATERIALS, PRIOR TO CONDUCTING A RENOVATION OR DEMOLITION ACTIVITY OF AN EXISTING STRUCTURE. THE ASBESTOS INSPECTION MUST BE CONDUCTED BY A NORTH CAROLINA ACCREDITED ASBESTOS INSPECTOR. ALL REGULATED AND/OR FRIABLE ASBESTOS-CONTAINING MATERIALS IDENTIFIED DURING THE SURVEY, WHICH WILL BE DISTURBED, MUST BE PROPERLY REMOVED BY ACCREDITED INDIVIDUALS BEFORE BEGINNING THE RENOVATION OR DEMOLITION ACTIVITY. IF REGULATED AND/OR FRIABLE ASBESTOS CONTAINING MATERIALS TO BE REMOVED EXCEED 160 SQUARE FEET, 260 LINEAR FEET OR 35 CUBIC FEET, A PERMIT SHALL BE APPLIED FOR THROUGH THE NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES.
  - ALL MATERIAL TO BE DEMOLISHED SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT A PERMITTED SITE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS.

- ### NOTES:
- ALL PINES LOCATED ON SITE ARE LONG LEAF PINES.
  - TREE CONVERSION TABLE IS SHOWN ON SHEET 17.

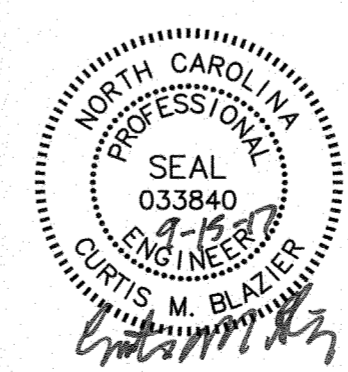
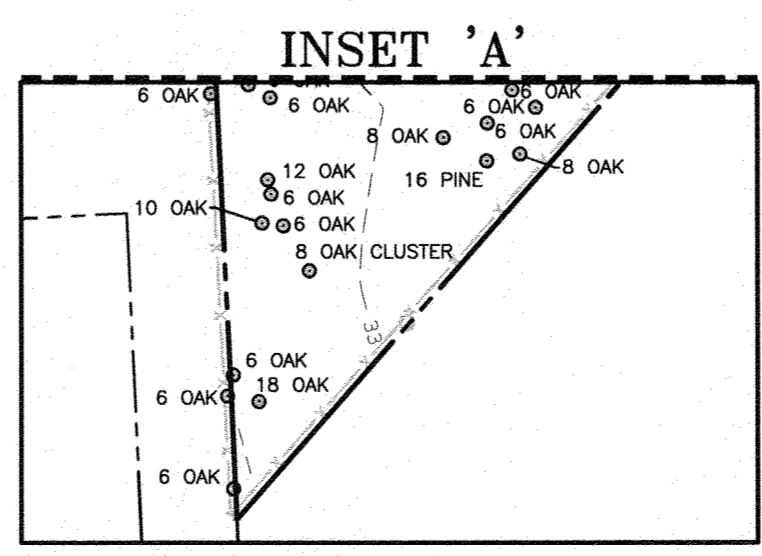
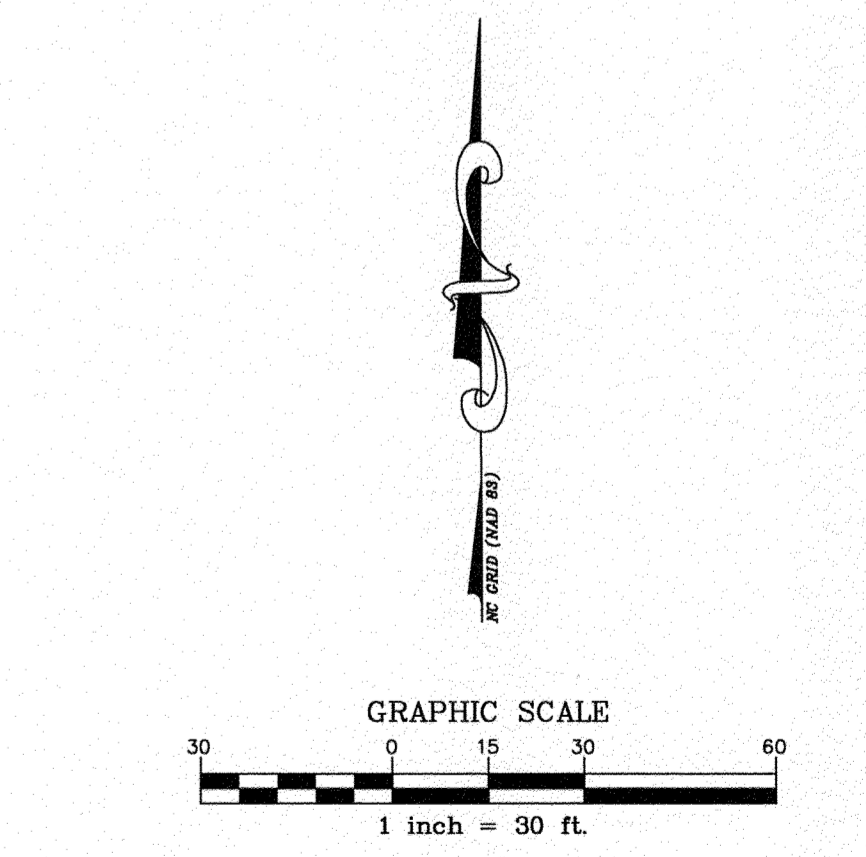
**Approved Construction Plan**

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

Planning \_\_\_\_\_

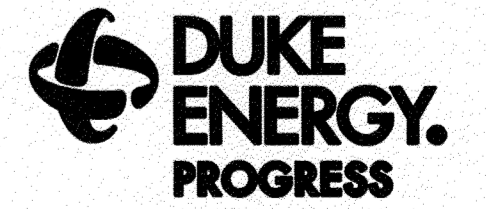
Traffic \_\_\_\_\_

Fire \_\_\_\_\_



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WILMINGTON SUNSET PARK 115 KV SUBSTATION  
 317 BORDEAUX AVENUE, WILMINGTON NC 27601  
 DEMOLITION PLAN

LOCATION:	WILMINGTON, NC
SCALE:	1"=30'
SCALE RATIO:	1:1
PRJ. NO.:	DKE-17010
DRAWN:	JB
CHK.:	---
APP.:	---
DATE:	05-15-17
DWG. NO.:	70818, SHEET 5 OF 18

NO.	DATE	REVISION	BY	CK.	APP.
1	2017-09-15	REVISED PER CITY OF WILMINGTON COMMENTS			

SUNSET SOUTH OWNERS ASSOCIATION  
 PARCEL ID: R06013-016-003-000  
 DB: 5639 PG: 1199  
 LAND USE: HOMEOWNERS COMMON AREA  
 ZONING: MF-M

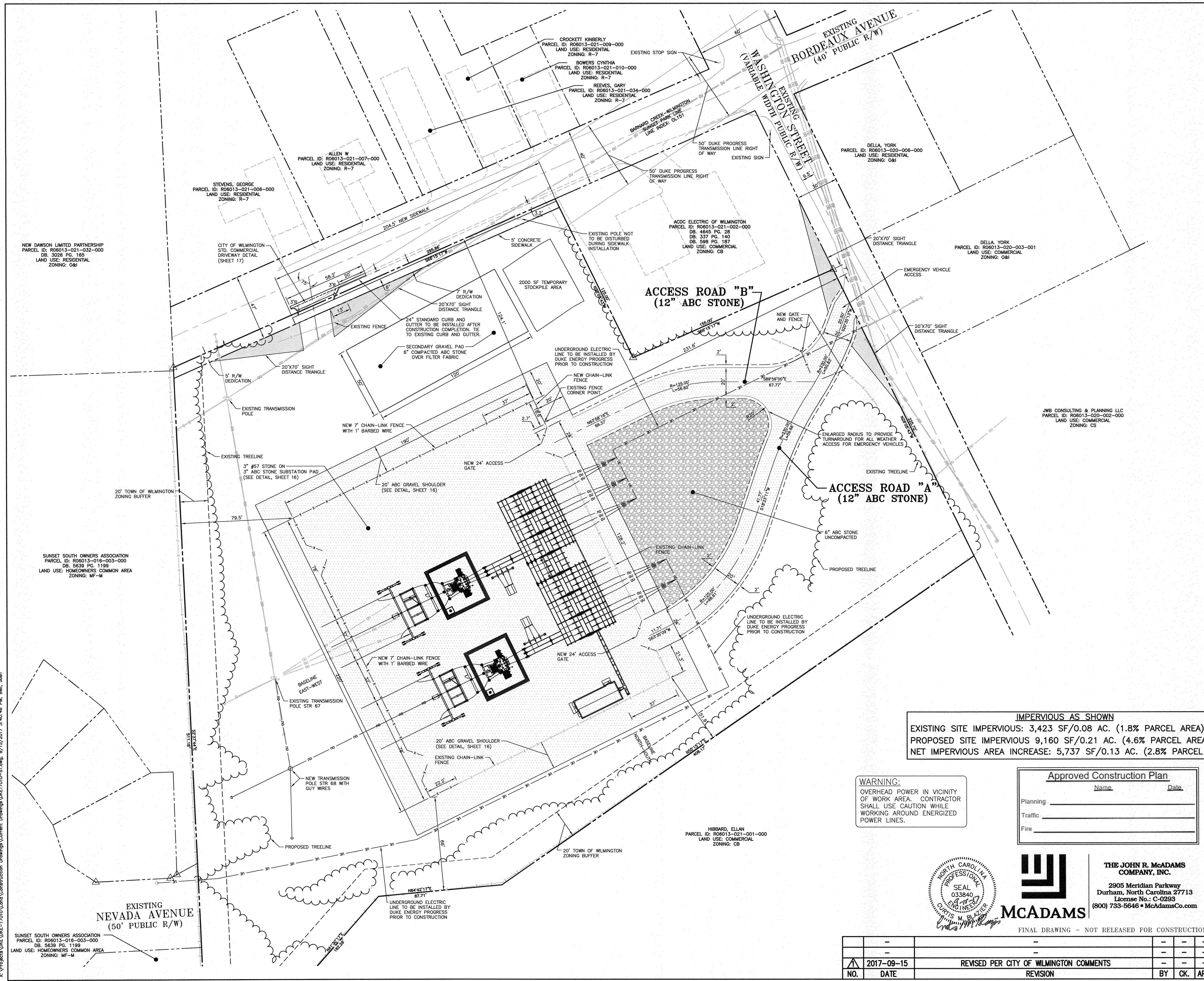
EXISTING NEVADA AVENUE  
 (50' PUBLIC R/W)

SEE INSET 'A'



**SITE LEGEND**

- — — — — PROPERTY LINE
  - - - - - RIGHT-OF-WAY LINE
  - - - - - LOT LINE
  - - - - - ROAD SHOULDER
  - - - - - CENTERLINE
  - O U — O U — OVERHEAD UTILITY
  - U E — U E — UNDERGROUND ELECTRIC
  - X — X — TREELINE
  - X — X — FENCE LINE
  - [Hatched Box] ABC STONE
  - [Symbol] ACCESSIBLE RAMPS
- TYPE ⓐ TYPE ⓑ TYPE ⓒ



NEW DAWSON LIMITED PARTNERSHIP  
PARCEL ID: R06013-021-032-000  
DB: 3026 PG. 165  
LAND USE: RESIDENTIAL  
ZONING: O&I

STEVENS, GEORGE  
PARCEL ID: R06013-021-006-000  
LAND USE: RESIDENTIAL  
ZONING: R-7

ALLEN W  
PARCEL ID: R06013-021-007-000  
LAND USE: RESIDENTIAL  
ZONING: R-7

CROCKETT KINBERLY  
PARCEL ID: R06013-021-009-000  
LAND USE: RESIDENTIAL  
ZONING: R-7

BOWERS CYNTHIA  
PARCEL ID: R06013-021-010-000  
LAND USE: RESIDENTIAL  
ZONING: R-7

REEVES, GARY  
PARCEL ID: R06013-021-034-000  
LAND USE: RESIDENTIAL  
ZONING: R-7

DELLA YORK  
PARCEL ID: R06013-020-006-000  
LAND USE: RESIDENTIAL  
ZONING: O&I

DELLA YORK  
PARCEL ID: R06013-020-003-001  
LAND USE: COMMERCIAL  
ZONING: O&I

JWB CONSULTING & PLANNING LLC  
PARCEL ID: R06013-020-002-000  
LAND USE: COMMERCIAL  
ZONING: CS

SUNSET SOUTH OWNERS ASSOCIATION  
PARCEL ID: R06013-016-003-000  
DB: 5639 PG. 1199  
LAND USE: HOMEOWNERS COMMON AREA  
ZONING: MF-M

SUNSET SOUTH OWNERS ASSOCIATION  
PARCEL ID: R06013-016-003-000  
DB: 5639 PG. 1199  
LAND USE: HOMEOWNERS COMMON AREA  
ZONING: MF-M

**ACCESS ROAD "B"**  
(12" ABC STONE)

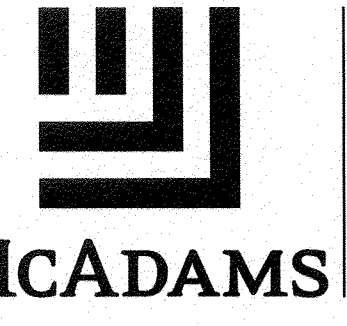
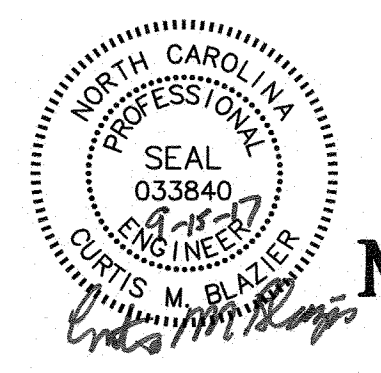
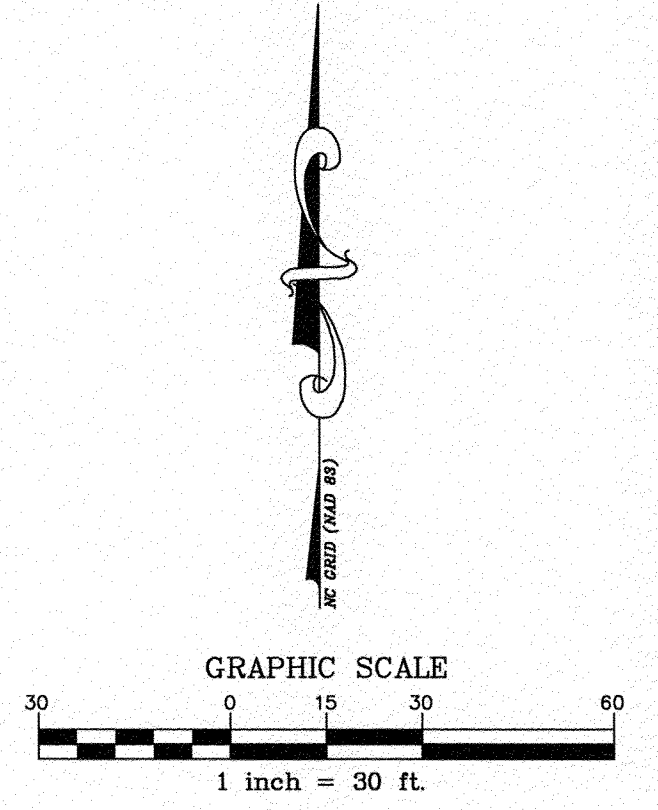
**ACCESS ROAD "A"**  
(12" ABC STONE)

**IMPERVIOUS AS SHOWN**  
EXISTING SITE IMPERVIOUS: 3,423 SF/0.08 AC. (1.8% PARCEL AREA)  
PROPOSED SITE IMPERVIOUS 9,160 SF/0.21 AC. (4.6% PARCEL AREA)  
NET IMPERVIOUS AREA INCREASE: 5,737 SF/0.13 AC. (2.8% PARCEL AREA)

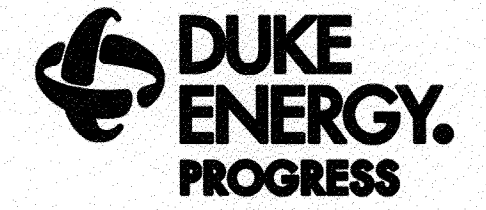
**WARNING:**  
OVERHEAD POWER IN VICINITY  
OF WORK AREA. CONTRACTOR  
SHALL USE CAUTION WHILE  
WORKING AROUND ENERGIZED  
POWER LINES.

**Approved Construction Plan**

Name	Date
Planning	
Traffic	
Fire	



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**WILMINGTON SUNSET PARK 115 KV SUBSTATION**  
317 BORDEAUX AVENUE, WILMINGTON NC 27601  
SITE PLAN

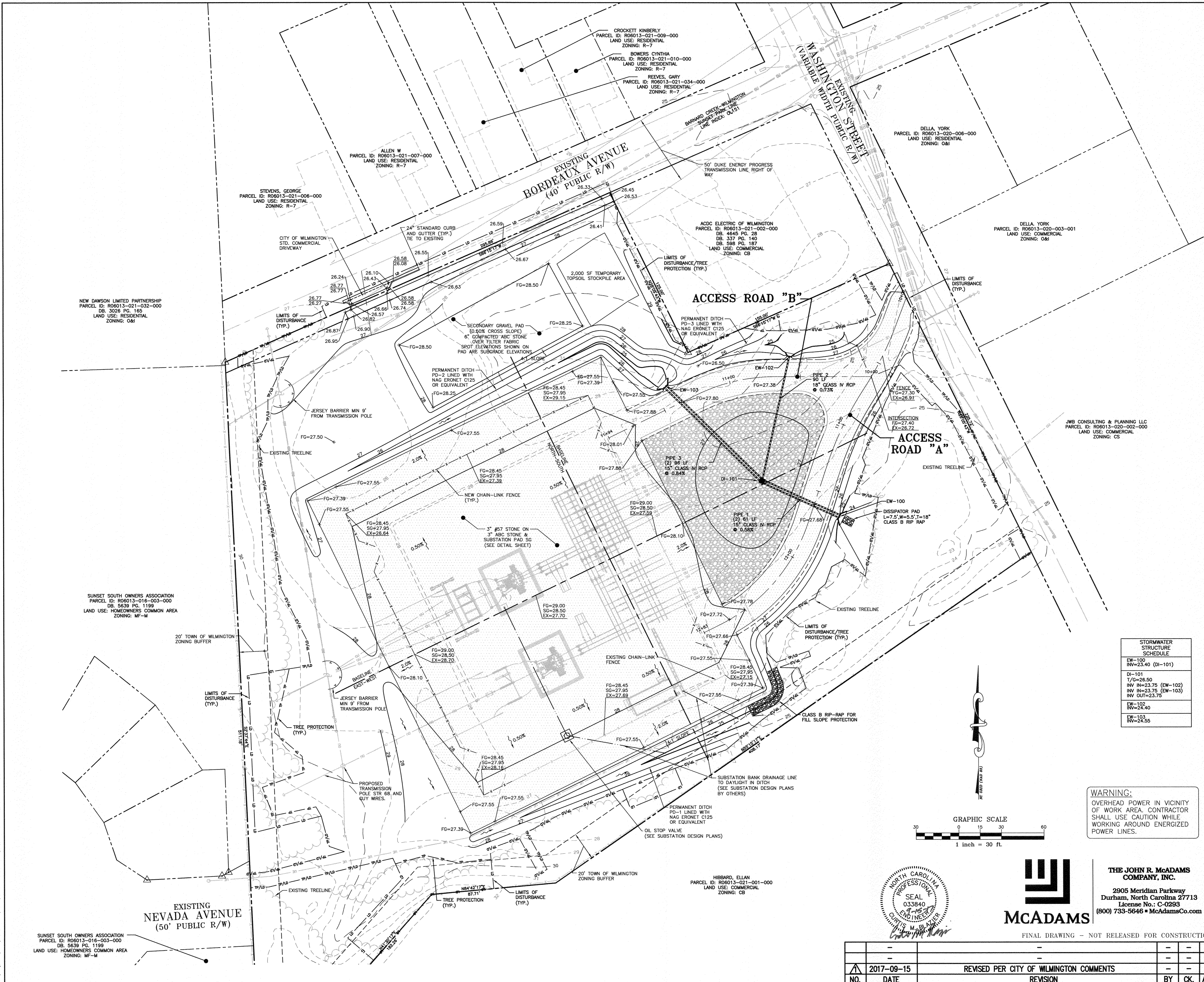
NO.	DATE	REVISION	BY	CK.	APP.
1	2017-09-15	REVISED PER CITY OF WILMINGTON COMMENTS			

LOCATION: WILMINGTON, NC  
SCALE: 1"=30' SCALE RATIO: 1:1 PRJ. NO. DKE-17010  
DRAWN: JB CHK. --- APP. ---  
DATE: 05-15-17 DWG. NO. 70818, SHEET 6 OF 18

X:\Projects\DKE-17010\Land\Construction Drawings\Current Drawings\DWG\7010-SI.dwg, 9/15/2017, 3:40:46 PM, Baill, John



X:\Projects\DKM\DKM-17010\Layout\Construction Drawings\DKM17010-01.dwg, 9/15/2017 2:58:40 PM, Bell, Josh



**EARTHWORK VOLUMES:**  
 CUT: 1,757 CU. YD.  
 FILL: 2,518 CU. YD.  
 NET (UNADJUSTED): 761 CU. YD. (FILL/IMPORT)  
 NET (ADJUSTED): 199 CU. YD. (CUT/EXPORT)  
 \*\*\* EARTHWORK VOLUMES ARE ESTIMATED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL VOLUMES AND QUANTITIES.

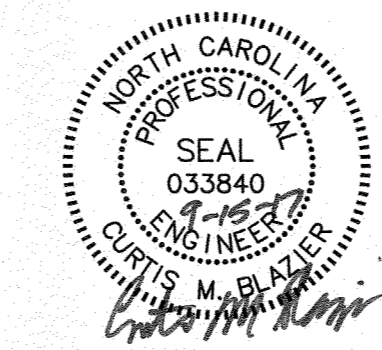
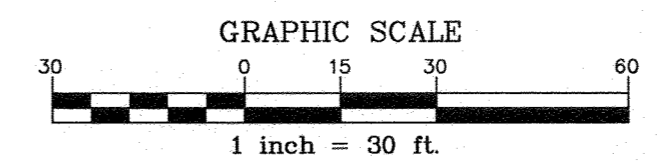
**PERMANENT DITCH SUMMARY**

DITCH #	SECTION			TEMPORARY LINER
	SIDES	LONGITUDINAL (FT/FT)	DEPTH (FT)	
PD-1	4:1	0.011	1.25 MIN	C125
PD-2	4:1	0.006	1.50 MIN	C125
PD-3	4:1	0.029	1.00 MIN	C125

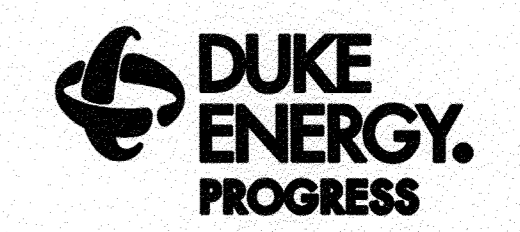
**STORMWATER STRUCTURE SCHEDULE**

EW-100	IN=23.40 (DI-101)
DI-101	I/G=26.50
I/G=26.50	IN IN=23.75 (EW-102)
IN IN=23.75 (EW-102)	IN IN=23.75 (EW-103)
IN IN=23.75 (EW-103)	IN OUT=23.75
IN-102	IN=24.40
EW-103	IN=24.55

**WARNING:**  
 OVERHEAD POWER IN VICINITY OF WORK AREA. CONTRACTOR SHALL USE CAUTION WHILE WORKING AROUND ENERGIZED POWER LINES.



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**WILMINGTON SUNSET PARK 115 KV SUBSTATION**  
 317 BORDEAUX AVENUE, WILMINGTON NC 27601  
 GRADING AND STORM DRAINAGE PLAN

NO.	DATE	REVISION	BY	CK.	APP.
1	2017-09-15	REVISED PER CITY OF WILMINGTON COMMENTS			

LOCATION: WILMINGTON, NC  
 SCALE: 1"=30' SCALE RATIO: 1:1 PRJ. NO. DKE-17010  
 DRAWN: JB CHK. --- APP. ---  
 DATE: 05-15-17 DWG. NO. 70818, SHEET 7 OF 18

SUNSET SOUTH OWNERS ASSOCIATION  
 PARCEL ID: R06013-016-003-000  
 DB: 5639 PG: 1199  
 LAND USE: HOMEOWNERS COMMON AREA  
 ZONING: MF-M

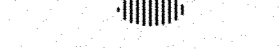
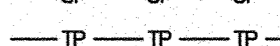






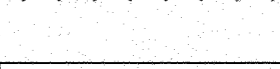
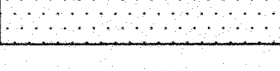
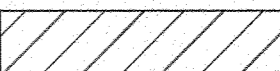
EXISTING NEVADA AVENUE  
 (50' PUBLIC R/W)

HIBBARD, ELLAN  
 PARCEL ID: R06013-021-001-000  
 LAND USE: COMMERCIAL  
 ZONING: CB

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION



**EROSION CONTROL LEGEND**

-  SILT FENCE OUTLET
-  SILT FENCE
-  TREE PROTECTION FENCE
-  LIMITS OF DISTURBANCE
-  WOODED AREA
-  CONSTRUCTION ENTRANCE/EXIT
-  TREE OR OTHER VEGETATION TO BE REMOVED
-  TREE 12" AND OVER TO BE REMOVED
-  UTILITY TO BE REMOVED
-  AREA TO BE REMOVED (SIDEWALK, CURB AND GUTTER, STRUCTURES, ASPHALT, CONCRETE PAVING, ETC.)
-  AREA TO CLEAR AND GRUB

NOTE: SEE PLAN FOR DETAILED DEMOLITION PROCEDURES, SEQUENCING AND SPECIFICATIONS.

DISTURBED AREA = 3.57 AC.

**CONSTRUCTION SEQUENCE - STAGE 1**

1. CALL THE DESIGNATED NCDCE EROSION CONTROL INSPECTOR AT (910) 796-7215 TO SCHEDULE AND HOLD A PRE-CONSTRUCTION MEETING.
2. DO NOT PROCEED WITH LAND DISTURBANCE ACTIVITIES WITHOUT AN APPROVED SEDIMENT AND EROSION CONTROL PLAN.
3. ONLY DISTURB AREAS NECESSARY TO INSTALL PERIMETER MEASURES. MAINTAIN DEVICES AS NEEDED IN ACCORDANCE WITH THE EROSION CONTROL NOTES ON SHEET 4.
4. INSTALL PERIMETER SILT FENCE, SILT FENCE OUTLETS, AND CONSTRUCTION ENTRANCES. OBTAIN GRADING PERMIT. DEMO AND REMOVE ANY FEATURES TO ALLOW FOR INSTALLATION OF CONSTRUCTION ENTRANCES (CURB, GUTTER, ETC.).
5. BEGIN DEMOLITION OF EXISTING SITE FEATURES AND BEGIN CLEARING AND GRUBBING OF SURROUNDING VEGETATION AS SHOWN ON THIS SHEET.
6. THE EXISTING SUBSTATION IS TO BE LEFT UNDISTURBED DURING THIS STAGE AND SHOULD NOT BE PLACED OFFLINE FOR ANY REASON.
7. CONTRACTOR IS TO ENSURE SUBSTATION IS FENCED AT ALL TIMES AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED FOR THE DAY. IF PERMANENT FENCING HAS BEEN REMOVED THE CONTRACTOR IS TO UTILIZE TEMPORARY FENCING THAT IS ADEQUATE ENOUGH TO PREVENT PUBLIC ACCESS TO THE SUBSTATION PAD AT THE END OF EACH WORKDAY.
8. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 14 DAYS OF INACTIVITY.
9. PRIOR TO COMMENCING STAGE 2, CALL THE DESIGNATED NCDCE EROSION CONTROL INSPECTOR AT (910) 796-7215 FOR AN INSPECTION. IF APPROVED, COMMENCE WITH STAGE 2.

**EROSION CONTROL MAINTENANCE PLAN**

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BY THE SITE CONTRACTOR FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL, BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN ALL MEASURES AS DESIGNED.
2. SEDIMENT FENCES SHALL BE INSPECTED AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. REPAIRS SHALL BE MADE IMMEDIATELY. SEDIMENT DEPOSITS SHALL BE REMOVED AS NEEDED TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAINFALL EVENT, AND TO REDUCE PRESSURE ON THE FENCE. FENCING MATERIALS AND SEDIMENT DEPOSITS SHALL BE REMOVED, AND THE AREA BROUGHT TO GRADE FOLLOWING STABILIZATION OF UPGRADIENT DISTURBED AREAS.

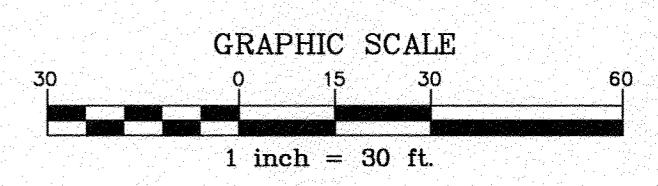
**Approved Construction Plan**

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

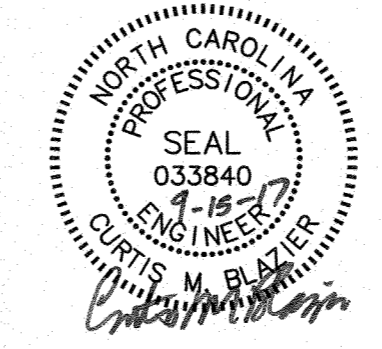


**WILMINGTON SUNSET PARK 115 KV SUBSTATION  
317 BORDEAUX AVENUE, WILMINGTON NC 27601  
SEDIMENT & EROSION CONTROL PLAN - STAGE 1**

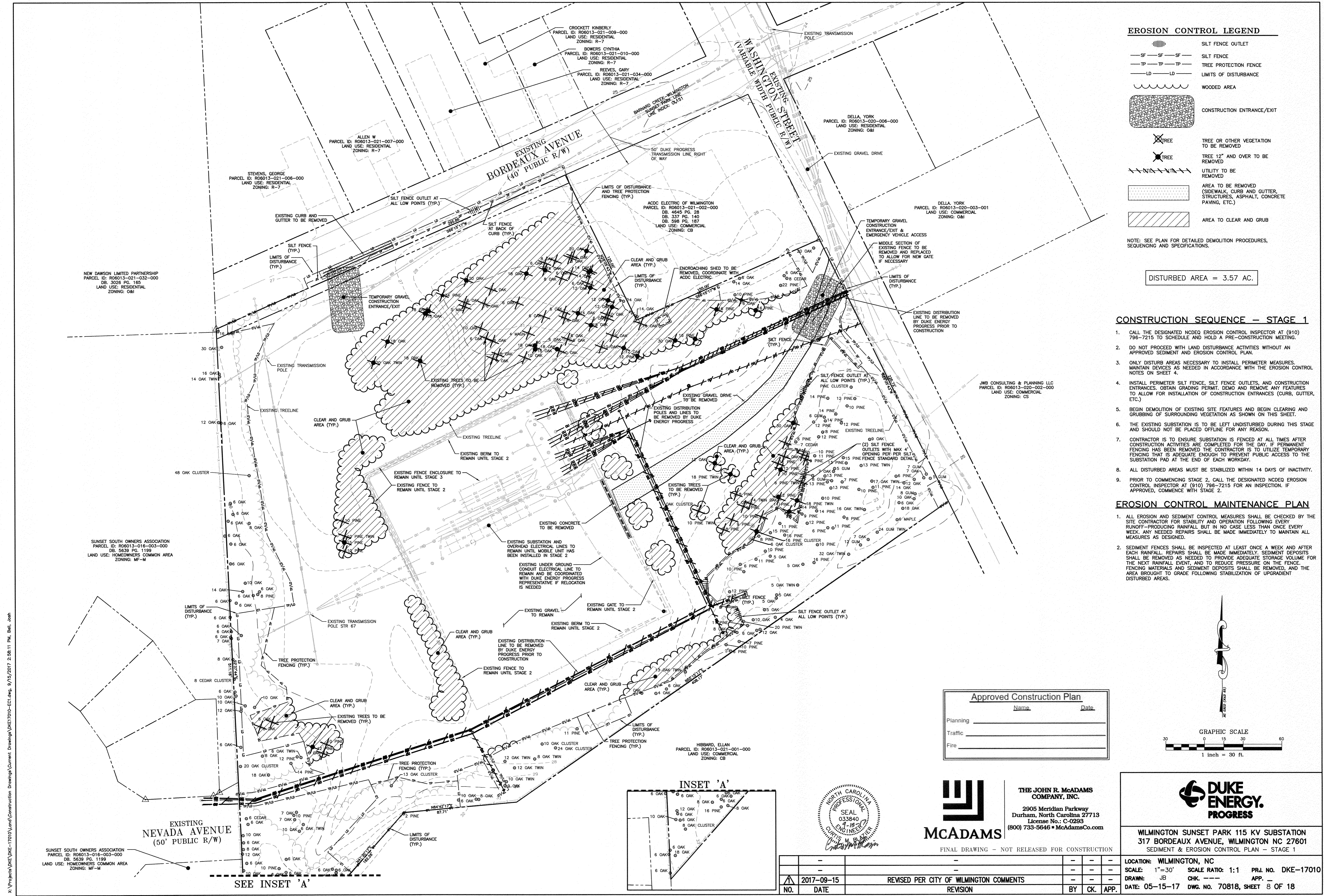
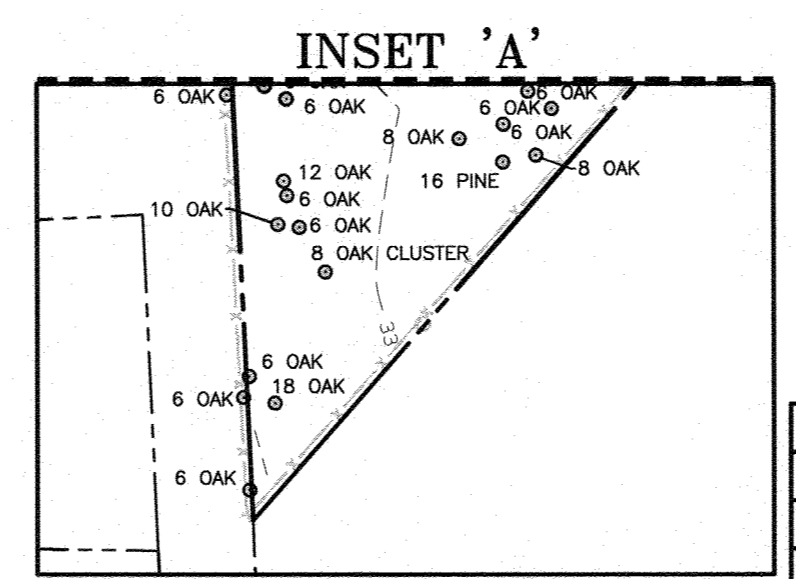
LOCATION: WILMINGTON, NC  
SCALE: 1"=30' SCALE RATIO: 1:1 PRJ. NO. DKE-17010  
DRAWN: JB CHK: \_\_\_\_\_ APP: \_\_\_\_\_  
DATE: 05-15-17 DWG. NO. 70818, SHEET 8 OF 18

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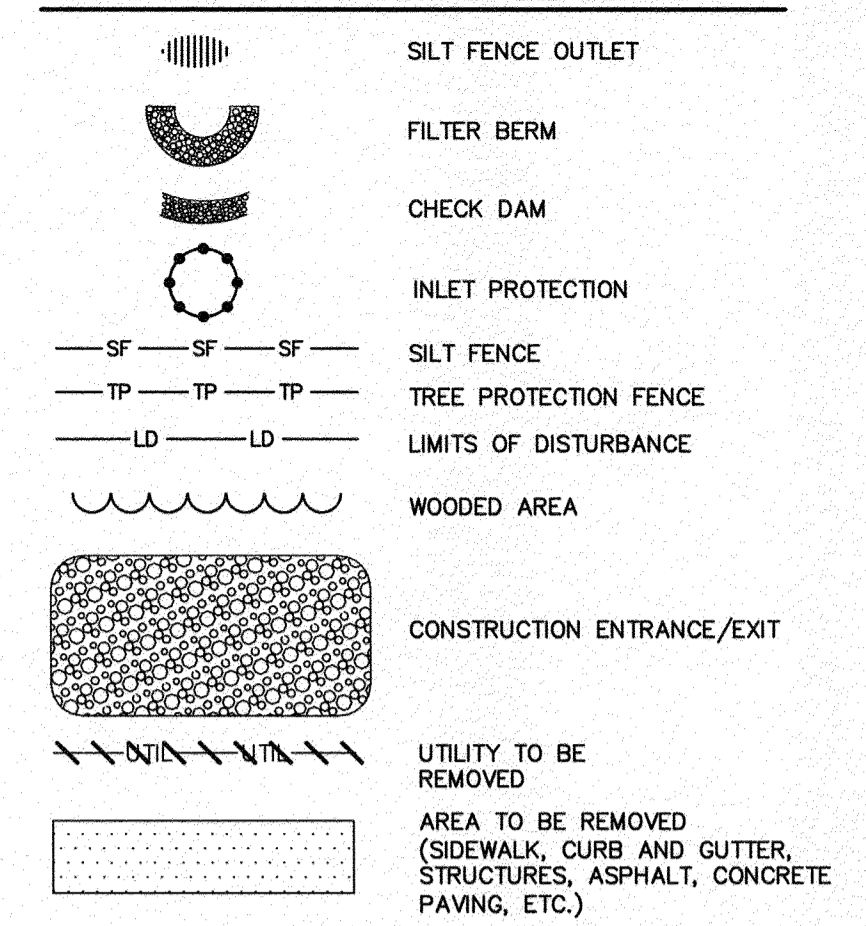
NO.	DATE	REVISION	BY	CK.	APP.
1	2017-09-15	REVISED PER CITY OF WILMINGTON COMMENTS			



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**EROSION CONTROL LEGEND**



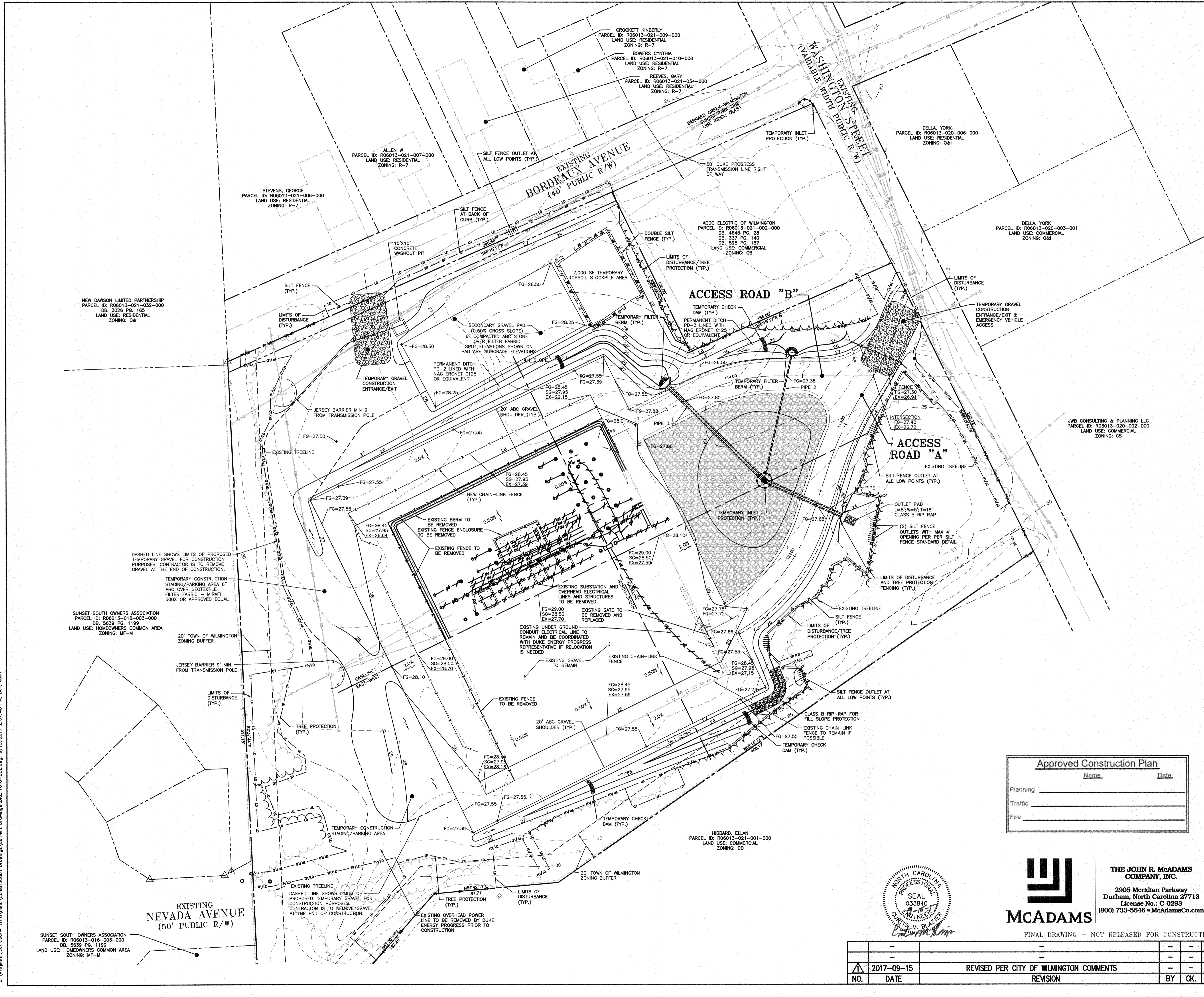
DISTURBED AREA = 3.57 AC.

**CONSTRUCTION SEQUENCE - STAGE 2**

- PENDING STAGE 1 IS COMPLETE AND ALL APPROVAL AND INSPECTIONS HAVE TAKEN PLACE PROCEED WITH STAGE 2.
- GENERAL SITE GRADING SHALL COMMENCE BEGINNING WITH THE CONSTRUCTION OF A SECONDARY GRAVEL SUBSTATION PAD AND ASSOCIATED ADJACENT ABC STONE DRIVE. TEMPORARY CONSTRUCTION STAGING/PARKING AREA TO BE CONSTRUCTED ADJOINING DRIVE.
- ONCE THE SECONDARY GRAVEL SUBSTATION PAD, DRIVE, AND TEMPORARY STAGING PARKING AREAS ARE COMPLETE THE CONTRACTOR IS TO COORDINATE WITH DUKE ENERGY PROGRESS REGARDING THE INSTALLATION OF THE MOBILE SUBSTATION UNIT.
- ONCE THE MOBILE SUBSTATION UNIT IS ONLINE AND A DUKE ENERGY PROGRESS REPRESENTATIVE CONFIRMS THE EXISTING SUBSTATION IS OFFLINE THE CONTRACTOR MAY PROCEED WITH REMOVING SITE FEATURES WITHIN THE EXISTING SUBSTATION PAD AREA.
- THE REMAINING GENERAL SITE GRADING SHALL COMMENCE INCLUDING THE CONSTRUCTION OF ACCESS ROAD "A", ACCESS ROAD "B" AND THE PROPOSED SUBSTATION PAD. DURING GRADING AND CONSTRUCTION OF ACCESS ROAD "A" AND ACCESS ROAD "B" INSTALL THE STORM DRAINAGE PIPES 1, 2 AND 3 ALONG WITH THEIR ASSOCIATED STRUCTURES. THE CONTRACTOR IS TO USE INLET PROTECTION AS SHOWN ON THESE PLANS AND ON ANY EXPOSED PIPES BEFORE LEAVING AT THE END OF EACH WORK DAY.
- CONTRACTOR TO UTILIZE THE TOPSOIL STOCKPILE AREA TO STORE TOPSOIL MATERIAL THROUGHOUT GRADING ACTIVITIES. TOPSOIL AREA TO BE WRAPPED IN TWO ROWS OF SILT FENCE.
- CONTRACTOR IS TO ENSURE SUBSTATION IS FENCED AT ALL TIMES AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED FOR THE DAY. IF PERMANENT FENCING HAS BEEN REMOVED THE CONTRACTOR IS TO UTILIZE TEMPORARY FENCING THAT IS ADEQUATE ENOUGH TO PREVENT PUBLIC ACCESS TO THE SUBSTATION PAD AT THE END OF EACH WORKDAY.
- CONTRACTOR IS TO INSTALL TEMPORARY CHECK DAMS IN PERMANENT DITCHES AS SHOWN ON THE PLAN.
- ONCE THE EXISTING SUBSTATION BANK HAS BEEN REMOVED AND PAD GRADING IS COMPLETE NOTIFY THE DUKE ENERGY PROGRESS REPRESENTATIVE. THE SUBSTATION CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING THE LAST LIFTS OF ABC AND #57 STONE AS WELL AS THE INSTALLATION OF THE NEW SUBSTATIONS (SEE STAGE 3 FOR ULTIMATE).
- CONTRACTOR IS TO CONTINUE TO MONITOR, MAINTAIN, AND INSPECT ALL EROSION CONTROL DEVICES TO ENSURE NO VIOLATIONS WILL OCCUR.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 14 DAYS OF INACTIVITY.
- PRIOR TO COMMENCING STAGE 3, CALL THE DESIGNATED NCEQ EROSION CONTROL INSPECTOR AT (910) 796-7215 FOR AN INSPECTION. IF APPROVED, COMMENCE WITH STAGE 3.

**EROSION CONTROL MAINTENANCE PLAN**

- ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BY THE SITE CONTRACTOR FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL, BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN ALL MEASURES AS DESIGNED.
- SEDIMENT FENCES SHALL BE INSPECTED AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. REPAIRS SHALL BE MADE IMMEDIATELY. SEDIMENT DEPOSITS SHALL BE REMOVED AS NEEDED TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAINFALL EVENT, AND TO REDUCE PRESSURE ON THE FENCE. FENCING MATERIALS AND SEDIMENT DEPOSITS SHALL BE REMOVED, AND THE AREA BROUGHT TO GRADE FOLLOWING STABILIZATION OF UPGRADED DISTURBED AREAS.



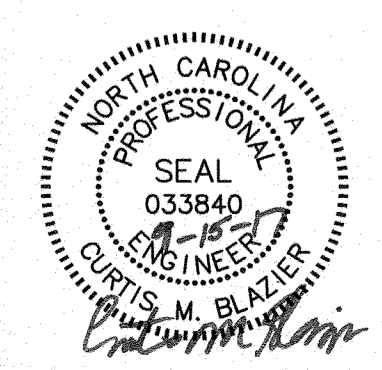
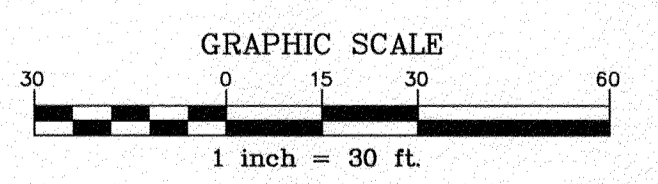
**Approved Construction Plan**

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

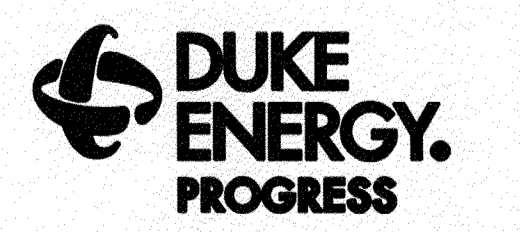
Planning: \_\_\_\_\_

Traffic: \_\_\_\_\_

Fire: \_\_\_\_\_



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**WILMINGTON SUNSET PARK 115 KV SUBSTATION**  
 317 BORDEAUX AVENUE, WILMINGTON NC 27601  
 SEDIMENT & EROSION CONTROL PLAN - STAGE 2

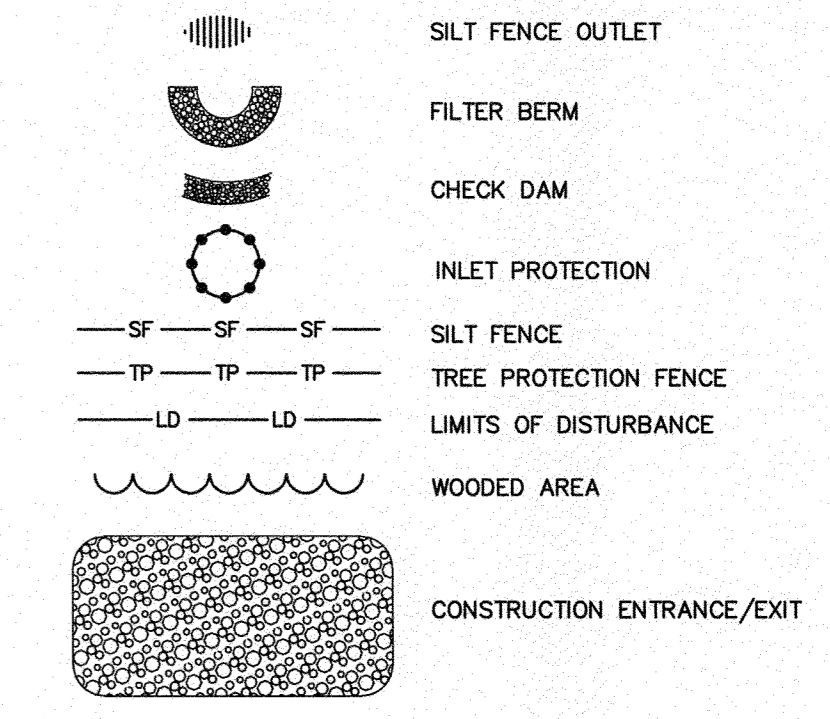
FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CK.	APP.
1	2017-09-15	REVISED PER CITY OF WILMINGTON COMMENTS			

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**EROSION CONTROL LEGEND**



DISTURBED AREA = 3.57 AC.

**CONSTRUCTION SEQUENCE - STAGE 3**

- PENDING STAGE 2 IS COMPLETE AND ALL APPROVAL AND INSPECTIONS HAVE TAKEN PLACE PROCEED WITH STAGE 3.
- CONTRACTOR IS TO ENSURE SUBSTATION IS FENCED AT ALL TIMES AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED FOR THE DAY. IF PERMANENT FENCING HAS BEEN REMOVED THE CONTRACTOR IS TO UTILIZE TEMPORARY FENCING THAT IS ADEQUATE ENOUGH TO PREVENT PUBLIC ACCESS TO THE SUBSTATION PAD AT THE END OF EACH WORKDAY.
- ONCE INSTALLATION OF PROPOSED SUBSTATION BANKS #1 & #2 AND ALL ASSOCIATED STRUCTURES ARE COMPLETE, CONTACT THE DUKE ENERGY PROGRESS REPRESENTATIVE FOR AN INSPECTION. ONCE APPROVED BY THE DUKE ENERGY PROGRESS REPRESENTATIVE THE NEW SUBSTATION BANKS SHOULD BE PUT ONLINE AND THE TEMPORARY MOBILE SUBSTATION SHOULD BE TAKEN OFFLINE.
- ONCE THE TEMPORARY MOBILE SUBSTATION HAS BEEN TAKEN OFFLINE IT IS TO BE REMOVED FROM THE SITE AND THE TEMPORARY CONSTRUCTION/PARKING AREA AND THE TEMPORARY CONSTRUCTION ENTRANCE SHOULD NOW BE REMOVED. THE SECONDARY PAD IS TO REMAIN. ONCE THE TEMPORARY GRAVEL AREAS ARE REMOVED THE CONTRACTOR IS TO RESEED THE AREA TO PROVIDE TEMPORARY AND PERMANENT STABILIZATION.
- CONSTRUCT PERMANENT DRIVEWAY AT BORDEAUX AVENUE. CONSTRUCT CURB AND GUTTER AND CONCRETE SIDEWALK. IMMEDIATE CLEANUP OF ANY MATERIAL BEING PLACED ON THE ROADWAY IS REQUIRED. PLACE SILT FENCE ALONG THE BACK OF CURBS AS SHOWN ON THESE PLANS TO PREVENT SEDIMENT LAYDEN RUNOFF FROM ENTERING THE ROADWAY. CONTRACTOR IS TO USE WADDLES OR OTHER EROSION CONTROL DEVICES IF SEDIMENT IN THE ROADWAY OR GUTTER FLOW LINES BECOMES AN ISSUE. CONTRACTOR IS TO CLEAN GUTTER LINES ALONG BORDEAUX AVENUE OF SEDIMENT AND DEBRIS AFTER EACH RAINFALL EVENT.
- REMOVE WASHOUT PIT.
- CONTRACTOR TO REMOVE TEMPORARY JERSEY BARRIERS.
- CONTRACTOR IS TO CONTINUE TO MONITOR, MAINTAIN, AND INSPECT ALL EROSION CONTROL DEVICES TO ENSURE NO VIOLATIONS WILL OCCUR.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 14 DAYS OF INACTIVITY.
- WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL THE DESIGNATED NCEQ EROSION CONTROL INSPECTOR AT (910) 796-7215 FOR AN INSPECTION.
- IF SITE IS APPROVED BY THE NCEQ INSPECTOR, REMOVE TEMPORARY CONSTRUCTION ENTRANCES AND CONSTRUCT PERMANENT ENTRANCES TO WASHINGTON ST. AND BORDEAUX ST. SEED OUT AND/OR GRAVEL ANY REMAINING BARE AREAS SHOWN TO BE GRAVEL ON THESE PLANS.
- REMOVE SILT FENCING, INLET PROTECTION, CHECK DAMS, ETC.
- UPON COMPLETION OF STAGE 3, CALL THE DESIGNATED NCEQ EROSION CONTROL INSPECTOR AT (910) 796-7215 FOR FINAL INSPECTION.

**EROSION CONTROL MAINTENANCE PLAN**

- ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BY THE SITE CONTRACTOR FOR STABILITY AND OPERATION FOLLOWING EVERY RAINFALL-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN ALL MEASURES AS DESIGNED.
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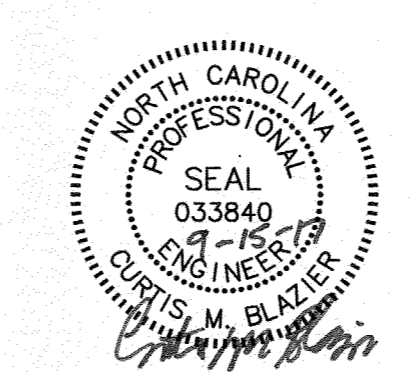
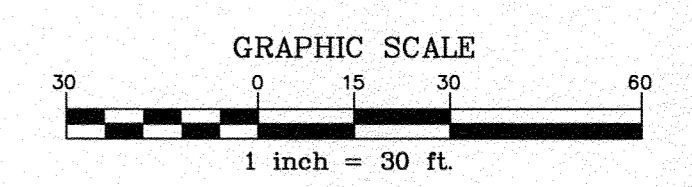
**Approved Construction Plan**

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_



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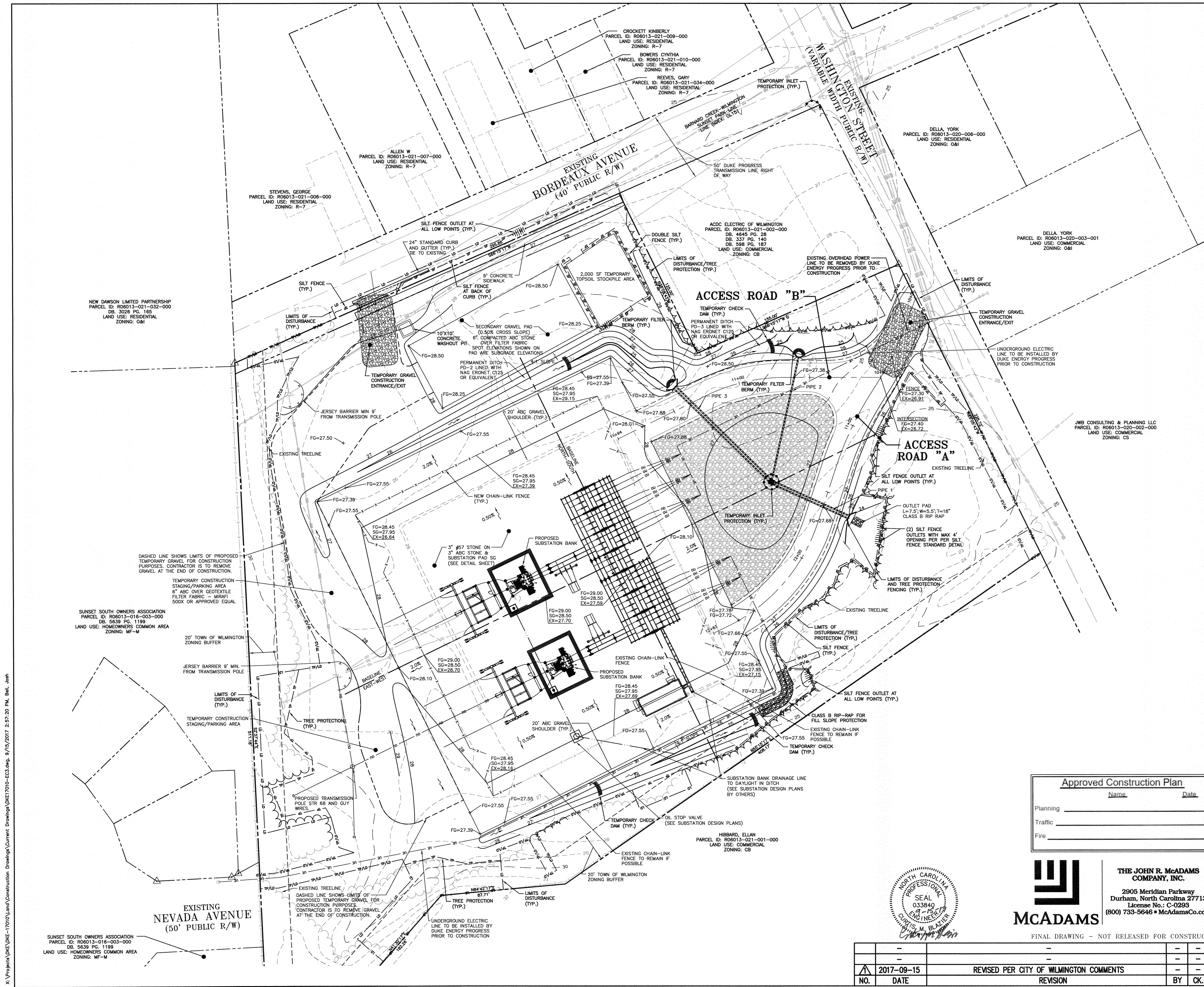
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FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

WILMINGTON SUNSET PARK 115 KV SUBSTATION  
317 BORDEAUX AVENUE, WILMINGTON NC 27601  
SEDIMENT & EROSION CONTROL PLAN - STAGE 3

LOCATION:	WILMINGTON, NC
SCALE:	1"=30'
SCALE RATIO:	1:1
PRJ. NO.:	DKE-17010
DRAWN:	JB
CHK.:	---
APP.:	---
DATE:	05-15-17
DWG. NO.:	70818, SHEET 10 OF 18

NO.	DATE	REVISION	BY	CK.	APP.
1	2017-09-15	REVISED PER CITY OF WILMINGTON COMMENTS			



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## ROLLMAX™ ROLLED EROSION CONTROL

### Specification Sheet - EroNet™ C125\* Erosion Control Blanket

**DESCRIPTION**  
The long-term double net erosion control blanket shall be a machine-produced mat of 100% coconut fiber with a functional longevity of up to 36 months. (NOTE: Functional longevity may vary depending upon climatic conditions, soil, geographical location, and elevation.) The blanket shall be of consistent thickness with the coconut evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom sides with a heavy weight photodegradable polypropylene netting having ultraviolet additives to delay breakdown and an approximate 0.63 x 0.63 in. (1.59 x 1.59 cm) mesh. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2.5 inches [6.35 cm] from the edge) as an overlap guide for adjacent mats.

The C125 shall meet Type 4 specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 783.7.

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.22 in. (5.59 mm)
Resiliency	ECTC Guidelines	82%
Water Absorbency	ASTM D1917	40%
Mass/unit Area	ASTM 6475	7.73 oz/sq yd (262.8 g/sm)
Swell	ECTC Guidelines	13%
Smoulder-Resistance	ECTC Guidelines	Yes
Stiffness	ASTM D2938	0.75 oz-in
Light Penetration	ASTM D6567	16.6%
Tensile Strength - MD	ASTM D6818	472.8 lbs/ft (7.01 kN/m)
Elongation - MD	ASTM D6818	25.6%
Tensile Strength - TD	ASTM D6818	225.6 lbs/ft (3.35 kN/m)
Elongation - TD	ASTM D6818	38.9%
Biomass Improvement	ASTM 7322	25.6%

Design Permissible Shear Stress	
Unvegetated Shear Stress	2.25 psf (0.08 Pa)
Unvegetated Velocity	10.0 fps (3.05 m/s)

Slope Design Data: C Factors	
Slope Length (L)	≤ 3:1    3:1 - 2:1    ≥ 2:1
± 20 ft (6 m)	0.091    0.029    0.082
20-50 ft	0.036    0.060    0.096
± 50 ft (15.2 m)	0.070    0.090    0.110

Roughness Coefficients - Unveg.	
Flow Depth	Manning's 'n'
≤ 8.50 ft (0.15 m)	0.032
0.50 - 2.0 ft	0.022 - 0.094
± 2.0 ft (0.60 m)	0.014

**Material Content**

Matrix	100% Coconut Fiber	0.5 lbs/sq yd (0.27 kg/sm)
Netting	Heavyweight photodegradable with UV additives	3 lbs/1000 sq ft (1.47 g/sm)
Thread	Black polypropylene	

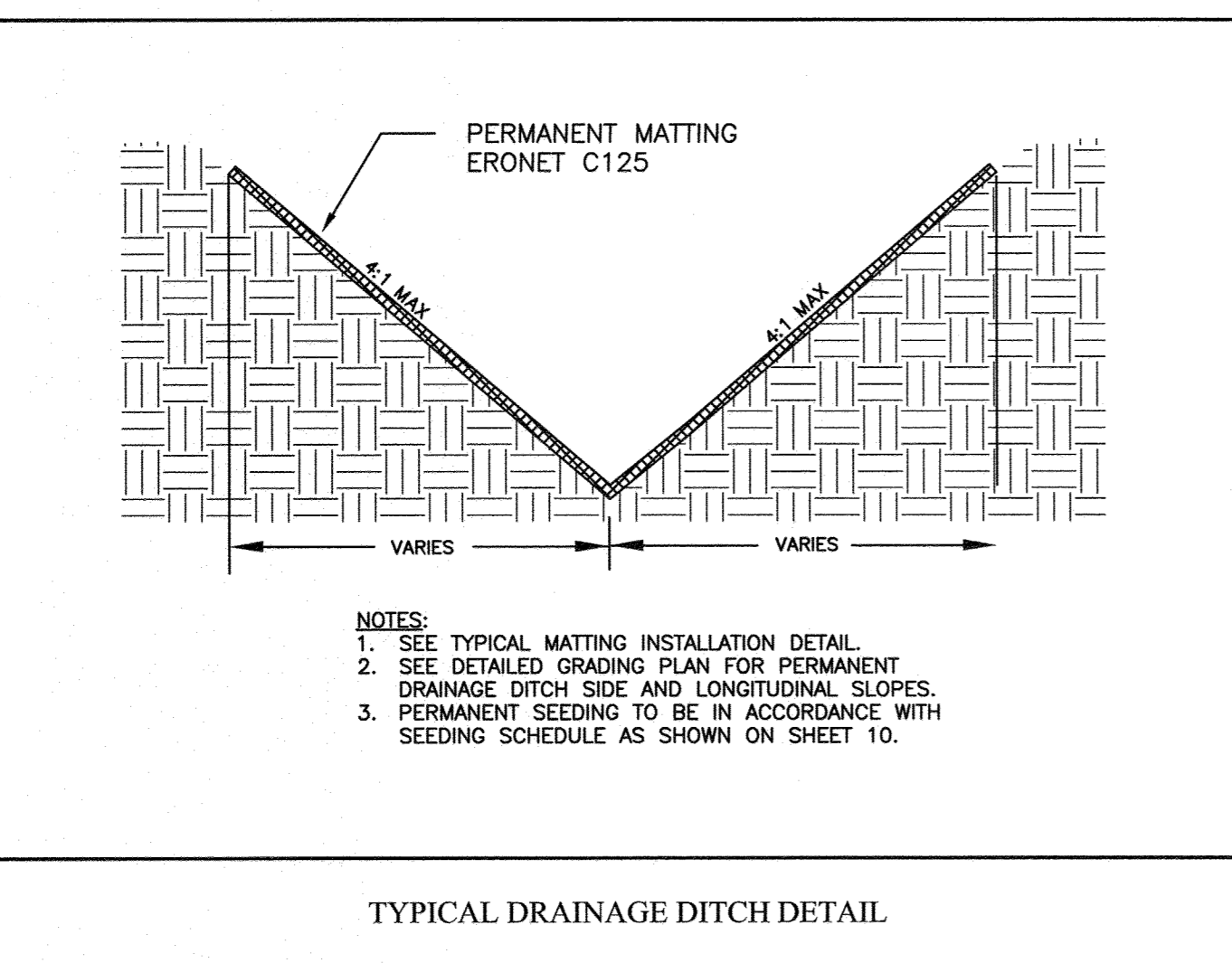
**Standard Roll Sizes**

Width	6.67 (2.03 m)	8 ft (2.44 m)
Length	108 ft (32.92 m)	112 ft (35.34 m)
Weight ± 10%	44 lbs (19.95 kg)	56.25 (25.5 kg)
Area	80 sq yd (66.9 sm)	100 sq yd (83.61 sm)

**North American Green**  
5401 St. Wendel-Cynthiana Road  
Poseyville, Indiana 47033  
napgreen.com  
800-772-7048

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DKE-EMM-EXP-07-05-13



DEMLR Monitoring Form Rev. 08/01/2013  
INSPECTION AND MONITORING RECORDS FOR ACTIVITIES UNDER STORMWATER GENERAL PERMIT NCC010000  
AND SELF-INSPECTION RECORDS FOR LAND DISTURBING ACTIVITIES PER G.S. 113A-54.1

Project Name		Land Quality or Local Program Project #
Financially Responsible Party (FRP) / Permittee		County
INSPECTOR		
Inspector Type (Mark) X		Address
FRP/Permittee		Phone Number
Agent/Designee		Email Address

**PART 1A: Rainfall Data**

Day / Date	Rain Amt (inches)	Daily Rainfall Required, except for Holiday or Weekends. If no rain, indicate with a "zero"

**PART 1B: Current Phase of Project**

Phase of Grading	check the applicable box(es)	X
Installation of perimeter erosion and sediment control measures		
Cleaning and grubbing of existing ground cover		
Completion of any phase of grading of slopes or fills		
Installation of storm drainage facilities		
Completion of all non-disturbing activity, construction or development		
Permanent ground cover sufficient to restrain erosion has been established		

**PART 1C: Signature of Inspector**

By this signature, I certify in accordance with the NCC010000 permit & G.S. 113A-54.1 that this report is accurate and complete to the best of my knowledge.

Financially Responsible Party / Permittee or Agent / Designee: \_\_\_\_\_ Date: \_\_\_\_\_

GROUND STABILIZATION TIMEFRAMES	
Perimeter dikes, swales and slopes	7 Days None
High Quality Water (HQW) Zones	7 Days None
Slopes Steeper than 3:1	7 Days If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
Slopes 3:1 or flatter	14 Days 7 days for slopes greater than 50' in length
All other areas with slopes flatter than 4:1	14 Days None, except for perimeters and HQW Zones

\*For an editable copy of this form as a Word doc and other information, see <http://portal.ncderr.com/submit/erosion>

DEMLR Monitoring Form Rev. 08/01/2013 Page 2 of 2

**PART 2A: EROSION AND SEDIMENTATION CONTROL MEASURES** Measures must be inspected at least once PER 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL EVENT GREATER THAN 0.5 INCH PER 24 HOUR PERIOD.

Measure or Location and Description	Operating Property? (Y/N)	Any Repair or Maintenance Needed? (Y/N)	New Measures Installed*	Inspection Date	Describe Actions Needed as possible and before the next storm event	Date Corrected

\*New erosion and sedimentation control measures installed since the last inspection should be documented here or by initialing and dating each measure or practice shown on a copy of the approved erosion and sedimentation control plan. List Dimensions of Measures such as Sediment Basins and Riprap Aprons

**PART 2B: STORMWATER DISCHARGE OUTFALLS (SDOs)** SDOs must be inspected at least once PER 7 CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL EVENT GREATER THAN 0.5 INCH PER 24 HOUR PERIOD.

Stormwater Discharge Outfall ID or Location	Any Visible Sedimentation in Streams, Wetlands or Outside Site Limits? (Y/N)	Any Increase in Stream Turbidity from SDO? (Y/N)	Any Visible Erosion, Shoring, Flooding or Suspended Solids or Siltation? (Y/N)	Inspection Date	Report Visible Sedimentation to streams or wetlands to Land Quality within 24 Hours Describe Actions Needed Corrective actions should be performed as soon as possible and before the next storm event	Date Corrected

**PART 2C: GROUND STABILIZATION** Must be recorded after each Phase of Grading

Area Where Land Disturbance has Occurred	Time Limit for Ground Cover / 7 days or 14 days	Is Ground Cover Sufficient to Retain Erosion? (Y/N)	Inspection Date	Describe Actions Needed	Date Corrected
Completed or Temporarily Stopped					

**WATTLE DETAIL (TEMPORARY) NTS**

**NOTES:**  
1. USE MINIMUM 1/2" DIAMETER EXCELSIOR WATTLE (LARGER WATTLES MAY BE REQUIRED) TO KEEP SEDIMENT ON SITE.  
2. USE WOODEN STAKES WITH A 2" NOMINAL CROSS SECTION.  
3. INSTALL A MINIMUM OF 2 UP SLOPE STAKES AND 4 DOWN SLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO EXISTING GRADE.  
4. PROVIDE STAPLES OF 0.125" DIAMETER STEEL WIRE FORMED INTO A U SHAPED NOT LESS THAN 6" IN LENGTH.  
5. INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON THE UP SLOPE SIDE OF THE WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

**MAINTENANCE:**  
WATTLES SHOULD BE CHECKED AND CLEARED OF ACCUMULATED DEBRIS AND SEDIMENT.  
REPLACE AS REQUIRED.

DUKE ENERGY PROGRESS  
SEDIMENT AND EROSION CONTROL DETAILS  
TRANSMISSION ENGINEERING  
TYPICAL WATTLE DETAIL

STANDARD DRAWING	
1	12-21-2015 REVISIONS
2	05-06-2017 INITIAL RELEASE
NO.	DATE

LOCATION: STANDARD DRAWING  
SCALE: P 4" = 8" SCALE RATIO: M  
DRAWN: SFP CHK: BOT APP: SFP DATE: 05-06-13 DWG. NO. CT-65376 SH 1 OF 1

**PIPE INLET PROTECTION DETAIL (TEMPORARY) NTS**

**CONSTRUCTION SPECIFICATIONS:**  
1. INSPECT SILT FENCE OUTLET EVERY SEVEN DAYS AND WITHIN 24 HOURS AFTER EVERY RAINFALL EVENT 1/2 INCH OR GREATER.  
2. REMOVE ACCUMULATED SEDIMENT AND REPLACE STONE AS NECESSARY.

**MAINTENANCE:**  
1. INSPECT THE DAMS AND CHANNELS FOR DAMAGE AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL.  
2. ANTEICIPATE SUBMERGENCE AND DEFORMATION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, INSTALL A PROTECTIVE RIP RAP LINER IN THAT PORTION OF THE CHANNEL.  
3. 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 DAM AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.

DUKE ENERGY PROGRESS  
SEDIMENT AND EROSION CONTROL DETAILS  
TRANSMISSION ENGINEERING  
TYPICAL PIPE INLET PROTECTION DETAIL

STANDARD DRAWING	
1	12-21-2015 REVISIONS
2	05-06-2017 INITIAL RELEASE
NO.	DATE

LOCATION: STANDARD DRAWING  
SCALE: P 4" = 8" SCALE RATIO: M  
DRAWN: SFP CHK: BOT APP: SFP DATE: 05-06-13 DWG. NO. CT-65391 SH 1 OF 1

**TYPICAL INSTALLATION OF NETTING AND MATTING NTS**

**CONSTRUCTION SPECIFICATIONS:**  
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING SOIL AMENDMENT & SEED.  
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAKING.  
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW ON BOTTOM OF CHANNEL.  
4. PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH AN 18" OVERLAP. USE A DOUBLE ROW OF STAGGERED STAPLES 4" APART TO SECURE BLANKETS.  
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAKING.  
6. BLANKETS IN SIDE SLOPES MUST BE OVERLAPPED 4" OVER THE CENTER BLANKET AND STAPLED 12" FOR C350 MATTING.  
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A ROW OF STAPLES 4" APART OVER ENTIRE WIDTH OF THE CHANNEL. PLACE A SECOND ROW 4" BELOW THE FIRST ROW IN A STAGGERED PATTERN.  
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED IN A 6" DEEP X 6" WIDE TRENCH BACKFILL AND COMPACT THE TRENCH AFTER STAKING.

\*FULL WIDTH MATTING IN SWELLS AND DITCHES WILL NOT REQUIRE OVERLAPPING

**MAINTENANCE:**  
WATTLES SHOULD BE CHECKED AND CLEARED OF ACCUMULATED DEBRIS AND SEDIMENT.  
REPLACE AS REQUIRED.

DUKE ENERGY PROGRESS  
SEDIMENT AND EROSION CONTROL DETAILS  
TRANSMISSION ENGINEERING  
INSTALLATION OF NETTING AND MATTING DETAIL

STANDARD DRAWING	
1	12-21-2015 REVISIONS
2	05-06-2017 INITIAL RELEASE
NO.	DATE

LOCATION: STANDARD DRAWING  
SCALE: P 4" = 8" SCALE RATIO: M  
DRAWN: SFP CHK: BOT APP: SFP DATE: 05-06-13 DWG. NO. CT-65389 SH 1 OF 1

**TYPICAL CHECK DAM DETAIL (TEMPORARY) NTS**

**CONSTRUCTION SPECIFICATIONS:**  
1. PLACE STONE TO THE LINES AND DIMENSIONS SHOWN IN THE PLAN ON A FILTER FABRIC FOUNDATION.  
2. KEEP THE CENTER STONE SECTION AT LEAST 9 INCHES BELOW NATURAL GROUND LEVEL WHERE THE DAM ABUTS THE CHANNEL BANKS.  
3. EXTEND STONE AT LEAST 1.5 FEET BEYOND THE DITCH BANKS TO KEEP OVERFLOW WATER FROM UNDERCUTTING THE DAMS AS IT REENTERS THE CHANNEL.  
4. SET SPACING BETWEEN DAMS TO ASSURE THAT THE ELEVATION AT THE TOP OF THE LOWER DAM IS THE SAME ELEVATION AS THE TOE ELEVATION OF THE UPPER DAM.  
5. PROTECT THE CHANNEL DOWNSTREAM FROM THE LOWEST CHECK DAM. CONSIDER THAT WATER WILL FLOW OVER AND AROUND THE DAM.  
6. MAKE SURE THAT THE CHANNEL REACH ABOVE THE MOST UPSTREAM DAM IS STABLE.  
7. ENSURE THAT THE CHANNEL APERTURES, SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS, ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM OVERSCOUR STONES.  
8. BURY THE FILTER FABRIC IN 12" ON BOTH SIDES OF THE UPSTREAM SIDE.

**MAINTENANCE:**  
1. INSPECT THE DAMS AND CHANNELS FOR DAMAGE AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL.  
2. ANTEICIPATE SUBMERGENCE AND DEFORMATION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, INSTALL A PROTECTIVE RIP RAP LINER IN THAT PORTION OF THE CHANNEL.  
3. 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 DAM AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.

DUKE ENERGY PROGRESS  
SEDIMENT AND EROSION CONTROL DETAILS  
TRANSMISSION ENGINEERING  
TYPICAL ROCK CHECK DAM

STANDARD DRAWING	
1	12-21-2015 REVISIONS
2	05-06-2017 INITIAL RELEASE
NO.	DATE

LOCATION: STANDARD DRAWING  
SCALE: P 4" = 8" SCALE RATIO: M  
DRAWN: SFP CHK: BOT APP: SFP DATE: 05-06-13 DWG. NO. CT-65387 SH 1 OF 1

**INSTALLATION OF WATTLE DETAIL (TEMPORARY) NTS**

**NOTES:**  
1. ACTUAL LAYOUT DETERMINED IN THE FIELD.  
2. THE CONCRETE WASHOUT SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

**INSPECTION/MAINTENANCE/REMOVAL:**  
1. TEMPORARY CONCRETE WASHOUT FACILITIES ARE TO BE INSPECTED BY THE RESIDENT ENGINEER DURING HIGH FLOW EVENTS FOR EROSION AND SEDIMENT CONTROL. INSPECTION AFTER A STORM EVENT OF 1/2" OR GREATER AND AT THE END OF ANY DAM WASHOUT CONSTRUCTION SHALL BE REQUIRED ON THE CONSTRUCTION SITE. INSPECTION IS TO ENSURE THAT THESE ARE NO LEAKS, NO SPILLS AND THAT THE FACILITIES CAPACITY HAS NOT YET BEEN COMPROMISED.  
2. ANY OVERFLOWING OF THE WASHOUT FACILITIES ONTO THE GROUND MUST BE CLEANED UP AND REMOVED WITHIN 24 HOURS OF DISCOVERY.  
3. IF A RAIN OR SNOW EVENT IS FORECASTED, A NON-COLLAPSING, NON-WATER COLLECTING COVER SHALL BE PLACED OVER THE WASHOUT FACILITY AND SECURED TO PREVENT ACCUMULATION AND OVERFLOW OF PRECIPITATION.  
4. CONTENTS OF EACH CONCRETE WASHOUT FACILITY ARE NOT TO EXCEED 75% OF ITS DESIGNED CAPACITY. IF THE CONTENTS REACH 75% CAPACITY, DISCONTINUE POURING CONCRETE INTO THE FACILITY UNTIL IT HAS BEEN CLEANED OUT.  
5. ALLOW SLURRY TO EVAPORATE OR REMOVE FROM THE SITE IN A SAFE MANNER (E. VACUUM TRUCK). ALL HARDENED MATERIAL CAN THEN BE REMOVED AND DISPOSED OF PROPERLY.  
6. IF A LINED BASIN IS USED, IMMEDIATELY REPLACE THE LINER IF IT BECOMES DAMAGED.  
7. REMOVE TEMPORARY CONCRETE WASHOUT FACILITIES WHEN THEY ARE NO LONGER NEEDED AND RESTORE THE DISTURBED AREAS TO THEIR ORIGINAL CONDITION.

DUKE ENERGY PROGRESS  
SEDIMENT AND EROSION CONTROL DETAILS  
TRANSMISSION ENGINEERING  
WATTLE DETAIL

STANDARD DRAWING	
1	12-21-2015 REVISIONS
2	05-06-2017 INITIAL RELEASE
NO.	DATE

LOCATION: STANDARD DRAWING  
SCALE: P 4" = 8" SCALE RATIO: M  
DRAWN: SFP CHK: BOT APP: SFP DATE: 05-06-13 DWG. NO. CT-65387 SH 1 OF 1

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**Approved Construction Plan**

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

NO.	DATE	REVISION
1	2017-09-15	REVISED PER CITY OF WILMINGTON COMMENTS
BY	CK	APP.

**MCADAMS**

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

LOCATION: STANDARD DRAWING  
SCALE: P 4" = 8" SCALE RATIO: M  
DRAWN: SFP CHK: BOT APP: SFP DATE: 05-06-13 DWG. NO. CT-65387 SH 1 OF 1

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**DUKE ENERGY PROGRESS**

**WILMINGTON SUNSET PARK 115 KV SUBSTATION**  
317 BORDEAUX AVENUE, WILMINGTON NC 27601  
SEDIMENT & EROSION CONTROL DETAILS

**LOCATION: WILMINGTON, NC**  
**SCALE: NTS SCALE RATIO: 1:1 PRJ. NO. DKE-17010**  
**DRAWN: JB CHK: --- APP: ---**  
**DATE: 05-15-17 DWG. NO. 70818, SHEET 12 OF 18**

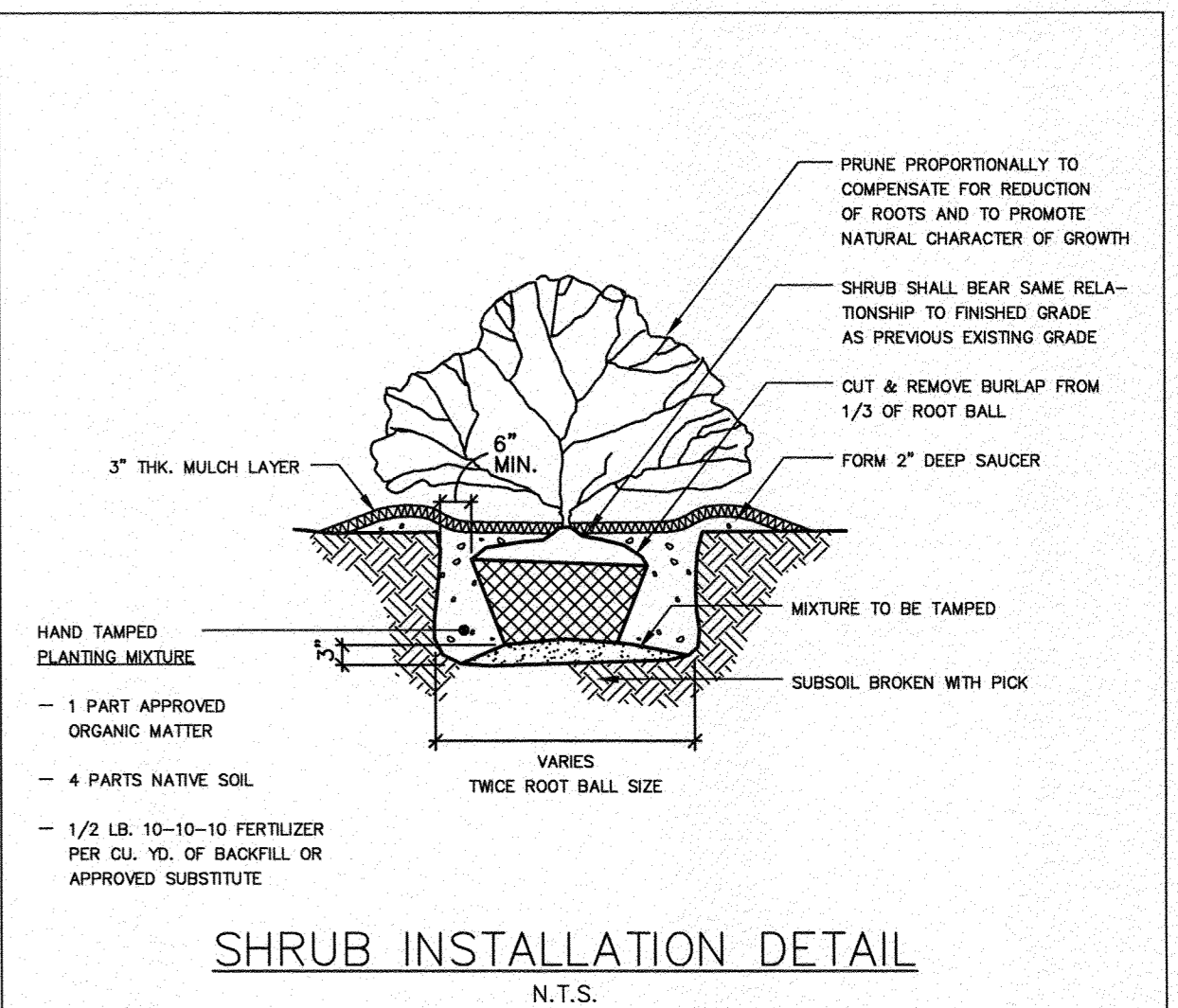
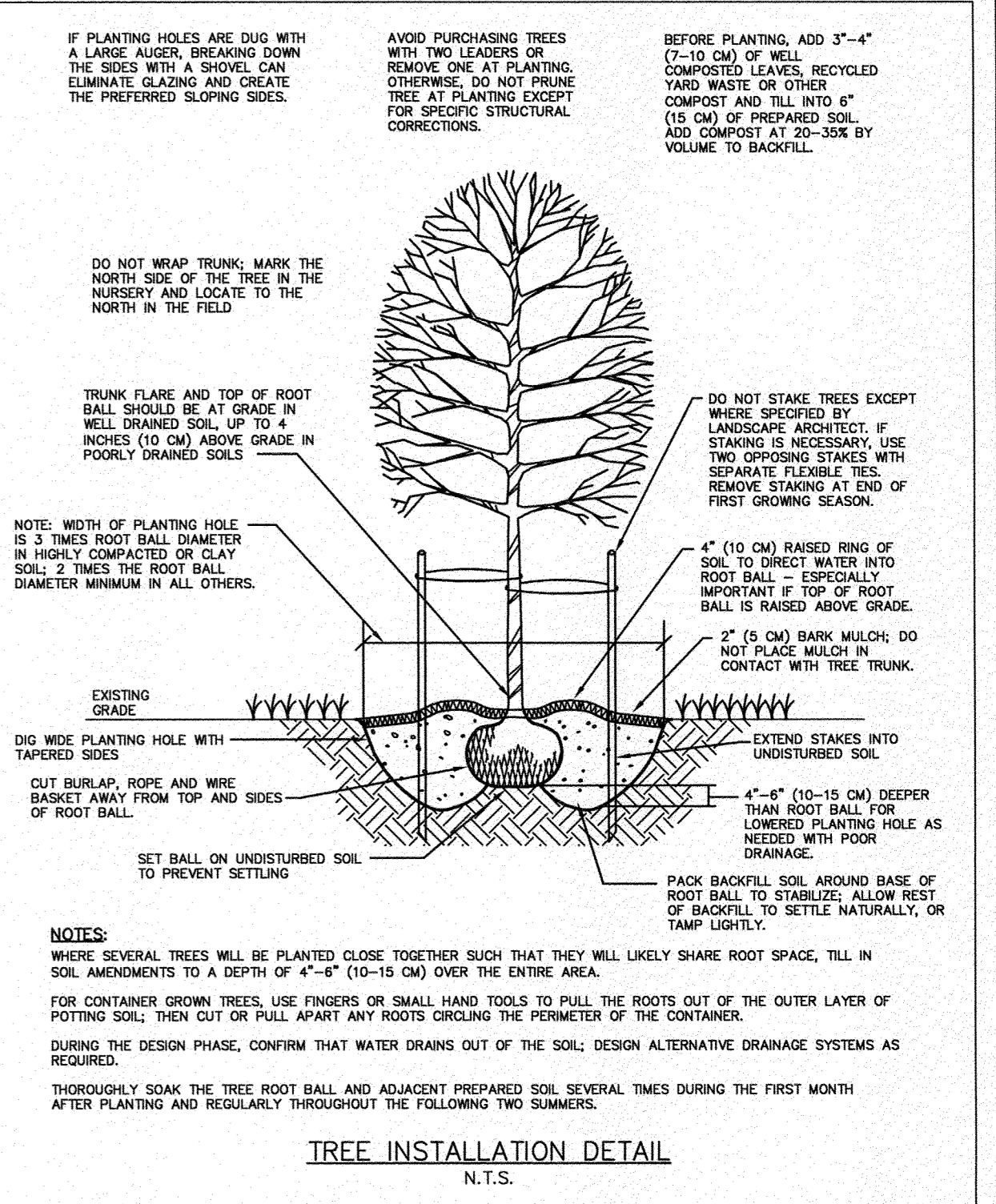
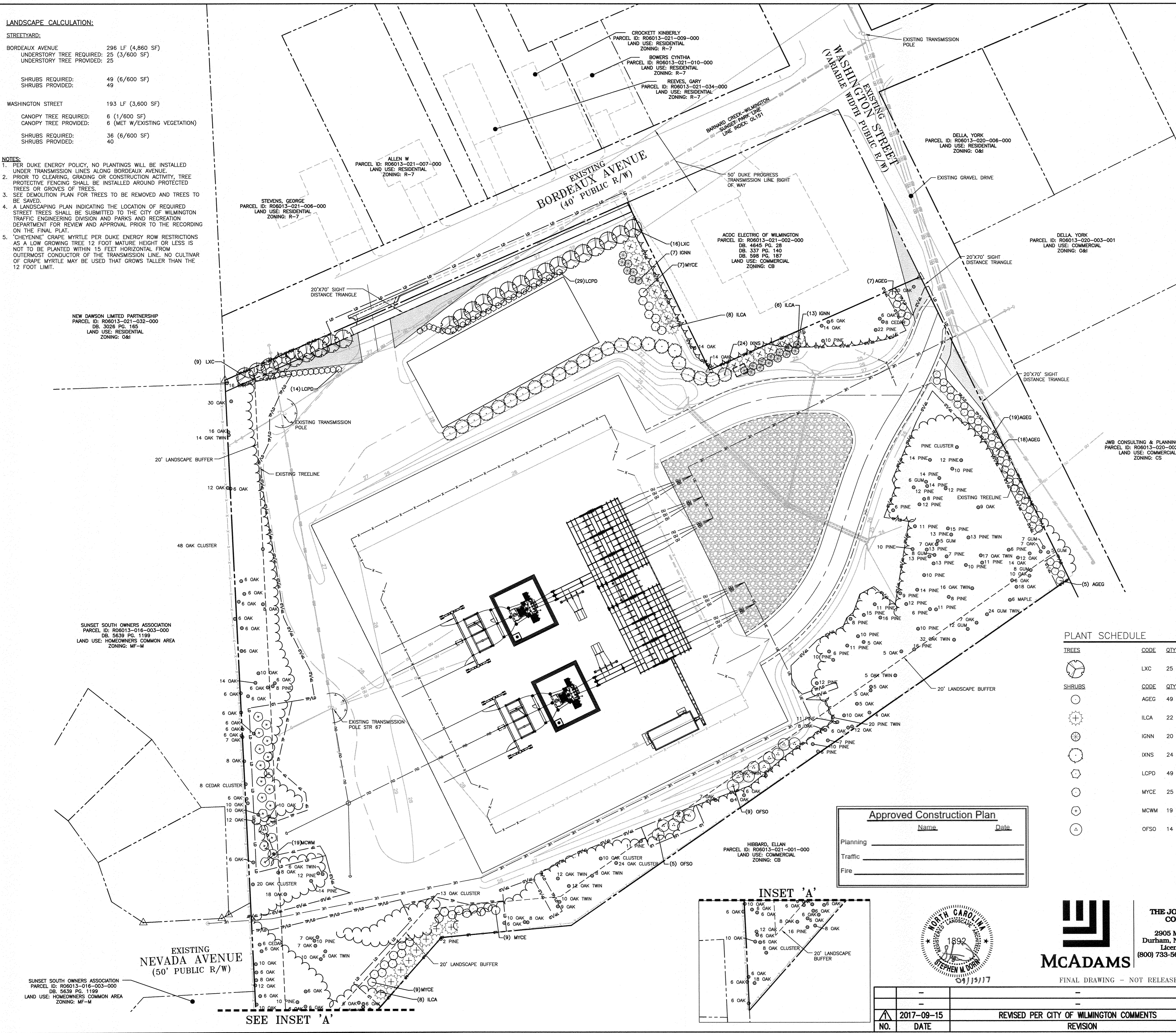


**LANDSCAPE CALCULATION:**

**STREETYARD:**

BORDEAUX AVENUE	296 LF (4,860 SF)
UNDERSTORY TREE REQUIRED:	25 (3/600 SF)
UNDERSTORY TREE PROVIDED:	25
SHRUBS REQUIRED:	49 (6/600 SF)
SHRUBS PROVIDED:	49
WASHINGTON STREET	193 LF (3,600 SF)
CANOPY TREE REQUIRED:	6 (1/600 SF)
CANOPY TREE PROVIDED:	6 (MET W/EXISTING VEGETATION)
SHRUBS REQUIRED:	36 (6/600 SF)
SHRUBS PROVIDED:	40

- NOTES:**
- PER DUKE ENERGY POLICY, NO PLANTINGS WILL BE INSTALLED UNDER TRANSMISSION LINES ALONG BORDEAUX AVENUE.
  - PRIOR TO CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTIVE FENCING SHALL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES.
  - SEE DEMOLITION PLAN FOR TREES TO BE REMOVED AND TREES TO BE SAVED.
  - 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 ON THE FINAL PLAN.
  - 'CHEYENNE' GRAPE MYRTLE PER DUKE ENERGY ROW RESTRICTIONS AS A LOW GROWING TREE 12 FOOT MATURE HEIGHT OR LESS IS NOT TO BE PLANTED WITHIN 15 FEET HORIZONTAL FROM OUTERMOST CONDUCTOR OF THE TRANSMISSION LINE. NO CULTIVAR OF GRAPE MYRTLE MAY BE USED THAT GROWS TALLER THAN THE 12 FOOT LIMIT.



**PLANT SCHEDULE**

TREES	CODE	QTY	COMMON NAME	BOTANICAL NAME	CAL.	HGT.
	LXC	25	Crape Myrtle	Lagerstroemia x 'Cheyenne'	-	6'
SHRUBS	CODE	QTY	COMMON NAME	BOTANICAL NAME	HGT.	QC
	AGE	49	Glossy Abelia	Abelia x grandiflora	24"	
	ILCA	22	Dahoon Holly	Ilex cassine	6'	
	IGNN	20	Inkberry	Ilex glabra	24"	
	IKNS	24	Nellie Stevens Holly	Ilex x 'Nellie R Stevens'	6'	
	LCPD	49	Fringe Flower	Loropetalum chinense 'Purple Diamond'	24"	
	MYCE	25	Wax Myrtle	Myrica cerifera	30"	
	MCWM	19	Wax Myrtle	Myrica cerifera	48"	
	OFSO	14	Sweet Olive	Osmanthus fragrans	30"	

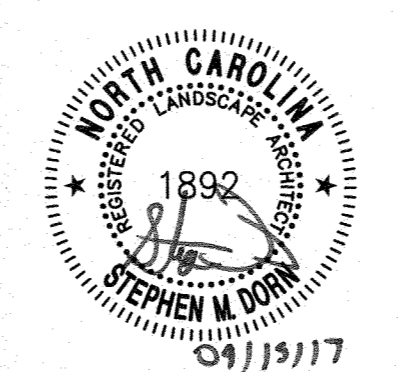
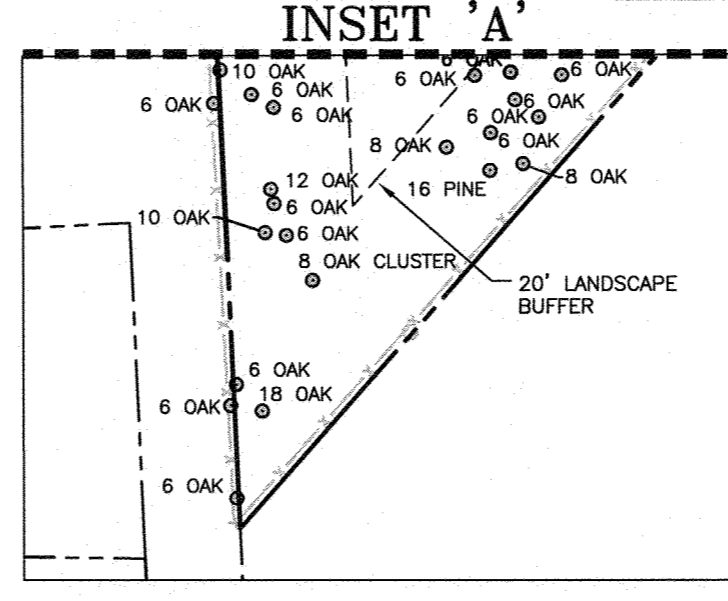
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Name \_\_\_\_\_ Date \_\_\_\_\_

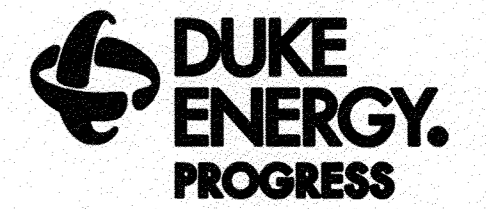
Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_



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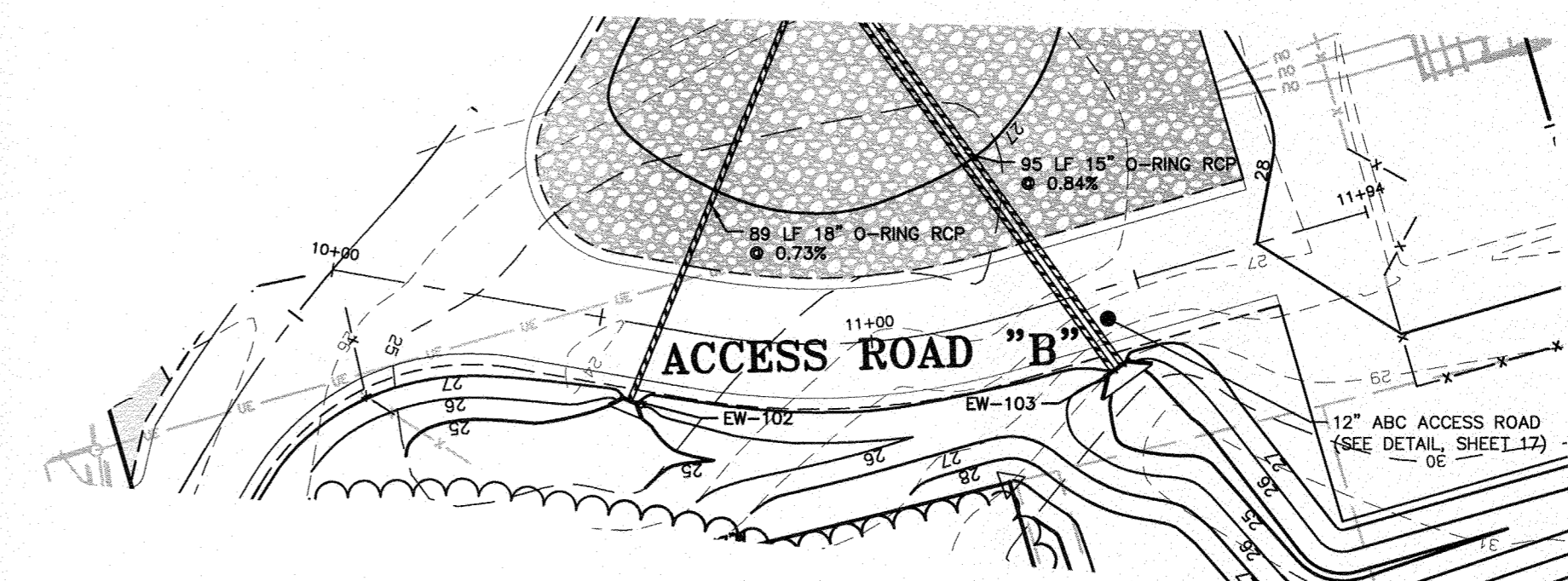
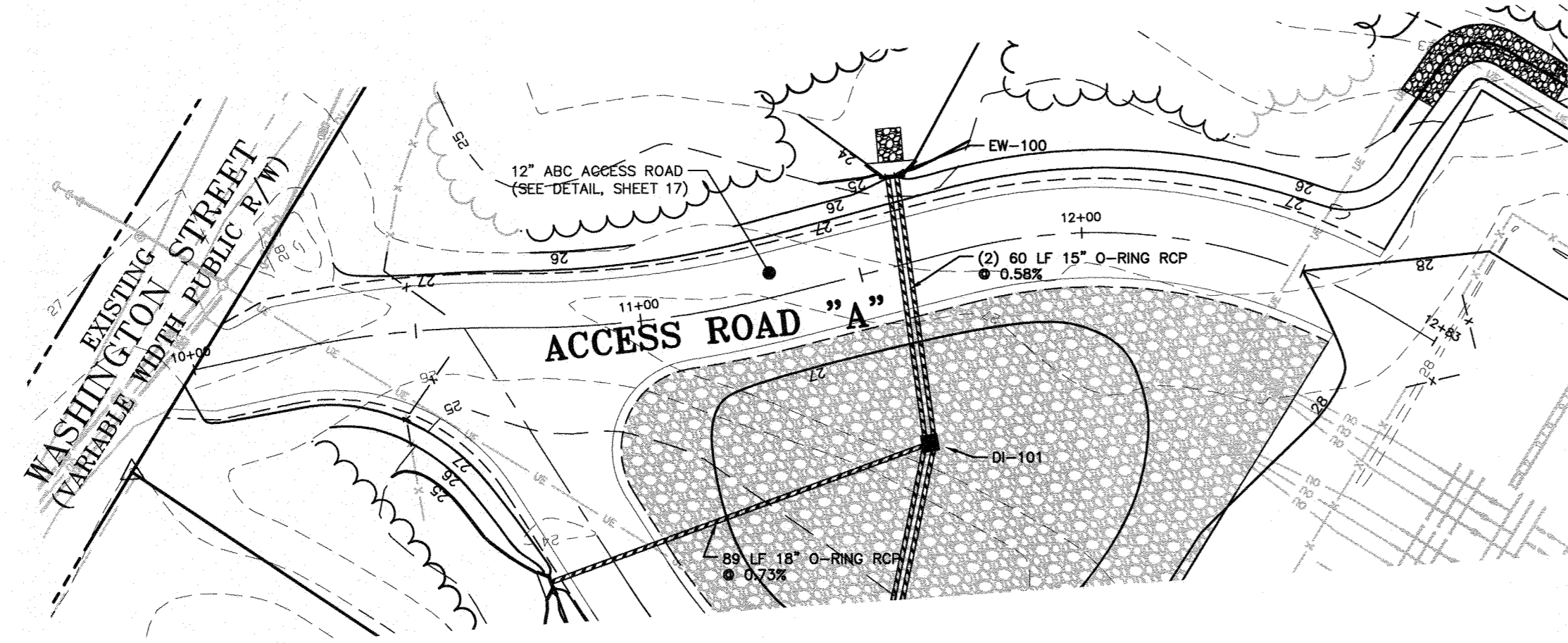
**WILMINGTON SUNSET PARK 115 KV SUBSTATION**  
317 BORDEAUX AVENUE, WILMINGTON NC 27601  
LANDSCAPE PLAN

LOCATION:	WILMINGTON, NC	PRJ. NO.:	DKE-17010
SCALE:	1"=30'	SCALE RATIO:	1:1
DRAWN:	CMV	CHK:	---
DATE:	05-15-17	DWG. NO.:	70818, SHEET 13 OF 18

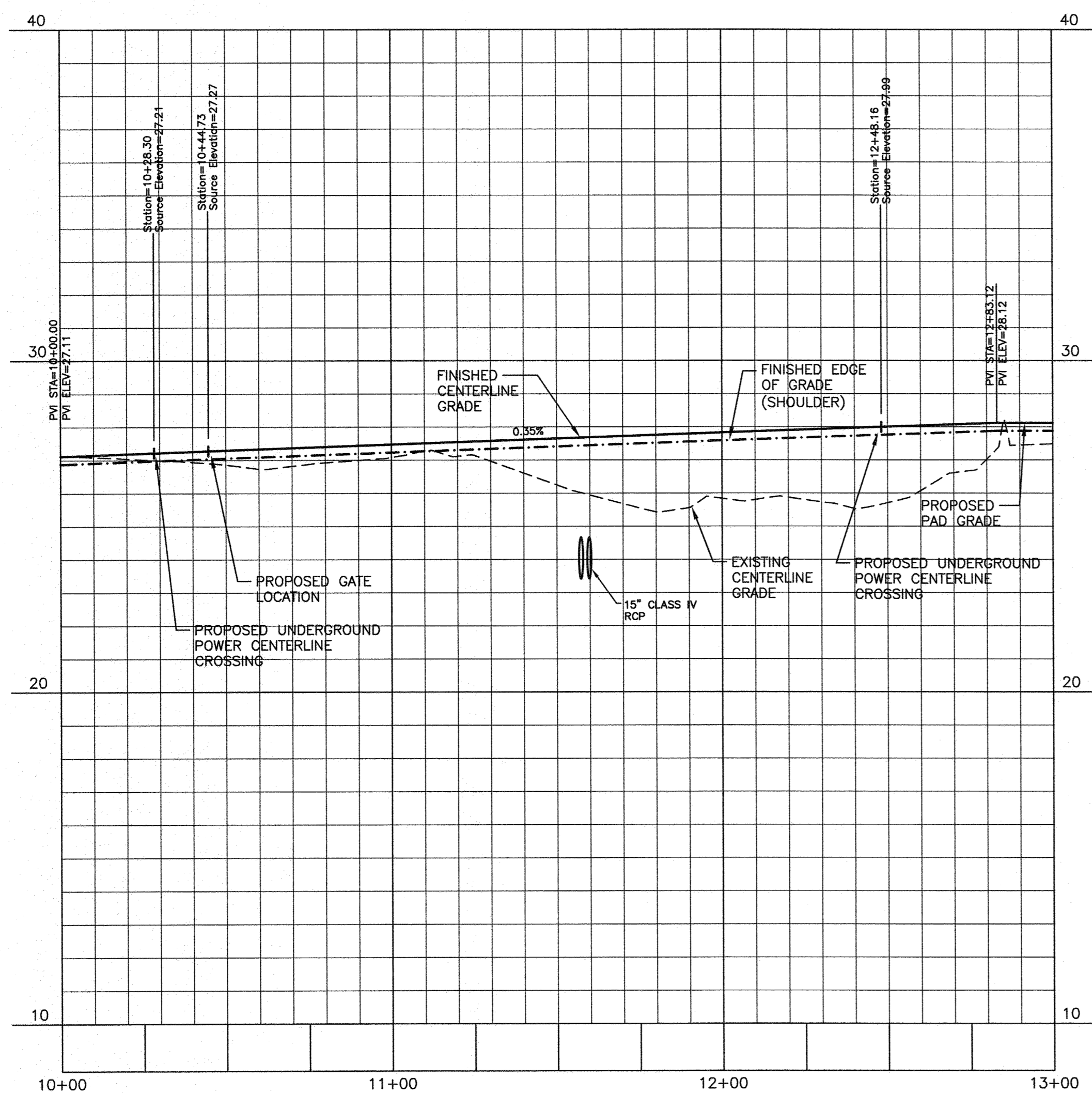
NO.	DATE	REVISION	BY	CK.	APP.
1	2017-09-15	REVISED PER CITY OF WILMINGTON COMMENTS			

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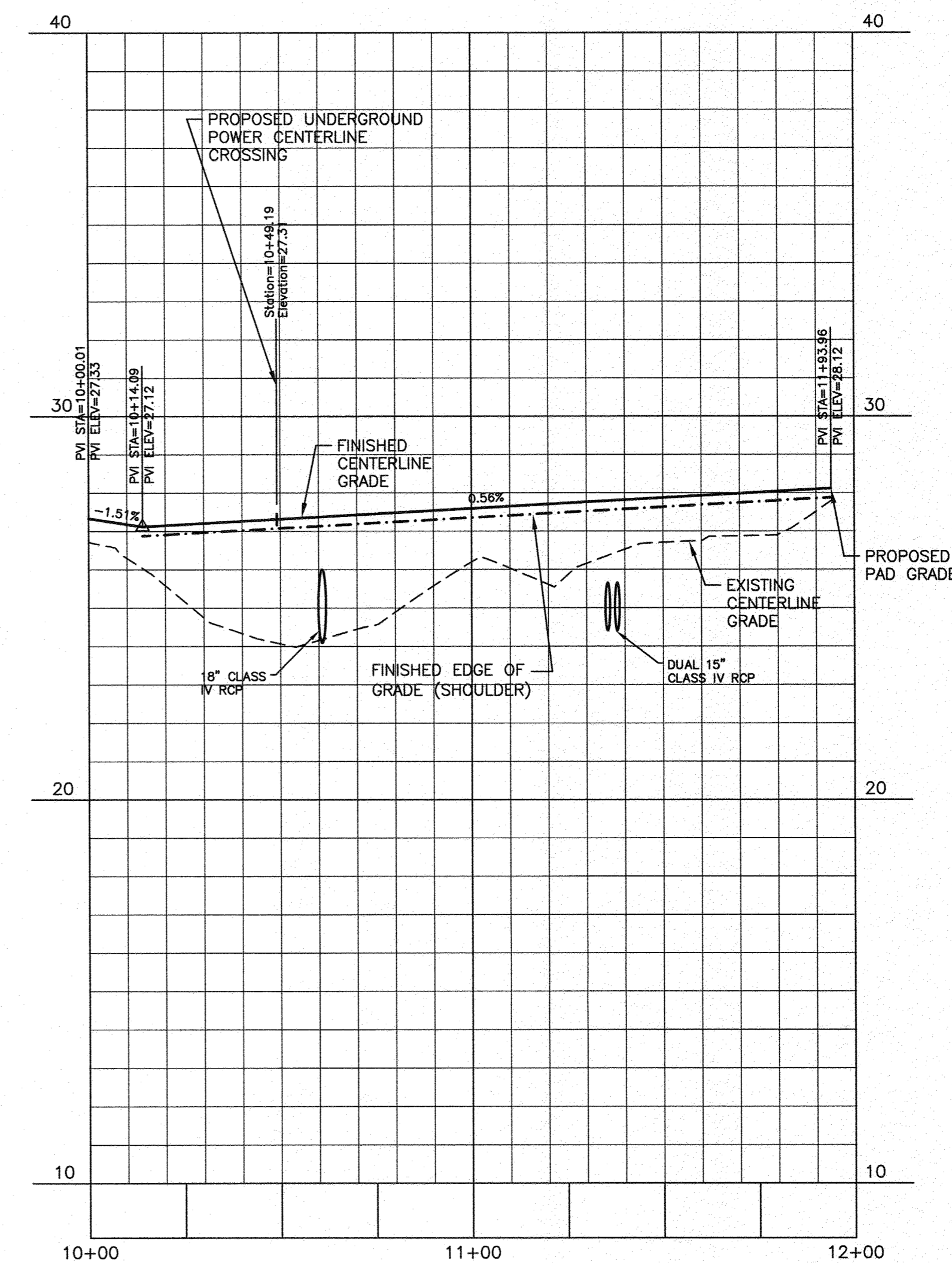




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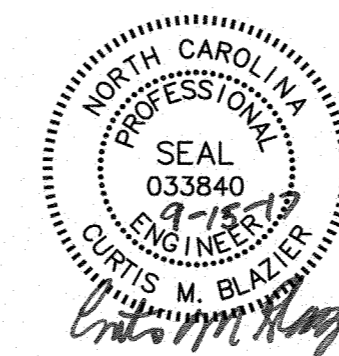


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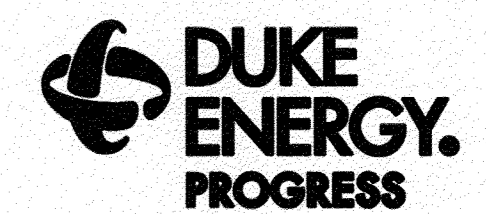


**Approved Construction Plan**

	Name	Date
Planning		
Traffic		
Fire		



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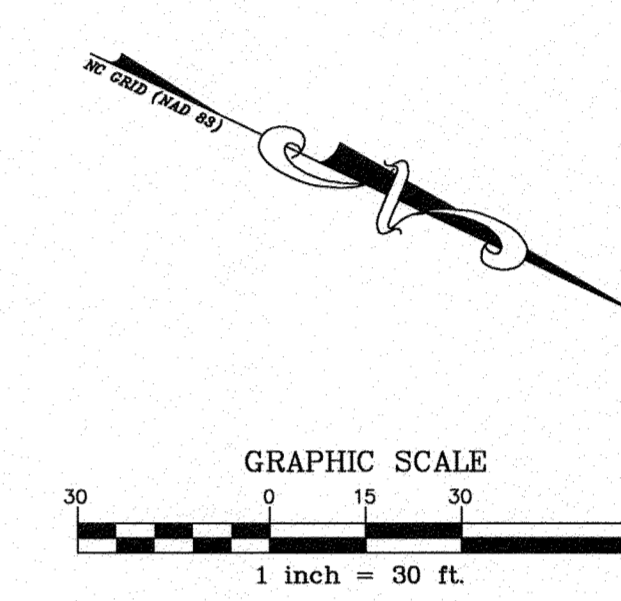
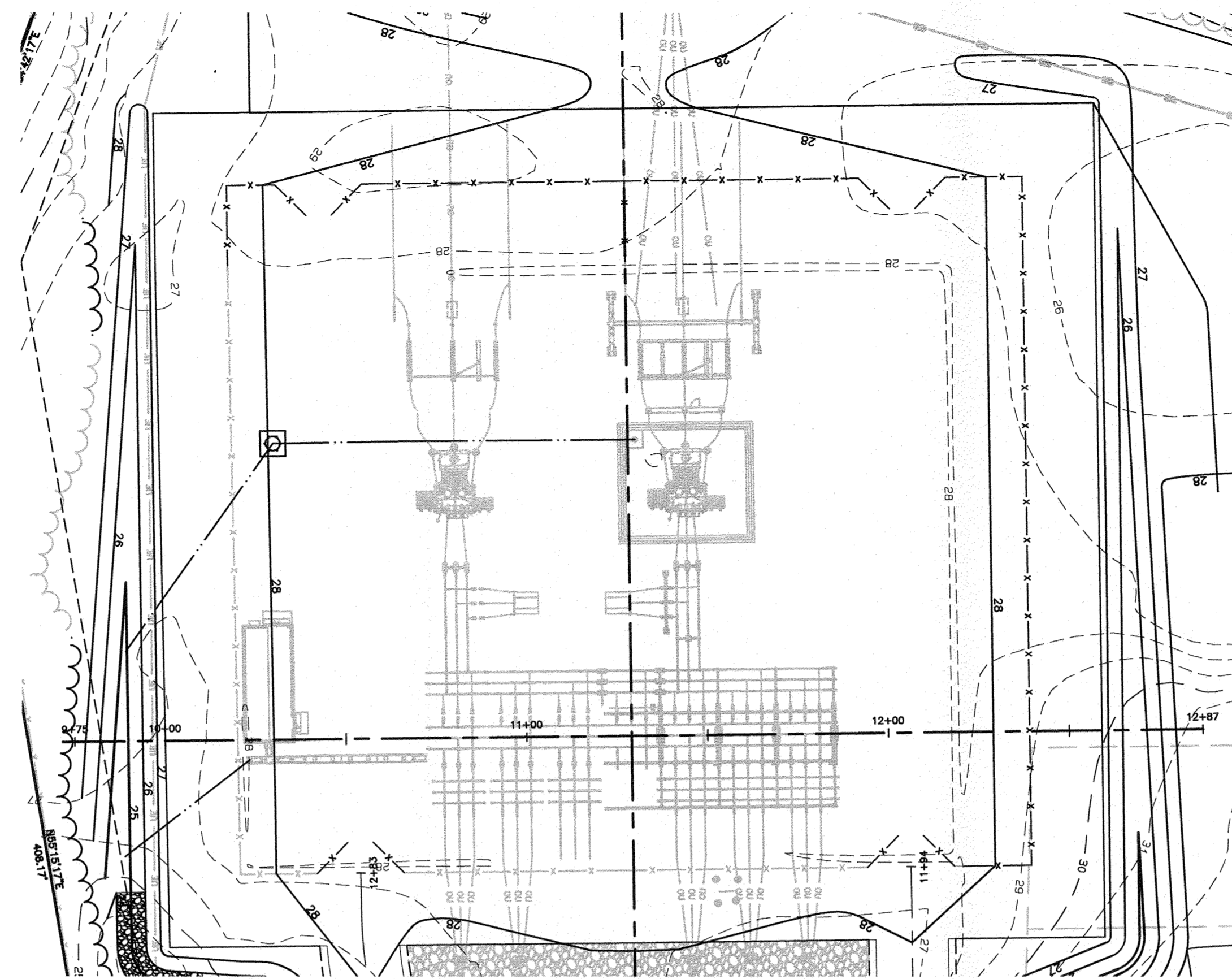
**WILMINGTON SUNSET PARK 115 KV SUBSTATION**  
 317 BORDEAUX AVENUE, WILMINGTON NC 27601  
 ACCESS ROAD PLAN & PROFILES

NO.	DATE	REVISION	BY	CHK.	APP.
1	2017-09-15	REVISED PER CITY OF WILMINGTON COMMENTS			

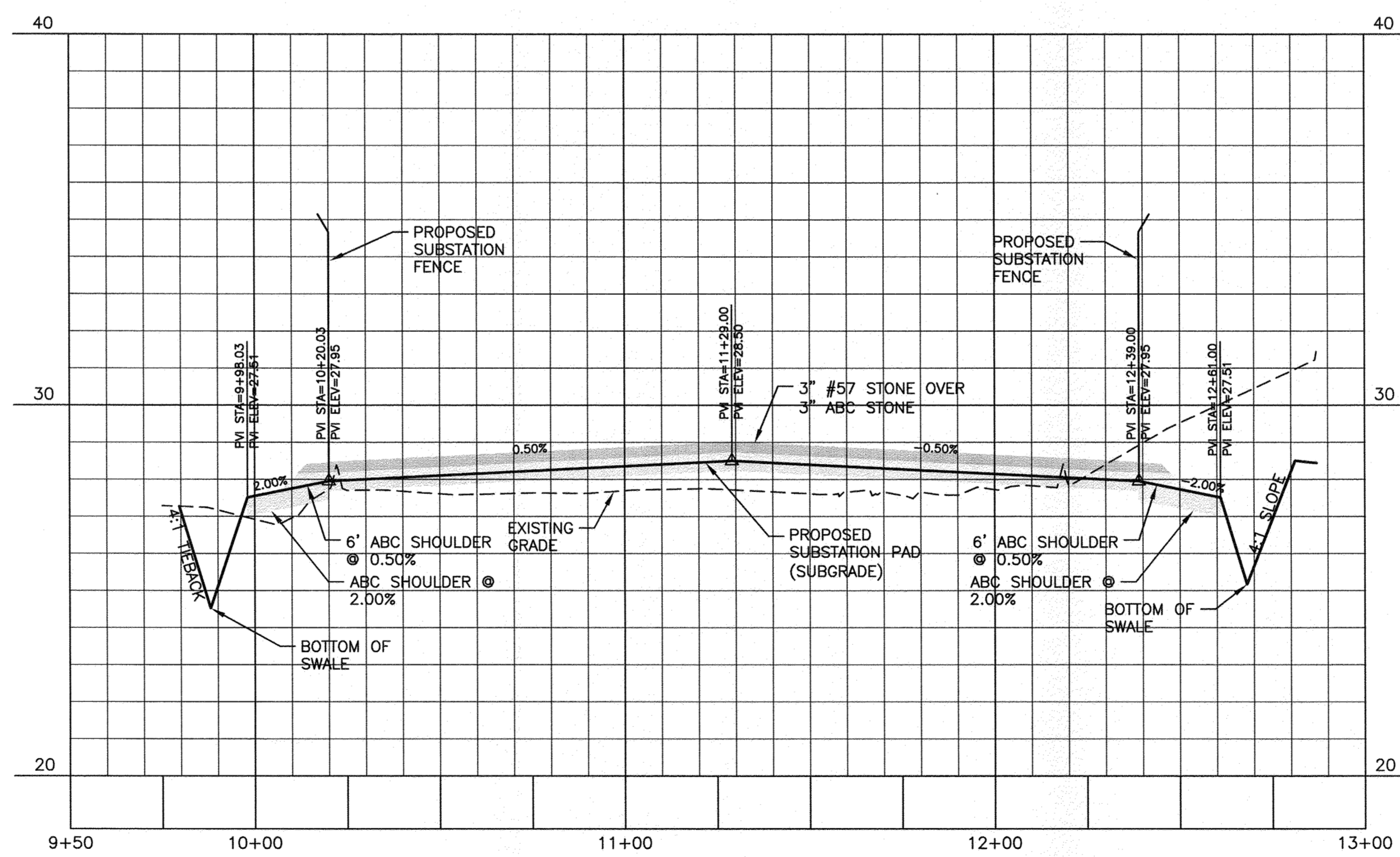
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 DRAWN: JB CHK. --- APP. ---  
 DATE: 05-15-17 DWG. NO. 70818, SHEET 14 OF 18

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NORTH - SOUTH BASELINE



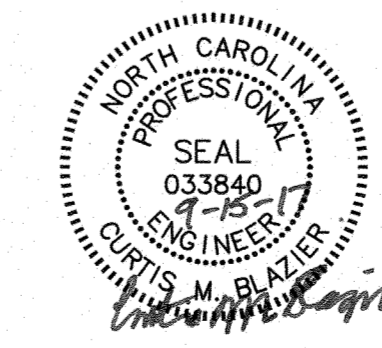
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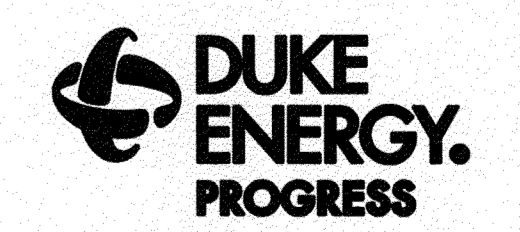
Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_



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WILMINGTON SUNSET PARK 115 KV SUBSTATION  
 317 BORDEAUX AVENUE, WILMINGTON NC 27601  
 NORTH - SOUTH BASELINE PROFILE

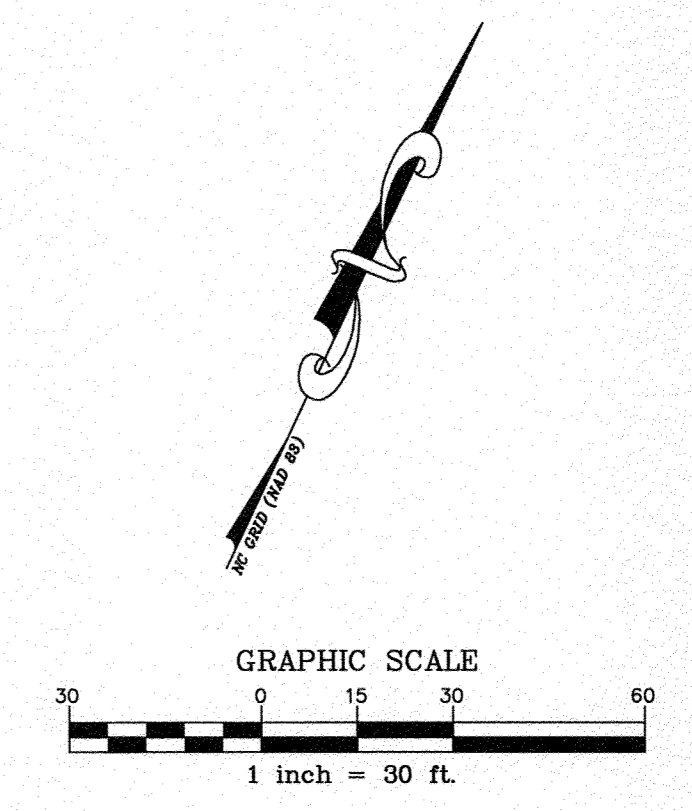
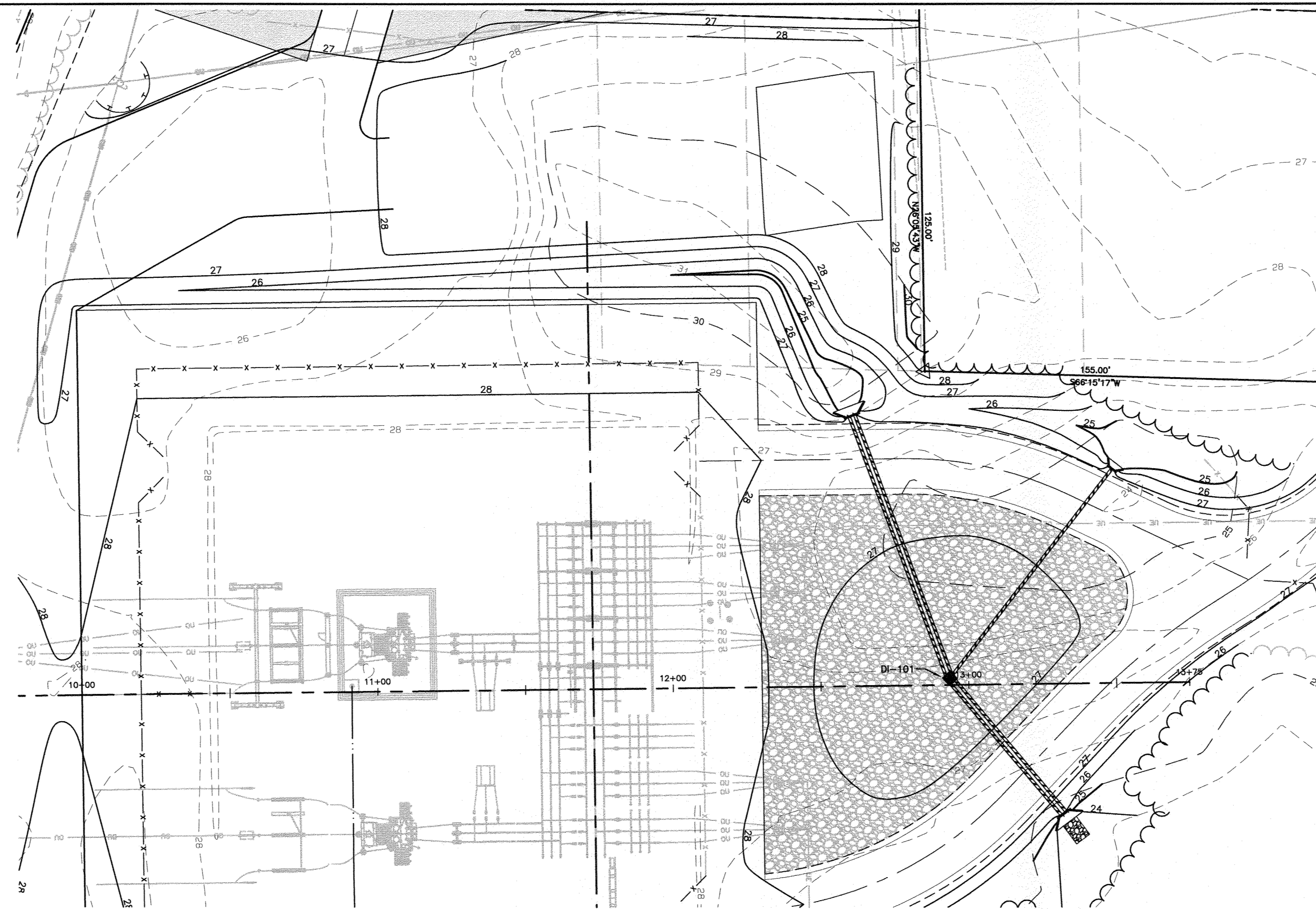
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NO.	DATE	REVISION	BY	CK.	APP.
1	2017-09-15	REVISED PER CITY OF WILMINGTON COMMENTS			

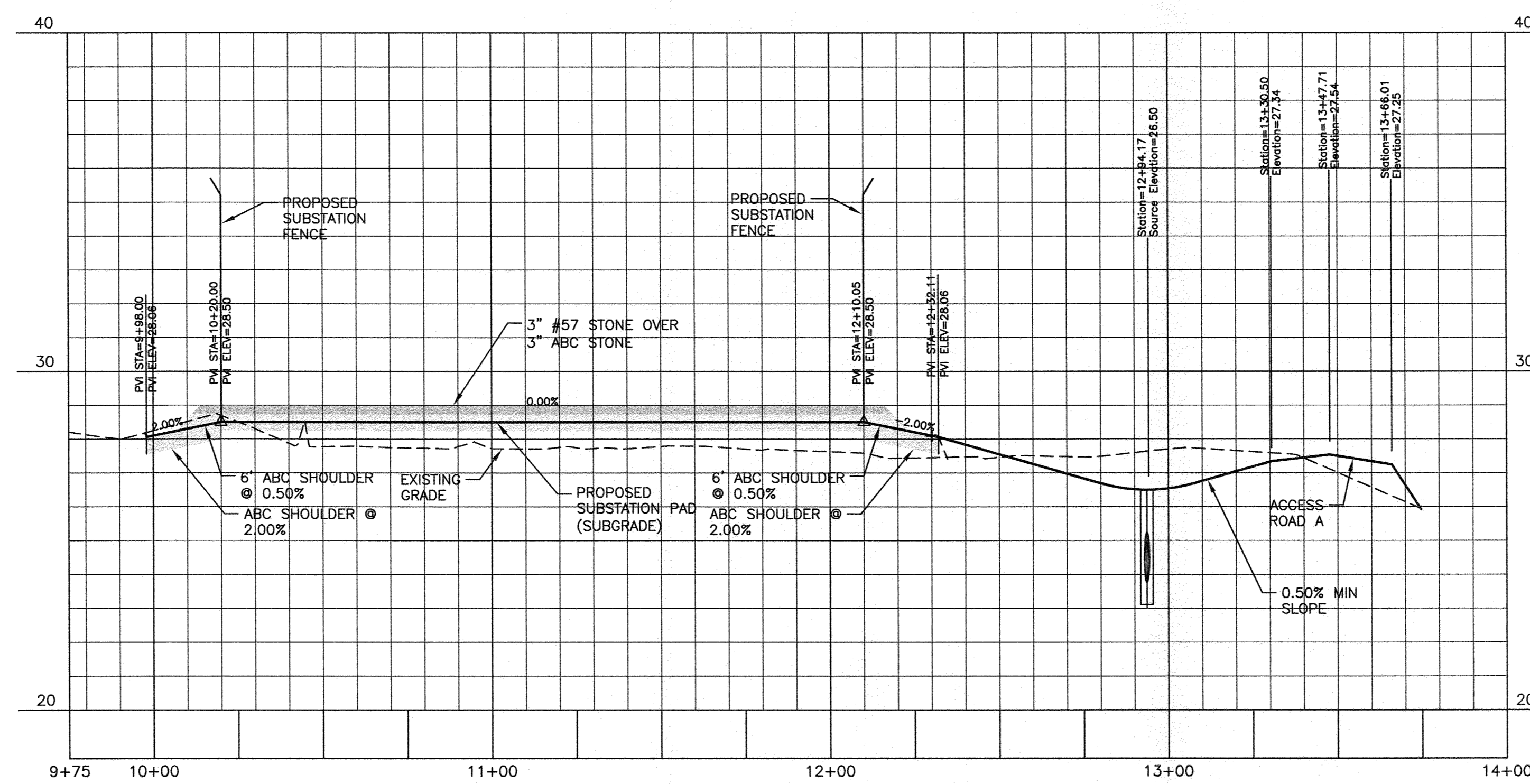
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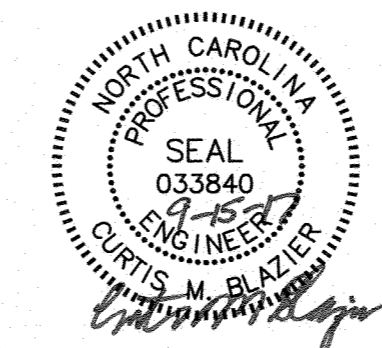
EAST - WEST BASELINE



Approved Construction Plan

	Name	Date
Planning	_____	_____
Traffic	_____	_____
Fire	_____	_____

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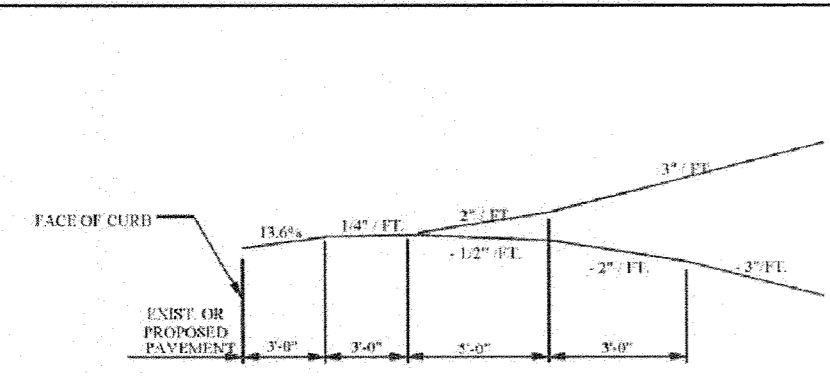
**WILMINGTON SUNSET PARK 115 KV SUBSTATION**  
 317 BORDEAUX AVENUE, WILMINGTON NC 27601  
 EAST - WEST BASELINE PROFILE

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION

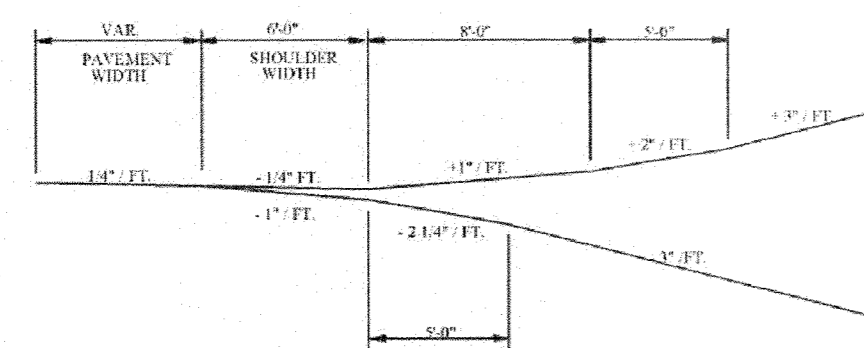
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 DRAWN: JB CHK: --- APP: ---  
 DATE: 05-15-17 DWG. NO. 70818, SHEET 16 OF 18





A. CURB & GUTTER SECTION



B. SHOULDER SECTION

FIGURE 6  
DRIVEWAY TURNOUT GRADES

44

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR  
PRECAST CONCRETE ENDWALL  
FOR SINGLE 12" THRU 72" PIPE - 90° SKEW

**ELEVATION**

**SIDE**

NOTE: THIS PRECAST ENDWALL MAY BE USED FOR THE FOLLOWING STANDARDS: 838.01, 838.11, 838.21, 838.27, 838.33, 838.38, 838.41, 838.47, 838.53 AND 838.59.

• INSTALL PRECAST ENDWALLS WITH WINGS AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 838.

• USE 4000 PSI CONCRETE.

• PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A185 WITH 2" MIN. CLEARANCE.

• PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.

• PIPE TO BE GRouted INTO HEADWALL AT JOB SITE BY CONTRACTOR.

• ALL ELEMENTS PRECAST TO MEET ASTM C913.

• WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.

• CHAMFER ALL CORNERS 1" OR HAVE A RADIUS OF 1".

NOTE: THE MINIMUM BAR SIZE SHALL BE #5 BARS AS SET BY THE CONTRACTOR PER THE OPTION TO INCREASE THIS BAR SIZE AS NEEDED.

PIPE DIA.	BAR SIZE	MIN./MAX. (H)(FT.)	MIN./MAX. (H)(FT.)	MIN./MAX. (H)(FT.)	MIN./MAX. (H)(FT.)
1.0	#5 @ 8"	1.25/2.00	2.00/3.75	1.25/1.75	3.00/3.75
1.25	#5 @ 8"	1.25/2.00	3.00/3.75	1.25/2.00	3.50/3.75
1.50	#5 @ 8"	1.25/2.00	3.00/4.25	1.50/2.50	3.50/3.75
2.0	#5 @ 8"	1.50/2.50	4.00/4.75	1.75/2.50	4.00/4.25
2.5	#5 @ 8"	2.50/3.50	4.00/6.00	2.50/3.50	4.50/5.50
3.0	#5 @ 8"	3.00/3.50	5.00/6.00	2.75/3.50	5.25/5.75
3.5	#5 @ 8"	3.25/4.50	6.00/6.75	3.25/3.50	6.00/6.75
4.0	#5 @ 8"	3.50/4.50	6.50/7.00	3.25/3.50	6.50/6.75
4.5	#5 @ 8"	4.00/5.00	6.50/8.00	3.25/4.00	7.00/8.25
5.0	#5 @ 8"	4.50/5.00	7.00/8.50	3.25/4.00	7.25/8.25
5.5	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.25/8.25
6.0	#5 @ 8"	4.50/5.00	7.50/8.50	3.25/4.00	7.75/8.25

ENGLISH STANDARD DRAWING FOR  
PRECAST CONCRETE ENDWALL  
FOR SINGLE 12" THRU 72" PIPE - 90° SKEW

SHEET 1 OF 1  
838.80

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR  
PORTABLE CONCRETE BARRIER  
POSITIVE PROTECTION

**ELEVATION**

**END VIEW A-A**

**SECTION B-B**

**ELEVATION DETAIL OF DRAINAGE/LIFT SLOT**

GENERAL NOTES:

- THE DRAINAGE/LIFT SLOT SHOWN IS A MODIFICATION OF THE LEFT OPENINGS, ALL OTHER DESIGN CRITERIA SUCH AS REINFORCEMENT BARS ETC. ARE THE SAME AS SHOWN ON THE STANDARD DRAWING.
- BARRIER WITH DRAINAGE/LIFT SLOT IS INTENDED TO BE USED IN AREAS WHERE ROADWAY SURFACE WATER RUNOFF CAUSES EXCESS PUNDLING ADJACENT TO THE TEMPORARY BARRIER. INSTALL THE BARRIER AS SHOWN IN THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- DRAINAGE/SLOT CAN BE USED WITH ANCHORED "PORTABLE CONCRETE BARRIER".

ENGLISH STANDARD DRAWING FOR  
PORTABLE CONCRETE BARRIER  
POSITIVE PROTECTION

SHEET 1 OF 1  
1170.01

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR  
CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS  
15" THRU 48" PIPE - 90° SKEW

**PLAN**

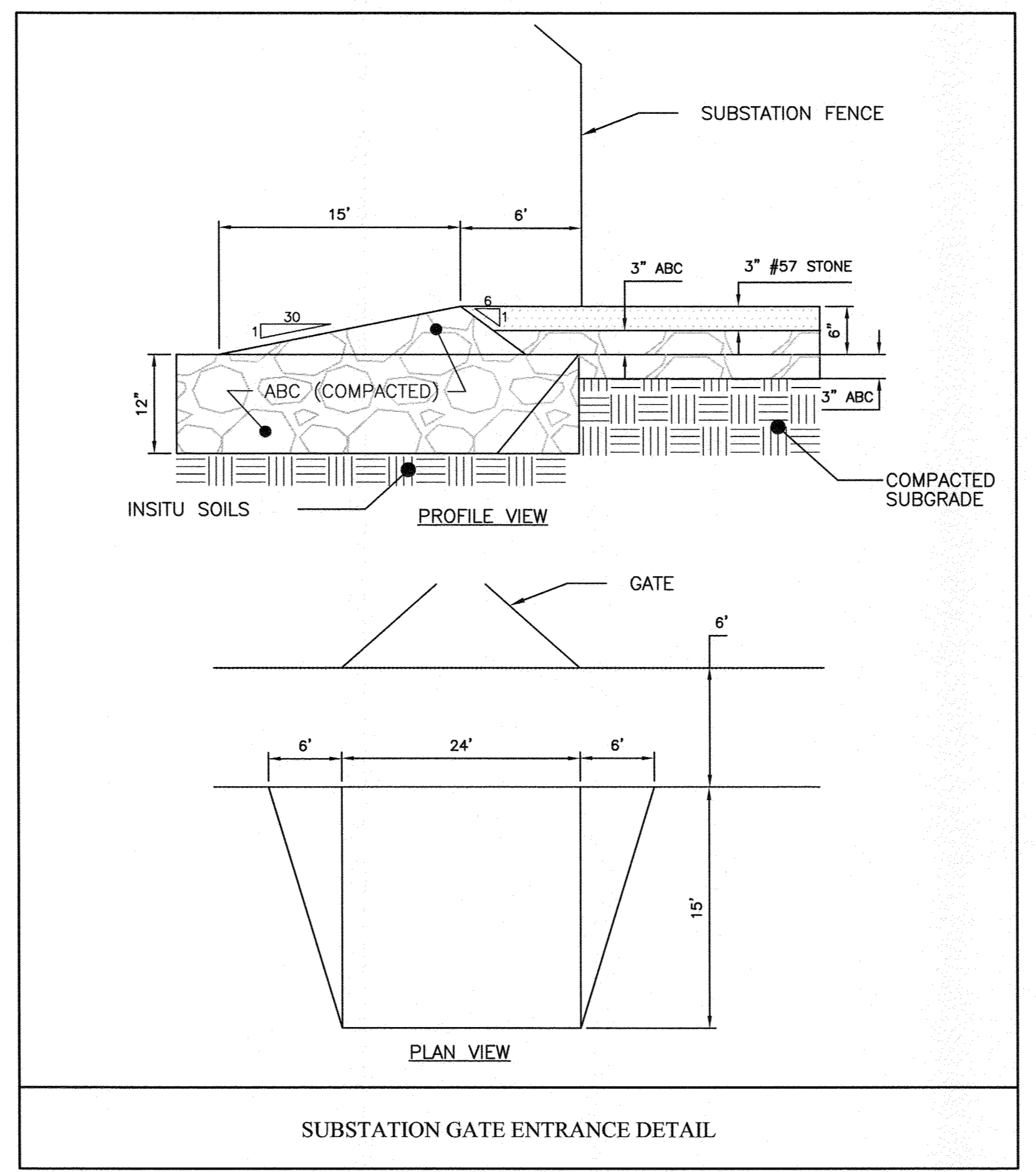
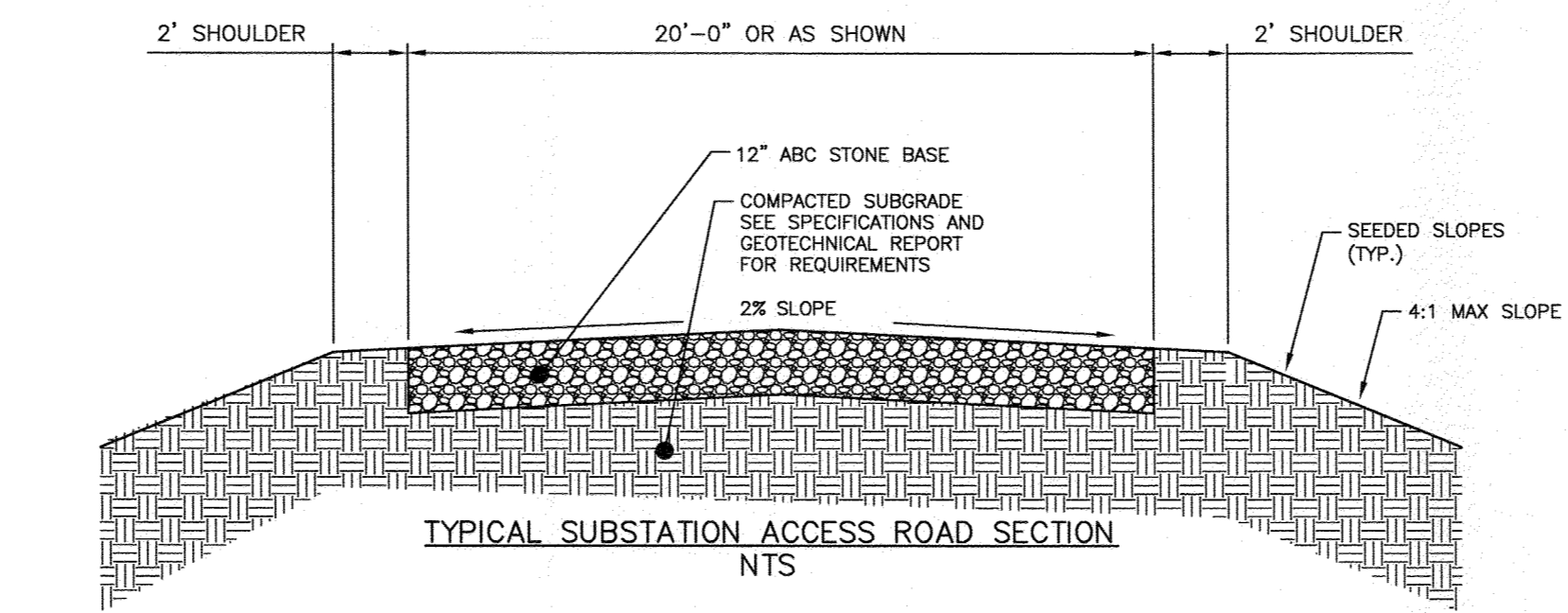
**END ELEVATION**

DOWELS IN ENDWALL WITH REINFORCED CONCRETE PIPE

PIPE DIA.	15"	18"	24"	30"	36"	42"	48"
QTY.	2	2	3	3	4	4	5
QTY.	2	2	3	3	4	4	5
TOTAL LBS.	9	9	14	14	19	23	27

ENGLISH STANDARD DRAWING FOR  
CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS  
15" THRU 48" PIPE - 90° SKEW

SHEET 1 OF 1  
838.01



STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR  
METHOD OF PIPE INSTALLATION  
RIGID PIPE

**PIPE IN TRENCH**

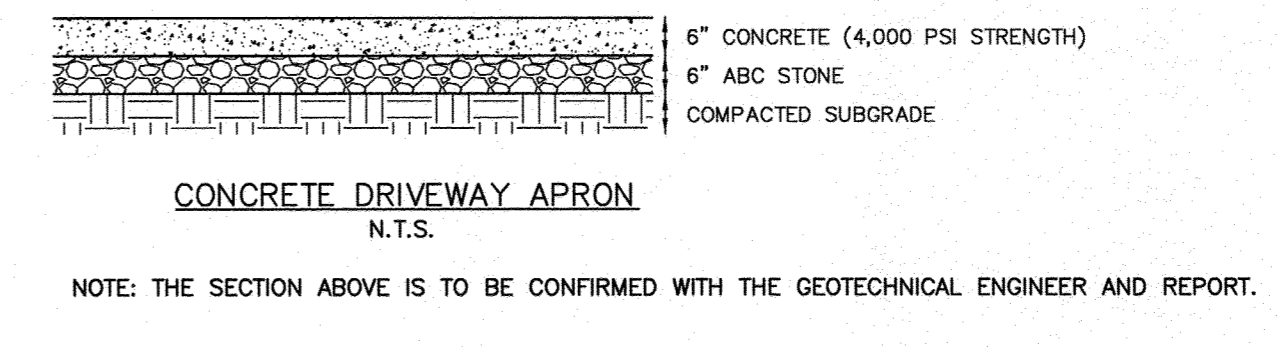
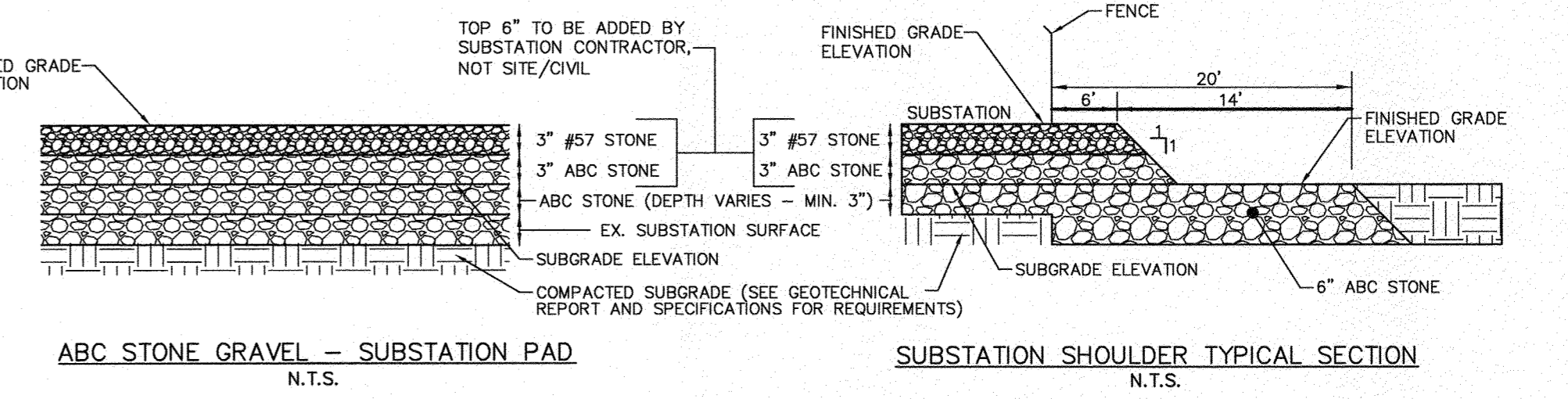
**PIPE ABOVE GROUND**

GENERAL NOTES:

- O.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
- O.C. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
- H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.
- TAKE CARE TO FULLY COMPACT MANDRIN ZONE OF PIPE BACKFILL.
- LOCALLY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BACKFILL. LEAVE HOT FOR COMPLETELY BENCH PIPE. ACCOMPLISH COMPACTING.
- DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNLESS THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 2 FEET OF APPROVED MATERIAL.
- SPRINKLELINE OF PIPE
- SELECT BACKFILL MATERIAL CLASS III OR CLASS II.
- APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINKLELINE.
- UNDISTURBED EARTH MATERIAL
- SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONS. ENCAPSULATE WITH REINFORCING FABRIC AS DIRECTED BY THE ENGINEER.

ENGLISH STANDARD DRAWING FOR  
METHOD OF PIPE INSTALLATION  
RIGID PIPE

SHEET 2 OF 3  
300.01



Approved Construction Plan

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

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DUKE ENERGY PROGRESS

WILMINGTON SUNSET PARK 115 KV SUBSTATION  
317 BORDEAUX AVENUE, WILMINGTON NC 27601  
PROJECT DETAILS

LOCATION: WILMINGTON, NC  
SCALE: NTS  
SCALE RATIO: 1:1  
PRJ. NO. DKE-17010  
DRAWN: JB  
CHK: ---  
APP: ---  
DATE: 05-15-17  
DWG. NO. 70818, SHEET 17 OF 18

NO. DATE REVISION BY CK. APP.

2017-09-15 REVISED PER CITY OF WILMINGTON COMMENTS

FINAL DRAWING - NOT RELEASED FOR CONSTRUCTION



