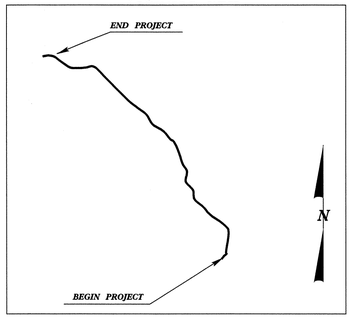
09/08/99

TIP PROJECT: R-3101

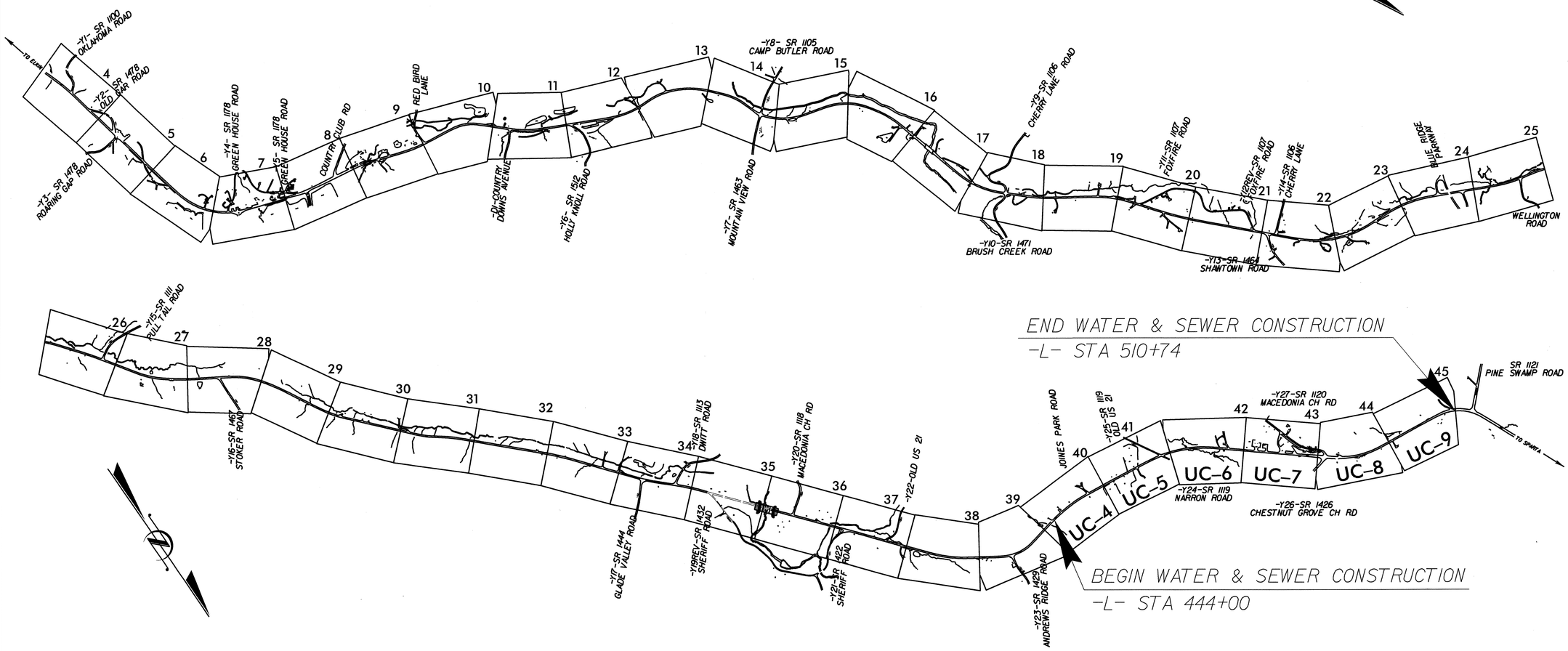
T.I.P. NO.	SHEET NO.
R-3101	UC-1

VICINITY MAP



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
ALLEGHANY COUNTY



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	SYMBOLOGY SHEET
UC-3	NOTE SHEET
UC-4 THRU UC-9	PLAN SHEETS
UC-10 THRU UC-13	PROFILE SHEETS
UC-14 THRU UC-17	DETAIL SHEETS

WATER AND SEWER OWNERS ON PROJECT

(1) WATER (TOWN OF SPARTA)
(2) SANITARY SEWER (TOWN OF SPARTA)

SEAL

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING

1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E.	UTILITIES SECTION ENGINEER
Ron Wilkins, P.E.	UTILITIES SQUAD LEADER PROJECT ENGINEER
Eric Haugaard	UTILITIES PROJECT DESIGNER

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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3101	UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

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 — TGV
- 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 — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PBPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RBPZ
- Relocate DCV Backflow Preventer — RBFP

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 MISCELLANOUS 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" ENCASEMENT
- 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
- 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 — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

REV: 2/1/2012

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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3101	UC-3
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 10157 ENGINEER RONALD B. WALKER

UTILITY CONSTRUCTION

GENERAL NOTES:

ALL WATER AND SEWER LINE CONSTRUCTION SHALL BE COORDINATED WITH THE TOWN OF SPARTA PUBLIC WORKS DEPARTMENT (336-372-4257). CONTRACTOR IS TO PROVIDE A MINIMUM 48 HOURS NOTIFICATION PRIOR TO THE BEGINNING OF CONSTRUCTION AND SHALL SCHEDULE WITH THE TOWN ALL UTILITY OUTAGES AT LEAST 7 DAYS IN ADVANCE OF THE WORK. EXISTING WATER AND SEWER LINES SHALL BE KEPT IN SERVICE AT ALL TIMES.

EXISTING WATER METER LOCATIONS AND WATER SERVICE LINE SIZES HAVE NOT BEEN DETERMINED. CONTRACTOR SHALL INVESTIGATE EACH PROPERTY FOR EXISTING WATER METER LOCATIONS AND SERVICE LINE SIZES TO DETERMINE WATER SERVICE LINE DIAMETERS AND LENGTHS REQUIRED FOR WATER METER RELOCATIONS. ALL WATER SERVICE METERS AND SEWER CLEANOUTS SHALL BE INSTALLED AT THE PROPERTY LINE OR BACK-SIDE OF PUE (IF PRESENT).

ALL CONSTRUCTION SHALL CONFORM TO ADAMS-HEATH ENGINEERING, INC. CONSTRUCTION SPECIFICATIONS (AND STANDARD DETAILS) AND NCDOT "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY, 2012.

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 OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

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 OF MATERIAL OF THE EXISTING FACILTIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAMGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

ALL UTILITY PIPES TO BE ABANDONED SHALL BE EMPTIED AND PLUGGED AT THE ENDS WITH GROUT OR FLOWABLE FILL. UTILITY PIPE THAT IS ABANDONED BY PLUGGING THE ENDS ONLY AND LEAVING IN PLACE WILL NOT BE MEASURED OR PAID.

MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED WATER OR SEWER PIPES 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, OR ON HOLIDAYS IF NECESSARY.

ALL WATER AND SEWER MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE SECTION 1500-7 "SUBMITTALS AND RECORDS" OF THE NCDOT STANDARD SPECIFICATIONS.

THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINSTRATIVE 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 WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

CONTRACTOR SHALL INSTALL WATER LINE AND SEWER LINE DETECTABLE MARKING TAPE DIRECTLY ABOVE ALL WATER AND SEWER LINES INSTALLED IN THE PROJECT.

ALL PROPOSED WATER AND SEWER LINES SHALL BE PVC (C-900) AND SHALL BE INSTALLED WITH 3' COVER (MIN) UNLESS NOTED OTHERWISE ON PLANS (I.E. AT LOCATIONS WHERE WATER OR SEWER LINES HAVE INADEQUATE VERTICAL SEPARATIONS).

MAXIMUM TRENCH WIDTH (AT TOP OF PIPE) FOR 4" SEWER PIPE TO BE 28 INCHES AND MAXIMUM TRENCH WIDTH FOR 10" PIPE TO BE 34 INCHES.

MAKE FINAL CONNECTIONS OF THE NEW WATER AND SEWER PIPES TO THE EXISTING SYSTEM WHERE INDICATED ON PLANS, AS REQUIRED TO FIT ACTUAL CONDITIONS, OR AS DIRECTED BY THE ENGINEER. ALL WATER AND SEWER TIE-INS (PROPOSED PIPE TO EXISTING PIPE) SHALL USE THE NECESSARY FITTINGS FOR CONNECTION AND WILL BE INCIDENTAL TO THAT PARTICULAR UTILITY LINE.

ALL DI FITTINGS ARE INCIDENTAL TO THE RESPECTIVE PROPOSED WATER AND SEWER FORCE MAIN LINES.

EXISTING WATER METER LOCATIONS AND WATER SERVICE LINE SIZES HAVE NOT BEEN DETERMINED. CONTRACTOR SHALL INVESTIGATE EACH PROPERTY FOR EXISTING WATER METER LOCATIONS AND SERVICE LINE SIZES TO DETERMINE WATER SERVICE LINE DIAMETERS AND LENGTHS REQUIRED FOR WATER METER RELOCATIONS AND WATER METER RECONNECTIONS.

IT IS THE INTENTION OF THESE PLANS TO MAINTAIN AND NOT DISTURB THE EXISTING 3" FORCE MAIN SEWER PIPE THAT RUNS ALONG LEFT SIDE OF ROADWAY (US-21) FROM STA 443+75 TO STA 481+75. HOWEVER, SINCE THE HORIZONTAL ALIGNMENT OF THIS FORCE MAIN LINE IS LOCATED ON THE PLANS BY RECORD DRAWINGS ONLY (I.E. NOT ACTUALLY LOCATED IN THE FIELD), THE LOCATIONS SHOWN ARE APPROXIMATE AND MAY POSE CONFLICTS WITH PROPOSED DRAINAGE PIPES DEPENDING ON THE DEPTH OF THIS FORCE MAIN PIPE. THE CONTRACTOR SHALL VERIFY HORIZONTAL LOCATION AND DEPTH OF THIS FORCE MAIN LINE WHEN DIGGING IN THE VICINITY OF THIS LINE AND ESPECIALLY WHEN INSTALLING PROPOSED DRAINAGE PIPES. THE CONTRACTOR SHALL BE AWARE THAT THE FORCE MAIN LINE MAY HAVE TO BE RELOCATED "DOWN AND UNDER" THE PROPOSED DRAINAGE PIPES. IF A SECTION OF THE EXISTING FORCE MAIN PIPE REQUIRES TO BE RELOCATED UNDER PROPOSED DRAIN PIPES, CONTRACTOR SHALL REFER TO SHEET UC-53 AND DETAIL "WATER OR SEWER LINE CONFLICT WITH STORM DRAIN" TO OBTAIN A MINIMUM 24" SEPARATION BETWEEN THE TOP OF THE SEWER PIPE AND BOTTOM OF THE STORM DRAIN PIPE.

STANDARD DETAILS INDEX:

UC-14: WATER AIR/VACUUM RELEASE VALVE
UC-14: 1-1/2" OR 2" WATER METER
UC-14: TYPICAL GATE VALVE
UC-14: OPEN-CUT ROAD CROSSING

UC-15: 3/4" WATER METER
UC-15: WATER & SEWER LINE BEDDING
UC-15: FIRE HYDRANT ASSEMBLY DETAIL
UC-15: WATER & SEWER CROSSING DETAILS

UC-16: WATER OR SEWER LINE CROSSING OVER CULVERT
UC-16: WATER OR SEWER LINE CROSSING UNDER CULVERT
UC-16: WATER LINE/FORCE MAIN CONCRETE THRUST BLOCKS

UC-17: WATER OR SEWER LINE CONFLICT WITH STORM DRAIN
UC-17: SEWER SERVICE CONNECTION CLEANOUT
UC-17: SEWAGE AIR/VACUUM RELEASE VALVE

5/14/99
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PROJECT REFERENCE NO.	SHEET NO.
R-3101	UC-4
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 10157 ENGINEER RONALD B. WILKINS

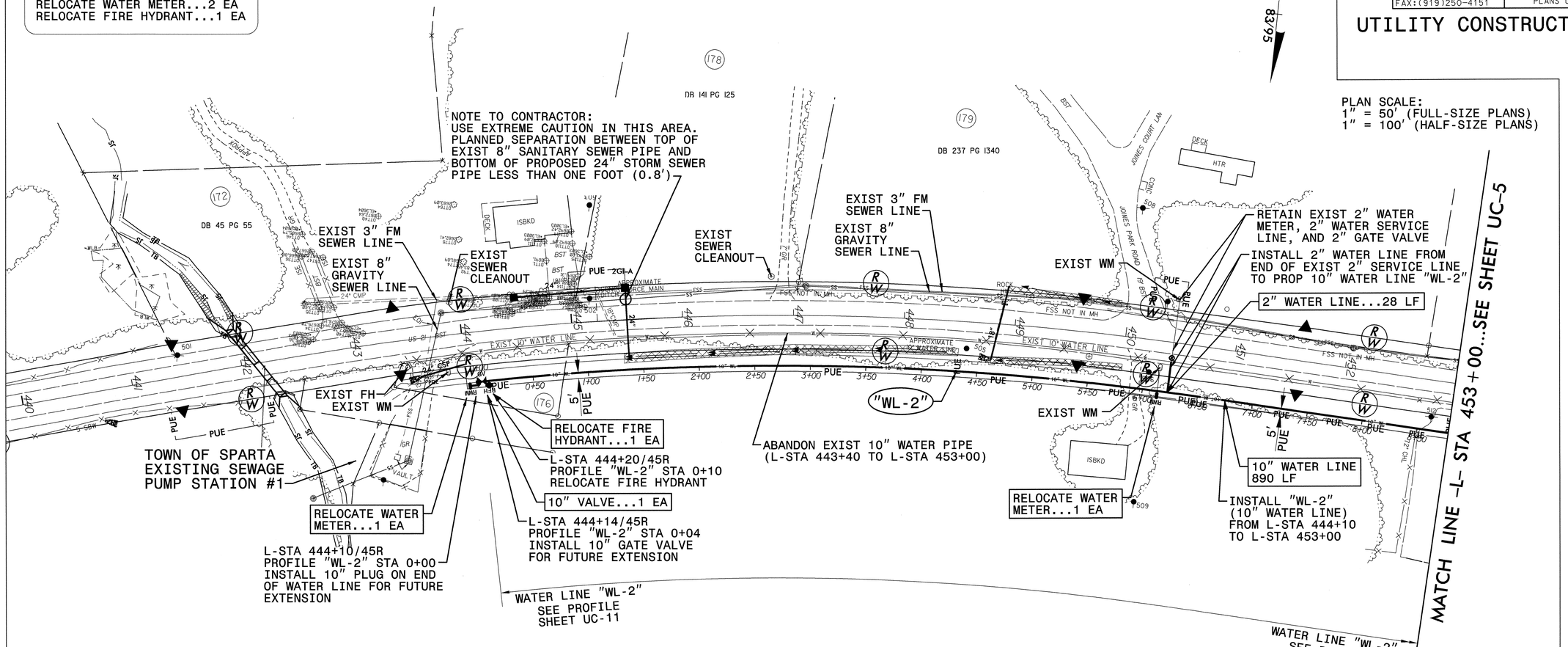
UTILITY CONSTRUCTION

PAY ITEMS (THIS SHEET):

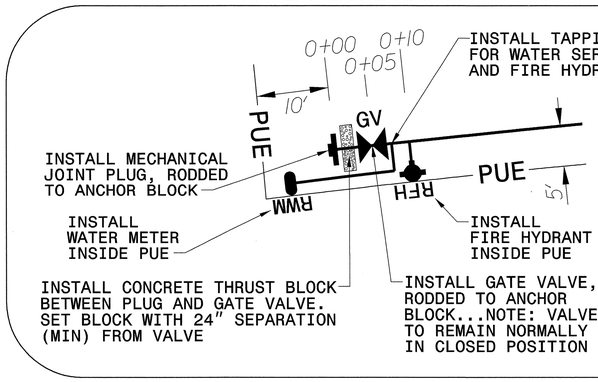
2" WATER LINE...28 LF
10" WATER LINE...890 LF
10" VALVE...1 EA
RELOCATE WATER METER...2 EA
RELOCATE FIRE HYDRANT...1 EA

NAD 83/95

PLAN SCALE:
1" = 50' (FULL-SIZE PLANS)
1" = 100' (HALF-SIZE PLANS)



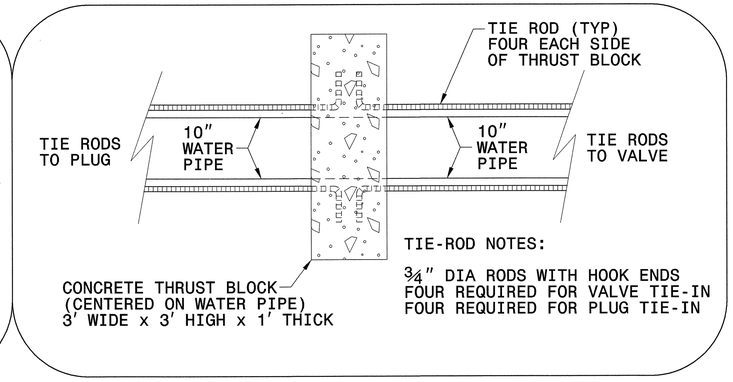
WATER LINE DETAIL AT STA 444+10/45R



CONCRETE THRUST BLOCK NOTES:

1. ALL CONCRETE USED FOR THRUST BLOCKS SHALL BE 2500 PSI (MIN)
2. A MINIMUM OF 24 HOURS CURING TIME REQUIRED FOR CONCRETE THRUST BLOCKS BEFORE ANY WATER IS INTRODUCED INTO PIPELINE AND A MINIMUM OF 7 DAYS CURING TIME IS REQUIRED BEFORE PRESSURE TEST IS PERFORMED

CONCRETE THRUST BLOCK DETAIL



TIE-ROD NOTES:

3/4" DIA RODS WITH HOOK ENDS
FOUR REQUIRED FOR VALVE TIE-IN
FOUR REQUIRED FOR PLUG TIE-IN

LEGEND: -X-X-X-X-
ABANDON EXISTING UTILITY LINE

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	UC-5
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 10157 ENGINEER RONALD B. WILLIAMS 6/13/13

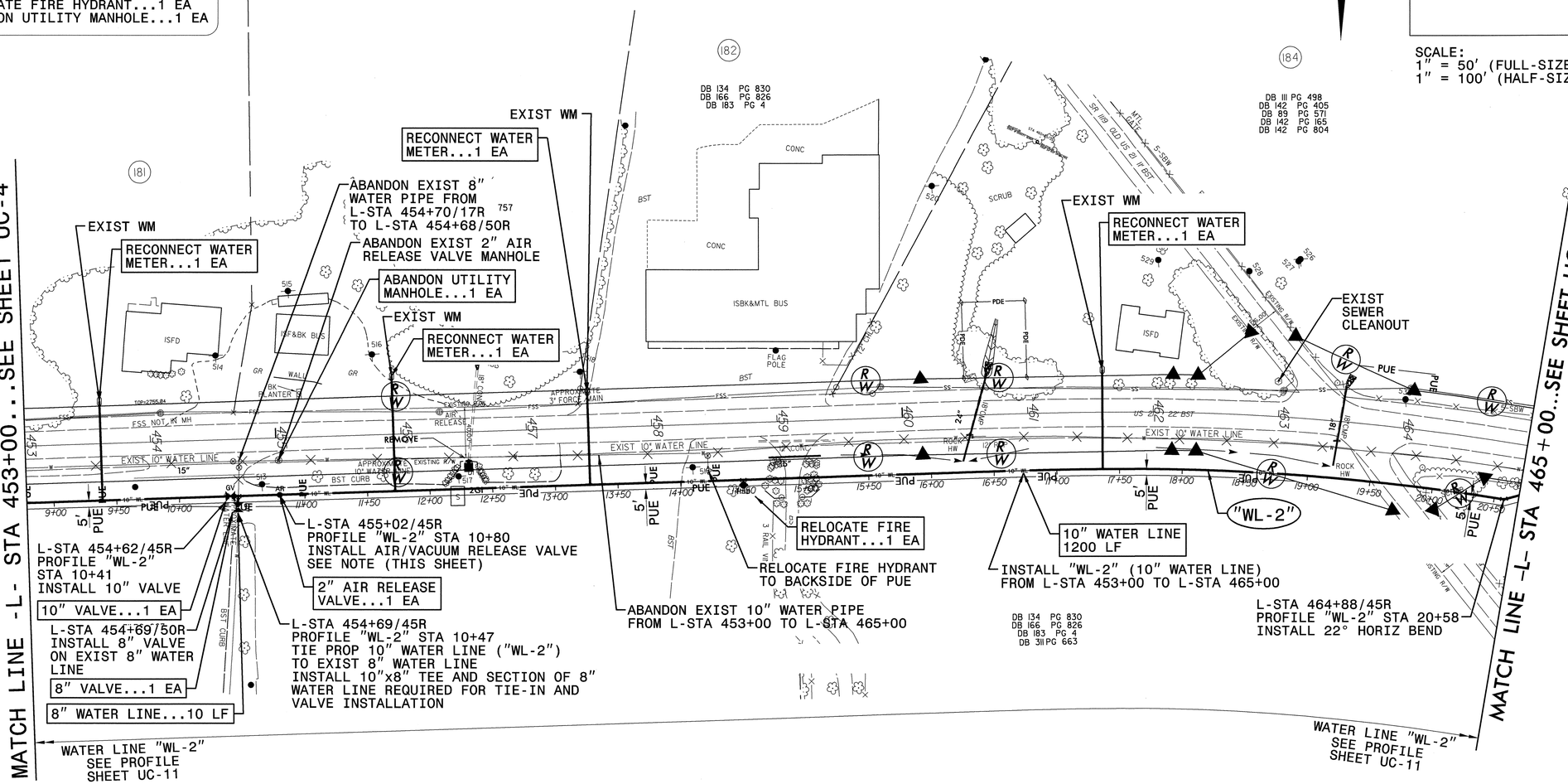
UTILITY CONSTRUCTION

PAY ITEMS (THIS SHEET):

8" WATER LINE...10 LF
10" WATER LINE...1200 LF
8" VALVE...1 EA
10" VALVE...1 EA
2" AIR RELEASE VALVE...1 EA
RECONNECT WATER METER...4 EA
RELOCATE FIRE HYDRANT...1 EA
ABANDON UTILITY MANHOLE...1 EA

NAD 83/95

SCALE:
1" = 50' (FULL-SIZE PLANS)
1" = 100' (HALF-SIZE PLANS)



AIR/VACUUM RELEASE VALVE NOTE:

INSTALL A 2" COMBINATION AIR/VACUUM RELEASE VALVE INSIDE A 4' DIAMETER PRECAST FLAT-TOP MANHOLE. LOCATIONS SHOWN ARE APPROXIMATE. FIELD VERIFY HIGH POINT OF LINE AND INSTALL AT THAT LOCATION. ALL MATERIALS AND LABOR REQUIRED FOR MANHOLE INSTALLATION TO BE INCIDENTAL TO THE PAY ITEM "2" AIR RELEASE VALVE"

LEGEND: —X—X—X—X—
ABANDON EXISTING UTILITY LINE

8/17/99

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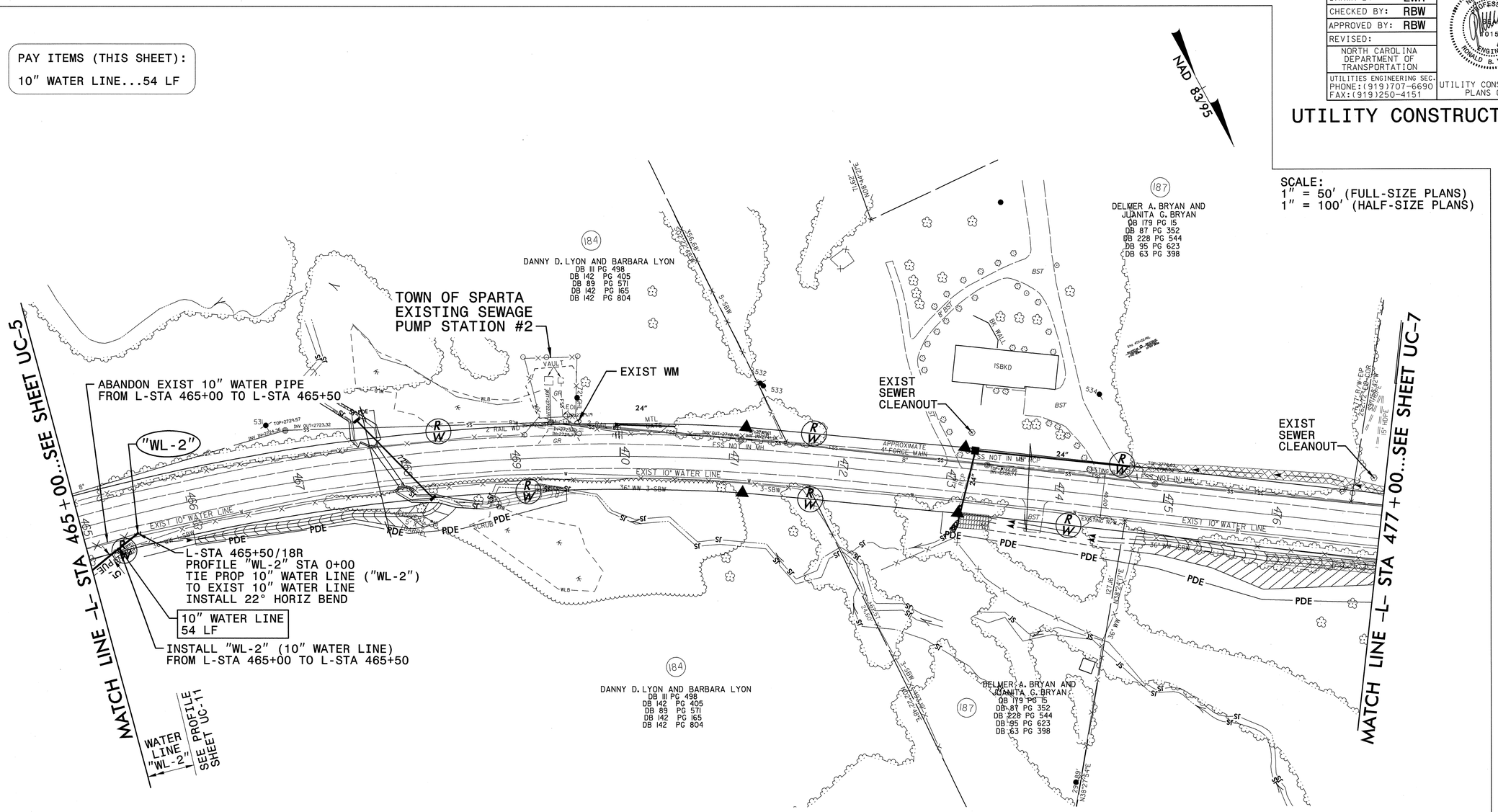
PROJECT REFERENCE NO.	SHEET NO.
R-3101	UC-6
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL #0157 ENGINEER RONALD B. WILKINS

UTILITY CONSTRUCTION

SCALE:
1" = 50' (FULL-SIZE PLANS)
1" = 100' (HALF-SIZE PLANS)

PAY ITEMS (THIS SHEET):
10" WATER LINE...54 LF



LEGEND:
ABANDON EXISTING UTILITY LINE

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	UC-7
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 10157 ENGINEER RONALD B. WILLIAMS

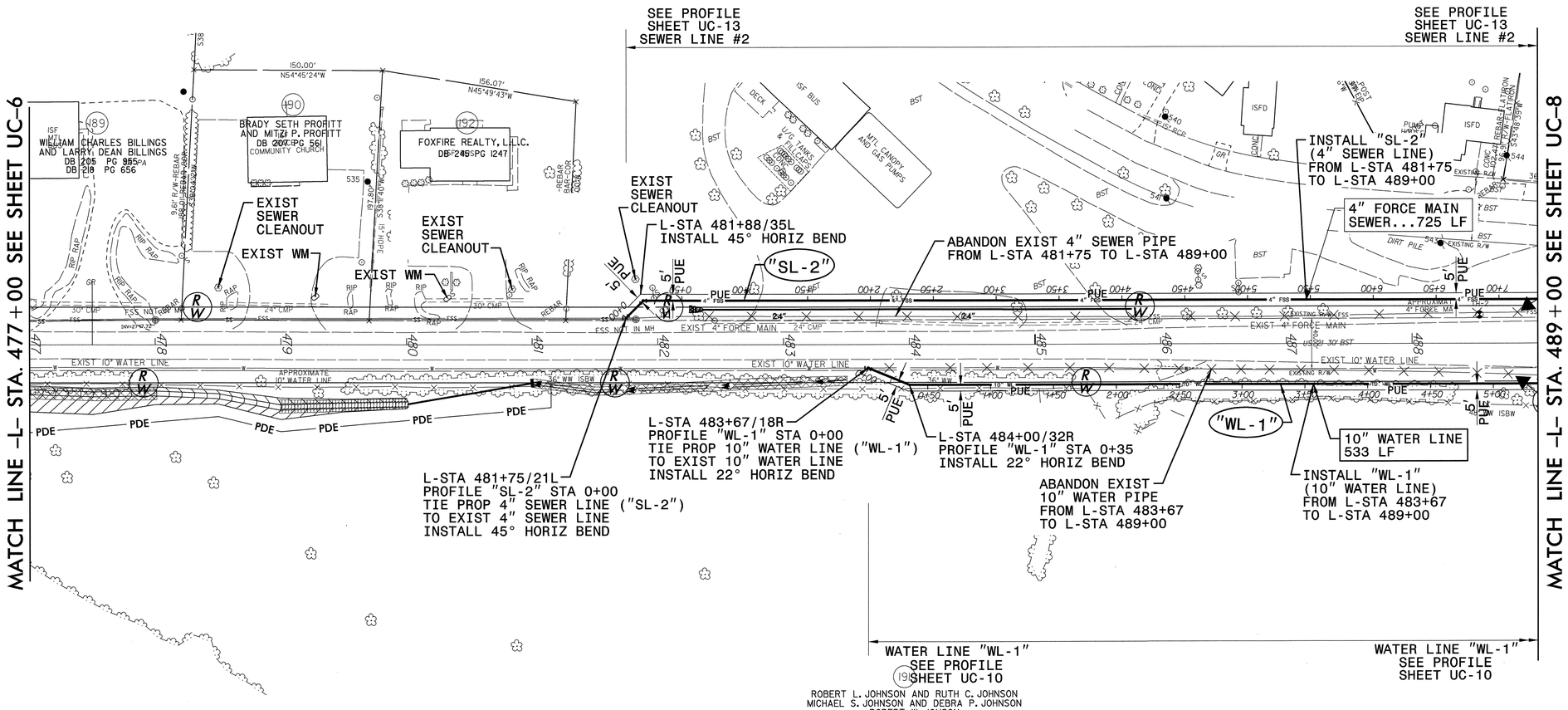
UTILITY CONSTRUCTION

PAY ITEMS (THIS SHEET):

10" WATER LINE...533 LF
4" FORCE MAIN SEWER...725 LF

NAD 83/95

SCALE:
1" = 50' (FULL-SIZE PLANS)
1" = 100' (HALF-SIZE PLANS)



LEGEND:
ABANDON EXISTING UTILITY LINE

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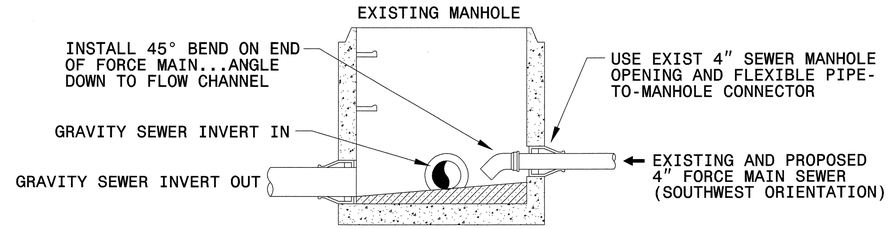
PROJECT REFERENCE NO.	SHEET NO.
R-3101	UC-8
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10157 RONALD B. WILSON 8/13/12

UTILITY CONSTRUCTION

PAY ITEMS (THIS SHEET):

6" WATER LINE...86 LF
10" WATER LINE...1200 LF
6" VALVE...1 EA
10" VALVE...1 EA
2" AIR RELEASE VALVE...2 EA
RELOCATE WATER METER...1 EA
RELOCATE FIRE HYDRANT...1 EA
8" SANITARY GRAVITY SEWER...20 LF
4" FORCE MAIN SEWER...1200 LF
ABANDON UTILITY MANHOLE...3 EA

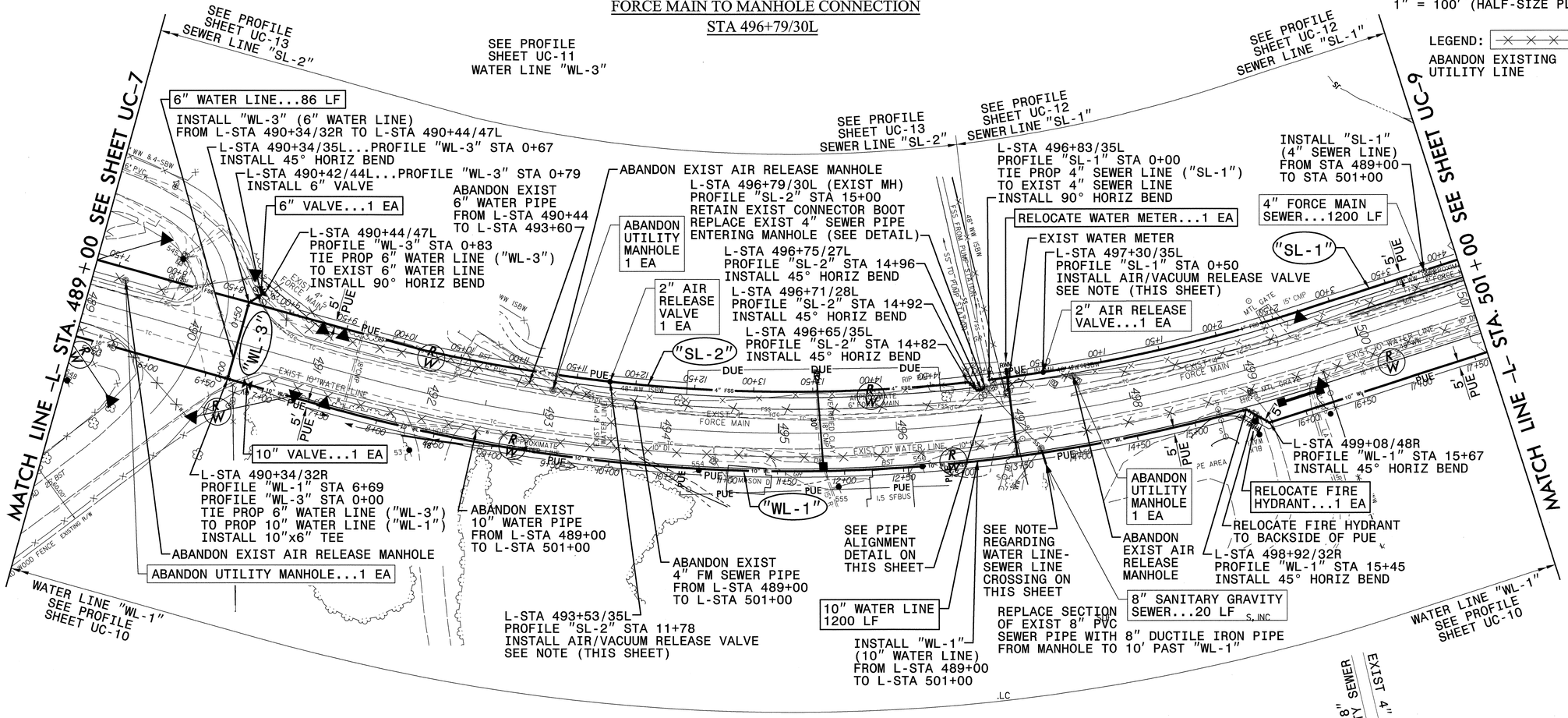


FORCE MAIN TO MANHOLE CONNECTION
STA 496+79/30L

NAD 83/95

SCALE:
1" = 50' (FULL-SIZE PLANS)
1" = 100' (HALF-SIZE PLANS)

LEGEND: ABANDON EXISTING UTILITY LINE



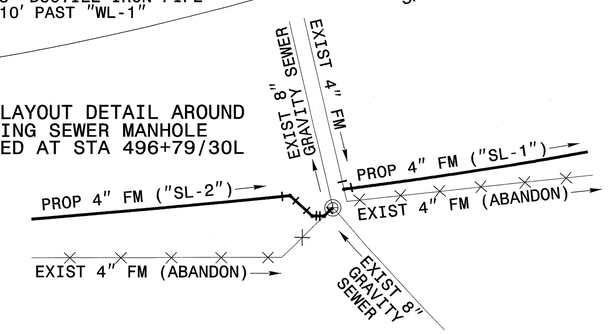
WATER LINE-SEWER LINE CROSSING NOTE (STA 497+20/32R):

INSTALL PROPOSED WATER LINE "WL-1" BELOW EXISTING 8" GRAVITY SEWER LINE WITH 24" VERTICAL SEPARATION BETWEEN BOTTOM OF SEWER LINE AND TOP OF WATER LINE. REPLACE SECTION OF EXISTING GRAVITY SEWER PIPE AND INSTALL SECTION OF PROPOSED WATER SO THAT BOTH WATER AND SEWER PIPES ARE DUCTILE IRON FOR A DISTANCE OF TEN FEET EACH SIDE OF POINT OF CROSSING WITH WATER PIPE CENTERED AT POINT OF CROSSING

AIR/VACUUM RELEASE VALVE NOTE:

INSTALL A 2" COMBINATION AIR/VACUUM RELEASE VALVE INSIDE A 4' DIAMETER PRECAST FLAT-TOP MANHOLE. LOCATIONS SHOWN ARE APPROXIMATE. FIELD VERIFY HIGH POINT OF LINE AND INSTALL AT THAT LOCATION. ALL MATERIALS AND LABOR REQUIRED FOR MANHOLE INSTALLATION TO BE INCIDENTAL TO THE PAY ITEM "2" AIR RELEASE VALVE"

PIPE LAYOUT DETAIL AROUND EXISTING SEWER MANHOLE LOCATED AT STA 496+79/30L



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PROJECT REFERENCE NO.	SHEET NO.
R-3101	UC-9
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 10157 ENGINEER RONALD B. WILKINS

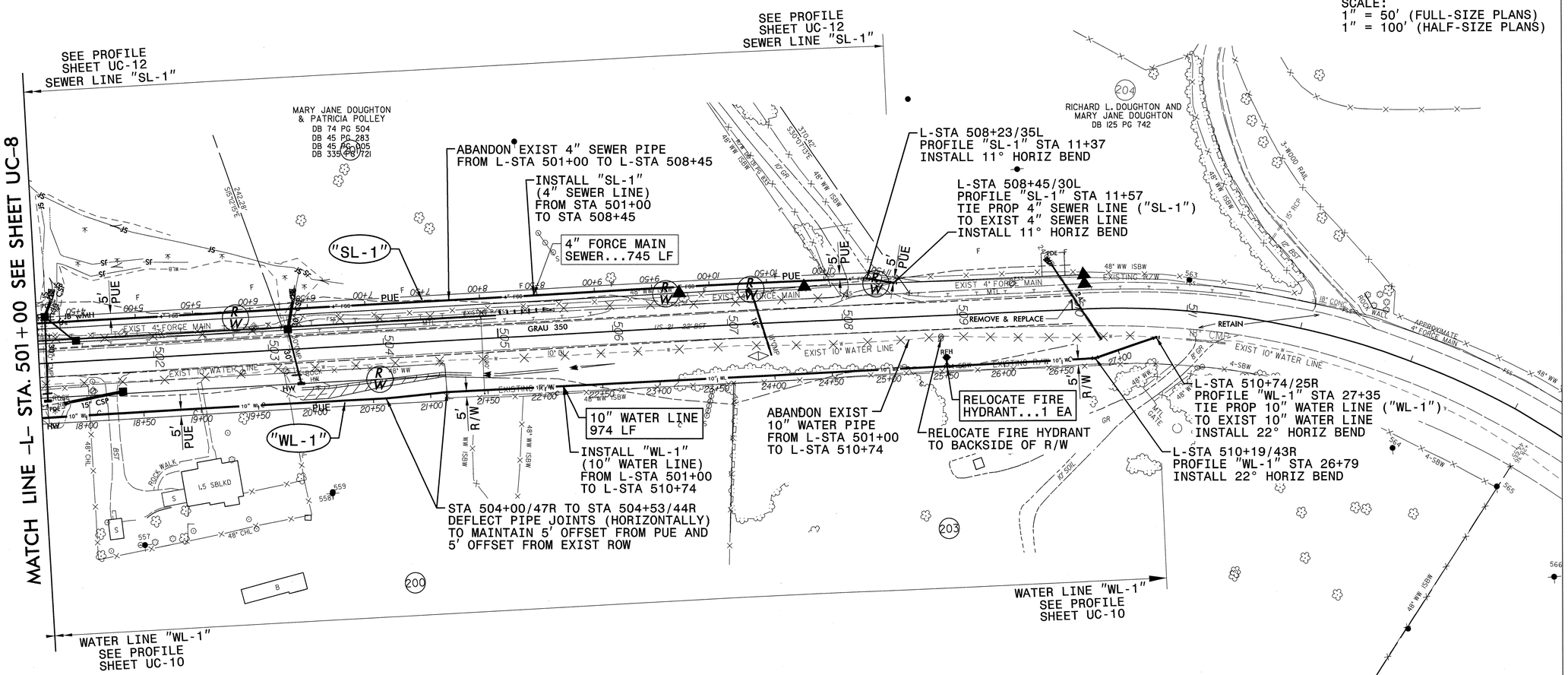
UTILITY CONSTRUCTION

PAY ITEMS (THIS SHEET):

10" WATER LINE...974 LF
RELOCATE FIRE HYDRANT...1 EA
4" FORCE MAIN SEWER...745 LF

NAD 83/95

SCALE:
1" = 50' (FULL-SIZE PLANS)
1" = 100' (HALF-SIZE PLANS)



LEGEND:
ABANDON EXISTING UTILITY LINE

13-JUN-2013 11:56
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$$$$USERNAME$$$$

WATER LINE "WL-1" PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-3101	UC-10
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 10157 ENGINEER RONALD B. WILKINSON 6/13/13

UTILITY CONSTRUCTION

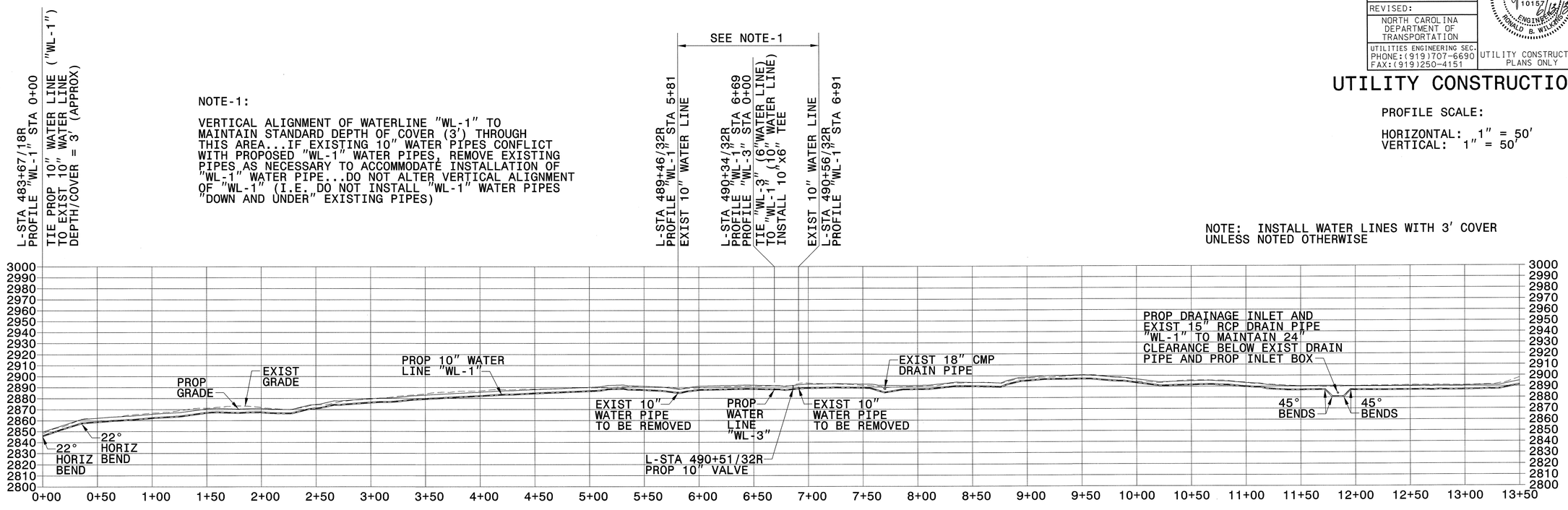
PROFILE SCALE:

HORIZONTAL: 1" = 50'
VERTICAL: 1" = 50'

NOTE-1:

VERTICAL ALIGNMENT OF WATERLINE "WL-1" TO MAINTAIN STANDARD DEPTH OF COVER (3') THROUGH THIS AREA...IF EXISTING 10" WATER PIPES CONFLICT WITH PROPOSED "WL-1" WATER PIPES, REMOVE EXISTING PIPES AS NECESSARY TO ACCOMMODATE INSTALLATION OF "WL-1" WATER PIPE...DO NOT ALTER VERTICAL ALIGNMENT OF "WL-1" (I.E. „DO NOT INSTALL "WL-1" WATER PIPES "DOWN AND UNDER" EXISTING PIPES)

NOTE: INSTALL WATER LINES WITH 3' COVER UNLESS NOTED OTHERWISE

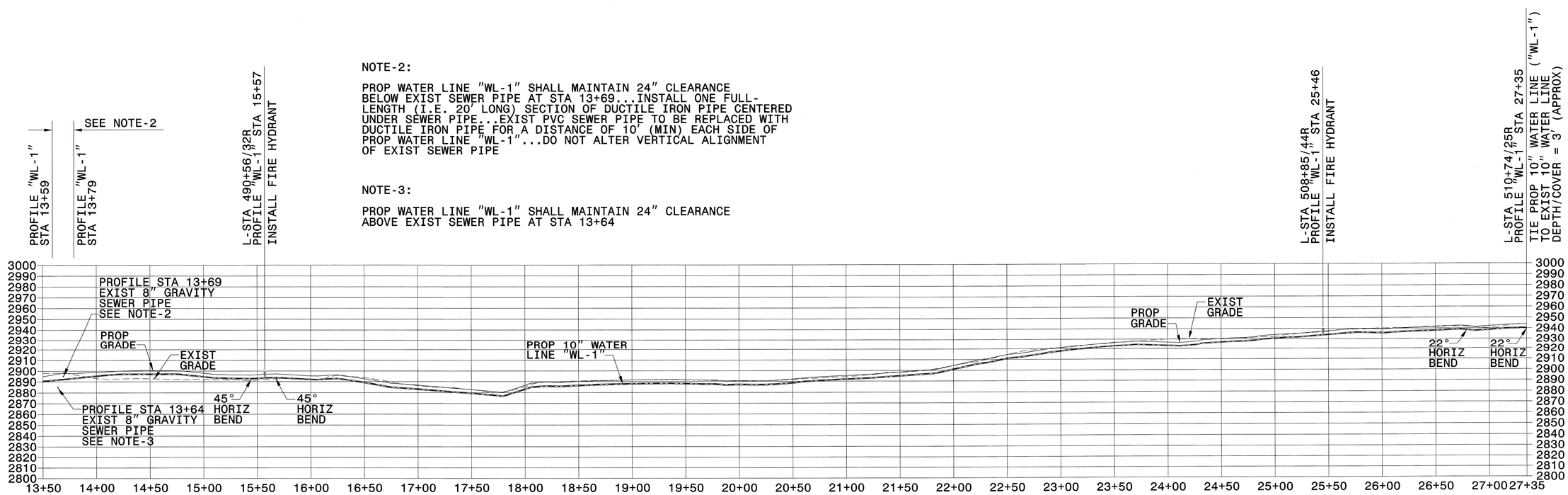


NOTE-2:

PROP WATER LINE "WL-1" SHALL MAINTAIN 24" CLEARANCE BELOW EXIST SEWER PIPE AT STA 13+69...INSTALL ONE FULL-LENGTH (I.E. 20' LONG) SECTION OF DUCTILE IRON PIPE CENTERED UNDER SEWER PIPE...EXIST PVC SEWER PIPE TO BE REPLACED WITH DUCTILE IRON PIPE FOR A DISTANCE OF 10' (MIN) EACH SIDE OF PROP WATER LINE "WL-1"...DO NOT ALTER VERTICAL ALIGNMENT OF EXIST SEWER PIPE

NOTE-3:

PROP WATER LINE "WL-1" SHALL MAINTAIN 24" CLEARANCE ABOVE EXIST SEWER PIPE AT STA 13+64



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PROJECT REFERENCE NO.	SHEET NO.
R-3101	UC-11
DESIGNED BY: EWH	
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APPROVED BY: RBW	
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NORTH CAROLINA PROFESSIONAL SEAL 10157 ENGINEER RONALD B. WILKINS

WATER LINES "WL-2" AND "WL-3" PROFILE

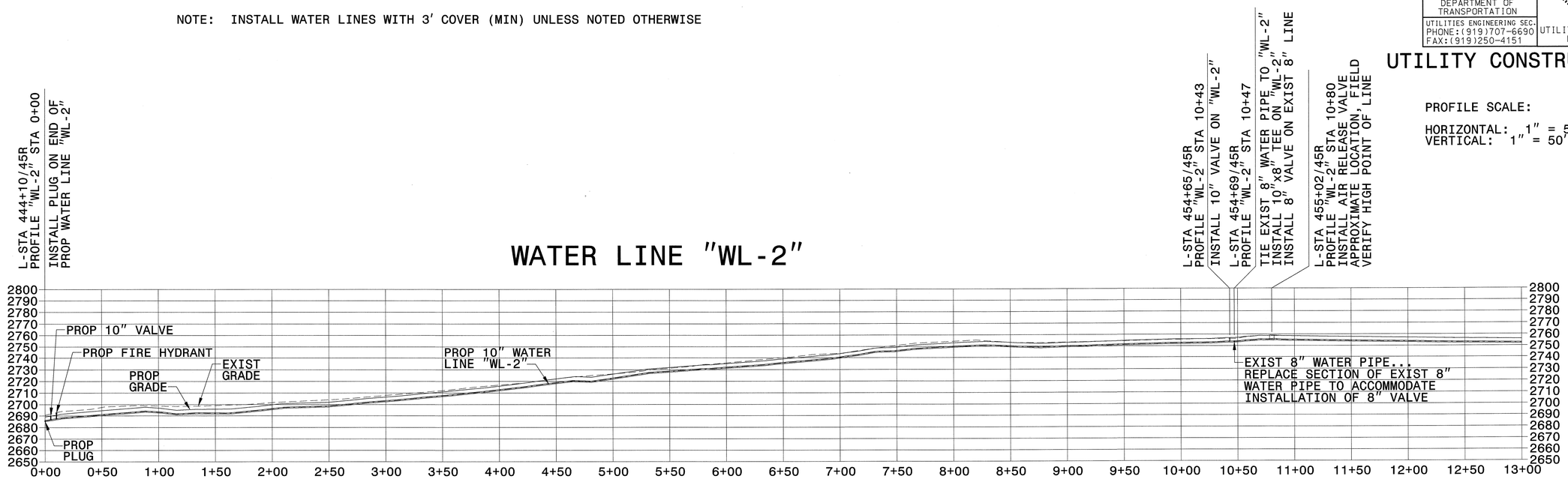
UTILITY CONSTRUCTION

NOTE: INSTALL WATER LINES WITH 3' COVER (MIN) UNLESS NOTED OTHERWISE

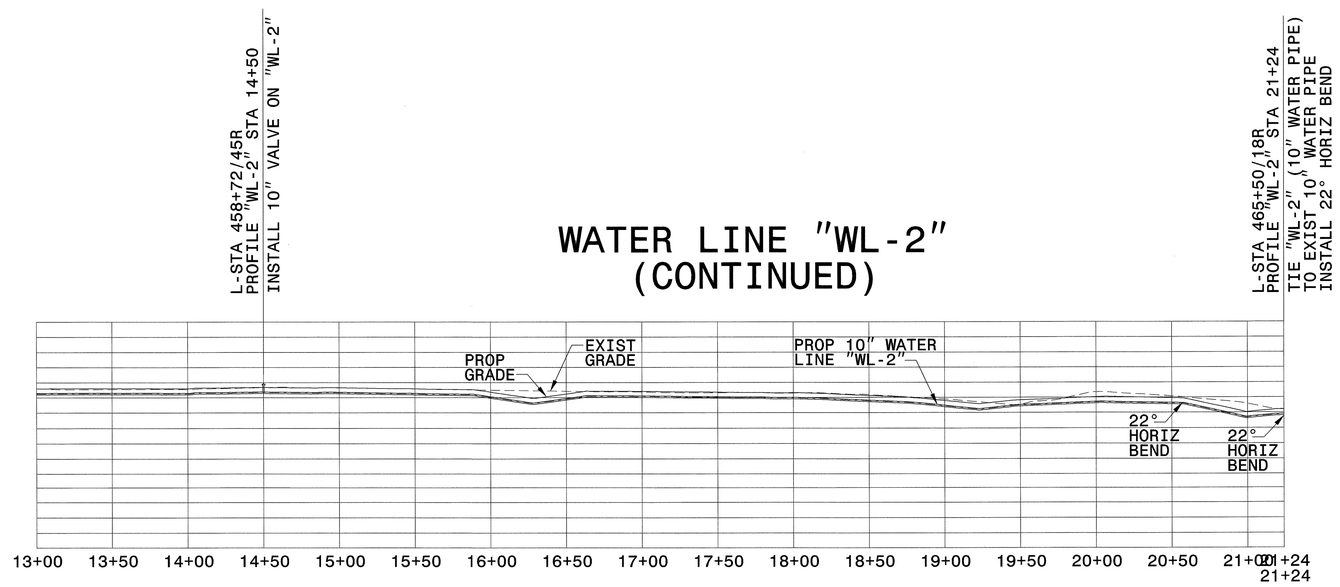
PROFILE SCALE:

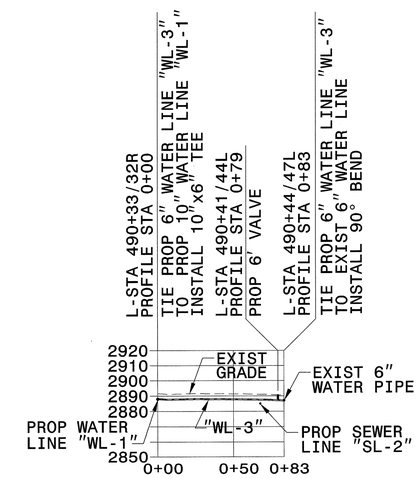
HORIZONTAL: 1" = 50'
VERTICAL: 1" = 50'

WATER LINE "WL-2"



WATER LINE "WL-2" (CONTINUED)





NOTE: "SL-2" SEWER PIPE TO MAINTAIN 24" SEPARATION BELOW BOTTOM OF "WL-3" WATER PIPE

WATER LINE "WL-3"

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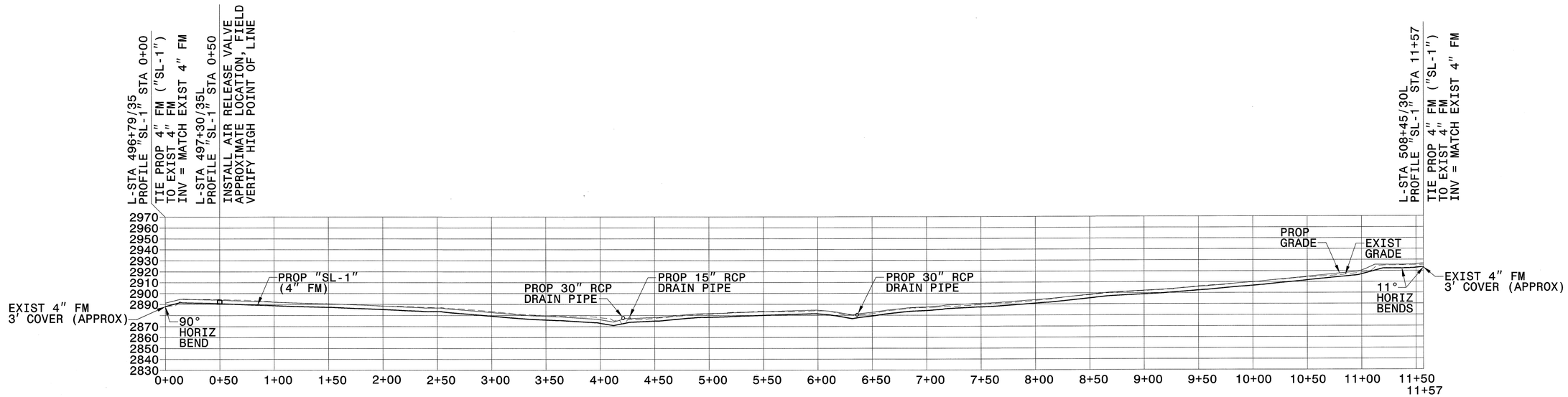
SEWER LINE "SL-1" PROFILE

UTILITY CONSTRUCTION

PROFILE SCALE:

HORIZONTAL: 1" = 50'
VERTICAL: 1" = 50'



PROFILE "SL-1" GENERAL NOTES:

(1) INSTALL SEWER PIPES WITH 3' (MIN) COVER UNLESS NOTED OTHERWISE
(2) PROPOSED 4" FM TO MAINTAIN 24" VERTICAL SEPARATION BELOW EXISTING AND PROPOSED DRAINAGE PIPES

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PROJECT REFERENCE NO.	SHEET NO.
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UTILITY CONSTRUCTION

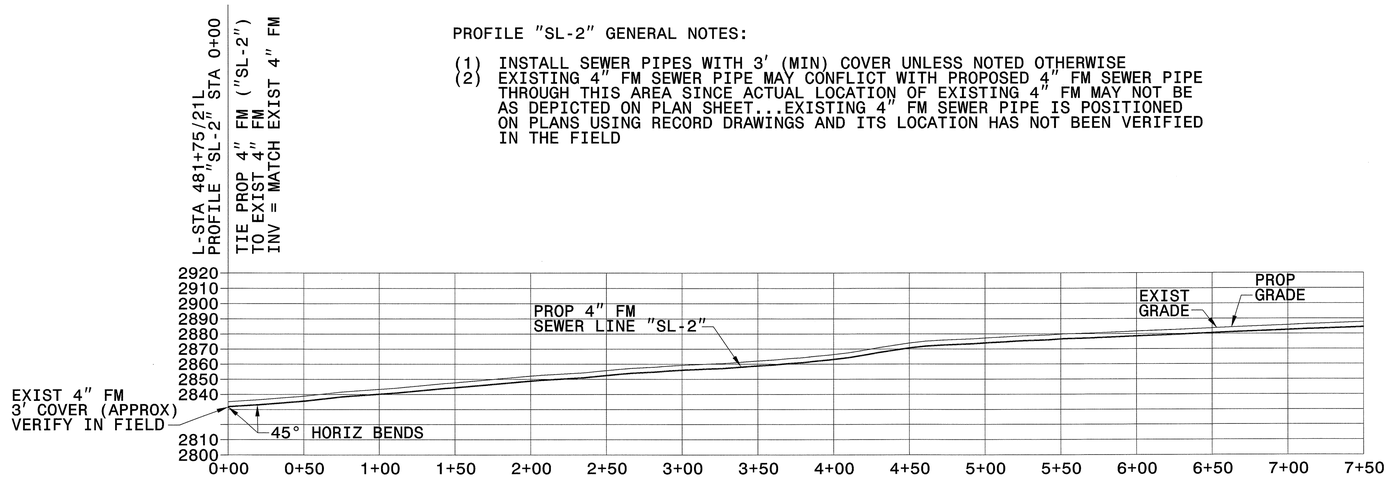
SEWER LINE "SL-2" PROFILE

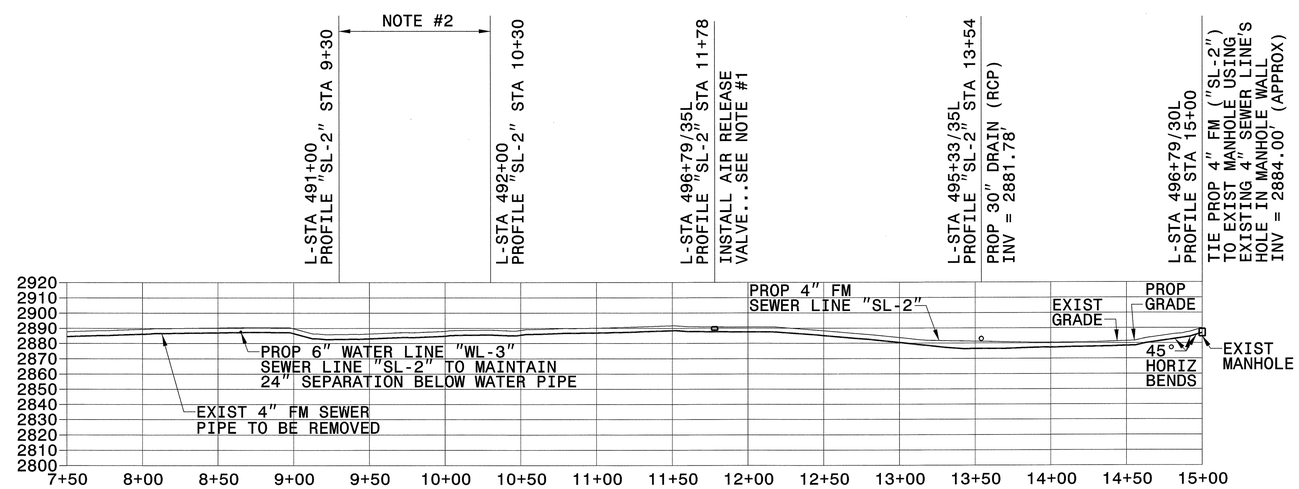
PROFILE "SL-2" GENERAL NOTES:

(1) INSTALL SEWER PIPES WITH 3' (MIN) COVER UNLESS NOTED OTHERWISE
(2) EXISTING 4" FM SEWER PIPE MAY CONFLICT WITH PROPOSED 4" FM SEWER PIPE THROUGH THIS AREA SINCE ACTUAL LOCATION OF EXISTING 4" FM MAY NOT BE AS DEPICTED ON PLAN SHEET...EXISTING 4" FM SEWER PIPE IS POSITIONED ON PLANS USING RECORD DRAWINGS AND ITS LOCATION HAS NOT BEEN VERIFIED IN THE FIELD

PROFILE SCALE:

HORIZONTAL: 1" = 50'
VERTICAL: 1" = 50'





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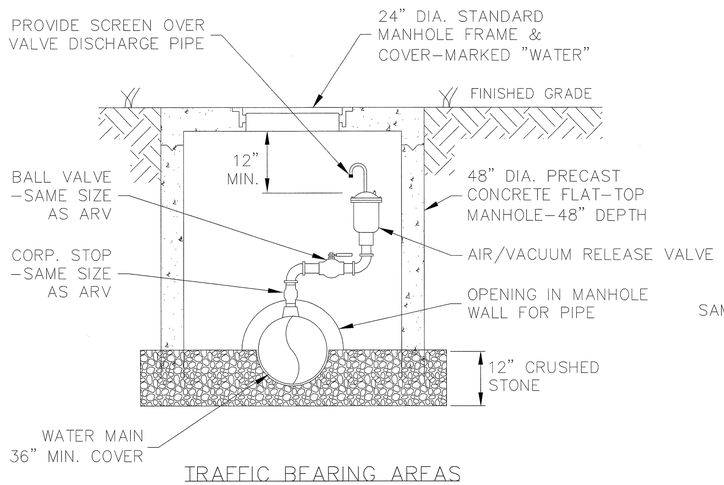
NORTH CAROLINA PROFESSIONAL SEAL 10187 ENGINEER RONALD B. WILKINS 8/12/14

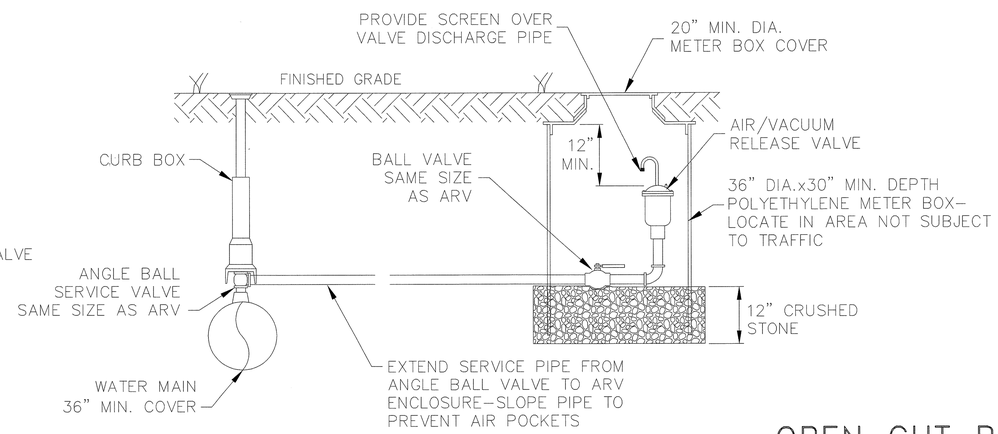
UTILITY CONSTRUCTION

WATER AND SEWER LINE INSTALLATION DETAILS

WATER AIR/VACUUM RELEASE VALVE

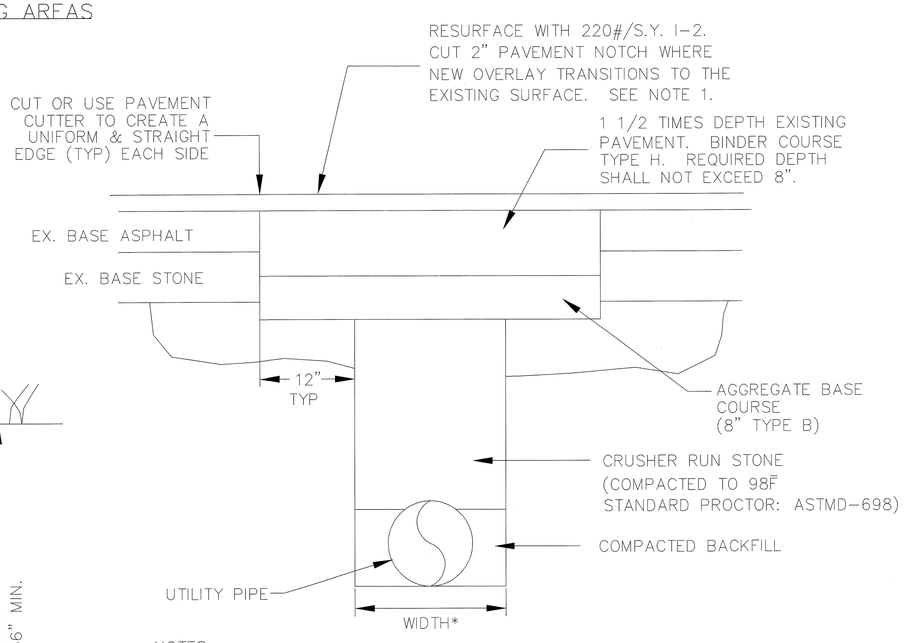


TRAFFIC BEARING AREAS



NON-TRAFFIC BEARING AREAS

OPEN CUT ROAD CROSSING

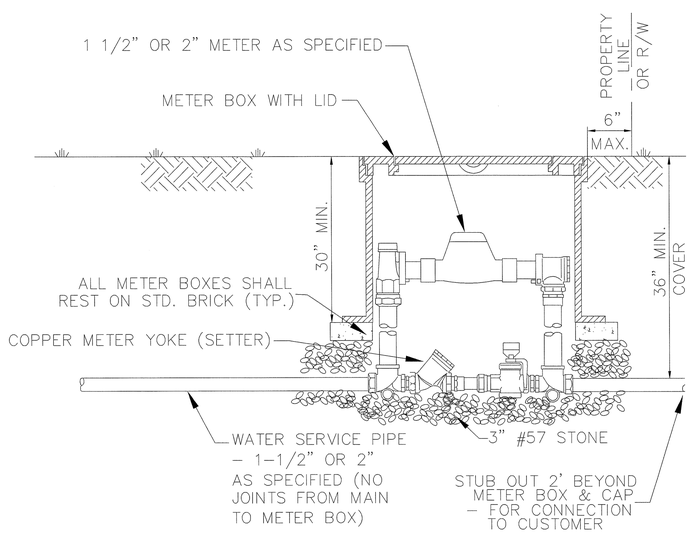


NOTES:

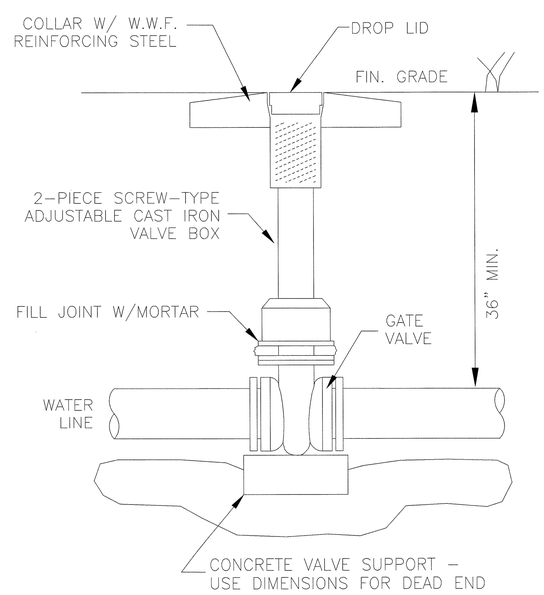
1. ALL NCDOT ROADWAYS SHALL BE RESURFACED THE FULL WIDTH OF ROADWAY, 25' ON EACH SIDE OF CUT, OR AS REQUIRED BY THE NCDOT PERMIT.
2. PRIVATE DRIVEWAYS SHALL BE RESURFACED AS PER THIS DETAIL - EXCLUDING THE 25' OVERLAP.
3. WHERE EXISTING SURFACE IS GRAVEL, REPLACEMENT SURFACE SHALL BE CRUSHER RUN STONE.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY ALL PAVED AREAS AND INCLUDE RESURFACING COSTS WITH THE UNIT PRICE FOR THE UTILITY LINE INSTALLATION.
5. THIS DETAIL APPLIES TO ALL PIPELINE UTILITIES.

* WIDTH OF DITCH SHALL BE AS REQUIRED FOR PROPER PIPE BEDDING.

1-1/2" OR 2" WATER METER



TYPICAL GATE VALVE



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PROJECT REFERENCE NO.	SHEET NO.
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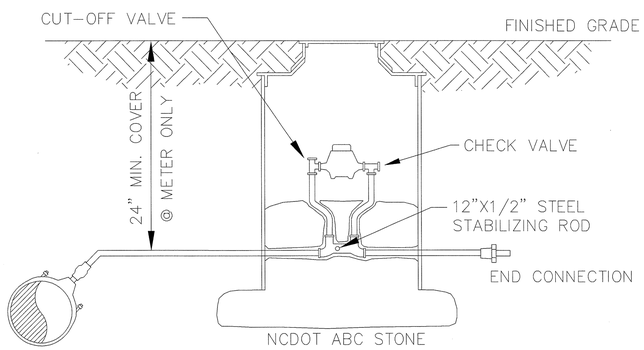
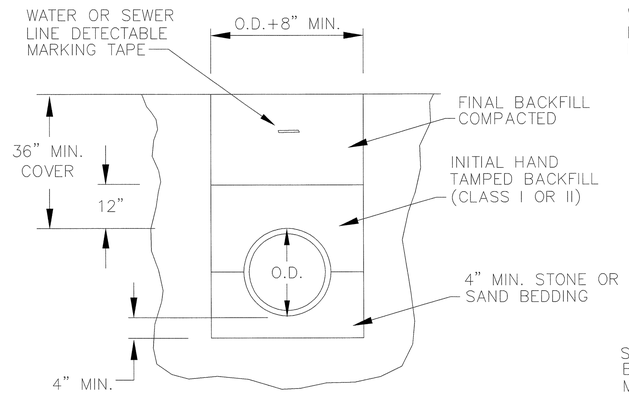
UTILITY CONSTRUCTION

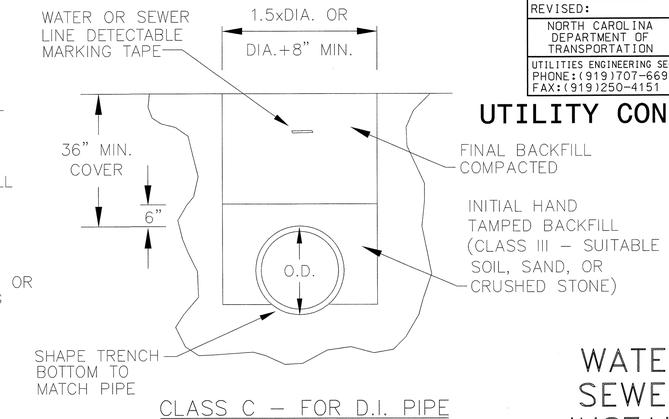
3/4" WATER METER



WATER & SEWER LINE BEDDING



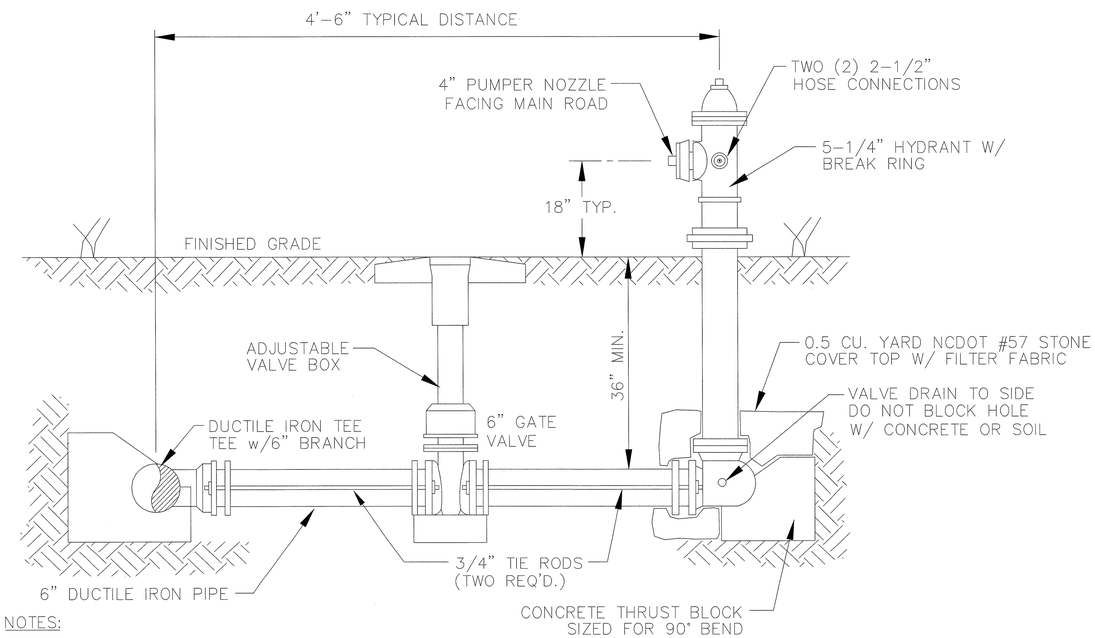
CLASS B – FOR PVC PIPE



CLASS C – FOR D.I. PIPE

WATER AND SEWER LINE INSTALLATION DETAILS

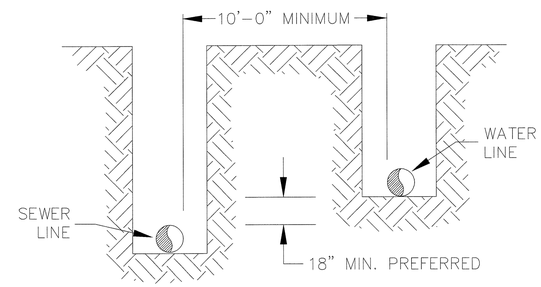
FIRE HYDRANT ASSEMBLY DETAIL



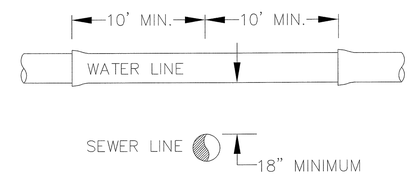
NOTES:

1. ALL ITEMS SHOWN ON THIS DETAIL ARE TO BE INCLUDED IN THE UNIT PRICE BID FOR A COMPLETE FIRE HYDRANT ASSEMBLY.
2. THE HYDRANT'S WEEP HOLE IS TO BE PLUGGED IF THE HYDRANT IS INSTALLED IN A LOCATION WITH SATURATED SOILS, SUBJECT TO FLOODING, OR LESS THAN 10' FROM A SANITARY SEWER.

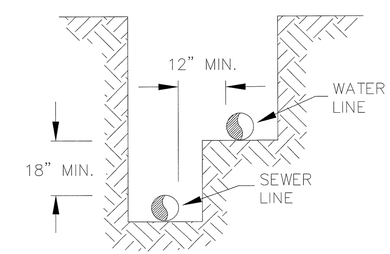
WATER & SEWER CROSSING DETAILS



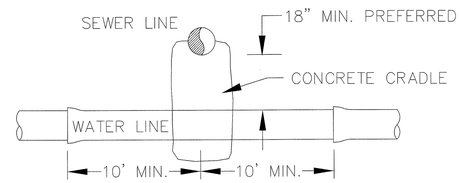
HORIZONTAL SEPARATION



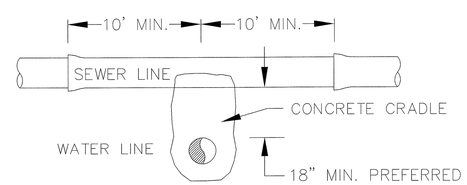
PREFERRED CROSSING METHOD



VERTICAL SEPARATION



ALTERNATE CROSSING METHOD



ALTERNATE CROSSING METHOD

NOTE: IN LOCATIONS WHERE WATER LINES CANNOT BE INSTALLED A MINIMUM OF 18" ABOVE A SEWER LINE, THE SEWER LINE SHALL BE CONSTRUCTED OF D.I. CL50 WATER LINE AND PRESSURE TESTED PRIOR TO BEING PLACED IN SERVICE, WATER LINE JOINTS ARE TO BE LOCATED EQUIDISTANT FROM THE SEWER LINE, AND A CONCRETE CRADLE IS TO BE POURED BETWEEN THE WATER AND SEWER LINES.

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	UC-16
DESIGNED BY: EWH	
DRAWN BY: EWH	
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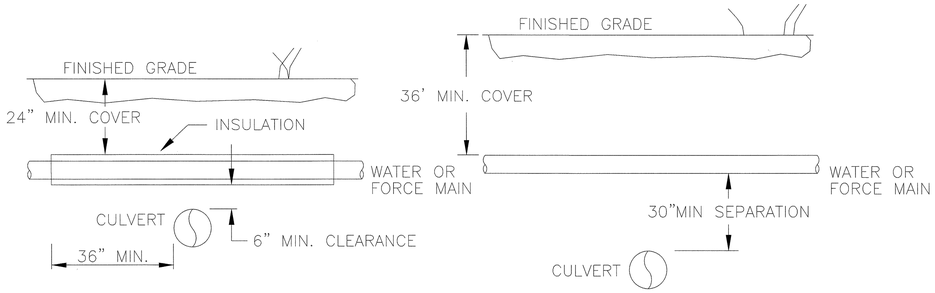
UTILITY CONSTRUCTION

WATER AND SEWER LINE INSTALLATION DETAILS

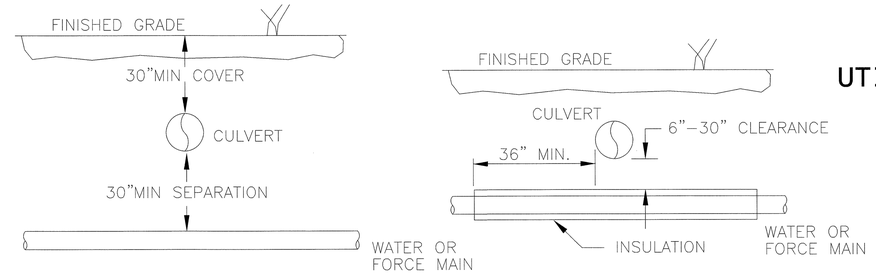
WATER OR SEWER LINE CROSSING OVER CULVERT



CASE 1 – INSULATION REQ'D

CASE 2 – INSULATION NOT REQ'D

WATER OR SEWER LINE CROSSING UNDER CULVERT



CASE 1 – INSULATION NOT REQ'D

CASE 2 – INSULATION REQ'D

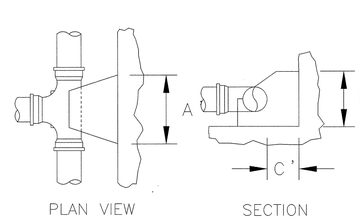
NOTE: INSULATION SHALL BE 2" MIN THICKNESS OF POLYSTYRENE PIPE WRAP INSULATION W/ WATERPROOF BITUMINOUS COATING.

PIPELINE THRUST BLOCK DATA

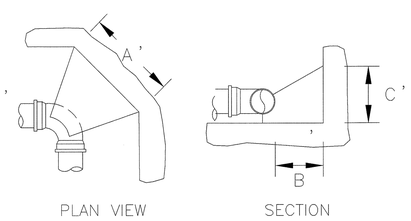
PIPE SIZE	TEES			90° BEND, HORIZONTAL			45° BEND, HORIZONTAL			22 1/2° BEND, HORIZONTAL			11 1/4° BEND, HORIZONTAL			45° BEND, UPPER VERTICAL			22 1/2° BEND, UPPER VERTICAL			11 1/4° BEND, UPPER VERTICAL			45° BEND, LOWER VERTICAL			22 1/2° BEND, LOWER VERTICAL			11 1/4° BEND, LOWER VERTICAL			DEAD–ENDS AND PLUGS		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
3"–6"	1.5'	1.33'	1.10'	2.33'	1.67'	1.2'	1.25'	1.2'	0.75'	0.75'	1.2'	0.75'	0.5'	1.2'	0.75'	1.25'	1.2'	0.6'	0.75'	1.2'	0.6'	0.5'	1.2'	0.6'	3.0'	3.0'	2.5'	1.85'	2.5'	2.0'	1.25'	2.0'	1.5'	1.5'	0.5'	1.2'
8"	2.0'	1.67'	1.10'	3.20'	1.75'	1.5'	2.0'	1.33'	0.75'	1.0'	1.33'	0.75'	0.67'	1.33'	0.75'	2.1'	1.5'	0.85'	1.0'	1.33'	0.67'	0.67'	1.33'	0.6'	3.25'	4.5'	3.25'	2.25'	3.25'	3.33'	1.75'	2.5'	2.0'	2.25'	0.67'	1.5'
10"	2.5'	2.0'	1.20'	3.34'	1.75'	2.1'	2.5'	1.5'	1.0'	1.5'	1.5'	0.85'	0.85'	1.5'	0.75'	2.1'	1.67	0.85'	1.5'	1.67	0.67'	0.85'	1.5'	0.67'	3.67'	4.75'	4.0'	2.5'	3.85'	3.67'	1.75'	2.75'	2.5'	2.5'	0.67'	2.0'
12"	2.85'	2.5'	1.33'	4.0'	2.0'	2.5'	3.0'	1.85'	1.2'	1.75'	1.85'	1.0'	1.0'	1.67'	0.75'	2.5'	1.85'	1.0'	1.75'	1.67	0.67'	1.0'	1.67'	0.67'	3.67'	5.0'	4.5'	2.5'	4.0'	4.0'	2.0'	3.0'	3.0'	3.25'	0.85'	2.33'

CONCRETE THRUST BLOCK CONSTRUCTION NOTES

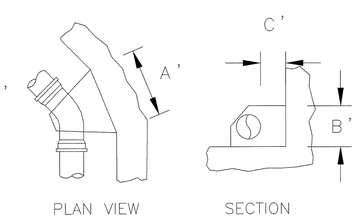
1. ALL CONCRETE USED FOR THRUST BLOCKS SHALL BE 2500 PSI STRENGTH, POURED AGAINST STABLE, COMPACTED GROUND.
2. PIPES SHALL NOT BE PRESSURIZED UNTIL AT LEAST 7 DAYS AFTER THE THRUST BLOCKS HAVE BEEN POURED.
3. THRUST BLOCKS AT REDUCING FITTINGS SHALL BE SIZED BASED UPON THE LARGER PIPE SIZE.
4. IN LOCATIONS WITH WET OR OTHERWISE UNSTABLE GROUND, THE CONTRACTOR SHALL USE MEGALUG JOINT RESTRAINTS OR MECHANICAL JOINT FITTINGS WITH TIE RODS INSTEADOF CONCRETE THRUST BLOCKS.
5. THE CONTRACTOR MAY ELECT TO USE MECHANICAL JOINT RESTRAINTS IN LIEU OF CONCRETE THRUST BLOCKS. MECHANICAL JOINT RESTRAINTS SHALL BE SERIES 1100 MEGALUG RESTRAINTS OR APPROVED EQUAL.



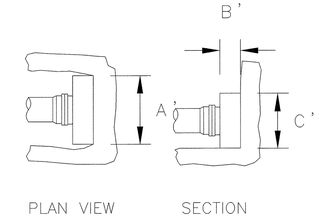
TEES



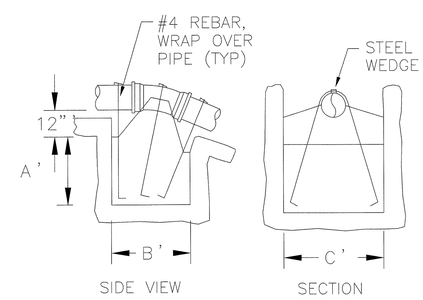
HORIZONTAL 90° BENDS



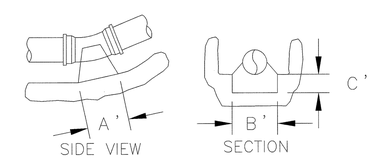
HORIZONTAL BENDS



DEAD ENDS



LOWER VERTICAL BENDS



UPPER VERTICAL BENDS

WATER LINE/FORCE MAIN CONCRETE THRUST BLOCK INFORMATION

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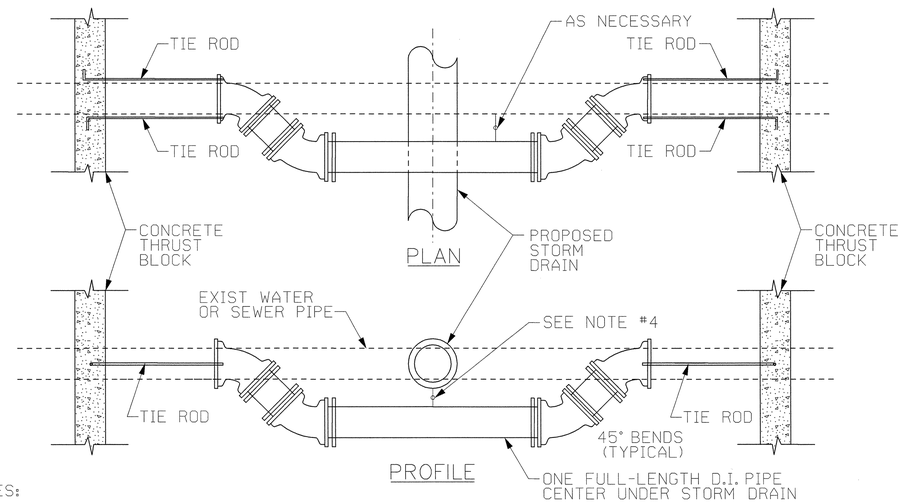
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 10156 ENGINEER RONALD B. WILKINS

UTILITY CONSTRUCTION

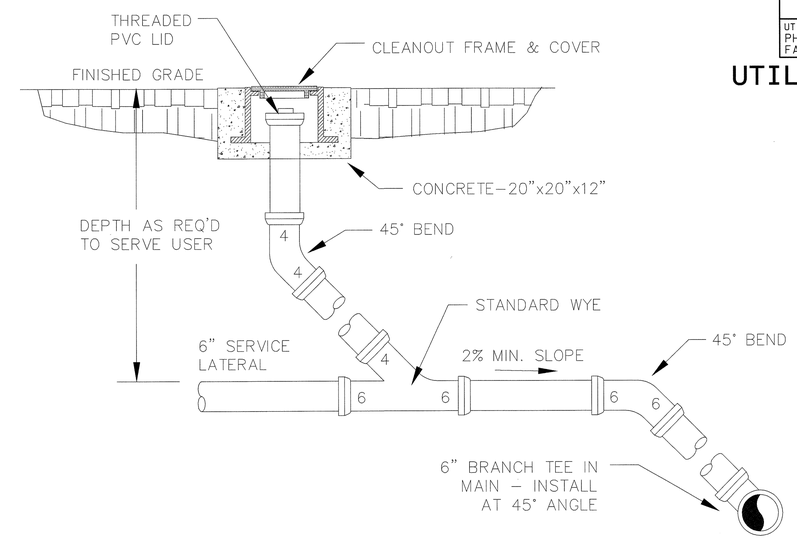
WATER OR SEWER LINE CONFLICT WITH STORM DRAIN



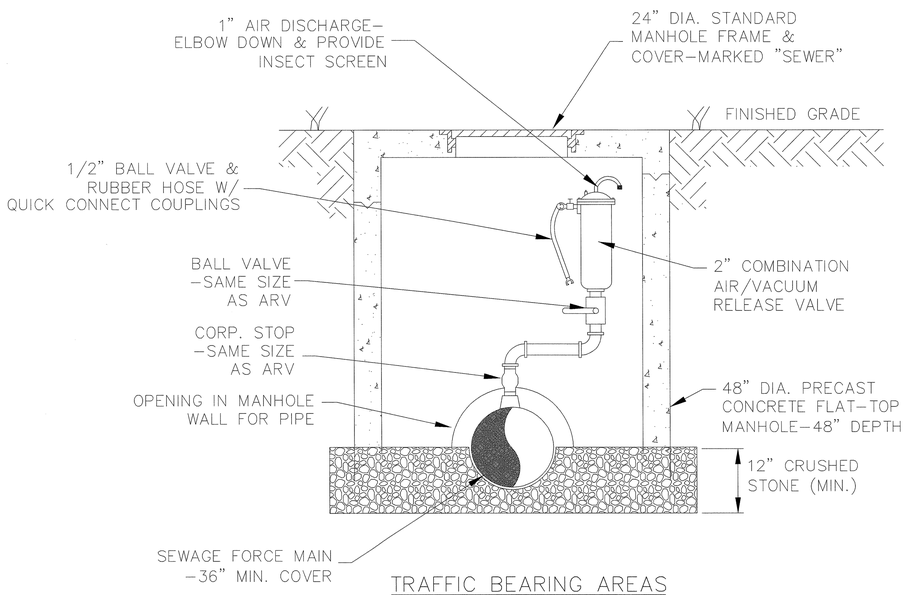
NOTES:

1. FITTINGS SHALL BE RESTRAINED BY USING TIE-RODS OR OTHER METHOD AS APPROVED BY ENGINEER.
2. ALL CONCRETE USED FOR THRUST BLOCKS SHALL BE 2500 PSI (MIN).
3. A MINIMUM 24 HOURS CURING TIME REQUIRED FOR CONCRETE THRUST BLOCKS BEFORE ANY WATER IS INTRODUCED INTO PIPELINE AND A MINIMUM OF 7 DAYS CURING TIME IS REQUIRED BEFORE PRESSURE TEST IS PERFORMED.
4. CLEARANCE/SEPARATION BETWEEN STORM DRAIN PIPE AND UTILITY PIPE TO BE 24" OR GREATER. IN LOCATIONS WHERE A 24" SEPARATION IS NOT ACHIEVABLE, BOTH STORM PIPE AND UTILITY PIPE SHALL BE COMPRISED OF FERROUS MATERIAL, UTILIZING FULL-LENGTH PIPES, CENTERED AT CROSSING.

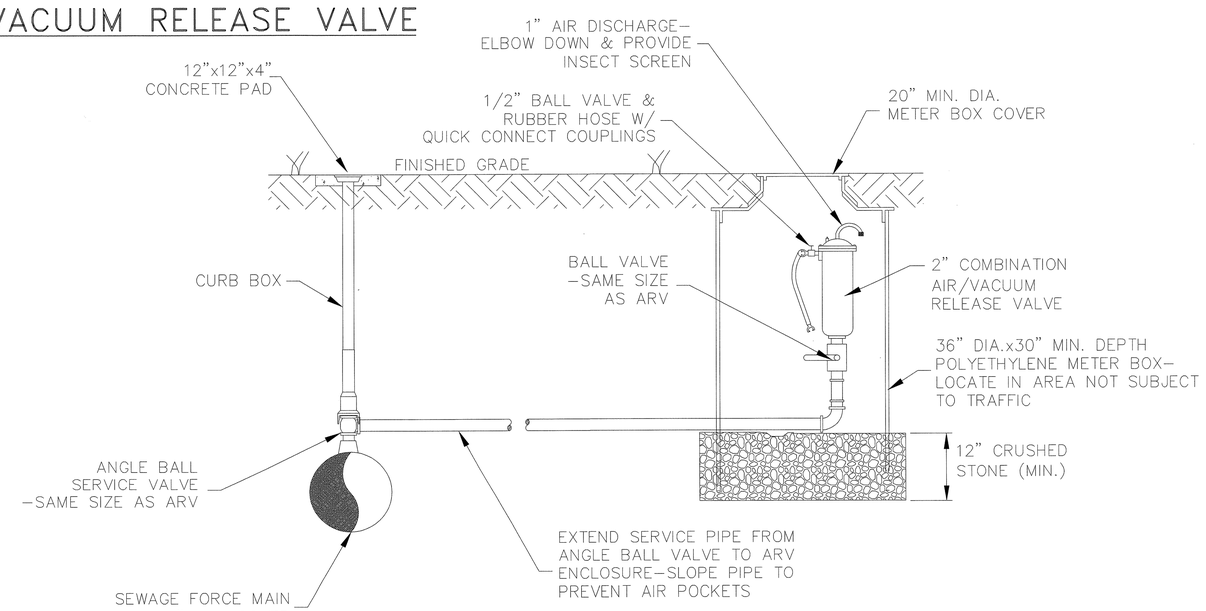
SEWER SERVICE CONNECTION CLEANOUT



SEWAGE AIR/VACUUM RELEASE VALVE



TRAFFIC BEARING AREAS



NON-TRAFFIC BEARING AREAS

NOTE: DETERMINATION OF TRAFFIC BEARING OR NON TRAFFIC BEARING TO BE BASED UPON FIELD CONDITIONS

5/14/99

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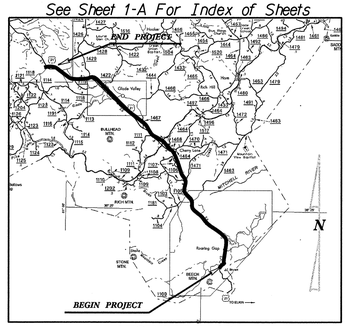
09/08/99

CONTRACT: _____ TIP PROJECT: R-3101

See Sheet 1-A For Index of Sheets



VICINITY MAP
(NO SCALE)

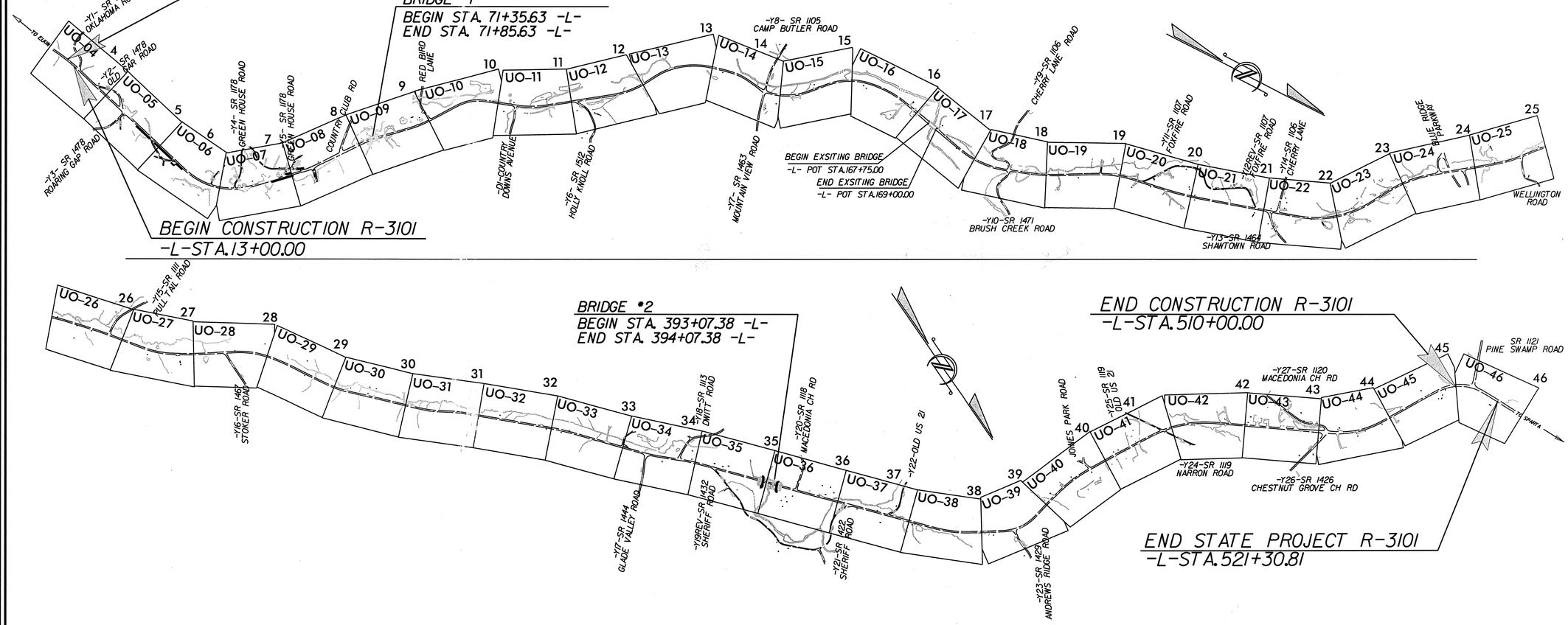
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
R-3101	UO-1

ALLEGHANY COUNTY

LOCATION: US 21 FROM SR 1100 (OKLAHOMA RD.) TO SR 1121 (PINE SWAMP RD.)

UTILITIES BY OTHERS



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-1A	GENERAL NOTES
UO-1B	CONVENTIONAL PLAN SHEET SYMBOLS
UO-04 THRU UO-46	UBO PLAN SHEETS

UTILITY OWNERS ON PROJECT

(A) BLUE RIDGE EMC - POWER DISTRIBUTION
(B) SKYLINE MEMBERSHIP CORP.
(C) CENTURY LINK
(D) CHARTER COMMUNICATIONS
(E) ALLEGHANY CABLEVISION

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 707-6690
FAX (919) 250-4119

Roger Worthington, P.E. — UTILITIES SECTION ENGINEER
Steve McKee, P.E. — UTILITIES SQUAD LEADER PROJECT ENGINEER
John Nigro, P.E. — UTILITIES PROJECT DESIGNER

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Joshua Barbour Division:P005 Power Emp

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
R-3101	UO-1A

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INDEX OF SHEETS

SHEET NUMBER	SHEET
UO-1	TITLE SHEET
UO-1A	INDEX OF SHEETS, STANDARD DRAWINGS, GENERAL NOTES
UO-1B	COVENTIONAL PLAN SHEET SYMBOLS
UO-4 THRU UO-46	UBO PLAN SHEETS

UTILITY CONTACTS

UTILITY	CONTACT NAME	CONTACT PHONE NUMBER
BLUE RIDGE EMC (POWER DISTRIBUTION)	JOEL SOUTHER	(336)-838-4655
SKYLINE MEMBERSHIP CORP.	ERIC HOLT	(336)-982-3800, EXT. 6591
CENTURY LINK	KENT CARLSON	(828)-891-4054
CHARTER COMMUNICATIONS	CHIP CLEARY	(336)-927-7960
ALLEGHANY CABLEVISION	JEFF BARKER	(336)-372-5801

UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

UBO-2 CENTURY LINK TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

UBO-3 SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

UBO-4 CHARTER COMMUNICATIONS TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

UBO-5 ALLEGHANY CABLEVISION TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

UBO-6 BLUE RIDGE TO RELOCATE AERIAL UTILITIES TO UNDERGROUND SYSTEM ADJACENT TO PROPOSED BRIDGE.

LEGEND

PROP O/H POW LINES	PROPOSED OVERHEAD POWER LINE (DUKE ENERGY)
PROP O/H POW TEL & FO LINES	PROPOSED OVERHEAD POWER/TELEPHONE/FIBER OPTIC LINES (DUKE ENERGY/NORTH STATE COMMUNICATIONS)
PROP O/H POW & TEL LINES	PROPOSED OVERHEAD POWER/TELEPHONE LINES (DUKE ENERGY/AT&T)
PROP U/G GAS LINE	PROPOSED GAS LINE
	EXISTING UTILITY TO BE ABANDONED IN PLACE (BY CORRESPONDING UTILITY COMPANY)
REM	EXISTING UTILITY POLE TO BE REMOVED (BY CORRESPONDING UTILITY COMPANY)
	PROPOSED UTILITY POLE (BY CORRESPONDING UTILITY COMPANY)

04/16/11

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-1B

Note: Not to Scale

S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Boundary or Site
- Potential Soil Contamination: Boundary or Site

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

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

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Curb Cut Future Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-04
R/W SHEET NO.	

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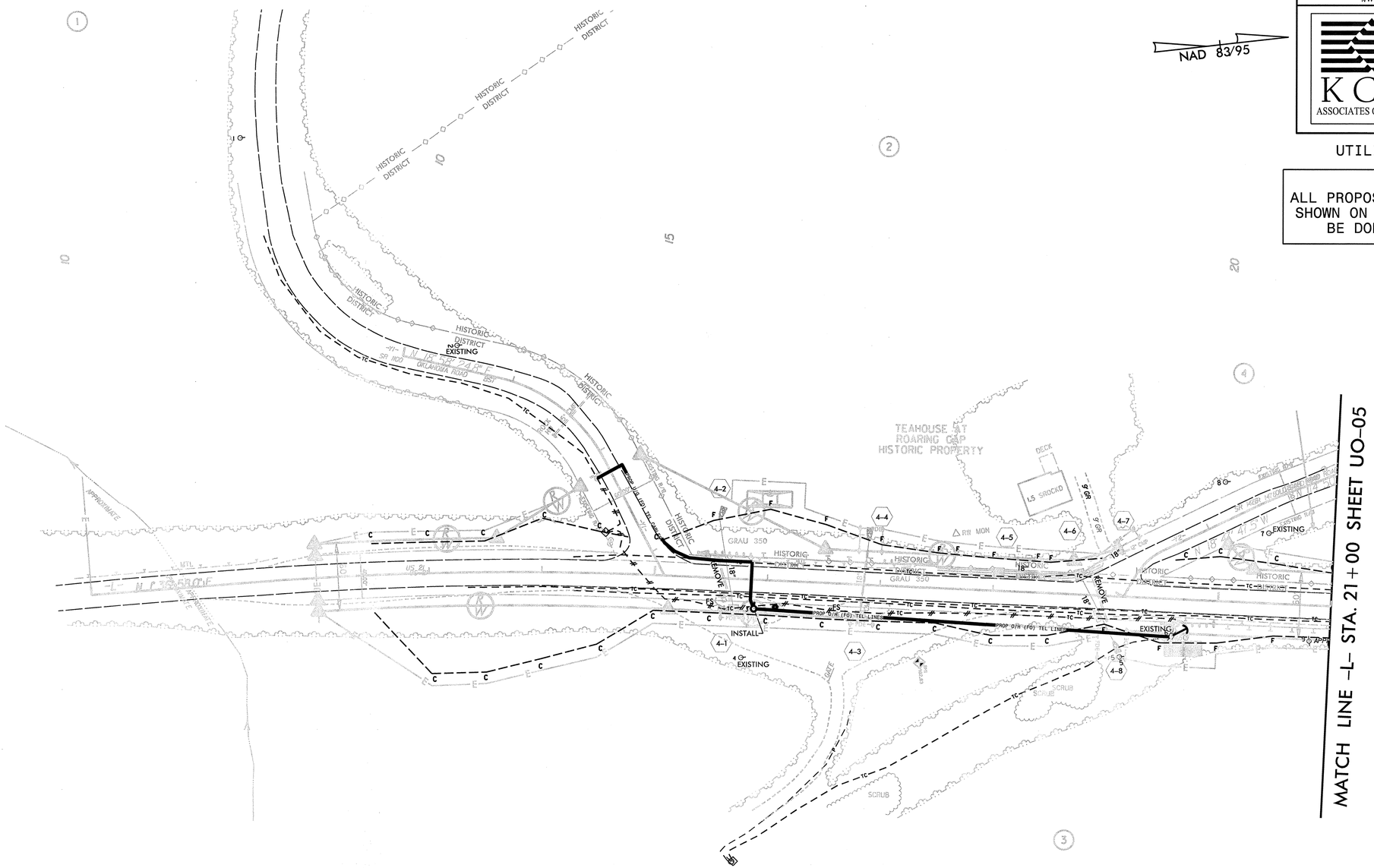
NAD 83/95

UTILITY BY OTHERS

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



UBO WORK NOTES

UBO-2 CENTURY LINK TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

UBO-4 CHARTER COMMUNICATIONS TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

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UBO WORK NOTES

UBO-4 CHARTER COMMUNICATIONS TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

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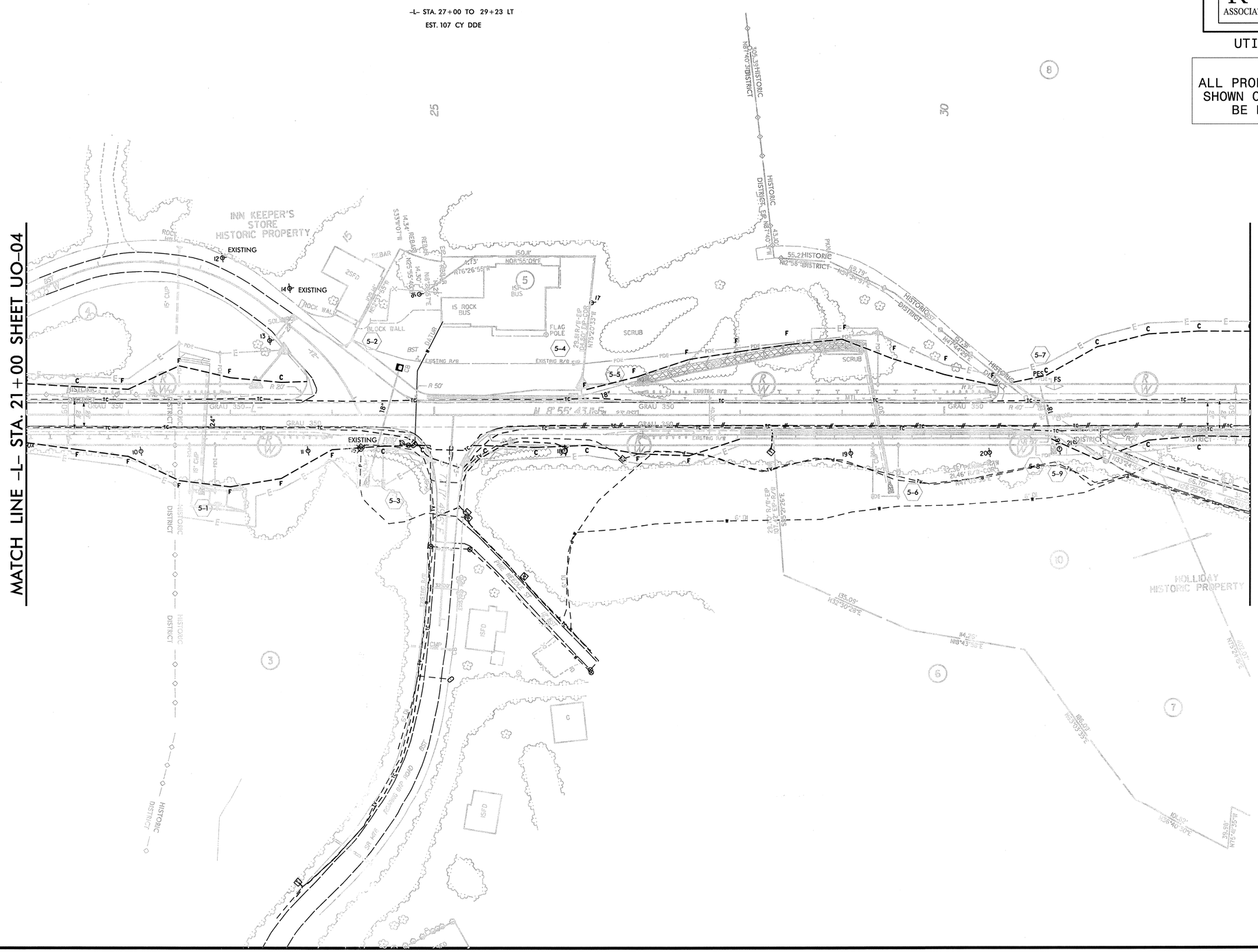

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Joshua Rochour - Division P2005 Power Eqp

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-06
R/W SHEET NO.	

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UTILITY BY OTHERS

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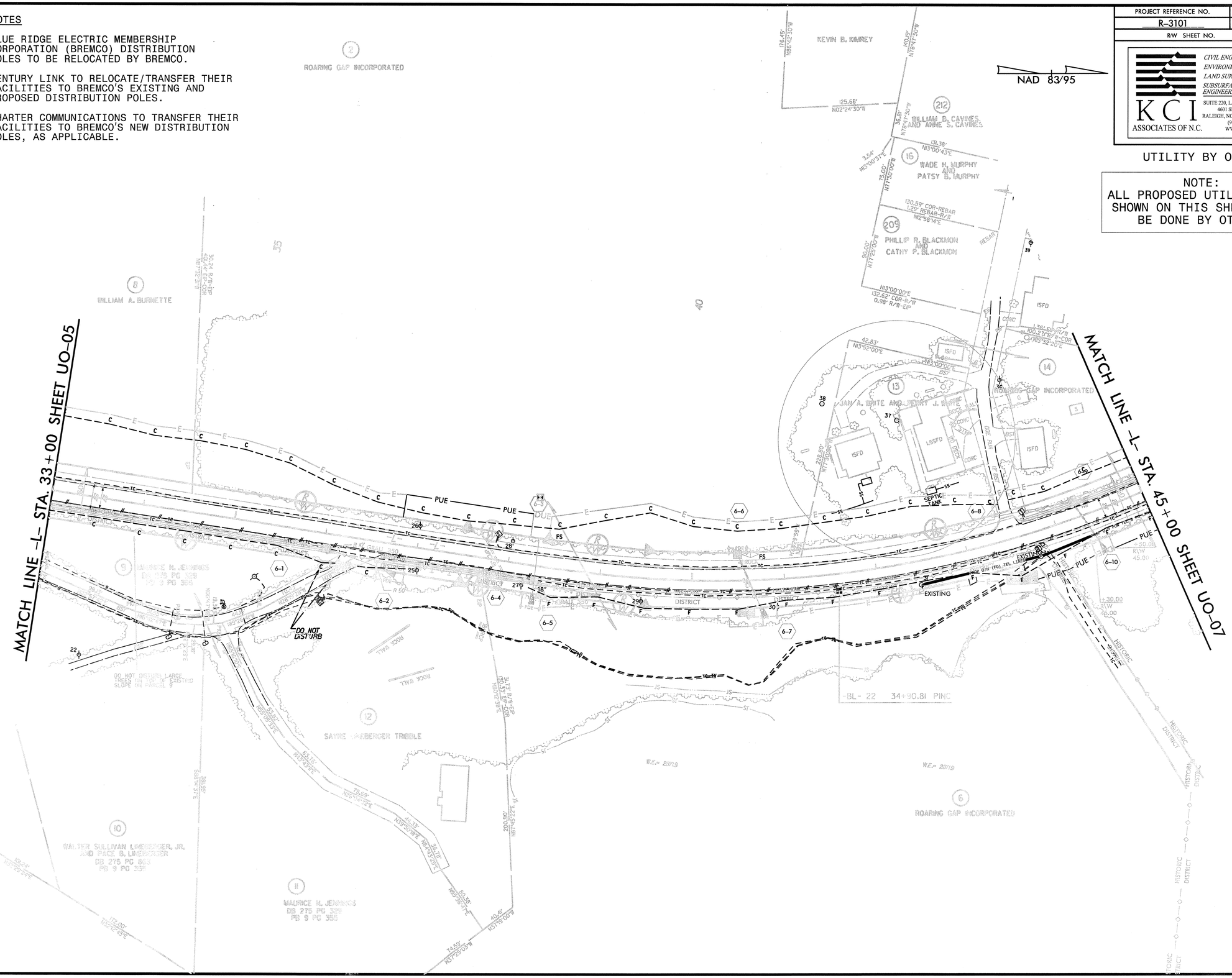

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Joshua Barbour Division:P005 Power Eng

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-07
R/W SHEET NO.	

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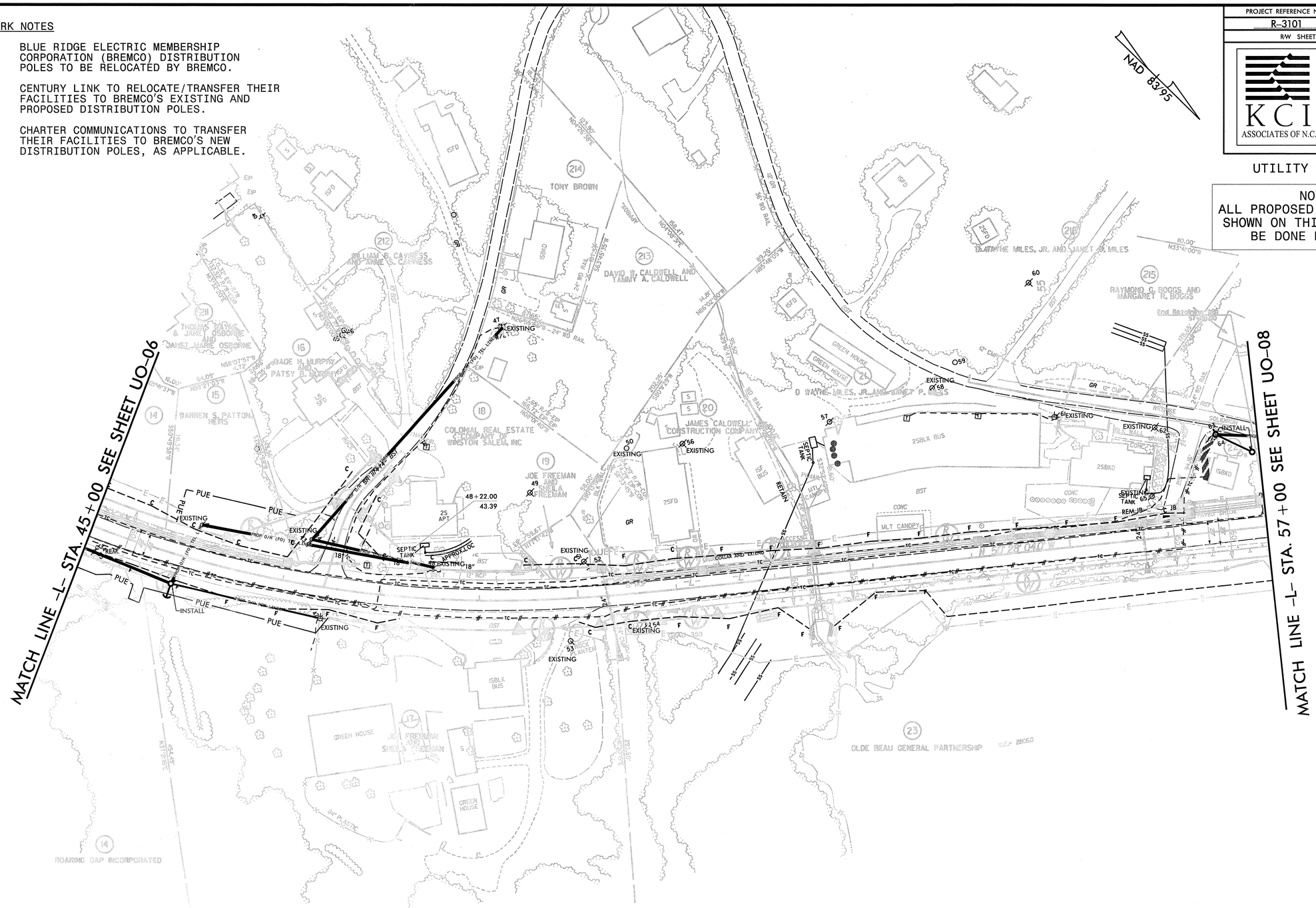

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Joshua Barbour Division: 2005 Power Eng

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-08
R/W SHEET NO.	

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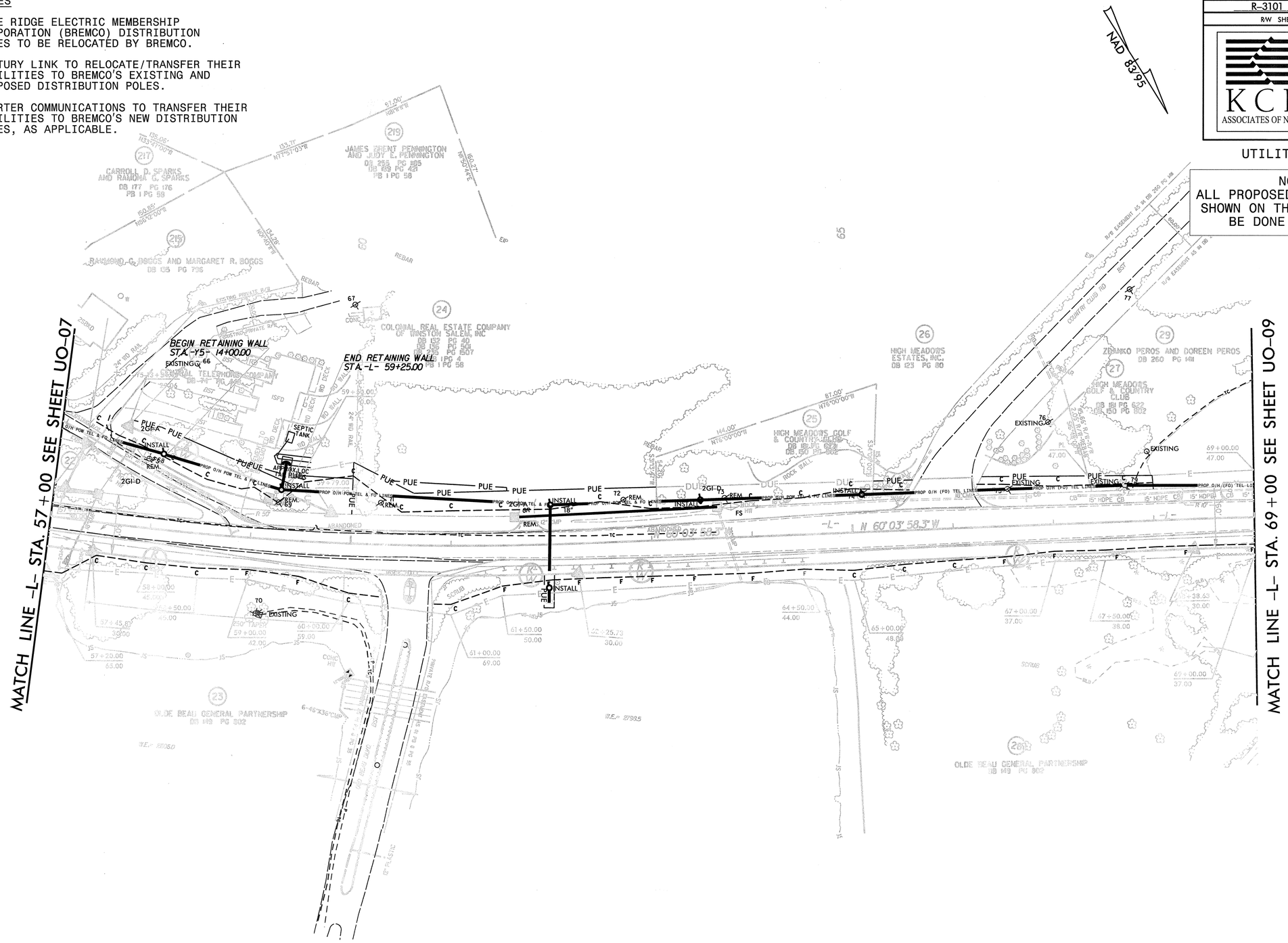

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Joshua Barbour Division:B005 Power: Eng

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-9
R/W SHEET NO.	

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UTILITY BY OTHERS

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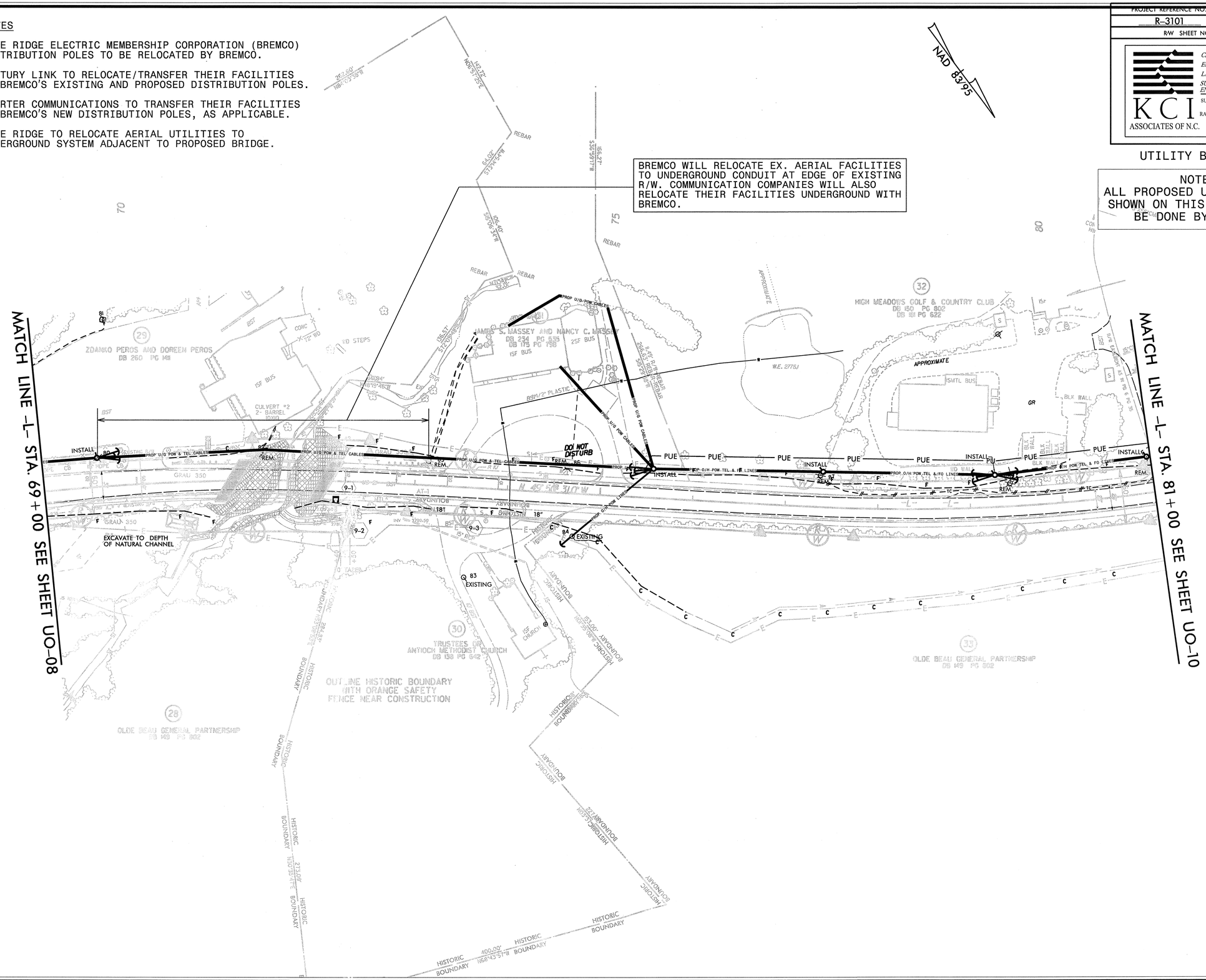

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-10
R/W SHEET NO.	

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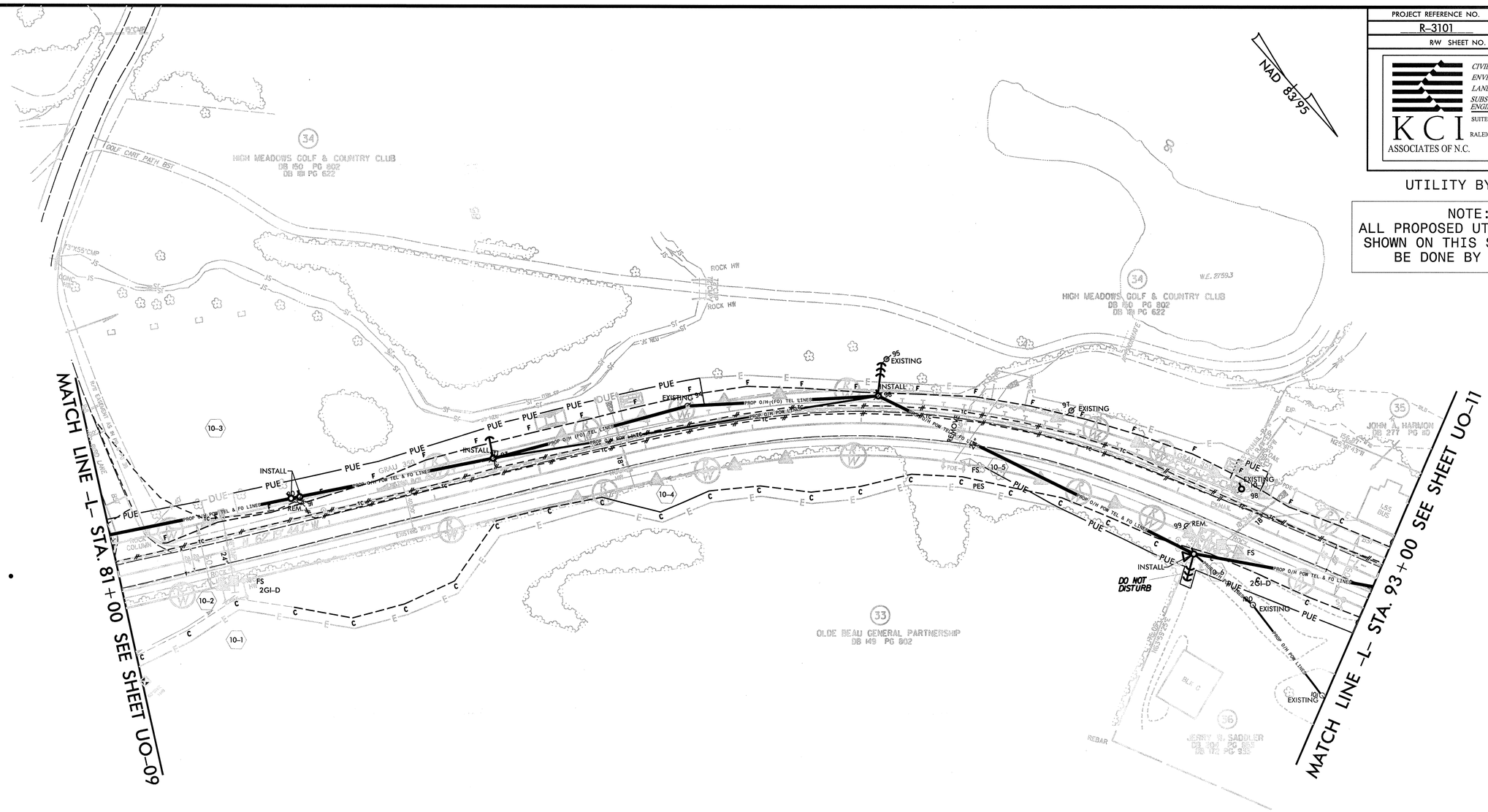

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8/17/99

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Joshua Barbour Division P005 Power Eng

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-11
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NOTE:
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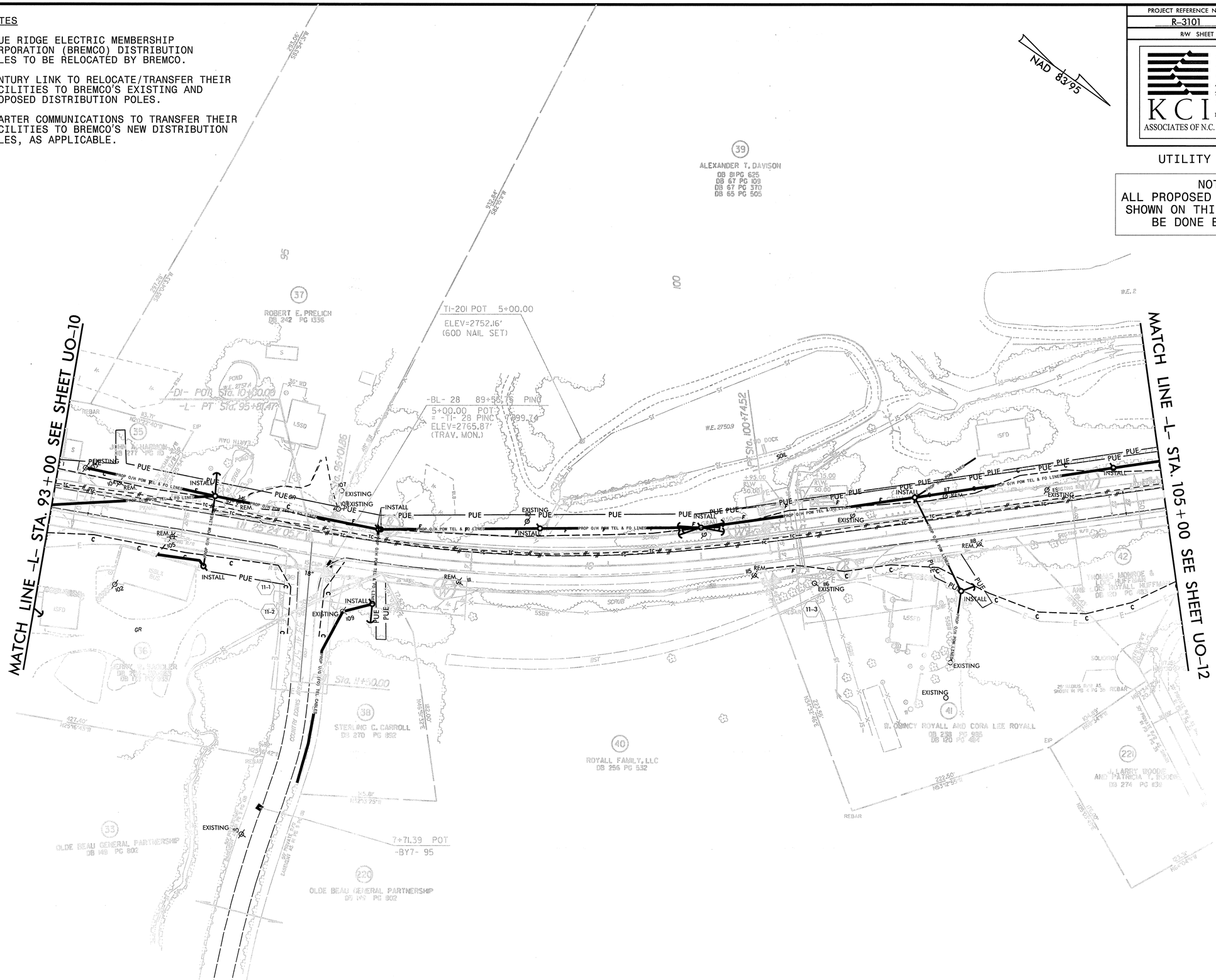

8/17/99

UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

UBO-2 CENTURY LINK TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

UBO-4 CHARTER COMMUNICATIONS TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-12
R/W SHEET NO.	

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NOTE:
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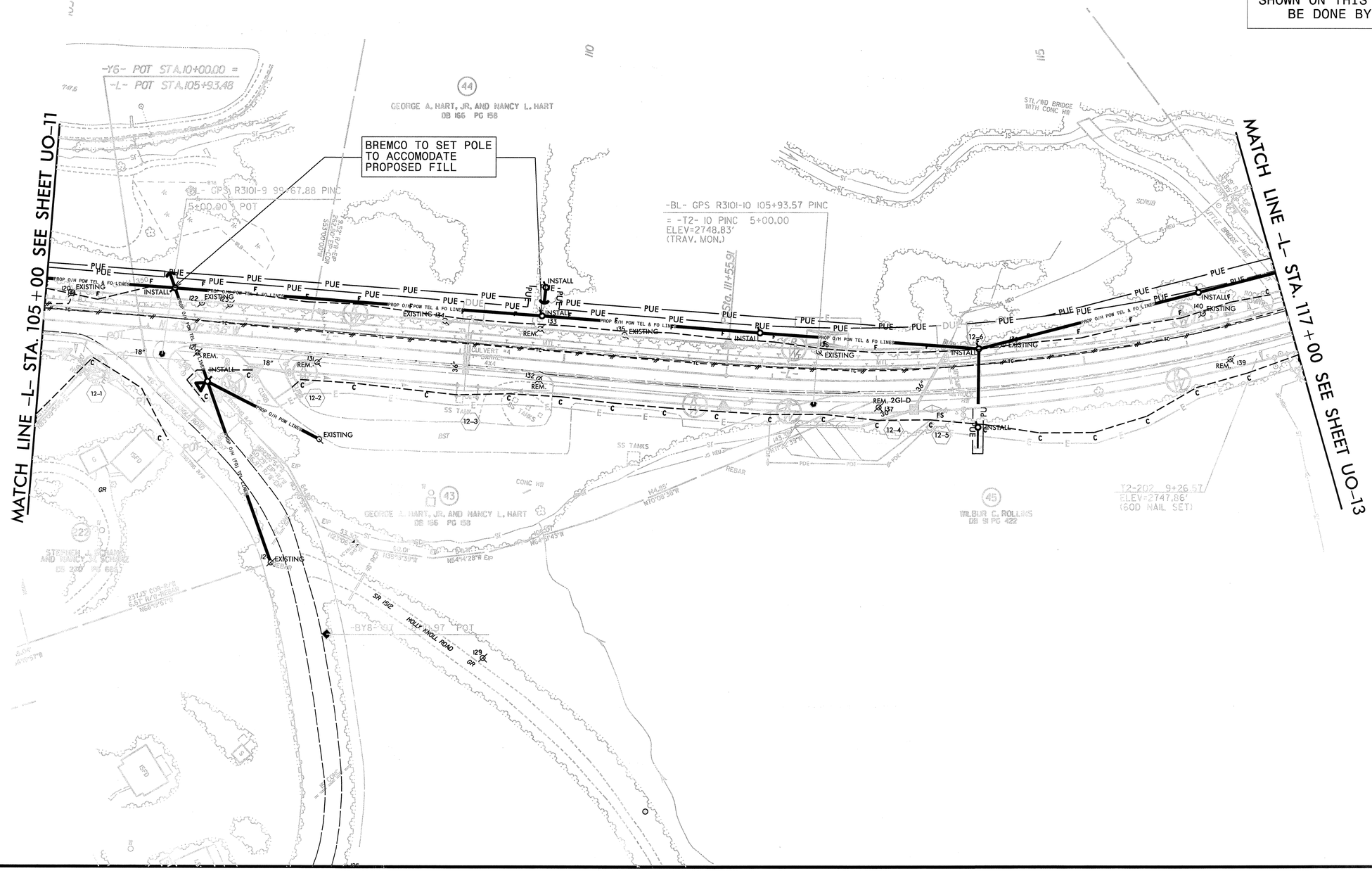

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-13
R/W SHEET NO.	

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UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

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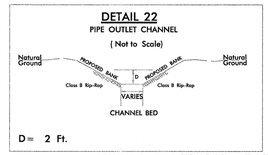
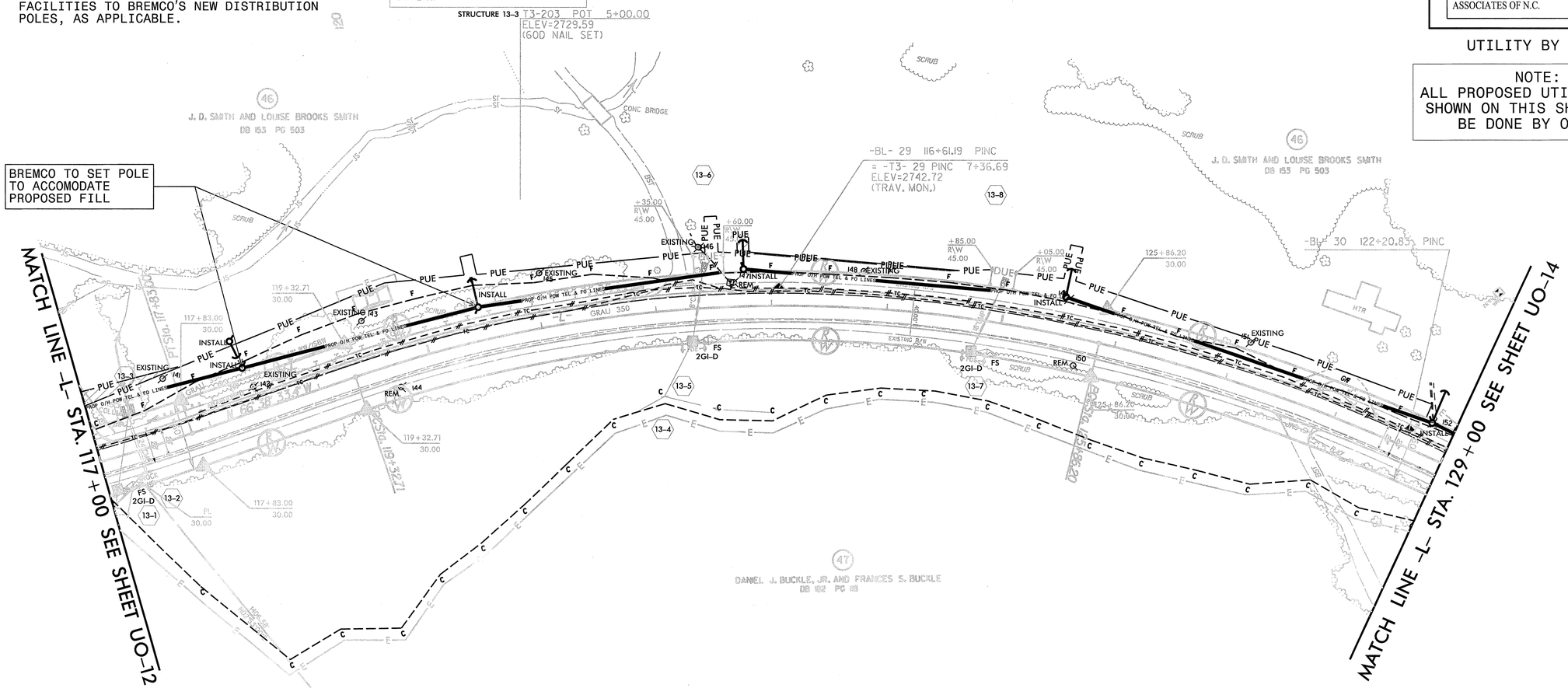
UBO-4 CHARTER COMMUNICATIONS TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.





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Joshua Barbour Division 8 2006 Power Emp

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-14
R/W SHEET NO.	

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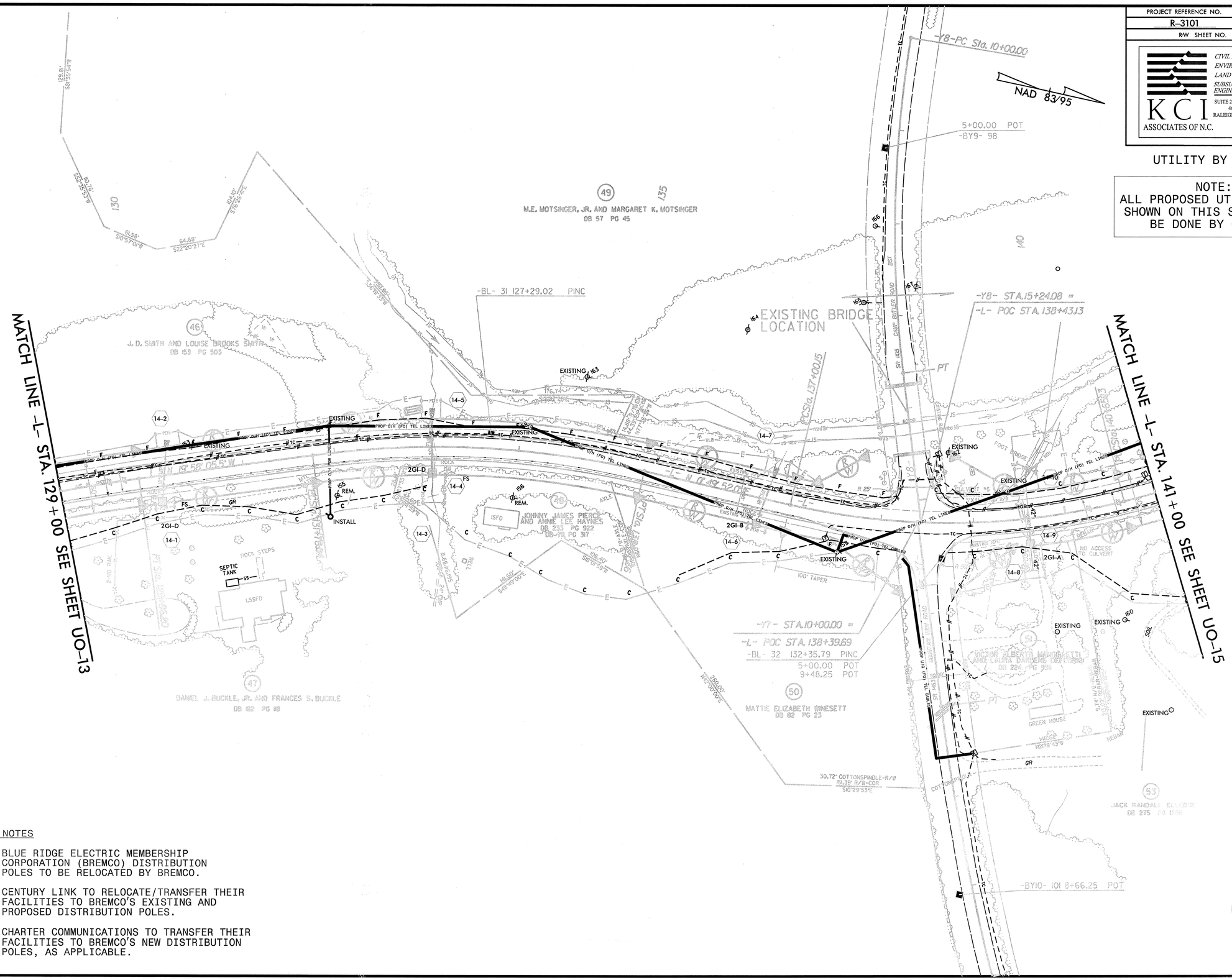

UBO WORK NOTES

(UBO-1) BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

(UBO-2) CENTURY LINK TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

(UBO-4) CHARTER COMMUNICATIONS TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

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Joshua Barbour Division:P00R Power Emp

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UBO WORK NOTES

(UBO-1) BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-15
R/W SHEET NO.	

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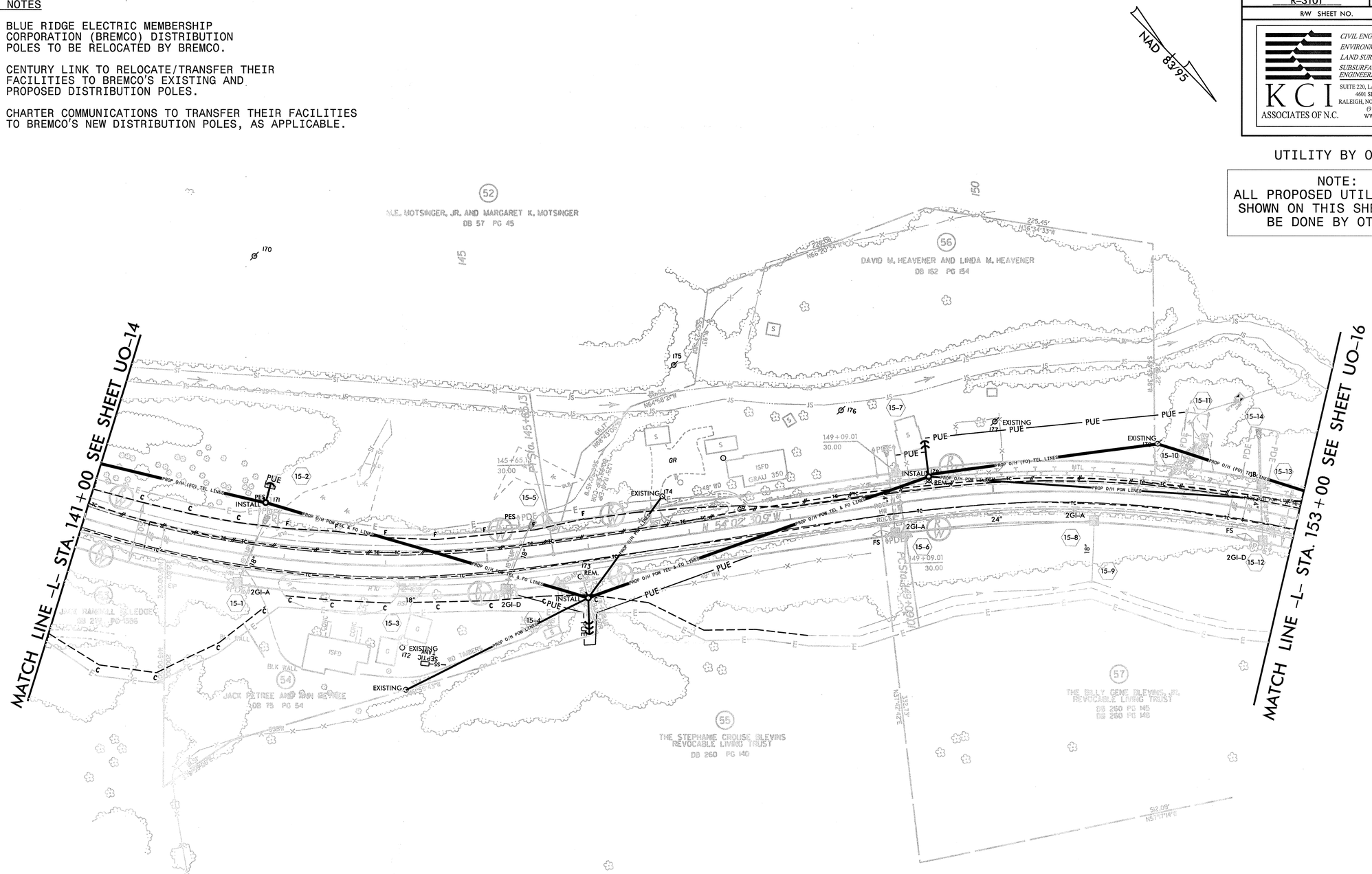

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-16
R/W SHEET NO.	

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UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

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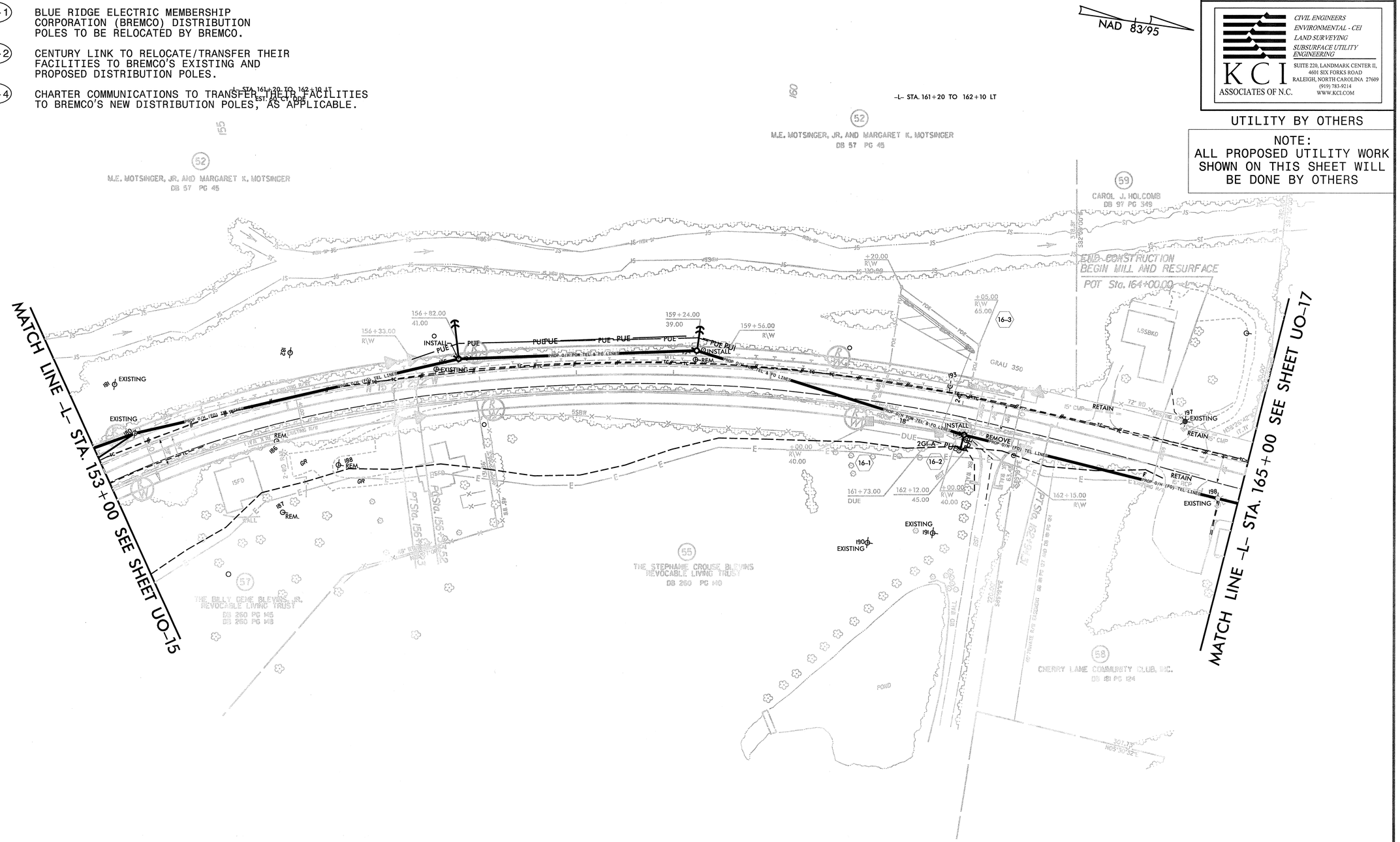
UBO-4 CHARTER COMMUNICATIONS TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.



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PROJECT REFERENCE NO.	SHEET NO.
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R/W SHEET NO.	

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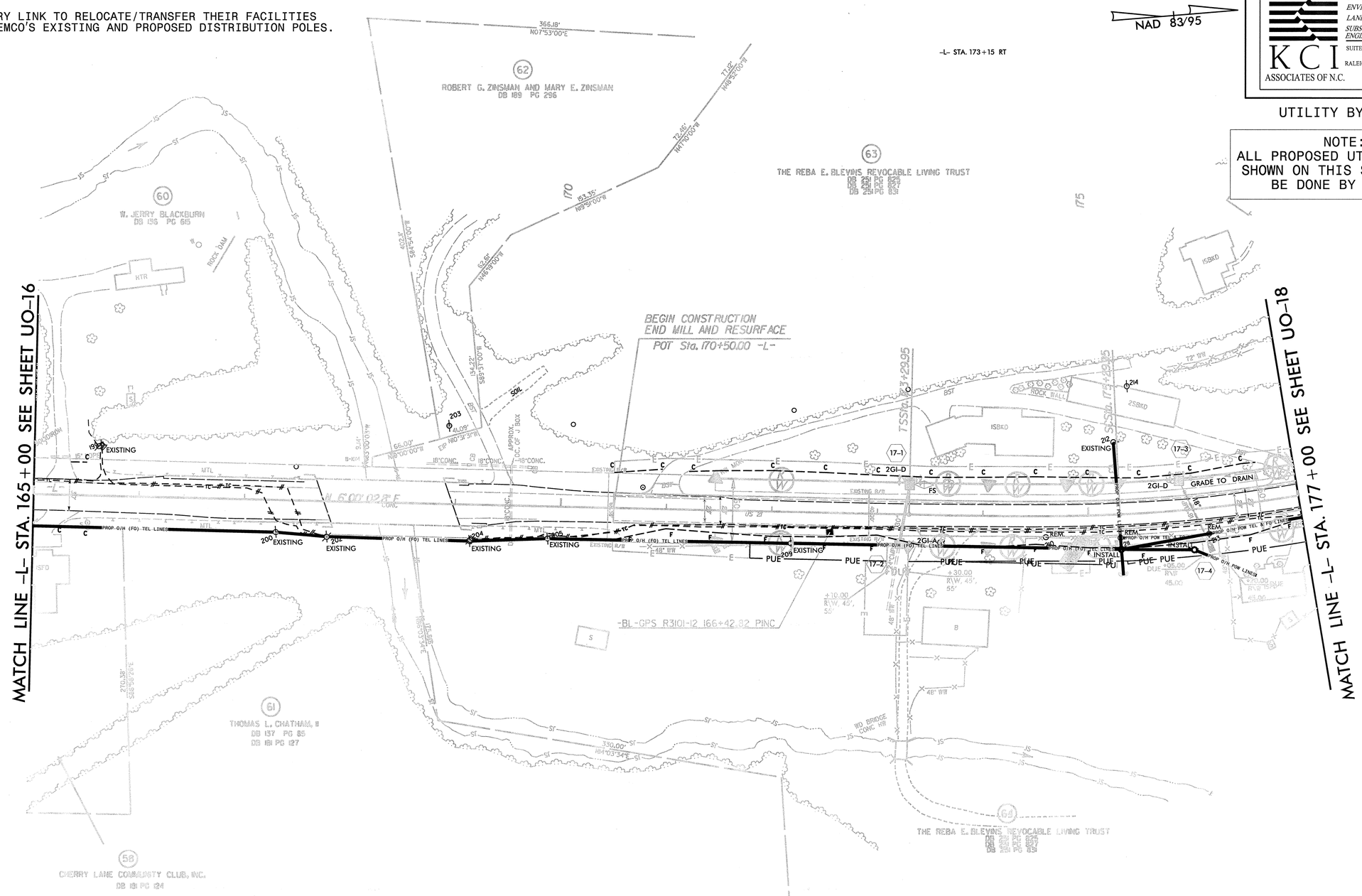

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Joshua Barbour Division:2005 Power Eng

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PROJECT REFERENCE NO.	SHEET NO.
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R/W SHEET NO.	

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UBO WORK NOTES

(UBO-1) BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

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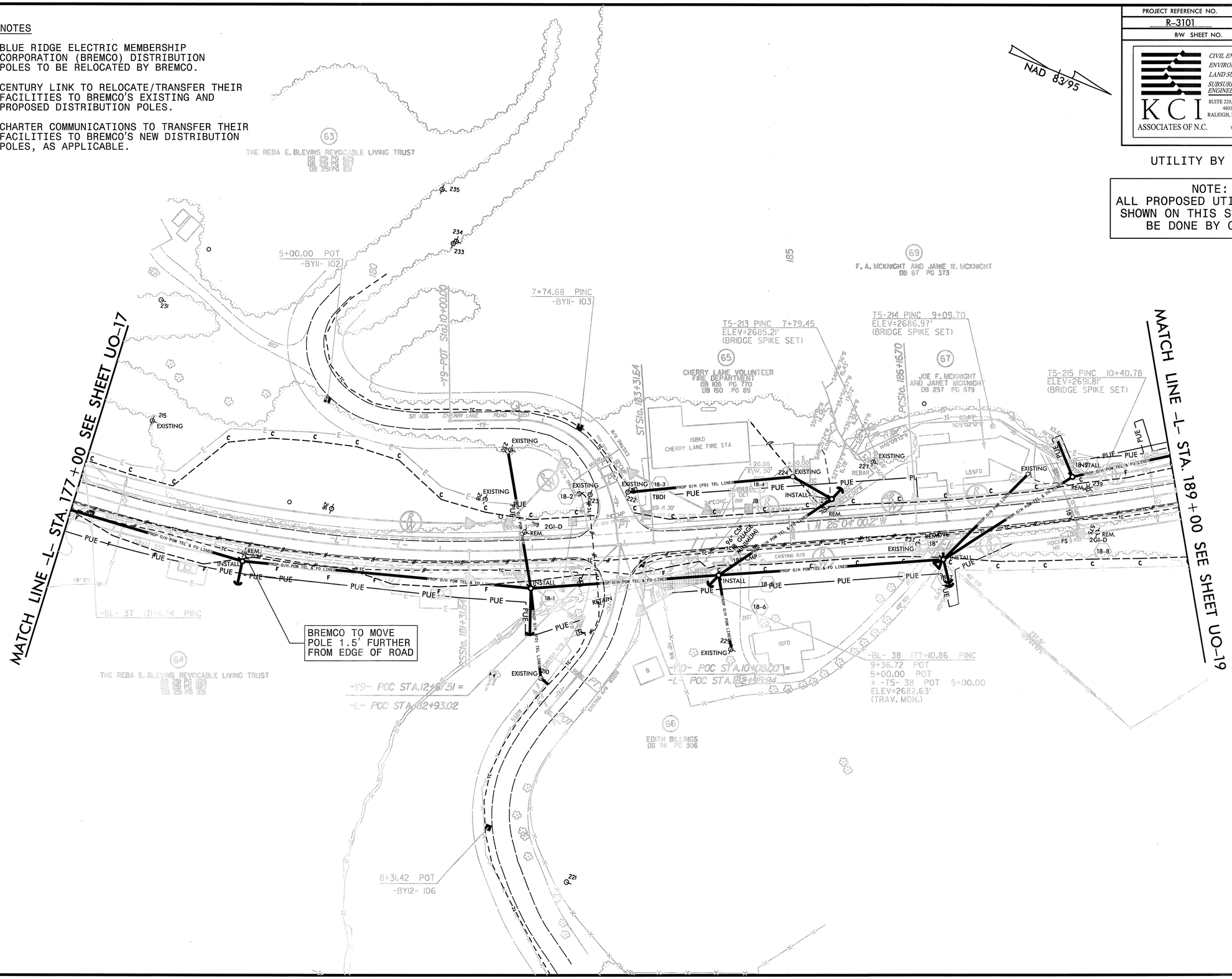

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Joshua Barbour Division of Power Eng

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PROJECT REFERENCE NO.	SHEET NO.
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R/W SHEET NO.	

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UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

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UBO-4 CHARTER COMMUNICATIONS TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

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Joshua Bochour Division: 9 DGN: Power_Emp

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UBO WORK NOTES

(UBO-1) BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

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(UBO-4) CHARTER COMMUNICATIONS TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-20
R/W SHEET NO.	

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NOTE:
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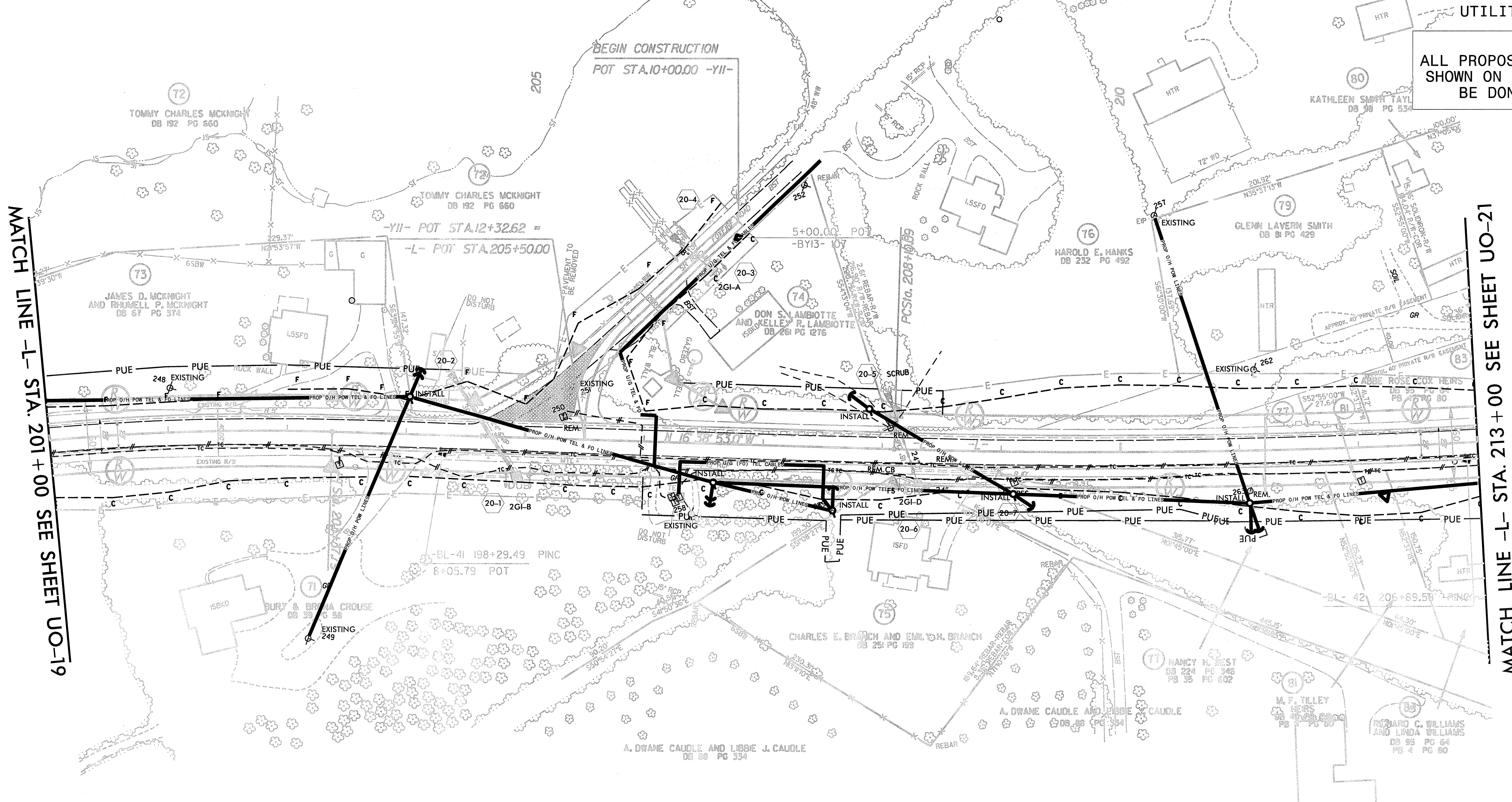

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Joshua Barbour Division: P005 Power Emp

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-21
R/W SHEET NO.	

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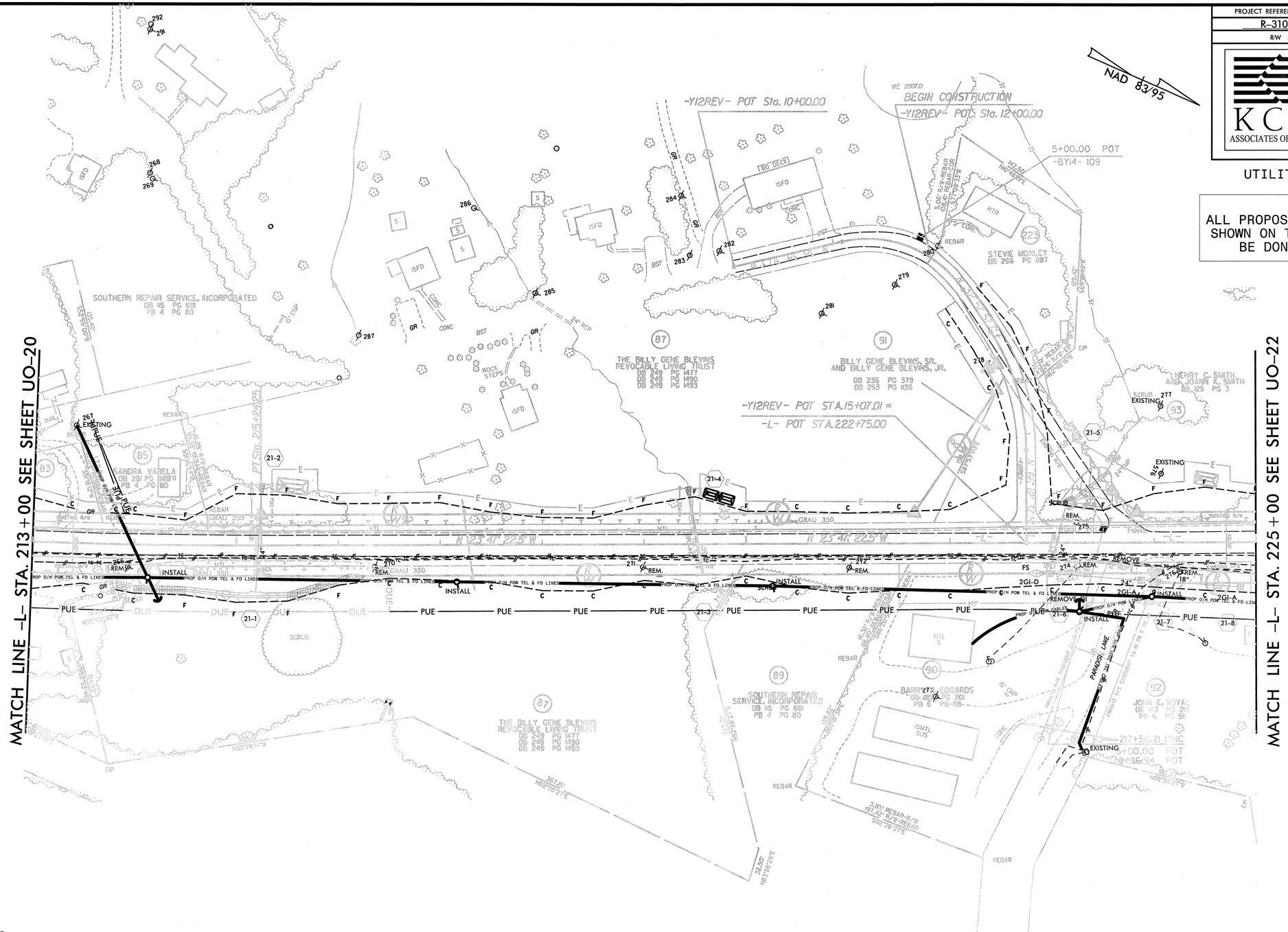
NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS



UBO WORK NOTES

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UBO-4 CHARTER COMMUNICATIONS TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

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Joshua Raphour Division:8 DOT6 Power: Emp

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-22
R/W SHEET NO.	

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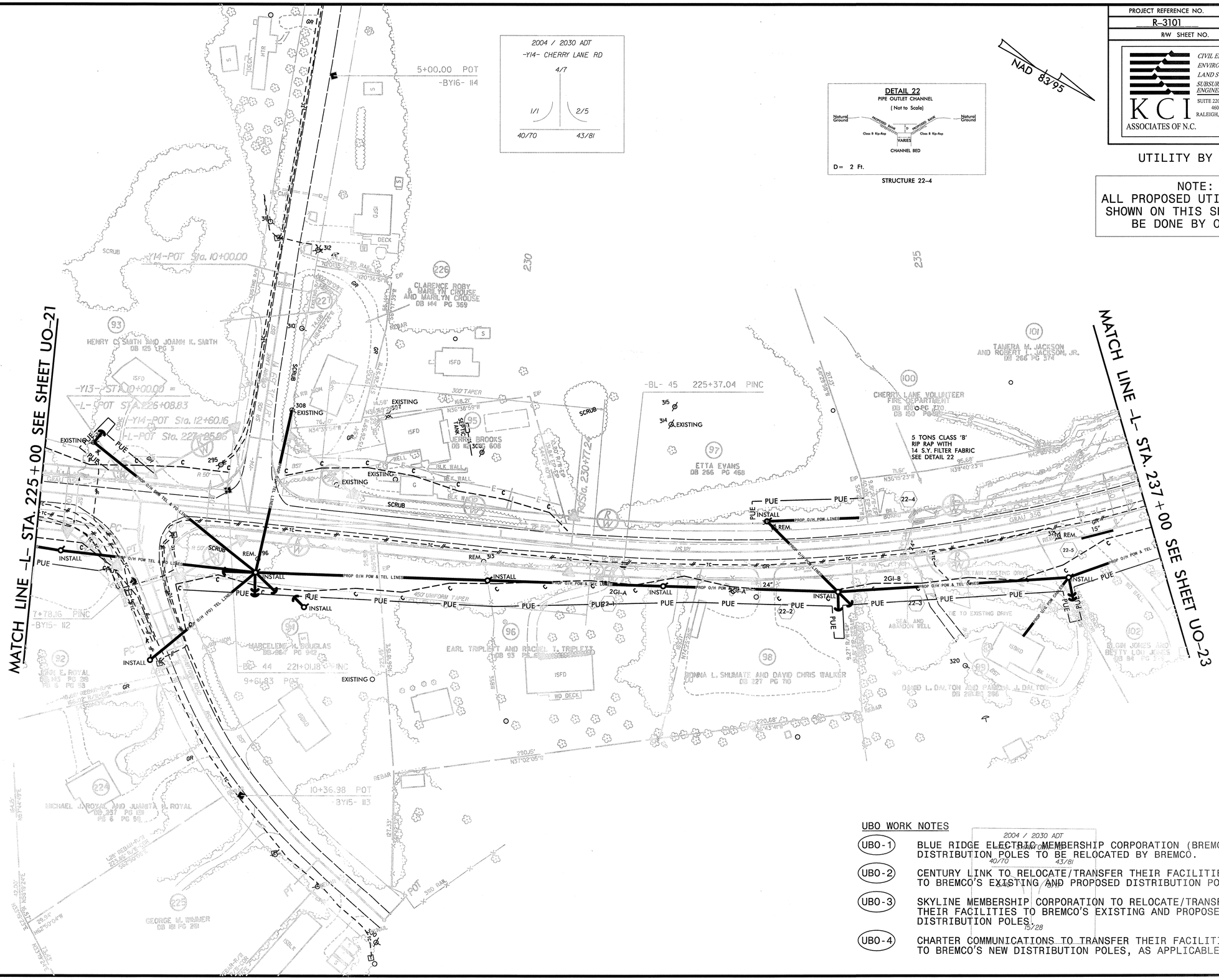
NAD 83/95

DETAIL 22
PIPE OUTLET CHANNEL
(Not to Scale)

Natural Ground — PROPOSED BANK — D — PROPOSED BANK — Natural Ground
Class B Rip-Rap — Class B Rip-Rap
VARIES
CHANNEL BED

D= 2 Ft.

STRUCTURE 22-4



UBO WORK NOTES

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2004 / 2030 ADT
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43/81
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11:46:17 AM
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Joshua Barbour, Alystarp@PB005 Power_Eng

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R-3101	U0-23
R/W SHEET NO.	

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UBO WORK NOTES

(UBO-1) BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

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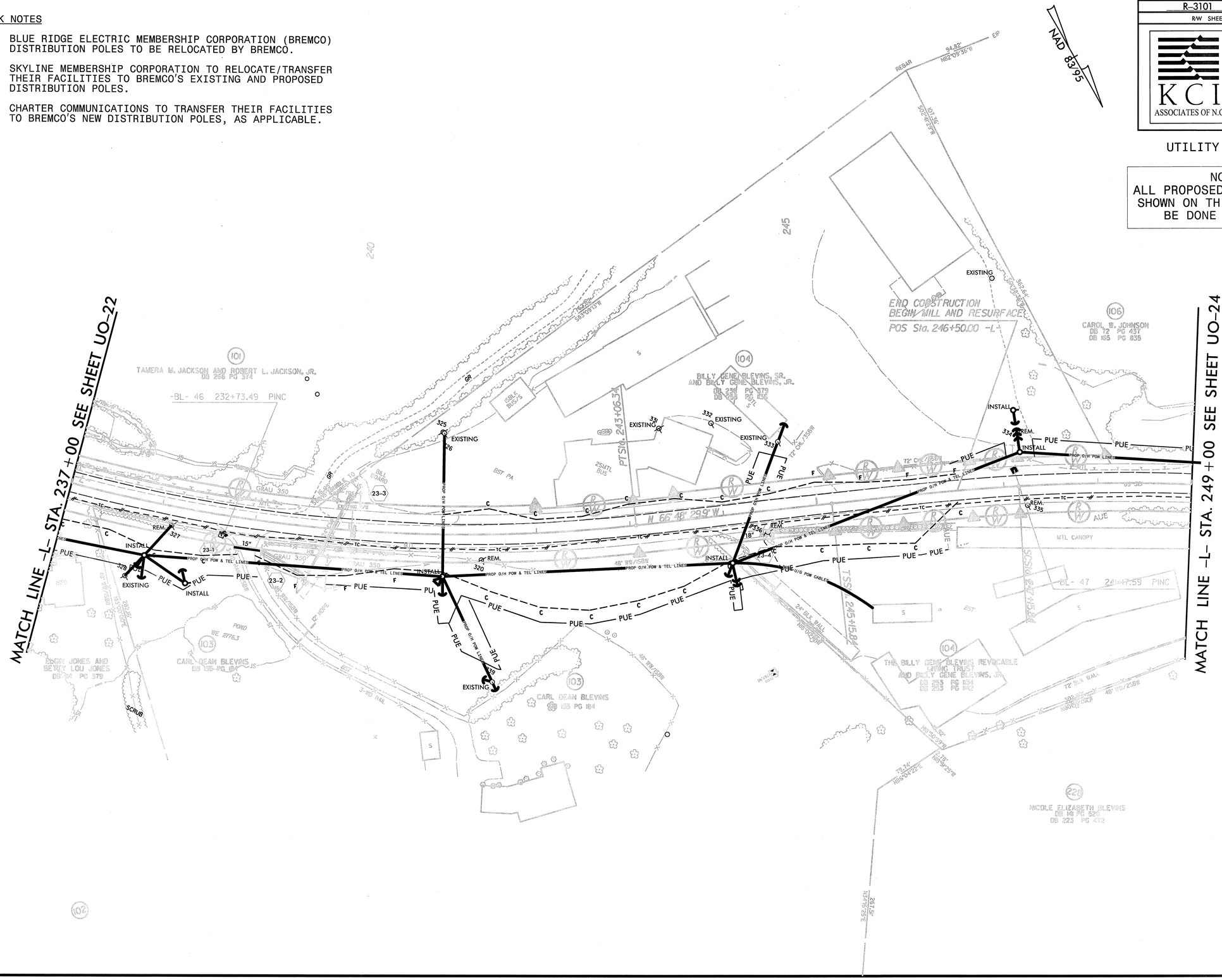

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Joshua Barbour Division:2005 Power_Eng

8/17/99

UBO WORK NOTES

(UBO-1) BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

(UBO-4) CHARTER COMMUNICATIONS TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-24
R/W SHEET NO.	

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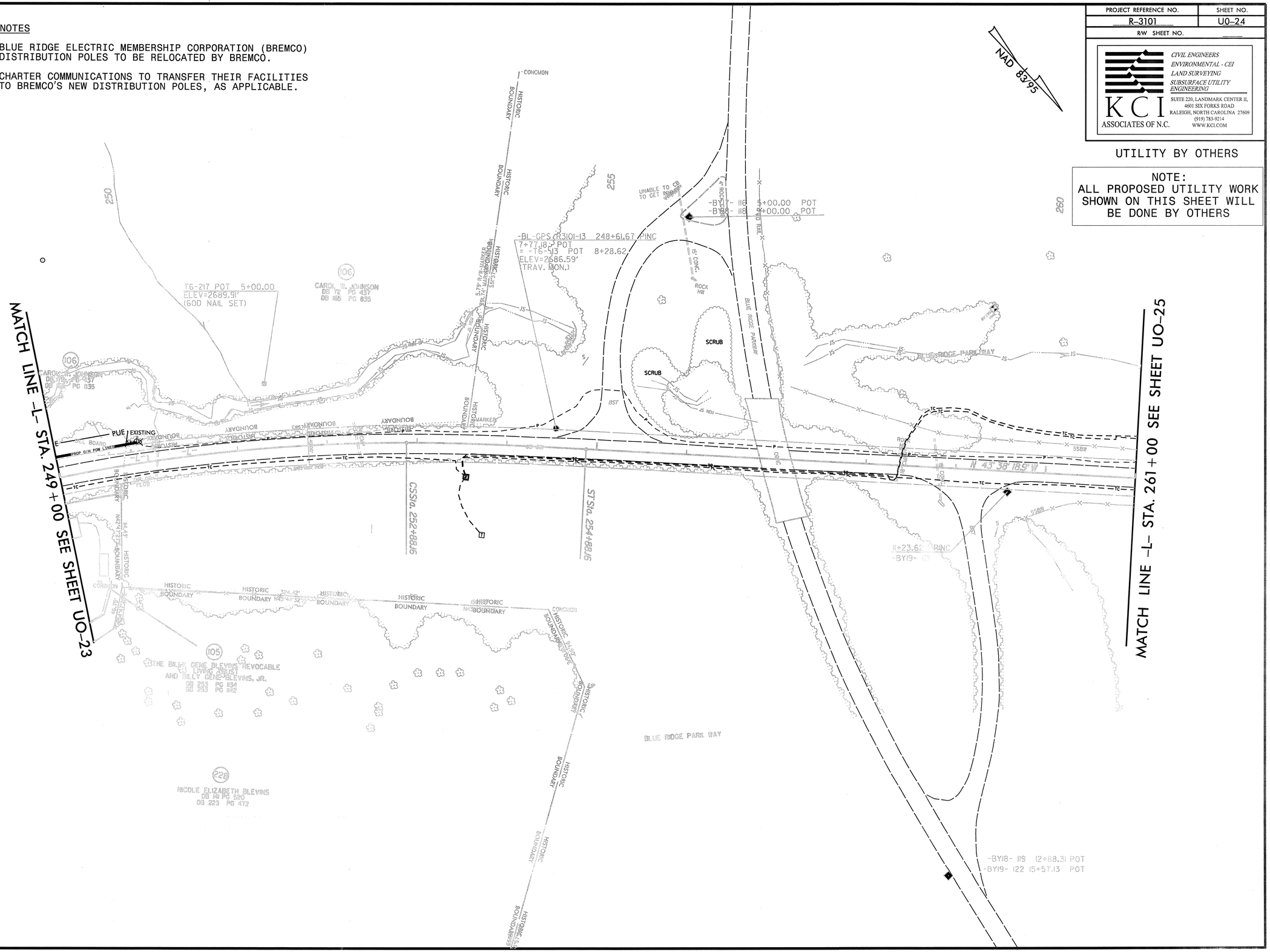

8/17/99

UBO WORK NOTES

UBO-3 SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-25
R/W SHEET NO.	

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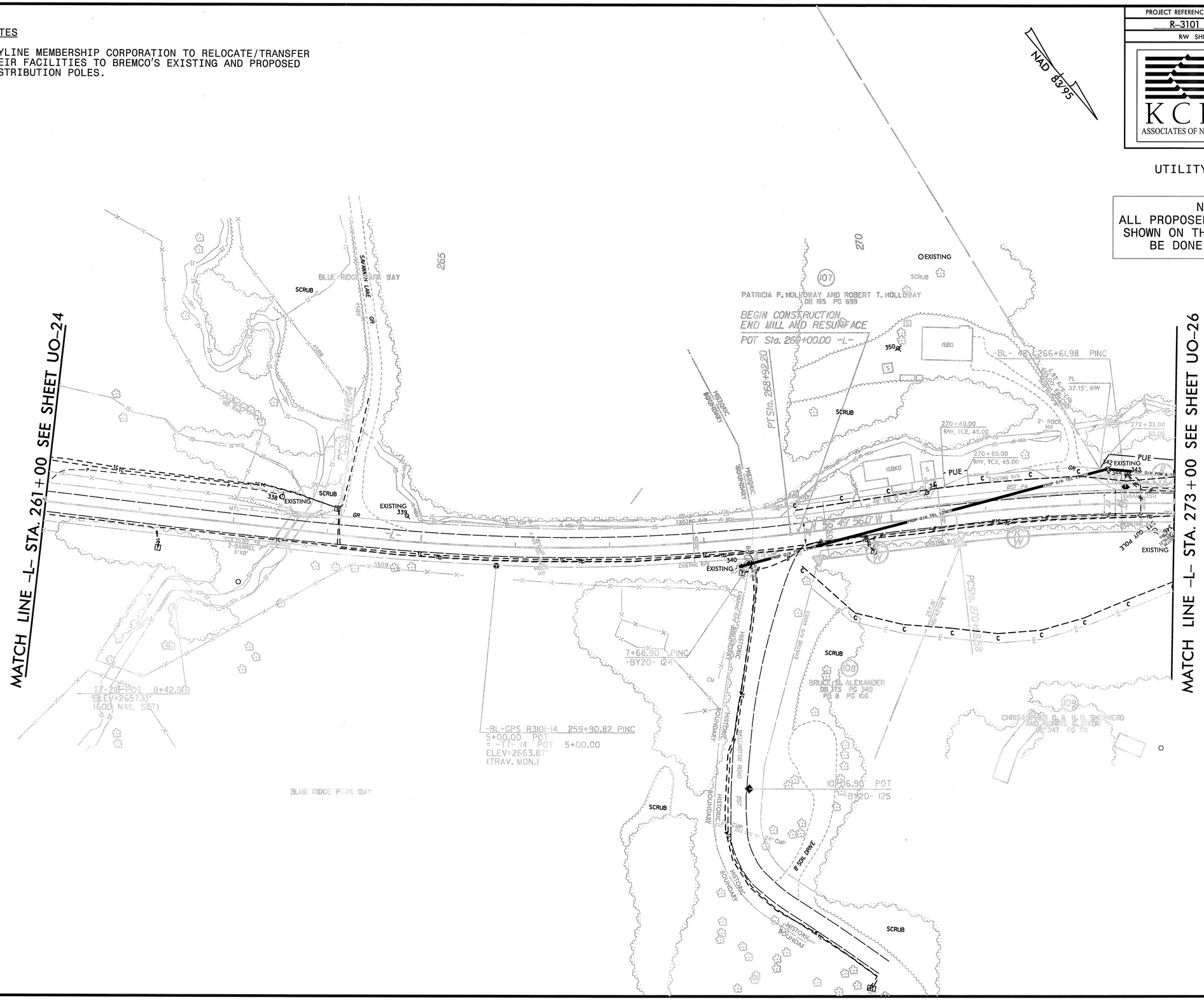

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UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

UBO-3 SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-26
R/W SHEET NO.	

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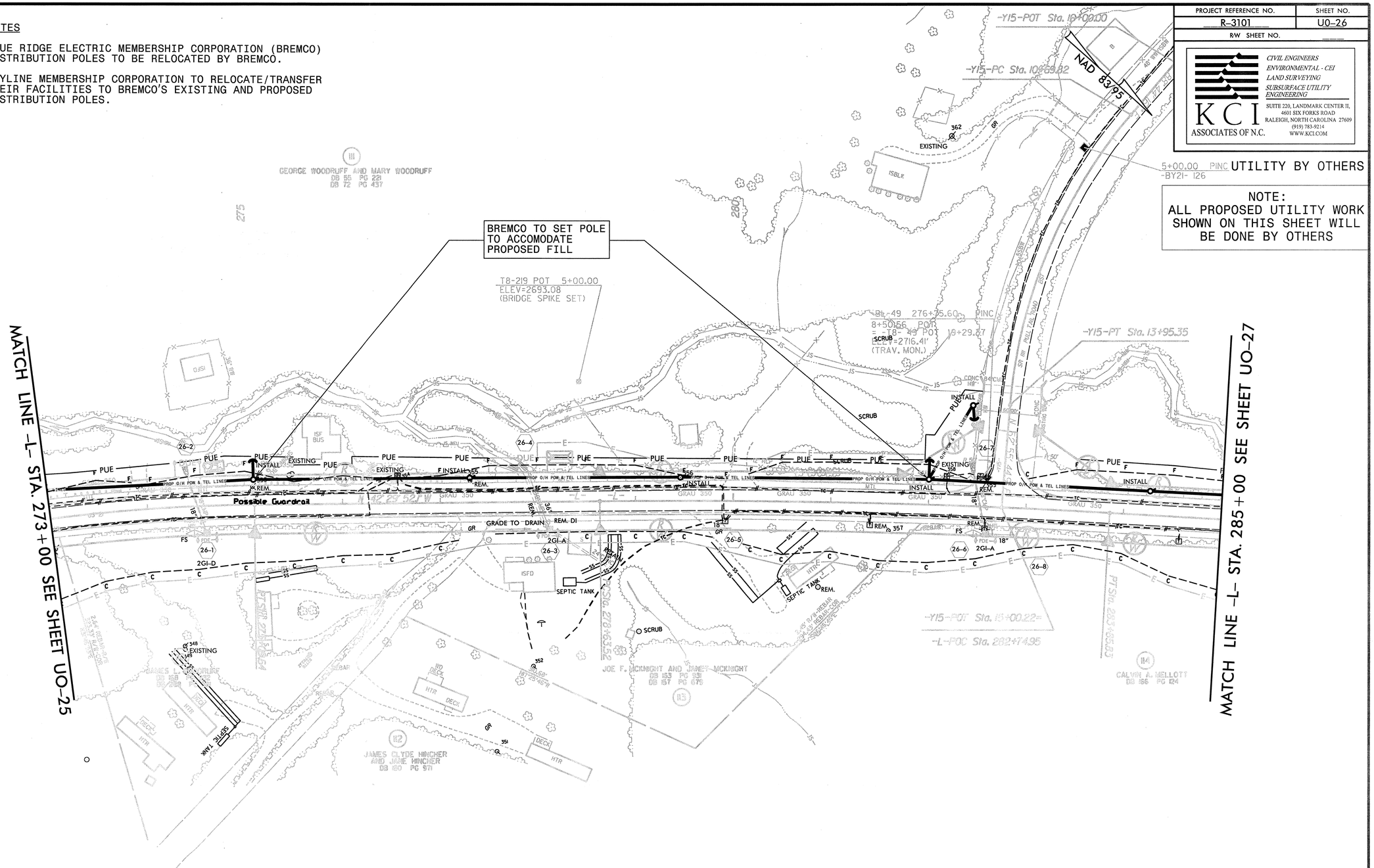

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Joshua Rochour Division:2005 Power Emp

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R-3101	U0-27
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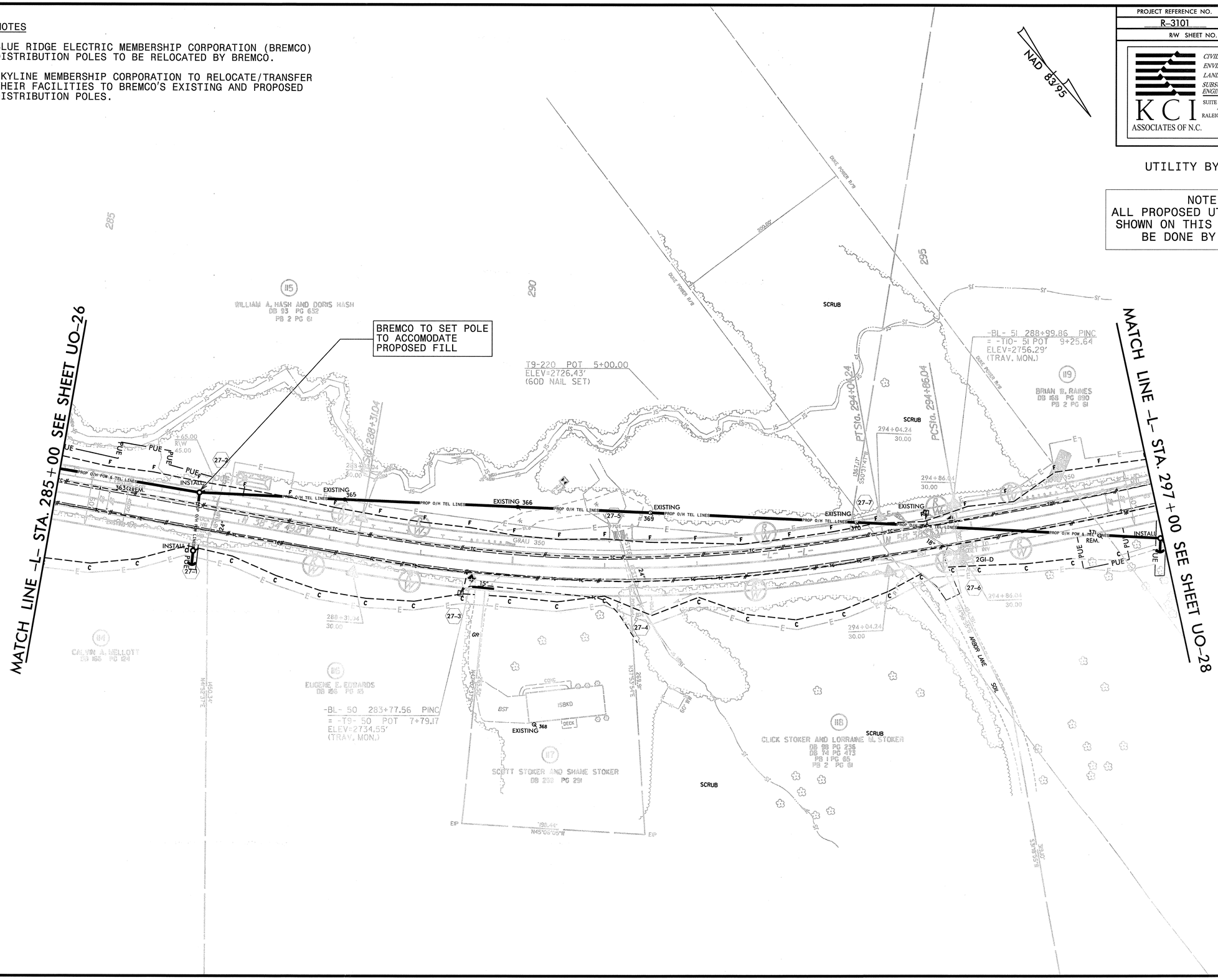

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UBO WORK NOTES

(UBO-1) BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

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R/W SHEET NO.	

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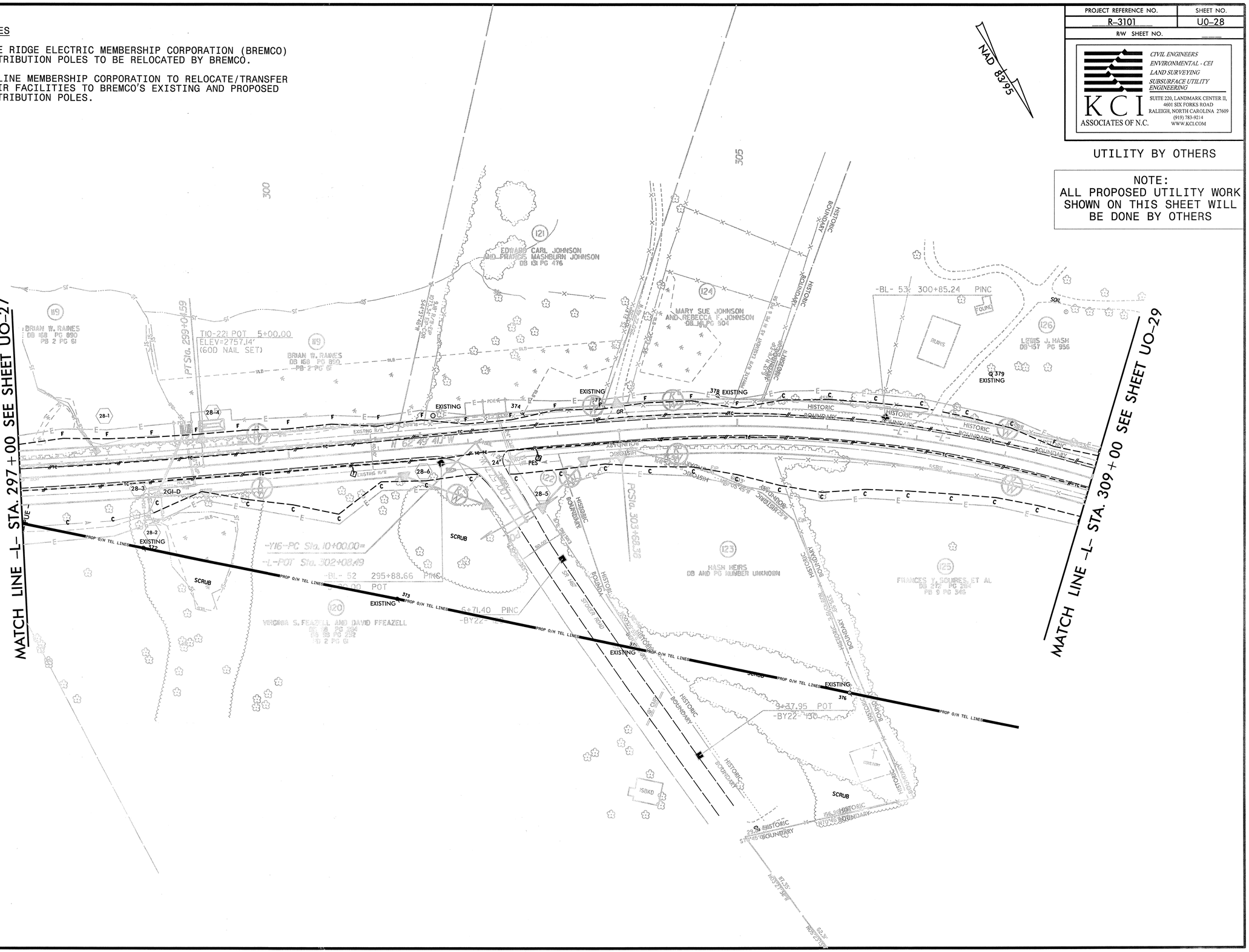

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Joshua Barbour Division2\2005 Power Emp

8/17/99

UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

UBO-3 SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-29
R/W SHEET NO.	

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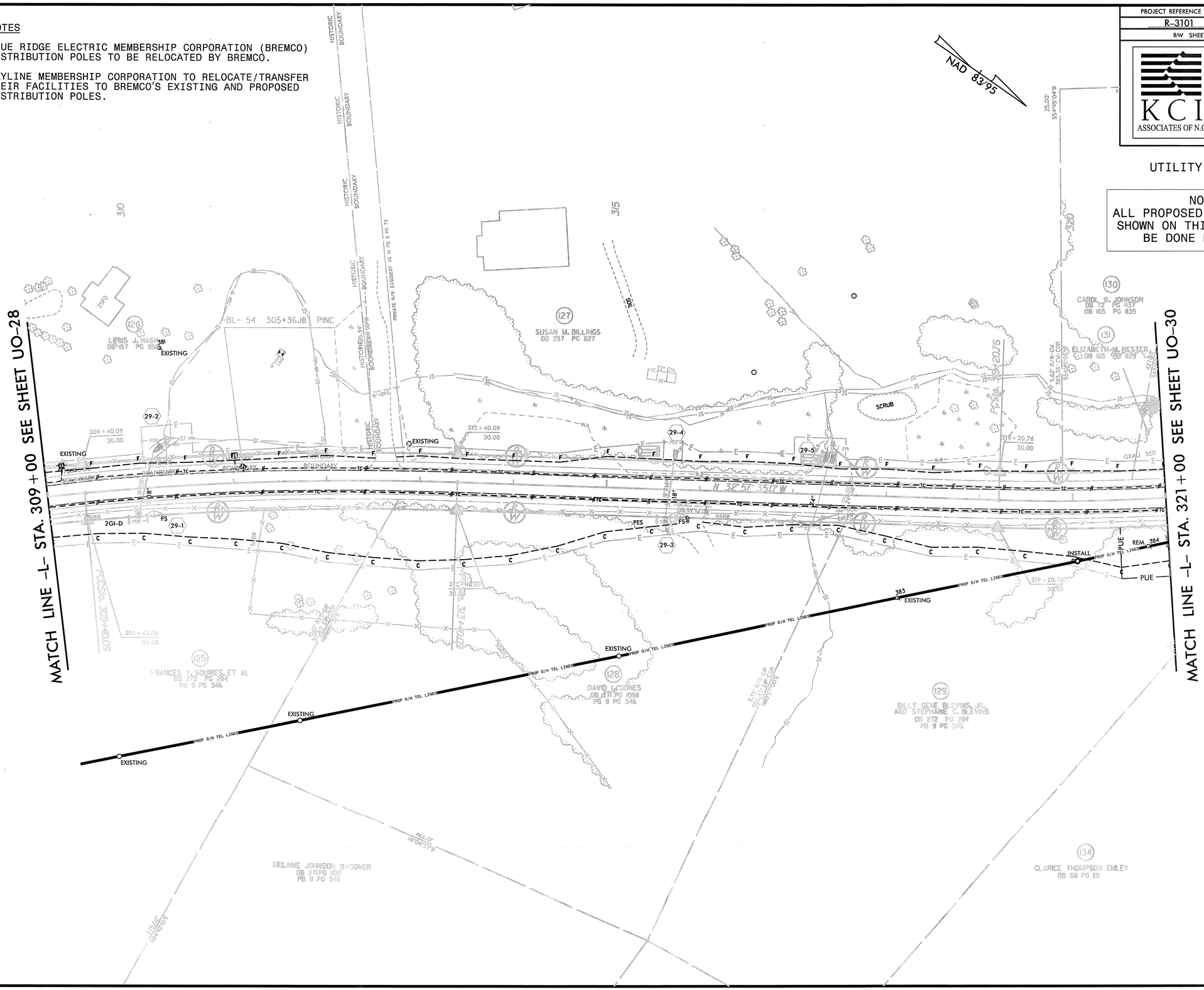

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-30
R/W SHEET NO.	

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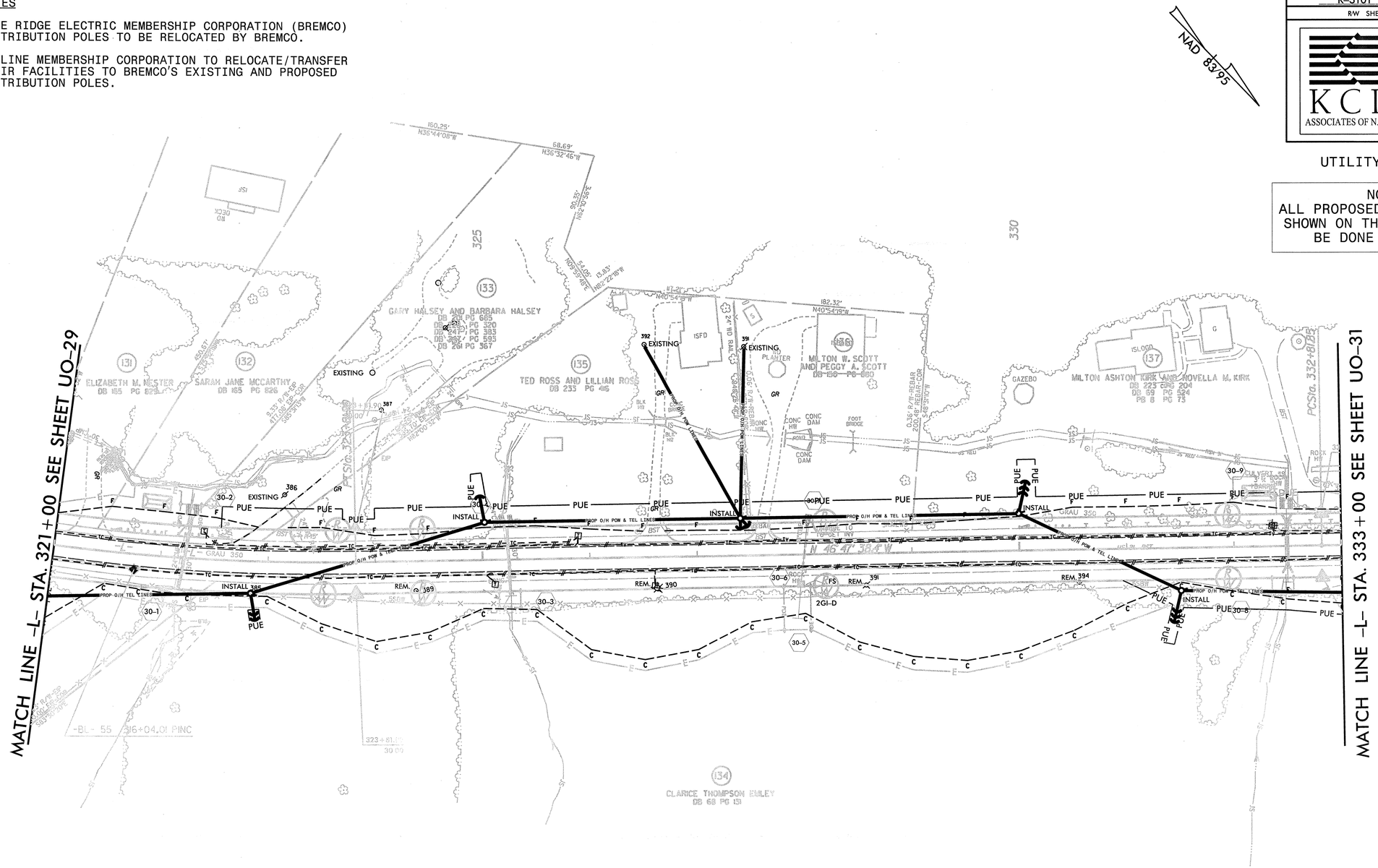
UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

UBO-3 SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.



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Joshua Barbour Division P005 Power Eng

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-31
R/W SHEET NO.	

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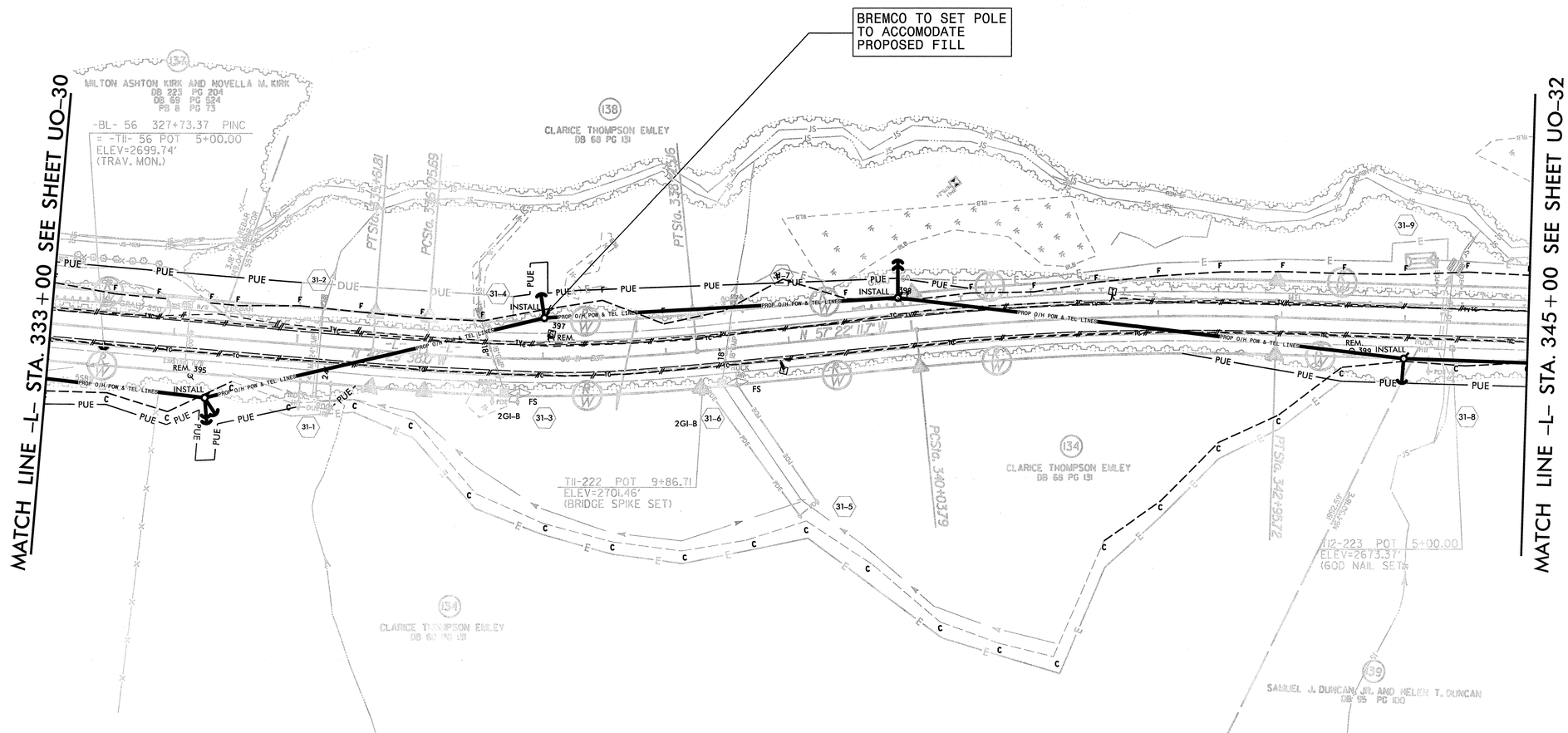
UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

UBO-3 SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

UBO-5 ALLEGHANY CABLEVISION TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.



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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-32
R/W SHEET NO.	

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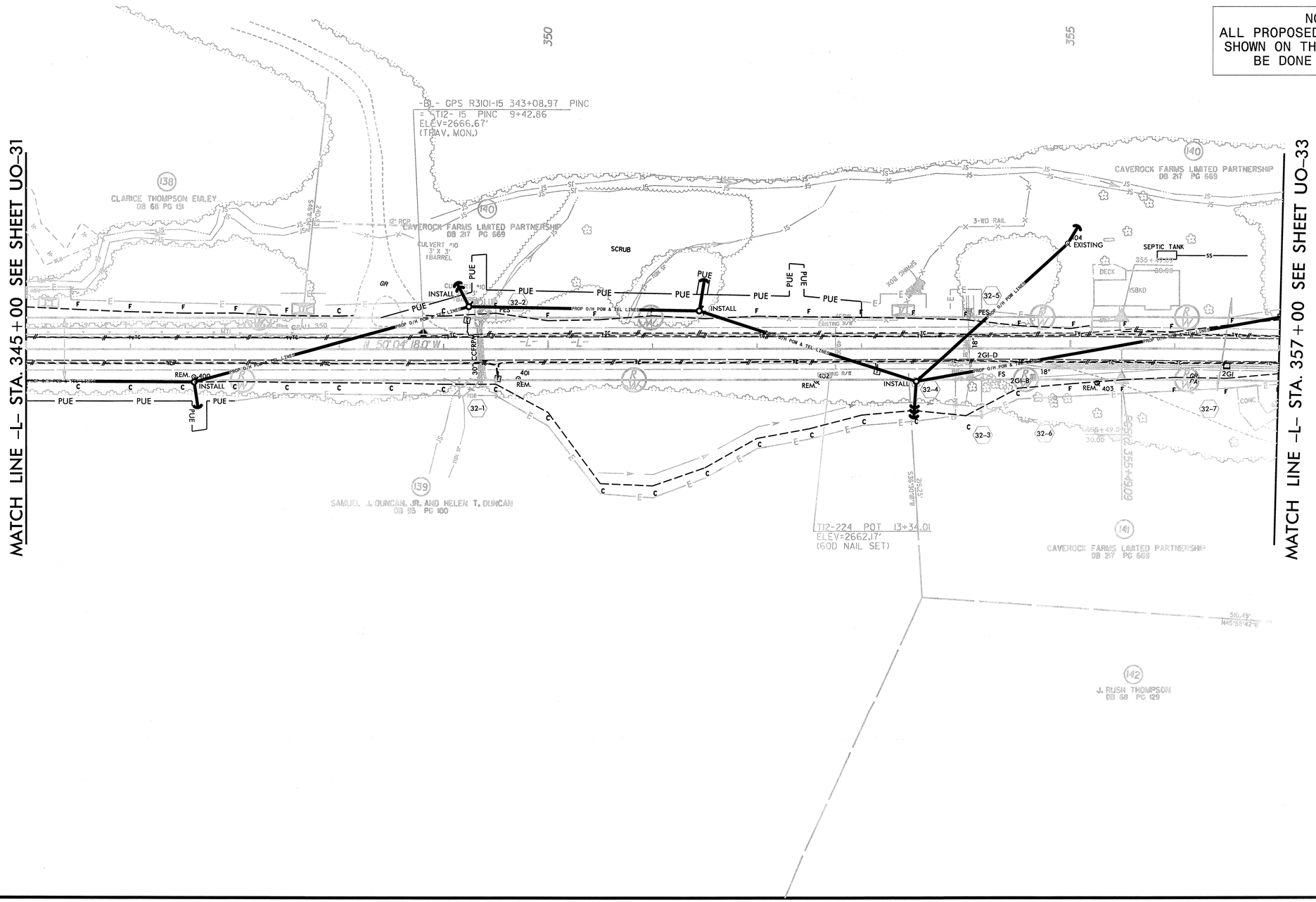
UBO WORK NOTES

(UBO-1) BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

(UBO-3) SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.



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Joshua Barbour Division 9 2005 Power Emp

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UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

UBO-3 SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-33
R/W SHEET NO.	

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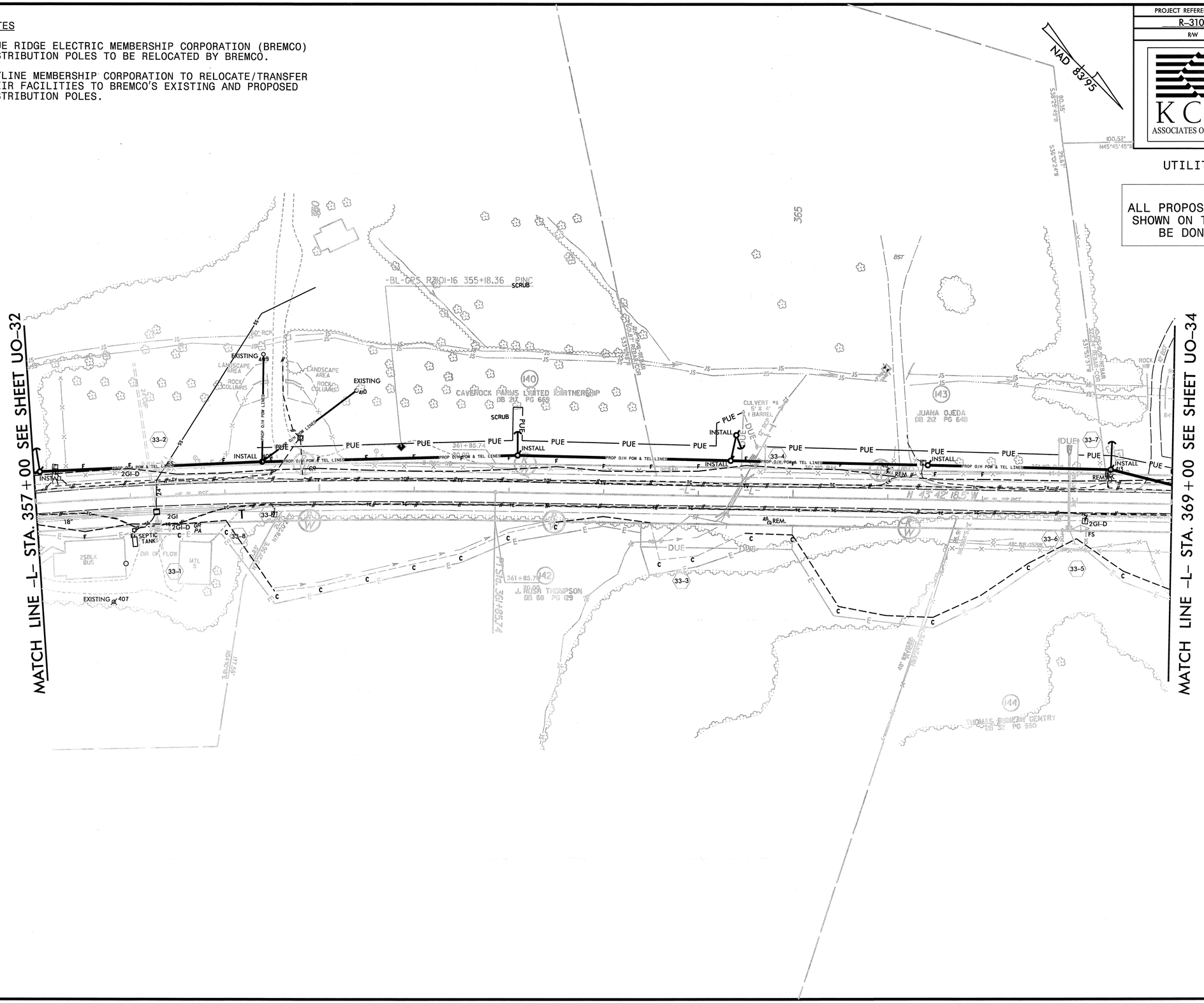

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Joshua Barbour Division:P20R Power Emp

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-34
R/W SHEET NO.	

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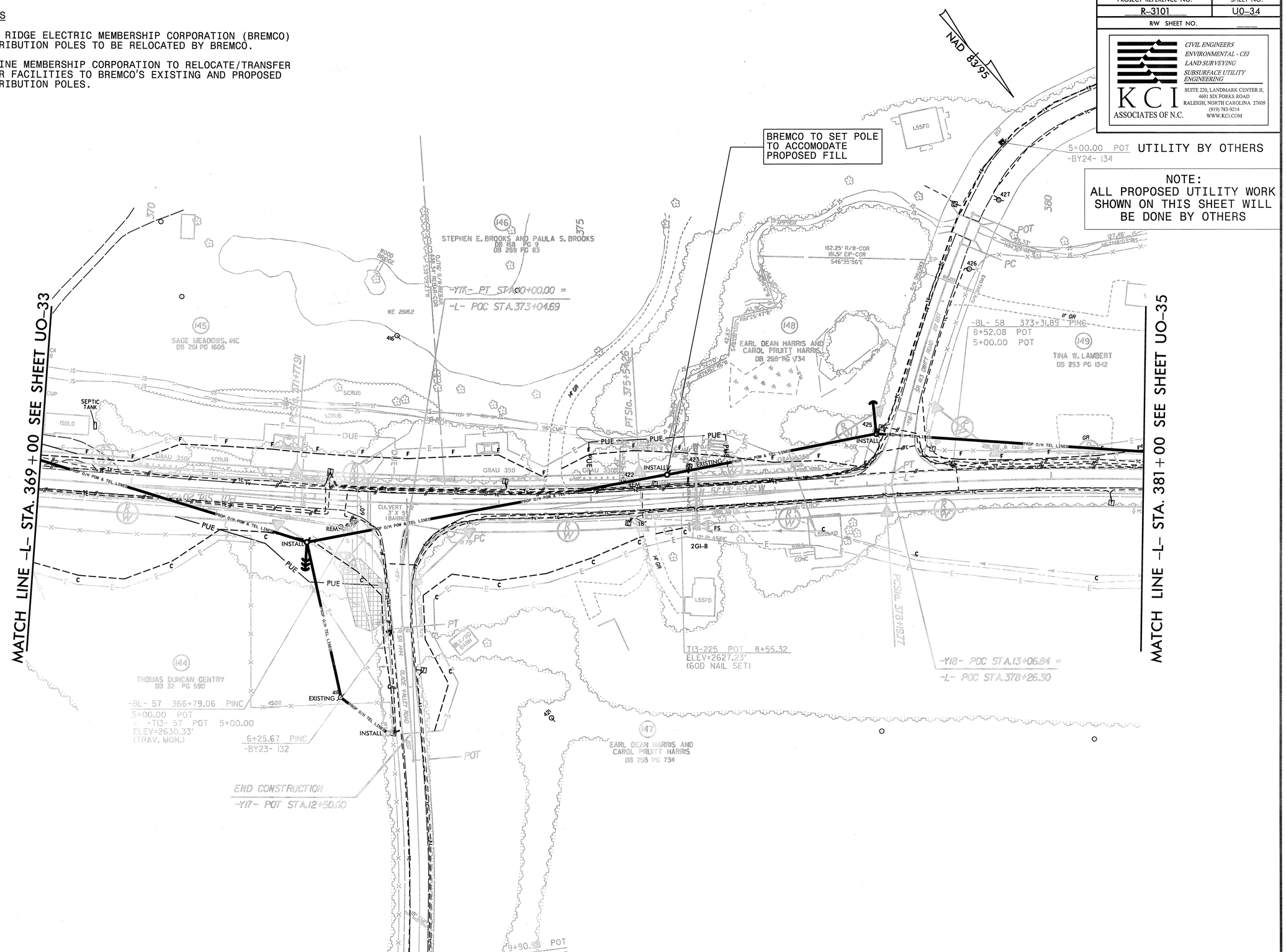
UBO WORK NOTES

(UBO-1) BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

(UBO-3) SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.



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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-35
R/W SHEET NO.	

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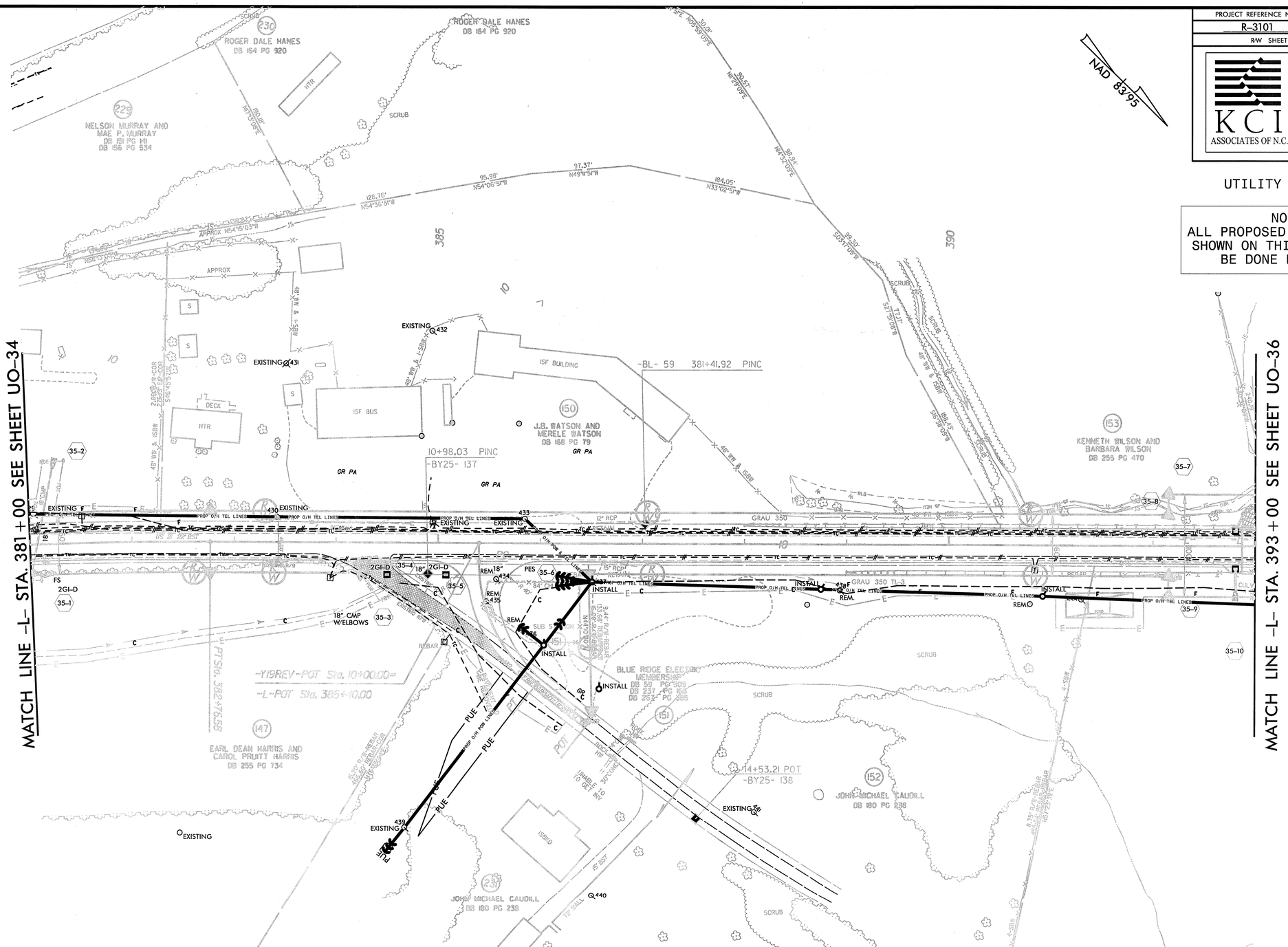

UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

UBO-3 SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

UBO-5 ALLEGHANY CABLEVISION TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

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Joshua Bochour Division:P005 Power Emp

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UBO WORK NOTES

(UBO-3) SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-36
R/W SHEET NO.	

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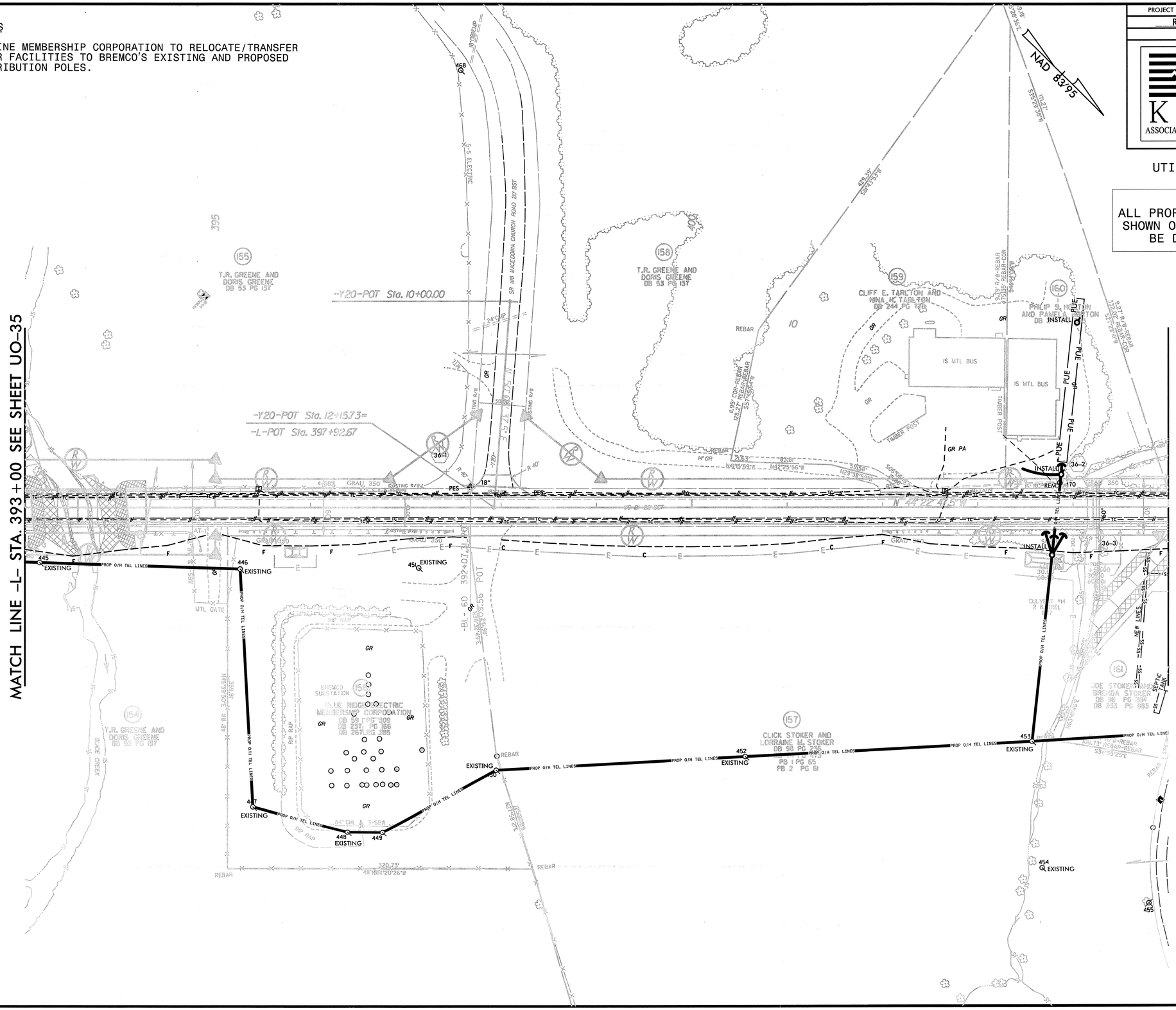

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UBO WORK NOTES

(UBO-3) SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

(UBO-5) ALLEGHANY CABLEVISION TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-37
R/W SHEET NO.	

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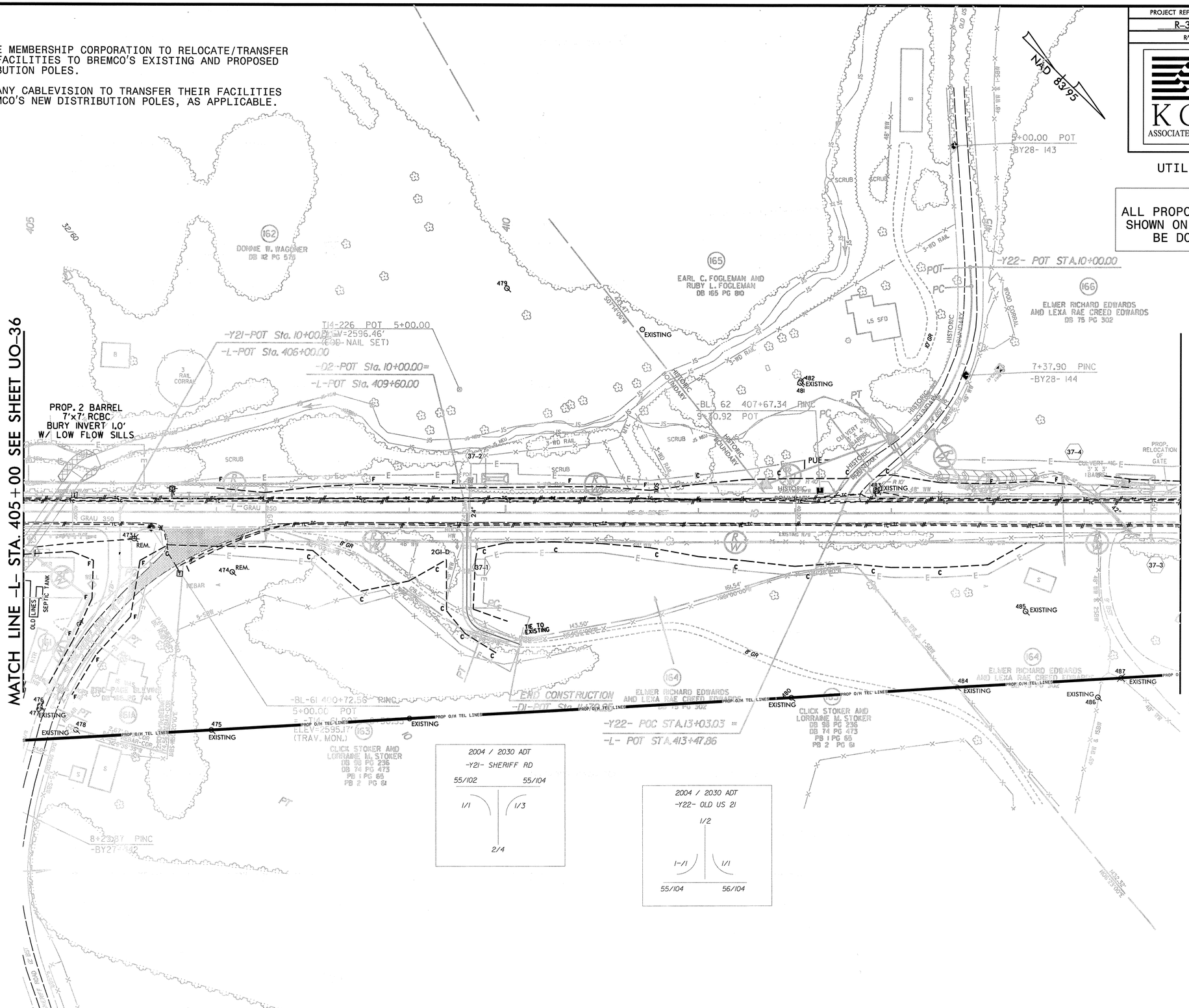

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-38
R/W SHEET NO.	

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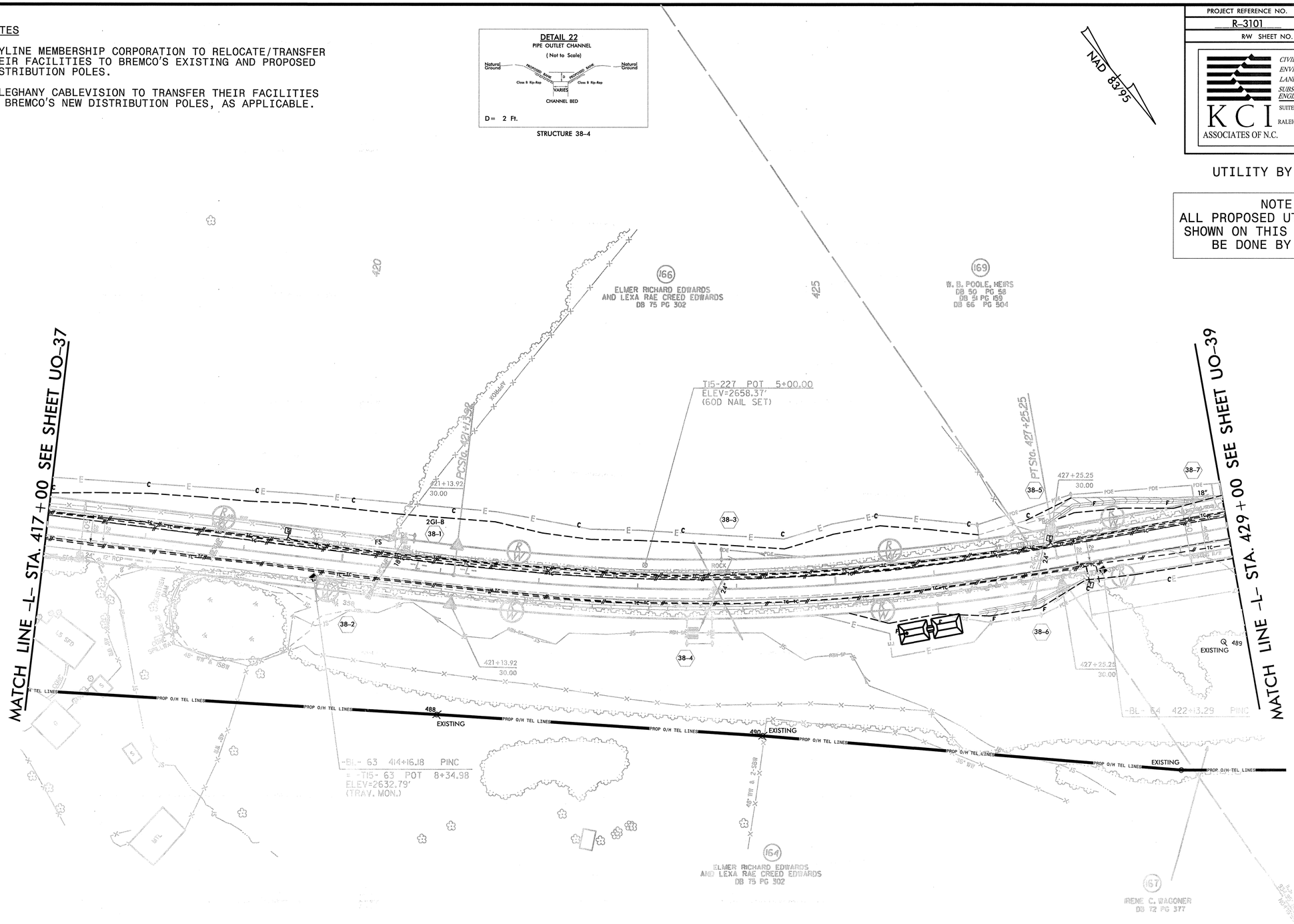
UBO WORK NOTES

UBO-3 SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

UBO-5 ALLEGHANY CABLEVISION TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

STRUCTURE 38-4



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Joshua Barbour Division:P2005 Power Eng

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PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-39
R/W SHEET NO.	

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UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

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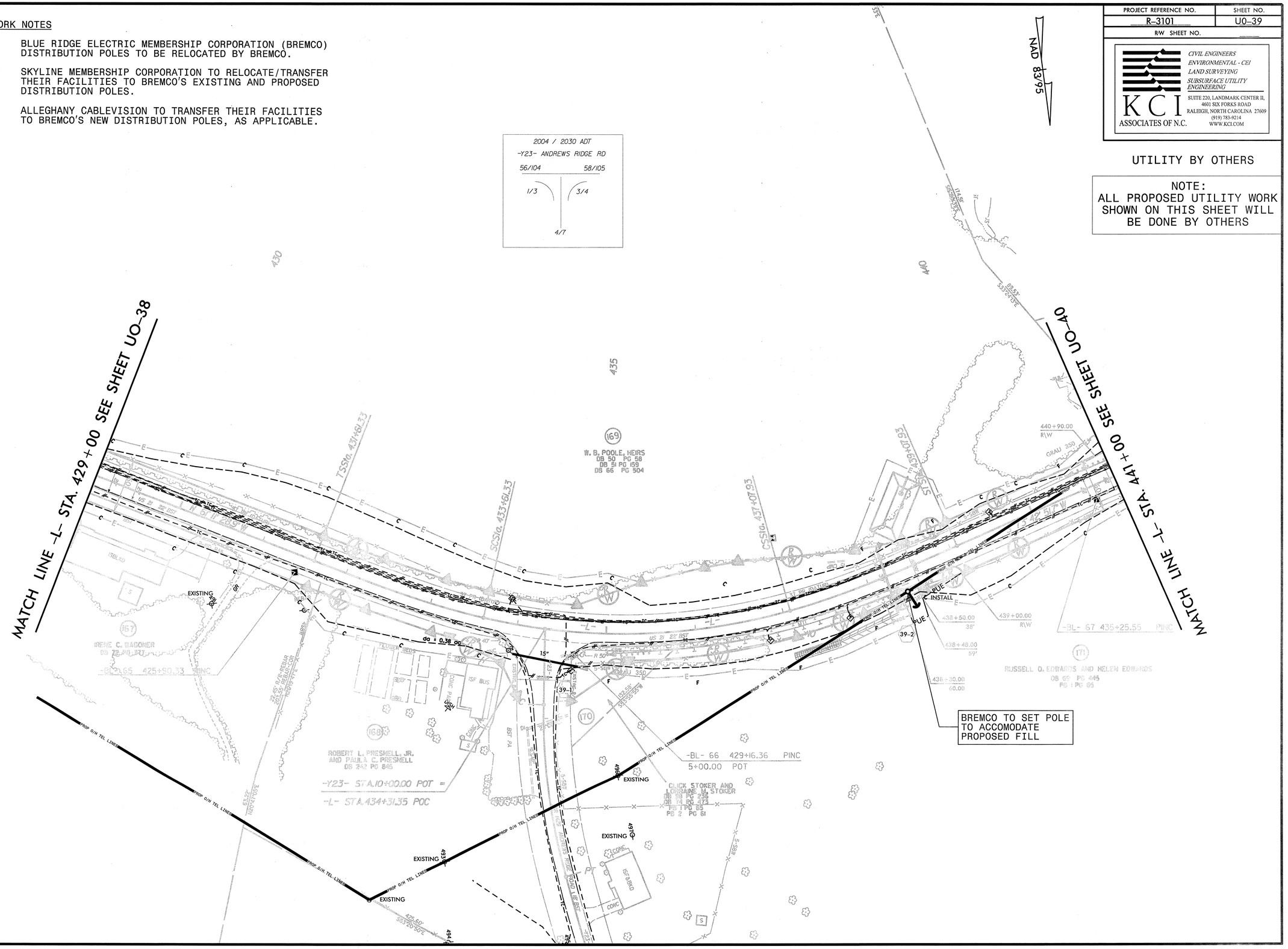
UBO-5 ALLEGHANY CABLEVISION TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.



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UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

UBO-3 SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

UBO-5 ALLEGHANY CABLEVISION TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-40
R/W SHEET NO.	

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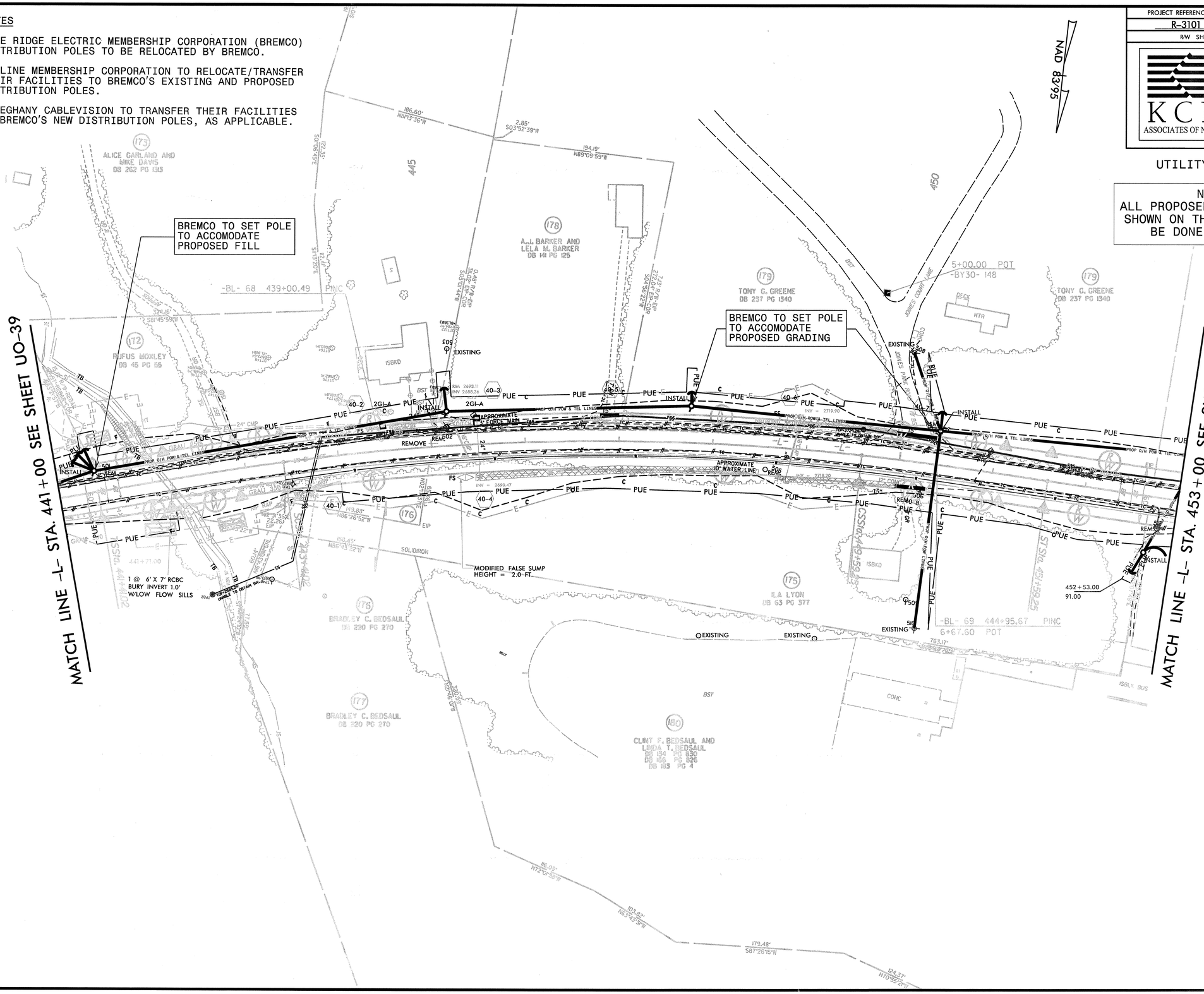

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Joshua Barbour Division 2005 Power Emp

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-41
R/W SHEET NO.	

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UBO WORK NOTES

UBO-1 BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

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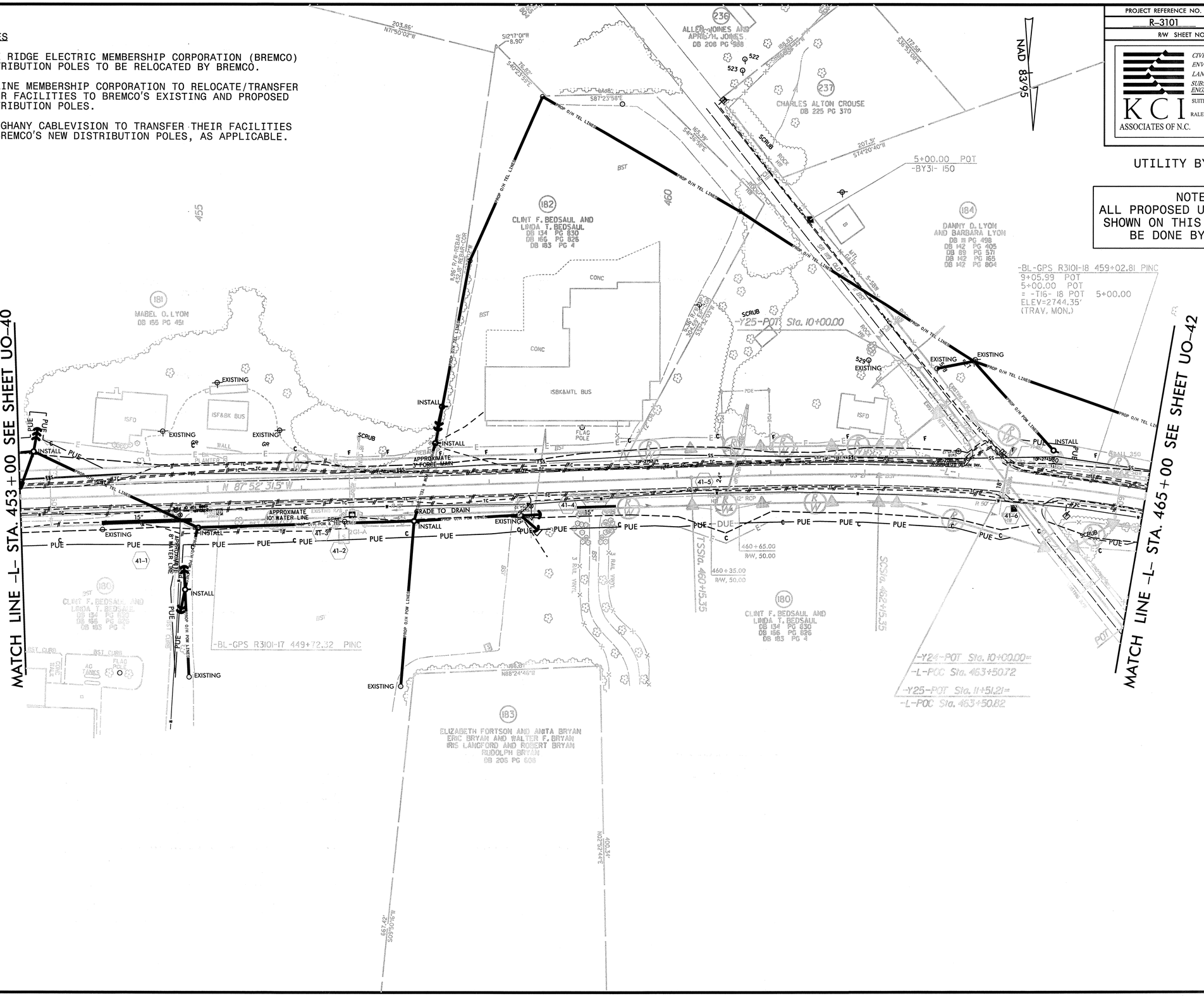
UBO-5 ALLEGHANY CABLEVISION TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.



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UBO WORK NOTES

(UBO-3) SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

(UBO-5) ALLEGHANY CABLEVISION TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

PROJECT REFERENCE NO.	SHEET NO.
R-3101	U0-42
R/W SHEET NO.	

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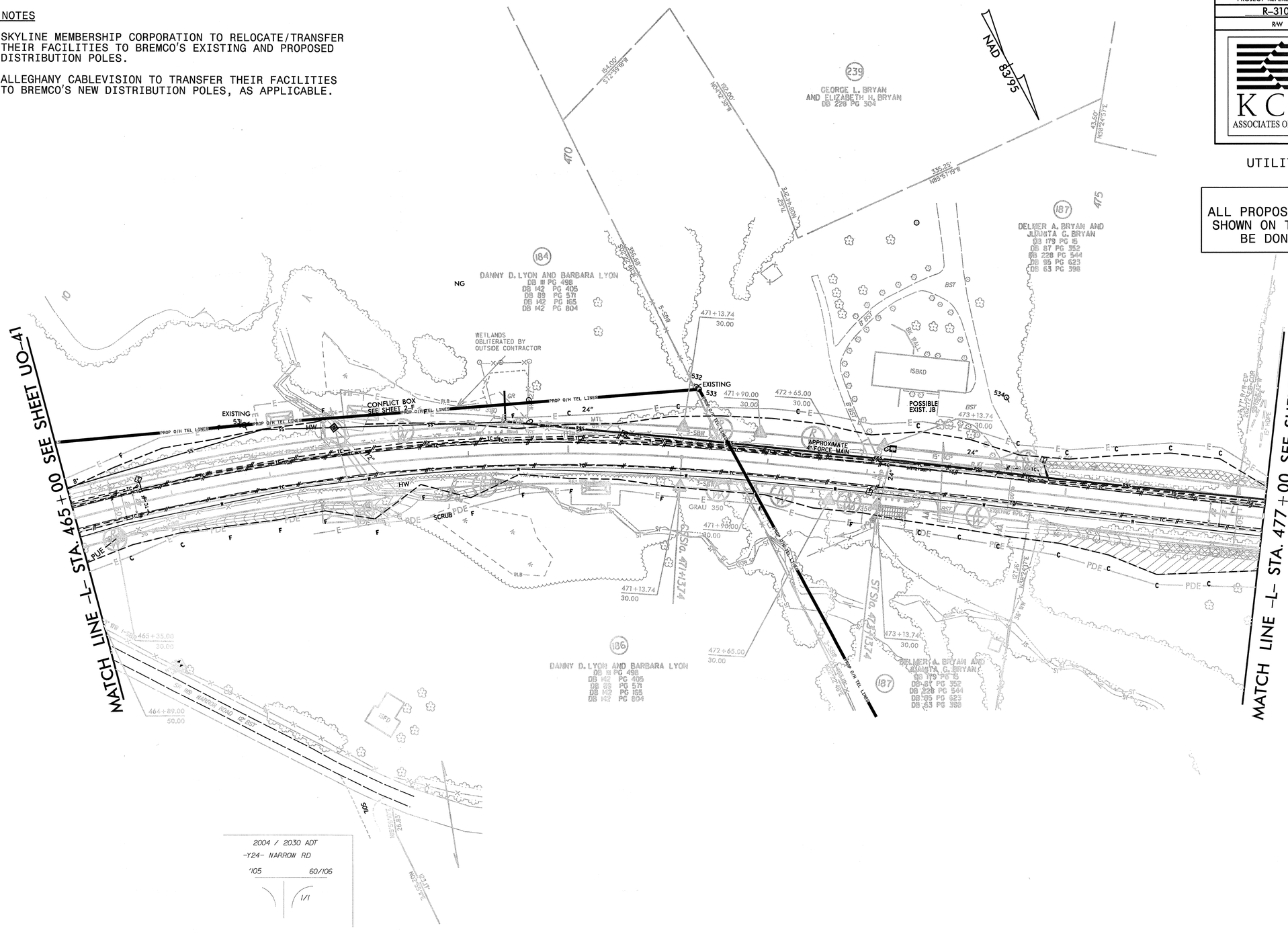

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UBO WORK NOTES

UBO-3 SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

UBO-5 ALLEGHANY CABLEVISION TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

PROJECT REFERENCE NO.	SHEET NO.
R-3101	UO-43
R/W SHEET NO.	

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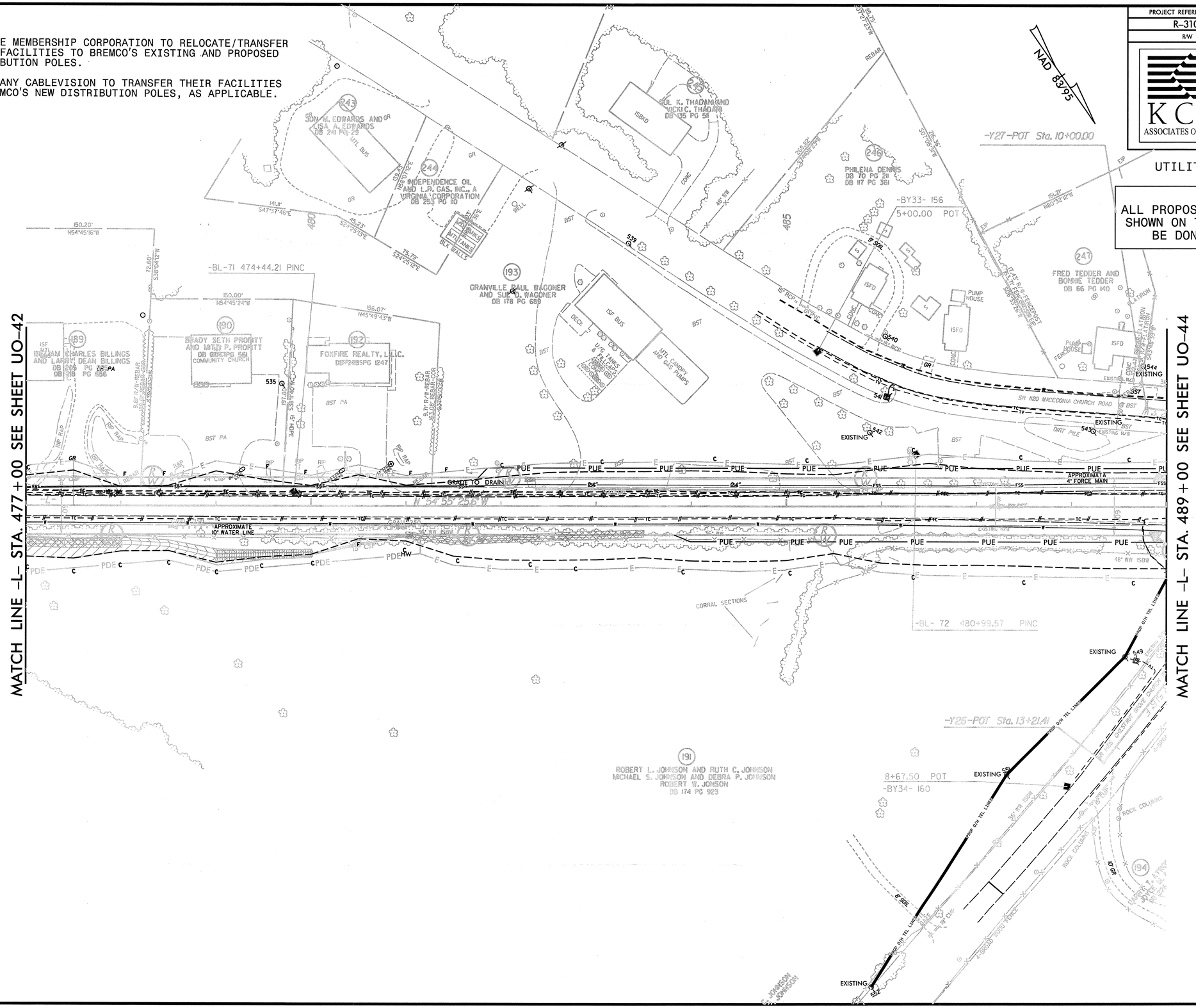

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UBO WORK NOTES

(UBO-1) BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION (BREMCO) DISTRIBUTION POLES TO BE RELOCATED BY BREMCO.

(UBO-3) SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

(UBO-5) ALLEGHANY CABLEVISION TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

PROJECT REFERENCE NO.	SHEET NO.
R-3101	UO-44
R/W SHEET NO.	

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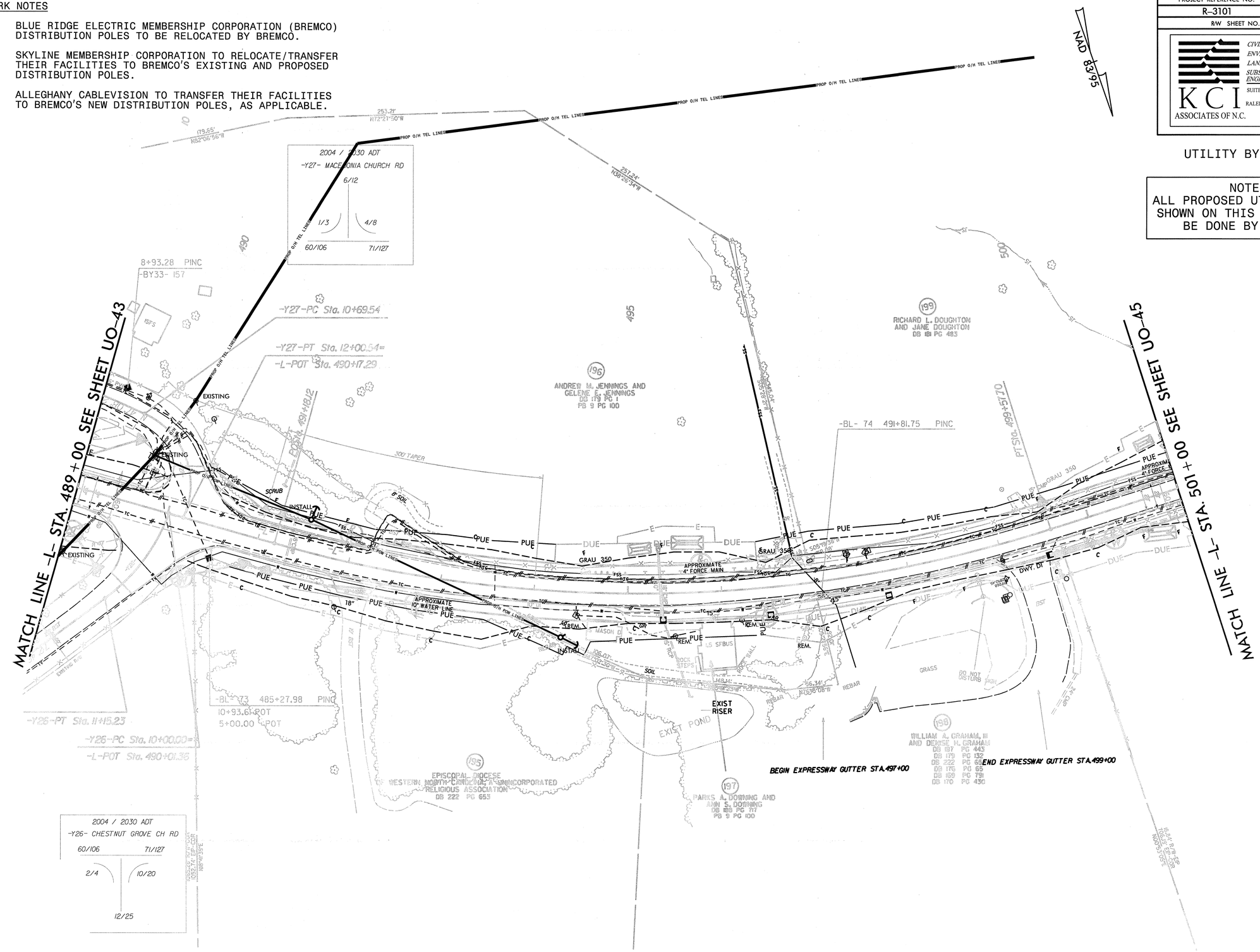

PROJECT REFERENCE NO.	SHEET NO.
R-3101	UO-45
R/W SHEET NO.	

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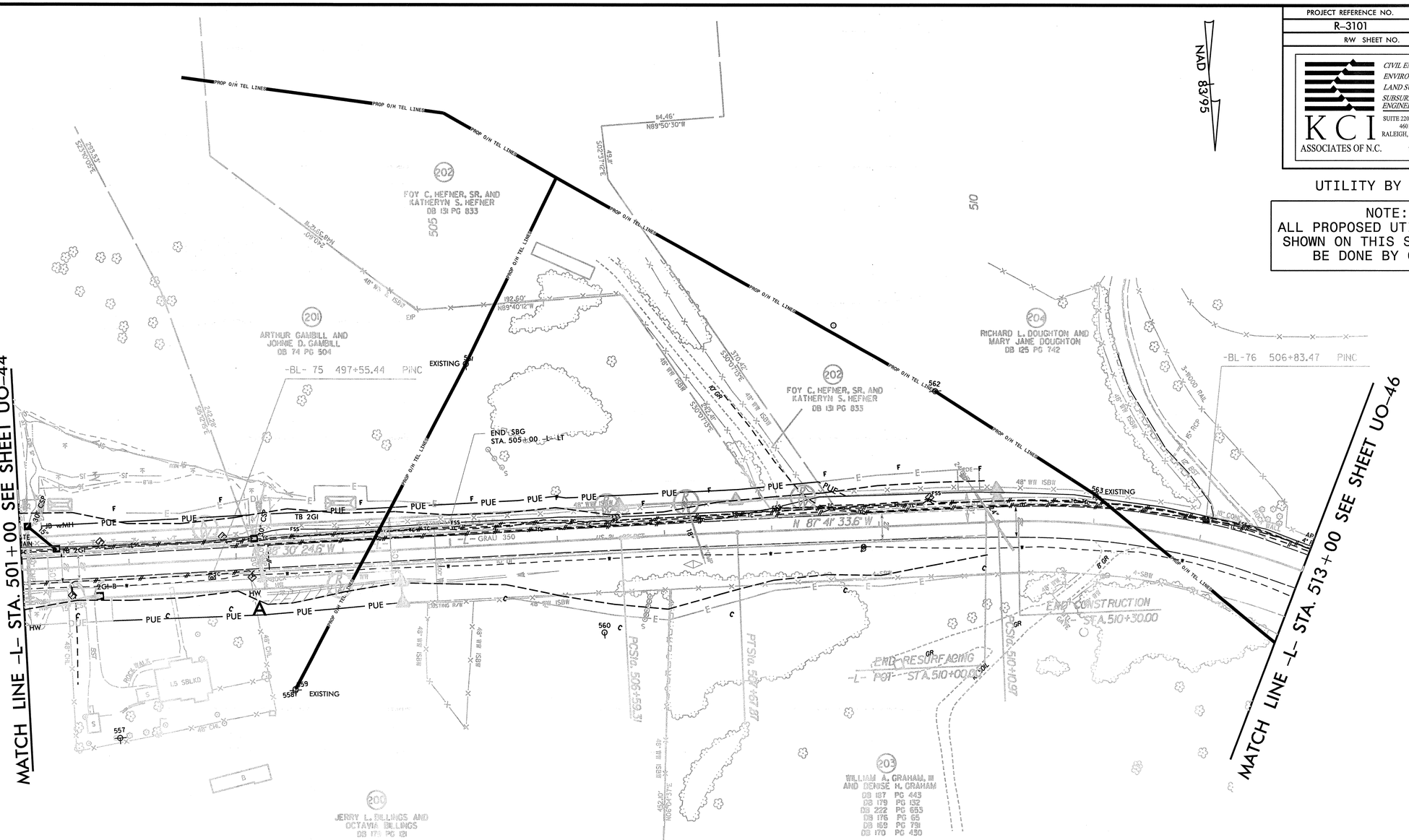

UBO WORK NOTES

UBO-3 SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

UBO-5 ALLEGHANY CABLEVISION TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

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PROJECT REFERENCE NO.	SHEET NO.
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R/W SHEET NO.	

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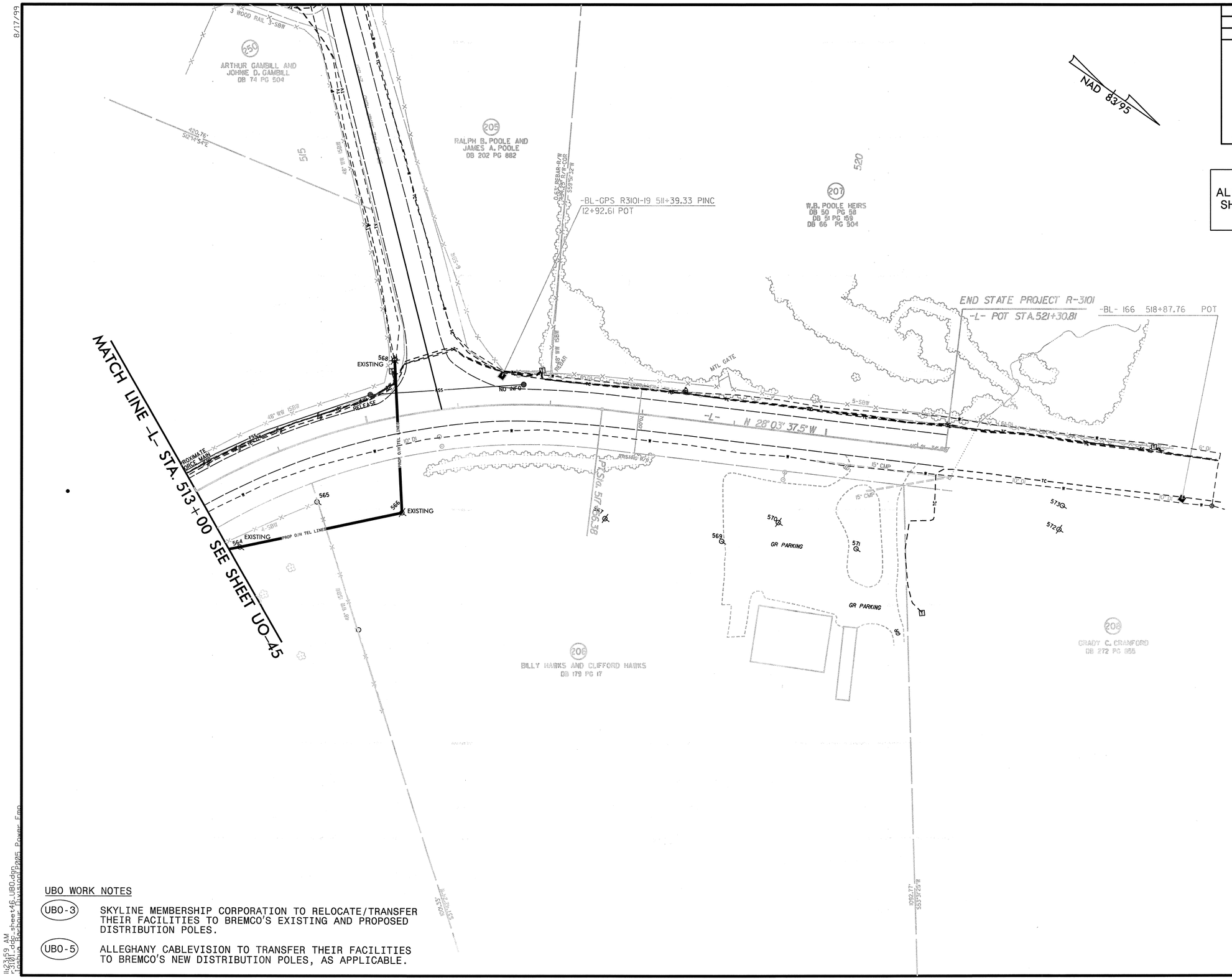

UBO WORK NOTES

(UBO-3) SKYLINE MEMBERSHIP CORPORATION TO RELOCATE/TRANSFER THEIR FACILITIES TO BREMCO'S EXISTING AND PROPOSED DISTRIBUTION POLES.

(UBO-5) ALLEGHANY CABLEVISION TO TRANSFER THEIR FACILITIES TO BREMCO'S NEW DISTRIBUTION POLES, AS APPLICABLE.

8/17/99

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