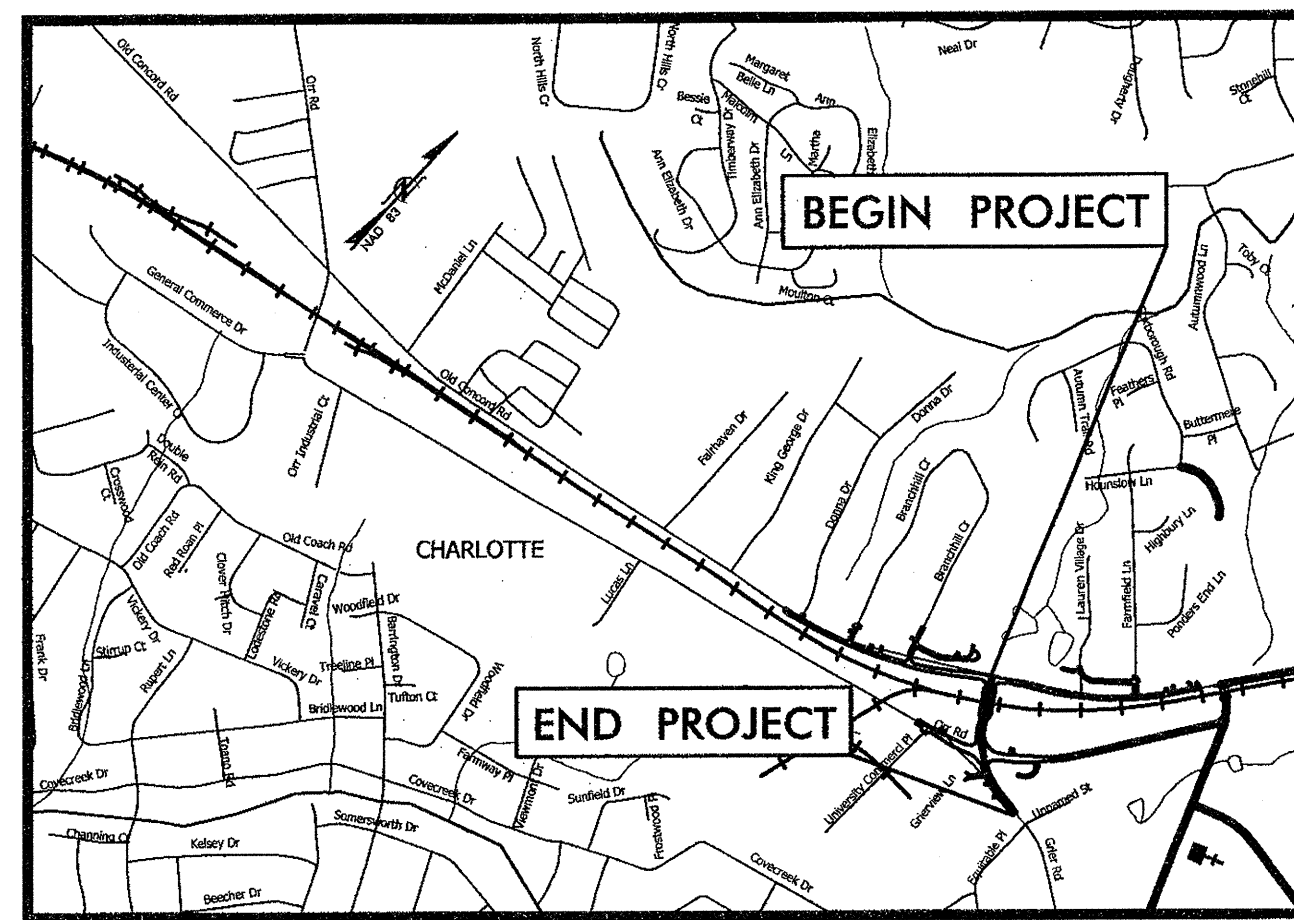


STATE OF NORTH CAROLINA
NCDOT RAIL DIVISION

T.I.P. NO.	SHEET NO.
P-5208H	UC-1



TIP PROJECT: P-5208H

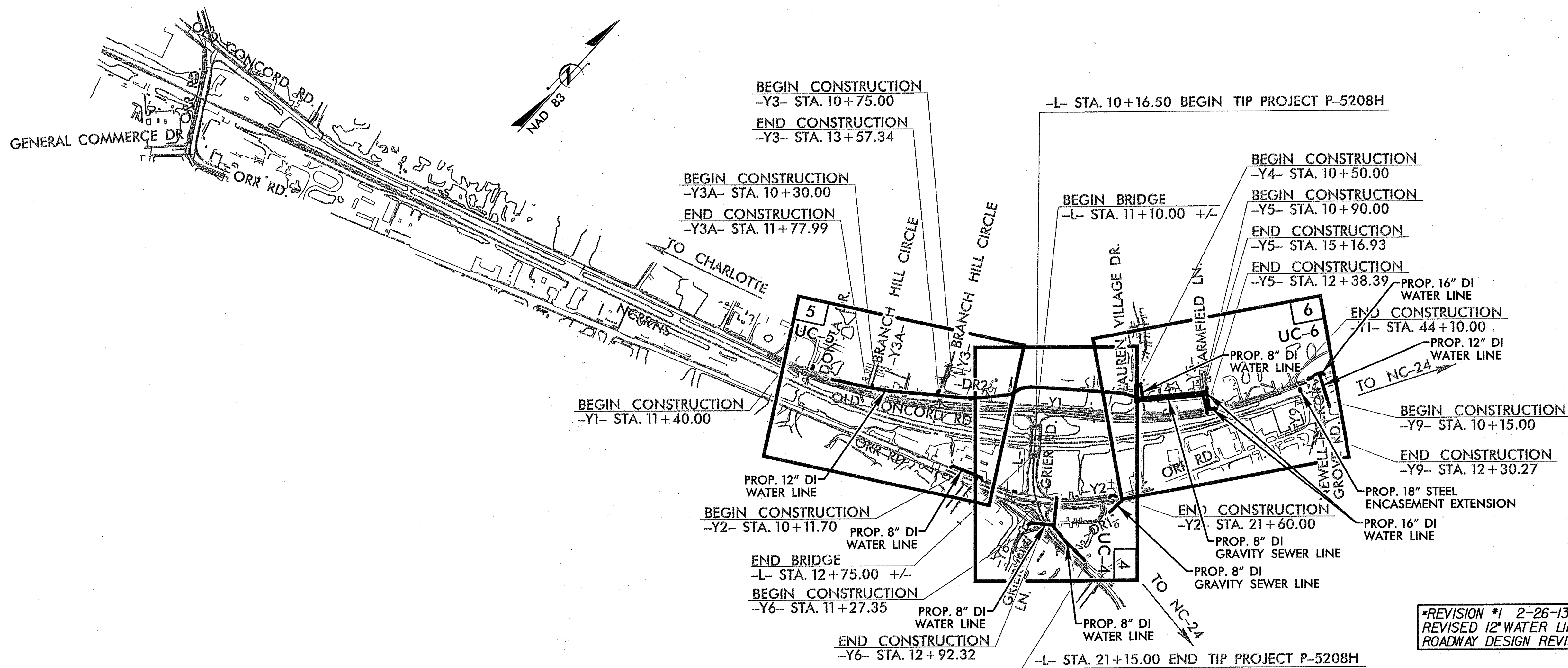


VICINITY MAP

UTILITY CONSTRUCTION PLANS MECKLENBURG COUNTY

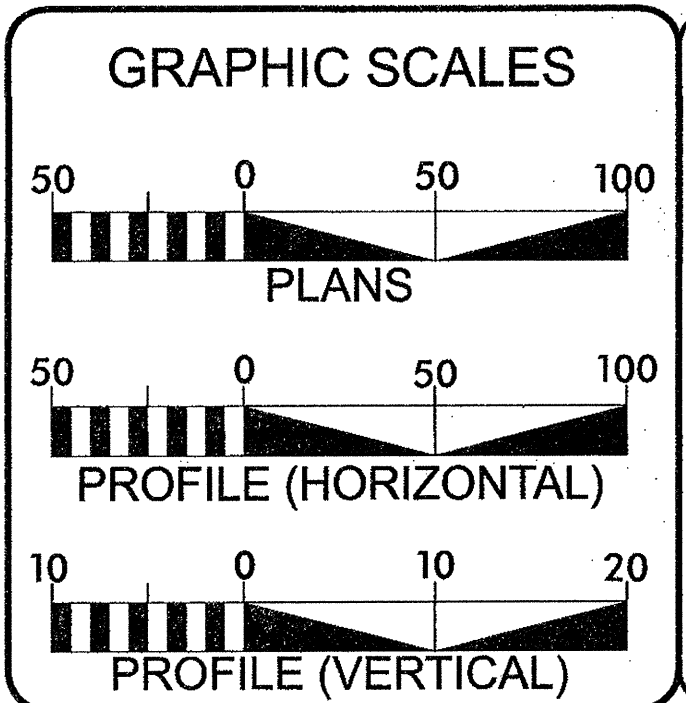
LOCATION: CHARLOTTE - GRIER RD. GRADE SEPARATION FROM SOUTH OF ORR RD. TO OLD CONCORD RD.

TYPE OF WORK: UTILITY CONSTRUCTION



*REVISION #1 2-26-13
REVISED 12" WATER LINE (WI) PER
ROADWAY DESIGN REVISIONS

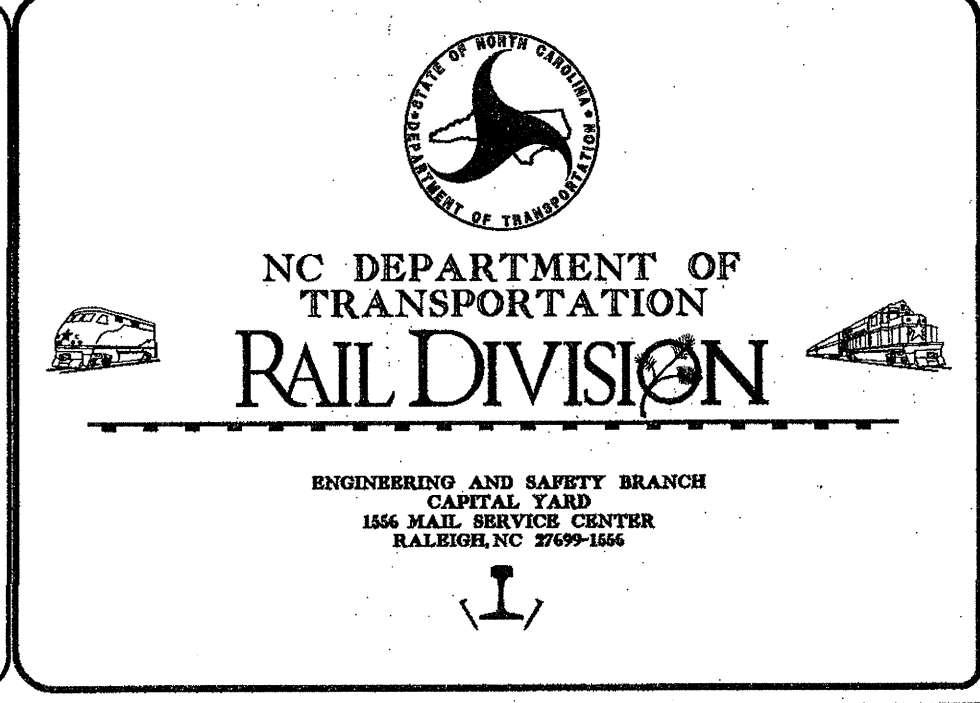
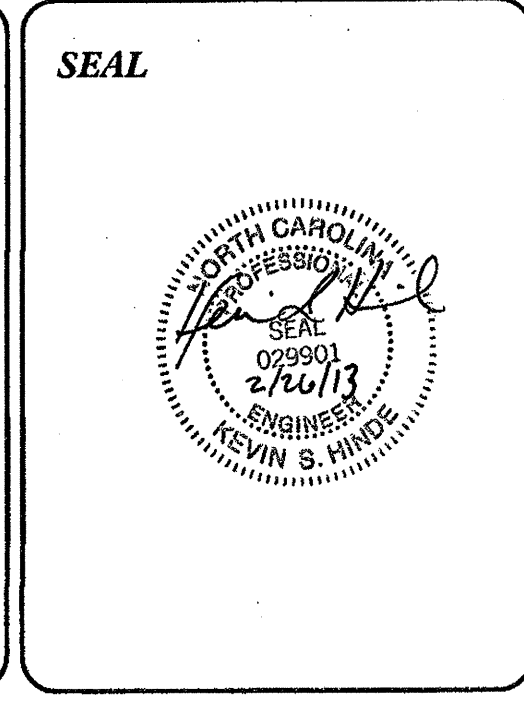
CONTRACT:



SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY SHEET
UC-2A	PERMIT SHEET
UC-3	GENERAL NOTES SHEET
UC-3A THRU UC-3D	DETAIL SHEETS
UC-4 THRU UC-6	UTILITY CONSTRUCTION SHEETS
UC-7 THRU UC-10	PROFILE SHEETS

WATER AND SEWER OWNERS ON PROJECT

- (1) WATER - CHARLOTTE-MECKLENBURG UTILITY DEPARTMENT (CMUD)
- (2) SEWER - CHARLOTTE-MECKLENBURG UTILITY DEPARTMENT (CMUD)

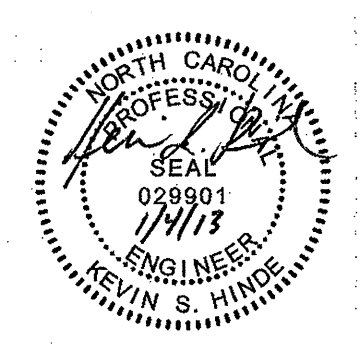


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS



PROJECT REFERENCE NO.	SHEET NO.
P-5208H	UC-2
DESIGNED BY: CLS	
DRAWN BY: JNA	
CHECKED BY: KSH	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	



PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	----- 12" WL -----
11¼ Degree Bend	----- +-----
22½ Degree Bend	----- +-----
45 Degree Bend	----- +-----
90 Degree Bend	----- +-----
Plug	----- -----
Tee	----- +-----
Cross	----- +-----
Reducer	----- >-----
Gate Valve	----- GV-----
Butterfly Valve	----- BV-----
Tapping Valve	----- TV-----
Line Stop	----- LS-----
Line Stop with Bypass	----- LS/BP-----
Blow Off	----- BO-----
Fire Hydrant	----- PFH-----
Relocate Fire Hydrant	----- RFH-----
Remove Fire Hydrant	----- REM FH-----
Water Meter	----- WM-----
Relocate Water Meter	----- RWM-----
Remove Water Meter	----- REM WM-----
Water Pump Station	----- PSTW-----
RPZ Backflow Preventer	----- PRPZ-----
DCV Backflow Preventer	----- DCV-----
Relocate RPZ Backflow Preventer	----- RRPZ-----
Relocate DCV Backflow Preventer	----- RDCV-----

PROPOSED SEWER SYMBOLS

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

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	----- o-----
Telephone Pole	----- o-----
Joint Use Pole	----- o-----
Telephone Pedestal	----- TEL PED-----
Utility Line by Others (Type as Shown)	----- PROP O/H POW LINES-----
Trenchless Installation	----- 18" TL INSTALL-----
Encasement by Open Cut	----- 24" ENCAS BY OC-----
Encasement	----- 24" ENCASUREMENT-----

Thrust Block	----- I-----
Air Release Valve	----- AR-----
Utility Vault	----- UV-----
Concrete Pier	----- CP-----
Steel Pier	----- SP-----
Plan Note	----- NOTE-----
Pay Item Note	----- PAY ITEM-----

EXISTING UTILITIES SYMBOLS

Power Pole	----- •-----
Telephone Pole	----- •-----
Joint Use Pole	----- •-----
Utility Pole	----- •-----
Utility Pole with Base	----- □-----
H-Frame Pole	----- •-----
Power Transmission Line Tower	----- ☒-----
Water Manhole	----- ⊙-----
Power Manhole	----- ⊙-----
Telephone Manhole	----- ⊙-----
Sanitary Sewer Manhole	----- ⊙-----
Hand Hole for Cable	----- ☒-----
Power Transformer	----- ☒-----
Telephone Pedestal	----- □-----
CATV Pedestal	----- □-----
Gas Valve	----- ◇-----
Gas Meter	----- ◇-----
Located Miscellaneous Utility Object	----- ○-----
Abandoned According to Utility Records	----- AATUR-----
End of Information	----- E.O.I.-----
*Underground Power Line	----- P-----
*Underground Telephone Cable	----- T-----
*Underground Telephone Conduit	----- TC-----
*Underground Fiber Optics Telephone Cable	----- T FO-----
*Underground TV Cable	----- TV-----
*Underground Fiber Optics TV Cable	----- TV FO-----
*Underground Gas Pipeline	----- G-----
Aboveground Gas Pipeline	----- A/G Gas-----
*Underground Water Line	----- W-----
Aboveground Water Line	----- A/G Water-----
*Underground Gravity Sanitary Sewer Line	----- SS-----
Aboveground Gravity Sanitary Sewer Line	----- A/G Sanitary Sewer-----
*Underground SS Forced Main Line	----- FSS-----
Underground Unknown Utility Line	----- ?UL-----
SUE Test Hole	----- ⊙-----
Water Meter	----- ⊙-----
Water Valve	----- ⊙-----
Fire Hydrant	----- ⊙-----
Sanitary Sewer Cleanout	----- ⊙-----

*For Existing Utilities
 Utility Line Drawn from Record _____
 (Type as Shown)
 Designated Utility Line _____
 (Type as Shown)

UTILITY CONSTRUCTION

7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

LOCATION: CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD	
TIP NO.: P-5208H	COUNTY: MECKLENBURG
DESIGNED BY: CLS	
CHECKED BY: KSH	DATE: 1-4-2013

Handwritten initials/signature



PROJECT REFERENCE NO. P-5208H	SHEET NO. UC-2A
DESIGNED BY: CLS	
DRAWN BY: JNA	
CHECKED BY: KSH	
APPROVED BY:	
REVISER:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SECTION PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION



APPLICATION FOR NON-DISCHARGE PERMIT
GRAVITY SEWER MAIN EXTENSION
CHARLOTTE-MECKLENBURG UTILITY DEPARTMENT

PROJECT NAME: CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD

CMUD PROJECT NO.: _____

PROJECT TYPE: NEW CONSTRUCTION RELOCATION MODIFICATION OF PERMIT NO. _____
 OTHER _____

VOLUME OF WASTEWATER GENERATED BY THIS PROJECT: _____ GALLONS PER DAY BASED ON 190 GAL/DAY/SINGLE FAMILY HOUSEHOLD _____ HOUSEHOLDS OR 135 GAL/DAY/MULTI-FAMILY UNIT X _____ UNITS OR IS BASED ON :

WASTEWATER TREATMENT PLANT RECEIVING WASTEWATER:
 McALPINE CR. (NC0024970) IRWIN CR. (NC0024945) McDOWELL CR. (NC0036277)
 SUGAR CR. (NC0024937) MALLARD CR. (NC0030210)

NATURE OF WASTEWATER: 50% % DOMESTIC _____ % INDUSTRIAL
50% % COMMERCIAL _____ % OTHER _____

ORIGIN OF WASTEWATER: SUBDIVISION COMMERCIAL
 SCHOOL INDUSTRIAL
 APARTMENTS/CONDO'S OTHER _____

LIST ANY PARAMETER AND ITS CONCENTRATION THAT WILL BE GREATER THAN NORMAL DOMESTIC LEVELS:
N/A

IF WASTEWATER IS NON-DOMESTIC, DESCRIBE LEVEL OF PRETREATMENT:
N/A

IF A PRETREATMENT PERMIT IS REQUIRED, HAS ONE BEEN ISSUED? YES ___ NO ___ N/A X

HAS ENGINEER DETERMINED THAT DOWNSTREAM SEWERS ARE CAPABLE TO HANDLE THIS FLOW? YES X NO ___
 PERMIT NO. FOR SEWERS IMMEDIATELY DOWNSTREAM _____
 PIPE DIAMETER OF SEWERS IMMEDIATELY DOWNSTREAM 8"

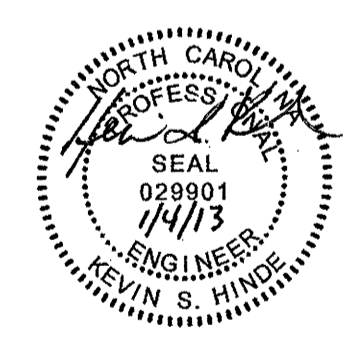
HAS ENGINEER DETERMINED THAT NC DEM AND CMU MINIMUM DESIGN STANDARDS ARE MET BY THIS PROJECT? X YES _____ NO _____

COMPLETE NAME AND ADDRESS OF ENGINEERING DESIGN FIRM:
HINDE ENGINEERING, INC.
7520 EAST INDEPENDENCE BLVD., SUITE 230
CHARLOTTE, N.C. 28227

TELEPHONE 704-814-4407

PROFESSIONAL ENGINEER'S CERTIFICATION:
 I, KEVIN S. HINDE, P.E., ATTEST THAT THIS APPLICATION FOR THE RELOCATION AND NEW CONSTRUCTION OF SEWER LINES WITHIN THE AFOREMENTIONED PROJECT HAS BEEN REVIEWED BY ME AND IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE. I FURTHER ATTEST THAT TO THE BEST OF MY KNOWLEDGE THE PROPOSED DESIGN HAS BEEN PREPARED IN ACCORDANCE WITH THE APPLICABLE REGULATIONS. ALTHOUGH CERTAIN PORTIONS OF THIS SUBMITTAL PACKAGE MAY HAVE BEEN DEVELOPED BY OTHER PROFESSIONALS, INCLUSION OF THESE MATERIALS UNDER MY SIGNATURE AND SEAL SIGNIFIES THAT I HAVE REVIEWED THIS MATERIAL AND HAVE JUDGED IT TO BE CONSISTENT WITH THE PROPOSED DESIGN.

NORTH CAROLINA PROFESSIONAL ENGINEER'S SEAL, SIGNATURE, AND DATE:
 CMU PERMIT NO. 113-503
 PLANT FLOW ALLOCATION RECORDED BY: [Signature] 1/17/13
 PERMIT APPROVED BY: [Signature]
 BARRY SHEARIN, P.E., CHIEF ENGINEER



APPLICATION FOR PERMIT FOR WATER MAIN EXTENSION

PROJECT NAME: CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD

CMU PROJECT NO.: _____

PROJECT DESCRIPTION: 312 LF 16" WATER MAIN, 2,650 LF 12" WATER MAIN, 1,134 LF 8" WATER MAIN, 47 LF 6" WATER MAIN & FITTINGS

DESIGNED BY: FIRM: HINDE ENGINEERING, INC.

ENGINEER: KEVIN S. HINDE, P.E. DESIGNED BY: CLINT L. STEVENS, E.I.

ADDRESS: 7520 EAST INDEPENDENCE BLVD., SUITE 230
CHARLOTTE, NORTH CAROLINA 28227

PHONE: 704-814-4407

THIS APPLICATION IS MADE UNDER AND IN FULL ACCORD WITH THE PROVISIONS OF CHAPTER 130A-317 OF THE NORTH CAROLINA GENERAL STATUTES, AND SUCH OTHER STATUTES AS RELATED TO PUBLIC WATER SYSTEMS. CMU HAS BEEN GRANTED AUTHORITY TO ISSUE PERMITS FOR EXTENSION OF WATER MAINS PURSUANT TO ISA NCAC 18C.1801. THE APPLICANT AGREES THAT NO SIGNIFICANT CHANGE OR DEVIATION FROM THE PLANS AND SPECIFICATIONS APPROVED BY CMU WILL BE MADE WITHOUT THE WRITTEN CONSENT AND APPROVAL OF CMU OR ITS AUTHORIZED REPRESENTATIVE. A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF NORTH CAROLINA SHALL SUBMIT A STATEMENT REFLECTING THAT ADEQUATE OBSERVATIONS DURING AND UPON COMPLETION OF CONSTRUCTION INDICATES THAT CONSTRUCTION WAS COMPLETED IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.

PERMIT NO. 113-002
 APPROVED: [Signature] DATE 1/15/13
 BARRY SHEARIN, P.E., CHIEF ENGINEER

CHARLOTTE-MECKLENBURG UTILITY DEPARTMENT
 5100 BROOKSHIRE BLVD.
 CHARLOTTE, NORTH CAROLINA 28216

LOCATION: CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD	
TIP NO.: P-5208H	COUNTY: MECKLENBURG
DESIGNED BY: CLS	
CHECKED BY: KSH	DATE: 1-4-2013

CMB 1/17/13

BACK CREEK BASIN

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2012.
2. THE EXISTING WATER AND SEWER FACILITIES BELONG TO CHARLOTTE-MECKLENBURG UTILITY DEPARTMENT.
3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL HEALTH. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, DIVISION OF WATER QUALITY. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPROTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

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

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

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

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

LIST OF STANDARD DRAWINGS

- 1515.01 WATER METER
- 1515.02 FIRE HYDRANT
- 1520.01 SEWER CLEAN OUT

PROJECT SPECIFIC NOTES:

1. ALL 12-INCH AND SMALLER DIAMETER PIPE SHALL BE DUCTILE IRON PRESURE CLASS 350, UNLESS OTHERWISE NOTED ON THE UTILITY CONSTRUCTION PLANS.
2. ALL 16-INCH AND LARGER DIAMETER PIPE SHALL BE DUCTILE IRON PRESSURE CLASS 250, UNLESS OTHERWISE NOTED ON THE UTILITY CONSTRUCTION PLANS.
3. VALVES ON WATER MAINS SMALLER THAN 16-INCH IN DIAMETER SHALL BE DIRECT BURY GATE VALVES, UNLESS OTHERWISE NOTED ON THE UTILITY CONSTRUCTION PLANS.
4. VALVES ON WATER MAINS 16-INCHES IN DIAMETER AND LARGER SHALL BE BUTTERFLY VALVES, UNLESS OTHERWISE NOTED ON THE UTILITY CONSTRUCTION PLANS.
5. DUCTILE IRON RESTRAINED JOINT PIPE SHALL BE USED IN LIEU OF THRUST BLOCKING ON PROPOSED WATER LINE RELOCATIONS.
6. WALL BLOCKING SHALL BE USED ON EXISTING WATER LINES AT THE PROPOSED RELOCATION TIE-IN POINTS.
7. CONTRACTOR SHALL CONNECT ALL WATER LINES AND SERVICE CONNECTIONS USING NECESSARY FITTINGS.
8. ALL BACKFLOW PREVENTORS ARE THE RESPONSIBILITY OF THE PROPERTY OWNER.
9. THE CHARLOTTE-MECKLENBURG UTILITY DEPARTMENT (CMUD) STANDARD DETAILS LOCATED ON THEIR WEBSITE AT <http://charmeck.org/city/charlotte/Utilities/ConstructionProjects/Pages/Design%20Manual.aspx> SHALL SUPERCEDE ANY CMUD DETAILS SHOWN IN THIS PLAN SET.
10. FOR THE FIRE HYDRANTS TO BE REMOVED, THE CONTRACTOR SHALL CONTACT CHARLOTTE-MECKLENBURG UTILITY DEPARTMENT TO DETERMINE A SUITABLE LOCATION TO STOCKPILE THE FIRE HYDRANT AND ASSOCIATED ITEMS.
11. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH NORTH CAROLINA RAILROAD SPECIFICATIONS NCR 101, 102 AND 103.
12. CONTRACTOR IS REQUIRED TO CONTACT BILL DEAL, PE, OF CHARLOTTE-MECKLENBURG UTILITY DEPARTMENT, AT (980) 722-0786 AT LEAST 1 WEEK PRIOR TO ANY WATER AND SEWER CONSTRUCTION.

PROJECT REFERENCE NO. P-5208H	SHEET NO. UC-3
DESIGNED BY: CLS	
DRAWN BY: JNA	
CHECKED BY: KSH	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

UTILITY CONSTRUCTION

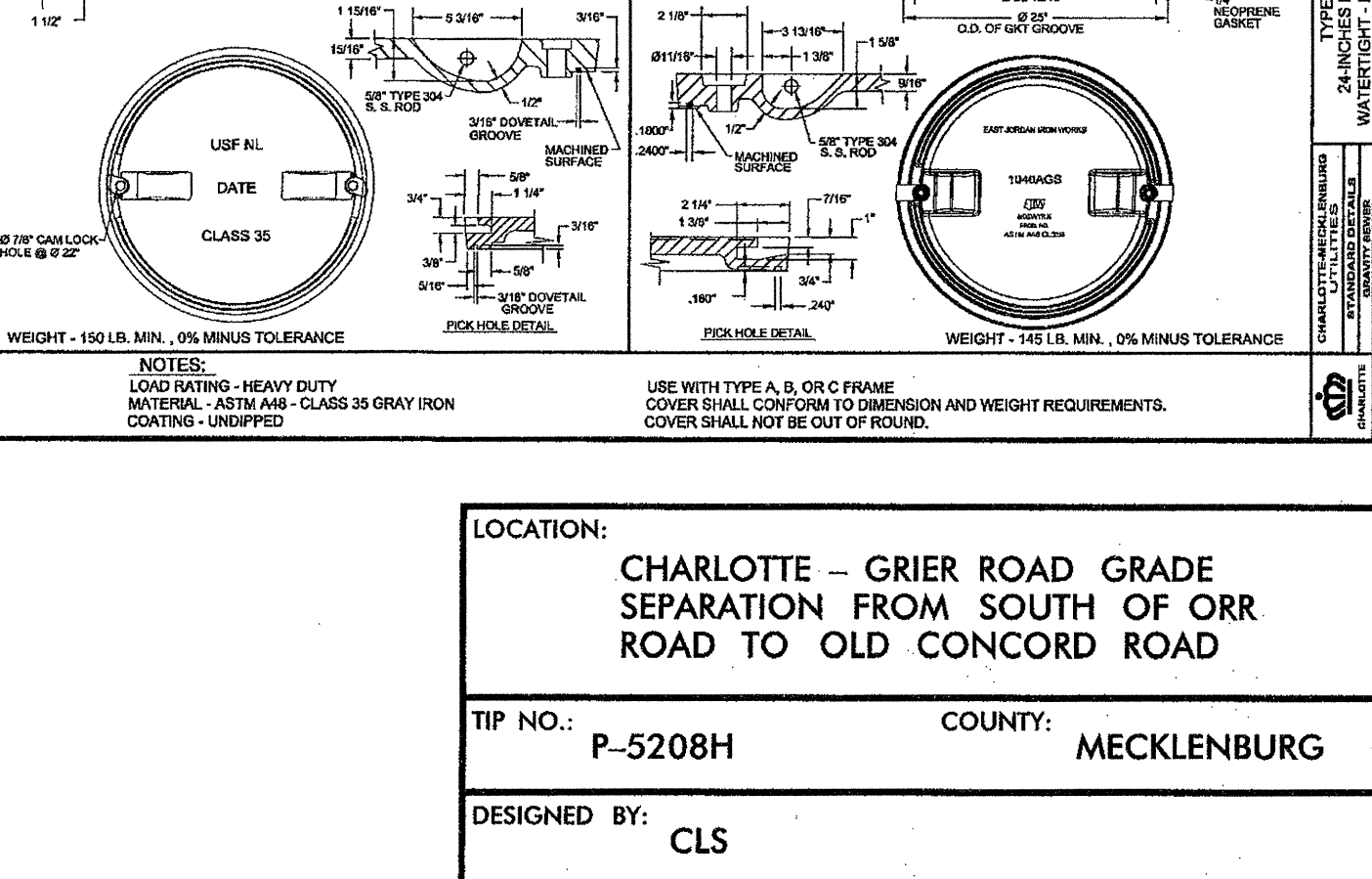
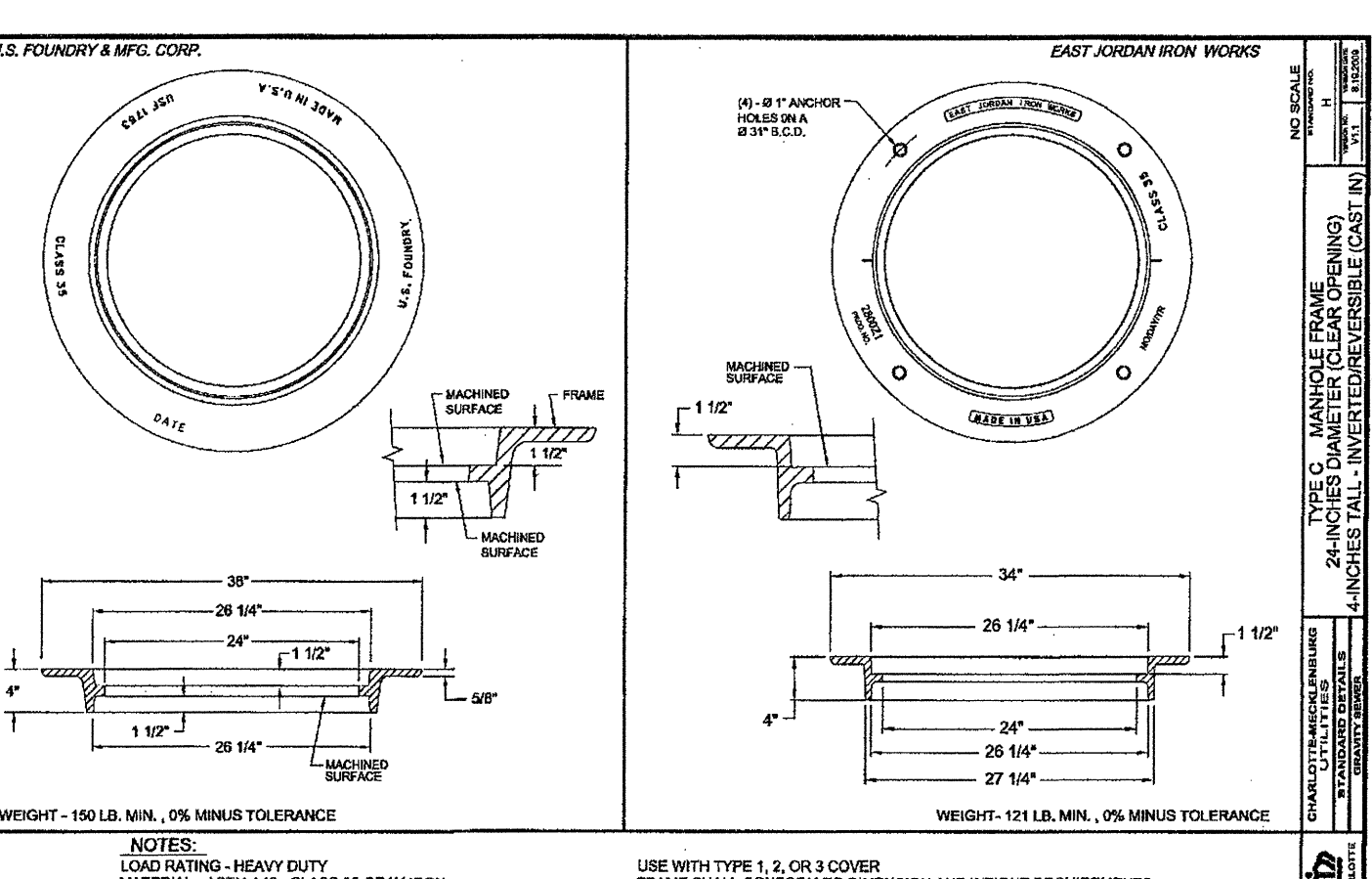
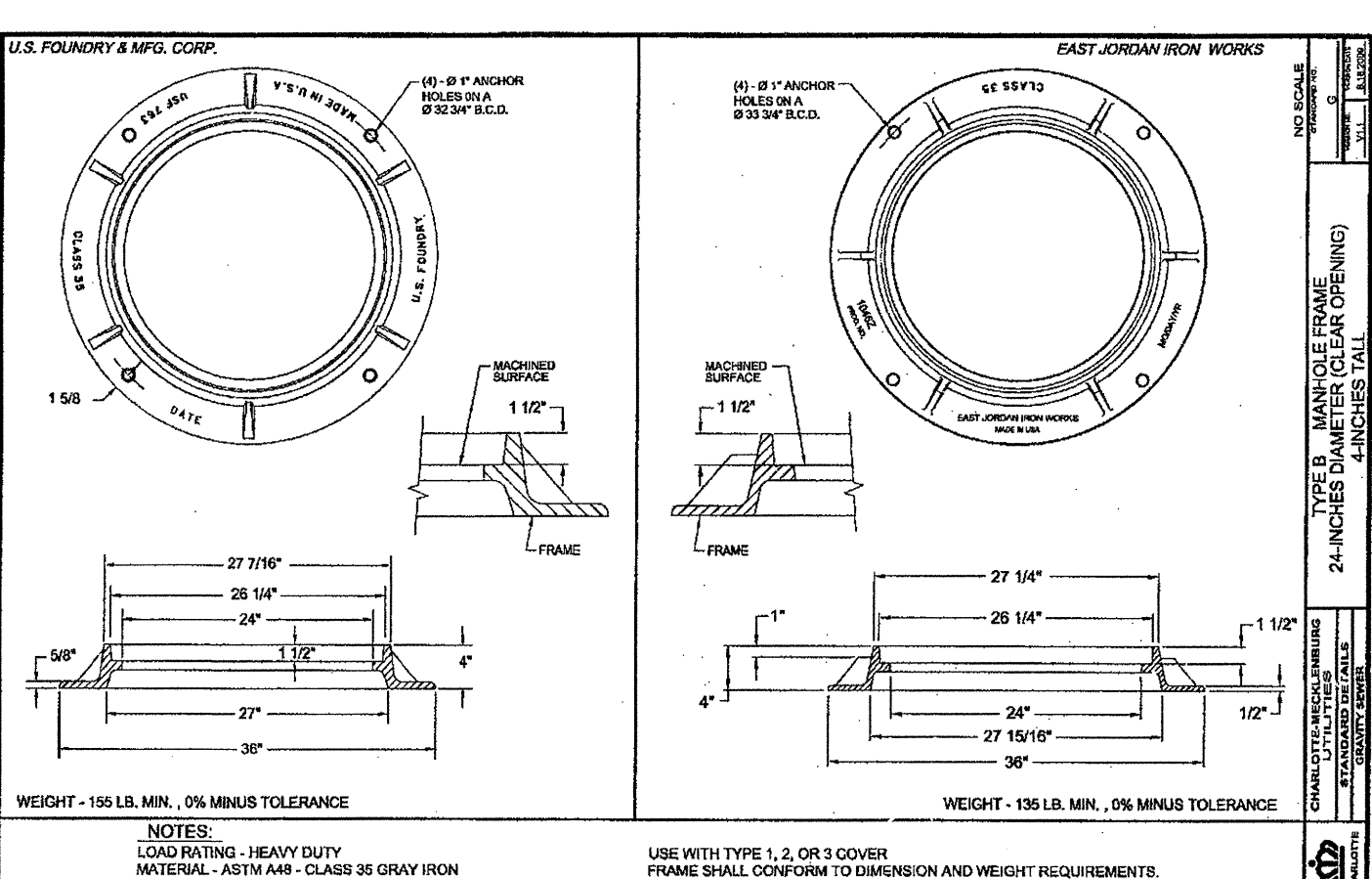
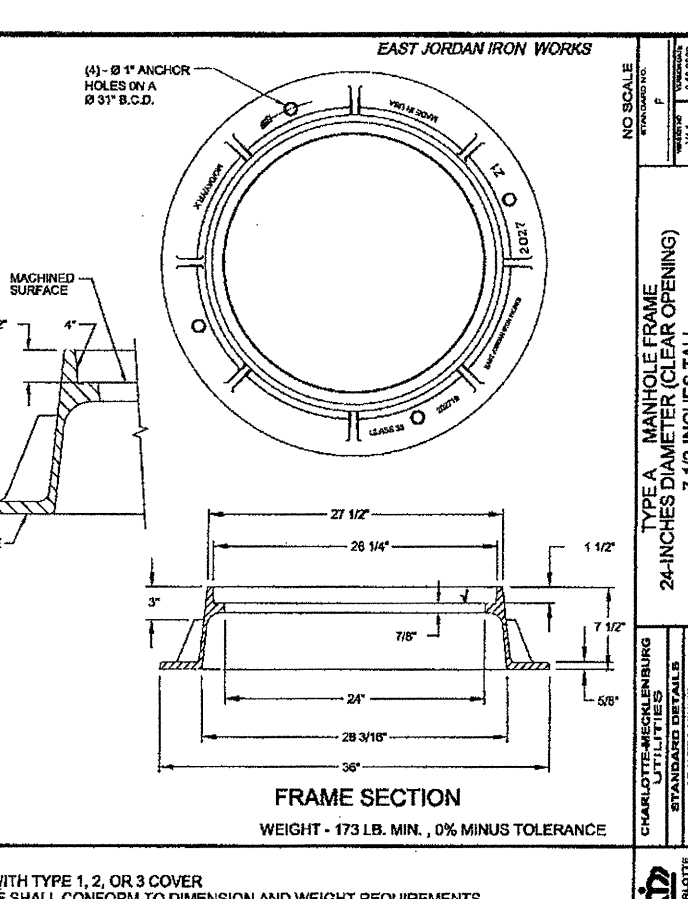
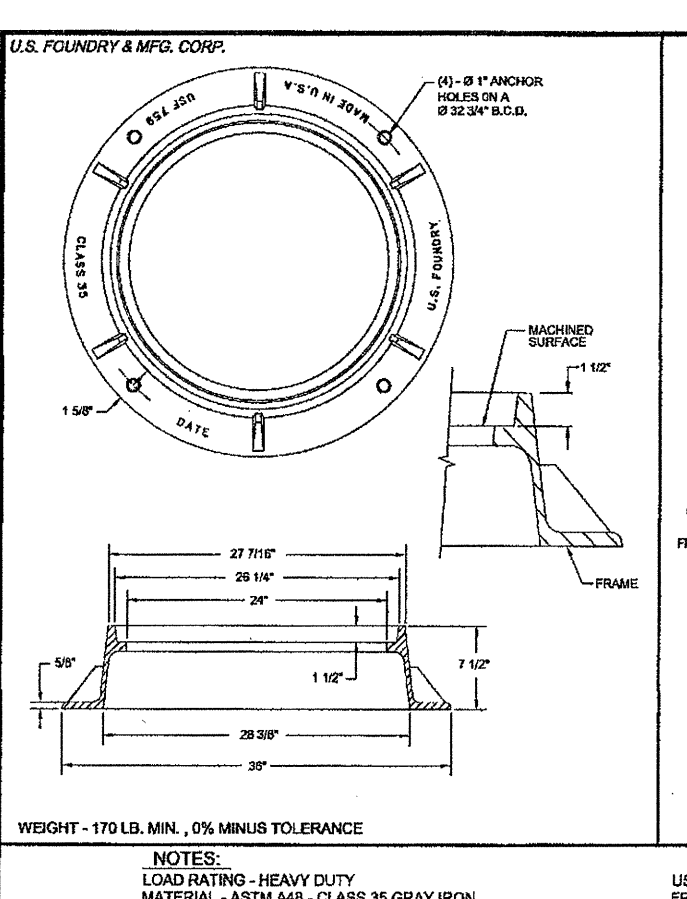
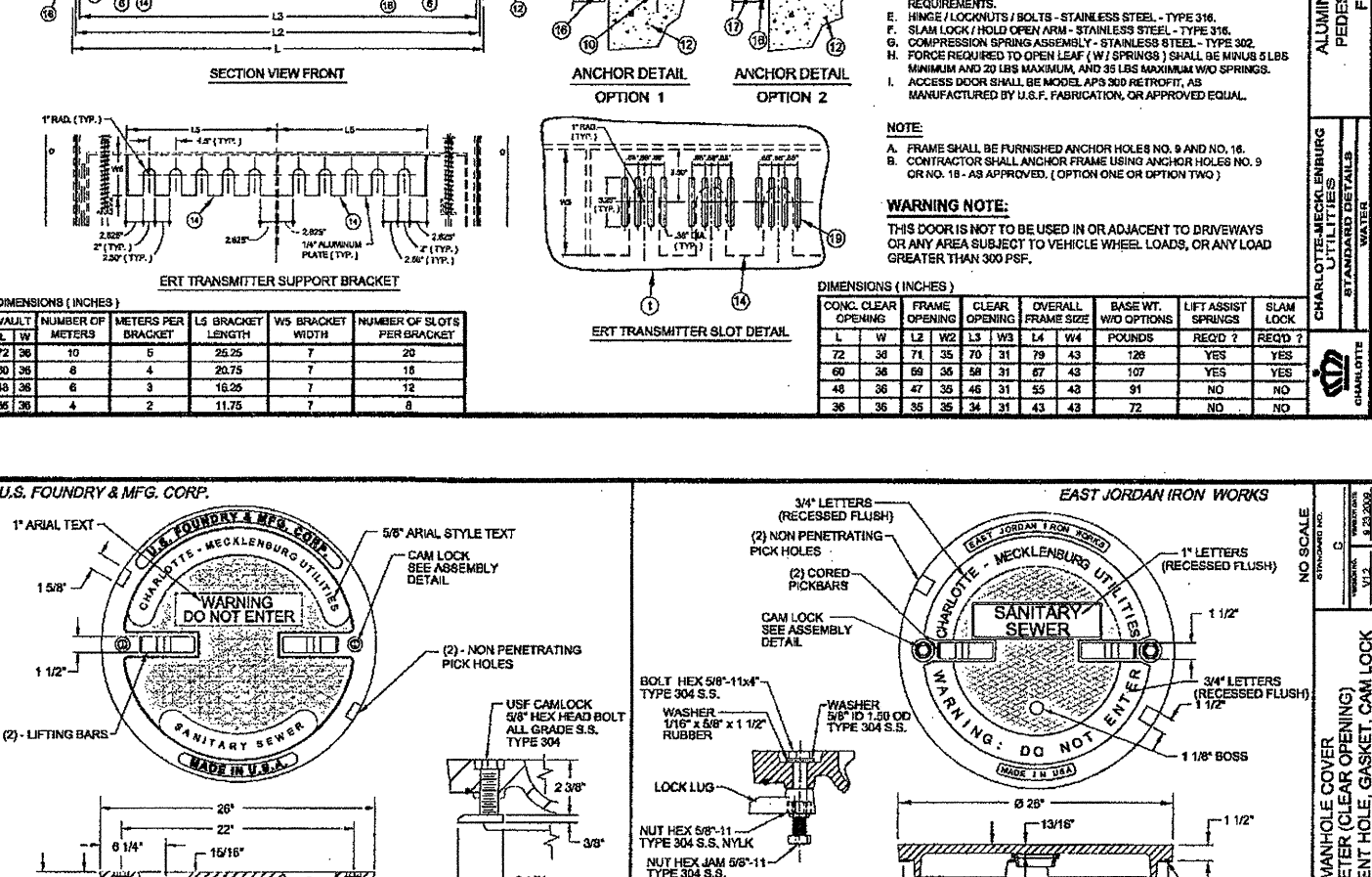
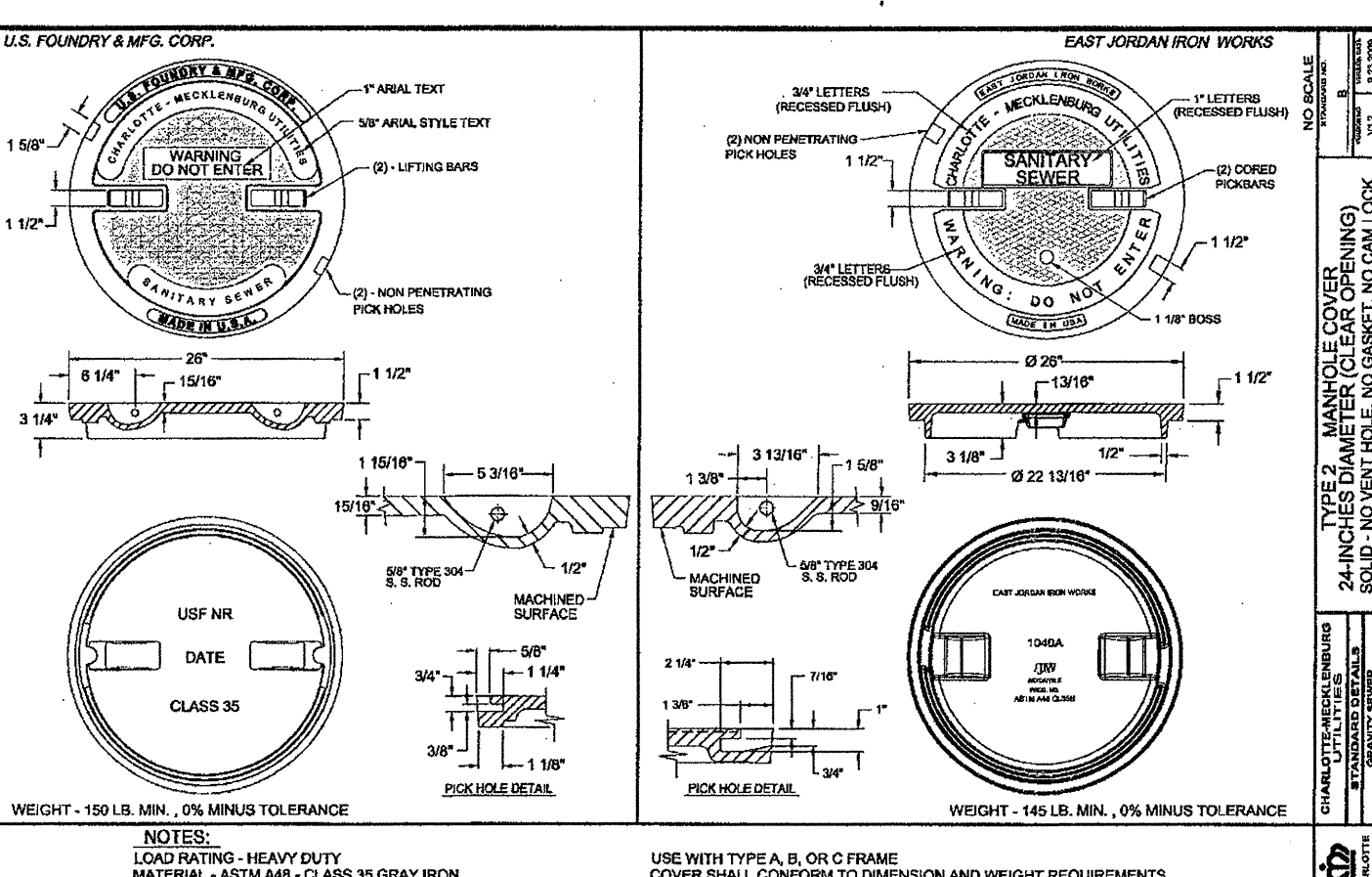
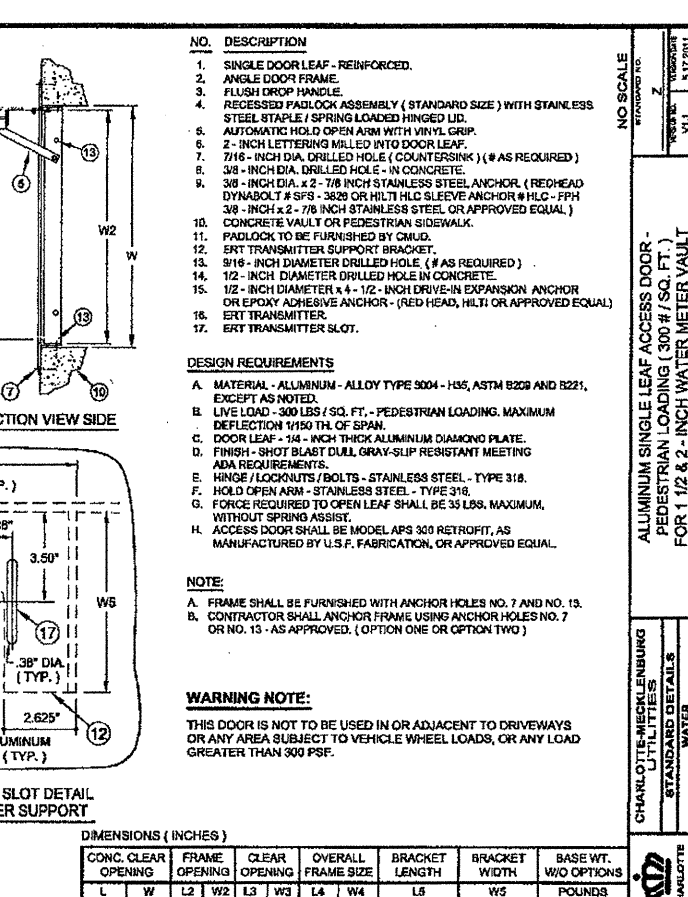
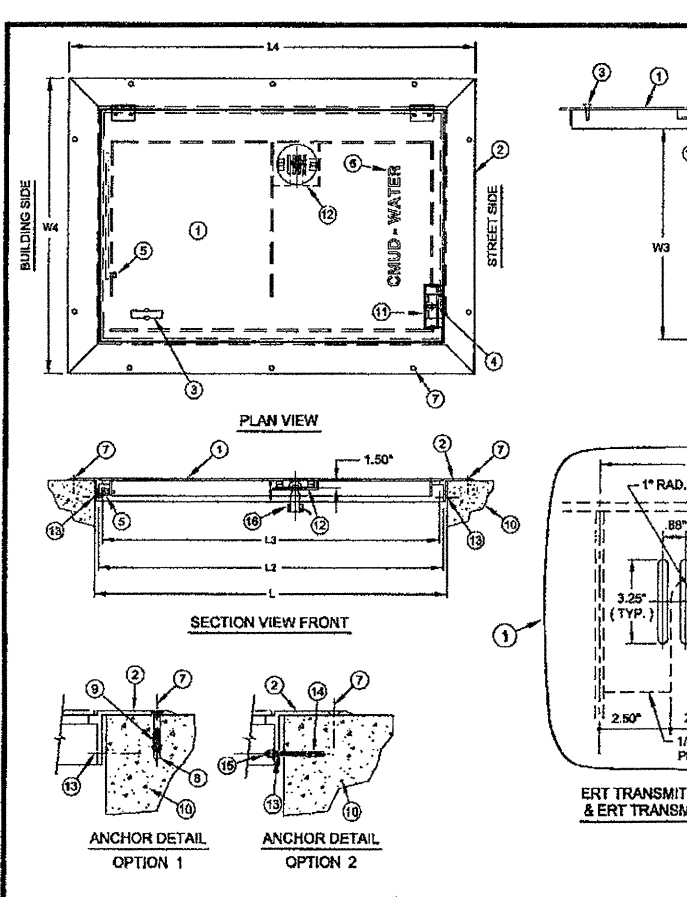
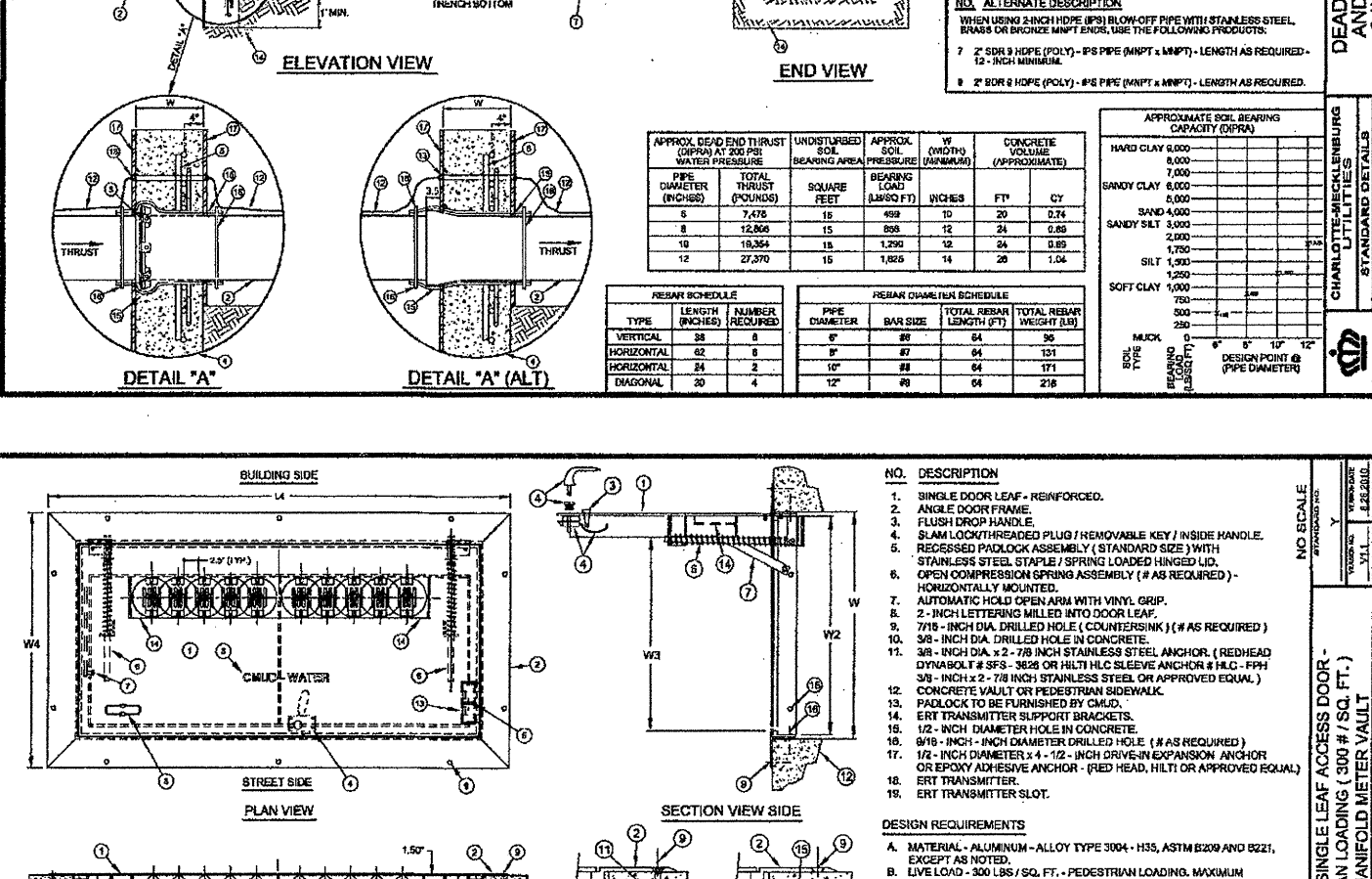
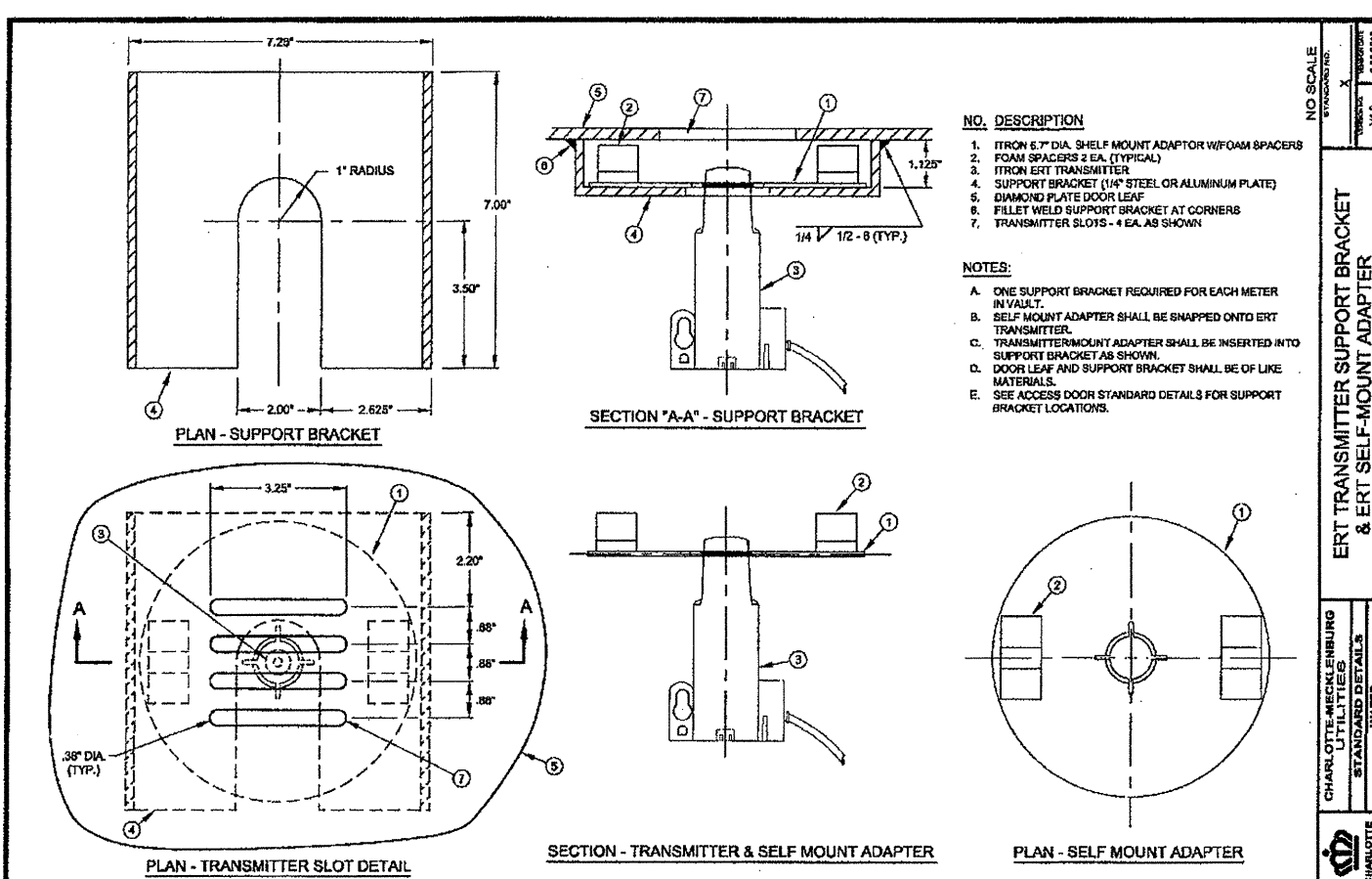
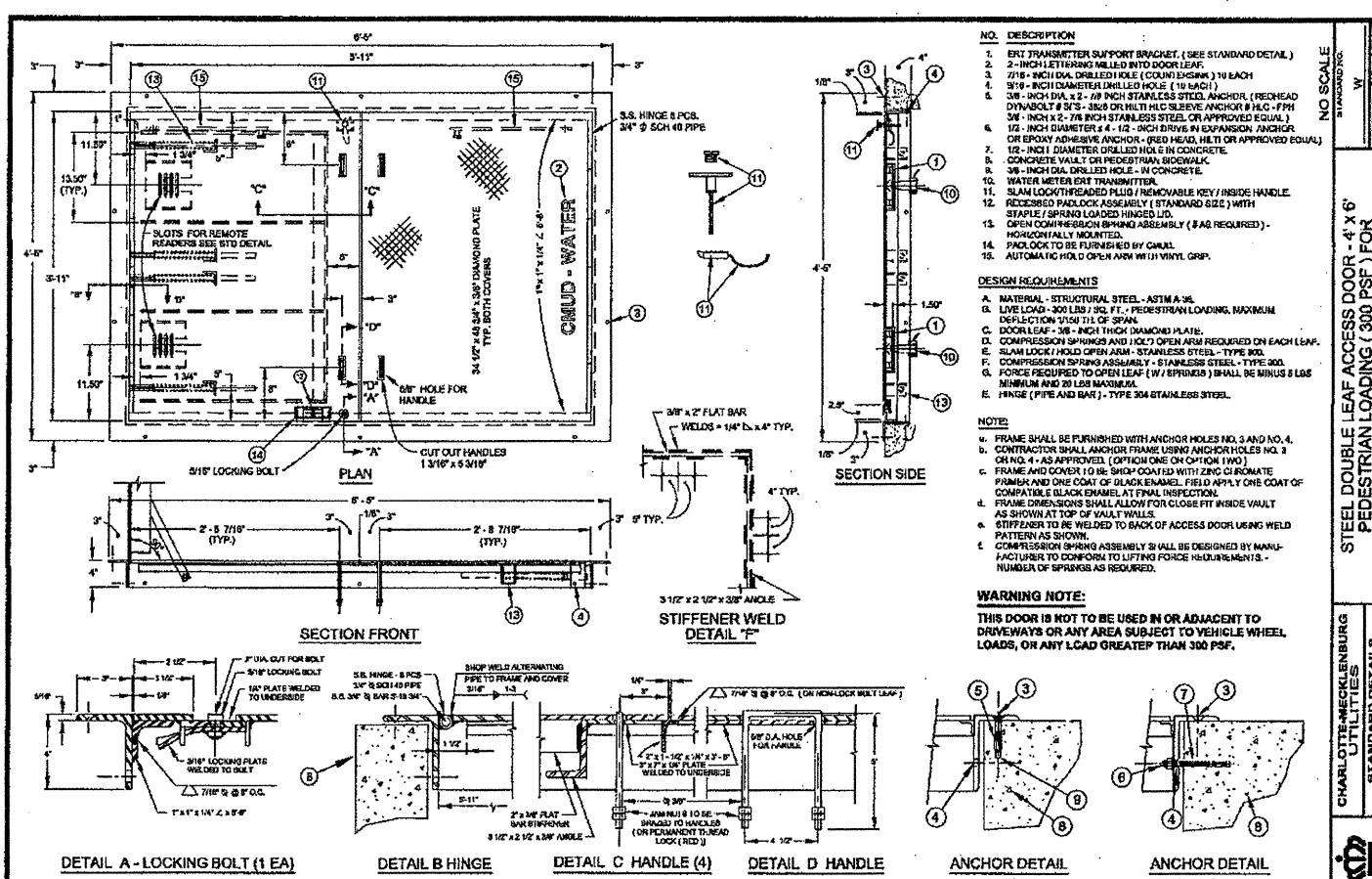
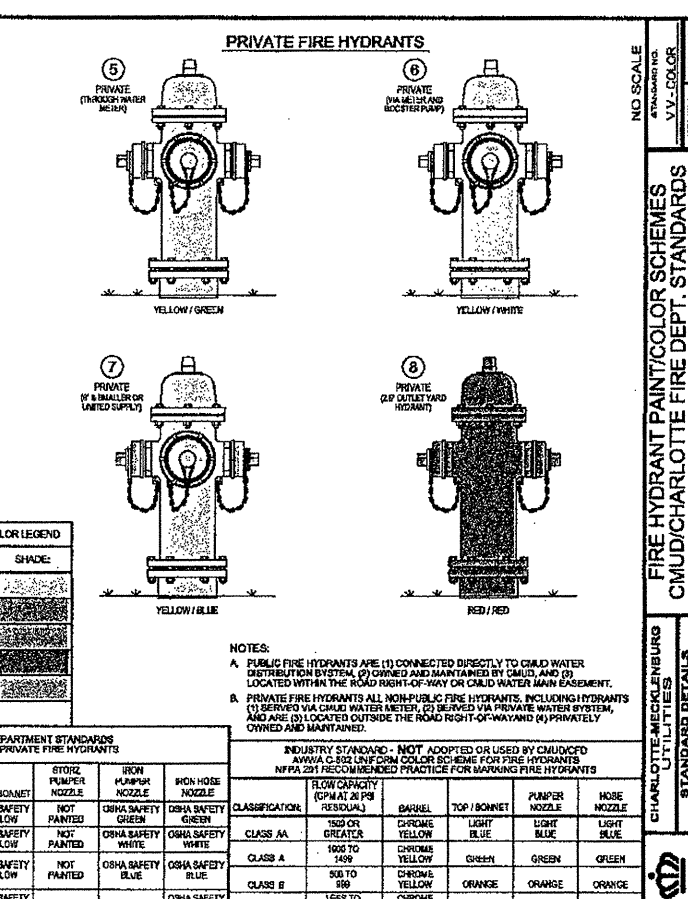
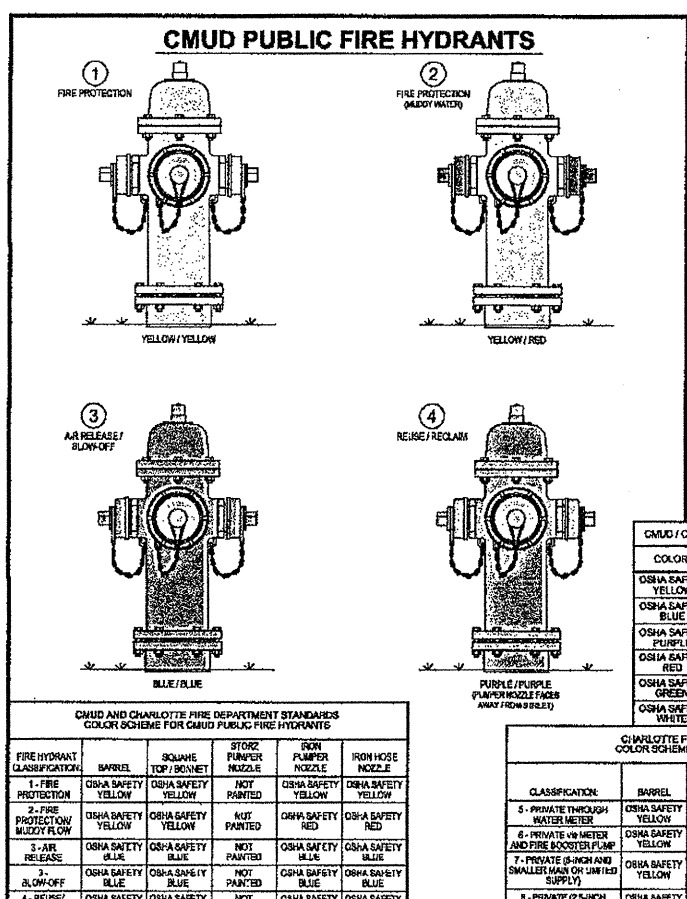
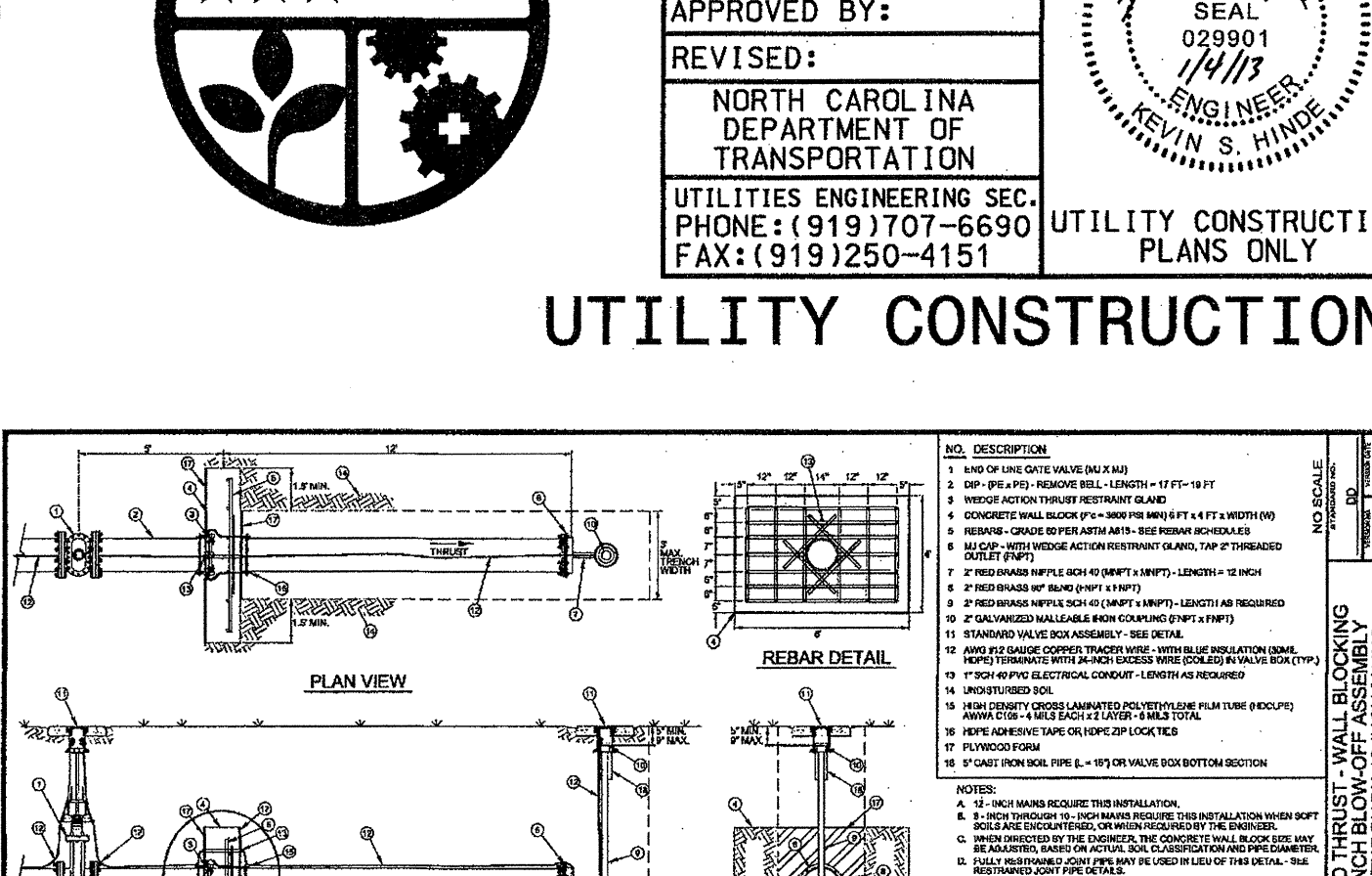
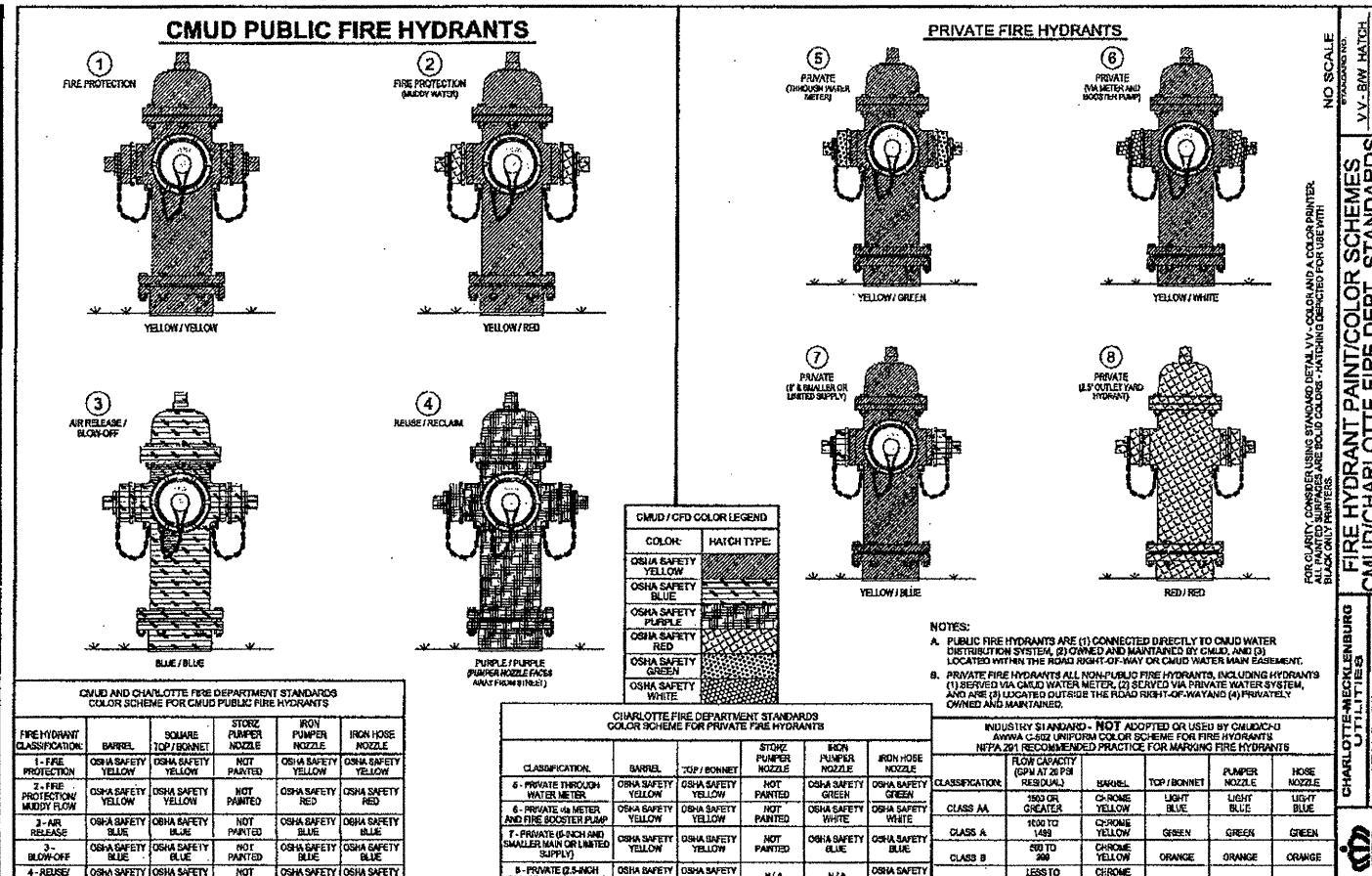
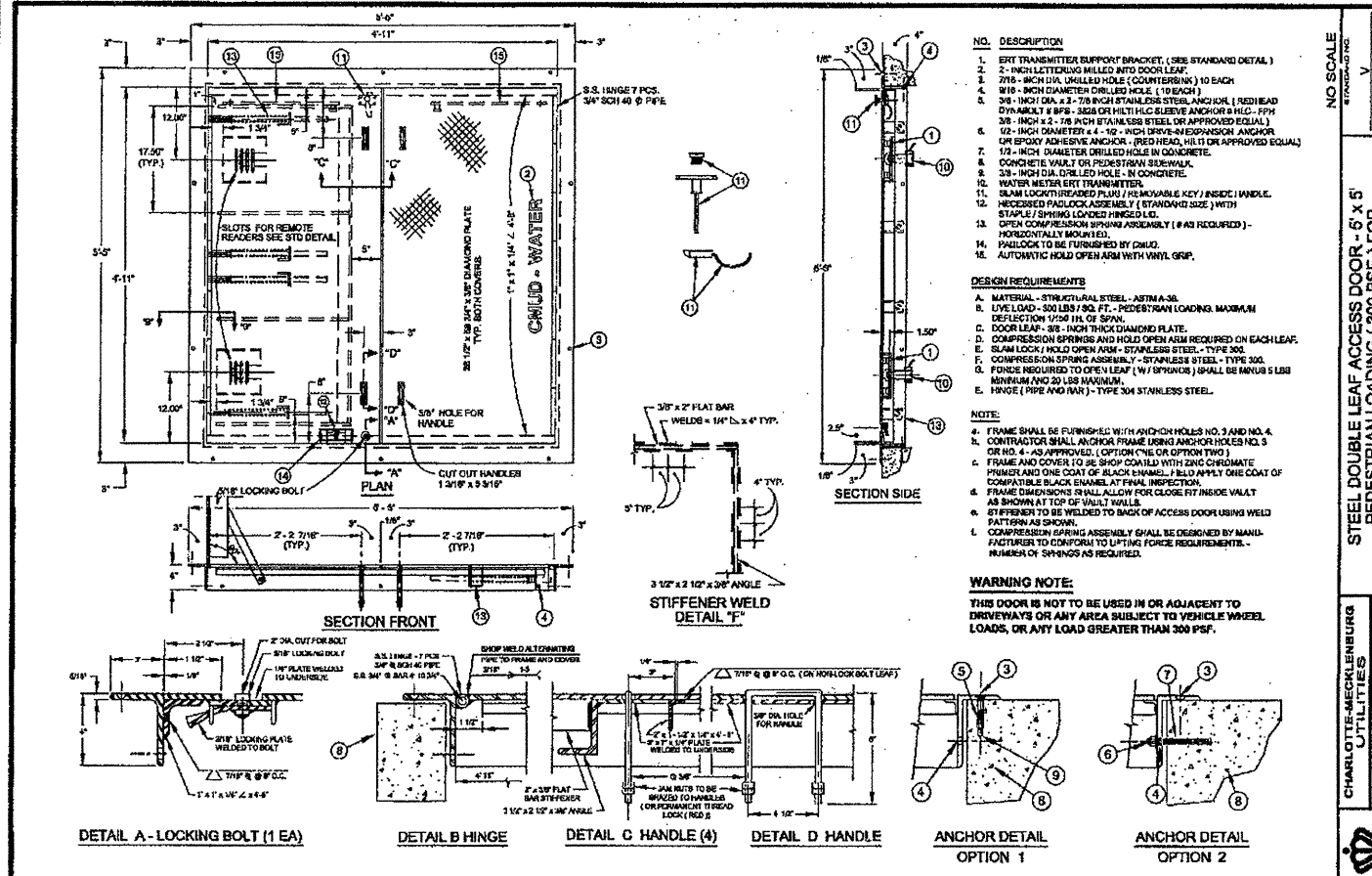
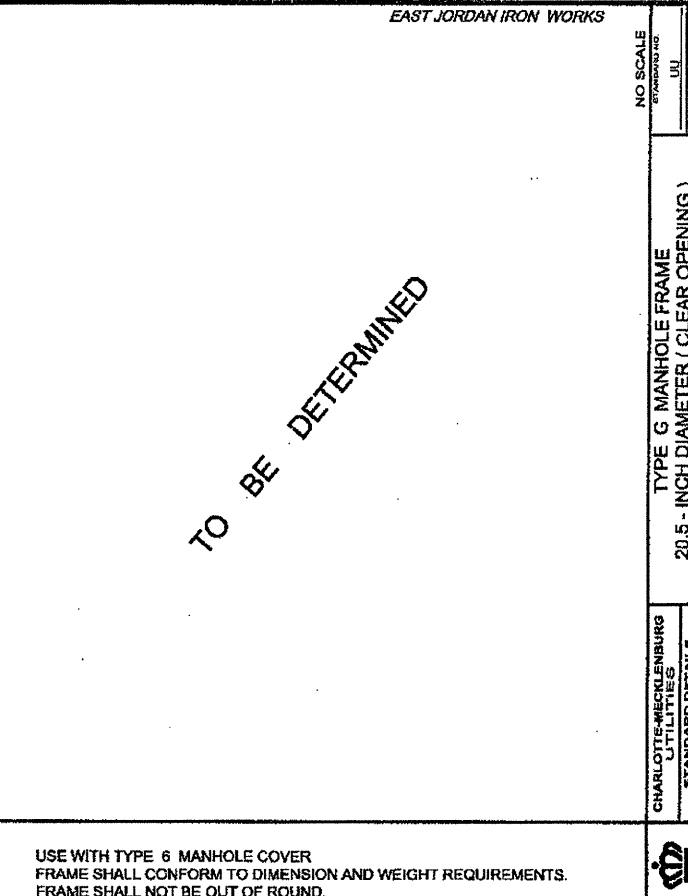
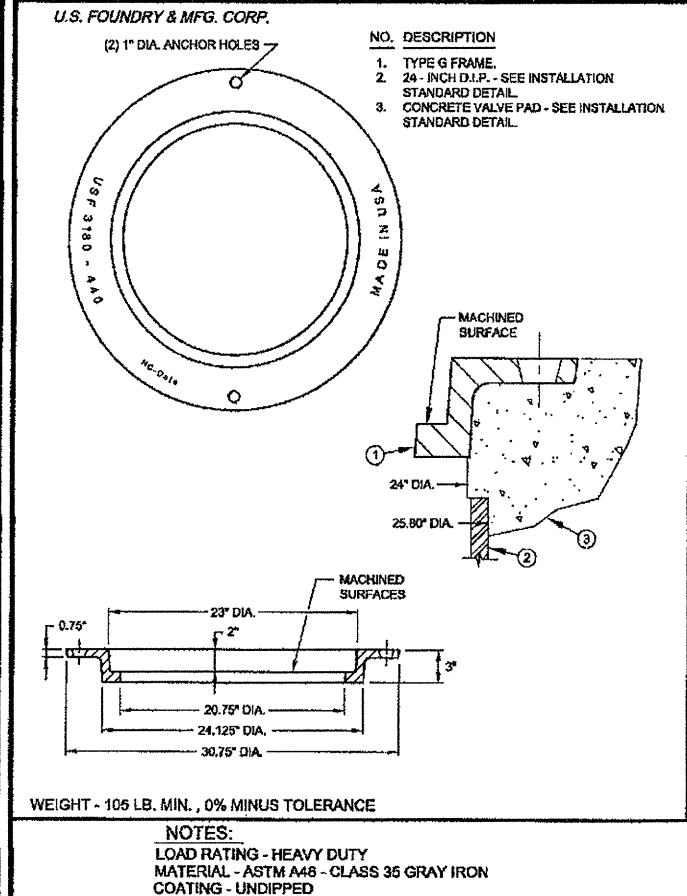
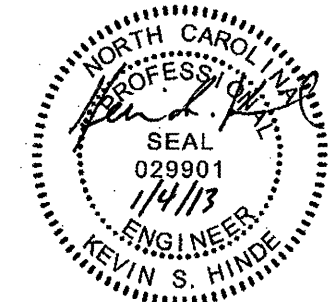


LOCATION: CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD	
TIP NO.: P-5208H	COUNTY: MECKLENBURG
DESIGNED BY: CLS	
CHECKED BY: KSH	DATE: 1-4-2013

CMB 01/14/13

OWNER'S DETAILS (CMUD)

DESIGNED BY: CLS
DRAWN BY: JNA
CHECKED BY: KSH
APPROVED BY:
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITY ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
UTILITY CONSTRUCTION PLANS ONLY



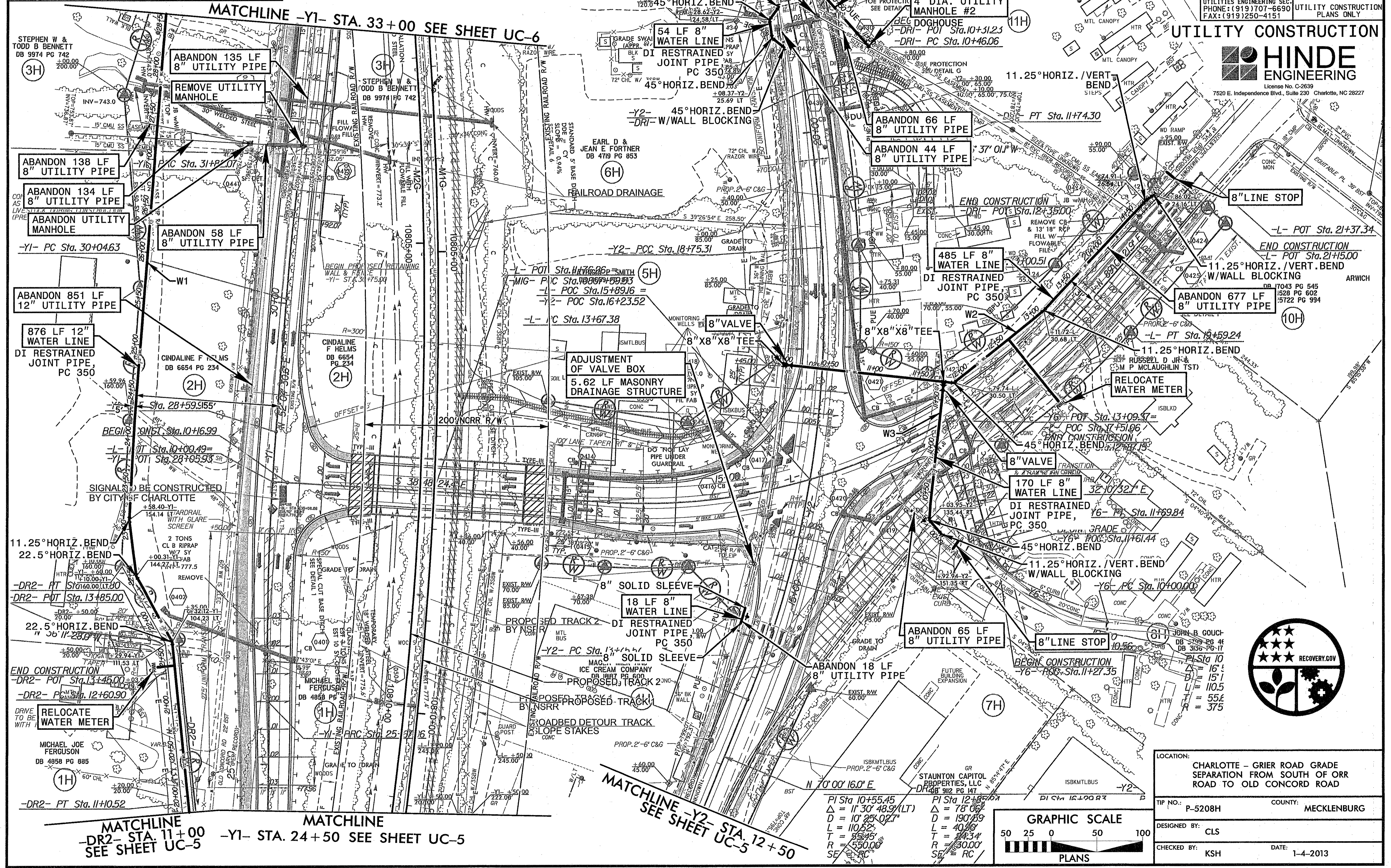
LOCATION: CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD
TIP NO.: P-5208H COUNTY: MECKLENBURG
DESIGNED BY: CLS
CHECKED BY: KSH DATE: 1-4-2013

REVISIONS		
1.	2-26-13	REVISED 12" WATER LINE (W1) PER ROADWAY DESIGN REVISIONS

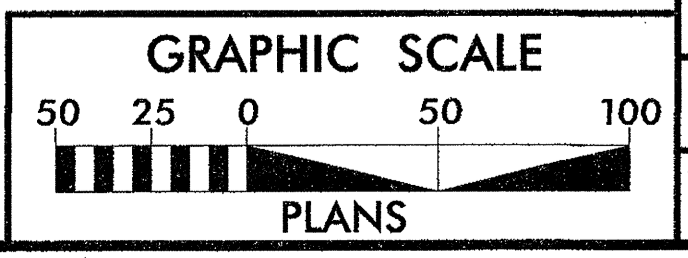
PROJECT REFERENCE NO.	SHEET NO.
P-5208H	UC-4

DESIGNED BY: CLS	
DRAWN BY: JNA	
CHECKED BY: KSH	
APPROVED BY:	
REVISED BY:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

UTILITY CONSTRUCTION



LOCATION:	CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD
TIP NO.:	P-5208H
COUNTY:	MECKLENBURG
DESIGNED BY:	CLS
CHECKED BY:	KSH
DATE:	1-4-2013



PI Sta 10+55.45	PI Sta 12+07.67
$\Delta = 11' 30'' 48.9(LT)$	$\Delta = 78' 06''$
$D = 10' 25'' 02.7$	$D = 190' 89'$
$L = 110.62'$	$L = 40.6'$
$T = 58.35'$	$T = 22.34'$
$R = 530.0'$	$R = 30.0'$
$SE = RC$	$SE = RC$

REVISIONS		
1	2-26-13	REVISED 12" WATER LINE (W1) PER ROADWAY DESIGN REVISIONS

HUDSON
PG 977

JANET THOMAS
DB 1809 PG 966

LOOBY CONSTRUCTION LLC
DB 14245 PG 266

STANLEY J DAWSON
AMELIA C DAWSON
DB 1903 PG 398

KENNETH R STARNES
MARGARET T STARNES
DB 3775 PG 761

JASON GOSNELL
DB 25966 PG 634
PB 40 PG 995

VIVIAN GLORIETTE BARRINO
DB 16416 PG 490
PB 39 PG 499

RONALD L
DB 24233 PG 8 PG

BETT
DB 14 PG 94

RELOCATE WATER METER
DB 1956 PG 885

MICHAEL JOE
FERGUSON
DB 4858 PG 1885

EDWARD E &
GEORGE S THOMPSON
DB 4669 PG 14

EDWARD E &
GEORGE S THOMPSON
DB 8249 PG 481

<p>PI Sta 18+82.01 Δ = 26° 41' 42.5" (LT) D = 1' 54' 35.5" L = 1,397.75' T = 711.80' R = 3,000.00' SE = 0.03 R.O. = 70'</p>	<p>PI Sta 27+44.07 Δ = 5° 34' 36.3" (RT) D = 1' 54' 35.5" L = 292.00' T = 146.11' R = 3,000.00' SE = 0.03 R.O. = 90'</p>	<p>PI Sta 12+87.62 Δ = 14° 28' 52.6" (LT) D = 22' 55' 05.9" L = 63.19' T = 317.6' R = 250.00' SE = NC</p>	<p>PI Sta 11+26.63 Δ = 11° 01' 35.4" (LT) D = 14' 19' 26.2" L = 76.98' T = 38.61' R = 400.00' SE = RC</p>	<p>PI Sta 10+55.45 Δ = 11° 30' 48.9" (LT) D = 10' 25' 02.7" L = 110.52' T = 55.45' R = 550.00' SE = RC</p>
---	--	---	---	--

PROJECT REFERENCE NO. P-5208H SHEET NO. UC-5

DESIGNED BY: CLS
DRAWN BY: JNA
CHECKED BY: KSH
APPROVED BY:
REVISED:

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL
029901
2/26/13
KEVIN S. HINDEN

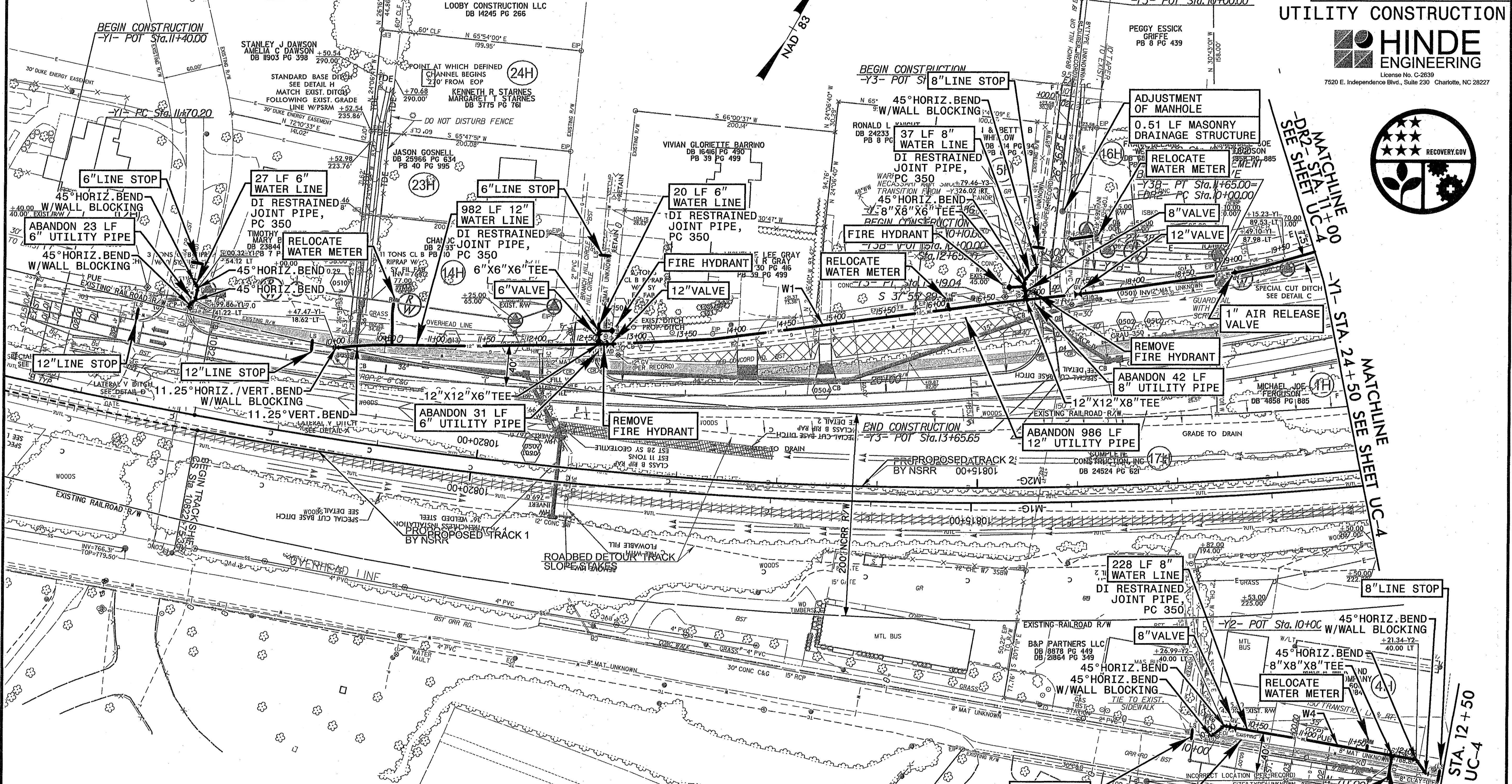
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 707-6690
FAX: (919) 250-4151

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

HINDE ENGINEERING
License No. C-2639
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

RECOVERY.GOV

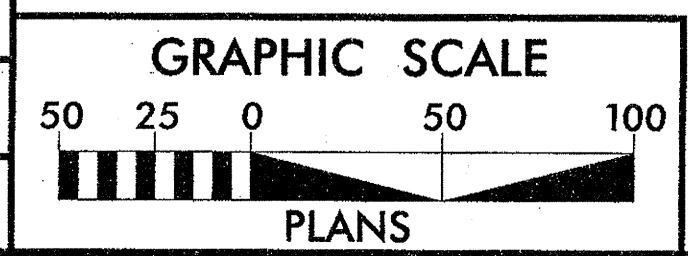


LOCATION: CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD

TIP NO.: P-5208H COUNTY: MECKLENBURG

DESIGNED BY: CLS

CHECKED BY: KSH DATE: 1-4-2013



REVISIONS		
1	4-1-13	EXTENDED 18" ENCASEMENT, MODIFIED NOTES, DIMENSIONS, ETC. PER NCRR COMMENTS

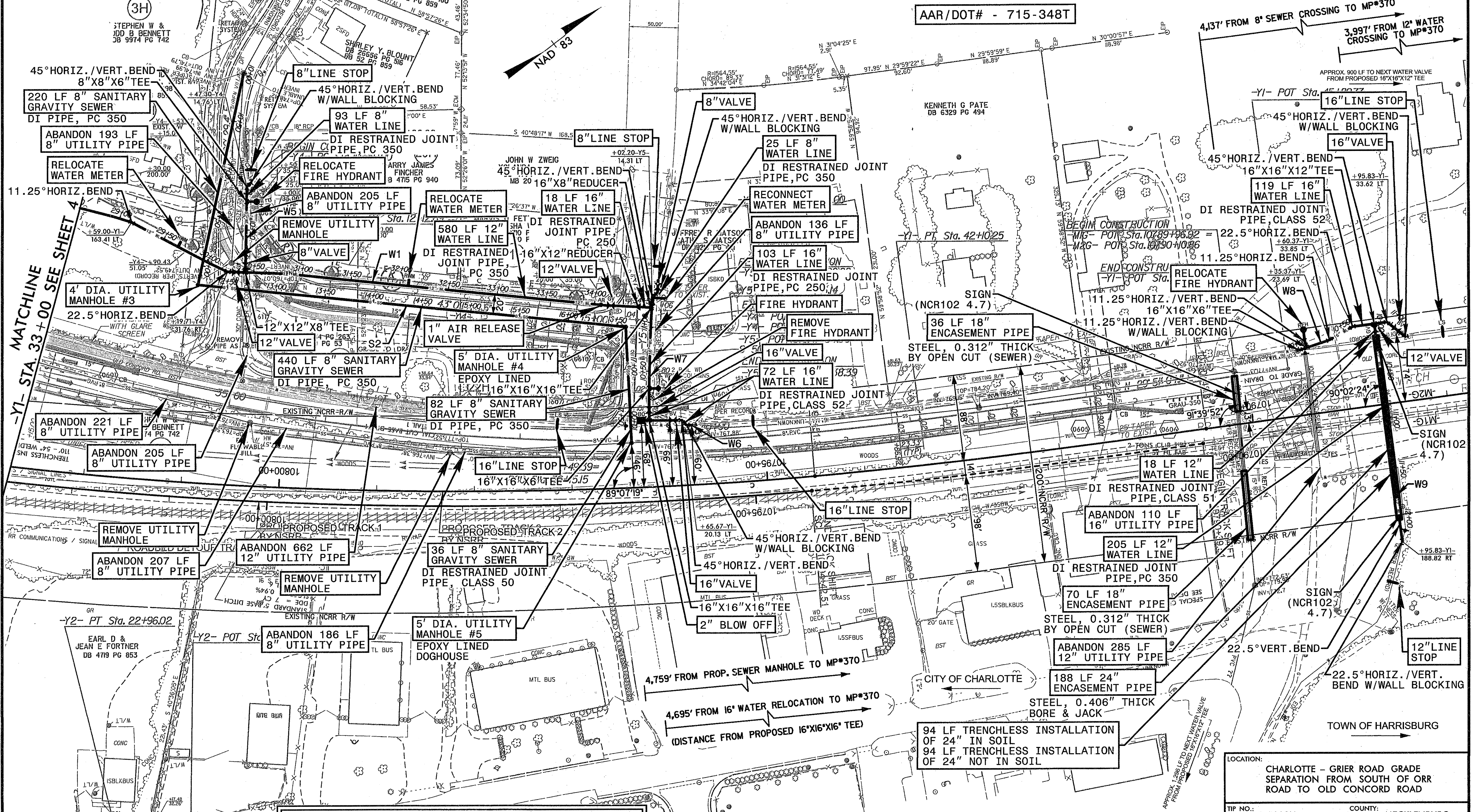


CONTRACTOR SHALL VERIFY THE DEPTH OF THE EXISTING 24" ENCASEMENT AT -M2G- STA 10789+38.23 (24.22 RT). IF 2.0 FEET OF COVER CAN BE MAINTAINED OVER THE EXISTING 24" ENCASEMENT AFTER THE PROPOSED DITCH IS CONSTRUCTED, THEN THE PROPOSED -W8- & -W9- WATER LINE RELOCATIONS AND ASSOCIATED APPURTENANCES CAN BE ELIMINATED. IF 2.0 FEET OF COVER CANNOT BE MAINTAINED OVER THE EXISTING 24" ENCASEMENT AFTER THE PROPOSED DITCH IS CONSTRUCTED, THEN THE PROPOSED -W8- & -W9- WATER LINE RELOCATIONS SHALL BE CONSTRUCTED AS SHOWN.



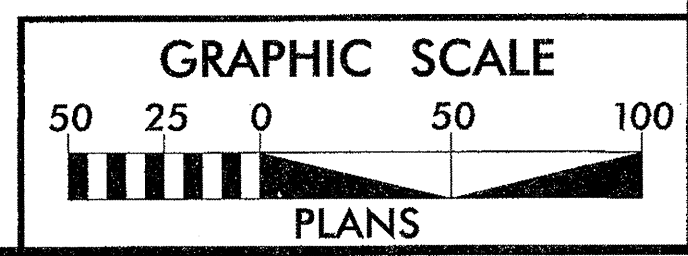
PROJECT REFERENCE NO. P-5208H	SHEET NO. UC-6
DESIGNED BY: CLS	
DRAWN BY: JNA	
CHECKED BY: KSH	
APPROVED BY:	
REVISOR:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION



EXISTING WATER & SEWER LINES WITHIN NCRR R/W TO BE REPLACED SHALL BE ABANDONED AND FILLED IN ACCORDANCE WITH NORTH CAROLINA RAILROAD SPECIFICATIONS NCR 102 SECTION 2.6.

ALL WORK WITHIN NCRR R/W TO BE PERFORMED IN ACCORDANCE WITH NORTH CAROLINA RAILROAD SPECIFICATIONS NCR 101, 102 AND 103.



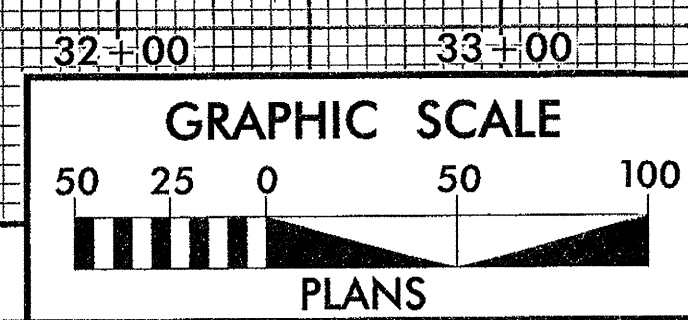
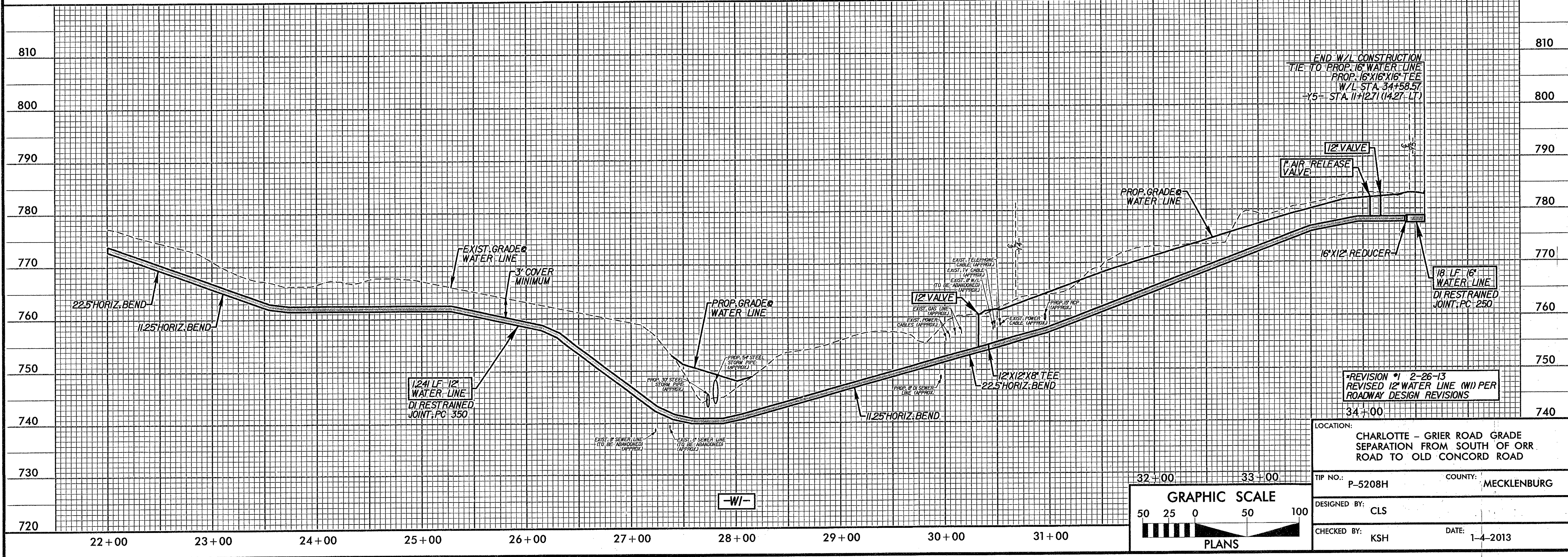
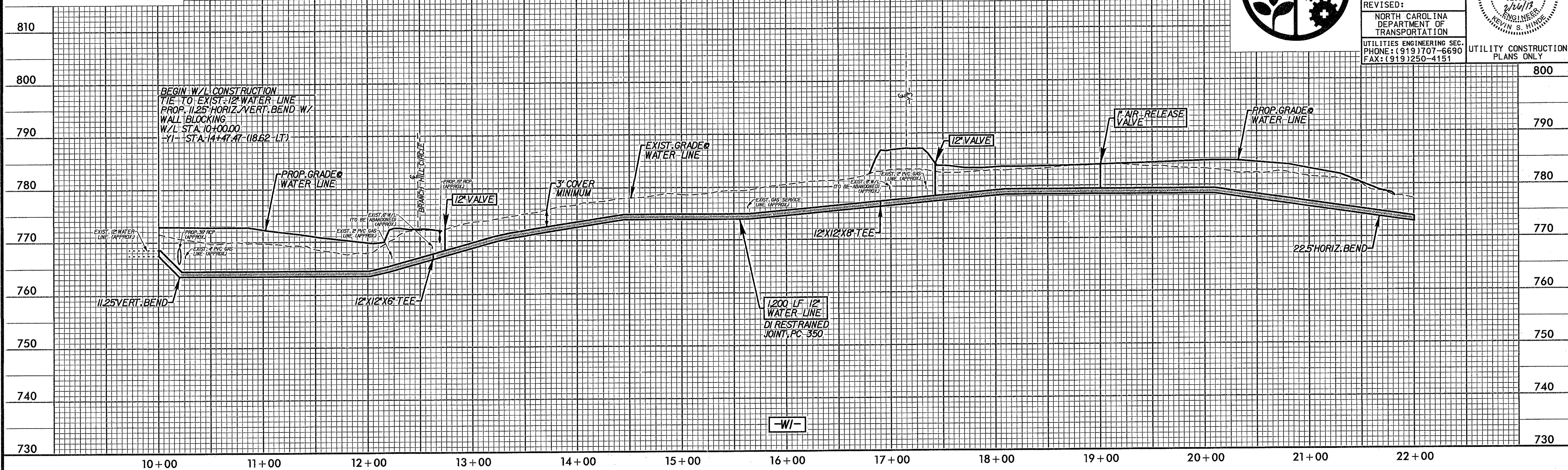
LOCATION: CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD	COUNTY: MECKLENBURG
TIP NO.: P-5208H	DATE: 1-4-2013
DESIGNED BY: CLS	
CHECKED BY: KSH	



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PROJECT REFERENCE NO. P-5208H	SHEET NO. UC-7
DESIGNED BY: CLS	
DRAWN BY: JNA	
CHECKED BY: KSH	
APPROVED BY:	
REVISIED:	UTILITY CONSTRUCTION PLANS ONLY
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*REVISION #1 2-26-13
REVISED 12\"/>

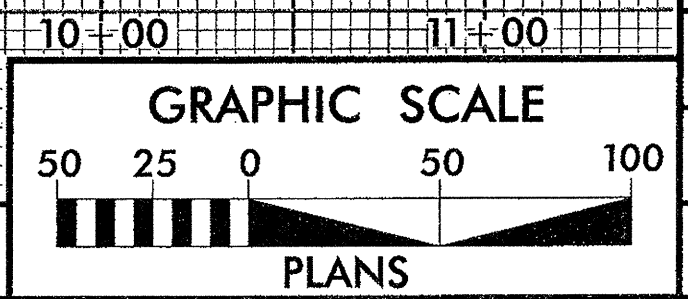
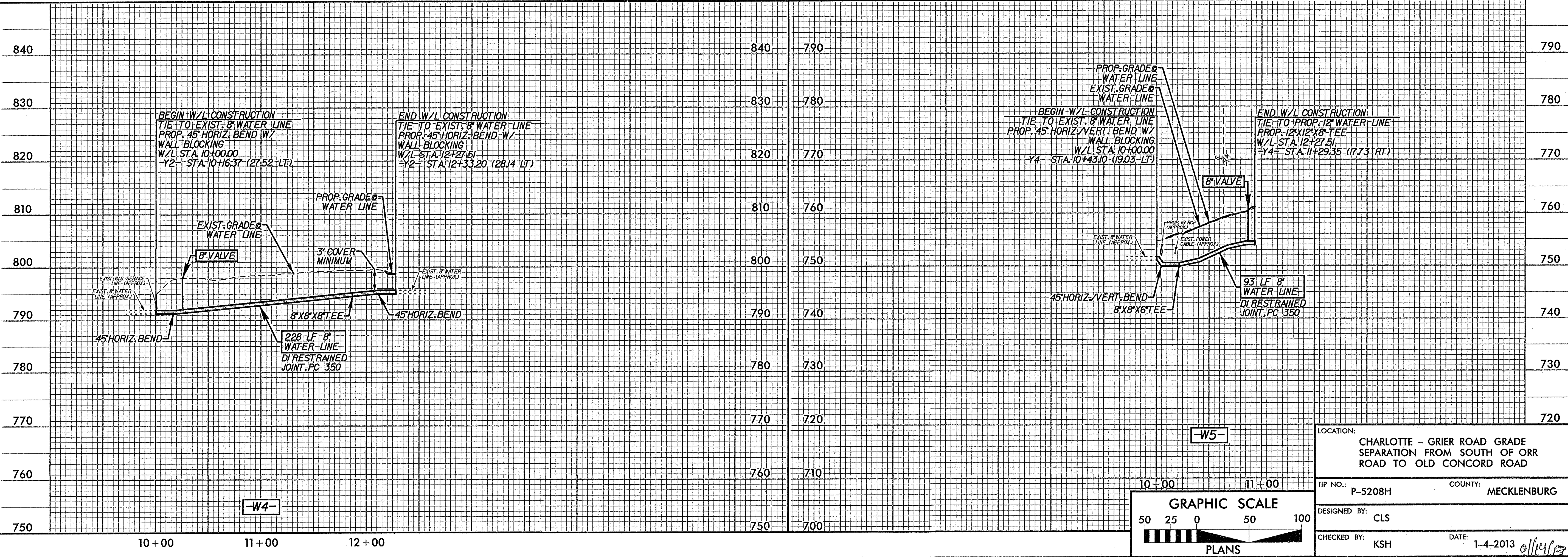
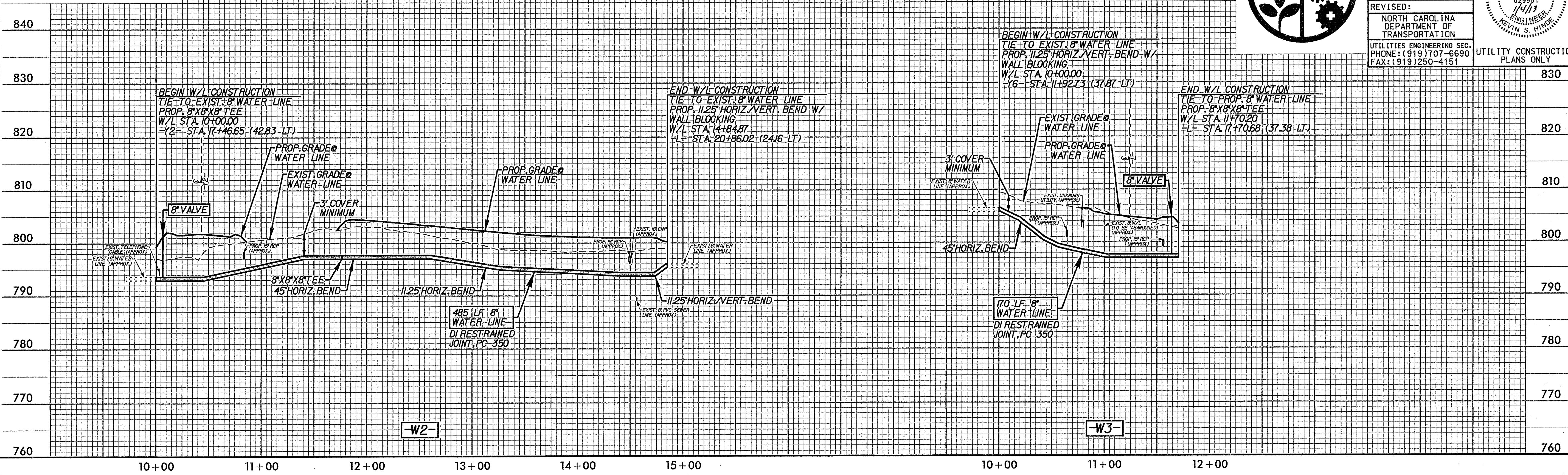
LOCATION: CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD	
TIP NO.: P-5208H	COUNTY: MECKLENBURG
DESIGNED BY: CLS	
CHECKED BY: KSH	DATE: 1-4-2013



License No. C-2639
7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227



PROJECT REFERENCE NO. P-5208H	SHEET NO. UC-8
DESIGNED BY: CLS	
DRAWN BY: JNA	
CHECKED BY: KSH	
APPROVED BY:	
REVISID:	UTILITY CONSTRUCTION PLANS ONLY
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6590 FAX: (919) 250-4151	



LOCATION: CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD
TIP NO.: P-5208H COUNTY: MECKLENBURG
DESIGNED BY: CLS
CHECKED BY: KSH DATE: 1-4-2013

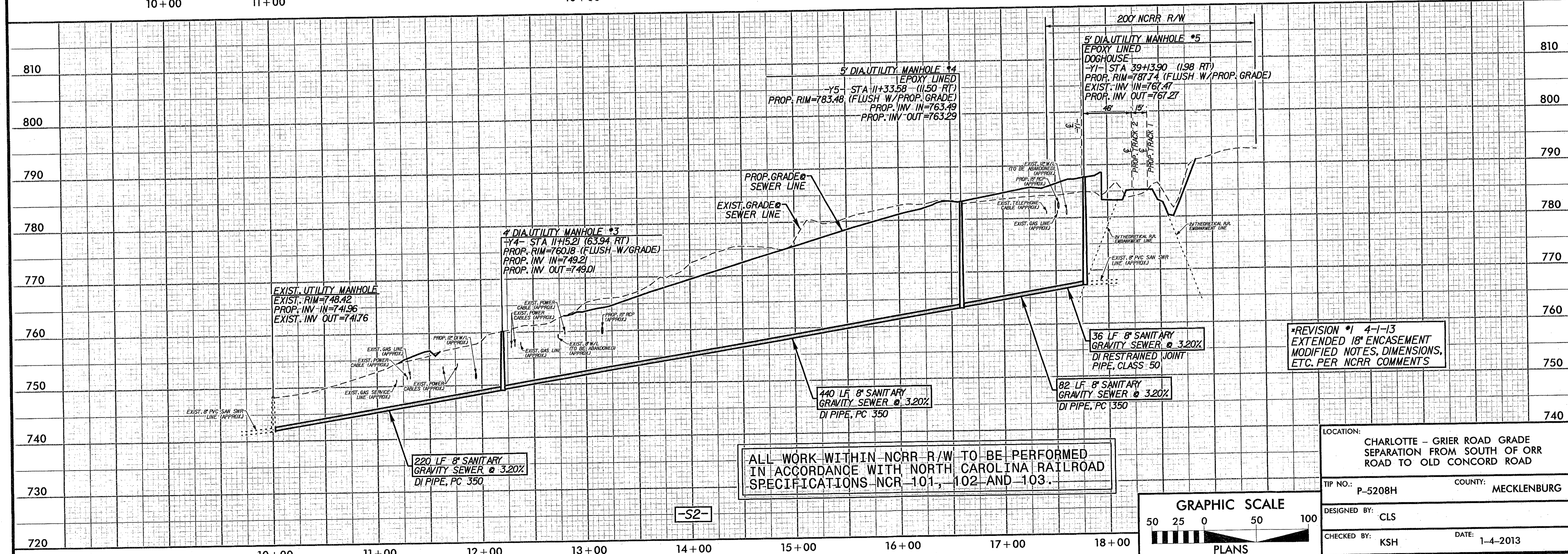
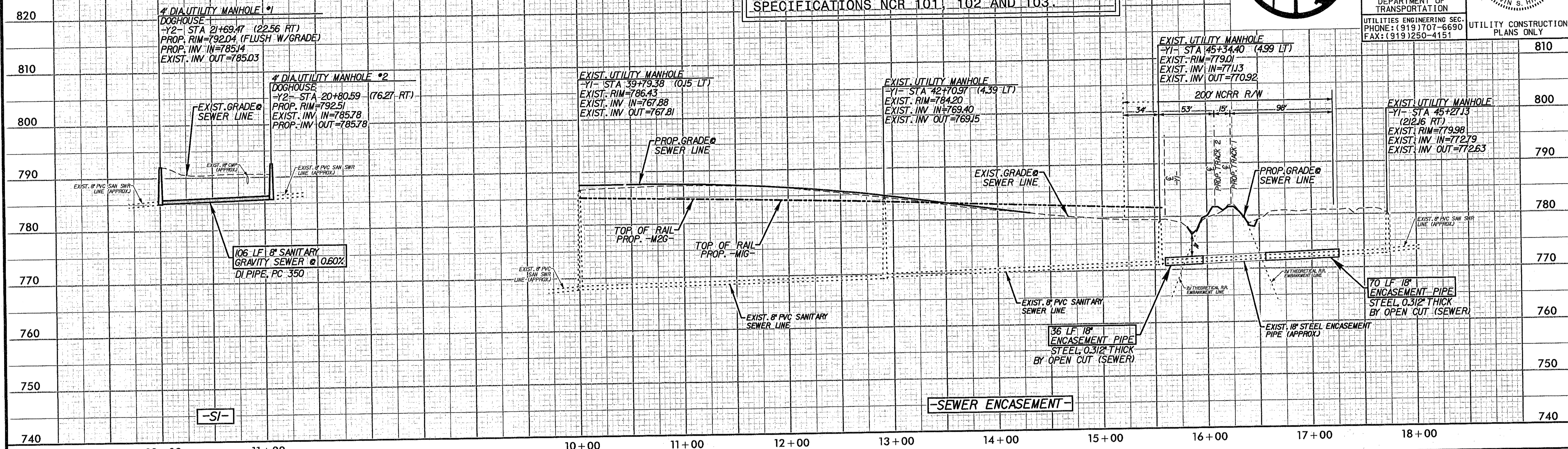


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PROJECT REFERENCE NO.	P-5208H	SHEET NO.	UC-10
DESIGNED BY:	CLS		
DRAWN BY:	JNA		
CHECKED BY:	KSH		
APPROVED BY:			
REVISD:		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		UTILITY CONSTRUCTION PLANS ONLY	

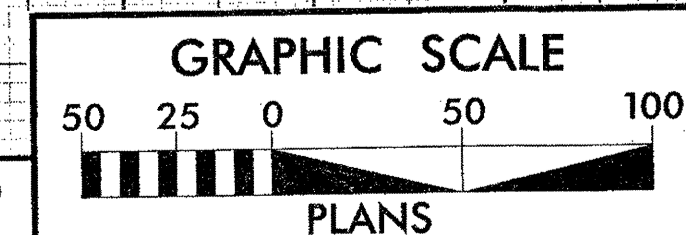
ALL WORK WITHIN NCRR R/W TO BE PERFORMED IN ACCORDANCE WITH NORTH CAROLINA RAILROAD SPECIFICATIONS NCR 101, 102 AND 103.



*REVISION #1 4-1-13
EXTENDED 18\"/>

ALL WORK WITHIN NCRR R/W TO BE PERFORMED IN ACCORDANCE WITH NORTH CAROLINA RAILROAD SPECIFICATIONS NCR 101, 102 AND 103.

LOCATION:	CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD		
TIP NO.:	P-5208H	COUNTY:	MECKLENBURG
DESIGNED BY:	CLS	DATE:	1-4-2013
CHECKED BY:	KSH		



TIP PROJECT: P-5208H

CONTRACT:

STATE OF NORTH CAROLINA
NCDOT RAIL DIVISION

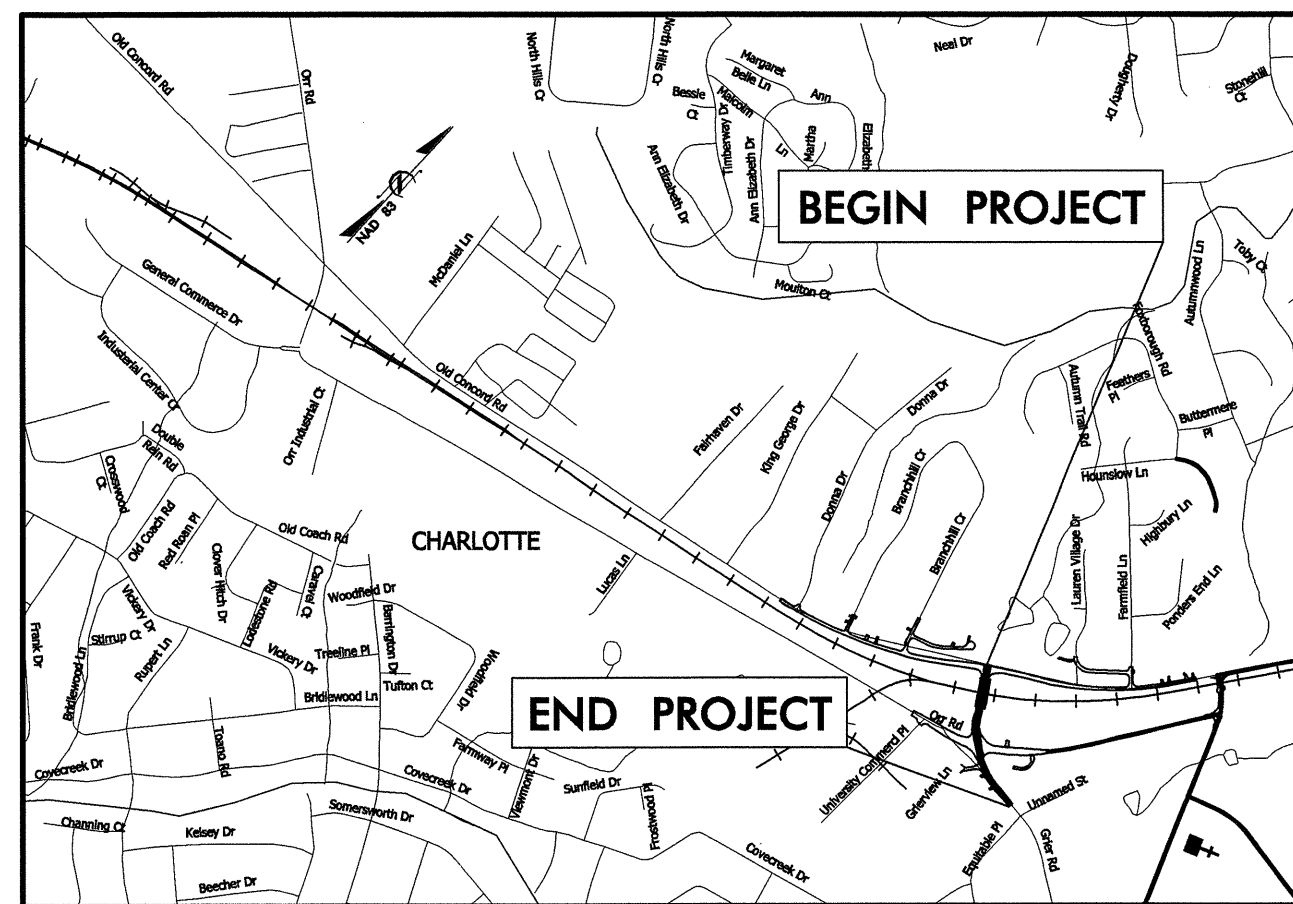
T.I.P. NO.	SHEET NO.
P-5208H	UO-1



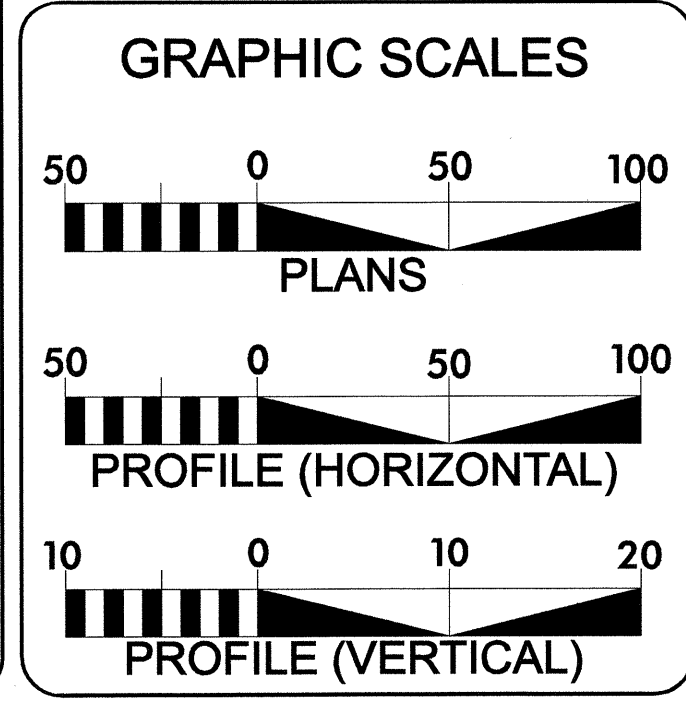
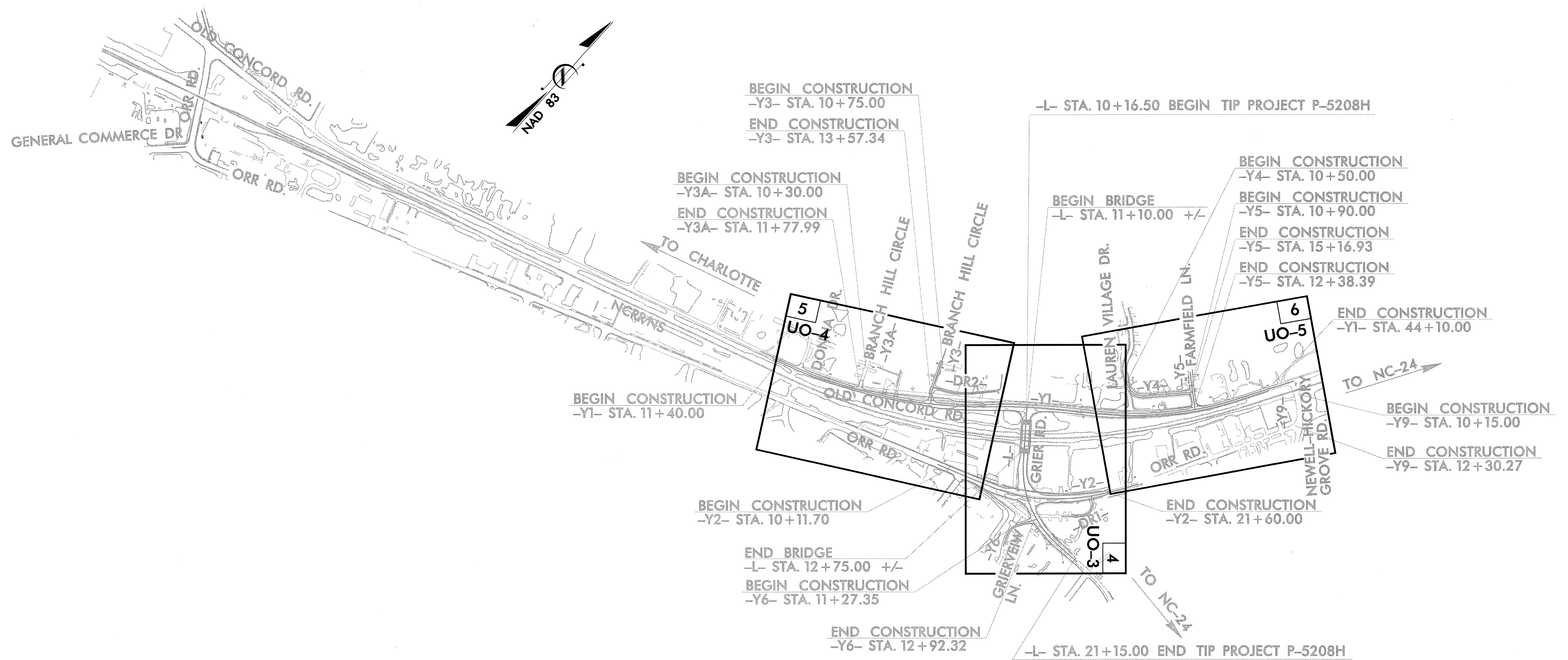
UTILITIES BY OTHERS PLANS MECKLENBURG COUNTY

LOCATION: CHARLOTTE - GRIER RD. GRADE SEPARATION FROM SOUTH OF ORR RD. TO OLD CONCORD RD.

TYPE OF WORK: UTILITIES BY OTHERS CONSTRUCTION



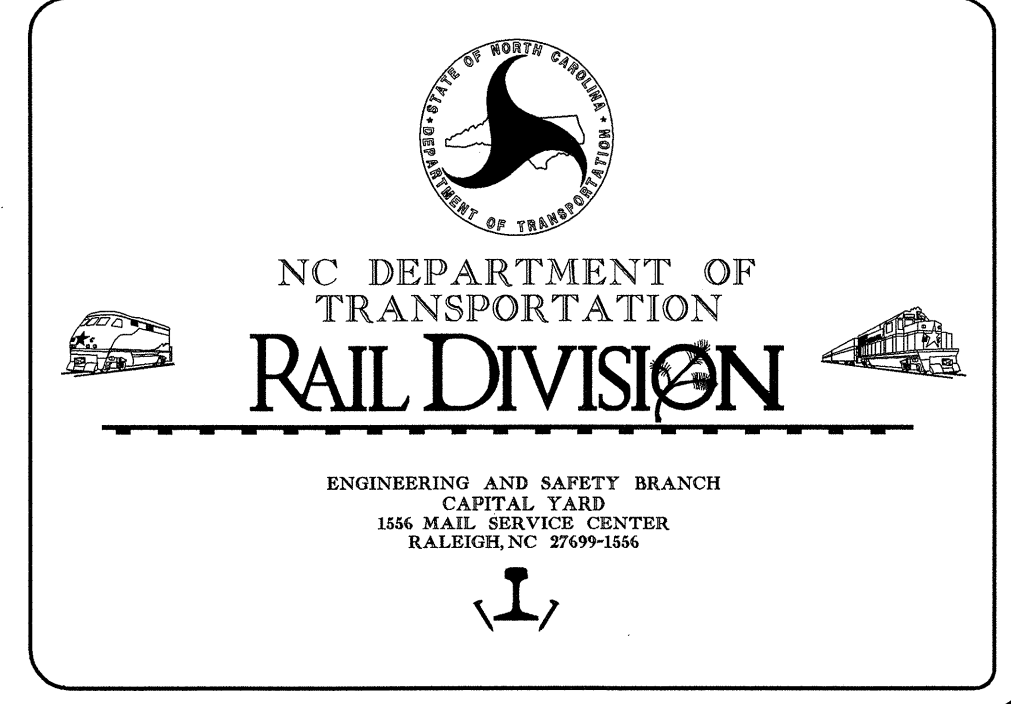
VICINITY MAP



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITY SYMBOLOGY SHEET
UO-3 THRU UO-5	UBO CONSTRUCTION SHEETS

- UTILITY OWNERS ON PROJECT**
- POWER - DUKE ENERGY
 - TELEPHONE - AT&T
 - TELECOMMUNICATION - LEVEL 3
 - GAS - PIEDMONT NATURAL GAS
 - CABLE TV - TIME WARNER CABLE



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS



UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS



7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	----- 12" WL -----
11¼ Degree Bend	----- †† -----
22½ Degree Bend	----- †† -----
45 Degree Bend	----- †X -----
90 Degree Bend	----- †† -----
Plug	----- █ -----
Tee	----- †† -----
Cross	----- †† -----
Reducer	----- ▶ -----
Gate Valve	----- GV -----
Butterfly Valve	----- BV -----
Tapping Valve	----- TV -----
Line Stop	----- LS -----
Line Stop with Bypass	----- LS/BP -----
Blow Off	----- BO -----
Fire Hydrant	----- PFH -----
Relocate Fire Hydrant	----- REM FH -----
Remove Fire Hydrant	----- REM FH -----
Water Meter	----- WM -----
Relocate Water Meter	----- REM WM -----
Remove Water Meter	----- REM WM -----
Water Pump Station	----- PS(W) -----
RPZ Backflow Preventer	----- RPZ -----
DCV Backflow Preventer	----- DBFP -----
Relocate RPZ Backflow Preventer	----- REM RPZ -----
Relocate DCV Backflow Preventer	----- REM DBFP -----

PROPOSED SEWER SYMBOLS

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

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	----- ○ -----
Telephone Pole	----- ○ -----
Joint Use Pole	----- ○ -----
Telephone Pedestal	----- TEL PED -----
Utility Line by Others (Type as Shown)	----- PROP O/H POW LINES -----
Trenchless Installation	----- 12" TL INSTALL -----
Encasement by Open Cut	----- 24" ENCAS BY OC -----
Encasement	----- 24" ENCASUREMENT -----

Thrust Block	----- █ -----
Air Release Valve	----- AR -----
Utility Vault	----- UV -----
Concrete Pier	----- CP -----
Steel Pier	----- SP -----
Plan Note	----- NOTE -----
Pay Item Note	----- PAY ITEM -----

EXISTING UTILITIES SYMBOLS

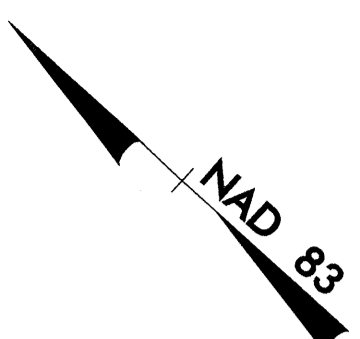
Power Pole	----- ● -----	*Underground Power Line	----- P -----
Telephone Pole	----- ● -----	*Underground Telephone Cable	----- T -----
Joint Use Pole	----- ● -----	*Underground Telephone Conduit	----- TC -----
Utility Pole	----- ● -----	*Underground Fiber Optics Telephone Cable	----- T FO -----
Utility Pole with Base	----- □ -----	*Underground TV Cable	----- TV -----
H-Frame Pole	----- ●-----● -----	*Underground Fiber Optics TV Cable	----- TV FO -----
Power Transmission Line Tower	----- ☒ -----	*Underground Gas Pipeline	----- G -----
Water Manhole	----- ⊙ -----	Aboveground Gas Pipeline	----- A/G Gas -----
Power Manhole	----- ⊙ -----	*Underground Water Line	----- W -----
Telephone Manhole	----- ⊙ -----	Aboveground Water Line	----- A/G Water -----
Sanitary Sewer Manhole	----- ⊙ -----	*Underground Gravity Sanitary Sewer Line	----- SS -----
Hand Hole for Cable	----- ☒ -----	Aboveground Gravity Sanitary Sewer Line	----- A/G Sanitary Sewer -----
Power Transformer	----- ☒ -----	*Underground SS Forced Main Line	----- FSS -----
Telephone Pedestal	----- ☒ -----	Underground Unknown Utility Line	----- ?UTL -----
CATV Pedestal	----- ☒ -----	SUE Test Hole	----- ⚡ -----
Gas Valve	----- ◇ -----	Water Meter	----- ○ -----
Gas Meter	----- ◇ -----	Water Valve	----- ⊙ -----
Located Miscellaneous Utility Object	----- ○ -----	Fire Hydrant	----- ◇ -----
Abandoned According to Utility Records	----- AATUR -----	Sanitary Sewer Cleanout	----- ⊙ -----
End of Information	----- E.O.I. -----		

*For Existing Utilities
Utility Line Drawn from Record (Type as Shown) -----
Designated Utility Line (Type as Shown) -----

LOCATION:	CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD	
TIP NO.:	P-5208H	COUNTY: MECKLENBURG
DESIGNED BY:	CLS	
CHECKED BY:	MED	DATE: 4-17-2013

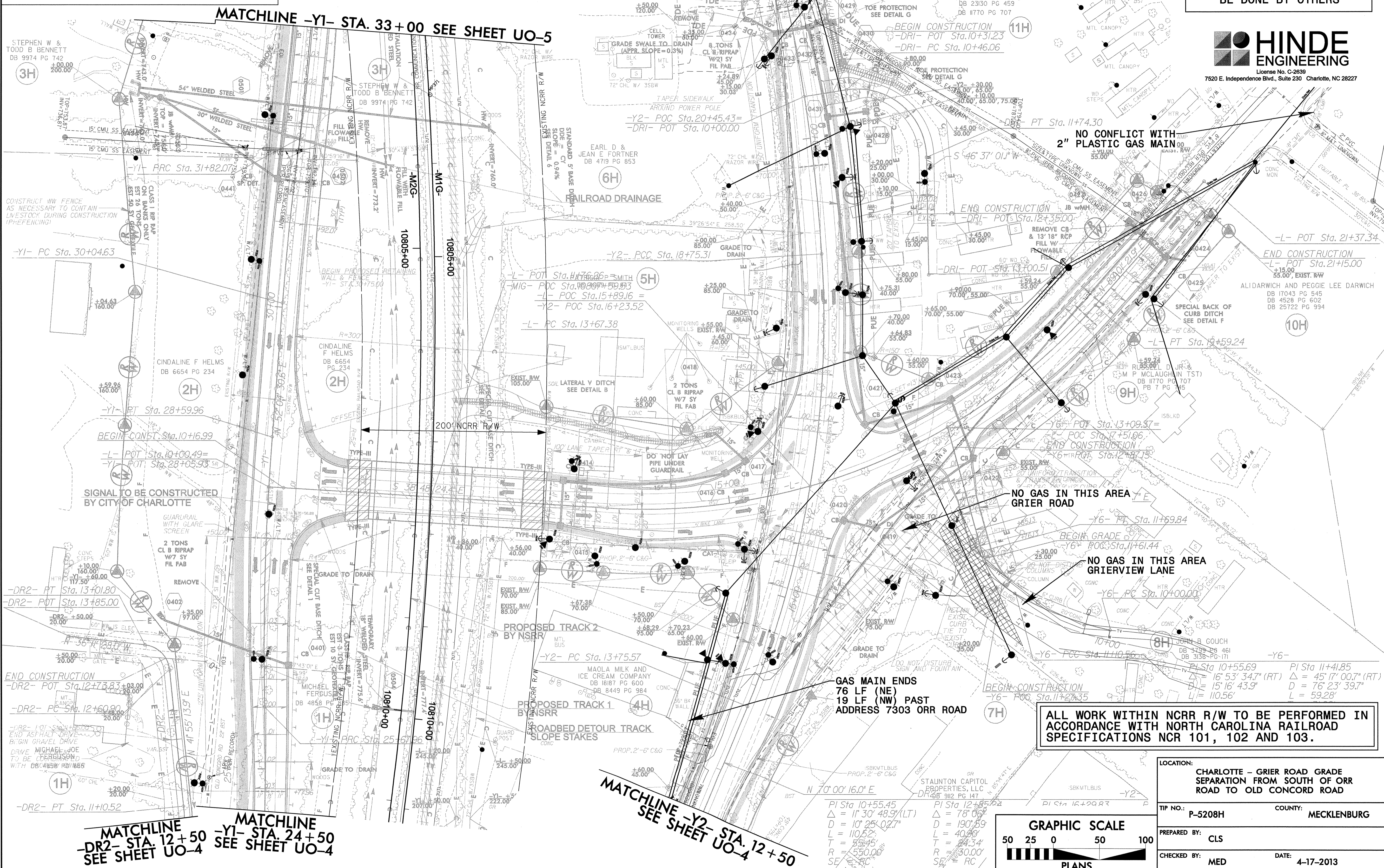
REVISIONS

PLAN SHEET UO-3 CORRESPONDS TO ROADWAY SHEET 4



UTILITIES BY OTHERS

NOTE: ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

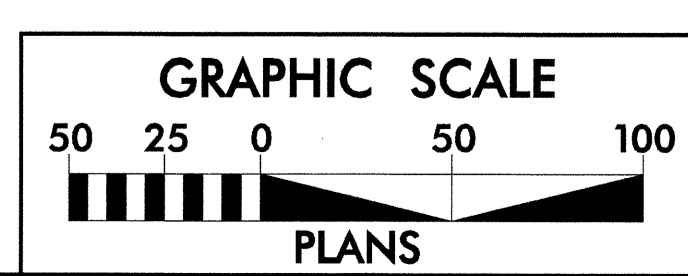


MATCHLINE -Y1- STA. 33+00 SEE SHEET UO-5

MATCHLINE -DR2- STA. 12+50 SEE SHEET UO-4

MATCHLINE -Y2- STA. 12+50 SEE SHEET UO-4

ALL WORK WITHIN NCRR R/W TO BE PERFORMED IN ACCORDANCE WITH NORTH CAROLINA RAILROAD SPECIFICATIONS NCR 101, 102 AND 103.



LOCATION:	CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD		
TIP NO.:	P-5208H	COUNTY:	MECKLENBURG
PREPARED BY:	CLS	CHECKED BY:	MED
DATE:	4-17-2013		

REVISIONS

PLAN SHEET UO-4 CORRESPONDS TO ROADWAY SHEET 5

Y1-	Y3-	Y3B-	DR2-
PI Sta 18+82.01 Δ = 26' 41" 42.5" (LT) D = 1' 54' 35.5" L = 1,397.75' T = 711.80' R = 3,000.00' SE = 0.03 R.O. = 70'	PI Sta 27+14.07 Δ = 5' 34' 36.3" (RT) D = 1' 54' 35.5" L = 292.00' T = 146.11' R = 3,000.00' SE = 0.03 R.O. = 90'	PI Sta 12+87.62 Δ = 14' 28' 52.6" (LT) D = 22' 55' 05.9" L = 63.19' T = 31.76' R = 250.00' SE = NC	PI Sta 11+26.63 Δ = 11' 01' 35.4" (LT) D = 14' 19' 26.2" L = 76.98' T = 38.61' R = 400.00' SE = RC
			PI Sta 10+55.45 Δ = 11' 30' 48.9" (L) D = 10' 25' 02.7" L = 110.52' T = 55.45' R = 550.00' SE = RC

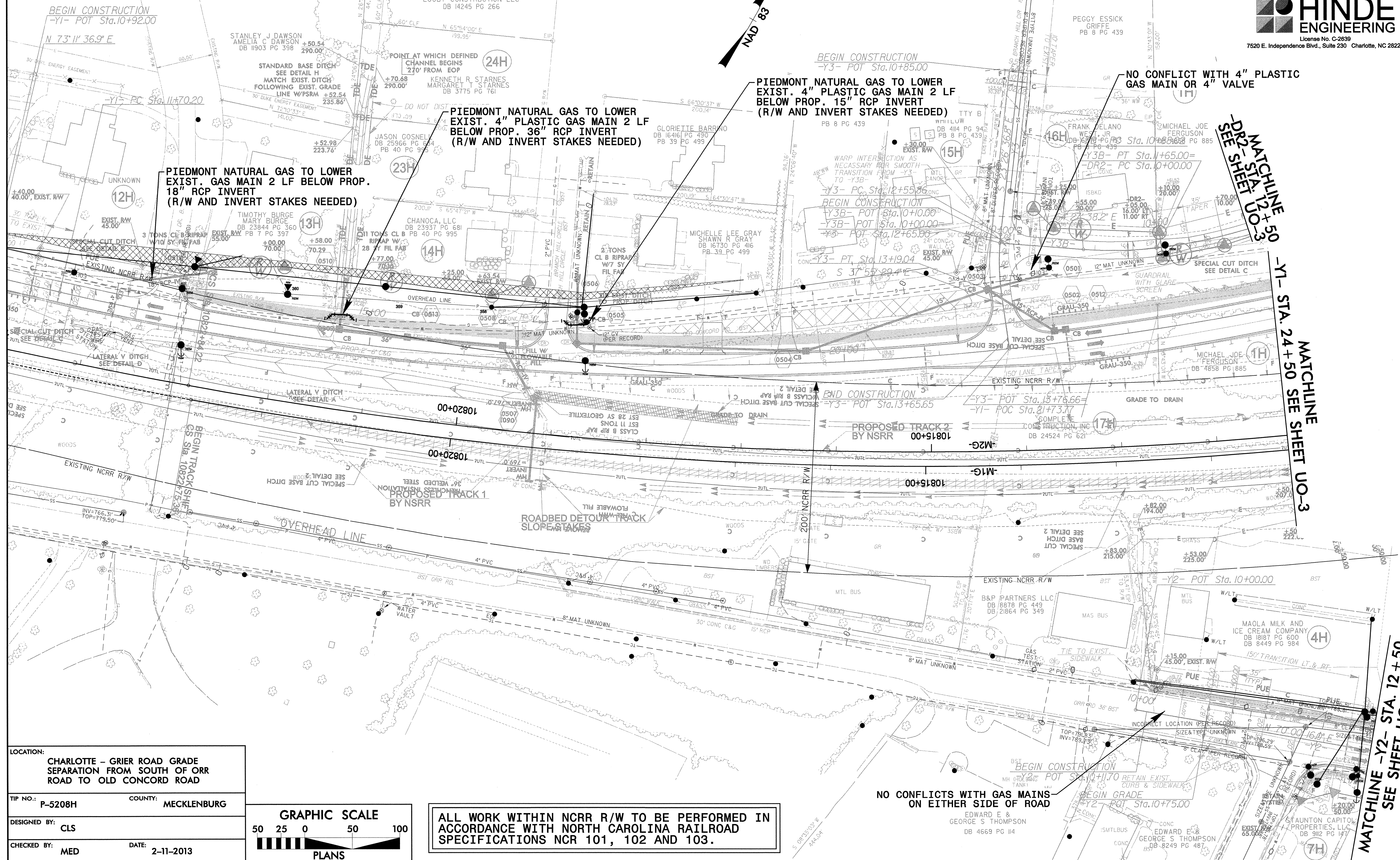


UTILITIES BY OTHERS

NOTE: ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS



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PIEDMONT NATURAL GAS TO LOWER EXIST. GAS MAIN 2 LF BELOW PROP. 18" RCP INVERT (R/W AND INVERT STAKES NEEDED)

PIEDMONT NATURAL GAS TO LOWER EXIST. 4" PLASTIC GAS MAIN 2 LF BELOW PROP. 36" RCP INVERT (R/W AND INVERT STAKES NEEDED)

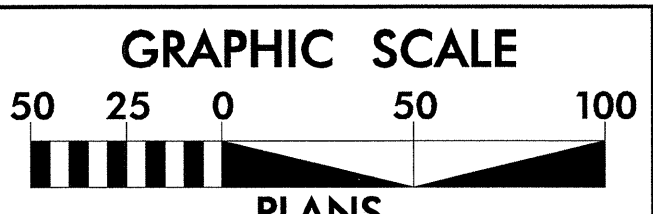
PIEDMONT NATURAL GAS TO LOWER EXIST. 4" PLASTIC GAS MAIN 2 LF BELOW PROP. 15" RCP INVERT (R/W AND INVERT STAKES NEEDED)

NO CONFLICT WITH 4" PLASTIC GAS MAIN OR 4" VALVE

NO CONFLICTS WITH GAS MAINS ON EITHER SIDE OF ROAD

ALL WORK WITHIN NCR R/W TO BE PERFORMED IN ACCORDANCE WITH NORTH CAROLINA RAILROAD SPECIFICATIONS NCR 101, 102 AND 103.

LOCATION: CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD	
TIP NO.: P-5208H	COUNTY: MECKLENBURG
DESIGNED BY: CLS	
CHECKED BY: MED	DATE: 2-11-2013



REVISIONS

PLAN SHEET UO-5 CORRESPONDS TO ROADWAY SHEET 6

-Y1-	-Y2-	-Y4-
PI Sta 30+93.37	PI Sta 20+86.60	PI Sta 11+50.34
$\Delta = 3' 23' 20.4''$ (RT)	$\Delta = 25' 36' 46.9''$ (LT)	$\Delta = 84' 44' 25.1''$ (LT)
D = 154' 35.5'	D = 2' 29' 28.0'	D = 52' 05' 13.5'
L = 177.45'	L = 1,028.17'	L = 162.69'
T = 88.75'	T = 522.82'	T = 100.34'
R = 3,000.00'	R = 2,300.00'	R = 110.00'
SE = 0.03	R.O. = 90'	SE = NC
R.O. = 90'	R.O. = 70'	



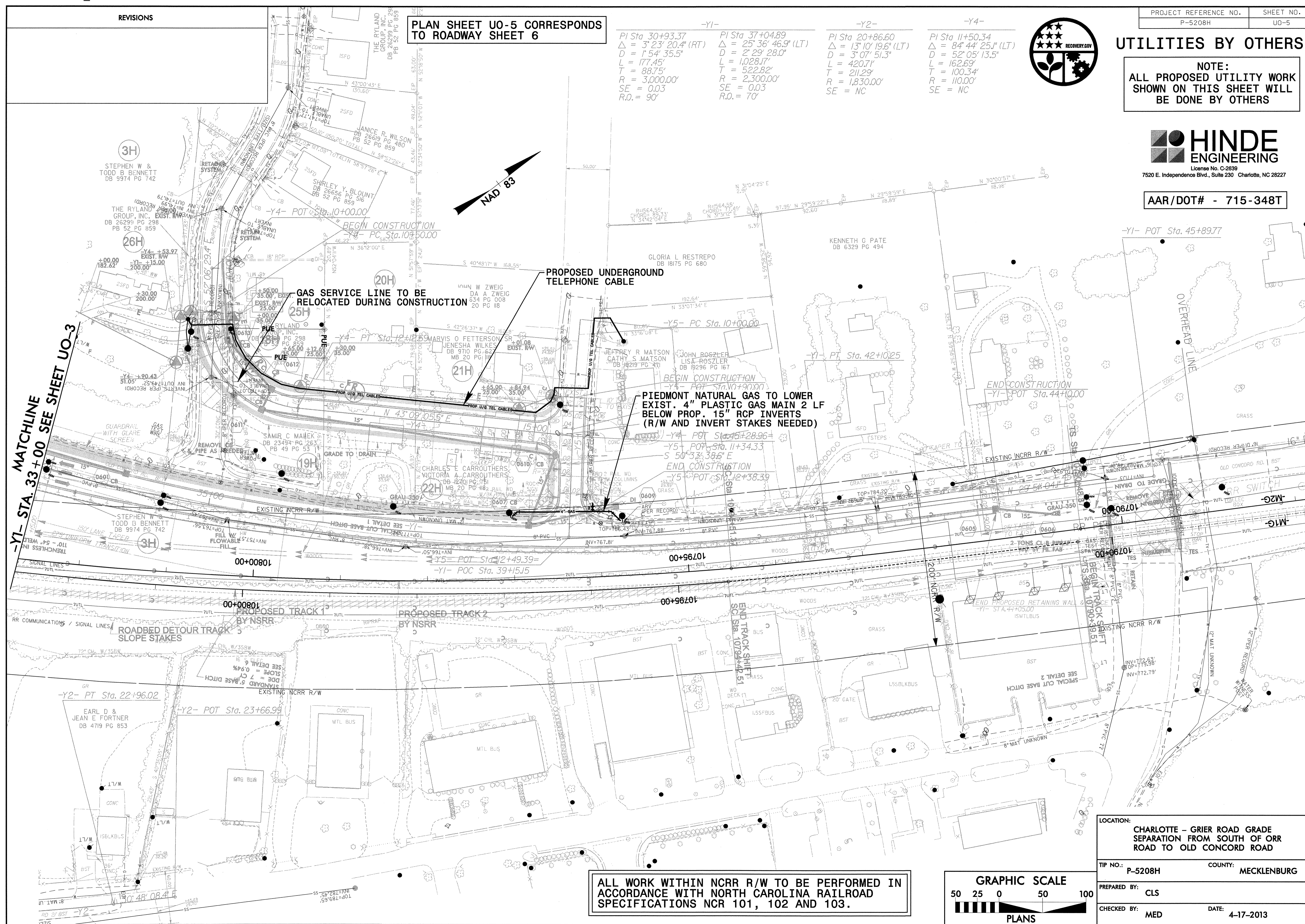
UTILITIES BY OTHERS

NOTE:
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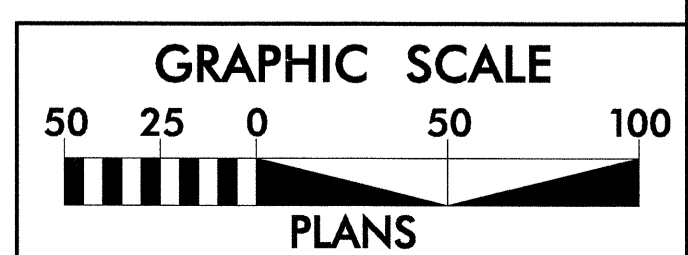
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7520 E. Independence Blvd., Suite 230 Charlotte, NC 28227

AAR/DOT# - 715-348T



MATCHLINE
-Y1- STA. 33+00 SEE SHEET UO-3

ALL WORK WITHIN NCCR R/W TO BE PERFORMED IN ACCORDANCE WITH NORTH CAROLINA RAILROAD SPECIFICATIONS NCR 101, 102 AND 103.



LOCATION: CHARLOTTE - GRIER ROAD GRADE SEPARATION FROM SOUTH OF ORR ROAD TO OLD CONCORD ROAD	
TIP NO.: P-5208H	COUNTY: MECKLENBURG
PREPARED BY: CLS	
CHECKED BY: MED	DATE: 4-17-2013