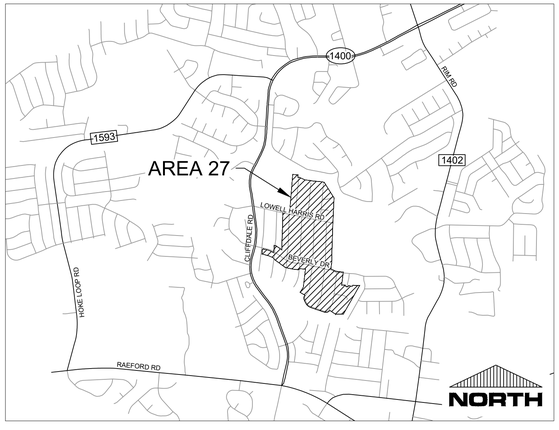
Fayetteville's HOME TOWN UTILITY

FAYETTEVILLE, N.C.

FAYETTEVILLE ANNEXATION PHASE V

PROJECT XII, CONSTRUCTION AREA 27
LOCATED IN THE CLIFFDALE FOREST SUBDIVISION
SEWER PROJECT



VICINITY MAP

1"=2000'

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

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NORTH CAROLINA PROFESSIONAL ENGINEER 054233 ALBERT M. HUCKABY

3/5/2024

PWC DWG # DS-15513
WKD SEWER PRJ # 20200208.00.RA

Z:\Projects\Fayetteville Public Works Commission\20200208\00\PA - Annexation Phase V Area 27\CAD\Plan Set\20200208_C_SHT_COVER.dwg 3/4/2024 12:21:48 PM

GENERAL NOTES:

1. ACCESS TO SITES SHALL BE BY PUBLIC RIGHT-OF-WAYS AND UTILITY EASEMENTS. OTHER ACCESS LOCATIONS REQUIRED SHALL BE SECURED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. SUPPLEMENTAL EROSION CONTROL MEASURES SHALL BE REQUIRED TO INCLUDE CONSTRUCTION ENTRANCES, SILT FENCING, RESTORATION, ETC. ADDITIONAL MEASURES SHALL BE INCLUDED AS PART OF A SUPPLEMENTAL EROSION CONTROL PLAN PREPARED BY THE CONTRACTOR.

2. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE CONSTRUCTION STAGING AREA AT HIS EXPENSE.

3. THE CONTRACTOR IS EXPECTED AND REQUIRED TO COOPERATE WITH THE PROPERTY OWNERS AFFECTED BY THE WORK. PRIVATE AGREEMENTS WITH PROPERTY OWNERS MUST BE IN WRITING ON A FORM APPROVED BY THE ENGINEER AND A COPY SHALL BE PROVIDED TO THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION ACTIVITIES AFFECTED BY SAID AGREEMENT. THE AGREEMENT MUST SPECIFY THAT FAYPWC, THE CITY AND THE ENGINEER SHALL BE HELD HARMLESS AGAINST ALL CLAIMS ARISING FROM THE AGREEMENT. THE OWNER DISCOURAGES PRIVATE AGREEMENTS. BEFORE FINAL ACCEPTANCE, A RELEASE FROM EACH PROPERTY OWNER THAT THE CONTRACTOR HAS MADE AN AGREEMENT WITH SHALL BE REQUIRED. THE PROPERTY OWNER'S RELEASE IS A CONDITION OF FINAL ACCEPTANCE.

4. THE CONTRACTOR SHALL MAINTAIN A NEAT AND CLEAN JOB SITE, TO INCLUDE STAGING / STORAGE AREAS AS FOLLOWS:
   - 4.1. PERFORM DUST CONTROL BY WATERING DAILY OR AS DIRECTED BY THE ENGINEER.
   - 4.2. SWEEP STREETS A MINIMUM OF ONCE WEEKLY (FRIDAY) OR AS DIRECTED BY THE ENGINEER.
   - 4.3. BLADE, LEVEL, AND RE-COMPACT ALL EXPOSED TRENCHES WEEKLY (OR AS DIRECTED BY THE ENGINEER) TO PRODUCE A SMOOTH "RIDE".
   - 4.4. PERFORM DAILY CLEAN-UP OF ALL DIRT, DEBRIS, AND SCRAP MATERIALS.
   - 4.5. REMOVE EXCESS EQUIPMENT, MATERIALS, TOOLS, ETC. NOT NEEDED.

5. EXCESS SUITABLE SOIL EXCAVATED DURING CONSTRUCTION SHALL BE STOCKPILED FOR USE ON THE PROJECT OR DISPOSED OF OFF-SITE AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL NOT BE ALLOWED TO STOCKPILE MATERIALS OR EXCESS MATERIALS IN THE STREET RIGHT-OF-WAYS AT ANY TIME. THE CONTRACTOR SHALL PROVIDE A SUFFICIENT AND SUITABLE STOCKPILE AREA AND LOCATION AT THE CONTRACTOR'S EXPENSE.

6. THE CONTRACTOR SHALL PROVIDE MEASURES DURING CONSTRUCTION TO SECURE THE SITE AND EXCAVATION FROM THE GENERAL PUBLIC AND COMPLY WITH ALL OSHA REGULATIONS. JOB SITE SAFETY IS THE EXCLUSIVE AND SOLE RESPONSIBILITY OF THE CONTRACTOR. OPEN EXCAVATION LEFT UNATTENDED OR OVERNIGHT IS NOT ACCEPTABLE AND SHALL BE FILLED IMMEDIATELY.

7. THE CONTRACTOR SHALL REPAIR OR REPLACE DRIVES DISTURBED BY CONSTRUCTION TO EXISTING OR BETTER CONDITIONS. NO SEPARATE PAYMENT UNLESS OTHERWISE INDICATED.

8. THE CONTRACTOR SHALL PROVIDE TEMPORARY FENCING WHERE FENCES ARE REMOVED FOR CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE FENCE REMOVAL / REINSTALLATION WITH INDIVIDUAL PROPERTY OWNERS PRIOR TO REMOVAL. THE CONTRACTOR SHALL REINSTALL ALL SHEDS, FENCES, ETC. TO AS-GOOD OR BETTER-THAN EXISTING CONDITIONS UNLESS OTHERWISE INDICATED. (NO SEPARATE PAYMENT).

9. THE CONTRACTOR SHALL REPLACE ALL DISTURBED MAILBOXES, SIGNS, ETC. DISTURBED DURING CONSTRUCTION WITHIN 24 HOURS OF DISTURBANCE. PERMANENT ROAD SIGNAGE AND PAVEMENT MARKINGS DISTURBED SHALL BE REPLACED IMMEDIATELY AND, IF NECESSARY, ROADWAY SIGNS SHALL BE TEMPORARILY INSTALLED IN A LOCATION CONSISTENT WITH THE NCMUTCD TO PROVIDE CONTINUOUS TRAFFIC AWARENESS OF ROADWAY CONDITIONS. (NO SEPARATE PAYMENT).

10. THE CONTRACTOR SHALL PROVIDE SECURITY FENCING, SECURITY GUARD, AND ANY AND ALL OTHER MEASURES THE CONTRACTOR DEEMS NECESSARY TO PROTECT EQUIPMENT AND MATERIALS STORED ON THE PROJECT. (NO SEPARATE PAYMENT).

11. WHERE THE CONTRACTOR CEASES WORK OPERATIONS FOR A 72 HOUR PERIOD OR LONGER, SUCH AS HOLIDAYS, ETC., THE FOLLOWING SHALL BE ACCOMPLISHED PRIOR TO THE WORK STOPPAGE:
   - 11.1. THE CONTRACTOR SHALL STORE ALL EQUIPMENT IN THE CONTRACTOR STAGING AREA OR OFF SITE.
   - 11.2. THE CONTRACTOR SHALL SWEEP ALL STREETS, PERFORM GENERAL CLEANUP, AND SHALL PERFORM MAINTENANCE ON ALL EXPOSED PATCHES.

12. THE CONTRACTOR SHALL SCHEDULE WORK AND MATERIAL DELIVERIES SO THAT STORED MATERIAL QUANTITIES ON THE JOB SITE SHALL BE MINIMIZED.

13. THE CONTRACTOR SHALL STORE ALL MATERIALS IN THE CONTRACTOR STAGING AREA 72 HOURS PRIOR TO INCORPORATING INTO THE WORK TO REDUCE OBSTRUCTIONS TO TRAFFIC AND INCONVENIENCE TO RESIDENTS. WHERE UTILITIES ARE BEING CONSTRUCTED IN EASEMENTS OUT OF TRAFFIC AREAS, THE CONTRACTOR MAY STORE MATERIALS AHEAD OF CONSTRUCTION FOR A DISTANCE NOT GREATER THAN 1,800 FEET UNLESS APPROVED OTHERWISE BY THE ENGINEER.

14. AT THE PROPERTY OWNER'S REQUEST, THE CONTRACTOR SHALL DIG UP EXISTING SHRUBS AND BUSHES WITHIN UTILITY EASEMENT TO BE DISTURBED BY CONSTRUCTION AND SET OUTSIDE THE UTILITY EASEMENT AREA IN A LOCATION DETERMINED BY THE PROPERTY OWNER (NO SEPARATE PAYMENT). THE PROPERTY OWNER WILL BE RESPONSIBLE FOR REPLANTING SHRUBS AND BUSHES SO REMOVED, AND SHALL BE RESPONSIBLE FOR RE-ESTABLISHING GROWTH. IF NO REQUEST IS MADE BY THE PROPERTY OWNER, DISTURBED SHRUBS AND BUSHES SHALL BE REMOVED AND DISPOSED OF OFF-SITE UNLESS OTHERWISE INDICATED.

15. CLEARING AND GRUBBING SHALL BE RESTRICTED TO PERMANENT EASEMENTS ONLY. THE CONTRACTOR SHALL LIMIT TREE/BUSH CLEARING IN THE TEMPORARY EASEMENTS, BETWEEN HOUSES AND ALONG PROPERTY LINES TO ONLY THAT WHICH IS ABSOLUTELY NECESSARY FOR CONSTRUCTION.

GENERAL NOTES (RESIDENT RELATIONS-REQUIRED):

16. WHEN THE PROPOSED WORK WILL BE CONSTRUCTED WITHIN A FULLY DEVELOPED SUBDIVISION OR OTHER RESIDENTIAL AREA, THE CONTRACTOR IS REQUIRED TO DEVELOP GOOD RELATIONS WITH THE RESIDENTS WHICH INCLUDES THE FOLLOWING MANDATORY MINIMUM REQUIREMENTS:
   - 16.1. NO SPEEDING WITH EQUIPMENT AND/OR VEHICLES (25 MPH MAXIMUM).
   - 16.2. DO NOT BLOCK DRIVEWAYS AT ANY TIME.
   - 16.3. DO NOT LITTER AT ANY TIME.
   - 16.4. DO NOT USE RESIDENT'S WATER WITHOUT THEIR PERMISSION (SIGNED AGREEMENT REQUIRED).
   - 16.5. ALL REQUIREMENTS FOR BACK FLOW PREVENTION BY THE PLUMBING CODE WILL BE ADHERED TO.
   - 16.6. RESPOND TO RESIDENT'S COMPLAINTS WITHIN 24 HOURS.
   - 16.7. DO NOT USE ABUSIVE LANGUAGE, PROFANITY, OR CAT-CALLING.
   - 16.8. WEAR PROPER PROTECTIVE CLOTHING (HARD HATS, PROPER SHOES, SHIRTS, ETC.).
   - 16.9. MAINTAIN PROPER SAFETY MEASURES, PARTICULARLY ALONG OPEN TRENCHES, PLACING CONES ON RAISED MANHOLES, AND BACK FILLING OPEN TRENCHES IF CONSTRUCTION IS STOPPED AND THE OPEN TRENCH IS NOT MANNED.
   - 16.10. PERSONNEL MUST WEAR CITY APPROVED SAFETY VEST AT ALL TIMES WHILE WORKING IN THE CITY AND/OR NCDOT RIGHT-OF-WAY.
   - 16.11. ALL TRAFFIC CONTROL FLAG PERSONS AND AT LEAST ONE PERSON ON EACH WORK CREW MUST BE FLUENT IN THE ENGLISH LANGUAGE.

IF THE CONTRACTOR AND/OR SUBCONTRACTORS CANNOT ADEQUATELY PERFORM AND/OR COMPLY WITH THESE REQUIREMENTS, THE INDIVIDUAL, SUBCONTRACTOR, OR EMPLOYEES MAY BE DIRECTED TO LEAVE THE PROJECT PERMANENTLY. INCONSIDERATE, NON-COOPERATIVE ATTITUDES AND ACTIONS WILL NOT BE TOLERATED.

GENERAL UTILITY NOTES:

1. PRIOR TO COMMENCEMENT OF ANY WORK WITHIN EASEMENTS OR RIGHT-OF-WAYS, THE CONTRACTOR IS REQUIRED TO NOTIFY CONCERNED UTILITY COMPANIES IN ACCORDANCE WITH GS 87-102. THE CONTRACTOR SHALL VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. NO SEPARATE PAYMENT. EXISTING UTILITIES SHOWN ARE TAKEN FROM MAPS FURNISHED BY VARIOUS UTILITY COMPANIES AND HAVE NOT BEEN PHYSICALLY LOCATED (i.e. TELEPHONE, GAS, CABLE, ETC.).

2. THE CONTRACTOR SHALL DIG UP EACH UTILITY WHICH MAY CONFLICT WITH CONSTRUCTION 14 DAYS IN ADVANCE TO VERIFY LOCATIONS (HORIZONTALLY AND VERTICALLY) TO ALLOW THE ENGINEER AN OPPORTUNITY TO ADJUST THE DESIGN TO AVOID CONFLICTS (NO SEPARATE PAYMENT).

3. ALL SANITARY SEWER AND WATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH STANDARDS AND SPECIFICATIONS OF THE FAYETTEVILLE PUBLIC WORKS COMMISSION. STORM DRAINAGE, STREET CONSTRUCTION AND PAVING SHALL SHALL BE IN ACCORDANCE WITH THE CITY OF FAYETTEVILLE SPECIFICATIONS.

4. UTILITY SERVICES TO INDIVIDUAL PROPERTIES ARE NOT SHOWN IN THE PROFILES FOR SIMPLICITY OF THE DRAWINGS. SERVICES MAY INCLUDE WATER LATERALS, TELEPHONE, ELECTRIC, CABLE, GAS, ETC.

5. THE CONTRACTOR SHALL COORDINATE WITH UTILITY OWNERS AND BE RESPONSIBLE FOR TEMPORARY RELOCATION AND/OR SECURING EXISTING UTILITY POLES AND SIGNS AND/OR UTILITIES IN ACCORDANCE WITH UTILITY OWNER REQUIREMENTS DURING THE UTILITY MAIN INSTALLATION AND STREET CONSTRUCTION. (NO SEPARATE PAYMENT).

6. THE CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORTS FOR UTILITY CROSSINGS AND REPAIR DAMAGES DUE TO CONSTRUCTION TO THE SATISFACTION OF THE UTILITY INVOLVED AT NO ADDITIONAL EXPENSE TO THE OWNER. UNDERGROUND ELECTRICAL CROSSINGS SHALL BE CROSSED IN ACCORDANCE WITH THE NEC AND TECHNICAL SPECIFICATION SECTION *UNDERGROUND ELECTRICAL CROSSING REQUIREMENTS*.

7. WHERE DEEMED NECESSARY BY THE ENGINEER THAT A SUBSURFACE DRAINAGE SYSTEM IS REQUIRED, THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, TOOLS, LABOR, EQUIPMENT, TIE-INS TO EXISTING DRAINAGE STRUCTURES AND ALL OTHER INCIDENTALS NECESSARY TO PROVIDE COMPLETE INSTALLATION IN ACCORDANCE WITH CITY OF FAYETTEVILLE STANDARDS. IMPROPERLY INSTALLED AND NON-FUNCTIONING DRAINAGE SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. EXISTING FRENCH DRAINAGE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AND/OR REPAIRED AT NO ADDITIONAL EXPENSE TO THE OWNER.

8. STORM DRAINAGE REPAIRS BY THE CONTRACTOR DUE TO CONSTRUCTION DAMAGE AND JOINTS EXPOSED DURING CONSTRUCTION SHALL BE INSPECTED BY THE OWNER PRIOR TO BACKFILLING.

9. NOT ALL UTILITIES THAT RUN PARALLEL ARE SHOWN IN THE PROFILES FOR SIMPLICITY OF THE DRAWINGS. UTILITIES THAT ARE NOT SHOWN MAY INCLUDE TELEPHONE, ELECTRIC, CABLE, FIBER OPTIC, ETC.

10. CONTRACTOR SHALL INFORM EXISTING UTILITY OWNERS OF CONSTRUCTION SCHEDULE, SO THEY CAN BE ON CALL FOR ANY REPAIRS AND TO HELP PREVENT CONFLICTS.

PROPOSED BACKWATER VALVE NOTE:

1. PROPOSED SANITARY SEWER SERVICE IS RECOMMENDED TO HAVE A BACKWATER VALVE ON THE PROPERTIES INDICATED WITH A BV. THIS VALVE SHALL NOT BE THE THE CONTRACTOR'S RESPONSIBILITY AND IS RECOMMENDED TO BE INSTALLED BY THE PROPERTY OWNER.

PROPOSED GRINDER PUMP AND/ OR REVERSE PLUMBING NOTES:

1. PROPOSED SANITARY SEWER SERVICE MAY REQUIRE A GRINDER PUMP ON THE PROPERTIES INDICATED WITH A GP. THE GRINDER PUMP SHALL NOT BE THE CONTRACTOR'S RESPONSIBILITY AND IS RECOMMENDED TO BE INSTALLED BY THE PROPERTY OWNER.

2. ON THE PROPERTIES INDICATED WITH A RP, EXISTING CONDITIONS MAY ALLOW EXISTING PLUMBING TO BE REVERSED WITHIN CRAWL SPACE.

WETLAND CONSTRUCTION REQUIREMENTS

1. THE CONSTRUCTION LIMITS/CORRIDOR (INCLUDING ROADS AND STOCKPILE AREA) SHALL BE KEPT TO A MAXIMUM 40 FOOT WIDTH.

2. POST CONSTRUCTION GROUND CONTOURS AND ELEVATIONS MUST BE RESTORED TO THE ORIGINAL ELEVATIONS.

3. THE TOP 6" TO 12" OF THE TRENCH SHALL BE BACKFILLED WITH THE TOPSOIL AND/OR SOIL EXISTING PRIOR TO CONSTRUCTION.

4. EXCESS MATERIAL MUST BE REMOVED TO UPLAND AREAS AND DISPOSED OF OFF-SITE. TEMPORARY PLACEMENT/STOCKPILE FOR ABSOLUTE MINIMUM PERIOD OF TIME.

5. DISTURBED SLOPES AND STREAM BANKS MUST BE STABILIZED IMMEDIATELY UPON COMPLETION OF THE UTILITY LINE OR IMMEDIATELY AT EACH STREAM CROSSING.

6. NOTIFY COE DISTRICT ENGINEER AND RECEIVE WRITTEN APPROVAL PRIOR TO BEGINNING CONSTRUCTION.

7. INSTALL ANTI-SEEP COLLARS EVERY 150 FEET OR AS SHOWN ON PLANS.

8. NO FERTILIZER SHALL BE APPLIED WITHIN 10 FEET OF STREAM.

9. NO FRESH CONCRETE SHALL BE IN CONTACT WITH STREAMS.

10. SEEDING SHALL BE IN ACCORDANCE WITH THE SPECIFIED MIXTURE FOR WETLAND AREAS.

TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS FOR WORK ZONE TRAFFIC CONTROL TO CITY TRAFFIC SERVICES DEPARTMENT (910-433-1660) FOR CITY STREETS AND TO MR. TROY BAKER (910-364-0601) FOR NCDOT STREETS. THE CONTRACTOR SHALL NOT PLACE ANY TRAFFIC CONTROL DEVICES WITHOUT HAVING APPROVAL FROM APPLICABLE TRANSPORTATION DEPARTMENT, EITHER NCDOT OR THE CITY OF FAYETTEVILLE.

2. THE CONTRACTOR SHALL INSURE ACCESS TO ALL PROPERTIES BY PROPERTY OWNERS AT ALL TIMES.

3. THE CONTRACTOR SHALL NOTIFY CITY ENGINEERING OFFICE ONE WEEK IN ADVANCE OF ANY ROAD CLOSINGS AND COORDINATE ALL ROAD CLOSINGS/UTILITY INTERRUPTIONS WITH PROPERTY OWNERS AFFECTED 48 HOURS PRIOR TO CLOSING/INTERRUPTING SERVICES.

4. MINIMUM ONE-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES UNLESS ROAD CLOSURE IS APPROVED IN WRITING, 5 DAYS IN ADVANCE OF ROAD CLOSURE. AN APPROVED DETOUR PLAN PREPARED BY THE CONTRACTOR SHALL BE REQUIRED AND THE MEASURES INSTALLED PRIOR TO CLOSURE.

5. THE CONTRACTOR SHALL COORDINATE/NOTIFY TRAFFIC SERVICES DAILY (BEFORE 4:00PM) AS TO WHICH STREETS WILL BE UNDER CONSTRUCTION, IMPEDING TRAFFIC FLOW THE FOLLOWING DAY.

6. THE CONTRACTOR SHALL NOT IMPEDE TRAFFIC AT ANY TIME UNTIL THE APPROVED TRAFFIC CONTROL DEVICES ARE IN PLACE.

7. ALL TRAFFIC CONTROL MEASURES, DEVICES, INSTALLATION, METHODS, SEQUENCING AND PLANS SHALL BE IN STRICT ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND SUPPLEMENTS SUCH AS NCDOT AND/OR CITY OF FAYETTEVILLE TRAFFIC SERVICES.

SURVEY NOTES:

1. SURVEY PERFORMED BY:
   MCKIM & CREED (N.C. FIRM LICENSE # 1222), 919-233-8091 (OFFICE)
   1730 VARSITY DRIVE, SUITE 500 RALEIGH, NORTH CAROLINA 27606

2. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED. ALL COORDINATES ARE GROUND COORDINATES IN US SURVEY FEET UNLESS OTHERWISE NOTED.

3. THE HORIZONTAL DATUM IS NC GRID (NAD83/2011) IN U.S. SURVEY FEET. THIS PROJECT WAS GROUND LOCALIZED ABOUT NC GRID NCGS MONUMENT "NC 351" WITH A COMBINED FACTOR OF 0.99987759.

4. THE VERTICAL DATUM IS (NAVD88) IN U.S. SURVEY FEET IS BASED ON NCGS MONUMENT "NC 351" WITH A GIVEN ELEVATION OF 216.69 FEET (NAVD88). THE CONTOUR INTERVAL SHOWN IS ONE FOOT.

5. THIS SURVEY IS NOT INTENDED TO BE A BOUNDARY SURVEY OF THE PROPERTY SHOWN HEREON. ANY CALCULATED PROPERTY LINES SHOWN HEREON WERE DRAWN FROM FIELD LOCATED BOUNDARY EVIDENCE AND/OR RECORDED DEEDS AND MAPS AS NOTED HEREON.

6. SPLIT-LEVEL DWELLINGS APPEAR TO HAVE A LOWER LEVEL FINISH FLOOR THAT IS ONLY ACCESSIBLE FROM INSIDE THE DWELLING. ACCESS TO SURVEY INTERIOR FLOORS WAS NOT ACCESSIBLE OR PROVIDED. IN THESE CASES, NO FINISH FLOOR ELEVATIONS WERE OBTAINED FOR THE INACCESSIBLE LEVELS. THE LOWEST ACCESSIBLE GROUND ELEVATION WAS OBTAINED AT THE DWELLING FOR ENGINEERING PURPOSES.

7. THIS MAP WAS PREPARED WITHOUT THE BENEFIT OF A CERTIFIED TITLE REPORT AND THEREFORE THE PROPERTY SHOWN HEREON MAY BE SUBJECT TO RECORDED OR UNRECORDED RIGHT-OF-WAYS, EASEMENTS, RESTRICTIONS OF RECORD, OR OTHER ENCUMBRANCES NOT OBSERVED OR SHOWN HEREON.

8. THE UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE LOCATIONS AND ARE BASED ON ABOVE GROUND FEATURES, PHYSICAL EVIDENCE, PAINT MARKINGS PROVIDED BY OTHERS, AND UTILITY PLANS. THE SURVEYOR DOES NOT GUARANTEE THAT ALL EXISTING UNDERGROUND STRUCTURES SUCH AS UTILITIES, TANKS, PIPES, ETC. ARE LOCATED HEREON, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. NO EXCAVATIONS WERE MADE BY THE SURVEYOR TO LOCATE ANY BURIED UTILITIES OR STRUCTURES UNLESS OTHERWISE NOTED WITH THE EXCEPTION OF SUE LOCATIONS AS DEFINED IN ITEM 11.

9. REFERENCE GENERAL UTILITY NOTE 1. CONTACT NC 811 REGARDING UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION OR CONSTRUCTION.

10. NO DETERMINATION HAS BEEN MADE BY THE SURVEYOR AS TO THE FOLLOWING: FLOOD ZONES; UNDERGROUND STORAGE FACILITIES; GRAVES, CEMETERIES, OR BURIAL GROUNDS; HAZARDOUS WASTE DEPOSITS OR MATERIALS.

11. SUE-BORE LOCATIONS SHOWN HEREON WERE FIELD MARKED AND SURVEYED BY MCKIM & CREED ON OCTOBER 2019. ELEVATIONS SHOWN ARE CALCULATED RESULTS FROM DATA PROVIDED BY MCKIM & CREED.

12. DATE OF FIELD SURVEY: JUNE 2019 - FEBRUARY 2020

13. WK DICKSON PROJECT # 2018000800.RA

14. WK DICKSON FILE NAME: 2018000800_V_XREF_BASE.DWG

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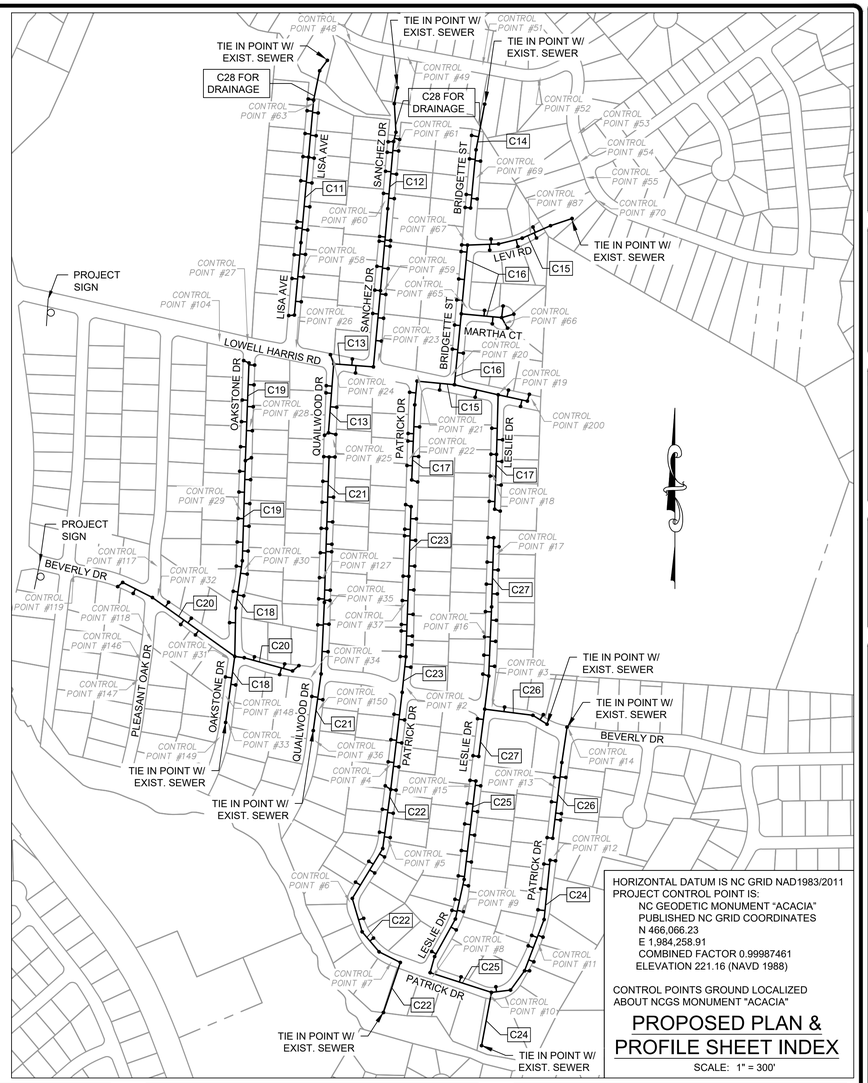
LEGEND

TCE — PROP TEMPORARY EASEMENT	— UNKNOWN UNDERGROUND UTILITY	ELECTRIC TRANSFORMER	CURB INLET
PROP PERMANENT EASEMENT	TREE LINE	H ELECTRIC HAND BOX	FIBER OPTIC MARKER
PROP SEWER MAIN, LATERAL	SHRUB LINE	TELEPHONE PEDESTAL	SIGN
S W/ CLEAN OUT AND MANHOLE	FENCE	TV PEDESTAL	RIGHT OF WAY MONUMENT
PROP STORM W/ PIPE COLLAR	190 CONTOUR	MAIL BOX	CLEAN OUT
PROPERTY LINE/RIGHT OF WAY	DITCH LINE / STREAM	IRRIGATION SPRINKLER	FIRE HYDRANT
STORM SEWER	TB TOP OF BANK	IRRIGATION VALVE	GATE POST
SS SANITARY SEWER W/ MANHOLE	BB BOTTOM OF BANK	BOLLARD/MISC POST	WATER METER
W WATER LINE W/ VALVE	WETLANDS BOUNDARY LINE	SHRUB	RP PROP REVERSE PLUMBING
OE OVERHEAD ELECTRIC	LIGHT POLE	SATELLITE DISH	BV PROP BACKWATER VALVE
UE UNDERGROUND ELECTRIC	POWER POLE	LANDSCAPE LIGHT	GP PROP GRINDER PUMP
C COMMUNICATION LINE	POLE ANCHOR	FLAG POLE	SOIL BORING LOCATION (SEE GEOTECHNICAL REPORT)
CATV CABLE TELEVISION	JUNCTION BOX	STORM JUNCTION BOX	



HORIZONTAL DATUM IS NC GRID NAD1983/2011
PROJECT CONTROL POINT IS:
NC GEODETIC MONUMENT "ACACIA"
PUBLISHED NC GRID COORDINATES
N 466,066.23
E 1,984,258.91
COMBINED FACTOR 0.99987461
ELEVATION 221.16 (NAVD 1988)

CONTROL POINTS GROUND LOCALIZED ABOUT NCGS MONUMENT "ACACIA"

PROPOSED PLAN & PROFILE SHEET INDEX

SCALE: 1" = 300'

CONTROL POINT TABLE
GROUND COORDINATES

NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
2	469,768.45'	1,982,411.16'	224.99'	PKST
3	469,691.46'	1,982,767.58'	217.25'	PKST
4	469,446.48'	1,982,340.57'	219.35'	PKST
5	469,133.84'	1,982,331.33'	211.64'	PKST
6	468,873.00'	1,982,171.11'	205.11'	PKST
7	468,617.69'	1,982,344.39'	200.49'	PKST
8	468,557.34'	1,982,517.86'	195.16'	PKST
9	468,831.98'	1,982,638.22'	202.97'	PKST
10	468,479.67'	1,982,760.35'	189.39'	PKST
11	468,695.55'	1,982,963.35'	200.26'	PKST
12	469,066.16'	1,983,028.26'	220.03'	PKST
13	469,351.52'	1,983,033.63'	213.51'	PKST
14	469,598.87'	1,983,088.15'	207.39'	PKST
15	469,357.33'	1,982,681.92'	220.38'	PKST
16	469,983.05'	1,982,745.58'	213.44'	PKST
17	470,329.65'	1,982,787.80'	225.67'	PKST
18	470,670.81'	1,982,769.13'	222.14'	PKST
19	471,007.91'	1,982,801.63'	218.33'	PKST
20	471,081.12'	1,982,597.65'	218.59'	PKST
21	471,078.70'	1,982,456.17'	220.61'	PKST
22	470,731.86'	1,982,421.89'	225.49'	PKST
23	471,141.34'	1,982,290.08'	221.43'	PKST

CONTROL POINT TABLE
GROUND COORDINATES

NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
24	471,150.62'	1,982,101.95'	225.90'	PKST
25	470,808.94'	1,982,102.13'	230.87'	PKST
26	471,199.61'	1,981,947.26'	228.73'	PKST
27	471,222.36'	1,981,743.21'	232.99'	PKST
28	470,866.80'	1,981,753.52'	230.74'	PKST
29	470,516.20'	1,981,712.19'	229.43'	PKST
30	470,269.32'	1,981,731.76'	229.11'	PKST
31	469,891.76'	1,981,664.30'	225.55'	PKST
32	470,155.64'	1,981,366.60'	227.36'	PKST
33	469,621.08'	1,981,663.12'	219.45'	PKST
34	469,815.24'	1,982,009.78'	227.24'	PKST
35	470,103.88'	1,982,078.41'	226.70'	PKST
36	469,547.49'	1,982,027.21'	218.07'	PKST
37	470,121.37'	1,982,400.46'	225.79'	PKST
48	472,481.79'	1,982,174.06'	211.22'	PKST
49	472,414.61'	1,982,415.59'	210.31'	PKST
51	472,383.75'	1,982,728.72'	207.53'	PKST
52	472,326.26'	1,982,970.03'	202.52'	PKST
53	472,096.60'	1,983,130.99'	203.69'	PKST
54	471,978.66'	1,983,141.05'	204.74'	PKST
55	471,909.59'	1,983,164.08'	203.82'	PKST
58	471,515.95'	1,981,970.26'	219.74'	PKST

CONTROL POINT TABLE
GROUND COORDINATES

NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
59	471,437.39'	1,982,315.13'	215.70'	PKST
60	471,809.60'	1,982,318.88'	211.01'	PKST
61	472,030.28'	1,982,367.46'	202.97'	PKST
63	472,221.06'	1,982,021.07'	203.56'	PKST
65	471,363.17'	1,982,662.84'	213.97'	PKST
66	471,296.51'	1,982,818.25'	216.43'	PKST
67	471,648.69'	1,982,651.75'	209.67'	PKST
69	471,909.80'	1,982,704.18'	208.19'	PKST
70	471,812.87'	1,983,214.68'	201.30'	PKST
87	471,670.32'	1,982,929.09'	194.30'	PKS
104	471,224.43'	1,981,625.24'	234.64'	PKST
117	470,280.90'	1,981,362.49'	228.12'	PKST
118	469,967.25'	1,981,339.19'	228.50'	PKST
119	470,244.87'	1,981,012.91'	228.96'	PKST
127	470,229.53'	1,982,057.75'	227.40'	PKST
146	469,882.21'	1,981,295.19'	228.09'	PKST
147	469,804.95'	1,981,284.93'	224.84'	PKST
148	469,734.10'	1,981,652.25'	222.80'	PKST
149	469,560.60'	1,981,624.27'	214.21'	PKST
150	469,678.19'	1,982,041.16'	223.83'	PKST
200	470,980.36'	1,982,933.88'	217.46'	PKST

PWC DWG # DS-15513

BY	DATE	REVISIONS

SHEET SERIES=FINAL DESIGN. ISSUED FOR BID

DATE: 03/01/2024
SURVEY/QPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE: HOR: 1"=NTS VERT: 1"=NTS
SHEET # CI

WK DICKSON
Community Infrastructure Consultants
Transportation • Water Resources
Land Development • Environmental
720 Corporate Center Drive
Raleigh, North Carolina 27607
(919) 782-0495
www.wkdickson.com
NC CORPORATE NO.? 0374

NORTH CAROLINA PROFESSIONAL ENGINEER 054233 ALBERT M. HUCKABY
3/5/2024

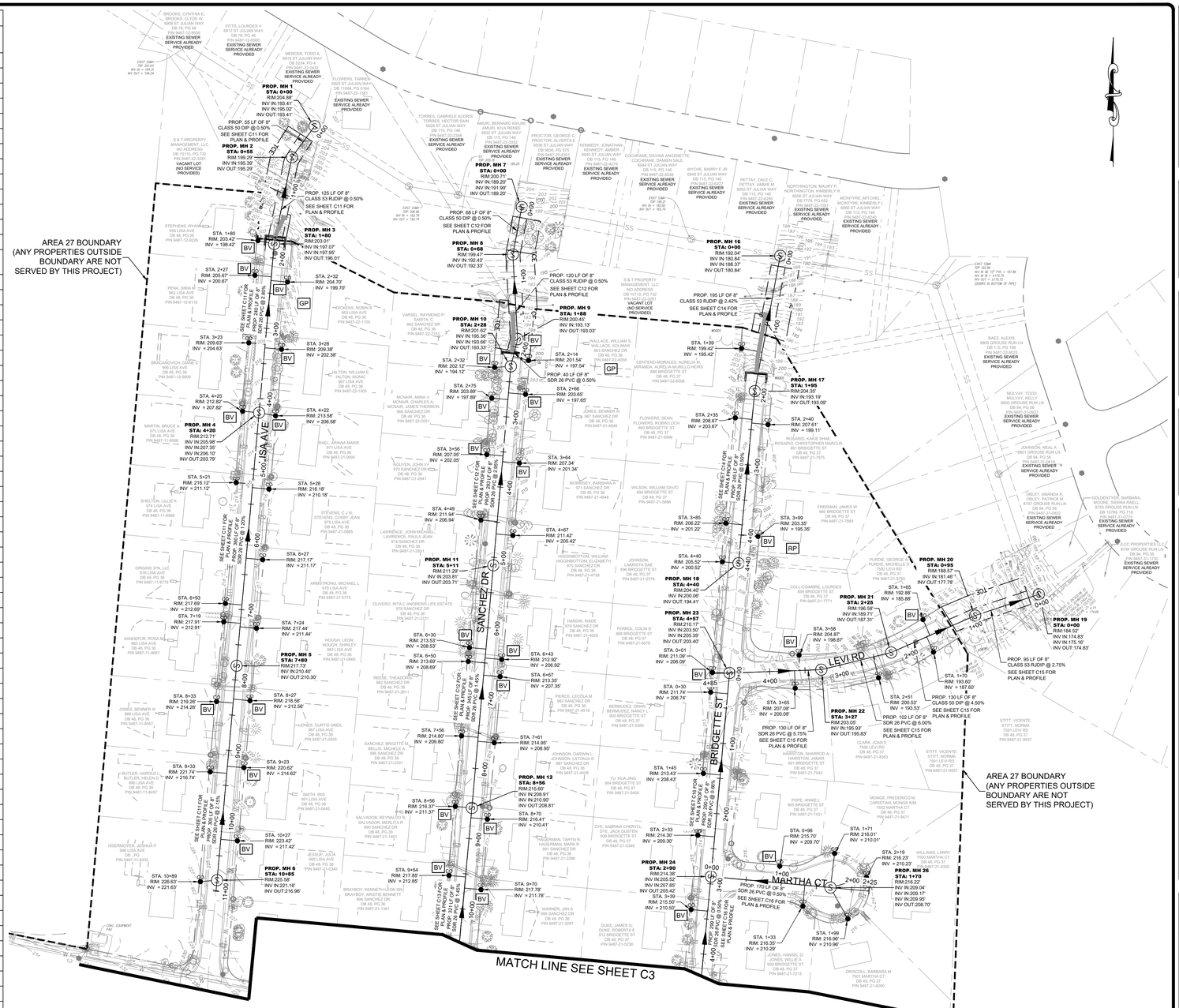
GENERAL NOTES AND SHEET INDEX
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
Electric & Water Utilities

20200208.00.RA

Z:\Projects\Fayetteville Public Works Commission\20200208\00\04 - Annexation Phase V, Area 27\CAD\Plan Set\20200208_C_SHT_NOTES AND SHEETS.dwg 3/4/2024 12:21:19 PM

Area 27					
PIN	Property Owner	Site Address	Backwater Valve	Grinder Pump	Reverse Plumbing
9487-12-9226	Stephens, Ryan	958 Lisa Ave	Yes		
9487-12-9116	Pena, Siria M	962 Lisa Ave	Yes		
9487-22-1105	Dickens, Robin S	963 Lisa Ave	Yes	Yes	
9487-22-1005	Hilton, William E; Hilton, Monic	967 Lisa Ave	Yes		
9487-11-8996	Martin, Bruce A	970 Lisa Ave	Yes		
9487-21-0995	Rael, Ariana Marie	971 Lisa Ave	Yes		
9487-21-0555	Jones, Curtis Oneil	987 Lisa Ave	Yes		
9487-11-8557	Jones, Benner III	986 Lisa Ave	Yes		
9487-21-0445	Smith, Iris	991 Lisa Ave	Yes		
9487-21-0345	Jessup, Julia	995 Lisa Ave	Yes		
9487-22-4058	Wallace, William S; Wallace, Solimar	963 Sanchez Dr	Yes	Yes	
9487-22-2151	Varsel, Raymond P; Sarita, C	962 Sanchez Dr	Yes		
9487-21-4948	Jones, Benner III	967 Sanchez Dr	Yes		
9487-22-2051	McNair, Anna V; McNair, Charles A; McNair, Jaes Thermon	966 Sanchez Dr	Yes		
9487-21-2941	Nguyen, John V	970 Sanchez Dr	Yes		
9487-21-4848	Morrisey, Barbara A	971 Sanchez Dr	Yes		
9487-21-2721	Olivero, Rita C Andrews Life Estate	978 Sanchez Dr	Yes		
9487-21-4628	Hardin, Wade	979 Sanchez Dr	Yes		
9487-21-4518	Pierce, Lecola M	983 Sanchez Dr	Yes		
9487-21-1491	Salvador, Reynaldo B; Salvador, Merlita R	990 Sanchez Dr	Yes		
9487-21-3398	Hagerman, Taryn R; Hagerman, Mark R	991 Sanchez Dr	Yes		
9487-21-1381	Brayboy, Kenneth Leon Sr; Brayboy, Kristie Bennett	994 Sanchez Dr	Yes		
9487-21-3287	Warner, Jan S	995 Sanchez Dr	Yes		
9487-21-3187	Dreams & Vision Real Estate LLC	999 Sanchez Dr	Yes		
9487-21-1281	Harper, Josephus; Harper, Gainel	998 Sanchez Dr	Yes		
9487-21-0234	Jones, James W	999 Lisa Ave	Yes		
9487-21-7883	Freeman, James W	895 Bridgette St	Yes		Yes
9487-21-8785	Purdie, George A; Purdie, Michelle D	7592 Levi Rd	Yes		
9487-21-7771	Coll-Coimbre, Lourdes	899 Bridgette St	Yes		
9487-21-5676	Ferrol, Colin D	898 Bridgette St	Yes		
9487-21-5236	Duke, James G; Duke, Roberta E	912 Bridgette St	Yes		
9487-21-7101	Piszczor, Michael; Piszczor, Lauren	913 Bridgette St	Yes		
9487-21-7431	Pope, Annie L	905 Bridgette St	Yes		
9487-21-9027	Smith, Monika F	7590 Lowell Harris Rd	Yes		
9487-20-5831	Carrasquillo, Julio; Carrasquillo, Sandra	1005 Patrick Dr	Yes		
9487-20-3836	Molina, Alejandro D Jr; Molina, Ni	1004 Patrick Dr	Yes		
9487-20-8687	Grissett, Thomas L	1009 Leslie Dr	Yes		
9487-10-8730	Aicher, Ryan T; Aicher, Heather R	1017 Oakstone Dr	Yes		
9487-10-6832	Suddarth, Henry L; Suddarth, Sharon K	1012 Oakstone Dr	Yes		
9487-10-8830	Petersen, Alexander D; Petersen, Kodie Rae	1013 Oakstone Dr	Yes		
9487-10-6942	Schwartz, Christina A; Schwartz, Justin M	1008 Oakstone Dr	Yes		
9486-19-8755	Harvin, Joseph	7665 Beverly Dr	Yes		
9486-19-9753	Hernandez, Ashley O; Hernandez, Antionette	7661 Beverly Dr	Yes		
9486-29-1042	Wilderman, Mark C; Wilderman, Jennifer R Cooney	1128 Patrick Dr	Yes		
9486-29-4126	Olenick, Sean M	1121 Patrick Dr	Yes		
9486-29-2220	Winding Creek Properties LLC	1120 Patrick Dr	Yes		
9486-29-2450	Chavez, Angel M	1112 Patrick Dr	Yes		
9486-29-4456	Ortiz, Orlando; Ortiz, Caren S; Ortiz, Pagan	1109 Patrick Dr	Yes		
9486-29-2560	Biggs, Darese D	1108 Patrick Dr	Yes		
9486-29-4576	Smith, Kenneth; Smith, Jacqueline A	1105 Patrick Dr	Yes		
9486-38-0501	Maza, Homer	1208 Patrick Dr	Yes		
9486-38-0651	Gonzales, Robert; Gonzales, Lorelias	1212 Patrick Dr	Yes		
9486-28-8637	McAllister, George L; McAllister, Stacy	1207 Patrick Dr	Yes		
9486-28-8767	McGeorge, Robert; McGeorge, Alma J	1215 Patrick Dr	Yes		
9486-28-8887	Carr, Donald L Jr	1219 Patrick Dr	Yes		
9486-28-9906	Rush, Latoria D	1223 Patrick Dr	Yes		
9486-29-9016	Clarke, Margaret P	1227 Patrick Dr	Yes		
9486-28-5802	Jackson, Robert; Jackson, Hannah Parker	1132 Leslie Dr	Yes		
9486-28-5932	Smith, Paul A A Jr; Smith, Beverly A	1128 Leslie Dr	Yes		
9486-29-5052	White, Vander L Jr; White, Patricia H	1124 Leslie Dr	Yes		
9486-29-7065	Denton, Thomas K; Denton, Hyon Suk	1123 Leslie Dr	Yes		
9486-29-5162	Copeland, Keith Edward; Copeland, Jessica	1120 Leslie Dr	Yes		
9486-29-7176	Stevenson, Tommy L; Stevenson, Song A	1119 Leslie Dr	Yes		
9486-29-5282	Hambrick, Timothy J; Hambrick, Latonia	1116 Leslie Dr	Yes		
9486-29-7287	Conte, Martin L	1115 Leslie Dr	Yes		
9486-39-1357	Presunka, Peter; Carol, Trustees	1240 Patrick Dr	Yes		
9486-29-9356	Russell, Marvin H; Russell, Mary A	1239 Patrick Dr	Yes		
9486-39-1246	Prince, Ora Lee; Jonnie, Mae	1236 Patrick Dr	Yes		
9486-29-8755	Mosley, Herbert E; Mosley, Linda F	7598 Beverly Dr	Yes		
9486-29-8867	Campbell, William Edward	1041 Leslie Dr	Yes		
9486-29-6962	Geyer, Benjamin D; Geyer, Kristen E	1040 Leslie Dr	Yes		
9486-29-8968	Cortesrodriguez, Steven; Cortesrodriguez, Jacqueline M Morales Gomez	1037 Leslie Dr	Yes		
9487-20-8068	Jones, Andrew L	1033 Leslie Dr	Yes		
9487-20-8177	Carter, Annie P	1029 Leslie Dr	Yes		



PROPOSED BACKWATER VALVE NOTE:

1. PROPOSED SANITARY SEWER SERVICE IS RECOMMENDED TO HAVE A BACKWATER VALVE ON THE PROPERTIES INDICATED WITH A BV. THIS VALVE SHALL NOT BE THE THE CONTRACTOR'S RESPONSIBILITY AND IS RECOMMENDED TO BE INSTALLED BY THE PROPERTY OWNER.

PROPOSED GRINDER PUMP AND/ OR REVERSE PLUMBING NOTES:

1. PROPOSED SANITARY SEWER SERVICE MAY REQUIRE A GRINDER PUMP ON THE PROPERTIES INDICATED WITH A GP. THE GRINDER PUMP SHALL NOT BE THE CONTRACTOR'S RESPONSIBILITY AND IS RECOMMENDED TO BE INSTALLED BY THE PROPERTY OWNER.
2. ON THE PROPERTIES INDICATED WITH A RP, EXISTING CONDITIONS MAY ALLOW EXISTING PLUMBING TO BE REVERSED WITHIN CRAWL SPACE.

LEGEND

- PROP TEMPORARY EASEMENT
- PROP PERMANENT EASEMENT
- PROP SEWER MAIN, LATERAL
- W/ CLEAN OUT AND MANHOLE
- PROP STORM W/ PIPE COLLAR
- PROPERTY LINE/RIGHT OF WAY
- STORM SEWER
- SANITARY SEWER W/ MANHOLE
- WATER LINE W/ VALVE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- COMMUNICATION LINE
- CABLE TELEVISION
- UNKNOWN UNDERGROUND UTILITY
- TREE LINE
- SHRUB LINE
- FENCE
- CONTOUR
- DITCH LINE / STREAM
- TOP OF BANK
- BOTTOM OF BANK
- WETLANDS BOUNDARY LINE
- LIGHT POLE
- POWER POLE
- POLE ANCHOR
- JUNCTION BOX
- ELECTRIC TRANSFORMER
- ELECTRIC HAND BOX
- TELEPHONE PEDESTAL
- TV PEDESTAL
- MAIL BOX
- IRRIGATION SPRINKLER
- IRRIGATION VALVE
- BOLLARD/MISC POST
- SHRUB
- SATELLITE DISH
- LANDSCAPE LIGHT
- FLAG POLE
- STORM JUNCTION BOX
- CURB INLET
- FIBER OPTIC MARKER
- SIGN
- RIGHT OF WAY MONUMENT
- CLEAN OUT
- FIRE HYDRANT
- GATE POST
- WATER METER
- RP PROP REVERSE PLUMBING
- BV PROP BACKWATER VALVE
- GP PROP GRINDER PUMP
- SOIL BORING LOCATION (SEE GEOTECHNICAL REPORT)

GRAPHIC SCALE

80 0 40 80 160

(IN FEET)

HORIZ.: 1 inch = 80 ft.
VERT.: 1 inch = 8 ft.

NC STATE PLANE
NAD83, NAVD88

PWC DWG # DS-15513

REVISIONS	BY

DATE: 03/01/2024
SURVEY/QPS BY: STEWART
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(919) 782-0495
www.wkdickson.com
NC: C-0793 NC: P-1016

SHEET # C2

NORTH CAROLINA PROFESSIONAL ENGINEER 054233 ROBERT M. HUCHABY
3/5/2024

OVERALL SEWER LAYOUT
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
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MATCH LINE SEE SHEET C2
MATCH LINE SEE SHEET C4
MATCH LINE SEE SHEET C4
OAKSTONE DR
QUAILWOOD DR
PATRICK DR
LESLIE DR
LOWELL HARRIS RD
BEVERLY DR
AREA 27 BOUNDARY (ANY PROPERTIES OUTSIDE BOUNDARY ARE NOT SERVED BY THIS PROJECT)
AREA 27 BOUNDARY (ANY PROPERTIES OUTSIDE BOUNDARY ARE NOT SERVED BY THIS PROJECT)
PROP. MH 38 STA: 11+03
PROP. MH 39 STA: 15+13
PROP. MH 14 STA: 1+67
PROP. MH 15 STA: 2+90
PROP. MH 48 STA: 11+50
PROP. MH 13 STA: 11+77
PROP. MH 27 STA: 1+58
PROP. MH 30 STA: 1+00
PROP. MH 31 STA: 4+15
PROP. MH 59 STA: 22+62
PROP. MH 25 STA: 5+88
PROP. MH 28 STA: 1+88
PROP. MH 29 STA: 3+13
PROP. MH 32 STA: 2+50
PROP. MH 33 STA: 4+80
PROP. MH 78 STA: 1+40
PROP. MH 80 STA: 7+20
PROP. MH 79 STA: 4+30
PROP. MH 57 STA: 16+32
PROP. MH 58 STA: 19+69
PROP. MH 36 STA: 4+83
PROP. MH 46 STA: 5+40
PROP. MH 41 STA: -0+40
PROP. MH 35 STA: 2+80
PROP. MH 40 STA: -2+50
PROP. MH 45 STA: 2+40
PROP. MH 37 STA: 6+83
PROP. MH 47 STA: 8+50
PROP. MH 42 STA: 4+24
PROP. MH 43 STA: 5+64
PROP. MH 34 STA: 0+00
PROP. MH 44 STA: 0+00
PROP. 158 LF OF 8" SDR 26 PVC @ 0.60% SEE SHEET C15 FOR PLAN & PROFILE
PROP. 167 LF OF 8" SDR 26 PVC @ 1.95% SEE SHEET C13 FOR PLAN & PROFILE
PROP. 100 LF OF 8" SDR 26 PVC @ 0.50% SEE SHEET C17 FOR PLAN & PROFILE
PROP. 168 LF OF 8" SDR 26 PVC @ 0.50% SEE SHEET C15 FOR PLAN & PROFILE
PROP. 125 LF OF 8" SDR 26 PVC @ 0.50% SEE SHEET C15 FOR PLAN & PROFILE
PROP. 210 LF OF 8" SDR 26 PVC @ 1.90% SEE SHEET C19 FOR PLAN & PROFILE
PROP. 40 LF OF 8" SDR 26 PVC @ 0.50% SEE SHEET C20 FOR PLAN & PROFILE
PROP. 150 LF OF 8" SDR 26 PVC @ 0.50% SEE SHEET C23 FOR PLAN & PROFILE
PROP. 420 LF OF 8" SDR 26 PVC @ 1.90% SEE SHEET C19 FOR PLAN & PROFILE
PROP. 307 LF OF 8" SDR 26 PVC @ 1.95% SEE SHEET C21 FOR PLAN & PROFILE
PROP. 280 LF OF 8" SDR 26 PVC @ 9.00% SEE SHEET C17 FOR PLAN & PROFILE
PROP. 200 LF OF 8" SDR 26 PVC @ 1.90% SEE SHEET C19 FOR PLAN & PROFILE
PROP. 260 LF OF 8" SDR 26 PVC @ 1.95% SEE SHEET C21 FOR PLAN & PROFILE
PROP. 280 LF OF 8" SDR 26 PVC @ 1.95% SEE SHEET C21 FOR PLAN & PROFILE
PROP. 310 LF OF 8" SDR 26 PVC @ 1.95% SEE SHEET C21 FOR PLAN & PROFILE
PROP. 260

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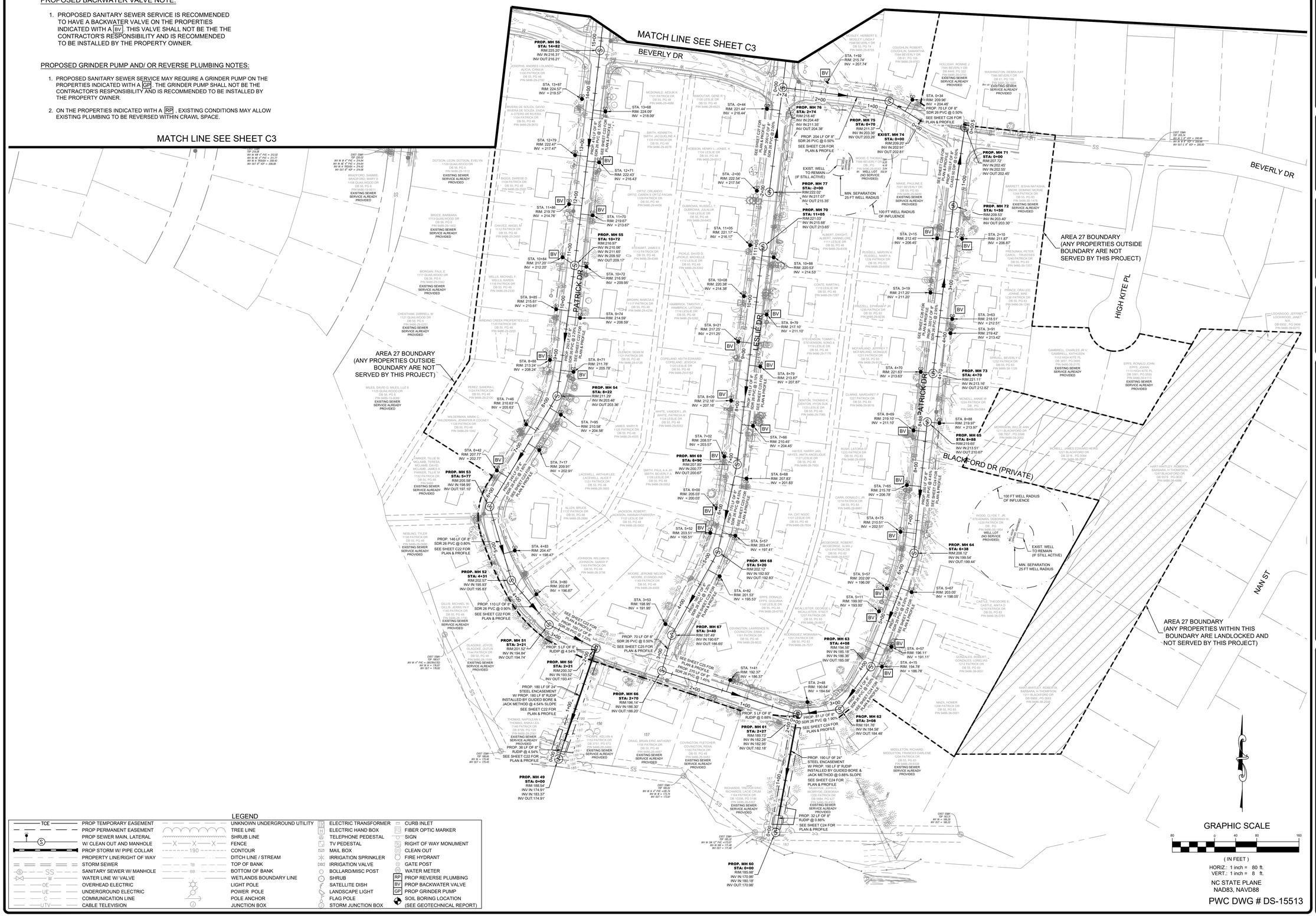

LEGEND

TCE	PROP TEMPORARY EASEMENT	UNKNOWN UNDERGROUND UTILITY	ELECTRIC TRANSFORMER	CURB INLET
	PROP PERMANENT EASEMENT	TREE LINE	ELECTRIC HAND BOX	FIBER OPTIC MARKER
S	PROP SEWER MAIN, LATERAL W/ CLEAN OUT AND MANHOLE	SHRUB LINE	TELEPHONE PEDESTAL	SIGN
	PROP STORM W/ PIPE COLLAR	FENCE	TV PEDESTAL	RIGHT OF WAY MONUMENT
	PROPERTY LINE/RIGHT OF WAY	CONTOUR	MAIL BOX	CLEAN OUT
	STORM SEWER	DITCH LINE / STREAM	IRRIGATION SPRINKLER	FIRE HYDRANT
SS	SANITARY SEWER W/ MANHOLE	TOP OF BANK	IRRIGATION VALVE	GATE POST
W	WATER LINE W/ VALVE	BOTTOM OF BANK	BOLLARD/MISC POST	WATER METER
OE	OVERHEAD ELECTRIC	WETLANDS BOUNDARY LINE	SHRUB	PROP REVERSE PLUMBING
UE	UNDERGROUND ELECTRIC	LIGHT POLE	SATELLITE DISH	PROP BACKWATER VALVE
C	COMMUNICATION LINE	POWER POLE	LANDSCAPE LIGHT	PROP GRINDER PUMP
CATV	CABLE TELEVISION	POLE ANCHOR	FLAG POLE	SOIL BORING LOCATION (SEE GEOTECHNICAL REPORT)
		JUNCTION BOX	STORM JUNCTION BOX	

BY	DATE	REVISIONS

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DRAWN BY: VR / DK
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SCALE: HOR.: 1-80 VERT.: 1-8

SHEET # C4.

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NC: C0701NE NC1 F1015

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 054233 ROBERT M. HUCHABY
3/5/2024

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GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA EROSION AND SEDIMENTATION CONTROL HANDBOOK. (LUMP SUM PAYMENT FOR ALL EROSION/ SEDIMENTATION CONTROL MEASURES, INCIDENTALS, MAINTENANCE, REMOVAL, ETC.).
2. THE CONTRACTOR SHALL NOTIFY PLAN APPROVING AUTHORITY ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO FINAL INSPECTION.
3. ALL EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE PLACED PRIOR TO CLEARING AND/OR LAND DISTURBANCE.
4. A COPY OF THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN AND PERMIT SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
5. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THE PLANS (INCLUDING, BUT NOT LIMITED TO OFF-SITE BORROW OR WASTE AREAS, STAGING OR STORAGE AREAS), THE CONTRACTOR SHALL PREPARE AND SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND NCDENR REGIONAL OFFICE FOR APPROVAL. CONTRACTOR SHALL PAY ALL FEES REQUIRED AND SHALL INSTALL NECESSARY MEASURES AT NO SEPARATE PAYMENT. THE CONTRACTOR SHALL PROVIDE THE OWNER AND THE OWNER'S REPRESENTATIVE A COPY OF THE AMENDED PERMIT.
6. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES, OTHER THAN THOSE SHOWN ON PLANS, NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY EITHER NCDENR OR THE OWNER'S REPRESENTATIVE. (NO SEPARATE PAYMENT).
7. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
8. ALL AREAS DISTURBED BY CONSTRUCTION UNLESS OTHERWISE IMPROVED SHALL BE SODDED OR SEEDED AS INDICATED AND STABILIZED.
9. DURING DE-WATERING OPERATIONS, WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE PRIOR TO DISCHARGE TO RECEIVING OUTLET.
10. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
11. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED BY CONTRACTOR ONCE STABILIZATION OR A SUFFICIENT GROUND COVER HAS BEEN ESTABLISHED OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE. (NO SEPARATE PAYMENT). NCDEQ'S FINAL APPROVAL IS REQUIRED.
12. TEMPORARY GRAVEL CONSTRUCTION ENTRANCE SHALL BE REQUIRED AT ALL CONSTRUCTION STAGING AREA ENTRANCES AND ALL CONSTRUCTION ACCESS LOCATIONS INTO NON-PAVED AREA. (NO SEPARATE PAYMENT). FOR TEMPORARY DRIVEWAY ACCESSES WITHIN NCDOT RIGHT OF WAY CONTRACTOR SHALL ADHERE TO NCDOT'S "POLICY ON STREET AND DRIVEWAY ACCESS TO NORTH CAROLINA HIGHWAYS" AND PROVIDE APPLICABLE PERFORMANCE AND INDEMNITY BOND UNLESS OTHERWISE NOTED. FOR EXISTING PRIVATE DRIVEWAYS, WHICH WILL ACCOMMODATE CONSTRUCTION ENTRANCES, CONTRACTOR SHALL MAKE DRIVEWAY ACCOMMODATING FOR CONTINUED USE BY RESIDENCES/ PROPERTY OWNERS AND INSTALL TEMPORARY CONSTRUCTION ENTRANCE AT END OF PRIVATE DRIVE OR WHERE CONSTRUCTION ENTRANCE VEERS FROM PRIVATE DRIVEWAY. TEMPORARY CONSTRUCTION ENTRANCE TO COMPLY WITH EROSION AND SEDIMENTATION GUIDE LINES.
13. WHEN CROSSING CREEK OR DRAINAGE-WAY, THE CONTRACTOR SHALL INSTALL RIP-RAP WITH FABRIC ON DISTURBED BANKS AND CHANNEL AND RESTORE SLOPES TO ORIGINAL CONTOURS, BUT NOT STEEPER THAN 2:1 MAXIMUM. DISTURBED CREEK AREA SHALL BE STABILIZED IMMEDIATELY.
14. LIMITS OF CONSTRUCTION ARE THE CITY OF FAYETTEVILLE/ NCDOT STREET RIGHT OF WAYS AND EASEMENTS AS SHOWN ON PLANS.
15. THE CONSTRUCTION DISTURBED AREA SHALL NOT EXCEED 21 ACRES.

EROSION CONTROL MAINTENANCE PLAN

1. ALL EROSION CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT BECOMES ABOUT 0.5 FT DEEP AT THE FENCE. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER.
3. ALL UTILITY TRENCHES ARE TO BE PROTECTED FROM WATER INFILTRATION.
4. SPOIL PILES ARE TO BE CONTAINED AT ALL TIMES.
5. ALL SEEDED AREAS WILL BE FERTILIZED, RE-SEEDED AS NECESSARY, AND MULCHED ACCORDING TO THE SPECIFICATIONS TO MAINTAIN A VIGOROUS, DENSE VEGETATION COVER. IF SEEDING FAILURE OCCUR, THOSE AREAS SHALL BE RE-SEEDED WITH ANNUAL VEGETATION, SUITABLE FOR THE TIME OF YEAR FOR TEMPORARY STABILIZATION AND PREPARED FOR FOR PERMANENT SEEDING. SEEDING AND MULCHING WILL BE IN ACCORDANCE WITH SPECIFICATIONS.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF ALL EROSION CONTROL MEASURES AT ALL TIMES, WHETHER INSTALLED ACCORDING TO PLAN OR AS DIRECTED BY THE NCDEQ REPRESENTATIVE OR THE OWNER'S REPRESENTATIVE (NO SEPARATE PAYMENT).

GROUND COVER STATUTES

PURSUANT TO G.S. 113A-57(3), PROVISIONS FOR PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION MUST BE ACCOMPLISHED FOR ALL DISTURBED AREAS (SEE TABLE BELOW FOR TIME FRAMES) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.

GROUND STABILIZATION*		
SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES 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 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)
* "EXTENSIONS OF TIME MAY BE APPROVED BY THE PERMITTING AUTHORITY BASED ON WEATHER OR OTHER SITE-SPECIFIC CONDITIONS THAT MAKE COMPLIANCE IMPRACTICABLE." (SECTION II.B(2)(B))		

PLANNED SEDIMENTATION AND EROSION CONTROL PRACTICES

THE FOLLOWING EROSION CONTROL ITEMS WILL BE CONSTRUCTED AS SHOWN ON THE ATTACHED EROSION CONTROL DETAILS AND PLAN:

6.06 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/ EXIT: TO PROVIDE A BUFFER AREA WHERE VEHICLES CAN DROP THEIR MUD AND SEDIMENT TO AVOID TRANSPORTING IT ONTO PUBLIC ROADS, TO CONTROL EROSION FROM SURFACE RUNOFF AND TO HELP CONTROL DUST.

MAINTENANCE: MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

6.10 TEMPORARY SEEDING: TO BE INSTALLED AS PER SEEDING SPECIFICATIONS.

6.11 PERMANENT SEEDING: TO BE INSTALLED AS PER SEEDING SPECIFICATIONS.
FERTILIZER, SEEDING AND MULCHING: TO BE INSTALLED AS PER TEMPORARY AND PERMANENT SEEDING SPECIFICATIONS.

6.12 SODDING: TO PREVENT EROSION AND DAMAGE FROM SEDIMENT AND RUNOFF BY STABILIZING THE SOIL SURFACE WITH PERMANENT VEGETATION.

MAINTENANCE: AFTER THE FIRST WEEK WATER AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE IN THE ROOT ZONE AND PREVENT DORMANCY OF THE SOD. DO NOT REMOVE MORE THAN ONE-THIRD OF THE SHOOT IN ANY MOWING. GRASS HEIGHT SHOULD BE MAINTAINED BETWEEN 2 AND 3 INCHES. AFTER THE FIRST GROWING SEASON, ESTABLISHED SOD REQUIRES FERTILIZATION, AND MAY ALSO REQUIRE LIME. FOLLOW SOIL TEST RECOMMENDATIONS WHEN POSSIBLE.

6.14 MULCHING: TO PROTECT THE SOIL SURFACE FROM THE FORCES OF RAINDROP IMPACT AND OVERLAND FLOW. MULCH FOSTERS THE GROWTH OF VEGETATION, REDUCES EVAPORATION, INSULATES THE SOIL, AND SUPPRESSES WEED GROWTH. MULCH IS FREQUENTLY USED TO ACCENT LANDSCAPE PLANTINGS.

MAINTENANCE: INSPECT ALL MULCHES PERIODICALLY, AND AFTER RAINSTORMS TO CHECK FOR RILL EROSION, DISLOCATION OR FAILURE. WHERE EROSION IS OBSERVED, APPLY ADDITIONAL MULCH. IF WASHOUT OCCURS, REPAIR THE SLOPE GRADE, RESEED AND REINSTALL MULCH. CONTINUE INSPECTIONS UNTIL VEGETATION IS FIRMLY ESTABLISHED.

EROSION CONTROL NETTING AND MATTING: TO PREVENT EROSION AND DAMAGE FROM SEDIMENT AND RUNOFF. AND STABILIZING THE SOIL COVER, IN PARTICULAR, IN CRITICAL AREAS INCLUDING SWALES, LONG CHANNELS AND SLOPES.

MAINTENANCE: INSPECT ALL EROSION CONTROL FABRICS, MATS AND LINERS PERIODICALLY AND AFTER RAINSTORMS TO CHECK FOR EROSION, DISLOCATION OR FAILURE. WHERE EROSION IS OBSERVED, APPLY AND SECURE ADDITIONAL FABRIC. IF WASHOUT OCCURS, REPAIR SLOPE GRADE, RESEED & SECURE LINER/ MAT. CONTINUE INSPECTIONS UNTIL DISTURBANCE IS STABILIZED AND VEGETATION IS ESTABLISHED.

6.15 RIPRAP: TO PROTECT THE SOIL SURFACE FROM EROSIVE FORCES AND/OR IMPROVE STABILITY OF SOIL SLOPES THAT ARE SUBJECT TO SEEPAGE OR HAVE POOR SOIL STRUCTURE.

MAINTENANCE: IN GENERAL, ONCE A RIPRAP INSTALLATION HAS BEEN PROPERLY DESIGNED AND INSTALLED IT REQUIRES VERY LITTLE MAINTENANCE. RIPRAP SHOULD BE INSPECTED PERIODICALLY FOR SCOUR OR DISLODGED STONES. CONTROL OF WEED AND BRUSH GROWTH MAY BE NEEDED IN SOME LOCATIONS.

6.41 OUTLET STABILIZATION STRUCTURE: TO BE INSTALLED AS A PERMANENT STABILIZATION MEASURE AT THE OUTLET OF A CHANNEL OR CONDUIT BY REDUCING THE VELOCITY OF FLOW AND DISSIPATING ENERGY. THESE MEASURES WILL BE LOCATED PER PLANS AND CONSTRUCTED PER THE DETAIL.

MAINTENANCE: INSPECT THE RIP-RAP OUTLET STRUCTURES WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER) TO SEE IF ANY EROSION AROUND OR BELOW THE RIP-RAP HAS TAKEN PLACE, OR IF THE STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

6.55 ROCK PILE INLET PROTECTION: SIMILAR TO BLOCK AND GRAVEL INLET PROTECTION. THIS MEASURE IS USED TO HELP PREVENT SEDIMENT FROM ENTERING, ACCUMULATING IN AND BEING TRANSFERRED BY A STORM DRAINAGE SYSTEM PRIOR TO STABILIZATION OF DISTURBED DRAINAGE AREA. THIS MEASURE ALLOWS EARLY USE OF THE STORM DRAINAGE SYSTEM.

MAINTENANCE: INSPECT THE ROCK PIPE INLET PROTECTION AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER) AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE SEDIMENT STORAGE AREA TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN THE DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING. CHECK THE STRUCTURE FOR DAMAGE. ANY RIP-RAP DISPLACED FROM THE STONE OUTLET MUST BE REPLACED IMMEDIATELY. AFTER ALL THE SEDIMENT PRODUCING AREAS HAVE BEEN STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND PROVIDE PERMANENT GROUND COVER.

6.62 TEMPORARY SILT FENCE & SUPER SILT FENCE: WILL RETAIN SEDIMENT FROM SMALL DISTURBED AREAS. SILT FENCE WILL BE PLACED ALONG SLOPES AS SHOWN ON CONSTRUCTION DETAILS.

MAINTENANCE: INSPECT SEDIMENT FENCES AT LEAST WEEKLY AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY. 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 CLEAN OUT. 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.

6.83 CHECK DAM: WILL BE INSTALLED TO REDUCE EROSION BY REDUCING THE VELOCITY OF THE FLOW.

MAINTENANCE: INSPECT CHECK DAMS AND CHANNELS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER) AND REPAIR IMMEDIATELY. CLEAN OUT SEDIMENT, STRAW, LIMBS, OR OTHER DEBRIS THAT COULD CLOG THE CHANNEL WHEN NEED. ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, ADDITIONAL MEASURES CAN BE TAKEN SUCH AS, INSTALLING A PROTECTIVE RIP-RAP LINER IN THE PORTION OF THE CHANNEL.

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

SILT BAG CURB INLET FILTER: WILL BE INSTALLED AROUND CURB INLETS, EITHER EXISTING OR PROPOSED, TO PREVENT SEDIMENT FROM REACHING THE INLET AND THEREFORE THE DOWNSTREAM SECTIONS. THESE MEASURES WILL BE LOCATED PER THE PLANS AND CONSTRUCTED PER THE DETAIL.

MAINTENANCE: INSPECT THE BARRIER WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER) AND MAKE REPAIRS AS NEEDED. REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM THE SURFACE AND VICINITY OF THE UNIT AFTER EACH STORM EVENT. REMOVE THE SEDIMENT THAT HAS ACCUMULATED WITHIN CONTAINMENT AREA OF THE UNIT AS NEEDED TO PROVIDE ADEQUATE VOLUME FOR SUBSEQUENT RAINS. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN ADEQUATELY STABILIZED, REMOVE UNIT.

SILT SACK: WILL BE INSTALLED WITHIN CURB INLETS, EITHER EXISTING OR PROPOSED, TO PREVENT SEDIMENT FROM REACHING THE INLET AND THEREFORE THE DOWNSTREAM SECTIONS. THESE MEASURES WILL BE LOCATED PER THE PLANS AND CONSTRUCTED PER THE DETAIL.

MAINTENANCE: INSPECT THE BARRIER WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (1/2 INCH OR GREATER) AND MAKE REPAIRS AS NEEDED. REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM THE VICINITY OF THE UNIT AFTER EACH STORM EVENT. AFTER STORM EVENT AND AT REGULAR INTERVALS, VISUALLY INSPECT EACH UNIT. IF THE CONTAINMENT AREA IS MORE THAN 1/3 FULL OF SEDIMENT, THE UNIT MUST BE EMPTIED. TO EMPTY UNIT, REMOVE THE GRATE AND REMOVE THE UNIT OUT OF THE INLET USING THE LIFTING STRAPS. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN ADEQUATELY STABILIZED, REMOVE UNIT.

CONSTRUCTION SEQUENCE:

1. OBTAIN ALL PERMITS AND PLAN APPROVALS.
2. ATTEND PRECONSTRUCTION MEETING.
3. INSTALL GRAVEL CONSTRUCTION ENTRANCES, SILT FENCING, TREE PROTECTION, CHECK DAMS, AND TEMPORARY CURB INLET PROTECTION.
4. INSTALL TEMPORARY INLET/ OUTLET PROTECTION DEVICES AT ALL DRIVEWAY CULVERTS.
5. CLEAR AND GRUB PERMANENT EASEMENTS AND ONLY THOSE PORTIONS OF THE TEMPORARY EASEMENTS NECESSARY FOR CONSTRUCTION.
6. INSTALL SEWER MAINS IMPROVEMENTS IN EASEMENTS. STRIP TOPSOIL DURING TRENCHING OPERATIONS AND SEPARATE FROM EXCAVATED MATERIAL. MATERIAL EXCAVATED SHALL BE PLACED ON THE UPHILL SIDE OF THE EXCAVATION WITH THE TRENCH BETWEEN THE MATERIAL AND THE SEDIMENT FENCE.
7. INSPECT ALL EROSION AND SEDIMENT CONTROL DEVICES BI-WEEKLY OR AFTER EVERY RAINFALL EVENT. PROVIDE APPROPRIATE MAINTENANCE MEASURES AFTER EACH INSPECTION AND RAIN EVENT.
8. REMOVE ASPHALT IN STREETS ALONG SEWER MAINS BY MILLING WITH ZIPPER TYPE EQUIPMENT (3000' MAXIMUM DISTURBANCE), REPLACE CUTTINGS BACK ON ROAD AND COMPACT.
9. PLACE ABC STONE AS CONSTRUCTION PROGRESSES TO PAVEMENT SURFACE.
10. INSTALL SEWER LATERALS, PLACE ABC STONE AS CONSTRUCTION PROGRESSES TO SURFACE OF THE ASPHALT.
11. TEST AND INSPECT SEWER MAIN AND LATERALS.
12. PATCH ALL PAVED SURFACES DISTURBED BY CONSTRUCTION ACTIVITIES WITH TEMPORARY ASPHALT PATCH.
13. SEED AND MULCH OR SOD ALL DISTURBED AREAS NOT OTHERWISE IMPROVED AND ESTABLISH PERMANENT GROUND COVER AS INDICATED.
14. PRELIMINARY FINAL INSPECTION BY CONTRACTOR.
15. PRELIMINARY FINAL INSPECTION BY OWNER AND CONTRACTOR (PUNCH LIST).
16. CONTRACTOR SHALL OVERLAY ALL STREETS DISTURBED BY CONSTRUCTION ACTIVITIES.
17. FINAL INSPECTION
18. REMOVE TEMPORARY MEASURES.
19. CLOSE OUT PROJECT.

SEEDING SCHEDULE

TO BE IN ACCORDANCE WITH FPWC SPECIFICATIONS:

SEED SHALL BE SEED CERTIFIED TO BE THE LATEST SEASON'S CROP AND SHALL BE DELIVERED IN ORIGINAL SEALED PACKAGES BEARING THE PRODUCER'S GUARANTEED ANALYSIS FOR PERCENTAGES OF MIXTURES AND PURE LIVE SEED. THE PRODUCER'S SEED LABEL SHALL INDICATE IT THE MINIMUM PERCENT OF PURE LIVE SEED (WHICH SHALL BE 82.45 FOR BERMUDA, 88 FOR RYE GRAIN), THE MINIMUM PERCENT OF GERMINATION IN HARD SEED AND MAXIMUM PERCENT OF WEED SEED (NO MORE THAN 1 PERCENT FOR BERMUDA, 0.5 PERCENT FOR RYE GRAIN). SEED SHALL BE LABELED IN CONFORMANCE WITH U.S. DEPARTMENT OF AGRICULTURE RULES AND REGULATIONS UNDER THE FEDERAL SEED ACT AND APPLICABLE STATE SEED LAWS. SEED THAT HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED WILL NOT BE ACCEPTABLE.

THE FOLLOWING SEED MIXTURE SHALL BE USED:

TEMPORARY SEED MIXTURE

DATE	TYPE	PLANTING RATE
APRIL 15 - SEPT. 1	GERMAN MILLET	100 LBS/ACRE
AUG. 15 - NOV. 15	GRAIN RYE	120 LBS/ACRE
NOV. 1 - APRIL 1	GRAIN RYE	120 LBS/ACRE

PERMANENT SEED MIXTURE

DATE	TYPE	PLANTING RATE
APRIL 15 - SEPT. 1	K-31 FESCUE GRAIN CENTIPEDE COMMON BERMUDA	75 LBS/ACRE 60 (HULLED) LBS/ACRE 5 LBS/ACRE
AUG. 15 - NOV. 15	K-31 FESCUE GRAIN CENTIPEDE COMMON BERMUDA	120 LBS/ACRE 25 (HULLED) LBS/ACRE 5 LBS/ACRE
NOV. 1 - APRIL 1	K-31 FESCUE GRAIN CENTIPEDE COMMON BERMUDA	120 LBS/ACRE 25 (HULLED) LBS/ACRE 5 LBS/ACRE

WETLAND SEED MIXTURE (TEMPORARY AND PERMANENT)

DATE	TYPE	PLANTING RATE
WARM SEASON MIX APRIL 1 - JULY 15	SWITCHGRASS, CAVE-IN-ROCK, ALAMO	8 PLS # / ACRE OR 4 OZ. / 1000 S.F.
	SMARTWEED	2 BULK# / ACRE OR 1 OZ. / 1000 S.F.
	JAPANESE MILLET OR SORGHUM SUDAN GRASS HYBRIDS (MOW PRIOR TO MATURITY)	20 - LB / ACRE OR 1/2 LBS / 1000 S.F.
JULY 16 - SEPT. 1	TEMPORARY CROP OF JAPANESE MILLET OR SORGHUM SUDAN GRASS HYBRIDS (TO BE FOLLOWED BY PERMANENT MIXTURE)	20 - LB / ACRE OR 1/2 LBS / 1000 S.F.
COOL SEASON MIX SEPT. 2 - NOV. 1	REED CANARY GRASS	12 BULK # / ACRE OR 6 OZ. / 1000 S.F.
	SMARTWEED	2 BULK # / ACRE OR 1 OZ. / 1000 S.F.
NOV. 2 - MARCH 31	TEMPORARY CROP OF WHEAT (TO BE FOLLOWED BY PERMANENT MIXTURE)	40 LBS / ACRE

NOTES:

1. WHERE CONSTRUCTION CROSSES A PASTURE THAT HAS BEEN GRASSED, THE CONTRACTOR SHALL RE-SEED THE AREA WITH THE SAME TYPE OF GRASS AS FOUND ON THE SITE. ALL HIGHWAY RIGHTS-OF-WAY, AND PRIVATE YARDS DISTURBED SHALL ALSO BE RE-SEEDED OR WITH THE SAME TYPE OF GRASS PREVIOUSLY FOUND. THE SEED MIXTURE SPECIFICATION SHALL BE USED AS A GUIDE AND THE CONTRACTOR IS CHARGED WITH THE RESPONSIBILITY OF SEEDING AREAS WITH THE PROPER TYPE OF GRASS THAT MATCHES THE EXISTING.
2. CONSULT THE REGIONAL STATE EROSION CONTROL OFFICER FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

SOIL AMENDMENTS

LIME SHALL BE APPLIED AT THE RATE OF 1/2 TONS PER ACRE. 10-20-20 COMMERCIAL FERTILIZER SHALL BE APPLIED AT THE RATE OF 1,000 POUNDS PER ACRE AND WELL WORKED IN TO THE TOP FOUR INCHES (4") OF TOP SOIL. IF HYDROSEEDING, USE 500 POUNDS OF 10-10-10 FERTILIZER ON SLOPES STEEPER THAN 1/2 HORIZONTAL TO 1 VERTICAL. UNLESS A SOIL TEST INDICATES OTHERWISE.

MULCH

ALL SEEDED AREAS WILL BE MULCHED WITH TWO (2) TONS PER ACRE OF SMALL GRAIN STRAW OR WOOD CELLULOSE FIBER SPREAD UNIFORMLY, APPROXIMATELY 1/4 OF GROUND SHOULD BE VISIBLE TO AVOID SMOTHERING SEEDLINGS. ASPHALT EMULSION (ASTM D-977 AND ASTM D-2028) SHALL BE USED TO ANCHOR THE STRAW APPLIED AT 150 GALLONS PER TON OF STRAW, OR CRIMPED TO STABILIZE. ASPHALT EMULSION SHALL BE REQUIRED FROM NOVEMBER 1ST TO MARCH 31ST. THE CONTRACTOR SHALL TAKE SUFFICIENT PRECAUTIONS TO PREVENT MULCH FROM ENTERING DRAINAGE STRUCTURES THROUGH DISPLACEMENT BY WIND, WATER OR OTHER CAUSES AND PROMPTLY REMOVE ANY BLOCKAGE WHICH MAY OCCUR.

MAINTENANCE

THE CONTRACTOR SHALL PROTECT AND MAINTAIN GRASSED AREAS AS NECESSARY TO ESTABLISH A UNIFORM TURF COMPOSED OF THE GRASSES SPECIFIED. THE CONTRACTOR SHALL RE-SEED ANY BARE AREAS AND REPAIR ALL ERODED AREAS.

WATERING OF SEEDED AREAS WILL BE REQUIRED DURING PERIODS OF DRY WEATHER TO PROMOTE MAXIMUM GROWTH. THE CONTRACTOR SHALL SUPPLEMENT NATURAL RAINFALL TO INSURE A MINIMUM OF ONE (1) INCH OF RAINFALL WEEKLY.

MAINTENANCE OF LAWNS BEGINS IMMEDIATELY AFTER THE AREA IS PLANTED AND CONTINUES FOR THE PERIOD REQUIRED TO ESTABLISH ACCEPTABLE LAWNS, BUT NOT LESS THAN SIXTY (60) DAYS AFTER INITIAL SEEDING, OR UNTIL PROVISIONAL ACCEPTANCE BY OWNER. MAINTAIN SEEDED AREAS BY WATERING, FERTILIZING, MOWING, WEEDING AND OTHER OPERATIONS SUCH AS ROLLING, RE-GRADING, REPLANTING, AERATING, AND MULCHING AS REQUIRED TO ESTABLISH AN ACCEPTABLE LAWN FREE OF ERODED OR BARE AREAS.

CHANNEL STABILIZATION AND OUTLET PROTECTION

1. UPON COMPLETION OF REACHING FINAL PREPARED SUB GRADE FOR AREAS (SLOPES, CHANNELS AND OUTLET PROTECTION) TO BE PROTECTED AS INDICATED ON DRAWINGS, INSTALL FILTER FABRIC, NCDOT NO. 57 STONE BEDDING LAYER, AND APPROPRIATE RIP RAP. PREPARED SUB GRADE SHALL BE FREE OF DEBRIS, STICKS AND OTHER DELETERIOUS MATERIAL THAT MAY BE INJURIOUS TO THE FABRIC OR PERFORMANCE OF THE SLOPE PROTECTION.
2. GEOTEXTILE FABRICS, COIR MATTING OR SPECIAL MULCH PROTECTION, SUCH AS FIBERGLASS ROVING OR STRAW AND NETTING, SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS TO PROVIDE STABILITY UNTIL THE VEGETATION IS FULLY ESTABLISHED. THESE REQUIREMENTS FOR SLOPE PROTECTION MAY INCLUDE AN ANCHOR TRENCH, SEAMING, STITCHING AND OVERLAPPING.
3. RIP RAP FOR USE OF DESIGNATED ON THE DRAWINGS SHALL CONFORM TO NCDOT REQUIREMENTS FOR THE SPECIFIED CLASS (CLASS II, B, ETC.) AS INDICATED ON THE DRAWINGS.

SEEDBED PREPARATION

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

*APPLY AGRICULTURAL LIMESTONE-3,000 LBS/ACRE
FERTILIZER: 500 LBS/ACRE 10-10-10
SUPER PHOSPHATE: 500 LBS/ACRE 20% ANALYSIS
MULCH: 2 TONS/ACRE SMALL GRAIN STRAW
ANOTHER: ASPHALT EMULSION @ 300 GALS/ACRE

MINIMUM REQUIREMENTS FOR SLOPE STABILIZATION

MINIMUM REQUIREMENTS	SLOPE
STABILIZED WITH GRASS	3:1 AND FLATTER
STABILIZED WITH SHRUBS OR VINES	3:1 TO 2:1
STABILIZED WITH RIP RAP	2:1 TO 1.5:1
STABILIZED WITH RETAINING WALL	STEEPER THAN 1.5:1

SOD MATERIAL:

1. SOD SHALL CONTAIN 95 PERCENT PERMANENT GRASS; NOT MORE THAN 5 PERCENT WEEDS AND UNDESIRABLE GRASSES, GOOD TEXTURE AND FREE FROM OBNOXIOUS GRASSES, ROOTS, STONES AND FOREIGN MATERIALS.
2. SOD SHALL BE UNIFORMLY 1 ½ TO 2 INCHES THICK WITH A WELL DEVELOPED FIBROUS ROOT MAT SYSTEM IN TOPSOIL WITH CLEAN CUT EDGES.
3. THE SOD SHALL BE SUFFICIENTLY DENSE AND CUT TO THE MINIMUM REQUIRED THICKNESS SUCH THAT IF THE SOD IS SUSPENDED BY ONE CORNER, THE SOD WILL NOT TEAR APART.
4. THE SOD SHALL BE RECENTLY MOWED TO A HEIGHT OF NOT MORE THAN THREE (3) INCHES PRIOR TO HARVEST.
5.

EROSION CONTROL LEGEND

- CURB INLET PROTECTION SEE DETAIL 4/G5 (CIP)
- CHECK DAM SEE DETAIL 2/G5
- ROCK PIPE INLET PROTECTION SEE DETAIL 3/G5
- SILT FENCE SEE DETAIL 1/G5
- TREE PROTECTION SEE DETAIL 5/G5
- LIMIT OF DISTURBANCE
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT SEE DETAIL 6/G5
- STRAW WATTLE SEE DETAIL 1/G7
- STRAW W/ NET SEE DETAIL 7/G5 (7-DAY STABILIZATION REQUIRED)
- JUTE NET SEE DETAIL 7/G5 (7-DAY STABILIZATION REQUIRED)
- CLASS I RIP RAP SEE DETAIL 9/G5
- BRIDGE MAT SEE DETAIL 1/G6

DISTURBED AREA		
SHEET NUMBER	AREA (SQUARE FEET)	AREA (ACRES)
C6	150,711	3.46
C7	277,254	6.36
C8	80,679	1.85
C9	225,885	5.19
C10	154,338	3.54
TOTAL	888,867	20.41

NOTES:

1. LAWNS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE SODDED TO PROVIDE IMMEDIATE PERMANENT STABILIZATION. ALL OTHER AREAS NOT INDICATED AS PAVEMENT, SOD OR OTHER RESTORATION TECHNIQUES SHALL BE SEEDED AND MULCHED.
2. INDIVIDUAL SEWER LATERALS INSTALLED IN THE GRASS SHOULDER OF THE STREET RIGHT-OF-WAY (APPROX. 6' X 12') SHALL BE INITIALLY STABILIZED, WITHIN 7-DAYS, WITH SEED AND STRAW W/NET. THEN PERMANENTLY STABILIZED WITH SOD.

GRAPHIC SCALE

50 0 25 50 100

(IN FEET)

HORIZ.: 1 inch = 50 ft.
VERT.: 1 inch = 5 ft.

NC STATE PLANE
NAD83, NAVD88

PWC DWG # DS-15513

BY	REVISIONS	DATE

SHEET SERIES-FINAL DESIGN- ISSUED FOR BID

DATE: 03/01/2024
SURVEY/GPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE: HOR: 1"=50
VERT: 1"=5

SHEET # C6

WK DICKSON
Community Infrastructure Consultants
Urban Development • Water Resources
Transportation • Water Distribution
720 Corporate Center Drive
Raleigh, North Carolina 27607
(T) 919.782.0495
www.wkdickson.com
NC CERTIFICATE NO.C-1555

NORTH CAROLINA PROFESSIONAL ENGINEER 054233 ALBERT M. HUCKABY
3/5/2024

EROSION CONTROL PLAN
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
Electric & Water Utilities
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301

20200208.00.RA

Z:\Projects\Fayetteville Public Works Commission\20200208\00\04. Annexation Phase V, Area 27\CAD\Plan Set\20200208_C_SHT_EROSION CONTROL.dwg 3/4/2024 12:23:58 PM

MATCH LINE SEE SHEET C6

MATCH LINE SEE SHEET C8 | MATCH LINE SEE SHEET C9

MATCH LINE SEE SHEET C9

EROSION CONTROL LEGEND

- CURB INLET PROTECTION SEE DETAIL 4/G5
- CHECK DAM SEE DETAIL 2/G5
- ROCK PIPE INLET PROTECTION SEE DETAIL 3/G5
- SILT FENCE SEE DETAIL 1/G5
- TREE PROTECTION SEE DETAIL 5/G5
- LIMIT OF DISTURBANCE
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT SEE DETAIL 6/G5
- STRAW WATTLE SEE DETAIL 1/G7
- STRAW W/ NET SEE DETAIL 7/G5 (7-DAY STABILIZATION REQUIRED)
- JUTE NET SEE DETAIL 7/G5 (7-DAY STABILIZATION REQUIRED)
- CLASS I RIP RAP SEE DETAIL 9/G5
- BRIDGE MAT SEE DETAIL 1/G6

DISTURBED AREA

SHEET NUMBER	AREA (SQUARE FEET)	AREA (ACRES)
C6	150,711	3.46
C7	277,254	6.36
C8	80,679	1.85
C9	225,885	5.19
C10	154,338	3.54
TOTAL	888,867	20.41

NOTES:

1. LAWNS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE SODDED TO PROVIDE IMMEDIATE PERMANENT STABILIZATION. ALL OTHER AREAS NOT INDICATED AS PAVEMENT, SOD OR OTHER RESTORATION TECHNIQUES SHALL BE SEEDED AND MULCHED.
2. INDIVIDUAL SEWER LATERALS INSTALLED IN THE GRASS SHOULDER OF THE STREET RIGHT-OF-WAY (APPROX. 6' X 12') SHALL BE INITIALLY STABILIZED, WITHIN 7-DAYS, WITH SEED AND STRAW W/NET. THEN PERMANENTLY STABILIZED WITH SOD.

GRAPHIC SCALE

50 0 25 50 100

(IN FEET)
HORIZ.: 1 inch = 50 ft.
VERT.: 1 inch = 5 ft.

NC STATE PLANE
NAD83, NAVD88

PWC DWG # DS-15513

DATE	REVISIONS	BY

SHEET SERIES-FINAL DESIGN - ISSUED FOR BID

DATE: 03/01/2024
SURVEY/GPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE: HOR: 1"=50 VERT: 1"=5

WK DICKSON
community infrastructure consultants
Transportation • Water Resources
Urban Development • Geomatics
720 Corporate Center Drive
Raleigh, North Carolina 27607
(t) 919.782.0495
(f) 919.782.0672
www.wkdickson.com
NC LICENSE NO 1-0291

SHEET # C7

NORTH CAROLINA PROFESSIONAL ENGINEER 054233 ALBERT M. HUCKABY
3/5/2024

EROSION CONTROL PLAN
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
PWC Electric & Water Utilities

20200208.00.RA

MATCH LINE SEE SHEET C7
MATCH LINE SEE SHEET C9
OAKSTONE DR
FLEASANT OAK DR.
QUAIL MEADOW DR.
CURB INLET TOP CURB 228.71 INV OUT 12" RCP 224.69
CURB INLET TOP CURB 228.39 INV IN W 12" RCP 223.72 INV IN N 18" RCP 224.04 INV OUT 18" RCP 223.51
CURB INLET TOP CURB 227.62 INV OUT 18" RCP 223.65
CURB INLET TOP CURB 227.25 INV IN N 18" RCP 222.53 INV IN NW 18" RCP 222.78 INV OUT 18" RCP 222.35
CURB INLET TOP CURB 227.12 INV IN 18" RCP 221.36 INV OUT 18" RCP 220.68
CURB INLET PROTECTION (TYP)
CURB INLET TOP CURB 227.88 INV 18" RCP 220.65
CURB INLET TOP CURB 227.58 INV IN W 18" RCP 219.91 INV IN E 218.77± INV OUT 24" RCP 219.73
CURB INLET TOP CURB 225.61 INV IN NW 218.89± INV IN N 24" RCP 219.01 INV OUT 218.89±
CURB INLET TOP CURB 225.47 INV 18" RCP 219.45
CURB INLET TOP CURB 225.42 INV IN NW 18" RCP 217.02 INV IN NE 24" RCP 217.89 INV OUT 36" RCP 216.98
LIMIT OF DISTURBANCE 80,679 SF (1.85 AC)
EXIST SSMH TOP 226.28 INV IN W 4" PVC = 220.42 INV IN E 4" PVC = 220.22 INV IN N 4" PVC = 219.89 INV OUT 8" VCP = 219.50
CURB INLET TOP CURB 219.18 INV IN N 36" RCP 211.52 INV OUT S 36" RCP 211.49
EXIST SSMH TOP 219.28 INV IN NW 4" PVC = 212.02 INV IN NE 4" PVC = 211.77 INV IN N TROUGH = 208.40 INV OUT 8" VCP = 208.08
CONTROL POINT #11
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F.F.= -20.46
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F.F.= -20.80
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F.F.= -21.14
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F.F.= -21.48
F.F.= -21.65
F.F.= -21.82
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MATCH LINE SEE SHEET C7

MATCH LINE SEE SHEET C8

MATCH LINE SEE SHEET C10

EROSION CONTROL LEGEND

- CURB INLET PROTECTION SEE DETAIL 4/G5 (CIP)
- CHECK DAM SEE DETAIL 2/G5
- ROCK PIPE INLET PROTECTION SEE DETAIL 3/G5
- SILT FENCE SEE DETAIL 1/G5
- TREE PROTECTION SEE DETAIL 5/G5
- LIMIT OF DISTURBANCE
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT SEE DETAIL 6/G5
- STRAW WATTLE SEE DETAIL 1/G7
- STRAW W/ NET SEE DETAIL 7/G5 (7-DAY STABILIZATION REQUIRED)
- JUTE NET SEE DETAIL 7/G5 (7-DAY STABILIZATION REQUIRED)
- CLASS I RIP RAP SEE DETAIL 9/G5
- BRIDGE MAT SEE DETAIL 1/G6

DISTURBED AREA		
SHEET NUMBER	AREA (SQUARE FEET)	AREA (ACRES)
C6	150,711	3.46
C7	277,254	6.36
C8	80,679	1.85
C9	225,885	5.19
C10	154,338	3.54
TOTAL	888,867	20.41

NOTES:

1. LAWNS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE SODDED TO PROVIDE IMMEDIATE PERMANENT STABILIZATION. ALL OTHER AREAS NOT INDICATED AS PAVEMENT, SOD OR OTHER RESTORATION TECHNIQUES SHALL BE SEEDED AND MULCHED.
2. INDIVIDUAL SEWER LATERALS INSTALLED IN THE GRASS SHOULDER OF THE STREET RIGHT-OF-WAY (APPROX 6' X 12') SHALL BE INITIALLY STABILIZED, WITHIN 7-DAYS, WITH SEED AND STRAW W/NET. THEN PERMANENTLY STABILIZED WITH SOD.

GRAPHIC SCALE

50 0 25 50 100

(IN FEET)

HORIZ.: 1 inch = 50 ft.
VERT.: 1 inch = 5 ft.

NC STATE PLANE
NAD83, NAVD88

PWC DWG # DS-15513

BY	REVISIONS	DATE

SHEET SERIES-FINAL DESIGN- ISSUED FOR BID

DATE 03/01/2024.
SURVEY/GPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE: HOR. 1"=50
VERT. 1"=5

SHEET # C9

WK DICKSON
Community Infrastructure Consultants
Utilities Civil Land Development Water Resources
720 Corporate Center Drive
Raleigh, North Carolina 27607
(T) 919.782.0495
www.wkdickson.com
NC CERTIFICATE NO.P-1084

NORTH CAROLINA PROFESSIONAL ENGINEER 054233 HERBERT M. HUCKABY
3/5/2024

EROSION CONTROL PLAN
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
Electric & Water Utilities

20200208.00.RA

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MATCH LINE SEE SHEET C9

EROSION CONTROL LEGEND

- CURB INLET PROTECTION SEE DETAIL 4/G5 (CIP)
- CHECK DAM SEE DETAIL 2/G5
- ROCK PIPE INLET PROTECTION SEE DETAIL 3/G5
- SILT FENCE SEE DETAIL 1/G5
- TREE PROTECTION SEE DETAIL 5/G5
- LIMIT OF DISTURBANCE
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT SEE DETAIL 6/G5
- STRAW WATTLE SEE DETAIL 1/G7
- STRAW W/ NET SEE DETAIL 7/G5 (7-DAY STABILIZATION REQUIRED)
- JUTE NET SEE DETAIL 7/G5 (7-DAY STABILIZATION REQUIRED)
- CLASS I RIP RAP SEE DETAIL 9/G5
- BRIDGE MAT SEE DETAIL 1/G6

DISTURBED AREA		
SHEET NUMBER	AREA (SQUARE FEET)	AREA (ACRES)
C6	150,711	3.46
C7	277,254	6.36
C8	80,679	1.85
C9	225,885	5.19
C10	154,338	3.54
TOTAL	888,867	20.41

NOTES:

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NC STATE PLANE
NAD83, NAVD88

PWC DWG # DS-15513

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SHEET # C10

WK DICKSON
Community Infrastructure Consultants
Urban Development + Water Resources
720 Corporate Center Drive
Raleigh, North Carolina 27607
(919) 782-0495
www.wkdickson.com
NC CORPORATE NO.? C-0793

NORTH CAROLINA PROFESSIONAL 054233 ENGINEER HERBERT M. HUCKABY
3/5/2024

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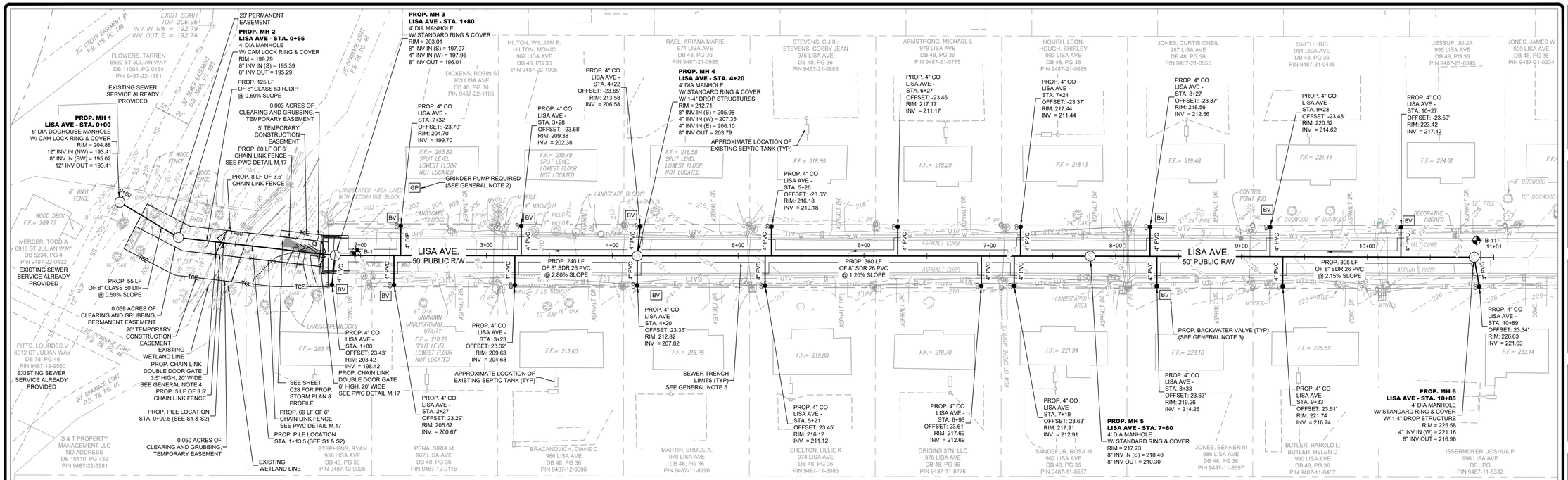


LEGEND

PROP TEMPORARY EASEMENT	UNKNOWN UNDERGROUND UTILITY	ELECTRIC TRANSFORMER	CURB INLET
PROP PERMANENT EASEMENT	TREE LINE	ELECTRIC HAND BOX	FIBER OPTIC MARKER
PROP SEWER MAIN, LATERAL	SHRUB LINE	TELEPHONE PEDESTAL	SIGN
W/ CLEAN OUT AND MANHOLE	FENCE	TV PEDESTAL	RIGHT OF WAY MONUMENT
PROP STORM W/ PIPE COLLAR	CONTOUR	MAIL BOX	CLEAN OUT
PROPERTY LINE/RIGHT OF WAY	DITCH LINE / STREAM	IRRIGATION SPRINKLER	FIRE HYDRANT
STORM SEWER	TOP OF BANK	IRRIGATION VALVE	GATE POST
SANITARY SEWER W/ MANHOLE	BOTTOM OF BANK	BOLLARD/MISC POST	WATER METER
WATER LINE W/ VALVE	WETLANDS BOUNDARY LINE	SHRUB	PROP REVERSE PLUMBING
OVERHEAD ELECTRIC	LIGHT POLE	SATELLITE DISH	PROP BACKWATER VALVE
UNDERGROUND ELECTRIC	POWER POLE	LANDSCAPE LIGHT	PROP GRINDER PUMP
COMMUNICATION LINE	POLE ANCHOR	FLAG POLE	SOIL BORING LOCATION
CABLE TELEVISION	JUNCTION BOX	STORM JUNCTION BOX	(SEE GEOTECHNICAL REPORT)

GENERAL NOTE:

1. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE PROPOSED SEWER LATERAL INSTALLATION WITH THE EXISTING UTILITIES. CONTRACTOR SHALL USE PWC STANDARD DETAIL S.12 SEWER SERVICE LATERAL UTILITY CONFLICT SEPARATION REQUIREMENTS ONLY WHEN APPROVED BY PWC PROJECT COORDINATOR.
2. PARCEL REQUIRES A GRINDER PUMP. GRINDER PUMP SHALL BE INSTALLED BY OTHERS.
3. PROPOSED SANITARY SEWER SERVICE IS RECOMMENDED TO HAVE A BACKWATER VALVE ON THE PROPERTIES INDICATED WITH A "BV". THIS VALVE SHALL NOT BE THE CONTRACTOR'S RESPONSIBILITY AND IS RECOMMENDED TO BE INSTALLED BY THE PROPERTY OWNER.
4. CONTRACTOR SHALL INSTALL NEW FENCE GATE (PER PLANS) CENTERED OVER THE EXISTING FENCE SECTION WITHIN THE PERMANENT UTILITY EASEMENT. CONTRACTOR SHALL COORDINATE WITH PWC COORDINATOR AND PROPERTY OWNER ON MATCHING NEW FENCE GATE TO EXISTING FENCE TYPE. THE INSTALLATION OF THE NEW GATE SHALL BE A SEPARATE PAYMENT ITEM. EXISTING FENCE REMOVAL AND REPLACEMENT SHALL BE CONSIDERED INCIDENTAL TO THE SEWER MAIN INSTALLATION AND NO SEPARATE PAYMENT SHALL BE MADE.
5. CONTRACTOR SHALL RECONSTRUCT AND RESTORE LISA AVENUE (2-INCHES MIN., SF9.5A WITH 8-INCH STONE BASE COURSE) TO EXISTING GRADES FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT WITHIN THE SEWER CONSTRUCTION CORRIDOR. ALL 24" ROLLBACK CURB AND GUTTER SHALL BE INCLUDED IN THE ASPHALT QUANTITIES.

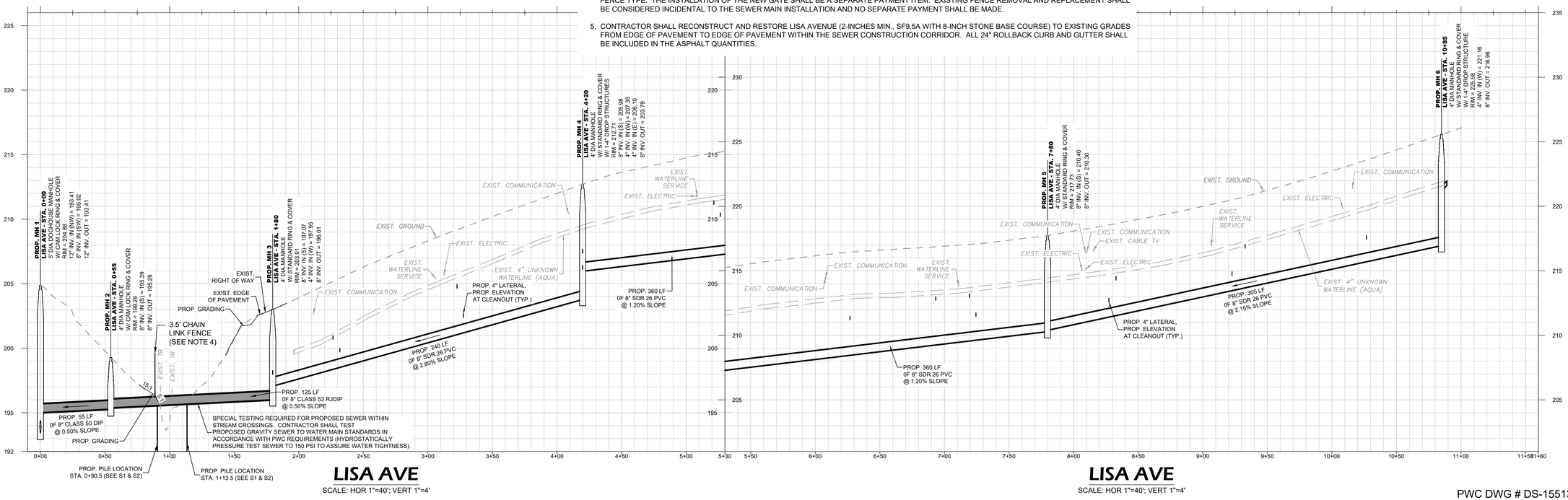
GRAPHIC SCALE

40 0 20 40 80

(IN FEET)

HORIZ.: 1 inch = 40 ft.
VERT.: 1 inch = 4 ft.

NC STATE PLANE
NAD83, NAVD88



LISA AVE
SCALE: HOR 1"=40'; VERT 1"=4'

LISA AVE
SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

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Transportation • Land Development
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(919) 782-0972
www.wkdickson.com
NC CERTIFICATE NO.C-1555

SHEET # C11

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 054233 ALBERT M. HUCKABY
3/5/2024

LISA AVE
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
PWC WATER RESOURCES ENGINEERING
Electric & Water Utilities
P.O. Box 1089, Fayetteville, NC 28302
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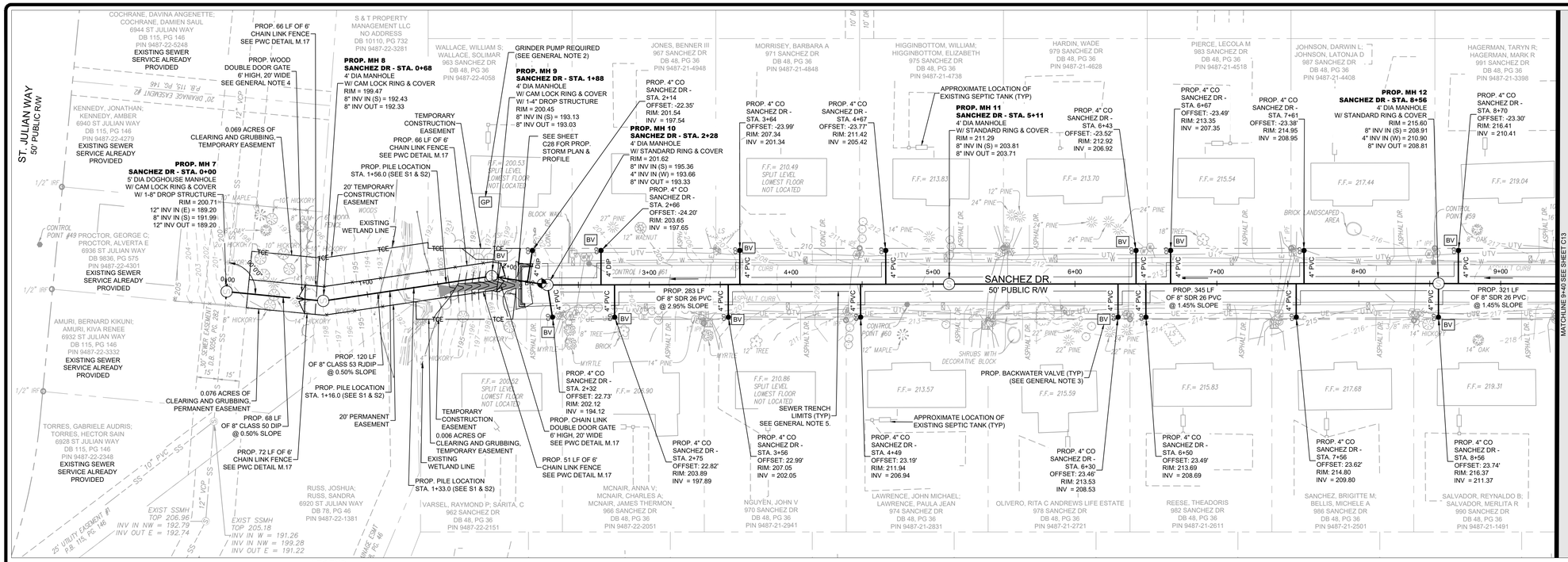

LEGEND

- PROP TEMPORARY EASEMENT
- PROP PERMANENT EASEMENT
- PROP SEWER MAIN, LATERAL
- W/ CLEAN OUT AND MANHOLE
- PROP STORM W/ PIPE COLLAR
- PROPERTY LINE/RIGHT OF WAY
- STORM SEWER
- SANITARY SEWER W/ MANHOLE
- WATER LINE W/ VALVE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- COMMUNICATION LINE
- CABLE TELEVISION
- UNKNOWN UNDERGROUND UTILITY
- TREE LINE
- SHRUB LINE
- FENCE
- CONTOUR
- DITCH LINE / STREAM
- TOP OF BANK
- BOTTOM OF BANK
- WETLANDS BOUNDARY LINE
- LIGHT POLE
- POWER POLE
- POLE ANCHOR
- JUNCTION BOX
- ELECTRIC TRANSFORMER
- ELECTRIC HAND BOX
- TELEPHONE PEDESTAL
- TV PEDESTAL
- MAIL BOX
- IRRIGATION SPRINKLER
- IRRIGATION VALVE
- BOLLARD/MISC POST
- SHRUB
- SATELLITE DISH
- LANDSCAPE LIGHT
- FLAG POLE
- STORM JUNCTION BOX
- CURB INLET
- FIBER OPTIC MARKER
- SIGN
- RIGHT OF WAY MONUMENT
- CLEAN OUT
- FIRE HYDRANT
- GATE POST
- WATER METER
- PROP REVERSE PLUMBING
- PROP BACKWATER VALVE
- PROP GRINDER PUMP
- SOIL BORING LOCATION (SEE GEOTECHNICAL REPORT)

GENERAL NOTE:

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GRAPHIC SCALE

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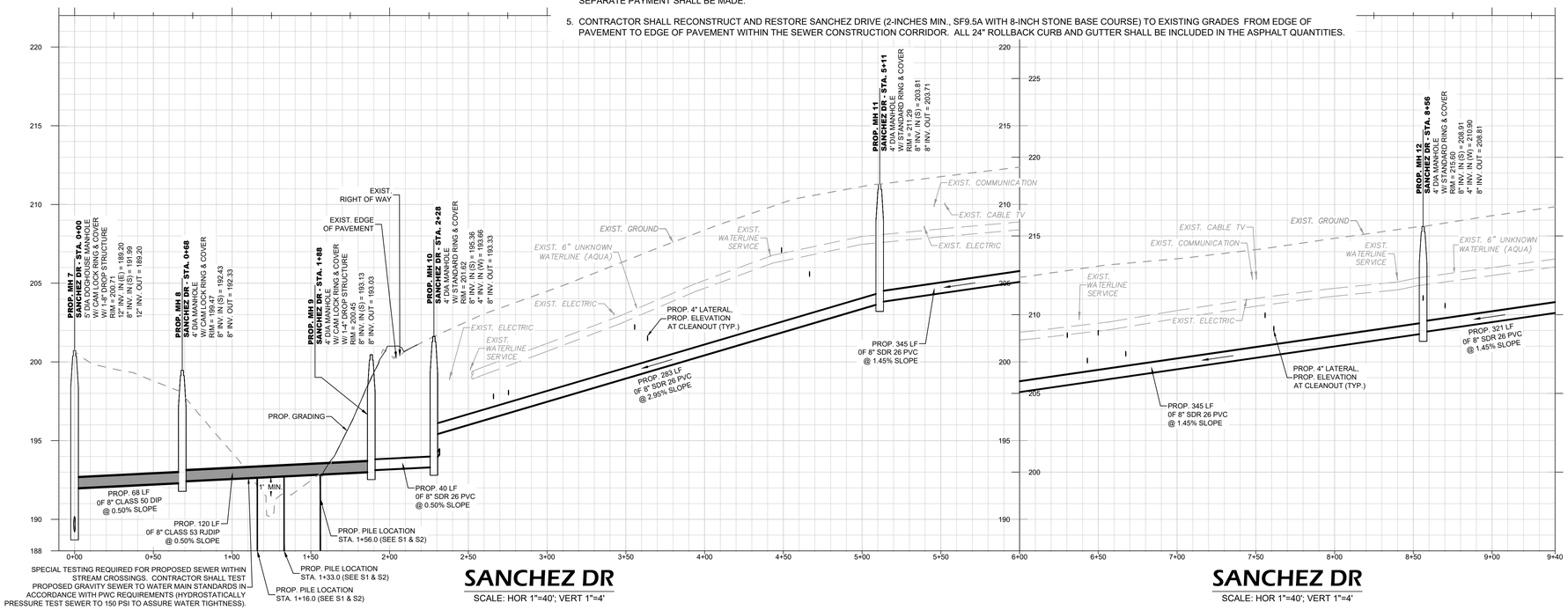
NC STATE PLANE
NAD83, NAVD88



SPECIAL TESTING REQUIRED FOR PROPOSED SEWER WITHIN STREAM CROSSINGS. CONTRACTOR SHALL TEST PROPOSED GRAVITY SEWER TO WATER MAIN STANDARDS IN ACCORDANCE WITH PWC REQUIREMENTS (HYDROSTATICALLY PRESSURE TEST SEWER TO 150 PSI TO ASSURE WATER TIGHTNESS).

SANCHEZ DR

SCALE: HOR 1"=40'; VERT 1"=4'

SANCHEZ DR

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

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(P) 919.782.0495
www.wkdickson.com
NC: C-0782 NC: F-0374

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 054233 ENGINEER ALBERT M. HUCKABY

3/5/2024

SHEET # C12

SANCHEZ DR 0+00 TO 9+40
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
Electric & Water Utilities

20200208.00.RA

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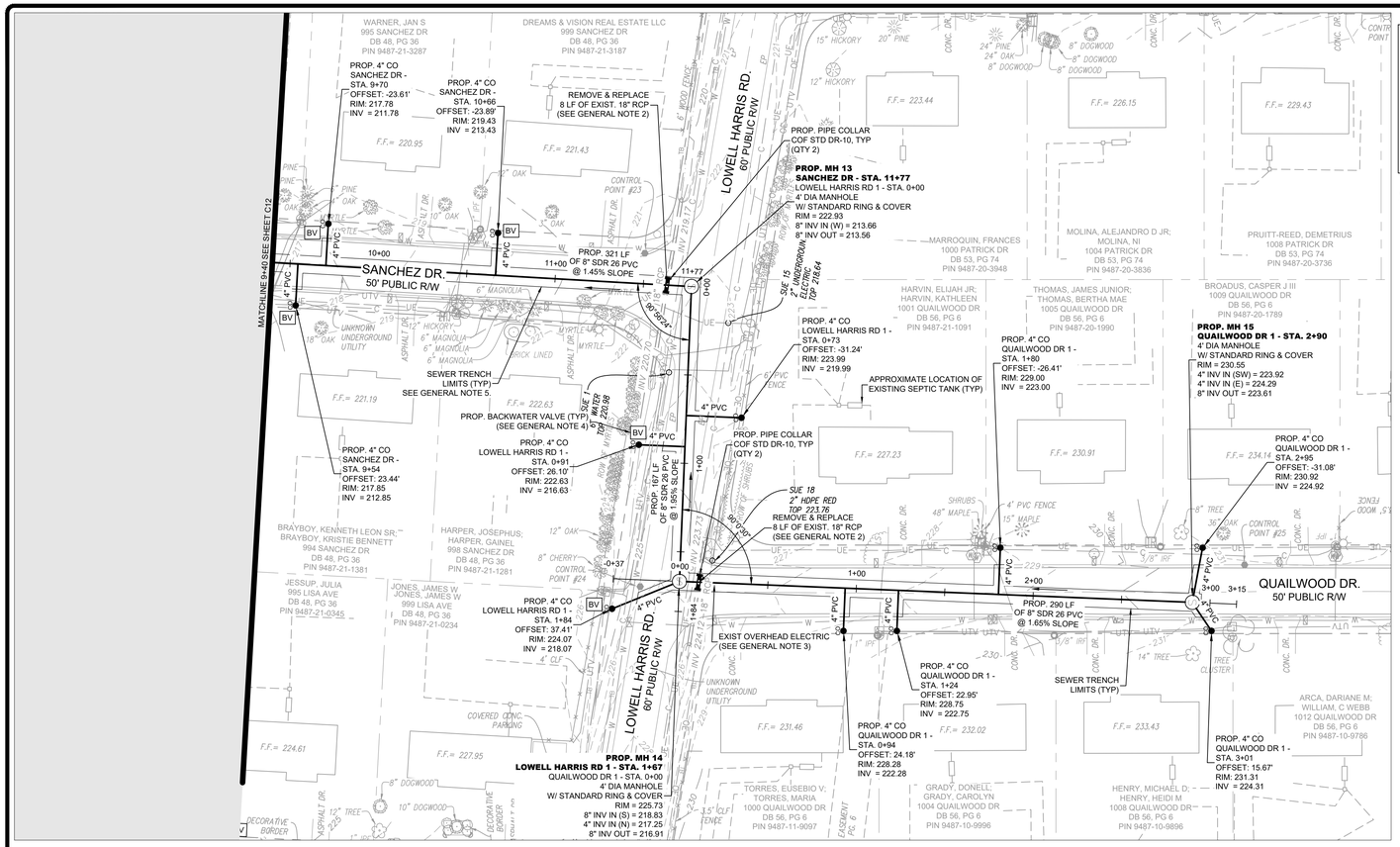

LEGEND

PROP TEMPORARY EASEMENT	UNKNOWN UNDERGROUND UTILITY	ELECTRIC TRANSFORMER	CURB INLET
PROP PERMANENT EASEMENT	TREE LINE	ELECTRIC HAND BOX	FIBER OPTIC MARKER
PROP SEWER MAN, LATERAL W/ CLEAN OUT AND MANHOLE	SHRUB LINE	TELEPHONE PEDESTAL	SIGN
PROP STORM W/ PIPE COLLAR	FENCE	TV PEDESTAL	RIGHT OF WAY MONUMENT
PROPERTY LINE/RIGHT OF WAY	CONTOUR	MAIL BOX	CLEAN OUT
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CABLE TELEVISION	POLE ANCHOR	FLAG POLE	SOIL BORING LOCATION (SEE GEOTECHNICAL REPORT)
	JUNCTION BOX	STORM JUNCTION BOX	

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2. CONTRACTOR SHALL CENTER PROPOSED RCP OVER PROPOSED SEWER MAIN AND CONNECT TO EXISTING RCP WITH CONCRETE PIPE COLLAR, SEE CITY OF FAYETTEVILLE (COF) STANDARD DETAILS DR-10 AND DR-19.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL OVERHEAD ELECTRIC POWER LINE SAFETY REQUIREMENTS (HORIZONTAL AND VERTICAL CLEARANCES) AS MANDATED BY UTILITY OWNER AND OSHA. THE MORE CONSERVATIVE SEPARATION REQUIREMENTS SHALL GOVERN. MINIMUM CLEARANCES SHALL ALSO INCLUDE MAXIMUM SAG. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNER AS MAXIMUM SAG MUST BE CALCULATED FOR EACH SPECIFIC LOCATION. THE FOLLOWING APPROXIMATE HEIGHTS HAVE BEEN PROVIDED BY LUMBEE RIVER ELECTRIC MEMBERSHIP CORPORATION: QUAIL MEADOW DR. (24'-3"), PLEASANT OAK DR. (22'-3"), OAKSTONE DR. (24'-9"), QUAILWOOD (25'-0"), PATRICK DR. (25'-3"), AND LESLIE DR. (26'-6").
4. PROPOSED SANITARY SEWER SERVICE IS RECOMMENDED TO HAVE A BACKWATER VALVE ON THE PROPERTIES INDICATED WITH A "BV". THIS VALVE SHALL NOT BE THE CONTRACTOR'S RESPONSIBILITY AND IS RECOMMENDED TO BE INSTALLED BY THE PROPERTY OWNER.
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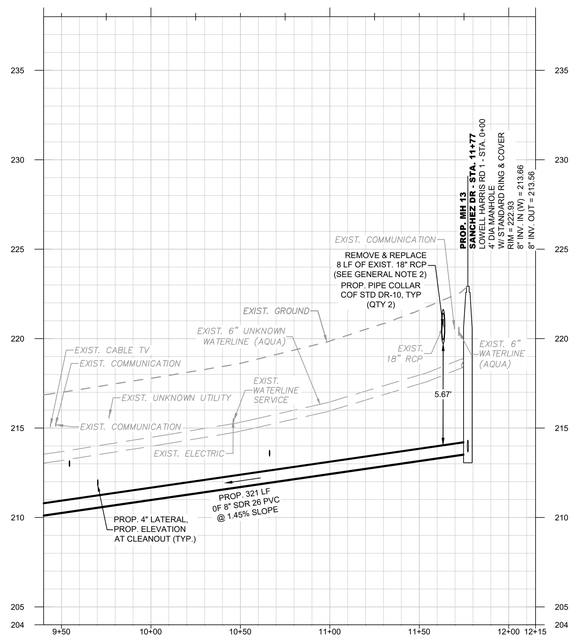
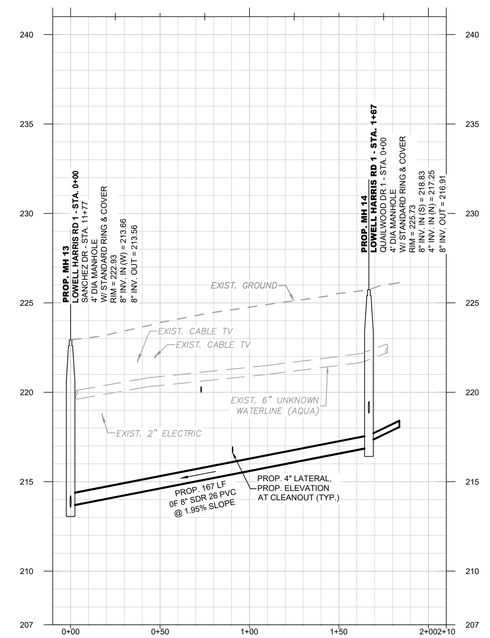
NAD83, NAVD88



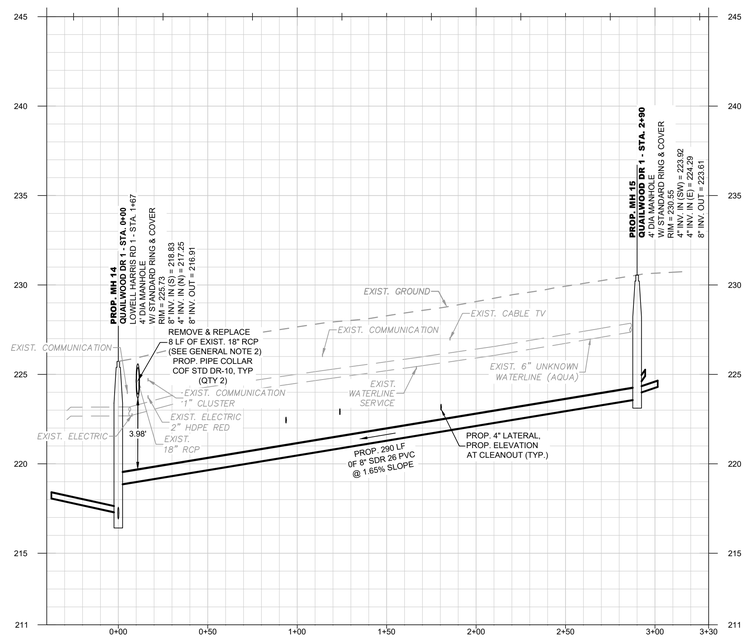
SANCHEZ DR

SCALE: HOR 1"=40'; VERT 1"=4'



LOWELL HARRIS RD 1

SCALE: HOR 1"=40'; VERT 1"=4'



QUAILWOOD DR 1

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

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NC LICENSE NO. P-1051

NORTH CAROLINA PROFESSIONAL ENGINEER 054233 HERBERT M. HUCKABY
3/5/2024

SANCHEZ, LOWELL HARRIS & QUAILWOOD

ANNEXATION PHASE V, AREA 27

FAYETTEVILLE, NORTH CAROLINA

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955 Old Wilmington Road, Fayetteville, NC 28301

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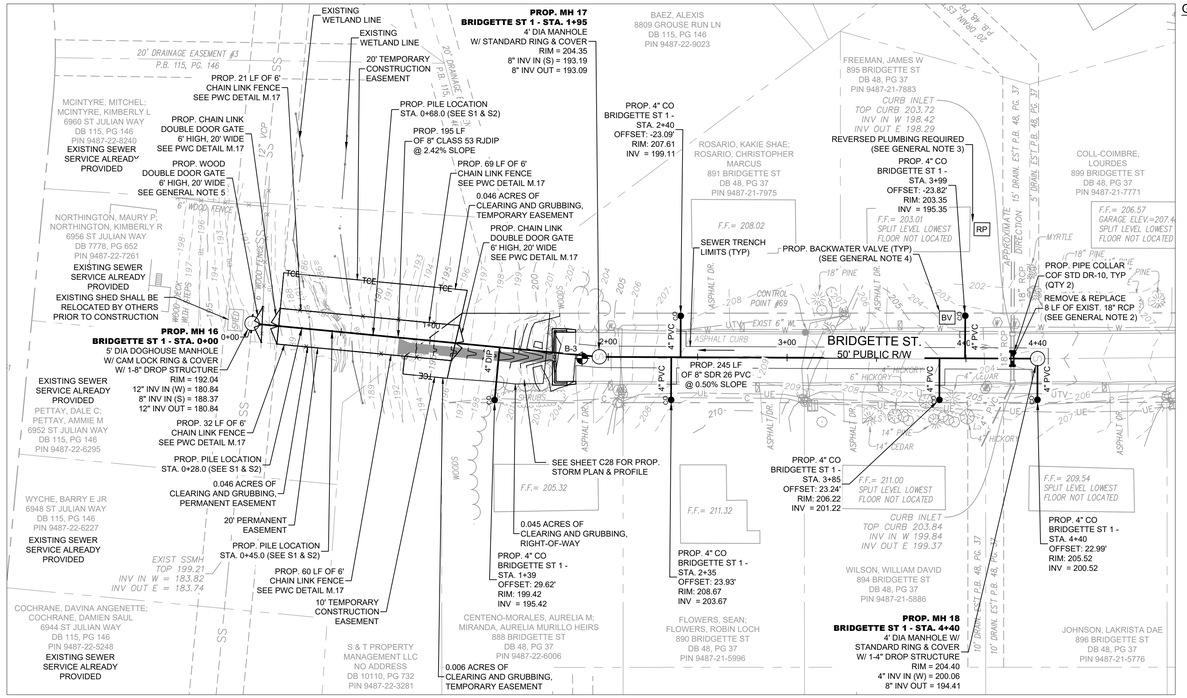

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3. PARCEL REQUIRES REVERSED PLUMBING. REVERSED PLUMBING SHALL BE INSTALLED BY OTHERS.
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LEGEND

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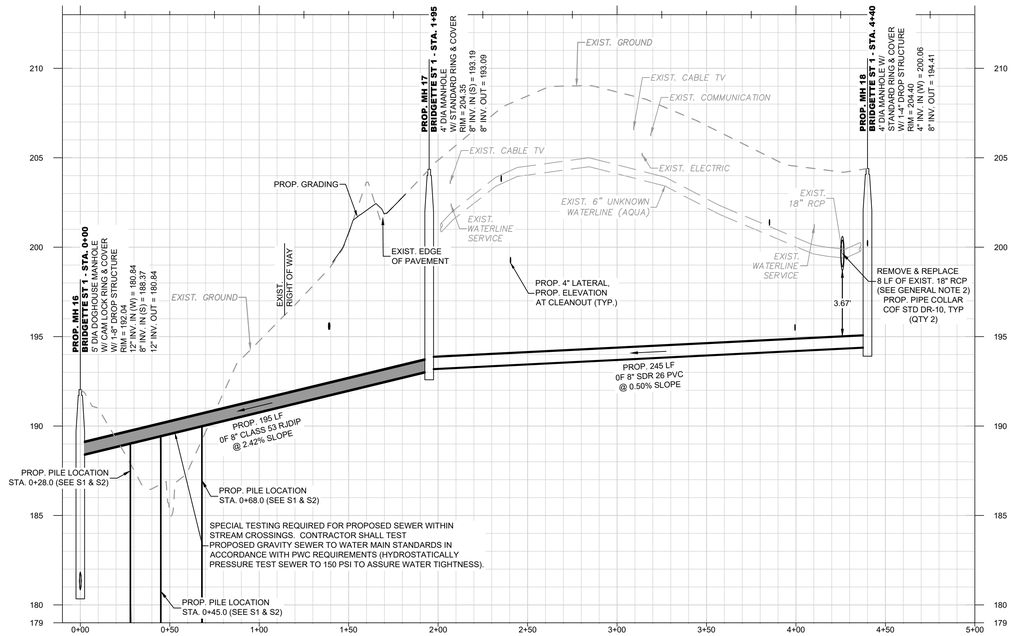
NC STATE PLANE
NAD83, NAVD88



BRIDGETTE ST 1

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

DATE	REVISIONS	BY

SHEET SERIES=FINAL DESIGN -ISSUED FOR BID

DATE: 03/01/2024
SURVEY/DPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE: HOR: 1"=40
VERT: 1"=4

WK DICKSON
Community Infrastructure Consultants
Urban Development • Water Resources
Utilities Design • Land Development
720 Corporate Center Drive
Raleigh, North Carolina 27607
(P) 919.782.0495
www.wkdickson.com
NC LICENSE NO. P-1051

SHEET # C14

NORTH CAROLINA PROFESSIONAL ENGINEER 054233 ALBERT M. HUCKABY
3/5/2024

BRIDGETTE ST 1
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
Electric & Water Utilities

20200208.00.RA

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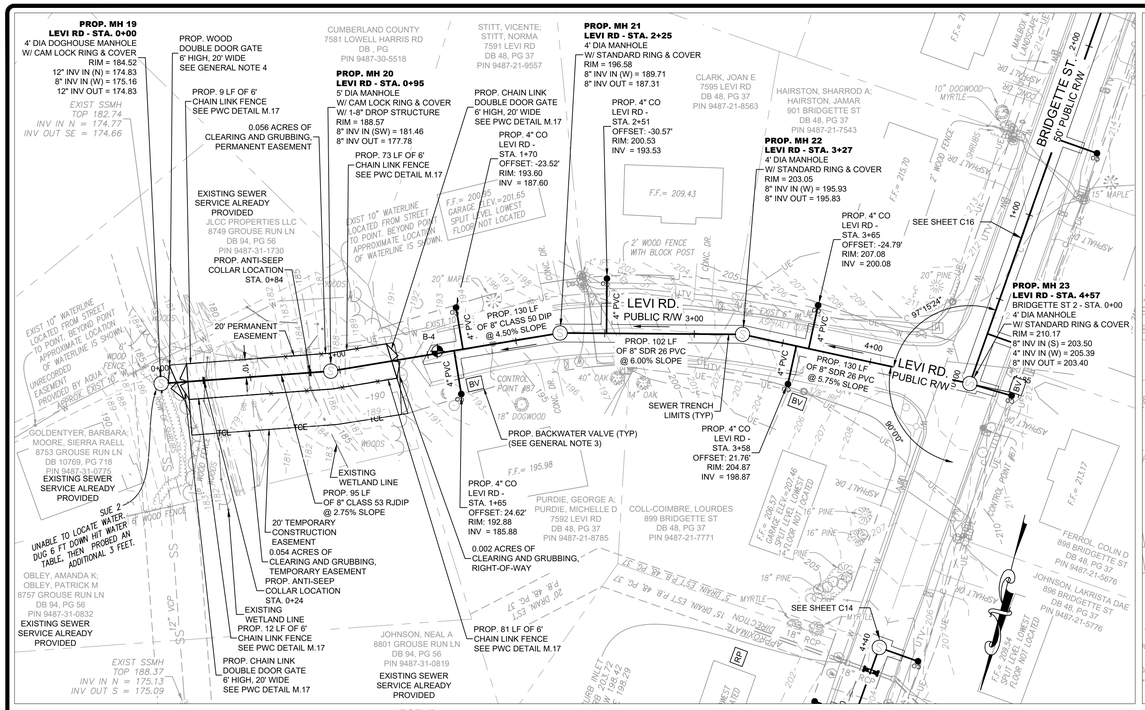


LEGEND

TCE — PROP TEMPORARY EASEMENT	UNKNOWN UNDERGROUND UTILITY	ELECTRIC TRANSFORMER
PROP PERMANENT EASEMENT	TREE LINE	ELECTRIC HAND BOX
PROP SEWER MAIN, LATERAL	SHRUB LINE	TELEPHONE PEDESTAL
W/ CLEAN OUT AND MANHOLE	FENCE	TV PEDESTAL
PROP STORM W/ PIPE COLLAR	CONTOUR	MAIL BOX
PROPERTY LINE/RIGHT OF WAY	DITCH LINE / STREAM	IRRIGATION SPRINKLER
STORM SEWER	TOP OF BANK	IRRIGATION VALVE
SANITARY SEWER W/ MANHOLE	BOTTOM OF BANK	BOLLARD/MISC POST
WATER LINE W/ VALVE	WETLANDS BOUNDARY LINE	SHRUB
OVERHEAD ELECTRIC	LIGHT POLE	SATELLITE DISH
UNDERGROUND ELECTRIC	POWER POLE	LANDSCAPE LIGHT
COMMUNICATION LINE	POLE ANCHOR	FLAG POLE
CABLE TELEVISION	JUNCTION BOX	STORM JUNCTION BOX

CURB INLET	
FIBER OPTIC MARKER	
SIGN	
RIGHT OF WAY MONUMENT	
CLEAN OUT	
FIRE HYDRANT	
GATE POST	
WATER METER	
RP PROP REVERSE PLUMBING	
BV PROP BACKWATER VALVE	
GP PROP GRINDER PUMP	
SOIL BORING LOCATION (SEE GEOTECHNICAL REPORT)	

GENERAL NOTE:

1. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE PROPOSED SEWER LATERAL INSTALLATION WITH THE EXISTING UTILITIES. CONTRACTOR SHALL USE PWC STANDARD DETAIL S.12 SEWER SERVICE LATERAL UTILITY CONFLICT SEPARATION REQUIREMENTS ONLY WHEN APPROVED BY PWC PROJECT COORDINATOR.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL OVERHEAD ELECTRIC POWER LINE SAFETY REQUIREMENTS (HORIZONTAL AND VERTICAL CLEARANCES) AS MANDATED BY UTILITY OWNER AND OSHA. THE MORE CONSERVATIVE SEPARATION REQUIREMENTS SHALL GOVERN. MINIMUM CLEARANCES SHALL ALSO INCLUDE MAXIMUM SAG. CONTRACTOR SHALL COORDINATE WITH UTILITY OWNER AS MAXIMUM SAG MUST BE CALCULATED FOR EACH SPECIFIC LOCATION. THE FOLLOWING APPROXIMATE HEIGHTS HAVE BEEN PROVIDED BY LUMBEE RIVER ELECTRIC MEMBERSHIP CORPORATION: QUAIL MEADOW DR. (24'-3"), PLEASANT OAK DR. (22'-3"), OAKSTONE DR. (24'-9"), QUAILWOOD (25'-0"), PATRICK DR. (25'-3"), AND LESLIE DR. (26'-6").
3. PROPOSED SANITARY SEWER SERVICE IS RECOMMENDED TO HAVE A BACKWATER VALVE ON THE PROPERTIES INDICATED WITH A "BV". THIS VALVE SHALL NOT BE THE CONTRACTOR'S RESPONSIBILITY AND IS RECOMMENDED TO BE INSTALLED BY THE PROPERTY OWNER.
4. CONTRACTOR SHALL INSTALL NEW FENCE GATE (PER PLANS) CENTERED OVER THE EXISTING FENCE SECTION WITHIN THE PERMANENT UTILITY EASEMENT. CONTRACTOR SHALL COORDINATE WITH PWC COORDINATOR AND PROPERTY OWNER ON MATCHING NEW FENCE GATE TO EXISTING FENCE TYPE. THE INSTALLATION OF THE NEW GATE SHALL BE A SEPARATE PAYMENT ITEM. EXISTING FENCE REMOVAL AND REPLACEMENT SHALL BE CONSIDERED INCIDENTAL TO THE SEWER MAIN INSTALLATION AND NO SEPARATE PAYMENT SHALL BE MADE.

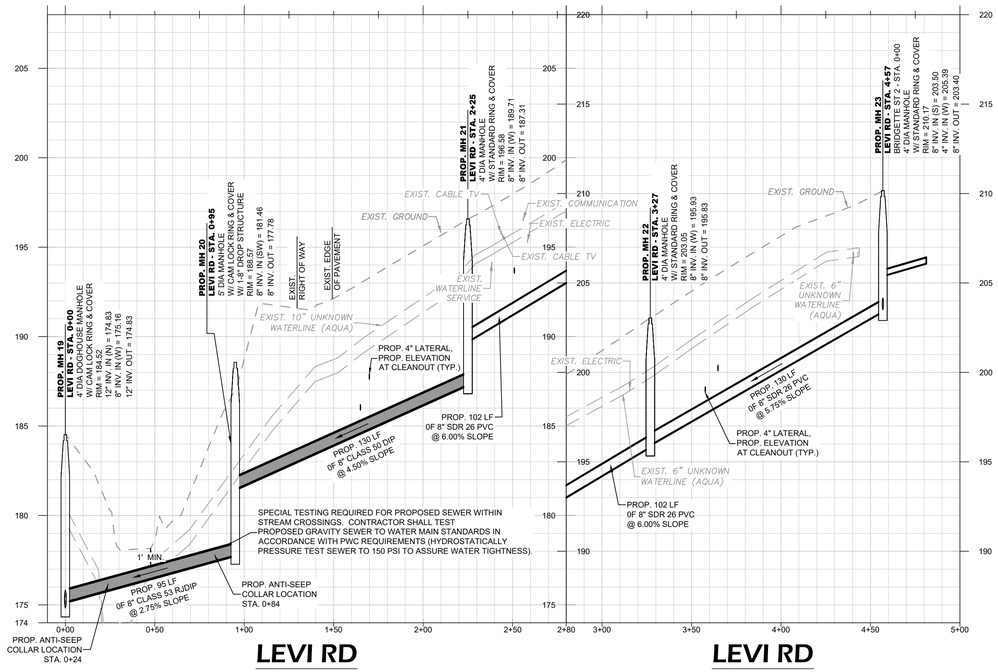
GRAPHIC SCALE

40 0 20 40 80

(IN FEET)

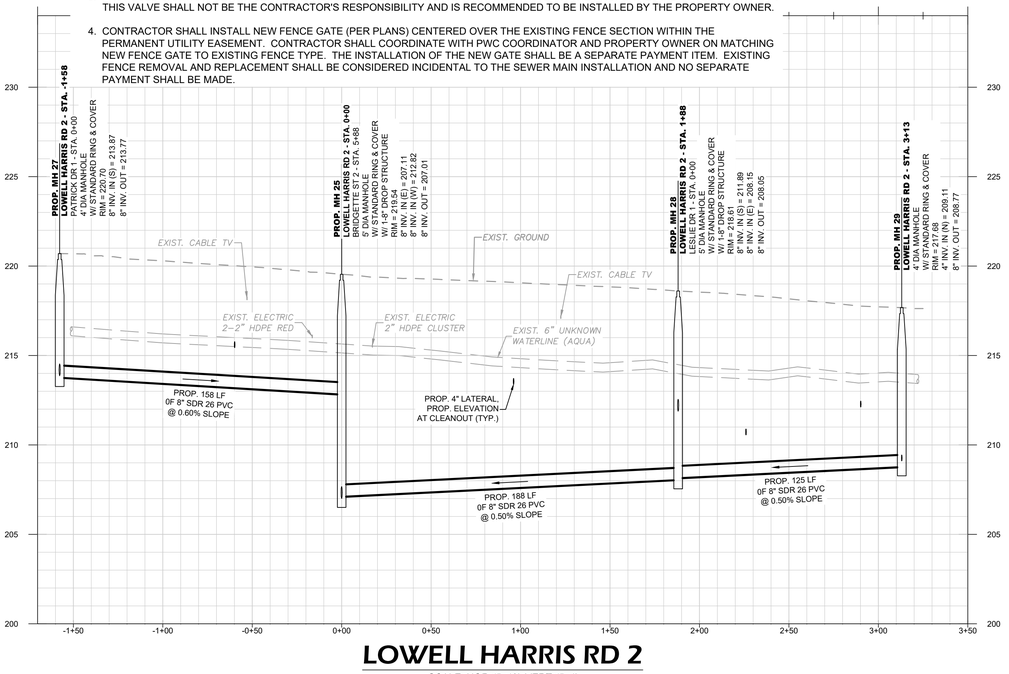
HORIZ.: 1 inch = 40 ft.
VERT.: 1 inch = 4 ft.

NC STATE PLANE
NAD83, NAVD88



LEVI RD

SCALE: HOR 1"=40'; VERT 1"=4'



LOWELL HARRIS RD 2

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

REVISIONS	BY
DATE	

DATE: 03/01/2024
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SCALE: HOR: 1"=40
VERT: 1"=4
SHEET # C15

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NC LICENSE NO 1 F-0391

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 054233 GILBERT M. HUCHABY
3/5/2024

SHEET SERIES-FINAL DESIGN -ISSUED FOR BID

LEVI RD & LOWELL HARRIS RD 2
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
Electric & Water Utilities

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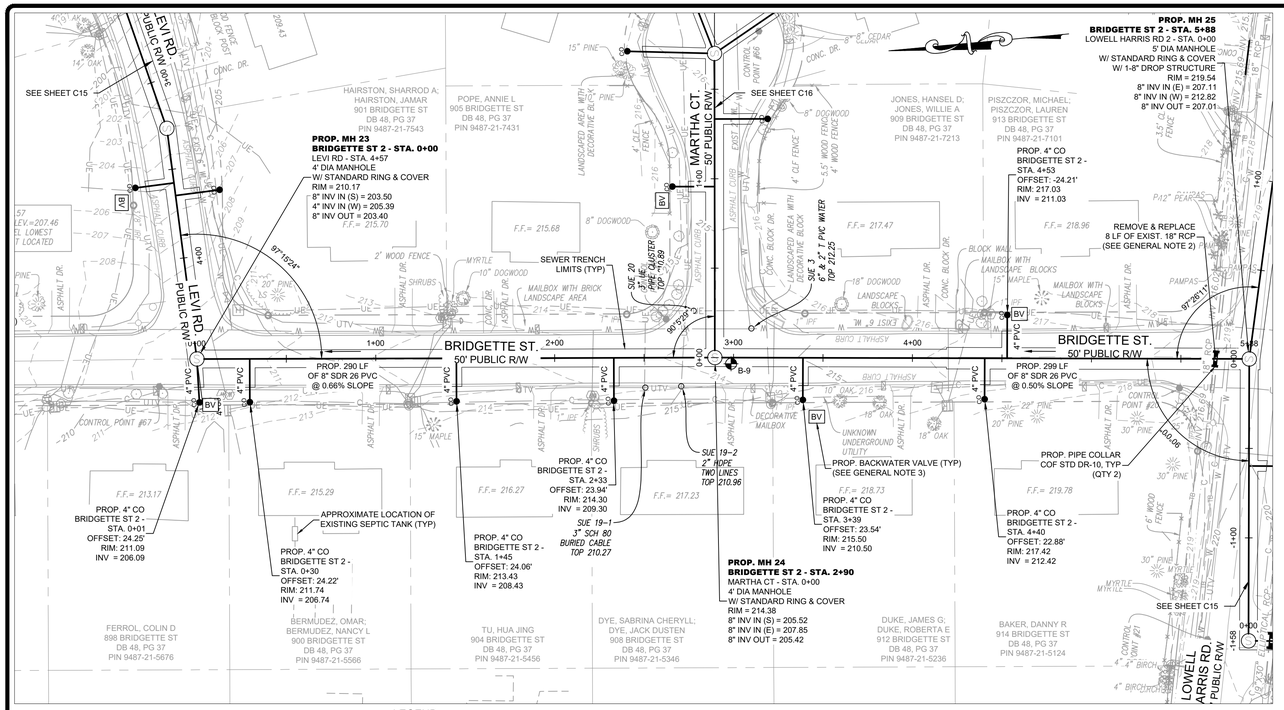

LEGEND

- PROP TEMPORARY EASEMENT
- PROP PERMANENT EASEMENT
- PROP SEWER MAIN, LATERAL
- W/ CLEAN OUT AND MANHOLE
- PROP STORM W/ PIPE COLLAR
- PROPERTY LINE/RIGHT OF WAY
- STORM SEWER
- SANITARY SEWER W/ MANHOLE
- WATER LINE W/ VALVE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- COMMUNICATION LINE
- CABLE TELEVISION
- UNKNOWN UNDERGROUND UTILITY
- TREE LINE
- SHRUB LINE
- FENCE
- CONTOUR
- DITCH LINE / STREAM
- TOP OF BANK
- BOTTOM OF BANK
- WETLANDS BOUNDARY LINE
- LIGHT POLE
- POWER POLE
- POLE ANCHOR
- JUNCTION BOX
- ELECTRIC TRANSFORMER
- ELECTRIC HAND BOX
- TELEPHONE PEDESTAL
- TV PEDESTAL
- MAIL BOX
- IRRIGATION SPRINKLER
- IRRIGATION VALVE
- BOLLARD/MISC POST
- SHRUB
- SATELLITE DISH
- LANDSCAPE LIGHT
- FLAG POLE
- STORM JUNCTION BOX
- CURB INLET
- FIBER OPTIC MARKER
- SIGN
- RIGHT OF WAY MONUMENT
- CLEAN OUT
- FIRE HYDRANT
- GATE POST
- WATER METER
- PROP REVERSE PLUMBING
- PROP BACKWATER VALVE
- PROP GRINDER PUMP
- SOIL BORING LOCATION (SEE GEOTECHNICAL REPORT)

GENERAL NOTE:

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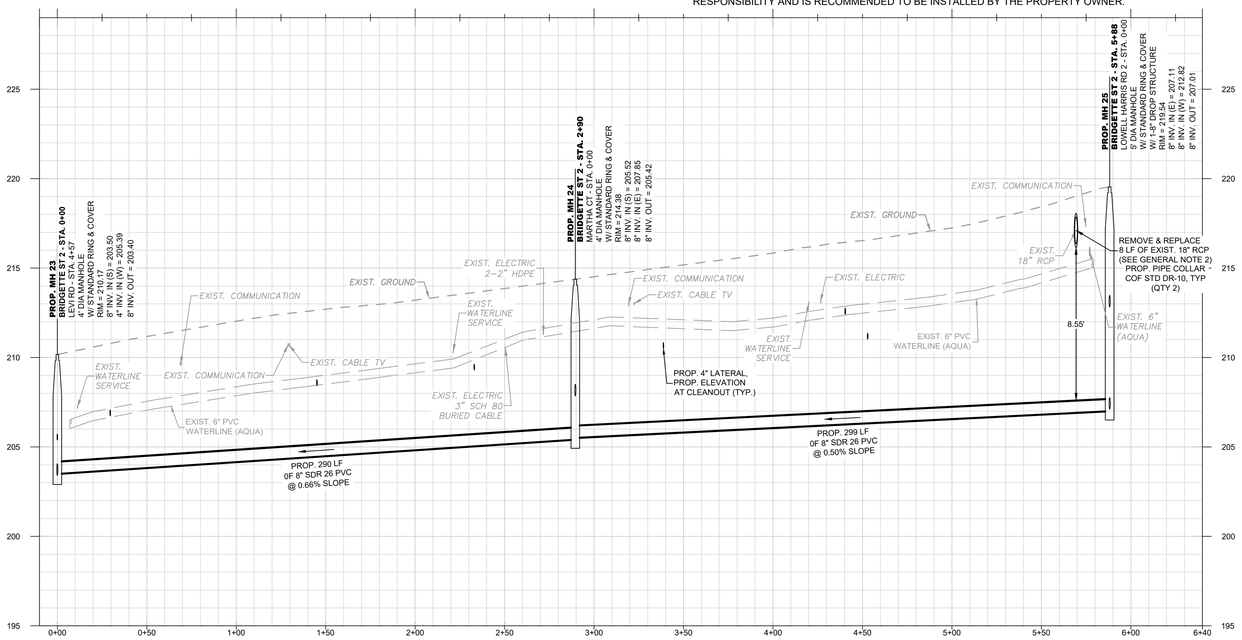
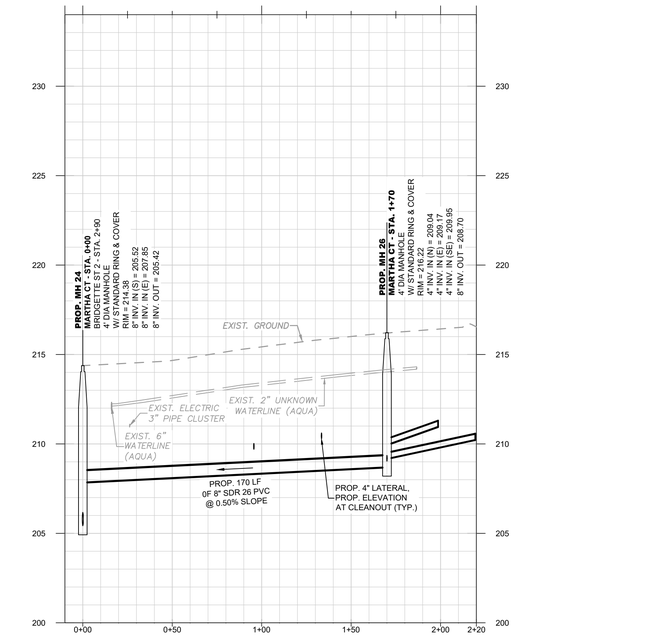
NC STATE PLANE
NAD83, NAVD88



BRIDGETTE ST 2

SCALE: HOR 1"=40'; VERT 1"=4'



MARTHA CT

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

DATE	REVISIONS	BY

SHEET SERIES - FINAL DESIGN - ISSUED FOR BID

DATE: 03/01/2024
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CHECKED BY: AMH / MY
SCALE: HOR: 1"=40'
VERT: 1"=4'
SHEET # C16

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NC LICENSE NO. F-0374

NORTH CAROLINA
PROFESSIONAL
054233
ENGINEER
ALBERT M. HUCKABY
3/5/2024

BRIDGETTE ST 2 & MARTHA CT
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE
PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
Electric & Water Utilities

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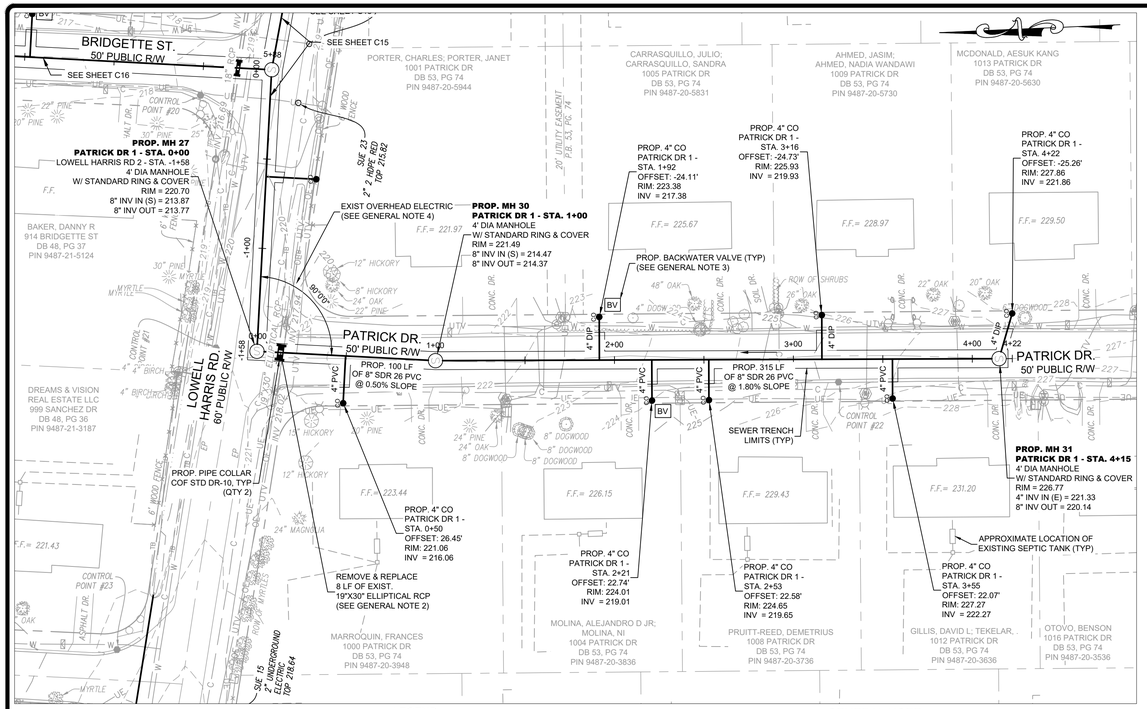

LEGEND

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	PROP PERMANENT EASEMENT	TREE LINE	ELECTRIC HAND BOX
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S	W/ CLEAN OUT AND MANHOLE	FENCE	TV PEDESTAL
	PROP STORM W/ PIPE COLLAR	190 CONTOUR	MAIL BOX
	PROPERTY LINE/RIGHT OF WAY	DITCH LINE / STREAM	IRRIGATION SPRINKLER
	STORM SEWER	TOP OF BANK	IRRIGATION VALVE
SS	SANITARY SEWER W/ MANHOLE	BB BOTTOM OF BANK	BOLLARD/MISC POST
	WATER LINE W/ VALVE	WETLANDS BOUNDARY LINE	SHRUB
OE	OVERHEAD ELECTRIC	LIGHT POLE	SATELLITE DISH
UE	UNDERGROUND ELECTRIC	POWER POLE	LANDSCAPE LIGHT
C	COMMUNICATION LINE	POLE ANCHOR	FLAG POLE
UTV	CABLE TELEVISION	JUNCTION BOX	STORM JUNCTION BOX

CURB INLET	
FIBER OPTIC MARKER	
SIGN	
RIGHT OF WAY MONUMENT	
CLEAN OUT	
FIRE HYDRANT	
GATE POST	
WATER METER	
RP PROP REVERSE PLUMBING	
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GP PROP GRINDER PUMP	
SOIL BORING LOCATION (SEE GEOTECHNICAL REPORT)	

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GRAPHIC SCALE

40 0 20 40 80

(IN FEET)

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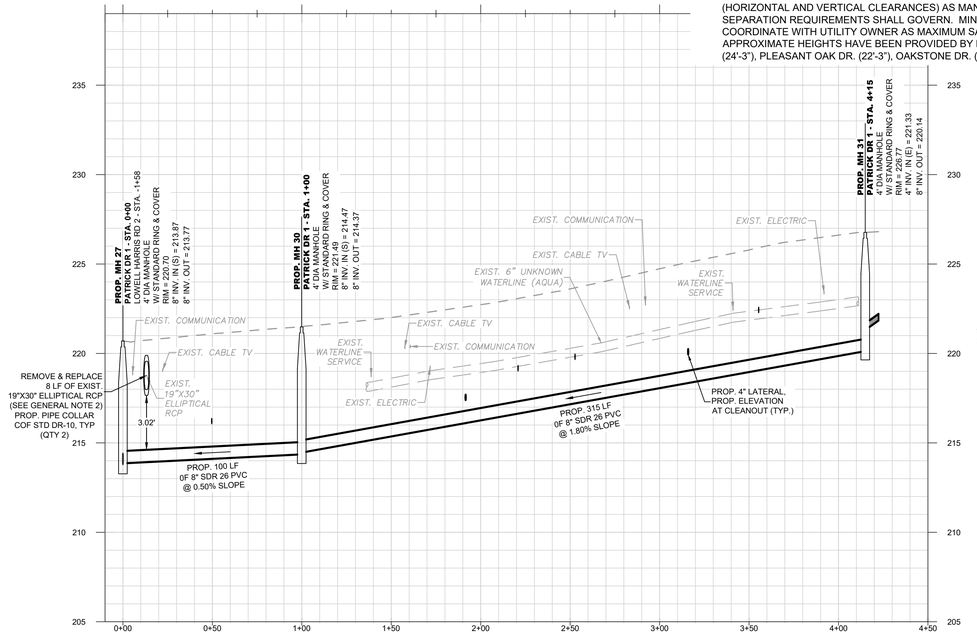
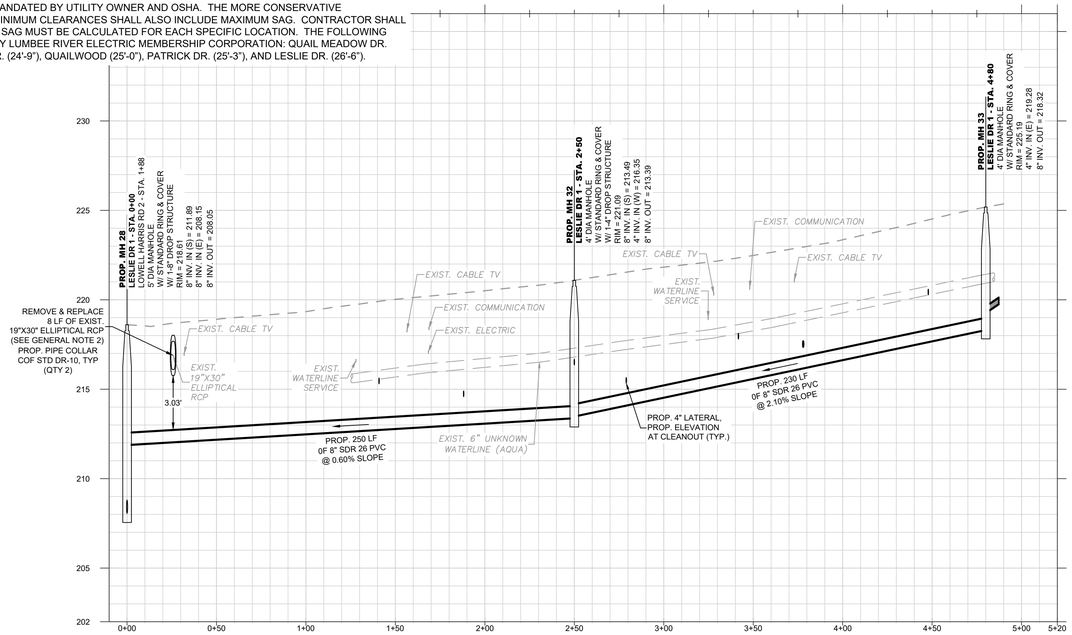
NC STATE PLANE
NAD83, NAVD88



PATRICK DR 1

SCALE: HOR 1"=40'; VERT 1"=4'



LESLIE DR 1

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

DATE	REVISIONS	BY

SHEET SERIES-FINAL DESIGN- ISSUED FOR BID

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NC LICENSE NO 116

SHEET # C17

NORTH CAROLINA PROFESSIONAL ENGINEER 054233 HERBERT M. HUCKABY
3/5/2024

PATRICK DR 1 & LESLIE DR 1

ANNEXATION PHASE V, AREA 27

FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
PWC Electric & Water Utilities

20200208.00.RA

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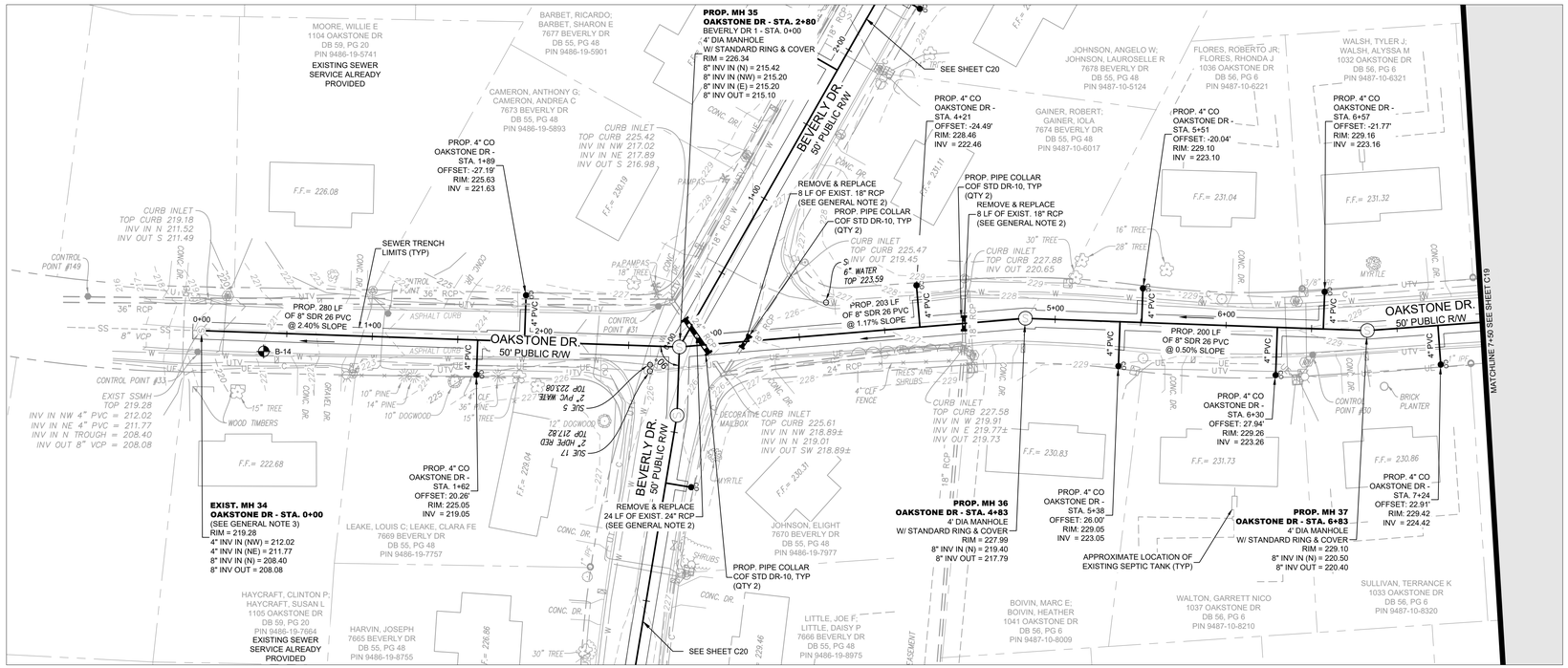

LEGEND

TCE	PROP TEMPORARY EASEMENT
	PROP PERMANENT EASEMENT
S	PROP SEWER MAIN, LATERAL W/ CLEAN OUT AND MANHOLE
	PROP STORM W/ PIPE COLLAR
	PROPERTY LINE/RIGHT OF WAY
	STORM SEWER
SS	SANITARY SEWER W/ MANHOLE
W	WATER LINE W/ VALVE
OE	OVERHEAD ELECTRIC
UE	UNDERGROUND ELECTRIC
C	COMMUNICATION LINE
UTV	CABLE TELEVISION
	UNKNOWN UNDERGROUND UTILITY
	TREE LINE
X X X	SHRUB LINE
	FENCE
190	CONTOUR
	DITCH LINE / STREAM
TB	TOP OF BANK
BB	BOTTOM OF BANK
	WETLANDS BOUNDARY LINE
	LIGHT POLE
	POWER POLE
	POLE ANCHOR
J	JUNCTION BOX
	ELECTRIC TRANSFORMER
H	ELECTRIC HAND BOX
	TELEPHONE PEDESTAL
	TV PEDESTAL
	MAIL BOX
	IRRIGATION SPRINKLER
	IRRIGATION VALVE
	BOLLARD/MISC POST
	SHRUB
	SATELLITE DISH
	LANDSCAPE LIGHT
	FLAG POLE
	STORM JUNCTION BOX
	CURB INLET
FO	FIBER OPTIC MARKER
	SIGN
	RIGHT OF WAY MONUMENT
	CLEAN OUT
	FIRE HYDRANT
	GATE POST
	WATER METER
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BV	PROP BACKWATER VALVE
GP	PROP GRINDER PUMP
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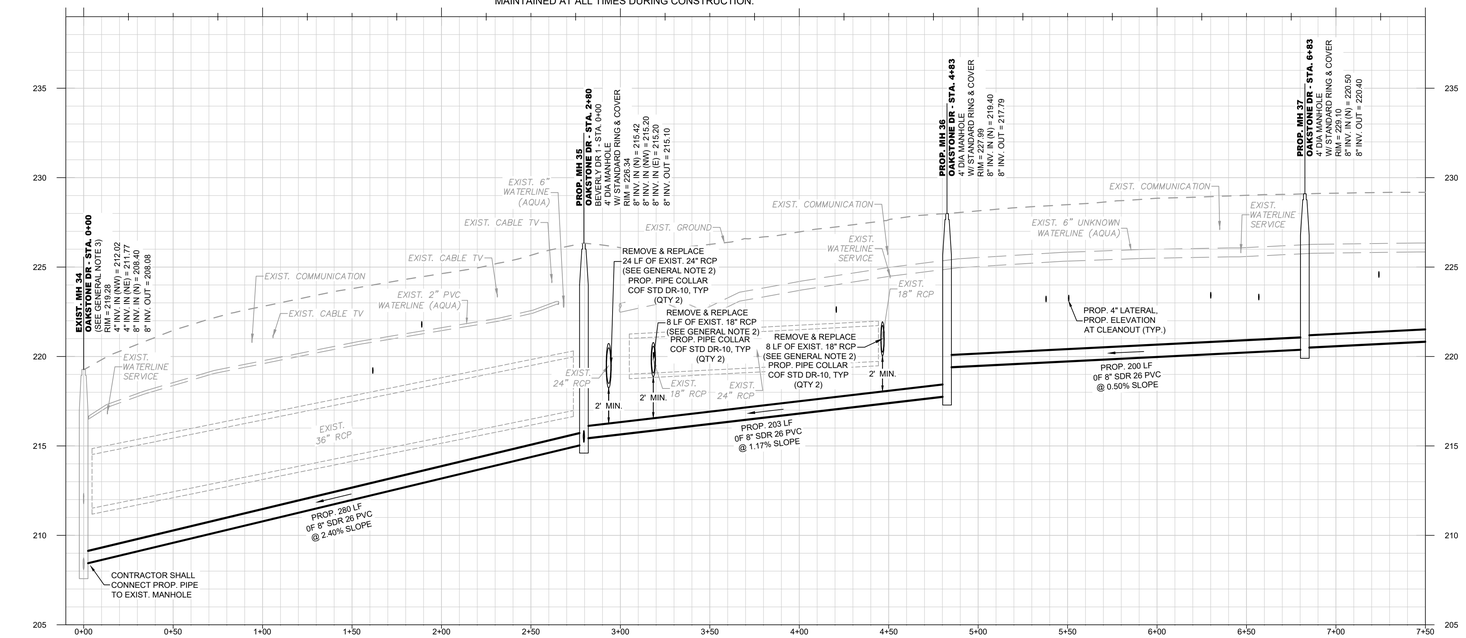
3. CONTRACTOR SHALL TIE PROPOSED PIPE INTO EXISTING MANHOLE AT EXISTING PIPE STUB LOCATION. SEWER SERVICE TO 1104 AND 1105 OAKSTONE DRIVE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.



OAKSTONE DR

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

DATE	REVISIONS	BY

SHEET SERIES=FINAL DESIGN -ISSUED FOR BID

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NC LICENSE NO. P-1051

SHEET # C18

NORTH CAROLINA
PROFESSIONAL ENGINEER
054233
GILBERT M. HUCKABY
3/5/2024

OAKSTONE DR 0+00 TO 7+50

ANNEXATION PHASE V, AREA 27

FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE
PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
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Electric & Water Utilities

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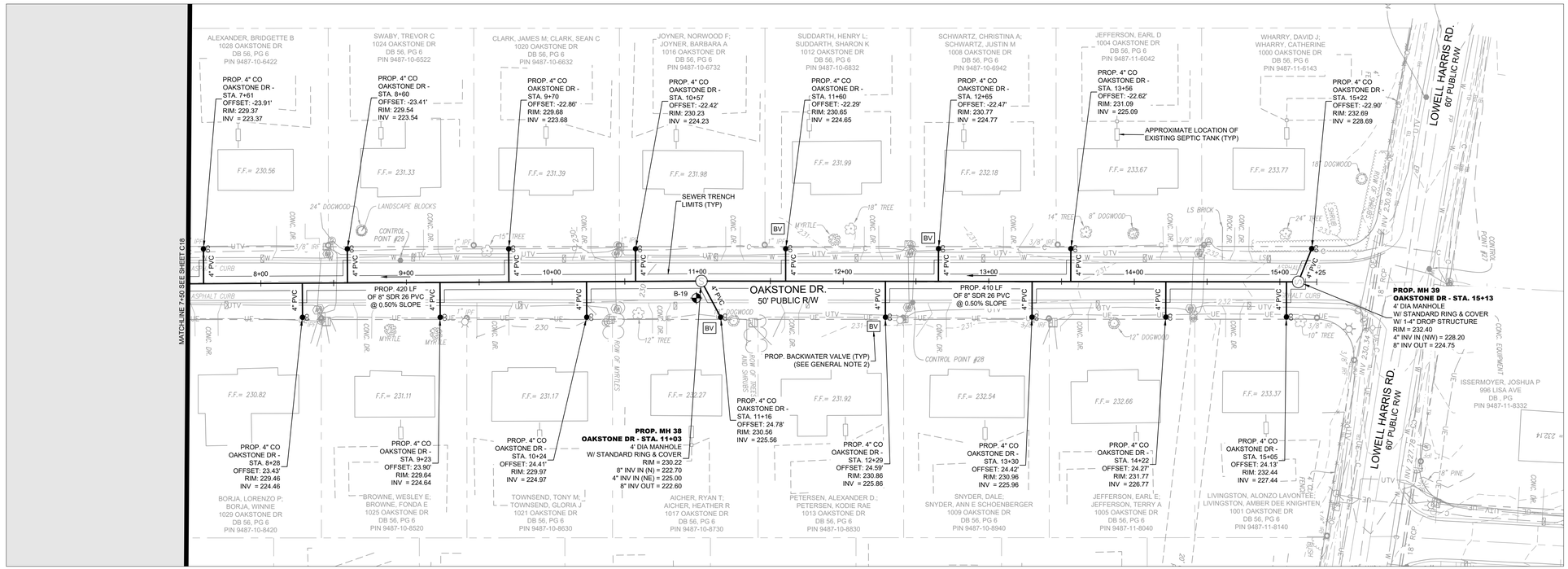

LEGEND

TCE — PROP TEMPORARY EASEMENT	UNKNOWN UNDERGROUND UTILITY	ELECTRIC TRANSFORMER	CURB INLET
PROP PERMANENT EASEMENT	TREE LINE	ELECTRIC HAND BOX	FIBER OPTIC MARKER
PROP SEWER MAIN, LATERAL	SHRUB LINE	TELEPHONE PEDESTAL	SIGN
W/ CLEAN OUT AND MANHOLE	FENCE	TV PEDESTAL	RIGHT OF WAY MONUMENT
PROP STORM W/ PIPE COLLAR	CONTOUR	MAIL BOX	CLEAN OUT
PROPERTY LINE/RIGHT OF WAY	DITCH LINE / STREAM	IRRIGATION SPRINKLER	FIRE HYDRANT
STORM SEWER	TOP OF BANK	IRRIGATION VALVE	GATE POST
SANITARY SEWER W/ MANHOLE	BOTTOM OF BANK	BOLLARD/MISC POST	WATER METER
WATER LINE W/ VALVE	WETLANDS BOUNDARY LINE	SHRUB	PROP REVERSE PLUMBING
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UNDERGROUND ELECTRIC	POWER POLE	LANDSCAPE LIGHT	PROP GRINDER PUMP
COMMUNICATION LINE	POLE ANCHOR	FLAG POLE	SOIL BORING LOCATION
CABLE TELEVISION	JUNCTION BOX	STORM JUNCTION BOX	(SEE GEOTECHNICAL REPORT)

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(IN FEET)

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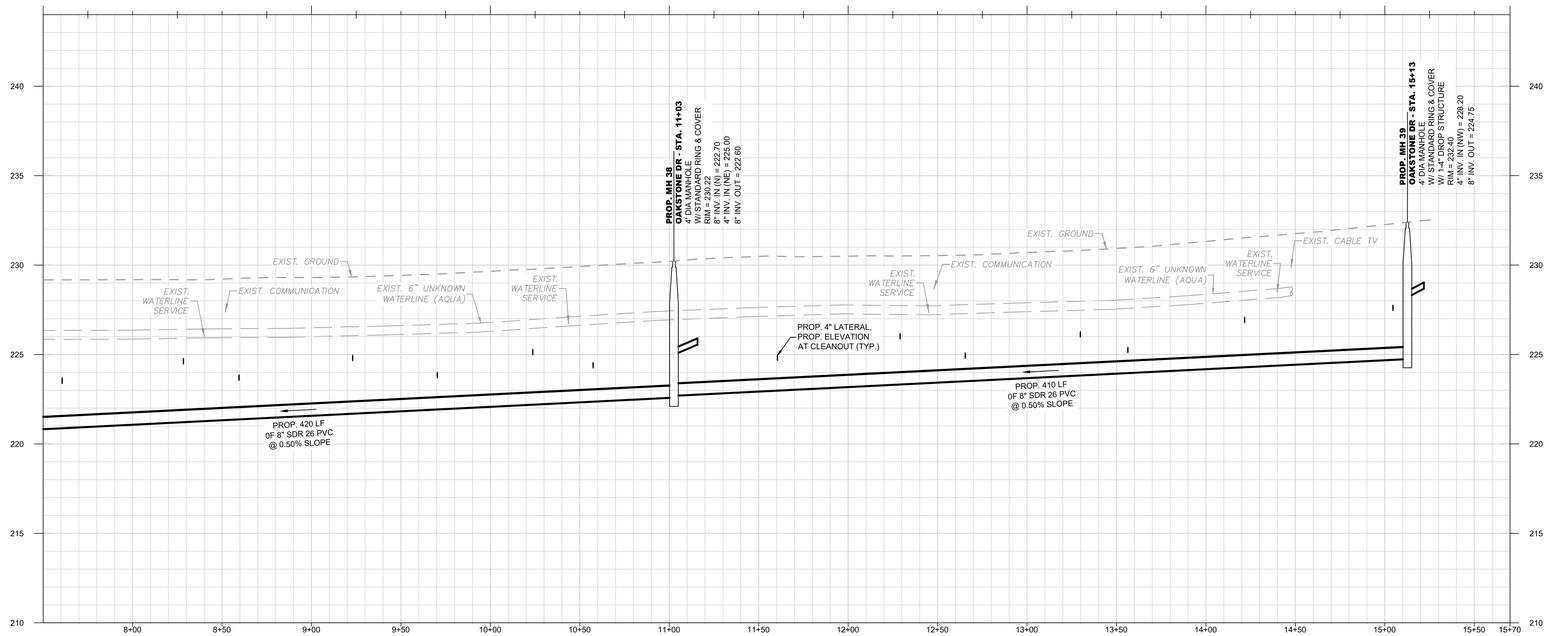
NC STATE PLANE
NAD83, NAVD88



OAKSTONE DR

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

DATE	REVISIONS	BY

SHEET SERIES-FINAL DESIGN -ISSUED FOR BID

DATE 03/01/2024
SURVEY/GPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE HOR: 1"=40
VERT: 1"=4
SHEET # C19

WK DICKSON
Community Infrastructure Consultants
Urban Development • Water Resources
Transportation • Land Development
720 Corporate Center Drive
Raleigh, North Carolina 27607
(P) 919.782.0495
www.wkdickson.com
NC LICENSE NO. P-0261

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 054233 ALBERT M. HUCHABY
3/5/2024

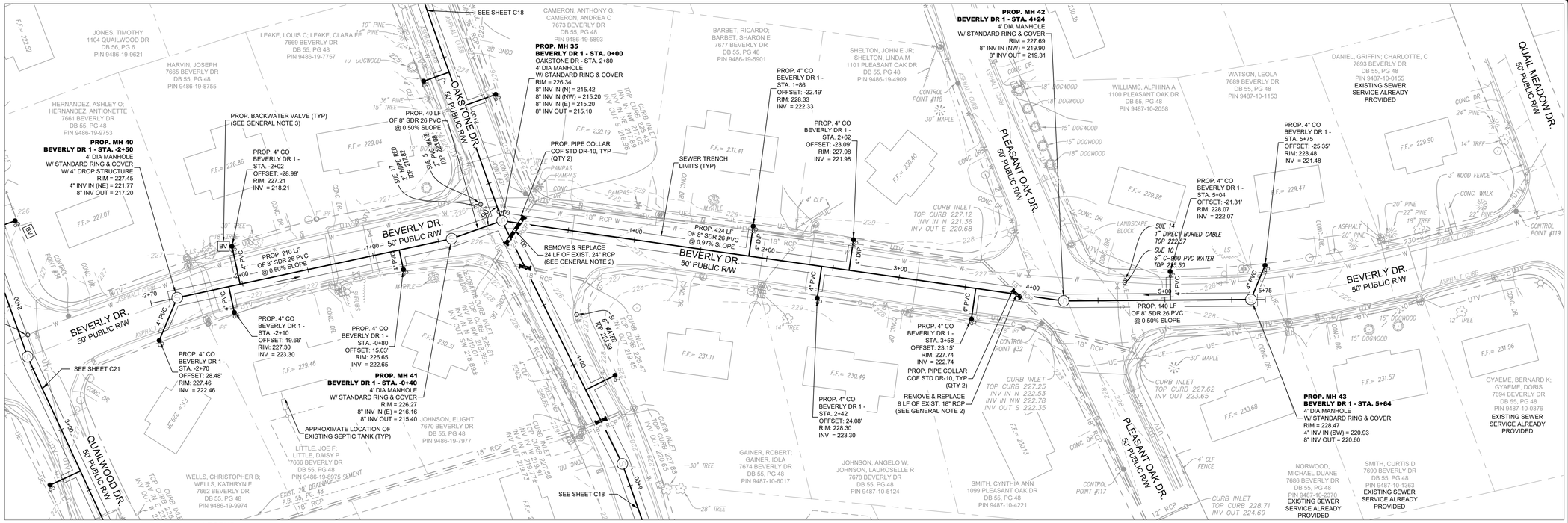
OAKSTONE DR 7+50 TO END

ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
PWC Electric & Water Utilities

20200208.00.RA

Z:\Projects\Fayetteville Public Works Commission\20200208\00RA - Annexation Phase V, Area 27\CAD\Plan Set\20200208_C_SHT_DOTFALL.RW.dwg 3/4/2024 1:40:17 PM



LEGEND

TCE	PROP TEMPORARY EASEMENT	UNKNOWN UNDERGROUND UTILITY	ELECTRIC TRANSFORMER
	PROP PERMANENT EASEMENT	TREE LINE	ELECTRIC HAND BOX
S	PROP SEWER MAIN, LATERAL W/ CLEAN OUT AND MANHOLE	SHRUB LINE	TELEPHONE PEDESTAL
	PROP STORM W/ PIPE COLLAR	FENCE	TV PEDESTAL
	PROPERTY LINE/RIGHT OF WAY	CONTOUR	MAIL BOX
	STORM SEWER	DITCH LINE / STREAM	IRRIGATION SPRINKLER
SS	SANITARY SEWER W/ MANHOLE	TOP OF BANK	IRRIGATION VALVE
W	WATER LINE W/ VALVE	BOTTOM OF BANK	BOLLARD/MISC POST
OE	OVERHEAD ELECTRIC	WETLANDS BOUNDARY LINE	SHRUB
UE	UNDERGROUND ELECTRIC	LIGHT POLE	SATELLITE DISH
C	COMMUNICATION LINE	POWER POLE	LANDSCAPE LIGHT
UTV	CABLE TELEVISION	POLE ANCHOR	FLAG POLE
		JUNCTION BOX	STORM JUNCTION BOX

CURB INLET	
FIBER OPTIC MARKER	
SIGN	
RIGHT OF WAY MONUMENT	
CLEAN OUT	
FIRE HYDRANT	
GATE POST	
WATER METER	
RP	PROP REVERSE PLUMBING
BV	PROP BACKWATER VALVE
GP	PROP GRINDER PUMP
	SOIL BORING LOCATION (SEE GEOTECHNICAL REPORT)

GENERAL NOTE:

1. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE PROPOSED SEWER LATERAL INSTALLATION WITH THE EXISTING UTILITIES. CONTRACTOR SHALL USE PWC STANDARD DETAIL S.12 SEWER SERVICE LATERAL UTILITY CONFLICT SEPARATION REQUIREMENTS ONLY WHEN APPROVED BY PWC PROJECT COORDINATOR.
2. CONTRACTOR SHALL CENTER PROPOSED RCP OVER PROPOSED SEWER MAIN AND CONNECT TO EXISTING RCP WITH CONCRETE PIPE COLLAR, SEE CITY OF FAYETTEVILLE (COF) STANDARD DETAILS DR-10 AND DR-19.
3. PROPOSED SANITARY SEWER SERVICE IS RECOMMENDED TO HAVE A BACKWATER VALVE ON THE PROPERTIES INDICATED WITH A "BV". THIS VALVE SHALL NOT BE THE CONTRACTOR'S RESPONSIBILITY AND IS RECOMMENDED TO BE INSTALLED BY THE PROPERTY OWNER.

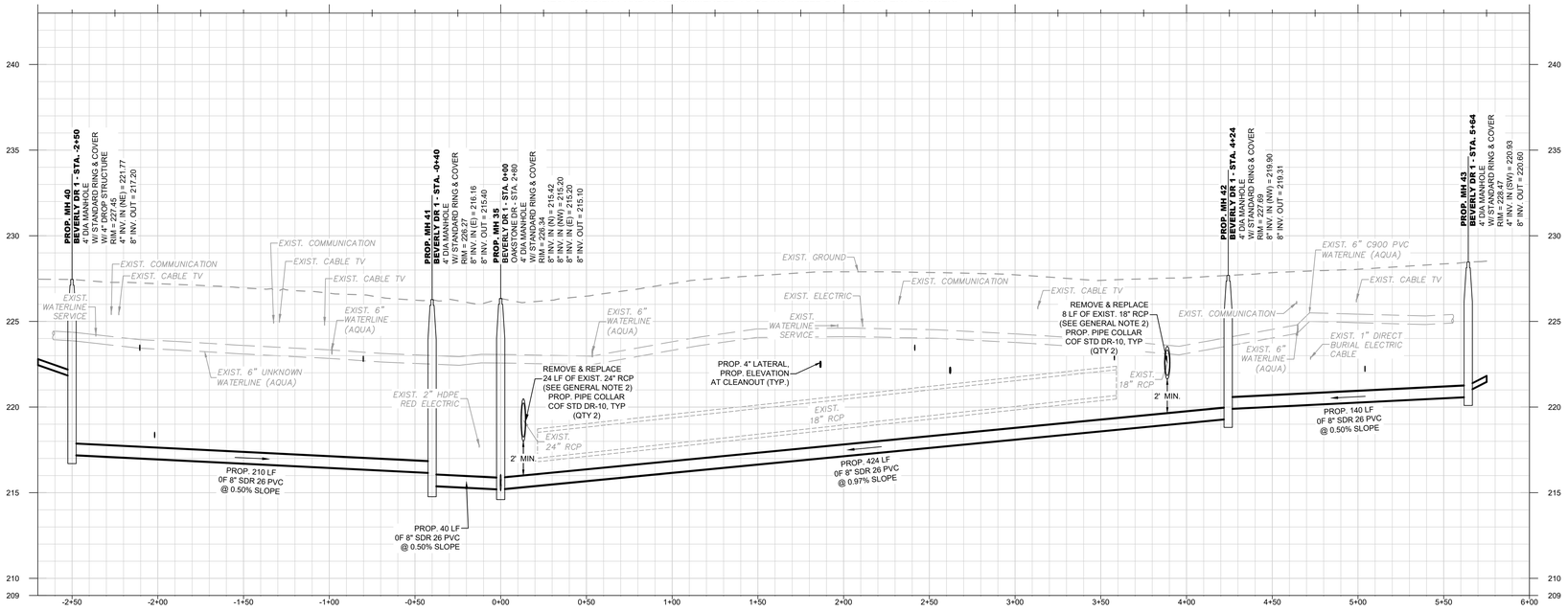
GRAPHIC SCALE

40 0 20 40 80

(IN FEET)

HORIZ.: 1 inch = 40 ft.
VERT.: 1 inch = 4 ft.

NC STATE PLANE
NAD83, NAVD88



BEVERLY DR 1

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

DATE	REVISIONS	BY

SHEET SERIES-FINAL DESIGN- ISSUED FOR BID

DATE: 03/01/2024
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CHECKED BY: AMH / MY
SCALE: HOR: 1"=40
VERT: 1"=4

SHEET # C20

WK DICKSON
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Urban Downtown • Water Resources
720 Corporate Center Drive
Raleigh, North Carolina 27607
(919) 782-0495
www.wkdickson.com
NC LICENSE NO. P-0339

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 054233 ALBERT M. HUCKABY

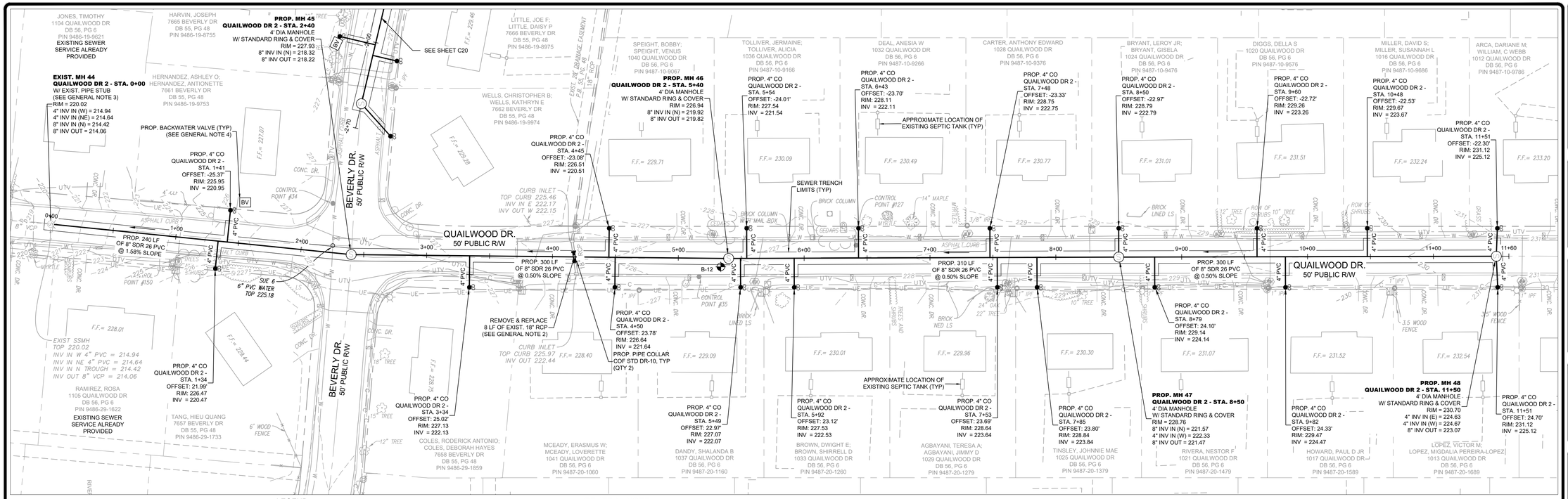
3/5/2024

BEVERLY DR 1
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1989, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
Electric & Water Utilities

20200208.00.RA

Z:\Projects\Fayetteville Public Works Commission\20200208\06\N_c_Annexation Phase V, Area 27\CAD\Plns-Set\20200208_C_SHT_CUTFILL.SW.dwg 3/4/2024 1:46:01 PM



LEGEND

TCE — PROP TEMPORARY EASEMENT	UNKNOWN UNDERGROUND UTILITY
PROP PERMANENT EASEMENT	TREE LINE
PROP SEWER MAIN, LATERAL	SHRUB LINE
W/ CLEAN OUT AND MANHOLE	FENCE
PROP STORM W/ PIPE COLLAR	CONTOUR
PROPERTY LINE/RIGHT OF WAY	DITCH LINE / STREAM
STORM SEWER	TOP OF BANK
SANITARY SEWER W/ MANHOLE	BOTTOM OF BANK
WATER LINE W/ VALVE	WETLANDS BOUNDARY LINE
OVERHEAD ELECTRIC	LIGHT POLE
UNDERGROUND ELECTRIC	POWER POLE
COMMUNICATION LINE	POLE ANCHOR
CABLE TELEVISION	JUNCTION BOX
ELECTRIC TRANSFORMER	CURB INLET
ELECTRIC HAND BOX	FIBER OPTIC MARKER
TELEPHONE PEDESTAL	SIGN
TV PEDESTAL	RIGHT OF WAY MONUMENT
MAIL BOX	CLEAN OUT
IRRIGATION SPRINKLER	FIRE HYDRANT
IRRIGATION VALVE	GATE POST
BOLLARD/MISC POST	WATER METER
SHRUB	PROP REVERSE PLUMBING
SATELLITE DISH	PROP BACKWATER VALVE
LANDSCAPE LIGHT	PROP GRINDER PUMP
FLAG POLE	SOIL BORING LOCATION
STORM JUNCTION BOX	(SEE GEOTECHNICAL REPORT)

GENERAL NOTE:

1. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE PROPOSED SEWER LATERAL INSTALLATION WITH THE EXISTING UTILITIES. CONTRACTOR SHALL USE PWC STANDARD DETAIL S.12 SEWER SERVICE LATERAL UTILITY CONFLICT SEPARATION REQUIREMENTS ONLY WHEN APPROVED BY PWC PROJECT COORDINATOR.
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3. CONTRACTOR SHALL REMOVE EXISTING PIPE STUB PRIOR TO PIPE INSTALLATION AND TIE INTO EXISTING MANHOLE WITH BOOT ON CORRECT LINE AND GRADE. SEWER SERVICE TO 1104 AND 1105 QUAILWOOD DRIVE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
4. PROPOSED SANITARY SEWER SERVICE IS RECOMMENDED TO HAVE A BACKWATER VALVE ON THE PROPERTIES INDICATED WITH A "BV". THIS VALVE SHALL NOT BE THE CONTRACTOR'S RESPONSIBILITY AND IS RECOMMENDED TO BE INSTALLED BY THE PROPERTY OWNER.

GRAPHIC SCALE

40 0 20 40 80

(IN FEET)

HORIZ.: 1 inch = 40 ft.
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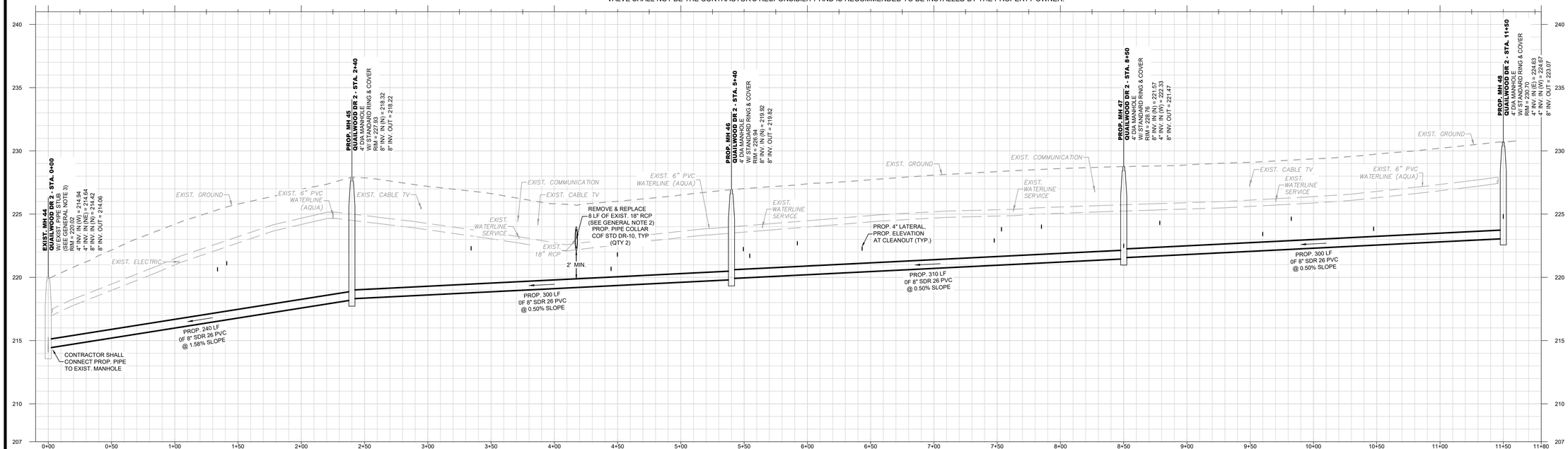
NC STATE PLANE
NAD83, NAVD88



QUAILWOOD DR 2

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

DATE	REVISIONS	BY

SHEET SERIES-FINAL DESIGN -ISSUED FOR BID

DATE: 03/01/2024
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CHECKED BY: AMH / MY
SCALE: HOR: 1"=40' VERT: 1"=4'

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(T) 919.782.0495
(F) 919.782.0497
www.wkdickson.com
NC CERTIFICATE NO.C-1555

SHEET # C21

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 054233 BRENT M. HUCKABY
3/5/2024

QUAILWOOD DR 2
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
PWC Electric & Water Utilities

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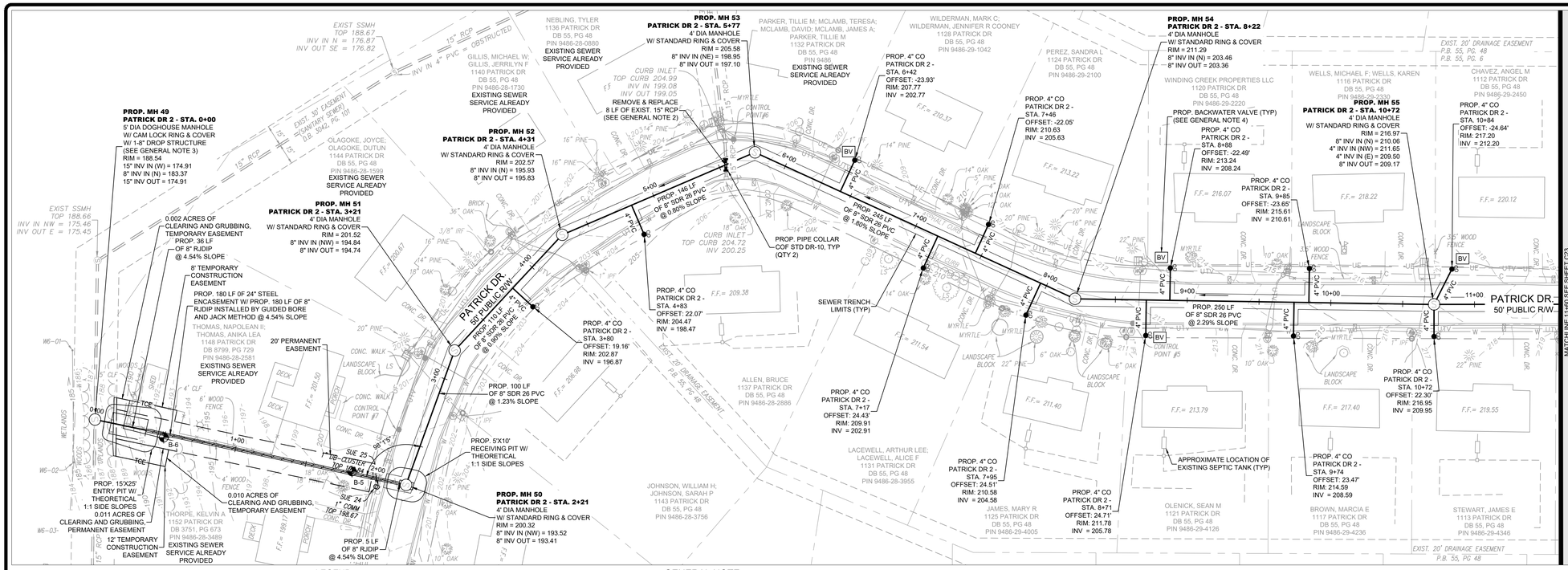

LEGEND

TCE — PROP TEMPORARY EASEMENT
PROP PERMANENT EASEMENT
PROP SEWER MAIN, LATERAL
W/ CLEAN OUT AND MANHOLE
PROP STORM W/ PIPE COLLAR
PROPERTY LINE/RIGHT OF WAY
STORM SEWER
SANITARY SEWER W/ MANHOLE
WATER LINE W/ VALVE
OVERHEAD ELECTRIC
UNDERGROUND ELECTRIC
COMMUNICATION LINE
CABLE TELEVISION

UNKNOWN UNDERGROUND UTILITY
TREE LINE
SHRUB LINE
FENCE
CONTOUR
DITCH LINE / STREAM
TOP OF BANK
BOTTOM OF BANK
WETLANDS BOUNDARY LINE
LIGHT POLE
POWER POLE
POLE ANCHOR
JUNCTION BOX

ELECTRIC TRANSFORMER
ELECTRIC HAND BOX
TELEPHONE PEDESTAL
TV PEDESTAL
MAIL BOX
IRRIGATION SPRINKLER
IRRIGATION VALVE
BOLLARD/MISC POST
SHRUB
SATELLITE DISH
LANDSCAPE LIGHT
FLAG POLE
STORM JUNCTION BOX

CURB INLET
FIBER OPTIC MARKER
SIGN
RIGHT OF WAY MONUMENT
CLEAN OUT
FIRE HYDRANT
GATE POST
WATER METER
PROP REVERSE PLUMBING
PROP BACKWATER VALVE
PROP GRINDER PUMP
SOIL BORING LOCATION
(SEE GEOTECHNICAL REPORT)

GENERAL NOTE:

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GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
HORIZ.: 1 inch = 40 ft.
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NC STATE PLANE
NAD83, NAVD88

NO.	DATE	REVISIONS	BY

SHEET SERIES - FINAL DESIGN - ISSUED FOR BID

DATE: 03/01/2024
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DRAWN BY: VR / DK
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VERT: 1"=4

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NC LICENSED NO. P-0261

SHEET # C22

NORTH CAROLINA PROFESSIONAL ENGINEER 054233 HERBERT M. HUCKABAY
3/5/2024

MATCHLINE 11+60 SEE SHEET C23

PATRICK DR 2 0+00 TO 11+60

ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
PWC Electric & Water Utilities

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PWC DWG # DS-15513

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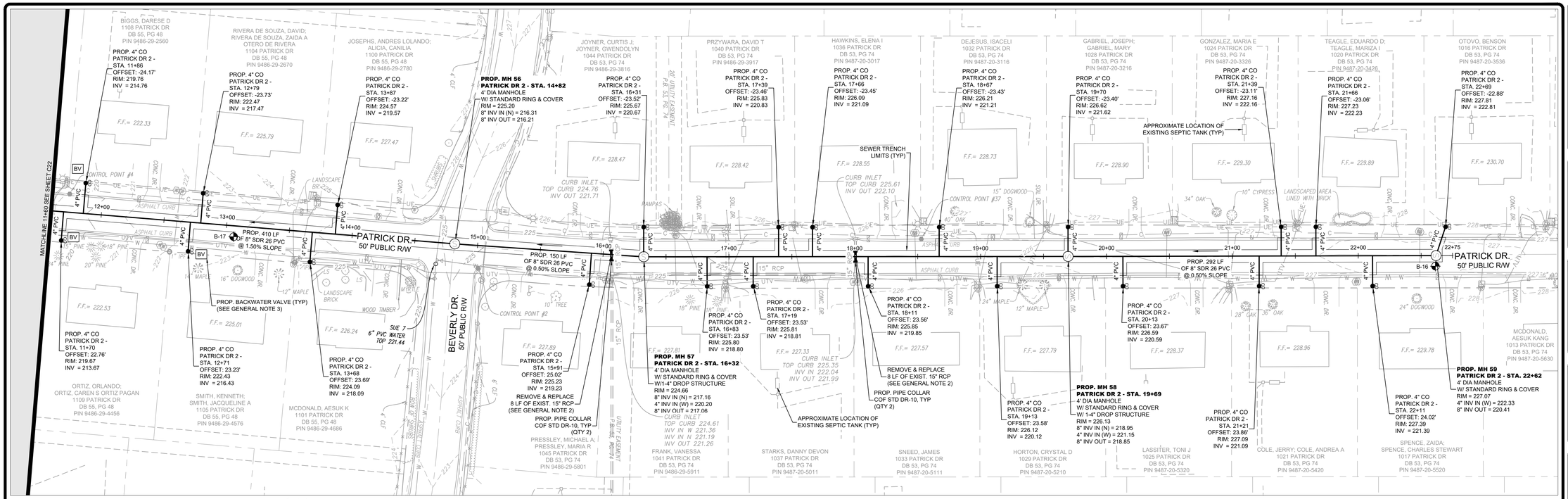

LEGEND

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PROP PERMANENT EASEMENT
PROP SEWER MAIN, LATERAL
W/ CLEAN OUT AND MANHOLE
PROP STORM W/ PIPE COLLAR
PROPERTY LINE/RIGHT OF WAY
STORM SEWER
SANITARY SEWER W/ MANHOLE
WATER LINE W/ VALVE
OVERHEAD ELECTRIC
UNDERGROUND ELECTRIC
COMMUNICATION LINE
CABLE TELEVISION

UNKNOWN UNDERGROUND UTILITY
TREE LINE
SHRUB LINE
FENCE
CONTOUR
DITCH LINE / STREAM
TOP OF BANK
BOTTOM OF BANK
WETLANDS BOUNDARY LINE
LIGHT POLE
POWER POLE
POLE ANCHOR
JUNCTION BOX

ELECTRIC TRANSFORMER
ELECTRIC HAND BOX
TELEPHONE PEDESTAL
TV PEDESTAL
MAIL BOX
IRRIGATION SPRINKLER
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SATELLITE DISH
LANDSCAPE LIGHT
FLAG POLE
STORM JUNCTION BOX

CURB INLET
FIBER OPTIC MARKER
SIGN
RIGHT OF WAY MONUMENT
CLEAN OUT
FIRE HYDRANT
GATE POST
WATER METER
PROP REVERSE PLUMBING
PROP BACKWATER VALVE
PROP GRINDER PUMP
SOIL BORING LOCATION
(SEE GEOTECHNICAL REPORT)

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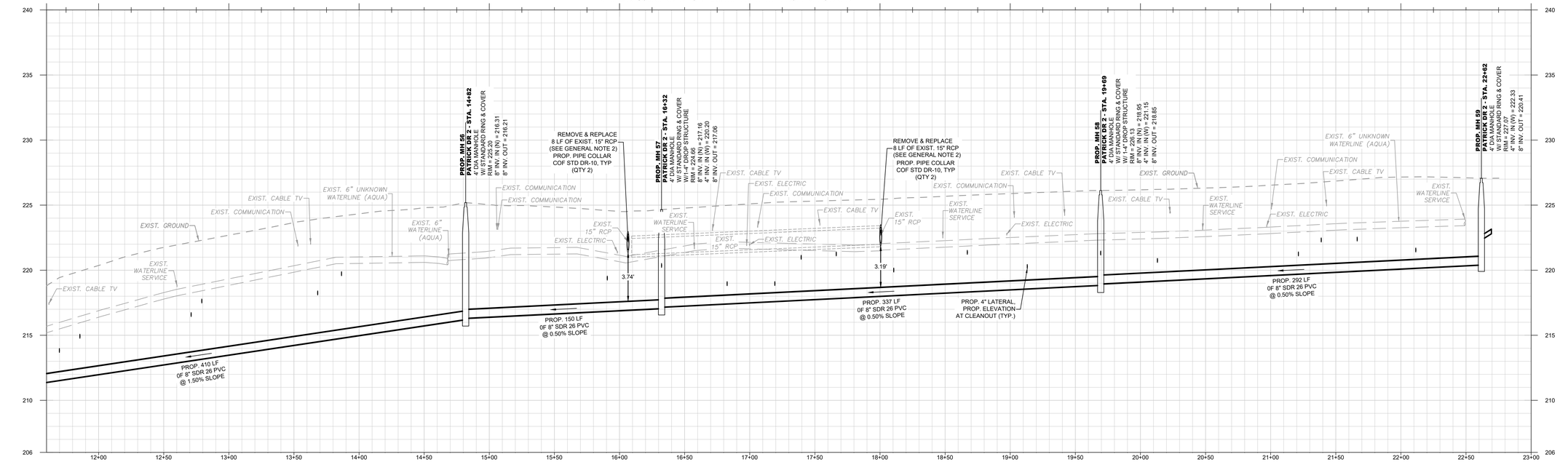

PATRICK DR 2

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

DATE	REVISIONS	BY

SHEET SERIES - FINAL DESIGN - ISSUED FOR BID

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NC LICENSE NO. F-0391

NORTH CAROLINA
PROFESSIONAL ENGINEER
054233
ALBERT M. HUCHEABY
3/5/2024

SHEET # C23

PATRICK DR 2 11+60 TO END
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE
PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
PWC
Electric & Water Utilities

20200208.00.RA

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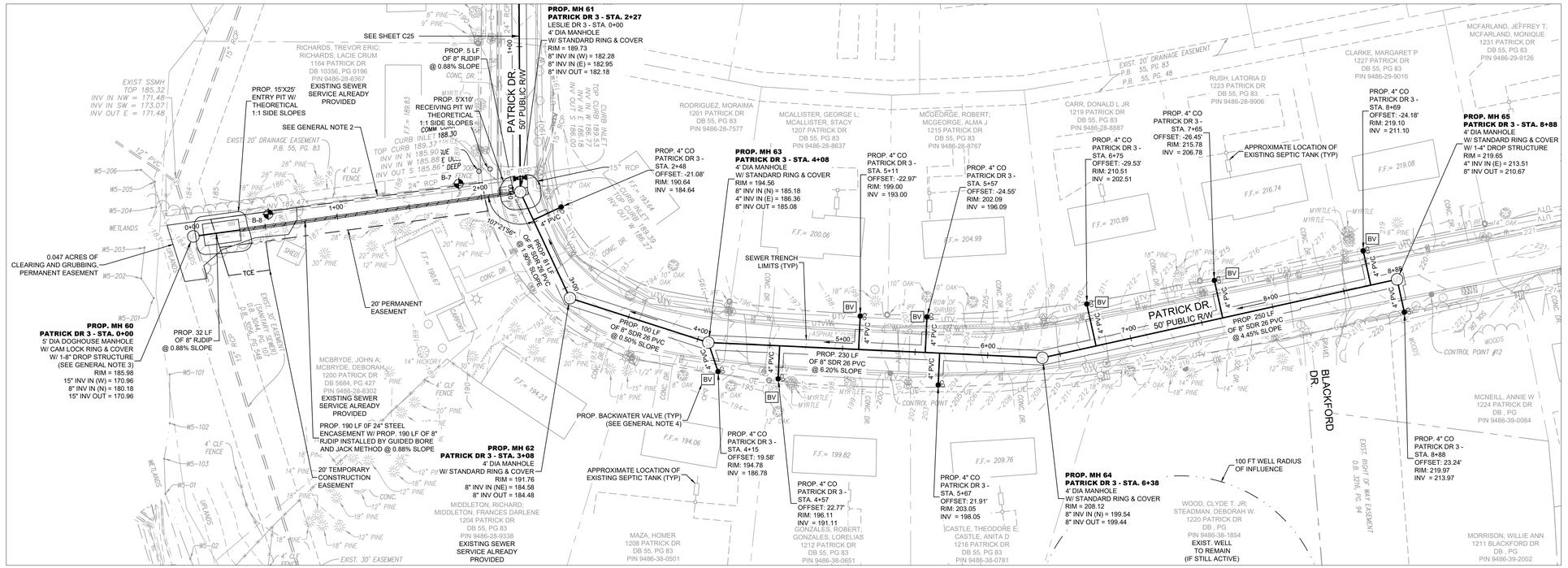

LEGEND

TCE	PROP TEMPORARY EASEMENT	UNKNOWN UNDERGROUND UTILITY	ELECTRIC TRANSFORMER
	PROP PERMANENT EASEMENT	TREE LINE	ELECTRIC HAND BOX
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	PROPERTY LINE/RIGHT OF WAY	CONTOUR	MAIL BOX
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SS	SANITARY SEWER W/ MANHOLE	TOP OF BANK	IRRIGATION VALVE
	WATER LINE W/ VALVE	BOTTOM OF BANK	BOLLARD/MISC POST
OE	OVERHEAD ELECTRIC	WETLANDS BOUNDARY LINE	SHRUB
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2. EXISTING 24" RCP SHALL REMAIN INTACT DURING CONSTRUCTION. ANY DAMAGE TO EXISTING 24" RCP DURING CONSTRUCTION SHALL BE REPAIRED BY CONTRACTOR AT NO ADDITIONAL COST TO PWC.
3. CONTRACTOR SHALL ROTATE 8" DROP STRUCTURE TO PROVIDE POSITIVE FLOW.
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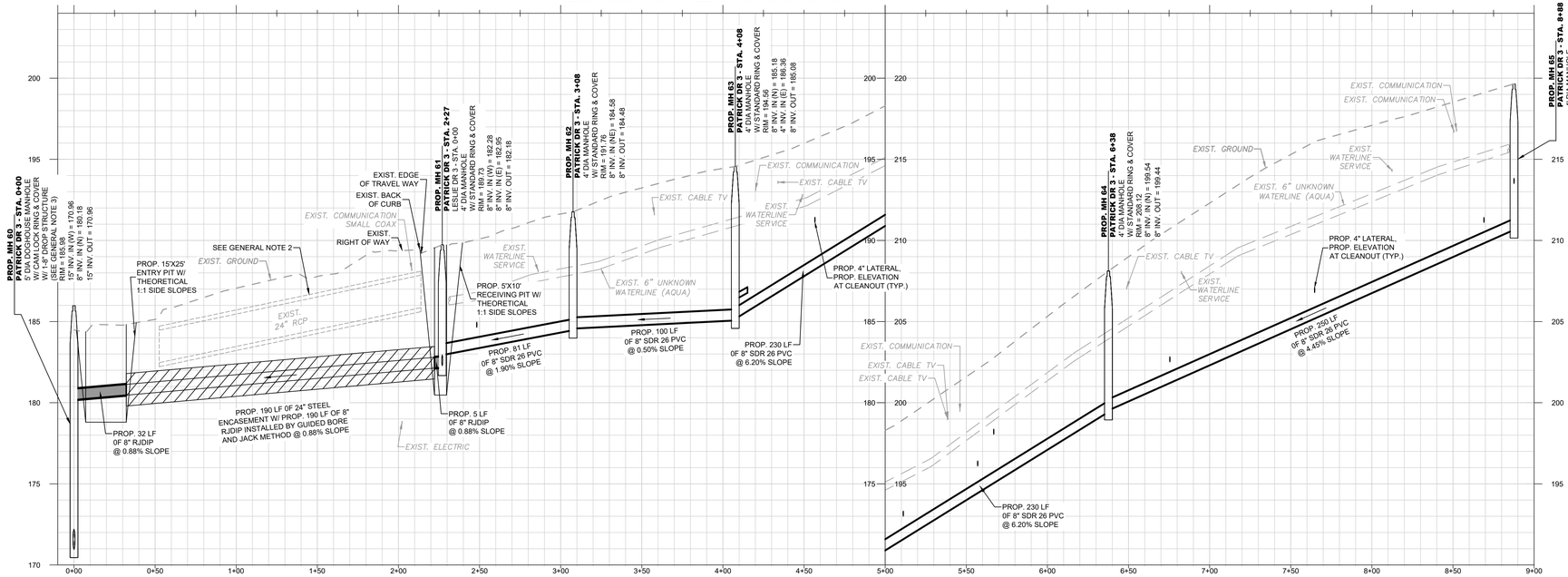

PATRICK DR 3

SCALE: HOR 1"=40'; VERT 1"=4'

PATRICK DR 3

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

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WK DICKSON
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720 Corporate Center Drive
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www.wkdickson.com
NC LICENSE NO 116 SINCE 1946

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 054233 ALBERT M. HUCHABY
3/5/2024

PATRICK DR 3
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
PWC Electric & Water Utilities
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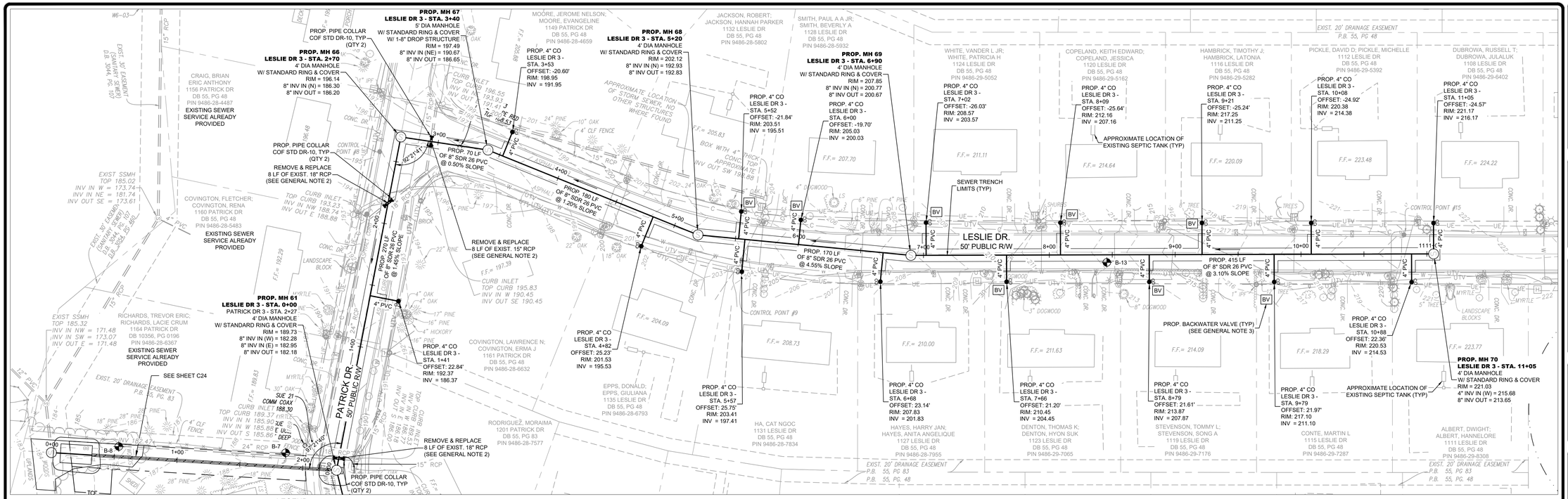

LEGEND

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W/ CLEAN OUT AND MANHOLE	FENCE	TV PEDESTAL	RIGHT OF WAY MONUMENT
PROP STORM W/ PIPE COLLAR	CONTOUR	MAIL BOX	CLEAN OUT
PROPERTY LINE/RIGHT OF WAY	DITCH LINE / STREAM	IRRIGATION SPRINKLER	FIRE HYDRANT
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SANITARY SEWER W/ MANHOLE	BOTTOM OF BANK	BOLLARD/MISC POST	WATER METER
WATER LINE W/ VALVE	WETLANDS BOUNDARY LINE	SHRUB	PROP REVERSE PLUMBING
OVERHEAD ELECTRIC	LIGHT POLE	SATELLITE DISH	PROP BACKWATER VALVE
UNDERGROUND ELECTRIC	POWER POLE	LANDSCAPE LIGHT	PROP GRINDER PUMP
COMMUNICATION LINE	POLE ANCHOR	FLAG POLE	SOIL BORING LOCATION
CABLE TELEVISION	JUNCTION BOX	STORM JUNCTION BOX	(SEE GEOTECHNICAL REPORT)

GENERAL NOTE:

1. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE PROPOSED SEWER LATERAL INSTALLATION WITH THE EXISTING UTILITIES. CONTRACTOR SHALL USE PWC STANDARD DETAIL S.12 SEWER SERVICE LATERAL. UTILITY CONFLICT SEPARATION REQUIREMENTS ONLY WHEN APPROVED BY PWC PROJECT COORDINATOR.
2. CONTRACTOR SHALL CENTER PROPOSED RCP OVER PROPOSED SEWER MAIN AND CONNECT TO EXISTING RCP WITH CONCRETE PIPE COLLAR, SEE CITY OF FAYETTEVILLE (COF) STANDARD DETAILS DR-10 AND DR-19.
3. PROPOSED SANITARY SEWER SERVICE IS RECOMMENDED TO HAVE A BACKWATER VALVE ON THE PROPERTIES INDICATED WITH A "BV". THIS VALVE SHALL NOT BE THE CONTRACTOR'S RESPONSIBILITY AND IS RECOMMENDED TO BE INSTALLED BY THE PROPERTY OWNER.

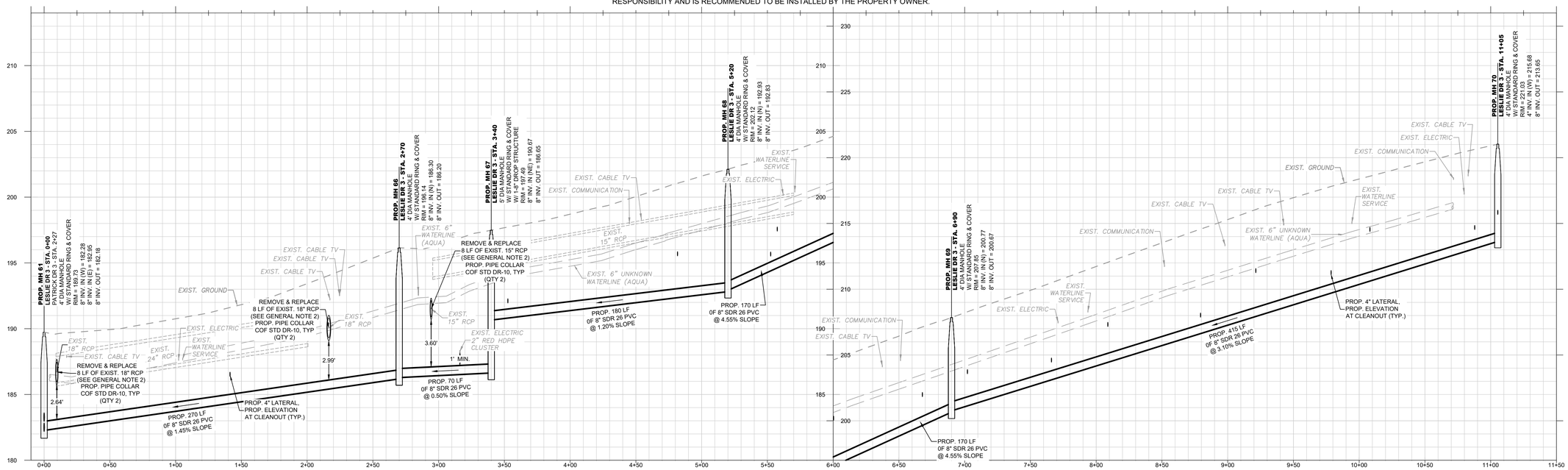
GRAPHIC SCALE

40 0 20 40 80

(IN FEET)

HORIZ.: 1 inch = 40 ft.
VERT.: 1 inch = 4 ft.

NC STATE PLANE
NAD83, NAVD88



LESLIE DR 3

SCALE: HOR 1"=40'; VERT 1"=4'

LESLIE DR 3

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

BY	DATE	REVISIONS

SHEET SERIES=FINAL DESIGN - ISSUED FOR BID

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SHEET # C25

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NC LICENSE NO 1084

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 054233 ALBERT M. HUCHABY
3/5/2024

LESLIE DR 3
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
PWC Electric & Water Utilities

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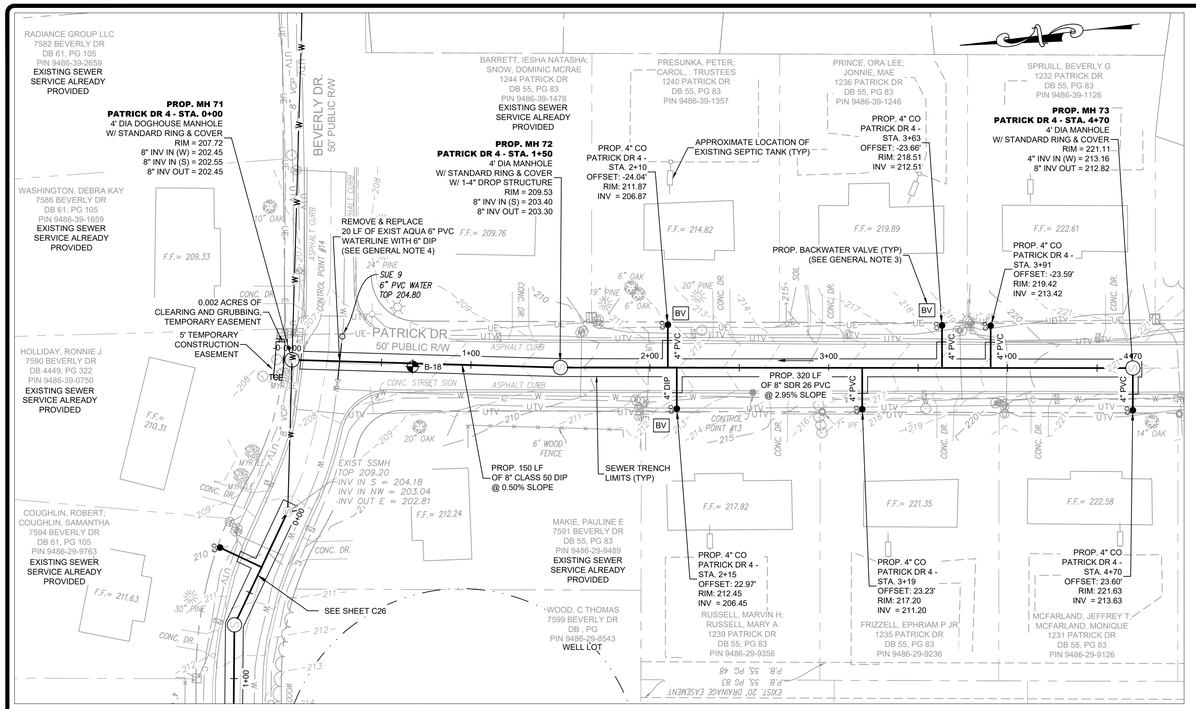
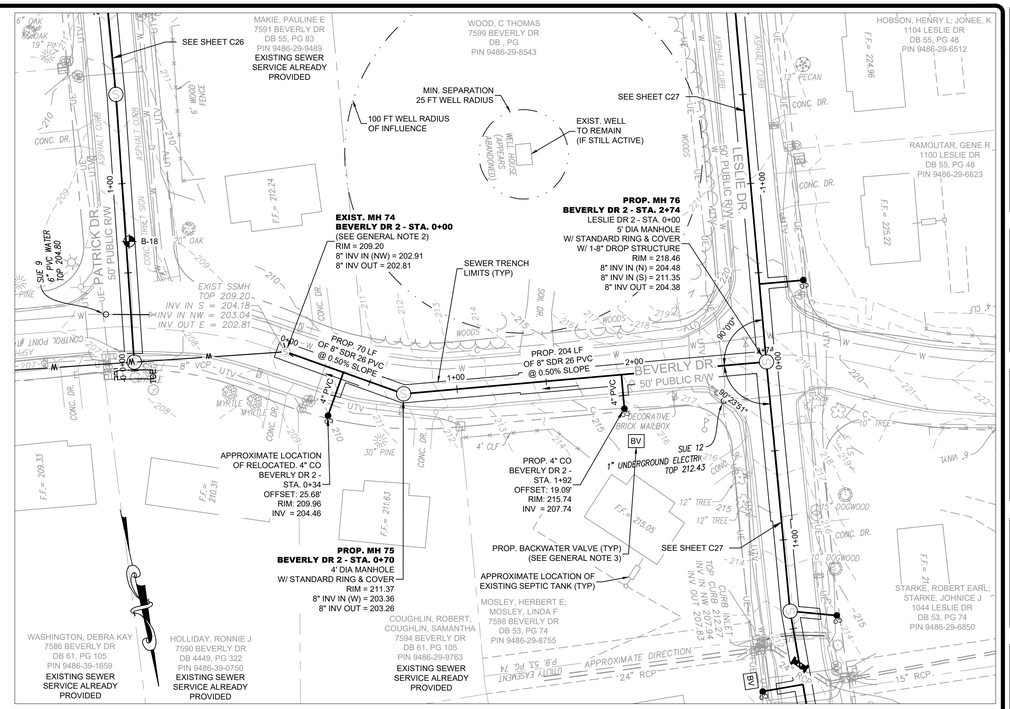




LEGEND

TCE — PROP TEMPORARY EASEMENT	UNKNOWN UNDERGROUND UTILITY	ELECTRIC TRANSFORMER	CURB INLET
PROP PERMANENT EASEMENT	TREE LINE	ELECTRIC HAND BOX	FIBER OPTIC MARKER
PROP SEWER MAIN, LATERAL	SHRUB LINE	TELEPHONE PEDESTAL	SIGN
W/ CLEAN OUT AND MANHOLE	FENCE	TV PEDESTAL	RIGHT OF WAY MONUMENT
PROP STORM W/ PIPE COLLAR	CONTOUR	MAIL BOX	CLEAN OUT
PROPERTY LINE/RIGHT OF WAY	DITCH LINE / STREAM	IRRIGATION SPRINKLER	FIRE HYDRANT
STORM SEWER	TOP OF BANK	IRRIGATION VALVE	GATE POST
SANITARY SEWER W/ MANHOLE	BOTTOM OF BANK	BOLLARD/MISC POST	WATER METER
WATER LINE W/ VALVE	WETLANDS BOUNDARY LINE	SHRUB	PROP REVERSE PLUMBING
OVERHEAD ELECTRIC	LIGHT POLE	SATELLITE DISH	PROP BACKWATER VALVE
UNDERGROUND ELECTRIC	POWER POLE	LANDSCAPE LIGHT	PROP GRINDER PUMP
COMMUNICATION LINE	POLE ANCHOR	FLAG POLE	SOIL BORING LOCATION
CABLE TELEVISION	JUNCTION BOX	STORM JUNCTION BOX	(SEE GEOTECHNICAL REPORT)

GENERAL NOTE:

1. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE PROPOSED SEWER LATERAL INSTALLATION WITH THE EXISTING UTILITIES. CONTRACTOR SHALL USE PWC STANDARD DETAIL S.12 SEWER SERVICE LATERAL. UTILITY CONFLICT SEPARATION REQUIREMENTS ONLY WHEN APPROVED BY PWC PROJECT COORDINATOR.
2. EXISTING SEWER SERVICES TO 7591 AND 7594 BEVERLY DRIVE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. NEW SEWER LATERAL FOR 7594 BEVERLY SHALL BE PROVIDED TO THE PROPOSED SEWER MAIN. CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTING THE NEW SEWER LATERAL AND ABANDONING EXISTING LATERAL IN ACCORDANCE WITH PWC STANDARDS AT NO ADDITIONAL COST TO PWC. APPROXIMATE LOCATION OF THE RELOCATED 4" CO HAS BEEN NOTED ON PLANS. CONTRACTOR SHALL COORDINATE WITH PWC PROJECT COORDINATOR ON ANY FIELD ADJUSTMENTS NEEDED TO RELOCATE AND CONNECT TO PROPOSED SEWER MAIN.
3. PROPOSED SANITARY SEWER SERVICE IS RECOMMENDED TO HAVE A BACKWATER VALVE ON THE PROPERTIES INDICATED WITH A "BV". THIS VALVE SHALL NOT BE THE CONTRACTOR'S RESPONSIBILITY AND IS RECOMMENDED TO BE INSTALLED BY THE PROPERTY OWNER.
4. CONTRACTOR SHALL COORDINATE REMOVAL AND REPLACEMENT OF EXISTING WATERLINE WITH PWC COORDINATOR AND AQUA. CONTRACTOR SHALL INSTALL PROPOSED DIP CENTERED OVER THE PROPOSED SEWER MAIN AND CONNECT TO EXISTING WATERLINE.

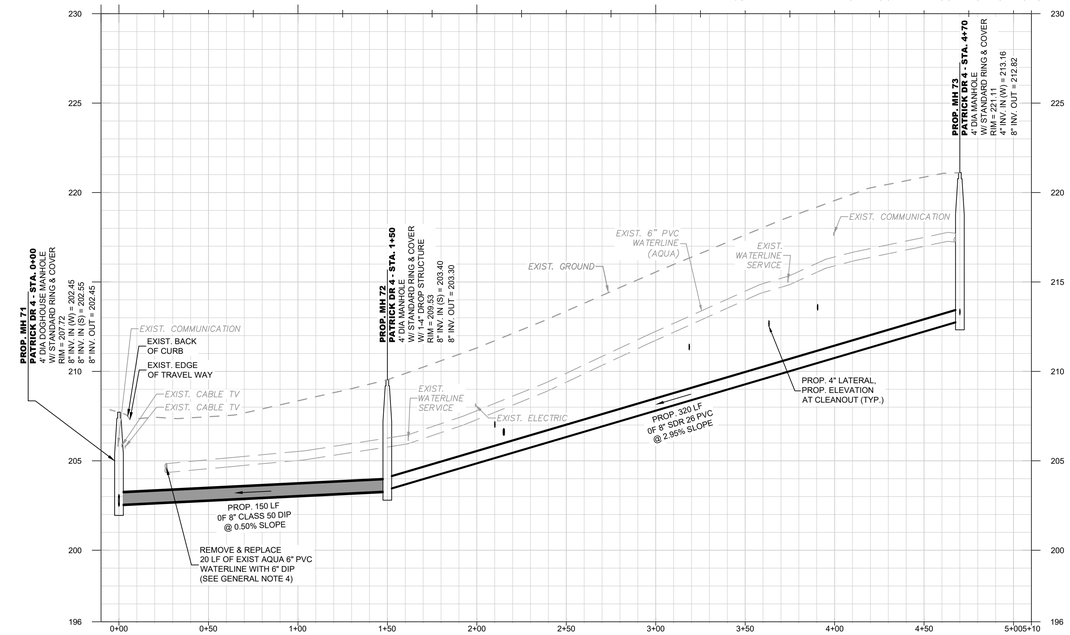
GRAPHIC SCALE

40 0 20 40 80

(IN FEET)

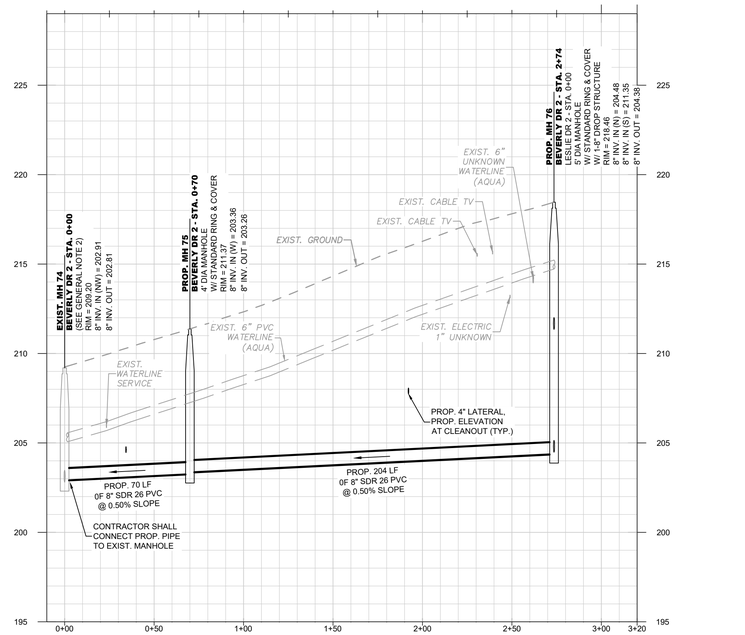
HORIZ.: 1 inch = 40 ft.
VERT.: 1 inch = 4 ft.

NC STATE PLANE
NAD83, NAVD88



PATRICK DR 4

SCALE: HOR 1"=40'; VERT 1"=4'



BEVERLY DR 2

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

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SCALE: HOR: 1"=40
VERT: 1"=4
SHEET # C26

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NORTH CAROLINA PROFESSIONAL ENGINEER 054233 HERBERT M. HUCHABY
3/5/2024

PATRICK DR 4 & BEVERLY DR 2
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
PWC Electric & Water Utilities

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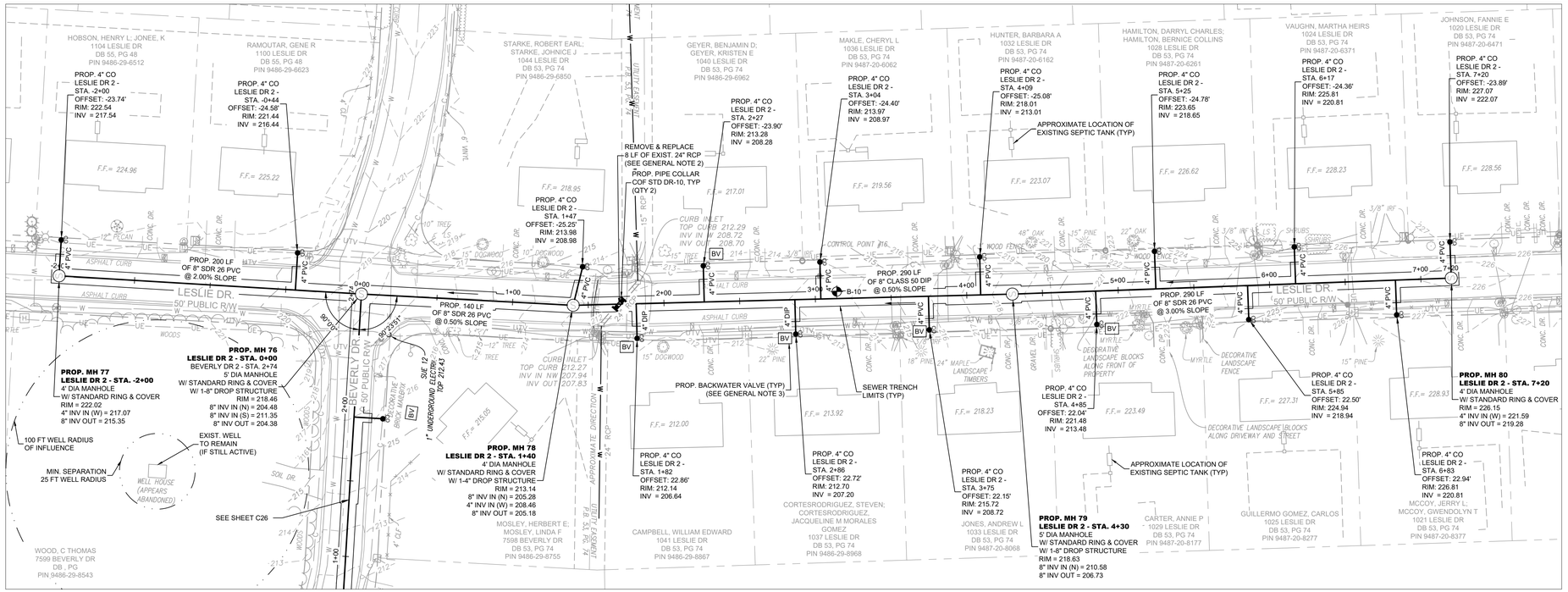

LEGEND

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PROP SEWER MAIN, LATERAL	SHRUB LINE	TELEPHONE PEDESTAL
W/ CLEAN OUT AND MANHOLE	FENCE	TV PEDESTAL
PROP STORM W/ PIPE COLLAR	CONTOUR	MAIL BOX
PROPERTY LINE/RIGHT OF WAY	DITCH LINE / STREAM	IRRIGATION SPRINKLER
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CABLE TELEVISION	JUNCTION BOX	STORM JUNCTION BOX

CURB INLET	
FIBER OPTIC MARKER	
SIGN	
RIGHT OF WAY MONUMENT	
CLEAN OUT	
FIRE HYDRANT	
GATE POST	
WATER METER	
RP — PROP REVERSE PLUMBING	
BV — PROP BACKWATER VALVE	
GP — PROP GRINDER PUMP	
SOIL BORING LOCATION (SEE GEOTECHNICAL REPORT)	

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GRAPHIC SCALE

40 0 20 40 80

(IN FEET)

HORIZ.: 1 inch = 40 ft.
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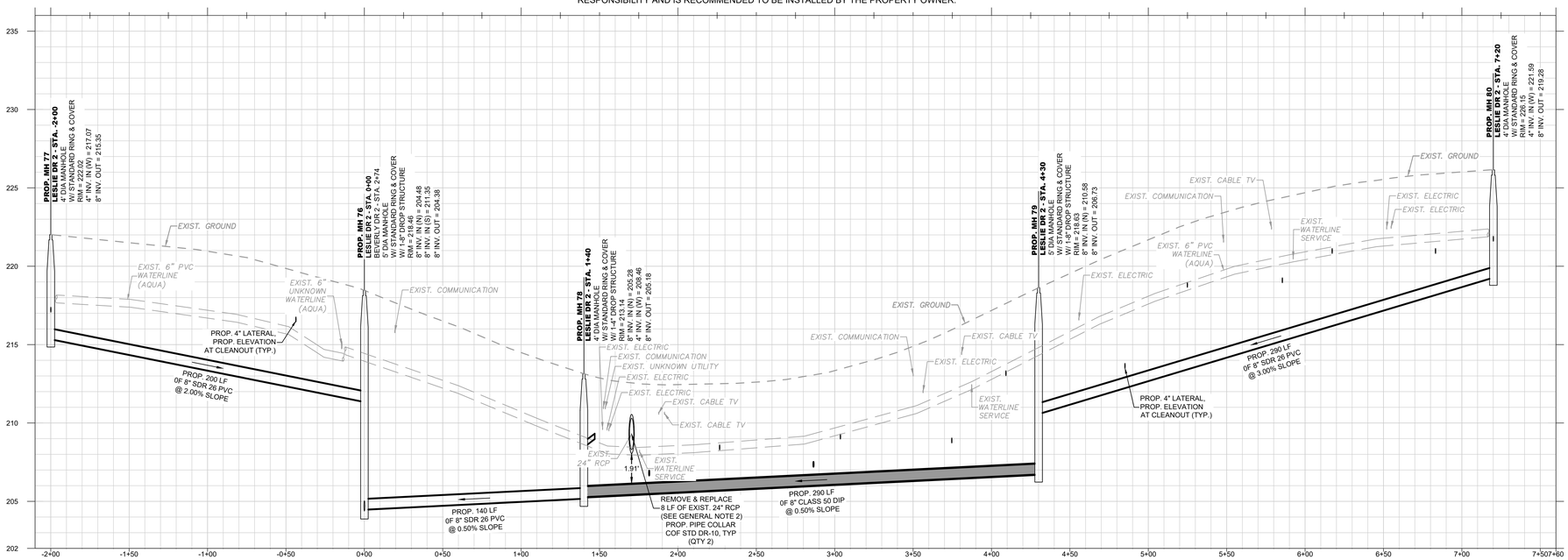
NC STATE PLANE
NAD83, NAVD88



LESLIE DR 2

SCALE: HOR 1"=40'; VERT 1"=4'

PWC DWG # DS-15513

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NC LICENSE NO 1084

SHEET # C27

NORTH CAROLINA PROFESSIONAL ENGINEER 054233 HERBERT M. HUCHABY

3/5/2024

LESLIE DR 2
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
PWC Electric & Water Utilities

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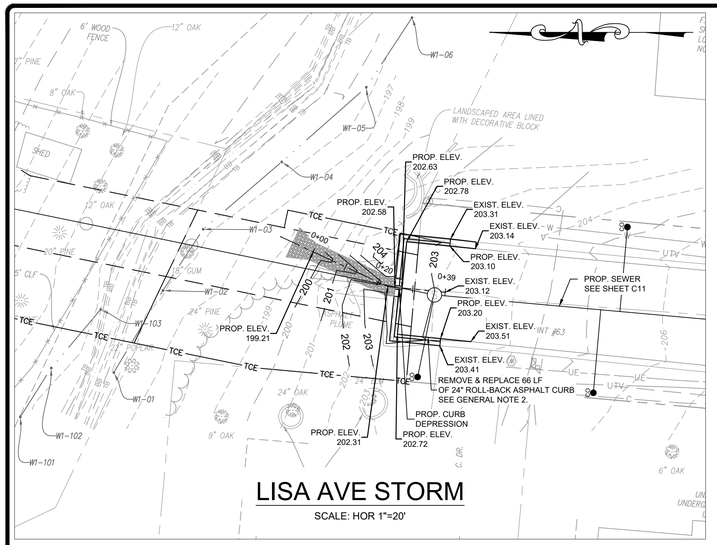
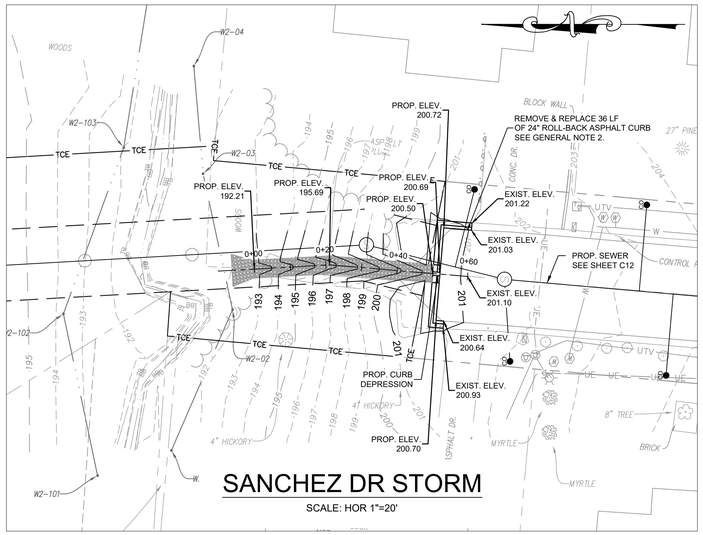


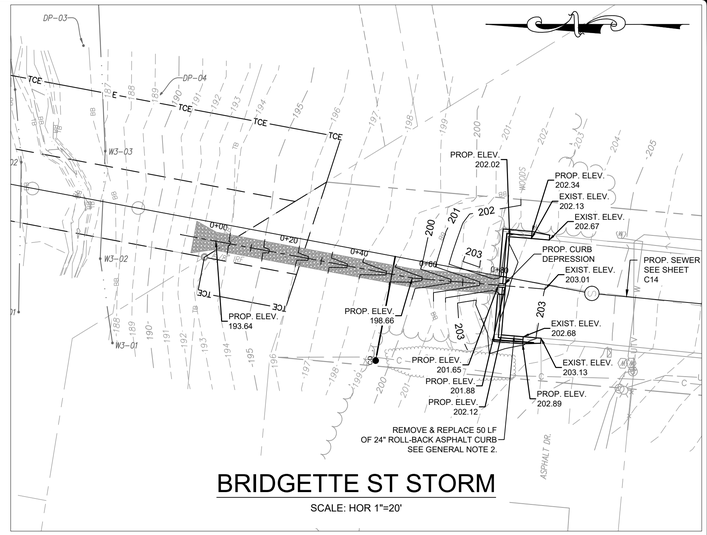
LISA AVE STORM

SCALE: HOR 1"=20'



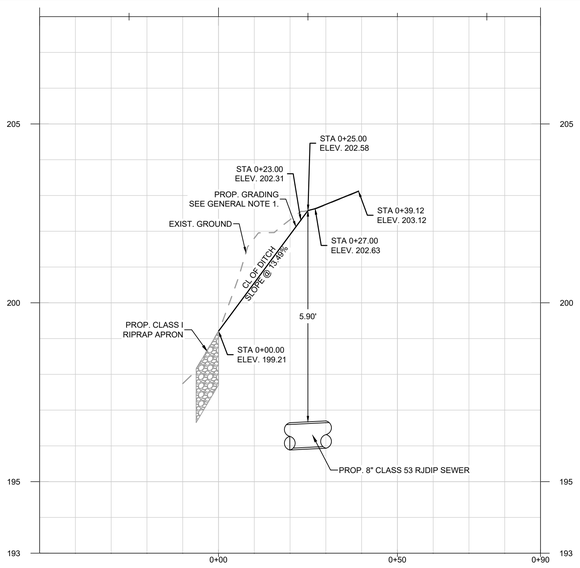
SANCHEZ DR STORM

SCALE: HOR 1"=20'



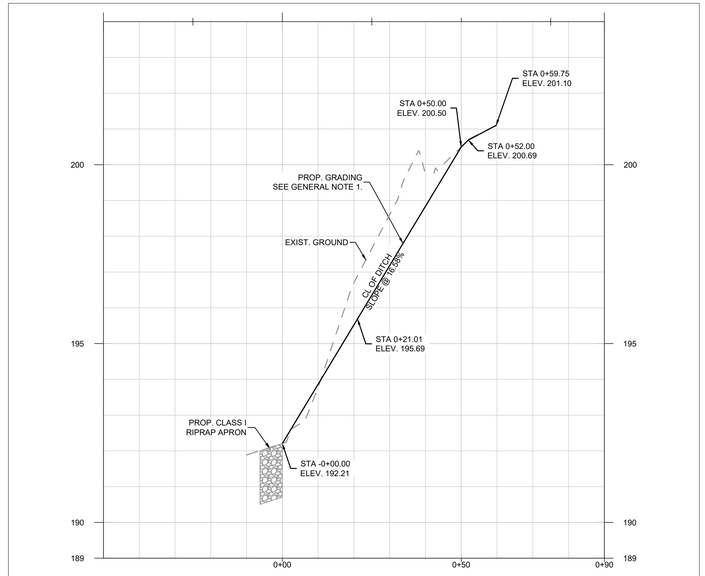
BRIDGETTE ST STORM

SCALE: HOR 1"=20'



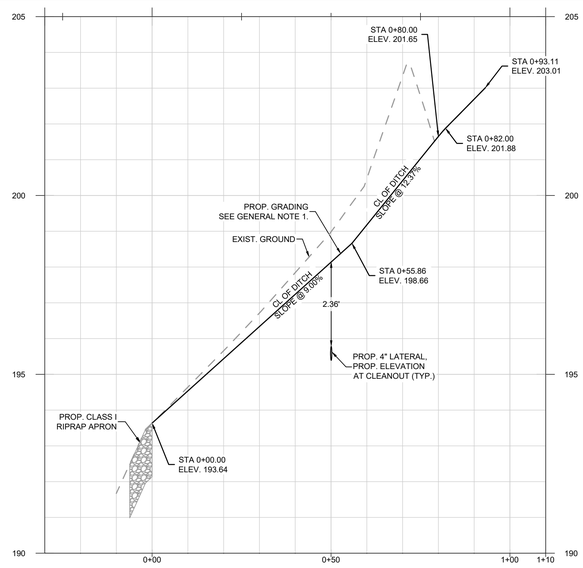
LISA AVE STORM

SCALE: HOR 1"=20'; VERT 1"=2'



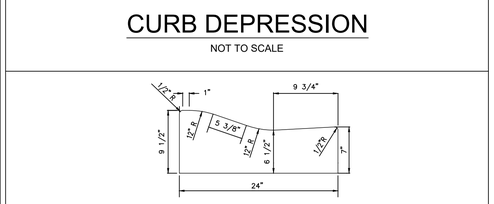
SANCHEZ DR STORM

SCALE: HOR 1"=20'; VERT 1"=2'



BRIDGETTE ST STORM

SCALE: HOR 1"=20'; VERT 1"=2'

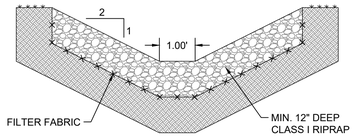


CURB DEPRESSION

NOT TO SCALE

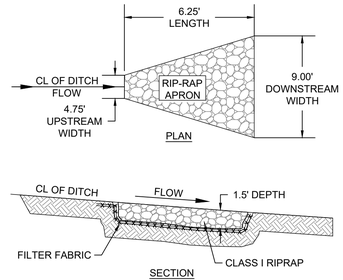
24" ROLL-BACK ASPHALT CURB

NOT TO SCALE



TYPICAL DITCH SECTION

NOT TO SCALE



RIPRAP APRON

NOT TO SCALE

LEGEND

PROP. EASEMENT	PROP. TEMPORARY CONSTRUCTION EASEMENT		WATER METER
PROP. SEWER, CLEAN OUT & MANHOLE	PROP. SAFETY FENCE		IRRIGATION VALVE
PROP. STORM DRAINAGE	SOIL BORING LOCATION SEE GEOTECHNICAL REPORT	TR	ELECTRIC TRANSFORMER
PROP. WATER LINE & METER	PROP. REVERSE PLUMBING		TELEPHONE PEDESTAL
SANITARY SEWER LINE & MANHOLE	PROP. BACKWATER VALVE		TELEVISION PEDISTAL
WATER LINE & VALVE	PROP. GRINDER PUMP		DRAINAGE MANHOLE
UNDERGROUND GAS (APPROX. LOCATION)	APPROX EXIST SEPTIC TANK		FIRE HYDRANT
COMMUNICATION LINE (APPROX. LOCATION)	ELECTRIC PEDESTAL		MAILBOX
UNDERGROUND ELECTRIC	CONCRETE MONUMENT		LIGHT POLE / POST
UNDERGROUND TELEPHONE	IRON PIPE FOUND		DROP INLET / LAMP
UNDERGROUND FIBER OPTIC LINE		F.F.	FINISH FLOOR / BUSH
UNDERGROUND TELEVISION CABLE LINE		INV.	INVERT / SIGN

GENERAL NOTE:

1. CONTRACTOR SHALL PROVIDE GRADING OF THE PERMANENT DRAINAGE DITCH, AS SHOWN ON PLAN AND PROFILE, AT NO ADDITIONAL COST TO OWNER.
2. CONTRACTOR SHALL RECONSTRUCT AND RESTORE LISA AVENUE AND SANCHEZ DRIVE (2-INCHES MIN., SF9.5A WITH 8-INCH STONE BASE COURSE) TO EXISTING GRADES FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT WITHIN THE SEWER CONSTRUCTION CORRIDOR. ALL 24" ROLLBACK CURB AND GUTTER SHALL BE INCLUDED IN THE ASPHALT QUANTITIES.

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)

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VERT.: 1 inch = 2 ft.

NC STATE PLANE
NAD83, NAVD88

PWC DWG # DS-15513

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NC CERTIFICATE NO.? P-0376

NORTH CAROLINA PROFESSIONAL ENGINEER 054233 ALBERT M. HUCKABY

3/5/2024

STORM DRAINAGE
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
Electric & Water Utilities

20200208.00.RA

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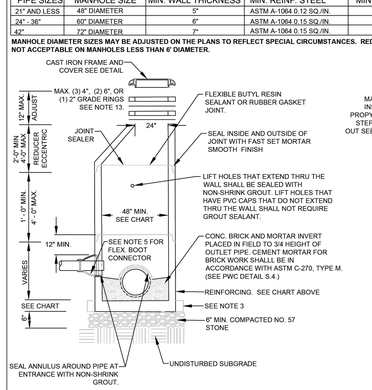
1. ALL SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYETTEVILLE FAYPWC STANDARDS.
2. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
3. CONSTRUCTION STAKING IS REQUIRED FOR ALL FAYPWC WATER AND SEWER UTILITY INSTALLATIONS. CUT SHEETS, SIGNED AND SEALED BY A NC PLS, SHALL BE PROVIDED TO THE FAYPWC WATER RESOURCES ENGINEERING DEPARTMENT AND THE CONTRACTOR IN ADVANCE OF CONSTRUCTION FOR FAYPWC WATER AND SEWER UTILITIES.
4. CONTRACTOR SHALL MAINTAIN A COPY OF THE SIGNED AND SEALED CUT SHEET ON THE JOB SITE. CONSTRUCTION ON FAYPWC WATER AND SEWER UTILITIES CANNOT BEGIN UNTIL THE CONTRACTOR POSSESSES, ON SITE, A SIGNED AND SEALED CUT SHEET FROM THE PROFESSIONAL LAND SURVEYOR.
5. ALL NEW WATER AND SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE TESTED AND/OR DISINFECTED IN ACCORDANCE WITH FAYETTEVILLE FAYPWC STANDARDS PRIOR TO PLACING INTO SERVICE.
6. CONTRACTOR SHALL COORDINATE TESTING AND INSPECTION WITH THE FAYETTEVILLE FAYPWC PROJECT COORDINATOR.
7. ALL DUCTILE IRON PIPE IN SANITARY SEWER SERVICE SHALL HAVE AN INTERIOR LINING OF PROTECTO 401 OR APPROVED EQUAL.
8. ALL NEW MANHOLES ARE TO BE VACUUM-TESTED IN ACCORDANCE WITH FAYETTEVILLE FAYPWC STANDARDS.
9. CONTRACTOR SHALL REPAIR ALL SEWER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY REPORT ALL SEWER MAIN AND LATERAL BREAKS TO THE FAYPWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH FAYPWC STANDARDS.
10. TRANSFER OF SEWER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
    A. INSTALL AND TEST NEW MAINS, MANHOLES, AND LATERALS. CLEANOUTS SHALL BE INSTALLED 18" INSIDE R/W UNLESS OTHERWISE DIRECTED BY PWC.
    B. CONNECT EXISTING PLUMBING TO NEW LATERAL UTILIZING THE NECESSARY FITTINGS AS DIRECTED BY FAYPWC.
    C. AFTER ALL SERVICES HAVE BEEN TRANSFERRED TO THE NEW MAIN, THE EXISTING SEWER SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
11. CONTRACTOR SHALL ABANDON ("KILL-OUT") ANY EXISTING SEWER SERVICES THAT WILL NOT BE UTILIZED BY UNCOVERING THE EXISTING LATERAL AT THE MAIN, CUT AND PLUG AT BOTH ENDS, REMOVE THE EXISTING CLEANOUT AND COMBINATION, AND PLUG THE TAP OR TEE AT THE MAIN. FOR LATERALS THAT CONNECT TO A MANHOLE AND ARE TO BE ABANDONED ("KILLED-OUT"), THE LATERAL SHALL BE REMOVED FROM THE MANHOLE AND THE REMAINING VOID IN THE MANHOLE SHALL BE FILLED WITH BLOCK AND MORTAR.
12. SEWER PLUGS SHALL BE INSTALLED TO ELIMINATE ANY DEBRIS OR OTHER MATERIAL FROM ENTERING THE ACTIVE SEWER SYSTEM. UPON ACCEPTANCE OF THE NEW SEWER SYSTEM, THE CONTRACTOR SHALL CLEAN THE NEW MAINS, REMOVE ALL DEBRIS, AND THEN REMOVE THE PLUG.
13. ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE, IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
14. ALL WORK ON FAYPWC SEWER UTILITIES (MAINS, LATERALS, ETC) SHALL BE PERFORMED BY A LICENSED UTILITY CONTRACTOR. THE FAYETTEVILLE PUBLIC WORKS COMMISSION SHALL OBSERVE AND APPROVE ALL WORK ON FAYPWC SEWER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
15. SEPARATION REQUIREMENTS:
    A. **LATERAL SEPARATION OF SEWER AND WATER MAINS:** WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENTING A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
        i. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18-INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL; OR
        ii. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18-INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
    B. **CROSSING A WATER MAIN OVER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18-INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
    C. **CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, A MINIMUM OF 18-INCHES OF SEPARATION SHALL BE PROVIDED. BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF DUCTILE IRON MATERIAL AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10-FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
    D. **CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 24-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A SEWER MAIN/LATERAL CROSSING UNDER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IF DUCTILE IRON PIPE IS USED, A MINIMUM OF SIX(6) INCHES OF SEPARATION SHALL BE MAINTAINED, UNLESS OTHERWISE APPROVED BY FAYPWC.

GENERAL NOTES SANITARY SEWER UTILITY		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.1	DWG. BY: FAYPWC		1	01/18	ADDED NOTES 5, 8
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT	2	06/21	ADDED NOTES 1-8 AND RENUMBERED
				3	11/23	REVISED NOTE 15

S1-SEWER-NOTES.dwg

PIPE SIZES	MANHOLE SIZE	MIN. WALL THICKNESS	MIN. REINF. STEEL	MIN. BASE THICKNESS
21" AND LESS	48" DIAMETER	5"	ASTM A-1064 0.12 SQ./IN.	6"
24" - 36"	60" DIAMETER	6"	ASTM A-1064 0.15 SQ./IN.	8"
42"	72" DIAMETER	7"	ASTM A-1064 0.15 SQ./IN.	8"

MANHOLE DIAMETER SIZES MAY BE ADJUSTED ON THE PLANS TO REFLECT SPECIAL CIRCUMSTANCES. REDUCING SLABS ARE NOT ACCEPTABLE ON MANHOLES LESS THAN 8' DIAMETER.



STANDARD MANHOLE N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. S.2	DWG. BY: FAYPWC		1	02/07	CREATED S.2A ADDED NOTES 13-17
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT	2	07/13	ADDED SHEET 2 OF 2
				3	01/01/24	CLARIFIED NOTES REGARDING MORTAR FOR BENCH AND INVERT.

S2-STANDARD-MANHOLE.dwg

NOTES:
1. PRECAST REINFORCED CONCRETE MANHOLES SHALL BE IN ACCORDANCE WITH ASTM C-478.
2. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 4,000PSI.
3. MANHOLES GREATER THAN 12' DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
4. FLEXIBLE BUTYL RESIN JOINT SEALANT SHALL BE IN ACCORDANCE WITH ASTM C990. RUBBER GASKET JOINTS SHALL BE IN ACCORDANCE WITH ASTM C-443.
5. FLEXIBLE EPDM RUBBER BOOT CONNECTORS SHALL BE IN ACCORDANCE WITH ASTM C923, INSTALLED BY MANUFACTURER WITH STAINLESS STEEL COMPRESSION RING AND TAKE-UP CLAMP. THE FLEXIBLE BOOT CONNECTOR SHALL BE TIGHTENED ON THE MAIN BY MEANS OF A SINGLE STAINLESS STEEL PIPE CLAMP.
6. CONNECTIONS TO EXISTING MANHOLES SHALL BE BY CORING MANHOLE AND FIELD INSTALLING A FLEXIBLE EPDM RUBBER BOOT CONNECTOR. DO NOT ALLOW DEBRIS TO ENTER SYSTEM.
7. MORTAR USED FOR SEALING JOINTS AND LIFT HOLES SHALL BE QUICK SETTING, NON-SHRINK GROUT MIXED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. MORTAR USED TO CONSTRUCT INVERTS AND SHELF SHALL BE IN ACCORDANCE WITH ASTM C-270, TYPE M, IN ACCORDANCE WITH PWC SPECIFICATION SECTION 03301.
8. MANHOLE STEPS SHALL BE IN ACCORDANCE WITH ASTM C478 AND OSHA REGULATIONS. ALIGN STEPS WITH INVERT OUT.
9. PRECAST INVERTS ARE NOT ALLOWED.
10. VERTICAL DROPS BETWEEN THE INFLOW PIPES AND OUTFLOW PIPES SHALL REQUIRE THE FOLLOWING:
    A. GREATER THAN 2.5' SEE DROP STRUCTURE DETAIL (MIN. 5' DIAMETER MH REQUIRED).
    B. LESS THAN 2.5' SEE PIPE SLIDE DETAIL.
11. AN ECCENTRIC CONE SHALL BE UTILIZED ON ALL MANHOLES, UNLESS OTHERWISE APPROVED BY FAYPWC.
12. INVERT ON PLANS IS TO MANHOLE CENTERLINE.
13. GRADE RINGS SHALL NOT BE USED FOR ABOVE GRADE ADJUSTMENTS (IE: OUTFALL AREAS). USE OF GRADE RINGS ARE ALLOWABLE IN YARD AREAS AND PAVEMENT, WHERE THE RING AND COVER ARE AT GROUND LEVEL. GRADE RINGS CAN BE EITHER CONCRETE OR HDPE. HDPE GRADE RINGS SHALL MEET THE REQUIREMENTS OF ASTM 4796 FOR MATERIAL, QUALITY, AND PERFORMANCE. HDPE GRADE RINGS SHALL BE MANUFACTURED BY LADTECH, INC. OR APPROVED EQUAL.
14. THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1%, UNLESS OTHERWISE APPROVED BY FAYPWC. STANDING WATER IN INVERT OF MANHOLE IS NOT ACCEPTABLE.
15. THE EXTERIOR MANHOLE RISER JOINTS, INCLUDING THE JOINT AT THE CONE, SHALL BE SEALED ON THE OUTSIDE BY AN APPROVED JOINT WRAP. THE WRAP SHALL BE IN ACCORDANCE WITH FAYPWC SPECIFICATIONS.
16. MANHOLE BOOT FOR 4-INCH LATERALS, SHOULD IT BE NECESSARY TO INSTALL A 4-INCH LATERAL INTO A MANHOLE, THE RUBBER BOOT THAT THE LATERAL IS INSERTED INTO SHALL BE SECURELY FASTENED TO THE CORE HOLE BY UTILIZING A STAINLESS STEEL BAND THAT IS TIGHTENED USING A JACK OR A TORQUE WRENCH (DIRECT DRIVE). BOTH STANDARD SIZE AND STEP DOWN BOOTS ARE ALLOWED. THE TORQUE WRENCH SHALL BE SUPPLIED BY THE MANUFACTURER. NO OTHER TYPE BANDS OR METHOD OF SECURING THE BOOT TO THE MANHOLE SHALL BE ACCEPTED.

    FOR FOUR (4) INCH SDR 26 LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL BE 3.5-INCHES TO 4.25-INCHES.

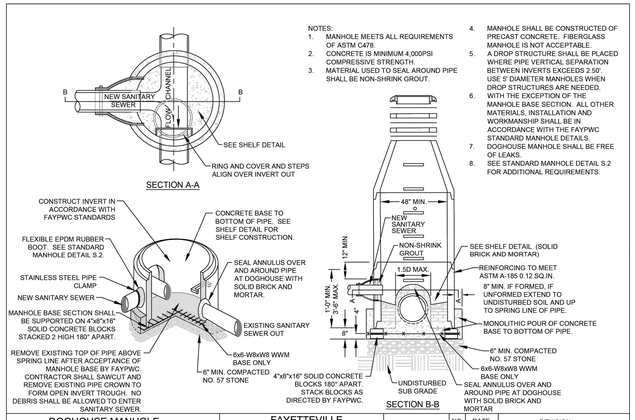
    FOR FOUR (4) INCH DUCTILE IRON LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL EITHER BE AS FOR VC OR 4.25-INCHES TO 4.81-INCHES.

    IN ALL CASES, THE BOOT SHALL BE TIGHTENED ON THE LATERAL BY MEANS OF A SINGLE STAINLESS STEEL PIPE CLAMP.

    THE LATERAL INVERT SHALL BE AT THE TOP O F THE SHELF.
17. NO MORE THAN 4, FOUR-INCH LATERALS OR 3, SIX-INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
18. NO MORE THAN 5 LATERALS SHALL ENTER A 5' DIAMETER MANHOLE.
19. USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.
20. ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH FAYPWC STANDARDS.

STANDARD MANHOLE N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. S.2	DWG. BY: FAYPWC		1	07/13	REVISED NOTES 9, 10, 11, 15. CONVERTED TO S.2 SHEET 2 OF 2
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT	2	01/01/19	REVISED NOTES 10, 18
				3	01/01/24	REVISED NOTES 5, 7, 16.

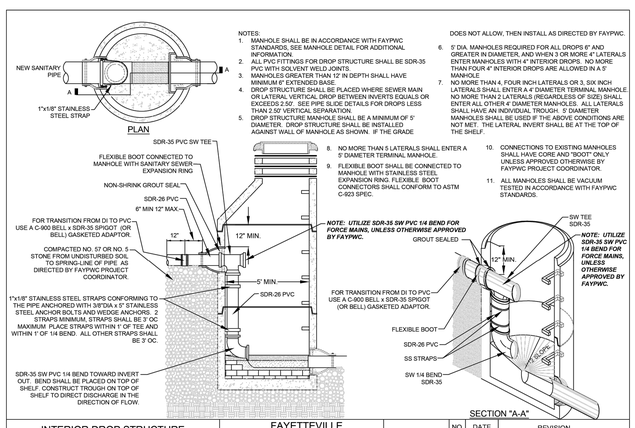
S2-STANDARD-MANHOLE.dwg



NOTES:
1. MANHOLE MEETS ALL REQUIREMENTS OF ASTM C478.
2. CONCRETE IS MINIMUM 4,000PSI COMPRESSIVE STRENGTH.
3. MATERIAL USED TO SEAL AROUND PIPE SHALL BE NON-SHRINK GROUT.
4. MANHOLE SHALL BE CONSTRUCTED OF PRECAST CONCRETE. FIBERGLASS MANHOLE IS NOT ACCEPTABLE.
5. A DROP STRUCTURE SHALL BE PLACED WHERE PIPE VERTICAL SEPARATION BETWEEN INVERTS EXCEEDS 2.50'. USE 5' DIAMETER MANHOLES WHEN DROP STRUCTURES ARE NEEDED.
6. WITH THE EXCEPTION OF THE MANHOLE BASE SECTION. ALL OTHER MATERIALS, INSTALLATION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE FAYPWC STANDARD MANHOLE DETAILS.
7. DOGHOUSE MANHOLE SHALL BE FREE OF LEAKS.
8. SEE STANDARD MANHOLE DETAIL S.2 FOR ADDITIONAL REQUIREMENTS.

INTERIOR DROP STRUCTURE SEWER MAINS AND LATERALS		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.5	DWG. BY: FAYPWC		4	11/08	REVISED FITTING MATERIAL
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT	5	07/12	REVISED NOTES 5, 6, AND HUB ON INVERT.
				6	07/14	ADDED FORCE MAIN NOTE

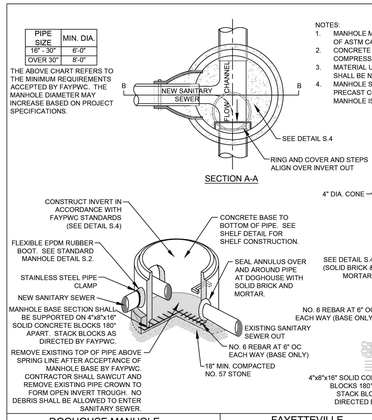
S5-DROP-MH.dwg



NOTES:
1. MANHOLE SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS, SEE MANHOLE DETAIL FOR ADDITIONAL INFORMATION.
2. ALL PVC FITTINGS FOR DROP STRUCTURE SHALL BE SDR-35 PVC WITH SOLVENT WELD JOINTS.
3. MANHOLES GREATER THAN 12' IN DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
4. DROP STRUCTURE SHALL BE PLACED WHERE SEWER MAIN OR LATERAL VERTICAL DROP BETWEEN INVERTS EQUALS OR EXCEEDS 2.50'. SEE PIPE SLIDE DETAILS FOR DROPS LESS THAN 2.50' VERTICAL SEPARATION.
5. DROP STRUCTURE MANHOLE SHALL BE A MINIMUM OF 5' DIAMETER. DROP STRUCTURE SHALL BE INSTALLED AGAINST WALL OF MANHOLE AS SHOWN. IF THE GRADE DOES NOT ALLOW, THEN INSTALL AS DIRECTED BY FAYPWC.
6. 5' DIA. MANHOLES REQUIRED FOR ALL DROPS 6" AND GREATER IN DIAMETER, AND WHEN 3 OR MORE 4" LATERALS ENTER MANHOLES WITH 4" INTERIOR DROPS. NO MORE THAN FOUR 4" INTERIOR DROPS ARE ALLOWED IN A 5' MANHOLE.
7. NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET. THE LATERAL INVERT SHALL BE AT THE TOP OF THE SHELF.
8. NO MORE THAN 5 LATERALS SHALL ENTER A 5' DIAMETER MANHOLE.
9. FLEXIBLE BOOT SHALL BE CONNECTED TO MANHOLE WITH STAINLESS STEEL EXPANSION RING. FLEXIBLE BOOT CONNECTORS SHALL CONFORM TO ASTM C-923 SPEC.
10. CONNECTIONS TO EXISTING MANHOLES SHALL HAVE CORE AND "BOOT" ONLY UNLESS APPROVED OTHERWISE BY FAYPWC PROJECT COORDINATOR.
11. ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH FAYPWC STANDARDS.

PIPE SIZE	MIN. DIA.
16" - 30"	6'-0"
OVER 30"	8'-0"

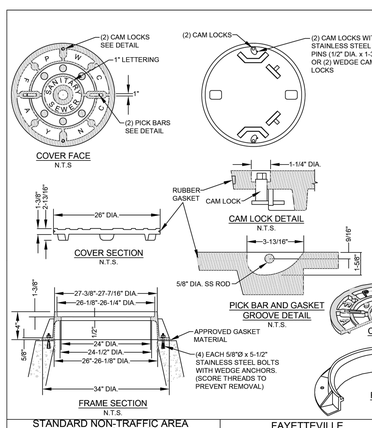
THE ABOVE CHART REFERS TO THE MINIMUM REQUIREMENTS ACCEPTED BY FAYPWC. THE MANHOLE DIAMETER MAY INCREASE BASED ON PROJECT SPECIFICATIONS.



NOTES:
1. MANHOLE MEETS ALL REQUIREMENTS OF ASTM C478.
2. CONCRETE IS MINIMUM 4,000PSI COMPRESSIVE STRENGTH.
3. MATERIAL USED TO SEAL AROUND PIPE SHALL BE NON-SHRINK GROUT.
4. MANHOLE SHALL BE CONSTRUCTED OF PRECAST CONCRETE. FIBERGLASS MANHOLE IS NOT ACCEPTABLE.
5. A DROP STRUCTURE SHALL BE PLACED WHERE PIPE VERTICAL SEPARATION BETWEEN INVERTS EXCEEDS 2.50'.
6. WITH THE EXCEPTION OF THE MANHOLE BASE SECTION. ALL OTHER MATERIALS, INSTALLATION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE FAYPWC STANDARD MANHOLE DETAILS.
7. DOGHOUSE MANHOLE SHALL BE FREE OF LEAKS.
8. SEE STANDARD MANHOLE DETAIL S.2 FOR ADDITIONAL REQUIREMENTS.

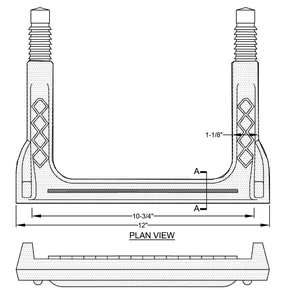
DOGHOUSE MANHOLE (MAINS 16" OR LARGER) N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. S.3	DWG. BY: FAYPWC		1	11/25/08	MADE CHANGES TO NOTES
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT	2	07/16	ADDED SHEET 2
				3	01/01/19	ADDED MH CHART

S3-DOGHOUSE-MH.dwg

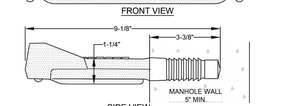


NOTES:
1. MANHOLE FRAME AND COVER TO BE MADE OF GRAY CAST IRON CONFORMING TO ASTM SPEC. A48-83, CLASS 35, MANUFACTURED BY SAME MANUFACTURER. ALL CASTINGS SHALL CONFORM TO THE SHAPE AND DIMENSIONS SHOWN. ALL CASTINGS SHALL BE CLEAN AND FREE FROM DEFECTS.
2. CASTINGS SHALL BE UNPAINTED AND SHALL HAVE THE LETTERS "PWC-FAY-NC" AND "SANITARY SEWER" CAST INTO COVER. LETTERS SHALL BE RAISED AND CLEARLY VISIBLE.
3. MANHOLE FRAME AND COVER SHALL WITHSTAND H-20 VEHICULAR TRAFFIC.
4. MINIMUM AVERAGE WEIGHT: PLUS OR MINUS 5% RING 155LBS., COVER 160LBS., UNIT 315LBS.
5. PERFORATED COVERS WILL NOT BE ALLOWED.
6. SUPPLY SOCKET FOR TURNING CAM LOCK MECHANISM. ONE SOCKET PER PROJECT.
7. USE OF GRADE RINGS ARE NOT ALLOWED, UNLESS APPROVED BY THE FAYPWC PROJECT COORDINATOR. FOR MANHOLES OUTSIDE OF YARD OR LANDSCAPE AREAS, THE USE OF GRADE RINGS ARE NOT ALLOWED.
8. FOR MANHOLES IN YARD OR LANDSCAPED AREAS, THE RING AND COVER SHALL BE SET TO FINISHED GRADE. THE USE OF GRADE RINGS ARE ALLOWED TO SET THE MANHOLE TO FINISHED GRADE. FOR GRADE RINGS 4" OR LESS, THE RING AND COVER SHALL BE ANCHORED TO THE CONE USING 5/8" DIAMETER STAINLESS STEEL BOLTS WITH WEDGE ANCHORS. FOR GRADE RINGS OVER 4", THE RING AND COVER SHALL BE ANCHORED TO THE GRADE RING, USING 5/8" DIAMETER x 5-1/2" STAINLESS STEEL BOLTS WITH WEDGE ANCHORS.
9. FOR OUTFALL AREAS, THE RING AND COVER SHALL BE SET A MINIMUM OF 18" ABOVE FINISHED GRADE, UNLESS OTHERWISE APPROVED.
10. THIS DETAIL IS TO BE USED ON ALL MANHOLES LOCATED OUTSIDE OF PAVED AREAS, UNLESS OTHERWISE APPROVED.
11. REFER TO FAYPWC STANDARD DETAIL S.17 FOR INSTALLATION OF VENT STACK.

STANDARD NON-TRAFFIC AREA MANHOLE RING AND COVER WITH WIPER GASKET AND CAM LOCK N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.6	DWG. BY: FAYPWC		1	07/09	REVISED NOTES ON FRAME SECTION/REVISED NOTE 3
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	WATER RESOURCES ENG



PLAN VIEW

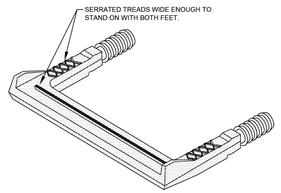


FRONT VIEW

SIDE VIEW

SECTION "A-A"

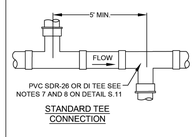
NOTES:
1. COPOLYMER POLYPROPYLENE PLASTIC STEP SHALL BE PLACED 16" OC IN ALL STRUCTURES 5' DEPTH OR GREATER.
2. STEPS SHALL BE INSTALLED BY MANUFACTURER AND SHALL BE ALIGNED OVER STRUCTURE INVERT OUT.
3. DIMENSIONS SHOWN ARE TO CONVEY THE DESIRED SIZE OF THE STEP AND CONSTRUCTION MAY BE ACCEPTABLE PROVIDED MATERIAL SUBMITTAL IS APPROVED BY FAYPWC.
4. MATERIALS OF CONSTRUCTION AND METHOD OF INSTALLATION SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND ASTM C-478.



ISOMETRIC VIEW OF STEP

STRUCTURE STEP N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.8	DWG. BY: FAYPWC				
	DATE: JAN. 01, 2022	APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT			

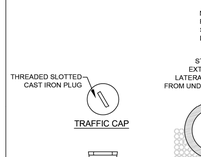
S8-STEP.dwg



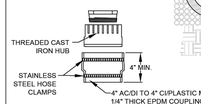
STANDARD TEE CONNECTION

TAPPING SADDLE (OPTIONAL)

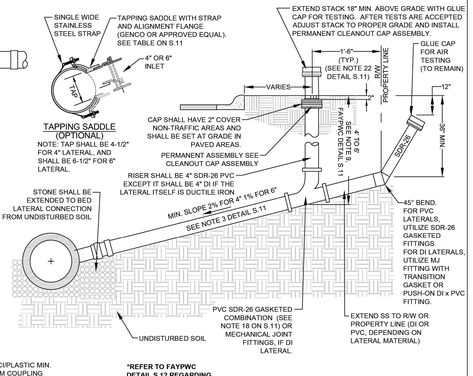
NOTE: TAP SHALL BE 4-1/2" FOR 4" LATERAL, AND SHALL BE 6-1/2" FOR 6" LATERAL.



TRAFFIC CAP



CLEANOUT CAP ASSEMBLY



"REFER TO FAYPWC DETAIL S.12 REGARDING BENDS IN LATERAL."

SEWER LATERAL (4-INCH AND 6-INCH) N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.10	DWG. BY: FAYPWC		2	01/14	ADDED TAILPIECE, NOTES
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT	3	01/15	REVISED NOTES RE: TAILPIECE
				4	07/18	REVISED NOTE RE: LATERAL DEPTH

S10-RESSLAT.dwg

SEWER LATERAL NOTES

1. HOLE IN SANITARY SEWER MAIN MUST BE CUT WITH SHELL CUTTER NO HAMMER TAPS ALLOWED.
2. LATERAL SHALL CONFORM TO ASTM SPECS. D-3034 SDR-26 UNLESS OTHERWISE INDICATED AS DI.
3. ALL PIPE AND FITTINGS SHALL BE 4" OR 6" UNLESS OTHERWISE SPECIFIED.
4. ALL DI PIPE SHALL HAVE AN INTERIOR LINING OF CERAMIC EPOXY (PROTECTO 401). THE ENTIRE DI LATERAL SHALL BE COMPRISED OF DI PIPE AND MECHANICAL JOINT FITTINGS.
5. ALL CONNECTIONS SHALL HAVE RUBBER GASKET SEALS INSTALLED.
6. SANITARY SEWER LATERAL CLEANOUT STACK SHALL BE LOCATED 18" FROM WATER LATERAL LOCK VALVE WHEN IN THE SAME DITCH.
7. INSTALLATION OTHER THAN AS SHOWN MUST BE APPROVED BY THE FAYPWC.
8. CONNECTIONS TO THE TOP OF MAIN SHALL NOT BE ALLOWED, UNLESS OTHERWISE APPROVED BY THE FAYPWC PROJECT COORDINATOR.
9. THE DESIGN ENGINEER SHALL DETERMINE THE SLOPE AND DEPTH OF THE LATERAL BASED ON THE TOPOGRAPHY OF THE LOT.
10. LATERAL SHALL CONFORM TO 2% MINIMUM SLOPE FOR 4" OR 1% MINIMUM SLOPE FOR 6". THE MAXIMUM LENGTH OF A SEWER LATERAL SHALL BE 60 FEET, UNLESS OTHERWISE APPROVED BY FAYPWC.
11. SEE INTERIOR DROP STRUCTURE OR SLIDE, MORTAR SLIDE AND SHELF DETAIL FOR VERTICAL DROPS OF MAINS AND LATERALS.
12. LATERALS LESS THAN 3' IN DEPTH OR GREATER THAN 20' DEPTH SHALL UTILIZE DUCTILE IRON PIPE AND FITTINGS WITH CERAMIC EPOXY (PROTECTO 401), OR WHEN SEPARATION REQUIREMENTS CANNOT BE MET.
13. ENTIRE SEWER LATERAL ASSEMBLY SHALL BE AIR TESTED CONCURRENTLY WITH SEWER MAIN.
14. INDIVIDUAL LATERALS SHALL BE CLEANED AND FLUSHED PRIOR TO FLUSHING SANITARY SEWER MAINS.
15. LATERAL SHALL NOT BE BACK-FILLED UNTIL INSPECTED BY THE FAYPWC PROJECT COORDINATOR.
16. WYE CONNECTIONS SHALL NOT BE USED TO TIE LATERALS INTO A MANHOLE.
17. IF BENDS ARE APPROVED BY THE PROJECT COORDINATOR, STONE BEDDING IS REQUIRED TO BE INSTALLED FROM UNDISTURBED (SEE DETAIL S.12) SOIL TO BOTTOM OF BEND.
18. PVC COMBINATION SHALL BE A MOLDED WYE AND BEND, GASKETED, SDR-26, AS MANUFACTURED BY HARCO, GPK, OR APPROVED EQUAL.
19. NO MORE THAN 4, FOUR-INCH LATERALS OR 3, SIX-INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
20. ALL LATERALS (4" AND 6") SHALL UTILIZE A 4" RISER (STACK).
21. REFER TO DETAIL S.12 FOR SEPARATION REQUIREMENTS.
22. FOR SINGLE FAMILY RESIDENTIAL LOTS, CLEANOUT SHALL BE LOCATED 18" FROM RIGHT-OF-WAY OR EASEMENT. FOR ALL NON-SINGLE FAMILY LOTS, CLEANOUT SHALL BE NO CLOSER THAN 10' TO FRONT OF BUILDING, UNLESS OTHERWISE APPROVED BY FAYPWC.

THE FOLLOWING TABLE SUMMARIZES THE MATERIALS TO BE UTILIZED FOR SEWER MAIN TO LATERAL CONNECTIONS:

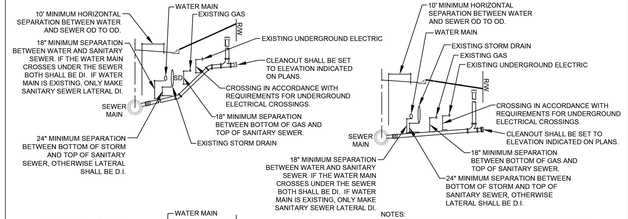
	PVC Main	DI Main
DI Lateral	DI fitting or approved saddle	MJ fitting or approved saddle
PVC Lateral	PVC fitting or approved saddle	MJ fitting with transition gasket or approved saddle

NOTE: REFER TO FAYPWC TECHNICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.

FOR SEWER LATERAL NOTES SEE FAYPWC DETAIL S.11

SEWER LATERAL NOTES (4-INCH AND 6-INCH) N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.11	DWG. BY: FAYPWC		3	01/13	REVISED NOTES AND ADDED TABLE
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT	4	01/15	REVISED NOTE 22, TABLE
				5	07/18	REVISED NOTES 6, 9

S11-RESSLAT-NOTES.dwg

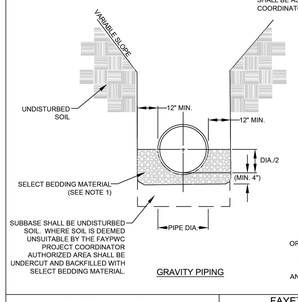


NOTES:
1. ALL VERTICAL AND HORIZONTAL SEPARATION SHALL BE IN ACCORDANCE WITH STATE REGULATIONS AND FAYPWC REQUIREMENTS.
2. THE SKETCHES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY.
3. THE CONTRACTOR SHALL BE REQUIRED TO VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY AT EACH CROSSING PRIOR TO CONSTRUCTION OF LATERAL TO ENSURE PROPER CLEARANCES ARE MAINTAINED.
4. ALL PIPE BEND LOCATIONS AND MAXIMUM NUMBER OF BENDS INSTALLED ON LATERALS SHALL BE APPROVED BY THE PROJECT COORDINATOR PRIOR TO INSTALLATION OF BEND OR EXTENDING THE LATERAL FROM THE MAIN.
5. ALL REQUIREMENTS INDICATED IN THE SEWER LATERAL NOTES AND DETAILS SHALL BE APPLICABLE.
6. REFER TO UNDERGROUND ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION WHEN CROSSING UNDERGROUND ELECTRICAL FACILITIES.

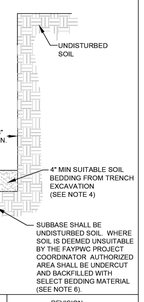
SEWER LATERAL UTILITY CONFLICT SEPARATION REQUIREMENTS N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.12	DWG. BY: FAYPWC		1	11/06	ADDED NOTE ON DI LATERALS
	DATE: JAN. 01, 2022	APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT	2	03/10	ADDED LATERAL AND WM SEPARATION
				3	11/23	REVISED/CLARIFIED NOTES

S12-UTIL-CONFLICT.dwg

NOTES:
1. THE SELECT BEDDING MATERIAL SHALL BE WELL GRADED CRUSHED ROCK (NO. 5 OR NO. 57 STONE) FOR THE FULL WIDTH OF THE TRENCH.
2. SELECT BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS.
3. SELECT BEDDING MATERIAL SHALL BE PROPERLY PLACED TO THE SPRING LINE OF THE PIPE FOR ITS ENTIRE LENGTH.
4. SUITABLE SOIL BEDDING IS DEFINED AS "NATIVE" SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.
5. SUITABLE BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS.
6. IF GROUND CONDITIONS WARRANT, IT MAY BE NECESSARY TO BED DUCTILE IRON FORCE MAINS IN SELECT BEDDING MATERIAL (NO. 5 OR NO. 57 STONE) TO THE SPRINGLINE OF THE PIPE. SUCH INSTALLATION SHALL BE AS DIRECTED BY THE FAYPWC PROJECT COORDINATOR.



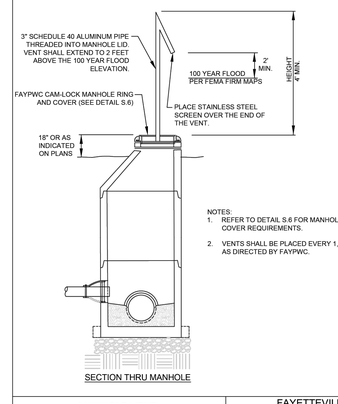
GRAVITY PIPING



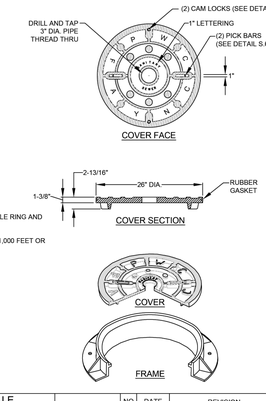
FORCE MAIN PIPING

SEWER BEDDING N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.13	DWG. BY: FAYPWC		1	01/01/05	REVISED NOTES
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT	2	01/01/16	REVISED NOTES

S13-SEWER-BEDDING.dwg



SECTION THRU MANHOLE



NOTES:
1. REFER TO DETAIL S.6 FOR MANHOLE RING AND COVER REQUIREMENTS.
2. VENTS SHALL BE PLACED EVERY 1,000 FEET OR AS DIRECTED BY FAYPWC.

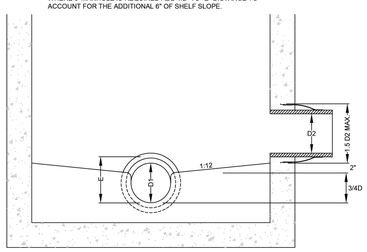
MANHOLE VENT N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.17	DWG. BY: FAYPWC				
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT			

S17-MH-VENT.dwg

TO FIND "E" ENTER CHART AT LEFT WITH EFFLUENT PIPE SIZE AND ENTER PIPE AT TOP WITH INFLUENT PIPE SIZE. "E" DISTANCE IS POINT OF CONVERGENCE OF COLUMN AND R/W.

D1 \ D2	4"	6"	8"	12"	15"	18"	24"
8	9.00	9.50	10.00	-	-	-	-
12	11.00	11.50	12.00	13.00	-	-	-
15	14.25	14.75	15.25	16.25	17.00	-	-
18	16.50	17.00	17.50	18.50	19.25	20.00	-
24	21.00	21.50	22.00	23.00	23.75	24.50"	26.00

WHERE 5' MANHOLE IS REQUIRED ADD 1/2" TO "E" DISTANCE TO ACCOUNT FOR THE ADDITIONAL 6" OF SHELF SLOPE.

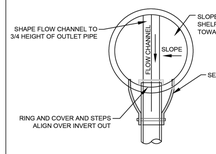


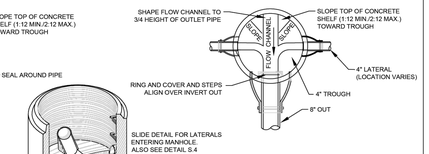
NOTES:
1. SEE FAYPWC STANDARD MANHOLE AND PIPE SLIDE, MORTAR SLIDE, AND SHELF DETAILS FOR ADDITIONAL INFORMATION.
2. THE "E" DISTANCES INDICATED ARE FOR CONNECTION TO AN EXISTING OUTFALL AND ARE THE MINIMUM DISTANCE ALLOWABLE.
3. WHERE SANITARY SEWER OUTFALLS AND MAINS ARE BEING CONSTRUCTED THE TOP OF THE EFFLUENT PIPE AND THE TOP OF THE INFLUENT PIPE SHALL BE AT THE SAME ELEVATION UNLESS CONDITIONS ARE PROHIBITIVE TO THIS PRACTICE.

MAIN OR LATERAL MIN. SLOPE
4" @ 2.00% MIN.
6" @ 0.67% MIN./MAIN
6" @ 1.00% MIN./LATERAL
8" @ 0.40% MIN.
12" @ 0.22% MIN.
15" @ 0.15% MIN.
18" @ 0.12% MIN.

MH CONNECTION DESIGN GUIDE N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.18	DWG. BY: FAYPWC				
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT			

S18-PENETRATION-DETAIL.dwg





SLIDE DETAIL FOR LATERALS ENTERING MANHOLE. ALSO SEE DETAIL S.4

NOTES:
1. MANHOLE AND CONNECTIONS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD MANHOLE.
2. BRICK USED FOR INVERT AND SHELF CONSTRUCTION SHALL BE NCDOT STANDARD CONCRETE JUMBO BRICK, MEETING ASTM C55 GRADE J-11 EXCEPT ABSORPTION LESS THAN 10 LBS/CU FT.
3. MATERIAL USED TO SEAL AROUND PIPE SHALL BE NON-SHRINK GROUT.
4. MANHOLE SHALL BE CONSTRUCTED OF PRECAST CONCRETE. FIBERGLASS MANHOLES NOT ACCEPTABLE.
5. MANHOLE MEETS ALL REQUIREMENTS OF ASTM C478.
6. CONCRETE IS MINIMUM 4,000PSI COMPRESSIVE STRENGTH.
7. MANHOLES GREATER THAN 12' IN DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
8. SEE STANDARD MANHOLE DETAIL FOR ADDITIONAL REQUIREMENTS.
9. MORTAR SLIDE SHALL BE USED FOR LESS THAN 1 FOOT SEPARATION BETWEEN INVERT OUT AND INVERT OF INCOMING PIPE.
10. PIPE SLIDE REQUIRED WHERE VERTICAL SEPARATION BETWEEN PIPE INVERTS IS GREATER THAN 1' AND LESS THAN OR EQUAL TO 2.5'.
11. INTERIOR DROP STRUCTURE REQUIRED WHERE VERTICAL SEPARATION BETWEEN INVERTS EXCEEDS 2.50'. SEE INTERIOR DROP STRUCTURE DETAIL.
12. VERIFY SLIDE INSTALLATION WITH PROJECT COORDINATOR PRIOR TO CONSTRUCTION.
13. MANHOLE AND CONNECTIONS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD MANHOLE DETAIL.
14. THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1%, UNLESS OTHERWISE APPROVED BY FAYPWC.
15. WHEN EXTENDING IN FUTURE, CONNECT TO EXISTING MANHOLE PER FAYPWC STANDARDS.
16. THE LATERAL INVERT SHALL BE AT THE TOP OF SHELF. AT TERMINAL MANHOLES, THE CROWN OF THE LATERAL SHALL BE NO LOWER THAN THE CROWN OF THE OUTGOING SEWER MAIN, UNLESS OTHERWISE APPROVED BY FAYPWC.
17. NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH UNLESS THEY HAVE A SLIDE OR DROP STRUCTURE. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
18. NO MORE THAN 5 LATERALS SHALL ENTER A 5' DIAMETER MANHOLE.
19. USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.

TERMINAL MANHOLE N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.20	DWG. BY: FAYPWC				
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	WATER RESOURCES ENGINEERING DEPARTMENT			

S20-TERMINAL-MANHOLE.dwg

PWC DWG # DS-15513

REVISIONS										BY
DATE										

SHEET SERIES-FINAL DESIGN -ISSUED FOR BID

DATE: 03/01/2024
SURVEY/GPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE: HOR: 1"=NTS
VERT: 1"=NTS

WK DICKSON
Community Infrastructure Consultants
Utilities • Water Resources
Transportation • Land Development
720 Corporate Center Drive
Raleigh, North Carolina 27607
(919) 782-0495
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NC CERTIFICATE NO. P-0339

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 054233 ALBERT M. HUCKABY
3/5/2024

SHEET # G2

SEWER DETAILS
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
Electric & Water Utilities

20200208.00.RA

Z:\Projects\Fayetteville Public Works Commission\20200208\00RA - Annexation Phase V Area 27\CAD\Plan Set\20200208_C_SHT_DETAILS.dwg 3/4/2024 12:28:37 PM

1. CONTRACTOR SHALL SAW CUT OR MILL ALL PAVEMENTS STRAIGHT AND TRUE PRIOR TO TRENCHING. CONTRACTOR SHALL SAW CUT PATCH AREAS AGAIN IMMEDIATELY PRIOR TO PATCH PAVING . THE FINAL SAW CUT FOR PATCHES SHALL BE STRAIGHT WITH A NEAT SQUARE EDGE AND OF UNIFORM WIDTH PARALLEL WITH THE EDGE OF PAVEMENT/CURB LINE. THE FINAL PRODUCT SHALL BE SUBJECT TO THE OWNERS APPROVAL.

2. CONTRACTOR SHALL SWEEP STREETS AND PROVIDE DUST CONTROL AT ALL TIMES VIA WATER TRUCK, BROOMS, COMPACTORS, ETC. DEBRIS FROM SWEEPING OPERATIONS SHALL NOT BE DIRECTED TOWARD YARDS. CLEAN UP OF DEBRIS, TRASH, EXCESS MATERIALS, ETC. SHALL BE PERFORMED DAILY.

3. ANY TRENCHES OPENED FOR PAVING SHALL BE PAVED BY THE END OF THE SAME DAY. IF WEATHER CONDITIONS CHANGE, EQUIPMENT BREAKS DOWN, OR ANY OTHER OCCURRENCE THAT STOPS THE PAVING OPERATIONS OCCURS, BACKFILL ALL PREPARED AREAS SO THEY ARE PASSABLE BY TRAFFIC.

4. THE CONTRACTOR SHALL PATCH PAVE SERVICE LATERALS ON THE SAME DAY THAT MAIN LINE TRENCHES ARE PAVED. LATERALS SHALL BE PATCHED ON BOTH SIDES OF THE STREET AS PAVING PROGRESSES.

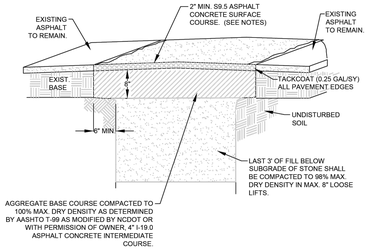
5. THE CONTRACTOR SHALL BE REQUIRED TO IMPLEMENT PROPER TRAFFIC CONTROL PROVISIONS AND ANY DEVICES REQUIRED TO IDENTIFY OBSTRUCTIONS OR HAZARDS WITHIN THE RIGHT-OF-WAY TO INCLUDE REFLECTIVE CONES AT EACH SERVICE LATERAL, REFLECTIVE BARRELS ON RAISED MANHOLES, ETC.

6. AT NO TIME SHALL THE CONTRACTOR LEAVE MAIN AND/OR LATERAL TRENCHES WITH A VERTICAL ELEVATION DROP EXCEEDING ONE INCH (1") FROM EXISTING ASPHALT TO TRENCH SUB GRADE UNATTENDED, UNSECURED, AND/OR OVERNIGHT.

PAVEMENT REPAIR NOTES			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 1	DWG. NO. M.1	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	

NO.	DATE	REVISION
1	07/10	REVISED, DELETED NOTES

M1-PAVEMENT-REPAIR-NOTES.dwg

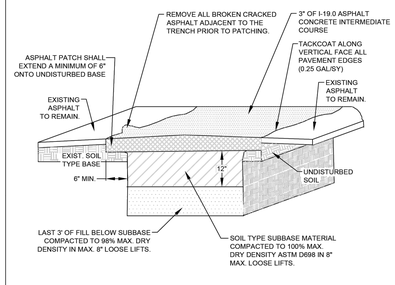


NOTES:
1. CONTRACTOR SHALL PATCH PAVEMENT TO THE SAME PAVEMENT PROFILE AS EXISTED PRIOR TO REMOVING PAVEMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DETAIL.
2. WHERE PATCH OF ASPHALT CURBING OCCURS CONTRACTOR SHALL MATCH EXISTING CURB GRADES WITHIN 0.02 FEET. PATCHES THAT ARE ABOVE THE CURB GRADE LINE WILL NOT BE ACCEPTABLE AND SHALL BE REMOVED AND REPLACED. CURB PATCH SHALL BE THE SAME SHAPE/TEMPLATE AS THE EXISTING CURB.
3. CONTRACTOR SHALL BE REQUIRED TO PROVIDE TRAFFIC CONTROL AND DEVICES AS REQUIRED BY THE M.U.T.C.D. OR NC SUPPLEMENT. WORK CANNOT PROCEED UNTIL THE MEASURES ARE IN PLACE. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT NEW PAVEMENT FROM TRAFFIC AND OTHER SOURCES OF DAMAGE UNTIL ASPHALT HAS SUFFICIENTLY COOLED TO PREVENT DAMAGE.
4. CONTRACTOR SHALL SAWCUT EXISTING PAVEMENT STRAIGHT AND TRUE IMMEDIATELY PRIOR TO PAVING. THE FINAL PRODUCT SHALL BE SUBJECT TO THE OWNERS APPROVAL.
5. PATCH PAVING ON NCDOT MAINTAINED ROADS SHALL BE IN ACCORDANCE WITH THE APPROVED NCDOT ENCROACHMENT. REFER TO PWC STANDARD DETAIL M.19 FOR NCDOT PATCH PAVING REQUIREMENTS.
6. PROVIDE A MINIMUM OF 2" PAVEMENT (S9.5). IF THE EXISTING PAVEMENT IS 2" OR LESS. MATCH EXISTING PAVEMENT THICKNESS IF OVER 2".
7. FOR PATCHES UP TO 4" THICK, PLACE S9.5 IN 2 LIFTS.
8. FOR PATCHES OVER 4" THICK, PLACE BINDER (I-19.0) TO 2" BELOW SURFACE. INSTALL BINDER IN 2" (MAX.) LIFTS. THE FINAL 2" SHALL BE SURFACE (S9.5).
9. ALL PATCHES SHALL HAVE A MINIMUM OF 8" ABC UNDER ALL PAVEMENT, INCLUDING CURB AS REQUIRED.

PERMANENT PAVEMENT PATCH N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 1	DWG. NO. M.2	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	

NO.	DATE	REVISION
1	01/07	CHANGED ASPHALT MIX
2	08/10	REVISED, DELETED NOTES

M2-PER-PATCH.dwg

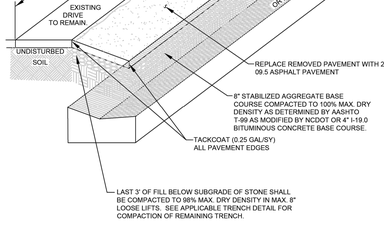


NOTES:
1. CONTRACTOR SHALL PATCH PAVEMENT TO THE SAME PAVEMENT PROFILE AS EXISTED PRIOR TO REMOVING PAVEMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DETAIL.
2. WHERE PATCH OF ASPHALT CURBING OCCURS CONTRACTOR SHALL MATCH EXISTING CURB GRADES WITHIN 0.02 FEET. PATCHES THAT ARE ABOVE THE CURB GRADE LINE WILL NOT BE ACCEPTABLE AND SHALL BE REMOVED AND REPLACED. CURB PATCH SHALL BE THE SAME SHAPE/TEMPLATE AS THE EXISTING CURB.
3. CONTRACTOR SHALL BE REQUIRED TO PROVIDE TRAFFIC CONTROL AND DEVICES AS REQUIRED BY THE M.U.T.C.D. OR NC SUPPLEMENT. WORK CANNOT PROCEED UNTIL THE MEASURES ARE IN PLACE.
4. CONTRACTOR SHALL SAWCUT EXISTING PAVEMENT STRAIGHT AND TRUE IMMEDIATELY PRIOR TO PAVING. THE FINAL PRODUCT SHALL BE SUBJECT TO THE OWNERS APPROVAL.
5. PATCH PAVING ON NCDOT MAINTAINED ROADS SHALL BE IN ACCORDANCE WITH THE APPROVED NCDOT ENCROACHMENT. REFER TO PWC STANDARD DETAIL M.19 FOR NCDOT PATCH PAVING REQUIREMENTS.

TEMPORARY PAVEMENT PATCH N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 1	DWG. NO. M.3	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	

NO.	DATE	REVISION
1	01/07	CHANGED ASPHALT MIX
2	08/10	REVISED, DELETED NOTES
3	10/16	EDITED I-19.0 ASPHALT CONCRETE

M3-19-00MM-PATCH.dwg

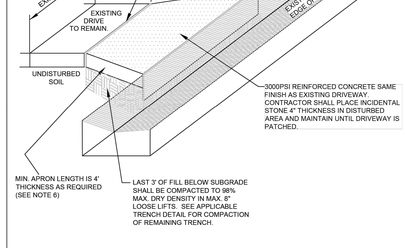


NOTES:
1. CONTRACTOR SHALL PATCH PAVEMENT TO THE SAME PAVEMENT PROFILE AS EXISTED PRIOR TO REMOVING PAVEMENT.
2. CONTRACTOR SHALL BE REQUIRED TO PROVIDE TRAFFIC CONTROL AND DEVICES AS REQUIRED BY THE M.U.T.C.D. OR NC SUPPLEMENT. WORK CANNOT PROCEED UNTIL THE MEASURES ARE IN PLACE. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT NEW PAVEMENT FROM TRAFFIC AND OTHER SOURCES OF DAMAGE UNTIL ASPHALT HAS SUFFICIENTLY COOLED TO PREVENT DAMAGE.
3. CONTRACTOR SHALL SAWCUT EXISTING PAVEMENT STRAIGHT AND TRUE IMMEDIATELY PRIOR TO PAVING. THE FINAL PRODUCT SHALL BE SUBJECT TO THE OWNERS APPROVAL.
4. UNDER NO CIRCUMSTANCES SHALL THE DISTURBED AREA EXTEND BEYOND THE RIGHT-OF-WAY AND/OR THE EASEMENT LIMITS.

ASPHALT DRIVEWAY/ PARKING LOT PATCH N.T.S			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 1	DWG. NO. M.4	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	

NO.	DATE	REVISION
1	08/10	REVISED, DELETED NOTES

M4-ASPH-DRIVE-PATCH.dwg

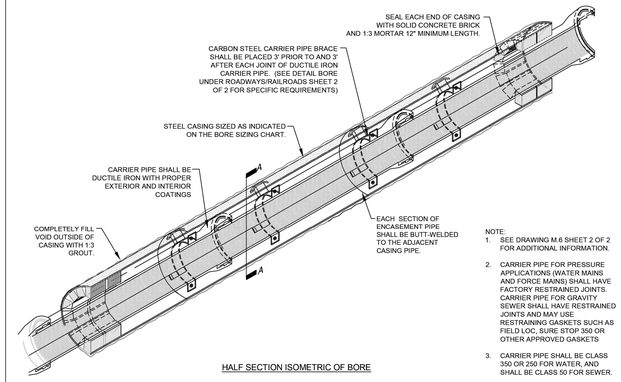


NOTES:
1. CONTRACTOR SHALL REPLACE PAVEMENT TO THE SAME CROSS SECTION AS EXISTED PRIOR TO REMOVAL.
2. CONTRACTOR SHALL BE REQUIRED TO PROVIDE TRAFFIC CONTROL AND DEVICES AS REQUIRED BY THE M.U.T.C.D. OR NC SUPPLEMENT. WORK CANNOT PROCEED UNTIL THE MEASURES ARE IN PLACE. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT NEW PAVEMENT FROM TRAFFIC AND OTHER SOURCES OF DAMAGE.
3. UNDER NO CIRCUMSTANCES SHALL THE DISTURBED AREA EXTEND BEYOND THE RIGHT-OF-WAY AND/OR THE EASEMENT LIMITS. UNLESS OTHERWISE APPROVED BY THE FAYPWC PROJECT COORDINATOR.
4. THE FINAL PRODUCT SHALL BE SUBJECT TO THE OWNER'S APPROVAL.
5. SAWCUT CONCRETE DRIVE STRAIGHT AND TRUE. JAGGED SAWCUTS SHALL NOT BE ACCEPTABLE. SAWCUTS SHALL BE STRAIGHT UNIFORM WIDTHS PERPENDICULAR TO THE DRIVEWAY.
6. MINIMUM RESIDENTIAL CONCRETE DRIVEWAY THICKNESS SHALL BE 5". MINIMUM COMMERCIAL CONCRETE DRIVEWAY THICKNESS SHALL BE 7".
7. CONTRACTOR SHALL CONTACT THE CITY OF FAYETTEVILLE'S CONSTRUCTION MANAGEMENT DEPARTMENT AT (910) 433-1656 A MINIMUM OF 24 HOURS IN ADVANCE FOR AN INSPECTION OF THE CONCRETE FORMS.
8. PROVIDE EXPANSION JOINT(S) AS REQUIRED BY THE CITY OF FAYETTEVILLE FOR FUTURE SIDEWALK PLACEMENT.
9. CURING COMPOUND SHALL BE UTILIZED, AS SPECIFIED BY THE CITY OF FAYETTEVILLE.
10. NEW EXPANSION JOINTS SHALL BE PLACED 4 TO 10 FEET FROM EXISTING EXPANSION JOINTS, AS SPECIFIED BY THE FAYPWC PROJECT COORDINATOR.
11. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF FAYETTEVILLE REQUIREMENTS.

CONCRETE DRIVEWAY PATCH N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 1	DWG. NO. M.5	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	

NO.	DATE	REVISION

M5-CONC-DRIVE-PATCH.dwg



HALF SECTION ISOMETRIC OF BORE

NOTE:
1. SEE DRAWING M.6 SHEET 2 OF 2 FOR ADDITIONAL INFORMATION.
2. CARRIER PIPE FOR PRESSURE APPLICATIONS (WATER MAINS AND FORCE MAINS) SHALL HAVE FACTORY RESTRAINED JOINTS. CARRIER PIPE FOR GRAVITY SEWER SHALL HAVE RESTRAINED JOINTS AND MAY USE RESTRAINING GASKETS SUCH AS FIELD LOC, SURE STOP 350 OR OTHER APPROVED GASKETS
3. CARRIER PIPE SHALL BE CLASS 350 OR 250 FOR WATER, AND SHALL BE CLASS 50 FOR SEWER.

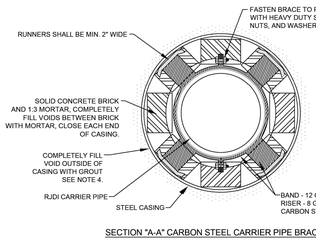
BORE UNDER ROADWAYS/RAILROADS N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 2	DWG. NO. M.6	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	

NO.	DATE	REVISION
1	01/05	ADDED NOTES 2 AND 3
2	10/09	CLARIFIED RESTRAINT REQUIREMENTS

M6-BORE-ROAD-RAIL.dwg

BORE SIZING CHART*			
CARRIER PIPE SIZE	MIN. CASING SIZE	ROADWAYS MIN. WALL THICKNESS	RAILROADS MIN. WALL THICKNESS
4"	10"	0.188"	0.188"
6"	12"	0.25"	0.281"
8"	16"	0.25"	0.281"
12"	24"	0.25"	0.375"
16"	30"	0.312"	0.469"
18"	30"	0.312"	0.469"
24"	36"	0.375"	0.532"
30"	42"	0.500"	0.625"
36"	48"	0.500"	0.688"

*CONTRACTOR MAY SUBSTITUTE A LARGER SIZE CASING PIPE HAVING THE MINIMUM WALL THICKNESS SHOWN FOR SEWER MAINS. ALL ADDITIONAL COSTS SHALL BE INCLUDED IN THE NIT PRICE BID FOR BORING AND JACKING.



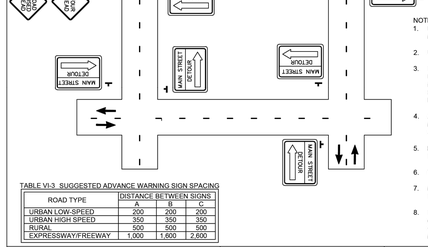
SECTION "A-A" CARBON STEEL CARRIER PIPE BRACE

NOTES:
1. INSTALLATION SHALL BE DRY BORE AND JACKING OF SMOOTH WALL STEEL PIPE. JETTING OR WET BORING WITH WATER SHALL NOT BE ALLOWED.
2. SEE BORE SIZING CHART FOR CARRIER PIPE SIZE AND STEEL CASING SIZE, MINIMUM DIAMETER, AND WALL THICKNESS.
3. CASING PIPE SHALL BE IN ACCORDANCE WITH ASTM A-53, GRADE B WITH A MINIMUM YIELD STRENGTH OF 35,000PSI.
4. EACH END OF ENCASEMENT TO BE PLUGGED WITH BRICK. ALL VOIDS OUTSIDE THE CASING PIPE SHALL BE COMPLETELY FILLED WITH 1:3 PORTLAND CEMENT GROUT AT SUFFICIENT PRESSURE TO INSURE NO SETTLEMENT OF ROADWAY/RAILROAD. METHOD OF GROUTING SHALL BE AS APPROVED BY THE PERMITTING AGENCY.
5. IT IS RECOMMENDED THAT THE BORE BE ACCOMPLISHED BEFORE PIPE CONSTRUCTION BEGINS.
6. THE BORING SHALL BE PERFORMED FROM "UPSTREAM" TO "DOWNSTREAM" DIRECTION MAINTAINING THE CRITICAL DOWNSTREAM INVERT ELEVATION. SHOULD THE BORE NOT HOLD GRADE, A REVISED PLAN SHALL BE SUBMITTED TO FAYPWC FOR APPROVAL.
7. THE BORING OPERATION SHALL BE CONDUCTED IN A MANNER THAT THE FLOW OF TRAFFIC IS NOT IMPEDED OR IN SUCH A MANNER SO AS NOT TO CREATE A HAZARD.
8. IF AN OBSTRUCTION IS ENCOUNTERED DURING THE BORING OPERATION, THE AUGER SHALL BE WITHDRAWN, THE EXCESS CASING PIPE CUT-OFF, CAPPED AND THE INTERIOR AND EXTERIOR VOIDS SHALL BE COMPLETELY FILLED WITH 1:3 PORTLAND CEMENT GROUT UNDER PRESSURE. NO SEPARATE PAYMENT FOR UNSUCCESSFUL BORES.
9. CONTRACTOR SHALL FIELD ADJUST AND INSTALL PROPER PIPE BRACES TO ACCOMPLISH GRADE AND INVERTS AS SHOWN ON THE DRAWINGS.
10. A MANUAL CONTROL STEERING HEAD OR OTHER GUIDANCE SYSTEM IS RECOMMENDED FOR BORES 30" DIAMETER AND/OR LARGER AND FOR BORES EXCEEDING 100' IN LENGTH OR AS SPECIFIED.
11. SUBCONTRACTORS SHALL ADHERE TO ALL PERMIT REQUIREMENTS AND SHALL PROVIDE APPROVED INSURANCE CERTIFICATES AS REQUIRED.
12. CONTRACTOR SHALL EXECUTE AND PERFORM ALL REQUIREMENTS AND CONDITIONS STIPULATED BY THE PERMITTING AGENCY.
13. SEE DRAWING M.6 SHEET 1 OF 2 FOR ADDITIONAL INFORMATION.
14. CARRIER PIPE FOR PRESSURE APPLICATIONS (WATER MAINS AND FORCE MAINS) SHALL HAVE FACTORY RESTRAINED JOINTS. CARRIER PIPE FOR GRAVITY SEWER SHALL HAVE RESTRAINED JOINTS AND MAY USE RESTRAINING GASKETS SUCH AS FIELD LOK, SURE STOP 350 OR OTHER APPROVED GASKETS.

BORE UNDER ROADWAYS/RAILROADS N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 2 OF 2	DWG. NO. M.6	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	

NO.	DATE	REVISION
1	02/11/04	ADDED 6" CARRIER PIPE TO BORE SIZING CHART
2	07/10	REVISED NOTES, SIZING CHART

M6-BORE-ROAD-RAIL.dwg



NOTES:
1. DISPLAY SIMILAR SIGNS AND DEVICES FOR THE OPPOSITE MOVEMENT.
2. USE THIS PLAN FOR CITY STREETS.
3. THE USE OF A STREET NAME SIGN MOUNTED WITH THE M4-9 DETOUR SIGN IS OPTIONAL. WHEN USED, THE STREET NAME PLATE IS PLACED ABOVE THE DETOUR SIGN. THE PLATE SHALL HAVE BLACK ON DIAMOND GRADE ORANGE LEGEND.
4. AN M4-9 DETOUR SIGN WITH AN ADVANCE TURN ARROW MAY BE USED IN ADVANCE OF A TURN. ON MULTILANE STREETS SUCH SIGNS SHALL BE USED.
5. FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED TO CALL ATTENTION TO THE ADVANCED WARNING SIGNS.
6. WARNING LIGHTS MAY BE USED ON TYPE III BARRICADES.
7. M4-9 DETOUR SIGNS MAY BE LOCATED ON THE FAR SIDE OF THE INTERSECTIONS.
8. THIS STANDARD DERIVED FROM PART VI OF THE M.U.T.C.D., (STANDARDS AND GUIDES FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY, AND INCIDENT MANAGEMENT OPERATIONS) ISSUED APRIL 1995.

TABLE VI-3 SUGGESTED ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN LOW-SPEED	200	200	200
URBAN HIGH SPEED	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1,000	1,600	2,600

FIGURE TA-20 DETOUR FOR CLOSED STREET N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 1	DWG. NO. M.7	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	

NO.	DATE	REVISION

M7-DETOUR-ROAD-CLOSED.dwg

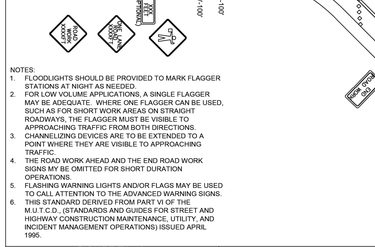


TABLE VI-3 SUGGESTED ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN LOW-SPEED	200	200	200
URBAN HIGH SPEED	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1,000	1,600	2,600

NOTES:
1. FLOODLIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. FOR LOW VOLUME APPLICATIONS, A SINGLE FLAGGER MAY BE ADEQUATE. WHERE ONE FLAGGER CAN BE USED, SUCH AS FOR SHORT WORK AREAS ON STRAIGHT ROADWAYS, THE FLAGGER MUST BE VISIBLE TO APPROACHING TRAFFIC FROM BOTH DIRECTIONS.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. THE ROAD WORK AHEAD AND THE END ROAD WORK SIGNS MY BE OMITTED FOR SHORT DURATION OPERATIONS.
5. FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED TO CALL ATTENTION TO THE ADVANCED WARNING SIGNS.
6. THIS STANDARD DERIVED FROM PART VI OF THE M.U.T.C.D., (STANDARDS AND GUIDES FOR STREET AND HIGHWAY CONSTRUCTION MAINTENANCE, UTILITY, AND INCIDENT MANAGEMENT OPERATIONS) ISSUED APRIL 1995.

FIGURE TA-10 LANE CLOSURE ONE LANE TWO-WAY TRAFFIC N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 1	DWG. NO. M.8	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	

NO.	DATE	REVISION

M8-DETOUR-ROAD-CLOSED.dwg

PWC DWG # DS-15513

NO.	DATE	REVISIONS	BY

SHEET SERIES - FINAL DESIGN - ISSUED FOR BID

DATE: 03/01/2024
SURVEY/QPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE: HOR: 1"=NTS
VERT: 1"=NTS
SHEET # G3

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NC CERTIFICATE OF AUTHORIZATION NO. C-0793

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 054233 GILBERT M. HUCHABY
3/5/2024

MISCELLANEOUS DETAILS
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
Electric & Water Utilities
P.O. Box 1089, Fayetteville, NC 28302
Physical Address:
955 Old Wilmington Road, Fayetteville, NC 28301

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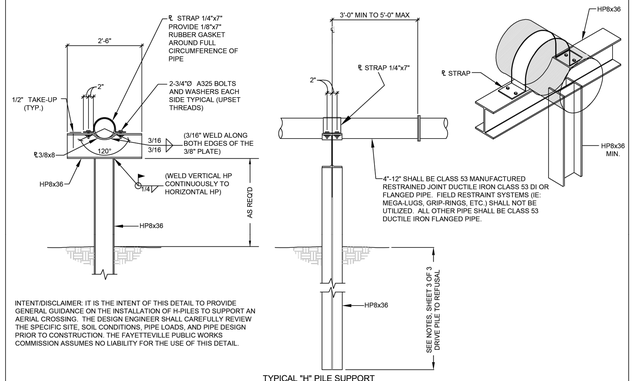


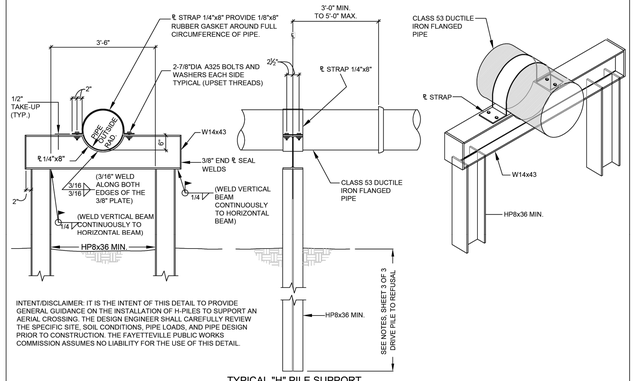
INTENT/DISCLAIMER: IT IS THE INTENT OF THIS DETAIL TO PROVIDE GENERAL GUIDANCE ON THE INSTALLATION OF H-PILES TO SUPPORT AN AERIAL CROSSING. THE DESIGN ENGINEER SHALL CAREFULLY REVIEW THE SPECIFIC SITE, SOIL CONDITIONS, PIPE LOADS, AND PIPE DESIGN PRIOR TO CONSTRUCTION. THE FAYETTEVILLE PUBLIC WORKS COMMISSION ASSUMES NO LIABILITY FOR THE USE OF THIS DETAIL.

TYPICAL "H" PILE SUPPORT
N.T.S.

H-PILE DETAIL 4" THRU 16" PIPE FOR AERIAL CROSSINGS N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 3	DWG. NO. M.13	DWG BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	

NO.	DATE	REVISION
1	07/09	UPDATED DETAIL
2	09/10	REVISED NOTES
3	07/17	REVISED NOTES

M13-H-PILE-AERIAL-CROSSING.dwg



INTENT/DISCLAIMER: IT IS THE INTENT OF THIS DETAIL TO PROVIDE GENERAL GUIDANCE ON THE INSTALLATION OF H-PILES TO SUPPORT AN AERIAL CROSSING. THE DESIGN ENGINEER SHALL CAREFULLY REVIEW THE SPECIFIC SITE, SOIL CONDITIONS, PIPE LOADS, AND PIPE DESIGN PRIOR TO CONSTRUCTION. THE FAYETTEVILLE PUBLIC WORKS COMMISSION ASSUMES NO LIABILITY FOR THE USE OF THIS DETAIL.

TYPICAL "H" PILE SUPPORT
N.T.S.

H-PILE DETAIL >16" THRU 24" PIPE FOR AERIAL CROSSINGS N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 2 OF 3	DWG. NO. M.13	DWG BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	

NO.	DATE	REVISION
1	07/09	UPDATED DETAIL
2	09/10	REVISED NOTES
3	07/17	REVISED NOTES

M13-H-PILE-AERIAL-CROSSING.dwg

NOTES:
1. ALL STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A992 GRADE 50.
2. A SUBSURFACE GEO-TECHNICAL REPORT IS REQUIRED TO DETERMINE PILE EMBEDMENT LENGTH.
3. THIS DETAIL IS FOR GUIDANCE/INFORMATION ONLY. THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR PROVIDING A PROJECT SPECIFIC DESIGN.
4. FOR ALL AERIAL CROSSINGS, A PROJECT SPECIFIC DESIGN SHALL BE SUBMITTED TO FAYPWC FOR REVIEW AND APPROVAL.
5. A SUBSURFACE GEO-TECHNICAL EVALUATION IS REQUIRED IN ORDER TO DESIGN THE PILE LENGTH, EMBEDMENT, AND SPACING FOR THE SPECIFIC PROJECT LOCATION. THE DESIGN ENGINEER SHALL PROVIDE A COPY OF THE REPORT AND THE DESIGN TO FAYPWC.
6. THE DESIGN ENGINEER SHALL FURNISH A STRUCTURAL DESIGN BASED UPON ACTUAL FIELD CONDITIONS AND THE INTENDED USE OF THE STRUCTURE. LATERAL LOADS MAY REQUIRE THE ADDITION OF A BATTERED PILE. THE DESIGN ENGINEER SHALL CONSIDER SUCH LOADS AS ICE/SNOW, FLOODING, ETC.
7. FOR AERIAL SUPPORT OF PRESSURE MAINS, THE ENGINEER SHALL ENSURE THAT THE PIPE JOINTS CAN PROVIDE THE NECESSARY THRUST RESTRAINT. CALCULATIONS SHALL BE SUBMITTED TO FAYPWC FOR REVIEW, PRIOR TO CONSTRUCTION.
8. LOCATION AND SPACING OF PILES SHALL BE BASED UPON ACTUAL FIELD CONDITIONS AND AS SPECIFIED BY THE DESIGN ENGINEER. EACH PIPE JOINT SHALL BE SUPPORTED BY A PILE, UNLESS OTHERWISE APPROVED BY FAYPWC.
9. ANY CHANGES TO THIS DETAIL SHALL BE REVIEWED AND APPROVED BY FAYPWC PRIOR TO CONSTRUCTION.
10. ANY REVISIONS TO THIS DETAIL SHALL BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED TO FAYPWC FOR REVIEW.
11. PILES SHOULD NOT BE PLACED IN THE CENTERLINE OF THE STREAM.
12. PILES SHALL BE DRIVEN UTILIZING A VIBRATORY HAMMER OR PILE HAMMER.
13. ALL PILES SHALL BE DRIVEN TO REFUSAL. THE DESIGN ENGINEER SHALL PROVIDE FAYPWC WITH CALCULATIONS AND/OR A REPORT THAT CLEARLY DEFINES WHAT CONSTITUTES REFUSAL. SHOULD THE CONTRACTOR UTILIZE A DIFFERENT DRIVING METHOD THAN SPECIFIED, THEN REVISED CALCULATIONS SHALL BE PROVIDED TO FAYPWC.
14. PILES SHALL BE CUT OFF SQUARE AT THE REQUIRED ELEVATIONS WITH METHOD OF CUT APPROVED BY THE DESIGN ENGINEER.
15. EXPANSION JOINTS SHALL BE PROVIDED AS REQUIRED. THE EXPANSION JOINTS SHALL BE SUPPORTED BY PLACEMENT OF PIERS WITHIN 3 FEET ON BOTH SIDES OF THE JOINT OR AS SPECIFIED IN THE DESIGN.
16. ALL PILE LOCATIONS SHALL BE STAKED BY A NC LICENSED PROFESSIONAL SURVEYOR, IN ACCORDANCE WITH THE APPROVED PLANS.
17. ALL WELDS SHALL BE BY A CERTIFIED WELDER.
18. ALL STEEL MEMBERS AND STRAPS WILL BE POWER TOOL CLEANED TO A MINIMUM OF SSPC-SP3 AND HOT-DIP GALVANIZED PER ASTM A123. BOLTS AND WASHERS WILL BE HOT-DIP GALVANIZED PER ASTM A153. ALL WELDS WILL BE GRINDED AND COATED WITH 2 COATS OF A COLD APPLIED GALVANIZING PAINT.
19. ALL DI PIPE IN SANITARY SEWER SERVICE SHALL HAVE AN INTERIOR LINING OF PROTECTO 401 OR APPROVED EQUAL.

H-PILE DETAIL NOTES			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 3 OF 3	DWG. NO. M.13	DWG BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	

NO.	DATE	REVISION
1	07/09	UPDATED DETAIL
2	09/10	REVISED NOTES
3	07/17	REVISED NOTES

M13-H-PILE-AERIAL-CROSSING.dwg

NOTES:
1. HEIGHT OF FENCE SHALL BE 6 FEET, UNLESS OTHERWISE APPROVED BY FAYPWC.
2. USE OF COATED AND/OR PLASTIC COATED FABRIC MAY BE REQUIRED TO MATCH EXISTING FENCING. COLOR AND TYPE OF FABRIC TO BE APPROVED BY FAYPWC.
3. WIDTH OF FENCE AND/OR GATES SHALL BE AS APPROVED BY FAYPWC.
4. FAYPWC TO PROVIDE LOCK AND CHAIN.
5. LOCATION OF GATE WITHIN FAYPWC EASEMENT TO BE AS DIRECTED AND APPROVED BY FAYPWC.

TYPICAL CHAIN LINK GATE AND FENCING N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 1	DWG. NO. M.17	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE : JAN. 01, 2024	APPROVED BY: M.M.M.	

NO.	DATE	REVISION

M17-TYPICAL-CHAINLINK-GATE-AND-FENCE.dwg

BY							
REVISIONS							
DATE							

SHEET SERIES-FINAL DESIGN -ISSUED FOR BID

DATE 03/01/2024
SURVEY/QPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE: HOR: 1"=NTS VERT: 1"=NTS

SHEET # G4

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NORTH CAROLINA PROFESSIONAL 054233 ENGINEER ALBERT M. HUCHABY
3/5/2024

MISCELLANEOUS DETAILS
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
Electric & Water Utilities

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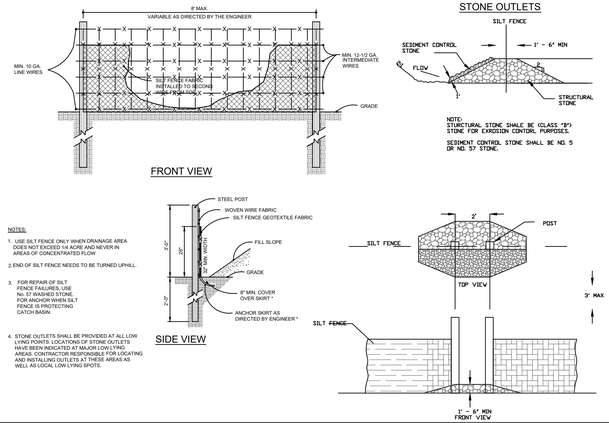
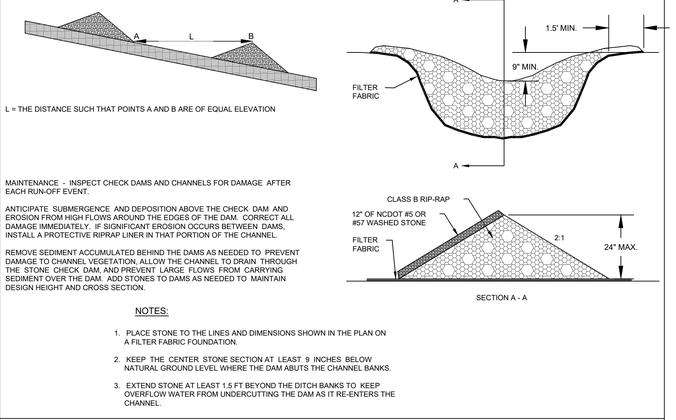
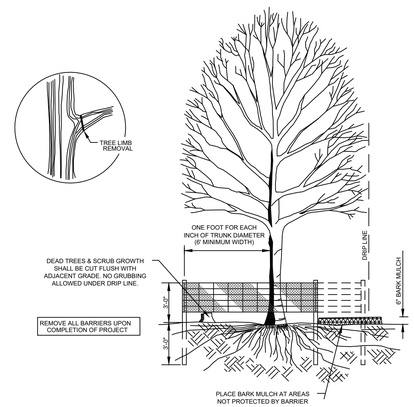


1 G5 TEMPORARY SILT FENCE
NOT TO SCALE



2 G5 TEMPORARY CHECK DAM
NOT TO SCALE



GENERAL NOTES:

TREES LOCATED WITHIN THE STREET RIGHT OF WAY AND THOSE IDENTIFIED IN PERMANENT SANITARY SEWER EASEMENT TO BE PROTECTED SHALL BE PROTECTED FROM DAMAGE AND/OR REMOVAL. THIS INCLUDES THE FOLLOWING ACTIVITIES: STORM DRAINAGE, UNDERGROUND UTILITIES, DRIVEWAYS, SIDEWALKS, ETC. UTILITIES MAY BE TUNNELED IN THE ROOT ZONE AT A 24" MINIMUM PROVIDING THAT PLANS ARE APPROVED SHOWING THE LOCATION AND METHOD.

BARRIERS SHALL EXTEND AROUND TRUNK AS SHOWN. THEY SHALL ENCOMPASS THE TREES WITH A RADIUS OF NO LESS THAN ONE FOOT (1) FOR EVERY ONE INCH (1") OF TRUNK DIAMETER UNLESS OTHERWISE DETAILED. DEVIATIONS FROM THIS MUST BE APPROVED ON AN INDIVIDUAL BASIS BY THE ENGINEERING DEPARTMENT. ALL TREE PROTECTION BARRIERS SHALL BE INSTALLED PRIOR TO ANY GRADING OR OTHER LAND DISTURBING ACTIVITY. THEY SHALL BE CONSTRUCTED FROM ANY MATERIAL SUBSTANTIAL ENOUGH TO DESIGNATE THE PROTECTED AREA AND PROTECT THE ROOTS, TRUNK, AND CROWN OF THE TREE. EXAMPLE: 2x4 STANDARDS AND 1x4 RAILS; SILT FENCING, ETC.

IN SOME CASES PERMITS MAY BE ISSUED TO ALLOW TEMPORARY (30 DAYS) ACCESS ACROSS THE PROTECTED AREA. MULCH, 4" TO 6" DEEP WILL BE REQUIRED IN THESE AREAS TO ACT AS A CUSHION TO PREVENT SOIL COMPACTION. DO NOT STORE MATERIALS OR PARK MACHINERY IN ANY PORTION OF THE PROTECTED ROOT ZONE.

FILL DIRT NO DEEPER THAN TWO INCHES SHALL BE ALLOWED WITHIN THE DRIP LINE OF THE TREE.

IN THE PROTECTED ROOT ZONE, STUMPS, DEAD TREES, AND SHRUB GROWTH SHALL BE CUT FLUSH OR GROUND OUT. NO GRUBBING IS PERMITTED.

REMOVE ALL BARRIERS UPON COMPLETION OF PROJECT AND FILL THE HOLES.

TREES THAT DIE AS A RESULT OF THE CONTRACTOR'S NEGLIGENCE TO THESE SPECIFICATIONS SHALL BE REMOVED AND REPLACED UNDER THE DIRECTION OF THE CITY AND APPLICABLE CITY STANDARDS.

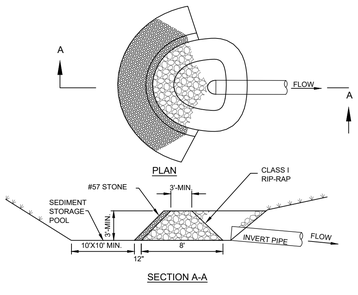
DEAD OR DYING TREE	NEW TREE
LESS THAN 12" DBH	1-4" CALIPER TREES
12-20" DBH	2-4" CALIPER TREES
20-28" DBH	3-4" CALIPER TREES
28-30" DBH	4-4" CALIPER TREES
ABOVE 30" DBH	5-4" CALIPER TREES

ROOT PRUNING: ROOT PRUNING SHALL BE KEPT TO AN ABSOLUTE MINIMUM ROOT PRUNING SHALL BE STARTED WITHIN FIFTEEN DAYS AFTER THE AWARD OF THE CONTRACT AND SHALL BE COMPLETED WITHIN FIFTEEN DAYS AFTER STARTING WORK. THE CUT IS TO BE MADE NO MORE THAN 6" BEHIND THE BACK OF THE CURB OR WHERE DIRECTED BY ENGINEER. THE CUT SHALL BE MADE TO A DEPTH OF TWO FEET BELOW THE SOIL SURFACE. THE ROOTS SHALL BE CUT CLEAN, Y LEAVING A SMOOTH SURFACE. ALL CUT SURFACES OF ROOTS TWO INCHES OR LARGER IN DIAMETER SHALL BE COVERED IMMEDIATELY WITH TREE WOUND DRESSING. ROOT PRUNING EQUIPMENT SHALL BE KEPT SHARP TO ENSURE THAT ROOTS ARE CUT CLEANLY AND ARE NOT BROKEN OR TORN BY DULL OR UNSUITABLE EQUIPMENT.

PRUNING AND THINNING OR EXISTING TREES: ALL BRANCHES OVERHANGING THE ROADWAY OR EASEMENT SHALL BE REMOVED TO A HEIGHT OF SEVENTEEN FEET. DEAD WOOD AND CROSSED BRANCHES SHALL BE REMOVED FROM THE TREES WITHIN THE CONTRACT AREA. THE PRUNING SHALL BE DONE IN A MANNER WHICH PRESERVES THE NATURAL CHARACTER OF THE CROWN.

FERTILIZATION: A FORMULATION OF 31-10-8 ANALYSIS FERTILIZER OR OTHER AS APPROVED BY THE CITY AND THE ENGINEER SHALL BE USED. TREES SHALL BE FERTILIZED WITHIN THE PROTECTED ROOT ZONE AT THE RATE OF 6 LBS. NITROGEN PER 1000 SF. SOURCE OF NITROGEN SHALL BE NO LESS THAN 50% UREA FORMALDEHYDE (SLOW RELEASE LOW SALT INDEX). THIS LIQUID FERTILIZER IS USED WITH A TREE FEEDING NEEDLE. AN EQUIVALENT DOSAGE SHALL BE APPLIED USING THE SAME PATTERN OF HOLE.

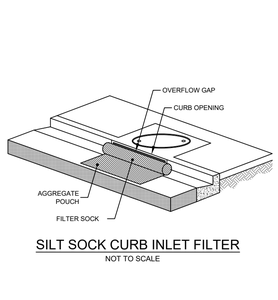
5 G5 TREE PROTECTION DETAIL
NOT TO SCALE



STONE PILE INLET PROTECTION
FOR DRIVEWAY CULVERTS LARGER THAT 24"

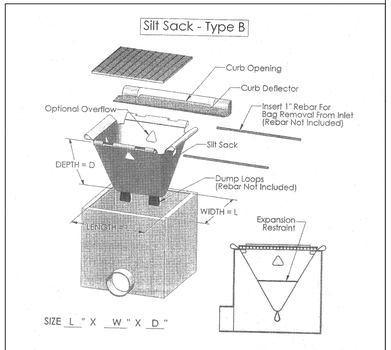
NOTES:
1. PLYWOOD INLET PROTECTION SHALL BE AN ACCEPTABLE ALTERNATE. IT SHALL BE USED WHERE PERMITTED BY EROSION CONTROL.
2. ROCK PILE INLETS HAVE BEEN SHOWN ON THE DRAWINGS FOR BIDDING PURPOSES.

3 G5 TEMPORARY ROCK PIPE INLET PROTECTION
NOT TO SCALE



SILT SOCK CURB INLET FILTER
NOT TO SCALE

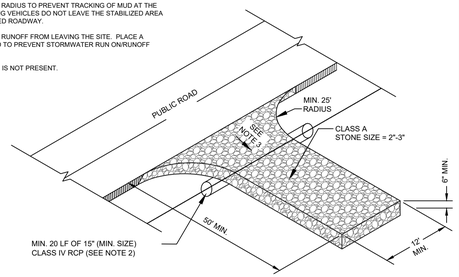
NOTES:
1. OTHER ALTERNATIVE CURB INLET PROTECTION METHODS MAY BE ACCEPTABLE. CONTRACTOR SHALL COORDINATE WITH FPWC PROJECT COORDINATOR, IF OTHER METHOD IS PREFERRED.
2. SILT SACK METHOD SHALL NOT BE USED IN ROADWAY SAG CONDITIONS.
3. FOR PAVEMENT INSTALLATION ANCHOR FILTER SOCK TO INLET FRAME/GRATE.



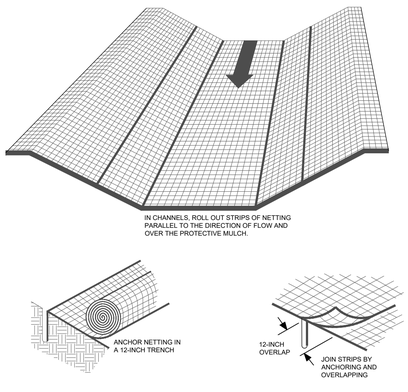
SILT SACK
NOT TO SCALE

4 G5 CURB INLET PROTECTION
NOT TO SCALE

NOTES:
1. CONTRACTOR RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF TEMPORARY GRAVEL CONSTRUCTION ENTRANCE WHEN WORK DICTATES THAT ENTRANCE BE DISTURBED FOR SEWER REALIGNMENT, REPLACEMENT, ETC.
2. MINIMUM DRAINAGE DIAMETER OF 15-INCHES IS REQUIRED UNLESS OTHERWISE NOTED ON PLANS. MINIMUM CLASS IV IS REQUIRED UNLESS OTHERWISE NOTED ON PLANS.
3. DRIVEWAY SHALL HAVE A GRADE THAT SLOPES AWAY FROM HIGHWAY SURFACE AT A RATE EQUAL TO THE SLOPE OF THE SHOULDER, BUT NOT LESS THAN 1/4" PER FOOT NOR GREATER THAN 1" PER FOOT IN A NORMAL CROWN SECTION. THE SLOPE SHALL CONTINUE FOR A DISTANCE EQUAL TO THE PREVAILING SHOULDER WIDTH OR LONGER SO AS NOT TO CAUSE A HUMP OR A DEPRESSION IN THE SHOULDER AREA.
4. THE ENTRANCE SHALL HAVE AN ADEQUATE RADIUS TO PREVENT TRACKING OF MUD AT THE EDGE OF THE ENTRANCE AND SO THAT LONG VEHICLES DO NOT LEAVE THE STABILIZED AREA WHEN TURNING ONTO OR OFF OF THE PAVED ROADWAY.
5. PROPERLY GRADE ENTRANCE TO PREVENT RUNOFF FROM LEAVING THE SITE. PLACE A MOUNDED BERM OF MATERIAL IF REQUIRED TO PREVENT STORMWATER RUN ON/RUNOFF AND/OR PROVIDE COVER FOR DRAIN PIPE.
6. PIPE CULVERT NOT REQUIRED WHEN DITCH IS NOT PRESENT.

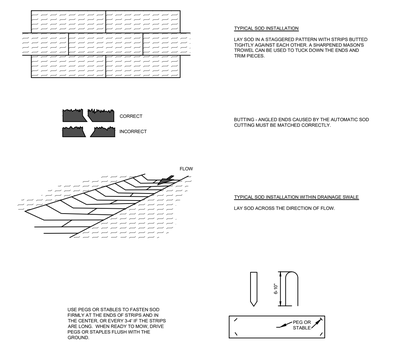


6 G5 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT
NOT TO SCALE



NOTES:
PRODUCTS DESIGNED TO CONTROL EROSION SHOULD BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. ANY MAT OR BLANKET-TYPE PRODUCT USED AS A PROTECTIVE MULCH SHOULD PROVIDE COVER OF AT LEAST 30% OF THE SURFACE WHERE IT IS APPLIED.
1. APPLY LIME, FERTILIZER, AND SEED BEFORE LAYING THE NET OR MAT.
2. START LAYING THE NET FROM THE TOP OF THE CHANNEL OR SLOPE, AND UNROLL IT DOWN THE GRADE. ALLOW NETTING TO LAY LOOSELY ON THE SOIL OR MULCH COVER BUT WITHOUT WRINKLES - DO NOT STRETCH.
3. TO SECURE THE NET, BURY THE UPSLOPE END IN A SLOT OR TRENCH NO LESS THAN 6 INCHES DEEP, COVER WITH SOIL, AND TAMP FIRMLY. STAPLE THE NET EVERY 12 INCHES ACROSS THE TOP END AND EVERY 3 FEET AROUND THE EDGES AND BOTTOM. WHERE 2 STRIPS OF NET ARE LAID SIDE BY SIDE, THE ADJACENT EDGES SHOULD BE OVERLAPPED 3 INCHES AND STAPLED TOGETHER. EACH STRIP OF NETTING SHOULD ALSO BE STAPLED DOWN THE CENTER, EVERY 3 FEET DO NOT STRETCH THE NET WHEN APPLYING STAPLES.
4. TO JOIN 2 STRIPS, CUT A TRENCH TO ANCHOR THE END OF THE NEW NET. OVERLAP THE END OF THE PREVIOUS ROLL 18 INCHES AND STAPLE EVERY 12 INCHES JUST BELOW THE ANCHOR SLOT.

7 G5 INSTALLATION OF NETTING AND MATTING
NOT TO SCALE



8 G5 SOD INSTALLATION
NOT TO SCALE

DATE	REVISIONS	BY

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DATE: 03/01/2024
SURVEY/DPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE: HOR: 1"=NTS
VERT: 1"=NTS
SHEET # G5

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EROSION CONTROL DETAILS
ANNEXATION PHASE V, AREA 27
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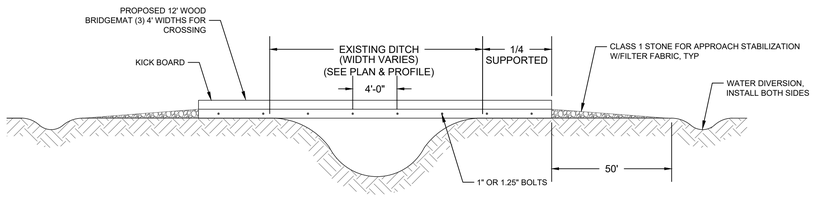
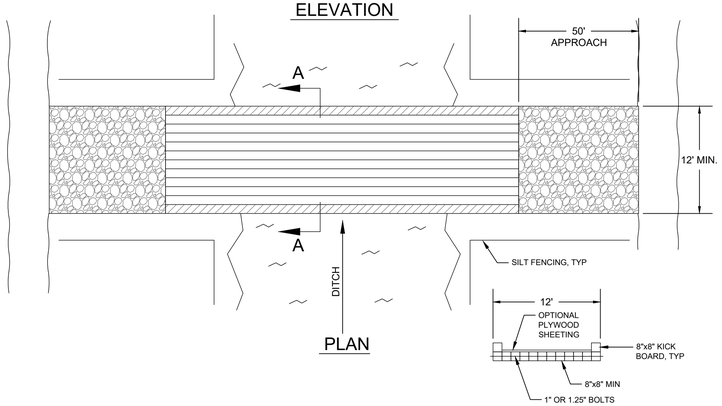


ELEVATION



PLAN

SECTION A-A

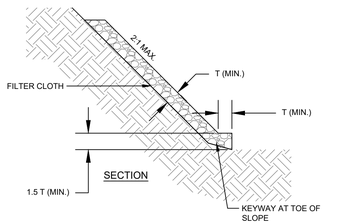
GENERAL NOTES:

1. INSTALL TO CREATE A MINIMUM 12 FT CROSSING WIDTH OR LARGER WIDTH FOR CONSTRUCTION EQUIPMENT.
2. PERIODICALLY CHECK MAT HARDWARE, RETIGHTEN AS REQUIRED TO MAINTAIN STRENGTH AND INTEGRITY.
3. REMOVE ANY DEBRIS THAT ENTERS DRAINAGE WAY.
4. CONTRACTOR RESPONSIBLE FOR SIZING STRUCTURAL COMPONENTS OF MAT TO CARRY ALL CONSTRUCTION LOADS INCLUDING EQUIPMENT AND MATERIAL.

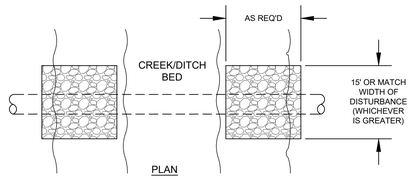
SEQUENCE NOTES:

1. MAT SHALL BE INSTALLED PRIOR TO CONSTRUCTION. LOCATION OF MAT AT EACH CROSSING SHALL BE COORDINATED BY CONTRACTOR SO IT DOES NOT CONFLICT WITH SEWER EXCAVATION AND IT RESIDES WITHIN LIMITS OF DISTURBANCE (LOD).
2. MAT SHALL REMAIN IN PLACE UNTIL ALL DOWNSTREAM (IN TERMS OF SEWER FLOW) WORK HAS BEEN COMPLETED, RESTORED AND DEEMED ACCEPTABLE AND CONTRACTOR NO LONGER NEEDS ACCESS OVER DITCH.

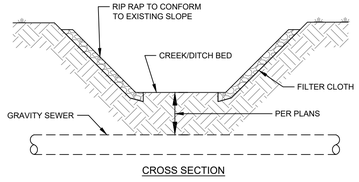
1 / G6 TEMPORARY DITCH CROSSING (BRIDGE MAT)
NOT TO SCALE



SECTION



PLAN

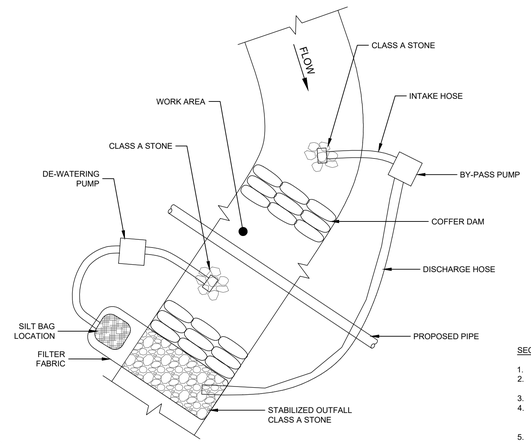


CROSS SECTION

GENERAL NOTE:

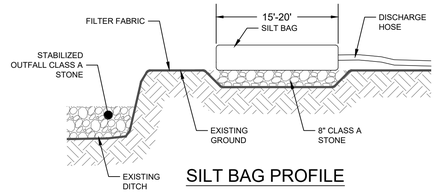
1. T (MIN.) IS BASED UPON MINIMUM DIAMETER OR THICKNESS OF SIZE OR CLASSIFICATION AS DEFINED ON EROSION CONTROL PLAN.
2. RIP-RAP SHALL NOT BE EXTENDED BELOW NORMAL WATER SURFACE ELEVATION

5 / G6 STREAM BANK STABILIZATION
NOT TO SCALE



NOTES:

1. EXCAVATION SHALL BE PERFORMED ONLY IN DRY AND/OR ISOLATED SECTIONS OF CHANNEL.
2. IMPERVIOUS DIKES SHOULD BE USED TO ISOLATE WORK AREAS FROM DITCH FLOW.
3. THE CONTRACTOR SHALL NOT DISTURB MORE AREA THAN CAN BE STABILIZED IN ONE WORKING DAY. A MAXIMUM OF 1000 FEET MAY BE DISTURBED AT ANY ONE TIME.
4. THE BY-PASS PUMP SHOULD ADEQUATELY CONVEY MINIMUM 450 GALLONS / MINUTE UNLESS OTHERWISE SPECIFIED.
5. DIKE MUST BE CONSTRUCTED OF NON-ERODIBLE MATERIALS SUCH AS SANDBAGS, SEE COFFER DAM DETAIL.

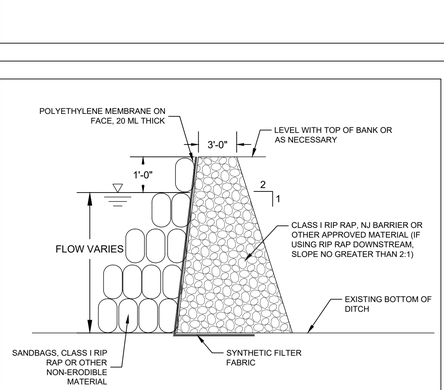


SILT BAG PROFILE

SEQUENCE OF CONSTRUCTION FOR TYPICAL PUMP AROUND

1. INSTALL STILLING BASIN AND STABILIZED OUTFALL USING CLASS A RIP RAP AT THE DOWNSTREAM END OF THE DESIGNATED PROJECT WORKING AREA.
2. THE CONTRACTOR WILL INSTALL THE PUMP AROUND PUMP AND THE TEMPORARY PIPING THAT WILL CONVEY THE BASE FLOW FROM UPSTREAM OF THE WORK AREA TO THE STABILIZED OUTFALL.
3. INSTALL UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR DITCH DIVERSION.
4. INSTALL THE DOWNSTREAM IMPERVIOUS DIKE AND DEWATERING PUMPING APPARATUS IF NEEDED TO DEWATER THE ENTRAPPED AREA. THE PUMP AND HOSE FOR THIS PURPOSE SHALL BE OF SUFFICIENT SIZE TO DEWATER THE WORK AREA. THIS WATER WILL ALSO BE PUMPED TO AN OUTFALL STABILIZED WITH CLASS A RIP RAP.
5. THE CONTRACTOR WILL PERFORM DITCH RESTORATION AND/ OR UTILITY CROSSING WORK IN ACCORDANCE WITH THE PLAN AND FOLLOWING THE GENERAL CONSTRUCTION SEQUENCE.
6. THE CONTRACTOR WILL EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF THE IMPERVIOUS DIKE. WHEN DEWATERING AREA, ALL DIRTY WATER MUST BE PUMPED THROUGH A SILT BAG. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE/PIPING STARTING WITH THE DOWNSTREAM DIKE FIRST.
7. ONCE THE WORKING AREA IS COMPLETED, REMOVE ALL RIP RAP AND IMPERVIOUS DIKES AND STABILIZE DISTURBED AREAS IN ACCORDANCE WITH DITCH STABILIZATION REQUIREMENTS AS INDICATED ON EROSION/ SEDIMENTATION PLANS.
8. ALL WORK IN DITCH MUST BE COMPLETED BEFORE REMOVING IMPERVIOUS DIKE.

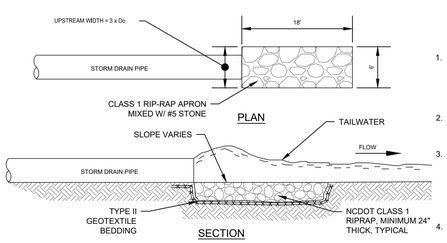
2 / G6 DITCH PUMP AROUND
NOT TO SCALE



NOTES:

1. CONTRACTOR SHALL INSTALL COFFER DAM WITH BYPASS ARRANGEMENTS ALONG DITCH PRIOR TO SEWER INSTALLATION TO ENSURE DRY CONDITIONS. SEE DITCH PUMP AROUND DETAIL.
2. CONTRACTOR SHALL FOLLOW CONSTRUCTION SEQUENCE AS NOTED ON CONTRACT DRAWINGS.

3 / G6 COFFER DAM
NOT TO SCALE



SECTION

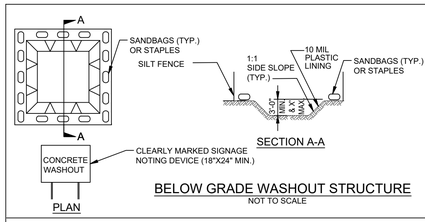
MAINTENANCE

RIPRAP OUTLET STRUCTURES SHALL BE INSPECTED ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.5 INCHES OR GREATER TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

NOTES

1. ENSURE THAT THE SUBGRADE FOR THE FILTER AND RIPRAP FOLLOWS THE REQUIRED LINES AND GRADES SHOWN IN THE PLAN. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL. LOW AREAS IN THE SUBGRADE ON UNDISTURBED SOIL MAY ALSO BE FILLED BY INCREASING THE RIPRAP THICKNESS.
2. THE RIPRAP AND GRAVEL FILTER MUST CONFORM TO THE SPECIFIED GRADING LIMITS SHOWN ON THE PLANS. RIPRAP INSTALLED ON SLOPES SHALL BE EXTENDED TO THE TOE OF SLOPE.
3. GEOTEXTILE BEDDING, MUST MEET NCDOT SPECIFICATIONS AND BE PROPERLY PROTECTED FROM PUNCHING OR TEARING DURING INSTALLATION. REPAIR ANY DAMAGE BY REMOVING THE RIPRAP AND PLACING ANOTHER PIECE OF FILTER CLOTH OVER THE DAMAGED AREA. ALL CONNECTING JOINTS SHOULD OVERLAP A MINIMUM OF 1 FT. IF THE DAMAGE IS EXTENSIVE, REPLACE THE ENTIRE FILTER CLOTH.
4. THE MINIMUM THICKNESS OF THE RIPRAP SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER. RIPRAP MAY BE FIELD STONE OR ROUGH QUARRY STONE. IT SHOULD BE HARD, ANGULAR, HIGHLY WEATHER-RESISTANT AND WELL GRADED.
5. CONSTRUCT THE APRON GRADE AS SHOWN ON PLAN WITH NO OVER FALL AT THE END. MAKE THE TOP OF THE RIPRAP AT THE DOWNSTREAM END LEVEL WITH THE RECEIVING AREA OR SLIGHTLY BELOW IT.
6. ENSURE THAT THE APRON IS PROPERLY ALIGNED WITH THE RECEIVING STREAM AND PREFERABLY STRAIGHT THROUGHOUT ITS LENGTH.
7. IMMEDIATELY AFTER CONSTRUCTION, STABILIZE ALL DISTURBED AREAS WITH VEGETATION.

4 / G6 RIP-RAP OUTLET PROTECTION DETAIL
NOT TO SCALE

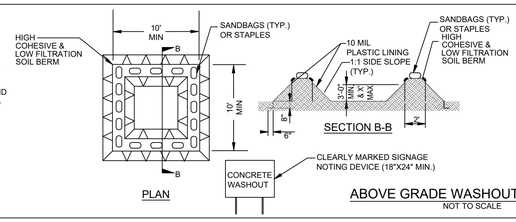


BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.



NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

6 / G6 ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER
NOT TO SCALE

PWC DWG # DS-15513

DATE	REVISIONS	BY

SHEET SERIES-FINAL DESIGN: ISSUED FOR BID

DATE: 03/01/2024
SURVEY/DPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE: HOR: 1"=NTS
VERT: 1"=NTS

SHEET # G6

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PWC Electric & Water Utilities

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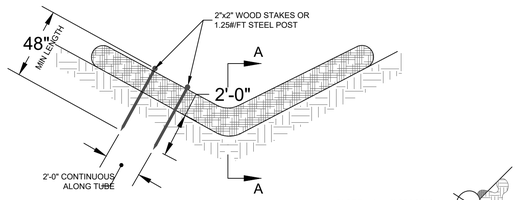
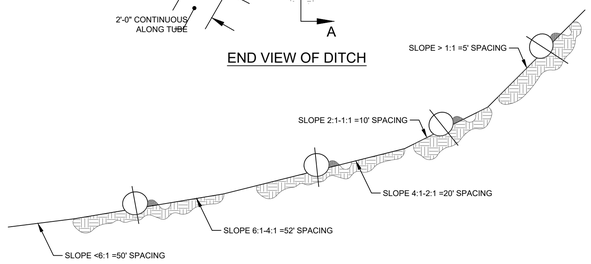
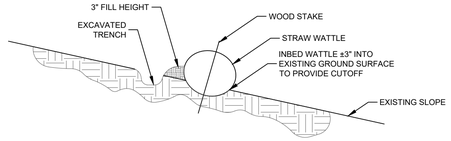


END VIEW OF DITCH



TYPICAL WATTLE SPACING BASED ON SLOPE GRADIENT



SECTION A-A

STRAW WATTLE

NOT TO SCALE

WATTLE DESCRIPTION

WATTLES ARE ELONGATED TUBES OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBER OR HARDWOOD MULCH. STRAW, PINE NEEDLE AND LEAF MULCH-FILLED SEDIMENT TUBES ARE NOT PERMITTED UNDER THIS SPECIFICATION.

WHEN AND WHERE TO USE IT:

INSTALL SEDIMENT TUBES ALONG CONTOURS, IN DRAINAGE CONVEYANCE SWALES, AND AROUND INLETS TO HELP REDUCE THE EFFECTS OF SOIL EROSION BY ENERGY DISSIPATION AND RETAIN SEDIMENT.

MATERIALS

WATTLES FOR DITCH CHECKS AND TYPE A INLET STRUCTURE FILTERS EXHIBIT THE FOLLOWING PROPERTIES:
PRODUCED BY A MANUFACTURER EXPERIENCED IN WATTLE MANUFACTURING.
COMPOSED OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBERS, HARDWOOD MULCH OR A MIX OF THESE MATERIALS ENCLOSED BY A FLEXIBLE NETTING MATERIAL. STRAW, STRAW FIBER, STRAW BALES, PINE NEEDLES AND LEAF MULCH ARE NOT ALLOWED UNDER THIS SPECIFICATION. UTILIZES OUTER NETTING THAT CONSISTS OF SEAMLESS, HIGH-DENSITY POLYETHYLENE PHOTODEGRADABLE MATERIALS TREATED WITH ULTRAVIOLET STABILIZERS OR A SEAMLESS, HIGH-DENSITY POLYETHYLENE NON-DEGRADABLE MATERIALS. DIAMETER RANGING FROM 18-INCHES TO 24-INCHES. CURLED EXCELSIOR WOOD, OR NATURAL COCONUT ROLLED EROSION CONTROL PRODUCTS (RECPS) THAT ARE ROLLED UP TO CREATE A SEDIMENT TUBE ARE **NOT** ALLOWED UNDER THIS SPECIFICATION.

INSTALLATION:

1. INSTALL OVER BARE SOIL, MULCHED AREAS OR EROSION CONTROL BLANKETS. THE MINIMUM DIAMETER SHOULD BE 18 INCHES.
2. BEGIN AT THE LOCATION WHERE THE WATTLE IS TO BE INSTALLED BY EXCAVATING A TRENCH 20% OF TUBE DIAMETER x 9" WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UP-SLOPE FROM THE ANCHOR TRENCH. AVOID DAMAGE TO SEDIMENT TUBES WHILE INSTALLING THEM. IF THE SEDIMENT TUBE BECOMES DAMAGED DURING INSTALLATION, A STAKE SHOULD BE PLACED ON BOTH SIDES OF THE DAMAGED AREA TERMINATING THE TUBE SEGMENT AND A NEW TUBE SEGMENT SHOULD BE INSTALLED
3. PLACE THE WATTLE IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT THE SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. ADJACENT WATTLES SHOULD TIGHTLY ABUT.
4. SECURE THE WATTLE WITH 48" STAKES EVERY 2'-0" WITH A STAKE ON EACH END. STAKES SHOULD BE INTERTWINED WITH THE OUTER MESH ON THE DOWNSTREAM SIDE AND DRIVEN IN THE GROUND TO A MINIMUM DEPTH OF 1.5 FEET LEAVING AT LEAST 3" OF STAKE EXTENDING ABOVE, THE WATTLE STAKES SHOULD BE DRIVEN PERPENDICULAR TO THE SLOPE FACE. STAKES SHOULD BE 2"x2" WOODEN STAKES OR STEEL POSTS (STANDARD "U" OR "T" SECTIONS WITH A MINIMUM WEIGHT OF 1.25 POUNDS PER FOOT). ALWAYS REFER TO THE MANUFACTURER'S RECOMMENDATIONS FOR THE STAKING DETAIL,
5. INSTALL ALL TUBES INSURING THAT NO GAPS EXIST BETWEEN THE SOIL AND THE BOTTOM OF THE TUBE. THE ENDS OF ADJACENT WATTLES SHOULD BE LAPPED 6-INCH TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE FIELD JOINT.IN NO SITUATIONS SHOULD SEDIMENT TUBES BE STACKED ON TOP OF ONE ANOTHER. IN SWALES OR DRAINAGE DITCHES PERPENDICULAR TO THE FLOW OF WATER. SEDIMENT TUBES SHOULD CONTINUE UP THE SIDE SLOPES A MINIMUM OF 1 FOOT ABOVE THE DESIGN FLOW DEPTH.
6. SEDIMENT TUBE LENGTH SELECTED SHOULD MINIMIZE THE NUMBER OF SEDIMENT TUBES NEEDED TO SPAN THE WIDTH OF THE DRAINAGE CONVEYANCE. IF THE DITCH CHECK LENGTH (PERPENDICULAR TO THE WATER FLOW) IS 15 FEET, THEN ONE 15 FOOT SEDIMENT TUBE IS PREFERRED COMPARED TO TWO OVERLAPPING 10 FOOT SEDIMENT TUBES.
7. WATTLES FOR DITCH CHECKS SHOULD REMAIN IN PLACE UNTIL FULLY ESTABLISHED VEGETATION AND ROOT SYSTEMS HAVE COMPLETELY DEVELOPED AND CAN SURVIVE ON THEIR OWN.

INSPECTION AND MAINTENANCE:

CHECK DAMS SHOULD BE INSPECTED EVERY 7 CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH STORM THAT PRODUCES ½-INCHES OR MORE OF RAIN TO ENSURE CONTINUED EFFECTIVENESS.

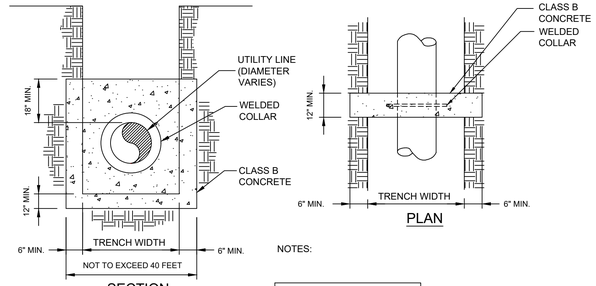
LARGE DEBRIS, TRASH, AND LEAVES SHOULD BE REMOVED.

IF EROSION CAUSES THE EDGES TO FALL TO A HEIGHT EQUAL TO OR BELOW THE HEIGHT OF THE CENTER, REPAIRS SHOULD BE MADE IMMEDIATELY.

REMOVE ACCUMULATED SEDIMENT FROM THE UPSTREAM SIDE OF THE SEDIMENT TUBE WHEN THE SEDIMENT HAS REACHED A HEIGHT OF APPROXIMATELY ONE-THIRD OF THE EXPOSED HEIGHT OF THE TUBE (MEASURED AT THE CENTER).

ACCUMULATED SEDIMENT SHOULD BE REMOVED PRIOR TO REMOVING SEDIMENT TUBES.

WATTLE REMOVAL SHOULD BE COMPLETED ONLY AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN COMPLETELY STABILIZED. PERMANENT VEGETATION SHOULD REPLACE AREAS FROM WHICH GRAVEL, STONE, SEDIMENT TUBES, OR OTHER MATERIALS HAVE BEEN REMOVED.



ANTI-SEEP COLLAR

NOT TO SCALE

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes		
Site Area Description	**Stabilize within this many calendar days after ceasing land disturbance**	**Timeframe variations**
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be documented in the manner described:

Item to Document	Documentation Requirements
(a) Each E&SC Measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC Plan.	Initial and date each E&SC Measure on a copy of the approved E&SC Plan or complete, date and sign an inspection report that lists each E&SC Measure shown on the approved E&SC Plan. This documentation is required upon the initial installation of the E&SC Measures or if the E&SC Measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC Plan.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC Measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC Measures.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation

In addition to the E&SC Plan documents above, the following items shall be kept on the site

and available for agency inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This general permit as well as the certificate of coverage, after it is received.

(b) Records of inspections made during the previous 30 days. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

(c) All data used to complete the Notice of Intent and older inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that must be reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:

- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(a) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(b) Anticipated bypasses and unanticipated bypasses.

(c) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Division's Emergency Response personnel at (800) 662-7956, (800) 858-0368 or (919) 733-3300.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible***. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

DATE	REVISIONS	BY

SHEET SERIES-FINAL DESIGN- ISSUED FOR BID

DATE 03/01/2024
SURVEY/QPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE HOR: 1"=NTS
VERT: 1"=NTS
SHEET # G7

WK DICKSON
Community Infrastructure Consultants
Urban Design — Water Resources
Transportation — Land Development
720 Corporate Center Drive
Raleigh, North Carolina 27607
(919) 782-0495
www.wkdickson.com
NC CERTIFICATE NO. P-1084

NORTH CAROLINA
PROFESSIONAL
054233
ENGINEER
ALBERT M. HUCKABY
3/5/2024

EROSION CONTROL DETAILS
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE
PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
PWC
Electric & Water Utilities

PWC DWG # DS-15513

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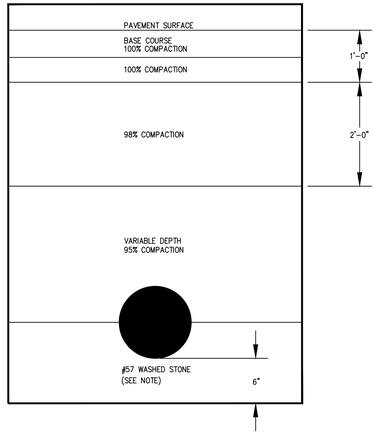


NOTES:

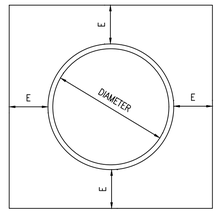
1. STONE BEDDING FOR PIPE IS REQUIRED UNLESS OTHERWISE APPROVED BY CITY ENGINEER OR THEIR DESIGNEE.

FAYETTEVILLE!
ENGINEERING DIVISION
433 HAY ST. 28301
(910) 433-1656
http://www.fayettevillenc.gov

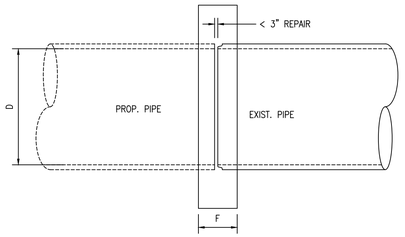
TYPICAL STORM DRAIN COMPACTION

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR-1



ELEVATION



SIDE ELEVATION

GENERAL NOTES:

1) DIMENSION "F" SHALL BE 12" + WIDTH OF DAMAGE.
2) EXISTING PIPE REMOVED SHALL BE REPLACED WITH NEW RCP.
3) COLLARS NOT TO BE USED IF DAMAGE IS 16" OR CLOSER TO EXISTING STRUCTURE. IF DAMAGE IS THIS CLOSE NEW PIPE TO BE RELAID TO NEAREST STRUCTURE.
4) ALL WORK TO BE INSPECTED BY SENIOR ENGINEER OR DESIGNATE PRIOR TO CONCRETE PLACEMENT.
5) CONSTRUCT COLLAR WITH FORMED 3000 PSI CONCRETE WITH AIR ENTRAINMENT.
6) DAMAGED PIPE WITH MORE THAN 3" OF DAMAGE SHALL BE REPLACED WITH NEW PIPE.
7) METAL FLASHING SHALL BE USED TO SEAL JOINT PRIOR TO CONCRETE PLACEMENT. GAP AT JOINT MAY NOT EXCEED 3".

D	E	F	CU. YD.
15"	8"	12"+	.03990
18"	8"	12"+	0.4465
24"	12"	12"+	0.5526
30"	12"	12"+	0.6560
36"	12"	12"+	0.7640
42"	12"	12"+	0.8856
48"	12"	12"+	1.0126
54"	18"	18"+	2.5793
60"	18"	18"+	2.8506
66"	18"	18"+	3.1307
72"	18"	18"+	3.4176

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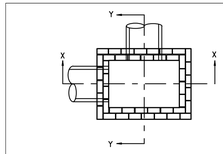
CONCRETE PIPE COLLAR FOR FOR REPAIRING STORM DRAINS
ADOPTED FROM NCDOT STANDARD NO. 840.00

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR-10



PLAN
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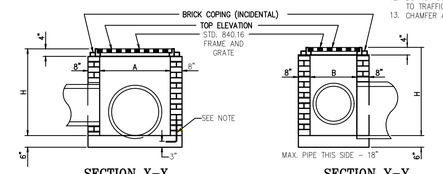
GENERAL NOTES:

1. MORTAR JOINTS 1/2" +/- 1/8" THICK.
2. USE CLASS "B" CONCRETE THROUGHOUT.
3. USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.
4. USE #4 BAR DOWELS AT 12" CENTERS.
5. DEDUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY.
6. PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
7. USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.
8. IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
9. FOR 8'-0" IN HEIGHT OR LESS, USE 8" WALL. OVER 8'-0" IN HEIGHT, USE 12" WALL TO 6'-0" FROM TOP OF WALL AND 8" WALL FOR THE UPPER 6'-0". QUANTITES TO BE ADJUSTED ACCORDINGLY.
10. CONSTRUCT WITH PIPE CROWNS MATCHING.
11. SEE NCDOT STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES.
12. DO NOT USE BRICK MASONRY DROP INLET IN LOCATIONS SUBJECT TO TRAFFIC.
13. CHAMFER ALL EXPOSED CORNERS 1".



SECTION X-X

SECTION Y-Y

DOWEL

DIMENSIONS AND QUANTITIES FOR DROP INLET(BASED ON MIN. HEIGHT, H)

DIMENSIONS OF BOX & PIPE				CUBIC YARDS CONCRETE	CUBIC YARDS BRICK MASONRY		DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	MIN. HEIGHT	BOTTOM SLAB	WALL PER FOOT HT.	TOTAL BRICK MASONRY FOR MIN. HEIGHT, H	C.S.	R.C.
D	A	B	H					
12"	3'-0"	2'-0"	2'-0"	0.268	0.313	0.522	0.020	0.032
15"	/	/	2'-3"	0.268	0.313	0.600	0.031	0.047
18"	/	/	2'-6"	0.268	0.313	0.678	0.044	0.065
24"	3'-0"	2'-0"	3'-0"	0.268	0.313	0.835	0.078	0.113
30"	3'-0"	2'-0"	3'-6"	0.268	0.313	0.991	0.122	0.170

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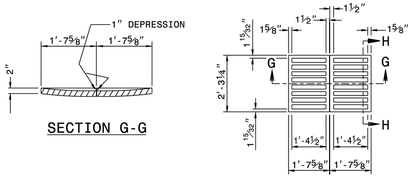
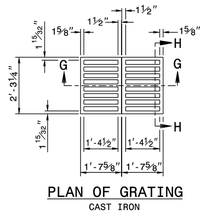
DROP INLET WITH GRATE
12" TO 30" PIPE
NCDOT STANDARD NO. 840.15

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

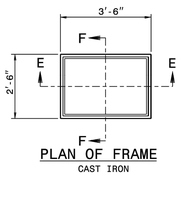
DR-11



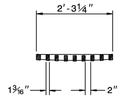
SECTION G-G



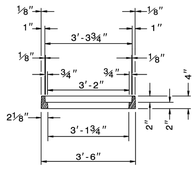
PLAN OF GRATING
CAST IRON



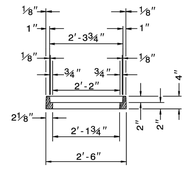
PLAN OF FRAME
CAST IRON



SECTION H-H



SECTION E-E



SECTION F-F

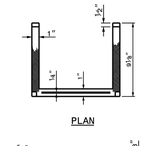
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

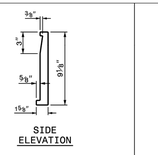
1-18

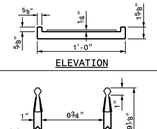
ROADWAY STANDARD DRAWING FOR
DROP INLET FRAME AND GRATES
FOR USE WITH STD. DWG.S 840.14 AND 840.15

SHEET 1 OF 1
840.16

NOTES:
INSTALL ALL STEPS PROTRUDING 4" FROM INSIDE FACE OF STRUCTURE WALL.
STEPS DIFFERING IN DIMENSIONS, CONFIGURATION, OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THE CONTRACTOR HAS FURNISHED THE ENGINEER WITH DETAILS OF THE PROPOSED STEPS AND HAS RECEIVED WRITTEN APPROVAL FROM THE ENGINEER FOR THE USE OF SUCH STEPS.







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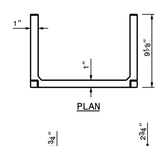

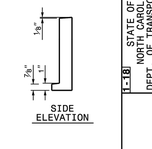

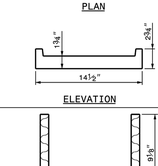

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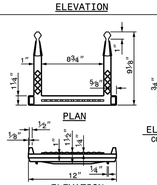
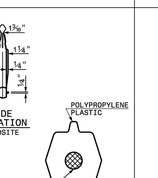
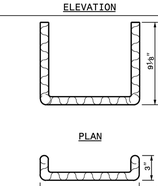
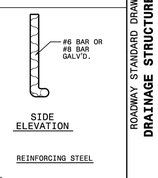




SECTION A-A





REINFORCING STEEL

NOTE:
DO NOT USE IN SANITARY SEWER MANHOLES.

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

1-18

ROADWAY STANDARD DRAWING FOR
DRAINAGE STRUCTURE STEPS

SHEET 1 OF 1
840.66

PWC DWG # DS-15513

DATE	REVISIONS	BY

SHEET SERIES-FINAL DESIGN-ISSUED FOR BID

DATE 03/01/2024
SURVEY/DPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE: HOR: 1"=NTS
VERT: 1"=NTS
SHEET # G8

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Community Infrastructure Consultants
Urban Development • Water Resources
Transportation • Water Distribution
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Raleigh, North Carolina 27607
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NC CORPORATE NO.? P-0316

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 054233 ALBERT M. HUCHABY
3/5/2024

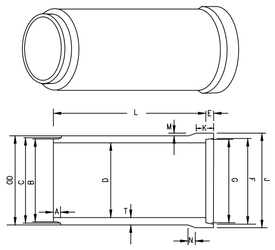
STORM DRAINAGE DETAILS
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
Electric & Water Utilities

20200208.00.RA

Z:\Projects\Fayetteville Public Works Commission\20200208\00A - Annexation Phase V, Area 27\CAD\Plan Set\20200208_C_SHT_DETAILS.dwg 3/4/2024 12:29:12 PM

SIZE D	T	L	POUNDS PER FOOT	ASTM SPEC. & CLASS	OD	A	B	C	E	F	G	J	K	M	N	PLANT
15	B2 1/4	8'	134	ASTM C76 III IV V	19 1/2	2	16 15/16	17 1/4	2	17 3/4	17	21 3/8	4 1/2	7/16	1 1/4	SR VN-KN
18	B2 1/2	8'	173	ASTM C76 III IV V	23	2	20	20 3/4	2	21 1/4	20 1/2	23 1/2	6 1/2	3/4	1 1/4	SR VN-KN
24	B3	8'	268	ASTM C76 III IV V	30	2 1/2	26 3/16	26 7/8	2 13/16	27 3/4	27	31 1/32	4 1/4	1/2	1 1/2	VN-KN SR
30	B3 1/2	8'	396	ASTM C76 III IV V	37	2 15/16	32 1/16	33 1/8	3	34 1/32	33 1/32	38 1/2	5 1/2	3/4	1 1/2	SR-K
36	B4	8'	543	ASTM C76 III IV V	44	3 3/4	39 1/4	39 29/32	3 13/16	40 19/32	40 5/16	46 1/2	6	1 1/4	2 11/16	SR-K



A MINIMUM OF 6" OF #57 WASHED STONE IS REQUIRED FOR ALL PIPE INSTALLATION. SEE CITY CITY OF FAYETTEVILLE STANDARD DETAIL DR-1.

MODIFIED TONGUE AND GROOVE

8 FOOT LENGTH

MORTAR OF FLEXIBLE PLASTIC TYPE JOINT

SPECIFICATIONS:
ASTM C 76-LATEST
NCDOT
REINFORCED IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS

LIFT HOLES STANDARD ON 36" AS ALLOWED PER ASTM SPECIFICATIONS

MINIMUM FILL UNDER ROADWAYS	
PIPE CLASS	MINIMUM FILL
CLASS III	2'
CLASS IV	1'
CLASS V	1'
FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE.	

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REINFORCED CONCRETE SEWER, STORM DRAIN AND CULVERT 15" THRU 36" PIPE

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR-19

SIZE D IN.	MIN. SLOPE (FT) RCP	MIN. SLOPE (FT) CMP	CLEARANCE DIST. (FT) RCP	CLEARANCE DIST. (FT) CMP
15	0.00325	0.01107	2.4	2.3
18	0.00255	0.00868	2.7	2.6
24	0.00174	0.00592	3.3	3.1
30	0.00129	0.00439	3.8	3.6
36	0.00101	0.00345	4.3	4.1
42	0.00082	0.00281	4.9	4.6
48	0.00069	0.00235	5.4	5.1

MINIMUM FILL UNDER ROADWAYS	
PIPE CLASS	MINIMUM FILL
CLASS III	2'
CLASS IV	1'
CLASS V	1'
FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE.	

NOTES:
1. THE MAXIMUM PIPE VELOCITY SHALL NOT EXCEED 20 FT PER SEC., BUT SHALL NOT CAUSE SCOUR OR OTHER EROSION PROBLEMS IN THE RECEIVING CHANNEL.
2. SLOPES REQUIRED TO MAINTAIN MINIMUM VELOCITY OF 3 FT PER SEC. AT FULL FLOW.
3. THE MINIMUM SIZE STORM DRAIN PIPE SHALL BE 15 IN.
4. ALL STORM DRAINAGE PIPE USED WITHIN CITY RIGHT-OF-WAY SHALL BE REINFORCED CONCRETE PIPE (RCP). ALL RCP SHALL BE CLASS III OR HIGHER.
5. CLEARANCE DISTANCE IS DETERMINED FROM THE PIPE INVERT ELEVATION UP.
6. A MINIMUM OF 6" OF #57 WASHED STONE IS REQUIRED FOR ALL PIPE INSTALLATION. SEE CITY OF FAYETTVILLE STANDARD DETAIL DR-1.

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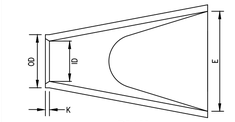
MINIMUM SLOPE & COVER FOR STORM DRAIN AND CULVERT PIPE

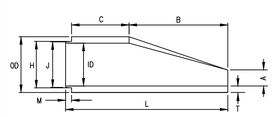
Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR-19.2



PLAN

TABLE OF DIMENSIONS										
ID	T	OD	A	B	C	E	H	J	K	M	L	WT.
15"	2-1/4"	19-1/2"	7"	27-1/4"	47-1/2"	30"	17"	16-1/2"	2"	2"	74-3/4"	1038
18"	2-1/2"	23"	9"	27"	47-3/4"	30"	20-1/4"	19-1/2"	2"	2"	74-3/4"	1426
24"	3"	30"	9"	43"	37"	47-3/4"	26-3/4"	26-1/4"	2-13/16"	2-3/4"	80"	2137
30"	3-1/2"	37"	12"	54-1/2"	22-1/2"	60"	33-1/2"	32-1/2"	3"	2-15/16"	77"	2990
36"	4"	44"	16"	60"	37-1/2"	71"	39-3/4"	39"	3-3/4"	3-3/4"	97-1/2"	3960
42"	4-1/2"	51"	22-1/4"	61-3/8"	37"	77-1/4"	46-1/8"	45-1/8"	4-1/4"	4-1/4"	98-3/8"	5160
48"	5"	58"	25-1/4"	70-1/4"	29"	83-1/2"	52-1/2"	51-3/4"	4-1/4"	4-1/4"	99-1/4"	6480
54"	5-1/2"	65-1/4"	26"	65"	39-1/2"	89-3/4"	58-1/4"	57-1/2"	4-1/4"	4-1/4"	104-1/2"	9370
60"	6"	72-1/4"	28-1/2"	57-1/2"	46"	96"	64-3/4"	64"	4-3/4"	4-3/4"	103-1/2"	11650



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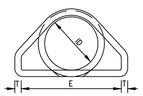

END VIEW

GENERAL NOTES:
1. REFER TO NCDOT STANDARD SPECIFICATIONS AND DRAWINGS FOR MATERIALS AND INSTALLATION.
2. CONCRETE SHALL BE MINIMUM 3500 P.S.I.

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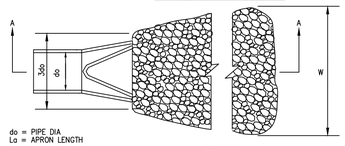
REINFORCED PRECAST CONCRETE FLARED END SECTIONS

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR-23

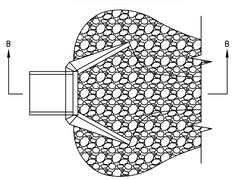
TO FLAT AREA - NO WELL DEFINED CHANNEL



PLAN

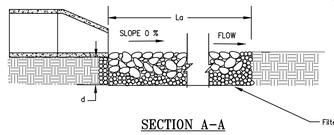
do = PIPE DIA
Lo = APRON LENGTH
W = APRON WIDTH
3 X PIPE ø MIN
d = APRON DEPTH

WELL DEFINED CHANNEL

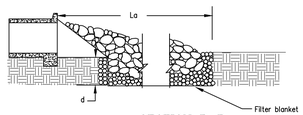


PLAN

1. La is the length of the riprap apron.
2. d = 1.5 times the maximum stone diameter but not less than 6"
3. A filter blanket or filter fabric should be installed between the riprap and soil foundation.
4. In a well-defined channel, extend the apron up the channel banks to an elevation of 6" above the maximun tailwater depth or to the top of the bank, whichever is less.



SECTION A-A



SECTION B-B

NOTES:
SEE NCESCPDM PAGE 8.06.3 & 8.06.4 FOR DIMENSIONS

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PIPE OUTLET

Rev. Date: 16JAN18
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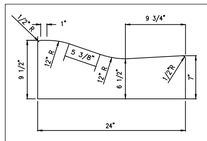
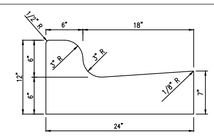
Review Date: 01JAN19

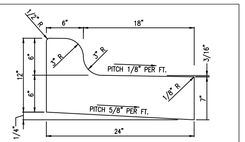
DR-24



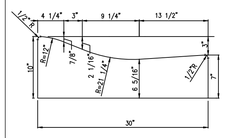
TYPICAL 24" ROLL-BACK CURB



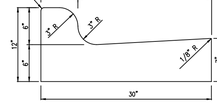
TYPICAL 24" VERTICAL CURB



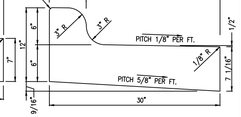
TYPICAL 24" SPILL-OFF CURB



TYPICAL 30" ROLL CURB



TYPICAL 30" VERTICAL CURB



TYPICAL 30" SPILL-OFF CURB

NOTES
1. ALL CURBS CONSTRUCTED OF 3000 PSI CONCRETE.
2. CONTRACTION JOINTS EVERY 10', EXPANSION JOINTS EVERY 30'.
3. CURB SHALL BE DEPRESSED AT INTERSECTIONS TO PROVIDE FOR FUTURE ACCESSIBLE RAMPS.
4. TOP 6" OF SUBGRADE BENEATH THE CURB AND GUTTER SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY.

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24" AND 30" CURB DETAILS

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

SD-1

BY	REVISIONS	DATE

SHEET SERIES-FINAL DESIGN-ISSUED FOR BID

DATE: 03/01/2024
SURVEY/GPS BY: STEWART
DRAWN BY: VR / DK
CHECKED BY: AMH / MY
SCALE: HOR: 1"=NTS
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 054233 ALBERT M. HUCHABY
3/5/2024

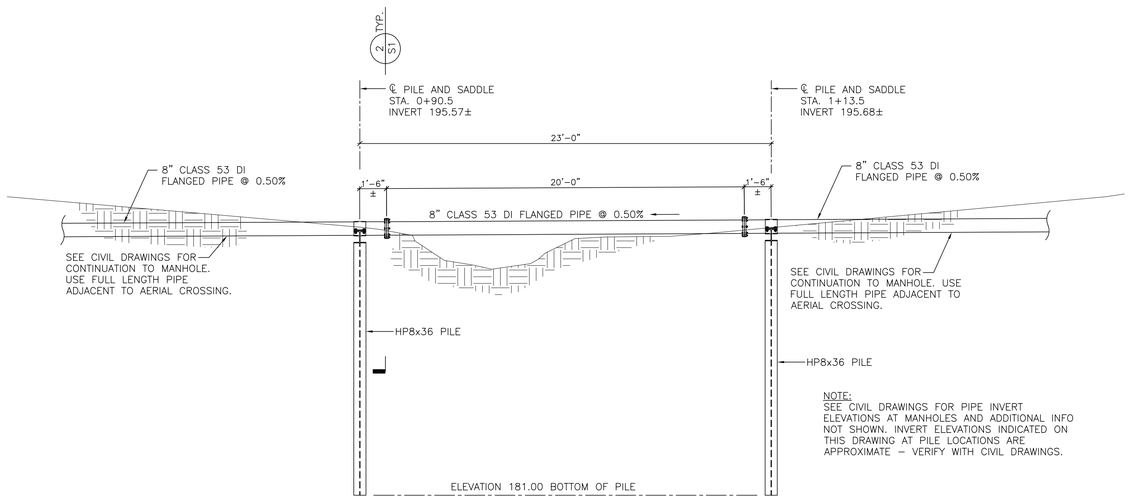
STORM DRAINAGE DETAILS
ANNEXATION PHASE V, AREA 27
FAYETTEVILLE, NORTH CAROLINA

FAYETTEVILLE PUBLIC WORKS COMMISSION
WATER RESOURCES ENGINEERING
P.O. Box 1089, Fayetteville, NC 28302
955 Old Wilmington Road, Fayetteville, NC 28301
Electric & Water Utilities

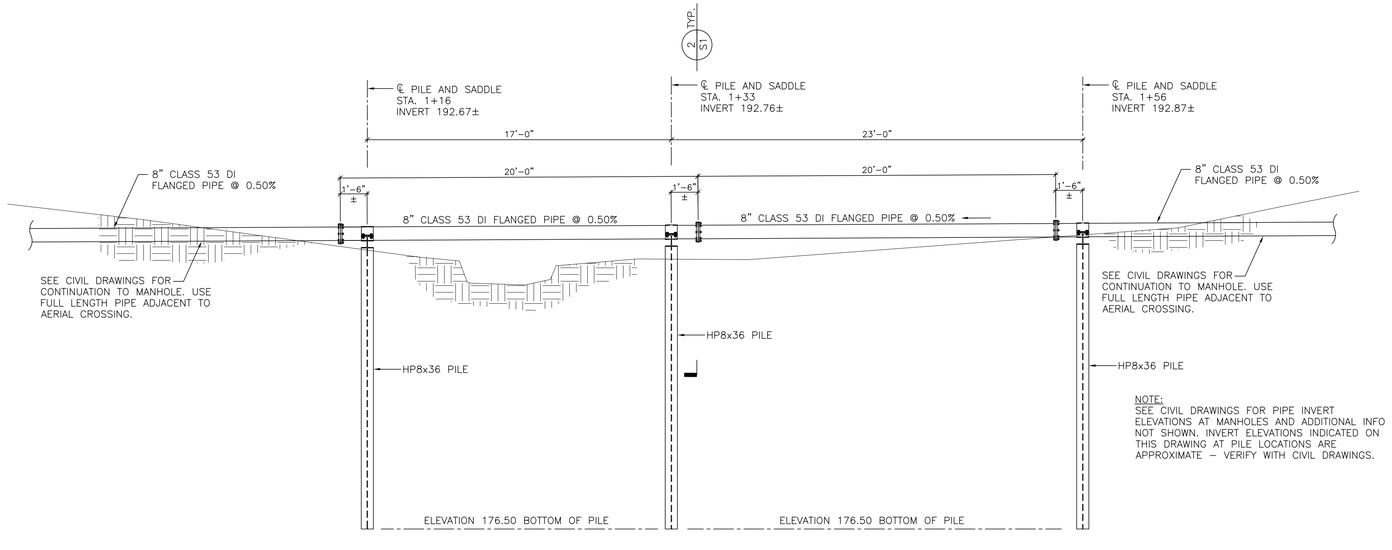
20200208.00.RA

PWC DWG # DS-15513

Z:\Projects\Fayetteville Public Works Commission\20200208\004 - Annexation Phase V, Area 27\CAD\Plan Set\20200208_C_SHT_DETAILS.dwg 3/4/2024 12:29:16 PM



LISA AVE. AERIAL CROSSING ELEVATION — 1/4" = 1'-0" — 1 / S1



SANCHEZ DR. AERIAL CROSSING ELEVATION — 1/4" = 1'-0" — 2 / S1

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SHEET S1

NORTH CAROLINA PROFESSIONAL SEAL 039250 ENGINEER SARAH J. DUNCAN 7/31/23

AERIAL CROSSING
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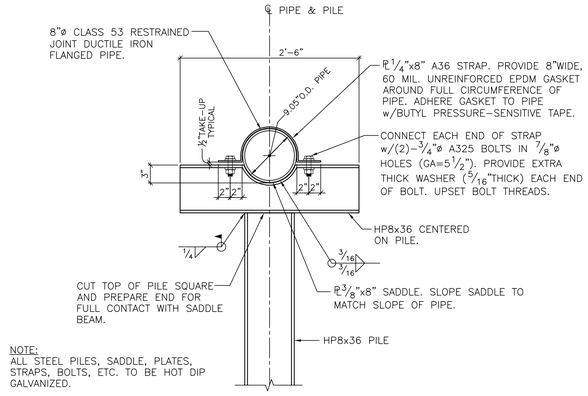


TYPICAL SECTION AT AERIAL CROSSING SADDLE & PILE — 2 / S2

1" = 1'-0"

1. Materials
   - A. Structural Steel — ASTM A-36 U.N.O. (Hot-dip galv. per ASTM A123); ASTM A-572 Grade 50 at HP shapes (Hot-dip galv. per ASTM A123)
   - B. Bolts for pipe straps — ASTM A-325N (Hot-dip galvanized per ASTM A153)
   - C. Weld Electrodes — E70

   * See civil drawings/specifications for interior/exterior coating of sewer pipes typical.

2. Pile Driving Equipment:
   - A. All piles shall be driven to the specified embed depth with a steam, air, or hydraulically operated powered pile hammer having a rated energy of not less than 25,000 ft. lbs of energy per blow. The capacity of the driving equipment shall be such that the number of blows per minute during and at the completion of driving of the pile can be maintained at approximately the normal rate given by the manufacturer of the hammer.
   - B. The pile driving rig shall be of adequate size and capacity to permit driving the piles at the locations shown on the drawings and with required axial alignment.
   - C. All piles shall be driven with a hammer operating in fixed leaders or other approved methods shall be used to hold the hammer and pile in accurate alignment. Leaders shall be equipped with extensions to hold the hammer and pile in alignment when the hammer operates below the bottom of the leader. The use of swinging or spud type leaders will not be permitted.
   - D. The cap block or hammer cushion shall consist of aluminum and micarta discs stacked alternately in a steel housing with steel top and bottom plates, except that a one-piece hardwood block with grain parallel to the pile axis and enclosed in a close-fitting steel housing may be used, provided a satisfactory driving criterion has been established with such a cap block and a new cap block is not used during the final driving of the pile. The use of a cap block consisting of wood chips, small wood blocks, wood shavings, wire rope, or other materials with high elastic properties shall not be permitted.

3. Quality Assurance
   - A. Comply with all pertinent federal, state, and local laws and codes. In addition, pile foundation work shall comply with the latest edition of the North Carolina State Building Code. Where Provisions of pertinent codes conflict with these drawings and notes, the more stringent provisions shall govern.
   - B. The inspector employed by the Owner shall overview the installation of the piling operation and advise the Owner of any extraordinary circumstances that need resolution and suggest measures as warranted to produce a sound foundation system.
   - C. Unless otherwise specifically approved by the Owner, the pile contractor shall have been successfully engaged in installing similar types of piling in the general area for a period of not less than five (5) years prior to performing this work.

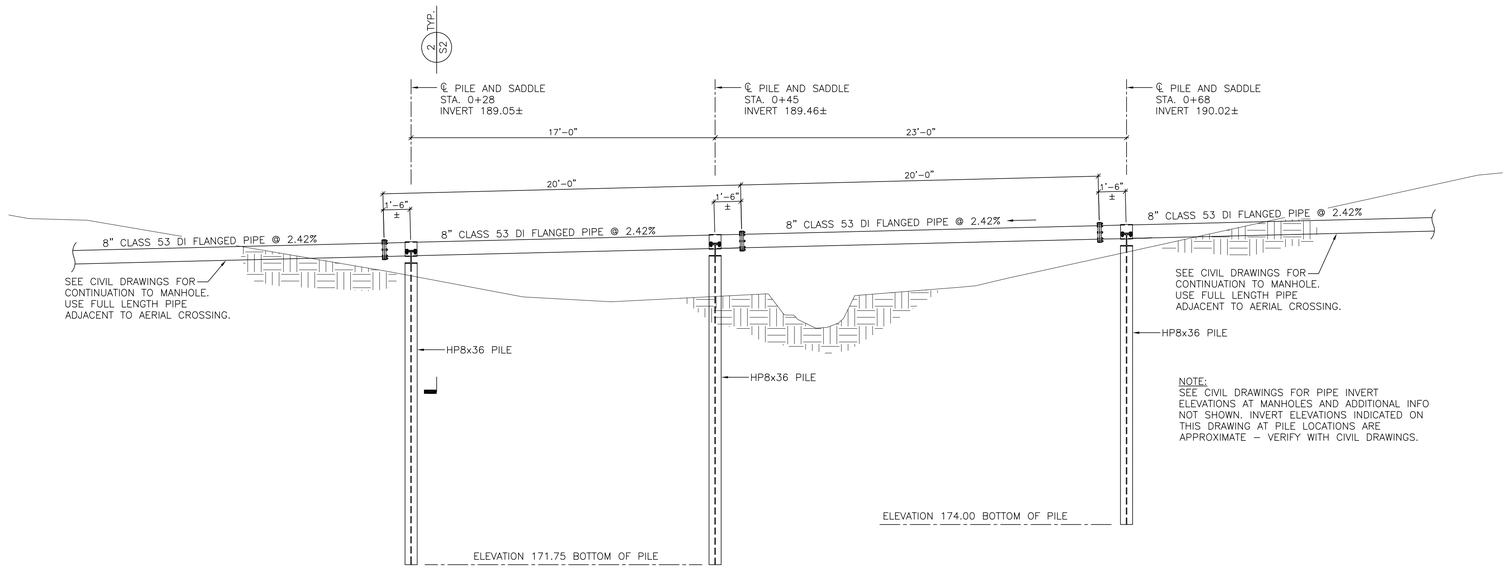
4. Pile Installation Notes
   - A. All pile locations shall be staked and surveyed as part of the construction staking process.
   - B. Subsurface parameters are based on the Report of Subsurface Exploration and Geotechnical Evaluation performed by Building & Earth Sciences, LLP (Project No. RD210446) dated August 25, 2021.
   - C. Prior to installation, carefully inspect the site and verify that the piles can be installed as specified. Piles shall not be placed in the center of the stream/drainage ditch. Contractor to verify dimensions and elevations shown on this drawing and on civil drawings with existing conditions before placing piles. Verify that piles can be installed in accordance with all pertinent codes and regulations. Notify Engineer of any significant discrepancies.
   - D. The pile driving rig shall be of adequate size and capacity to permit driving the piles at the locations shown on the drawings and with required axial alignment. The pile driving hammer is to be sized to achieve the minimum embed length shown on the drawings without damaging the pile. Pile driving criteria should be established at the time of construction based upon the characteristics of the proposed pile driving equipment and the estimated subsurface conditions. Each pile should be driven to the desired tip elevation and driving resistance should be monitored without interruption in the driving operations.
   - E. Provide cutting shoes if required to properly install piles to embed depth shown on the drawings.
   - F. Piles are to be cut off square at the required finish elevation and prepared for weld to saddle beam.
   - G. Pile Tolerances: plumbness = 1" total, location = 2" maximum, elevation = ±0.01'. The pile contractor shall be responsible for installing, at his expense, any piles which may be downgraded or rejected because of misalignment or misplacement.

5. Superstructure
   - A. Pipe strap bolts will have heavy hex nuts and (2) F436 extra thick washers per bolt.
   - B. All welders, shop and field, will be certified for the type of work involved.
   - C. All detailing, fabricating, and erection shall conform to the following specifications (latest editions), except as otherwise indicated:
     - AISC - "Specification for Structural Steel Buildings."
     - AISC - "Code of Standard Practice for Steel Buildings and Bridges." Paragraph 4.4.1 of the above code is hereby modified by deletion of the following sentence:
       - a) "Confirmation that the Fabricator has correctly interpreted the Contract Documents in the preparation of those submittals";
     - AWS - "Structural Welding Code - Steel."
   - D. All steel saddle beams and straps will be power tool cleaned to a minimum of SSPC-SP3 and hot dip galvanized per ASTM A123. Bolts and washers will be hot-dip galvanized per ASTM A153. All field welds will be grinded and coated with (2) coats of a cold applied galvanizing paint. Touch up any damaged galvanizing.
   - E. Restrained joint ductile iron pipe flanges are to be connected according to the specifications and manufacturer's instructions. See Civil drawings/specifications for additional pipe information not included in aerial crossing drawings.
   - F. Contractor shall have sole responsibility for site safety.

6. Submittals
   - A. Mill certificates on all structural steel shapes.
   - B. Equiment Data: Submit a detailed description of the equipment proposed to be used to install piles.
   - C. Steel shop drawings for saddle beam, straps, and bolts.
   - D. Pile inspector's report to include:
     - a. Actual installed depth elevation of each pile and the cut off elevation of each pile.
     - b. Any unusual conditions and/or obstructions encountered while driving pile.
     - c. Hammer blows per foot at not less than 5 feet intervals and continuous count during the last 6" of driving.
     - d. Elevations before and after cut off.

7. Miscellaneous
   - A. The structural drawing takes precedence when a conflict occurs between the structural drawing, the civil drawings, and the specifications concerning the aerial crossing. Notify Engineer in writing for clarification prior to bidding. The term unless noted otherwise (U.N.O.), means unless noted otherwise on the **structural drawings**. If there is a conflict on the structural drawings, civil drawings, or specifications, the most stringent requirement will control.
   - B. Installation of piles and any other work to install aerial crossing that shall come into contact with stream shall be performed in a dry condition. Provide coffer dam and pump around.

AERIAL CROSSING GENERAL NOTES — 3 / S2



BRIDGETTE STREET AERIAL CROSSING ELEVATION — 1 / S2

1/4" = 1'-0"

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NORTH CAROLINA PROFESSIONAL SEAL 039250 ENGINEER SARAH J. DUNCAN 3/31/23

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