BRIGHTLEAF BLVD WATER MAIN EXTENSION **SMITHFIELD** JOHNSTON COUNTY, NORTH CAROLINA

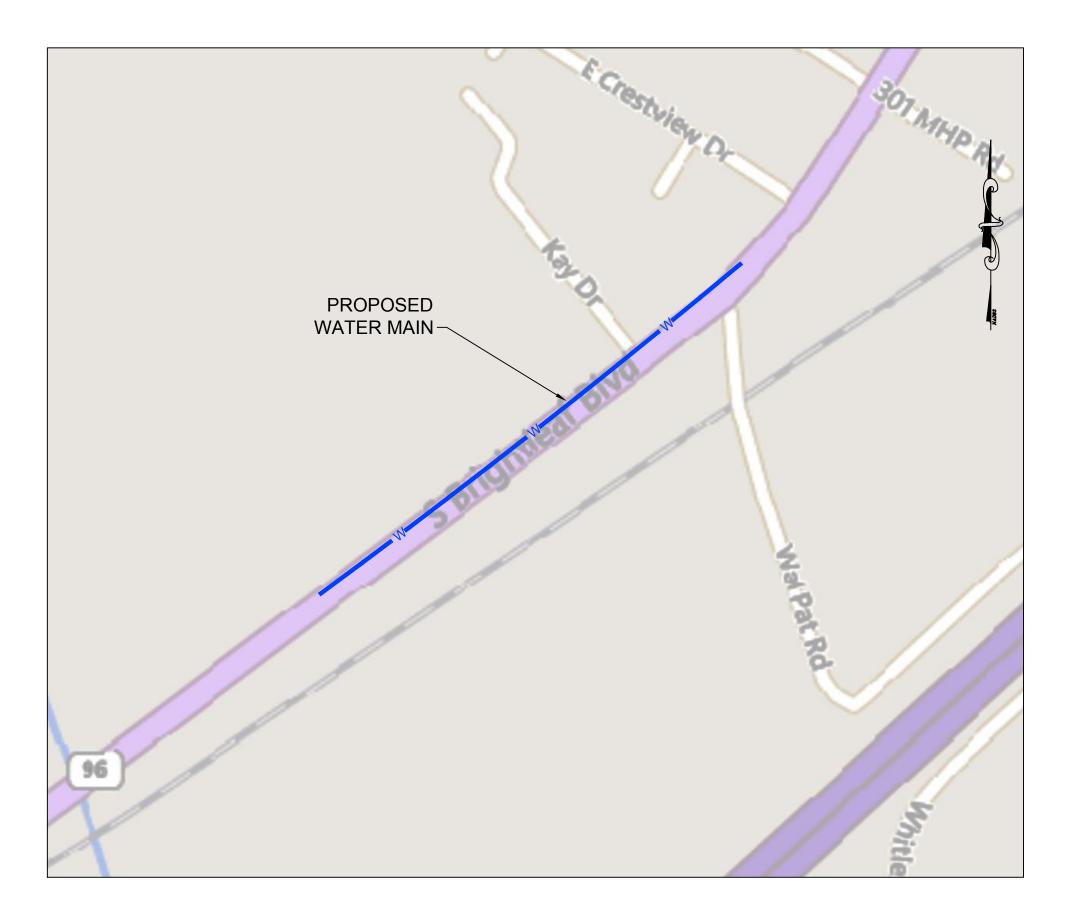
MAY 14, 2025

WATER MAIN	
16" DIP WATER MAIN	610 L.F.
18" HDPE WATER MAIN	925 L.F.
16" BUTTERFLY VALVE	3 EA.
FIRE HYDRANT ASSEMBLY	1 EA.
AIR RELEASE VALVE	1 EA.

PROJECT DATA

CONTACT: PHONE:

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VICINITY MAP

SCALE: 1" = 250'

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GENERAL NOTES

- 1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH TOWN OF SMITHFIELD DESIGN STANDARDS,
- 2. UTILITY SEPARATION REQUIREMENTS
- WHEN INSTALLING WATER AND/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO THE EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE DIRECTOR OF PUBLIC UTILITIES. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER
- WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANY TIME A SANITARY SEWER PASSES OVER A WATER MAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
- MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATER MAIN & RCP STORM DRAIN CROSSINGS. MAINTAIN 24" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING A 6" MIN. CLEARANCE.
- 2.4. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
- 3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN AND/OR PROFILE BY THE TOWN OF SMITHFIELD PRIOR TO CONSTRUCTION.
- 4. CONTRACTOR SHALL MAINTAIN CONTINUOUS UTILITY SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PROCEEDED BY A 24-HR ADVANCE NOTICE TO THE TOWN OF SMITHFIELD DEPARTMENT OF PUBLIC UTILITIES.
- 5. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM JOHNSTON COUNTY, NCDEQ, USACE, AND/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND AND/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO

6. THE CONTRACTOR SHALL CAREFULLY SUPPORT AND PROTECT ANY UTILITIES, STRUCTURES, POWER POLES, PIPELINES, AND

- CONDUITS THAT MAY BE ENCOUNTERED DURING COMPLETION OF THE WORK AT NO ADDITIONAL COST TO THE OWNER. ANY DAMAGE RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR OR UTILITY OWNER (WHERE REQUIRED) TO THE SATISFACTION OF THE TOWN OF SMITHFIELD AT THE CONTRACTOR'S EXPENSE.
- 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL PROCEDURES, PRACTICES, AND METHODS OF CONSTRUCTION AS DICTATED BY THE TOWN OF SMITHFIELD, NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, AND
- 8. EXCAVATIONS INSIDE THE THEORETICAL 1:1 SLOPE FROM THE EDGE OF TRAVEL TO THE BOTTOM OF THE NEAREST EXCAVATION
- 9. CONTRACTOR TO PLACE ALL SPOIL MATERIAL ON THE UPHILL SIDE, AWAY FROM ALL ROAD SIDE DITCHES, CREEKS, AND WATER COURSES DURING CONSTRUCTION.
- 10. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT THE PROJECT AND UNTIL A GOOD STAND OF GRASS IS
- 11. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING STORM DRAINAGE DURING CONSTRUCTION, SUCH THAT PRE-EXISTING DRAINAGE CAPACITY IS CONTINUOUSLY PROVIDED. TEMPORARY STORM BASINS, PIPES, AND PUMP S SHOULD BE USED IF NECESSARY. PERMANENT STORM DRAINAGE STRUCTURES AND PIPES SHALL BE REPLACED AS SOON AS POSSIBLE.
- 12. 100-YR FLOOD ELEVATION INFORMATION INDICATED IN PIPE PROFILE AND USED FOR COMPLIANCE TO FEMA FLOOD RULES IS BASED ON THE CURRENT FIRM 100-YR FLOOD BASE ELEVATIONS.

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



STRICKLAND

70209 SHEET NO.

G-1

SECTION 6.00 POTABLE WATER

6.01 WATER DISTRIBUTION

A. DESIGN

LOCATION: WATER LINES SHALL BE EXTENDED ALONG THE ROADWAY TO THE ADJACENT PROPERTY LINE, ALL PUBLIC WATER MAINS SHALL BE LOCATED WITHIN DEDICATED RIGHT OF WAY OR DEDICATED EASEMENTS WITH A MINIMUM WIDTH OF 20 FEET, SEE SECTION 2.10 FOR LANDSCAPE PLANTINGS WITHIN A TOWN EASEMENT.

SIZING: MAJOR TRANSMISSION LINES SHALL BE SIZED IN ACCORDANCE WITH THE "MASTER WATER PLAN OF THE TOWN OF SMITHFIELD" OR AS DIRECTED BY THE PUBLIC UTILITIES DIRECTOR. IN RESIDENTIAL AREAS, MAINS SHALL BE 6-INCH AND 8-INCH IN DIAMETER. SIX (6) INCH MAINS SHALL BE USED ONLY WHEN A GOOD GRID EXISTS, THE TOTAL MAXIMUM LENGTH OF 6-INCH AND 8-INCH MAIN WITHOUT A CONNECTION TO A LARGER MAIN IS 1200 FEET AND 2000 FEET, RESPECTIVELY. WHERE A GOOD GRID DOES NOT EXIST, LINES SHALL BE UPSIZED TO PROVIDE ADEQUATE FIRE FLOW AS DIRECTED BY THE PUBLIC UTILITIES DIRECTOR.

MATERIALS TO BE UTILIZED SHALL BE THOSE AS SPECIFIED HEREIN, UNLESS AN APPROVED EQUAL IS AUTHORIZED BY THE PUBLIC UTILITIES DIRECTOR. UNLESS OTHERWISE AUTHORIZED, ANY WATER LINE 12" OR LARGER SHALL BE DUCTILE IRON PIPE. DUCTILE IRON PIPE OR C-900 PVC SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH AWWA C150 AND C151 FOR A LAYING CONDITION TYPE 2 AND A WORKING PRESSURE AS FOLLOWS:

> 14" - 20" 250 PSI 200 PSI 150 PSI

PIPE JOINTS SHALL BE OF THE PUSH-ON TYPE AS PER AWWA C111. PIPE LINING SHALL BE CEMENT MORTAR WITH A SEAL COAT OF BITUMINOUS MATERIAL IN ACCORDANCE WITH AWWA C104. GALVANIZED STEEL PIPE WILL NOT BE ALLOWED AS A MATERIAL FOR MAINS OR SERVICES.

C. INSTALLATION

ALL WATER MAINS SHALL BE INSTALLED WITH A MINIMUM COVER OF 3 FEET MEASURED FORM THE TOP OF THE PIPE TO THE FINISHED SUBGRADE. WHEN WATER LINES ARE INSTALLED ALONG A ROADWAY WHICH DOES NOT HAVE CURB & GUTTER, THE WATER LINE SHALL BE INSTALLED AT EXTRA DEPTH TO PREVENT CONFLICT WITH FUTURE ROAD IMPROVEMENTS OR VERTICAL ALIGNMENT CHANGES.

ALL CONSTRUCTION RELATING TO THE UTILITY IMPROVEMENTS MUST BE PERFORMED BY A CONTRACTOR LICENSED IN NORTH CAROLINA.



STANDARD DETAIL AND SPECIFICATIONS MANUAL SMITHFIELD, NORTH CAROLINA

NTS DETAIL NO 06.00_P1 DATE: 06/05/201

ALL VALVES 16 (16) INCHES AN GREATER SHALL BE INSTALLED IN A MANHOLE AS SHOW IN THE STANDARD DETAILS

RESILIENT SEAT WEDGE GATE VALVES SHALL BE MANUFACTURED IN ACCORDANCE WITH

VALVE BOXES SHALL BE CAST IRON AT THE SCREW OR TELESCOPIC WITH A 5-INCH OPENING WITH "WATER" STAMPED ON THE COVER. VALVE BOX RING ADJUSTMENTS WILL

BUTTERFLY VALVES SHALL BE INSTALLED IN WATERLINES SIXTEEN (16) INCHES, OR GREATER, ALL SHALL MEET THE REQUIREMENTS OF AWWA C504 WITH MECHANICAL JOINTS, 2-INCH OPERATING NUT AND OPEN LEFT. ALL VALVES 16 INCHES AND GREATER SHALL BE INSTALLED IN A MANHOLE AS SHOWN IN STANDARD DETAILS.

BLOW-OFF ASSEMBLIES SHALL BE CONSTRUCTED AS SHOWN IN STANDARD DETAILS. THE VALVE SHALL BE GATE TYPE WITH A NON-RISING STEM AND A 2-INCH OPERATING NUT.

PIPE FITTINGS SHALL BE DUCTILE IRON DESIGNED AND MANUFACTURED AS PER AWWA C110. SIZES OF FITTINGS UP TO AN INCLUDING 12 INCH SHALL BE DESIGNED FOR AN INTERIOR PRESSURE OF 250 PSI; LARGER SIZE FITTINGS SHALL BE DESIGNED FOR AN INTERIOR PRESSURE OF 150 PSI. COMPACT DUCTILE IRON MECHANICAL JOINT FITTINGS ARE ALSO ACCEPTABLE. JOINTS FOR FITTINGS SHALL BE MECHANICAL AND LINED WITH CEMENT MORTAR WITH A SEAL COAT OF BITUMINOUS MATERIAL, ALL IN ACCORDANCE

REACTION BLOCKING FOR ALL FITTINGS OR COMPONENTS SUBJECT TO HYDROSTATIC THRUST SHALL BE SECURELY ANCHORED BY THE USE OF CONCRETE THRUST BLOCKS POURED IN PLACE. THE REACTION AREAS ARE SHOWN IN STANDARD DETAILS. NO CONCRETE SHALL INTERFERE WITH THE REMOVAL OF FITTINGS. MATERIAL FOR REACTION BLOCKING SHALL BE 3,000 PSI CONCRETE. ALTERNATIVE RESTRAINING METHODS MUST BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA AND APPROVED BY THE TOWN ENGINEER.

TAPPING SLEEVES SHALL BE TWO PIECE SPLIT CAST IRON SLEEVES. THE SLEEVE SHALL BE MECHANICAL JOINT TO THE MAIN LINE AND FLANGED TO THE TAPPING VALVE. STAINLESS STEEL TAPPING SLEEVES SHALL ONLY BE ALLOWED ON ASBESTOS-CEMENT

TAPPING SADDLES SHALL BE USED ON MAINS 16 INCHES AND LARGER. SADDLES SHALL BE MADE OF DUCTILE IRON PROVIDING A FACTOR OF SAFETY OF 2.5 WITH A WORKING PRESSURE OF 250 PSI. SADDLES SHALL BE EQUIPPED WITH A AWWA C110 FLANGE CONNECTION ON THE BRANCH. SEALING GASKETS SHALL BE O-RING TYPE, HIGH QUALITY MOLDED RUBBER, HAVING APPROXIMATELY 70 DUROMETER HARDNESS, PLACED INTO A GROOVE ON THE CURVED SURFACE OF THE SADDLES, STRAPS SHALL BE ALLOY STEEL.

THE MAXIMUM SIZED SADDLE OUTLET FOR EACH SIZE OF PIPE TO BE TAPPED SHALL BE

AS FOLLOWS: MAXIMUM SIZE TO BE TAPPED SADDLE OUTLET 24" AND LARGER



STANDARD DETAIL AND SPECIFICATIONS MANUAL SMITHFIELD, NORTH CAROLINA PUBLIC UTILITIES

DETAIL NO 06.00_P4 DATE: 06/05/2018

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6.02 FIRE HYDRANTS

LOCATION: ALL FIRE HYDRANTS SHALL BE INSTALLED ON A WATER LINE WITH A DIAMETER NO SMALLER THAN 6 INCHES. ONLY ONE FIRE HYDRANT MAY BE INSTALLED ON A DEAD END 6-INCH LINE. THERE SHALL BE AT LEAST ONE FIRE HYDRANT AT EACH STREET INTERSECTION. IN RESIDENTIAL DISTRICTS, THE MAXIMUM DISTANCE BETWEEN FIRE HYDRANTS, MEASURED ALONG STREET CENTERLINES, SHALL BE 500 FEET. WHEN RESIDENTIAL INTERSECTIONS ARE NOT MORE THAN 700 FEET APART, NO HYDRANT IS REQUIRED BETWEEN THE INTERSECTIONS. IN BUSINESS, OFFICE AND INSTITUTIONAL, AND INDUSTRIAL DISTRICTS, THE MAXIMUM DISTANCE BETWEEN HYDRANTS, MEASURED ALONG STREET CENTERLINE, SHALL BE 300 FEET. WHEN BUSINESS, OFFICE AND INSTITUTIONAL, AND INDUSTRIAL INTERSECTIONS ARE NOT MORE THAN 450 FEET APART. NO HYDRANT IS REQUIRED BETWEEN INTERSECTIONS. ON MAJOR THOROUGHFARES OR ARTERIALS AND COLLECTOR STREETS WITH ACCESS POINTS ONLY AT STREET INTERSECTIONS, HYDRANTS SHALL BE LOCATED AT EACH STREET INTERSECTION AND AT 1,000 FOOT INTERVALS ALONG THE STREET. WHERE THESE INTERSECTIONS ARE LESS THAN 1,200 FEET APART, NO HYDRANT IS REQUIRED BETWEEN THE INTERSECTIONS. THE MINIMUM ACCEPTABLE FLOW FOR FIRE HYDRANTS IS 1,000 gpm IN RESIDENTIAL AREAS AND 1,500 gpm IN OTHER DISTRICTS. FIRE HYDRANTS SHALL BE PLACED IN A STAGGERED ARRANGEMENTS ON BOTH SIDES OF ANY ROADWAY CLASSIFIED AS A MAJOR OR MINOR THOROUGHFARE WITH THE HYDRANT SPACING AS REFERENCED ABOVE. VALVES ASSOCIATED WITH FIRE HYDRANT ASSEMBLIES SHALL BE LOCATED WITHIN FIFTEEN (15) FEET OF THE FIRE

WHEN NEW BUILDINGS ARE CONSTRUCTED OR EXISTING BUILDINGS ARE EXPANDED AND CONTAIN 10,000 SQUARE FEET OF FLOOR SPACE (ALL FLOORS OF ALL BUILDINGS, ADDED TOGETHER), HYDRANTS SHALL BE INSTALLED AT 300 FOOT INTERVALS ALONG ALL SIDES OF THE BUILDING THAT ARE ACCESSIBLE TO FIRE PUMPERS. THESE HYDRANTS SHALL BE AT LEAST 40 FEET AWAY FROM THE BUILDING. THE TOTAL NUMBER OF HYDRANTS REQUIRED SHALL NOT EXCEED ONE HYDRANT PER SEPARATION OF BUILDINGS PLUS ONE HYDRANT PER 10,000 SQUARE FEET OF FLOOR SPACE.

WHERE SPRINKLER SYSTEMS ARE USED, A FIRE DEPARTMENT CONNECTION SHALL BE PROVIDED ON THE BUILDING. THE FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED WITHIN FIFTY (50) FEET OF A FIRE HYDRANT OR AS OTHERWISE DIRECTED BY THE FIRE MARSHALL, WHERE SPRINKLER SYSTEMS OR A RISER ROOM ARE REQUIRED, OUTSIDE ACCESS IN ACCORDANCE WITH NORTH CAROLINA BUILDING CODE SHALL BE PROVIDED. BACKFLOW PREVENTION FOR SPRINKLER SYSTEMS SHALL BE AS SPECIFIED IN SECTION 6.06 OF THESE STANDARDS.

B. SPECIFICATIONS: HYDRANTS SHALL CONFORM TO AWWA C502 WITH A MINIMUM VALVE OPENING OF 43 INCHES. HYDRANTS SHALL BE FURNISHED WITH A 42 INCH STEAMER AND DOUBLE 21 INCH HOSE CONNECTIONS WITH CAPS AND CHAINS, NATIONAL STANDARD THREADS, MECHANICAL JOINT, 12 INCH PENTAGON OPERATING NUT, OPEN LEFT, PAINTED FIRE HYDRANT RED, BRONZE TO BRONZE SEATING, A MINIMUM 31 INCH FOOT BURY DEPTH WITH A BREAK AWAY GROUND LINE FLANGE AND BREAK AWAY ROD COUPLING. THE HYDRANT BONNET WILL BE DESIGNED WITH A SEALED OIL OR GREASE RESERVOIR WITH O-RING SEALS AND A TEFLON THRUST BEARING, AS FURNISHED BY MEULLER "CENTURION" (A-421), KENNEDY "GUARDIAN" OR AMERICAN DARLING (MARK 73-5). FIRE HYDRANT CAPS SHALL BE ATTACHED TO THE BODY OF THE HYDRANT WITH A MINIMUM 2/0 TWIST LINK, HEAVY DUTY, NON-KINKING, MACHINE CHAIN.



STANDARD DETAIL AND SPECIFICATIONS MANUAL

COMBINATION AIR VALVES SHALL BE OF THE SINGLE HOUSING STYLE THAT COMBINES THE

OPERATION OF BOTH AN AIR/VACUUM AND AIR RELEASE VALVE. THE VALVE SHALL BE

THE VALVE MUST MEET THE REQUIREMENTS OF AWWA C512 AND BE INSTALLED IN

C. INSTALLATION: VALVES SHALL BE PROPERLY LOCATED, OPERABLE AND AT THE CORRECT

ELEVATION. ALL VALVES AND REDUCERS SHALL BE RODDED TO THE TEE OR CROSS IF

REQUIRED. THE VALVE BOX SHALL BE CENTERED OVER THE WRENCH NUT AND SEATED

ON COMPACTED BACKFILL WITHOUT TOUCHING THE VALVE ASSEMBLY. ALL VALVE BOXES

CONCRETE BENEATH THE ASPHALT WITH THE COVER FLUSH WITH THE TOP OF THE

PAVEMENT OR FLUSH WITH THE FINISHED GRADE. PRECAST CONCRETE VALVE BOX ENCASEMENTS MAY BE USED FOR VALVE BOX ENCASEMENTS OUTSIDE THE PAVED AREAS.

THE MAXIMUM DEPTH OF THE VALVE NUT SHALL BE FIVE (5) FEET. WHEN VALVE

EXTENSION KITS ARE USED, THEY MUST BE MANUFACTURED BY THE SAME COMPANY

IN ROADWAYS SHALL BE ENCASED IN A TROWEL FINISHED 2'x 2'x 6' PAD OF 3,000 PSI

CORPORATION STOPS SHALL BE BRASS, COMPLETE WITH A FLARED COUPLING AND AWWA

STANDARD THREADS AS PER AWWA C800. TAPS SHALL BE LOCATED AT 10:00 OR 2:00

ALTERNATING FROM ONE SIDE OF THE WATER MAIN TO THE OTHER AND A T LEAST 12

INCHES APART. THE TAPS MUST BE A MINIMUM OF 24 INCHES APART IF THEY ARE ON

THE MAXIMUM SIZE OF DIRECT TAPS WITHOUT A FITTING, TAPPING SLEEVE, OR SADDLE

NO BURNED TAPS WILL BE ALLOWED AND EACH CORPORATION STOP WILL BE WRAPPED

SERVICE SADDLES SHALL BE BRONZE BODY (85-5-5 WATERWORKS BRASS) AND DOUBLE

STRAP FOR TAPS OVER 1 INCH WITH SILICON BRONZE NUTS CONFORMING TO ASTM A98

COPPER SERVICE TUBING SHALL BE TYPE K SOFT COPPER TUBING PER ASTM B88. THE

LONGEST AVAILABLE LENGTH OF SERVICE LINE SHOULD BE USED WITH NO UNIONS. AS

AN EXAMPLE, FOR A 3/4 INCH SERVICE CONNECTION, NO UNION SHALL BE USED IN

THE INSTALLATION OF 100 FEET OR LESS. FOR 3/4 INCH, ONLY ONE (1) UNION WILL

BE ALLOWED FOR EACH 100 FOOT SECTION OF FRACTION THEREOF. UNIONS SHALL BE

STANDARD DETAIL AND

SPECIFICATIONS MANUAL

SMITHFIELD, NORTH CAROLINA

PUBLIC UTILITIES

SIZE TAP

ON THE CIRCUMFERENCE OF THE PIPE. SERVICE TAPS SHALL BE STAGGERED,

FOR DUCTILE IRON WATER MAINS SHALL BE AS FOLLOWS:

WITH TEFLON TAPE FOR DUCTILE IRON PIPE WATER MAINS.

AND FACTORY INSTALLED GRADE 60 RUBBER GASKETS.

ONE IS LOCATED WITHIN TEN (10) FEET, AS SHOWN IN STANDARD DETAILS. IF REDUCERS CANNOT BE RODDED, CONCRETE BLOCKING OR OTHER RESTRAINING METHODS WILL BE

ACCORDANCE WITH STANDARD DETAILS.

WHICH MANUFACTURED THE VALVE.

THE SAME SIDE OF THE PIPE.

TO BE TAPPED

MADE WITH FLARE TYPE COUPLINGS.

6.04 WATER SERVICE TAPS

A. MATERIALS

MANUFACTURED FOR A 150 PSIG WORKING PRESSURE AND BE SIZED BY THE ENGINEER.

SMITHFIELD, NORTH CAROLINA

06.00_P2 DATE: 06/05/201

NTS

DETAIL NO.

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DETAIL NO.

06.00_P5

DATE: 06/05/201

C. INSTALLATION: HYDRANTS SHALL BE PLUMB, PROPERLY LOCATED WITH THE PUMPER NOZZLE FACING THE CLOSEST STREET. THE BACK OF THE HYDRANT OPPOSITE THE PIPE CONNECTION SHALL BE FIRMLY BLOCKED AGAINST THE VERTICAL FACE OF THE TRENCH WITH 1 CUBIC YARD OF CONCRETE. DOUBLE BRIDLE RODS AND COLLARS SHALL BE CONNECTED FORM THE TEE TO THE HYDRANT. RODS SHALL NOT BE LESS THAN § INCH DIAMETER STOCK AND COATED WITH BITUMINOUS PAINT. A MINIMUM OF 8 CUBIC FEET OF STONE SHALL BE PLACED AROUND THE DRAINS. THE BACKFILL AROUND THE HYDRANTS SHALL BE THOROUGHLY COMPACTED, HYDRANT INSTALLATION SHALL BE IN ACCORDANCE WITH STANDARD ROD VALVE RODDING DETAIL.

6.03 VALVES AND APPURTENANCES

A. LOCATION: VALVES SHALL BE INSTALLED ON ALL BRANCHES FORM FEEDER MAINS AND HYDRANTS ACCORDING TO THE FOLLOWING SCHEDULE: 3 VALVES AT CROSSES; 2 VALVES AT TEES; AND ONE VALVE ON EACH HYDRANT BRANCH. WHEN A LOOP SECTION OF WATERLINE IS CONNECTED BACK INTO THE FEEDER MAIN WITHIN A DISTANCE OF 200 FEET, OR LESS, ONLY ONE VALVE WILL BE REQUIRED IN THE FEEDER MAIN.

WHERE NO WATERLINE INTERSECTIONS ARE EXISTING, A MAIN LINE VALVE SHALL BE INSTALLED AT EVERY 100 FEET PER 1 INCH DIAMETER MAIN UP TO A DISTANCE OF 2,000 FEET BETWEEN VALVES.

BLOWOFFS SHALL BE INSTALLED AT THE END OF ALL DEAD-END WATERLINES.

COMBINATION AIR VALVES SHALL BE INSTALLED AT ALL HIGH POINTS OF WATERLINES 8 INCHES IN DIAMETER OR LARGER AND AT OTHER LOCATIONS AS DIRECTED BY THE TOWN

THE WATER MAIN SHALL BE INSTALLED AT A GRADE WHICH WILL ALLOW THE AIR TO MIGRATE TO A HIGHPOINT, WHERE THE AIR CAN BE RELEASED THROUGH AN AIR VALVE. A MINIMUM PIPE SLOPE OF ONE (1) FOOT PER 500 FEET SHOULD BE MAINTAINED. THE SIZE OF THE AIR VALVE SHALL BE DESIGNED BY THE ENGINEER.

SPECIFICATIONS: GATE VALVE GREATER THAN 2 INCHES, SHALL MEET ALL REQUIREMENTS OF AWWA C500 FOR A WORKING PRESSURE OF 150 PSI. ALL SHALL BE MECHANICAL JOINT WITH IRON BODY, BRONZE MOUNTING DOUBLE DISC, PARALLEL SEAT TYPE WITH A NON-RISING STEM AND OPEN LEFT, WITH A DOUBLE O-RING SEAL

GATE VALVES, UP TO AND INCLUDING 12 INCHES, SHALL BE INSTALLED IN A VERTICAL

GATE VALVES, 16 INCHES OR LARGER, SHALL BE INSTALLED ONLY UNDER THE SUPERVISION OF THE TOWN ENGINEER AND SHALL BE HORIZONTALLY INSTALLED AND EQUIPPED WITH BEVEL GEARS, GREASE CASE, ROLLERS, TRACKS SCRAPERS, AND A BYPASS LOCATED ON THE SIDE OF THE BODY. FULLY REVOLVING DISC VALVES SHALL

GATE VALVES, 16 INCHES OR LARGER, INSTALLED IN A VERTICAL POSITION SHALL ONLY BE INSTALLED IN SPECIAL CONDITIONS UNDER THE DIRECTION OF THE TOWN ENGINEER AND SHALL BE EQUIPPED WITH SPUR GEARS ENCLOSED IN A GREASE CASE AND WITH A BYPASS LOCATED ON THE SIDE OF THE BODY.



STANDARD DETAIL AND SPECIFICATIONS MANUAL

SMITHFIELD, NORTH CAROLINA

NTS DETAIL NO 06.00_P3 DATE: 06/05/201

METER BOXES FOR 3/4 INCH SERVICES SHALL BE CAST IRON AND A COMPLETE UNIT (LESS METER) FOR SETTING A 5/8 INCH BY 3/4 INCH WATER METER. METER STOPS SHALL BE O-RING SEALED AND HAVE AN INLET ANGLE OF 60 DEGREES WITH A LOCKING LID. RESIDENTIAL SERVICE METERS SHALL BE INSTALLED BY THE TOWN OF SMITHFIELD. METER BOX GRADE ADJUSTER RINGS ARE NOT ACCEPTABLE.

METER BOXES FOR 1 INCH SERVICES SHALL BE CAST IRON BOX AND COVER WITH A

METER YOKE AND A COPPER RESETTER.

METER BOXES FOR 1-1/2 AND 2 INCH SERVICES SHALL BE LIGHT WEIGHT POLYMER CONCRETE AS INDICATED IN STANDARD DETAILS. PIPING FOR 1-1/2 AND 2 INCH SERVICES SHALL BE CONSTRUCTED FROM BRASS AND COPPER TUBING AND SHALL BE EQUIPPED WITH ANGLED CHECK VALVE OUTLETS AND BY-PASS FLANGED VALVE OR BY-PASS FLANGED BALL VALVE INLETS

WATER SERVICES GREATER THAN 2 INCHES SHALL BE MADE BY A PRIVATE CONTRACTOR OF THE PROPERTY OWNER OR DEVELOPER. A STRAINER SHALL BE PROVIDED UPSTREAM OF THE METER ON LINES GREATER THAN 2 INCHES.

METER VAULTS WITHIN STREET RIGHT-OF-WAY SHALL MEET HS-20 LOADING REQUIREMENTS AND SHALL BE LOCATED OUTSIDE OF TRAVEL AREAS. THE ACCESS DOOR SHALL BE ALUMINUM WITH A FLUSH DROP LIFT HANDLE, STAINLESS STEEL HINGES & BOLTS, STAINLESS STEEL SLAM LOCK, AN AUTOMATIC HOLD OPEN ARM, AND COMPRESSION SPRINGS TO ALLOW FOR EASY OPENING. POSITIVE DRAINAGE SHALL BE PROVIDED FOR ALL METER VAULTS.

B. INDIVIDUAL WATER SERVICES SHALL BE PROVIDED FROM THE MAIN TO EACH WATER METER FOR SINGLE FAMILY RESIDENCES IN ACCORDANCE WITH STANDARD DETAILS. CONNECTIONS TO EXISTING MAINS SHALL BE MADE BY WET TAPS.

SERVICE CONNECTIONS SHALL BE MADE PERPENDICULAR FROM THE MAIN LINE AND SHALL RUN STRAIGHT TO THE METER WHICH SHALL BE LOCATED AT THE EDGE OF THE SERVICED LOT'S RIGHT-OF-WAY, OR EASEMENT. NO WATER METER BOX OR VAULT SHALL BE LOCATED IN STREETS, SIDEWALKS, OR PARKING AREAS IN RESIDENTIAL AREAS. IN NON-RESIDENTIAL AREAS, METER LOCATION SHALL BE CONSIDERED ON A CASE-BY-CASE BASIS. PROVISIONS FOR BACKFLOW PREVENTION SHALL BE AS SPECIFIED IN SECTION 6.06 OF THESE STANDARDS.

SERVICE TAPS TO WATER MAINS SHALL BE MADE BY A LICENSED UTILITY CONTRACTOR THAT IS LICENSED IN NORTH CAROLINA AND SHALL BE THE RESPONSIBILITY OF THE OWNER OR DEVELOPER. TAPS SHALL BE INSPECTED BY THE TOWN OF SMITHFIELD UTILITY DEPARTMENT AND SHALL BE IN ACCORDANCE WITH STANDARD DETAILS.

THE WATER METER SHALL BE SIZED BASED ON THE WATER DEMAND. WATER METER SIZE CAN BE DETERMINED AS FOLLOWS:

WATER METER SIZING FOR FLUSH TANKS

METER SIZE (INCHES) LOAD RANGE (FIXTURES) FLOW RANGE (FIXTURES) 3/4" PD 1 - 22 22 - 140 1-1/2" PD 140 - 450 450 - 1000 2" PD 100 - 200 3" T or C 1000 - 2500 200 - 400 4" T or C 2500 - 5000 400 - 600



STANDARD DETAIL AND SPECIFICATIONS MANUAL SMITHFIELD, NORTH CAROLINA PUBLIC UTILITIES

DETAIL NO. 06.00_P6 DATE: 06/05/20

SCALE:

NTS

08-27-2025

VALENTINE DESIGNED BY . VALENTINE

CHECKED BY STRICKLAND SCALE

AS SHOWN

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JOB NO. 70209

SHEET NO. G-2

WATER METER SIZING FOR FLUSH VALVES

METER SIZE (INCHES)	LOAD RANGE (FIXTURES)	FLOW RANGE (FIXTURES)
3/4" PD	1 — 8	0 - 20
1" PD	9 - 50	20 - 50
1-1/2" PD	50 - 275	50 - 100
2" PD	275 - 1000	100 - 200
3" T or C	1000 - 2500	200 - 400
4" T or C	2500 - 5000	400 — 600

PD = POSITIVE DISPLACEMENT T = TURBINE

C = COMPOUND (MUST BE SIZED ON A CASE BY CASE BASIS)

6.05 RELATION OF WATER MAINS TO SANITARY AND STORM SEWERS

- A. LATERAL SEPARATION OF SEWERS AND WATER MAINS. WATER MAINS SHALL BE LAID AT LEAST TEN (10) FEET LATERALLY FORM EXISTING OR PROPOSED SEWERS, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION; IN WHICH CASE: 1. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM MAIN AT LEAST EIGHTEEN (18) INCHES ABOVE THE TOP OF THE SEWER; OR 2. THE WATER MAIN INS LAID IN THE SAME TRENCH AS THE SEWER 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 EIGHTEEN (18) INCHES ABOVE THE TOP OF THE SEWER.
- B. CROSSING A WATER MAIN OVER A SEWER. WHENEVER IT IS NECESSARY FRO A WATER MAIN TO CROSS OVER A SEWER, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST EIGHTEEN (18) INCHES ABOVE THE TOP OF THE SEWER, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18-INCH VERTICAL SEPARATION; IN WHICH CASE BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF TEN (10) FEET ON EACH OF THE POINT OF CROSSING.
- C. CROSSING A WATER MAIN UNDER A SEWER. WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER, BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF TEN (10) FEET ON EACH OF THE POINT OF CROSSING, A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF
- 6.06 BACKFLOW PREVENTION

WHEN A FIRE PROTECTION SYSTEM IS PROPOSED AND NO ANTI-FREEZE CHEMICALS ARE TO BE USED, A DOUBLE CHECK VALVE ASSEMBLY INCLUDING 2 CHECK VALVES, 2 GATE VALVES, AND 4 TEST COCKS SHOULD BE INSTALLED ON THE SPRINKLER FIRE PROTECTION LINE. IF ANY CHEMICALS ARE PROPOSED TO BE ADDED TO A SPRINKLER FIRE PROTECTION SYSTEM, A REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER, APPROVED BY THE UNDERWRITERS LABORATORIES AND/OR THE FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH, UNIVERSITY OF SOUTHERN CALIFORNIA

ALL WATER SERVICES SHALL BE PROVIDED WITH BACKFLOW PREVENTION DEVICES ADJACENT TO OR WITHIN THE METER BOX VAULT



STANDARD DETAIL AND SPECIFICATIONS MANUAL SMITHFIELD, NORTH CAROLINA

NTS DETAIL NO. 06.00_P7

PUBLIC UTILITIES DATE: 06/05/20⁴

ALL IRRIGATION SYSTEMS WITH CHEMICAL ADDITIVES OR BOOSTER PUMP, SHALL BE PROVIDED WITH REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION, INSTALLED IN ACCORDANCE WITH THE FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH. REDUCED PRESSURE ZONE BACKFLOW PREVENTERS MUST HAVE AN APPROPRIATELY SIZED DRAINAGE SYSTEM OR BE INSTALLED ABOVE GROUND. ABOVE GROUND INSTALLATION SHALL HAVE AN INSULATED BOX.

A POST INDICATOR VALVE SHALL BE PROVIDED AT THE RIGHT-OF-WAY OR EDGE OF EASEMENT. WHEN BACKFLOW PREVENTION DEVICES ARE CONTAINED WITHIN A BUILDING; OUTSIDE ACCESS, ABOVE THE FINISHED FLOOR ELEVATION, SHALL BE PROVIDED. THE TOP OF THE POST INDICATOR VALVE SHALL BE INSTALLED AT 36 INCHES ABOVE THE FINISHED GRADE. THE TOWN SHALL MAINTAIN UP TO AND INCLUDING THE POST INDICATOR VALVE, BUT NOT BEYOND.

6.07 AUTOMATIC FIRE SPRINKLER SYSTEM STANDARD

FOUR (4) COMPLETE SETS OF WORKING PLANS FOR ALL FIRE SPRINKLER SYSTEMS AND STANDPIPE SYSTEMS ARE TO BE SUBMITTED TO THE TOWN WITH A CURRENT AND PROPERLY SIGNED AND SEALED N.C.P.E. STAMP. ALL FIRE SPRINKLER SYSTEMS SHALL BE INSTALLED WITH AN ALARM CHECK VALVE INSTALLED IN EACH RISER, WITH ALL THE TRIMMINGS (EXAMPLE: RETARD CHAMBER, WATER MOTOR GONG, PRESSURE GAUGES, ETC.) COMPLETE WORKING PLANS SHALL BE APPROVED BY THE TOWN BEFORE AN INSTALLATION OF THE SPRINKLER SYSTEMS BEGINS. IF TWENTY (20) SPRINKLER HEADS OR MORE ARE ADDED TO AN EXISTING SPRINKLER SYSTEM, OR IF A NEW SPRINKLER SYSTEM IS INSTALLED, COMPLETE PLANS AND CALCULATIONS ARE REQUIRED. EXISTING SYSTEM ADDITIONS OR THE DISABLING OF ANY SPRINKLER SYSTEM SHALL REQUIRE NOTIFICATION TO THE FIRE OFFICIAL TWENTY-FOUR (24) HOURS IN ADVANCE.

- FULL WORKING PLANS ARE TO BE IN COMPLETE COMPLIANCE WITH NFPA #13, 13D, 13R, 14 231C AND TOWN OF SMITHFIELD SPECIFICATIONS. AN NFPA ABOVE GROUND MATERIAL AND TEST CERTIFICATE AND AN NFPA UNDERGROUND MATERIAL AND TEST CERTIFICATE ARE REQUIRED TO BE PRESENTED AFTER COMPLETION OF DESIGNATED, APPROVED WORK.
- IF A SYSTEM IS HYDRAULICALLY DESIGNED, THE FOLLOWING DESIGN CRITERIA MUST SAFETY MARGIN: A TEN (10) PERCENT SAFETY MARGIN MUST BE INCLUDED IN ALL HYDRAULIC CALCULATIONS. SYSTEM SUPPLY MUST EQUAL OR EXCEED 1.1 TIMES THAT OF THE SYSTEM DEMAND. (EXAMPLE: DEMAND = 50 psi; SUPPLY > 55 psi)
- 2. HOSE ALLOWANCE: A MINIMUM OF 500 GPM OUTSIDE HOSE ALLOWANCE MUST BE CALCULATED ON ALL SPRINKLER SYSTEMS. INTERIOR HOSE ALLOWANCES ARE TO FOLLOW NFPA 13 REQUIREMENTS.
- D. POST INDICATOR VALVE POST INDICATOR VALVES SHALL BE IN ACCORDANCE WITH SECTION 6.06
- E. BACKFLOW PREVENTION BACKFLOW PREVENTION SHALL BE IN ACCORDANCE WITH SECTION 6.06



STANDARD DETAIL AND SPECIFICATIONS MANUAL SMITHFIELD, NORTH CAROLINA PUBLIC UTILITIES

NTS DETAIL NO 06.00_P8 DATE: 06/05/201 FIRE DEPARTMENT CONNECTION WHERE AUTOMATIC FIRE SPRINKLER SYSTEMS ARE USED, A FIRE DEPARTMENT CONNECTION SHALL BE PROVIDED ON THE BUILDING. THE FIRE DEPARTMENT CONNECTION SHALL BE LOCATED WITHIN FIFTY (50) FEET OF A FIRE HYDRANT OR AS OTHERWISE DIRECTED BY THE FIRE OFFICIAL. WHEN A SPRINKLER SYSTEM SERVES ONLY PART OF A LARGE STRUCTURE, THE FIRE DEPARTMENT CONNECTION SHALL BE LABELED AS TO WHICH SECTION OF THE STRUCTURE THAT SPRINKLER RISER SERVES. THIS LABELING SHALL BE A MINIMUM OF TWO (2) INCH LETTERING ON A PERMANENT SIGN.

A DEDICATED SPRINKLER RISER ROOM IS REQUIRED PROVIDING AN ENTRY DOOR TO THE ROOM FROM THE EXTERIOR OF THE BUILDING.

H. ALARM COMMUNICATION ALL SPRINKLER SYSTEMS ARE TO HAVE ALARM COMMUNICATION EQUIPMENT TO FULLY COMPLY WITH NFIPA 72. EQUIPMENT MUST BE FULLY FUNCTIONAL AND REPORTING TO A U.L. APPROVED CENTRAL RECEIVING STATION (NFIPA 71) BEFORE A CERTIFICATE OF OCCUPANCY IS ISSUED FOR THE FACILITY.

ALL BUILDINGS WHICH HAVE A FIRE SPRINKLER PROTECTION SYSTEM SHALL PROVIDE A "KNOX BOX" KEY ENTRY SYSTEM. THIS KNOX BOX SHALL BE MOUNTED ON THE MAIN EXTERIOR ENTRANCE TO THE BUILDING OR AS OTHERWISE DIRECTED BY THE FIRE OFFICIAL, MOUNT KNOX BOX ON WALL AT 5 FEET A.F.F. ON DOOR HANDLE SIDE OF THE DEDICATED RISER ROOM DOOR, THIS KNOX BOX SHALL BE ORDERED THROUGH THE TOWN OF SMITHFIELD FIRE DEPARTMENT AND SHALL BE IN PLACE BEFORE A CERTIFICATE OF OCCUPANCY IS ISSUED. FORMS ARE AVAILABLE FROM THE TOWN OF SMITHFIELD FIRE DEPARTMENT. AVERAGE DELIVERY TIME IS FIVE (5) TO SIX (6) WEEKS. KEYS SHALL BE PROVIDED TO THE TOWN OF SMITHFIELD FIRE DEPARTMENT BY THE OWNER/MANAGER.

THE EXTERIOR DOOR LEADING TO THE DEDICATED SPRINKLER RISER ROOM SHALL BE LABELED WITH MINIMUM TWO (2) INCH LETTERING DESIGNATING "SPRINKLER RISER ROOM" IN A CONTRASTING COLOR. DURABLE VINYL LETTERING IS SUGGESTED.

K. FIRE ALARM PANEL LOCATION WHEN A BUILDING ID PROTECTED BY AN AUTOMATIC SPRINKLER SYSTEM AND HAS A FIRE ALARM SYSTEM, THE FIRE ALARM CONTROL PANEL OR A REMOTE ANNUNCIATOR OF THE FIRE ALARM CONTROL PANEL SHALL BE PLACED WHERE THE FIRE DEPARTMENT IS MOST LIKELY TO ACCESS THE BUILDING OR AS DIRECTED BY THE FIRE OFFICIAL. THIS CONTROL PANEL SHALL HAVE THE CAPACITY OF SILENCING AND RESETTING. A FRAMED ZONE MAP SHALL BE ADJACENT TO THE FIRE ALARM CONTROL PANEL. NOMENCLATURE SHALL CORRESPOND WITH THE ZONE MAP.

6.08 TESTING AND INSPECTION

ALL MATERIALS USED MUST HAVE A PRELIMINARY INSPECTION BY THE INSPECTOR BEFORE THEY SHALL BE ALLOWED TO BE INSTALLED. MATERIALS REJECTED BY THE INSPECTOR SHALL BE IMMEDIATELY REMOVED FROM THE JOBSITE.



STANDARD DETAIL AND SPECIFICATIONS MANUAL SMITHFIELD, NORTH CAROLINA

NTS DETAIL N 06.00_P9 DATE: 06/05/201

THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, AND EQUIPMENT TO PERFORM ALL TESTING AND INSPECTIONS TO THE SATISFACTION OF THE INSPECTOR. THE TOWN OF

SMITHFIELD SHALL PROVIDE WATER FOR TESTING PURPOSES ON WATER MAINS.

A. PIGGING AND FLUSHING ALL NEW MAINS LESS THAN SIXTEEN (16) INCHES IN DIAMETER SHALL BE PIGGED WITH A POLYETHYLENE "PIG". PIGGING SHALL OCCUR PRIOR TO HYDROSTATIC TESTING AND CHLORINATION. THE PIG SHOULD BE INSERTED IN THE FIRST JOINT OF PIPE AND BLOWN OUT ALONG WATER LINE THROUGH A BLOW-OFF ASSEMBLY OR A FIRE HYDRANT. THE USE OF A DISASSEMBLED FIRE HYDRANT TO REMOVE THE PIG MAY ONLY OCCUR ON SMALL WATER LINES. A BLOW-OFF ASSEMBLY IN ACCORDANCE WITH STANDARD DETAILS IS REQUIRED AT THE END OF ALL MAINS.

FOLLOWING PIGGING OF THE WATER LINE, FLUSHING MUST OCCUR UNTIL CLEAR WATER IS DISCHARGED FORM THE BLOW-OFF. EXCESSIVE FLUSHING IS DISCOURAGED IN AN EFFORT TO CONSERVE WATER.

WHEN A NEW SHORT WATER LINE IS INSTALLED BETWEEN TWO (2) EXISTING WATER LINES, THE TOWN ENGINEER MAY WAIVE THE REQUIREMENT FOR PIGGING. IF THE WTAER LINE IS LONG, TEMPORARY PIG LAUNCHING AND RETRIEVING STATIONS MUST BE INSTALLED NEAR THE TIE POINTS TO THE EXISTING LINES.

NO VALVE IN THE EXISTING TOWN OF SMITHFIELD WATER SYSTEM SHALL BE OPERATED WITHOUT AUTHORIZATION FOR THE PUBLIC UTILITIES DEPARTMENT. A SECTION OF LINE WHICH IS TO BE HYDROSTATICALLY TESTED, SHALL BE SLOWLY FILLED WITH WATER AT A RATE WHICH WILL ALLOW COMPLETE EVACUATION OF AIR FROM THE LINE. HAND PUMPS SHALL NOT BE USED FOR THE PRESSURE TESTING OF WATER MAINS, TAPS USED FOR TESTING PURPOSES SHALL BE REMOVED AFTER TESTING AND REPAIRED USING A STAINLESS STEEL FULL CIRCLE REPAIR CLAMP IN ACCORDANCE WITH STANDARD DETAILS.

THE LINE SHALL BE TESTED TO A PRESSURE OF 200 PSI, AS MEASURED AT THE LOWEST ELEVATION OF THE LINE, FOR A DURATION OF TWO (2) HOURS. THE PRESSURE GAUGE USED IN THE HYDROSTATIC TEST SHALL BE CALIBRATED IN INCREMENTS OF 10 PSI, OR LESS. AT THE END OF THE TEST PERIOD, THE LEAKAGE SHALL BE MEASURED WITH AN ACCURATE WATER METER.

PI	PE SIZE	Ξ			Α	LLO	WABL	E LEA	\KA(GE.			
(1)	NCHES)				(GALLO	NS	PER	1,00	0 F	EET	OF	PIPE)	
•	4				,			0.85					
	6							1.28					
	8							1.70					
	12							2.56					
	16							3.40					
	20							4.24					
	24							5.10					
BLE	LEAKS	ARE	TO	ΒE	REPAIRED,	RE	GARDI	LESS	OF	THE	AM	OUNT	(

LEAKAGE.

C. CHLORINATION ALL ADDITIONS OR REPLACEMENTS TO THE WATER SYSTEM SHALL BE CHLORINATED BEFORE BEING PLACED IN SERVICE. SUCH CHLORINATION MUST TAKE PLACE UNDER THE SUPERVISION OF AN INSPECTOR.



STANDARD DETAIL AND SPECIFICATIONS MANUAL SMITHFIELD, NORTH CAROLINA PUBLIC UTILITIES

NTS DETAIL NO 06.00_P10 DATE: 06/05/2018 CHLORINATION OF A COMPLETED LINE SHALL BE CARRIED OUT IN THE FOLLOWING

a) TAPS WILL BE MADE AT THE CONTROL VALVE AT THE UPSTREAM END OF THE LINE, THE LINE SHALL HAVE A UNIFORM CONCENTRATION OF 100 PPM TOTAL CHLORINE AT ALL EXTREMITIES, INCLUDING VALVES.

b) A SOLUTION OF WATER CONTAINING HIGH TEST HYPOCHLORITE (70%) AVAILABLE CHLORINE SHALL BE INTRODUCED INTO THE LINE BY REGULATED PUMPING AT THE CONTROL VALVE TAP. THE CHART BELOW SHOWS THE REQUIRED QUANTITY OF 70% HTH COMPOUND TO BE CONTAINED IN A SOLUTION IN EACH 1,000 FEET SECTION OF LINE TO PRODUCE THE DESIRED CONCENTRATION OF 100

PIPE SIZE (INCHES)	POUNDS HIGH TEST HYPOCHLORITE (70%) PER 1,000 FEET OF LINE
6	1.76
8	3.12
10	4.84
12	7.00
14	9.52
16	12. 44
20	19.52
24	28.00

THE HTH SOLUTION SHALL BE CIRCULATED IN THE MAIN BY OPENING THE CONTROL VALVE AND SYSTEMATICALLY MANIPULATING HYDRANTS AND TAPS AT THE LINE EXTREMITIES. THE HTH SOLUTION MUST BE PUMPED IN AT A CONSTANT RATE FOR EACH DISCHARGE RATE IN ORDER THAT A UNIFORM CONCENTRATION WILL BE PRODUCED IN MAINS.

HTH SOLUTION SHALL REMAIN IN LINES FOR NO LESS THAN 24 HOURS OR AS DIRECTED BY THE TOWN ENGINEER.

EXTREME CARE WILL BE EXERCISED AT ALL TIMES TO PREVENT THE HTH SOLUTION FORM ENTERING EXISTING MAINS.

D. BACTERIOLOGICAL SAMPLING FREE RESIDUAL CHLORINE AFTER 24 HOURS SHALL BE AT LEAST 10 PPM OR THE INSPECTOR WILL REQUIRE THAT THE LINES BE RECHLORINATED.

FLUSHING OF LINES MAY PROCEED AFTER 24 HOURS, PROVIDED THE FREE RESIDUAL CHLORINE ANALYSIS IS SATISFACTORY. FLUSHING SHALL BE CONTAINED UNTIL AN ORTHOTOLIDINE CHECK SHOWS THAT THE LINES CONTAIN ONLY THE NORMAL CHLORINE RESIDUAL. SAMPLES FOR BACTERIOLOGICAL ANALYSIS SHALL BE COLLECTED IN THE PRESENCE OF A TOWN OFFICIAL 24 HOURS AFTER FLUSHING IS COMPLETED. THE CONTRACTOR SHALL PROVIDE PROPER CERTIFICATION OF THE BACTERIOLOGICAL ANALYSIS TO THE TOWN UPON COMPLETION OF TESTING AND PRIOR TO UTILIZATION OF THE LINE.

IF TEST RESULTS ARE UNSATISFACTORY, THE CONTRACTOR SHALL IMMEDIATELY RECHLORINATE LINES AND PROCEED WITH SUCH MEASURES AS ARE NECESSARY TO SECURE STERILE LINES.



STANDARD DETAIL AND SPECIFICATIONS MANUAL SMITHFIELD, NORTH CAROLINA PUBLIC UTILITIES

DETAIL NO. 06.00_P11 DATE: 06/05/201

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THE NEW WATER SYSTEM SHALL BE VALVED OFF FROM THE EXISTING SYSTEM UNTIL A SATISFACTORY BACTERIOLOGICAL SAMPLE HAS BEEN OBTAINED AND THE INSPECTOR HAS AUTHORIZED THE USE OF THE NEW WATER SYSTEM.

6.09 FIRE PROTECTION DURING CONSTRUCTION

THE FIRE PROTECTION WATER SUPPLY SYSTEM, INCLUDING FIRE HYDRANTS, SHALL BE INSTALLED AND BE IN AT LEAST THE FUNCTIONAL STATUS PRIOR TO PLACING COMBUSTIBLE MATERIALS ON THE PROJECT SITE. IF PHASED CONSTRUCTION IS PLANNED, COORDINATED INSTALLATION OF THE FIRE PROTECTION WATER SYSTEM IS PERMITTED. COORDINATION OF THE WATER SYSTEM WILL BE DONE THROUGH THE PUBLIC UTILITIES DEPARTMENT AND THE SMITHFIELD FIRE DEPARTMENT, FUNCTIONAL STATUS WOULD INCLUDE MEETING ALL STANDARDS SET FORTH IN SECTION 6.08 - TESTING AND INSPECTION.

6.10 IRRIGATION SYSTEMS

ALL IRRIGATION SYSTEMS WITHIN PUBLIC STREET RIGHT OF WAY SHALL OBTAIN AN ENCROACHMENT AGREEMENT FOR THE TOWN, PRIOR TO INSTALLATION OF THE SYSTEM. PLANS DESIGNATING THE LOCATION, SIZE, MATERIAL DEPTH, ETC. SHALL BE SUBMITTED WITH THE APPLICATION FOR AN ENCROACHMENT AGREEMENT.

PIPE MATERIAL FOR THE MAINLINE PROPOSED TO BE USED WITHIN THE PUBLIC RIGHT OF WAY SHALL BE SCHEDULE 40 PVC OR GREATER. A DISTANCE OF AT LEAST TWO (2) FEET SHALL BE PROVIDED FROM THE BACK OF THE CURB. A MINIMUM DEPTH OF TWO (2)

THE IRRIGATION MAINLINE PIPE SYSTEM SHALL BE HYDROSTATICALLY TESTED AS PER SECTION 6.08, WITH A MINIMUM PRESSURE OF 250 PSI OR 50 PSI ABOVE WORKING

IRRIGATION SYSTEMS SHALL HAVE A BACKFLOW PREVENTER INSTALLED IN ACCORDANCE WITH SECTION 6.06

ALL STREET CROSSINGS OF IRRIGATION SYSTEMS SHALL BE CONTAINED WITHIN AN ENCASEMENT CONDUIT. DUCTILE IRON CASING SHALL BE USED. IRRIGATION SYSTEMS INSTALLED IN THE MEDIANS OF TOWN MAINTAINED ROADWAYS MUST ALSO HAVE FRENCH DRAINS INSTALLED BEHIND THE CURB AND GUTTER, WHICH IS PIPED TO A STORM DRAIN

6.11 REPAIR OF WATER LINES

JOINT LEAKS OF CAST IRON PIPE, DUCTILE IRON PIPE, AND PVC PIPE SHALL USE A BELL JOINT LEAK REPAIR CLAMP, AS MANUFACTURED BY ROCKWELL, OR OTHER APPROVED EQUAL.

LINE BREAKS OR PUNCTURES SHALL BE REPAIRED BY A FULL CIRCLE CLAMP AS MANUFACTURED BY ROCKWELL, OR OTHER APPROVED EQUAL.

LINE SPLITS OR BLOW OUTS SHALL BE REPAIRED BY REPLACING THE DAMAGED SECTION WITH DUCTILE IRON PIPE, OR C900 PVC PIPE, WITH REPAIR COUPLINGS AT EACH END. REPAIR COUPLING SHALL BE KRAUSZ HYMAX COUPLING, OR APPROVED EQUAL.



STANDARD DETAIL AND SPECIFICATIONS MANUAL SMITHFIELD, NORTH CAROLINA PUBLIC UTILITIES

DETAIL NO. 06.00_P12 DATE: 06/05/2018

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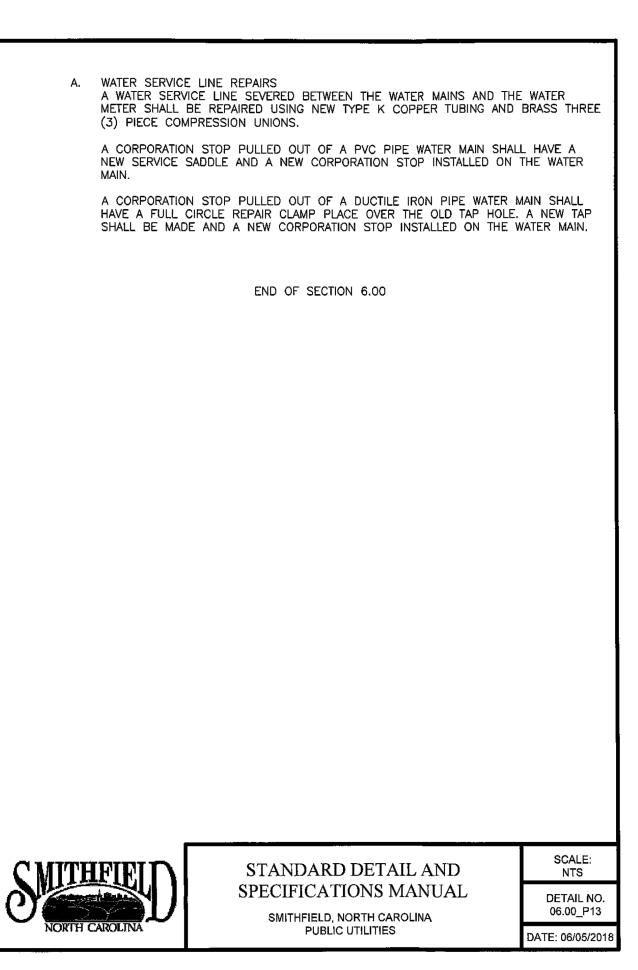
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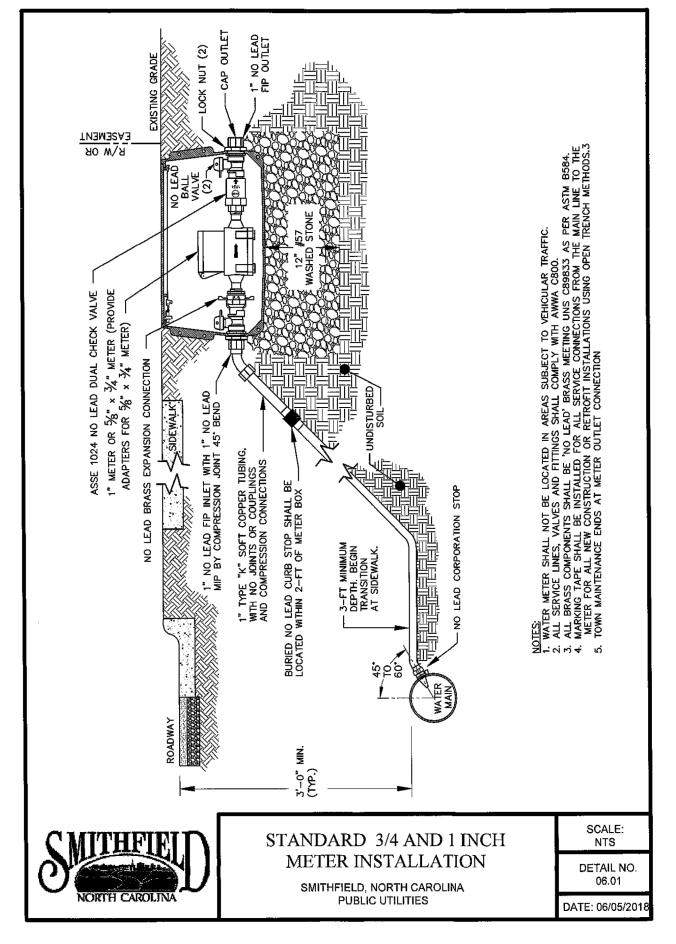
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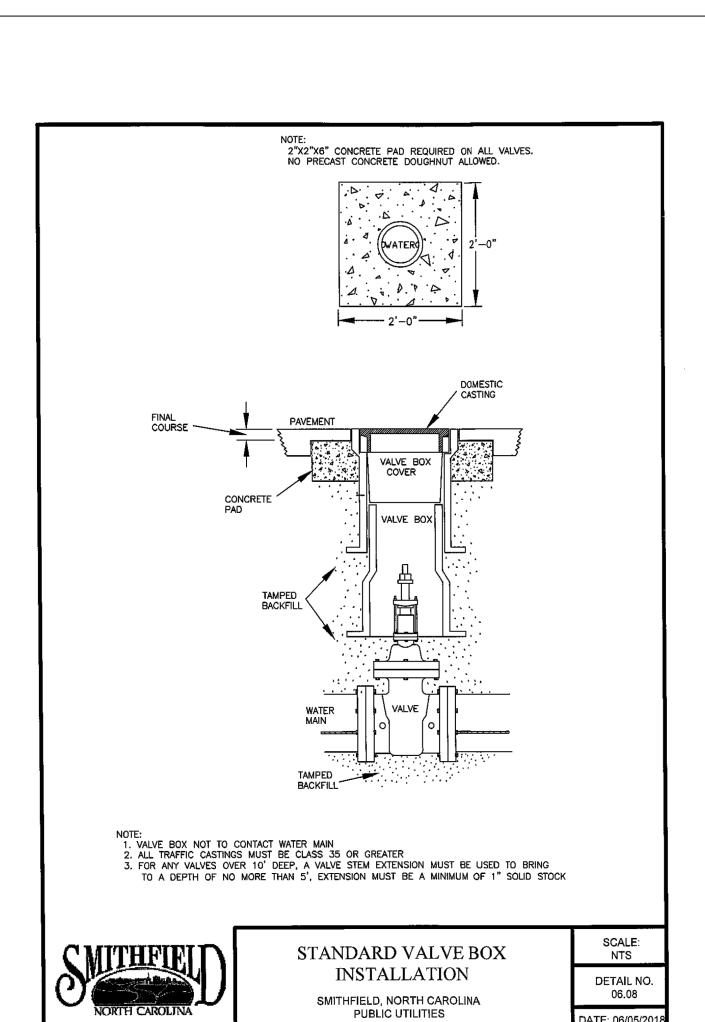
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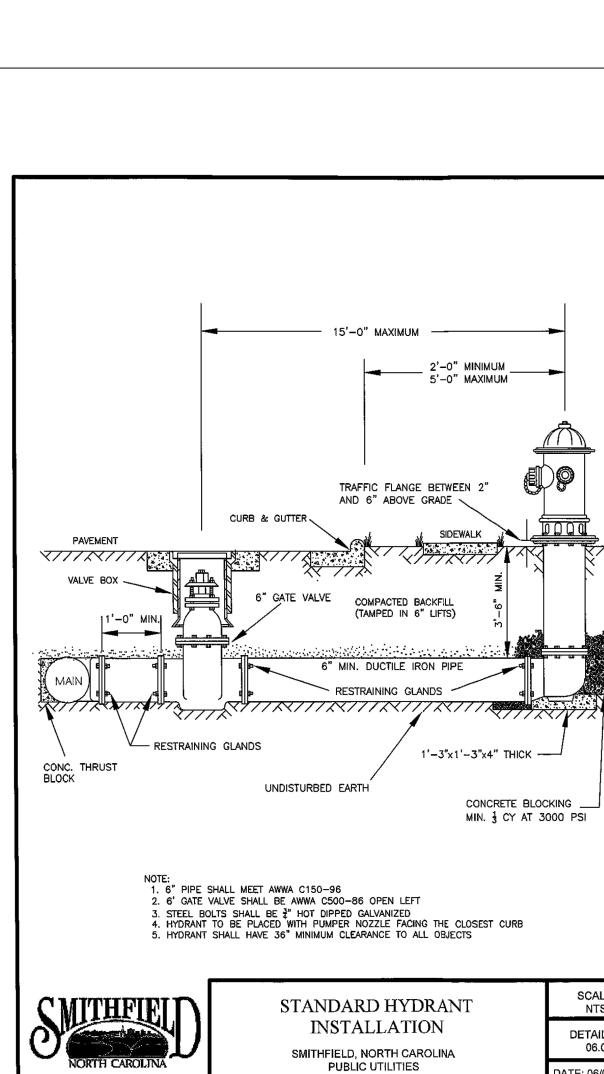
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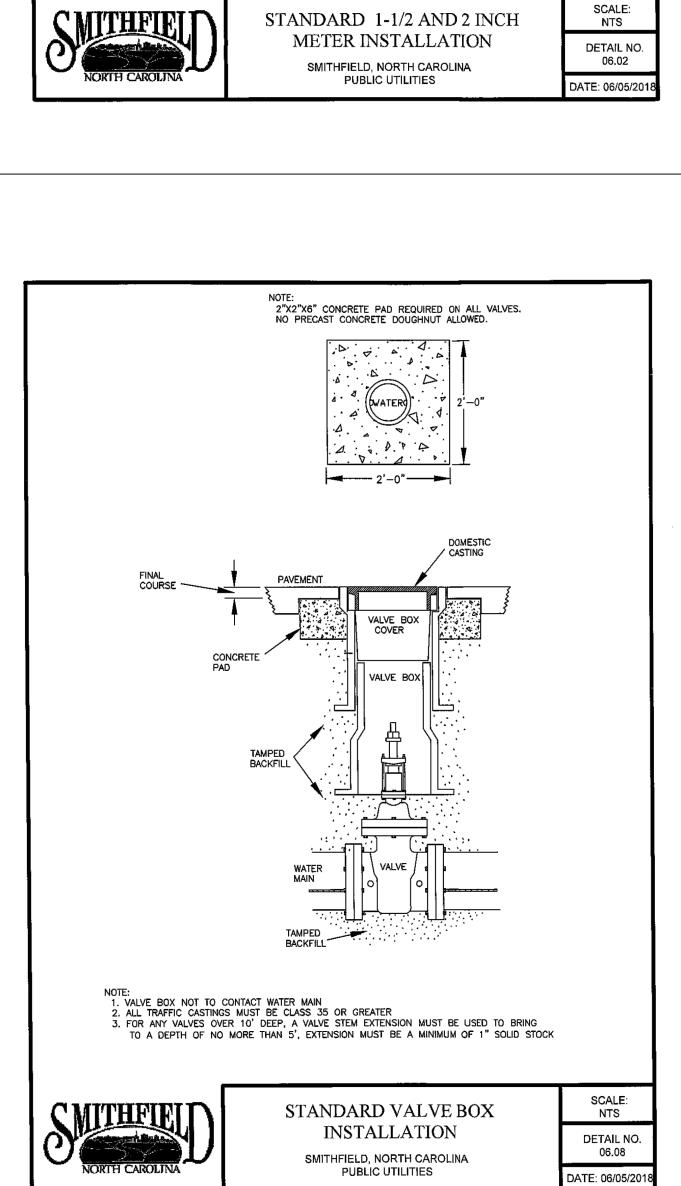


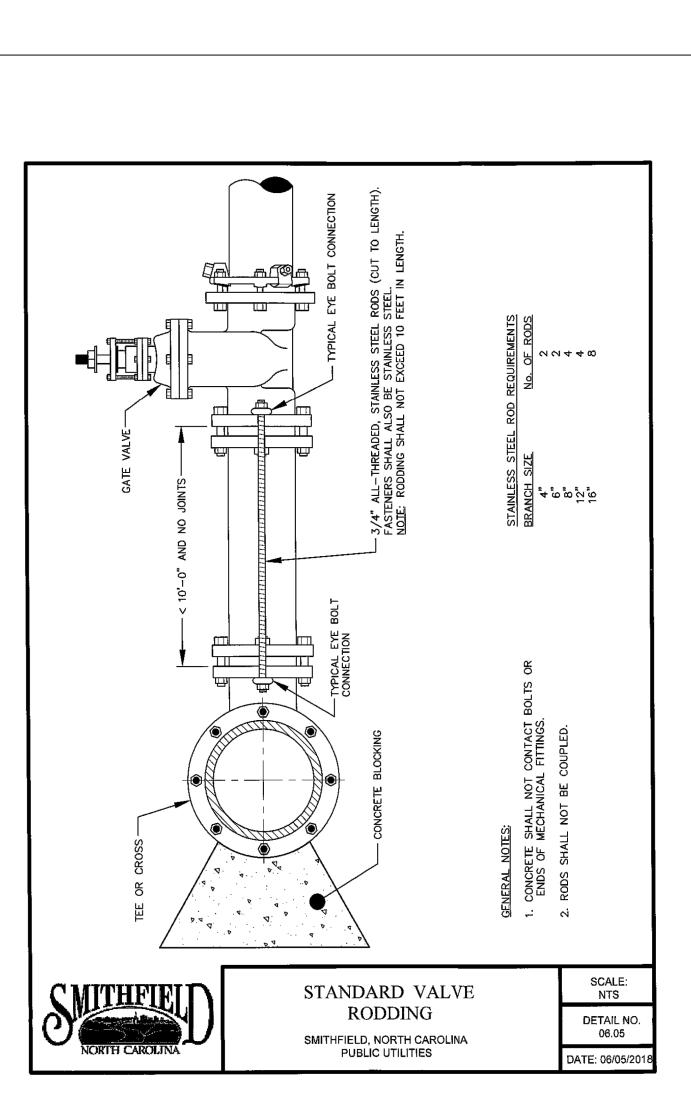
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DATE: 06/05/201







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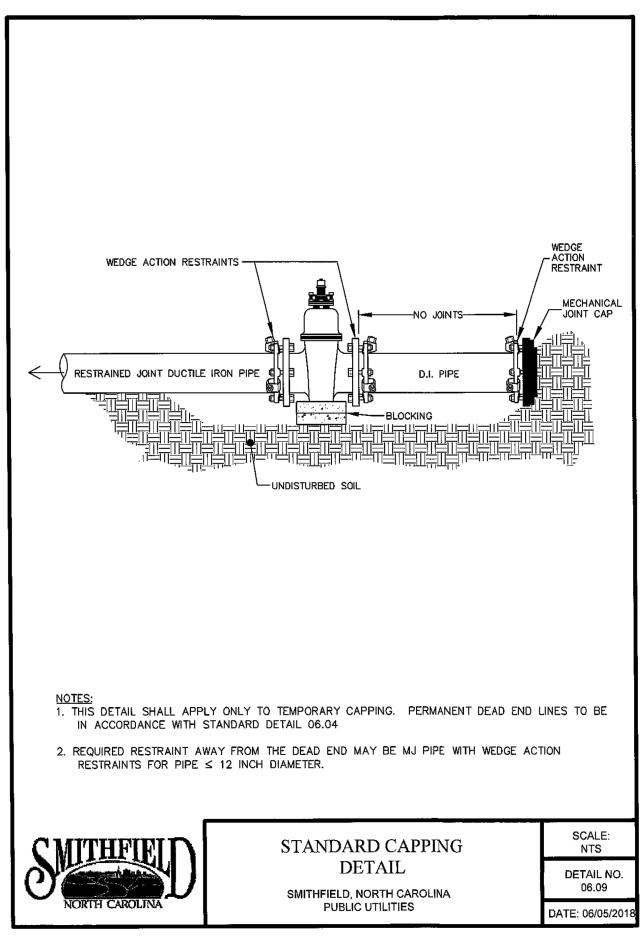
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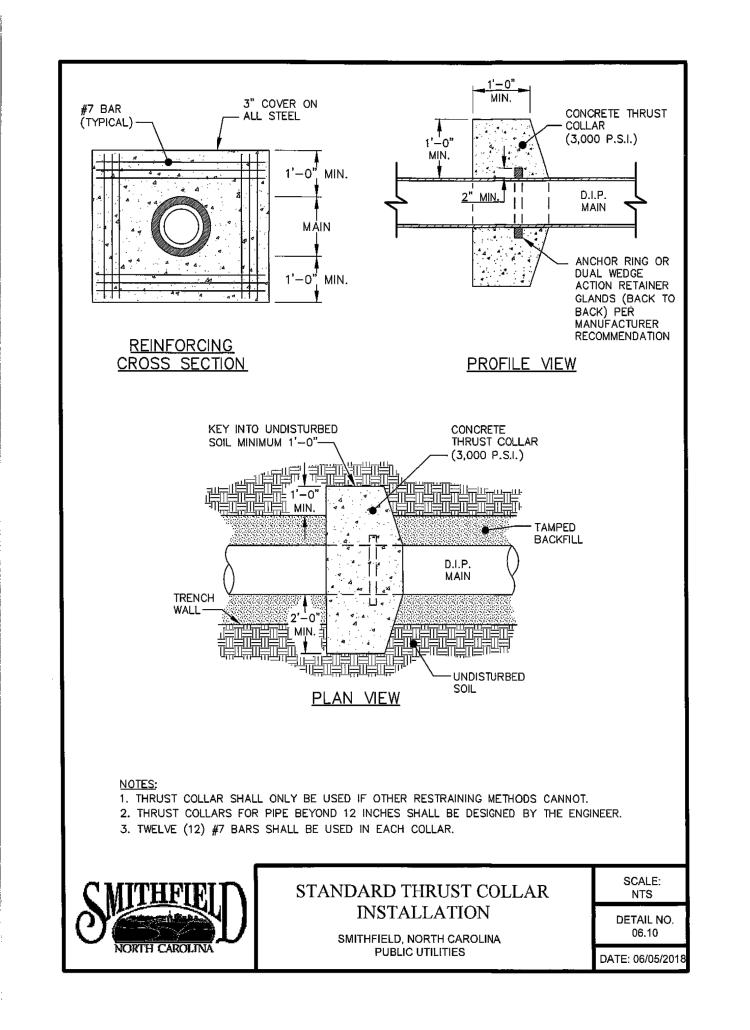
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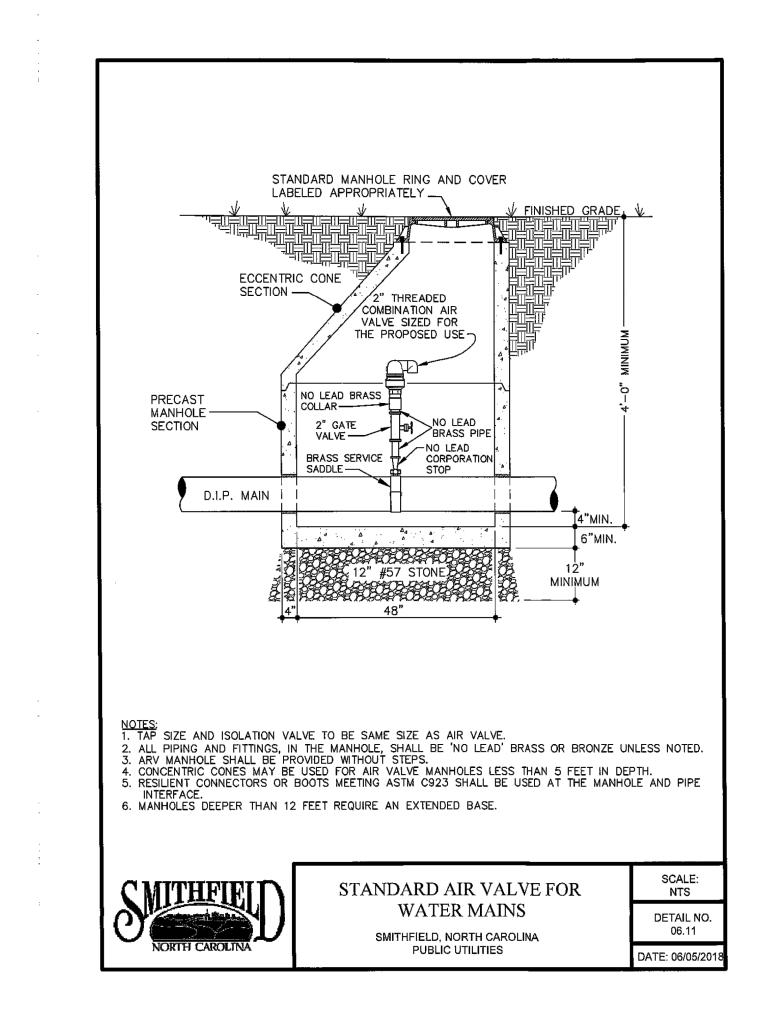
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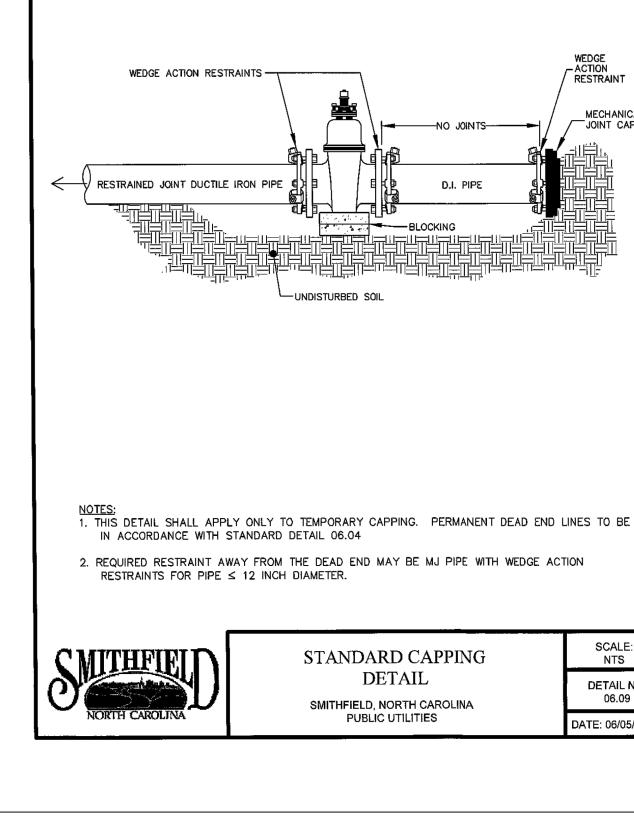
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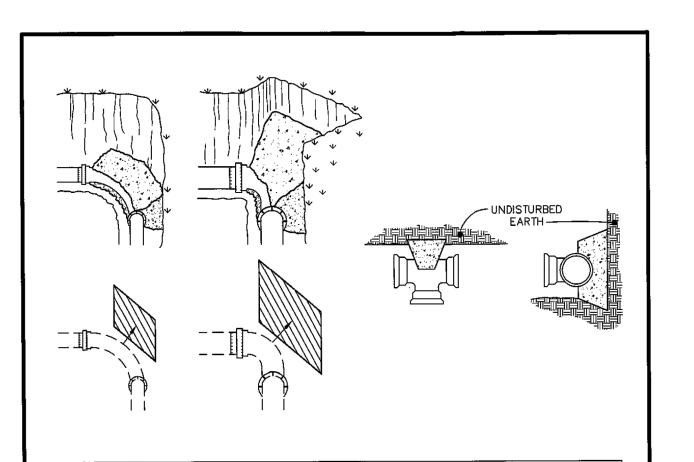
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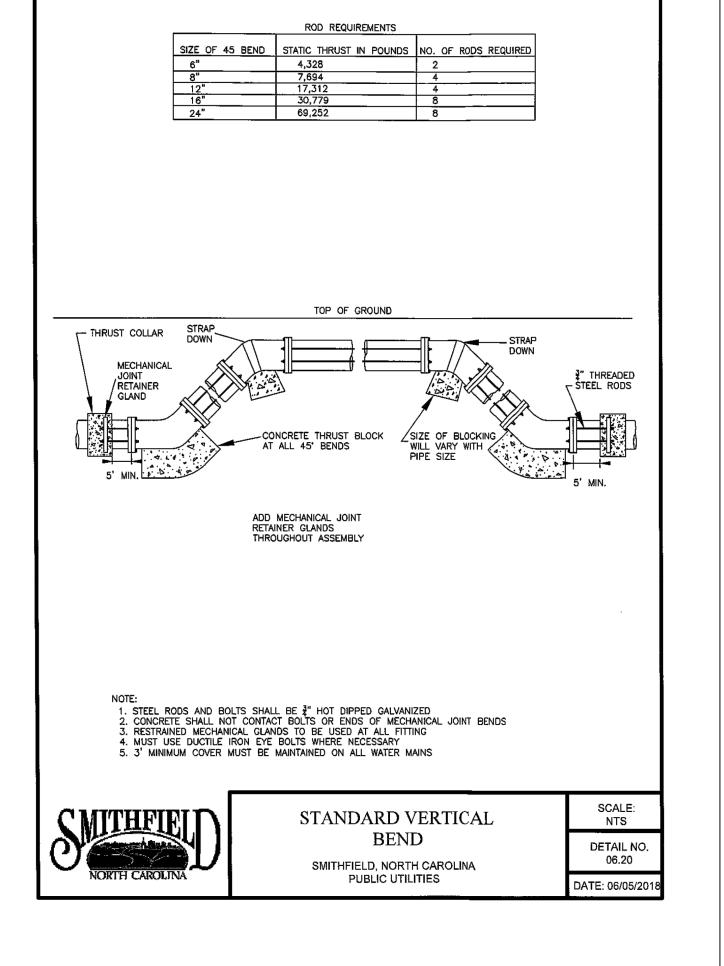


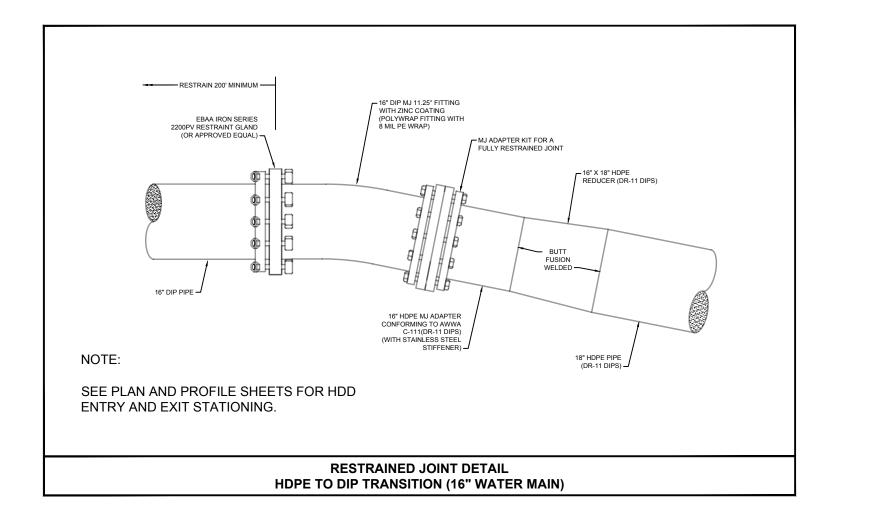
	MINIMUM	CONCRETE	BLOCKING	(C.Y.)	<u> </u>
NOMINAL PIPE DIAMETER INCHES	TEES & DEAD ENDS	90. BEND	45° BEND	221/2. BEND	111/4. BEND
4	1/3	冶	1/3	沒	⅓
6	况	冶	⅓	⅓	1/3
8	1/3	1/2	1/3	1/3	1/3
10	2/ 3	3/4	1/2	沒	⅓
12	3/4	1.0	2/3	⅓	况

- 1. FITTING SHALL BE WRAPPED WITH A MINIMUM 4 MIL PLASTIC.
- 2. NO CONCRETE SHALL COVER BOLTS OR GLANDS.
- 3. CONCRETE SHALL BE 3,000 PSI MIX. 4. PIPE DIAMETERS BEYOND 12 INCHES SHALL UTILIZE A PROFESSIONAL ENGINEER'S SEALED
- DESIGN CONSISTING OF RESTRAINED JOINT PIPE OR BLOCKING.



STANDARD REACTION NTS BLOCKING DETAIL NO. 06.13 SMITHFIELD, NORTH CAROLINA PUBLIC UTILITIES DATE: 06/05/201





HDPE AND HDD NOTES:

- 1. CONTRACTOR SHALL ELIMINATE BENDS BY UTILIZING THE PIPE BENDING RADIUS PER THE PIPE MANUFACTURER'S RECOMMENDATIONS.
- 2. CONTRACTOR SHALL REDUCE THE VERTICAL RADIUS OF CURVATURE AND THEREFORE THE DEPTH OF COVER IN ACCORDANCE WITH THE CAPABILITIES OF THE SPECIFIC DRILLING RIG AND RODS SELECTED BY THE CONTRACTOR. MINIMUM COVER SHALL BE MAINTAINED AS INDICATED.
- 3. LOCATION OF DIRECTIONAL DRILLING LAUNCHING AND RECEIVING LOCATIONS SHOWN IS APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL DRILLING AND RECEIVING LOCATIONS IN THE FIELD SO AS TO MINIMIZE LAND DISTURBANCE AND AVOID ENVIRONMENTAL IMPACTS.
- 4. THE PIPE SHALL BE JOINED WITH ELECTROFUSION COUPLINGS AS OUTLINED IN ASTM F1055 AND CONFORM TO THE GENERIC ELECTROFUSION PROCEDURE FOR FIELD JOINING OF POLYETHYLENE (PE) PIPE, PUBLISHED BY THE MUNICIPAL ADVISORY BOARD (MAB), OR WITH BUTT (THERMAL) FUSION WELDS AND CONFORM TO THE GENERAL BUTT FUSION JOINING PROCEDURE FOR FIELD JOINING OF POLYETHYLENE PIPE, TECHNICAL REPORT 33 (TR-33) PUBLISHED BY THE PLASTICS PIPE INSTITUTE (PPI). ALL JOINTS SHALL BE MADE IN STRICT COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. A FACTORY QUALIFIED JOINING TECHNICIAN AS DESIGNATED BY PIPE MANUFACTURER OR EXPERIENCED, TRAINED TECHNICIAN SHALL PERFORM ALL ELECTROFUSION AND BUTT FUSION JOINTS.
- 5. LENGTHS OF PIPE SHALL BE ASSEMBLED INTO SUITABLE INSTALLATION LENGTHS BY THE FUSION PROCESS BEING PERFORMED. ALL PIPES SO JOINED SHALL BE MADE FROM THE SAME CLASS
- AND TYPE OF RAW MATERIAL MADE BY THE SAME RAW MATERIAL SUPPLIER. PIPE SHALL BE FURNISHED IN STANDARD LAYING LENGTHS, NO SHORTER THAN 20 FEET.
- 6. CONTRACTOR SHALL NOT EXCEED BENDING RADIUS AND PULLBACK FORCE LIMITS SET FORTH BY THE MANUFACTURER'S REQUIREMENTS. 7. CONSTRUCTION METHODS SHALL CONFORM TO THE PLASTIC PIPE INSTITUTE (PPI) HANDBOOK OF POLYETHYLENE PIPE.
- 8. PULLBACK DURATION SHALL BE LIMITED TO 12 HOURS MAXIMUM FOR EACH DRILL.
- 9. A BREAKAWAY LINK SHALL BE USED TO PREVENT THE PULL-BACK FORCE FROM EXCEEDING THE ALLOWABLE PULL-BACK STRESS OF THE PIPE.
- 10. HDPE PIPE AND FITTINGS SHALL BE MANUFACTURED WITH PREMIUM PE4710 RESIN CONFORMING TO ASTM D3350 WITH WITH CELL CLASSIFICATION 445574C/E AND SHALL BE LISTED WITH THE
- PLASTIC PIPE INSTITUTE'S (PPI) TR4. HDPE MATERIAL SHALL BE FORMULATED WITH CARBON BLACK AND/OR ULTRAVIOLET STABILIZER FOR MAXIMUM PROTECTION AGAINST UV RAYS. 11. ANY HDPE PIPE USED FOR POTABLE WATER MAINS SHALL BE BLACK IN COLOR WITH PERMANENT BLUE STRIPES EXTRUDED INTO THE PIPE OR SOLID BLUE AND MARKED "NSF-PW".
- 12. ANY HDPE PIPE USED FOR SANITARY SEWER FORCE MAINS SHALL BE BLACK IN COLOR WITH PERMANENT GREEN STRIPES EXTRUDED INTO THE PIPE OR SOLID GREEN.
- 13. ALL HDPE PIPE INSTALLED SHALL BE CONTINUOUSLY MARKED BY THE MANUFACTURER WITH PERMANENT INK INDICATING THE FOLLOWING:
 - a. NOMINAL SIZE (INCHES)
 - DIMENSION RATIO (DR)
 - PRESSURE RATING (PSI) MATERIAL CLASSIFICATION (PE4710)
 - PLANT, EXTRUDER AND OPERATOR CODES
 - RESIN SUPPLIER CODE DATE PRODUCED

08-27-2025

. VALENTINE DESIGNED BY . VALENTINE CHECKED BY

SCALE

STRICKLAND AS SHOWN

70209 SHEET NO.

- LIMITS OF DISTURBANCE: 0.20 ACRES 2. PROVISIONS TO PREVENT EROSION OF THE SOIL FROM THE SITE SHALL CONFORM TO THE REQUIREMENTS OF THE "NORTH CAROLINA SEDIMENTATION POLLUTION CONTROL ACT OF 1973" AS SHOWN HEREIN AND STIPULATED IN THE "EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL" BY VARIOUS AGENCIES WITHIN THE STATE OF NORTH CAROLINA. INSTALLATION SHALL BE IN A MANNER SO AS TO MINIMIZE EROSION OF THE DISTURBED AREAS AND PREVENT SEDIMENT
- FROM LEAVING THE SITE. TEMPORARY VEGETATIVE COVER SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6, SECTION 10 AND 11 OF THE "PLANNING AND DESIGN MANUAL" AS DESCRIBED IN NOTE
- 4. EROSION CONTROL INSPECTOR CAN BE REACHED AT THE NCDENR MOORESVILLE REGIONAL OFFICE AT
- 5. EROSION CONTROL DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS. THE PLANS AND DETAILS ARE BASED ON THE NC EROSION AND SEDIMENT PLANNING DRAWINGS, AND THE PROJECT SPECIFICATIONS.
- 6. ALL SEDIMENT AND EROSION CONTROL MEASURES ARE TO BE INSPECTED BY THE CONTRACTOR AT LEAST ONCE EVERY SEVEN (7) DAYS AND AFTER ANY STORM EVENT OF 1" OR GREATER PRECIPITATION DURING 24 HOUR PERIOD. THE CONTRACTOR SHALL PROVIDE THE ENGINEER AND OWNER WITH COPIES OF HIS INSPECTION REPORT AND SHALL HAVE 5 DAYS TO REPAIR AND/OR CORRECT DEFICIENCIES. DAMAGED OR INEFFECTIVE DEVICES SHALL BE REPAIRED OR REPLACED AS NECESSARY.
- 7. ALL DISTURBED AREAS WHERE CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY CEASED SHALL BE STABILIZED WITH GRASSING AS SOON AS PRACTICABLE AND IN NO CASE EXCEED THE TIME AS DESCRIBE IN THE "STABILIZATION TIMEFRAME", ATTACHED TO THIS SHEET (PER NPDES STORMWATER GENERAL PERMIT NCG010000)
- ALL CONSTRUCTION WORK SHALL BE IN COMPLIANCE WITH REGULATIONS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER GENERAL PERMIT (NCGO10000). THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUCTING, RECORDING, AND SUBMITTING THE REQUIRED SELF-INSPECTION REPORTS TO THE APPROPRIATE AGENCIES. PERMIT DOCUMENTATION CAN BE FOUND IN THE PROJECT SPECIAL CONDITIONS.
- 9. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION, AS DETERMINED BY THE ENGINEER OR EROSION CONTROL INSPECTOR
- 10. THE CONTRACTOR SHALL TAKE NECESSARY ACTION TO MINIMIZE TRACKING OF MUD ONTO PAVED ROADWAY SURFACE FROM CONSTRUCTION AREAS, INCLUDING BUT NOT LIMITED TO EXTENDING THE MUD MAT. THE CONTRACTOR SHALL REMOVE MUD AND SOIL FROM THE PAVEMENT ON A DAILY BASIS. NO ADDITIONAL PAYMENT WILL BE MADE.
- 11. THE CONTRACTOR SHALL SCHEDULE AND PERFORM A CONTINUOUS CONSTRUCTION OPERATION AT ALL DRAINAGE DITCHES AND STREAM CROSSINGS IN ORDER TO MINIMIZE THE TIME WORKING IN THE DRAINAGE OR STREAM.
- 12. IF FILL MATERIALS ARE TO BE BROUGHT ON TO THIS PROJECT OR WASTE MATERIALS ARE TO BE TAKEN FROM THIS PROJECT, THIS INFORMATION MUST BE DISCLOSED AND SHOWN ON THE EROSION CONTROL AND GRADING PLAN. BORROWED AREAS AND DUMP SITES ARE CONSIDERED TO BE PART OF THIS PROJECT AND THE OWNER IS RESPONSIBLE FOR STABILIZATION AND EROSION CONTROL MEASURES AT THESE SITES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARATION AND APPROVAL OF THE EROSION CONTROL PLAN FOR ANY OFF SITE BORROW OR DUMP SITES.
- 13. SEE EROSION CONTROL PLANS FOR LIMITS OF DISTURBANCE.
- 14. SILT FENCE OUTLETS SHALL BE CONSTRUCTED IN LOW LYING AREAS AND AREAS OF CONCENTRATED FLOW ALONG THE LENGTH OF TEMPORARY SILT FENCING. IF LOCATIONS ARISE DURING THE COURSE OF CONSTRUCTION WHERE THE TEMPORARY SILT FENCE BECOMES OVERWHELMED WITH FLOW AND FAILS, THE CONTRACTOR SHALL REPAIR THESE AREAS WITH SILT
- 15. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE. THE ROAD SURFACE SHALL BE CLEANED IMMEDIATELY AND CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.

SEQUENCE OF CONSTRUCTION

- 1 OBTAIN COPIES OF PLAN APPROVAL AND OTHER APPLICABLE PERMITS. THE NOTICE OF INTENT (NOI) AND THE EROSION AND SEDIMENT CONTROL (ES&C) PERMIT AND A CERTIFICATE OF COVERAGE (COC) MUST BE OBTAINED BEFORE ANY LAND DISTURBING ACTIVITIES (INCLUDING TIMBERING AND DEMOLITION) OCCUR.
- 2. THE CONTRACTOR SHALL CONTACT THE NCDENR LAND QUALITY SECTION MOORESVILLE REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO COMMENCING THE LAND DISTURBING ACTIVITY AT 704-663-6040, PRIOR TO ANY LAND DISTURBANCE ACTIVITY, TO SCHEDULE A PRE-CONSTRUCTION MEETING WITH REPRESENTATIVES FROM NCDENR, CONTRACTOR, ENGINEER, AND OWNER.
- HOLD PRECONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION. 4. FLAG THE WORK LIMITS AND MARK ITEMS TO BE PROTECTED, SUCH AS TREES AND EXISTING
- UTILITIES THAT ARE TO REMAIN.
- 5. PER NPDES REQUIREMENTS, A RAIN GAUGE, SELF-INSPECTIONS RECORDS, PERMIT, CERTIFICATE OF COVERAGE, AND E&SC PLAN ARE REQUIRED TO BE MAINTAINED ON SITE AND ACCESSIBLE DURING INSPECTION. IT IS RECOMMENDED THAT THESE ITEMS BE PLACED AT THE BEGINNING OR ENTRANCE OF THE PROJECT.
- 6. SELF-INSPECTIONS FOR EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF EVERY RAIN EVENT GREATER THAN 1 INCH. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED. WATTLES AND WATER BARS ARE TO BE REPAIRED OR RE-INSTALLED DAILY IF REMOVED. ALL E&SC MEASURES SHALL BE MAINTAINED AS SPECIFIED IN THE CONSTRUCTION DETAILS ON THIS PLAN. A RAIN GAUGE SHALL BE INSTALLED AT THE PROJECT SITE FOR MONITORING.
- INSTALL TEMPORARY CONSTRUCTION ENTRANCES AS SHOWN.
- REMOVE TREES AND OTHER VEGETATION, AS NECESSARY, FOR THE INSTALLATION OF SILT FENCE AND OTHER EROSION CONTROL MEASURES. ALL DIVERSIONS OR DITCHES WILL BE LINED TO THE TOP OF THE BANK.
- 9. INSTALL SEDIMENT FENCE AND STONE OUTLETS AS NEEDED.
- 10. BEGIN WATER LINE INSTALLATION ONLY AFTER ALL EROSION CONTROL DEVICES ARE INSTALLED AND AREAS DOWNSTREAM OF WORK LIMITS ARE PROTECTED.
- 11. ANY DEWATERING IS TO BE DONE THROUGH A SILT BAG WITH A FLOATING INTAKE THAT IS CONSTANTLY MONITORED WHILE IN USE.
- 12. ANY BYPASS PUMPING IS TO BE MONITORED 4 UNTIL BANKS ARE COMPLETELY STABILIZED AND FLOW RETURNED TO THE CHANNEL. 13. TO FACILITATE IN CLEANUP OF PAVED SURFACES, A LAYER OF SAND, SCREENINGS, OR FINES WILL
- BE PLACED BEFORE DEPOSITION OF ANY EXCAVATED MATERIAL OR USE BY EQUIPMENT/VEHICLES ASSOCIATED WITH THE PROJECT. 14. EXISTING GRADE IS TO BE MAINTAINED FOR THE SITE UNLESS OTHERWISE NOTED ON THE PLANS. WITHIN 7 DAYS OF COMPLETING A SECTION OF THE PROJECT WHERE NO FURTHER LAND
- DISTURBANCE IS NECESSARY, CLOSE OUT, SEED AND STABILIZE AREA TO PREVENT FURTHER EROSION. SEED AREAS ACCORDING TO THE SEED SPECIFICATIONS. 15. PER THE NPDES PERMIT, GROUND STABILIZATION WILL BE APPLIED WITHIN 14 CALENDAR DAYS FROM LAST LAND DISTURBING ACTIVITY. FOR STEEP SLOPES, THAT AREA MUST BE STABILIZED
- WITHIN 7 CALENDAR DAYS. 16. AFTER SITE IS STABILIZED, REMOVE ALL TEMPORARY MEASURES, SEED AND MULCH REMAINING DISTURBED AREAS.
- 17. WHEN THE PROJECT IS COMPLETE, THE PERMITTE SHALL CONTACT DEMLR TO CLOSE OUT THE E&SC

EROSION CONTROL MAINTENANCE:

- SELF-INSPECTIONS FOR EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF EVERY RAIN EVENT OF GREATER THAN 1 INCH. ANY REPAIRS NEEDED SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED
- 2. ALL DRAINAGE INLETS DOWN SLOPE OF THE CONSTRUCTION WORK AREA SHALL PROTECTED FROM SILTATION. INEFFECTIVE PROTECTION DEVICES SHALL BE LAID IN SUCH A WAY THAT GOOD CONTACT WITH THE GROUND IS ESTABLISHED.
- SEDIMENT SHALL BE REMOVED FROM BEHIND THE SILT FENCE WHEN IT REACHED 0.5 FEET DEEP AT THE SILT FENCE. SHOULD THE SILT FENCE FABRIC COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE. REPLACE IT PROMPTLY AND REMOVE SEDIMENT DEPOSITS AS NECESSARY TO REDUCE PRESSURE ON THE FENCE. AVOID UNDERMINING SILT FENCE DURING CLEAN OUT.
- 4. CHECK STONE SILT FENCE OUTLETS FOR EROSION, PIPING AND ROCK DISPLACEMENT WEEKLY AND AFTER EVERY RAIN EVENT. REMOVE SEDIMENT DEPOSITS, STRAW, LIMBS AND DEBRIS FROM BEHIND TEMPORARY ROCK SILT CHECK AS NECESSARY TO PREVENT CHANNEL CLOGGING. ADD STONES AS NECESSARY TO MAINTAIN DESIGN HEIGHT.
- 5. ALL IMPERVIOUS DIKES SHALL BE CONSTRUCTED FROM NON-ERODIBLE MATERIALS (E.G. RIP RAP, SANDBAGS, CONCRETE AND ETC.) IN ACCORDANCE WITH DETAILS PROVIDED.
- 6. SEDIMENT REMOVED FOR ANY TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURE DURING REGULAR MAINTENANCE SHALL BE REMOVED FROM SITE
- 7. AFFECTED ROADS SHALL BE CLEANED DAILY OR MORE FREQUENTLY IF OTHERWISE REQUIRED BY THE 8. CONSTRUCTION EQUIPMENT AND VEHICLES WITH THE WORK AREA SHALL BE PROPERLY MAINTAINED

AND INSPECTED, PARTICULARLY FOR IDENTIFICATION AND REPAIR OF VEHICLES LEAKING PETROLEUM

PRODUCTS THAT COULD ENTER ADJACENT STORMWATER DRAINAGE FACILITIES. 9. ALL SEEDED AREA SHALL BE FERTILIZED, RESEEDED, AND MULCHED AS NECESSARY TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER, THROUGH THE ONE-YEAR WARRANTY PERIOD.

PLANNED EROSION AND SEDIMENT CONTROL MEASURES

- 1. SILT FENCE: SILT FENCE SHALL BE INSTALLED AND LOCATED ALONG THE PROPOSED LIMITS OF DISTURBANCE, AROUND THE SOIL STOCKPILE AREAS AND AS DIRECTED BY THE ENGINEER.
- 2. SURFACE STABILIZATION: SURFACE STERILIZATIONS WILL BE ACCOMPLISHED WITH VEGETATION, AND MULCH, MATTING, AND EROSION CONTROL STONE AS INDICATED ON THE PLANS
- TEMPORARY CONSTRUCTION ENTRANCE: TEMPORARY STABLIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED FOR ACCESS TO AND FROM THE CONSTRUCTION SITE. WASH-DOWN WATER AND RUNOFF FROM THE CONSTRUCTION ENTRANCES SHALL BE DIRECTED TO APPROPRIATE SOIL EROSION AND SEDIMENT CONTROL MEASURES.
- 4. CATCH BASIN INLET PROTECTION: A FILTER PLACED WITHIN AN INLET THAT CATCHES SEDIMENT, TRASH, AND OTHER DEBRIS FROM ENTERING THE STORM SEWER SYSTEM.
- STAGING AND LAYDOWN AREAS: STAGING AND LAYDOWN AREAS FOR VEHICLES, EQUIPMENT, AND CONSTRUCTION MATERIALS, SHALL BE LOCATED ON STABILIZED PORTIONS OF THE SITE. VEHICLES AND CONTENT, AND THE GUARANTEED PERCENTAGE OF PURITY AND GERMINATION. ALL SEED SHALL BE EQUIPMENT SHALL BE WASHED DOWN IN STABILIZED AREAS PRIOR TO EXISTING THE SITE
- 6. DUST CONTROL: SHOULD EXCESSIVE DUST BE GENERATED, IT SHALL BE CONTROLLED BY SPRINKLING. 7. DEWATERING: TEMPORARY DEWATERING PRACTICES SHALL BE USED TO PREVENT PONDING OF RAIN WATER OR GROUNDWATER DURING CONSTRUCTION OF EXCAVATED AREA SUCH AS LAUNCH PITS.
- RECEIVING PITS, AND OTHER AREAS WHERE THE WATER TABLE IS EXPOSED DUE TO EXCAVATION. WATTLES: WATTLES SHALL BE INSTALLED AS DITCH CHECKS AND ALONG THE LIMITS OF DISTURBANCE AS NOTED ON THE PLANS TO CAPTURE AND TEMPORARILY STORE RUNOFF FROM DISTURBED AREA
- PRIOR TO DISCHARGE FROM THE SITE. 9. RIP RAP SILT SCREEN: SMALL DAM STRUCTURE THAT REDUCES WATER VELOCITY AND PROVIDES SUFFICIENT CAPACITY TO TRAP SILT IN EXISTING AND PROPOSED DITCHES
- 10. A HORSESHOE SHAPED ROCK DAM STRUCTURE AT A PIPE INLET WITH A SEDIMENT STORAGE AREA AROUND THE OUTSIDE PERIMETER OF THE PIPE TO PREVENT SEDIMENT FROM ENTERING, ACCUMULATING IN AND BEING TRANSFERRED BY A CULVERT OR STORM DRAINAGE SYSTEM PRIOR TO STABILIZATION OF THE DISTURBED DRAINAGE AREA.

SITE CLEARING AND EROSION CONTROL NOTES

- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS GOVERNING THIS WORK. THE CONTRACTOR SHALL COORDINATE WITH APPLICABLE AGENCIES, UTILITY COMPANIES, AND/OR SUB-CONTRACTORS.
- 2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CLEARING AND GRUBBING OF SITE.
- 3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR ANY DAMAGE AND/OR RESTORE ANY INTERRUPTION TO ANY UTILITY SERVICE THAT MAY BE CAUSED BY THE CONTRACTOR'S CONSTRUCTION OR EQUIPMENT, AT THE CONTRACTOR'S EXPENSE, WITH NO ADDITIONAL COST TO THE OWNER.
- 4. ALL EXISTING SEWER, GAS, WATER, AND ECLECTIC UTILITY LINES, AS WELL AS STRUCTURES WITHIN THE CONTRACT AREA SHALL REMAIN, UNLESS REMOVAL IS SPECIFICALLY NOTES. IF ABANDONED PIPES ARE ENCOUNTERED DURING EXCAVATION, THEN THE CONTRACTOR SHALL DOCUMENT IN AS-BUILT DRAWINGS AND REMOVE PIPE IN OF EXCAVATION AND PLUG PIPE AT EACH END OF EXCAVATION. CONTRACTOR SHALL ENSURE THAT PIPE IS ABANDONED BEFORE ATTEMPTING THIS OPERATION.
- THE CONTRACTOR SHALL USE CARE DURING CONSTRUCTION TO AVOID DISTURBING ADJACENT ABOVE-GRADE OR SUBGRADE STRUCTURES, FACILITIES, CURBS, PAVEMENTS, ROADWAYS, AND PERIMETER FENCING. ANY DAMAGE RESULTING FROM THIS WORK SHALL BE RESTORED TO THE SATISFACTION OF THE OWNER AT THE CONTRACTOR'S EXPENSE
- 6. THE CONTRACTOR SHALL TAKE CARE TO PROTECT ROOT SYSTEMS OF EXISTING TREES THAT ARE TO REMAIN. BULK MATERIAL, EQUIPMENT, OR VEHICLES SHALL NOT BE STOCKPILED OR PARKED WITHIN DRIPLINE OF ANY TREE THAT IS TO REMAIN.
- 7. WHEN NECESSARY, THE CONTRACTOR SHALL EXCAVATE BY HAND WITHIN THE DRIPLINE OF EXISTING TREES THAT ARE TO REMAIN, OR AS DIRECTED BY THE ENGINEER. 8. BELOW-GRADE STRUCTURES TO BE REMOVED SHALL BE EXCAVATED TO A DEPTH OF 4'-0" BELOW
- FINISHED GRADE AND BACKFILLED WITH APPROVED SUITABLE FILL MATERIAL. 9. THE CONTRACTOR SHALL DISPOSE OF ALL ITEMS AND MATERIALS REMOVED AND NOT SALVAGED, INCLUDING ALL EXCAVATED MATERIAL, OFF-SITE AND IN LEGAL MANNER

GROUND STABILIZATION SPECIFICATION

STABILIZE THE GROUND SUFFICIENTLY SO THAT RAIN WILL NOT DISLODGE THE SOIL. USE ONE OF THE TECHNIQUES IN THE TABLE BELOW:

	TEMPORARY STABILIZATION			PERMANENT STABILI	ZATION	
STRA TACK ACRE HYDF ROLL WITH SEED APPF	ROSEEDING ED ERORSION CONTROL PROD I OR WITHOUT TEMPORARY GR	/GAL UCTS ASS	 STRA GEOT SOIL HYDR SHRU COVE UNIFO COVE STRU ASPH ROLL	MANENT GRASS SEED ON OR OTHER MULCHE FEXTILE FABRICS SUCH REINFORCEMENT MATERIOSEEDING JES OR OTHER PERMANERED WITH MULCH DRM AND EVENLY DISTER SUFFICIENT TO RESTOCTURAL METHODS SUFFICIENT OR RETAINING WED EROSION CONTROSS SEED	ES AND TA H AS PER ITING ANENT PLA TRIBUTED STRAIN ER JCH AS CO ALLS	ACKIFIERS MANENT ANTINGS O GROUND ROSION ONCRETE,

TEMPORARY SEEDING AND MULCHING

TEMPORARY MULCH MAY BE USED FOR THE PREVENTION OF EXCESSIVE SOIL EROSION DURING CONSTRUCTION OPERATIONS WHERE IT IS IMPOSSIBLE OR IMPRACTICAL TO PERFORM SEEDING AND MULCHING BECAUSE OF WEATHER CONDITIONS. TEMPORARY MULCH SHALL BE PLACED PROMPTLY WHEN DIRECTED BY THE ENGINEER.

TEMPORARY MULCHES MAY BE STRAW, FIBER MATS, NETTING, BARK, WOOD CHIPS, OR OTHER SUITABLE MATERIAL ACCEPTABLE TO THE ENGINEER AND SHALL BE REASONABLY CLEAN AND FREE OF NOXIOUS WEEDS AND DELETERIOUS MATERIAL. MULCH SHALL BE SPREAD UNIFORMLY OVER THE AREA BY HAND OR BY MEANS OF APPROPRIATE MECHANICAL SPREADERS OR BLOWERS TO OBTAIN AN APPLICATION SATISFACTORY TO THE ENGINEER. THE CONTRACTOR SHALL APPLY A SUFFICIENT AMOUNT OF ASPHALT OR OTHER TYPE MATERIAL TO ASSURE THAT THE TEMPORARY MULCH IS PROPERLY HELD IN PLACE.

ALL SEED SHALL BE MIXED BY A WHOLESALE SEED SUPPLIER IN ORDER TO OBTAIN THE SPECIFIED MIXTURE AND APPLICATION RATE REQUIRED BY ENGINEER. ALL SEED SHALL CONFORM TO ALL CURRENT STATE AND FEDERAL REGULATIONS AND SHALL BE SUBJECT TO THE TESTING PROVISIONS OF THE ASSOCIATION OF OFFICIAL SEED ANALYSTS. ALL SEED AND SEED MIXES SHALL BE FURNISHED IN BAGS OR CONTAINERS CLEARLY LABELED TO SHOW THE NAME AND ADDRESS OF THE SUPPLIER, THE COMMON, SCIENTIFIC, AND VARIETY NAME(S) OF THE SEED(S), THE LOT NUMBER, POINT OF ORIGIN, NET WEIGHT, PERCENT OF WEED GUARANTEED FOR PURITY AND GERMINATION, FREE OF NOXIOUS WEED SEED AND SUPPLIED ON A PURE LIVE SEED (PLS) BASIS.

FERTILIZER SHALL BE AS SHOWN ON THE DRAWINGS. ALL FERTILIZER SHALL BE A STANDARD COMMERCIAL PRODUCT OF UNIFORM COMPOSITION, FREE FLOWING AND CONFORMING TO APPLICABLE STATE AND FEDERAL LAWS.

THE TYPE OF MULCHING MATERIAL TO BE USED SHALL BE CRIMPED WEED-FREE STRAW. AT LEAST SEVENTY PERCENT (70%) OF THE MUCH BY WEIGHT SHALL BE TEN (10) INCHES OR MORE IN LENGTH. MULCH SHALL NOT CONTAIN ANY NOXIOUS WEED, MUST, MOLD, CAKE, OR DECAY. NO HAY MAY BE USED ON THE PROJECT.

ESTABLISHING VEGETATION

THE WORK INCLUDES SEEDBED PREPARATION, LIMING, FERTILIZING, SEEDING AND MULCHING OF ALL DISTURBED AREAS, LIME SHALL BE DOLOMITIC AGRICULTURAL GROUND LIMESTONE CONTAINING NOT LESS THAN TEN PERCENT MAGNESIUM

FERTILIZER SHALL BE STANDARD COMMERCIAL PRODUCT. ALL FERTILIZER SHALL BE DELIVERED IN BAGS BEARING THE MANUFACTURER'S NAME. THE CHEMICAL ANALYSIS OF THE PRODUCT AND THE WEIGHT. IF NOT USED IMMEDIATELY AFTER DELIVERY, THE FERTILIZER SHALL BE STORED IN A MANNER WHICH WILL NOT ALLOW IT TO HARDEN OR DESTROY ITS EFFECTIVENESS.

GRASS SEED SHALL BE AN APPROVED MIXTURE BASED ON REGIONAL AND SEASONAL CONSIDERATIONS. PURITY OF SEED SHALL BE A MINIMUM OF NINETY PERCENT AND THE GERMINATION SHALL BE A MINIMUM OF EIGHTY-- FIVE PERCENT. THE SEED LABEL SHALL BE A "CERTIFIED SEED" LABEL. MULCH SHALL CONSIST OF DRY, SMALL GRAIN STRAW, DRY HAY, AND OTHER SUITABLE AND APPROVED MATERIAL

ESTABLISHING TEMPORARY VEGETATION

THE TEMPORARY SEEDING OF DENUDED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 30 WORKING DAYS BUT LESS THAN ONCE YEAR SHALL BE IN ACCORDANCE WITH THE PREVIOUS SPECIFICATIONS AND THE FOLLOWING APPROPRIATE TEMPORARY SEEDING SCHEDULE.

TEMPORARY SEEDING SCHEDULES FOR THE PIEDMONT AREAS ARE AS FOLLOWS APPLICATION RATES(LB/AC)

RECOMMENDED	SPECIES	SEED	10-10- 10	AGRICULTURAL	STRAW
SEEDING DATES			FERTILIZE	R LIMESTONE	
JAN 1 MAY 1	RYEGRAIN ANNUAL	120	750	2000	4,000
	LESPEOEZA (KOBE)	50			4,000
MAY 1 AUG 15	GERMAN MILLET	40	750	2000	4,000
AUG 15 DEC 30	RYEGRAIN	120	1000	2000	4,000

MAINTENANCE AND RESEEDING

THE CONTRACTOR SHALL MAINTAIN ALL SEEDED AREAS UNTIL ACCEPTANCE OF THE WORK, BY WATERING MOWING, AND WEEDING. ANY AREAS WHICH FAIL TO SHOW A SATISFACTORY STAND, FOR ANY REASON WHATSOEVER, SHALL BE RETREATED FOLLOWING THE GRASSING PROCEDURE SPECIFIED HEREIN. DAMAGE, RESULTING FROM EROSION, GULLIES, WASHOUTS, OR OTHER CAUSES PRIOR TO ACCEPTANCE, SHALL BE REPAIRED BY REFILLING WITH TOPSOIL AND RETREATED FOLLOWING THE GRASSING PROCEDURE SPECIFIED HEREIN.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

- 1. NEVER BURY OR BURN WASTE. PLACE LITTER AND DEBRIS IN APPROVED WASTE CONTAINERS.
- PROVIDE A SUFFICIENT NUMBER AND SIZE OF WASTE CONTAINERS (E.G. DUMPSTER, TRASH RECEPTACLE) ON SITE TO CONTAIN
- CONSTRUCTION AND DOMESTIC WASTES. 3. LOCATE WASTE CONTAINERS AT LEAST 50 FEET AWAY FROM STORM DRAIN INLETS AND SURFACE WATERS UNLESS NO OTHER
- ALTERNATIVES ARE REASONABLY AVAILABLE 4. LOCATE WASTE CONTAINERS ON AREAS THAT DO NOT RECEIVE SUBSTANTIAL AMOUNTS OF RUNOFF FROM UPLAND AREAS AND DOES NOT DRAIN DIRECTLY TO A STORM DRAIN, STREAM OR
- WETLAND. COVER WASTE CONTAINERS AT THE END OF EACH DAY WORKDAY AND BEFORE STORM EVENTS OR PROVIDE SECONDARY
- CONTAINMENT. REPAIR OR REPLACE DAMAGED WASTE CONTAINERS. ANCHOR ALL LIGHTWEIGHT ITEMS IN WASTE CONTAINERS DURING
- TIMES OF HIGH WINDS. EMPTY WASTE CONTAINERS AS NEEDED TO PREVENT OVERFLOW.
- CLEAN UP IMMEDIATELY IF CONTAINERS OVERFLOW DISPOSE WASTE OFF-SITE AT AN APPROVED DISPOSAL FACILITY.
- ON BUSINESS DAYS, CLEAN UP AND DISPOSE OF WASTE IN DESIGNATED WASTE CONTAINERS.

PORTABLE TOILETS

- INSTALL PORTABLE TOILETS ON LEVEL GROUND, AT LEAST 50 FEET AWAY FROM STORM DRAINS, STREAMS OR WETLANDS UNLESS THERE IS NO ALTERNATIVE REASONABLY AVAILABLE. IF 50 FOOT OFFSET IS NOT ATTAINABLE, PROVIDE RELOCATION OF PORTABLE TOILET BEHIND SILT FENCE OR PLACE ON A GRAVEL PAD AND SURROUND WITH SAND BAGS.
- PROVIDE STAKING OR ANCHORING OF PORTABLE TOILETS DURING PERIODS OF HIGH WINDS OR HIGH FOOT TRAFFIC AREAS.
- MONITOR PORTABLE TOILETS FOR LEAKING AND PROPERLY DISPOSE IF ANY LEAKED MATERIAL. UTILIZE A LICENSED SANITARY WASTE HAULER TO REMOVE LEAKING PORTABLE TOILERS AND REPLACE WITH PROPERLY OPERATING UNIT.

SEEDING WETLANDS, BANKFULL NATURAL CHANNELS, AND NATURAL CHANNEL BUFFERS

TEMPORARY SEEDING:

- MIX 2 SPECIES TOGETHER.
- FERTILIZIER TO BE DETERMINED BY SOIL TESTING PROVIDED BY CONTRACTOR AND APPROVED BY ENGINEER/OWNER. - TEMPORARY GRASS TO BE CUT PRIOR TO PERMANENT SEEDING.

DEDIOD	SEED SPECIES	APPLICATION RATE

1 21 1102		RATE (LBS/ACRE)
SUMMER (5/15-8/15)	GERMAN MILLET BROWNTOP MILLET	10 10
WINTER	RYE GRAIN	40

WHEAT

PERMANENT SEEDING:

(8/15-5/15)

- MIX 4 SPECIES TOGETHER.
- FERTILIZIER TO BE DETERMINED BY SOIL TESTING PROVIDED BY CONTRACTOR AND APPROVED BY ENGINEER/OWNER.
- TEMPORARY GRASS TO BE CUT PRIOR TO PERMANENT SEEDING.

PERIOD	SEED SPECIES	APPLICATION RATE RATE (LBS/ACRE)
FALL (9/1-11/1)	GERMAN MILLET SOFT RUSH SHALLOW SEDGE FOX SEDGE	5 2 2 2
WINTER (12/1-4/1)	SWITCH GRASS DEERTONGUE SWEET WOODREED RICE CUTGRASS SOFT RUSH SHALLOW SEDGE FOX SEDGE	3 5 2 5 2 2



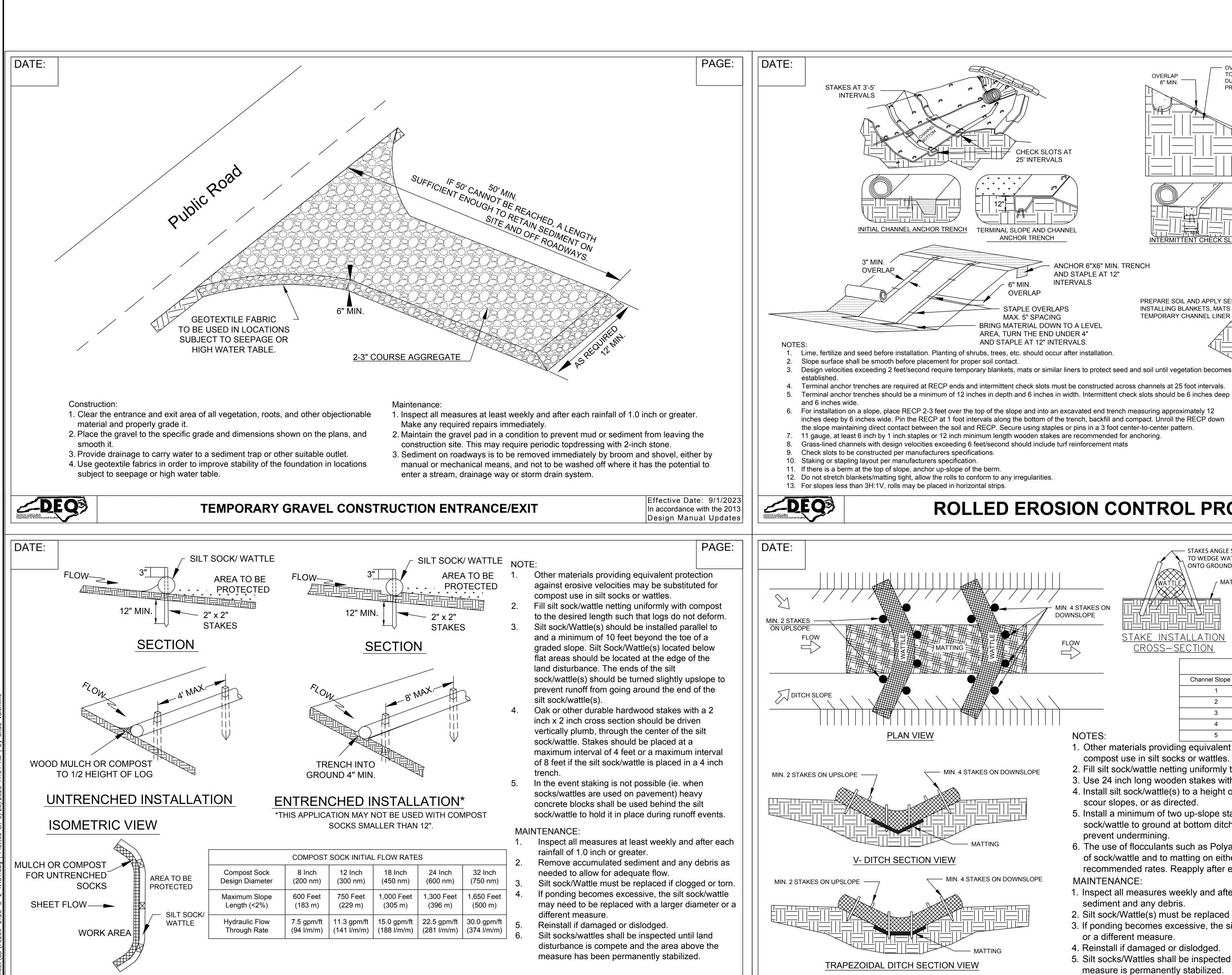
08-27-2025 DRAWN BY VALENTINE

DESIGNED BY . VALENTINE CHECKED BY

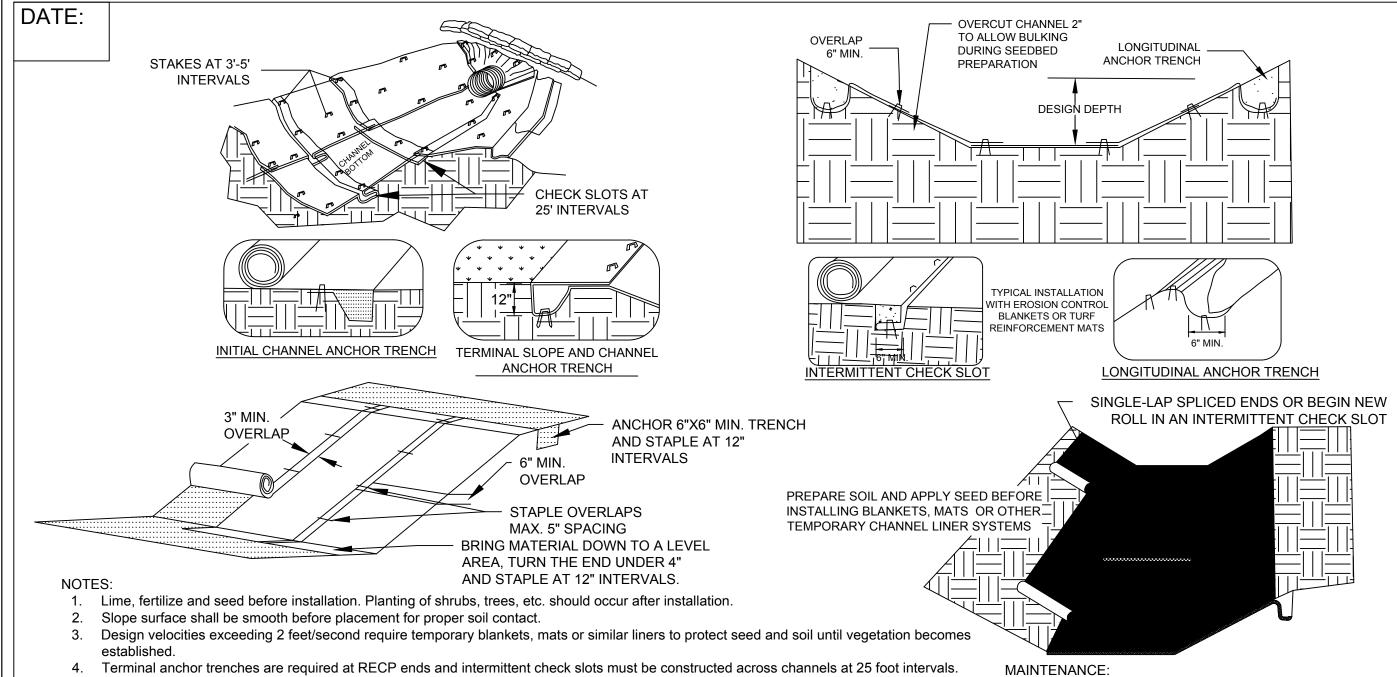
STRICKLAND SCALE AS SHOWN

 \Box

JOB NO. 70209 SHEET NO. E-1



SILT SOCK / WATTLE FOR PERIMETER AND INLET PROTECTION In accordance with the 2013



13. For slopes less than 3H:1V, rolls may be placed in horizontal strips. ROLLED EROSION CONTROL PRODUCTS

Effective Date: 9/1/2023 In accordance with the 2013 Design Manual Updates

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1. Inspect Rolled Erosion Control Products at least weekly and after each rainfall of 1.0 inch or greater; repair immediately.

2. Good contact with the ground must be maintained, and

3. Any areas of the RECP that are damaged or not in close

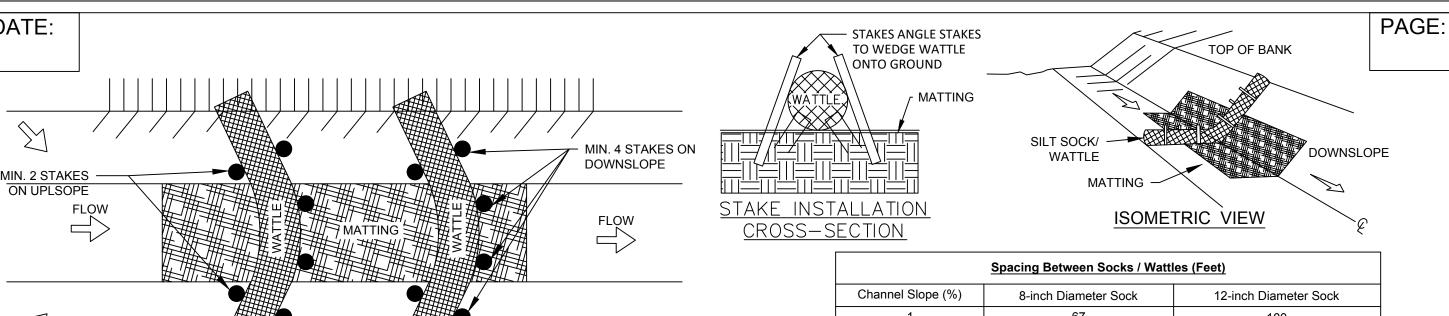
4. If erosion occurs due to poorly controlled drainage, the

contact with the ground shall be repaired and stapled.

problem shall be fixed and the eroded area protected.

Monitor and repair the RECP as necessary until ground cover

erosion must not occur beneath the RECP.



MIN. 4 STAKES ON DOWNSLOPE

PLAN VIEW

V- DITCH SECTION VIEW

TRAPEZOIDAL DITCH SECTION VIEW

Design Manual Updates

NOTES: 1. Other materials providing equivalent protection against erosive velocities may be substituted for compost use in silt socks or wattles.

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2. Fill silt sock/wattle netting uniformly to the desired length such that logs do not deform. 3. Use 24 inch long wooden stakes with a 2 inch x 2 inch nominal cross section.

4. Install silt sock/wattle(s) to a height on slope so flow will not wash around silt sock/wattle and

scour slopes, or as directed. 5. Install a minimum of two up-slope stakes and four down-slope stakes at an angle to wedge silt sock/wattle to ground at bottom ditch. Use staples to secure silt sock/wattle to the ground to

prevent undermining. 6. The use of flocculants such as Polyacrylamide (PAM) is recommended. Apply flocculants on top of sock/wattle and to matting on either side of sock/wattle according to manufacturer

recommended rates. Reapply after each 1.0 inch rainfall.

MAINTENANCE:

- 1. Inspect all measures weekly and after each rainfall of 1.0 inch or greater. Remove accumulated sediment and any debris.
- 2. Silt sock/Wattle(s) must be replaced if clogged or torn.
- 3. If ponding becomes excessive, the silt sock/wattle may need to be replaced with a larger diameter or a different measure.
- 4. Reinstall if damaged or dislodged
- 5. Silt socks/Wattles shall be inspected until land disturbance is compete and the area above the measure is permanently stabilized.



MIN. 4 STAKES ON DOWNSLOPE

SILT SOCK / WATTLE FOR CHECK DAM

Effective Date: 9/1/2023 n accordance with the 2013 Design Manual Updates



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STRICKLAND AS SHOWN

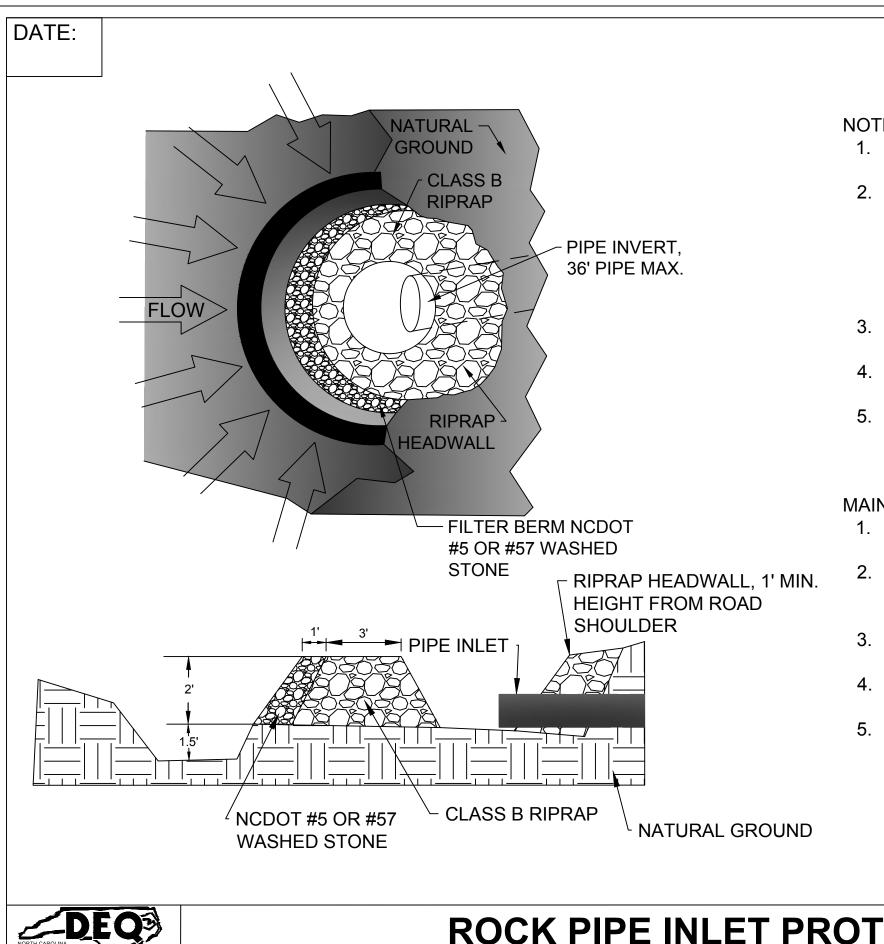
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JOB NO. 70209 SHEET NO.

E-2



NOTES:

- 1. Clear the area of all debris that might hinder excavation and
- 2. Install the Class B or Class 1 riprap in a semi-circle around the pipe inlet. The stone should be built up higher on each end where it ties into the embankment. The minimum crest width of the riprap should be 3 feet, with a minimum bottom width of 11 feet. The minimum height should be 2 feet, but also 1 foot lower than the embankment of diversions.
- 3. A 1 foot thick layer of NC DOT #5 or #57 stone should be placed on the outside slope of the riprap.
- 4. The sediment storage area should be excavated around the outside of the stone horseshoe 18 inches below natural grade.
- 5. When contributing drainage area has been stabilized, remove the pipe and rock, fill depression, establish final grading elevations, compact the area properly, and stabilize with ground cover.

MAINTENANCE:

- 1. Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater and repair immediately.
- 2. Remove sediment and restore the sediment storage area to its original dimensions when the sediment has accumulated to one-half the design depth of the trap.
- 3. Place the sediment that is removed in the designated disposal area and replace the contaminated part of the gravel facing.
- 4. Check the structure for damage. Any riprap displaced from the stone horseshoe must be replaced immediately.
- 5. After all the sediment-producing areas have been permanently stabilized, remove the structure and all the unstable sediment. Smooth the area to blend with the adjoining areas and provide

permanent ground cover.

- from the barrier. 8. Place 12 inches of fabric along the bottom and side of the trench.
- 9. Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.

3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are

necessary, securely fasten the filter cloth only at a support post with 4 feet minimum overlap to the next post.

into the ground a minimum of 24 inches. Wire mesh should be a minimum 14-gauge with 6 inch mesh spacing.

filter fabric directly to posts. Wire or plastic zip ties should have a minimum of 50 pound tensile strength.

6. Extra strength filter fabric with 6 foot post spacing does not require a wire mesh support fence. Securely fasten the

8' MAX. STANDARD STRENGTH FABRIC WITH WIRE FENCE

- 10. Do not attach filter fabric to existing trees.
- 11. Do not place across ditches, streams, or any other areas of concentrated flow.

impound volumes of water sufficient to cause failure of the structure)

fence post. Wire or plastic zip ties should have a minimum 50 pound tensile strength.

6' MAX. EXTRA STRENGTH FABRIC WITHOUT WIRE FENCE STEEL POST BACKFILL TRENCH AND COMPACT WIRE FENCE THOROUGHLY STEEL POST UPSLOPE 8" MIN. 18-24" PLASTIC OR -WIRE TIES ◄ 4" MIN. ► ♣ 8" DOWN & 4" FORWARD **CROSS SECTION VIEW ★** ALONG THE TRENCH Max. Slope Length and Slope for Which **Sediment Fence is Applicable** - FILTER FABRIC Slope Length (ft) Max. Area (ft²) 1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics. 2. Ensure that the height of the sediment fence does not exceed 24 inches above the ground. (Higher fences may

<2% 10,000 2 to 5% 7,500 5 to 10% 5,000 10 to 20% 2,500 4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts. Extend the >20% 1,500 wire mesh support to the bottom of the trench. Fasten the wire reinforcement, then fabric on the upslope side of the

Maintenance:

When a wire mesh support fence is used, space posts a maximum of 8 feet apart. Supports should be driven securely 1. Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater. Make any required repairs immediately.

FILTER FABRIC

- Should the fabric of a sediment fence collapse, tear, decompose, or become ineffective, replace it promptly. Remove sediment deposits as necessary to provide adequate
- Excavate the trench approximately 4 inches wide and 8 inches deep along the proposed line of the posts and upslope 3. storage volume for the next rain and reduce pressure on the fence. Take care to avoid undermining the fence during cleanouts.
 - Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

SEDIMENT FENCE

Effective Date: 9/1/2023 In accordance with the 2013 Design Manual Updates



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70209 E-3

ROCK PIPE INLET PROTECTION

Effective Date: 9/1/2023 In accordance with the 2013 Design Manual Updates

PAGE:

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70209

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

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

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

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal husiness hours

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

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- (a) This General Permit as well as the Certificate of Coverage, after it is received.
- (b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART II, SECTION G, ITEM (4)

DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

- (a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
- (b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
- (c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
- (d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
- (e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
- (f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

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

(b) Oil spills if:

- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).
- (c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
- (d) Anticipated bypasses and unanticipated bypasses.
- (e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

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

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

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

SHEET NO. E-4

