Sht 01

09/09/99

TIP PROJECT: U-3810

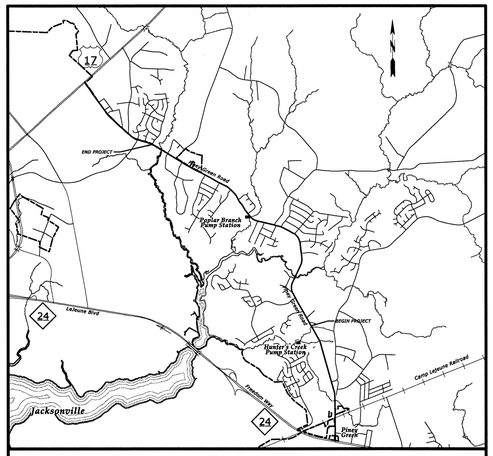
T.I.P. NO.	SHEET NO.
U-3810	UC-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

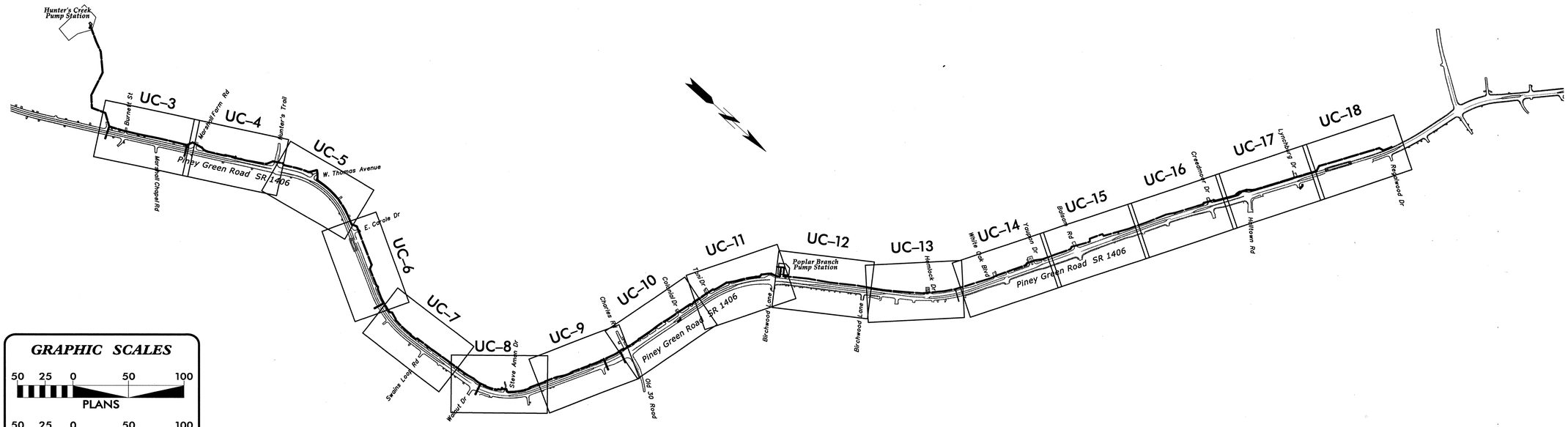
UTILITY CONSTRUCTION PLANS
ONSLOW COUNTY

LOCATION: PINEY GREEN ROAD

TYPE OF WORK: SANITARY SEWER – GRAVITY & FORCE MAIN



VICINITY MAP



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

PREPARED IN THE OFFICE OF:

75 YEARS
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3589
License Number: F-0115

Marty Stone, P.E. — *UTILITIES PROJECT MANAGER*
Joshua Outlaw, P.E. — *UTILITIES PROJECT ENGINEER*

INDEX OF SHEETS

SHEET NO.	*DESCRIPTION*
UC-1	*TITLE SHEET*
UC-2	*GENERAL NOTES & LEGEND*
UC-3 THRU UC-21	*UTILITY CONSTRUCTION PLAN & PROFILE SHEETS*
UC-22 THRU UC-24	*DETAIL SHEET(S)*

SEWER OWNERS ON PROJECT

(1) ONWASA

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023003 ENGINEER MARTY D. STONE
5-23-12

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

Roger Worthington, P.E. — *UTILITIES SECTION ENGINEER*
Corey Bousquet, P.E. — *UTILITIES SQUAD LEADER PROJECT ENGINEER*
Eric Haugaard, P.E. — *UTILITIES PROJECT DESIGNER*

NCDOT - 2896 NO - PINEY GREEN PHASE 3 SEWER

tkeith
print2pdfx.plt
1.0000 ft / in.
5/23/2012 1:31:07 PM
T:\Projects \ONWASA-2896 \M-Trunk \Sheets \NCDOT_PG_Plot_Shts_UC1-UC2-UC22-UC23.dgn

Sht 02

8/17/99

REVISIONS

tkeith
print2pdfx.plt
1.0000 ft / in.
5/31/2012 4:53:57 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC1-UC2-UC22-UC23.dgn

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
75 YEARS
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3589
License Number: F-0115

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-2
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027302 TIMOTHY D. STONE 5-31-12

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

GENERAL NOTES

1. EXISTING UTILITIES ARE LOCATED ON PLANS APPROXIMATELY. NOTIFY UTILITY LOCATING SERVICE TO MARK LOCATION OF EXISTING UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION ACTIVITY. CONTRACTOR RESPONSIBLE FOR VERIFYING EXACT LOCATION OF THESE EXISTING UTILITIES. THE COST TO REPAIR THESE FACILITIES, IF DAMAGED, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

2. PROTECT EXISTING PROPERTY CORNER MARKERS. REPLACE DISTURBED PROPERTY CORNERS BY A PROFESSIONAL LAND SURVEYOR.

3. FOR AREAS OUTSIDE DOT RIGHT-OF-WAY, CLEAR AND GRUB PERMANENT EASEMENT IN ITS ENTIRETY AND TEMPORARY EASEMENT ONLY AS NECESSARY TO INSTALL SEWER LINE. TEMPORARILY REMOVE MINOR ITEMS AS REQUIRED FOR THE INSTALLATION OF THE UTILITY. MINOR ITEMS SHALL INCLUDE, BUT NOT BE LIMITED TO, EXISTING SIGNS, MAIL BOXES, STORM SEWER PIPES, REINSTALL ITEMS TO THEIR ORIGINAL CONDITION. INCLUDE COST IN THE PER FOOT COST OF THE UTILITY BEING INSTALLED.

4. SUPPORT EXISTING POLES, FENCES, CULVERTS, PAVEMENT, UTILITIES, CURBING AND OTHER STRUCTURES DURING CONSTRUCTION. REPAIR DAMAGED ITEMS TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST.

5. 6 INCHES OF NCDOT ABC AGGREGATE SHALL BE PROVIDED FOR THE FULL WIDTH OF UNPAVED DRIVEWAYS AND OTHER GRAVEL AREAS FOR THE DISTURBED AREAS. CONTRACTOR SHALL MINIMIZE DISTURBANCE. PAYMENT WILL BE MADE UNDER INCIDENTAL STONE BASE.

6. OPEN CUT PAVED DRIVEWAYS, SIDEWALKS, AND CURB AND GUTTER. OUTSIDE OF NCDOT ROAD CONSTRUCTION LIMITS, REPLACE CURB AND GUTTER WITH NEW TO MATCH THE EXISTING CROSS SECTION.

7. INSTALL UTILITY MARKERS PER DETAIL(S) FROM STA. 25+59.20 TO STA. 134+50.

8. GRAVITY SEWER SERVICES ARE SHOWN IN APPROXIMATE LOCATIONS. CONTRACTOR TO COORDINATE WITH LANDOWNER TO DETERMINE ACTUAL LOCATION. SEWER SERVICES INCLUDE ALL PIPING AND APPURTENANCES PER DETAIL.

9. ALL DUCTILE IRON PIPE SHALL BE CL52 UNLESS NOTED OTHERWISE. ALL DUCTILE IRON PIPE SHALL BE CEMENT MORTAR LINED EXCEPT WHERE NOTED OTHERWISE. ALL DUCTILE IRON PIPE SHALL BE PLAIN END AND PUSH-ON JOINT EXCEPT WHERE NOTED OTHERWISE.

10. RESTRAINED JOINT PIPING

    A. PROVIDE RESTRAINED JOINT PIPE AT FITTINGS AND VALVES WHERE INDICATED ON THE DRAWINGS. LENGTH OF RESTRAINED PIPE SHALL BE AS SHOWN. RESTRAINED JOINTS SHALL BE SNAP-LOK (GRIFFIN PIPE), FLEX RING AND LOK-RING (AMERICAN), TR FLEX (U.S. PIPE) OR APPROVED EQUAL.

    B. RESTRAINED JOINT PIPE AND FITTINGS SHALL MEET ALL AWWA STANDARDS AND OTHER REQUIREMENTS AS SPECIFIED ABOVE FOR STANDARD DUCTILE IRON PIPE AND FITTINGS UNLESS ADDRESSED HEREIN.

    C. FIELD MADE JOINTS ARE ALLOWABLE BUT SHOULD BE AVOIDED WHERE POSSIBLE. CAREFUL PLANNING TO LOCATE FIELD CUTS IN STANDARD PIPE SECTIONS IS PREFERRED. FOR FIELD MADE JOINTS IN RESTRAINED PIPING, USE FIELD WELDMENTS OR AND INSERT EQUAL TO TR FLEX GRIPPER RINGS OR APPROVED EQUAL. GASKET TYPE FIELD MADE JOINTS WILL NOT BE ALLOWED.

    D. RESTRAINED JOINT FITTINGS SHALL BE PROVIDED BY THE RESTRAINED JOINT PIPE SUPPLIER FOR WHERE LOCATED WITHIN RESTRAINED JOINT PIPE SECTIONS. FITTINGS SHALL BE OF THE SAME MODEL AS THE PIPE SUPPLIED FROM THE PIPE MANUFACTURER.

    E. RESTRAINED JOINT FITTINGS MAY BE PUSH-ON JOINT TYPE.

    F. MEGALUGS, SERIES 1100, AS MANUFACTURED BY EBAA IRON SALES SHALL BE ALLOWABLE FOR RESTRAINT WHERE FITTINGS OR VALVES ARE NOT AVAILABLE WITH RESTRAINED JOINTS.

    G. WHERE ADDITIONAL FITTINGS/VALVES ARE REQUIRED AND NOT SHOWN ON DRAWINGS, CONSULT WITH ENGINEER FOR LENGTH OF RESTRAINED JOINT PIPE NECESSARY EACH SIDE OF FITTINGS/VALVE PRIOR TO INSTALLATION OF PIPE/FITTING.

    H. CONTRACTOR SHALL DEVELOP A FIELD LAYOUT SCHEDULE AND DRAWING FOR RESTRAINED JOINT PIPE INSTALLATIONS.

11. GRAVITY SEWER AND RESTRAINED SECTIONS OF FORCE MAIN TO BE INSTALLED USING THE LAYING CONDITION IN DETAIL 9 ON SHEET UC-23. UNRESTRAINED SECTIONS OF FORCE MAIN MAY BE INSTALLED USING DETAIL 9 ON SHEET UC-23 OR TYPE 2 OR GREATER LAYING CONDITIONS PER DETAIL 10 ON SHT UC-23.

12. MANHOLES INSTALLED ON EMBANKMENT SLOPES GREATER THAN 5:1, THE UPHILL SIDE OF THE MANHOLE RIM SHALL BE 3" ABOVE FINISHED GRADE.

13. REQUIREMENTS FOR HIGH VELOCITY MANHOLE, LININGS AS REQUIRED AND MANHOLE APPURTENANCES SHALL BE INCIDENTAL TO MANHOLE CONSTRUCTION.

14. ALL EROSION CONTROL TO BE PER ROADWAY PLANS. ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO KEEP SEDIMENT ON SITE SHALL BE INSTALLED AT NO ADDITIONAL COST TO OWNER.

15. ALL PIPE INSTALLED IS PAID FOR BASED ON HORIZONTAL DISTANCE ONLY.

16. ALL FITTINGS, MARKERS, PLUGS, POLYETHYLENE WRAP, LININGS, AND OTHER APPURTENANCES ARE INCIDENTAL TO PIPE.

17. BORE AND JACK WILL BE PAID FOR AS "TRENCHLESS INSTALL OF X" IN SOIL", AND/OR "TRENCHLESS INSTALL OF X" NOT IN SOIL", WITH X" BEING DIAMETER OF THE ENCASEMENT PIPE.

18. HORIZONTAL DIRECTIONAL DRILL WILL BE PAID FOR AS "TRENCHLESS INSTALL OF X" IN SOIL" AND/OR "TRENCHLESS INSTALL OF X" NOT IN SOIL" AND PIPE TO BE PAID AS X" FORCE MAIN. THE SIZE PIPE SHOWN REPRESENTS THE INSIDE DIAMETER OF THE FORCE MAIN ON EITHER SIDE OF THE DRILL. INSIDE DIAMETER OF HDPE MUST EQUAL OR BE GREATER THAN INSIDE DIAMETER OF FORCE MAIN ON EITHER SIDE OF THE HORIZONTAL DIRECTIONAL DRILL.

19. IF A CONFLICT WITH A PRIVATE SEPTIC TANK DRAIN LINE (DRAIN FIELD) IS ENCOUNTERED, THE CONTRACTOR SHALL STOP WORK AND CONTACT MATTHEW HYPES, PE AT ONWASA (1-910-937-7525). CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING LINE IN ACCORDANCE WITH THE ONSLOW COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH REQUIREMENTS TO KEEP LINE TEMPORARILY IN SERVICE AT NO ADDITIONAL COST. ONWASA WILL COORDINATE PERMANENT REPAIR OF THE SEWER DRAIN LINE TO A LOCATION OUTSIDE OF EASEMENT AS NECESSARY. RELOCATION WORK BY OTHERS WILL BE COMPLETED WITHIN 4 WEEKS AFTER NOTIFICATION BY CONTRACTOR.

LEGEND

SURVEY

EXISTING		NEW
BM	BENCHMARK	
TBM	TEMPORARY BENCHMARK	
CMON	CONCRETE MONUMENT	
CIP	IRON PIPE	IPS
HT	HUB & TACK	■
NL	NAIL	NLS
NC	NAIL & CAP	●
PK	PK NAIL	PKS
578.7	SPOT ELEVATION	
565.5	CONTROL POINT	
	PAVED ROADS	
	UNPAVED ROADS	
	UNPAVED DRIVEWAYS & PARKING	
T	GUARDRAIL	
	PERMANENT EASEMENT	
	TEMPORARY CONSTRUCTION EASEMENT	
	NCDOT CONSTRUCTION EASEMENT — E —	
	NCDOT PERMANENT UTILITY EASEMENT — PUE —	
	NCDOT PERMANENT DRAINAGE UTILITY EASEMENT — DUE —	
	NCDOT PERMANENT DRAINAGE EASEMENT — PDE —	
	NCDOT ROW	

SEWER

EXISTING		NEW
SSMH	MANHOLE	●
CO	CLEAN OUT	
SS	SEWER LINE	SS
FSS	FORCE MAIN	FM
AV	AIR VALVE	AV
	PLUG VALVE	

WATER

EXISTING		NEW
WV	WATER VALVE	
BFV	BUTTERFLY VALVE	
FH	FIRE HYDRANT	
RED	REDUCER/INCREASER	
BOA	BLOW-OFF ASSEMBLY	
	AIR RELEASE MANHOLE	
WM	WATER METER	
	PLUG	
YH	YARD HYDRANT	
WELL	WELL	
W	WATER LINE	

STORM DRAINAGE

EXISTING		NEW
	CATCH BASIN / INLET	■
FES	FLARED END SECTION	
STMH	MANHOLE	
	STORM PIPE	

EROSION CONTROL

EXISTING		NEW
TOB	TOP OF BANK	
	DITCH / SWALE	
WLB	WETLAND BOUNDARY	
JS NEU	STREAM	

UTILITIES

EXISTING		NEW
PP	POWER/LIGHT POLE	
GUY	GUY WIRE	
CATV	CABLE TV PEDESTAL	
TEL PED	TELEPHONE PEDESTAL	
TN	TRANSFORMER	
	MANHOLE	
FOC	FIBER OPTIC CABLE WARNING POST	
P	POWER	
G	GAS	
FOC	FIBER OPTIC	
T	TELEPHONE	
TV	TV / CABLE	

VEGETATION

EXISTING		NEW
	TREE LINES / WOODS	
	SINGLE TREE	
	SHRUB	

NCDOT CONTROL PT
BL-48
STA. 27+74±, 11 LF± RIGHT
EL = 24.30

NCDOT CONTROL PT
BL-47
STA. 32+08±, 85 LF± RIGHT
EL = 30.69

NOTE:
NCDOT CONTRACT WILL BEGIN WITH MANHOLE NO. 8.
OUTLET TO BE PLUGGED FOR FUTURE CONNECTION.

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3569
License Number: F-0215

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-3
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023003 ENGINEER
4-24-12
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

Property of Hadnot Farm Investments, LLC DB 3462 PG 199
Property of Roy L Hurst DB 3450 PG 960
Property of Hadnot Farm Investments, LLC DB 2959 PG 661
Property of Roy L Hurst DB 422 PG 102
Property of Clifford R Robinson DB 1571 PG 1072
Property of Stanley B Washington & wife, Thelma Washington & Vanessa Washington DB 2949 PG 255
Property of Sampson Jones, Jr. & Sandra J Smith DB 613 PG 351
Property of Herbert C Holliday DB 912 PG 616
Property of Theodore R & Patricia L Brown Trustees of Brown Family Revocable Living Trust, U A D DB 2502 PG 132
Property of Hadnot Farm Investments, LLC DB 2959 PG 661
Property of Carrie Washington DB 258 PG 258
Property of Alvin R. Hobbs, Heirs DB 247 PG 562
Property of Theresa Pollock, George Pearson, Regina Pettiford & Sharon Wood DB 2028 PG 150

Burnett St SR 1739
Piney Green Road SR 1406
Bridge Side Drive East SR 1814
Marshall Chapel Rd SR 1419

MANHOLE NO. 9
STA. 27+55.44
∠176° 20' 43"
N 364,178.73
E 2,502,851.71

MANHOLE NO. 8
STA. 25+59.20-
STA. 145+00
∠123° 11' 51" (MH 9)
∠214° 27' 52" (MH 15)
N 364,001.45
E 2,502,935.88

MANHOLE NO. 10
STA. 29+55.24
∠178° 12' 45"

MANHOLE NO. 11
STA. 32+67.96
∠182° 05' 45"

MANHOLE NO. 15
STA. 146+69.41
N 364,070.71
E 2,503,090.49

STRUCTURE TO BE REMOVED PRIOR TO CONSTRUCTION BY OTHERS

PROVIDE 130 LF OF 36" STEEL ENCASEMENT PIPE W/ 24" DI SANITARY SEWER (BY DRY BORE & JACK)

NEW SERVICE LATERAL, TYP. (SEE DETAIL 4/UC-24)

STRUCTURE TO BE REMOVED PRIOR TO CONSTRUCTION BY OTHERS

SEWER STATIONING (TYP.)

SANITARY SEWER EASEMENT

10' x 10' TEMPORARY CONSTRUCTION EASEMENT

TEMPORARY RECEIVING PIT (APPROX. SIZE & LOCATION)

TEMPORARY BORE PIT (APPROX. SIZE & LOCATION)

PROVIDE 126 LF OF 24" STEEL ENCASEMENT PIPE W/ 12" DI SANITARY SEWER

NEW 12" SANITARY SEWER SEE PROFILE THIS SHEET

SANITARY SEWER EASEMENT

PROPOSED STORM DRAINAGE, TYP.

6" WATER MAIN

24" WATER MAIN

PROPOSED 18" RCP

ONWASA CONTRACT (BY OTHERS)
NCDOT CONTRACT

MATCH LINE STA. 35+75 - SEE SHEET UC-4

NCDOT STATIONING (TYP.)

HORIZ. : 1" = 50'
VERT. : 1" = 5'

12" SANITARY SEWER

MH NO. 8
STA 25+59.20-
STA 145+00.00
RIM EL = 26.0

MH NO. 15
STA 146+69.41
RIM EL = 19.20

Proposed Grade
Ex. Grade
C/L Piney Green Rd
Ex. 12" Water Main (Abandoned)
Ex. 36" RCP Inv=15.63 (To Be Removed)
Ex. 4" Water Line (Approx)
PROPOSED 42" RCP Inv=15.06
PROPOSED 36" RCP Inv=14.98
24" WATER MAIN Inv=11.8
Ex. 36" CMP Inv=15.09 (To be Removed)
24" STEEL ENCASEMENT
169.41 LF OF 12" D.I.P. SANITARY SEWER @ 0.24%
INV OUT = 5.49 (MH 9)
INV IN = 7.49 (MH 9)
INV IN = 6.50 (MH 15)
INV OUT = 6.91

BY OTHERS NCDOT CONTRACT

MH NO. 8
STA 25+59.20-
STA 145+00.00
RIM EL = 20.0

MH NO. 9
STA 27+55.44
RIM EL = 24.42

MH NO. 10
STA 29+55.24
RIM EL = 28.57

MH NO. 11
STA 32+67.96
RIM EL = 31.28

C/L Burnett St.
R/W
C/L Ditch
Ex. Grade
Proposed Grade
Proposed 18" RCP Inv=20.34
6" Water Main Inv=22.5
Ex. 2" Water Line (Approx)
36" STEEL ENCASEMENT
2'-0" MIN.
196.24 LF OF 24" D.I.P. SANITARY SEWER @ 3.22%
199.80 LF OF 24" D.I.P. SANITARY SEWER @ 3.00%
312.72 LF OF 24" D.I.P. SANITARY SEWER @ 0.37%
307.04 LF OF 24" D.I.P. SANITARY SEWER @ 0.10%
INV OUT = 13.81
INV IN = 13.91
INV OUT = 19.91
INV IN = 20.01
INV OUT = 21.18
INV IN = 21.28

24" SANITARY SEWER

145+00 146+00 147+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00

8/17/99

REVISIONS

Sht UC-3

tkeith
print2pdfx.plt
50.0000 '/ in.
4/23/2012 3:49:38 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC3 toUC 11.dgn

REVISIONS

8/17/99

NOTES:

1. NEW 14" FORCE MAIN TO BE LINED W/ PROTECTO 401 FROM STA. 38+38.31 TO STA. 44+12.
2. 24" GRAVITY SEWER TO BE LINED W/ PROTECTO 401 FROM MH NO. 12 TO MH NO. 14.
3. MH NO. 12, MH NO. 13 AND MH NO. 14 TO BE LINED W/ RAVEN 405, SAUEREISEN NO. F120/121 AND NO. 210S OR APPROVED EQUAL. LINING TO BE APPLIED PER MANUFACTURERS INSTRUCTIONS.
4. NEW 14" FORCE MAIN SHALL BE WRAPPED IN POLYETHYLENE FROM STA. 38+38.31 TO STA. 43+52.

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
75 YEARS
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh, NC 27603-1423
919.828.0531 fax 919.834.3589
License Number: F-0115

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-4
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

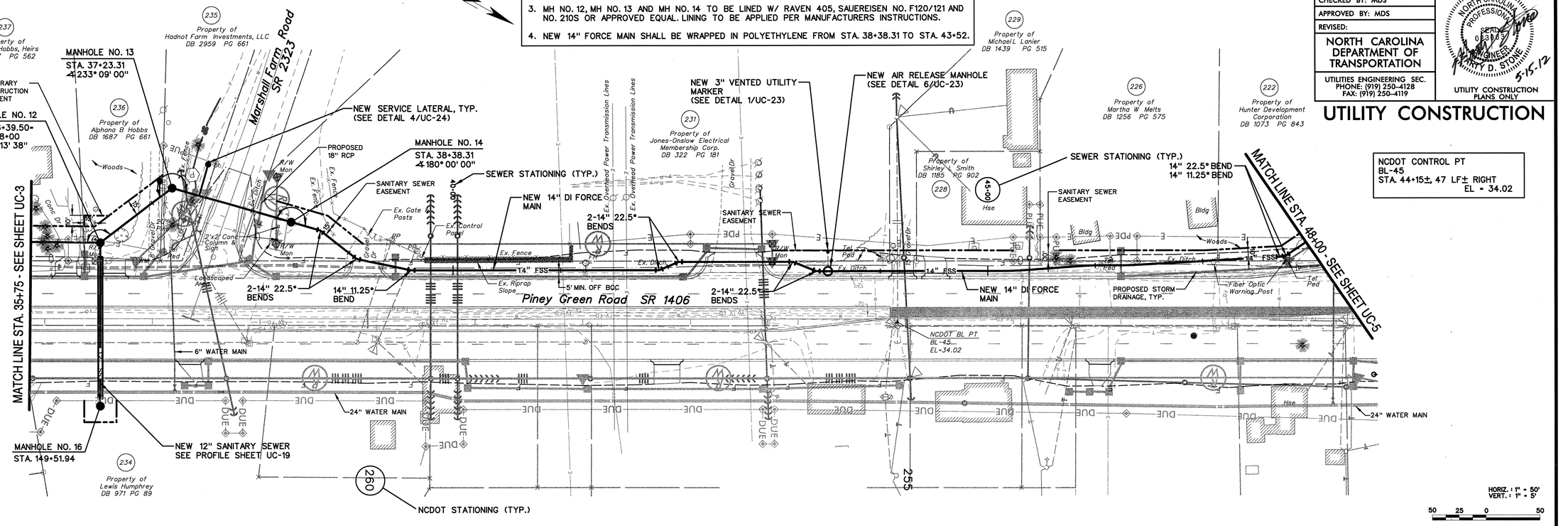
UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023437 ENGINEER MARY D. STONE 5-15-12

UTILITY CONSTRUCTION PLANS ONLY

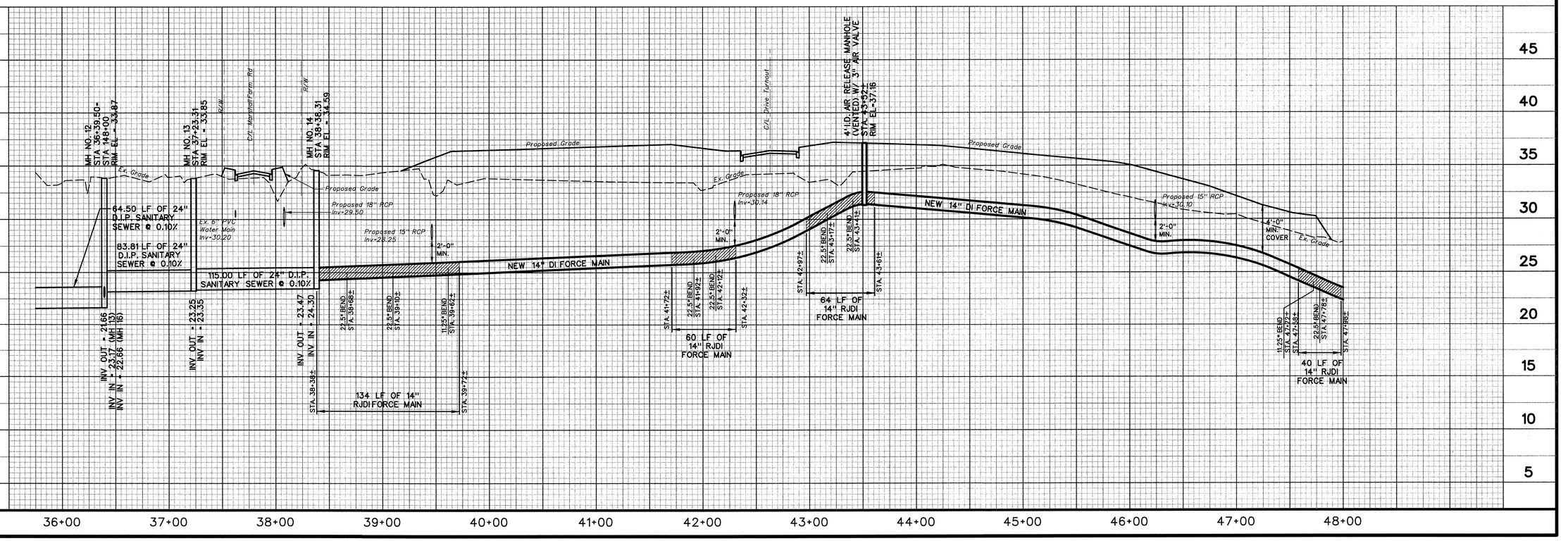
UTILITY CONSTRUCTION

NCDOT CONTROL PT
BL-45
STA. 44+15±, 47 LF± RIGHT
EL = 34.02



HORIZ. : 1" = 50'
VERT. : 1" = 5'

50 25 0 50



tkeith
print2pdfx.plt
50.0000 ' / in.
5/16/2012 2:22:30 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC3 toUC 11.dgn

8/17/99

REVISIONS

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
75 YEARS
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 Fax 919.834.3589
License Number: F-0113

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-5
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

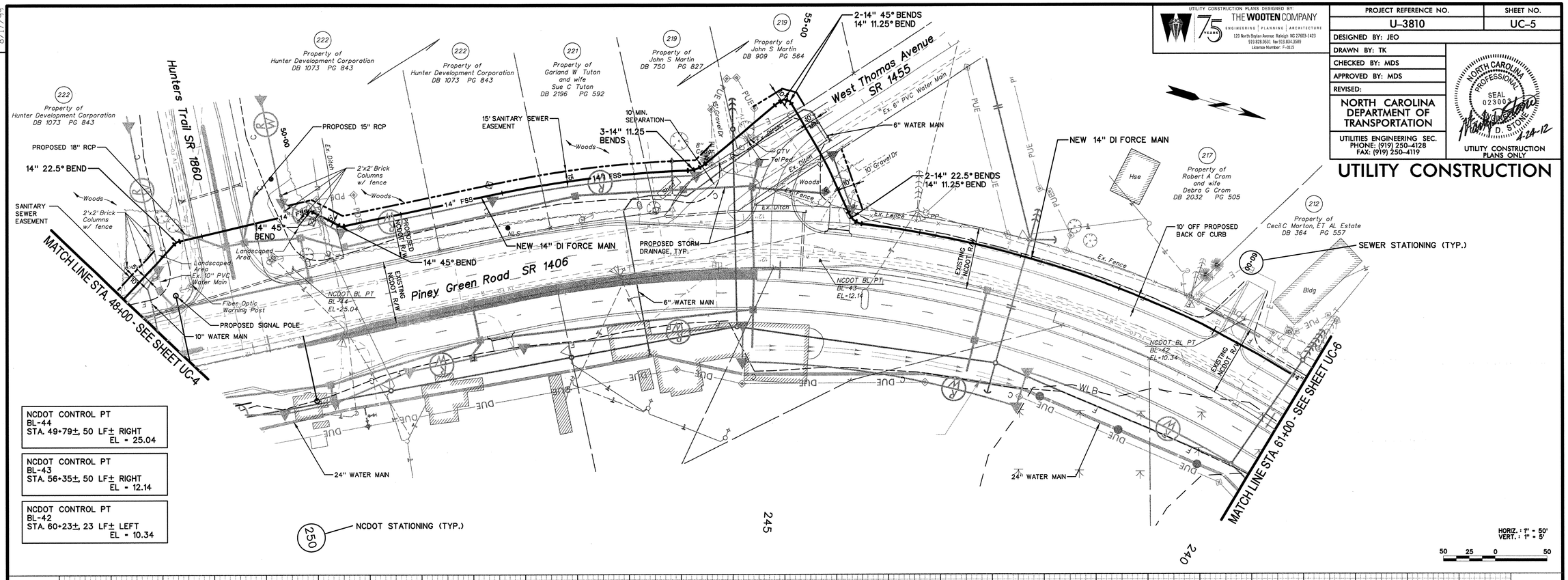
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

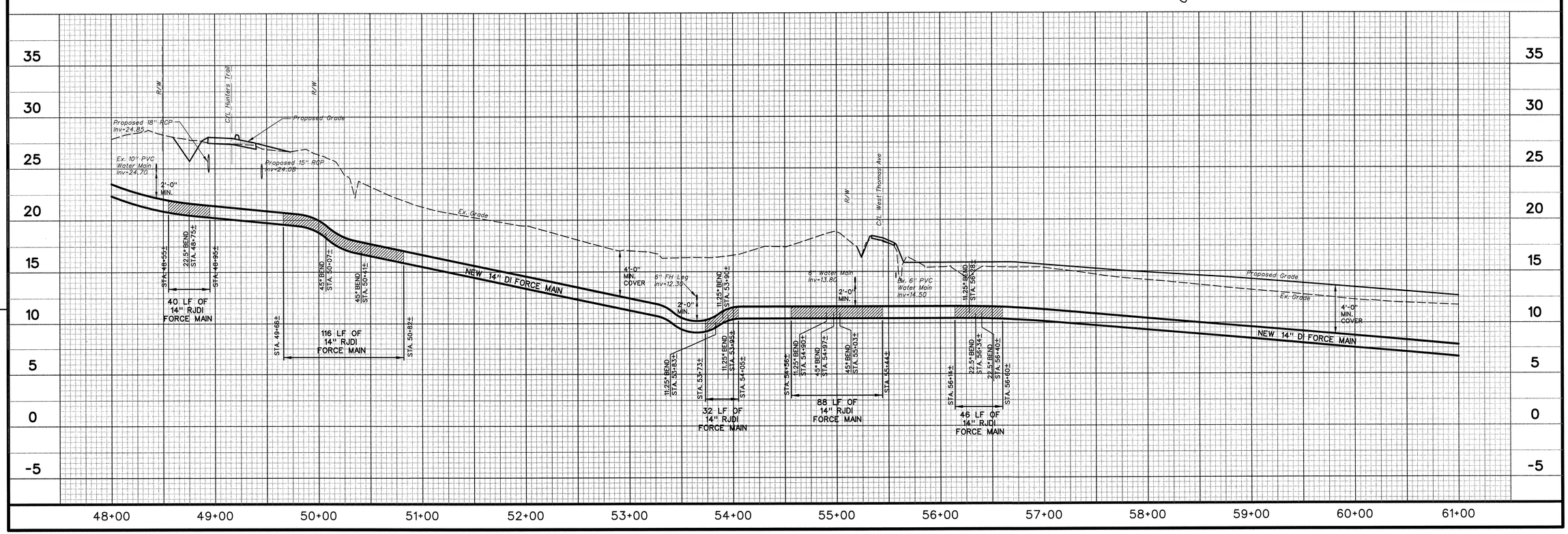
UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023003 ENGINEER D. STONE 4-24-12

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION





tkeith
print2pdfx.plt
50.0000 ' / in.
4/23/2012 3:50:33 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC3 toUC 11.dgn

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3589
License Number: F-0015

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-6

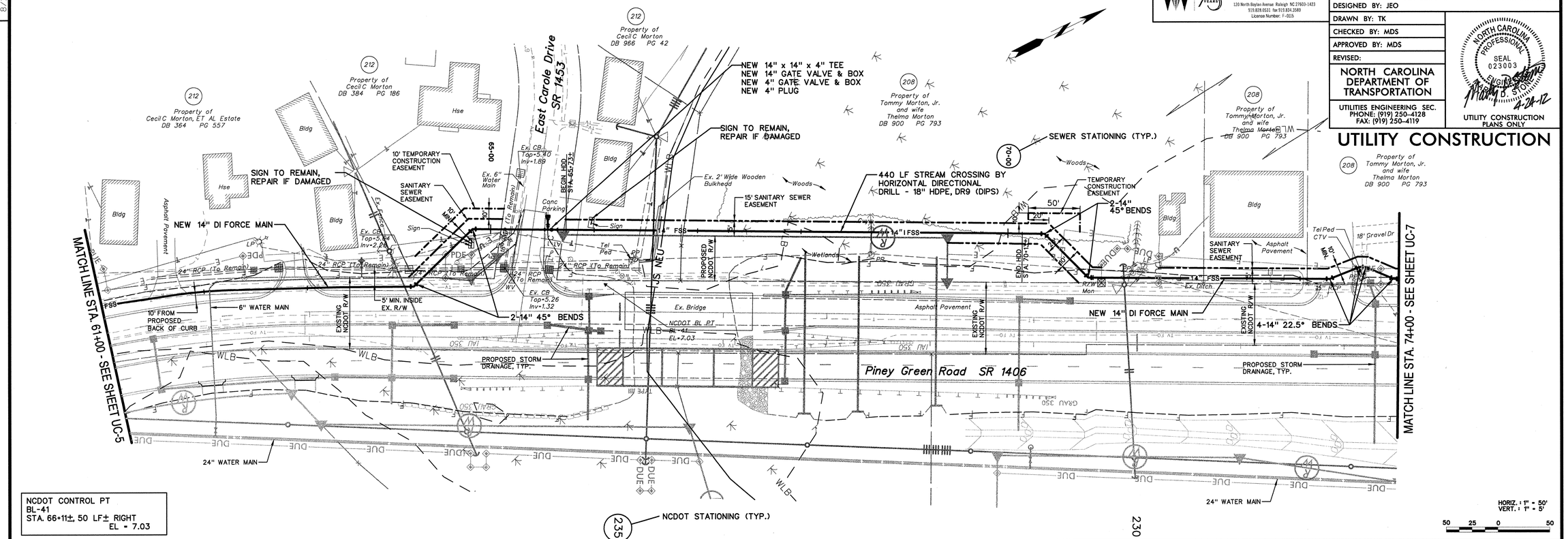
DESIGNED BY: JEO
DRAWN BY: TK
CHECKED BY: MDS
APPROVED BY: MDS
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023003 ENGINEER
4-24-12
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



REVISIONS

8/17/99

Sht UC-6

tkeith
print2pdfx.plt
50.0000 ' / in.
4/23/2012 3:50:56 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC3 toUC 11.dgn

REVISIONS

9/17/99

NCDOT CONTROL PT
GPS U3810-2
STA. 78+36±, 90 LF± RIGHT
EL = 25.00

NCDOT CONTROL PT
BL-38
STA. 84+95±, 73 LF± RIGHT
EL = 28.07

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 Fax 919.834.3589
License Number: F-0113

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-7
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023003 TIMOTHY S. STONE 4-26-12

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

MATCH LINE STA. 74+00 - SEE SHEET UC-6

MATCH LINE STA. 86+80 - SEE SHEET UC-8

Piney Green Road SR 1406

Swains Loop Road SR 1465

NEW 14" x 14" x 8" TEE
NEW 14" GATE VALVE & BOX
NEW 8" GATE VALVE & BOX
NEW 8" PLUG

NEW 14" DI FORCE MAIN

14" 45° BEND
14" 22.5° BEND
14" 11.25° BEND

SEWER STATIONING (TYP.)

SANITARY SEWER EASEMENT

2-14" 45° BENDS

186 LF CROSSING BY HORIZONTAL DIRECTIONAL DRILLING, 18" HDPE, DR9 (DIPS)

10'x30' TEMPORARY CONSTRUCTION EASEMENT

PROPOSED 15" RCP

PROPOSED STORM DRAINAGE, TYP.

NCDOT BL PT
GPS U3810-2
EL=25.00

NCDOT BL PT
BL-38
EL=28.07

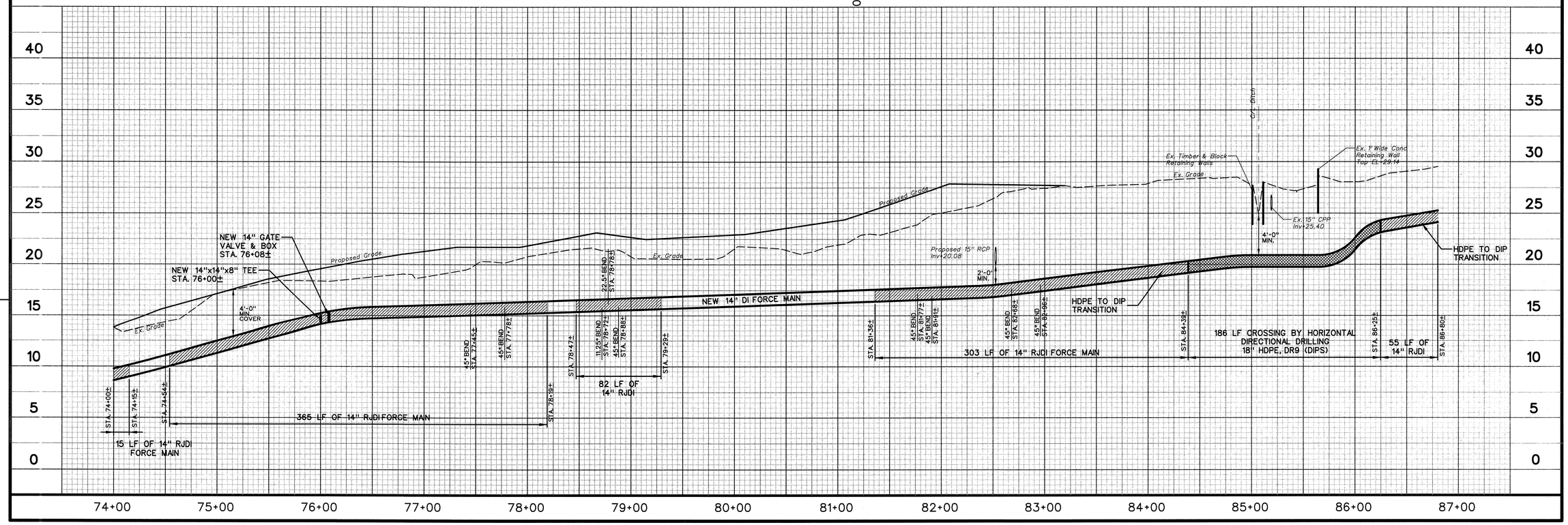
FUTURE FORCE MAIN
STEEL ENCASEMENT
(SEE PROFILE SHT UC-20)

24" WATER MAIN

NCDOT STATIONING (TYP.)

HORIZ.: 1" = 50'
VERT.: 1" = 5'

50 25 0 50



tkeith
print2pdfx.plt
50.0000 '/' in.
4/26/2012 11:17:17 AM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC3 toUC 11.dgn

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
75 YEARS
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 Fax 919.834.3589
License Number: F-0113

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-8
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023002 ENGINEER MARK D. STONE
4-24-12
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

REVISIONS

8/17/99

Sht UC-8

MATCH LINE STA. 86+80 - SEE SHEET UC-7

MATCH LINE STA. 100+25 - SEE SHEET UC-9

Piney Green Road SR 1406

Walnut Creek Drive SR 1750

Steve Aman Drive

Sheffield Road SR 1484

Property of Timothy O Carr, ET UX DB 1972 PG 501 — (198)

Property of Leonard W Morton DB 1097 PG 321 — (197)

Property of Leonard W Morton DB 2471 PG 835 — (197)

Property of Steve Hemby III and wife Valerie P Hemby DB 1648 PG 338 — (195)

Property of Clara W Williams DB 381 PG 106 — (193)

Property of Mary H Marcum DB 351 PG 035 — (191)

Property of North East Primitive Baptist Church (Cemetery) DB 3584 PG 484 — (189)

Property of Frank R Gilbert, Jr. DB 1045 PG 221 — (188)

Property of Sanctuary of Faith Church Tract 2 DB 2566 PG 96 — (192)

NEW 14" DI FORCE MAIN

SEWER STATIONING (TYP.)

SANITARY SEWER EASEMENT

14" 11.25° BEND

NEW 14" x 14" x 8" TEE
NEW 8" GATE VALVE & BOX
NEW 8" PLUG

NEW 14" x 14" x 8" TEE
NEW 14" x 12" REDUCER
NEW 12" GATE VALVE & BOX
NEW 8" GATE VALVE & BOX
NEW 8" PLUG

2-14" 45° BENDS

3-12" 45° BENDS

2-12" 22.5° BENDS

2-12" 45° BENDS

PROPOSED 15" RCP

PROPOSED RETAINING WALL

PROPOSED 15" RCP STORM DRAINAGE

NEW 12" FORCE MAIN ALONG PROPOSED BACK OF CURB

24" WATER MAIN

6" WATER MAIN

PROPOSED STORM DRAINAGE, TYP.

NCDOT BL PT GPS U3810-3 EL=37.93

FUTURE FORCE MAIN STEEL ENCASEMENT SEE PROFILE SHT UC-20

NCDOT STATIONING (TYP.)

EXISTING NCDOT R/W

Ex. Monitoring Wells

Ex. Headstone

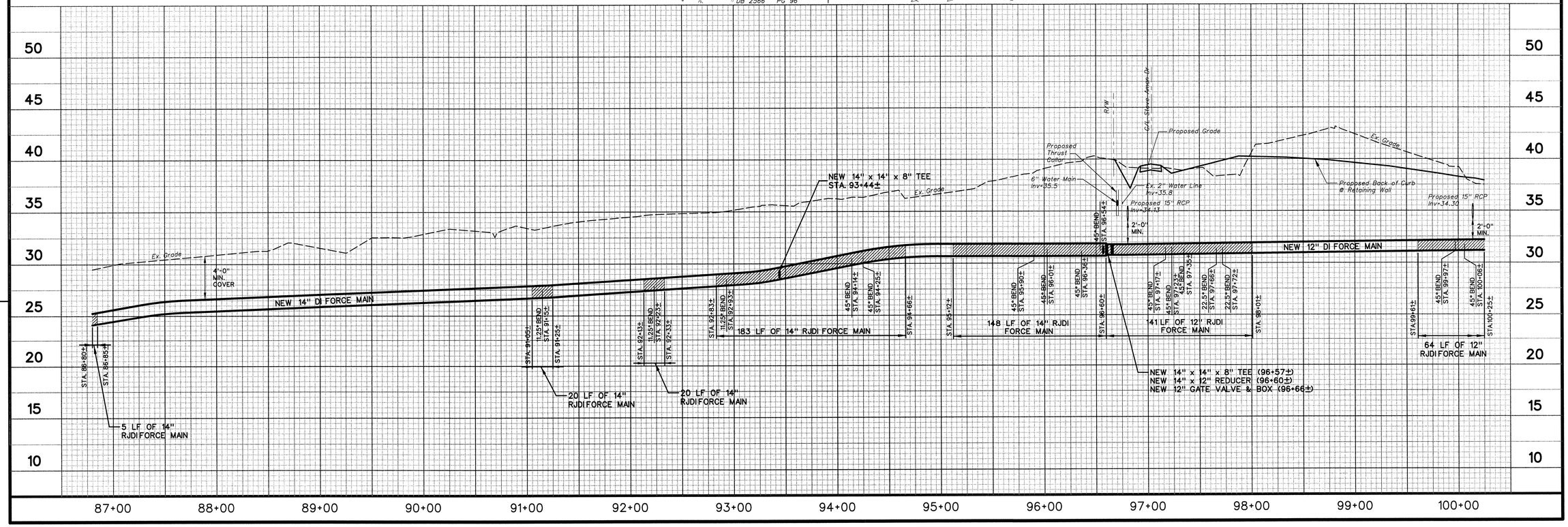
Ex. Grave

Ex. 2" Water Line

NCDOT CONTROL PT
GPS U3810-3
STA. 95+15±, 76 LF± RIGHT
EL = 37.93

HORIZ. : 1" = 50'
VERT. : 1" = 5'

50 25 0 50



tkeith
print2pdfx.plt
50.0000 ' / in.
4/23/2012 4:15:28 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC3 toUC 11.dgn

8/17/99

REVISIONS

NCDOT CONTROL PT
BL-35
STA. 105+57±, 26 LF± RIGHT
EL = 29.20

NCDOT CONTROL PT
BL-34
STA. 110+62±, 93 LF± RIGHT
EL = 30.99

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 Fax 919.834.3589
License Number: F-0113

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-9
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023003 ENGINEER MARK D. STONE
4-26-12

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

NEW AIR RELEASE MANHOLE. VENT SHALL BE PLACED TOWARD PROPERTY LINE (SEE DETAIL 7/UC-23)

NEW AIR RELEASE MANHOLE (SEE DETAIL 7/UC-23)

SEWER STATIONING (TYP.)

MATCH LINE STA. 100+25 - SEE SHEET UC-8

MATCH LINE STA. 113+00 - SEE SHEET UC-10

Piney Green Road SR 1406

Victoria Road SR 1480

188 Property of Frank R Gilbert, Jr. DB 1405 PG 221

185 Property of Samuel Paul Fields and wife Janet A Fields DB 415 PG 650

181 Property of William M. Wahnhoff, Jr. DB 3373 PG 553

181 Property of William M. Wahnhoff, Jr. DB 3373 PG 553

178 Property of Ann Avery DB 1337 PG 504

174 Property of White Oak River Road Investments, LLC DB 1485 PG 307

171 Property of Barbara A Hansen and husband Earl Gerald Hansen DB 1212 PG 261

167 Property of White Oak River Road Investments, LLC DB 2284 PG 193

170 Property of Department of Transportation DB 3498 PG 824

2-12" 45° BENDS

2-12" 22.5° BENDS

4-12" 45° BENDS

SANITARY SEWER EASEMENT

PROPOSED 30" RCP

PROPOSED 48" RCP

NEW 12" DI FORCE MAIN

NEW 12" x 12" x 8" TEE
NEW 8" GATE VALVE & BOX

PROPOSED STORM DRAINAGE, TYP.

NCDOT BL PT
BL-35
EL-29.20

NCDOT BL PT
BL-34
EL-30.99

24" WATER MAIN

FUTURE FORCE MAIN STEEL ENCASEMENT (SEE PROFILE SHT UC-20)

SANITARY SEWER EASEMENT

TEMPORARY CONSTRUCTION EASEMENT

NEW 8" PLUG

NOTES:

1. NEW 12" FORCE MAIN TO BE LINED W/ PROTECTO 401 FROM STA. 101+25 TO STA. 102+45 AND FROM STA. 110+62 TO STA. 111+82.

NCDOT STATIONING (TYP.)

HORIZ.: 1" = 50'
VERT.: 1" = 5'

50 25 0 50

4'-1.D. AIR RELEASE MH (VENTED) W/ 3" AIR VALVE STA. 100+58± RIM-38.00

4'-1.D. AIR RELEASE MH (VENTED) W/ 3" AIR VALVE STA. 101+85± RIM-39.50

4'-1.D. AIR RELEASE MH (VENTED) W/ 3" AIR VALVE STA. 111+21.91± RIM-32.42

Proposed Grade

Ex. Grade

Proposed 30" RCP Inv = 31.30

Proposed 48" RCP Inv = 21.33

2'-0" MIN.

4'-0" MIN. COVER

22.5° BEND STA. 100+50±

22.5° BEND STA. 100+85±

45° BEND STA. 102+93±

45° BEND STA. 103+02±

45° BEND STA. 105+46±

45° BEND STA. 106+97±

45° BEND STA. 109+04±

45° BEND STA. 109+40±

45° BEND STA. 109+48±

45° BEND STA. 109+67±

45° BEND STA. 109+98±

NEW 12" x 12" x 8" TEE STA. 111+57±

STA. 100+25±

STA. 101+02±

STA. 102+57±

STA. 103+38±

STA. 105+46±

STA. 107+33±

STA. 109+04±

STA. 110+03±

STA. 110+78±

STA. 112+34±

77 LF OF 12" RJDI FORCE MAIN

81 LF OF 12" RJDI FORCE MAIN

87 LF OF 12" RJDI FORCE MAIN

99 LF OF 12" RJDI FORCE MAIN

156 LF OF 12' RJDI FORCE MAIN

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00

45 40 35 30 25 20 15 10 5

tkeith
print2pdfx.plt
50.0000 '/ in.
4/26/2012 11:18:25 AM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC3 toUC 11.dgn

Sht UC-10

8/17/99

REVISIONS

NCDOT CONTROL PT
BL-32
STA. 123+49±, 75 LF± RIGHT
EL = 24.06

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3589
License Number: F-0115

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-10

DESIGNED BY: JEO
DRAWN BY: TK
CHECKED BY: MDS
APPROVED BY: MDS
REVISED:

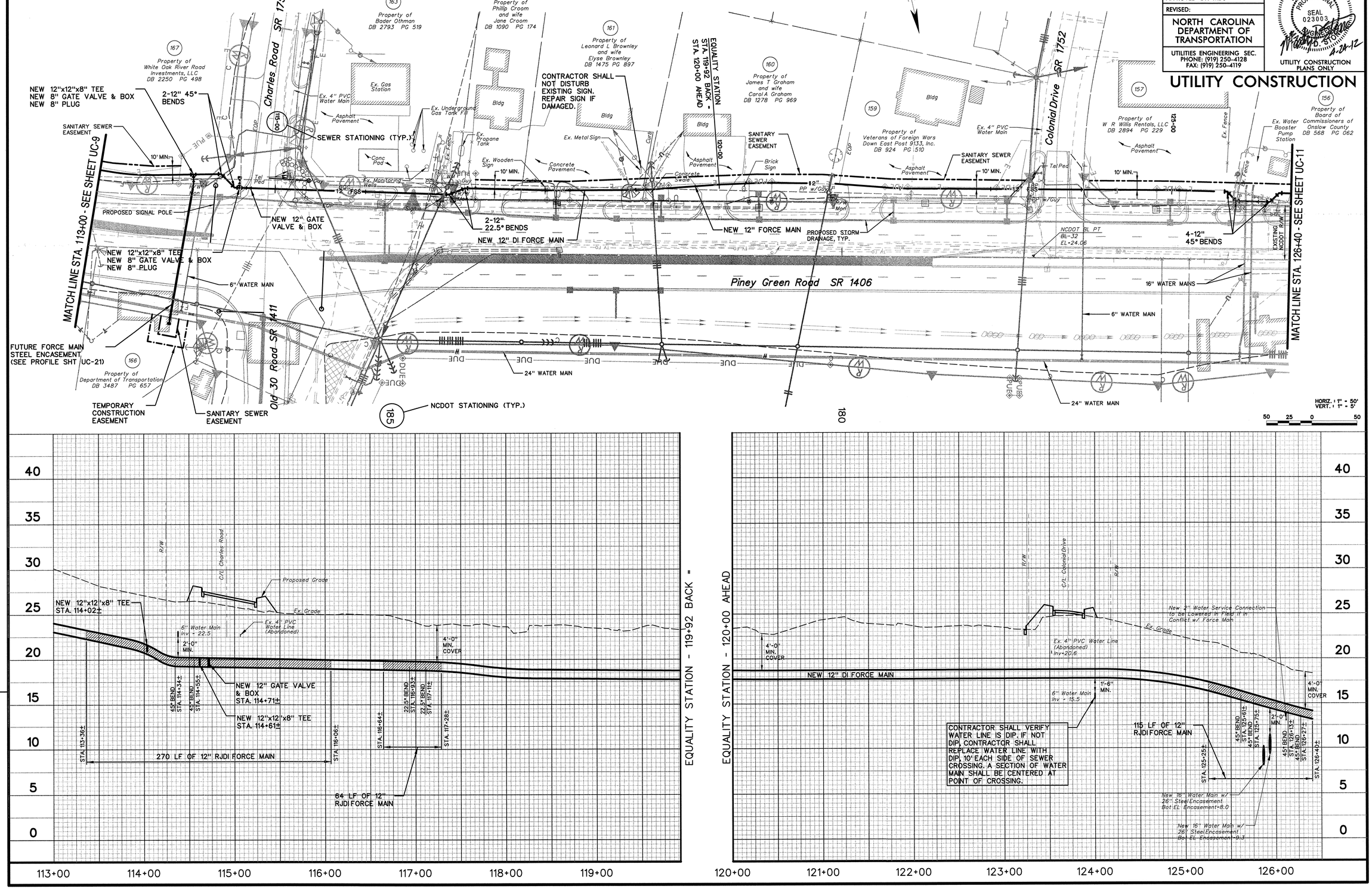
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023003 ENGINEER MARK D. STORMS
4-24-12

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



tkeith
print2pdfx.plt
50.0000 ' / in.
4/23/2012 3:52:55 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC3 toUC 11.dgn

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3985
License Number: F-0113

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-11
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 030084 ENGINEER HARRY D. STONE 5-15-12

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

8/17/99

REVISIONS

Sht UC-11

MATCH LINE STA. 126+40 - SEE SHEET UC-10

Toni Drive SR 1770

Piney Green Road SR 1406

Birchwood Lane SR 1804

Property of Randy Kevin Willis and Pamela Denise Brown DB 1610 PG 627 (155)

Property of W R Willis and wife Carol Willis DB 2864 PG 646 (153)

Property of W R Willis Rentals, LLC DB 2894 PG 229 (150)

Property of W R Willis Rentals, LLC DB 2894 PG 229 (147)

Property of Howard and Sons Rentals DB 1456 PG 592 (122)

Property of Howard and Sons Rentals DB 1610 PG 063 (122)

Property of (165)

Ex. 4" PVC Water Main

Ex. 4" Water Line

Asphalt Pavement

SANITARY SEWER EASEMENT

SEWER UTILITY EASEMENT

Ex. Fence

Ex. Check Valve Assembly

Tel Ped

PP w/ Guy

Ex. Irrigation Connection Valve

Ex. 30" Dia. Billboard Post

Wetlands

Woods

Ex. 18" Dia. Conc Base & LP

PP w/Guy & Elec Meter Box

NCDOT BL PT BL-31 EL-15.23

Ex. Check Valve Assembly

NCDOT R/W

Proposed NCDOT R/W

6" WATER MAIN

24" WATER MAIN

NEW 12" FORCE MAIN

NEW 12" DI FORCE MAIN

12" 22.5° BEND

12" 45° BEND

2-12" 45° BENDS

2- 12" 45° BENDS

NEW AIR RELEASE MANHOLE. (SEE DETAIL 7/UC-23)

5' MIN. FROM NEW GUARDRAIL

NEW 12" FORCE MAIN

NEW PUMP STATION (BY OTHERS)

2-12" 22.5° BENDS

12" 45° BEND STA. 138+98±

NEW 18" SANITARY SEWER. (SEE SHEET UC-12)

12" 45° BEND

Proposed NCDOT R/W

2 - Ex. 9' x 8' Box Culverts (To Be Removed)

Proposed 10' x 9' Box Culverts

NCDOT BL PT BL-30 EL-10.65

NCDOT STATIONING (TYP.)

SEWER STATIONING (TYP.)

CONTRACTOR SHALL PLUG & MARK LOCATION OF FORCE MAIN IF INSTALLED PRIOR TO PUMP STATION FORCE MAIN. CONTRACTOR SHALL REMOVE PLUG AND MAKE CONNECTION TO PUMP STATION FORCE MAIN IF IT IS ALREADY INSTALLED. COORDINATE W/ PUMP STATION CONTRACTOR ACCORDINGLY.

NCDOT CONTROL PT
BL-31
STA. 128+94±, 12 LF± RIGHT
EL = 15.23

NCDOT CONTROL PT
BL-30
STA. 134+83±, 33 LF± RIGHT
EL = 10.65

NOTE:

1. PUMP STATION TO BE CONSTRUCTED BY OTHERS. FORCE MAIN CONSTRUCTION FOR THIS CONTRACT WILL END WITH THE 45° BEND AT STATION 139+98±

50 25 0 50 HORIZ. 1" = 50' VERT. 1" = 5'

ONWASA ⟷ CITY OF JACKSONVILLE

NCDOT CONTRACT BY OTHERS

Ex. Grade

Proposed Grade

Existing 4" PVC Water Main (Abandoned) Inv = 9.5

6" Water Main Inv = 8.5

1'-6" MIN.

STA. 126+40±

STA. 126+33±

23 LF OF 12" RJDI FORCE MAIN

STA. 128+98±

45° BEND STA. 129+34±

45° BEND STA. 129+51±

STA. 129+87±

89 LF OF 12" RJDI FORCE MAIN

New 30" RCP Inv=5.20

2'-0" MIN.

STA. 131+26±

22.5° BEND STA. 131+43±

STA. 131+60±

34 LF OF 12" RJDI FORCE MAIN

STA. 134+50

Proposed Grade @ FM

Proposed C/L New Roadway

3'-0" MIN. COVER

4' I.D. AIR RELEASE MH (VENTED) W/ 3" AIR VALVE STA. 135+50± RIM=13.46

1'-0" MIN.

TOP EL = 7.15

NEW 12" DI FORCE MAIN

3 - Proposed 10' x 9' Box Culverts

INV EL = -2.85

C/L Poplar Creek

STA. 135+64±

45° BEND STA. 136+00±

45° BEND STA. 136+35±

STA. 136+71±

107 LF OF 12" RJDI FORCE MAIN

STA. 137+54±

22.5° BEND STA. 137+71±

144 LF OF 12" RJDI FORCE MAIN

45° BEND STA. 138+92±

22.5° BEND STA. 138+46±

45° BEND STA. 138+98±

25 20 15 10 5 0 -5 -10 -15

126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00

tkeith
print2pdfx.plt
50.0000 '/ in.
5/16/2012 1:18:31 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC3 toUC 11.dgn

UC-12

8/17/99

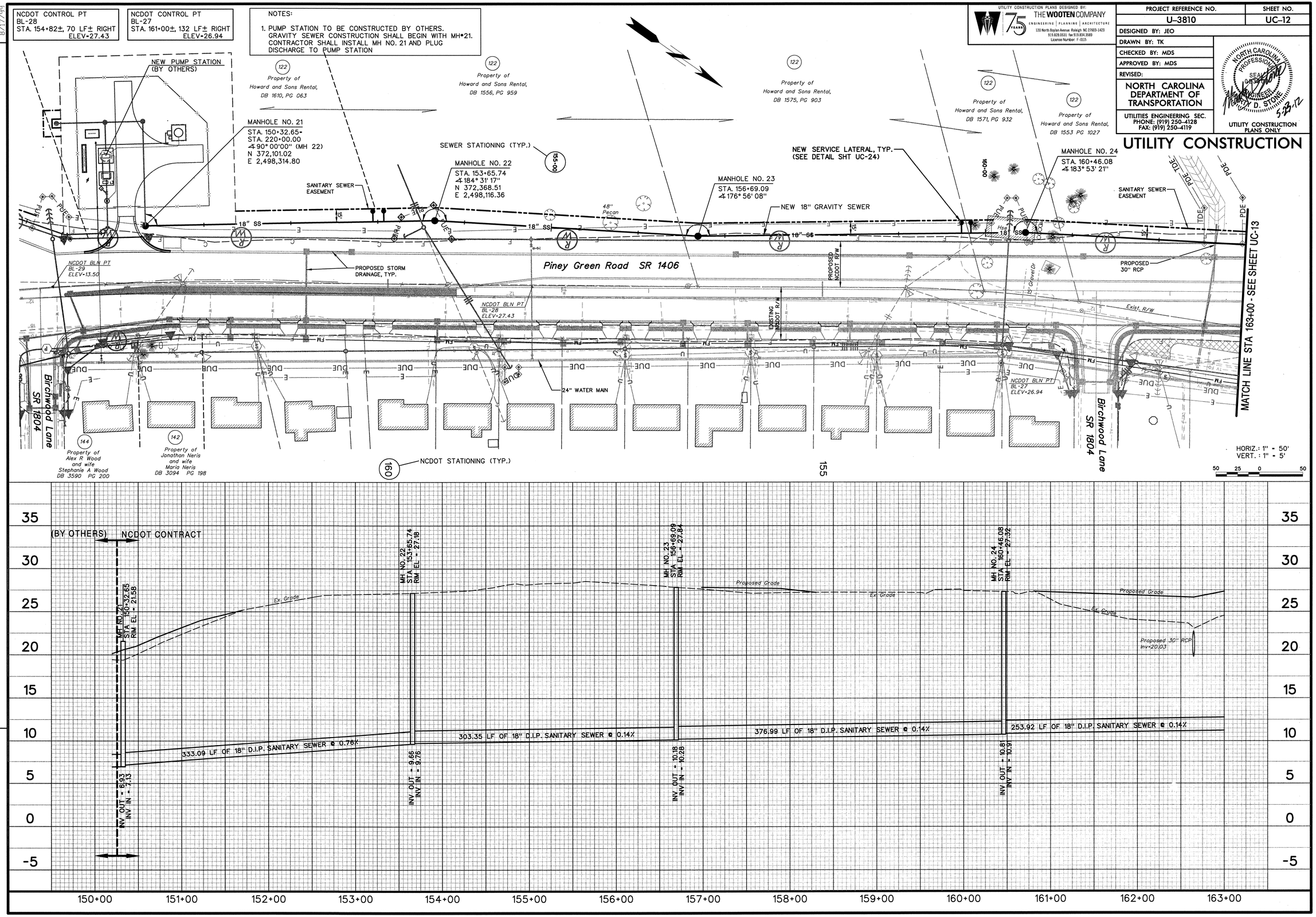
REVISIONS

NCDOT CONTROL PT
BL-28
STA. 154+82±, 70 LF± RIGHT
ELEV=27.43

NCDOT CONTROL PT
BL-27
STA. 161+00±, 132 LF± RIGHT
ELEV=26.94

NOTES:

1. PUMP STATION TO BE CONSTRUCTED BY OTHERS. GRAVITY SEWER CONSTRUCTION SHALL BEGIN WITH MH•21. CONTRACTOR SHALL INSTALL MH NO. 21 AND PLUG DISCHARGE TO PUMP STATION



UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3589
License Number: F-0115

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-12

DESIGNED BY: JEO
DRAWN BY: TK
CHECKED BY: MDS
APPROVED BY: MDS
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 0433 ENGINEER MARTY D. STONE
5-23-12
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

tkeith
print2pdfx.plt
50.0000 '/ in.
5/23/2012 4:06:09 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC12 toUC21.dgn

8/17/99

REVISIONS

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
75 YEARS
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh, NC 27603-1423
919.828.0531 Fax 919.834.3589
License Number: F-0125

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-13
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

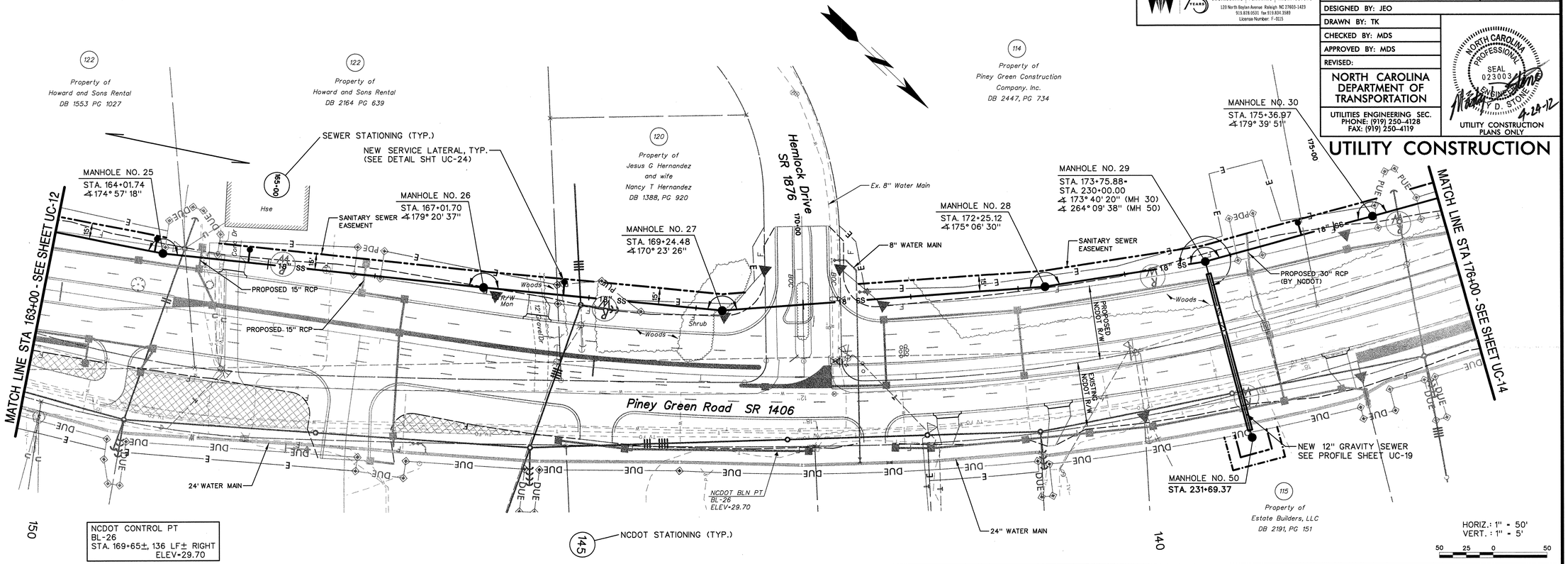
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

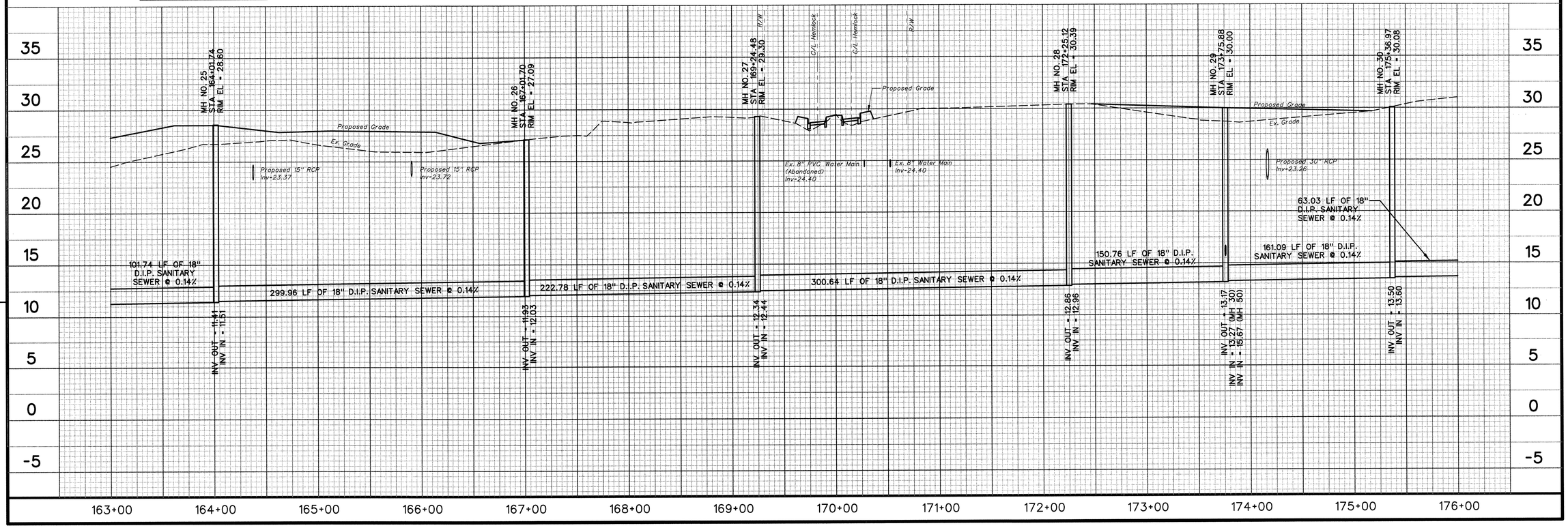
UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023003 ENGINEER MARTY D. STONE 4-24-12

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION





tkeith
print2pdfx.plt
50.0000 ' / in.
4/23/2012 3:54:59 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC12 toUC21.dgn

UC-14

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-14

DESIGNED BY: JEO
DRAWN BY: TK
CHECKED BY: MDS
APPROVED BY: MDS
REVISED:

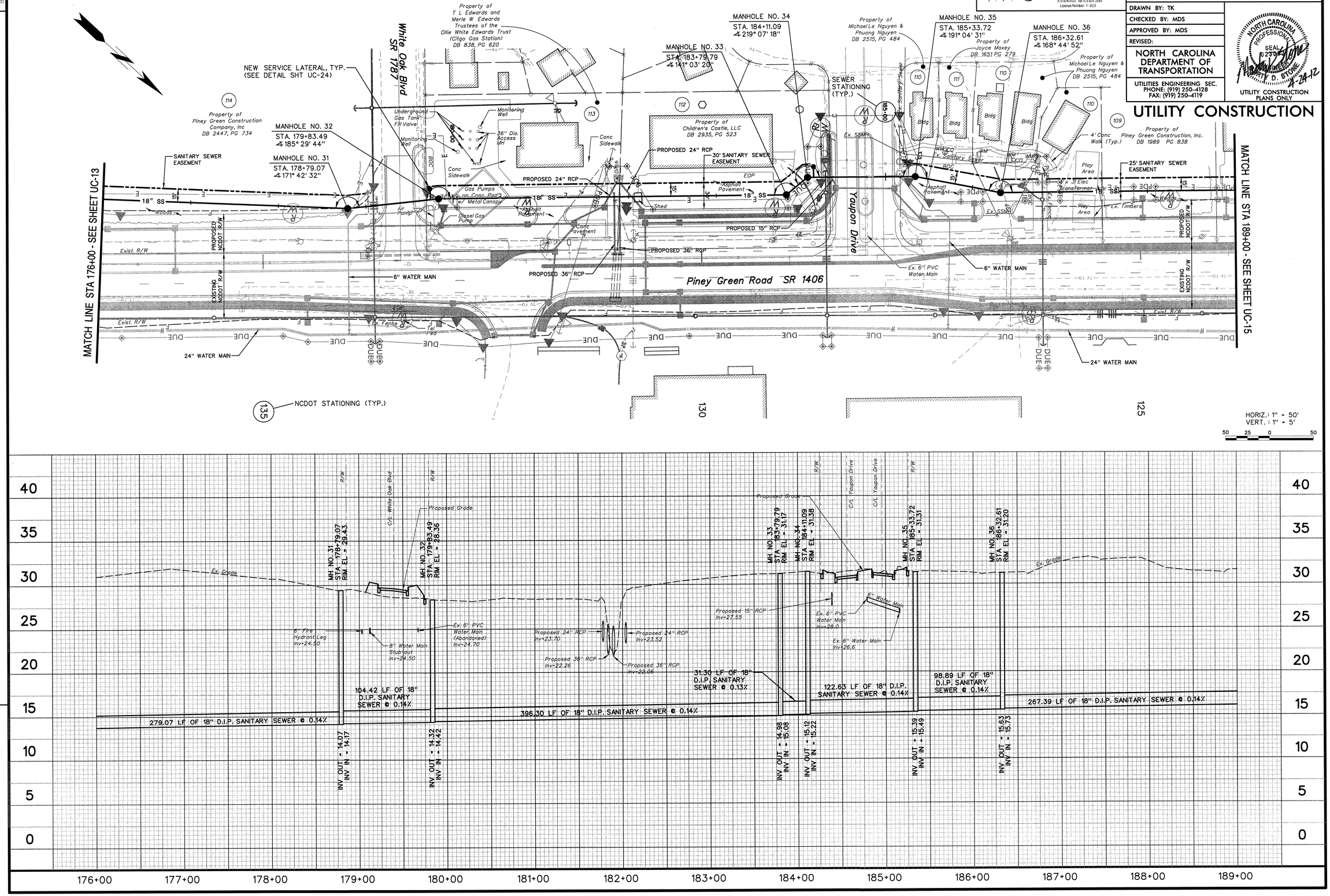
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION PLANS DESIGNED BY: THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh, NC 27603-1423
919.828.0531 Fax 919.834.3589
License Number: F-0113

UTILITY CONSTRUCTION



tkeith
print2pdfx.plt
50.0000 '/ in.
4/23/2012 3:55:22 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC12 toUC21.dgn

8/17/99

REVISIONS

NOTE:

MANHOLE NO. 42 SHALL BE A HIGH VELOCITY MANHOLE AND LINED WITH RAVEN 405, SAUEREISEN NO. F 120 / 121 AND NO. 210S OR APPROVED EQUAL. SEE DETAIL 10 ON SHT UC-22.

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
75 YEARS
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 Fax 919.834.3589
License Number: F-0215

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-15
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

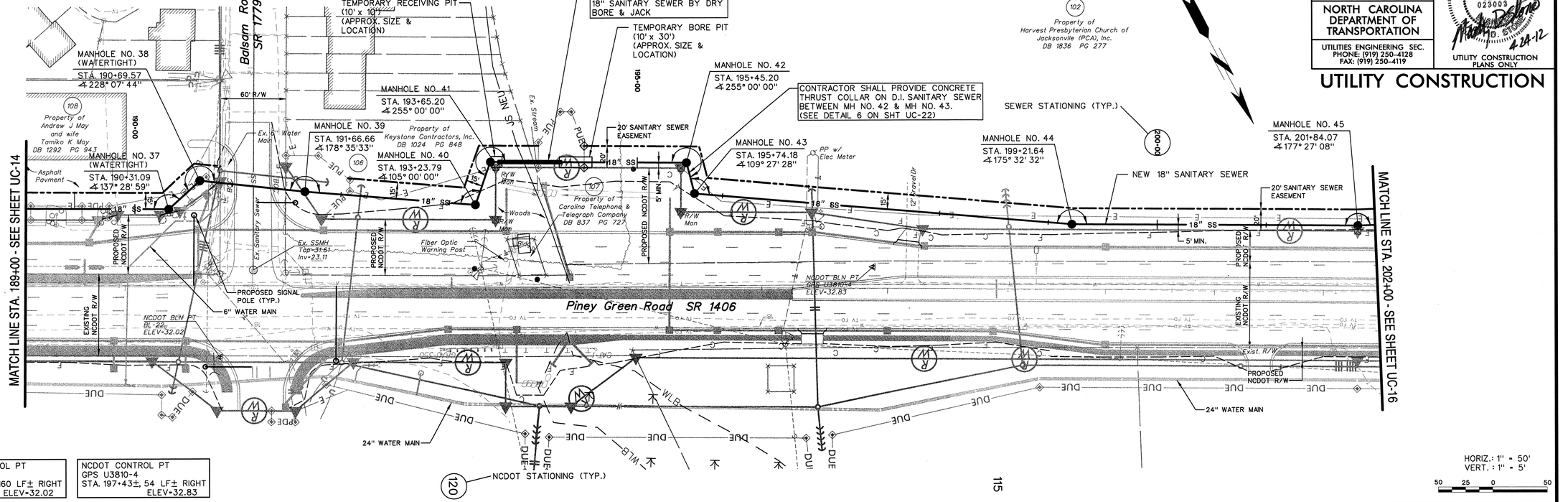
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023003 ENGINEER MATTHEW D. STONE 4-24-12

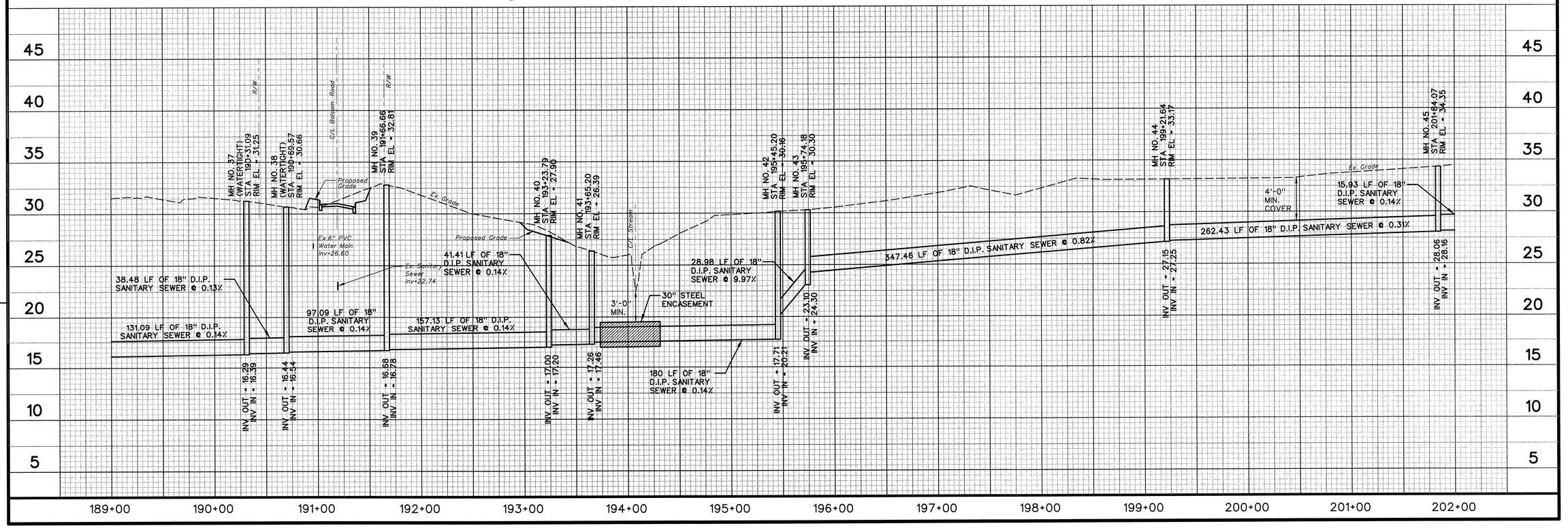
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



NCDOT CONTROL PT
BL-22
STA. 191+05±, 160 LF± RIGHT
ELEV=32.02

NCDOT CONTROL PT
GPS U3810-4
STA. 197+43±, 54 LF± RIGHT
ELEV=32.83



tkeith
print2pdfx.plt
50.0000 ' / in.
4/23/2012 3:55:46 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC12 toUC21.dgn

8/17/99

REVISIONS

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 Fax 919.834.3589
License Number: F-0113

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-16
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

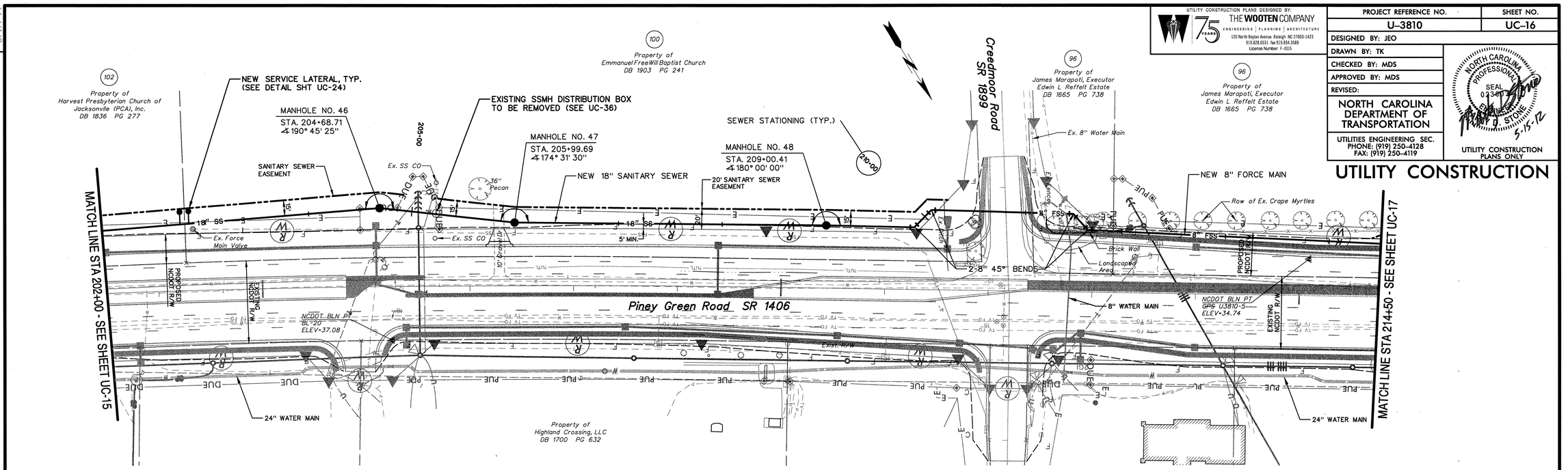
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023013 ENGINEER TIMOTHY D. STONE 5-15-12

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



NCDOT CONTROL PT
BL-20
STA. 204+96±, 125 LF± RIGHT
ELEV=37.08

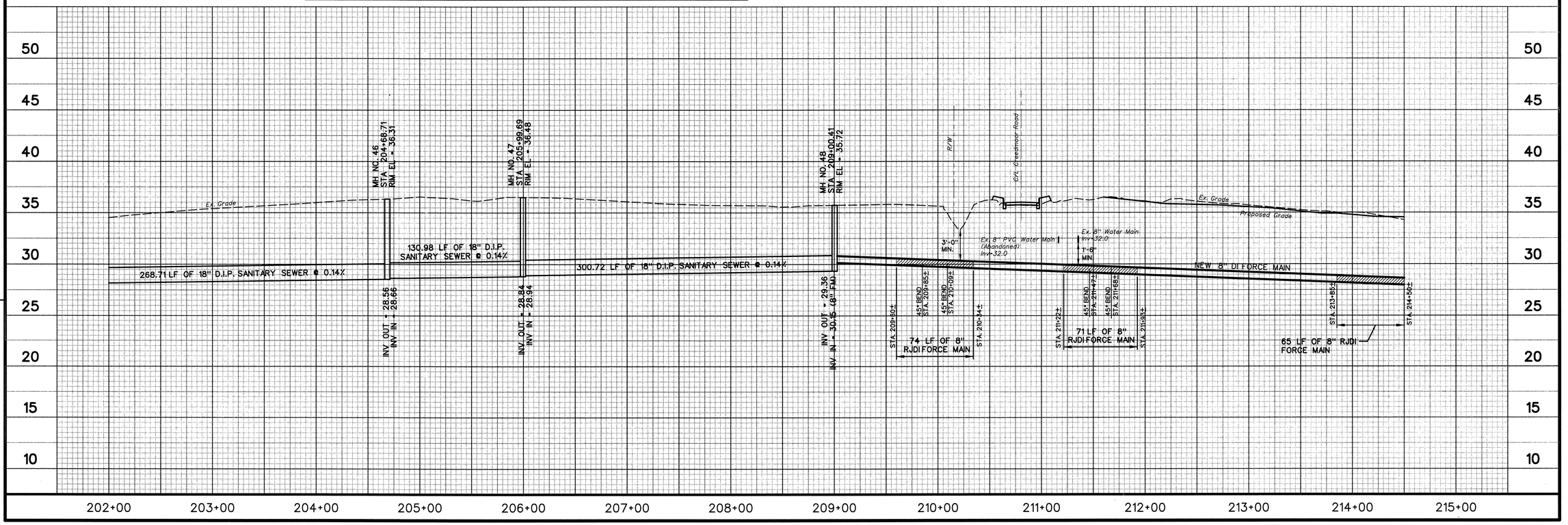
NCDOT CONTROL PT
GPS U3810-5
STA. 213+82±, 18 LF± RIGHT
ELEV=34.74

NOTES:

1. NEW 18" GRAVITY SEWER TO BE LINED W/ PROTECTO 401 BETWEEN MH NO. 47 AND MH NO. 48.
2. NEW 8" FORCE MAIN TO BE LINED W/ PROTECTO 401 FROM STA. 209+00.41 TO STA. 210+00.
3. MH NO. 47 AND MH NO. 48 TO BE LINED W/ RAVEN 405, SAUEREISEN NO. F 120 / 121 AND NO. 210S OR APPROVED EQUAL. LINING TO BE APPLIED PER MANUFACTURERS INSTRUCTIONS.

(105) NCDOT STATIONING (TYP.)

HORIZ.: 1" = 50'
VERT. : 1" = 5'
50 25 0 50



tkeith
print2pdfx.plt
50.0000 ' / in.
5/16/2012 1:19:38 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC12 toUC21.dgn

UC-17

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-17

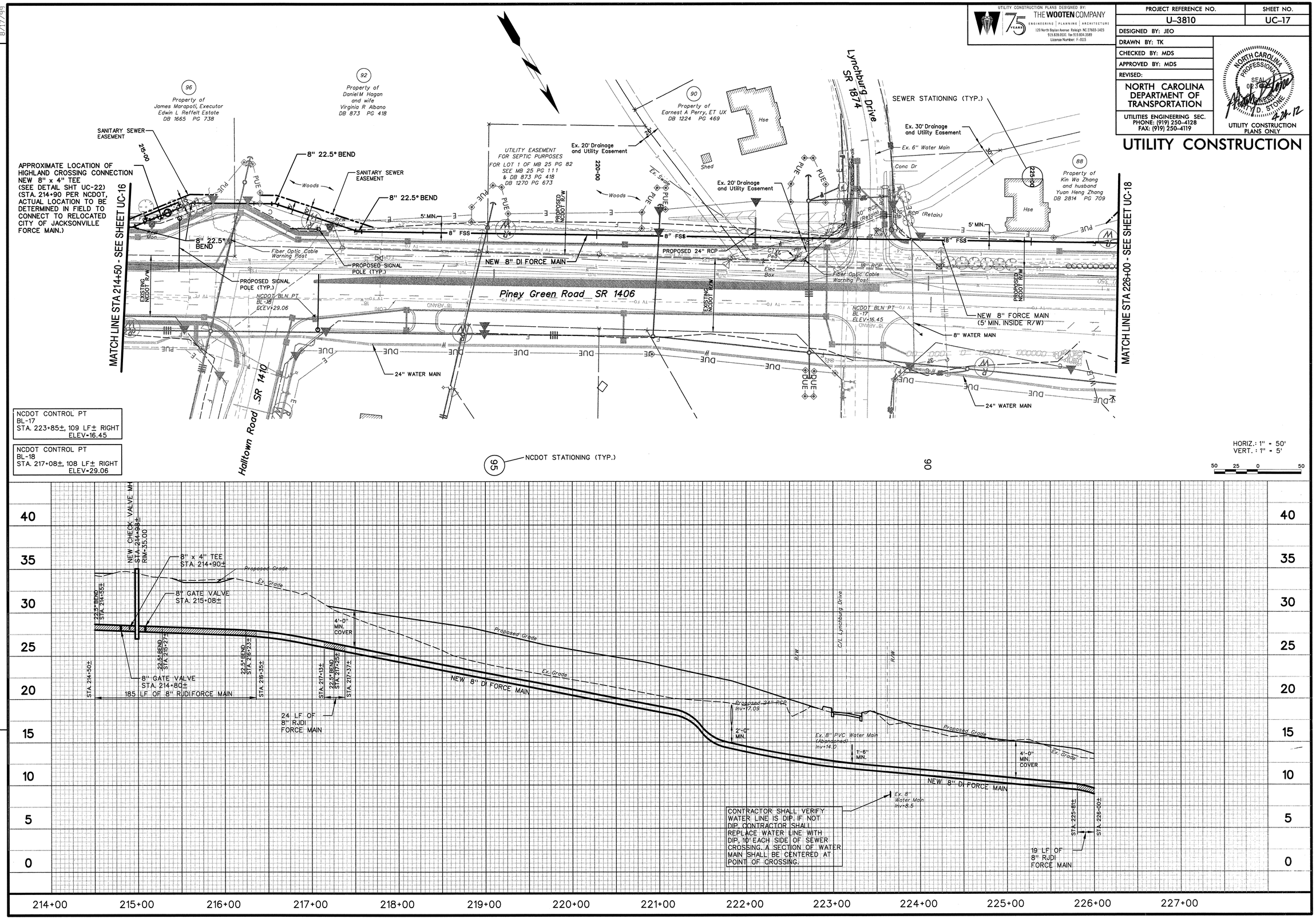
DESIGNED BY: JEO
DRAWN BY: TK
CHECKED BY: MDS
APPROVED BY: MDS
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



tkeith
print2pdfx.plt
50.0000 ' / in.
4/24/2012 10:48:24 AM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC12 toUC21.dgn

UC-18

8/17/99

REVISIONS

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3589
License Number: F-0115

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-18

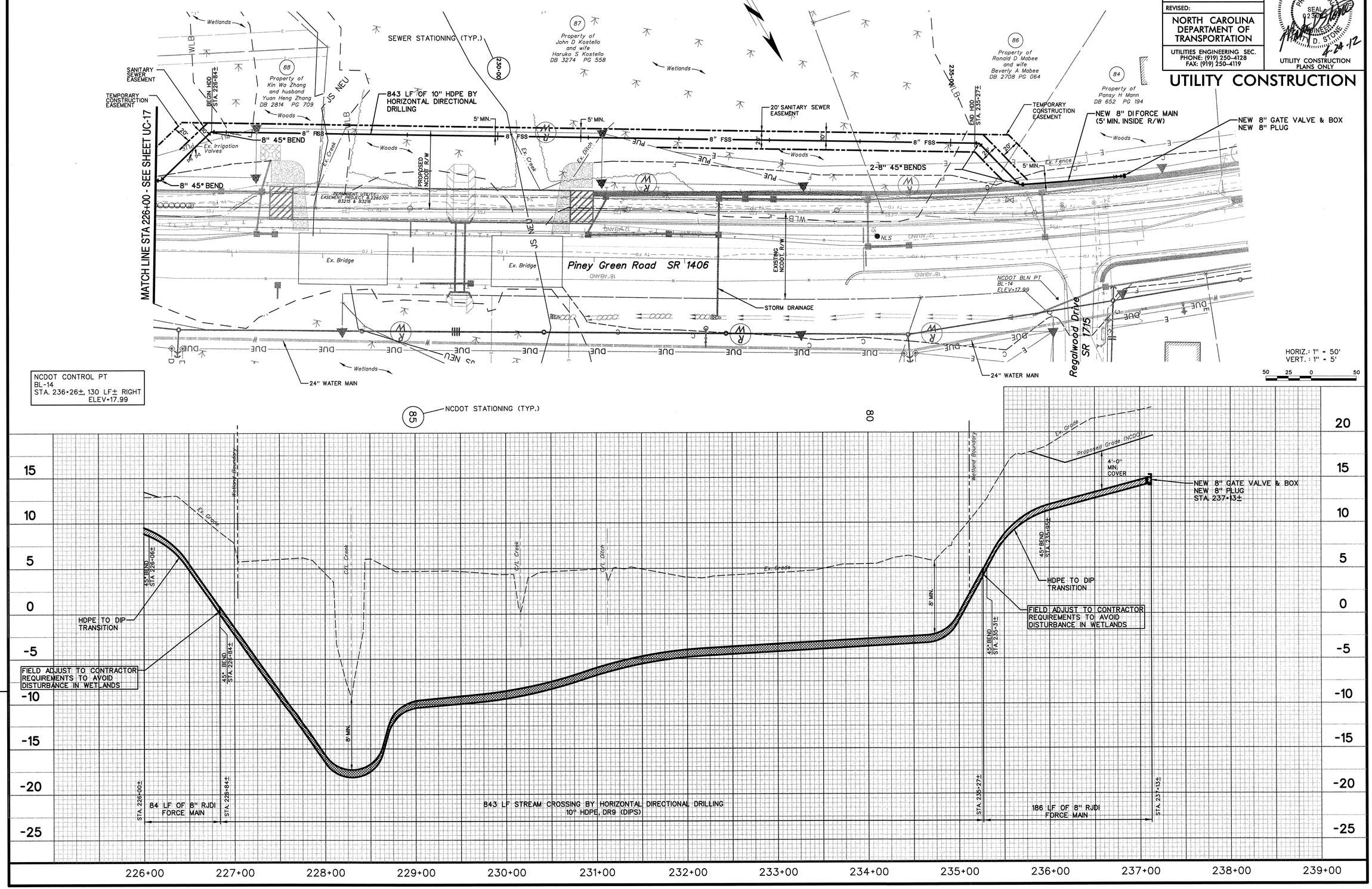
DESIGNED BY: JEO
DRAWN BY: TK
CHECKED BY: MDS
APPROVED BY: MDS
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023 ENGINEER D. STONE
4-24-12
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



tkeith
print2pdfx.plt
50.0000 ' / in.
4/23/2012 3:57:00 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC12 toUC21.dgn

UC-19

8/17/99

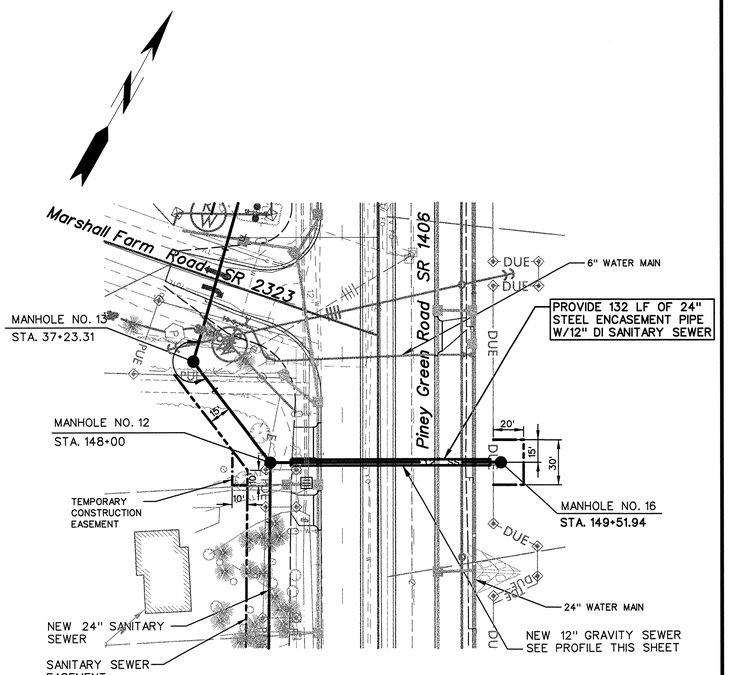
REVISIONS

UTILITY CONSTRUCTION PLANS DESIGNED BY: THE WOOTEN COMPANY ENGINEERING | PLANNING | ARCHITECTURE 120 North Boylan Avenue Raleigh NC 27603-1423 919.828.0531 fax 919.834.3589 License Number: F-0015	PROJECT REFERENCE NO. U-3810 / SHEET NO. UC-19
	DESIGNED BY: JEO
	DRAWN BY: TK
	CHECKED BY: MDS
	APPROVED BY: MDS
	REVISED:
	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
	UTILITIES ENGINEERING SEC. PHONE: (919) 250-4128 FAX: (919) 250-4119

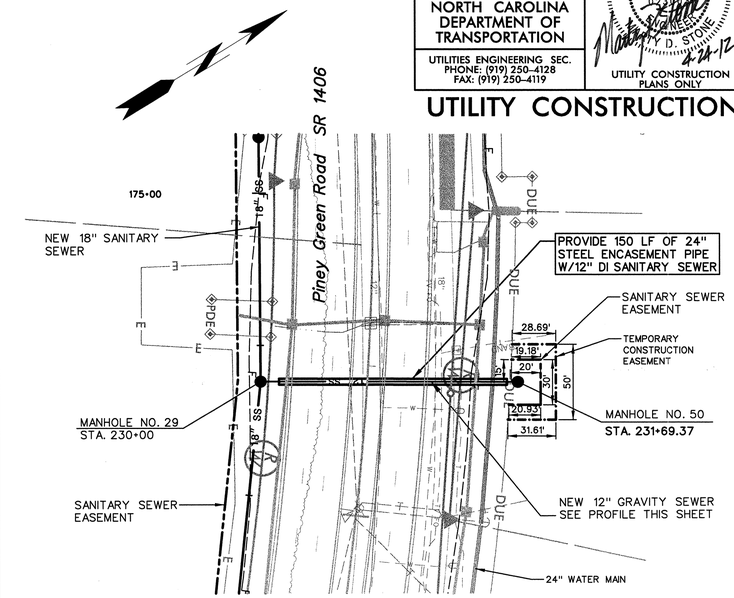
NORTH CAROLINA PROFESSIONAL SEAL 023[illegible] ENGINEER TY D. STONE 4-24-12

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

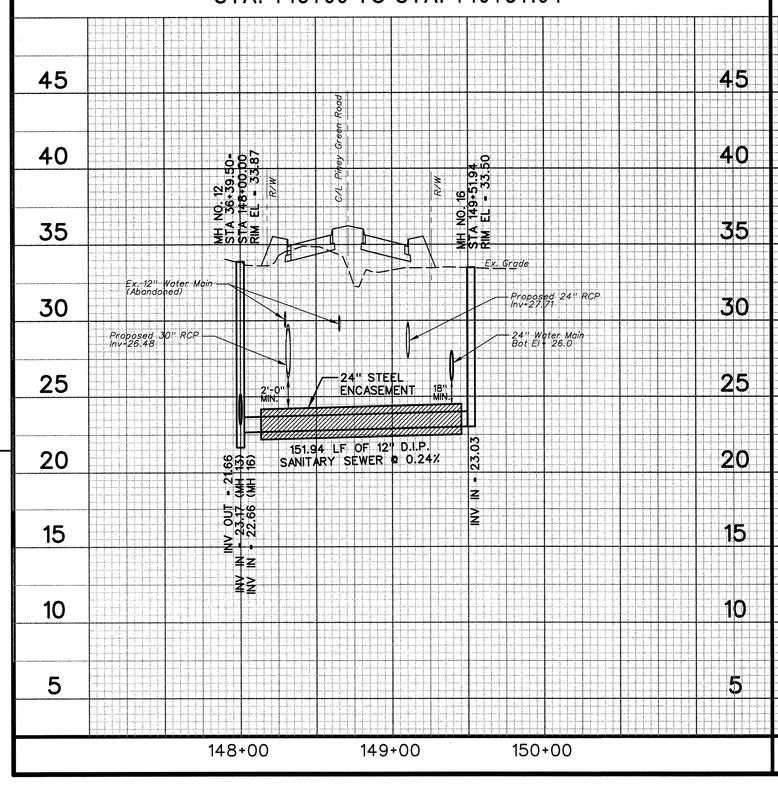


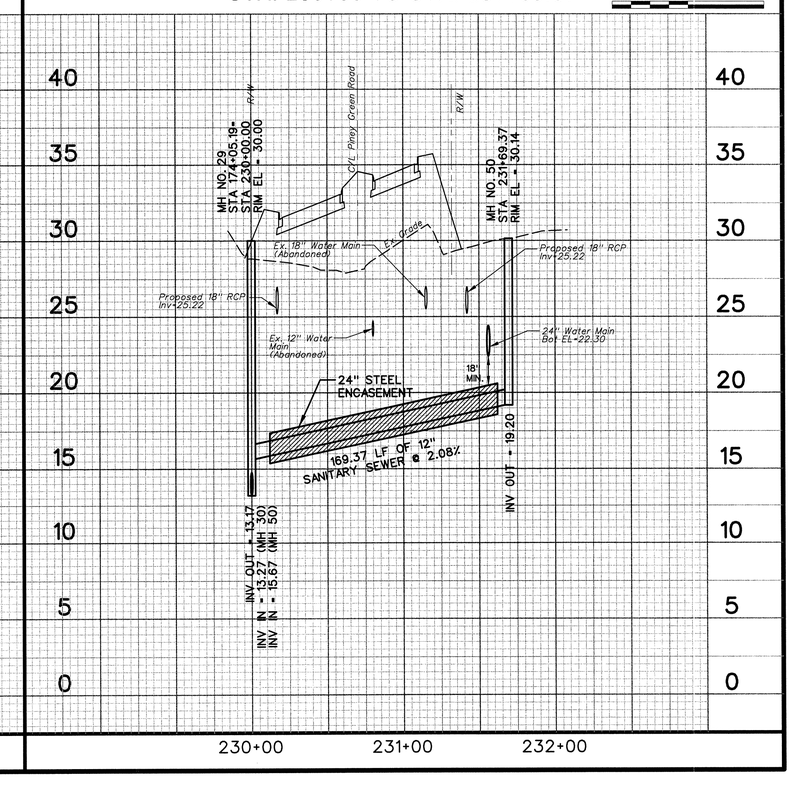
MH NO. 12 TO MH NO. 16
STA. 148+00 TO STA. 149+51.94



MH NO.29 TO MH NO. 50
STA. 230+00 TO STA. 231+69.37

HORIZ.: 1" = 50'
VERT.: 1" = 5'



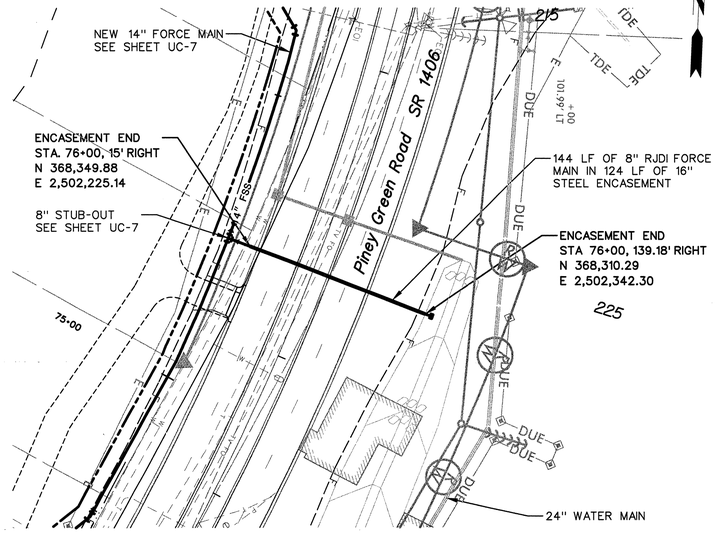


tkeith
print2pdfx.plt
50.0000 ' / in.
4/23/2012 3:57:32 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC12 toUC21.dgn

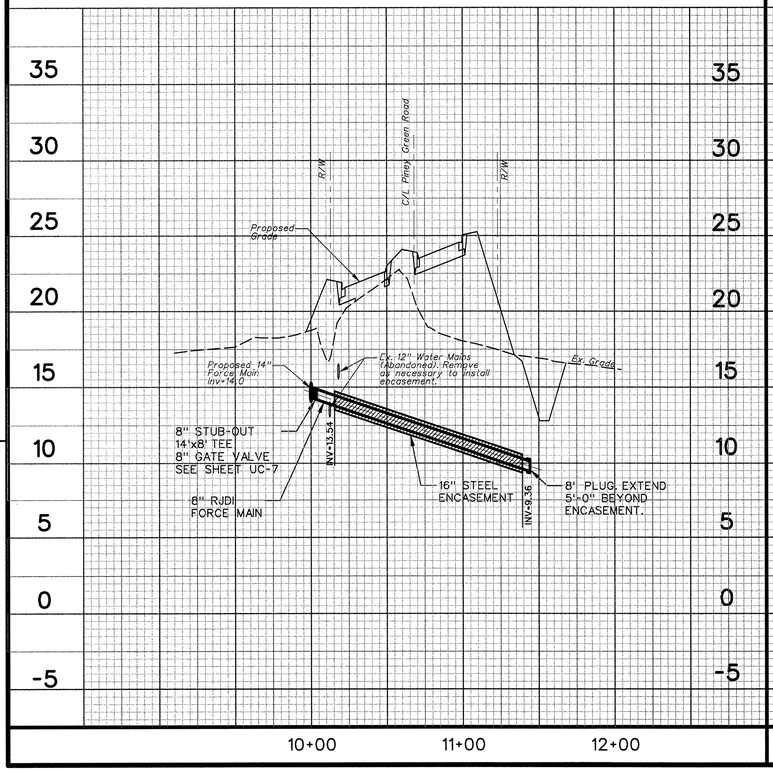
UC-20

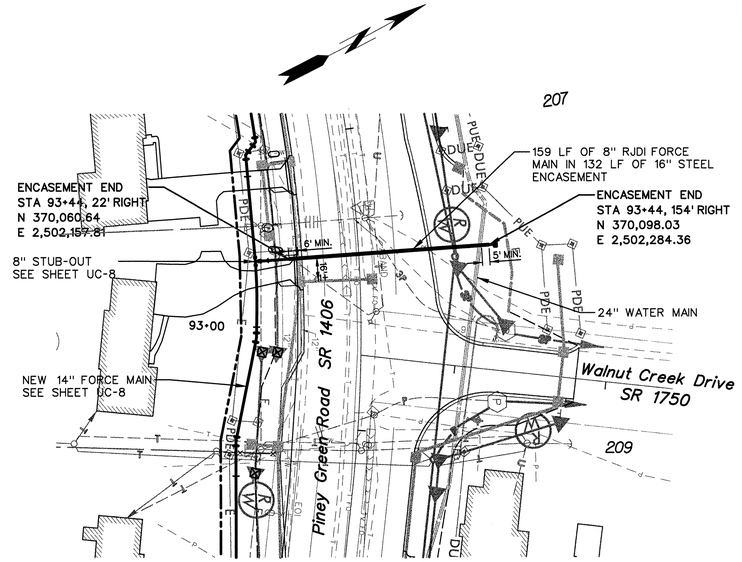
8/17/99

REVISIONS

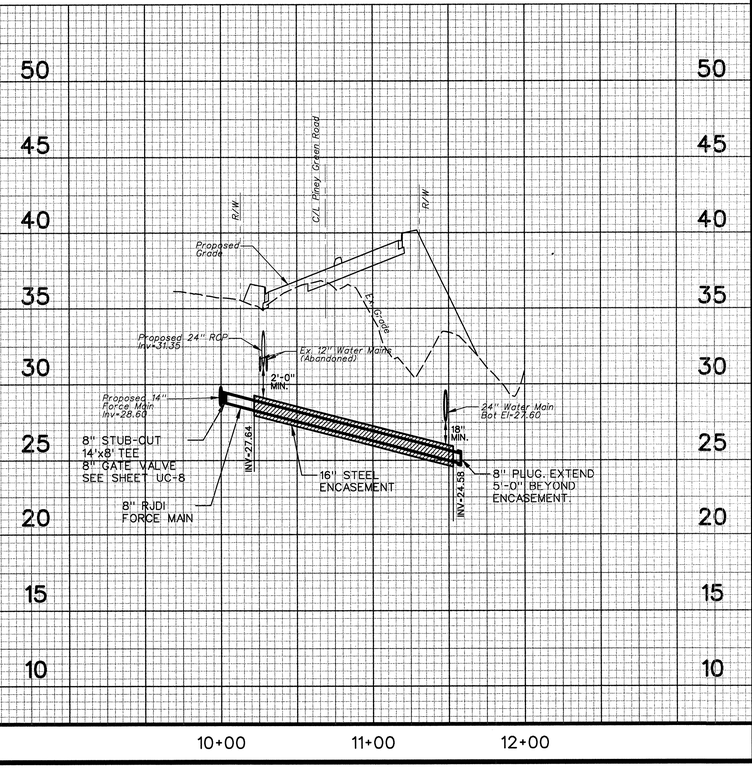


FUTURE FORCE MAIN ENCASEMENT @ STA. 76+00





FUTURE FORCE MAIN ENCASEMENT @ WALNUT CREEK DRIVE



UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3589
License Number: F-0115

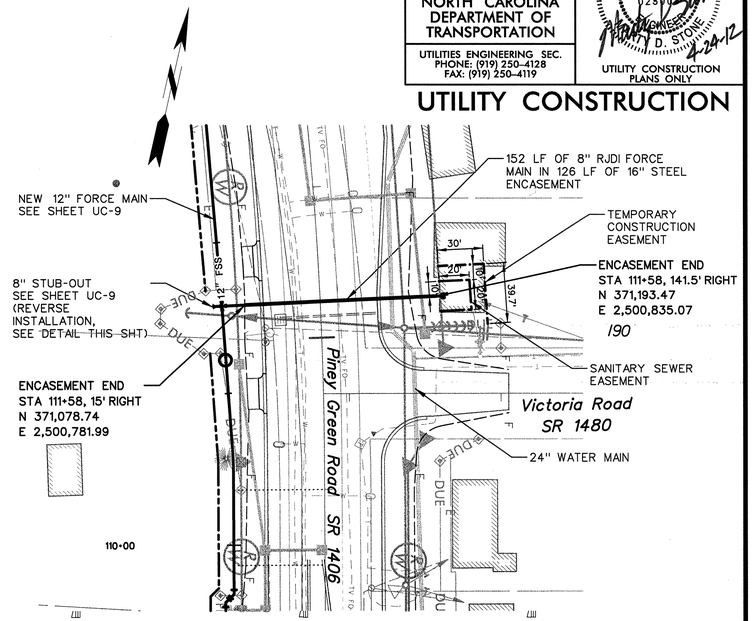
PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC – 20
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023004 ENGINEER JEFFREY D. STONE 4-24-12

UTILITY CONSTRUCTION PLANS ONLY

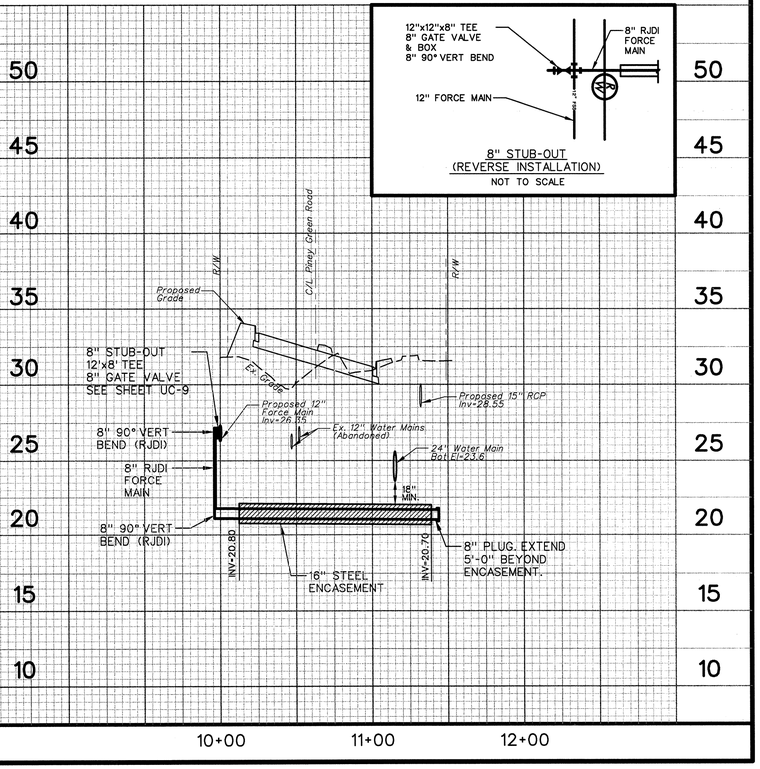
UTILITY CONSTRUCTION



FUTURE FORCE MAIN ENCASEMENT @ VICTORIA ROAD

HORIZ.: 1" = 50'
VERT. : 1" = 5'

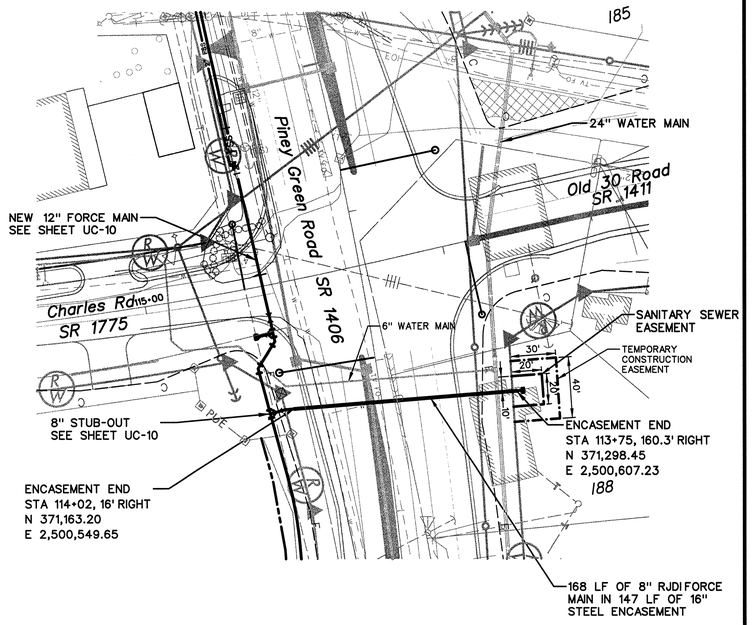
50 25 0 50



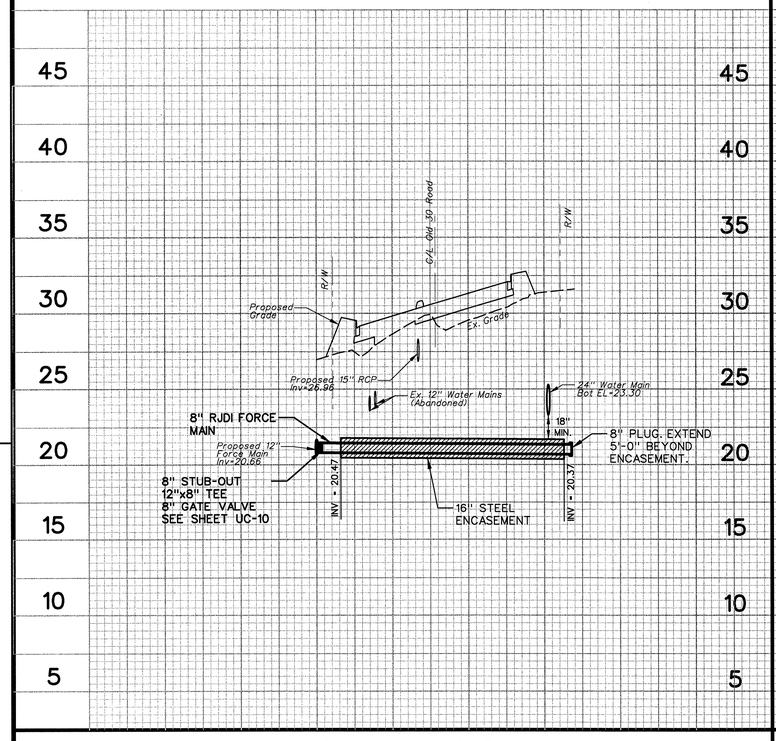
tkeith
print2pdfx.plt
50.0000 sf / in.
4/23/2012 3:58:03 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC12 toUC21.dgn

8/17/99

REVISIONS



FUTURE FORCE MAIN ENCASEMENT @ OLD 30 ROAD



UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3589
License Number: F-0125

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC – 21
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023001 ENGINEER MARTY D. STONE
4-24-12

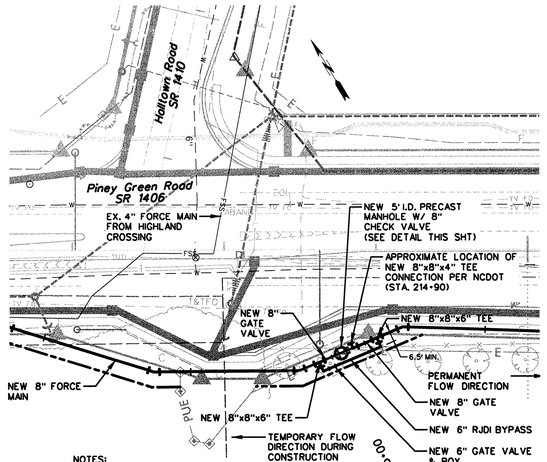
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

HORIZ.: 1" = 50'
VERT.: 1" = 5'
50 25 0 50

tkeith
print2pdfx.plt
50.0000 ' / in.
4/23/2012 4:02:11 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC12 toUC21.dgn

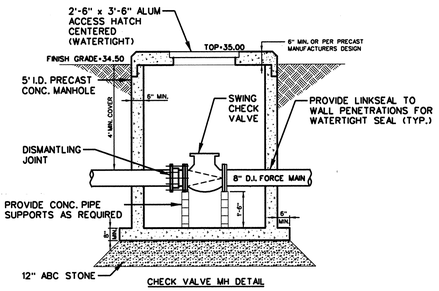
sht 22
8/17/99
REVISIONS
tkeith
print2pdfx.plt
1.0000 ft / in.
4/24/2012 10:10:31 AM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC1-UC2-UC22-UC23.dgn



NOTES:

1. SWING CHECK VALVE SHALL CONFORM TO AWWA C508.
2. DURING CONSTRUCTION, A FE X FE SPOOL SHALL BE INSTALLED IN PLACE OF CHECK VALVE.
3. UPON COMPLETION OF PINEY GREEN ROAD TRUNK SEWER, FLOW IS TO BE REVERSED TO GO SOUTH. AT THIS TIME, SPOOL PIECE SHALL BE REMOVED AND CHECK VALVE INSTALLED. FE X FE SPOOL PIECE SHALL BE LEFT IN MANHOLE FOR FUTURE USE.

PLAN

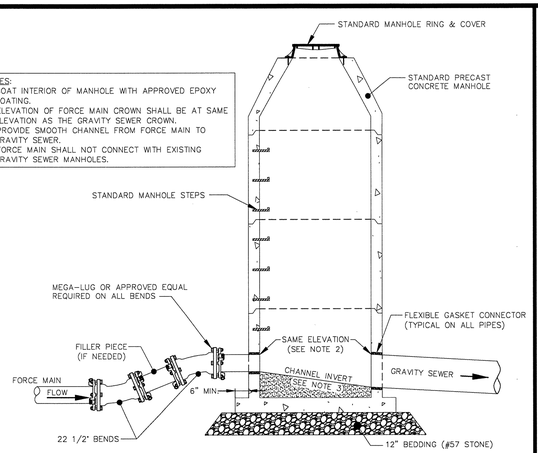


CHECK VALVE MH DETAIL

1 UC-22 HIGHLAND CROSSING CONNECTION TO 8" FORCE MAIN

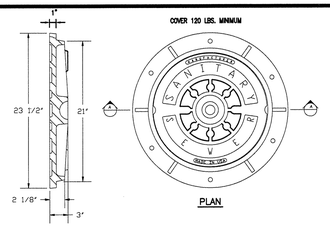
NOT TO SCALE

NOTES:
1. COAT INTERIOR OF MANHOLE WITH APPROVED EPOXY COATING.
2. ELEVATION OF FORCE MAIN CROWN SHALL BE AT SAME ELEVATION AS THE GRAVITY SEWER CROWN.
3. PROVIDE SMOOTH CHANNEL FROM FORCE MAIN TO GRAVITY SEWER.
4. FORCE MAIN SHALL NOT CONNECT WITH EXISTING GRAVITY SEWER MANHOLES.



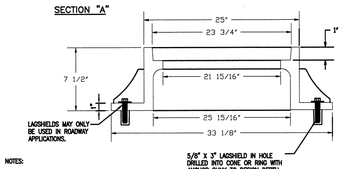
2 UC-22 FORCE MAIN DISCHARGE MANHOLE

NOT TO SCALE



SECTION "A"

PLAN

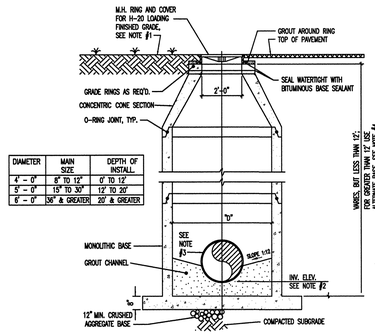


NOTES:

1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST
2. FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS.
3. COVER SHALL WEIGH A MIN. OF 120 LBS.
4. MANHOLES WITHIN PAVED SURFACES SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAIL.
5. CONSEAL SHALL BE USED BETWEEN RING AND CONE

4 UC-22 STD MANHOLE COVER & FRAME

NOT TO SCALE

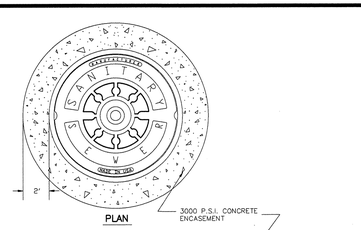


DIAMETER	MAIN SIZE	DEPTH OF INSTALL.
4' – 0"	8" TO 12"	0' TO 12'
5' – 0"	15" TO 30"	12' TO 20'
6' – 0"	36" & GREATER	20' & GREATER

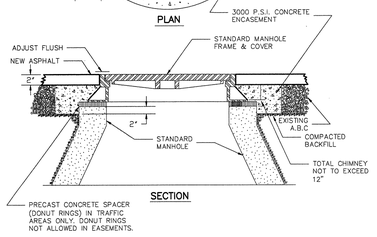
NOTE:
1. THE DISTANCE FROM THE TOP OF M.H. RING AND COVER MAY VARY WIDELY. SEE GRADING PLAN, AND/OR MANHOLE SCHEDULE.
2. INVERT ELEV. SHOWN ON THE PLANS OR MANHOLE SCHEDULE ARE AT THE INLET AND OUTLET OF MANHOLE UNLESS OTHERWISE NOTED
3. CARRIER PIPE TO MANHOLE CONNECTIONS SHALL BE RUBBER SLEEVE WITH S.S. BAND, ASTM C-923 OR PRE-MOLDED COMPRESSION TYPE POLYURETHANE, ASTM C-425
4. DEPTH OF LESS THAN 16-FEET PROVIDE AS PER ASTM C-478 AND FOR DEPTH OF 16-FEET TO 25 FEET PROVIDE AS PER ASTM C-76 CLASS 3
5. ALL MANHOLES ARE TO BE EXTENDED BASE (6" MIN.)

3 UC-22 STD PRECAST SANITARY SEWER MANHOLE (CONCENTRIC)

NOT TO SCALE



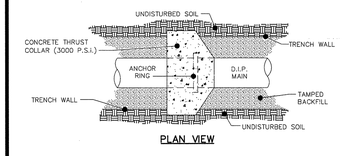
PLAN



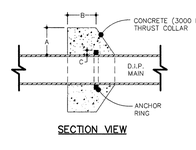
SECTION

5 UC-22 STD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES

NOT TO SCALE

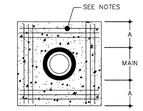


PLAN VIEW



SECTION VIEW

SCHEDULE				
PIPE DIAMETER	CONCRETE THRUST COLLAR		ANCHOR RING	RINGS REQUIRED
	A	B	C	
6", 8", 12"	1'-0"	1'-0"	2"	ONE
16"	1'-4"	1'-0"	2"	ONE
18", 20"	1'-4"	1'-0"	3"	ONE
24"	1'-4"	1'-0"	3"	TWO
30"	1'-4"	1'-2"	4"	TWO
36"	1'-4"	1'-4"	4"	TWO



REINFORCING CROSS SECTION

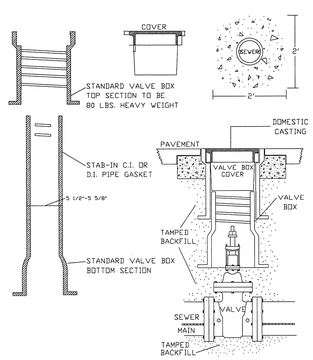
NOTES:
6" TO 16" MAINS = 12-NO. 7 BARS
18" TO 36" MAINS = 12-NO. 8 BARS
BARS PLACED AS SHOWN

6 UC-22 THRUST COLLAR

NOT TO SCALE

NOTE: CONCRETE VALVE PAD REQUIRED ON ALL VALVES.

APPROVED METHOD FOR EXTENSION OF VALVE BOX



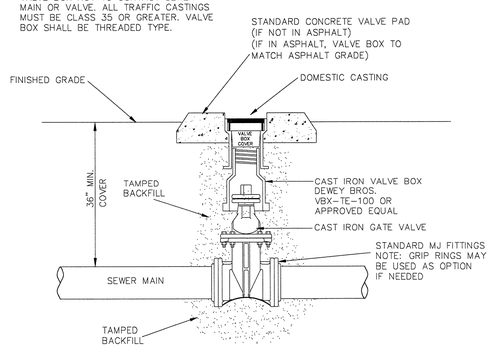
NOTE: VALVE BOX NOT TO CONTACT MAIN NOR VALVE. ALL TRAFFIC CASTINGS MUST BE CLASS 35 OR GREATER. VALVE BOX SHALL BE THREADED TYPE.

7 UC-22 VALVE BOX INSTALLATION AND EXTENSION DETAIL

NOT TO SCALE

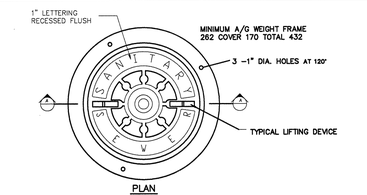
NOTE:

VALVE BOX NOT TO CONTACT SEWER MAIN OR VALVE. ALL TRAFFIC CASTINGS MUST BE CLASS 35 OR GREATER. VALVE BOX SHALL BE THREADED TYPE.

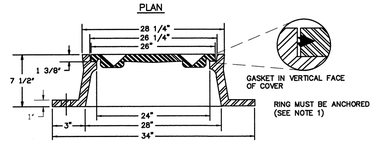


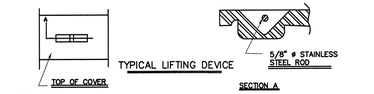
8 UC-22 INLINE VALVE

NOT TO SCALE



PLAN





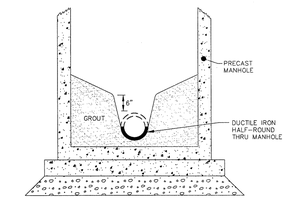
NOTES:
1. REFER TO THE "STANDARD MANHOLE COVER" DETAIL

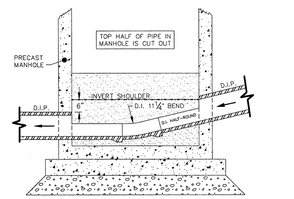
9 UC-22 STD MANHOLE FRAME AND WATERTIGHT COVER

NOT TO SCALE

NOTES:

1. NO HORIZONTAL ALIGNMENT CHANGE CAN BE MADE WITHIN THIS MANHOLE TYPE. USE ON GRADES OF 10% OR GREATER.
2. EACH JOINT OF PIPE BETWEEN HIGH VELOCITY MANHOLE & MANHOLE UPGRADE SHALL HAVE A THRUST COLLAR (SEE THRUST COLLAR DETAIL THIS SHEET)





10 UC-22 STANDARD HIGH VELOCITY MANHOLE INVERT

NOT TO SCALE

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3589
License Number: F-0215

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC – 22
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023062 ENGINEER TYD. STONE 4-24-12
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

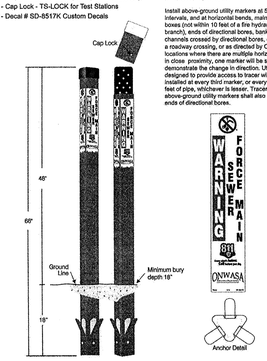
sht 23
6/17/99
REVISIONS
tkeith
print2pdfx.plt
1.0000 ft / in.
4/23/2012 4:05:44 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC1-UC2-UC22-UC23.dgn

Parts List
1 - Rhino # TVF66GB - Rhino TriView Flex™, 66" Green with Black Cap OR
1 - Rhino # TVT66GW2 - Rhino TriView™ Test Station, 66", 2 Inside Terminals, Green with White Cap
1 - Cap Lock - TS-LOCK for Test Stations
3 - Decal # SD-8517K Custom Decals

NOTES:
The TriGrip Anchor Flaps™ shall be extended prior to burial of the post. Soil shall be compacted during placement of marker post.

All materials shall be provided by Rhino Marking & Protection Systems, Inc.

Install above-ground utility markers at 500-foot intervals, and at horizontal bends, main-line valve boxes (not within 10 feet of a fire hydrant assembly branch), ends of directional bores, bank edge of all channels crossed by directional bores, each side of a roadway crossing, or as directed by ONWASA. In locations where there are multiple horizontal bends in close proximity, one marker will be sufficient to demonstrate the change in direction. Utility markers designed to provide access to tracer wire shall be installed at every third marker, or every 1000 linear feet of pipe, whichever is lesser. Tracer wire accessible above-ground utility markers shall also be installed at ends of directional bores.



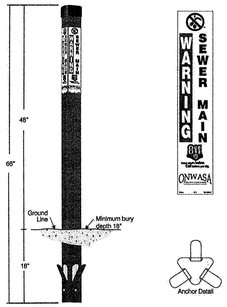
1 UC-23 STANDARD UTILITY MARKER FOR SEWER FORCE MAIN
NOT TO SCALE

Parts List
1 - Rhino # TVF66GB - Rhino TriView Flex™, 66" Green with Black Cap OR
3 - Decal # SD-8354K Custom Decals

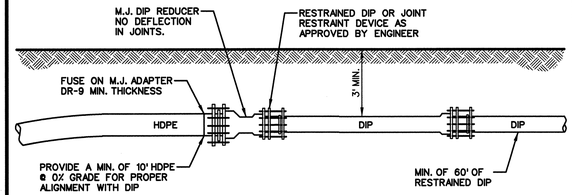
NOTES:
The TriGrip Anchor Flaps™ shall be extended prior to burial of the post. Soil shall be compacted during placement of marker post.

All materials shall be provided by Rhino Marking & Protection Systems, Inc.

Install above-ground utility markers at all manholes



2 UC-23 STANDARD UTILITY MARKER FOR GRAVITY SEWER MAIN
NOT TO SCALE



3 UC-23 HDPE TO DIP TRANSITION
NOT TO SCALE

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3589
License Number: F-0215

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC – 23
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

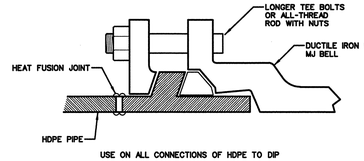
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 023705 ENGINEER MARK D. STOLE 4-24-12

UTILITY CONSTRUCTION PLANS ONLY

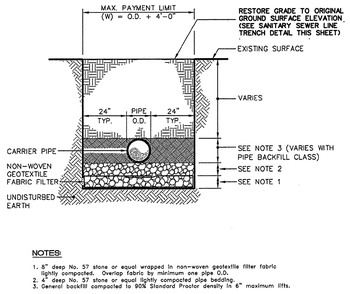
UTILITY CONSTRUCTION

MANUFACTURED TO AWWA C906 REQUIREMENTS EFFECTIVE 1/ 1/ 98



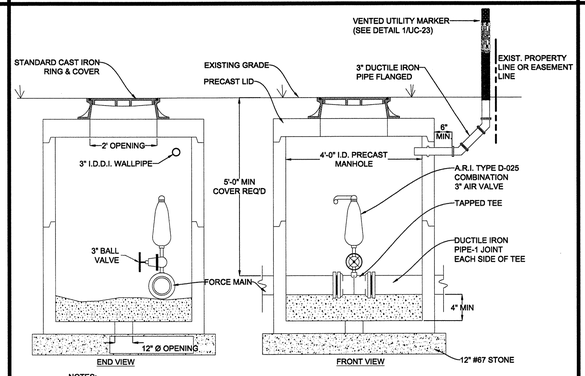
USE ON ALL CONNECTIONS OF HDPE TO DIP

4 UC-23 MECHANICAL JOINT ADAPTOR
NOT TO SCALE



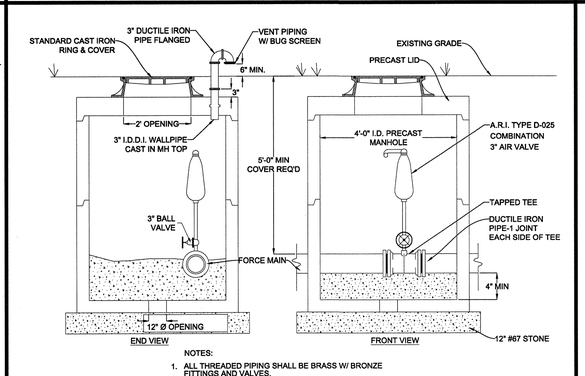
NOTES:
1. 8" deep No. 57 stone or equal wrapped in non-woven geotextile filter fabric lightly compacted. Overlap fabric by minimum one pipe O.D.
2. 4" deep No. 57 stone or equal lightly compacted pipe bedding.
3. General backfill compacted to 90% Standard Proctor density in 6" maximum lifts.

5 UC-23 UNSUITABLE SUBGRADE TRENCH DETAIL - TYPE A
NOT TO SCALE



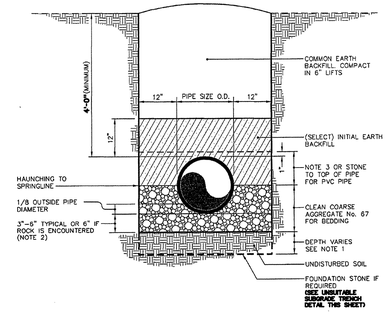
NOTES:
1. ALL THREADED PIPING SHALL BE BRASS W/ BRONZE FITTINGS AND VALVES.
2. MANHOLE INTERIOR SHALL BE LINED W/ RAVEN 405, SAUEREISEN NO. F120 / 121 AND NO. 210S OR APPROVED EQUAL. LINING TO APPLIED PER MANUFACTURERS INSTRUCTIONS.
3. MANHOLE SHALL BE H-20 RATED.

6 UC-23 AIR RELEASE MANHOLE FOR SANITARY SEWER FORCE MAIN W/ VENTED UTILITY MARKER
NOT TO SCALE



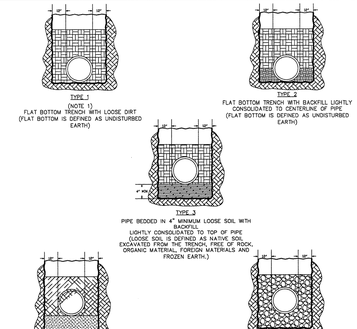
NOTES:
1. ALL THREADED PIPING SHALL BE BRASS W/ BRONZE FITTINGS AND VALVES.
2. MANHOLE INTERIOR SHALL BE LINED W/ RAVEN 405, SAUEREISEN NO. F120 / 121 AND NO. 210S OR APPROVED EQUAL. LINING TO APPLIED PER MANUFACTURERS INSTRUCTIONS.
3. MANHOLES SHALL BE H-20 RATED.

7 UC-23 AIR RELEASE MANHOLE FOR SANITARY SEWER FORCE MAIN W/ VENTED TOP
NOT TO SCALE



NOTES:
1. Foundation stone shall be required when soil conditions are unsuitable.
2. An additional 1 inch depth of bedding material will be required for each additional 2 feet of trench depth in excess of 16 feet up to a maximum of 12 inches.
3. Haunching for depth flexible wall pipe (PVC TRUSS, C900 PVC, and SDR35) shall be outside pipe diameter + 1 inch. Haunching shall be thoroughly compacted No. 67 stone.
4. Gravity sewer and restrained sections of force main to use this laying condition. Sections of non-restrained force main are to be installed using this laying condition or Type 2 or greater per ONWASA's standard detail for sewer force main embedment detail. (Detail SS_FMED)

8 UC-23 TRENCH DETAIL
NOT TO SCALE

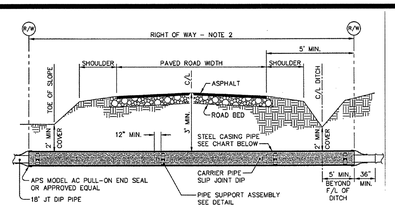


NOTES:
1. FOR NORMAL PIPE SIZES 14 INCH AND LARGER, CONSIDERATION SHOULD BE GIVEN TO THE USE OF LAYING CONDITIONS OTHER THAN TYPE 1.
2. CONSIDERATION OF THE PIPE-ZONE EMBEDMENT CONDITIONS INCLUDED IN THIS FIGURE MAY BE INFLUENCED BY FACTORS OTHER THAN PIPE STRENGTH, FOR ADDITIONAL INFORMATION ON PIPE BEDDING AND BACKFILL, SEE ANSI/AWWA C600.

9 UC-23 STANDARD PIPE BEDDING DETAIL
NOT TO SCALE

8/17/99

REVISIONS



CARRIER PIPE		CASING PIPE ⊙ RAILROAD		⊙ HIGHWAY	
NOMINAL DIAMETER	OUTSIDE DIAMETER	OUTSIDE DIAMETER	WALL THICKNESS	OUTSIDE DIAMETER	WALL THICKNESS
6" & UNDER	6.90"	12 3/4"	0.188"	12 3/4"	0.250"
8"	9.05"	16"	0.250"	16"	0.250"
10"	11.10"	20"	0.281"	20"	0.250"
12"	13.20"	24"	0.344"	24"	0.250"
14"	15.30"	28"	0.406"	28"	0.312"
16"	17.40"	30"	0.406"	30"	0.312"
20"	21.60"	42"	0.563"	42"	0.312"
24"	25.80"	42"	0.563"	42"	0.312"

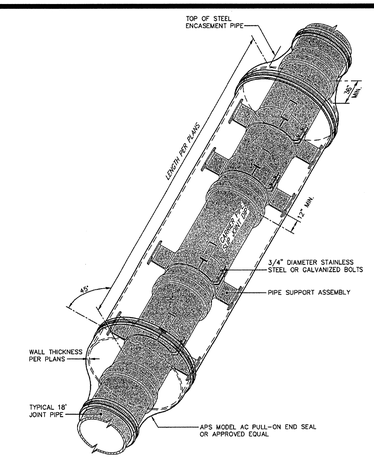
*DIMENSIONS ARE WITHOUT COATINGS

NOTES:

1. Installation by dry bore & jacking.
2. Bore to run from Right-of-Way to Right-of-Way unless approved otherwise by City of Jacksonville
3. Grease encasement pipe as required for ease of installation.
4. Steel pipe to be 35,000 psi min. yield strength, grade B.
5. All exposed metal to be coated with epoxy or asphaltic material.
6. Skids to be installed, manufactured by ITT Grinnell, Charlotte, N.C. / Spider Manufacturing, Durham, N.C. / APS casing spacers by Advanced Products Systems Inc, Lafayette, LA. / or approved equal.

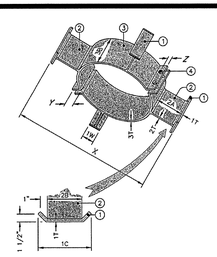
1 UC-24 TYPICAL ENCASEMENT UNDER PAVED ROADS/HIGHWAYS

NOT TO SCALE



2 UC-24 TYPICAL ENCASEMENT UNDER PAVED ROADS/HIGHWAYS

NOT TO SCALE



C.P. NOMINAL DIA.	PIPE SUPPORT ASSEMBLY MARK NUMBER ① C	W	T	② B	A	T	③ B	4	DIMENSIONS X	Y	Z
6"	5"	2"	3/8"	3"	1"	3/8"	3"	3/8" 1/2" DIA. 1 REQ'D	10.40"	1 7/8"	3/4"
8"	6"	2"	3/8"	4"	1 3/4"	3/8"	3"	3/8" 1/2" DIA. 1 REQ'D	14.05"	1 7/8"	3/4"
10"	6"	2"	3/8"	4"	4 3/4"	3/8"	4"	3/8" 1/2" DIA. 1 REQ'D	22.10"	3"	1 3/8"
12"	6"	2"	3/8"	4"	3 3/4"	3/8"	4"	3/8" 1/2" DIA. 1 REQ'D	22.20"	3"	1 3/8"
14"	6"	2"	3/8"	4"	2 3/4"	3/8"	4"	3/8" 1/2" DIA. 1 REQ'D	22.30"	3"	1 3/8"
16"	8"	3"	3/8"	6"	4 1/4"	3/8"	6"	3/8" 3/4" DIA. 1 REQ'D	27.40"	3"	1 3/8"
18"	8"	3"	3/8"	6"	3 1/4"	3/8"	6"	3/8" 3/4" DIA. 1 REQ'D	27.50"	3"	1 3/8"
24"	12"	4"	1/2"	10"	5 3/4"	1/2"	10"	1/2" 1/2" DIA. 2 REQ'D	39.30"	3"	1 3/8"
30"	12"	4"	1/2"	10"	2 1/2"	1/2"	10"	1/2" 1/2" DIA. 2 REQ'D	39.00"	3"	1 3/8"

3 UC-24 TYPICAL ENCASEMENT UNDER PAVED ROADS/HIGHWAYS

NOT TO SCALE

UTILITY CONSTRUCTION PLANS DESIGNED BY:
THE WOOTEN COMPANY
ENGINEERING | PLANNING | ARCHITECTURE
120 North Boylan Avenue Raleigh NC 27603-1423
919.828.0531 fax 919.834.3589
License Number: F-0115

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC – 24
DESIGNED BY: JEO	
DRAWN BY: TK	
CHECKED BY: MDS	
APPROVED BY: MDS	
REVISED:	

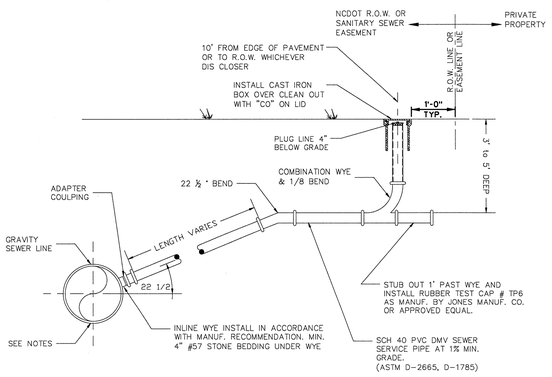
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919) 250-4128
FAX: (919) 250-4119

NORTH CAROLINA PROFESSIONAL SEAL 022004 ENGINEER TIMOTHY DJ STONE 5-15-12

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



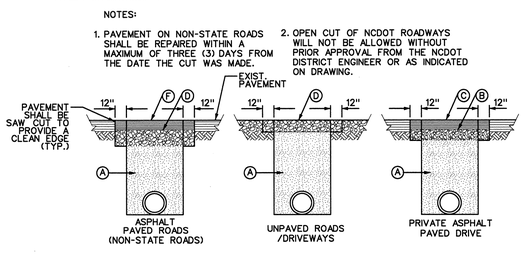
NOTES:
1. REFER TO SPECIFICATIONS FOR BEDDING, BACKFILLING AND COMPACTION REQUIREMENTS.
2. SERVICES GREATER THAN 8'-0" DEEP TO BE DUCTILE IRON.

4 UC-24 TYPICAL SANITARY SEWER LATERAL CONNECTION

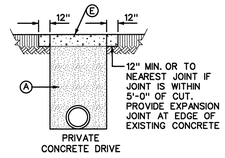
NOT TO SCALE

NOTES:

1. PAVEMENT ON NON-STATE ROADS SHALL BE REPAIRED WITHIN A MAXIMUM OF THREE (3) DAYS FROM THE DATE THE CUT WAS MADE.
2. OPEN CUT OF NCDOT ROADWAYS WILL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM THE NCDOT DISTRICT ENGINEER OR AS INDICATED ON DRAWING.



A. AREA TO BE TAMPED.
B. 6" CRUSHED (ABC) STONE.
C. 2" BITUMINOUS CONCRETE SURFACE COURSE SF 9.5A
D. 6" CRUSHED (ABC) STONE.
E. NEW CONCRETE ½" THICKER THAN EXISTING CONCRETE, BUT NO CASE LESS THAN 6 INCHES THICK.
F. 2.5" BITUMINOUS CONCRETE SURFACE COURSE TYPE SF 9.5A



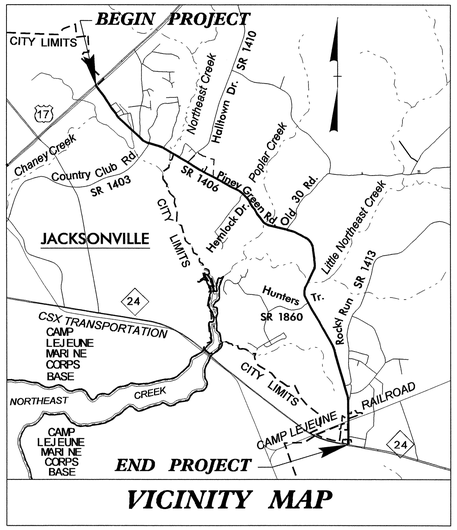
5 UC-24 PAVEMENT REPLACEMENT FOR NON-NCDOT ROADS

NOT TO SCALE

tkeith
print2pdfx.plt
1.0000 ft / in.
5/16/2012 1:15:53 PM
T:\Projects\ONWASA-2896\N-Trunk\Sheets\NCDOT_PG_Plot_Shts_UC1-UC2-UC22-UC23.dgn

09/08/99

TIP PROJECT: U-3810



VICINITY MAP

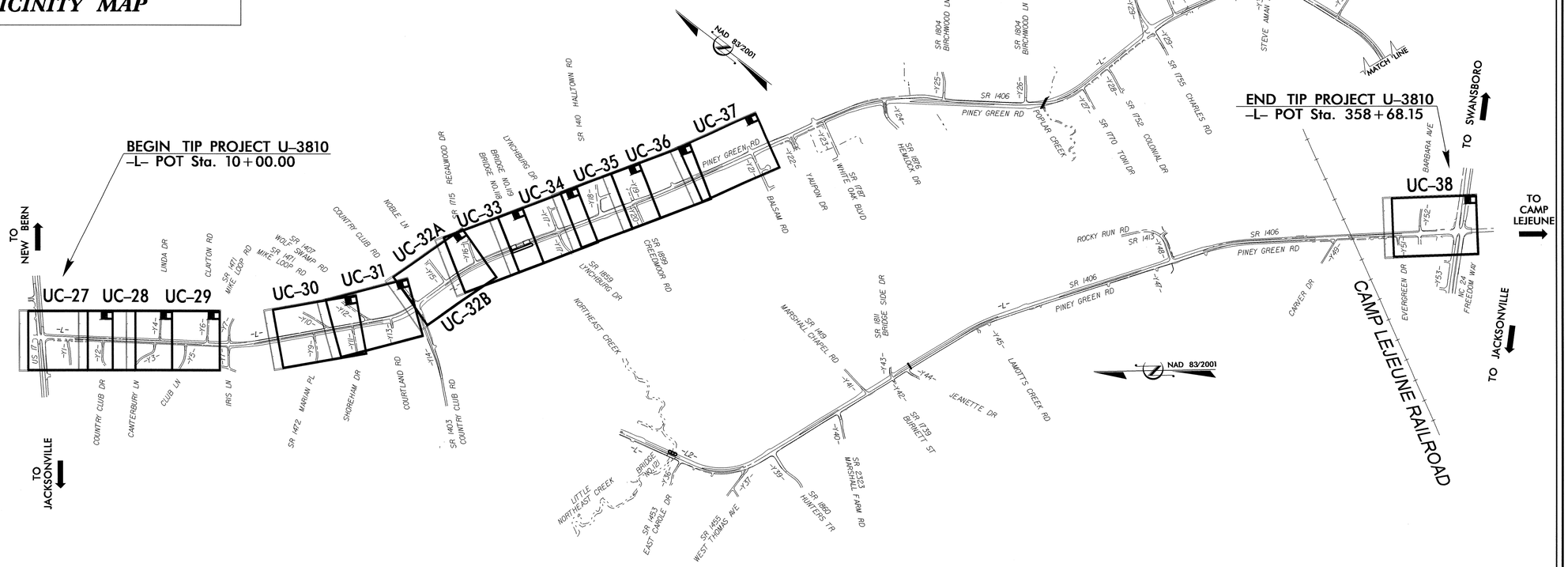
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
U-3810	UC-25

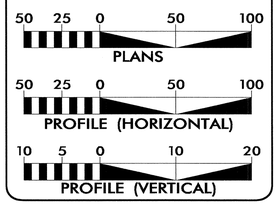
UTILITY CONSTRUCTION PLANS
ONSLOW COUNTY

LOCATION: SR-1406 (PINEY GREEN ROAD) FROM US-17 (MARINE BOULEVARD) TO NC-24 (FREEDOM WAY)

TYPE OF WORK: SANITARY SEWER RELOCATIONS



GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-25	TITLE SHEET
UC-26	NOTE SHEET
UC-27 THRU UC-38	PLAN SHEETS
UC-39 THRU UC-45	DETAIL SHEETS

SEWER OWNERS ON PROJECT

(1) SANITARY SEWER...CITY OF JACKSONVILLE
(2) SANITARY SEWER...UTILITIES, INC.
(3) SANITARY SEWER...ONSLOW COUNTY SCHOOLS

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 23041 6/5/12 COREY D. BOUSQUET

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E. — UTILITIES SECTION ENGINEER
Corey Bousquet, P.E. — UTILITIES SQUAD LEADER PROJECT ENGINEER
Eric Haugaard — UTILITIES PROJECT DESIGNER

04-JUN-2012 13:29
R:\UTILITIES\PROJ\U-3810_uc_title_sheet_25.dgn
$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-26
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 23047 6/19/12 ENGINEER CASEY D. BOUSQUET

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

NOTE: ALL SEWER LINES IN THESE PLANS (I.E. SHEETS UC-27 THRU UC-38) ARE OWNED BY CITY OF JACKSONVILLE EXCEPT THOSE SHOWN ON UC-37

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2012.

2. THE EXISTING UTILITIES BELONG TO CITY OF JACKSONVILLE, ONWASA, AND CAROLINA WATER SERVICES

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL HEALTH. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, DIVISION OF WATER QUALITY. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPROTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

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

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

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

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

10. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE PATH DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.

11. IF HDPE PIPE IS INSTALLED BY DIRECTIONAL DRILL. IT SHALL BE FILLED WITH WATER AND NOT BE CONNECTED TO ANY OTHER PIPE OR FITTINGS FOR ONE WEEK FROM THE TIME OF INSTALLATION.

12. THE GENERAL UTILITY CONSTRUCTION WORK WILL BE INCIDENTAL AND WILL BE PAID AT THE CONTRACT PRICES OF THE VARIOUS UTILITY ITEMS INCLUDED IN THE CONTRACT.

UTILITY CONSTRUCTION

SEWER LINE	PLAN SHEET	DESCRIPTION OF WORK	GENERAL NOTES
#1	UC-27	RELOCATE 540 LF OF 8" GRAVITY SEWER	USE DUCTILE IRON PIPE FOR SECTION OF SEWER LINE BETWEEN MH-101 AND MH-102
#2	UC-28	RELOCATE 478 LF OF 8" GRAVITY SEWER	USE DUCTILE IRON PIPE FOR SECTIONS OF SEWER LINE BETWEEN MH-104 AND MH-105 AND BETWEEN MH-105 AND MH-106
#3	UC-29	RELOCATE 492 LF OF 8" GRAVITY SEWER	USE DUCTILE IRON PIPE FOR SECTIONS OF SEWER LINE BETWEEN MH-108 AND MH-109 AND BETWEEN MH-109 AND MH-110
#4	UC-30	ADJUST MANHOLE TOP ELEVATIONS	USE "MASONRY DRAINAGE STRUCTURES" PAY ITEM TO ADJUST MANHOLE HEIGHT
#5	UC-31	ADJUST MANHOLE TOP ELEVATIONS	USE "MASONRY DRAINAGE STRUCTURES" PAY ITEM TO ADJUST MANHOLE HEIGHT
#6	UC-32A	RELOCATE 993 LF OF 4" FORCE MAIN SEWER	REQUIRED ON TEMPORARY BASIS TO MAINTAIN EXISTING SEWAGE FLOW FROM HIGHLAND CROSSING PUMP STATION TO COUNTRY CLUB ROAD...WHEN FLOW CAN BE REDIRECTED SOUTH TO HUNTERS CREEK PUMP STATION, THIS LINE WILL BE ABANDONED
#7	UC-35	RELOCATE 47 LF OF 4" FORCE MAIN SEWER	REQUIRED ON TEMPORARY BASIS TO MAINTAIN EXISTING SEWAGE FLOW FROM HIGHLAND CROSSING PUMP STATION TO COUNTRY CLUB ROAD AND REQUIRED ON PERMANENT BASIS TO CONVEY SEWAGE FLOW FROM HIGHLAND CROSSING PUMP STATION TO HUNTERS CREEK PUMP STATION
#8	UC-36	RELOCATE 216 LF OF 4" FORCE MAIN SEWER	4" FORCE MAIN REQUIRED ON TEMPORARY BASIS TO MAINTAIN EXISTING SEWAGE FLOW FROM EMMANUEL CHURCH TO HIGHLAND CROSSING PUMP STATION...WHEN FLOW CAN BE REDIRECTED SOUTH TO HUNTERS CREEK PUMP STATION THIS LINE WILL BE ABANDONED
		RELOCATE 35 LF OF 2" FORCE MAIN SEWER	2" FORCE MAIN REQUIRED ON TEMPORARY BASIS TO MAINTAIN EXISTING SEWAGE FLOW FROM EMMANUEL CHURCH TO HIGHLAND CROSSING PUMP STATION...WHEN FLOW CAN BE REDIRECTED SOUTH TO HUNTERS CREEK PUMP STATION THIS LINE WILL BE ABANDONED
		RELOCATE 78 LF OF 2" FORCE MAIN SEWER	2" FORCE MAIN REQUIRED ON PERMANENT BASIS TO CONVEY SEWAGE FLOW DIRECTLY TO HUNTERS CREEK PUMP STATION
#9	UC-37	RELOCATE 402 LF OF 4" FORCE MAIN SEWER	4" FORCE MAIN OWNED BY ONSLOW COUNTY OUTFALLS INTO UTILITIES INC. SYSTEM
#10	UC-38	PROPOSED 213 LF OF 8" GRAVITY MAIN SEWER AND FOUR MANHOLES	NEW ALIGNMENT MINIMIZES CONFLICTS AND ACCOMMODATES FUTURE SEWER SERVICE TIE-INS WITHOUT DAMAGE TO PINEY GREEN ROAD

NCDOT SEWER LINE RELOCATION SUMMARY

20-JUN-2012 06:51
Utilities\Projects\U-3810\Proj\U-3810_uc_note_sheet_26.dgn
$$$$USERNAME$$$$

5/14/99

SEWER LINE #1
PROPOSED 8" GRAVITY SEWER MAIN RELOCATION
(L-STA 13+81 TO L-STA 19+21)

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-27
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER COREY D. BOUSQUET 6/7/12

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

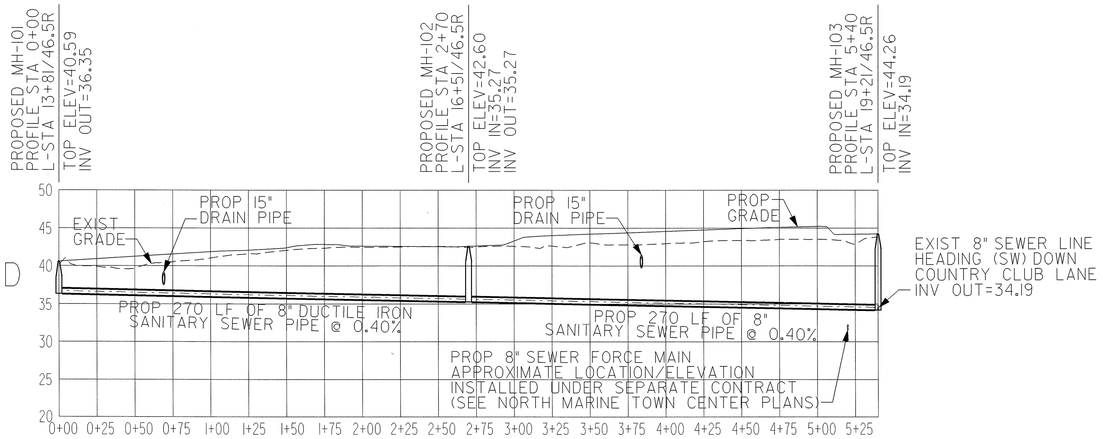
PLAN SCALE:

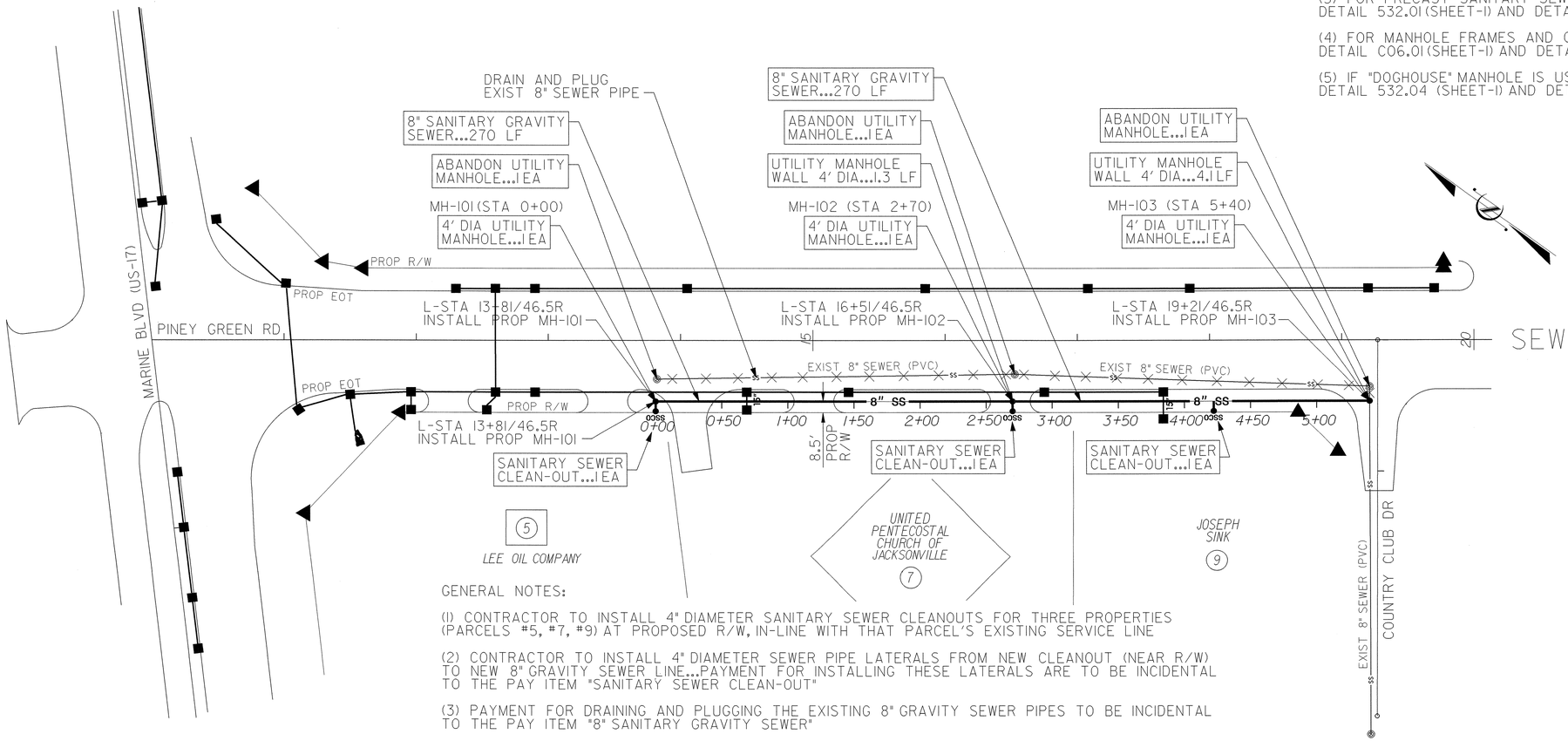
1"=50' (FULL-SIZE PLANS)
1"=100' (HALF-SIZE PLANS)

LEGEND:

-X-X-X-X- DRAIN AND PLUG EXIST SEWER LINE

PROPOSED 8" SEWER PROFILE





8 SEWER PLAN

DETAIL REFERENCE NOTES:

(1) FOR UTILITY TRENCH BEDDING DETAILS, SEE SHEET UC-40, DETAIL 531.01 AND DETAIL C01.02

(2) FOR SANITARY SEWER SERVICE CLEAN OUTS, SEE SHEET UC-43, DETAIL 533.03 (SHEET-1) AND DETAIL 533.03 (SHEET-2)

(3) FOR PRECAST SANITARY SEWER MANHOLE, SEE SHEET UC-39, DETAIL 532.01 (SHEET-1) AND DETAIL 532.01 (SHEET-2)

(4) FOR MANHOLE FRAMES AND COVERS, SEE SHEET UC-45, DETAIL C06.01 (SHEET-1) AND DETAIL C06.01 (SHEET-2)

(5) IF "DOGHOUSE" MANHOLE IS USED FOR MH-103, SEE SHEET UC-41, DETAIL 532.04 (SHEET-1) AND DETAIL 532.04 (SHEET-2)

GENERAL NOTES:

(1) CONTRACTOR TO INSTALL 4" DIAMETER SANITARY SEWER CLEANOUTS FOR THREE PROPERTIES (PARCELS #5, #7, #9) AT PROPOSED R/W, IN-LINE WITH THAT PARCEL'S EXISTING SERVICE LINE

(2) CONTRACTOR TO INSTALL 4" DIAMETER SEWER PIPE LATERALS FROM NEW CLEANOUT (NEAR R/W) TO NEW 8" GRAVITY SEWER LINE...PAYMENT FOR INSTALLING THESE LATERALS ARE TO BE INCIDENTAL TO THE PAY ITEM "SANITARY SEWER CLEAN-OUT"

(3) PAYMENT FOR DRAINING AND PLUGGING THE EXISTING 8" GRAVITY SEWER PIPES TO BE INCIDENTAL TO THE PAY ITEM "8" SANITARY GRAVITY SEWER"

(4) ALL PROPOSED DUCTILE IRON SEWER PIPE TO BE LINED WITH "PROTECTO 401" CERAMIC EPOXY LINING (BY INDURON COATINGS, INC) OR APPROVED EQUAL

04-JUN-2012 10:27
Utilities\EWH_DOT\U-3810_uc_plan_sheet_27.dgn
$$$$USERNAME$$$$

5/14/99

SEWER LINE #2
PROPOSED 8" GRAVITY SEWER MAIN RELOCATION
(L-STA 22+52 TO Y3-STA 11+18)

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-28
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
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 23041 ENGINEER CORNEY D. BOUSQUET

UTILITY CONSTRUCTION

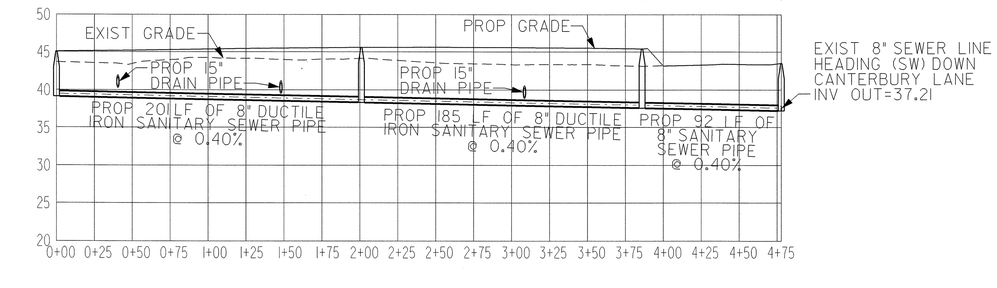
PLAN SCALE:

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

LEGEND:

DRAIN AND PLUG EXIST SEWER LINE

PROPOSED 8" SEWER PROFILE



DETAIL REFERENCE NOTES:

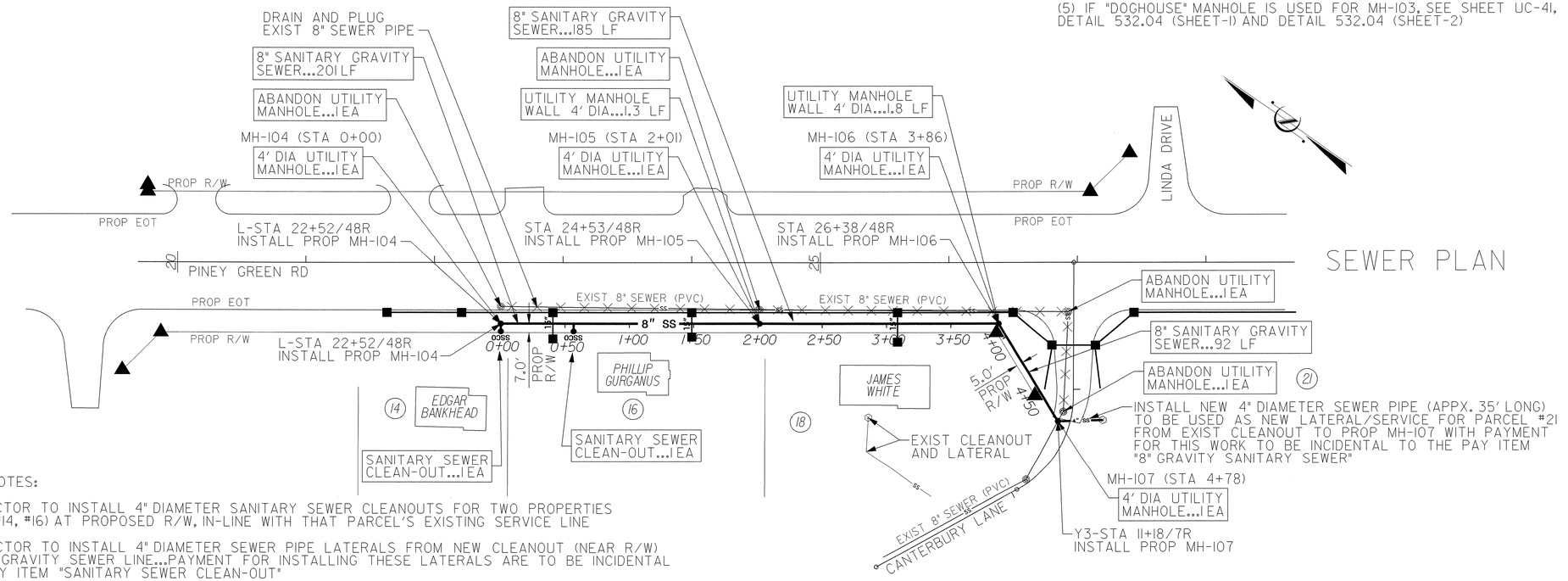
(1) FOR UTILITY TRENCH BEDDING DETAILS, SEE SHEET UC-40, DETAIL 531.01 AND DETAIL C01.02

(2) FOR SANITARY SEWER SERVICE CLEAN OUTS, SEE SHEET UC-43, DETAIL 533.03 (SHEET-1) AND DETAIL 533.03 (SHEET-2)

(3) FOR PRECAST SANITARY SEWER MANHOLE, SEE SHEET UC-39, DETAIL 532.01 (SHEET-1) AND DETAIL 532.01 (SHEET-2)

(4) FOR MANHOLE FRAMES AND COVERS, SEE SHEET UC-45, DETAIL C06.01 (SHEET-1) AND DETAIL C06.01 (SHEET-2)

(5) IF "DOGHOUSE" MANHOLE IS USED FOR MH-103, SEE SHEET UC-41, DETAIL 532.04 (SHEET-1) AND DETAIL 532.04 (SHEET-2)



SEWER PLAN

GENERAL NOTES:

(1) CONTRACTOR TO INSTALL 4" DIAMETER SANITARY SEWER CLEANOUTS FOR TWO PROPERTIES (PARCELS #14, #16) AT PROPOSED R/W, IN-LINE WITH THAT PARCEL'S EXISTING SERVICE LINE

(2) CONTRACTOR TO INSTALL 4" DIAMETER SEWER PIPE LATERALS FROM NEW CLEANOUT (NEAR R/W) TO NEW 8" GRAVITY SEWER LINE...PAYMENT FOR INSTALLING THESE LATERALS ARE TO BE INCIDENTAL TO THE PAY ITEM "SANITARY SEWER CLEAN-OUT"

(3) SANITARY SEWER CLEANOUT FOR PARCEL #18 WILL NOT BE RELOCATED BECAUSE IT IS SERVICED BY GRAVITY SEWER TRUNK LINE LOCATED UNDER CANTERBURY LANE (I.E. DOES NOT FLOW TO PINEY GREEN RD)

(4) PAYMENT FOR DRAINING AND PLUGGING THE EXISTING 8" GRAVITY SEWER PIPES TO BE INCIDENTAL TO THE PAY ITEM "8" SANITARY GRAVITY SEWER"

(5) ALL PROPOSED DUCTILE IRON SEWER PIPE TO BE LINED WITH "PROTECTO 401" CERAMIC EPOXY LINING (BY INDURON COATINGS, INC) OR APPROVED EQUAL

04-JUN-2012 10:26
V:\PROJECTS\U-3810\plans\U-3810_uc_plan_sheet_28.dgn
USER:ewhamm
PSCALE:1.0000

5/14/99

SEWER LINE #3
PROPOSED 8" GRAVITY SEWER MAIN RELOCATION
(L-STA 29+75 TO L-STA 34+67)

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-29
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER CASEY D. BOUSQUET 6/3/11

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

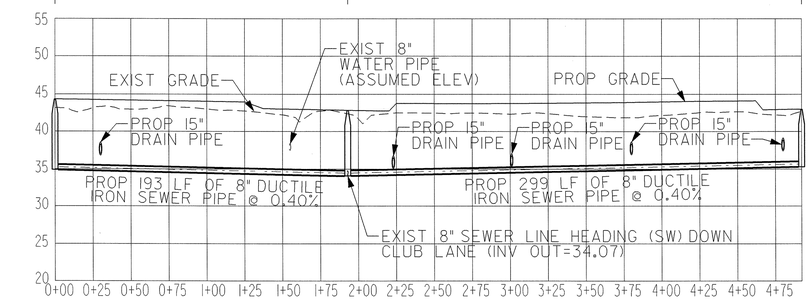
PLAN SCALE:

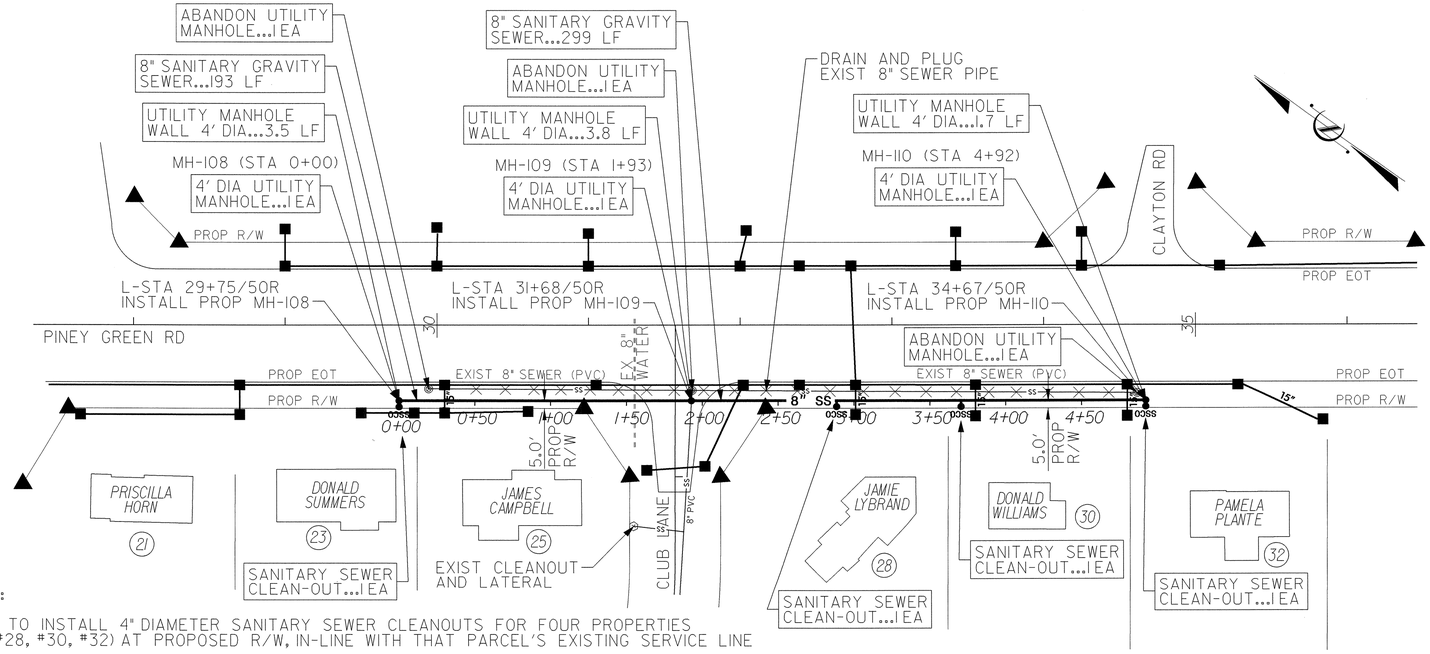
1"=50' (FULL-SIZE PLANS)
1"=100' (HALF-SIZE PLANS)

LEGEND:

DRAIN AND PLUG EXIST SEWER LINE

SEWER PROFILE





SEWER PLAN

DETAIL REFERENCE NOTES:

(1) FOR UTILITY TRENCH BEDDING DETAILS, SEE SHEET UC-40, DETAIL 531.01 AND DETAIL C01.02

(2) FOR SANITARY SEWER SERVICE CLEAN OUTS, SEE SHEET UC-43, DETAIL 533.03 (SHEET-1) AND DETAIL 533.03 (SHEET-2)

(3) FOR PRECAST SANITARY SEWER MANHOLE, SEE SHEET UC-39, DETAIL 532.01 (SHEET-1) AND DETAIL 532.01 (SHEET-2)

(4) FOR MANHOLE FRAMES AND COVERS, SEE SHEET UC-45, DETAIL C06.01 (SHEET-1) AND DETAIL C06.01 (SHEET-2)

(5) IF "DOGHOUSE" MANHOLE IS USED FOR MH-103, SEE SHEET UC-41, DETAIL 532.04 (SHEET-1) AND DETAIL 532.04 (SHEET-2)

GENERAL NOTES:

(1) CONTRACTOR TO INSTALL 4" DIAMETER SANITARY SEWER CLEANOUTS FOR FOUR PROPERTIES (PARCELS #23, #28, #30, #32) AT PROPOSED R/W, IN-LINE WITH THAT PARCEL'S EXISTING SERVICE LINE

(2) CONTRACTOR TO INSTALL 4" DIAMETER SEWER PIPE LATERALS FROM NEW CLEANOUT (NEAR R/W) TO NEW 8" GRAVITY SEWER LINE...PAYMENT FOR INSTALLING THESE LATERALS ARE TO BE INCIDENTAL TO THE PAY ITEM "SANITARY SEWER CLEAN-OUT"

(3) SANITARY SEWER CLEANOUT FOR PARCEL #25 WILL NOT BE RELOCATED BECAUSE IT IS SERVICED BY GRAVITY SEWER TRUNK LINE LOCATED UNDER CLUB LANE (I.E. DOES NOT FLOW TO PINEY GREEN RD)

(4) PAYMENT FOR DRAINING AND PLUGGING THE EXISTING 8" GRAVITY SEWER PIPES TO BE INCIDENTAL TO THE PAY ITEM "8" SANITARY GRAVITY SEWER"

(5) ALL PROPOSED DUCTILE IRON SEWER PIPE TO BE LINED WITH "PROTECTO 401" CERAMIC EPOXY LINING (BY INDURON COATINGS, INC) OR APPROVED EQUAL

04-JUN-2012 10:26
Utilities\Projects\U-3810\U-3810_uc_plan_sheet_29.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-30

DESIGNED BY: EWH
DRAWN BY: EWH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:

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

NORTH CAROLINA PROFESSIONAL SEAL 23041 6/5/12 ENGINEER COREY D. BOUSQUET

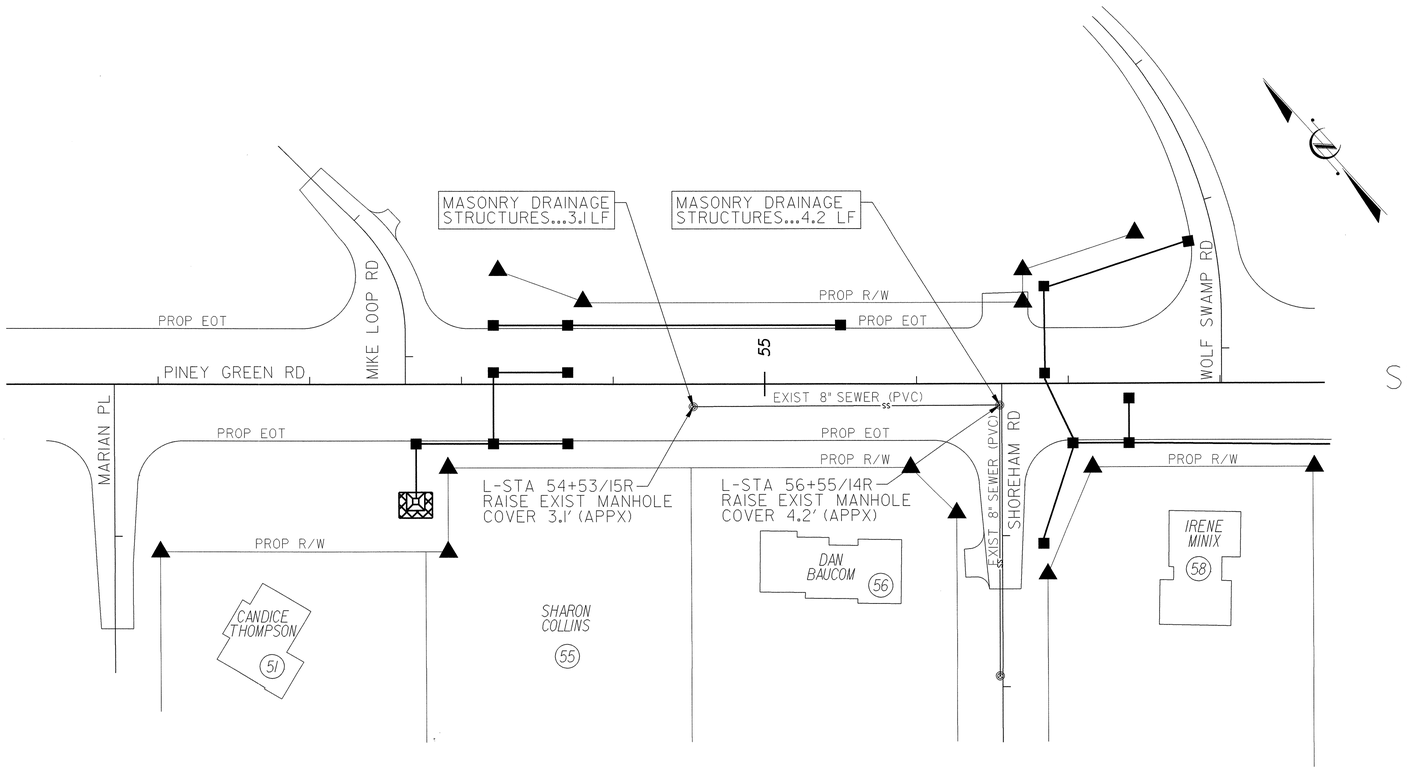
UTILITY CONSTRUCTION PLANS ONLY

SEWER LINE #4
PROPOSED SEWER MANHOLE ADJUSTMENTS
(L-STA 54+53 TO L-STA 56+55)

UTILITY CONSTRUCTION

PLAN SCALE:

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



SEWER PLAN

GENERAL NOTES:

(1) FOR MANHOLE GRADE ADJUSTMENT DETAILS, SEE SHEET UC-42, DETAIL C06.03 (SHEET-1) AND DETAIL C06.03 (SHEET-2)

5/14/99

04-JUN-2012 10:25
\Utilities\Rdy_Ut_Proj\U-3810_uc_plan_sheet_30.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-31

DESIGNED BY: EWH
DRAWN BY: EWH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER COREY D. BOUSQUET 6/5/12

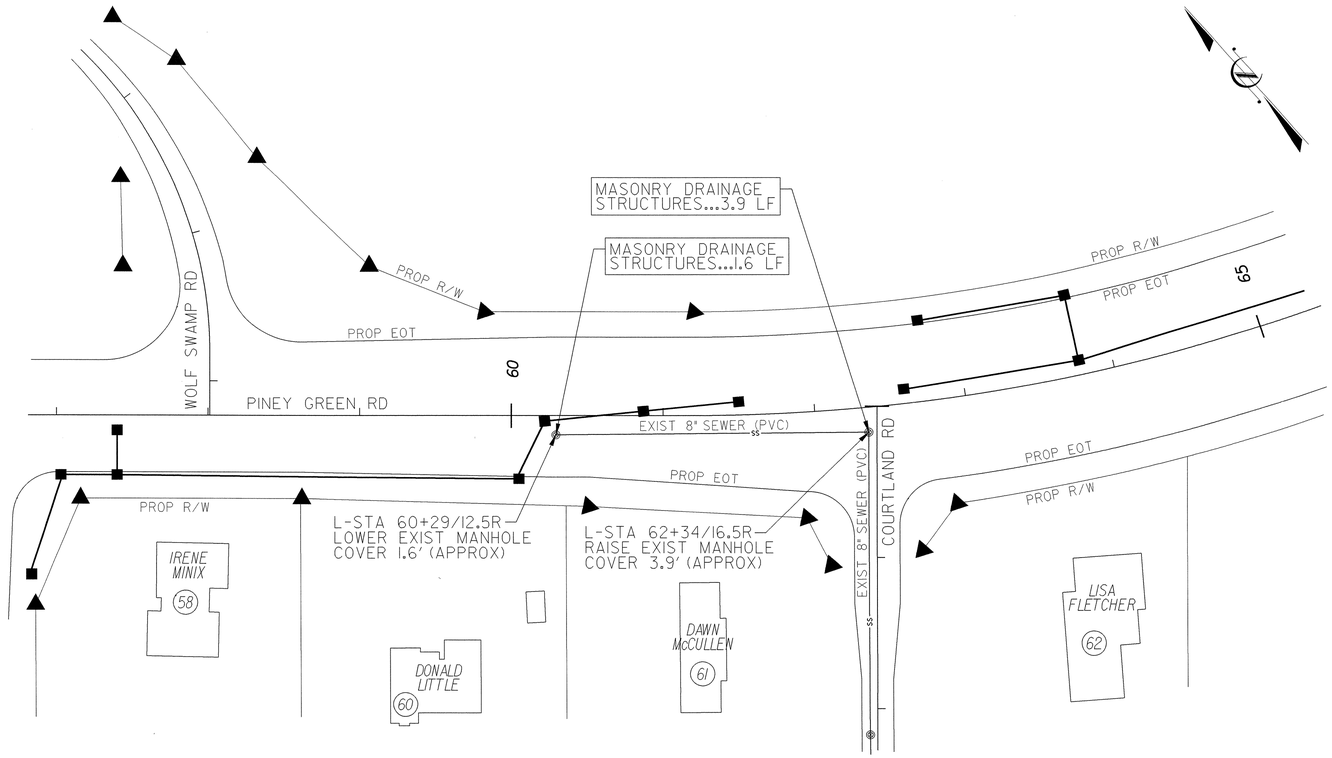
UTILITY CONSTRUCTION PLANS ONLY

SEWER LINE #5
PROPOSED SEWER MANHOLE ADJUSTMENTS
(L-STA 60+29 TO L-STA 62+34)

UTILITY CONSTRUCTION

PLAN SCALE:

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



SEWER PLAN

GENERAL NOTES:

(1) FOR MANHOLE GRADE ADJUSTMENT DETAILS, SEE SHEET UC-42, DETAIL C06.03 (SHEET-1) AND DETAIL C06.03 (SHEET-2)

5/14/99

04-JUN-2012 10:25
\Utilities\Rdy_Ut\Proj\U-3810_uc_plan_sheet_31.dgn
$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-32A
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 23047 5/7/12 CHRISTOPHER D. BOISSEAU

UTILITY CONSTRUCTION PLANS ONLY

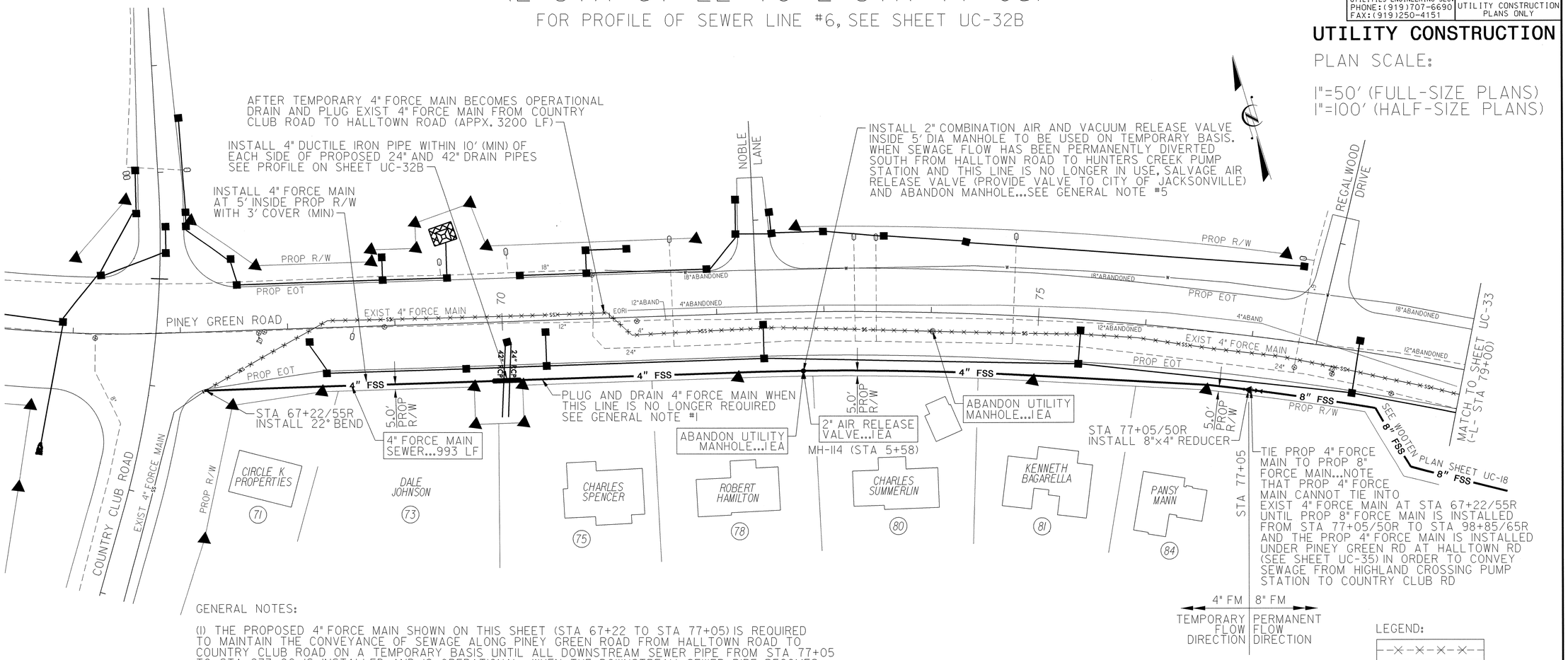
SEWER LINE #6
PROPOSED TEMPORARY 4" FORCE MAIN RELOCATION
(L-STA 67+22 TO L-STA 77+05)

FOR PROFILE OF SEWER LINE #6, SEE SHEET UC-32B

UTILITY CONSTRUCTION

PLAN SCALE:

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



4" FM TEMPORARY FLOW DIRECTION

8" FM PERMANENT FLOW DIRECTION

LEGEND:

DRAIN AND PLUG EXIST SEWER LINE

GENERAL NOTES:

(1) THE PROPOSED 4" FORCE MAIN SHOWN ON THIS SHEET (STA 67+22 TO STA 77+05) IS REQUIRED TO MAINTAIN THE CONVEYANCE OF SEWAGE ALONG PINEY GREEN ROAD FROM HALLTOWN ROAD TO COUNTRY CLUB ROAD ON A TEMPORARY BASIS UNTIL ALL DOWNSTREAM SEWER PIPE FROM STA 77+05 TO STA 273+00 IS INSTALLED AND IS OPERATIONAL. WHEN THE DOWNSTREAM SEWER PIPE BECOMES OPERATIONAL, THE SEWAGE FLOW FROM HALLTOWN ROAD WILL BE DIVERTED FROM TRAVELLING NORTH (TO COUNTRY CLUB ROAD) AND WILL BE DIRECTED SOUTH (TO HUNTERS CREEK PUMP STATION). WHEN THE FLOW IS DIVERTED FROM TRAVELLING NORTH (TEMPORARY CONFIGURATION) TO THE SOUTH (PERMANENT CONFIGURATION), DISCONNECT 4" FORCE MAIN FROM 8" FORCE MAIN AT STA 77+05, PLUG 8" FORCE MAIN, THEN DRAIN AND PLUG 4" FORCE MAIN FROM STA 67+22 TO STA 77+05 WITH PAYMENT FOR DRAINING THIS LINE TO BE INCIDENTAL TO PAY ITEM "4" FORCE MAIN SEWER"

(2) 4" PVC PRESSURE PIPE SHALL COMPLY WITH AWWA C900, PRESSURE CLASS 150, DR-18, AND SECTION 2.1.2.C.1 OF CITY OF JACKSONVILLE'S SANITARY SEWER SPECIFICATIONS

(3) INSTALL 4" DUCTILE IRON PIPE A MINIMUM 10' EACH SIDE OF PROPOSED (24" AND 42") DRAIN PIPES LOCATED AT STA 70+00 (APPROX)

(4) PAYMENT FOR DRAINING AND PLUGGING 4" FORCE MAIN LINES TO BE INCIDENTAL TO PAY ITEM "4" FORCE MAIN SEWER"

(5) INSTALL ONE FULL-LENGTH DUCTILE IRON PIPE CENTERED THROUGH AIR RELEASE MANHOLE. PROPOSED 4" COMBINATION AIR VALVE (INSTALLED AT L-STA 72+80/55R) TO BE SALVAGED AND PROVIDED TO CITY OF JACKSONVILLE AFTER THIS TEMPORARY 4" FORCE MAIN IS ABANDONDED

(6) USE RESTRAINED JOINTS AT ALL BENDS AND AT LEAST ONE JOINT PAST THE BENDS (BOTH SIDES)

DETAIL REFERENCE NOTES:

(1) FOR UTILITY TRENCH BEDDING DETAILS, SEE SHEET UC-40, DETAIL 531.01 AND DETAIL C01.02

(2) FOR COMBINATION AIR VALVE AIR RELEASE MANHOLE, SEE SHEET UC-42, DETAIL 534.03

(3) FOR PRECAST SANITARY SEWER MANHOLE, SEE SHEET UC-39, DETAIL 532.01 (SHEET-1) AND DETAIL 532.01 (SHEET-2)

(4) FOR MANHOLE FRAMES AND COVERS, SEE SHEET UC-45, DETAIL C06.01 (SHEET-1) AND DETAIL C06.01 (SHEET-2)

04-JUN-2012 10:25
C:\Projects\U-3810\uc_plan_sheet_32A.dgn
$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-32B
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	

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

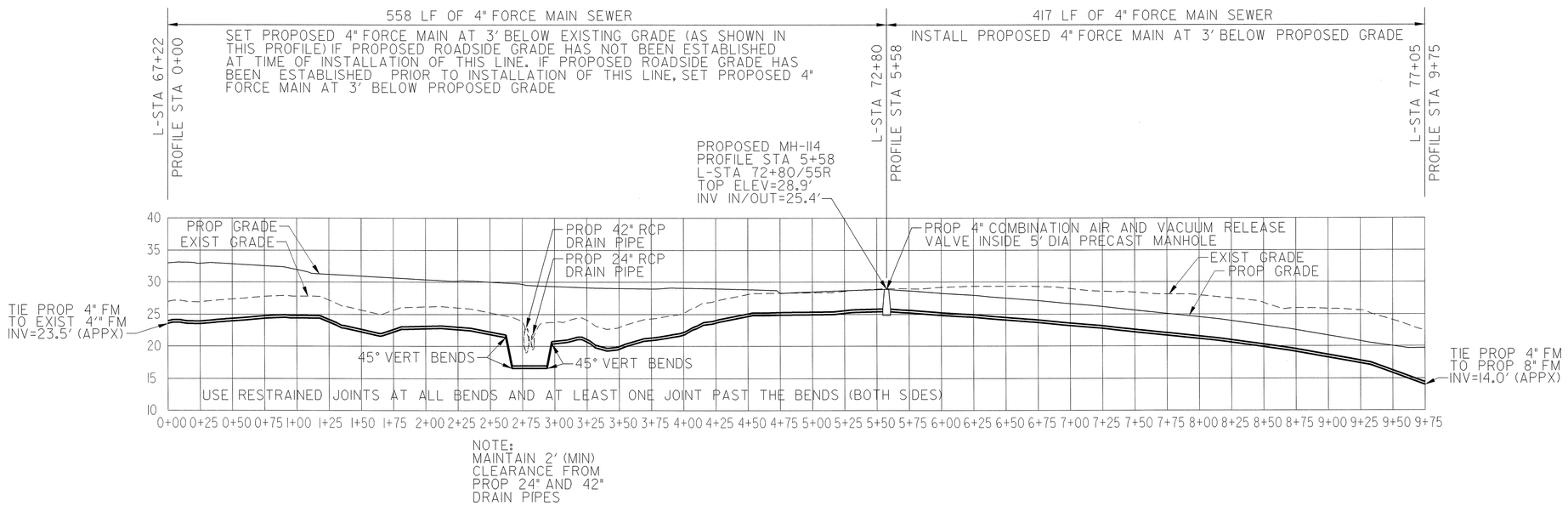
NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER COREY D. BOUSQUET 6/5/12

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

SEWER LINE #6
PROPOSED TEMPORARY 4" FORCE MAIN RELOCATION
PROFILE (L-STA 67+22 TO L-STA 77+05)

FOR PLAN VIEW OF SEWER LINE #6, SEE SHEET UC-32A



NOTE:
MAINTAIN 2' (MIN) CLEARANCE FROM PROP 24" AND 42" DRAIN PIPES

04-JUN-2012 10:24
J:\projects\U-3810\uc_plan_sheet_32B.dgn
$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-33
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
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 23041 ENGINEER COREY D. BOURQUE 6/5/12

EXISTING 4" FORCE MAIN ABANDONMENT (L-STA 79+00 TO L-STA 87+00)

UTILITY CONSTRUCTION

PLAN SCALE:

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

LEGEND:

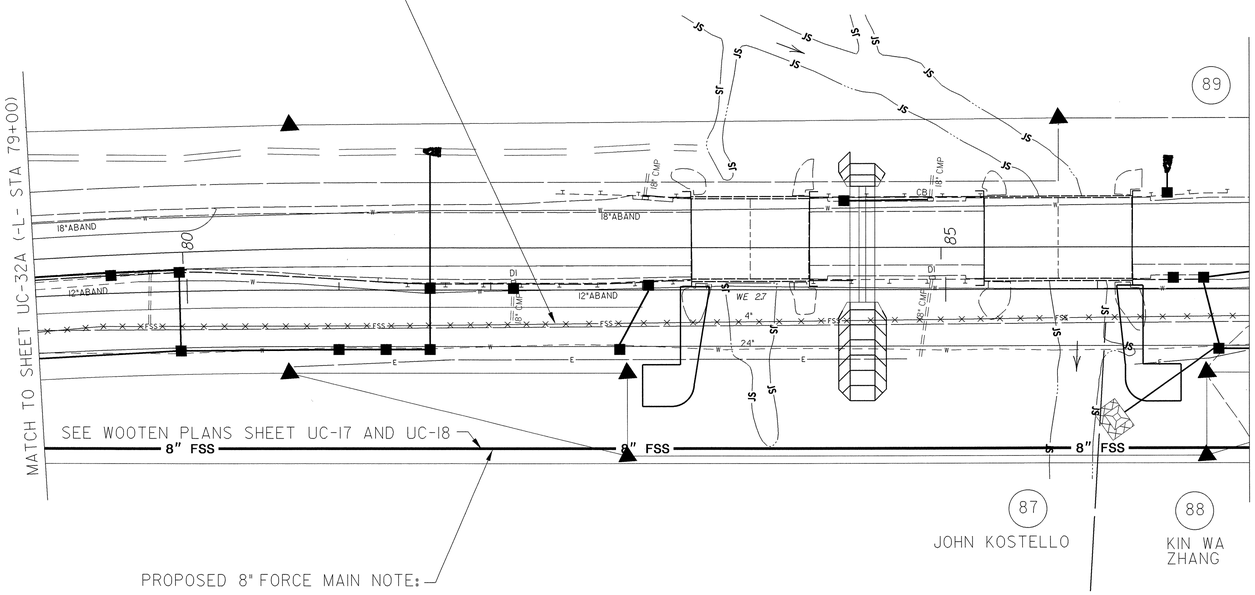
-X-X-X-X-

DRAIN AND PLUG EXIST SEWER LINE

PROPOSED 4" FORCE MAIN NOTE:

CURRENTLY (PRIOR TO CONSTRUCTION), SEWAGE IS CONVEYED FROM THE HIGHLANDS CROSSING PUMP STATION (NEAR HALLTOWN ROAD) NORTHWEST ALONG PINEY GREEN ROAD TO COUNTRY CLUB ROAD USING THE EXISTING 4" FORCE MAIN (SHOWN ON THIS SHEET). THE EXISTING 4" FORCE MAIN MUST BE ABANDONED (DRAINED AND PLUGGED) TO ACCOMMODATE ROAD CONSTRUCTION DURING PHASE-I OF THE PROJECT.

AFTER THE TEMPORARY 4" FORCE MAIN (SHOWN ON SHEET UC-32A) BECOMES OPERATIONAL, DRAIN AND PLUG EXISTING 4" FORCE MAIN FROM COUNTRY CLUB ROAD (L-STA 67+23) TO HALLTOWN ROAD (L-STA 98+68). PAYMENT FOR DRAINING AND PLUGGING THIS LINE WILL BE INCIDENTAL TO THE PAY ITEM "4" FORCE MAIN SEWER."



PROPOSED 8" FORCE MAIN NOTE:

INSTALLATION OF THE 8" FORCE MAIN SHOWN ON THIS SHEET IS REQUIRED TO CONVEY SEWAGE TEMPORARILY FROM THE HIGHLANDS CROSSING PUMP STATION (NEAR HALLTOWN ROAD) NORTHWEST ALONG PINEY GREEN ROAD TO COUNTRY CLUB ROAD DURING PHASE-I OF THE ROADWAY CONSTRUCTION PROJECT. WHEN ALL DOWNSTREAM (FROM HALLTOWN ROAD TO HUNTERS CREEK PUMP STATION) TRUNK-LINE SEWER IS INSTALLED AND OPERATIONAL, INSTALL 8" PLUG (L-STA 77+05), CLOSE 8" VALVE (L-STA 98+80) AND FLUSH LINE SO THAT LINE WILL NOT BE OPERATIONAL, BUT WILL REMAIN IN PLACE FOR FUTURE SERVICE...SEE WOOTEN PLANS SHEETS UC-17 AND UC-18

04-JUN-2012 10:24
u-3810_uc_plan_sheet_33.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-34

DESIGNED BY: EWH
DRAWN BY: EWH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:

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

NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER CORREY D. BOUSQUET 6/5/12

UTILITY CONSTRUCTION PLANS ONLY

EXISTING 4" FORCE MAIN ABANDONMENT (L-STA 87+00 TO L-STA 95+00)

UTILITY CONSTRUCTION

PLAN SCALE:

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

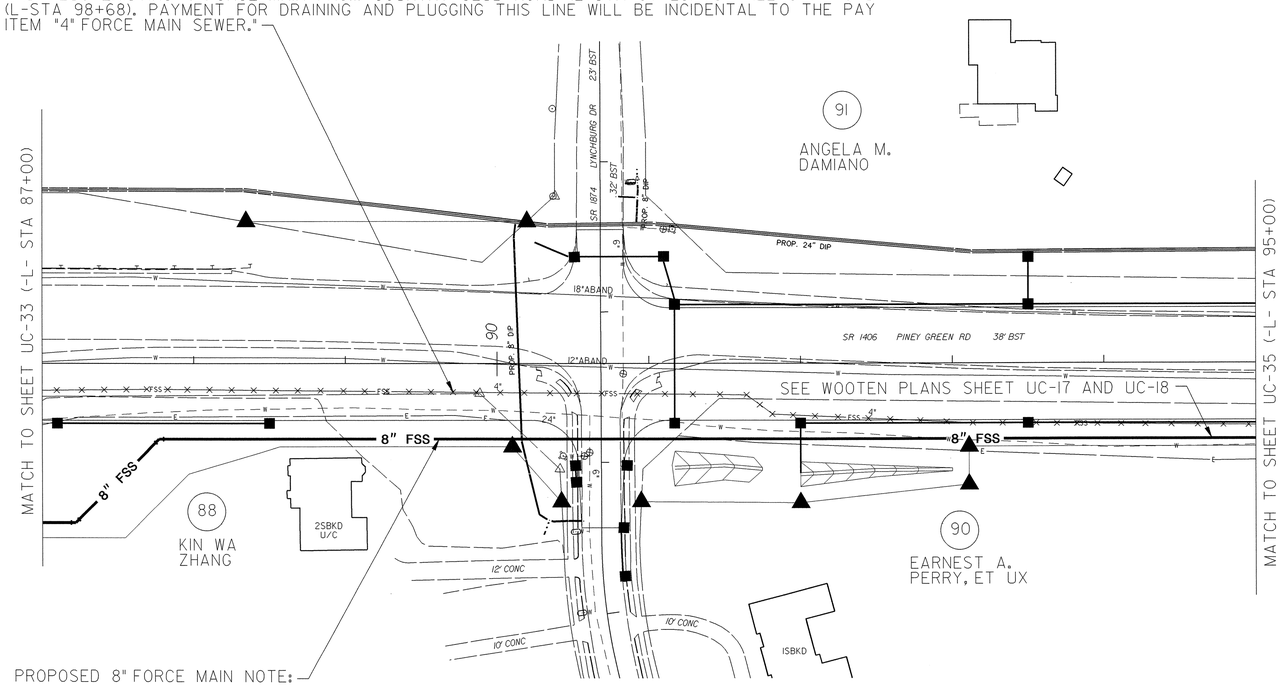
LEGEND:

DRAIN AND PLUG EXIST SEWER LINE

PROPOSED 4" FORCE MAIN NOTE:

CURRENTLY (PRIOR TO CONSTRUCTION), SEWAGE IS CONVEYED FROM THE HIGHLANDS CROSSING PUMP STATION (NEAR HALLTOWN ROAD) NORTHWEST ALONG PINEY GREEN ROAD TO COUNTRY CLUB ROAD USING THE EXISTING 4" FORCE MAIN (SHOWN ON THIS SHEET). THE EXISTING 4" FORCE MAIN MUST BE ABANDONED (DRAINED AND PLUGGED) TO ACCOMMODATE ROAD CONSTRUCTION DURING PHASE-I OF THE PROJECT.

AFTER THE TEMPORARY 4" FORCE MAIN (SHOWN ON SHEET UC-32A) BECOMES OPERATIONAL, DRAIN AND PLUG EXISTING 4" FORCE MAIN FROM COUNTRY CLUB ROAD (L-STA 67+23) TO HALLTOWN ROAD (L-STA 98+68). PAYMENT FOR DRAINING AND PLUGGING THIS LINE WILL BE INCIDENTAL TO THE PAY ITEM "4" FORCE MAIN SEWER."



PROPOSED 8" FORCE MAIN NOTE:

INSTALLATION OF THE 8" FORCE MAIN SHOWN ON THIS SHEET IS REQUIRED TO CONVEY SEWAGE TEMPORARILY FROM THE HIGHLANDS CROSSING PUMP STATION (NEAR HALLTOWN ROAD) NORTHWEST ALONG PINEY GREEN ROAD TO COUNTRY CLUB ROAD DURING PHASE-I OF THE ROADWAY CONSTRUCTION PROJECT. WHEN ALL DOWNSTREAM (FROM HALLTOWN ROAD TO HUNTERS CREEK PUMP STATION) TRUNK-LINE SEWER IS INSTALLED AND OPERATIONAL, INSTALL 8" PLUG (L-STA 77+05), CLOSE 8" VALVE (L-STA 98+80) AND FLUSH LINE SO THAT LINE WILL NOT BE OPERATIONAL, BUT WILL REMAIN IN PLACE FOR FUTURE SERVICE...SEE WOOTEN PLANS SHEETS UC-17 AND UC-18

5/14/99

04-JUN-2012 10:23
Utilities\Rdy_Utl\Proj\U-3810_uc_plan_sheet_34.dgn
$$$$USERNAME$$$$

5/14/99

SEWER LINE #7
PROPOSED 4" FORCE MAIN RELOCATION
(L-STA 98+68 TO L-STA 98+85)

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-35

DESIGNED BY: EWH
DRAWN BY: EWH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:

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

NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER CODY D. BOISSEAU 6/15/12

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

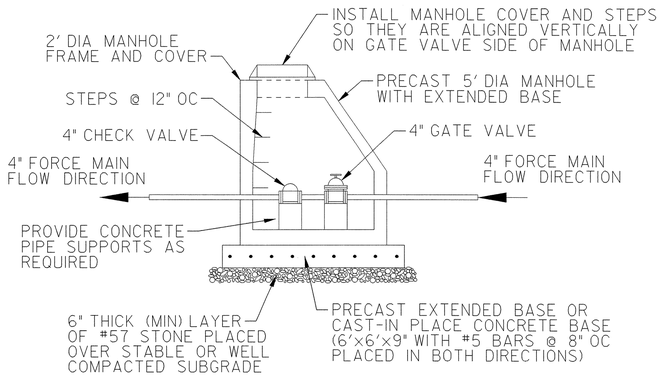
PLAN SCALE:

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

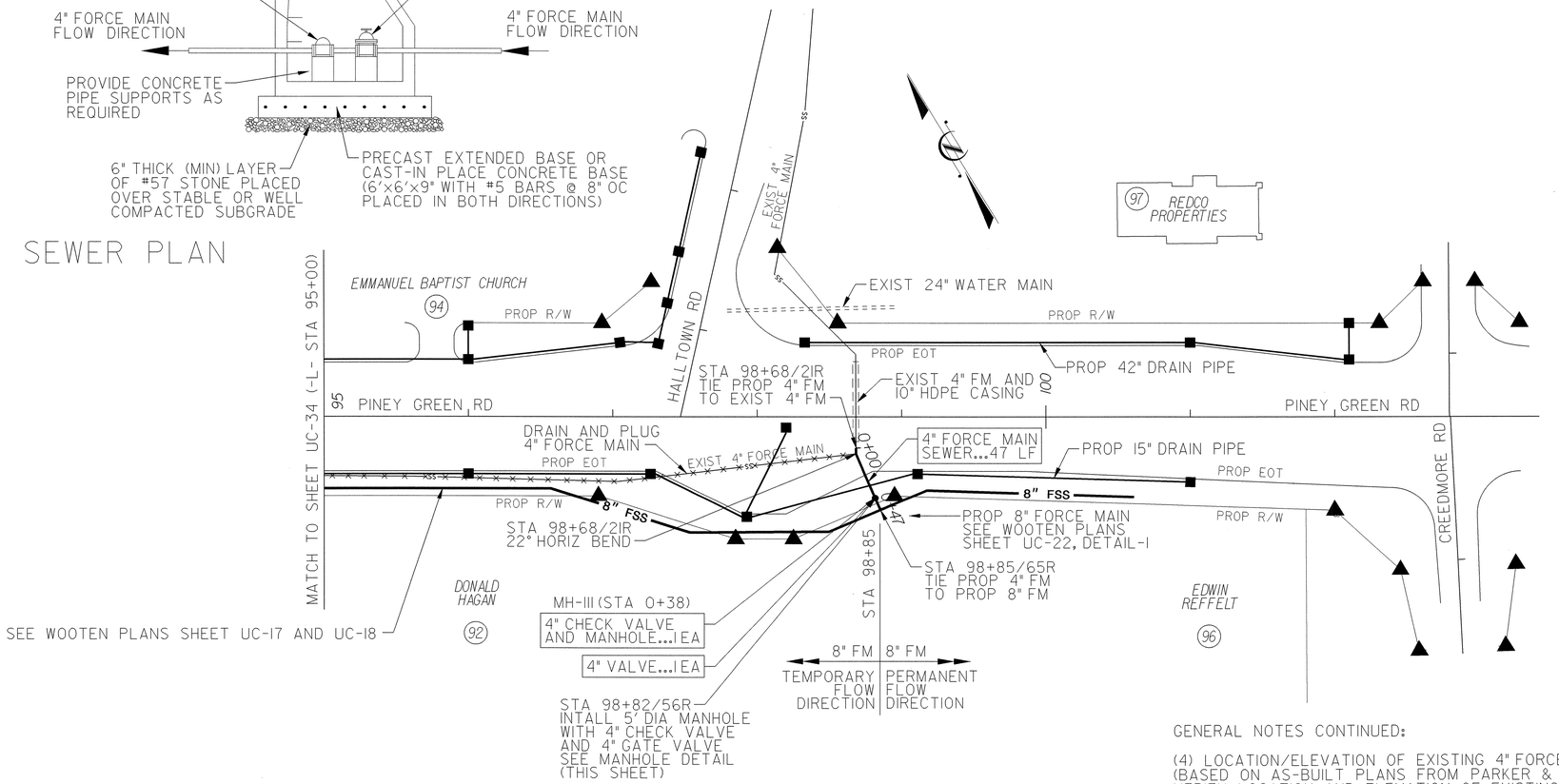
LEGEND:

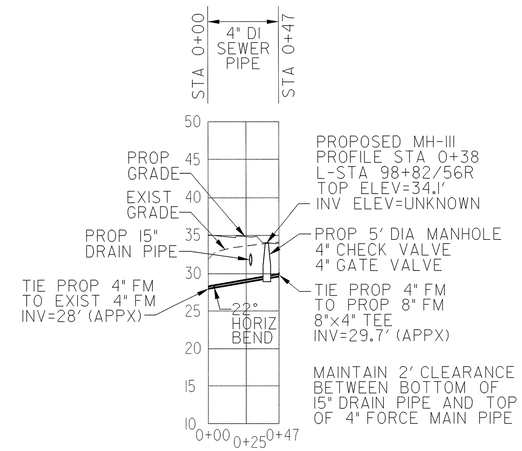
DRAIN AND PLUG
EXIST SEWER LINE

MANHOLE HOUSING GATE VALVE AND CHECK VALVE FOR 4" SEWER



SEWER PLAN





PROPOSED 4" FORCE MAIN UNDER PINEY GREEN ROAD

GENERAL NOTES:

(1) THE PROPOSED 4" FORCE MAIN SHOWN ON THIS SHEET (STA 98+68 TO STA 98+85) IS REQUIRED TO MAINTAIN THE CONVEYANCE OF SEWAGE FROM THE HIGHLANDS CROSSING PUMP STATION (UNDER PINEY GREEN ROAD) AND TIE INTO TRUNK LINE SEWER PIPE WHERE IT CAN ULTIMATELY FLOW SOUTH (ALONG PINEY GREEN ROAD) INTO THE HUNTERS CREEK PUMP STATION. THIS RE-ALIGNED SECTION OF 4" FORCE MAIN WILL SERVE BOTH THE TEMPORARY FLOW (NORTH TO COUNTRY CLUB ROAD) AND PERMANENT FLOW (SOUTH TO HUNTERS CREEK PUMP STATION) CONDITIONS. THE PROPOSED 4" FORCE MAIN SHALL NOT BE CONNECTED TO PROPOSED 8" FORCE MAIN UNTIL PROPOSED 4" FORCE MAIN IS INSTALLED FROM STA 67+22 TO STA 77+05 (SEE SHEET UC-30) AND UNTIL PROPOSED 8" FORCE MAIN IS INSTALLED FROM STA 77+05 TO STA 98+85 (SEE SHEETS UC-17, UC-18). WHEN BOTH 4" AND 8" FORCE MAIN LINES ARE INSTALLED AND OPERATIONAL, CONNECT 4" FORCE MAIN TO 8" FORCE MAIN AT STA 98+85/64R TO CONVEY SEWAGE (IN TEMPORARY CONDITION) NORTH ALONG PINEY GREEN ROAD TO COUNTRY CLUB ROAD. MAINTAIN THIS NORTHWARD FLOW DIRECTION (FROM HALLTOWN ROAD TO COUNTRY CLUB ROAD) UNTIL ALL TRUNK-LINE SEWER PIPE DOWNSTREAM FROM THIS LOCATION TO HUNTERS CREEK PUMP STATION IS INSTALLED. WHEN ALL TRUNK-LINE SEWER PIPE IS OPERATIONAL FROM THIS LOCATION TO HUNTERS CREEK PUMP STATION, REVERSE FLOW OF SEWAGE FROM NORTH DIRECTION (TO COUNTRY CLUB ROAD) TO SOUTH DIRECTION (TO HUNTER'S CREEK PUMP STATION). WHEN THE FLOW IS DIVERTED SOUTH, THE EXISTING 4" FORCE MAIN FROM COUNTRY CLUB ROAD TO HALLTOWN ROAD WILL BE ABANDONED (I.E. DRAINED AND PLUGGED).

(2) PROVIDE CONCRETE PIPE SUPPORTS AS NECESSARY INSIDE CHECK VALVE MANHOLES

(3) MANHOLE COVER TO BE TRAFFIC BEARING AND NON-VENTED

GENERAL NOTES CONTINUED:

(4) LOCATION/ELEVATION OF EXISTING 4" FORCE MAIN BETWEEN STA 97+25 AND 98+75 IS APPROXIMATE (BASED ON AS-BUILT PLANS FROM PARKER & ASSOCIATES...PLANS DATED 12/05/97)...CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING 4" FORCE MAIN

(5) PAYMENT FOR DRAINING AND PLUGGING 4" FORCE MAIN LINES TO BE INCIDENTAL TO THE PAY ITEM "4" FORCE MAIN SEWER"

(6) ALL PROPOSED 4" FORCE MAIN ON THIS SHEET TO BE DUCTILE IRON PIPE

(7) USE RESTRAINED JOINTS AT ALL BENDS AND AT LEAST ONE JOINT AWAY/PAST THE BENDS (BOTH SIDES) ON PROPOSED 4" FORCE MAIN PIPE

(8) ALL PROPOSED DUCTILE IRON SEWER PIPE TO BE LINED WITH "PROTECTO 401" CERAMIC EPOXY LINING (BY INDURON COATINGS, INC) OR APPROVED EQUAL

DETAIL REFERENCE NOTES:

(1) FOR UTILITY TRENCH BEDDING DETAILS, SEE SHEET UC-40, DETAIL 531.01 AND DETAIL C01.02

(2) FOR PRECAST SANITARY SEWER MANHOLE, SEE SHEET UC-39, DETAIL 532.01 (SHEET-1) AND DETAIL 532.01 (SHEET-2)

(3) FOR MANHOLE FRAMES AND COVERS, SEE SHEET UC-45, DETAIL C06.01 (SHEET-1) AND DETAIL C06.01 (SHEET-2)

04-JUN-2012 10:23
...\U-3810_uc_plan_sheet_35.dgn
...USER NAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-36
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
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 23041 6/5/12 ENGINEER CASEY D. BOUSQUET

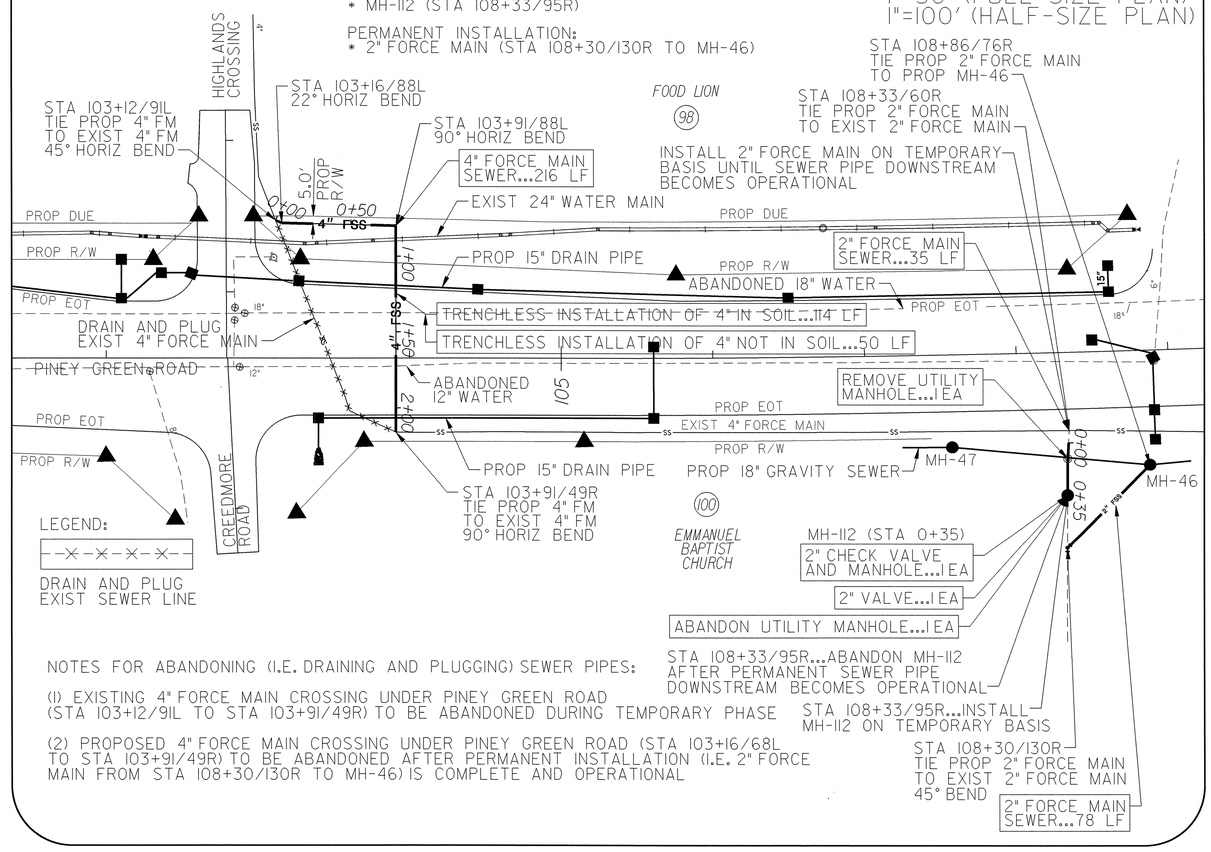
UTILITY CONSTRUCTION

PROPOSED TEMPORARY AND PERMANENT 2" AND 4" FORCE MAIN SEWER PLAN

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

TEMPORARY INSTALLATION:
* 4" FORCE MAIN (STA 103+12/91L TO STA 103+91/49R)
* 2" FORCE MAIN (STA 108+33/60R TO STA 108+33/95R)
* MH-112 (STA 108+33/95R)

PERMANENT INSTALLATION:
* 2" FORCE MAIN (STA 108+30/130R TO MH-46)



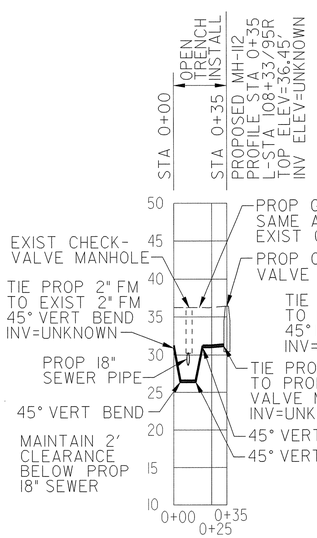
NOTES FOR ABANDONING (I.E. DRAINING AND PLUGGING) SEWER PIPES:

(1) EXISTING 4" FORCE MAIN CROSSING UNDER PINEY GREEN ROAD (STA 103+12/91L TO STA 103+91/49R) TO BE ABANDONED DURING TEMPORARY PHASE

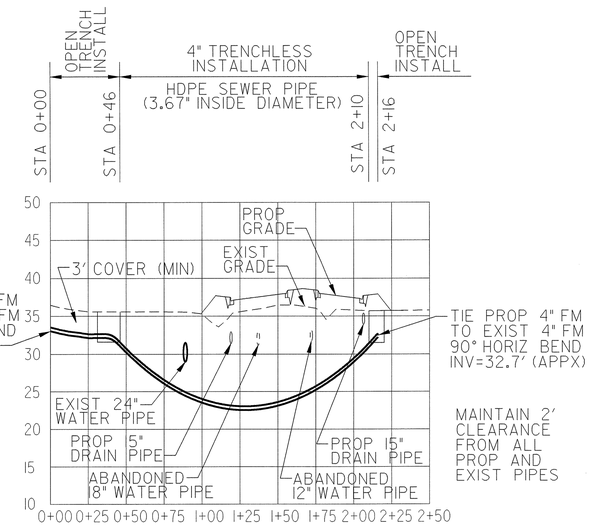
(2) PROPOSED 4" FORCE MAIN CROSSING UNDER PINEY GREEN ROAD (STA 103+16/68L TO STA 103+91/49R) TO BE ABANDONED AFTER PERMANENT INSTALLATION (I.E. 2" FORCE MAIN FROM STA 108+30/130R TO MH-46) IS COMPLETE AND OPERATIONAL

DETAIL REFERENCE NOTES:

(1) FOR UTILITY TRENCH BEDDING DETAILS, SEE SHEET UC-40, DETAIL 531.01 AND DETAIL C01.02
(2) FOR MANHOLE FRAMES AND COVERS, SEE SHEET UC-45, DETAIL C06.01 (SHEET-1) AND DETAIL C06.01 (SHEET-2)
(3) FOR MANHOLE GRADE ADJUSTMENT DETAILS, SEE SHEET UC-44, DETAIL C06.03 (SHEET-1) AND DETAIL C06.03 (SHEET-2)
(4) FOR PRECAST MANHOLE DETAIL, SEE SHEET UC-39, DETAIL 532.01 (SHEET-1) AND DETAIL 532.01 (SHEET-2)
(5) IF "DOGHOUSE" MANHOLE IS USED FOR MH-112, SEE SHEET UC-41, DETAIL 532.04 (SHEET-1) AND DETAIL 532.04 (SHEET-2)



PROPOSED 2" FORCE MAIN EMMANUAL CHURCH SEWER



PROPOSED 4" FORCE MAIN UNDER PINEY GREEN ROAD

SEWER LINE #8
PROPOSED 4" FORCE MAIN RELOCATION
(L-STA 103+16 TO L-STA 103+91)

GENERAL NOTES:

(1) THE SECTION OF PROPOSED 4" FORCE MAIN UNDER PINEY GREEN ROAD (STA 103+16 TO STA 103+91) AND THE SECTION OF PROPOSED 2" FORCE MAIN ON EMMANUEL CHURCH PROPERTY (STA 108+33/60R TO STA 108+33/95R) ARE BOTH REQUIRED TO MAINTAIN CONVEYANCE OF SEWAGE FROM EMMANUEL CHURCH TO HIGHLANDS CROSSING PUMP STATION ON A TEMPORARY BASIS UNTIL ALL DOWNSTREAM TRUNK LINE SEWER FROM THIS LOCATION TO HUNTERS CREEK PUMP STATION IS INSTALLED AND OPERATIONAL. BOTH OF THESE SECTIONS OF 2" AND 4" FORCE MAINS WILL BE ABANDONDED (DRAINED AND PLUGGED) WHEN THE PERMANENT SEWER PIPE DOWNSTEAM FROM THIS LOCATION TO HUNTERS CREEK PUMP STATION IS INSTALLED AND OPERATIONAL

(2) USE RESTRAINED JOINTS AT ALL BENDS AND AT LEAST ONE JOINT PAST THE BENDS (BOTH SIDES) ON PROPOSED 4" FORCE MAIN PIPE

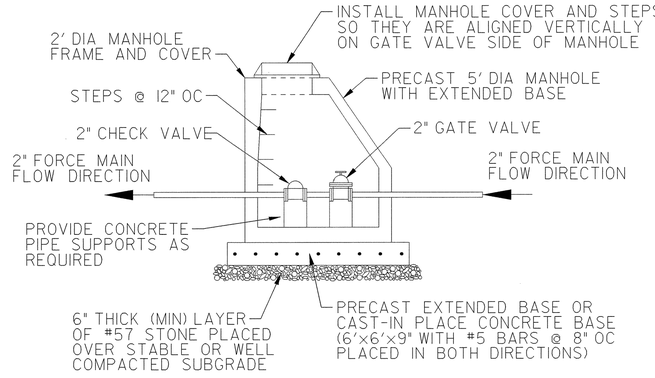
(3) THE SECTION OF PROPOSED 2" FORCE MAIN ON EMMANUEL CHURCH PROPERTY (STA 108+33/130R TO STA 108+86/76R) IS A PERMANENT INSTALLATION AND WILL CONVEY SEWAGE SOUTHEAST ALONG PINEY GREEN ROAD DIRECTLY TO HUNTERS CREEK PUMP STATION. AFTER THIS SECTION OF 2" FORCE MAIN IS OPERATIONAL, ALL EXISTING AND PROPOSED TEMPORARY FORCE MAIN LINES WHICH CONVEYED SEWAGE NORTHWEST ALONG AND UNDER PINEY GREEN ROAD WILL BE PLUGGGED AND ABANDONED

(4) PAYMENT FOR DRAINING AND PLUGGING 4" FORCE MAIN LINES TO BE INCIDENTAL TO THE PAY ITEM "4" FORCE MAIN SEWER"

(5) PAYMENT FOR DRAINING AND PLUGGING 2" FORCE MAIN LINES TO BE INCIDENTAL TO THE PAY ITEM "2" FORCE MAIN SEWER"

(6) HDPE PIPE USED IN TRENCHLESS INSTALLATION TO BE 4" (NOMINAL SIZE), DR-9, PRESSURE CLASS 200 PSI (MIN)

MANHOLE HOUSING GATE VALVE AND CHECK VALVE FOR 2" SEWER



2" FORCE MAIN AND CHECK VALVE AND MANHOLE NOTES:

(1) ELEVATION OF EXISTING 2" FORCE MAIN SEWER LINE IS UNKNOWN. CONTRACTOR TO VERIFY ELEVATION OF EXISTING SEWER LINE AT PROPOSED MANHOLE LOCATION TO DETERMINE INVERT ELEVATIONS OF PROPOSED 2" FORCE MAIN ENTERING AND LEAVING MANHOLE
(2) PROVIDE CONCRETE PIPE SUPPORTS AS NECESSARY FOR CHECK VALVE AND GATE VALVE
(3) MANHOLE COVER TO BE TRAFFIC BEARING AND NON-VENTED
(4) 2" FORCE MAIN TO BE C-900 PVC (PRESSURE CLASS 200)

5/14/99

04-JUN-2012 10:22
U:\Utilities\Projects\U-3810\uc_plan_sheet_36.dgn
$$$$USER$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-37
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919)707-6690
FAX: (919)250-4151

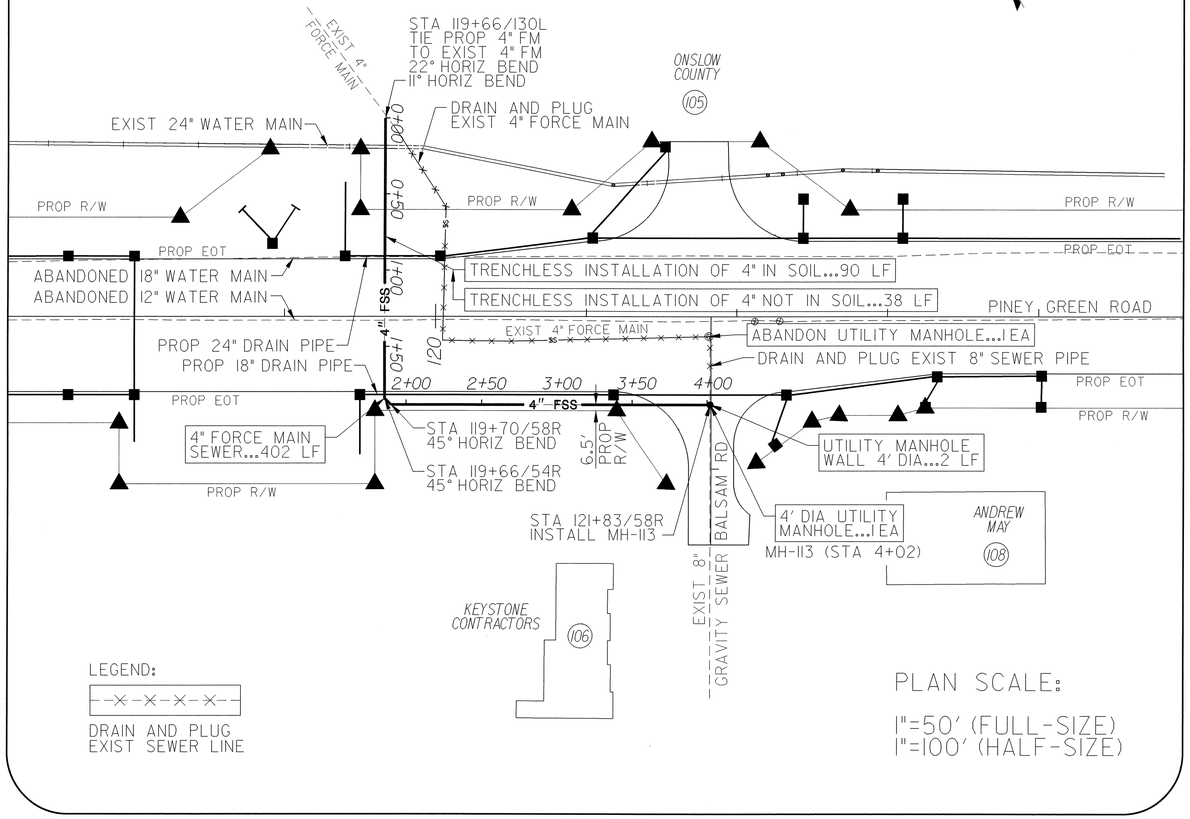
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 23041 6/27/12 CINDY D. BOUSQUET

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

PROPOSED 4" FORCE MAIN SEWER PLAN

ONSLOW COUNTY SCHOOLS



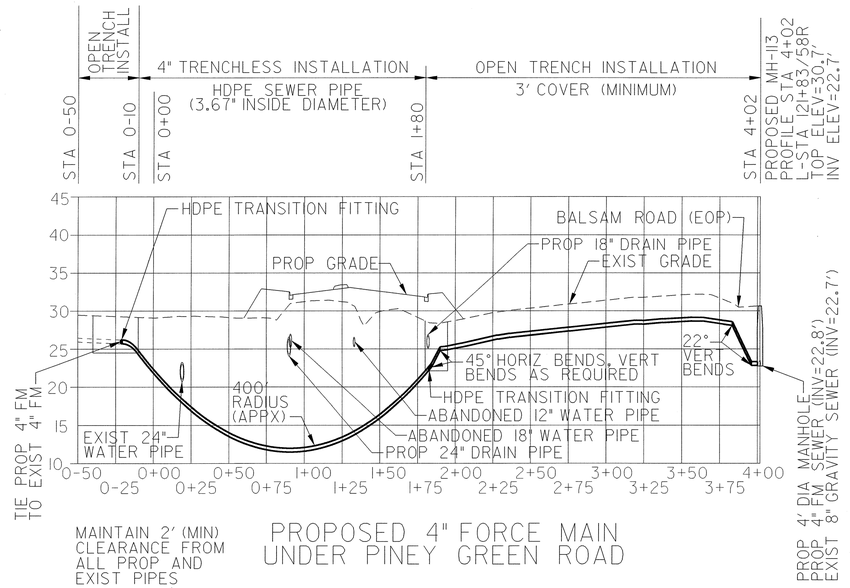
LEGEND:

DRAIN AND PLUG
EXIST SEWER LINE

PLAN SCALE:

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

SEWER LINE #9
PROPOSED 4" FORCE MAIN RELOCATION
(L-STA 119+66 TO L-STA 121+83)



MAINTAIN 2' (MIN) CLEARANCE FROM ALL PROP AND EXIST PIPES

PROPOSED 4" FORCE MAIN UNDER PINEY GREEN ROAD

GENERAL NOTES:

(1) PAYMENT FOR DRAINING AND PLUGGING 4" FORCE MAIN LINES TO BE INCIDENTAL TO THE PAY ITEM "4" FORCE MAIN SEWER"

(2) PAYMENT FOR DRAINING AND PLUGGING 8" GRAVITY SEWER LINE TO BE INCIDENTAL TO THE PAY ITEM "4" FORCE MAIN SEWER"

(3) USE RESTRAINED JOINTS AT ALL BENDS AND AT LEAST ONE JOINT PAST THE BENDS ON THE PROPOSED 4" FORCE MAIN PIPE

(4) HDPE PIPE USED IN TRENCHLESS INSTALLATION TO BE 4" (NOMINAL SIZE), DR-9, PRESSURE CLASS 200 PSI (MIN)

DETAIL REFERENCE NOTES:

(1) FOR UTILITY TRENCH BEDDING DETAILS, SEE SHEET UC-40, DETAIL 531.01 AND DETAIL C01.02

(2) FOR SANITARY SEWER SERVICE CLEAN OUTS, SEE SHEET UC-43, DETAIL 533.03 (SHEET-1) AND DETAIL 533.03 (SHEET-2)

(3) FOR MANHOLE FRAMES AND COVERS, SEE SHEET UC-45, DETAIL C06.01 (SHEET-1) AND DETAIL C06.01 (SHEET-2)

(4) FOR MANHOLE GRADE ADJUSTMENT DETAILS, SEE SHEET UC-44, DETAIL C06.03 (SHEET-1) AND DETAIL C06.03 (SHEET-2)

(5) FOR PRECAST MANHOLE DETAIL, SEE SHEET UC-39, DETAIL 532.01 (SHEET-1) AND DETAIL 532.01 (SHEET-2)

(6) IF "DOGHOUSE" MANHOLE IS USED FOR MH-107, SEE SHEET UC-41, DETAIL 532.04 (SHEET-1) AND DETAIL 532.04 (SHEET-2)

27-JUN-2012 07:05
\Utilities\Projects\U-3810\U-3810_uc_plan_sheet_37.dgn
$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-38
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 23041 6/5/12 COREY D. BOUSQUET

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

UTILITY CONSTRUCTION PLANS ONLY

SEWER LINE #10
PROPOSED 8" GRAVITY SEWER MAIN RELOCATION
(L-STA 349+65 TO L-STA 355+14)

UTILITY CONSTRUCTION

PLAN SCALE:

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

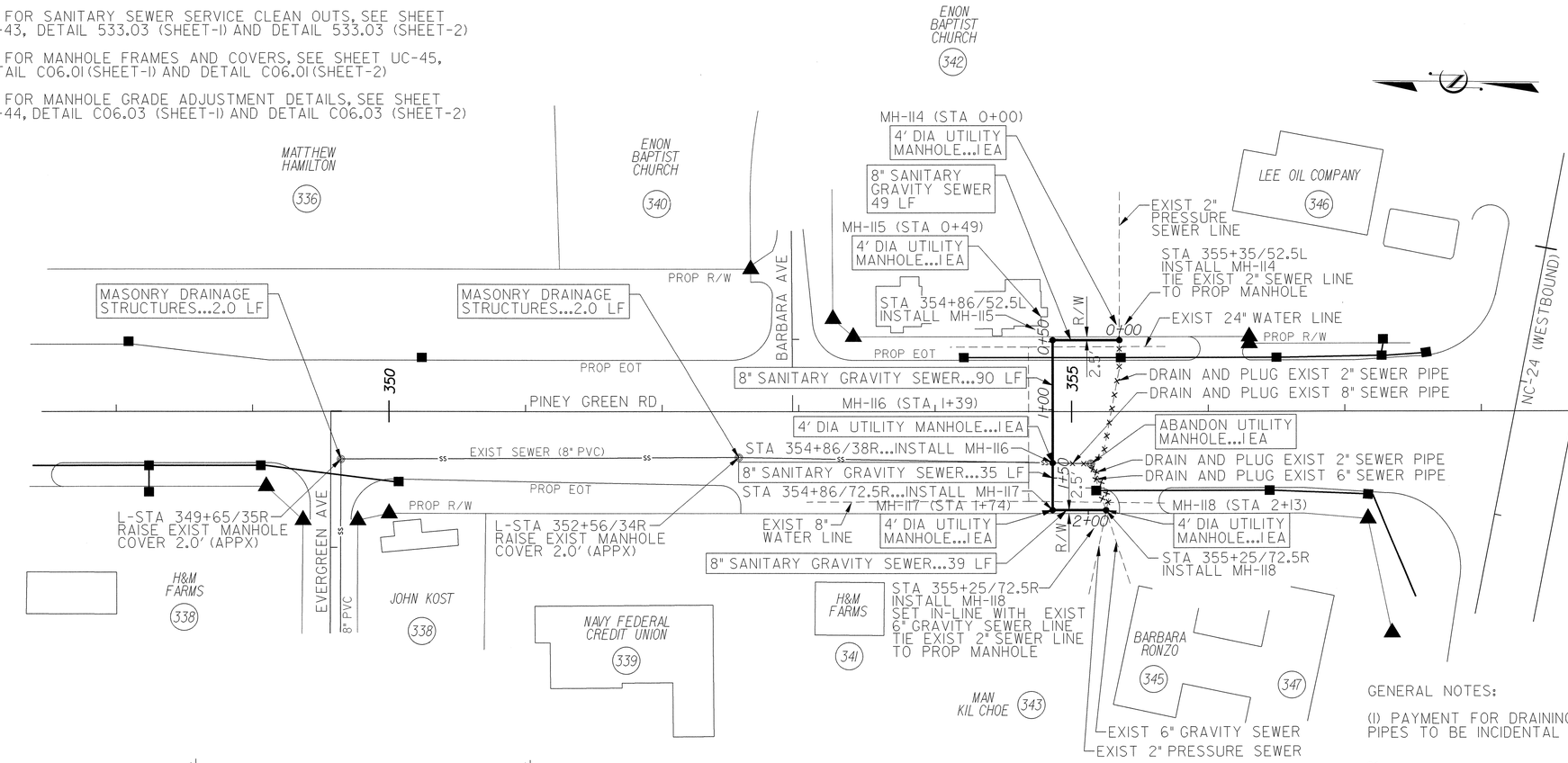
DETAIL REFERENCE NOTES:

(1) FOR UTILITY TRENCH BEDDING DETAILS, SEE SHEET UC-40, DETAIL 531.01 AND DETAIL C01.02

(2) FOR SANITARY SEWER SERVICE CLEAN OUTS, SEE SHEET UC-43, DETAIL 533.03 (SHEET-1) AND DETAIL 533.03 (SHEET-2)

(3) FOR MANHOLE FRAMES AND COVERS, SEE SHEET UC-45, DETAIL C06.01 (SHEET-1) AND DETAIL C06.01 (SHEET-2)

(4) FOR MANHOLE GRADE ADJUSTMENT DETAILS, SEE SHEET UC-44, DETAIL C06.03 (SHEET-1) AND DETAIL C06.03 (SHEET-2)



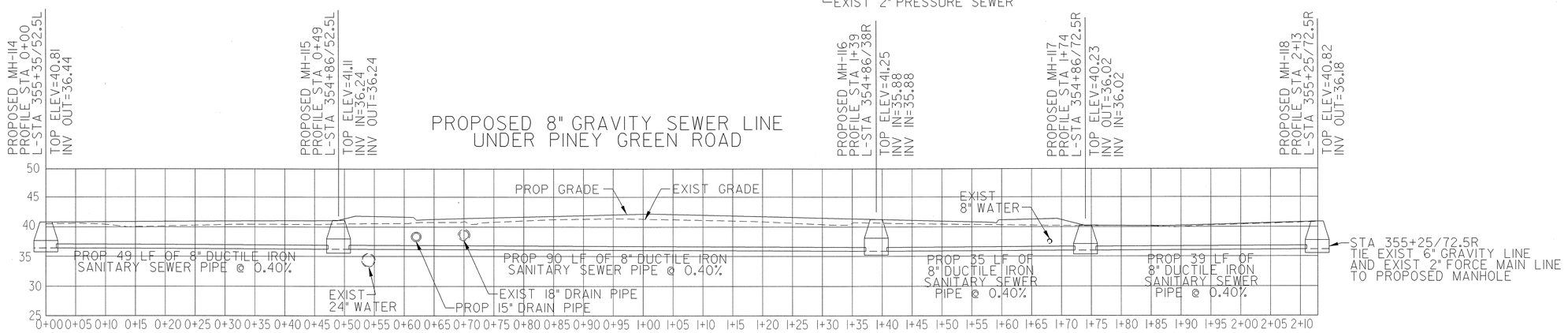
LEGEND:

DRAIN AND PLUG EXIST SEWER LINE

GENERAL NOTES:

(1) PAYMENT FOR DRAINING AND PLUGGING 2", 6", AND 8" SEWER PIPES TO BE INCIDENTAL TO OTHER PROJECT PAY ITEMS

PROPOSED 8" GRAVITY SEWER LINE UNDER PINEY GREEN ROAD



05-JUN-2012 09:58
tjones
\\Ncdot.net\dfs\Projects\U-3810_uc_plan_sheet_38.dgn
$$$$USERNAME$$$$

5/14/99

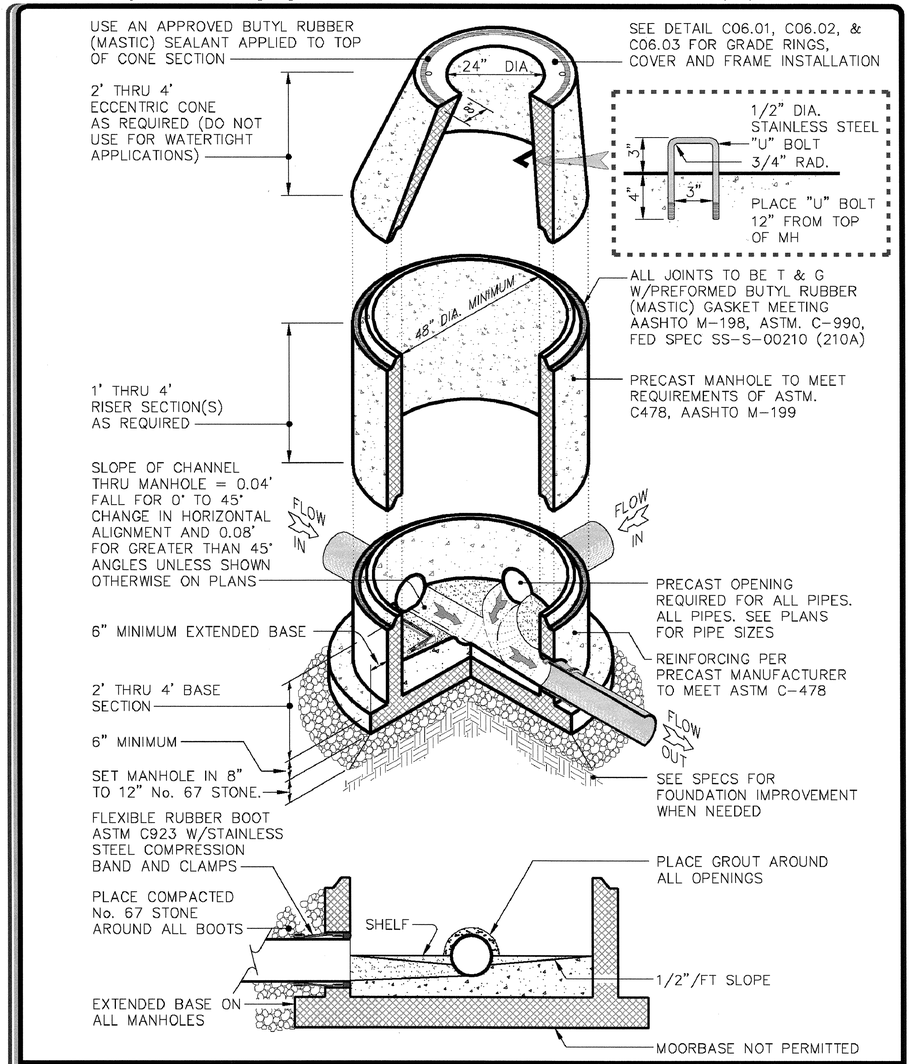
PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-39
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER COREY D. BRADSHAW

UTILITY CONSTRUCTION

STANDARD ECCENTRIC TOP PRECAST MANHOLE DETAILS

Details Provided by APPIAN Consulting Engineers 08/02/2006 – 12:14:20 PM



JACKSONVILLE N.C. Caring Community CAMP LEJEUNE & MCAS NEW RIVER

Department of Public Services
P.O. Box 128
Jacksonville, N.C. 28541

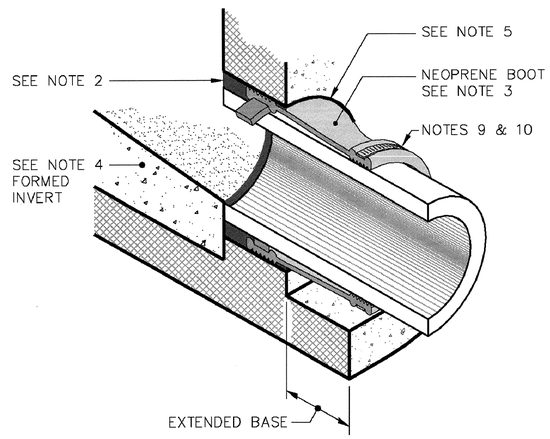
CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

http://www.ci.jacksonville.nc.us

STANDARD ECCENTRIC TOP PRECAST MANHOLE DETAIL

SCALE: Not To Scale	DETAIL # 2532.01
REVISION DATE: June, 2006	SHEET #: 1 of 2

Details Provided by APPIAN Consulting Engineers 08/02/2006 – 12:14:59 PM



NOTES:

1. Concrete strength to be 4,000 PSI minimum.
2. Pipes will be grouted inside and out.
3. Flexible sleeve boots cast in place or installed with stainless steel expander rings. Boots to meet ASTM C-923 standards.
4. See detail 532.05 for typical invert shaping.
5. Service laterals into existing manholes to be core drilled and booted.
6. Maximum depth 4' diameter manhole = 15' (see sewer design section for other requirements / limitations).
7. When directed by the Public Services Director, place manhole insert such as "no-flow/inflow" insert or "rainstopper" insert as manufactured by "Southwestern Packing & seals" or approved equal.
8. For watertight applications, place butyl rubber between frame and cone.
9. All banded connections shall be double banded. For pipe connections 12" and larger, 2 sets of bands shall be required.
10. Lubricate the following: Pipe exterior, boot interior, boot exterior, S.S. bands (Top & bottom)
11. Place manhole opening over the effluent line.

JACKSONVILLE N.C. Caring Community CAMP LEJEUNE & MCAS NEW RIVER

Department of Public Services
P.O. Box 128
Jacksonville, N.C. 28541

CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

http://www.ci.jacksonville.nc.us

STANDARD ECCENTRIC TOP PRECAST MANHOLE DETAIL

SCALE: Not To Scale	DETAIL # 2532.01
REVISION DATE: June, 2006	SHEET #: 2 of 2

04-JUN-2012 08:51
...ties\Roadway\Projects\U-3810_uc_detail_sheet_39.dgn
$$$$USERNAME$$$$

5/14/99

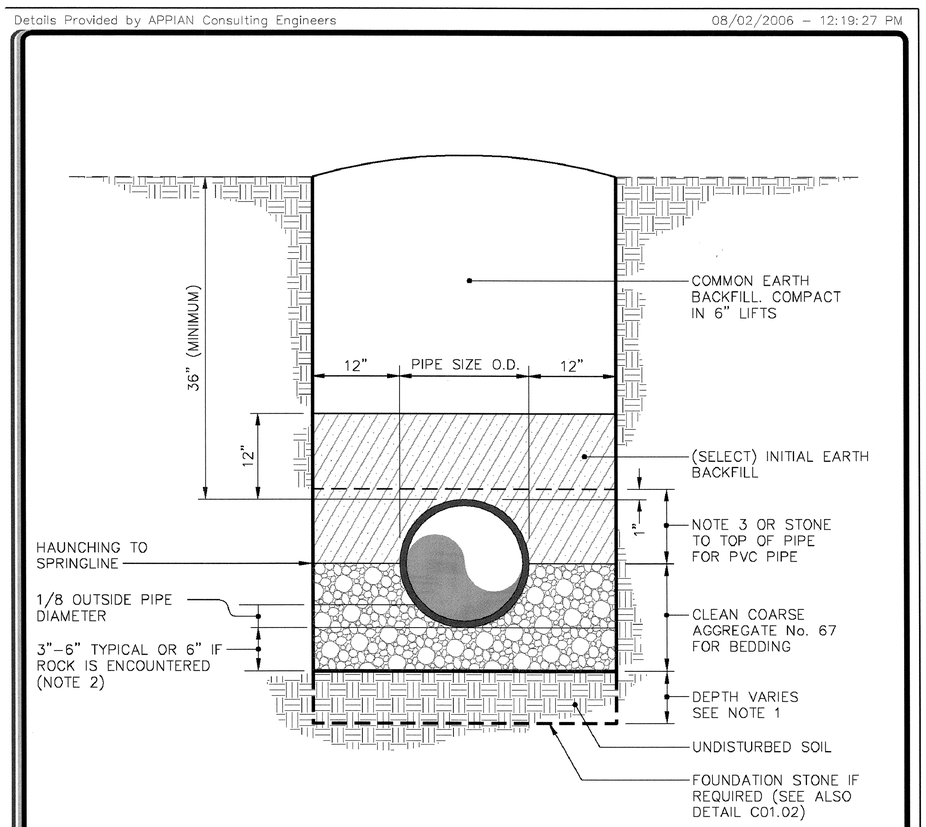
PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-40
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 23041 6/5/12 ENGINEER COREY D. BOURQUE

UTILITY CONSTRUCTION

SEWER LINE TRENCH DETAILS

Details Provided by APPIAN Consulting Engineers — 08/02/2006 – 12:19:27 PM



NOTES:

1. Foundation stone shall be required when soil conditions are unsuitable.
2. An additional 1 inch depth of bedding material will be required for each additional 2 feet of trench depth in excess of 16 feet up to a maximum of 12 inches.
3. Haunching for depth flexible wall pipe (PVC TRUSS, C900 PVC, and SDR35) shall be outside pipe diameter + 1 inch. Haunching shall be thoroughly compacted No. 67 stone.

JACKSONVILLE N.C. — Caring Community — CAMP LEJEUNE & MCAS NEW RIVER

Department of Public Services
P.O. Box 128
Jacksonville, N.C. 28541

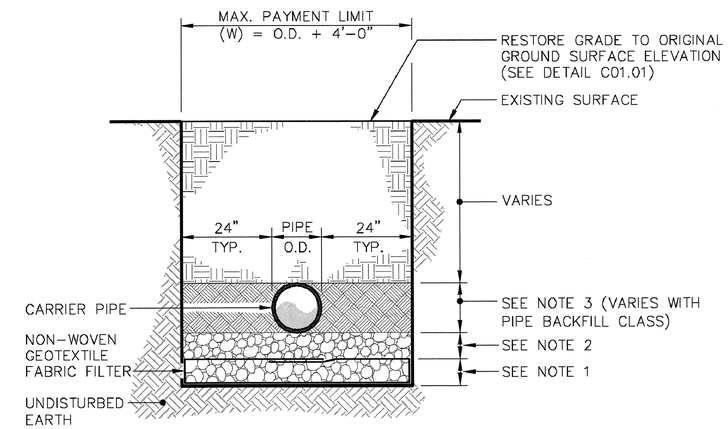
CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

http://www.ci.jacksonville.nc.us

SANITARY SEWER LINE TRENCH DETAIL

SCALE:	DETAIL #
Not To Scale	2 531.01
REVISION DATE:	SHEET #:
June, 2006	1 of 1

Details Provided by APPIAN Consulting Engineers — 08/02/2006 – 11:35:58 AM



NOTES:

1. 8" deep No. 57 stone or equal wrapped in non–woven geotextile filter fabric lightly compacted. Overlap fabric by minimum one pipe O.D.
2. 4" deep No. 57 stone or equal lightly compacted pipe bedding.
3. General backfill compacted to 90% Standard Proctor density in 6" maximum lifts.

JACKSONVILLE N.C. — Caring Community — CAMP LEJEUNE & MCAS NEW RIVER

Department of Public Services
P.O. Box 128
Jacksonville, N.C. 28541

CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

http://www.ci.jacksonville.nc.us

UNSUITABLE SUBGRADE TRENCH DETAIL - TYPE A

SCALE:	DETAIL #
Not To Scale	2 C01.02
REVISION DATE:	SHEET #:
June, 2006	1 of 1

04-JUN-2012 08:52
...Utilities\Proj\U-3810_uc_detail_sheet_40.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-41

DESIGNED BY: EWH
DRAWN BY: EWH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

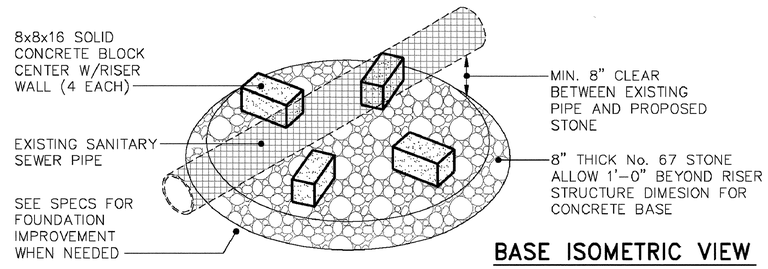
NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER COREY D. BOUSQUET 6/5/12

UTILITY CONSTRUCTION PLANS ONLY

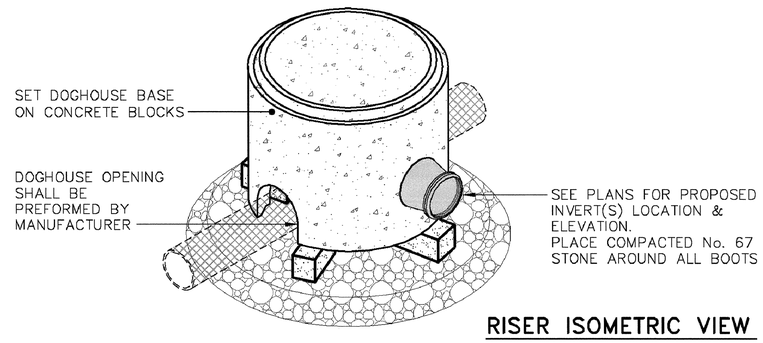
PRECAST CONCRETE DOGHOUSE MANHOLE

UTILITY CONSTRUCTION

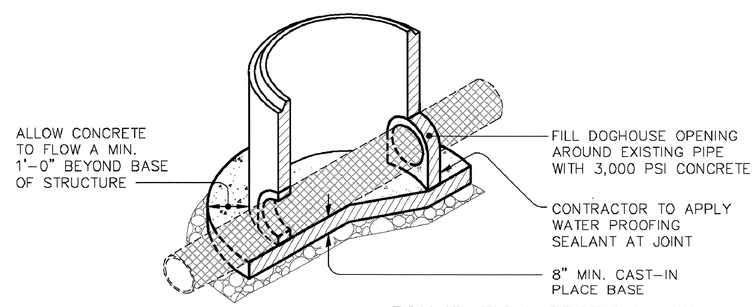
Details Provided by APPIAN Consulting Engineers 08/02/2006 – 12:16:45 PM



BASE ISOMETRIC VIEW



RISER ISOMETRIC VIEW



FOUNDATION SECTION VIEW

JACKSONVILLE N.C. & Caring Community CAMP LEJEUNE & MCAS NEW RIVER

Department of Public Services
P.O. Box 128
Jacksonville, N.C. 28541

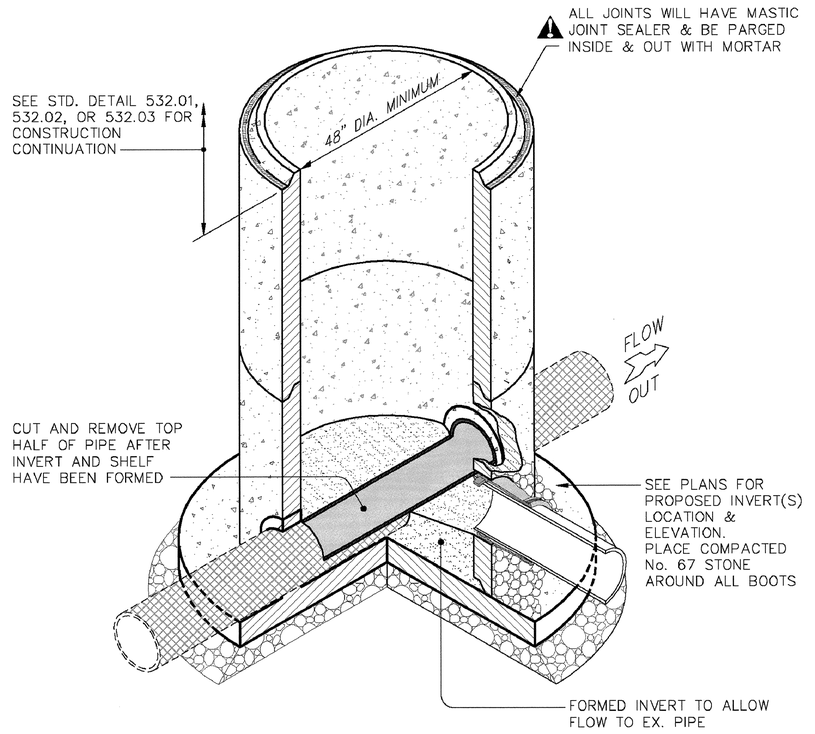
CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

http://www.ci.jacksonville.nc.us

PRECAST CONCRETE DOGHOUSE MANHOLE

SCALE:	DETAIL #
Not To Scale	2532.04
REVISION DATE:	SHEET #:
June, 2006	1 of 2

Details Provided by APPIAN Consulting Engineers 08/02/2006 – 12:16:54 PM



INVERT SECTION VIEW

NOTES:

1. All service laterals into manhole to be core drilled and booted.

JACKSONVILLE N.C. & Caring Community CAMP LEJEUNE & MCAS NEW RIVER

Department of Public Services
P.O. Box 128
Jacksonville, N.C. 28541

CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

http://www.ci.jacksonville.nc.us

PRECAST CONCRETE DOGHOUSE MANHOLE

SCALE:	DETAIL #
Not To Scale	2532.04
REVISION DATE:	SHEET #:
June, 2006	2 of 2

5/14/99

04-JUN-2012 08:52
...ilities\Rdu_Ut\Proj\U-3810_uc_detail_sheet_41.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-42

DESIGNED BY: EWH
DRAWN BY: EWH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:

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

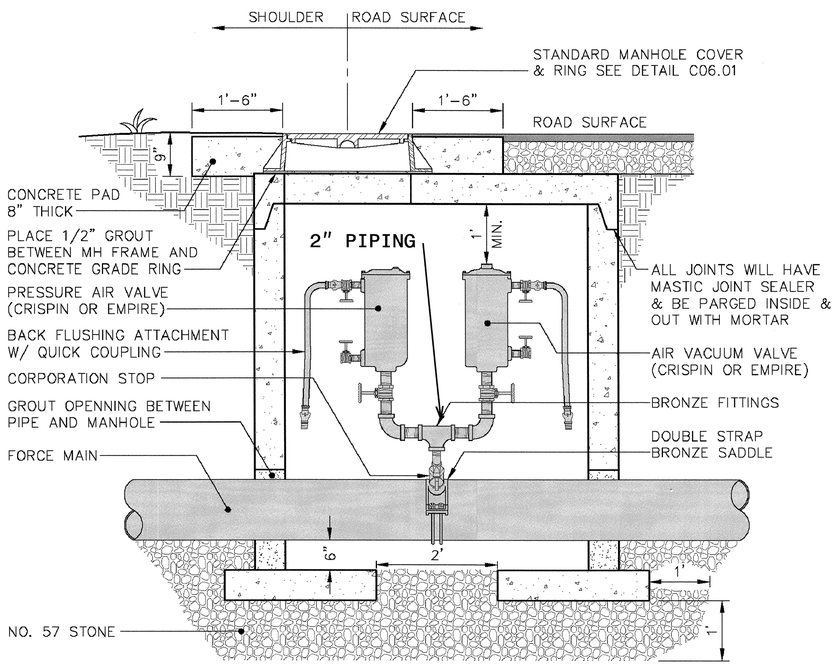
NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER CORREY D. BOUSQUET 6/5/12

UTILITY CONSTRUCTION PLANS ONLY

COMBINATION AIR VALVE AIR RELEASE MANHOLE AND MANHOLE STEPS

UTILITY CONSTRUCTION

Details Provided by APPIAN Consulting Engineers 08/02/2006 – 12:12:58 PM



NOTE: ALL THREADED PIPING SHALL BE BRASS WITH BRONZE FITTINGS

NOTES:

1. Force Mains 4" dia. and smaller to be one full joint of D.I.P. thru Air Release Manholes.
2. Precast Manhole – 4'-0" I.D. up to 10' cut. 5'-0" I.D. over 10' cut.
3. Type and size of valves to be determined by the City Public Services Director.

JACKSONVILLE N.C. a Caring Community CAMP LEJEUNE & MCAS NEW RIVER

Department of Public Services
P.O. Box 128
Jacksonville, N.C. 28541

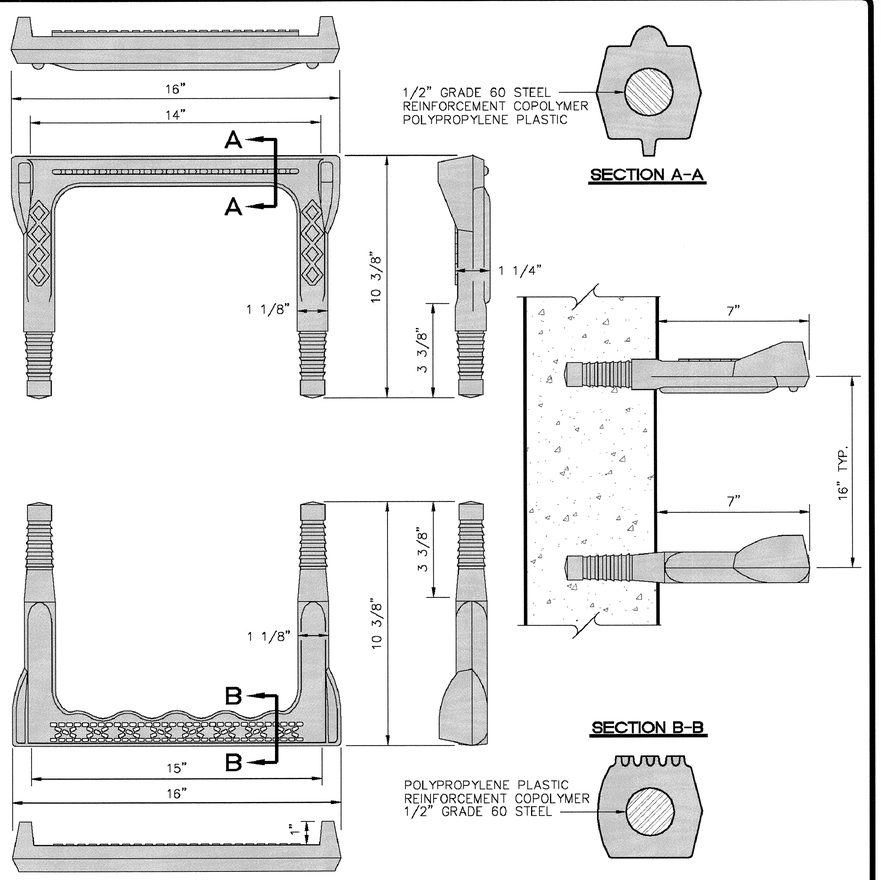
CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

http://www.ci.jacksonville.nc.us

COMBINATION AIR VALVE AIR RELEASE MANHOLE

SCALE:	DETAIL #
Not To Scale	2534.03
REVISION DATE:	SHEET #:
June, 2006	1 of 1

Details Provided by APPIAN Consulting Engineers 08/02/2006 – 11:36:49 AM



NOTES:

1. Step design, installation, and material shall meet the requirements of ASTM C478 and NCDOT.
2. Plastic material consists of super high impact resistant copolymer polypropylene and conform to specific requirements as detailed in ASTM D4101.
3. Reinforcing steel shall be 1/2" rebar, grade 60 and meet the requirements of ASTM A615.
4. Step width and spacing to be consistant with the latest requirements of OSHA.

JACKSONVILLE N.C. a Caring Community CAMP LEJEUNE & MCAS NEW RIVER

Department of Public Services
P.O. Box 128
Jacksonville, N.C. 28541

CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

http://www.ci.jacksonville.nc.us

STANDARD POLYPROPYLENE PLASTIC STEP DETAIL

SCALE:	DETAIL #
Not To Scale	2C06.04
REVISION DATE:	SHEET #:
June, 2006	1 of 1

5/14/99

04-JUN-2012 10:01
...ilities\Rdy_Utl\Proj\U-3810_uc_detail_sheet_42.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-43

DESIGNED BY: EWH
DRAWN BY: EWH
CHECKED BY: CDB
APPROVED BY: CDB
REVISED:

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

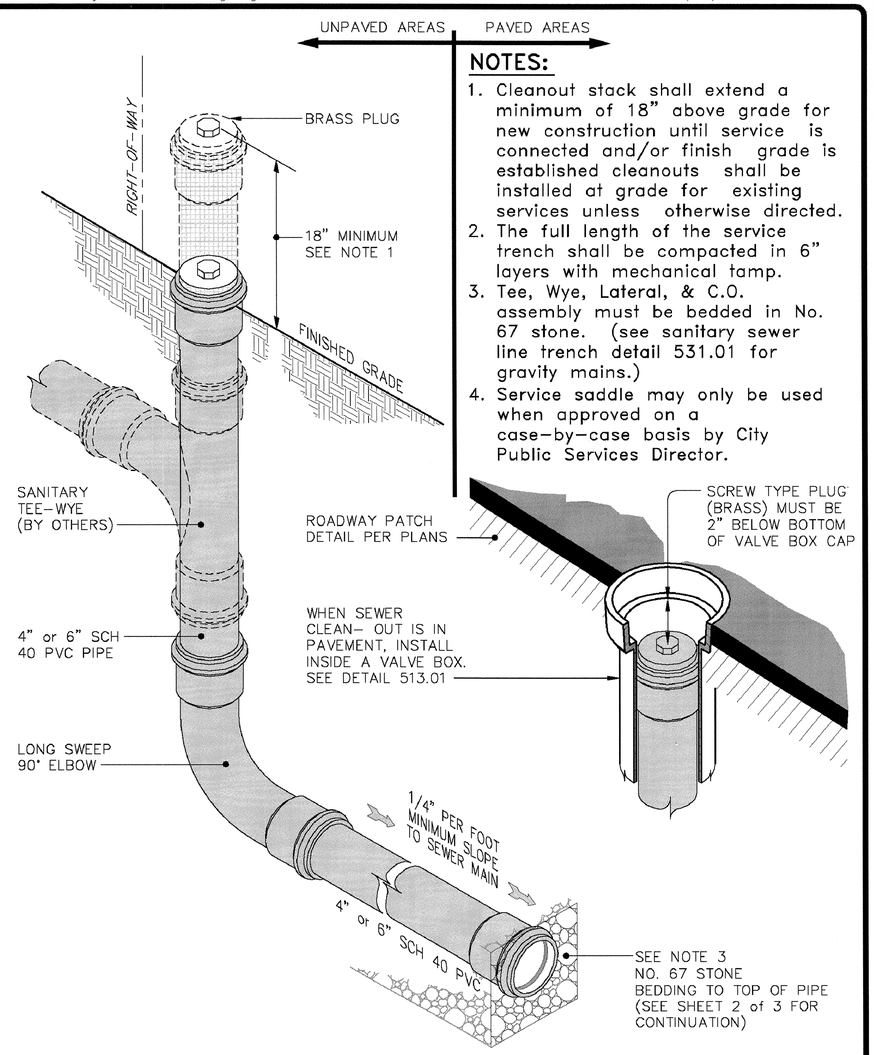
NORTH CAROLINA PROFESSIONAL SEAL 23041 ENGINEER COREY D. BOUSQUET 6/5/12

UTILITY CONSTRUCTION PLANS ONLY

STANDARD SEWER LATERAL AND CLEANOUT

UTILITY CONSTRUCTION

Details Provided by APPIAN Consulting Engineers 08/02/2006 – 12:06:04 PM



NOTES:

1. Cleanout stack shall extend a minimum of 18" above grade for new construction until service is connected and/or finish grade is established cleanouts shall be installed at grade for existing services unless otherwise directed.
2. The full length of the service trench shall be compacted in 6" layers with mechanical tamp.
3. Tee, Wye, Lateral, & C.O. assembly must be bedded in No. 67 stone. (see sanitary sewer line trench detail 531.01 for gravity mains.)
4. Service saddle may only be used when approved on a case-by-case basis by City Public Services Director.

JACKSONVILLE N.C. a Caring Community CAMP LEJEUNE MCAS NEW RIVER

Department of Public Services
P.O. Box 128
Jacksonville, N.C. 28541

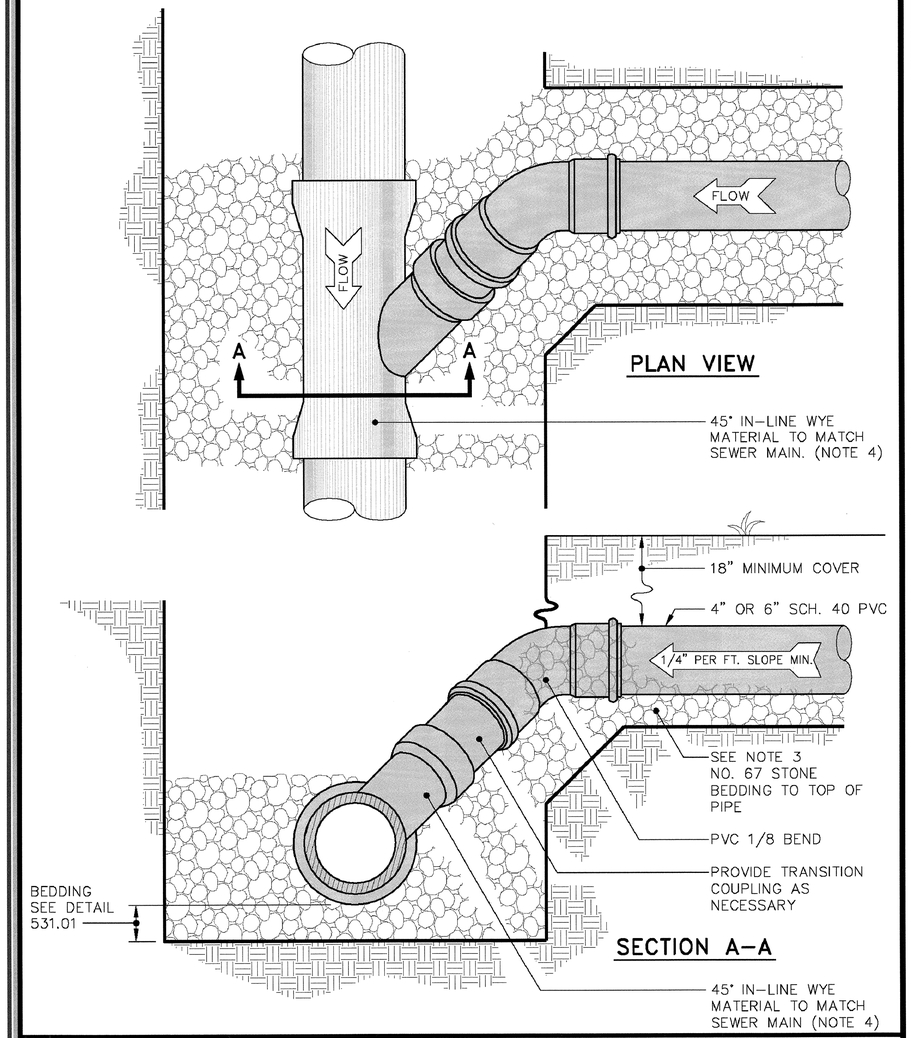
CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

http://www.ci.jacksonville.nc.us

TYPICAL PVC SEWER LATERAL CLEANOUT WITH IN-LINE WYE

SCALE:	DETAIL #
Not To Scale	2533.03
REVISION DATE:	SHEET #:
June, 2006	1 of 3

Details Provided by APPIAN Consulting Engineers 08/02/2006 – 12:12:05 PM



JACKSONVILLE N.C. a Caring Community CAMP LEJEUNE MCAS NEW RIVER

Department of Public Services
P.O. Box 128
Jacksonville, N.C. 28541

CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

http://www.ci.jacksonville.nc.us

TYPICAL PVC SEWER LATERAL CLEANOUT WITH IN-LINE WYE

SCALE:	DETAIL #
Not To Scale	2533.03
REVISION DATE:	SHEET #:
June, 2006	2 of 3

5/14/99

04-JUN-2012 08:54
lities\Rdy_Utl\Proj\U-3810_uc_detail_sheet_43.dgn
$$$$USERNAME$$$$

5/14/99

STANDARD MANHOLE RING AND COVER GRADE ADJUSTMENT

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-44
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
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 23041 ENGINEER COREY D. BOUSQUET 6/15/12

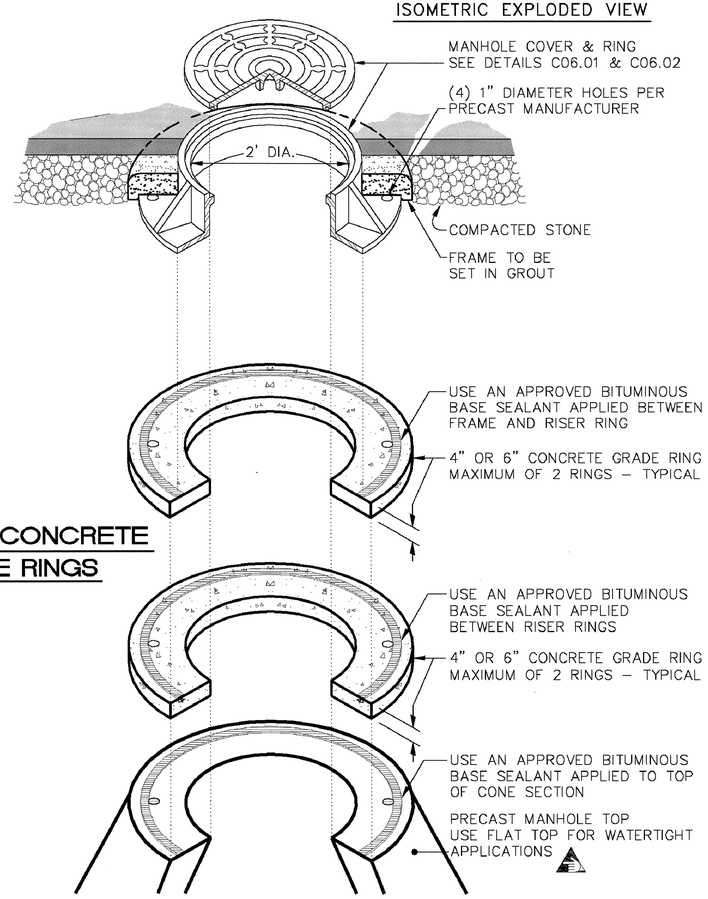
UTILITY CONSTRUCTION

Details Provided by APPIAN Consulting Engineers — 08/02/2006 – 11:36:26 AM

PAVEMENT APPLICATION

SEE FLAT TOP FOR NON-PAVED APPLICATION

ISOMETRIC EXPLODED VIEW



PRECAST CONCRETE GRADE RINGS

NOTE:

1. Place 1/2" parge coat on interior of manhole from half depth of iron casting to a depth of 2" below the top of cone section

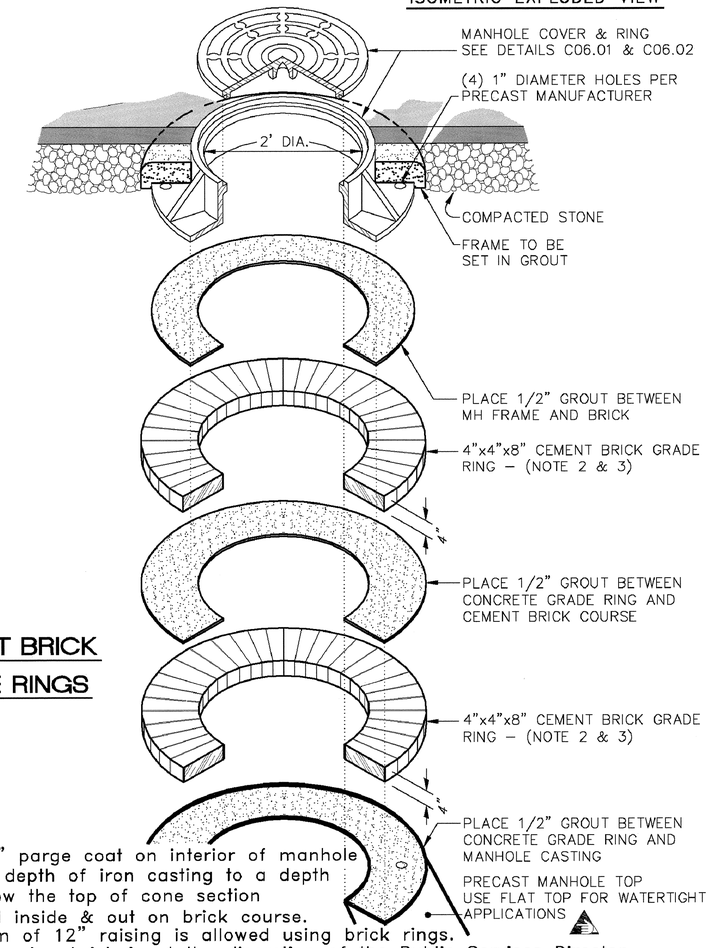
JACKSONVILLE N.C. Caring Community CAMP LEJEUNE & MCAS NEW RIVER	Department of Public Services P.O. Box 128 Jacksonville, N.C. 28541	CITY of JACKSONVILLE USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY	http://www.ci.jacksonville.nc.us
STANDARD MANHOLE RING AND COVER GRADE ADJUSTMENT		SCALE: Not To Scale	DETAIL # 2 C06.03
		REVISION DATE: June, 2006	SHEET #: 1 of 2

Details Provided by APPIAN Consulting Engineers — 08/02/2006 – 11:36:36 AM

PAVEMENT APPLICATION

SEE FLAT TOP FOR NON-PAVED APPLICATION

ISOMETRIC EXPLODED VIEW



CEMENT BRICK GRADE RINGS

NOTE:

1. Place 1/2" parge coat on interior of manhole from half depth of iron casting to a depth of 2" below the top of cone section
2. Mortar seal inside & out on brick course.
3. A maximum of 12" raising is allowed using brick rings.
4. Adjustment using brick is at the discretion of the Public Services Director.

JACKSONVILLE N.C. Caring Community CAMP LEJEUNE & MCAS NEW RIVER	Department of Public Services P.O. Box 128 Jacksonville, N.C. 28541	CITY of JACKSONVILLE USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY	http://www.ci.jacksonville.nc.us
STANDARD MANHOLE RING AND COVER GRADE ADJUSTMENT		SCALE: Not To Scale	DETAIL # 2 C06.03
		REVISION DATE: June, 2006	SHEET #: 2 of 2

04-JUN-2012 08:54
...Utilities\Proj\U-3810_uc_detail_sheet_44.dgn
$$$$USERNAME$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UC-45
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

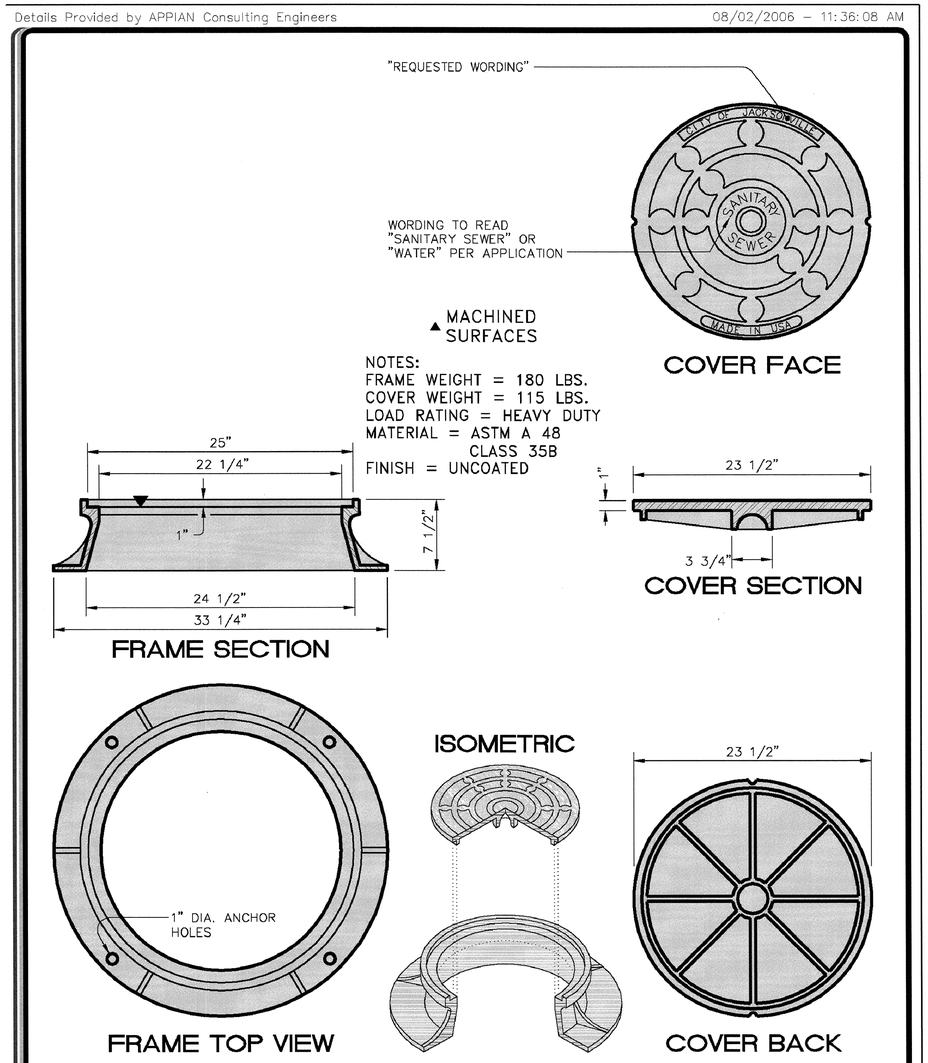
NORTH CAROLINA PROFESSIONAL SEAL 23971 ENGINEER CORNEY D. BOUSLEY

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

STANDARD MANHOLE COVERS & RINGS

Details Provided by APPIAN Consulting Engineers — 08/02/2006 – 11:36:08 AM



Department of Public Services
P.O. Box 128
Jacksonville, N.C. 28541

CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

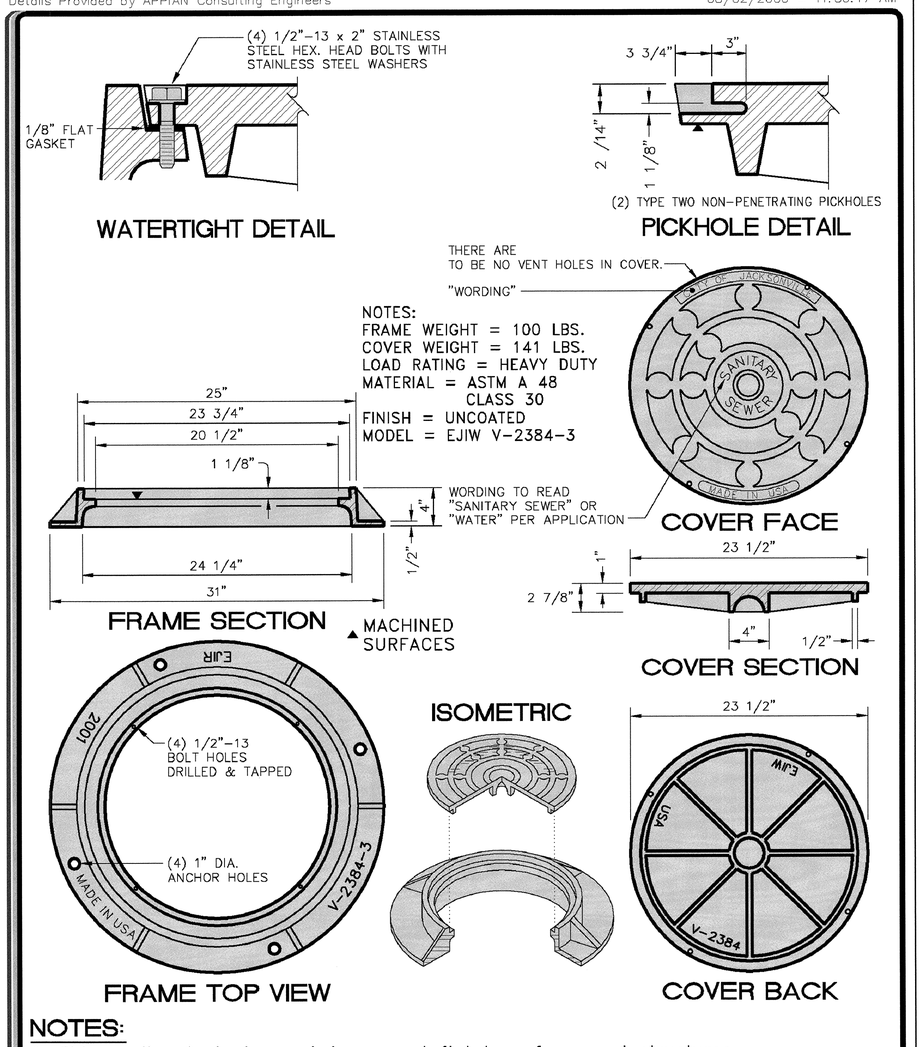
http://www.ci.jacksonville.nc.us

JACKSONVILLE N.C. A Caring Community — CAMP LEJEUNE & MCAS NEW RIVER

STANDARD MANHOLE COVER & RING
US FOUNDRY 700 KL

SCALE:	DETAIL #
Not To Scale	2 C06.01
REVISION DATE:	SHEET #:
June, 2006	1 of 2

Details Provided by APPIAN Consulting Engineers — 08/02/2006 – 11:36:17 AM



NOTES:

1. This casting is to be cast-in precast flat tops for round structures.

Department of Public Services
P.O. Box 128
Jacksonville, N.C. 28541

CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY

http://www.ci.jacksonville.nc.us

JACKSONVILLE N.C. A Caring Community — CAMP LEJEUNE & MCAS NEW RIVER

STANDARD MANHOLE COVER & RING
"CAST-IN" FLAT TOP APPLICATION

SCALE:	DETAIL #
Not To Scale	2 C06.01
REVISION DATE:	SHEET #:
June, 2006	2 of 2

04-JUN-2012 08:55
...ities\Proj\U-3810_uc_detail_sheet_45.dgn
$$USERNAME$$

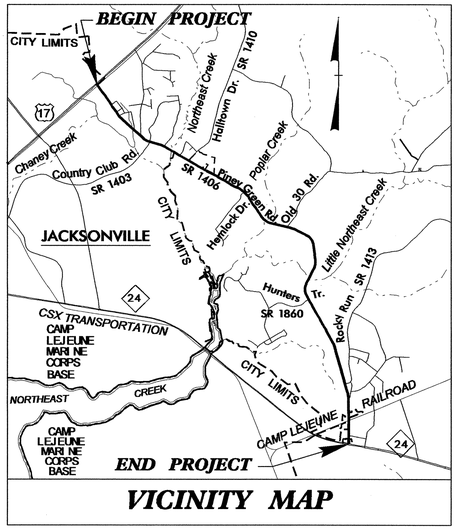
T.I.P. NO.	SHEET NO.
U-3810	UO-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

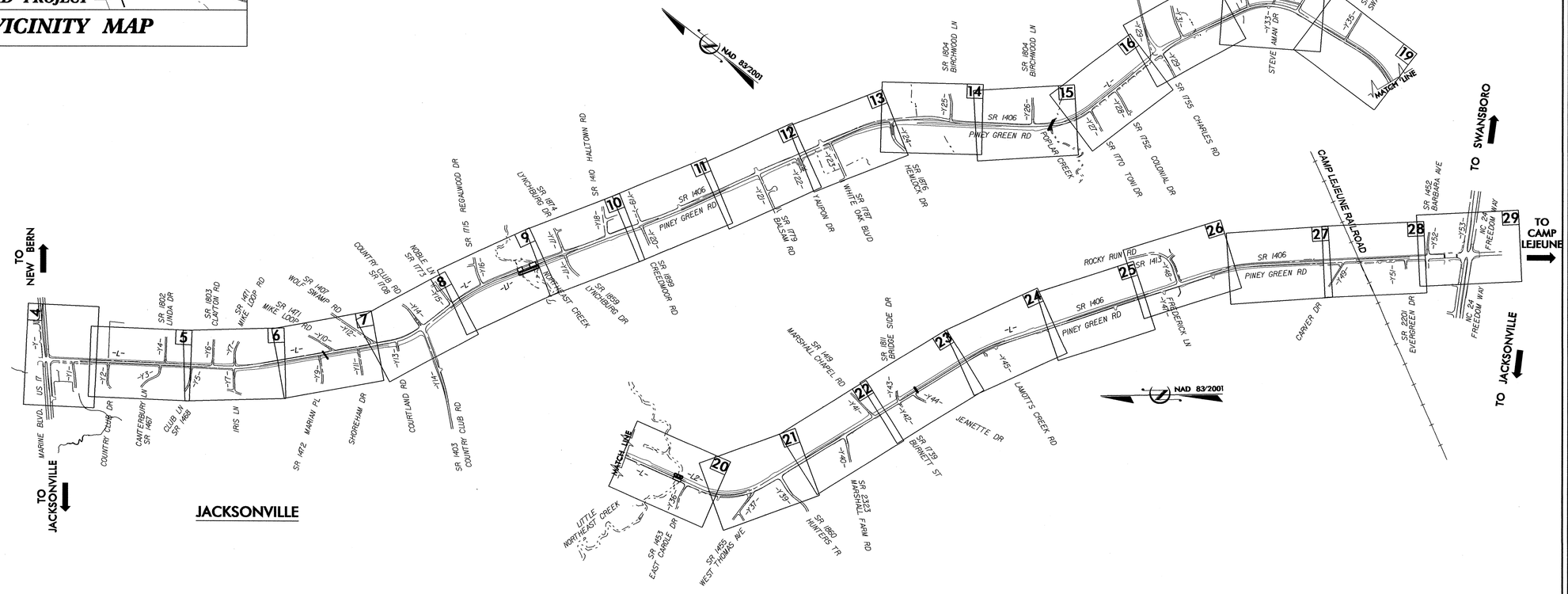
UTILITIES BY OTHERS PLANS
ONSLOW COUNTY

LOCATION: SR-1406 (PINEY GREEN ROAD) FROM US-17 (MARINE BOULEVARD) TO NC-24 (FREEDOM WAY)

TYPE OF WORK: UTILITY RELOCATIONS



VICINITY MAP



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-4 THRU UO-29	PLAN SHEETS

NOTE: PLAN SHEETS UO-2 AND UO-3 ARE NOT USED IN ORDER TO MATCH ROADWAY SHEET NUMBERING

UTILITY OWNERS ON PROJECT

(1) ONWASA (POTABLE WATER)
(2) CITY OF JACKSONVILLE (RAW WATER)
(3) JONES-ONSLOW EMC (POWER)
(4) PROGRESS ENERGY (POWER)
(5) TIME WARNER (CATV)
(6) CENTURY LINK (TELEPHONE)
(7) INTRACOASTAL ENGINEERING (POTABLE WATER AND SANITARY SEWER)

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E. — UTILITIES SECTION ENGINEER
Corey Bousquet, P.E. — UTILITIES SQUAD LEADER PROJECT ENGINEER
Eric Haugaard — UTILITIES PROJECT DESIGNER

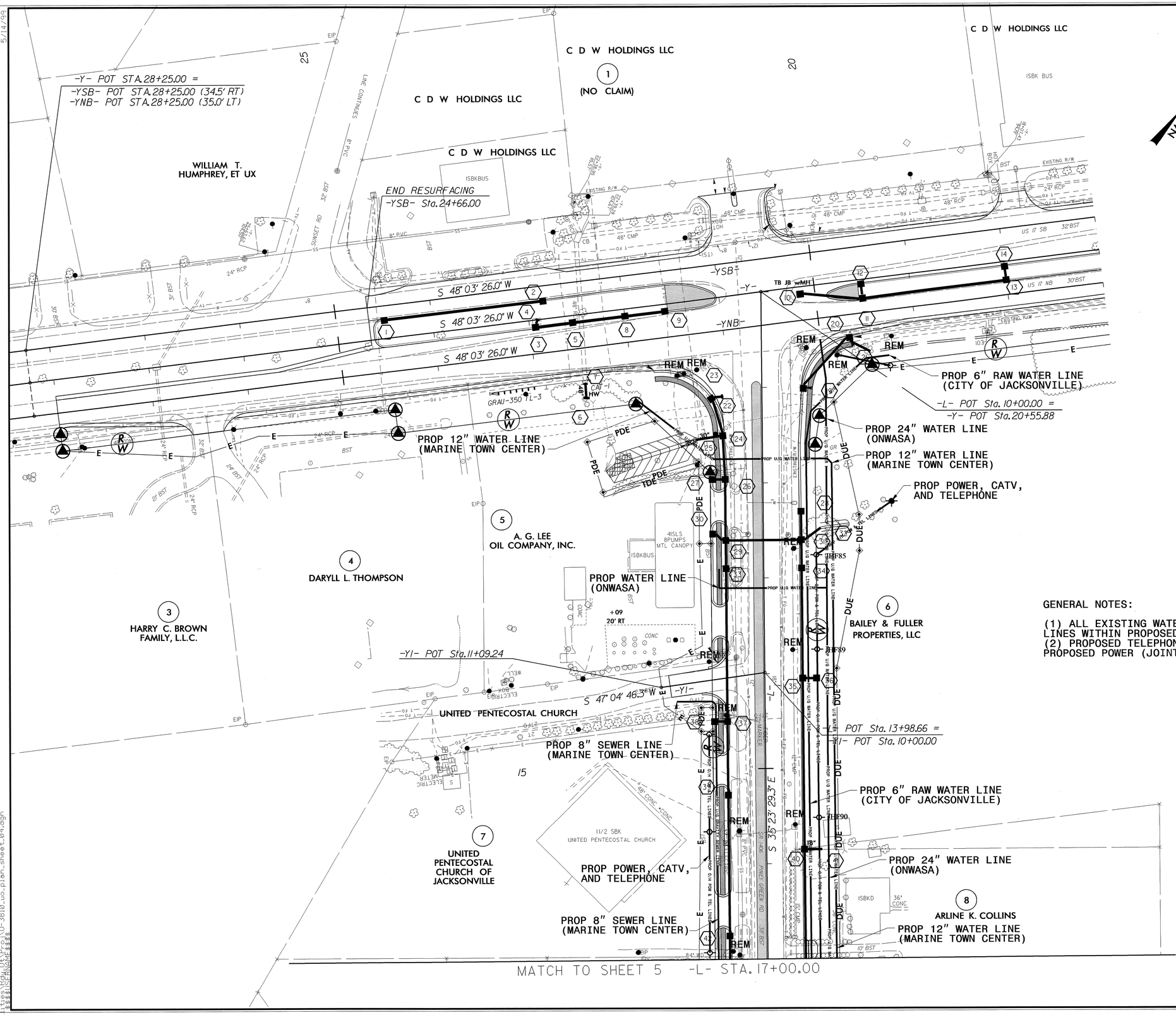
TIP PROJECT: U-3810

09/08/99
05-JUN-2012 16:16
R:\Utilities\Rdy_Ut\Proj\U-3810_uo_title_sheet.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UO-4

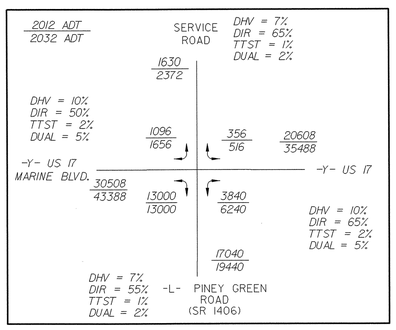
UTILITIES BY OTHERS

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



GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES



5/14/99

06-AUG-2012 11:43
Utilities\Rdy_Utl\Proj\U-3810_uo_plan_sheet_04.dgn
$$$$USERNAME$$$$

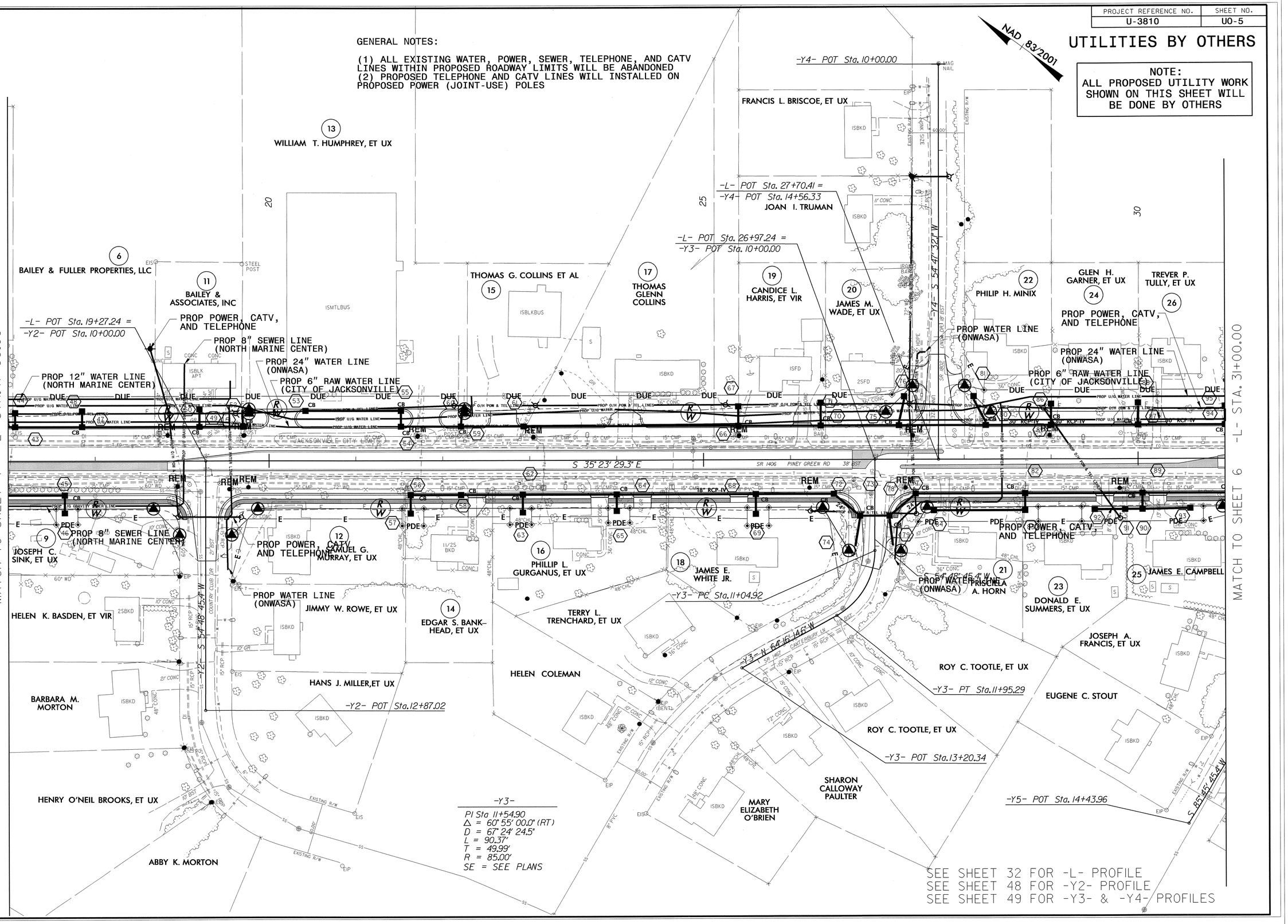
PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-5

UTILITIES BY OTHERS

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

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES



SEE SHEET 32 FOR -L- PROFILE
SEE SHEET 48 FOR -Y2- PROFILE
SEE SHEET 49 FOR -Y3- & -Y4- PROFILES

5/14/99

06-AUG-2012 11:44
Utilities\Rdy_Ut\Proj\U-3810_uo_plan_sheet_05.dgn
$$$$USERNAME$$$$

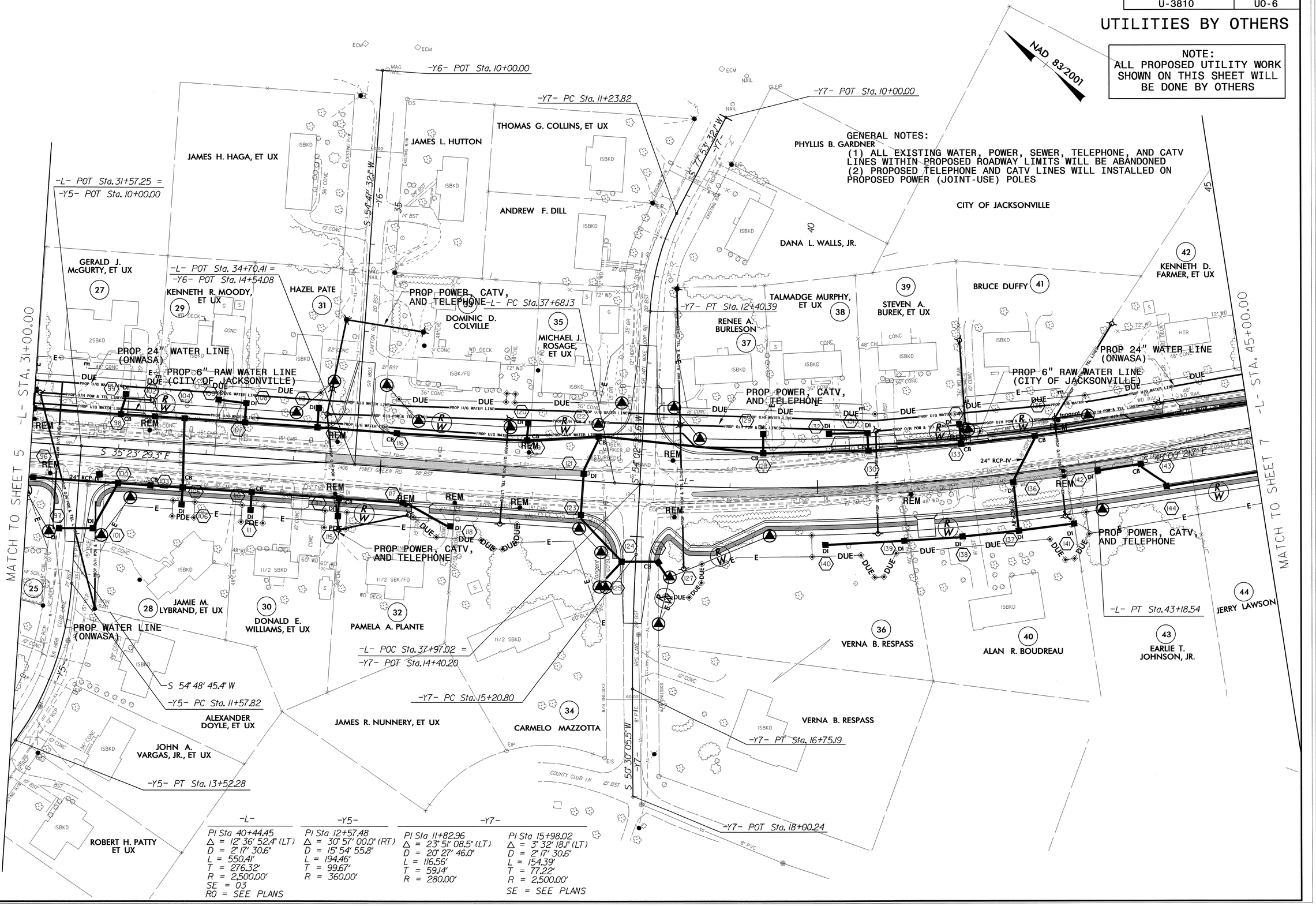
PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-6

UTILITIES BY OTHERS

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

NAD 83/2001

GENERAL NOTES:
(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

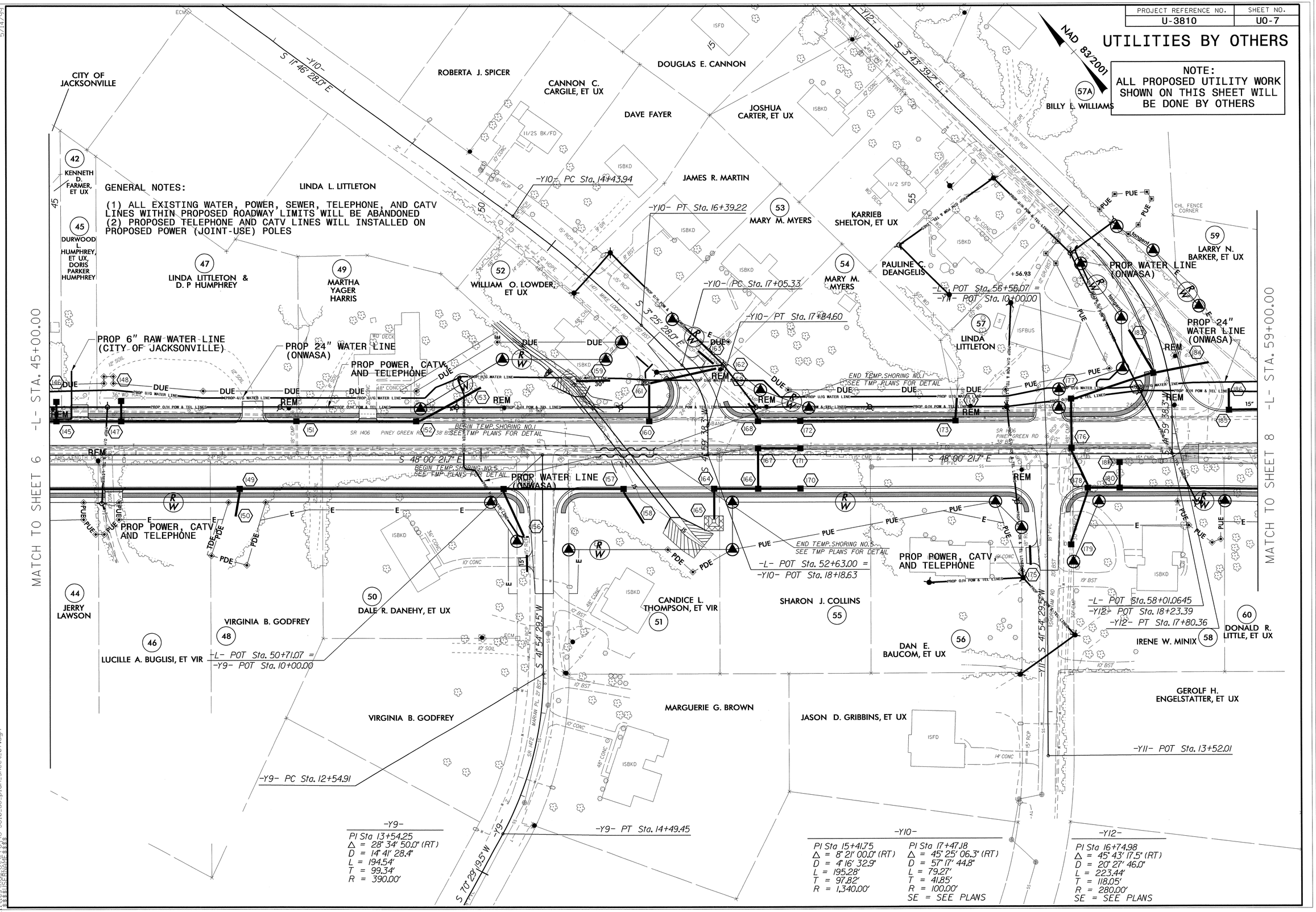


05-JUN-2012 12:33
U:\Projects\U-3810\Utilities\U-3810_uo_plan_sheet_06.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-7

UTILITIES BY OTHERS

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



GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

-Y9-
PI Sta 13+54.25
Δ = 28° 34' 50.0" (RT)
D = 14° 41' 28.4"
L = 194.54'
T = 99.34'
R = 390.00'

-Y10-
PI Sta 15+41.75
Δ = 8° 21' 00.0" (RT)
D = 4° 16' 32.9"
L = 195.28'
T = 97.82'
R = 1,340.00'

PI Sta 17+47.18
Δ = 45° 25' 06.3" (RT)
D = 57° 17' 44.8"
L = 79.27'
T = 41.85'
R = 100.00'
SE = SEE PLANS

-Y12-
PI Sta 16+74.98
Δ = 45° 43' 17.5" (RT)
D = 20° 27' 46.0"
L = 223.44'
T = 118.05'
R = 280.00'
SE = SEE PLANS

5/14/99

05-JUN-2012 12:32
bllittles\Rdy_Utl_Proj\U-3810_uo_plan_sheet_07.dgn
$$$$USERNAME$$$$

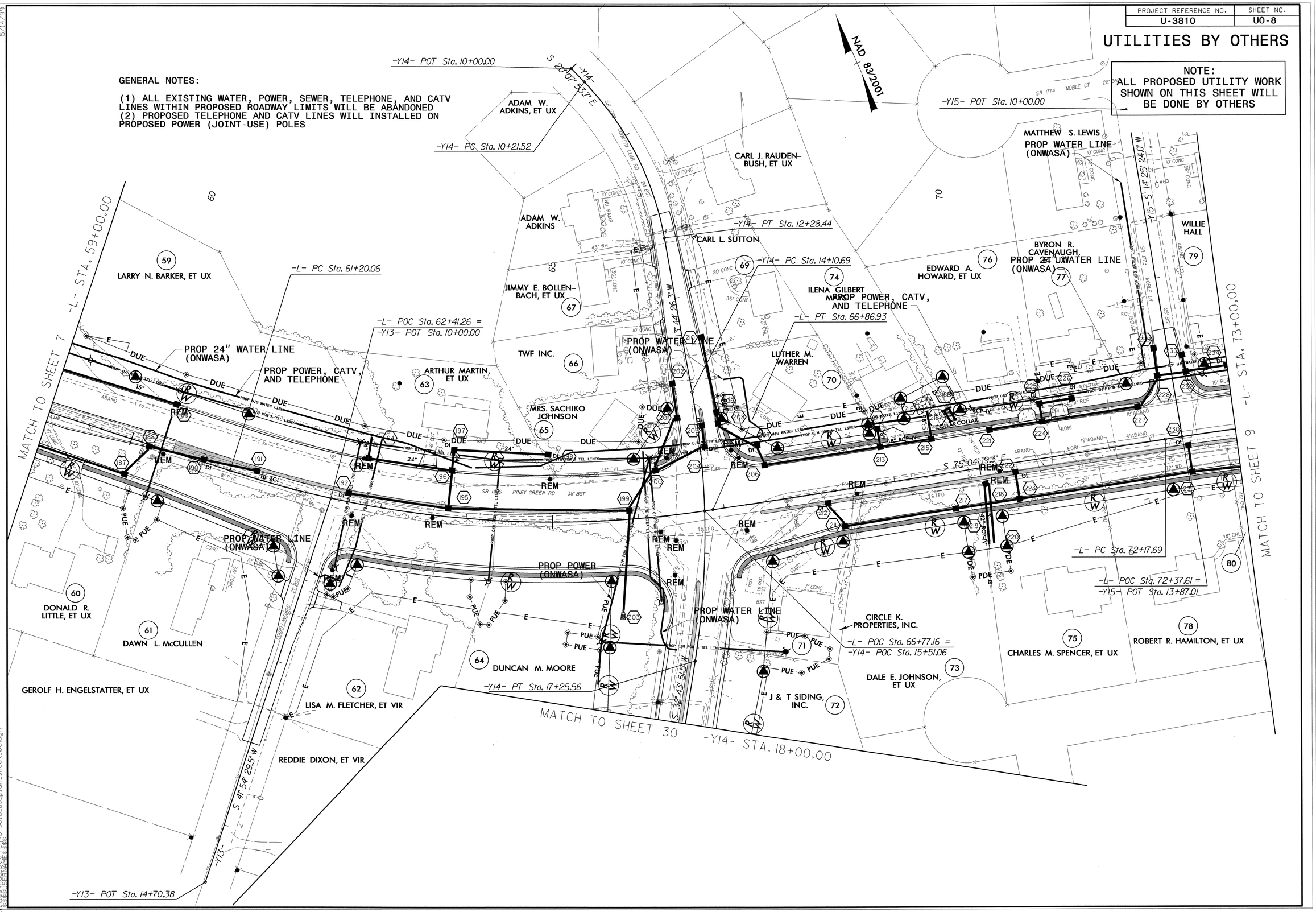
PROJECT REFERENCE NO.	SHEET NO.
U-3810	UO-8

UTILITIES BY OTHERS

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

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES



5/14/99

05-JUN-2012 12:32
Utilities\Rdy_Utl_Proj\U-3810_uo_plan_sheet_08.dgn
$$$$USERNAME$$$$

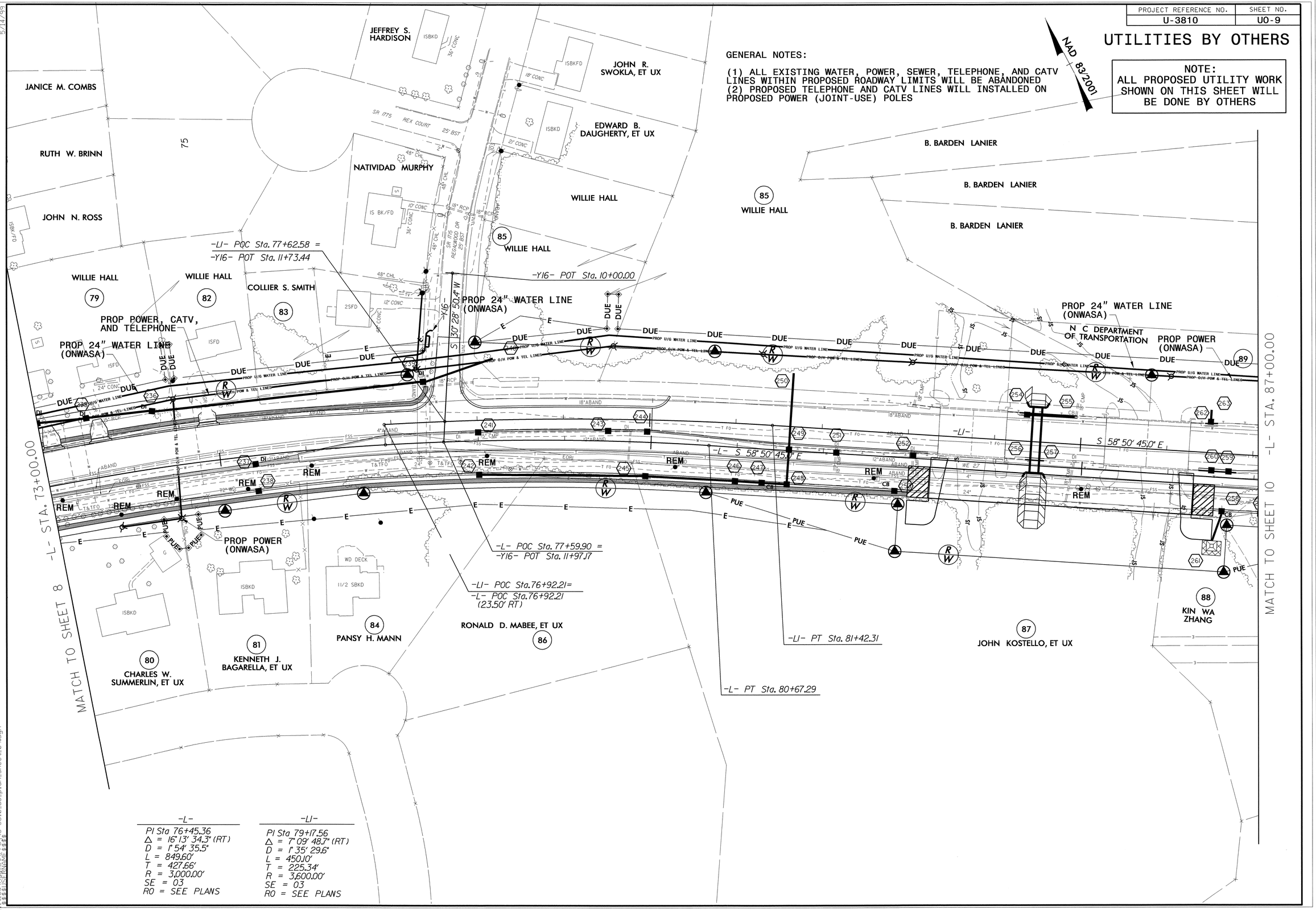
PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-9

UTILITIES BY OTHERS

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

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES



-L-	-L1-
PI Sta 76+45.36	PI Sta 79+17.56
Δ = 16° 13' 34.3" (RT)	Δ = 7° 09' 48.7" (RT)
D = 1° 54' 35.5"	D = 1° 35' 29.6"
L = 849.60'	L = 450.10'
T = 427.66'	T = 225.34'
R = 3,000.00'	R = 3,600.00'
SE = 03	SE = 03
RO = SEE PLANS	RO = SEE PLANS

5/14/99

05-JUN-2012 12:31
Utilities\Rdy_Ut_Proj\U-3810_uo_plan_sheet_09.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-10

UTILITIES BY OTHERS

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

5/14/99

B. BARDEN LANIER

DAVID A. KADERBEK, ET UX

NAD 83/2001

EMMANUEL FREE WILL BAPTIST CHURCH, INC.

BLUE MOON HOLDINGS, LP.

-Y18- POT Sta. 10+00.00

-Y17- POT Sta. 10+00.00

BARKLEY COURT

ANGELA M. DAMIANO

MICHAEL L. VARGA, ET UX

EMMANUEL FREE WILL BAPTIST CHURCH, INC.

EMMANUEL FREEWILL BAPTIST CHURCH

-LI- POT Sta. 90+71.46 =
-Y17- POT Sta. 13+11.08

-L- POT Sta. 90+68.35 =
-Y17- POT Sta. 13+34.73

-LI- PC Sta.76+92.21 =
-L- POT Sta.91+16.87
(23.50' RT)

PROP 24" WATER LINE (ONWASA)

PROP WATER LINE (ONWASA)

N C DEPARTMENT OF TRANSPORTATION

PROP POWER, CATV, AND TELEPHONE

REDCO PROPERTIES, LLC

PROP 24" WATER LINE (ONWASA)

PROP POWER, CATV, AND TELEPHONE

S 43°42'53" W

S 58° 50' 45.0" E

SR 1406 PINEY GREEN RD

-L- STA. 87+00.00

MATCH TO SHEET 9

-L- STA. 101+00.00

MATCH TO SHEET 11

KIN WA ZHANG

EARNEST A. PERRY, ET UX

UTILITY EASEMENT FOR SEPTIC PURPOSES
FOR LOT 1 OF MB 25 PG 82
SEE MB 25 PG 111
& DB 873 PG 418
DB 1270 PG 673

-L- POT Sta. 97+46.95 =
-Y18- POT Sta. 14+62.09

EDWIN L. REFFELT

DANIEL M. HAGAN, ET UX

-L- PC Sta. 87+40.55

-LI- PRC Sta. 89+30.29

-Y17- PC Sta. 14+49.79

-Y17- PT Sta. 16+34.58

ROGER R. ROFF, JR., ET UX

JEREMIAH L. HENDRICKS, ET UX

FREDERICK E. WHITE, ET UX

JOHN R. COHN, ET UX

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

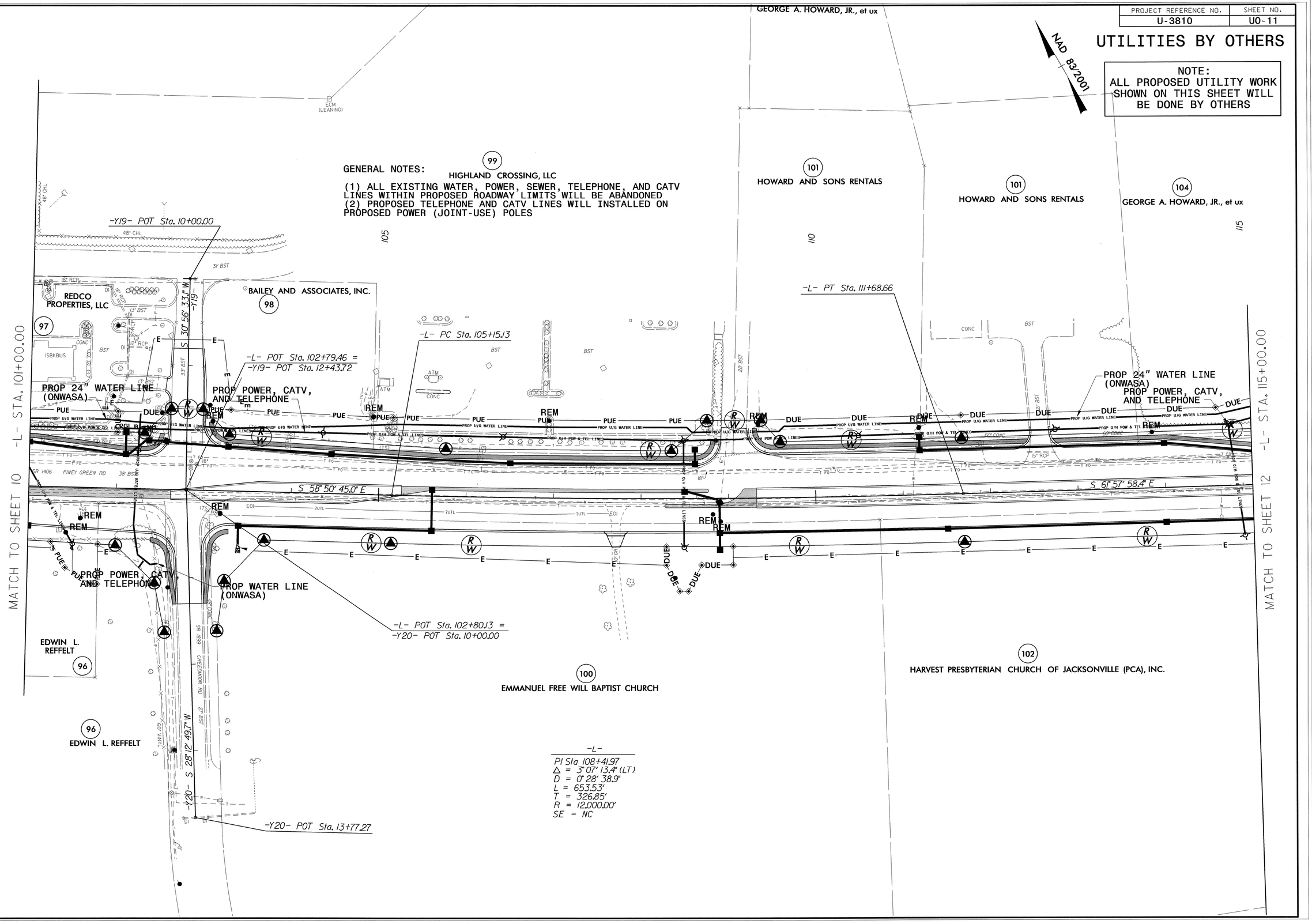
05-JUN-2012 (23)
...\Utilities\U-3810_uo_plan_sheet_10.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-11

UTILITIES BY OTHERS

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

GENERAL NOTES:
(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES



-L-
PI Sta 108+41.97
Δ = 3° 07' 13.4" (LT)
D = 0° 28' 38.9"
L = 653.53'
T = 326.85'
R = 12,000.00'
SE = NC

5/14/99

05-JUN-2012 12:31
\Utilities\Rdy_Utl_Proj\U-3810_uo_plan_sheet_11.dgn
$$$$USERNAME$$$$

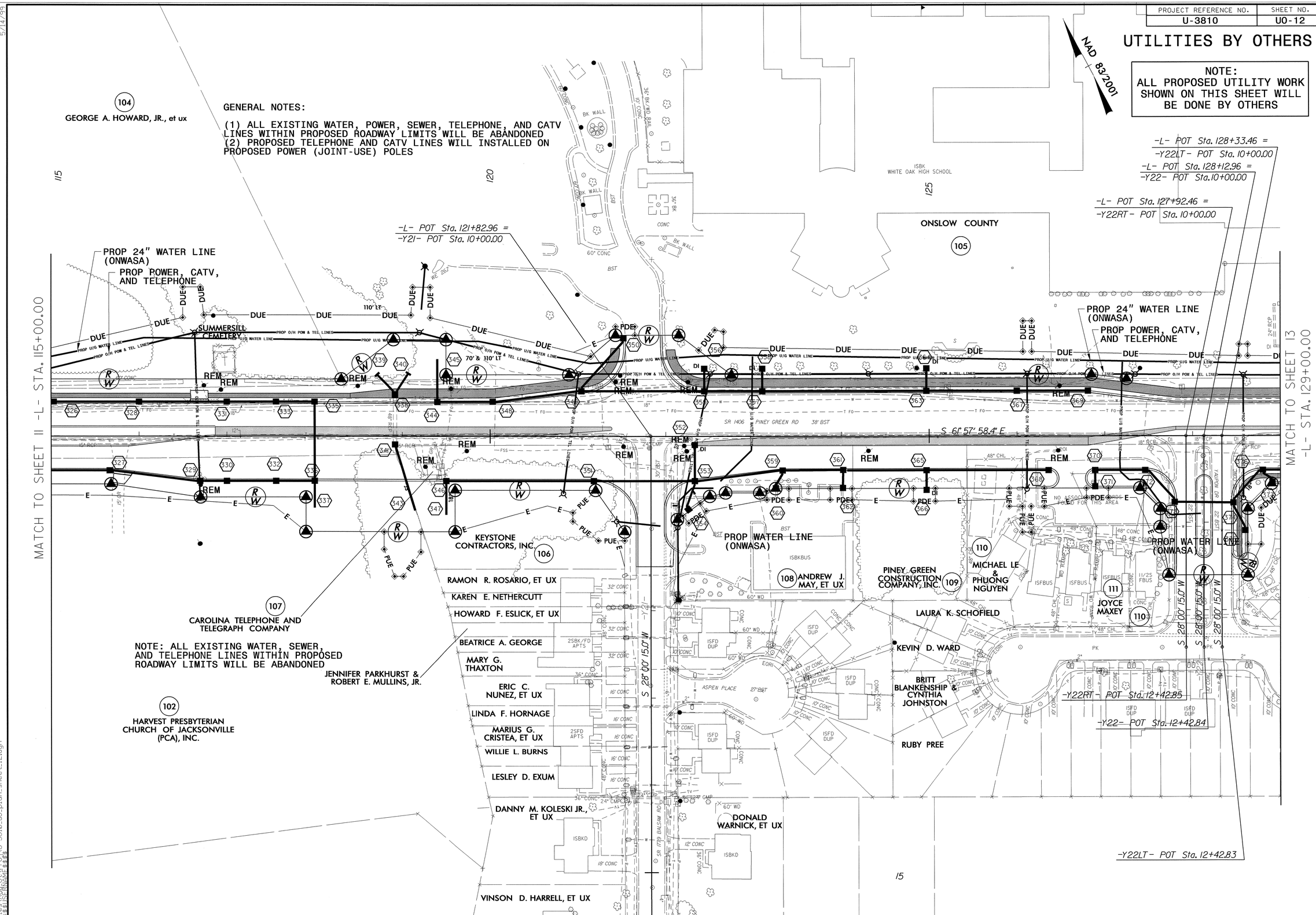
PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-12

UTILITIES BY OTHERS

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

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES



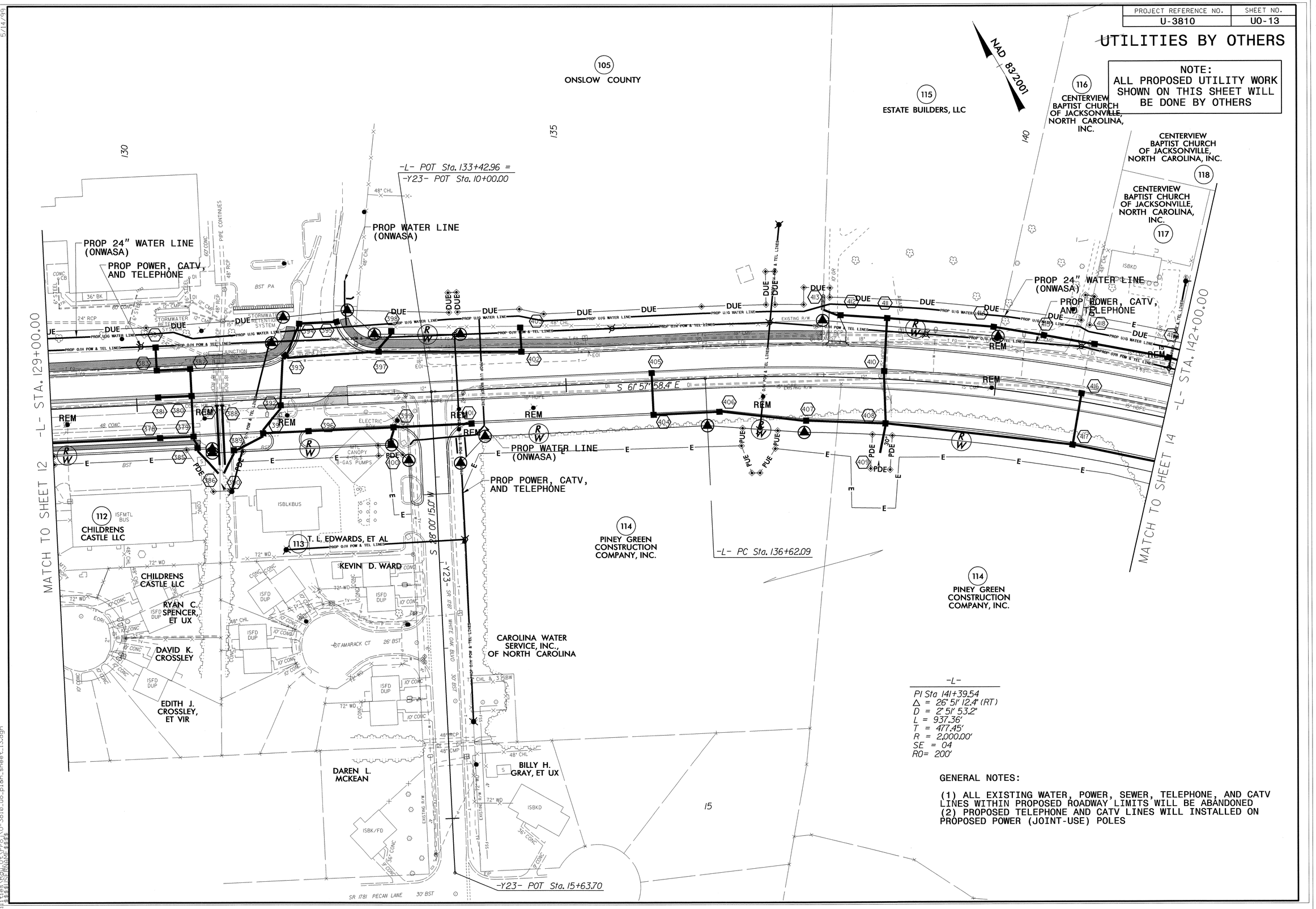
5/14/99

05-JUN-2012 12:30
\Utilities\Rdy_Ut_Proj\U-3810_uo_plan_sheet_12.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-13

UTILITIES BY OTHERS

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



-L-
PI Sta 141+39.54
Δ = 26° 51' 12.4" (RT)
D = 2° 51' 53.2"
L = 937.36'
T = 477.45'
R = 2,000.00'
SE = 04
RO= 200'

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

5/14/99

05-JUN-2012 12:30
\Utilities\Rdy_Utl_Proj\U-3810_uo_plan_sheet_13.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-14

UTILITIES BY OTHERS

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

NAD 83/2001

CENTERVIEW BAPTIST CHURCH OF JACKSONVILLE, NORTH CAROLINA, INC.
118

-L- POC Sta. 143+03.82 =
-Y24- POT Sta. 10+00.00

NOTE: PLACE 1 FT. WIDE DRAINAGE SLOT OPENINGS IN MONOLITHIC ISLAND AT STA 143+80 -L- LT, STA 144+20 -L- LT, AND STA 144+60 -L- LT.

CENTERVIEW BAPTIST CHURCH OF JACKSONVILLE, NORTH CAROLINA, INC.
118

ROY LAIRD, ET UX
121

-DRI- POT Sta. 10+00.00

-DRI- PC Sta. 12+82.16

-DRI- PT Sta. 13+58.16

PROP 24" WATER LINE (ONWASA)

PROP POWER, CATV, AND TELEPHONE

S 46° 10' 43.0" W

S 54° 50' 54.0" W

S 35° 06' 46.0" E

S 54° 53' 14.0" W

GILROY B. WILSON, ET UX

FELICIA C. HINDS, ET VIR

EVA C. JAKOBSSON

DAVID SPENCER

CHARLES R. WILSON

JOHN O. ADAMS

-Y25- POT Sta. 10+00.00

JEAN M. RODRIGUEZ & VANESSA MAESTRE
122A

JOSE L. MURILLO, SR., ET UX
123

122B
ALBERT W. GAMBLIN, ET UX

125
PAMELA A. JAMES, ET VIR

126
CHARLES F. SINNAMON, ET UX

JOHN L. DILLAHUNT
128

CHARLES R. KIMBROUGH, ET UX
129

CECILIA N. CLARKE
130

131
CLIFTON CAIN, ET UX

PROP 24" WATER LINE (ONWASA)

PROP POWER, CATV, AND TELEPHONE

MATCH TO SHEET 13 -L- STA. 142+00.00

MATCH TO SHEET 15 -L- STA. 156+00.00

120
NANCY T. HERNANDEZ

PROP WATER LINE (ONWASA)

-DRI- POT Sta. 14+25.95
-L- POT Sta. 147+18.90

-L- PT Sta. 145+99.45

122
HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP

-L- POT Sta. 151+84.57 =
-Y25- POT Sta. 13+08.11

+66
78' & 95' RT

+52
238' RT

122
HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP

-Y24- POT Sta. 11+49.59

C. M. S., INC. OF JACKSONVILLE

114
PINEY GREEN CONSTRUCTION COMPANY, INC.

HEMLOCK DR

EXISTING R/W

-L-
PI Sta 141+39.54
Δ = 26° 51' 12.4" (RT)
D = 2° 51' 53.2"
L = 937.36'
T = 477.45'
R = 2,000.00'
SE = 04
RO = 200'

-DRI-
PI Sta 13+20.23
Δ = 8° 42' 31.0" (RT)
D = 11° 27' 33.0"
L = 76.00'
T = 38.07'
R = 500.00'

122
HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

5/14/99

05-JUN-2012 12:29
u:\pdfiles\projects\U-3810\u0_plan_sheet_14.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-15

UTILITIES BY OTHERS

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

NAD 83/2001

MARTIN J. ESTRADA, ET UX
EDUARDO CABOVERDE
NAOMI R. HESS
JESSICA L. GRANT
CHRISTOPHER DAVIS, ET UX
KENNETH W. DIXON, ET UX
CLIFTON CAIN, ET UX
LUIS E. LOPEZ
WILLIS J. BRINTON, ET UX
TIMOTHY POWELL, JR.
DANIEL L. WOTRING, ET UX
DEREK D. ELWART, ET UX
JOHN WAGGONER
WILLIAM FORRESTER, ET UX
JONATHAN NERIS, ET UX
ELIJAH K. WANNEMACHER, ET UX
MICHAEL T. DEMARK, ET UX
MONTEITH L. SUGGS, ET UX
C. M. S., INC. OF JACKSONVILLE
W.R. WILLIS RENTALS, LLC
HOWARD CEMETERY

-L- STA. 156+00.00
MATCH TO SHEET 14
MATCH TO SHEET 16
-L- STA. 170+00.00

-Y26- POT Sta. 10+00.00
-L- 53° 35' 54.0" W
-Y26- POT Sta. 12+88.84
-L- POC Sta. 164+00.49 =
-L- PC Sta. 162+75.46

PROP 24" WATER LINE (ONWASA)
PROP POWER, CATV, AND TELEPHONE
PROP WATER LINE (ONWASA)
PROP 24" WATER LINE (ONWASA)
PROP POWER, CATV AND TELEPHONE DUE KENNETH W. DIXON, ET UX

END TEMP. SHORING NO.6 SEE TMP PLANS FOR DETAIL
END TEMP. SHORING NO.7 SEE TMP PLANS FOR DETAIL
BEGIN TEMP. SHORING NO.7 SEE TMP PLANS FOR DETAIL
BEGIN TEMP. SHORING NO.6 SEE TMP PLANS FOR DETAIL
END TEMP. SHORING NO.2 SEE TMP PLANS FOR DETAIL
BEGIN TEMP. SHORING NO.2 SEE TMP PLANS FOR DETAIL

S 35° 06' 46.0" E
SR 1408 (PINEY GREEN RD)
CARAWAY RD

-L-
PI Sta 168+42.34
Δ = 41° 24' 17.2" (LT)
D = 3° 49' 11.0"
L = 1,083.97'
T = 566.87'
R = 1,500.00'
SE = 04
RO = 200'

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

122 HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP

122 HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP

122 HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP

122 HOWARD AND SONS RENTALS, A NORTH CAROLINA GENERAL PARTNERSHIP

5/14/99

05-JUN-2012 12:28
U:\pdfdata\3810\U-3810_uo_plan_sheet_15.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UO-16

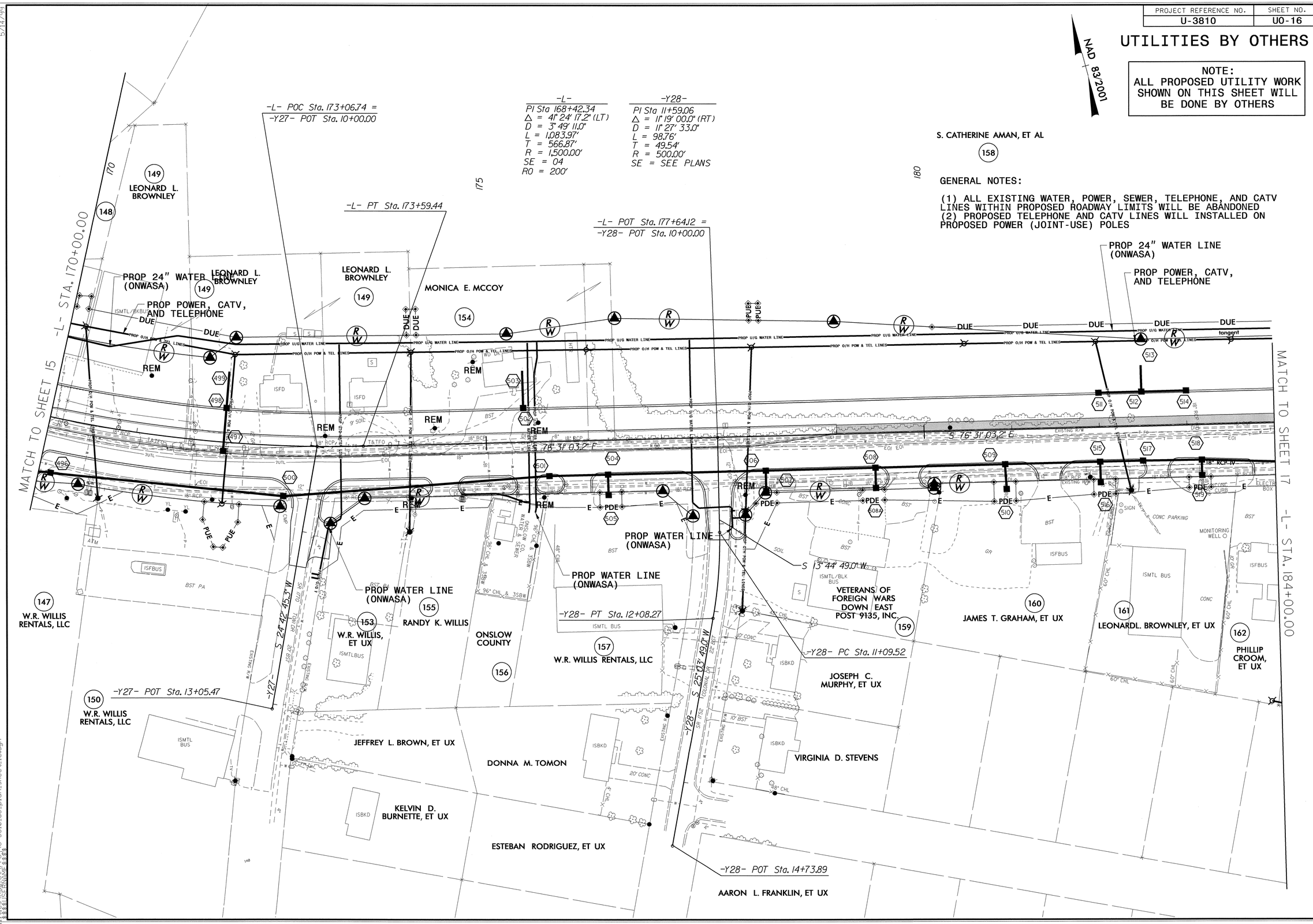
UTILITIES BY OTHERS

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

NAD 83/2001

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES



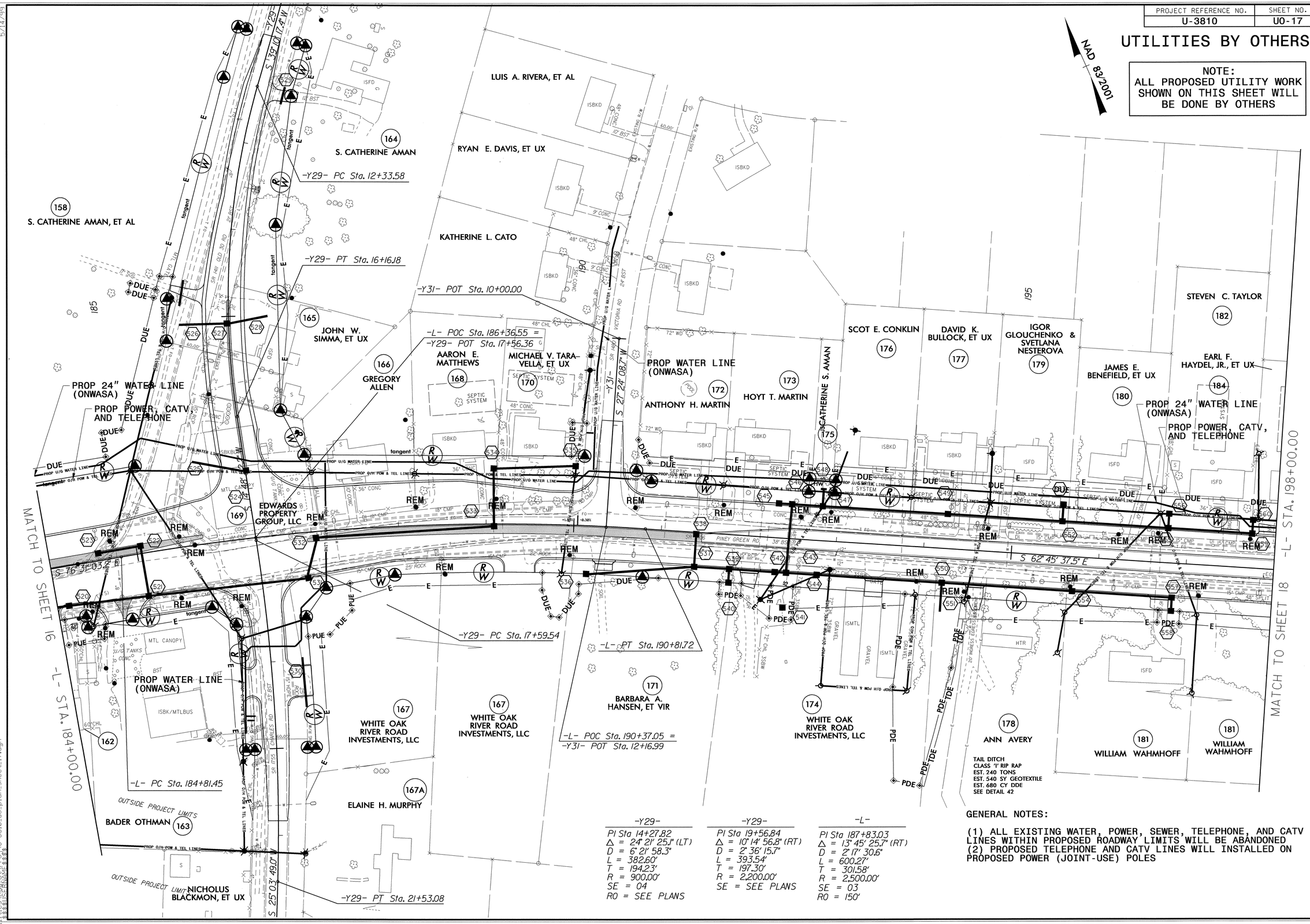
5/14/99

05-JUN-2012 12:28
\Utilities\Rdy_Utl_Proj\U-3810_uo_plan_sheet_16.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-17

UTILITIES BY OTHERS

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



-Y29-	-Y29-	-L-
PI Sta 14+27.82	PI Sta 19+56.84	PI Sta 187+83.03
Δ = 24° 21' 25.1" (LT)	Δ = 10° 14' 56.8" (RT)	Δ = 13° 45' 25.7" (RT)
D = 6° 21' 58.3"	D = 2° 36' 15.7"	D = 2° 17' 30.6"
L = 382.60'	L = 393.54'	L = 600.27'
T = 194.23'	T = 197.30'	T = 301.58'
R = 900.00'	R = 2,200.00'	R = 2,500.00'
SE = 04	SE = SEE PLANS	SE = 03
RO = SEE PLANS		RO = 150'

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

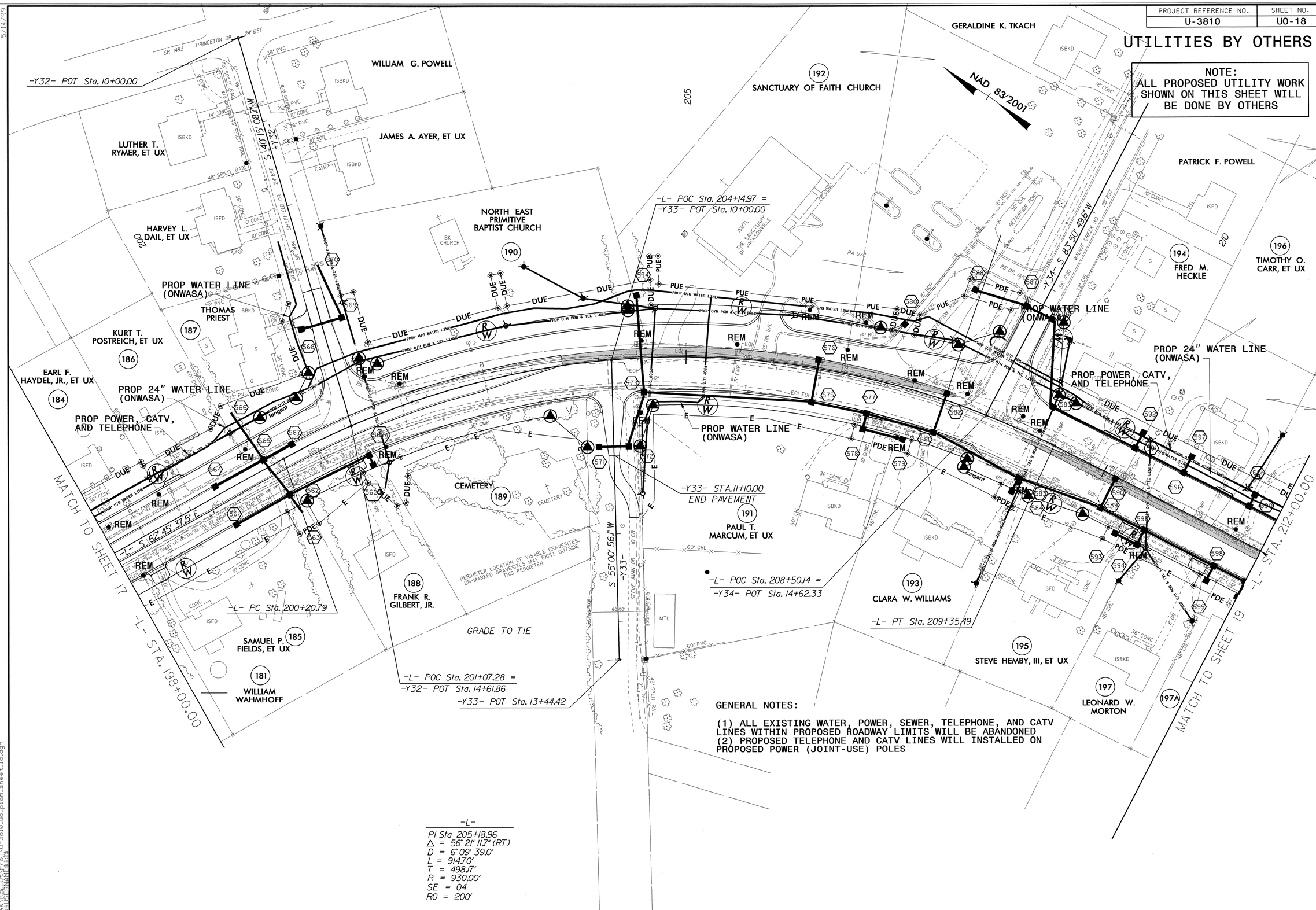
5/14/99

05-JUN-2012 12:28
Utilities\Roy_Ut_Proj\U-3810_uo_plan_sheet_17.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-18

UTILITIES BY OTHERS

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



GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

-L-
PI Sta 205+18.96
Δ = 56° 21' 11.7" (RT)
D = 6° 09' 39.0"
L = 914.70'
T = 498.17'
R = 930.00'
SE = 04
RO = 200'

5/14/99

05-JUN-2012 12:28
Utilities\Rdy_Utl_Proj\U-3810_uo_plan_sheet_18.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-19

UTILITIES BY OTHERS

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

NAD 83/2001

-Y35- POT Sta. 10+00.00

S 83°42'11" W

-Y35-

10

220

225

215

NASSAU LN

SWAN LOOP RD

SR 1406

FINE GREEN RD

SR 1406

201 WILLIAM P. REED

196 TIMOTHY O. CARR, ET UX

199 TIMOTHY O. CARR, ET UX

203 TIMOTHY O. CARR, ET UX

206 TERRY J. LYONS

209 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PL 163.79' LT

+12 125' LT

71' LT

PROP 24" WATER LINE (ONWASA)

PROP POWER, CATV, AND TELEPHONE

PROP U/G WATER LINE

PROP O/H POW & TEL LINES

DUE

REM

E

PDE

RW

S 6°24'25.8" E

PROP WATER LINE (ONWASA)

-L- POT Sta. 216+81.94 = -Y35- POT Sta. 14+07.31

-L- PC Sta. 218+82.74

MATCH TO SHEET 18 -L- STA. 212+00.00

MATCH TO SHEET 20 -L- STA. 226+00.00

198 TIMOTHY O. CARR, ET UX

198 TIMOTHY O. CARR, ET UX

197A LEONARD W. MORTON

MICHAEL E. SMEN 202

204 NANNIE M. GERRITY

205 LINDA G. AMES, ET VIR

207 JEFFREY T. SANTIAGO

208 TOMMY MORTON, JR., ET UX

TOMMY MORTON, JR., ET UX

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

TIMOTHY O. CARR, ET UX

-L-
PI Sta 223+26.73
Δ = 32° 58' 36.4" (RT)
D = 3° 49' 11.0"
L = 863.33'
T = 443.99'
R = 1,500.00'
SE = 04
RO = 200'

SEE SHEET 2-K FOR DITCH DETAIL
SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 54 FOR -Y35- PROFILE

5/14/99

05-JUN-2012 12:27
U:\Projects\U-3810\Roadway\Plan Sheets\U-3810_uo_plan_sheet_19.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-20

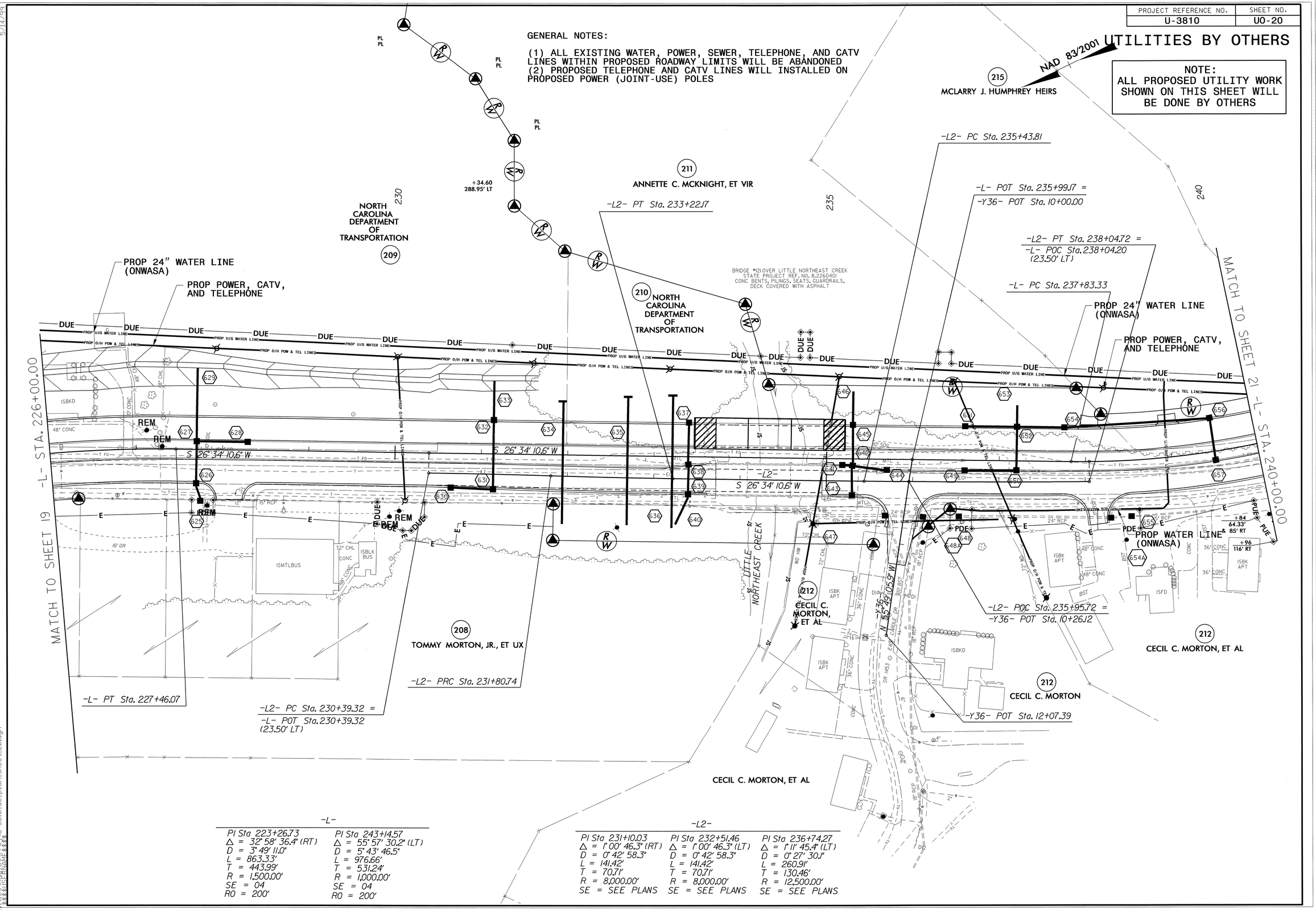
UTILITIES BY OTHERS

NAD 83/2001

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

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES



-L-

PI Sta 223+26.73	PI Sta 243+14.57
Δ = 32° 58' 36.4" (RT)	Δ = 55° 57' 30.2" (LT)
D = 3° 49' 11.0"	D = 5° 43' 46.5"
L = 863.33'	L = 976.66'
T = 443.99'	T = 531.24'
R = 1,500.00'	R = 1,000.00'
SE = 04	SE = 04
RO = 200'	RO = 200'

-L2-

PI Sta 231+10.03	PI Sta 232+51.46	PI Sta 236+74.27
Δ = 1° 00' 46.3" (RT)	Δ = 1° 00' 46.3" (LT)	Δ = 1° 11' 45.4" (LT)
D = 0° 42' 58.3"	D = 0° 42' 58.3"	D = 0° 27' 30.1"
L = 141.42'	L = 141.42'	L = 260.91'
T = 70.71'	T = 70.71'	T = 130.46'
R = 8,000.00'	R = 8,000.00'	R = 12,500.00'
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS

5/14/99

05-JUN-2012 12:27
Utilities\Rdy_Utl\Proj\U-3810_uo_plan_sheet_20.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UO-21

UTILITIES BY OTHERS

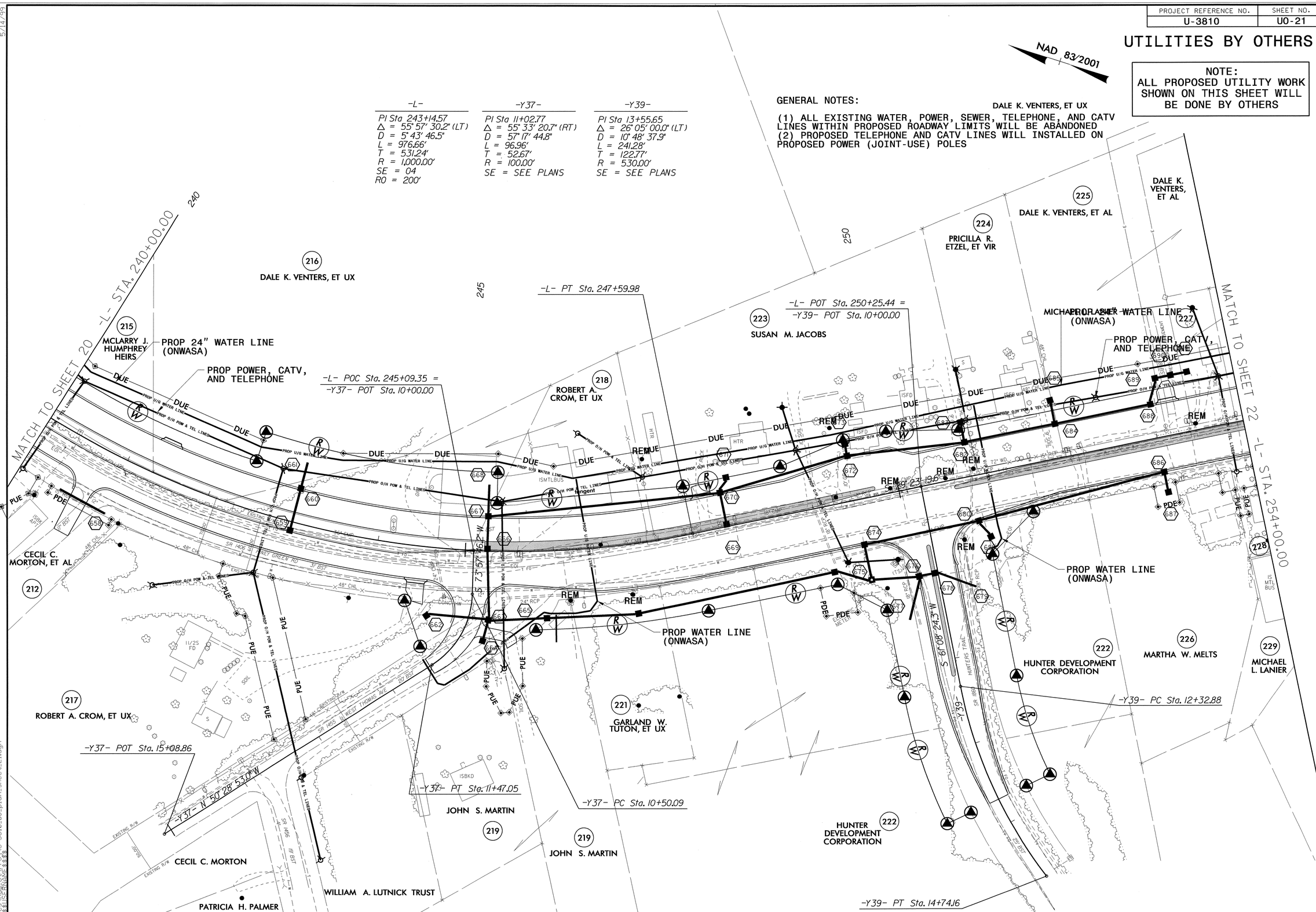
NAD 83/2001

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

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

-L-	-Y37-	-Y39-
PI Sta 243+14.57	PI Sta 11+02.77	PI Sta 13+55.65
Δ = 55° 57' 30.2" (LT)	Δ = 55° 33' 20.7" (RT)	Δ = 26° 05' 00.0" (LT)
D = 5° 43' 46.5"	D = 57° 17' 44.8"	D = 10° 48' 37.9"
L = 976.66'	L = 96.96'	L = 241.28'
T = 531.24'	T = 52.67'	T = 122.77'
R = 1,000.00'	R = 100.00'	R = 530.00'
SE = 04	SE = SEE PLANS	SE = SEE PLANS
RO = 200'		



5/14/99

05-JUN-2012 12:27
Utilities\Rdy_Ut_Proj\U-3810_uo_plan_sheet_21.dgn
$$$$ISERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-22

UTILITIES BY OTHERS

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

NAD 83/2001

ALE K. VENTERS, ET UX

225 DALE K. VENTERS, ET AL

234 LEWIS HUMPHREY

PHERBIA CHADWICK

243 PATRICIA MADDEN, ET AL

SAUNDRA & LEWIS ALSTON

238 BENJAMIN R. HUMPHREY

227 MICHAEL L. LANIER

230 MAJORIE T. RIGGS

232 CHERYL D. LANIER

232 CHERYL D. LANIER

228 SHIRLEY SMITH

229 MICHAEL L. LANIER

231 JONES – ONSLOW ELECTRIC MEMBERSHIP CORP.

HADNOT FARM INVESTMENTS, LLC

235 HADNOT FARM INVESTMENTS, LLC

236 ALPHANA B. HOBBS

237 ALVIN R. HOBBS

239 CARRIE WASHINGTON

HADNOT FARM INVESTMENTS, LLC 240

241 BROWN FAMILY REVOCABLE LIVING TRUST, U A D

242 HADNOT FARM INVESTMENTS, LLC

244 HERBERT C. HOLLIDAY

MICHAEL BURGESS, ET UX

PROP 24" WATER LINE (ONWASA)

PROP POWER, CATV, AND TELEPHONE

PROP WATER LINE (ONWASA)

PROP POWER, CATV, AND TELEPHONE

PROP WATER LINE (ONWASA)

-Y41- POT Sta. 10+00.00

-L- POT Sta. 261+64.49 =
-Y40- POT Sta. 10+00.00

-L- POT Sta. 266+61.57 =
-Y41- POT Sta. 14+40.08

-Y40- POT Sta. 14+29.63

S 48°17'17.7" E

S 20°23'19.6" E

S 75°42'23.4" W

MATCH TO SHEET 21 -L- STA. 254+00.00

MATCH TO SHEET 23 -L- STA. 268+00.00

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

05-JUN-2014 12:26
U:\Utilities\Projects\U-3810\u0_plan_sheet_22.dgn
USER:
DRAWING SIZE: 36"X48"

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-23

UTILITIES BY OTHERS

NAD 83/2001

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

5/14/99

MATCH TO SHEET 22 -L- STA. 268+00.00

MATCH TO SHEET 24 -L- STA. 282+00.00

ELIZABETH S. LYONS

PARTHENIA SIMMONS

CHARLES SIMMONS

WILLIE A. POLLOCK, ET UX

-Y43- POT Sta. 10+00.00

-Y43- PC Sta. 11+04.05

MICHAEL P. TURNER, ET UX
FORMERLY JOHN H. AMBROSE, ET UX

JOHN H. AMBROSE, ET UX

-Y43- PT Sta. 12+54.28

N 69° 26' 39.3" W
-Y43-

-L- POT Sta. 270+93.69 =
-Y43- POT Sta. 12+97.74

-L- POT Sta. 273+46.98 =
-Y44- POT Sta. 10+00.00

243 PATRICIA MADDEN, ET AL

DONALD CHADWICK

245 DONALD CHADWICK

PROP 24" WATER LINE (ONWASA)

PROP POWER, CATV, AND TELEPHONE

250 THERESS POLLOCK

253 TONY PEARSON

BEG. TEMP. SHORING NO. 8
SEE TMP PLANS FOR DETAIL

255 DAVID DIXON, ET UX

END TEMP. SHORING NO. 8
SEE TMP PLANS FOR DETAIL

259 EDITH A. ADAMS

JAMES A. SANDERS, ET UX

EDITH A. ADAMS

264 BETSY J. ALBRIGHT

PROP 24" WATER LINE (ONWASA)

PROP POWER, CATV, AND TELEPHONE

MARY MONK DIXON 258

261 ANGELA DAMIANO, ET AL

BEGIN TEMP. SHORING NO. 3
SEE TMP PLANS FOR DETAIL

END TEMP. SHORING NO. 3
SEE TMP PLANS FOR DETAIL

-Y44- PC Sta. 10+52.08

-Y44- PT Sta. 11+19.68

-Y44- POT Sta. 12+32.53

S 53° 45' 29.6" W

S 37° 26' 36.1" W

S 28° 20' 42.8" W

S 20° 23' 19.6" E

246 PROP WATER LINE (ONWASA) SAMPSON JONES

247 MOSES WASHINGTON

249 CLIFFORD R. ROBINSON, JR.

251 ROY L. HURST

ROY L. HURST

252

-L- POT Sta. 270+85.48 =
-Y42- POT Sta. 10+00.00

MABLE B. & ANNIE B. WASHINGTON

JAMES W. TAYLOR

-Y42- POT Sta. 12+03.18

MARY L. JONES

244 HERBERT C. HOLLIDAY

254 HADNOT FARM INVESTMENTS, LLC

260 ANNIE SHEPARD

262 DAVID DIXON, JR.

256 HANNAH SHEPARD HEIRS

263 DAVID R. DIXON, ET UX, ET AL

SR 1406 PINEY GREEN RD SR 1429 BST

42" RCP-IV

15" RCP

30" RCP

18" RCP

-Y43-
PI Sta 11+81.95
Δ = 37° 25' 24.4" (LT)
D = 24° 54' 40.4"
L = 150.23'
T = 77.90'
R = 230.00'
SE = SEE PLANS

-Y44-
PI Sta 10+86.80
Δ = 32° 16' 49.3" (LT)
D = 47° 44' 47.3"
L = 67.61'
T = 34.73'
R = 120.00'
SE = SEE PLANS

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

05-JUN-2012 12:26
U:\Utilities\U-3810\U-3810_uo_plan_sheet_23.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UO-24

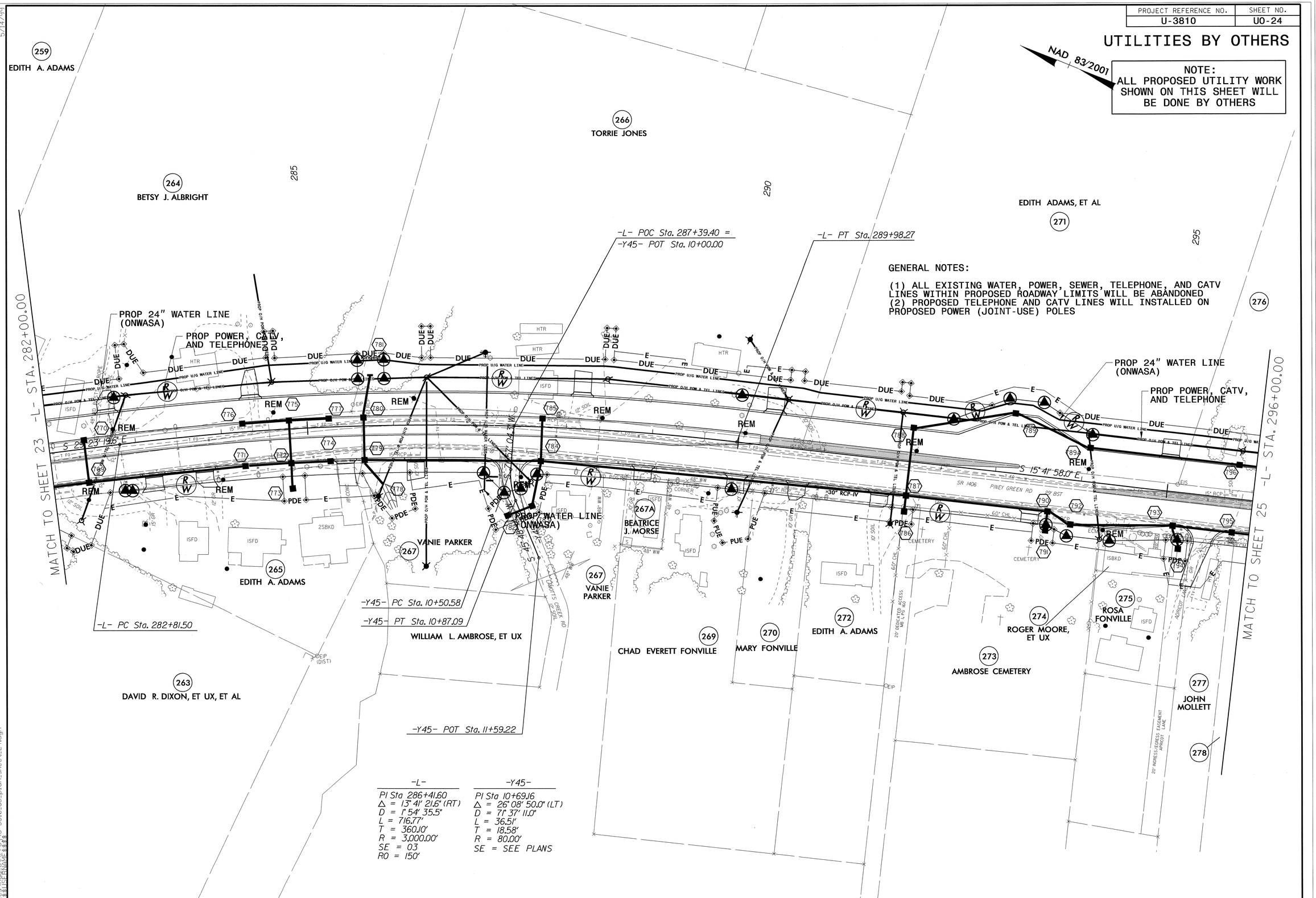
UTILITIES BY OTHERS

NAD 83/2001

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

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES



-L-	-Y45-
PI Sta 286+41.60	PI Sta 10+69.16
Δ = 13° 41' 21.6" (RT)	Δ = 26° 08' 50.0" (LT)
D = 1° 54' 35.5"	D = 71° 37' 11.0"
L = 716.77'	L = 36.51'
T = 360.10'	T = 18.58'
R = 3,000.00'	R = 80.00'
SE = 03	SE = SEE PLANS
RO = 150'	

5/14/99

05-JUN-2012 12:25
\Utilities\Rdy_Utl\Proj\U-3810_uo_plan_sheet_24.dgn
$$$$USERNAME$$$$

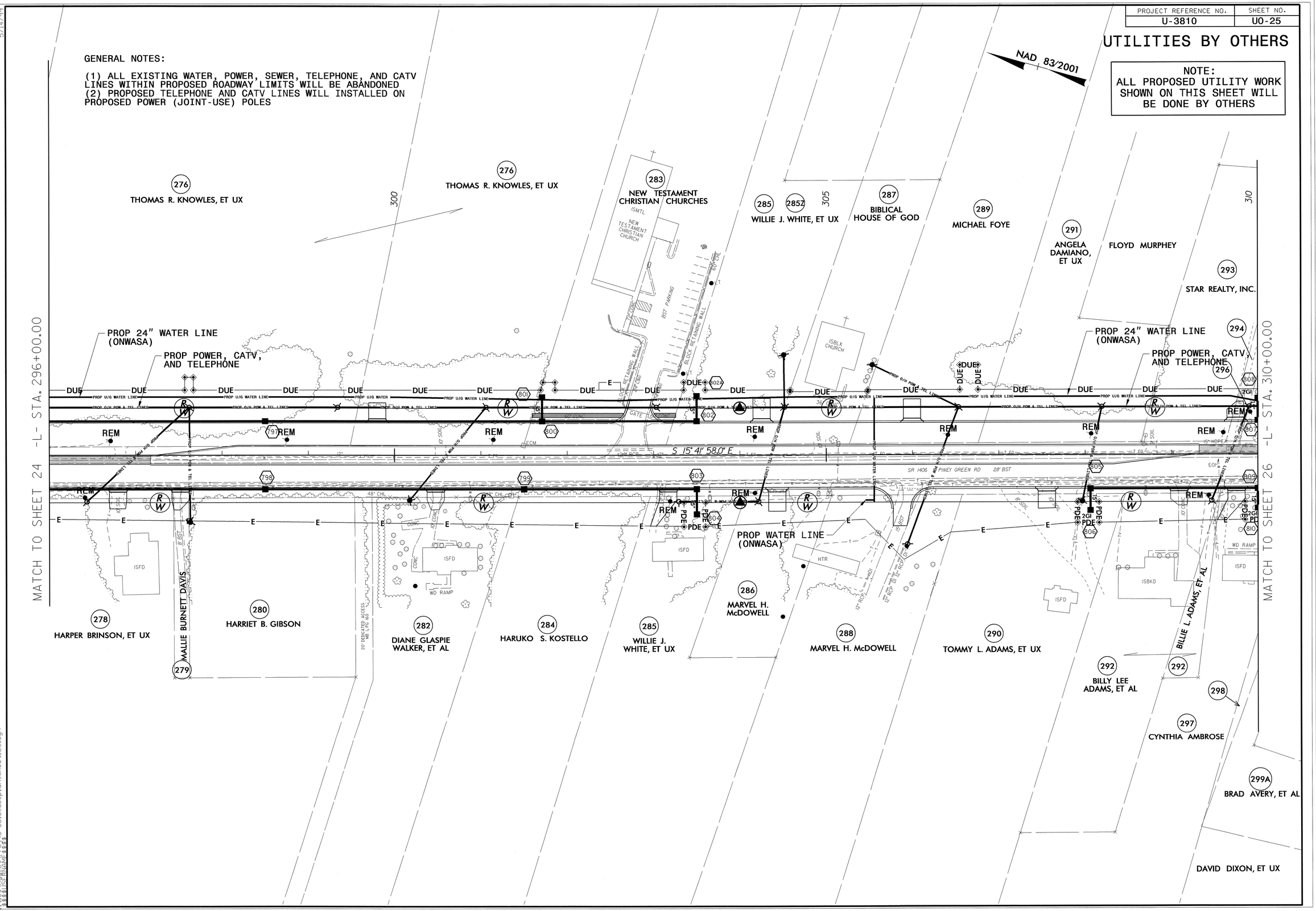
PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-25

UTILITIES BY OTHERS

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

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES



5/14/99

05-JUN-2012 12:25
tilities\Rdy_Utl\Proj\U-3810_uo_plan_sheet_25.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-26

UTILITIES BY OTHERS

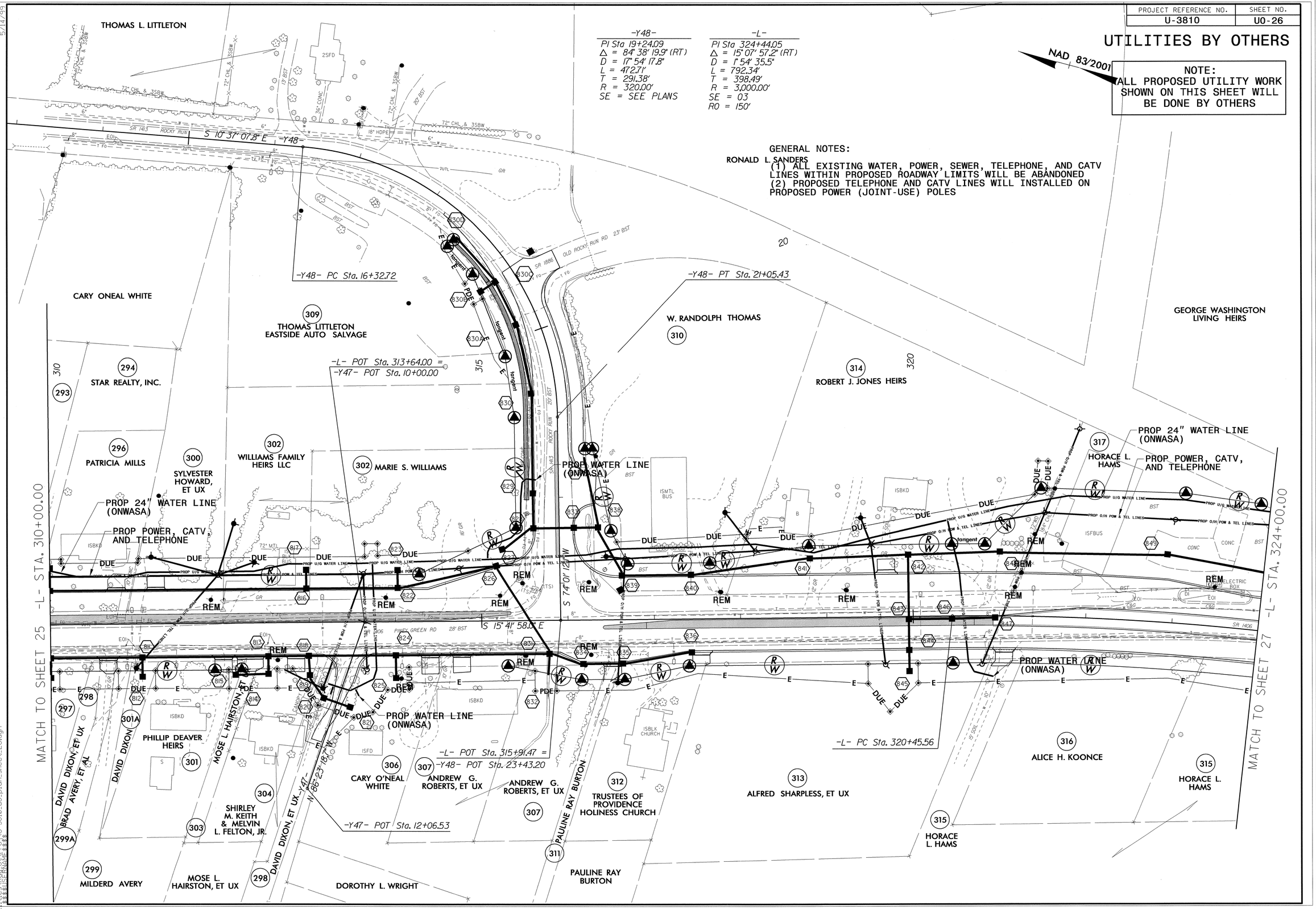
NAD 83/2001

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

GENERAL NOTES:
(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

-Y48-
PI Sta 19+24.09
Δ = 84° 38' 19.9" (RT)
D = 17° 54' 17.8"
L = 472.71'
T = 291.38'
R = 320.00'
SE = SEE PLANS

-L-
PI Sta 324+44.05
Δ = 15° 07' 57.2" (RT)
D = 1° 54' 35.5"
L = 792.34'
T = 398.49'
R = 3,000.00'
SE = 03
RO = 150'



5/14/99

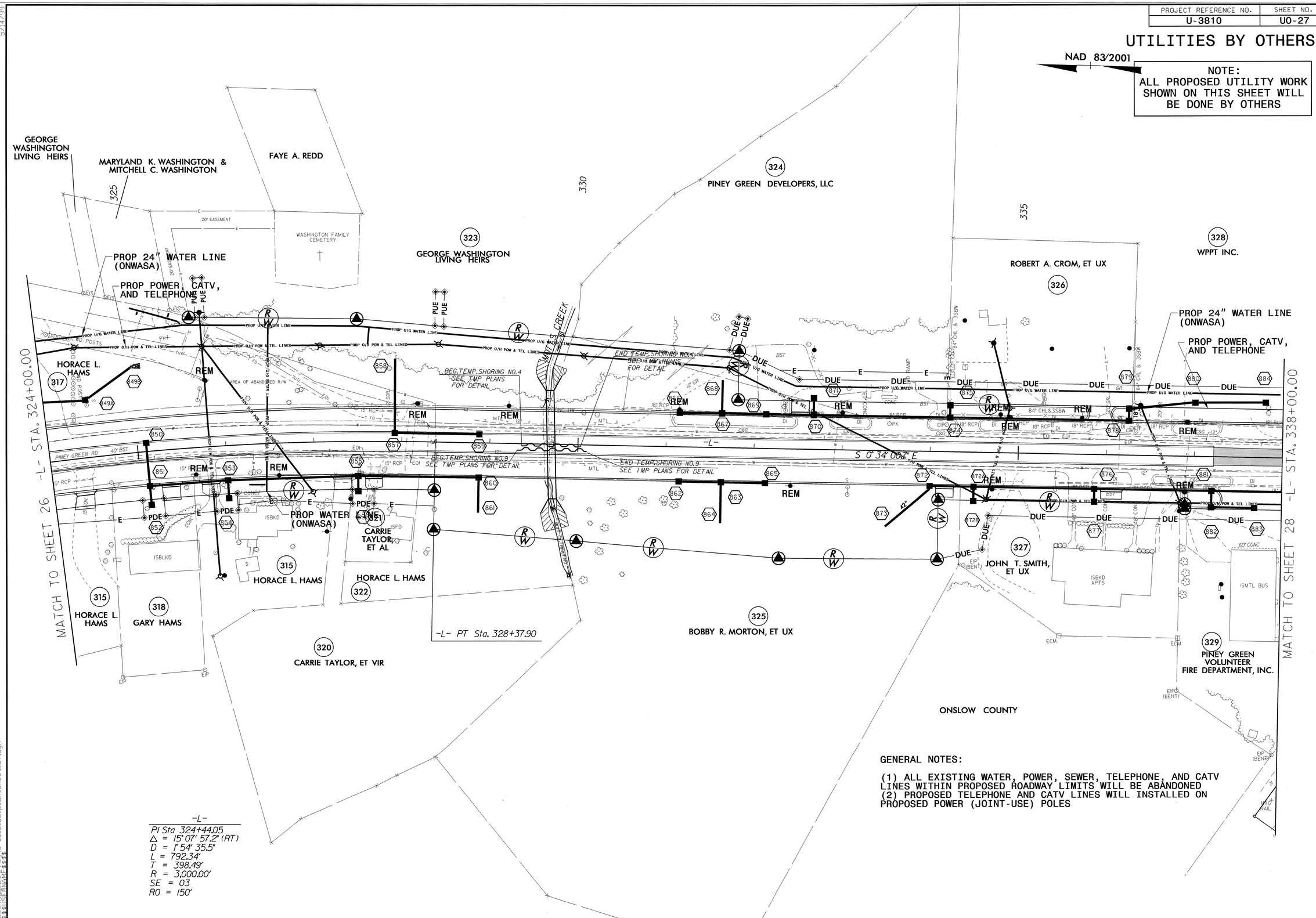
05-JUN-2012 12:25
\Utilities\Rdy_Utl\Proj\U-3810_uo_plan_sheet_26.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UO-27

UTILITIES BY OTHERS

NAD 83/2001

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



GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES

-L-
PI Sta 324+44.05
Δ = 15° 07' 57.2" (RT)
D = 1° 54' 35.5"
L = 792.34'
T = 398.49'
R = 3,000.00'
SE = 03
RO = 150'

5/14/99

05-JUN-2012 12:24
Utilities\Rdy_Utl_Proj\U-3810_uo_plan_sheet_27.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	U0-28

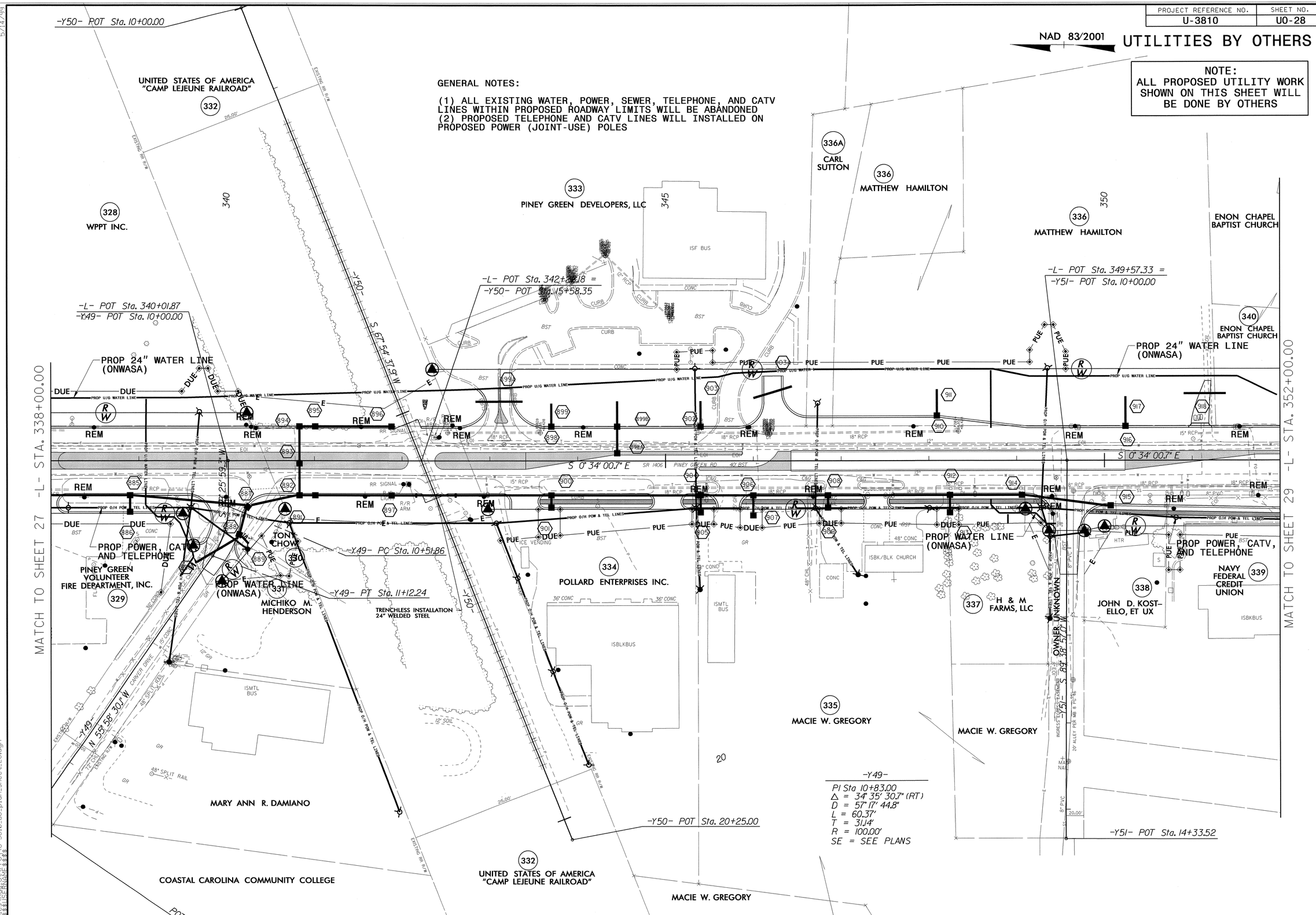
UTILITIES BY OTHERS

NAD 83/2001

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

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES



5/14/99

05-JUN-2012 14:32
Utilities\Rdy_Utl\Proj\U-3810_uo_plan_sheet_28.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-3810	UO-29

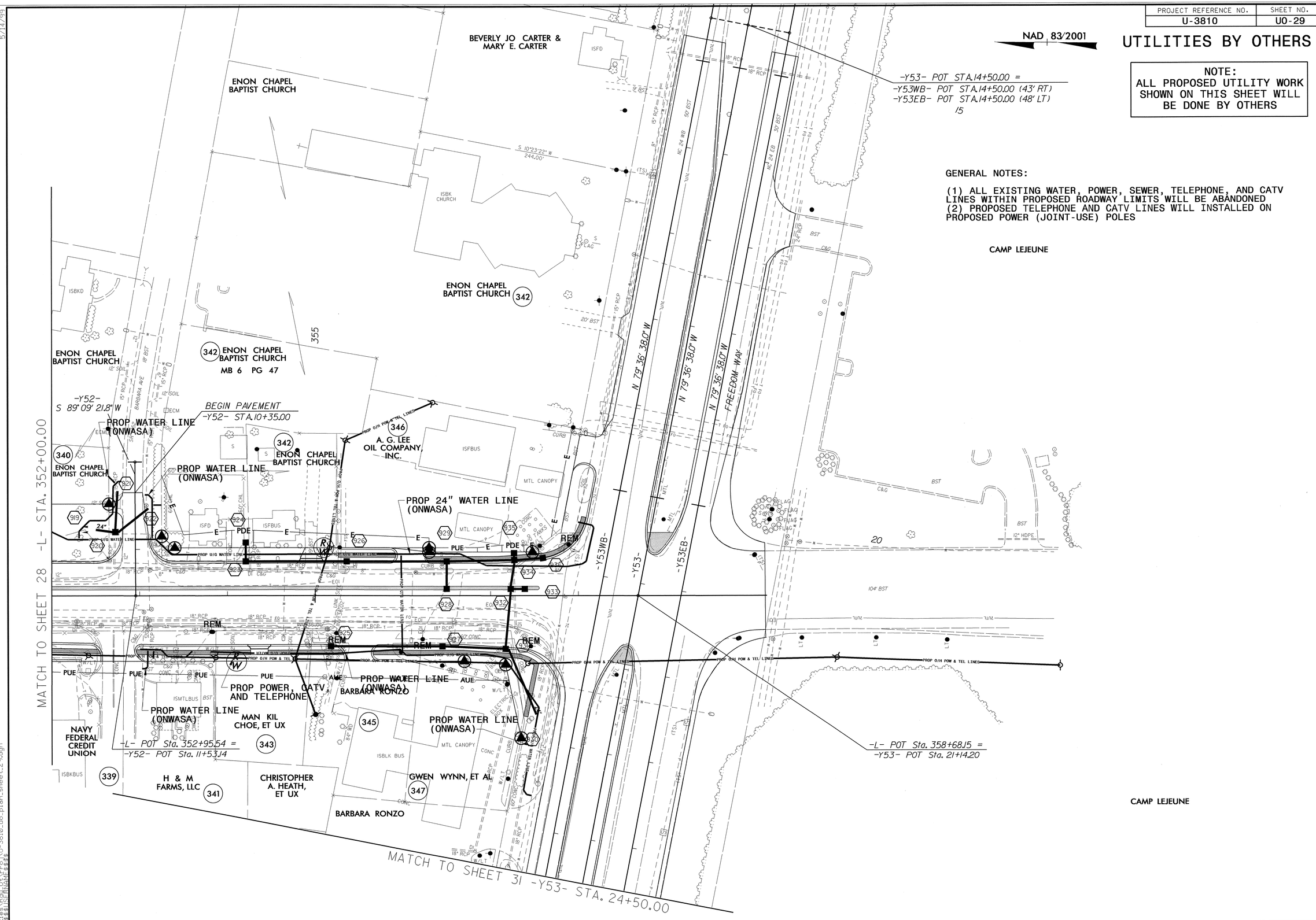
UTILITIES BY OTHERS

NAD 83/2001

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

GENERAL NOTES:

(1) ALL EXISTING WATER, POWER, SEWER, TELEPHONE, AND CATV LINES WITHIN PROPOSED ROADWAY LIMITS WILL BE ABANDONED
(2) PROPOSED TELEPHONE AND CATV LINES WILL INSTALLED ON PROPOSED POWER (JOINT-USE) POLES



5/14/99

06-AUG-2012 11:43
Utilities\Rdu_Ut\Proj\U-3810_uo_plan_sheet_29.dgn
$$$$USERNAME$$$$