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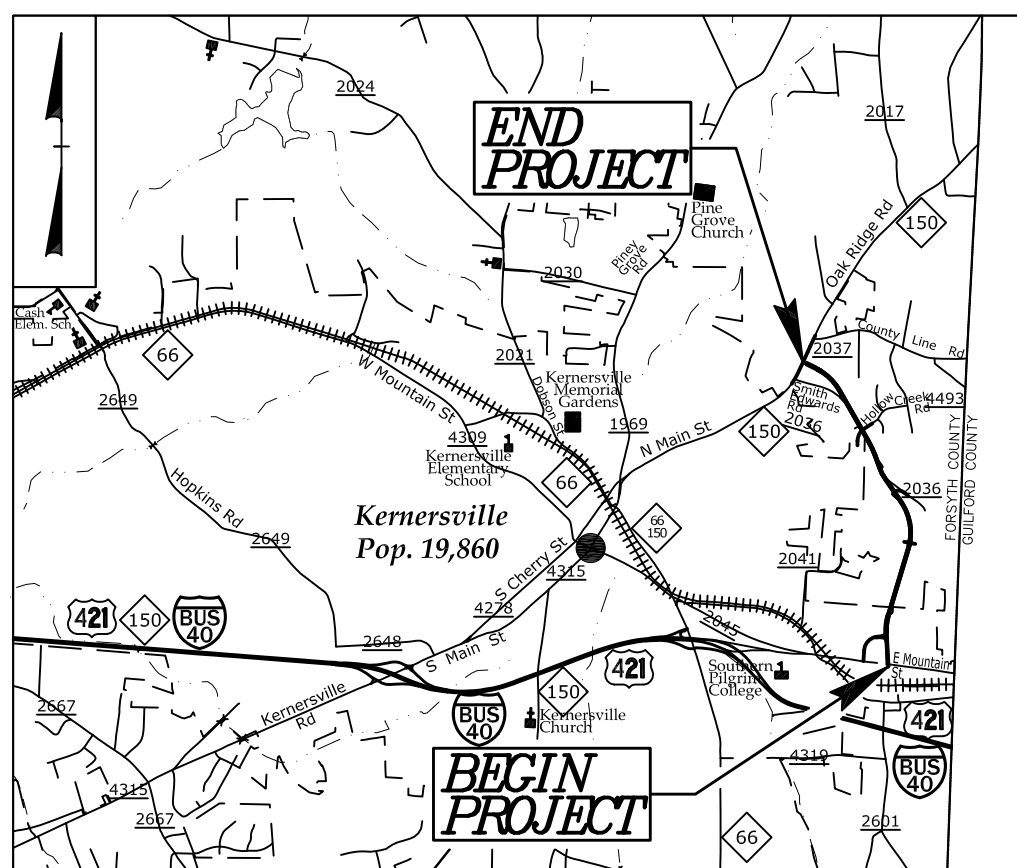
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09/08/09

TIP PROJECT: U-4734

T.I.P. NO.	SHEET NO.
U-4734	UC-1



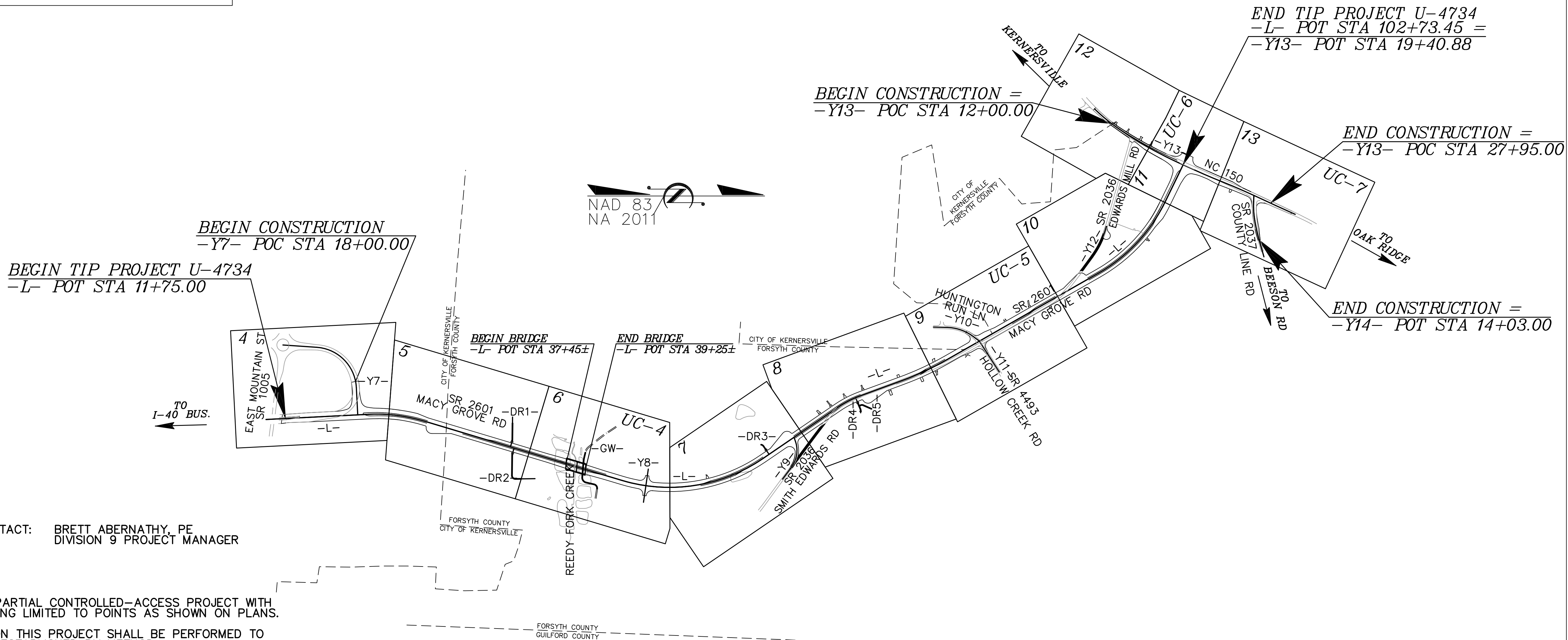
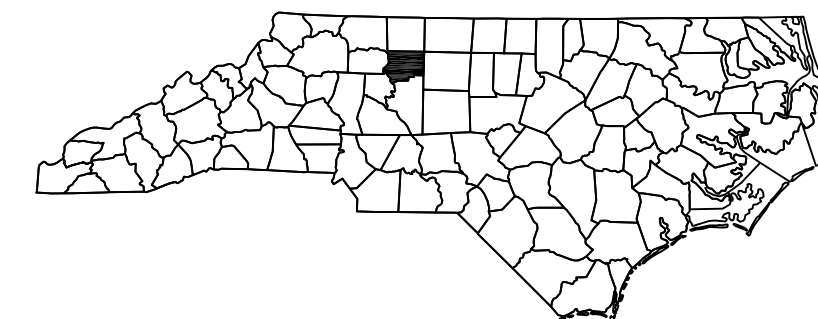
VICINITY MAP

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## UTILITY CONSTRUCTION PLANS FORSYTH COUNTY

LOCATION: KERNERSVILLE – SR 2601 (MACY GROVE RD) EXTENSION  
FROM NORTH OF SR 1005 (EAST MOUNTAIN ST) TO NC 150  
(NORTH MAIN ST)

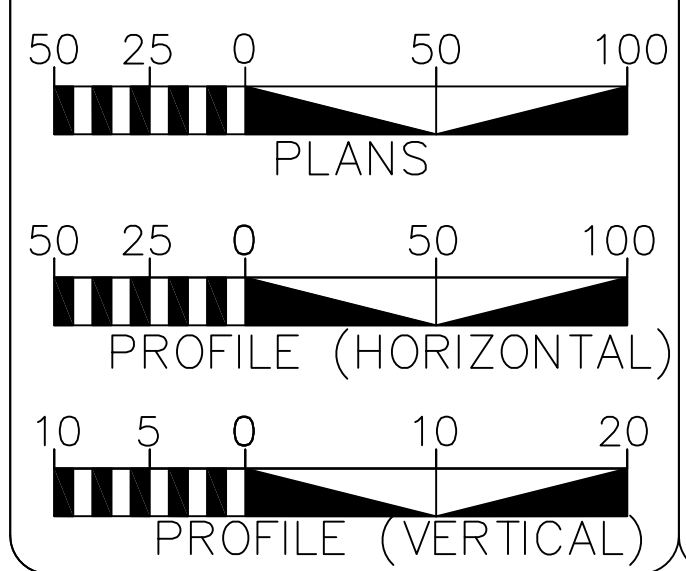
TYPE OF WORK: UTILITIES



NCDOT CONTACT: BRETT ABERNATHY, PE  
DIVISION 9 PROJECT MANAGER

NOTES:  
THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH  
ACCESS BEING LIMITED TO POINTS AS SHOWN ON PLANS.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO  
THE LIMITS ESTABLISHED BY METHOD \_\_\_\_\_

### GRAPHIC SCALES



### INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A THRU UC-3C	DETAILS
UC-4 THRU UC-7	UTILITY CONSTRUCTION SHEETS
UC-8 THRU UC-9	PROFILE SHEETS

### WATER AND SEWER OWNERS ON PROJECT

- (1) SEWER: WINSTON-SALEM/FORSYTH COUNTY UTILITIES COMMISSION
- (2) WATER: WINSTON-SALEM/FORSYTH COUNTY UTILITIES COMMISSION

SEAL

4/11/2018

SIGNATURE: \_\_\_\_\_ P.E.

PREPARED IN THE OFFICE OF:  
**ENGINEERING DIVISION  
CITY OF WINSTON-SALEM**

P.O. BOX 2511  
WINSTON-SALEM, NC 27102  
PHONE: (336) 727-8000  
FAX: (336) 727-2361



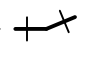
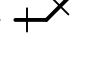










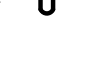


**ASHLEY S. WEBB, P.E.** PROJECT ENGINEER

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$DGN\$\$\$\$\$  
\$\$\$\$\$USERNAME\$\$\$\$\$



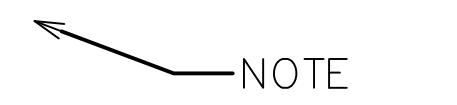
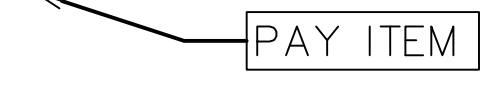
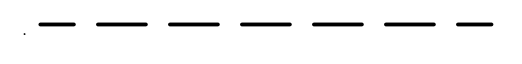
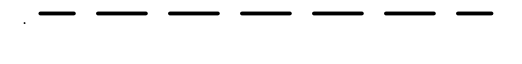
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11 1/4 Degree Bend	
22 1/2 Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Reducer	
Gate Valve	
Tapping Valve	
Blowoff Assembly	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	
Water Meter	
Relocate Water Meter	
Remove Water Meter	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Thrust Block	
Air Release Valve	
Plan Note	
Pay Item Note	
Encasement by Open Cut	
Encasement	

EXISTING UTILITIES SYMBOLS

*Underground Power Line	
*Underground Telephone Cable	
*Underground Telephone Conduit	
*Underground Fiber Optics Telephone Cable	
*Underground TV Cable	
*Underground Fiber Optics TV Cable	
*Underground Gas Pipeline	
Aboveground Gas Pipeline	
*Underground Water Line	
Aboveground Water Line	
*Underground Gravity Sanitary Sewer Line	
Aboveground Gravity Sanitary Sewer Line	
*Underground SS Forced Main Line	
Underground Unknown Utility Line	
SUE Test Hole	
Water Meter	
Water Valve	
Fire Hydrant	
Sanitary Sewer Cleanout	
Power Pole	
Telephone Pole	
Joint Use Pole	
Utility Pole	
Utility Pole with Base	
H-Frame Pole	
Power Transmission Line Tower	
Water Manhole	
Power Manhole	
Telephone Manhole	
Sanitary Sewer Manhole	
Hand Hole for Cable	
Power Transformer	
Telephone Pedestal	
CATV Pedestal	
Gas Valve	
Gas Meter	
Located Miscellaneous Utility Object	
Abandoned According to Utility Records	
End of Information	

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	

\*For Existing Utilities  
Utility Line Drawn from Record (Type as Shown)  
Designated Utility Line (Type as Shown)

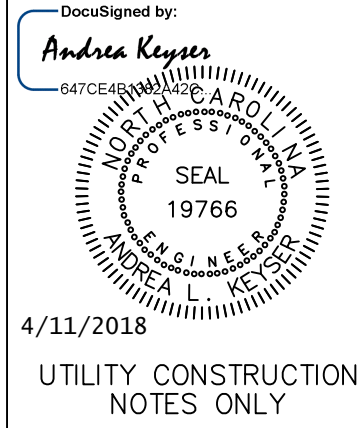
REVISIONS

8/17/99

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SYSTEM  
LUMIN  
SUSTAIN  
\$\$\$\$\$

REV: 2/1/2012

8/17/99



# UTILITY CONSTRUCTION

## GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018 OR THE PROJECT SPECIAL PROVISIONS UTILITY CONSTRUCTION.

2. THE EXISTING UTILITIES BELONG TO WINSTON-SALEM / FORSYTH COUNTY UTILITY COMMISSION.

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 WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. 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 RESOURCES, WATER QUALITY SECTION. 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 OPPORTUNITY 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 ADDITIONAL 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 AND APPROVED BY THE DEPARTMENT AND THE UTILITY OWNER.

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.

## PROJECT SPECIFIC NOTES:

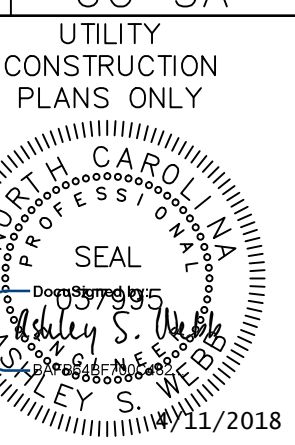
1. ALL VALVES 3" THROUGH 16" SHALL BE GATE VALVES.

2. THE CONTRACTOR SHALL CHECK THE INSIDE OF ALL SERVICE CONNECTION METER BOXES THAT ARE WITHIN THE LIMITS OF WATER MAINS TO BE ABANDONED. IF ANY METER BOX CONTAINS A METER, THE METER SHALL BE REMOVED AND RETURNED TO THE CITY OF WINSTON-SALEM'S UTILITIES CONSTRUCTION AND MAINTENANCE DIVISION AT 1550-B MARTIN LUTHER KING JR DRIVE. THE INVESTIGATION OF METERS AND ANY REMOVAL AND SUBSEQUENT DELIVERY TO THE CITY SHALL BE CONSIDERED INCIDENTAL TO THE WORK OF CLEARING AND GRUBBING.

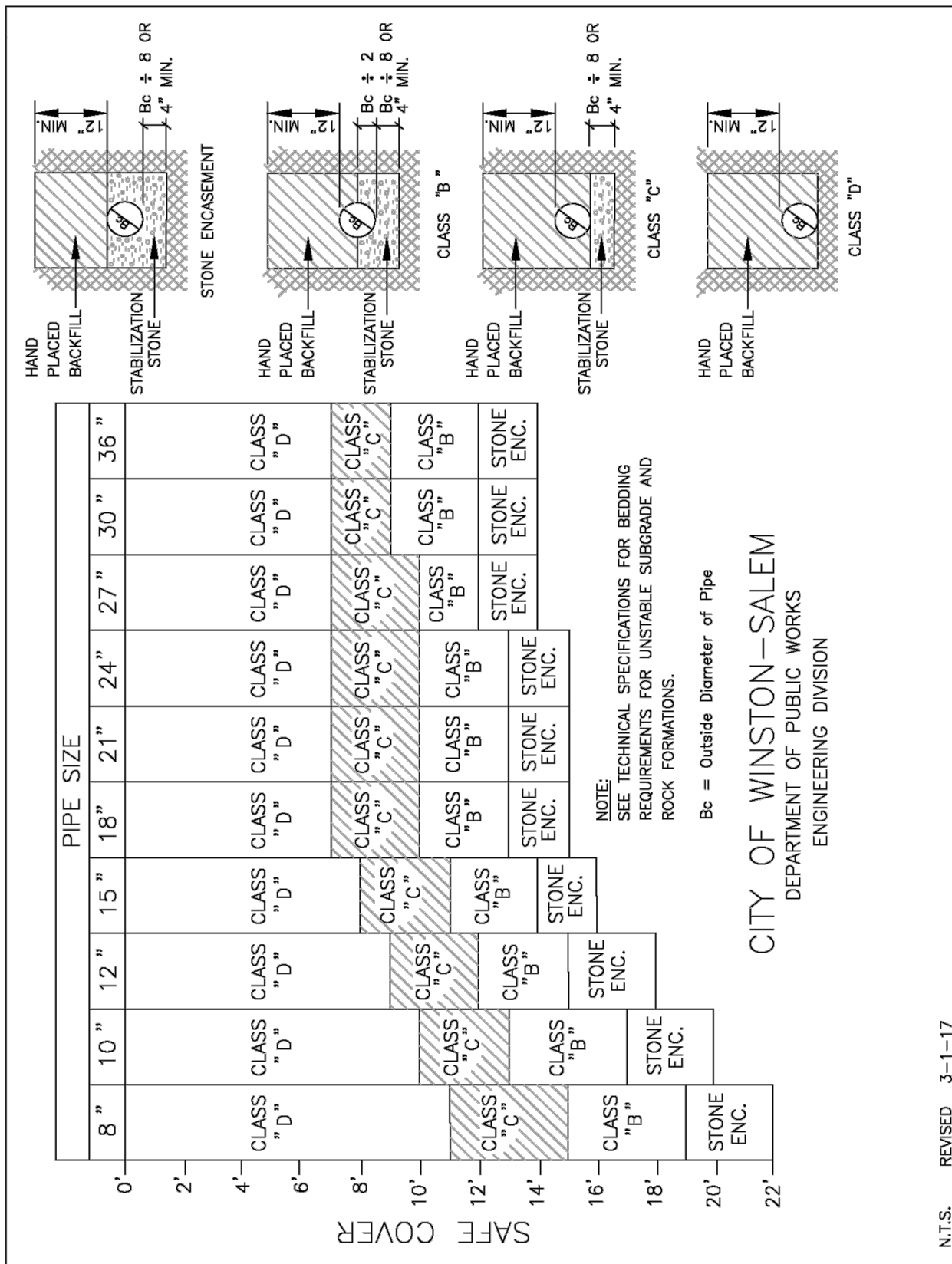
UTILITY CONSTRUCTION

REVISIONS

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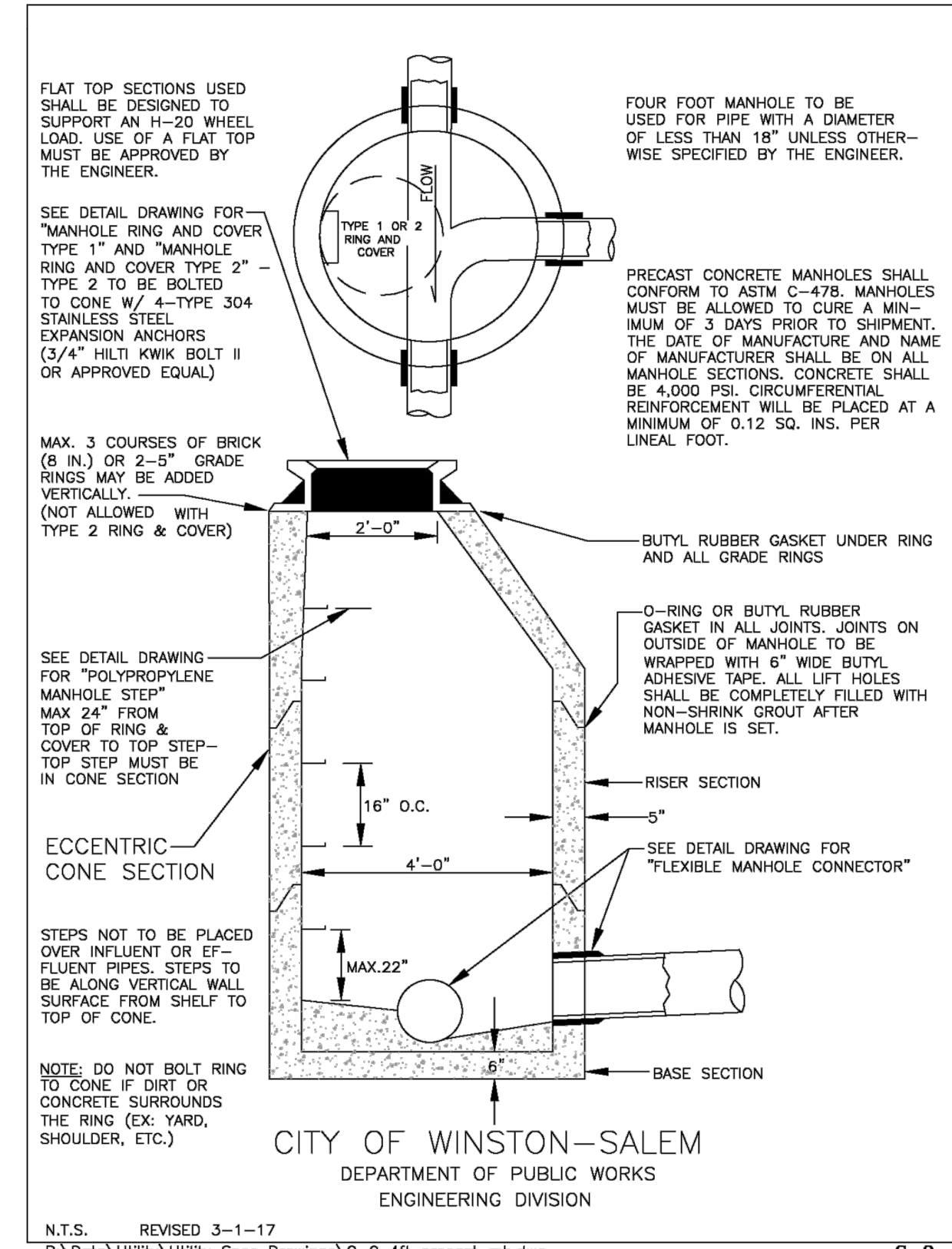


Bedding Requirements & Safe Cover for VC Pipe on Stable Subgrade



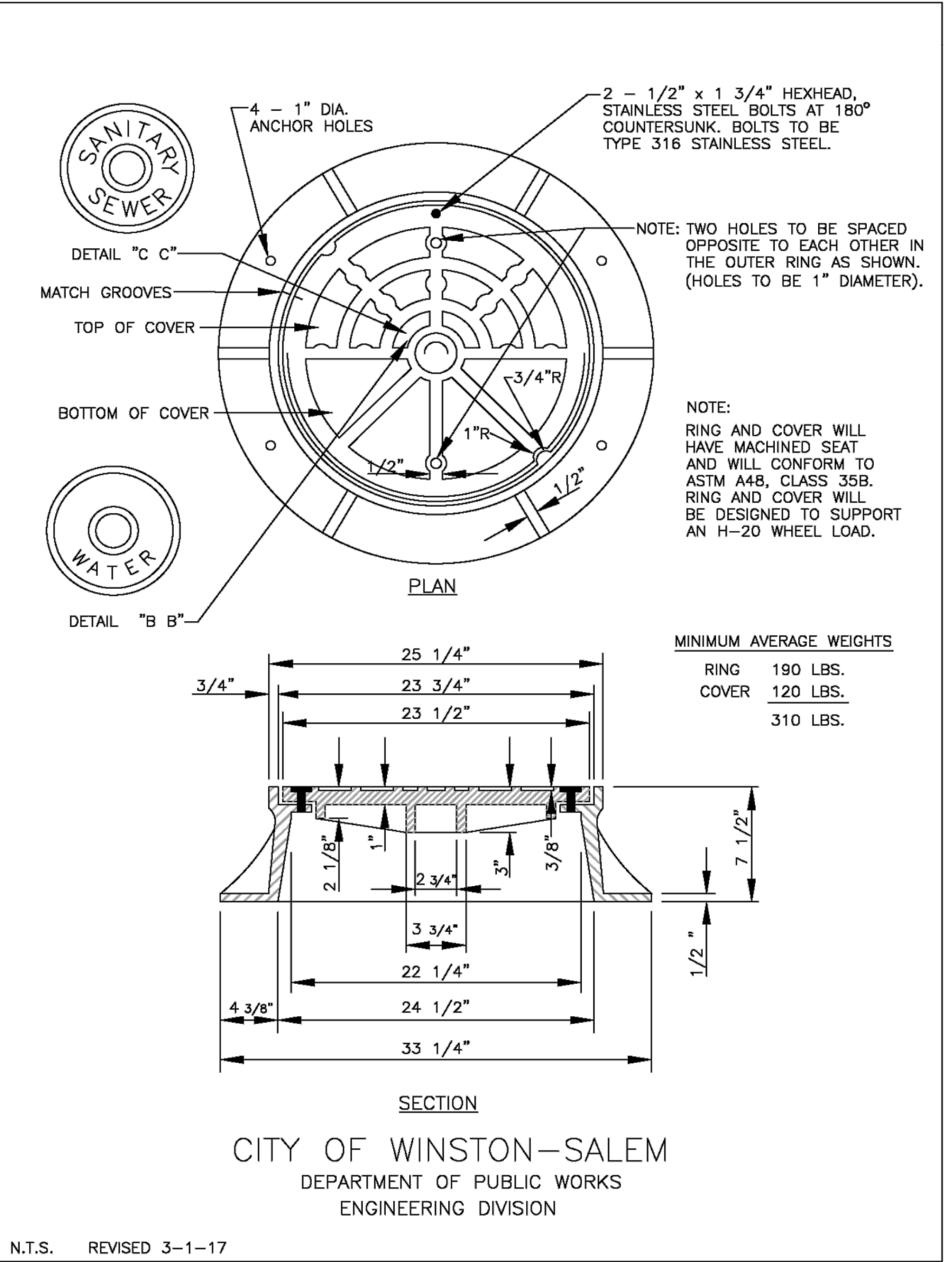
R:\Data\Utility\Utility Spec Drawings\C-8 bedding requirements.dwg

4' Precast Reinforced Concrete Manhole



R:\Data\Utility\Utility Spec Drawings\C-9 4ft precast mh.dwg

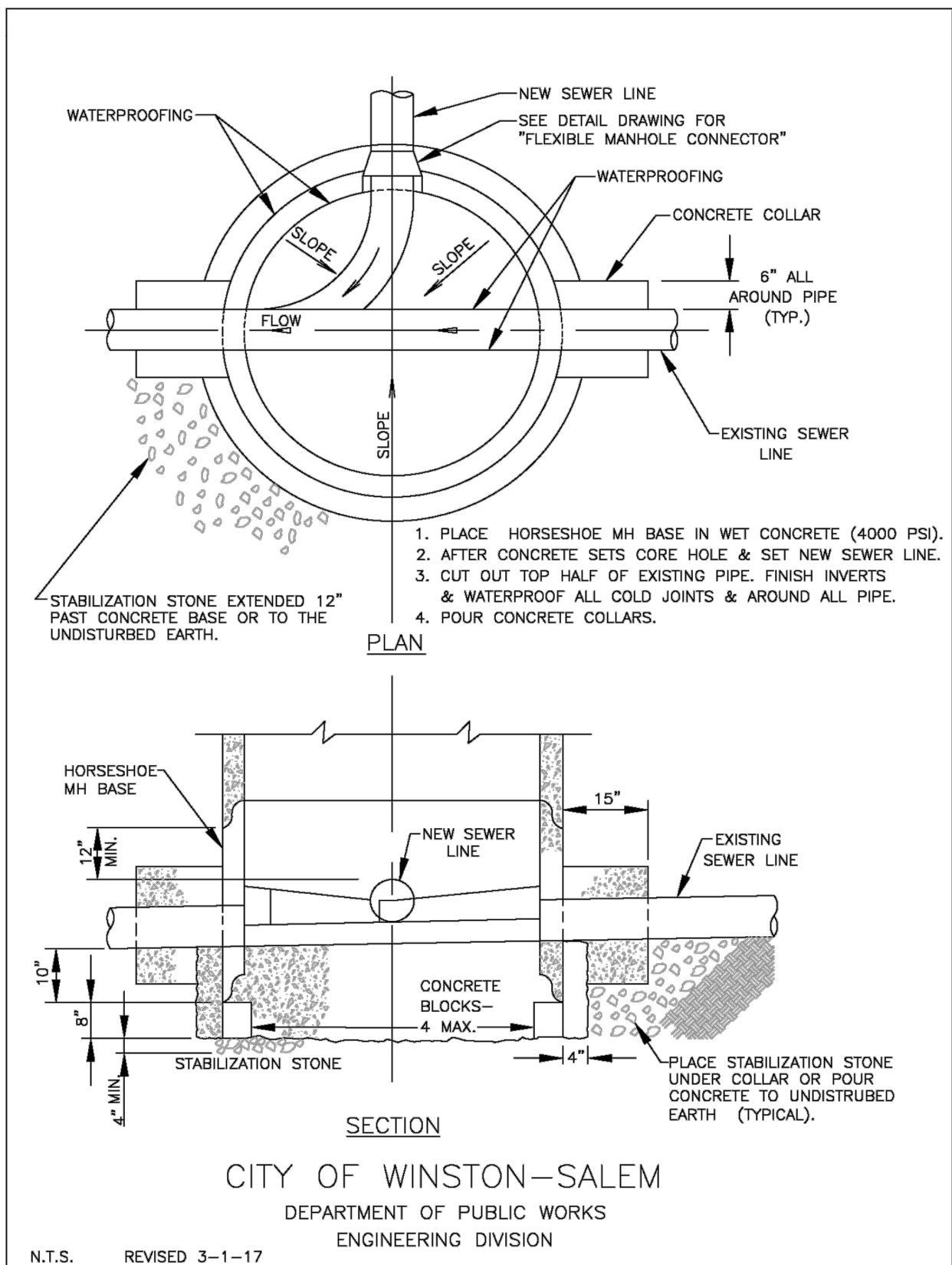
Manhole Ring and Cover (Type 2)



R:\Data\Utility\Utility Spec Drawings\C-18 mh ring & cover type 2.dwg

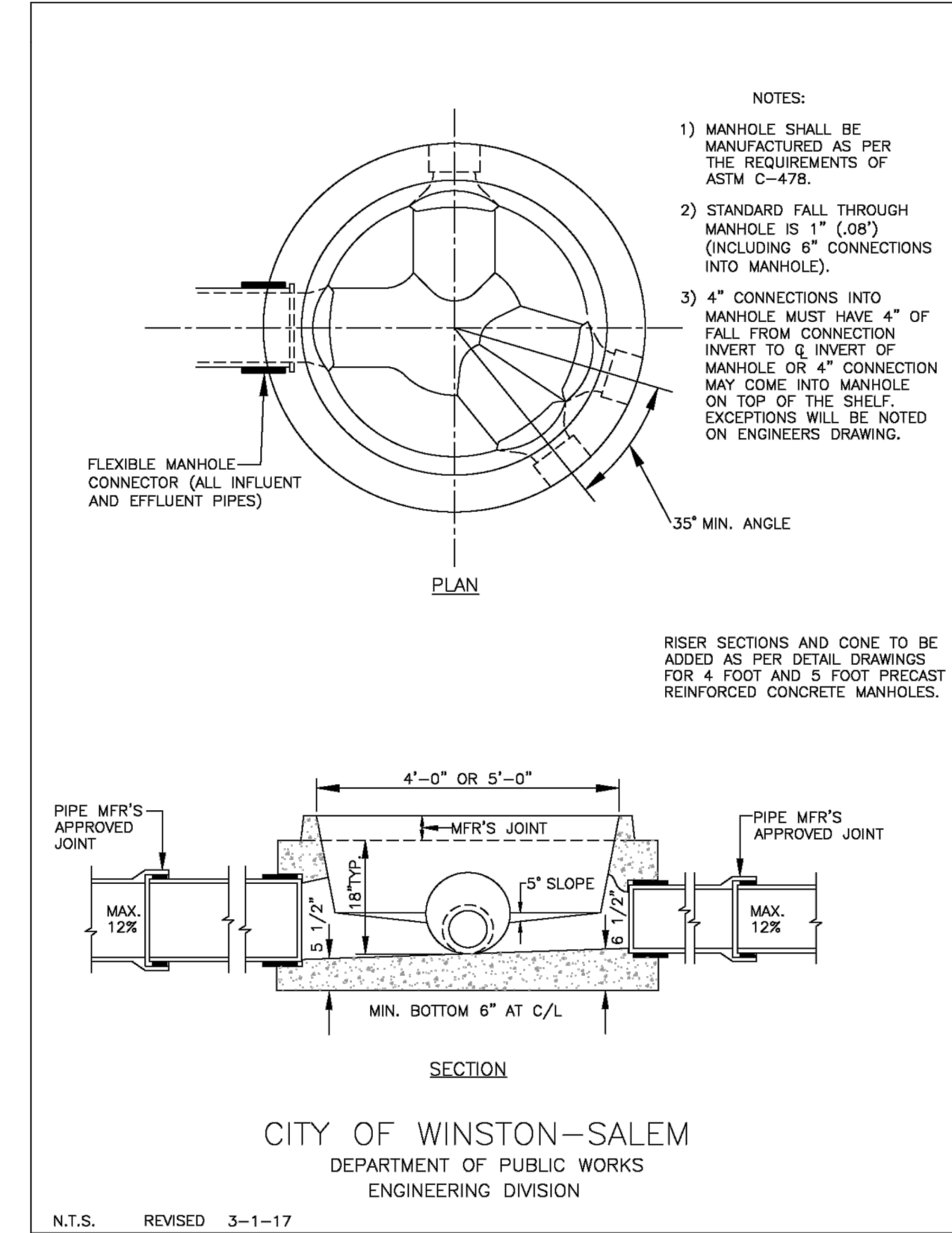
REVISIONS

Manhole Built Over Existing Line



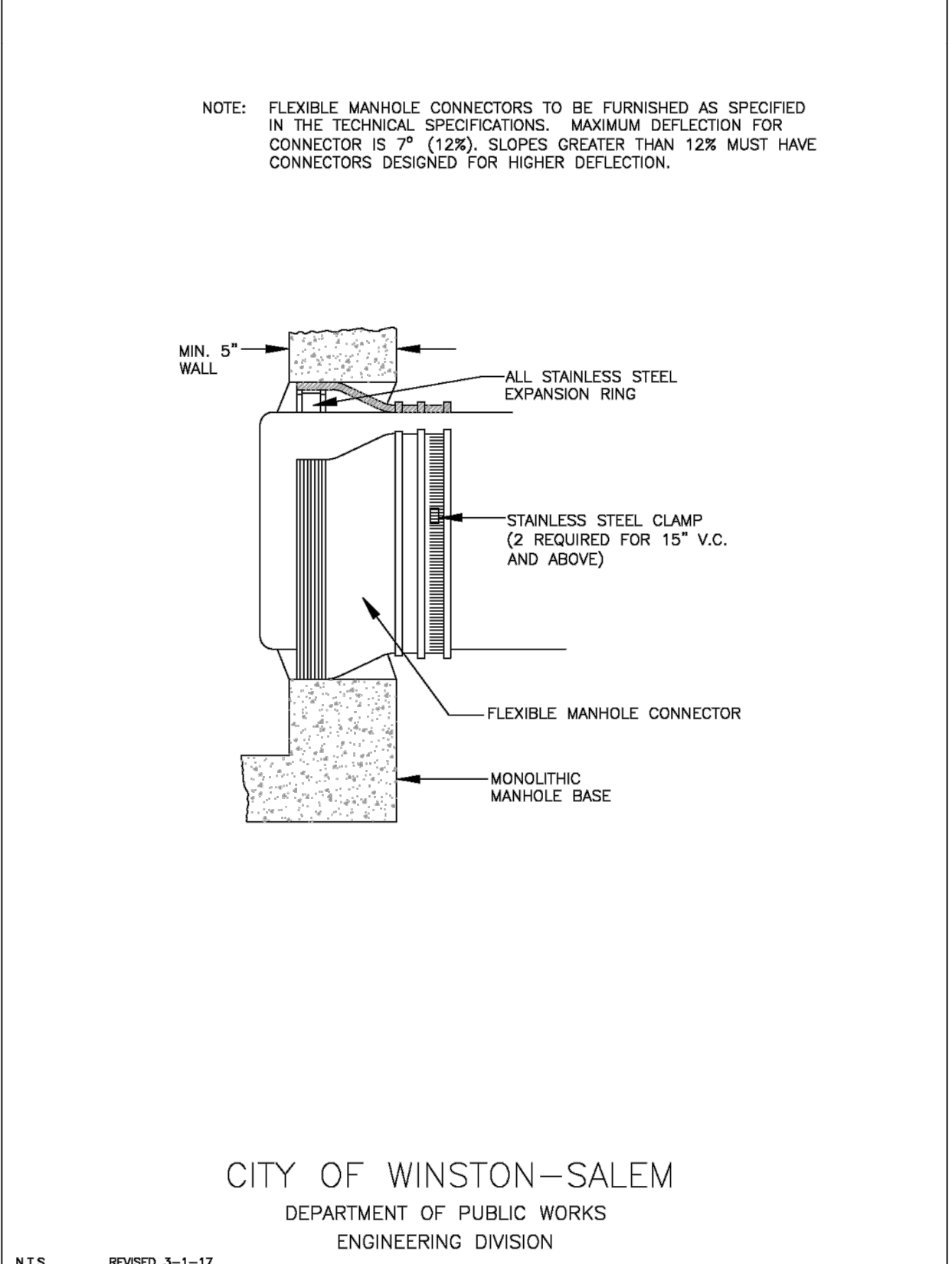
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Precast Reinforced Concrete Manhole with Precast Invert



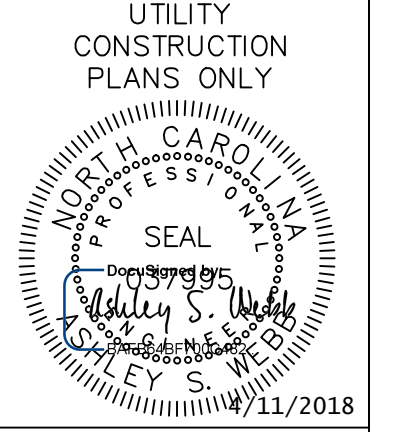
R:\Data\Utility\Utility Spec Drawings\C-15 precast mh with precast invert.dwg

Flexible Manhole Connector



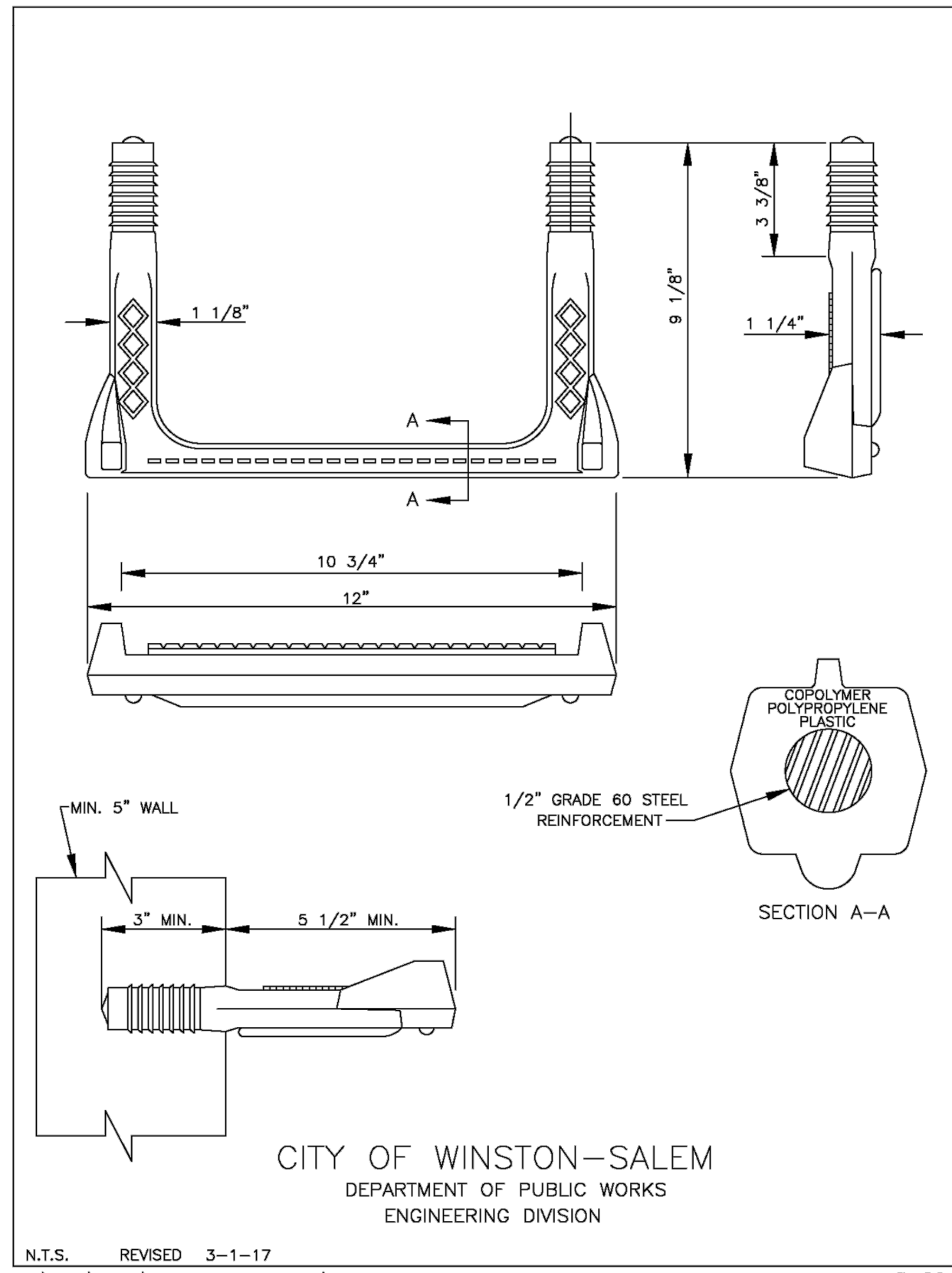
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REVISIONS



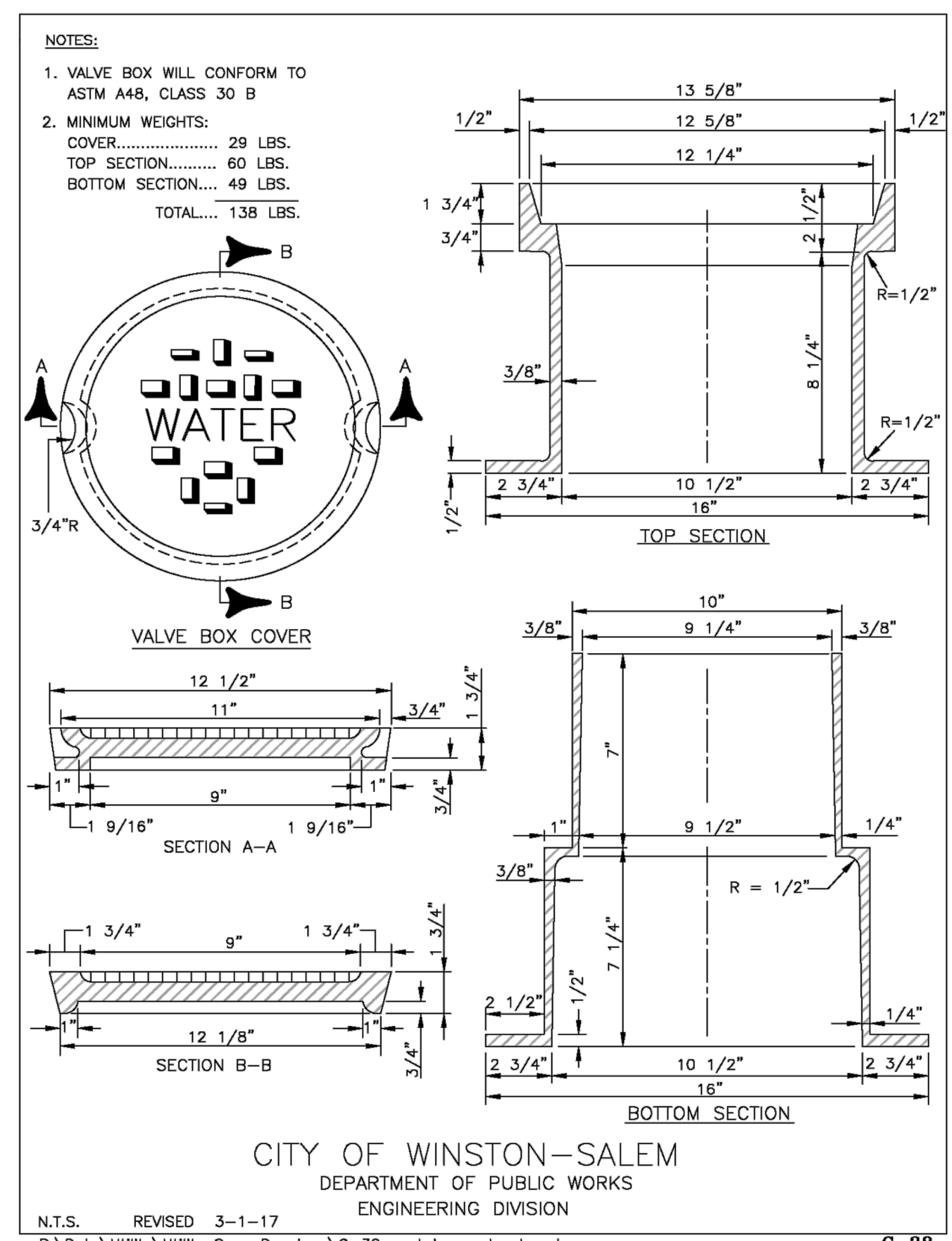
REVISIONS

**Polypropylene Manhole Step**



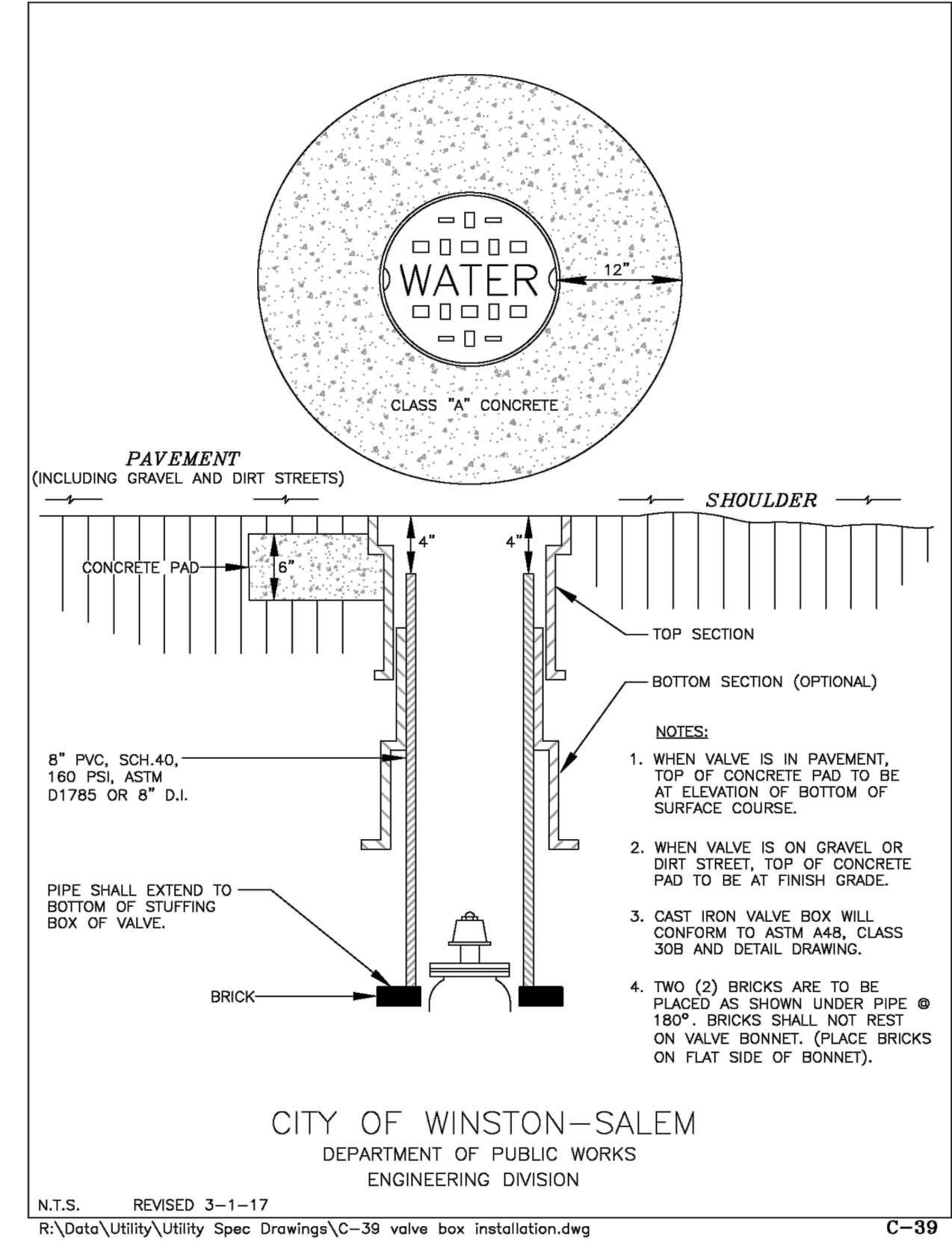
N.T.S. REVISED 3-1-17  
R:\Data\Utility\Utility Spec Drawings\C-20 mh step.dwg C-20

**Cast Iron Valve Box**



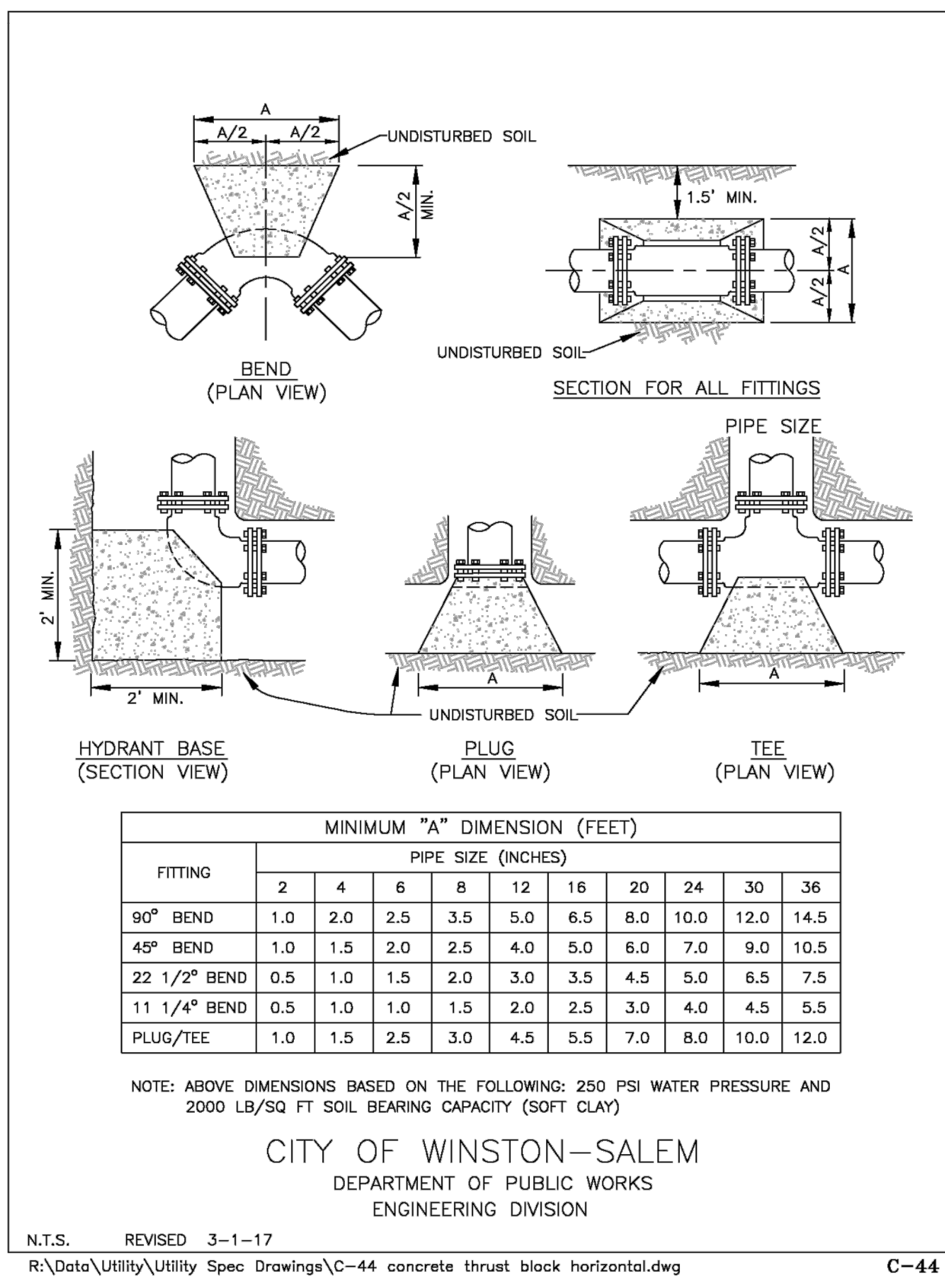
N.T.S. REVISED 3-1-17  
R:\Data\Utility\Utility Spec Drawings\C-38 cast iron valve box.dwg C-38

**Valve Box Installation**



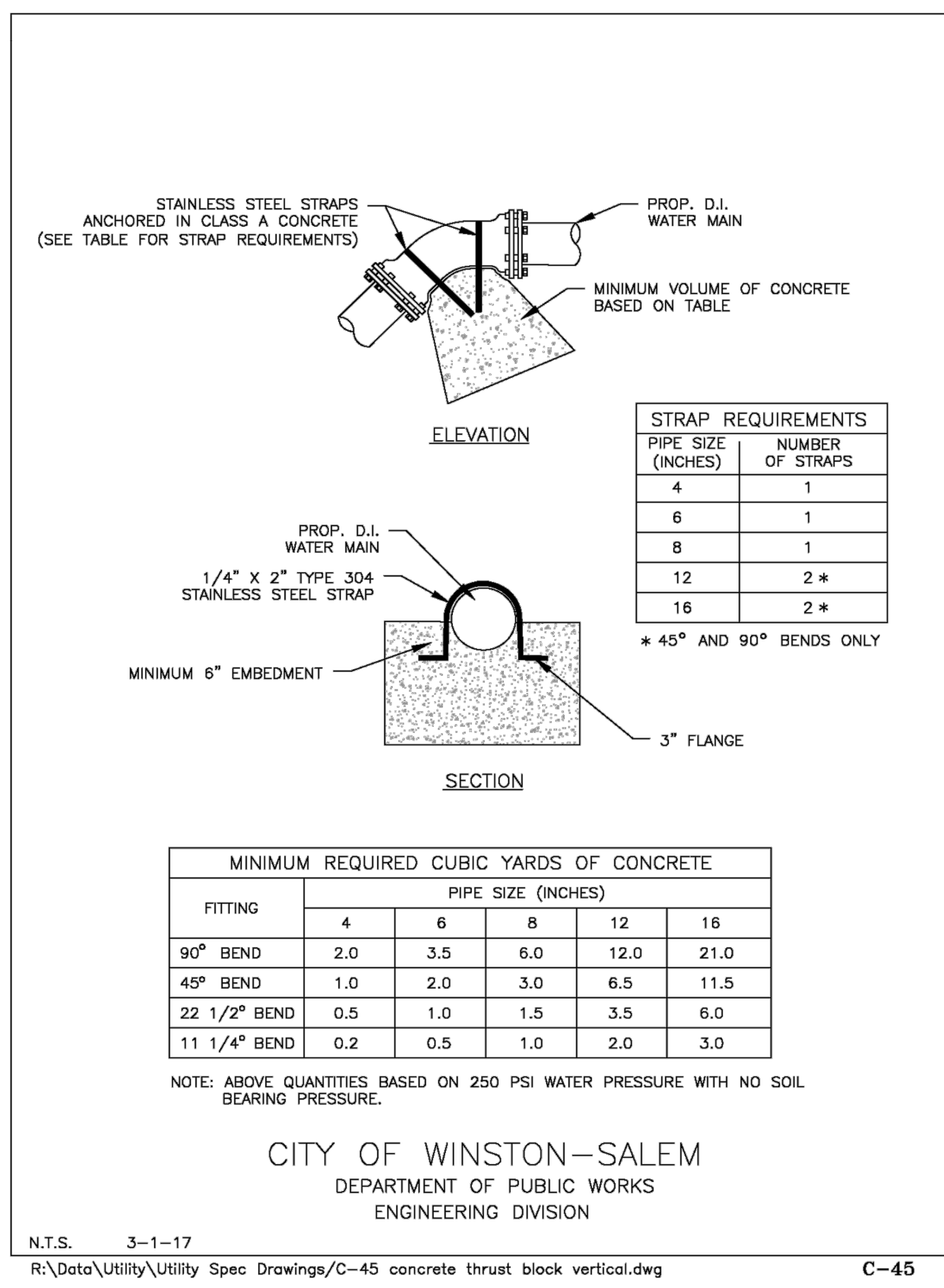
N.T.S. REVISED 3-1-17  
R:\Data\Utility\Utility Spec Drawings\C-39 valve box installation.dwg C-39

**Concrete Thrust Blocks for Horizontal Bends**



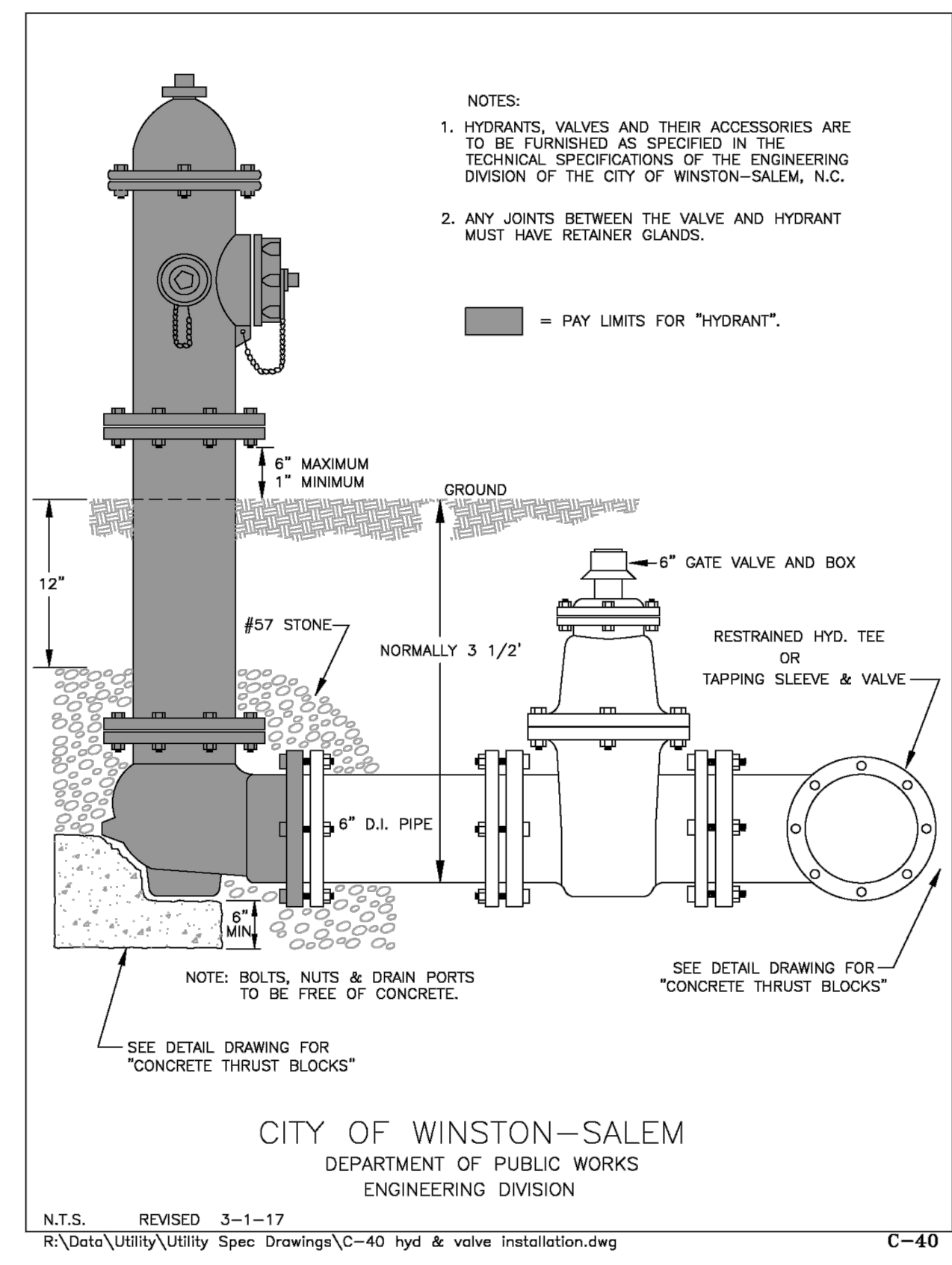
N.T.S. REVISED 3-1-17  
R:\Data\Utility\Utility Spec Drawings\C-44 concrete thrust block horizontal.dwg C-44

**Concrete Thrust Blocks w/ Anchors for Top Vertical Bends**

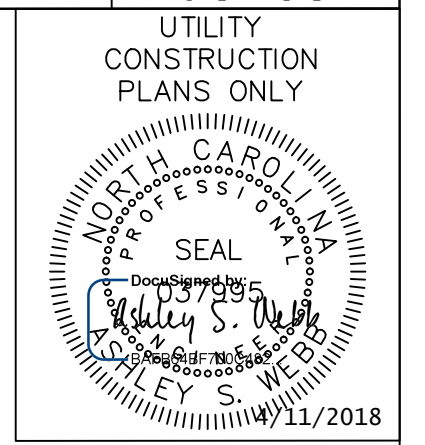


N.T.S. 3-1-17  
R:\Data\Utility\Utility Spec Drawings\C-45 concrete thrust block vertical.dwg C-45

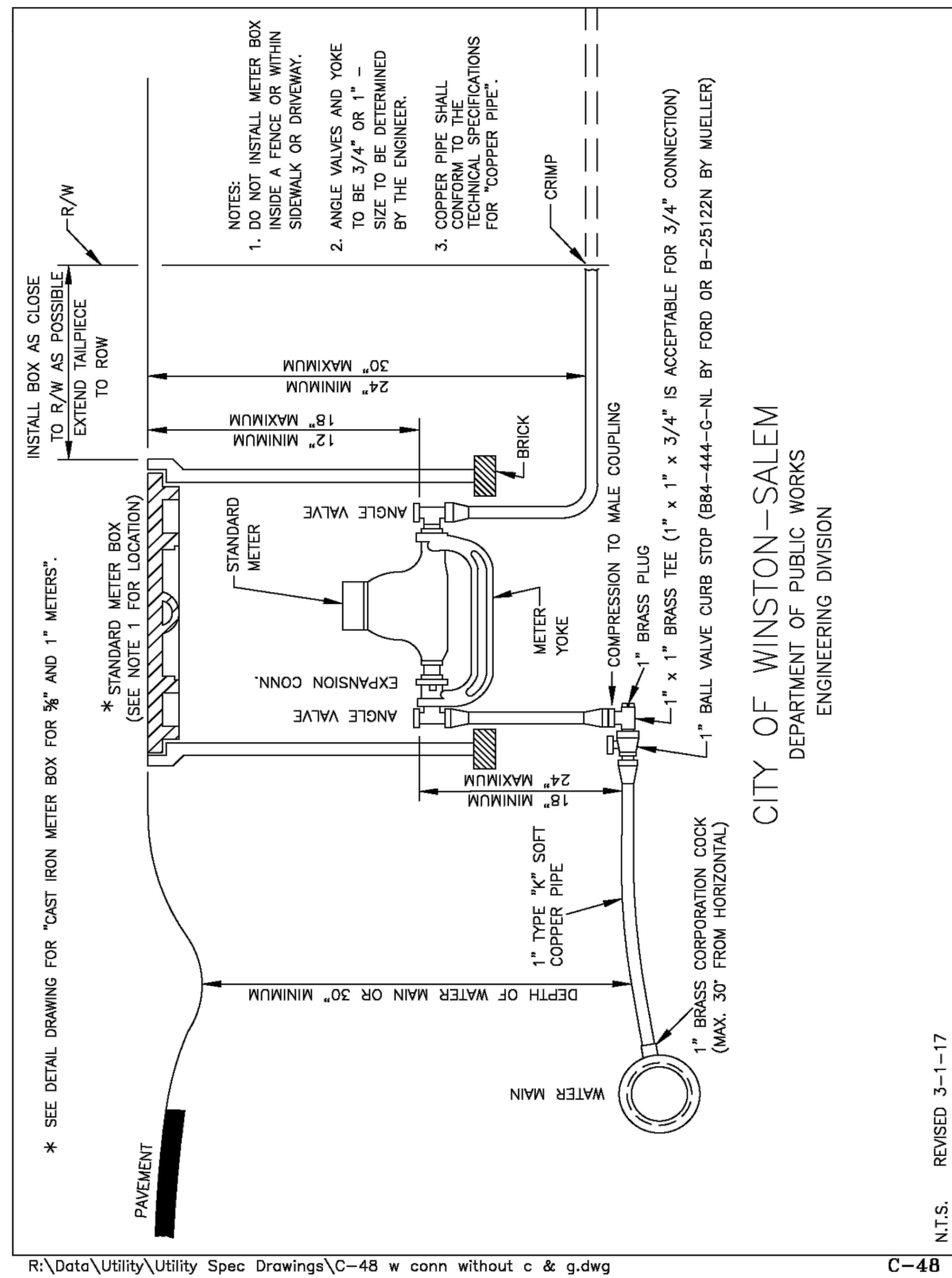
**Hydrant and Valve Installation**



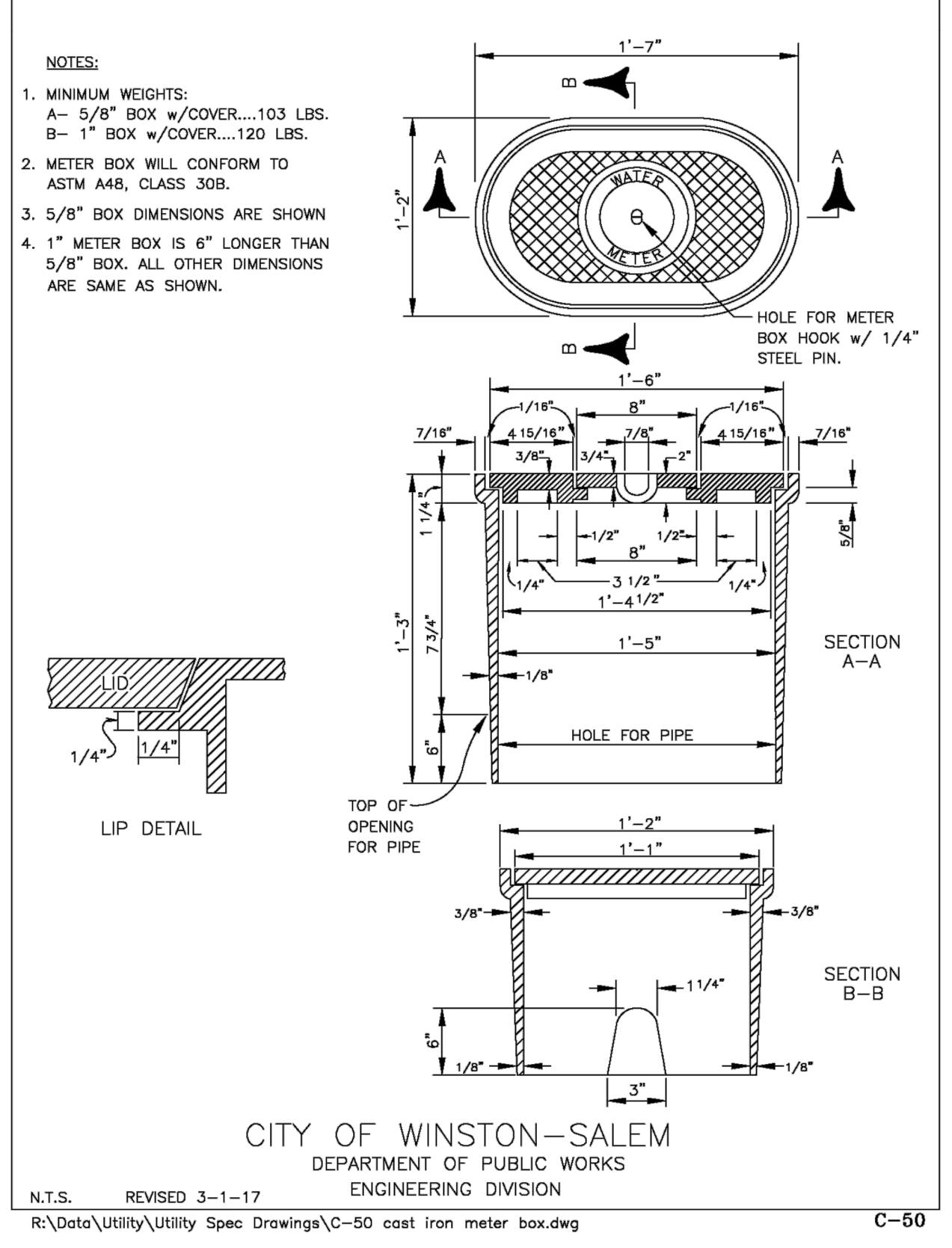
N.T.S. REVISED 3-1-17  
R:\Data\Utility\Utility Spec Drawings\C-40 hyd & valve installation.dwg C-40



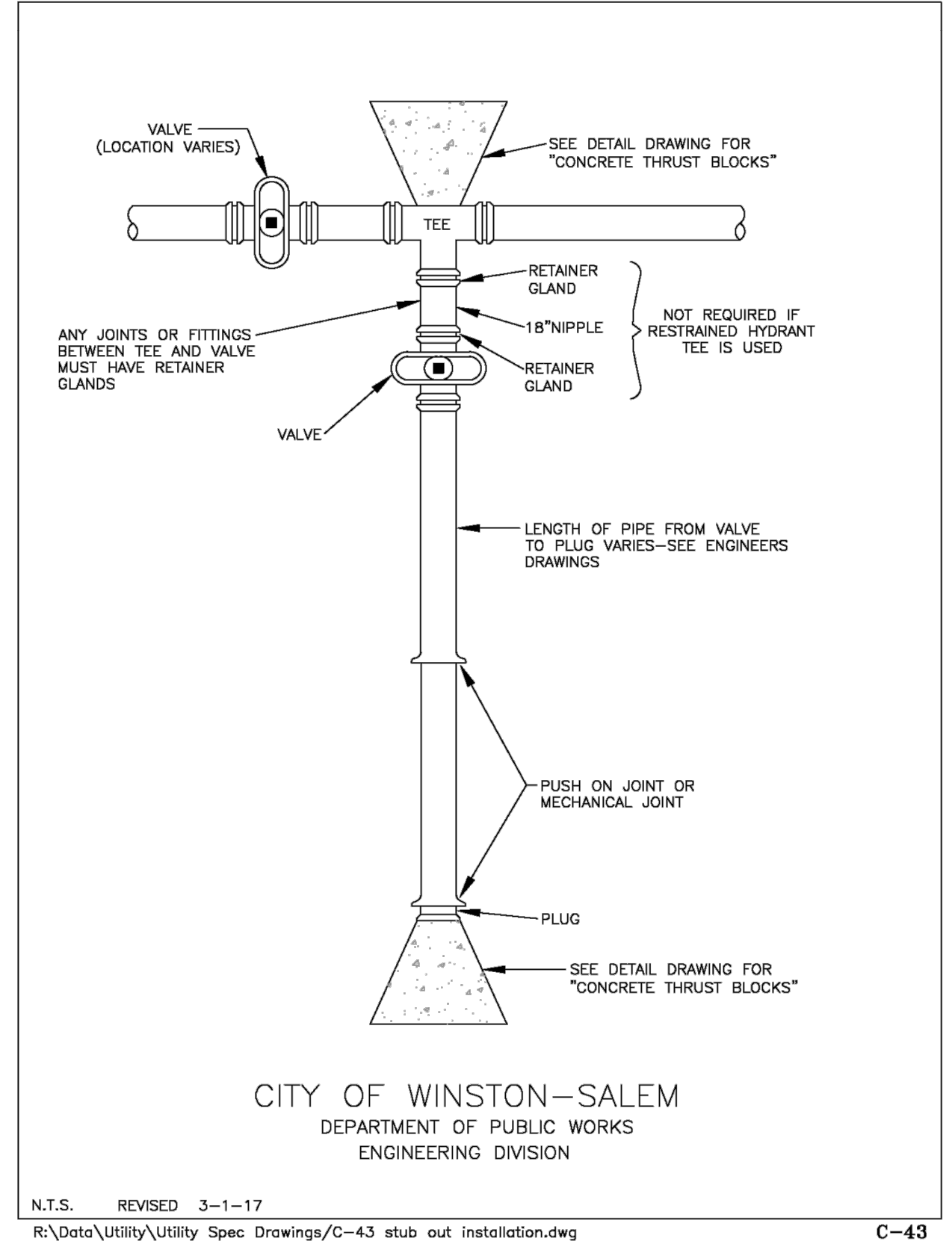
### 3/4" and 1" Water Connection (Without Curb & Gutter / Single Family)



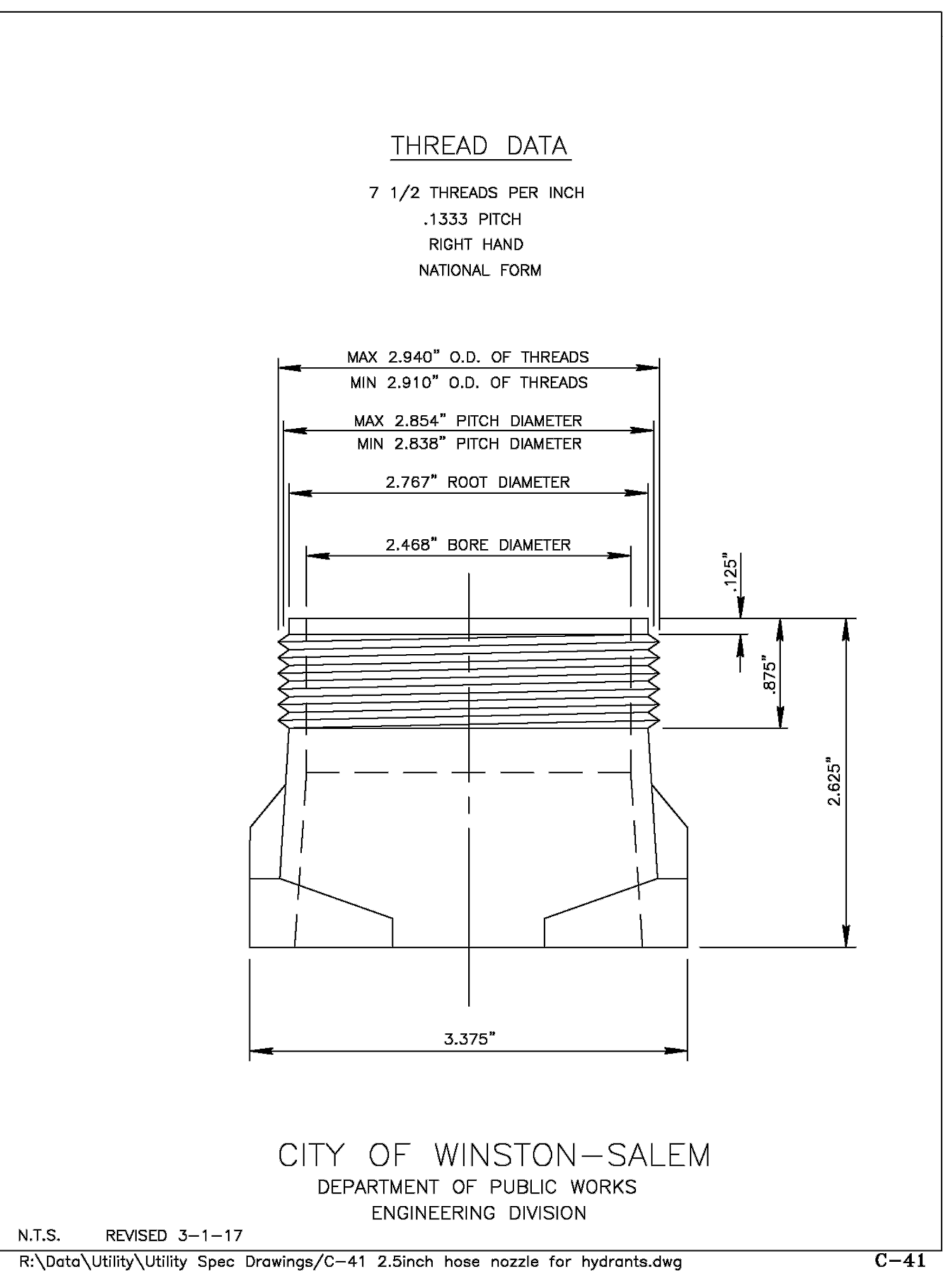
### Cast Iron Meter Box for 5/8" and 1" Meters



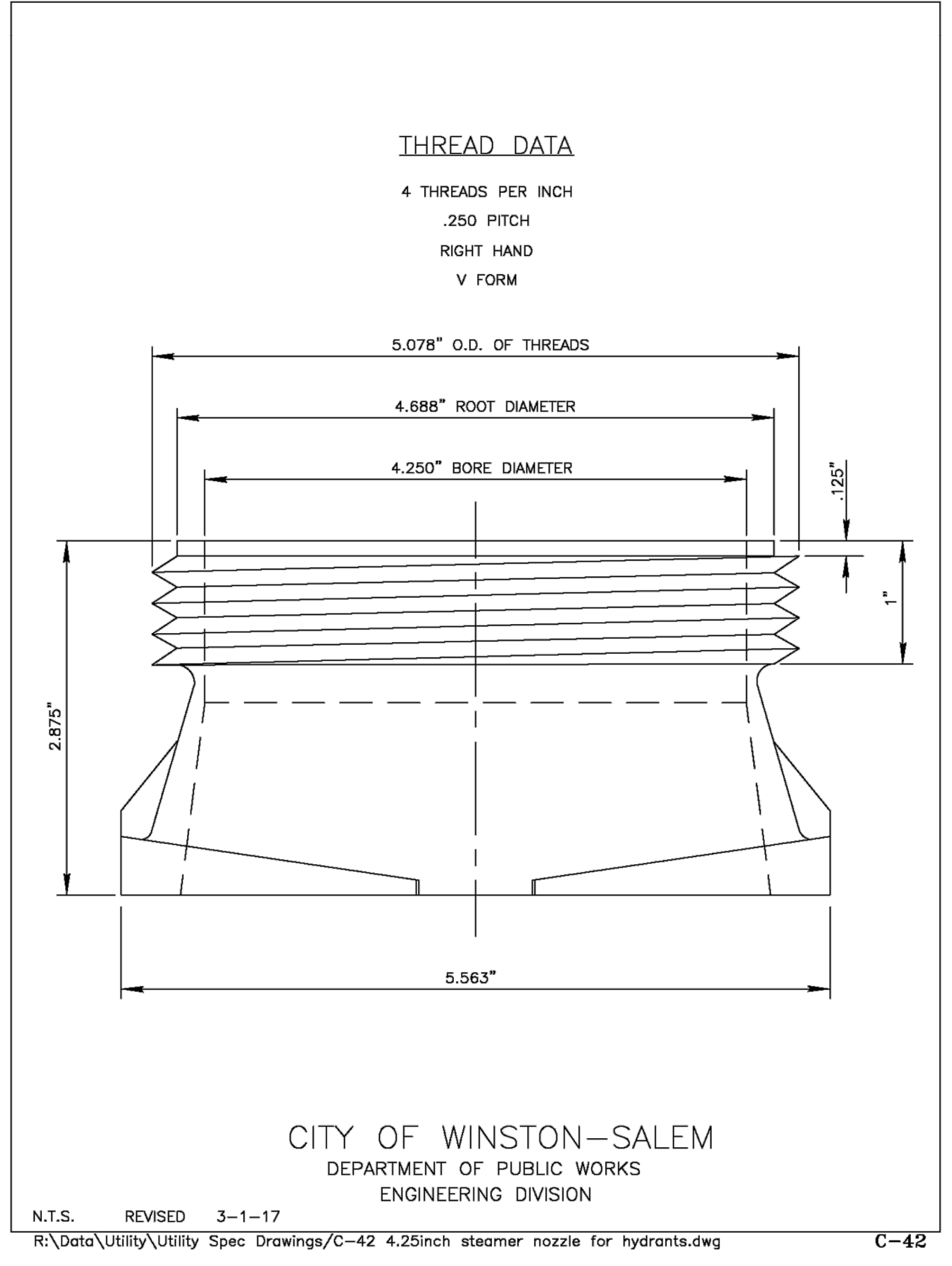
### Stub Out Installation



### 2 1/2" Hose Nozzle for Hydrants



### 4 1/4" Steamer Nozzle for Hydrants



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		

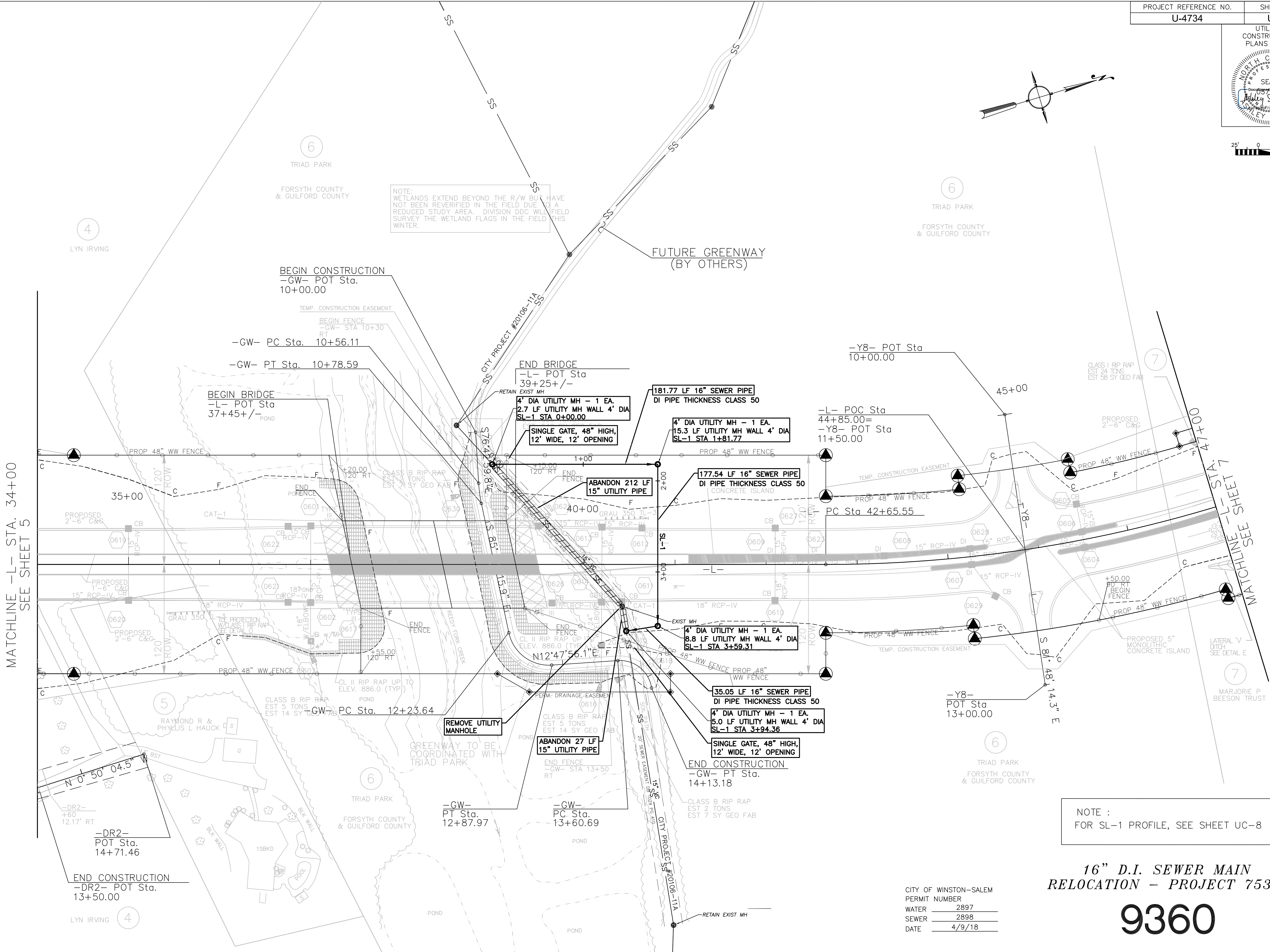
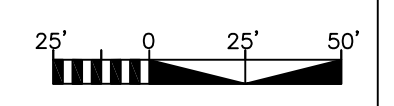
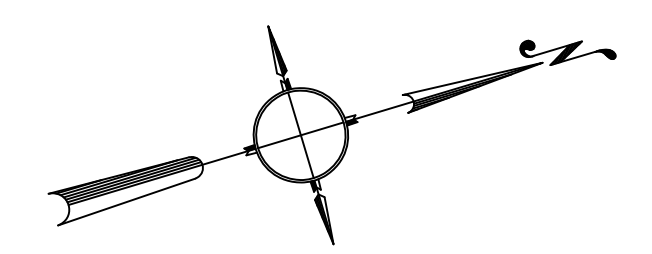
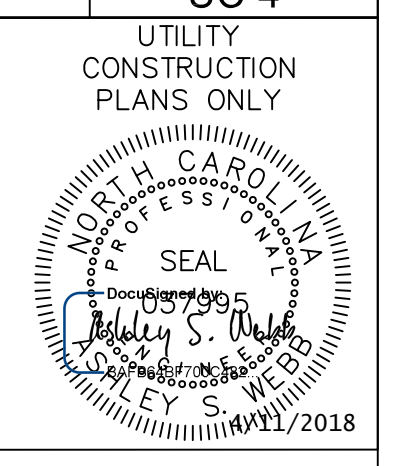
Laying Condition	Description
Type 1	Flat-bottom trench.† Loose backfill.
Type 2	Flat-bottom trench.† Backfill lightly consolidated to centerline of pipe.
Type 3	Pipe bedded in 4" minimum loose soil.† Backfill lightly consolidated to top of pipe.
Type 4	Pipe bedded in sand, gravel or crushed stone.† to depth of 1/4 pipe diameter, 4" minimum. Backfill compacted to top of pipe. (95% Standard Proctor, AASHTO T-99.)
Type 5	Pipe bedded to its centerline in compacted granular‡ material, 4" minimum under pipe. Compacted granular or select material†† to top of pipe. (95% Standard Proctor, AASHTO T-99.)

† For 12" and larger pipe, consideration should be given to the use of laying conditions other than Type 1.  
 †† "Flat bottom" is defined as undisturbed earth.  
 †† "Loose soil" or "select material" is defined as native soil excavated from the trench, free of rocks, foreign material and loose earth.  
 ‡ Granular materials are defined per the AASHTO Soil Classification System (ASTM D2485) or the Unified Soil Classification System (ASTM D2485), with the exception that gravel bedding backfill adjacent to the pipe is limited to 2" maximum particle size per ANSI/AWWA C300.

REVISIONS

8/17/99

CONSTRUCTION



NOTE:  
WETLANDS EXTEND BEYOND THE R/W BUT HAVE NOT BEEN REVERIFIED IN THE FIELD DUE TO A REDUCED STUDY AREA. DIVISION DDC WILL FIELD SURVEY THE WETLAND FLAGS IN THE FIELD THIS WINTER.

NOTE :  
FOR SL-1 PROFILE, SEE SHEET UC-8

**16" D.I. SEWER MAIN  
RELOCATION - PROJECT 75360**

**9360**

CITY OF WINSTON-SALEM	
PERMIT NUMBER	
WATER	2897
SEWER	2898
DATE	4/9/18

REVISIONS

MATCHLINE -L- STA. 34+00  
SEE SHEET 5

MATCHLINE -L- STA. 47+00  
SEE SHEET 7

LYN IRVING (4)

(6)  
TRIAD PARK  
FORSYTH COUNTY & GUILFORD COUNTY

(4)  
LYN IRVING

(6)  
TRIAD PARK  
FORSYTH COUNTY & GUILFORD COUNTY

(7)

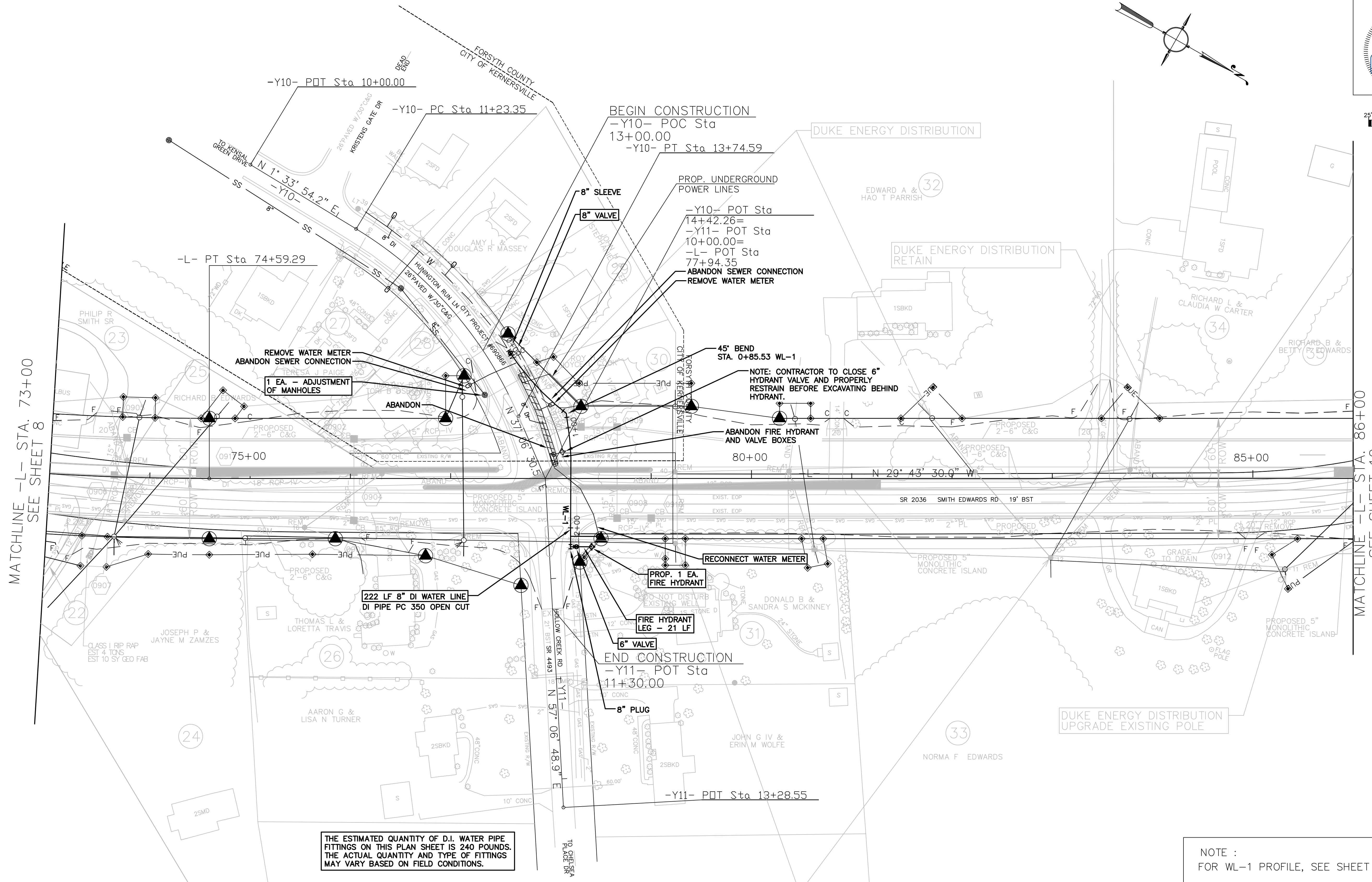
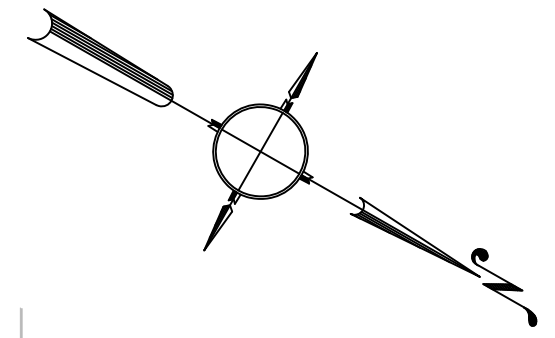
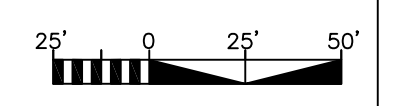
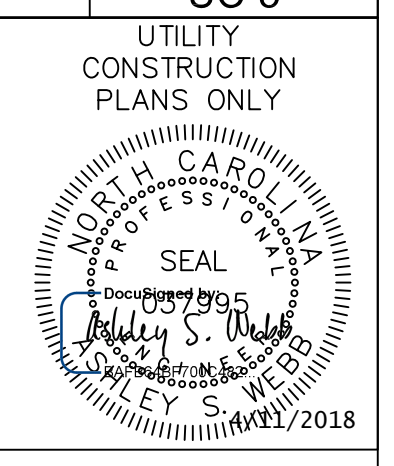
(7)  
MARJORIE P. BEESON TRUST

(6)  
TRIAD PARK  
FORSYTH COUNTY & GUILFORD COUNTY

(6)  
TRIAD PARK  
FORSYTH COUNTY & GUILFORD COUNTY

(5)  
RAYMOND R & PHYLLIS L HAUCK





REVISIONS

MATCHLINE -L- STA. 73+00  
SEE SHEET 8

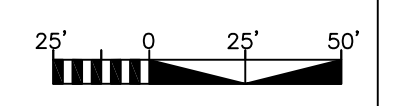
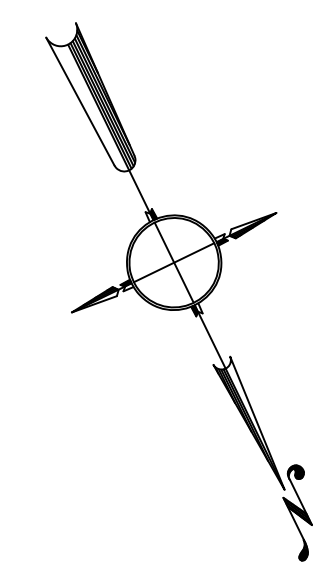
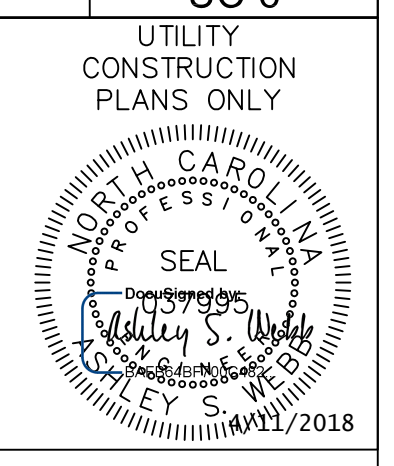
MATCHLINE -L- STA. 86+00  
SEE SHEET 10

THE ESTIMATED QUANTITY OF D.I. WATER PIPE FITTINGS ON THIS PLAN SHEET IS 240 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS MAY VARY BASED ON FIELD CONDITIONS.

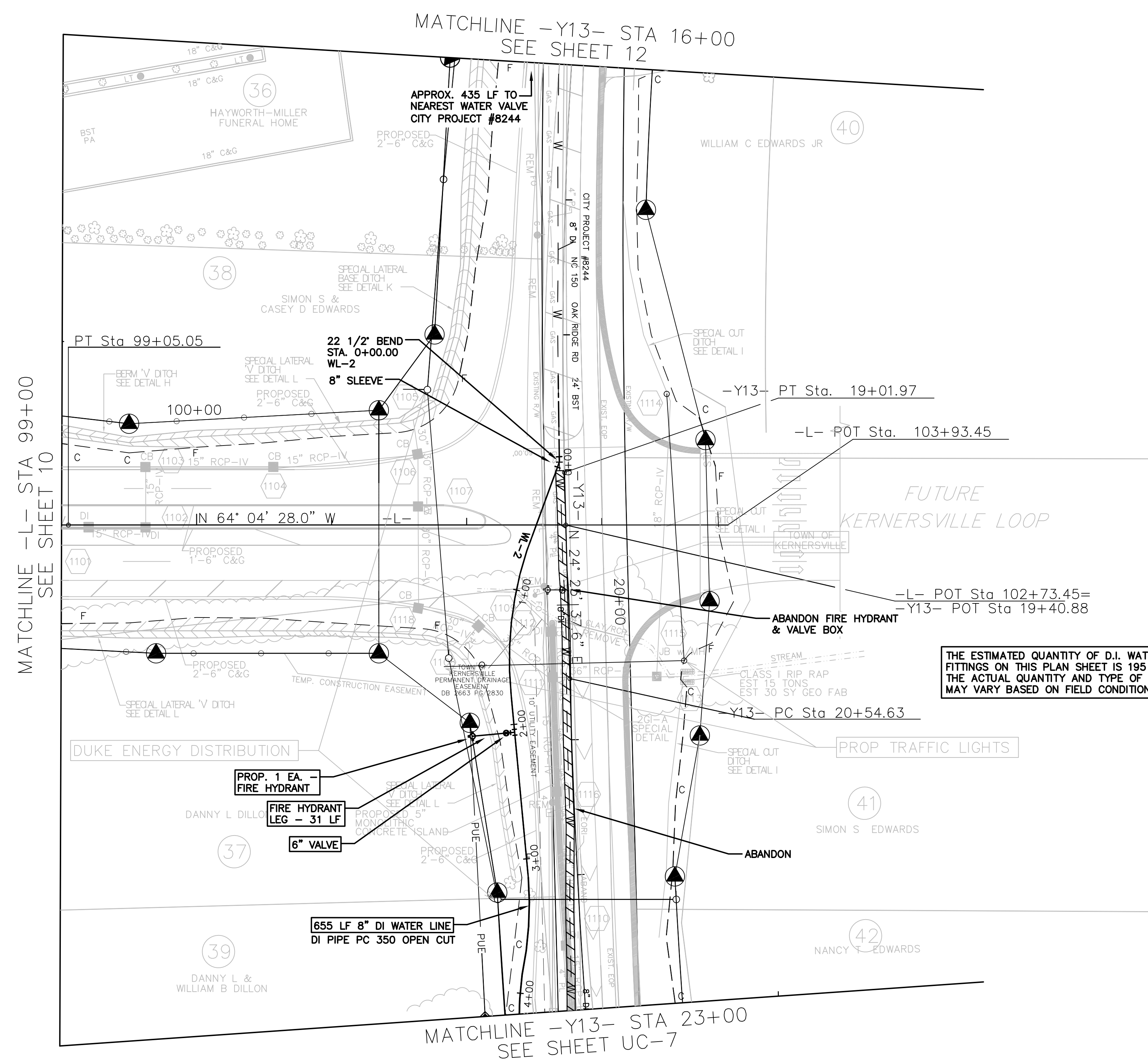
NOTE :  
FOR WL-1 PROFILE, SEE SHEET UC-8

**8" D.I. WATER MAIN  
RELOCATION - PROJECT 74360**

**9360**



REVISIONS

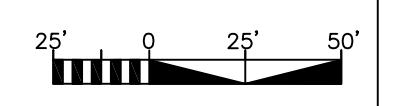
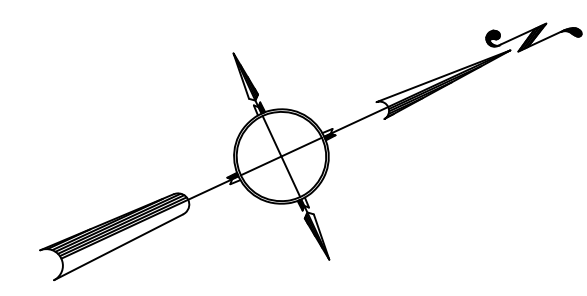
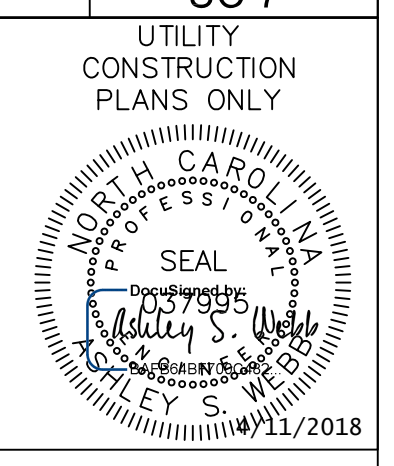


THE ESTIMATED QUANTITY OF D.I. WATER PIPE FITTINGS ON THIS PLAN SHEET IS 195 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS MAY VARY BASED ON FIELD CONDITIONS.

NOTE :  
FOR WL-2 PROFILE, SEE SHEET UC-9

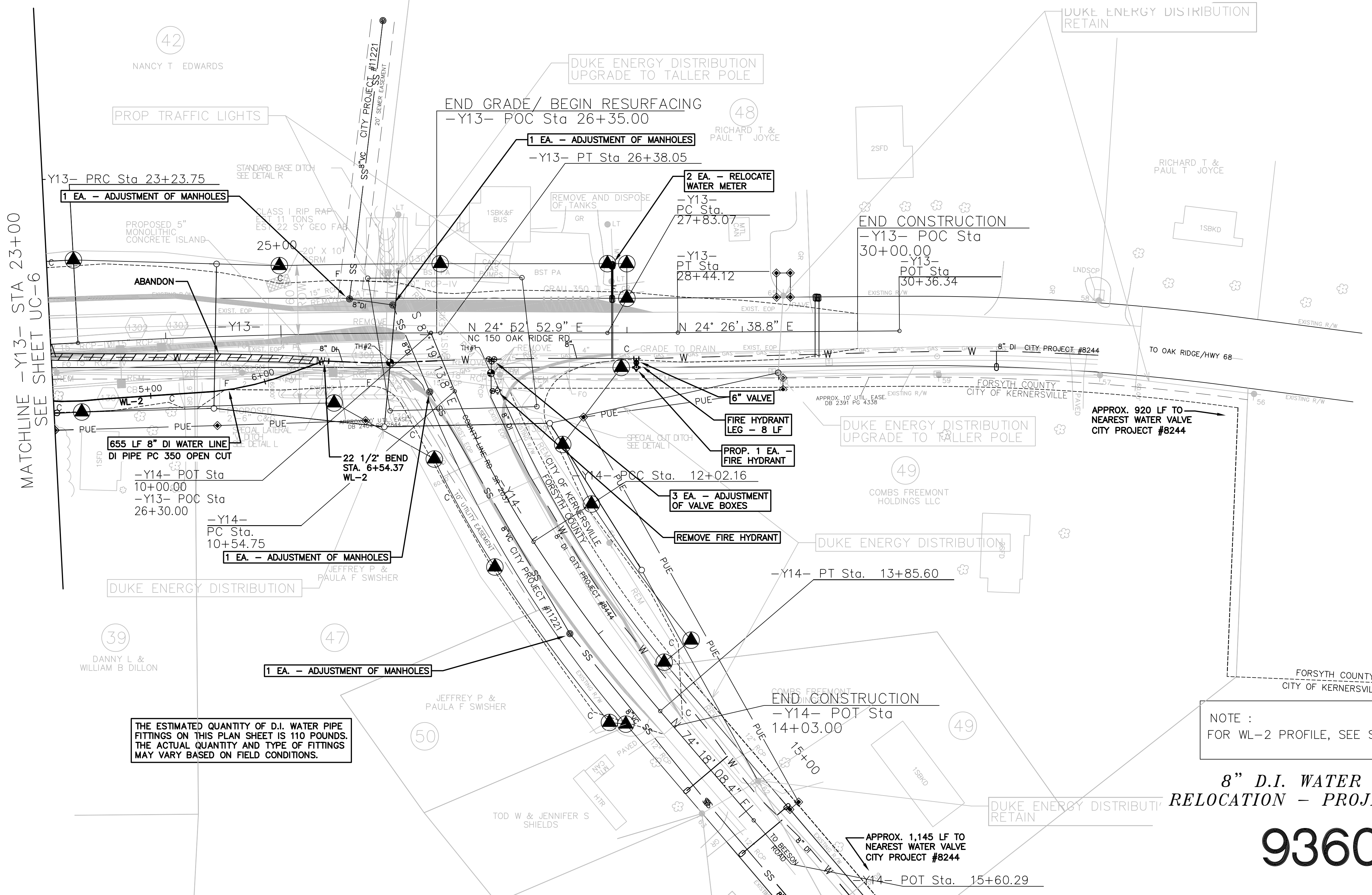
**8" D.I. WATER MAIN  
RELOCATION - PROJECT 74360**

**9360**



REVISIONS

MATCHLINE -Y13- STA 23+00  
SEE SHEET UC-6



THE ESTIMATED QUANTITY OF D.I. WATER PIPE FITTINGS ON THIS PLAN SHEET IS 110 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS MAY VARY BASED ON FIELD CONDITIONS.

NOTE :  
FOR WL-2 PROFILE, SEE SHEET UC-9

**8" D.I. WATER MAIN  
RELOCATION - PROJECT 74360**

**9360**

APPROX. 1,145 LF TO  
NEAREST WATER VALVE  
CITY PROJECT #8244

APPROX. 920 LF TO  
NEAREST WATER VALVE  
CITY PROJECT #8244

DUKE ENERGY DISTRIBUTION  
UPGRADE TO TALLER POLE

DUKE ENERGY DISTRIBUTION  
UPGRADE TO TALLER POLE

DUKE ENERGY DISTRIBUTION  
RETAIN

DUKE ENERGY DISTRIBUTION  
UPGRADE TO TALLER POLE

DUKE ENERGY DISTRIBUTION  
RETAIN

DUKE ENERGY DISTRIBUTION

1 EA. - ADJUSTMENT OF MANHOLES  
-Y13- PRC Sta 23+23.75

1 EA. - ADJUSTMENT OF MANHOLES  
-Y13- PT Sta 26+38.05

2 EA. - RELOCATE  
WATER METER  
-Y13-  
PC Sta.  
27+83.07

END CONSTRUCTION  
-Y13- POC Sta  
30+00.00  
-Y13-  
POT Sta  
30+36.34

655 LF 8" DI WATER LINE  
DI PIPE PC 350 OPEN CUT  
-Y14- POT Sta  
10+00.00  
-Y13- POC Sta  
26+30.00

1 EA. - ADJUSTMENT OF MANHOLES  
-Y14-  
PC Sta.  
10+54.75

3 EA. - ADJUSTMENT  
OF VALVE BOXES

REMOVE FIRE HYDRANT

-Y14- PT Sta. 13+85.60

1 EA. - ADJUSTMENT OF MANHOLES

END CONSTRUCTION  
-Y14- POT Sta  
14+03.00

-Y14- POT Sta. 15+60.29

42  
NANCY T EDWARDS

48  
RICHARD T &  
PAUL T JOYCE

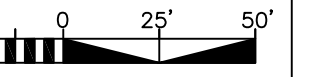
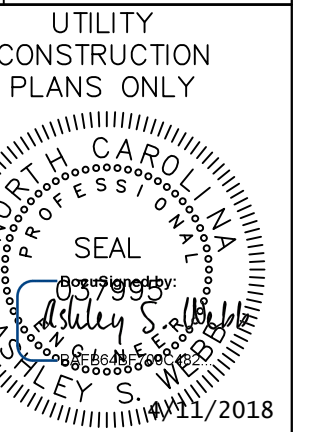
49  
COMBS FREEMONT  
HOLDINGS LLC

39  
DANNY L &  
WILLIAM B DILLON

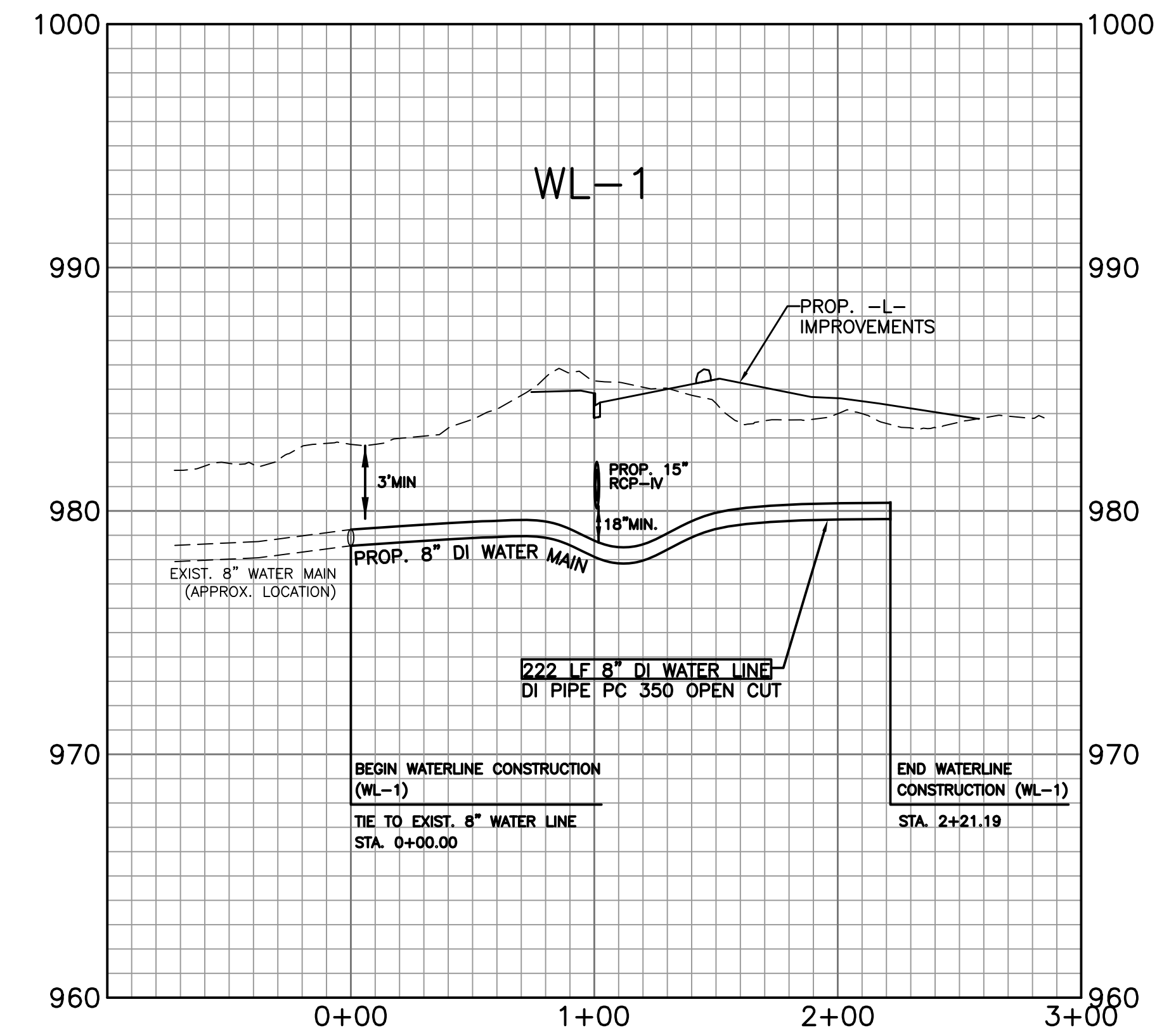
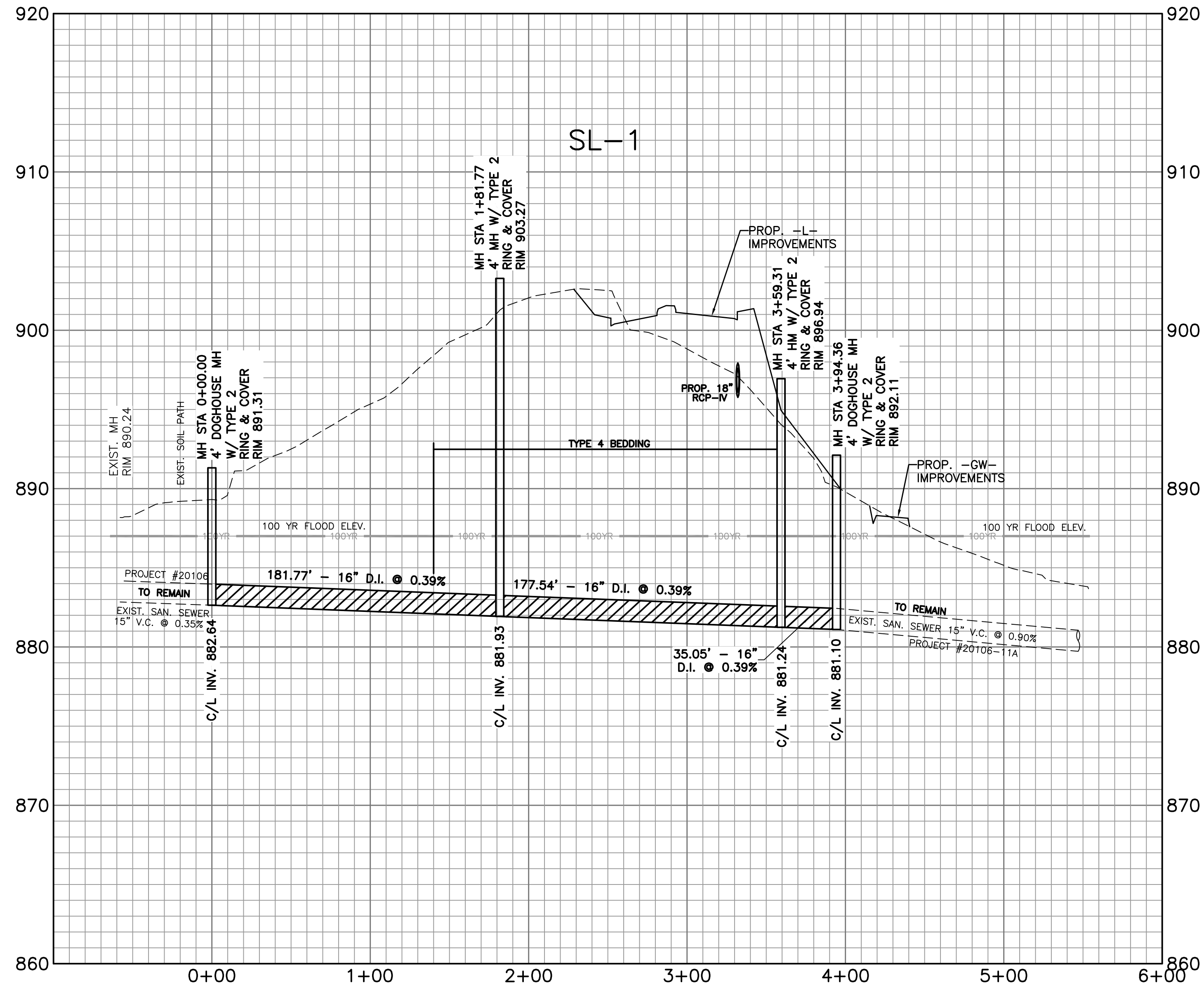
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50

49



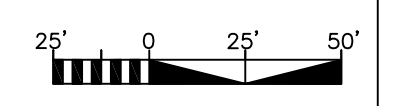
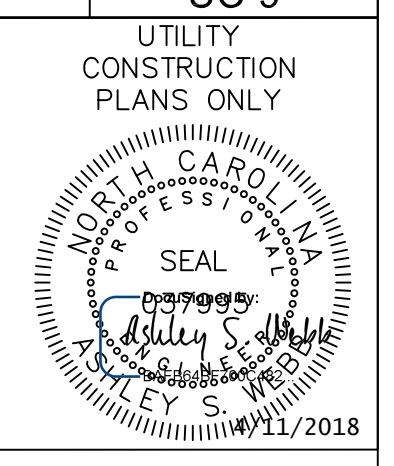
REVISIONS



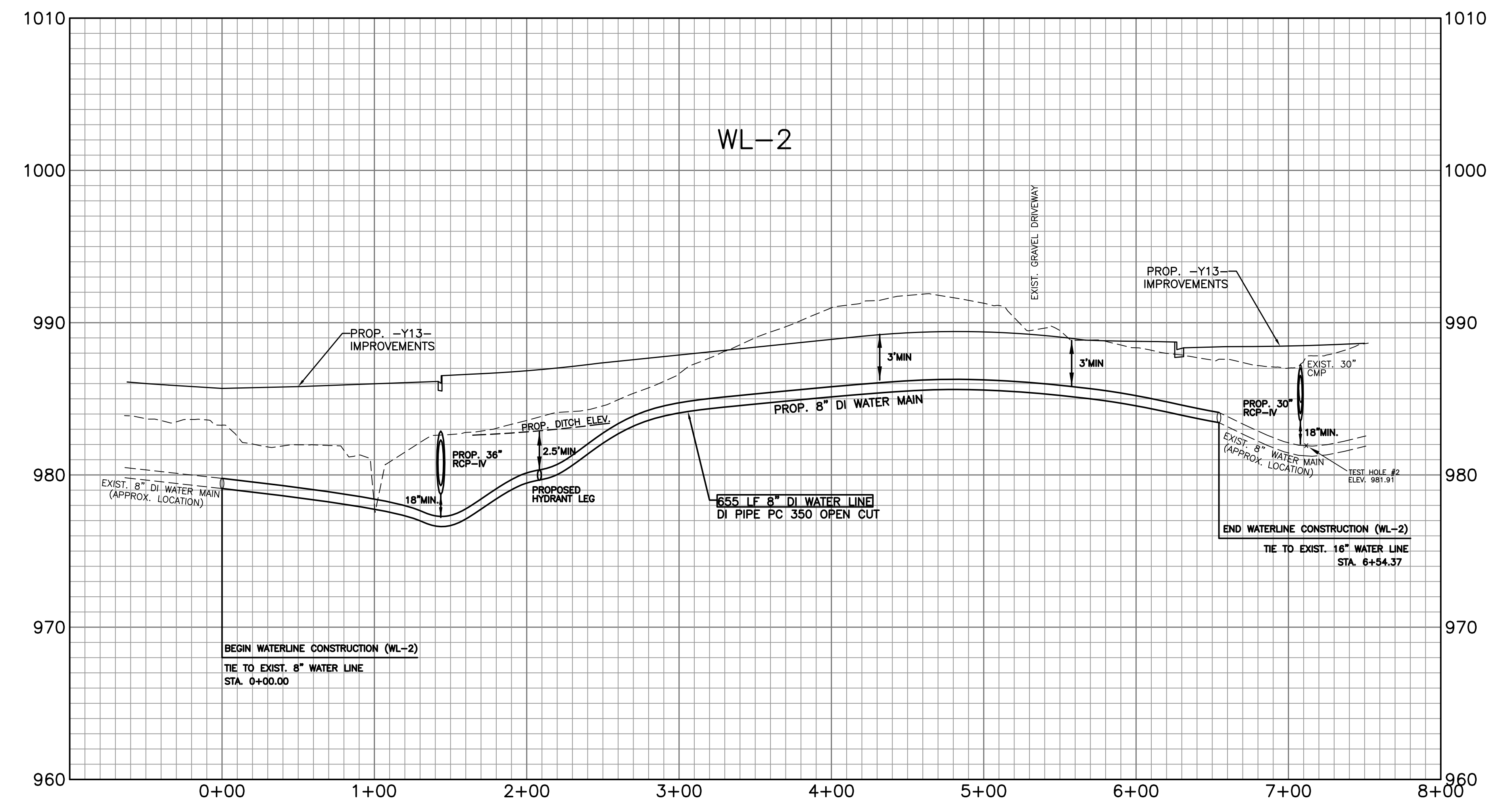
NOTE :  
 FOR SL-1 PLAN, SEE SHEET UC-4  
 FOR WL-1 PLAN, SEE SHEET UC-5

16" D.I. SEWER MAIN  
 RELOCATION - PROJECT 75360  
 8" D.I. WATER MAIN  
 RELOCATION - PROJECT 74360

9360



REVISIONS



NOTE :  
FOR WL-2 PLAN, SEE SHEET UC-6&7

**8" D.I. WATER MAIN  
RELOCATION - PROJECT 74360**

**9360**