

# PWC

## Fayetteville's

### HOME TOWN UTILITY

#### FAYETTEVILLE, N.C.

# SANITARY SEWER IMPROVEMENTS

## BIG ROCKFISH CREEK OUTFALL - CONTRACT 2

### NC DWI PROJECT NO. CS370434-15&16



VICINITY MAP  
N.T.S.



Know what's below.  
Call before you dig.

<b>PWC</b> FAYETTEVILLE PUBLIC WORKS COMMISSION	
BIG ROCKFISH CREEK OUTFALL CONTRACT 2	
<input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> TAPS ONLY <input type="checkbox"/> RECORD DRAWING <input type="checkbox"/> MODIFICATION	
WO # WT: N/A	WO # ST: 180C805
WO # WD: N/A	WO # SD: N/A
ENG TECH: G. Smith	PERMIT #: DE0600042326
REVIEWED BY: [Signature]	PERMIT #: N/A
DATE: 6-15-2023	DWG #: DS-15496
WREP #: 1800000096	# OF SHEETS: 47



I:\01925\0005\Water\_80-Drawings\88-Design\BRC-G2-CONTRACT 2.dwg 06/13/2023 15:38 mpic

**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. ADDITIONAL MEASURES SHALL BE INCLUDED AS PART OF A SUPPLEMENTAL EROSION CONTROL PLAN PREPARED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE CONSTRUCTION STAGING AREA AT HIS EXPENSE.
- THE CONTRACTOR IS EXPECTED AND REQUIRED TO COOPERATE WITH THE PROPERTY OWNERS AFFECTED BY THE WORK. PRIVATE AGREEMENTS WITH PROPERTY OWNERS MUST BE IN WRITING ON A FORM APPROVED BY THE ENGINEER AND A COPY SHALL BE PROVIDED TO THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION ACTIVITIES AFFECTED BY SAID AGREEMENT. THE AGREEMENT MUST SPECIFY THAT FAYPWC, THE CITY AND THE ENGINEER SHALL BE HELD HARMLESS AGAINST ALL CLAIMS ARISING FROM THE AGREEMENT. THE OWNER DISCOUNTS PRIVATE AGREEMENTS BEFORE FINAL ACCEPTANCE. A RELEASE FROM EACH PROPERTY OWNER THAT THE CONTRACTOR HAS MADE AN AGREEMENT WITH SHALL BE REQUIRED. THE PROPERTY OWNER'S RELEASE IS A CONDITION OF FINAL ACCEPTANCE.
- 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.
- EXCESS SUITABLE SOIL EXCAVATED DURING CONSTRUCTION SHALL BE STOCKPILED FOR USE ON THE PROJECT OR DISPOSED OF OFF-SITE AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL NOT BE ALLOWED TO STOCKPILE MATERIALS OR EXCESS MATERIALS IN THE STREET RIGHT-OF-WAYS AT ANY TIME. THE CONTRACTOR SHALL PROVIDE A SUFFICIENT AND SUITABLE STOCKPILE AREA AND LOCATION AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL PROVIDE MEASURES DURING CONSTRUCTION TO SECURE THE SITE AND EXCAVATION FROM THE GENERAL PUBLIC AND COMPLY WITH ALL O.S.H.A. 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 FENCE REMOVAL/REINSTALLATION WITH INDIVIDUAL PROPERTY OWNERS PRIOR TO REMOVAL. CONTRACTOR SHALL REPLACE ALL SHEDS TO AS GOOD OR BETTER THAN EXISTING CONDITIONS UNLESS OTHERWISE INDICATED. (NO SEPARATE PAYMENT). ALL FENCE SHALL BE REPLACED WITH NEW LIKE KIND MATERIAL.
- 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 N.C.M.U.T.C.D. 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 OPERATIONS FOR A 72 HOUR PERIOD OR LONGER, SUCH AS HOLIDAYS, ETC., THE FOLLOWING SHALL BE ACCOMPLISHED PRIOR TO THE WORK STOPPAGE:
  - CONTRACTOR SHALL 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 OPERATING INTO THE WORK TO REDUCE OBSTRUCTIONS TO TRAFFIC AND INCONVENIENCE TO RESIDENTS. WHERE UTILITIES ARE BEING CONSTRUCTED IN EASEMENTS OUT OF TRAFFIC AREAS CONTRACTOR MAY STORE MATERIALS AHEAD OF CONSTRUCTION FOR A DISTANCE NOT GREATER THAN 1800 FEET UNLESS APPROVED OTHERWISE BY THE ENGINEER.
- THE CONTRACTOR SHALL DIG UP EXISTING SHRUBS AND BUSHES WITHIN UTILITY EASEMENT TO BE DISTURBED BY CONSTRUCTION AND SET OUTSIDE THE UTILITY EASEMENT AREA IN A LOCATION DETERMINED BY THE PROPERTY OWNER (NO SEPARATE PAYMENT). PROPERTY OWNER WILL BE RESPONSIBLE FOR REPLANTING SHRUBS AND BUSHES SO REMOVED, AND SHALL BE RESPONSIBLE FOR RE-ESTABLISHING GROWTH.
- CLEARING AND GRUBBING SHALL BE RESTRICTED TO PERMANENT EASEMENTS ONLY. CONTRACTOR SHALL LIMIT TREE/BUSH CLEARING IN THE TEMPORARY EASEMENTS, BETWEEN HOUSES, AND ALONG PROPERTY LINES TO ONLY ABSOLUTELY NECESSARY FOR CONSTRUCTION.
- ALL MANHOLES OUTSIDE OF PAVEMENT SHALL HAVE A CAM LOCK FRAME AND COVER PER PWC DETAIL S.6. ALL MANHOLE VENT OPENINGS SHALL POINT DOWNSTREAM.
- CONSTRUCTION SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD SPECIFICATIONS.
- ALL SHORING SHALL BE IN ACCORDANCE TO OSHA TRENCHING STANDARDS PART 1926, SUBPART P, AS AMENDED TO DATE.
- CONTRACTOR SHALL COORDINATE AND COMPLY WITH ALL OF THE TRAFFIC CONTROL REQUIREMENTS OF THE CITY OF FAYETTEVILLE, NCDOT, TOWN OF HOPE MILLS, AND THESE CONTRACT DOCUMENTS. ANY NECESSARY LANE CLOSURES SHALL FOLLOW GUIDELINES OUTLINED IN THE NCDOT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- DEWATERING: THE CONTRACTOR SHALL AT ALL TIMES PROVIDE AND MAINTAIN AMPLE MEANS AND EQUIPMENT WITH WHICH TO REMOVE AND PROPERLY DISPOSE OF ANY AND ALL WATER ENTERING THE EXCAVATION OR OTHER PARTS OF THE WORK AND KEEP ALL EXCAVATIONS DRY UNTIL SUCH TIME AS PIPE LAYING AND GRADING IS COMPLETED AND STRUCTURES TO BE BUILT THEREIN ARE COMPLETED. NO WATER SHALL BE ALLOWED TO RISE AROUND THE PIPE IN UN-BACKFILLED TRENCHES NOR SHALL IT BE ALLOWED TO RISE OVER MASONRY UNTIL THE CONCRETE OR MORTAR HAS SET (MIN. 24 HOURS). ALL WATER PUMPED OR DRAINED FROM THE WORK SHALL BE DISPOSED OF IN SUCH A MANNER AS TO PREVENT SILTATION AND EROSION TO ADJACENT PROPERTY OR OTHER CONSTRUCTION. ALL TURBID WATER PUMPED OR DRAINED FROM THE WORK SHALL BE DISCHARGED THROUGH A SILT BAG OR SPECIAL STILLING BASIN PER THE DETAIL SHEETS.
- THE CONTRACTOR SHALL STOCKPILE ALL EXCAVATED MATERIAL UP—GRADIENT OF THE TRENCH WHERE POSSIBLE BASED ON FIELD CONDITIONS. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN AMPLE MEANS WITH WHICH TO ENSURE STOCKPILED MATERIALS DO NOT CAUSE SILTATION AND EROSION TO ADJACENT PROPERTY.
- GAS LINE ON SHEET C-4 WAS UNCOVERED BY PNG AND LOCATED BY SURVEYORS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING LOCATION OF ALL PNG GAS LINES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY PNG AT LEAST 48 HOURS (MIN.) BEFORE THE DAY ON WHICH THE CROSSING OF THE PNG PIPE LINE WILL BE MADE.
- DUKE ENERGY AND LREMC EASEMENTS: THE CONTRACTOR SHALL NOTIFY DUKE ENERGY AND LREMC 48 HOURS PRIOR TO ANY ENCROACHMENT OR CONSTRUCTION THROUGH DUKE POWER OR LREMC EASEMENTS.
 

BILL FLOYD  
PHONE: (919) 309-3069  
EMAIL: BILL.FLOYD@DUKE-ENERGY.COM
- DUKE ENERGY  
LORICK FANNING  
PHONE: (910) 944-5249  
EMAIL: LORICK.FANNING@DUKE-ENERGY.COM
- LREMC  
KEN ROWELL  
PHONE: (910) 843-7953  
EMAIL: KEN.ROWELL@LUMBEERIVER.COM
- ALL UNDERGROUND UTILITIES ARE APPROXIMATE LOCATION. CONTRACTOR TO VERIFY SIZE, DEPTH, LOCATION AND MATERIAL OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION, AND SUPPORT THEM DURING CONSTRUCTION. SERVICE SHALL NOT BE INTERRUPTED. CONTRACTOR SHALL CONTACT NORTH CAROLINA 811 A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION (811 OR 1-800-632-4949).
- CONTRACTOR SHALL PROVIDE TIMBER MATS FOR WETLAND CROSSINGS WHERE SHOWN ON THE DRAWINGS AND AS DESCRIBED BELOW:
  - WHERE FEASIBLE, PLACE MATS IN A LOCATION THAT WILL MINIMIZE THE AMOUNT NEEDED FOR THE WETLANDS CROSSING.
  - INSTALL ADEQUATE EROSION AND SEDIMENT CONTROLS AT APPROACHES TO MATS TO PROMOTE A SMOOTH TRANSITION TO, AND MINIMIZE SEDIMENT TRACKING ONTO, MATS.
  - MATS SHOULD BE PLACED ALONG THE TRAVEL WAY SO THAT THE INDIVIDUAL TIMBERS ARE RESTING PERPENDICULAR TO THE DIRECTION OF TRAFFIC. NO GAPS SHOULD EXIST BETWEEN TIMBERS.
  - MATS WHICH BECOME COVERED WITH SOILS OR CONSTRUCTION DEBRIS SHOULD BE CLEANED AND THE MATERIALS REMOVED AND DISPOSED OF IN AN UPLAND LOCATION. THE MATERIAL SHOULD NOT BE PLACED IN THE WETLANDS AREA.
  - MATS WHICH BECOME IMBEDDED MUST BE RESET OR LAYERED TO PREVENT MUD FROM COVERING THEM OR WATER PASSING OVER THEM.
  - MATting SHOULD BE REMOVED BY "BACKING OUT" OF THE SITE, REMOVING MATS ONE AT A TIME. ANY RUTTING OR SIGNIFICANT INDENTATIONS IDENTIFIED DURING MAT REMOVAL SHOULD BE REGRADED IMMEDIATELY, TAKING CARE NOT TO COMPACT SOILS.
  - MATS SHOULD BE CLEANED BEFORE TRANSPORT TO ANOTHER WETLAND LOCATION TO REMOVE SOIL AND ANY INVASIVE PLANT SPECIES, SEED STOCK, OR PLANT MATERIAL.
  - CLEANING METHODS MAY INCLUDE BUT ARE NOT LIMITED TO SHAKING OR DROPPING MATS IN A CONTROLLED MANNER WITH A PIECE OF MACHINERY TO KNOCK OFF ATTACHED SOIL AND DEBRIS, SPRAYING WITH WATER OR AIR, AND SWEEPING.
- ALL IMPACTED WETLAND AREAS SHALL BE RETURNED TO THEIR ORIGINAL PRE-CONSTRUCTION CONTOURS; THERE SHALL BE NO PERMANENT FILL IN JURISDICTIONAL AREAS.
- ALL IMPACTED HERBACEOUS WETLANDS SHALL BE SEEDED PER SPECIFICATION 02934.
- CEMETERIES ARE PROTECTED UNDER NORTH CAROLINA GENERAL STATUTE CHAPTER 65, AND SHOULD BE AVOIDED IF POSSIBLE. IF UNMARKED HUMAN SKELETAL REMAINS ARE ENCOUNTERED DURING CONSTRUCTION IN THE GENERAL VICINITIES NOTED ON THESE PLANS, THE PROVISIONS OF NORTH CAROLINA GENERAL STATUTE CHAPTER 70, ARTICLE 3 APPLY, AND THE STATE ARCHEOLOGIST SHOULD BE CONTACTED IMMEDIATELY. CONSTRUCTION ACTIVITIES SHALL IMMEDIATELY CEASE IF HUMAN REMAINS ARE ENCOUNTERED.
 

DAVD CRANFORD  
PHONE: (919) 814-6551  
E-MAIL: DAVIDCRANFORD@NCDOT.GOV
- CONTRACTOR SHALL REPLACE ALL CURB AND GUTTERS, SIDEWALK, AND ROADS DISTURBED BY CONSTRUCTION ACCORDING TO THE SPECIFICATIONS, SEE DETAILS.
- CONTRACTOR SHALL MAINTAIN ACCESS TO ALL HOMES AND BUSINESSES DURING CONSTRUCTION. CONTRACTOR SHALL HAVE STEEL PLATES (OR OTHER MEANS) AVAILABLE AT ALL TIMES TO ALLOW EMERGENCY VEHICLES ACCESS TO ALL PROPERTIES.
- CONTRACTOR SHALL PROTECT, AND/OR RECONSTRUCT/REPLACE, AT CONTRACTORS EXPENSE, EXISTING UTILITY PIPES INCLUDING GAS LINES AND DRIVEWAY CULVERTS DAMAGED DURING CONSTRUCTION.
- CONTRACTOR SHALL CONSTRUCT ALL SEDIMENTATION AND EROSION CONTROL DEVICES IN ACCORDANCE WITH NCDOT EROSION CONTROL PERMIT AND STANDARDS.
- CONTRACTOR SHALL INSTALL ANTI-SEEPAGE COLLARS PLACED AT THE DOWNSTREAM WETLAND BOUNDARY AND EVERY 150 FEET, UNTIL THE UTILITY EXITS THE WETLAND.
- REGISTERED SURVEYOR TO RE-INSTALL LOST/DAMAGED PROPERTY IRONS/PINS AT CONTRACTOR'S COST.
- CONTRACTOR TO COORDINATE WITH POWER COMPANY TO REMOVE ELECTRICAL SERVICE FROM EACH PUMP STATION.
- AT LEAST 8 HOURS PRIOR TO ANY CONSTRUCTION WITHIN NCDOT RIGHT OF WAYS, CONTRACTOR SHALL CONTACT NCDOT DIVISION 6, DISTRICT 2 ENGINEER.
 

TROY BAKER  
PHONE: (910) 364-0601  
EMAIL: TLBAKER@NCDOT.GOV
- REGULAR WORKING HOURS WILL BE 7:00AM TO 5:00PM, MONDAY THROUGH FRIDAY.
- SODDING OR SEEDING SHALL BE PER SPECIFICATIONS 02931, 02933, AND 02934.
- CONTRACTOR SHALL NOTIFY PWC 48-HOURS IN ADVANCE OF CONSTRUCTION STAKING.
- CONTRACTOR SHALL COORDINATE TESTING AND INSPECTION WITH THE FAYETTEVILLE PWC PROJECT COORDINATOR TWO (2) BUSINESS DAYS IN ADVANCE.
- GEOTECHNICAL INFORMATION HAS BEEN GATHERED AND IS FOR REFERENCE ONLY. MANY AREAS WERE INACCESSIBLE TO GEOTECHNICAL EQUIPMENT. THE CONTRACTOR IS RESPONSIBLE FOR INVESTIGATING SUBSURFACE CONDITIONS. GEOTECHNICAL DATA WAS COLLECTED WHILE LAKE UPCHURCH WAS DRAINED. ADDITIONAL HAND AUGERS WERE OBTAINED IN THE VICINITY OF SOME OF THE ORIGINAL SOIL BORINGS TO PROVIDE ADDITIONAL DATA OF GROUNDWATER LEVELS FOLLOWING THE REFILLING OF LAKE UPCHURCH. CONTRACTOR SHALL PROVIDE APPROPRIATE METHODS AND MEANS TO HANDLE ALL GROUNDWATER AND SURFACE WATER IMPACTS THAT COULD INCREASE AS A RESULT OF THE REFILLING OF THE LAKE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR RENEWING ALL NCDOT AND LOCAL CONSTRUCTION ACCESS/DRIVEWAY PERMITS.
- NOTE: THE 100 YEAR (1%) FLOODPLAIN LINES SHOWN IN THIS DOCUMENT WERE PLOTTED FROM THE FOLLOWING FLOOD INSURANCE RATE MAPS (FIRM) PANELS, ALL WITH AN EFFECTIVE DATE OF 1/5/2007:
  - 3720040400J, 3720040300J, 3710949400J, 3710949300K, 3710948300L, 3710948400K.
- CONTRACTOR SHALL PROVIDE SIGNAGE INDICATING CONSTRUCTION AHEAD ON ALL EXISTING DIRT ROADS AND PATHS ENCOUNTERED DURING CONSTRUCTION.
- MANHOLES GREATER THAN 12' DEEP SHALL HAVE MIN. 6" EXTENDED BASE PER DETAIL S.2 ON SHEET D-1.

**ORDER OF PRECEDENCE GENERAL NOTES/TECHNICAL SPECIFICATIONS/PHOTOS**

- EXCEPT AS MAY BE OTHERWISE SPECIFICALLY STATED IN THE CONTRACT DOCUMENTS, THE FOLLOWING ORDER OF PRECEDENCE SHALL BE ADHERED TO FOR RESOLVING ANY CONFLICT, ERROR, AMBIGUITY, OR DISCREPANCY BETWEEN THE PROVISIONS OF THE CONTRACT DOCUMENTS:
  - ANY ADDENDUM ISSUED PRIOR TO THE OPENING OF BIDS
  - SECTION 01000 - SPECIAL CONDITIONS
  - SECTION 01025 - MEASUREMENT AND PAYMENT
  - APPROVED CONTRACT DRAWINGS
  - PWC STANDARD DETAILS
  - PWC TECHNICAL SPECIFICATIONS
  - GENERAL CONDITIONS OF THE CONTRACT DOCUMENTS

**SYMBOL LEGEND**

PROPOSED	DESCRIPTION	EXISTING	SYMBOL
	LIGHT POLE		LP
	POWER POLE		PP
	BLOW OFF		BO
	ELECTRIC BOX		EB
	LIGHT		L
	TRANSFORMER		T
	TELEPHONE PEDESTAL		TP
	CABLE TV PEDESTAL/BOX		CT
	WATER VALVE		WV
	WATER METER		WM
	FIRE HYDRANT		FH
	IRON PIPE		IP
	IRON ROD		IR
	MANHOLE		M
	SILT FENCE STONE OUTLET (SEE TABLE SHEET D-H)		SF
	ROCK CHECK DAM		RD
	CURB INLET PROTECTION		CI
	INLET PROTECTION		IP
	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE		TG

**EROSION/SEDIMENT CONTROL**

SYMBOL	DESCRIPTION
[Symbol]	SILT FENCE STONE OUTLET (SEE TABLE SHEET D-H)
[Symbol]	ROCK CHECK DAM
[Symbol]	CURB INLET PROTECTION
[Symbol]	INLET PROTECTION
[Symbol]	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

**EXISTING LINE LEGEND**

DESCRIPTION	LINETYPE
UNDERGROUND CABLE TV	---TV---
UNDERGROUND PER RECORD CABLE TV	---TVR---
UNDERGROUND ELECTRIC	---E---
PER RECORD UNDERGROUND ELECTRIC	---ER---
UNDERGROUND FIBER OPTIC	---FO---
PER RECORD UNDERGROUND FIBER OPTIC	---FRO---
SANITARY SEWER FORCEMAIN	---FM---
PER RECORD SANITARY SEWER FORCE MAIN	---FMR---
UNDERGROUND GAS	---G---
OVER HEAD UTILITIES	---O---
RECLAIMED WATER LINE	---R---
PER RECORD RECLAIMED WATER LINE	---RR---
GRAVITY SANITARY SEWER	---SS---
PER RECORD GRAVITY SANITARY SEWER	---SSR---
STORM DRAINAGE	---S---
UNDERGROUND TELEPHONE	---T---
UNDERGROUND PER RECORD TELEPHONE	---TR---
UNDERGROUND UNKNOWN	---U---
WATER LINE	---W---
PER RECORD WATER LINE	---WR---
FENCE	---F---
GUARD RAIL	---GR---
BACK OF CURB	---B---
EASEMENT	---EAS---
EDGE OF GRAVEL	---EG---
EDGE OF PAVEMENT	---EP---
PROPERTY LINE	---PL---
RIGHT OF WAY	---RW---
ROAD CENTER LINE	---RCL---
100 YEAR FLOODPLAIN	---100P---
DITCH	---D---
MAJOR CONTOUR	---MC---
MINOR CONTOUR	---MNC---
RIPARIAN BUFFER ZONE 1	---RZ1---
RIPARIAN BUFFER ZONE 2	---RZ2---
TOP OF BANK	---TOB---
TREELINE	---TL---
WATERCOURSE	---WC---
WETLAND BOUNDARY	---WB---

**PROPOSED LINE LEGEND**

DESCRIPTION	LINETYPE
PERMANENT EASEMENT	---
TEMPORARY EASEMENT	---
SANITARY SEWER FORCE MAIN	---FM---
RECLAIMED WATER LINE	---R---
GRAVITY SANITARY SEWER	---SS---
WATER LINE	---
TO BE ABANDONED	---
DIVERSION DITCH	---
LIMITS OF DISTURBANCE/CLEARING LIMITS	---
COMBINATION SILT FENCE/TREE PROTECTION	---
TEMPORARY SILT FENCE	---
TEMPORARY SUPER SILT FENCE	---
TEMPORARY TREE PROTECTION FENCE	---
PERMANENT FENCE	---
GUARD RAIL	---

**ABBREVIATION LEGEND**

ARC	ASBESTOS CEMENT
ARV	AIR RELEASE VALVE
BC	BACK OF CURB
BO	BLOW OFF VALVE
CB	CATCH BASIN
C&G	CURB AND GUTTER
CGF	COMBINED GRID FACTOR
CI	CURB INLET
	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CPP	CORRUGATED PLASTIC PIPE
DI	DROP INLET
DIP	DUCTILE IRON PIPE
D/W	DRIVEWAY
E.B.	EXTENDED BASE
EOG	EDGE OF GRAVEL
EP, EOP	EDGE OF PAVEMENT
EX	EXISTING
LP	LIGHT POLE
FH	FIRE HYDRANT ASSEMBLY
FM	FORCE MAIN
FO	FIBER OPTIC
GL	GUTTER LINE
GTS	GAS TEST STATION
GW	GUY WIRE
INV	INVERT ELEVATION
IPF	IRON POST FOUND
MB	MAIL BOX
MAX	MAXIMUM
MIN	MINIMUM
OHE, OE	OVER HEAD ELECTRIC
PP	POWER POLE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
R/W, ROW	RIGHT OF WAY
SDMH	STORM DRAIN MANHOLE
SO	STONE OUTLET
SSMH	SANITARY SEWER MANHOLE
STA	STATION
SUE	SUBSURFACE UTILITY ENGINEERING
S/W	SIDE WALK
SVC	SERVICE
TH	TEST HOLE
TPF	TREE PROTECTION FENCE
TYP	TYPICAL
UNK	UNKNOWN
VCP	VITRIFIED CLAY PIPE
WB	WATER BAR
WV	WATER VALVE
WM	WATER METER
YI	YARD INLET

**AREA LEGEND**

[Symbol]	EXISTING WETLANDS
[Symbol]	EXISTING WATER SURFACE
[Symbol]	EXISTING STREAM WITH BOUNDARIES
[Symbol]	ROADWAY RECONSTRUCTION EXTENTS
[Symbol]	ROADWAY MILL AND OVERLAY EXTENTS

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D-8	STANDARD EROSION CONTROL DETAILS
D-9	STANDARD EROSION CONTROL DETAILS
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DATE	REVISIONS	BY
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MPP
02.21.2021	FINAL DESIGN NOT FOR CONSTRUCTION	MPP
06.30.2021	FINAL DESIGN - CONTRACT SEPARATION AND 20% RESPONSE	MPP
04.13.2022	FINAL DESIGN - NEOT ENCROACHMENT MODIFICATIONS	MPP
07.11.2022	FINAL DESIGN - NEOT ENCROACHMENT MODIFICATIONS	MPP
06.15.2023	FINAL DESIGN ISSUED FOR BID	MPP

SHEET	G2
SURVEYOR: MCKIMCREED, INC.	DATE: 6/13/23
PROCESS/OUTLET BY: TMB/AMB	DESIGN REVIEW BY: BRL
PLAN/PROF. (USX) BY: BRL	APPROVED BY: AS SHOWN
SCALE: AS SHOWN	



SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
 NOTES INDEX AND LEGEND

**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
**WATER RESOURCES ENGINEERING**  
 1730 Varsity Drive, Suite 500  
 Raleigh, NC 27606  
 Phone: (919)233-8091, Fax: (919)233-8031  
 F-1222  
 www.mckimcreed.com

**Big Rockfish Creek Outfall**  
 CONTRACT 2  
 ORIGINAL  TAPS ONLY  REVISION DRAWING  MODIFICATION  
 WO # WT: N/A WO # ST: 1806205  
 WO # WD: N/A WO # SD: N/A  
 ENG TECH: G. Smeltzer PERMIT # DEWJ0001296  
 REVIEWED BY: TBL PERMIT # N/A  
 DATE: 6-15-2023 DWG # 03-15476  
 WREP #: 190000006 # OF SHEETS: 42



FINAL DESIGN  
ISSUED FOR BID

PWC DRAWING # AS-15313CCC

I:\01925\0005\Water\80-Drawings\86-Design\BRC-MAIN OUTFALL SHEETS\ BRC 03-CONTRACT 2.dwg 06/13/2023 15:39 mplec

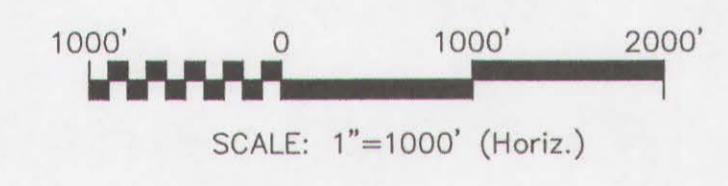


**PLAN LEGEND**

C-7		PLAN AND PROFILE SHEET No.
-----	--	----------------------------

ALIGNMENT	STATION	PIPE DIAMETER
BRCO	118+00 - 228+61	24"
BRCO	228+61 - 265+57	18"

**PLAN**  
HORIZ: 1"=1000'



<b>FWC</b> FAYETTEVILLE PUBLIC WORKS COMMISSION	
BIG ROCKFISH CREEK OUTFALL CONTRACT 2	
<input checked="" type="checkbox"/> ORIGINAL	<input type="checkbox"/> TAPS ONLY
<input type="checkbox"/> RECORD DRAWING	<input type="checkbox"/> MODIFICATION
WD # WT: N/A	WD # ST: 1806305
WD # WD: N/A	WD # SD: N/A
ENG TECH: G-smith	PERMIT #: 069100044334
REVIEWED BY: <i>ASL</i>	PERMIT #: N/A
DATE: 6-15-2023	DWG #: DS-15486
WREP #: 1900000096	# OF SHEETS: 42



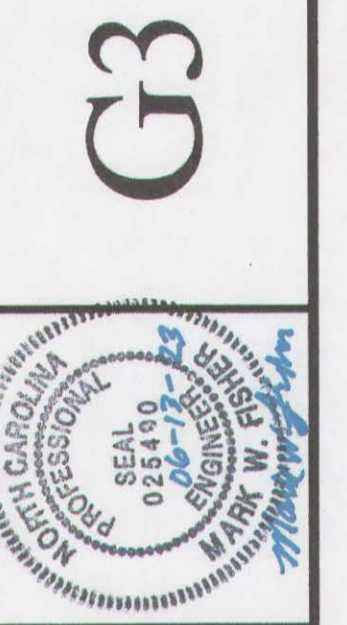
**MCKIM & CREED**  
1730 Varsity Drive, Suite 500  
Raleigh, NC 27606  
Phone: (919)233-8091, Fax: (919)233-8031  
F-1222  
www.mckimcreed.com

FINAL DESIGN  
ISSUED FOR BID

PWC DRAWING # DS-15486

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	PPP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	PPP
06.30.2021	FINAL DESIGN - CONTRACT REVISIONS AND PERMITS	PPP
04.13.2022	FINAL DESIGN - NOT FOR CONSTRUCTION	PPP
06.15.2023	FINAL DESIGN - ISSUED FOR BID	PPP

SURVEY/GIS BY: MCKIM&CREED, INC.	DATE: 6/13/23
PROCESS/LAYOUT BY: TMB/AMB	
PLAN/PROF. (S&S) BY: BRL	
DESIGN REVIEW BY: BRL	
APPROVED BY: AS SHOWN	



SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
INDEX MAP

FAYETTEVILLE PUBLIC WORKS COMMISSION  
**FWC** WATER RESOURCES ENGINEERING  
P.O. Box 1088, Fayetteville, NC 28302  
895 Old Wilmington Road, Fayetteville, NC 28301



UTILITY PLAN SHEET INDEX	
SHEET NUMBER	SHEET TITLE
UTILITY PLANS	
UP-G	BIG ROCKFISH OUTFALL UTILITY PLAN COVER SHEET (CONTRACT 2)
UP-3B	BIG ROCKFISH OUTFALL STA.101+15 - STA.161+50
UP-4	BIG ROCKFISH OUTFALL STA.161+50 - STA.229+11
UP-5A	BIG ROCKFISH OUTFALL STA.229+11.00 - STA.289+64

SYMBOL LEGEND		
PROPOSED	DESCRIPTION	EXISTING
	LIGHT POLE	LP
	POWER POLE	BP
	BLOW OFF	BO
	ELECTRIC BOX	EB
	LIGHT	LI
	TRANSFORMER	TR
	TELEPHONE PEDESTAL	TP
	CABLE TV PEDESTAL/BOX	CT
	WATER VALVE	WV
	WATER METER	WM
	FIRE HYDRANT	FH
	IRON PIPE	IP
	IRON ROD	IR
	MANHOLE	MO

PROPOSED LINE LEGEND	
DESCRIPTION	LINE TYPE
PERMANENT EASEMENT	---
TEMPORARY EASEMENT	- - -
SANITARY SEWER FORCE MAIN	---
RECLAIMED WATER LINE	---
GRAVITY SANITARY SEWER	---
WATER LINE	---
TO BE ABANDONED	---
DIVERSION DITCH	---
LIMITS OF DISTURBANCE/CLEARING LIMITS	---
COMBINATION SILT FENCE/TREE PROTECTION	---
TEMPORARY SILT FENCE	---
TEMPORARY SUPER SILT FENCE	---
TEMPORARY TREE PROTECTION FENCE	---
PERMANENT FENCE	---
GUARD RAIL	---

EROSION/SEDIMENT CONTROL	
SO #50	SILT FENCE STONE OUTLET (SEE TABLE SHEET D-H)
ROCK	ROCK CHECK DAM
SILT	SILT SACK INLET PROTECTION
INLET	INLET PROTECTION
TEMPORARY	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

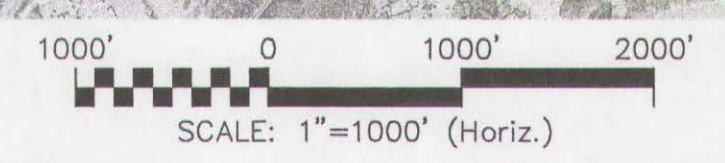
ABBREVIATION LEGEND	
ARC	ASBESTOS CEMENT
ARV	AIR RELEASE VALVE
BC	BACK OF CURB
BO	BLOW OFF VALVE
CB	CATCH BASIN
C&G	CURB AND GUTTER
CGF	COMBINED GRID FACTOR
CI	CURB INLET
	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CPP	CORRUGATED PLASTIC PIPE
DI	DROP INLET
DIP	DUCTILE IRON PIPE
D/W	DRIVEWAY
EOG	EDGE OF GRAVEL
EP, EOP	EDGE OF PAVEMENT
EX	EXISTING
LP	LIGHT POLE
FH	FIRE HYDRANT ASSEMBLY
FM	FORCE MAIN
FO	FIBER OPTIC
GL	GUTTER LINE
GTS	GAS TEST STATION
GW	GUY WIRE
INV	INVERT ELEVATION
IPF	IRON POST FOUND
MB	MAIL BOX
MAX	MAXIMUM
MIN	MINIMUM
OHE, OE	OVER HEAD ELECTRIC
PP	POWER POLE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
R/W, ROW	RIGHT OF WAY
SDMH	STORM DRAIN MANHOLE
SO	STONE OUTLET
SSMH	SANITARY SEWER MANHOLE
STA	STATION
SUE	SUBSURFACE UTILITY ENGINEERING
S/W	SIDE WALK
SVC	SERVICE
TH	TEST HOLE
TPF	TREE PROTECTION FENCE
TYP	TYPICAL
UNK	UNKNOWN
VCP	VITRIFIED CLAY PIPE
WB	WATER BAR
WV	WATER VALVE
WM	WATER METER
YI	YARD INLET

EXISTING LINE LEGEND	
DESCRIPTION	LINE TYPE
UNDERGROUND CABLE TV	---TV---
UNDERGROUND PER RECORD CABLE TV	---TV(R)---
UNDERGROUND ELECTRIC	---E---
PER RECORD UNDERGROUND ELECTRIC	---E(R)---
UNDERGROUND FIBER OPTIC	---FO---
PER RECORD UNDERGROUND FIBER OPTIC	---FO(R)---
SANITARY SEWER FORCE MAIN	---FM---
PER RECORD SANITARY SEWER FORCE MAIN	---FM(R)---
UNDERGROUND GAS	---G---
UNDERGROUND PER RECORD GAS	---G(R)---
OVER HEAD UTILITIES	---O---
RECLAIMED WATER LINE	---R---
PER RECORD RECLAIMED WATER LINE	---R(R)---
GRAVITY SANITARY SEWER	---SS---
PER RECORD GRAVITY SANITARY SEWER	---SS(R)---
STORM DRAINAGE	---S---
UNDERGROUND TELEPHONE	---T---
UNDERGROUND PER RECORD TELEPHONE	---T(R)---
UNDERGROUND UNKNOWN	---U---
WATER LINE	---W---
PER RECORD WATER LINE	---W(R)---
FENCE	---
GUARD RAIL	---
BACK OF CURB	---
EASEMENT	---
EDGE OF GRAVEL	---
EDGE OF PAVEMENT	---
PROPERTY LINE	---
RIGHT OF WAY	---
ROAD CENTER LINE	---
100 YEAR FLOODPLAIN	---
DITCH	---
MAJOR CONTOUR	---
MINOR CONTOUR	---
RIPARIAN BUFFER ZONE 1	---
RIPARIAN BUFFER ZONE 2	---
TOP OF BANK	---
TREELINE	---
WATERCOURSE	---
WETLAND BOUNDARY	---

AREA LEGEND	
	EXISTING WETLANDS
	EXISTING WATER SURFACE
	EXISTING STREAM WITH BOUNDARIES



OVERVIEW  
SCALE HORIZ: 1"=1000'



FINAL DESIGN  
ISSUED FOR BID

FAYETTEVILLE PUBLIC WORKS COMMISSION	
BIG ROCKFISH CREEK OUTFALL CONTRACT 2	
<input checked="" type="checkbox"/> ORIGINAL	<input type="checkbox"/> TAPS ONLY
<input type="checkbox"/> RECORD DRAWING	<input type="checkbox"/> MODIFICATION
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WO # WD: N/A	WO # SD: 1/A
ENG TECH: G. SMITH	PERMIT #: DEW4042336
REVIEWED BY: OLF	PERMIT #: N/A
DATE: 10-15-2023	DWG #: 125-15486
WREP #: 180000086	# OF SHEETS: 42



PWC DRAWING # DS-15486

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AMB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPF
02.22.2021	FINAL DESIGN NOT FOR CONSTRUCTION	HPF
06.30.2021	FINAL DESIGN - CONTRACT INFORMATION AND BIDS RESPONSE	HPF
04.13.2022	FINAL DESIGN - ACCT ENCHANCEMENT REVISIONS	HPF
04.13.2023	FINAL DESIGN ISSUED FOR BID	HPF

SHEET UP-G	
SURVEY/GPS BY: MCKIM&CREED, INC.	DATE: 6/13/23
PROCESS/LAYOUT BY: TMB/AMB	DESIGN REVIEW BY: BRL
APPROVED BY: AS SHOWN	

**UP-G**

SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
BIG ROCKFISH OUTFALL UTILITY PLAN COVER SHEET (CONTRACT 2)

**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
**WATER RESOURCES ENGINEERING**

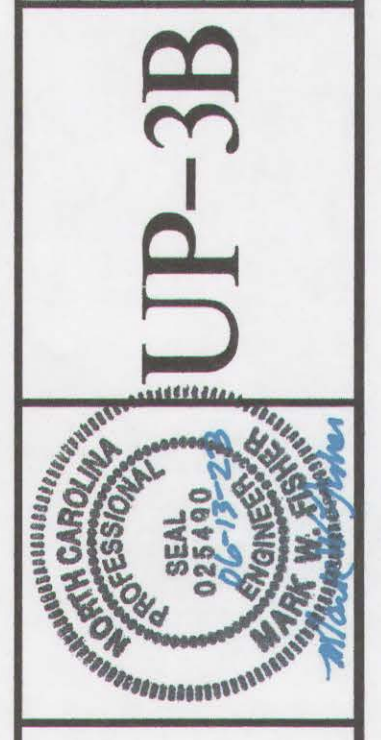
P.O. Box 1089, Fayetteville, NC 28407  
855 016 Wilmington Road, Fayetteville, NC 28081

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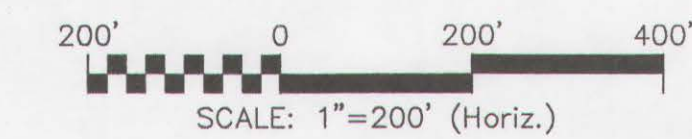
DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
05.20.2021	FINAL DESIGN - CONTRACT ENFORCEMENT AND DELIVERABLES	HPP
04.15.2022	FINAL DESIGN - NOT ENFORCEMENT REVISIONS	HPP
06.15.2023	FINAL DESIGN ISSUED FOR BID	HPP

SHEET UP-3B

SURVEY/GRS BY: MCKIM&CREED, INC.  
 PROCESS/OUT BY: DATE: 6/15/23  
 PLAN/PROF (GSX) BY: TMB/AWB  
 DESIGN REVIEW BY: BRL  
 APPROVED BY:  
 SCALE: AS SHOWN



PLAN VIEW  
 SCALE HORIZ: 1"=200'



PROPERTY INFORMATION			
PARCEL	OWNER	MAILING ADDRESS	PIN
18	PRESERVE AT LAKE UPCHURCH PROPERTY OWNERS ASSOC INC	2533 RAEFORD RD, FAYETTEVILLE, NC 28305	9494-80-8851
19	BILL CLARK HOMES OF FAY LLC	200 AE ARLINGTON BLV, GREENVILLE, NC 27858	9494-70-7243
20	NOBLE, CHARLES F III & WIFE EDIE NOBLE	2461 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9494-60-2453
21	JTDOOLEY PROPERTIES 2 LLC	276 LAKESIDE RD, RAEFORD, NC 28376	9493-49-4898
59	PRESERVE AT LAKE UPCHURCH PROPERTY OWNERS ASSOC INC	2533 RAEFORD RD, FAYETTEVILLE, NC 28305	9494-90-4801
110	PRESERVE AT LAKE UPCHURCH PROPERTY OWNERS ASSOC INC	2533 RAEFORD RD, FAYETTEVILLE, NC 28305	9494-90-4932
111	H & H CONSTRUCTORS OF FAY LLC	2919 BREEZEWOOD AVE, UNIT/APT 400, FAYETTEVILLE, NC 28303	9494-90-3805
112	GRIGGS, CHRISTINA & HUSBAND TATE RIES	2337 PARK GARDEN CT, FAYETTEVILLE, NC 28306	9494-90-3714
113	H & H CONSTRUCTORS INC	2919 BREEZEWOOD AVE, UNIT/APT 400, FAYETTEVILLE, NC 28303	9494-90-3636
114	LANCE, SCOTT RAY, SARAH MARET GURNEY	PO BOX 337, ANGIER, NC 27501	9493-69-2951
115	HELMS, GEORGIA C	6513 PERRY CREEK RD, RALEIGH, NC 27616	9494-60-0276
116	HARDIN MASONRY & CONTRACTING SERVICE INC	446 DAVIS BRIDGE RD, PARKTON, NC 28371	9494-50-9126
117	ENGL, CARL C JR & WIFE CHRISTA N	2614 FASHION LN, FAYETTEVILLE, NC 28304	9493-69-0881
118	ENGL, CARL CLYDE & WIFE CHRISTA NEWTON	2614 FASHION LN, FAYETTEVILLE, NC 28304	9493-59-9880
119	LOCKLEAR, WOODROW W	2551 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9494-50-7087
120	IVEY, NATHAN L	3320 DUNDE RD, FAYETTEVILLE, NC 28306	9493-59-9725
121	WILLIFORD, DEBORAH L	2545 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-59-8773
122	CHASE, ROBERT C	2550 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9494-50-7001
123	LOCKLEAR, ALTON LIFE ESTATE	2551 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-59-8639
124	HAMMONDS, VEAR LANETTE	2551 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-59-7687
125	CHASE, ROBERT C	2550 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-59-6959
126	HUGGINS, SAMUEL O JR & WIFE DENISE DIXON	5539 HEATHER ST, HOPE MILLS, NC 28348	9493-59-7644
127	HUGGINS, SAMUEL O JR & WIFE DENISE DIXON	5539 HEATHER ST, HOPE MILLS, NC 28348	9493-59-6692
128	HUGGINS, SAMUEL O JR & WIFE DENISE DIXON	5539 HEATHER ST, HOPE MILLS, NC 28348	9493-59-6558
129	NIEDENTHAL, HELGA	2633 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-59-5997
130	VOSS, DAGMAR	2633 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-59-5913
131	BRYANT, ELLIS M & WIFE DEBORAH F	2583 LAKEVIEW DR, FAYETTEVILLE, NC, 28306	9493-59-5529
132	LOWERY, JOHN W SR & WIFE CATHY B	424 S MAPLE ST, GRAHAM, NC 27253	9493-59-3866

PROPERTY INFORMATION			
PARCEL	OWNER	MAILING ADDRESS	PIN
133	MUNSON, LES A & WIFE PAULETTE A	2595 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-59-4529
134	STONE, AUDREY LYNN	2603 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-59-3610
135	COUSINS, WARREN	2633 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-59-2817
136	COUSINS, WARREN	2633 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-59-1836
137	EHLE, ELLIS E	PO BOX 48121, CUMBERLAND, NC 28331	9493-59-1589
138	DEAN, WILLIAM KENT & WILLIAM HOWARD	5733 ROCKFISH RD, HOPE MILLS, NC 28348	9493-59-0589
139	VOSS, DAGMAR	2633 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-59-0517
140	NEWTON, ROSINA RAUER	PO BOX 48084, CUMBERLAND, NC 28331	9493-49-9524
141	COUSINS, WARREN D	2633 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-49-9832
142	PHIPPS, CATHERINE D	2653 LAKEVIEW DR, FAYETTEVILLE, NC, 28306	9493-49-8544
143	SINGLETON, JOSEPH M	303 TREY DR, GREENVILLE, NC 27834	9493-49-7715
144	BRYANT, JEFFREY MACK	2659 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-49-7583
145	EHLE, ELLIS E JR	2667 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-49-7503
146	EHLE, ELLIS E	2673 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-49-6511
147	JOHNSON, ROBERT WAYNE & WIFE PAMELA FONTAINE	2677 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-49-5604
148	JTDOOLEY PROPERTIES 2 LLC	2734 LAKEVIEW DR, FAYETTEVILLE, NC 28306	9493-49-6993
149	BARRETT, BILLY D & WIFE ZITA Y	4203 LOUFIELD DR, FAYETTEVILLE, NC 28311	9493-49-3623
150	BARRETT, BILLY D & WIFE ZITA Y	4203 LOUFIELD DR, FAYETTEVILLE, NC 28311	9493-49-3496
151	HAUGHN, DAVID C & WIFE ANA F	2625 FISHING PIER RD, FAYETTEVILLE, NC 28306	9493-49-3329

<b>FAYETTEVILLE PUBLIC WORKS COMMISSION</b>	
BIG ROCKFISH CREEK OUTFALL CONTRACT 2	
<input checked="" type="checkbox"/> ORIGINAL	<input type="checkbox"/> TAPS ONLY
<input type="checkbox"/> RECORD DRAWING	<input type="checkbox"/> MODIFICATION
WO # WT: N/A	WO # ST: 1906805
WO # WD: N/A	WO # SD: N/A
ENG TECH: G. Smith	PERMIT # DEW160042336
REVIEWED BY: AWB	PERMIT # N/A
DATE: 6-15-2023	DWG # DS-15486
WRFP # 1900000096	# OF SHEETS: 42

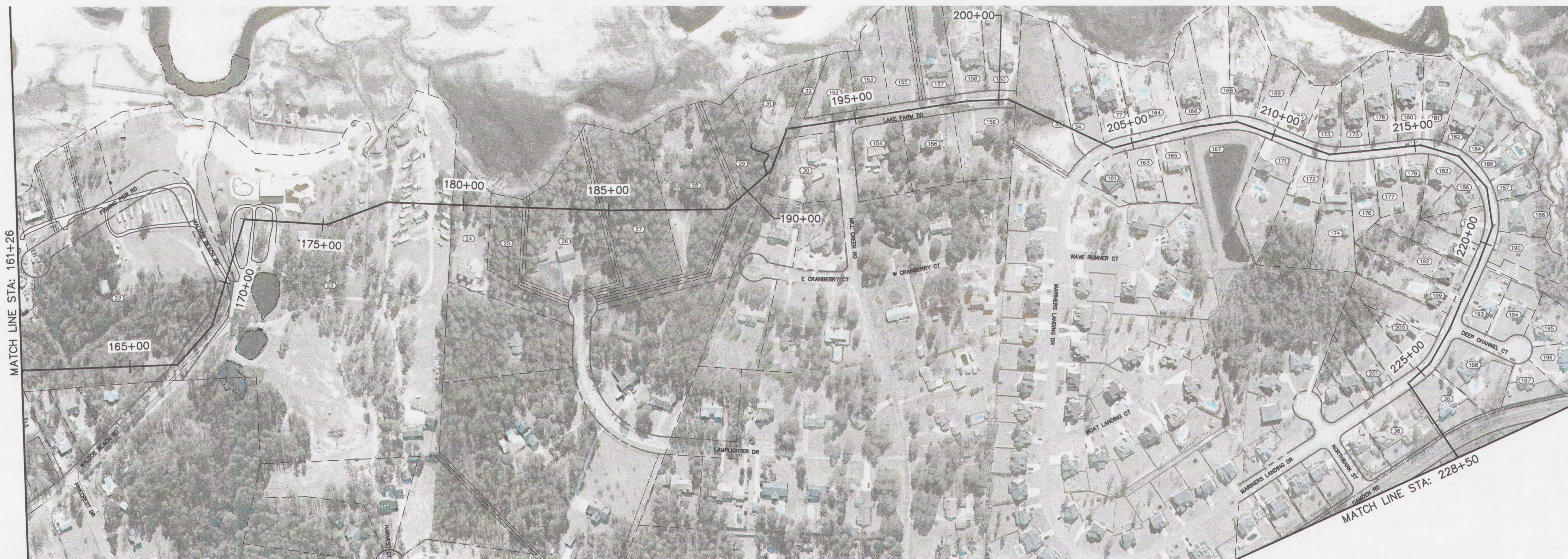


FINAL DESIGN  
 ISSUED FOR BID

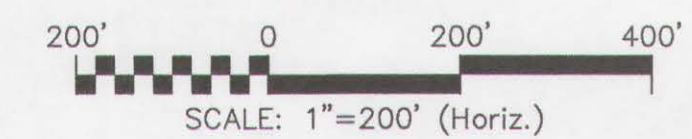
PWC DRAWING # DS-15486

SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
 BIG ROCKFISH OUTFALL STA. 101+15 - STA. 161+50

**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
**WATER RESOURCES ENGINEERING**  
 P.O. Box 1088 Fayetteville, NC 28302  
 505 Old Wilmington Road, Fayetteville, NC 28301  
 An Equal Opportunity Employer



PLAN VIEW  
SCALE HORIZ: 1"=200'



PROPERTY INFORMATION			
PARCEL	OWNER	MAILING ADDRESS	PIN
22	DEAN, ROY LEE JR & WIFE CHOM CHU DEAN	6742 WALDOS BEACH RD, FAYETTEVILLE, NC 28306	9493-39-9448
23	DEAN, ROY LEE JR & WIFE CHOM CHU DEAN	6742 WALDOS BEACH RD, FAYETTEVILLE, NC 28306	9493-39-1578
24	NOBLIN, JOHN M & WIFE THERESA D NOBLIN	7070 LAMPLIGHTER DR, FAYETTEVILLE, NC 28306	9493-29-6482
25	NOBLIN, JOHN M & WIFE THERESA D NOBLIN	7070 LAMPLIGHTER DR, FAYETTEVILLE, NC 28306	9493-29-5490
26	TAYLOR, DONALD R & WIFE NAN O TAYLOR	7068 LAMPLIGHTER DR, FAYETTEVILLE, NC 28306	9493-29-4305
27	NORMAN, WILLIAM C & WIFE SUSAN M NORMAN	227 JUDD ST, FAYETTEVILLE, NC 28305	9493-29-1286
28	SMITH, MARCIA M	7075 LAMPLIGHTER DR, FAYETTEVILLE, NC 28306	9493-19-9290
29	SMITH, MARCIA M	7075 LAMPLIGHTER DRM FAYETTEVILLE, NC 28306	9493-19-7180
30	SANTOY, MICHAEL J & WIFE DEANA R SANTOY	3627 MILL CREEK RD, FAYETTEVILLE, NC 28306	9493-19-5181
31	DOWLESS, CURRIE K & WIFE SONIA P DOWLESS	2460 H BULLARD RD, HOPE MILLS, NC 28348	9493-18-7819
32	MILL CREEK FARMS HOMEOWNERS ASSOC	3619 MILL CREEK RD, FAYETTEVILLE, NC 28304	9493-18-6924
33	WILSON, JEFFREY SCOTT & WIFE THERESA CAROL WILSON	152 BRIDLE RD, RAEFORD, NC 28376	9493-08-7845
34	PATTERSON, DONNA M	7345 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9493-08-6843
35	TORRES, GILBERT & WIFE MICHELLE L TORRES	7105 MARINERS LANDING, FAYETTEVILLE, NC 28306	9483-99-3846
36	GIOVANNETTI, EDWIN JR	7115 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-5916
77	WOODS, MARTY L & WIFE SAMANTHA	7349 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9493-08-5845
152	BRAMBLE, KELVIN	6669 LAKE FARM RD, FAYETTEVILLE, NC 28306	9493-18-5836
153	GRAY, JAMES ALEXANDER III & MELISSA A	7003 LAKE FARM RD, FAYETTEVILLE, NC 28306	9493-18-3776
154	BARROW, JAMES CHRISTIAN	7000 LAKE FARM RD, FAYETTEVILLE, NC 28306	9493-19-3028
155	GRAY, JAMES ALEXANDER III & MELISSA A	7003 LAKE FARM RD, FAYETTEVILLE, NC 28306	9493-18-2770
156	FELMY, LARRY L & WIFE SHERRY B	7004 LAKE FARM RD, FAYETTEVILLE, NC 28306	9493-19-1044
157	SHEPARD, JOE M & BRENDA D	7005 LAKE FARM RD, FAYETTEVILLE, NC 28306	9493-18-1665
158	BLACK KNIGHT HOUSE LLC	7007 LAKE FARM RD, FAYETTEVILLE, NC 28306	9493-18-0653
159	LUHN, TERESA L	7008 LAKE FARM RD, FAYETTEVILLE, NC 28306	9493-09-9060
160	SHOENBERGER, MICHAEL & WIFE BARBARA	7009 LAKE FARM RD, FAYETTEVILLE, NC 28306	9493-08-9627
161	HARMON, JAMES G & WIFE KIMBERLEE S	7344 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9493-09-5131
163	TROWBRIDGE, KRISTIN D	7348 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9493-09-4100
164	SMITH, JOSHUA & WIFE CANDICE	7353 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9493-08-4804
165	SHUMAN, JEFFREY A & WIFE CYNTHIA O	7352 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9493-09-3009
166	BORGER, JUDITH & HUSBAND BENJAMIN	7357 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9493-08-2766
167	MARINERS POINTE HOMEOWNERS ASSOC OF BRAGG INC	PO BOX 87209, FAYETTEVILLE, NC 28304	9493-09-1245
168	MACDOWELL, ANA	7365 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9493-08-0762
169	LUM, SEAN S & WIFE GABRIELLE R	7013 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-98-9841
170	ELBERG, JOSHUA R & WIFE SAIRA D	7017 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-98-8867

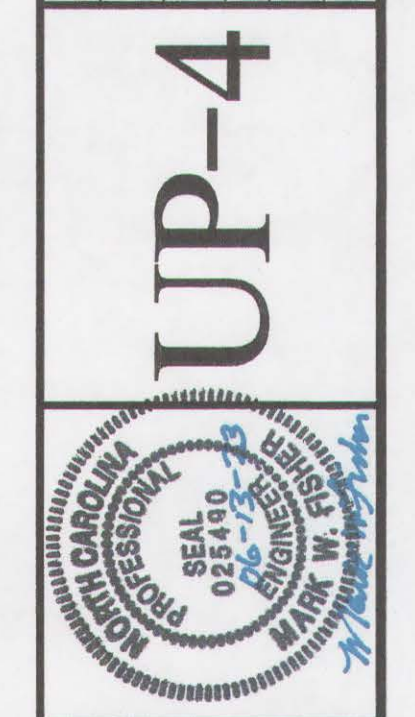
PROPERTY INFORMATION			
PARCEL	OWNER	MAILING ADDRESS	PIN
171	HARGIS, THEODORE & WIFE MARIA	7012 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-9173
172	DECOSTA, JOSEPH M	7016 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-8295
173	ROSTETTER, JACK F & WIFE BOBBIE J	7021 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-98-7980
174	WARREN, JERRY M & WIFE LINDA	7020 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-7266
175	BRENNAN, SHAUN & WIFE LARA E	7025 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-98-7807
176	HROBAK, ROBERT J & WIFE JOLENE E	7024 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-6166
177	COOK, MARITZA ELIZABETH & HUSBAND SEAN KELLY	7028 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-5173
178	SODHI, SALIL	7029 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-98-6813
179	HILBURN, CHRISTOPHER O & WIFE KAREN A	7032 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-5106
180	QUANT, KEVIN D & WIFE JANET L	7033 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-98-5821
181	ELLIOTT, WILLIAM & WIFE TINA	7037 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-98-4811
182	WALKER, SEAN P & WIFE KAREN A	7041 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-98-3816
183	MIRANDA, JUAN A JR & WIFE DANIELLE C	7036 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-4100
184	MIRAMONTES, JESSE ANDREW & WIFE JENNIFER DENNIS	7045 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-98-2933
185	FLINN, ANDREW L & WIFE PATRICIA C	7049 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-1050
186	KOORSEN, JOSHUA M & WIFE THERESA	7040 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-3146
187	SMITH, JEFFERY P & WIFE LAURA R	7053 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-1130
188	KOBA, MICHAEL G	7057 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-1201
189	HERLIHY, MICHELLE LYNNETTE & HUSBAND DANIEL JOSEPH IV	7044 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-3225
190	MARINERS POINTE HOMEOWNERS ASSOC OF BRAGG INC	PO BOX 87209, FAYETTEVILLE, NC 28304	9483-89-9492
191	STOVER, WILLIAM & WIFE MAUREEN	7048 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-3382
192	BRADLEY, CURTIS JEROME & WIFE VICKIE LANELLE	7052 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-4386
193	SPELL, HENRY M & WIFE MICHELE S	2905 DEEP CHANNEL CT, FAYETTEVILLE, NC 28306	9483-99-2531
194	MURACH, ROBERT J & WIFE KAREN KULENICH	2909 DEEP CHANNEL CT, FAYETTEVILLE, NC 28306	9483-99-1535
195	RAMOS, ROMAN ESTEVAN & WIFE KRISTINA NICOLE	2913 DEEP CHANNEL CT, FAYETTEVILLE, NC 28306	9483-89-9599
196	CRUZ SANTIAGO, FRANCISCO J & WIFE CAROLYN CRUZ	2916 DEEP CHANNEL CT, FAYETTEVILLE, NC 28306	9483-89-9762
197	MENHART, RICHARD L & WIFE KESA ANN	2912 DEEP CHANNEL CT, FAYETTEVILLE, NC 28306	9483-99-0870
198	MCURDO, COLLEEN E & HUSBAND TAYLOR K	2908 DEEP CHANNEL CT, FAYETTEVILLE, NC 28306	9483-99-2753
199	LAYO, SHANE A & WIFE NICOLA TUNIA WALLI	7056 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-5415
200	GRAVES, NEWMAN H & WIFE KAREN E KELLY-GRAVES	7104 MARINERS LANDING DR, FAYETTEVILLE, NC 28306	9483-99-5641
201	AMAR, MOHAMADOU MAMOUNTE & WIFE D'E AISSATOU	7112 MARINERS LANDING	9483-99-6761

FINAL DESIGN  
ISSUED FOR BID

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	PPP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	PPP
04.30.2021	FINAL DESIGN - CONTRACT INFORMATION AND PERMITS	PPP
04.13.2021	FINAL DESIGN - BEST ENCOURAGEMENT NOTIFICATIONS	PPP
06.15.2021	FINAL DESIGN ISSUED FOR BID	PPP

SHEET UP-4

SURVEY/PCS BY: MCKIM&CREED, INC.  
PROCESS/LAYOUT BY: DATE: 6/13/23  
PLAN/PROF (GD&I) BY: TRB/AWB  
DESIGN REVIEW BY: BRL  
APPROVED BY:  
SCALE: AS SHOWN



SANITARY SEWER IMPROVEMENTS BIG  
ROCKFISH CREEK OUTFALL - CONTRACT 2  
BIG ROCKFISH OUTFALL STA. 161+50 -  
STA. 229+11

FAYETTEVILLE PUBLIC WORKS COMMISSION  
**PWC WATER RESOURCES ENGINEERING**  
P.O. Box 1089, Fayetteville, NC 28302  
855 Old Wilmington Road, Fayetteville, NC 28301

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www.mckimcreed.com

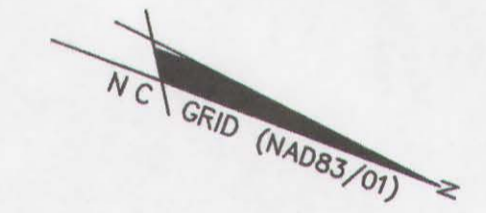
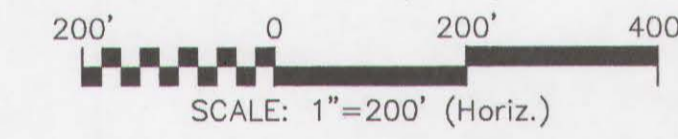
PWC DRAWING # DS-15486

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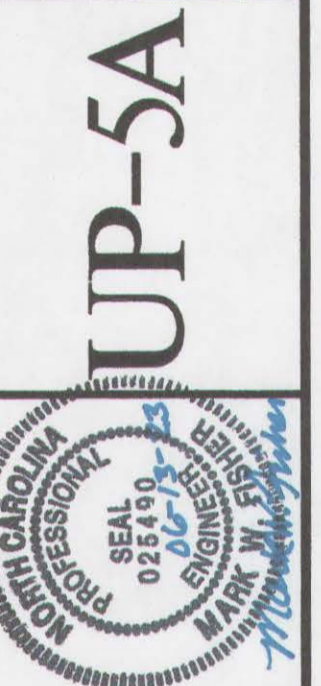
PLAN VIEW  
SCALE HORIZ: 1"=200'

PROPERTY INFORMATION			
PARCEL	OWNER	MAILING ADDRESS	PIN
37	CAMDEN GLEN DEVELOPMENT LLC	6885 CLIFFDALE RD, FAYETTEVILLE, NC 28314	9484-92-7453
65	HORNADAY CONST CO INC	581 EXECYUVE PL, UNIT/APT 700, FAYETTEVILLE, NC 28305	9484-93-2843
75	BEASLEY, JOHNNY & BILLY E DEES	PO BOX 495, HOPE MILLS, NC 28348	9484-83-4294
76	AVERETTE, CHARLES DAVID	545 E LAKE RIDGE RD, RAEFORD, NC 28376	9484-73-6270
78	PEARTREE WEST OWNERS ASSOCIATION	2401 ROBESON ST, FAYETTEVILLE, NC 28305	9484-93-3623
162	BEASLEY, JOHNNY & BILLY E DEES	5555 TRADE ST, HOPE MILLS, NC 28348	9484-90-3689
213	CAMDEN GLEN DEVELOPMENT LLC	3257 HUNTING LODGE RD, FAYETTEVILLE, NC 28306	9484-93-3348



DATE	REVISIONS	BY
05.18.2023	FINAL DESIGN NOT FOR CONSTRUCTION	AMS
12.16.2023	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
12.21.2023	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
06.30.2023	FINAL DESIGN - CONTRACT SCHEDULE AND PERMITS	HPP
04.13.2023	FINAL DESIGN - MEET REQUIREMENTS	HPP
06.13.2023	FINAL DESIGN ISSUED FOR BID	HPP

SHEET	
UP-5A	UP-5A
SURVEY/GPS BY: MCKIMCREED, INC.	DATE: 6/13/23
PROCESS/LAYOUT BY: TMB/AMB	DESIGN REVIEW BY: BRL
APPROVED BY: AS SHOWN	SCALE: AS SHOWN



SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
BIG ROCKFISH OUTFALL  
STA. 229+11.00 - STA. 289+64

FAYETTEVILLE PUBLIC WORKS COMMISSION BIG ROCKFISH CREEK OUTFALL CONTRACT 2			
<input checked="" type="checkbox"/> ORIGINAL	<input type="checkbox"/> TAPS ONLY	<input type="checkbox"/> RECORD DRAWING	<input type="checkbox"/> MODIFICATION
WO # WT: N/A	WO # ST: 1806805		
WO # WD: N/A	WO # SD: N/A		
ENG TECH: G. SMITH	PERMIT #: DEWACC47336		
REVIEWED BY: <i>off</i>	PERMIT #: N/A		
DATE: 6-15-2023	DWG #: DS-15486		
WREP #: 1800000026	# OF SHEETS: 42		



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PWC DRAWING # DS-15486

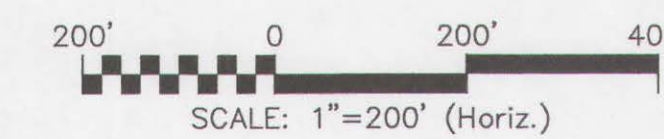
FAYETTEVILLE PUBLIC WORKS COMMISSION  
**FMC** WATER RESOURCES ENGINEERING  
P.O. Box 1088, Fayetteville, NC 28302  
955 Old Wilmington Road, Fayetteville, NC 28301



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PLAN VIEW  
SCALE HORIZ: 1"=200'



PROPERTY INFORMATION

PARCEL	OWNER	MAILING ADDRESS	PIN
65	HORNADAY CONST CO INC	581 EXECYTUVE PL, UNIT/APT 700, FAYETTEVILLE, NC 28305	9484-93-2843
66	DICKENS, THOMAS DIXON & MARVIN DAVID JR	215 BRADLEY CREEK PT RD, WILMINGTON, NC 28403	9484-94-9032
67	HUDSON, RONALD D & WIFE PATRICIA P HUDSON	4096 ARDENWOODS DR, FAYETTEVILLE, NC 28306	9494-04-3428
68	ALHOBISHI, FADHL	6501 BARBOUR LAKE RD, FAYETTEVILLE, NC 28306	9494-46-1383
69	MARTIN, WILLIAM H & WIFE PHYLLIS L MARTIN	6411 BARBOUR LAKE RD, FAYETTEVILLE, NC 28306	9494-35-0271
70	MARTIN, WILLIAM H & WIFE PHYLLIS L MARTIN	6413 BARBOUR LAKE RD, FAYETTEVILLE, NC 28306	9494-35-8712
78	PEARTREE WEST OWNERS ASSOCIATION	2401 ROBESON ST, FAYETTEVILLE, NC 28305	9484-93-3623
213	CAMDEN GLEN DEVELOPMENT LLC	3257 HUNTING LODGE RD, FAYETTEVILLE, NC 28306	9484-93-3348
214	CAMDEN GLEN DEVELOPMENT LLC	6885 CLIFFDALE RD, FAYETTEVILLE, NC 28314	9484-93-5540

FAYETTEVILLE PUBLIC WORKS COMMISSION	
BIG ROCKFISH CREEK OUTFALL CONTRACT 2	
<input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> TAPS ONLY <input type="checkbox"/> RECORD DRAWING <input type="checkbox"/> MODIFICATION	
WO # WT: N/A	WO # ST: 1806305
WO # WD: N/A	WO # SD: N/A
ENG TECH: A. Smith	PERMIT # DEAW0001336
REVIEWED BY: CJC	PERMIT # N/A
DATE: 6-15-2023	DWG # DS-154186
WREP #: 1800000086	# OF SHEETS: 42



FINAL DESIGN  
ISSUED FOR BID

PWC DRAWING # AS-15313CCCC

DATE	REVISIONS	BY
12.16.2020	FINAL DESIGN	MP
12.21.2020	NOT FOR CONSTRUCTION	MP
06.30.2021	FINAL DESIGN	MP
04.13.2022	FINAL DESIGN - CONTRACT OPERATOR AND BLS RESPONSE	MP
07.11.2022	FINAL DESIGN - NOT ENCLOSURE MODIFICATION	MP
06.15.2023	FINAL DESIGN ISSUED FOR BID	MP

SHEET UP-9A

SURVEY/GPS BY: MCKIMCREED, INC. DATE: 6/13/23

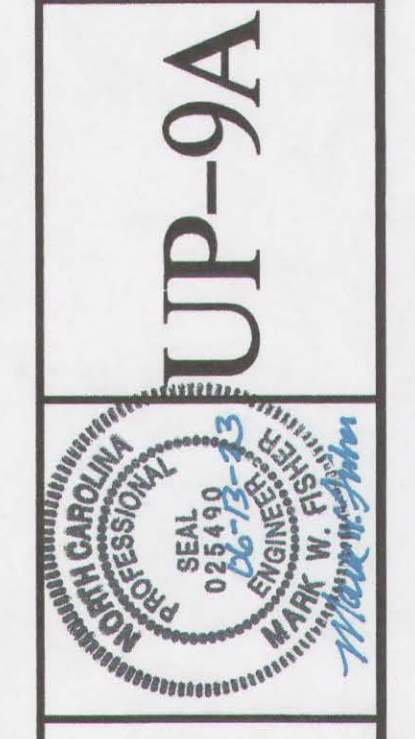
PROCESS/LAYOUT BY: TMB/AMB

PLAN/PROF. (SDSK) BY: BRL

DESIGN REVIEW BY: BRL

APPROVED BY: AS SHOWN

SCALE: AS SHOWN



SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2

PEARTREE ESTATES LS CONNECTIONS STA. 0+00 - STA. 59+46

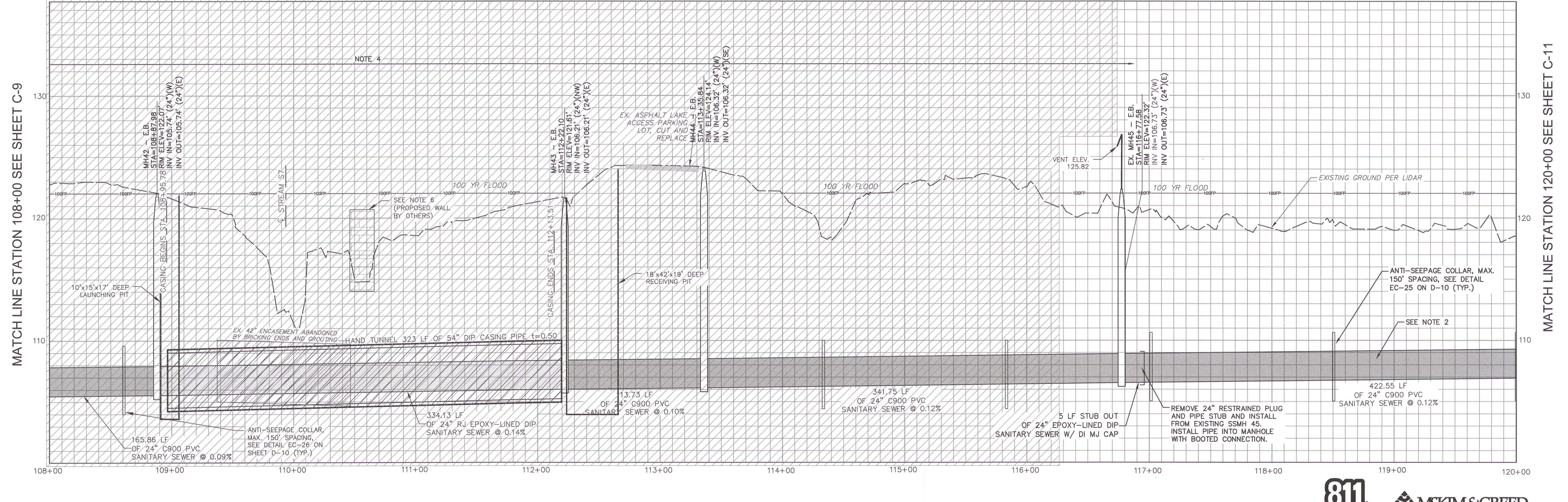
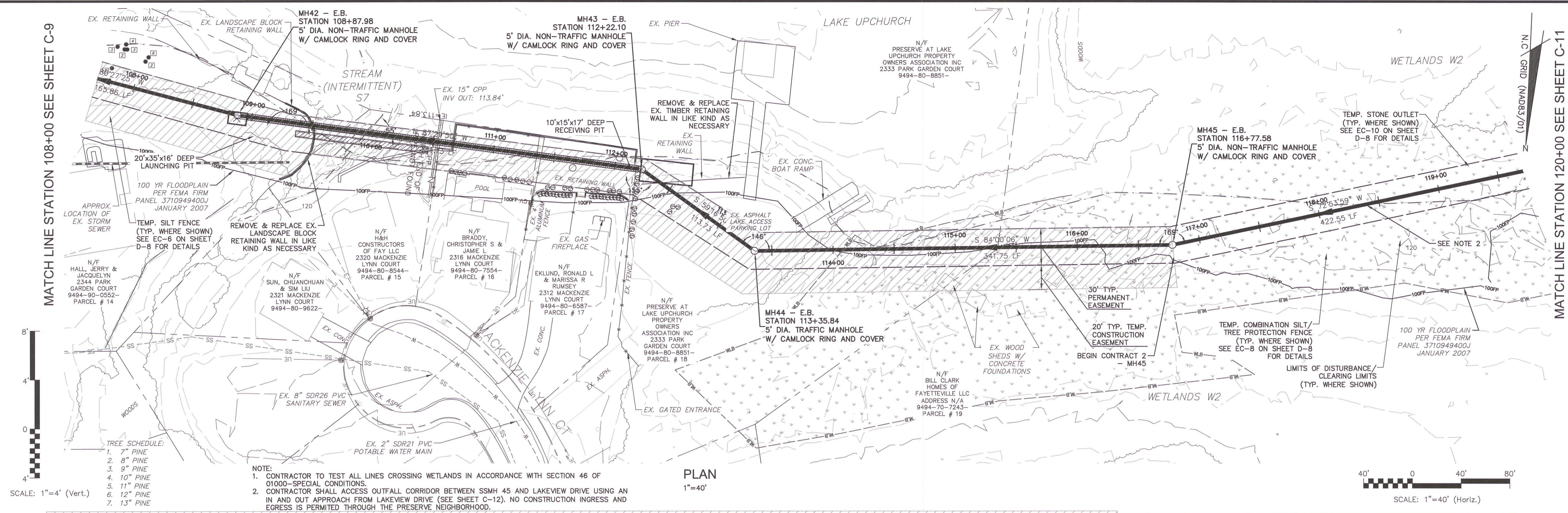
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I:\01925\0005\Water\80-Drawings\86-Design\BRC-MAN OUTFALL SHEETS\BRC C4-C13 PLAN AND PROFILE.dwg 06/13/2023 16:09 mpic



MATCH LINE STATION 108+00 SEE SHEET C-9

MATCH LINE STATION 120+00 SEE SHEET C-11

DATE: 05.18.2023  
REVISIONS:  
BY: AWW  
NOT FOR CONSTRUCTION  
12.16.2020  
FINAL DESIGN  
NOT FOR CONSTRUCTION  
HPP  
12.21.2020  
FINAL DESIGN  
NOT FOR CONSTRUCTION  
HPP  
06.30.2021  
FINAL DESIGN - CORRECT  
DIMENSIONS AND RES. RESPONSES  
HPP  
04.13.2022  
FINAL DESIGN - SCOPED  
REVISIONS FOR PROJECTIONS  
HPP  
04.13.2023  
FINAL DESIGN  
ISSUED FOR BID  
HPP

PROCESS/OUT BY: DATE: 6/13/23  
PLAN/PROF (SESK) BY: TMB/AWB  
DESIGN REVIEW BY: BRL  
APPROVED BY: [Signature]  
SCALE: AS SHOWN

**C-10B**

STATE OF NORTH CAROLINA  
REGISTERED PROFESSIONAL ENGINEER  
NO. 14673  
MARK W. WATKINS

SANITARY SEWER IMPROVEMENTS BIG  
ROCKFISH CREEK OUTFALL - CONTRACT 2  
BIG ROCKFISH OUTFALL  
STA. 108+00 - 120+00

FAYETTEVILLE PUBLIC  
WORKS COMMISSION

**FWC** WATER RESOURCES ENGINEERING  
P.O. Box 1888 Fayetteville, NC 28402  
955 Old Wilmington Road, Fayetteville, NC 28301

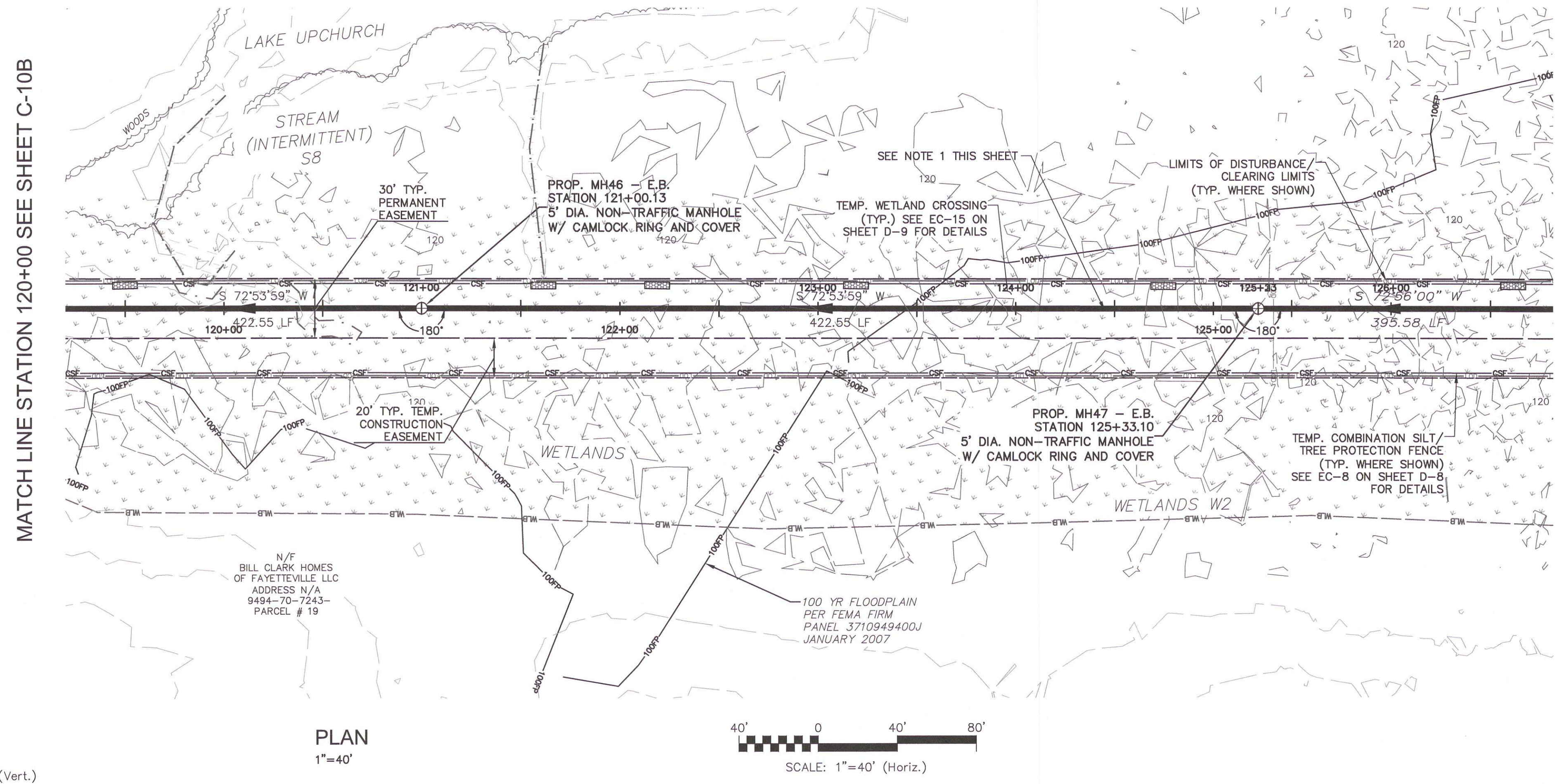
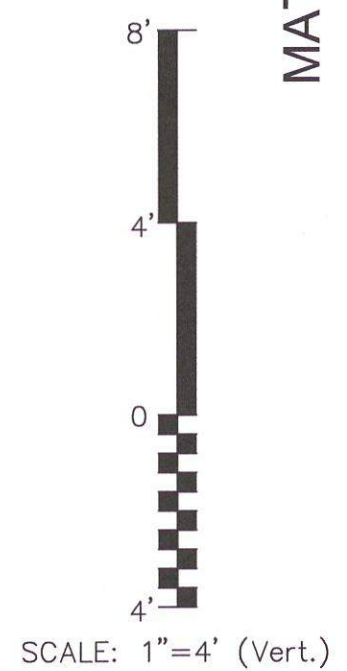
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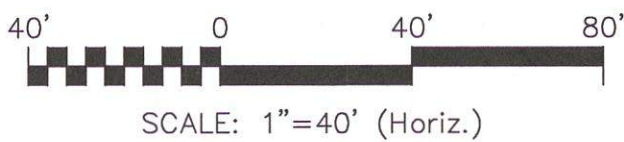
PWC DRAWING # DS-15486

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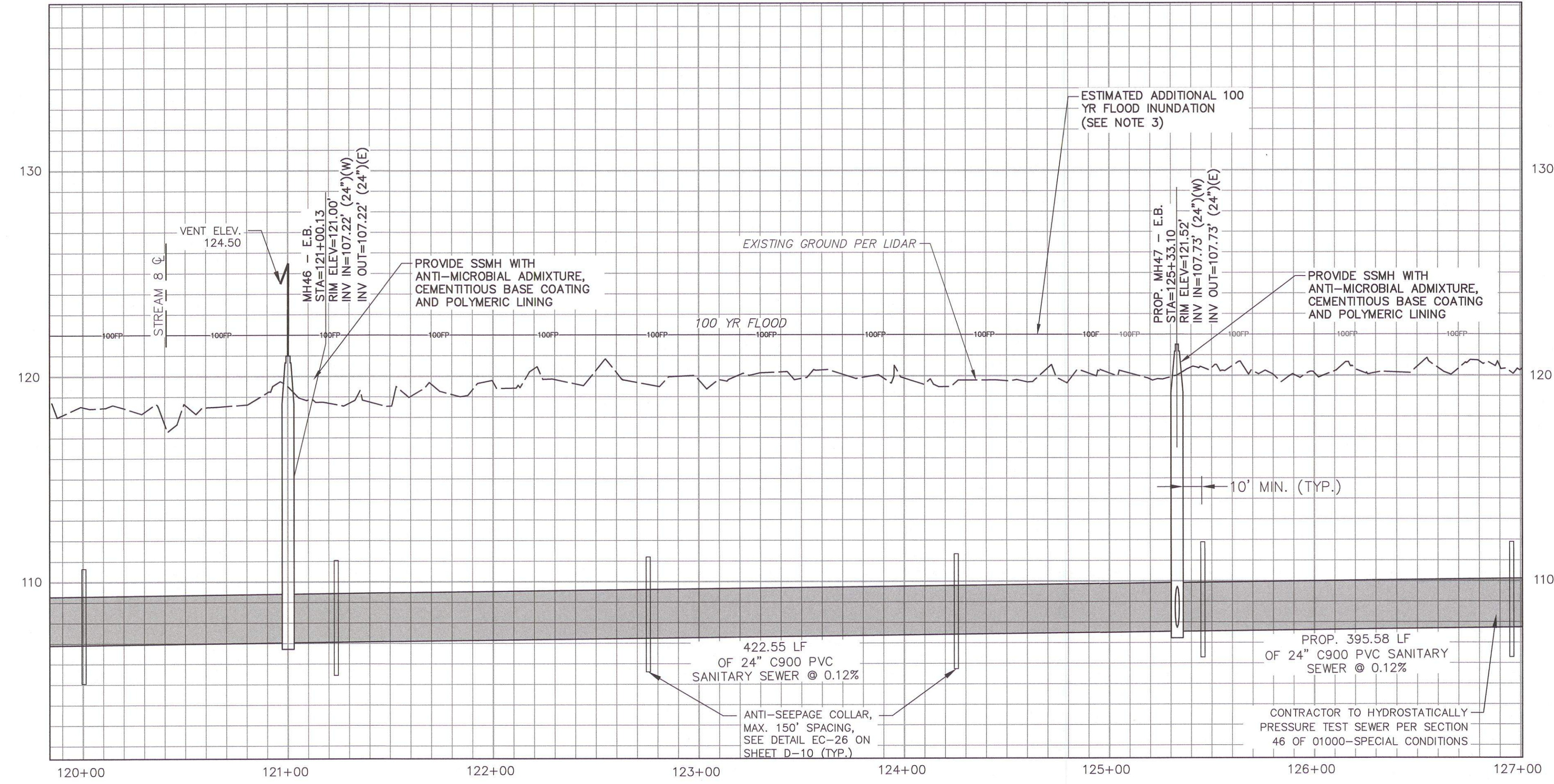
MATCH LINE STATION 120+00 SEE SHEET C-10B



PLAN  
1"=40'



MATCH LINE STATION 120+00 SEE SHEET C-10B

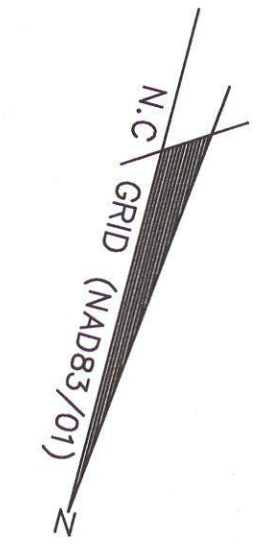


PROFILE VIEW  
HORIZ: 1"=40'  
VERT: 1"=4'

MATCH LINE STATION 127+00 SEE SHEET C-12

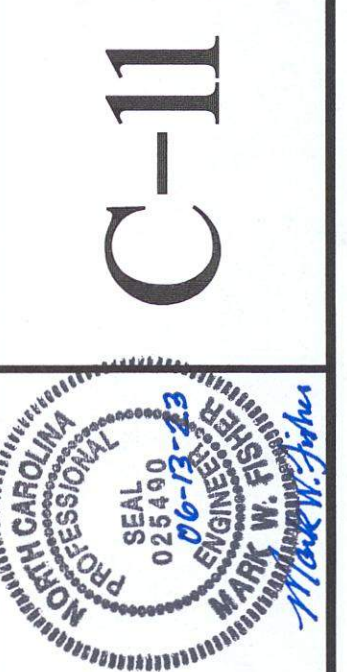
- NOTE:
- CONTRACTOR TO TEST ALL LINES CROSSING WETLANDS OR WITHIN 100' OF A PRIVATE WELL IN ACCORDANCE WITH SECTION 46 OF 01000-SPECIAL CONDITIONS.
  - CONTRACTOR SHALL PROVIDE MANHOLES LOCATED IN WETLANDS WITH AN ANTI-MICROBIAL ADMIXTURE, CEMENTITIOUS BASE COATING AND POLYMERIC LINING.
  - LIDAR SURVEY PROVIDED BY FYPWC FOR USE ON THIS PROJECT INDICATES THE EXISTING GROUND SURFACE IS BELOW THE FEMA 100 YR FLOOD ELEVATION OF 121.9. THEREFOR, ADDITIONAL INUNDATION OF THE PROPOSED SEWER LINE AND EASEMENT CAN BE EXPECTED.
  - PRIOR TO ORDERING SSMH 46 AND SSMH 47, CONTRACTOR SHALL COORDINATE CONSTRUCTION STAKING TO CONFIRM GROUND ELEVATION AND FINAL CASTING HEIGHTS OF THESE MANHOLES.

MATCH LINE STATION 127+00 SEE SHEET C-12



DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN	AWB
12.16.2020	NOT FOR CONSTRUCTION	MHP
12.21.2020	FINAL DESIGN	MHP
12.21.2020	NOT FOR CONSTRUCTION	MHP
06.30.2021	FINAL DESIGN - CONTRACT REVISIONS AND RES RESPONSES	MHP
06.13.2022	FINAL DESIGN - MOISTURE MODIFICATION	MHP
06.13.2023	FINAL DESIGN ISSUED FOR BID	MHP

SHEET	C-11
SURVEY/GPS BY:	MCKIM&CREED, INC.
PROCESS/LAYOUT BY:	DATE: 6/13/23
PLAN/PROF.(SSS) BY:	TMB/AWB
DESIGN REVIEW BY:	BRL
APPROVED BY:	
SCALE:	AS SHOWN



SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
BIG ROCKFISH OUTFALL STA. 120+00 - 127+00

**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
**PWC WATER RESOURCES ENGINEERING**  
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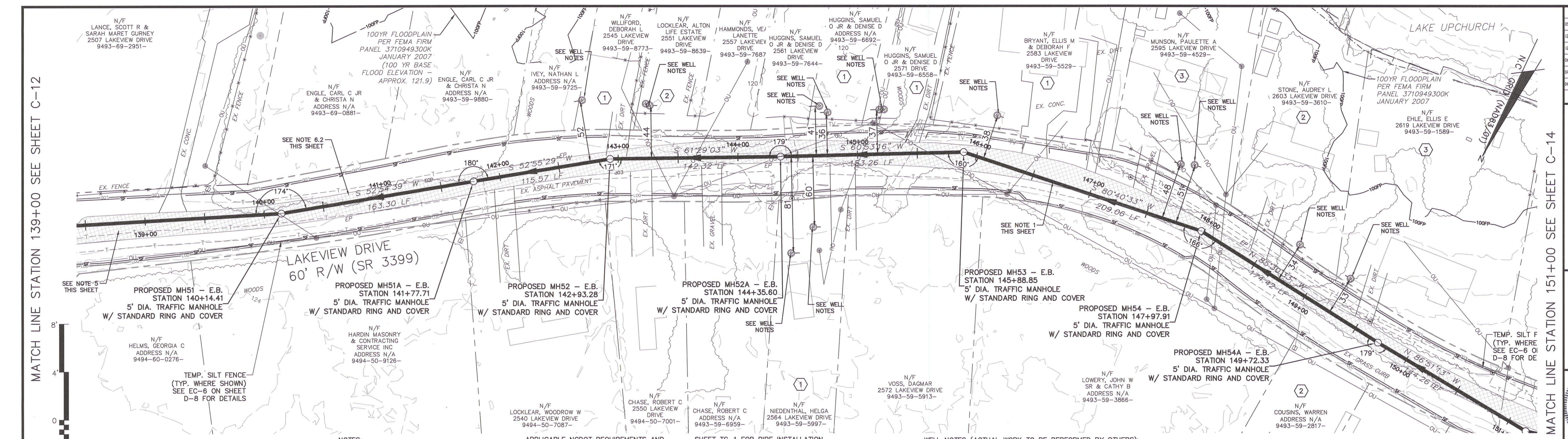


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PWC DRAWING # DS-154.86

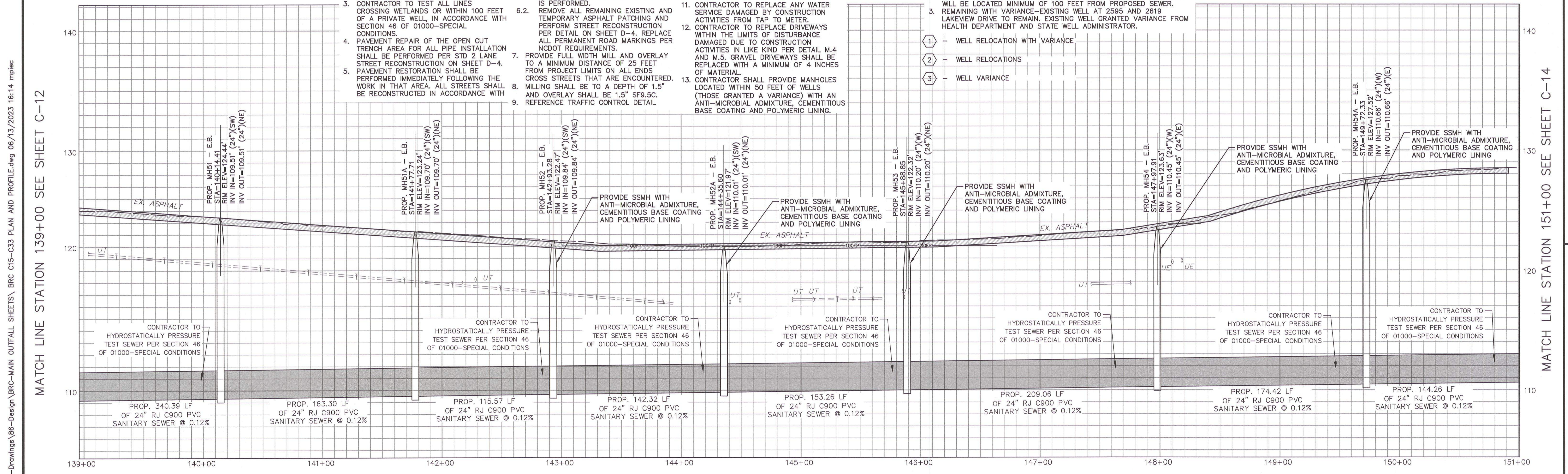
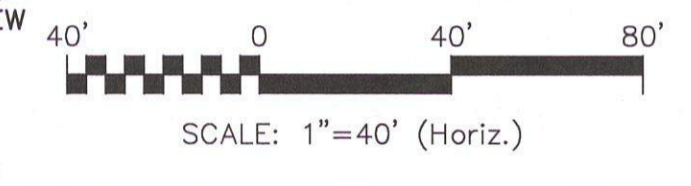




- NOTES:**
- CONTRACTOR TO MAINTAIN ACCESS TO HOMES AT ALL TIMES.
  - UNDERGROUND UTILITIES SHOWN AT APPROX. DEPTH UNLESS OTHERWISE NOTED. CONTRACTOR TO FIELD VERIFY DEPTH OF EX. UTILITIES AT LEAST 14 DAYS PRIOR TO CONSTRUCTION.
  - CONTRACTOR TO TEST ALL LINES CROSSING WETLANDS OR WITHIN 100 FEET OF A PRIVATE WELL, IN ACCORDANCE WITH SECTION 46 OF 01000-SPECIAL CONDITIONS.
  - PAVEMENT REPAIR OF THE OPEN CUT TRENCH AREA FOR ALL PIPE INSTALLATION SHALL BE PERFORMED PER STD 2 LANE STREET RECONSTRUCTION ON SHEET D-4.
  - PAVEMENT RESTORATION SHALL BE PERFORMED IMMEDIATELY FOLLOWING THE WORK IN THAT AREA. ALL STREETS SHALL BE RECONSTRUCTED IN ACCORDANCE WITH APPLICABLE NCDOT REQUIREMENTS AND RECONSTRUCTION DETAIL ON SHEET D-4. MILL AND OVERLAY SHALL BE PERFORMED ON ALL ABUTTING ENDS AND CROSS STREETS AS SHOWN.
  - PAVEMENT RECONSTRUCTION SEQUENCING:
    - TEMPORARY ASPHALT PATCHING PER NCDOT REQUIREMENTS AS PIPE WORK IS PERFORMED.
    - REMOVE ALL REMAINING EXISTING AND TEMPORARY ASPHALT PATCHING AND PERFORM STREET RECONSTRUCTION PER DETAIL ON SHEET D-4. REPLACE ALL PERMANENT ROAD MARKINGS PER NCDOT REQUIREMENTS.
    - PROVIDE FULL WIDTH MILL AND OVERLAY TO A MINIMUM DISTANCE OF 25 FEET FROM PROJECT LIMITS ON ALL ENDS CROSS STREETS THAT ARE ENCOUNTERED.
    - MILLING SHALL BE TO A DEPTH OF 1.5" AND OVERLAY SHALL BE 1.5" SP9.5C.
    - REFERENCE TRAFFIC CONTROL DETAIL.
  - CONTRACTOR SHALL RESTRICT ALL ACCESS TO LAKEVIEW DRIVE (EASTERMOST CONNECTOR TO WALDOS BEACH ROAD) FOR ACCESSING SEWER CORRIDORS ON THIS SHEET, SHEETS C-10B, C-11, C-12 AND C-14.
  - CONTRACTOR TO REPLACE ANY WATER SERVICE DAMAGED BY CONSTRUCTION ACTIVITIES IN LIKE KIND PER DETAIL M.4 AND M.5. GRAVEL DRIVEWAYS SHALL BE REPLACED WITH A MINIMUM OF 4 INCHES OF MATERIAL.
  - CONTRACTOR SHALL PROVIDE MANHOLES LOCATED WITHIN 50 FEET OF WELLS (THOSE GRANTED A VARIANCE) WITH AN ANTI-MICROBIAL ADMIXTURE, CEMENTITIOUS BASE COATING AND POLYMERIC LINING.
- WELL NOTES (ACTUAL WORK TO BE PERFORMED BY OTHERS):**
- RELOCATIONS WITH VARIANCE-EXISTING WELLS AT 2545, ADJACENT TO 2561, 2564, 2571, AND 2583 LAKEVIEW DRIVE TO BE ABANDONED. NEW WELL TO BE PROVIDED AND WILL BE LOCATED MINIMUM OF 50 FEET FROM PROPOSED SEWER. WELL VARIANCE ACQUIRED FROM HEALTH DEPARTMENT AND STATE WELL ADMINISTRATOR.
  - RELOCATIONS WITHOUT VARIANCE-EXISTING WELL AT 2551 AND 2603 LAKEVIEW DRIVE TO BE ABANDONED. NEW WELL TO BE PROVIDED AND WILL BE LOCATED MINIMUM OF 100 FEET FROM PROPOSED SEWER.
  - REMAINING WITH VARIANCE-EXISTING WELL AT 2595 AND 2619 LAKEVIEW DRIVE TO REMAIN. EXISTING WELL GRANTED VARIANCE FROM HEALTH DEPARTMENT AND STATE WELL ADMINISTRATOR.

**PLAN**

1"=40'



**PROFILE VIEW**

HORIZ: 1"=40'  
VERT: 1"=4'

FINAL DESIGN  
ISSUED FOR BID



PWC DRAWING # DS-154-86

I:\01925\0005\Water\80-Drawings\86-Design\BRC-MAIN\OUTFALL SHEETS\BRC-C15-C33 PLAN AND PROFILE.dwg 06/13/2023 16:14 mplec

MATCH LINE STATION 139+00 SEE SHEET C-12

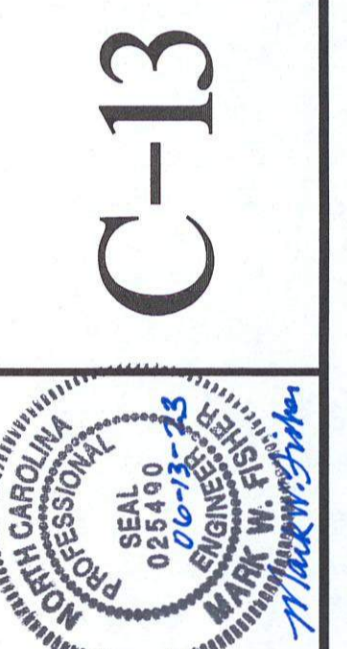
MATCH LINE STATION 139+00 SEE SHEET C-12

MATCH LINE STATION 151+00 SEE SHEET C-14

MATCH LINE STATION 151+00 SEE SHEET C-14

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
06.30.2021	FINAL DESIGN - CONTRACT STATION AND SEE RESPONSES	HPP
04.15.2022	FINAL DESIGN - HOIST RECONSTRUCTION REVISIONS	HPP
06.15.2023	FINAL DESIGN ISSUED FOR BID	HPP

SHEET	C-13
SURVEY/GPS BY:	MCKIM & CREED, INC.
PROCESS/LAYOUT BY:	DATE: 6/13/23
PLAN/PROF (SSKS) BY:	TMB/AWB
DESIGN REVIEW BY:	BRL
APPROVED BY:	
SCALE:	AS SHOWN



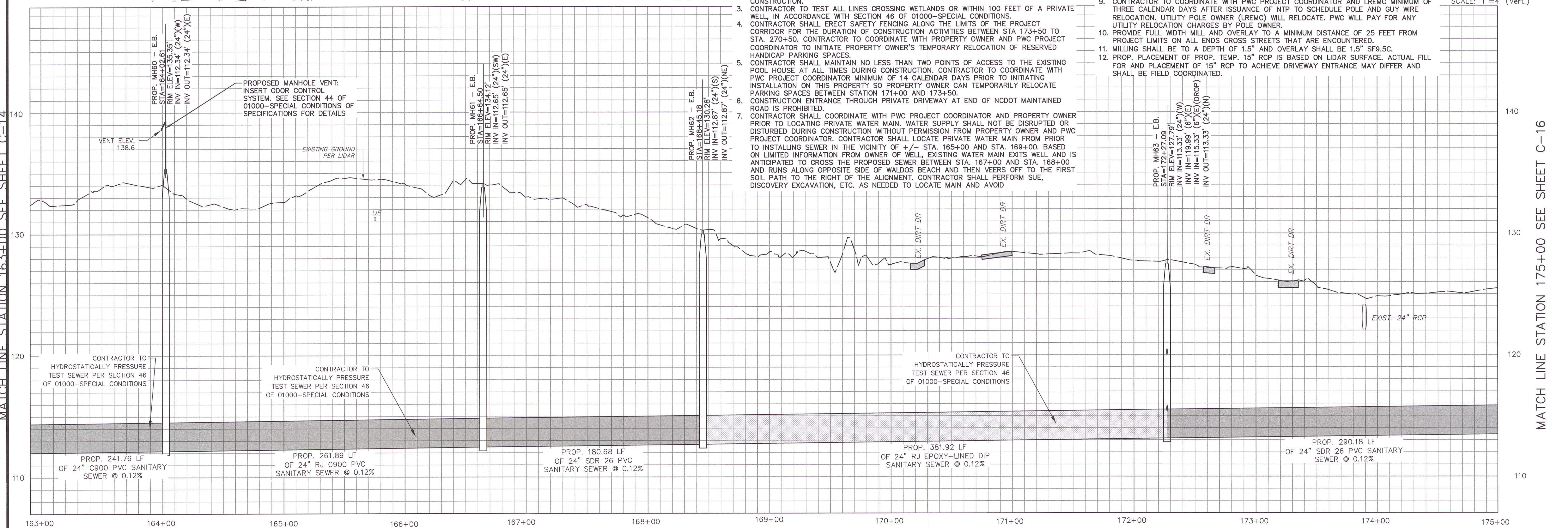
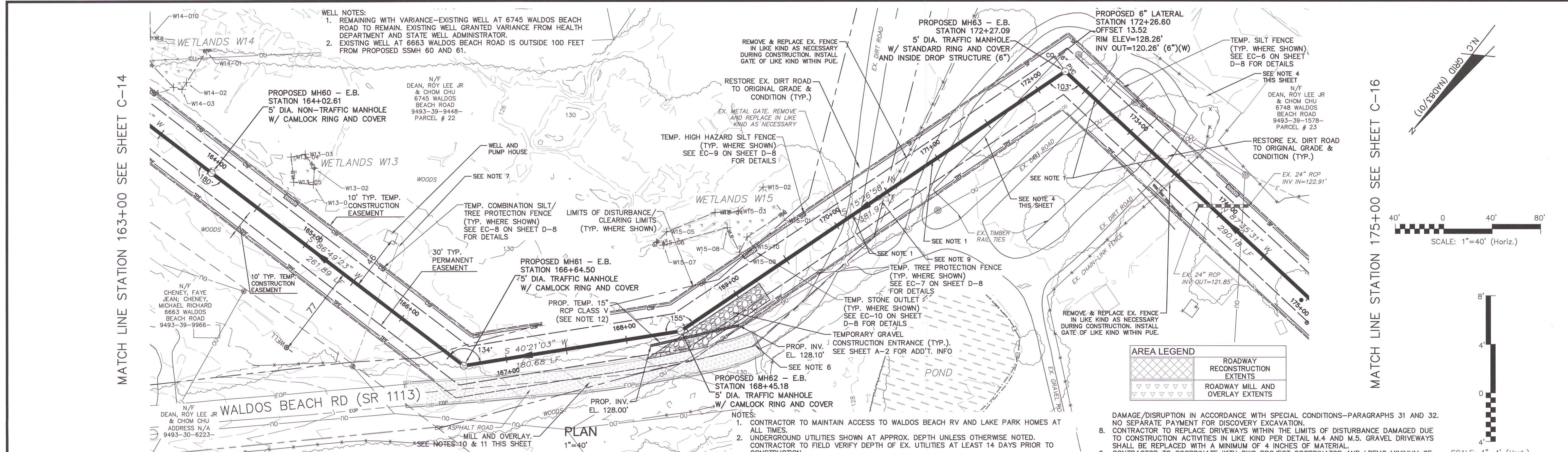
SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
BIG ROCKFISH OUTFALL STA. 139+00 - 151+00

FAYETTEVILLE PUBLIC WORKS COMMISSION  
**WATER RESOURCES ENGINEERING**  
P.O. Box 1088 Fayetteville, NC 28302  
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**PROFILE VIEW**  
HORIZ: 1"=40'  
VERT: 1"=4'

FINAL DESIGN  
ISSUED FOR BID

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PWC DRAWING # DS-15486

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
06.30.2022	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
04.13.2022	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
05.15.2023	FINAL DESIGN ISSUED FOR BID	HPP

SHEET C-15

SURVEY/GPS BY: MCKIM&CREED, INC.  
PROCESS/LAYOUT BY: DATE: 6/13/23  
PLAN/PROF (S/S) BY: TMB/AWB  
DESIGN/REVIEW BY: BRL  
APPROVED BY:  
SCALE: AS SHOWN

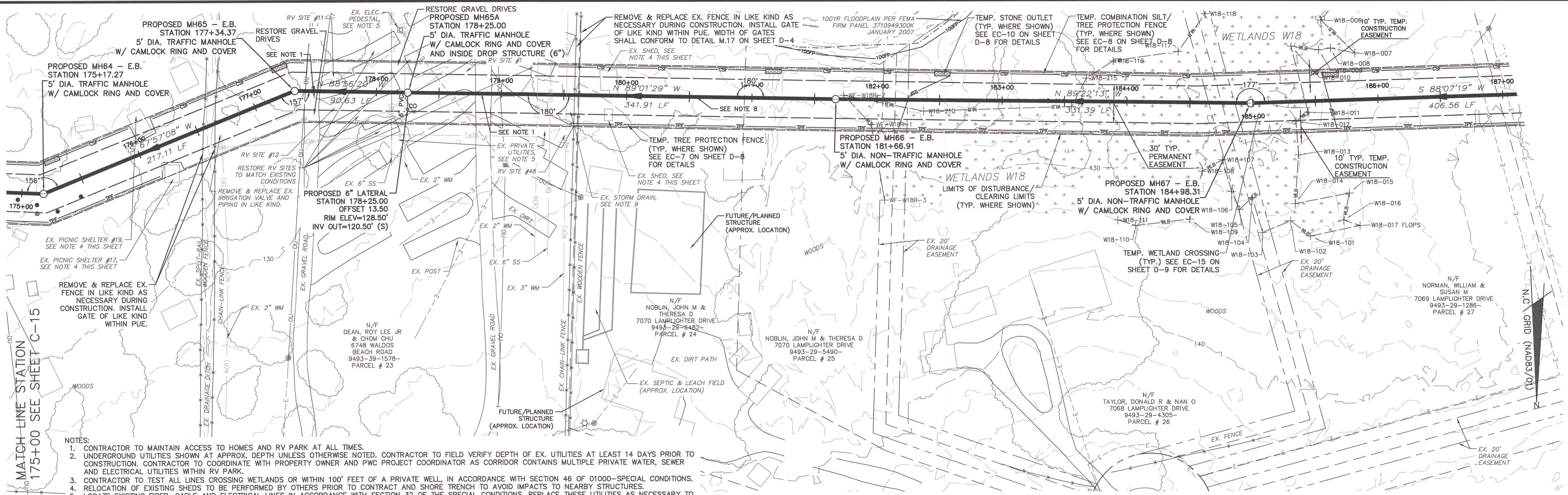
**C-15**

**PROFESSIONAL ENGINEER**  
STATE OF NORTH CAROLINA  
SEAL NO. 024713  
EXPIRES 12/31/2024  
MARK W. BRYANT

SANITARY SEWER IMPROVEMENTS BIG  
ROCKFISH CREEK OUTFALL - CONTRACT 2  
BIG ROCKFISH OUTFALL STA. 163+00 - 175+00

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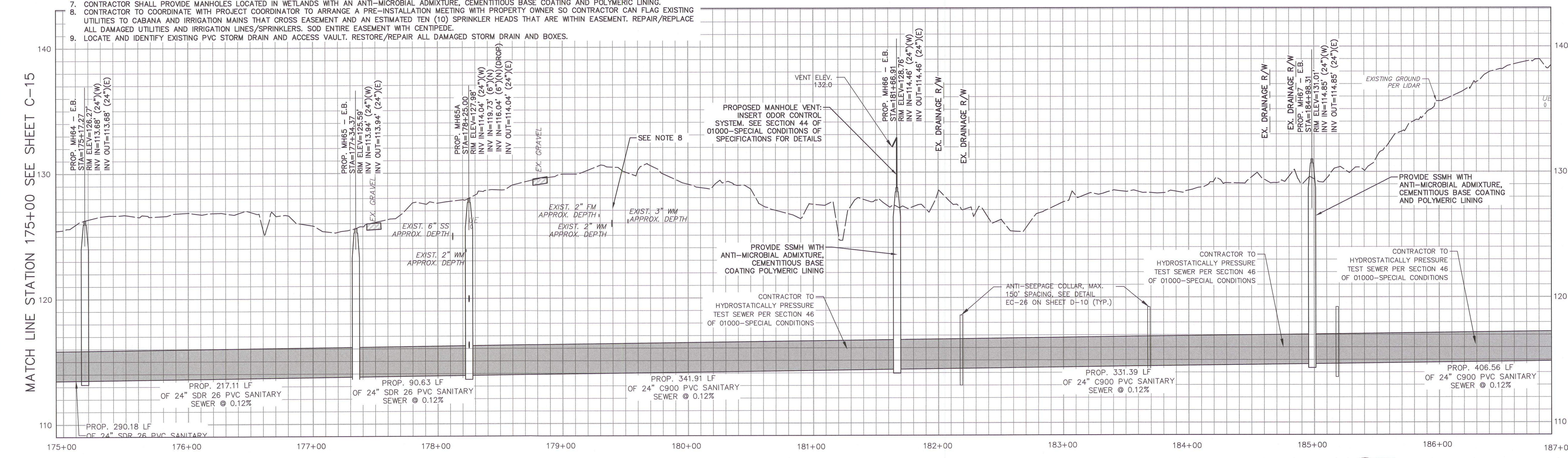
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**PLAN**  
1"=40'

SCALE: 1"=40' (Horiz.)

SCALE: 1"=4' (Vert.)



**PROFILE VIEW**  
HORIZ: 1"=40'  
VERT: 1"=4'

**FINAL DESIGN**  
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PWC DRAWING # DS-15486

MATCH LINE STATION 187+00 SEE SHEET C-17

MATCH LINE STATION 175+00 SEE SHEET C-15

MATCH LINE STATION 187+00 SEE SHEET C-17

MATCH LINE STATION 175+00 SEE SHEET C-15

DATE	REVISIONS	BY
08.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPF
12.29.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPF
04.20.2021	FINAL DESIGN - CONTRACT SEPARATION AND DIS RESPONSES	HPF
04.19.2021	FINAL DESIGN - NOT FOR CONSTRUCTION	HPF
06.13.2023	FINAL DESIGN ISSUED FOR BID	HPF

SURVEY/GPS BY: MCKIM & CREED, INC.	DATE: 6/13/23
PROCESS/LAYOUT BY: TMB/AWB	DESIGN REVIEW BY: BRL
PLAN/PROF (S) (S) BY: TMB/AWB	APPROVED BY: AS SHOWN
SCALE: AS SHOWN	

**C-16**

PROFESSIONAL SEAL

STATE OF NORTH CAROLINA

REGISTERED PROFESSIONAL ENGINEER

NO. 24382

DATE: 06-13-2023

SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2

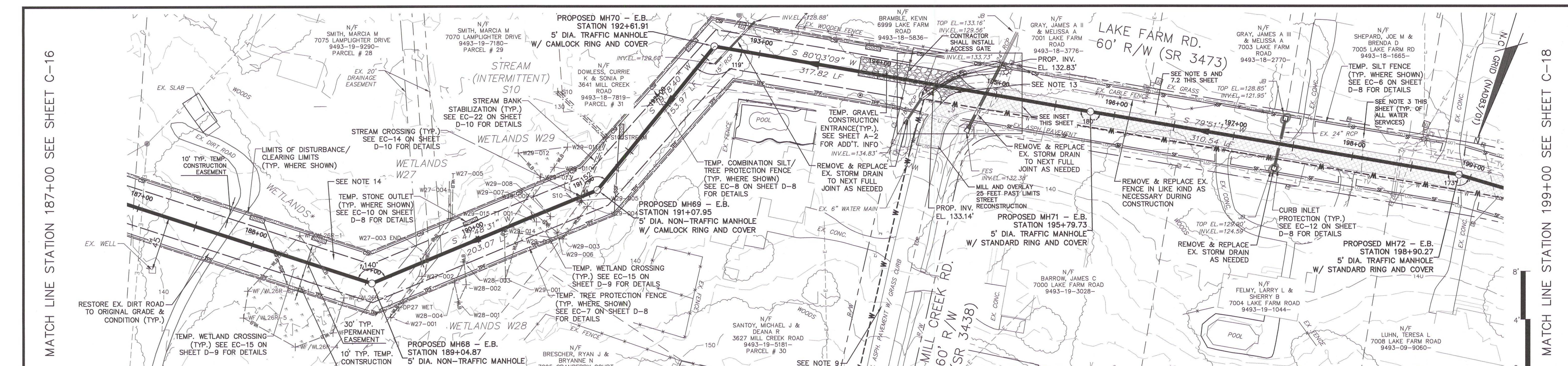
BIG ROCKFISH OUTFALL STA. 175+00 - 187+00

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**PWC** WATER RESOURCES ENGINEERING

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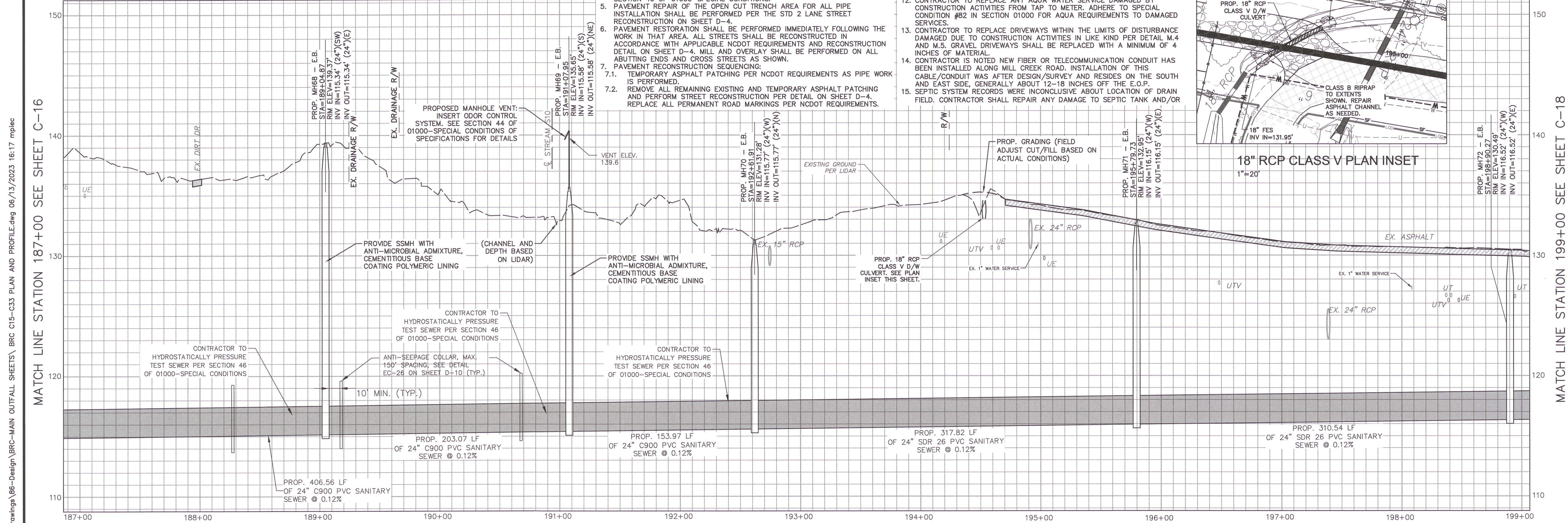
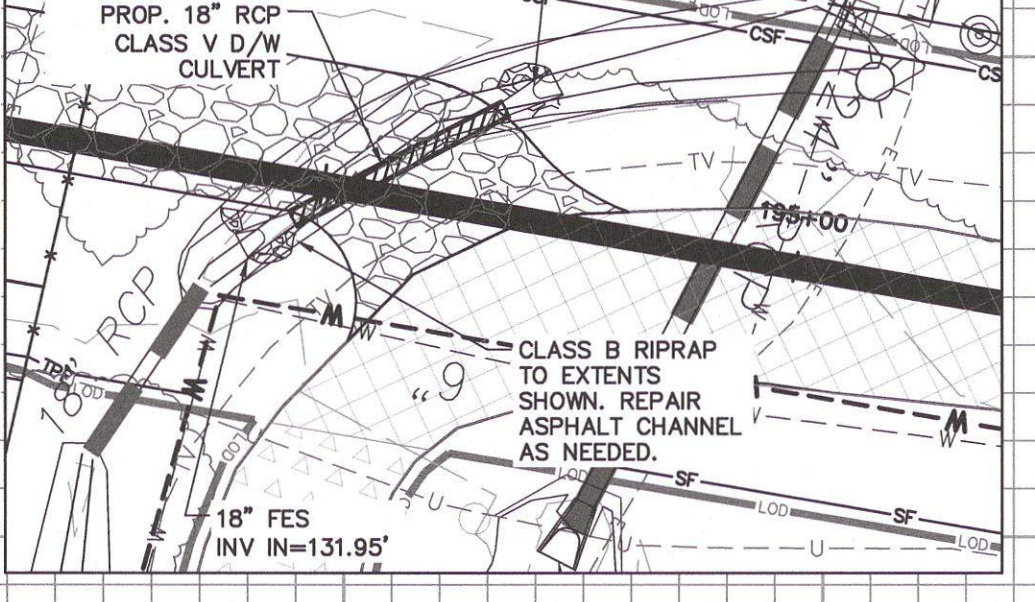
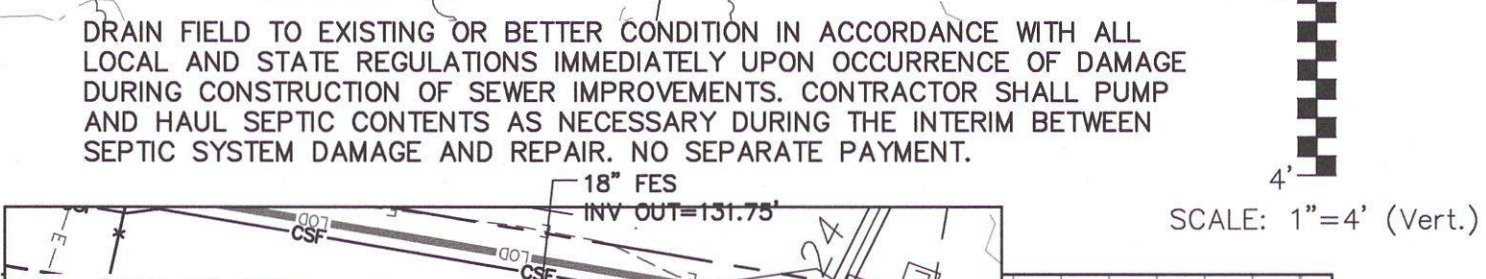
**AREA LEGEND**

	ROADWAY RECONSTRUCTION EXTENTS
	ROADWAY MILL AND OVERLAY EXTENTS

**PLAN**  
1"=40'

**NOTES:**

- CONTRACTOR TO MAINTAIN ACCESS TO HOMES AT ALL TIMES.
- UNDERGROUND UTILITIES SHOWN AT APPROX. DEPTH UNLESS OTHERWISE NOTED. CONTRACTOR TO FIELD VERIFY DEPTH OF EX. UTILITIES AT LEAST 14 DAYS PRIOR TO CONSTRUCTION.
- CONTRACTOR TO FIELD VERIFY DEPTH & LOCATION OF EX. WATER SERVICES AND PROTECT DURING CONSTRUCTION.
- CONTRACTOR TO TEST ALL LINES CROSSING WETLANDS IN ACCORDANCE WITH SECTION 46 OF 01000-SPECIAL CONDITIONS.
- PAVEMENT REPAIR OF THE OPEN CUT TRENCH AREA FOR ALL PIPE INSTALLATION SHALL BE PERFORMED PER THE STD 2 LANE STREET RECONSTRUCTION ON SHEET D-4.
- PAVEMENT RESTORATION SHALL BE PERFORMED IMMEDIATELY FOLLOWING THE WORK IN THAT AREA. ALL STREETS SHALL BE RECONSTRUCTED IN ACCORDANCE WITH APPLICABLE NCDOT REQUIREMENTS AND RECONSTRUCTION DETAIL ON SHEET D-4. MILL AND OVERLAY SHALL BE PERFORMED ON ALL ABUTTING ENDS AND CROSS STREETS AS SHOWN.
- PAVEMENT RECONSTRUCTION SEQUENCING:
  - TEMPORARY ASPHALT PATCHING PER NCDOT REQUIREMENTS AS PIPE WORK IS PERFORMED.
  - REMOVE ALL REMAINING EXISTING AND TEMPORARY ASPHALT PATCHING AND PERFORM STREET RECONSTRUCTION PER DETAIL ON SHEET D-4. REPLACE ALL PERMANENT ROAD MARKINGS PER NCDOT REQUIREMENTS.
- PROVIDE FULL WIDTH MILL AND OVERLAY TO A MINIMUM DISTANCE OF 25 FEET FROM PROJECT LIMITS ON ALL ENDS CROSS STREETS THAT ARE ENCOUNTERED.
- MILLING SHALL BE TO A DEPTH OF 1.5" AND OVERLAY SHALL BE 1.5" SF9.5C.
- ALL ACCESS TO LAKE FARM ROAD CONSTRUCTION CORRIDOR MUST BE THROUGH MILL CREEK ROAD OR BY THE OUTFALL EASEMENT VIA WALDOS BEACH ROAD ACCESS (SEE SHEET C-15).
- REFERENCE TRAFFIC CONTROL DETAIL SHEET TC-2 FOR PIPE INSTALLATION WITHIN LAKE FARM ROAD.
- CONTRACTOR TO REPLACE ANY AQUA WATER SERVICE DAMAGED BY CONSTRUCTION ACTIVITIES FROM TAP TO METER. ADHERE TO SPECIAL CONDITION #82 IN SECTION 01000 FOR AQUA REQUIREMENTS TO DAMAGED SERVICES.
- CONTRACTOR TO REPLACE DRIVEWAYS WITHIN THE LIMITS OF DISTURBANCE DAMAGED DUE TO CONSTRUCTION ACTIVITIES IN LIKE KIND PER DETAIL M.4 AND M.5. GRAVEL DRIVEWAYS SHALL BE REPLACED WITH A MINIMUM OF 4 INCHES OF MATERIAL.
- CONTRACTOR IS NOTED NEW FIBER OR TELECOMMUNICATION CONDUIT HAS BEEN INSTALLED ALONG MILL CREEK ROAD. INSTALLATION OF THIS CABLE/CONDUIT WAS AFTER DESIGN/SURVEY AND RESIDES ON THE SOUTH AND EAST SIDE, GENERALLY ABOUT 12-18 INCHES OFF THE E.O.P.
- SEPTIC SYSTEM RECORDS WERE INCONCLUSIVE ABOUT LOCATION OF DRAIN FIELD. CONTRACTOR SHALL REPAIR ANY DAMAGE TO SEPTIC TANK AND/OR



**PROFILE VIEW**  
HORIZ: 1"=40'  
VERT: 1"=4'

FINAL DESIGN  
ISSUED FOR BID



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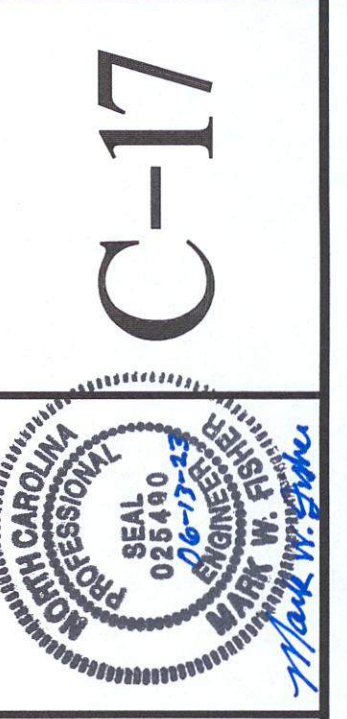


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PWC DRAWING # DS-15486

DATE	REVISIONS	BY
06.10.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
04.30.2021	FINAL DESIGN - CONTRACT STATION AND RESURFACING	HPP
04.13.2022	FINAL DESIGN - NOT RECORDED/REPOSTED	HPP
06.15.2023	FINAL DESIGN ISSUED FOR BID	HPP

SHEET	C-17
SURVEY/GPS BY:	MCKIM&CREED, INC.
PROCESS/LAYOUT BY:	DATE: 6/13/23
PLAN/PROF (SUSS) BY:	TMB/AWB
DESIGN REVIEW BY:	BRL
APPROVED BY:	
SCALE:	AS SHOWN



SANITARY SEWER IMPROVEMENTS BIG  
ROCKFISH CREEK OUTFALL - CONTRACT 2  
BIG ROCKFISH OUTFALL STA. 187+00 - 199+00

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MATCH LINE STATION 187+00 SEE SHEET C-16

MATCH LINE STATION 187+00 SEE SHEET C-16

MATCH LINE STATION 199+00 SEE SHEET C-18

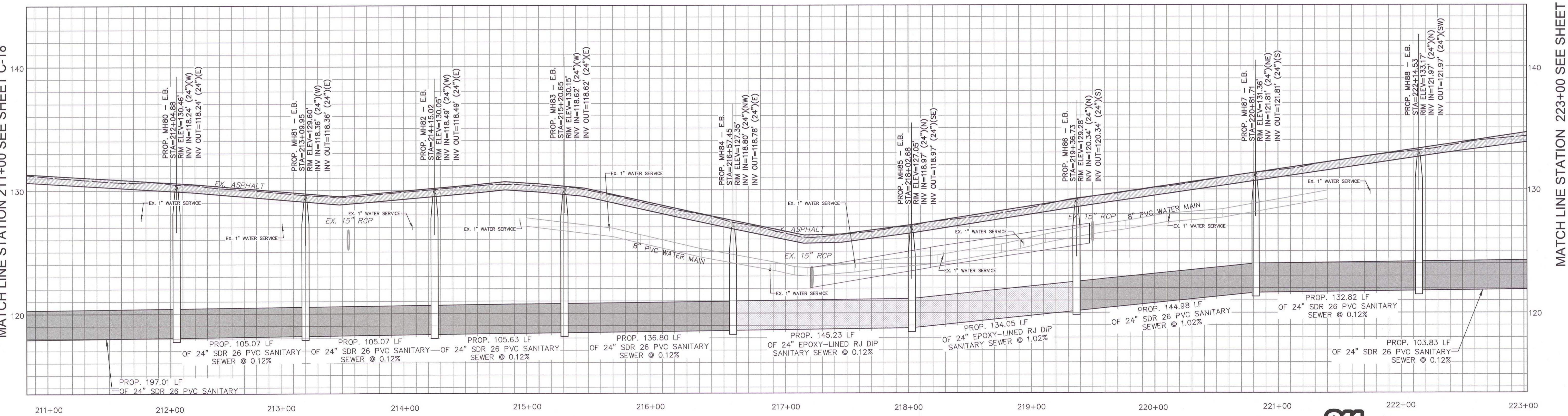
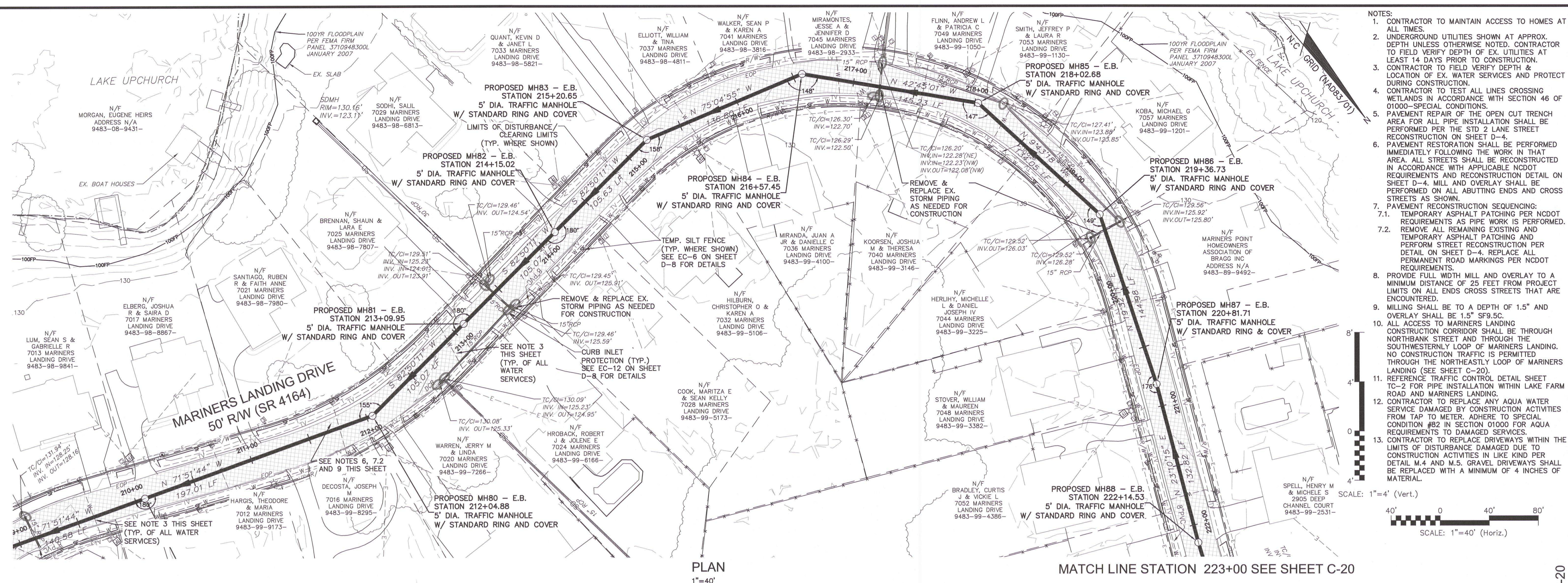
MATCH LINE STATION 199+00 SEE SHEET C-18



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MATCH LINE STATION 211+00 SEE SHEET C-18

MATCH LINE STATION 211+00 SEE SHEET C-18



- NOTES:**
- CONTRACTOR TO MAINTAIN ACCESS TO HOMES AT ALL TIMES.
  - UNDERGROUND UTILITIES SHOWN AT APPROX. DEPTH UNLESS OTHERWISE NOTED. CONTRACTOR TO FIELD VERIFY DEPTH OF EX. UTILITIES AT LEAST 14 DAYS PRIOR TO CONSTRUCTION.
  - CONTRACTOR TO FIELD VERIFY DEPTH & LOCATION OF EX. WATER SERVICES AND PROTECT DURING CONSTRUCTION.
  - CONTRACTOR TO TEST ALL LINES CROSSING WETLANDS IN ACCORDANCE WITH SECTION 46 OF 01000-SPECIAL CONDITIONS.
  - PAVEMENT REPAIR OF THE OPEN CUT TRENCH AREA FOR ALL PIPE INSTALLATION SHALL BE PERFORMED PER THE STD 2 LANE STREET RECONSTRUCTION ON SHEET D-4.
  - PAVEMENT RESTORATION SHALL BE PERFORMED IMMEDIATELY FOLLOWING THE WORK IN THAT AREA. ALL STREETS SHALL BE RECONSTRUCTED IN ACCORDANCE WITH APPLICABLE NCDOT REQUIREMENTS AND RECONSTRUCTION DETAIL ON SHEET D-4. MILL AND OVERLAY SHALL BE PERFORMED ON ALL ABUTTING ENDS AND CROSS STREETS AS SHOWN.
  - PAVEMENT RECONSTRUCTION SEQUENCING:
    - TEMPORARY ASPHALT PATCHING PER NCDOT REQUIREMENTS AS PIPE WORK IS PERFORMED.
    - REMOVE ALL REMAINING EXISTING AND TEMPORARY ASPHALT PATCHING AND PERFORM STREET RECONSTRUCTION PER DETAIL ON SHEET D-4. REPLACE ALL PERMANENT ROAD MARKINGS PER NCDOT REQUIREMENTS.
  - PROVIDE FULL WIDTH MILL AND OVERLAY TO A MINIMUM DISTANCE OF 25 FEET FROM PROJECT LIMITS ON ALL ENDS CROSS STREETS THAT ARE ENCOUNTERED.
  - MILLING SHALL BE TO A DEPTH OF 1.5" AND OVERLAY SHALL BE 1.5" SF9.5C.
  - ALL ACCESS TO MARINERS LANDING CONSTRUCTION CORRIDOR SHALL BE THROUGH NORTHBANK STREET AND THROUGH THE SOUTHWESTERLY LOOP OF MARINERS LANDING. NO CONSTRUCTION TRAFFIC IS PERMITTED THROUGH THE NORTHEASTLY LOOP OF MARINERS LANDING (SEE SHEET C-20).
  - REFERENCE TRAFFIC CONTROL DETAIL SHEET TC-2 FOR PIPE INSTALLATION WITHIN LAKE FARM ROAD AND MARINERS LANDING.
  - CONTRACTOR TO REPLACE ANY AQUA WATER SERVICE DAMAGED BY CONSTRUCTION ACTIVITIES FROM TAP TO METER. ADHERE TO SPECIAL CONDITION #82 IN SECTION 01000 FOR AQUA REQUIREMENTS TO DAMAGED SERVICES.
  - CONTRACTOR TO REPLACE DRIVEWAYS WITHIN THE LIMITS OF DISTURBANCE DAMAGED DUE TO CONSTRUCTION ACTIVITIES IN LIKE KIND PER DETAIL M.4 AND M.5. GRAVEL DRIVEWAYS SHALL BE REPLACED WITH A MINIMUM OF 4 INCHES OF MATERIAL.

DATE	REVISIONS	BY
05.10.2024	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
02.16.2023	FINAL DESIGN NOT FOR CONSTRUCTION	MPH
02.21.2023	FINAL DESIGN NOT FOR CONSTRUCTION	MPH
06.30.2020	FINAL DESIGN - CONTRACT SEPARATION AND RES RESPONSE	MPH
04.13.2022	FINAL DESIGN - NOT RECONSTRUCTION RESPONSES	MPH
06.13.2023	FINAL DESIGN ISSUED FOR BID	MPH

SHEET C-19

PROCESS/DATE OUT BY: DATE: 6/13/23

PLANNING/DESIGN BY: TMB/AWB

DESIGN REVIEW BY: BRL

APPROVED BY:

SCALE: AS SHOWN

**C-19**

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PWC DRAWING # DS-15486

MATCH LINE STATION 223+00 SEE SHEET C-20

SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
BIG ROCKFISH OUTFALL STA. 211+00 - 223+00

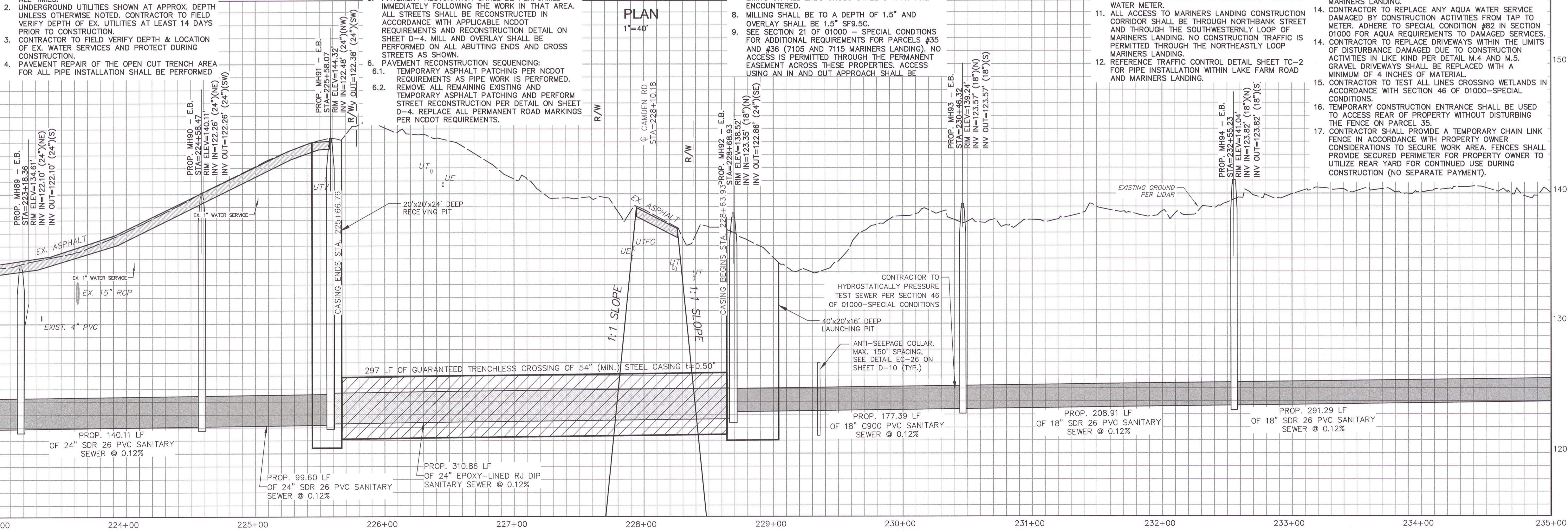
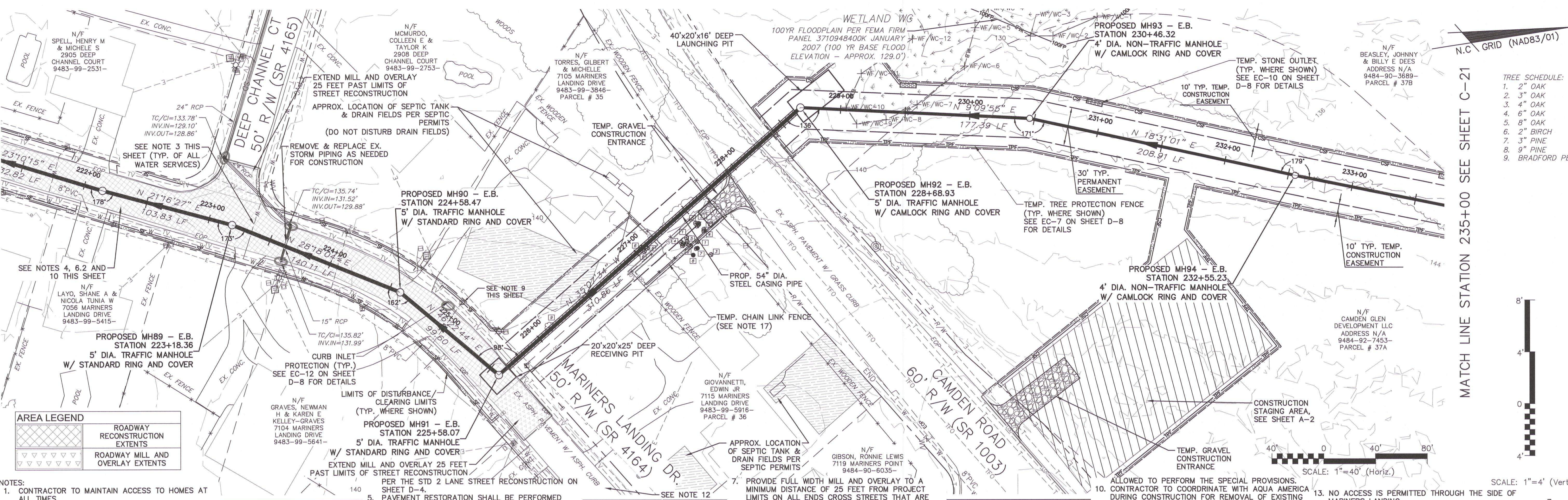
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MATCH LINE STATION 223+00 SEE SHEET C-19

MATCH LINE STATION 223+00 SEE SHEET C-19

MATCH LINE STATION 235+00 SEE SHEET C-21

MATCH LINE STATION 235+00 SEE SHEET C-21



DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2021	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
12.23.2021	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
04.30.2023	FINAL DESIGN - CONTRACTOR OPERATIONS AND RES RESPONSE	HPP
04.11.2023	FINAL DESIGN - MOISTURE MEASUREMENT MODIFICATIONS	HPP
04.13.2023	FINAL DESIGN ISSUED FOR BID	HPP

SHEET	DATE	BY
C-20	6/13/23	BRL



SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2

BIG ROCKFISH OUTFALL STA. 223+00 - 235+00

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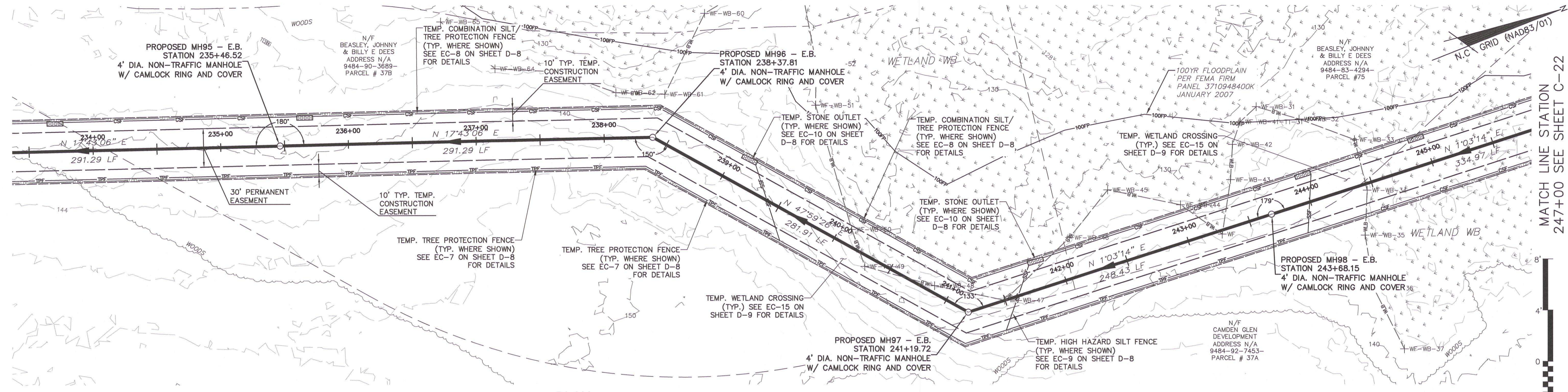
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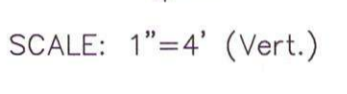
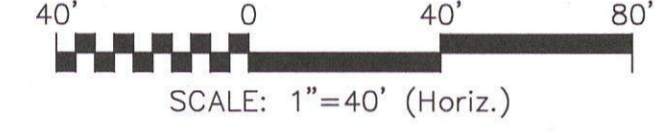
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MATCH LINE STATION 235+00 SEE SHEET C-20

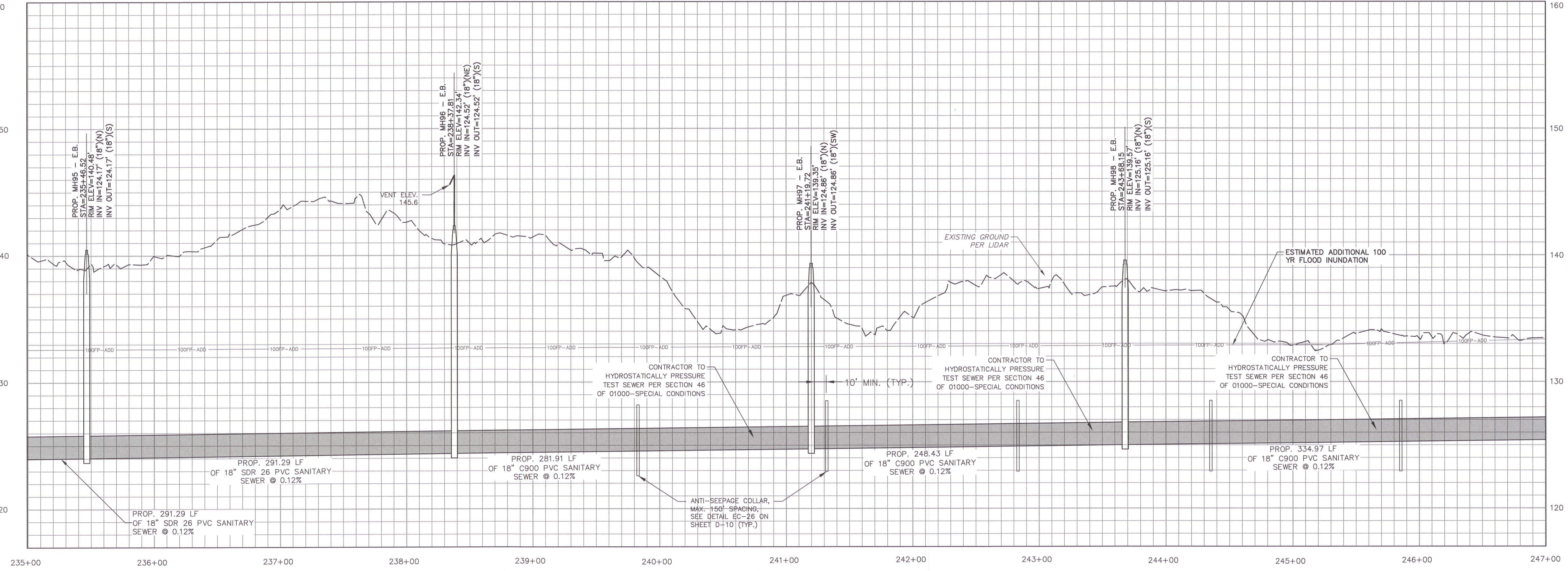


NOTE:  
1. CONTRACTOR TO TEST ALL LINES CROSSING WETLANDS IN ACCORDANCE WITH SECTION 46 OF 01000-SPECIAL CONDITIONS.

PLAN  
1"=40'



MATCH LINE STATION 235+00 SEE SHEET C-20



PROFILE VIEW  
HORIZ: 1"=40'  
VERT: 1"=4'

FINAL DESIGN  
ISSUED FOR BID

MATCH LINE STATION 247+00 SEE SHEET C-22

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
06.30.2020	FINAL DESIGN - CONTRACT SEPARATION AND RESURFACES	HPP
04.13.2022	FINAL DESIGN - MOIST MEASUREMENT MODIFICATIONS	HPP
06.15.2022	FINAL DESIGN ISSUED FOR BID	HPP

SHEET C-21

SUBMIT/GPS BY: MCKIM&CREED, INC.  
PROCESS/LAYOUT BY: TMB/AWB  
PLAN/PROF (SSSS) BY: TMB/AWB  
DESIGN REVIEW BY: BRL  
APPROVED BY: [Signature]  
SCALE: AS SHOWN

SANITARY SEWER IMPROVEMENTS BIG  
ROCKFISH CREEK OUTFALL - CONTRACT 2  
BIG ROCKFISH OUTFALL STA. 235+00 - 247+00

FAYETTEVILLE PUBLIC WORKS COMMISSION  
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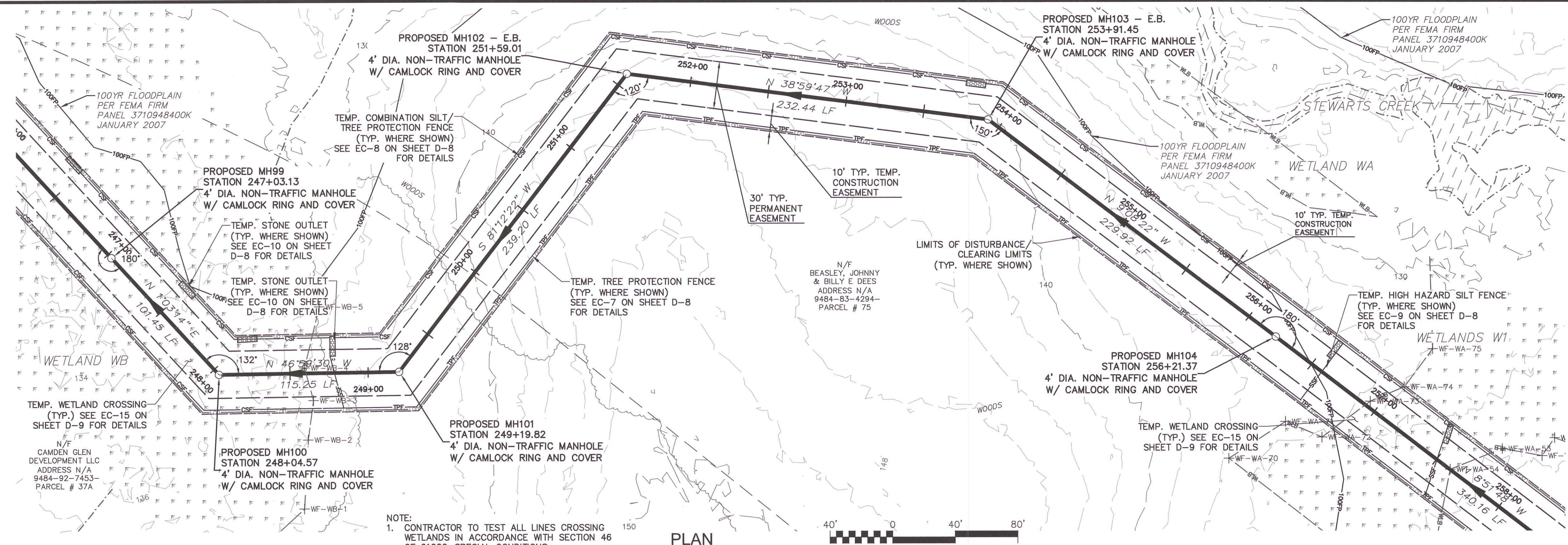
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MATCH LINE STATION 247+00 SEE SHEET C-21

MATCH LINE STATION 259+00 SEE SHEET C-23A



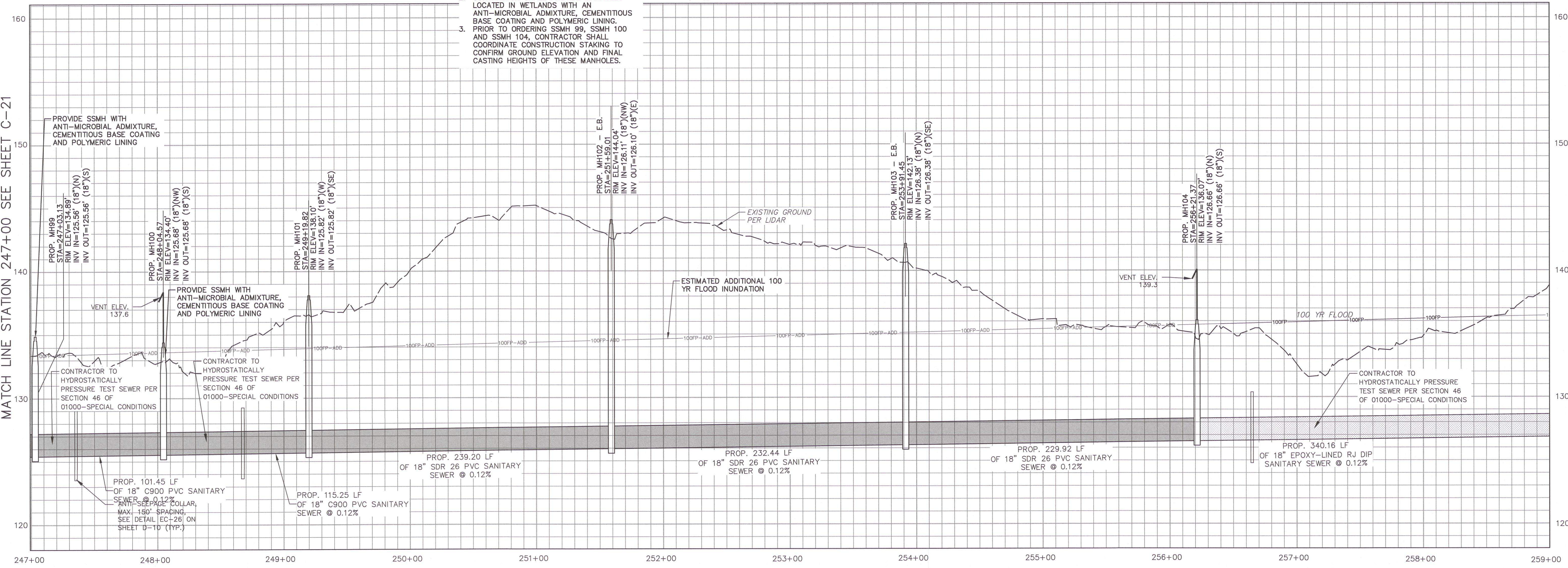
- NOTE:
1. CONTRACTOR TO TEST ALL LINES CROSSING WETLANDS IN ACCORDANCE WITH SECTION 46 OF 01000-SPECIAL CONDITIONS.
  2. CONTRACTOR SHALL PROVIDE MANHOLES LOCATED IN WETLANDS WITH AN ANTI-MICROBIAL ADMIXTURE, CEMENTITIOUS BASE COATING AND POLYMERIC LINING.
  3. PRIOR TO ORDERING SSMH 99, SSMH 100 AND SSMH 104, CONTRACTOR SHALL COORDINATE CONSTRUCTION STAKING TO CONFIRM GROUND ELEVATION AND FINAL CASTING HEIGHTS OF THESE MANHOLES.

PLAN  
1"=40'  
SCALE: 1"=40' (Horiz.)

SCALE: 1"=4' (Vert.)

MATCH LINE STATION 247+00 SEE SHEET C-21

MATCH LINE STATION 259+00 SEE SHEET C-23A



PROFILE VIEW  
HORIZ: 1"=40'  
VERT: 1"=4'

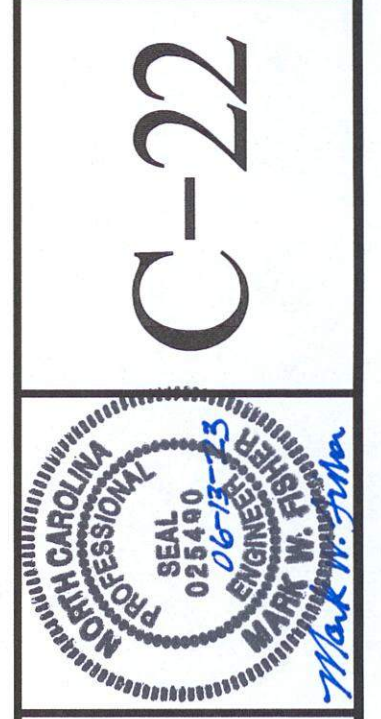
FINAL DESIGN  
ISSUED FOR BID



PWC DRAWING # DS-15486

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.10.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
04.30.2021	FINAL DESIGN - CONTRACT SEPARATION AND DES RESPONSES	HPP
04.13.2022	FINAL DESIGN - MEET REQUIREMENT RESPONSES	HPP
04.13.2023	FINAL DESIGN ISSUED FOR BID	HPP

SHEET	C-22
DESIGNED BY:	TMB/AWB
CHECKED BY:	BRL
APPROVED BY:	
SCALE:	AS SHOWN

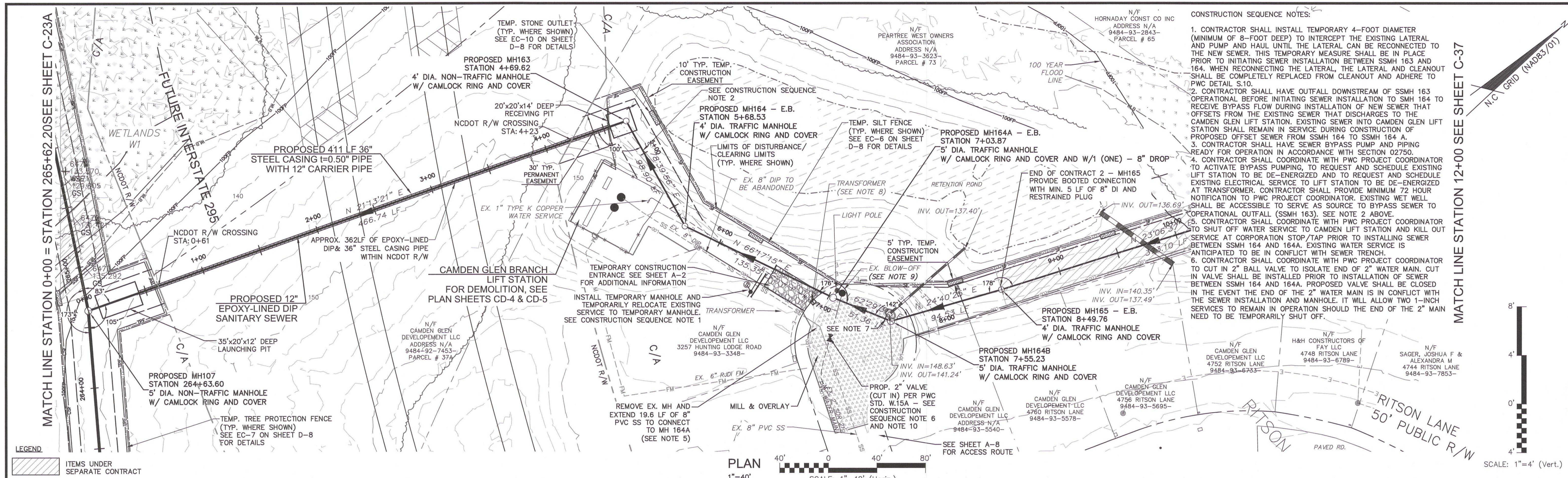


SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
BIG ROCKFISH OUTFALL STA. 247+00 - 259+00

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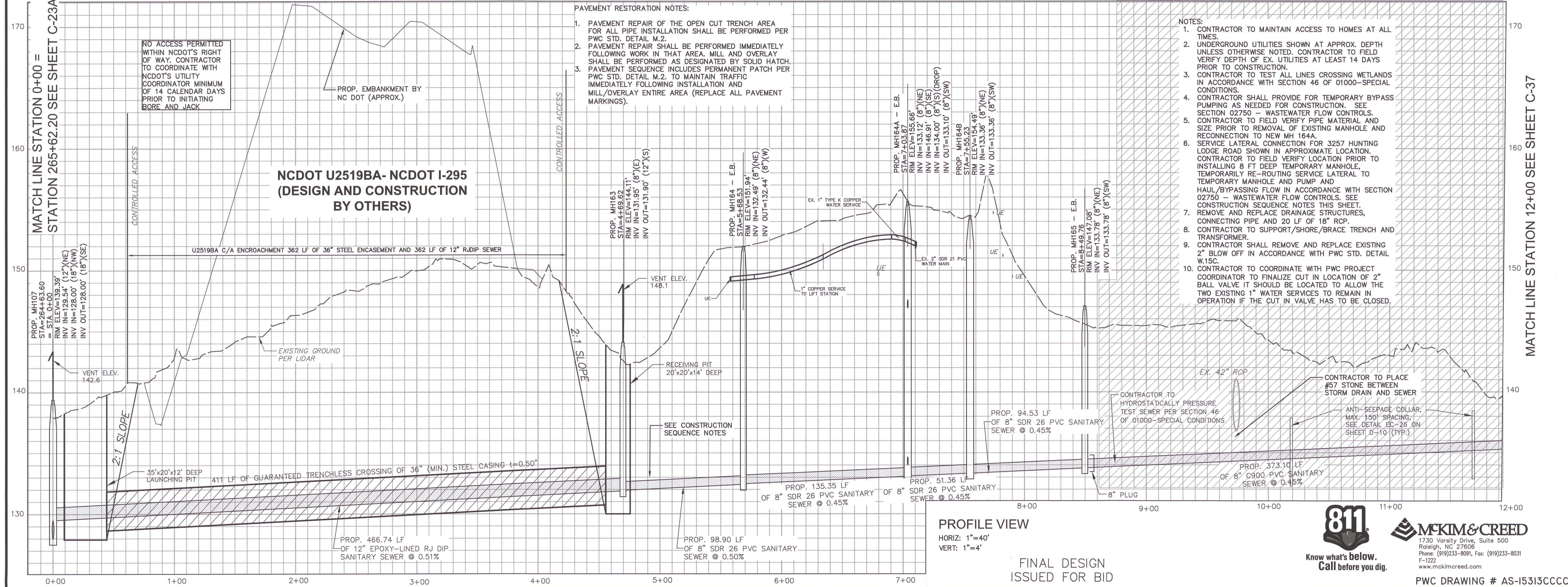


DATE	REVISIONS	BY
12.16.2007	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
12.21.2007	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
06.30.2008	FINAL DESIGN - CONTRACT MANAGER AND DES REVISIONS	HPP
04.15.2022	FINAL DESIGN - CONTRACT MANAGER AND DES REVISIONS	HPP
07.11.2022	FINAL DESIGN - CONTRACT MANAGER AND DES REVISIONS	HPP
09.30.2022	FINAL DESIGN ISSUED FOR BID	HPP

SHEET	C-36A
DATE	6/13/23
DESIGNED BY	TMB/AWB
CHECKED BY	BRL
APPROVED BY	AS SHOWN

- CONSTRUCTION SEQUENCE NOTES:**
- CONTRACTOR SHALL INSTALL TEMPORARY 4-FOOT DIAMETER (MINIMUM OF 8-FOOT DEEP) TO INTERCEPT THE EXISTING LATERAL AND PUMP AND HAUL UNTIL THE LATERAL CAN BE RECONNECTED TO THE NEW SEWER. THIS TEMPORARY MEASURE SHALL BE IN PLACE PRIOR TO INITIATING SEWER INSTALLATION BETWEEN SSMH 163 AND 164. WHEN RECONNECTING THE LATERAL, THE LATERAL AND CLEANOUT SHALL BE COMPLETELY REPLACED FROM CLEANOUT AND ADHERE TO PWC DETAIL S10.
  - CONTRACTOR SHALL HAVE OUTFALL DOWNSTREAM OF SSMH 163 OPERATIONAL BEFORE INITIATING SEWER INSTALLATION TO SMH 164 TO RECEIVE BYPASS FLOW DURING INSTALLATION OF NEW SEWER THAT OFFSETS FROM THE EXISTING SEWER THAT DISCHARGES TO THE CAMDEN GLEN LIFT STATION. EXISTING SEWER INTO CAMDEN GLEN LIFT STATION SHALL REMAIN IN SERVICE DURING CONSTRUCTION OF PROPOSED OFFSET SEWER FROM SSMH 164 TO SSMH 164 A.
  - CONTRACTOR SHALL HAVE SEWER BYPASS PUMP AND PIPING READY FOR OPERATION IN ACCORDANCE WITH SECTION 02750.
  - CONTRACTOR SHALL COORDINATE WITH PWC PROJECT COORDINATOR TO ACTIVATE BYPASS PUMPING, TO REQUEST AND SCHEDULE EXISTING LIFT STATION TO BE DE-ENERGIZED AND TO REQUEST AND SCHEDULE EXISTING ELECTRICAL SERVICE TO LIFT STATION TO BE DE-ENERGIZED AT TRANSFORMER. CONTRACTOR SHALL PROVIDE MINIMUM 72 HOUR NOTIFICATION TO PWC PROJECT COORDINATOR. EXISTING WET WELL SHALL BE ACCESSIBLE TO SERVE AS SOURCE TO BYPASS SEWER TO OPERATIONAL OUTFALL (SSMH 163). SEE NOTE 2 ABOVE.
  - CONTRACTOR SHALL COORDINATE WITH PWC PROJECT COORDINATOR TO SHUT OFF WATER SERVICE TO CAMDEN LIFT STATION AND KILL OUT SERVICE AT CORPORATION STOP/TAP PRIOR TO INSTALLING SEWER BETWEEN SSMH 164 AND 164A. EXISTING WATER SERVICE IS ANTICIPATED TO BE IN CONFLICT WITH SEWER TRENCH.
  - CONTRACTOR SHALL COORDINATE WITH PWC PROJECT COORDINATOR TO CUT IN 2" BALL VALVE TO ISOLATE END OF 2" WATER MAIN. CUT IN VALVE SHALL BE INSTALLED PRIOR TO INSTALLATION OF SEWER BETWEEN SSMH 164 AND 164A. PROPOSED VALVE SHALL BE CLOSED IN THE EVENT THE END OF THE 2" WATER MAIN IS IN CONFLICT WITH THE SEWER INSTALLATION AND MANHOLE. IT WILL ALLOW TWO 1-INCH SERVICES TO REMAIN IN OPERATION SHOULD THE END OF THE 2" MAIN NEED TO BE TEMPORARILY SHUT OFF.



- PAVEMENT RESTORATION NOTES:**
- PAVEMENT REPAIR OF THE OPEN CUT TRENCH AREA FOR ALL PIPE INSTALLATION SHALL BE PERFORMED PER PWC STD. DETAIL M.2.
  - PAVEMENT REPAIR SHALL BE PERFORMED IMMEDIATELY FOLLOWING WORK IN THAT AREA. MILL AND OVERLAY SHALL BE PERFORMED AS DESIGNATED BY SOLID HATCH. PAVEMENT SEQUENCE INCLUDES PERMANENT PATCH PER PWC STD. DETAIL M.2. TO MAINTAIN TRAFFIC IMMEDIATELY FOLLOWING INSTALLATION AND MILL/OVERLAY ENTIRE AREA (REPLACE ALL PAVEMENT MARKINGS).

- NOTES:**
- CONTRACTOR TO MAINTAIN ACCESS TO HOMES AT ALL TIMES.
  - UNDERGROUND UTILITIES SHOWN AT APPROX. DEPTH UNLESS OTHERWISE NOTED. CONTRACTOR TO FIELD VERIFY DEPTH OF EX. UTILITIES AT LEAST 14 DAYS PRIOR TO CONSTRUCTION.
  - CONTRACTOR TO TEST ALL LINES CROSSING WETLANDS IN ACCORDANCE WITH SECTION 46 OF 01000-SPECIAL CONDITIONS.
  - CONTRACTOR SHALL PROVIDE FOR TEMPORARY BYPASS PUMPING AS NEEDED FOR CONSTRUCTION. SEE SECTION 02750 - WASTEWATER FLOW CONTROLS.
  - CONTRACTOR TO FIELD VERIFY PIPE MATERIAL AND SIZE PRIOR TO REMOVAL OF EXISTING MANHOLE AND RECONNECTION TO NEW MH 164A.
  - SERVICE LATERAL CONNECTION FOR 3257 HUNTING LODGE ROAD SHOWN IN APPROXIMATE LOCATION. CONTRACTOR TO FIELD VERIFY LOCATION PRIOR TO INSTALLING 8 FT DEEP TEMPORARY MANHOLE. TEMPORARILY RE-ROUTING SERVICE LATERAL TO TEMPORARY MANHOLE AND PUMP AND HAUL/BYPASSING FLOW IN ACCORDANCE WITH SECTION 02750 - WASTEWATER FLOW CONTROLS. SEE CONSTRUCTION SEQUENCE NOTES THIS SHEET.
  - REMOVE AND REPLACE DRAINAGE STRUCTURES, CONNECTING PIPE AND 20 LF OF 18" RCP.
  - CONTRACTOR TO SUPPORT/SHORE/BRACE TRENCH AND TRANSFORMER.
  - CONTRACTOR SHALL REMOVE AND REPLACE EXISTING 2" BLOW OFF IN ACCORDANCE WITH PWC STD. DETAIL W.15C.
  - CONTRACTOR TO COORDINATE WITH PWC PROJECT COORDINATOR TO FINALIZE CUT IN LOCATION OF 2" BALL VALVE IT SHOULD BE LOCATED TO ALLOW THE TWO EXISTING 1" WATER SERVICES TO REMAIN IN OPERATION IF THE CUT IN VALVE HAS TO BE CLOSED.

SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
 PEARTREE ESTATE LS CONNECTION  
 STA. 0+00 - 12+00

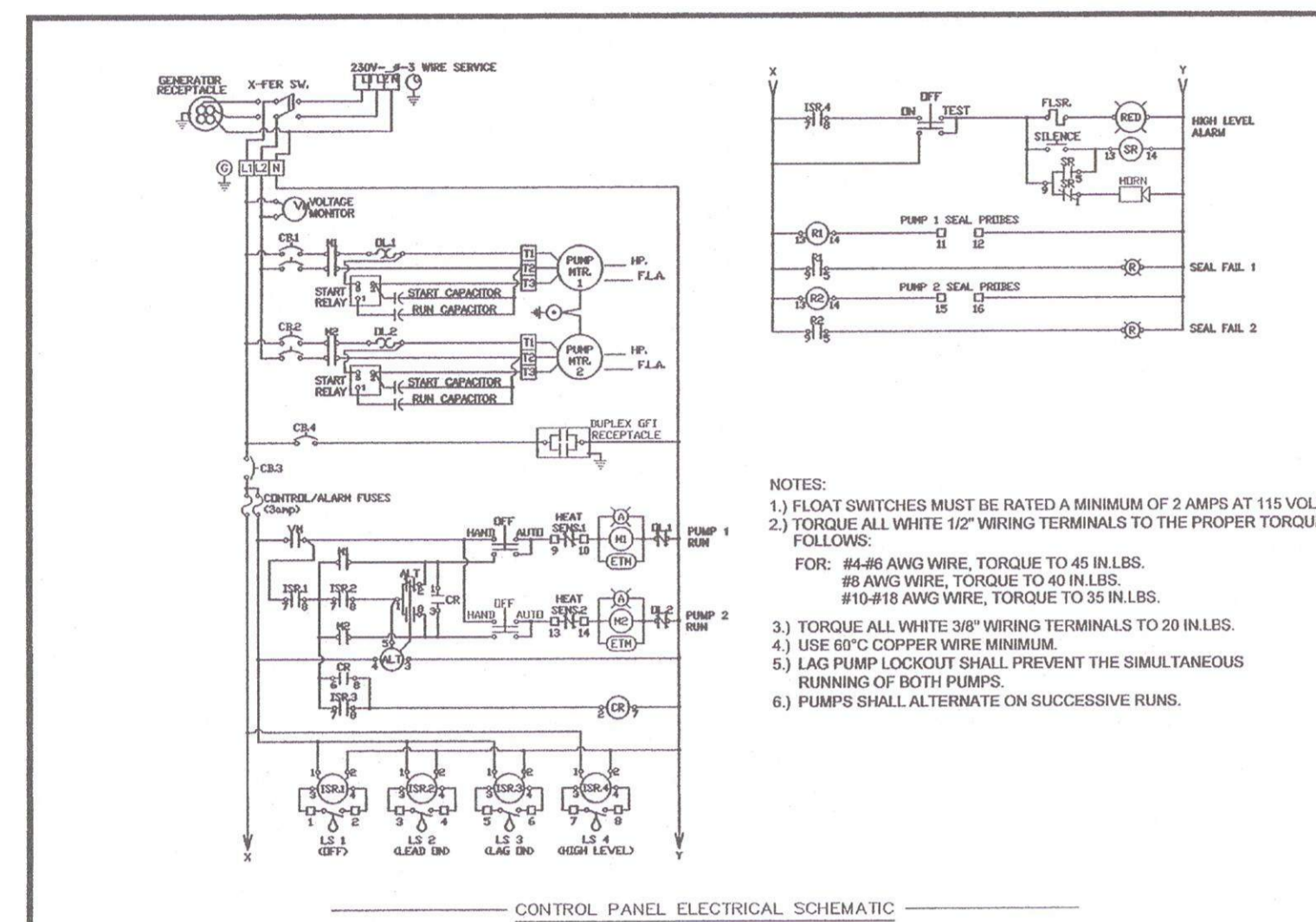
**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
**WATER RESOURCES ENGINEERING**  
 P.O. Box 1088, Fayetteville, NC 28302  
 955 Old Wilmington Road, Fayetteville, NC 28301

**MCKIM & CREED**  
 1730 Varsity Drive, Suite 500  
 Raleigh, NC 27606  
 Phone: (919)233-8091, Fax: (919)233-8031  
 F-1222  
 www.mckimcreed.com

PWC DRAWING # AS-1531CCCC

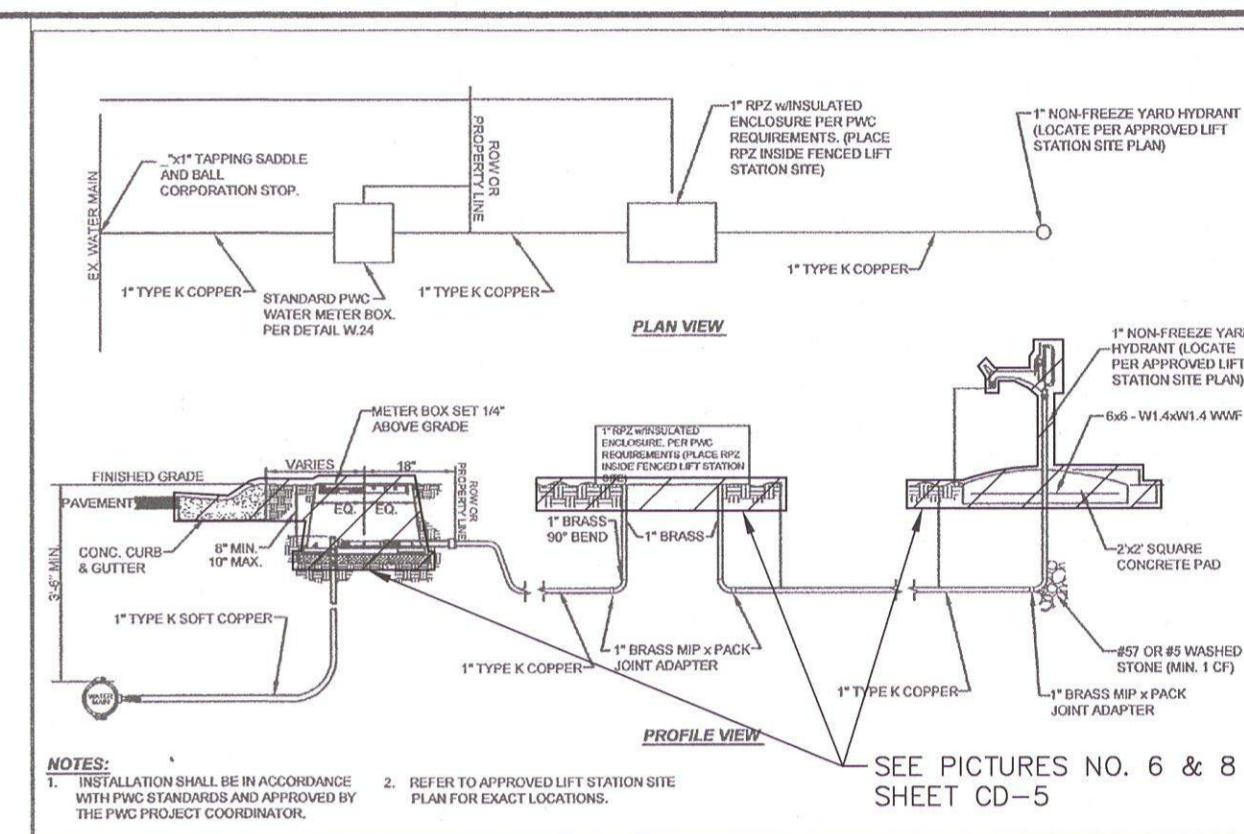


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NOTES:  
1) FLOAT SWITCHES MUST BE RATED A MINIMUM OF 2 AMPS AT 115 VOLTS.  
2) TORQUE ALL WHITE 1/2" WIRING TERMINALS TO THE PROPER TORQUE AS FOLLOWS:  
FOR #14 AWG WIRE, TORQUE TO 45 IN.LBS.  
#10-#18 AWG WIRE, TORQUE TO 35 IN.LBS.  
3) TORQUE ALL WHITE 3/8" WIRING TERMINALS TO 20 IN.LBS.  
4) USE #12 COPPER WIRE MINIMUM.  
5) LAG PUMP LOCKOUT SHALL PREVENT THE SIMULTANEOUS RUNNING OF BOTH PUMPS.  
6) PUMPS SHALL ALTERNATE ON SUCCESSIVE RUNS.

EXPLOSION PROOF SUBMERSIBLE LIFT STATION PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. WATER RESOURCES ENGINEERING DEPARTMENT



YARD HYDRANT INSTALLATION PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C. WATER RESOURCES ENGINEERING DEPARTMENT

LIFT STATION NOTES  
1. CONCRETE SHALL BE 4,000 PSI COMPRESSION STRENGTH.  
2. MANHOLE SHALL MEET REQUIREMENTS OF ASTM C-157.  
3. ALL ELECTRICAL MATERIAL & INSTALLATION SHALL BE BY A LICENSED ELECTRICIAN IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, AND RULES AND REGULATIONS OF LOCAL AUTHORITIES HAVING JURISDICTION. MATERIALS SHALL BE LISTED OR LABELED BY THE UNDERWRITERS LABORATORIES STANDARDS.  
4. LIFT STATION MANHOLE CONCRETE SLAB AND HATCH SHALL BE MANUFACTURED TO WITHSTAND H-20 LOADING CONDITIONS.  
5. MANUFACTURER SHALL BE REQUIRED TO SUBMIT DESIGN CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER WITH SHOP DRAWINGS AND WIRING DIAGRAMS SHALL BE PROVIDED FOR ALL ELECTRICAL EQUIPMENT.  
6. ENGINEER TO APPROVE FOUNDATION BEFORE SETTING MANHOLES.  
7. CONTRACTOR IS TO PROVIDE DRAINAGE EQUIPMENT AS REQUIRED FOR CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.  
8. HATCH DOORS AND CONTROL PANEL BOX SHALL BE LOCKABLE AND KEYS TO PWC MASTER LOCK SYSTEM. CONTRACTOR SHALL FURNISH LOCKS AND KEYS.  
9. CONTRACTOR SHALL AND PROVIDE START UP SERVICE (MIN. 2 DAYS). CONTRACTOR SHALL PROVIDE ALL NECESSARY LUBRICANTS FOR STARTUP AND SHALL ASSIST THE EQUIPMENT MANUFACTURER AND OWNER WITH INITIAL STARTUP.  
10. CONTRACTOR SHALL FURNISH AND INSTALL ALL PUMPS, PIPING, EQUIPMENT, MATERIALS, AND ACCESSORIES REQUIRED TO MAKE THE LIFT STATION FULLY OPERATIONAL, AND IN ACCORDANCE WITH PWC STANDARDS.  
11. RECESSED LIFTING HOODS SHALL BE PLACED IN CONCRETE WET WELL COVER CONTROL PANEL BOX SHALL BE ANCHORED IN 12" X 24" DEEP CONCRETE FOOTING. PIPENOR SHALL BE ASSEMBLED, INSTALLED, AND FULLY SUPPORTED SO AS NOT TO PUT A STRAIN ON THE PUMPER EQUIPMENT, PIPE FITTINGS AND ELBOWS.  
12. ALL THROUGH-WALL SLEEVES AND CARRIER PIPES INTO THE WET WELL SHALL BE INSTALLED ABSOLUTELY WATER TIGHT WITH NO SIGNS OF SEEPAGE OR INFILTRATION. ENTIRE SITE SHALL BE FENCED FOR SECURITY. CONTRACTOR SHALL PROVIDE LOCKS FOR GATE REVEY TO THE PWC MASTER LOCK SYSTEM.  
13. ALL HANGERS, CLAMPS, FLANGE BOLTS, AND CONNECTIONS SHALL BE STAINLESS STEEL UNLESS OTHERWISE SPECIFIED.  
14. ALL DIMENSIONS SHALL BE VERIFIED BY CONTRACTOR AND SHALL BE ADJUSTED TO ACCOMMODATE DIMENSIONS OF MATERIALS SUPPLIED BY CONTRACTOR AND OWNER. FLANGE FRACES SHALL BE SEPARATE.

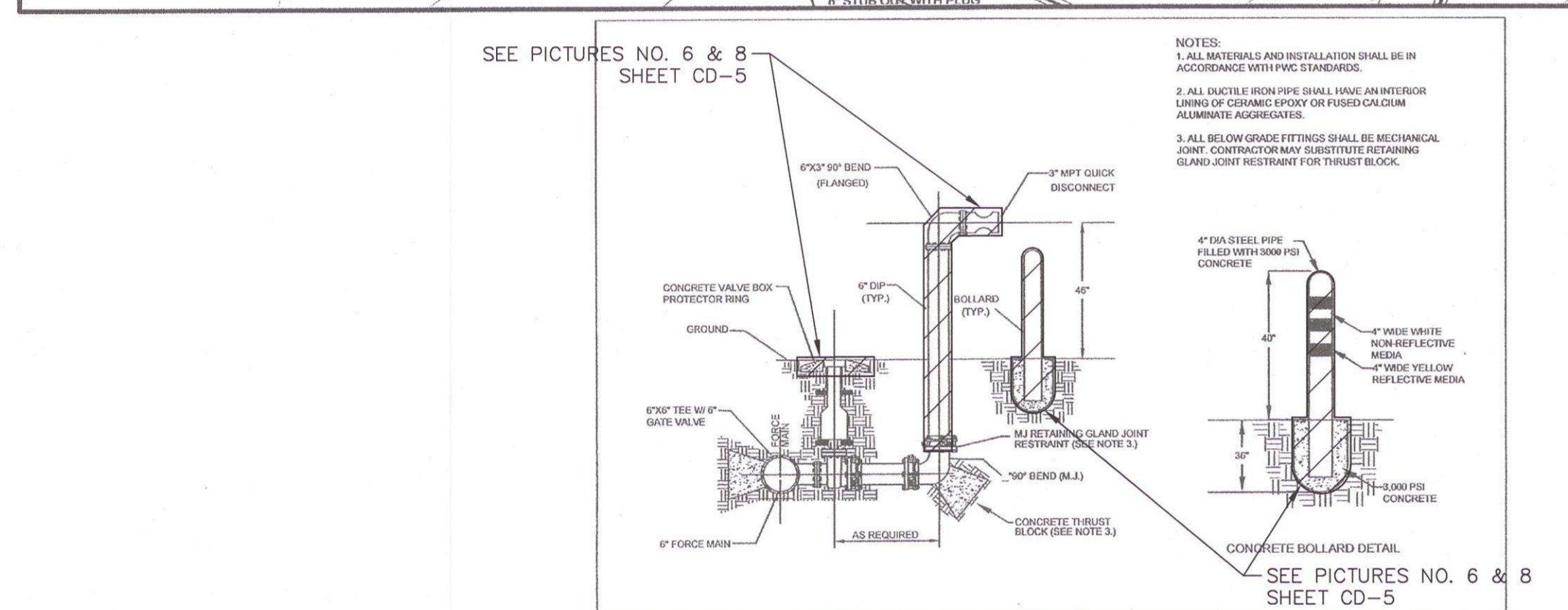
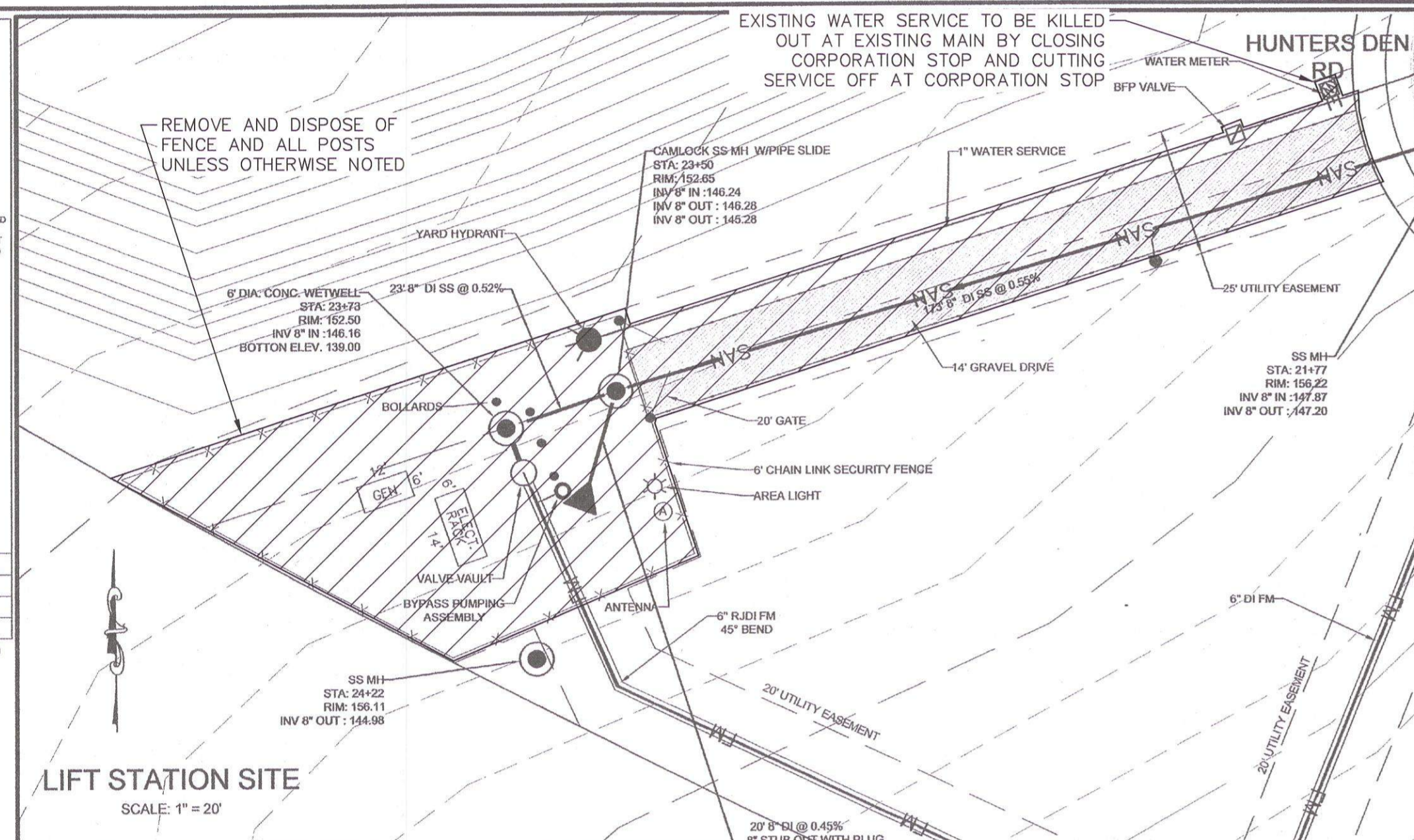
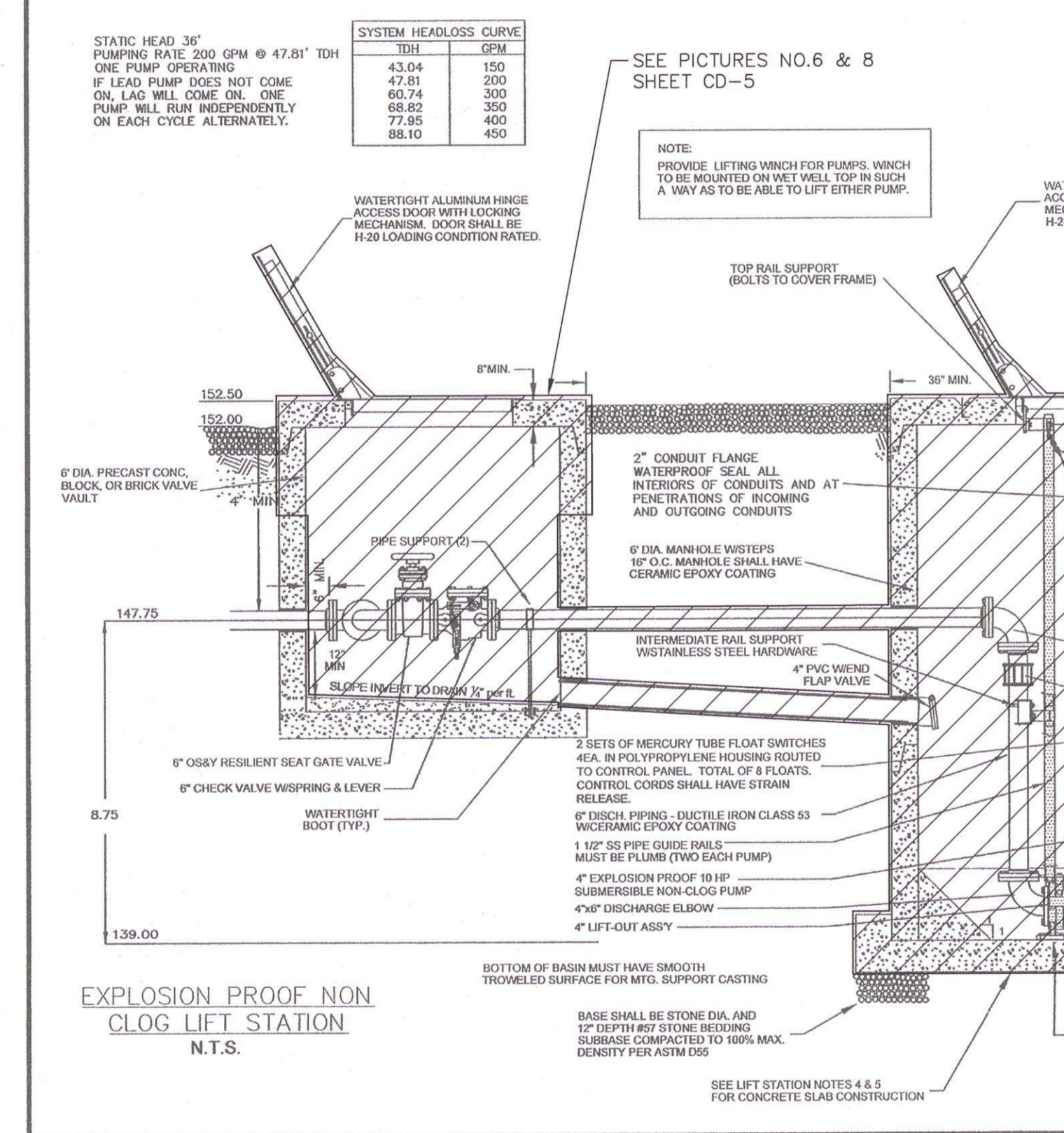
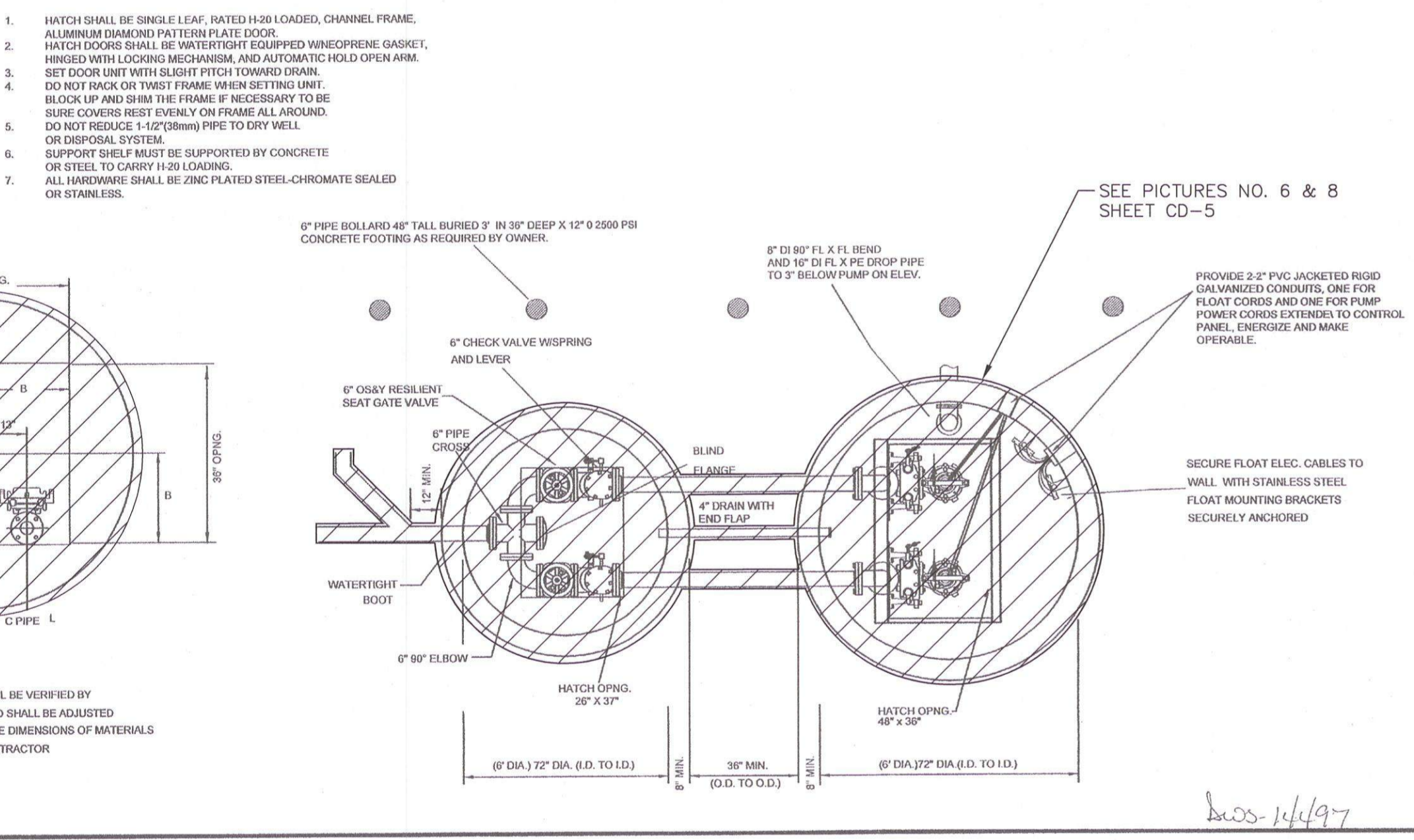


Table with columns for SHEET NO., DWG. NO., DATE, and APPROVED BY for the submersible lift station assembly.



SYSTEM HEADLOSS CURVE table with columns for FLOW (GPM) and HEADLOSS (FEET).

NOTE: PROVIDE LIFTING WINCH FOR PUMPS, WHICH TO BE MOUNTED ON WET WELL TOP IN SUCH A WAY AS TO BE ABLE TO LIFT EITHER PUMP.

DATE: SEPTEMBER 2011  
DRAWN BY: RBJ  
CHECKED: DBC  
REVIEWED: DBC  
DATE: SEPTEMBER 2011

Table with columns for DATE, BY, and REVISION for the lift station details.

115 BROADFOOT AVE  
FAYETTEVILLE, NC 28305  
P.O. BOX 63774  
P: 910-484-5191  
LICENSE #: F-0106

Table with columns for SHEET NO., DWG. NO., DATE, and APPROVED BY for the explosion proof lift station.

NOTES:  
1. EXISTING PLANS TAKEN FROM MK&R RECORD DRAWINGS DATED SEPTEMBER 2011. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND CONDITIONS AS NEEDED PRIOR TO DEMOLITION.  
2. SEE SECTION 46 OF 01000-SPECIAL PROVISIONS OF THE SPECIFICATIONS FOR FURTHER DETAILS ON DEMOLITION RELATED ACTIVITIES.  
3. PROVIDE BYPASS PUMPING AS NECESSARY TO REMOVE EXISTING LIFT STATION FROM SERVICE. REMOVE STRUCTURE AND ROOF (WHERE APPLICABLE) AND DISPOSE OFFSITE IN ACCORDANCE WITH LOCAL LAWS AND REGULATIONS. RECYCLING IS ENCOURAGED, ALTHOUGH NOT REQUIRED. REMOVE LIFT STATION PUMPS, MOTORS, FLOAT SYSTEMS, SUCTION AND DISCHARGE PIPING AND VALVES, ELECTRIC METER, ELECTRICAL CONTROLS AND COMPONENTS, ANTENNA, SCADA SYSTEM, RTU, GENERATOR, WET WELL COVER SLAB AND APPURTENANCES. SEAL ALL PIPE PENETRATIONS INTO THE WET WELL WITH 2" GROUT PLUG PRIOR TO ABANDONING. CONTRACTOR TO COORDINATE WITH UTILITY SERVICE PROVIDER FOR DISCONNECTION OF UTILITY ELECTRIC SERVICE. CLEAN AND DELIVER REMOVED ITEMS TO PWC WAREHOUSE ON OLD WILMINGTON ROAD. DEMOLISH UPPER 2' OF LIFT STATION WET WELL (OR REMOVE UPPER RISER AND DELIVER TO PWC WAREHOUSE ON OLD WILMINGTON ROAD). FILL WET WELL WITH SUITABLE MATERIAL FROM ONSITE. PLACE 4-6" TOPSOIL FROM ONSITE MATERIALS. ADD AMENDMENTS SEED AND MULCH.

M&R ENGINEERS PLANNERS SURVEYORS MOORMAN, KIZER & REITZEL, INC. LEGEND: - TO BE DEMOLISHED

CD-4 SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2 CAMDEN GLEN LS CONNECTION DEMO PLAN

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PICTURE NO. 6

REMOVE SURFACE AND RESTORE PER SECTION 9 OF 0100-SPECIAL CONDITIONS



PICTURE NO. 7

REMOVE AND DISPOSE OF FENCE AND ALL POSTS UNLESS OTHERWISE NOTED



PICTURE NO. 8

NOTES:

- EXISTING PLANS TAKEN FROM MK&R RECORD DRAWINGS DATED SEPTEMBER 2011. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND CONDITIONS AS NEEDED PRIOR TO DEMOLITION.
- SEE SECTION 46 OF 01000-SPECIAL PROVISIONS OF THE SPECIFICATIONS FOR FURTHER DETAILS ON DEMOLITION RELATED ACTIVITIES.
- PROVIDE BYPASS PUMPING AS NECESSARY TO REMOVE EXISTING LIFT STATION FROM SERVICE. REMOVE STRUCTURE AND ROOF (WHERE APPLICABLE) AND DISPOSE OFFSITE IN ACCORDANCE WITH LOCAL LAWS AND REGULATIONS. RECYCLING IS ENCOURAGED, ALTHOUGH NOT REQUIRED. REMOVE LIFT STATION PUMPS, MOTORS, FLOAT SYSTEMS, SUCTION AND DISCHARGE PIPING AND VALVES, ELECTRIC METER, ELECTRICAL CONTROLS AND COMPONENTS, ANTENNA, SCADA SYSTEM, RTU, GENERATOR, WET WELL COVER SLAB AND APPURTENANCES. SEAL ALL PIPE PENETRATIONS INTO THE WET WELL WITH 2' GROUT PLUG PRIOR TO ABANDONING. CONTRACTOR TO COORDINATE WITH UTILITY SERVICE PROVIDER FOR DISCONNECTION OF UTILITY ELECTRIC SERVICE. CLEAN AND DELIVER REMOVED ITEMS TO PWC WAREHOUSE ON OLD WILMINGTON ROAD. DEMOLISH UPPER 2' OF LIFT STATION WET WELL (OR REMOVE UPPER RISER AND DELIVER TO PWC WAREHOUSE ON OLD WILMINGTON ROAD). FILL WET WELL WITH SUITABLE MATERIAL FROM ONSITE. PLACE 4-6" TOPSOIL FROM ONSITE MATERIALS, ADD AMENDMENTS SEED AND MULCH.

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AMB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	PPPP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	PPPP
06.30.2021	FINAL DESIGN - CONTRACT SEPARATION AND RES REPAIRS	PPPP
04.15.2022	FINAL DESIGN - NIGHT RECONSTRUCTION INSPECTIONS	PPPP
04.15.2023	FINAL DESIGN ISSUED FOR BID	PPPP

SHEET CD-5

SURVEY/GPS BY: MCKIM&CREED, INC.  
 PROCESS/LAYOUT BY: DATE: 6/13/23  
 P.LIN/PROP.(SS)S BY: TMB/AMB  
 DESIGN REVIEW BY: BRL  
 APPROVED BY:  
 SCALE: AS SHOWN

**CD-5**



SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
 CAMDEN GLEN LS CONNECTION DEMO PLAN

FAYETTEVILLE PUBLIC WORKS COMMISSION  
**PWC** WATER RESOURCES ENGINEERING  
 P.O. Box 1085 Fayetteville, NC 28301  
 965 Old Wilmington Road, Fayetteville, NC 28301

LEGEND:  
 - TO BE DEMOLISHED



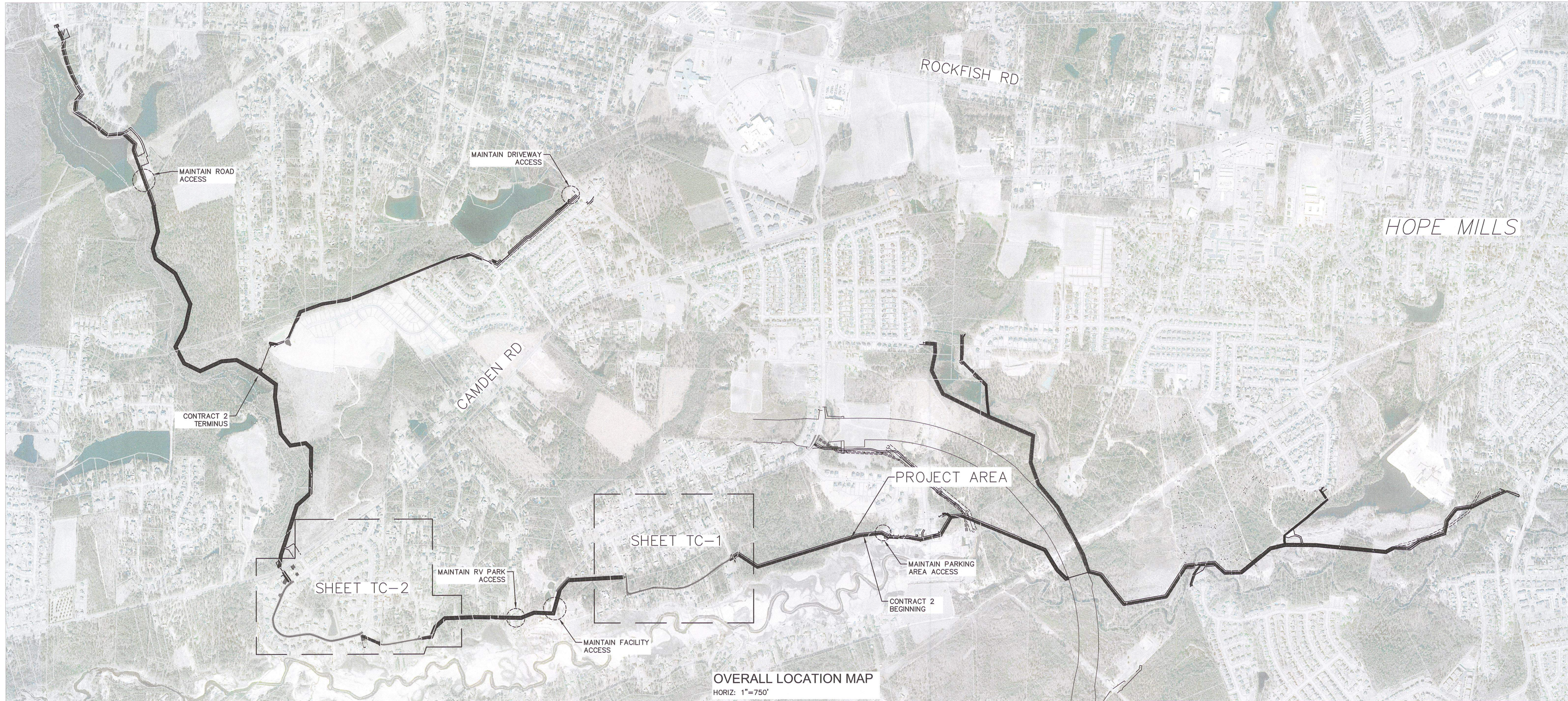
**MCKIM & CREED**  
 1730 Varsity Drive, Suite 500  
 Raleigh, NC 27606  
 Phone: (919)233-8001, Fax: (919)233-8031  
 F-1222  
 www.mckimcreed.com

CAMDEN GLEN RECORD DRAWING  
 NOT TO SCALE

FINAL DESIGN  
 ISSUED FOR BID

PWC DRAWING # DS-154.86

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OVERALL LOCATION MAP  
HORIZ: 1"=750'

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HMP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HMP
06.30.2021	FINAL DESIGN NOT FOR CONSTRUCTION	HMP
06.30.2021	FINAL DESIGN - CONTRACT SEPARATION AND BIDS RESPONSE	HMP
04.13.2022	FINAL DESIGN - NOT RECOMMENDATION	HMP
06.13.2023	FINAL DESIGN ISSUED FOR BID	HMP

SHEET	TC-0
SURVEY/GPS BY:	MCKIM&CREED, INC.
PROCESS/LAYOUT BY:	DATE: 6/13/23
PLANNING/ISSUE BY:	TMB/ANB
DESIGN REVIEW BY:	ERL
APPROVED BY:	
SCALE:	AS SHOWN



SANITARY SEWER IMPROVEMENTS BIG  
ROCKFISH CREEK OUTFALL - CONTRACT 2  
TRAFFIC CONTROL OVERVIEW

**WORK ZONE TRAFFIC CONTROL GENERAL NOTES**

MAINTAIN TRAFFIC IN ACCORDANCE WITH DIVISIONS 10 AND 11 OF THE JANUARY 2018 NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES & JANUARY 2018 ROADWAY STANDARD DRAWINGS (RSD) AND THE FOLLOWING PROVISIONS:

COORDINATE WITH THE NCDOT RESIDENT ENGINEER IN CHARGE OF ANY PROJECT IN THE VICINITY OF THIS PROJECT FOR ANY WORK THAT MAY AFFECT THE CONSTRUCTION AND THE TRAFFIC CONTROL OF THIS PROJECT.

PERFORM WORK ONLY WHEN WEATHER AND VISIBILITY CONDITIONS ALLOW SAFE OPERATIONS AS DIRECTED BY THE ENGINEER.

PROVIDE APPROPRIATE LIGHTING IN ACCORDANCE WITH SECTION 105-14, STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

OPERATE EQUIPMENT AND CONDUCT OPERATIONS IN THE SAME DIRECTION AS THE FLOW OF TRAFFIC. DO NOT CROSS MEDIANS WITH EQUIPMENT, EXCEPT AT PROPERLY DESIGNATED INTERCHANGES.

**TRAFFIC CONTROL GENERAL NOTES**

- ALL SIGNAGE SHALL ADHERE TO MUTCD STANDARDS AND SPECIFICATIONS.
- NO PLACEMENT OF EQUIPMENT OR MATERIALS IS ALLOWED OUTSIDE OF THE APPROVED AREA.
- THE SIDEWALK AND PAVEMENT SHALL BE FREE AND CLEAR OF DEBRIS AT ALL TIMES.
- ALL SIDEWALKS ARE PUBLIC & MUST BE ACCESSIBLE TO PEDESTRIANS WHO ARE VISUALLY IMPAIRED AND/OR PEOPLE WITH MOBILITY DISABILITIES. EXISTING & ALTERNATIVE PEDESTRIAN ROUTES DURING CONSTRUCTION SHALL BE REQUIRED TO BE COMPLIANT WITH THE PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG), 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN & THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- CONSTRUCTION FENCING SHOULD NOT ENCROACH INTO THE PUBLIC RIGHT OF WAY. IF IT DOES, IT MUST BE MOVABLE IN CASE

ADJUSTMENTS HAVE TO BE MADE. NO DRILLING, BORING OR ANY PERMANENT FASTENING OF THE FENCE IS ALLOWED IN THE PUBLIC RIGHT OF WAY.

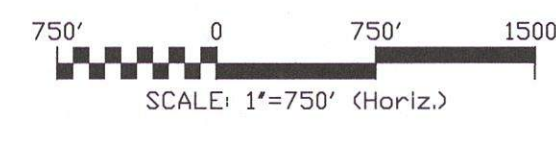
- ACCESS TO ALL DRIVEWAYS, ACCESS ROADS, AND SIDE STREETS SHALL BE MAINTAINED AT ALL TIMES.
- BEGINNING OF WORK AND STREET CLOSINGS: THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE NC DEPARTMENT OF TRANSPORTATION, DIVISION 6, DISTRICT 2 AT 910-437-2529 OF ANY WORK WHERE THE NUMBER OF TRAVEL LANES IS REDUCED FROM NORMAL CONDITIONS. THE CONTRACTOR SHALL INSTALL THE PROJECT ADVANCED WARNING SIGNS. THESE SIGNS SHALL BE IN PLACE FOR ONE WEEK BEFORE CONSTRUCTION ACTIVITY BEGINS. THE SIGNS SHALL BE REMOVED WITHIN SEVEN DAYS OF CLOSING THE CONSTRUCTION ENTRANCE.
- CONTRACTOR WILL BE RESPONSIBLE FOR ALL PERMANENT SIGNING. ALL SIGNS SHALL BE INSTALLED ON METAL "U"POSTS. ALL PERMANENT ROAD SIGNS SHALL BE TYPE "E" SIGNS WITH A BACKGROUND OF TYPE III SHEETING.
- CONTRACTOR TO ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- RIGHT OF WAY USE PERMIT: THE OWNER WILL OBTAIN RIGHT OF WAY PERMIT(S) FROM NCDOT FOR APPROVAL TO WORK IN STREET RIGHT-OF-WAY(S) OF NORTH CAROLINA WHERE APPLICABLE.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NCDOT STANDARDS.
- THE CONTRACTOR SHALL REPAIR ALL DAMAGED INFRASTRUCTURE IN THE RIGHT-OF-WAY AND RESTORE IT TO PREVIOUS OR BETTER CONDITION.
- THE CONTRACTOR SHALL REPAIR ANY DAMAGES TO ADJACENT PROPERTIES AND RESTORE IT TO PREVIOUS OR BETTER CONDITION.
- TRAFFIC CONTROL PLAN: THE CONTRACTOR SHALL MAINTAIN THE TRAFFIC CONTROL AS DESCRIBED HEREIN UNLESS THE CONTRACTOR SUBMITS AN ALTERNATE TRAFFIC CONTROL PLAN TO THE ENGINEER AND IT IS APPROVED BY THE ENGINEER. THE ENGINEER MAY DIRECT THE CONTRACTOR TO MODIFY TRAFFIC CONTROL IF, IN THE ENGINEER'S

OPINION, TRAFFIC OR PEDESTRIANS ARE NOT MOVING SAFELY OR EFFICIENTLY.

- TRAFFIC CONTROL DEVICES SHALL BE SET UP PRIOR TO THE START OF CONSTRUCTION OR MAINTENANCE OPERATIONS, AND SHALL BE REMOVED OR RELOCATED AS THE WORK IS FINISHED OR WORK CONDITIONS CHANGE. THE CONTRACTOR DOING THE WORK SHALL PATROL THE WORK SITE AS REQUIRED TO ENSURE THAT ALL TRAFFIC CONTROL DEVICES ARE IN PLACE AND OPERATING AT ALL TIMES.
- ALL TRAFFIC CONTROL SIGNS FOR THE WORK AREA SHALL BE REFLECTORIZED IN ACCORDANCE WITH ROADWAY STANDARD DRAWINGS NO. 1101.01.
- WHENEVER TRAFFIC MUST BE ROUTED ACROSS THE CENTERLINE, THE TWO DIRECTIONS MUST BE PHYSICALLY SEPARATED. TRAFFIC CONES CAN BE EFFECTIVELY USED FOR THIS PURPOSE DURING DAYLIGHT HOURS; REFLECTORIZED DRUMS MUST BE USED AT NIGHT.
- TRAFFIC SHALL NOT BE ROUTED ACROSS CENTERLINE WITH CONES OR DRUMS DURING NON-WORKING HOURS. CONTRACTOR MUST BE ON SITE OR CHANGE PAVEMENT MARKINGS APPROPRIATELY.
- THE CONTRACTOR DOING THE WORK SHALL PROVIDE FLAGGERS AND/OR POLICE CONTROL WHEN REQUIRED. CONTRACTOR MAY ALSO BE REQUIRED TO PROVIDE A UNIFORMED OFFICER TO CONTROL TRAFFIC WHEN WORKING IN AND AROUND A SIGNALIZED INTERSECTION.
- EVERY ATTEMPT SHALL BE MADE TO SCHEDULE AND EXPEDITE THE WORK TO CAUSE THE LEAST INCONVENIENCE TO THE TRAVELING PUBLIC.
- WHEN PERSONAL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITH THE CLOSED TRAVEL LANE.
- WHERE LANE CLOSURES ARE REQUIRED, REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED.

23. THE DIRECTOR OF THE DEPARTMENT OF TRANSPORTATION OR THEIR REPRESENTATIVES ARE AUTHORIZED TO STOP ANY CONSTRUCTION OR MAINTENANCE ACTIVITY WHICH IS NOT PROPERLY SIGNED OR BARRICADED AS REQUIRED BY THIS STANDARD AND MUTCD UNTIL SUCH REQUIREMENTS ARE MET.

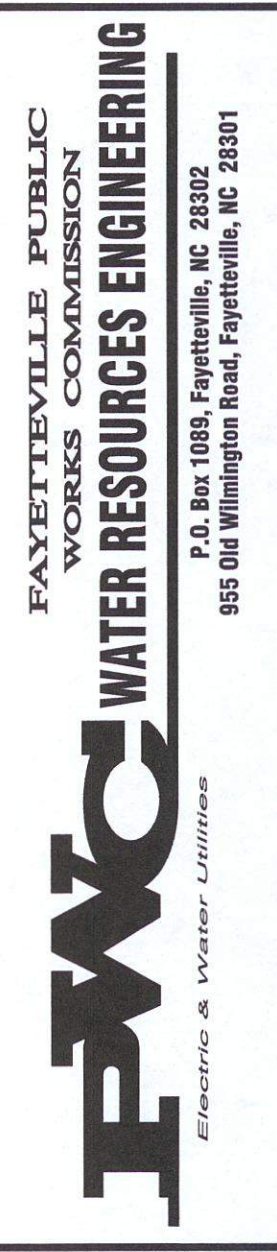
- THIS DESIGN STANDARD CANNOT BE USED FOR ALL ROADWAY CONSTRUCTION SITUATIONS. IT IS INTENDED ONLY TO BE USED AS A GUIDELINE. SPECIFIC SITUATIONS MAY REQUIRE ENGINEERING JUDGEMENT IN THE PLACEMENT OF TRAFFIC CONTROL DEVICES BECAUSE OF LIMITED VERTICAL AND/OR HORIZONTAL SIGHT DISTANCE. CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE, OR RESULT IN DUPLICATE OR UNDESIRABLE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES.
- OPERATIONAL SIGNS ARE GENERALLY MOUNTED ON PORTABLE SUPPORTS. THESE ARE USUALLY USED FOR SHORT TERM OPERATIONS TO WARN AND GUIDE TRAFFIC. ADVANCED WARNING SIGNS (CONSTRUCTION AHEAD) SHALL BE MOUNTED ON U-POST PERMANENT TYPE MOUNTING 7 DAYS PRIOR TO BEGINNING CONSTRUCTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING RATED CAPACITY OF ALL EXISTING BRIDGES AND CULVERTS TO DETERMINE WEIGHT/AXLE LOADING LIMITATIONS PRIOR TO USE.
- ALL TRAFFIC CONTROL SIGNS SHALL COMPLY WITH MUTCD STANDARDS AND SHALL BE ON U-POST WITH PERMANENT TYPE MOUNTING.
- IF COORDINATION IS REQUIRED FOR WORK NEAR ROADWAYS OWNED BY THE TOWN OF HOPE MILLS, CONTACT HOPE MILLS PUBLIC WORKS REPRESENTATIVES DON SISKI AT 910-429-3384 OR BRUCE D. CLARK AT 910-429-3380.



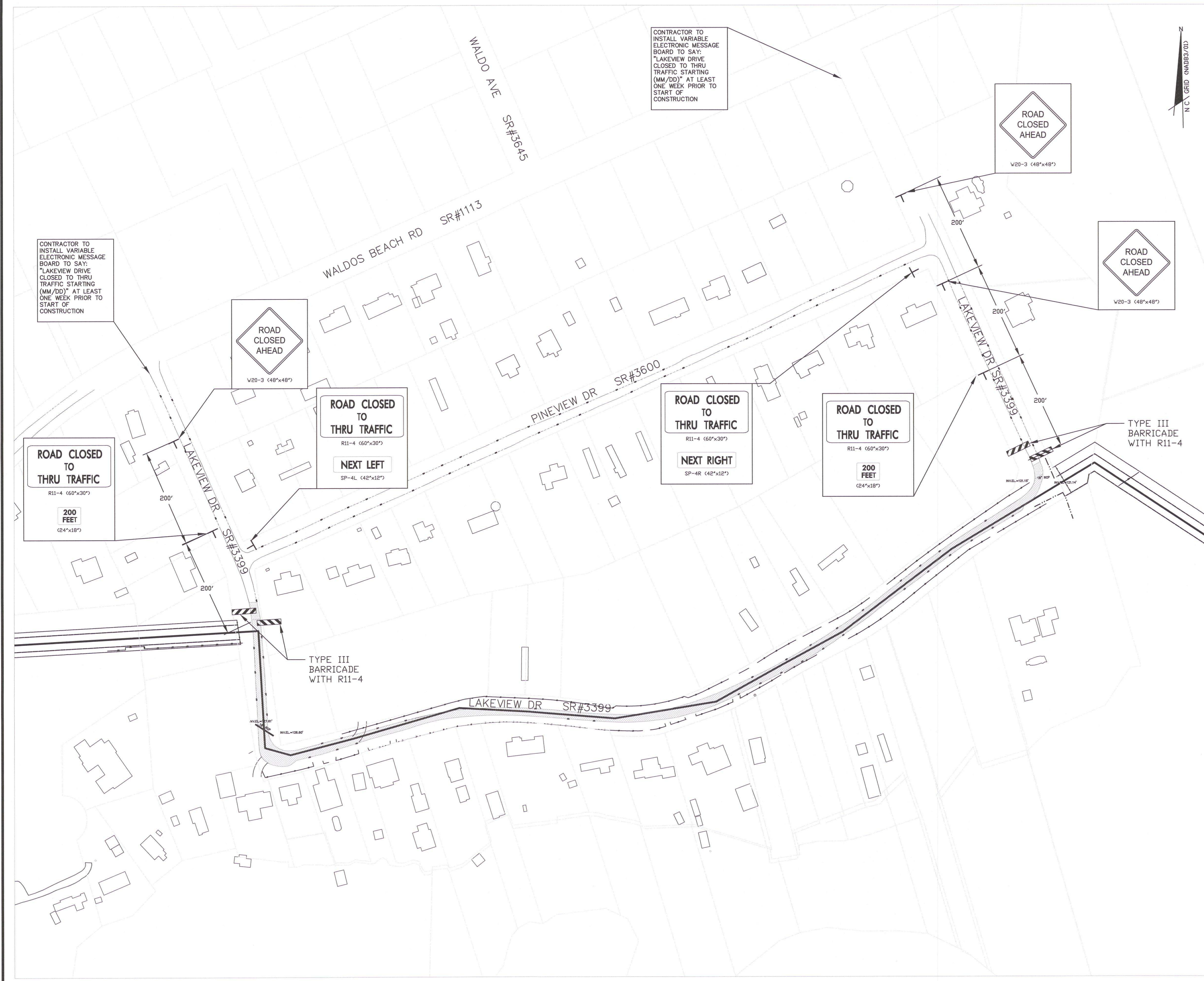
FINAL DESIGN  
ISSUED FOR BID



PWC DRAWING # DS-15486



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LAKEVIEW DRIVE  
HORIZ: 1"=100'

FINAL DESIGN  
ISSUED FOR BID

**SIGN LEGEND**

- ROAD CLOSED AHEAD (V20-3 48"x48")
- ROAD CLOSED TO THRU TRAFFIC (R11-2 60"x30")
- NEXT LEFT (SP-4L 42"x12")
- NEXT RIGHT (SP-4R 42"x12")
- 200 FEET (24"x18")
- TYPE III BARRICADE WITH R11-4

**LEGEND**

- EX. R/W LINE/ PROPERTY LINE
- STATIONARY SIGN
- TYPE III BARRICADE

- LAKEVIEW DRIVE NOTES**
- LAKEVIEW DRIVE ROAD CLOSURE SHALL BE A ROLLING CLOSURE AND ONLY PERMITTED TO SPAN EACH WORKING DAY AND FOR THE LOCAL WORKING AREA.
  - INGRESS AND EGRESS SHALL BE MAINTAINED TO ALL DWELLINGS AFFECTED BY THE PROJECT. ACCESS SHALL BE PROVIDED TO POLICE, EMS, FIRE, ETC.
  - AT END OF WORKING DAY AND WHENEVER CONSTRUCTION IS NOT ONGOING, ROAD SHALL BE TRAVERSABLE. STEEL PLATING OF ALL TRENCHES SHALL BE IN ACCORDANCE WITH SECTION 02500.

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AMB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MHP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MHP
04.30.2021	FINAL DESIGN - CONTRACT SEPARATION AND RES RESPONSES	MHP
04.13.2022	FINAL DESIGN - SCOTTSBORO/ROCKFISH	MHP
05.15.2023	FINAL DESIGN ISSUED FOR BID	MHP

SHEET TC-1

SURVEY/GPS BY: MCKIM&CREED, INC. DATE: 6/13/23  
 PROCESS/LAYOUT BY: TMB/AMB  
 PLAN/PROJ. (SSSD) BY: BRL  
 DESIGN REVIEW BY: BRL  
 APPROVED BY: AS SHOWN  
 SCALE: AS SHOWN

**TC-1**

PROFESSIONAL SEAL  
 05475  
 MCKIM & CREED, INC.  
 ENGINEER

SANITARY SEWER IMPROVEMENTS BIG  
 ROCKFISH CREEK OUTFALL - CONTRACT 2  
 TRAFFIC CONTROL PLAN

FAYETTEVILLE PUBLIC WORKS COMMISSION  
**PWC** WATER RESOURCES ENGINEERING  
 P.O. Box 1089, Fayetteville, NC 28402  
 955 06 Wilmington Road, Fayetteville, NC 28301

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 F-1222  
 www.mckimcreed.com

PWC DRAWING # DS-154.86

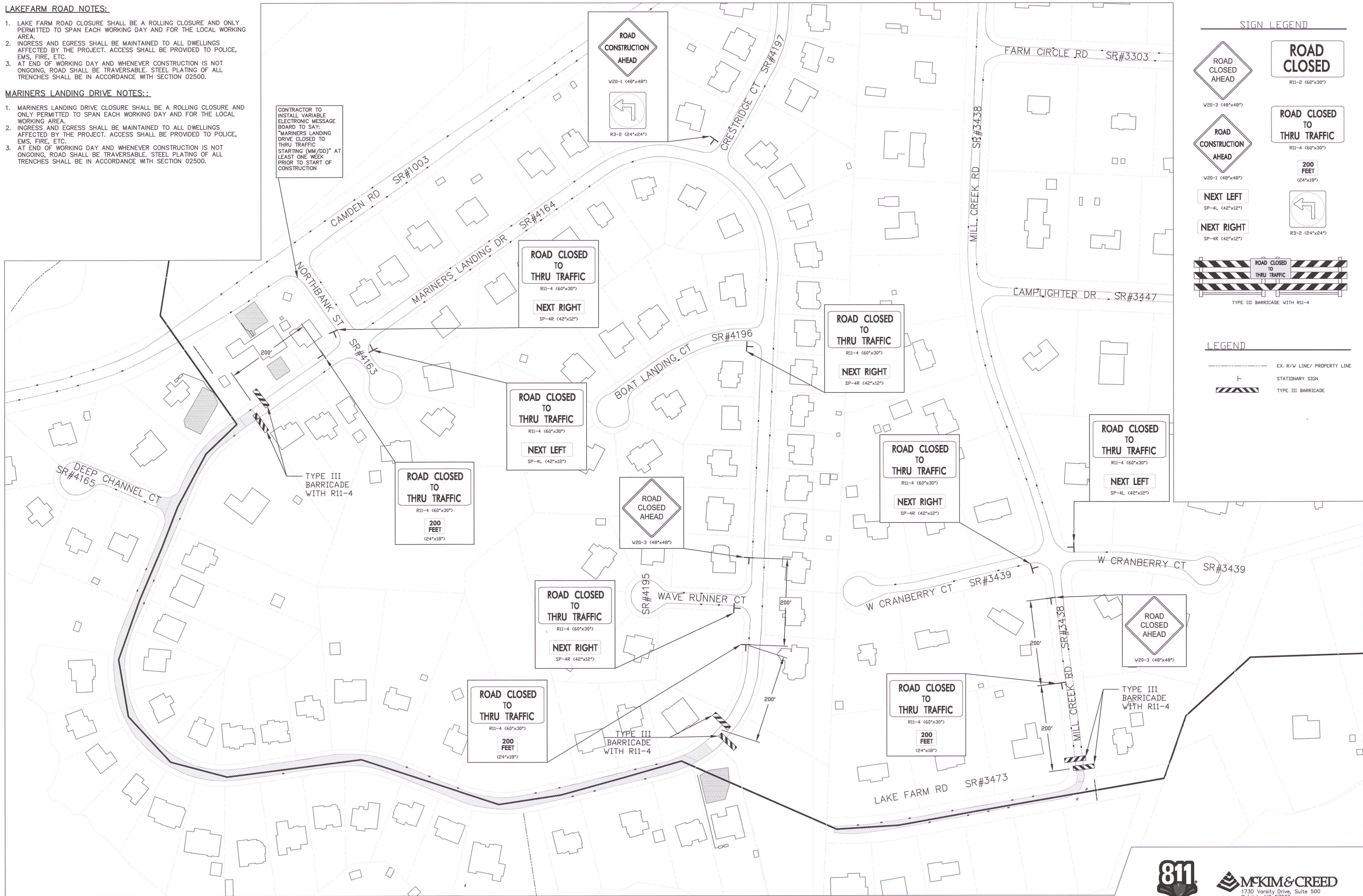
**LAKEFARM ROAD NOTES:**

1. LAKE FARM ROAD CLOSURE SHALL BE A ROLLING CLOSURE AND ONLY PERMITTED TO SPAN EACH WORKING DAY AND FOR THE LOCAL WORKING AREA.
2. INGRESS AND EGRESS SHALL BE MAINTAINED TO ALL DWELLINGS AFFECTED BY THE PROJECT. ACCESS SHALL BE PROVIDED TO POLICE, EMS, FIRE, ETC.
3. AT END OF WORKING DAY AND WHENEVER CONSTRUCTION IS NOT ONGOING, ROAD SHALL BE TRAVERSABLE. STEEL PLATING OF ALL TRENCHES SHALL BE IN ACCORDANCE WITH SECTION 02500.

**MARINERS LANDING DRIVE NOTES:.**

1. MARINERS LANDING DRIVE CLOSURE SHALL BE A ROLLING CLOSURE AND ONLY PERMITTED TO SPAN EACH WORKING DAY AND FOR THE LOCAL WORKING AREA.
2. INGRESS AND EGRESS SHALL BE MAINTAINED TO ALL DWELLINGS AFFECTED BY THE PROJECT. ACCESS SHALL BE PROVIDED TO POLICE, EMS, FIRE, ETC.
3. AT END OF WORKING DAY AND WHENEVER CONSTRUCTION IS NOT ONGOING, ROAD SHALL BE TRAVERSABLE. STEEL PLATING OF ALL TRENCHES SHALL BE IN ACCORDANCE WITH SECTION 02500.

CONTRACTOR TO INSTALL VARIABLE ELECTRONIC MESSAGE BOARD TO SAY: "MARINERS LANDING DRIVE CLOSED TO THRU TRAFFIC STARTING (MM/DD)" AT LEAST ONE WEEK PRIOR TO START OF CONSTRUCTION



**SIGN LEGEND**

- ROAD CLOSED AHEAD (R11-2 (60"x30"))
- ROAD CLOSED TO THRU TRAFFIC (R11-4 (60"x30"))
- 200 FEET (24"x18")
- NEXT LEFT (SP-4L (42"x12"))
- NEXT RIGHT (SP-4R (42"x12"))
- ROAD CLOSED TO THRU TRAFFIC BARRICADE (TYPE III BARRICADE WITH R11-4)

**LEGEND**

- EX. R/W LINE/ PROPERTY LINE
- STATIONARY SIGN
- TYPE III BARRICADE

DATE	REVISIONS	BY
05.18.2023	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HMP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HMP
06.30.2021	FINAL DESIGN NOT FOR CONSTRUCTION	HMP
04.13.2022	FINAL DESIGN - NOT FOR CONSTRUCTION	HMP
06.15.2023	FINAL DESIGN ISSUED FOR BID	HMP

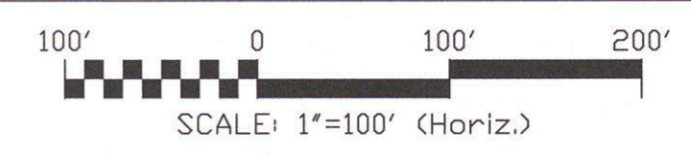
SHEET	TC-2
SURVEY/GPS BY:	MCKIM&CREED, INC.
PROCESS/LAYOUT BY:	DATE: 6/13/23
PLAN/PROF./ISSUE BY:	TMB/AWB
DESIGN REVIEW BY:	ERL
APPROVED BY:	SCALE: AS SHOWN

**TC-2**

SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
**TRAFFIC CONTROL PLAN**

FAYETTEVILLE PUBLIC WORKS COMMISSION  
**PWC WATER RESOURCES ENGINEERING**  
 800 West 108th Fayetteville, NC 28305  
 955 Old Wilmington Road, Fayetteville, NC 28301

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LAKE FARM ROAD AND MARINERS LANDING  
 FINAL DESIGN  
 ISSUED FOR BID  
 HORIZ: 1"=100'

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

ENGLISH STANDARD DRAWING FOR  
**BARRICADES**  
TYPE-III

**GENERAL NOTES**

- HORIZONTAL RAILS MAY BE CONSTRUCTED OF APPROVED COMPOSITE, HOLLOW/CORRUGATED EXTRUDED RIGID POLYOLEFIN, HIGH DENSITY POLYETHYLENE, OR OTHER NCDOT APPROVED MATERIAL.
- BARRICADE SHALL BE LIMITED TO A MAXIMUM LENGTH OF 8 FT UNLESS NCHRP 350 CRASH TESTED FOR CATEGORY II DEVICES AND NCDOT APPROVED.
- ONLY NCDOT APPROVED COMPOSITE AND ROLL-UP SIGNS MAY BE MOUNTED ON THE BARRICADE RAILS. MOUNT SIGNS TO BARRICADE RAILS TO ENSURE SIGN WILL NOT BECOME DETACHED UNDER NORMAL WIND AND TRAFFIC CONDITIONS.
- SIGNS SHALL BE MOUNTED A MINIMUM OF 1 FOOT FROM THE GROUND TO THE BOTTOM OF THE SIGN UNLESS SIGNS R11-3 OR R11-4 ARE REQUIRED BY THE PLANS OR DIRECTED BY THE ENGINEER.
- USE TYPE VII OR HIGHER PRISMATIC RETROREFLECTIVE SHEETING ON BOTH SIDES OF THE BARRICADE RAILS.
- BARRICADE MUST BE NCHRP 350 FOR CATEGORY II DEVICES AND NCDOT APPROVED WITH STABILIZER BAR OR ADEQUATE LATERAL BRACING.
- ASSEMBLY OF THE GENERIC BARRICADES MUST BE SELF CERTIFIED BY THE ASSEMBLER.
- BARRICADES USED TO CLOSE A ROADWAY SHALL EXTEND ACROSS THE ENTIRE ROADWAY. WHERE LOCAL TRAFFIC MUST BE MAINTAINED, THEY MAY BE PLACED IN A STAGGERED PATTERN.
- STRIPES ON WORK ZONE BARRICADE RAILS SHALL BE ALTERNATE ORANGE AND WHITE RETROREFLECTIVE STRIPES, SLOPED DOWNWARD TOWARD THE SIDE WHICH TRAFFIC IS TO PASS OR TURN IN DETOURING. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.
- USE RED AND WHITE STRIPES FOR PERMANENT BARRICADES.
- SEE THE DEPARTMENT'S APPROVED PRODUCTS LIST AT <https://apps.dot.state.nc.us/vendor/approvedproducts>.
- PLACE MANUFACTURER'S NAME AND FEDERAL HIGHWAY ADMINISTRATION'S NCHRP 350 APPROVAL LETTER NUMBER ON BARRICADE FRAME.
- PLACE SANDBAGS OR OTHER APPROVED BALLASTING METHODS ON THE FEET OF THE FRAME. DO NOT PLACE SANDBAGS ON TOP OF A STRIPED RAIL OR STABILIZER BAR. DO NOT BALLAST BARRICADES BY HEAVY OBJECTS SUCH AS ROCKS, CHAINS OF CONCRETE OR OTHER ITEMS THAT WOULD CAUSE DAMAGE IF THE BARRICADE IS STRUCK BY A VEHICLE.

STATE OF NORTH CAROLINA  
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ENGLISH STANDARD DRAWING FOR  
**BARRICADES**  
TYPE-III

SHEET 1 OF 1  
**1145.01**

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

ENGLISH STANDARD DRAWING FOR  
**PORTABLE WORK ZONE SIGNS**  
MOUNTING HEIGHT & LATERAL CLEARANCE

**GENERAL NOTES**

- DIMENSIONS SHOWN ARE MINIMUM VALUES. MOUNT SIGNS SO THEY WILL BE CLEARLY VISIBLE TO APPROACHING TRAFFIC EVEN WHEN SIGNS ARE MOUNTED BEHIND TRAFFIC CONTROL DEVICES SUCH AS DRUMS, BARRIERS, OR OTHER OBJECTS.
- ALL PORTABLE SIGNS AND STANDS MUST MEET OR EXCEED THE REQUIREMENTS OF NCHRP 350 FOR CATEGORY II DEVICES. USE PORTABLE WORK ZONE SIGNS AND STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER.
- ALL PORTABLE WORK ZONE SIGNS AND STANDS MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST AT <https://apps.dot.state.nc.us/vendor/approvedproducts>.

STATE OF NORTH CAROLINA  
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RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR  
**PORTABLE WORK ZONE SIGNS**  
MOUNTING HEIGHT & LATERAL CLEARANCE

SHEET 1 OF 1  
**1110.02**

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

ENGLISH STANDARD DRAWING FOR  
**SKINNY-DRUM**

**GENERAL NOTES**

- USE BALLAST AS SPECIFIED BY THE MANUFACTURER. DO NOT PLACE BALLAST ON TOP OF THE DRUM.
- IF NECESSARY, PLACE THE NAME OF THE AGENCY, CONTRACTOR, OR SUPPLIER ON NON-RETROREFLECTIVE SURFACE. SHOW THE LETTERS AND NUMBERS USING A NON-RETROREFLECTIVE COLOR AND NOT OVER 2" IN HEIGHT.
- REFER TO SECTION 1180, STANDARD SPECIFICATIONS FOR ROADS AND INSTRUCTIONS FOR ADDITIONAL REQUIREMENTS.
- USE TYPE 3 OR HIGHER HIGH INTENSITY PRISMATIC SHEETING.
- SEE THE DEPARTMENT'S APPROVED PRODUCTS LIST AT <https://apps.dot.state.nc.us/vendor/approvedproducts>.

STATE OF NORTH CAROLINA  
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ENGLISH STANDARD DRAWING FOR  
**SKINNY-DRUM**

SHEET 1 OF 1  
**1180.01**

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

ENGLISH STANDARD DRAWING FOR  
**TRAFFIC CONTROL DESIGN TABLES**  
TEMPORARY BARRIER FLARE RATES

POSTED SPEED LIMIT (MPH)	APPROVED (A)(B)	RECOMMENDED (A)(B)
20	8 : 1	7 : 1
30	8 : 1	8 : 1
40	10 : 1	8 : 1
45	12 : 1	10 : 1
50	14 : 1	11 : 1
55	16 : 1	12 : 1
60	18 : 1	14 : 1
65	20 : 1	16 : 1

**GENERAL NOTES**

- REFER TO 2002 ROADSIDE DESIGN GUIDE.
- A BARRIER IS CONSIDERED FLARED WHEN IT IS NOT PARALLEL TO THE EDGE OF THE TRAVELWAY.
- THE PRIMARY USE OF BARRIERS ARE FOR WORK AREA PROTECTION. WHEN SERVING THE ADDITIONAL FUNCTION OF A CHANNELIZING DEVICE, SUCH AS WHEN SHIFTING TRAFFIC, BARRIER TAPER SHALL MEET STANDARD CHANNELIZING TAPER LENGTHS AS SHOWN ON STD. 1101.11 SHEET 1.

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ENGLISH STANDARD DRAWING FOR  
**TRAFFIC CONTROL DESIGN TABLES**  
TEMPORARY BARRIER FLARE RATES

SHEET 3 OF 4  
**1101.11**

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

ENGLISH STANDARD DRAWING FOR  
**TRAFFIC CONTROL DESIGN TABLES**  
SPACING OF TEMPORARY SIGNS IN SERIES

POSTED SPEED LIMIT (MPH)	RECOMMENDED DISTANCE BETWEEN SIGNS (FEET)		
	(A)	(B)	(C)
< 35	300	300	300
40-50	300	300	300
55	500	500	500
CONTROLLED ACCESS ROAD (E. 90)	1000	1000	2700

**GENERAL NOTES**

- REFER TO 2009 MUTCD.
- USE THIS STANDARD DRAWING IN CONJUNCTION WITH OTHER TRAFFIC CONTROL ROADWAY STANDARD DRAWINGS WHERE SIGN SPACING DISTANCES A, B, C, ARE SPECIFIED.
- APPLY THE ADVANCE WARNING SIGN SPACING CHART WHERE A SERIES OF 2 OR MORE SIGNS ARE USED. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE. FIELD ADJUST AS VARIOUS CONDITIONS OCCUR, SUCH AS LIMITED SIGHT DISTANCE, OBSTRUCTION INTERFERENCE, ETC.

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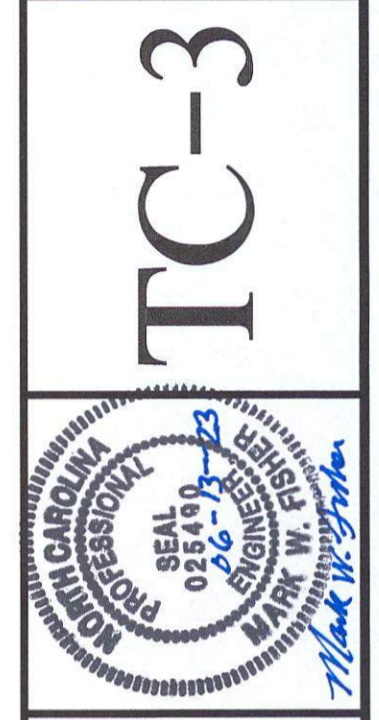
ENGLISH STANDARD DRAWING FOR  
**TRAFFIC CONTROL DESIGN TABLES**  
SPACING OF TEMPORARY SIGNS IN SERIES

SHEET 4 OF 4  
**1101.11**

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AMB
02.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPH
02.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPH
06.30.2020	FINAL DESIGN - NCDOT REPAIR AND RES RESPONSE	HPH
04.13.2022	FINAL DESIGN - NCDOT REPAIR AND RES RESPONSE	HPH
06.15.2023	FINAL DESIGN ISSUED FOR BID	HPH

SHEET TC-3

SURVEY/GPS BY: MCKIM&CREED, INC.  
PROCESS/LAYOUT BY: DATE: 6/13/23  
PLAN/PROF./SSDK BY: TMB/AMB  
DESIGN REVIEW BY: BRL  
APPROVED BY:  
SCALE: AS SHOWN



SANITARY SEWER IMPROVEMENTS BIG  
ROCKFISH CREEK OUTFALL - CONTRACT 2

TRAFFIC CONTROL DETAILS

FAYETTEVILLE PUBLIC WORKS COMMISSION

**PWC** WATER RESOURCES ENGINEERING

Electric & Water Utilities

P.O. Box 1008, Fayetteville, NC 28303  
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FINAL DESIGN  
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PWC DRAWING # DS-15486

1. ALL SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYETTEVILLE FAYFWC STANDARDS.

2. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.

3. CONSTRUCTION STAKING IS REQUIRED FOR ALL FAYFWC WATER AND SEWER UTILITY INSTALLATIONS. CUT SHEETS, SIGNED AND SEALED BY A N.C. P.E. SHALL BE PROVIDED TO THE FAYFWC WATER RESOURCES ENGINEERING DEPARTMENT AND THE CONTRACTOR IN ADVANCE OF CONSTRUCTION FOR FAYFWC WATER AND SEWER UTILITIES.

4. CONTRACTOR SHALL MAINTAIN A COPY OF THE SIGNED AND SEALED CUT SHEET ON THE JOB SITE. CONSTRUCTION ON FAYFWC WATER AND SEWER UTILITIES CANNOT BEGIN UNTIL THE CONTRACTOR POSSESSES, ON SITE, A SIGNED AND SEALED CUT SHEET FROM THE PROFESSIONAL LAND SURVEYOR.

5. ALL NEW WATER AND SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE TESTED AND APPROVED IN ACCORDANCE WITH FAYETTEVILLE FAYFWC STANDARDS PRIOR TO PLACING INTO SERVICE.

6. CONTRACTOR SHALL COORDINATE TESTING AND INSPECTION WITH THE FAYETTEVILLE FAYFWC PROJECT COORDINATOR.

7. ALL DUCTILE IRON PIPE IN SANITARY SEWER SERVICE SHALL HAVE AN INTERIOR LINING OF PROTECTO 811 OR APPROVED EQUAL.

8. ALL NEW MANHOLES ARE TO BE VACUUM TESTED IN ACCORDANCE WITH FAYETTEVILLE FAYFWC STANDARDS.

9. CONTRACTOR SHALL REPAIR ALL SEWER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY REPORT ALL MAIN AND LATERAL BREAKS TO THE FAYFWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INSTITUTE IMMEDIATE REPAIRS IN ACCORDANCE WITH FAYFWC STANDARDS.

10. TRANSFER OF SEWER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:

A. INSTALL AND TEST NEW MANHOLES, LATERALS, AND LATERALS. CLEANOUTS SHALL BE INSTALLED 18" INCH UNLESS OTHERWISE DIRECTED BY FAYFWC.

B. CONDUCT EXISTING PLUMBING TO NEW SYSTEMS, UTILIZING THE NECESSARY MATERIALS AS DIRECTED BY FAYFWC.

C. ALL EXISTING SERVICES SHALL BE TRANSFERRED TO THE NEW MAIN. THE EXISTING SERVICE SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH FAYFWC REQUIREMENTS.

11. CONTRACTOR SHALL ABANDON ONLY EXISTING SEWER SERVICES THAT WILL NOT BE UTILIZED OR UNCOVERING THE EXISTING LATERAL AT THE MAIN AND PLUG AT BOTH ENDS. REMOVE THE EXISTING CLEANOUT AND CONNECTION AND PLUG THE TOP OR TIE AT THE MAIN FOR LATERALS THAT CONNECT TO A MANHOLE AND THE REMAINING VOID IN THE MANHOLE SHALL BE FILLED WITH BLOCK FROM THE MAIN. REMOVE ALL CEMENTS AND THIN SET MORTAR.

12. SEWER PLUGS SHALL BE INSTALLED TO ELIMINATE ANY DEBRIS OR OTHER MATERIAL FROM ENTERING THE ACTIVE SEWER SYSTEM. UPON COMPLETION OF THE NEW SEWER SYSTEM, THE CONTRACTOR SHALL CLEAN THE NEW MAIN, REMOVE ALL CEMENTS AND THIN SET MORTAR, AND PLUG.

13. ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE, IN ACCORDANCE WITH FAYFWC REQUIREMENTS.

14. ALL WORK ON FAYFWC SEWER UTILITIES (MAIN, LATERALS, ETC) SHALL BE PERFORMED BY A LICENSED PLUMBER OR QUALIFIED PERSONNEL WHOSE QUALIFICATIONS SHALL BE APPROVED AND APPROVE ALL WORK ON FAYFWC SEWER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH FAYFWC REQUIREMENTS.

15. SEPARATION REQUIREMENTS:

A. LATERAL SEPARATION OF SEWER AND WATER MAINS: WATER MAINS SHALL BE LAD IN AT LEAST 12 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAINS, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENTS A 10-FOOT LATERAL SEPARATION. IN WHICH CASE:

1. THE WATER MAIN IS LAD IN A SEPARATE TRENCH WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAINLATERAL OR

2. THE WATER MAIN IS LAD IN THE SAME TRENCH AS THE SEWER MAINLATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OR AN INVERTED BENCH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAINLATERAL OR

3. CROSSING A WATER MAIN OVER A SEWER: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAINLATERAL, THE WATER MAIN SHALL BE LAD AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAINLATERAL. LOCAL CONDITIONS OR BARRIERS PREVENTS A 18 INCH VERTICAL SEPARATION, IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAINLATERAL SHALL BE CONSTRUCTED OF DUCTILE IRON MATERIAL AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.

B. CROSSING WATER MAIN UNDER A SEWER: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAINLATERAL, THE WATER MAIN SHALL BE LAD AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAINLATERAL. LOCAL CONDITIONS OR BARRIERS PREVENTS A 18 INCH VERTICAL SEPARATION, IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAINLATERAL SHALL BE CONSTRUCTED OF DUCTILE IRON MATERIAL AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.

C. CROSSING STORM DRAINAGE LINES: A MINIMUM OF 24 INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A SEWER MAINLATERAL AND A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IF DUCTILE IRON PIPE IS USED, A MINIMUM OF 36 INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED, UNLESS OTHERWISE APPROVED BY FAYFWC.

PIPE SIZES	MANHOLE SIZE	MIN. WALL THICKNESS	MIN. REINF. STEEL	MIN. BASE THICKNESS
24" AND LESS	48" DIAMETER	4"	ASTM A193 3.15 SQ. IN.	4"
24" - 36"	60" DIAMETER	6"	ASTM A193 3.15 SQ. IN.	6"
42" - 48"	72" DIAMETER	7"	ASTM A193 3.15 SQ. IN.	7"

MANHOLE DIAMETER SIZES MAY BE ADJUSTED ON THE PLANS TO REFLECT SPECIAL CIRCUMSTANCES. REDUCING SLABS ARE NOT ACCEPTABLE ON MANHOLES LESS THAN 4' DIAMETER.

STANDARD MANHOLE N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	07/16	ADDED NOTE 6
2	01/18	ADDED NOTES 8, 9
3	08/21	ADDED NOTES 1-4 AND RENUMBERED

DATE: JAN. 01, 2023 APPROVED BY: M.M.M.

NOTES:

- PRECAST REINFORCED CONCRETE MANHOLES SHALL BE IN ACCORDANCE WITH ASTM C-478.
- MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 4,000PSI.
- MANHOLES GREATER THAN 12' DEPTH SHALL HAVE MINIMUM 1' EXTENDED BASE.
- FLEXIBLE EPDM RUBBER JOINT SEALANT SHALL BE IN ACCORDANCE WITH ASTM C-943.
- FLEXIBLE EPDM RUBBER BOOT CONNECTORS SHALL BE IN ACCORDANCE WITH ASTM C-943. INSTALL BY MANUFACTURER WITH STAINLESS STEEL COMPRESSION RING AND TAKE-UP CLAMP. CONNECTION TO MAIN SHALL BE BY CONTRACTOR WITH STAINLESS STEEL PIPE CLAMP.
- CONNECTIONS TO EXISTING MANHOLES SHALL BE BY CORING MANHOLE AND FIELD INSTALLING A FLEXIBLE EPDM RUBBER BOOT CONNECTOR. DO NOT ALLOW DEBRIS TO ENTER SYSTEM.
- MORTAR SHALL BE QUICK SETTING, NON-SHRINK GROUT MIXED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- MANHOLE STEPS SHALL BE IN ACCORDANCE WITH ASTM C478 AND GSHA REGULATIONS. ALIGN STEPS WITH INVERT OUT.
- PRECAST INVERTS ARE NOT ALLOWED.
- VERTICAL DROPS BETWEEN THE INFLOW PIPES AND OUTFLOW PIPES SHALL REQUIRE THE FOLLOWING:
  - GREATER THAN 2' SEE DROP STRUCTURE DETAIL, MIN. 5' DIAMETER (H REQUIRED).
  - LESS THAN 2' SEE PIPE SLIDE DETAIL.
- AN ECCENTRIC CONE SHALL BE UTILIZED ON ALL MANHOLES, UNLESS OTHERWISE INVERT ON PLANS IS TO MANHOLE CENTERLINE.
- GRADE RINGS SHALL NOT BE USED FOR ABOVE GRADE ADJUSTMENTS (IE. OUTFALL AREAS). USE OF GRADE RINGS ARE ALLOWABLE IN YARD AREAS AND PAVEMENT, WHERE THE RING AND COVER ARE AT GROUND LEVEL. GRADE RINGS CAN BE EITHER CONCRETE OR HOPE. HOPE GRADE RINGS SHALL MEET THE REQUIREMENTS OF ASTM 6796 FOR MATERIAL QUALITY, AND PERFORMANCE. HOPE GRADE RINGS SHALL BE MANUFACTURED BY LOTECH, INC. OR APPROVED EQUAL.
- THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1%, UNLESS OTHERWISE APPROVED BY FAYFWC. STANDING WATER IN INVERT OF MANHOLE IS NOT ACCEPTABLE.
- THE EXTERIOR MANHOLE RISER JOINTS, INCLUDING THE JOINT AT THE CONE, SHALL BE SEALED ON THE OUTSIDE BY AN APPROVED JOINT WRAF. THE WRAF SHALL BE IN ACCORDANCE WITH FAYFWC SPECIFICATIONS.
- MANHOLE BOOT FOR 4-INCH LATERALS, SHOULD IT BE NECESSARY TO INSTALL A 4-INCH LATERAL INTO A MANHOLE, THE RUBBER BOOT THAT THE LATERAL IS INVERTED INTO SHALL BE SECURELY FASTENED TO THE CONE HOLE BY UTILIZING A STAINLESS STEEL BAND THAT IS TIGHTENED USING A JACK OR A TORQUE WRENCH (TORQUE WRENCH SHALL BE SUPPLIED BY THE MANUFACTURER. NO OTHER TYPE BANDS OR METHOD OF SECURING THE BOOT TO THE MANHOLE SHALL BE ACCEPTED FOR FOUR (4) INCH DIA. LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL BE 3.5 INCHES TO 4.25 INCHES.
- FOR FOUR (4) INCH DIA. LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL BE 3.5 INCHES TO 4.25 INCHES.
- FOR FOUR (4) INCH DIA. LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL BE 3.5 INCHES TO 4.25 INCHES.
- IN ALL CASES, THE BOOT SHALL BE TIGHTENED ON THE LATERAL BY MEANS OF A SINGLE STAINLESS STEEL STRAP.
- THE LATERAL INVERT SHALL BE AT THE TOP OF THE SHELVE.
- NO MORE THAN 4, FOUR-INCH LATERALS OR 3, SIX-INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
- NO MORE THAN 2 LATERALS SHALL ENTER A 5' DIAMETER MANHOLE.
- USE OF TEES ON LATERALS IS NOT ALLOWED.
- ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH FAYFWC STANDARDS.

STANDARD MANHOLE N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	01/08	CREATED DETAIL, ADDED NOTES 14-20
2	07/13	REVISED NOTES 8, 10, 11, 15
3	01/01/18	REVISED NOTES 10, 18

DATE: JAN. 01, 2023 APPROVED BY: M.M.M.

NOTES:

- MANHOLE MEETS ALL REQUIREMENTS OF ASTM C478.
- CONCRETE IS MINIMUM 4,000PSI.
- MATERIAL USED TO SEAL AROUND PIPE SHALL BE NON-SHRINK GROUT.
- MANHOLE SHALL BE CONSTRUCTED OF PRECAST CONCRETE. FIBERGLASS MANHOLE IS NOT ACCEPTABLE.
- A DROP STRUCTURE SHALL BE PLACED WHERE VERTICAL SEPARATION BETWEEN INVERTS EXCEEDS 2.5 FEET.
- STANDARD MANHOLES SHALL BE NON-SHRINK GROUT.
- MANHOLE SHALL BE CONSTRUCTED OF PRECAST CONCRETE. FIBERGLASS MANHOLE IS NOT ACCEPTABLE.
- SEE STANDARD MANHOLE DETAIL S.2 FOR ADDITIONAL REQUIREMENTS.

DOGHOUSE MANHOLE (MAINS 15" OR LESS) N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	07/16	ADDED SHEET 2
2	11/25/08	MADE CHANGES TO NOTES

DATE: JAN. 01, 2023 APPROVED BY: M.M.M.

NOTES:

- MANHOLE MEETS ALL REQUIREMENTS OF ASTM C478.
- CONCRETE IS MINIMUM 4,000PSI.
- MATERIAL USED TO SEAL AROUND PIPE SHALL BE NON-SHRINK GROUT.
- MANHOLE SHALL BE CONSTRUCTED OF PRECAST CONCRETE. FIBERGLASS MANHOLE IS NOT ACCEPTABLE.
- A DROP STRUCTURE SHALL BE PLACED WHERE VERTICAL SEPARATION BETWEEN INVERTS EXCEEDS 2.5 FEET.
- STANDARD MANHOLES SHALL BE NON-SHRINK GROUT.
- MANHOLE SHALL BE CONSTRUCTED OF PRECAST CONCRETE. FIBERGLASS MANHOLE IS NOT ACCEPTABLE.
- SEE STANDARD MANHOLE DETAIL S.2 FOR ADDITIONAL REQUIREMENTS.

DOGHOUSE MANHOLE (MAINS 16" OR LARGER) N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	07/16	ADDED SHEET 2
2	11/25/08	MADE CHANGES TO NOTES
3	01/15/19	ADDED MH CHART

DATE: JAN. 01, 2023 APPROVED BY: M.M.M.

NOTES:

- PIPE SLIDE REQUIRED WHERE VERTICAL SEPARATION 4" OR GREATER. FOR LATERAL INVERTS AT OR WITHIN FOUR (4) INCHES OF THE MANHOLE INVERT, THE PIPE SHALL BE DIRECTED BY THE FAYFWC PROJECT COORDINATOR.
- INTERIOR DROP STRUCTURE REQUIRED WHERE VERTICAL SEPARATION BETWEEN INVERTS EQUALS OR EXCEEDS 2.5'. FOR INTERIOR DROP STRUCTURE SEE FAYFWC DETAIL.
- VERTICAL SEPARATION BETWEEN INVERTS SHALL BE MINIMUM 1' EXTENDED BASE.
- MANHOLE AND CONNECTIONS SHALL BE IN ACCORDANCE WITH FAYFWC STANDARDS.
- BRICK USED FOR INVERT AND SHELVE CONSTRUCTION SHALL BE NOT STANDARD CONCRETE BRICK.
- MANHOLES GREATER THAN 12' IN DEPTH SHALL HAVE MINIMUM 1' EXTENDED BASE.
- THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1% UNLESS OTHERWISE APPROVED BY FAYFWC.
- DROP AND/OR SLIDE REQUIREMENTS SHALL APPLY TO ALL LATERALS ENTERING MANHOLES AS OUTLINED IN NOTES 1, 2, AND 3. NO MORE THAN 4, FOUR INCH LATERALS (REGARDLESS OF SIZE) SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
- THE INVERT OF THE LATERAL SHALL BE A MINIMUM OF 17" ABOVE THE SHELVE.
- NO MORE THAN 2 LATERALS SHALL ENTER A 5' DIAMETER TERMINAL MANHOLE.
- USE OF TEES ON LATERALS IS NOT ALLOWED.

PIPE SLIDE AND SHELF DETAILS N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	01/08	ADDED NOTE 6
2	02/07	REVISED NOTE 6, SLIDE DETAIL, ADDED NOTES 10, 11, 12
3	01/18	DELETED MORTAR SLIDE, REVISED NOTES

DATE: JAN. 01, 2023 APPROVED BY: M.M.M.

NOTES:

- MANHOLE SHALL BE IN ACCORDANCE WITH FAYFWC STANDARDS. SEE MANHOLE DETAIL FOR ADDITIONAL INFORMATION.
- ALL PVC FITTINGS FOR DROP STRUCTURE SHALL BE SDR-35 PVC WITH SOLVENT WELD JOINTS.
- MANHOLE GREATER THAN 12' IN DEPTH SHALL HAVE MINIMUM 1' EXTENDED BASE.
- DROP STRUCTURES SHALL BE PLACED WHERE SEWER MAIN OR LATERAL VERTICAL DROP BETWEEN INVERTS EQUALS OR EXCEEDS 2.5'. SEE PIPE SLIDE DETAIL FOR DROPS LESS THAN 2.5' VERTICAL SEPARATION.
- DROP STRUCTURE MANHOLE SHALL BE A MINIMUM OF 5' DIAMETER. DROP STRUCTURE SHALL BE INSTALLED AGAINST WALL OF MANHOLE OR GROUND, IF THE GROUND IS SOFT.
- NO MORE THAN 2 LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE.
- FLEXIBLE BOOT SHALL BE CONNECTED TO MANHOLE WITH STAINLESS STEEL EXPANSION RING. FLEXIBLE BOOT CONNECTORS SHALL CONFORM TO ASTM C-943 SPEC.
- CONNECTIONS TO EXISTING MANHOLES SHALL HAVE ONE AND BOOT ONLY UNLESS APPROVED OTHERWISE BY FAYFWC PROJECT COORDINATOR.
- ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH FAYFWC STANDARDS.

INTERIOR DROP STRUCTURE SEWER MAINS AND LATERALS N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
4	11/08	REVISED FITTING MATERIAL
5	07/12	ADDED NOTES 5, 6 AND SUB ON INVERT
6	07/14	ADDED FORCE MAIN NOTE

DATE: JAN. 01, 2023 APPROVED BY: M.M.M.

NOTES:

- MANHOLE FRAME AND COVER TO BE MADE OF GRAY CAST IRON CONFORMING TO ASTM SPEC. A88-83, CLASS 30, MANUFACTURED BY SAME MANUFACTURER. ALL CASTINGS SHALL CONFORM TO THE SHAPE AND DIMENSIONS SHOWN FROM DEFECTS.
- CASTINGS SHALL BE UNPAINTED AND SHALL HAVE THE LETTERS "WFC-FAY-NC" AND "SANITARY SEWER" CAST INTO COVER. LETTERS SHALL BE RAISED AND CLEARLY VISIBLE.
- MANHOLE RING AND COVER SHALL WITHSTAND 8,000 VEHICULAR TRAFFIC.
- MINIMUM AVERAGE WEIGHT: PLUS OR MINUS 5% RING 175LBS, COVER 135LBS, UNIT 310LBS.
- PERFORATED COVERS WILL NOT BE ALLOWED. SUPPLY SOCKET FOR TURNING CAN LOCK MECHANISM. ONE SOCKET PER PROJECT. USE OF GRADE RINGS ARE NOT ALLOWED, UNLESS APPROVED BY THE FAYFWC PROJECT COORDINATOR. FOR MANHOLES OUTSIDE OF YARD OR LANDSCAPE AREAS, THE USE OF GRADE RINGS ARE NOT ALLOWED.
- THE RING AND COVER SHALL BE SET TO FINISHED GRADE. THE USE OF GRADE RINGS ARE ALLOWED TO SET THE MANHOLE TO FINISHED GRADE. FOR GRADE RINGS 4' OR LESS, THE RING AND COVER SHALL BE ANCHORED TO THE CONE USING 5/8" DIAMETER STAINLESS STEEL BOLTS WITH WEDGE ANCHORS. FOR GRADE RINGS OVER 4', THE RING AND COVER SHALL BE ANCHORED TO THE GRADE RING USING 5/8" DIAMETER X 8-1/2" STAINLESS STEEL BOLTS WITH WEDGE ANCHORS.
- FOR OUTFALL AREAS, THE RING AND COVER SHALL BE SET A MINIMUM OF 18" ABOVE FINISHED GRADE, UNLESS OTHERWISE APPROVED.
- THIS DETAIL IS TO BE USED ON ALL MANHOLES LOCATED OUTSIDE OF PAVED AREAS, UNLESS OTHERWISE APPROVED BY FAYFWC.
- REFER TO FAYFWC STANDARD DETAIL S.17 FOR INSTALLATION OF VENT STACK.

STANDARD NON-TRAFFIC AREA MANHOLE RING AND COVER WITH WIPER GASKET AND CAM LOCK N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	07/09	REVISED NOTES ON FRAME
2	07/17	ADDED NOTE ON WIPER GASKETS
3	01/18	UPDATED NOTES 7 AND 8

DATE: JAN. 01, 2023 APPROVED BY: M.M.M.

NOTES:

- DETAIL TO BE USED IN PAVED AREAS ONLY. ALL OTHER MANHOLES SHALL BE IN ACCORDANCE WITH DETAIL S.4, UNLESS OTHERWISE APPROVED.
- MANHOLE FRAME AND COVER SHALL BE MADE OF GRAY CAST IRON CONFORMING TO ASTM SPEC. A88-83, CLASS 30, RESPECTIVELY, MANUFACTURED BY SAME MANUFACTURER. ALL CASTINGS SHALL CONFORM TO THE SHAPE AND DIMENSIONS SHOWN. THEY SHALL BE CLEAN AND PERFECT, WITHOUT BLOW OR SAND HOLES OR DEFECTS OF ANY KIND, TENDING TO IMPAIR THEIR STRENGTH. NO PLUGGING OR STOPPING OF DEFECTIVE HOLES WILL BE PERMITTED.
- CASTINGS SHALL BE UNPAINTED AND SHALL HAVE THE LETTERS "WFC-FAY-NC" AND "SANITARY SEWER" CAST INTO COVER. LETTERS SHALL BE RAISED AND CLEARLY VISIBLE.
- MANHOLE RING AND COVER SHALL WITHSTAND 20 VEHICULAR TRAFFIC. ROCKING COVERS SHALL NOT BE ACCEPTABLE.
- MINIMUM AVERAGE WEIGHT: PLUS OR MINUS 5% RING 175LBS, COVER 135LBS, UNIT 310LBS.
- PERFORATED COVERS WILL NOT BE ALLOWED.

STANDARD TRAFFIC AREA MANHOLE RING AND COVER N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	01/08	CHANGED NON-TRAFFIC DETAIL
2	07/08	ADDED NOTE ON CONCRETE COLLAR
3	02/07	REMOVED NON-TRAFFIC AREA AND REVISED NOTES
4	07/08	REVISED ASPHALT THICKNESS

DATE: JAN. 01, 2023 APPROVED BY: M.M.M.

GENERAL NOTES SEWER UTILITY

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	07/16	ADDED NOTE 6
2	01/18	ADDED NOTES 8, 9
3	08/21	ADDED NOTES 1-4 AND RENUMBERED

DATE: JAN. 01, 2023 APPROVED BY: M.M.M.

STANDARD MANHOLE N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	02/07	CREATED S.2A ADDED NOTES 13-17
2	07/13	ADDED SHEET 2 OF 2

DATE: JAN. 01, 2023 APPROVED BY: M.M.M.

PIPE SLIDE AND SHELF DETAILS N.T.S.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.

WATER RESOURCES ENGINEERING DEPARTMENT

NO.	DATE	REVISION
1	01/08	ADDED NOTE 6
2	02/07	REVISED NOTE 6, SLIDE DETAIL, ADDED NOTES 10, 11, 12
3	01/18	DELETED MORTAR SLIDE, REVISED NOTES

DATE: JAN. 01, 2023 APPROVED BY: M.M.M.

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DATE: 12.16.2020 REVISIONS: FINAL DESIGN NOT FOR CONSTRUCTION BY: PMP

DATE: 07.31.2021 REVISIONS: FINAL DESIGN NOT FOR CONSTRUCTION BY: PMP

DATE: 06.30.2021 REVISIONS: FINAL DESIGN NOT FOR CONSTRUCTION BY: PMP

DATE: 04.15.2021 REVISIONS: FINAL DESIGN NOT FOR CONSTRUCTION BY: PMP

DATE: 09.30.2022 REVISIONS: FINAL DESIGN NOT FOR CONSTRUCTION BY: PMP

SHEET: D-1

PROCESS LAYOUT BY: DATE: 6/13/23

DESIGNED BY: TMB/AWB

CHECKED BY: BRL

APPROVED BY: AS SHOWN

SCALE: AS SHOWN

PROFESSIONAL SEAL

DATE: 06/13/23

NO. 026106

STATE OF NORTH CAROLINA

REGISTERED PROFESSIONAL ENGINEER

WATER RESOURCES ENGINEERING

SAINTARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2

STANDARD SANITARY SEWER DETAILS

FAYETTEVILLE PUBLIC WORKS COMMISSION

WATER RESOURCES ENGINEERING

P.O. Box 1084 Fayetteville, NC 28302

955 Old Wilmington Road, Fayetteville, NC 28301

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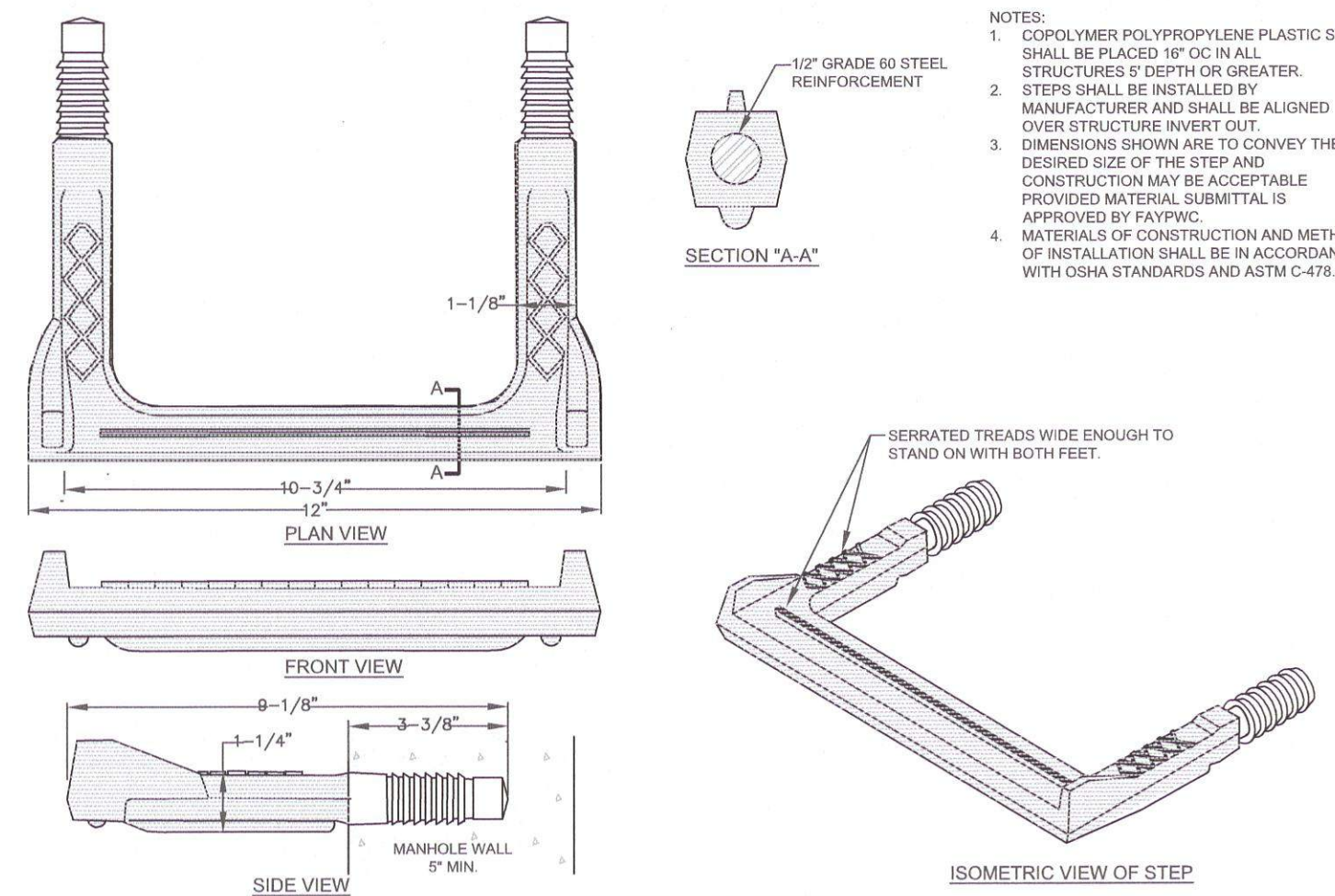
1730 Varsity Drive, Suite 500 Raleigh, NC 27605

Phone: (919)233-8091, Fax: (919)233-8031 F-1222

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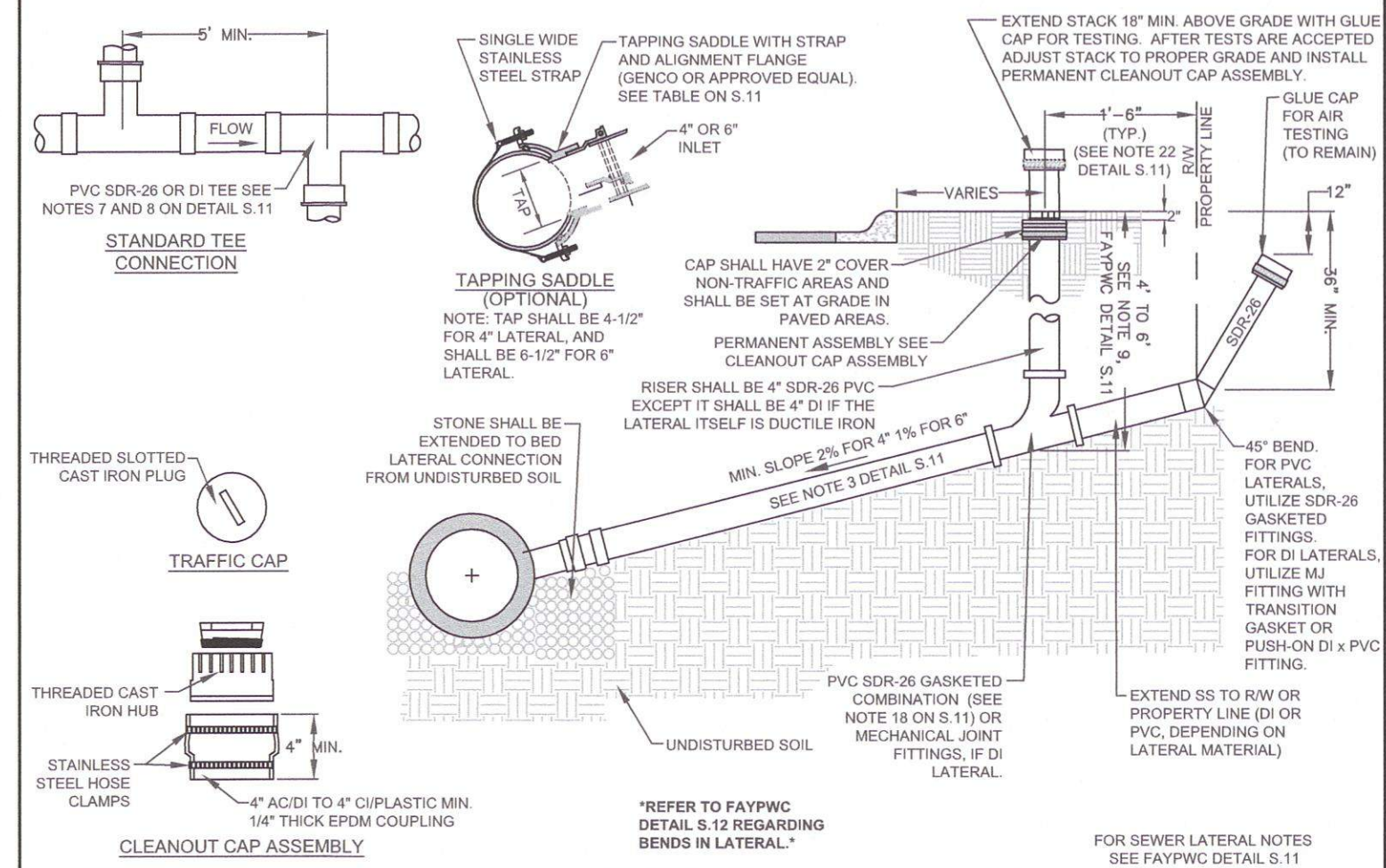
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FINAL DESIGN ISSUED FOR BID

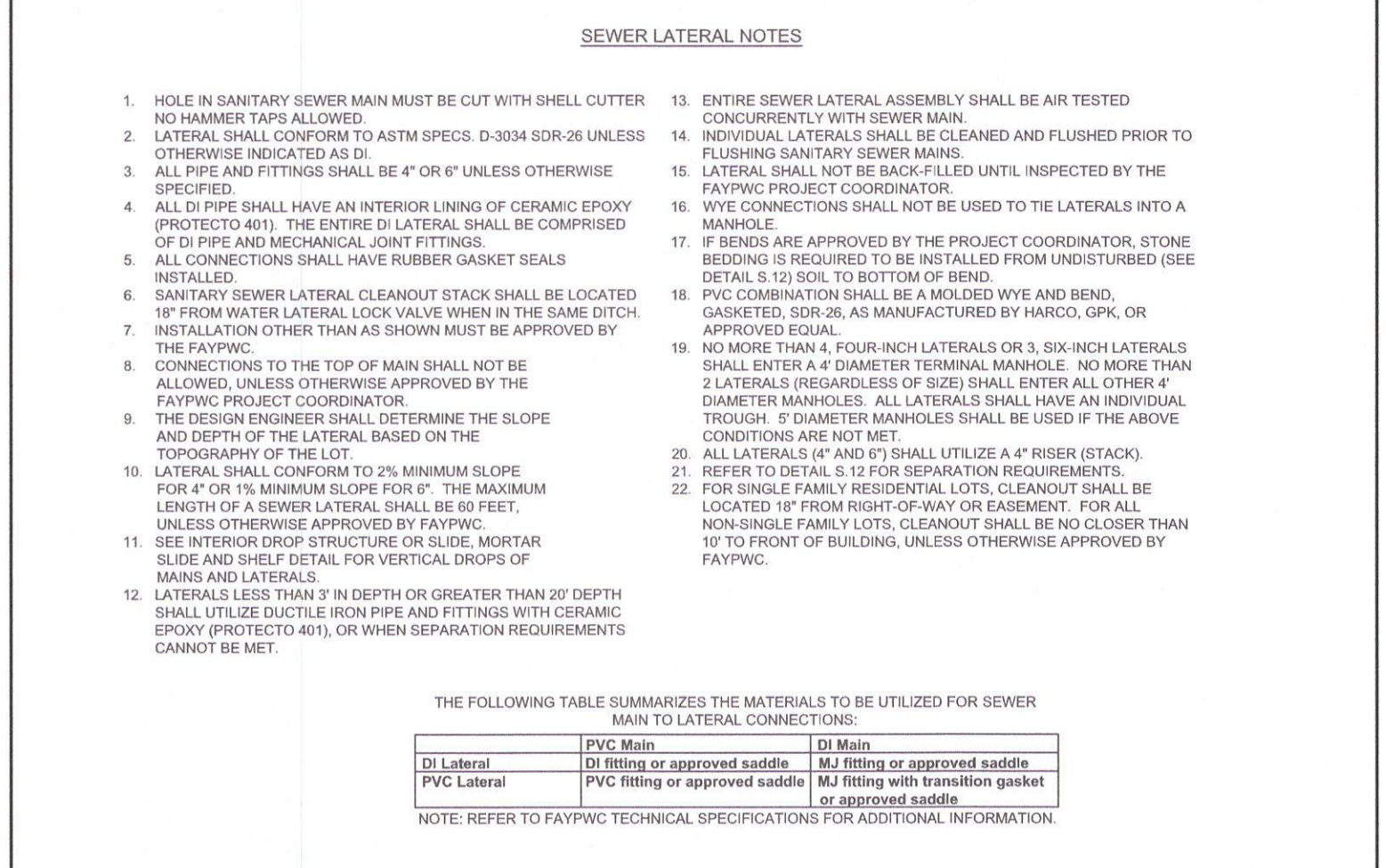


- NOTES:
- COPOLYMER POLYPROPYLENE PLASTIC STEP SHALL BE PLACED 18" OC. WALL STRUCTURES 3" DEPTH OR GREATER. STEPS SHALL BE ALIGNED MANUFACTURER AND SHALL BE COVERED OVER STRUCTURE INVERT OUT PROVIDED MATERIAL SUBMITTAL IS APPROVED BY FAYPCW.
  - MATERIALS OF CONSTRUCTION AND METHOD OF INSTALLATION SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND ASTM C-478.

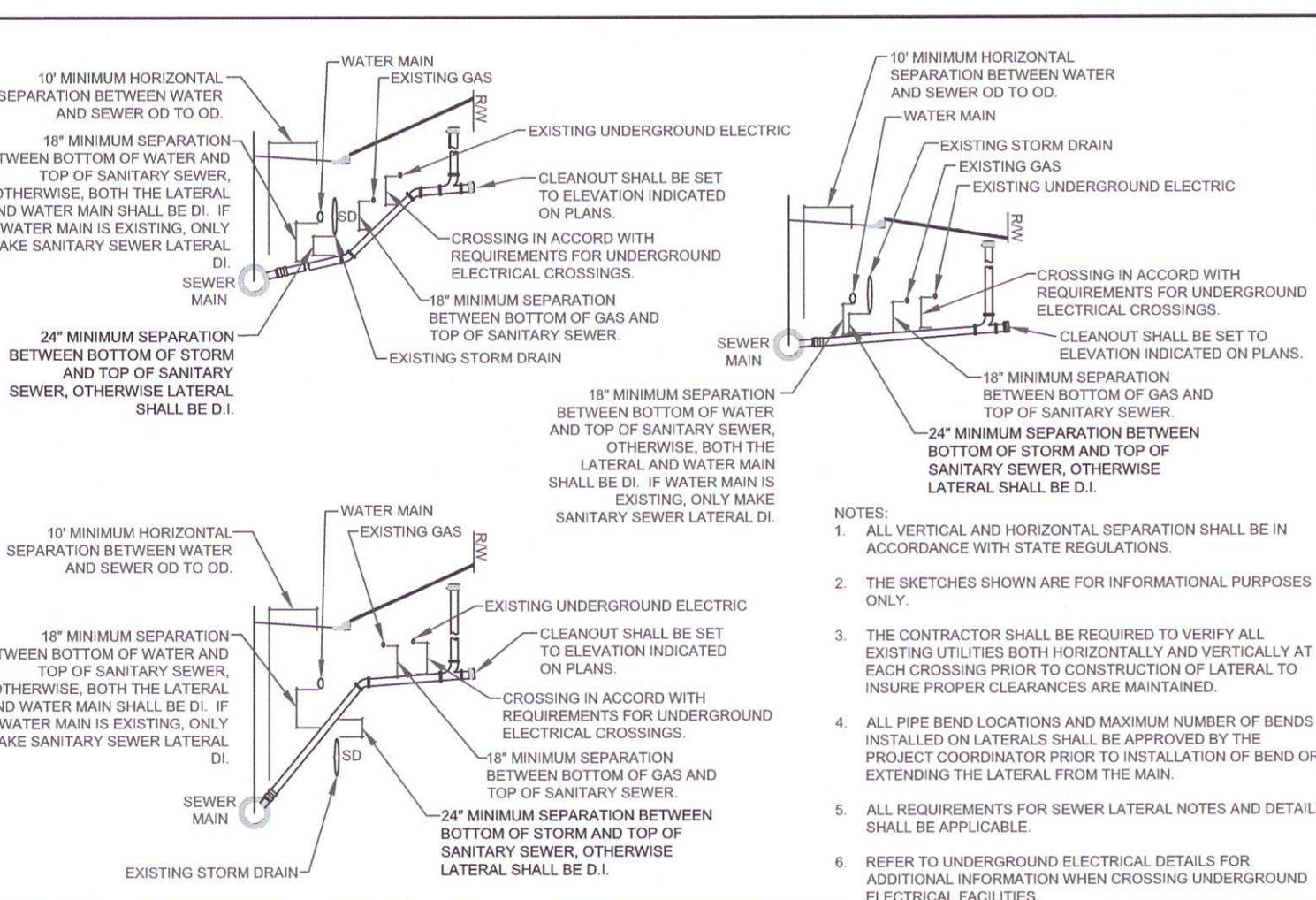
STRUCTURE STEP	FAYETTEVILLE PUBLIC WORKS COMMISSION	NO.	DATE	REVISION
N.T.S.	FAYETTEVILLE, N.C.			
WATER RESOURCES ENGINEERING DEPARTMENT				



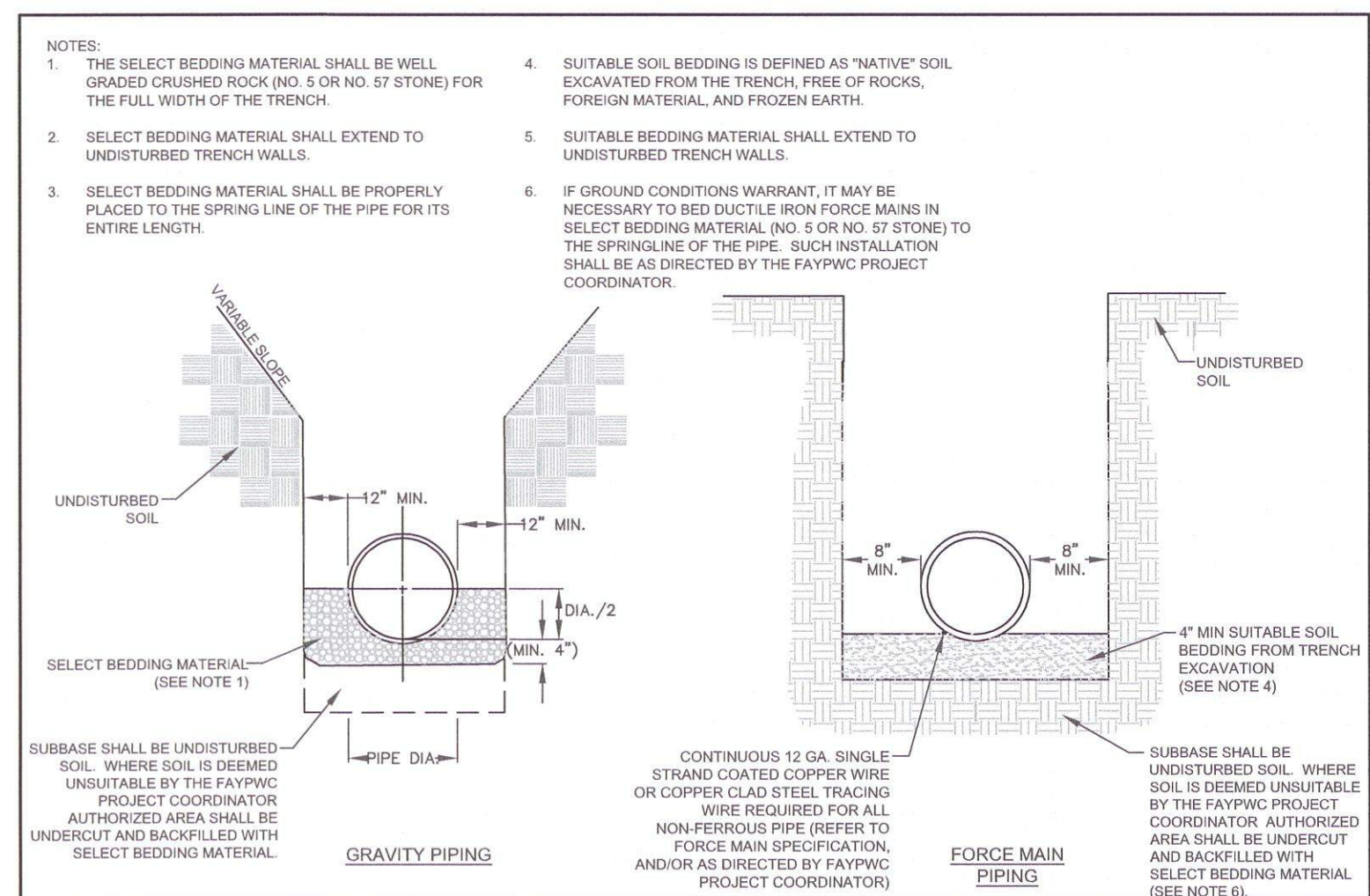
SEWER LATERAL (4-INCH AND 6-INCH)	FAYETTEVILLE PUBLIC WORKS COMMISSION	NO.	DATE	REVISION
N.T.S.	FAYETTEVILLE, N.C.			
WATER RESOURCES ENGINEERING DEPARTMENT				



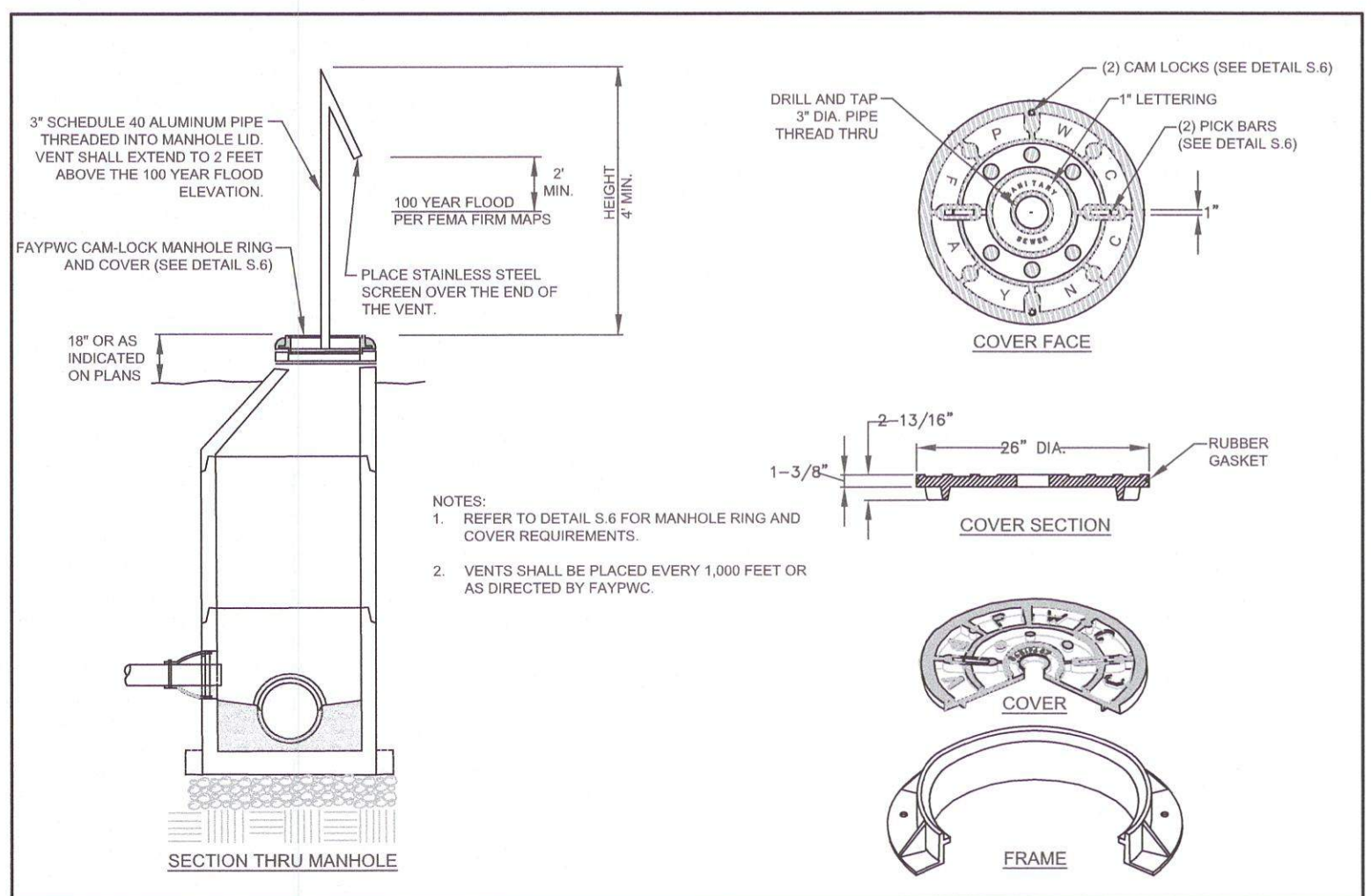
SEWER LATERAL NOTES (4-INCH AND 6-INCH)	FAYETTEVILLE PUBLIC WORKS COMMISSION	NO.	DATE	REVISION
N.T.S.	FAYETTEVILLE, N.C.			
WATER RESOURCES ENGINEERING DEPARTMENT				



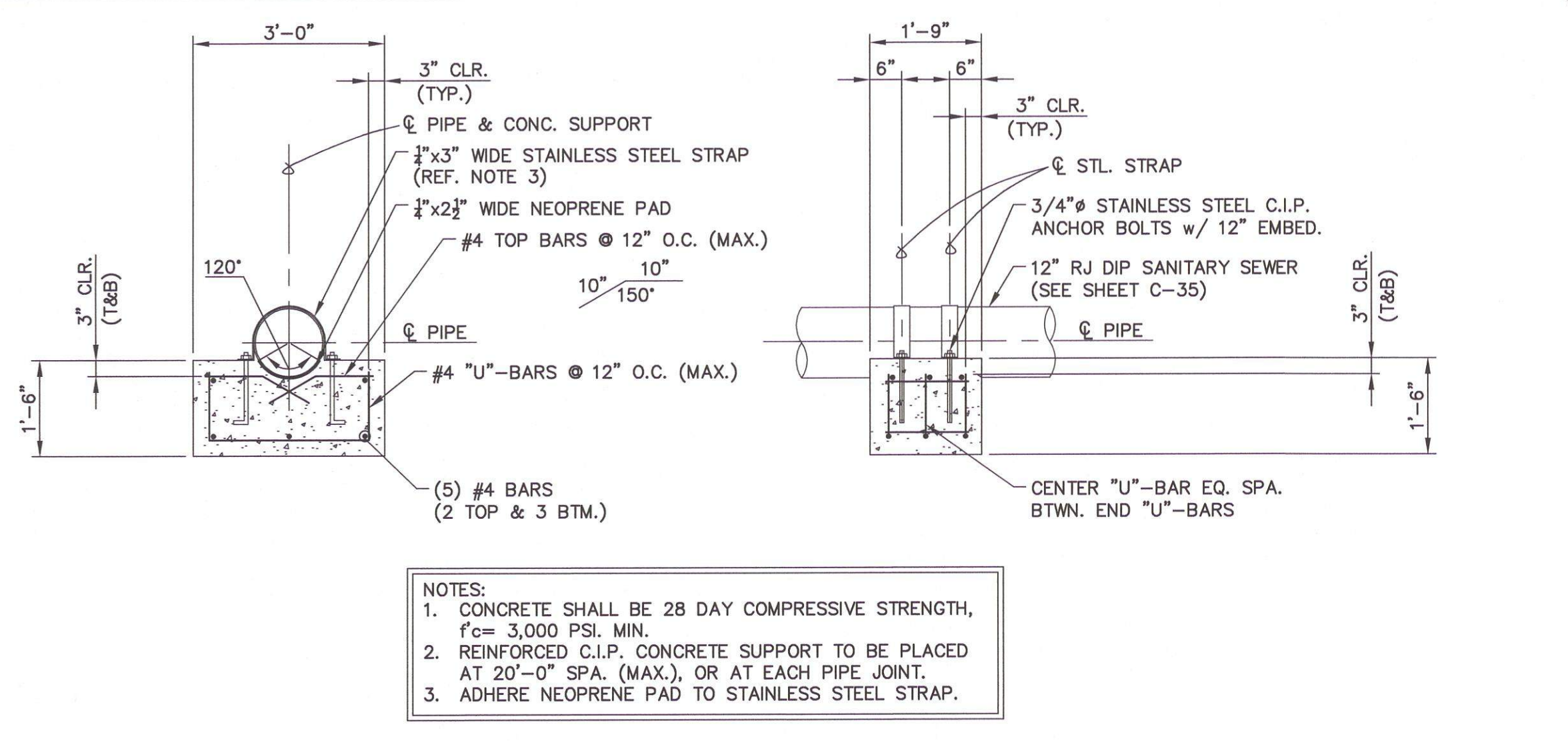
SEWER LATERAL UTILITY CONFLICT SEPARATION REQUIREMENTS	FAYETTEVILLE PUBLIC WORKS COMMISSION	NO.	DATE	REVISION
N.T.S.	FAYETTEVILLE, N.C.			
WATER RESOURCES ENGINEERING DEPARTMENT				



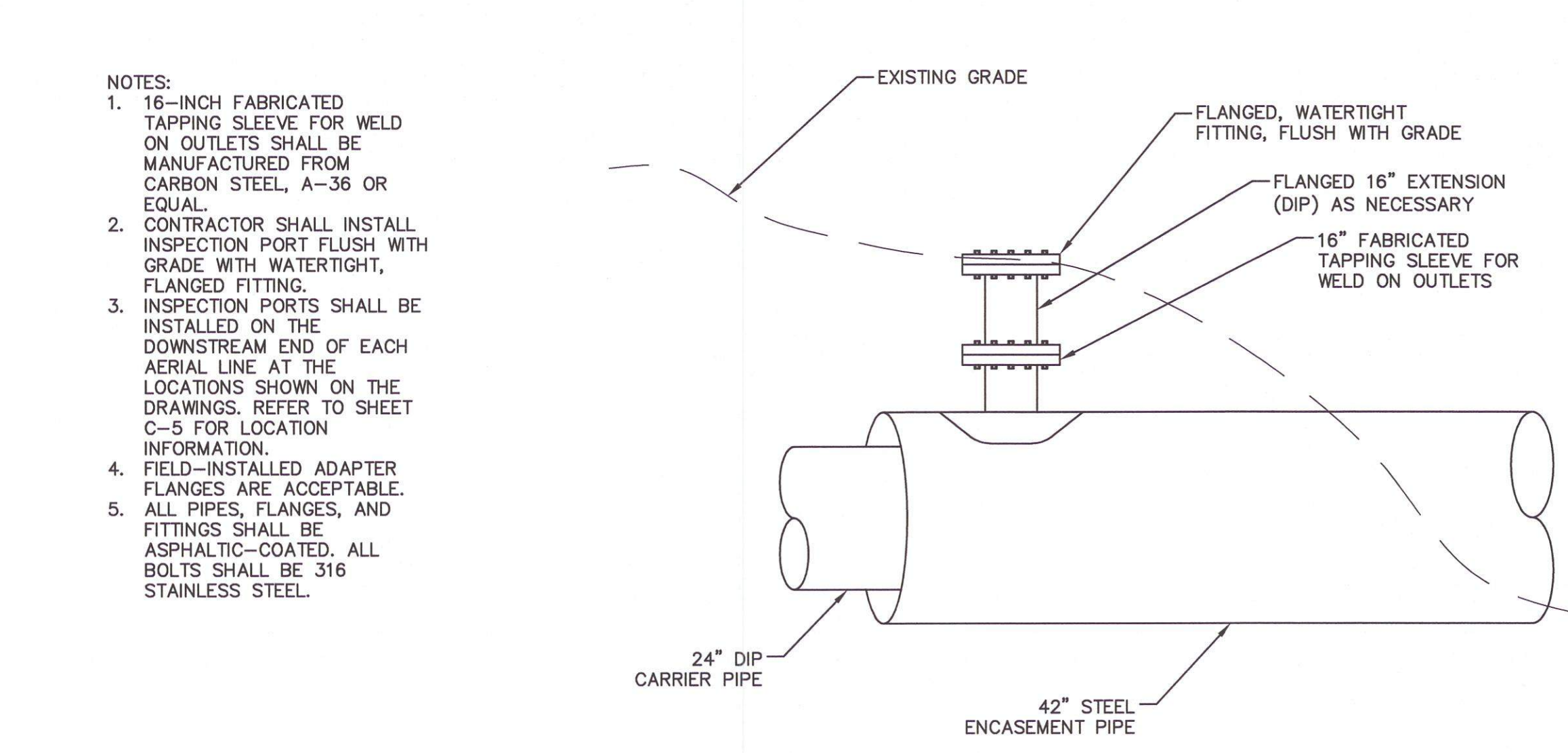
SEWER BEDDING	FAYETTEVILLE PUBLIC WORKS COMMISSION	NO.	DATE	REVISION
N.T.S.	FAYETTEVILLE, N.C.			
WATER RESOURCES ENGINEERING DEPARTMENT				



MANHOLE VENT	FAYETTEVILLE PUBLIC WORKS COMMISSION	NO.	DATE	REVISION
N.T.S.	FAYETTEVILLE, N.C.			
WATER RESOURCES ENGINEERING DEPARTMENT				



- NOTES:
- CONCRETE SHALL BE 28 DAY COMPRESSIVE STRENGTH,  $f_c = 3,000$  PSI. MIN.
  - REINFORCED C.I.P. CONCRETE SUPPORT TO BE PLACED AT 2'-0" O.C. SPA. (MAX.), OR AT EACH PIPE JOINT.
  - ADHERE NEOPRENE PAD TO STAINLESS STEEL STRAP.



- NOTES:
- 16-INCH FABRICATED TAPPING SLEEVE FOR WELD ON OUTLETS SHALL BE MANUFACTURED FROM CARBON STEEL, A-36 OR EQUAL.
  - CONTRACTOR SHALL INSTALL INSPECTION PORT FLUSH WITH GRADE WITH WATER-TIGHT, FLANGED FITTING.
  - INSPECTION PORTS SHALL BE INSTALLED ON THE DOWNSTREAM END OF EACH AERIAL LINE AT THE LOCATIONS SHOWN ON THE DRAWINGS. REFER TO SHEET C-5 FOR LOCATION INFORMATION.
  - FIELD-INSTALLED ADAPTER FLANGES ARE ACCEPTABLE. ALL PIPES, FLANGES, AND FITTINGS SHALL BE ASPHALTIC-COATED. ALL BOLTS SHALL BE 316 STAINLESS STEEL.

ST-1 SANITARY SEWER BUOYANCY CONCRETE SUPPORT

SCALE: 1/2" = 1'-0"

ST-2 AERIAL PIPE INSPECTION PORT DETAIL



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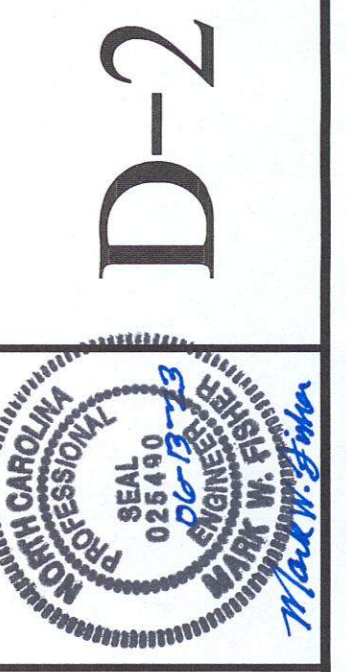


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DATE	REVISIONS	BY
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MHP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MHP
06.30.2021	FINAL DESIGN - CONTRACT SEPARATION AND SEE RESPONSES	MHP
04.15.2022	FINAL DESIGN - CONTRACT SEPARATION AND SEE RESPONSES	MHP
07.11.2022	FINAL DESIGN - CONTRACT SEPARATION AND SEE RESPONSES	MHP
09.30.2022	FINAL DESIGN ISSUED FOR BID	MHP

SHEET	D-2
DATE: 6/13/23	
DESIGNED BY: TMB/AWB	
CHECKED BY: BRL	
APPROVED BY:	
SCALE: AS SHOWN	



SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
STANDARD SANITARY SEWER DETAILS

FAYETTEVILLE PUBLIC WORKS COMMISSION  
WATER RESOURCES ENGINEERING  
P.O. Box 1088, Fayetteville, NC 28302  
955 Old Wilmington Road, Fayetteville, NC 28301

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

DN	8"	10"	12"	15"	18"	24"
8"	0.30	0.50	1.00	-	-	-
10"	11.00	11.50	12.50	13.00	-	-
12"	14.25	14.75	15.25	16.25	17.00	-
15"	16.50	17.00	17.50	18.50	19.25	20.00
18"	21.00	21.50	22.00	23.00	23.75	24.50* 26.00

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

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

**MAN OR LATERAL MIN. SLOPE**  
 4" @ 2.00% MIN.  
 6" @ 0.67% MIN. MAX.  
 8" @ 2.00% MIN. LATERAL  
 12" @ 0.42% MIN.  
 15" @ 0.25% MIN.  
 18" @ 0.15% MIN.  
 24" @ 0.12% MIN.

**MH CONNECTION DESIGN GUIDE**  
 N.T.S.  
 SHEET NO. 1 OF 1  
 DWG. NO. S.18  
 DATE: JAN 01, 2023  
 APPROVED BY: M.M.M.

NO.	DATE	REVISION

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.  
 WATER RESOURCES ENGINEERING DEPARTMENT

**TERMINAL MANHOLE**  
 N.T.S.  
 SHEET NO. 1 OF 1  
 DWG. NO. S.20  
 DATE: JAN 01, 2023  
 APPROVED BY: M.M.M.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.  
 WATER RESOURCES ENGINEERING DEPARTMENT

**NOTES:**  
 1. MANHOLE AND CONNECTIONS SHALL BE IN ACCORDANCE WITH FAYFWC STANDARD MANHOLE DETAIL FOR ADDITIONAL REQUIREMENTS.  
 2. MORTAR SLIDE SHALL BE USED FOR LESS THAN 1 FOOT SEPARATION BETWEEN INVERT OUT AND INVERT OF INCOMING PIPE.  
 3. MATERIAL USED TO SEAL AROUND PIPE SHALL BE NON-SHRINK GROUT.  
 4. MANHOLE SHALL BE CONSTRUCTED OF PRECAST CONCRETE. FIBERGLASS MANHOLE IS NOT ACCEPTABLE.  
 5. MANHOLE MEETS ALL REQUIREMENTS OF ASTM C478. CONCRETE IS MINIMUM 4,000PSI COMPRESSIVE STRENGTH.  
 6. SEE STANDARD MANHOLE DETAIL FOR ADDITIONAL REQUIREMENTS.  
 7. MANHOLES GREATER THAN 12" IN DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.  
 8. SEE STANDARD MANHOLE DETAIL FOR ADDITIONAL REQUIREMENTS.  
 9. MORTAR SLIDE SHALL BE USED FOR LESS THAN 1 FOOT SEPARATION BETWEEN INVERT OUT AND INVERT OF INCOMING PIPE.  
 10. PIPE SLOPE REQUIRED WHERE VERTICAL SEPARATION BETWEEN PIPE INVERTS IS GREATER THAN 1' AND LESS THAN OR EQUAL TO 2'-5".  
 11. INTERIOR DROPT STRUCTURE EXCEEDS 2'-0". SEE INTERIOR DROPT STRUCTURE DETAIL.  
 12. VERIFY SLIDE INSTALLATION WITH PROJECT COORDINATOR PRIOR TO CONSTRUCTION.  
 13. MANHOLE AND CONNECTIONS SHALL BE IN ACCORDANCE WITH FAYFWC STANDARD MANHOLE DETAIL.  
 14. THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1%, UNLESS OTHERWISE APPROVED BY FAYFWC.  
 15. WHEN EXTENDING IN FUTURE, CONNECT TO EXISTING MANHOLE PER FAYFWC STANDARDS.  
 16. THE LATERAL INVERT SHALL BE AT THE TOP OF SHELF. AT TERMINAL MANHOLES, THE CROWN OF THE LATERAL SHALL BE NO LOWER THAN THE CROWN OF THE OUTFLOWING SEWER MAIN, UNLESS OTHERWISE APPROVED BY FAYFWC.  
 17. NO MORE THAN 4. FOUR INCH LATERALS OR 3. SIX INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH UNLESS THEY HAVE A SLIDE OR DROPT STRUCTURE. 2" DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.  
 18. NO MORE THAN 4 LATERALS SHALL ENTER A 5' DIAMETER MANHOLE.  
 19. USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.

**CONSTRUCTION**  
 MANHOLE AND CONNECTIONS SHALL BE IN ACCORDANCE WITH FAYFWC STANDARD MANHOLE DETAIL.  
 THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1%, UNLESS OTHERWISE APPROVED BY FAYFWC.  
 WHEN EXTENDING IN FUTURE, CONNECT TO EXISTING MANHOLE PER FAYFWC STANDARDS.  
 THE LATERAL INVERT SHALL BE AT THE TOP OF SHELF. AT TERMINAL MANHOLES, THE CROWN OF THE LATERAL SHALL BE NO LOWER THAN THE CROWN OF THE OUTFLOWING SEWER MAIN, UNLESS OTHERWISE APPROVED BY FAYFWC.

**PAVEMENT REPAIR NOTES**  
 N.T.S.  
 SHEET NO. 1 OF 1  
 DWG. NO. M.1  
 DATE: JAN 01, 2023  
 APPROVED BY: M.M.M.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.  
 WATER RESOURCES ENGINEERING DEPARTMENT

**NOTES:**  
 1. CONTRACTOR SHALL SAW CUT OR MILL ALL PAVEMENTS STRAIGHT AND TRUE PRIOR TO TRENCHING. CONTRACTOR SHALL SAW CUT PATCH AREAS AGAIN IMMEDIATELY PRIOR TO PATCH PAVING. THE FINAL SAW CUT FOR PATCHES SHALL BE STRAIGHT WITH A NEAT SQUARE EDGE AND OF UNIFORM WIDTH PARALLEL WITH THE EDGE OF PAVEMENT CURB LINE. THE FINAL PRODUCT SHALL BE SUBJECT TO THE OWNERS APPROVAL.  
 2. CONTRACTOR SHALL SWEEP STREETS AND PROVIDE DUST CONTROL AT ALL TIMES VIA WATER TRUCK, BROOMS, COMPACTORS, ETC. DEBRIS FROM DREDGING OPERATIONS SHALL NOT BE DIRECTED TOWARD YARDS. CLEAN UP OF DEBRIS, TRASH, EXCESS MATERIALS, ETC. SHALL BE PERFORMED ONLY.  
 3. ANY TRENCHES OPENED FOR PAVING SHALL BE PAVED BY THE END OF THE SAME DAY. IF WEATHER CONDITIONS CHANGE, EQUIPMENT BREAKS DOWN, OR ANY OTHER OCCURRENCE THAT STOPS THE PAVING OPERATIONS OCCURS, BACKFILL ALL PREPARED AREAS SO THEY ARE PASSABLE BY TRAFFIC.  
 4. THE CONTRACTOR SHALL PATCH PAVE SERVICE LATERALS ON THE SAME DAY THAT MAIN LINE TRENCHES ARE PAVED. LATERALS SHALL BE PATCHED ON BOTH SIDES OF THE STREET AS PAVING PROGRESSES.  
 5. THE CONTRACTOR SHALL BE REQUIRED TO IMPLEMENT PROPER TRAFFIC CONTROL, PROVISIONS AND ANY DEVICES REQUIRED TO IDENTIFY OBSTRUCTIONS OR HAZARDS WITHIN THE RIGHT-OF-WAY TO INCLUDE REFLECTIVE CORERS AT EACH SERVICE LATERAL, REFLECTIVE BARRELS ON RAISED MANHOLES, ETC.  
 6. AT NO TIME SHALL THE CONTRACTOR LEAVE MAIN AND/OR LATERAL TRENCHES WITH A VERTICAL ELEVATION DROP EXCEEDING ONE INCH (1") FROM EXISTING ASPHALT TO TRENCH SUB GRADE UNATTENDED, UNSECURED, AND/OR OVERNIGHT.

M1-PAVEMENT-REPAIR-NOTES.dwg

**PERMANENT PAVEMENT PATCH**  
 N.T.S.  
 SHEET NO. 1 OF 1  
 DWG. NO. M.2  
 DATE: JAN 01, 2023  
 APPROVED BY: M.M.M.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.  
 WATER RESOURCES ENGINEERING DEPARTMENT

**NOTES:**  
 1. CONTRACTOR SHALL PATCH PAVEMENT TO THE SAME PAVEMENT PROFILE AS EXISTED PRIOR TO REMOVING PAVEMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DETAIL.  
 2. WHERE PATCH OF ASPHALT CUREING OCCURS CONTRACTOR SHALL MATCH EXISTING CURB GRADES WITHIN 0.02 FEET. PATCHES THAT ARE ABOVE THE CURB GRADE LINE WILL NOT BE ACCEPTABLE AND SHALL BE REMOVED AND REPLACED. CURB PATCH SHALL BE THE SAME SHAPE/TEMPLATE AS THE EXISTING CURB.  
 3. CONTRACTOR SHALL BE REQUIRED TO PROVIDE TRAFFIC CONTROL AND DEVICES AS REQUIRED BY THE M.U.T.C.D. OR NO SUPPLEMENT. WORK CANNOT PROCEED UNTIL THE MEASURES ARE IN PLACE. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT NEW PAVEMENT FROM TRAFFIC AND OTHER SOURCES OF DAMAGE UNTIL ASPHALT HAS SUFFICIENTLY COOLED TO PREVENT DAMAGE.  
 4. CONTRACTOR SHALL SAWCUT EXISTING PAVEMENT STRAIGHT AND TRUE IMMEDIATELY PRIOR TO PAVING. THE FINAL PRODUCT SHALL BE SUBJECT TO THE OWNERS APPROVAL.  
 5. PATCH PAVING ON NCDOT MAINTAINED ROADS SHALL BE IN ACCORDANCE WITH THE APPROVED NCDOT ENCRUSTMENT. REFER TO PWC STANDARD DETAIL M.19 FOR NCDOT PATCH PAVING REQUIREMENTS.  
 6. PROVIDE A MINIMUM OF 2" PAVEMENT (S.3) IF THE EXISTING PAVEMENT IS 2" OR LESS. MATCH EXISTING PAVEMENT THICKNESS IF OVER 2".  
 7. FOR PATCHES UP TO 4' THICK, PLACE S.9 IN 2 LIFTS.  
 8. FOR PATCHES OVER 4' THICK, PLACE BINDER (S.19) TO 2" BELOW SURFACE. INSTALL BINDER IN 2" MAX LIFTS. THE FINAL 2" SHALL BE SURFACE (S.9).  
 9. ALL PATCHES SHALL HAVE A MINIMUM OF 8" ABC UNDER ALL PAVEMENT, INCLUDING CURB AS REQUIRED.  
 10. EXISTING ASPHALT TO REMAIN.  
 11. 2" MIN. S.9 S ASPHALT CONCRETE COURSE. (SEE NOTES)  
 12. TACKCOAT (0.25 GAL/SY) ALL PAVEMENT EDGES.  
 13. UNDISTURBED SOIL.  
 14. LAST 3" OF FILL BELOW SUBGRADE OF STONE SHALL BE COMPACTED TO 98% MAX. DRY DENSITY IN MAX. 8" LOOSE LIFTS.

M2-PER-PATCH.dwg

**ASPHALT DRIVEWAY/PARKING LOT PATCH**  
 N.T.S.  
 SHEET NO. 1 OF 1  
 DWG. NO. M.4  
 DATE: JAN 01, 2023  
 APPROVED BY: M.M.M.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.  
 WATER RESOURCES ENGINEERING DEPARTMENT

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

M4-ASPH-DRIVE-PATCH.dwg

**CONCRETE DRIVEWAY PATCH**  
 N.T.S.  
 SHEET NO. 1 OF 1  
 DWG. NO. M.5  
 DATE: JAN 01, 2023  
 APPROVED BY: M.M.M.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.  
 WATER RESOURCES ENGINEERING DEPARTMENT

**NOTES:**  
 1. CONTRACTOR SHALL REPLACE PAVEMENT TO THE SAME CROSS SECTION AS EXISTED PRIOR TO REMOVAL.  
 2. CONTRACTOR SHALL BE REQUIRED TO PROVIDE TRAFFIC CONTROL AND DEVICES AS REQUIRED BY THE M.U.T.C.D. OR NO SUPPLEMENT. WORK CANNOT PROCEED UNTIL THE MEASURES ARE IN PLACE. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT NEW PAVEMENT FROM TRAFFIC AND OTHER SOURCES OF DAMAGE.  
 3. UNDER NO CIRCUMSTANCES SHALL THE DISTURBED AREA EXTEND BEYOND THE RIGHT-OF-WAY AND/OR THE EASEMENT LIMITS. UNLESS OTHERWISE APPROVED BY THE FAYFWC PROJECT COORDINATOR.  
 4. THE FINAL PRODUCT SHALL BE SUBJECT TO THE OWNERS APPROVAL.  
 5. SAWCUT CONCRETE DRIVEWAY STRAIGHT AND TRUE. JAGGED SAWCUTS SHALL NOT BE ACCEPTABLE. SAWCUTS SHALL BE STRAIGHT UNIFORM WIDTHS PERPENDICULAR TO THE DRIVEWAY.  
 6. MINIMUM RESIDENTIAL CONCRETE DRIVEWAY THICKNESS SHALL BE 7". MINIMUM COMMERCIAL CONCRETE DRIVEWAY THICKNESS SHALL BE 7".  
 7. CONTRACTOR SHALL CONTACT THE CITY OF FAYETTEVILLE'S CONSTRUCTION MANAGEMENT DEPARTMENT AT (910) 455-1668 A MINIMUM OF 24 HOURS IN ADVANCE FOR AN INSPECTION OF THE CONCRETE FORMS.  
 8. PROVIDE EXPANSION JOINT(S) AS REQUIRED BY THE CITY OF FAYETTEVILLE.  
 9. CURING COMPOUND SHALL BE UTILIZED, AS SPECIFIED BY THE CITY OF FAYETTEVILLE.  
 10. NEW EXPANSION JOINT(S) SHALL BE PLACED 4 TO 10 FEET FROM EXISTING EXPANSION JOINT(S), AS SPECIFIED BY THE FAYFWC PROJECT COORDINATOR.  
 11. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF FAYETTEVILLE REQUIREMENTS.  
 12. 3000PSI REINFORCED CONCRETE SAME FINISH AS EXISTING DRIVEWAY. CONTRACTOR SHALL PLACE INCIDENTAL STONE 4" THICKNESS IN DISTURBED AREA AND MAINTAIN UNTIL DRIVEWAY IS PATCHED.  
 13. MIN. APRON LENGTH IS 4" THICKNESS AS REQUIRED (SEE NOTE 9).  
 14. LAST 3" OF FILL BELOW SUBGRADE SHALL BE COMPACTED TO 98% MAX. DRY DENSITY IN MAX. 8" LOOSE LIFTS. SEE APPLICABLE TRENCH DETAIL FOR COMPACTION OF REMAINING TRENCH.

M5-CONC-DRIVE-PATCH.dwg

**BORE UNDER ROADWAYS/RAILROADS**  
 N.T.S.  
 SHEET NO. 1 OF 2  
 DWG. NO. M.6  
 DATE: JAN 01, 2023  
 APPROVED BY: M.M.M.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.  
 WATER RESOURCES ENGINEERING DEPARTMENT

**NOTES:**  
 1. INSTALLATION SHALL BE DRY BORE AND JACKING OF SMOOTH WALL STEEL PIPE. SETTING ON WET BORING WITH WATER SHALL NOT BE ALLOWED.  
 2. SEE BORE SIZING CHART FOR CARRIER PIPE SIZE AND STEEL CASING SIZE, MINIMUM DIAMETER, AND WALL THICKNESS.  
 3. CASING PIPE SHALL BE IN ACCORDANCE WITH ASTM A 53, GRADE B WITH A MINIMUM YIELD STRENGTH OF 35,000PSI.  
 4. EACH END OF ENCASMENT TO BE FLUGHED WITH BRICK. ALL VOIDS OUTSIDE THE CASING PIPE SHALL BE COMPLETELY FILLED WITH 1:3 PORTLAND CEMENT GROUT AT SUFFICIENT PRESSURE TO INSURE NO SETTLEMENT OF ROADWAY/RAILROAD. METHOD OF GROUTING SHALL BE AS APPROVED BY THE PERMITTING AGENCY.  
 5. IT IS RECOMMENDED THAT THE BORE BE ACCOMPLISHED BEFORE PIPE CONSTRUCTION BEGINS.  
 6. THE BORING SHALL BE PERFORMED FROM "UPSTREAM" TO "DOWNSTREAM" DIRECTION MAINTAINING THE CRITICAL DOWNSTREAM INVERT ELEVATION. SHOULD THE BORE NOT BE ON GRADE, A REVERSED PLAN SHALL BE SUBMITTED TO FAYFWC FOR APPROVAL.  
 7. THE BORING OPERATION SHALL BE CONDUCTED IN A MANNER THAT THE FLOW OF TRAFFIC IS NOT IMPEDED OR IN SUCH A MANNER SO AS NOT TO CREATE A HAZARD.  
 8. IF AN OBSTRUCTION IS ENCOUNTERED DURING THE BORING OPERATION, THE AUGER SHALL BE WITHDRAWN, THE EXCESS CASING PIPE CUT OFF, CAPPED AND THE INTERIOR AND EXTERIOR VOIDS SHALL BE COMPLETELY FILLED WITH 1:3 PORTLAND CEMENT GROUT UNDER PRESSURE. NO SEPARATE PAVEMENT FOR UNSUCCESSFUL BORERS.  
 9. CONTRACTOR SHALL FIELD ADJUST AND INSTALL PROPER PIPE BRACES TO ACCOMPLISH GRADE AND INVERTS AS SHOWN ON THE DRAWINGS.  
 10. A MANUAL CONTROL STEERING HEAD OR OTHER GUIDANCE SYSTEM IS RECOMMENDED FOR BORERS 30" DIAMETER AND/OR LARGER AND FOR BORERS EXCEEDING 100' IN LENGTH OR AS SPECIFIED.  
 11. SUBCONTRACTORS SHALL ADHERE TO ALL PERMIT REQUIREMENTS AND SHALL PROVIDE APPROVED INSURANCE CERTIFICATES AS REQUIRED.  
 12. CONTRACTOR SHALL EXECUTE AND PERFORM ALL REQUIREMENTS AND CONDITIONS STIPULATED BY THE PERMITTING AGENCY.  
 13. SEE DRAWING SHEET 1 OF 2 FOR ADDITIONAL INFORMATION.  
 14. CARRIER PIPE FOR PRESSURE APPLICATIONS (WATER MAINS AND FORCE MAINS) SHALL HAVE FACTORY RESTRAINED JOINTS. CARRIER PIPE FOR GRAVITY SEWER SHALL HAVE RESTRAINED JOINTS AND MAY USE RESTRAINING GASKETS SUCH AS FIELD LOK, SURE STOP 350 OR OTHER APPROVED GASKETS.  
 15. CARRIER PIPE SHALL BE CLASS 350 OR 200 FOR WATER, AND SHALL BE CLASS 90 FOR SEWER.  
 16. EACH SECTION OF ENCASMENT PIPE SHALL BE BUTT WELDED TO THE ADJACENT CASING PIPE.  
 17. SEE DRAWING M.6 SHEET 2 OF 2 FOR ADDITIONAL INFORMATION.  
 18. CARRIER PIPE FOR PRESSURE APPLICATIONS (WATER MAINS AND FORCE MAINS) SHALL HAVE RESTRAINED JOINTS AND MAY USE RESTRAINING GASKETS SUCH AS FIELD LOK, SURE STOP 350 OR OTHER APPROVED GASKETS.  
 19. CARRIER PIPE SHALL BE CLASS 350 OR 200 FOR WATER, AND SHALL BE CLASS 90 FOR SEWER.

M6-BORE-ROAD-RAIL.dwg

CARRIER PIPE SIZE	MIN. CASING SIZE	MIN. WALL THICKNESS	
		MIN. ROADWAYS	MIN. RAILROADS
4"	10"	0.188"	0.188"
6"	12"	0.25"	0.25"
8"	16"	0.25"	0.251"
12"	24"	0.25"	0.275"
16"	30"	0.312"	0.455"
18"	30"	0.312"	0.455"
24"	36"	0.375"	0.522"
30"	42"	0.500"	0.625"
36"	48"	0.500"	0.658"

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

**BORE UNDER ROADWAYS/RAILROADS**  
 N.T.S.  
 SHEET NO. 2 OF 2  
 DWG. NO. M.6  
 DATE: JAN 01, 2023  
 APPROVED BY: M.M.M.

FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.  
 WATER RESOURCES ENGINEERING DEPARTMENT

**NOTES:**  
 1. 021104M  
 2. 0710 REVISED NOTES, SIZING CHART

M6-BORE-ROAD-RAIL.dwg

DATE REVISIONS BY

12.16.2020 FINAL DESIGN NOT FOR CONSTRUCTION MHP

12.21.2020 NOT FOR CONSTRUCTION MHP

06.30.2020 FINAL DESIGN NOT FOR CONSTRUCTION MHP

06.30.2020 FINAL DESIGN NOT FOR CONSTRUCTION MHP

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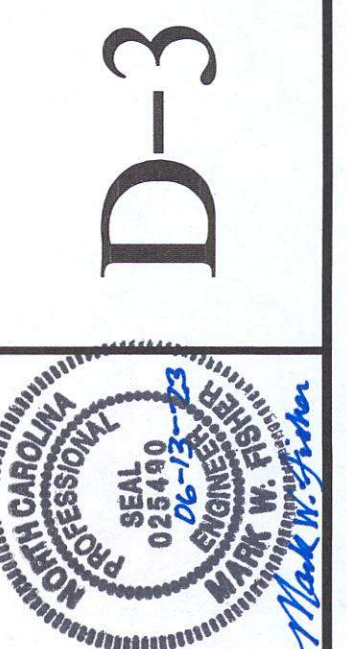
06.30.2020 FINAL DESIGN NOT FOR CONSTRUCTION MHP

06.30.2020 FINAL DESIGN NOT FOR CONSTRUCTION MHP

06.30.2020 FINAL DESIGN NOT FOR CONSTRUCTION MHP

SHEET D-3

DATE: 6/13/23  
 TMB/AWB  
 BRG  
 AS SHOWN



SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
 STANDARD SANITARY SEWER AND PAVEMENT REPAIRS DETAILS

FAYETTEVILLE PUBLIC WORKS COMMISSION  
**WATER RESOURCES ENGINEERING**  
 P.O. Box 1888 Fayetteville, NC 28402  
 955 Old Wilmington Road, Fayetteville, NC 28301

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

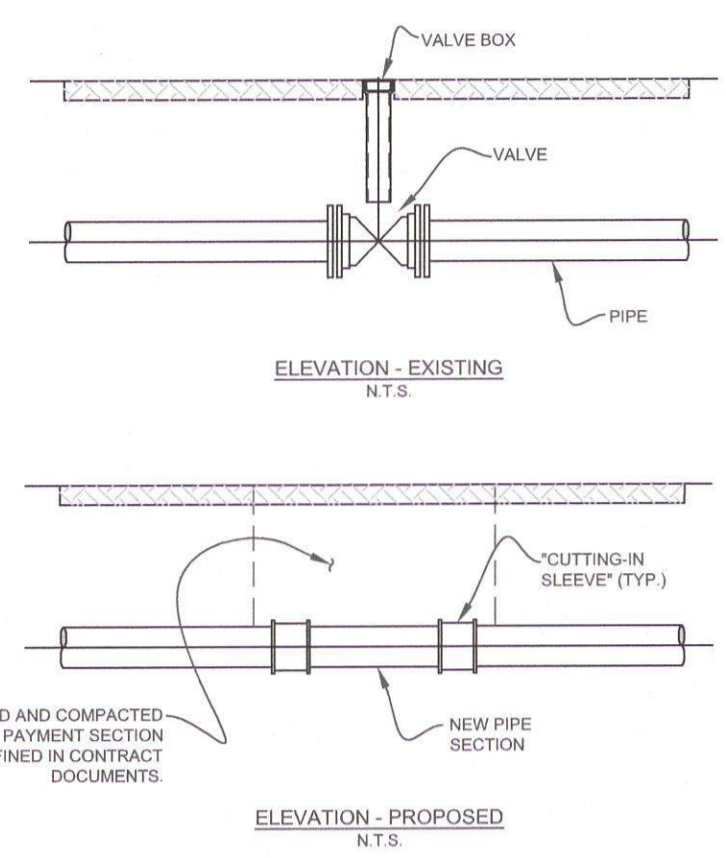
MCKIM & CREED  
 1730 Varsity Drive, Suite 500  
 Raleigh, NC 27606  
 Phone: (919)233-8091, Fax: (919)233-8031  
 F-1222 www.mckimcreed.com

FINAL DESIGN  
 ISSUED FOR BID

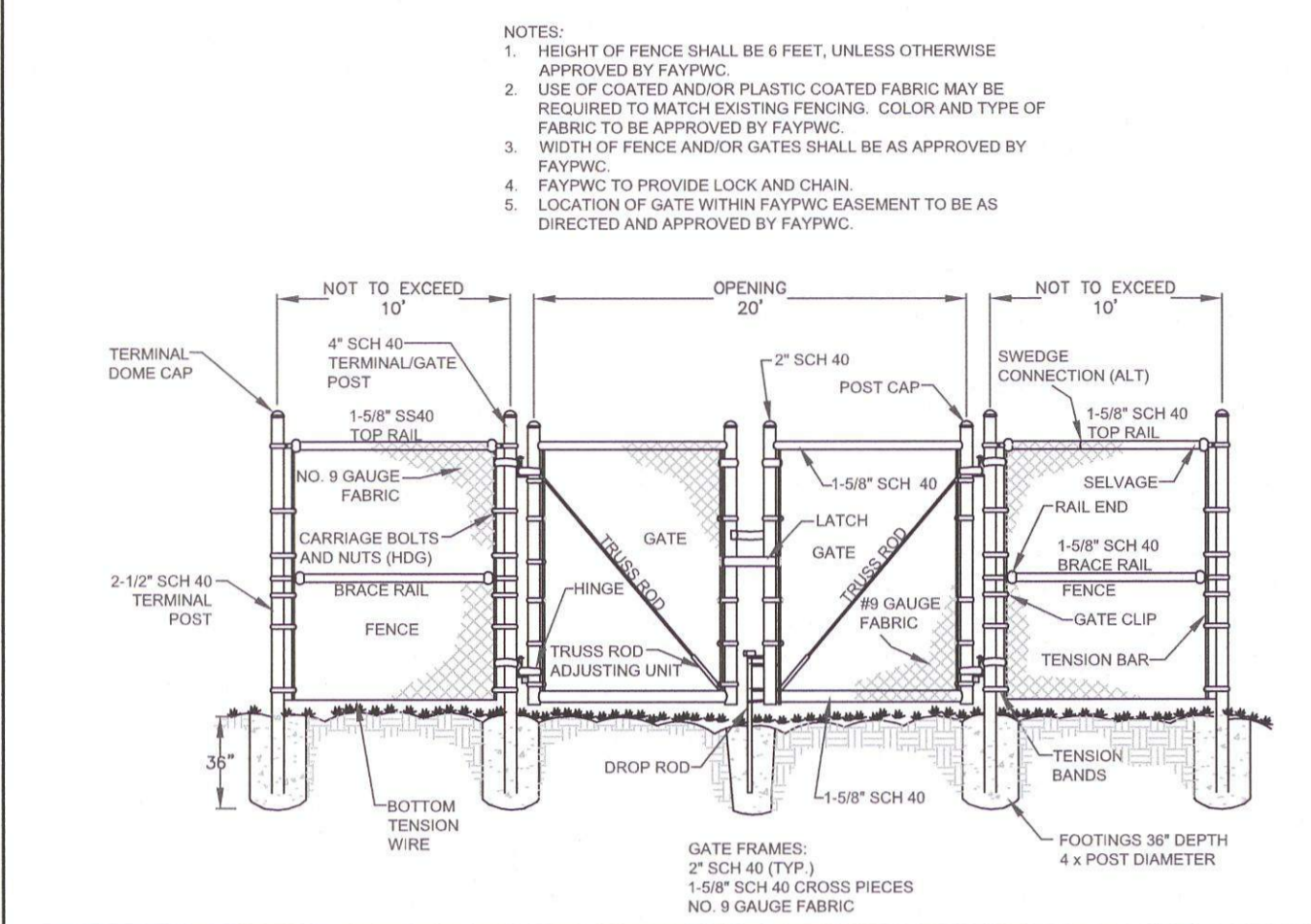
PWC DRAWING # AS-1531CCCC

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MINIMUM LENGTH OF BURIED PIPE BETWEEN CLOSED VALVE AND EXCAVATION FOR RESTRAINT		
BASED ON MINIMUM TYPE 2 BEDDING IN SILT SOIL		
Diameter (inches)	Depth of Cover (feet)	Length (feet)
18	3-3.99	221
18	4-5.99	173
18	6-7.99	120
18	8-9.99	92
18	10-11.99	75
12	3-3.99	174
12	4-5.99	115
12	6-7.99	93
12	8-9.99	71
12	10-11.99	57
10	3-3.99	149
10	4-5.99	115
10	6-7.99	79
10	8-9.99	60
10	10-11.99	49
8	3-3.99	123
8	4-5.99	95
8	6-7.99	65
8	8-9.99	49
8	10-11.99	40
6	3-3.99	95
6	4-5.99	73
6	6-7.99	50
6	8-9.99	38
6	10-11.99	31

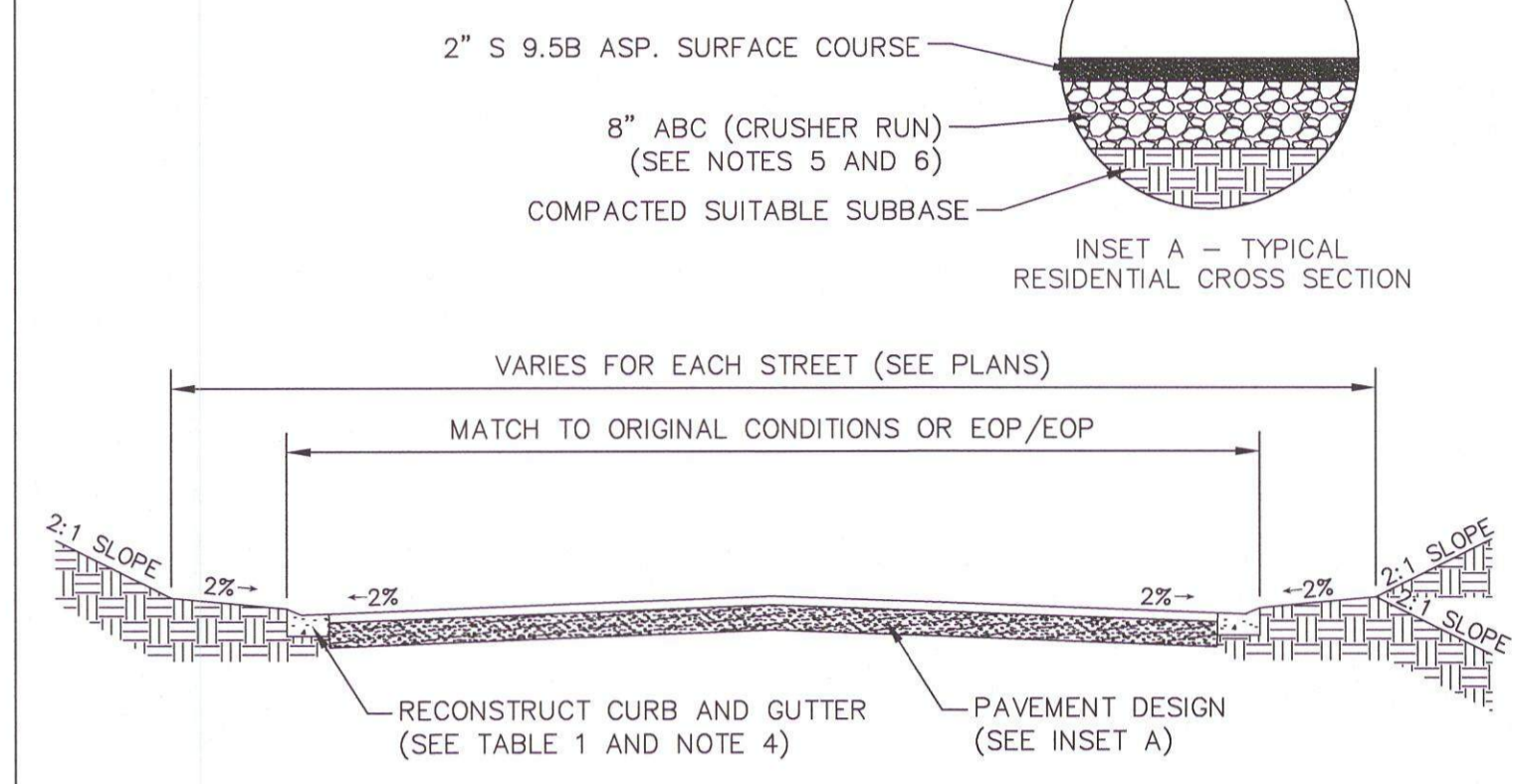


VALVE REMOVAL WITH EXCAVATION		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO.		DATE		REVISION	
SHEET NO. 1 OF 1	DWG. NO. M.15	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT						
	DATE: JAN 01, 2023	APPROVED BY: M.M.M.							



TYPICAL CHAIN LINK GATE AND FENCE		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO.		DATE		REVISION	
SHEET NO. 1 OF 1	DWG. NO. M.17	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT						
	DATE: JAN 01, 2023	APPROVED BY: M.M.M.							

TABLE 1	
STREET NAME	CURB AND GUTTER
LAKEVIEW DRIVE	NONE - SHOULDER WITH SWALE
LAKEFARM ROAD	NONE - SHOULDER WITH SWALE
MARINERS LANDING	2" ASPHALT VALLEY CURB WITH COMPACTED 6" (MIN.) ABC BASE



- NOTES:
- NORMAL CROWN OF 0.02' PER FOOT UNLESS OTHERWISE APPROVED BY NCDOT.
  - ALL EXISTING PERMANENT MARKINGS SHALL BE REPLACED WITH THERMOPLASTIC.
  - UPON ACCEPTED INSTALLATION OF UTILITY, ALL REMAINING ASPHALT STREET AND CURB AND EXISTING STREET SUBGRADE SHALL BE REMOVED.
  - ASPHALT VALLEY CURB SHALL BE MONOLITHICALLY PAVED WITH STREET. IT SHALL BE PROVIDED MINIMUM 6" OF COMPACTED ABC STONE BASE TO 100% STANDARD PROCTOR DENSITY.
  - UTILITY TRENCH (NOT SHOWN IN THIS DETAIL) SHALL BE COMPACTED IN 6" LIFT. WHERE EXISTING MATERIAL DOES NOT CONFORM TO CONTRACT DOCUMENTS OR CANNOT BE COMPACTED TO REQUIREMENTS DEFINED BELOW, SELECT BACKFILL OR ABC STONE SHALL BE USED IN LIEU OF THE EXCAVATED MATERIAL.
  - BACKFILL OF UTILITY TRENCH SHALL BE COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT. COMPACT TOP 36" OF UTILITY TRENCH (NOT SHOWN IN THIS DETAIL) IN 6" LIFTS TO 98% MAXIMUM DRY DENSITY, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
  - THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY TO ACHIEVE A SMOOTH LEVEL PATH. ALL MATERIALS TO CONFORM TO NCDOT STANDARDS.
  - CONTRACTOR TO INSTALL COMPACTED ABC STONE AS TEMPORARY DRIVING SURFACE UPON COMPLETION OF PIPE INSTALLATION ON EACH DAY OF WORK. CONTRACTOR TO MAINTAIN ROAD SURFACE THROUGHOUT PROJECT. THE STREET RECONSTRUCTION AS INDICATED IN THIS DETAIL IS TO BE COMPLETED ONCE PIPE INSTALLATION IS COMPLETE AND ACCEPTED BY PWC.

LAKEVIEW/LAKEFARM/MARINERS LANDING RECONSTRUCTION  
ST-3 STANDARD 2 LANE STR. RECONSTRUCT. N.T.S.

- UTILITY GENERAL NOTES
- PRIOR TO COMMENCEMENT OF ANY WORK WITHIN EASEMENTS OR RIGHTS-OF-WAYS THE CONTRACTOR IS REQUIRED TO NOTIFY CONCERNED UTILITY COMPANIES IN ACCORDANCE WITH GS&T 102. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. NO SEPARATE PAYMENT FOR EXISTING UTILITIES SHOWN ARE TAKEN FROM MAPS FURNISHED BY VARIOUS UTILITY COMPANIES AND HAVE NOT BEEN PHYSICALLY LOCATED (IE: TELEPHONE, GAS, CABLE, 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).
  - ALL SANITARY SEWER AND WATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH STANDARDS AND SPECIFICATIONS OF THE FAYETTEVILLE PUBLIC WORKS COMMISSION. STORM DRAINAGE STREET CONSTRUCTION AND PAVING SHALL BE IN ACCORDANCE WITH THE CITY OF FAYETTEVILLE.
  - UTILITY SERVICES TO INDIVIDUAL PROPERTIES ARE NOT SHOWN IN THE PROFILES FOR SIMPLICITY OF THE DRAWINGS. SERVICES MAY INCLUDE WATER, LATERALS, TELEPHONE, ELECTRIC, CABLE, GAS, ETC.
  - CONTRACTOR SHALL COORDINATE WITH UTILITY OWNER AND BE RESPONSIBLE FOR TEMPORARY RELOCATION AND/OR SECURING EXISTING UTILITY POLES AND SIGNS AND/OR UTILITIES IN ACCORDANCE WITH UTILITY OWNER REQUIREMENTS DURING THE UTILITY MAIN INSTALLATION AND STREET CONSTRUCTION. (NO SEPARATE PAYMENT).
  - CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORTS FOR UTILITY CROSSINGS AND REPAIR DAMAGES DUE TO CONSTRUCTION TO THE SATISFACTION OF THE UTILITY INVOLVED AT NO ADDITIONAL EXPENSE TO THE OWNER. UNDERGROUND ELECTRICAL CROSSINGS SHALL BE CROSSED IN ACCORDANCE WITH THE N.E.C. AND TECHNICAL SPECIFICATION SECTION UNDERGROUND ELECTRICAL CROSSING REQUIREMENTS.
  - WHERE DEEMED NECESSARY BY THE ENGINEER THAT A SUBSURFACE DRAINAGE SYSTEM IS REQUIRED, THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, TOOLS, LABOR, EQUIPMENT TIES TO EXISTING DRAINAGE STRUCTURES AND ALL OTHER INCIDENTALS NECESSARY TO PROVIDE COMPLETE INSTALLATION IN ACCORDANCE WITH CITY OF FAYETTEVILLE STANDARDS. IMPROPERLY INSTALLED AND NON-FUNCTIONING DRAINAGE SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. EXISTING FRENCH DRAINAGE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AND/OR REPAIRED AT NO ADDITIONAL EXPENSE TO THE OWNER.
  - STORM DRAINAGE REPAIRS BY CONTRACTOR DUE TO CONSTRUCTION DAMAGE AND JOINTS EXPOSED DURING CONSTRUCTION SHALL BE INSPECTED BY THE OWNER PRIOR TO BACKFILLING.

UTILITY GENERAL NOTES		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO.		DATE		REVISION	
SHEET NO. 1 OF 1	DWG. NO. N.2	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT						
	DATE: JULY 01, 2021	APPROVED BY: J.E.G.							

- GENERAL NOTES (RESIDENT RELATIONS-REQUIRED)
- THE PROPOSED WORK WILL BE CONSTRUCTED WITHIN A FULLY DEVELOPED SUBDIVISION. THE CONTRACTOR IS REQUIRED TO DEVELOP GOOD RELATIONS WITH THE RESIDENTS WHICH INCLUDES THE FOLLOWING MANDATORY MINIMUM REQUIREMENTS:
    - NO SPEEDING WITH EQUIPMENT AND/OR VEHICLES (25 MPH MAXIMUM)
    - DO NOT BLOCK DRIVEWAYS AT ANY TIME
    - DO NOT LITTER AT ANY TIME
    - DO NOT USE EXCESSIVE WATER WITHOUT THEIR PERMISSION (SIGNED AGREEMENT REQUIRED)
    - ALL REQUIREMENTS FOR BACK FLOW PREVENTION BY THE PLUMBING CODE WILL BE ADHERED TO.
    - RESPOND TO RESIDENTS COMPLAINTS WITHIN 24 HOURS.
    - DO NOT USE ABUSIVE LANGUAGE, PROFANITY, OR CAT-CALLING.
    - WEAR PROPER PROTECTIVE CLOTHING (HARD HATS, PROPER SHOES, SHIRTS, ETC.)
    - MAINTAIN PROPER SAFETY MEASURES, PARTICULARLY ALONG OPEN TRENCHES, PLACING CONES OR RAISED MARKERS, 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 THE CITY AND/OR NCDOT RIGHT 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 ADEQUATELY PERFORM AND/OR COMPLY WITH THESE REQUIREMENTS, THE INDIVIDUAL SUBCONTRACTOR, OR EMPLOYEES MAY BE DIRECTED TO LEAVE THE PROJECT PERMANENTLY. INCONSIDERATE, NON-COOPERATIVE ATTITUDES AND ACTIONS WILL NOT BE TOLERATED.

GENERAL NOTES (RESIDENT RELATIONS-REQUIRED)		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO.		DATE		REVISION	
SHEET NO. 1 OF 1	DWG. NO. N.3	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT						
	DATE: JULY 01, 2021	APPROVED BY: J.E.G.							

- TRAFFIC CONTROL NOTES
- CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS FOR WORK ZONE TRAFFIC CONTROL TO CITY TRAFFIC SERVICES DEPARTMENT (910-433-1600) FOR CITY STREETS AND TO MR. TROY BAKER (910-364-0001) 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 CLOSURES AND COORDINATE ALL ROAD CLOSURES/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 4:00PM) AS TO WHICH STREETS WILL BE UNDER CONSTRUCTION IMPEDING TRAFFIC FLOW THE FOLLOWING DAY.
  - THE CONTRACTOR SHALL NOT IMPERE 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 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND SUPPLEMENTS SUCH AS NCDOT AND/OR CITY OF FAYETTEVILLE TRAFFIC SERVICES.

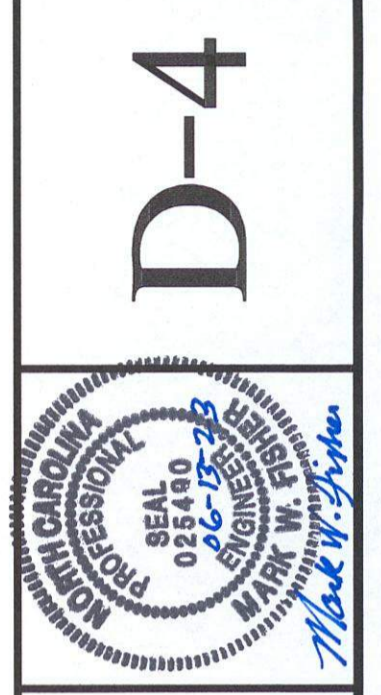
TRAFFIC CONTROL NOTES		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO.		DATE		REVISION	
SHEET NO. 1 OF 1	DWG. NO. N.4	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	1	0106	ADDED PHONE NUMBERS			
	DATE: JULY 01, 2021	APPROVED BY: J.E.G.							

- WETLAND CONSTRUCTION REQUIREMENTS
- CONSTRUCTION LIMITS CORRIDOR (INCLUDING ROADS AND STOCKPILE AREA) TO A MAXIMUM 40 FOOT WIDTH.
  - POST CONSTRUCTION GROUND CONTOURS AND ELEVATIONS MUST BE RESTORED TO THE ORIGINAL ELEVATIONS.
  - THE TOP 6" TO 12" OF THE TRENCH SHALL BE BACKFILLED WITH THE TOPSOIL AND/OR SOIL EXISTING PRIOR TO CONSTRUCTION.
  - EXCESS MATERIAL MUST BE REMOVED TO UPLAND AREAS AND DISPOSED OF OFF-SITE. TEMPORARY PLACEMENTS TO DOUBLE FOR ABSOLUTE MINIMUM PERIOD OF TIME.
  - DISTURBED SLOPES AND STREAM BANKS MUST BE STABILIZED IMMEDIATELY UPON COMPLETION OF THE UTILITY LINE OR IMMEDIATELY AT EACH STREAM CROSSING.
  - NOTIFY COE DISTRICT ENGINEER AND RECEIVE WRITTEN APPROVAL PRIOR TO BEGINNING CONSTRUCTION.
  - INSTALL ANTI-SEEP COLLARS EVERY 150 FEET OR AS SHOWN ON PLANS.
  - NO FERTILIZER SHALL BE APPLIED WITHIN 10 FEET OF STREAM.
  - NO FRESH CONCRETE SHALL BE IN CONTACT WITH STREAMS.
  - SEEDING SHALL BE IN ACCORDANCE WITH THE SPECIFIED MIXTURE FOR WETLAND AREAS.

WETLAND CONSTRUCTION REQUIREMENTS		FAYETTEVILLE PUBLIC WORKS COMMISSION		NO.		DATE		REVISION	
SHEET NO. 1 OF 1	DWG. NO. N.6	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT						
	DATE: JULY 01, 2021	APPROVED BY: J.E.G.							

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HPP
06.30.2021	FINAL DESIGN - CONTRACT SEPARATION AND RES REVISIONS	HPP
06.13.2022	FINAL DESIGN - MEET REQUIREMENT MODIFICATIONS	HPP
06.13.2023	FINAL DESIGN ISSUED FOR BID	HPP

SHEET D-4  
 SUBMITTALS BY: MCKIM&CREED, INC.  
 PROCESS/DATE BY: DATE: 6/13/23  
 PLAN/PROF. (ISSUED BY): TMB/AWB  
 DESIGN REVIEW BY: BRL  
 APPROVED BY:  
 SCALE: AS SHOWN



SANITARY SEWER IMPROVEMENTS BIG  
 ROCKFISH CREEK OUTFALL - CONTRACT 2  
 STANDARD SANITARY SEWER  
 DETAILS

**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
**WATER RESOURCES ENGINEERING**  
 P.O. Box 1088 Fayetteville, NC 28402  
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PWC DRAWING # DS-154.86

FINAL DESIGN  
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**1. ALL WATER MAINS, LATERALS AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYETTEVILLE PVC STANDARDS.**

**2. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.**

**3. CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS NOTICE FOR ALL WATER OUTAGES.**

**4. CONSTRUCTION STAKING IS REQUIRED FOR ALL PVC WATER AND SEWER UTILITY INSTALLATIONS. CUT SHEETS, BORED AND REAR BY A P.C.P.S. SHALL BE PROVIDED TO THE PVC WATER RESOURCES ENGINEERING DEPARTMENT AND THE CONTRACTOR IN ADVANCE OF CONSTRUCTION FOR PVC WATER AND SEWER UTILITIES.**

**5. CONTRACTOR SHALL MAINTAIN A COPY OF THE BORED AND REAR CUT SHEET ON THE JOB SITE. CONSTRUCTION ON PVC WATER AND SEWER UTILITIES CANNOT BEGIN UNTIL THE CONTRACTOR POSSESSES ON SITE A BORED AND REAR CUT SHEET FROM THE PROFESSIONAL LAND SURVEYOR.**

**6. ALL NEW WATER AND SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE TESTED AND/OR INSPECTED IN ACCORDANCE WITH FAYETTEVILLE PVC STANDARDS PRIOR TO PLACING INTO SERVICE.**

**7. CONTRACTOR SHALL COORDINATE TESTING AND INSPECTION WITH THE FAYETTEVILLE PVC PROJECT COORDINATOR.**

**8. CONTRACTOR SHALL REPAIR ALL WATER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL REPORT IMMEDIATELY ALL WATER MAIN AND LATERAL BREAKS TO THE PVC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH PVC STANDARDS. CONTRACTOR SHALL NOT OPERATE PVC WATER MAIN VALVES WITHOUT PVC APPROVAL AND SHALL COORDINATE ALL VALVE CLOSINGS WITH PVC.**

**9. THE CONTRACTOR SHALL NOT USE HOUSE HOSE BIBBS OR ANY OTHER METHOD OF BLOW OFF WHICH ALLOWS DOMESTIC WATER CONTAINING SEDIMENTS OR HIGH LEVELS OF CHLORINE TO PASS THROUGH RESIDENTS' METERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM ALLOWING "DIRTY" WATER TO ENTER RESIDENTS' PLUMBING SYSTEM, SUCH AS WATER WASTERS, STAINED CLOTHING, CLOGGED SINKS, ETC.**

**10. TRANSFER OF WATER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:**

**A. INSTALL, TEST AND STRIKE NEW WATER LATERALS. LATERALS SHALL BE INSTALLED UP INSIDE RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY PVC.**

**B. TRANSFER EXISTING METERS TO NEW WATER MAINS. THE CONTRACTOR SHALL BE RESPONSIBLE TO EXISTING DOMESTIC SERVICE UTILIZING BRASS FITTINGS. SAME METER NUMBER SHALL BE INSTALLED ON SAME ADDRESS AND/OR CUSTOMER. BLOW OFF SERVICE AT HOSE BIBB ON HOUSE ONLY AFTER METER HAS BEEN TRANSFERRED.**

**C. AFTER ALL SERVICES ARE TRANSFERRED TO THE NEW SYSTEM, SHUT OFF VALVE ON EXISTING SYSTEM AND ABANDON EXISTING MAINS IN ACCORDANCE WITH PVC DETAILS.**

**D. CONTRACTOR SHALL SUPPLY NEW METER BOXES AND DISPOSE OF EXISTING METER BOXES.**

**11. CONTRACTOR SHALL ABANDON (PULL-OUT) ANY EXISTING WATER SERVICES THAT WILL NOT BE UTILIZED BY CUTTING OR CROPPED AT THE MAIN, PLUGGING THE ABANDONED SERVICE IS TO BE BY THE CONTRACTOR, AND BUREAU A MINIMUM OF 3 FEET BELOW GRADE.**

**12. ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE IN ACCORDANCE WITH PVC REQUIREMENTS.**

**13. ALL WORK ON PVC WATER UTILITIES (MAINS, LATERALS, ETC) SHALL BE PERFORMED BY A LICENSED UTILITY CONTRACTOR. THE FAYETTEVILLE PUBLIC WORKS COMMISSION SHALL OBSERVE AND APPROVE ALL WORK ON PVC WATER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH PVC REQUIREMENTS.**

**14. SEPARATION REQUIREMENTS:**

**A. LATERAL SEPARATION OF SEWERS AND WATER MAINS:** WATER MAINS SHALL BE LATERAL TO THE SEWER LATERALS FROM EXISTING OR PROPOSED SEWER MAINS, 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 OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MANHOLE OR**

**2. THE WATER MAIN IS Laid IN THE SAME TRENCH AS THE SEWER MANHOLE WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MANHOLE.**

**B. CROSSING WATER MAIN OVER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MANHOLE, THE WATER MAIN SHALL BE Laid IN SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MANHOLE, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION, IN WHICH CASE BOTH THE WATER MAIN AND SEWER MANHOLE SHALL BE DUCTILE IRON IN ACCORDANCE WITH PVC REQUIREMENTS.

**C. CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MANHOLE, BOTH THE WATER MAIN AND THE SEWER MANHOLE SHALL BE DUCTILE IRON IN ACCORDANCE WITH PVC REQUIREMENTS. A FULL JOINT OF DUCTILE IRON PIPE SHALL BE INSTALLED ON THE WATER MAIN CENTERED AT THE POINT OF CROSSING.

**D. CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 12 INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A WATER LINE CROSSING OVER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IN ADDITION, THERE SHALL BE A MINIMUM OF 3 FEET OF COVER OVER THE WATER MAIN OR IT SHALL BE DUCTILE IRON. IF DUCTILE IRON PIPE IS USED, THERE SHALL BE A MINIMUM OF 4 INCHES OF VERTICAL CLEARANCE. THE WATER MAIN AND A MINIMUM OF 4 INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND THE STORM DRAINAGE LINE WHERE A WATER MAIN CROSSES UNDER A STORM DRAINAGE LINE. THE MINIMUM OF TWELVE (12) INCHES OF VERTICAL SEPARATION SHALL BE MAINTAINED AND THE WATER MAIN SHALL BE DUCTILE IRON FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING.

**15. WATER OUTAGES:** THE CONTRACTOR SHALL SCHEDULE A COORDINATION MEETING WITH THE PVC PROJECT COORDINATOR AND PROJECT ENGINEER A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO ANY PLANNED WATER OUTAGE. THE COORDINATION MEETING SHALL BE CONDUCTED AT LEAST TWO (2) WEEKS PRIOR TO THE OUTAGE. THE CONTRACTOR SHALL LOCATE (VERTICALLY AND HORIZONTALLY) THE LOCATION OF ALL UTILITIES WITHIN THE WORK AREA. ALL NECESSARY TOOLS ARE ON SITE. DISCUSS ANY NECESSARY CONTRACT PLANS, AND ANY OTHER ITEMS NECESSARY TO ENSURE THAT THE FAYETTEVILLE PUBLIC WORKS COMMISSION HAS CONFIDENCE THAT THE WORK CAN BE ACCOMPLISHED WITHIN THE GIVEN TIME PERIOD. SHOULD, FOR ANY REASON, THE FAYETTEVILLE PUBLIC WORKS COMMISSION DETERMINE THAT THE CONTRACTOR IS NOT PREPARED FOR THE PROPOSED OUTAGE, THE OUTAGE NOTIFICATIONS WILL NOT BE DISTRIBUTED AND THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS. THE FAYETTEVILLE PUBLIC WORKS COMMISSION WILL PROVIDE WRITTEN NOTICE TO THE CONTRACTOR OF THIS DECISION. NO ADDITIONAL CONTRACT WILL BE AWARDED FOR THIS DELAY. SHOULD THE CONTRACT BE AWARD WITHIN THAT TWO (2) WEEK PERIOD, THE FAYETTEVILLE PUBLIC WORKS COMMISSION RESERVES THE RIGHT TO RESCHEDULE LIQUIDATED DAMAGES, AS OUTLINED IN THESE CONTRACT DOCUMENTS.

**16. WATER OUTAGES:** THE CONTRACTOR SHALL SCHEDULE A COORDINATION MEETING WITH THE PVC PROJECT COORDINATOR AND PROJECT ENGINEER A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO ANY PLANNED WATER OUTAGE. THE COORDINATION MEETING SHALL BE CONDUCTED AT LEAST TWO (2) WEEKS PRIOR TO THE OUTAGE. THE CONTRACTOR SHALL LOCATE (VERTICALLY AND HORIZONTALLY) THE LOCATION OF ALL UTILITIES WITHIN THE WORK AREA. ALL NECESSARY TOOLS ARE ON SITE. DISCUSS ANY NECESSARY CONTRACT PLANS, AND ANY OTHER ITEMS NECESSARY TO ENSURE THAT THE FAYETTEVILLE PUBLIC WORKS COMMISSION HAS CONFIDENCE THAT THE WORK CAN BE ACCOMPLISHED WITHIN THE GIVEN TIME PERIOD. SHOULD, FOR ANY REASON, THE FAYETTEVILLE PUBLIC WORKS COMMISSION DETERMINE THAT THE CONTRACTOR IS NOT PREPARED FOR THE PROPOSED OUTAGE, THE OUTAGE NOTIFICATIONS WILL NOT BE DISTRIBUTED AND THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS. THE FAYETTEVILLE PUBLIC WORKS COMMISSION WILL PROVIDE WRITTEN NOTICE TO THE CONTRACTOR OF THIS DECISION. NO ADDITIONAL CONTRACT WILL BE AWARDED FOR THIS DELAY. SHOULD THE CONTRACT BE AWARD WITHIN THAT TWO (2) WEEK PERIOD, THE FAYETTEVILLE PUBLIC WORKS COMMISSION RESERVES THE RIGHT TO RESCHEDULE LIQUIDATED DAMAGES, AS OUTLINED IN THESE CONTRACT DOCUMENTS.

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

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

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

**NOTES:**

- CONCRETE PROTECTOR RING SHALL BE 2500PSI PRECAST REINFORCED CONCRETE.
- VALVE BOX SHALL BE AT GRADE WITH PROTECTOR RING EXTENDING 12\"/>
- SEE GATE VALVE AND BOX DETAIL.
- VALVE BOX PROTECTOR RINGS SHALL BE INSTALLED AROUND VALVE BOX IN UNPAVED NON-TRAFFIC AREAS AND SHALL NOT CREATE A HINDRANCE TO MOVING OPERATIONS.

**VALVE BOX PROTECTOR RING**  
N.T.S.

**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
FAYETTEVILLE, N.C.

**WATER RESOURCES ENGINEERING DEPARTMENT**

SHEET NO. 1 OF 1  
DWG. NO. W.8  
DATE: JAN. 01, 2023  
DWG. BY: FAYPVC  
APPROVED BY: M.M.M.

**2\"/> VALVE INSTALLATION**  
N.T.S.

**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
FAYETTEVILLE, N.C.

**WATER RESOURCES ENGINEERING DEPARTMENT**

SHEET NO. 1 OF 1  
DWG. NO. W.15A  
DATE: JAN. 01, 2023  
DWG. BY: FAYPVC  
APPROVED BY: M.M.M.

**2\"/> BLOW OFF ON 2\"/> WATER MAIN**  
N.T.S.

**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
FAYETTEVILLE, N.C.

**WATER RESOURCES ENGINEERING DEPARTMENT**

SHEET NO. 1 OF 1  
DWG. NO. W.15C  
DATE: JAN. 01, 2023  
DWG. BY: FAYPVC  
APPROVED BY: M.M.M.

**CONCRETE THRUST BLOCK DETAIL**  
N.T.S.

**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
FAYETTEVILLE, N.C.

**WATER RESOURCES ENGINEERING DEPARTMENT**

SHEET NO. 1 OF 1  
DWG. NO. W.17  
DATE: JAN. 01, 2023  
DWG. BY: FAYPVC  
APPROVED BY: M.M.M.

**SS-2 - TYPICAL TRENCH BOTTOM AND BACKFILL DETAIL FOR RESTRAINED PVC CARRIER PIPE WITH HDPE ENCASEMENT PIPE**  
N.T.S.

**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
FAYETTEVILLE, N.C.

**WATER RESOURCES ENGINEERING DEPARTMENT**

SHEET NO. 1 OF 1  
DWG. NO. W.15A  
DATE: JAN. 01, 2023  
DWG. BY: FAYPVC  
APPROVED BY: M.M.M.

**NOTES:**

- TRENCHES REQUIRING SHORING AND BRACING DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
- NO ROCKS OR Boulders 2\"/> OR LARGER TO BE USED IN TOP 6\"/> OF INITIAL BACKFILL AND NONE 4\"/> OR LARGER IN FINAL BACKFILL.
- FINAL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
- BACKFILL SHALL BE TAMPED IN 6\"/> LIFTS IN TRAFFIC AREAS, 12\"/> IN NON-TRAFFIC AREAS.
- TOTAL WIDTH WITHIN SHALL BE A MINIMUM OF 3.0x I.D. OF PIPE, NO LESS THAN 12\"/> CLEARANCE (MIN 6\"/> EITHER SIDE OF PIPE).
- ACHIEVE JOINT COMPACTOR IN BEDDING, HAUNCHING AND INITIAL BACKFILL.
- CONTRACTOR SHALL UTILIZE METHODS NECESSARY TO MAINTAIN A FULL 6\"/> OF STONE OVER THE PIPE FOLLOWING EXTRACTION OF TRENCH BOX AND/OR SHEETING.
- CONTRACTOR SHALL ENSURE PIPE JOINTS/JUNCTIONS ARE NOT DEFLECTED WHEN TWO PIPES ARE JOINED.
- STONE BEDDING SHALL BE FULLY ENCLOSED IN A GEOTEXTILE WRAP WITH AN OVERLAP OF 12\"/> AT CROWN OF THE PIPE AND AT JOINT CONNECTIONS.
- DETAILED INSTALLATION SHALL BE PERFORMED IN THE DRY.

**2\"/> BLOW OFF ON 2\"/> WATER MAIN**  
N.T.S.

**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
FAYETTEVILLE, N.C.

**WATER RESOURCES ENGINEERING DEPARTMENT**

SHEET NO. 1 OF 1  
DWG. NO. W.15C  
DATE: JAN. 01, 2023  
DWG. BY: FAYPVC  
APPROVED BY: M.M.M.

**CONCRETE THRUST BLOCK DETAIL**  
N.T.S.

**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
FAYETTEVILLE, N.C.

**WATER RESOURCES ENGINEERING DEPARTMENT**

SHEET NO. 1 OF 1  
DWG. NO. W.17  
DATE: JAN. 01, 2023  
DWG. BY: FAYPVC  
APPROVED BY: M.M.M.

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWS
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MHP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MHP
06.30.2021	FINAL DESIGN NOT FOR CONSTRUCTION	MHP
04.15.2022	FINAL DESIGN NOT FOR CONSTRUCTION	MHP
06.15.2023	FINAL DESIGN NOT FOR CONSTRUCTION	MHP

SHEET D-5

DATE: 6/13/23  
DESIGNED BY: TMB/AWB  
CHECKED BY: BRJ  
APPROVED BY: [Signature]  
SCALE: AS SHOWN

**SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2**

**STANDARD SANITARY SEWER DETAILS**

**FAYETTEVILLE PUBLIC WORKS COMMISSION**  
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PWC DRAWING # DS-15486

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**PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING**

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

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

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

**PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING**

**SECTION B: RECORDKEEPING**

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

Item to Document	Documentation Requirements
(a) Each E&S Measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&S Plan.	Initial and date each E&S Measure on a copy of the approved E&S Plan or complete, date and sign an inspection report that lists each E&S Measure shown on the approved E&S Plan. This documentation is required upon the initial installation of the E&S Measures or if the E&S Measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&S 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&S Plan.	Initial and date a copy of the approved E&S 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&S Measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&S Measures.	Initial and date a copy of the approved E&S Plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

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

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

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

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

**PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING**

**SECTION C: REPORTING**

**1. Occurrences that must be reported**  
Permittees shall report the following occurrences:

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

(b) Oil spills if:

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

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

(b) Anticipated bypasses and unanticipated bypasses.

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

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

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none"> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis.</li> <li>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.</li> </ul>
(b) Oil spills and release of hazardous substances per Item 3(b)-(c) above	<ul style="list-style-type: none"> <li>Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.</li> <li>A report at least ten days before the date of the bypass, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass.</li> </ul>
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.</li> </ul>
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. [40 CFR 122.41(i)(6)]</li> <li>Division staff may waive the requirement for a written report on a case-by-case basis.</li> </ul>

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

**SECTION E: GROUND STABILIZATION**

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

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

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

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> <li>Temporary grass seed covered with straw or other mulches and tackifiers</li> <li>Hydroseeding</li> <li>Roller erosion control products with or without temporary grass seed</li> <li>Appropriately applied straw or other mulch</li> <li>Plastic sheeting</li> </ul>	<ul style="list-style-type: none"> <li>Permanent grass seed covered with straw or other mulches and tackifiers</li> <li>Geotextile fabric such as permanent soil reinforcement matting</li> <li>Hydroseeding</li> <li>Shrubs or other permanent plantings covered with mulch</li> <li>Uniform and evenly distributed ground cover sufficient to restrain erosion</li> <li>Structural methods such as concrete, asphalt or retaining walls</li> <li>Roller erosion control products with grass seed</li> </ul>

**POLYACRYLAMIDES (PAMS) AND FLOCCULANTS**

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

**EQUIPMENT AND VEHICLE MAINTENANCE**

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

**LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE**

- 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.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- 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 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.

**PAINT AND OTHER LIQUID WASTE**

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

**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 in high foot traffic areas.
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

**EARTHEN STOCKPILE MANAGEMENT**

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

**CONCRETE WASHOUTS**

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

**HERBICIDES, PESTICIDES AND RODENTICIDES**

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

**HAZARDOUS AND TOXIC WASTE**

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

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2 STANDARD EROSION CONTROL DETAILS

FAYETTEVILLE PUBLIC WORKS COMMISSION WATER RESOURCES ENGINEERING P.O. Box 1084, Fayetteville, NC 28302 955 Old Wilmington Road, Fayetteville, NC 28301

811 Call before you dig. PWC DRAWING # DS-15486

DATE: 06/13/2023  
REVISIONS:  
BY: AMB  
06/13/2023  
FINAL DESIGN NOT FOR CONSTRUCTION  
06/13/2023  
FINAL DESIGN NOT FOR CONSTRUCTION  
06/13/2023  
FINAL DESIGN NOT FOR CONSTRUCTION  
06/13/2023  
FINAL DESIGN NOT FOR CONSTRUCTION  
06/13/2023  
FINAL DESIGN NOT FOR CONSTRUCTION

DATE: 6/13/23  
PROCESS/LAYOUT BY: TMB/AWB  
PLANNING/ISSUE BY: TMB/AWB  
DESIGN REVIEW BY: BRL  
APPROVED BY: AS SHOWN  
SCALE: AS SHOWN

SHEET D-6

McKIM & CREED, INC.  
SURVEY/GPS BY: MCKIM&CREED, INC.

PROFESSIONAL SEAL  
02/14/10  
MCKIM & CREED, INC.  
1730 Varsity Drive, Suite 500  
Raleigh, NC 27606  
Phone: (919)233-8091, Fax: (919)233-8031  
F-1222  
www.mckimcreed.com

1. THE INTENT OF THE CONSTRUCTION SEQUENCE IS TO PROVIDE THE CONTRACTOR WITH A GENERAL GUIDE FOR CONSTRUCTION PURPOSES. THIS SEQUENCE IS NOT INTENDED TO OUTLINE ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
2. CONTRACTOR SHALL ARRANGE PRE-CONSTRUCTION MEETING WITH THE OWNER'S REPRESENTATIVE, ENGINEER, AND NCDQO-LAND QUALITY SECTION REPRESENTATIVE (919-791-4200) PRIOR TO ANY LAND DISTURBING ACTIVITY ON SITE.
3. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NORTH CAROLINA EROSION AND SEDIMENTATION CONTROL PLANNING AND DESIGN MANUAL.
4. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS. NEEDED REPAIRS SHALL BE MADE IMMEDIATELY.
5. IF IT IS DETERMINED DURING CONSTRUCTION THAT ANY SEDIMENT IS LEAVING THE SITE, DESPITE PROPER IMPLEMENTATION AND MAINTENANCE, THE CONTRACTOR IS OBLIGATED TO TAKE ADDITIONAL CORRECTIVE ACTION. CONTACT OWNER'S REPRESENTATIVE AND ENGINEER WITH ANY ADDITIONAL MEASURES NEEDED.
6. CONTRACTOR SHALL ESTABLISH GROUNDCOVER ON DISTURBED AREAS WITHIN DAYS SPECIFIED BY THE NPDES GENERAL PERMIT STABILIZATION REQUIREMENTS AFTER COMPLETION OF ANY PHASE OF GRADING, SEEDING SHALL BE IN ACCORDANCE WITH EC-2 AND EC-3 ON THIS SHEET.
7. MAINTAIN A COPY OF THE LETTER OF PLAN APPROVAL ON SITE FOR SEDIMENTATION AND EROSION CONTROL FROM NCDQO-LAND QUALITY SECTION AS WELL AS THE PREVIOUS 30 DAYS OF SELF INSPECTION RECORDS, RAIN GAUGE, APPROVAL CERTIFICATE/LETTER, APPROVED PLAN, AND NPDES PERMIT. THESE ITEMS SHOULD BE LOCATED NEAR THE MAIN CONSTRUCTION ENTRANCE. COORDINATE WITH THE INSPECTOR IF AN ALTERNATIVE LOCATION IS PREFERRED. ADDITIONAL INFORMATION AND A LINK TO THE NCDQO COMBINED SELF-MONITORING FORM CAN BE FOUND AT: [HTTPS://DEQ.NC.GOV/ABOUT/DIVISIONS/ENERGY-MINERAL-LAND-RESOURCES/ENERGY-MINERAL-LAND-PERMITS/STORMWATER-PERMITS/CONSTRUCTION-SW](https://deq.nc.gov/about/divisions/energy-mineral-land-resources/energy-mineral-land-permits/stormwater-permits/construction-sw).
8. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING UTILITIES TO AVOID CONFLICT DURING INSTALLATION OF EROSION CONTROL MEASURES, STORM SEWER PIPES AND UNDERGROUND UTILITY LINES. CONTRACTOR IS TO CALL 1-800-632-4949 FOR "NO ONE CALL" OR "811" TO HAVE EXISTING UTILITIES LOCATED.
9. CONTRACTOR TO HAVE A PROFESSIONAL LAND SURVEYOR FLAG PROPERTY LINES, EASEMENTS, STREAM BUFFERS, TREE PROTECTION AREAS AND LIMITS OF DISTURBANCE PRIOR TO LAND DISTURBING ACTIVITIES.
10. INSTALL TEMPORARY ACCESS PAVEMENT PER THESE PLANS AND DETAIL EC-5 ON THIS SHEET. INSTALL CONSTRUCTION ENTRANCES WHERE REQUIRED AND SHOWN IN THESE PLANS TO ACCESS WORK AREAS.
11. INSTALL TEMPORARY SILT FENCE, SUPER SILT FENCE, HIGH HAZARD SILT FENCE, TREE PROTECTION FENCE AND OTHER MEASURES AS SHOWN ON PLANS. SILT FENCE SHOULD BE INSTALLED ON ALL DOWNSLOPE PORTIONS OF THE DISTURBED AREA. SILT FENCE SHOULD NOT BE INSTALLED ON THE HIGH SIDE OF THE DISTURBANCE AREA (TREE PROTECTION FENCING IS AN ACCEPTABLE ALTERNATIVE IF DESIRED). SILT FENCE OUTLETS SHOULD BE INSTALLED AT ALL LOW SPOTS AND ANYWHERE WATER IS POOLING. SILT FENCE AND OUTLET LOCATIONS MAY VARY FROM THE APPROVED PLANS PER SITE CONDITIONS. CONTRACTOR SHALL PROVIDE SILT FENCE AROUND ALL BORROW/STOCKPILE/WASTE AREAS. ALL LAYOUT/STAGING AREAS, AND ALONG EITHER SIDE OF ALL TEMPORARY CONSTRUCTION ACCESS ROADS/CORRIDORS.
12. CONTRACTOR TO INSTALL EROSION CONTROL MEASURES AS SHOWN AND DETAILED IN THESE PLANS. CONTRACTOR TO PHASE THE OVERALL EROSION CONTROL, BASED ON INSTALLATION OF THE SEWER LINE. CONTRACTOR TO COORDINATE THE EROSION CONTROL INSTALLATION WITH PWC AND NCDQO.
13. CONTRACTOR TO REFER TO THE TEMPORARY WETLAND AND STREAM CROSSING DETAILS (EC-14 & EC-15) AS REQUIRED DURING THE INSTALLATION OF THE SEWER LINE. AT ALL STREAM CROSSINGS, CONTRACTOR SHALL ADHERE TO THE FOLLOWING SEQUENCE:
- 13.1. SET UP PUMP WITH SUCTION AND DISCHARGE HOSE.
- 13.2. INSTALL UP-STREAM COFFER DAM, COMPLETE WORK IN DRY AREAS, RESTORE STREAM, AND REMOVE UP-STREAM COFFERDAM.
- 13.3. INSTALL DOWN-STREAM COFFER DAM, COMPLETE WORK IN DRY AREAS, RESTORE STREAM, AND REMOVE DOWN-STREAM COFFERDAM.
- 13.4. THE PUMP MUST RUN CONTINUOUSLY WHILE WORKING IN THE STREAM.
- 13.5. STREAM BANKS MUST BE STABILIZED AT THE END OF EACH DAY.
- 13.6. CONTRACTOR TO PROVIDE ADDITIONAL EROSION CONTROL MEASURES AS NEEDED DURING STREAM AND WETLAND CROSSINGS. CONTRACTOR TO MINIMIZE THE IMPACTS TO STREAMS AND WETLANDS DURING INSTALLATION.
14. TEMPORARY INLET PROTECTION SHALL BE INSTALLED AS SHOWN ON THE PLANS. THESE DEVICES ARE TO REMAIN IN PLACE UNTIL THE SITE HAS BEEN STABILIZED AND APPROVAL FOR REMOVAL HAS BEEN GIVEN.
15. INSTALL STRAW WATTLE/CHECK DAMS AS SHOWN ON PLANS WHEN CONTRACTOR IS WORKING IN THESE AREAS. THE

- DEVICES ARE TO REMAIN IN PLACE UNTIL THE AREA IS STABILIZED AND APPROVAL FOR REMOVAL HAS BEEN GIVEN BY NCDQO-LAND QUALITY SECTION AND ENGINEER.
16. FOR OPEN TRENCH CONSTRUCTION, INSTALL SANITARY SEWER AND BACKFILL TRENCH DAILY. WHEN BACKFILLING THESE AREAS, STABILIZATION SHALL BE INSTALLED PER THE LATEST NCDQO REQUIREMENTS.
17. CONTRACTOR IS TO Dewater the opened trench daily as needed but at a minimum after every rainfall event. REFER TO DETAIL EC-26 FOR DEWATERING CONSTRUCTION SPECIFICATIONS AND REQUIREMENTS.
18. WHEN STABILIZING WETLAND CROSSINGS, CONTRACTOR IS TO PLANT SEED PER THE RIPARIAN BUFFER AND WETLAND SEEDING SCHEDULE SHOWN ON DETAIL EC-17 OR DETAIL EC-22 AS SHOWN ON PLANS.
19. CONTRACTOR TO STABILIZE STREAM BANKS PER DETAIL EC-17 OR DETAIL EC-22 AS SHOWN ON PLANS.
20. THE CONTRACTOR SHALL STABILIZE WETLANDS, AND STREAM CROSSINGS AT THE TIME OF THE ACTUAL CROSSING. CONTRACTOR TO UTILIZE EXTREME CAUTION TO ENSURE THESE AREAS ARE STABILIZED AND THAT NO SEDIMENT ENVOACHES DOWNSTREAM OF THESE CROSSINGS.
21. SPOIL PLACEMENT SHALL BE ON THE UPSTREAM SIDE OF THE TRENCH ONLY. ANY ADDITIONAL EXCAVATED MATERIAL SHALL BE HAULED OFF AND DISPOSED OF IN AN APPROVED LANDFILL AT THE CONTRACTOR'S EXPENSE. SPOILS SHALL BE MAINTAINED IN ACCORDANCE WITH THE SOIL STOCKPILE MAINTENANCE REQUIREMENTS OUTLINED IN DETAIL EC-1a ON THIS SHEET.
22. CONTRACTOR TO UTILIZE SEDIMENT FILTER BAG FOR DEWATERING THE TRENCHES AS REQUIRED (REFER TO EC-19).
23. STABILIZE SITE AS TRENCH IS RESTORED TO ORIGINAL GRADE WITH VEGETATION AND/OR PAVING AS SHOWN ON PLANS. THIS STABILIZATION IS TO BE COMPLETED DAILY.
24. PERFORM SEEDING AND MULCHING AS REQUIRED IN ACCORDANCE WITH THE EROSION CONTROL (EC) DETAILS AND TECHNICAL SPECIFICATIONS.
25. REMOVE TEMPORARY CONSTRUCTION ENTRANCES WHEN WORK IS COMPLETE IN AN AREA AND BRING AREAS BACK TO ORIGINAL GRADES AS REQUIRED.
26. ONCE ALL GROUNDCOVER HAS BEEN ESTABLISHED IN A SPECIFIC AREA, THE CONTRACTOR SHALL CONTACT NCDQO-LAND QUALITY SECTION AND ENGINEER FOR SITE INSPECTION BEFORE REMOVING ANY TEMPORARY EROSION CONTROL MEASURES.
27. ONCE AREA HAS BEEN APPROVED FOR REMOVAL OF EROSION AND SEDIMENTATION MEASURES, CONTRACTOR SHALL REMOVE THESE MEASURES AND INSTALL PERMANENT SEEDING PER DETAIL EC-3 ON THIS SHEET.
28. AFTER THE ENTIRE SITE IS COMPLETELY STABILIZED, CONTRACTOR SHALL REQUEST PERMISSION FROM NCDQO-LAND QUALITY SECTION AND ENGINEER TO REMOVE ALL TEMPORARY MEASURES. ONCE APPROVAL IS GIVEN, REMOVE ALL TEMPORARY MEASURES AND INSTALL PERMANENT VEGETATION AS REQUIRED AND ON ANY RESULTING BARE AREAS. REPAIR ANY AREAS DISTURBED DURING REMOVAL.

#### RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

**SEEDING MIXTURE:**  
SPECIES: RATE (lb/acre):  
TALL FESCUE 400  
KOBE LESPEDEZA 30

**NURSE PLANTS:**  
BETWEEN MAY 1 AND AUG. 15, ADD 10 lb/acre GERMAN MILLET OR 15 lb/acre SUDANGRASS. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 lb/acre RYE (GRAIN)

**SEEDING DATES:**  
BEST: AUG. 15 - SEPT. 15  
LATE WINTER: FEB. 15 - MAR. 21  
POSSIBLE: AUG. 20 - OCT. 25  
FEB. 1 - APR. 15.

FALL IS BEST FOR TALL FESCUE AND LATE WINTER FOR LESPEDEZAS. OVERSEEDING OF DOBE LESPEDEZA OVER FALL-SEEDED TALL FESCUE IS VERY EFFECTIVE.

**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 (min. 400 gal/acre), NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL. \*

**MAINTENANCE:**  
REFERTILIZE IN THE SECOND YEAR UNLESS GROWTH IS FULLY ADEQUATE. MAY BE MOWED ONCE OR TWICE A YEAR, BUT MOWING IS NOT NECESSARY. RESEED, FERTILIZE AND MULCH DAMAGED AREAS IMMEDIATELY.

#### RECOMMENDATIONS FOR GRASS-LINED CHANNELS

**SEEDING MIXTURE:**  
SPECIES: RATE (lb/acre):  
TALL FESCUE 300

**NURSE PLANTS:**  
BETWEEN MAY 1 AND AUG. 15, ADD 10 lb/acre SUDANGRASS OR 15 lb/acre GERMAN MILLET. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 40 lb/acre RYE (GRAIN)

**SEEDING DATES:**  
BEST: AUG. 25 - OCT.  
LATE WINTER: FEB. - APR. 15

AVOID SEEDING FROM NOV. TO JAN. IF SEEDING MUST BE DONE AT THIS TIME, ADD 40 lb/acre RYE GRAIN AND USE A CHANNEL LINING THAT OFFERS MAXIMUM PROTECTION

**SOIL AMENDMENTS:**  
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 4,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 1,000 lb/acre 10-10-10 FERTILIZER

**MULCH:**  
USE ROLLED EROSION CONTROL PRODUCT TO COVER THE BOTTOM OF THE CHANNELS AND DITCHES, AND STAPLE SECURELY. THE LINING SHOULD EXTEND TO THE TOP OF BANK, ON CHANNEL SIDE SLOPES ABOVE THIS HEIGHT, AND IN DRAINAGES NOT REQUIRING TEMPORARY LININGS, APPLY 4,000 lb/acre GRAIN STRAW, AND ANCHOR STRAW BY STAPLING NETTING OVER THE TOP.

MULCH AND ANCHORING MATERIALS MUST NOT BE ALLOWED TO WASH DOWN SLOPES WHERE THEY CAN CLOG DRAINAGE DEVICES.

**MAINTENANCE:**  
INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE IN LATE WINTER OF THE FOLLOWING YEAR; USE SOIL TESTS OR APPLY 150 lb/acre 10-10-10. MOW REGULARLY TO A HEIGHT OF 2-4 INCHES.

#### RECOMMENDATIONS FOR RIPARIAN BUFFERS AND WETLANDS

RECOMMENDED APPLICATION RATE: 20-25 LBS. PER ACRE

SPECIES	COMMON NAME	PERCENT
Elymus virginicus	VIRGINIA WILD RYE	15
Panicum virgatum	SWITCHGRASS	15
Agrostis stolonifera	CREeping BENTGRASS	10
Rudbeckia hirta	BLACK-EYED SUSAN	10
Coreopsis lankeolata	Coreopsis	10
Panicum clandestinum	DEER TONGUE	5
Andropogon gerardi	BIG BLUESTEM	5
Lunaria epiphus	SOFT RUSH	5
Echinochloa muricata	AWNED BARNYARD GRASS	5
Schizachyrium scoparium	LITTLE BLUESTEM	5
Sorghastrum nutans	INDIAN GRASS	5
Tripsacum dactyloides	GAMMA	5

AS SPECIFIED BY MELLOW MARSH IN SILER CITY OR APPROVED EQUAL.

**SEEDING DATES:**  
BEST: MAR. 1 - MAY 1  
POSSIBLE: OCT. - FEB.

NO SEEDING FROM JUNE TO SEPTEMBER.

**SOIL AMENDMENTS:**  
CONTRACTOR TO WORK COMPOST INTO THE SOILS SURFACE AT A MINIMUM OF 2 INCHES. FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 1,500 lb/acre GROUND AGRICULTURAL LIMESTONE.

**MAINTENANCE:**  
INSPECT AND REPAIR MULCH FREQUENTLY. MOWING IN AUGUST - SEPTEMBER ONLY TO HELP DISPERSE SEEDS.

#### NOTES:

- SEE NCDENR'S EROSION AND SEDIMENT CONTROL PLANNING DESIGN MANUAL SECTION 6.11 FOR ADDITIONAL PERMANENT SEEDING OPTIONS.
- IF CRIMPING IS TO BE USED, INSTALL 1/2 OF THE MULCH, THEN CRIMP, AND INSTALL THE OTHER 1/2 OF MULCH ON TOP.

### EC-1 EROSION CONTROL CONSTRUCTION SEQUENCE

N.T.S.

#### GENERAL EROSION AND SEDIMENT CONTROL NOTES:

- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NORTH CAROLINA EROSION AND SEDIMENTATION CONTROL PLANNING AND DESIGN MANUAL.
- ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS. NEEDED REPAIRS SHALL BE MADE IMMEDIATELY.
- ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY NEED TO BE INSTALLED IF DEEMED NECESSARY BY EITHER THE ENGINEER OR ENVIRONMENTAL INSPECTOR.
- TEMPORARY SEDIMENT CONTROL MEASURES (SILT FENCE, CONSTRUCTION ENTRANCE, ETC.) SHALL BE MAINTAINED UNTIL ALL CONTRIBUTING AREAS ARE GRADED AND STABILIZED.
- DUST ON SITE SHALL BE MINIMIZED BY SPRAYING WATER ON DRY AREAS OF THE SITE. THE USE OF OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION IS STRICTLY PROHIBITED.
- IF THE MAJORITY OF MUD OR DIRT IS NOT REMOVED FROM CONSTRUCTION TRAFFIC BY CONSTRUCTION ENTRANCES, CONTRACTOR SHALL CONSTRUCT VEHICLE WASH AREAS AT CONSTRUCTION TRAFFIC EXIT POINTS. MUD AND DIRT SHALL BE INTERCEPTED AND WASH WATER IS ALLOWED TO BE DISCHARGED OFFSITE. RINSE-OFF WILL NOT BE ALLOWED OUTSIDE THE PROJECT CONSTRUCTION LIMITS.
- SEDIMENT SHALL BE REMOVED FROM BEHIND THE SILT FENCE WHEN IT REACHES 1-FOOT DEEP.
- MAXIMUM GRADED SLOPE SHALL NOT EXCEED 3:1.
- NO CONCRETE OR CEMENT SLURRY SHALL BE DISCHARGED FROM THE SITE. ANY HARDENED CONCRETE RESIDUE WILL BE DISPOSED OF, OR RECYCLED OFF SITE, IN ACCORDANCE WITH LOCAL AND STATE SOLID WASTE REGULATIONS.
- ALL SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE.
- IN ANY EVENT PER THE STABILIZATION TIMEFRAMES PER THE LATEST NCDQO REQUIREMENTS, REFER TO EROSION CONTROL DETAILS FOR ADDITIONAL REQUIREMENTS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A PERMIT FOR ANY BORROW AND/OR SPOIL AREAS OR DISTURBED AREAS NOT SHOWN ON THESE PLANS. THIS SHALL INCLUDE ALL COST ASSOCIATED WITH OBTAINING PERMIT.
- CONTRACTOR SHALL FOLLOW EROSION CONTROL CONSTRUCTION SEQUENCE UNLESS GIVEN WRITTEN APPROVAL FROM ENGINEER FOR VARIANCE.
- LIMITS OF DISTURBANCE SHALL BE PHASED THROUGHOUT THE PROJECT SITE. DISTURBANCE TIMEFRAMES FOR TEMPORARY STREAM AND WETLAND CROSSINGS ARE TO BE MINIMIZED. CONTRACTOR TO COORDINATE THE DISTURBANCE LENGTH WITH THE PWC AND NCDQO.
- IF RIP-RAP IS NOT REQUIRED AND STRAW WITH NET LINER IS TO BE USED, WATER COURSE SHALL BE SEEDED PER SIDE DITCH SEEDING SCHEDULE DETAIL USING SEEDBED PREPARATION SCHEDULE DETAIL.
- TOTAL DISTURBED AREA IS 53.56 ACRES (CONTRACT II - 17.15 ACRES)
- IN AREAS WHERE RIP-RAP IS TO BE INSTALLED, THE CONTRACTOR IS TO INSTALL PER DETAIL EC-22.
- WOODMAT SHALL HAVE SIDE PANELS TO PREVENT MATERIAL FROM FALING OFF THE SIDES AND INTO THE STREAM.
- IN SOME CASES A WATER BAR ABOVE STREAM CROSSING MAY BE NEEDED TO PREVENT RUNOFF ON THE CONSTRUCTION ENTRANCE FLOWING DOWN TO THE STREAM.
- ALL WORK WITHIN BUFFERS AND WETLANDS SHALL BE STABILIZED AT THE END OF EACH WORK DAY (COVER STOCKPILES WITH MATTING/TARPS, SEED/MULCH, ETC). DISTURBANCES OF UPLAND AREAS SHALL BE LIMITED TO LENGTHS THAT CAN BE STABILIZED AT THE END OF EACH WORK DAY.
- COMPOST SOOK MAY BE SUBSTITUTED FOR SILT FENCE OUTLET GRAVEL, SLOPE BREAKS, CHECK DAMS AND INLET PROTECTION. THE COMPOST SOOK MUST BE INSTALLED PER MANUFACTURER SPECIFICATIONS. THEY MUST BE SIZED TO PREVENT OVERTOPPING. FOR SILT FENCE OUTLETS, THE INSTALLED HEIGHT CAN BE NO LESS THAN 16 INCHES. WATTLES, COIR LOGS, FILTER LOGS, ETC. ARE NOT ACCEPTABLE FOR THESE USES.
- UTILIZE SILT FENCE 4-HOOKS AT SILT FENCE OUTLET LOCATIONS IN WHICH THE RUNOFF FLOW DIRECTION IS PARALLEL TO THE OUTLET. THIS WILL HELP PREVENT OUTLET BYPASS AND REDUCE RUNOFF ALONG THE SILT FENCE.
- PLACE A LAYER OF SAND, SCREENINGS OR FINES ON PAVED SURFACES PRIOR TO DEPOSITION OF EXCAVATED MATERIALS. THESE AREAS ARE TO BE WITHIN THE PERMITTED LIMITS OF DISTURBANCE.
- AFTER THE PERMANENT CESSATION OF CONSTRUCTION ACTIVITIES, ANY AREAS WITH TEMPORARY GROUND STABILIZATION SHALL BE CONVERTED TO PERMANENT GROUND STABILIZATION WITHIN 15 WORKING DAYS, OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING THE LAST LAND-DISTURBING ACTIVITY.

#### SOIL STOCKPILE MAINTENANCE REQUIREMENTS:

- EXCAVATED MATERIAL FROM TRENCHES ARE TO BE PLACED ON THE UPSTREAM SIDE OF THE TRENCH. NO ADDITIONAL "STOCKPILE" AREAS ARE TO BE UTILIZED OUTSIDE OF THE EXISTING LIMITS OF DISTURBANCE.
- SEEDING OR COVERING OF STOCKPILES WITH TARPS OR MULCH IS REQUIRED AND WILL REDUCE EROSION PROBLEMS. TARPS SHOULD BE KEYED IN AT THE TOP OF THE SLOPE TO KEEP WATER FROM RUNNING UNDER THE PLASTIC.
- THE APPROVED PLAN SHALL PROVIDE FOR THE USE OF STAGED SEEDING AND MULCHING ON A CONTINUAL BASIS WHILE THE STOCKPILE(S) ARE IN USE.
- STOCKPILE HEIGHT SHALL NOT EXCEED 10 FEET TALL.
- STOCKPILE SLOPES SHALL BE 2:1 OR FLATTER.

#### RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING

**SEEDING MIXTURE:**  
SPECIES: RATE (lb/acre):  
RYE (GRAIN) 120  
ANNUAL LESPEDEZA (KOBE IN  
PIEDMONT & COASTAL PLAIN,  
KOREAN IN MOUNTAINS)

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

**SEEDING DATES:**  
MOUNTAINS (ABOVE 2,500'): FEB. 15 - MAY 15  
(BELOW 2,500'): JAN. 1 - MAY 1  
PIEDMONT:  
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 (min. 400 gal/acre), 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.

#### RECOMMENDATIONS FOR FALL

**SEEDING MIXTURE:**  
SPECIES: RATE (lb/acre):  
RYE (GRAIN) 120

**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 750 lb/acre 10-10-10 FERTILIZER

**MULCH:**  
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT (min. 400 gal/acre), NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL. IF CRIMPING IS TO BE USED, INSTALL 1/2 OF THE MULCH, THEN CRIMP, AND INTALL THE OTHER 1/2 OF MULCH ON TOP.

**MAINTENANCE:**  
REPAIR AND REFERTILIZE DAMAGED 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) OR KOREAN (MOUNTAINS) LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

#### 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:**  
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT (min. 400 gal/acre), NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL. IF CRIMPING IS TO BE USED, INSTALL 1/2 OF THE MULCH, THEN CRIMP, AND INTALL THE OTHER 1/2 OF MULCH ON TOP.

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

### EC-1a EROSION CONTROL NOTES

N.T.S.

### EC-2 TEMPORARY SEEDING SCHEDULE

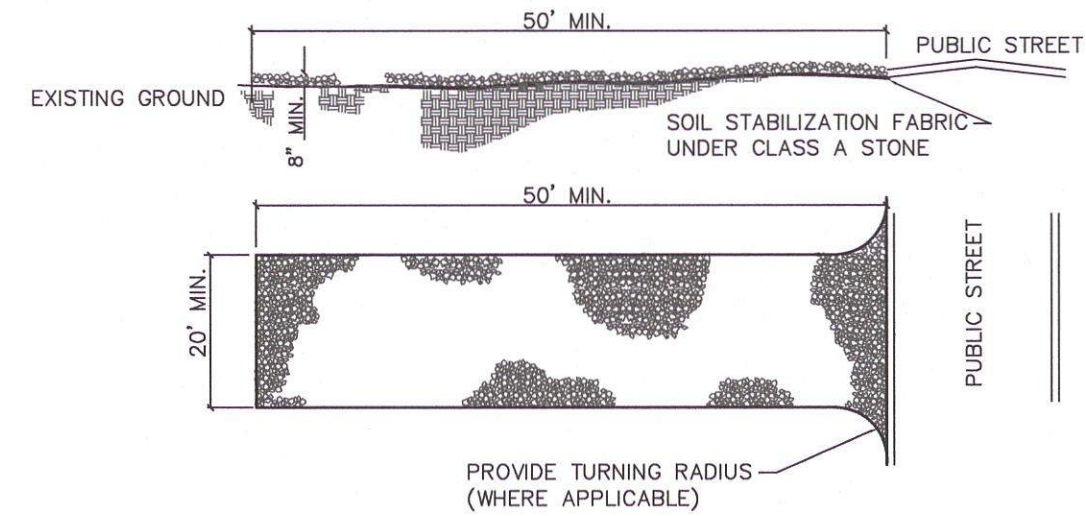
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### EC-3 PERMANENT SEEDING SCHEDULE

N.T.S.

### EC-2 SEEDBED PREPARATION

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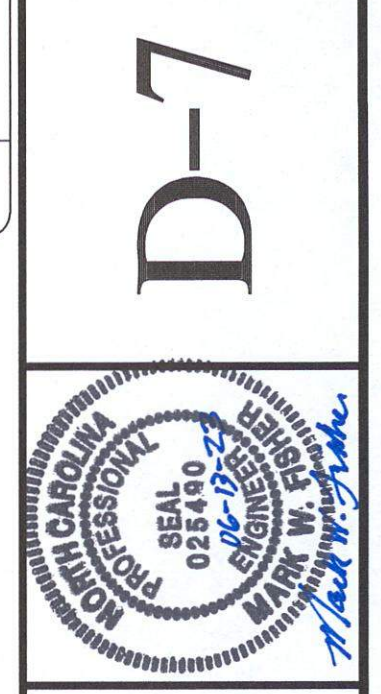


### EC-4 TEMP. CONSTRUCTION ENTRANCE

N.T.S.

DATE	REVISIONS	BY
08.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AJWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HHF
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HHF
04.30.2021	FINAL DESIGN - CONTRACT ORAMATION AND DESIGN RESPONSE	HHF
04.15.2022	FINAL DESIGN - CONTRACT ORAMATION AND DESIGN RESPONSE	HHF
06.15.2023	FINAL DESIGN ISSUED FOR BID	HHF

SURVEY/GPS BY: MCKIM&CREED, INC.	DATE: 6/13/23
PROCESS/OUT BY: TMB/AJWB	
PLAN/PROG./ISSUE BY: BRL	
DESIGN REVIEW BY:	
APPROVED BY:	
SCALE: AS SHOWN	



SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
 STANDARD EROSION CONTROL DETAILS

FAYETTEVILLE PUBLIC WORKS COMMISSION  
 WATER RESOURCES ENGINEERING  
 P.O. Box 1089, Fayetteville, NC 28302  
 935 Old Wilmington Road, Fayetteville, NC 28301

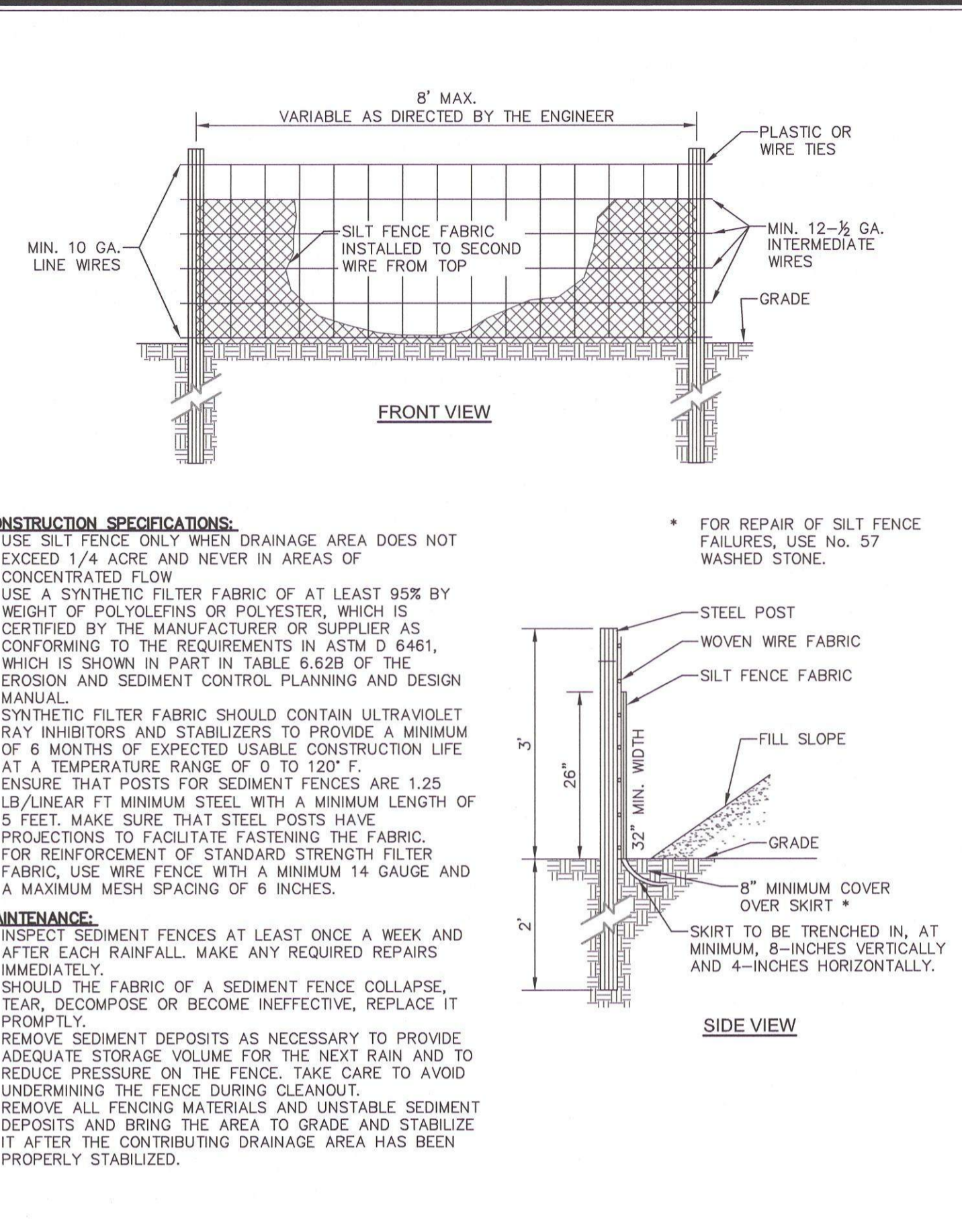


**MCKIM & CREED**  
 1730 Varsity Drive, Suite 500  
 Raleigh, NC 27606  
 Phone: (919)233-8091, Fax: (919)233-8031  
 F-1222  
 www.mckimcreed.com

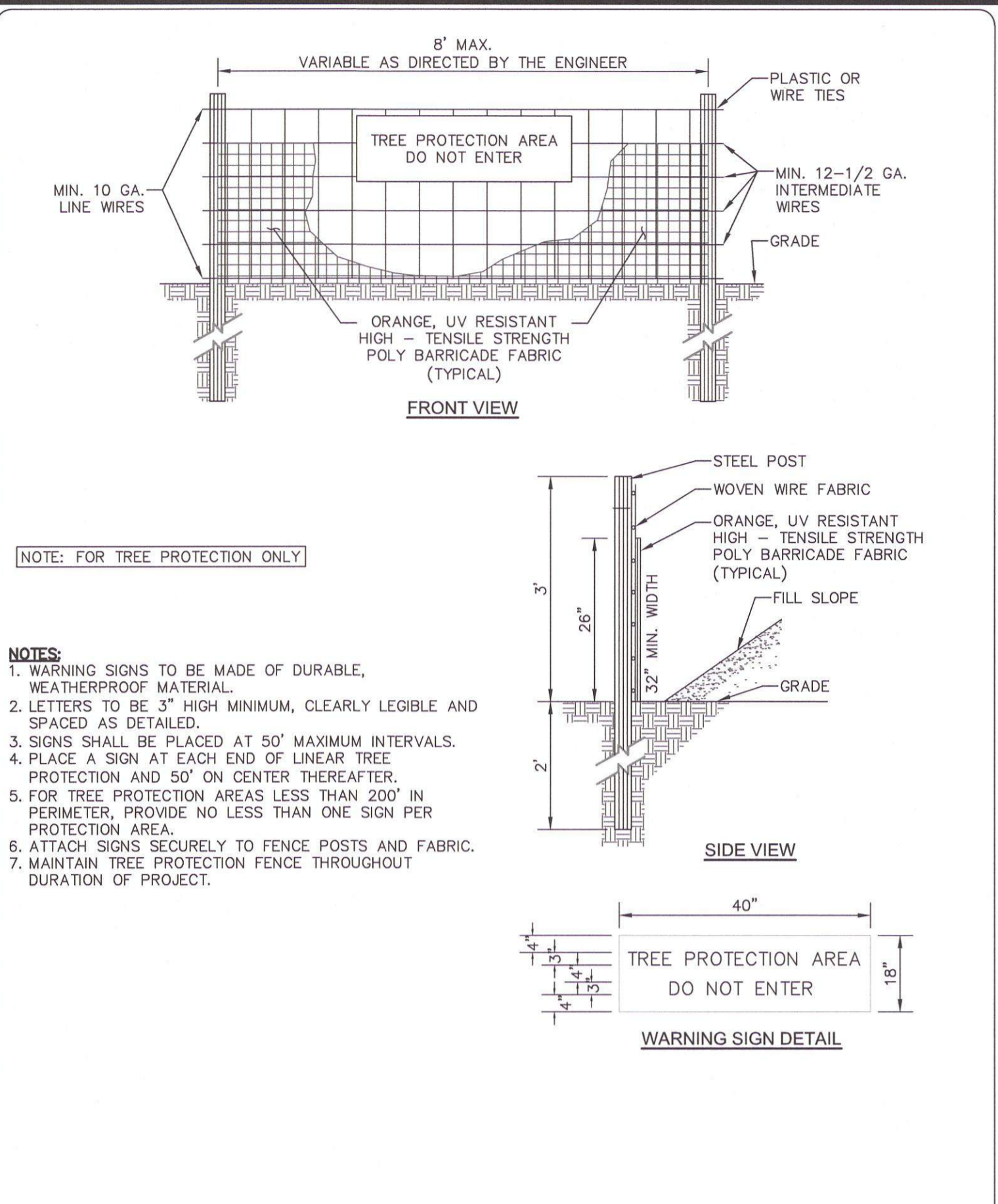
PWC DRAWING # DS-15486

FINAL DESIGN  
ISSUED FOR BID

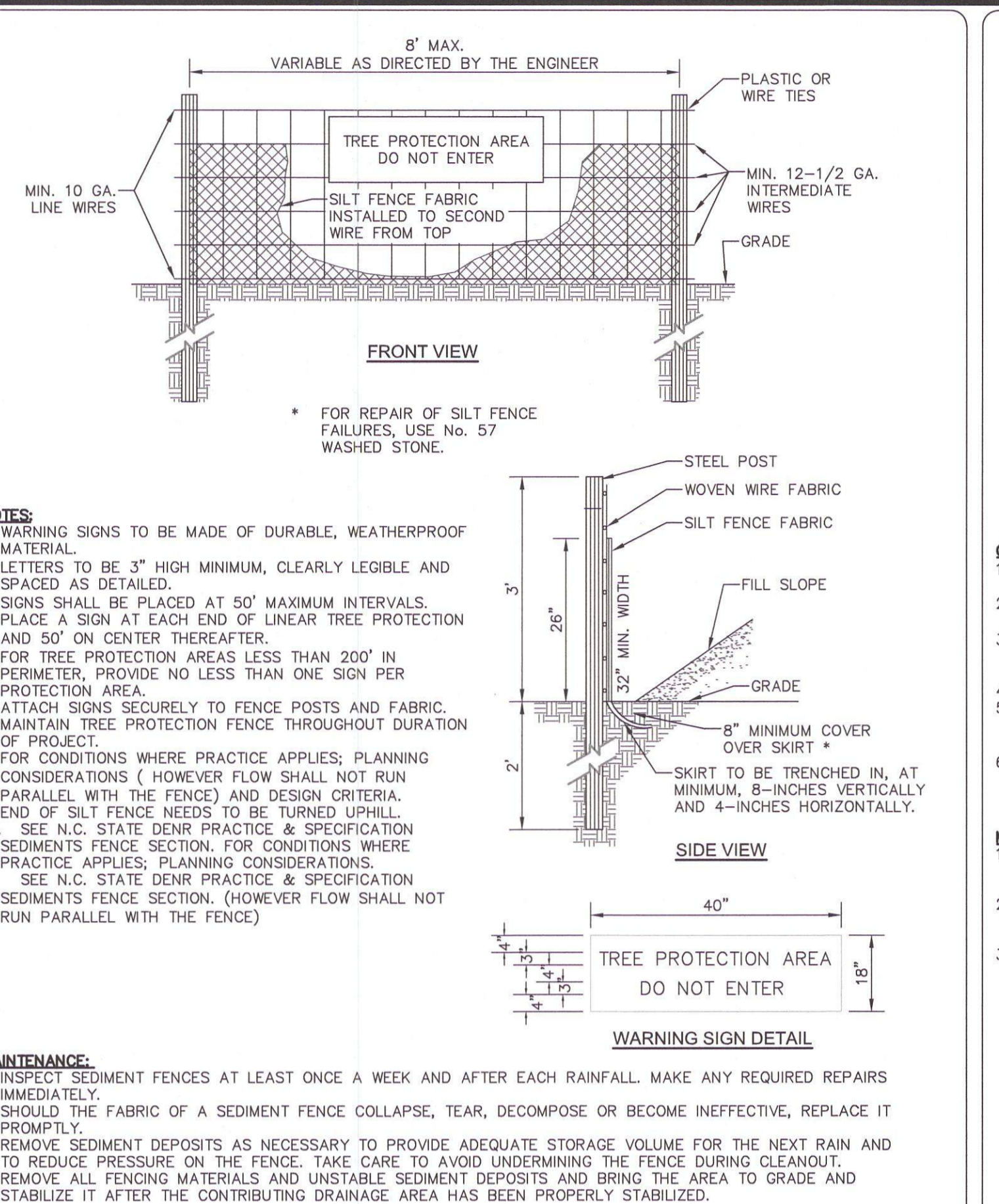
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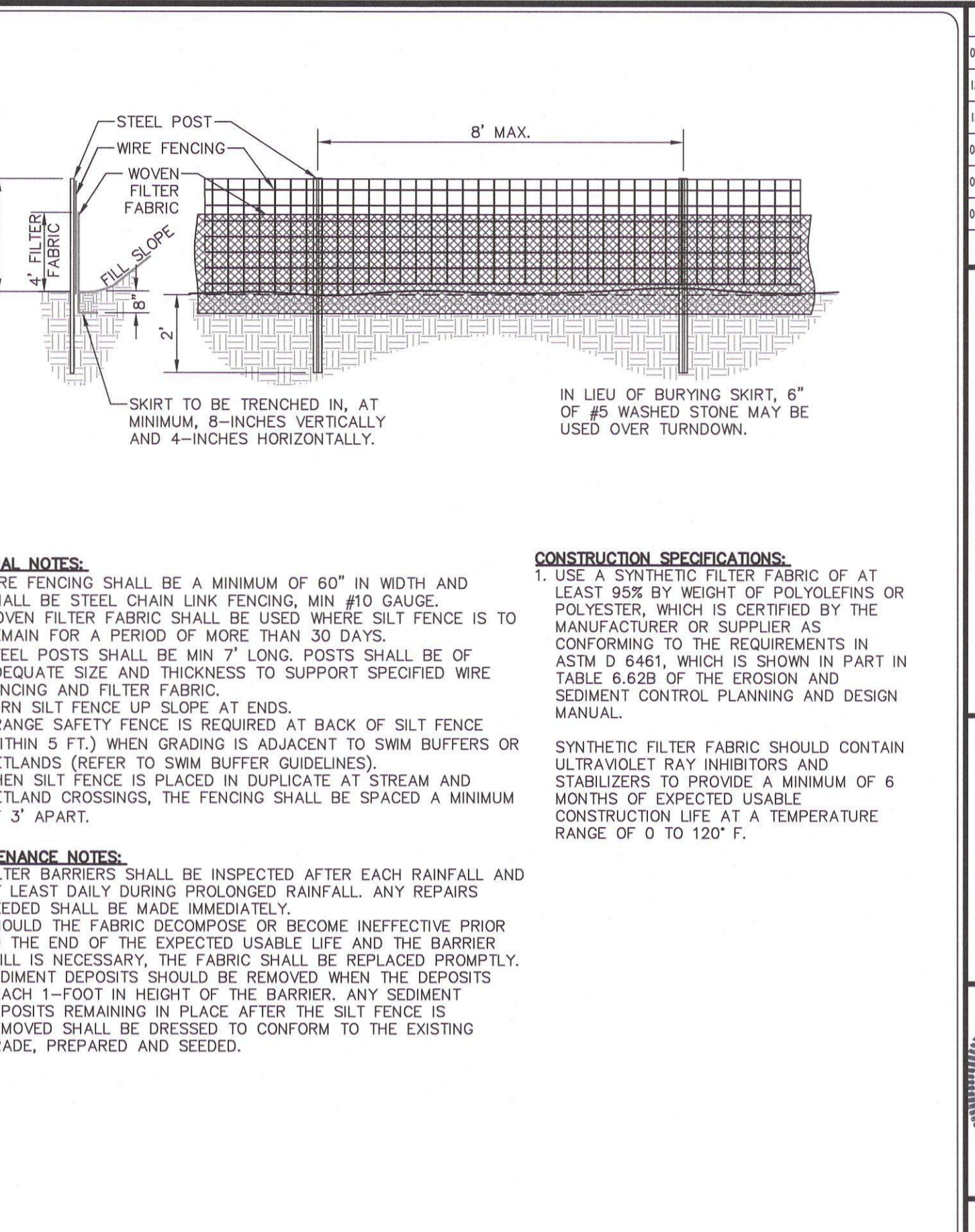
EC-6 TEMPORARY SILT FENCE N.T.S.



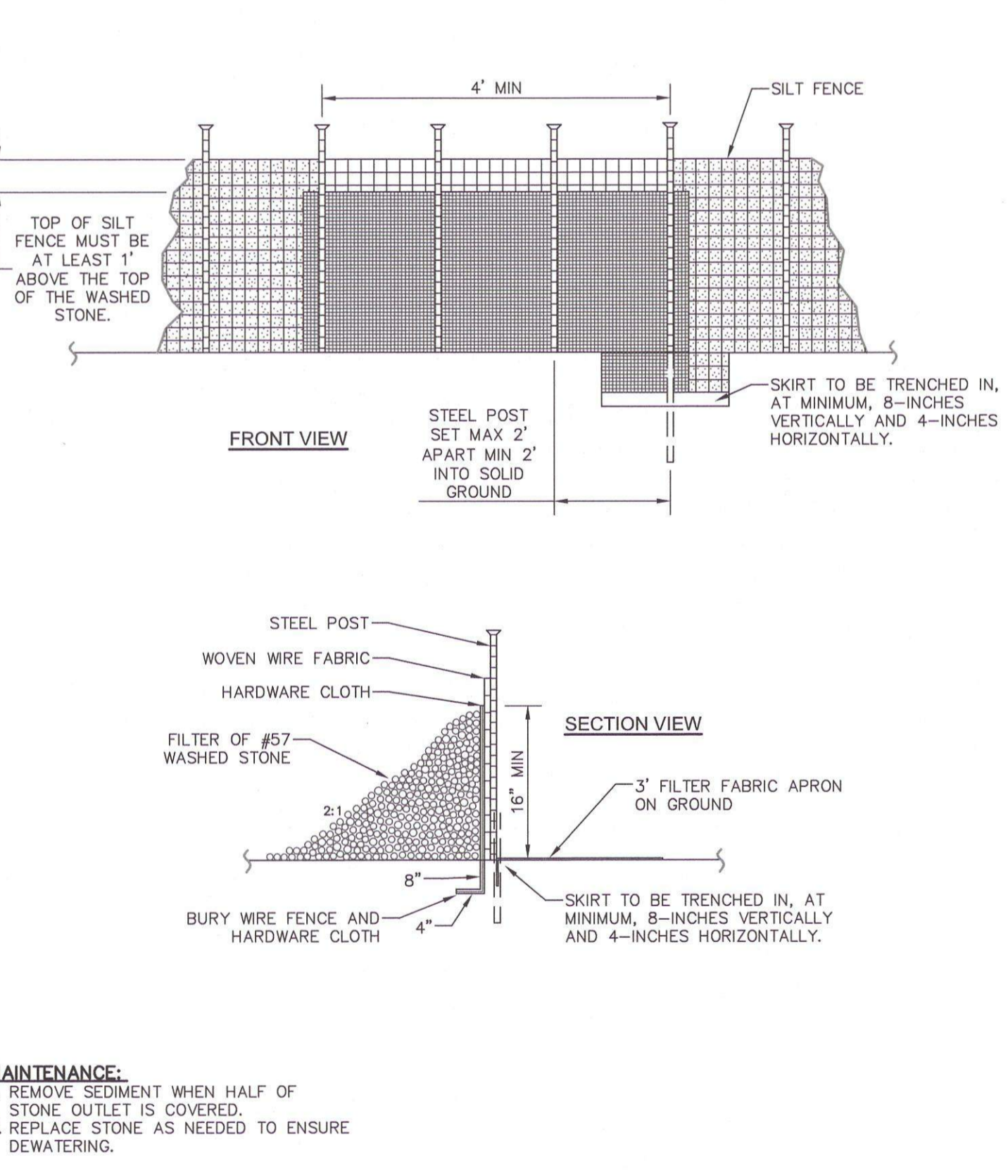
EC-7 TEMPORARY TREE PROTECTION FENCE N.T.S.



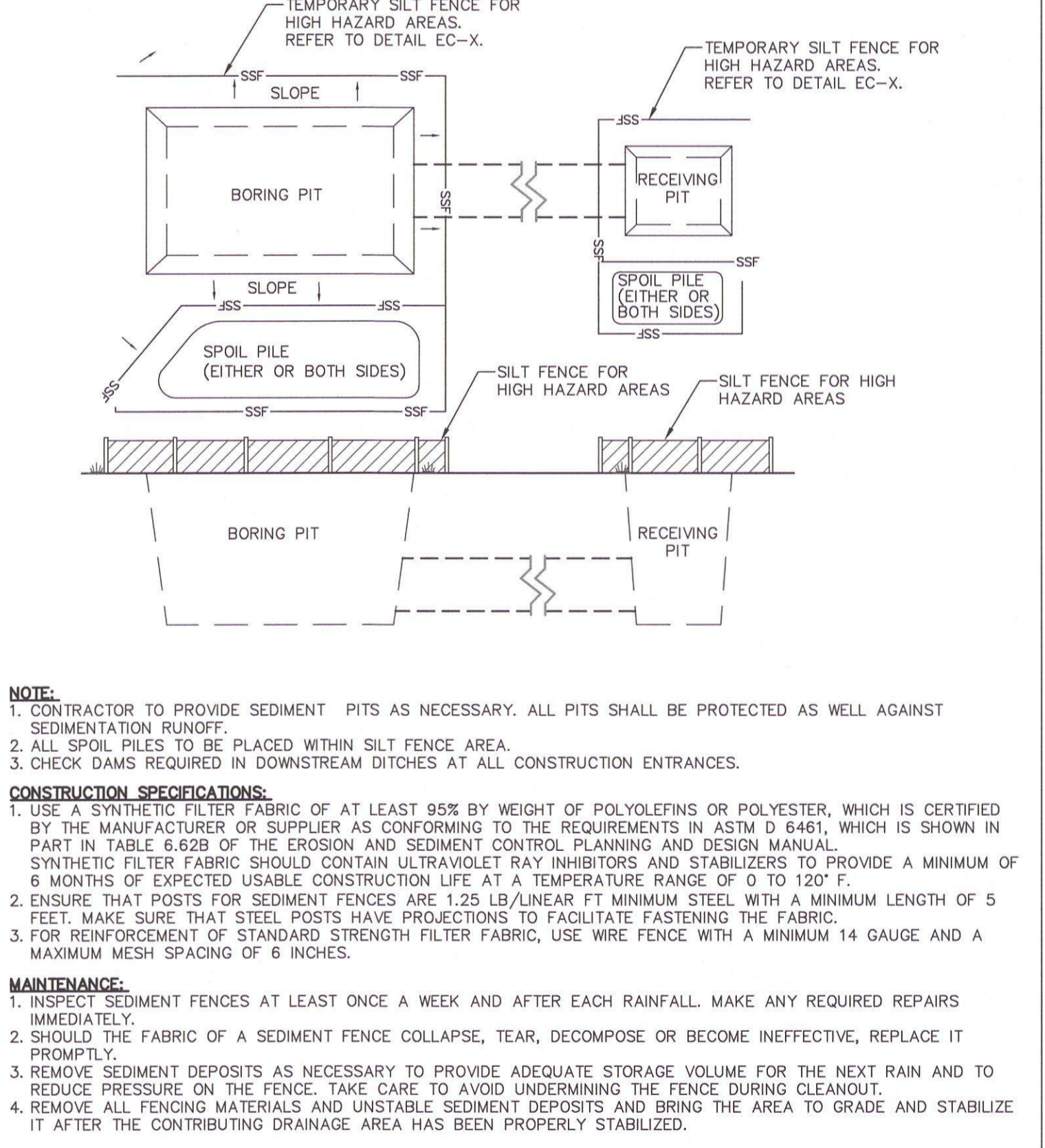
EC-8 TEMP. SILT/TREE PROTECTION FENCE N.T.S.



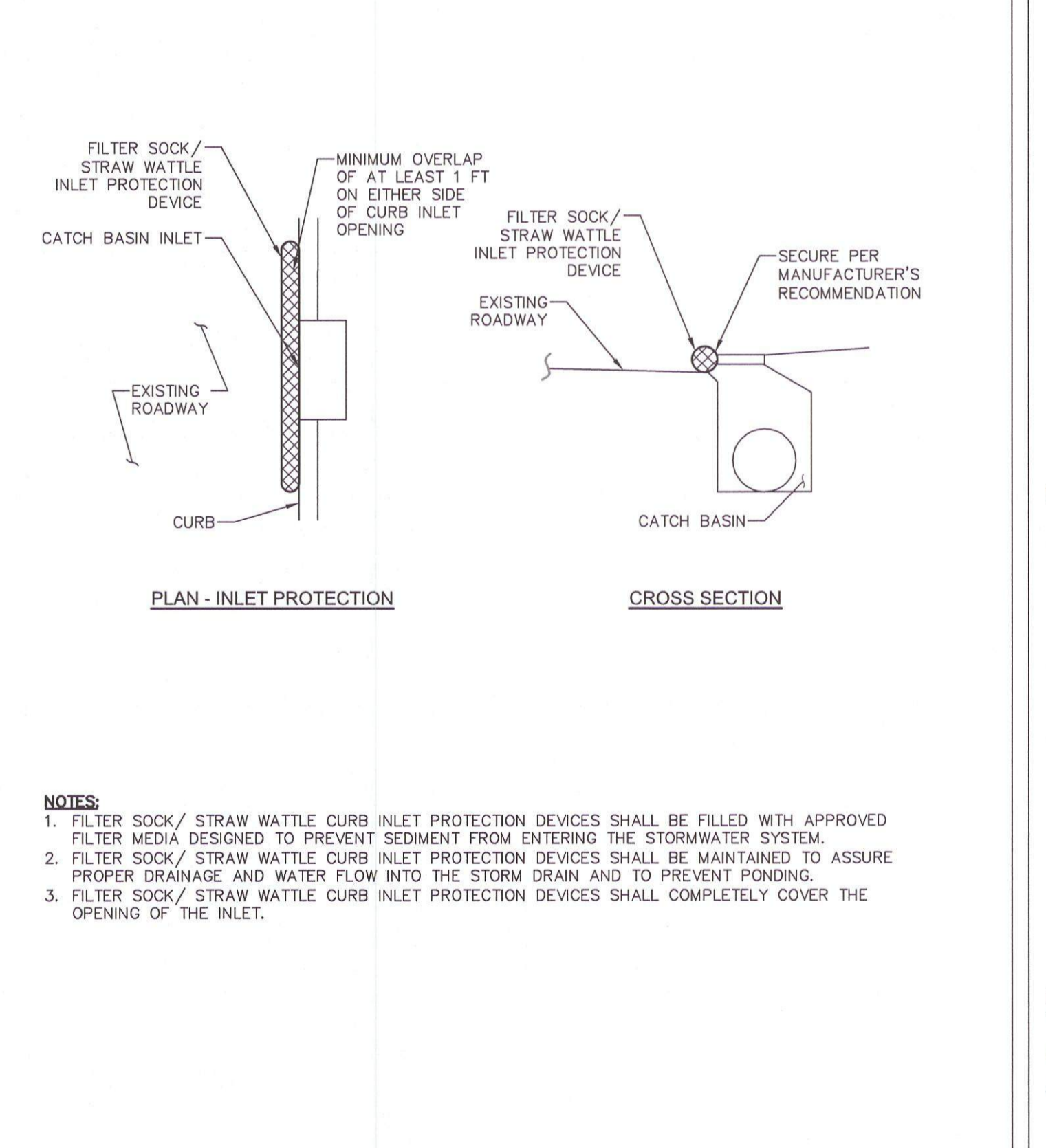
EC-9 TEMP. HIGH HAZARD SILT FENCE N.T.S.



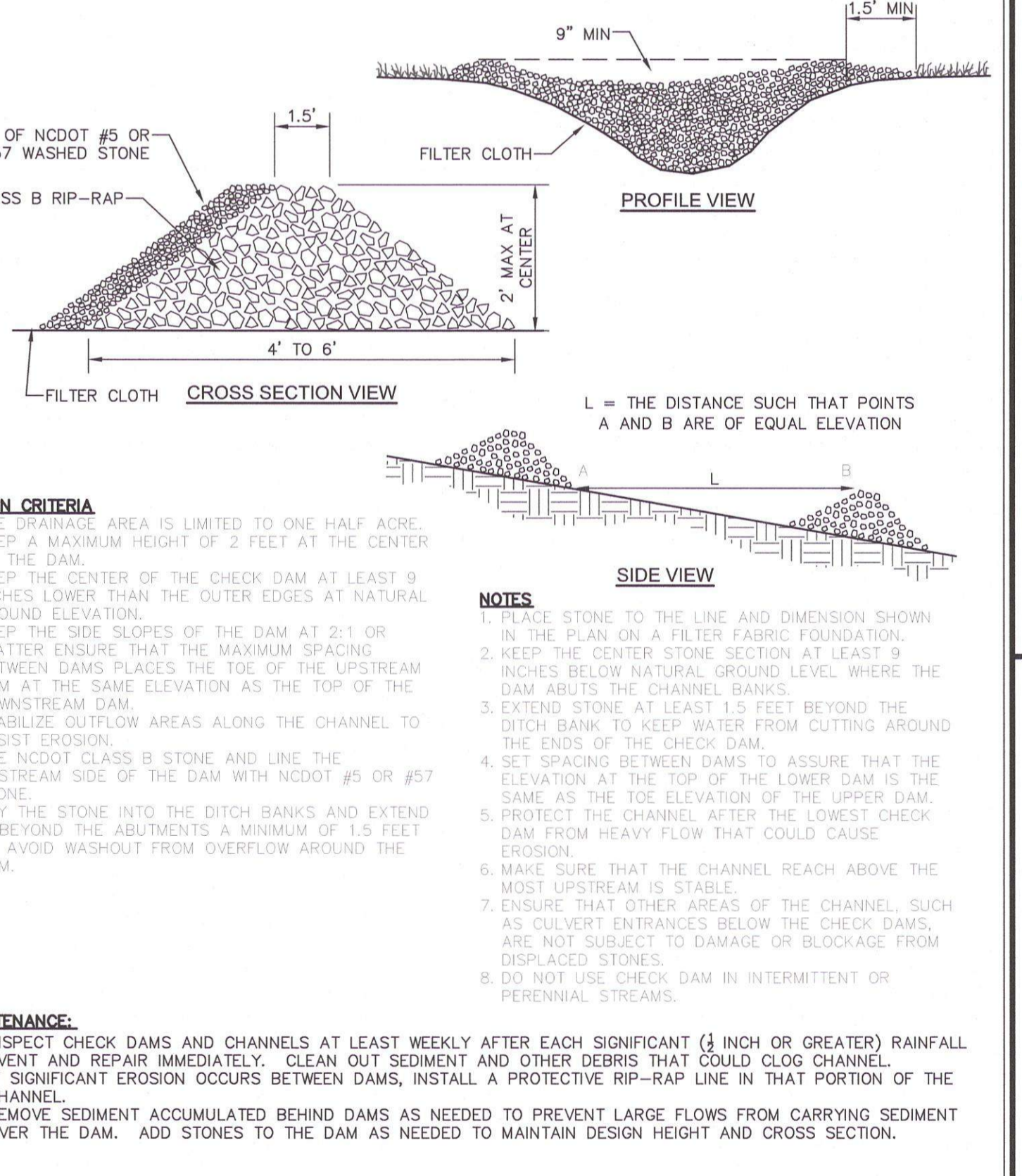
EC-10 SILT FENCE OUTLET N.T.S.



EC-11 SILT FENCE LAYOUT AT PIT LOCATIONS N.T.S.



EC-12 TEMP. WATTLE CURB INLET PROTECTION N.T.S.



EC-13 STONE CHECK DAM N.T.S.

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DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AMB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HSP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	HSP
06.30.2021	FINAL DESIGN - REVISIONS FOR PERMITS AND REG. RESPONSE	HSP
04.13.2022	FINAL DESIGN - NOT REVISIONS FOR PERMITS AND REG. RESPONSE	HSP
06.13.2023	FINAL DESIGN ISSUED FOR BID	HSP

SHEET: MCKIM&CREED, INC. DATE: 6/13/23

DESIGNED BY: TMB/AMB  
 CHECKED BY: BRL  
 APPROVED BY: AS SHOWN

SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2

STANDARD EROSION CONTROL DETAILS

FAZETTEVILLE PUBLIC WORKS COMMISSION

**PWC** WATER RESOURCES ENGINEERING

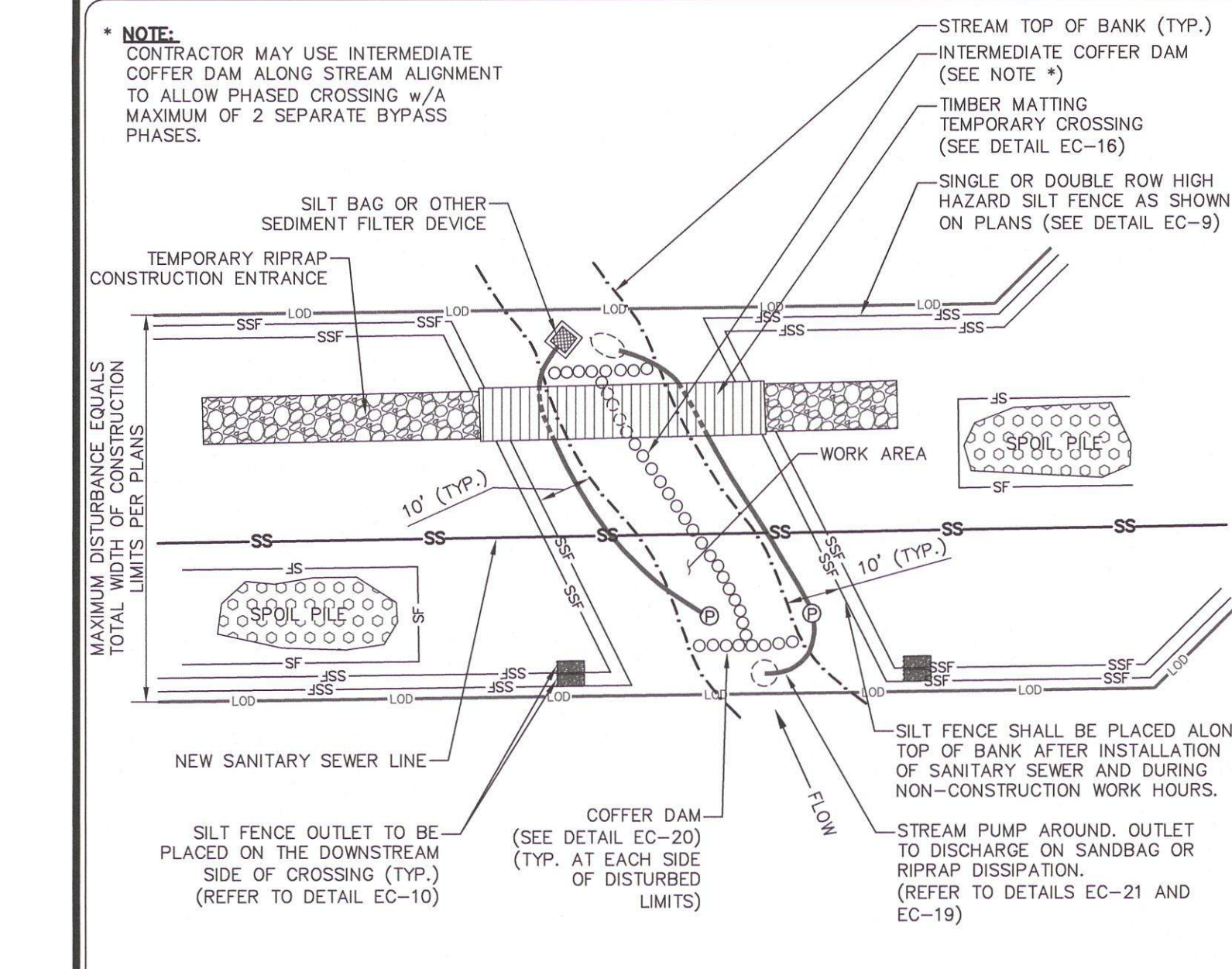
808 Box 1088 Fayetteville, NC 28405  
 955 Old Wilmington Road, Fayetteville, NC 28301

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

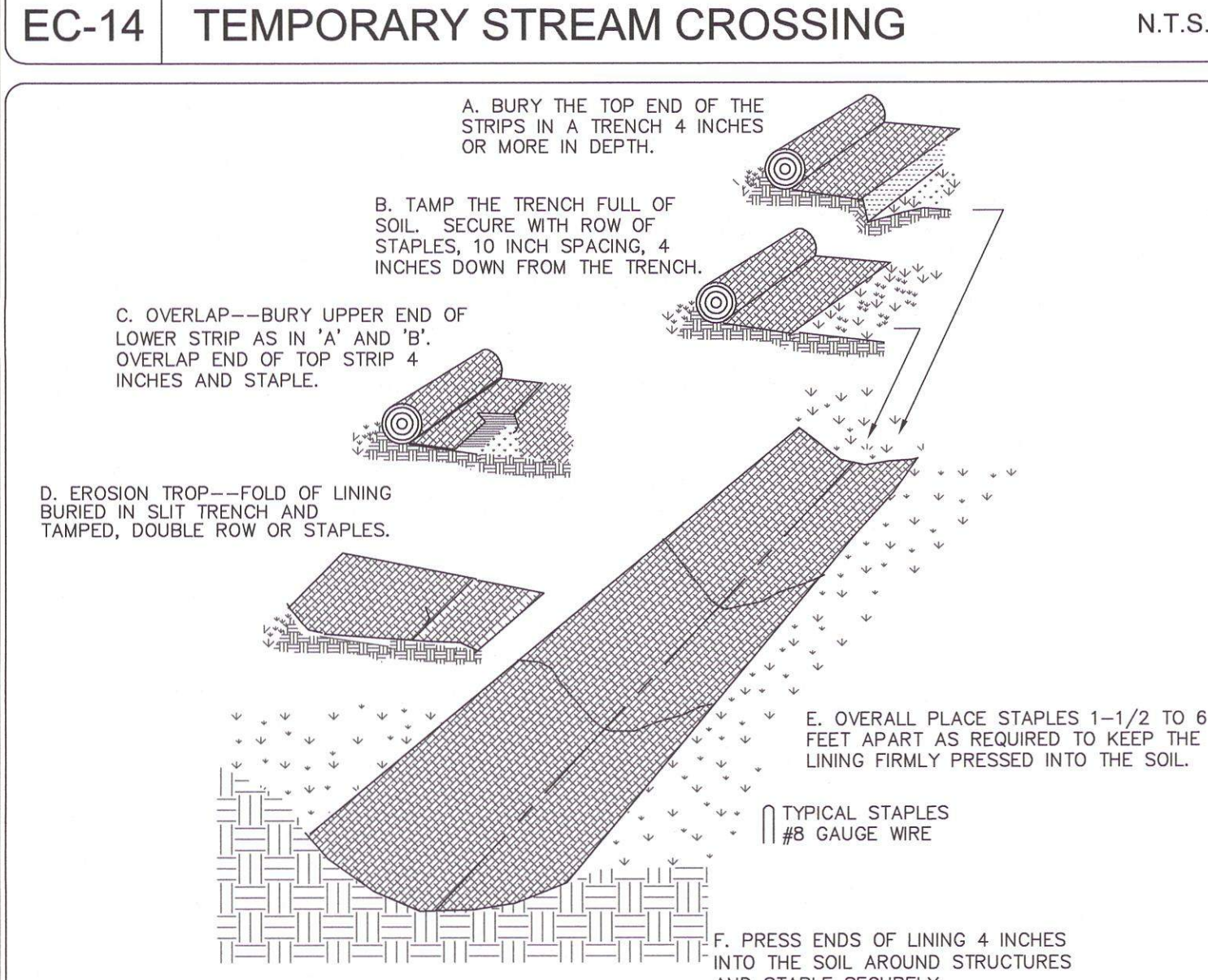
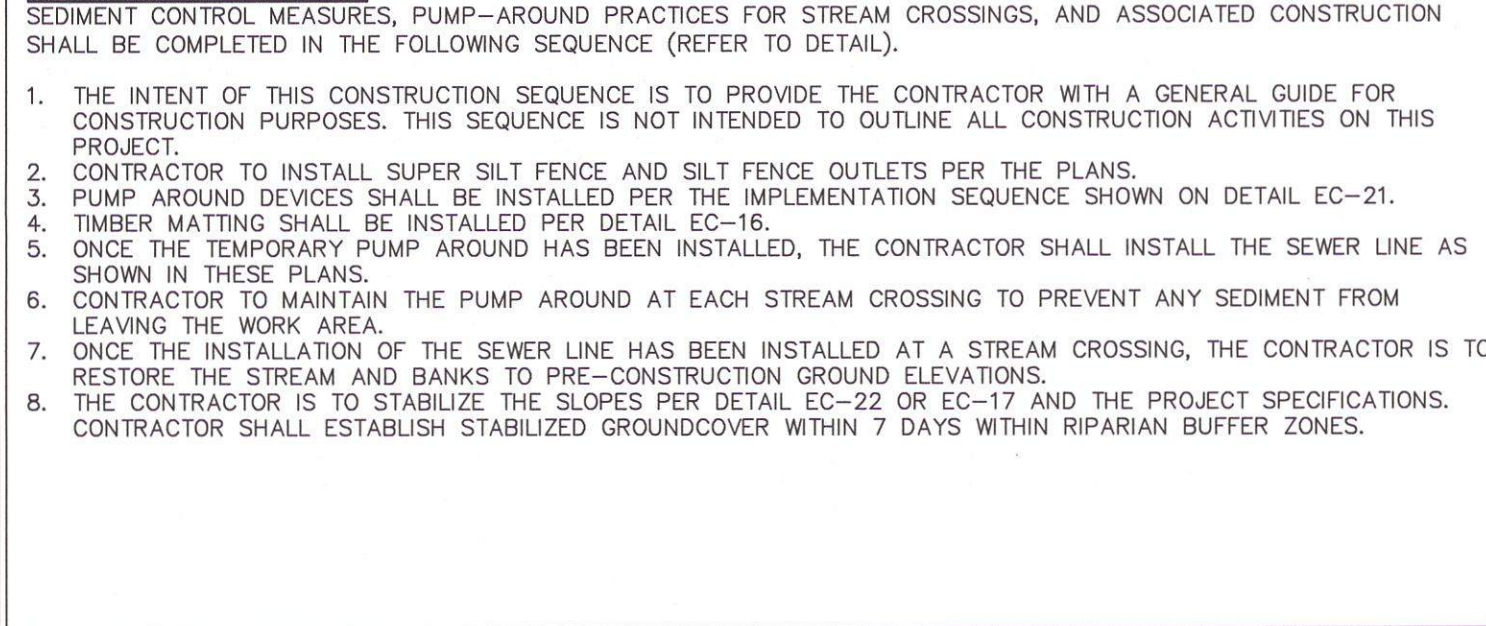
**MCKIM & CREED**  
 1730 Varsity Drive, Suite 500  
 Raleigh, NC 27606  
 Phone: (919)233-8091, Fax: (919)233-8031  
 F-1222  
 www.mckimcreed.com

PWC DRAWING # DS-154-86

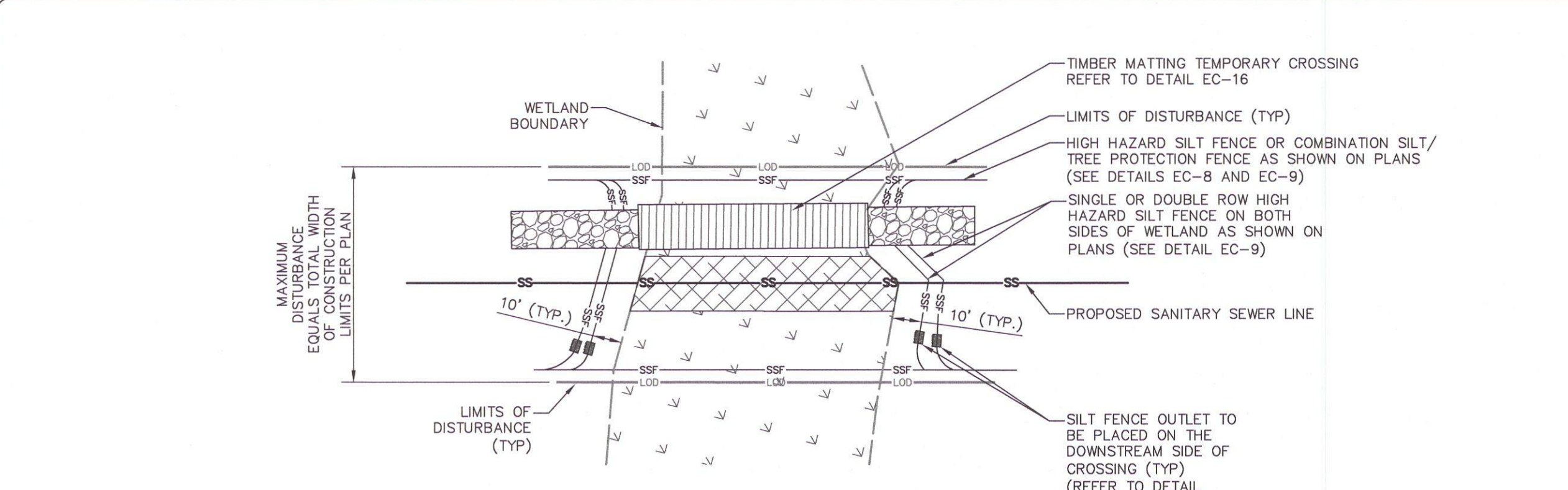
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- \* NOTE:**  
CONTRACTOR MAY USE INTERMEDIATE COFFER DAM ALONG STREAM ALIGNMENT TO ALLOW PHASED CROSSING w/A MAXIMUM OF 2 SEPARATE BYPASS PHASES.
- CONSTRUCTION SPECIFICATIONS:**  
1. KEEP CLEARING AND EXCAVATION OF THE STREAM BANKS AND BED AND APPROACH SECTIONS TO A MINIMUM.  
2. DIVERT ALL SURFACE WATER FROM THE CONSTRUCTION SITE ONTO UNDISTURBED AREAS ADJOINING THE STREAM.  
3. KEEP STREAM CROSSING AT RIGHT ANGLES TO THE STREAM FLOW.  
4. ALONG ROAD APPROACHES WITH THE CENTER LINE OF THE CROSSING FOR A MINIMUM DISTANCE OF 30 FEET RAISE BRIDGE ABUTMENTS AND CULVERT FILLS A MINIMUM OF 1 FOOT ABOVE THE ADJOINING APPROACH SECTIONS TO PREVENT EROSION FROM SURFACE RUNOFF AND TO ALLOW FLOOD FLOWS TO PASS AROUND THE STRUCTURE.  
5. STABILIZE ALL DISTURBED AREAS SUBJECT TO FLOWING WATER, INCLUDING PLANNED OVERFLOW AREAS, WITH RIPRAP OR OTHER SUITABLE MEANS IF DESIGN VELOCITY EXCEEDS THE ALLOWABLE FOR THE IN-PLACE SOIL.  
6. ENSURE THAT BYPASS CHANNELS NECESSARY TO DEWATER THE CROSSING SITE ARE STABLE BEFORE DIVERTING THE STREAM. UPON COMPLETION OF THE CROSSING, FILL, COMPACT, AND STABILIZE THE BYPASS CHANNEL APPROPRIATELY.  
7. REMOVE TEMPORARY STREAM CROSSINGS IMMEDIATELY WHEN THEY ARE NO LONGER NEEDED. RESTORE THE STREAM CHANNEL TO ITS ORIGINAL CROSS-SECTION, AND SMOOTH AND APPROPRIATELY STABILIZE ALL DISTURBED AREAS.  
8. ANY IN-STREAM SEDIMENT CONTROL MEASURES MUST BE REMOVED UPON STABILIZATION OF THE AREA.
- IMPLEMENTATION SEQUENCE:**  
SEDIMENT CONTROL MEASURES, PUMP-AROUND PRACTICES FOR STREAM CROSSINGS, AND ASSOCIATED CONSTRUCTION SHALL BE COMPLETED IN THE FOLLOWING SEQUENCE (REFER TO DETAIL).  
1. THE INTENT OF THIS CONSTRUCTION SEQUENCE IS TO PROVIDE THE CONTRACTOR WITH A GENERAL GUIDE FOR CONSTRUCTION PURPOSES. THIS SEQUENCE IS NOT INTENDED TO OUTLINE ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.  
2. CONTRACTOR TO INSTALL SUPER SILT FENCE AND SILT FENCE OUTLETS PER THE PLANS.  
3. PUMP AROUND DEVICES SHALL BE INSTALLED PER THE IMPLEMENTATION SEQUENCE SHOWN ON DETAIL EC-21.  
4. TIMBER MATTING SHALL BE INSTALLED PER DETAIL EC-16.  
5. ONCE THE TEMPORARY PUMP AROUND HAS BEEN INSTALLED, THE CONTRACTOR SHALL INSTALL THE SEWER LINE AS SHOWN IN THESE PLANS.  
6. CONTRACTOR TO MAINTAIN THE PUMP AROUND AT EACH STREAM CROSSING TO PREVENT ANY SEDIMENT FROM LEAVING THE WORK AREA.  
7. ONCE THE INSTALLATION OF THE SEWER LINE HAS BEEN INSTALLED AT A STREAM CROSSING, THE CONTRACTOR IS TO RESTORE THE STREAM AND BANKS TO PRE-CONSTRUCTION GROUND ELEVATIONS.  
8. THE CONTRACTOR IS TO STABILIZE THE SLOPES PER DETAIL EC-22 OR EC-17 AND THE PROJECT SPECIFICATIONS. CONTRACTOR SHALL ESTABLISH STABILIZED GROUND COVER WITHIN 7 DAYS WITHIN RIPARIAN BUFFER ZONES.

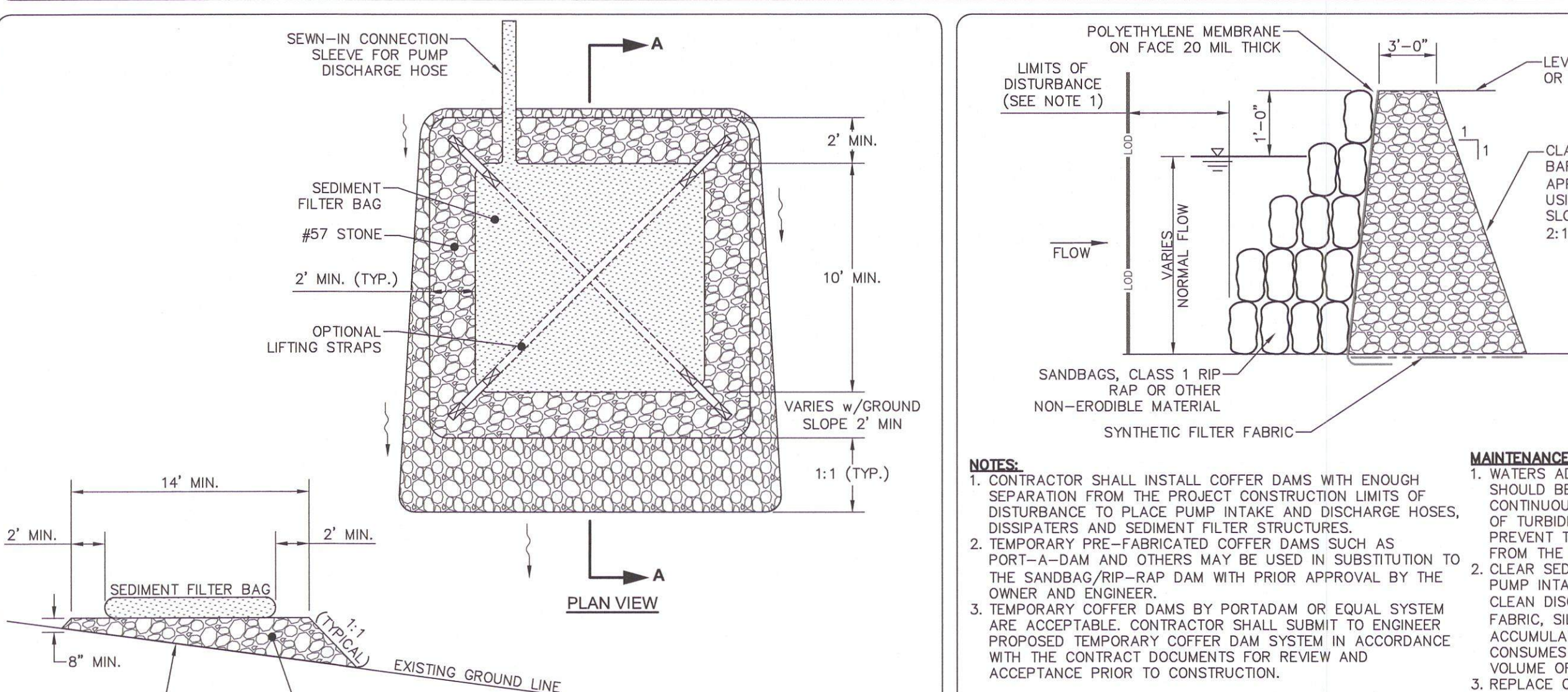


- Maintenance:**  
1. INSPECT ROLLED EROSION CONTROL PRODUCTS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAIN FALL EVENT REPAIR IMMEDIATELY.  
2. GOOD CONTACT WITH THE GROUND MUST BE MAINTAINED, AND EROSION MUST NOT OCCUR BENEATH THE RECP.  
3. ANY AREAS OF THE STRAW WITH NET LINER THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED.  
4. IF EROSION OCCURS DUE TO POORLY CONTROLLED DRAINAGE, THE PROBLEM SHALL BE FIXED AND THE ERODED AREA PROTECTED.  
5. MONITOR AND REPAIR THE RECP AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.  
6. STABILIZATION NOTE: STABILIZED GROUND COVER MUST BE ESTABLISHED WITHIN 7 DAYS IN AREAS WHERE SLOPES ARE STEEPER THAN 3:1 (SEE NCGO REQUIREMENTS SHEET D-6)



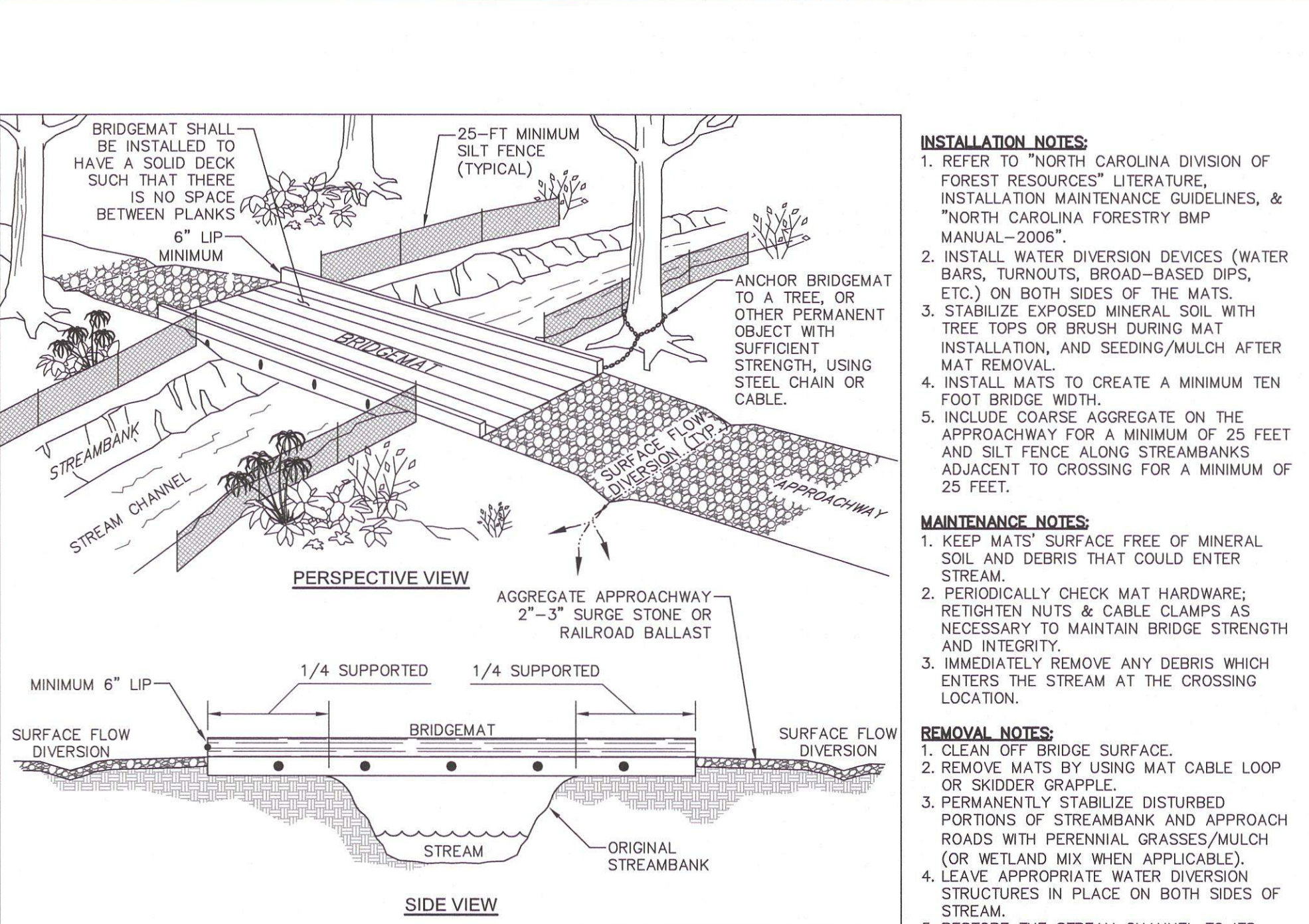
- NOTES:**  
1. THE TOP 12" OF SOIL REMOVED FROM THE DISTURBED WETLAND AREA SHALL BE STOCKPILED ADJACENT TO THE WORK AREA AND REUSED FOR FINAL BACKFILL AT THE RESTORED GROUND SURFACE.  
2. THE CONTRACTOR SHALL USE MATTING OR OTHER MEASURES NECESSARY FOR CROSSING WETLAND AREAS DURING EXCAVATION, INSTALLATION AND BACKFILL OF THE SANITARY SEWER.  
3. WETLAND AREAS SHALL BE RESTORED TO THE PRE-CONSTRUCTION GROUND ELEVATIONS AND REPLANTED IN ACCORDANCE WITH THE WETLAND SEEDING SCHEDULE, TECHNICAL SPECIFICATIONS AND THE APPROVED SECTION 404/401 NATIONWIDE PERMIT.
- CONSTRUCTION SPECIFICATIONS:**  
1. KEEP CLEARING AND EXCAVATION OF THE WETLAND BED AND APPROACH SECTIONS TO A MINIMUM.  
2. DIVERT ALL SURFACE WATER FROM THE CONSTRUCTION SITE ONTO UNDISTURBED AREAS ADJOINING THE WETLANDS.  
3. KEEP WETLAND CROSSING AS PERPENDICULAR AS POSSIBLE TO THE FLOW.  
4. STABILIZE ALL DISTURBED AREAS SUBJECT TO FLOWING WATER, INCLUDING PLANNED OVERFLOW AREAS, WITH RIPRAP OR OTHER SUITABLE MEANS IF DESIGN VELOCITY EXCEEDS THE ALLOWABLE FOR THE IN-PLACE SOIL.  
5. REMOVE TEMPORARY WETLAND CROSSINGS IMMEDIATELY WHEN THEY ARE NO LONGER NEEDED. RESTORE THE WETLAND BED TO ITS ORIGINAL CROSS-SECTION, AND SMOOTH AND APPROPRIATELY STABILIZE ALL DISTURBED AREAS.  
6. ANY IN-WETLAND SEDIMENT CONTROL MEASURES MUST BE REMOVED UPON STABILIZATION OF THE AREA.
- IMPLEMENTATION SEQUENCE:**  
SEDIMENT CONTROL MEASURES, PUMP-AROUND PRACTICES FOR WETLAND CROSSINGS, AND ASSOCIATED CONSTRUCTION SHALL BE COMPLETED IN THE FOLLOWING SEQUENCE (REFER TO DETAIL).  
1. THE INTENT OF THIS CONSTRUCTION SEQUENCE IS TO PROVIDE THE CONTRACTOR WITH A GENERAL GUIDE FOR CONSTRUCTION PURPOSES. THIS SEQUENCE IS NOT INTENDED TO OUTLINE ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.  
2. CONTRACTOR TO INSTALL HIGH HAZARD SILT FENCE AND SILT FENCE OUTLETS PER THE PLANS AND DETAILS.  
3. CONTRACTOR IS TO MINIMIZE THE CLEARING AND EXCAVATION OF THE WETLAND BED, BANKS AND APPROACH SECTIONS TO A MINIMUM.  
4. ONCE THE INSTALLATION OF THE SEWER LINE HAS BEEN INSTALLED AT A WETLAND CROSSING, THE CONTRACTOR IS TO RESTORE THE WETLAND BED TO ITS ORIGINAL CROSS-SECTION, AND SMOOTH AND APPROPRIATELY STABILIZE ALL DISTURBED AREAS.  
5. THE CONTRACTOR IS TO SEED THE WETLAND IN ACCORDANCE WITH THE DETAILS SHOWN IN THESE PLANS (EC-3) AND THE PROJECT SPECIFICATIONS.

EC-15 TEMPORARY WETLAND CROSSING N.T.S.



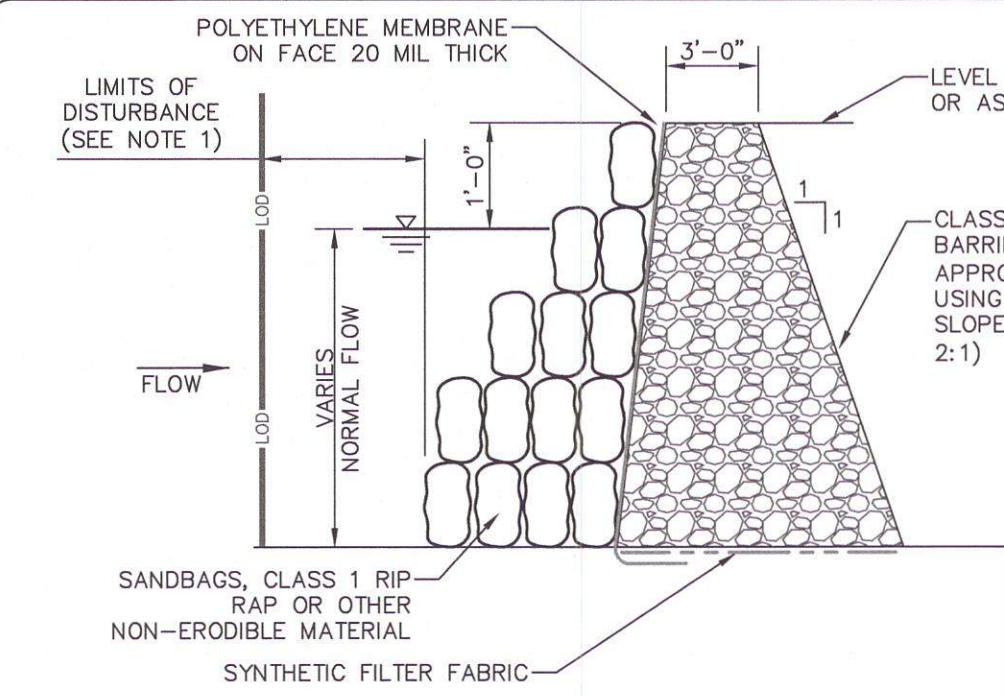
- SEDIMENT FILTER BAG GENERAL NOTES:**  
1. CONTRACTOR SHALL EXERCISE CAUTION NOT TO BURST OR DAMAGE THE SEDIMENT FILTER BAG WHEN PUMPING.  
2. THE LENGTH AND WIDTH OF THE TEMPORARY SEDIMENT BAG SHOWN ON THIS DRAWING MAY VARY PER VENDOR SPECIFICATIONS. THE MINIMUM "FOOTPRINT" OF THE BAG SHALL BE 10 X 15 FEET.  
3. SEDIMENT FILTER BAGS SHALL BE EQUIPPED WITH A SEWN-IN SLEEVE OF SUFFICIENT SIZE TO ACCEPT A MINIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE DISCHARGE HOSE SHOULD BE EXTENDED INTO THIS SLEEVE A MINIMUM OF 6 INCHES AND BE TIGHTLY SECURED WITH A HOSE CLAMP OR OTHER SUITABLE MEANS TO PREVENT LEAKAGE. HOSE CONNECTION THROUGH A SLIT IN THE BAG WILL NOT BE ACCEPTABLE.  
4. THE PUMP DISCHARGE HOSE CONNECTION SLEEVE SHALL BE SECURELY TIED OFF DURING DISPOSAL OF THE SEDIMENT FILTER BAG IN ORDER TO PREVENT LEAKAGE OF COLLECTED SEDIMENTS.  
5. SEDIMENT FILTER BAG SHALL BE MAINTAINED AND REPLACED WHEN ONE HALF FULL OF SEDIMENT OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- CONSTRUCTION SPECIFICATIONS:**  
1. FILTER BAG IS TO BE PLACED ON A LEVEL BED OF AGGREGATE.  
2. INSERT THE DISCHARGE HOSE AND SECURE IT TIGHTLY PER MANUFACTURER RECOMMENDATIONS.  
3. THE BAG IS TO BE MONITORED TO AVOID RUPTURE OR EXCESSIVE LEAKAGE AROUND THE DISCHARGE HOSE.  
4. SEDIMENT FILTER BAG AND THE CAPTURED SEDIMENT SHOULD BE DISPOSED OF PER LOCAL REGULATIONS.
- Maintenance:**  
1. INSPECT TEMPORARY STREAM CROSSINGS AFTER RUNOFF—PRODUCING RAINS TO CHECK FOR BLOCKAGE IN CHANNEL, EROSION OF ABUTMENTS, CHANNEL SCOUR, RIPRAP DISPLACEMENT, OR PIPING. MAKE ALL REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.

EC-19 SEDIMENT FILTER BAG WITH GRAVEL PAD N.T.S.

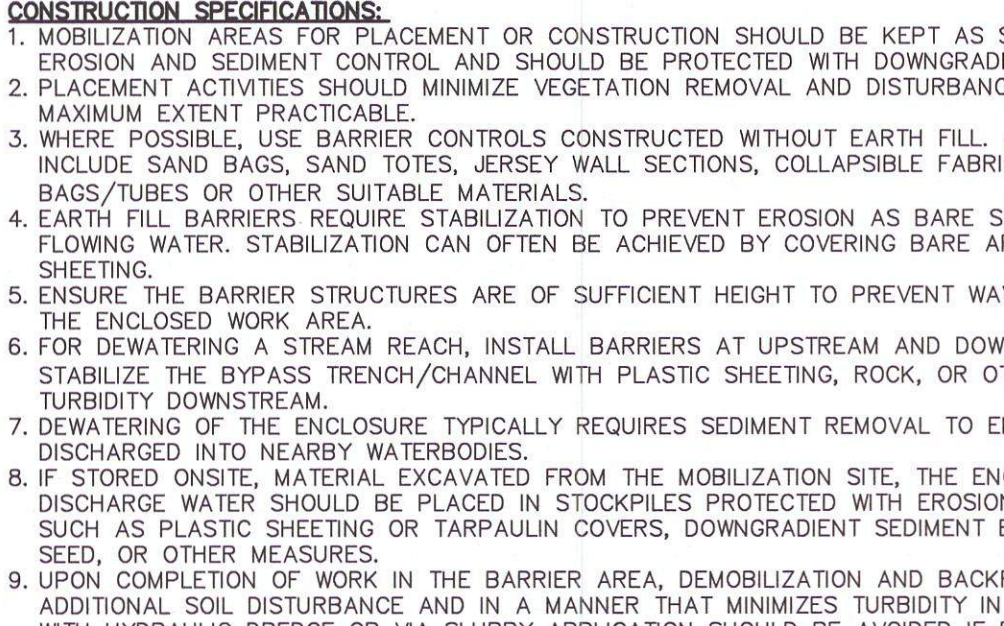


- INSTALLATION NOTES:**  
1. REFER TO "NORTH CAROLINA DIVISION OF FOREST RESOURCES" LITERATURE, INSTALLATION MAINTENANCE GUIDELINES, & "NORTH CAROLINA FORESTRY BMP MANUAL-2006".  
2. INSTALL WATER DIVERSION DEVICES (WATER BARS, TURNOUTS, BROAD-BASED DIAPS, ETC.) ON BOTH SIDES OF THE MATS.  
3. STABILIZE EXPOSED MINERAL SOIL WITH TREE TOPS OR BRUSH DURING MAT INSTALLATION, AND SEEDING/MULCH AFTER MAT REMOVAL.  
4. INSTALL MATS TO CREATE A MINIMUM TEN FOOT BRIDGE WIDTH.  
5. INCLUDE COARSE AGGREGATE ON THE APPROACHWAY FOR A MINIMUM OF 25 FEET AND SILT FENCE ALONG STREAMBANKS ADJACENT TO CROSSING FOR A MINIMUM OF 25 FEET.
- MAINTENANCE NOTES:**  
1. KEEP MATS SURFACE FREE OF MINERAL SOIL AND DEBRIS THAT COULD ENTER STREAM.  
2. PERIODICALLY CHECK MAT HARDWARE; RETIGHTEN NUTS & CABLE CLAMPS AS NECESSARY TO MAINTAIN BRIDGE STRENGTH AND INTEGRITY.  
3. IMMEDIATELY REMOVE ANY DEBRIS WHICH ENTERS THE STREAM AT THE CROSSING LOCATION.
- REMOVAL NOTES:**  
1. CLEAN OFF BRIDGE SURFACE.  
2. REMOVE MATS BY USING MAT CABLE LOOP OR SKIDDER GRAPPLE.  
3. PERMANENTLY STABILIZE DISTURBED PORTIONS OF STREAMBANK AND APPROACH ROADS WITH PERENNIAL GRASSES/MULCH (OR WETLAND MIX WHEN APPLICABLE).  
4. LEAVE APPROPRIATE WATER DIVERSION STRUCTURES IN PLACE ON BOTH SIDES OF STREAM.  
5. RESTORE THE STREAM CHANNEL TO ITS ORIGINAL CROSS-SECTION, AND SMOOTH AND APPROPRIATELY STABILIZE ALL DISTURBED AREAS.

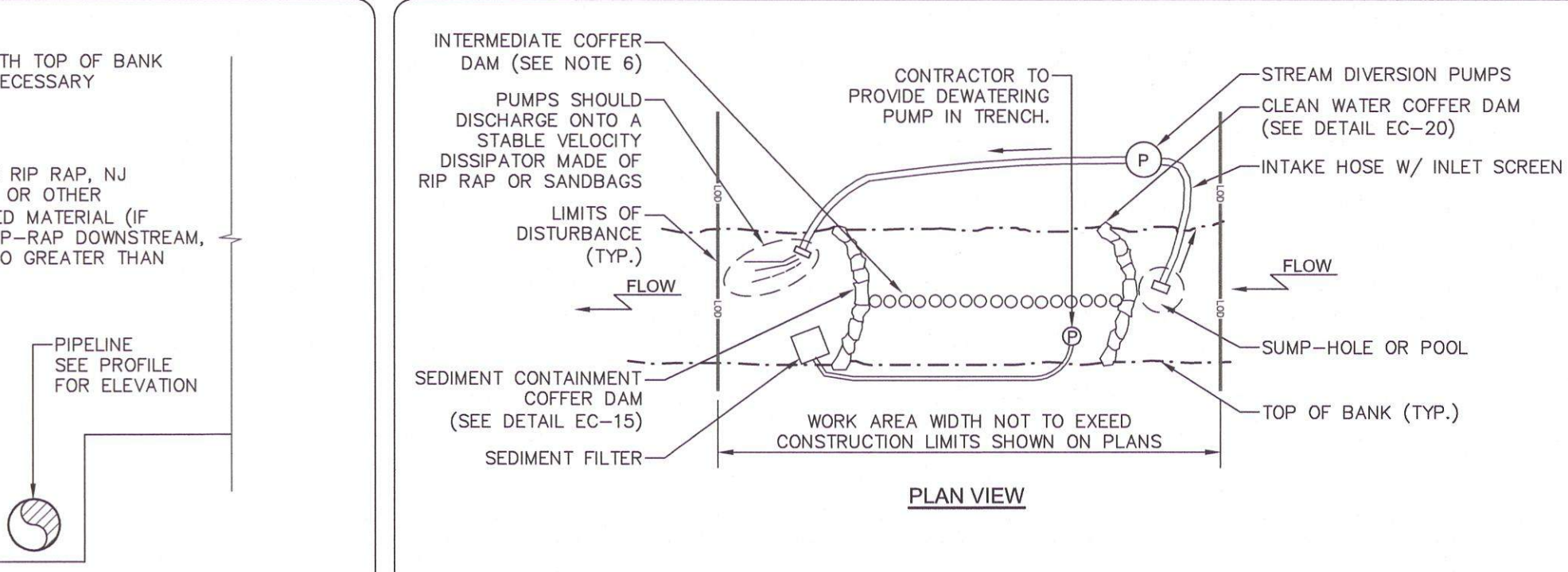
EC-16 TIMBER MATTING FOR TEMP. WETLAND/STREAM CROSSING N.T.S.



- NOTES:**  
1. CONTRACTOR SHALL INSTALL COFFER DAMS WITH ENOUGH SEPARATION FROM THE PROJECT CONSTRUCTION LIMITS OF DISTURBANCE TO PLACE PUMP INTAKE AND DISCHARGE HOSES, DISSIPATORS AND SEDIMENT FILTER STRUCTURES.  
2. TEMPORARY PRE-FABRICATED COFFER DAMS SUCH AS PORT-A-DAM AND OTHERS MAY BE USED IN SUBSTITUTION TO THE SANDBAG/RIP-RAP DAM WITH PRIOR APPROVAL BY THE OWNER AND ENGINEER.  
3. TEMPORARY COFFER DAMS BY PORTADAM OR EQUAL SYSTEM ARE ACCEPTABLE. CONTRACTOR SHALL SUBMIT TO ENGINEER PROPOSED TEMPORARY COFFER DAM SYSTEM IN ACCORDANCE WITH THE CONTRACT DOCUMENTS FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION.
- CONSTRUCTION SPECIFICATIONS:**  
1. MOBILIZATION AREAS FOR PLACEMENT OR CONSTRUCTION SHOULD BE KEPT AS SMALL AS POSSIBLE TO FACILITATE EROSION AND SEDIMENT CONTROL AND SHOULD BE PROTECTED WITH DOWNGRADIENT SEDIMENT BARRIERS.  
2. PLACEMENT ACTIVITIES SHOULD MINIMIZE VEGETATION REMOVAL AND DISTURBANCE OF ADJACENT AREAS TO THE MAXIMUM EXTENT PRACTICABLE.  
3. WHERE POSSIBLE, USE BARRIER CONTROLS CONSTRUCTED WITHOUT EARTH FILL. ACCEPTABLE COFFER DAM MATERIALS INCLUDE SAND BAGS, SAND TOTES, JERSEY WALL SECTIONS, COLLAPSIBLE FABRIC MEMBRANE DAMS, WATER FILLED BAGS/TUBES OR OTHER SUITABLE MATERIALS.  
4. EARTH FILL BARRIERS REQUIRE STABILIZATION TO PREVENT EROSION AS BARE SOILS COME INTO CONTACT WITH FLOWING WATER. STABILIZATION CAN OFTEN BE ACHIEVED BY COVERING BARE AREAS WITH WELL-SECURED PLASTIC SHEETING.  
5. ENSURE THE BARRIER STRUCTURES ARE OF SUFFICIENT HEIGHT TO PREVENT WAVES OR OVERFLOWS FROM FLOODING THE ENCLOSED WORK AREA.  
6. FOR DEWATERING A STREAM REACH, INSTALL BARRIERS AT UPSTREAM AND DOWNSTREAM LOCATIONS. IF USED, STABILIZE THE BYPASS TRENCH/CHANNEL WITH PLASTIC SHEETING, ROCK, OR OTHER LINER MATERIAL TO PREVENT TURBIDITY DOWNSTREAM.  
7. DEWATERING OF THE ENCLOSURE TYPICALLY REQUIRES SEDIMENT REMOVAL TO ENSURE THAT TURBID WATER IS NOT DISCHARGED INTO NEARBY WATERBODIES.  
8. IF STORED ON-SITE, MATERIALS EXCAVATED FROM THE MOBILIZATION SITE, THE ENCLOSURE, OR REMOVED FROM THE DISCHARGE WATER SHOULD BE PLACED IN STOCKPILES PROTECTED WITH EROSION AND SEDIMENT CONTROL MEASURES, SUCH AS PLASTIC SHEETING OR TARPULIN COVERS, DOWNGRADIENT SEDIMENT BARRIERS, TEMPORARY MULCH AND SEED, OR OTHER MEASURES.  
9. UPON COMPLETION OF WORK IN THE BARRIER AREA, DEMOBILIZATION AND BACKFILLING SHOULD OCCUR WITH MINIMAL ADDITIONAL SOIL DISTURBANCE AND IN A MANNER THAT MINIMIZES TURBIDITY IN THE NEARBY WATERBODY. BACKFILLING WITH HYDRAULIC DREDGE OR VIA SLURRY APPLICATION SHOULD BE AVOIDED IF POSSIBLE.
- Maintenance:**  
1. WATERS ADJACENT TO THE BARRIER STRUCTURES SHOULD BE INSPECTED FOR TURBIDITY ON A CONTINUOUS BASIS. FIND AND ELIMINATE SOURCES OF TURBIDITY, OR USE FLOATING SILT CURTAINS TO PREVENT TURBID WATERS FROM MIGRATING AWAY FROM THE IMMEDIATE CONSTRUCTION AREA.  
2. CLEAR SEDIMENT AND DEBRIS FROM DEWATERING PUMP INTAKE SCREENS AND FILTERS AS NEEDED. CLEAN DISCHARGE AREA FILTERS (E.G., FILTER FABRIC, SILT FENCING, ETC.) AND REMOVE ACCUMULATED SEDIMENT BEFORE IT RESTRICTS OR CONSUMES HALF OF THE EFFECTIVE TREATMENT VOLUME OR STORAGE CAPACITY.  
3. REPLACE OR CLEAN FILTER BAGS AS NEEDED.



EC-20 COFFER DAM N.T.S.



- PUMP-AROUND PRACTICE:**  
TEMPORARY MEASURE FOR DEWATERING STREAM CROSSING SITES.
- DESCRIPTION:**  
THE WORK SHALL CONSIST OF INSTALLING A TEMPORARY PUMP AROUND AND SUPPORTING MEASURES TO DIVERT FLOW AROUND CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING PUMPS TO ENSURE ADEQUATE CAPACITY TO KEEP FLOW FROM ENTERING WORK AREA.
- IMPLEMENTATION SEQUENCE:**  
SEDIMENT CONTROL MEASURES, PUMP-AROUND PRACTICES, AND ASSOCIATED CONSTRUCTION SHALL BE COMPLETED IN THE FOLLOWING SEQUENCE (REFER TO DETAIL).  
1. COFFER DAMS SHALL BE SITUATED AT THE ENDS OF THE WORK AREA AS SHOWN ON THE PLANS (REFER TO DETAIL EC-12), AND WATER ON THE UPSIDE OF THE DAM AREA SHALL BE PUMPED AROUND THE WORK AREA.  
2. THE DIVERSION PUMPS SHALL DISCHARGE ONTO A STABLE VELOCITY DISSIPATOR MADE OF RIP-RAP OR SANDBAGS.  
3. WATER FROM THE WORK AREA SHALL BE PUMPED TO A SEDIMENT FILTERING MEASURE SUCH AS A TEMPORARY WOOD CHIP DEWATERING BASIN, SILT BAG OR OTHER APPROVED SEDIMENT FILTERING MEASURE (REFER TO DETAIL EC-16).  
4. AFTER THE SANITARY SEWER IS INSTALLED AND THE SLOPES HAVE BEEN STABILIZED, THE PUMP INTAKE HOSES, DISSIPATOR PADS AND FILTER MEASURES SHALL BE REMOVED AND THEN THE COFFER DAMS SHALL BE REMOVED.  
5. A PUMP AROUND MUST BE INSTALLED ON ANY TRIBUTARY OR STORM DRAIN OUTFALL WHICH CONTRIBUTES BASEFLOW TO THE WORK AREA. THIS SHALL BE ACCOMPLISHED BY LOCATING A COFFER DAM AT THE DOWNSTREAM END OF THE TRIBUTARY OR STORM DRAIN OUTFALL AND PUMPING THE STREAM FLOW AROUND THE WORK AREA. THIS WATER SHALL DISCHARGE ONTO THE SAME VELOCITY DISSIPATOR USED FOR THE MAIN STREAM PUMP AROUND.  
6. CONTRACTOR MAY USE INTERMEDIATE COFFER DAM ALONG STREAM ALIGNMENT TO ALLOW PHASED CROSSING w/A MAXIMUM OF 2 SEPARATE BYPASS PHASES.

EC-21 TEMPORARY PUMP AROUND N.T.S.

EC-17 TEMPORARY STRAW WITH NET LINER N.T.S.

DATE	REVISIONS	BY
01.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AMB
02.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MHP
02.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MHP
06.30.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MHP
04.15.2022	FINAL DESIGN - ADDS REVISIONS/REVISIONS	MHP
06.15.2023	FINAL DESIGN ISSUED FOR BID	MHP

SHEET: MCKIM&CREED, INC. DATE: 6/13/23  
SURVEY/GPS BY: TMB/ANB  
PROCESS/LAYOUT BY: TMB/ANB  
PLANNING/ISSUES BY: TMB/ANB  
DESIGN REVIEW BY: BRM  
APPROVED BY: AS SHOWN  
SCALE: AS SHOWN

**D-9**

Professional Seal: MCKIM & CREED, INC. No. 026540

SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
STANDARD EROSION CONTROL DETAILS

FAYETTEVILLE PUBLIC WORKS COMMISSION  
**PWC** WATER RESOURCES ENGINEERING  
P.O. Box 1081, Fayetteville, NC 28407  
905 Old Wilmington Road, Fayetteville, NC 28301  
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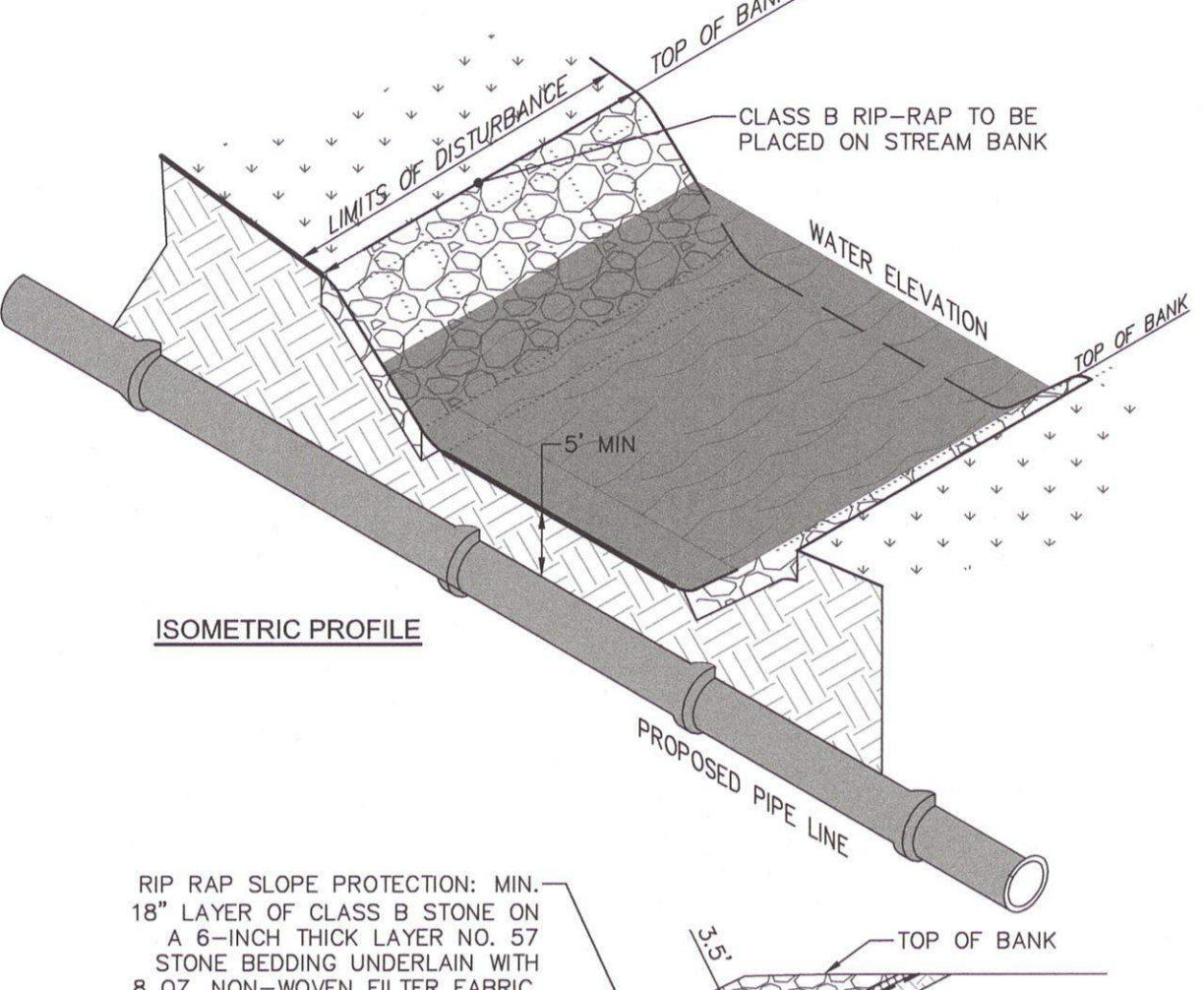
FINAL DESIGN  
ISSUED FOR BID

PWC DRAWING # DS-154.86

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NOTES:

- 1. EACH RIP RAP REPLACEMENT SHALL BE BEDDED ON A 6 INCH LAYER OF STABILIZATION STONE AND A NON-BIODEGRADABLE FILTER FABRIC. PLACEMENT OF RIP RAP SHALL IMMEDIATELY FOLLOW THE PLACEMENT OF THIS LAYER. KEEP VOIDS TO A MINIMUM AND FORM A DENSE WELL GRADED MASS OF STONE. DO NOT DISLODGE THE UNDERLYING BASE OF FILTER WHEN PLACING STONE. COST OF THE STONE BASE OR FILTER SHALL BE INCLUDED IN THE COST OF PLACING OF RIP RAP.
2. MAXIMUM STONE SIZE WHEN USING 8-INCH D50 WILL BE 12-INCHES AND THE MINIMUM THICKNESS OF THE RIP-RAP LAYER SHALL BE 18-INCHES.
3. MAXIMUM SLOPE OF THE CHANNEL BANK SHALL NOT EXCEED 2:0' HORIZONTAL TO 1:0' VERTICAL.
4. FINISHED GRADE OF THE RIP RAP IS TO BLEND WITH THE SURROUNDING AREAS SUCH THAT THE RIP RAP SURFACE ELEVATIONS MATCH THE EXISTING STREAM BANK AND BOTTOM SURFACE ELEVATIONS WHERE THE RIP RAP MEETS THESE POINTS.
5. INSPECT RIP RAP PERIODICALLY FOR SCOUR OR DISLODGED STONES (ESPECIALLY AFTER WINDY STORMS) AND WEED BRUSH GROWTH.

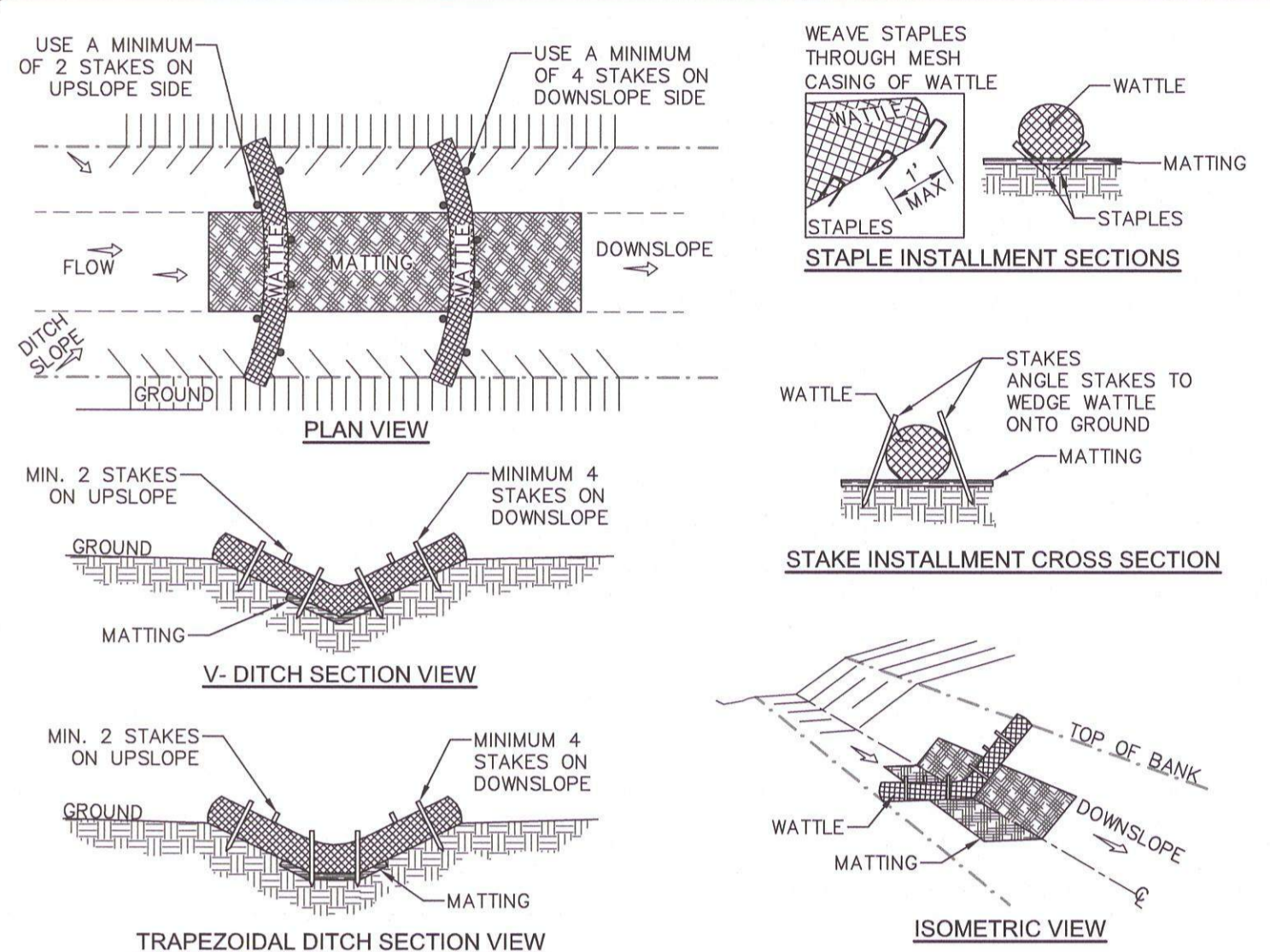
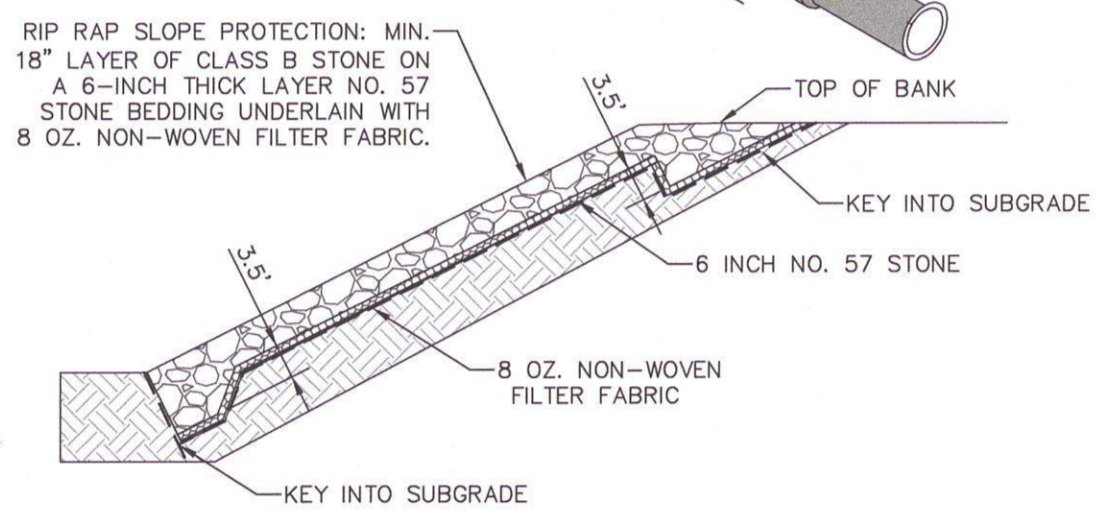


MAINTENANCE:

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

CONSTRUCTION SPECIFICATIONS:

- 1. SUBGRADE PREPARATION - PREPARE THE SUBGRADE FOR RIPRAP AND FILTER TO THE REQUIRED LINES AND GRADES SHOWN ON THE PLANS. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY APPROXIMATING THAT OF THE SURROUNDING UNDISTURBED MATERIAL OR OVERFILL DEPRESSIONS WITH RIPRAP. REMOVE BRUSH, TREES, STUMPS, AND OTHER OBJECTIONABLE MATERIAL. CUT THE SUBGRADE SUFFICIENTLY DEEP THAT THE FINISHED GRADE OF THE RIPRAP WILL BE AT THE ELEVATION OF THE SURROUNDING AREA. CHANNELS SHOULD BE EXCAVATED SUFFICIENTLY TO ALLOW PLACEMENT OF THE RIPRAP IN A MANNER SUCH THAT THE FINISHED INSIDE DIMENSIONS AND GRADE OF THE RIPRAP MEET DESIGN SPECIFICATIONS.
2. SAND AND GRAVEL FILTER BLANKET - PLACE THE FILTER BLANKET IMMEDIATELY AFTER THE GROUND FOUNDATION IS PREPARED. FILL THE SUBGRADE SUFFICIENTLY DEEP THAT THE FINISHED GRADE OF THE RIPRAP WILL BE AT THE ELEVATION OF THE SURROUNDING AREA. CHANNELS SHOULD BE EXCAVATED SUFFICIENTLY TO ALLOW PLACEMENT OF THE RIPRAP IN A MANNER SUCH THAT THE FINISHED INSIDE DIMENSIONS AND GRADE OF THE RIPRAP MEET DESIGN SPECIFICATIONS.
3. SYNTHETIC FILTER FABRIC - PLACE THE CLOTH FILTER DIRECTLY ON THE PREPARED FOUNDATION. OVERLAP THE EDGES BY AT LEAST 12 INCHES, AND SPACE ANCHOR PINS EVERY 3 FEET ALONG THE OVERLAP. BURY THE UPSTREAM END OF THE CLOTH A MINIMUM OF 12 INCHES BELOW GROUND AND WHERE NECESSARY, BURY THE LOW END OF THE CLOTH OR OVER LAP WITH THE NEXT SECTION AS REQUIRED.
4. STONE PLACEMENT - PLACE THE RIPRAP IMMEDIATELY AFTER PLACEMENT OF THE FILTER. PLACE RIPRAP SO THAT IT FORMS A DENSE, WELL-GRADED MASS OF STONE WITH A MINIMUM OF VOIDS. THE DESIRED DISTRIBUTION OF STONES THROUGHOUT THE MASS MAY BE OBTAINED BY SELECTIVE LOADING AT THE QUARRY, AND CONTROLLED DUMPING DURING FINAL PLACEMENT. PLACE RIPRAP TO ITS FULL THICKNESS IN ONE OPERATION. DO NOT PLACE RIPRAP BY DUMPING THROUGH CHUTES OR OTHER METHODS THAT CAUSE SEGREGATION OF STONE SIZES. TAKE CARE NOT TO DISLODGE THE UNDERLYING BASE OR FILTER WHEN PLACING STONES. THE TOP OF THE RIPRAP SHOULDN'T BE KEPT TO A STABLE FOUNDATION AT ITS BASE AS SHOWN IN FIGURE 6.15B. THE TOE SHOULD BE EXCAVATED TO A DEPTH ABOUT 1.5 TIMES THE DESIGN THICKNESS OF THE RIPRAP, AND SHOULD EXTEND HORIZONTALLY FROM THE SLOPE. THE FINISHED SLOPE SHOULD BE FREE OF POCKETS OF SMALL STONE OR CLUSTERS OF LARGE STONE. HAND PLACING MAY BE NECESSARY TO ACHIEVE THE PROPER DISTRIBUTION OF STONE SIZES TO PRODUCE A RELATIVELY SMOOTH, UNIFORM SURFACE. THE FINISHED GRADE OF THE RIPRAP SHOULD BLEND WITH THE SURROUNDING AREA. NO OVERFALL OR PROTRUSION OF RIPRAP SHOULD BE APPARENT.



NOTES:

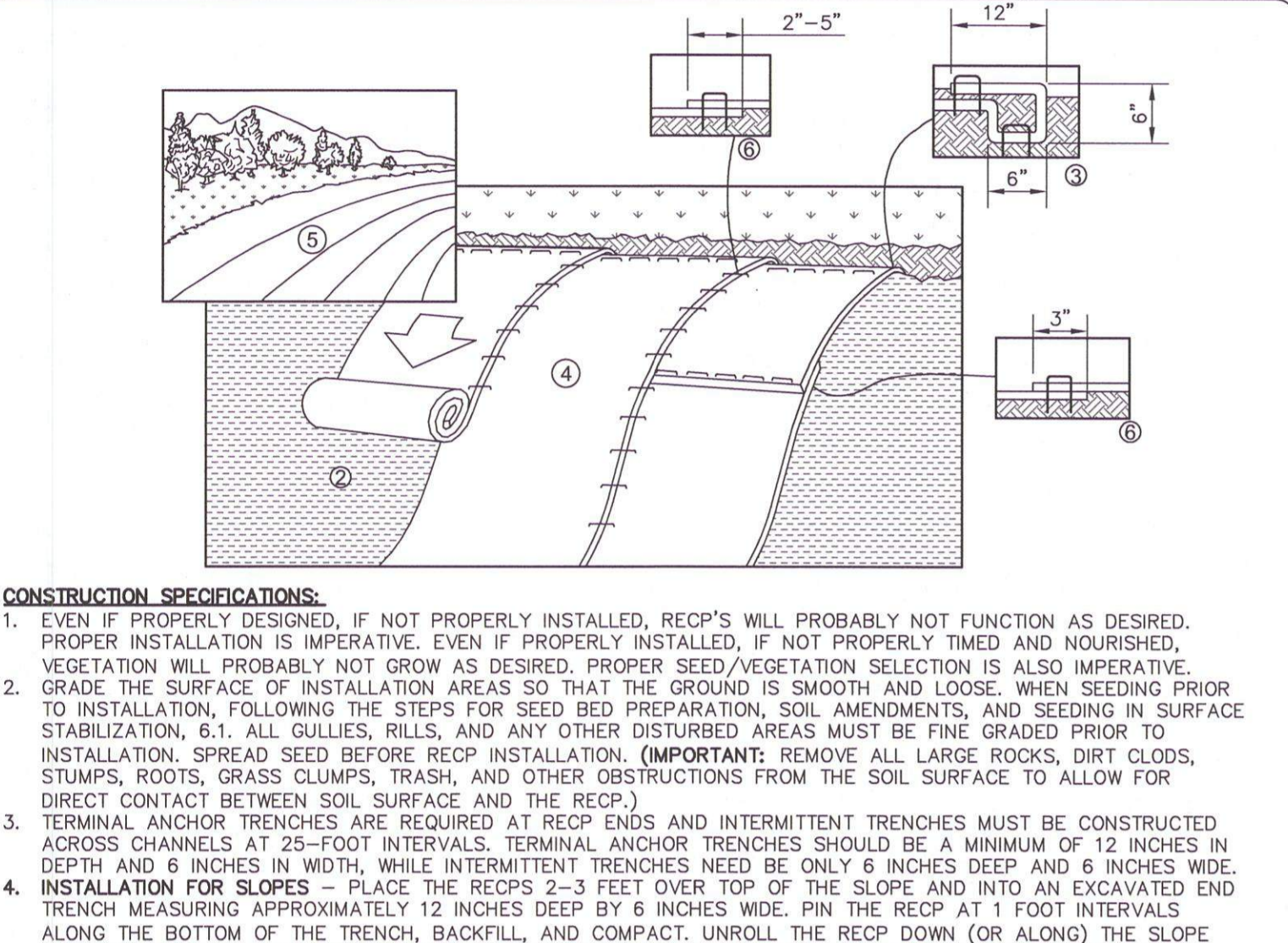
- 1. USE A MINIMUM 1/2 INCH DIAMETER EXCELSIOR WATTLE.
2. USE 24 INCH LONG WOODEN STAKES WITH A 2"x2" NOMINAL CROSS SECTION.
3. INSTALL WATTLE(S) TO A HEIGHT ON SLOPE SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR SLOPES, OR AS DIRECTED.
4. INSTALL A MINIMUM OF TWO UPSLOPE STAKES AND FOUR DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND AT BOTTOM.
5. PROVIDE STAPLES MADE OF 0.125 INCH DIAMETER STEEL WIRE FORMED INTO A U-SHAPE NOT LESS THAN 12 INCHES IN LENGTH.
6. INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
7. AFTER INSTALLATION OF STAPLES, CHINK ANY GAPS BETWEEN WATTLE AND GROUND WITH MATTING.

CONSTRUCTION SPECIFICATIONS:

- 1. WATTLES SHOULD BE LOCATED AS SHOWN ON THE EROSION AND SEDIMENTATION CONTROL PLAN.
2. PRIOR TO INSTALLATION, CLEAR ALL OBSTRUCTIONS INCLUDING ROCKS, CLOUDS, AND OTHER DEBRIS GREATER THAN ONE INCH THAT MAY INTERFERE WITH PROPER FUNCTION OF WATTLE.
3. FILL WATTLE NETTING UNIFORMLY TO THE DESIRED LENGTH SUCH THAT LOGS DO NOT DEFORM.
4. OAK OR OTHER DURABLE HARDWOOD STAKES 2" X 2" IN CROSS SECTION SHOULD BE DRIVEN VERTICALLY PLUMB, THROUGH THE CENTER OF THE WATTLE. STAKES SHOULD BE PLACED AT A MAXIMUM INTERVAL OF 4 FEET, OR A MAXIMUM INTERVAL OF 8 FEET IF THE WATTLE IS PLACED IN A 4 INCH TRENCH. SEE FIGURE 6.66B. THE STAKES SHOULD BE DRIVEN TO A MINIMUM DEPTH OF 12 INCHES, WITH A MINIMUM OF 3 INCHES PROTRUDING ABOVE THE WATTLE.
5. IN THE EVENT STAKING IS NOT POSSIBLE (I.E., WHEN WATTLES ARE USED ON PAVEMENT) HEAVY CONCRETE BLOCKS SHALL BE USED BEHIND THE WATTLE TO HOLD IT IN PLACE DURING RUNOFF EVENTS.
6. WATTLES ARE NOT TO BE USED IN PERENNIAL OR INTERMITTENT STREAMS.

MAINTENANCE:

- 1. INSPECT WATTLES WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVEN (1/2" INCH OR GREATER). REMOVE ACCUMULATED SEDIMENT AND ANY DEBRIS. THE WATTLE MUST BE REPLACED IF CLOGGED OR TORN. IF PONDING BECOMES EXCESSIVE, THE WATTLE MAY NEED TO BE REPLACED WITH A LARGER DIAMETER OR A DIFFERENT MEASURE. THE WATTLE NEEDS TO BE REINSTALLED IF UNDERMINED OR DISLODGED. THE WATTLE SHALL BE INSPECTED UNTIL LAND DISTURBANCE IS COMPLETE AND THE AREA ABOVE THE MEASURE HAS BEEN PERMANENTLY STABILIZED.



CONSTRUCTION SPECIFICATIONS:

- 1. EVEN IF PROPERLY DESIGNED, IF NOT PROPERLY INSTALLED, RECP'S WILL PROBABLY NOT FUNCTION AS DESIRED. PROPER INSTALLATION IS IMPERATIVE. EVEN IF PROPERLY INSTALLED, IF NOT PROPERLY TIED AND NOURISHED, VEGETATION WILL PROBABLY NOT GROW AS DESIRED. PROPER SEED/VEGETATION SELECTION IS ALSO IMPERATIVE. GRADE THE SURFACE OF INSTALLATION AREAS SO THAT THE GROUND IS SMOOTH AND LOOSE. WHEN SEEDING PRIOR TO INSTALLATION, FOLLOWING THE STEPS FOR SEED BED PREPARATION, SOIL AMENDMENTS, AND SEEDING IN SURFACE STABILIZATION, 6.1. ALL GULLIES, RILLS, AND ANY OTHER DISTURBED AREAS MUST BE FINE GRADED PRIOR TO INSTALLATION. SPREAD SEED BEFORE RECP INSTALLATION. (IMPORTANT: REMOVE ALL LARGE ROCKS, DIRT CLOUDS, STUMPS, ROOTS, GRASS CLUMPS, TRASH, AND OTHER OBSTRUCTIONS FROM THE SOIL SURFACE TO ALLOW FOR DIRECT CONTACT BETWEEN SOIL SURFACE AND THE RECP.)
2. TERMINAL ANCHOR TRENCHES ARE REQUIRED AT RECP ENDS AND INTERMITTENT TRENCHES MUST BE CONSTRUCTED ACROSS CHANNELS AT 25-FOOT INTERVALS. TERMINAL ANCHOR TRENCHES SHOULD BE A MINIMUM OF 12 INCHES IN DEPTH AND 8 INCHES IN WIDTH. WHILE INTERMITTENT TRENCHES NEED BE ONLY 6 INCHES DEEP AND 6 INCHES WIDE.
3. INSTALLATION FOR SLOPES - PLACE THE RECP'S 2-3 FEET OVER TOP OF THE SLOPE AND INTO AN EXCAVATED END TRENCH MEASURING APPROXIMATELY 12 INCHES DEEP BY 6 INCHES WIDE. PIN THE RECP AT 1 FOOT INTERVALS ALONG THE BOTTOM OF THE TRENCH, BACKFILL, AND COMPACT. UNROLL THE RECP DOWN (OR ALONG) THE SLOPE MAINTAINING DIRECT CONTACT BETWEEN THE SOIL AND RECP OVERLAP ADJACENT ROLLS A MINIMUM OF 3 INCHES. PIN THE RECP TO THE GROUND USING STAPLES OR PINS IN A 3 FOOT CENTER-TO-CENTER PATTERN. LESS FREQUENT STAPLING/PINNING IS ACCEPTABLE ON MODERATE SLOPES.
4. INSTALLATION IN CHANNELS - EXCAVATE TERMINAL TRENCHES (12 INCHES DEEP AND 6 INCHES WIDE) ACROSS THE CHANNEL AT THE UPPER AND LOWER END OF THE LINED CHANNEL SECTIONS. AT 25-FOOT INTERVALS ALONG THE CHANNEL, ANCHOR THE RECP ACROSS THE CHANNEL EITHER IN 6 INCH BY 6 INCH TRENCHES OR BY INSTALLING TWO CLOSELY SPACED ROWS OF ANCHORS. EXCAVATE LONGITUDINAL TRENCHES 6 INCHES DEEP AND WIDE ALONG CHANNEL EDGES (ABOVE WATER LINE) IN WHICH TO BURY THE OUTSIDE RECP EDGES. PLACE THE FIRST RECP IN THE TERMINAL TRENCH AND PINE IT AT 1 FOOT INTERVALS ALONG THE BOTTOM OF THE TRENCH. NOTE: THE RECP SHOULD BE PLACED UPSIDE DOWN IN THE TRENCH WITH THE ROLL ON THE DOWNSTREAM SIDE OF THE BENCH.
5. ONCE PINNED AND BACKFILLED, THE RECP IS DEPLOYED BY WRAPPING OVER THE TOP OF THE TRENCH AND UNROLLING UPSTREAM. IF THE CHANNEL IS WIDER THAN THE PROVIDED ROLLS, PLACE ENDS OF ADJACENT ROLLS IN THE TERMINAL TRENCH, OVERLAPPING THE ADJACENT ROLLS A MINIMUM OF 3 INCHES. PIN AT 1 FOOT INTERVALS, BACKFILL, AND COMPACT UNROLL THE RECP IN THE UPSTREAM DIRECTION UNTIL REACHING THE FIRST INTERMITTENT TRENCH. FOLD THE RECP BACK OVER ITSELF, POSITIONING THE ROLL ON THE DOWNSTREAM SIDE OF THE TRENCH, AND ALLOWING THE MAT TO CONFORM TO THE TRENCH.
6. THEN PIN THE RECP (TWO LAYERS) TO THE BOTTOM OF THE TRENCH, BACKFILL, AND COMPACT. CONTINUE UP THE CHANNEL (WRAPPING OVER THE TOP OF THE INTERMITTENT TRENCH) REPEATING THIS STEP AT OTHER INTERMITTENT TRENCHES, UNTIL REACHING THE UPPER TERMINAL TRENCH.
7. AT THE UPPER TERMINAL TRENCH, ALLOW THE RECP TO CONFORM TO THE TRENCH, SECURE WITH PINES OR STAPLES, BACKFILL, COMPACT AND THEN BRING THE MAT BACK OVER THE TOP OF THE TRENCH AND ONTO THE EXISTING MAT (2 TO 3 FEET OVERLAP IN THE DOWNSTREAM DIRECTION), AND PIN AT 1 FOOT INTERVALS ACROSS THE RECP. WHEN STARTING INSTALLATION OF A NEW ROLL, BEGIN IN A TRENCH OR SHINGLE-LAP ENDS OF ROLLS A MINIMUM OF 1 FOOT WITH UPSTREAM RECP ON TOP TO PREVENT UPFLIGHT. PLACE THE OUTSIDE EDGES OF THE RECP(S) IN LONGITUDINAL TRENCHES, PIN, BACKFILL, AND COMPACT.
8. ANCHORING DEVICES - 11 GAUGE, AT LEAST 6 INCHES LENGTH BY 1 INCH WIDTH STAPLES OR 12 INCH MINIMUM LENGTH WOODEN STAKES ARE RECOMMENDED FOR ANCHORING THE RECP TO THE GROUND, IN LOOSE SOIL CONDITIONS. THE USE OF STAPLE/STAKE LENGTHS GREATER THAN 6"/12" MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S WHEN USING THE DOT SYSTEM. STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
9. DRIVE STAPLES OR PINS SO THAT THE TOP OF THE STAPLE OR PIN IS FLUSH WITH THE GROUND SURFACE. ANCHOR EACH RECP EVERY 3 FEET ALONG ITS CENTER. LONGITUDINAL OVERLAPS MUST BE SUFFICIENT TO ACCOMMODATE A ROW OF ANCHORS AND UNIFORM ALONG THE ENTIRE LENGTH OF OVERLAP AND ANCHORED EVERY 3 FEET ALONG THE OVERLAP LENGTH. ROLL ENDS MAY BE SPLICED BY OVERLAPPING 1 FOOT (IN THE DIRECTION OF WATER FLOW), WITH THE UPSTREAM/UPSLOPE MAT PLACED ON TOP OF THE DOWNSTREAM/DOWNSLOPE RECP. THIS OVERLAP SHOULD BE ANCHORED AT 1 FOOT SPACING ACROSS THE RECP. WHEN INSTALLING MULTIPLE WIDTH MATS HEAT SEALED IN THE FACTORY, ALL FACTORY SEAMS AND FIELD OVERLAPS SHOULD BE SIMILARLY ANCHORED.

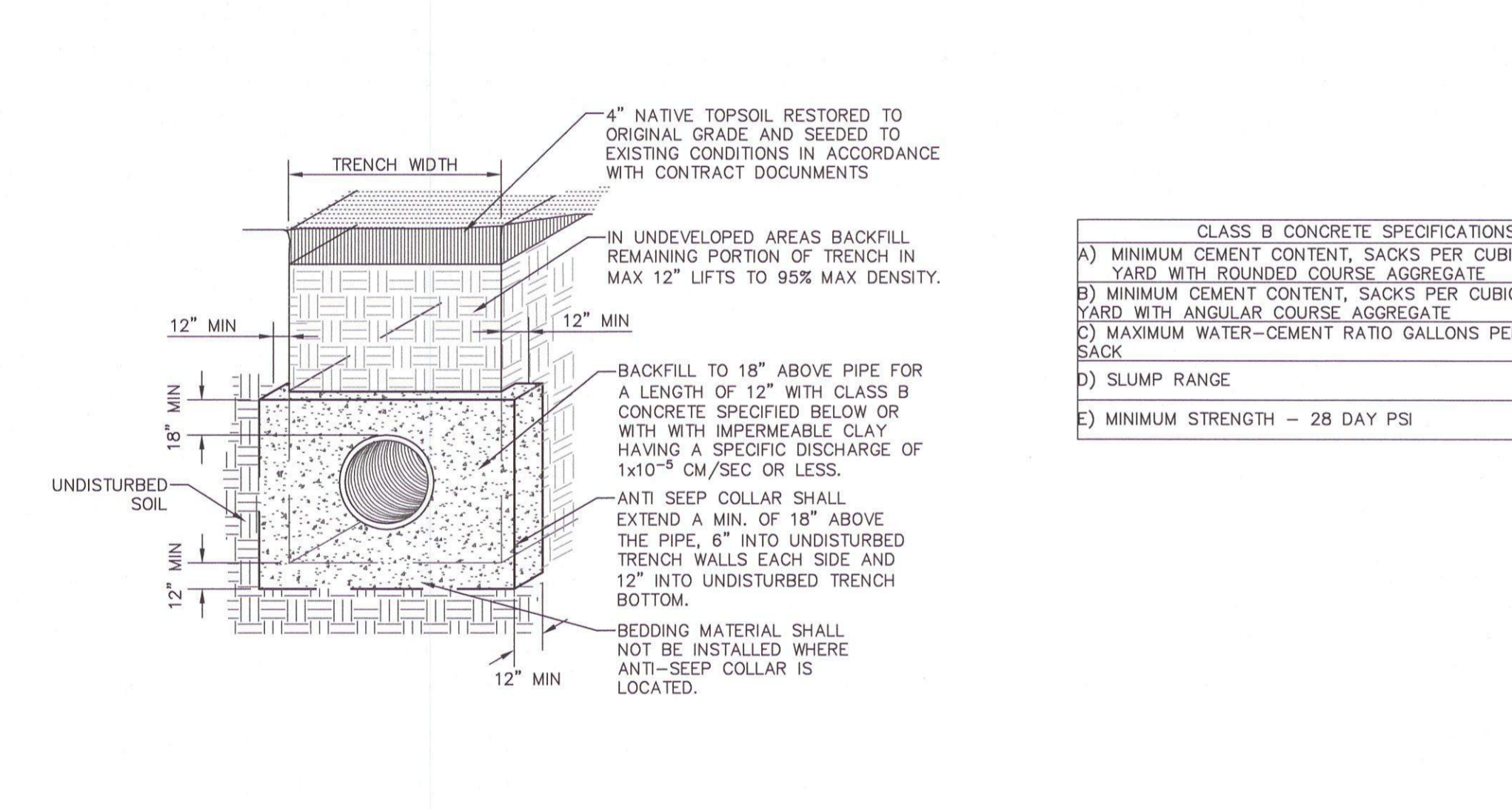
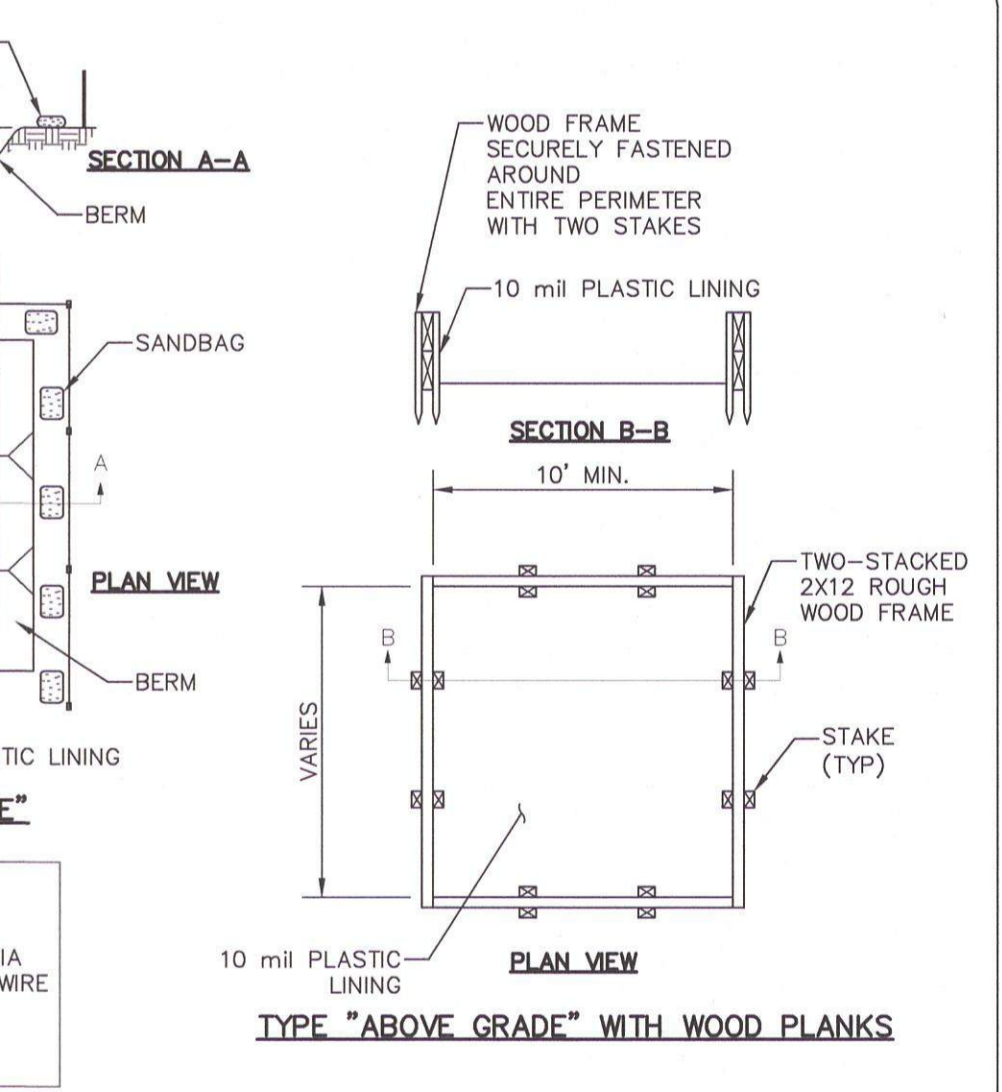
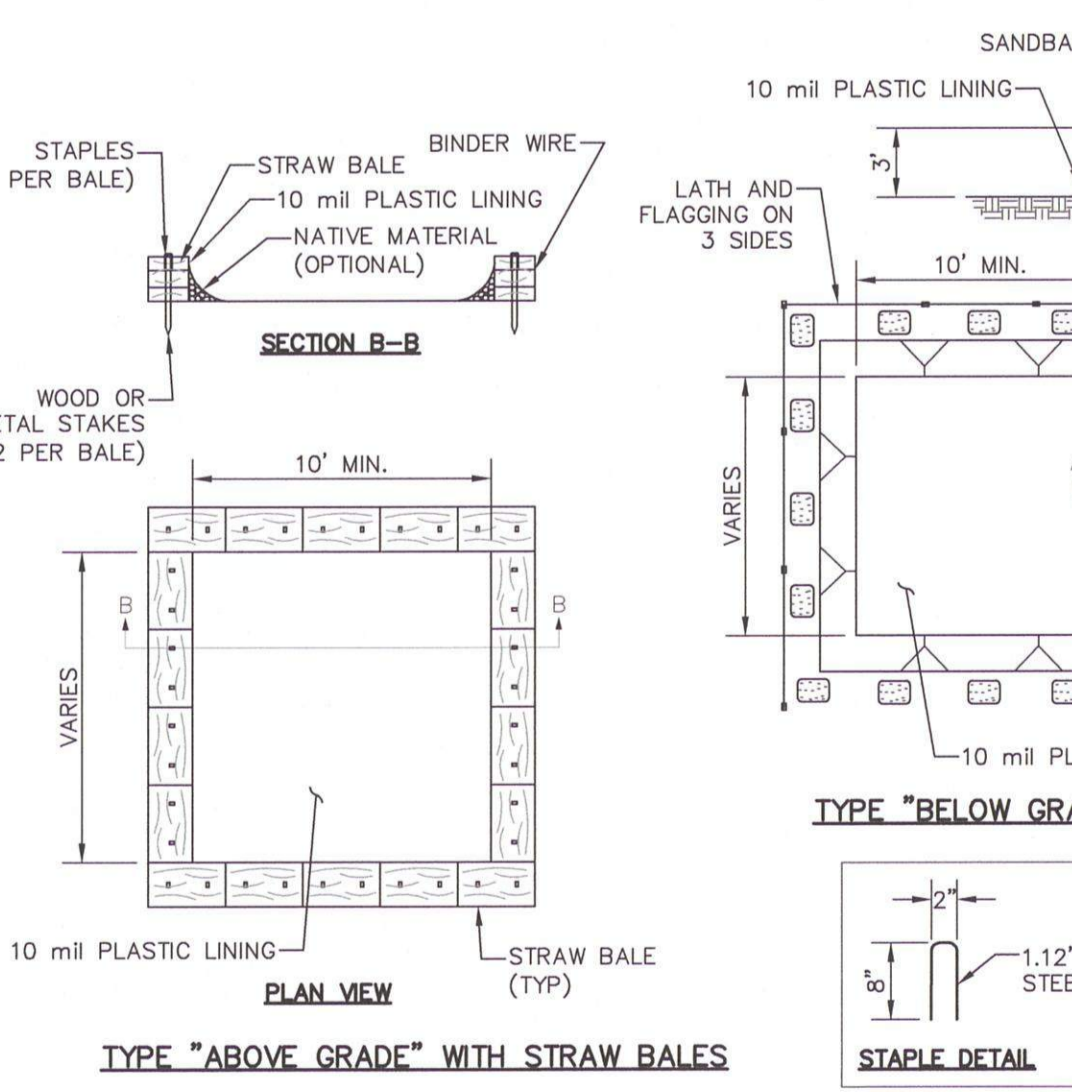
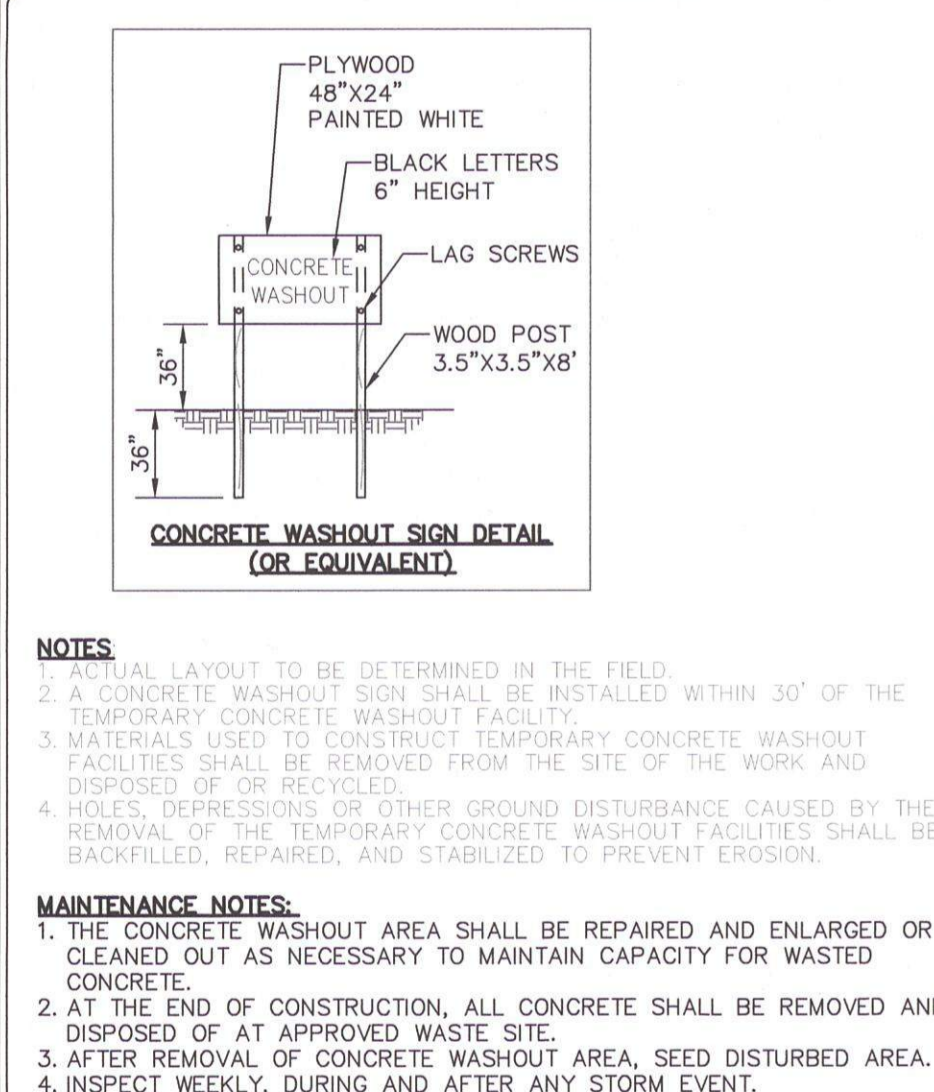
MAINTENANCE:

- 1. INSPECT ROLLED EROSION CONTROL PRODUCTS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAIN FALL EVENT REPAIR IMMEDIATELY.
2. GOOD CONTACT WITH THE GROUND MUST BE MAINTAINED, AND EROSION MUST NOT OCCUR BENEATH THE RECP.
3. ANY AREAS OF THE RECP THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED.
4. IF EROSION OCCURS DUE TO POORLY CONTROLLED DRAINAGE, THE PROBLEM SHALL BE FIXED AND THE ERODED AREA PROTECTED.
5. MONITOR AND REPAIR THE RECP AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.
6. STABILIZATION NOTE: STABILIZED GROUND COVER MUST BE ESTABLISHED WITHIN 7 DAYS IN AREAS WHERE SLOPES ARE STEEPER THAN 3:1 (SEE NCG01 REQUIREMENTS SHEET D-6)

EC-22 STREAM BANK RIP-RAP RESTORATION N.T.S.

EC-23 STRAW WATTLE N.T.S.

EC-24 TEMPORARY SLOPE STABILIZATION N.T.S.



NOTES:
1. EXISTING TOPSOIL SHALL BE REMOVE STOCKPILED AND PROTECTED FROM CONTAMINATION AND SHALL BE REINSTALLED TO ORIGINAL CONDITION AND USE.
2. ANTI-SEEP COLLAR SHALL BE PLACED AT THE DOWNSTREAM END OF THE EXISTING COLLAR AND A MIN. SPACING OF 150' ON THE GRADIENT UNTIL THE UTILITY EXITS THE WETLAND BOUNDARY UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
3. ANTI-SEEP COLLARS MAY BE CONSTRUCTED WITH COMPACTED CLAY, CLASS B CONCRETE, PVC OR METAL COLLARS. METAL CROSSINGS THAT ARE DIRECTIONALLY DRILLED AND PERPENDICULAR WETLAND CROSSINGS THAT ARE OPEN CUT AND LESS THAN 150' IN LENGTH DO NOT REQUIRE ANTI-SEEP COLLARS.
4. CONTRACTOR SHALL PROVIDE SUITABLE FORMING (TO BE REMOVED) TO CONTAIN CONCRETE FOR PROPER SHAPE AND DIMENSIONS.
5. ANTI-SEEP COLLAR MATERIAL AND INSTALLATION SHALL BE APPROVED BY THE PROJECT COORDINATOR PRIOR TO PLACING AND BACKFILLING.
6. CONSTRUCTION AND SEEDING IN WETLAND AREAS SHALL BE IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS AND THE OWNER'S PERMIT REQUIREMENTS.

EC-25 CONCRETE WASHOUT AREA N.T.S.

EC-26 ANTI-SEEP COLLAR N.T.S.

Project information including date, revisions, sheets, and logos for PWC (Public Works Commission) and MCKIM & CREED.

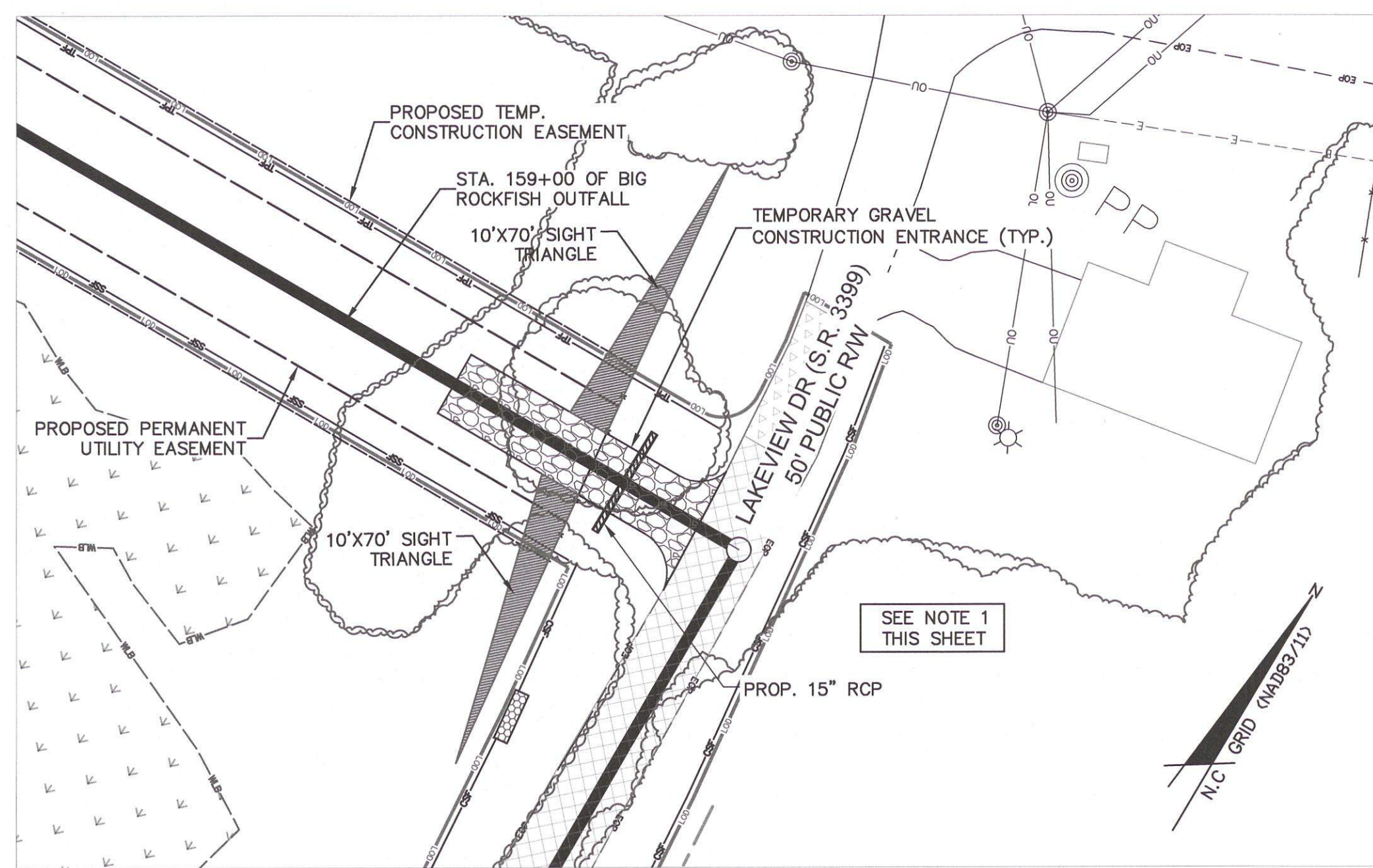
811 logo and MCKIM & CREED contact information: 1730 Varsity Drive, Suite 500, Raleigh, NC 27606. Phone: (919)233-8001, Fax: (919)233-8031.

FINAL DESIGN ISSUED FOR BID

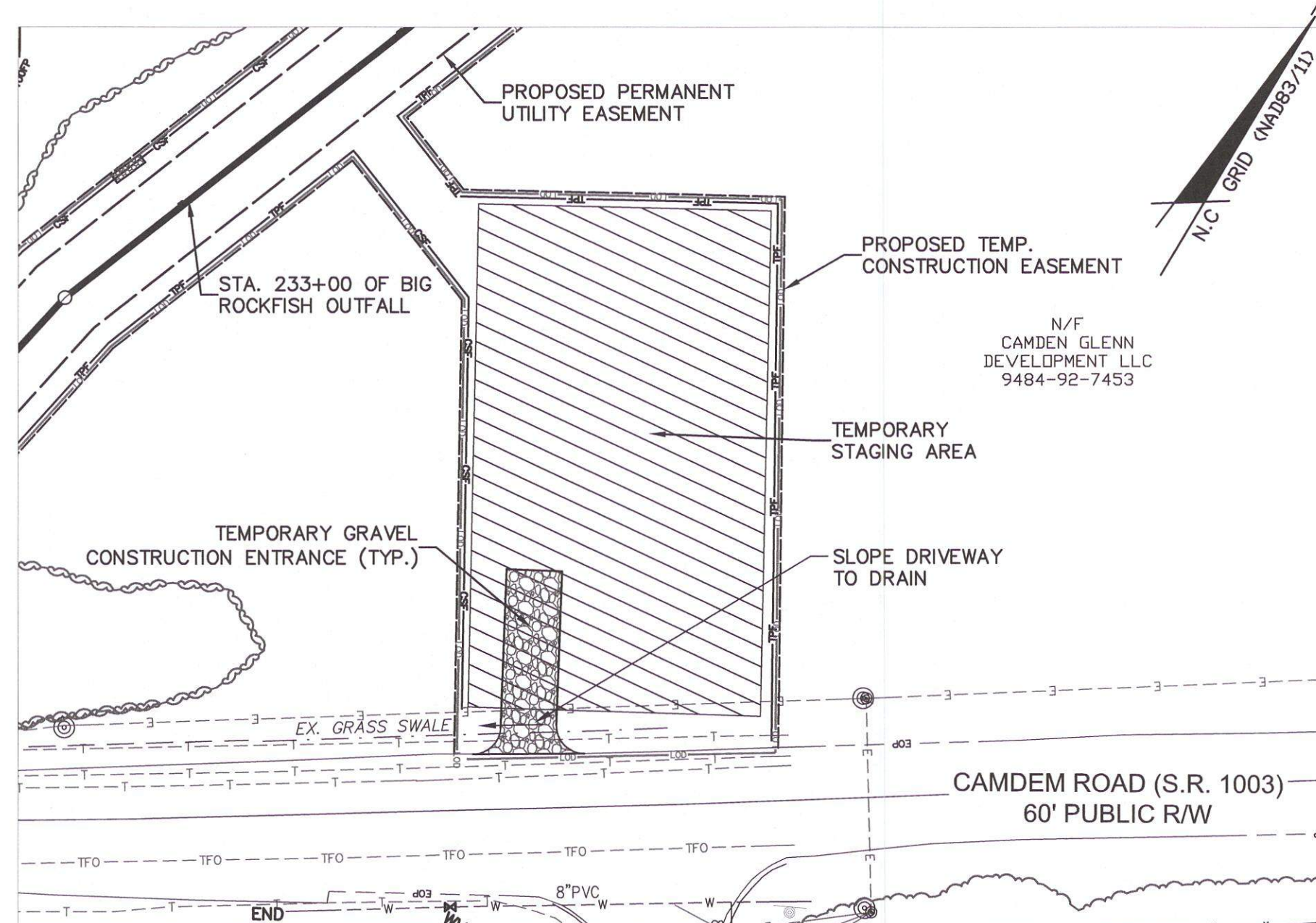
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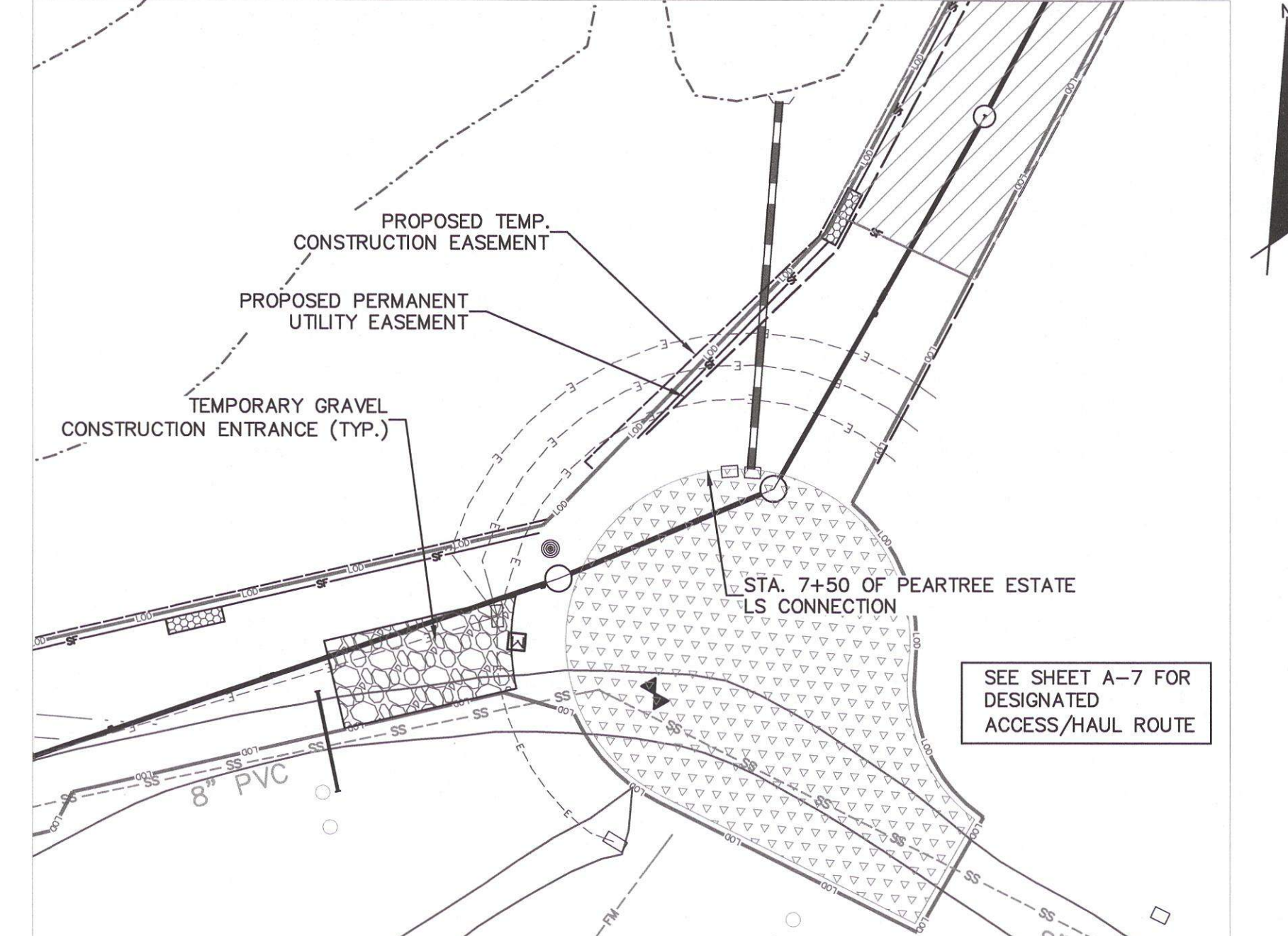
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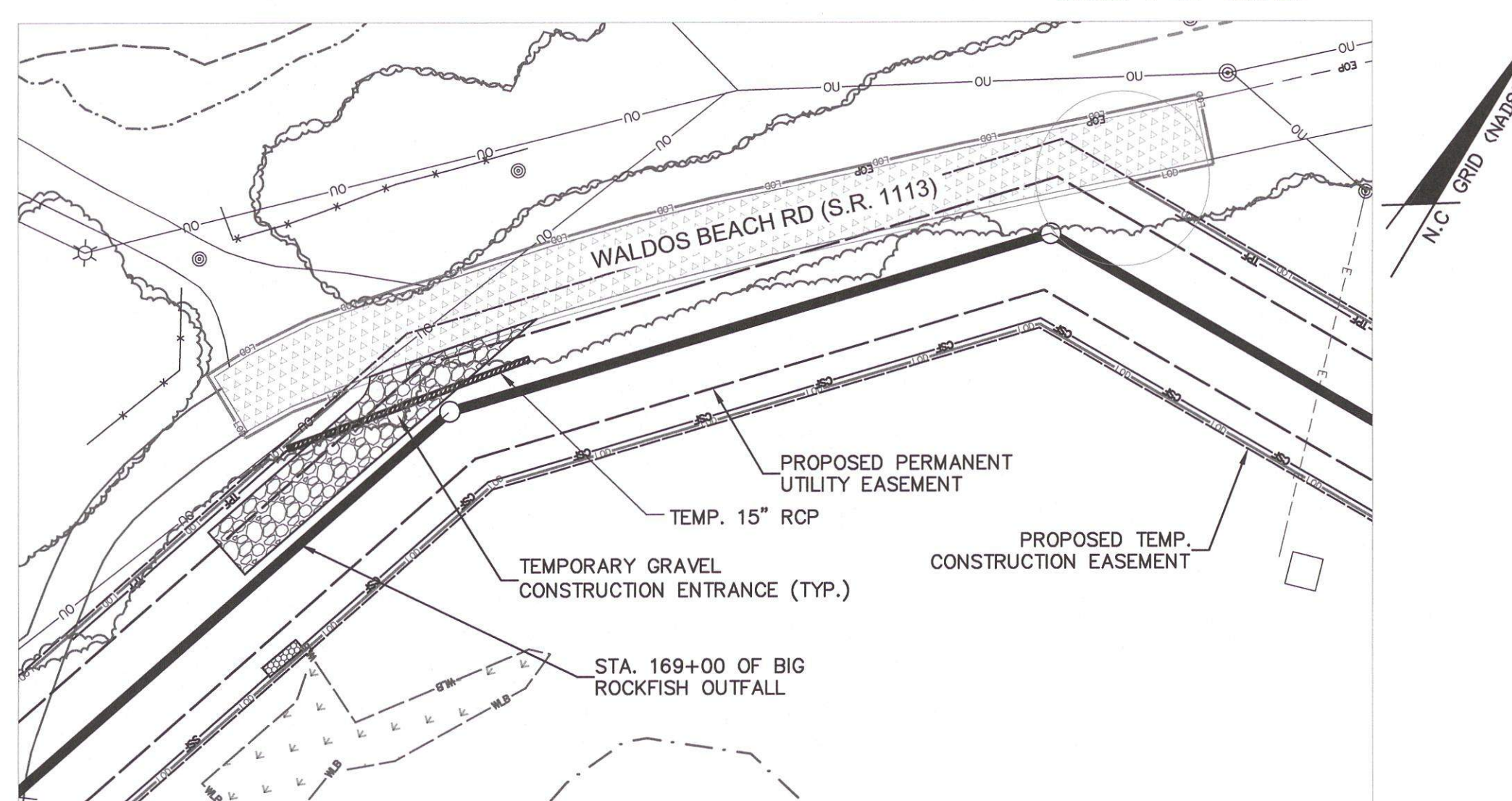
LAKEVIEW DRIVE - PERMANENT ACCESS NO. 2  
SCALE: 1"=30' (Horiz.)



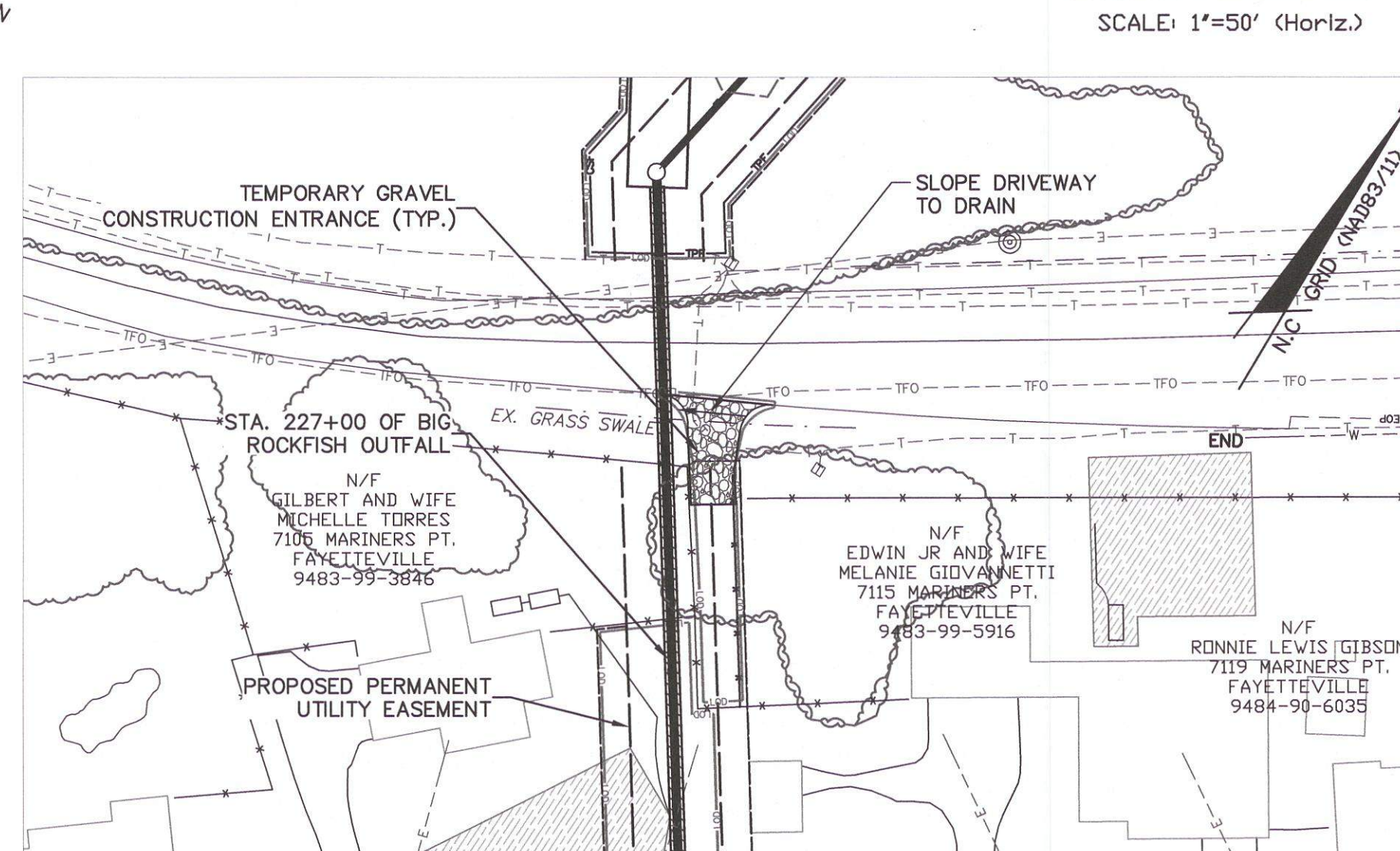
CAMDEN ROAD/CONSTRUCTION STAGING AREA NO. 2  
SCALE: 1"=50' (Horiz.)



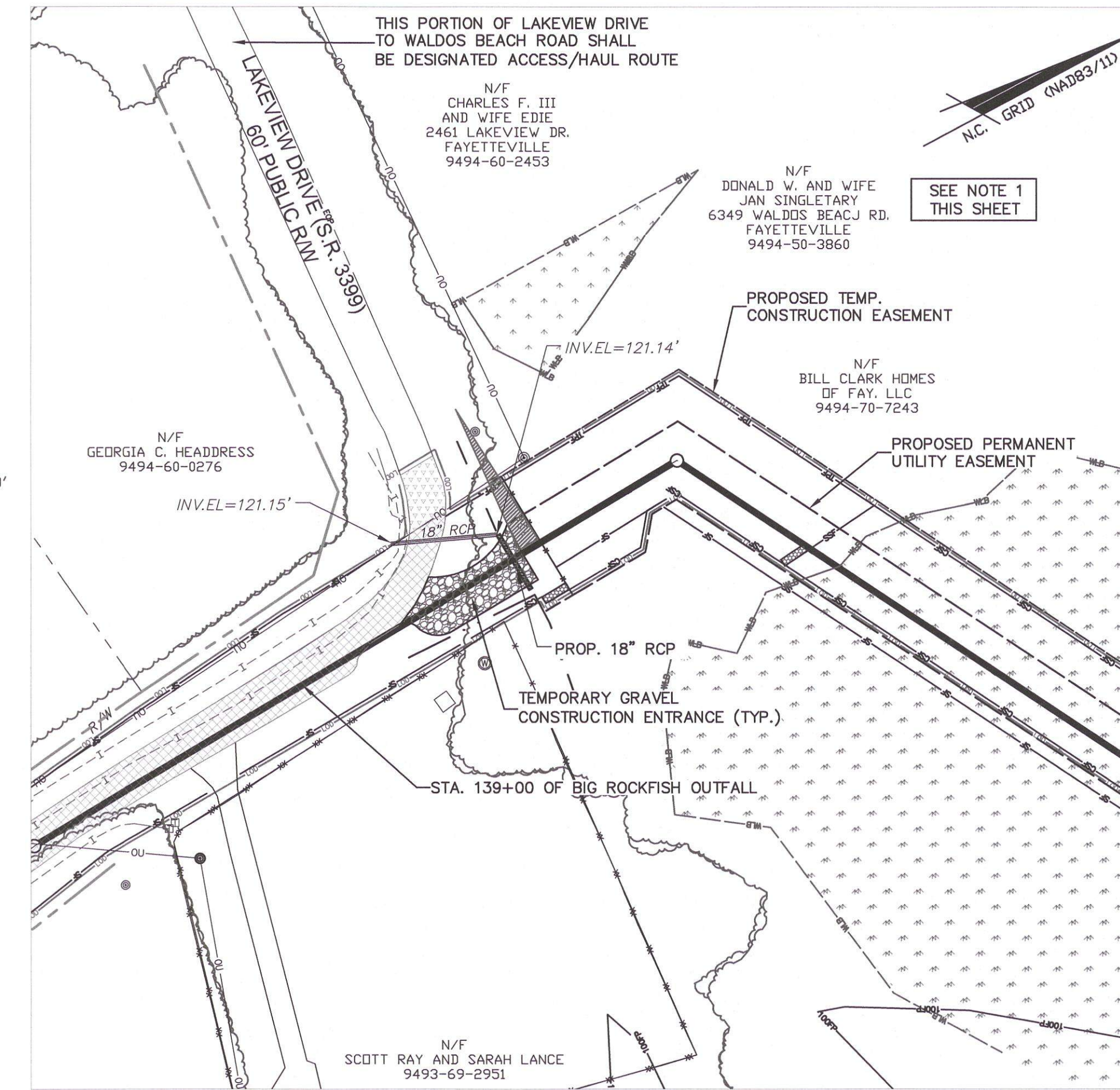
CAMDEN GLEN ROAD - TEMPORARY ACCESS  
SCALE: 1"=30' (Horiz.)



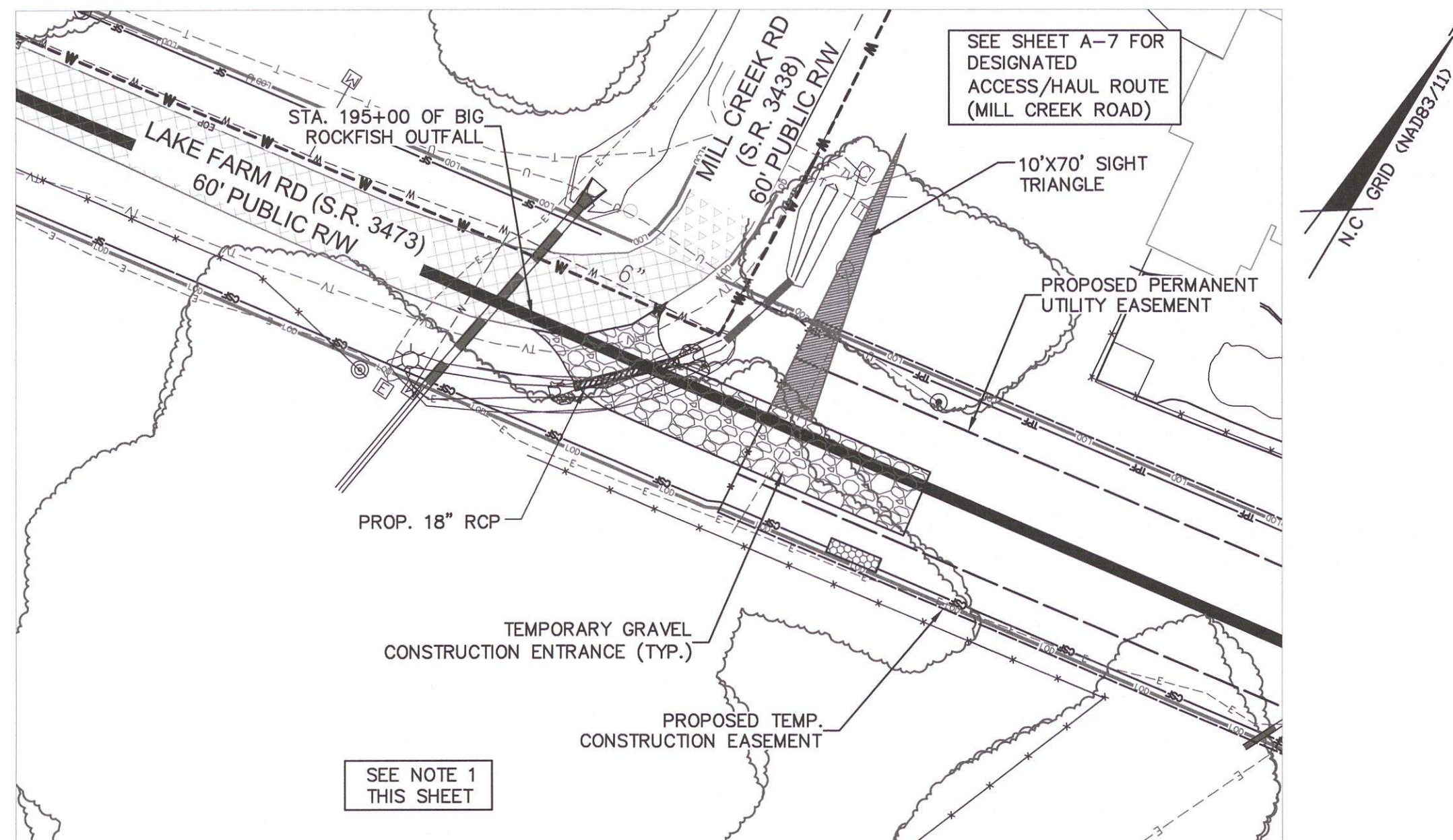
WALDOS BEACH ROAD - TEMPORARY ACCESS  
SCALE: 1"=40' (Horiz.)



CAMDEN ROAD - TEMPORARY ACCESS  
SCALE: 1"=50' (Horiz.)



LAKEVIEW DRIVE - PERMANENT ACCESS NO. 1  
SCALE: 1"=50' (Horiz.)



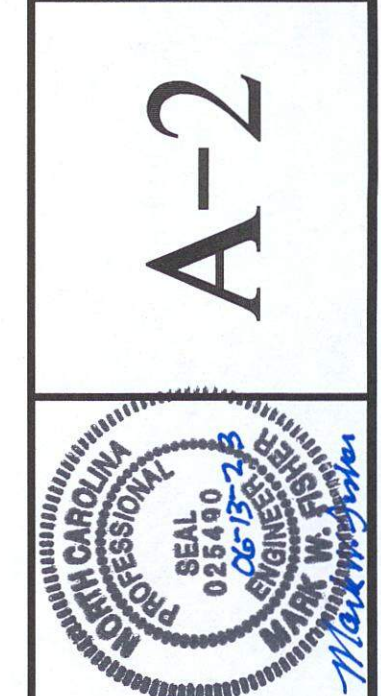
LAKE FARM ROAD - PERMANENT ACCESS  
SCALE: 1"=30' (Horiz.)

**LEGEND**  
 ITEMS UNDER SEPARATE CONTRACT

- NOTES:**
- PERMANENT ASPHALT DRIVEWAY TO BE INSTALLED FROM EXISTING EDGE OF PAVEMENT TO RIGHT-OF-WAY. DRIVEWAYS SHALL BE INSTALLED IN ACCORDANCE WITH NCDOT POLICY ON STREET AND DRIVEWAY ACCESS TO NORTH CAROLINA HIGHWAYS. PAVEMENT AND BASE COURSE SHALL BE PER DETAIL M.4 ON SHEET D-3.
  - CONTRACTOR SHALL MAINTAIN INGRESS AND EGRESS INTO ALL RESIDENCES AND BUSINESSES. IN THE EVENT A BUSINESS DRIVE MUST BE CLOSED, THE CLOSURE SHALL BE DONE AFTER BUSINESS HOURS AND COORDINATED WITH THE AFFECTED BUSINESS TO MINIMIZE IMPACTS.
  - ANY PAVEMENT CUTS REQUIRED FOR THE INSTALLATION OF THE PROPOSED ENTRANCES, ACCESS PATHS, OR STAGING AREAS, SHALL BE PATCHED AND REPAIRED IN ACCORDANCE WITH THE STANDARD DETAILS AND SPECIFICATIONS OF THE PROJECT.
  - THE EXISTING CONDITION OF RESIDENTIAL AND COMMERCIAL STREETS TO BE USED DURING CONSTRUCTION SHALL BE INSPECTED AND DOCUMENTED PRIOR TO USE. ANY SECTIONS DAMAGED DUE TO CONSTRUCTION TRAFFIC AND EQUIPMENT SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARDS DETAILS AND SPECIFICATIONS OF THE PROJECT.

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MPP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MPP
06.30.2021	FINAL DESIGN - NOT FOR CONSTRUCTION	MPP
04.13.2022	FINAL DESIGN - NOT FOR CONSTRUCTION	MPP
06.15.2023	FINAL DESIGN ISSUED FOR BID	MPP

SHEET A-2  
 SURVEY/GPS BY: MCKIM&CREED, INC.  
 PROCESS/LAYOUT BY: DATE: 6/13/23  
 PLAN/PROF./SSSH BY: THB/AWB  
 DESIGN REVIEW BY: BRL  
 APPROVED BY:  
 SCALE: AS SHOWN



SANITARY SEWER IMPROVEMENTS BIG ROCKFISH CREEK OUTFALL - CONTRACT 2  
 ACCESS DRIVE & CONSTRUCTION STAGING AREA (CONTRACT 2)

FAYETTEVILLE PUBLIC WORKS COMMISSION  
**PWC** WATER RESOURCES ENGINEERING  
 P.O. Box 1084, Fayetteville, NC 28302  
 955 Old Wilmington Road, Fayetteville, NC 28301

FINAL DESIGN  
 ISSUED FOR BID

**811** Know what's below. Call before you dig.  
**MCKIM&CREED**  
 1730 Varsity Drive, Suite 500  
 Raleigh, NC 27606  
 Phone: (919)233-8291, Fax: (919)233-8031  
 F-1222  
 www.mckimcreed.com

PWC DRAWING # DS-15486



CAMDEN GLEN ACCESS/HAUL ROUTE  
N.T.S.

LEGEND  
 ITEMS UNDER SEPARATE CONTRACT



LAKE FARM ROAD ACCESS/HAUL ROUTE  
N.T.S.



LAKEVIEW DRIVE ACCESS/HAUL ROUTE  
N.T.S.

NOTES:

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- ANY PAVEMENT CUTS REQUIRED FOR THE INSTALLATION OF THE PROPOSED ENTRANCES, ACCESS PATHS, OR STAGING AREAS, SHALL BE PATCHED AND REPAIRED IN ACCORDANCE WITH THE STANDARD DETAILS AND SPECIFICATIONS OF THE PROJECT.
- THE EXISTING CONDITION OF RESIDENTIAL AND COMMERCIAL STREETS TO BE USED DURING CONSTRUCTION SHALL BE INSPECTED AND DOCUMENTED PRIOR TO USE. ANY SECTIONS DAMAGED DUE TO CONSTRUCTION TRAFFIC AND EQUIPMENT SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD DETAILS AND SPECIFICATIONS OF THE PROJECT.
- CONTRACTOR SHALL NOTIFY DON SISK OF THE TOWN OF HOPE MILLS 48 HOURS PRIOR TO THE INSTALLATION OF TEMPORARY CONSTRUCTION ENTRANCE ON PARK GARDEN COURT.
- REFERENCE SPECIFICATION SECTION 23 OF 01000 SPECIAL CONDITIONS FOR BONDING REQUIREMENTS RELATED TO THE FACILITIES WITHIN TOWN OF HOPE MILLS RIGHT-OF-WAY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND ISSUING TO NCDOT A \$10,000 PERFORMANCE AND INDEMNITY BOND FOR THE TEMPORARY CONSTRUCTION DRIVEWAY. REFERENCE SECTION 01000 SPECIAL CONDITIONS FOR REQUIREMENTS.

DATE	REVISIONS	BY
05.18.2020	FINAL DESIGN NOT FOR CONSTRUCTION	AWB
12.16.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MHP
12.21.2020	FINAL DESIGN NOT FOR CONSTRUCTION	MHP
06.30.2021	FINAL DESIGN - CONTRACT MODIFICATION AND REVISIONS	MHP
04.13.2022	FINAL DESIGN - MOST ENHANCEMENT MODIFICATIONS	MHP
06.13.2023	FINAL DESIGN ISSUED FOR BID	MHP

SHEET	A-8
SURVEY/GPS BY:	MCKIM&CREED, INC.
PROCESS/LAYOUT BY:	DATE: 6/15/23
PLAN/PROF (SS&D) BY:	TMB/AWB
DESIGN REVIEW BY:	BRL
APPROVED BY:	
SCALE:	AS SHOWN

A-8



SANITARY SEWER IMPROVEMENTS BIG  
 ROCKFISH CREEK OUTFALL - CONTRACT 2  
 ACCESS & HAUL ROUTES (CONTRACT 2)

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



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