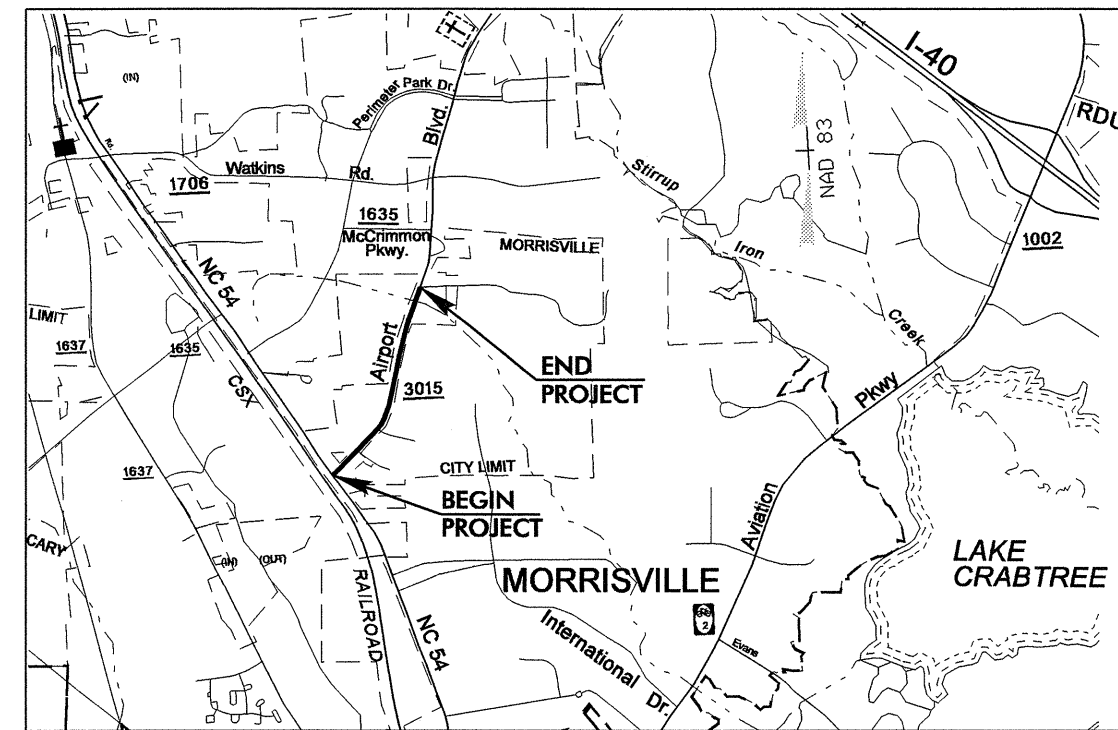


**TIP: U-3344A**

**CONTRACT NO.: C201144**



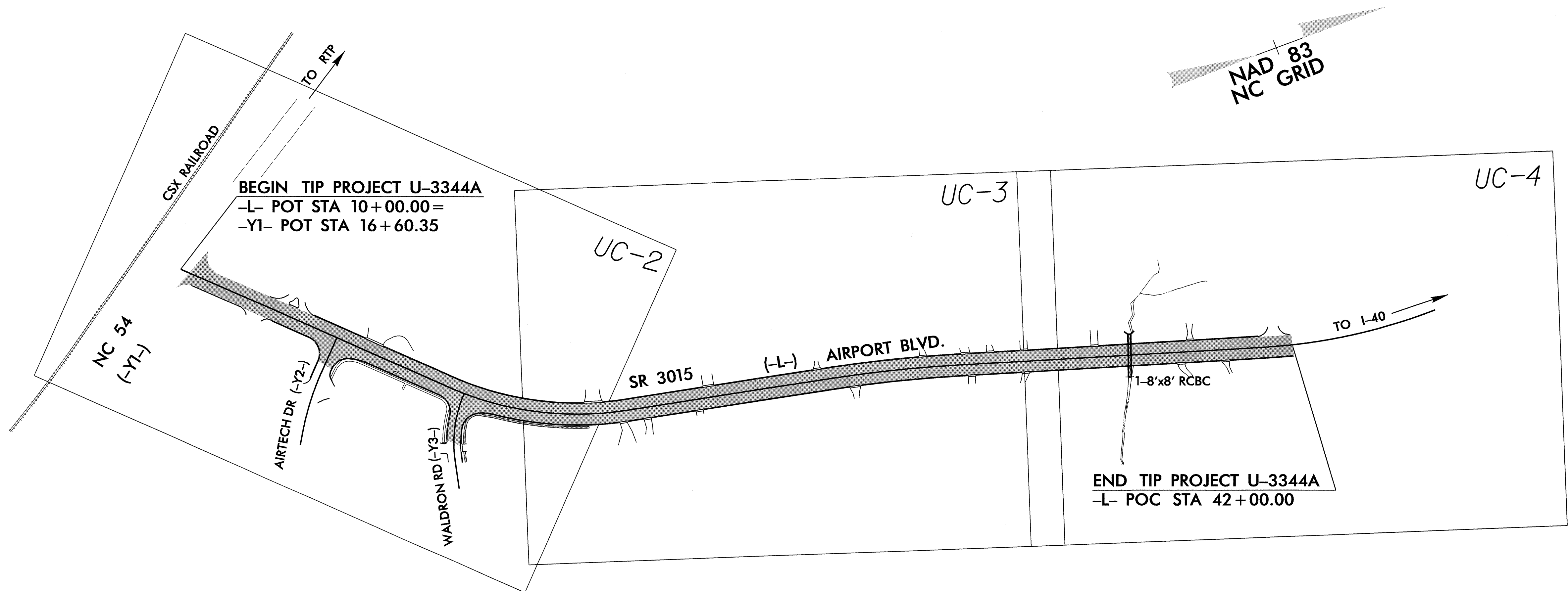
VICINITY MAP

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UTILITY CONSTRUCTION PLANS  
WAKE COUNTY**

T.I.P. NO.	SHEET NO.
U-3344A	UC-1

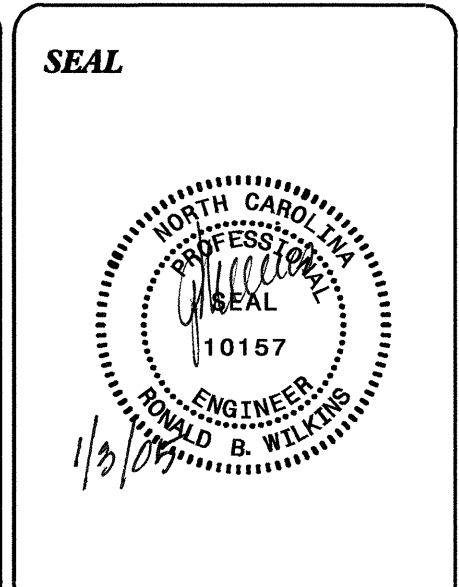
**LOCATION: MORRISVILLE - SR 3015 (AIRPORT BLVD.)  
FROM NC 54 TO McCRIMMON PARKWAY**



INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2 THRU UC-4	UTILITY CONSTRUCTION PLAN SHEETS
UC-5	DETAILS SHEET

**WATER AND SEWER OWNERS ON PROJECT**

(1) WATER - TOWN OF MORRISVILLE  
(2) SANITARY SEWER - TOWN OF MORRISVILLE



PREPARED IN THE OFFICE OF:  
**DIVISION OF HIGHWAYS  
DESIGN SERVICES  
UTILITY SECTION**

1591 MAIL SERVICES CENTER  
RALEIGH NC 27699-1591  
PHONE (919) 250-4128  
FAX (919) 250-4119

**Roger Worthington, P.E.** UTILITIES SECTION ENGINEER  
**R. B. WILKINS, P.E.** UTILITIES SQUAD LEADER PROJECT ENGINEER  
**MICHAEL R. BRIGHT** UTILITIES PROJECT DESIGNER

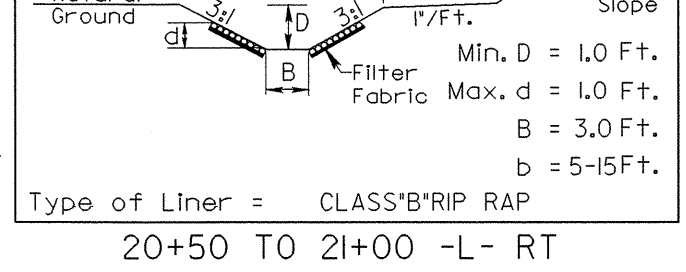
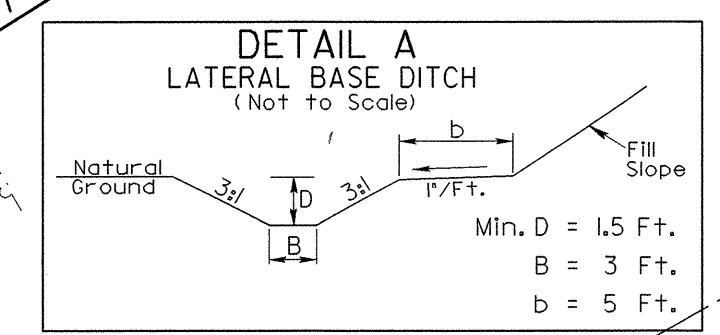
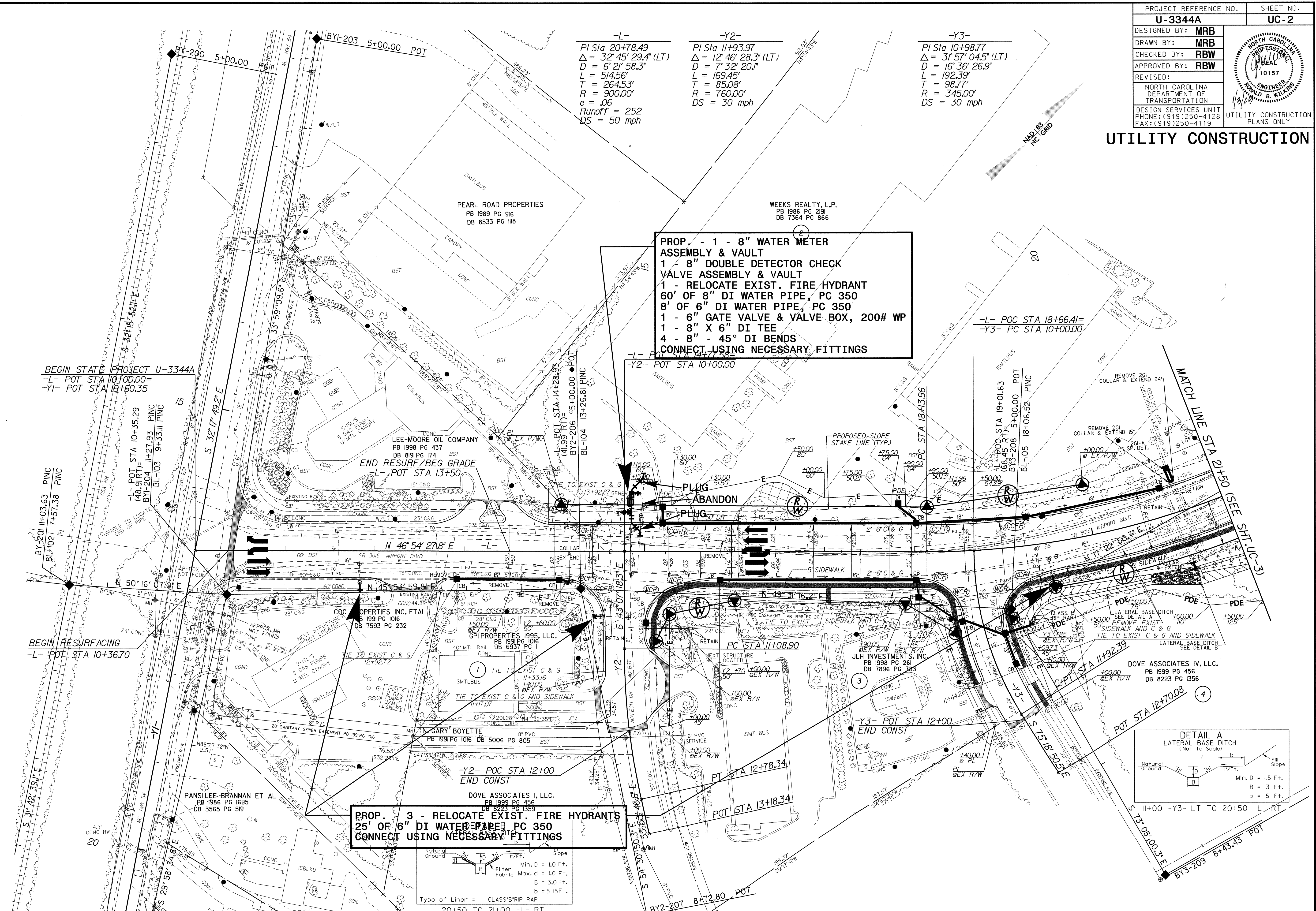


# UTILITY CONSTRUCTION

-L-	-Y2-	-Y3-
PI Sta 20+78.49 Δ = 32° 45' 29.4" (LT) D = 6' 21' 58.3" L = 514.56' T = 264.53' R = 900.00' e = .06 Runoff = 252 DS = 50 mph	PI Sta 11+93.97 Δ = 12° 46' 28.3" (LT) D = 7' 32' 20.1" L = 169.45' T = 85.08' R = 760.00' DS = 30 mph	PI Sta 10+98.77 Δ = 31° 57' 04.5" (LT) D = 16' 36' 26.9" L = 192.39' T = 98.77' R = 345.00' DS = 30 mph

**PROP. - 1 - 8" WATER METER ASSEMBLY & VAULT**  
**1 - 8" DOUBLE DETECTOR CHECK VALVE ASSEMBLY & VAULT**  
**1 - RELOCATE EXIST. FIRE HYDRANT**  
**60' OF 8" DI WATER PIPE, PC 350**  
**8' OF 6" DI WATER PIPE, PC 350**  
**1 - 6" GATE VALVE & VALVE BOX, 200# WP**  
**1 - 8" X 6" DI TEE**  
**4 - 8" - 45° DI BENDS**  
**CONNECT USING NECESSARY FITTINGS**

**PROP. - 3 - RELOCATE EXIST. FIRE HYDRANTS**  
**25' OF 6" DI WATER PIPE, PC 350**  
**CONNECT USING NECESSARY FITTINGS**



NOTE: ALL DRIVEWAYS ARE 24' UNLESS OTHERWISE NOTED

SEE SHEET 7 FOR -L- PROFILE  
 SEE SHEET 8 FOR -Y2- & -Y3- PROFILE

8/17/99  
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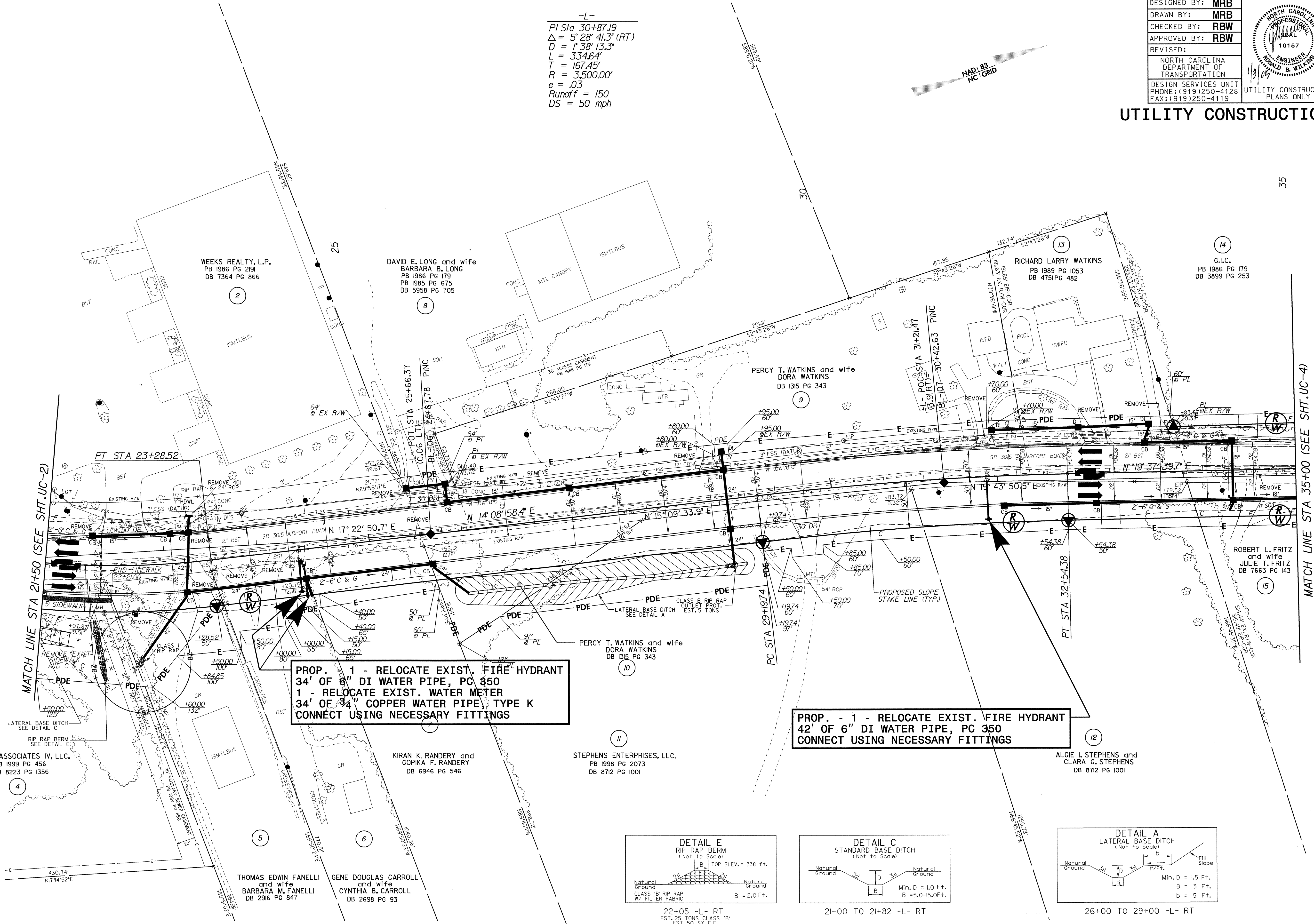
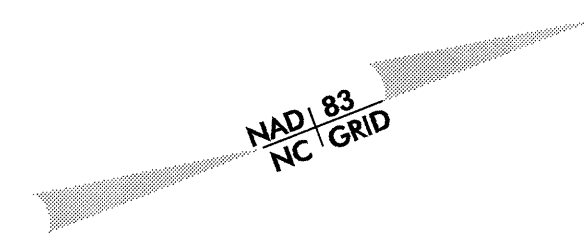
8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
U-3344A	UC-3
DESIGNED BY: MRB	
DRAWN BY: MRB	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DESIGN SERVICES UNIT PHONE: (919) 250-4128 FAX: (919) 250-4119	
UTILITY CONSTRUCTION PLANS ONLY	

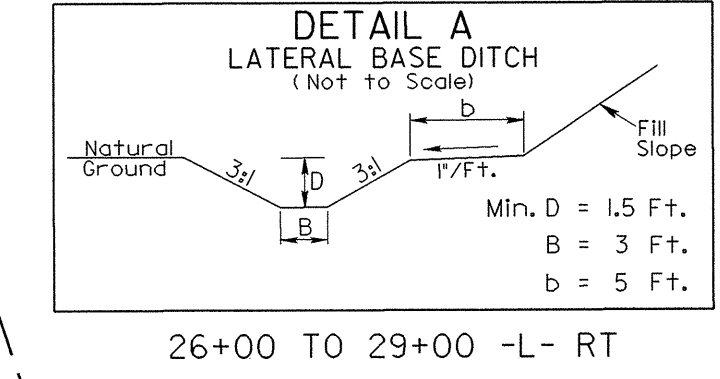
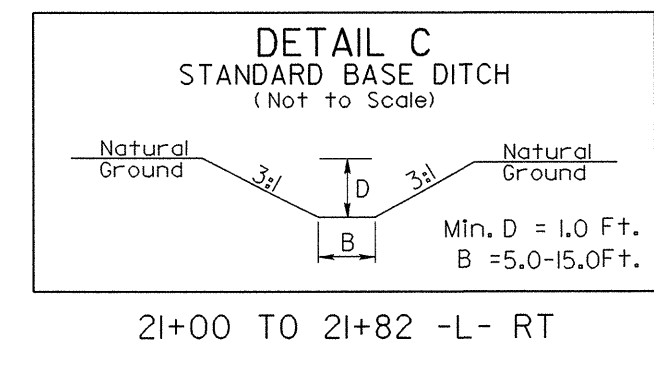
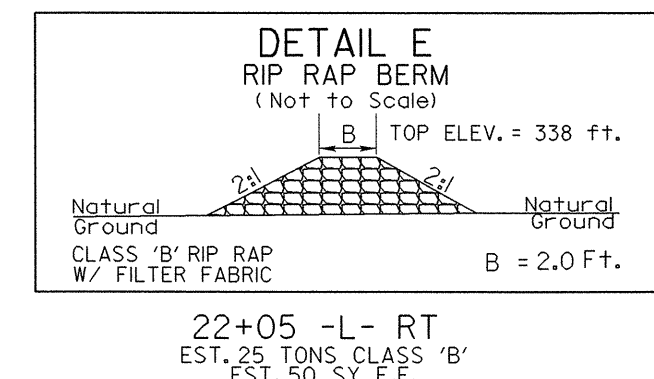
# UTILITY CONSTRUCTION

-L-  
 PI Sta 30+87.19  
 $\Delta = 5' 28" 41.3" (RT)$   
 $D = 1' 38" 13.3"$   
 $L = 334.64'$   
 $T = 167.45'$   
 $R = 3,500.00'$   
 $e = .03$   
 Runoff = 150  
 DS = 50 mph



**PROP. - 1 - RELOCATE EXIST. FIRE HYDRANT  
 34' OF 6" DI WATER PIPE, PC 350  
 1 - RELOCATE EXIST. WATER METER  
 34' OF 3/4" COPPER WATER PIPE, TYPE K  
 CONNECT USING NECESSARY FITTINGS**

**PROP. - 1 - RELOCATE EXIST. FIRE HYDRANT  
 42' OF 6" DI WATER PIPE, PC 350  
 CONNECT USING NECESSARY FITTINGS**



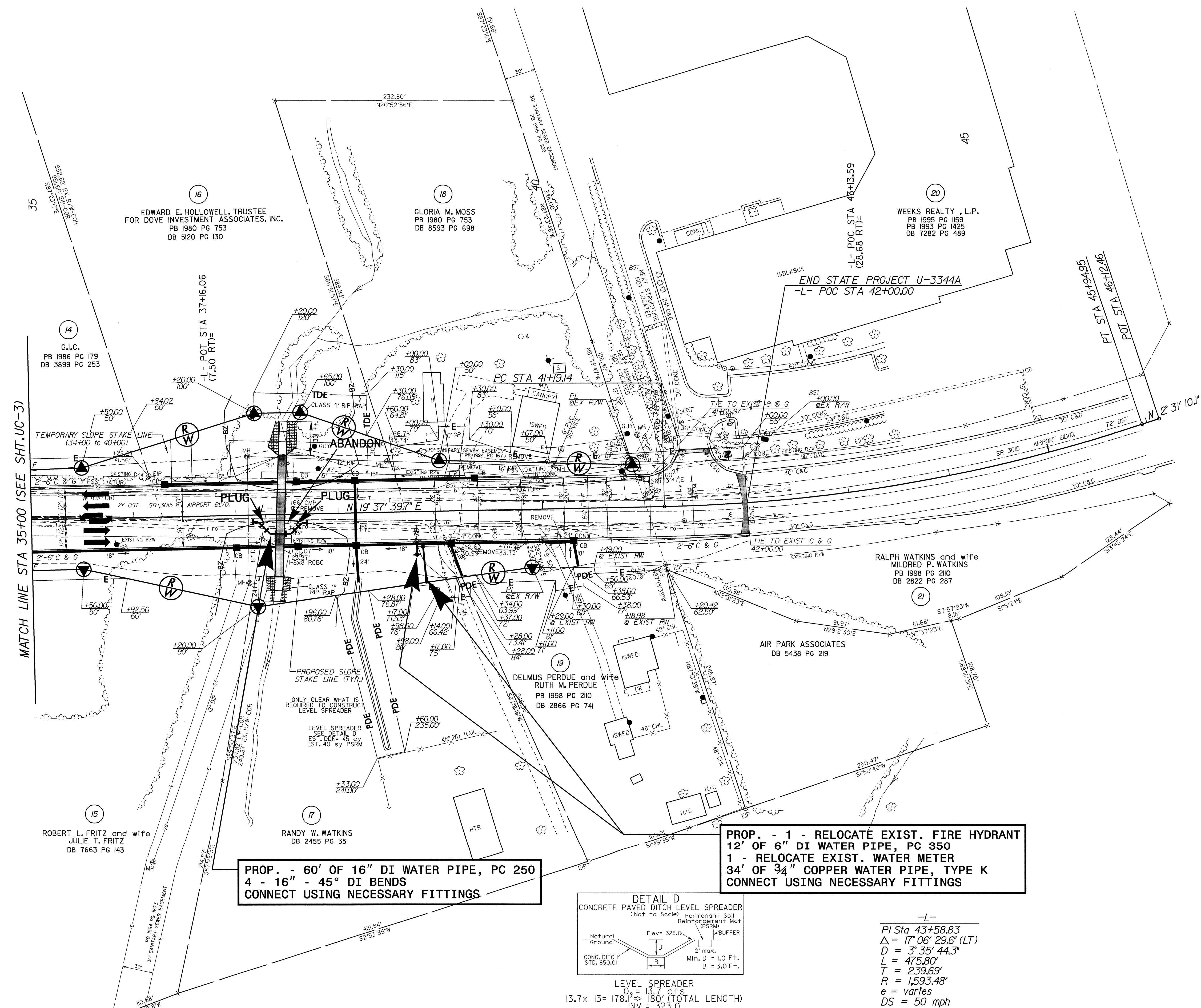
NOTE: ALL DRIVEWAYS ARE 24' UNLESS OTHERWISE NOTED SEE SHEET 7 FOR -L- PROFILE

8/17/99

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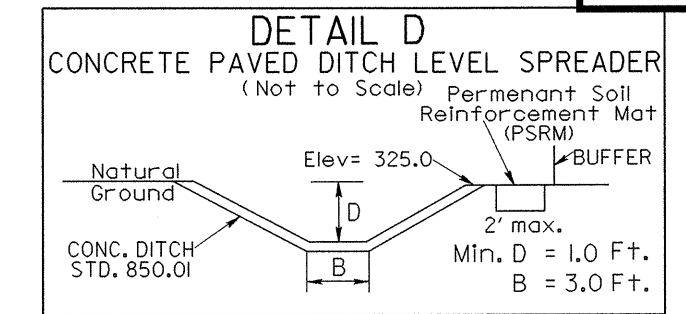
PROJECT REFERENCE NO.	SHEET NO.
<b>U-3344A</b>	<b>UC-4</b>
DESIGNED BY: <b>MRB</b>	
DRAWN BY: <b>MRB</b>	
CHECKED BY: <b>RBW</b>	
APPROVED BY: <b>RBW</b>	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
DESIGN SERVICES UNIT PHONE: (919) 250-4128 FAX: (919) 250-4119	
UTILITY CONSTRUCTION PLANS ONLY	

# UTILITY CONSTRUCTION



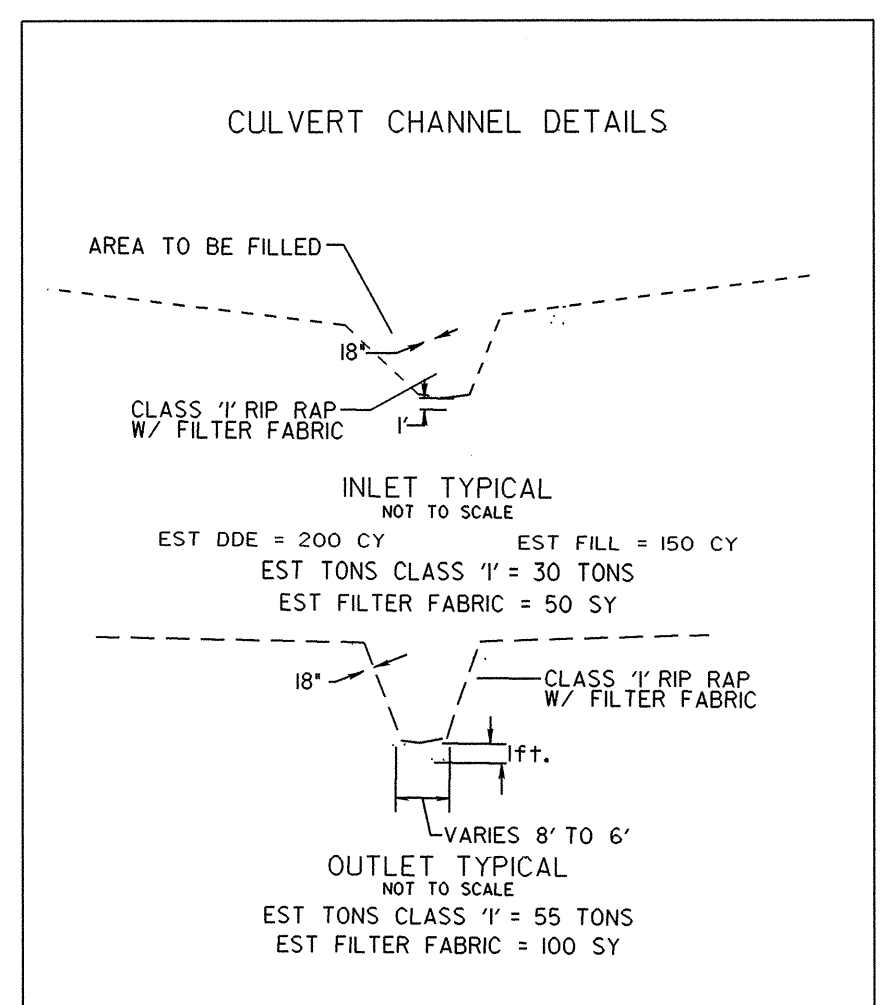
**PROP. - 60' OF 16" DI WATER PIPE, PC 250**  
**4 - 16" - 45° DI BENDS**  
**CONNECT USING NECESSARY FITTINGS**

**PROP. - 1 - RELOCATE EXIST. FIRE HYDRANT**  
**12' OF 6" DI WATER PIPE, PC 350**  
**1 - RELOCATE EXIST. WATER METER**  
**34' OF 3/4" COPPER WATER PIPE, TYPE K**  
**CONNECT USING NECESSARY FITTINGS**



**LEVEL SPREADER**  
 $C_s = 13.7$  C.F.S.  
 $13.7 \times 13 = 178.1$  (TOTAL LENGTH)  
 INV. = 323.0

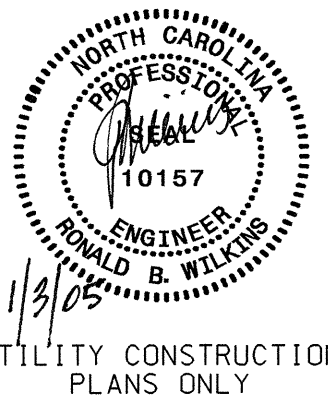
**-L-**  
 PI Sta 43+58.83  
 $\Delta = 17^\circ 06' 29.6"$  (LT)  
 $D = 3^\circ 35' 44.3"$   
 $L = 475.80'$   
 $T = 239.69'$   
 $R = 1,593.48'$   
 $e = \text{varies}$   
 $DS = 50 \text{ mph}$



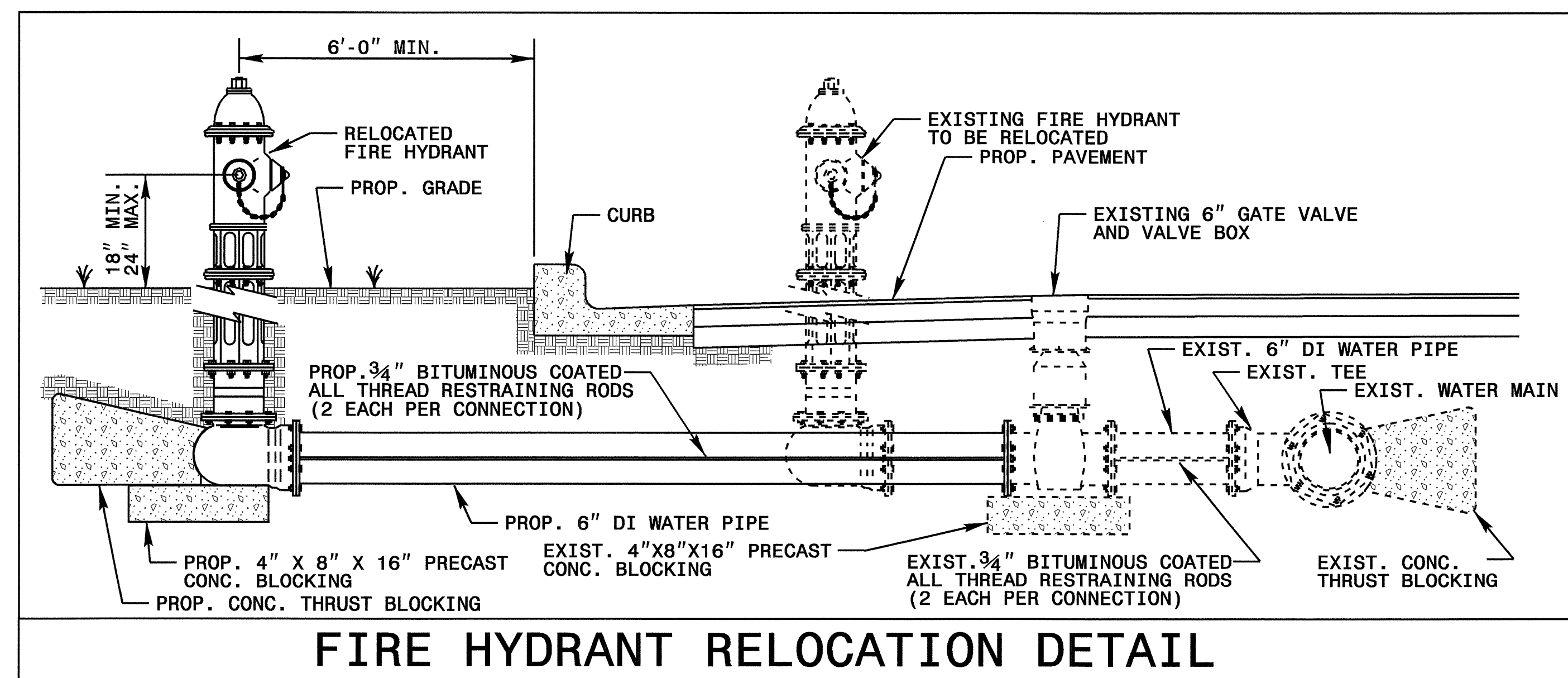
NOTE: ALL DRIVEWAYS ARE 24' UNLESS OTHERWISE NOTED

SEE SHEET 8 FOR -L- PROFILE

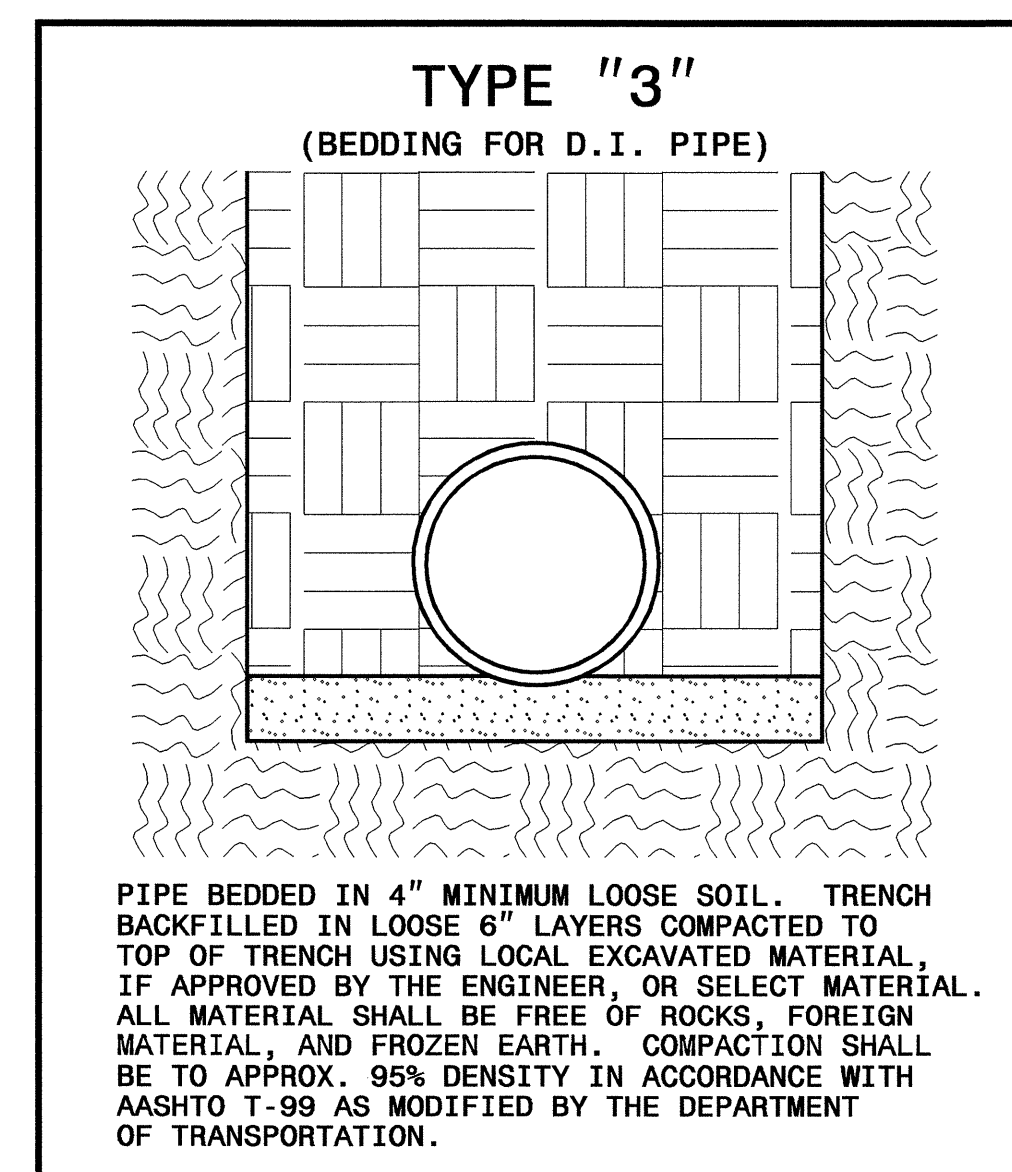




UTILITY CONSTRUCTION



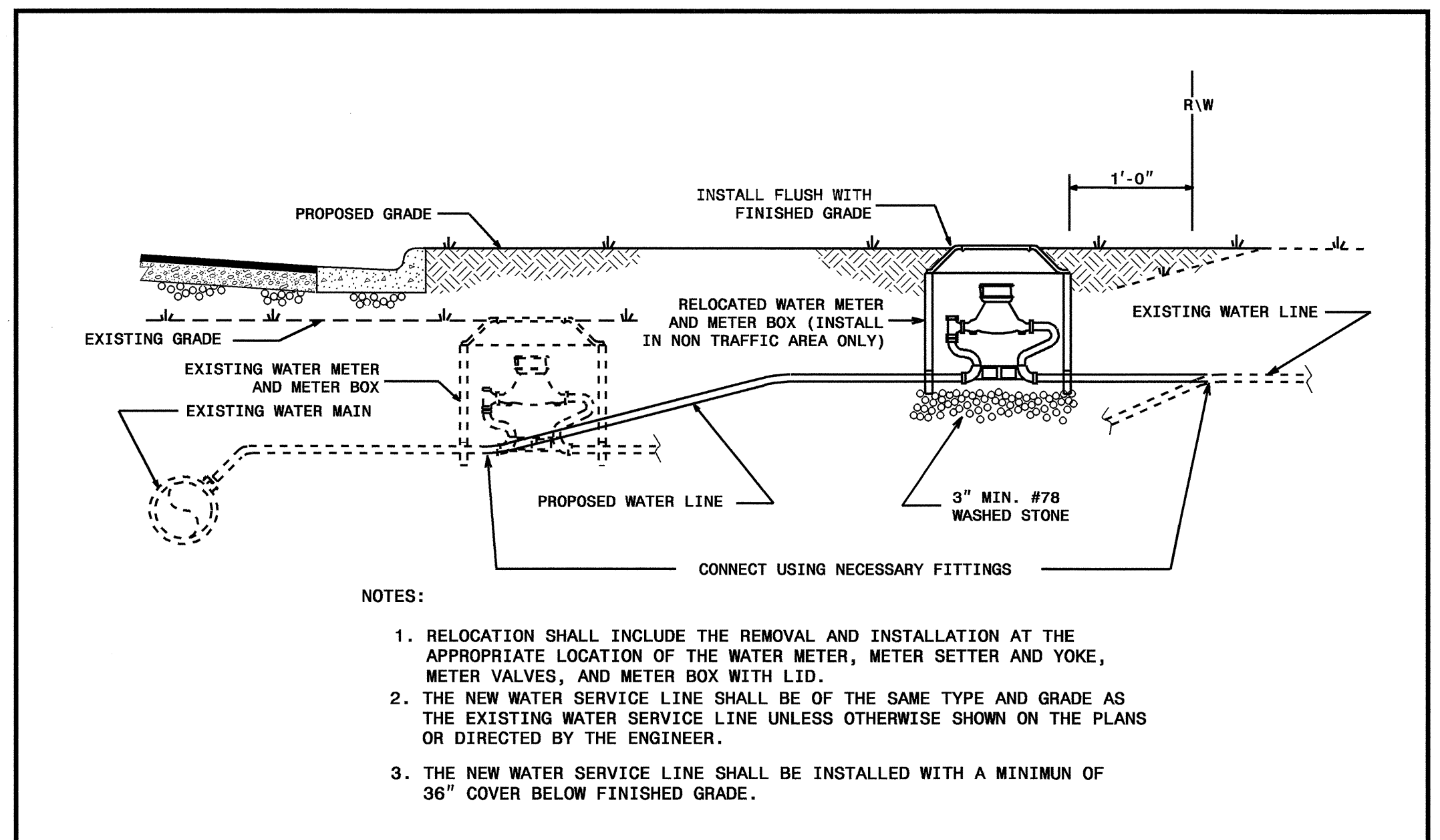
FIRE HYDRANT RELOCATION DETAIL



PIPE BEDDED IN 4" MINIMUM LOOSE SOIL. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL, IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROX. 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

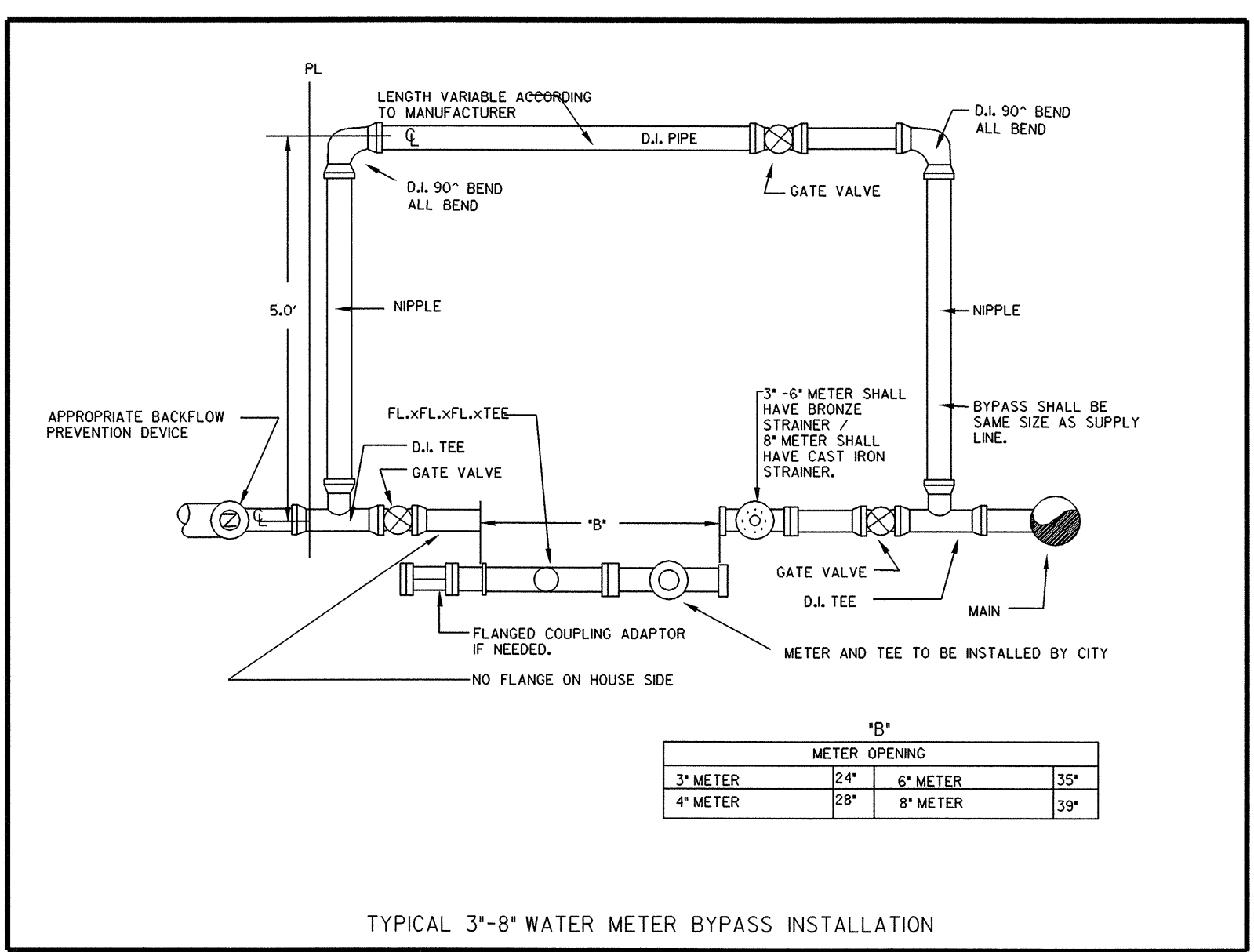
MAXIMUM TRENCH WIDTH AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)	NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		

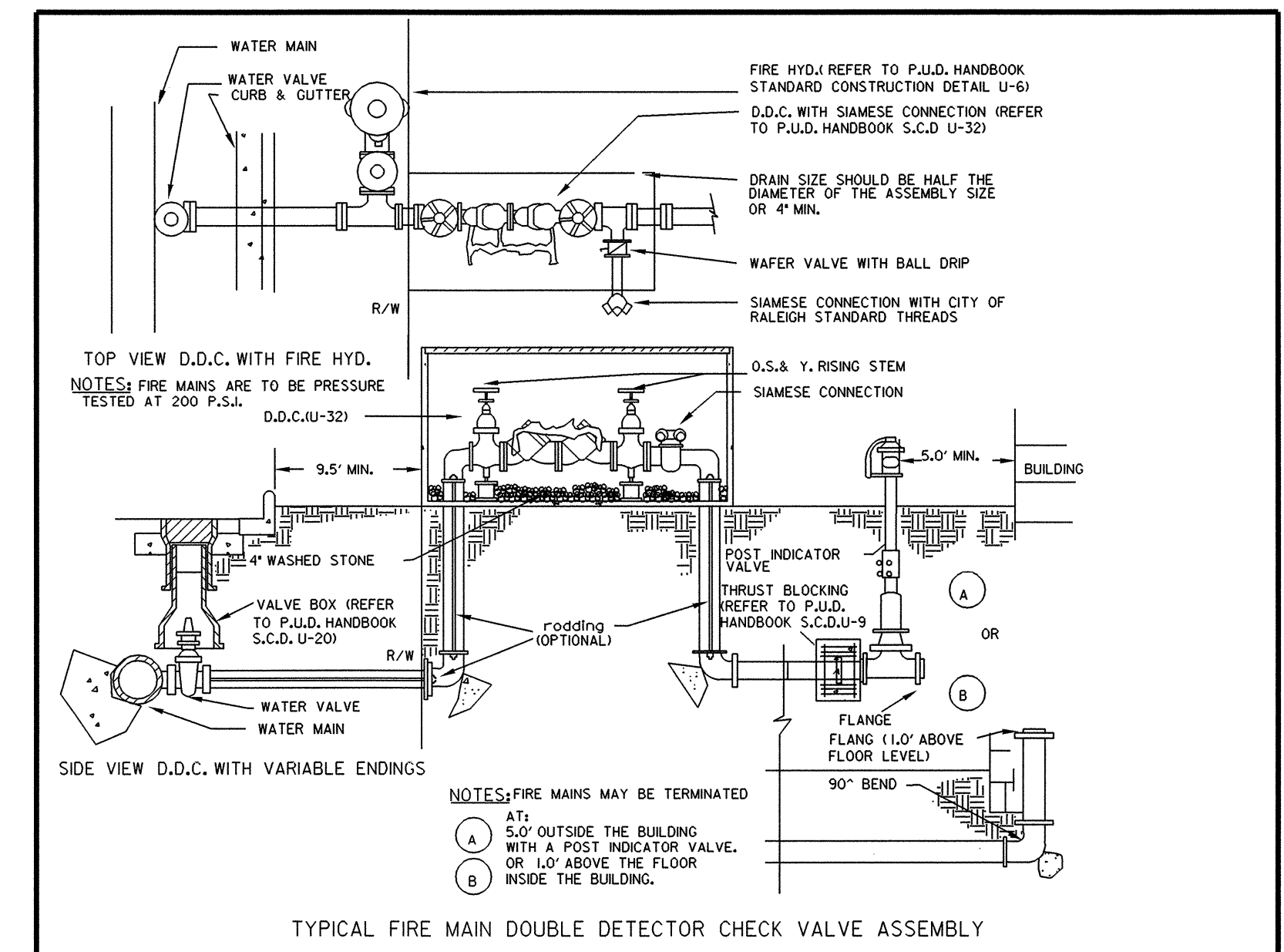


- NOTES:
1. RELOCATION SHALL INCLUDE THE REMOVAL AND INSTALLATION AT THE APPROPRIATE LOCATION OF THE WATER METER, METER SETTER AND YOKE, METER VALVES, AND METER BOX WITH LID.
  2. THE NEW WATER SERVICE LINE SHALL BE OF THE SAME TYPE AND GRADE AS THE EXISTING WATER SERVICE LINE UNLESS OTHERWISE SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.
  3. THE NEW WATER SERVICE LINE SHALL BE INSTALLED WITH A MINIMUM OF 36" COVER BELOW FINISHED GRADE.

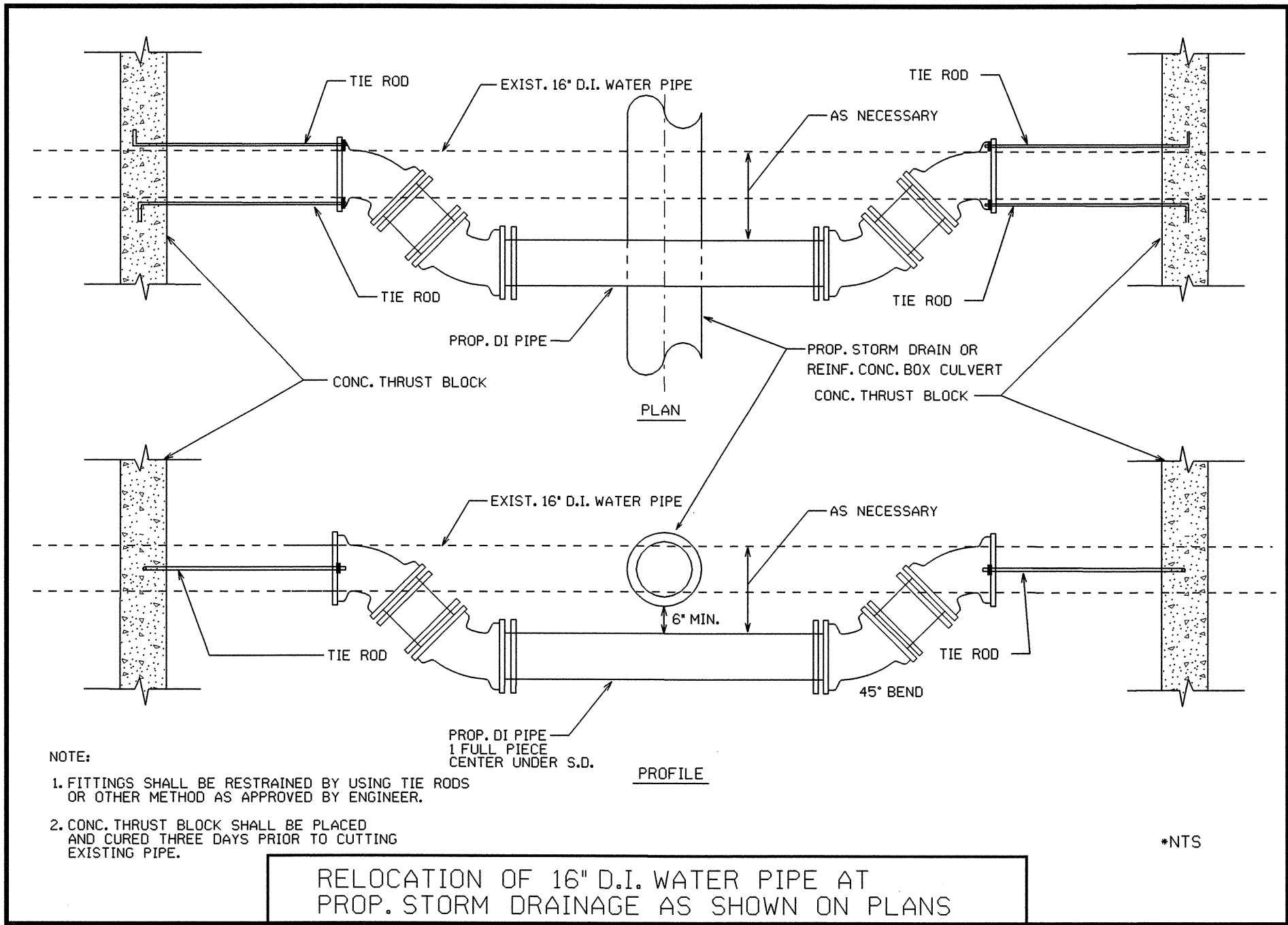
WATER METER RELOCATION DETAIL



TYPICAL 3"-8" WATER METER BYPASS INSTALLATION



TYPICAL FIRE MAIN DOUBLE DETECTOR CHECK VALVE ASSEMBLY



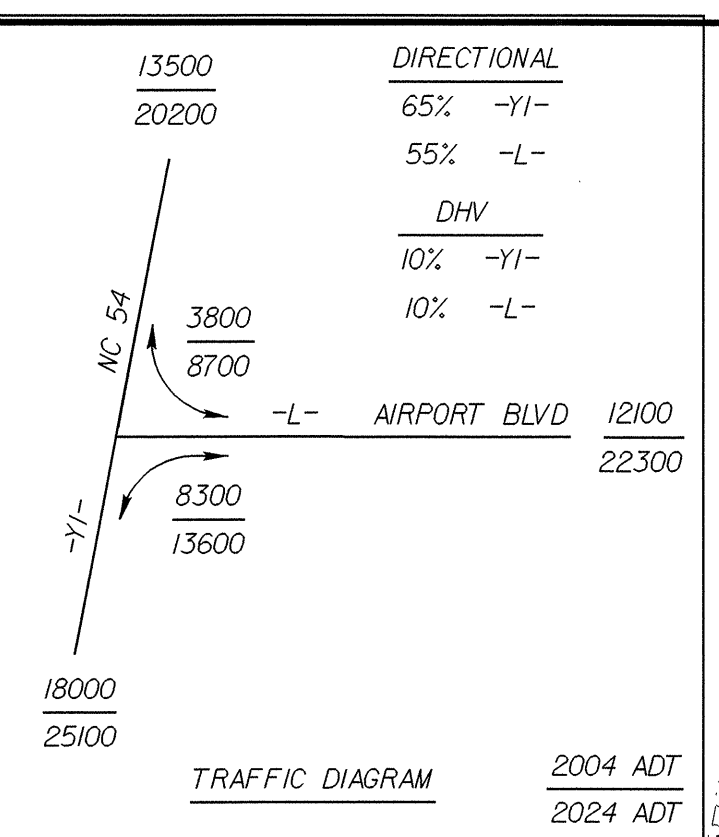
- NOTE:
1. FITTINGS SHALL BE RESTRAINED BY USING TIE RODS OR OTHER METHOD AS APPROVED BY ENGINEER.
  2. CONC. THRUST BLOCK SHALL BE PLACED AND CURED THREE DAYS PRIOR TO CUTTING EXISTING PIPE.

RELOCATION OF 16" D.I. WATER PIPE AT PROP. STORM DRAINAGE AS SHOWN ON PLANS

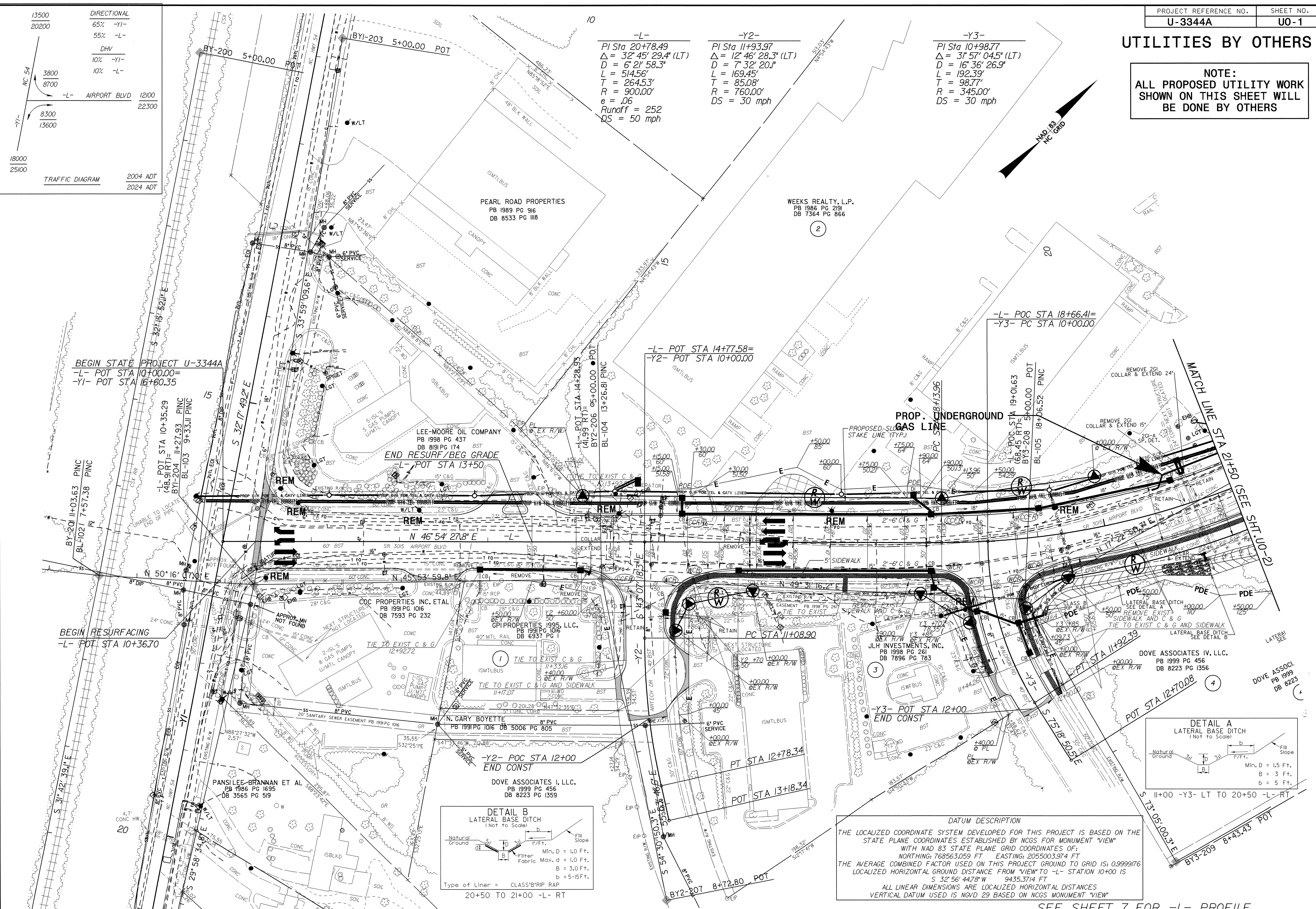


UTILITIES BY OTHERS

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



-L-	-Y2-	-Y3-
PI Sta 20+78.49	PI Sta 11+93.97	PI Sta 10+98.77
$\Delta = 32^\circ 45' 29.4" (LT)$	$\Delta = 12^\circ 46' 28.3" (LT)$	$\Delta = 31^\circ 57' 04.5" (LT)$
$D = 6' 21' 58.3"$	$D = 7' 32' 20.1"$	$D = 16' 36' 26.9"$
$L = 514.56'$	$L = 169.45'$	$L = 192.39'$
$T = 264.53'$	$T = 85.08'$	$T = 98.77'$
$R = 900.00'$	$R = 760.00'$	$R = 345.00'$
$e = .06$	$DS = 30 \text{ mph}$	$DS = 30 \text{ mph}$
Runoff = 252		
DS = 50 mph		



BEGIN STATE PROJECT U-3344A  
-L- POT STA 10+00.00=  
-Y1- POT STA 16+60.35

BEGIN RESURFACING  
-L- POT STA 10+36.70

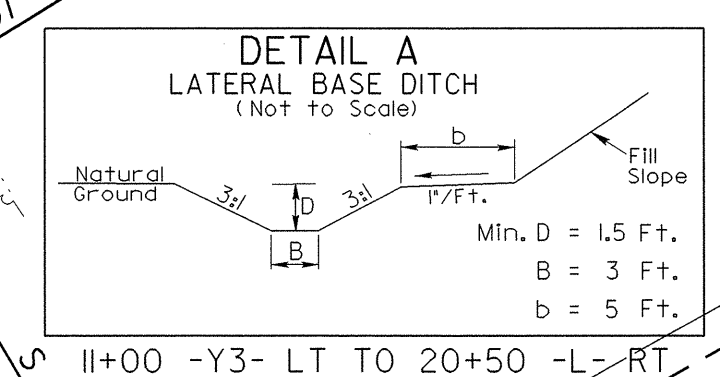
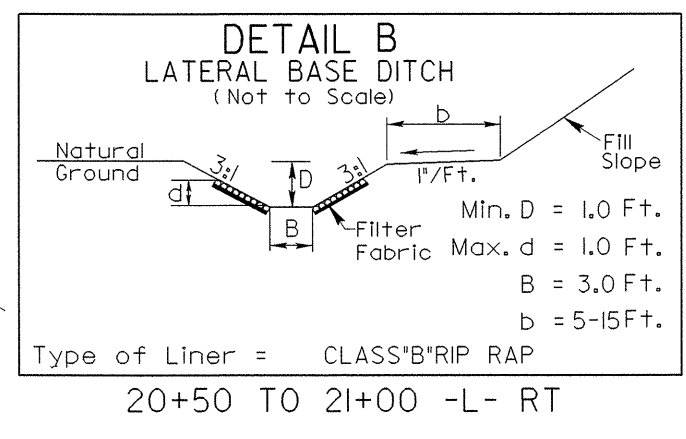
-L- POC STA 18+66.41=  
-Y3- PC STA 10+00.00

-L- POT STA 14+77.58=  
-Y2- POT STA 10+00.00

PROPOSED UNDERGROUND  
GAS LINE

END RESURF/BEG GRADE  
-L- POT STA 13+50

MATCH LINE STA 21+50  
SEE SHEET U0-2



DATUM DESCRIPTION  
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "VIEW" WITH NAD 83 STATE PLANE GRID COORDINATES OF:  
NORTHING: 768563.059 FT EASTING: 2055003.974 FT  
THE AVERAGE COMBINED FACTOR USED ON THIS PROJECT GROUND TO GRID IS: 0.99999176  
LOCALIZED HORIZONTAL GROUND DISTANCE FROM "VIEW" TO -L- STATION 10+00 IS  
S 32° 58' 44.78" W 9435.3714 FT  
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NGVD 29 BASED ON NCGS MONUMENT "VIEW"

NOTE: ALL DRIVEWAYS ARE 24' UNLESS OTHERWISE NOTED  
SEE SHEET 7 FOR -L- PROFILE  
SEE SHEET 8 FOR -Y2- & -Y3- PROFILE

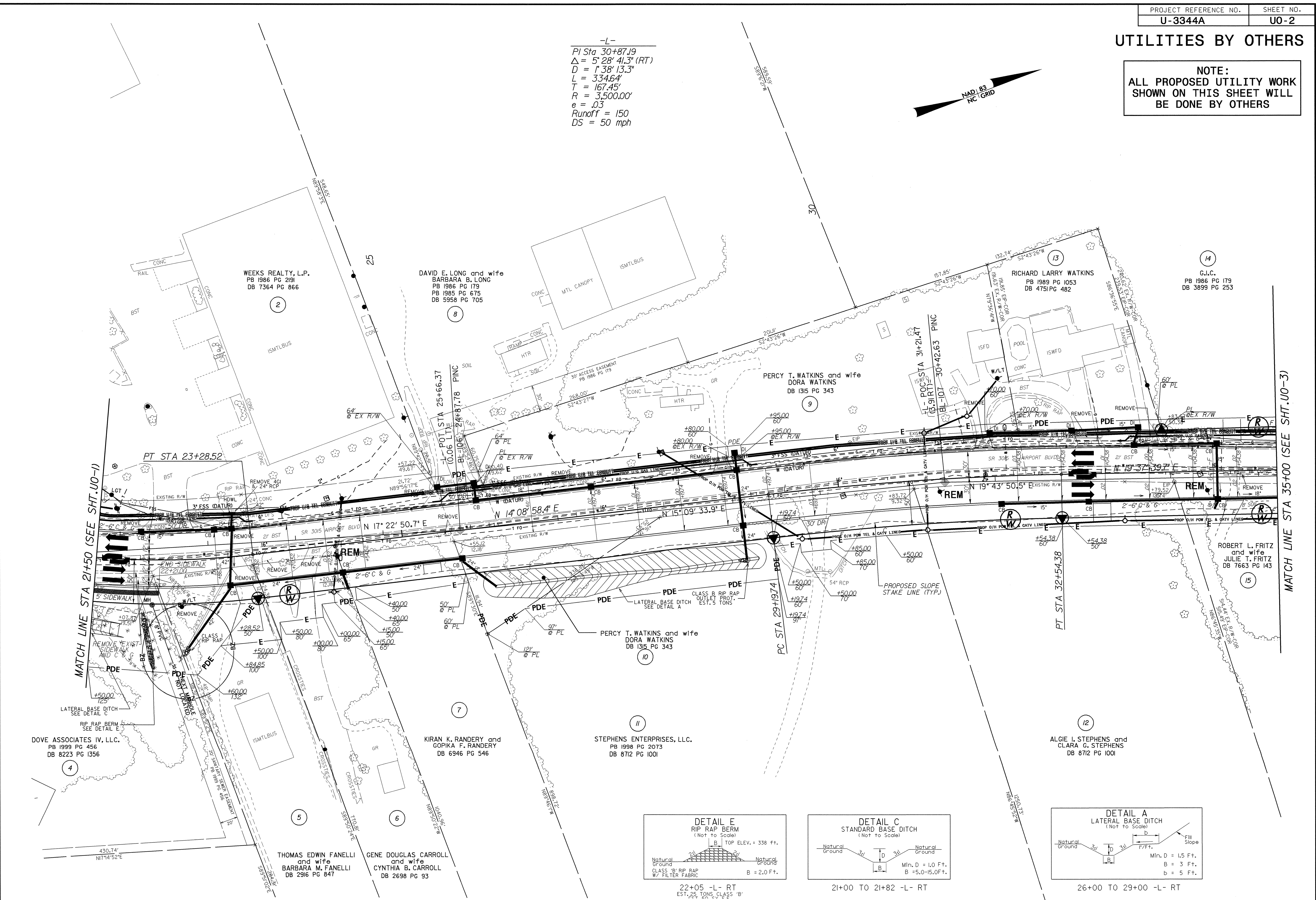
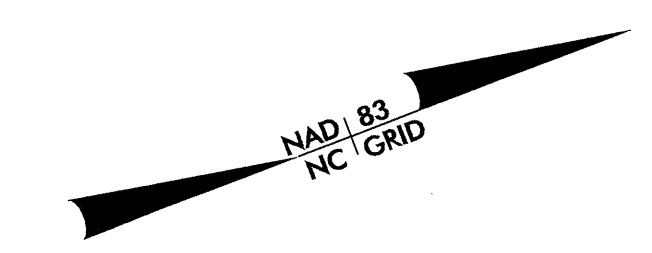
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p1222287



UTILITIES BY OTHERS

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

-L-  
PI Sta 30+87.19  
 $\Delta = 5' 28' 41.3''$  (RT)  
 $D = 1' 38' 13.3''$   
 $L = 334.64'$   
 $T = 167.45'$   
 $R = 3,500.00'$   
 $e = .03$   
Runoff = 150  
DS = 50 mph



MATCH LINE STA 2+50 (SEE SHT. U0-1)

MATCH LINE STA 35+00 (SEE SHT. U0-3)

DOVE ASSOCIATES IV, LLC.  
PB 1999 PG 456  
DB 8223 PG 1356

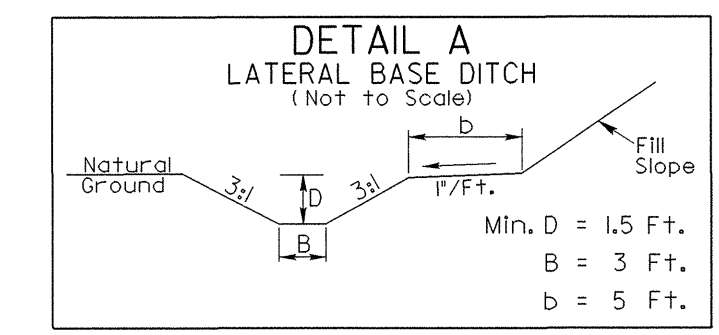
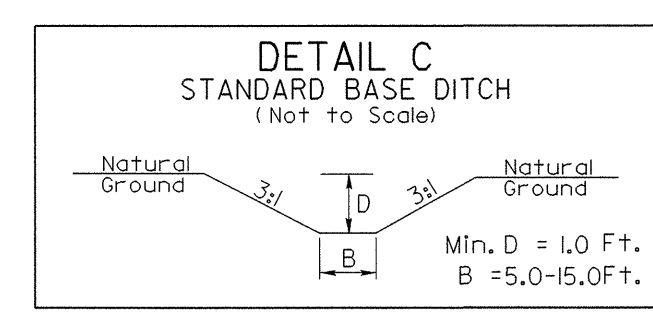
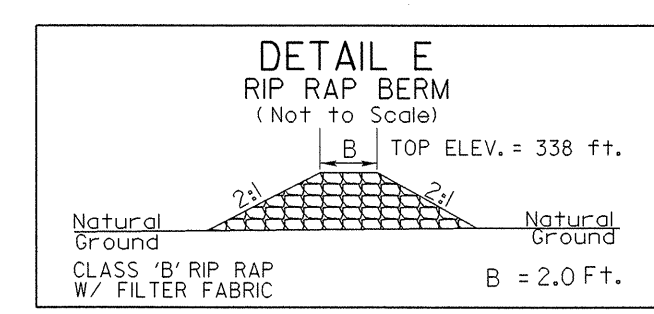
THOMAS EDWIN FANELLI and wife  
BARBARA M. FANELLI  
DB 2916 PG 847

GENE DOUGLAS CARROLL and wife  
CYNTHIA B. CARROLL  
DB 2698 PG 93

KIRAN K. RANDERY and  
GOPKA F. RANDERY  
DB 6946 PG 546

STEPHENS ENTERPRISES, LLC.  
PB 1998 PG 2073  
DB 8712 PG 1001

ALGIE I. STEPHENS and  
CLARA G. STEPHENS  
DB 8712 PG 1001



22+05 -L- RT  
EST. 25 TONS CLASS 'B'

21+00 TO 21+82 -L- RT

26+00 TO 29+00 -L- RT

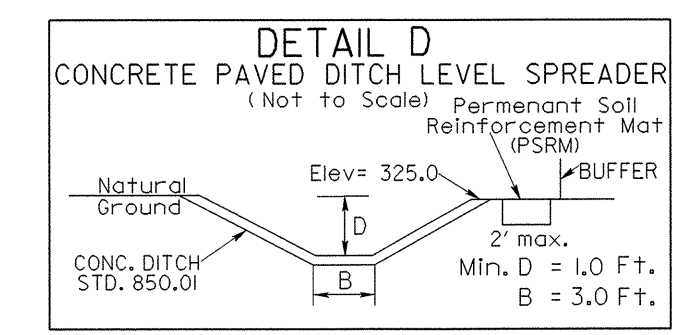
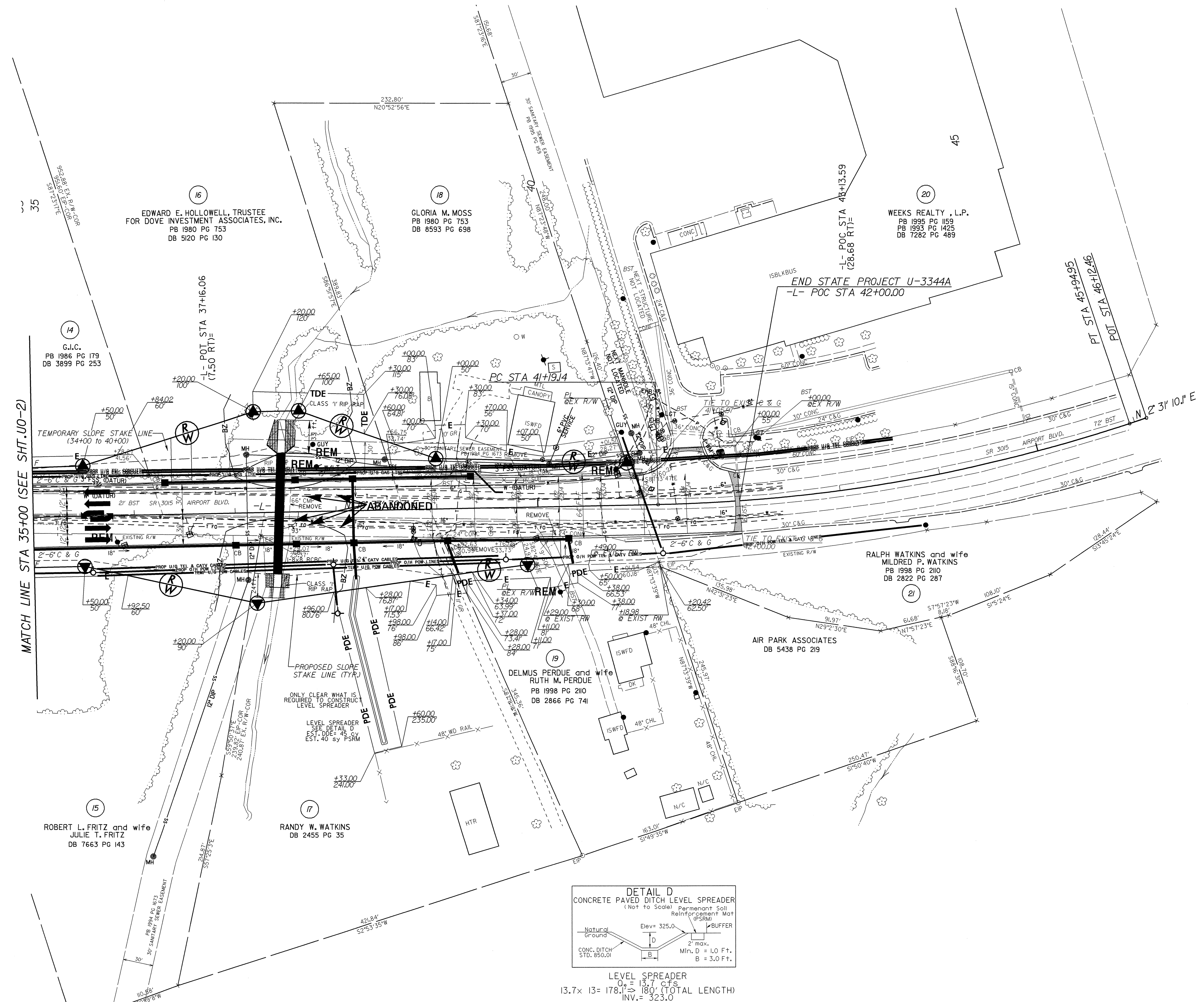
NOTE: ALL DRIVEWAYS ARE 24' UNLESS OTHERWISE NOTED

SEE SHEET 7 FOR -L- PROFILE

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 8/17/99  
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 8/17/99

UTILITIES BY OTHERS

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



LEVEL SPREADER  
0. = 13.7 cfs  
13.7 x 13 = 178.1' > 180' (TOTAL LENGTH)  
INV. = 323.0

NOTE: ALL DRIVEWAYS ARE 24' UNLESS OTHERWISE NOTED

SEE SHEET 8 FOR -L- PROFILE

8/17/99  
 27-MAR-2006 12:01  
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 abraham ET PS22287