

090899

TIP PROJECT: R-5017

C201802

CONTRACT:

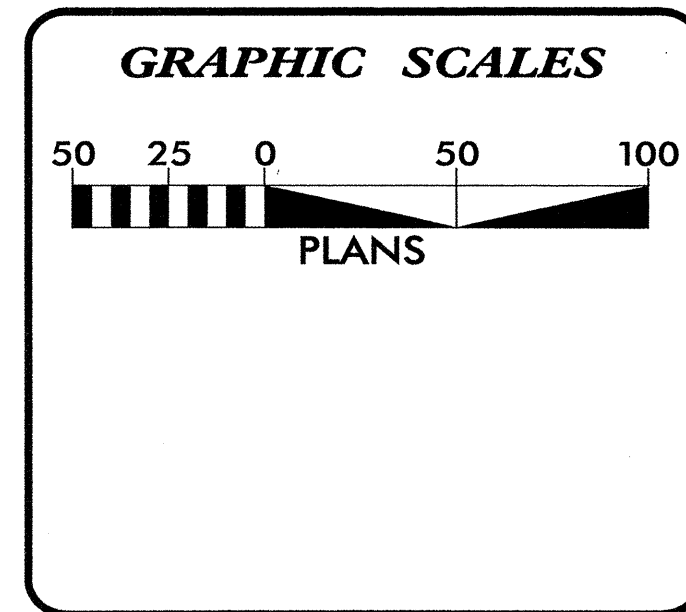
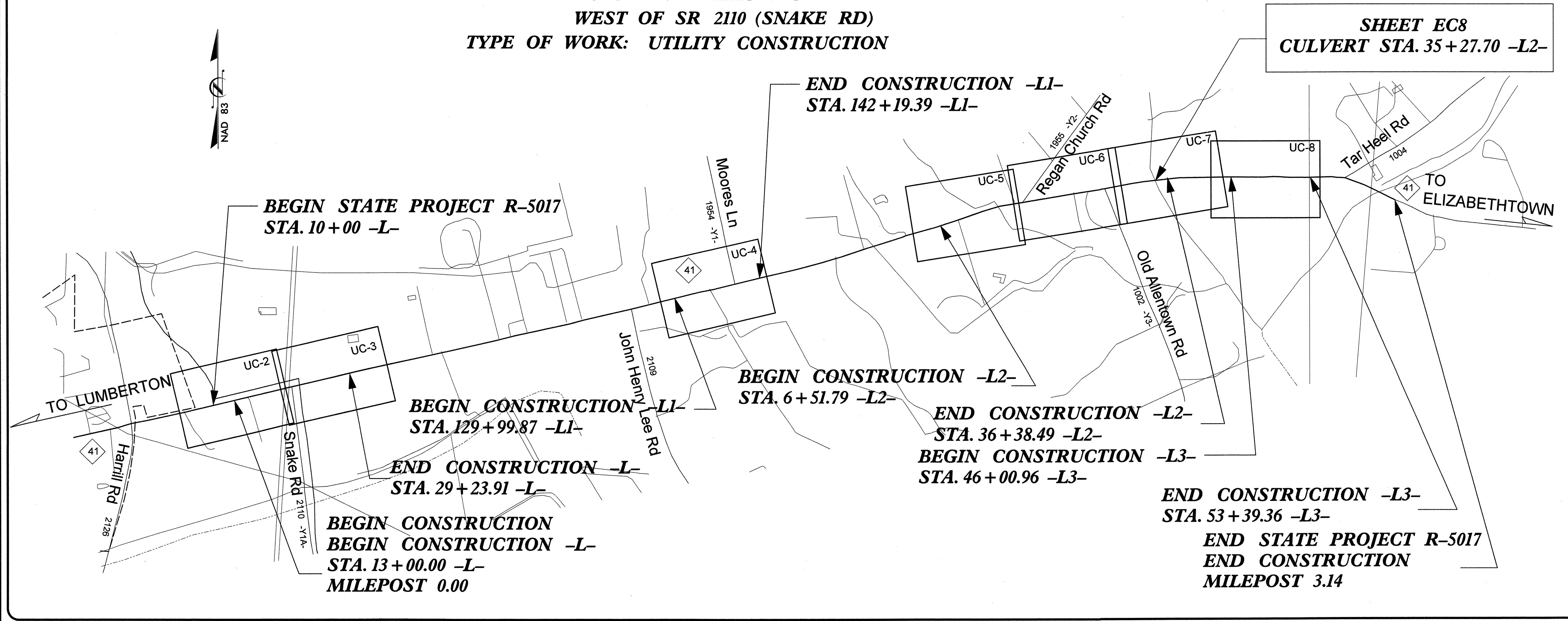
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLAN
FOR WATERLINE RELOCATION

ROBESON COUNTY

LOCATION: NC 41 FROM EXISTING THREE-LANE SECTION 0.16 MI
WEST OF SR 2110 (SNAKE RD)
TYPE OF WORK: UTILITY CONSTRUCTION

T.I.P. NO.	SHEET NO.
R-5017	UC-1

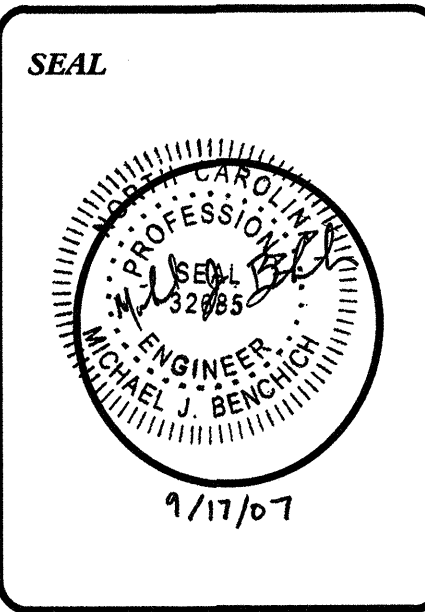


INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2 THRU UC-8	UTILITY CONSTRUCTION PLAN SHEETS
UC-9	DETAIL SHEET

WATER AND SEWER OWNERS ON PROJECT

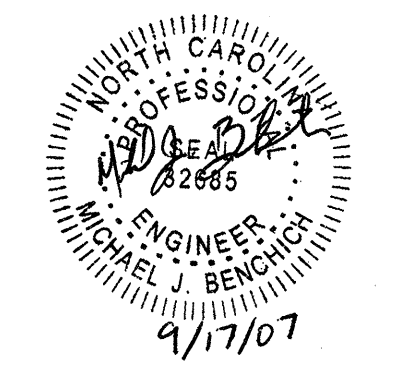
(1) WATER - ROBESON COUNTY
(2) SANITARY SEWER - NA



HDR Prepared By:
HDR Engineering, Inc.
of the Carolinas
128 S. Tryon Street, Suite 1400 Charlotte, N.C. 28202

2006 STANDARD SPECIFICATIONS

9/14/2007 2:06:51 PM



UTILITY CONSTRUCTION

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "COX" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 326119.367(FI) EASTING: 2023359.356(FI) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999281 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "COX" TO L-STATION IS ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

GENERAL CONSTRUCTION NOTES

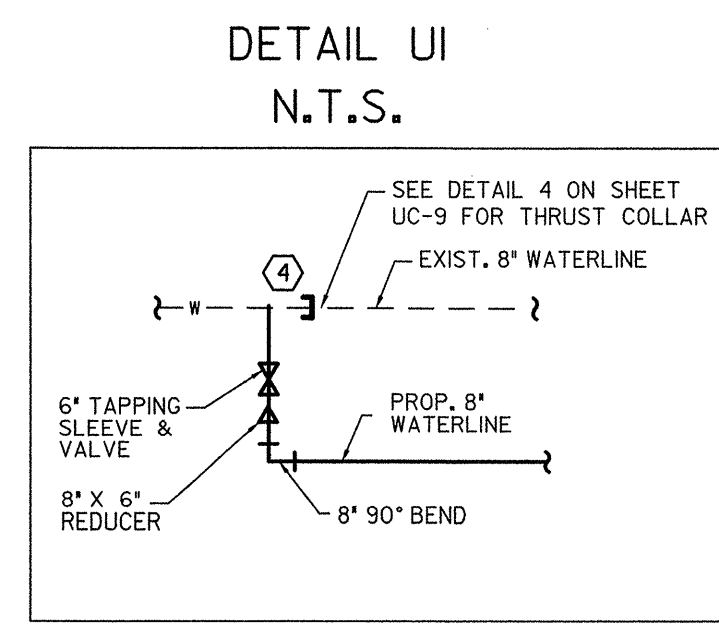
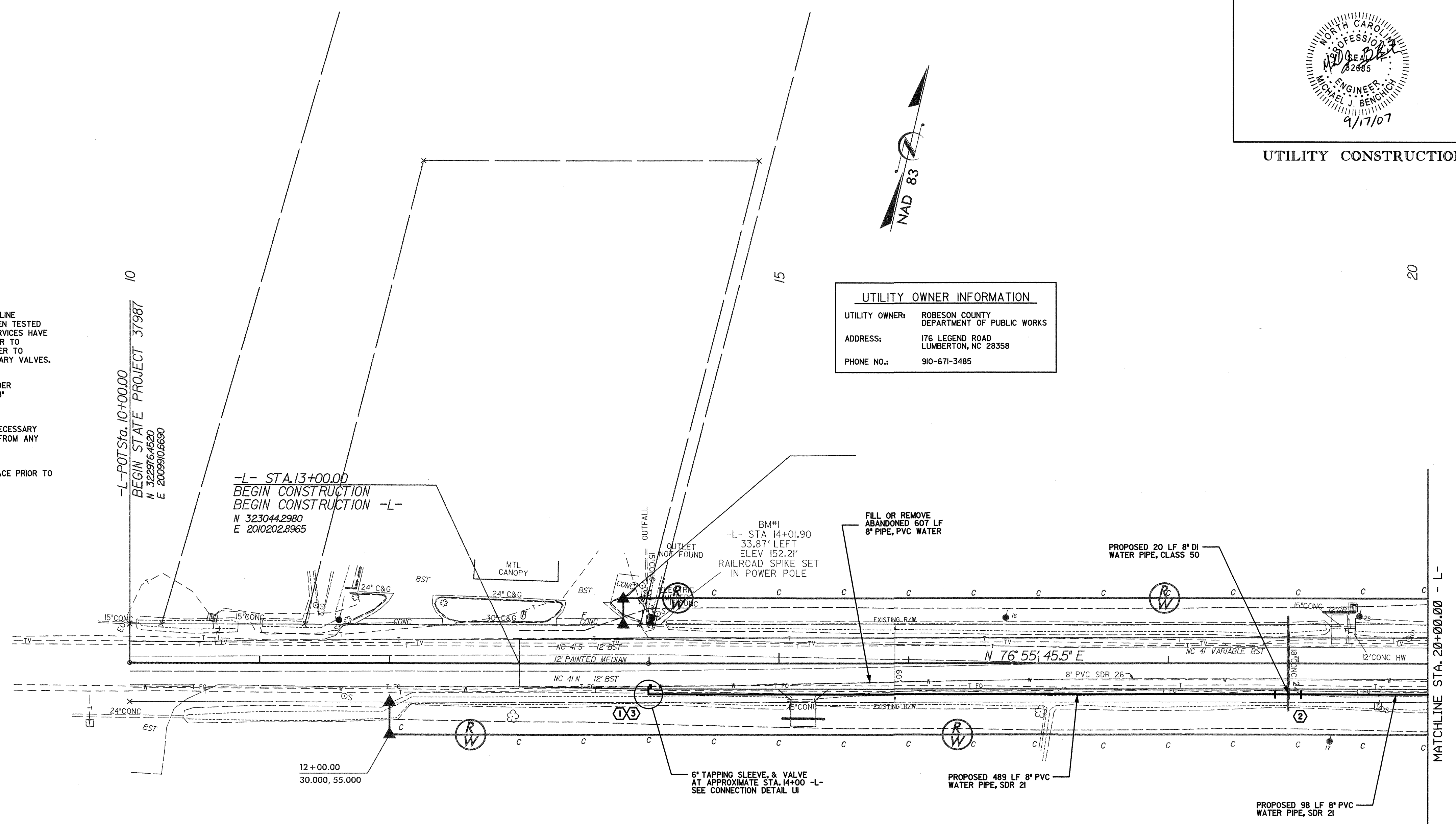
- A. PROPOSED WATERLINE TO BE 4' MINIMUM OUTSIDE PROPOSED EDGE OF PAVEMENT, EXCEPT AT OR NEAR INTERSECTIONS, AS SHOWN IN DRAWING.
- B. SIZE OF SERVICE CONNECTIONS WILL BE EITHER 5/8" OR 3/4", BUT SIZE OF INDIVIDUAL SERVICE CONNECTIONS ARE NOT KNOWN. CONTRACTOR TO FIELD VERIFY SERVICE CONNECTION SIZE PRIOR TO TRANSFERRING SERVICE TO NEW WATER MAIN.
- C. CONTRACTOR TO CONNECT NEW SERVICE SADDLES AT NEW WATER MAIN TO EXISTING SERVICE CONNECTION LINES FOR SERVICE TRANSFERS.
- D. CONTRACTOR MAY NOT DISRUPT WATER SERVICE TO ANY CUSTOMER FOR MORE THAN 4 HOURS PER DISRUPTION.
- E. CONTRACTOR SHALL PROVIDE THE UTILITY OWNER A MINIMUM OF 72 HOURS NOTICE BEFORE DISRUPTION OF SERVICE OCCURS.
- F. THE SECTIONS OF EXISTING WATERLINE TO BE REPLACED SHALL BE ABANDONED OR REMOVED PER SECTION 1530 OF NCDOT STANDARD SPECIFICATIONS AS DIRECTED BY THE ENGINEER.
- G. PROPOSED WATERLINE TO HAVE A MINIMUM OF 3' COVER.
- H. ANY AND ALL PORTIONS OF PROPOSED WATERLINE THAT ARE WITHIN 10' HORIZONTAL FEET OF A SANITARY SEWER LINE OR MANHOLE MUST BE AT LEAST 18" ABOVE THE SEWER LINE, AS MEASURED FROM THE TOP OF THE SEWER LINE TO THE INVERT OF THE WATERLINE.
- I. EXISTING VALVES ON ABANDONED LINES SHALL HAVE THE LIDS REMOVED AND THE BOXES FILLED WITH GROUT.
- J. WATERLINE IS NOT SURVEYED BUT DRAWN FROM "AS RECORDED" DRAWINGS AND THE CONTRACTOR WILL HAVE TO FIELD VERIFY THE ACTUAL LOCATIONS, PIPE SIZES, AND MATERIALS.

KEY NOTES

- ① CUT AND CAP EXISTING WATERLINE WHEN NEW WATERLINE HAS BEEN TESTED AND DISINFECTED AND ALL SERVICES HAVE BEEN TRANSFERRED. CONTRACTOR TO COORDINATE WITH UTILITY OWNER TO LOCATE AND OPERATE NECESSARY VALVES.
- ② WATERLINE TO BE ROUTED UNDER 24" RCP WITH A MINIMUM OF 18" VERTICAL SEPARATION.
- ③ FIELD ADJUST LOCATION AS NECESSARY TO INSTALL A MINIMUM OF 5' FROM ANY PIPE JOINT.
- ④ THRUST COLLAR TO BE IN PLACE PRIOR TO CUTTING PIPE.

UTILITY OWNER INFORMATION

UTILITY OWNER: ROBESON COUNTY DEPARTMENT OF PUBLIC WORKS
 ADDRESS: 176 LEGEND ROAD LUMBERTON, NC 28358
 PHONE NO.: 910-671-3485



DATUM DESCRIPTION

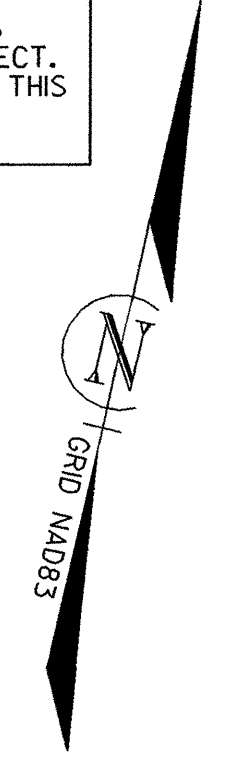
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM ESTABLISHED BY A THREE RECEIVER STATIC GPS SYSTEM FROM NCGS MONUMENT "COX" HAVING NAD83 COORDINATES OF N 326,119.367', E 2,023,359.350', AND AN NGVD29 ELEVATION OF 143.92'.

*NOTE: DATUM INFORMATION FOR THIS SECTION IS DIFFERENT THEN THE REST OF THE PROJECT. ONLY USE THIS DATUM INFORMATION FOR THIS SECTION

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GRID TO GROUND) IS 0.99992654.

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES.

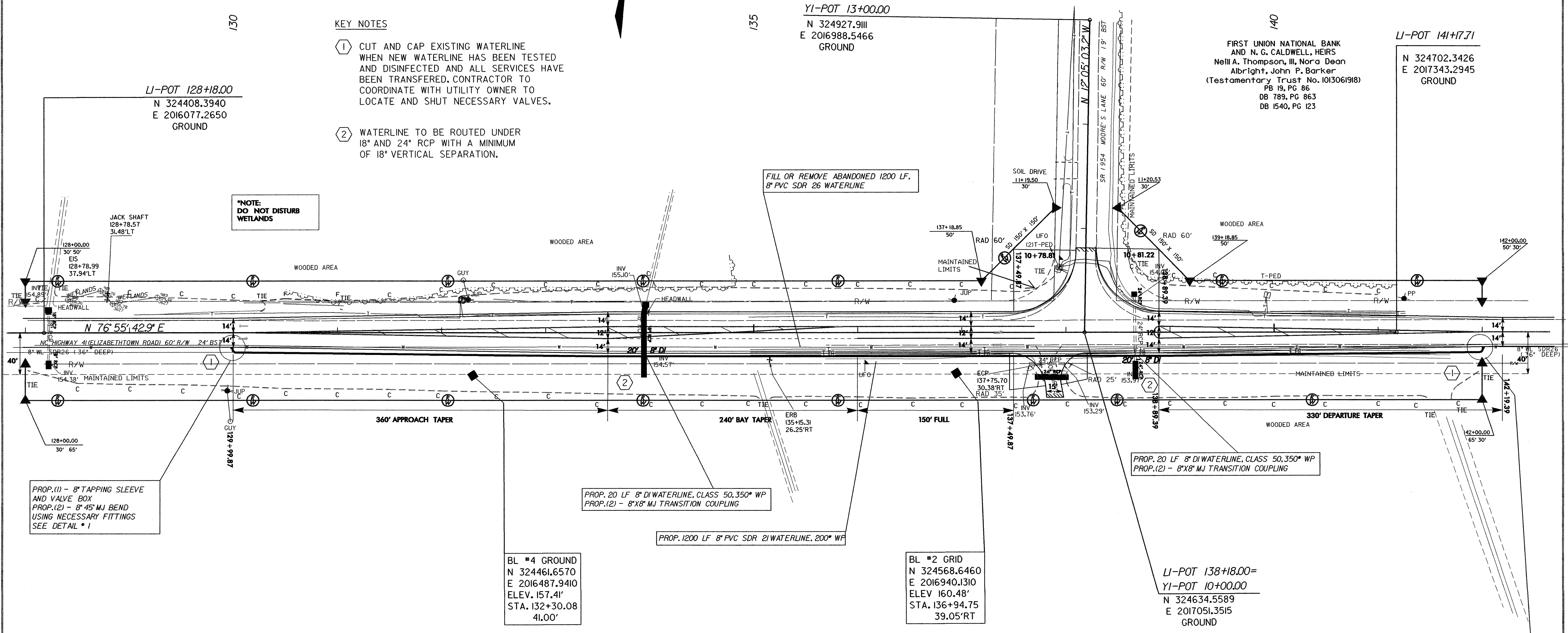
TOPOGRAPHICAL SURVEY PROVIDED BY:
MICHAEL TATE, PROFESSIONAL LAND SURVEYOR
3521 CLINTON ROAD, FAYETTEVILLE, N.C. 28301
PH: 910-483-7387



KEY NOTES

- ① CUT AND CAP EXISTING WATERLINE WHEN NEW WATERLINE HAS BEEN TESTED AND DISINFECTED AND ALL SERVICES HAVE BEEN TRANSFERED. CONTRACTOR TO COORDINATE WITH UTILITY OWNER TO LOCATE AND SHUT NECESSARY VALVES.
- ② WATERLINE TO BE ROUTED UNDER 18" AND 24" RCP WITH A MINIMUM OF 18" VERTICAL SEPARATION.

*NOTE: DO NOT DISTURB WETLANDS

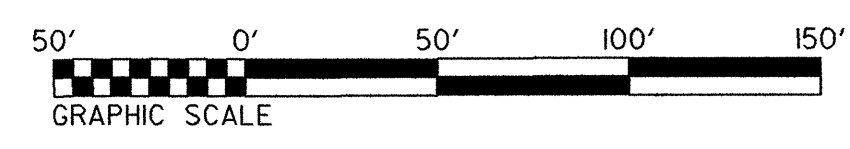


PROP.(1) - 8" TAPPING SLEEVE AND VALVE BOX
PROP.(2) - 8" 45' MJ BEND USING NECESSARY FITTINGS SEE DETAIL # 1

BL #4 GROUND
N 324461.6570
E 2016487.9410
ELEV. 157.41'
STA. 132+30.08
41.00'

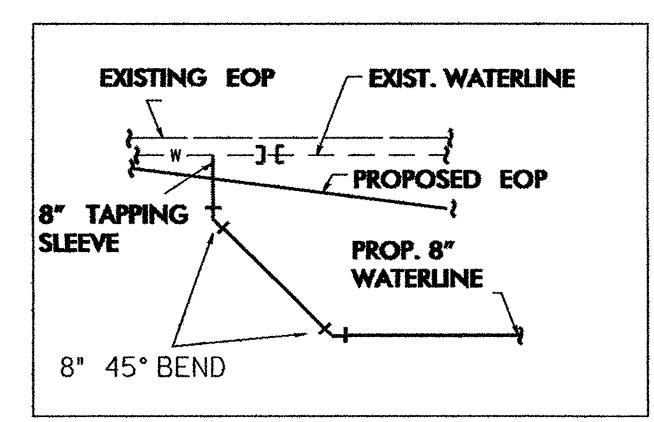
BL #2 GRID
N 324568.6460
E 2016940.1310
ELEV. 160.48'
STA. 136+94.75
39.05' RT

LI-POT 138+18.00=
YI-POT 10+00.00
N 324634.5589
E 2017051.3515
GROUND

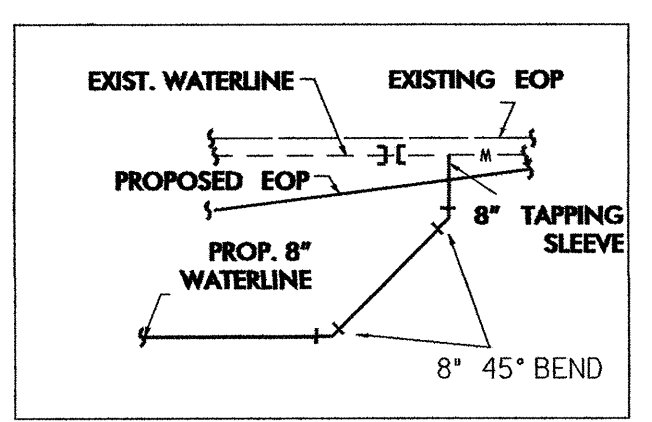


*NOTE: DO NOT DISTURB CEMETARY

DETAIL 1



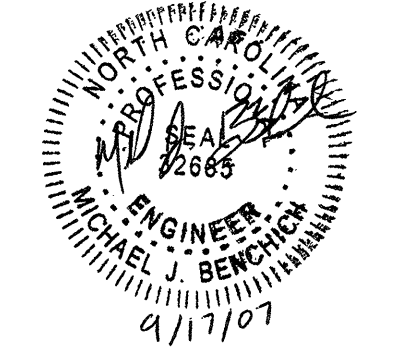
DETAIL 2



PROP. (1) - 8" TAPPING SLEEVE AND VALVE BOX
PROP. (2) - 8" 45' MJ BEND USING NECESSARY FITTINGS SEE DETAIL # 2



10-8-07

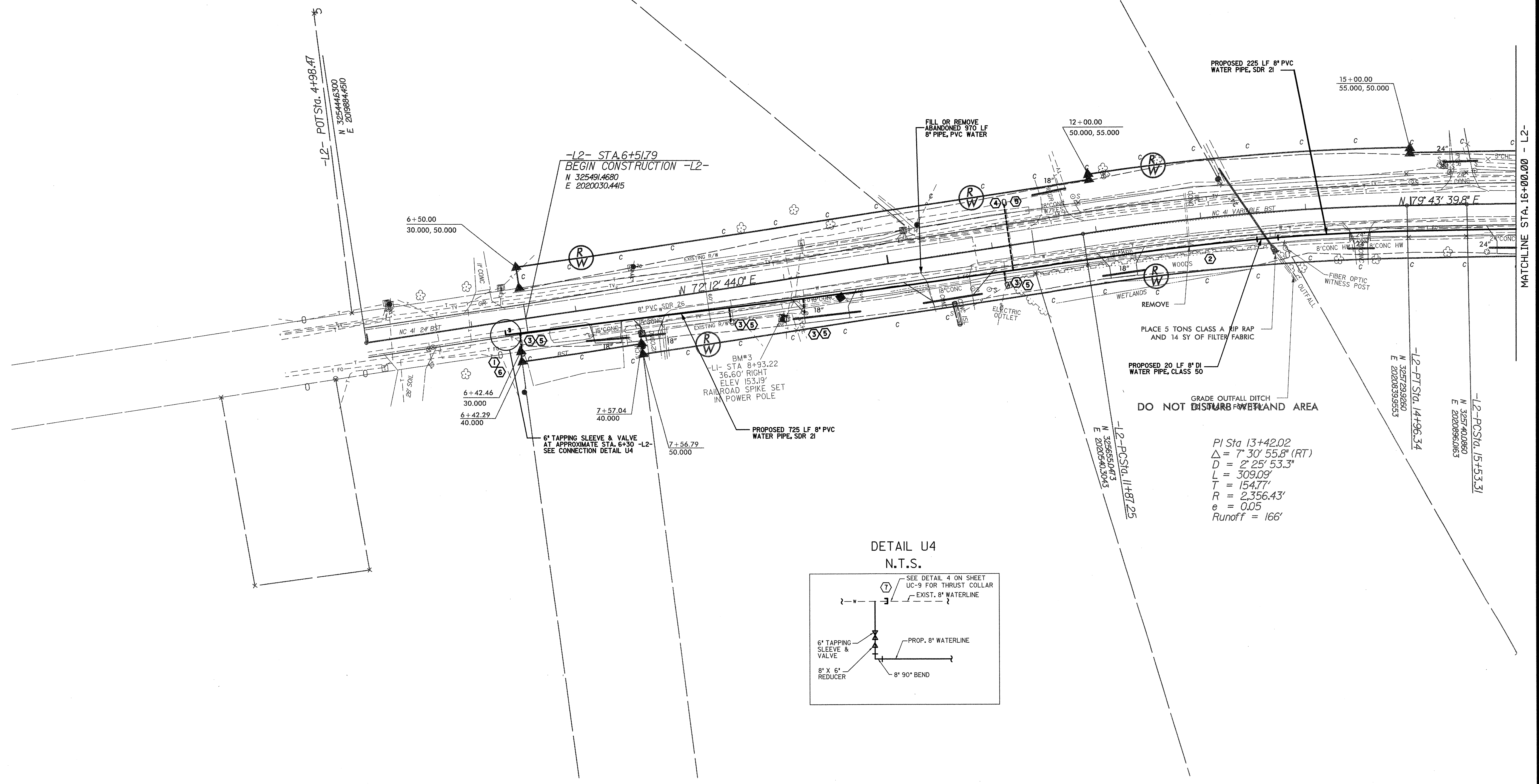
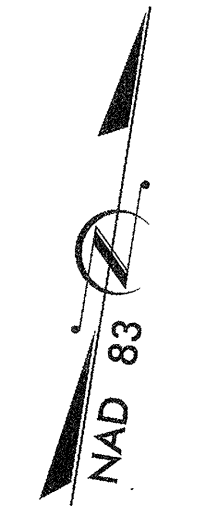


UTILITY CONSTRUCTION

KEY NOTES

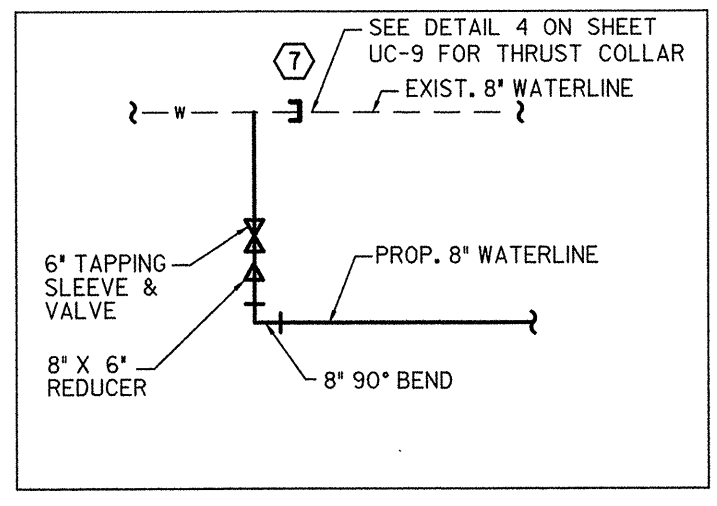
- ① CUT AND CAP EXISTING WATERLINE WHEN NEW WATERLINE HAS BEEN TESTED AND DISINFECTED AND ALL SERVICES HAVE BEEN TRANSFERRED. CONTRACTOR TO COORDINATE WITH UTILITY OWNER TO LOCATE AND SHUT NECESSARY VALVES.
- ② WATERLINE TO BE ROUTED UNDER 24" RCP WITH A MINIMUM OF 18" VERTICAL SEPARATION.
- ③ SHORT SIDE SERVICE CONNECTION. TRANSFER SERVICE TO NEW WATERLINE.
- ④ LONG SIDE SERVICE CONNECTION. TRANSFER SERVICE TO NEW WATERLINE.
- ⑤ RELOCATE WATER METER OUT OF PROPOSED DITCH.
- ⑥ FIELD ADJUST LOCATION AS NECESSARY TO INSTALL A MINIMUM OF 5' FROM ANY PIPE JOINT.
- ⑦ THRUST COLLAR TO BE IN PLACE PRIOR TO CUTTING PIPE.

UTILITY OWNER INFORMATION
 UTILITY OWNER: ROBESON COUNTY DEPARTMENT OF PUBLIC WORKS
 ADDRESS: 176 LEGEND ROAD LUMBERTON, NC 28358
 PHONE NO.: 910-671-3485



PI Sta 13+42.02
 $\Delta = 7' 30' 55.8'' (RT)$
 $D = 2' 25' 53.3''$
 $L = 309.09'$
 $T = 154.77'$
 $R = 2,356.43'$
 $e = 0.05$
 Runoff = 166'

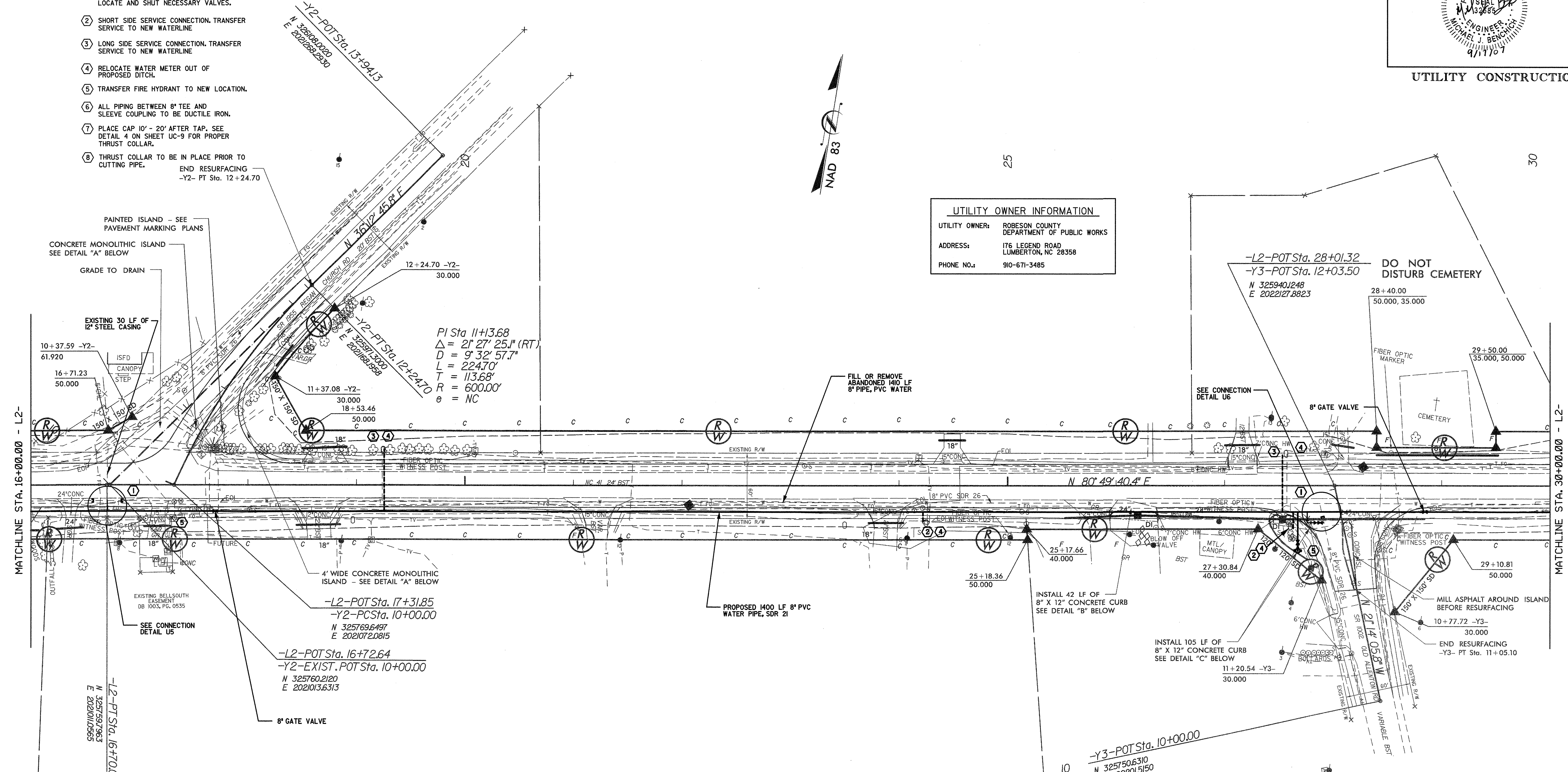
DETAIL U4
N.T.S.



8/17/07
 9/17/2007
 11:47:20 AM
 C:\Users\mtpa\Documents\TBA\Drawings\2161617-1111_PSH_UC-5.dwg
 PSJ/ljc/s

8/17/99
9/17/2007
11:07:54 AM
C:\Users\jacob\OneDrive\Documents\TEA\Drawings\161616-5017-1111_PSH_UF-6.dwg

- KEY NOTES**
- CUT AND CAP EXISTING WATERLINE WHEN NEW WATERLINE HAS BEEN TESTED AND DISINFECTED AND ALL SERVICES HAVE BEEN TRANSFERRED. CONTRACTOR TO COORDINATE WITH UTILITY OWNER TO LOCATE AND SHUT NECESSARY VALVES.
 - SHORT SIDE SERVICE CONNECTION. TRANSFER SERVICE TO NEW WATERLINE.
 - LONG SIDE SERVICE CONNECTION. TRANSFER SERVICE TO NEW WATERLINE.
 - RELOCATE WATER METER OUT OF PROPOSED DITCH.
 - TRANSFER FIRE HYDRANT TO NEW LOCATION.
 - ALL PIPING BETWEEN 8" TEE AND SLEEVE COUPLING TO BE DUCTILE IRON.
 - PLACE CAP 10' - 20' AFTER TAP. SEE DETAIL 4 ON SHEET UC-9 FOR PROPER THRUST COLLAR.
 - THRUST COLLAR TO BE IN PLACE PRIOR TO CUTTING PIPE.



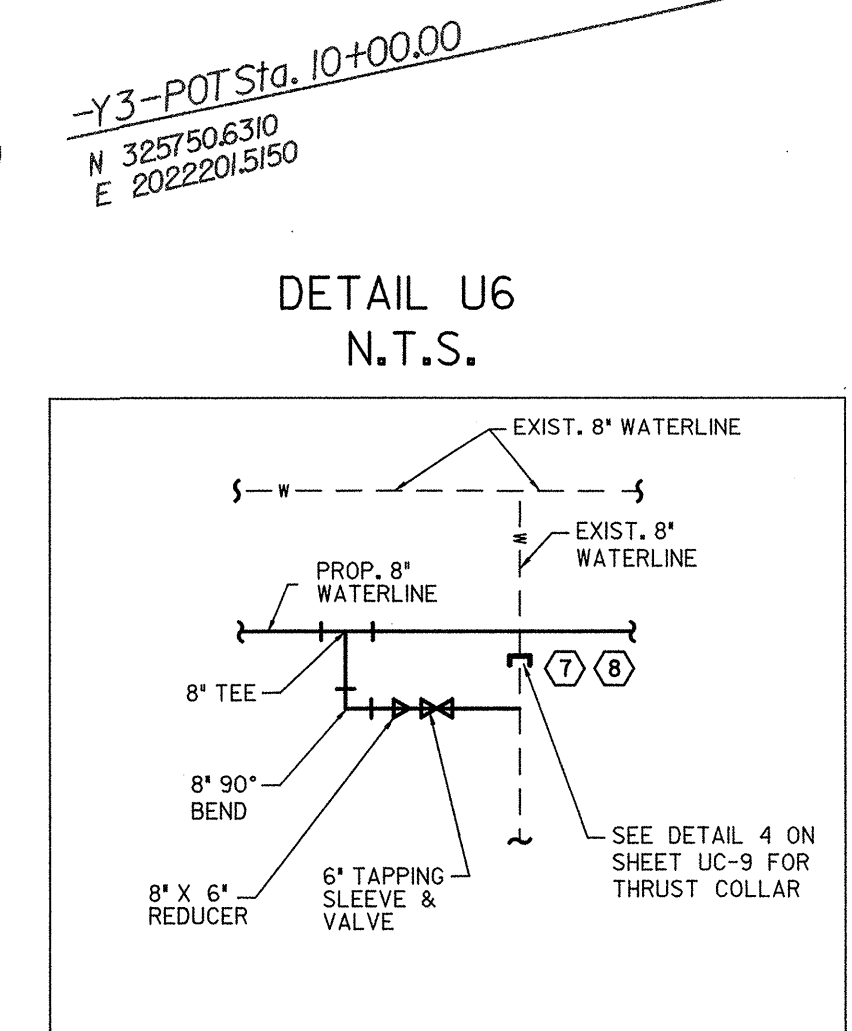
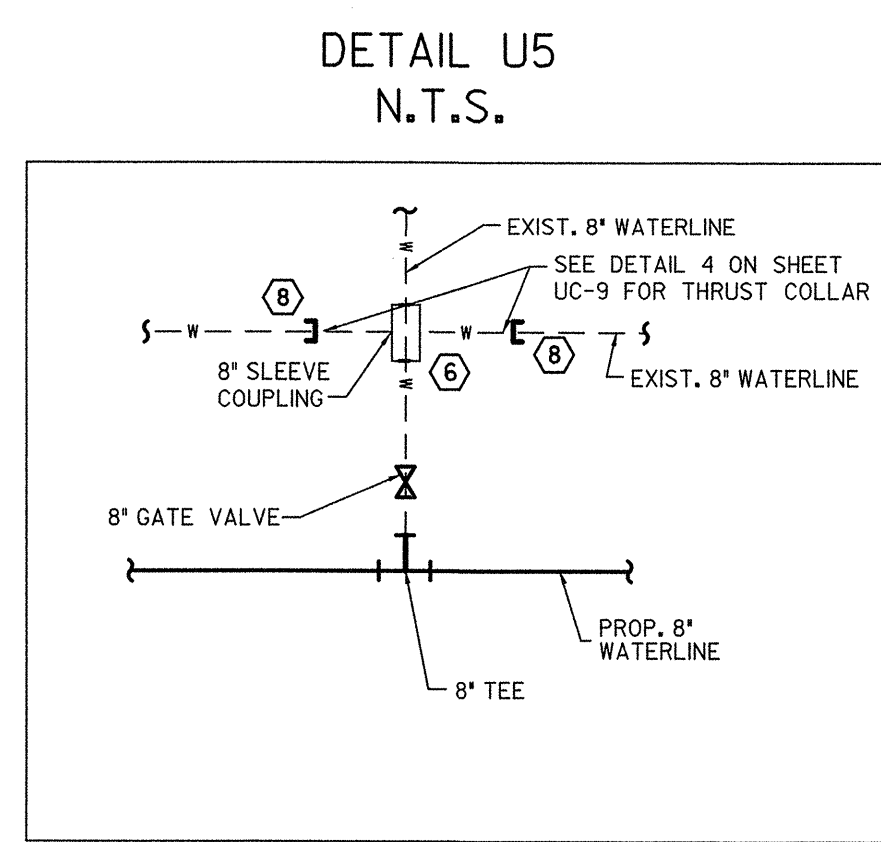
UTILITY OWNER INFORMATION

UTILITY OWNER: ROBESON COUNTY
DEPARTMENT OF PUBLIC WORKS

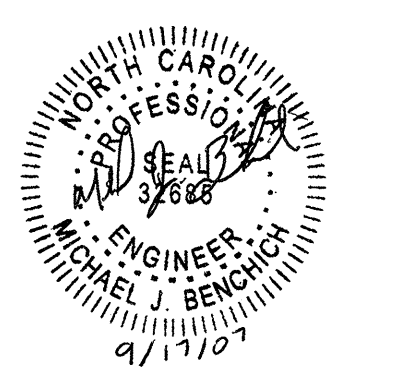
ADDRESS: 176 LEGEND ROAD
LUMBERTON, NC 28358

PHONE NO.: 910-671-3485

PI Sta. 16+11.68
 $\Delta = 1^{\circ}06'00.6''$ (RT)
 $D = 0^{\circ}56'33.8''$
 $L = 116.70'$
 $T = 58.35'$
 $R = 6,077.67'$
 $e = 0.026$
 Runoff = 86.3'



8/17/99
9/07/2007 11:07:18 AM
C:\pwork\proj\171616\171616.dwg



UTILITY CONSTRUCTION

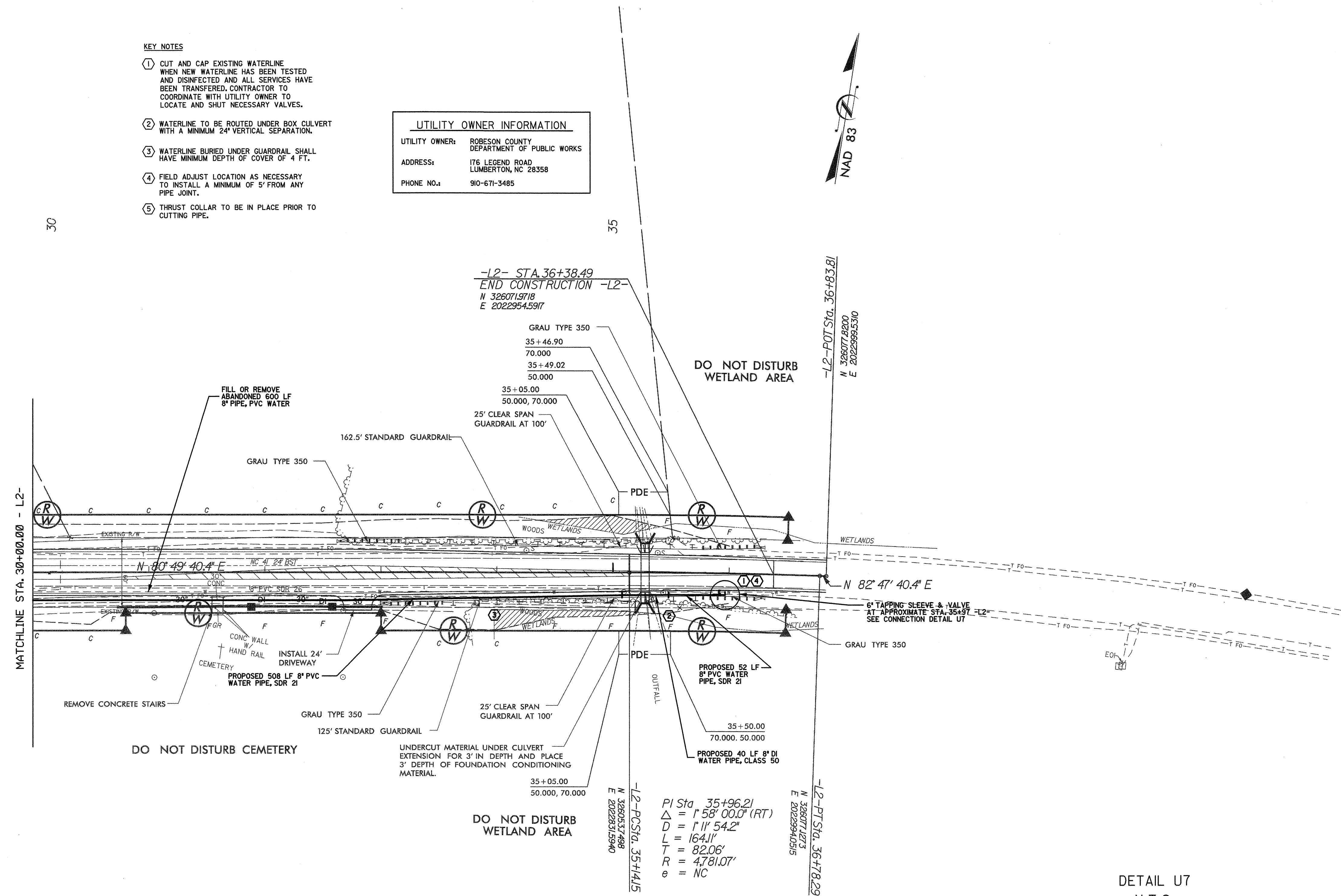
- KEY NOTES**
- CUT AND CAP EXISTING WATERLINE WHEN NEW WATERLINE HAS BEEN TESTED AND DISINFECTED AND ALL SERVICES HAVE BEEN TRANSFERRED. CONTRACTOR TO COORDINATE WITH UTILITY OWNER TO LOCATE AND SHUT NECESSARY VALVES.
 - WATERLINE TO BE ROUTED UNDER BOX CULVERT WITH A MINIMUM 24" VERTICAL SEPARATION.
 - WATERLINE BURIED UNDER GUARDRAIL SHALL HAVE MINIMUM DEPTH OF COVER OF 4 FT.
 - FIELD ADJUST LOCATION AS NECESSARY TO INSTALL A MINIMUM OF 5' FROM ANY PIPE JOINT.
 - THRUST COLLAR TO BE IN PLACE PRIOR TO CUTTING PIPE.

UTILITY OWNER INFORMATION

UTILITY OWNER: ROBESON COUNTY
DEPARTMENT OF PUBLIC WORKS

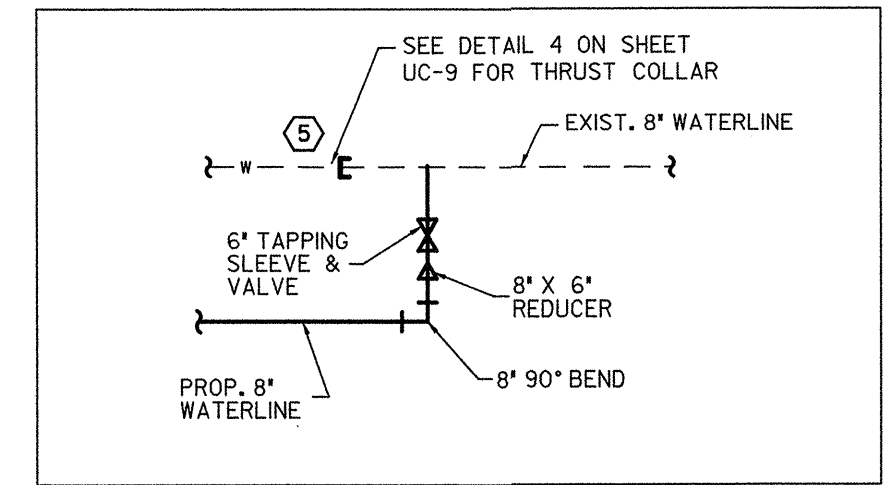
ADDRESS: 176 LEGEND ROAD
LUMBERTON, NC 28358

PHONE NO.: 910-671-3485

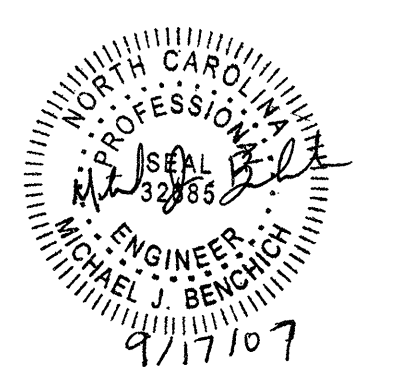


PI Sta. 35+96.21
 $\Delta = 1' 58'' 00.0'' (RT)$
 $D = 1' 11'' 54.2''$
 $L = 164.11'$
 $T = 82.06'$
 $R = 4,781.07'$
 $e = NC$

DETAIL U7
N.T.S.



8/17/99
9/13/2007 3:16:47 PM
C:\B\WORK\PROJECTS\UC-9.dwg (R=5017) ut1.msh UC-9.dwg



UTILITY CONSTRUCTION

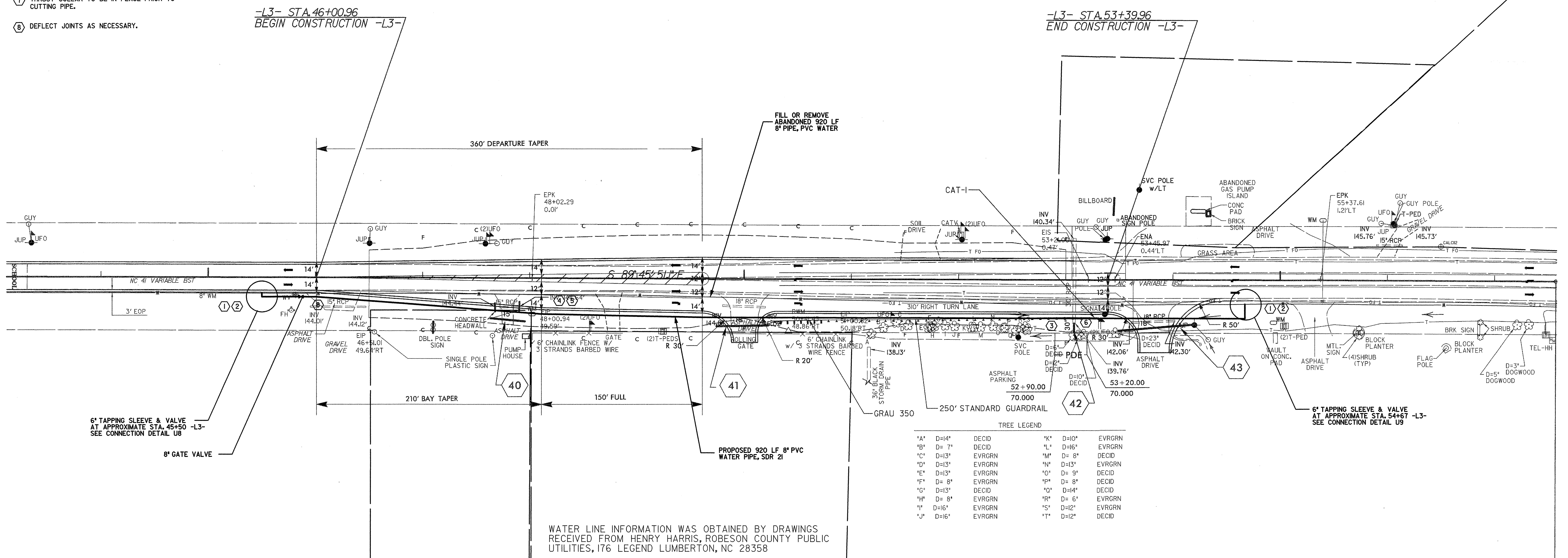
- KEY NOTES**
- CUT AND CAP EXISTING WATERLINE WHEN NEW WATERLINE HAS BEEN TESTED AND DISINFECTED AND ALL SERVICES HAVE BEEN TRANSFERRED. CONTRACTOR TO COORDINATE WITH UTILITY OWNER TO LOCATE AND SHUT NECESSARY VALVES.
 - FIELD ADJUST LOCATION AS NECESSARY TO INSTALL A MINIMUM OF 5' FROM ANY PIPE JOINT.
 - WATERLINE BURIED UNDER GUARDRAIL SHALL HAVE MINIMUM DEPTH OF COVER OF 4 FT.
 - SHORT SIDE SERVICE CONNECTION. TRANSFER SERVICE TO NEW WATERLINE
 - RELOCATE WATER METER OUT OF PROPOSED DITCH.
 - WATERLINE TO BE ROUTED UNDER 30" RCP WITH A MINIMUM OF 18" VERTICAL SEPARATION.
 - THRUST COLLAR TO BE IN PLACE PRIOR TO CUTTING PIPE.
 - DEFLECT JOINTS AS NECESSARY.

UTILITY OWNER INFORMATION

UTILITY OWNER: ROBESON COUNTY
DEPARTMENT OF PUBLIC WORKS

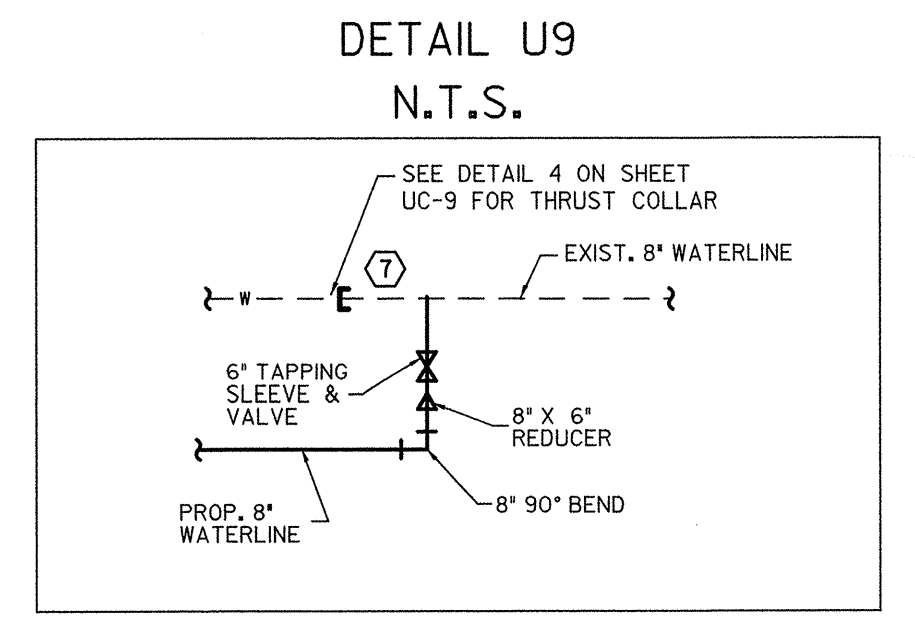
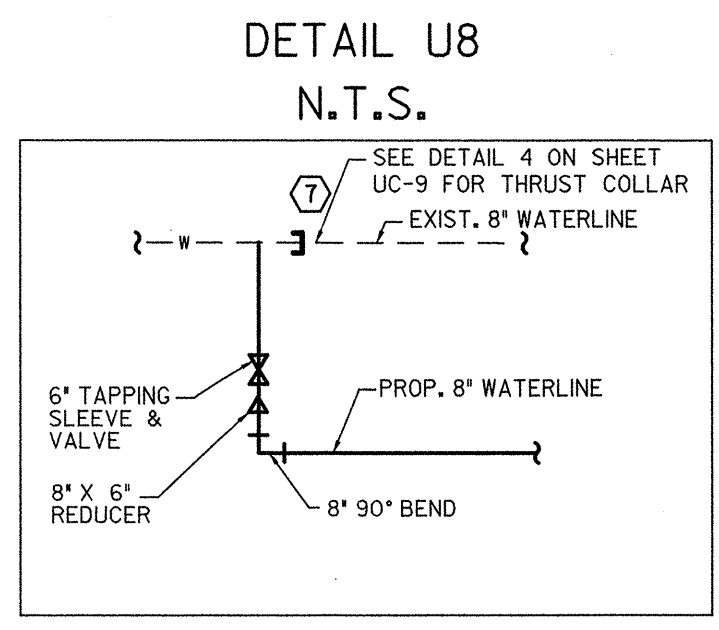
ADDRESS: 176 LEGEND ROAD
LUMBERTON, NC 28358

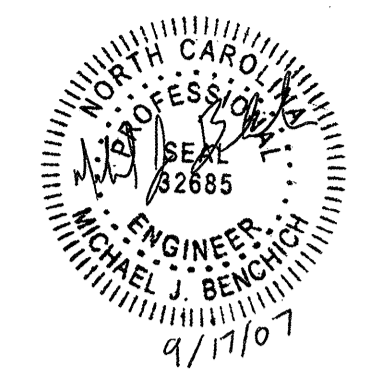
PHONE NO.: 910-671-3485



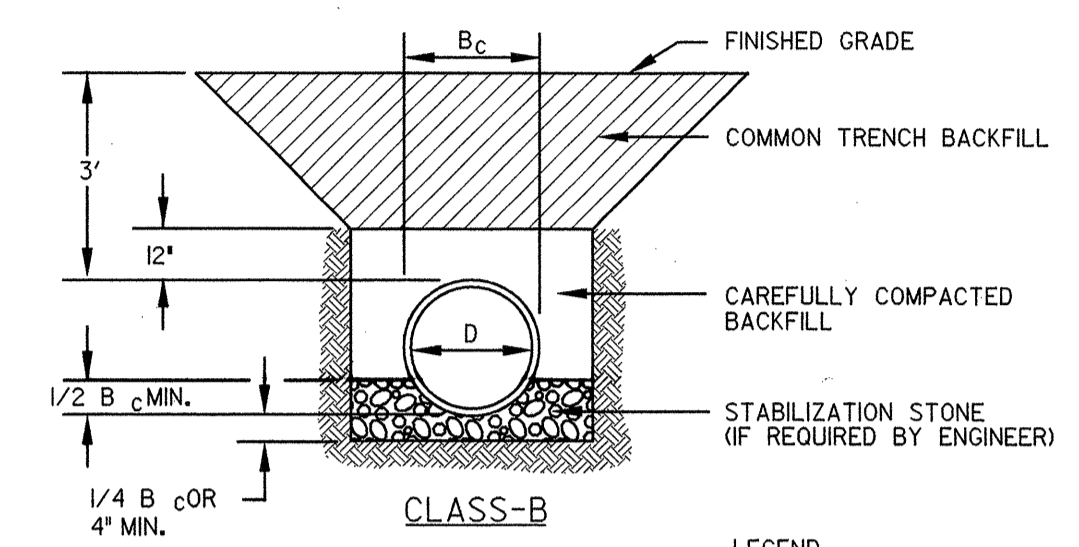
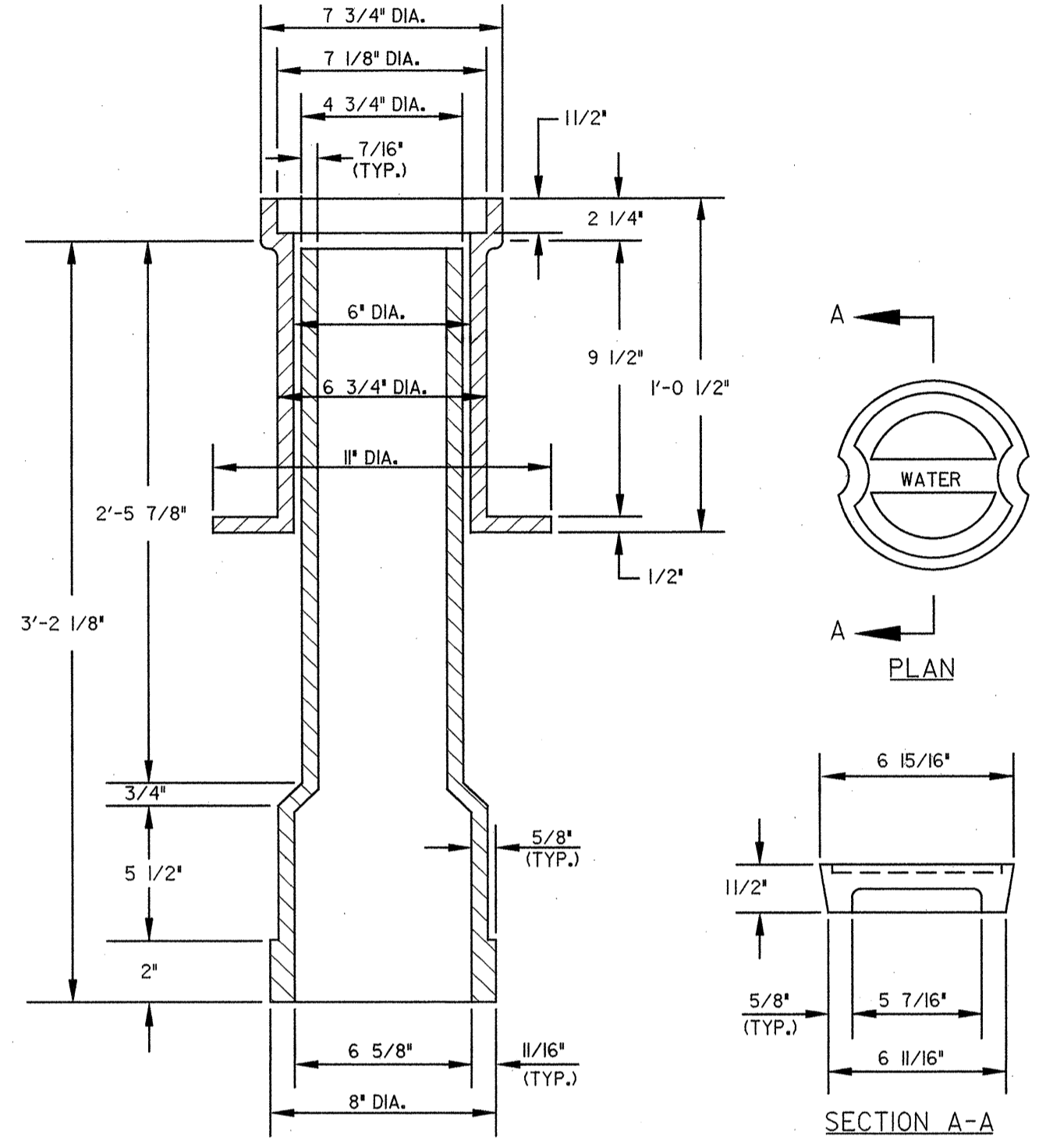
TREE LEGEND

A D=14" DECID	*K* D=10" EVRGRN
B D=7" DECID	*L* D=16" EVRGRN
C D=13" EVRGRN	*M* D=8" DECID
D D=13" EVRGRN	*N* D=13" EVRGRN
E D=13" EVRGRN	*O* D=9" DECID
F D=8" EVRGRN	*P* D=8" DECID
G D=13" DECID	*Q* D=14" DECID
H D=8" EVRGRN	*R* D=6" EVRGRN
I D=16" EVRGRN	*S* D=12" EVRGRN
J D=16" EVRGRN	*T* D=12" DECID



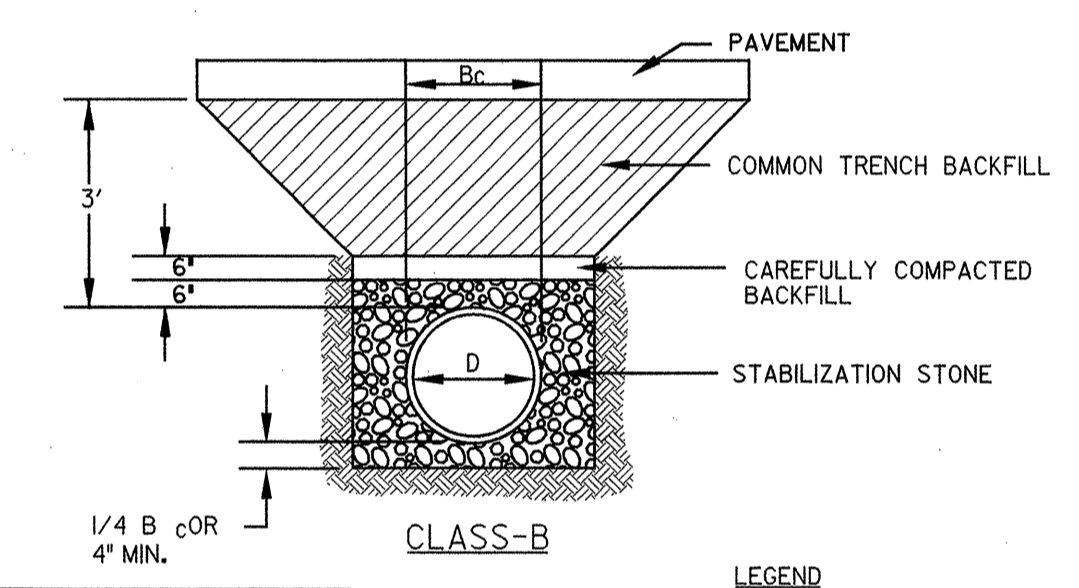


UTILITY CONSTRUCTION



LEGEND
B_c - OUTSIDE DIAMETER
D - INSIDE DIAMETER

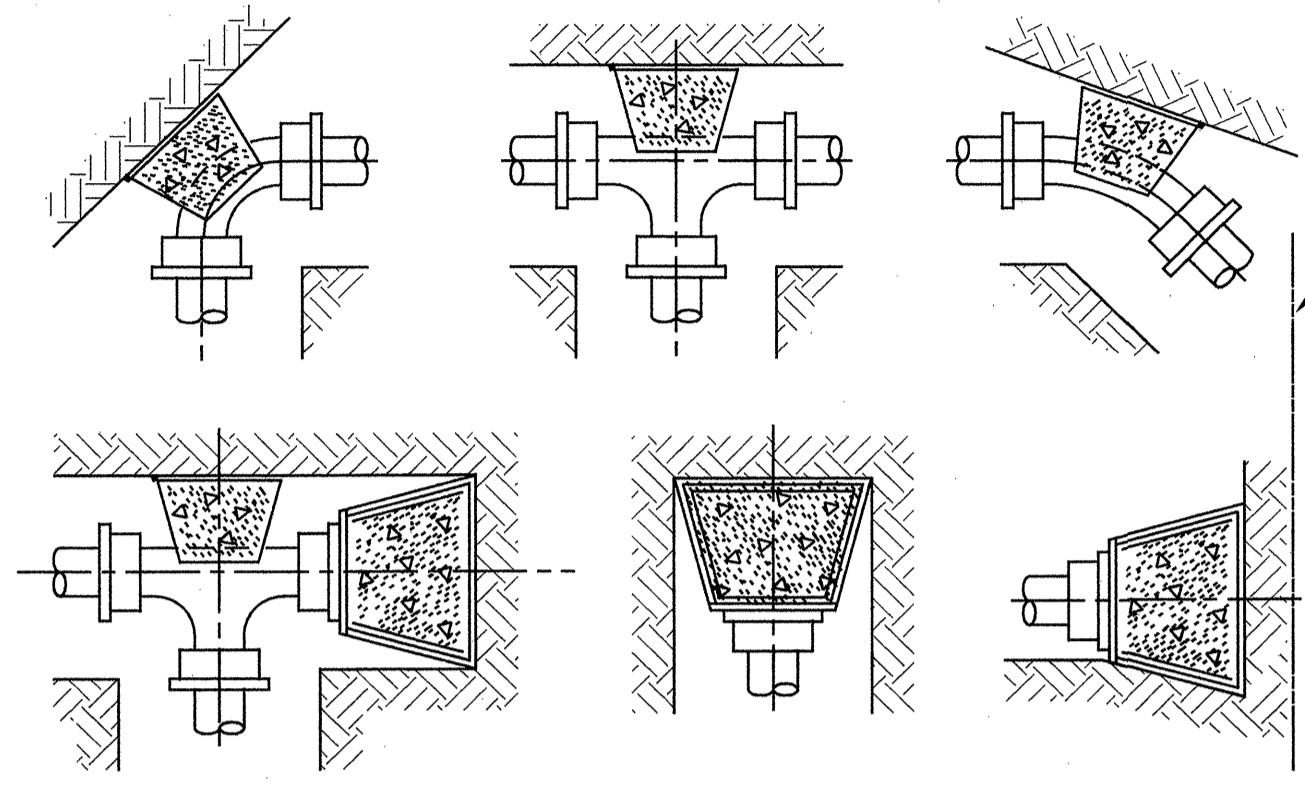
NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
8	32
12	36



LEGEND
B_c - OUTSIDE DIAMETER
D - INSIDE DIAMETER

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
8	32
12	36

PIPE BEDDING DETAIL
NTS

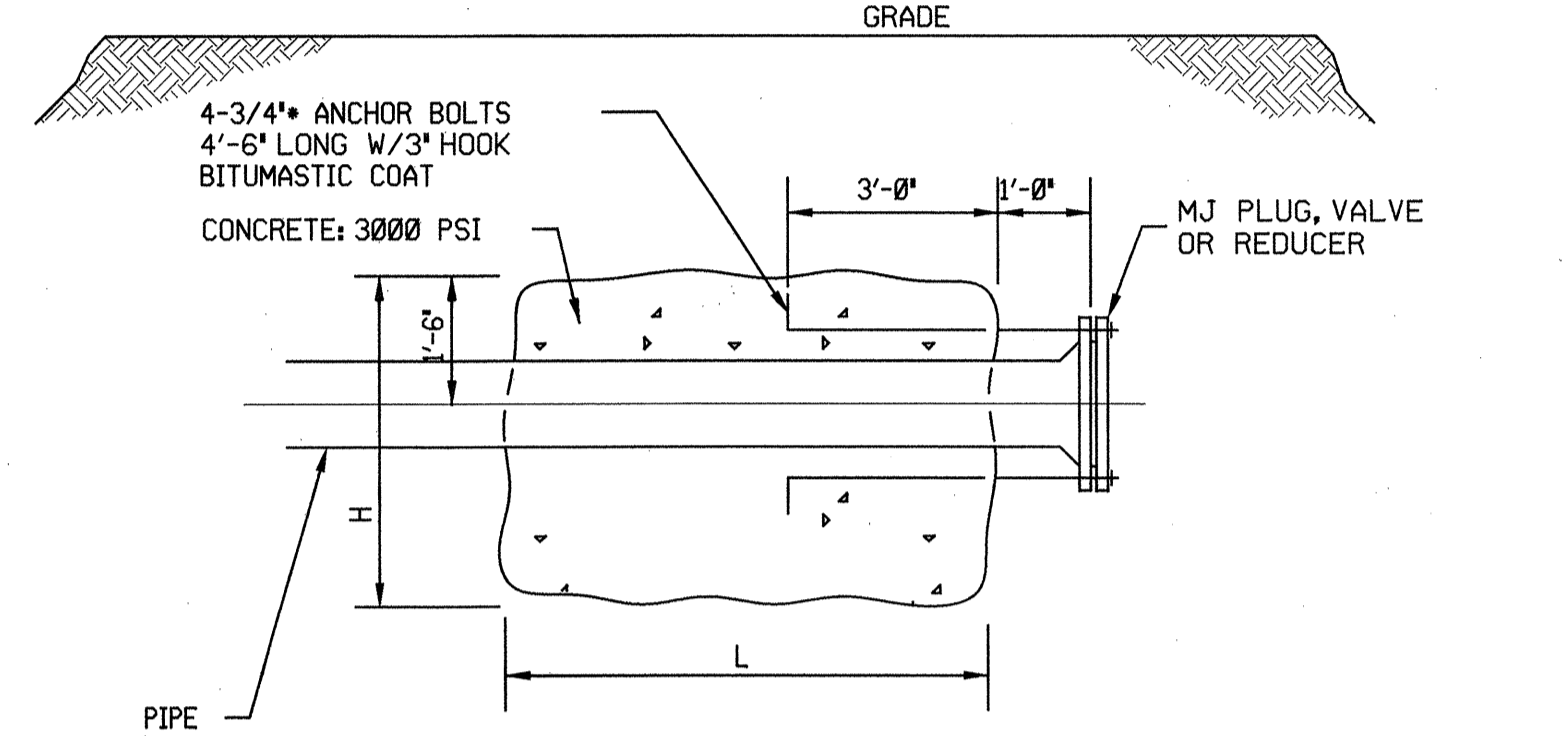


- NOTES
1. THESE DETAILS ARE FOR BOTH VERTICALLY & HORIZONTALLY LAID PIPE.
 2. POURED IN PLACE CONCRETE SHALL BE 3000 PSI.
 3. LEAVE JOINTS CLEAR OF CONCRETE FOR EASY ACCESS.
 4. POLYETHYLENE SHALL BE WRAPPED AROUND FITTINGS.
 5. TABLE ASSUMES A MAX. WATER PRESSURE OF 150 PSI.

BEARING AREA OF THRUST BLOCK IN SQUARE FEET

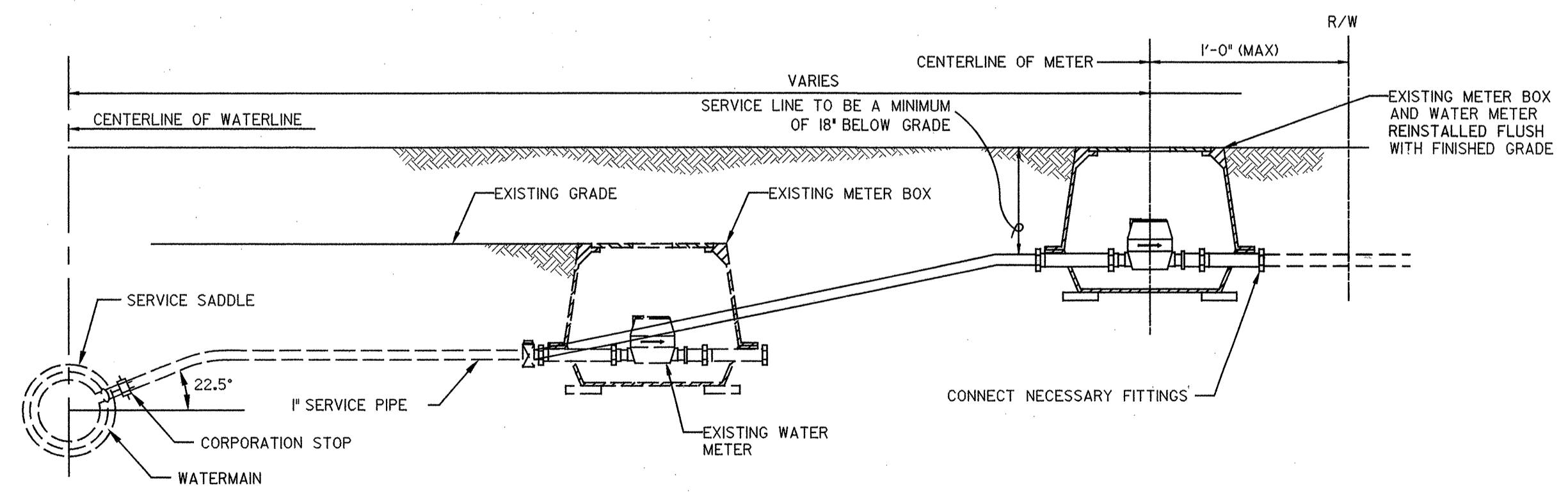
FITTING SIZE	90° FITTING	45° FITTING	22 1/2° FITTING	11/4° FITTING	TEE FITTING	PLUG OR CAP
8"	12.0	7.0	4.0	2.0	17.0	17.0
12"	26.0	14.0	8.0	4.0	37.0	37.0

CONCRETE BLOCKING DETAIL
NTS

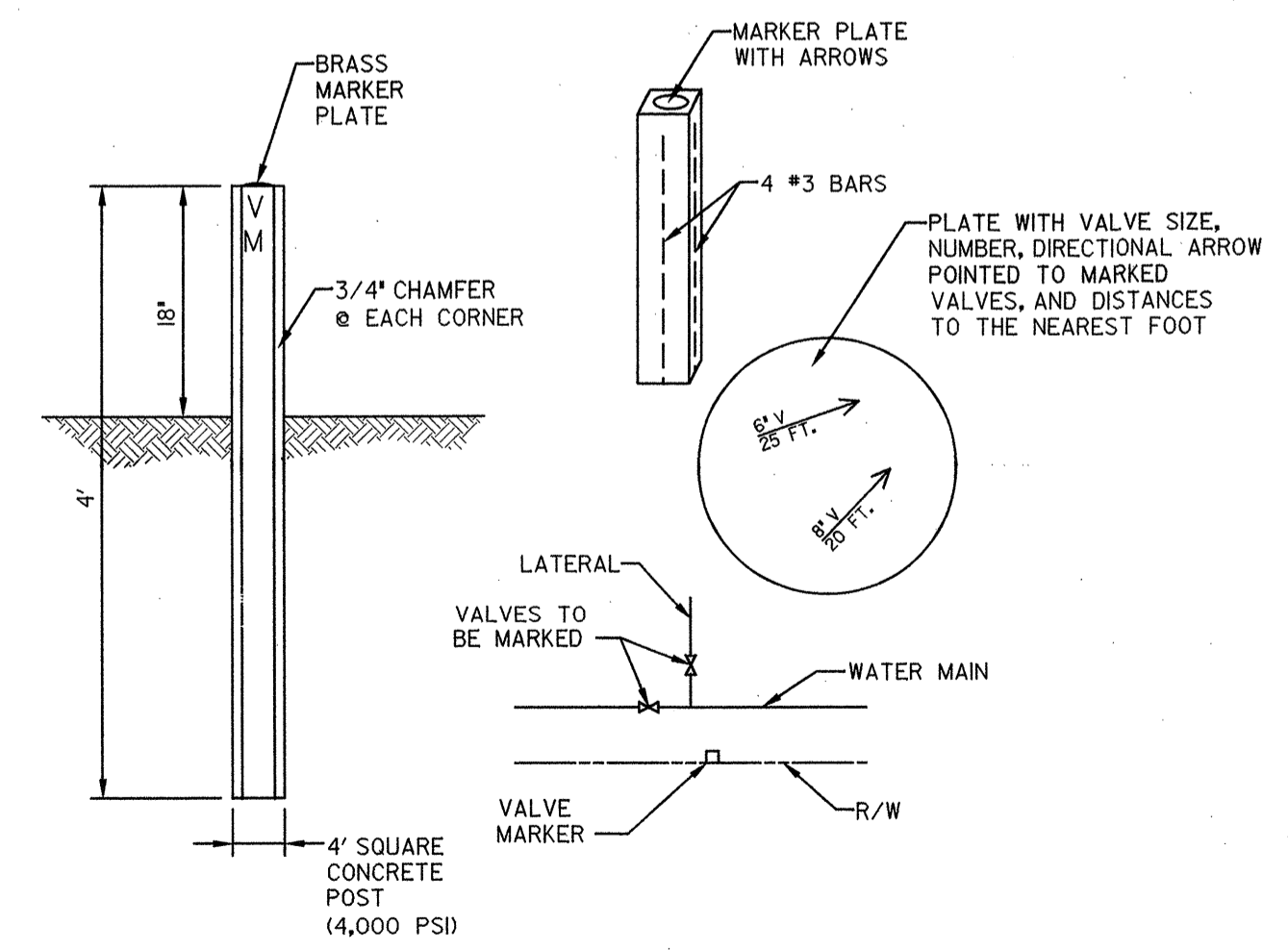


PIPE DIAMETER	L	W	H
4"	2'	2'	3'
6"	5'	3'	3'
8"	6'	3.5'	4'
10"	8'	4'	4'

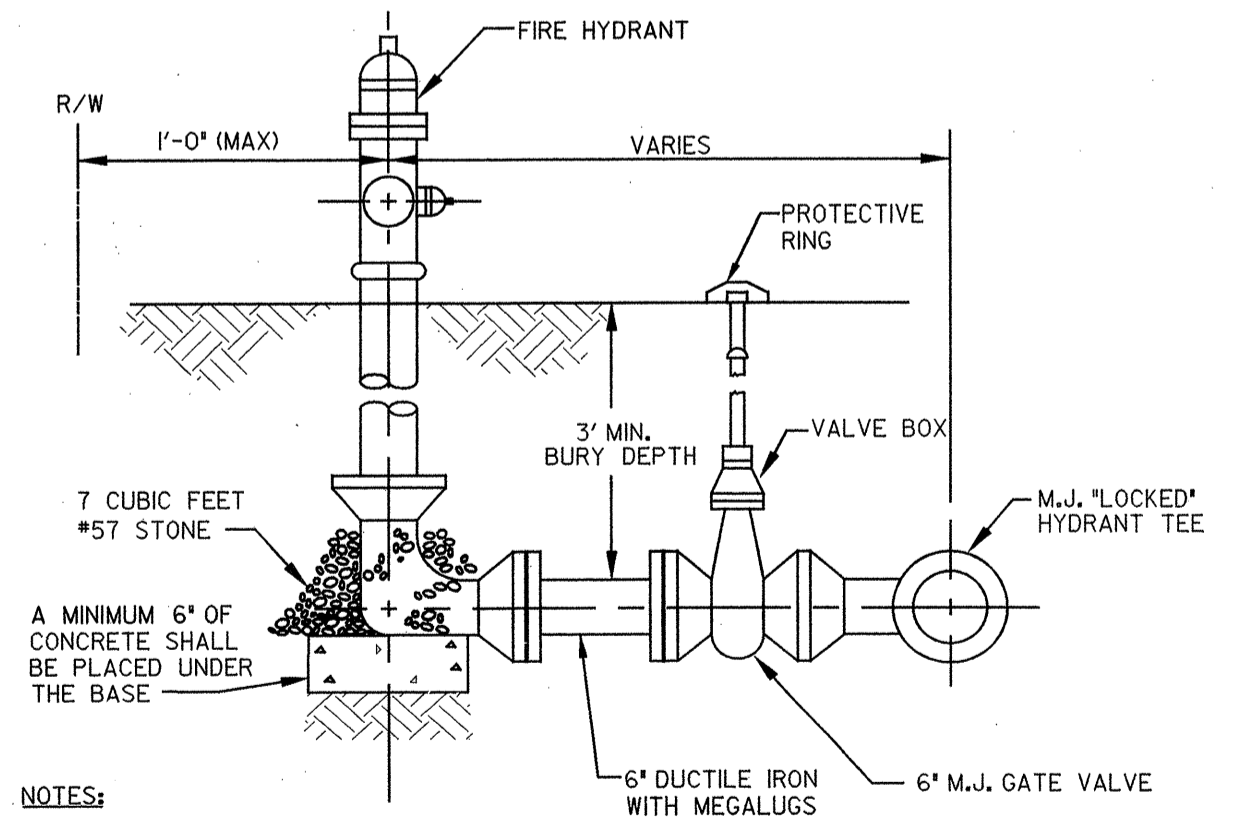
THRUST COLLAR DETAIL
NTS



WATER METER RELOCATION DETAIL
NTS



VALVE MARKER DETAIL
NTS



- NOTES
1. DO NOT COVER ANY JOINT WITH CONCRETE.
 2. BLOCKS SHALL BE PLACED AGAINST UNDISTURBED EARTH. DO NOT BLOCK WEEP HOLES ON HYDRANTS.
 3. ALL JOINTS TO BE RESTRAINED USING MEGALUGS.

FIRE HYDRANT DETAIL
NTS

REVISIONS

9/19/2007 2:55:53 PM C:\pwworkspace\TRPA\dwg\171611R-EM17.LIT.DWG

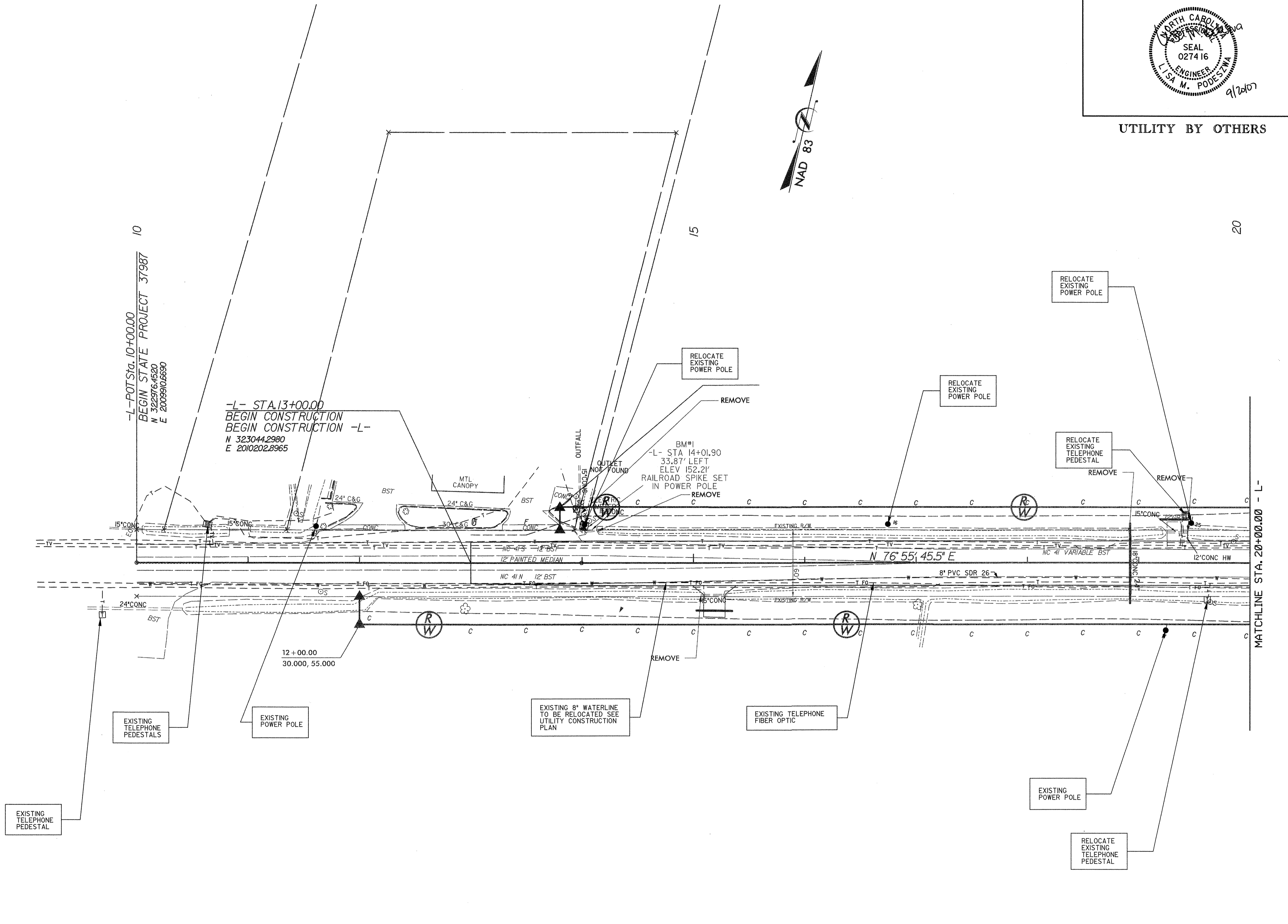
8/17/99

9/18/2007 10:10:56 AM C:\Bills\1000\TPA\1000\17161\AR-5017.dwg PSH\10-1.dwg

PROJECT REFERENCE NO. R-5017	SHEET NO. U0-1
RW SHEET NO.	

UTILITY BY OTHERS

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "COX" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 326119.367(FI) EASTING: 2023359.356(FI) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999281 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "COX" TO L- STATION IS
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

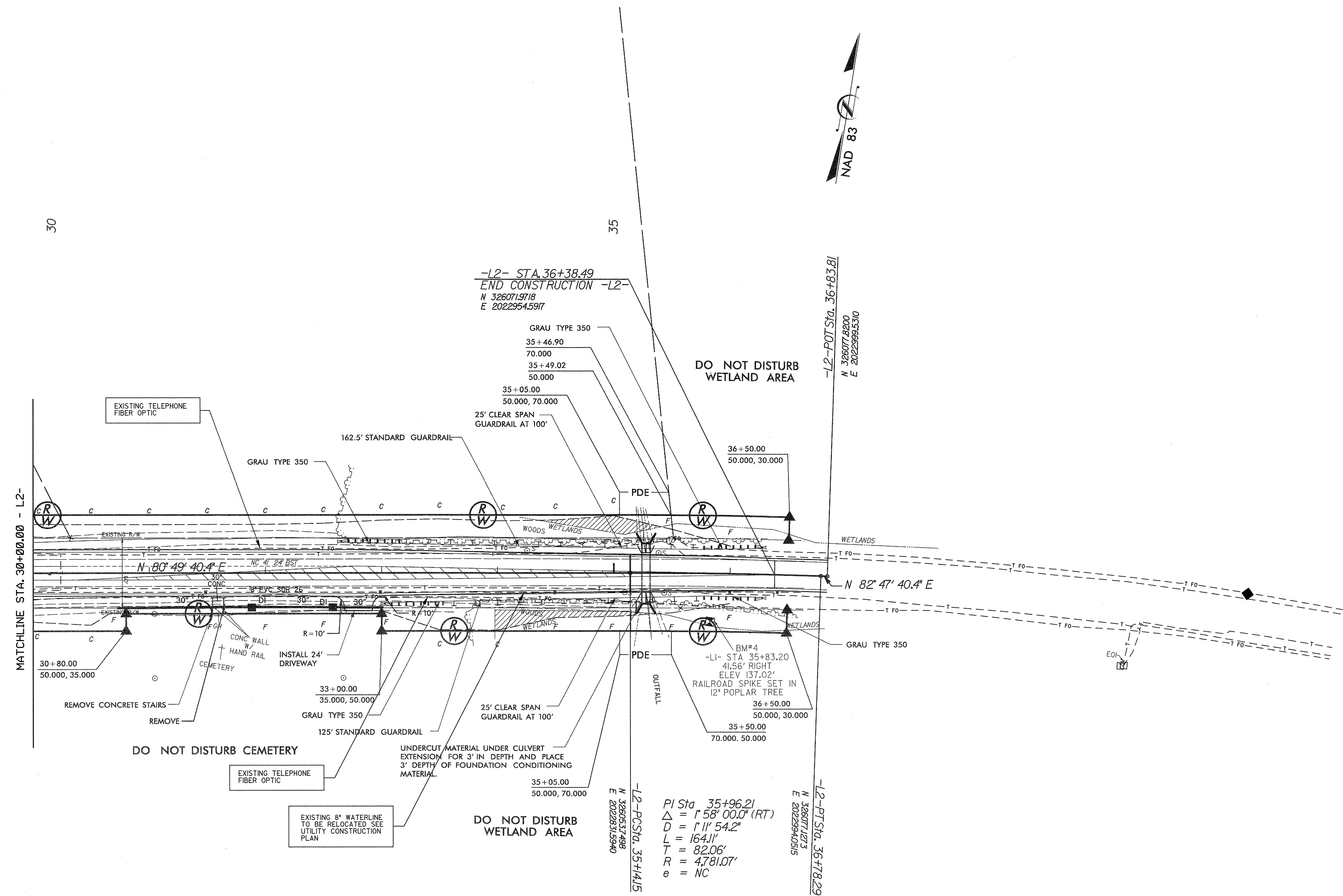


NOTE:
 RELOCATION OF EXISTING UTILITIES WILL BE DETERMINED BY PROJECT UTILITY AGENT AND RESIDENT ENGINEER.

8/17/95

9/18/2007 11:45:00 AM

PROJECT REFERENCE NO. R-5017	SHEET NO. U0-5
RW SHEET NO.	
UTILITY BY OTHERS	



NOTE:
RELOCATION OF EXISTING UTILITIES WILL BE DETERMINED
BY PROJECT UTILITY AGENT AND RESIDENT ENGINEER.

