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09/08/99

TIP PROJECT: U-3422B

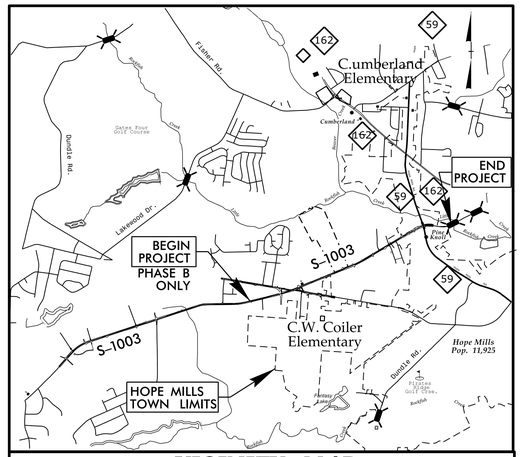
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
U-3422B	UC-1

UTILITY CONSTRUCTION PLANS
CUMBERLAND COUNTY

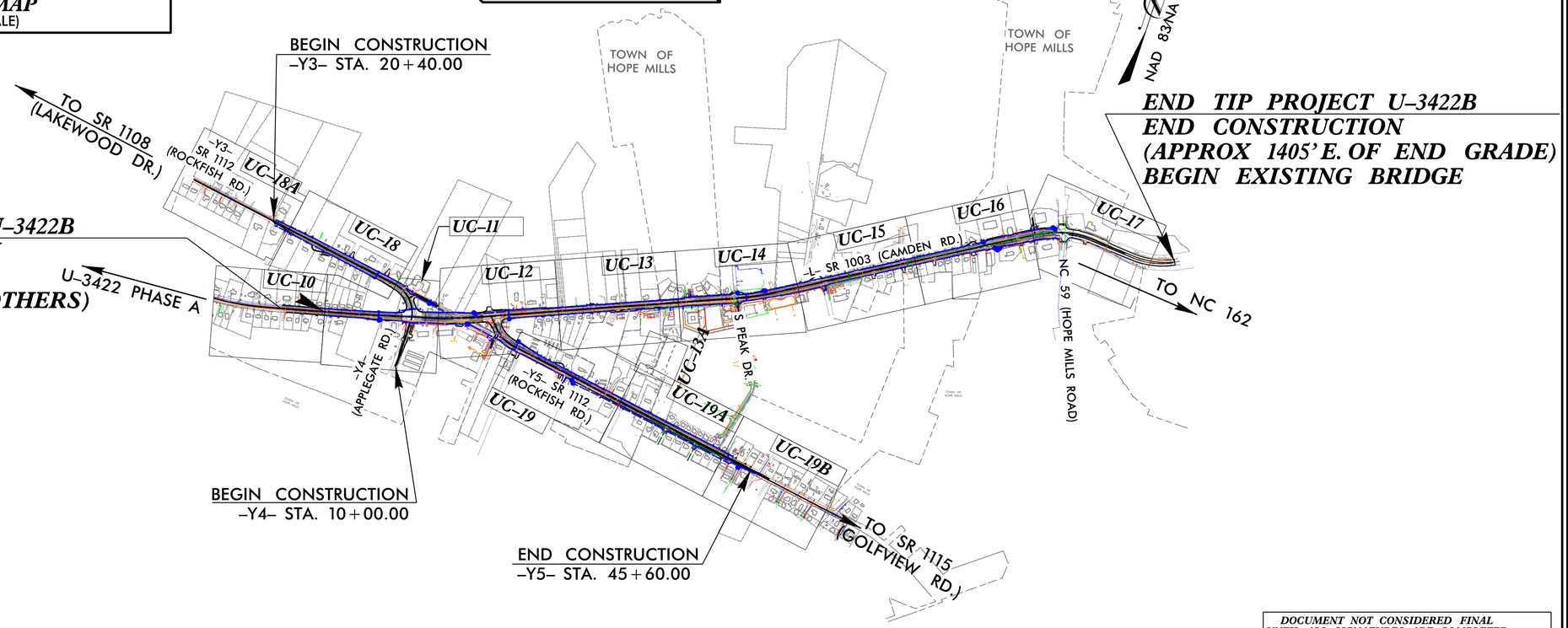
LOCATION: *SR 1003 (Camden Road) from Teeters Drive To NC 59 (Hope Mills Road) and SR 1112 (RockfishRoad) From Trogdan Drive to Love Drive*

TYPE OF WORK: *WATER AND SEWER RELOCATION*



VICINITY MAP
(NOT TO SCALE)

FINAL PLANS: PHASE B



BEGIN TIP PROJECT U-3422B
BEGIN CONSTRUCTION
–L– STA. 109+65.15
TIE TO U-3422A (BY OTHERS)

END TIP PROJECT U-3422B
END CONSTRUCTION
(APPROX 1405' E. OF END GRADE)
BEGIN EXISTING BRIDGE

DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A THRU UC-3I	DETAILS
UC-11 THRU UC-19B	UTILITY CONSTRUCTION PLAN SHEETS
UC-28 THRU UC-43	UTILITY CONSTRUCTION PROFILE SHEETS

WATER AND SEWER OWNERS ON PROJECT

(1) WATER: FAYETTEVILLE PWC
(2) SANITARY SEWER: FAYETTEVILLE PWC

PREPARED IN THE OFFICE OF

CDM Smith
CDM Smith Inc.
4130 Parklake Avenue
Suite 350
Raleigh, NC 27612-4461
NC COA No. F-1255

(919)) 325-3594 *CONSULTANT CONTACT #*

MICHAEL A. POLLARD, PE — *PROJECT ENGINEER*
SAM MILLER, EI / *HEATHER HARKENRIDER, PE* — *PROJECT DESIGN ENGINEER*
234306 — *PROJECT NUMBER*

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 ENGINEER HEATHER HARKENRIDER
Digitally signed by Heather Harkenrider
2019.08.29 08:17:28 -04'00'
8/29/2026

DIVISION OF HIGHWAYS UTILITIES UNIT
558 Gillespie Street
FAYETTEVILLE NC 28301
PHONE (910) 364-0834

RANDY ROGERS — *DIVISION UTILITIES ENGINEER*
LOUIS CANIAC — *DIVISION UTILITIES COORDINATOR*

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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NC COA No. F-1255

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PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-2

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — REH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PSTW
- RPZ Backflow Preventer — PBPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RBPZ
- Relocate DCV Backflow Preventer — RBFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL_PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Proposed Utility Easement — PUE — PUE
- Temporary Utility Easement — TUE — TUE
- Thrust Block — or
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM
- Temporary Construction Easement — E — E

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout
- Air Release Valve — AR

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

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NC COA No. F-1255

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PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-3

DESIGNED BY:	SSM
DRAWN BY:	SSM
CHECKED BY:	HMH
APPROVED BY:	MAP
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 ENGINEER HEATHER HARKENRIDER
Docusigned by: Heather Harkenrider 2D7DFCB172B84E4...
8/29/2026

UTILITY CONSTRUCTION PLANS ONLY

REVISIONS

5/14/99

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024 AND THE SPECIAL PROVISIONS TO NCDOT SPECS.

2. THE EXISTING WATER AND SEWER UTILITIES BELONG TO FAYETTEVILLE PWC.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. FAYETTEVILLE PWC OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING KNOWN UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

10. KNOWN SERVICE LOCATIONS ARE SHOWN ON THE DRAWINGS; HOWEVER, THIS IS NOT A FULL ACCOUNTING. ALL EXISTING SERVICES MUST BE RECONNECTED TO THE NEW WATER MAIN AND THIS SHOULD BE INCLUDED WITH THE COST OF WATER LINE INSTALLATION.

11. ALL REPLACED FIRE HYDRANTS NEED TO BE RETURNED TO PWC.

12. RECONNECTION TO BE 1" UNLESS OTHERWISE NOTED.

13. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL MATERIALS REQUIRED FOR CONSTRUCTION STAGING FOR ALL WATER LINES AND SEWER LINES.

PROJECT SPECIFIC NOTES:

1. ALL PROPOSED WATER LINE 2" IN DIAMETER SHALL BE SDR21, PRESSURE CLASS 200 IN ACCORDANCE WITH ASTM D 2241 OR SDR-17 WITH A PRESSURE RATING OF 250 PSI, IN ACCORDANCE WITH ASTM D-224. ALL PROPOSED WATER LINE 4"-12" IN DIAMETER SHALL BE DI (DUCTILE IRON PUSH-ON) PC 350 PIPE, UNLESS SPECIFIED TO BE RESTRAINED JOINT PIPE AND/OR SPECIAL THICKNESS CLASS AS SHOWN ON THE PLAN/PROFILE. ALL PROPOSED WATERLINE LINE 16" IN DIAMETER AND LARGER SHALL BE DI (DUCTILE IRON PUSH-ON) PC 250 PIPE, UNLESS SPECIFIED TO BE RESTRAINED JOINT PIPE AND/OR SPECIAL THICKNESS CLASS AS SHOWN ON THE PLAN/PROFILE.

2. ALL PROPOSED GRAVITY SEWER LINES 12" IN DIAMETER AND SMALLER SHALL BE PROTECTO 401 LINED DI (DUCTILE IRON PUSH ON) PC 350 PIPE UNLESS OTHERWISE SPECIFIED. ALL PROPOSED GRAVITY SEWER LINES 16" IN DIAMETER AND GREATER SHALL BE PROTECTO 401 LINED DI (DUCTILE IRON PUSH ON) PC 250, UNLESS OTHERWISE SPECIFIED.

3. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE TRENCHLESS INSTALLATIONS DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.

4. IF HDPE PIPE IS INSTALLED BY HORIZONTAL DIRECTIONAL DRILL. IT SHALL BE FILLED WITH WATER AND NOT BE CONNECTED TO ANY OTHER PIPE OR FITTINGS FOR ONE WEEK FROM THE TIME OF INSTALLATION.

5. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL FAYETTEVILLE PWC AND/OR NCDOT STANDARDS AND SPECIFICATIONS AND SPECIAL PROVISIONS WITHIN THE CONTRACT.

6. TEMPORARY SHORING, IF REQUIRED FOR BUILDING FOUNDATION PROTECTION OR MAINTENANCE OF TRAFFIC, WILL BE PAID AS TEMPORARY SHORING IN SQUARE FEET BELOW GROUND SURFACE. THIS REQUIREMENT IS APPLICABLE TO ALL UTILITY CONSTRUCTION SHEETS.

UTILITY CONSTRUCTION

7. UTILITY CONSTRUCTION NOTE SHEETS PROVIDE SEQUENCE OPTIONS FOR THE CRITICAL INSTALLATIONS AND KILL OUTS OF THE PROPOSED WATER AND SEWER LINES. CONTRACTOR SHALL PROVIDE A CONSTRUCTION SEQUENCE FOR ALL WATER LINE AND SEWER LINE SEGMENTS AND KILLOUTS PRIOR TO INSTALLATION FOR REVIEW AND APPROVAL BY ENGINEER (SEE NOTE 8 BELOW). CONTRACTOR SHALL UPDATE CONSTRUCTION SEQUENCES WHERE ACTUAL CONDITIONS REQUIRE AJDUSTMENTS OR ALTERATIONS TO THE PLANNED WORK. CONSTRUCTION SEQUENCE OPTIONS THAT ARE PROVIDED ARE INTENDED TO MINIMIZE IMPACTS TO WATER AND SEWER OPERATIONS. INSTALLATION SHALL NOT BEGIN UNTIL AN APPROVED SEQUENCE PLAN IS IN PLACE.

8. ANY REFERENCE TO THE FAYETTEVILLE PWC COORDINATOR OR PWC COORDINATOR SHALL BE INTERPRETED AS A REFERENCE TO THE ENGINEER.

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REVISIONS

1. ALL WATER MAINS, LATERALS AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYPWC STANDARDS.
2. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS NOTICE FOR ALL WATER OUTAGES.
4. 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.
5. 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.
6. ALL NEW WATER AND SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE TESTED AND/OR DISINFECTED IN ACCORDANCE WITH FAYPWC STANDARDS PRIOR TO PLACING INTO SERVICE.
7. CONTRACTOR SHALL COORDINATE TESTING AND INSPECTION WITH THE FAYPWC PROJECT COORDINATOR.
8. CONTRACTOR SHALL REPAIR ALL WATER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL REPORT IMMEDIATELY ALL WATER MAIN AND LATERAL BREAKS TO THE FAYPWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH FAYPWC STANDARDS. CONTRACTOR SHALL NOT OPERATE FAYPWC WATER MAIN VALVES WITHOUT FAYPWC APPROVAL AND SHALL COORDINATE ALL VALVE CLOSINGS WITH FAYPWC.
9. THE CONTRACTOR SHALL NOT USE HOUSE HOSE BIBBS OR ANY OTHER METHOD OF BLOW OFF WHICH ALLOWS DOMESTIC WATER CONTAINING SEDIMENTS OR HIGH LEVELS OF CHLORINE TO PASS THRU RESIDENTS METERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM ALLOWING "DIRTY" WATER TO ENTER RESIDENT'S PLUMBING SYSTEM, SUCH AS WATER HEATERS, STAINED CLOTHING, CLOGGED SCREENS, ETC.
10. TRANSFER OF WATER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
    - A. INSTALL, TEST AND STERILIZE NEW MAIN AND LATERALS. LATERALS SHALL BE INSTALLED 18" INSIDE RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY FAYPWC.
    - B. TRANSFER EXISTING METER TO NEW METER BOX AND TIE NEW WATER LATERAL TO EXISTING DOMESTIC SERVICE UTILIZING BRASS FITTINGS. SAME METER NUMBER SHALL BE INSTALLED ON SAME ADDRESS AND/OR CUSTOMER. BLOW OFF SERVICE AT HOSE BIBB ON HOUSE ONLY AFTER METER HAS BEEN TRANSFERRED.
    - C. AFTER ALL SERVICES ARE TRANSFERRED TO THE NEW SYSTEM, SHUT OFF VALVE ON EXISTING SYSTEM AND ABANDON EXISTING MAINS IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
    - D. CONTRACTOR SHALL SUPPLY NEW METER BOXES AND DISPOSE OF EXISTING METER BOXES.
11. CONTRACTOR SHALL ABANDON ("KILL-OUT") ANY EXISTING WATER SERVICES THAT WILL NOT BE UTILIZED BY CUTTING THE SERVICE AT THE MAIN, PLUGGING THE CORPORATION, AND TURNING OFF THE CORPORATION AT THE METER BOX, THE ABANDONED SERVICE IS TO BE CUT OR CRIMPED, AND BURIED A MINIMUM OF 3 FEET BELOW GRADE.
12. ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE, IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
13. ALL WORK ON FAYPWC WATER 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 WATER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
14. SEPARATION REQUIREMENTS:
    - A. **LATERAL SEPARATION OF SEWERS 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 PREVENT 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 MAINLATERAL.
    - 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.

WATER UTILITY NOTES			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 2	DWG. NO. W.1	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	

NO.	DATE	REVISION
1	01/01/18	ADDED NOTES 6, 8
2	06/01/21	ADDED NOTES 1-7 AND RENUMBERED
3	11/23	REVISED NOTES 10, 14

W1-WATER-UTILITY-NOTES.dwg

D. **CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 12-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A WATER LINE CROSSING OVER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IN ADDITION, THE AND A HALF (3.5) FEET OF COVER MUST BE MAINTAINED OVER THE WATER MAIN OR IT SHALL BE DUCTILE IRON. IF DUCTILE IRON PIPE IS USED THEN TWO AN A HALF (2.5) FEET OF COVER MUST BE MAINTAINED OVER THE WATER MAIN AND A MINIMUM OF 12-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND THE STORM DRAINAGE LINE. WHERE A WATER MAIN CROSSES UNDER A STORM DRAINAGE LINE THE MINIMUM OF TWELVE (12) INCHES OF VERTICAL SEPARATION SHALL BE MAINTAINED AND THE WATER MAIN SHALL BE DUCTILE IRON FOR A DISTANCE OF 10-FEET ON EACH SIDE OF THE CROSSING.

15. **WATER OUTAGES:** THE CONTRACTOR SHALL SCHEDULE A COORDINATION MEETING WITH THE FAYPWC PROJECT COORDINATOR AND PROJECT ENGINEER A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO ANY PLANNED WATER OUTAGE. THE COORDINATION MEETING SHALL BE CONDUCTED PRIOR TO ANY NOTICES BEING ISSUED. ADDITIONALLY, THE CONTRACTOR SHALL LOCATE (VERTICALLY AND HORIZONTALLY) ANY UTILITIES WITHIN THE WORK AREA, IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS. THE LOCATIONS OF ALL UTILITIES WITHIN THE WORK AREA SHALL BE DETERMINED PRIOR TO THE COORDINATION MEETING. ANY CONFLICTS WITH THE PENDING WORK AND THE EXISTING UTILITIES SHALL BE IDENTIFIED AND A PLAN FOR RESOLVING ANY CONFLICTS SHALL BE PRESENTED. THE PURPOSE OF THIS COORDINATION MEETING IS TO ENSURE THAT THE CONTRACTOR HAS A GOOD UNDERSTANDING OF THE REQUIREMENTS RELATED TO THE PENDING OUTAGE, VERIFY THAT THERE ARE NO UTILITY CONFLICTS THAT WILL PREVENT THE WORK FROM BEING COMPLETED, ALL EQUIPMENT IS IN GOOD WORKING ORDER, ALL EQUIPMENT IS FUNCTIONAL, ALL MATERIALS ARE ON SITE, ALL NECESSARY TOOLS ARE ON SITE, DISCUSS ANY NECESSARY CONTINGENCY PLANS, AND ANY OTHER ITEMS NECESSARY TO ENSURE THAT THE FAYETTEVILLE PUBLIC WORKS COMMISSION HAS CONFIDENCE THAT THE WORK CAN BE ACCOMPLISHED WITHIN THE GIVEN TIME PERIOD. SHOULD, FOR ANY REASON, THE FAYETTEVILLE PUBLIC WORKS COMMISSION DEEM THAT THE CONTRACTOR IS NOT PREPARED FOR THE PROPOSED OUTAGE, THE OUTAGE NOTIFICATIONS WILL NOT BE DISTRIBUTED AND THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS. THE FAYETTEVILLE PUBLIC WORKS COMMISSION WILL PROVIDE WRITTEN NOTIFICATION TO THE CONTRACTOR OF THIS DECISION. NO ADDITIONAL CONTRACT TIME WILL BE GRANTED FOR THIS DELAY. SHOULD THE CONTRACT TIME EXPIRE WITHIN THAT TWO (2) WEEK PERIOD, THE FAYETTEVILLE PUBLIC WORKS COMMISSION RESERVES THE RIGHT TO ASSESS LIQUIDATED DAMAGES, AS OUTLINED IN THESE CONTRACT DOCUMENTS.

ONCE THE WATER OUTAGE NOTIFICATIONS HAVE BEEN ISSUED, A FOLLOW-UP COORDINATION MEETING WITH THE FAYPWC PROJECT COORDINATOR AND PROJECT ENGINEER SHALL BE HELD A MINIMUM OF 24 HOURS PRIOR TO THE SCHEDULED THE PURPOSE OF THIS MEETING IS TO VERIFY THAT THE CONTRACTOR IS PREPARED TO PROCEED WITH THE OUTAGE, AND THAT ALL EQUIPMENT, MATERIALS, TOOLS, AND ALL OTHER INCIDENTALS ARE ON THE PROJECT SITE AND FUNCTIONING. IF FOR ANY REASON THE FAYETTEVILLE PUBLIC WORKS COMMISSION DEEMS THAT THE CONTRACTOR IS NOT PREPARED, THE OUTAGE SHALL BE POSTPONED AND ALL CUSTOMERS IMMEDIATELY NOTIFIED OF THE CANCELLATION. THE OUTAGE SHALL EE POSTPONED A MINIMUM OF TWO (2) WEEKS. NO ADDITIONAL CONTRACT TIME WILL BE GRANTED FOR THIS DELAY. SHOULD THE CONTRACT TIME EXPIRE WITHIN THAT TWO (2) WEEK PERIOD, THE FAYETTEVILLE PUBLIC WORKS COMMISSION RESERVES THE RIGHT TO ASSESS LIQUIDATED DAMAGES, AS OUTLINED IN THESE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL COMPLETE THE REQUIRED WORK AND RESTORE WATER SERVICE WITHIN THE GIVEN TIME PERIOD FOR THE OUTAGE. IF THE FAYPWC PROJECT COORDINATOR DETERMINES THAT THE CONTRACTOR WILL NOT RESTORE WATER SERVICE WITHIN THE APPROVED TIMEFRAME, THE FAYPWC PROJECT COORDINATOR WILL DIRECT THE CONTRACTOR ON HOW TO RESTORE WATER SERVICE. THE CONTRACTOR SHALL ADHERE TO ALL INSTRUCTIONS GIVEN BY THE FAYPWC PROJECT COORDINATOR.

SHOULD THE CONTRACTOR FAIL TO COMPLETE THE WORK WITHIN THE ALLOTTED TIME, THE FAYETTEVILLE PUBLIC WORKS COMMISSION SHALL ASSESS A PENALTY OF $500 PER 15-MINUTE INTERVAL OR ANY PORTION THEREOF UNTIL WATER SERVICE IS RESTORED. THIS PENALTY WILL BE DEDUCTED FROM THE CONTRACTOR'S PAY APPLICATION OR BE BILLED DIRECTLY TO THE CONTRACTOR. THE PENALTY MAY BE WAIVED FOR CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL AS DEEMED BY THE FAYETTEVILLE PUBLIC WORKS COMMISSION. THE FAYPWC PROJECT COORDINATOR AND/OR PROJECT ENGINEER RESERVE THE RIGHT TO CANCEL OR POSTPONE THE OUTAGE AT ANY GIVEN TIME, IF DEEMED NECESSARY.

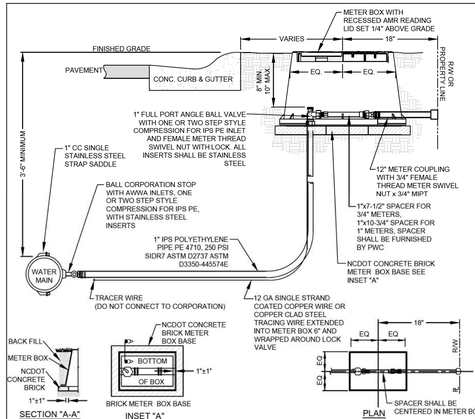
WATER UTILITY NOTES			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 2 OF 2	DWG. NO. W.1	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	

NO.	DATE	REVISION
1	01/01/18	ADDED NOTES 6, 8
2	06/01/21	ADDED NOTES 1-7 AND RENUMBERED
3	11/23	REVISED NOTES 10, 14

W1-WATER-UTILITY-NOTES.dwg

NOTE:.

ANY REFERENCE TO FAYETTEVILLE PWC PROJECT COORDINATOR, PWC COORDINATOR OR FAYETTEVILLE PWC (FAYETTEVILLE PUBLIC WORKS COMMISSION) SHALL BE INTERPRETTED AS A REFERENCE TO THE ENGINEER.

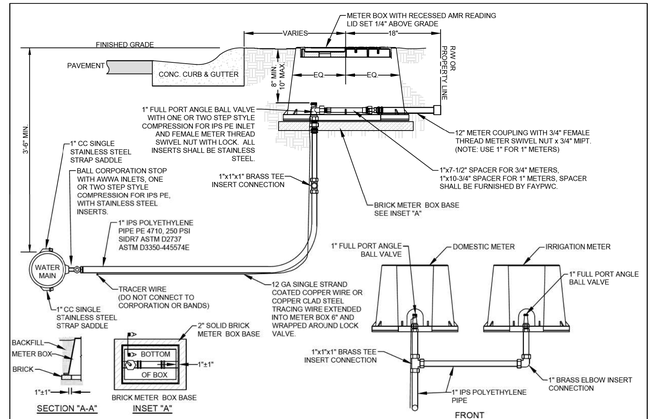


NOTES:
1. ALL MATERIALS TO BE APPROVED BY FAYPWC.
2. SERVICE LATERAL SIZE 1" IPS POLYETHYLENE UNLESS OTHERWISE SPECIFIED.
3. WATER SERVICE LOCK VALVE TO BE LOCATED 18" FROM SANITARY SEWER CLEANOUT STACK WHEN INSTALLED IN SAME DITCH.
4. WHEN INSTALLED IN A PAVED AREA, METER BOX TO BE SET 1/4" ABOVE FINISHED PAVEMENT GRADES AND PAVEMENT FEATHERED TO TOP OF BOX TO PROVIDE DRAIN AWAY FROM BOX.
5. COMPOSITE METER BOXES SHALL BE USED IN TRAFFIC AREAS SEE FAYPWC DETAIL W.4B.
6. INSTALL NCDOT CONCRETE BRICK BASE WITH NO GAPS. DO NOT LAY BRICK ON PIPE. SEE INSET "A".
7. WHERE ASPHALT CURB OR STRIP PAVEMENT EXISTS, THE LOCATION OF METER BOX SHALL BE AS DIRECTED BY FAYPWC REPRESENTATIVE.
8. DISTANCE FROM TOP OF LOCK VALVE OPERATING STEM TO TOP OF BOX SHALL BE 8" MINIMUM TO 10" MAXIMUM.
9. RESIDENTIAL METER BOX SHALL BE SET 18" FROM R/W TO CENTERLINE OF METER BOX PERPENDICULAR TO THE R/W.
10. COMMERCIAL METER BOX LOCATION SHALL BE AS APPROVED (PREFER NO METER BE INSTALLED LESS THAN 5' FROM BUILDING TO EDGE OF BOX).
11. LATERAL SHALL BE CENTERED ON LOT UNLESS OTHERWISE NOTED.
12. LATERAL SHALL NOT BE BACKFILLED UNTIL INSPECTED AND APPROVED BY FAYPWC PROJECT COORDINATOR.
13. WATER MAIN AND LATERAL SHALL PASS HYDROSTATIC AND STERILIZATION TESTS.
14. BARB-TYPE FITTINGS ARE NOT ACCEPTABLE.
15. SHOULD IT BE NECESSARY TO CRIMP THE WATER SERVICE LATERAL, A FULL CIRCLE REPAIR CLAMP SHALL BE PLACED ON THE CRIMPED AREA.

1" WATER SERVICE LATERAL N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 1	DWG. NO. W.2	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	

NO.	DATE	REVISION
1	07/06	RESIZED METER COUPLING
2	07/13	REVISED NOTE RE: TRACER WIRE
3	07/17	REVISED NOTES

W2-WLAT.dwg



1" SPLIT WATER SERVICE LATERAL N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 2	DWG. NO. W.3	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	

NO.	DATE	REVISION
1	07/06	ADDED FRONT VIEW AND MOVED NOTES TO SHEET 2
2	07/13	ADDED NOTE RE: TRACER WIRE

W3-SPLIT-WLAT.dwg

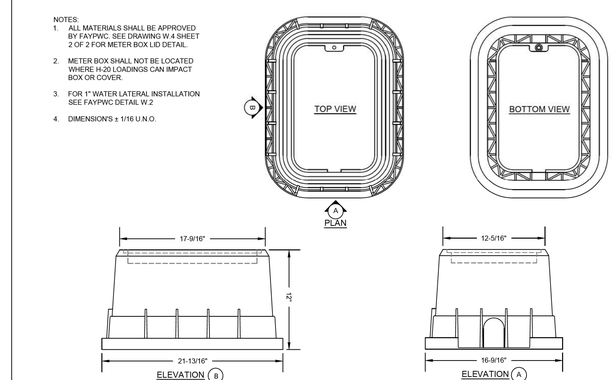
NOTES:
1. ALL MATERIALS TO BE APPROVED BY FAYPWC.
2. SERVICE LATERAL SIZE 1" IPS POLYETHYLENE UNLESS OTHERWISE SPECIFIED.
3. SERVICE LATERAL INSTALLATION SHALL BE APPROVED BY FAYPWC.
4. WATER SERVICE LOCK VALVE TO BE LOCATED 18" FROM SANITARY SEWER CLEANOUT STACK WHEN INSTALLED IN SAME DITCH.
5. WHEN INSTALLED IN A FAVED AREA, METER BOX TO BE SET 1/4" ABOVE FINISHED PAVEMENT GRADES AND PAVEMENT FEATHERED TO TOP OF BOX TO PROVIDE DRAINAGE AWAY FROM BOX.
6. COMPOSITE METER BOXES SHALL BE USED IN TRAFFIC AREAS (SEE FAYPWC DETAIL W.4B).
7. INSTALL SOLID CONCRETE BRICK BASE WITH NO GAPS, DO NOT LAY BRICK ON PIPE. SEE INSET "A".
8. WHERE ASPHALT CURB OR STRIP PAVEMENT EXISTS, THE LOCATION OF THE METER BOX SHALL BE AS DIRECTED BY FAYPWC REPRESENTATIVE.
9. THE DISTANCE FROM TOP OF LOCK VALVE OPERATING STEM TO TOP OF BOX SHALL BE 8" MINIMUM TO 10" MAXIMUM.
10. RESIDENTIAL METER BOX SHALL BE SET 18" FROM RIGHT-OF-WAY TO CENTERLINE OF METER BOX PERPENDICULAR TO THE RIGHT-OF-WAY.
11. COMMERCIAL METER BOX LOCATION SHALL BE AS APPROVED. (NO METER TO BE INSTALLED LESS THAN 5' FROM BUILDING TO EDGE OF BOX).
12. LATERAL SHALL BE CENTERED ON LOT UNLESS OTHERWISE APPROVED BY FAYPWC.
13. LATERAL SHALL NOT BE BACK FILLED UNTIL INSPECTED BY FAYPWC PROJECT COORDINATOR.
14. WATER MAIN AND LATERAL SHALL PASS HYDROSTATIC (200PSI) AND STERILIZATION TESTS.
15. SHOULD IT BE NECESSARY TO CRIMP THE WATER SERVICE LATERAL, A FULL CIRCLE REPAIR CLAMP SHALL BE PLACED ON THE CRIMPED AREA.

1" SPLIT WATER SERVICE LATERAL NOTES			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 2 OF 2	DWG. NO. W.3B	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	

NO.	DATE	REVISION
1	07/06	ADDED FRONT VIEW AND MOVED NOTES TO SHEET 2
2	02/16	UPDATED NOTES

W3B-SPLIT-WLAT-NOTES.dwg

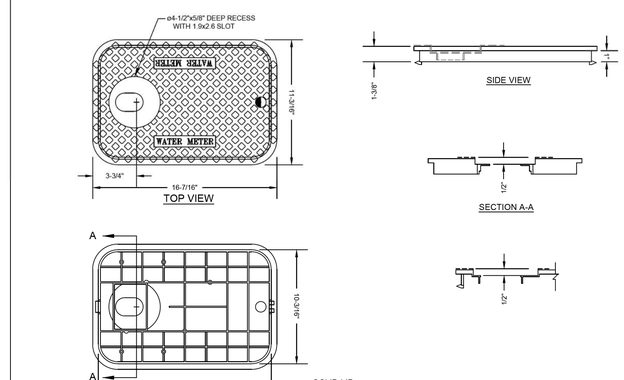
NOTES:
1. ALL MATERIALS SHALL BE APPROVED BY FAYPWC PER DRAWING W.4 SHEET 2 OF 2 FOR METER BOX LID DETAIL.
2. METER BOX SHALL NOT BE LOCATED WHERE H-20 LOADINGS CAN IMPACT BOX OR COVER.
3. FOR 1" WATER LATERAL INSTALLATION SEE FAYPWC DETAIL W.2
4. DIMENSION'S ± 1/16 U.N.O.



1-INCH METER BOX DETAILS N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 2	DWG. NO. W.4	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	

NO.	DATE	REVISION
1	03/10	CHANGED BOX DIMENSIONS

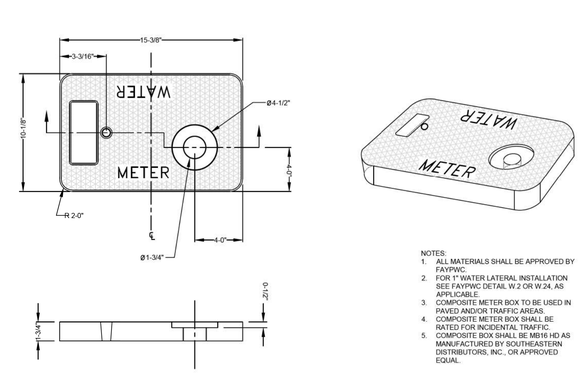
W4-1IN-METERBOX.dwg



1-INCH METER BOX LID N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 2 OF 2	DWG. NO. W.4	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	

NO.	DATE	REVISION
1	07/07	REVISED LID
1	03/10	CHANGED BOX AND LID DIMENSIONS
2	01/15	REVISED LID

W4-1IN-METERBOX.dwg



NOTES:
1. ALL MATERIALS SHALL BE APPROVED BY FAYPWC.
2. FOR 1" WATER LATERAL INSTALLATION SEE FAYPWC DETAIL W.2 OR W.24, AS APPLICABLE.
3. COMPOSITE METER BOX TO BE USED IN PAVED AND/OR TRAFFIC AREAS.
4. COMPOSITE METER BOX SHALL BE RATED FOR INCIDENTAL TRAFFIC.
5. COMPOSITE BOX SHALL BE MB16 HD AS MANUFACTURED BY SOUTHEASTERN DISTRIBUTORS, INC., OR APPROVED EQUAL.

1-INCH COMPOSITE METER BOX & COVER N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
SHEET NO. 1 OF 2	DWG. NO. W.4B	DWG. BY: FAYPWC	WATER RESOURCES DEPARTMENT
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	

NO.	DATE	REVISION
1	03/10	CHANGED BOX & LID DIMENSIONS
2	12/15	REPLACED CI BOX w/COMPOSITE BOX

W4B-METERBOX-LID.dwg

CDM Smith Inc.
4130 Parklake Avenue
Suite 350
Raleigh, NC 27612-4461
NC COA No. F-1255

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-03A
DESIGNED BY: SSM	
DRAWN BY: SSM	
CHECKED BY: HMH	
APPROVED BY: MAP	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	

NORTH CAROLINA — PROFESSIONAL SEAL — 035021 — ENGINEER — HEATHER HARKENRIDER — 9/3/2026
Docusigned by: Heather Harkenrider 2D7DFCB1728B4E0...

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

-SYSTIME-
H:\DESIGN\3422B\Plans\Utility\UC03-3H.dgn

Docusign Envelope ID: B873BC2F-E17C-8ABE-81C5-65F4BDA6BFFC

5/14/99

REVISIONS

CDM Smith
CDM Smith Inc.
4130 Parklake Avenue
Suite 350
Raleigh, NC 27612-4461
NC COA No. F-1255

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

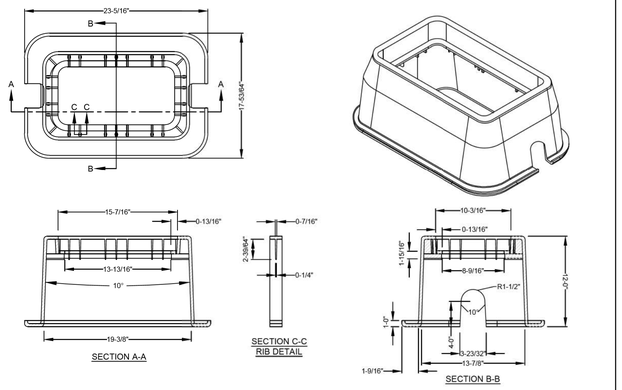
PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-03B
DESIGNED BY: SSM	
DRAWN BY: SSM	
CHECKED BY: HMH	
APPROVED BY: MAP	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

DocuSigned by: Heather Harkenrider 2D70FCB1728E4A0... 035021 NORTH CAROLINA PROFESSIONAL ENGINEER HEATHER HARKENRIDER 9/3/2026

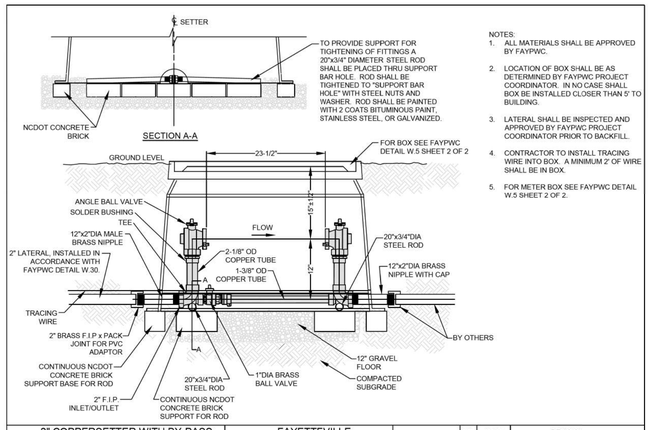
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



1-INCH COMPOSITE METER BOX & COVER N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. W.4B	DWG. BY: FAYPWC	1	12/15	REPLACED CI BOX WITH COMPOSITE BOX
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			
	WATER RESOURCES DEPARTMENT				

W4B-METERBOX-LID.dwg

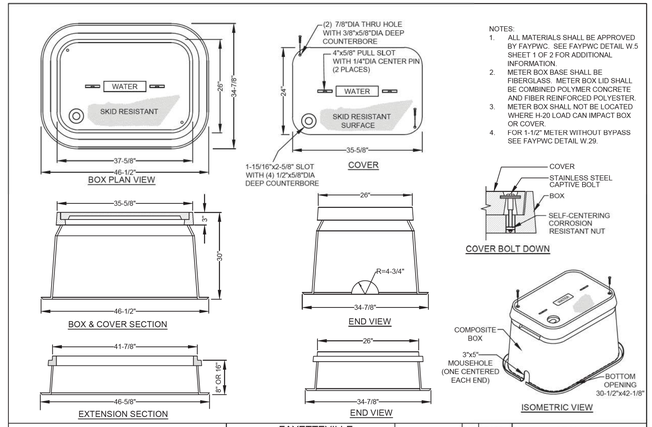


2" COPPERSETTER WITH BY-PASS 23-1/2" METER SPACING N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. W.5	DWG. BY: FAYPWC	1	07/13	REVISED, UPDATED NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	07/17	UPDATED NOTES
	WATER RESOURCES ENGINEERING DEPARTMENT				

W5-2-METER-SETTER.dwg

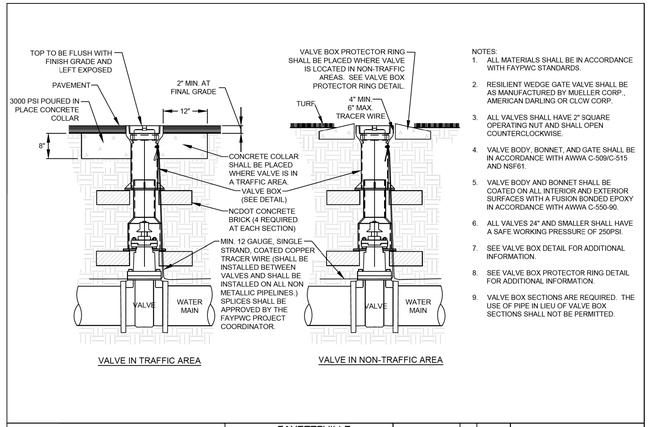
NOTE:

ANY REFERENCE TO FAYETTEVILLE PWC PROJECT COORDINATOR, PWC COORDINATOR OR FAYETTEVILLE PWC (FAYETTEVILLE PUBLIC WORKS COMMISSION) SHALL BE INTERPRETTED AS A REFERENCE TO THE ENGINEER.



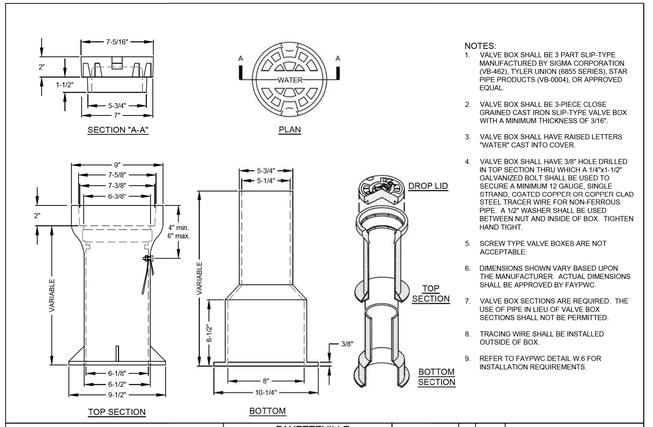
1-1/2" AND 2" BY-PASS METER BOX N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. W.5	DWG. BY: FAYPWC	1	12/15	REVISED LID
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			
	WATER RESOURCES ENGINEERING DEPARTMENT				

W5-2-METER-SETTER.dwg



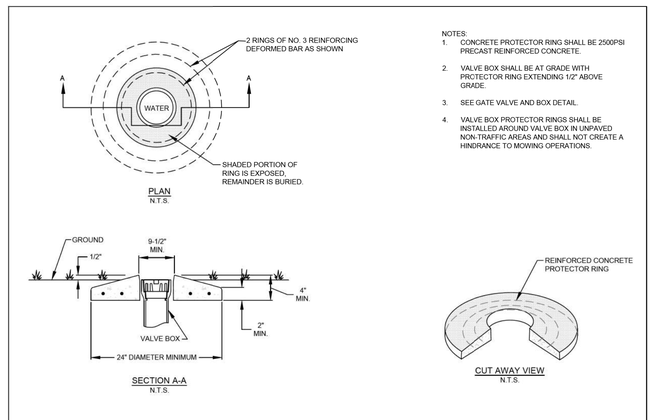
GATE VALVE N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.6	DWG. BY: FAYPWC	1	6/06	ADDED NOTE NO. 9
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	7/09	CLARIFIED NOTES
	WATER RESOURCES ENGINEERING DEPARTMENT				

W6-GATEVALVE.dwg



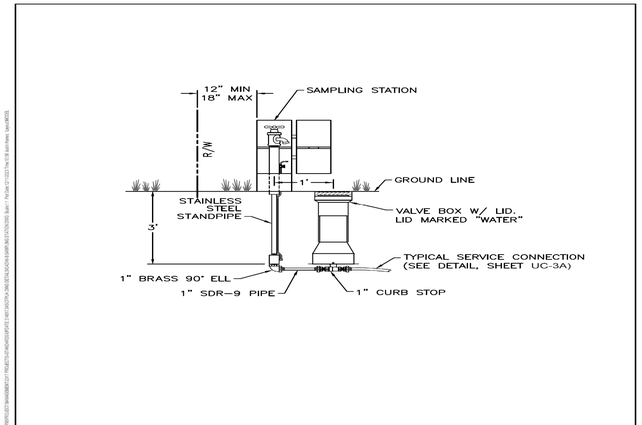
VALVE BOX N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.7	DWG. BY: FAYPWC	1	07/09	ADDED NOTES 7, 8, AND CLARIFIED NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	01/14	REVISED NOTES 1, 4, 6
	WATER RESOURCES ENGINEERING DEPARTMENT				

W7-VALVEBOX.dwg

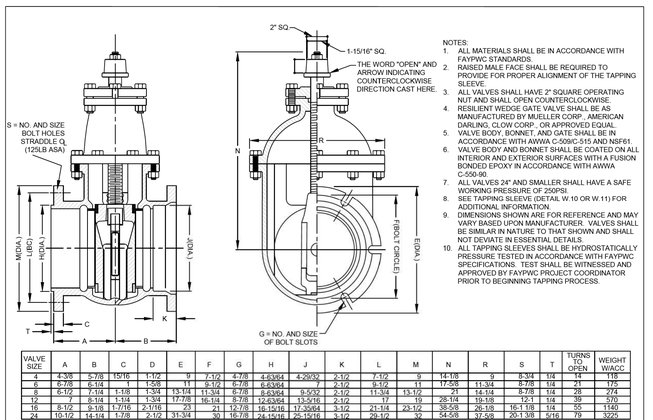


VALVE BOX PROTECTOR RING N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.8	DWG. BY: FAYPWC			
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			
	WATER RESOURCES ENGINEERING DEPARTMENT				

W8-CONC-PROTECTOR-RING.dwg



DETAIL: SAMPLING STATION	DETAIL NO: W-8
SCALE: NOT TO SCALE	DETAIL DATE: 01/01/2024
	SHEET NO: -



VALVE SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	R	S	T	TURNS TO OPEN	WEIGHT W/ACC.
4	4-3/8	5-7/8	15/16	1-1/2	9	7-1/2	4-7/8	4-63/64	4-29/32	2-1/2	7-1/2	9	14-1/8	9	8-3/4	1/4	14	118
6	5-7/8	6-1/4	1	1-5/8	11	9-1/2	6-7/8	6-63/64	7	2-1/2	9-1/2	11	17-5/8	11-3/4	8-7/8	1/4	21	175
8	6-1/2	7-1/4	1-1/8	1-3/4	13-1/4	11-3/4	6-7/8	8-63/64	9-5/32	2-1/2	11-3/4	13-1/2	21	14-1/4	8-7/8	1/4	28	274
12	7	8-1/4	1-1/4	1-3/4	17-7/8	16-1/4	8-7/8	12-63/64	13-5/16	2-1/2	17	19	28-1/4	19-1/8	12-1	1/4	39	570
16	8-1/2	9-1/8	1-7/16	2-1/16	23	21	12-7/8	16-15/16	17-35/64	3-1/2	21-1/4	23-1/2	36-5/8	26-1/8	16-1 1/8	1/4	55	1140
24	10-1/2	14-1/4	1-7/8	2-1/2	31-3/4	30	16-7/8	24-15/16	25-15/16	3-1/2	29-1/2	32	54-5/8	37-5/8	20-1 3/8	5/16	79	3225

TAPPING VALVE N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.9	DWG. BY: FAYPWC	1	07/09	ADDED NOTE 10, REVISED 4 AND 5
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	07/13	REVISED NOTES 4, 8, 10
	WATER RESOURCES ENGINEERING DEPARTMENT				

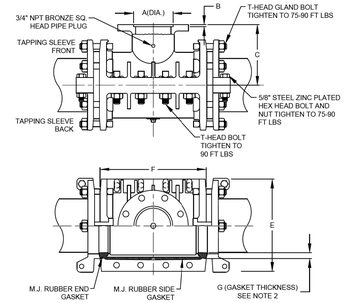
W9-M.J.-TAPPING-VALVE.dwg

-SYSTIME
-ITLU:3422B-Utility UC03-3H.dgn

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5/14/99

REVISIONS



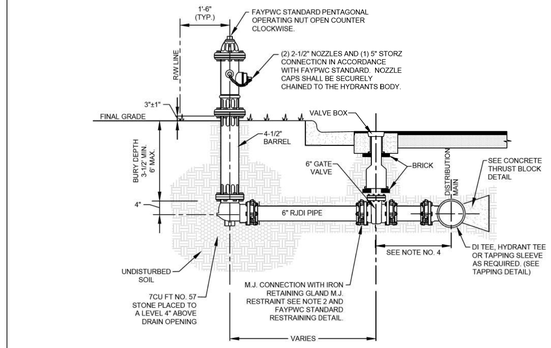
NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS. SLEEVE BODY SHALL BE DUCTILE IRON ASTM A536.
2. MECHANICAL JOINT TAPPING SLEEVES SHALL BE AS MANUFACTURED BY CLOW, M & H, MUELLER, OR AMERICAN AND SHALL BE FURNISHED WITH SPLIT GLANDS, SPLIT END GASKET, BOLTS, ETC. THE OUTLET FLANGE SHALL BE CL 125 PER ANSI B16.1 COMPATIBLE WITH APPROVED TAPPING VALVES.
3. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. SLEEVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
4. PIPE SURFACES SHALL BE CLEANED THOROUGHLY TO PERMIT FOR A GOOD SEAL PRIOR TO INSTALLATION.
5. EXTERIOR OF TAPPING SLEEVE SHALL BE COATED WITH 2 COATS ASPHALTIC VARNISH MIL-C450.
6. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH FAYPWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.
7. SEE DETAILS W.9 AND W.17 FOR ADDITIONAL REQUIREMENTS.

SLEEVE FOR USE WITH CI OR DI PIPE

SLEEVE SIZE: PIPE X BRANCH A.DIA + 031 - 000	6X6	8X6	8X8	12X6	12X8	12X12	16X6	16X8	16X12	24X6	24X8	24X12	24X16	24X24	30X6	30X8	30X12	30X16	30X24
A.DIA	7.016	7.016	9.016	7.016	9.016	13.016	7.016	9.016	13.016	11.00	13.5	19.0	23.5	32.0	11.00	13.5	19.0	23.5	32.0
B	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
C	7-7/8	9-1/16	9	11-5/8	11-7/8	12-7/8	14-1/8	14-1/2	14-7/8	19.5	19.5	19.5	20.5	20.5	23.25	23.25	23.25	23.75	23.75
E	11-3/4	13-7/8	13-7/8	18-1/2	18-1/2	18-1/2	23-1/2	23-1/2	23-1/2	35.5	35.5	35.5	35.5	35.5	43.37	43.37	43.37	43.37	43.37
F	13-1/2	15	15	19-1/2	19-1/2	19-1/2	22-1/2	22-1/2	22-1/2	18.0	18.0	24.0	30.0	36.0	24.0	24.0	24.0	36.0	36.0

DUCTILE IRON TAPPING SLEEVE N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.10	DWG. BY: FAYPWC	1	07/09	REVISED NOTE 6/REMOVED NOTE 8
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	07/13	REVISED NOTES 6, 7
	WATER RESOURCES ENGINEERING DEPARTMENT				

W10-MJ.-TAPPING-SLEEVE.dwg



FIRE HYDRANT AND VALVE INSTALLATION N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE.	REVISION
SHEET NO. 1 OF 2	DWG. NO. W.13	DWG. BY: FAYPWC	1	08/25/23	REVISED NOTES 16 AND 17
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	07/01/09	REVISED NOTE NO. 2, REMOVED NOTE NO. 3 AND ALTERED RESTRAINT DETAIL
	WATER RESOURCES ENGINEERING DEPARTMENT		3	07/01/16	REVISED NOTES

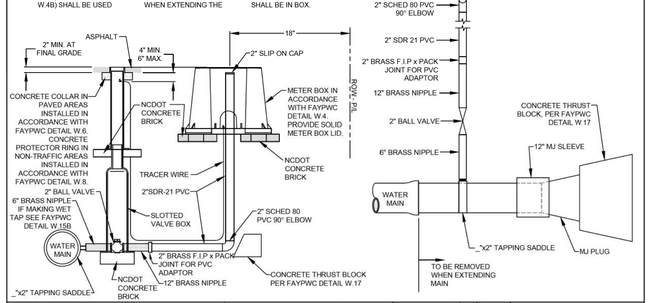
W13-FHCC.dwg

NOTES:
1. FIRE HYDRANT SHALL BE MODELS MANUFACTURED BY MUELLER CO. (CENTURIAN), AMERICAN VALVE AND HYDRANT CO. (MODEL MARK 73), CLOW MEDALLION OR APPROVED EQUAL.
2. ALL VALVES AND HYDRANTS SHALL HAVE M.J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.
3. HYDRANT VALVE SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE MAIN, BUT DO NOT PLACE VALVE IN PROPOSED OR EXISTING CURB AND GUTTER. IF THE STREET IS SOIL AND NO PAVING IS TO BE DONE AT THIS TIME, THE LOCATION OF THE VALVE IS TO BE DETERMINED BY THE FAYPWC PROJECT COORDINATOR.
4. HYDRANT BRANCH SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY FAYPWC PROJECT COORDINATOR.
5. GATE VALVE AND BOX SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD DETAIL.
6. HYDRANT EXTENSIONS AND/OR OFFSETS SHALL BE APPROVED BY FAYPWC PROJECT COORDINATOR.
7. FIRE HYDRANT CONNECTIONS TO EXISTING WATER MAINS SHALL BE MADE USING A TAPPING SLEEVE AND VALVE BY WET TAP CONNECTION. THE TAPPING SLEEVE AND VALVE SHALL BE HYDROSTATICALLY TESTED PRIOR TO STARTING THE TAP IN THE PRESENCE OF THE FAYPWC PROJECT COORDINATOR.
8. THE PROPOSED LOCATION MAY BE RELOCATED BY THE FAYPWC PROJECT COORDINATOR IF CONFLICTS EXIST (IE: GAS SERVICES, UGE, TELEPHONE, ETC.).
9. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING WATER MAIN MATERIAL, SIZE, AND DEPTH FOR EACH FIRE HYDRANT LOCATION PRIOR TO ORDERING MATERIALS. THE CONTRACTOR WILL BE REQUIRED TO SUPPLY VARIOUS LENGTHS OF BARRELS AND HYDRANT EXTENSIONS (NO MORE THAN ONE HYDRANT EXTENSION MAY BE USED PER HYDRANT). ADDITIONAL FITTINGS AND/OR HYDRANT EXTENSIONS OR OFFSET CONNECTORS MAY BE REQUIRED TO MAINTAIN PROPER COVER AS APPROVED BY THE FAYPWC PROJECT COORDINATOR.
10. CONTRACTOR SHALL NOTIFY THE APPROPRIATE FIRE DEPARTMENT OF OUT OF SERVICE FIRE HYDRANTS PRIOR TO CONSTRUCTION.
11. FIRE HYDRANT SHALL BE FIELD PAINTED IN ACCORDANCE WITH FAYPWC STANDARDS, BEFORE PROJECT IS ACCEPTED. HYDRANTS SHALL BE PAINTED WITH A GREEN BONNET AND YELLOW BODY. PAINT SHALL BE IN ACCORDANCE WITH FAYPWC REQUIREMENTS. THE CONTRACTOR SHALL PAINT ALL EXPOSED EXTERIOR FIRE HYDRANT SURFACES PRIOR TO FINAL ACCEPTANCE BY FAYPWC. ALL PAINTING SHALL BE DONE IN STRICT ACCORDANCE WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS AND SHALL BE SATISFACTORY TO THE FAYPWC.
12. PROTECTIVE COVERING SHALL BE UTILIZED, AS NECESSARY FOR PROTECTION OF ADJACENT AREAS, EQUIPMENT, SHRUBBERY, OR OTHER ITEMS. AFTER PAINTING IS COMPLETE, THE ENTIRE AREA SHALL BE THOROUGHLY CLEANED UP.
13. ALL PAINT MATERIALS SHALL BE IN THE ORIGINAL SEALED CONTAINERS BEARING THE MANUFACTURER'S NAME.
14. WHERE NECESSARY, THINNING SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AND AS APPROVED BY FAYPWC.
15. ALL SURFACES TO BE PAINTED SHALL BE CLEAN AND DRY.
16. THE BONNET OF THE FIRE HYDRANT SHALL BE PAINTED A DARK GREEN, UTILIZING AN OIL BASE GLOSS, WITH A FINAL DRY MIL THICKNESS OF 4 TO 6 MILS. MULTIPLE COATS MAY BE NECESSARY TO ACHIEVE THE FINAL REQUIRED DRY MIL THICKNESS. THE PAINT SHALL BE FOREST GREEN, AS MANUFACTURED BY THE SHERWIN-WILLIAMS COMPANY, PART NUMBER A117204 BASE AND SW7458 FOREST GREEN. PAINT SHOULD BE MIXED AT THE STORE. SAMPLES SHALL BE SUBMITTED IN ORDER FOR FAYPWC TO CONSIDER ALTERNATIVE PAINT MANUFACTURERS.
17. THE REMAINDER OF THE FIRE HYDRANT SHALL BE PAINTED SAFETY YELLOW, UTILIZING AN OIL BASE GLOSS, WITH A FINAL DRY MIL THICKNESS OF 4 TO 6 MILS. MULTIPLE COATS MAY BE NECESSARY TO ACHIEVE THE FINAL REQUIRED DRY MIL THICKNESS. THE PAINT SHALL BE SAFETY YELLOW, AS MANUFACTURED BY THE SHERWIN-WILLIAMS COMPANY, PART NUMBER B54Y37 BASE AND 617-4072 SAFETY YELLOW. PAINT SHOULD BE MIXED AT THE STORE. SAMPLES SHALL BE SUBMITTED IN ORDER FOR FAYPWC TO CONSIDER ALTERNATE PAINT MANUFACTURERS.

FIRE HYDRANT AND VALVE INSTALLATION N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. W.13	DWG. BY: FAYPWC	1	08/25/23	REVISED NOTES 16 AND 17
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	07/01/09	REVISED NOTE NO. 2, REMOVED NOTE NO. 3 AND ALTERED RESTRAINT DETAIL
	WATER RESOURCES ENGINEERING DEPARTMENT		3	07/01/16	REVISED NOTES

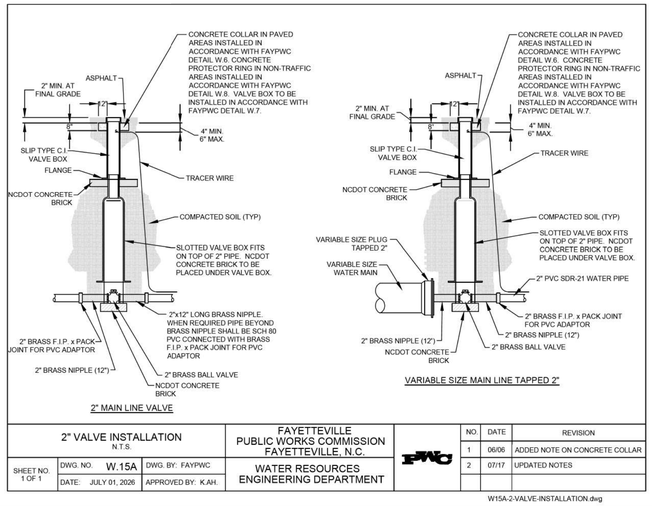
W13-FHCC.dwg

NOTES:
1. ALL MATERIAL SHALL BE APPROVED BY FAYPWC.
2. WHEN INSTALLED IN A PAVED AREA METER BOX SHALL BE SET 1/4" ABOVE FINISHED PAVEMENT GRADE AND PAVEMENT FEATHERED TO TOP OF BOX. COMPOSITE METER BOX (FAYPWC DETAIL W.4B) SHALL BE USED IN PAVED AREAS.
3. METER BOX SHALL BE IN ACCORDANCE WITH FAYPWC DETAILS. PROVIDE SOLID METER BOX LID.
4. BLOW-OFF ASSEMBLY NOT TO BE RE-USED UNLESS APPROVED BY FAYPWC.
5. REMOVE ENTIRE ASSEMBLY FROM BELL OF WATER MAIN PIPE WHEN EXTENDING THE MAIN.
6. CENTER 2" SDR-21 PIPE IN METER BOX.
7. INSTALLATION SHALL BE INSPECTED AND APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO BACKFILL.
8. CONTRACTOR SHALL INSTALL TRACING WIRE INTO THE BOX. A MINIMUM OF 2' OF WIRE SHALL BE IN BOX.
9. VALVE BOX TO BE INSTALLED IN ACCORDANCE WITH FAYPWC DETAIL W.7.



2" BLOW OFF N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.15	DWG. BY: FAYPWC	1	08/06	CHANGED FITTINGS TO SCHED 80
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	11/06	REVISED CONFIGURATION
	WATER RESOURCES ENGINEERING DEPARTMENT		3	07/17	REVISED NOTES

W15-2-BLOWOFF.dwg

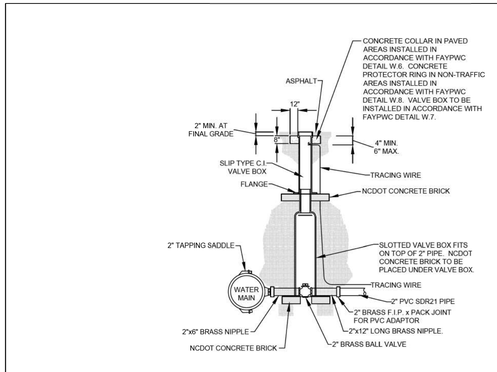


2" MAIN LINE VALVE

VARIABLE SIZE MAIN LINE TAPPED 2"

2" VALVE INSTALLATION N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.15A	DWG. BY: FAYPWC	1	06/06	ADDED NOTE ON CONCRETE COLLAR
	DATE: JULY 01, 2026	APPROVED BY: K.AH.	2	07/17	UPDATED NOTES
	WATER RESOURCES ENGINEERING DEPARTMENT				

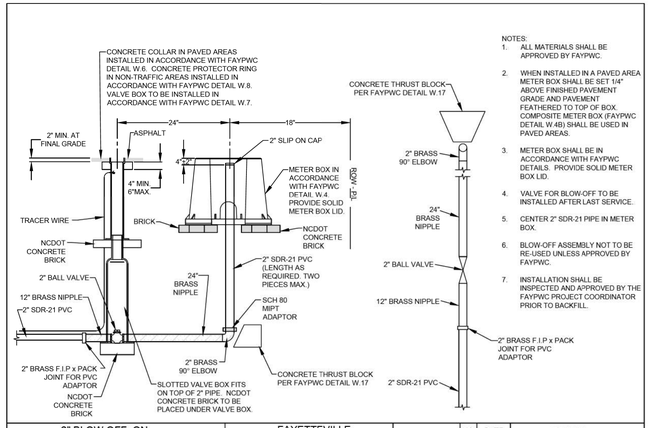
W15A-2-VALVE-INSTALLATION.dwg



VARIABLE SIZE MAIN LINE WITH 2" TAPPING SADDLE AND BALL VALVE

2" WET TAP N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.15B	DWG. BY: FAYPWC	1	06/06	ADDED NOTE ON CONCRETE COLLAR
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	01/07	REVISED VALVE LOCATION
	WATER RESOURCES ENGINEERING DEPARTMENT		3	07/17	REVISED NOTES

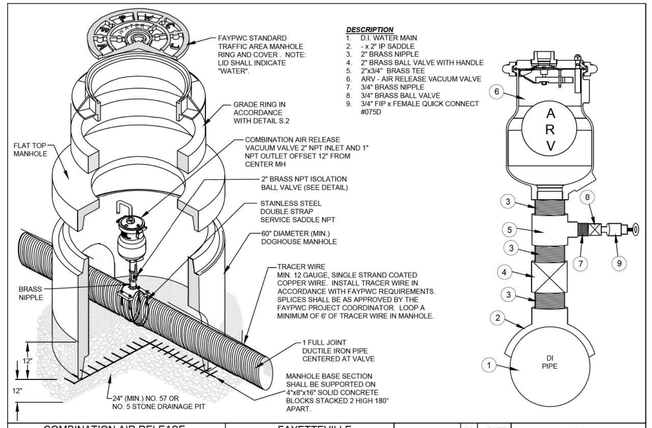
W15B-2-WET-TAP.dwg



NOTES:
1. ALL MATERIALS SHALL BE APPROVED BY FAYPWC.
2. WHEN INSTALLED IN A PAVED AREA METER BOX SHALL BE SET 1/4" ABOVE FINISHED PAVEMENT GRADE AND PAVEMENT FEATHERED TO TOP OF BOX. COMPOSITE METER BOX (FAYPWC DETAIL W.4B) SHALL BE USED IN PAVED AREAS.
3. METER BOX SHALL BE IN ACCORDANCE WITH FAYPWC DETAILS. PROVIDE SOLID METER BOX LID.
4. VALVE FOR BLOW-OFF TO BE INSTALLED AFTER LAST SERVICE.
5. CENTER 2" SDR-21 PIPE IN METER BOX.
6. BLOW-OFF ASSEMBLY NOT TO BE RE-USED UNLESS APPROVED BY FAYPWC.
7. INSTALLATION SHALL BE INSPECTED AND APPROVED BY THE FAYPWC PROJECT COORDINATOR PRIOR TO BACKFILL.

2" BLOW OFF ON 2" WATER MAIN N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE:	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.15C	DWG. BY: FAYPWC	1	07/17	REVISED NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			
	WATER RESOURCES ENGINEERING DEPARTMENT				

W15C-2-BLOWOFF.dwg



DESCRIPTION
1. D.I. WATER MAIN
2. - x 2" IP SADDLE
3. 2" BRASS NIPPLE
4. 2" BRASS BALL VALVE WITH HANDLE
5. 2"x3/4" BRASS TEE
6. ARV - AIR RELEASE VACUUM VALVE
7. 3/4" BRASS NIPPLE
8. 3/4" BRASS BALL VALVE
9. 3/4" FIP x FEMALE QUICK CONNECT #07SD

COMBINATION AIR RELEASE VACUUM VALVE (WATER SERVICE) N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. W.16	DWG. BY: FAYPWC	1	07/09	REVISED NOTES 3 AND 5, ADD NOTE 7
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	01/13	UPDATED NOTES; ADDED TRACER WIRE
	WATER RESOURCES ENGINEERING DEPARTMENT				

W16-AIR-RELEASE-VALVE.dwg

CDM Smith
CDM Smith Inc.
4130 Parklake Avenue
Suite 350
Raleigh, NC 27612-4461
NC COA No. F-1255

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-03C
DESIGNED BY: SSM	
DRAWN BY: SSM	
CHECKED BY: HMH	
APPROVED BY: MAP	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 ENGINEER HEATHER HARKENRIDER
Digitally signed by Heather Harkenrider
2D2FCFCB1728B40...
9/3/2026
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

NOTE:

ANY REFERENCE TO FAYETTEVILLE PWC PROJECT COORDINATOR, PWC COORDINATOR OR FAYETTEVILLE PWC (FAYETTEVILLE PUBLIC WORKS COMMISSION) SHALL BE INTERPRETTED AS A REFERENCE TO THE ENGINEER.

SYSTIME
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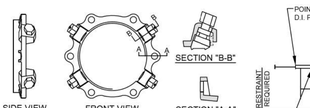
REVISIONS

NOTES:

1. COMBINATION AIR RELEASE VALVES SHALL BE OF THE SINGLE HOUSING STYLE THAT COMBINES THE OPERATING FEATURES OF BOTH AN AIR VACUUM AND AIR RELEASE VALVE.
2. THE COMBINATION AIR RELEASE VALVE SHALL HAVE 2" NPT INLET AND 1" NPT OUTLET CONNECTIONS AND A 3/16 INCH DIAMETER ORIFICE (OR ORIFICE SHALL BE DETERMINED BY THE ENGINEER) FOR A MAXIMUM 200PSI WORKING PRESSURE.
3. ALL MATERIALS SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE FAYETTEVILLE PUBLIC WORKS COMMISSION.
4. MANHOLE, FRAME, AND COVER SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD DETAILS. NOTE: LID SHALL INDICATE "WATER".
5. 2" TAPPING SADDLE SHALL BE DUCTILE IRON WITH STAINLESS STEEL STRAPS, BOLTS, NUTS, AND WASHERS.
6. SADDLES FOR PIPE SIZES 8" THRU 24" SHALL BE DOUBLE STRAP.
7. ALL INTERNAL PARTS SHALL BE 316 STAINLESS STEEL.
8. THE COMBINATION AIR RELEASE VALVE SHALL HAVE A SINGLE FLOAT DESIGN.
9. ALL COMBINATION AIR RELEASE VALVES SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
10. ALL COMBINATION AIR RELEASE VALVES SHALL BE CRISPIN MODEL UX20, ARI D-020, OR APPROVED EQUAL.
11. COMBINATION AIR RELEASE VALVE SHALL BE CENTERED IN MANHOLE. OFFSET THE RING AND COVER TO ALLOW ACCESS.
12. TOP OF WATER MAIN SHALL BE A MINIMUM 4' DEEP AT AIR RELEASE VALVE, UNLESS OTHERWISE REQUIRED DUE TO FORCE MAIN AND/OR COMBINATION AIR RELEASE VALVE SIZE.
13. COMBINATION AIR RELEASE VALVE BODIES SHALL BE MADE OF STAINLESS STEEL OR REINFORCED NYLON
14. THE MANHOLE SHALL BE CAST WITH AN ANTI-MICROBIAL ADDITIVE (CON-SHIELD OR APPROVED EQUAL.)

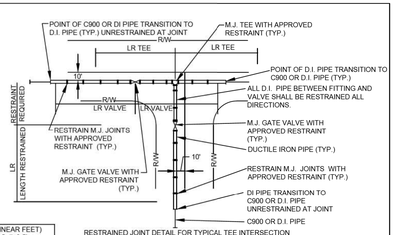
COMBINATION AIR RELEASE VACUUM VALVE (WATER SERVICE)			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. W.16	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	PWC	1	01/13	ADDED NOTE 16, REVISED NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			2	07/16	DELETED NOTES 3, 16

W16-AIR-RELEASE-VALVE.dwg



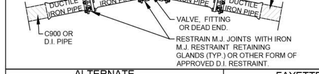
IRON RETAINING GLAND M.J. RESTRAINT			
NOMINAL PIPE SIZE	WEDGES QUANTITY	BOLTS QUANTITY	PRESS RATING
6"	3	6	350
8"	4	8	350
12"	8	8	350

8" SIZE SHOWN 6" AND 12" SIMILAR
IRON RETAINING GLAND M.J. RESTRAINT



RESTRAINED JOINT DETAIL FOR TYPICAL TEE INTERSECTION
4-WAY INTERSECTION SIMILARLY RESTRAINED

LR (MIN. LENGTH OF RESTRAINT EACH DIRECTION OF THRUST IN LINEAR FEET) Based on 200 psig pressure, Safety Factor of 2.0:1, BARE DI PIPE AND ML Soil, 3.3' cover Chart does not apply to pipes wrapped in polyethylene wrap					
PIPE SIZE	VALVES DEAD ENDS TEES	90° ELBOWS	45° ELBOW & CROSSES	22-1/2° ELBOWS	REDUCER
6"	55'	31'	13'	7'	8"x2" 67'
8"	72'	40'	17'	8'	8"x6" 30'
12"	102'	57'	24'	12'	12"x8" 54'

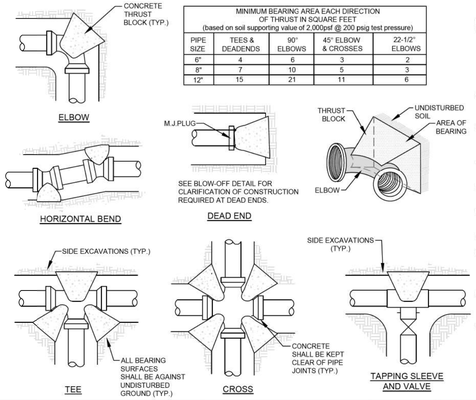


NOTES:

1. THRUST RESTRAINT SHALL BE INSTALLED ON DUCTILE IRON WATER DISTRIBUTION LINES 6" THRU 12" DIAMETER IN THE MANNER SHOWN. SEE FAYPWC STANDARD THRUST BLOCK DETAIL W.17 FOR PVC RESTRAINT.
2. IRON RETAINING GLAND M.J. RESTRAINT OR OTHER FORMS OF IRON RESTRAINT SHALL NOT BE USED ON PVC PIPE.
3. PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINED JOINT PIPE FOR THE PROPER LENGTH.
4. COMPACT FITTINGS ARE ACCEPTABLE FOR USE WITH IRON RETAINING GLAND M.J. RESTRAINT AND OTHER FORMS OF D.I. RESTRAINT.
5. THE MINIMUM LENGTH OF RESTRAINT INDICATED SHALL REQUIRE ALL JOINTS WITHIN THE LR DISTANCE TO BE RESTRAINED.
6. RESTRAINT SYSTEM SHALL BE INSPECTED AND APPROVED BY FAYPWC PRIOR TO BACKFILLING.
7. RESTRAINT SYSTEMS MAY VARY BASED UPON THE ENGINEERS' DESIGN AS SHOWN ON THE PLAN AND PROFILE SHEETS.
8. GRIPPER RING AND FIELD LOK GASKETS ARE AN ACCEPTABLE METHOD OF RESTRAINT ON DUCTILE IRON PIPE ONLY.

ALTERNATE RESTRAINT DETAIL (DUCTILE IRON PIPE ONLY) N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.18	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	PWC	1	11/16/07	REVISED TABLE, ADDED NOTE 8
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.					

W18-RESTRAINT-DETAIL.dwg



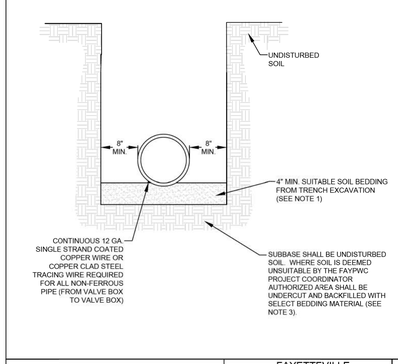
MINIMUM BEARING AREA EACH DIRECTION OF THRUST IN SQUARE FEET (based on soil supporting value of 2,000psf @ 200 psig test pressure)				
PIPE SIZE	TEES & DEADENDS	90° ELBOWS	45° ELBOW & CROSSES	22-1/2° ELBOWS
6"	4	6	3	2
8"	7	10	5	3
12"	15	21	11	6

NOTES:

1. THRUST BLOCKS SHALL BE INSTALLED ON PVC WATER DISTRIBUTION LINES 6" THRU 12" DIAMETER IN THE MANNER SHOWN. SEE FAYPWC STANDARD ALTERNATE RESTRAINING DETAIL W.18 FOR ACCEPTABLE ALTERNATE RESTRAINING SYSTEMS.
2. PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINT JOINT PIPE FOR THE PROPER LENGTH. COMPACT FITTINGS ARE NOT ACCEPTABLE. STANDARD FITTINGS SHALL BE USED WITH CONCRETE THRUST BLOCKING.
3. THRUST BLOCKS SHALL BE INSTALLED ON SEWER FORCE MAIN IN THE MANNER SHOWN.
4. IF SAC-CRETE IS USED, MIXING MUST BE ON SITE UTILIZING A MECHANICAL MIXER.
5. NO CONCRETE SHALL BE PLACED ON BOLTS. WRAP JOINT FITTINGS WITH PLASTIC.
6. CONCRETE SHALL BE A MINIMUM 3,000PSI.
7. ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED SOIL AND SHALL BE APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO PLACEMENT OF CONCRETE.
8. USE OF RESTRAINED JOINT DUCTILE IRON WILL BE REQUIRED IF SOIL CONDITIONS DO NOT ALLOW THE USE OF THRUST BLOCKS.
9. ALL VERTICAL BENDS SHALL BE RESTRAINED USING RESTRAINED JOINT DUCTILE IRON PIPE.

CONCRETE THRUST BLOCK DETAIL N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.17	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	PWC	1	09/05	REVISED TABLE
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			2	02/07	ADDED NOTES 9 AND 10
					3	07/13	ADDED TAPPING SLEEVE AND VALVE DETAIL

W17-THRUSTBLOCK.dwg

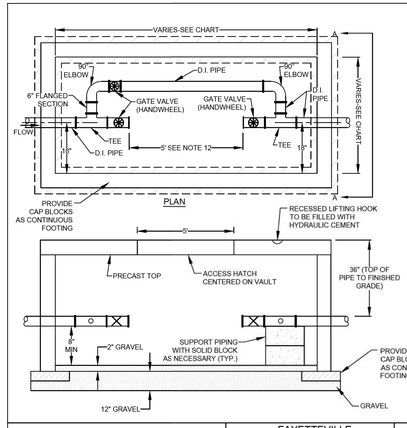


NOTES:

1. SUITABLE SOIL BEDDING IS DEFINED AS "NATIVE" SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.
2. SUITABLE BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS.
3. IF GROUND CONDITIONS WARRANT, IT MAY BE NECESSARY TO BED DUCTILE IRON WATER 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.

WATER MAIN BEDDING DETAIL N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.19	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	PWC	1	01/01/17	REVISED NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			2	07/01/13	REVISED NOTE RE: TRACER WIRE

W19-WATER-BEDDING.dwg

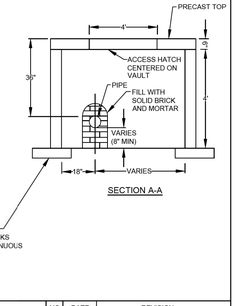


NOTE:

ANY REFERENCE TO FAYETTEVILLE PWC PROJECT COORDINATOR, PWC COORDINATOR OR FAYETTEVILLE PWC (FAYETTEVILLE PUBLIC WORKS COMMISSION) SHALL BE INTERPRETTED AS A REFERENCE TO THE ENGINEER.

METER VAULT N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. W.20	DWG. BY: FAYPWC	WATER RESOURCES DEPARTMENT	PWC	1	09/10	REVISED PIPE BURY DEPTH, NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			2	11/23	CLARIFIED FOOTING REQUIREMENTS
					3		

W20-METER-VAULT.dwg



METER SIZE	MIN PIPE DIA	SPACING BETWEEN GATE VALVES (SEE NOTE 20)	VAULT SIZE (INSIDE DIM.)
3"	4"	5'	5'x10'
4"	4"	5'	5'x10'
6"	6"	5'	(SEE NOTE 19) 5'x10'
8"	8"	5'	6'x12'

NOTES:

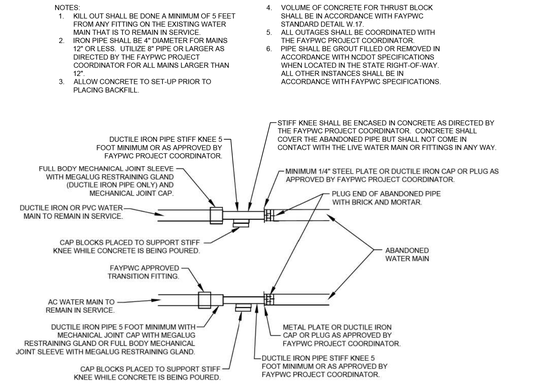
1. VAULTS SHALL BE PRECAST REINFORCED CONCRETE (4, 000PSI). VAULT CONSTRUCTION SHALL BE CERTIFIED BY MANUFACTURER TO WITHSTAND LOADING DUE TO BACKFILLING, IN ACCORDANCE WITH ACI 318.
2. BRICK VAULTS SHALL NOT BE ACCEPTABLE.
3. NO RISERS SHALL BE ALLOWED.
4. VAULTS SHALL HAVE INSIDE DIMENSIONS AS INDICATED ON CHART.
5. VAULT SHALL BE LOCATED OUTSIDE OF PAVED TRAFFIC AREAS.
6. METER VAULT SHALL BE LOCATED WITHIN PUBLIC RIGHT-OF-WAY OR DEDICATED EASEMENT. IF IN EASEMENT, PROVIDE A MINIMUM 5' CLEARANCE AROUND VAULT.
7. CONTRACTOR SHALL PROVIDE ALL FITTINGS, PIPING, ETC. AS INDICATED.
8. THE VAULT SHALL BE LOCATED NO CLOSER THAN 5' FROM ANY STRUCTURE.
9. PIPING SHALL BE RESTRAINED JOINT DUCTILE IRON FROM TAP AT MAIN TO VAULT.
10. PIPE FITTINGS INSIDE VAULT SHALL BE FLANGED.
11. VAULT SHALL BE SET PLUMB AND LEVEL, MATCH FINISHED GRADE, AND SHALL HAVE POSITIVE DRAINAGE AWAY FROM IT.
12. INSTALL SOLID CONCRETE CAP BLOCKS AS CONTINUOUS FOOTING WITH NO GAPS.
13. FAYPWC TO INSTALL METER AND FITTINGS UPON ACCEPTANCE OF PROJECT.
14. ACCESS HATCH SHALL BE 5'x4' DOUBLE DOOR CENTERED ON VAULT, SO AS TO PROVIDE CLEAR ACCESS TO METER.
15. ACCESS HATCH SHALL BE ALUMINUM, MOUNTED FLUSH AND SHALL BE CAPABLE OF BEARING INCIDENTAL TRAFFIC LOADS. ALL OTHER HATCHES SHALL BE APPROVED BY FAYPWC PRIOR TO CONSTRUCTION. BOLTS, HINGES, AND HOLD OPEN ARM SHALL BE 316 STAINLESS STEEL.
16. ACCESS HATCH SHALL LATCH AUTOMATICALLY UPON CLOSURE (SLAMLOCK). HATCH SHALL BE LOCKABLE USING A KEYED LOCKING MECHANISM INTEGRAL TO THE HATCH. HATCH MANUFACTURER SHALL PROVIDE ONE OPERATING KEY TO FAYPWC.
17. ALL LIFTING HOLES SHALL BE FILLED WITH HYDRAULIC CEMENT.
18. LATERAL AND VAULT INSTALLATION SHALL BE APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO BACKFILL.
19. LATERAL AND PIPING INSIDE OF VAULT SHALL PASS HYDROSTATIC AND STERILIZATION TESTS (200PSI).
20. IF USING 8" PIPING WITH A 6" METER, THE VAULT SHALL BE 6'x12'.
21. CONTRACTOR SHALL VERIFY VAULT DIMENSIONS, METER DIMENSIONS, AND PIPE LAYOUT WITH FAYPWC PRIOR TO ORDERING MATERIALS.

METER VAULT			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. W.20	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	PWC	1	09/10	REVISED PIPE BURY DEPTH, NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			2	11/23	CLARIFIED FOOTING REQUIREMENTS
					3		

W20-METER-VAULT.dwg

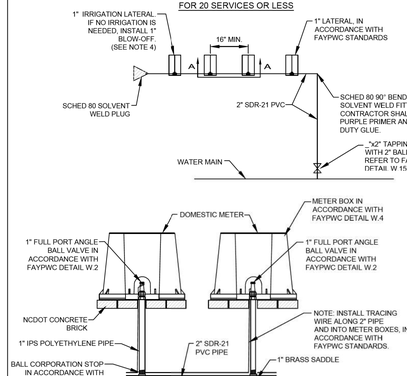
NOTES:

1. KILL OUT SHALL BE DONE A MINIMUM OF 5 FEET FROM ANY FITTING ON THE EXISTING WATER MAIN THAT IS TO REMAIN IN SERVICE.
2. IRON PIPE SHALL BE 4" DIAMETER FOR MAINS 12" OR LESS. UTILIZE 8" PIPE OR LARGER AS DIRECTED BY THE FAYPWC PROJECT COORDINATOR FOR ALL MAINS LARGER THAN 12".
3. ALLOW CONCRETE TO SET-UP PRIOR TO PLACING BACKFILL.
4. VOLUME OF CONCRETE FOR THRUST BLOCK SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD DETAIL W.17.
5. ALL OUTAGES SHALL BE COORDINATED WITH THE FAYPWC PROJECT COORDINATOR.
6. PIPE SHALL BE GROUT FILLED OR REMOVED IN ACCORDANCE WITH NCDOT SPECIFICATIONS WHEN LOCATED IN THE STATE RIGHT-OF-WAY. ALL OTHER INSTANCES SHALL BE IN ACCORDANCE WITH FAYPWC SPECIFICATIONS.



WATER MAIN KILL-OUT N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.22	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	PWC			
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.					

W22-WATERMAIN-KILLOUT.dwg



NOTES:

1. ALL MATERIALS TO BE APPROVED BY FAYPWC.
2. SERVICE LATERAL SIZE 1" IPS POLYETHYLENE UNLESS OTHERWISE SPECIFIED.
3. ALL FITTINGS AND MATERIALS FROM 2" WATER LINE TO AND INTO METER BOX SHALL BE IN ACCORDANCE WITH FAYPWC DETAIL W.2.
4. THE 1" "BLOW-OFF" SHALL BE A STANDARD 1" TAP UP TO AND INCLUDING THE ANGLE BALL VALVE. NO OTHER FITTINGS ARE REQUIRED (IE. SPACER, TAILPIECE). THE METER BOX SHALL BE SET IN ACCORDANCE WITH FAYPWC DETAIL W.2.
5. ALL WATER MAINS AND LATERALS SHALL PASS HYDROSTATIC (200PSI) AND STERILIZATION TESTS.
6. CENTER OF METER BOXES SHALL BE LOCATED A MINIMUM OF 5 FEET FROM THE BUILDING, UNLESS OTHERWISE APPROVED BY FAYPWC.
7. METER BOXES LOCATED IN PAVED AREAS SHALL BE IN ACCORDANCE WITH FAYPWC DETAIL W.4B.
8. LATERALS SHALL NOT BE BACKFILLED UNTIL INSPECTED AND APPROVED BY FAYPWC PROJECT COORDINATOR.
9. SHOULD IT BE NECESSARY TO CRIMP THE WATER SERVICE LATERAL, A FULL CIRCLE REPAIR CLAMP SHALL BE PLACED ON THE CRIMPED AREA.
10. SHOULD THE LENGTH OF THE LINE EXCEED 150 FEET, OR AS APPROVED BY FAYPWC, THE LINE SHALL BE LOOPED.
11. SHOULD THERE BE MORE THAN 20 SERVICES, THE 2" MAIN SHALL BE LOOPED (IE: NO PLUG). IN SUCH INSTANCES, NO 1" BLOW-OFF IS REQUIRED.

WATER SERVICE DETAILS FOR MULTI-UNIT BUILDINGS N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.23	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	PWC	1	07/16	REVISED TITLE, NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			2	07/17	REVISED NOTES

W23-SERVICE-FOR-MULTI-UNIT-BUILDINGS.dwg

CDM Smith Inc.
4130 Parklake Avenue
Suite 350
Raleigh, NC 27612-4461
NC COA No. F-1255

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-03D
DESIGNED BY: SSM	
DRAWN BY: SSM	
CHECKED BY: HMH	
APPROVED BY: MAP	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

Digitally signed by Heather Harkenrider
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 ENGINEER HEATHER HARKENRIDER
9/3/2026

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

-SYSTIME
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5/14/99

REVISIONS

CDM Smith
CDM Smith Inc.
4130 Parklake Avenue
Suite 350
Raleigh, NC 27612-4461
NC COA No. F-1255

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-03E
DESIGNED BY: SSM	
DRAWN BY: SSM	
CHECKED BY: HMH	
APPROVED BY: MAP	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 ENGINEER HEATHER HARKENRIDER
Docusigned by: Heather Harkenrider 2D2F0FCB1728444D...
9/3/2026

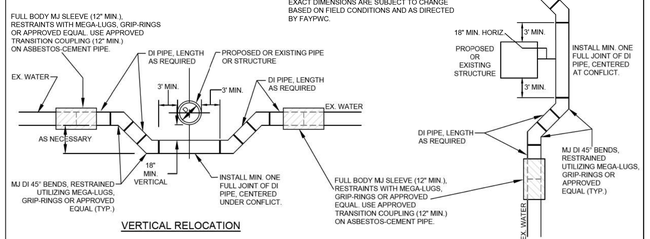
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

NOTE:

ANY REFERENCE TO FAYETTEVILLE PWC PROJECT COORDINATOR, PWC COORDINATOR OR FAYETTEVILLE PWC (FAYETTEVILLE PUBLIC WORKS COMMISSION) SHALL BE INTERPRETTED AS A REFERENCE TO THE ENGINEER.

NOTES:
1. ALL PIPE AND FITTINGS SHALL BE APPROVED BY FAYPWC.
2. CONTRACTOR TO COORDINATE NECESSARY OUTAGES WITH FAYPWC AND AFFECTED CUSTOMERS. MINIMUM 48 HOUR NOTICE REQUIRED.
3. NEW WATER MAIN TO BE SWABBED WITH A CHLORINE SOLUTION AND FLUSHED PRIOR TO PLACING INTO SERVICE.
4. ALL NEW FITTINGS AND PIPE TO BE RESTRAINED UTILIZING MEGA-LUGS, GRIP-RINGS OR APPROVED EQUAL.
5. ALL PIPE AND FITTINGS TO BE DUCTILE IRON.
6. FAYPWC PROJECT COORDINATOR TO BE PRESENT DURING WORK.
7. BACKFILL AND COMPACT TO CITY OF FAYETTEVILLE OR NCDOT REQUIREMENTS.
8. PROVIDE STONE BEDDING (NO. 5 OR NO. 57 STONE) TO SUPPORT RELOCATED WATER MAIN AND/OR NEW STORM DRAIN, AS APPROVED BY FAYPWC PROJECT COORDINATOR.
9. MJ RESTRAINTS NOT ALLOWED ON PVC PIPE.
10. DIMENSIONS ARE GIVEN AS GENERAL GUIDANCE. EXACT DIMENSIONS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS AND AS DIRECTED BY FAYPWC.



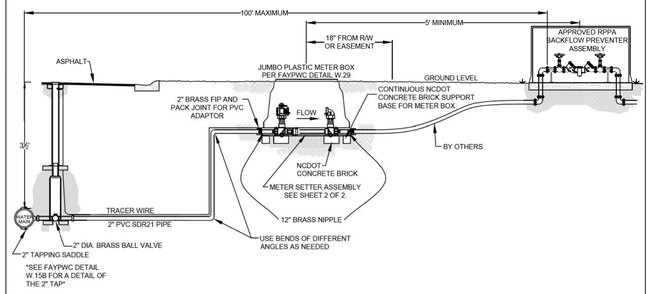
VERTICAL RELOCATION

HORIZONTAL RELOCATION

PIPE RELOCATION DETAIL N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO.: W.26	DWG. BY: FAYPWC	1	01/12	REVISED NOTES, ADDED HORIZONTAL RELOCATION
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			
	WATER RESOURCES ENGINEERING DEPARTMENT				

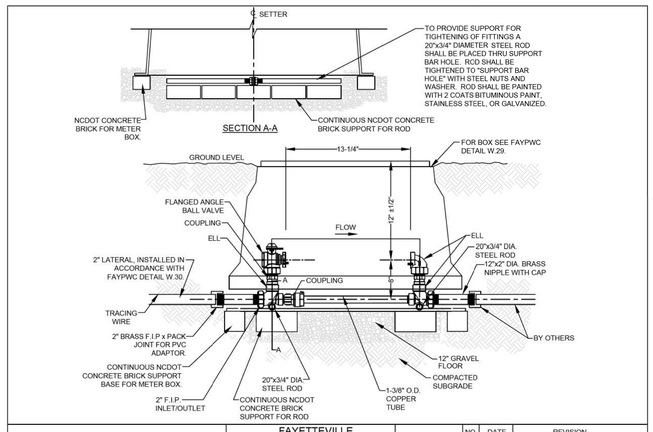
W26-PIPE-RELOCATION-DETAIL.dwg

NOTES:
1. ALL MATERIALS SHALL BE APPROVED BY FAYPWC.
2. FOR USE WITH A 1-1/2" OR 2" IRRIGATION METER.
3. LOCATION OF BOX SHALL BE AS DETERMINED BY FAYPWC PROJECT COORDINATOR. IN NO CASE SHALL BOX BE INSTALLED CLOSER THAN 5' TO BUILDING.
4. MINIMUM 5' BETWEEN THE METER AND THE BACKFLOW PREVENTER. MAXIMUM 100' FROM THE MAIN TO THE BACKFLOW PREVENTER.
5. IF THE METER BOX IS LOCATED LESS THAN 5' AWAY FROM THE MAIN, THE 2" PIPING SHALL BE BRASS FROM THE TAP TO THE METER.
6. WATER LATERAL SHALL BE INSPECTED AND APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO BACKFILL.
7. INSTALLATION SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS.
8. CONTRACTOR SHALL INSTALL TRACING WIRE INTO METER BOX. A MINIMUM OF 2' OF WIRE SHALL BE IN BOX.



2" IRRIGATION LATERAL N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. W.28	DWG. BY: FAYPWC	1	07/17	REVISED NOTES, ADDED SHEET 2
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			
	WATER RESOURCES ENGINEERING DEPARTMENT				

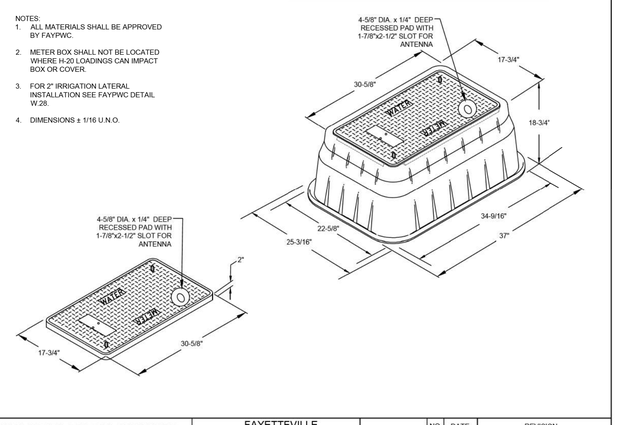
W28-2IN-IRRIG-LAT.DWG



2" IRRIGATION LATERAL N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. W.28	DWG. BY: FAYPWC	1	07/17	ADDED SHEET 2 OF 2
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			
	WATER RESOURCES ENGINEERING DEPARTMENT				

W28-2IN-IRRIG-LAT.DWG

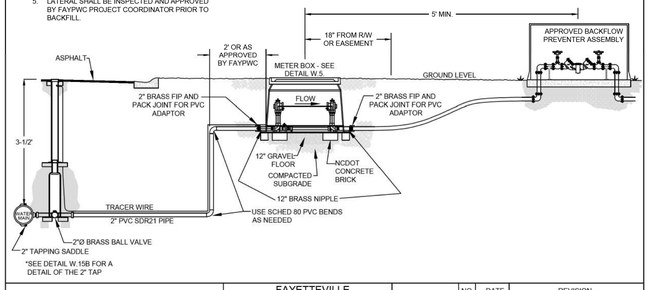
NOTES:
1. ALL MATERIALS SHALL BE APPROVED BY FAYPWC.
2. METER BOX SHALL NOT BE LOCATED WHERE H-20 LOADINGS CAN IMPACT BOX OR COVER.
3. FOR 2" IRRIGATION LATERAL INSTALLATION SEE FAYPWC DETAIL W.28.
4. DIMENSIONS ± 1/16 U.N.O.



JUMBO METER BOX FOR IRRIGATION N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.29	DWG. BY: FAYPWC	1	07/17	REVISED LID, BOX AND DIMENSIONS
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			
	WATER RESOURCES ENGINEERING DEPARTMENT				

W29-JUMBO-METERBOX-IRRIG.dwg

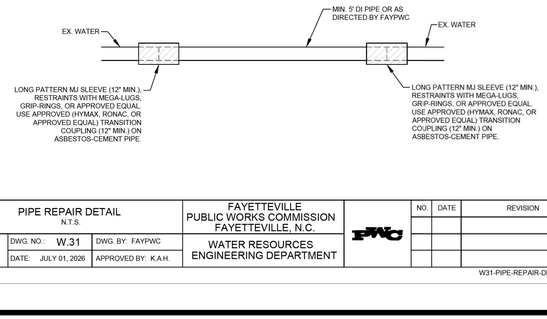
NOTES:
1. FOR USE WITH 1-1/2" OR 2" DOMESTIC METER.
2. METER BOX AND SETTER SHALL BE IN ACCORDANCE WITH FAYPWC DETAIL W.5.
3. MINIMUM 5' BETWEEN THE METER AND THE BACKFLOW PREVENTER.
4. IF THE METER BOX IS LOCATED LESS THAN 5' AWAY FROM THE MAIN, THE 2" PIPING AND FITTINGS SHALL BE BRASS FROM THE TAP TO THE METER.
5. LATERAL SHALL BE INSPECTED AND APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO BACKFILL.
6. ALL MATERIALS SHALL BE APPROVED BY FAYPWC.
7. LOCATION OF BOX SHALL BE AS DETERMINED BY FAYPWC PROJECT COORDINATOR. IN NO CASE SHALL BOX BE INSTALLED CLOSER THAN 5' TO BUILDING.
8. CONTRACTOR SHALL INSTALL TRACING WIRE INTO BOX. A MINIMUM OF 2' OF WIRE SHALL BE IN BOX.



2" DOMESTIC LATERAL N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.30	DWG. BY: FAYPWC	1	07/01/17	REVISED NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			
	WATER RESOURCES ENGINEERING DEPARTMENT				

W30-2IN-DOMESTIC-LATERAL.dwg

NOTES:
1. ALL PIPE AND FITTINGS SHALL BE APPROVED BY FAYPWC.
2. CONTRACTOR TO COORDINATE NECESSARY OUTAGES WITH FAYPWC AND AFFECTED CUSTOMERS. MINIMUM 48 HOUR NOTICE REQUIRED.
3. NEW WATER MAIN TO BE SWABBED WITH A CHLORINE SOLUTION AND FLUSHED PRIOR TO PLACING INTO SERVICE.
4. ALL NEW FITTINGS AND PIPE TO BE RESTRAINED UTILIZING MEGA-LUGS, GRIP-RINGS, OR APPROVED EQUAL.
5. ALL PIPES TO BE DUCTILE IRON.
6. FAYPWC PROJECT COORDINATOR TO BE PRESENT DURING WORK.
7. BACKFILL AND COMPACT IN ACCORDANCE WITH THE APPLICABLE AGENCY REQUIREMENTS.
8. PROVIDE STONE BEDDING (NO. 5 OR NO. 57 STONE) TO SUPPORT REPAIRED WATER MAIN, AS APPROVED BY FAYPWC PROJECT COORDINATOR.
9. MJ RESTRAINTS ARE NOT ALLOWED ON PVC PIPE.
10. DIMENSIONS ARE GIVEN AS GENERAL GUIDANCE. EXACT DIMENSIONS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS AND AS DIRECTED BY FAYPWC.
11. ALL MATERIALS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF FAYPWC.
12. PIPE REPAIR SHALL EXHIBIT STRAIGHT HORIZONTAL AND VERTICAL ALIGNMENT. DEFLECTIONS OF HORIZONTAL AND VERTICAL ALIGNMENT ARE NOT ACCEPTABLE.
13. THERE SHALL BE NO MORE THAN 1/4" SPACE BETWEEN THE EXISTING WATER MAIN AND THE REPLACEMENT PIPE AT EACH END.
14. DAMAGED SECTION SHALL BE CUT OUT WITHOUT DAMAGING THE PIPE TO REMAIN.
15. PIPE REPAIRS OF MATERIALS OTHER THAN SHOWN, SHALL BE AS DIRECTED BY FAYPWC.
16. THE MINIMUM LENGTH OF REPAIR SHALL BE 5 FEET, UNLESS OTHERWISE DIRECTED BY FAYPWC.



PIPE REPAIR DETAIL N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO.: W.31	DWG. BY: FAYPWC			
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.			
	WATER RESOURCES ENGINEERING DEPARTMENT				

W31-PIPE-REPAIR-DETAIL.dwg

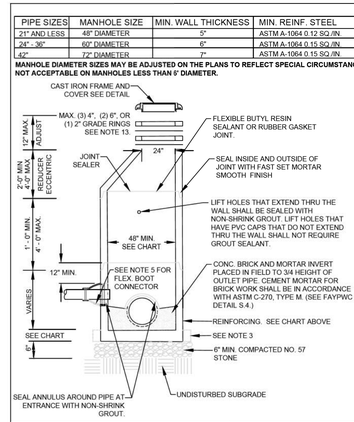
1. ALL SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYETTEVILLE FAYPWC STANDARDS.
2. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
3. CONSTRUCTION STAKING IS REQUIRED FOR ALL FAYPWC WATER AND SEWER UTILITY INSTALLATIONS. 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 FAYPWC.
    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 PREVENTS 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.

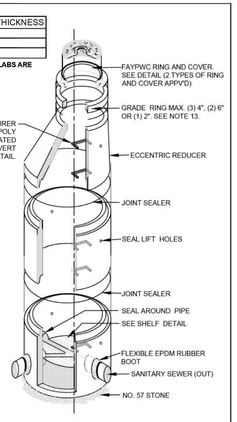
GENERAL NOTES SANITARY SEWER UTILITY	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.1	DWG. BY: FAYPWC	1	01/18	ADDED NOTES 5, 8
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	06/21	ADDED NOTES 1-8 AND RENUMBERED
	WATER RESOURCES ENGINEERING DEPARTMENT		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 6' 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: JULY 01, 2026	APPROVED BY: K.A.H.	2	07/13	ADDED SHEET 2 OF 2
	WATER RESOURCES ENGINEERING DEPARTMENT		3	01/01/24	CLARIFIED NOTES REGARDING MORTAR FOR BENCH AND INVERT.

S2-STANDARD-MANHOLE.dwg

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REVISIONS

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 FAYPWC 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.

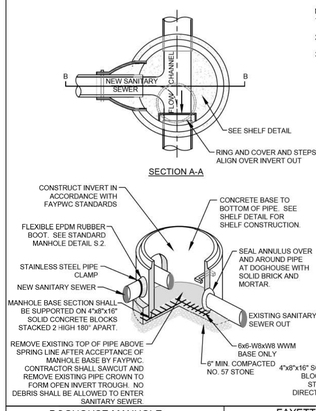
    FOR FOUR (4) INCH DUCTILE IRON LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL EITHER BE AS FOR VC OR 4.25-INCHES TO 4.81-INCHES.

    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	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: JULY 01, 2026	APPROVED BY: K.A.H.	2	01/01/19	REVISED NOTES 10, 18
WATER RESOURCES ENGINEERING DEPARTMENT			3	01/01/24	REVISED NOTES 5, 7, 16.

S2-STANDARD-MANHOLE.dwg



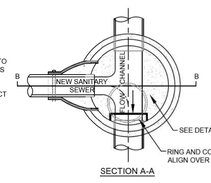
NOTES:
1. MANHOLE MEETS ALL REQUIREMENTS OF ASTM C478.
2. CONCRETE IS MINIMUM 4,000PSI COMPRESSIVE STRENGTH.
3. MATERIAL USED TO SEAL AROUND PIPE SHALL BE NON-SHRINK GROUT.
4. MANHOLE SHALL BE CONSTRUCTED OF PRECAST CONCRETE. FIBERGLASS MANHOLE IS NOT ACCEPTABLE.
5. A DROP STRUCTURE SHALL BE PLACED WHERE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

DOGHOUSE MANHOLE (MAINS 15" OR LESS) N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. S.3	DWG. BY: FAYPWC	1	11/25/08	MADE CHANGES TO NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	07/16	ADDED SHEET 2
WATER RESOURCES ENGINEERING DEPARTMENT					

S3-DOGHOUSE-MH.dwg

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'. 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.

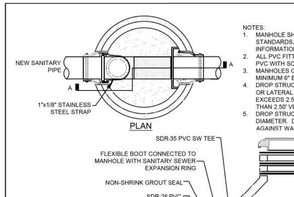
DOGHOUSE MANHOLE (MAINS 16" OR LARGER) N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. S.3	DWG. BY: FAYPWC	1	11/25/08	MADE CHANGES TO NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	07/16	ADDED SHEET 2
WATER RESOURCES ENGINEERING DEPARTMENT			3	01/01/19	ADDED MH CHART

S3-DOGHOUSE-MH.dwg

NOTES:
1. PIPE SLIDE REQUIRED WHERE VERTICAL SEPARATION BETWEEN PIPE INVERTS IS LESS THAN 2.5'. FOR LATERAL INVERTS AT OR WITHIN FOUR (4) INCHES OF THE SHELF, CONSTRUCT BENCH AND INVERT AS DIRECTED BY THE FAYPWC PROJECT COORDINATOR.
2. INTERIOR DROP STRUCTURE REQUIRED WHERE VERTICAL SEPARATION BETWEEN INVERTS EQUALS OR EXCEEDS 2.50'. FOR INTERIOR DROP STRUCTURE SEE FAYPWC DETAIL S.5.
3. VERIFY SLIDE INSTALLATION WITH PROJECT COORDINATOR PRIOR TO CONSTRUCTION.
4. MANHOLE AND CONNECTIONS SHALL BE IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
5. BRICK USED FOR INVERT AND SHELF CONSTRUCTION SHALL BE NCDOT STANDARD CONCRETE BRICK.
6. MANHOLES GREATER THAN 12' IN DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
7. THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1% UNLESS OTHERWISE APPROVED BY FAYPWC.
8. DROP AND/OR SLIDE REQUIREMENTS SHALL APPLY TO ALL LATERALS ENTERING MANHOLES AS OUTLINED IN NOTES 1, 2, AND 3. NO MORE THAN 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 INVERT OF THE LATERAL SHALL BE A MINIMUM OF 1" ABOVE THE SHELF.
9. NO MORE THAN 5 LATERALS SHALL ENTER A 5' DIAMETER TERMINAL MANHOLE.
10. USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.

PIPE SLIDE AND SHELF DETAILS N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.4	DWG. BY: FAYPWC	1	01/05	ADDED NOTE 8
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	02/07	REVISED NOTE 8, SLIDE DETAIL, ADDED NOTES 10, 11,12.
WATER RESOURCES ENGINEERING DEPARTMENT			3	01/18	DELETED MORTAR SLIDE, REVISED NOTES

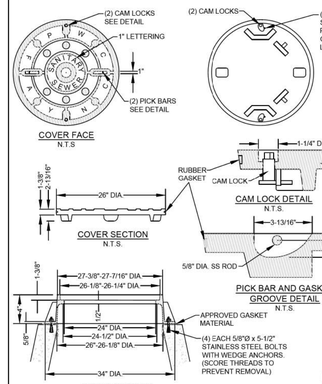
S4-PSLIDE.dwg



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. FLEXIBLE BOOT SHALL BE CONNECTED TO MANHOLE WITH STAINLESS STEEL EXPANSION RING. FLEXIBLE BOOT CONNECTORS SHALL CONFORM TO ASTM C-923 SPEC.
8. CONNECTIONS TO EXISTING MANHOLES SHALL HAVE CORE AND "BOOT" ONLY UNLESS APPROVED OTHERWISE BY FAYPWC PROJECT COORDINATOR
9. ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH FAYPWC STANDARDS.

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: JULY 01, 2026	APPROVED BY: K.A.H.	5	07/12	REVISED NOTES 5, 6, AND HUB ON INVERT.
WATER RESOURCES ENGINEERING DEPARTMENT			6	07/14	ADDED FORCE MAIN NOTE

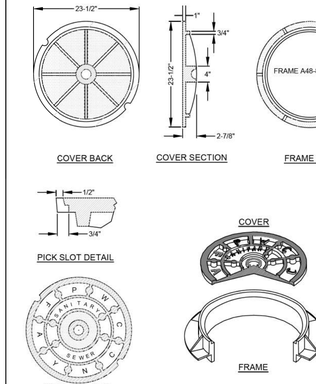
S5-DROP-MH.dwg



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 RING 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 SECTIONREVISED NOTE 3.
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	07/17	ADDED NOTE ON WEDGE CAM LOCKS
WATER RESOURCES ENGINEERING DEPARTMENT			3	01/18	UPDATED NOTES 7 AND 8

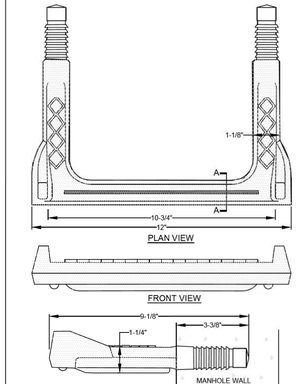
S6-RING-COVER.dwg



NOTES:
1. DETAIL TO BE USED IN PAVED AREAS ONLY. ALL OTHER MANHOLES SHALL BE IN ACCORDANCE WITH DETAIL S.6, UNLESS OTHERWISE APPROVED.
2. MANHOLE FRAME AND COVER SHALL BE MADE OF GRAY CAST IRON CONFORMING TO ASTM SPEC. A48-83 CL. 30/35 RESPECTIVELY, MANUFACTURED BY SAME MANUFACTURER. ALL CASTINGS SHALL CONFORM TO THE SHAPE AND DIMENSIONS SHOWN. THEY SHALL BE CLEAN AND PERFECT, WITHOUT BLOW OR SAND HOLES OR DEFECTS OF ANY KIND, TENDING TO IMPAIR THEIR STRENGTH. NO PLUGGING OR STOPPING OF DEFECTIVE HOLES WILL BE PERMITTED.
3. 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.
4. MANHOLE RING AND COVER SHALL WITHSTAND H-20 VEHICULAR TRAFFIC. ROCKING COVERS SHALL NOT BE ACCEPTABLE.
5. MINIMUM AVERAGE WEIGHT: PLUS OR MINUS 5% RING 175LBS., COVER 135LBS, UNIT 310LBS.
6. PERFORATED COVERS WILL NOT BE ALLOWED.

STANDARD TRAFFIC AREA MANHOLE RING AND COVER N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.7	DWG. BY: FAYPWC	1	01/05	CHANGED NON TRAFFIC DETAIL
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	2	07/06	ADDED NOTE ON CONCRETE COLLAR
WATER RESOURCES ENGINEERING DEPARTMENT			3	02/07	REMOVED NON TRAFFIC AREA AND REVISED NOTES
			4	07/08	REVISED ASPHALT THICKNESS

S7-RING-COVER.dwg



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.

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: JULY 01, 2026	APPROVED BY: K.A.H.			
WATER RESOURCES ENGINEERING DEPARTMENT					

S8-STEP.dwg

CDM Smith Inc.
4130 Parklake Avenue
Suite 350
Raleigh, NC 27612-4461
NC COA No. F-1255

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-03F
DESIGNED BY: SSM	
DRAWN BY: SSM	
CHECKED BY: HMH	
APPROVED BY: MAP	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	

Digitally signed by Heather Harkenrider
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CAROLINA PROFESSIONAL ENGINEER SEAL 035021 ENGINEER HEATHER HARKENRIDER
9/3/2026
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

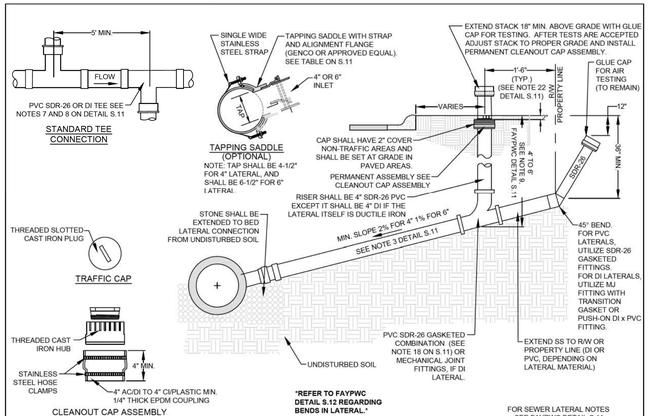
NOTE:
ANY REFERENCE TO FAYETTEVILLE PWC PROJECT COORDINATOR, PWC COORDINATOR OR FAYETTEVILLE PWC (FAYETTEVILLE PUBLIC WORKS COMMISSION) SHALL BE INTERPRETTED AS A REFERENCE TO THE ENGINEER.

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REVISIONS



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	PWC	2	01/14	ADDED TAILPIECE, NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	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.

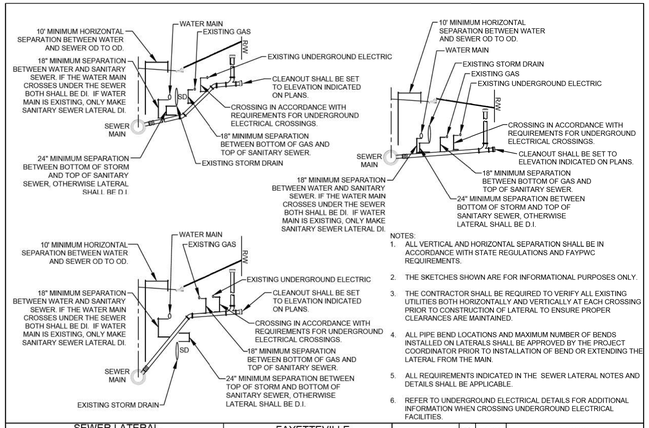
THE FOLLOWING TABLE SUMMARIZES THE MATERIALS TO BE UTILIZED FOR SEWER MAIN TO LATERAL CONNECTIONS:

	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.

SEWER LATERAL NOTES (4-INCH AND 6-INCH)		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.11	DWG. BY: FAYPWC	PWC	3	01/13	REVISED NOTES AND ADDED TABLE
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT	4	01/15	REVISED NOTE 22, TABLE
				5	07/18	REVISED NOTES 6, 9

S11-RESSLAT-NOTES.dwg

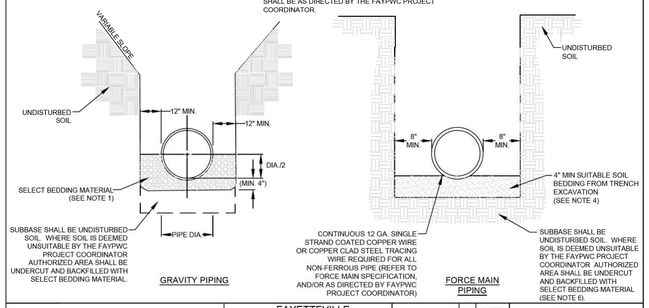


NOTES:
1. ALL VERTICAL AND HORIZONTAL SEPARATION SHALL BE IN ACCORDANCE WITH STATE REGULATIONS AND FAYPWC REQUIREMENTS.
2. THE SKETCHES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY.
3. THE CONTRACTOR SHALL BE REQUIRED TO VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY AT EACH CROSSING PRIOR 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	PWC	1	11/06	ADDED NOTE ON DI LATERALS
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	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.



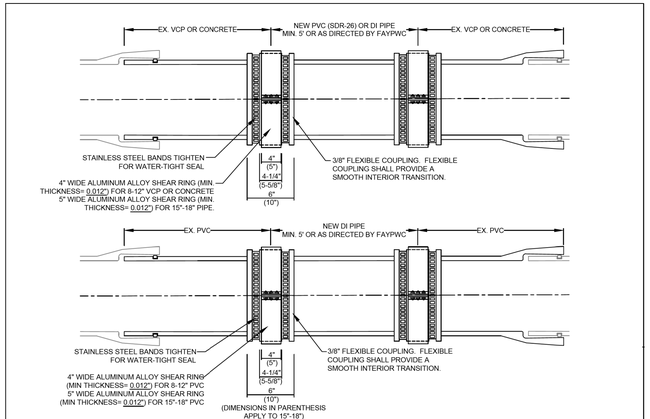
SEWER BEDDING N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.13	DWG. BY: FAYPWC	PWC	1	01/01/05	REVISED NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT	2	01/01/16	REVISED NOTES

S13-SEWER-BEDDING.dwg

NOTES:
1. SANITARY SEWER REPAIR SHALL BE APPROVED BY FAYPWC PRIOR TO MAKING THE REPAIR. IF THE REPAIR IS WITHIN 20' OF AN EXISTING MANHOLE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND RELAY PIPE TO NEAREST MANHOLE, UNLESS OTHERWISE DIRECTED BY FAYPWC.
2. ALL MATERIALS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE FAYETTEVILLE PUBLIC WORKS COMMISSION.
3. CONTRACTOR SHALL PROVIDE ALL NECESSARY PUMPS, HEADER PIPE, PUMPING EQUIPMENT, ETC. PRIOR TO BEGINNING CONSTRUCTION. DUPLICATE SEWAGE HANDLING PUMPS, PIPING, ETC. SHALL BE ON-SITE AND AVAILABLE FOR IMMEDIATE USE SHOULD PRIMARY PUMP OR FORCE MAIN FAIL. INSURE PUMPS, HEADER PIPING, ETC. ARE PROPERLY SIZED AND OPERATIONAL BEFORE BEGINNING WORK.
4. PIPE REPAIR SHALL EXHIBIT STRAIGHT HORIZONTAL ALIGNMENT AND INVERT SHALL BE THE SAME AS THE EXISTING PIPE SLOPE. DEFLECTIONS OF HORIZONTAL AND VERTICAL ALIGNMENT ARE NOT ACCEPTABLE.
5. PIPE SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH FAYPWC STANDARD SPECIFICATION.
6. REPLACEMENT PIPE SHALL BE PROPERLY BEDDED IN ACCORDANCE WITH FAYPWC STANDARD DETAIL S.13.
7. THERE SHALL BE NO MORE THAN 1/4" SPACE BETWEEN THE EXISTING SEWER MAIN AND THE REPLACEMENT PIPE AT EACH END.
8. DAMAGED SECTION SHALL BE CUT OUT WITHOUT DAMAGING THE PIPE TO REMAIN.
9. DI SEWER PIPE AND FITTINGS SHALL HAVE AN INTERIOR COATING OF PROTECTO 401 OR APPROVED EQUAL.
10. DI PIPE SHALL BE UTILIZED WHEN STATE MINIMUM SEPARATION REQUIREMENTS CANNOT BE MET OR AS DIRECTED BY FAYPWC.
11. PIPE REPAIRS ON MATERIALS OTHER THAN SHOWN, SHALL BE AS DIRECTED BY FAYPWC.
12. THE MINIMUM LENGTH OF REPAIR SHALL BE 5 FEET, UNLESS OTHERWISE DIRECTED BY FAYPWC.

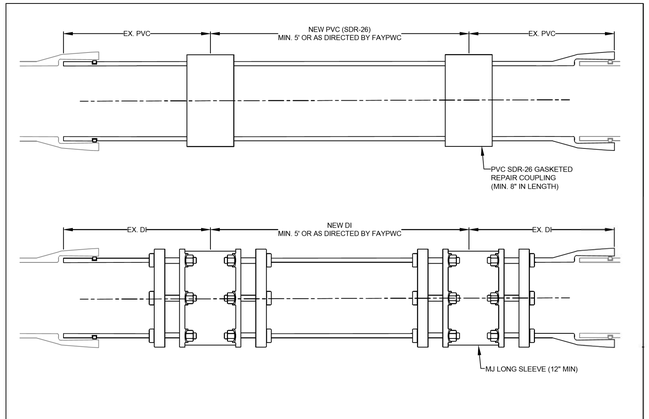
GRAVITY SANITARY SEWER PIPE REPAIR		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 3	DWG. NO. S.15	DWG. BY: FAYPWC	PWC	1	01/05	REVISED REPLACEMENT PIPE
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT	2	07/11	REVISED NOTES

S15-VCP-REPAIR.dwg



GRAVITY SANITARY SEWER PIPE REPAIR N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 2 OF 3	DWG. NO. S.15	DWG. BY: FAYPWC	PWC	1	01/05	REVISED REPLACEMENT PIPE
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT	2	07/11	REVISED NOTES

S15-VCP-REPAIR.dwg



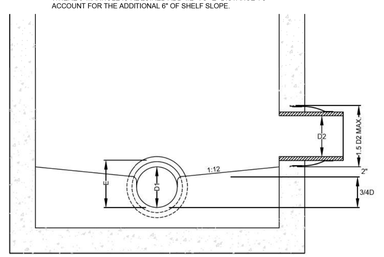
GRAVITY SANITARY SEWER PIPE REPAIR N.T.S.		FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 3 OF 3	DWG. NO. S.15	DWG. BY: FAYPWC	PWC	1	01/05	REVISED REPLACEMENT PIPE
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT	2	07/11	REVISED NOTES, REPAIRS

S15-VCP-REPAIR.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.



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.

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 SHALL BE AT THE SAME ELEVATION UNLESS CONDITIONS ARE PROHIBITIVE TO THIS PRACTICE.

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	PWC			
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT			

S18-PENETRATION-DETAIL.dwg

CDM Smith Inc.
4130 Parklake Avenue
Suite 350
Raleigh, NC 27612-4461
NC COA No. F-1255

PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-03G
DESIGNED BY: SSM	
DRAWN BY: SSM	
CHECKED BY: HMH	
APPROVED BY: MAP	
REVISED:	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 HEATHER HARKENRIDER
Digitally signed by Heather Harkenrider
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9/3/2026

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

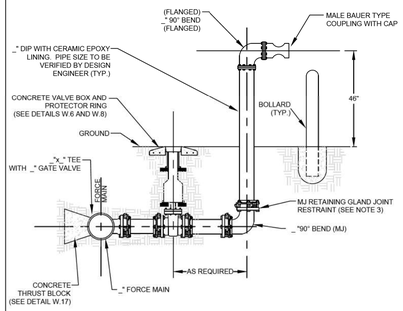
NOTE:
ANY REFERENCE TO FAYETTEVILLE PWC PROJECT COORDINATOR, PWC COORDINATOR OR FAYETTEVILLE PWC (FAYETTEVILLE PUBLIC WORKS COMMISSION) SHALL BE INTERPRETTED AS A REFERENCE TO THE ENGINEER.

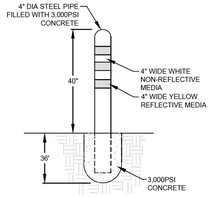
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REVISIONS





CONCRETE BOLLARD DETAIL

NOTES:
1. ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS.
2. ALL DUCTILE IRON PIPE SHALL HAVE AN INTERIOR LINING OF CERAMIC EPOXY (PROTECTO 401) OR APPROVED EQUAL.
3. ALL BELOW GRADE FITTINGS SHALL BE MECHANICAL JOINT WITH RETAINING GLAND JOINT RESTRAINT (IE: MEGA-LUGS).

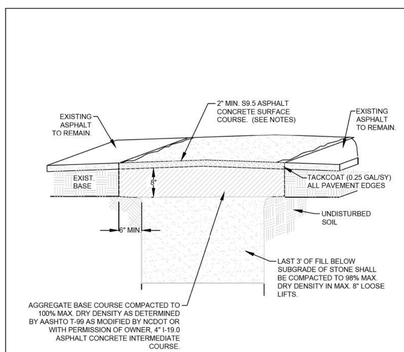
FORCE MAIN BY-PASS PUMPING ASSEMBLY N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.21	DWG. BY: FAYPWC			
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT		

S21-FORCE-MAIN-BY-PASS-PUMPING-ASSEMBLY.dwg

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 CCCURRENCE 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.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. M.1	DWG. BY: FAYPWC	1	07/10	REVISED, DELETED NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT		

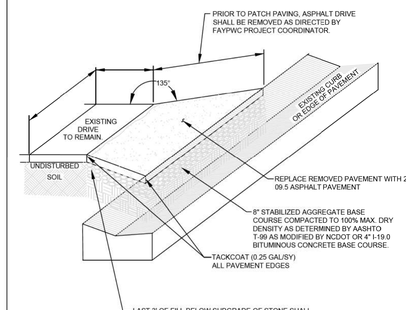
M1-PAVEMENT-REPAIR-NOTES.dwg



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 FAYPWC 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.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. M.2	DWG. BY: FAYPWC	1	01/07	CHANGED ASPHALT MIX
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT	2	08/10 REVISED, DELETED NOTES

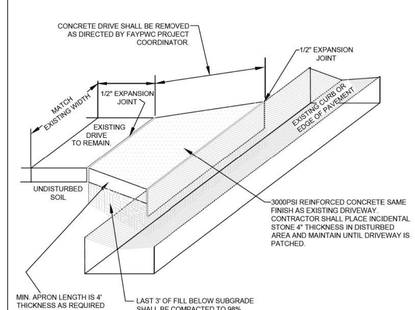
M2-PER-PATCH.dwg



NOTES:
1. CONTRACTOR SHALL PATCH PAVEMENT TO THE SAME PAVEMENT PROFILE AND SHAPE 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.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. M.4	DWG. BY: FAYPWC	1	08/10	REVISED, DELETED NOTES
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT		

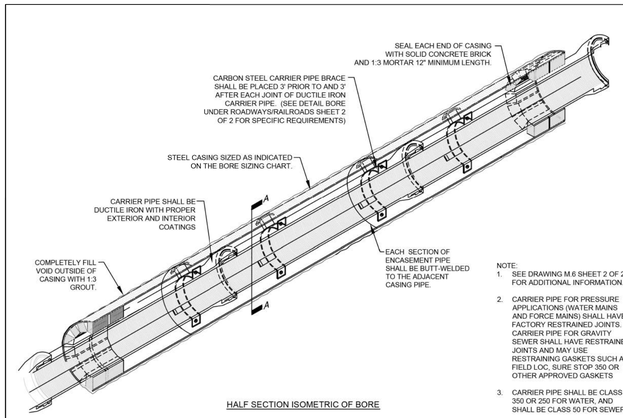
M4-ASPH-DRIVE-PATCH.dwg



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.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. M.5	DWG. BY: FAYPWC			
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT		

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.

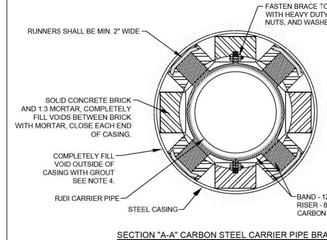
BORE UNDER ROADWAYS/RAILROADS N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. M.6	DWG. BY: FAYPWC	1	01/05	ADDED NOTES 2 AND 3
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT	2	10/09 CLARIFIED RESTRAINT REQUIREMENTS

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 BE ON 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.		NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. M.6	DWG. BY: FAYPWC	1	02/11/04	ADDED 6" CARRIER PIPE TO BORE SIZING CHART
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT	2	07/10 REVISED NOTES, SIZING CHART

M6-BORE-ROAD-RAIL.dwg

1. BOTTOM OF TRENCH SHALL BE FREE OF LOOSE ROCK. SOLID ROCK AT BOTTOM OF TRENCH SHALL BE COVERED WITH 4 INCH LAYER OF COMPACTED SOIL. IF SOLID ROCK IS ENCOUNTERED AT A DEPTH LESS THAN SPECIFIED, CONSULT ENGINEER. IF TRENCH CROSSES FILL DIRT, BOTTOM OF TRENCH SHALL BE COMPACTED BEFORE INSTALLING ANY CABLE.
2. BACKFILL SHALL BE FREE OF ROCK AND DEBRIS. TAMP THE FIRST 12 INCHES OF BACKFILL ABOVE DIRECT BURIED FEEDER CABLES. TAMP THE FIRST 6 INCHES OF BACKFILL FOR ALL OTHER CABLES. ENTIRE TRENCH DEPTH SHALL BE TAMPED FOR RESIDENTIAL SERVICE LATERALS, UNDER AREAS TO BE PAVED, AND ALL STREET CROSSINGS. TAMPED MEANS SOIL COMPACTION TO THAT OF UNDISTURBED EARTH USING ALTERNATE BACKFILL AND TAMPING. IN ALL OTHER CASES UNLESS SPECIFIED BY THE ENGINEER, BACKFILLS ABOVE THE BOTTOM TAMPED LAYER SHALL BE COMPACTED SUCH THAT WASHING AND SETTLING OF THE TRENCH SURFACE SHALL NOT OCCUR.
3. REFER TO SPECIFICATIONS FOR COMPLETER INSTALLATION.
4. ALL WORK SHALL BE PLANNED AND COORDINATED WITH THE AFFECTED UTILITY PROVIDER.
5. ALL WORK SHALL BE PERFORMED BY OR UNDER THE DIRECT SUPERVISION OF A LICENSED ELECTRICAL CONTRACTOR.
6. UTILITY PROVIDER WILL BE RESPONSIBLE FOR SECTIONALIZING AND DE-ENERGIZING THE CONDUCTOR.
7. ALL AFFECTED OUTAGE CUSTOMERS SHALL BE NOTIFIED IN WRITING 48 HOURS IN ADVANCE. OUTAGE SHALL BE KEPT TO A MAXIMUM OF 2 HOURS PER HOUSEHOLD.
8. ALL MATERIALS SHALL BE IN ACCORDANCE WITH N.E.C. REQUIREMENTS.
9. CONTRACTOR SHALL UTILIZE ALL SAFETY PROCEDURES PER NATIONAL ELECTRIC SAFETY CODE AND O.S.H.A.
10. ELECTRICAL CABLES DAMAGED DUE TO UNCOVERING CONDUCTORS, THE UTILITY PROVIDER SHALL REPAIR AT THE CONTRACTORS EXPENSE.

ELECTRICAL NOTES DETAIL	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. M.9	DWG. BY: FAYPWC	1	07/23/03	DELETED NOTE 1 AND RENUMBERED SHEET
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.	WATER RESOURCES ENGINEERING DEPARTMENT		

M9-ELEC-DETAILS.dwg

CDM Smith	CDM Smith Inc. 4130 Parklake Avenue Suite 350 Raleigh, NC 27612-4461 NC COA No. F-1255	PROJECT REFERENCE NO.	SHEET NO.
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		REVISED:	
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		UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 HEATHER HARKENRIDER
Docusigned by: Heather Harkenrider 2D7DFCB1728B4AD...
9/3/2026

UTILITY CONSTRUCTION PLANS ONLY

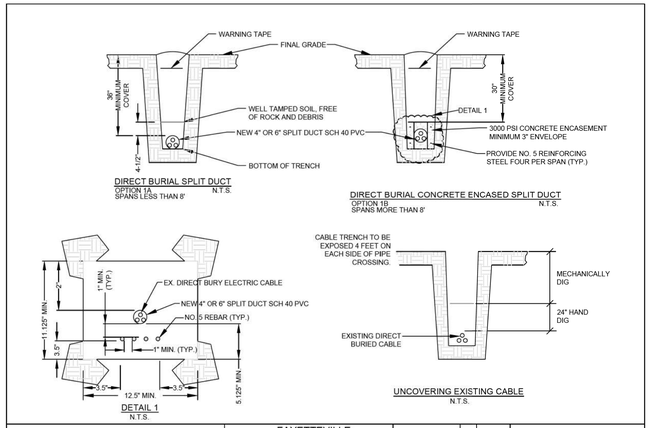
UTILITY CONSTRUCTION

NOTE:

ANY REFERENCE TO FAYETTEVILLE PWC PROJECT COORDINATOR, PWC COORDINATOR OR FAYETTEVILLE PWC (FAYETTEVILLE PUBLIC WORKS COMMISSION) SHALL BE INTERPRETTED AS A REFERENCE TO THE ENGINEER.

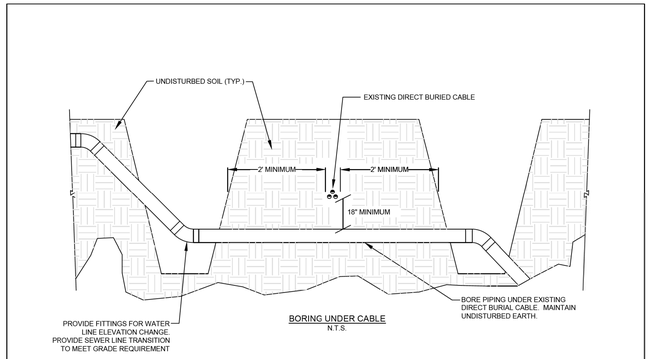
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UNDERGROUND ELECTRIC CABLE BURIAL AND UNCOVERING DETAIL N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. M.10	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT		1	07/23/03	ADDED DETAIL 1, RENUMBERED SHEET
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.					

M10-ELEC-DETAILS.dwg



BORING UNDER ELECTRIC CABLE DETAIL N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. M.11	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT		1	07/23/03	RENUMBERED SHEET
	DATE: JULY 01, 2026	APPROVED BY: K.A.H.					

M11-ELEC-DETAILS.dwg

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CDM Smith Inc.
4130 Parklake Avenue
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NC COA No. F-1255

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 ENGINEER HEATHER HARKENRIDER
Digitally signed by Heather Harkenrider
2D70FCB1728B40...
9/3/2026

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

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ANY REFERENCE TO FAYETTEVILLE PWC PROJECT COORDINATOR, PWC COORDINATOR OR FAYETTEVILLE PWC (FAYETTEVILLE PUBLIC WORKS COMMISSION) SHALL BE INTERPRETTED AS A REFERENCE TO THE ENGINEER.

REVISIONS

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 HEATHER HARKENRIDER
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8/29/2026

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

PROP. FIRE HYDRANT
11 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE
12"X6" TEE

REMOVE FIRE HYDRANT

PROP. 140 LF OF 12" DI WATER LINE
WL-1

ABANDON 80 LF OF 12" UTILITY PIPE

EXISTING WATERLINE ABANDONED IN PHASE A

EX. 12" VALVE

PROP. PHASE A WATER LINE
WL-1

PROP. PHASE A WATER LINE
WL-13

EX. 12" DI WATER LINE

PROP. PHASE A WATER LINE
WL-2

EX. 8" DI WATER LINE

EX. 8" VALVE

PROP. 142 LF OF 8" DI WATER LINE
WL-2

MATCHLINE SHEET UC-11 -L- STA. 116+00.00

NAD 83/2011

SR 1003 (CAMDEN RD)

SEPTIC SYSTEM

SEPTIC DRAIN FIELD APPROXIMATE LOCATION

NOTES: ADJUST ALL VALVES, PLUG VALVES, AND COMBINATION AIR VALVES TO FILL
NOTES: CONTRACTOR SHALL REMOVE BLOWOFF VALVE ASSEMBLIES AS REQUIRED TO CONNECT PROPOSED WATER LINE TO EXISTING WATER LINE/VALVE

SEE SHEET UC-28 FOR -WL1- PROFILE
SEE SHEET UC-31 FOR -WL2- PROFILE

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 325 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

50' 25' 0' 50' 100'
PLANS

-SYSTIME-
USER: HHARKENRIDER

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PROJECT REFERENCE NO.	SHEET NO.
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 HEATHER HARKENRIDER 8/29/2026

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

NAD 83/2011

MATCHLINE SHEET UC-18 -Y3- STA. 36+50.00

MATCHLINE SHEET UC-10 -L- STA. 116+00.00

MATCHLINE SHEET UC-12 -L- STA. 128+00.00

11.25° BEND (HORZ.)

REMOVE FIRE HYDRANT

ABANDON 545 LF OF 16" UTILITY PIPE

REMOVE WATER METER

REMOVE 16' OF 2" WATERLINE

PROP. 1" WATER METER
PROP. 43 LF OF 1" WATER SERVICE LINE

PROP. 569 LF OF 16" DI WATER LINE
WL-5

PROP. 12 LF OF 2" WATER LINE
W/ PWC SAMPLING STATION

11.25° BEND (HORZ.)

PROP. 26 LF OF 1" WATER SERVICE LINE
RECONNECT WATER METER

PROP. OPEN CUT OF 142 LF 24" ENCASEMENT PIPE

PROP. FIRE HYDRANT
44 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE

16"X6" TEE

PROP. 2" BLOW OFF
PROP. 44 LF OF 2" WATER SERVICE LINE

11.25° BEND (HORZ.)

45° BEND (HORZ.)

45° BEND (HORZ.)

REMOVE FIRE HYDRANT

REMOVE WATER METER

PROP. FIRE HYDRANT, 19 LF OF FIRE HYDRANT LEG, PROP. 6" VALVE

11.25° BEND (HORZ.)

2-45° BEND (HORZ.)
40'X20' BORE PIT
12"x8" TEE
45° BEND (HORZ.)
8" VALVE
12" VALVE
45° BEND (HORZ.)

12"X6" TEE
11.25° BEND (HORZ.)
22.5° BEND (HORZ.)
11.25° BEND (HORZ.)

PROP. 1,179 LF OF 12" DI WATER LINE
WL-1

ABANDON 1,193 LF OF 12" UTILITY PIPE

PROP. FIRE HYDRANT
11 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE
8"X6" TEE

45° BEND (HORZ.)
45° BEND (HORZ.)

45° BEND (HORZ.)
8" VALVE
45° BEND (HORZ.)
2 - 45° BEND (HORZ.)

PROP. 2" WATER METER
25 LF OF 2" WATER SERVICE LINE
PROP. RPZ BACKFLOW PREVENTION ASSEMBLY

PROP. 36 LF OF JACK AND BORE,
91 LF OF 16" ENCASEMENT,
107 LF OF 8" DI WATER LINE
WL-13

PROP. 1,000 LF OF 8" DI WATER LINE
WL-2

8" VALVE

8"x8" TEE

20'X20' RECEIVING PIT

PROP. 214 LF OF 12" DI WATER LINE
WL-2

16"X12" MJ REDUCER

PROP. OPEN CUT OF 144 LF 16" ENCASEMENT PIPE

PROP. 51 LF OF 16" DI WATER LINE
WL-1

2 - 45° BEND (HORZ.)

PROP. FIRE HYDRANT
16 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE

12"X6" TEE

12"X8" MJ REDUCER

SEPTIC SYSTEM

SR 1003 (CAMDEN RD)

SR 1112 (FISH RD)

(APPLEGATE ROAD)

-DI- (DRIVEWAY 1)

110 ARMERLINE KING DB 9270 PG 704

114 STARLETH WOODLE DB 2628 PG 441

115 AGNES K. LOWDER TRUSTEE DB 1551 PG 492

116 THOMAS L. [illegible] DB 8115 PG 543

117 CROSSROAD PROPRIETARY INVESTMENTS, LLC. DB 11824 PG 1215

118 LAJOS GOCZAN DB 6515 PG 189

120 MARION R. STABLER DB 92 PB 39 PG 12

232 STONEY POINT BAPTIST CHURCH, INC. DB 8983 PG 476

100 STUART HITE, ET UX DB 2590 PG 325

111 MICHAEL MANGUM, ET AL DB 4564 PG 59 PB 92 PG 187

112 NEW LIFE [illegible] VILLE TRUSTEES DB 9523 PG 11

113 CAM ROCKS, LLC DB 8348 PG 101 DB 9513 PG 790 PB 123 PG 29

SEE SHEET UC-28 FOR -WL1- PROFILE
SEE SHEET UC-31 - UC-32 FOR -WL2- PROFILE
SEE SHEET UC-38 FOR -WL5- PROFILE
SEE SHEET UC-39 FOR -WL13- PROFILE

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 5,495 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

NOTES: ADJUST ALL VALVES, PLUG VALVES, AND COMBINATION AIR VALVES TO FILL

NOTES: 16" WATER LINE, PROPOSED STORM, AND PROPOSED POWER POLES MAYBE WITHIN TYPICAL MINIMUM SEPERATION DISTANCE, BE AWARE FOR CONSTRUCTION STAGING.

CDM Smith
CDM Smith Inc.
4130 Parklake Avenue
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NC COA No. F-1255

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SEE SHEET UC-28 - UC-29 FOR -WL1- PROFILE
SEE SHEET UC-32 FOR -WL2- PROFILE
SEE SHEET UC-34 FOR -WL3- PROFILE
SEE SHEET UC-38 FOR -WL5- PROFILE
SEE SHEET UC-40 FOR -WL22- PROFILE

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 6,175 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

NOTES: 16" WATER LINE, PROPOSED STORM, AND PROPOSED POWER POLES MAYBE WITHIN TYPICAL MINIMUM SEPERATION DISTANCE, BE AWARE FOR CONSTRUCTION STAGING.
NOTES: ADJUST ALL VALVES, PLUG VALVES, AND COMBINATION AIR VALVES TO FILL

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Raleigh, NC 27612-4461
NC COA No. F-1255

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U-3422B	UC-12
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DRAWN BY: SSM	
CHECKED BY: HMH	
APPROVED BY: MAP	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 HEATHER HARKENRIDER
Documents prepared by: CDM Smith
8/29/2026

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

NAD 83/2011

MATCHLINE SHEET UC-11 -L- STA. 128+00.00

MATCHLINE SHEET UC-13 -L- STA. 142+00.00

2-45° BEND (HORZ.)
PROP. 1,406 LF OF 16" DI WATER LINE
WL-1
PROP. 83 LF OF 16" DI WATER LINE
WL-5
ABANDON 1,425 LF OF 16" UTILITY PIPE
11.25° BEND (HORZ.)
16" VALVE
ADJUST TO FILL
45° BEND (HORZ.)
16" VALVE
ADJUST TO FILL
16"X16" TEE
ABANDON 179 LF OF 12" UTILITY PIPE
ABANDON 605 LF OF 12" UTILITY PIPE
PROP. 1" WATER METER
10 LF OF WATER SERVICE LINE
PROP. 940 LF OF 12" DI WATER LINE
WL-2
11.25° BEND (HORZ.)
11.25° BEND (HORZ.)
PROP. FIRE HYDRANT
11 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE
12"X6" TEE
PROP. 1" WATER METER
33 LF OF WATER SERVICE LINE
PROP. 1" RPZ BACKFLOW PREVENTION ASSEMBLY
12"x12" TEE
12" VALVE
2-PROP. 1" WATER METER
39 LF OF WATER SERVICE LINE
ABANDON 104 LF OF 12" UTILITY PIPE
12" VALVE
-WL22- STA. 10+61.28
TIE-IN TO EXIST. 12" RJDI WATER LINE
W/RESTRAINING GLANDS & CONCRETE THRUST BLOCK
-D2- STA. 10+71.63 (20.28' LT)
W/ LONG PATTERN SOLID SLEEVE
2 SDR21
REMOVE FIRE HYDRANT
45° BEND (HORZ.)
22.5° BEND (HORZ.)
16" VALVE
20'X20' RECEIVING PIT
16"x8" TEE
8" VALVE
2 - 22.5° BEND (HORZ.)
PROP. FIRE HYDRANT
19 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE
16"X6" TEE
PROP. 97 LF 16" ENCASEMENT PIPE
53 LF BORE AND JACK OF 16" ENCASEMENT
WL-3
8" VALVE
90° BEND (HORZ.)
35'X20' BORE PIT
REMOVE FIRE HYDRANT
ABANDON 221 LF OF 6" UTILITY PIPE
PROP. FIRE HYDRANT
11 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE
8"X6" TEE
PROP. 687 LF OF 8" DI WATER LINE
WL-3
PROP. 61 LF OF 12" DI WATER LINE
WL-22
11.25° BEND (HORZ.)

SR 1003 (CAMDEN RD)
SR 1112 (ROCKFISH RD)
(DEAVER CIR)
-L-
-Y5-

MATCHLINE SHEET UC-19 -Y5- STA. 14+50.00

CAM ROCKS, LLC DB 8348 PG 101 DB 953 PG 790 PB 123 PG 29
DOROTHY R. ENNIS DB 2369 PG 211
DOROTHY R. ENNIS DB 2463 PG 531
DOROTHY R. ENNIS DB 2359 PG 569
McCAULEY & McDONALD INVESTMENTS, INC. DB 2775 PG 223 DB 9567 PG 21
CONGREGATIONAL CHRISTIAN CHURCH IN AMERICAN SAMOA DB 8451 PG 52
SHARON ANN EDWARDS DB 6777 PG 77
E. KOONCE, ET AL 489 PG 270 PB 0640 PG 65
SABRINA HAYWORTH, ET VIR DB 8940 PG 160 PB 25 PG 74
MELISSA HAM, ET VIR DB 8809 PG 691 PB 88 PG 128
MARY J. FLOWERS DB 8285 PG 892 PB 88 PG 128
LOIS LONG LEWIS DB 8664 PG 621 PB 25 PG 74
BELINDA YOWELL DB 4552 PG 194 PB 25 PG 74

50' 25' 0' 50' 100'
PLANS

SYSTIME
USER: HMH2426 FILE: pdu12_UC12_psh.dgn

Docusign Envelope ID: 37DB0019-2995-8053-83A2-05A5BEBEC038

5/14/99

CDM Smith
CDM Smith Inc.
4130 Parklake Avenue
Suite 350
Raleigh, NC 27612-4461
NC COA No. F-1255

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PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-13

DESIGNED BY:	SSM
DRAWN BY:	SSM
CHECKED BY:	HMH
APPROVED BY:	MAP
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 HEATHER HARKENRIDER
Documents signed by: Heather Harkenrider 207DFC81728844D...
8/29/2026

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

NAD 83/2011

CITY LIMIT OF FAYETVILLE
TOWN OF HOPE MILLS
TOWN LIMIT OF HOPE MILLS

MATCHLINE SHEET UC-12 –L– STA. 142+00.00

MATCHLINE SHEET UC-14 –L– STA. 156+00.00

SR 1003 (CAMDEN RD)

145+00
150+00
155+00

(BROWN RD)

SEPTIC SYSTEM

MELISSA HAM, ET VIR
DB 8809 PG 691
PB 88 PG 128

JOHN P. SCHNEIDER, ET UX
DB 11037 PG 478
DB 11039 PG 185
PB 104 PG 195

STEPHEN DOLLINGER, ET UX
DB 11403 PG 557
PB 104 PG 195

KEITH STOUGH, ET UX
DB 6584 PG 546

PHILLIP PATE
DB 11218 PG

SPRINGS PROPERTY MANAGEMENT, LLC
DB 11474 PG 239

DANIEL C. BROWN
DB 2727 PG 63

SPRINGS PROPERTY MANAGEMENT, LLC
DB 10299 PG 393

JEFFREY W. WRIGHT
DB 10477 PG 092

JAE KUN CHOE
DB 6426 PG 830
PB 97 PG 69

JAMES KENNETH

LUISE P. SIMMONS, HEIRS
DB 1034 PG 365
PB 25 PG 74

CORBETT, ET
DB 4656 PG 841
PB 25 PG 74

STEVEN GAYNOR
DB 11594 PG 353
PB 25 PG 74

JAMES C. EMANUELE
DB 4680 PG 440

TRACEY LAURELES, ET VIR
DB 9310 PG 104
PB 65 PG 56

REFUEL OPERATING COMPANY, LLC

VERTEX PROPERTIES, LLC
DB 11235 PG 747
PB 142 PG 138

135 136 139 140 141 142 143 144 145 146 147 149 150 152 153 154 156 157 158 159

PROP. 1" WATER METER
17 LF OF WATER SERVICE LINE

REMOVE FIRE HYDRANT

ABANDON 1,400 LF OF 16" UTILITY PIPE

PROP. FIRE HYDRANT
20 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE

16"X6" TEE

PROP. 1,400 LF OF 16" DI WATER LINE
WL-1

PROP. 1" WATER METER
17 LF OF WATER SERVICE LINE

2 - 45° BEND (HORZ.)

PROP. FIRE HYDRANT
11 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE

8"X6" TEE

2 - 45° BEND (HORZ.)

PROP. 1" WATER METER
5 LF OF WATER SERVICE LINE

PROP. 1" WATER METER
5 LF OF WATER SERVICE LINE

2 - 45° BEND (HORZ.)

8 LF OF 1" WATER SERVICE LINE
RECONNECT WATER METER

PROP. 1" WATER METER
14 LF OF WATER SERVICE LINE

PROP. 1,420 LF OF 8" DI WATER LINE
WL-3

ABANDON 77 LF OF 16" UTLITY PIPE

36 LF OF 2-1" WATER SERVICE LINES
RECONNECT 2 WATER METERS

PROP. FIRE HYDRANT
10 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE

8"X6" TEE

16"X6" TEE

PROP. FIRE HYDRANT
10 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE

REMOVE FIRE HYDRANT

ABANDON 73 LF OF 8" UTILITY PIPE

RETAIN EXIST WATERLINE
REMOVE 449 LF OF 8" UTILITY PIPE

PROP. 1" WATER METER
31 LF OF WATER SERVICE LINE
PROP. 1" RPZ BACKFLOW PREVENTION ASSEMBLY

SEPTIC TANK EXISTS

SEPTIC SYSTEM

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 2,310 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-29 FOR -WL1- PROFILE
SEE SHEET UC-34 FOR -WL2- PROFILE
SEE SHEET UC-31 - UC-32 FOR -WL3- PROFILE

NOTES: ADJUST ALL VALVES, PLUG VALVES, AND COMBINATION AIR VALVES TO FILL

NOTES: 16" WATER LINE, PROPOSED STORM, AND PROPOSED POWER POLES MAYBE WITHIN TYPICAL MINIMUM SEPERATION DISTANCE, BE AWARE FOR CONSTRUCTION STAGING.

MATCHLINE BB SHEET 13A

50' 25' 0' 50' 100'
PLANS

USER: HWARE2 -SYSTIME
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NC COA No. F-1255

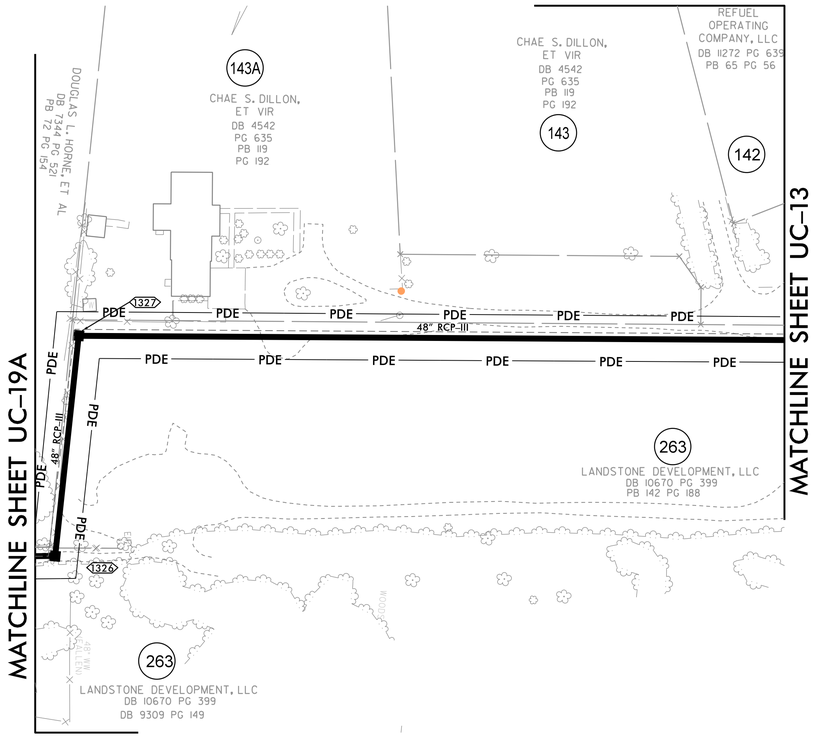
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UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-13A
DESIGNED BY: SSM	
DRAWN BY: SSM	
CHECKED BY: HMH	
APPROVED BY: MAP	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA
PROFESSIONAL
SEAL
035021
ENGINEER
HEATHER HARKENRIDER
Digitally signed by Heather Harkenrider
2070FCB1728B4FD...
8/29/2026

NAD 83/2011

UTILITY CONSTRUCTION



SYSTIME
USER:
LOG:
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Suite 350
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NC COA No. F-1255

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PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-14W

DESIGNED BY:	SSM
DRAWN BY:	SSM
CHECKED BY:	HMH
APPROVED BY:	MAP
REVISED:	

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UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 HEATHER HARKENRIDER
Digitally signed by Heather Harkenrider
2070FC81726E4F0...
8/29/2026

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION WATER ONLY

NAD 83/2011

MATCHLINE SHEET UC-13 –L– STA. 156+00.00

MATCHLINE SHEET UC-15 –L– STA. 170+00.00

TOWN OF HOPE MILLS

CITY LIMIT OF FAYETTEVILLE

TOWN LIMIT OF HOPE MILLS

-WL15- STA. 10+39.33
TIE-IN TO EXIST. 8" DI RJ WATER LINE
W/ RESTRAINING GLANDS
-L- STA. 157+43.63 (89.06' LT)
W/ LONG PATTERN SOLID SLEEVE

RETAIN EXIST. WATERLINE

PROP. 40 LF OF 8" WATER LINE
WL-15

45° BEND (HORZ.)

45° BEND (HORZ.)

ABANDON 57 LF OF 8" UTILITY PIPE

16" VALVE

2 - 45° BEND (HORZ.)

2 - 45° BEND (HORZ.)

2 - 45° BEND (HORZ.)

2 - 45° BEND (HORZ.)

ABANDON 1,397 LF OF 16" UTILITY PIPE

PROP. FIRE HYDRANT
10 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE

16"X6" TEE

PROP. 4 LF OF 8" DI WATER LINE

16"x8" TEE

REMOVE / FIRE HYDRANT

8" DI WATER LINE (BY OTHERS)

45 ° BEND (HORZ.)

2 - 22.5° BEND (HORZ.)

16"x8" TEE

8" VALVE

40'X20' BORE PIT

PROP. 87 LF OF 8" DI WATER LINE
47 LF BORE AND JACK
OF 76 LF OF 16" ENCASEMENT
WL-17

16" VALVE

20'X20' RECEIVING PIT

PROP. 1,417 LF OF 16" WATER LINE
WL-1

2 - 11.25° BEND (HORZ.)

2" COMBINATION AIR VALVE

ABANDON 91 LF OF 8" UTILITY PIPE

11.25° BEND (HORZ.)

PROP. 1" WATER METER
31 LF OF WATER SERVICE LINE

11.25° BEND (HORZ.)

ABANDON 589 LF OF 8" UTILITY PIPE

20 LF OF WATER SERVICE LINE RECONNECT WATER METER

PROP. FIRE HYDRANT
11 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE

8"X6" TEE

REMOVE FIRE HYDRANT

32 LF OF WATER SERVICE LINE RECONNECT WATER METER

PROP.20 LF OF WATER SERVICE LINE RECONNECT 2 METERS

45° BEND (HORZ.)

-WL16- STA. 10+26.87
TIE-IN TO EXIST. 8" DI RJ WATER LINE
W/ RESTRAINING GLANDS
-L- STA. 162+94.50 (77.44' RT)
W/ LONG PATTERN SOLID SLEEVE

8"x8" TEE

45° BEND (HORZ.)

8" VALVE

45° BEND (HORZ.)

8"x8" TEE

8" VALVE

45° BEND (HORZ.)

PROP. 27 LF OF 8" WATER LINE
WL-16

8" VALVE

PROP. FIRE HYDRANT
16 LF OF FIRE HYDRANT LEG
PROP. 6" VALVE

8"X6" TEE

PROP. 1,412 LF OF 8" WATER LINE
WL-3

PROP. 1" WATER METER
14 LF OF WATER SERVICE LINE
PROP. 1" RPZ BACKFLOW PREVENTION ASSEMBLY

RETAIN EXIST WATERLINE

SR 3300 (SOUTH PEAK DR)

SR 1003 (CAMDEN RD)

(HARRISBOUR DR)

(ELLIS JACKSON RD)

(WHEELER RD)

KENSINGTON VILLAGE HOMEOWNERS ASSOCIATION OF FAYETTEVILLE, INC.
PB 97 PG 69

JAE KUN CHOE
DB 6426 PG 830
PB 97 PG 69

JOHN S. CARRO
DB 7605 PG 757
PB 97 PG 69

WICHAI LEECHAROEN, ET UX
DB 9669 PG 524
PB 97 PG 69

UTRIE L. PERRY, ET UX
DB 5758 PG 500
PB 97 PG 69

DANIEL N. NORTON, ET UX
DB 2594 PG 169
PB

GARDNER HOLDINGS, LLC.
DB 11391 PG 378
PB 7 PG 78

LANDSTONE, LLC.
DB 11235 PG 753
PB 125 PG 194

CYNDILEE MCKINNEY

MDC NC3, LP
DB 11314 PG 405
DB 10261 PG 493
PB 125 PG 194

VERTEX PROPERTIES, LLC.
DB 8235 PG 747
PB 142 PG 138

EL TIO INVESTMENTS, LLC
DB 8689 PG 571
PB 129 PG 161

NOTES: 16" WATER LINE, PROPOSED STORM, AND PROPOSED POWER POLES MAYBE WITHIN TYPICAL MINIMUM SEPERATION DISTANCE, BE AWARE FOR CONSTRUCTION STAGING.

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 9,875 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

NOTES: CONTRACTOR SHALL COORDINATE WITH NCDOT REGARDING SPACE NEEDS FOR BORE PITS DURING CONSTRUCTION WHERE PITS ARE PROPOSED IN EXISTING ROADWAYS.

SEE SHEET UC-29 - UC-30 FOR -WL1- PROFILE
SEE SHEET UC-34 - UC-35 FOR -WL2- PROFILE
SEE SHEET UC-31 - UC-32 FOR -WL3- PROFILE
SEE SHEET UC-39 FOR -WL15- PROFILE
SEE SHEET UC-39 FOR -WL16- PROFILE
SEE SHEET UC-39 FOR -WL17- PROFILE
SEE SHEET UC-41 FOR -FSS-3- PROFILE

NOTES: ADJUST ALL VALVES, PLUG VALVES, AND COMBINATION AIR VALVES TO FILL

50' 25' 0' 50' 100'
PLANS

SYSTIME = 5/14/99
USER:\\DAEZ2KB1\Projects\U-3422B\Roadway\Utility\U-3422B_rdy14_UC14W_psh.dgn

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CDM Smith

CDM Smith Inc.
4130 Parklake Avenue
Suite 350
Raleigh, NC 27612-4461
NC COA No. F-1255

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PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-14S
DESIGNED BY: SSM	
DRAWN BY: SSM	
CHECKED BY: HMH	
APPROVED BY: MAP	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 HEATHER HARKENRIDER
Digitally signed by Heather Harkenrider
2070FC8172894A0...
8/29/2026

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION SEWER ONLY

NAD 83/2011

TOWN OF HOPE MILLS
CITY LIMIT OF FAYETTEVILLE
TOWN LIMIT OF HOPE MILLS

MATCHLINE SHEET UC-13 -L- STA. 156+00.00

MATCHLINE SHEET UC-15 -L- STA. 170+00.00

RETAIN 8" SDR26 SANITARY SEWER MAIN

RETAIN EXIST SS SYSTEM

ABANDON 77 LF OF 8" UTILITY PIPE

-FSS3- STA. 10+00.00 TIE-IN TO EXIST. MANHOLE (EXSSMH-20)

-L- STA. 162+34.85 (66.06' RT)

8" VALVE

45° BEND (HORZ.)

8" CAP

45° BEND (HORZ.)

PROP. OPEN CUT OF 49 LF 16" ENCASEMENT PIPE

PROP. 107 LF OF 8" DI FORCE MAIN SEWER

FSS-3

8" DI SS (BY OTHERS)

8" DI SS 16" ENCASEMENT (BY OTHERS)

-FSS3- STA. 11+05.53 TIE-IN TO EXIST. 8" DI RJ FORCE MAIN SEWER W/ RESTRAINING GLANDS -L- STA. 163+30.58 (63.26' RT) W/ LONG PATTERN SOLID SLEEVE

8" VALVE

45° BEND (HORZ.)

8" CAP

45° BEND (HORZ.)

RETAIN 6" SDR21 DI FORCE MAIN

RETAIN 8" SDR26 SANITARY SEWER MAIN

RETAIN 8" SDR26 SANITARY SEWER MAIN

RETAIN 8" SDR26 SANITARY SEWER MAIN

SR 3300 (SOUTH PEAK DR.)

SR 1003 (CAMDEN RD)

(HARRISBURR DR)

(ELLIS JACKSON RD)

(WHEELER RD)

KENSINGTON VILLAGE HOMEOWNERS ASSOCIATION OF FAYETTEVILLE, INC. PB 97 PG 69

JAE KUN CHOE DB 6426 PG 830 PB 97 PG 69

JOHN S. CARRO DB 7605 PG 757 PB 97 PG 69

WICHAI LEECHAROEN, ET UX DB 9669 PG 524 PB 97 PG 69

AUTRIE L. PERRY, ET UX DB 5758 PG 500 PB 97 PG 69

ANGELA TYNDALL DB 9105 PG 292 PB 7 PG 78

DANIEL N. NORTON, ET UX DB 2594 PG 169 PB 7 PG 78

GARDNER HOLDINGS, LLC. DB 11391 PG 378 PB 7 PG 78

LANDSTONE, LLC DB 11235 PG 753 PB 125 PG 194

CYNDILEE MCKINNEY DB 10566 PG 386 PB 125 PG 194

LANDSTONE, LLC DB 8064 PG 809 PB 124 PG 175

EL TIO INVESTMENTS, LLC DB 8689 PG 571 PB 129 PG 161

MDC NC3, LP DB 11314 PG 405 DB 10261 PG 493 PB 125 PG 194

VERTEX PROPERTIES, LLC. DB 11285 PG 747 PB 142 PG 138

POND 4

SEPTIC SYSTEM

SEE SHEET UC-29 - UC-30 FOR -WL1- PROFILE
SEE SHEET UC-34 - UC-35 FOR -WL2- PROFILE
SEE SHEET UC-31 - UC-32 FOR -WL3- PROFILE
SEE SHEET UC-39 FOR -WL15- PROFILE
SEE SHEET UC-39 FOR -WL16- PROFILE
SEE SHEET UC-39 FOR -WL17- PROFILE
SEE SHEET UC-41 FOR -FSS-3- PROFILE

THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTINGS ON THIS PLAN SHEET IS 484 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

NOTES: ADJUST ALL VALVES, PLUG VALVES, AND COMBINATION AIR VALVES TO FILL

50' 25' 0' 50' 100'
PLANS

SYSTIME = 14-MAY-2026 07:58:11
USER: mhollingsworth
C:\Users\mhollingsworth\Desktop\U-3422B_sht_uc14_UC14S_psh.dgn

Docusign Envelope ID: 37DB0019-2995-8053-83A2-05A5BEBEC038

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CDM Smith Inc.
4130 Parklake Avenue
Suite 350
Raleigh, NC 27612-4461
NC COA No. F-1255

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PROJECT REFERENCE NO.	SHEET NO.
U-3422B	UC-15W
DESIGNED BY: SSM	
DRAWN BY: SSM	
CHECKED BY: HMH	
APPROVED BY: MAP	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035021 HEATHER HARKENRIDER
Document No. 20705B0172
8/29/2026
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION WATER ONLY

MATCHLINE SHEET UC-14 –L– STA. 170+00.00

MATCHLINE SHEET UC-16 –L– STA. 184+00.00

MATCHLINE SEE INSET C

NAD 83/2011

SR 1003 (CAMDEN ROAD)

SR 1382 (DORAN RD)

SR 1385 (UNIVERSITY AVE)

SR 3360 FOOTBRIDGE LN (FOOTBRIDGE LN)

SR 3638 (UNIVERSITY AVE)

(DUKE ST)

JANICE C. TERRY DB 2006 PG 511 DB 1193 PG 529

DWIGHT DAVIS DB 8936 PG 412

CHARLES T. GARDNER, ET UX DB 6499 PG PB 7 PG

HELEN E. HOLDER, ET VIR DB 8470 PG 156 PB 7 PG 78

EMMA I. KOSTIC DB 9607 PG 633 PB 24 PG 71

DAVID C. SASSER, ET UX DB 912 PG 591 PB 24 PG 71

SPRINGS PROPERTY MANAGEMENT, LLC. DB 10734 PG 511 PB 24 PG 71

LELAND J. MOREL, ET UX DB 6273 PG 126 PB 24 PG 71

ARTHUR J. LASELLE, JR. ET UX DB 5679 PG 474 PB 28 PG 21

WALTERS, JAMES R; GILMORE, ROSEMARY W DB 10296 PG 848

LOURDES BELTRE DB 10241PG 643 PB 28 PG 21

THOMAS DUDLEY WATTS DB 10958 PG 915 PB 28 PG 2

SONTERIOS ELIAS FRANGOS DB 9106 PG 891 PB 17 PG 2

MILLSTONE PARTNERS, LLC DB 8319 PG 629 PB 129 PG 194

HEITH ERIKSON WALSTON DB 11143 PG 627 PB 17 PG 4

KACEY PARK SHUPE DB 5325 PG 863 PB 17 PG 4

KAREN SIMMONS DB 8679 PG 220

JANET K. WILLIAMS DB 8679 PG 218 PB 17 PG 4

INVESTMENTS, LLC DB 8689 PG 571 PB 129 PG 161

B&T LAND DEVELOPMENT LLC DB 7585 PG 224 PB 119 PG 185

MARVIN R. TERRY, ET UX DB 4157 PG 704

MARTA C. BULLARD DB 5250 PG 866

REMOVE FIRE HYDRANT

PROP. FIRE HYDRANT 16 LF OF FIRE HYDRANT LEG PROP. 6" VALVE 16"X6" TEE

ABANDON 87 LF OF 8" UTLITY PIPE

ABANDON 1,293 LF OF 16" UTLITY PIPE

PROP. 1,400 LF OF 16" DI WATER LINE WL-1

PROP. 1" WATER METER 7 LF OF WATER SERVICE LINE

PROP. FIRE HYDRANT 14 LF OF FIRE HYDRANT LEG PROP. 6" VALVE 16"x6" TEE

PROP. 1" WATER METER 4 LF OF WATER SERVICE LINE

PROP. 1" WATER METER 4 LF OF WATER SERVICE LINE

PROP. OPEN CUT OF 88 LF 30" ENCASEMENT PIPE

SEPTIC TANK EXISTS

CLASS 'I' RIP RAP EST. 15 TONS 30 SY GEO-TEXTILE

8"x8" TEE

PROP. FIRE HYDRANT 11 LF OF FIRE HYDRANT LEG PROP. 6" VALVE 8"x6" TEE 8" VALVE

PROP. 1" WATER METER 46 LF OF WATER SERVICE LINE

PROP. 61 LF OF 8" WATER LINE WL-19 -WL19- STA. 10+60.20 TIE-IN TO EXIST. 8" DI RJ WATER LINE W/ RESTRAINING GLANDS -L- STA. 173+17.54 (109.27' RT) W/ LONG PATTERN SOLID SLEEVE

11.25° BEND (HORZ.)

8" VALVE

11.25° BEND (HORZ.)

22.5° BEND (HORZ.)

22.5° BEND (HORZ.)

PROP, 1,401 LF OF 8" WATER LINE WL-3

PROP. FIRE HYDRANT 18 LF OF FIRE HYDRANT LEG PROP. 6" VALVE 8"x6" TEE

PROP. OPEN CUT OF 79 LF 16" ENCASEMENT PIPE

ABANDON 151 LF OF 12" UTLITY PIPE

PROP. 1" WATER METER 4 LF OF WATER SERVICE LINE

TOWN LIMIT OF HOPE MILLS

REMOVE FIRE HYDRANT

PROP. 1" WATER METER 4 LF OF WATER SERVICE LINE

INSET C

MATCHLINE

NOTES: ADJUST ALL VALVES, PLUG VALVES, AND COMBINATION AIR VALVES TO FILL

NOTES: 16" WATER LINE, PROPOSED STORM, AND PROPOSED POWER POLES MAYBE WITHIN TYPICAL MINIMUM SEPERATION DISTANCE, BE AWARE FOR CONSTRUCTION STAGING.

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 2,055 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

SEE SHEET UC-29 FOR -WL1- PROFILE
SEE SHEET UC-34 FOR -WL3- PROFILE
SEE SHEET UC-40 FOR -WL19- PROFILE
SEE SHEET UC-42 FOR -SS3- PROFILE
SEE SHEET UC-43 FOR -SS-6- PROFILE

50' 25' 0' 50' 100'
PLANS

USER:HARKENRIDER,HEATHER,M DGN:U-3422B_UC15W_psh.dgn
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SYSTIME