TIP: R-2555 A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS

MECKLENBURG COUNTY

LOCATION: SR 2697 (WEST CATAWBA AVE) FROM SR 2151 (JETTON RD) TO I-77

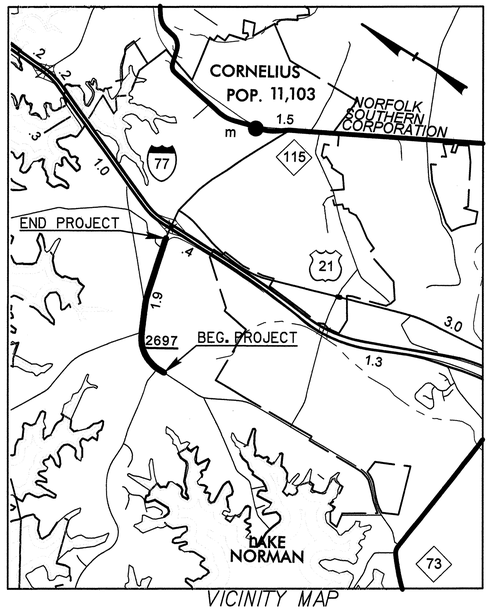
TYPE OF WORK: UTILITIES

METRIC

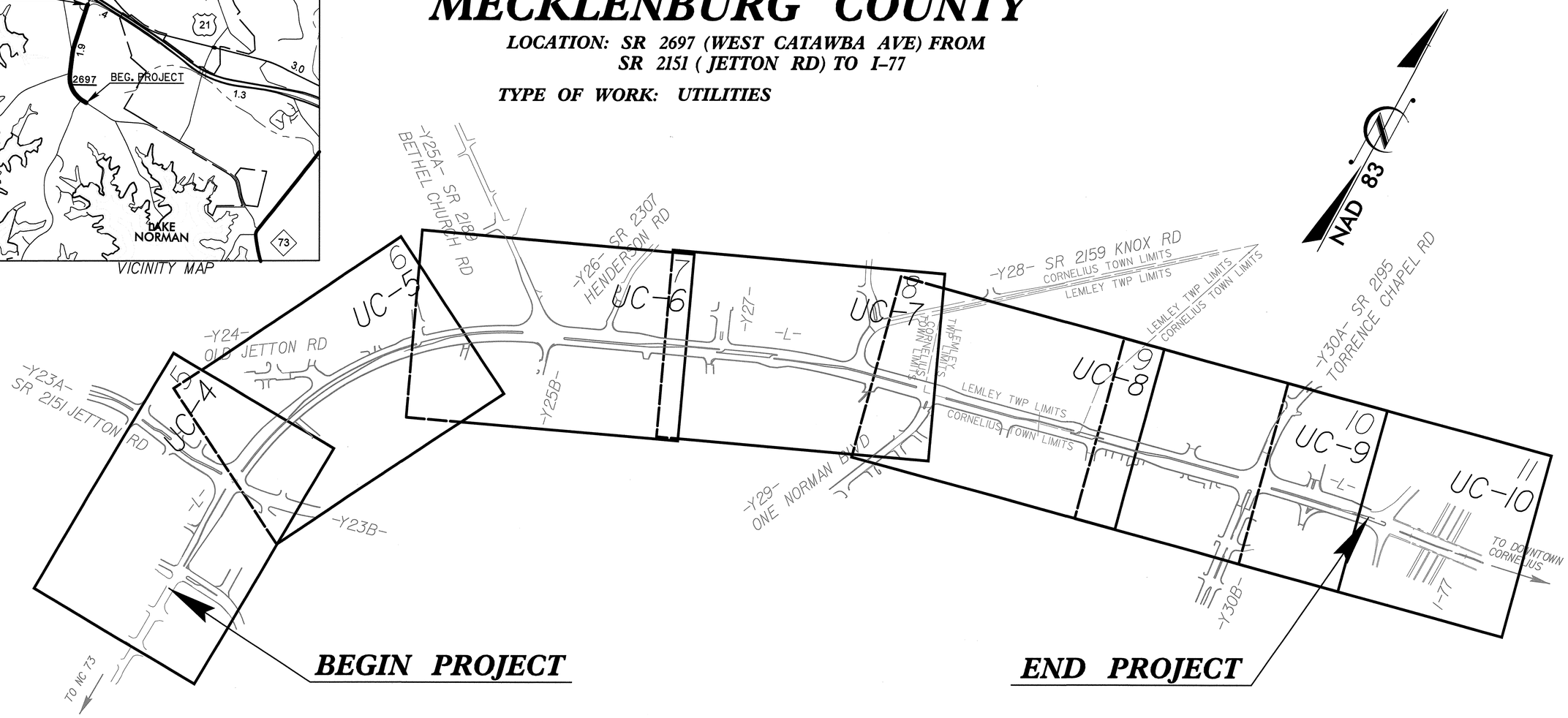
ALL DIMENSIONS IN THESE PLANS ARE IN METERS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2555 A	UC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION



VICINITY MAP



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	SYMBOLOGY SHEET
UC-3	PERMIT SHEET
UC-4 THRU UC-10	UTILITY CONSTRUCTION PLAN SHEETS
UC-11	UTILITY PROFILE SHEET
UC-12 THRU UC-13	DETAIL SHEETS

WATER AND SEWER OWNERS ON PROJECT

(1) WATER - CMU
(2) SANITARY SEWER - CMU

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 029990 9/22/07 ENGINEER KEVIN S. HINDE

KEVIN S. HINDE, P.E.
PROJECT ENGINEER:

Prepared In the office of:

Hinde Engineering, Inc.

9303 MONROE ROAD, SUITE E
CHARLOTTE, NC 28270
704-814-4407 (office)
704-814-9042 (fax)

METRIC	PROJECT REFERENCE NO.	SHEET NO.
	R-2555 A	UC-2
NOT TO SCALE		UTILITY ENGINEER
CONST.REV.		
R /W REV.		

UTILITY CONSTRUCTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

Water

Proposed Back Flow Preventor	PBFP
Relocate Back Flow Preventor	RBFP
Existing Water Valve	WV
Proposed Valve	GV
Proposed Tapping Valve	TGV
Existing Water Meter	WM
Proposed Water Meter	PWM
Proposed Water Meter / Vault	PWM
Relocate Water Meter	RWM
Remove Water Meter	REM WM
Existing Hydrant	H
Prop Hydrant	PFH
Relocate Hydrant	RFH
Remove Hydrant	REM FH
Proposed RPZ Back Flow Preventor	PRPZ
Relocate RPZ Back Flow Preventor	RRPZ
Water Cross	
Water Plug	
Water Reducer	
Water Tee	
Water Pump Station	PS(W)
Water Thrust Block	
Blow Off Valve	BO
Air Release Valve	AR
Water Line Stop	LS
Water Line Stop w Bypass	LS/BP

Sewer

Existing Manhole	MH
Proposed UT Manhole	
Remove UT Manhole	REM UT MH
Abandon Utility Manhole	ABAND MH
Sewer Line Stop	LS
Sewer Line Stop w Bypass	LS/BP
Sewer Cross	
Sewer Plug	
Sewer Reducer	
Sewer Tee	
Sewer Pump Station	PS(SS)
Sewer Thrust Block	

CHARLOTTE-MECKLENBURG UTILITIES
ENGINEERING DIVISION
CHARLOTTE, NORTH CAROLINA

SR 2697 (WEST CATAWBA AVE)
FROM SR 2151 (JETTON RD) TO I-77

Designed by:	Checked by:	Date:	Sheet:	Of:
CLS	KSH	8-22-07	UC-2	UC-13

Hinde Engineering, Inc.
9303 MONROE ROAD, SUITE E
CHARLOTTE, NC 28270
704-814-4407 (office)
704-814-9042 (fax)

METRIC	PROJECT REFERENCE NO.	SHEET NO.
	R-2555 A	UC-3
NOT TO SCALE		UTILITY ENGINEER
CONST.REV.		
R/W REV.		

UTILITY CONSTRUCTION

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

PROJECT NAME TIP# R-2555A, SR 2697 (WEST CATAWBA AVE.) FROM SR 2151 (JETTON ROAD) TO I-77

CMUD PROJECT NO.: _____

PROJECT TYPE: ___ NEW CONSTRUCTION X 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 0% % DOMESTIC 0 % % INDUSTRIAL
100% % COMMERCIAL 0 % % OTHER _____

ORIGIN OF WASTEWATER ___ SUBDIVISION X 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 200 mm

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.
9303 MONROE RD. SUITE E
CHARLOTTE, N.C. 28270

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:

NORTH CAROLINA PROFESSIONAL SEAL 029901 8/22/07 ENGINEER KEVIN S. HINDE

CMU PERMIT NO. _____ ISSUED _____
PLANT FLOW ALLOCATION RECORDED BY: _____
PERMIT APPROVED BY: _____
BARRY SHEARIN, P.E., CHIEF ENGINEER

APPLICATION FOR PERMIT FOR WATER MAIN EXTENSION

PROJECT NAME: SR 2697 (WEST CATAWBA AVE.) FROM SR 2151 (JETTON RD) TO I-77

CMU PROJECT NO.: _____

PROJECT DESCRIPTION: 45.65m 150mm DI WATER PIPE, 6.57m 200mm DI WATER PIPE, 40.62m 300mm DI WATER PIPE, 56.53m 400mm DI WATER PIPE - WATERMAIN AND FITTINGS

DESIGNED BY: FIRM: HINDE ENGINEERING, INC.
ENGINEER: KEVIN S. HINDE, P.E. DESIGNED BY: CLINT STEVENS
ADDRESS: 9303 MONROE ROAD, SUITE E
CHARLOTTE, N.C. 28270
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 15A 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. _____
APPROVED: _____ DATE _____
BARRY SHEARIN, P.E., CHIEF ENGINEER

CHARLOTTE MECKLENBURG UTILITIES
5100 BROOKSHIRE BLVD.
CHARLOTTE, NORTH CAROLINA 28216

CHARLOTTE-MECKLENBURG UTILITIES
ENGINEERING DIVISION
CHARLOTTE, NORTH CAROLINA

SR 2697 (WEST CATAWBA AVE)
FROM SR 2151 (JETTON RD) TO I-77

Designed by:	Checked by:	Date:	Sheet:	Of:
CLS	KSH	8-22-07	UC-3	UC-13

Hinde Engineering, Inc.
9303 MONROE ROAD, SUITE E
CHARLOTTE, NC 28270
704-814-4407 (office)
704-814-0942 (fax)

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 JAN.2002.THE STANDARDS DETAILS AS SHOWN ON PLANS.AND THE PROJECT SPECIAL PROVISIONS FOR UTILITY CONSTRUCTION.
2. ALL WATER AND SEWER LINES ON THIS PROJECT ARE OWNED BY CHARLOTTE-MECKLENBURG UTILITIES.
3. ALL 300mm AND SMALLER DIAMETER PIPE SHALL BE DUCTILE IRON PRESSURE CLASS 2.41 MPA.UNLESS OTHERWISE NOTED ON UTILITY CONSTRUCTION PLANS.
4. ALL 400mm AND LARGER DIAMETER PIPE SHALL BE DUCTILE IRON PRESSURE CLASS 1.72 MPA.UNLESS OTHERWISE NOTED ON UTILITY CONSTRUCTION PLANS.
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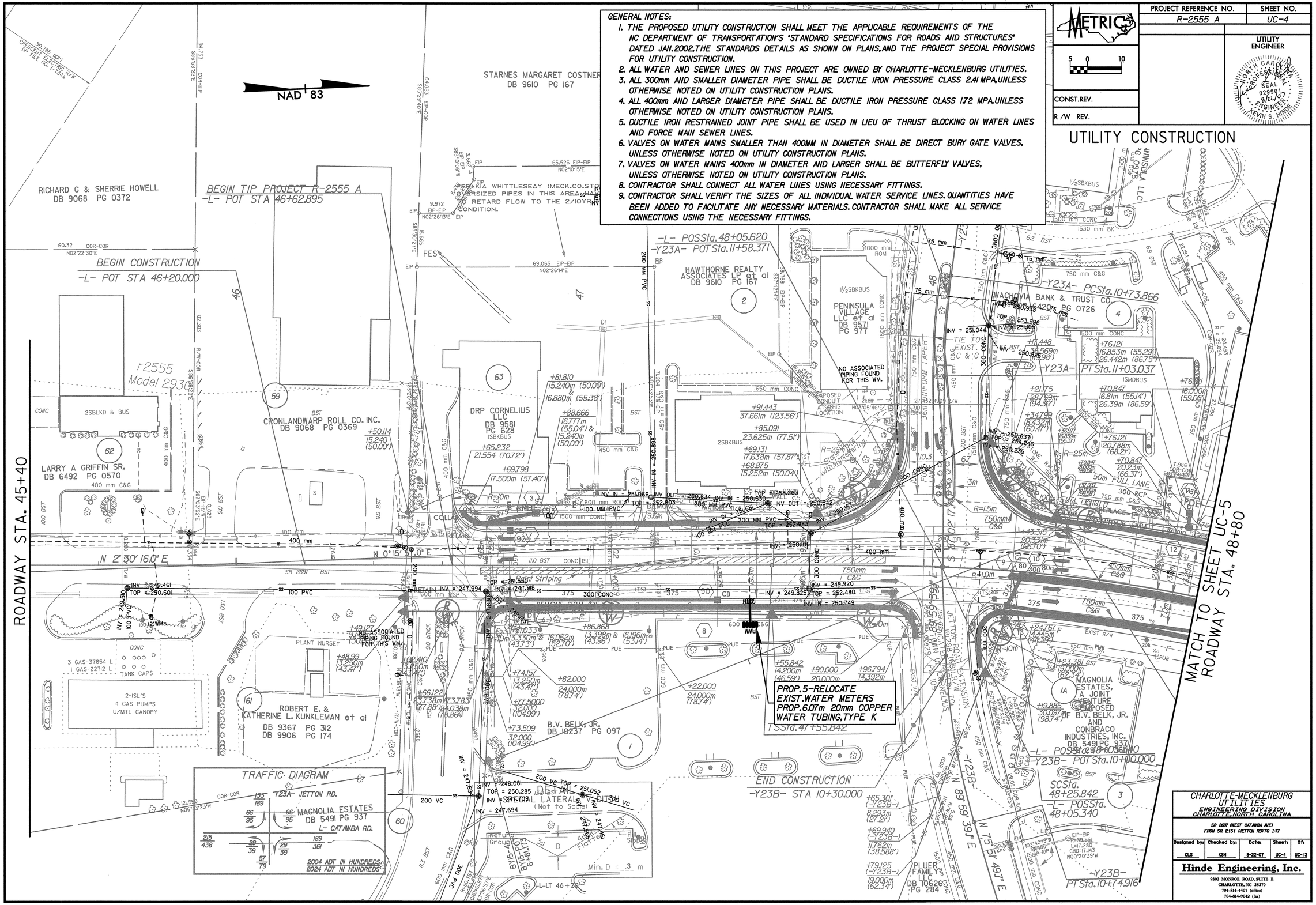
8. CONTRACTOR SHALL CONNECT ALL WATER LINES USING NECESSARY FITTINGS.
9. CONTRACTOR SHALL VERIFY THE SIZES OF ALL INDIVIDUAL WATER SERVICE LINES. QUANTITIES HAVE BEEN ADDED TO FACILITATE ANY NECESSARY MATERIALS. CONTRACTOR SHALL MAKE ALL SERVICE CONNECTIONS USING THE NECESSARY FITTINGS.

METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	R-2555 A	UC-4
CONST.REV.		UTILITY ENGINEER
R /W REV.		NORTH CAROLINA PROFESSIONAL SEAL 029901 ENGINEER KEVIN S. HINDE 8/1/07

UTILITY CONSTRUCTION



CHARLOTTE-MECKLENBURG UTILITIES ENGINEERING DIVISION CHARLOTTE,NORTH CAROLINA				
SR 2697 (WEST CATAWBA AVE) FROM SR 2151 (JETTON RD)TO I-77				
Designed by:	Checked by:	Date:	Sheet:	Of:
CLS	KSH	8-22-07	UC-4	UC-13

Hinde Engineering, Inc.
9303 MONROE ROAD, SUITE E
CHARLOTTE, NC 28270
704-814-4907 (office)
704-814-9042 (fax)

GENERAL NOTES:

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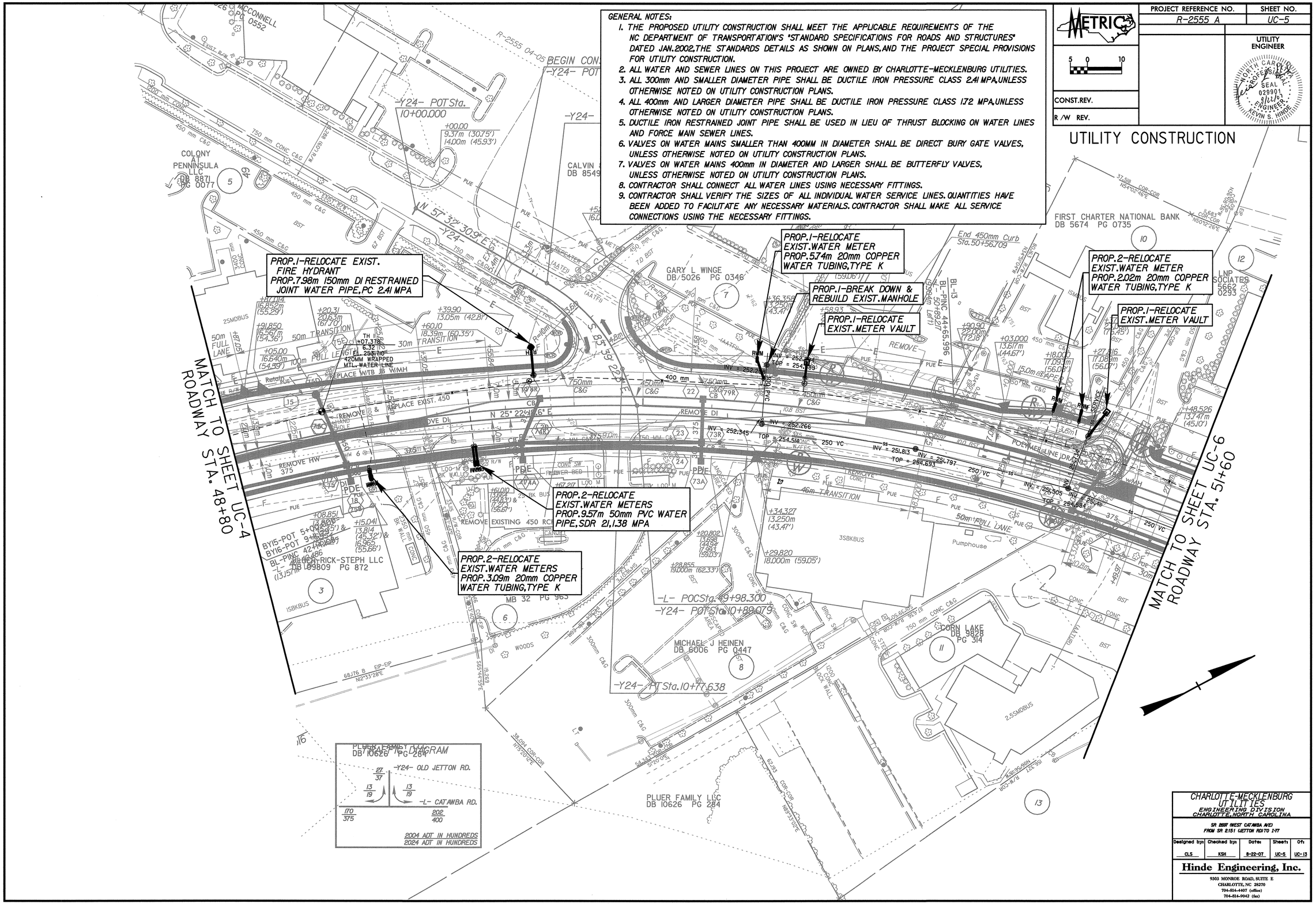
PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UC-5

UTILITY ENGINEER

CONST.REV.

R /W REV.

UTILITY CONSTRUCTION



CHARLOTTE-MECKLENBURG UTILITIES
ENGINEERING DIVISION
CHARLOTTE,NORTH CAROLINA

SR 2557 (WEST CATAWBA AVE)
FROM SR 2151 (JETTON RD) TO I-77

Designed by:	Checked by:	Dates	Sheets	Of:
CLS	KSH	8-22-07	UC-5	UC-13

Hinde Engineering, Inc.
9303 MONROE ROAD, SUITE E
CHARLOTTE, NC 28270
704-814-4407 (office)
704-814-9042 (fax)

GENERAL NOTES:

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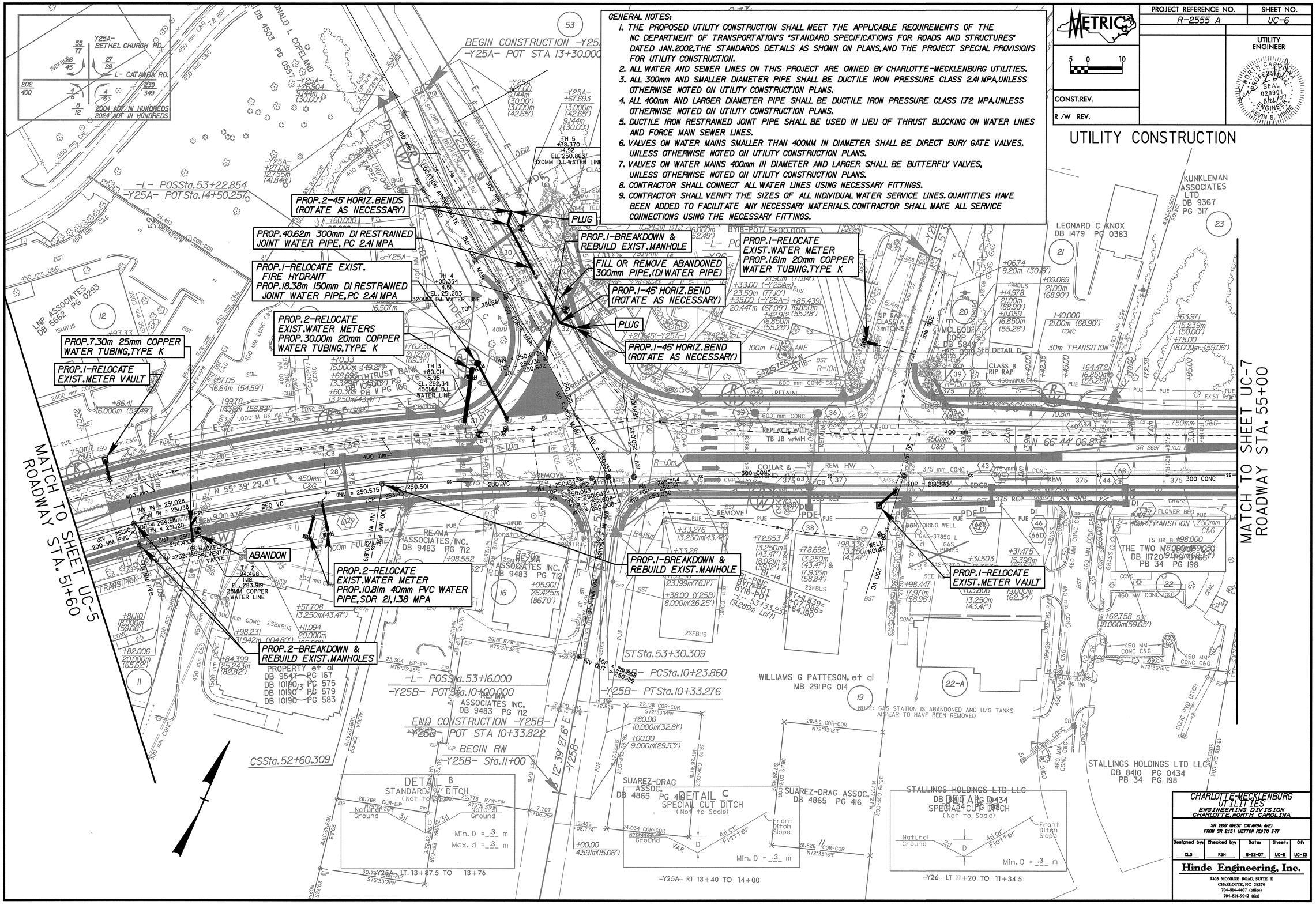
PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UC-6

UTILITY ENGINEER

CONST.REV.

R /W REV.

UTILITY CONSTRUCTION



CHARLOTTE-MECKLENBURG UTILITIES
ENGINEERING DIVISION
CHARLOTTE, NORTH CAROLINA

SR 2697 (WEST CATAWBA AVE) FROM SR 2151 (LETTON RD) TO I-77

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CLS	KSH	8-22-07	UC-6	UC-13

Hinde Engineering, Inc.
9303 MONROE ROAD, SUITE E
CHARLOTTE, NC 28270
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704-814-9042 (fax)

PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UC-7

METRIC

5 0 10

CONST.REV.

R /W REV.

UTILITY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029901 ENGINEER KEVIN S. HINDE 8/22/07

UTILITY CONSTRUCTION

GENERAL NOTES:

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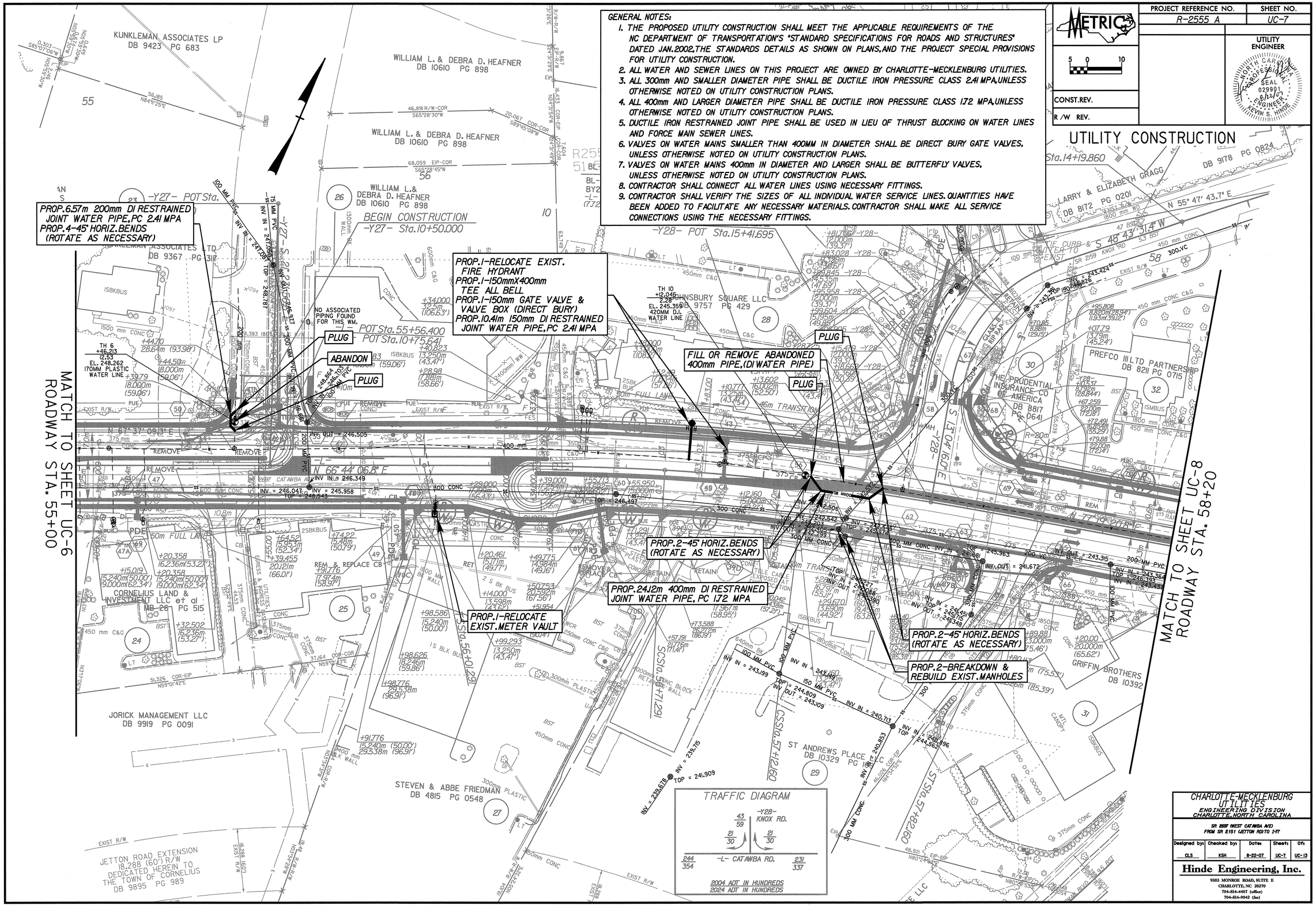

CHARLOTTE-MECKLENBURG UTILITIES
ENGINEERING DIVISION
CHARLOTTE, NORTH CAROLINA

SR 2697 (WEST CATAWBA AVE) FROM SR 2151 (JETTON RD) TO I-77

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CHARLOTTE, NC 28270
704-814-4407 (office)
704-814-9042 (fax)

PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UC-8

METRIC 5 0 10

CONST.REV.

R /W REV.

UTILITY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029901 ENGINEER KEVIN S. HINDE

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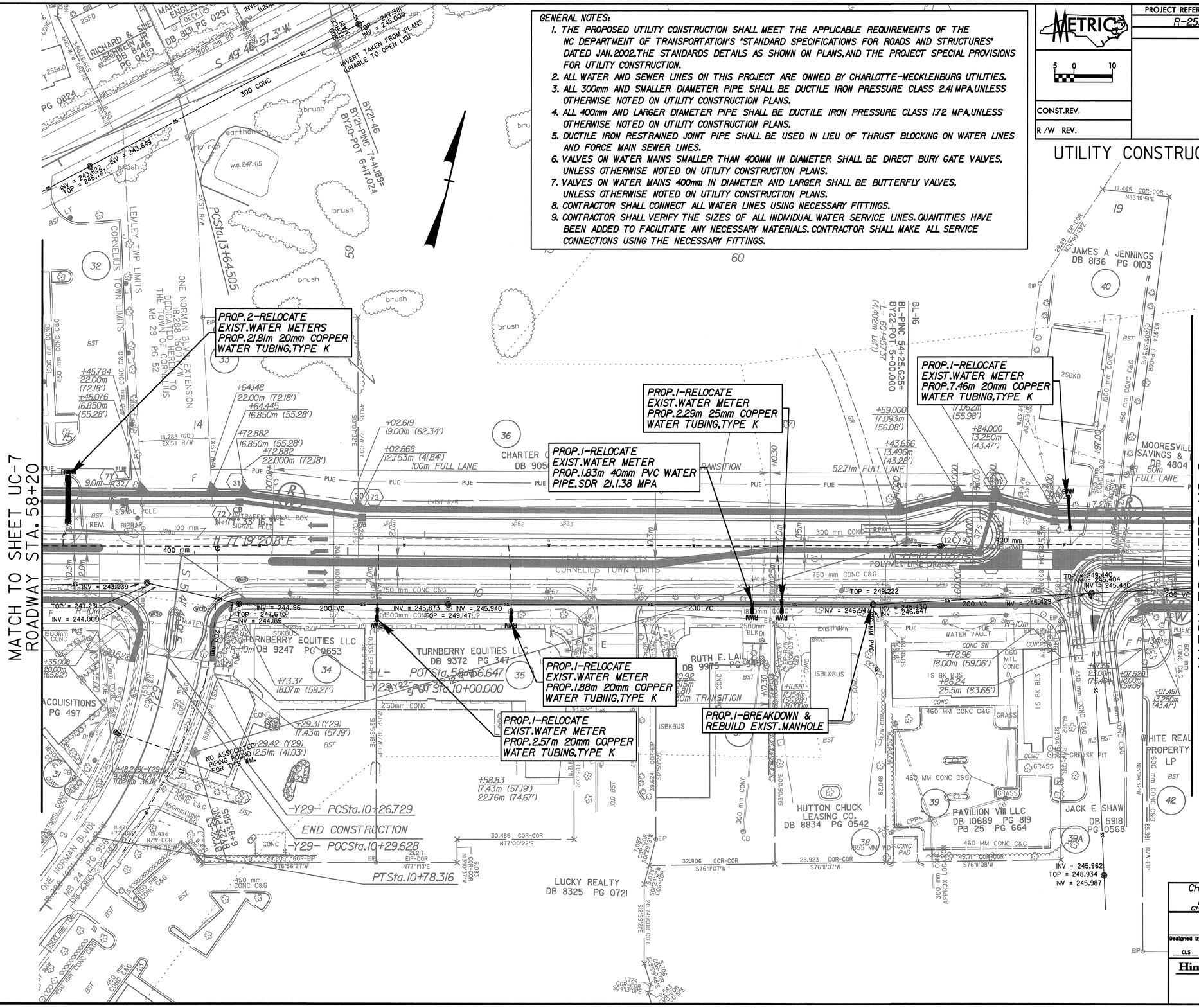

CHARLOTTE-MECKLENBURG UTILITIES ENGINEERING DIVISION CHARLOTTE, NORTH CAROLINA				
SR 2697 (WEST CATAWBA AVE) FROM SR 2151 (LETTON RD) TO I-77				
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CLS	KSH	8-22-07	UC-8	UC-13

Hinde Engineering, Inc.
9303 MONROE ROAD, SUITE E
CHARLOTTE, NC 28270
704-814-4407 (office)
704-814-9942 (fax)

PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UC-9

METRIC 5 0 10

CONST.REV.

R /W REV.

UTILITY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029901 ENGINEER KEVIN S. HINDE 6/12/07

UTILITY CONSTRUCTION

GENERAL NOTES:

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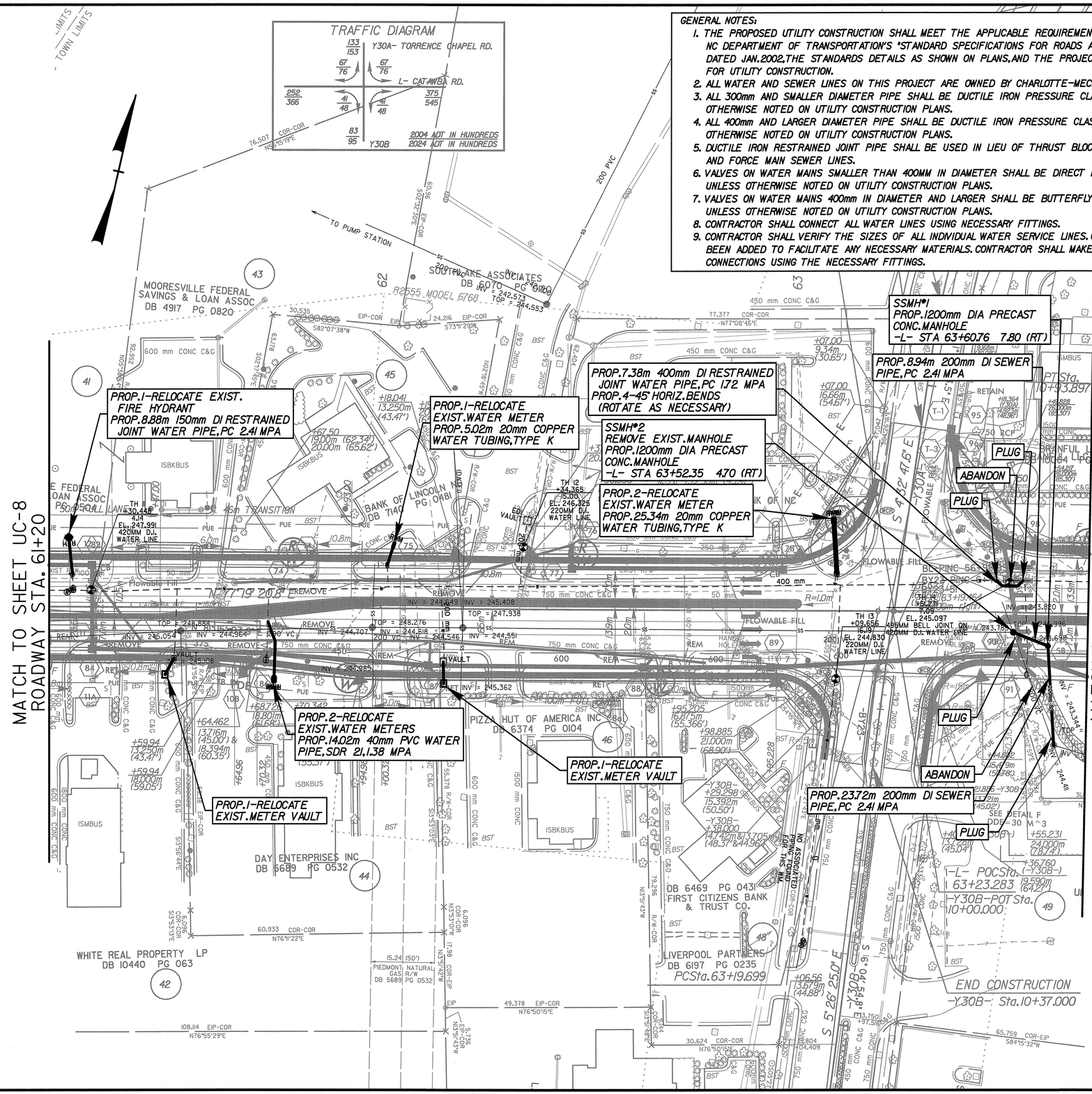

CHARLOTTE-MECKLENBURG UTILITIES
ENGINEERING DIVISION
CHARLOTTE,NORTH CAROLINA

SR 2559 (WEST CATAWBA AVE) FROM SR 2151 (LETTON RD)TO I-77

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CLS	KSH	8-22-07	UC-9	UC-13

Hinde Engineering, Inc.
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PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UC-10

METRIC 5 0 10

CONST.REV.

R/W REV.

UTILITY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029901 ENGINEER KEVIN S. HINDE 8/22/07

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 JAN.2002.THE STANDARDS DETAILS AS SHOWN ON PLANS,AND THE PROJECT SPECIAL PROVISIONS FOR UTILITY CONSTRUCTION.
2. ALL WATER AND SEWER LINES ON THIS PROJECT ARE OWNED BY CHARLOTTE-MECKLENBURG UTILITIES.
3. ALL 300mm AND SMALLER DIAMETER PIPE SHALL BE DUCTILE IRON PRESSURE CLASS 2.41 MPA,UNLESS OTHERWISE NOTED ON UTILITY CONSTRUCTION PLANS.
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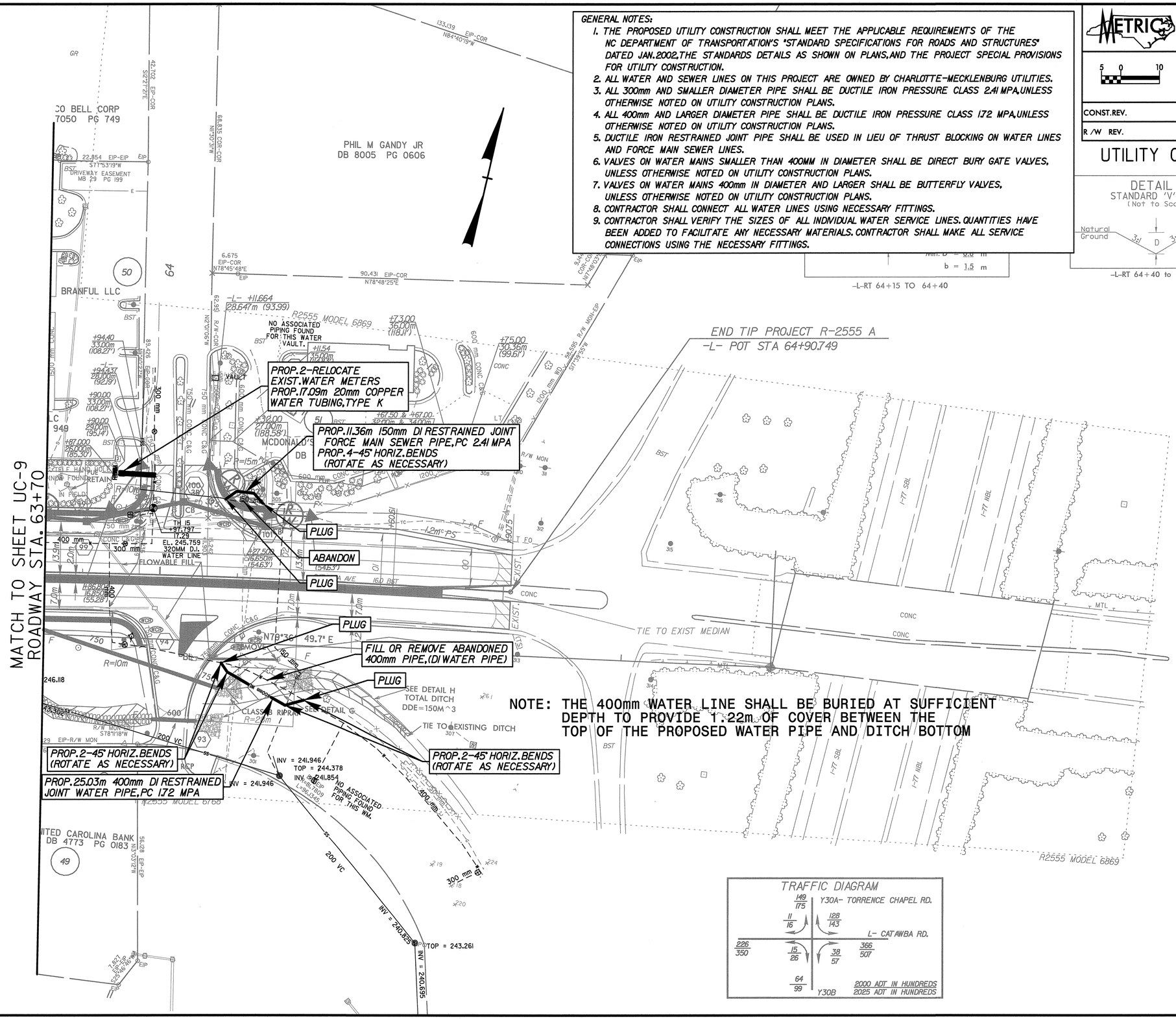
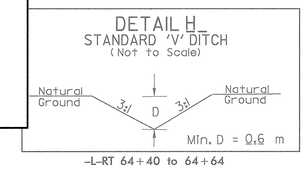
9. CONTRACTOR SHALL VERIFY THE SIZES OF ALL INDIVIDUAL WATER SERVICE LINES. QUANTITIES HAVE BEEN ADDED TO FACILITATE ANY NECESSARY MATERIALS. CONTRACTOR SHALL MAKE ALL SERVICE CONNECTIONS USING THE NECESSARY FITTINGS.



NOTE: THE 400mm WATER LINE SHALL BE BURIED AT SUFFICIENT DEPTH TO PROVIDE 1.22m OF COVER BETWEEN THE TOP OF THE PROPOSED WATER PIPE AND DITCH BOTTOM

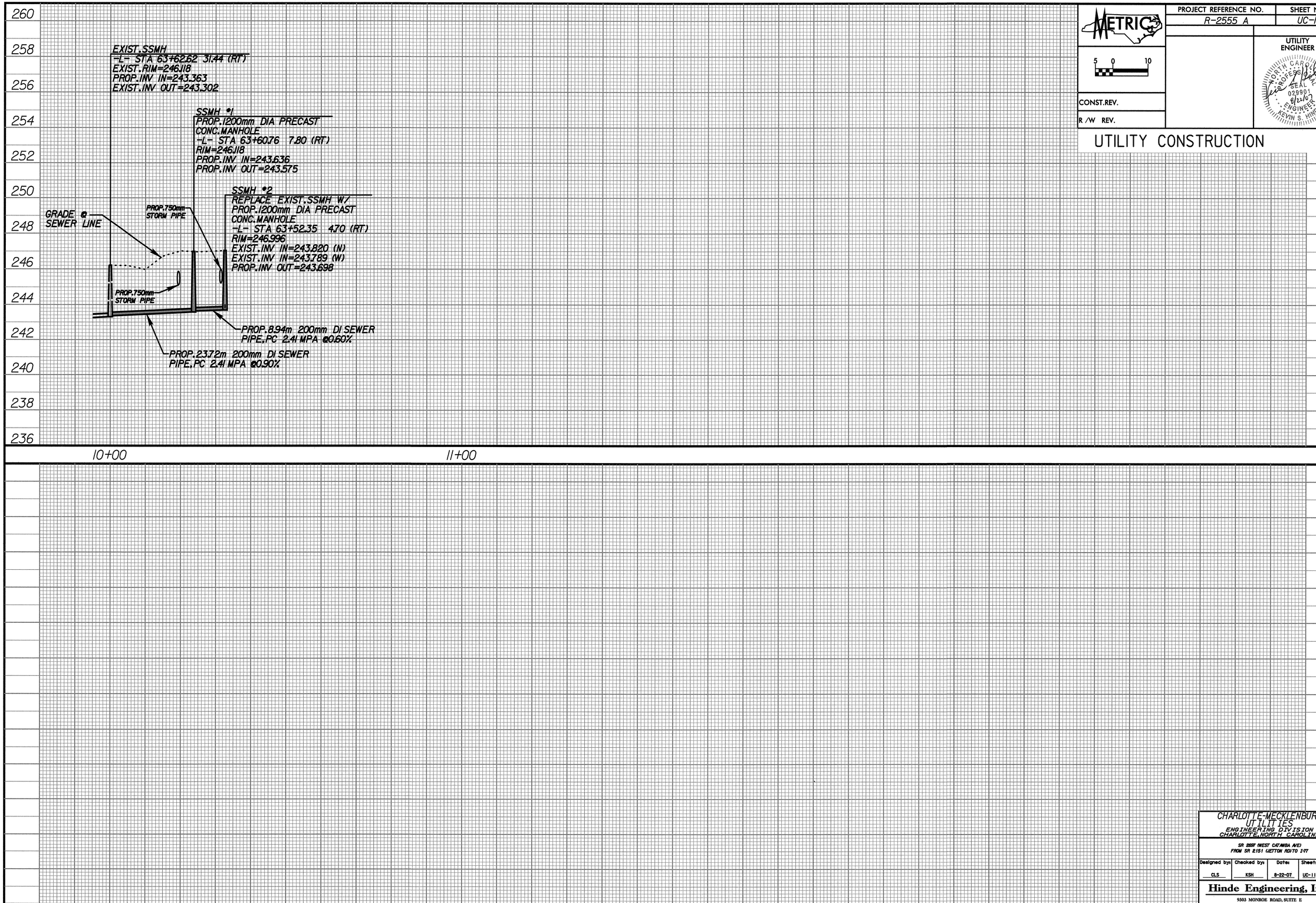


CHARLOTTE-MECKLENBURG UTILITIES
ENGINEERING DIVISION
CHARLOTTE, NORTH CAROLINA

SR 2697 (WEST CATAWBA AVE) FROM SR 2151 (LETTON RD) TO I-77

Designed by:	Checked by:	Date:	Sheet:	Of:
CLS	KSH	8-22-07	UC-10	UC-13

Hinde Engineering, Inc.
9303 MONROE ROAD, SUITE E
CHARLOTTE, NC 28270
704-814-4407 (office)
704-814-9042 (fax)



METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	R-2555 A	UC-11
CONST.REV.		UTILITY ENGINEER
R /W REV.		

NORTH CAROLINA PROFESSIONAL SEAL 029901 8/22/07 ENGINEER KEVIN S. HINDE

UTILITY CONSTRUCTION

CHARLOTTE-MECKLENBURG UTILITIES
ENGINEERING DIVISION
CHARLOTTE, NORTH CAROLINA

SR 2697 (WEST CATAWBA AVE)
FROM SR 2151 (JETTON RD) TO I-77

Designed by:	Checked by:	Date:	Sheet:	Of:
CLS	KSH	8-22-07	UC-11	UC-13

Hinde Engineering, Inc.
9303 MONROE ROAD, SUITE E
CHARLOTTE, NC 28270
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704-814-0942 (fax)

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PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UC-12

NOT TO SCALE

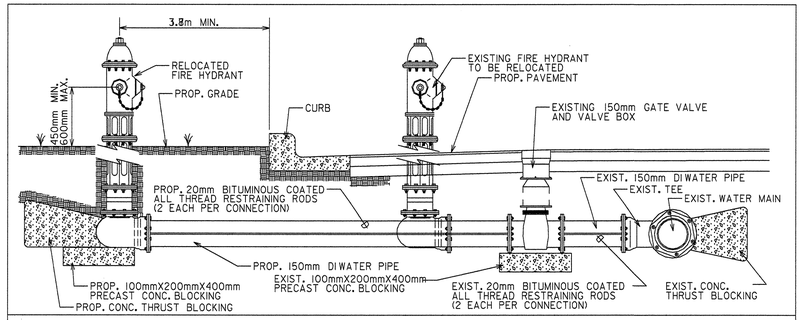
CONST.REV.

R /W REV.

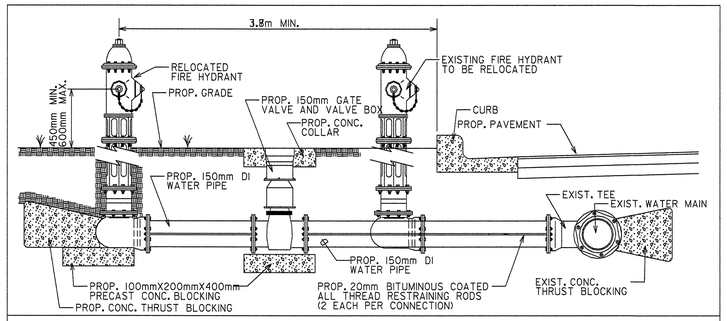
UTILITY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029901 ENGINEER KEVIN S. HINDE 8/14/07

UTILITY CONSTRUCTION



FIRE HYDRANT RELOCATION DETAIL



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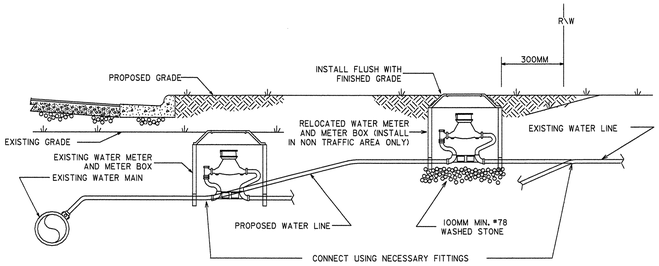
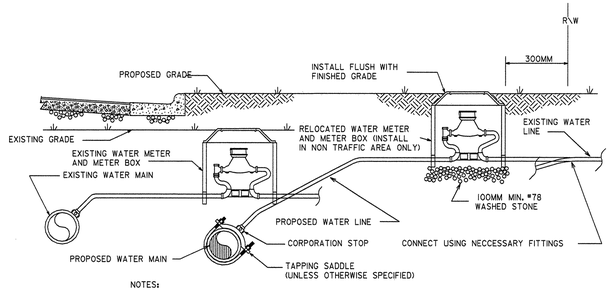


NOTES:

1. RELOCATION SHALL INCLUDE THE REMOVAL AND INSTALLATION AT THE APPROPRIATE LOCATION OF THE WATER METER, METER SETTER AND YOKE, METER VALVES, AND METER BOX WITH LID.
2. THE NEW WATER SERVICE LINE SHALL BE OF THE SAME TYPE AND GRADE AS THE EXISTING WATER SERVICE LINE UNLESS OTHERWISE SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.
3. THE NEW WATER SERVICE LINE SHALL BE INSTALLED WITH A MINIMUN OF 900MM COVER BELOW FINISHED GRADE.

WATER METER RELOCATION DETAIL



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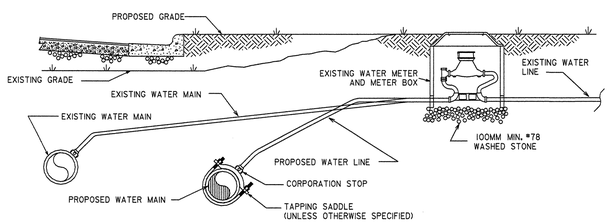

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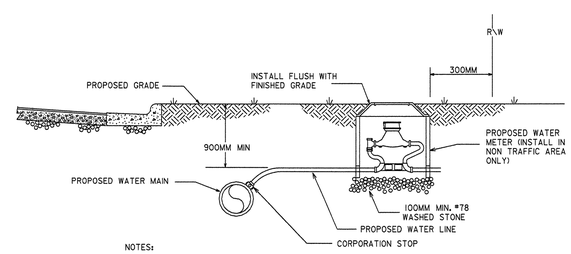
RECONNECT EXISTING WATER METER DETAIL



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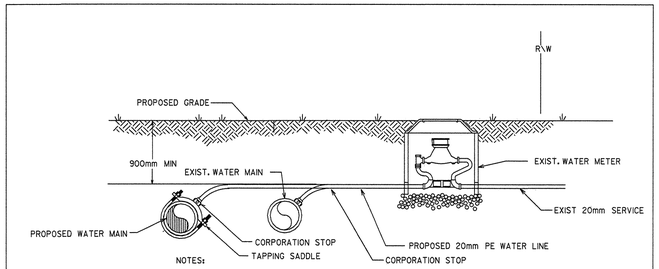

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RECONNECT EXISTING WATER METER DETAIL

CHARLOTTE-MECKLENBURG UTILITIES
ENGINEERING DIVISION
CHARLOTTE, NORTH CAROLINA

SR 2697 (WEST CATAWBA AVE)
FROM SR 2151 (ETTON ROAD) TO I-77

Designed by:	Checked by:	Date:	Sheet:	Of:
CLS	KSH	8-22-07	UC-12	UC-13

Hinde Engineering, Inc.
9303 MONROE ROAD, SUITE E
CHARLOTTE, NC 28270
704-814-4407 (office)
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METRIC

NOT TO SCALE

CONST.REV.

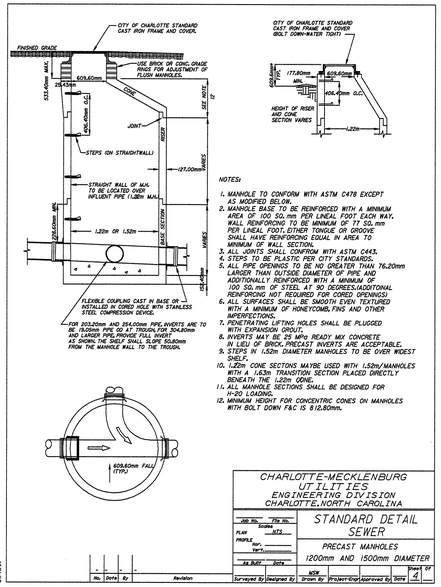
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UC-13

UTILITY ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029901 ENGINEER KEVIN S. HINDE

UTILITY CONSTRUCTION



NOTES:

1. MANHOLE TO CONFORM WITH ASTM C478 EXCEPT AS MODIFIED BELOW.
2. MANHOLE BASE TO BE REINFORCED WITH A MINIMUM AREA OF 100 SQ.mm PER LINEAL FOOT EACH WAY. WALL REINFORCING TO BE MINIMUM OF 77 SQ.mm PER LINEAL FOOT.EITHER TONGUE OR GROOVE SHALL HAVE REINFORCING EQUAL IN AREA TO MINIMUM OF WALL SECTION.
3. ALL JOINTS SHALL CONFROM WITH ASTM C443.
4. STEPS TO BE PLASTIC PER CITY STANDARDS.
5. ALL PIPE OPENINGS TO BE NO GREATER THAN 76.20mm LARGER THAN OUTSIDE DIAMETER OF PIPE AND ADDITIONALLY REINFORCED WITH A MINIMUM OF 100 SQ.mm OF STEEL AT 90 DEGREES.(ADDITIONAL REINFORCING NOT REQUIRED FOR CORED OPENINGS)
6. ALL SURFACES SHALL BE SMOOTH EVEN TEXTURED WITH A MINIMUM OF HONEYCOMB,FINS AND OTHER IMPERFECTIONS.
7. PENETRATING LIFTING HOLES SHALL BE PLUGGED WITH EXPANSION GROUT.
8. INVERTS MAY BE 25 MPa READY MIX CONCRETE IN LIEU OF BRICK.PRECAST INVERTS ARE ACCEPTABLE.
9. STEPS IN 1.52m DIAMETER MANHOLES TO BE OVER WIDEST SHELF.
10. 1.22m CONE SECTONS MAYBE USED WITH 1.52m/MANHOLES WITH A 1.52m TRANSITION SECTION PLACED DIRECTLY BENEATH THE 1.22m CONE.
11. ALL MANHOLE SECTIONS SHALL BE DESIGNED FOR H-20 LOADING.
12. MINIMUM HEIGHT FOR CONCENTRIC CONES ON MANHOLES WITH BOLT DOWN F&C IS 812.80mm.

CHARLOTTE-MECKLENBURG UTILITIES
ENGINEERING DIVISION
CHARLOTTE,NORTH CAROLINA

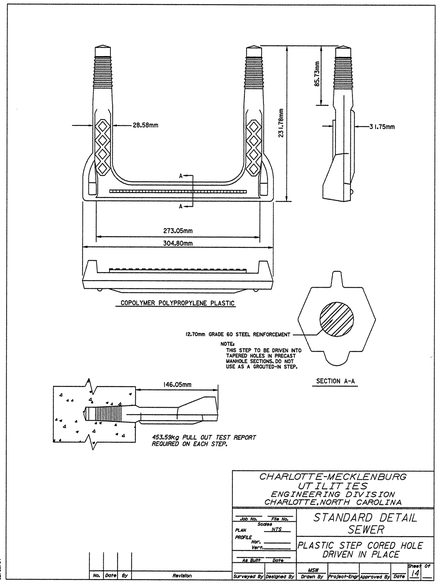
STANDARD DETAIL SEWER

PRECAST MANHOLES 1200mm AND 1500mm DIAMETER

No.	Date	By	Revision

Job No. / File No. / Scale PLAN NTS PROFILE / Rev. / Var. / As Built / Date

Surveyed By / Designed By / WDR Drawn By / Project Eng / Approved By / Date / Sheet 4 OF 4



CHARLOTTE-MECKLENBURG UTILITIES
ENGINEERING DIVISION
CHARLOTTE,NORTH CAROLINA

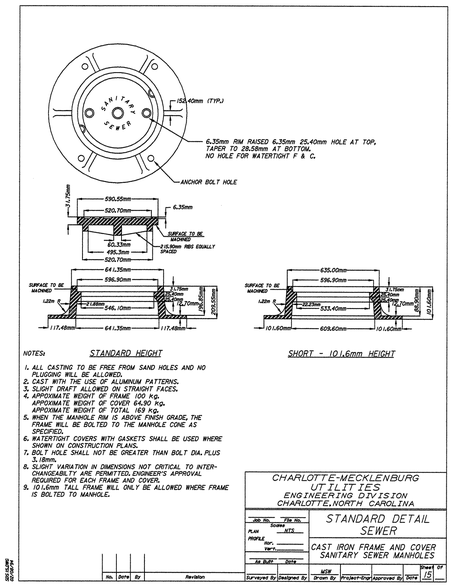
STANDARD DETAIL SEWER

PLASTIC STEP CORED HOLE DRIVEN IN PLACE

No.	Date	By	Revision

Job No. / File No. / Scale PLAN NTS PROFILE / Rev. / Var. / As Built / Date

Surveyed By / Designed By / WDR Drawn By / Project Eng / Approved By / Date / Sheet 14 OF 14



NOTES:

1. ALL CASTING TO BE FREE FROM SAND HOLES AND NO PLUGGING WILL BE ALLOWED.
2. CAST WITH THE USE OF ALUMINUM PATTERNS.
3. SLIGHT DRAFT ALLOWED ON STRAIGHT FACES.
4. APPOXIMATE WEIGHT OF FRAME 100 Kg. APPOXIMATE WEIGHT OF COVER 64.90 Kg. APPOXIMATE WEIGHT OF TOTAL 169 Kg.
5. WHEN THE MANHOLE RIM IS ABOVE FINISH GRADE, THE FRAME WILL BE BOLTED TO THE MANHOLE CONE AS SPECIFIED.
6. WATERTIGHT COVERS WITH GASKETS SHALL BE USED WHERE SHOWN ON CONSTRUCTION PLANS.
7. BOLT HOLE SHALL NOT BE GREATER THAN BOLT DIA. PLUS 3.18mm.
8. SLIGHT VARIATION IN DIMENSIONS NOT CRITICAL TO INTER-CHANGEABILITY ARE PERMITTED. ENGINEER'S APPROVAL REQUIRED FOR EACH FRAME AND COVER.
9. 101.6mm TALL FRAME WILL ONLY BE ALLOWED WHERE FRAME IS BOLTED TO MANHOLE.

STANDARD HEIGHT

SHORT - 101.6mm HEIGHT

CHARLOTTE-MECKLENBURG UTILITIES
ENGINEERING DIVISION
CHARLOTTE,NORTH CAROLINA

STANDARD DETAIL SEWER

CAST IRON FRAME AND COVER SANITARY SEWER MANHOLES

No.	Date	By	Revision

Job No. / File No. / Scale PLAN NTS PROFILE / Rev. / Var. / As Built / Date

Surveyed By / Designed By / WDR Drawn By / Project Eng / Approved By / Date / Sheet 15 OF 15

CHARLOTTE-MECKLENBURG UTILITIES
ENGINEERING DIVISION
CHARLOTTE,NORTH CAROLINA

SR 2697 (WEST CATAWBA AVE)
FROM SR 2151 (JETTON RD) TO I-77

Designed by:	Checked by:	Date:	Sheet:	Of:
CLS	KSH	8-22-07	UC-13	UC-13

Hinde Engineering, Inc.
9303 MONROE ROAD, SUITE E
CHARLOTTE, NC 28270
704-814-4407 (office)
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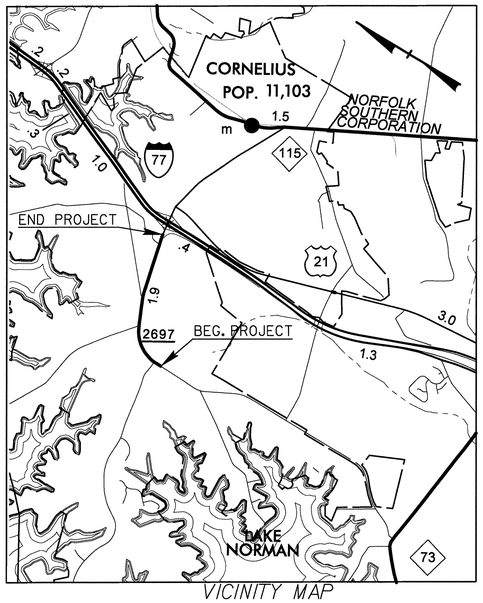
R-2555 A

CONTRACT: C201683

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY BY OTHERS PLANS
MECKLENBURG COUNTY

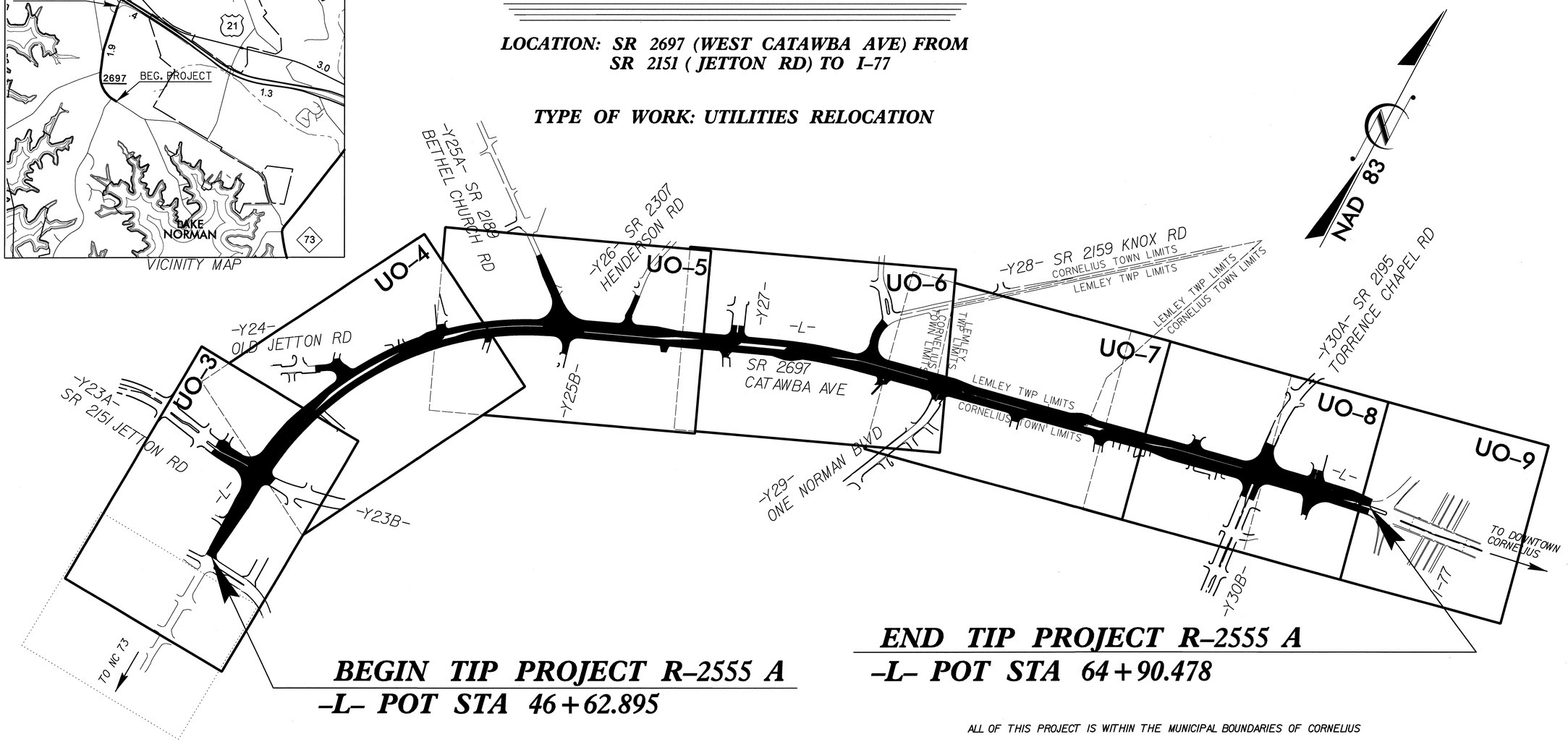
METRIC

ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

T.I.P. NO.	SHEET NO.
R-2555 A	UO-1

LOCATION: SR 2697 (WEST CATAWBA AVE) FROM SR 2151 (JETTON RD) TO I-77

TYPE OF WORK: UTILITIES RELOCATION



BEGIN TIP PROJECT R-2555 A
-L- POT STA 46+62.895

END TIP PROJECT R-2555 A
-L- POT STA 64+90.478

ALL OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF CORNELIUS

GRAPHIC SCALES

5m 0 10m
PLANS

5m 0 10m
PROFILE (HORIZONTAL)

1m 0 2m
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-3 thru UO-9	UTILITY BY OTHERS PLAN SHEETS

UTILITY OWNERS ON PROJECT

(1) ENERGY UNITED - ELECTRIC DISTRIBUTION
(2) BELLSOUTH - TELECOMMUNICATIONS
(3) TIME WARNER CABLE - TELEVISION CABLE
(4) PIEDMONT NATURAL GAS - GAS TRANSMISSION & DISTRIBUTION
(5) DUKE ENERGY - ELECTRIC FACILITY

EarthTech
A Tyco International Ltd. Company
701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259(FAX)

FOR:
DIVISION OF HIGHWAYS
PROJECT SERVICES
UTILITY SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

Roger Worthington, P.E. — UTILITIES SECTION ENGINEER
James S. McKee, P.E. — UTILITIES SQUAD LEADER PROJECT ENGINEER
Earth Tech, Inc. — UTILITIES PROJECT DESIGNER

USER:
DATE: 1/13/2007
TIME: 10:43:44 AM
DGN: r2555a_UBO_pgnOu.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UO-2

METRIC

5 0 10

UTILITIES BY OTHERS

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

*S.U.E = SUBSURFACE UTILITY ENGINEER

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

Edge of Pavement
Curb
Prop. Slope Stakes Cut — C
Prop. Slope Stakes Fill — F
Prop. Woven Wire Fence
Prop. Chain Link Fence
Prop. Barbed Wire Fence
Prop. Wheelchair Ramp — WCR
Curb Cut For Future Wheelchair Ramp — CCFR
Exist. Guardrail
Prop. Guardrail
Exist. Cable Guiderail
Prop. Cable Guiderail
Equality Symbol
Pavement Removal

RIGHT OF WAY

Baseline Control Point
Existing Right of Way Marker
Exist. Right of Way Line w/Marker
Prop. Right of Way Line with Proposed R/W marker (Iron Pin & Cap)
Prop. Right of Way Line with Proposed (Concrete or Granite) R/w Marker
Exist. Control of Access Line — CA
Prop. Control of Access Line — CA
Exist. Easement Line — E
Prop. Temp. Construction Easement Line — E
Prop. Temp. Drainage Easement Line — TDE
Prop. Perm. Drainage Easement Line — PDE

HYDROLOGY

Stream or Body of Water
Flow Arrow
Disappearing Stream
Spring
Swamp Marsh
Shoreline
Falls, Rapids
Prop Lateral, Tail, Head Ditches — FLOW

STRUCTURES

MAJOR
Bridge, Tunnel, or Box Culvert — CONC
Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR
Head & End Wall — CONC HW
Pipe Culvert
Footbridge
Drainage Boxes — CB
Paved Ditch Gutter

UTILITIES

Exist. Pole
Exist. Power Pole
Prop. Power Pole
Exist. Telephone Pole
Prop. Telephone Pole
Exist. Joint Use Pole
Prop. Joint Use Pole
Telephone Pedestal — T
Cable TV Pedestal — C
Hydrant
Satellite Dish
Exist. Water Valve
Sewer Clean Out
Power Manhole — P
Telephone Booth
Water Manhole — W
Light Pole
Prop. Light Pole
Power Line Tower
Pole with Base
Gas Valve
Gas Meter
Telephone Manhole — T
Power Transformer
Sanitary Sewer Manhole
Storm Sewer Manhole — S
Tank; Water, Gas, Oil
Water Tank With Legs
Traffic Signal Junction Box — S
Fiber Optic Splice Box — F
Television or Radio Tower
Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement — TS TS

Recorded Water Line — W W
Designated Water Line (S.U.E.*) — W W
Sanitary Sewer — SS SS
Recorded Sanitary Sewer Force Main — FSS FSS
Designated Sanitary Sewer Force Main(S.U.E.*) — FSS FSS
Recorded Gas Line — G G
Designated Gas Line (S.U.E.*) — G G
Storm Sewer — S S
Recorded Power Line — P P
Designated Power Line (S.U.E.*) — P P
Recorded Telephone Cable — T T
Designated Telephone Cable (S.U.E.*) — T T
Recorded U/G Telephone Conduit — TC TC
Designated U/G Telephone Conduit (S.U.E.*) — TC TC
Unknown Utility (S.U.E.*) — ?UTL ?UTL
Recorded Television Cable — TV TV
Designated Television Cable (S.U.E.*) — TV TV
Recorded Fiber Optics Cable — FO FO
Designated Fiber Optics Cable (S.U.E.*) — FO FO
Exist. Water Meter
U/G Test Hole (S.U.E.*)
Abandoned According to U/G Record — ATTUR
End of Information — E.O.I.

BOUNDARIES & PROPERTIES

State Line
County Line
Township Line
City Line
Reservation Line
Property Line
Property Line Symbol — PL
Exist. Iron Pin — EIP
Property Corner
Property Monument — ECM
Property Number — 123
Parcel Number — 6
Fence Line — WW & ISBW
Existing Wetland Boundaries — WLB
Proposed Wetland Boundaries — WLB
Existing Endangered Animal Boundaries — EAB
Existing Endangered Plant Boundaries — EPB

BUILDINGS & OTHER CULTURE

Buildings
Foundations
Area Outline
Gate
Gas Pump Vent or U/G Tank Cap
Church
School
Park
Cemetery
Dam
Sign — S
Well — W
Small Mine
Swimming Pool

TOPOGRAPHY

Loose Surface
Hard Surface
Change in Road Surface
Curb
Right of Way Symbol — R/W
Guard Post — GP
Paved Walk
Bridge
Box Culvert or Tunnel
Ferry
Culvert
Footbridge
Trail, Footpath
Light House

VEGETATION

Single Tree
Single Shrub
Hedge
Woods Line
Orchard
Vineyard — VINEYARD

RAILROADS

Standard Gauge — CSX TRANSPORTATION
RR Signal Milepost — MILEPOST 35
Switch — SWITCH

Prepared by:
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USER:
DATE: 7/13/2007
TIME: 10:43:34 AM
DGN: r2555a_UI80_pshO2.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UO-3

METRIC

5 0 10

UTILITIES BY OTHERS

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

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY USGS FOR MONUMENT "160 JAS RESET" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 188527.171(m) EASTING: 436540.161(m)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999845963
THE N.C. LAMBERT GRID BEARING LOCALIZED HORIZONTAL GROUND DISTANCE FROM "160 JAS RESET" TO -L- STATION 46+00.000 IS 4,677.019m N 17° 43' 54.88" E
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

-L-

PIs Sta 48+02.523
Θs = 4° 27' 22.8"
Ls = 70.000
LT = 46.681
ST = 23.347

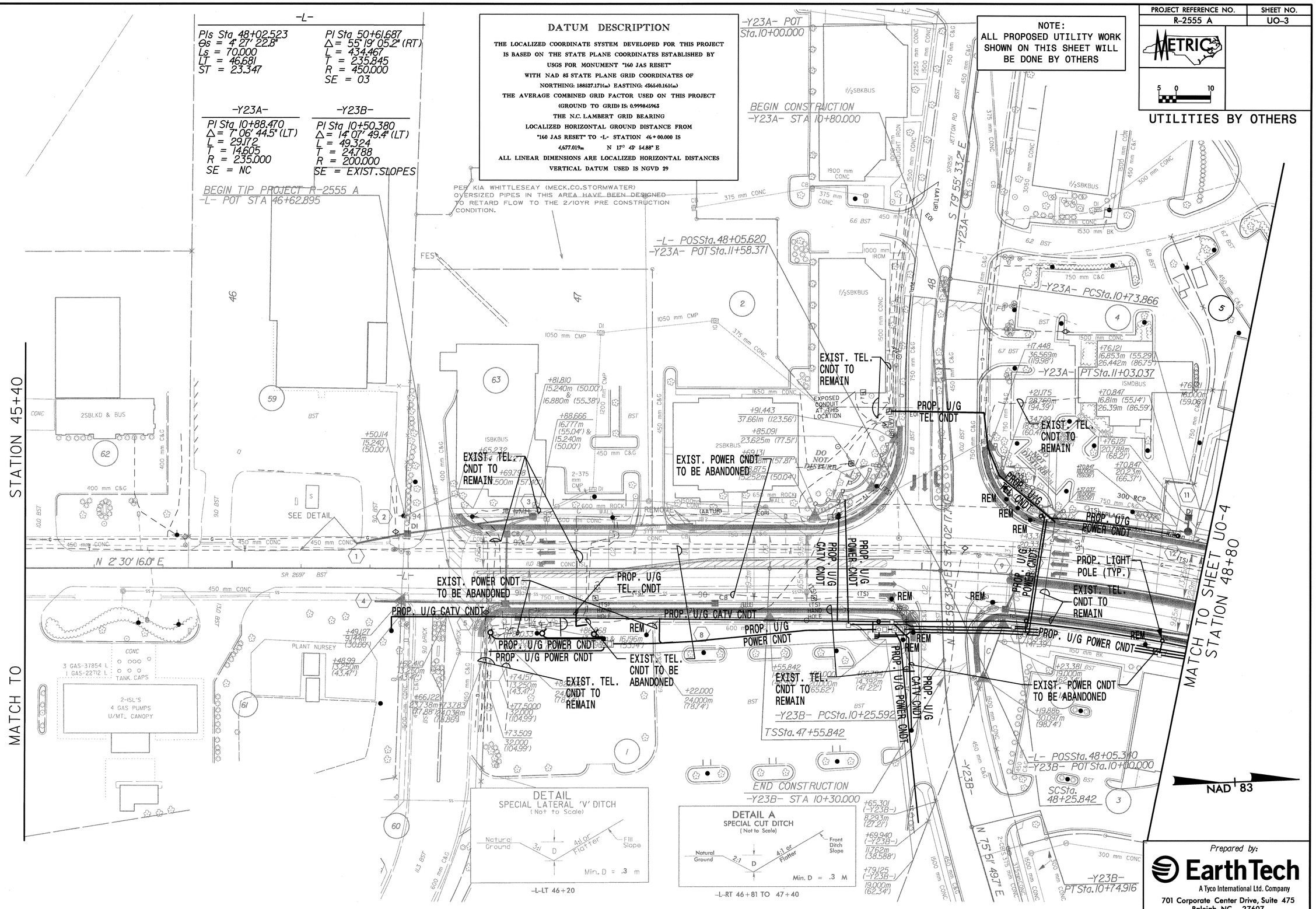
PI Sta 50+61.687
Δ = 55° 19' 05.2" (RT)
L = 434.467
T = 235.845
R = 450.000
SE = 03

-Y23A-

PI Sta 10+88.470
Δ = 7° 06' 44.5" (LT)
L = 29.172
T = 14.605
R = 235.000
SE = NC

-Y23B-

PI Sta 10+50.380
Δ = 14° 07' 49.4" (LT)
L = 49.324
T = 24.788
R = 200.000
SE = EXIST.SLOPES



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USER:
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TIME: 10:43:14 AM
DGN: r2555a_UI03_psh04.dgn

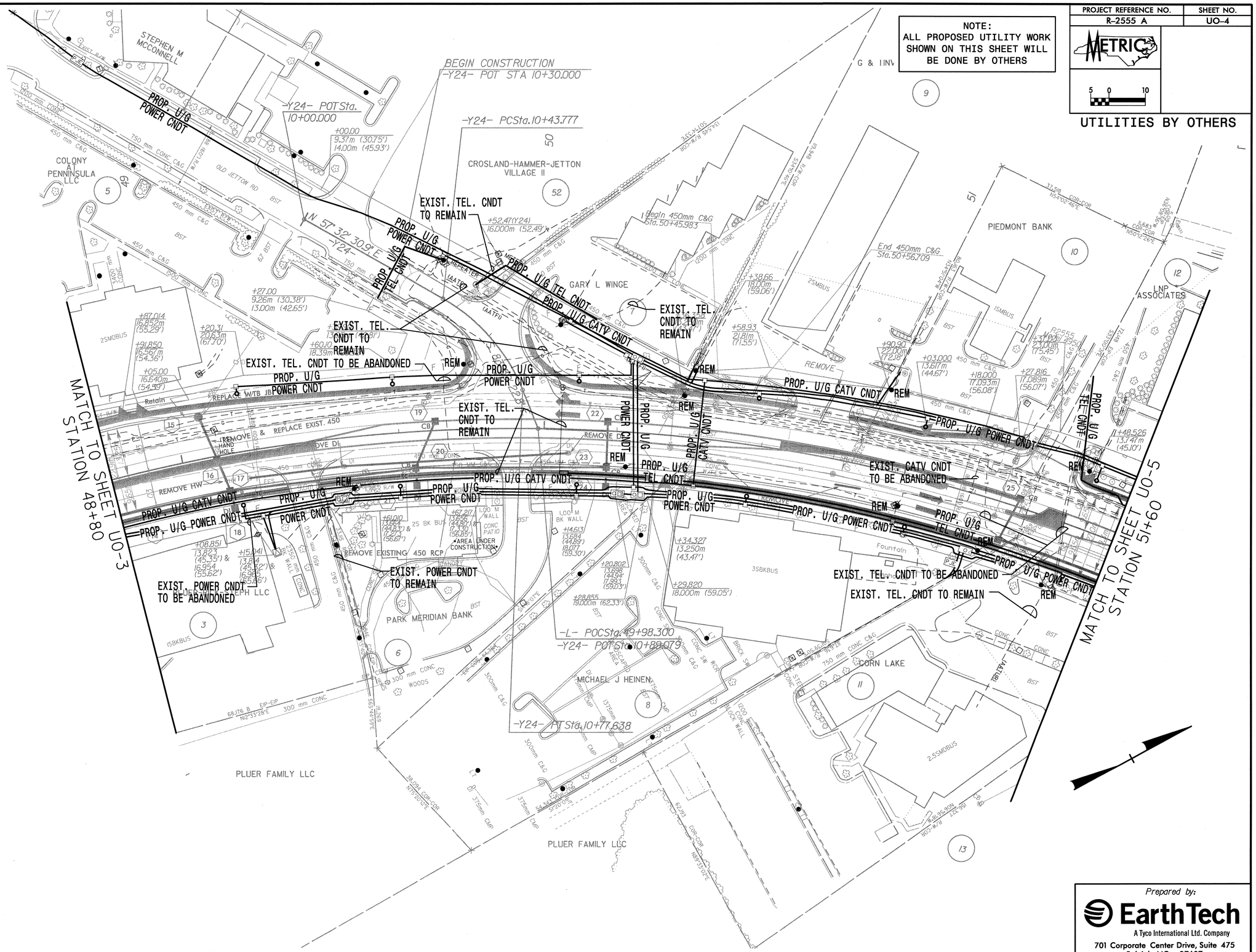
PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UO-4

METRIC

5 0 10

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

UTILITIES BY OTHERS



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DATE: 1/13/2007
TIME: 10:42:54 AM
DGN: r2555a_UIB3_ps05.dgn

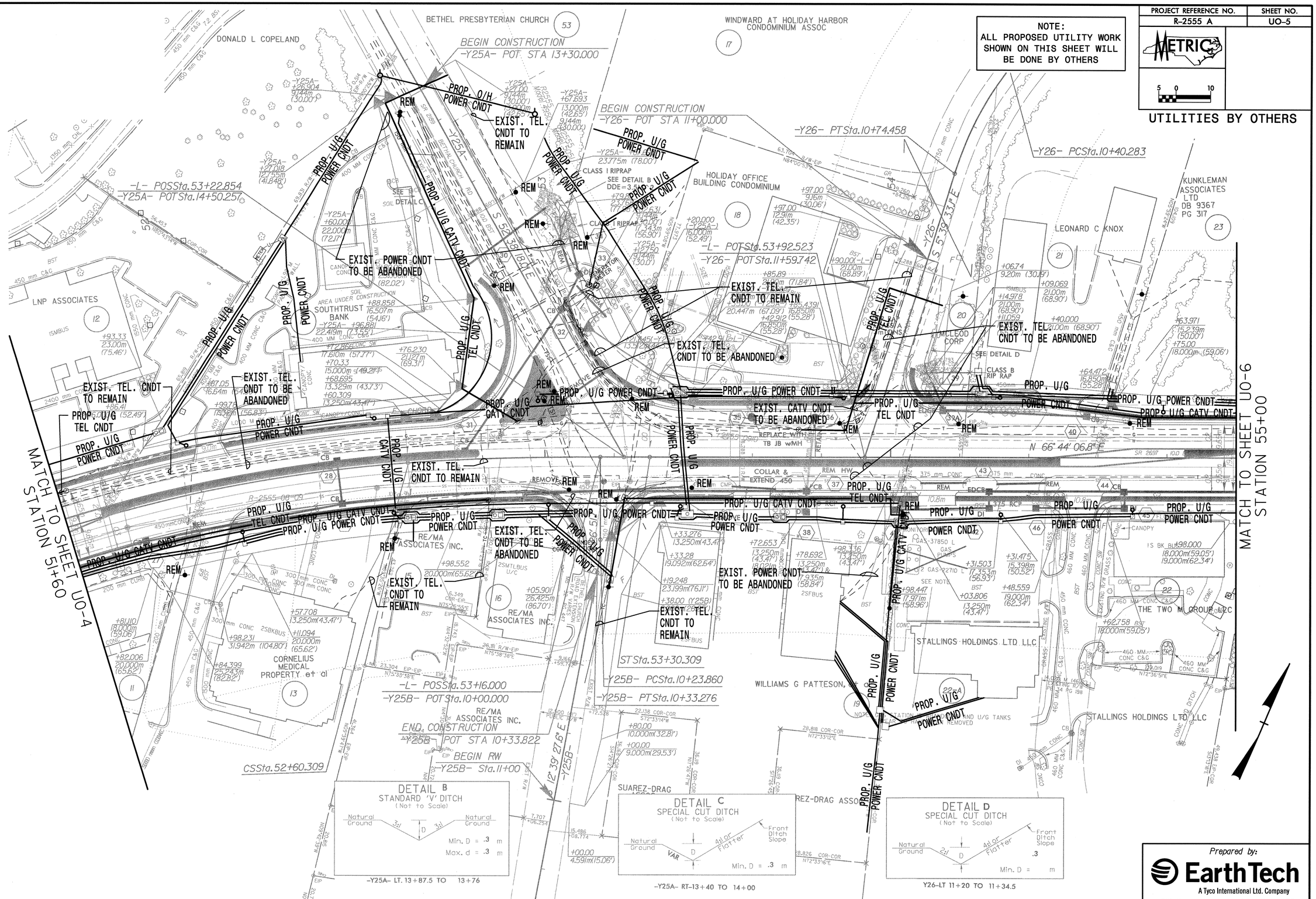
PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UO-5

METRIC

5 0 10

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

UTILITIES BY OTHERS



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USER:
DATE: 7/13/2007
TIME: 10:42:39 AM
DGN: r2555a_UI5D_psh06.dgn

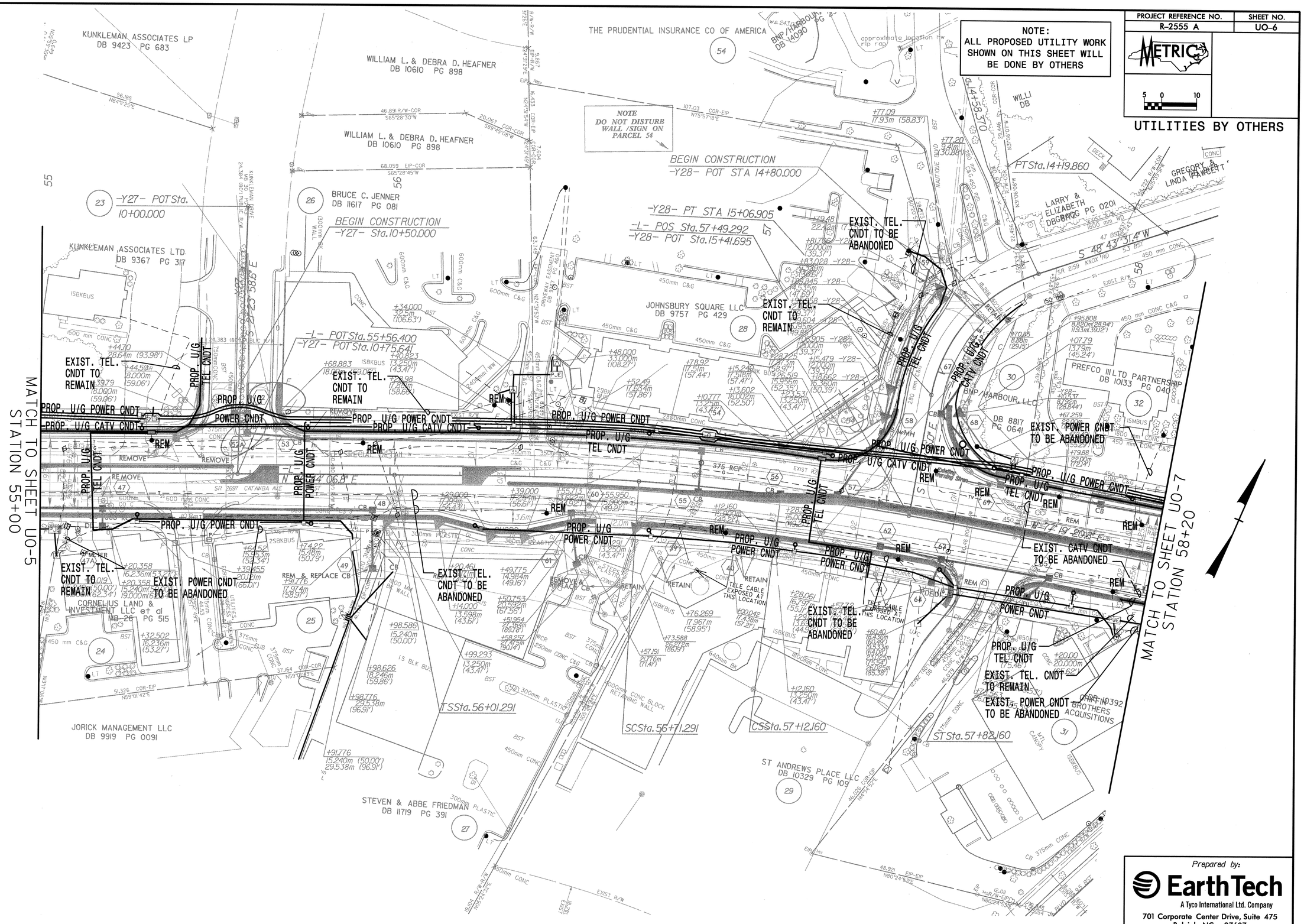
PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UO-6

METRIC

5 0 10

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

UTILITIES BY OTHERS



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USER:
DATE: 7/13/2007
TIME: 10:42:22 AM
DGN: r2555a_UI6b_psh01.dgn

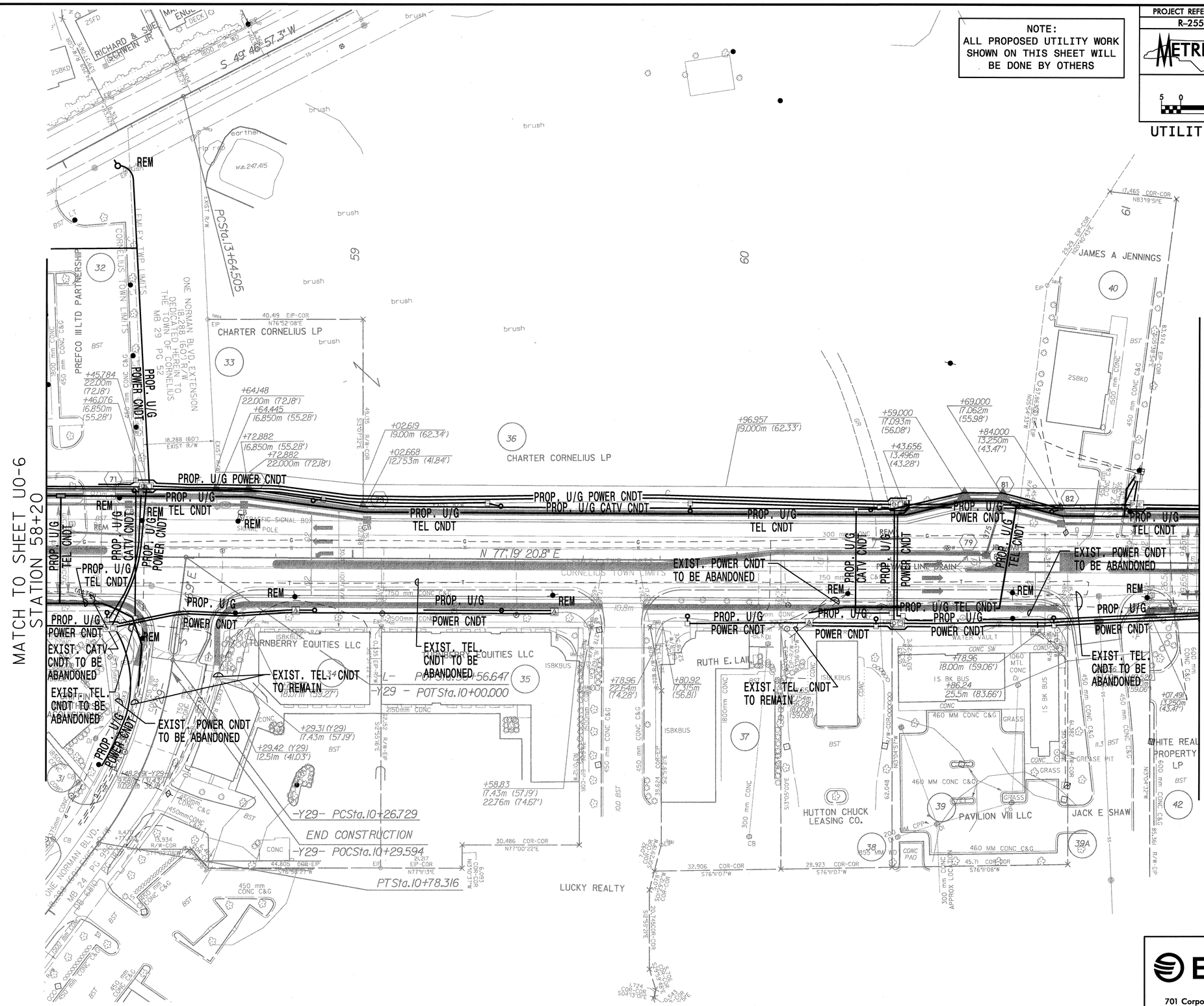
PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UO-7

METRIC

5 0 10

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

UTILITIES BY OTHERS



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USER:
DATE: 7/13/2007
TIME: 10:45:05 AM
DGN: r2555a_U10_uo10b.dgn

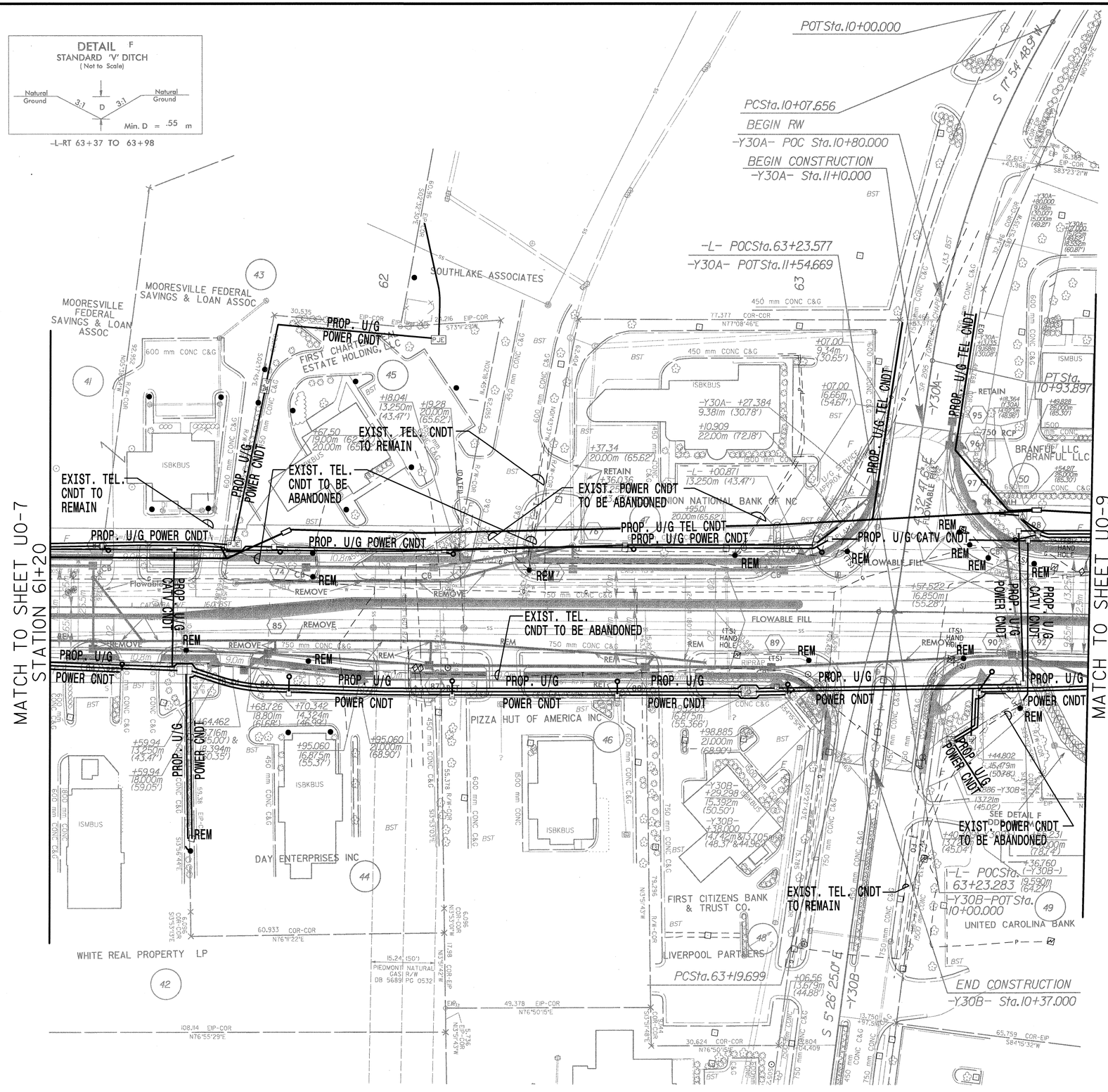
PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UO-8

METRIC

5 0 10

UTILITIES BY OTHERS

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



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DGN: r2555a_UR0_pot02.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2555 A	UO-9

METRIC

5 0 10

UTILITIES BY OTHERS

NOTE:
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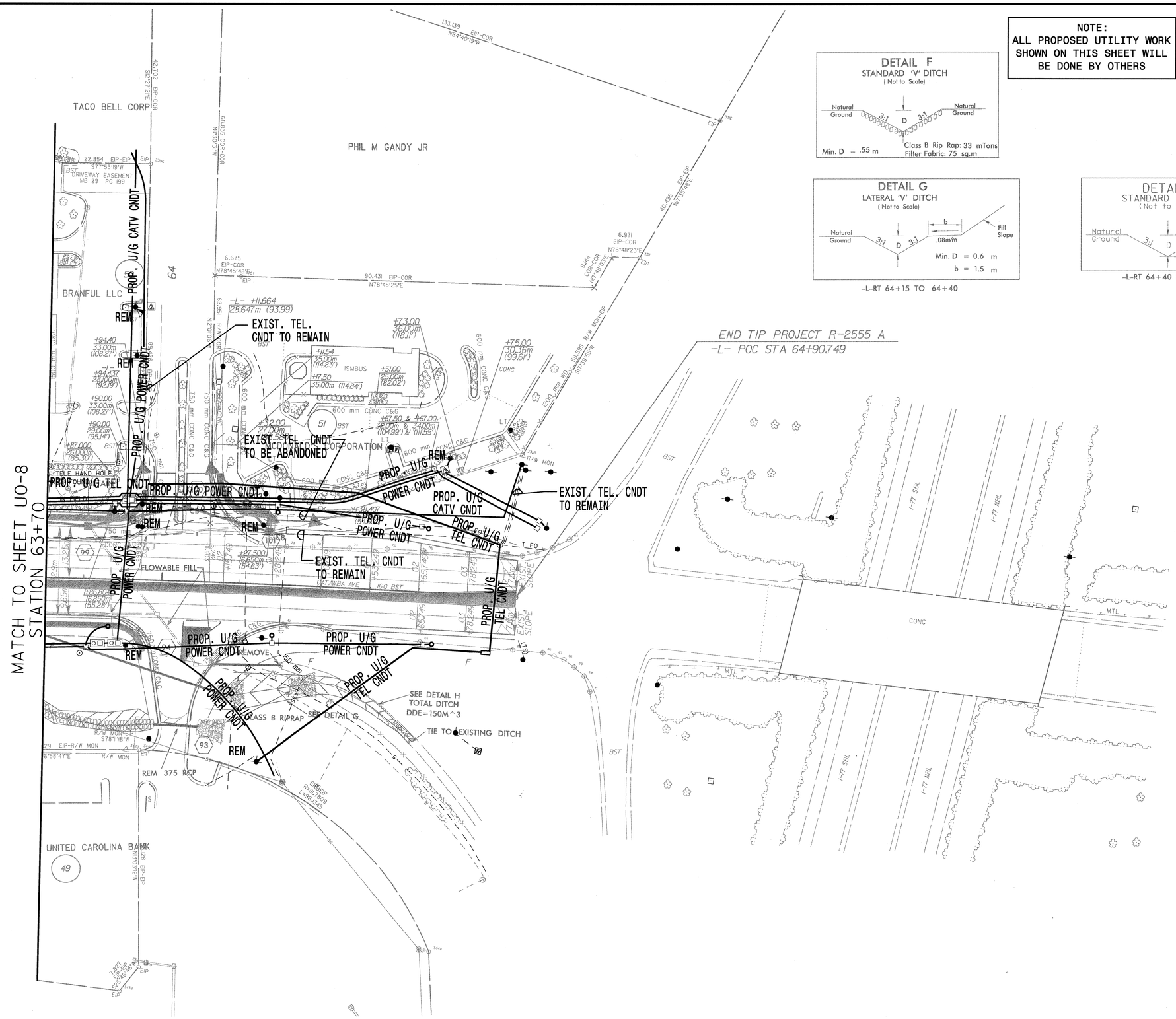
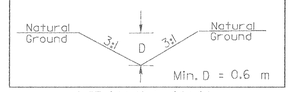


DETAIL F
STANDARD 'V' DITCH
(Not to Scale)

DETAIL G
LATERAL 'V' DITCH
(Not to Scale)

-L-RT 64+15 TO 64+40

DETAIL H
STANDARD 'V' DITCH
(Not to Scale)



-L-RT 64+40 to 64+64

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USER:
DATE: 7/13/2007
TIME: 10:40:52 AM
DGN: r2555a_UI80_psh01.dgn