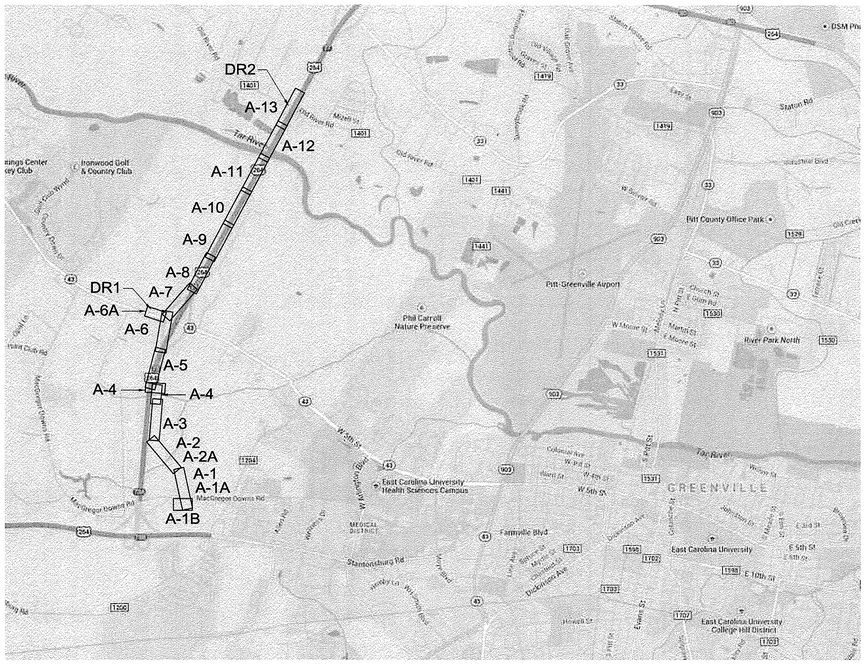
Greenville Utilities

GCP89 - Northwestern Loop
High-Pressure Gas Main Extension
Pitt County, North Carolina

June 1, 2015



KEY PLAN
NOT TO SCALE

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SHEET DESCRIPTION	SHEET NUMBER
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TRAFFIC CONTROL NOTES, LEGEND, AND PLAN AT CE–1	TC–1
TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE–1	TC–2
TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE–1	TC–3
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TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE–2	TC–5
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TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE–2	TC–7
TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE–2	TC–8
TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE–2	TC–9
TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE–4	TC–10
TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE–4	TC–11
TRAFFIC CONTROL PLAN AT CONSTRUCTION ENTRANCE CE–4	TC–12
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OLD RIVER RD REGULATOR STATION PIPING SECTION AND DETAILS	DR2–7
OLD RIVER RD REGULATOR STATION PIPING SECTION AND DETAILS	DR2–8
OLD RIVER RD REGULATOR STATION PIPING SECTION	DR2–9
OLD RIVER RD REGULATOR STATION PIPING SECTION AND DETAIL	DR2–10

SURVEYOR'S CERTIFICATE

I, HOWARD O. BARNUM, PLS, CERTIFY THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL GPS SURVEY MADE BY ME, AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE SURVEY:

1. CLASS OF SURVEY: ..... A
2. POSITIONAL ACCURACY: ..... 0.10'
3. TYPE OF GPS FIELD PROCEDURE: ..NORTH CAROLINA VRS RTK
4. DATES OF SURVEY: .....5-06-2014 TO 1-04-2015
5. DATUN/EPOCH: .....NAD83(2011), NAVD88
6. PUBLISHED/FIXED: .....JEROME (DG4522)
   VERA (DG4520)
7. GEOID MODEL:.....GEOID12A
8. COMBINED GRID FACTORS..... 0.9998874
9. UNITS: .....US SURVEY FEET

NORTH CAROLINA PROFESSIONAL SEAL L-3934 SURVEYOR HOWARD O. BARNUM

Issued for Bids

NORTH CAROLINA REGISTERED PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. RODGERS 6/1/15

RK&K

RUMMEL, KLEPPER & KAHL, LLP

ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RICHMOND, VIRGINIA

GENERAL NOTES

1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE CURRENT SPECIFICATIONS AND STANDARDS OF THE GREENVILLE UTILITIES COMMISSION AND BE IN CONFORMANCE WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) REQUIREMENTS AND THE PITT COUNTY, NORTH CAROLINA REQUIREMENTS.

2. SURVEY

   THE PROJECT BASE MAPPING IS CREATED FROM A COMBINATION OF 2012 ORTHOIMAGERY (NAD 83(2011)) AND 2007 LIDAR (NAVD 88) DATA, PROVIDED BY THE STATE OF NORTH CAROLINA. ALL DISTANCES WERE MEASURED AND REPORTED IN US SURVEY FEET. LIMITED PLANIMETRIC SURVEYS WERE PERFORMED BY STROUD ENGINEERING, P.A. TO FIELD VERIFY ORTHOIMAGERY DATA. TOPOGRAPHIC SURVEYS WERE PERFORMED TO SUPPLEMENT THE LIDAR TOPOGRAPHY AT THE CROSSINGS OF MACGREGOR DOWNS ROAD, NC HWY 264 BYPASS AND NC HWY 43. THESE SURVEYS WERE PERFORMED USING AN ARRANGEMENT OF GPS AND TOTAL STATION EQUIPMENT. THE INSTRUMENT SURVEYS WERE PERFORMED AS A CLASS AA SURVEY WITH A POSITIONAL ACCURACY OF LESS THAN 0.10'. HYDROGRAPHIC SURVEYS WERE PERFORMED ACROSS THE TAR RIVER AND OTHER STANDING BODIES OF WATER USING AN ECHOSOUNDER AND ECHOSOUNDER TRANSDUCER.

3. EXISTING UTILITIES

   THE LOCATION OF EXISTING SEWER, WATER, POWER, GAS, TELEPHONE, AND AND OTHER UTILITIES AND STRUCTURES THAT ARE LOCATED ACROSS, UNDERNEATH, ALONG, AND WITHIN THE LIMITS OF THE PROPOSED WORK WERE OBTAINED FROM EXISTING RECORDS, SUBSURFACE UTILITY LEVEL B DESIGNATION, AND PLANIMETRIC SURVEYING. ALL OF THESE METHODS CONTAIN INHERENT INACCURACIES AND THE LOCATIONS SHOWN ON THE PLANS SHOULD NOT BE CONSIDERED AS EXACT. LIMITED LEVEL A DESIGNATION WORK WAS PERFORMED AT THE CROSSINGS OF GREENVILLE UTILITIES COMMISSION FACILITIES.

   A. PRIOR TO CONSTRUCTION OR EXCAVATION, THE CONTRACTOR SHALL ASSUME THE RESPONSIBILITY OF LOCATING ANY UNDERGROUND UTILITIES (PUBLIC AND/OR PRIVATE) THAT MAY EXIST IN THE AREA OF CONSTRUCTION. HE SHALL NOTIFY THE ENGINEER IMMEDIATELY IF THERE APPEARS TO BE A CONSTRUCTION CONFLICT OR UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THE PLAN. THE CONTRACTOR SHALL BE LIABLE FOR ALL DAMAGE DONE TO ANY STRUCTURES OR PROPERTY THROUGH HIS CARELESSNESS OR NEGLIGENCE. ANY GRADE STAKES, HUBS, ETC. DESTROYED WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

   B. CONTRACTOR SHALL CLEARLY LOCATE ALL EXISTING UTILITY SERVICE CONNECTIONS AND AVOID DAMAGING THESE DURING CONSTRUCTION.

   C. THE CONTRACTOR SHALL CONTACT THE N.C. ONE-CALL CENTER AT 811 OR 1-800-632-4949 72 HOURS IN ADVANCE OF ANY CONSTRUCTION. REFER TO THE NC811 WEBSITE AT www.nc811.org FOR A COMPLETE LISTING OF NORTH CAROLINA DAMAGE PREVENTION SERVICES.

4. MATERIALS AND WORKMANSHIP

   ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH (THE LATEST EDITIONS WHERE APPLICABLE) OF:

   A. THE GREENVILLE UTILITIES COMMISSION NATURAL GAS OPERATIONS AND MAINTENANCE PLAN,

   B. APPLICABLE PITT COUNTY, NORTH CAROLINA ORDINANCES AND REGULATIONS,

   C. TITLE 49, CFR, PART 192 – FEDERAL PIPELINE SAFETY CODE,

   D. ASME B31.8 – GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS,

   E. REQUIREMENTS OF THE APPROVED CONSTRUCTION & EROSION AND SEDIMENTATION CONTROL PLAN FROM NCDENR.

   F. REQUIREMENTS OF THE NCDOT HIGHWAY ENCROACHMENTS,

   G. TITLE 29 CFR, PART 1926 – FEDERAL OCCUPATIONAL SAFETY AND HEALTH STANDARDS, SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION,

   H. NCDOT ROADWAY DESIGN MANUAL,

   I. NCDOT WORK ZONE SAFETY REQUIREMENTS, AND

   J. CONDITIONS OF NEGOTIATED EASEMENTS AND TEMPORARY WORKSPACE COMPRISING THE PIPELINE RIGHT-OF-WAY AND CONSTRUCTION PATH. REFER TO SHEET G-2 FOR THESE REQUIREMENTS.

   K. FINAL CONSTRUCTION PLANS AND SPECIFICATIONS SHALL INCLUDE THE REQUIREMENTS OF ALL FINAL PROJECT PERMITS. FINAL PERMITS WILL BE PROVIDED TO THE SUCCESSFUL BIDDER.

5. NO DEVIATION FROM THESE PLANS WILL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE OWNER, ENGINEER AND AFFECTED GOVERNMENTAL AGENCIES.

6. CLEARING AND GRUBBING

   ALL GROWTH OF TREES, OTHER VEGETATION, AND OBJECTIONABLE DEBRIS SHALL BE CLEARED AND GRUBBED FROM THE PROPOSED CONSTRUCTION PATH WITHIN THE UTILITY EASEMENT AND PROPOSED REGULATOR STATION SITE AREAS. ALL DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF OFF-SITE IN DESIGNATED DISPOSAL AREAS IN ACCORDANCE WITH ALL REGULATORY REQUIREMENTS.

7. GRADING

   EXCEPT WHERE NOTED BY PERMIT REQUIREMENTS AND SPECIFICALLY CALLED OUT IN PLANS, CONTRACTOR SHALL RETURN THE GROUND SURFACE ALONG THE CONSTRUCTION PATH TO PRE-CONSTRUCTION ELEVATIONS AND CONTOURS FOLLOWING CONSTRUCTION AND PRIOR TO VEGETATION RESTORATION.

GENERAL NOTES (CONT'D.)

8. TRENCHING, COVER, CLEARANCE, BACKFILLING, AND DRAINAGE STRUCTURES

   A. TRENCH DEPTH FOR STEEL PIPE SHALL BE SUFFICIENTLY DEEP TO ALLOW A MINIMUM OF 4 FEET OF COVER OVER THE PIPE AFTER BACKFILLING.

   B. TRENCH WIDTH SHALL BE APPROXIMATELY 12 TO 16 INCHES WIDER THAN THE NOMINAL PIPE DIAMETER OR AS CLOSE TO THIS AS SOIL CONDITIONS PERMIT.

   C. OPEN TRENCH LENGTHS SHALL BE KEPT TO A MINIMUM.

   D. WHERE UNSTABLE SOIL OR ABRASIVE ROCK AND/OR STONE ARE ENCOUNTERED AT THE TRENCH BOTTOM, THE TRENCH SHALL BE EXCAVATED SUFFICIENTLY DEEP TO ALLOW FOR 6 INCHES OF PIPE BEDDING TO BE INSTALLED IN THE BOTTOM OF THE DITCH.

   E. BACKFILL SURROUNDING THE PIPE AND EXTENDING 12 INCHES ABOVE THE PIPE SHOULD BE CLEAN AND FREE FROM ABRASIVE MATERIALS.

   F. NO TRENCH SHALL BE BACKFILLED UNTIL AUTHORIZED BY THE INSPECTOR OR OWNER.

   G. AT THE DIRECTION OF THE INSPECTOR OR OWNER, UNSUITABLE MATERIAL WILL BE REMOVED AND NOT USED AS BACKFILL. IT WILL BE REPLACED WITH ACCEPTABLE MATERIAL. ALL BACKFILL SHALL BE FREE OF DEBRIS.

   H. BACKFILL SHALL BE ADDED IN APPROXIMATE 6-INCH LIFTS AND COMPACTED USING MECHANICAL TAMPERS TO THE MAXIMUM DENSITY OBTAINABLE FOR THE CONDITIONS. WITHIN NCDOT RIGHT-OF-WAYS, PRIVATE DRIVEWAYS AND OTHER AREAS WHERE SETTLEMENT ALONG THE TRENCH LINE IS UNACCEPTABLE, COMPACTION SHALL BE TO 95% DENSITY AT OPTIMUM MOISTURE CONTENT +/-2%.

   I. REFER TO THE PROJECT SPECIFICATION AND THE GREENVILLE UTILITIES COMMISSION NATURAL GAS OPERATIONS AND MAINTENANCE PLAN FOR COMPLETE REQUIREMENTS FOR TRENCHING, PIPE PLACEMENT AND BACKFILLING.

   K. EXISTING DRAIN PIPES CROSSING AND IN THE UTILITY EASEMENT SHALL BE MAINTAINED IN WORKING CONDITION DURING CONSTRUCTION. IF DAMAGED OR MOVED DURING CONSTRUCTION, THEY SHALL BE REPLACED WITH DRAIN PIPES OF THE SAME SIZE AND MATERIAL AND RESTORED TO ORIGINAL FUNCTIONALITY. PHOTOGRAPHS OF BEFORE CONDITIONS ARE SUGGESTED.

   L. TEMPORARY DRAINAGE AND DEWATERING DURING CONSTRUCTION SHALL BE PROVIDED BY THE CONTRACTOR AS NEEDED TO FACILITATE CONSTRUCTION. CONTRACTOR MUST MEET ALL THE REQUIREMENTS OF THE PROJECT PERMITS AND NOT DISCHARGE ANY WATER AND OR SEDIMENT INTO WATER COURSES WITHOUT FOLLOWING THE RECOMMENDATIONS CONTAINED IN THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL AND THE REQUIREMENTS OF PITT COUNTY, NORTH CAROLINA.

9. GAS PIPING

   A. GAS PIPING SHALL BE DELIVERED, HANDLED, STORED, INSTALLED, TESTED, CLEANED, DRIED, TIED-IN AND COMMISSIONED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, PROJECT PLANS AND DETAILS, AND THE REQUIREMENTS OF THE GREENVILLE UTILITIES COMMISSION NATURAL GAS OPERATIONS AND MAINTENANCE PLAN.

   B. THE GAS MAIN SHALL BE INSTALLED SO AS TO PROVIDE A MINIMUM OF 24 INCHES OF CLEARANCE TO ALL OTHER UNDERGROUND UTILITIES AND STRUCTURES. WHERE THIS IS NOT POSSIBLE, APPROPRIATE PROTECTION APPROVED BY THE INSPECTOR OR OWNER SHALL BE PROVIDED.

   C. WHERE MINOR CHANGES IN DIRECTION ARE REQUIRED, THE PIPE MAY BE FIT TO THE DITCH WITH SIDE, SAG, AND OVER BENDS PROVIDED THE MINIMUM BENDING RADIUS OF 375 FEET OR A DEFLECTION OF 24.5 INCHES PER 40 FEET OF PIPE (0.61 INCHES PER FOOT) IS NOT EXCEEDED. FITTINGS MAY ALSO BE CUT TO ACCOMPLISH MINOR DIRECTIONAL CHANGES. REFER TO THE SPECIFICATIONS FOR MORE DETAILS.

10. SEEDING AND SURFACE RESTORATION

    A. ALL SURFACE RESTORATION AND SEEDING, SODDING, ETC., SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT EROSION AND SEDIMENT CONTROL PLAN AND DETAILS; AND THE PROJECT PLANS, DETAILS AND SPECIFICATIONS. SURFACE RESTORATION SHALL OCCUR AS SOON AS PRACTICAL FOLLOWING REMOVAL OF CONSTRUCTION MATERIALS, WASTE PILES, RESTORATION OF SURFACE CONTOURS AND GRADES, AND REMOVAL OF EQUIPMENT, AND ACCORDING TO THE REQUIREMENTS OF THE EROSION AND SEDIMENT CONTROL PLAN.

11. SITEWORK

    A. ALL CONSTRUCTION STAKING FOR THE PIPELINE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AT HIS EXPENSE AND UTILIZING THE SERVICES OF A NORTH CAROLINA CERTIFIED PROFESSIONAL LAND SURVEYOR OR ENGINEER UNLESS OTHERWISE AGREED UPON BY THE OWNER IN WRITING.

    B. ALL WORK ON THE TWO DISTRICT REGULATOR SITES SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT PLANS AND SPECIFICATIONS; AND PITT COUNTY PERMITTING REQUIREMENTS.

12. PAVEMENT

    A. ALL EXISTING PAVEMENT, INCLUDING PAVED DRIVEWAYS AND DRIVEWAYS IMPROVED WITH STONE OR GRAVEL, THAT IS DAMAGED DURING CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS BY THE CONTRACTOR AND ACCORDING TO ANY NOTES AND/OR DETAILS IN THE PROJECT PLANS.

    B. ALL PAVING REQUIREMENTS RESULTING FROM EASEMENT NEGOTIATIONS SHALL BE HONORED AND COMPLETED BY THE CONTRACTOR. THESE REQUIREMENTS WILL BE INCLUDED ON SHEET G-2 OF THE PROJECT PLANS.

CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL NOTIFY THE GREENVILLE UTILITIES COMMISSION CONSTRUCTION INSPECTOR PRIOR TO MAKING ANY ADJUSTMENTS TO EXISTING UTILITIES IN THE WORK AREA.

2. THE CONTRACTOR SHALL PREPARE A CONSTRUCTION PLAN AND SCHEDULE OF SUFFICIENT DETAIL TO DESCRIBE THE SEQUENCE OF THE CONTRACTOR'S CONSTRUCTION OPERATIONS. IT IS THE INTENT OF THE GREENVILLE UTILITIES COMMISSION THAT GAS SERVICE TO THE EXISTING DISTRIBUTION SYSTEM NOT BE INTERRUPTED DURING THE CONSTRUCTION OPERATIONS. SHOULD INTERRUPTION OF SERVICE BE REQUIRED DURING TIE-INS, CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTOR A MINIMUM OF 72 HOURS IN ADVANCE OF THE PLANNED INTERRUPTION.

3. CONTRACTOR SHALL REVIEW ALL CLEANING, TESTING, DEWATERING, DRYING, AND TIE-IN, PURGING, AND GAS-UP PROCEDURES INCLUDING SAFETY PROCEDURES WITH CONSTRUCTION INSPECTOR A MINIMUM OF 5 DAYS PRIOR TO THE SCHEDULED WORK.

4. CONTRACTOR IS RESPONSIBLE FOR ALL LOCAL PERMITS AND APPROVALS NOT OBTAINED AS PART OF THE PROJECT PERMITTING DURING THE DESIGN. CONTRACTOR IS REQUIRED TO KEEP COPIES OF ALL PERMITS AT THE JOBSITE AT ALL TIMES DURING CONSTRUCTION.

5. THE GREENVILLE UTILITIES COMMISSION WILL BE SUPPLYING THE PIPE, VALVES, FITTINGS, AND MAJOR MATERIALS FOR THIS PROJECT. THE INSPECTOR WILL INSPECT THE WORK DURING CONSTRUCTION TO ENSURE THAT ALL METHODS AND CONTRACTOR SUPPLIED MATERIALS ARE IN ACCORDANCE WITH THE PROJECT PLANS, DETAILS, SPECIFICATIONS, AND PERMIT REQUIREMENTS.

6. THE CONTRACTOR SHALL REQUEST VALVE OPERATION BY THE GREENVILLE UTILITIES COMMISSION A MINIMUM OF 48 HOURS IN ADVANCE. THE CONTRACTOR SHALL NOT OPERATE VALVES ON ACTIVE GAS MAINS UNLESS DIRECTED BY THE GREENVILLE UTILITIES COMMISSION.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES AND/OR PENALTIES RESULTING FROM NON-COMPLIANCE WITH FEDERAL, STATE AND LOCAL PERMITS, ENCROACHMENT AGREEMENTS, AND EASEMENT STIPULATIONS.

8. "DENR E&S MANUAL" REFERS TO THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

9. DURING CONSTRUCTION AND SURFACE RESTORATION, THE CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES AS DESCRIBED IN THE PROJECT PLANS AND DETAILS. THE CONTRACTOR SHALL REMOVE SUCH MEASURES WHEN THEY ARE NO LONGER NECESSARY. ALL MEASURES SHALL BE IN ACCORDANCE WITH THE DENR E&S MANUAL AND THE REQUIREMENTS OF THE PITT COUNTY PLANNING DEPARTMENT CONSTRUCTION & SOIL EROSION AND SEDIMENTATION CONTROL PERMIT.

10. REFERENCES TO NCDOT STANDARDS AND SPECIFICATIONS REFER TO THE MOST CURRENT EDITION OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

ABOVE GROUND PIPING

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAINTING ABOVE GRADE PIPING. THE PAINT SYSTEM SHALL BE TNEMEC SERIES 66, HI-BUILD EPOXOLINE, EPOXY-POLYAMIDE COATING, APPLIED TO THE MANUFACTURER'S SPECIFICATIONS TO A THICKNESS OF 5.0 MILS. THE COLOR SHALL BE GREY. THE APPLICATION EQUIPMENT SHALL BE SUPPLIED BY THE CONTRACTOR. THE PIPE TO BE PAINTED SHALL BE CLEANED AND DRIED. ALL RUST AND SCALE SHALL BE REMOVED WITH A WIRE BRUSH, EITHER BY HAND OR WITH A POWER TOOL. THE CONTRACTOR SHALL ENSURE THAT PARTS AND EQUIPMENT THAT SHOULD NOT BE PAINTED ARE COVERED WITH MASKING TAPE OR EQUIVALENT MATERIAL CONTRACTOR SHALL APPLY COATING ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH ALL APPLICABLE ENVIRONMENTAL, SAFETY AND HEALTH REQUIREMENTS, INCLUDING THOSE APPLYING TO DISPOSAL OF MATERIALS USED IN THE COATING PROCESS.

GEOTECHNICAL NOTE

A COPY OF THE GEOTECHNICAL REPORT IS INCLUDED IN THE PROJECT SPECIFICATIONS. THE BORE LOCATIONS ARE SHOWN IN THE PROJECT PLANS AND THE BORE PLOTS ARE INCLUDED IN THE PROJECT DETAILS. THE CONTACTOR IS ENCOURAGED TO STUDY THE GEOTECHNICAL REPORT AND THE PROJECT PLANS PRIOR TO BEGINNING HORIZONTAL DIRECTIONAL DRILLING (HDD) OPERATIONS.

AIR RELEASE VALVE (ARV) NOTE

ARV LOCATIONS ARE APPROXIMATE BASED ON THE GRADES AND PIPE DEPTHS SHOWN ON THE PLANS. CONTRACTOR SHALL LOCATE EACH ARV AT THE HIGHEST PIPE ELEVATION NEAR THE PROPOSED ARV LOCATIONS SHOWN ON THE PLANS. CONTRACTOR MUST HAVE THE MEANS TO VERIFY ARV ELEVATIONS.

FLOOD PLAIN DEVELOPMENT NOTE

AS NOTED ON THE PLANS, PORTIONS OF THIS PROJECT ARE LOCATED WITHIN FLOOD ZONES AE (1% ANNUAL FLOODPLAIN) AND AE FLOODWAY AS DEFINED BY FEMA FLOOD INSURANCE RATE MAPS 3720466800K EFFECTIVE 07/07/2014 AND 3720466900J EFFECTIVE 01/02/2004.

DRAWING LEGEND

SYMBOL	DESCRIPTION
EGS	EXISTING GAS SERVICE
EX.	EXISTING
ST	STEEL
PE	POLYETHYLENE
PGS	PROPOSED GAS SERVICE
PROP.	PROPOSED
RCP	REINFORCED CONCRETE PIPE
STA	STATION
CTF	CUT TO FIT
AH	AHEAD
BK	BK
	EXISTING MANHOLE
	WATER METER
	PROPERTY PIN
	ROADWAY SIGN
	MAIL BOX
	UTILITY POLE
	TELEPHONE PEDESTAL
	FIRE HYDRANT W/ WATER VALVE
	WATER VALVE
	EXISTING GAS VALVE
	PROPOSED GAS VALVE
	CP TEST STATION
	TREE
	BUSH
SURFACE TH__	PROPOSED TEST HOLE

DRAWING LEGEND

SYMBOL	DESCRIPTION
	CENTERLINE
	HYDRO
x	EXISTING FENCE
	EXISTING GUARD RAIL
	EXISTING EDGE-OF-PAVEMENT
	EXISTING DRIVEWAY/PATH
g	EXISTING GAS TO REMAIN
	EXISTING UTILITY EASEMENT
	EXISTING PROPERTY LINE
	EXISTING RIGHT-OF-WAY (R/W)
	EXISTING SANITARY SEWER
	EXISTING STORM DRAINAGE
E	EXISTING UNDERGROUND ELECTRIC LINE
T/TV	EXISTING UNDERGROUND TELEPHONE CABLE
FO	EXISTING UNDERGROUND FIBER OPTIC
	EXISTING WATER
	BORROW PIT
	WETLAND BOUNDARY
	RIPARIAN BARRIER (RB)
	AE FLOODWAY
	AE FLOODZONE
	PROPOSED TEMPORARY WORKSPACE
	PROPOSED UTILITY EASEMENT
	PROPOSED GAS BELOW GRADE
PM	PROPOSED PIPELINE MARKER
XXXX ARV	PROPOSED AIR RELEASE VALVE

EROSION AND SEDIMENT CONTROL LEGEND

SYMBOL	DESCRIPTION
TSD	PROPOSED TEMPORARY STREAM DIVERSION
CE	PROPOSED CONSTRUCTION ENTRANCE
TB	PROPOSED TRENCH BARRIER
WB	PROPOSED WATER BAR
PS	PROPOSED SEED & MULCH
SF	PROPOSED SILT FENCE
STD	PROPOSED STONE DRIVE
DS	PROPOSED DEWATERING STRUCTURE
	PROPOSED SILT FENCE

6/1/15

NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. ROGERS

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	--	--
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	--	--

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST., SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN NTS
PROFILE
HOR. -
VERT. -

Greenville Utilities

DISTRICT	COUNTY	STATE
-	PITT	NORTH CAROLINA

SHEET DESCRIPTION

GENERAL NOTES
AND DRAWING LEGEND

SHEET: G-1

REVISION: 0

EASEMENT REQUIREMENTS

P–005
EXISTING PIEDMONT NATURAL GAS STATION REGULATOR SITE
PARCEL NUMBER: 37538
DB 3294 / PG 699–708

STATUS:
NO SPECIAL CONDITIONS REQUIREMENTS

P–025a
THERESA MANNING AYERS, ET. ALS.
PARCEL NUMBER: 14145
DB 1996E / PG 718

STATUS:
EASEMENT AND TEMPORARY WORKSPACE ACQUIRED
DB 3294 / PG 668–675

NO SPECIAL CONDITIONS REQUIREMENTS

P–030
CITY OF GREENVILLE, NORTH CAROLINA
PARCEL NUMBER: 62067
DB 1044 / PG 642

STATUS:
NO EASEMENT OR TEMPORARY WORKSPACE REQUIRED

NO SPECIAL CONDITIONS REQUIREMENTS

P–035
BARNHILL CONTRACTING COMPANY
PARCEL NUMBER: 49497
DB 233 / PG 729

STATUS:
TEMPORARY WORKSPACE ACQUIRED
DB 1948 / PG 509

NO SPECIAL CONDITIONS REQUIREMENTS

P–050
LIBERTY FREE WILL BAPTIST CHURCH
PARCEL NUMBER: 07111
DB 1901 / PG 129

STATUS:
EASEMENT AND TEMPORARY WORKSPACE ACQUIRED
DB 3327 / PG 783–786

NO SPECIAL CONDITIONS REQUIREMENTS

P–060a
FORBES FARM LLC
PARCEL NUMBER: 07784/41799
DB 2583 / PG 475–478

STATUS:
EASEMENT AND TEMPORARY WORKSPACE ACQUIRED
DB 3293 / PG 5–8

NO SPECIAL CONDITIONS REQUIREMENTS

P–075b
MCALISTER FAMILY PROPERTIES LP
PARCEL NUMBER: 44393
DB 2828 / PG 225–227 (BEING RECORDED)

STATUS:
SITE PURCHASED

SPECIAL CONDITIONS:
DO NOT DISTURB OR DAMAGE ABANDONED HOUSE

P–076b
MCALISTER FAMILY PROPERTIES LP
PARCEL NUMBER: 44393
DB 2828 / PG 225–227

STATUS:
EASEMENT AND TEMPORARY WORKSPACE ACQUIRED
(BEING RECORDED)

NO SPECIAL CONDITIONS REQUIREMENTS

P–077
MCALISTER FAMILY PROPERTIES LP
PARCEL NUMBER: 44393
DB 2828 / PG 225–227

STATUS:
EASEMENT AND TEMPORARY WORKSPACE ACQUIRED
(BEING RECORDED)

NO SPECIAL CONDITIONS REQUIREMENTS

P–078
MCALISTER FAMILY PROPERTIES LP
PARCEL NUMBER: 44393
DB 2828 / PG 225–227

STATUS:
EASEMENT AND TEMPORARY WORKSPACE ACQUIRED
(BEING RECORDED)

NO SPECIAL CONDITIONS REQUIREMENTS

P–080
TAR RIVER BASIN
PARCEL NUMBER: NA
DB NA / PG NA

STATUS:
EASEMENT ACQUIRED
DB 3329 / PG 744–748

P–090
NORTH CAROLINA STATE HIGHWAY COMMISSION
PARCEL NUMBER: 29739
DB 425 / PG 364–371

STATUS:
EASEMENT NEGOTIATIONS ONGOING, REQUIRES STATE LEGISLATURE APPROVAL.

P–095
NORTH CAROLINA STATE HIGHWAY COMMISSION
PARCEL NUMBER: 29739
DB F 39 / PG 307–311

STATUS:
PROPERTY NEGOTIATIONS ONGOING, REQUIRES STATE LEGISLATURE APPROVAL.

6/1/15
NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. RODGERS

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH–PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 309
RICHMOND, VIRGINIA 23223
T–804.782.1903 F–804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214–011–A

SCALE
PLAN NTS
PROFILE
HOR. –
VERT. –

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

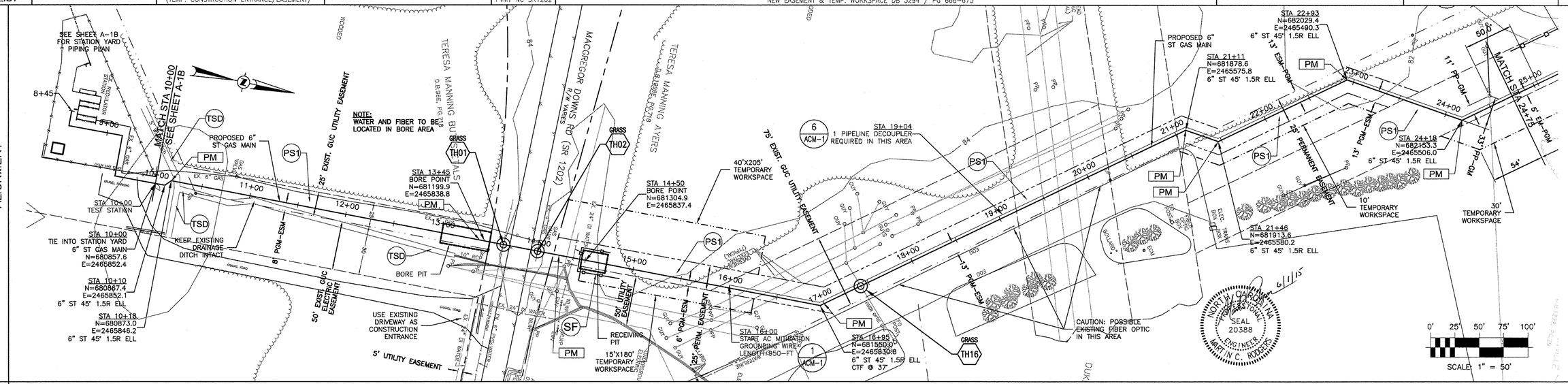
EASEMENT REQUIREMENTS

SHEET: G–2

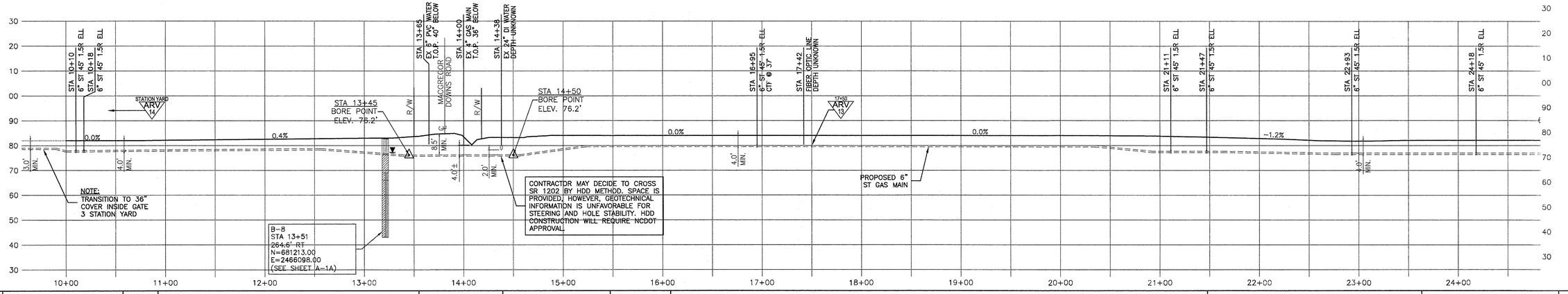
REVISION: 0

SURVEY						
ROW/ LINE LIST	P-005 (PN 37538) EX. PIEDMONT NAT. GAS STATION SITE DB 3294 / PG 699-708	P-010 (PN 10085) EX. GUC ELECTRIC EASEMENT DB 277 / PG 32 (TEMP. CONSTRUCTION ENTRANCE/EASEMENT)	P-015 (PN 35738) NEW 25' GUC UTILITY EASEMENT DB 3235 / PG 39	P-020 MACGREGOR DOWNS ROW 60' / RD 20' PVMT NC SR1202	P-025a (PN 14145) NEW 25' GUC UTILITY EASEMENT / 10' TEMP. WORKSPACE TERESA MANNING AYER, ET. ALS. DB 1996E / PG 718 NEW EASEMENT & TEMP. WORKSPACE DB 3294 / PG 668-675	P-030 (PN 62067) CITY OF GREENVILLE DB 1044 / PG 642	EX. GUC UTILITY EASEMENT

ALIGNMENT



PROFILE



TERRAIN N.T.S.	LEVEL CLEARED SITE	5' WIDE DITCH	LEVEL CLEARED 25' UTILITY EASEMENT	20' PAVEMENT NC SR1202	LEVEL GRASS FIELD	LEVEL WOODED	LEVEL GRASS UTILITY EASEMENT / CORNER OF WOODED AREA	LEVEL GRASS FIELD / EDGE OF TREE LINE	LEVEL CLEARED EXISTING UTILITY EASEMENT
ENVIRON. N.T.S.		JURISDICTIONAL DITCH	OPEN CUT	BORE AND JACK	OPEN CUT				
CLASS LOC./ DES. FACTOR	CLASS 2 / DF = 0.50	CLASS 1 / DF = 0.72		CLASS 2 / DF = 0.50	CLASS 1 / DF = 0.72				
PIPE DETAIL N.T.S.	10+00 (2) 10+10 (1) 10+18 (5) (1)			13+45 (2)	14+50 (1)		16+95 (5) (1)	21+11 (5) 21+47 (5) (1)	22+63 (5) (1) 24+18 (5) (1) 24+75

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	1370 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	105 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
3	875 LF	AC MITIGATION GROUND WIRE SPEC:
4	–	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	7	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	–	6" ST WELD NECK FLANGE, RF, ANSI 300
7	–	6" FLANGE INSULATING KIT, RF, ANSI 300
11	–	6" STEEL BALL VALVE, WE, WRENCH OPERATED, CAMERON T-31, BORE TO MATCH 0.280"
12	1	TEST STATION, TYPE P
15	–	6" ST WE CAP, GR. B, SCH 40

NOTES

TOTAL ACREAGE DISTURBED: 1.06 ACRES
TOTAL ACREAGE TO BE CLEARED: 0.26 ACRES
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	2/15	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	2/15	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST., SUITE 309 RICHMOND, VIRGINIA 23223 T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 50'
PROFILE
HOR. 1" = 50'
VERT. 1" = 20'

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

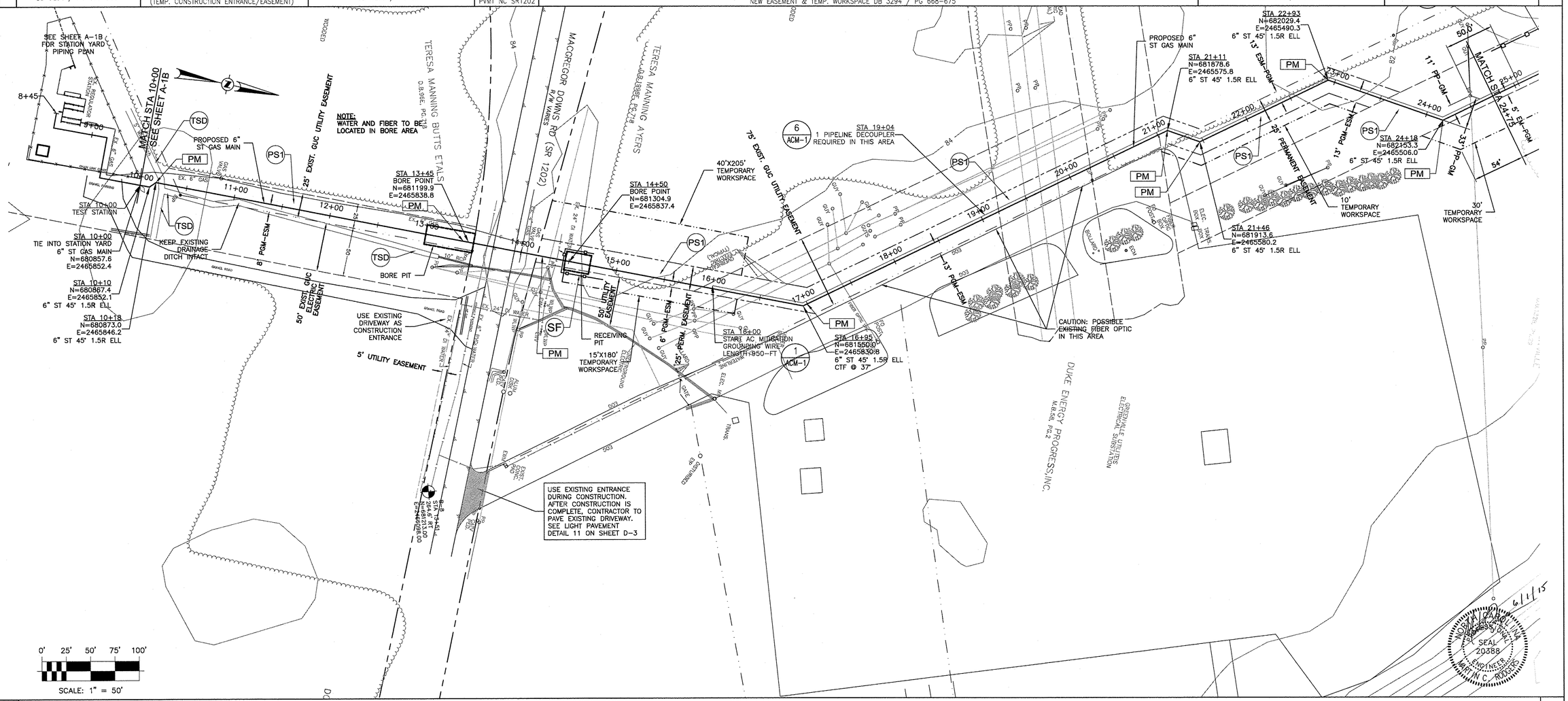
SHEET DESCRIPTION

PLAN AND PROFILE SHEET STA 10+00 TO STA 24+75

SHEET: A-1 REVISION: 0

SURVEY						
ROW / LINE LIST	P-005 (PN 37538) EX. PIEDMONT NAT. GAS STATION SITE DB 3294 / PG 699-708	P-010 (PN 10085) EX. GUC ELECTRIC EASEMENT DB 277 / PG 32 (TEMP. CONSTRUCTION ENTRANCE/EASEMENT)	P-015 (PN 35738) NEW 25' GUC UTILITY EASEMENT DB 3235 / PG 39	P-020 MACGREGOR DOWNS ROW 60' / RD 20' PVMT NC SR1202	P-025a (PN 14145) NEW 25' GUC UTILITY EASEMENT / 10' TEMP. WORKSPACE TERESA MANNING AYER, ET. ALS. DB 1996E / PG 718 NEW EASEMENT & TEMP. WORKSPACE DB 3294 / PG 668-675	P-030 (PN 62067) CITY OF GREENVILLE DB 1044 / PG 642	EX. GUC UTILITY EASEMENT

ALIGNMENT



TERRAIN N.T.S.	
ENVIRON. N.T.S.	
CLASS LOC./ DES. FACTOR	
PIPE DETAIL N.T.S.	

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

SEE SHEET A-1 FOR PIPELINE PROFILE

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	2/15	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	2/15	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K — RUMMEL, KLEPPER & KAHL, LLP
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T-804.782.1901 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 50'
PROFILE
HOR. 1" = 50'
VERT. 1" = 20'

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

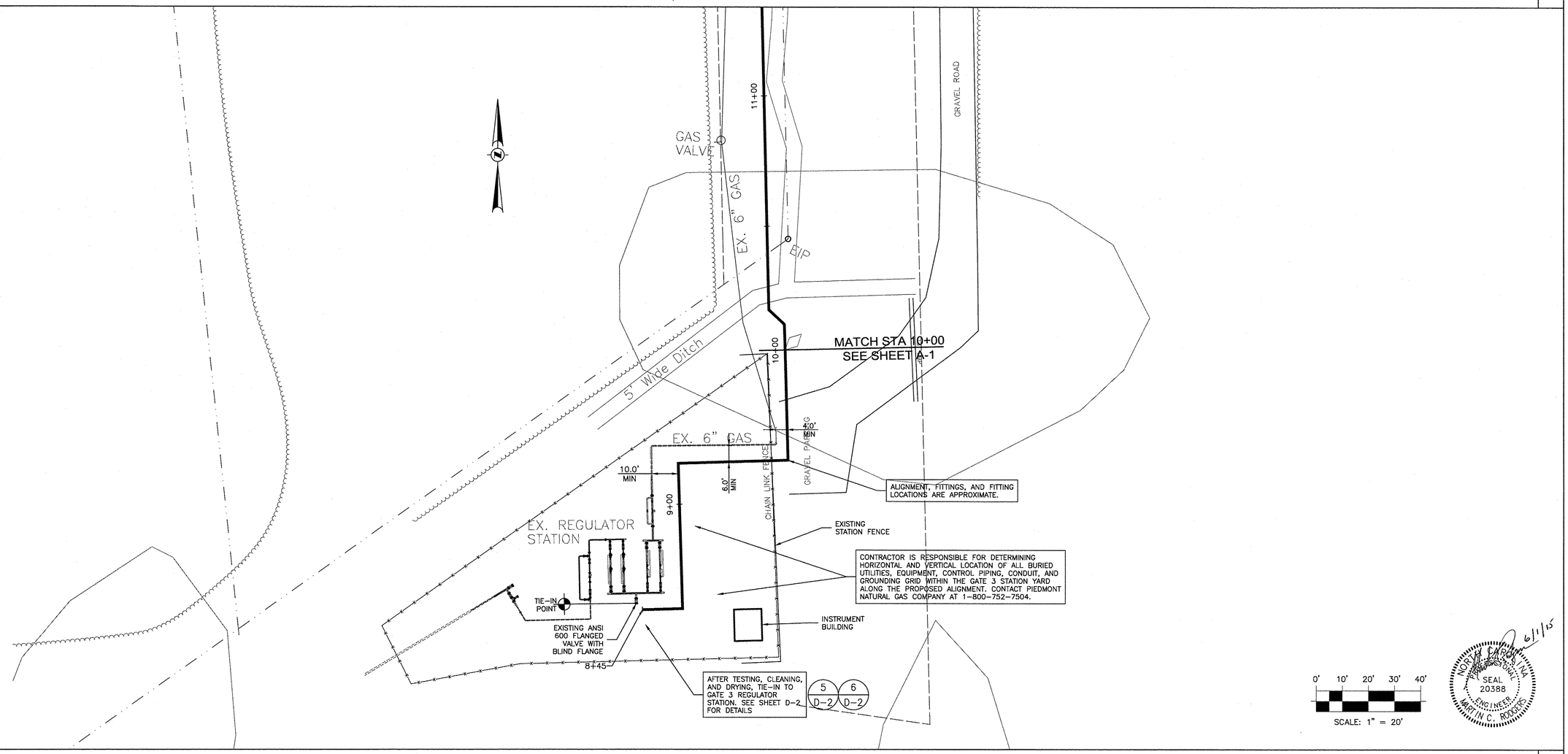
PLAN SHEET
STA 10+00 TO STA 24+75

SHEET: A-1A

REVISION: 0

SURVEY	
ROW/ LINE LIST	P-005 (PN 37538) EX. PIEDMONT NAT. GAS STATION SITE DB 3294 / PG 699-708

ALIGNMENT



TERRAIN N.T.S.	
ENVIRON. N.T.S.	
CLASS LOC./ DES. FACTOR	
PIPE DETAIL N.T.S.	

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	155 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
4	3	6" ST 90° ELL, 1.5R, GR. B, SCH 40
12	1	TEST STATION, TYPE P

NOTES

STATION AS-BUILT DRAWINGS NOT AVAILABLE FOR DESIGN.

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN - RK&K	CSY	2/15	CSY	6/1/15	-	-
ENGINEERING - RK&K	MCR	2/15	MCR	6/1/15	-	-

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

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RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 20'
PROFILE
HOR. –
VERT. –

Greenville Utilities

DISTRICT	COUNTY	STATE
–	Greenville	North Carolina

SHEET DESCRIPTION

GATE 3 REGULATOR STATION
SITE PLAN

SHEET: A-1B | REVISION: 0

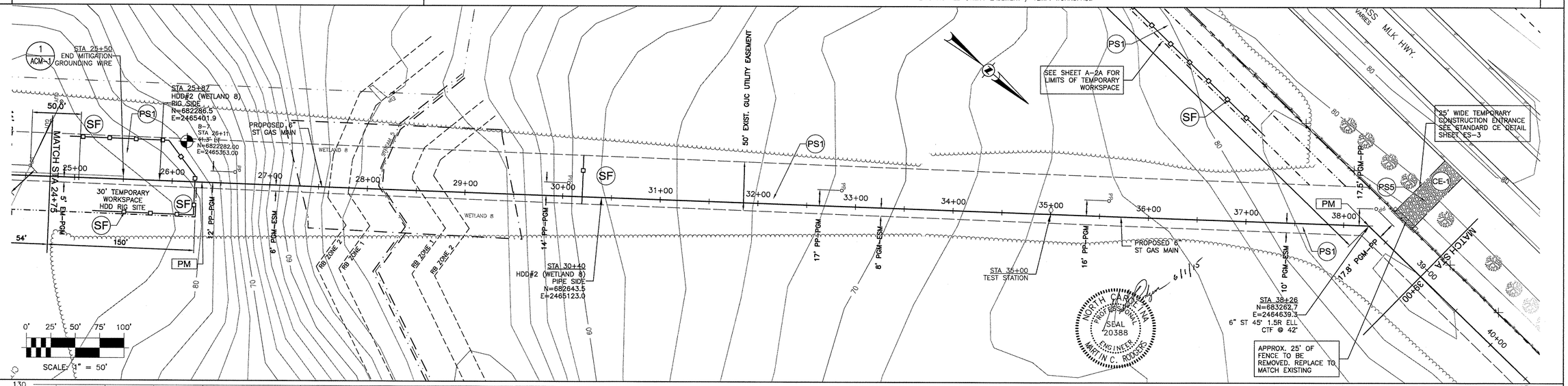
SURVEY

ROW / LINE LIST

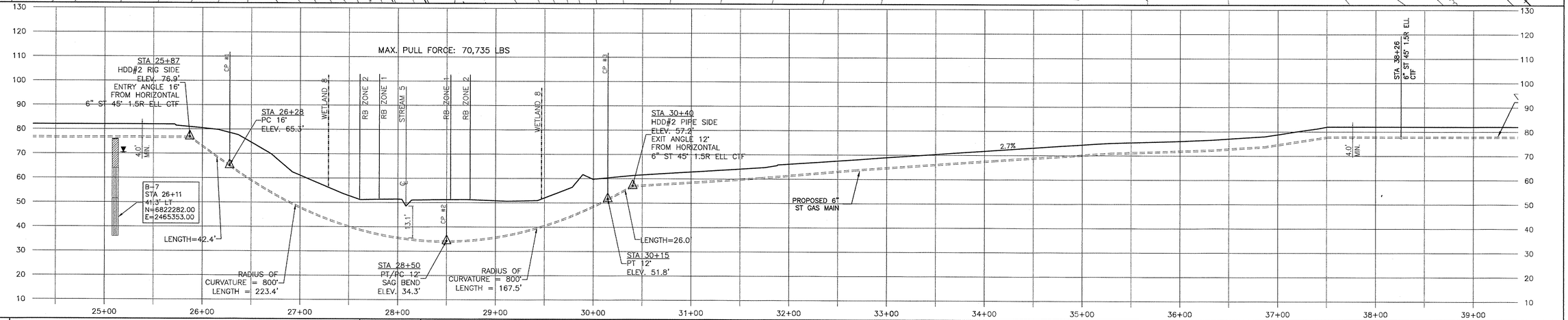
P-030 (PN 62067)
CITY OF GREENVILLE
DB 1044 / PG 642

P-035 (PN 49497)
BARNHILL CONTRACTING COMPANY DB 1948 / PG 509-512
EXISTING ALL-UTILITY EASEMENT / TEMP. WORKSPACE

ALIGNMENT

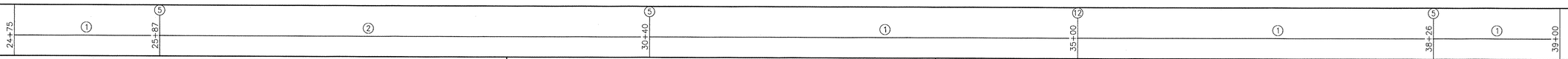


PROFILE



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT			PITT BRANCH STREAM 5	EXISTING CLEARED UTILITY EASEMENT		
ENVIRON. N.T.S.	OPEN CUT	HDD	HDD WETLAND 8	HDD STREAM 5	HDD WETLAND 8	HDD	OPEN CUT
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72						

PIPE DETAIL N.T.S.



SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	972 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	460 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
3	5 LF	AC MITIGATION GROUND WIRE SPEC:
4	–	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	3	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	–	6" ST WELD NECK FLANGE, RF, ANSI 300
7	–	6" FLANGE INSULATING KIT, RF, ANSI 300
11	–	6" STEEL BALL VALVE, WE, WRENCH OPERATED, CAMERON T-31, BORE TO MATCH 0.280"
12	1	TEST STATION, TYPE P

NOTES

TOTAL ACREAGE DISTURBED: 0.92 ACRES
TOTAL ACREAGE TO BE CLEARED: 0 ACRES
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	2/15	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	2/15	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1905 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 50'
PROFILE
HOR. 1" = 50'
VERT. 1" = 20'

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PLAN AND PROFILE SHEET
STA 24+75 TO STA 39+00

SHEET: A-2

REVISION: 0

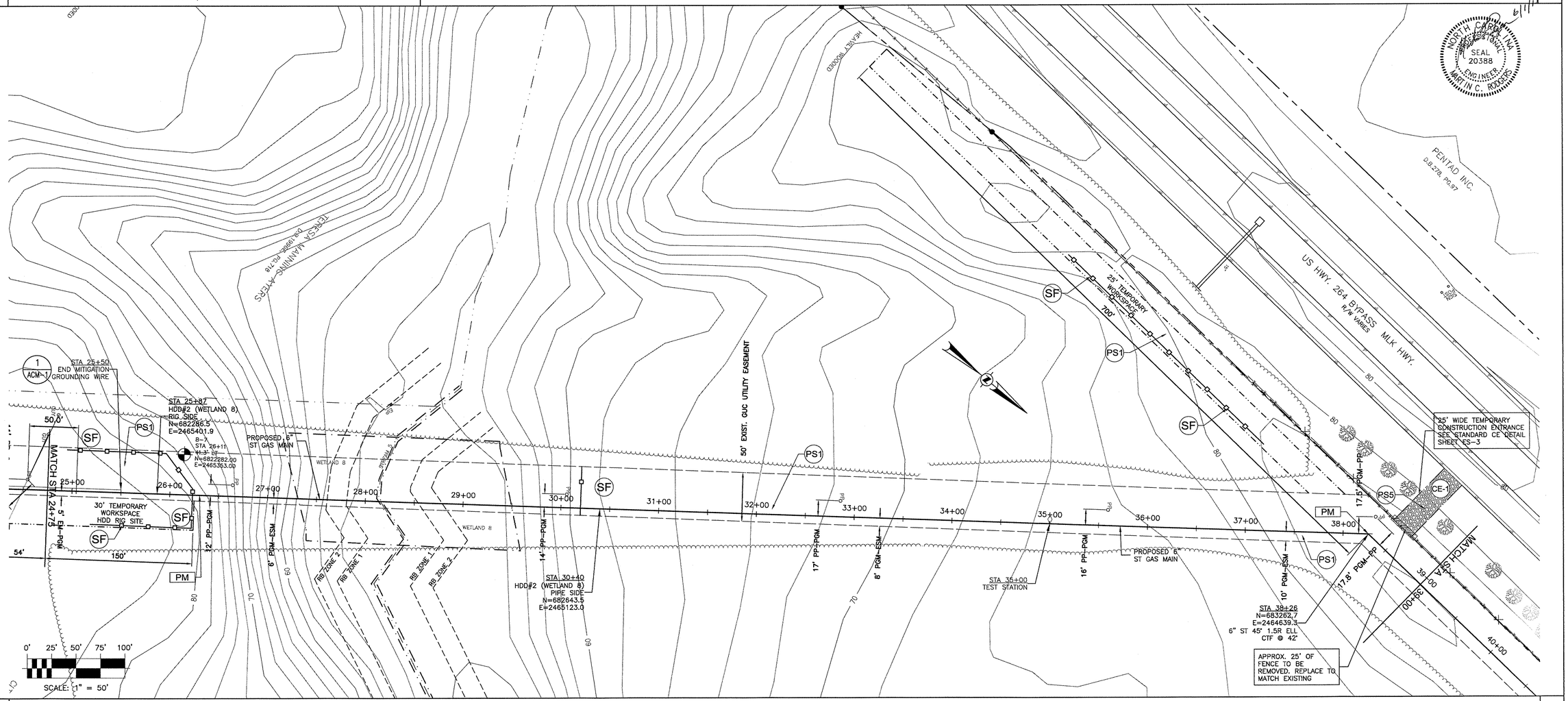
SURVEY

ROW / LINE LIST

P-030 (PN 62067)
CITY OF GREENVILLE
DB 1044 / PG 642

P-035 (PN 49497)
BARNHILL CONTRACTING COMPANY DB 1948 / PG 509-512
EXISTING ALL-UTILITY EASEMENT / TEMP. WORKSPACE

ALIGNMENT



NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. ROGERS 6/11/15

TERRAIN N.T.S.

ENVIRON. N.T.S.

CLASS LOC./ DES. FACTOR

PIPE DETAIL N.T.S.

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

SEE SHEET A-2 FOR PIPELINE PROFILE
TOTAL ACREAGE DISTURBED: 0.37 ACRES
TOTAL ACREAGE TO BE CLEARED: 0.36 ACRES
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN - RK&K	CSY	2/15	CSY	5/1/15	–	–
ENGINEERING - RK&K	MCR	2/15	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RAMEL, KLEPPER & KARL, LLP
2100 E. CARY ST., SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.780.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 50'
PROFILE
HOR. 1" = 50'
VERT. 1" = 20'

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PLAN SHEET
STA 24+75 TO STA 39+00

SHEET: A-2A

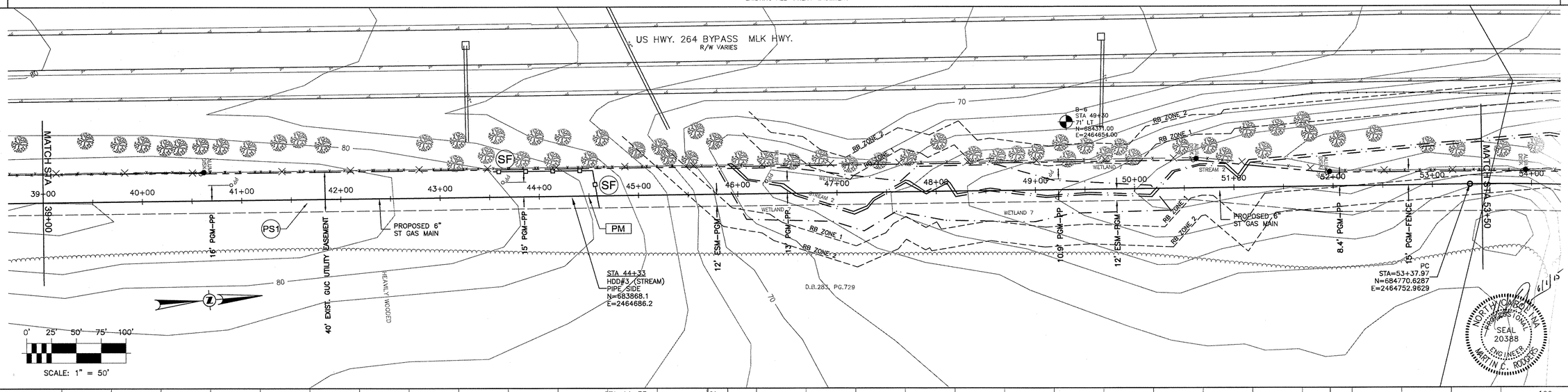
REVISION: 0

SURVEY

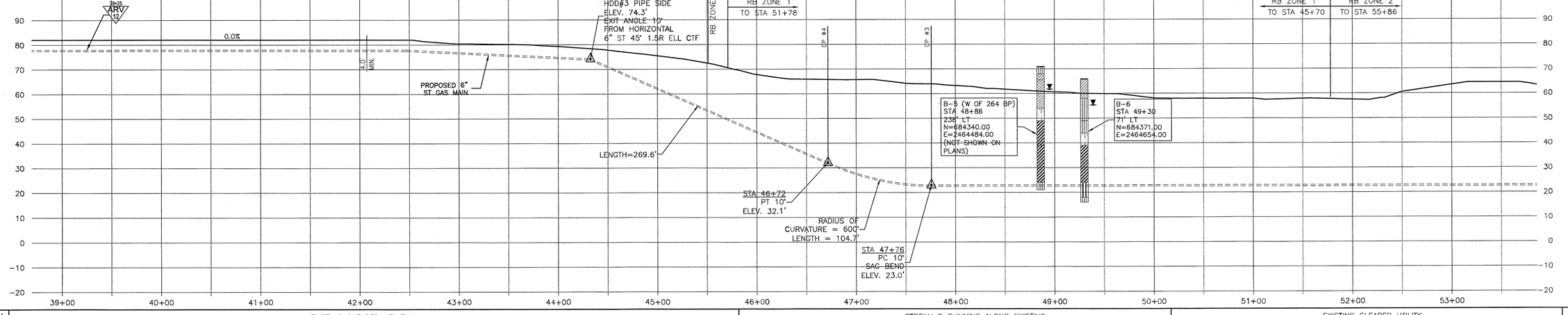
ROW / LINE LIST

P-035 (PN 49497)
BARNHILL CONTRACTING COMPANY DB 1948 / PG 509-512
EXISTING ALL-UTILITY EASEMENT

ALIGNMENT



PROFILE



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT / STREAM 2 RUNNING ALONG EXISTING CLEARED UTILITY EASEMENT / EXISTING CLEARED UTILITY EASEMENT
ENVIRON. N.T.S.	OPEN CUT / HDD – WETLAND 7 / STREAM 2 CROSSING
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72
PIPE DETAIL N.T.S.	39+00 ① 44+33 ⑤ ② 53+50

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	533 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	922 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
4	–	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	1	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	–	6" ST WELD NECK FLANGE, RF, ANSI 300
7	–	6" FLANGE INSULATING KIT, RF, ANSI 300

NOTES

TOTAL ACREAGE DISTURBED: 0.30 ACRES
TOTAL ACREAGE TO BE CLEARED: 0 ACRES
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	2/15	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	2/15	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.1142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 50'
PROFILE
HOR. 1" = 50'
VERT. 1" = 20'

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

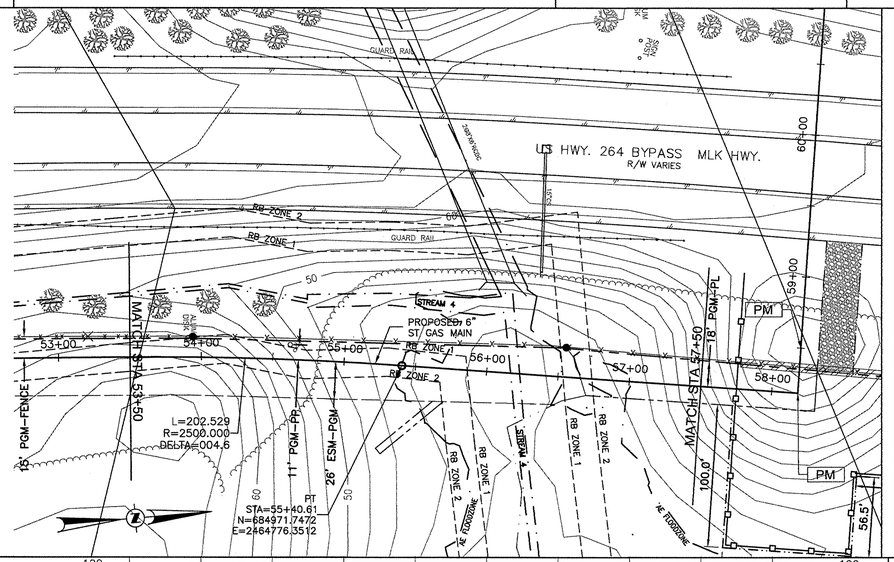
PLAN AND PROFILE SHEET
STA 39+00 TO STA 53+50

SHEET: A-3

REVISION: 0

SURVEY						
ROW / LINE LIST	P-035 (PN 49497) BARNHILL CONTRACTING COMPANY DB 1948 / PG 509-512 EXISTING ALL-UTILITY EASEMENT	P-050 (PN 07111) LIBERTY FREE WILL BAPTIST CHURCH DB 1901 / PG 129 NEW EASEMENT AND TEMPORARY WORKSPACE		P-050 (PN 07111) LIBERTY FREE WILL BAPTIST CHURCH DB 1901 / PG 129 NEW EASEMENT AND WORKSPACE	P-055 NCDOT US HIGHWAY 264 BYPASS	FORBES FARM, LLC EXISTING ALL-UTILITY EASEMENT DB 425 / PG 364-371	P-060a (PN 07784) FORBES FARM LLC DB 2583 / PG 475-478 NEW EASEMENT, TEMPORARY WORKSPACE DB 3276 / PG 434-437

ALIGNMENT

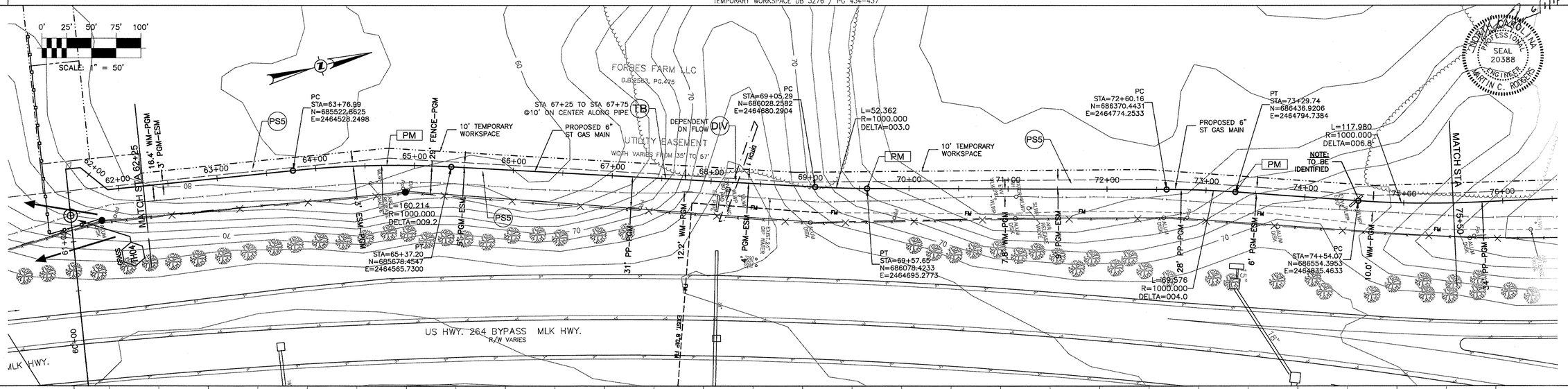


SURVEY

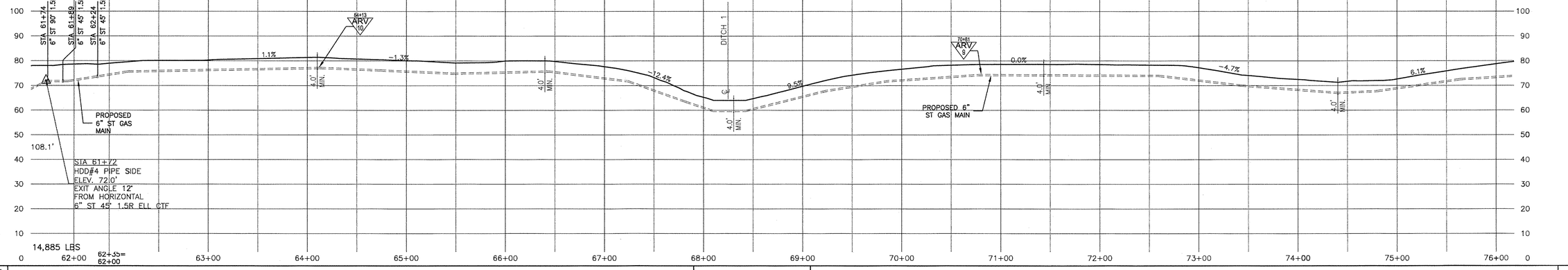
ROW / LINE LIST

P-060a (PN 07784)
FORBES FARM LLC DB 2583 / PG 475-478
EXISTING ALL-UTILITY EASEMENT DB 425 / PG 364-371
TEMPORARY WORKSPACE DB 3276 / PG 434-437

ALIGNMENT



PROFILE



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT / TEMPORARY WORKSPACE	DITCH 1	EXISTING CLEARED UTILITY EASEMENT / TEMPORARY WORKSPACE	
ENVIRON. N.T.S.	OPEN CUT	OPEN CUT/FLUME CROSSING DITCH 1	OPEN CUT	
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72			
PIPE DETAIL N.T.S.	62+25 — ① — 75+50			

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	1327 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	–	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
4	–	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	–	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	–	6" ST WELD NECK FLANGE, RF, ANSI 300
7	–	6" FLANGE INSULATING KIT, RF, ANSI 300

NOTES

TOTAL ACREAGE DISTURBED: 0.79 ACRES
TOTAL ACREAGE TO BE CLEARED: 0.32 ACRES
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	2/15	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	2/15	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST., SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 50'
PROFILE
HOR. 1" = 50'
VERT. 1" = 20'

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PLAN AND PROFILE SHEET
STA 62+25 TO STA 75+50

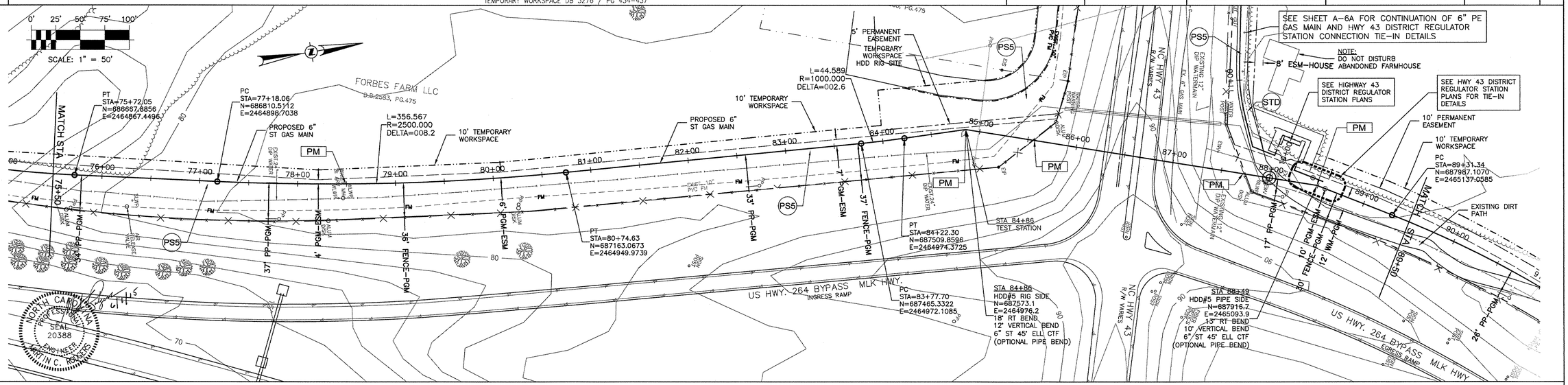
SHEET: A-5

REVISION: 0

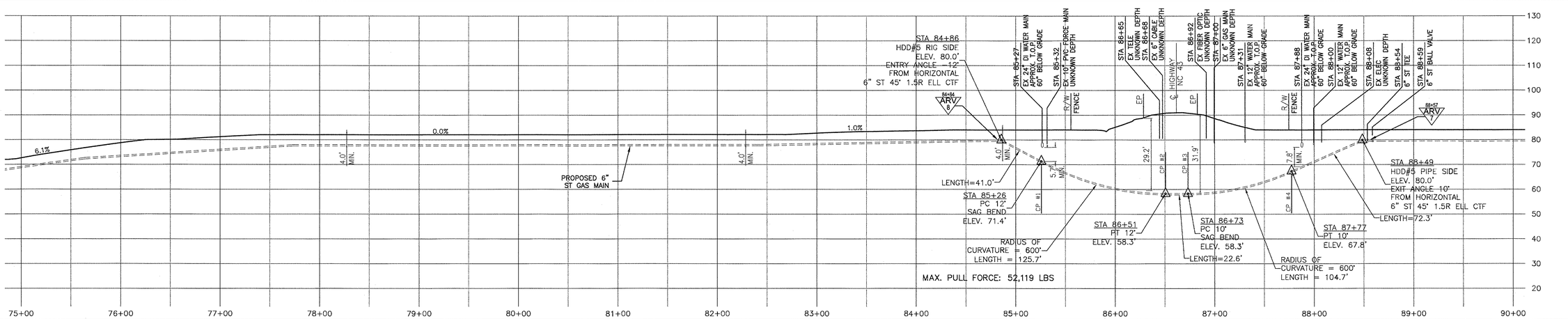
NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. ROGERS

SURVEY						
ROW / LINE LIST	P-060a (PN 07784) FORBES FARM LLC DB 2583 / PG 475-478 EXISTING ALL-UTILITY EASEMENT DB 425 / PG 364-371 TEMPORARY WORKSPACE DB 3276 / PG 434-437	P-065a (PN 07784) FORBES FARM NEW UTILITY EASEMENT	P-070 NCDOT HWY 43	P-075b (PN 44393) MCALISTER FAM. DB 2828 / PG225-227 FEE SIMPLE REQ. STA. SITE & EASEMENT	P-076b (PN 44393) MCALISTER FAM. DB 2828 / PG225-227 NEW ESMT & TEMP WORKSPACE	EXISTING UTILITY EASEMENT

ALIGNMENT



PROFILE



TERRAIN N.T.S.		NEW EASEMENT GRASS / DIRT	EXISTING CLEARED UTILITY EASEMENT / 10' TEMPORARY WORKSPACE IN GRASS FIELD	NEW EASEMENT GRASS / DIRT	PAVEMENT	NEW EASEMENT EXISTING DIRT PATH AND SOME CLEARING / EXISTING CLEARED UTILITY EASEMENT
ENVIRON. N.T.S.	OPEN CUT			HDD		OPEN CUT
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72			CLASS 2 / DF = 0.50		CLASS 1 / DF = 0.72
PIPE DETAIL N.T.S.	75+50 ①			84+86 ⑤ ⑫ ②		88+49 ⑤ 88+55 ⑬ ① 88+58 ⑩ ⑭ ① 89+50

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	1037 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	366 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
4	–	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	4	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	–	6" ST WELD NECK FLANGE, RF, ANSI 300
7	–	6" FLANGE INSULATING KIT, RF, ANSI 300
11	1	6" STEEL BALL VALVE, WE, WRENCH OPERATED, CAMERON T-31, BORE TO MATCH 0.280"
12	1	TEST STATION, TYPE P
13	1	6" TEE, GR. B, SCH 40
14	1	FLUSH MOUNTED VALVE BOX
15	–	6" ST WE CAP, GR. B, SCH 40

NOTES

TOTAL ACREAGE DISTURBED: 0.84 ACRES
TOTAL ACREAGE TO BE CLEARED: 0.10 ACRES
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	2/15	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	2/15	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUNKEL, KLEPFER & KAHL, LLP
2100 E. CARY ST, SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN .1" = 50'
PROFILE
HOR. .1" = 50'
VERT. .1" = 20'

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

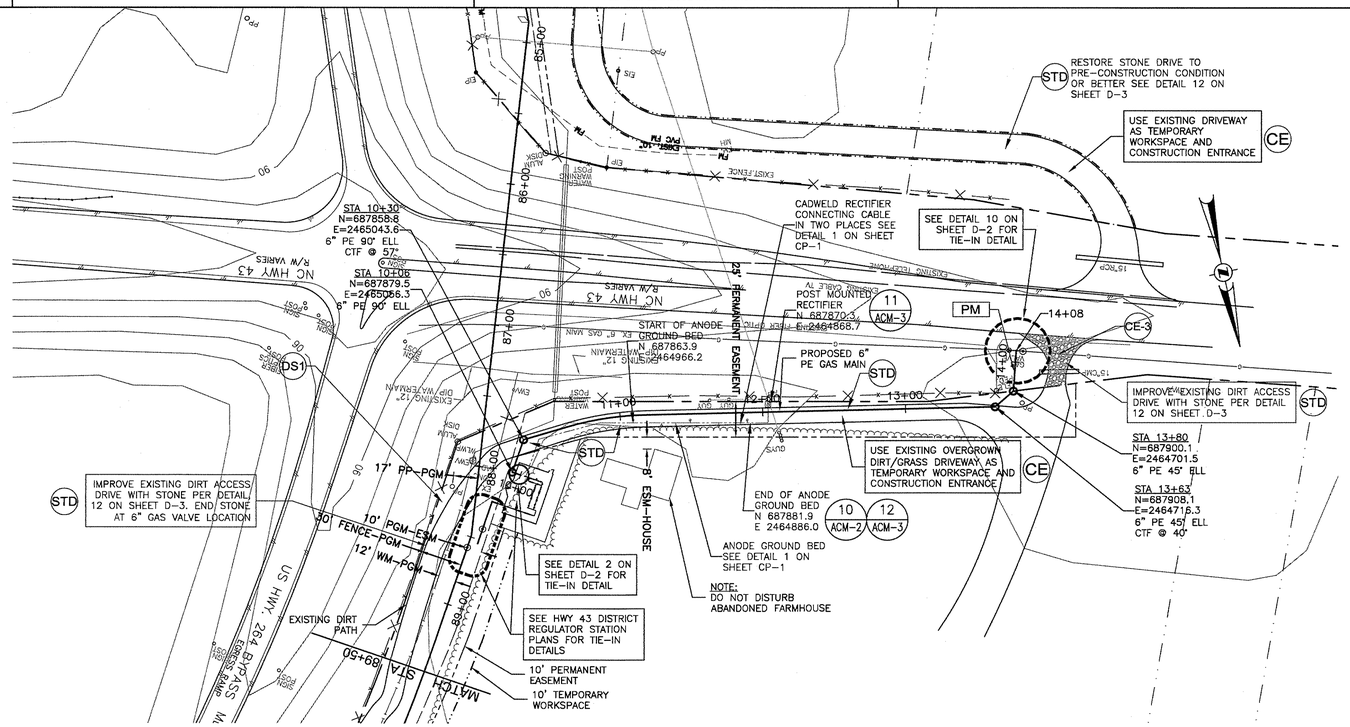
SHEET DESCRIPTION

PLAN AND PROFILE SHEET
STA 75+50 TO STA 89+50

SHEET: A-6

REVISION: 0

SURVEY	
ROW / LINE LIST	P-055 NCDOT US HIGHWAY 264 BYPASS P-075b (PN 44393) MCALISTER FAM. DB 2828 / PG225-227 FEE SIMPLE REGULATOR STATION SITE
ALIGNMENT	



NOTES:

1. THE 6" ST NW LOOP HP GAS MAIN SHALL BE HYDROTESTED PRIOR TO TIE-IN TO THE 6" STL HWY 43 LATERAL TO THE HWY 43 DISTRICT REGULATOR STATION.
2. THE 6" ST HWY 43 LATERAL SHALL BE AIR TESTED IN CONJUNCTION WITH THE REGULATOR STATION PIPING.
3. THE 6" PE DISTRIBUTION MAIN THAT WILL TIE-IN THE RT 43 REGULATOR STATION TO THE EXISTING DISTRIBUTION SYSTEM SHALL BE AIR-TESTED TO 90 PSIG FOR 30 MINUTES BEFORE TIE-IN TO EXISTING SYSTEM AND REGULATOR STATION.

0' 25' 50' 75' 100'

SCALE: 1" = 50'

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. ROOKS

6/11/15

TERRAIN N.T.S.	
ENVIRON. N.T.S.	
CLASS LOC./ DES. FACTOR	
PIPE DETAIL N.T.S.	

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	5 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
31	1	PIPELINE MARKER
32	408 LF	WARNING TAPE
33	408 LF	6" PIPE, MEDIUM DENSITY POLYETHYLENE
34	1	6" ST 90° TEE, MEDIUM DENSITY POLYETHYLENE
35	2	6" ST 90° ELL, MEDIUM DENSITY POLYETHYLENE
36	2	6" ST 45° ELL, MEDIUM DENSITY POLYETHYLENE
37	2	6" ST 45° ELL, MEDIUM DENSITY POLYETHYLENE
38	2	6" ST 45° ELL, MEDIUM DENSITY POLYETHYLENE
39	2	ELECTROFUSION COUPLING, MEDIUM DENSITY POLYETHYLENE
40	1	6" TRANSITION FITTING, STEEL X MEDIUM DENSITY POLYETHYLENE
41	408 LF	TRACER WIRE

NOTES

TOTAL ACREAGE DISTURBED: 0.29 ACRES
TOTAL ACREAGE TO BE CLEARED: 0.01 ACRES
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN - RK&K	CSY	2/15	CSY	5/1/15	--	--
ENGINEERING - RK&K	MCR	2/15	MCR	5/1/15	--	--

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST, SUITE 309
RICHMOND, VIRGINIA 23223
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 50'
PROFILE
HOR. 1" = 50'
VERT. 1" = 20'

Greenville Utilities

DISTRICT	COUNTY	STATE
-	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PLAN AND PROFILE SHEET
STA 10+00 TO STA 13+65

SHEET: A-6A

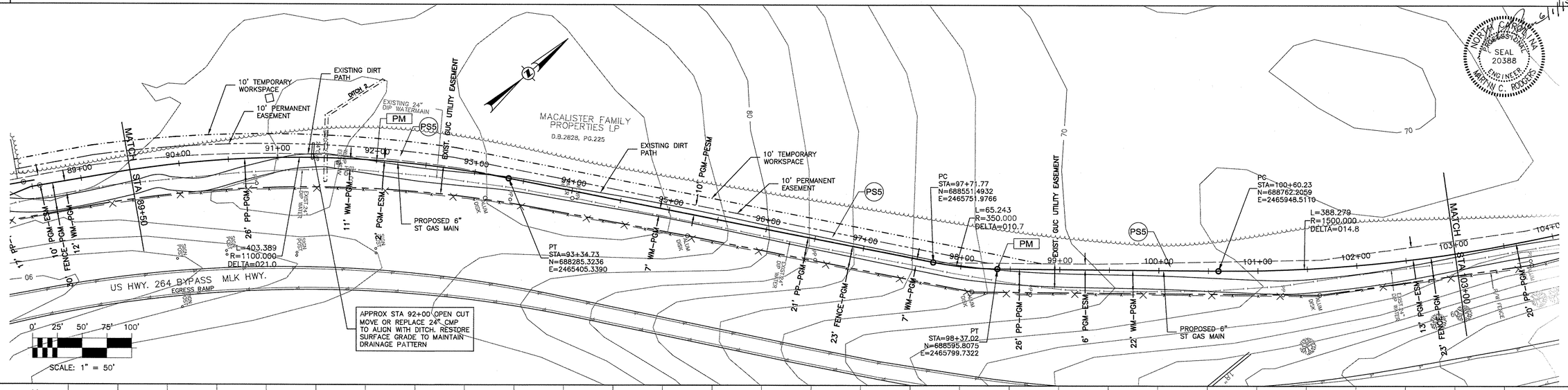
REVISION: 0

SURVEY

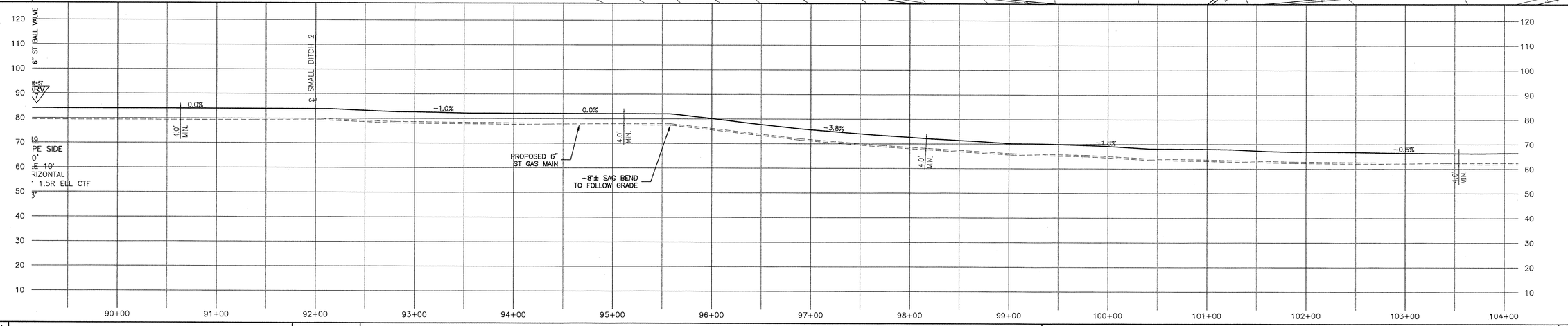
ROW/ LINE LIST

P-076b (PN 44393)
MCALISTER FAMILY PROPERTIES DB 2828 / PG 225-227
EXISTING & NEW EASEMENT / TEMP. WORKSPACE

ALIGNMENT



PROFILE



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT	DITCH 2	EXISTING CLEARED UTILITY EASEMENT / 10' TEMPORARY WORKSPACE - BRUSH WITH SCATTERED SMALL TREES	EXISTING CLEARED UTILITY EASEMENT	
ENVIRON. N.T.S.	OPEN CUT		MINOR CLEARING AND OPEN CUT	OPEN CUT	
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72				
PIPE DETAIL N.T.S.	89+50 ① 103+00				

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	1363 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	–	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
4	–	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	–	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	–	6" ST WELD NECK FLANGE, RF, ANSI 300
7	–	6" FLANGE INSULATING KIT, RF, ANSI 300

NOTES

TOTAL ACREAGE DISTURBED: 0.79 ACRES
TOTAL ACREAGE TO BE CLEARED: 0.38 ACRES / 0.01 ACRES WOODED
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN - RK&K	CSY	2/15	CSY	5/1/15	–	–
ENGINEERING - RK&K	MCR	2/15	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 - NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 50'
PROFILE
HOR. 1" = 50'
VERT. 1" = 20'

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PLAN AND PROFILE SHEET
STA 89+50 TO STA 103+00

SHEET: A-7

REVISION: 0

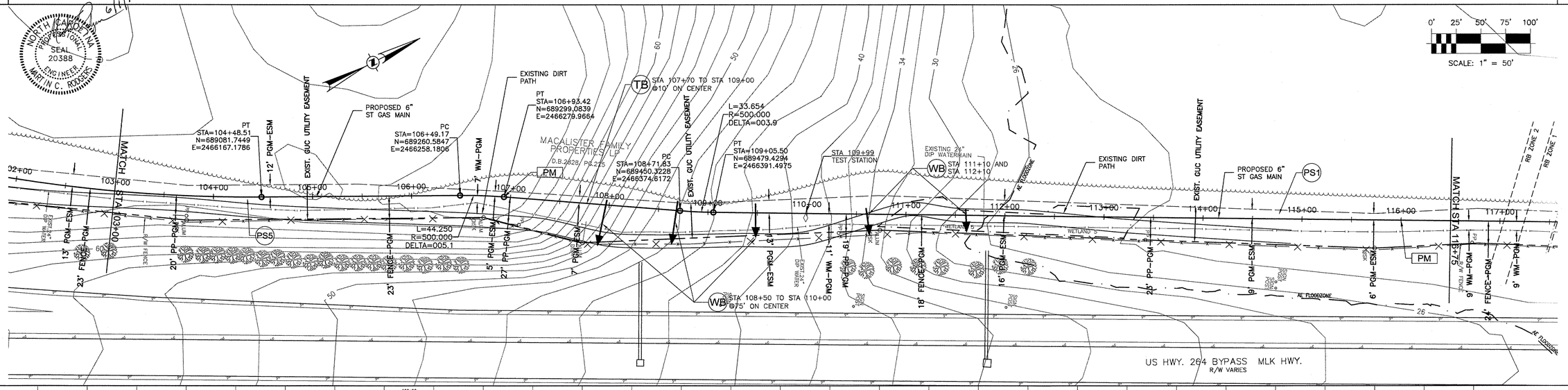
SURVEY

ROW / LINE LIST

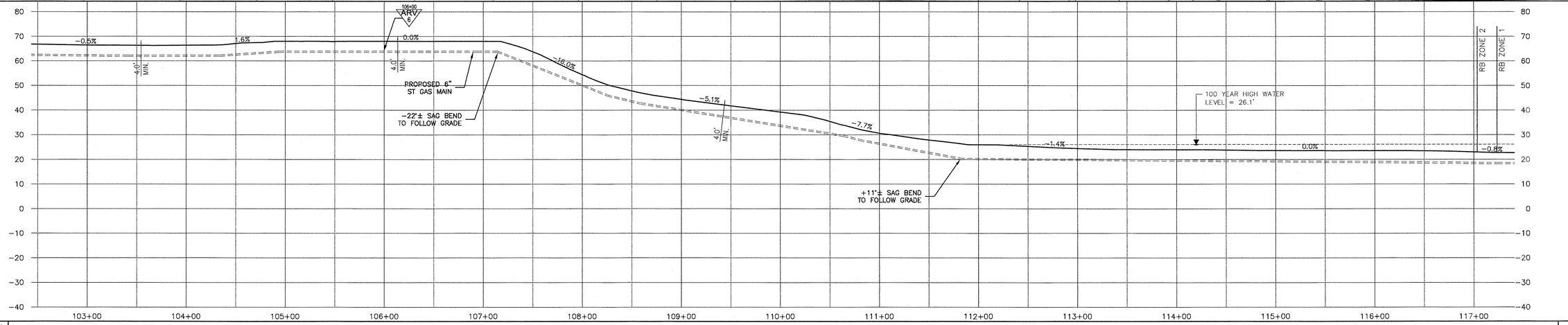
P-075b (PN 44393)
MCALISTER FAMILY PROPERTIES DB 2828 / PG 225-227
EXISTING UTILITY EASEMENT

NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. ROGERS 6/11/15

ALIGNMENT



PROFILE



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT
ENVIRON. N.T.S.	OPEN CUT / OPEN CUT WETLAND 5 / OPEN CUT
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72
PIPE DETAIL N.T.S.	103+00 — ① — 109+99 (12) — ① — 116+75

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	1377 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	– LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
4	–	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	–	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	–	6" ST WELD NECK FLANGE, RF, ANSI 300
7	–	6" FLANGE INSULATING KIT, RF, ANSI 300
12	1	TEST STATION, TYPE P

NOTES

TOTAL ACREAGE DISTURBED: 0.79 ACRES
TOTAL ACREAGE TO BE CLEARED: 0.04 ACRES IN EXISTING UTILITY EASEMENT
TOTAL WETLAND CONSTRUCTION: 0.14 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	2/15	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	2/15	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
3100 E. CARY ST. SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 50'
PROFILE
HOR. 1" = 50'
VERT. 1" = 20'

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PLAN AND PROFILE SHEET
STA 103+00 TO STA 116+75

SHEET: A-8

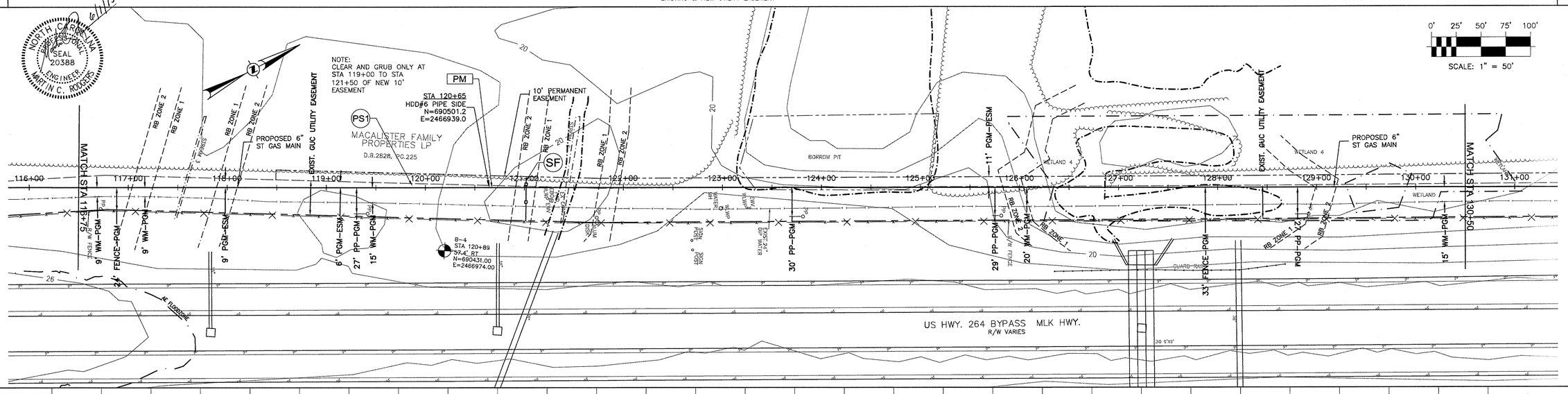
REVISION: 0

SURVEY

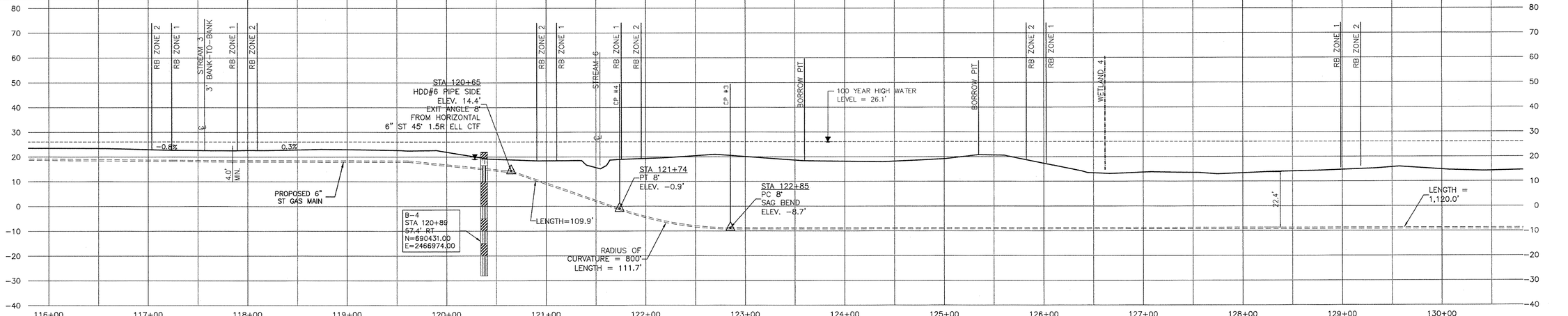
ROW / LINE LIST

P-077 (PN 44393)
MCALISTER FAM. PROPERTIES DB 446 / PG 77-84
EXISTING & NEW UTILITY EASEMENT

ALIGNMENT



PROFILE



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT	STREAM 3	EXISTING CLEARED UTILITY EASEMENT	EXISTING CLEARED UTILITY EASEMENT / 10' NEW UTILITY EASEMENT – SMALL TREES & BRUSH	STREAM 6	EXISTING CLEARED UTILITY EASEMENT / 10' NEW UTILITY EASEMENT – NO CLEARING	EXISTING CLEARED UTILITY EASEMENT ADJACENT TO BORROW PIT / 10' NEW UTILITY EASEMENT – NO CLEARING	EXISTING CLEARED UTILITY EASEMENT / 10' NEW UTILITY EASEMENT – NO CLEARING
ENVIRON. N.T.S.	OPEN CUT		HDD	HDD STREAM 6	HDD			HDD WETLAND 4
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72							
PIPE DETAIL N.T.S.	116+75 ① 120+65 ⑤ ② 130+50							

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	390 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	987 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
4	–	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	1	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	–	6" ST WELD NECK FLANGE, RF, ANSI 300
7	–	6" FLANGE INSULATING KIT, RF, ANSI 300

NOTES

TOTAL ACREAGE DISTURBED: 0.21 ACRES
TOTAL ACREAGE TO BE CLEARED: 0.06 ACRES
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	2/15	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	2/15	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
7100 E. CARY ST., SUITE 309
RICHMOND, VIRGINIA 23223
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 50'
PROFILE
HOR. 1" = 50'
VERT. 1" = 20'

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PLAN AND PROFILE SHEET
STA 116+75 TO STA 130+50

SHEET: A-9

REVISION: 0

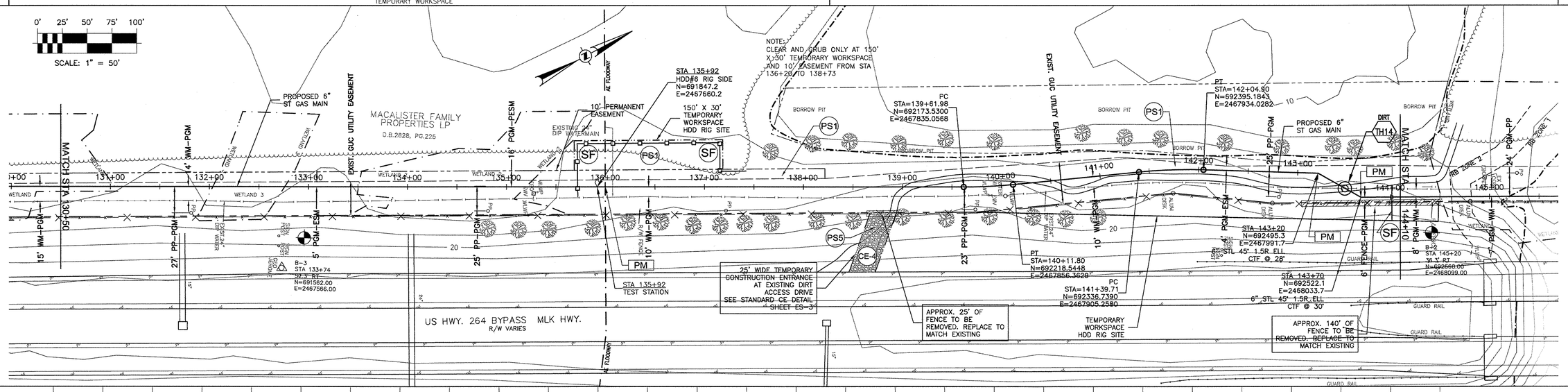
SURVEY

ROW / LINE LIST

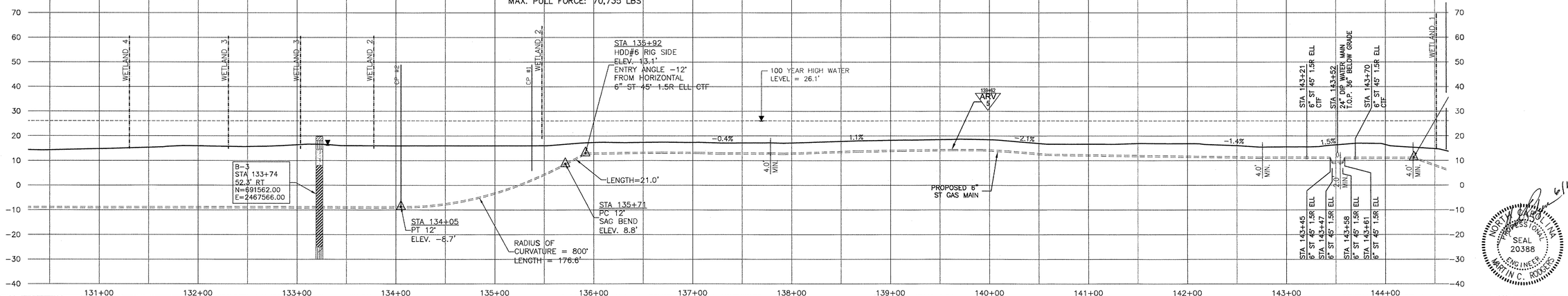
P-077 (PN 44393)
MCALISTER FAM. PROPERTIES DB 446 / PG 77-84
EXISTING & NEW UTILITY EASEMENT/
TEMPORARY WORKSPACE

(PN 44393)
MCALISTER FAM. PROPERTIES
EXISTING UTILITY EASEMENT

ALIGNMENT



PROFILE



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT / NEW 10' UTILITY EASEMENT				EXISTING CLEARED UTILITY EASEMENT / NEW 10' UTILITY EASEMENT & TEMP. WORKSPACE– TO BE CLEARED	EXISTING CLEARED UTILITY EASEMENT ADJACENT TO BORROW PIT	
ENVIRON. N.T.S.	HDD WETLAND 4	HDD	HDD WETLAND 3	HDD	HDD WETLAND 2	HDD	OPEN CUT
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72						
PIPE DETAIL N.T.S.	130+50	②			135+92 (5)(12)	①	143+21 (5) 143+45 (5)(1) 143+47 (5)(1) 143+58 (5)(1) 143+61 (5)(1) 143+70 (5)(1) 144+10

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	820 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	543 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
4	–	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	7	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	–	6" ST WELD NECK FLANGE, RF, ANSI 300
7	–	6" FLANGE INSULATING KIT, RF, ANSI 300
12	1	TEST STATION, TYPE P

NOTES

TOTAL ACREAGE DISTURBED: 0.59 ACRES
TOTAL ACREAGE TO BE CLEARED: 0.13 ACRES
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	2/15	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	2/15	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RAMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST., SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 50'
PROFILE
HOR. 1" = 50'
VERT. 1" = 20'

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PLAN AND PROFILE SHEET
STA 130+50 TO STA 144+10

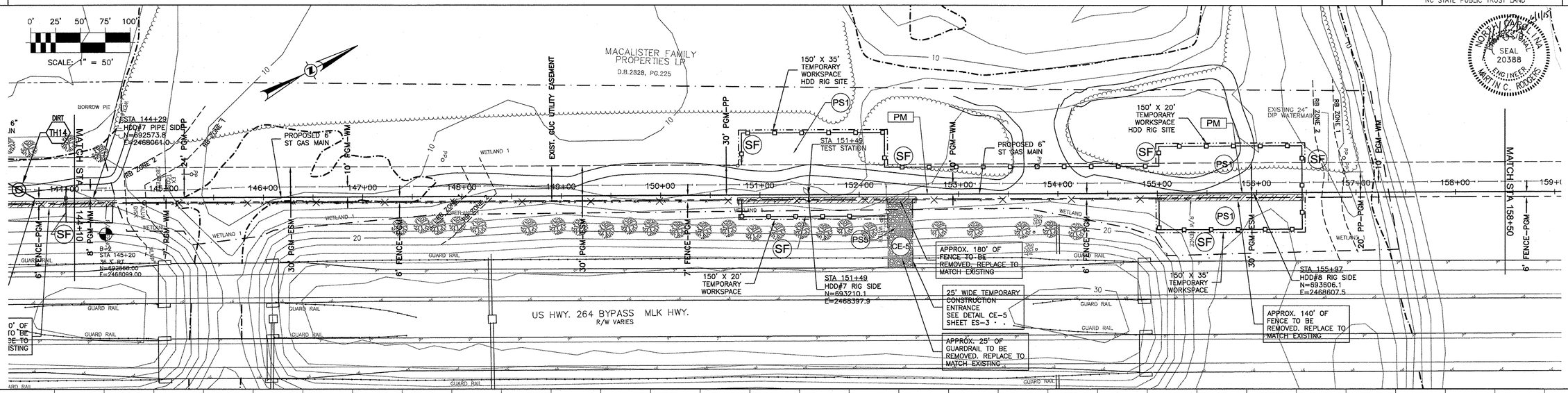
SHEET: A–10

REVISION: 0

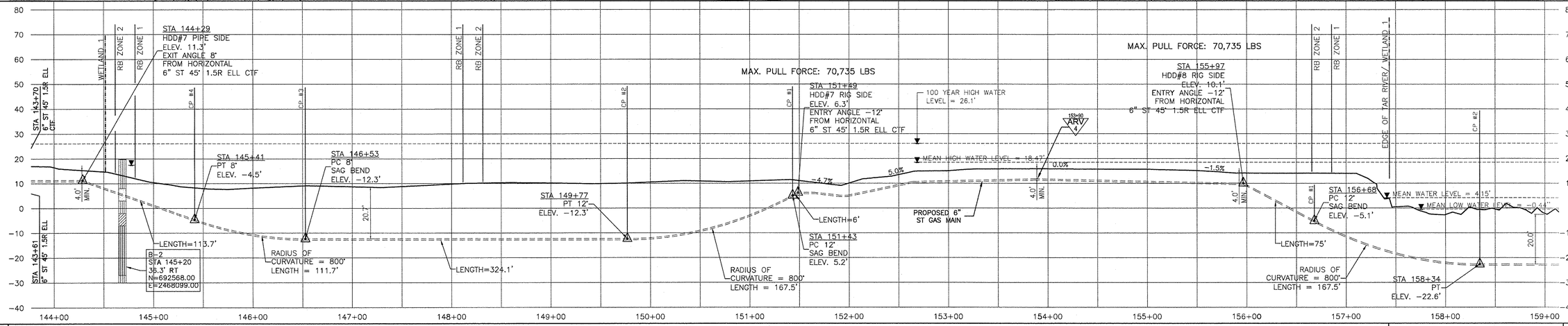
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. ROGERS
6/11/15

SURVEY		
ROW/ LINE LIST	P-078 (PN 44393) MCALISTER FAM. PROPERTIES DB 446 / PG 77-84 EXISTING UTILITY EASEMENT/ TEMP. WORKSPACE	P-080 TAR RIVER DB 3329 / PG 744-748 MEAN WATER LINE TO MEAN WATER LINE NC STATE PUBLIC TRUST LAND

ALIGNMENT

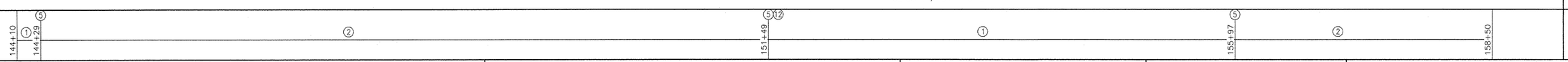


PROFILE



TERRAIN N.T.S.	EXISTING CLEARED UTILITY EASEMENT / 10' TEMPORARY WORKSPACE IN BRUSH & GRASS					TAR RIVER
ENVIRON. N.T.S.	OPEN CUT	HDD WETLAND 1 / HIGHWAY CROSS DRAINAGE	HDD WETLAND 1	OPEN CUT & TEMP. WORKSPACE FOR DRILL RIGS WETLAND 1	HDD WETLAND 1	HDD TAR RIVER
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72					

PIPE DETAIL N.T.S.



SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	468 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 12-14 MILS FUSION BONDED EPOXY THINFILM COATED
2	979 LF	6" STEEL PIPE, API-5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
4	–	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	3	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	–	6" ST WELD NECK FLANGE, RF, ANSI 300
7	–	6" FLANGE INSULATING KIT, RF, ANSI 300
12	1	TEST STATION, TYPE P

NOTES

TOTAL ACREAGE DISTURBED: 0.90 ACRES
TOTAL ACREAGE TO BE CLEARED: 0.16 ACRES
TOTAL WETLAND CONSTRUCTION: 0.64 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	2/15	CSY	3/1/15	–	–
ENGINEERING – RK&K	MCR	2/15	MCR	3/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 50'
PROFILE
HOR. 1" = 50'
VERT. 1" = 20'

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

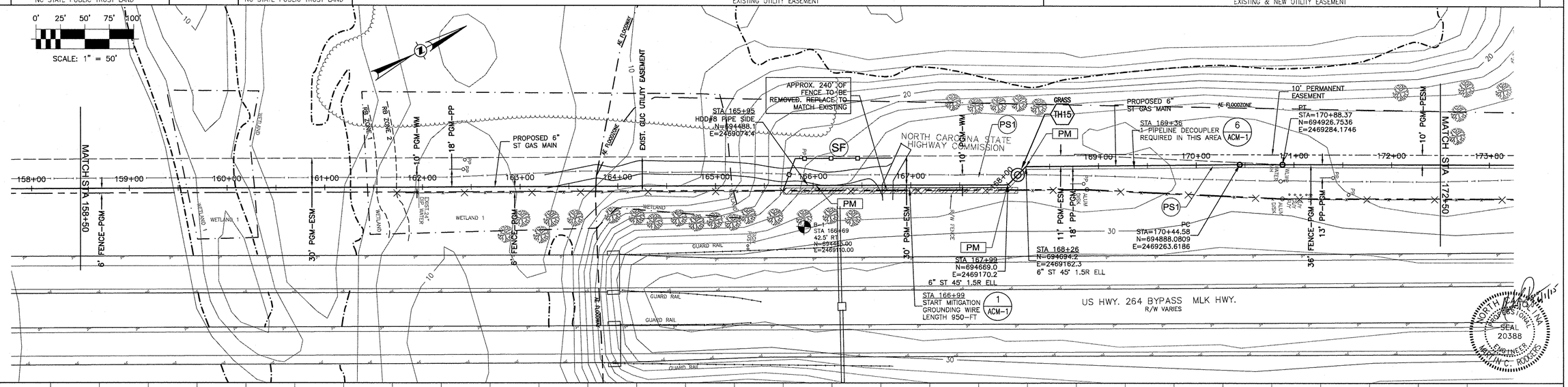
SHEET DESCRIPTION

PLAN AND PROFILE SHEET
STA 144+10 TO STA 158+50

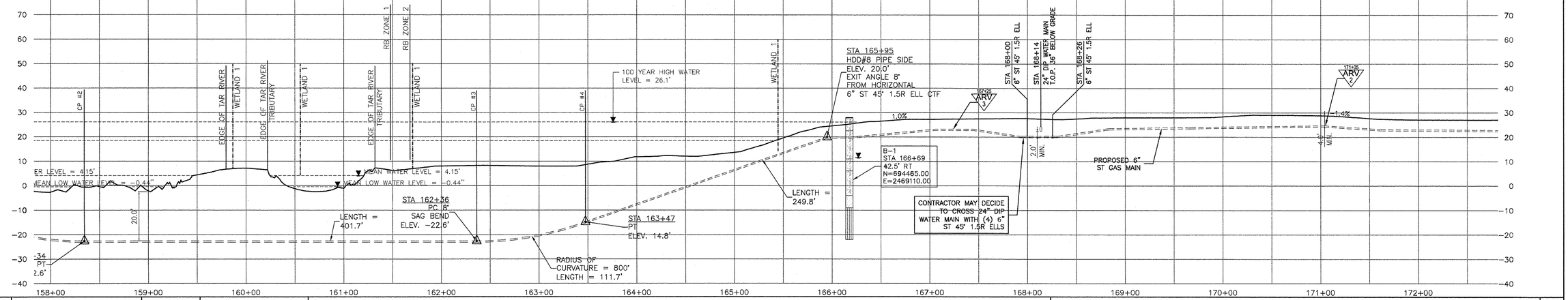
SHEET: A-11 | REVISION: 0

SURVEY					
ROW/ LINE LIST	P–080 TAR RIVER DB 3329 / PG 744–748 MEAN WATER LINE TO MEAN WATER LINE NC STATE PUBLIC TRUST LAND		P–080 BRYAN CREEK MWL TO MWL NC STATE PUBLIC TRUST LAND	P–090 (PN 29739) NORTH CAROLINA STATE HIGHWAY COMMISSION DB 425 / PG 364–371 EXISTING UTILITY EASEMENT	P–090 (PN 29739) NORTH CAROLINA STATE HIGHWAY COMMISSION DB 425 / PG 364–371 EXISTING & NEW UTILITY EASEMENT

ALIGNMENT



PROFILE



TERRAIN N.T.S.	TAR RIVER	WOODED	BRYAN CREEK	EXISTING CLEARED UTILITY EASEMENT	EXISTING CLEARED UTILITY EASEMENT / NEW 10' PERMANENT EASEMENT – GRASS
ENVIRON. N.T.S.	HDD TAR RIVER	HDD WETLAND 1	HDD BRYAN CREEK	HDD WETLAND 1	OPEN CUT
CLASS LOC./ DES. FACTOR	CLASS 1 / DF = 0.72				CLASS 2 / DF = 0.60
PIPE DETAIL N.T.S.	158+50 ② 165+95	①		168+00 ⑤ ① 168+26 ⑤	① 172+50

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION
1	656 LF	6" STEEL PIPE, API–5L GR. B, 0.280" W.T., 12–14 MILS FUSION BONDED EPOXY THINFILM COATED
2	747 LF	6" STEEL PIPE, API–5L GR. B, 0.280" W.T., 35 MILS POWERCRETE COATED
3	551 LF	AC MITIGATION GROUND WIRE SPEC:
4	–	6" ST 90° ELL, 1.5R, GR. B, SCH 40
5	7	6" ST 45° ELL, 1.5R, GR. B, SCH 40
6	–	6" ST WELD NECK FLANGE, RF, ANSI 300
7	–	6" FLANGE INSULATING KIT, RF, ANSI 300

NOTES

TOTAL ACREAGE DISTURBED: 0.44 ACRES
TOTAL ACREAGE TO BE CLEARED: 0 ACRES
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	2/15	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	2/15	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH–PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

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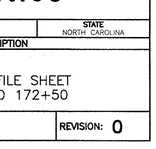
RK&K COMM. NO. 1214–011–A

SCALE
PLAN 1" = 50'
PROFILE
HOR. 1" = 50'
VERT. 1" = 20'



Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

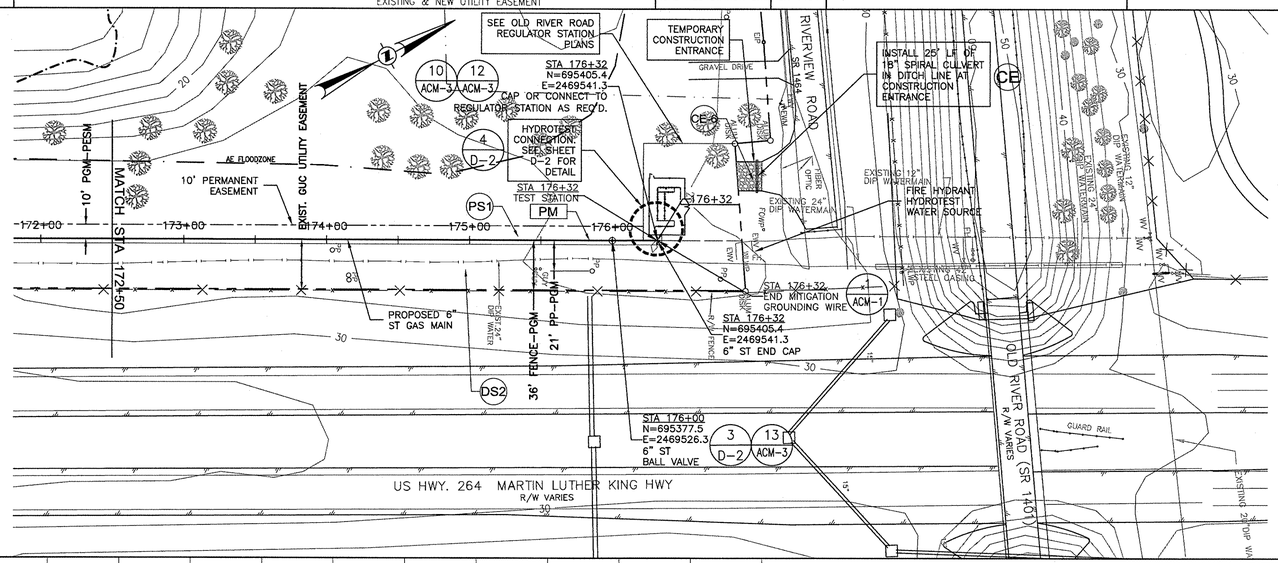
PLAN AND PROFILE SHEET
STA 158+50 TO 172+50

SHEET: A–12

REVISION: 0

SURVEY	
ROW / LINE LIST	P-090 (PN 29739) NORTH CAROLINA STATE HIGHWAY COMMISSION DB 425 / PG 364-371 EXISTING & NEW UTILITY EASEMENT; P-095 PURCHASE OLD RIVER ROAD REG STATION SITE; RIVERVIEW ROAD SR 1464; OLD RIVER ROAD SR 1401

ALIGNMENT


SEE OLD RIVER ROAD REGULATOR STATION PLANS
TEMPORARY CONSTRUCTION ENTRANCE
RIVERVIEW ROAD SR 1464
INSTALL 25' LF OF 18" SPIRAL CULVERT IN DITCH LINE AT CONSTRUCTION ENTRANCE
STA 176+32 N=695405.4 E=2469541.3
CAP OR CONNECT TO REGULATOR STATION AS REQ'D.
HYDROTEST CONNECTION. SEE SHEET D-2 FOR DETAIL
10' PERMANENT EASEMENT
AE FLOODZONE
ENST. GUC UTILITY EASEMENT
10" PGM-PESM
MATCH STA 172+50
STA 176+32 TEST STATION
EXISTING 24" DIP WATERMAIN
EXISTING 12" DIP WATERMAIN
FIRE HYDRANT HYDROTEST WATER SOURCE
EXISTING 12" DIP WATERMAIN
EXISTING 24" DIP WATERMAIN

Item	Quantity	Unit	Size	Description of Pipeline Materials		
1	11118	LF	6"	Steel Pipe, 0.280" w.t, API-5L Grade B, Seamless, 12-14 Mils Fusion Bonded Epoxy Thinfilm Coated		
2	5931	LF	6"	Steel Pipe, 0.280" w.t, API-5L Grade B, Seamless, 35 Mils Powercrete Coated		
3	1813	LF	NA	THWN #3 AWG AC Mitigation Ground Wire		
4	8	EA	6"	Elbow, 90°, LR, Grade B, SCH 40, 0.280" w.t.		
5	38	EA	6"	Elbow, 45°, LR, Grade B, SCH 40, 0.280" w.t.		
6	12	EA	36"- 4" x 1"	Sockolet, 2000#		
7	23	EA	1" x 3"	Pipe Nipple, Extra Strong, Grade B, Seamless C.S., thread both ends		
8	23	EA	1"	Valve, Ball, 2000#, NFPT X NFPT		
9	23	EA	1"	Pipe plug, Hex Head, Extra Strong, F.S., screwed		
10	120	LF	1"	Steel Pipe, 0.133" w.t., Grade B		
11	2	EA	6"	Valve, Cameron T-31, ANSI 300, W.E, Wrench Operated, Bore to Match w.t.=0.280", coated for buried installation		
12	7	EA	NA	Test Station, Type P		
14	3	EA	NA	Flush Mounted Cast Iron Valve Box w/ "Gas" Lid		
15	4	EA	6"	Cap, Grade B, 0.280" w.t.		
17	10	EA	1"	Cap, Socket Weld, 2000#		
18	12	EA	1"	Tee, Threaded, 2000#		
19	10	LF	2"	Steel Pipe, 0.154" w.t., Grade B		
23	1	EA	4"	Thredolet, 3000#		
24	1	EA	4"	Valve, Ball, 2000#, NFPT X NFPT		
25	20	LF	4"	Steel Pipe, 0.237" w.t., Grade B		
26	1	EA	6"	Blind Flange, ANSI 600		
27	2	EA	6"	Weld Neck Flange, ANSI 600		
28	2	EA	6"	Gasket, Spiral Wound, Flexitallic, ANSI 600		
29	1	EA	6"	Flange, Insulation Kit, ANSI 600, Type E, Linebacker, Double Washer Set, w/Full Length Phenolic Sleeves		
30	36	EA	(6") ANSI 600	Stud Bolts, All Thread, 1" Diameter x 6 3/4" Long, Grade B-7, ASTM A-193, w/2 A-194, Grade 2H Heavy Hex Nuts		
31	31	EA	NA	Pipeline Marker		
32	11526	LF	NA	Warning Tape		
33	408	LF	6"	Polyethylene Medium Density Plastic Pipe		
34	1	EA	6"	Tee, Polyethylene Medium Density Plastic. Butt Fusion		
35	2	EA	6"	Elbow, 90°, LR, Polyethylene Medium Density Plastic, Butt Fusion		
36	2	EA	6"	Elbow, 45°, LR, Polyethylene Medium Density Plastic, Butt Fusion		
37	2	EA	6"	Cap, Polyethylene Medium Density Plastic. Butt Fusion		
38	1	EA	6"	Valve, Polyethylene Medium Density Plastic. Butt Fusion		
39	2	EA	6"	Electrofusion Coupling, Polyethylene Medium Density Plastic		
40	1	EA	6"	Transition Fitting, Steel 0.280" Wall, Grade B x Polyethylene Medium Density Plastic		
41	408	LF	#14	Tracer Wire, solid copper with yellow insulation		
42	6	EA	8' x 4'	Gradient Control Mat		

6/11/15

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. RODGERS

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST., SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN AS NOTED
PROFILE
HOR. –
VERT. –

Greenville Utilities

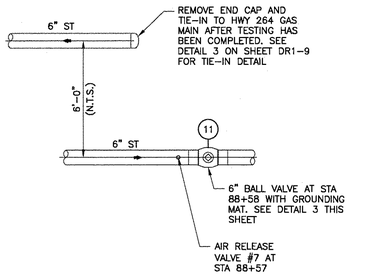
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

BILL OF MATERIALS

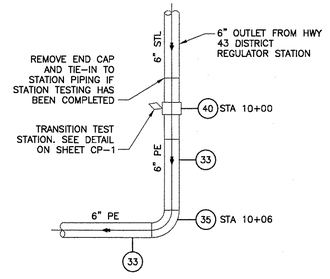
SHEET: D-1

REVISION: 0



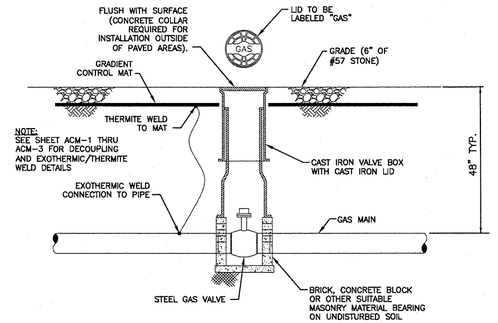
1 — TEST CONFIGURATION AT 6" HWY 43 REG. STA. LATERAL

SCALE: 3/8" = 1'-0"



2 — GAS MAIN CONNECTION @ 6" RT. 43 LATERAL

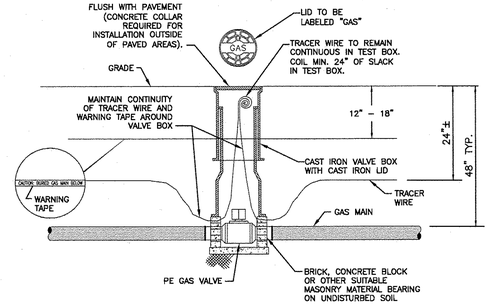
SCALE: 3/8" = 1'-0"



3 — TYPICAL STEEL GAS VALVE INSTALLATION

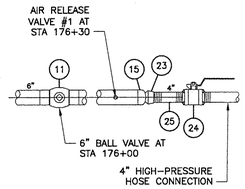
SCALE: 1/2" = 1'-0"

ALSO SEE DETAIL 13 ON SHEET ACM-3



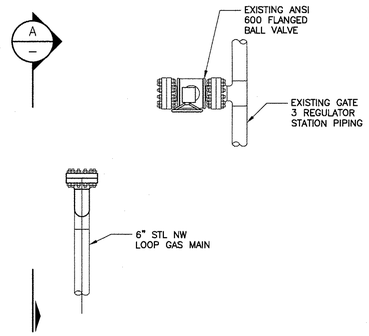
3A — TYPICAL PLASTIC GAS VALVE INSTALLATION

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



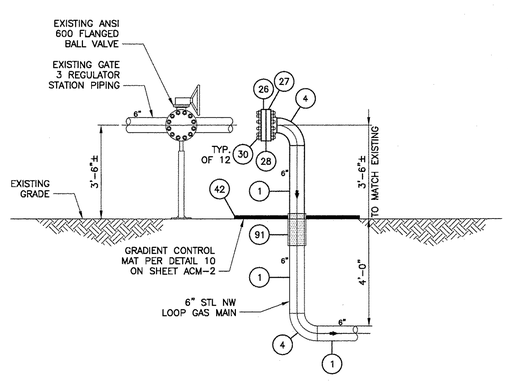
4 — TEST ASSEMBLY AT STA 176+32

SCALE: 3/8" = 1'-0"



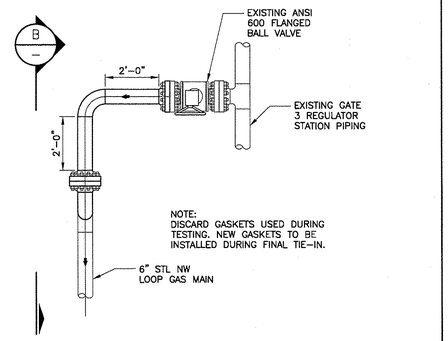
5 — END DETAIL AT EXISTING GATE 3 REGULATOR STATION PIPE TEST CONFIGURATION

SCALE: 3/8" = 1'-0"



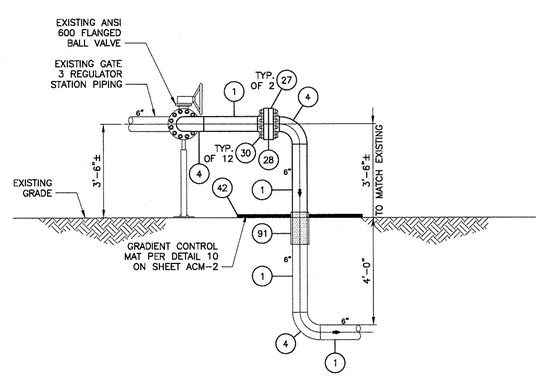
A — ELEVATION

SCALE: 3/8" = 1'-0"



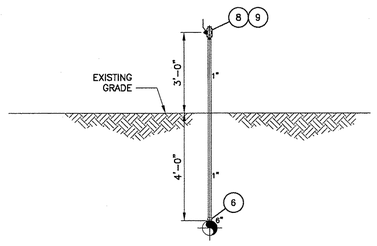
6 — TIE-IN DETAIL AT EXISTING GATE 3 REGULATOR STATION

SCALE: 3/8" = 1'-0"



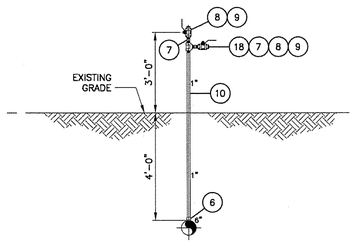
B — ELEVATION

SCALE: 3/8" = 1'-0"



7 — TYPICAL AIR RELEASE VALVE ASSEMBLY

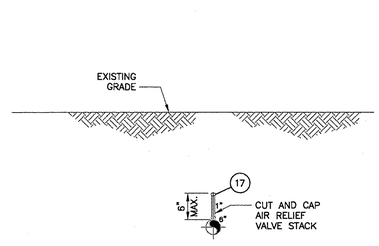
SCALE: 3/8" = 1'-0"



8 — AIR RELEASE VALVE ASSEMBLY W/ PRESSURE GAUGE

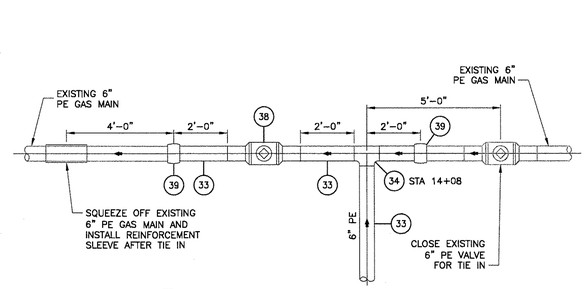
ARVs #1, #13, #14, #16

SCALE: 3/8" = 1'-0"



9 — TYPICAL AIR RELEASE VALVE CUT AND CAP (IF NOT REMOVED)

SCALE: 3/8" = 1'-0"



10 — TIE-IN DETAIL AT HWY 43 PE GAS MAIN

SCALE: 3/8" = 1'-0"

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. ROBBINS

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

SEE SHEET D-1 FOR BILL OF MATERIALS.

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN - RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING - RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 309
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T-804.782.1953 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN AS NOTED
PROFILE
HOR. –
VERT. –

Greenville Utilities

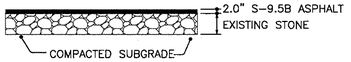
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

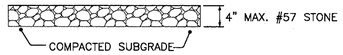
PIPELINE DETAILS

SHEET: D-2

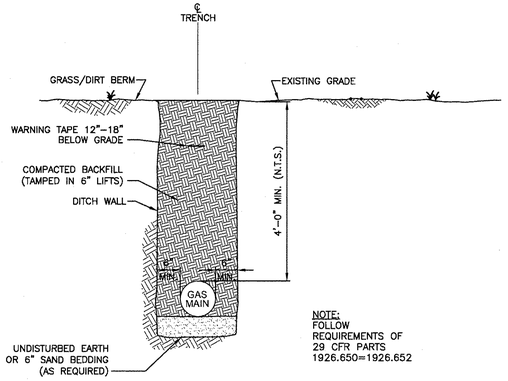
REVISION: 0



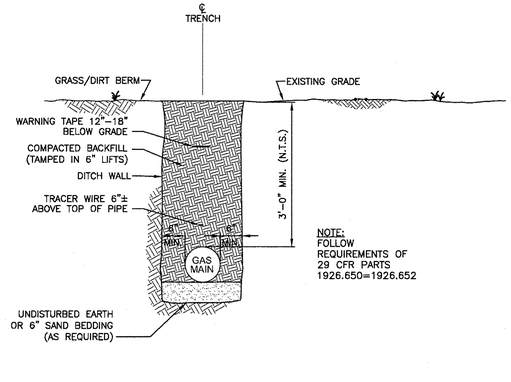
11 — LIGHT PAVEMENT (DRIVEWAY)
N.T.S.



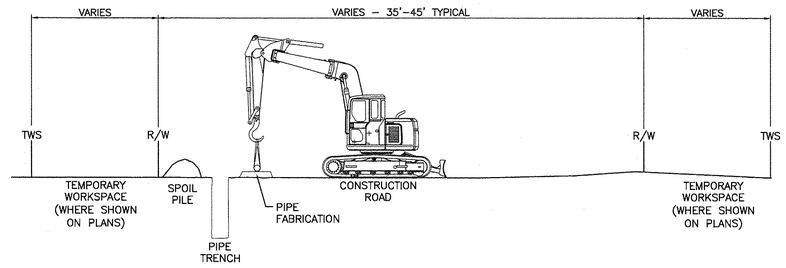
12 — STONE ROAD OR DRIVEWAY
N.T.S.



TYPICAL STEEL PIPE TRENCH INSTALLATION
N.T.S.



TYPICAL POLYETHYLENE (PE) PIPE TRENCH INSTALLATION
N.T.S.



TYPICAL CONSTRUCTION PATH DETAIL
N.T.S.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. RODGERS
6/1/15

SUMMARY OF MATERIALS		
ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS					
REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL						
	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA
TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT
GCP89 – NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

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RK&K COMM. NO. 1214-011-A

SCALE
PLAN AS NOTED
PROFILE
HOR. –
VERT. –

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION
PIPELINE DETAILS

SHEET: D-3
REVISION: 0

EROSION AND SEDIMENT CONTROL PLAN NW LOOP HP GAS MAIN EXTENSION

NARRATIVE

THE GREENVILLE UTILITIES COMMISSION (GUC) OPERATES A NATURAL GAS DISTRIBUTION SYSTEM SERVING THE CITY OF GREENVILLE AND AREAS OF PITT COUNTY SURROUNDING THE CITY. PIEDMONT NATURAL GAS HAS CONSTRUCTED A NEW NATURAL GAS DELIVERY POINT, GATE 3, SOUTH OF MACGREGOR DOWNS ROAD AND EAST OF THE NC HWY 264 BYPASS AS SHOWN ON SHEET A–1 OF THE PROJECT PLANS. THE GUC INTENDS TO CONSTRUCT THE NORTHWESTERN LOOP HIGH PRESSURE GAS MAIN EXTENSION; AN APPROXIMATELY THREE MILE LONG SIX–INCH STEEL HIGH PRESSURE NATURAL GAS MAIN FROM THE GATE 3 NORTH FOLLOWING AND WITHIN EXISTING UTILITY EASEMENTS OF THE GUC AND PROPOSED EASEMENTS, APPROXIMATELY PARALLEL TO THE NC HWY 264 BYPASS, ACROSS NC HWY 43, AND CONTINUING NORTH TO A TERMINUS AT THE END OF RIVERVIEW ROAD, JUST SOUTH OF THE OLD RIVER ROAD OVERPASS OF THE NC HWY 264 BYPASS.

ON THE NORTH SIDE OF NC HWY 43, WEST OF THE NC HWY 264 BYPASS INTERCHANGE, THE GUC INTENDS TO CONSTRUCT THE HWY 43 DISTRICT REGULATOR STATION TO REDUCE THE PRESSURE AND SUPPLY THE EXISTING 60 PSIG NATURAL GAS DISTRIBUTION SYSTEM. THIS WILL STRENGTHEN THE SYSTEM AND REDUCE THE POSSIBILITY OF LOW PRESSURE AND LOSS OF SERVICE TO THIS AREA.

AT THE TERMINUS OF THE 6 INCH STEEL NORTHWESTERN LOOP, THE GUC INTENDS TO INSTALL THE OLD RIVER ROAD DISTRICT REGULATOR STATION TO ENABLE LARGER VOLUMES OF GAS TO BE SERVED TO THE NORTH AND WEST OF THE INTERSECTION OF OLD RIVER ROAD WITH NC HWY 264 BYPASS. THIS WILL ALLOW MORE BUSINESSES AND RESIDENCES IN THIS AREA TO RECEIVE RELIABLE NATURAL GAS SERVICE.

NO PERMANENT BUILDING STRUCTURES ARE INCLUDED IN THIS CONSTRUCTION. THE ONLY ABOVE–GROUND FACILITIES THAT WILL BE VISIBLE FOLLOWING CONSTRUCTION ARE THE PIPING, PIPE SUPPORTS AND FENCING AT THE TWO PROPOSED DISTRICT REGULATOR STATIONS, VALVE BOXES ALONG THE GUC UTILITY EASEMENT, PEDESTALS FOR CATHODIC PROTECTION TEST STATIONS, AND LINE MARKERS.

OF THE 17,173 FEET OF 6 INCH STEEL GAS MAIN IN THE NORTHWESTERN LOOP, APPROXIMATELY 5,824 FEET ARE PROPOSED TO BE INSTALLED BY THE METHOD OF HORIZONTAL DIRECTIONAL DRILLING (HDD). THE PROJECT IS DESIGNED TO MINIMIZE THE AMOUNT OF DISTURBANCE TO WETLANDS, STREAMS AND WATERWAYS THAT THE GAS MAIN MUST CROSS. THE PROJECT CONSISTS OF SEVEN HDD CROSSINGS.

CONSTRUCTION OF THE SIX–INCH NORTHWESTERN LOOP WILL DISTURB APPROXIMATELY 9.28 ACRES, MOSTLY WITHIN EXISTING GUC UTILITY EASEMENTS AND NEW PARALLEL EASEMENTS. OF THIS ACREAGE, ONLY 2.21 ACRES WILL REQUIRE CLEARING, AND ONLY 0.78 ACRES OF WETLANDS WILL BE DISTURBED. APPROXIMATELY 10,903 FEET OF GAS MAIN WILL BE INSTALLED BY CONVENTIONAL MEANS OF OPEN CUT TRENCHING; APPROXIMATELY 5,824 FEET OF GAS MAIN WILL BE INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING (HDD); APPROXIMATELY 105 FEET OF GAS MAIN WILL BE INSTALLED BY THE CONVENTIONAL JACK AND BORE METHOD. FOLLOWING CONSTRUCTION, THE EASEMENT WILL BE RESTORED TO ORIGINAL GRADES AND CONTOURS, SEEDED, MULCHED AND TACKED OR SODDED AS MARKED ON THE PLANS.

THE TWO DISTRICT REGULATOR STIES WILL OCCUPY APPROXIMATELY 25 FEET X 30 FEET, OR 750 SQUARE FEET EACH. THEY WILL BE BROUGHT TO FINISHED GRADE WITH APPROXIMATELY 8 INCHES OF STONE AND FENCED FOR SECURITY. NEITHER STATION SITE IS IN A WETLAND AREA.

THE NORTHWESTERN LOOP HIGH PRESSURE GAS MAIN EXTENSION AND THE TWO DISTRICT REGULATOR STATIONS WILL BE FABRICATED AND INSTALLED BY A CONTRACTOR. THE OLD RIVER ROAD SIX–INCH POLYETHYLENE GAS MAIN WILL BE INSTALLED BY GUC CREWS.

SITE DESCRIPTION

THE PROJECT IS LOCATED IN THE NORTH CAROLINA INNER COASTAL PLANE PHYSIOGRAPHIC PROVINCE. THE TOPOGRAPHY VARIES FROM FLAT TO GENTLY ROLLING HILLS WITH AVERAGE SLOPES OF LESS THAN 5%, AND A FEW SHORT SLOPES IN THE 10% TO 16% RANGE. THE SITE IS MOSTLY WITHIN A CLEARED LINEAR UTILITY EASEMENT VARYING FROM 25FT WIDE TO 45FT WIDE. SEVERAL PARALLEL EASEMENTS WILL BE REQUIRED IN ORDER TO CONSTRUCT THE GAS MAIN, AND ADJACENT WORK SPACE WILL BE REQUIRED FOR CONSTRUCTION STAGING AND TEMPORARY USE DURING CONSTRUCTION. SOME CLEARING WILL BE REQUIRED OF THE NEW EASEMENTS AND TEMPORARY WORK SPACE. THIS CLEARING IS ADJACENT TO AREAS THAT ARE ALREADY CLEARED. THE TOPOGRAPHY IS COMPOSED OF SEVERAL KNOLLS THAT ARE BISECTED BY STREAMS. TOPOGRAPHY FLATTENS UPON REACHING THE TAR RIVER AND WETLANDS. ELEVATIONS ALONG THE ROUTE RANGE FROM APPROXIMATELY 15 FEET TO 85 FEET ABOVE MEAN SEA LEVEL. GROUNDWATER IS ANTICIPATED TO FLOW IN A WEST TO EAST DIRECTION BASED UPON THE TOPOGRAPHY.

ADJACENT PROPERTY

MOST OF THE SURROUNDING PRIVATE LAND THAT IS NOT TIMBER–COVERED IS USED FOR FARMING, OR HAS BEEN USED FOR FARMING IN THE RECENT PAST AND HAS BEEN CLEARED. AT THE SOUTH END OF THE PROJECT, THERE ARE ELECTRIC SUBSTATIONS OWNED BY DUKE ENERGY AND THE GREENVILLE UTILITIES COMMISSION. THE MAJORITY OF THE PROJECT SITE LIES PARALLEL TO THE NC HWY 264 BYPASS RIGHT–OF–WAY WITHIN EXISTING GUC UTILITY EASEMENTS. MOST OF THE ADJOINING PROPERTIES TO THE SOUTH OF THE TAR RIVER ARE ZONED AGRICULTURAL, WITH SPARSE RESIDENTIAL DEVELOPMENT NEAR THE NC HWY 43 AND OLD RIVER ROAD INTERSECTIONS. MOST OF THE ADJACENT FARM LAND IS NOT CURRENTLY BEING USED FOR FARMING.

PLANNED EROSION AND SEDIMENT CONTROL PRACTICES

1. TEMPORARY GRAVEL CONSTRUCTION ENTRANCES (CE) – PRACTICE 6.06 (SHEET ES–3)

ON SHEET A–2A, CE–1 IS REQUIRED TO DOWNLOAD STEEL LINE PIPE AND EQUIPMENT ONTO THE EXISTING EASEMENT. THE PIPE WILL BE LAID OUT TO THE SOUTH IN THE PROPOSED TEMPORARY WORKSPACE ADJACENT AND PARALLEL TO NC HWY 264 BYPASS. THE PIPE WILL BE FABRICATED HERE AND PULLED INTO THE HDD BOREHOLE TO THE NORTH.

IN ORDER TO SET THE HDD DRILL RIG ON THE EAST SIDE OF THE NC HWY 264 BYPASS TO DRILL BOTH TO THE SOUTH UNDER A STREAM 4 AND TO THE WEST ACROSS NC HWY 264 BYPASS, CE–2 IS REQUIRED ON THE EAST SIDE OF THE BYPASS TO ENTER THE CONSTRUCTION EASEMENT AND SET THE RIG. SEE PLAN SHEET A–4. THE PIPE WILL BE BROUGHT IN FROM THE NORTH ALONG THE EXISTING UTILITY EASEMENT, LAID OUT, AND FABRICATED IN THE TEMPORARY CONSTRUCTION EASEMENT TO THE WEST OF AND PERPENDICULAR TO THE NC HWY 264 BYPASS. SEE DETAIL CE–2 ON SHEET ES–3.

AT THE INTERSECTION OF NC HWY 264 BYPASS AND NC HWY 43 SHOWN ON PLAN SHEETS A–6 AND A–6A, TWO EXISTING DRIVES WILL BE UTILIZED AS CES. THE DRIVE EXITING HWY 43 TO THE SOUTH IS PRIVATE AND ITS USE IS PART OF THE EASEMENT NEGOTIATION FOR TEMPORARY WORKSPACE. THE DRIVE TO THE NORTH OF HWY 43 IS ALSO PRIVATE AND PART OF THE EASEMENT NEGOTIATIONS FOR TEMPORARY WORKSPACE AND USE AS A CE TO ACCESS THE UTILITY EASEMENT TO THE NORTH OF HWY 43; A PURPOSE FOR WHICH IT HAS BEEN USED IN THE PAST. THE EXISTING UTILITY EASEMENT TO THE NORTH OF NC HWY 43 WILL BE USED TO LAY DOWN AND FABRICATE THE PIPE TO BE PULLED TO THE SOUTH UNDER NC HWY 43.

CE–4 LOCATED ON PLAN SHEET A–10 WILL PERMIT ACCESSING THE UTILITY EASEMENT TO THE WEST FROM THE HWY 264 BYPASS WILL ALLOW THE HDD DRILL RIG TO ENTER FOR DRILLING TO THE SOUTH UNDER WETLAND 3 AND STREAM 6. IT ALSO ALLOWS PIPE TO BE OFF–LOADED FOR INSTALLATION AND FOR STRINGING AND FABRICATION TO BE PULLED TO THE NORTH UNDER THE DRAINAGE FEATURE AND PARTS OF WETLAND 1.

CE–5 LOCATED ON PLAN SHEET A–11 WILL PERMIT ACCESSING THE UTILITY EASEMENT TO THE WEST FROM THE HWY 264 BYPASS AND WILL ALLOW THE HDD DRILL RIG TO ENTER FOR DRILLING TO THE SOUTH UNDER PARTS OF WETLAND 1 AND TO THE NORTH UNDER THE TAR RIVER, BRYAN CREEK AND PARTS OF WETLAND 1. THIS AVOIDS HAVING A CONSTRUCTION PATH THROUGH THE WETLANDS THAT THE HDDS AVOID. SEE DETAIL CE–5 ON SHEET ES–3.

PIPE WILL BE OFF–LOADED AT CE–6 AT THE END OF RIVERVIEW ROAD ON PLAN SHEET A–13 FOR LAYOUT AND FABRICATION FOR PULL THROUGH THE HDD BOREHOLE TO THE SOUTH UNDER BRYAN CREEK, THE TAR RIVER AND PARTS OF WETLAND 1.

THE NORTHWESTERN LOOP HIGH PRESSURE GAS MAIN EXTENSION WILL TERMINATE AT THE PROPOSED SITE OF THE OLD RIVER ROAD DISTRICT REGULATOR STATION WHERE CE–6 WILL BE REQUIRED TO CONSTRUCT THE REGULATOR STATION AND COMPLETE THE PIPELINE. CE–6 IS AT A LOCATION THAT IS CURRENTLY USED TO ACCESS THE UTILITY EASEMENT AS SHOWN ON PLAN SHEET A–13 AT THE EASTERN TERMINUS OF RIVERVIEW ROAD. THE REGULATOR STATION SITE DESIGN INCLUDES THE DESIGN OF A PERMANENT ENTRANCE AT THE LOCATION OF THIS CE. DEPENDING UPON TIMING, THE PERMANENT ENTRANCE MAY NEGATE THE NEED FOR THE CE.

2. SEDIMENT FENCE (SF) – PRACTICE 6.62 (SHEET ES–2)

SEDIMENT FENCES (SILT FENCES) (SF) ARE SHOWN THROUGHOUT THE PLANS ALONG THE DOWNSLOPE SIDE OF THE CONSTRUCTION EASEMENT AND PATH. THEY ARE NOT SHOWN WHERE THE TERRAIN IS RELATIVELY FLAT AND THE NATURAL VEGETATION OUTSIDE OF THE UTILITY EASEMENT IS SUFFICIENTLY DENSE TO PERFORM THE SAME FUNCTION AS THE SF. REFER TO THE PLAN SHEETS AND SILT FENCE DETAIL (SF), SHEET ES–2. THEY ARE ALSO TO BE INSTALLED AROUND OR ON THE DOWN–SLOPE SIDE OF SPOIL PILES DURING CONSTRUCTION.

3. WATER BARS (WB) – PRACTICE 6.23 (SHEET ES–5)

WATER BARS (WB) ARE SHOWN ON PLAN SHEET A–4 ON THE WEST SIDE OF THE HDD CROSSING OF THE NC HWY 264 BYPASS. EVEN THOUGH THIS CROSSING WILL NOT REQUIRE A TRENCH, THERE WILL BE A TIE–IN BELL HOLE IN THIS AREA. THIS WILL DISTURB THE TOP SOIL AND THE WBS ARE INTENDED TO HELP BREAK UP ANY SHEET FLOW, LOWERING THE VELOCITY AND CHANNELING THE FLOW INTO THE SFS AND NATURAL VEGETATION.

WBS ARE SHOWN ACROSS THE UTILITY EASEMENT FROM WEST TO EAST ON PLAN SHEET A–8. THE SLOPE IS BETWEEN 5% AND 8% FOR MOST OF THIS 500–FOOT LONG DECLINE TOWARD THE TAR RIVER FLOODPLAIN. THE TOP OF THE SLOPE HAS A 16% SLOPE FOR APPROXIMATELY 150 FEET, BEFORE BEGINNING TO GRADUALLY LEVEL OFF. THE WBS ARE SPECIFIED SINCE THIS WILL BE CONVENTIONAL TRENCHING CONSTRUCTION AND THE EASEMENT WILL ALSO BE THE CONSTRUCTION ROAD. THIS IS THE STEEPEST GRADE IN THE PROJECT.

4. TRENCH BREAKERS (TB) – (SHEET ES–2)

TRENCH BREAKERS (TBS) SERVE TO PREVENT THE BACKFILLED TRENCH LINE FROM WASHING OUT DURING HEAVY RAINS WHERE THE SLOPE MAY BE SUFFICIENT TO ENCOURAGE THIS TO HAPPEN AND SURFACE VEGETATION HAS NOT DEVELOPED SUFFICIENTLY. PLAN SHEET A–8 SHOWS APPROXIMATELY 130 FEET OF TRENCH CALLING FOR TBS ON TEN–FOOT CENTERS. THIS MEASURE CONSISTS OF STACKED SANDBAG BREAKERS IN THE TRENCH PRIOR TO BACKFILLING AND COMPACTING.

5. RESTORATION (PRACTICE 6.11p – PS1 & PRACTICE 6.11t – PS5) – (SHEET ES–2)

NO GRADE CHANGES ARE REQUIRED OR SPECIFIED FOR THE PIPELINE INSTALLATION. HDDS ARE SPECIFIED FOR CROSSING MOST WETLANDS AND STREAMS, AND FOR CROSSING THE TAR RIVER AND BRYAN CREEK. THE HDD PAD ON THE EAST SIDE OF THE NC HWY 264 BYPASS CROSSING REPRESENTS THE MOST SIGNIFICANT GRADE CHANGE IN THE ENTIRE PROJECT AND IT WILL BE RESTORED FOLLOWING CONSTRUCTION. THE HDDS WILL MINIMIZE THE IMPACT TO WETLANDS AND WATER BODIES. THE REMAINING TRENCH LINE AND CONSTRUCTION PATH WILL BE RETURNED TO ORIGINAL GRADE AND CONTOURS AND SEEDED ACCORDING TO PRESCRIBED SEEDING DETAIL PS1 FOR POORLY DRAINED SOILS IN THIS AREA, OR PS5 FOR WELL DRAINED SOILS IN THIS AREA. THE GRASS SHOULDER AREAS OF THE NC HWY 264 BYPASS DISTURBED BY CONSTRUCTION ENTRANCES WILL BE RESTORED WITH CENTIPEDE SOD TO MATCH EXISTING LOW–MAINTENANCE CONDITIONS. THE PLAN SHEETS SHOW WHERE THE DIFFERENT SEED PRESCRIPTIONS ARE SPECIFIED. RESTORATION SHALL BEGIN NO LATER THAN 14 DAYS FOLLOWING REMOVAL OF CONSTRUCTION DEBRIS, EQUIPMENT, AND SPOIL, AND PROCEED CONTINUOUSLY UNTIL COMPLETED.

6. RESTORATION (PS–3) NCDOT 2012 STANDARD SPECIFICATIONS

SOD SHALL BE LOCALLY GROWN CENTIPEDE GRASS PER REQUIREMENTS OF SECTION 1060–7 SOD. SODDING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 1664 SODDING. SODDING IS REQUIRED AFTER REMOVAL OF CE–1, CE–2, CE–4, AND CE–5.

7. EROSION AND SEDIMENT CONTROL MEASURE REMOVAL

CONSTRUCTION ENTRANCES SHALL BE MAINTAINED UNTIL RESTORATION OF THE UTILITY EASEMENT IS COMPLETED. SILT/SEDIMENT FENCES SHALL BE MAINTAINED UNTIL SEEDING SUFFICIENTLY MATURES AND COVERS THE RESTORED CONSTRUCTION PATH ADEQUATELY TO PREVENT EROSION AND SEDIMENTATION IN A MANNER RELATIVE TO THE ADJACENT UNDISTURBED AREAS. WATER BARS MAY BE LEFT ACROSS THE UTILITY EASEMENT AS THEY WILL AID IN SLOWING AND DIVERTING THE FLOW OF SURFACE WATER ALONG THE TRENCH LINE UNTIL VEGETATION HAS MATURED. AFTER REMOVING THE CONSTRUCTION ENTRANCES, THE SHOULDER AREA OF NC HWY 264 BYPASS SHALL BE RESTORED WITH CENTIPEDE SOD (PS3) TO MATCH THE EXISTING SHOULDER AREA.

CONSTRUCTION SEQUENCING:

1. CONTRACTOR SHALL PROVIDE PROPOSED CONSTRUCTION SCHEDULE TO ENGINEER FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION.
2. ACCESS AND STORAGE AREAS SHALL BE CONSTRUCTED FIRST. IF THE WORK IS SEQUENCED, THE AREAS MAY BE DEVELOPED IN CONJUNCTION WITH THE SEQUENCING OF CONSTRUCTION STAGES. IF MULTIPLE CREWS ARE USED SIMULTANEOUSLY, ACCESS AND STORAGE AREAS MAY BE CONSTRUCTED SIMULTANEOUSLY FOR THE ENTIRE PROJECT.
3. APPROPRIATE TRAFFIC CONTROL MEASURES WILL BE INSTALLED, AND AS SOON AS PRACTICAL AND PRIOR TO BEGINNING MAJOR LAND DISTURBING ACTIVITIES, SILT FENCES SHALL BE INSTALLED AS INDICATED ON THE PLANS. THIS CAN OCCUR BEFORE OR IMMEDIATELY AFTER CLEARING, BUT SHOULD BE INSTALLED PRIOR TO ANY GRUBBING AND EXCAVATION ACTIVITIES.
4. CONTRACTOR WILL MOST LIKELY HAVE ONE OR MORE HORIZONTAL DIRECTIONAL DRILLING (HDD) CREWS (CROSSING CREWS) THAT WILL WORK IN ADVANCE OR SIMULTANEOUSLY WITH THE PIPELINE CREWS. RIG AND PULL SIDE HDD SITES SHALL BE CONSTRUCTED PRIOR TO BEGINNING HDD OPERATIONS. DEPENDING UPON CONDITIONS, TIMBER MATTING MAY BE REQUIRED TO ACHIEVE A STABILIZED DRILL SITE. SITES SHALL HAVE SILT FENCE INSTALLED ACCORDING TO THE PROJECT PLANS.
5. ANY DAMAGE TO SILT FENCES OR OTHER PRESCRIBED MEASURES SHALL BE MADE AS SOON AS NOTED BY THE CONTRACTOR AND THE CONTRACTOR SHALL COMPLETE THE PERIODIC INSPECTIONS OF THE MEASURES INCLUDED IN THE SPECIFICATIONS.
6. AS CREWS COMPLETE THE TRENCHED, JACKED AND BORED, AND HDD PORTIONS OF THE PROJECT, THEY WILL TIE–IN THESE SEGMENTS TO FORM THE COMPLETED PIPELINE; READY FOR TESTING.
7. AS SEGMENTS OF THE PIPELINE ARE COMPLETED AND THE RELATED RIGHT–OF–WAY (ROW) IS NO LONGER REQUIRED FOR ACCESS OR USE AS A CONSTRUCTION ROAD, THE SURFACE CONTOURS SHALL BE RESTORED AND THE SEEDED, MULCHED, TACKED OR SODDED ACCORDING TO THE PROJECT PLANS.
8. WATER BARS WILL BE CONSTRUCTED ALONG THE ALIGNMENT WHERE PRESCRIBED WITHIN FOURTEEN (14) DAYS FOLLOWING CESSATION OF USE OF THAT PORTION OF THE RIGHT–OF–WAY FOR ACCESSING THE CONSTRUCTION SITE.
9. TRENCH BREAKERS SHALL BE INSTALLED AS SOON AS PRACTICAL AFTER THE PIPE IS LOWERED INTO THE DITCH IN THE AREA WHERE THE BREAKERS ARE PRESCRIBED. THEY SHOULD BE INSTALLED PRIOR TO ANY RAIN EVENT THAT MAY WASH–OUT THE PIPE BEDDING AND ERODE THE DITCH. THESE BREAKERS SHALL BE LEFT IN THE DITCH DURING AND AFTER BACKFILL AND COMPACTION.
10. WITHIN FOURTEEN (14) DAYS OF RESTORING THE SURFACE TO ORIGINAL GRADES AND CONTOURS, AND CESSATION OF USING THE ROAD TO ACCESS THE SITE, THE CONTRACTOR SHALL APPLY PRESCRIBED SEEDING, MULCHING AND TACKING MEASURES INCLUDED IN THE PROJECT PLANS.
11. THE CONTRACTOR SHALL MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL DEVICES UNTIL THE SURFACE TREATMENTS (SEEDING, SODDING) ARE INSTALLED AND THE OWNER ACCEPTS THE PROJECT AS FINAL AND COMPLETE.
12. THE TEST WATER DEWATERING STRUCTURE SHALL BE CONSTRUCTED SEVERAL DAYS PRIOR TO THE SCHEDULED HYDROTEST OF THE PIPELINE. IT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS.
13. ONCE THE TEST WATER IS DRAINED AND PUSHED BY PIGS INTO THE TEST WATER CONTAINMENT PIT, IT SHALL BE GIVEN SUFFICIENT TIME TO SEEP OUT THROUGH THE FABRIC AND STRAW/HAY BALES.
14. WITHIN FOURTEEN (14) DAYS AFTER THE TEST WATER HAS EXITED THE DEWATERING STRUCTURE, THE STRAW/HAY BALES, FABRIC MATERIALS, AND OTHER MATERIALS SHALL BE REMOVED FORM THE SITE AND IT SHALL BE RESTORED AS REQUIRED WITH SEED, MULCH AND TACK. THE STRAW MAY BE USED AS MULCHING ALONG THE ALIGNMENT SURFACE OVER TOP OF NEW GRASS OR IT MAY BE DISPOSED OF OFF–SITE.
15. AFTER THE OWNER HAS ACCEPTED THE TESTED, PURGED AND GAS–FILLED PIPELINE AND RELEASED THE CONTRACTOR, THE OWNER WILL MAINTAIN THE EROSION AND SEDIMENTATION CONTROL MEASURES UNTIL SURFACE VEGETATION HAS BECOME ESTABLISHED.
16. THE NW LOOP IS ANTICIPATED TO REQUIRE APPROXIMATELY 60 DAYS UNDER NORMAL WEATHER CONDITIONS TO COMPLETE CONSTRUCTION FOLLOWING CONTRACTOR MOBILIZATION. THE TWO DISTRICT REGULATOR STATIONS ARE PART OF THIS CONSTRUCTION.

SOILS

Name	Symbol	% Slopes	Geomorphic Position	Drained	Hydric	Other
Lakeland Sand	LaB	0 - 6	ridges/shoulder ridges/summit stream terraces	excessively	partially	Not prime farmland
Osier Loamy Sand	Os	0	flats/toeslopes	poorly	all	Not prime farmland
Bibb Complex	Bb		flood plains / toeslopes	poorly	all	Not prime farmland
Altavista Sandy Loam	AlB	0 - 4	stream terraces	moderately well	partially	Prime farmland
Alaga Loamy Sand	AgB	0 - 6	ridges / shoulder ridges / summit	excessively	not	Not prime farmland
Portsmouth Loam	Po		stream terraces marine terraces flats / depressions	very poorly	all	Prime farmland if drained
Cape Fear Loam	Ca		depressions	very poorly	all	Farmland of statewide importance
Craven Fine Sandy Loam	CrB	1 - 6	ridges / shoulder ridges / summit marine terraces	moderately well	partially	Prime farmland
Pactolus Loamy Sand	Pa		stream terraces ridges	moderately well	not	Not prime farmland
Wagram Loamy Sand	WaB	0 - 6	ridges / shoulder ridges / summit marine terraces	well	partially	Farmland of statewide importance
Exum Fine Sandy Loam	ExB	1 - 6	marine terraces flats	moderately well	not	Prime farmland
Aycock Fine Sandy Loam	AyA	0 - 1	marine terraces broad interstream divides	well	not	Prime farmland
Norfolk Sandy Loam	NrB	1 - 6	ridges / shoulder ridges / summit marine terraces broad interstream divides	well	not	Prime farmland
Lynchburg Fine Sandy Loam	Ly		marine terraces / summit flats	somewhat poorly	partially	Prime farmland if drained
Tuckerman Fine Sandy Loam	Tu		marine terraces flats	poorly	90	Prime farmland if drained
Chipley Sand	Ch		ridges stream terraces	moderately well	0	Not prime farmland
Olusstee Loamy Sand	Oe		marine terraces depressions	very poorly	90	Farmland of unique importance

6/1/15

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. ROBERTS

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
3100 E. CARY ST. SUITE 309
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214–011–A

SCALE
PLAN NTS
PROFILE
HOR. –
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Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

EROSION AND SEDIMENT CONTROL DETAILS

SHEET: ES–1

REVISION: 0

SILT FENCE (DENR 6.62) (SF)

CONSTRUCTION SPECIFICATIONS

MATERIALS
1. USE A SYNTHETIC FILTER FABRIC OF AT LEAST 95% BY WEIGHT OF POLYOLEFINS OR POLYESTER, WHICH IS CERTIFIED BY THE MANUFACTURE OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS IN ASTM D 6461, WHICH IS SHOWN IN PART IN TABLE 6.62b.

SPECIFICATIONS FOR SEDIMENT FENCE FABRIC

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

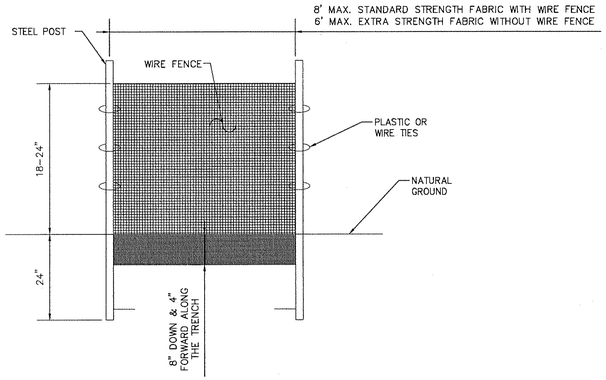
[1] SILT FENCE SUPPORT SHALL CONSIST OF 14 GAGE STEEL WIRE WITH A MESH SPACING OF 150 mm (6 INCHES), OR PREFABRICATED POYLMER MESH OF EQUIVALENT STRENGTH.
[2] THESE DEFAULT VALUES ARE BASED ON EMPIRICAL EVIDENCE WITH A VARIETY OF SEDIMENT. FOR ENVIRONMENTALLY SENSITIVE AREAS, A REVIEW OF PREVIOUS EXPERIENCE AND/OR SITE OR REGIONALLY SPECIFIC GEOTEXTILE TESTS IN ACCORDANCE WITH TEST METHOD D 5141 SHOULD BE PERFORMED BY THE AGENCY TO CONFIRM SUITABILITY OF THESE REQUIREMENTS.
[3] AS MEASURED IN ACCORDANCE WITH TEST METHOD D 4632.

2. SYNTHETIC FILTER FABRIC SHALL CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 F TO 120 F.
3. IF STEEL POSTS (STANDARD "U" OR "T" SECTION) ARE UTILIZED FOR SILT FENCE CONSTRUCTION, THEY MUST HAVE A MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT AND SHALL HAVE A MINIMUM LENGTH OF 5 FEET AND SHALL HAVE PROJECTIONS FOR FASTENING FABRIC.
4. WIRE FENCE REINFORCEMENT FOR SILT FENCES USING STANDARD-STRENGTH FILTER FABRIC SHALL BE A MINIMUM 14 GAUGE AND SHALL HAVE A MAXIMUM MESH SPACING OF 6 INCHES.

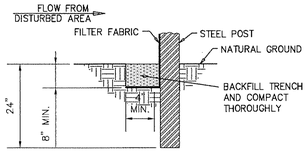
INSTALLATION
1. CONSTRUCT THE SEDIMENT BARRIER OF STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS.
2. ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24 INCHES ABOVE THE GROUND SURFACE. (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).
3. CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT A SUPPORT POST WITH 4 FEET MINIMUM OVERLAP TO THE NEXT POST.
4. SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT, THEN FABRIC ON THE UPSLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUNDS TENSILE STRENGTH.
5. WHEN A WIRE MESH SUPPORT FENCE IS USED, SPACE POSTS A MAXIMUM OF 8 FEET APART. SUPPORT POSTS SHOULD BE DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.
6. EXTRA STRENGTH FILTER FABRIC WITH 6 FEET POST SPACING DOES NOT REQUIRE WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUNDS TENSILE STRENGTH.
7. EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
8. PLACE 12 INCHES OF THE FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH.
9. BACKFILL THE TRENCH WITH SOIL PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTION OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.
10. DO NOT ATTACH FILTER FABRIC TO EXISTING TREES.

MAINTENANCE

1. INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
3. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.
4. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.



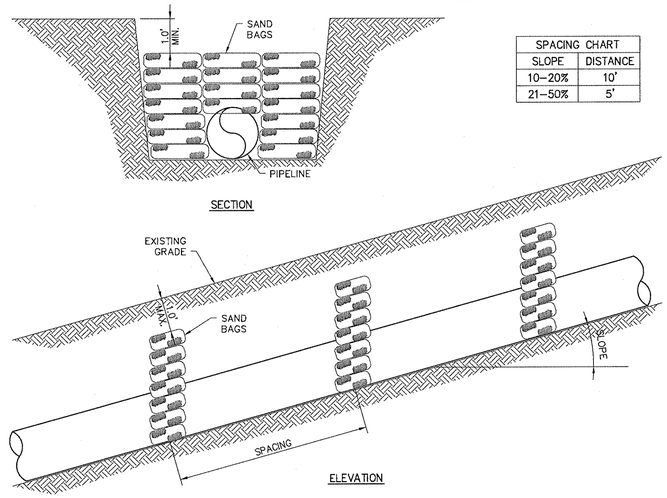
INSTALLATION DETAIL OF A SILT FENCE



TRENCH OF A SILT FENCE

6/1/15
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. RODGERS

TRENCH BREAKER (TB)



SPACING CHART	
SLOPE	DISTANCE
10-20%	10'
21-50%	5'

SANDBAG DITCH STABILIZATION NOTES:

SANDBAG MATERIAL: SANDBAG SHALL BE POLYPROPYLENE, POLYAMIDE WOVEN FABRIC, MINIMUM UNIT WEIGHT 0.5 OZ. PER SQUARE FOOT, MULLEN BURST STRENGTH EXCEEDING 300 PSI. USE OF BURLAP IS NOT ACCEPTABLE SINCE IT ROTS, OS TOO POROUS, AND DETERIORATES TOO EASILY.

SANDBAG SIZE: EACH SAND-FILLED BAG SHALL HAVE A LENGTH OF 2 TO 2.5 FEET, WIDTH OF 16 TO 18 INCHES, THICKNESS OF 6 TO 18 INCHES, AND WEIGHT OF 88 TO 120 LBS. BAG DIMENSIONS ARE NOMINAL AND MAY VARY BASED ON LOCALLY AVAILABLE MATERIALS. ALTERNATIVE SIZES SHALL BE SUBMITTED TO THE CONSTRUCTION INSPECTOR.

GRADE OF SAND: ALL SANDBAG MATERIAL SHALL BE COARSE SAND AND GRAVEL, FREE FROM DELETERIOUS MATERIAL.

INSTALLATION PROCEDURE:
1. INSTALL SANDBAGS OVER PIPE IN DITCH AFTER FIRST BACKFILL LIFT.
2. BACKFULL & COMPACT TO GRADE.
3. SEED, MULCH, AND TACK SURFACE PER PS1 OR PS5.

SEED AND MULCH (DENR 6.11p) (PS1)

SEEDING MIXTURE:

SPECIES*	RATE (LB/ACRE)
TALL FESCUE	80
PENSACOLA BAHIAGRASS	50
SERICEA LESPEDEZA	30
KOBE LESPEDEZA	10

SEEDING NOTES:
1. FROM SEPT. 1-MAR. 1, USE UNSCARIFIED SERICEA SEED.
2. ON POORLY DRAINED SITES, OMIT SERICEA AND INCREASE KOBE TO 30 LB/ACRE.
3. WHERE A NEAT APPEARANCE IS DESIRED, OMIT SERICEA AND INCREASE KOBE TO 40 LB/ACRE.

NURSE PLANTS:
BETWEEN APR. 15 AND AUG. 15, ADD 10 LB/ACRE GERMAN MILLET OR 15 LB/ACRE SUDANGRASS. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 25 LB/ACRE RYE (GRAIN).

SEEDING DATES:

	BEST	POSSIBLE
EARLY SPRING:	FEB. 15-MAR. 20	FEB. 15-APR. 30
FALL:	SEPT. 1-SEPT. 30	SEPT. 1-OCT. 31

SOIL AMENDMENTS:
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 3,000-5,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE (USE THE LOWER RATE ON SANDY SOILS) AND 1,000 LB/ACRE 10-10-10 FERTILIZER.

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

MAINTENANCE:
IF GROWTH IS LESS THAN FULLY ADEQUATE, REFERTILIZE IN THE SECOND YEAR, ACCORDING TO SOIL TESTS OR TOPDRESS WITH 500 LB/ACRE 10-10-10 FERTILIZER. MOW AS NEEDED WHEN SERICEA IS OMITTED FROM THE MIXTURE. RESEED, FERTILIZE, AND MULCH DAMAGED AREAS IMMEDIATELY.

*REFER TO APPENDIX 8.02 FRO BOTANICAL NAMES.

SEED AND MULCH (DENR 6.11t) (PS5)

SEEDING MIXTURE:

SPECIES*	RATE (LB/ACRE)
PENSACOLA BAHIAGRASS	50
SERICEA LESPEDEZA	30
COMMON BERMUDAGRASS	10
GERMAN MILLET	10

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

SEEDING DATES:
APR. 1-JULY 15

SOIL AMENDMENTS:
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 3,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 500 LB/ACRE 10-10-10 FERTILIZER.

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

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

*REFER TO APPENDIX 8.02 FRO BOTANICAL NAMES.

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN - RK&K	CSY	5/21	CSY	5/1/15	-	-
ENGINEERING - RK&K	MCR	5/21	MCR	5/1/15	-	-

TEST DATA

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PROJECT

GCP89 - NORTHWESTERN LOOP
HIGH PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN NTS
PROFILE
HOR. -
VERT. -

Greenville Utilities

DISTRICT	COUNTY	STATE
-	PITT	NORTH CAROLINA

SHEET DESCRIPTION
EROSION AND SEDIMENT CONTROL DETAILS

SHEET: ES-2 REVISION: 0

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

(CE–_) CE–1, CE–3, CE–4, CE–6

(DENR 6.06)

CONSTRUCTION SPECIFICATIONS

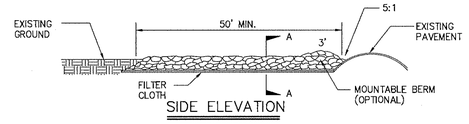
1. THE AREA OF THE ENTRANCE MUST BE EXCAVATED A MINIMUM OF 3 INCHES AND MUST BE CLEARED OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. THE FILTER FABRIC UNDERLINER WILL THEN BE PLACED THE FULL WIDTH AND LENGTH OF THE ENTRANCE.

2. FOLLOWING THE INSTALLATION OF THE FILTER CLOTH, THE STONE SHALL BE PLACED TO THE SPECIFIED DIMENSIONS. IF WASH RACKS ARE USED, THEY SHOULD BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. ANY DRAINAGE FACILITIES REQUIRED BECAUSE OF WASHING SHOULD BE CONSTRUCTED ACCORDING TO SPECIFICATIONS. CONVEYANCE OF SURFACE WATER UNDER ENTRANCE, THROUGH CULVERTS, SHALL BE PROVIDED AS REQUIRED. IF SUCH CONVEYANCE IS IMPOSSIBLE, THE CONSTRUCTION OF A "MOUNTABLE" BERM WITH 5:1 SLOPES WILL BE PERMITTED.

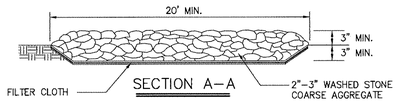
3. THE FILTER CLOTH UTILIZED SHALL BE A WOVEN OR NONWOVEN FABRIC CONSISTING ONLY OF CONTINUOUS CHAIN POLYMERIC FILAMENTS OR YARNS OF POLYESTER. THE FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS AND BE MILDEW AND ROT RESISTANT.

MAINTENANCE

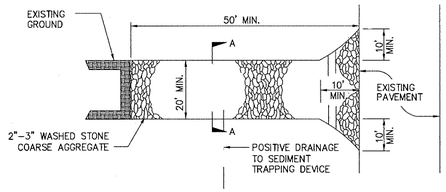
THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWASHING OF EXISTING STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED, WASHED, OR TRACKED ONTO ROADS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES. ALL STONE SHALL BE REMOVED FROM THE ROAD SURFACE IMMEDIATELY.



SIDE ELEVATION



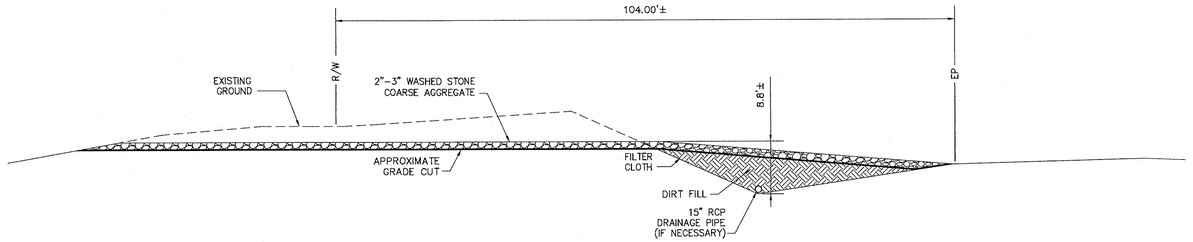
SECTION A–A



PLAN VIEW

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

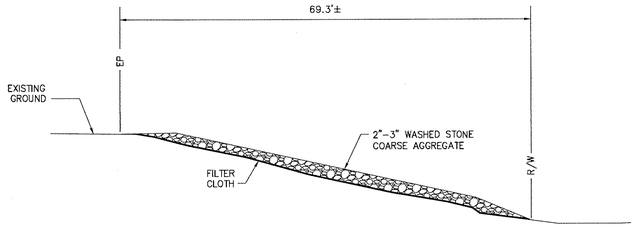
CE–2



SIDE ELEVATION

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

CE–5



SIDE ELEVATION

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

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	PERMITS		BID		CONSTRUCTION	
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DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

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PROJECT

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HIGH PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

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SCALE
PLAN NTS
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VERT. –

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

EROSION AND SEDIMENT CONTROL DETAILS

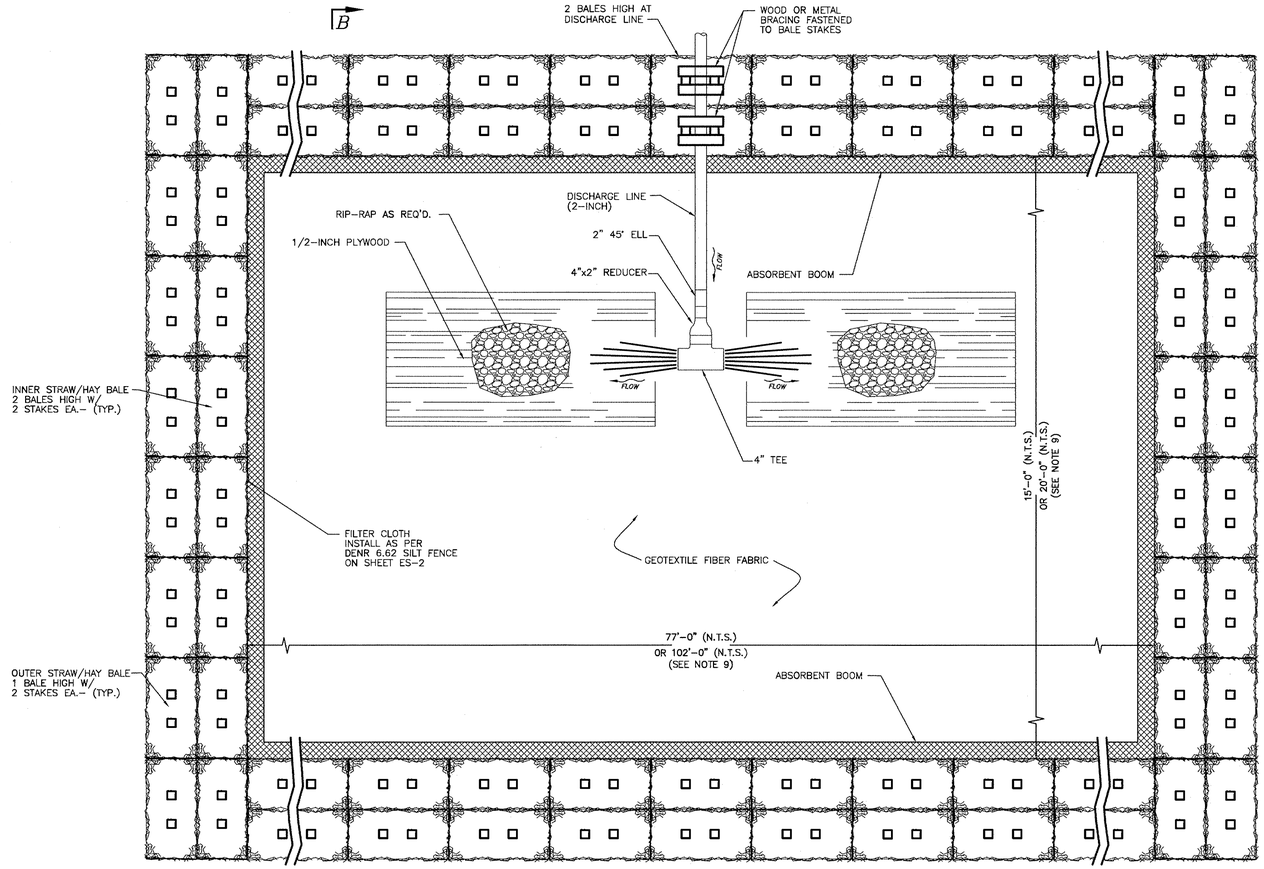
SHEET: ES–3

REVISION: 0

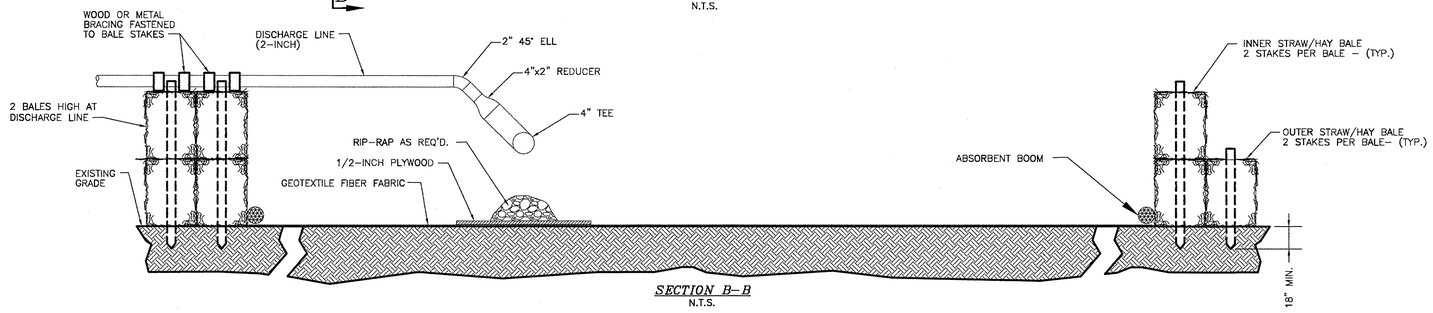
DEWATERING STRUCTURE (DS2)

CONSTRUCTION SPECIFICATIONS

1. BALES SHALL BE PLACED WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.
2. ALL BALES SHALL BE EITHER WIRE–BOUND OR STRING–TIED. HAY BALES SHALL BE INSTALLED SO THAT BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES IN ORDER TO PREVENT DETERIORATION OF THE BINDINGS.
3. GAPS BETWEEN BALES SHALL BE CHINKED (FILLED BY WEDGING) WITH HAY.
4. EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST TWO STAKES (MINIMUM DIMENSIONS 2 INCHES x 2 INCHES x 60 INCHES) OR STANDARD "T" OR "U" STEEL POSTS (MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT AND SHALL HAVE A MINIMUM LENGTH OF 5 FEET) DRIVEN THROUGH THE BALE. THE FIRST STAKE OR STEEL POST IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER. STAKES OR STEEL PICKETS SHALL BE DRIVEN A MINIMUM 8 INCHES DEEP INTO THE GROUND TO SECURELY ANCHOR THE BALES.
5. A FENCE MADE OF CHICKEN WIRE SHALL BE WRAPPED AROUND THE OUTSIDE OF THE HAY BALES TO STABILIZE THE FILTRATION POND.
6. THE HAY BALES SHALL BE WATCHED CLOSELY DURING THE DEWATERING PROCESS.
7. FOLLOWING COMPLETION OF THE DEWATERING PROCESS THE SITE SHALL BE RESTORED TO PRE–EXISTING CONDITIONS.
8. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE STRAW BALE BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.
9. DIMENSIONS SHOWN ALLOW FOR DEWATERING STRUCTURE TO FIT WITHIN EASEMENT AND AVOID INTERFERING WITH POWER POLES WHERE SHOWN ON PLANS SHEET A–13. A 15–FOOT WIDTH WOULD REQUIRE APPROXIMATELY 102 FEET OF LENGTH. A 20–FOOT WIDTH WOULD REQUIRE APPROXIMATELY 77 FEET OF LENGTH.



PLAN VIEW
N.T.S.



SECTION B–B
N.T.S.

SIZING NOTES:

1. THE DIMENSIONS SHOWN ARE FOR PIPELINE DEWATERING STRUCTURE DS–2 SHOWN ON PLAN SHEET A–13. THE SIZING WILL ALLOW DS–2 TO HOLD 25,175 GALLONS ± OF WATER FOLLOWING THE HYDROSTATIC TEST; FIT WITHIN THE EASEMENT AND AVOID INTERFERENCE WITH POWER POLES AND GUY WIRES. A 15 FOOT WIDTH WOULD REQUIRE APPROXIMATELY 102 FEET OF LENGTH. A 20 FOOT WIDTH WOULD REQUIRE APPROXIMATELY 77 FEET OF LENGTH.
2. DEWATERING STRUCTURE DS–1 SHOWN ON PLAN A–6A WILL ONLY HAVE TO HOLD 400 GALLONS OR 53 CUBIC FEET OF WATER. AN APPROXIMATELY 5 FOOT BY 10 FOOT DEWATERING STRUCTURE IS ALL THAT IS REQUIRED AT THIS LOCATION.

6/11/15
NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. ROGERS

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

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Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

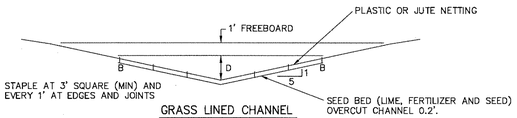
EROSION AND SEDIMENT CONTROL DETAILS

SHEET: ES–4 | REVISION: 0

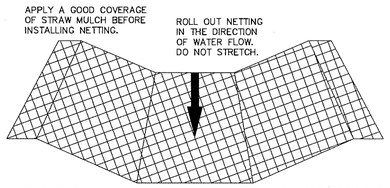
GRASS LINED CHANNEL DETAILS (DENR 6.30)

(GM)

FOR CHANNELS OF 2% TO 5% SLOPE



GRASS LINED CHANNEL



NOTES

PROTECT ALL CONCENTRATED INFLOW POINTS ALONG CHANNEL BY INSTALLING A TEMPORARY LINER, RIPRAP, SOD, OR OTHER APPROPRIATE MEASURES.

VEGETATE THE CHANNEL IMMEDIATELY AFTER GRADING. SMOOTH SLOPES FACILITATE MAINTENANCE.

PROTECT SEEDING WITH WELL-ANCHORED MULCH OR A TEMPORARY LINER.

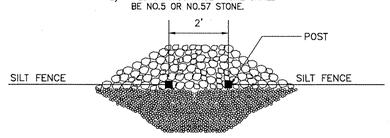
INSTALL SOD INSTEAD OF SEEDING IN CRITICAL AREAS, PARTICULARLY WHERE SLOPES APPROACH 5%

ANCHOR NETTING OR MATTING IN A 6 INCH TRENCH AT UPPER AND OF CHANNEL. COMPACT SOIL FIRMLY STAPLE EVERY 1 FEET JUST BELOW ANCHOR SLOT.

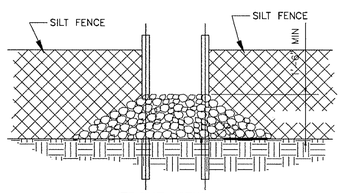
STONE OUTLET

1) STRUCTURAL STONE SHALL BE (CLASS "B") STONE FOR EROSION CONTROL PURPOSES.

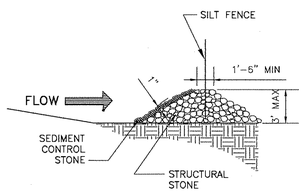
2) SEDIMENT CONTROL STONE SHALL BE NO.5 OR NO.57 STONE.



TOP VIEW



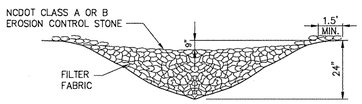
FRONT VIEW



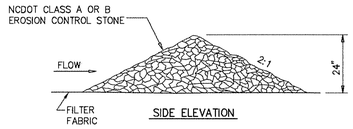
CROSS SECTION

CHECK DAM

(CD)

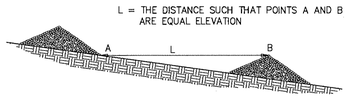


FRONT ELEVATION



SIDE ELEVATION

ROCK CHECK DAM



SPACING BETWEEN CHECK DAMS

CONSTRUCTION SPECIFICATIONS

1. PLACE STONE TO THE LINES AND DIMENSIONS SHOWN IN THE PLAN ON A FILTER FABRIC FOUNDATION.
2. KEEP THE CENTER STONE SECTION AT LEAST 9 INCHES BELOW NATURAL GROUND LEVEL WHERE THE DAM ABUTS THE CHANNEL BANKS.
3. EXTEND STONE AT LEAST 1.5 FT. BEYOND THE DITCH BANKS TO KEEP OVERFLOW WATER FROM UNDERCUTTING THE DAM AS IT RE-ENTERS THE CHANNEL.
4. SET SPACING BETWEEN DAMS TO ASSURE THAT THE ELEVATION AT THE TOP OF THE LOWER DAM IS THE SAME AS THE TOE ELEVATION OF THE UPPER DAM.
5. PROTECT THE CHANNEL DOWNSTREAM FROM THE LOWEST CHECK DAM, CONSIDERING THAT WATER WILL FLOW OVER AND AROUND THE DAM.
6. MAKE SURE THAT THE CHANNEL REACH ABOVE THE MOST UPSTREAM DAM IS STABLE.
7. ENSURE THAT CHANNEL APPURTENANCES, SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS, ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

MAINTENANCE

1. INSPECT CHECK DAMS AND CHANNELS FOR DAMAGE AFTER EACH RUNOFF EVENT.
2. ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, INSTALL A PROTECTIVE RIPRAP LINER IN THAT PORTION OF THE CHANNEL.
3. REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION, ALLOW THE CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM, AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM. ADD STONES TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.

RIGHT OF WAY DIVERSIONS/WATER BARS (DENR 6.23)

(WB)

DEFINITION:
A RIDGE OR RIDGE AND CHANNEL CONSTRUCTED DIAGONALLY ACROSS A SLOPING ROAD OR UTILITY RIGHT-OF-WAY THAT IS SUBJECT TO EROSION.

PURPOSE:
TO LIMIT THE ACCUMULATION OF EROSIVE VOLUMES OF WATER BY DIVERTING SURFACE RUNOFF AT PREDESIGNED INTERVALS.

CONDITIONS WHERE PRACTICE APPLIES:
WHERE RUNOFF PROTECTION IS NEEDED TO PREVENT EROSION ON SLOPING ACCESS RIGHTS-OF-WAY OR OTHER LONG, NARROW SLOPING AREAS GENERALLY LESS THAN 100 FEET IN WIDTH.

PLANNING CONSIDERATIONS:
CONSTRUCTION OF ACCESS ROADS, POWER LINES, PIPELINES, AND OTHER SIMILAR INSTALLATIONS OFTEN REQUIRES CLEARING LONG NARROW RIGHTS-OF-WAY OVER SLOPING TERRAIN (FIGURE 6.23A). DISTURBANCE AND COMPACTION PROMOTES GULLY FORMATION IN THESE CLEARED STRIPS BY INCREASING THE VOLUME AND VELOCITY OF RUNOFF. GULLY FORMATION MAY BE ESPECIALLY SEVERE IN TIRE TRACKS AND RUTS. TO PREVENT GULLYING, RUNOFF CAN OFTEN BE DIVERTED ACROSS THE WIDTH OF THE RIGHT-OF-WAY TO UNDISTURBED AREAS BY USING SMALL PREDESIGNED DIVERSIONS. GIVE SPECIAL CONSIDERATION TO EACH INDIVIDUAL OUTLET AREA, AS WELL AS TO THE CUMULATIVE EFFECT OF ADDED DIVERSIONS. USE GRAVEL TO STABILIZE THE DIVERSION WHERE SIGNIFICANT VEHICULAR TRAFFIC IS ANTICIPATED.

DESIGN CRITERIA:
HEIGHT:
18-INCH MINIMUM MEASURED FROM THE CHANNEL BOTTOM TO THE RIDGE TOP.
SIDE SLOPE:
2:1 OR FLATTER
3:1 OR FLATTER WHERE VEHICLES CROSSBASE
WIDTH OF RIDGE:
6 FEET MINIMUM (FIGURE 6.23B). SPACING OF WATER BARS IS SHOWN IN TABLE 6.23a.

TABLE 6.23a:
SPACING OF WATER BARS ON RIGHT-OF-WAY LESS THAN 100 FT WIDE

SLOPE (%)	SPACING (FT)
<5	125
5 TO 10	100
10 TO 20	75
20 TO 35	50
>35	25

GRADE AND ANGLE:
A CROSSING ANGLE SHOULD BE SELECTED TO PROVIDE A POSITIVE GRADE NOT TO EXCEED 2%

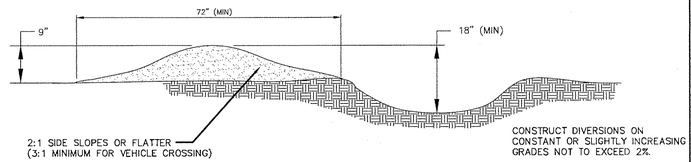
OUTLET:
DIVERSIONS SHOULD HAVE STABLE OUTLETS, EITHER NATURAL OR CONSTRUCTED. SITE SPACING MAY NEED TO BE ADJUSTED FOR FIELD CONDITIONS TO USE THE MOST SUITABLE AREAS FOR WATER DISPOSAL.

CONSTRUCTION SPECIFICATIONS:
1. INSTALL THE DIVERSION AS SOON AS THE RIGHT-OF-WAY HAS BEEN CLEARED AND GRADED.
2. DISK THE BASE FOR THE CONSTRUCTED RIDGE BEFORE PLACING FILL.
3. TRACK THE RIDGE TO COMPACT IT TO THE DESIGN CROSS SECTION.
4. LOCATE THE OUTLET ON AN UNDISTURBED AREA. ADJUST FIELD SPACING OF THE DIVERSION TO USE THE MOST STABLE OUTLET AREAS. WHEN NATURAL AREAS ARE NOT DEEMED SATISFACTORY, PROVIDE OUTLET PROTECTION (PRACTICES 6.40, LEVEL SPREADER, AND 6.41, OUTLET STABILIZATION STRUCTURE).
5. IMMEDIATELY SEED AND MULCH THE PORTIONS OF THE DIVERSIONS NOT SUBJECT TO CONSTRUCTION TRAFFIC. STABILIZE WITH GRAVEL AREAS TO BE CROSSED BY VEHICLES.

MAINTENANCE:
PERIODICALLY INSPECT RIGHT-OF-WAY DIVERSIONS FOR WEAR AND AFTER EVERY HEAVY RAINFALL FOR EROSION DAMAGE. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA, AND REPAIR THE DIKE. CHECK OUTLET AREAS, AND MAKE TIMELY REPAIRS AS NEEDED. WHEN PERMANENT ROAD DRAINAGE IS ESTABLISHED AND THE AREA ABOVE THE TEMPORARY RIGHT-OF-WAY DIVERSIONS IS PERMANENTLY STABILIZED, REMOVE THE DIKE, AND FILL THE CHANNEL TO BLEND WITH THE NATURAL GROUND, AND APPROPRIATELY STABILIZE THE DISTURBED AREA.

REFERENCES:
OUTLET PROTECTION:
6.40, LEVEL SPREADER
6.41, OUTLET STABILIZATION STRUCTURE

APPENDIX
8.03, ESTIMATING RUNOFF



NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. ROGERS 6/1/15

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN - RK&K	CSY	5/21	CSY	5/1/15	--	--
ENGINEERING - RK&K	MCR	5/21	MCR	5/1/15	--	--

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 - NORTHWESTERN LOOP
HIGH PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST., SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
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PROFILE
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VERT. --

Greenville Utilities

DISTRICT	COUNTY	STATE
--	PITT	NORTH CAROLINA

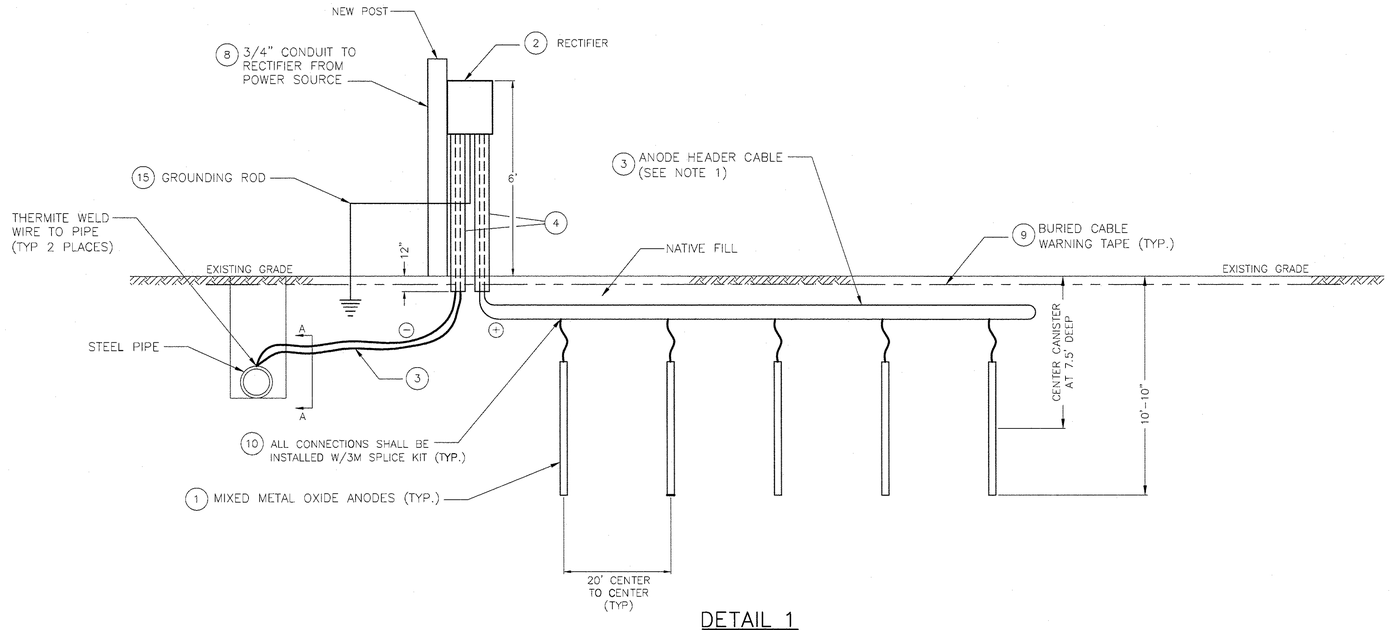
SHEET DESCRIPTION

EROSION AND SEDIMENT CONTROL DETAILS

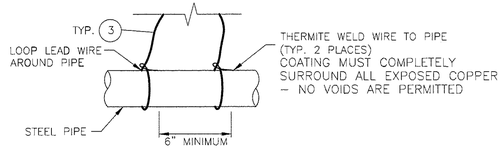
SHEET: ES-5

REVISION: 0

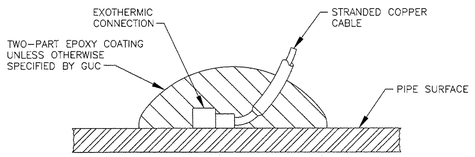
ITEM NO.	QUANTITY	DESCRIPTION
1	5	LIDA PACK CANISTER MIXED METAL OXIDE ANODES. MODEL# LP 3 x 80 H.
2	1	25V – 10A RECTIFIER – UNIVERSAL RECTIFIERS PART NO: ASAI–25–10–AACR
3	600± FEET	#4 AWG HMWPE CABLE
4	8 FEET	UV RESISTANT 2–INCH PVC CONDUIT
5	6	THERMITE WELD MOLD, CADWELD FLAT MOLD FOR #4 WIRE
6	6	THERMITE WELD MOLD, CADWELD 15g CHARGE
7	6	THERMITE WELD COATING REPAIR, ROYSTON HANDY CAP IP
8	5 FEET	3/4" FLEXIBLE LIQUIDTIGHT CONDUIT FOR RECTIFIER CABLES
9	300± FEET	CABLE MARKING TAPE
10	5	SCOTCHCAST WYE RESIN SPLICE KIT MODEL: 90–B1
11	100 FEET	#12 AWG THIN INSULATED SOLID COPPER WIRE (BLACK)
12	3	STANDARD TEST STATION COTT MODEL: COTT–BFTS
13	2	17 LB MAGNESIUM ANODE
14	XX FEET (TBD)	#3 AWG TWHN WIRE
15	1	3/4" X 6' GROUND ROD



DETAIL 1
ANODE INSTALLATION

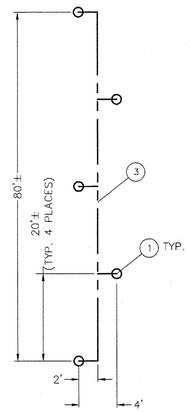


A – A
(TYP. 2 PLACES)



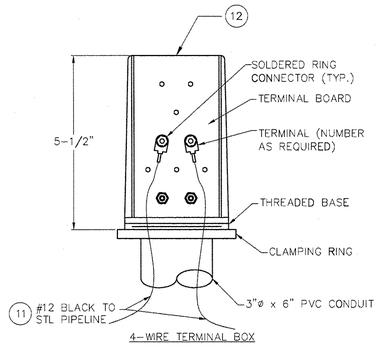
NOTES:
1. METAL SURFACE TO BE DRY AND FREE OF ALL FOREIGN MATERIAL.
2. CONNECTION AND EXPOSED METAL TO HAVE 1/2" INSULATION.

THERMITE WELD DETAIL
N.T.S.

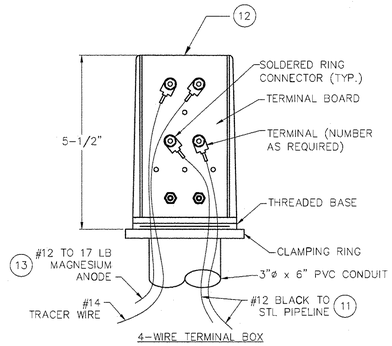


DETAIL 1
PLAN VIEW

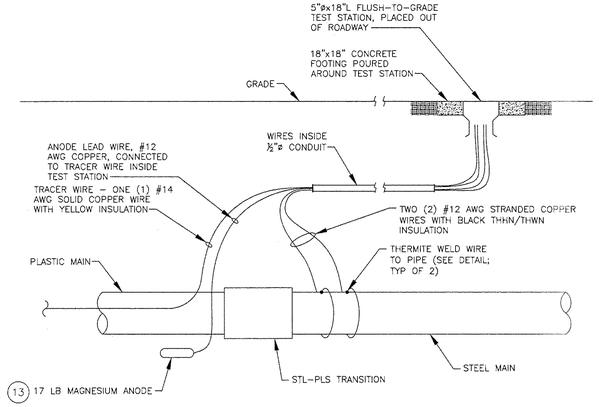
NOTES:
1. ALL BURIED CABLES AND WIRES SHALL HAVE 30" MINIMUM GROUND COVER AND WARNING TAPE INSTALLED 4–8" BELOW GRADE.



DETAIL 2
STANDARD TEST STATION



DETAIL 3
TRANSITION TEST STATION



NOTES:
1. LOCATE TEST STATION DIRECTLY OVER PIPING IF PIPING IS OUT OF TRAFFIC LANE
2. EXTEND TRACER WIRE INTO TEST STATION AS SHOWN; DO NOT CONNECT TO STEEL MAIN.

DETAIL – TRANSITION TEST STATION, FLUSH MOUNT, W/ 17 LB ANODE – PROFILE VIEW
N.T.S.

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

1. SEE SPECIFICATIONS BY RK&K.
2. THE ANODE GROUND BED AND RECTIFIER SHALL BE LOCATED PER PLAN ABOVE.
3. ALL BURIED CABLES AND WIRES SHALL HAVE 30" MINIMUM GROUND COVER AND WARNING TAPE INSTALLED 4–8" BELOW GRADE.

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	JAS	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	DAW	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP HIGH–PRESSURE GAS MAIN EXTENSION GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214–011

SCALE
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Greenville Utilities

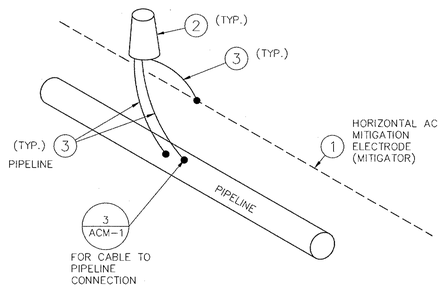
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

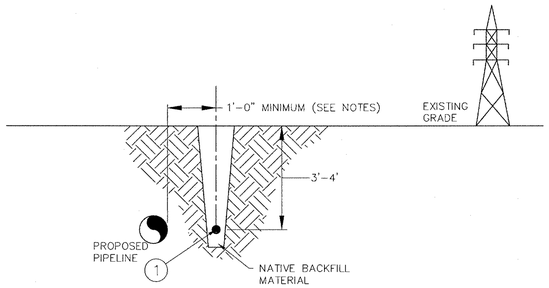
CATHODIC PROTECTION DETAILS AND BILL OF MATERIALS

SHEET: CP–1

REVISION: 0



1 ACM-1 **INSTALLATION DETAIL** (SINGLE WIRE)

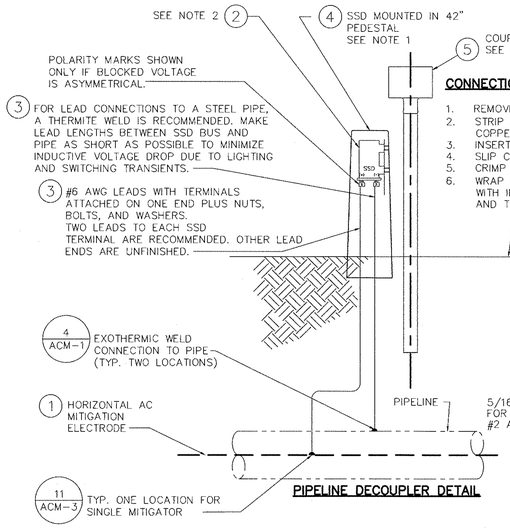


2 ACM-1 **CROSS-SECTION DETAIL** (SINGLE WIRE DETAIL)

WIRE PLACEMENT/INSTALLATION DETAIL

NOTES:

1. ENSURE THAT THE CONNECTION TO THE PIPELINE IS MADE ONLY AFTER ALL GROUNDING INSTALLATION IS COMPLETE.
2. HORIZONTAL AC MITIGATION ELECTRODE MUST NOT TOUCH PIPE, MINIMUM 1' SEPARATION.
3. SEE INDIVIDUAL SHEETS FOR DECOUPLER SPACING REQUIREMENTS.
4. INSTALL MITIGATION WIRES AT A DEPTH OF 3-4 FEET DEEP.



PIPELINE DECOUPLER DETAIL

CABLE TO SSD TERMINAL CONNECTION DETAIL

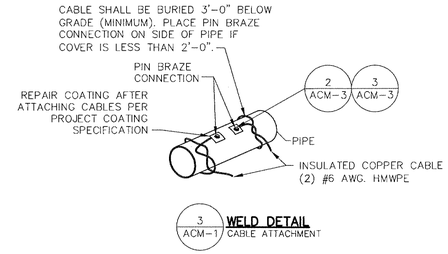
6 ACM-1 DECOUPLER TO PIPELINE DETAIL

CONNECTION PROCEDURE FROM SSD LEAD TO MITIGATOR:

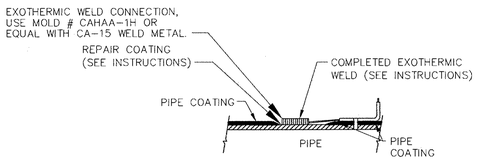
1. REMOVE 3" OF BACKFILL AND SOCK FROM COPPER CORE OF MITIGATOR.
2. STRIP 3 1/2" OF INSULATION FROM INSULATED COPPER CABLE WITHOUT BREAKING COPPER STRANDS.
3. INSERT COPPER COMPRESSION CONNECTOR INTO JAWS OF INSTALLATION TOOL.
4. SLIP CONNECTOR OVER BOTH COPPER CORE AND COPPER CABLE.
5. CRIMP USING RECOMMENDED PROCEDURE WITH INSTALLATION TOOL.
6. WRAP ENTIRE COMPLETED CONNECTION, INCLUDING 1" OF MITIGATOR (EACH END) WITH INSULATED SPLICE KIT OR TWO HALF-LAPPED LAYERS OF RUBBER TAPE AND TWO HALF-LAPPED LAYERS OF PLASTIC TAPE.

NOTES

1. MECHANICAL CONNECTION TO MITIGATION WIRE. CRIMP A "STAYCON" TYPE TERMINAL/ LUG TO THE ENDS OF CABLES, LUGS ARE BOLTED TO SECURE CONNECTION.
2. DECOUPLER CAN BE MOUNTED IN 42" FIBERGLASS PEDESTAL FREE STANDING ENCLOSURE IF REQUIRED.
3. TERMINAL ADAPTER PLATE TO BE USED ONLY WHEN THREE (3) OR MORE LUGS TO THE POSITIVE TERMINAL ARE REQUIRED.
4. COUPON TEST STATION AT OWNER'S DISCRETION.



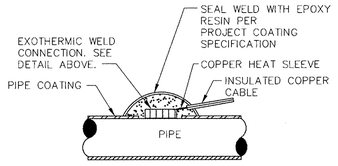
3 ACM-1 **WELD DETAIL** CABLE ATTACHMENT



4 ACM-1 **EXOTHERMIC WELD CONNECTION**

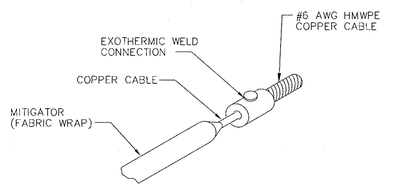
INSTALLATION INSTRUCTIONS

1. REMOVE A MAXIMUM OF 1.57" X 1.57" OF COATING, WIRE, BRUSH CLEAN AND FILE BRIGHT.
2. STRIP CABLE INSULATION BARE 1" AND CLAMP.
3. USE THE CHARGE RECOMMENDED BY THE EXOTHERMIC WELD MANUFACTURER.
4. PLACE METAL RETAINER DISK FLAT IN MOLD, DUMP (DO NOT POUR) POWDER ONTO DISK AND CLOSE MOLD LID. MAKE SURE ALL FINE STARTING POWDER IS IN THE MOLD. IF ANY CLINGS TO BOTTOM OF CARTRIDGE, SQUEEZE OUT INTO MOLD AND BREAK UP FINE.
5. REPLACE EMPTY CARTRIDGE IN THE BOX, GREEN END UP TO KEEP REMAINING CARTRIDGES UPRIGHT.
6. LAY CABLE ON BRIGHT PIPE SURFACE USING SPRING LOADED CHAIN CLAMP TO HOLD CRUCIBLE TIGHT, REMOVE HAND COMPLETELY AWAY FROM TOOL.
7. USING EYE PROTECTION, STAND ON OPPOSITE SIDE OF CRUCIBLE FROM TOUCH HOLE AND IGNITE POWDER WITH SPARK FROM FLINT GUN. USE CARE, POWDER WILL FLASH WHEN IGNITED.
8. WHEN WELD HAS SET, REMOVE MOLD AND TEST EXOTHERMIC WELD CONNECTION BY RAPPING SHARPLY WITH HAMMER. IN THE EVENT THERE IS ANY INDICATION THAT A COMPLETE WELD HAS NOT BEEN ACHIEVED, THE WELD SHALL BE REMOVED AND REPLACED WITH A PROPER WELD.
9. CLEAN SLAG FROM WELD AND PIPE.
10. ALL COATING DAMAGE SHALL BE REPAIRED USING THE PATCHING PROCEDURE AND MATERIALS AS SPECIFIED IN PROJECT COATING SPECIFICATIONS.

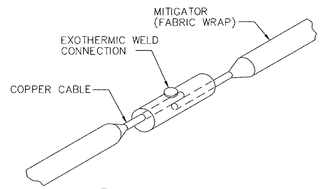


5 ACM-1 **CORROSION PROTECTION SEAL**

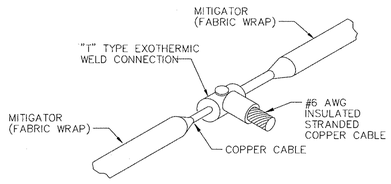
EXOTHERMIC WELD CONNECTION DETAILS



7 ACM-1 **MITIGATION ELECTRODE TO #6 AWG STRANDED COPPER CABLE CADWELD INSTALLATION**



8 ACM-1 **MITIGATION ELECTRODE TO MITIGATION ELECTRODE IN-LINE CADWELD INSTALLATION**



9 ACM-1 **MITIGATION ELECTRODE TO #6 AWG COPPER CABLE "T" CONNECTION**

NOTES:

1. ALL EXOTHERMIC WELD CONNECTIONS ARE TO BE SEALED WITH ROYSTON "SPLICE RIGHT" SPLICE KIT, OR CLIENT APPROVED ALTERNATIVE.
2. FOR ALL T-SPLICE CONNECTIONS, USE A NONMETALLIC SPLINT TO REINFORCE WELD FOR ADDED SUPPORT. WRAP DUCT TAPE AROUND SPLINT AND COPPER CABLE TO HOLD IN PLACE.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. RODGERS 6/1/15

MITIGATOR SPLICE DETAILS

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	JAS	5/21	CSY	5/1/15	–	–
ENGINEERING – RK&K	DAW	5/21	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
RK&K COMM. NO. 1214-011

SCALE
PLAN N.T.S.
PROFILE
HOR. N.T.S.
VERT. N.T.S.

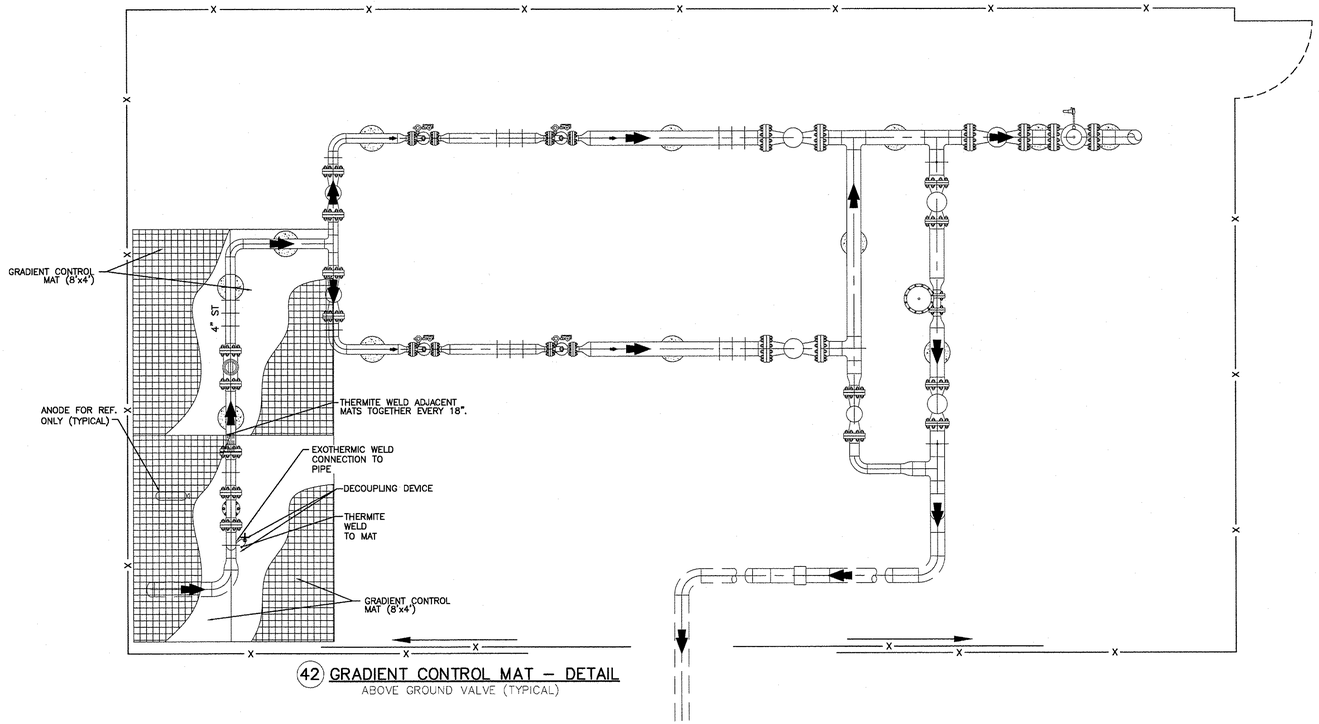
Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

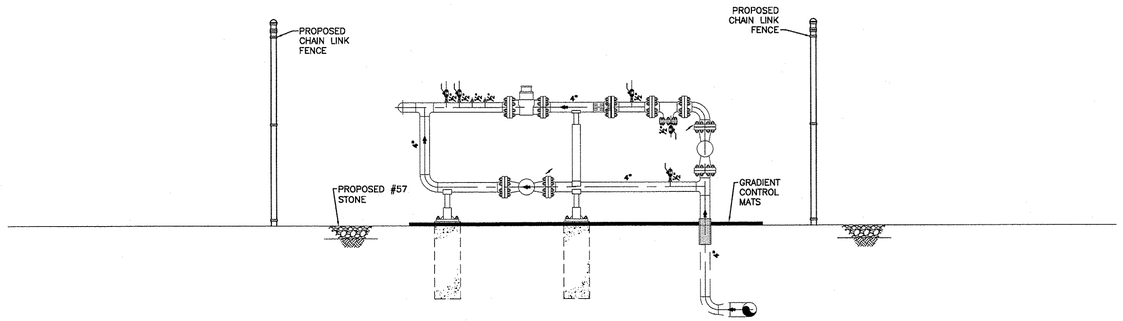
SHEET DESCRIPTION

AC MITIGATION DETAILS

SHEET: ACM-1 REVISION: 0



42 GRADIENT CONTROL MAT – DETAIL
ABOVE GROUND VALVE (TYPICAL)



42 GRADIENT CONTROL MAT – DETAIL
REGULATOR STATION (TYPICAL)

10 ACM–2 INSTALLATION OF GRADIENT CONTROL MAT AT ABOVE GROUND REGULATOR STATIONS

PIPING LEGEND

- PROPOSED GAS PIPE ABOVE GRADE (DOUBLE LINE)
- PROPOSED GAS PIPE BELOW GRADE (DOUBLE LINE)
- INSULATING FLANGE LOCATION
- FLOW ARROW

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	JAS	5/21	CSY	5/1/15	–	–
ENGINEERING – RK&K	DAW	5/21	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP HIGH–PRESSURE GAS MAIN EXTENSION GREENVILLE, NC

ALIGNMENT SHEET

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HOR. N.T.S.
VERT. N.T.S.

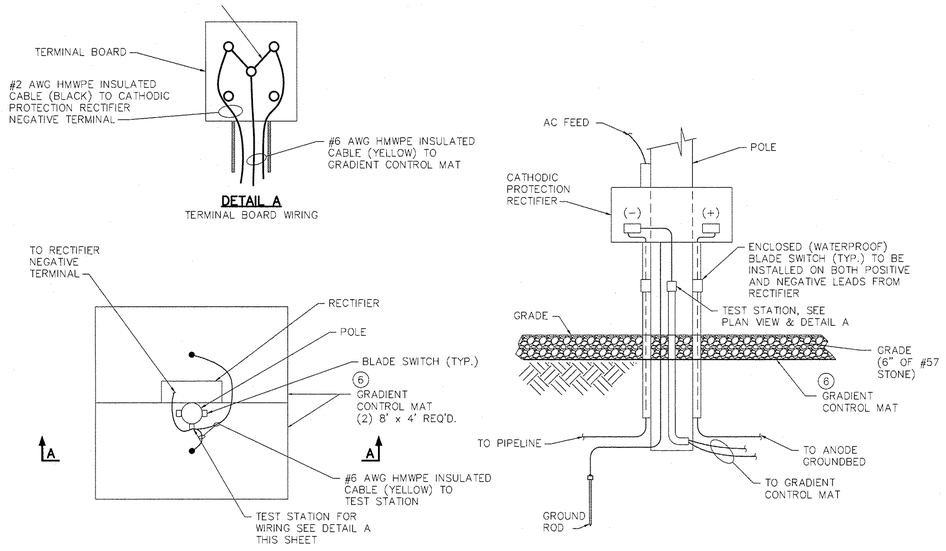
Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

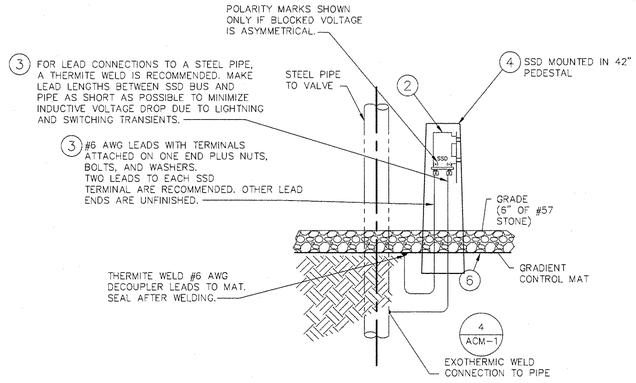
SHEET DESCRIPTION

AC MITIGATION DETAILS

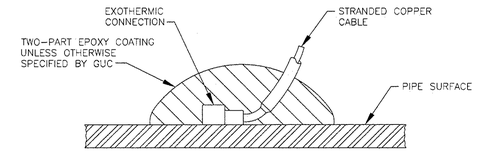
SHEET: ACM–2 REVISION: 0



11 ACM-3 INSTALLATION OF GRADIENT CONTROL MAT AT CATHODIC PROTECTION RECTIFIERS

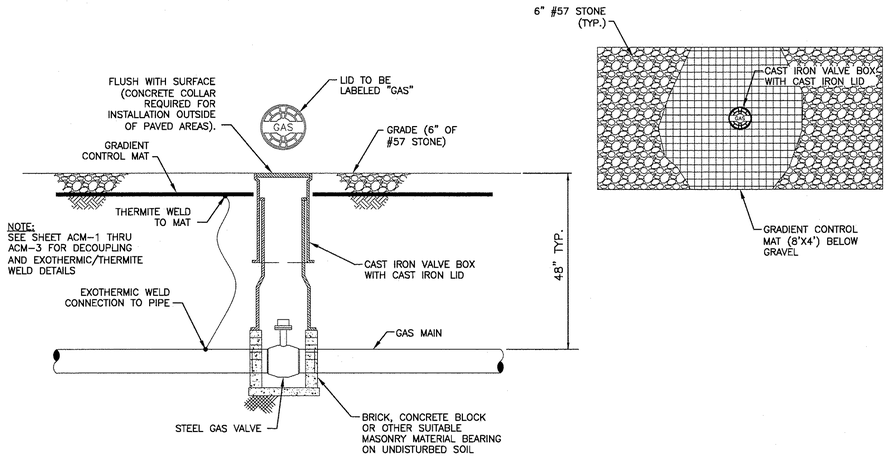


12 ACM-3 ABOVE GROUND APPURTENANCE DECOUPLER DETAIL WITH GRADIENT CONTROL MAT



NOTES:
1. METAL SURFACE TO BE DRY AND FREE OF ALL FOREIGN MATERIAL.
2. CONNECTION AND EXPOSED METAL TO HAVE 1/2" INSULATION.

THERMITE WELD DETAIL
N.T.S.



13 ACM-3 GROUNDED STEEL GAS VALVE INSTALLATION

ITEM NO.	TITLE	QTY	DESCRIPTION
1	GROUND ELECTRODE	1,900'	MATCOR MITIGATOR, 1.5" DIAMETER, 1.1 LBS/FT
2	SSD DECOUPLER	8	DEI MODEL # SSD-2/2-2.0-100-R STANDARD, STANDARD TERMINAL ARRANGEMENT, AC FAULT CURRENT RATING 2.0 kA (50/60 HZ) BLOCKING VOLTAGE -2.0V/+2V, LIGHTNING CURRENT RATING 100 kA. MAY BE MOUNTED IN 42" FIBERGLASS PEDESTAL.
3	DECOUPLER LEAD	SEE NOTE 1	#6 AWG HMWPE CABLE LEADS WITH COMPRESSION TERMINALS.
4	FIBERGLASS PEDESTAL	8	DEI, 42" FIBERGLASS FREE STANDING PEDESTAL, 3/16" FIBERGLASS THICKNESS, 14 MIL THICK UV STABILIZED GELCOAT, OR APPROVED EQUAL.
5	COUPON TEST STATION	TBD	COTT ZAPGARD TEST STATION AND AC CORROSION COUPON W/TWIN THHN WIRES (MCMILLER COU075 FAMILY) OR EQUAL.
6	GRADIENT CONTROL MAT	15	DEI MODEL GMC 4-8 (4'X8'), 3"X3" GRID SQUARES, .135 DIA STEEL WIRE (OR OWNER APPROVED EQUAL).

NOTES:

1. THREE DECOUPLER LEADS PER SSD FOR SINGLE MITIGATION WIRE INSTALLATIONS.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. RODGERS 1/15

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN - RK&K	JAS	5/21	CSY	6/1/15	-	-
ENGINEERING - RK&K	DAW	5/21	MCR	6/1/15	-	-

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 - NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP 2100 E. CARY ST. SUITE 309 RICHMOND, VIRGINIA 23223 T-804.782.1923 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
RK&K COMM. NO. 1214-011

SCALE
PLAN N.T.S.
PROFILE
HOR. N.T.S.
VERT. N.T.S.

Greenville Utilities

DISTRICT	COUNTY	STATE
--	PITT	NORTH CAROLINA

SHEET DESCRIPTION

AC MITIGATION DETAILS AND BILL OF MATERIALS

SHEET: ACM-3 REVISION: 0

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-1

DATE DRILLED: 7/8/14 | ELEVATION: 28.0 ft
DRILL RIG: CME 550 | BORING DEPTH: 50.0 ft
DRILLER: J. White | WATER LEVEL: 16.5 ft @ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 694465 | EASTING: 2469110
DRILLING METHOD: Wash Boring

NOTES: Temporary PVC standpipe installed to 50.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA 1st 6in / RUN	2nd 6in / REC	3rd 6in / RQD	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS 10 20 30 60 80	N VALUE
		TOPSOIL – 3 Inches								
5		COASTAL PLAIN: SAND (SP-SM) loose, tan, fine to medium, moist, poorly graded, with silt	23.0	SS-1		3	3	3		6
				SS-2		3	4	5		9
		SAND (SP-SM) loose, tan, fine to medium, moist, poorly graded, with silt		SS-3		5	3	4		7
10		SAND (SP-SM) medium dense, gray tan, fine to medium, moist, poorly graded, with silt	18.0	SS-4		5	9	13		22
15			13.0	SS-5		4	5	5		10
		SAND (SP-SM) loose, tan, fine to medium, wet, poorly gaded, with silt		SS-6		60	70	3		5
20			8.0							
25		SAND (SP-SM) medium dense, gray tan, fine to medium, wet, poorly graded, with silt		SS-7		5	5	5		10
			3.0							
30				SS-8		5	7	5		12
		SAND (SP) medium dense, orange brown, fine to medium, wet, poorly graded	-2.0	SS-9		4	4	7		11

SAME BORING LOG 1358-14-033 US 264 HDD CROSSING OF TAR RIVER.GPJ SAME.GDT 7/29/14

NOTES:
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-1

DATE DRILLED: 7/8/14 | ELEVATION: 28.0 ft
DRILL RIG: CME 550 | BORING DEPTH: 50.0 ft
DRILLER: J. White | WATER LEVEL: 16.5 ft @ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 694465 | EASTING: 2469110
DRILLING METHOD: Wash Boring

NOTES: Temporary PVC standpipe installed to 50.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA 1st 6in / RUN	2nd 6in / REC	3rd 6in / RQD	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS 10 20 30 60 80	N VALUE
40		SILTY SAND (SM) medium dense, gray, fine to coorse, wet	-12.0	SS-10		6	7	10		17
45			-17.0	SS-11		9	9	10		19
50		Boring terminated at 50 ft	-22.0	SS-12		11	9	13		22

SAME BORING LOG 1358-14-033 US 264 HDD CROSSING OF TAR RIVER.GPJ SAME.GDT 7/29/14

NOTES:
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-2

DATE DRILLED: 7/2/14 | ELEVATION: 20.0 ft
DRILL RIG: CME 550 | BORING DEPTH: 50.0 ft
DRILLER: J. White | WATER LEVEL: 2.5 ft @ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 692568 | EASTING: 2468099
DRILLING METHOD: Wash Boring

NOTES: Temporary PVC standpipe installed to 50.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA 1st 6in / RUN	2nd 6in / REC	3rd 6in / RQD	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS 10 20 30 60 80	N VALUE
		TOPSOIL – 4 Inches								
5		COASTAL PLAIN: SILTY SAND (SM) loose, tan, fine to coarse, moist to wet	15.0	SS-1		4	4	4		8
				SS-2		3	3	4		7
				SS-3		3	4	5		9
10			10.0	SS-4		5	5	6		11
		SAND (SP) loose, tan gray, medium to coorse, wet, poorly graded		SS-5		4	3	9		12
15			5.0							
		SILTY SAND (SM) dense, gray tan, fine to medium, wet		SS-6		13	14	21		35
20			0.0							
		CLAYEY SAND (SC) medium dense, gray, fine, wet, with silt and mica		SS-7		4	4	6		10
25			-5.0							
		SANDY SILT (ML) firm to stiff, gray, wet, with mica		SS-8		3	3	5		8
30			-10.0	SS-9		4	3	1		4

SAME BORING LOG 1358-14-033 US 264 HDD CROSSING OF TAR RIVER.GPJ SAME.GDT 7/29/14

NOTES:
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-2

DATE DRILLED: 7/2/14 | ELEVATION: 20.0 ft
DRILL RIG: CME 550 | BORING DEPTH: 50.0 ft
DRILLER: J. White | WATER LEVEL: 2.5 ft @ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 692568 | EASTING: 2468099
DRILLING METHOD: Wash Boring

NOTES: Temporary PVC standpipe installed to 50.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA 1st 6in / RUN	2nd 6in / REC	3rd 6in / RQD	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS 10 20 30 60 80	N VALUE
		SANDY SILT (ML) firm to stiff, gray, wet, with mica (continued)								
40			-20.0	SS-10		4	4	6		10
45			-25.0	SS-11		4	3	6		9
		SILTY SAND (SM) dense, gray, fine, with cloy								
50		Boring terminated at 50 ft	-30.0	SS-12		11	14	19		33

SAME BORING LOG 1358-14-033 US 264 HDD CROSSING OF TAR RIVER.GPJ SAME.GDT 7/29/14

NOTES:
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REFER TO GEOTECHNICAL REPORT INCLUDED IN THE PROJECT SPECIFICATIONS FOR COMPLETE GEOTECHNICAL DETAILS.

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN AS NOTED
PROFILE
HOR. –
VERT. –

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

GEOTECHNICAL BORE DATA

SHEET: GT-1 | REVISION: 0

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-3

DATE DRILLED: 7/2/14	ELEVATION: 20.0 ft	NOTES: Temporary PVC standpipe installed to 50.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.
DRILL RIG: CME 550	BORING DEPTH: 50.0 ft	
DRILLER: J. White	WATER LEVEL: 3.7 ft @ 24 hrs	
HAMMER TYPE: Autohammer	LOGGED BY: F. Wright	
SAMPLING METHOD: Split Spoon	NORTHING: 691562	EASTING: 2467566
DRILLING METHOD: Wash Boring		

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT CORE DATA 1st 6in / RUN	2nd 6in / REC	3rd 6in / RQD	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS 10 20 30 60 80	N VALUE
0		TOPSOIL – 4 inches			SS-1		10	10	4		6
		COASTAL PLAIN: CLAYEY SAND (SC) very loose, orange tan, fine, moist, with silt			SS-2		4	4	4		8
5		SILTY SAND (SM) loose, orange tan, fine to medium, moist to wet		15.0	SS-3		1	1	2		3
		SAND (SP-SM) very loose, gray black, fine to medium, wet, poorly graded, with silt			SS-4		2	1	3		4
10				10.0							
		SANDY CLAY (CH) stiff to firm, gray black, wet, fat, with shells			SS-5		4	5	7		12
15				5.0							
					SS-6		3	5	5		10
20				0.0							
					SS-7		3	4	5		9
25				-5.0							
					SS-8		3	4	5		9
30				-10.0							
					SS-9		3	5	5		10

NOTES:
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3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-3

DATE DRILLED: 7/2/14 | ELEVATION: 20.0 ft | NOTES: Temporary PVC standpipe installed to 50.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.
DRILL RIG: CME 550 | BORING DEPTH: 50.0 ft
DRILLER: J. White | WATER LEVEL: 3.7 ft @ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 691562 | EASTING: 2467566
DRILLING METHOD: Wash Boring

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT CORE DATA 1st 6in / RUN	2nd 6in / REC	3rd 6in / RQD	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS 10 20 30 60 80	N VALUE
40		SANDY CLAY (CH) stiff to firm, gray black, wet, fat, with shells (continued)		-20.0	SS-10		3	9	5		14
45		SILTY SAND (SM) medium dense, gray black, fine, wet, with clay		-25.0	SS-11		4	5	8		13
50		Boring terminated at 50 ft		-30.0	SS-12		6	7	9		16

NOTES:
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3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-4

DATE DRILLED: 7/3/14	ELEVATION: 22.0 ft	NOTES: Temporary PVC standpipe installed to 50.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.
DRILL RIG: CME 550	BORING DEPTH: 50.0 ft	
DRILLER: J. White	WATER LEVEL: 2.9 ft @ 24 hrs	
HAMMER TYPE: Autohammer	LOGGED BY: F. Wright	
SAMPLING METHOD: Split Spoon	NORTHING: 690431	EASTING: 2466974
DRILLING METHOD: Wash Boring		

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT CORE DATA 1st 6in / RUN	2nd 6in / REC	3rd 6in / RQD	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS 10 20 30 60 80	N VALUE
0		TOPSOIL – 3 inches			SS-1		3	2	2		4
		COASTAL PLAIN: SANDY CLAY (CH) stiff, gray tan, moist			SS-2		7	6	7		13
5		SAND (SP-SM) medium dense, gray tan, fine to medium, wet, poorly graded, with silt		17.0	SS-3		2	2	4		6
		SILT (MH) firm to stiff, gray black, wet, elastic, with fine sand veins			SS-4		3	4	5		9
10				12.0							
		CLAY (CH) stiff, gray, wet, with sand and shells; with mica			SS-5		3	4	5		9
15				7.0							
					SS-6		3	4	5		9
20				2.0							
		SILTY SAND (SM) loose, gray olive, fine, wet, with clay			SS-7		3	9	5		14
25				-3.0							
		SANDY CLAY (CH) firm, gray, wet, fat			SS-8		3	3	4		7
30				-8.0							
		SILTY SAND (SM) medium dense, gray olive, fine, wet, with clay			SS-9		4	4	7		11

NOTES:
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-4

DATE DRILLED: 7/3/14 | ELEVATION: 22.0 ft | NOTES: Temporary PVC standpipe installed to 50.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.
DRILL RIG: CME 550 | BORING DEPTH: 50.0 ft
DRILLER: J. White | WATER LEVEL: 2.9 ft @ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 690431 | EASTING: 2466974
DRILLING METHOD: Wash Boring

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT CORE DATA 1st 6in / RUN	2nd 6in / REC	3rd 6in / RQD	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS 10 20 30 60 80	N VALUE
40		SILTY SAND (SM) medium dense, gray olive, fine, wet, with clay (continued)		-18.0	SS-10		4	4	5		9
		SANDY CLAY (CH) stiff, gray black, wet, fat, with mica									
45		SILTY SAND (SM) medium dense to loose, gray, fine to medium, wet, with clay		-23.0	SS-11		3	5	8		13
50		Boring terminated at 50 ft		-28.0	SS-12		3	4	5		9

NOTES:
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

SAME BORING LOG 1358-14-033 US 264 HDD CROSSING OF TAR RIVER.GPJ SAMEJOB 7/29/14

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REFER TO GEOTECHNICAL REPORT INCLUDED IN THE PROJECT SPECIFICATIONS FOR COMPLETE GEOTECHNICAL DETAILS.

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RKK RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.3142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN AS NOTED
PROFILE
HOR. –
VERT. –

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

GEOTECHNICAL BORE DATA

SHEET: GT-2 | REVISION: 0

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-5

DATE DRILLED: 7/3/14 | ELEVATION: 71.0 ft
DRILL RIG: CME 550 | BORING DEPTH: 50.0 ft
DRILLER: J. White | WATER LEVEL: 10.6 ft ⏚ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 684340 | EASTING: 2464484
DRILLING METHOD: Wash Boring

NOTES: Temporary PVC standpipe installed to 50.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA 1st 6in / RUN	2nd 6in / REC	3rd 6in / RUN	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS (10 20 30 60 80)	N VALUE
0		TOPSOIL – 4 Inches									
		COASTAL PLAIN: SILTY SAND (SM) loose, gray tan red, fine			SS-1	ru	2	2	3		5
		CLAYEY SAND (SC) medium dense, orange tan, fine to medium, moist, with silt			SS-2		3	4	6		10
		CLAYEY SAND (SC) loose, orange tan, fine, moist to wet, with clay			SS-3	ru	3	4			7
					SS-4	ru	1	2	ru		3
					SS-5		6	3	3		6
		SAND (SP-SW) dense, gray tan, medium to fine, wet, poorly graded, with silt			SS-6		13	16	18		34
		CLAY (CH) firm, gray olive, wet, fat			SS-7		6	4	4		8
					SS-8	ru	1	1	4		5
		SANDY CLAY (CH) soft, gray, wet, with fine sandy seams			SS-9		1	2	ru		4

SAME BORING LOG: 1358-14-033 US 264 HDD CROSSING OF TAR RIVER.GPJ SAME.GDT 7/30/14

NOTES:
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-5

DATE DRILLED: 7/3/14 | ELEVATION: 71.0 ft
DRILL RIG: CME 550 | BORING DEPTH: 50.0 ft
DRILLER: J. White | WATER LEVEL: 10.6 ft ⏚ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 684340 | EASTING: 2464484
DRILLING METHOD: Wash Boring

NOTES: Temporary PVC standpipe installed to 50.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA 1st 6in / RUN	2nd 6in / REC	3rd 6in / RUN	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS (10 20 30 60 80)	N VALUE
40		SANDY CLAY (CH) soft, gray, wet, with fine sandy seams (continued)			SS-10		1	1	3		4
45		SILTY SAND (SM) dense, medium to fine, wet, with shells			SS-11	ru	2	1	3		4
50		Boring terminated at 50 ft			SS-12		16	16	18		34

SAME BORING LOG: 1358-14-033 US 264 HDD CROSSING OF TAR RIVER.GPJ SAME.GDT 7/30/14

NOTES:
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-6

DATE DRILLED: 7/8/14 | ELEVATION: 66.0 ft
DRILL RIG: CME 550 | BORING DEPTH: 50.0 ft
DRILLER: J. White | WATER LEVEL: 9.2 ft ⏚ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 684371 | EASTING: 2464654
DRILLING METHOD: Wash Boring

NOTES: Temporary PVC standpipe installed to 50.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA 1st 6in / RUN	2nd 6in / REC	3rd 6in / RUN	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS (10 20 30 60 80)	N VALUE
0		TOPSOIL – 4 Inches									
		COASTAL PLAIN: CLAYEY SAND (SC) loose to very loose, orange tan red, fine, moist, with silt			SS-1		4	4	4		8
					SS-2		3	4	4		8
		SILTY SAND (SM) very loose, gray tan, fine, moist to wet, with clay			SS-3	ru	ru	ru	ru		4
					SS-4	ru	ru	ru	1		3
					SS-5		1	1	1		2
		SILTY SAND (SM) dense, gray, medium to fine, wet			SS-6		13	15	23		38
		SAND (SP-SW) medium dense, gray, medium to fine, wet, poorly graded, with silt			SS-7		8	10	16		26
		SANDY CLAY (CH) soft to very soft, gray olive, wet, fat			SS-8		2	1	3		4
					SS-9		1	1	1		2

SAME BORING LOG: 1358-14-033 US 264 HDD CROSSING OF TAR RIVER.GPJ SAME.GDT 7/30/14

NOTES:
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-6

DATE DRILLED: 7/8/14 | ELEVATION: 66.0 ft
DRILL RIG: CME 550 | BORING DEPTH: 50.0 ft
DRILLER: J. White | WATER LEVEL: 9.2 ft ⏚ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 684371 | EASTING: 2464654
DRILLING METHOD: Wash Boring

NOTES: Temporary PVC standpipe installed to 50.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA 1st 6in / RUN	2nd 6in / REC	3rd 6in / RUN	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS (10 20 30 60 80)	N VALUE
40		SANDY CLAY (CH) soft to very soft, gray olive, wet, fat (continued)			SS-10		1	1	1		2
45		SILT (MH) soft, gray black, wet, elastic, with sand			SS-11		1	1	3		4
50		SILTY SAND (SM) medium dense, gray black, medium to fine, wet, with clay Boring terminated at 50 ft			SS-12		3	3	9		12

SAME BORING LOG: 1358-14-033 US 264 HDD CROSSING OF TAR RIVER.GPJ SAME.GDT 7/30/14

NOTES:
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REFER TO GEOTECHNICAL REPORT INCLUDED IN THE PROJECT SPECIFICATIONS FOR COMPLETE GEOTECHNICAL DETAILS.

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
3100 E. CARY ST. SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN AS NOTED
PROFILE
HOR. –
VERT. –

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

GEOTECHNICAL BORE DATA

SHEET: GT-3 | REVISION: 0

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-7

DATE DRILLED: 7/8/14 | ELEVATION: 76.0 ft
DRILL RIG: CME 550 | BORING DEPTH: 40.0 ft
DRILLER: J. White | WATER LEVEL: 5.5 ft @ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 682282 | EASTING: 2465353
DRILLING METHOD: Wash Boring

NOTES: Temporary PVC standpipe installed to 40.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA 1st 6in / REC	2nd 6in / RQD	3rd 6in	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS (10 20 30 60 80)	N VALUE
		TOPSOIL – 3 Inches			SS-1		3		3		6
		COASTAL PLAIN: CLAYEY SAND (SC) loose, orange tan, fine, moist to wet			SS-2		4		5		9
5				71.0	SS-3		3		3		5
					SS-4		3		5		8
10				66.0	SS-5		3		4		7
		SILTY SAND (SM) loose, orange tan, fine, wet			SS-6		2		2		4
15				61.0	SS-7		2		4		6
					SS-8		3		2		5
20				56.0							
		SILTY SAND (SM) loose, gray, fine to medium, wet			SS-9		1		2		4
25				51.0							
30				46.0							

NOTES:
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2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-7

DATE DRILLED: 7/8/14 | ELEVATION: 76.0 ft
DRILL RIG: CME 550 | BORING DEPTH: 40.0 ft
DRILLER: J. White | WATER LEVEL: 5.5 ft @ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 682282 | EASTING: 2465353
DRILLING METHOD: Wash Boring

NOTES: Temporary PVC standpipe installed to 40.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA 1st 6in / REC	2nd 6in / RQD	3rd 6in	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS (10 20 30 60 80)	N VALUE
		SILTY SAND (SM) loose, gray, fine to medium, wet (continued)									
40				36.0	SS-10		2		2		4
		Boring terminated at 40 ft									

NOTES:
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
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3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-8

DATE DRILLED: 7/8/14 | ELEVATION: 83.0 ft
DRILL RIG: CME 550 | BORING DEPTH: 40.0 ft
DRILLER: J. White | WATER LEVEL: 5.7 ft @ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 681213 | EASTING: 2466098
DRILLING METHOD: Wash Boring

NOTES: Temporary PVC standpipe installed to 40.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA 1st 6in / REC	2nd 6in / RQD	3rd 6in	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS (10 20 30 60 80)	N VALUE
		TOPSOIL – 3 Inches			SS-1		3		1		2
		COASTAL PLAIN: SILTY SAND (SM) very loose, gray, fine, moist to wet			SS-2		1		1		2
5				78.0	SS-3		1		1		2
					SS-4		WOH		WOH		WOH
10		CLAYEY SAND (SC) very loose, white tan, fine		73.0	SS-5		WOH		WOH		1
					SS-6		2		3		5
15				68.0	SS-7		2		1		3
		SILTY SAND (SC-SM) very loose, gray, fine, wet, with clay			SS-8		3		4		7
20				63.0							
		SILTY SAND (SC-SM) loose to very loose, gray, fine, wet, with clay			SS-9		2		1		3
25				58.0							
30				53.0							

NOTES:
1. THIS LOG IS ONLY A PORTION OF A REPORT PREPARED FOR THE NAMED PROJECT AND MUST ONLY BE USED TOGETHER WITH THAT REPORT.
2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

PROJECT: US 264 HDD Crossings
Greenville, North Carolina
S&ME Project No. 1358-14-033

BORING LOG B-8

DATE DRILLED: 7/8/14 | ELEVATION: 83.0 ft
DRILL RIG: CME 550 | BORING DEPTH: 40.0 ft
DRILLER: J. White | WATER LEVEL: 5.7 ft @ 24 hrs
HAMMER TYPE: Autohammer | LOGGED BY: F. Wright
SAMPLING METHOD: Split Spoon | NORTHING: 681213 | EASTING: 2466098
DRILLING METHOD: Wash Boring

NOTES: Temporary PVC standpipe installed to 40.0 ft. Boring tremie grouted to the ground surface with cement-bentonite grout.

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT / CORE DATA 1st 6in / REC	2nd 6in / RQD	3rd 6in	STANDARD PENETRATION TEST DATA (blows/ft) /REMARKS (10 20 30 60 80)	N VALUE
		SILTY SAND (SC-SM) loose to very loose, gray, fine, wet, with clay (continued)									
40				43.0	SS-10		1		1		2
		Boring terminated at 40 ft									

NOTES:
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2. BORING, SAMPLING AND PENETRATION TEST DATA IN GENERAL ACCORDANCE WITH ASTM D-1586.
3. STRATIFICATION AND GROUNDWATER DEPTHS ARE NOT EXACT.
4. WATER LEVEL IS AT TIME OF EXPLORATION AND WILL VARY.

SAME BORING LOG: 1358-14-033 US 264 HDD CROSSING OF NAR RIVER.GPJ SAMEGDT 7/30/14

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REFER TO GEOTECHNICAL REPORT INCLUDED IN THE PROJECT SPECIFICATIONS FOR COMPLETE GEOTECHNICAL DETAILS.

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN AS NOTED
PROFILE
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VERT. –

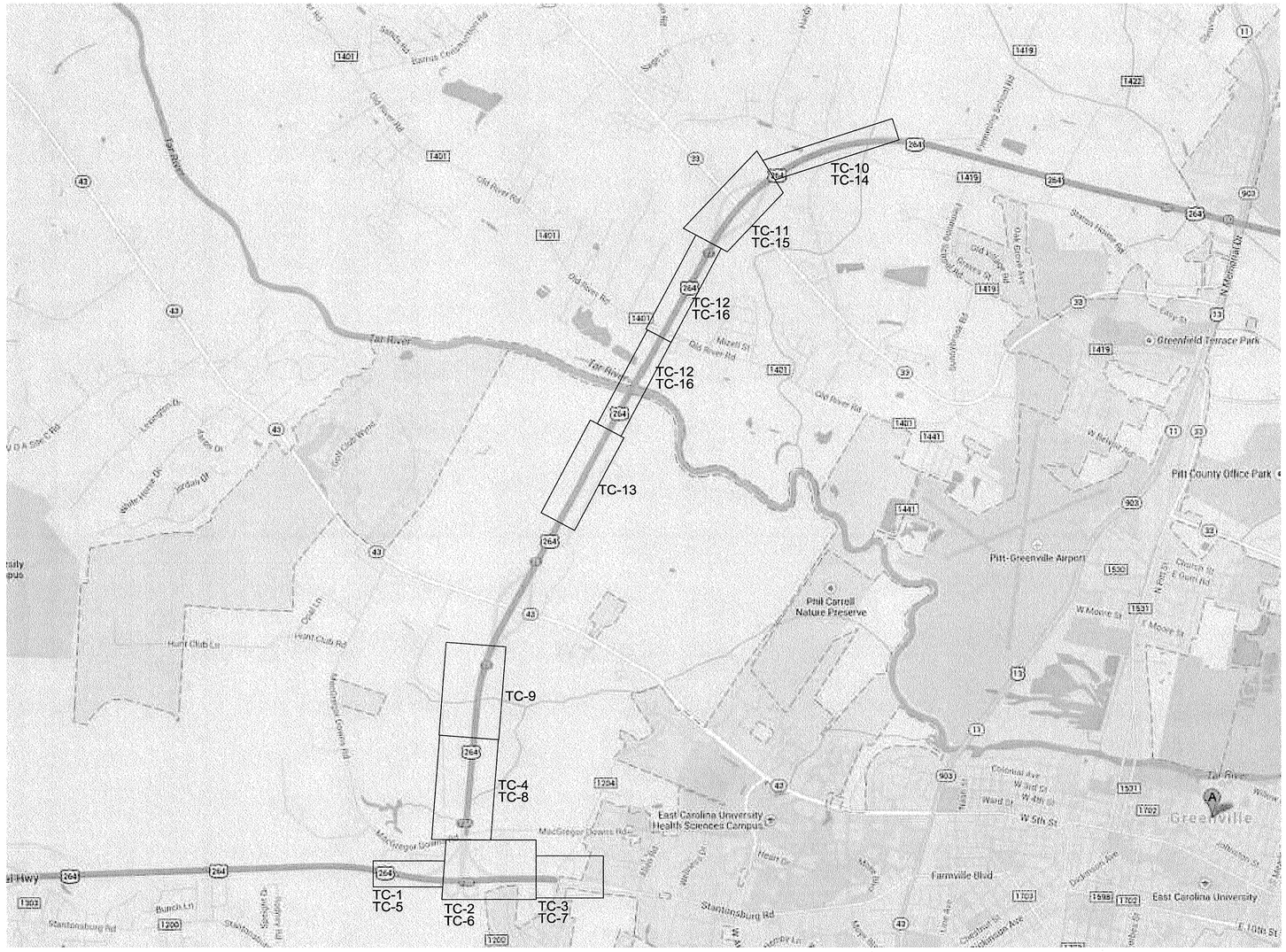
Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

GEOTECHNICAL BORE DATA

SHEET: GT-4 | REVISION: 0


TC-10
TC-14
TC-11
TC-15
TC-12
TC-16
TC-12
TC-16
TC-13
TC-9
TC-4
TC-8
TC-1
TC-5
TC-2
TC-6
TC-3
TC-7
Tar River
Old River Rd
Mizell St
Greenfield Terrace Park
Pitt County Office Park
Pitt-Greenville Airport
Phil Carroll
Nature Preserve
East Carolina University
Health Sciences Campus
Farmville Blvd
Greenville
East Carolina University
Stantonsburg Rd
Hunt Club Dr
Hunt Club Rd
MacGregor Downs Rd
Bunch Ln
Tar River
W Moore St
E 10th St
W 5th St
Colonial Ave
Ward Dr
Heart Dr
Dickinson Ave
Line Ave
Cypress Ct
Hillcrest Dr
Alvin Rd
Spyglass Dr
Fox Hollow Dr
Longview Dr
Aspen Dr
Shillingstone Dr
Jordan Dr
Golf Club Wynd
Old River Rd
Sandy Hill Rd
Oak Glen Ave
Station House Rd
Brown St
Easy St
W Kellyn Ave
N Memorial Dr
N Pitt St
E Church St
E Church Rd
W Moore St
E Moore St
Sage Ln
Hall St
Kenmore Schools Rd
Kenmore Circle
Kenmore Dr
Kenmore Ct
Sandy Hill Rd
Old River Rd
Tar River
Old River Rd
Tar River
Old River Rd
Old River Rd
Tar River
Old River Rd
Tar River
Old River Rd
Tar River

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 264	3:30 PM TO 9:00 AM MONDAY THRU SATURDAY
	LANE CLOSURES WILL BE ALLOWED ON SUNDAY DURING DAYLIGHT HOURS ONLY

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

NC HWY 264 BYPASS

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 3:30 PM DECEMBER 31st TO 9:00 AM JANUARY 2nd. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY, THEN UNTIL 9:00 AM THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 3:30 PM THURSDAY AND (TIME) MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 3:30 PM FRIDAY TO (TIME) TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 3:30 PM THE DAY BEFORE INDEPENDENCE DAY AND (TIME) THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY, THEN BETWEEN THE HOURS OF 3:30 PM THE THURSDAY BEFORE INDEPENDENCE DAY AND (TIME) THE TUESDAY AFTER INDEPENDENCE DAY.
6. THE DAY OF THE SPRING ECU FOOTBALL GAME.

LANE AND SHOULDER CLOSURE REQUIREMENTS

C) 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, OR AS DIRECTED BY THE ENGINEER.

D) WHEN PERSONNEL OR EQUIPMENT ARE WORKING WITHIN 15 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING RDWY. STD. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL, OR A LANE CLOSURE IS INSTALLED.

E) WHEN PERSONNEL OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LAND USING RDWY. STD. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

F) WHEN PERSONNEL OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED 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 EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

G) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON US 264.

PAVEMENT EDGE DROP-OFF REQUIREMENTS

H) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER AT NO EXPENSE TO THE DEPARTMENT.

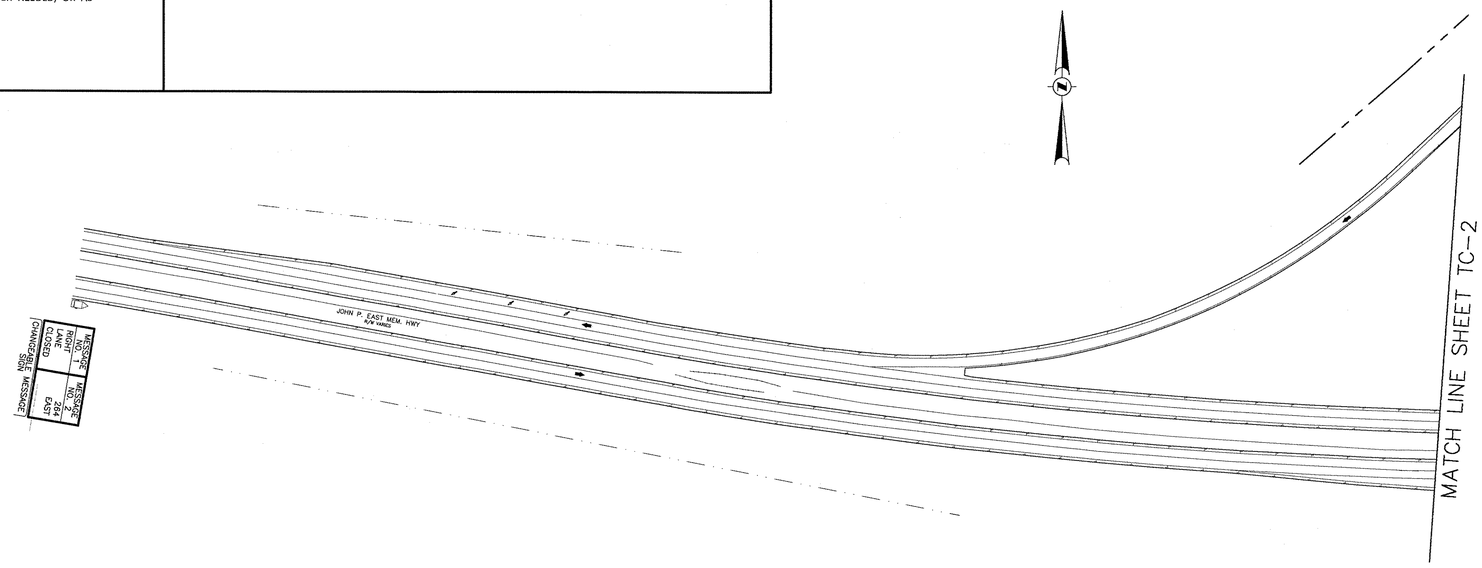
TRAFFIC CONTROL DEVICES

I) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREA NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT. ON-CENTER IN RADII, AND 3 FT. OFF THE EDGE OF AN OPEN TRAVEL WAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTION 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" – PROJECT SERVICES UNIT – N.C. DEPARTMENT OF TRANSPORTATION – RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION



LEGEND

GENERAL
- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- WORK AREA
- REMOVAL
- FLASHING ARROW PANEL
- FLASHING ARROW PANEL – CAUTION

SIGNALS
- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS
- EXISTING LINES

TRAFFIC CONTROL DEVICES
- DRUM
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING
- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS
- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS
- PAVEMENT MARKING SYMBOLS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. ROBERTS 6/11/15

0' 50' 100' 150' 200'

SCALE: 1" = 100'

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP HIGH-PRESSURE GAS MAIN EXTENSION GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2101 E. CARY ST., SUITE 303
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN NTS
PROFILE
HOR. –
VERT. –

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

TRAFFIC CONTROL NOTES, DRAWING LEGEND, PLAN AT CE-1

SHEET: TC-1 REVISION: 0

MATCH LINE SHEET TC-4

MATCH LINE SHEET TC-1

MATCH LINE SHEET TC-3

RIGHT LANE CLOSED
W20-5 R
48" X 48"

RIGHT LANE CLOSED AHEAD
W20-5 R
48" X 48"

W4-2R
48" X 48"

JOHN P. EAST MEM. HWY
R/W VARIES

1258.0

6/1/15

NORTH CAROLINA
PROFESSIONAL
SEAL
20388
ENGINEER
MARTIN C. ROGERS

0' 50' 100' 150' 200'

SCALE: 1" = 100'

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

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REVISIONS

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	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	5/1/15	–	–

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DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 209
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 100'
PROFILE
HOR. –
VERT. –

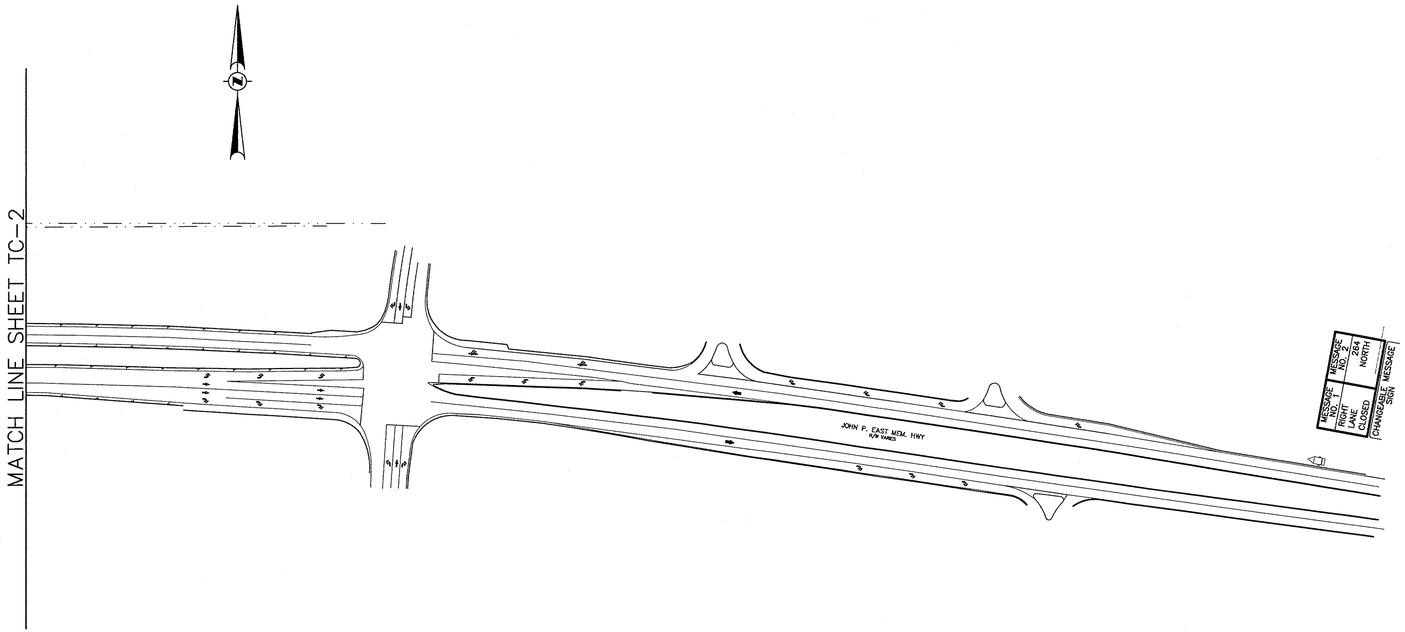
Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE-1

SHEET: TC-2 | REVISION: 0



NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. ROGERS

0' 50' 100' 150' 200'

SCALE: 1" = 100'

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

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REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH–PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 309
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 100'
PROFILE
HOR. –
VERT. –

Greenville Utilities

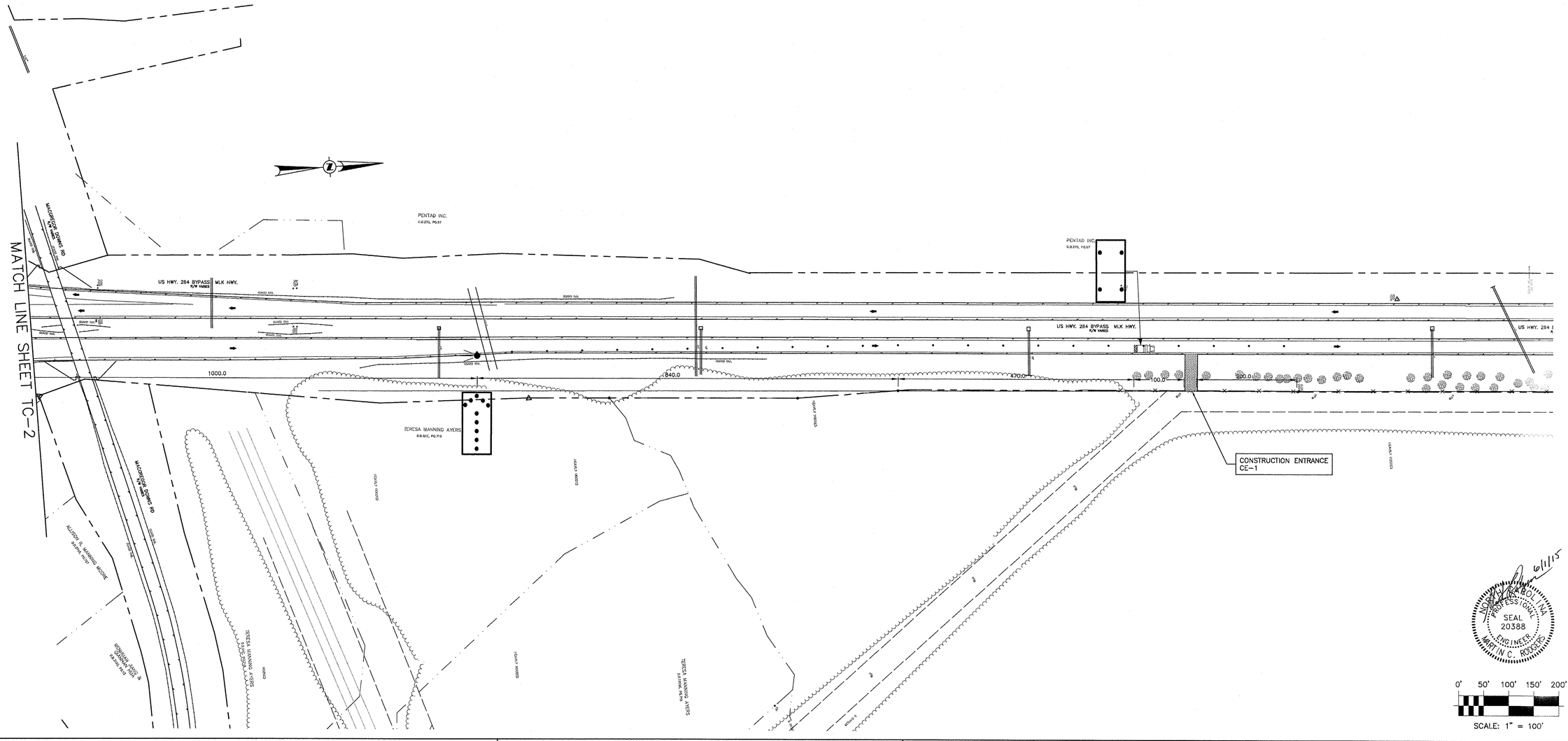
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE–1

SHEET: TC–3

REVISION: 0



NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. RODGERS 6/1/15

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH–PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 100'
PROFILE
HOR. –
VERT. –

Greenville Utilities

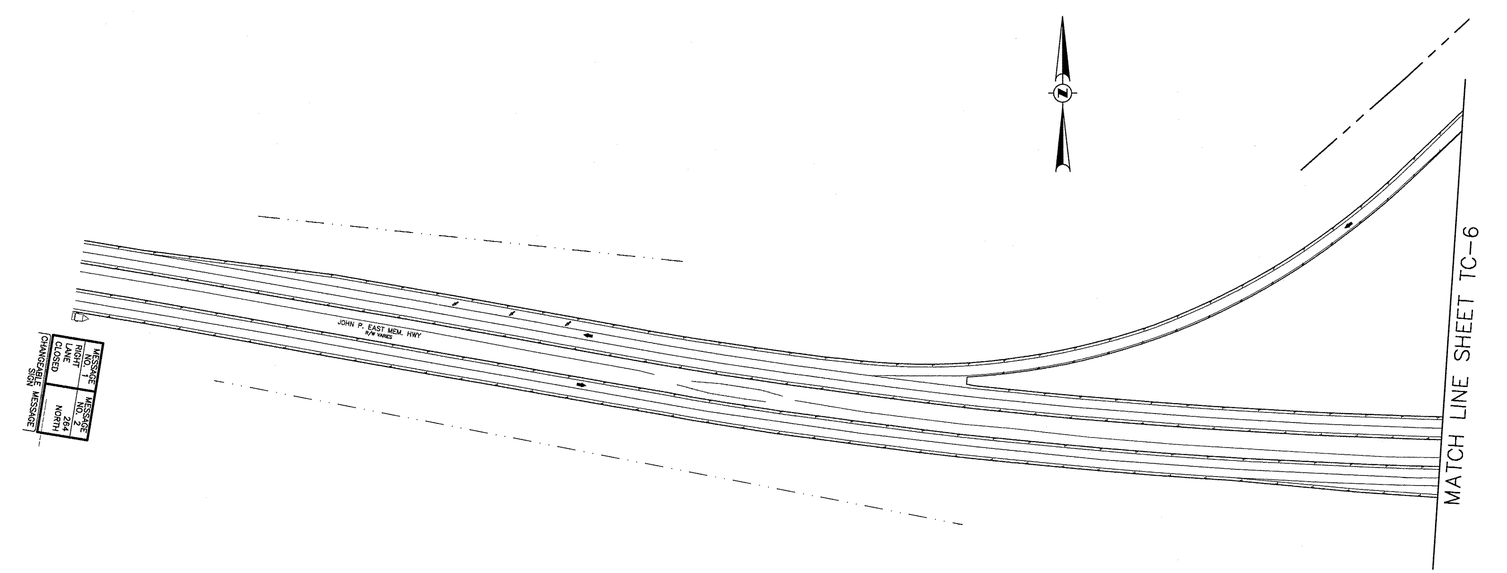
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE-1

SHEET: TC-4

REVISION: 0



0' 50' 100' 150' 200'

SCALE: 1" = 100'

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	5/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH–PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.780.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214–011–A

SCALE
PLAN NTS
PROFILE
HOR. –
VERT. –

Greenville Utilities

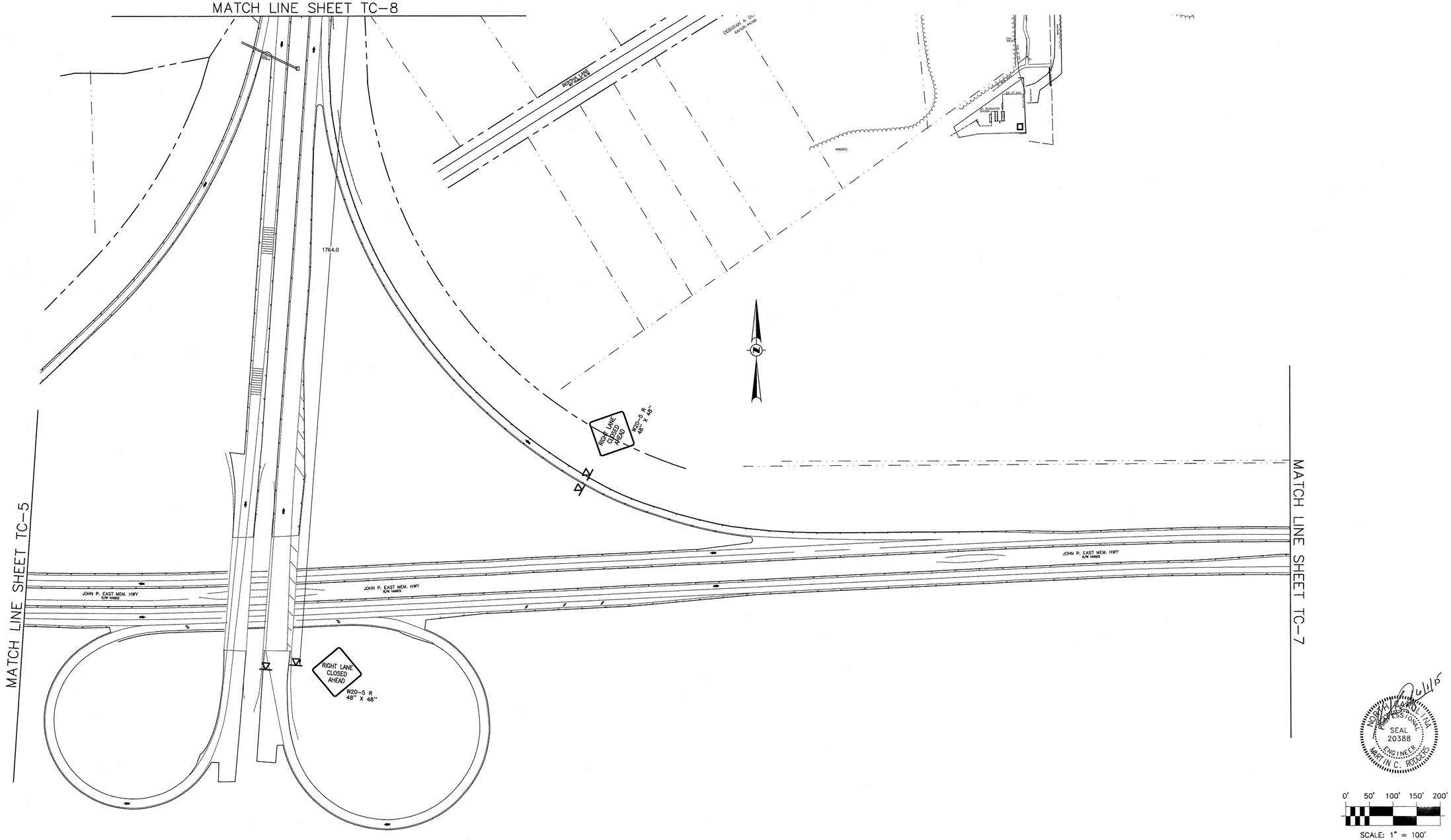
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE–2

SHEET: TC–5

REVISION: 0



SUMMARY OF MATERIALS		
ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS					
REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL						
	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH–PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
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RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 100'
PROFILE
HOR. –
VERT. –

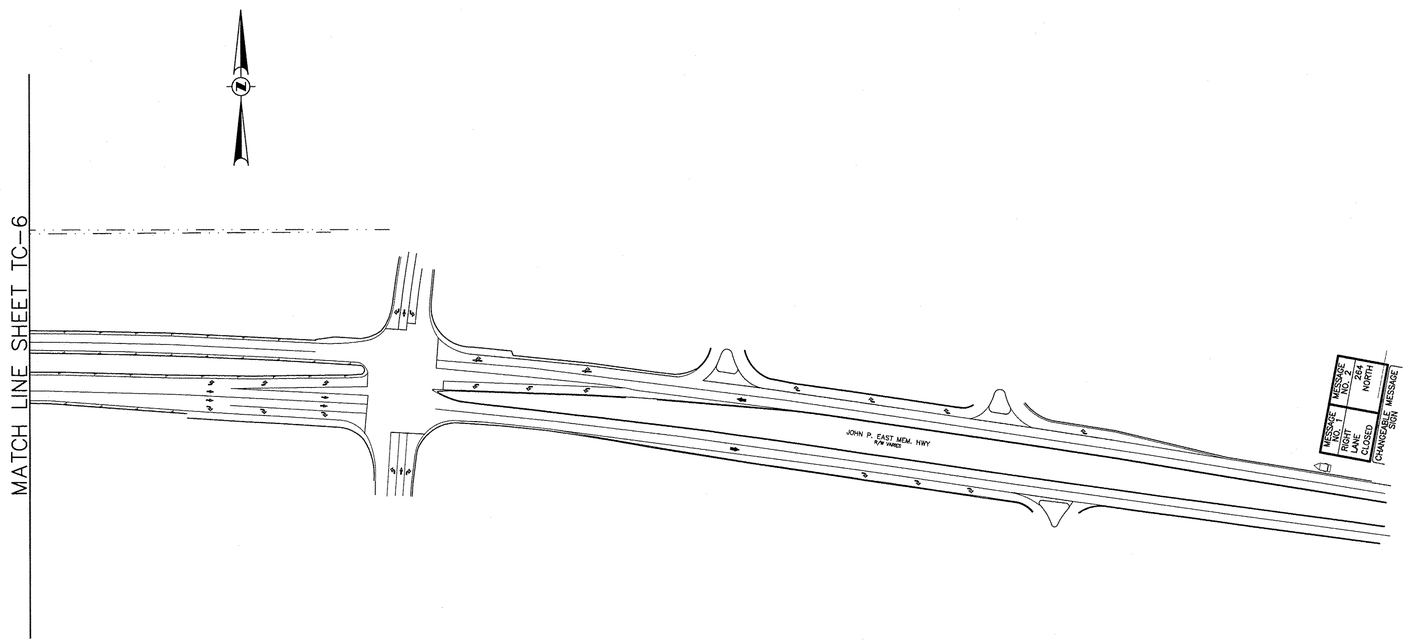
Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE-2

SHEET: TC-6 REVISION: 0



0' 50' 100' 150' 200'

SCALE: 1" = 100'

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH–PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 100'
PROFILE
HOR. –
VERT. –

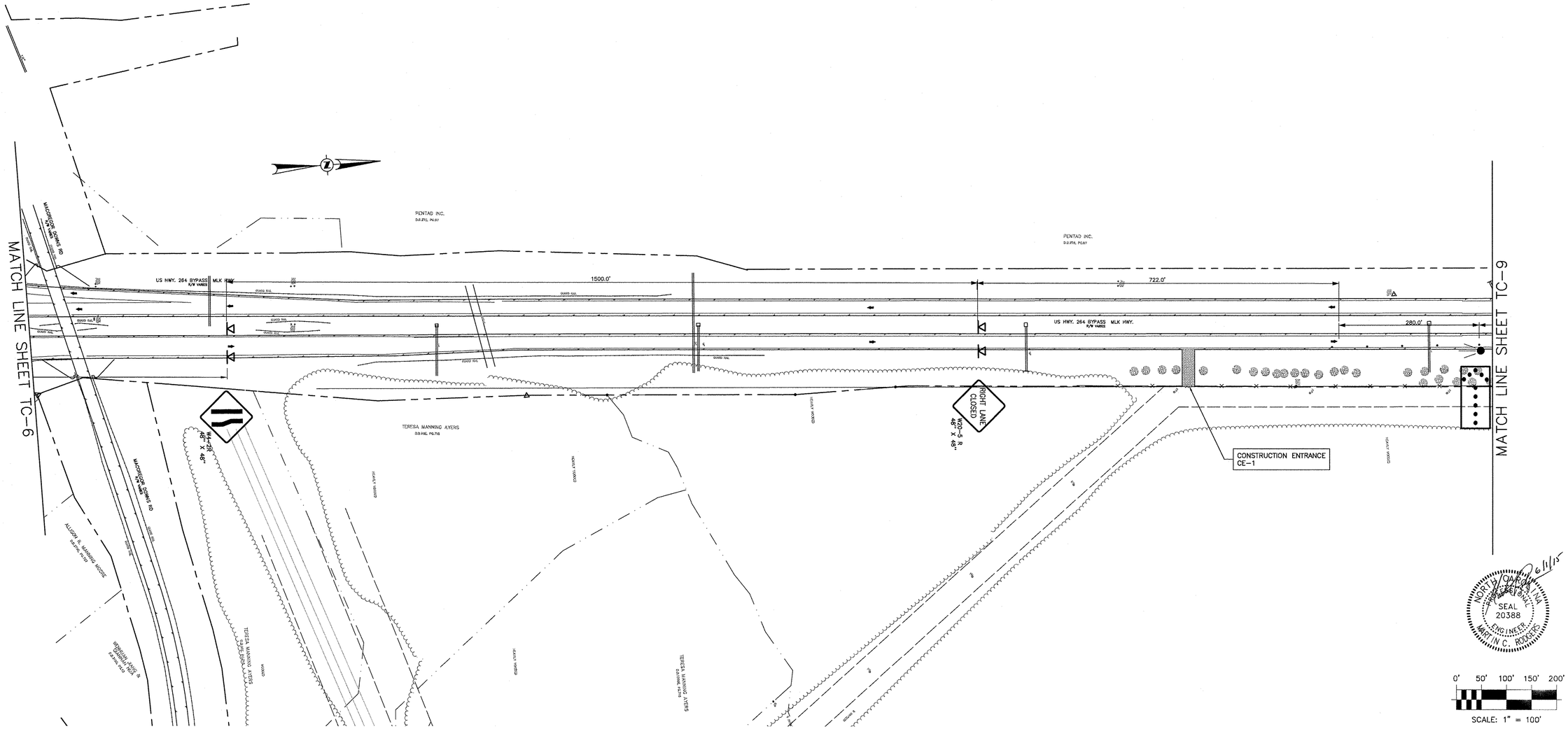
Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE–2

SHEET: TC–7 REVISION: 0



NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. ROGERS 6/1/15

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH–PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K
RUNNELL, KLEPFER & KAHL, LLP
2100 E. CARY ST. SUITE 309
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T-804.782.1903 F-804.7722142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 100'
PROFILE
HOR. –
VERT. –

Greenville Utilities

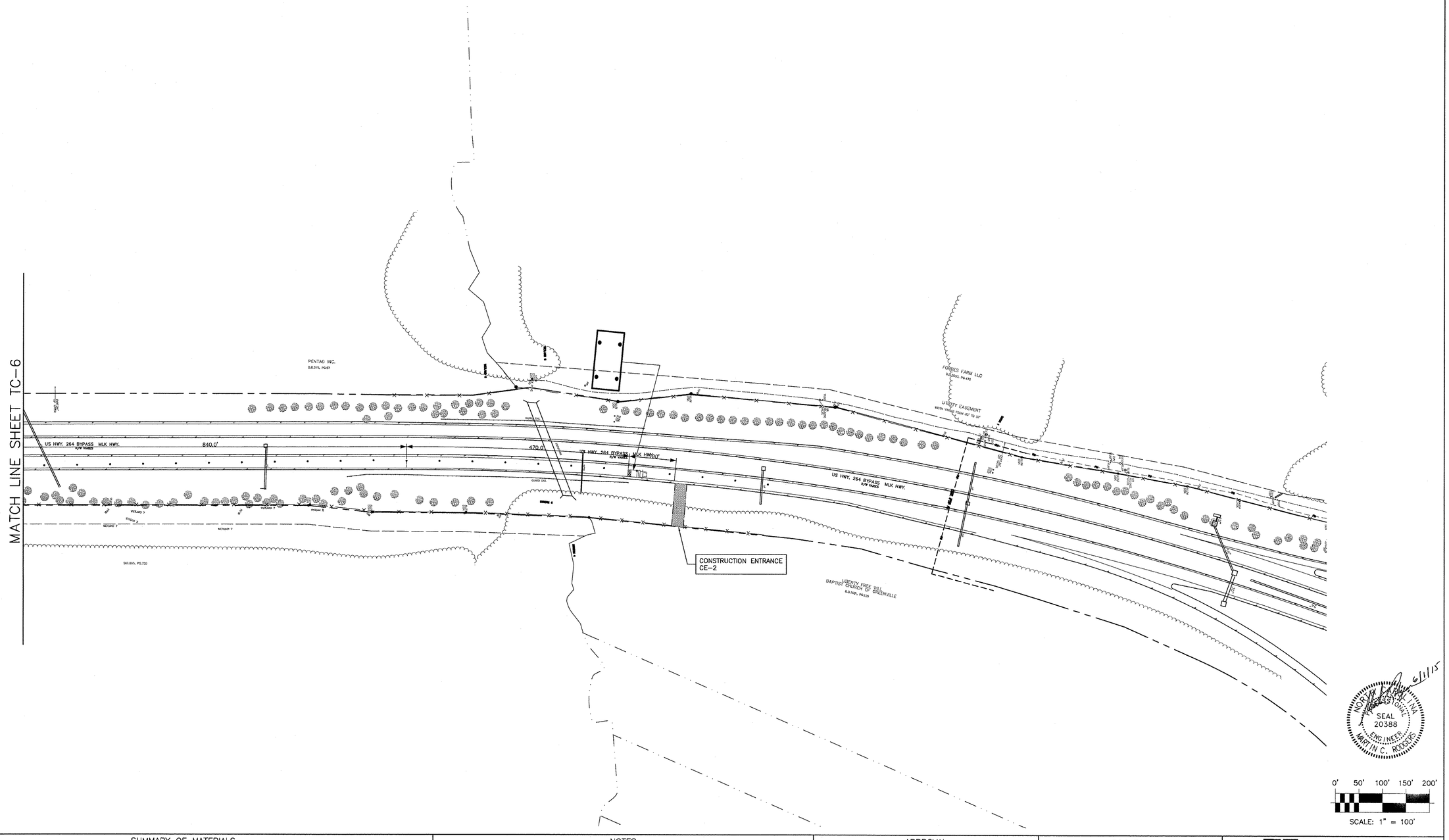
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE–2

SHEET: TC–8

REVISION: 0



SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

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PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

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SCALE
PLAN 1" = 100'
PROFILE
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VERT. –

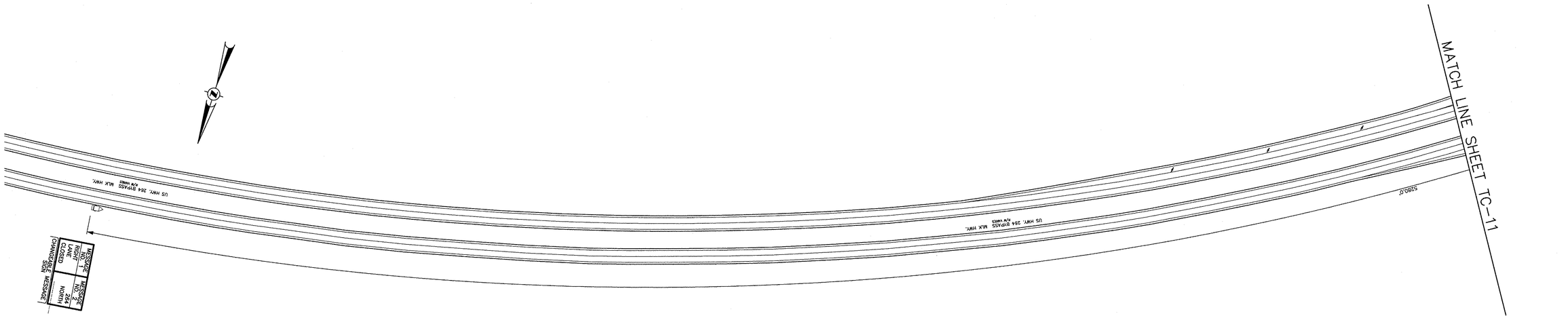
Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE-2

SHEET: TC-9 REVISION: 0


US HWY. 264 BYPASS
MLK HWY.
N
MATCH LINE SHEET TC-11
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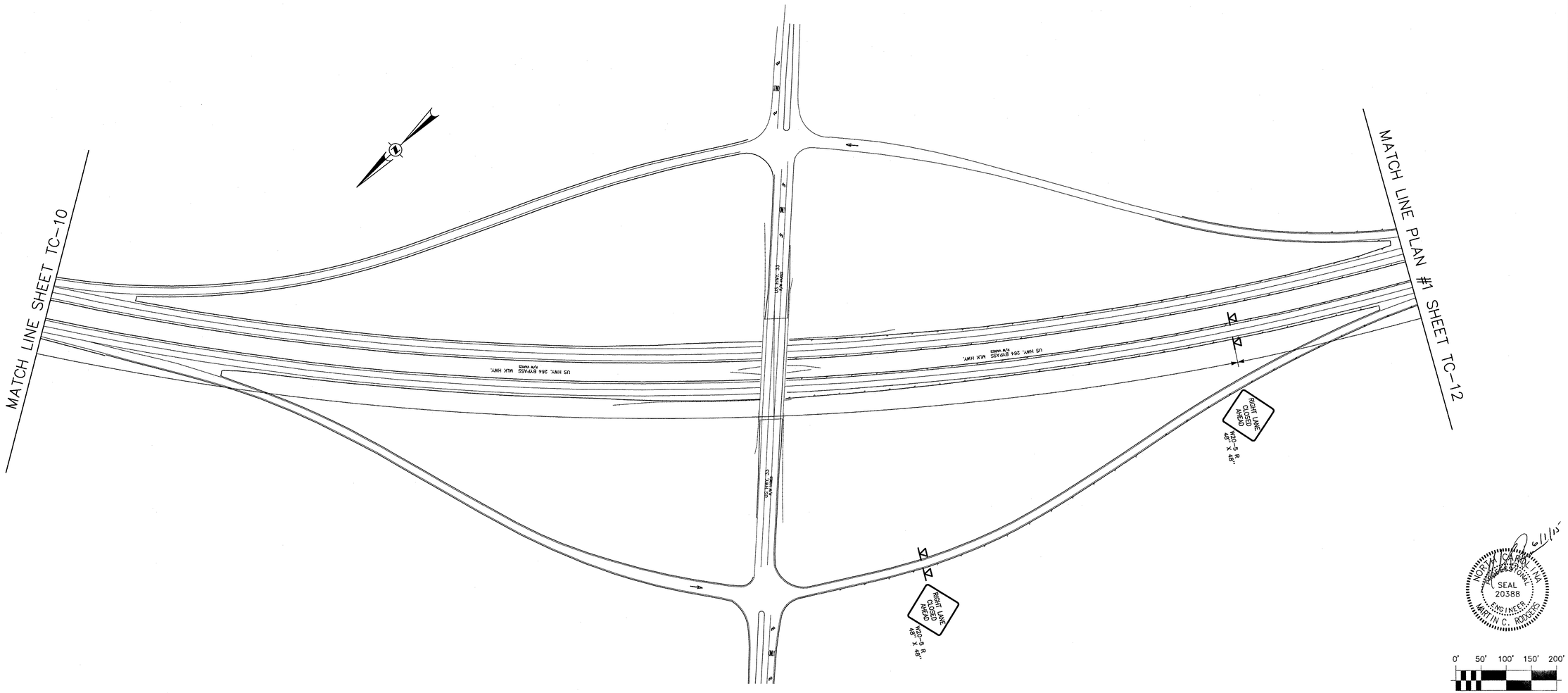
MISSING
MISSING



SUMMARY OF MATERIALS

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SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	5/1/15	–	–
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GCP89 – NORTHWESTERN LOOP
HIGH–PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K
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RICHMOND, VIRGINIA 23223
T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-A

SCALE
PLAN 1" = 100'
PROFILE
HOR. –
VERT. –

Greenville Utilities

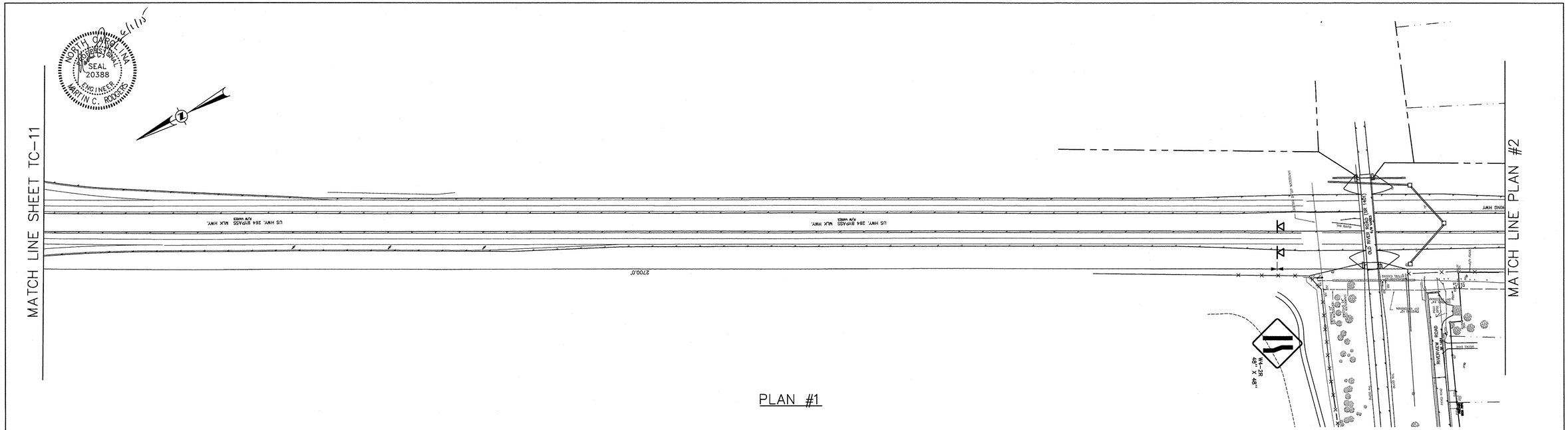
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

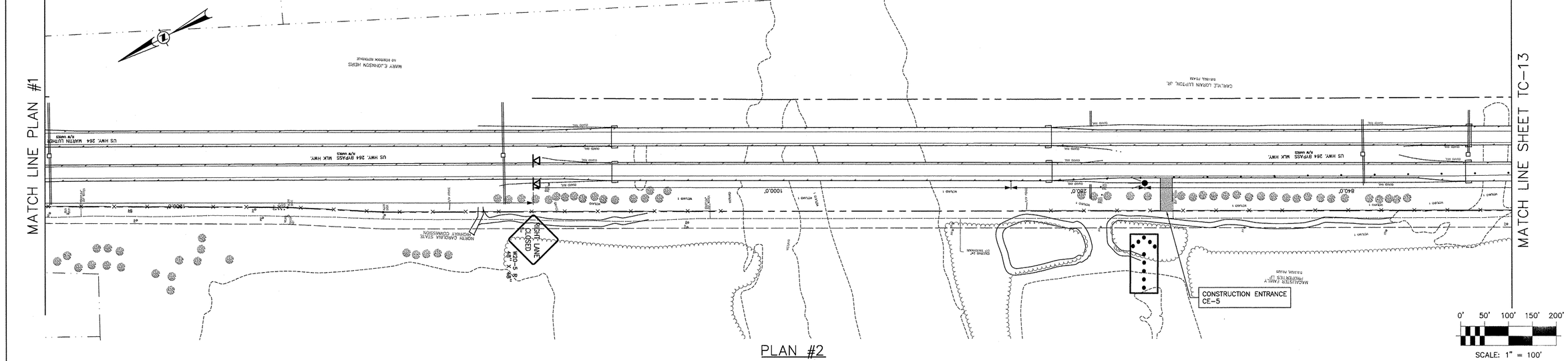
SHEET DESCRIPTION

TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE–4

SHEET: TC–11

REVISION: 0





SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST., SUITE 309
RICHMOND, VIRGINIA 23223
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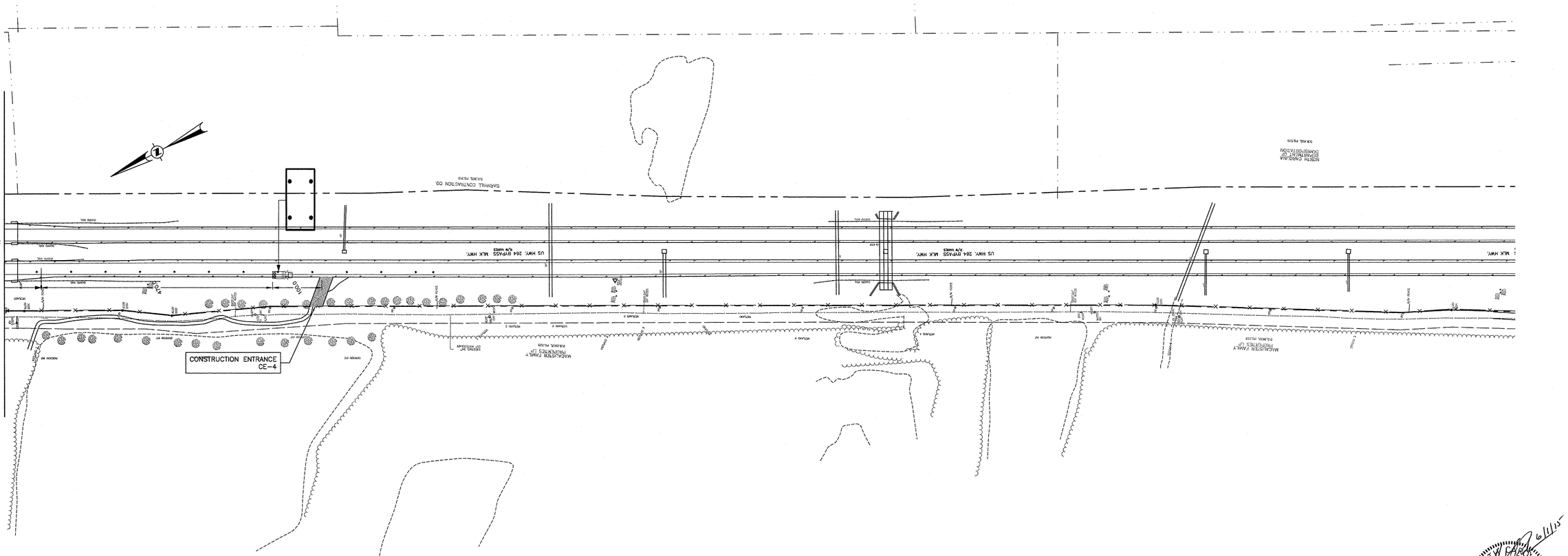
SHEET DESCRIPTION

TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE-4

SHEET: TC-12

REVISION: 0

MATCH LINE PLAN #2 SHEET TC-12



0' 50' 100' 150' 200'

SCALE: 1" = 100'

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. RODGERS

6/11/15

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

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DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

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SCALE
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PROFILE
HOR. –
VERT. –

Greenville Utilities

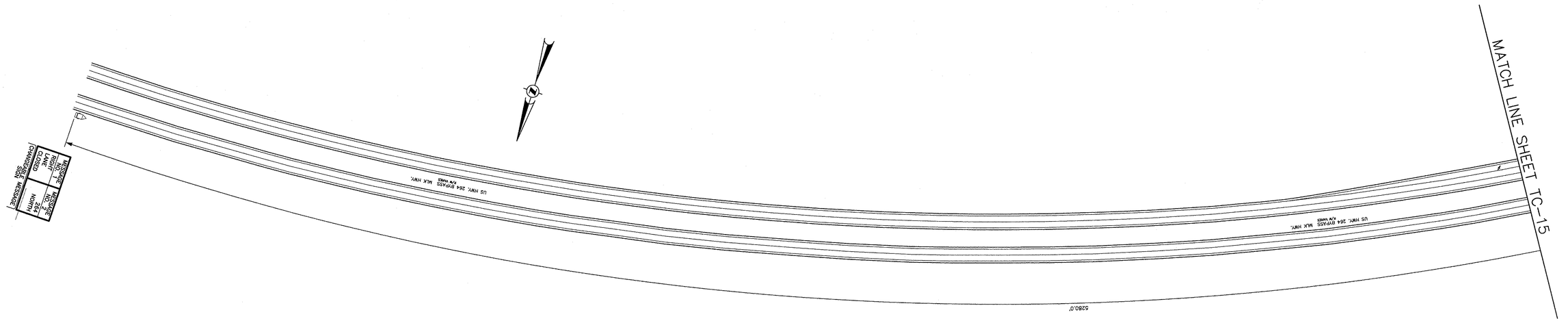
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE-4

SHEET: TC-13

REVISION: 0



0' 50' 100' 150' 200'

SCALE: 1" = 100'

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

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MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

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PROFILE
HOR. –
VERT. –

Greenville Utilities

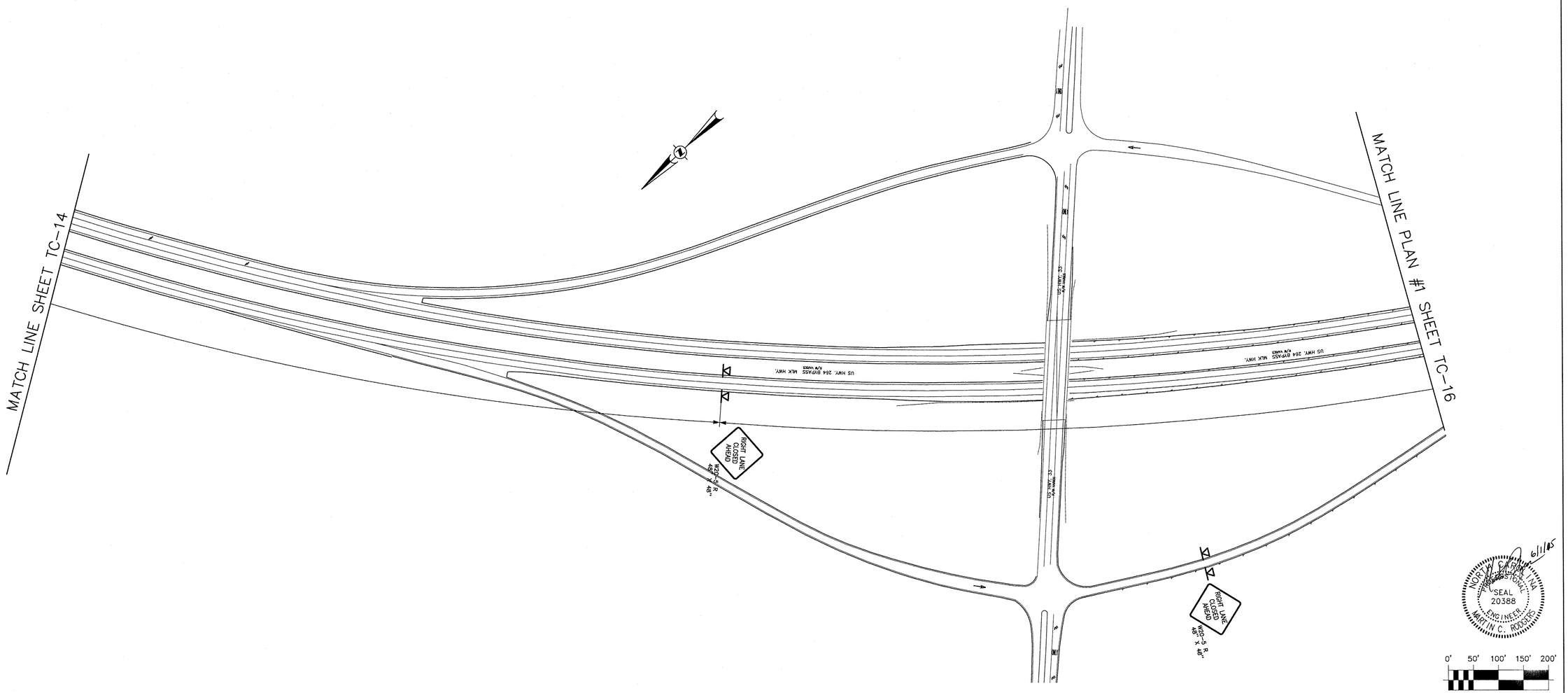
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE–5

SHEET: TC–14

REVISION: 0



NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 ENGINEER MARTIN C. ROGERS 6/11/15

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	5/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	5/1/15	–	–

TEST DATA

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MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH–PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

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SCALE
PLAN 1" = 100'
PROFILE
HOR. –
VERT. –

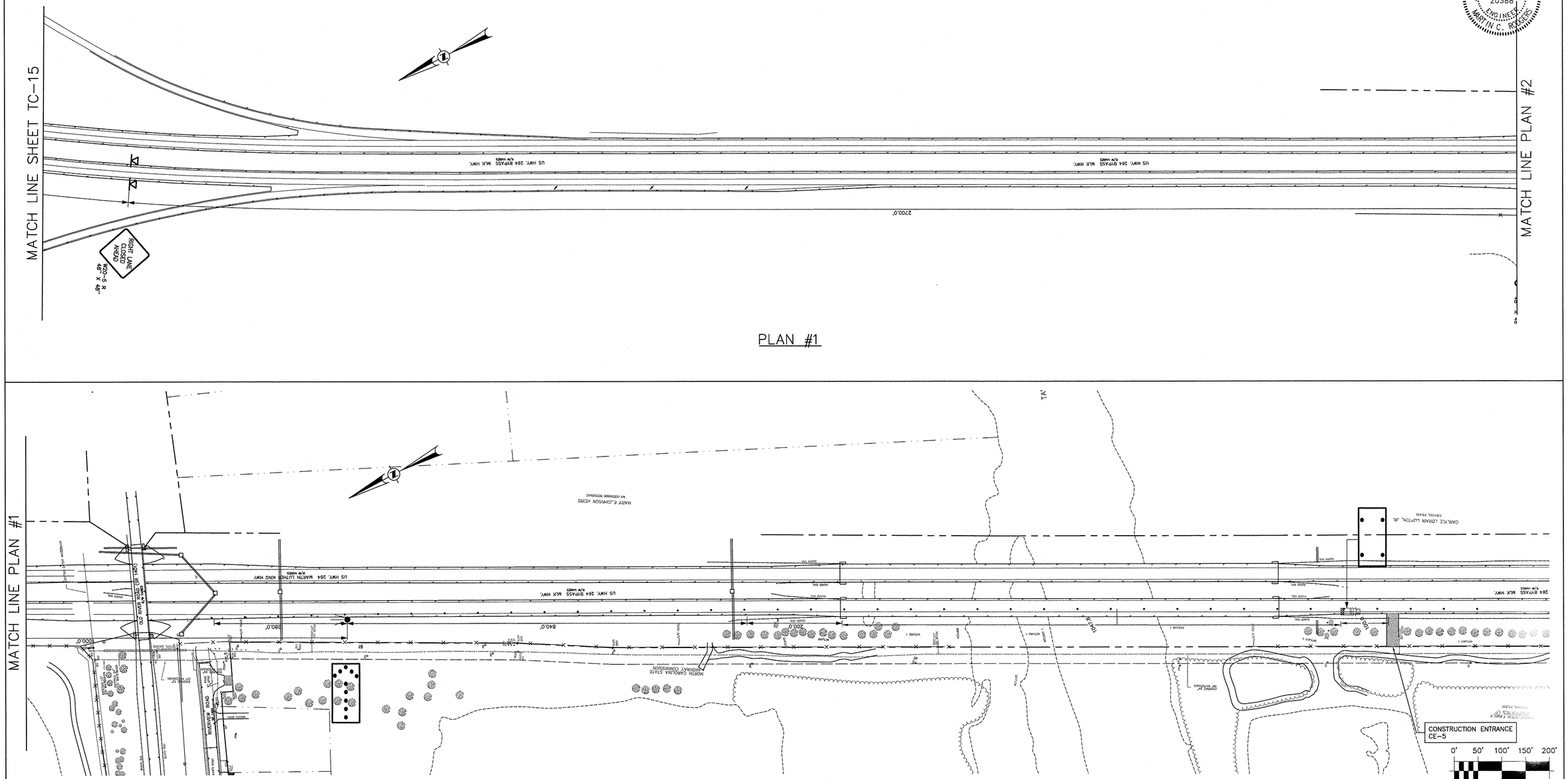
Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE–5

SHEET: TC–15 REVISION: 0



PLAN #1

PLAN #2

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. KNOCKS

6/1/15

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

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GCP89 – NORTHWESTERN LOOP
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SCALE
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VERT. –

Greenville Utilities

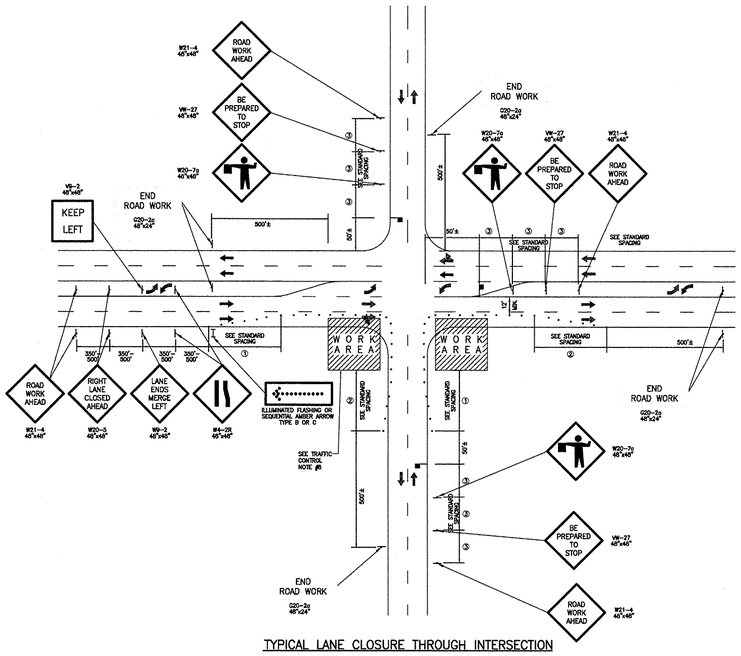
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

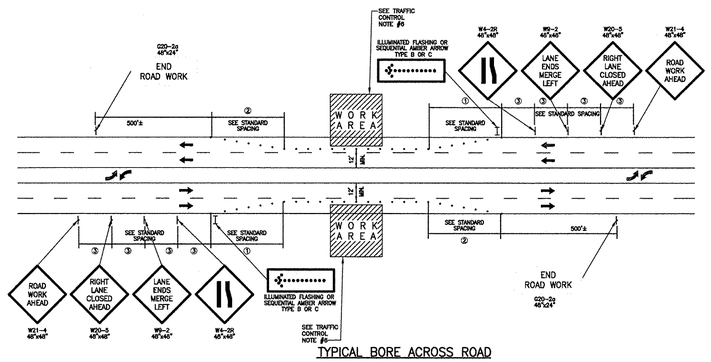
TRAFFIC CONTROL
PLAN AT CONSTRUCTION ENTRANCE CE-5

SHEET: TC-16

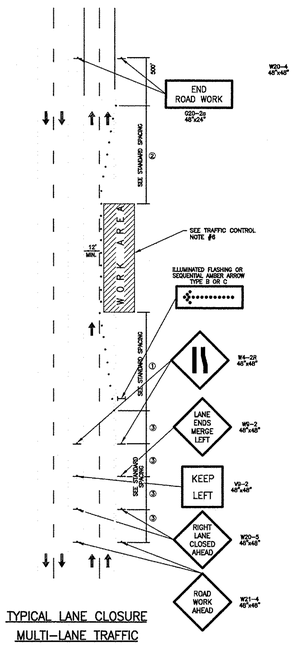
REVISION: 0



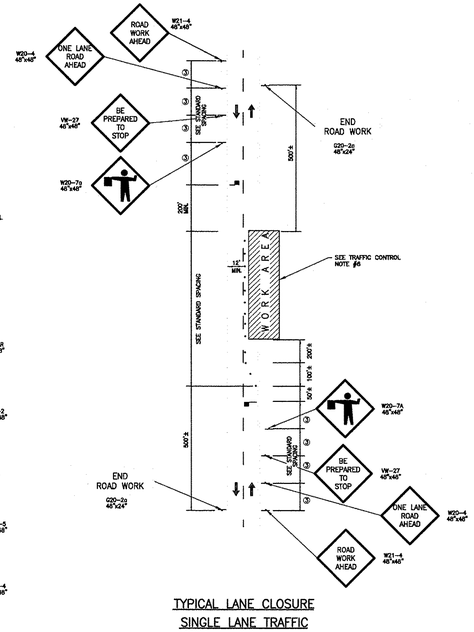
TYPICAL LANE CLOSURE THROUGH INTERSECTION



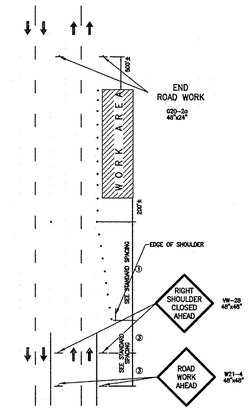
TYPICAL BORE ACROSS ROAD



TYPICAL LANE CLOSURE
MULTI-LANE TRAFFIC



TYPICAL LANE CLOSURE
SINGLE LANE TRAFFIC



TYPICAL SHOULDER CLOSURE

LEGEND

- WORK AREA
- DIRECTION OF TRAFFIC
- TEMPORARY WARNING SIGN
- CHANNELING DEVICE (BARREL OR CONE)
- FLAGGER STATION
- LT. & RT. SIGNS REQ'D. WHERE MEDIAN EXCEEDS 8 FT.

STANDARD SPACING

SPACE TYPE	35 MPH	45 MPH
BARRELS – TRAVELWAY SPACING	40'	80'
BARRELS – TRAVELWAY SPACING	20'	40'
① ENTRANCE TAPER	245'	540'
② EXIT TAPER	80'	80'
③ SIGN SPACING	350'–500'	350'–500'

TRAFFIC CONTROL NOTES

1. NO WORK SHALL BE DONE WITHIN 300 FEET OF PRIMARY ROAD INTERSECTIONS BETWEEN THE HOURS OF 7:00 A.M. – 9:00 A.M. AND 4:00 P.M. – 6:00 P.M.
2. UNLESS SPECIAL PERMISSION HAS BEEN GRANTED BY ANY AND ALL CONTROLLING AUTHORITIES, ALL LANES MUST BE RESTORED TO NORMAL WIDTHS AT THE COCLUSION OF EACH CONSTRUCTION DAY.
3. CHANNELIZING DEVICES MUST SEPARATE THE WORK AREA FROM THE TRAVELED WAY AND BE EXTENDED TO WHERE THEY ARE VISIBLE TO ONCOMING TRAFFIC.
4. SHOULD SPECIAL PERMISSION BE GRANTED TO EXTEND WORKING HOURS SUCH THAT CONSTRUCTION IS CARRIED ON AFTER SUNSET OR BEFORE SUNRISE, THE CONTRACTOR SHALL PROVIDE: A. FLOODLIGHTS TO MARK FLAGGER STATIONS, AND B. STEADY-BURN WARNING LIGHTS ON CHANNELIZING DEVICES AND BLINKING LIGHTS ON WARNING SIGNS.
5. ALL TRAFFIC CONTROL METHODS AND DEVICES SHALL CONFORM TO THE MOST CURREN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS ISSUED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION AND THE MOST CURRENT NORTH CAROLINA WORK AREA PROTECTION MANUAL.
6. A TRUCK WITH EITHER AN ARROW BOARD OPERATING IN THE CAUTION MODE, OR AT LEAST ONE ROTATING AMBER LIGHT OR HIGH INTENSITY AMBER STROBE LIGHT SHALL BE PARKED 50'-100' IN ADVANCE OF THE FIRST WORK CREW. WHEN POSTED SPEED LIMIT IS 45 MPH OR GREATER, A TRUCK MOUNTED ATTENUATOR SHALL BE USED.
7. THE CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF ANY PAVEMENT MARKINGS DAMAGED BY CONSTRUCTION.
8. ACCESS TO ALL PARCELS AFFECTED BY CONSTRUCTION SHALL BE MAINTAINED AT ALL TIMES.
9. THE CONTRACTOR SHALL OBTAIN WRITTEN CONSENT FROM THE CONTROLLING AUTHORITY PRIOR TO CLOSING ONE LANE OF A TWO LANE ROADWAY.
10. THIS PLAN IS PROVIDED BY GREENVILLE UTILITIES COMMISSION IN AN EFFORT TO PROVIDE THE CONTRACTOR WITH AN UNDERSTANDING OF THE MINIMUM REQUIREMENTS FOR TRAFFIC CONTROL WHICH MUST BE MET AND TO AID IN THE INCLUSION OF THOSE COSTS IN THE PREPARATION OF HIS BID. THIS PLAN AND THE USE THEREOF DOES NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES OF PROTECTION OF THE WORK AND THE PUBLIC'S SAFETY. IT IS A SPECIFIC CONTRACT REQUIREMENT THAT THE CONTRACTOR INDEMNIFY AND HOLD HARMLESS THE OWNER AND THE ENGINEER AGAINST ALL LOSSES INCURRED IN THE EXECUTION OF THE WORK AND IN THE GUARDING OF IT. THIS REQUIREMENT INCLUDES BUT IS NOT LIMITED TO THE USE OF THIS PLAN.

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/21	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/21	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – NORTHWESTERN LOOP
HIGH-PRESSURE GAS MAIN EXTENSION
GREENVILLE, NC

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
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RK&K COMM. NO. 1214-011-A

SCALE
PLAN NTS
PROFILE
HOR. –
VERT. –

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

STANDARD TRAFFIC CONTROL DETAILS

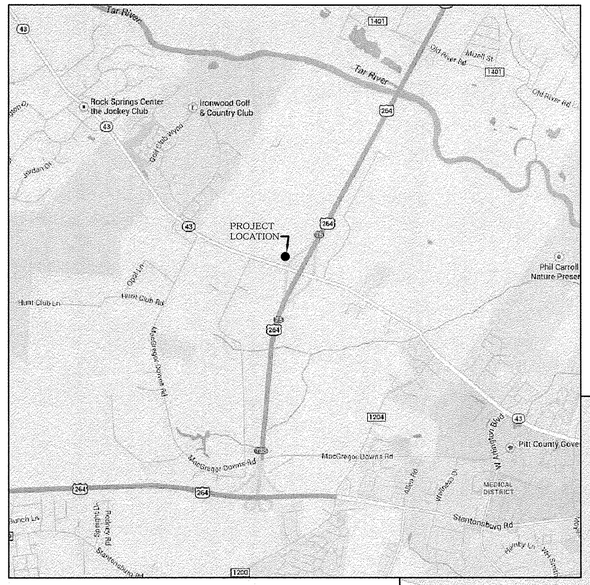
SHEET: TC-17

REVISION: 0

Greenville Utilities

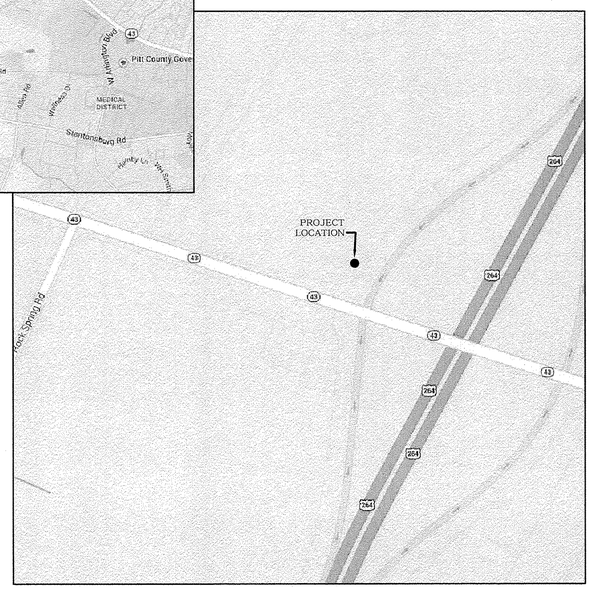
GCP89 - Highway 43
District Regulator Station
City of Greenville, North Carolina

June 1, 2015



VICINITY MAP

NOT TO SCALE



LOCATION MAP

NOT TO SCALE

SHEET INDEX

SHEET DESCRIPTION	SHEET NUMBER
COVER SHEET	–
BILL OF MATERIALS, DRAWING LEGEND AND GENERAL NOTES	1 OF 11
EXISTING CONDITIONS PLAN	2 OF 11
EXISTING SITE CONDITIONS PLAN	3 OF 11
PROPOSED SITE PLAN	4 OF 11
PROPOSED SITE GRADING PLAN	5 OF 11
PROPOSED SITE PLAN DETAIL	6 OF 11
PROPOSED PIPING PLAN	7 OF 11
PIPING SECTION AND DETAILS	8 OF 11
PIPING SECTION AND TIE-IN DETAIL	9 OF 11
PIPING SECTION AND DETAILS	10 OF 11
PIPING SECTION AND DETAIL	11 OF 11

6/1/15
MARTIN C. ROGERS NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER

Issued for Bids

RUMMEL • KLEPPER and KAHL, LLP
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
RICHMOND, VIRGINIA

DRAWING LEGEND

SYMBOL	DESCRIPTION
	CENTERLINE
	HYDRO
	EXISTING FENCE
	EXISTING GUARD RAIL
	EXISTING EDGE-OF-PAVEMENT
	EXISTING DRIVEWAY/PATH
	EXISTING GAS TO REMAIN
	EXISTING UTILITY EASEMENT
	EXISTING PROPERTY LINE
	EXISTING RIGHT-OF-WAY (R/W)
	EXISTING SANITARY SEWER
	EXISTING STORM DRAINAGE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING UNDERGROUND TELEPHONE CABLE
	EXISTING UNDERGROUND FIBER OPTIC
	EXISTING WATER
	BORROW PIT
	WETLAND BOUNDARY
	RIPARIAN BARRIER
	AE FLOODWAY
	AE FLOODZONE
	PROPOSED TEMPORARY WORKSPACE
	PROPOSED UTILITY EASEMENT
	PROPOSED FENCE
	PROPOSED GAS PIPE ABOVE GRADE (DOUBLE LINE)
	PROPOSED GAS PIPE BELOW GRADE (DOUBLE LINE)

NOTES:

1. ALL DIMENSIONS TO BE VERIFIED PRIOR TO FABRICATION AND INSTALLATION.
2. ALL PIPING TO BE FABRICATED & TESTED IN ACCORDANCE WITH 49 CFR 192 AND PROJECT SPECIFICATIONS.
3. ALL PIPE WELDING TO BE PERFORMED PER GUC WELD STANDARDS AND PROJECT SPECIFICATIONS.
4. ALL PIPING SHALL BE THOROUGHLY CLEANED OF MILL SCALE, WELD SLAG, & RUST PRIOR TO ASSEMBLY.
5. ALL PIPING SHALL BE VISUALLY INSPECTED BY ENGINEER/OWNER PRIOR TO FABRICATION OF ASSEMBLY.

DRAWING LEGEND

SYMBOL	DESCRIPTION
EX.	EXISTING
ST	STEEL
PE	POLYETHYLENE
PGS	PROPOSED GAS SERVICE
PROP.	PROPOSED
RCP	REINFORCED CONCRETE PIPE
STA	STATION
	INSULATING FLANGE LOCATION
1	PROPOSED ITEM NUMBER
	FLOW ARROW
	EARTH
	GRAVEL
	CONCRETE
1/4	DETAIL IDENTIFICATION / SHEET NUMBER
A/4	SECTION IDENTIFICATION / SHEET NUMBER

Item	Quantity	Unit	Size	Description of Station Materials
4	3	EA	6"	Elbow, 90°, LR, Grade B, SCH 40, 0.280" w.t.
15	2	EA	6"	Cap, Grade B, 0.280" w.t.
25	10	LF	4"	Steel Pipe, 0.237" w.t., Grade B, Coated, ERW, BE, Spec API-5L
42	4	EA	8' x 4'	Gradient Control Mat
44	70	LF	6"	Steel Pipe, 0.280" w.t., Grade B, Coated, ERW, BE, Spec API-5L
45	100	LF	4"	Steel Pipe, 0.237" w.t., Grade B, Bare, ERW, BE, Spec API-5L
46	9	EA	4"	Elbow, 90°, LR, Grade B, SCH 40, 0.237" w.t.
49	2	EA	6"x4"	Reducer, Weld End, Concentric, Grade B, WT = 0.280" x 0.237"
51	1	EA	4"	Weather Cap
52	8	EA	4"x2"	Reducer, Weld End, Concentric, Grade B, WT = 0.237" x 0.154"
53	2	EA	4"x3"	Reducer, Weld End, Concentric, Grade B, WT = 0.280" x 0.216"
54	1	EA	6"	Tee, Weld End, Straight, Grade B, WT = 0.280" x 0.280"
55	7	EA	4"	Tee, Weld End, Straight, Grade B, WT = 0.237" x 0.237"
56	1	EA	6"	Valve, Ball, Weld End, ANSI 300, Kerotest Weldball or equivalent
58	8	EA	4"	Valve, Ball, Flanged End, ANSI 300, Kerotest Weldball or equivalent
59	1	EA	3"	Valve, Ball, Flanged End, ANSI 150, Fisher Vee-Ball V150 w/ Fisher 2052 Diaphragm Rotary Actuator
60	2	EA	4"	Valve, Ball, Flanged End, ANSI 150, Kerotest Weldball or equivalent
61	1	EA	4"	Meter, Flanged End, ANSI 300, Equimeter Model No. AAT18/27
62	1	EA	4"	Valve, Relief, Flanged End, ANSI 300, Fisher 63EG w/ 6458 series pilot
63	1	EA	4"	Strainer, Tee Style, Flanged End, ANSI 300, Apollo Engineering Model TSF
64	4	EA	2"x1"	Regulator, Pressure Reducing, Flanged End, ANSI 300, Fisher Type EZR
65	1	EA	4"	Pipe Support, EZ-Line, Model 204, Figure F w/ Neoprene Liner, Part No. 204-F, 4" P.S., D-1'-4" (*)
67	22	EA	36"-4" x 1/2"	Thredolet, 3000#
68	21	EA	1/2" x 2"	Pipe Nipple, Extra Strong, Grade B, Seamless C.S., thread both ends
69	21	EA	1/2"	Valve, Ball, Class 3000, NFPT X NFPT, lockable, Swagelok Series 60 or equivalent
70	23	EA	1/2"	Pipe plug, Hex Head, Extra Strong, F.S., screwed
72	26	EA	4"	Weld Neck Flange, RF, ANSI 300, WT = 0.237", Bore = 4.020"
73	2	EA	3"	Weld Neck Flange, RF, ANSI 150, WT = 0.216", BORE = 3.068"
74	8	EA	2"	Weld Neck Flange, RF, ANSI 300, WT = 0.154", Bore = 2.067"
75	4	EA	4"	Weld Neck Flange, RF, ANSI 150, WT = 0.237", Bore = 4.020"
77	23	EA	4"	Gasket, Spiral Wound, Flexitallic, ANSI 300
78	2	EA	3"	Gasket, Spiral Wound, Flexitallic, ANSI 150
79	8	EA	2"	Gasket, Spiral Wound, Flexitallic, ANSI 300
80	4	EA	4"	Gasket, Spiral Wound, Flexitallic, ANSI 150
81	1	EA	4"	Straightening Vanes, Flanged, Apollo Engineering, Model No. 04F30-90-00
82	3	EA	4"	Flange Insulation Kit, ANSI 300, Type E, Linebacker, Double Washer Set, w/Full Length Phenolic Sleeves
84	192	EA	(4") ANSI 300	Stud Bolts, All Thread, 3/4" Diameter x 4 1/2" Long, Grade B-7, ASTM A-194, w/2 A-194, Grade 2H Heavy Hex Nuts (8 bolts per connection)
85	8	EA	(3") ANSI 150	Stud Bolts, All Thread, 5/8" Diameter x 3 3/4" Long, Grade B-7, ASTM A-194, w/2 A-194, Grade 2H Heavy Hex Nuts (4 bolts per connection)
86	64	EA	(2") ANSI 300	Stud Bolts, All Thread, 5/8" Diameter x 3 1/2" Long, Grade B-7, ASTM A-194, w/2 A-194, Grade 2H Heavy Hex Nuts (8 bolts per connection)
87	32	EA	(4") ANSI 150	Stud Bolts, All Thread, 5/8" Diameter x 4" Long, Grade B-7, ASTM A-194, w/2 A-194, Grade 2H Heavy Hex Nuts (8 bolts per connection)
89	11	EA	4"	Pipe Support, EZ-Line, Model 204, Figure F w/ Neoprene Liner, Part No. 204-F, 4" P.S., D-4'-5" (*)
90	48	EA	5/8" x 5 1/2"	Expansion Bolt, HILTI HVA, Adhesive System w, Carbon Steel Threaded Rods
91	1 ROLL	NA	NA	Rock Shield
92	1	EA	4"	Double Pipe Support, EZ-Line, Model DPS-4
93	2	EA	3/4" Dia. x 10'L	Copperclad Steel Ground Rod
94	20	LF	NA	#3/0 THWN Stranded Copper Wire
95	2	EA	NA	Grounding Mold
96	8	EA	NA	Cable to Rod/Tube Ground Connector
				Electric conduit, risers, conductors, and seals to be provided by owner

*BASE PLATE OF PIPE STAND SHALL HAVE ¾"x1½" SLOTTED HOLES TO ACCOMMODATE ⅝" BOLTS.

NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. ROGERS 6/1/15

Issued for Bids

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – HIGHWAY 43
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

RK&K RUNNELL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 309
RICHMOND, VIRGINIA 23223
T-804.782.1933 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-D

SCALE
PLAN – NA –
PROFILE
HOR. – –
VERT. – –

Greenville Utilities

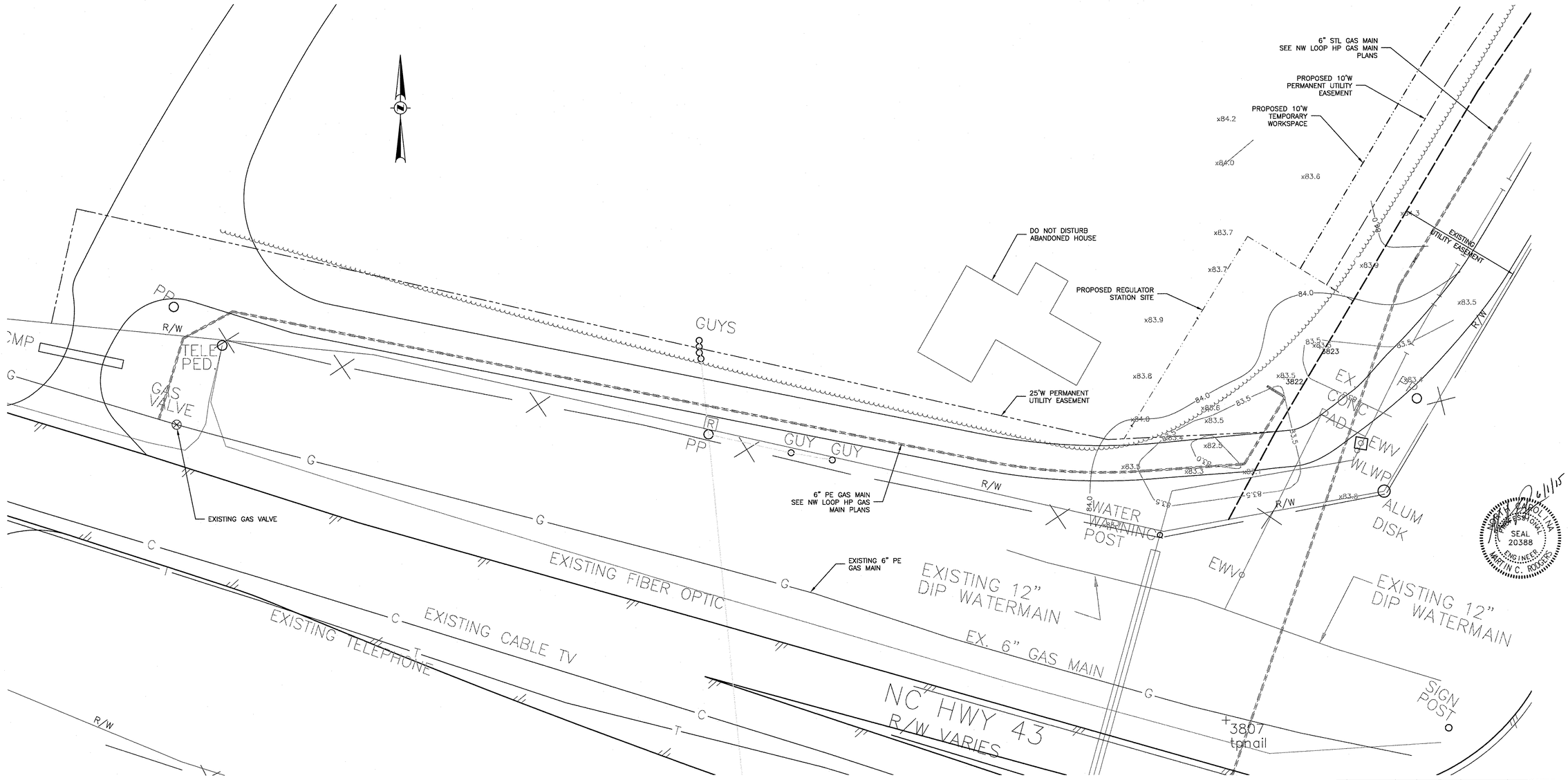
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

BILL OF MATERIALS,
DRAWING LEGEND,
AND GENERAL NOTES

SHEET: DR1-1

REVISION: 0



EXISTING CONDITIONS PLAN

SCALE: 1/16" = 1'-0"

Issued for Bids

0' 4' 8' 16' 32'

SCALE: 1/16" = 1'-0"

6/11/15

SEAL 20388 ENGINEER MARTIN C. RODGERS NORTH CAROLINA PROFESSIONAL

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

TOTAL ACREAGE DISTURBED: 0.05 ACRES
TOTAL ACREAGE TO BE CLEARED: 0.04 ACRES
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – HIGHWAY 43
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

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RK&K COMM. NO. 1214-011-D

SCALE
PLAN AS SHOWN
PROFILE
HOR. –
VERT. –

Greenville Utilities

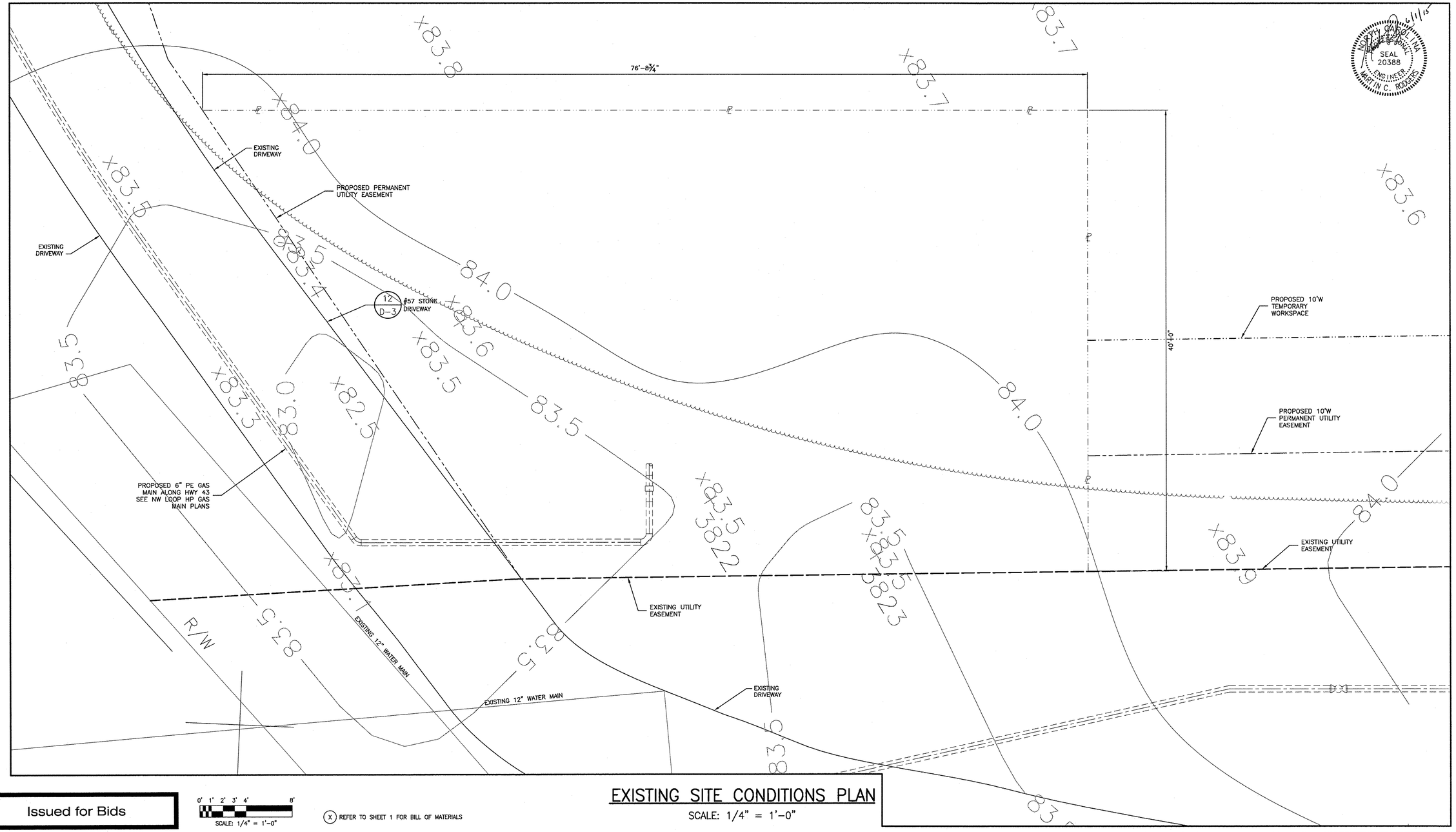
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

EXISTING CONDITIONS PLAN

SHEET: DR1-2

REVISION: 0



Issued for Bids

0' 1' 2' 3' 4' 8'
SCALE: 1/4" = 1'-0"

(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

EXISTING SITE CONDITIONS PLAN

SCALE: 1/4" = 1'-0"

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – HIGHWAY 43
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

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SCALE
PLAN AS SHOWN
PROFILE
HOR. –
VERT. –

Greenville Utilities

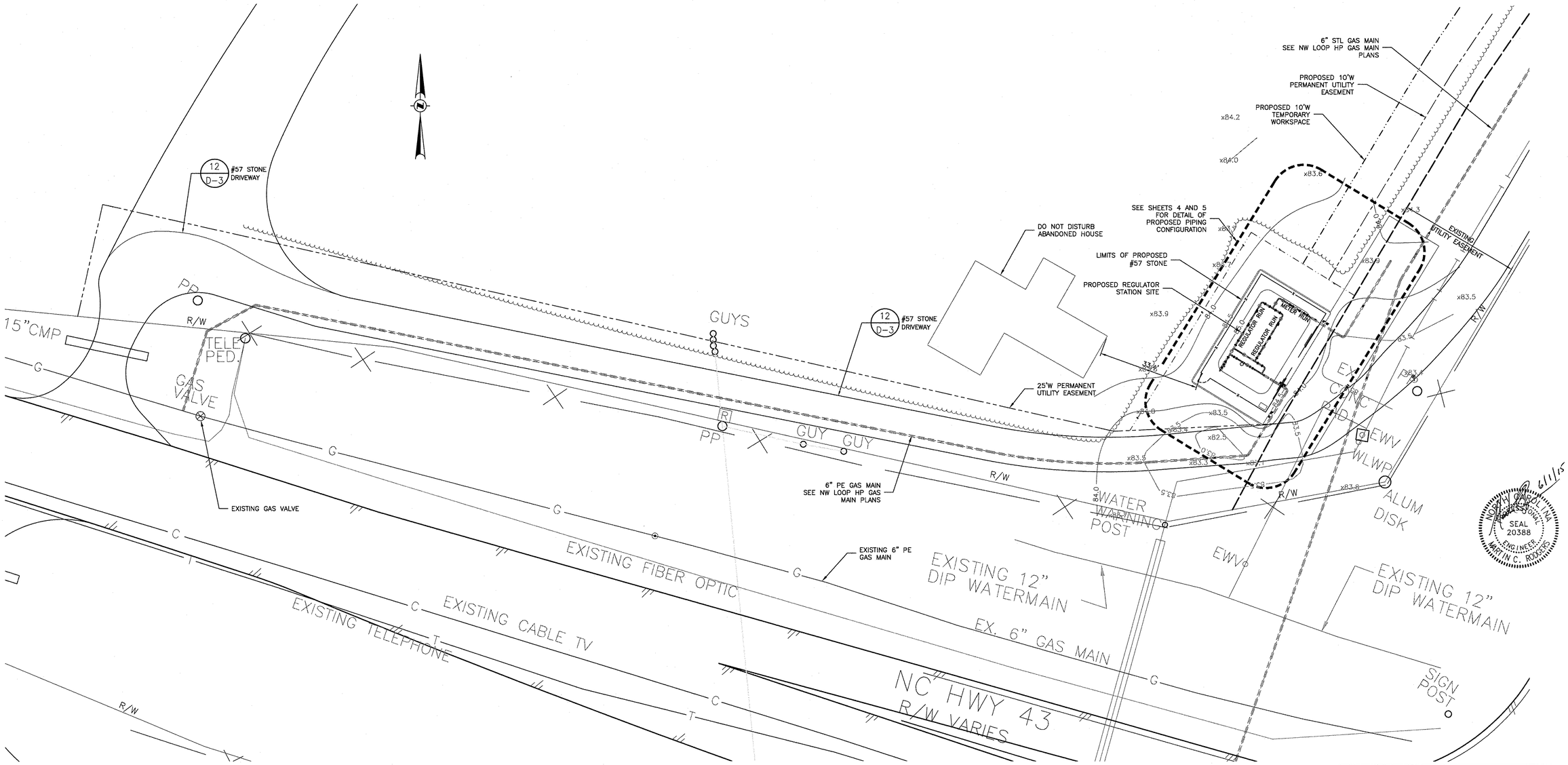
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

EXISTING SITE CONDITIONS PLAN

SHEET: DR1-3

REVISION: 0



PROPOSED SITE CONDITIONS PLAN

SCALE: 1/16" = 1'-0"

Issued for Bids

0' 4' 8' 16' 32'

SCALE: 1/16" = 1'-0"

6/1/15

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. RODGERS

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

TOTAL ACREAGE DISTURBED: 0.05 ACRES
TOTAL ACREAGE TO BE CLEARED: 0.04 ACRES
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – HIGHWAY 43
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

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RK&K COMM. NO. 1214-011-D

SCALE
PLAN AS SHOWN
PROFILE
HOR. –
VERT. –

Greenville Utilities

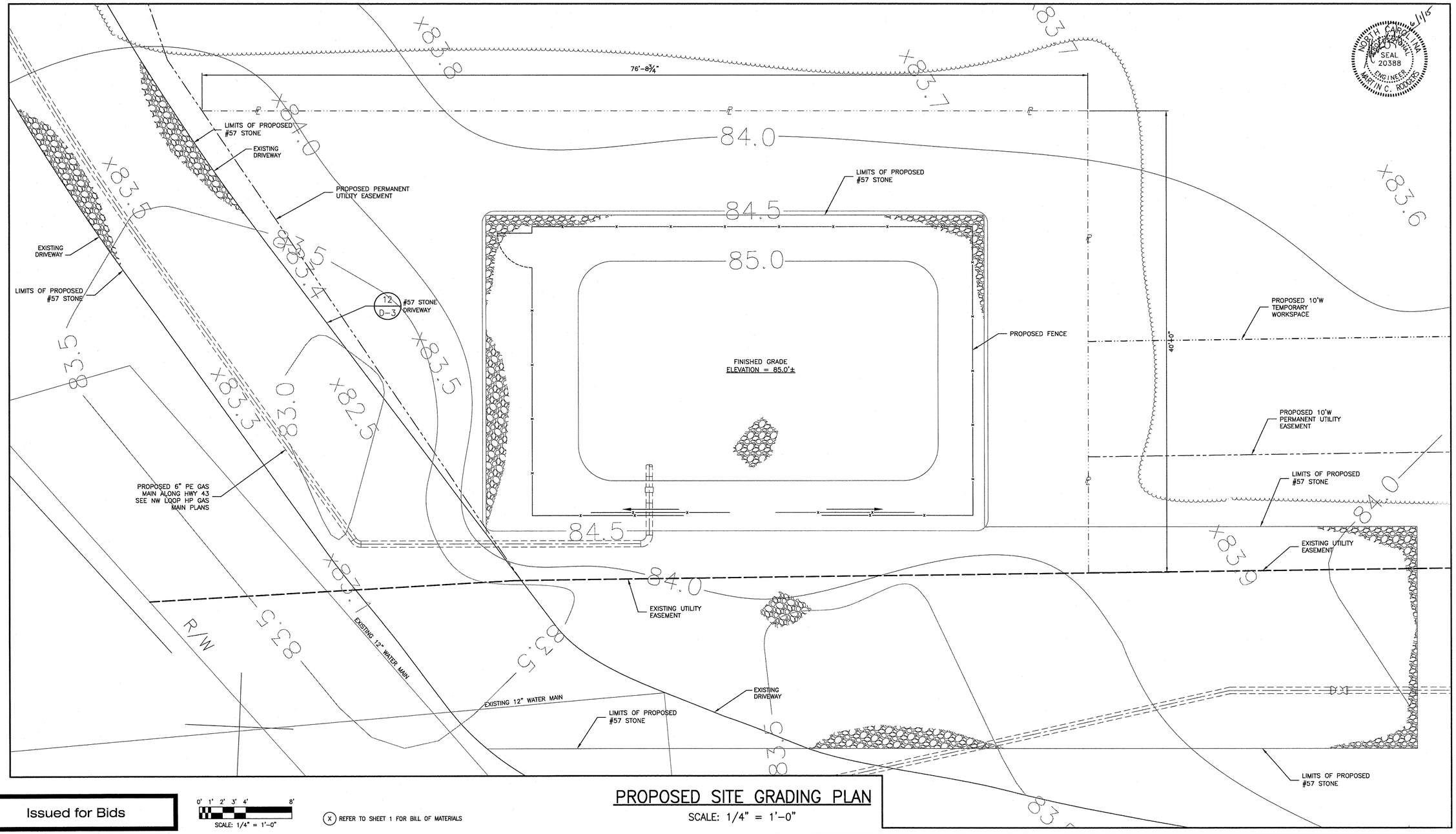
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PROPOSED SITE PLAN

SHEET: DR1-4

REVISION: 0


76'-8¾"
LIMITS OF PROPOSED #57 STONE
EXISTING DRIVEWAY
PROPOSED PERMANENT UTILITY EASEMENT
EXISTING DRIVEWAY
LIMITS OF PROPOSED #57 STONE
12
D-3
#57 STONE DRIVEWAY
PROPOSED 6" PE GAS MAIN ALONG HWY 43 SEE NW LOOP HP GAS MAIN PLANS
R/W
EXISTING 12" WATER MAIN
EXISTING 12" WATER MAIN
LIMITS OF PROPOSED #57 STONE
EXISTING DRIVEWAY
LIMITS OF PROPOSED #57 STONE
84.0
84.5
85.0
84.5
FINISHED GRADE ELEVATION = 85.0'±
PROPOSED FENCE
PROPOSED 10'W TEMPORARY WORKSPACE
40'-0"
PROPOSED 10'W PERMANENT UTILITY EASEMENT
LIMITS OF PROPOSED #57 STONE
EXISTING UTILITY EASEMENT
EXISTING UTILITY EASEMENT
LIMITS OF PROPOSED #57 STONE
84.0
83.7
83.6
83.5
83.4
83.3
82.5
83.8
83.9
83.8

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. ROBERTS 6/1/15

LIMITS OF PROPOSED #57 STONE
EXISTING DRIVEWAY
PROPOSED PERMANENT UTILITY EASEMENT
EXISTING DRIVEWAY
LIMITS OF PROPOSED #57 STONE
12 / D-3 #57 STONE DRIVEWAY
PROPOSED 6" PE GAS MAIN ALONG HWY 43 SEE NW LOOP HP GAS MAIN PLANS
LIMITS OF PROPOSED #57 STONE
3'W MAN GATE
REGULATOR RUN
SEE SHEET 7 FOR PIPING PLAN
REGULATOR RUN
FINISHED GRADE ELEVATION = 85.0'±
PROPOSED #57 STONE
WATER RUN
44
15
PROPOSED LOCATION FOR SCADA CABINET
1 / 8 PROPOSED CHAIN LINK FENCE
6 / 11 12'W CANTILEVERED SLIDE GATE
EXISTING UTILITY EASEMENT
EXISTING 12" WATER MAIN
EXISTING 12" WATER MAIN
EXISTING DRIVEWAY
LIMITS OF PROPOSED #57 STONE
4
44
SEE DETAIL 3 ON SHEET DR1-9 FOR TIE-IN DETAIL
15
CAP FOR TESTING CUT AND REMOVE TO TIE IN TO 6" STL NW LOOP HP GAS MAIN
6" STL GAS MAIN SEE NW LOOP HP GAS MAIN PLANS
6" STL NW LOOP HP GAS MAIN VALVE AT STA 88+58
LIMITS OF PROPOSED #57 STONE
LIMITS OF PROPOSED #57 STONE
PROPOSED 10'W TEMPORARY WORKSPACE
PROPOSED 10'W PERMANENT UTILITY EASEMENT
LIMITS OF PROPOSED #57 STONE
EXISTING UTILITY EASEMENT

NOTE:
REGULATOR STATION INLET AND OUTLET PIPING ARE SHOWN IN TESTING CONFIGURATION. SEE SHEET DR1-7 FOR TIE-IN DETAILS.

Issued for Bids

0' 1' 2' 3' 4' 8'
SCALE: 1/4" = 1'-0"

(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

PROPOSED SITE PLAN DETAIL

SCALE: 1/4" = 1'-0"

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – HIGHWAY 43
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-D

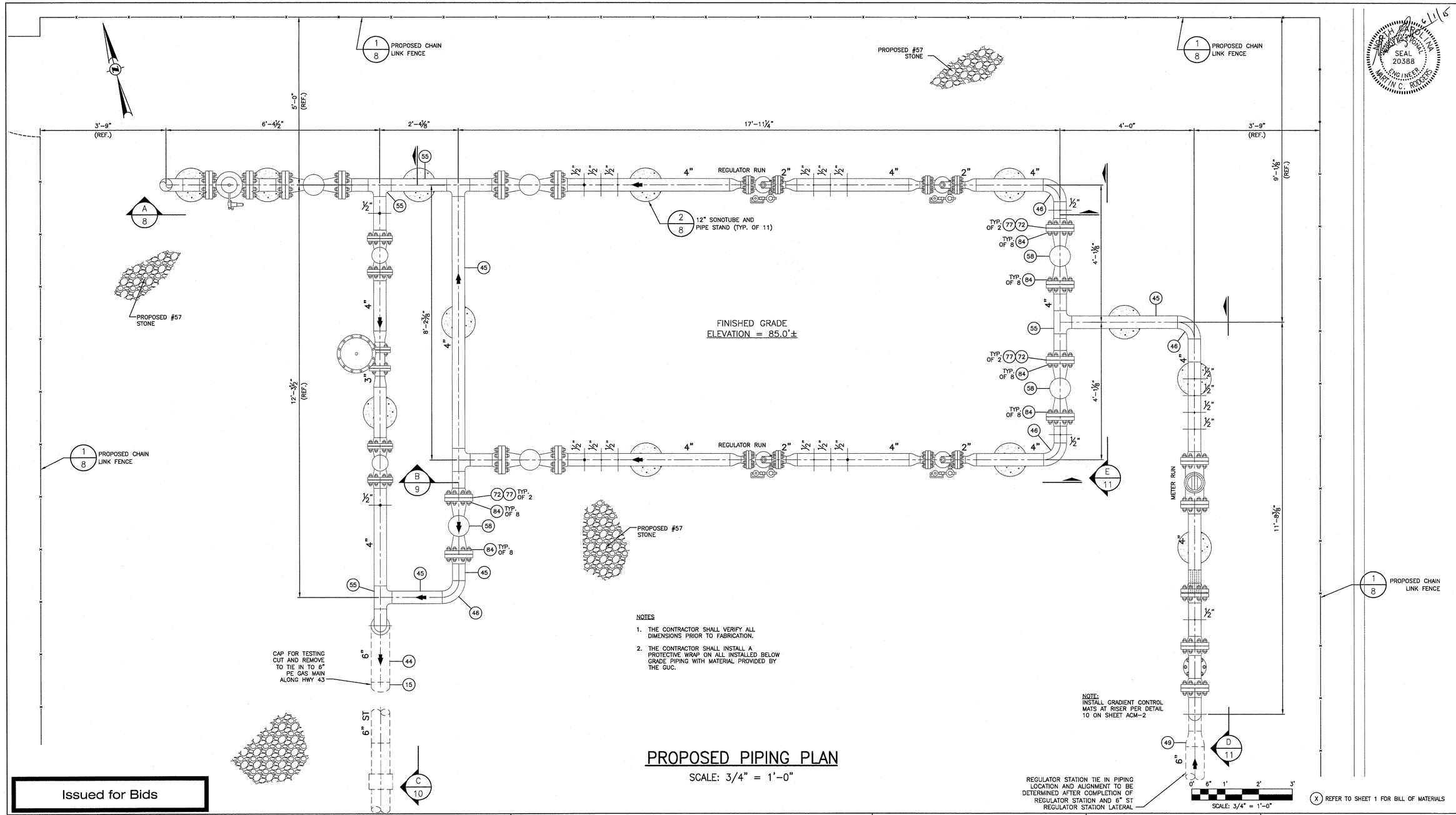
SCALE
PLAN AS SHOWN
PROFILE
HOR. –
VERT. –

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION
PROPOSED SITE PLAN DETAIL

SHEET: DR1-6 REVISION: 0



NOTES

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
2. THE CONTRACTOR SHALL INSTALL A PROTECTIVE WRAP ON ALL INSTALLED BELOW GRADE PIPING WITH MATERIAL PROVIDED BY THE GUC.

PROPOSED PIPING PLAN

SCALE: 3/4" = 1'-0"

Issued for Bids

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 ENGINEER MARTIN C. ROGERS 6/1/15

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – HIGHWAY 43
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 309
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
RK&K COMM. NO. 1214-011-D

SCALE
PLAN AS SHOWN
PROFILE
HOR. –
VERT. –

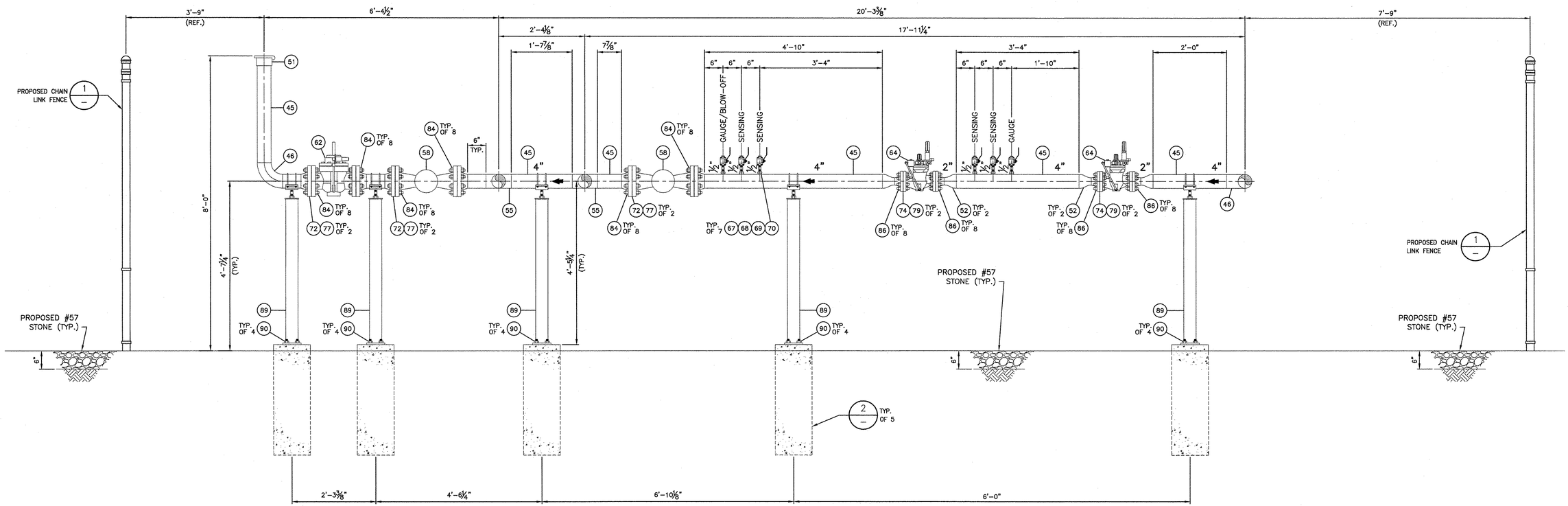
Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

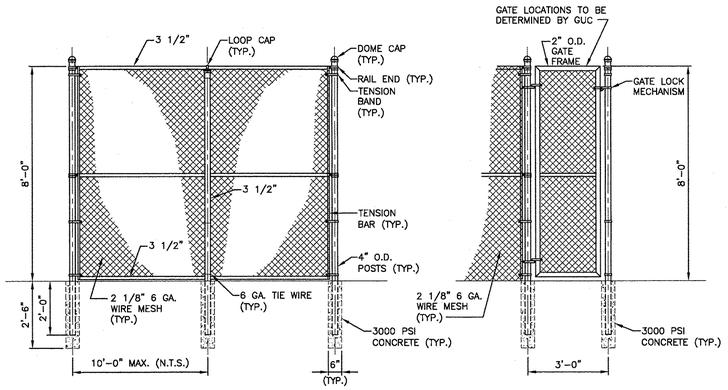
PROPOSED PIPING PLAN

SHEET: DR1-7 REVISION: 0



SECTION A

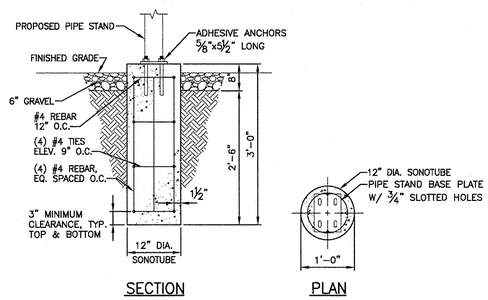
SCALE: 3/4" = 1'-0"



PROPOSED FENCE DETAILS

DETAIL 1

SCALE: 3/8" = 1'-0"



PIPE STAND FOUNDATION DETAILS

DETAIL 2

SCALE: 3/4" = 1'-0"

SCALE: 3/8" = 1'-0"

SCALE: 3/4" = 1'-0"

(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

Issued for Bids

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. RODGERS 6/1/15

NOTES

1. THE CONTRACTOR SHALL INSTALL A PROTECTIVE WRAP ON ALL INSTALLED BELOW GRADE PIPING WITH MATERIAL PROVIDED BY THE GUC.
2. ALL TAPS FOR WELDOLETS AND THREDOLETS SHALL BE FULL BORE.
3. SITE SHALL BE GRADED AS TO ALLOW FOR PROPER DRAINAGE AWAY FROM REGULATOR PIPING.

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

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DATE TEST COMPLETED: _____

PROJECT

GCP89 – HIGHWAY 43
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

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RK&K COMM. NO. 1214-011-D

SCALE
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PROFILE
HOR. –
VERT. –

Greenville Utilities

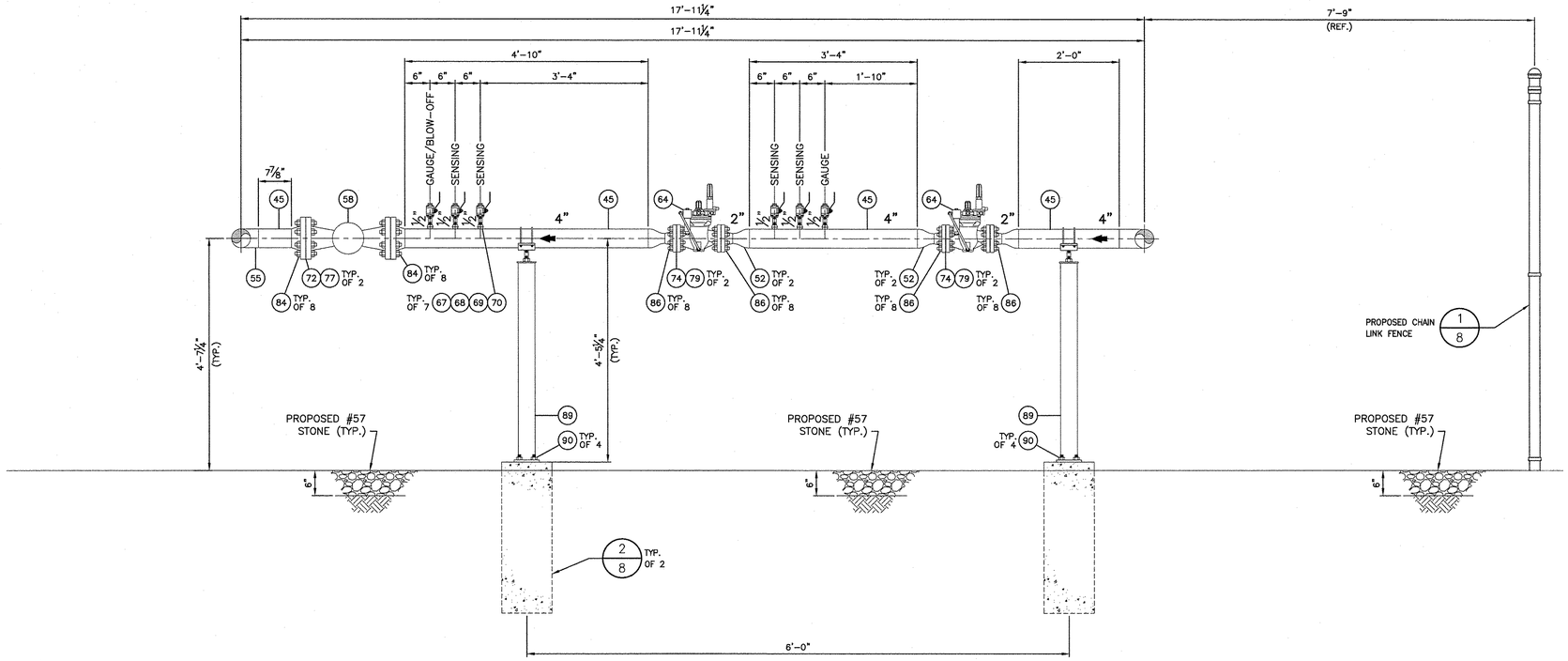
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PIPING SECTION AND DETAILS

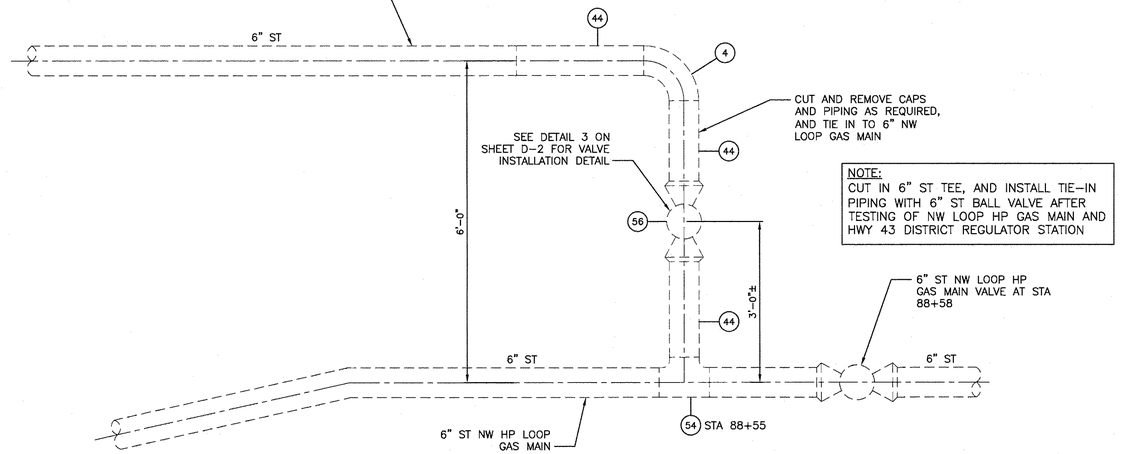
SHEET: DR1-8

REVISION: 0



SECTION B

SCALE: 3/4" = 1'-0"



HWY 43 TIE IN DETAIL

DETAIL 3

SCALE: 3/4" = 1'-0"

Issued for Bids

0' 6" 1' 2' 3'

SCALE: 3/4" = 1'-0"

(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

NOTES

1. THE CONTRACTOR SHALL INSTALL A PROTECTIVE WRAP ON ALL INSTALLED BELOW GRADE PIPING WITH MATERIAL PROVIDED BY THE GUC.
2. ALL TAPS FOR WELDOLETS AND THREDOLETS SHALL BE FULL BORE.
3. SITE SHALL BE GRADED AS TO ALLOW FOR PROPER DRAINAGE AWAY FROM REGULATOR PIPING.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. ROGERS 6/1/15

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – HIGHWAY 43 DISTRICT REGULATOR STATION

ALIGNMENT SHEET

RKK RUMMEL, KLEPPER & KAHL, LLP 2100 E. CARY ST., SUITE 309 RICHMOND, VIRGINIA 23223 T-804.782.1903 F-804.782.2142

ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-D

SCALE

PLAN AS SHOWN

PROFILE

HOR. –

VERT. –

Greenville Utilities

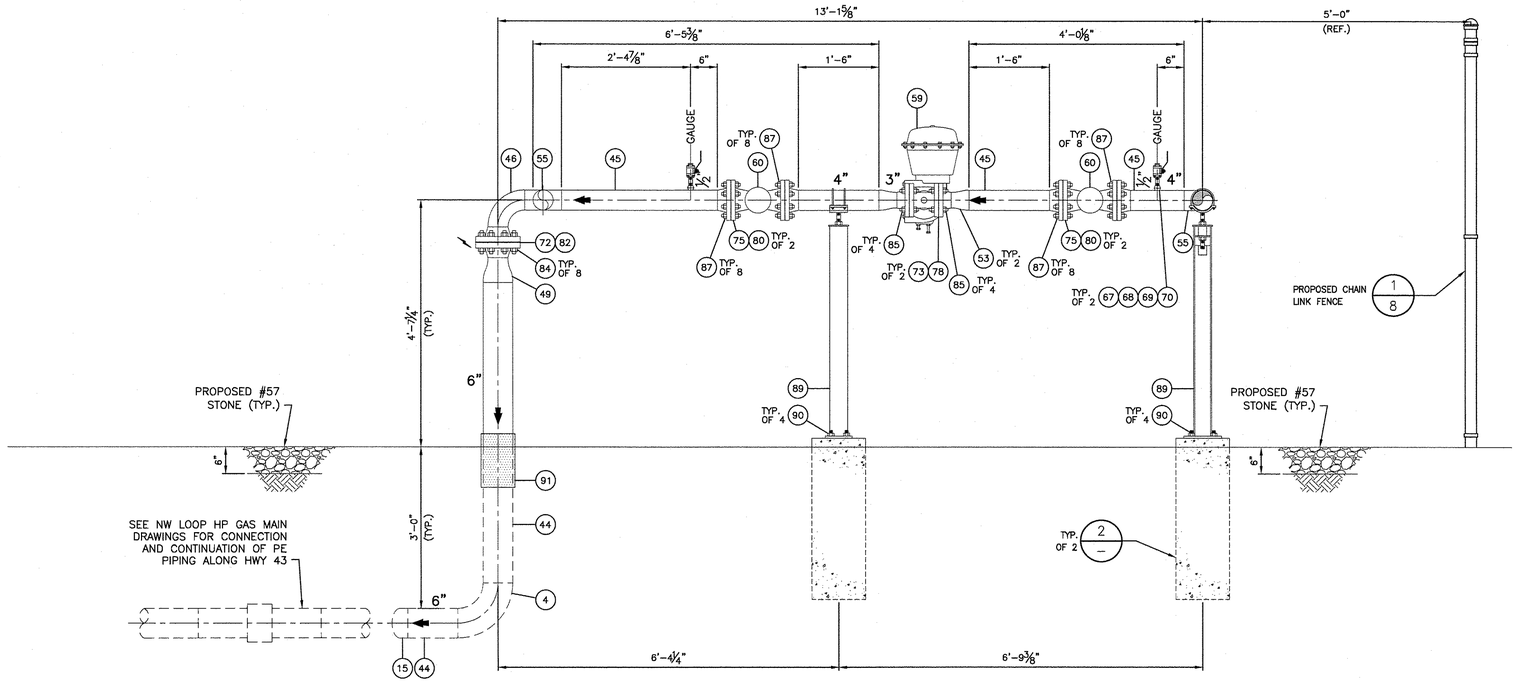
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PIPING SECTION AND TIE-IN DETAIL

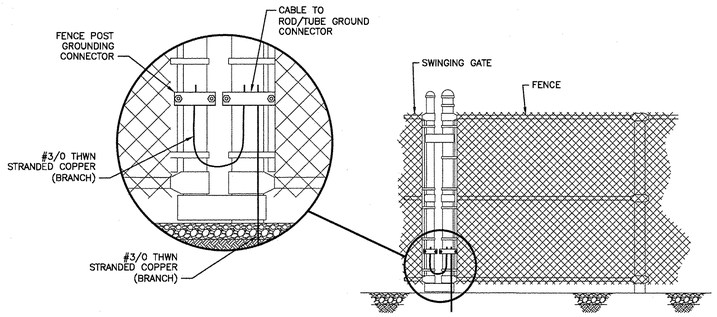
SHEET: DR1-9

REVISION: 0



SECTION C

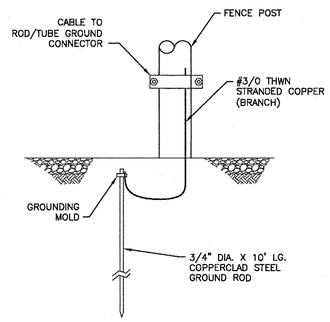
SCALE: 3/4" = 1'-0"



FENCE GROUNDING DETAIL

DETAIL 4

SCALE: 3/4" = 1'-0"



GROUNDING ROD DETAIL

DETAIL 5

SCALE: 3/4" = 1'-0"

Issued for Bids

0' 6" 1' 2' 3'

SCALE: 3/4" = 1'-0"

(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. RODGERS 6/1/15

NOTES

1. THE CONTRACTOR SHALL INSTALL A PROTECTIVE WRAP ON ALL INSTALLED BELOW GRADE PIPING WITH MATERIAL PROVIDED BY THE GUC.
2. ALL TAPS FOR WELDOLETS AND THREDOLETS SHALL BE FULL BORE.
3. SITE SHALL BE GRADED AS TO ALLOW FOR PROPER DRAINAGE AWAY FROM REGULATOR PIPING.

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – HIGHWAY 43
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 329
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-D

SCALE
PLAN AS SHOWN
PROFILE
HOR. –
VERT. –

Greenville Utilities

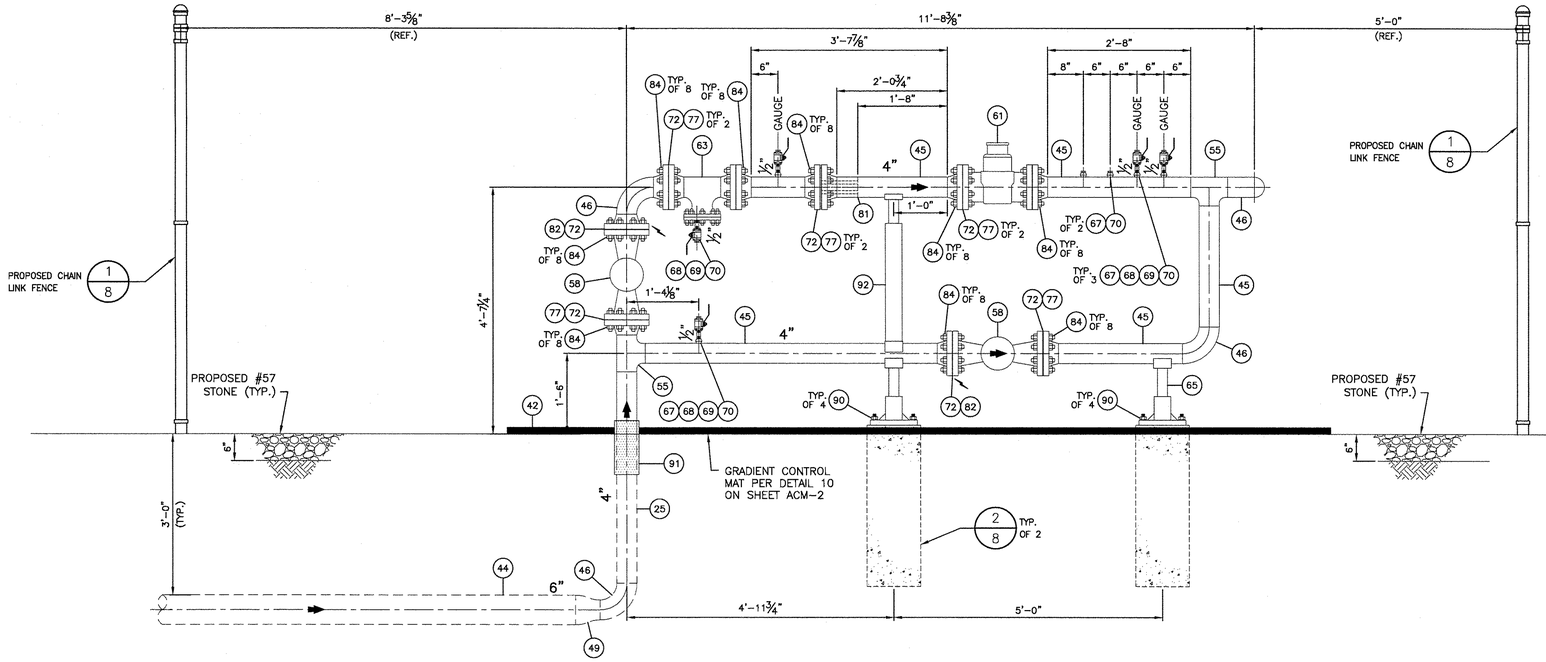
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PIPING SECTION AND DETAILS

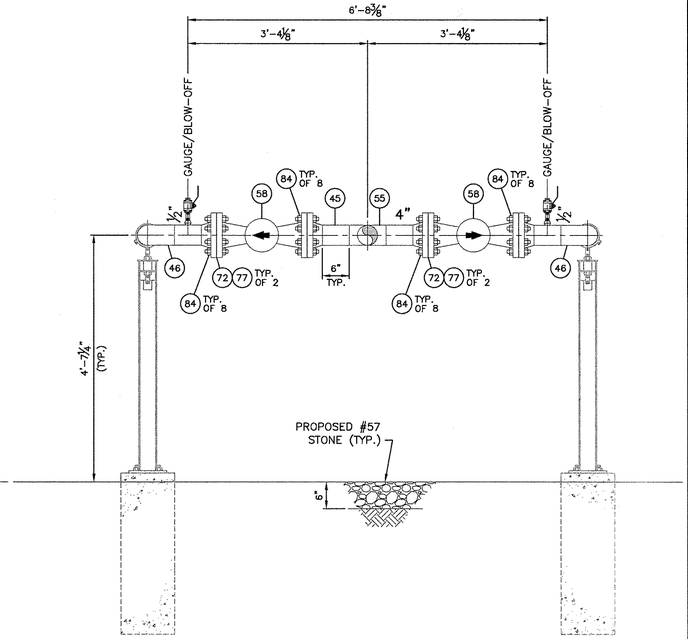
SHEET: DR1-10

REVISION: 0



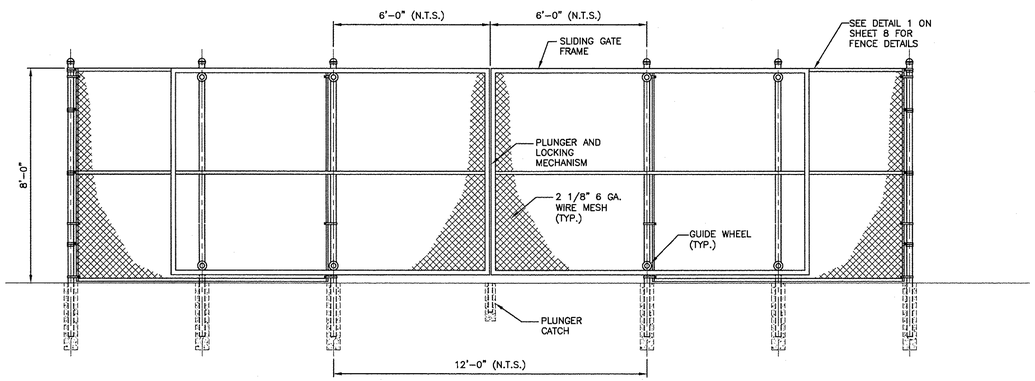
SECTION D

SCALE: 3/4" = 1'-0"



SECTION E

SCALE: 3/4" = 1'-0"



PROPOSED CANTILEVERED SLIDING GATE DETAILS

DETAIL 6

SCALE: 3/8" = 1'-0"

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. ROGERS

Issued for Bids

0' 6" 1' 2' 3'

SCALE: 3/4" = 1'-0"

(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

NOTES

1. THE CONTRACTOR SHALL INSTALL A PROTECTIVE WRAP ON ALL INSTALLED BELOW GRADE PIPING WITH MATERIAL PROVIDED BY THE GUC.
2. ALL TAPS FOR WELDOLETS AND THREDOLETS SHALL BE FULL BORE.
3. SITE SHALL BE GRADED AS TO ALLOW FOR PROPER DRAINAGE AWAY FROM REGULATOR PIPING.

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – HIGHWAY 43
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

RK&K TUMMEL, KLEPPER & KAHL, LLP
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-D

SCALE
PLAN AS SHOWN
PROFILE
HOR. –
VERT. –

Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PIPING SECTION AND DETAIL

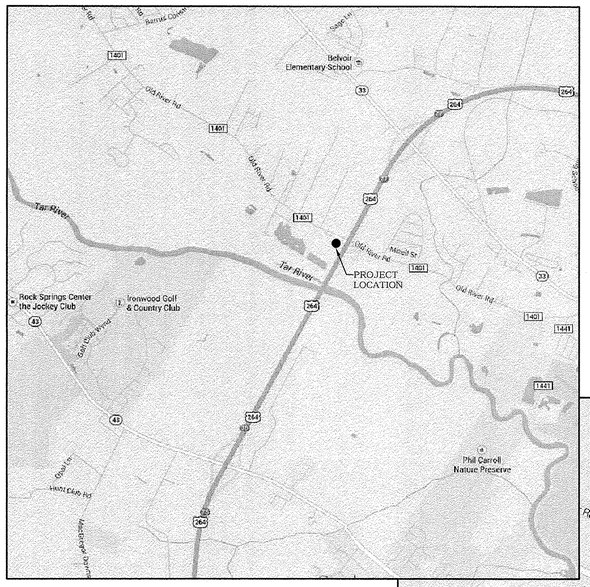
SHEET: DR1–11

REVISION: 0

Greenville Utilities

GCP89 - Old River Road
District Regulator Station
City of Greenville, North Carolina

June 1, 2015


Belvoir Elementary School
Old River Rd
Tar River
PROJECT LOCATION
Rock Springs Center the Jockey Club
Ironwood Golf & Country Club
Phil Carroll Nature Preserve
Mitchell St
Old River Rd
Old River Rd
Tar River
Tar River
Old River Rd
Old River Rd
Old River Rd

DRAWING LEGEND

SYMBOL	DESCRIPTION
	CENTERLINE
	HYDRO
	EXISTING FENCE
	EXISTING GUARD RAIL
	EXISTING EDGE-OF-PAVEMENT
	EXISTING DRIVEWAY/PATH
	EXISTING GAS TO REMAIN
	EXISTING UTILITY EASEMENT
℄	EXISTING PROPERTY LINE
	EXISTING RIGHT-OF-WAY (R/W)
	EXISTING SANITARY SEWER
	EXISTING STORM DRAINAGE
	EXISTING UNDERGROUND ELECTRIC LINE
	EXISTING UNDERGROUND TELEPHONE CABLE
	EXISTING UNDERGROUND FIBER OPTIC
	EXISTING WATER
	BORROW PIT
	WETLAND BOUNDARY
	RIPARIAN BARRIER
	AE FLOODWAY
	AE FLOODZONE
	PROPOSED TEMPORARY WORKSPACE
	PROPOSED UTILITY EASEMENT
X	PROPOSED FENCE
	PROPOSED GAS PIPE ABOVE GRADE (DOUBLE LINE)
	PROPOSED GAS PIPE BELOW GRADE (DOUBLE LINE)

NOTES:

1. ALL DIMENSIONS TO BE VERIFIED PRIOR TO FABRICATION AND INSTALLATION.
2. ALL PIPING TO BE FABRICATED & TESTED IN ACCORDANCE WITH 49 CFR 192 AND PROJECT SPECIFICATIONS.
3. ALL PIPE WELDING TO BE PERFORMED PER GUC WELD STANDARDS AND PROJECT SPECIFICATIONS.
4. ALL PIPING SHALL BE THOROUGHLY CLEANED OF MILL SCALE, WELD SLAG, & RUST PRIOR TO ASSEMBLY.
5. ALL PIPING SHALL BE VISUALLY INSPECTED BY ENGINEER/OWNER PRIOR TO FABRICATION OF ASSEMBLY.

DRAWING LEGEND

SYMBOL	DESCRIPTION
EX.	EXISTING
ST	STEEL
PE	POLYETHYLENE
PGS	PROPOSED GAS SERVICE
PROP.	PROPOSED
RCP	REINFORCED CONCRETE PIPE
STA	STATION
	INSULATING FLANGE LOCATION
1	PROPOSED ITEM NUMBER
	FLOW ARROW
	EARTH
	GRAVEL
	CONCRETE
1/4	DETAIL IDENTIFICATION / SHEET NUMBER
A/4	SECTION IDENTIFICATION / SHEET NUMBER

Item	Quantity	Unit	Size	Description of Station Materials
4	5	EA	6"	Elbow, 90°, LR, Grade B, SCH 40, 0.280" w.t.
15	2	EA	6"	Cap, Grade B, 0.280" w.t.
16	2	EA	6"	Valve, Ball, Flanged End, ANSI 150, Kerotest Weldball or equivalent
20	4	EA	6"	Weld Neck Flange, RF, ANSI 150, WT = 0.280", Bore = 6.065"
21	1	EA	6"	Valve, Relief, Flanged End, ANSI 300, Fisher 63EG w/ 6458 series pilot
22	1	EA	6"	Weather Cap
25	10	LF	4"	Steel Pipe, 0.237" w.t., Grade B, Coated, ERW, BE, Spec API-5L
33	50	LF	6"	Polyethylene Medium Density Plastic Pipe
35	1	EA	6"	Elbow, 90°, LR, Polyethylene Medium Density Plastic, Butt Fusion
37	1	EA	6"	Cap, Polyethylene Medium Density Plastic. Butt Fusion
40	1	EA	6"	Transition Fitting, Steel 0.280" Wall, Grade B x Polyethylene Medium Density Plastic
42	4	EA	8' x 4'	Gradient Control Mat
43	60	LF	6"	Steel Pipe, 0.280" w.t., Grade B, Bare, ERW, BE, Spec API-5L
44	20	LF	6"	Steel Pipe, 0.280" w.t., Grade B, Coated, ERW, BE, Spec API-5L
45	60	LF	4"	Steel Pipe, 0.237" w.t., Grade B, Bare, ERW, BE, Spec API-5L
46	7	EA	4"	Elbow, 90°, LR, Grade B, SCH 40, 0.237" w.t.
48	2	EA	6"x2"	Reducer, Weld End, Concentric, Grade B, WT = 0.280" x 0.154"
49	3	EA	6"x4"	Reducer, Weld End, Concentric, Grade B, WT = 0.280" x 0.237"
50	2	EA	6"x3"	Reducer, Weld End, Concentric, Grade B, WT = 0.280" x 0.216"
52	6	EA	4"x2"	Reducer, Weld End, Concentric, Grade B, WT = 0.237" x 0.154"
54	4	EA	6"	Tee, Weld End, Straight, Grade B, WT = 0.280" x 0.280"
55	3	EA	4"	Tee, Weld End, Straight, Grade B, WT = 0.237" x 0.237"
57	3	EA	6"	Valve, Ball, Flanged End, ANSI 300, Kerotest Weldball or equivalent
58	4	EA	4"	Valve, Ball, Flanged End, ANSI 300, Kerotest Weldball or equivalent
59	1	EA	3"	Valve, Ball, Flanged End, ANSI 150, Fisher Vee-Ball V150 w/ Fisher 2052 Diaphragm Rotary Actuator
61	1	EA	4"	Meter, Flanged End, ANSI 300, Equimeter Model No. AAT18/27
62	1	EA	6"	Flange Insulation Kit, ANSI 300, Type E, Linebacker, Double Washer Set, w/Full Length Phenolic Sleeves
63	1	EA	4"	Strainer, Tee Style, Flanged End, ANSI 300, Apollo Engineering Model TSF
64	4	EA	2"x1"	Regulator, Pressure Reducing, Flanged End, ANSI 300, Fisher Type EZR
65	1	EA	4"	Pipe Support, EZ-Line, Model 204, Figure F w/ Neoprene Liner, Part No. 204-F, 4" P.S., D-1'-4" (*)
66	32	EA	(6") ANSI 150	Stud Bolts, All Thread, 3/4" Diameter x 4 1/2" Long, Grade B-7, ASTM A-194, w/2 A-194, Grade 2H Heavy Hex Nuts (8 bolts per connection)
67	22	EA	36"-4" x 1/2"	Thredolet, 3000#
68	21	EA	1/2" x 2"	Pipe Nipple, Extra Strong, Grade B, Seamless C.S., thread both ends
69	21	EA	1/2"	Valve, Ball, Class 3000, NFPT X NFPT, lockable, Swagelok Series 60 or equivalent
70	23	EA	1/2"	Pipe plug, Hex Head, Extra Strong, F.S., screwed
71	10	EA	6"	Weld Neck Flange, RF, ANSI 300, WT = 0.280", Bore = 6.065"
72	16	EA	4"	Weld Neck Flange, RF, ANSI 300, WT = 0.237", Bore = 4.020"
73	2	EA	3"	Weld Neck Flange, RF, ANSI 150, WT = 0.216", BORE = 3.068"
74	8	EA	2"	Weld Neck Flange, RF, ANSI 300, WT = 0.154", Bore = 2.067"
76	8	EA	6"	Gasket, Spiral Wound, Flexitallic, ANSI 300
77	14	EA	4"	Gasket, Spiral Wound, Flexitallic, ANSI 300
78	2	EA	3"	Gasket, Spiral Wound, Flexitallic, ANSI 150
79	8	EA	2"	Gasket, Spiral Wound, Flexitallic, ANSI 300
81	1	EA	4"	Straightening Vanes, Apollo Engineering, Model No. 04F30-90-00
82	2	EA	4"	Flange Insulation Kit, ANSI 300, Type E, Linebacker, Double Washer Set, w/Full Length Phenolic Sleeves
83	108	EA	(6") ANSI 300	Stud Bolts, All Thread, 3/4" Diameter x 5" Long, Grade B-7, ASTM A-194, w/2 A-194, Grade 2H Heavy Hex Nuts (12 bolts per connection)
84	120	EA	(4") ANSI 300	Stud Bolts, All Thread, 3/4" Diameter x 4 1/2" Long, Grade B-7, ASTM A-194, w/2 A-194, Grade 2H Heavy Hex Nuts (8 bolts per connection)
85	8	EA	(3") ANSI 150	Stud Bolts, All Thread, 5/8" Diameter x 3 3/4" Long, Grade B-7, ASTM A-194, w/2 A-194, Grade 2H Heavy Hex Nuts (4 bolts per connection)
86	64	EA	(2") ANSI 300	Stud Bolts, All Thread, 5/8" Diameter x 3 1/2" Long, Grade B-7, ASTM A-194, w/2 A-194, Grade 2H Heavy Hex Nuts (8 bolts per connection)
88	7	EA	6"	Pipe Support, EZ-Line, Model 510, Figure F w/ Neoprene Liner, Part No. 510-F, 6" P.S., D-4'-5" (*)
89	5	EA	4"	Pipe Support, EZ-Line, Model 204, Figure F w/ Neoprene Liner, Part No. 204-F, 4" P.S., D-4'-5" (*)
90	48	EA	5/8" x 5 1/2"	Expansion Bolt, HILTI HVA, Adhesive System w, Carbon Steel Threaded Rods
91	1 ROLL	NA	NA	Rock Shield
92	1	EA	4"	Double Pipe Support, EZ-Line, Model DPS-4
93	2	EA	3/4" Dia. x 10'L	Copperclad Steel Ground Rod
94	20	LF	NA	#3/0 THWN Stranded Copper Wire
95	2	EA	NA	Grounding Mold
96	8	EA	NA	Cable to Rod/Tube Ground Connector
				Electric conduit, risers, conductors, and seals to be provided by owner

*BASE PLATE OF PIPE STAND SHALL HAVE ¾"x1½" SLOTTED HOLES TO ACCOMODATE ⅝" EXPANSION BOLTS.

NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. ROGERS

Issued for Bids

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – OLD RIVER ROAD
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-C

SCALE
PLAN NA
PROFILE
HOR. –
VERT. –

Greenville Utilities

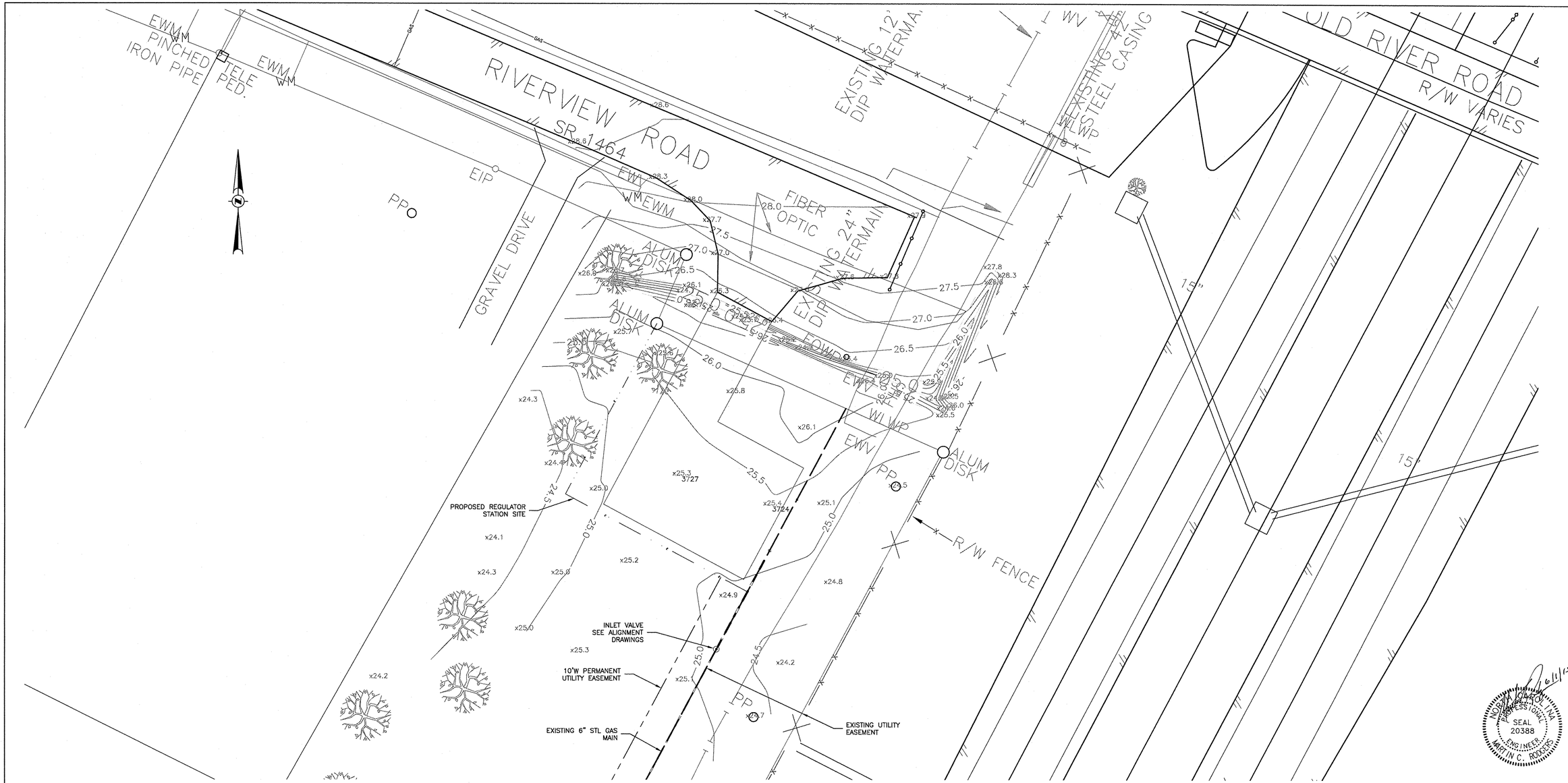
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

BILL OF MATERIALS,
DRAWING LEGEND,
AND GENERAL NOTES

SHEET: DR2-1

REVISION: 0



EXISTING CONDITIONS PLAN

SCALE: 1/16" = 1'-0"

Issued for Bids

0' 4' 8' 16' 32'

SCALE: 1/16" = 1'-0"

NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. ROKKES 6/1/15

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

TOTAL ACREAGE DISTURBED: 0.10 ACRES
TOTAL ACREAGE TO BE CLEARED: 0 ACRES (2 TREES)
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – OLD RIVER ROAD
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST. SUITE 309
RICHMOND, VIRGINIA 23223
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-C

SCALE
PLAN AS SHOWN
PROFILE
HOR. –
VERT. –

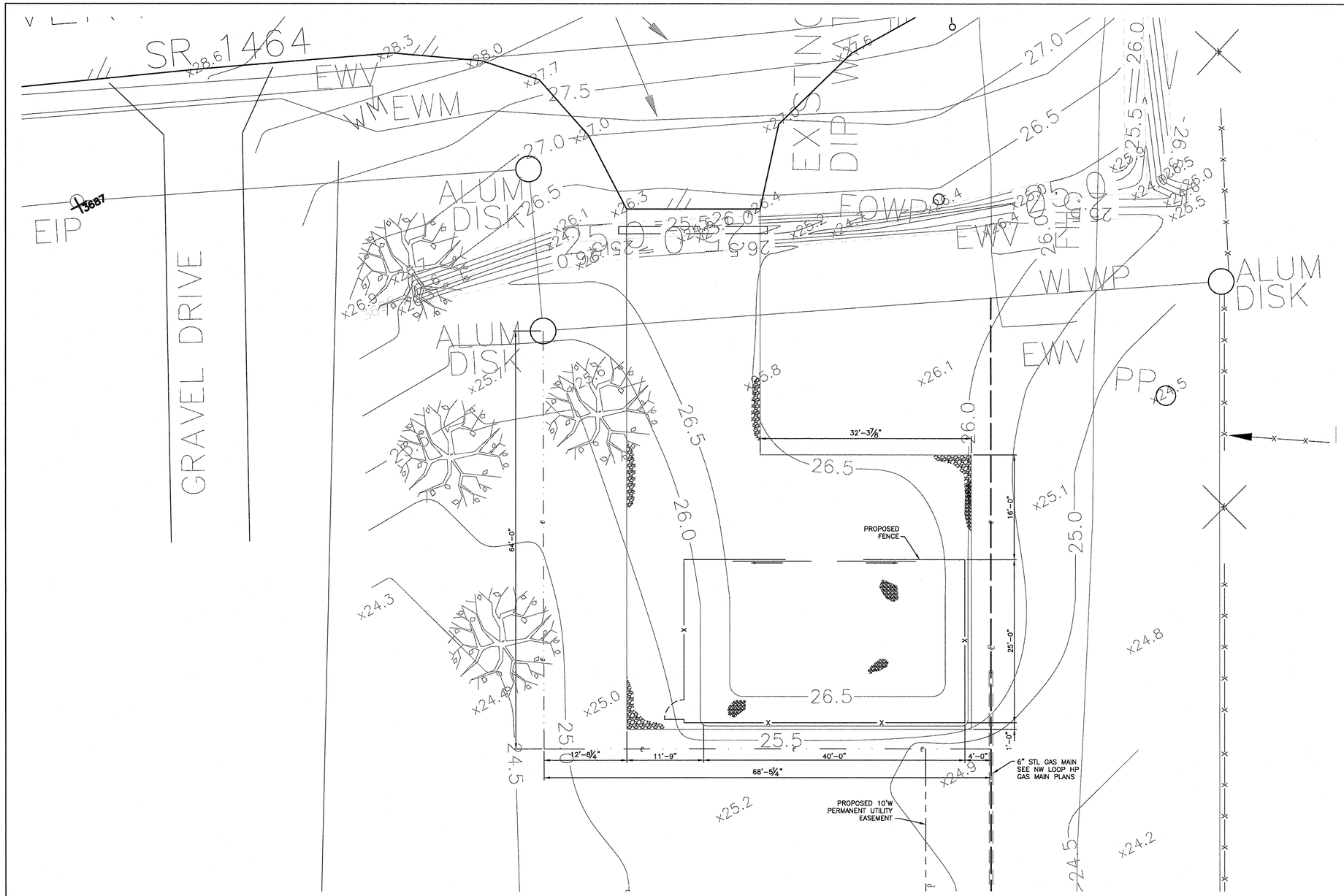
Greenville Utilities

DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

EXISTING CONDITIONS PLAN

SHEET: DR2-2 REVISION: 0



PROPOSED SITE GRADING PLAN

SCALE: 1/8" = 1'-0"

NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. ROOSTO

Issued for Bids

0' 2' 4' 8' 16'

SCALE: 1/8" = 1'-0"

(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – OLD RIVER ROAD
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-C

SCALE
PLAN AS SHOWN
PROFILE
HOR. –
VERT. –

Greenville Utilities

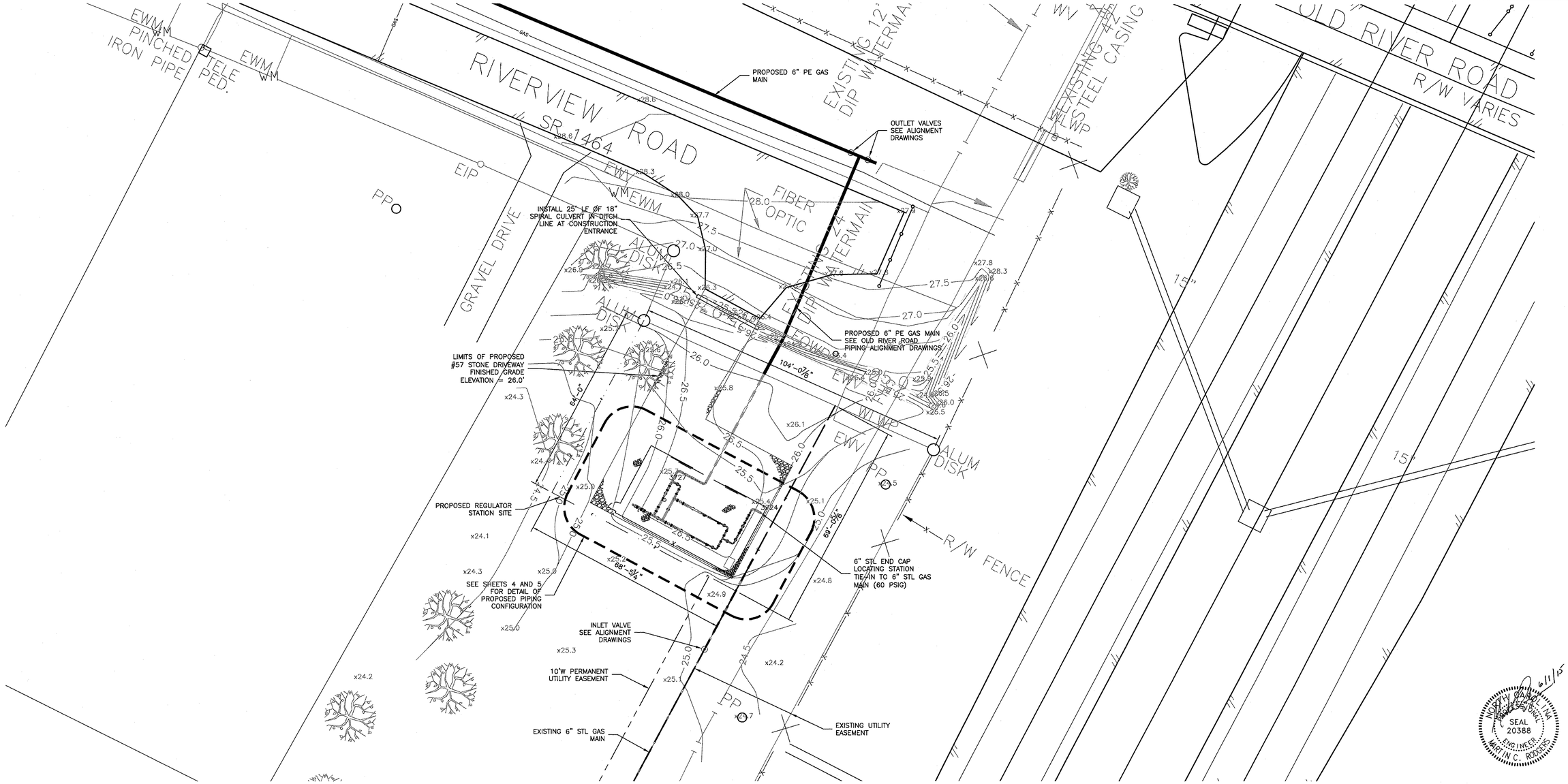
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PROPOSED SITE GRADING PLAN

SHEET: DR2-3

REVISION: 0



PROPOSED SITE PLAN

SCALE: 1/16" = 1'-0"

Issued for Bids

0' 4' 8' 16' 32'

SCALE: 1/16" = 1'-0"

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

TOTAL ACREAGE DISTURBED: 0.10 ACRES
TOTAL ACREAGE TO BE CLEARED: 0 ACRES (2 TREES)
TOTAL WETLAND CONSTRUCTION: 0 ACRES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig
DATE TEST COMPLETED: _____

PROJECT

GCP89 – OLD RIVER ROAD
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

RUMMEL, KLEPPER & KAHL, LLP
2100 E. CARY ST., SUITE 309
RICHMOND, VIRGINIA 23223
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS
RK&K COMM. NO. 1214-011-C

SCALE
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PROFILE
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VERT. –

Greenville Utilities

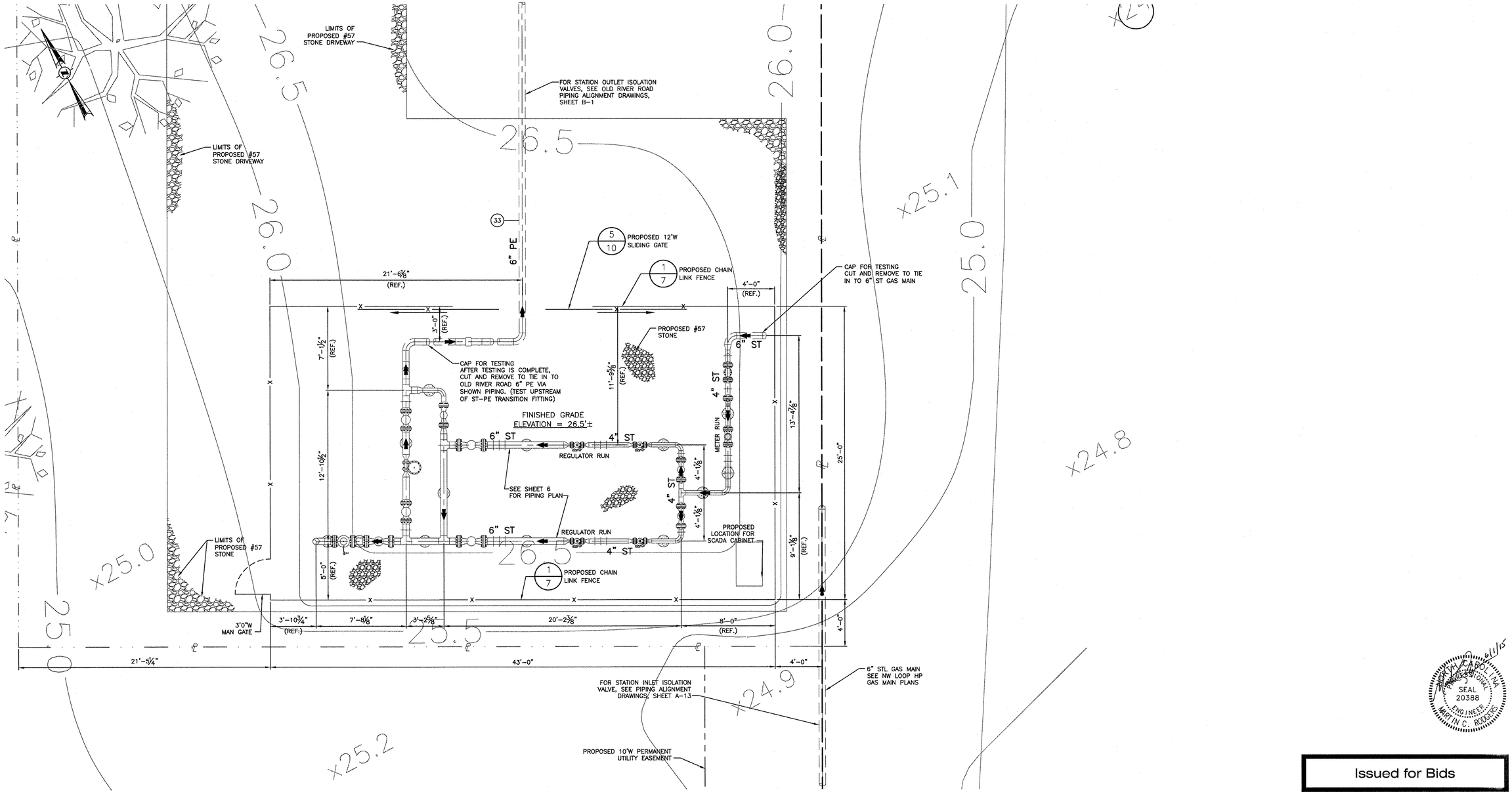
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PROPOSED SITE PLAN

SHEET: DR2-4 REVISION: 0

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. RIDDICK 6/1/15



PROPOSED SITE PLAN DETAIL

SCALE: 1/4" = 1'-0"

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. REDDICK 6/11/15

Issued for Bids

0' 1' 2' 3' 4' 8'

SCALE: 1/4" = 1'-0"

(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

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DATE TEST COMPLETED: _____

PROJECT

GCP89 – OLD RIVER ROAD DISTRICT REGULATOR STATION

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP 2101 E. CARY ST. SUITE 309 RICHMOND, VIRGINIA 23223 T-804.782.1903 F-804.782.2142

ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-C

SCALE

PLAN AS SHOWN

PROFILE

HOR. –

VERT. –

Greenville Utilities

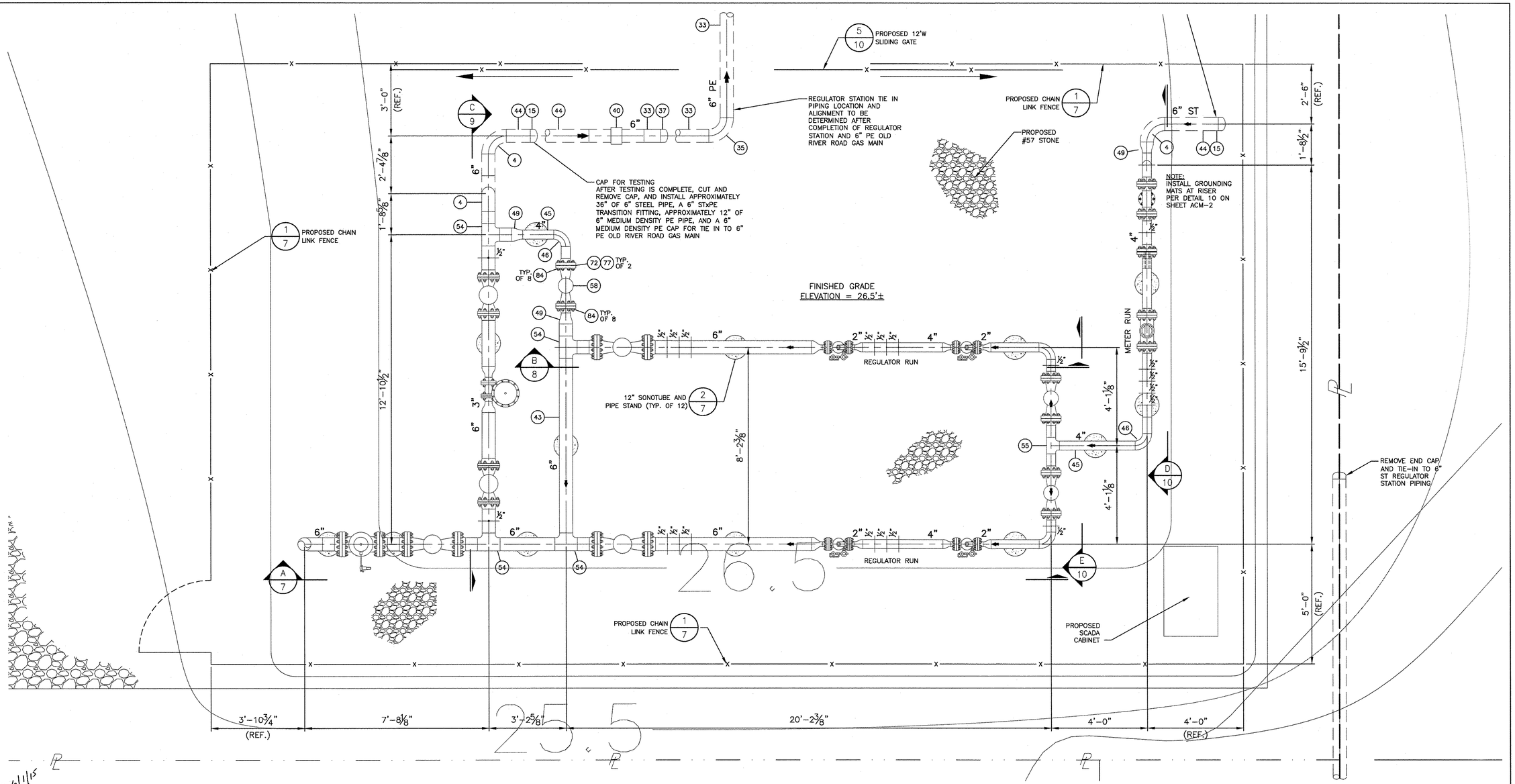
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PROPOSED SITE PLAN DETAIL

SHEET: DR2-5

REVISION: 0



PROPOSED PIPING PLAN

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

SCALE: 3/4" = 1'-0"

(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

Issued for Bids

NOTES

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
2. THE CONTRACTOR SHALL INSTALL A PROTECTIVE WRAP ON ALL INSTALLED BELOW GRADE PIPING WITH MATERIAL PROVIDED BY THE GUC.

NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. ROGERS 6/11/15

SUMMARY OF MATERIALS		
ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS					
REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

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PROJECT

GCP89 – OLD RIVER ROAD DISTRICT REGULATOR STATION

ALIGNMENT SHEET

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VERT. –

Greenville Utilities

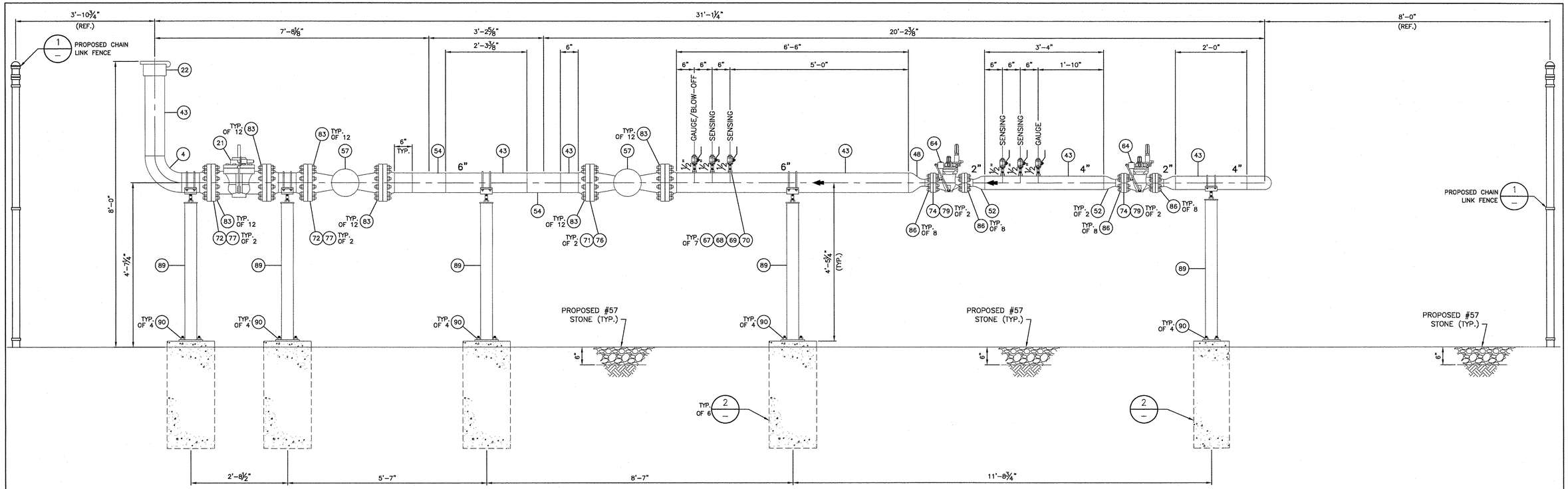
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PROPOSED PIPING PLAN

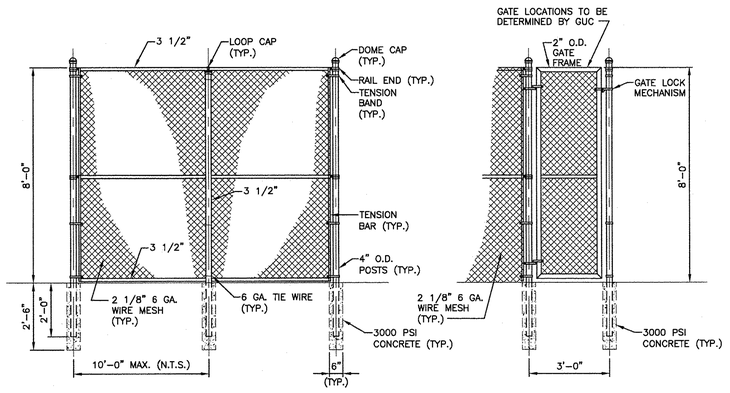
SHEET: DR2-6

REVISION: 0



SECTION A

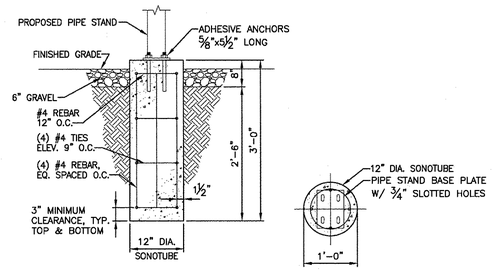
SCALE: 3/4" = 1'-0"



PROPOSED FENCE DETAILS

DETAIL 1

SCALE: 3/8" = 1'-0"



SECTION PLAN

PIPE STAND FOUNDATION DETAILS

DETAIL 2

SCALE: 3/8" = 1'-0" SCALE: 3/4" = 1'-0"

(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

Issued for Bids

NOTES

1. THE CONTRACTOR SHALL INSTALL A PROTECTIVE WRAP ON ALL INSTALLED BELOW GRADE PIPING WITH MATERIAL PROVIDED BY THE GUC.
2. ALL TAPS FOR WELDOLETS AND THREDOLETS SHALL BE FULL BORE.
3. SITE SHALL BE GRADED AS TO ALLOW FOR PROPER DRAINAGE AWAY FROM METER & REGULATOR STATION.

SEAL 20388 ENGINEER MARTIN C. ROSKES 6/1/15

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – OLD RIVER ROAD DISTRICT REGULATOR STATION

ALIGNMENT SHEET

RK&K KUMMEL, KLEPPER & KAHL, LLP
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ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-C

SCALE
PLAN AS SHOWN
PROFILE
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Greenville Utilities

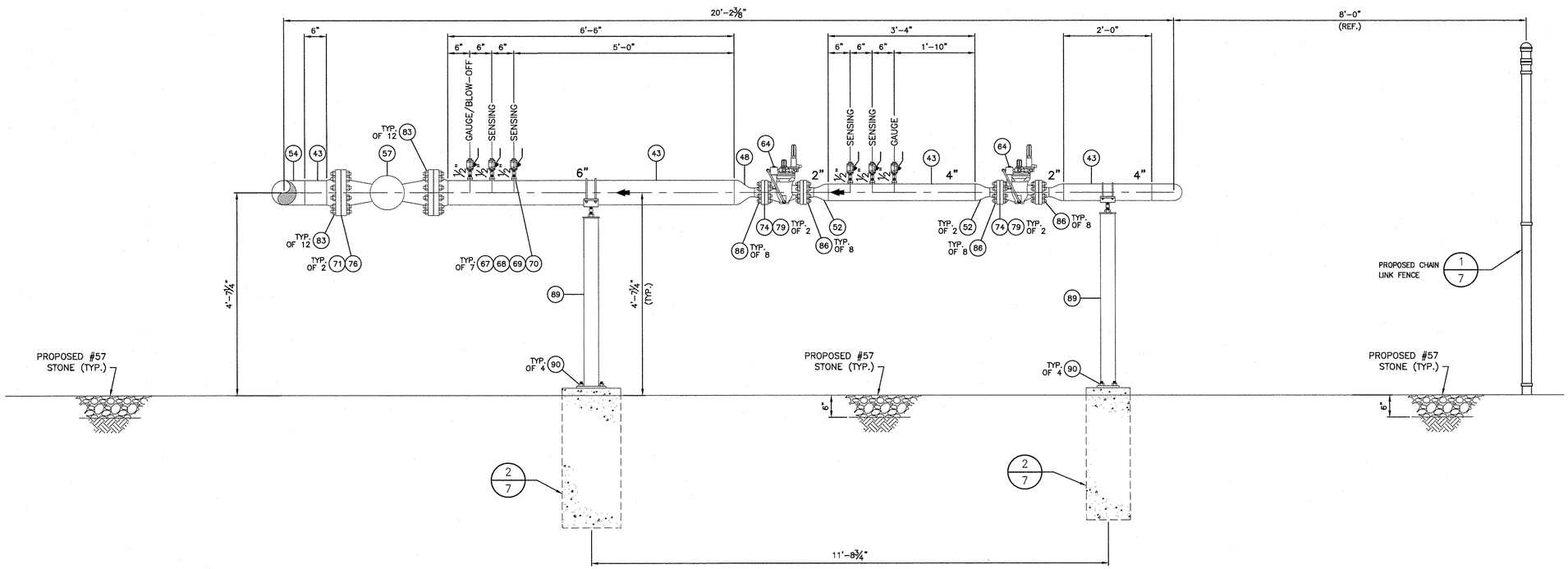
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PIPING SECTION AND DETAILS

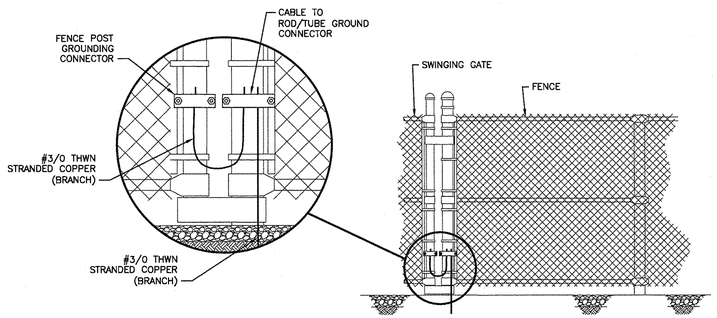
SHEET: DR2-7

REVISION: 0



SECTION B

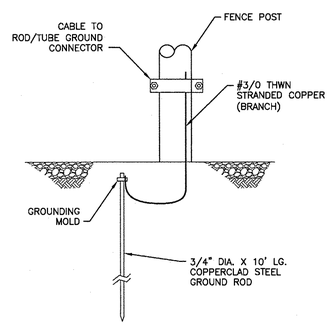
SCALE: 3/4" = 1'-0"



FENCE GROUNDING DETAIL

DETAIL 3

SCALE: 3/4" = 1'-0"



GROUNDING ROD DETAIL

DETAIL 4

SCALE: 3/4" = 1'-0"

Issued for Bids

0' 6" 1' 2' 3'

SCALE: 3/4" = 1'-0"

(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

NOTES

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2. ALL TAPS FOR WELDOLETS AND THREDOLETS SHALL BE FULL BORE.
3. SITE SHALL BE GRADED AS TO ALLOW FOR PROPER DRAINAGE AWAY FROM METER & REGULATOR STATION.

MARTIN C. RODDING SEAL 20388 ENGINEER 6/11/15

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

DATE TEST COMPLETED: _____

PROJECT

GCP89 – OLD RIVER ROAD DISTRICT REGULATOR STATION

ALIGNMENT SHEET

RK&K RUMMEL, KLEPPER & KAHL, LLP 2101 E. CARY ST. SUITE 304 RICHMOND, VIRGINIA 23223 T-804.782.1903 F-804.782.2142
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

RK&K COMM. NO. 1214-011-C

SCALE

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Greenville Utilities

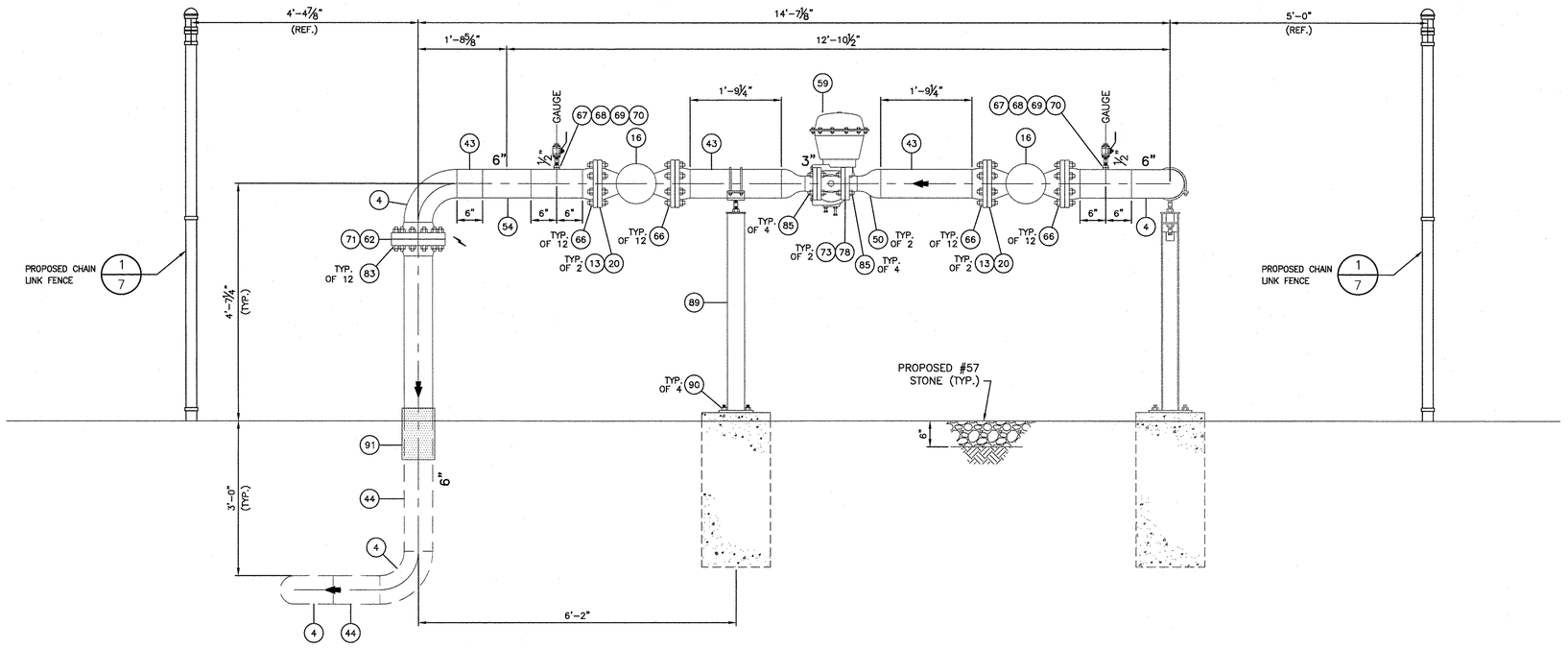
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PIPING SECTION AND DETAILS

SHEET: DR2-8

REVISION: 0



SECTION C

SCALE: 3/4" = 1'-0"

Issued for Bids

0' 6" 1' 2' 3'

SCALE: 3/4" = 1'-0"

(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

NOTES

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6/1/15

NORTH CAROLINA PROFESSIONAL SEAL 20388 ENGINEER MARTIN C. RODGERS

SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY						
C.P.						
DRAFTING & DESIGN – RK&K	CSY	5/20	CSY	6/1/15	–	–
ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

TEST DATA

TESTED FROM STATION: _____ TO STATION: _____

MEDIUM: _____ RECORD TEST PRESSURE: _____ psig

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PROJECT

GCP89 – OLD RIVER ROAD
DISTRICT REGULATOR STATION

ALIGNMENT SHEET

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KLEINFELDER & KARL, LLP
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Greenville Utilities

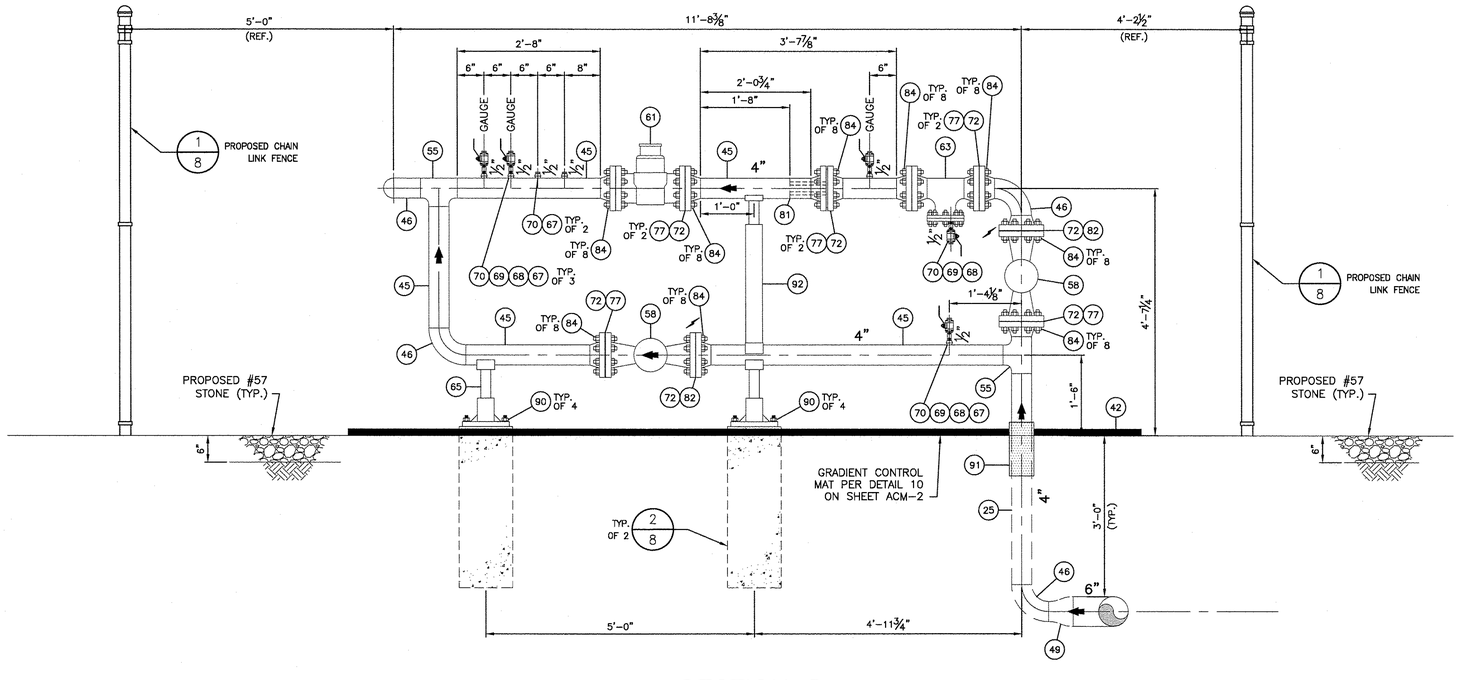
DISTRICT	COUNTY	STATE
–	PITT	NORTH CAROLINA

SHEET DESCRIPTION

PIPING SECTION

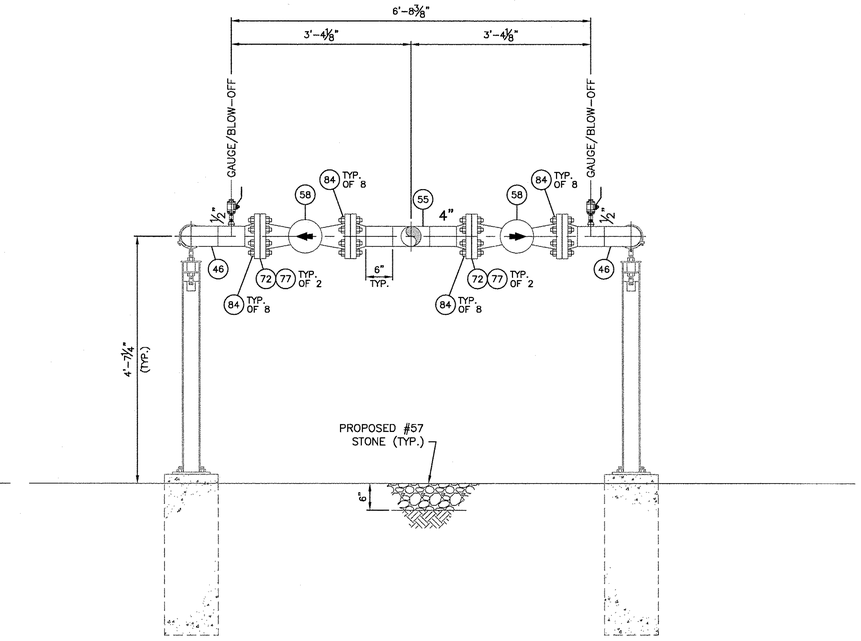
SHEET: DR2-9

REVISION: 0



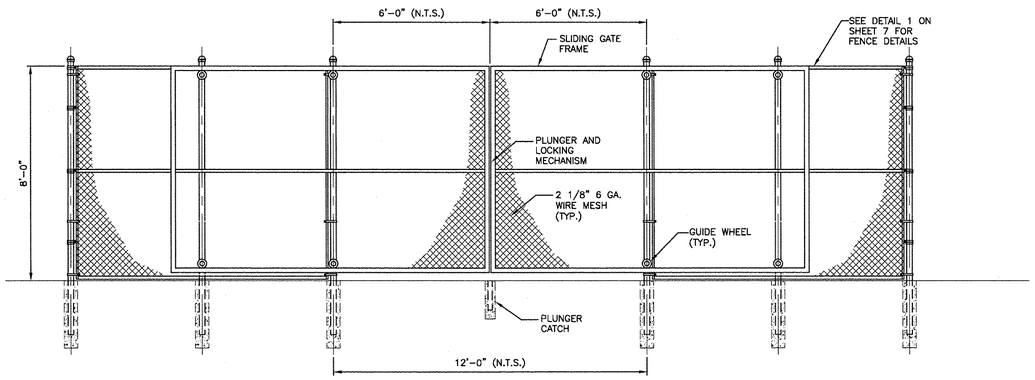
SECTION D

SCALE: 3/4" = 1'-0"



SECTION E

SCALE: 3/4" = 1'-0"



PROPOSED CANTILEVERED SLIDING GATE DETAILS

DETAIL 6

SCALE: 3/8" = 1'-0"

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20388 MARTIN C. ROGERS 6/11/15

Issued for Bids

0' 6" 1' 2' 3'

SCALE: 3/4" = 1'-0"

(X) REFER TO SHEET 1 FOR BILL OF MATERIALS

NOTES

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SUMMARY OF MATERIALS

ITEM	QUANTITY	DESCRIPTION

NOTES

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REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

	PERMITS		BID		CONSTRUCTION	
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SURVEY						
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ENGINEERING – RK&K	MCR	5/20	MCR	6/1/15	–	–

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Greenville Utilities

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SHEET DESCRIPTION

PIPING SECTION AND DETAIL

SHEET: DR2-10

REVISION: 0