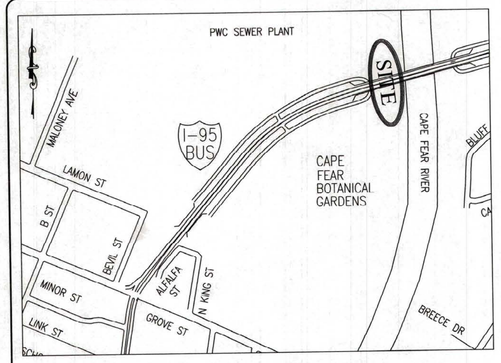


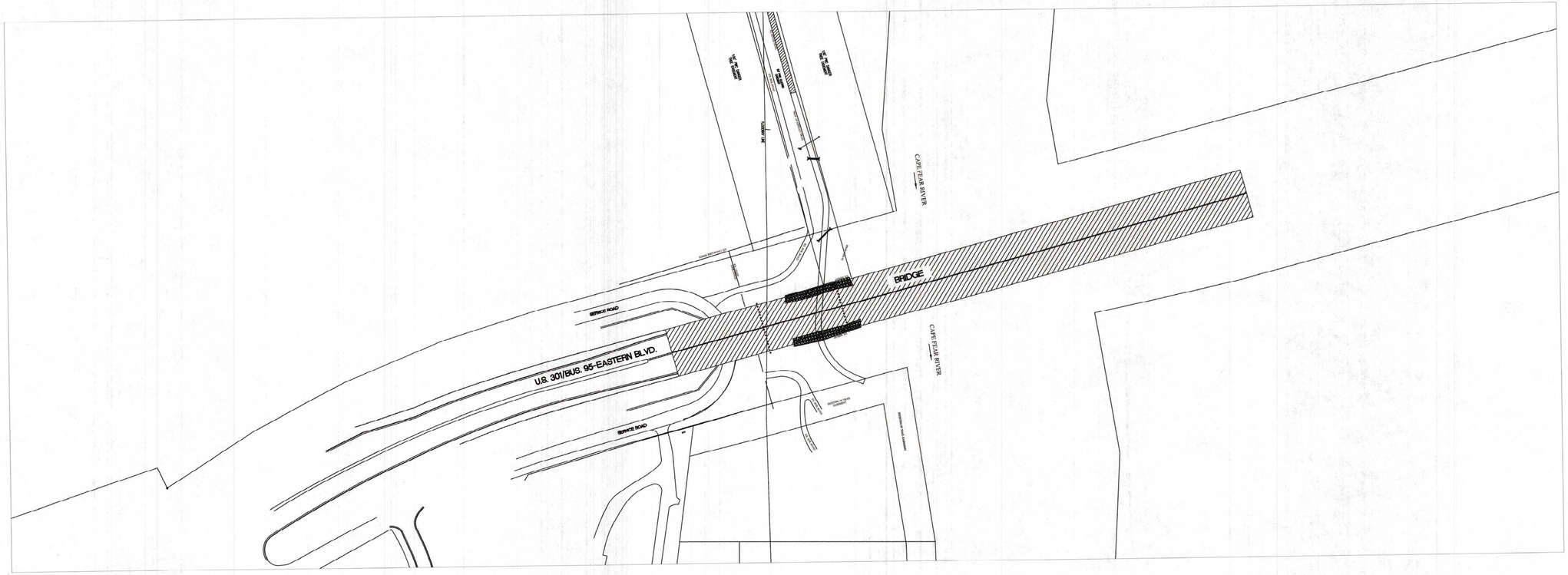
VICINITY MAP

FAYETTEVILLE NC
PUBLIC SERVICES

CAPE FEAR RIVER TRAIL BOTANICAL GARDENS EXTENSION

PROJECT SCOPE

THIS PROJECT CONSISTS OF: EXTENSION OF A 10-FOOT WIDE PAVED PATH APPROXIMATE 550 FEET LONG FOR WALKERS, JOGGERS AND BICYCLISTS.



LOCATION MAP

INDEX

PROJECT CONTACTS
CITY OF FAYETTEVILLE

Engineering	Byron Reeves, PE, CFM Asst. Public Services Director - Engineering 433 Hay Street, Fayetteville, NC 28301 (910) 433-1656 byronreeves@faycttevillenc.gov
Construction Management	Jeff Riddle, PLS Construction Manager 339 Alexander Street, Fayetteville, NC 28301 (910) 433-1613 jefferyriddle@fayettevillenc.gov
Traffic Services	Brian McGill, PE Asst. Public Services Director - Traffic 339 Alexander Street, Fayetteville, NC 28301 (910) 433-1170 brianmcgill@fayettevillenc.gov

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

CAPE FEAR RIVER TRAIL
BOTANICAL GARDENS
EXTENSION

SHEET NUMBER 1
PLAN TYPE: COVER

FAYETTEVILLE
AMERICA'S CAN DO CITY
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 046346 BYRON S. REEVES
9/17/24

REVISIONS

REV. #	DESCRIPTION	REV.BY DATE

DRAWN :	CH
DESIGN :	CH
CHECK :	BR
APPROVED :	BR
PROJECT NAME :	CFRT
SCALE :	N/A
DATE :	07-17-24

PROJECT NO. _____
SUB-LEDGER NO. _____

GENERAL NOTES:

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

THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE CONSTRUCTION STAGING AREA AT HIS EXPENSE. A TEMPORARY USE PERMIT IS REQUIRED FOR THE STAGING AREA (ZONING 433-1705).

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

CONTRACTOR SHALL MAINTAIN A NEAT AND CLEAN JOB-SITE TO INCLUDE STAGING/STORAGE AREAS AS FOLLOWS:

- PERFORM DUST CONTROL BY WATERING DAILY OR AS DIRECTED BY THE ENGINEER.
- SWEEP STREETS A MINIMUM OF ONCE WEEKLY (FRIDAY) OR AS DIRECTED BY THE ENGINEER.
- BLADE, LEVEL AND RE-COMPACT ALL EXPOSED TRENCHES WEEKLY (OR AS DIRECTED BY THE ENGINEER) TO PRODUCE A SMOOTH "RIDE".
- PERFORM DAILY CLEAN-UP OF ALL DIRT, DEBRIS AND SCRAP MATERIALS.
- REMOVE EXCESS EQUIPMENT, MATERIALS, TOOLS, ETC. NOT NEEDED.

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

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

CONTRACTOR SHALL PROVIDE TEMPORARY FENCING WHERE FENCES ARE REMOVED FOR CONSTRUCTION. CONTRACTOR SHALL COORDINATE REMOVAL OF EXISTING FENCE AND INSTALLATION OF TEMPORARY FENCE WITH PROPERTY OWNER PRIOR TO CONSTRUCTION. REMOVAL OF TEMPORARY FENCE AND INSTALLATION OF PERMANENT FENCE MUST ALSO BE COORDINATED WITH PROPERTY OWNER. ALL REMOVAL, TEMPORARY, AND REPLACEMENT FENCING SHALL BE CONSIDERED INCIDENTAL TO THE CITY INSTALLATION AND NO SEPARATE PAYMENT SHALL BE MADE. CONTRACTOR SHALL REINSTALL ALL SHEDS, FENCES, ETC. TO AS GOOD OR BETTER THAN EXISTING CONDITIONS UNLESS OTHERWISE INDICATED. (NO SEPARATE PAYMENT).

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

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

WHERE CONTRACTOR CEASES WORK OPERATION FOR A 72 HOUR PERIOD OR LONGER, SUCH AS HOLIDAYS, ETC., THE FOLLOWING SHALL BE ACCOMPLISHED PRIOR TO THE WORK STOPPAGE.

- CONTRACTOR WILL STORE ALL EQUIPMENT IN THE CONTRACTOR STAGING AREA OR OFF SITE.
- THE CONTRACTOR SHALL SWEEP ALL STREETS, PERFORM GENERAL CLEANUP AND SHALL PERFORM MAINTENANCE ON ALL EXPOSED PATCHES.

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

CONTRACTOR SHALL STORE ALL MATERIALS IN THE CONTRACTOR STAGING AREA 72 HOURS PRIOR TO INCORPORATING INTO THE WORK TO REDUCE OBSTRUCTIONS TO TRAFFIC AND INCONVENIENCE TO RESIDENTS.

GENERAL NOTES FOR RESIDENT RELATIONS (MANDATORY):

THE PROPOSED WORK WILL BE CONSTRUCTED WITHIN A TWO BLOCK SECTION OF PERSON STREET FROM COOL SPRING STREET TO OLD WILMINGTON ROAD. THE CONTRACTOR IS REQUIRED TO DEVELOP GOOD RELATIONS WITH THE RESIDENTS WHICH INCLUDE THE FOLLOWING MANDATORY MINIMUM REQUREMENTS:

- NO SPEEDING WITH EQUIPMENT AND/OR VEHICLES (25 MPH MAX.)
- DO NOT BLOCK DRIVEWAYS AT ANY TIME
- DO NOT LITTER AT ANY TIME
- DO NOT USE RESIDENT'S WATER WITHOUT THEIR PERMISSION (SIGNED AGREEMENT REQUIRED)
- ALL PLUMBING CODE REQUIREMENTS FOR BACK FLOW PREVENTION WILL BE ADHERED TO
- RESPOND TO RESIDENT'S COMPLAINTS WITHIN 24 HOURS
- DO NOT USE ABUSIVE LANGUAGE, PROFANITY OR CAT-CALLING
- WEAR PROPER PROTECTIVE CLOTHING (HARD HATS, PROPER SHOES, SHIRTS, ETC.) AT ALL TIMES.
- MAINTAIN PROPER SAFETY MEASURES, PARTICULARLY ALONG OPEN TRENCHES, PLACING CONES ON RAISED MANHOLES AND BACK FILLING OPEN TRENCHES IF CONSTRUCTION IS STOPPED AND THE OPEN TRENCH IS NOT MANNED.
- PERSONNEL MUST WEAR CITY APPROVED SAFETY VEST AT ALL TIMES WHILE WORKING IN TIIE CITY AND/OR NCDOT RIGIIT-OF-WAY
- ALL TRAFFIC CONTROL FLAG PERSONS AND AT LEAST ONE PERSON ON EACH WORK CREW MUST BE FLUENT IN THE ENGLISH LANGUAGE

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

UTILITIES:

UTILITIES ARE ILLUSTRATED FOR INFORMATION PURPOSES ONLY. THE CITY OR ENGINEER WILL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF UTILITY LOCATIONS, SIZES, DEPTHS, OR FOR COMPLETENESS OF UTILITY INFORMATION SHOWN.

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY AND MEET WITH ALL UTILITY OWNERS. THE CONTRACTOR SHALL PROTECT ALL UTILITIES FROM DAMAGE CAUSED BY HIS OPERATIONS OR THOSE OF HIS AGENTS. THE CONTRACTOR SHALL HOLD THE CITY HARMLESS FOR ANY THIRD-PARTY INCONVENIENCE CREATED BY WORK OF HIS OWN FORCES OR THAT OF HIS AGENTS. ANY DAMAGES INCURRED SHALL BE THE CONTRACTORS FINANCIAL RESPONSIBILITY.

ADJUSTMENTS/RELOCATIONS WILL BE PERFORMED BY THE VARIOUS UTILITY OWNERS. THE CONTRACTOR SHALL COORDINATE WORK WITH UTILITY OWNERS SO AS NOT TO ADVERSELY AFFECT THE PROJECT SCHEDULE. THE CITY WILL NOT BE HELD RESPONSIBLE FOR ANY DELAYS OR DISRUPTIONS TO THE WORK SCHEDULE OF OTHER UTILITY OWNERS.

- FOR UTILITY LOCATES CALL NORTH CAROLINA ONE-CALL @ 811.
- FOR LOCATES OF UTILITIES NOT MEMBERS OF NORTH CAROLINA ONE-CALL CONTACT PROJECT MANAGER OR UTILITY COORDINATOR.

THE CONTRACTOR SHALL ADJUST ALL WATER VALVES, WATER METER BOXES AND WATER VAULTS TO FINISHED GRADE. WATER METERS, MANHOLES, AND CLEANOUTS LOCATED IN SIDEWALKS OR CONCRETE DRIVEWAYS SHALL BE INSTALLED IN ACCORDANCE WITH PWC REQUIREMENTS. NO ABOVE GROUND UTILITY BOXES, POWER POLE, OR OTHER STRUCTURES ARE TO BE LOCATED WITHIN THE SIDEWALK AREA. THE SIDEWALK AREA IS TO BE FREE OF OBSTACLES.

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

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

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

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

MAIL BOXES:

THE CONTRACTOR SHALL RELOCATE ALL MAIL BOXES AS REQUIRED BY SECTION 107-12 OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES. COORDINATE THIS WORK WITH THE U.S. POSTAL SERVICE.

TREES, SHRUBS, AND HEDGES:

ALL TREES THAT ARE TO REMAIN ARE TO BE PROTECTED WITH TREE PROTECTION BARRIERS ACCEPTABLE TO THE CITY ARBORIST OR LANDSCAPE ARCHITECT. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE CITY ARBORIST OR LANDSCAPE ARCHITECT PRIOR TO ROOT PRUNING. WHEN ROOT PRUNING IS ABSOLUTELY NECESSARY, CUT ROOTS CLEANLY USING A DISC TRENCHER OR OTHER APPROVED METHOD.

CONTRACTOR SHALL OBTAIN APPROVAL FROM THE CITY PRIOR TO REMOVING ANY TREES. ALL TREES LOCATED WITHIN THE LOT THAT ARE TO REMAIN AFTER CONSTRUCTION SHALL BE INSPECTED BY THE CITY TO VERIFY THEY ARE SUITABLE TO REMAIN.

GRADING:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BORROW MATERIAL REQUIRED TO CONSTRUCT PROJECT AS SHOWN ON THE CONTRACT DOCUMENTS.

ALL EXCAVATED MATERIALS THAT ARE NOT REQUIRED OR ARE UNSUITABLE FOR THE PROJECT SHALL BE CONSIDERED WASTE AND SHALL BE HAULED OFF SITE AND DISPOSED IN A SAFE AND LEGAL MANNER AT THE CONTRACTOR'S EXPENSE.

EROSION CONTROL:

CONTRACTOR SHALL NOT DISTURB ANY AREAS OUTSIDE OF THE DESIGNATED EASEMENT AREAS.

THE CONTRACTOR SHALL MAINTAIN EROSION CONTROL DEVICES IN ACCORDANCE WIH THE APPROPRIATE CITY AND STATE EROSION AND SEDIMENT CONTROL ORDINANCES. THE CONTRACTOR SHALL PREVENT STANDING WATER DUE TO CONSTRUCTION.

SAWCUTS:

THE CONTRACTOR SHALL SAWCUT EXISTING ASPHALT AND/OR CONCRETE SURFACES PRIOR TO REMOVAL UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SAW CUT WIDTH SHALL BE 1 FOOT MINIMUM FOR THE EXISTING EDGE OF PAVEMENT. SAWCUT PAVEMENT SHALL BE REPLACED AS WELL AS ADDITIONAL PAVEMENT REQUIRED TO TIE-IN TO FACE OF PROPOSED CURB OR GUTTER.

STORM DRAINAGE STRUCTURE, PIPE & GRADING NOTES:

PIPE INVERT ELEVATIONS HAVE PRECEDENCE OVER SLOPES. HOWEVER, SLOPES SHALL NOT BE DECREASED FROM THOSE SHOWN ON PLAN WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

ALL STORM DRAINAGE PIPE TO BE CLASS III REINFORCED CONCRETE UNLESS OTHERWISE NOTED. PIPE LENGTHS INDICATED ON PLAN ARE APPROXIMATE ONLY.

NO SOIL DISTURBANCE OR COMPACTION, CONSTRUCTION MATERIALS, TRAFFIC, TRENCHING, OR OTHER LAND DISTURBING ACTIVITY SHALL BE PERMITTED BEYOND LIMITS OF GRADING WITHOUT PRIOR APPROVAL FROM THE OWNER AND CITY ENGINEERING DEPT.

THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE CITY OF FAYETTEVILLE ANY DISCREPANCIES FOUND BETWEEN ACTUAL CONDITION AND CONSTRUCTION DOCUMENTS AND SHALL WAIT FOR INSTRUCTION FROM THE CITY INSPECTOR PRIOR TO PROCEEDING.

MANHOLE RIM ELEVATIONS SHOWN ON THE PLANS ARE APPROXIMATE. NEW MANHOLE RING AND COVERS SHALL BE INSTALLED FLUSH WITH THE SURROUNDING GRADE SO AS TO AVOID DAMAGE TO MOTOR VEHICLES DURING CONSTRUCTION. THEY ARE TO BE ADJUSTED TO MATCH THE SURROUNDING PROPOSED GRADE PRIOR TO PLACING THE NEW SURFACE COURSE.

THE CONTRACTOR SHALL DESIGN, FURNISH, AND INSTALL ANY TRENCH STABILIZATION NECESSARY TO MAINTAIN EXCAVATION FOR PIPE AND DRAINAGE STRUCTURE INSTALLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND REMOVAL OF ANY TRENCH STABILIZATION. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ANY DAMAGE TO ADJACENT STRUCTURES RESULTING FROM THE INSTALLATION, REMOVAL OR ABSENCE OF TRENCH STABILIZATION.

GRADES, ELEVATIONS AND LOCATIONS SHOWN ARE APPROXIMATE, AS DIRECTED BY THE ENGINEER. THEY MAY BE ADJUSTED TO ACCOMMODATE UNFORESEEN CONDITIONS. ALL PROPOSED GRADES ARE FINISH GRADES.

THE CONTRACTOR SHALL BACKFILL OPEN EXCAVATIONS AT THE END OF EACH WORKING DAY. AT DRAINAGE STRUCTURE LOCATIONS, THE EXCAVATION SHALL BE COVERED WITH METAL PLATES WHEN PRACTICAL OR COMPLETEY ENCLOSED WITH SAFETY NETTING.

STOCKPILING NOTE:

ANY ONSITE STOCKPILING IS TO BE COORDINATED AND APPROVED BY A CITY INSPECTOR. THE STOCKPILE WILL BE PROVIDED WITH GROUND COVER WITHIN 15 WORKING DAYS OF PROJECT COMPLETION.

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

ORDER OF PRECEDENCE GENERAL NOTES/TECHNICAL SPECIFICATIONS/PHOTOS:

THE NOTES CONTAINED HEREIN ARE INTENDED TO SUPPLEMENT THE TECHNICAL SPECIFICATIONS AND PROVIDE EASY REFERENCE FOR THE CONTRACTOR. IN NO CASE SHALL THESE NOTES VOID ANY PART, SECTION OR REQUIREMENT OUTLINED IN THE TECHNICAL SPECIFICATIONS CONTAINED IN THE CONTRACT DOCUMENTS. IF CONFLICTS OCCUR BETWEEN THE TECHNICAL SPECIFICATIONS AND THE NOTES CONTAINED HEREIN, THE TECHNICAL SPECIFICATIONS SHALL SUPERSEDE.

NCDOT ENCROACHMENT SPECIAL PROVISIONS:

CONTRACTOR TO NOTIFY MR. BILL HAMMOND, COUNTY MAINTENANCE ENGINEER, (910) 364-0602, A MINIMUM OF THREE (3) DAYS BEFORE CONSTRUCTION IS TO BEGIN.

AN EXECUTED COPY OF THE ENCROACHMENT AGREEMENT SHALL BE PRESENT AT THE CONSTRUCTION SITE AT ALL TIMES DURING CONSTRUCTION. THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RESERVES THE RIGHT TO STOP ALL WORK UNLESS EVIDENCE OF APPROVAL CAN BE SHOWN.

SEE THE ENCROACHMENT AGREEMENT FOR A FULL LIST OF SPECIAL PROVISIONS.

TRAFFIC CONTROL

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

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

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

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

CONTRACTOR SHALL COORDINATE/NOTIFY TRAFFIC SERVICES DAILY (BEFORE 2:00 P.M.) AS TO WHICH STREETS WILL BE UNDER CONSTRUCTION IMPEDING TRAFFIC FLOW THE FOLLOWING DAY.

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

ALL TRAFFIC CONTROL MEASURES, DEVICES, INSTALLATION, METHODS, SEQUENCING AND PLANS SHALL BE IN STRICT ACCORDANCE WITH MUTCD, NCDOT, AND CITY OF FAYETTEVILLE TRAFFIC SERVICES.

CAPE FEAR RIVER TRAIL
BOTANICAL GARDENS
EXTENSION

PLAN TYPE: GEN NOTES

SHEET NUMBER 2

FAYETTEVILLE NC
AMERICA'S CAN DO CITY

ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

NORTH CAROLINA PROFESSIONAL SEAL 040346 ENGINEER BRYON S. REEVES
07/17/2024

REVISIONS

REV. #	DESCRIPTION	REV.BY	DATE

DRAWN :	CH	PROJECT NAME :	RIVERTRAIL
DESIGN :	CH		
CHECK :	BR	SCALE :	N/A
APPROVED :	BR	DATE :	07-17-24

PROJECT NO.

SUB-LEDGER NO.

CAPE FEAR RIVER

CAPE FEAR RIVER

BRIDGE

EXISTING 50' TRAIL EASEMENT

EP: 5+42.79

PT: 5+27.35

EXISTING 50' TRAIL EASEMENT

EX. RIPRAP

PC: 3+99.97

3+00

4+00

EX. SOIL ROAD

EX. SOIL ROAD

FLOODWAY LINE

PROP. PIPE #2
30 LF - 15" RCP @ 3.44%

PT: 2+14.79

PC: 1+79.97

2+00

EX. SOIL ROAD

DO NOT DISTURB
GUY ANCHORS

PROP. PIPE #1
20 LF - 18" RCP @ 2.01%

1+00

DO NOT DISTURB
POWER POLE

100' PWC DANGER
TREE EASEMENT

BP: 0+00.00

0+00

PROP. 10' ASPHALT TRAIL

50' PWC ELECTRIC
EASEMENT

EX. SOIL ROAD

EX. RIVER TRAIL

FLOODWAY LINE

EX. CHAIN
LINK FENCE

EX. CHAIN LINK FENCE

100' PWC DANGER
TREE EASEMENT

CITY OF FAYETTEVILLE
PB: 125, PG: 130
0447-16-9749-

SERVICE ROAD

SERVICE ROAD

U.S. 301/BUS. 95-EASTERN BLVD.

FAYETTEVILLE TECHNICAL
COMMUNITY COLLEGE
DB: 5912, PG: 351
0447-24-4833-

30 0 30 60

1 INCH = 30 FT HORIZ

CAPE FEAR RIVER TRAIL
BOTANICAL GARDENS
EXTENSION

PLAN TYPE: PLAN

SHEET NUMBER: 3

FAYETTEVILLE
AMERICA'S CAN DO CITY

ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

NORTH CAROLINA
PROFESSIONAL
SEAL
040346
ENGINEER
STRON S. REEVES

REVISIONS

REV. #	DESCRIPTION	REV.BY	DATE

DRAWN :	CH	PROJECT NAME :	RIVERTRAIL
DESIGN :	CH	SCALE :	1"=30'
CHECK :	BR	DATE :	07-17-24
APPROVED :	BR		

PROJECT NO.

SUB-LEDGER NO.

20 0 20 40

1 INCH = 20 FT HORIZ
1 INCH = 4 FT VERT

CAPE FEAR RIVER TRAIL
BOTANICAL GARDENS
EXTENSION

PLAN TYPE: PROFILE

SHEET NUMBER 4

FAYETTEVILLE!
AMERICA'S CAN DO CITY

ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040348 BYRON D. REES
7/19/24

REVISIONS

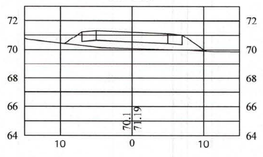
REV. #	DESCRIPTION	REV.BY	DATE

DRAWN :	CH
DESIGN :	CH
CHECK :	BR
APPROVED :	BR
PROJECT NAME :	RIVERTRAIL
SCALE :	AS-NOTED
DATE :	07-17-24

PROJECT NO.

SUB-LEDGER NO.

2+25



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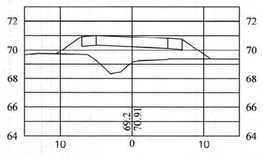
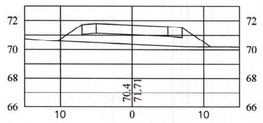


1+79.97



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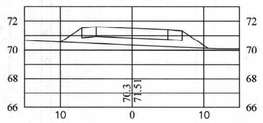

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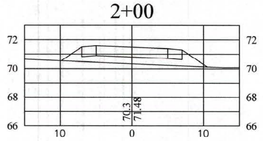

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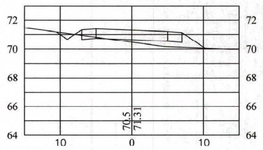

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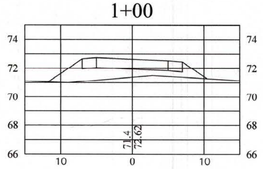

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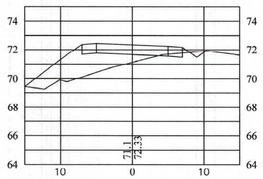

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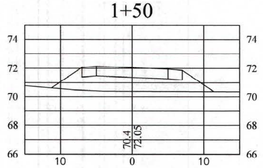

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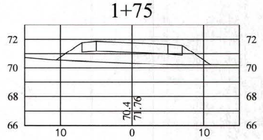

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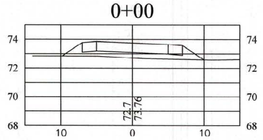

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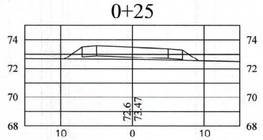

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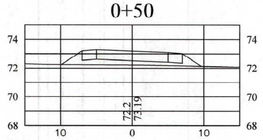

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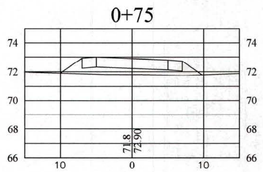


10 0 10 20

1 INCH = 10 FT HORIZ
1 INCH = 5 FT VERT

CAPE FEAR RIVER TRAIL
BOTANICAL GARDENS
EXTENSION

PLAN TYPE: X-SEC

SHEET NUMBER: 5

FAYETTEVILLE!
AMERICA'S CAN DO CITY

ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040346 BRIAN STRICKLAND

REVISIONS

REV. #	DESCRIPTION	REV BY	DATE

DRAWN :	CH	PROJECT NAME :	RIVERTRAIL
DESIGN :	CH	SCALE :	AS-NOTED
CHECK :	BR	DATE :	07-17-24
APPROVED :	BR		

PROJECT NO. _____
SUB-LEDGER NO. _____

5+27.35

5+42.79

4+50

4+63.19

4+75

5+00

3+75

4+00

4+25

2+75

3+00

3+25

3+50

CAPE FEAR RIVER TRAIL
BOTANICAL GARDENS
EXTENSION

PLAN TYPE: X-SEC

SHEET NUMBER: 6

FAYETTEVILLE
AMERICA'S CAN DO CITY
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

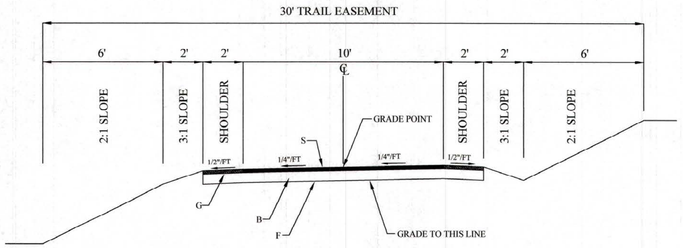
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040346 BYRON S. REEVES
07/17/24

REVISIONS

REV. #	DESCRIPTION	REV.BY DATE

DRAWN :	CH
DESIGN :	CH
CHECK :	BR
APPROVED :	BR
PROJECT NAME :	RIVERTRAIL
SCALE :	AS-NOTED
DATE :	07-17-24

PROJECT NO. _____
SUB-LEDGER NO. _____

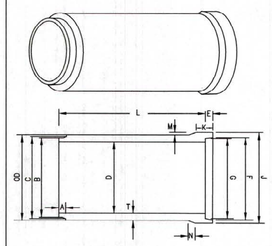


S	2" S9.5B SURFACE COURSE AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS (MAXIMUM THICKNESS PER LAYER - 2")
B	6" AGGREGATE BASE COURSE, COMPACTED 100% STANDARD PROCTOR
F	MIRAFI 600X SOIL STABILIZATION FABRIC
G	2" SELECT GRANULAR MATERIAL CLASS II TYPE I

NOTE: ALL PAVEMENT EDGE SLOPES ARE 1:1

TYPICAL TRAIL SECTION

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



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

MODIFIED TONGUE AND GROOVE

8 FOOT LENGTH

MORTAR OF FLEXIBLE PLASTIC TYPE JOINT

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

LIFT HOLES STANDARD ON 36" AS ALLOWED PER ASTM SPECIFICATIONS

MINIMUM FILL UNDER ROADWAYS	
PIPE CLASS	MINIMUM FILL
CLASS III	2'
CLASS IV	1'
CLASS V	1'

FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE.

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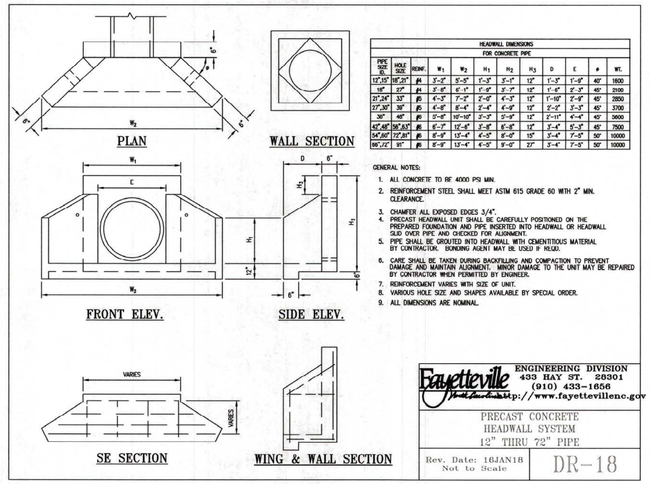
REINFORCED CONCRETE SEWER, STORM DRAIN AND CULVERT 15" THRU 36" PIPE

Rev. Date: 16JAN18
Not to Scale

DR-19



HEADWALL DIMENSIONS FOR CONCRETE PIPE											
PIPE SIZE D	HOLE SIZE	REINF.	W_1	W_2	H_1	H_2	H_3	D	E	#	WT.
12",15"	18",25"	#4	3'-2"	5'-5"	1'-3"	3'-1"	12"	1'-3"	1'-9"	40"	1600
18"	31"	#4	3'-8"	6'-1"	1'-3"	3'-7"	12"	1'-6"	2'-3"	45"	2100
21",24"	32"	#5	4'-3"	7'-2"	2'-0"	4'-3"	12"	1'-10"	2'-9"	45"	2850
27",30"	38"	#5	4'-8"	8'-4"	2'-4"	4'-8"	12"	2'-2"	3'-3"	45"	3700
36"	46"	#5	5'-6"	10'-10"	3'-3"	5'-6"	12"	2'-11"	4'-4"	45"	5600
42",48"	56",62"	#6	6'-7"	12'-6"	3'-8"	6'-6"	12"	3'-4"	5'-3"	45"	7500
54",60"	72",78"	#6	8'-8"	15'-4"	4'-5"	8'-0"	15"	3'-4"	7'-5"	50"	10000
66",72"	91"	#6	8'-5"	13'-4"	4'-5"	9'-0"	27"	3'-4"	7'-5"	50"	10000

GENERAL NOTES:
1. ALL CONCRETE TO BE 4000 PSI MIN.
2. REINFORCEMENT STEEL SHALL MEET ASTM 615 GRADE 60 WITH 2" MIN. CLEARANCE.
3. CHAMFER ALL EXPOSED EDGES 3/4".
4. PRECAST HEADWALL UNIT SHALL BE CAREFULLY POSITIONED ON THE PREPARED FOUNDATION AND PIPE INSERTED INTO HEADWALL OR HEADWALL SLID OVER PIPE AND CHECKED FOR ALIGNMENT.
5. PIPE SHALL BE GROUTED INTO HEADWALL WITH CEMENTITIOUS MATERIAL BY CONTRACTOR. BONDING AGENT MAY BE USED IF REQD.
6. CARE SHALL BE TAKEN DURING BACKFILLING AND COMPACTION TO PREVENT DAMAGE AND MAINTAIN ALIGNMENT. MINOR DAMAGE TO THE UNIT MAY BE REPAIRED BY CONTRACTOR WHEN PERMITTED BY ENGINEER.
7. REINFORCEMENT VARIES WITH SIZE OF UNIT.
8. VARIOUS HOLE SIZE AND SHAPES AVAILABLE BY SPECIAL ORDER.
9. ALL DIMENSIONS ARE NOMINAL.

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PRECAST CONCRETE HEADWALL SYSTEM 12" THRU 72" PIPE

Rev. Date: 16JAN18
Not to Scale

DR-18

CAPE FEAR RIVER BOTANICAL GARDENS EXTENSION

PLAN TYPE: TRAIL DETAILS

SHEET NUMBER 7

FAYETTEVILLE
AMERICA'S CAN DO CITY
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040316 BYRON S. REED

REVISIONS		
REV.#	DESCRIPTON	REV.BY DATE

DRAWN : CH
DESIGN : CH
CHECK : BR
APPROVED : BR

PROJECT NAME : RIVERTRAIL
SCALE : NTS
DATE : 07-17-24

PROJECT NO.
SUB-LEDGER NO.

CAPE FEAR RIVER

CAPE FEAR RIVER

BRIDGE

EXISTING 50' TRAIL EASEMENT

EP: 5+42.79

PT: 5+27.35

EXISTING 50' TRAIL EASEMENT

EX. RIPRAP

EX. RIPRAP

PROP. PIPE #2
30 LF - 15" RCP @ 3.44%

PT: 2+14.76

PC: 1+79.97

PROP. SEDIMENT FENCE

PROP. SEDIMENT FENCE

EX. SOIL ROAD

EX. SOIL ROAD

EX. SOIL ROAD

FLOODWAY LINE

DO NOT DISTURB
GUY ANCHORS

PROP. PIPE #1
20 LF - 18" RCP @ 2.01%

DO NOT DISTURB
POWER POLE

100' PWC DANGER
TREE EASEMENT

BP: 0+00.00

PROP. 10' ASPHALT TRAIL

50' PWC ELECTRIC
EASEMENT

EX. SOIL ROAD

EX. RIVER TRAIL

FLOODWAY LINE

EX. CHAIN
LINK FENCE

EX. CHAIN LINK FENCE

100' PWC DANGER
TREE EASEMENT

CITY OF FAYETTEVILLE
PB: 125, PG: 130
0447-16-9749-

SERVICE ROAD

SERVICE ROAD

U.S. 301/BUS. 95-EASTERN BLVD.

FAYETTEVILLE TECHNICAL
COMMUNITY COLLEGE
DB: 5912, PG: 351
0447-24-4833-

30 0 30 60

1 INCH = 30 FT HORIZ

CAPE FEAR RIVER TRAIL
BOTANICAL GARDENS
EXTENSION

PLAN TYPE: EC

SHEET NUMBER: 8

FAYETTEVILLE
AMERICA'S CAN DO CITY

ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

NORTH CAROLINA
PROFESSIONAL
SEAL
040346
ENGINEER
BYRON S. REED

12-19-24

REV. #	REVISIONS DESCRIPTION	REV. BY DATE

DRAWN :	CH	PROJECT NAME : RIVERTRAIL
DESIGN :	CH	
CHECK :	BR	SCALE : 1"=30'
APPROVED :	BR	DATE : 07-17-24

PROJECT NO.

SUB-LEDGER NO.

SEDIMENT FENCE (SILT FENCE) ——— SF ——— SF ———

DEFINITION
TEMPORARY SEDIMENT CONTROL MEASURE CONSISTING OF FABRIC BURIED AT THE BOTTOM, STRETCHED, AND SUPPORTED BY POSTS.

PURPOSE
TO RETAIN SEDIMENT FROM SMALL DISTURBED AREAS BY REDUCING THE VELOCITY OF SHEET FLOWS TO ALLOW SEDIMENT DEPOSITION.

CONSTRUCTION SPECIFICATIONS
MATERIALS
1. USE A SYNTHETIC FILTER FABRIC OF AT LEAST 95% BY WEIGHT POLYOLEFINS OR POLYESTER, WHICH IS CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS SHOWN IN TABLE 1 (THIS PAGE).

SYNTHETIC FILTER FABRIC SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 TO 120 DEGREES FAHRENHEIT.

2. ENSURE THAT POSTS FOR SEDIMENT FENCES ARE 1.25 LB/LINEAR FT STEEL WITH A MINIMUM LENGTH OF 5 FT. MAKE SURE THAT STEEL POSTS HAVE PROJECTIONS TO FACILITATE FASTENING THE FABRIC.

3. FOR REINFORCEMENT OF STANDARD STRENGTH FILTER FABRIC, USE WIRE FENCE WITH A MINIMUM 14 GAUGE AND A MAXIMUM MESH SPACING OF 6 INCHES.

CONSTRUCTION
1. CONSTRUCT THE SEDIMENT FENCE 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 SURFACE. (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.)

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 SUPPORT POST WITH 4 FEET MINIMUM OVERLAP TO THE NEXT POST.

4. SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT, THEN FABRIC ON THE UPSLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.

5. WHEN A WIRE MESH SUPPORT FENCE IS USED, SPACE POSTS A MAXIMUM OF 8 FT APART. SUPPORT POSTS SHOULD BE DRIVEN SECURELY INTO THE GROUND TO A MINIMUM OF 24 INCHES.

6. EXTRA STRENGTH FILTER FABRIC WITH 6-FT. POST SPACING DOES NOT REQUIRE WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.

7. EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POST AND UPSLOPE FROM THE BARRIER.

8. PLACE 12 INCHES OF THE 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.

10. DO NOT ATTACH FILTER FABRIC TO EXISTING TREES.

MAINTENANCE
INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY. REPLACE BURLAP EVERY 60 DAYS.

REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.

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.

SPECIFICATIONS FOR SEDIMENT FENCE FABRIC

TABLE 1

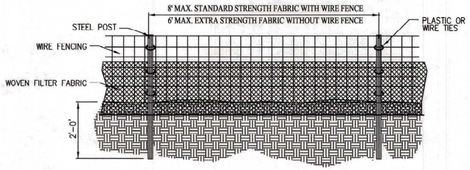
TEMPORARY SILT FENCE MATERIAL PROPERTY REQUIREMENTS

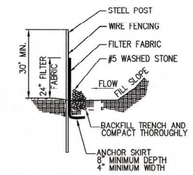
	TEST MATERIAL	UNITS	SUPPORTED SILT FENCE	UN-SUPPORTED SILT FENCE	TYPE OF VALUE
GRAB STRENGTH	ASTM D 4632	N (LBS)			
MACHINE DIRECTION			400	550	MARV
			(90)	(90)	
X-MACHINE DIRECTION			400	450	MARV
			(90)	(90)	
PERMITTIVITY[2]	ASTM D 4491	SEC-1	0.05	0.05	MARV
APPARENT OPENING SIZE[2]	ASTM D 4751	MM	0.60	0.60	MAX. ARV[3]
		(U.S. SIEVE #)	(30)	(30)	
ULTRAVIOLET STABILITY	ASTM D 4355	% RETAINED STRENGTH	70% AFTER 500H OF EXPOSURE	70% AFTER 500H OF EXPOSURE	TYPICAL

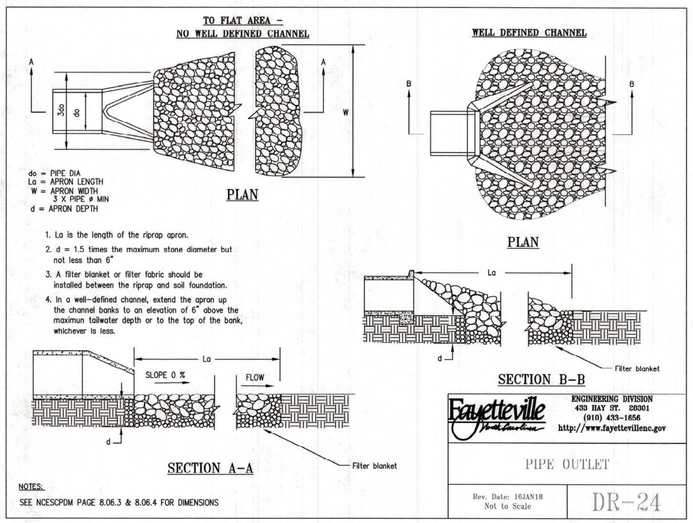
[1] SILT FENCE SUPPORT SHALL CONSIST OF 14 GAGE STEEL WIRE WITH A MESH SPACING OF 150 MM (6 INCHES), OR PREFABRICATED POLYMER MESH OF EQUIVALENT STRENGTH.

[2] THESE DEFAULT VALUES ARE BASED ON EMPIRICAL EVIDENCE WITH A VARITY OF SEDIMENT. FOR ENVIRONMENTALLY SENSITIVE AREAS, A REVIEW OF PREVIOUS EXPERIENCE AND/ OR SITE OR REGIONALLY SPECIFIC GEOTEXTILE TESTS IN ACCORDANCE WITH TEST METHOD D 5141 SHOULD BE PERFORMED BY THE AGENCY TO CONFIRM SUITABILITY OF THESE REQUIREMENTS.

[3] AS MEASURED IN ACCORDANCE WITH TEST METHOD D 4632







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

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

NOTES:
SEE NCESCPDM PAGE 8.06.3 & 8.06.4 FOR DIMENSIONS

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PIPE OUTLET

Rev. Date: 16JAN18
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DR-24

GROUND STABILIZATION*

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

STORM DRAINAGE DESIGN TABLE

STORM FREQUENCY 10 YRS. RAINFALL INTENSITY 7.96 IN/HR. TC=5 MIN. n=0.013

Pipe #	Station	Area (Acres)	C	Q (CFS)	Pipe Size (Inches)	Type	Length (LF)	Slope %	Top of Slab	Inv. US	Inv. DS	V (FPS)	Q (CFS) FULL
1	1+19.00	2.6	0.45	9.31	18	RCP	20	2.0	N/A	69.7	69.3	8.4	14.9
2	2+52.00	2.9	0.45	10.4	15	RCP	30	3.3	N/A	68.8	68	9.6	10.6

TEMPORARY SEEDING SPECIFICATIONS

DEFINITION
PLANTING RAPID-GROWING ANNUAL GRASSES, SMALL GRAINS, OR LEGUMES TO PROVIDE INITIAL, TEMPORARY COVER FOR EROSION CONTROL ON DISTURBED AREAS.

CONDITIONS WHERE PRACTICE APPLIES
ON ANY CLEARED, UNVEGETATED, OR SPARSELY VEGETATED SOIL SURFACE WHERE VEGETATIVE COVER IS NEEDED FOR LESS THAN 1 YEAR.

TEMPORARY SEEDING RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

SEEDING MIXTURE:
SPECIES — RATE (1 lb/ac*PT)
RYE(GRAIN) — 120
ANNUAL LESPEDEZA (KOBE IN PIEDMONT AND COASTAL PLAIN, KOREAN IN MOUNTAINS) — 50

OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE.

SEEDING DATES
MOUNTAINS - ABOVE 2500 FT. FEB. 15 - MAY 15
BELOW 2500 FT. FEB. 1 - MAY 1
PIEDMONT - JAN. 1 - MAY 1
COASTAL PLAIN - DEC. 1 - APR. 15

SOIL AMENDMENTS
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

MULCH
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

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

TEMPORARY SEEDING RECOMMENDATIONS FOR SUMMER

SEEDING MIXTURE:
SPECIES — RATE (LB/ACRE)
GERMAN MILLET — 40

IN THE PIEDMONT AND MOUNTAINS A SMALL-STEMMED SUDANGRASS MAY BE SUBSTITUTED AT A RATE OF 50 LB/ACRE.

SEEDING DATES
MOUNTAINS - MAY 15 - AUG. 15
PIEDMONT - MAY 1 - AUG. 15
COASTAL PLAIN - APR. 15 - AUG. 15

SOIL AMENDMENTS
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

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

TEMPORARY SEEDING RECOMMENDATIONS FOR FALL

SEEDING MIXTURE:
SPECIES — RATE (LB/ACRE)
RYE (GRAIN)

SEEDING DATES
MOUNTAINS - AUG. 15 - DEC. 15
COASTAL PLAIN AND PIEDMONT - AUG. 15 - DEC. 30

SOIL AMENDMENTS
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 1000 LB/ACRE 10-10-10 FERTILIZER.

MULCH
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE
REPAIR AND FERTILIZE DAMAGE AREAS IMMEDIATELY. TOPDRESS WITH 50 LB/ACRE OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15 OVERSEED WITH 50 LB/ACRE KOBE (PIEDMONT AND COASTAL PLAIN) (MOUNTAINS) LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH

PERMANENT SEEDING SPECIFICATIONS

DEFINITION
CONTROLLING RUNOFF AND EROSION ON DISTURBED AREAS BY ESTABLISHING PERENNIAL VEGETATIVE COVER WITH SEED.

PURPOSE
TO REDUCE EROSION AND DECREASE SEDIMENT YIELD FROM DISTURBED AREAS, AND TO PERMANENTLY STABILIZE SUCH AREAS IN A MANNER THAT IS ECONOMICAL, ADAPTS TO SITE CONDITIONS, AND ALLOWS SELECTION OF THE MOST APPROPRIATE PLANT MATERIALS.

CONDITIONS WHERE PRACTICE APPLIES
FINE-GRADED AREAS ON WHICH PERMANENT, LONG LIVED VEGETATIVE COVER IS THE MOST PRACTICAL OR MOST EFFECTIVE METHOD OF STABILIZING THE SOIL. PERMANENT SEEDING MAY ALSO BE USED ON ROUGH-GRADED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADED FOR A YEAR OR MORE.

SEEDING NO. 4CP FOR:
WELL-DRAINED SANDY LOAMS TO DRY SANDS, COASTAL PLAIN AND EASTERN EDGE OF PIEDMONT; LOW-TO MEDIUM-MAINTENANCE LAWNS

SEEDING MIXTURE:
SPECIES — RATE
CENTIPEDEGRASS — 10-20 LB/ACRE (SEED) OR 33 BU/ACRE (SPRIGS)

SEEDING DATES
MAR. - JUNE
(SPRIGGING CAN BE DONE THROUGH JULY WHERE WATER IS AVAILABLE FOR IRRIGATION.)

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

SPRIGGING
PLANT SPRIGS IN FURROWS WITH A TRACTOR-DRAWN TRANSPLANTER, OR BROADCAST BY HAND.

FURROWS SHOULD BE 4-6 INCHES DEEP AND 2 FT. APART. PLACE SPRIGS ABOUT 2 FT. APART IN THE ROW WITH ONE END AT OR ABOVE GROUND LEVEL.

BROADCAST AT RATES SHOWN ABOVE, AND PRESS SPRIGS INTO THE TOP 1/2-2 INCHES OF SOIL WITH A DISK SET STRAIGHT SO THAT SPRIGS ARE NOT BROUGHT BACK TOWARD THE SURFACE.

MULCH
DO NOT MULCH.

MAINTENANCE
FERTILIZE VERY SPARINGLY - 20 LB/ACRE NITROGEN IN SPRING WITH NO PHOSPHORUS. CENTIPEDEGRASS CAN NOT TOLERATE HIGH pH OR EXCESS FERTILIZER.

SEEDING NO. 5CP FOR:
WELL-DRAINED SANDY LOAMS TO DRY SANDS: LOW MAINTENANCE

SEEDING MIXTURE:
SPECIES — RATE (LB/ACRE)
PENSACOLA BAHIAGRASS — 50
SERICEA LESPEDEZA — 30
COMMON BERMUDAGRASS — 10
GERMAN MILLET — 10

SEEDING NOTES
1. WHERE A NEAT APPEARANCE IS DESIRED OMIT SERICEA.
2. USE COMMON BERMUDAGRASS ONLY ON ISOLATED TEST SITES WHERE IT CANNOT BECOME A PEST. BERMUDAGRASS MAY BE REPLACED WITH 5 LB/ACRE CENTIPEDEGRASS.

SEEDING DATES
APR. 1 - JUNE 15

SOIL AMENDMENTS
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TEST, OR APPLY 1,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 500 LB/ACRE 10-10-10 FERTILIZER.

MULCH
APPLY 4,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR BY TACKING WITH ASPHALT, ROVING, OR NETTING OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE
REFERTILIZE THE FOLLOWING APR. WITH 50 LB/ACRE NITROGEN. REPEAT AS GROWTH REQUIRES. MAY BE MOWED ONLY ONCE A YEAR. WHERE A NEAT APPEARANCE IS DESIRED OMIT SERICEA AND MOW AS OFTEN AS NEEDED.

CAPE FEAR RIVER BOTANICAL GARDENS EXTENSION

SHEET NUMBER 9

PLAN TYPE: EC

FAYETTEVILLE
AMERICA'S CAN DO CITY
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040346 BYRON S. REEVES 5/17/24

REV. #	REVISIONS DESCRIPTION	REV.BY DATE

DRAWN : CH
DESIGN : CH
CHECK : BR
APPROVED : BR

PROJECT NAME : RIVERTRAIL
SCALE : NTS
DATE : 07-17-24

PROJECT NO. _____
SUB-LEDGER NO. _____

NC DOT CLASSES OF RIPRAP AND EROSION CONTROL STONE

RIPRAP		EROSION CONTROL STONE	
CLASS 1	CLASS 2	CLASS A	CLASS B
5 TO 200 LB	25 TO 250 LB	2" TO 6"	5" TO 15"
30% SHALL WEIGH A MINIMUM OF 60 LB EACH	60% SHALL WEIGH A MINIMUM OF 100 LB EACH		
NO MORE THAN 10 % SHALL WEIGH LESS THAN 15 LB EACH	NO MORE THAN 5 % SHALL WEIGH LESS THAN 50 LB EACH	10% TOLERANCE TOP AND BOTTOM SIZES	
		EQUALLY DISTRIBUTED, NO GRADATION SPECIFIED	EQUALLY DISTRIBUTED, NO GRADATION SPECIFIED

SOURCE: NC AGGREGATES ASSOCIATION

NOTE: FILTRATION GEOTEXTILE FABRIC TYPE II TO BE PLACED UNDER STONE/RIPRAP AT ALL PIPE INLETS AND OUTLETS.

*DISSIPATOR DESIGN TABLE

Pipe #	Station	Class	Apron Thickness (inches)	Length (ft)	Width (ft)	APPROX. TONS
1	1+19	B	14	9	10.5	12 (TOTAL)
2	2+52	B	14	11	12	10 (TOTAL)

* Figures 8.06a and 8.06b from chapter 8 of the North Carolina Erosion and Sedimentation Control Manual were used to obtain the information above.

CAPE FEAR RIVER
BOTANICAL GARDENS
EXTENSION

PLAN SHEET: EC
SHEET NUMBER: 10

FAYETTEVILLE!
AMERICA'S CAN DO CITY
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

NORTH CAROLINA PROFESSIONAL SEAL 040346 ENGINEER BYRON S. REITZ
07/17/24

REVISIONS

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