

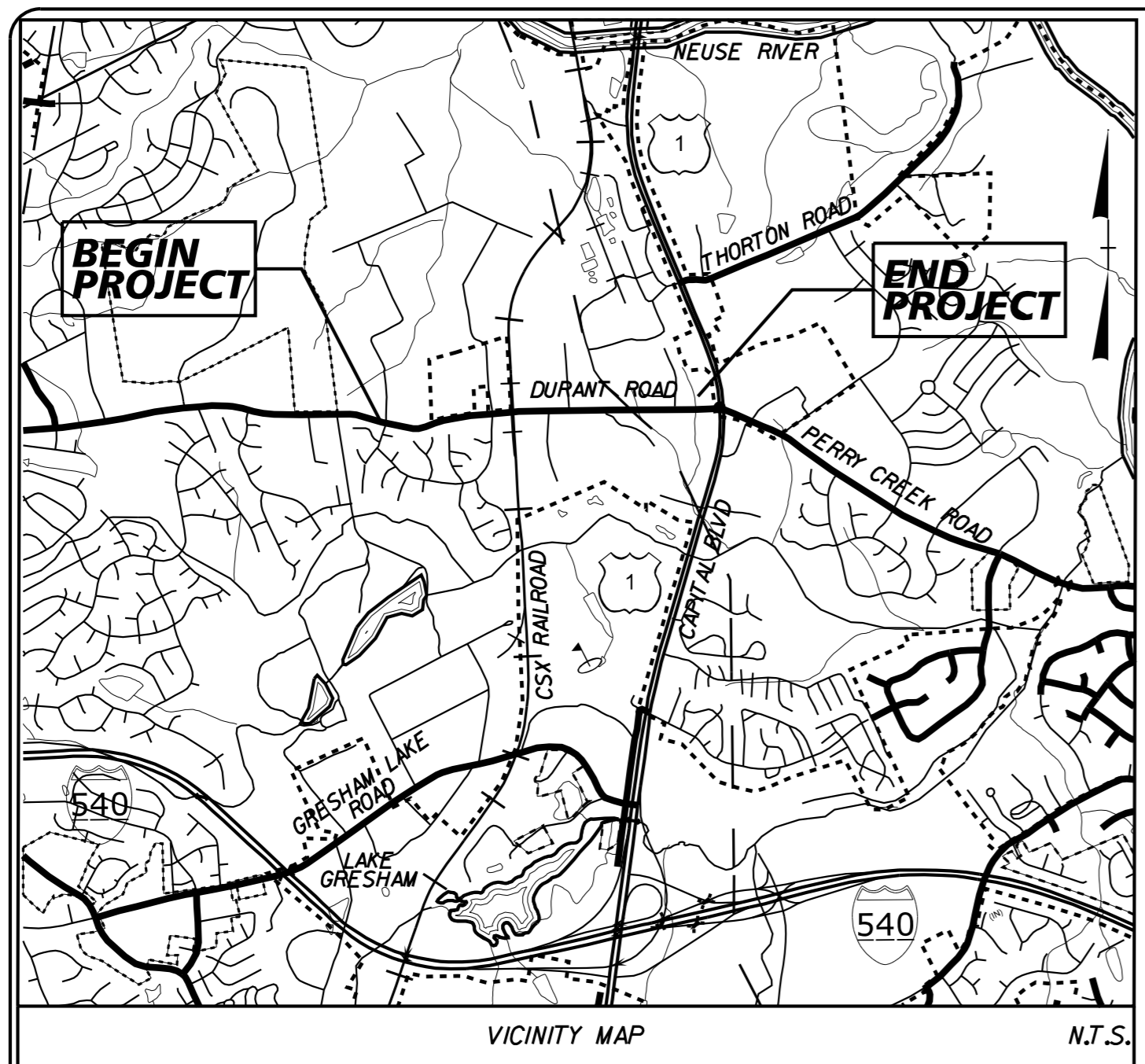
09/08/24

TIP PROJECT: P-5720

CONTRACT:

# STATE OF NORTH CAROLINA RAIL DIVISION

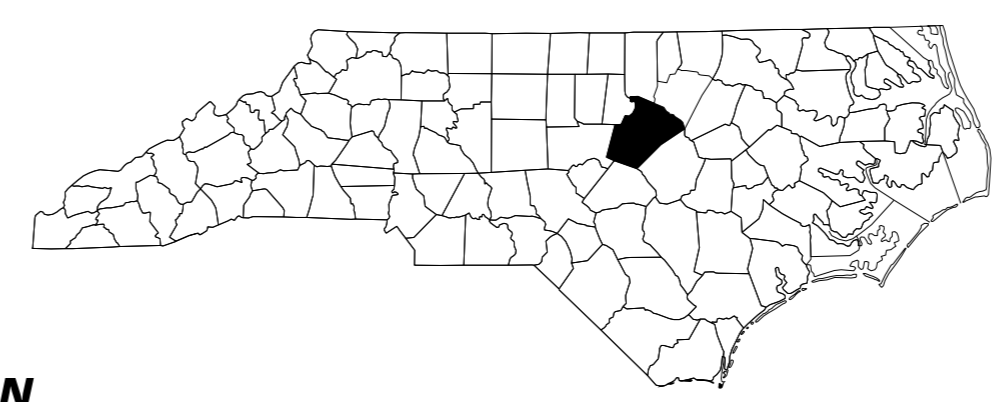
T.I.P. NO.	SHEET NO.
P-5720	UC-1



## UTILITY CONSTRUCTION PLANS WAKE COUNTY

**LOCATION: PROPOSED GRADE-SEPARATION OF DURANT ROAD (SR 2006)  
OVER CSX S LINE RAILROAD IN RALEIGH**

**TYPE OF WORK: UTILITY CONSTRUCTION**



**ATTENTION CONTRACTORS**

THE CONSTRUCTION CONTRACTOR RESPONSIBLE FOR THE EXTENSION OF WATER, SEWER, AND/OR REUSE, AS APPROVED IN THESE PLANS, IS RESPONSIBLE FOR CONTACTING THE PUBLIC UTILITIES DEPARTMENT AT (919) 996-4540 AT LEAST TWENTY-FOUR HOURS PRIOR TO BEGINNING ANY OF THEIR CONSTRUCTION.

FAILURE TO NOTIFY THE CITY IN ADVANCE OF BEGINNING CONSTRUCTION WILL RESULT IN THE ISSUANCE OF MONETARY FINES AND REQUIRE REINSTALLATION OF ANY WATER OR SEWER FACILITIES NOT INSPECTED AS A RESULT OF THIS NOTIFICATION FAILURE.

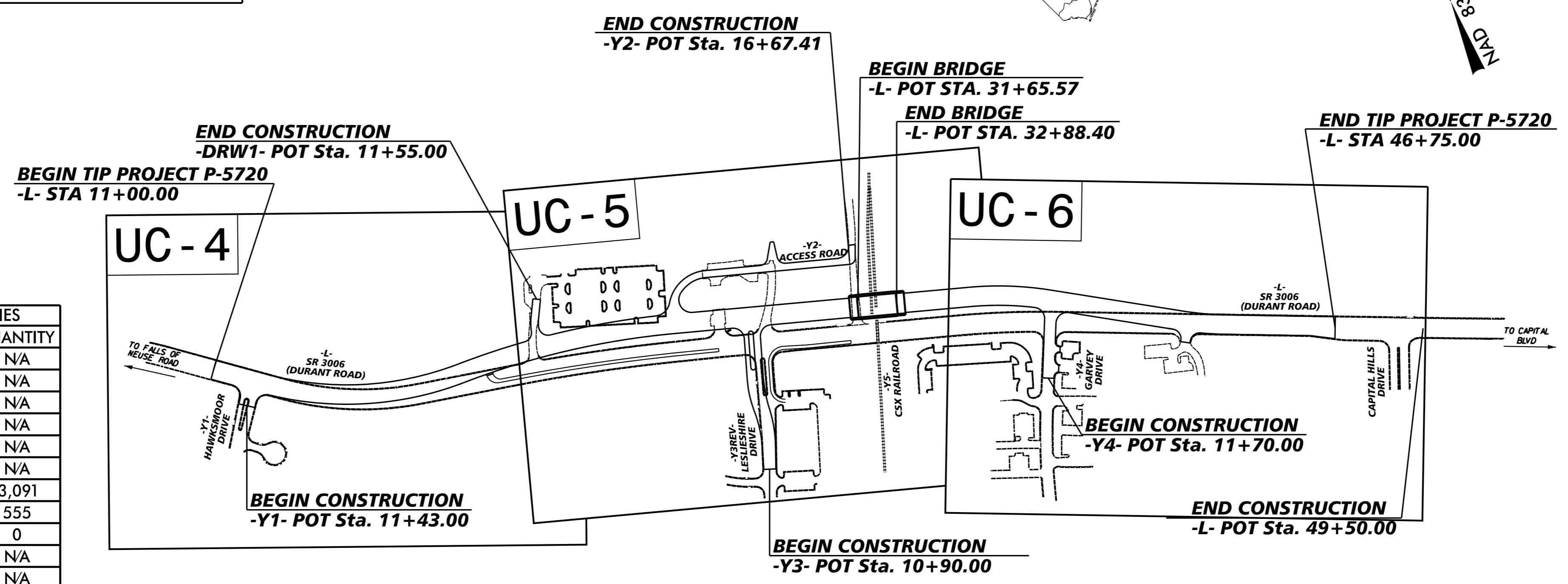
FAILURE TO CALL FOR INSPECTION, INSTALL A DOWNSTREAM PLUG, HAVE PERMITTED PLANS ON THE JOBSITE, OR ANY OTHER VIOLATION OF CITY OF RALEIGH STANDARDS, WILL RESULT IN A FINE AND POSSIBLE EXCLUSION FROM FUTURE WORK IN THE CITY OF RALEIGH.

PUBLIC IMPROVEMENTS QUANTITIES	
ITEM	QUANTITY
NUMBER OF OPEN LOT(S)	N/A
LOT NUMBER(S) BY PHASE	N/A
NUMBER OF UNITS	N/A
LIVABLE BUILDINGS	N/A
OPEN SPACE	N/A
NUMBER OF OPEN SPACE LOTS	N/A
PUBLIC WATER (LF)	3,091
PUBLIC SEWER (LF)	555
PUBLIC REUSE (LF)	0
PUBLIC STREET (LF)	N/A
PUBLIC SIDEWALK (LF)	N/A
STREET SIGNS (LF)	N/A
WATER SERVICE STUBS	N/A
SEWER SERVICE STUBS	N/A

**CONTACT INFORMATION**

OWNER'S NAME: MATT COTTON, PE  
 PROJECT ENGINEER: NOLAN RANEY, PE  
 TELEPHONE NUMBER: (919) 653-6625  
 MAILING ADDRESS: 300 MORRIS ST., SUITE 200  
 DURHAM, NC 27701  
 EMAIL ADDRESS: NOLAN.RANEY@KIMLEY-HORN.COM

\*NOTE TO CONTRACTOR: ALL WATER MAINS SHALL BE RESTRAINED JOINT DI PIPE.



**Water and Sewer Permits (if applicable)**

The City of Raleigh consents to the connection and extension of the City's Public Sewer System as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. City of Raleigh Public Utilities Department Permit # **S-4499**

The City of Raleigh consents to the connection and extension of the City's Public Water System as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. City of Raleigh Public Utilities Department Permit # **W-3582**

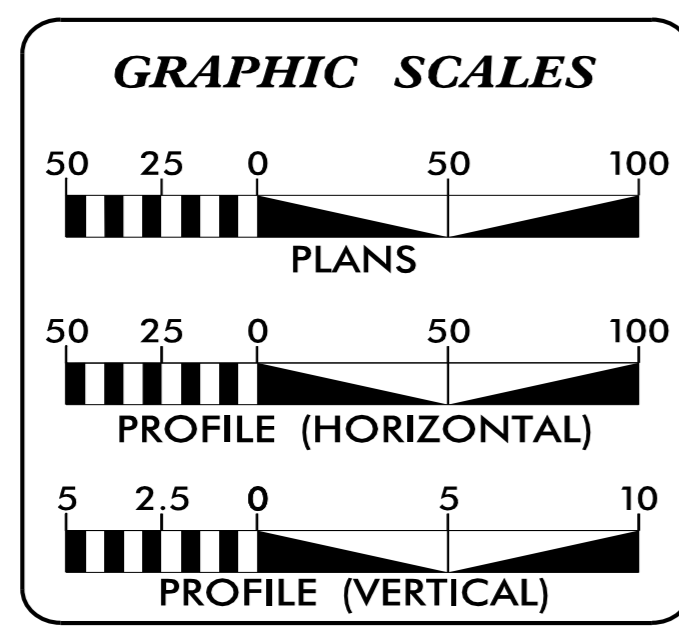
The City of Raleigh consents to the connection and extension of the private sewer collection system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.  
 City of Raleigh Public Utilities Department Permit # **N/A**

**CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION**

Electronic Approval: This approval is being issued electronically. This approval is valid only upon the signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with the City. This electronic approval may not be edited once issued. Any modification to this approval once issued will invalidate this approval.

City of Raleigh Development Approval \_\_\_\_\_  
 City of Raleigh Review Officer \_\_\_\_\_

DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED



**INDEX OF SHEETS**

SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A THRU UC-3D	DETAILS
UC-4 THRU UC-6	UTILITY CONSTRUCTION SHEETS
UC-7 THRU UC-8	PROFILE SHEETS

**WATER AND SEWER OWNERS ON PROJECT**

(A) WATER - CITY OF RALEIGH  
 (B) SANITARY SEWER - CITY OF RALEIGH

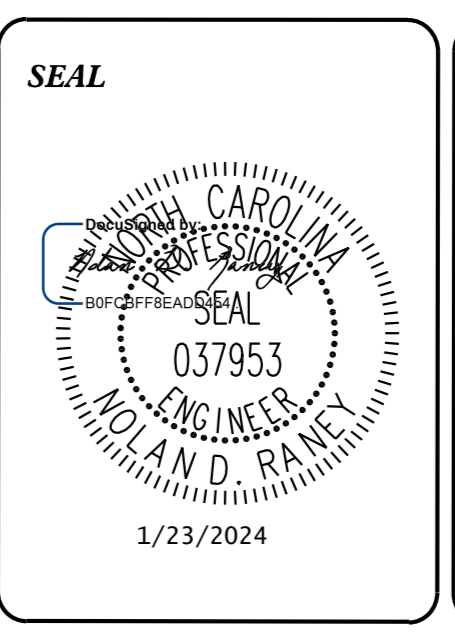
PREPARED IN THE OFFICE OF

# Kimley Horn

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NC LICENSE #F-0102  
 P.O. BOX 33008  
 RALEIGH, NORTH CAROLINA 27638  
 PHONE: (919) 677-2000

NOLAN D. RANEY, PE CONSULTANT CONTACT #1  
 DANIEL G. BULA, PE CONSULTANT CONTACT #2



**DIVISION OF HIGHWAYS UTILITIES UNIT**

1555 MAIL SERVICES CENTER  
 RALEIGH NC 27699-1555  
 PHONE (919) 707-6690  
 FAX (919) 250-4151

Ali Kouchehi, PE UTILITIES REGIONAL ENGINEER  
 UTILITIES ENGINEER  
 C. Dayton Martin, III UTILITIES AREA COORDINATOR  
 Tanga Sampson UTILITIES COORDINATOR



# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

**Kimley»Horn**  
421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, N.C. 27601

PROJECT REFERENCE NO.	SHEET NO.
P-5720	UC-2
DESIGNED BY: DGB	
DRAWN BY: DGB	
CHECKED BY: ZGP	
APPROVED BY: NDR	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

## UTILITIES PLAN SHEET SYMBOLS

### UTILITY CONSTRUCTION

#### 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	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	
Water Meter	
Relocate Water Meter	
Remove Water Meter	
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

#### PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

#### PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

NOTE  
PAY ITEM

#### EXISTING UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Utility Pole	
Utility Pole with Base	
H-Frame Pole	
Power Transmission Line Tower	
Water Manhole	
Power Manhole	
Telephone Manhole	
Sanitary Sewer Manhole	
Hand Hole for Cable	
Power Transformer	
Telephone Pedestal	
CATV Pedestal	
Gas Valve	
Gas Meter	
Located Miscellaneous Utility Object	
Abandoned According to Utility Records	
End of Information	

*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	

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

**Kimley»Horn**  
 The City of Raleigh consents to the connection and extension of the City's Public Sewer System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # W-4097.  
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 The City of Raleigh consents to the connection and extension of the private sewer collection system as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.  
 City of Raleigh Public Utilities Department Permit # \_\_\_\_\_  
 CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION  
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 City of Raleigh Development Approval \_\_\_\_\_  
 City of Raleigh Review Officer \_\_\_\_\_

REVISIONS



5/14/99

REVISIONS

1/23/2024

# UTILITY CONSTRUCTION

## NCDOT 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 2024.
2. THE EXISTING UTILITIES BELONG TO CITY OF RALEIGH.
3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, 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 QUALITY, 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.

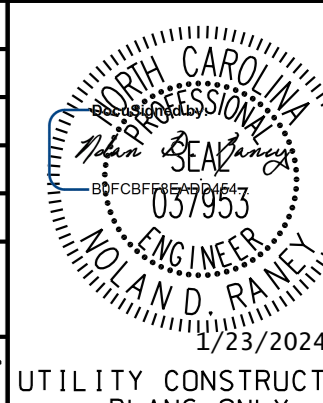
9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

## PROJECT SPECIFIC NOTES:

1. ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AT ITS EXPENSE, UNLESS PREVIOUSLY OBTAINED BY THE OWNER AND PROVIDED AT THE PRECONSTRUCTION CONFERENCE.
2. DEVIATION FROM THESE PLANS AND NOTES WITHOUT THE PRIOR WRITTEN CONSENT OF THE UTILITY OWNER OR THEIR REPRESENTATIVE OR THE ENGINEER MAY BE CAUSE FOR THE WORK TO BE UNACCEPTABLE.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SHOULD ANY FIELD CONDITIONS BE ENCOUNTERED THAT VARY FROM THE INFORMATION PROVIDED IN THE CONTRACT DOCUMENTS. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE UTILITY OWNER PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL HOLD AN ON-SITE PRECONSTRUCTION MEETING WITH THE OWNER AND NCDOT AND SHALL DETAIL ITS PROPOSED INSTALLATION, CLEANING, TESTING, AND CONNECTION PLAN. OWNER WILL PROVIDE CONTACT INFORMATION FOR INSPECTIONS. PRECONSTRUCTION MEETING SHALL BE SCHEDULED TO TAKE PLACE AT LEAST 7 DAYS PRIOR TO COMMENCING UTILITY CONSTRUCTION WORK.
5. CONTRACTOR SHALL NOTIFY PROPERTY OWNERS AND TENANTS AT LEAST 7 DAYS PRIOR TO CONSTRUCTION THAT UTILITY CONSTRUCTION ACTIVITY WILL TAKE PLACE IN THEIR AREA.
6. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS FOR ALL UTILITY CONSTRUCTION PRIOR TO PLACING THE PIPELINE(S) IN SERVICE (SEE UC SPECIAL PROVISIONS).
7. PIPE ALIGNMENT SHOWN IS BASED ON STANDARD DUCTILE IRON MECHANICAL JOINT FITTINGS. JOINT DEFLECTIONS SHALL NOT EXCEED 75 PERCENT OF MANUFACTURER'S RECOMMENDED DEFLECTION. CONTRACTOR SHALL ADJUST PIPELINE ALIGNMENT AND DEFLECT JOINTS AS NECESSARY TO ACCOMMODATE THE STANDARD BENDS SHOWN.
8. MINIMUM PIPE COVER FOR DISTRIBUTION WATER MAINS SHALL BE 3 FEET, UNLESS GREATER DEPTH IS SHOWN ON THE PROFILE DRAWINGS.
9. ALL PRESSURIZED FITTINGS SHALL BE DUCTILE IRON RESTRAINED MECHANICAL JOINT WITH PRESSURE RATING EQUAL TO OR HIGHER THAN HOST PIPE, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
10. ALL MECHANICAL JOINTS SHALL BE FITTED WITH WEDGE-TYPE MECHANICAL RESTRAINT ACCESSORY KITS DESIGNED FOR THE INTENDED USE AND MATERIAL, AS APPROVED BY UTILITY OWNER.

### Kimley»Horn

421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, N.C. 27601

PROJECT REFERENCE NO.	SHEET NO.
P-5720	UC-3
DESIGNED BY: DGB	
DRAWN BY: DGB	
CHECKED BY: ZGP	
APPROVED BY: NDR	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

## UTILITY CONSTRUCTION

11. ALL WORK SHALL CONFORM TO APPLICABLE REQUIREMENTS OF THE CITY OF RALEIGH PUBLIC UTILITIES HANDBOOK, THE UC PLANS, AND THE UC SPECIAL PROVISIONS.
12. ALL PIPE SHALL BE INSTALLED WITH RESTRAINED JOINTS.
13. CONTRACTOR SHALL BE MADE AWARE THAT THE EXISTING 24-INCH WATER TRANSMISSION MAIN IN DURANT ROAD IS IDENTIFIED BY THE CITY OF RALEIGH AS A CRITICAL LINE. ALL MAIN SHUTDOWNS SHALL BE COORDINATED WITH THE CITY OF RALEIGH, SHALL BE RESTRICTED TO NO MORE THAN 24 HOURS, AND SHALL NOT OCCUR DURING PEAK DEMAND SEASON.
14. ALL PROPOSED WATER LINE PIPE AND FITTINGS 12-INCHES AND SMALLER SHALL BE RESTRAINED JOINT PC 350 DUCTILE IRON PIPE. ALL PROPOSED WATER LINE PIPE AND FITTINGS 16-INCHES AND GREATER SHALL BE RESTRAINED JOINT PC 250 DUCTILE IRON PIPE.
15. A THRUST RESTRAINT DESIGN PRESSURE OF 350 PSI SHALL BE USED.
16. ALL VALVES 16" AND LARGER SHALL BE BUTTERFLY VALVES IN A MANHOLE PER DETAIL W-16, AND INCLUDE THRUST COLLARS PER DETAIL W-8. THRUST COLLARS SHALL BE CONSIDERED INCIDENTAL TO VALVE INSTALLATION. VALVE MANHOLES WILL BE PAID FOR USING CORRESPONDING UTILITY MANHOLE PAY ITEMS.

## CSX GENERAL NOTES:

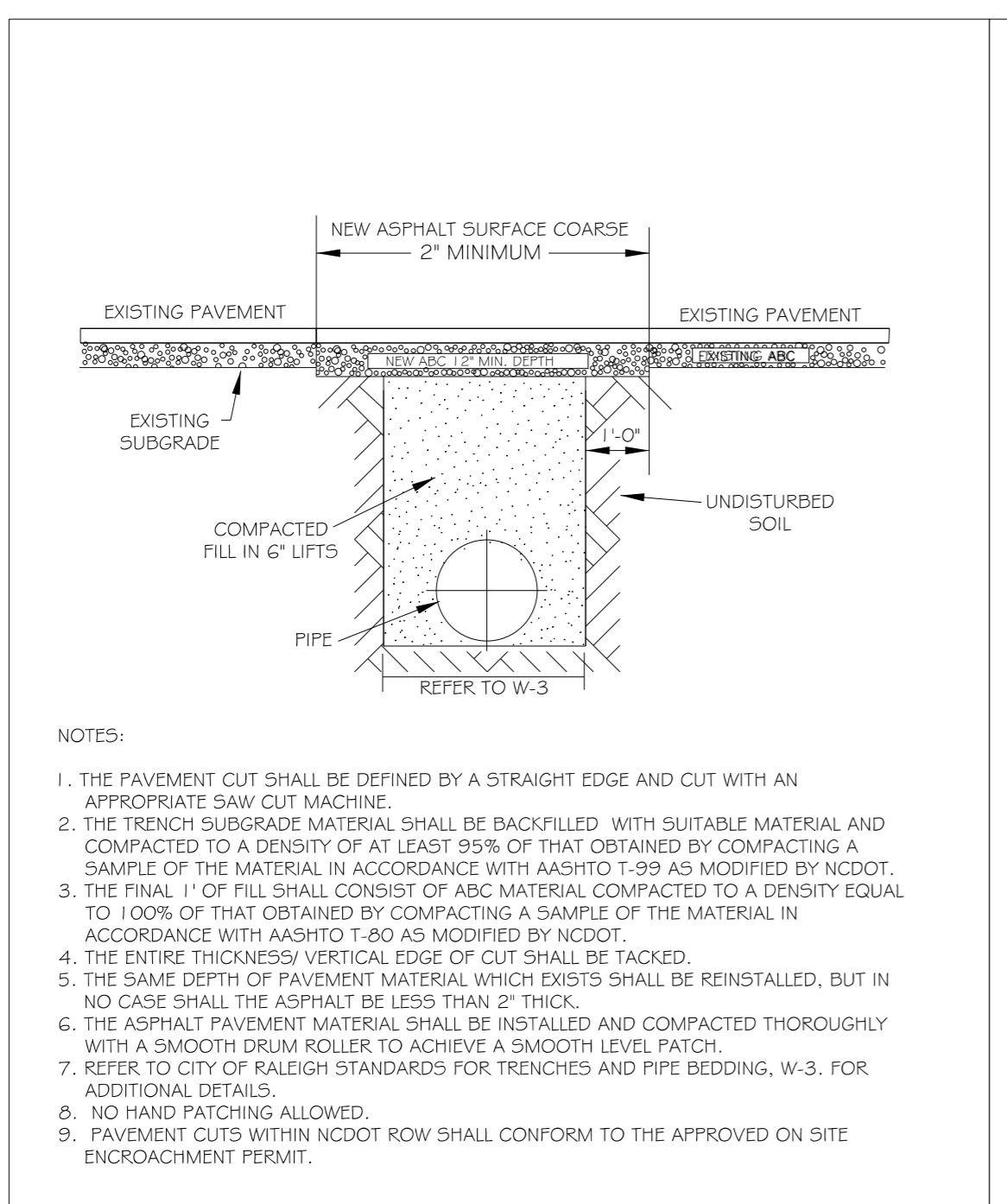
1. ALL WORK WITHIN CSX RIGHTS-OF-WAY SHALL COMPLY WITH CSX DESIGN & CONSTRUCTION STANDARD SPECIFICATIONS - PIPELINE OCCUPANCIES (2018) AND FACILITY ENCROACHMENT AGREEMENT NO. CSX880711.
2. CONTRACTOR SHALL PREVENT AUGER FROM LEADING PIPE DURING BORE AND JACK OPERATIONS.
3. JACK AND BORE CASING PIPE ENDS SHALL BE SEALED ACCORDING TO CSXT SPECIFICATIONS.



PROJECT REFERENCE NO.	SHEET NO.
P-5720	UC-3A
DESIGNED BY: DGB	
DRAWN BY: DGB	
CHECKED BY: ZGP	
APPROVED BY: NDR	
REVISED:	UTILITY CONSTRUCTION PLANS ONLY
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

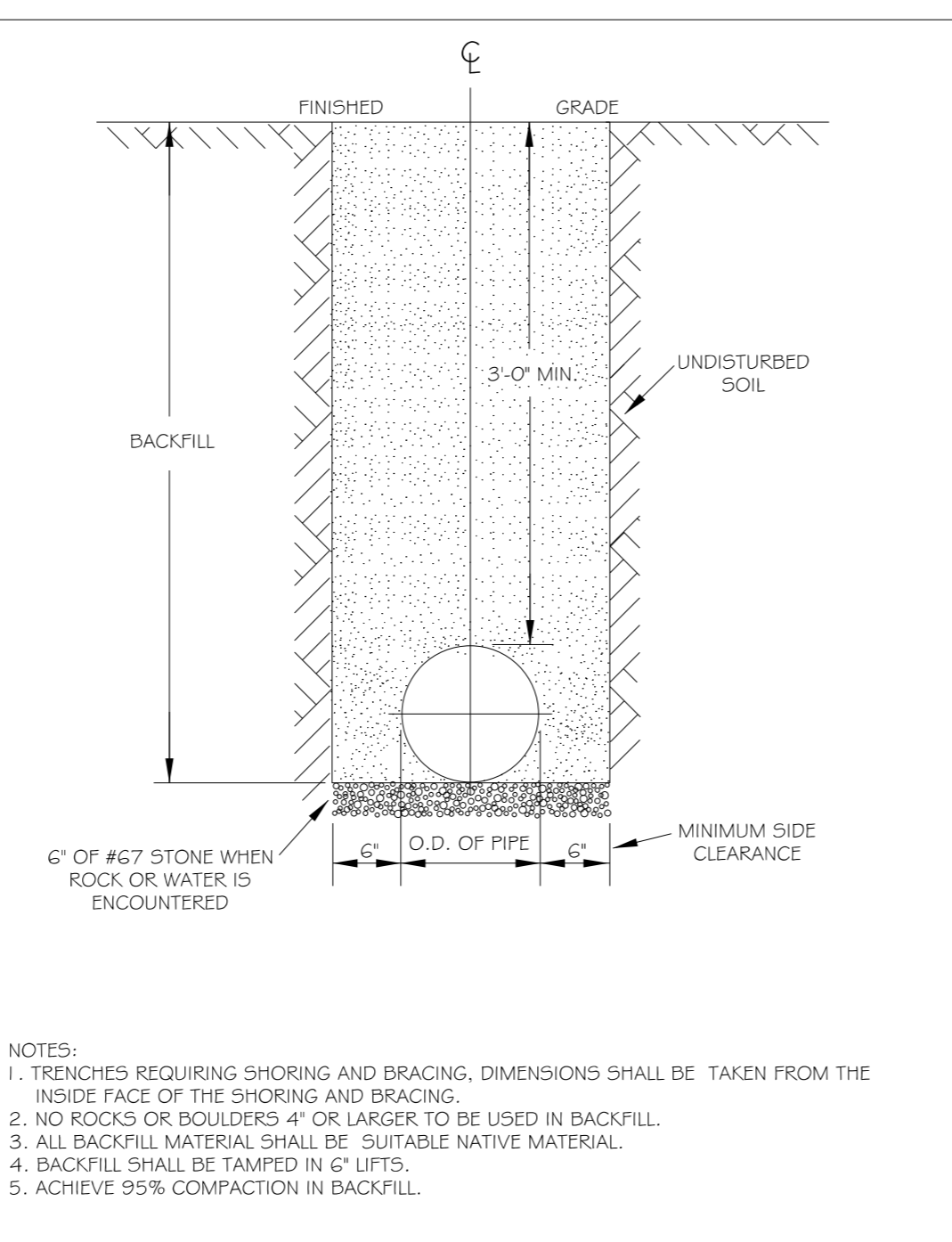
**UTILITY CONSTRUCTION**

REVISIONS



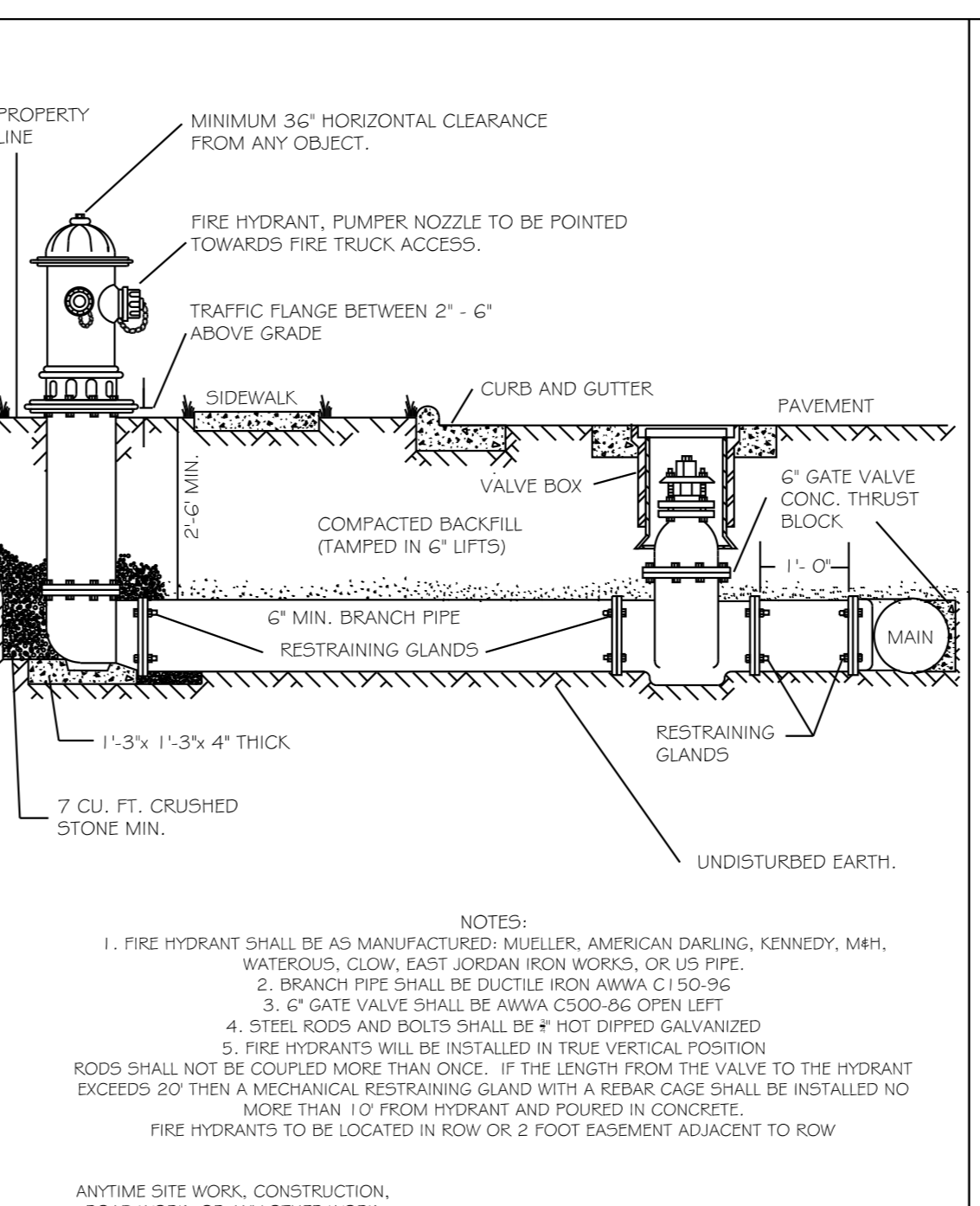
- NOTES:
1. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAW CUT MACHINE.
  2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
  3. THE FINAL 1\"/>

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD ASPHALT PAVEMENT PATCH DETAIL			
DWG. NO.	REVISIONS	DATE	DATE
W-2	RRH	3-31-00	A.B.B. 4-16-04
	D.W.C.	1-1-99	J.P.S. 10-29-10



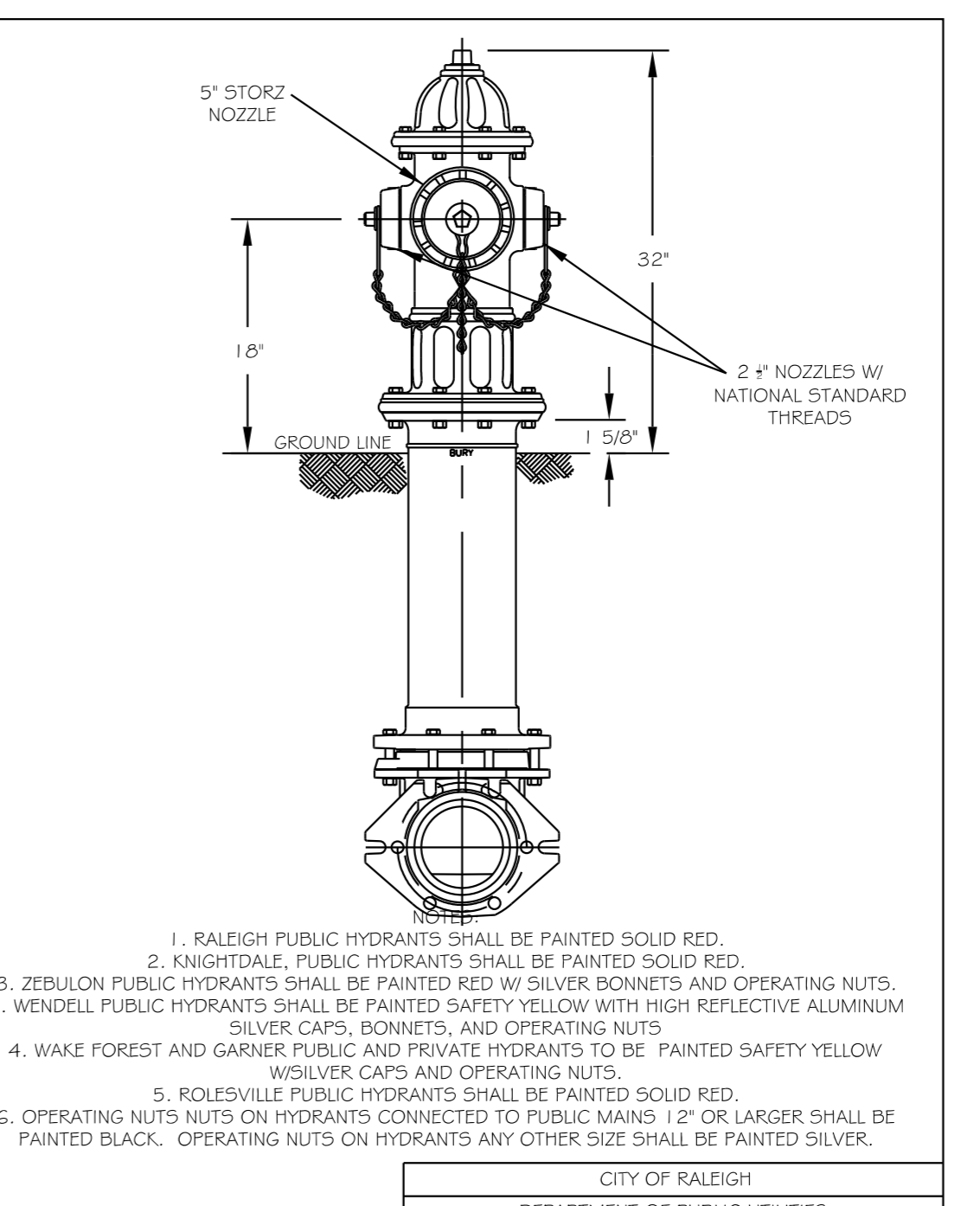
- NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
  2. NO ROCKS OR BOULDERS 4\"/>

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON			
DWG. NO.	REVISIONS	DATE	DATE
W-3	RRH	3-3-99	A.B.B. 2-15-05
	D.W.C.	3-31-00	J.P.S. 10-29-10



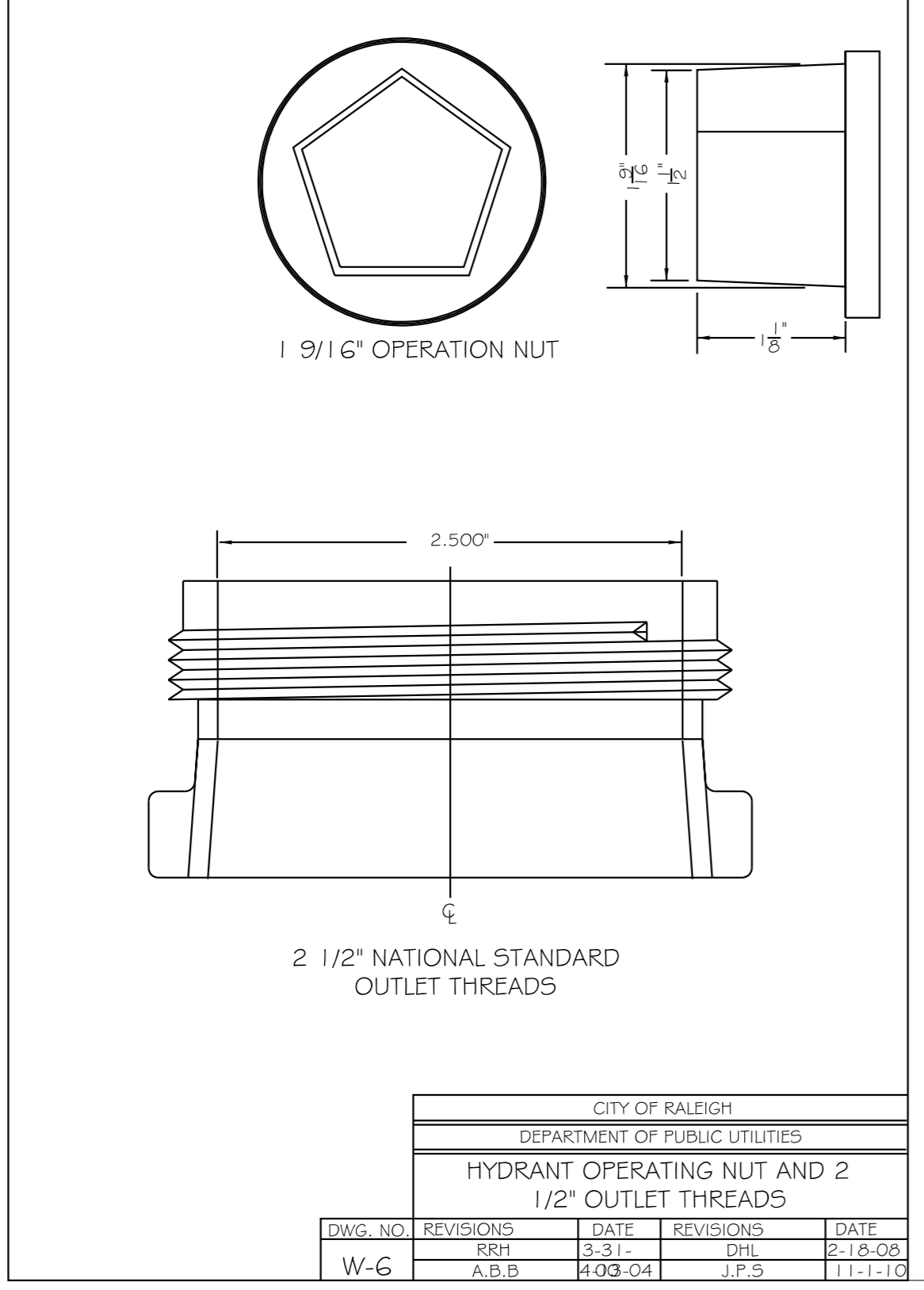
- NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, MHI, WATERLOUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
  2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96
  3. 6\"/>

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD FIRE HYDRANT INSTALLATION DETAIL			
DWG. NO.	REVISIONS	DATE	DATE
W-4	RRH	4-4-04	P.F.P. 2-17-02
	D.H.L.	2/14/08	



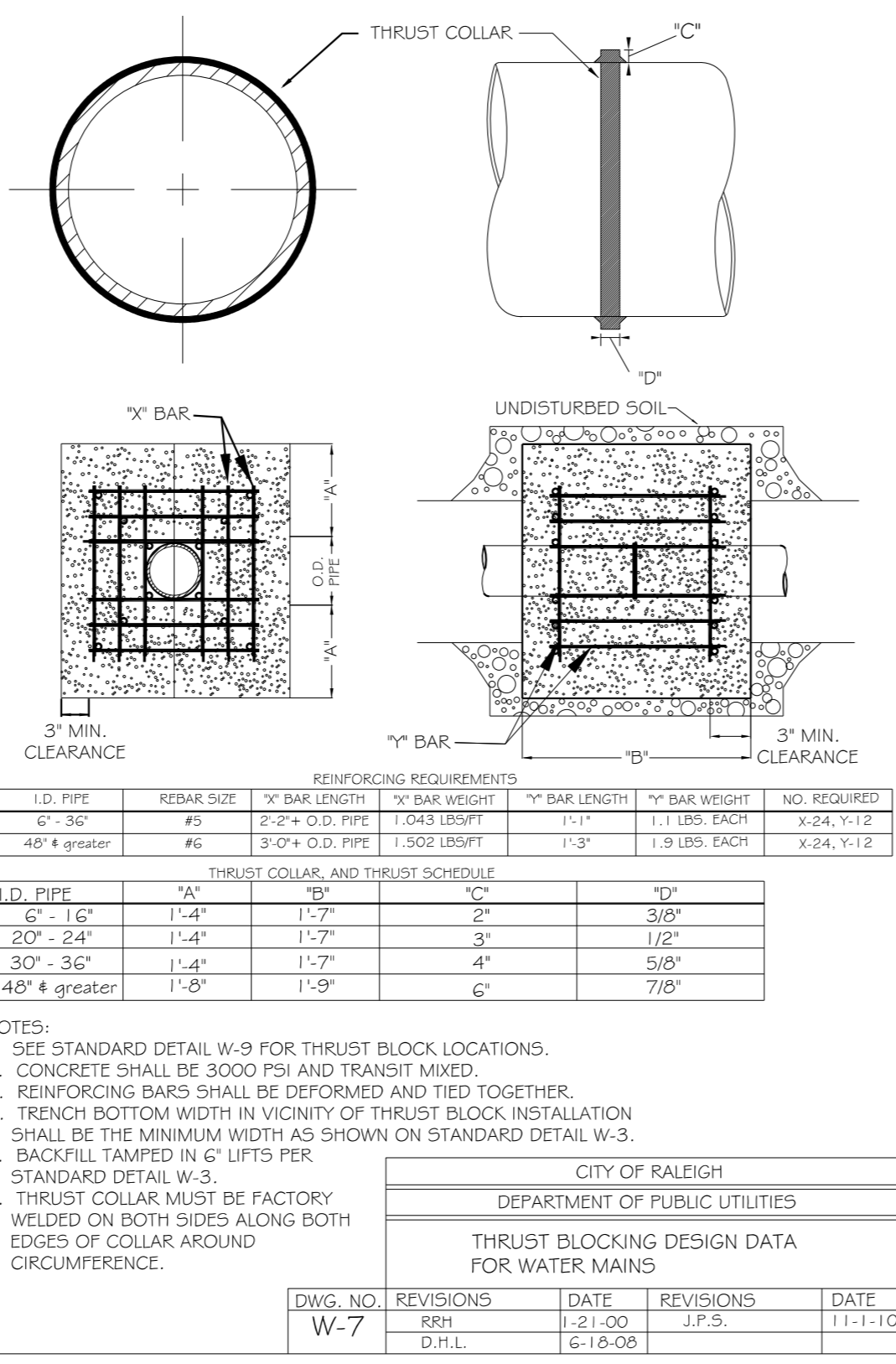
- NOTES:
1. RALEIGH PUBLIC HYDRANTS SHALL BE PAINTED SOLID RED.
  2. KNIGHTDALE PUBLIC HYDRANTS SHALL BE PAINTED SOLID RED.
  3. ZEBULON PUBLIC HYDRANTS SHALL BE PAINTED RED W/ SILVER BONNETS AND OPERATING NUTS.
  4. WENDELL PUBLIC HYDRANTS SHALL BE PAINTED SAFETY YELLOW WITH HIGH REFLECTIVE ALUMINUM SILVER CAPS, BONNETS, AND OPERATING NUTS.
  5. WAKE FOREST AND GARNER PUBLIC AND PRIVATE HYDRANTS TO BE PAINTED SAFETY YELLOW W/ SILVER CAPS AND OPERATING NUTS.
  6. ROLESVILLE PUBLIC HYDRANTS SHALL BE PAINTED SOLID RED.
  7. OPERATING NUTS NUTS ON HYDRANTS CONNECTED TO PUBLIC MAINS 12\"/>

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD FIRE HYDRANT WITH 5\"/>			
DWG. NO.	REVISIONS	DATE	DATE
W-5	RRH	3-1-87	A.B.B. 7-2-05
	D.H.L.	3-31-00	2-18-00



- NOTES:
1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
  2. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
  3. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
  4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
  5. BACKFILL TAMPED IN 6\"/>

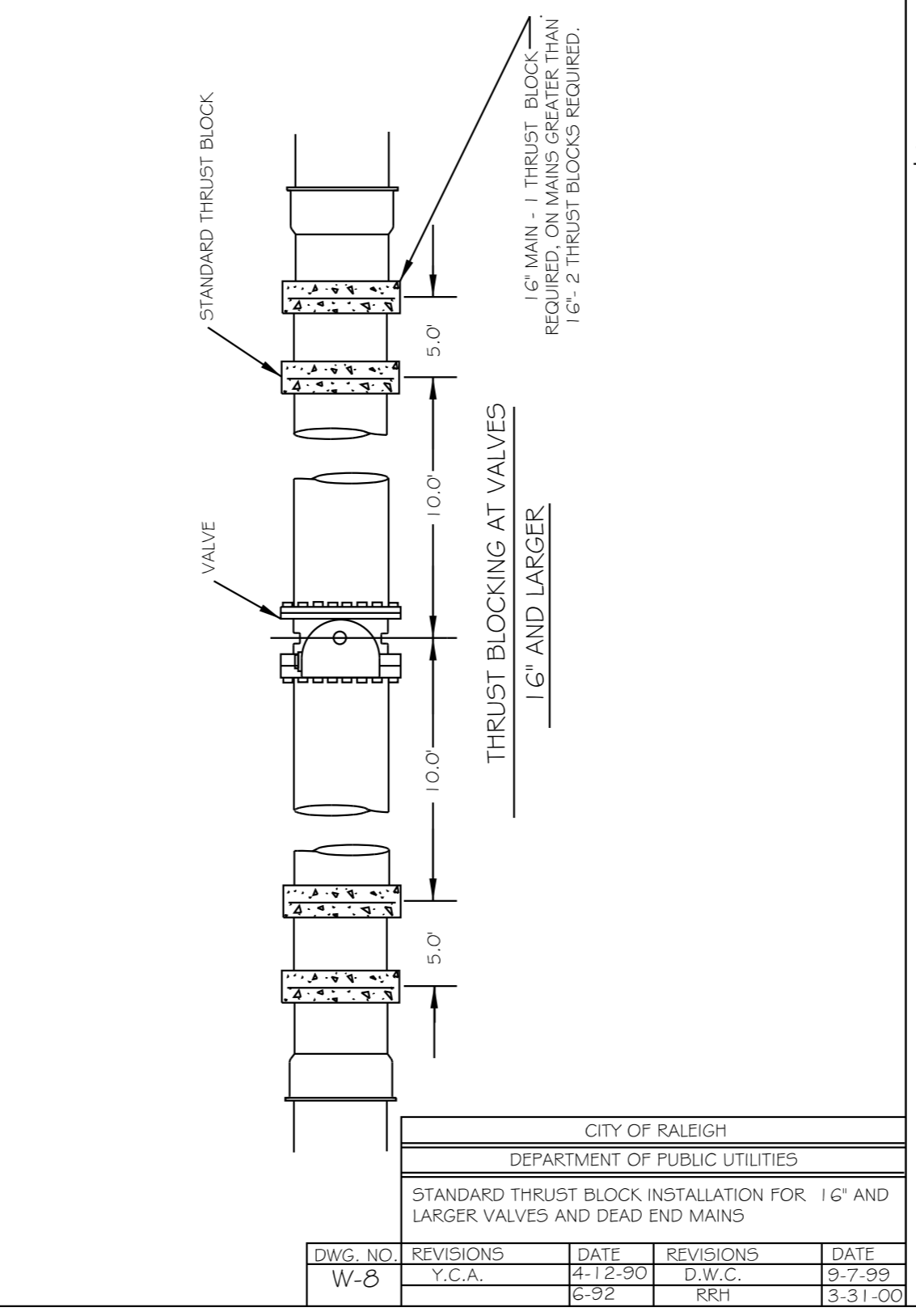
CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
HYDRANT OPERATING NUT AND 2 1/2\"/>			
DWG. NO.	REVISIONS	DATE	DATE
W-6	RRH	3-3-1	D.H.L. 2-18-08
	A.B.B.	4-03-04	J.P.S. 11-1-10



I.D. PIPE	REBAR SIZE	REINFORCING REQUIREMENTS
6\"/>		

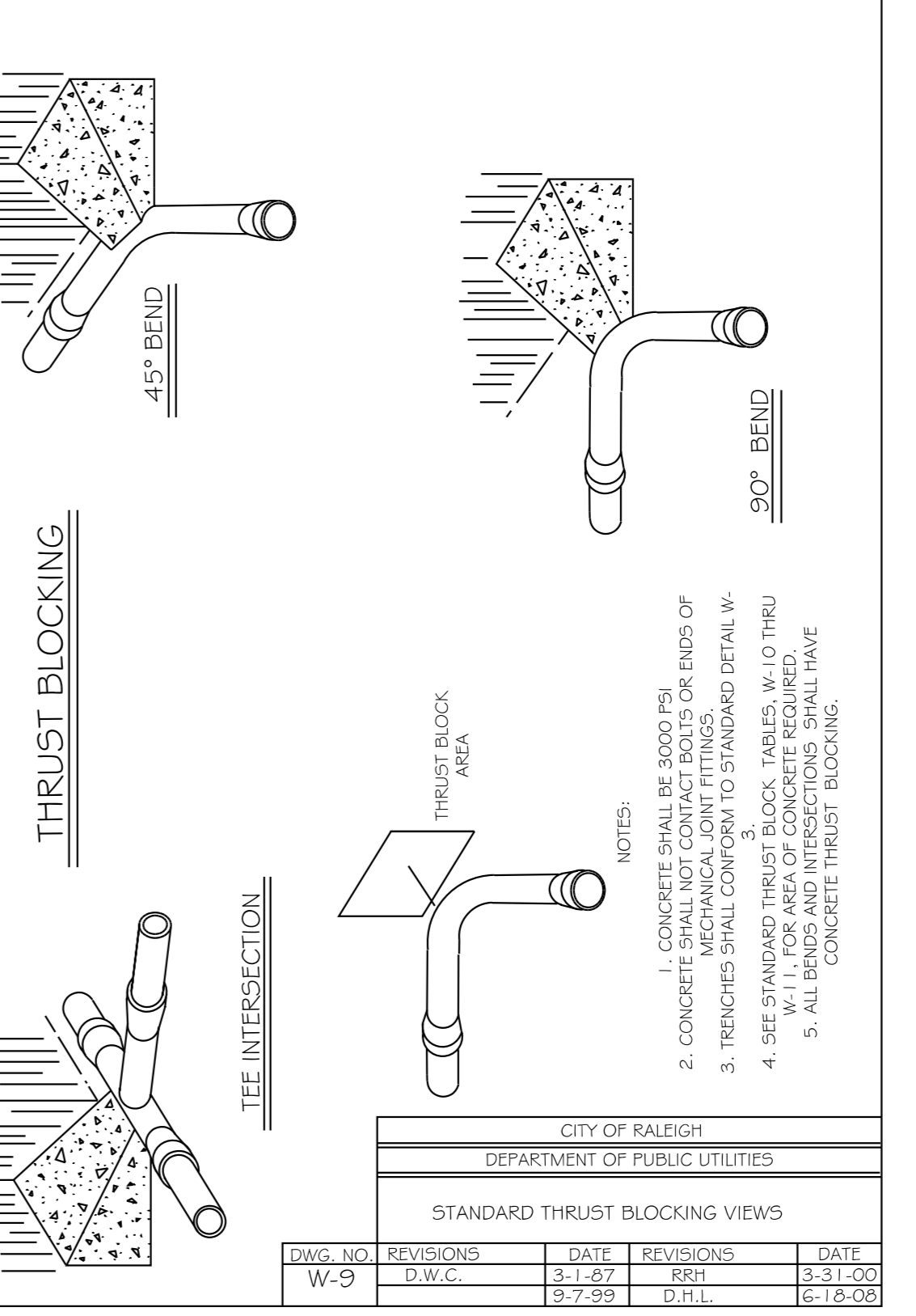
- NOTES:
1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
  2. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
  3. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
  4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
  5. BACKFILL TAMPED IN 6\"/>

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
THRUST BLOCKING DESIGN DATA FOR WATER MAINS			
DWG. NO.	REVISIONS	DATE	DATE
W-7	RRH	1-21-00	J.P.S. 11-1-10
	D.H.L.	6-18-08	



- NOTES:
1. CONCRETE SHALL BE 3000 PSI
  2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
  3. TRENCHES SHALL CONFORM TO STANDARD DETAIL W-3.
  4. SEE STANDARD THRUST BLOCK TABLES, W-10 THRU W-11, FOR AREA OF CONCRETE REQUIRED.
  5. ALL BLOCKING SHALL HAVE CONCRETE THRUST BLOCKING.

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD THRUST BLOCK INSTALLATION FOR 16\"/>			
DWG. NO.	REVISIONS	DATE	DATE
W-8	Y.C.A.	4-12-90	D.W.C. 9-7-99
		6-92	RRH 3-31-00



- NOTES:
1. CONCRETE SHALL BE 3000 PSI
  2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
  3. TRENCHES SHALL CONFORM TO STANDARD DETAIL W-3.
  4. SEE STANDARD THRUST BLOCK TABLES, W-10 THRU W-11, FOR AREA OF CONCRETE REQUIRED.
  5. ALL BLOCKING SHALL HAVE CONCRETE THRUST BLOCKING.

CITY OF RALEIGH			
DEPARTMENT OF PUBLIC UTILITIES			
STANDARD THRUST BLOCKING VIEWS			
DWG. NO.	REVISIONS	DATE	DATE
W-9	D.W.C.	3-1-87	RRH 3-31-00
		9-7-99	D.H.L. 6-18-08

**Water and Sewer Permits (if applicable)**  
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City of Raleigh Development Approval \_\_\_\_\_  
 City of Raleigh Review Officer \_\_\_\_\_



**UTILITY CONSTRUCTION**

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS  
 BASED ON TEST PRESSURE OF 200 P.S.I.

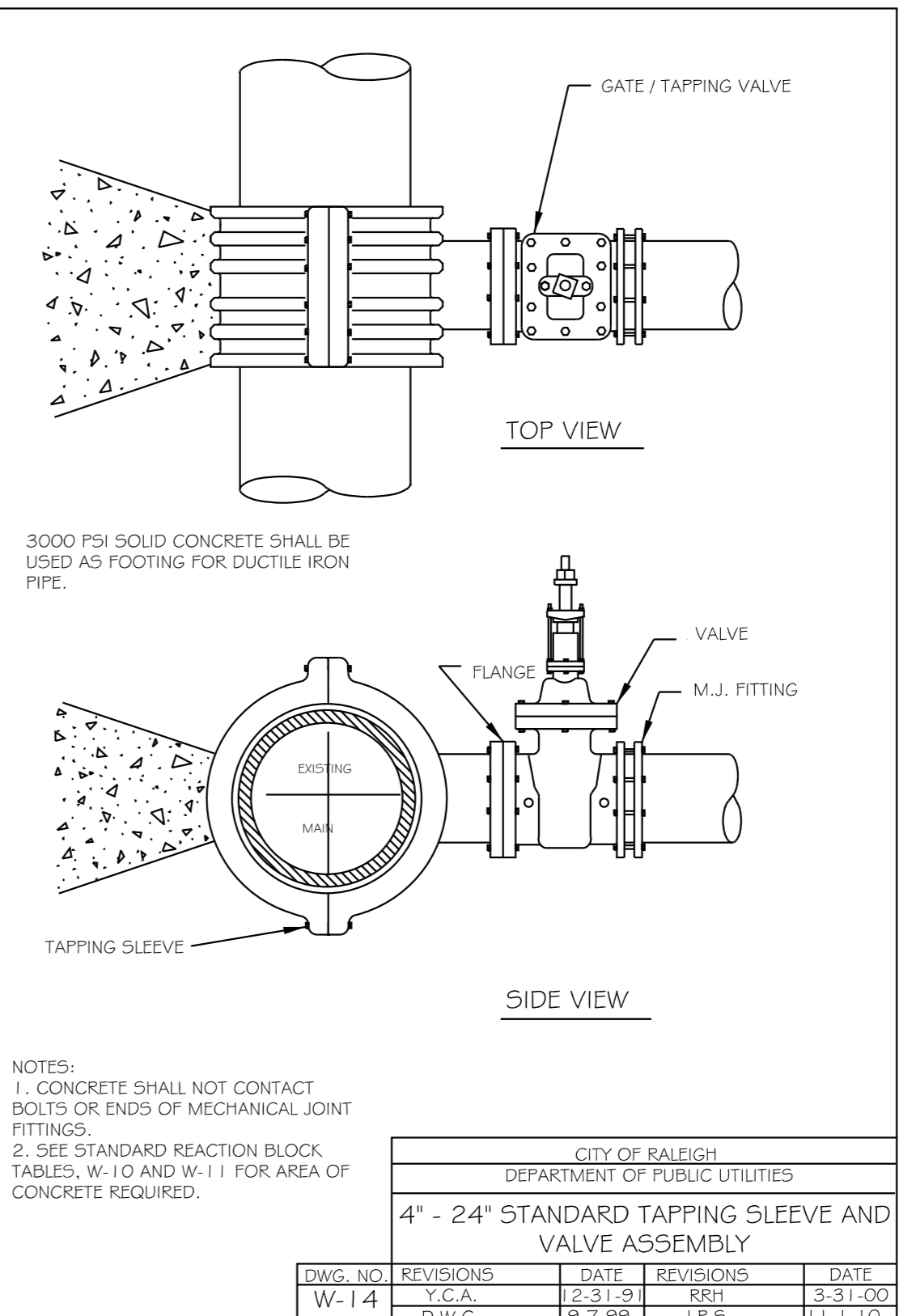
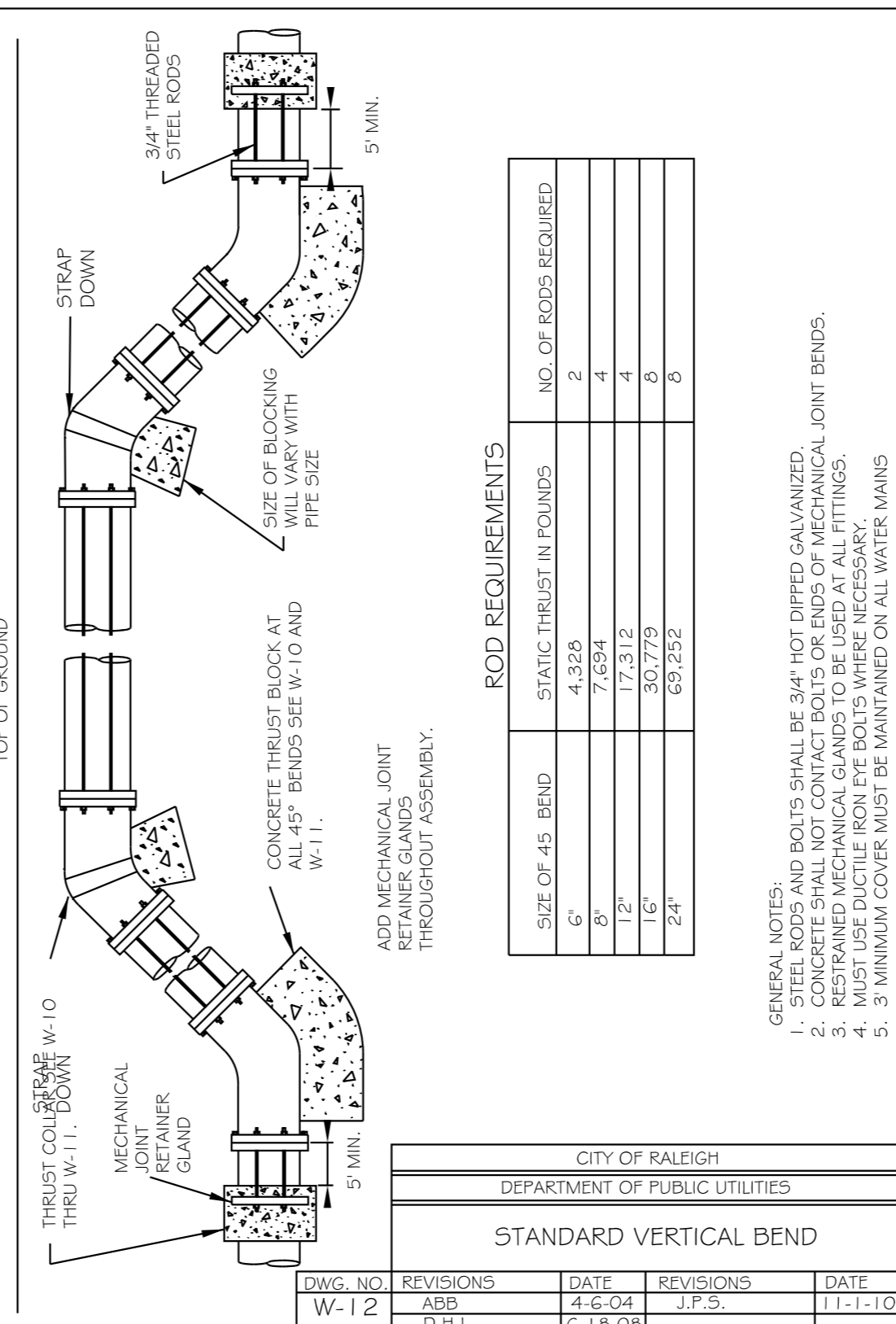
ALL AREAS GIVEN IN SQUARE FEET.

PIPE AND DEGREE OF BEND	90°							
	1 1/4"	2"	3"	4"	6"	8"	12"	16"
1 1/4"	1,106	1	1	1	1	2	1	
2 1/2"	2,207	1	2	2	1	1	3	1
45°	4,328	2	3	3	1	1	2	5
90°	7,996	2	4	5	1	1	2	8
PLUG	5,655	2	3	4	1	1	2	6
8"								
1 1/4"	1,970	1	1	2	1	1	2	1
2 1/2"	3,922	1	2	3	1	1	4	1
45°	7,694	2	4	5	1	1	2	8
90°	14,215	4	8	9	2	2	4	15
PLUG	10,053	3	5	6	2	2	3	10
12"								
1 1/4"	4,433	2	3	3	1	1	2	5
2 1/2"	8,826	3	5	6	2	2	3	9
45°	17,312	5	9	11	3	3	5	18
90°	31,963	8	16	19	4	4	8	32
PLUG	22,619	6	12	14	3	3	6	23
16"								
1 1/4"	7,881	2	4	5	1	1	2	8
2 1/2"	15,691	4	8	10	2	2	4	16
45°	30,779	8	16	19	4	4	8	31
90°	56,861	15	29	35	8	8	15	57
PLUG	40,213	10	21	25	5	5	10	41

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS  
 BASED ON TEST PRESSURE OF 200 P.S.I.

ALL AREAS GIVEN IN SQUARE FEET.

PIPE AND DEGREE OF BEND	90°							
	1 1/4"	2"	3"	4"	6"	8"	12"	16"
1 1/4"	17,734	5	9	11	3	3	5	18
2 1/2"	35,305	9	18	22	5	5	9	36
45°	69,252	18	35	42	9	9	18	70
90°	127,936	32	64	77	16	16	32	128
PLUG	90,478	23	46	55	12	12	23	91
30°								
1 1/4"	27,709	7	14	17	4	4	7	2
2 1/2"	55,163	14	28	34	7	7	14	56
45°	108,204	28	55	65	14	14	28	109
90°	199,900	50	100	120	25	25	50	200
PLUG	141,372	36	71	85	18	18	36	142
36°								
1 1/4"	39,901	10	20	24	5	5	10	40
2 1/2"	79,439	20	40	48	10	10	20	80
45°	155,816	39	78	94	20	20	39	156
90°	287,854	72	144	172	36	36	72	288
PLUG	203,574	51	102	122	26	26	51	204
48°								
1 1/4"	70,935	18	36	43	9	9	18	71
2 1/2"	141,218	36	71	85	18	18	36	142
45°	277,007	70	139	166	35	35	70	277
90°	511,742	128	256	320	64	64	128	512
PLUG	361,911	91	181	217	46	46	91	362



REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.

USE 6" - 90° BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-10	D.W.C.	23-99		

REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.

USE 6" - 90° BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

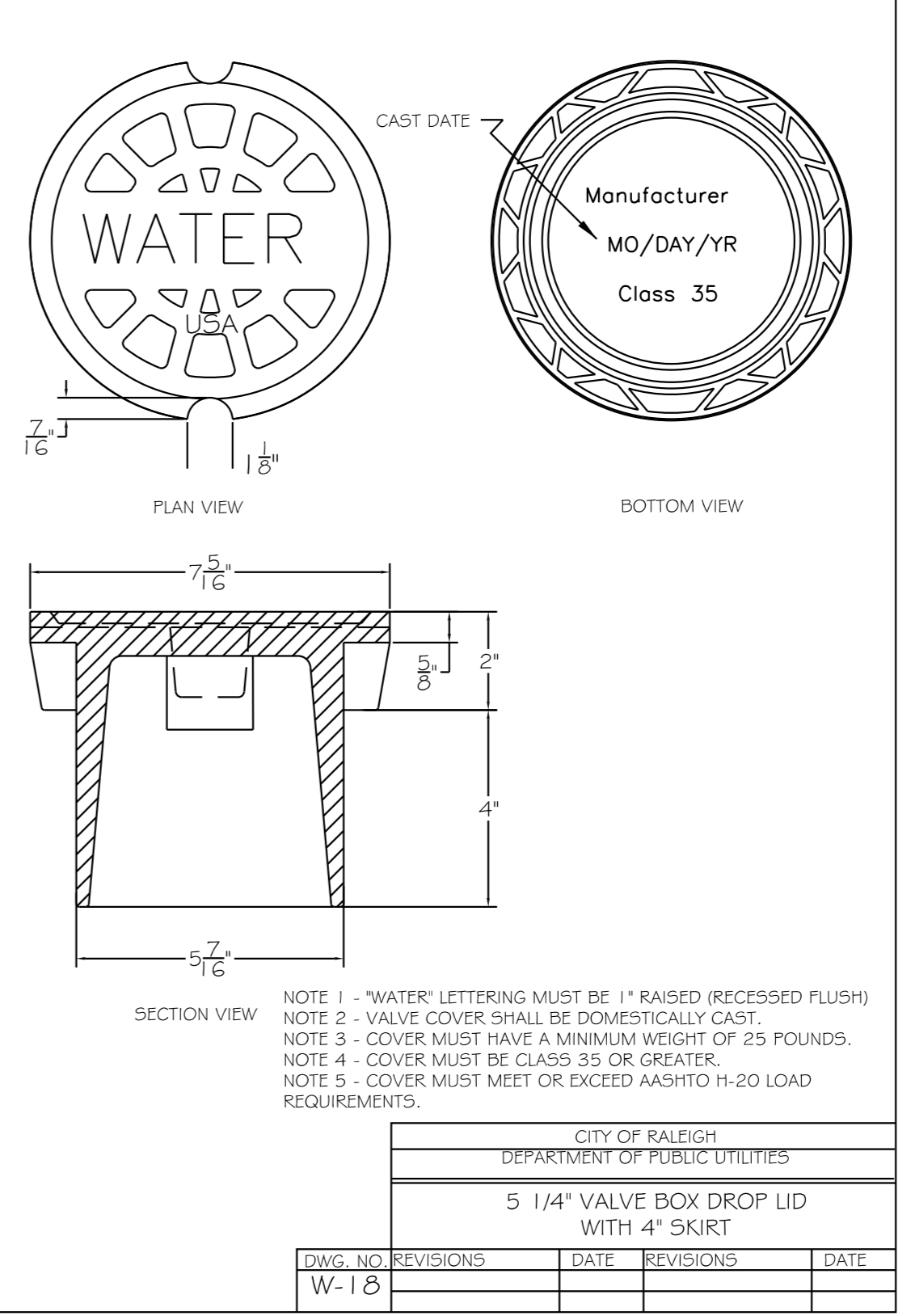
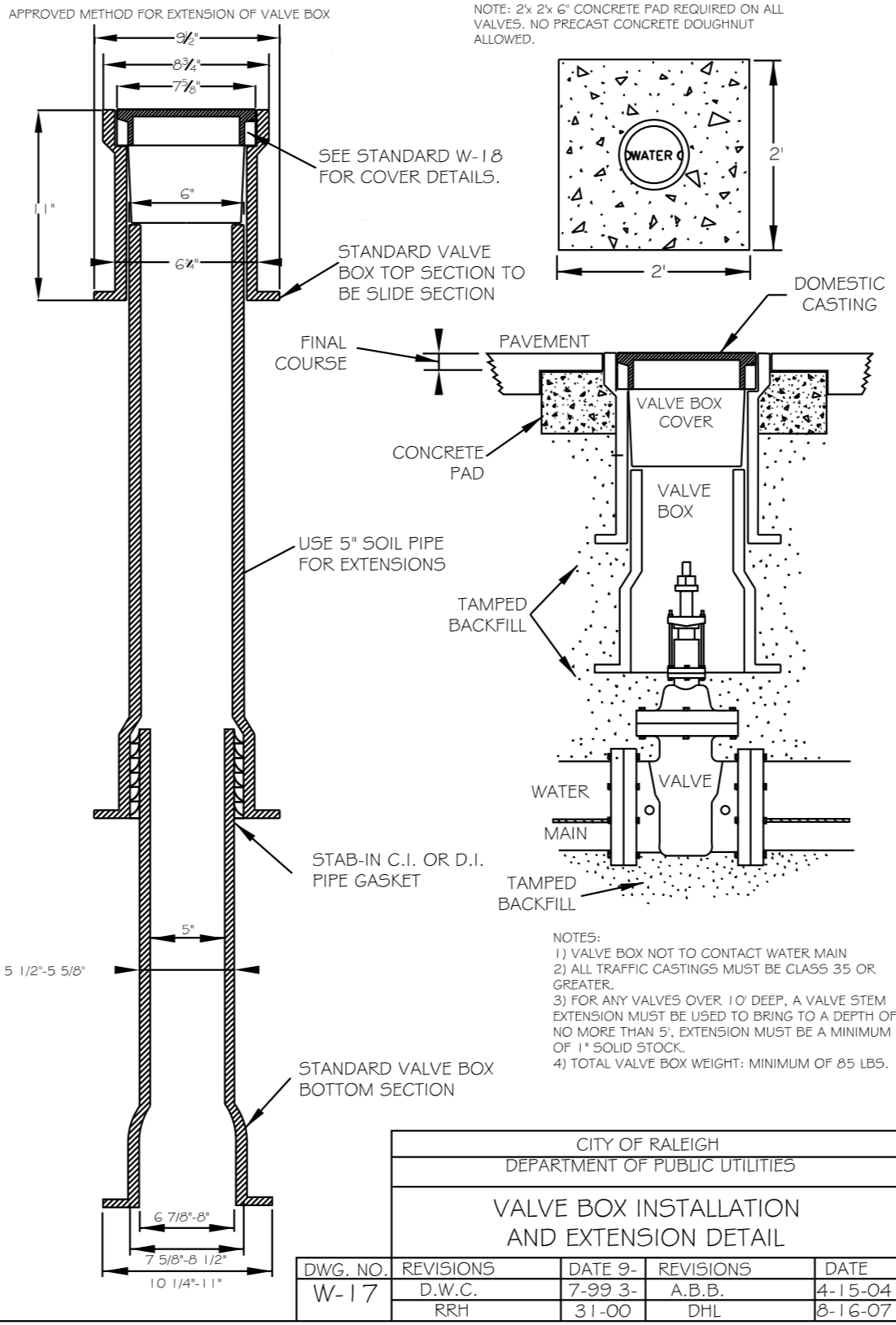
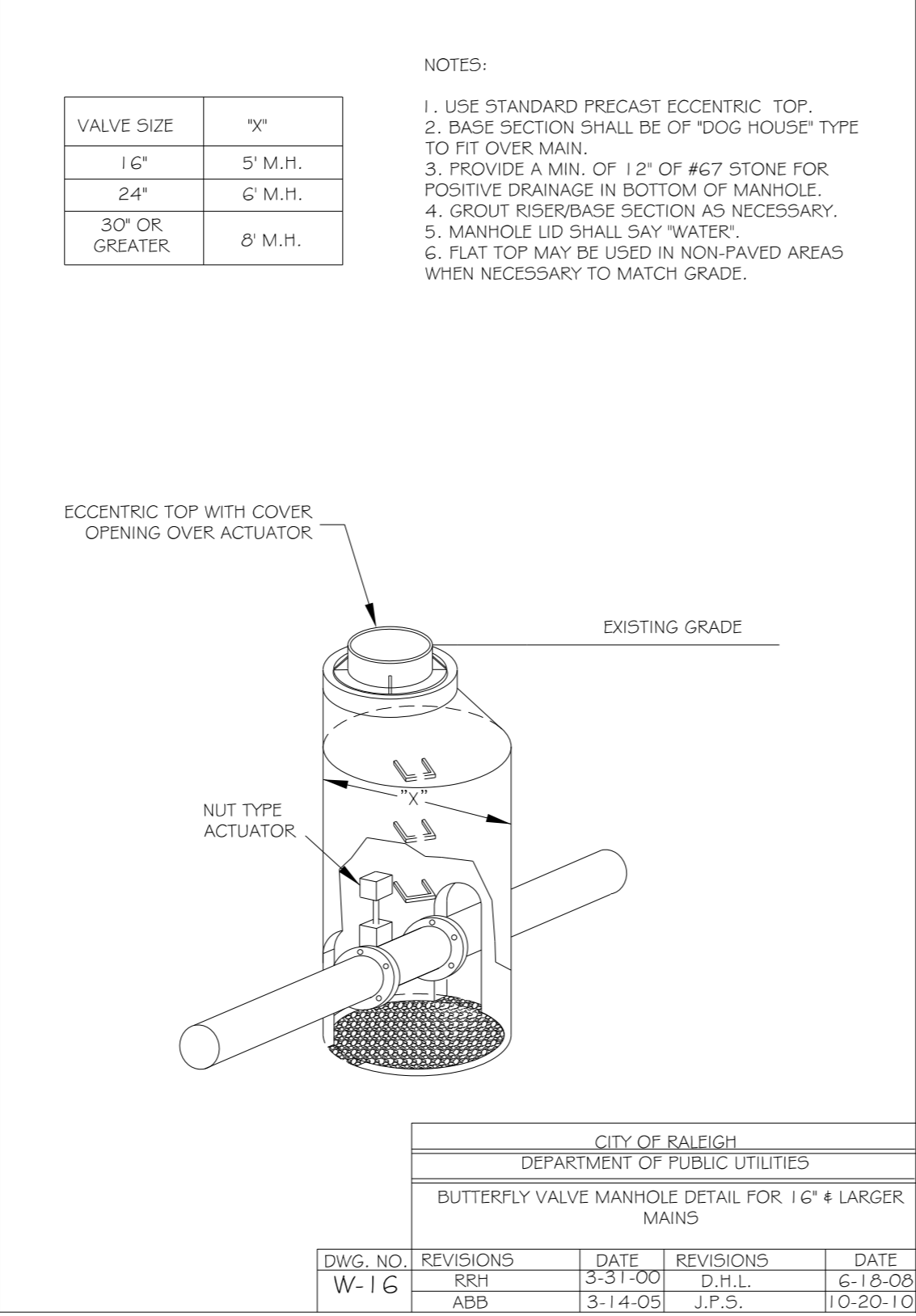
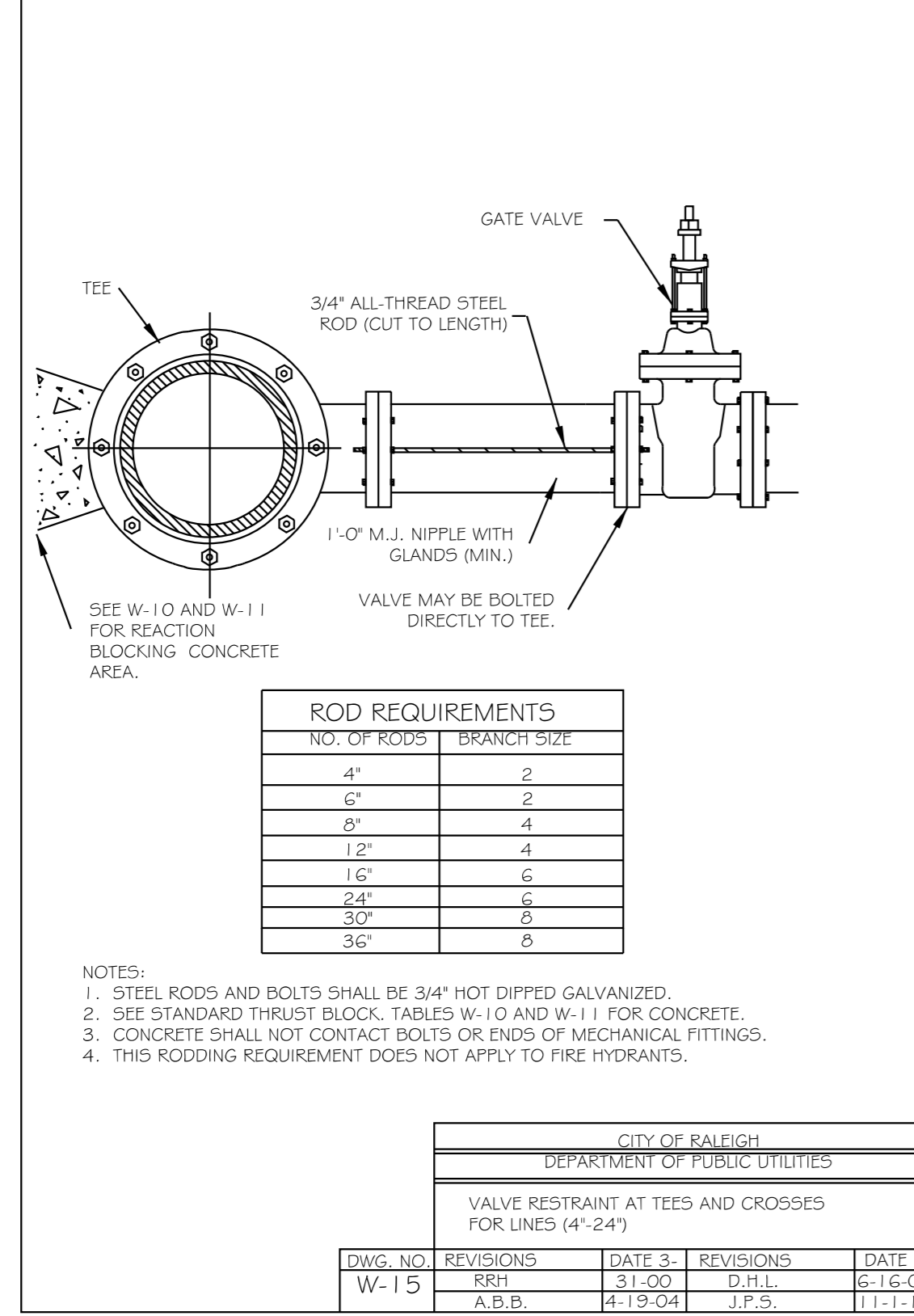
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-11	D.W.C.	23-99		

STANDARD VERTICAL BEND

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-12	ABB	4-6-04	J.P.S.	11-1-10
	D.H.L.	6-18-08		

4" - 24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-14	Y.C.A.	12-31-99	RRH	3-31-00
	D.W.C.	9-7-99	J.P.S.	11-1-10



VALVE RESTRAINT AT TEES AND CROSSES FOR LINES (4" - 24")

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-15	RRH	3-1-00	D.H.L.	6-16-08
	A.B.B.	4-19-04	J.P.S.	11-1-10

BUTTERFLY VALVE MANHOLE DETAIL FOR 16" 4" LARGER MAINS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-16	RRH	3-31-00	D.H.L.	6-16-08
	ABB	3-14-05	J.P.S.	10-20-10

VALVE BOX INSTALLATION AND EXTENSION DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-17	D.W.C.	7-99	A.B.B.	4-15-04
	RRH	3-1-00	DHL	8-16-07

5 1/4" VALVE BOX DROP LID WITH 4" SKIRT

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-18				

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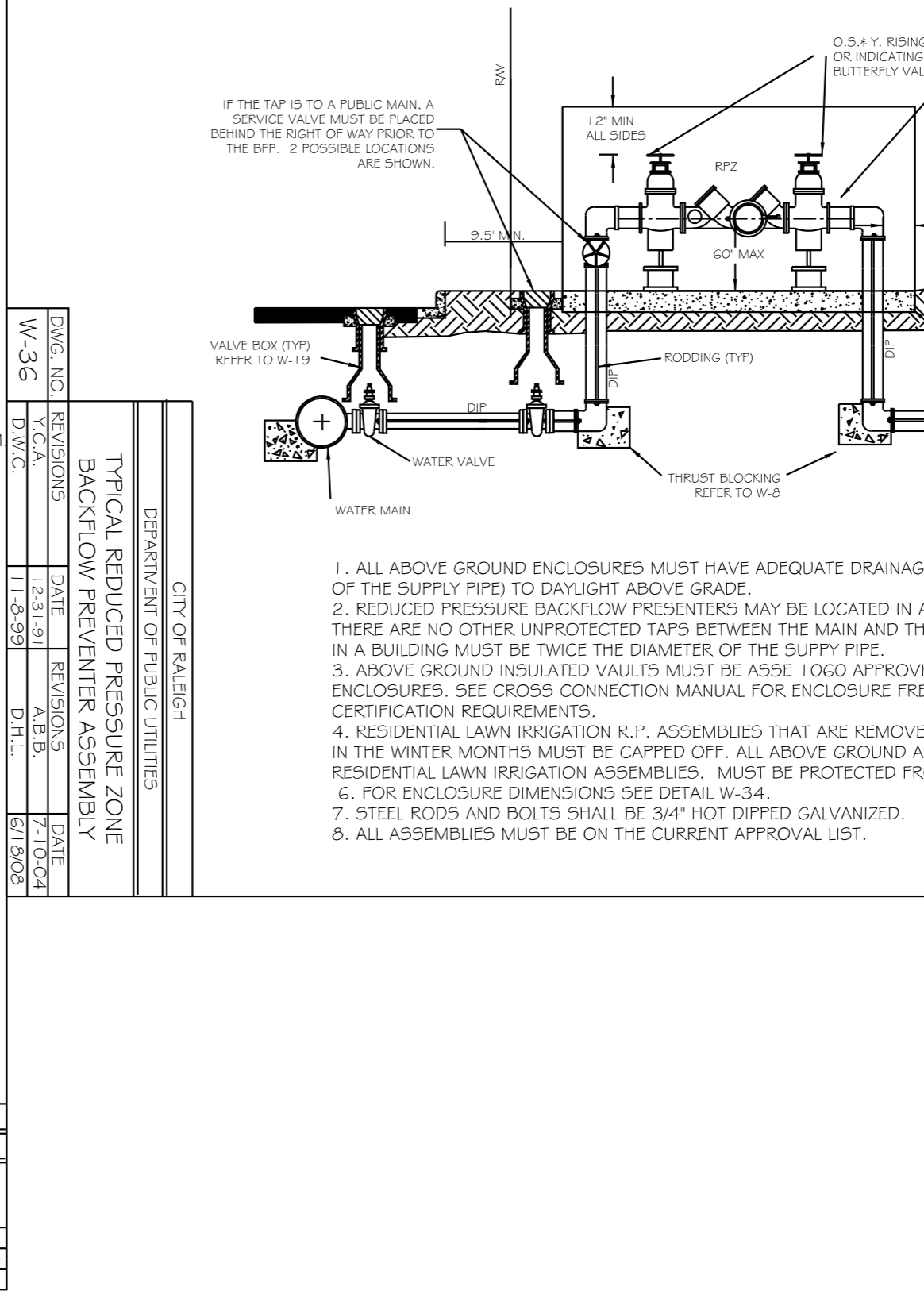
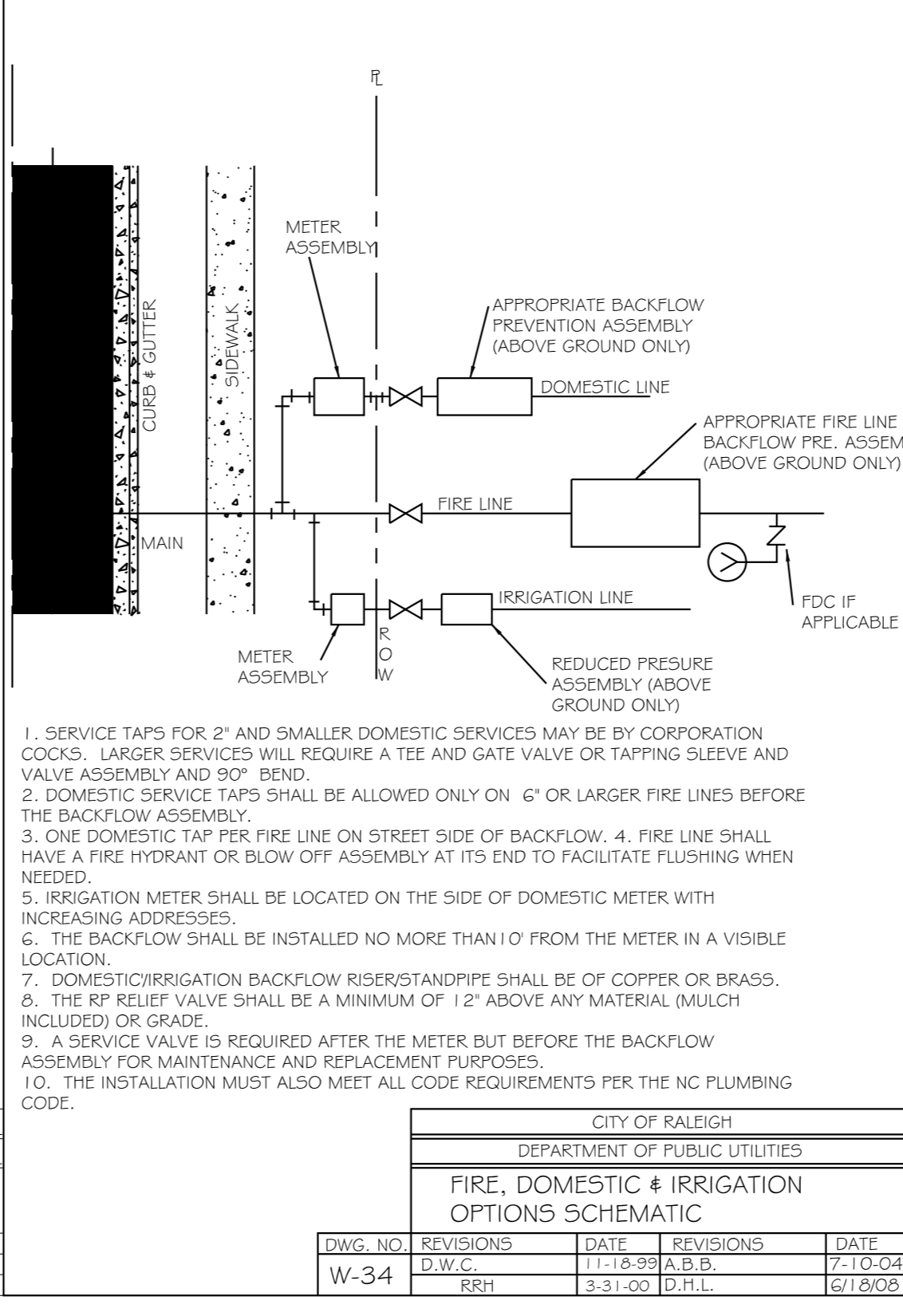
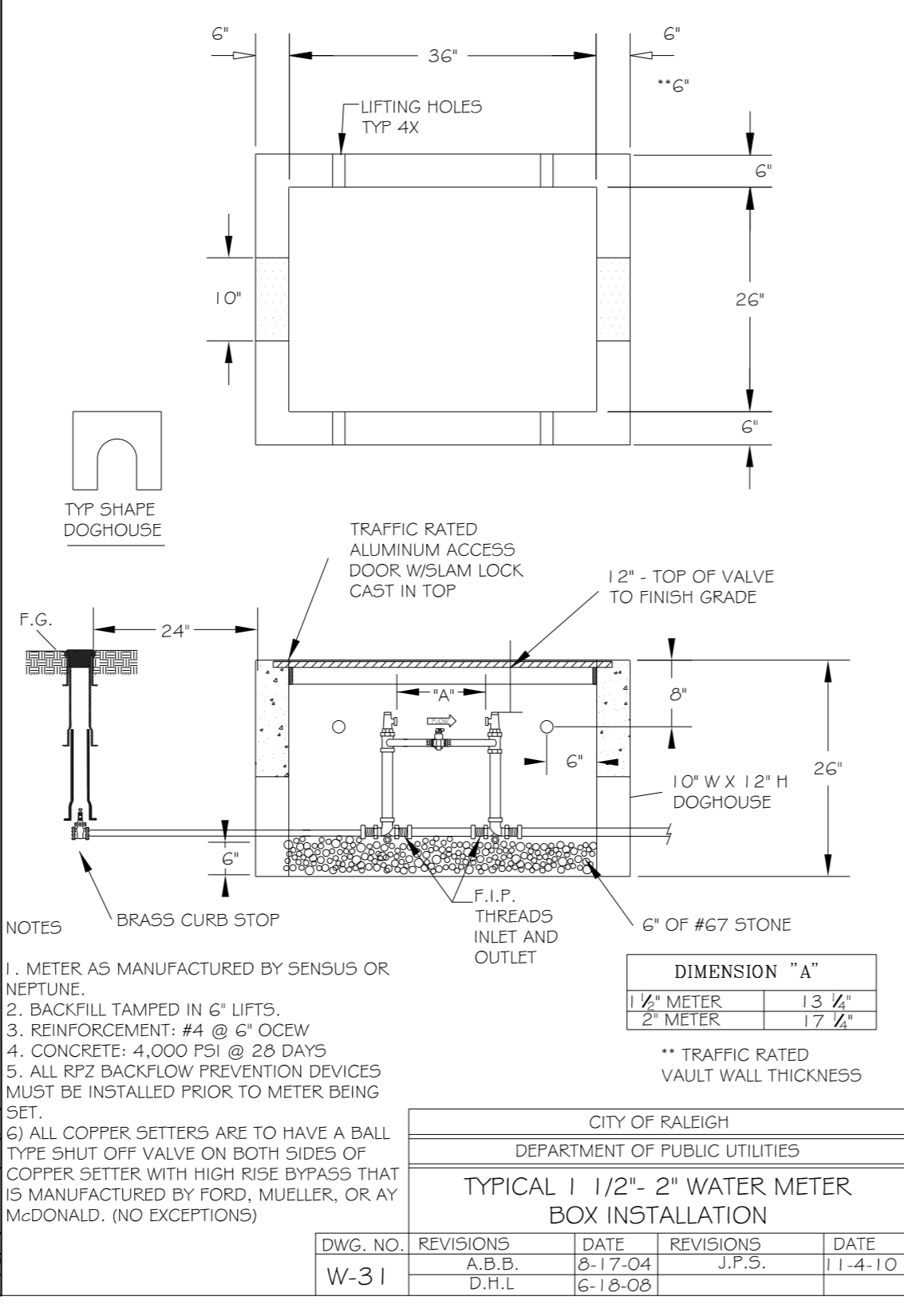
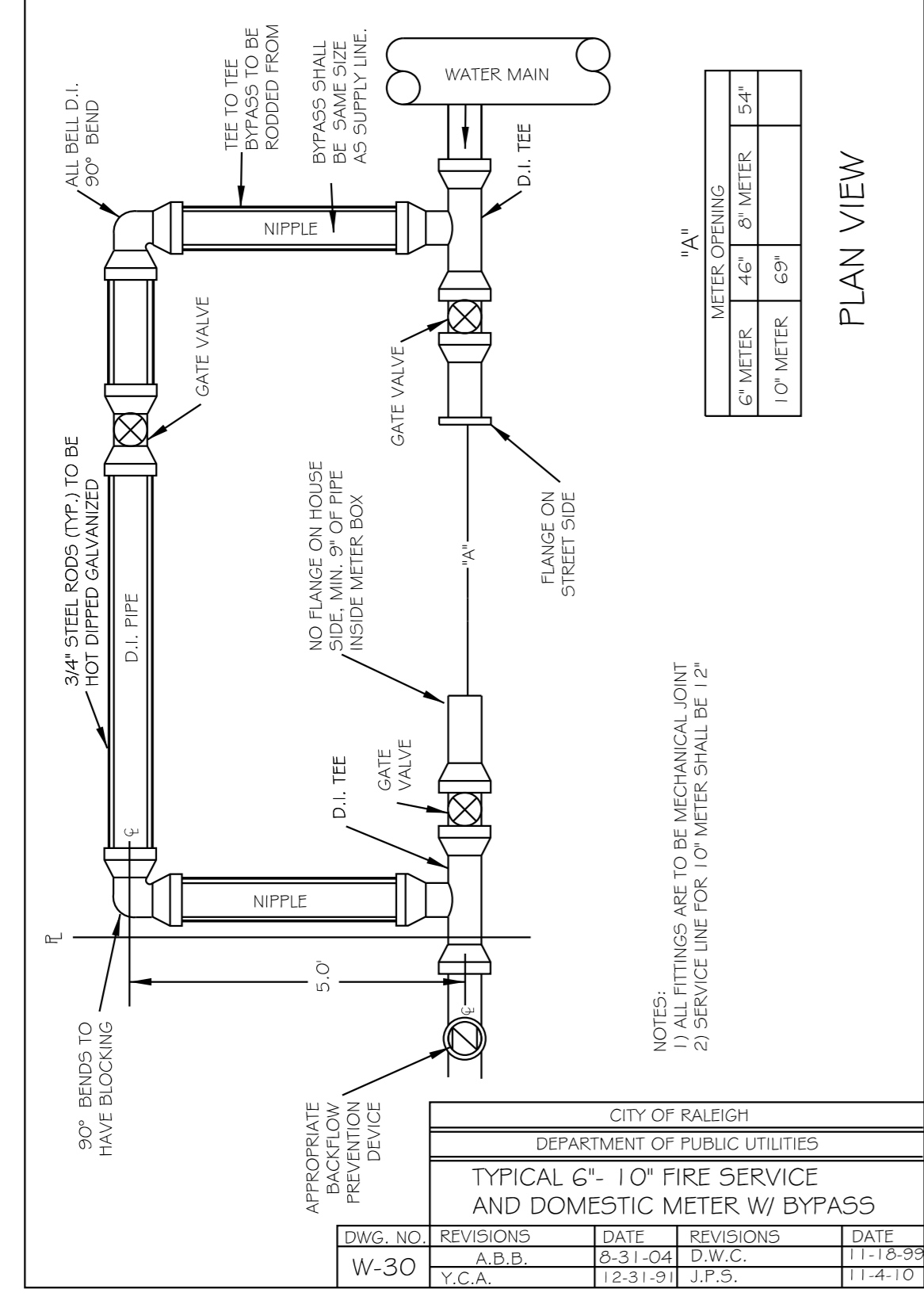
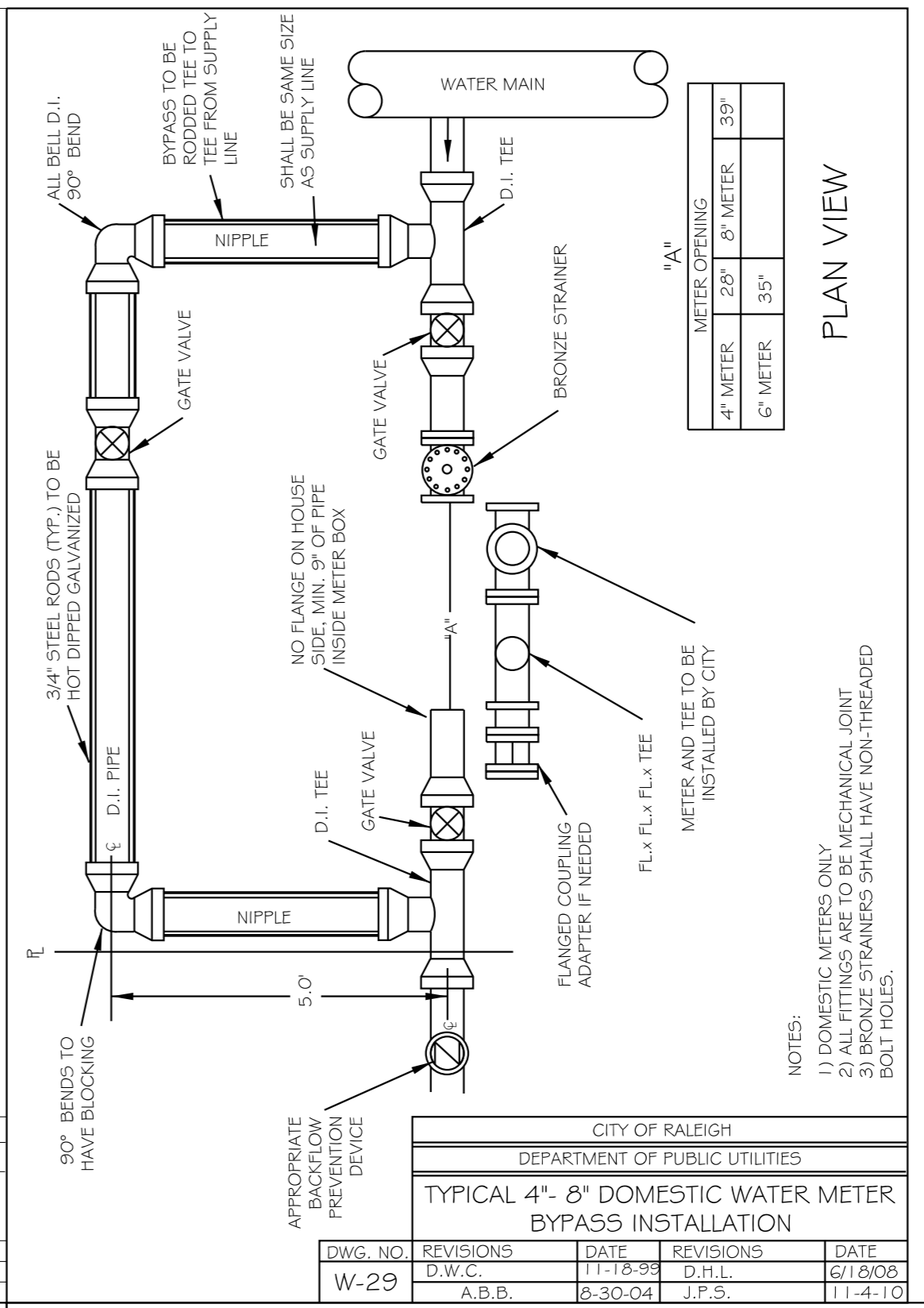
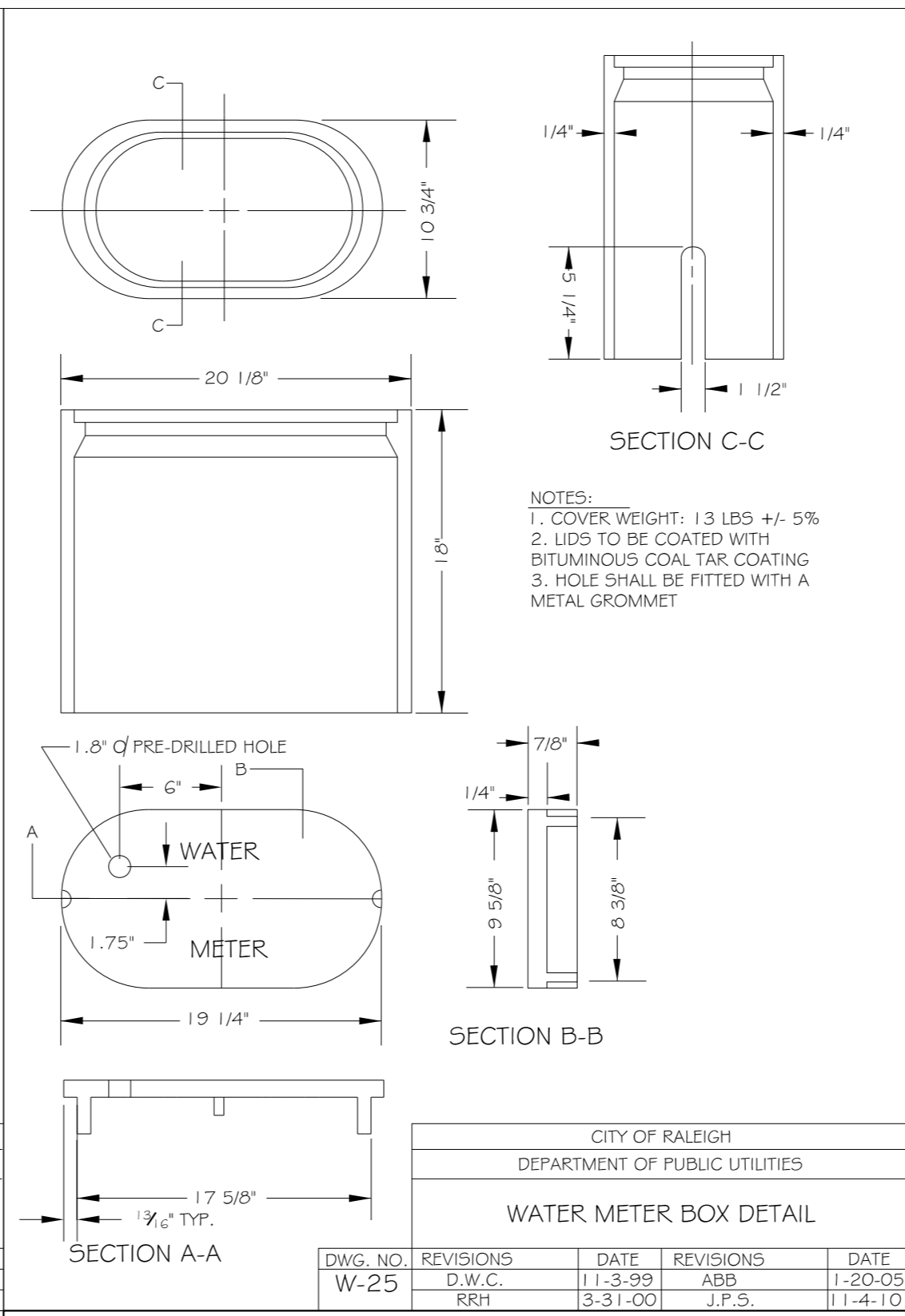
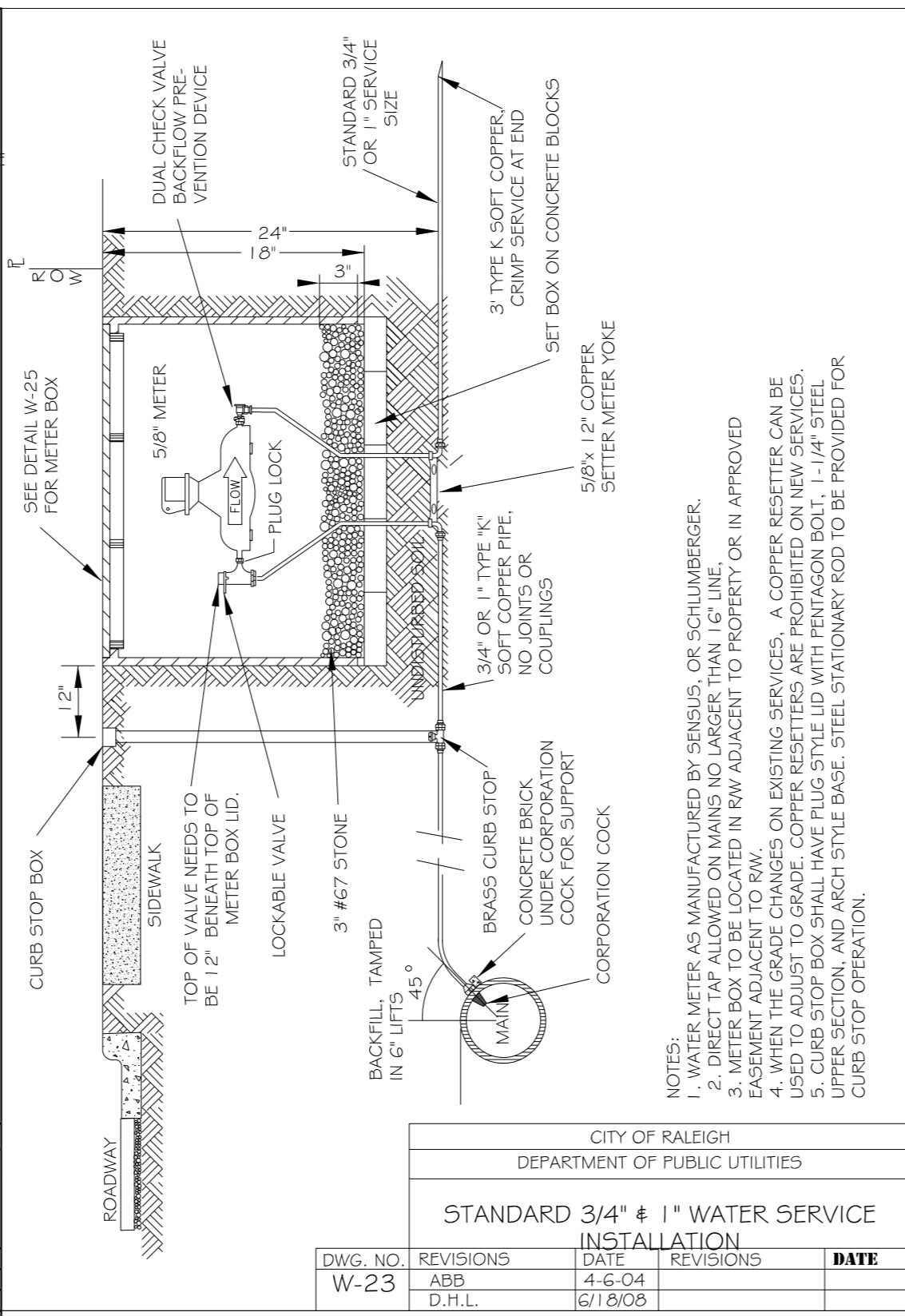
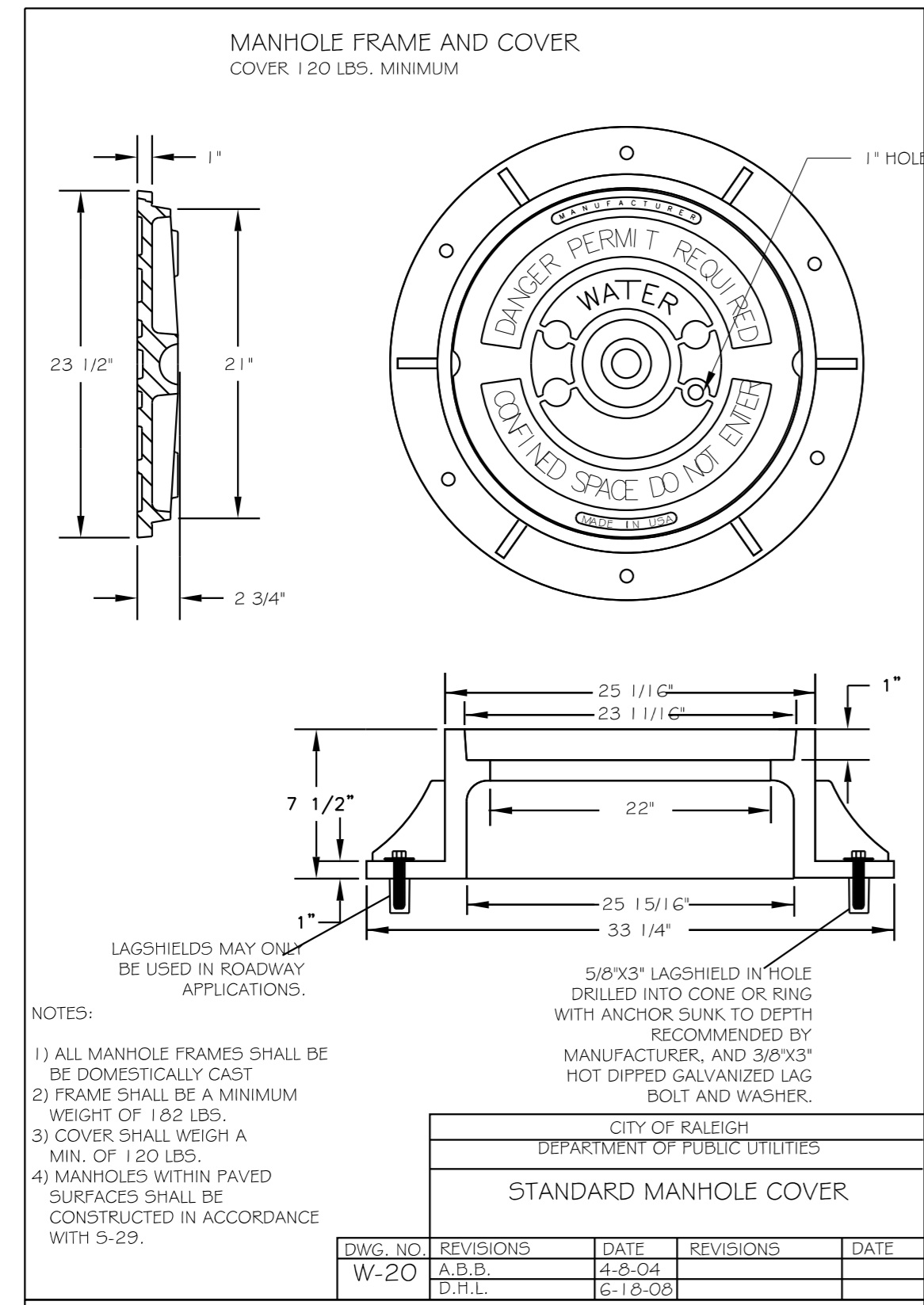
City of Raleigh Development Approval \_\_\_\_\_  
 City of Raleigh Review Officer \_\_\_\_\_

REVISIONS



PROJECT REFERENCE NO.	P-5720	SHEET NO.	UC-3C
DESIGNED BY:	DGB		
DRAWN BY:	DGB		
CHECKED BY:	ZGP		
APPROVED BY:	NDR		
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		UTILITY CONSTRUCTION PLANS ONLY	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151			

UTILITY CONSTRUCTION



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City of Raleigh Development Approval \_\_\_\_\_  
City of Raleigh Review Officer \_\_\_\_\_

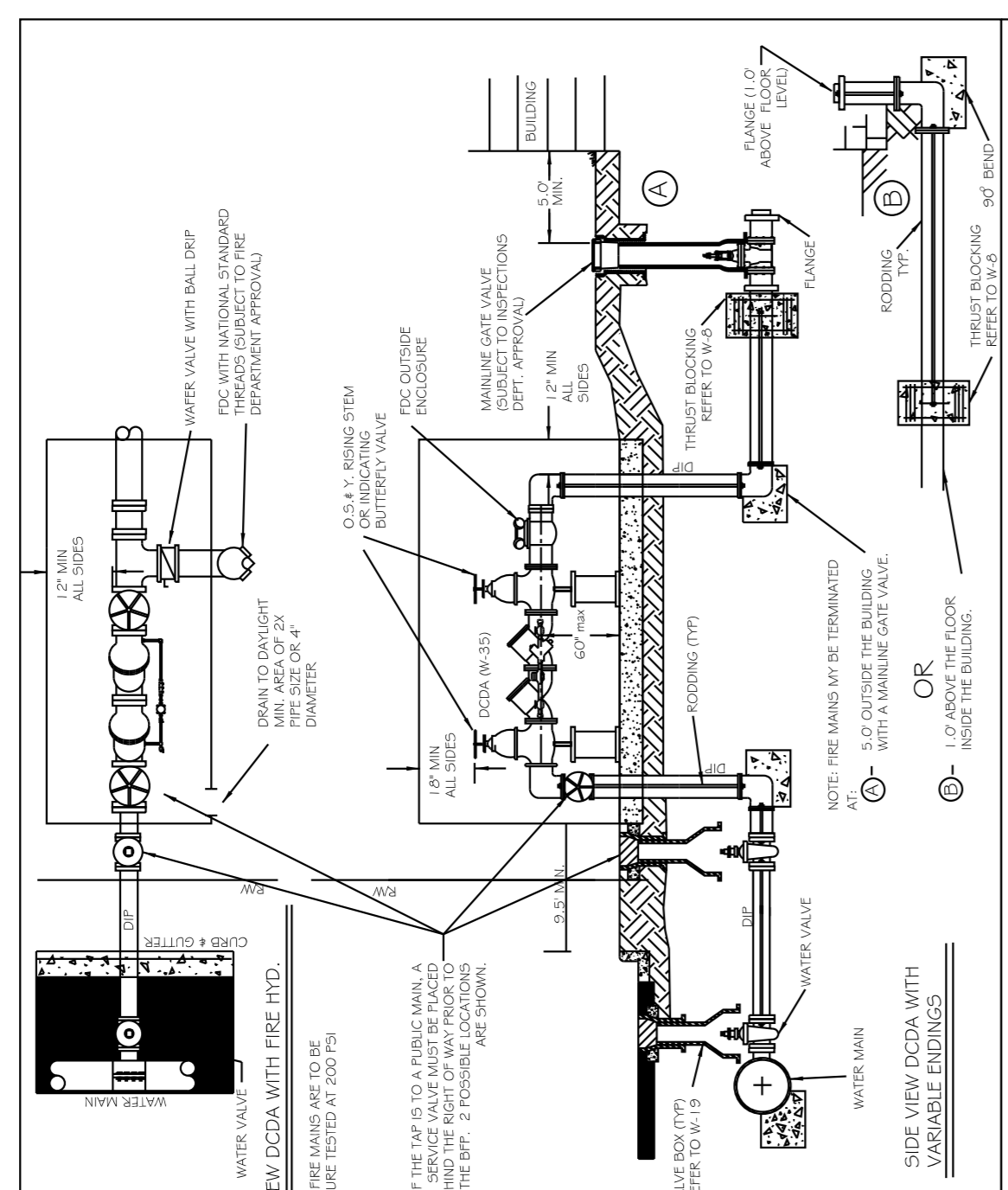
REVISIONS



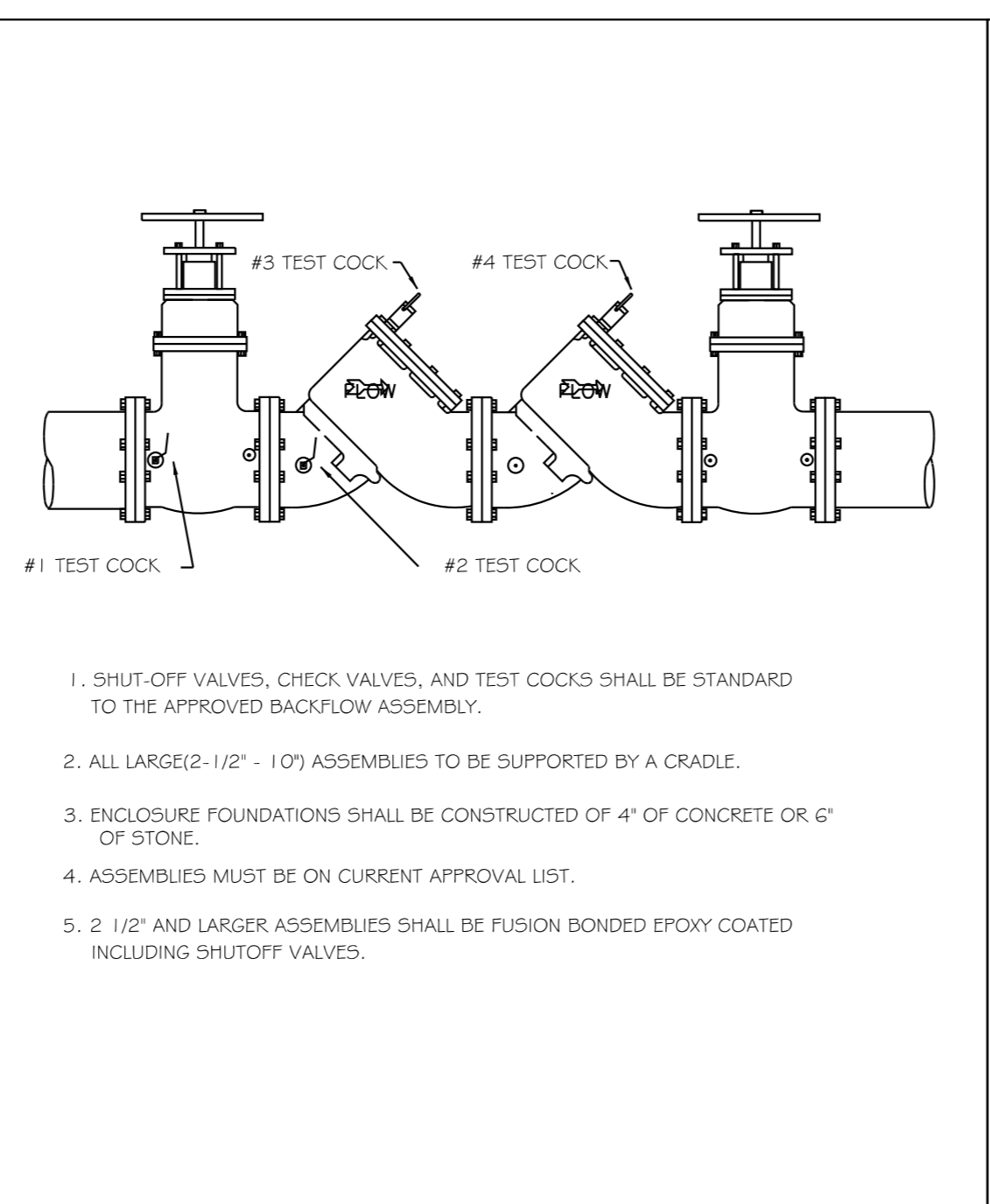
PROJECT REFERENCE NO.	SHEET NO.
P-5720	UC-3D
DESIGNED BY: DGB	
DRAWN BY: DGB	
CHECKED BY: ZGP	
APPROVED BY: NDR	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	UTILITY CONSTRUCTION PLANS ONLY
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

**UTILITY CONSTRUCTION**

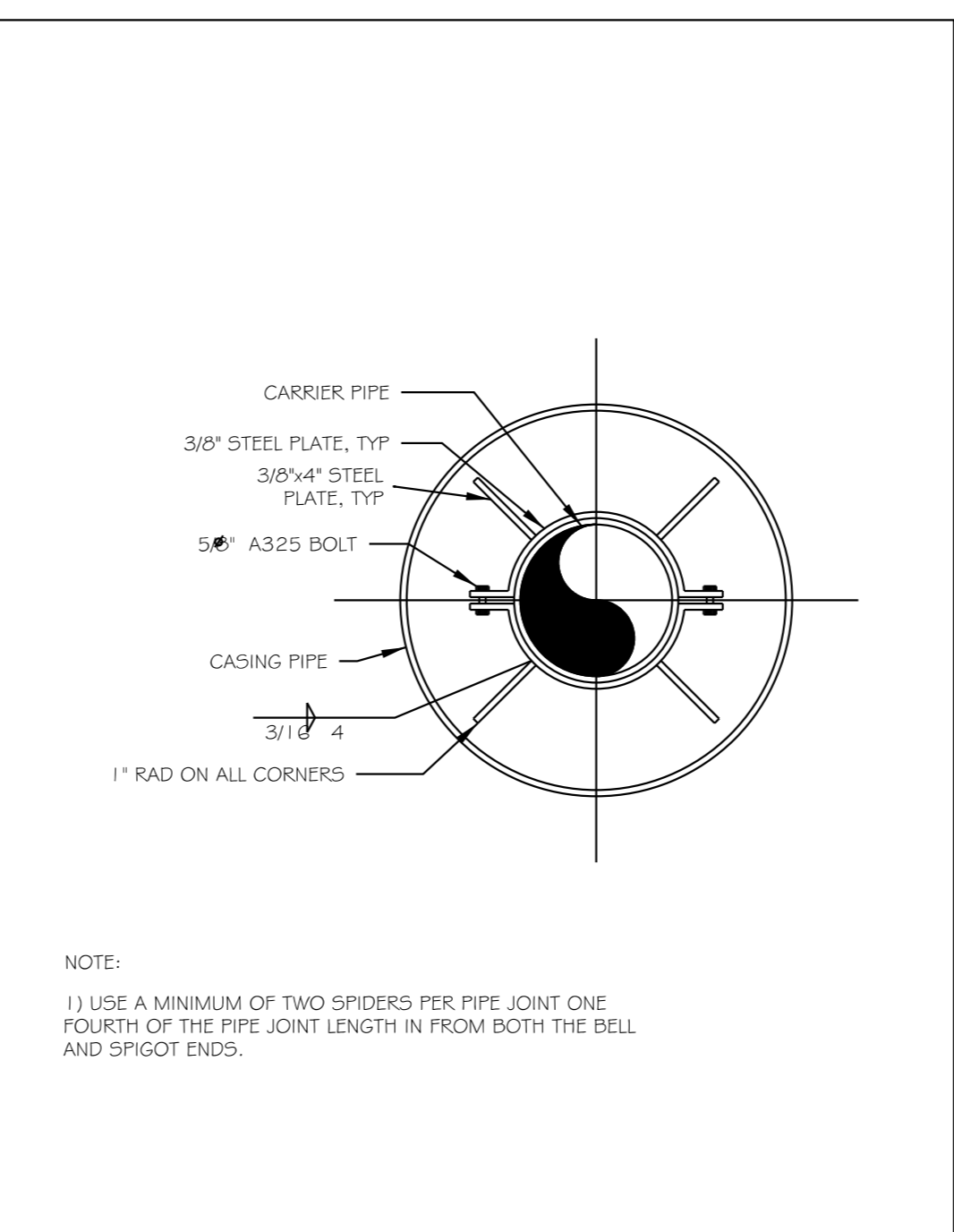
REVISIONS



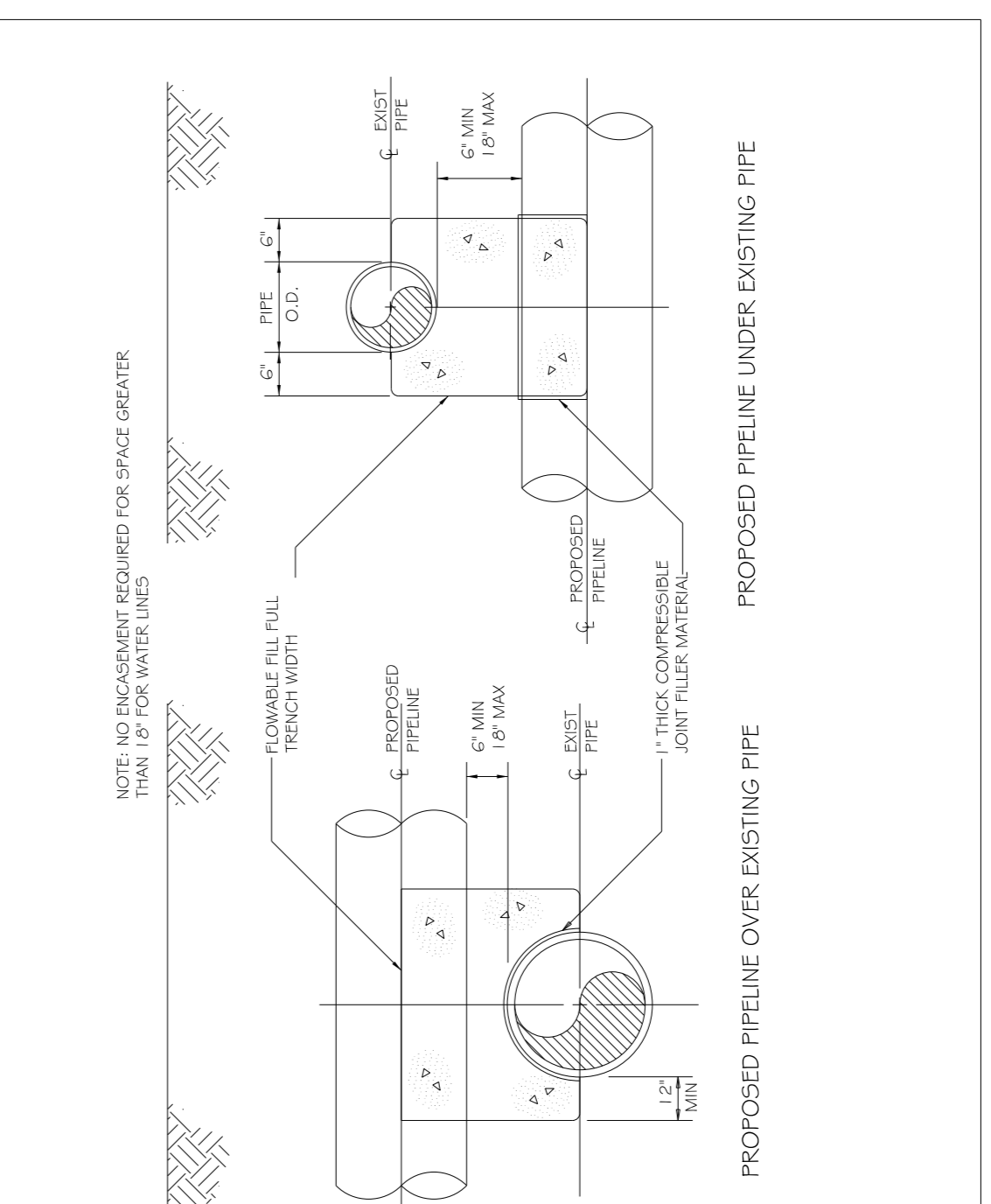
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
TYPICAL FIRE MAIN DOUBLE DETECTOR CHECK VALVE ASSEMBLY				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-37	Y.C.A.	6-92	ABB	10-4-04
	D.W.C.	11-3-99	D.H.L.	6/18/03



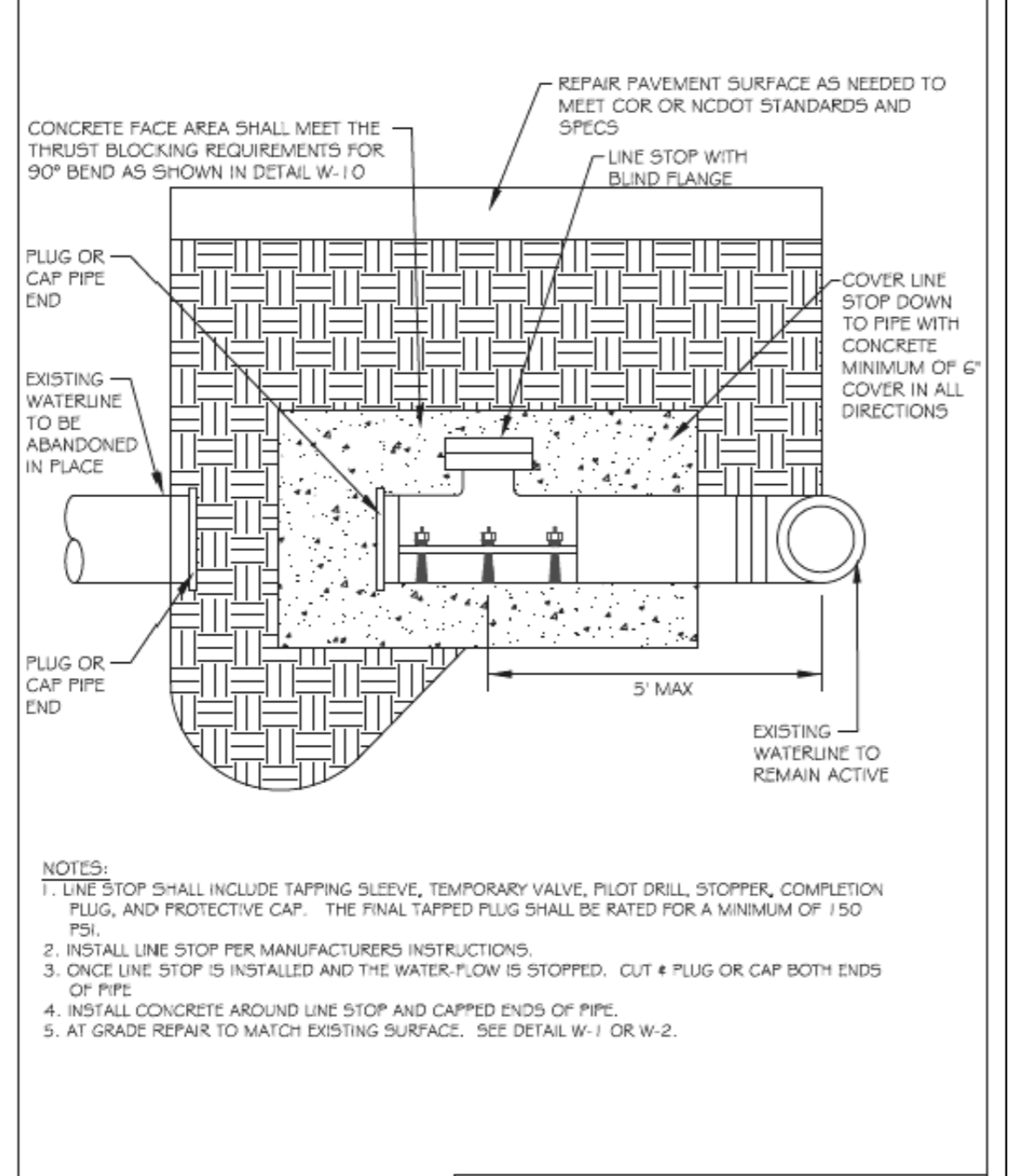
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
STANDARD DOUBLE CHECK VALVE ASSEMBLY				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-38	D.W.C.	12-29-99	A.B.B.	4-13-04
	RRH	3-31-00	D.H.L.	6/18/03



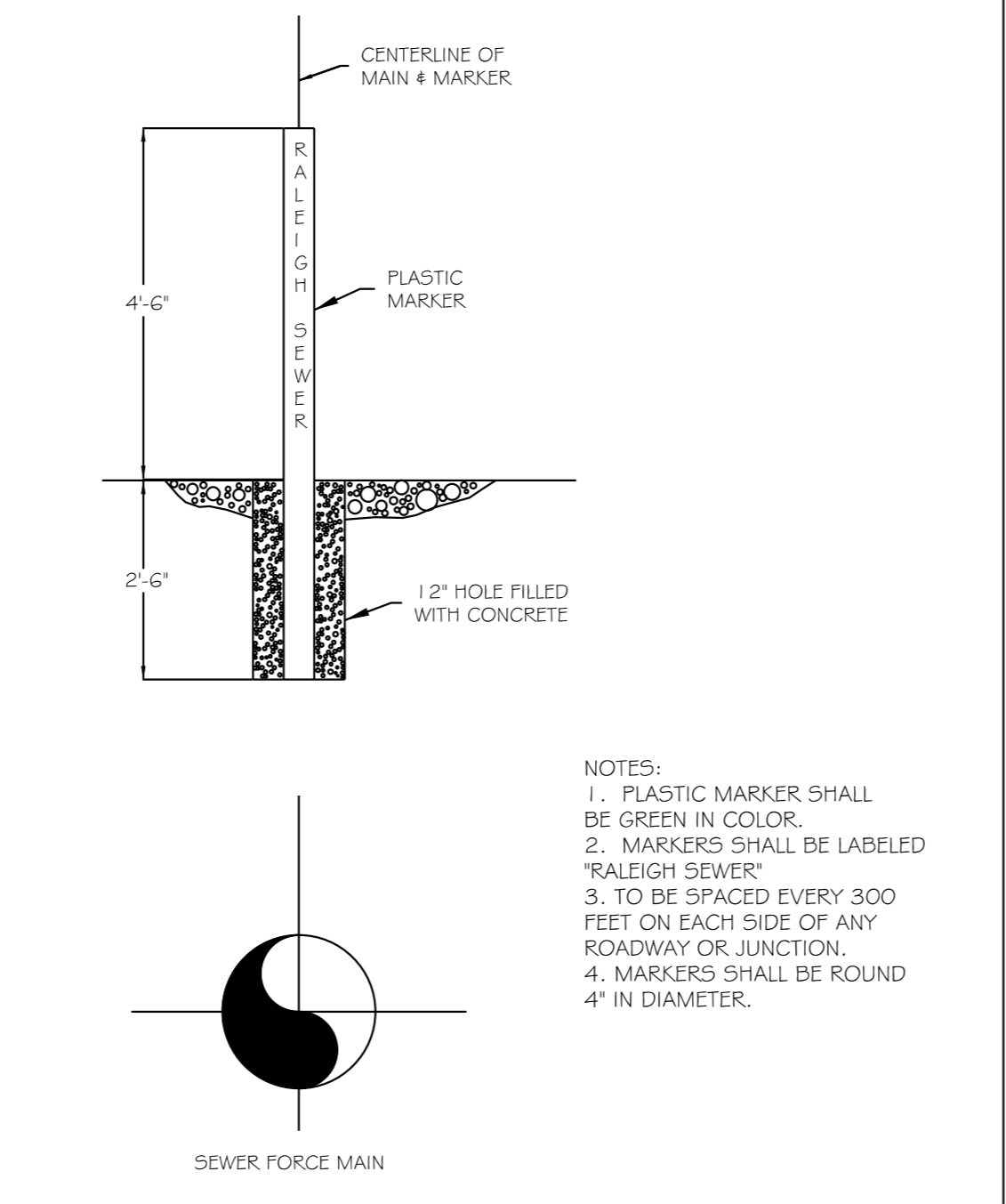
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
PIPE ALIGNMENT GUIDE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-40	RRH	3-31-00		
	A.B.B.	4-16-04		



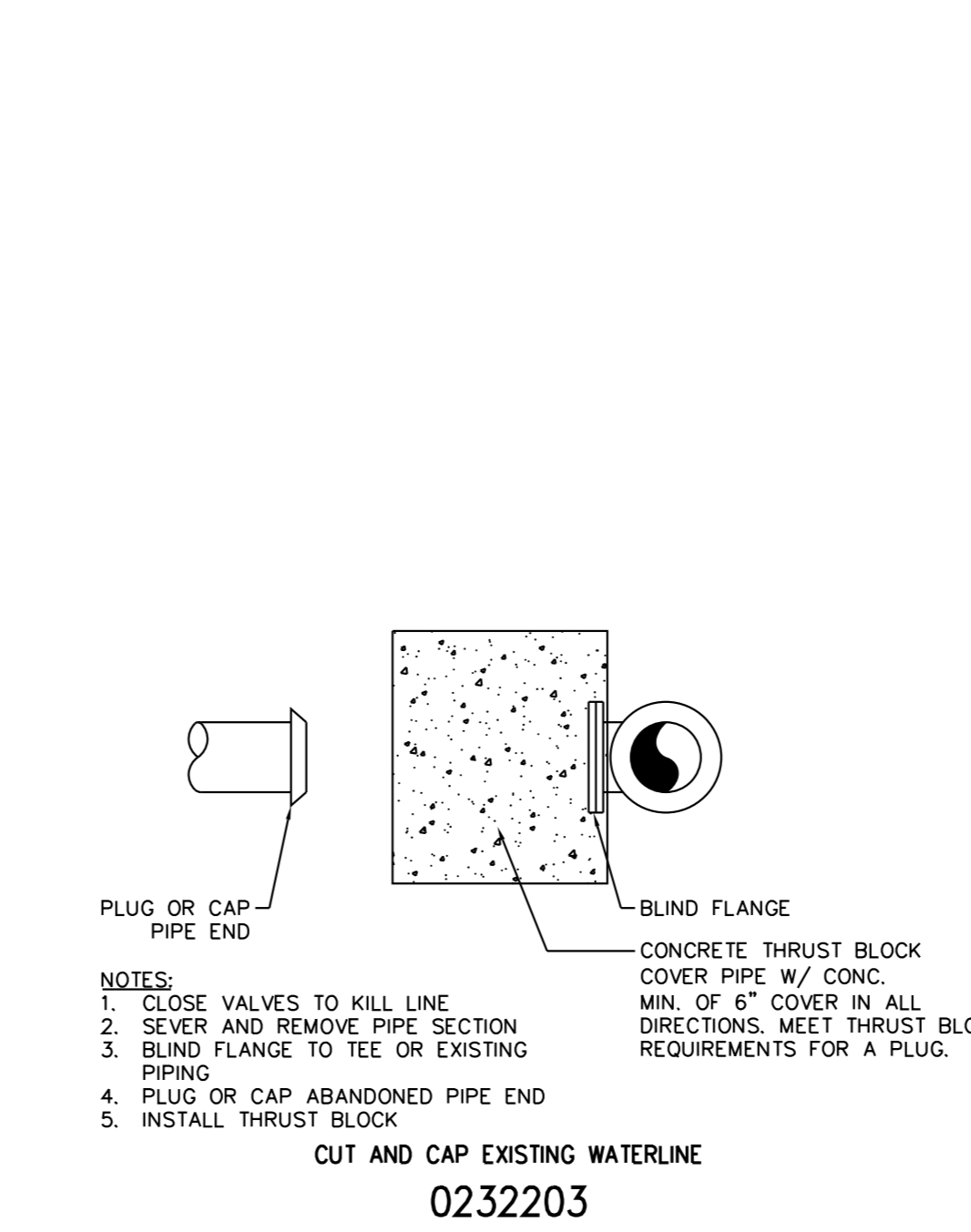
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
CONCRETE CRADLE PROTECTION FOR WATER LINE CROSSINGS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-41	DHL	2-20-08		



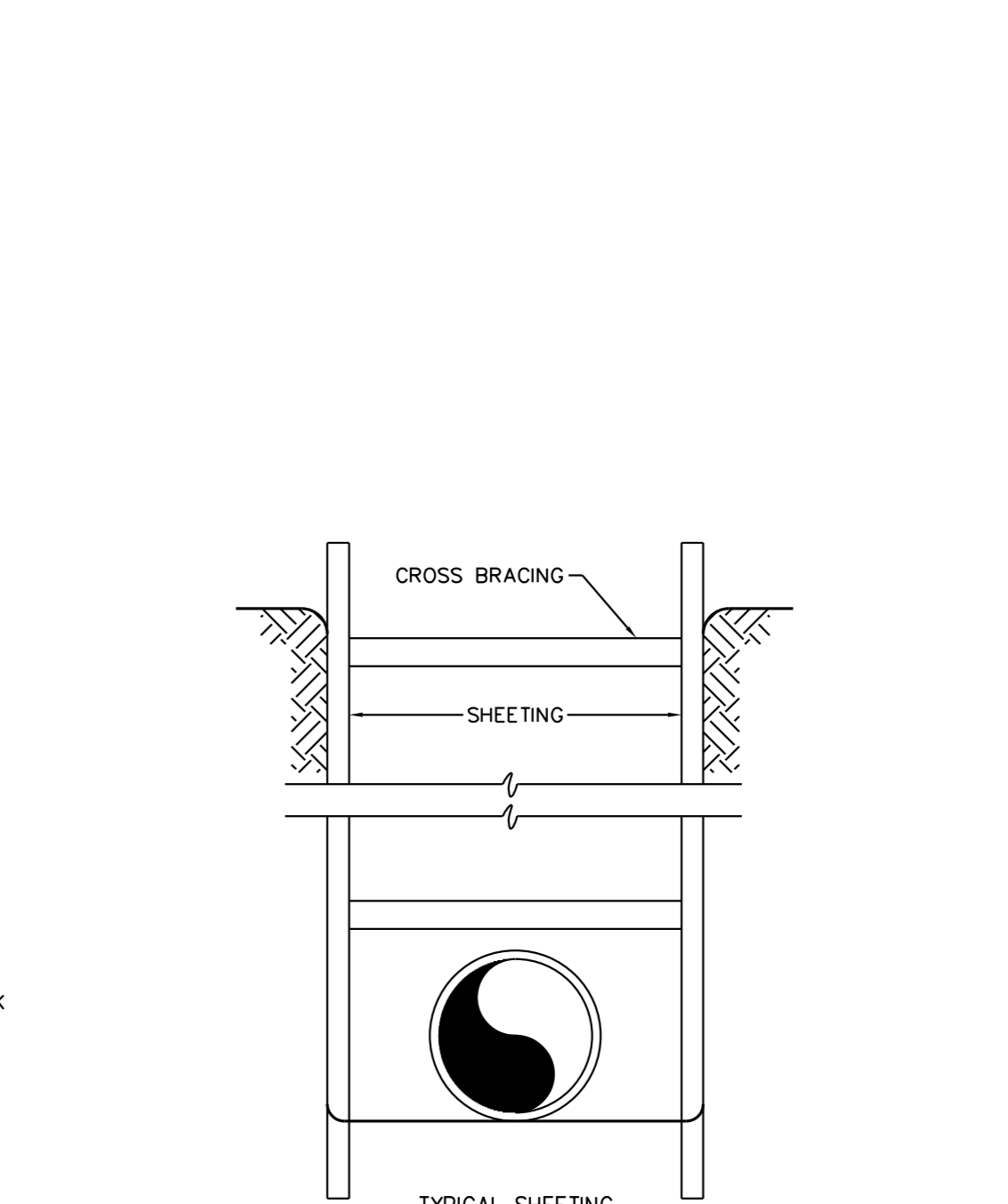
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
LINE STOP FOR LINE ABANDONMENT DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-42	MAB	1-23-15		



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
STANDARD MAIN MARKER FOR SEWER FORCE MAINS IN EASEMENTS				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-8	RRH	1-21-00		
	DHL	6-18-08		



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
CUT AND CAP EXISTING WATERLINE				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
0232203				



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES				
TYPICAL SHEETING				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
0222121				

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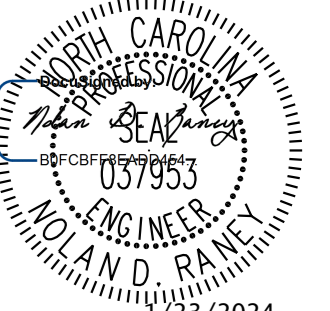
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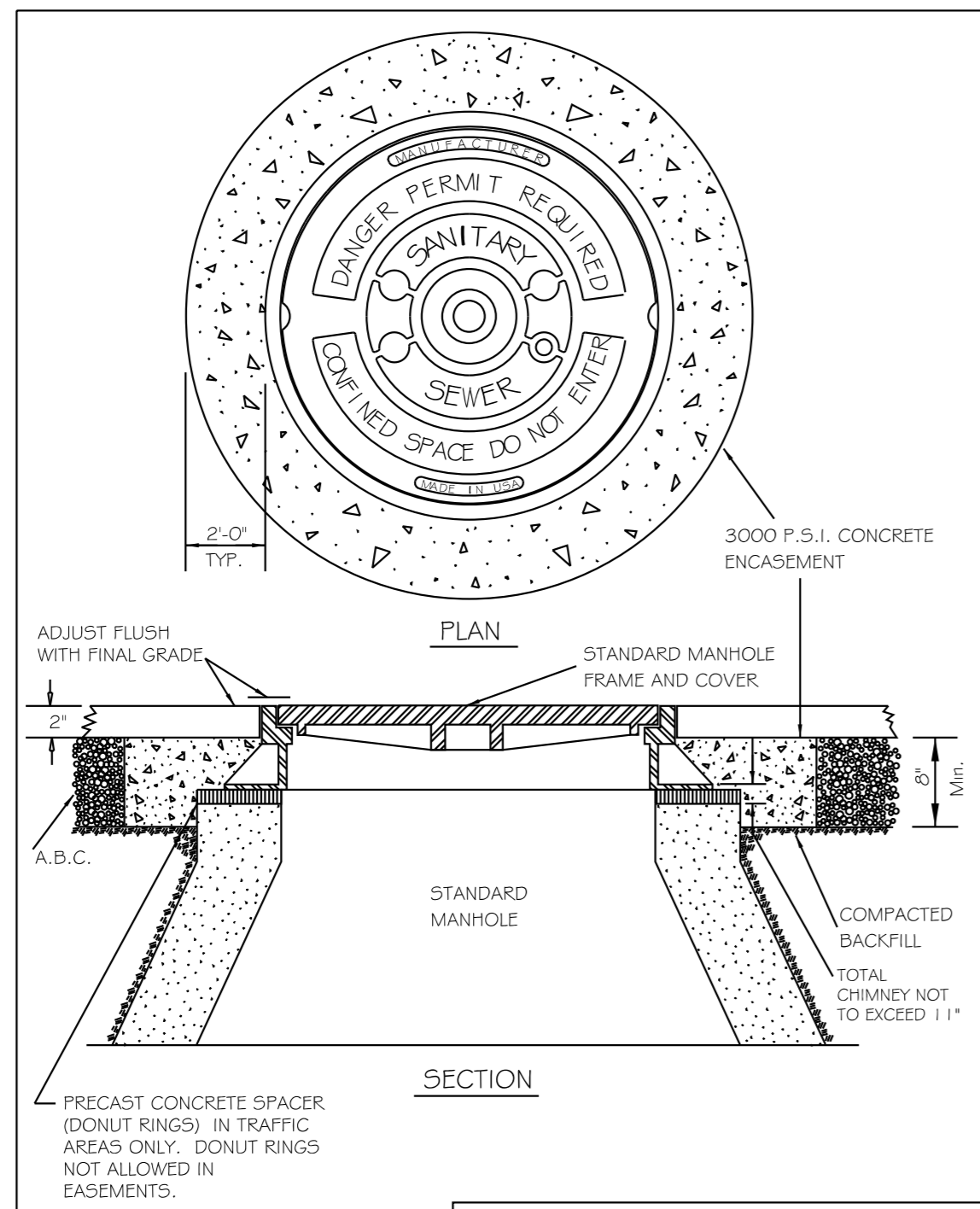
DESIGNED BY:	DGB
DRAWN BY:	DGB
CHECKED BY:	ZGP
APPROVED BY:	NDR
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	



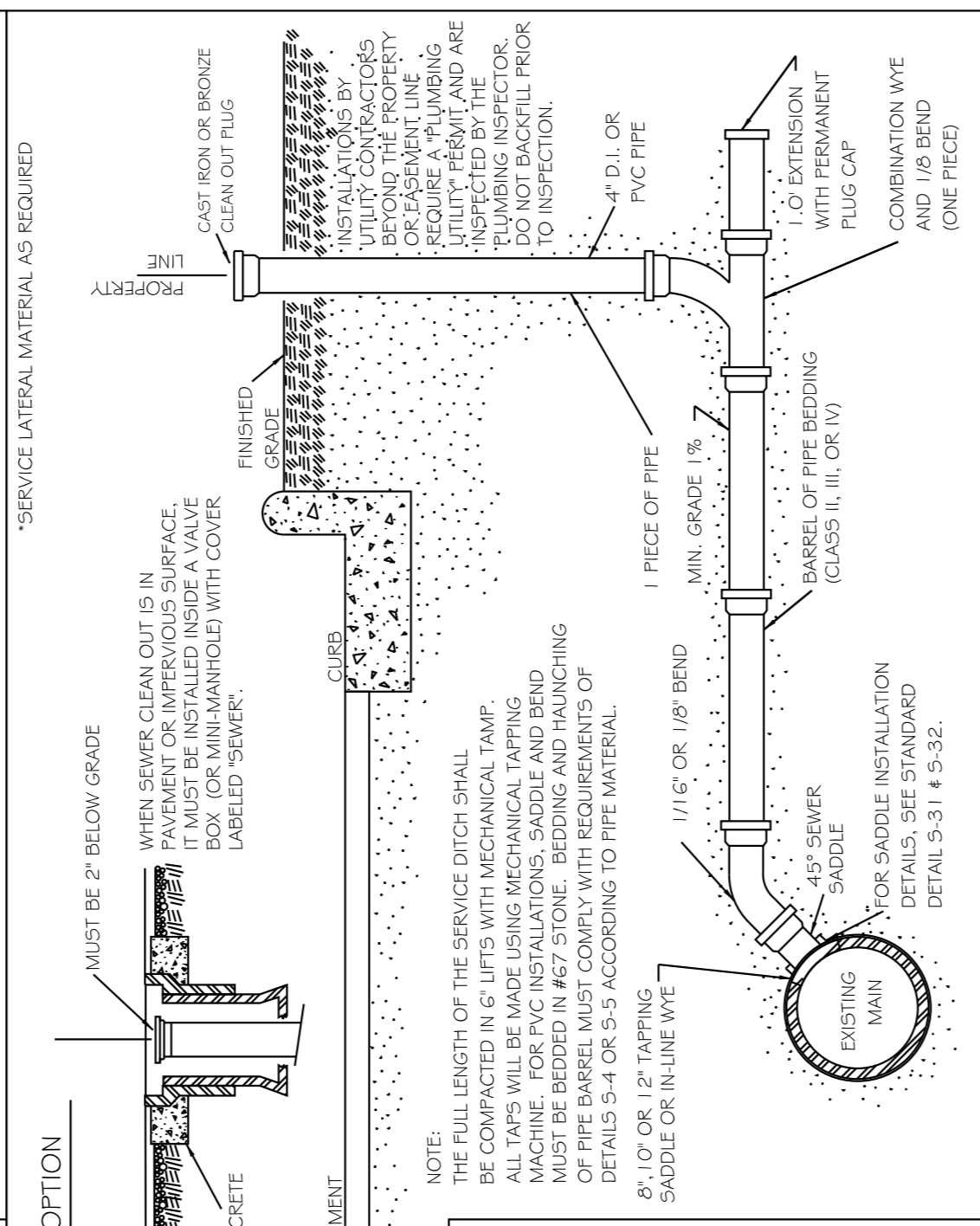
UTILITY CONSTRUCTION PLANS ONLY

**UTILITY CONSTRUCTION**

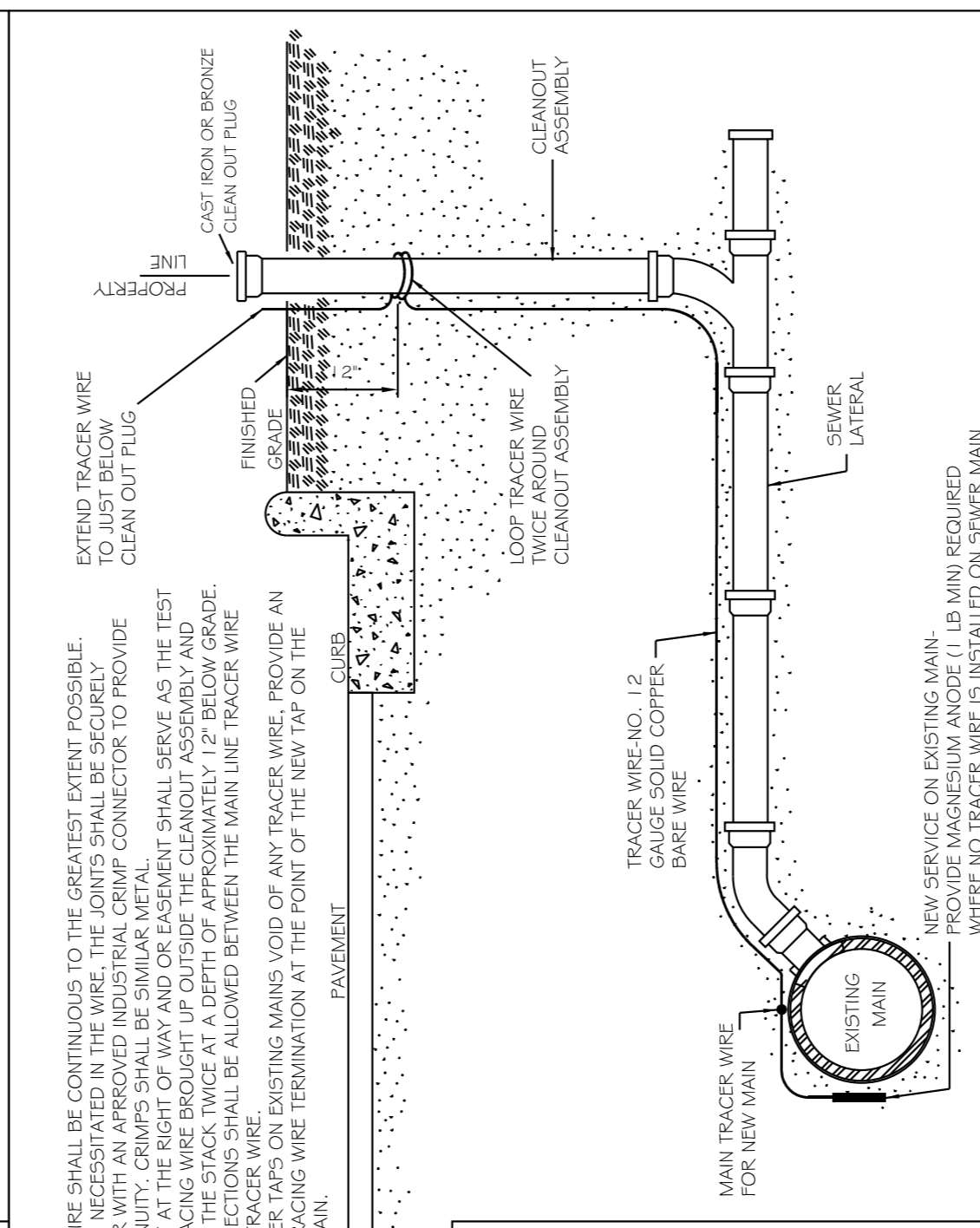
REVISIONS



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-29					
	Y.C.A.	2-31-91	ABB	9-20-04	
	RRH	3-30-00	DHL	11-29-07	



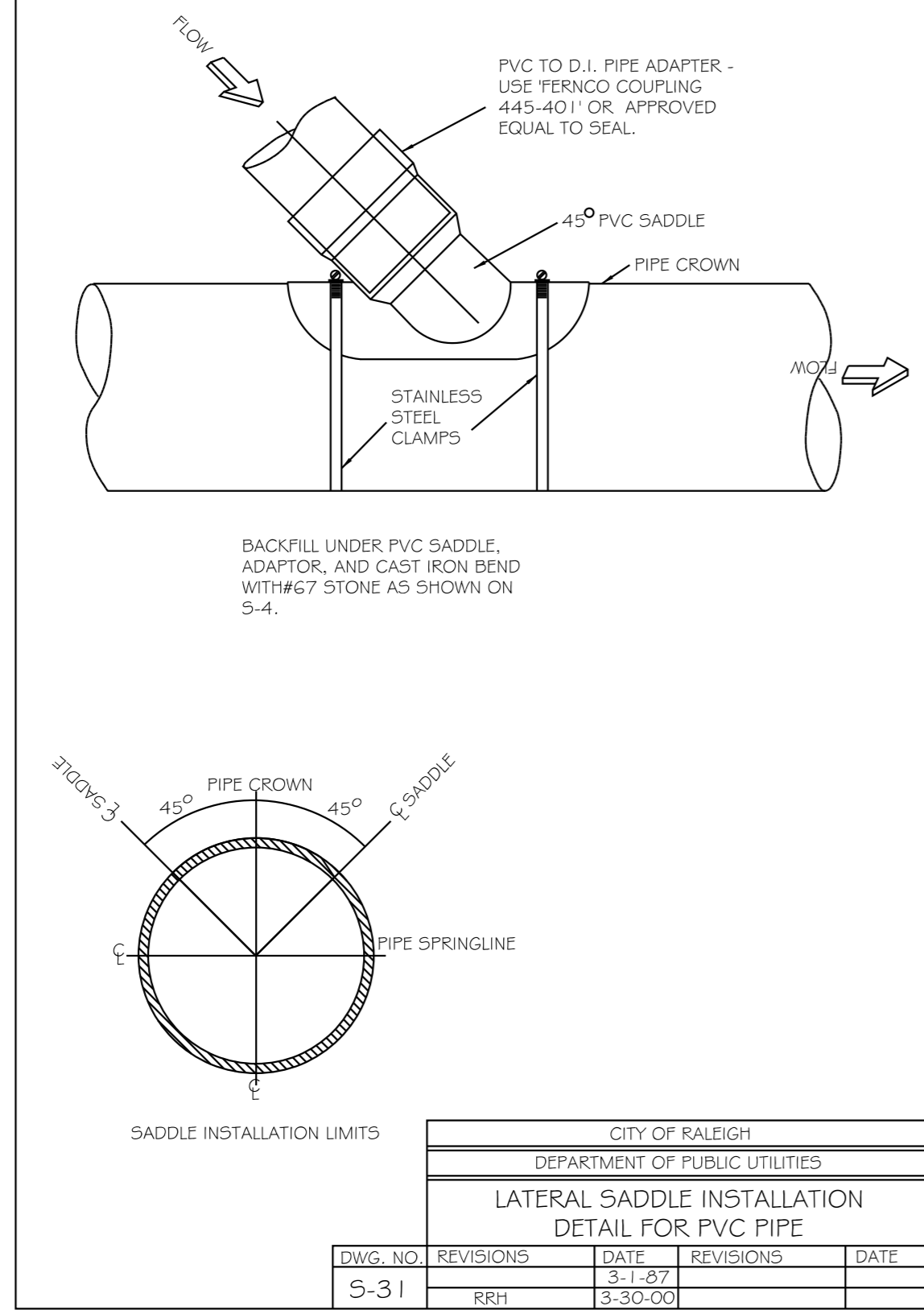
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
TYPICAL SANITARY SEWER LATERAL CONNECTION					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-30					
	Y.C.A.	6-92	A.B.B.	4-2-04	
	RRH	3-30-00	D.H.L.	6-18-08	



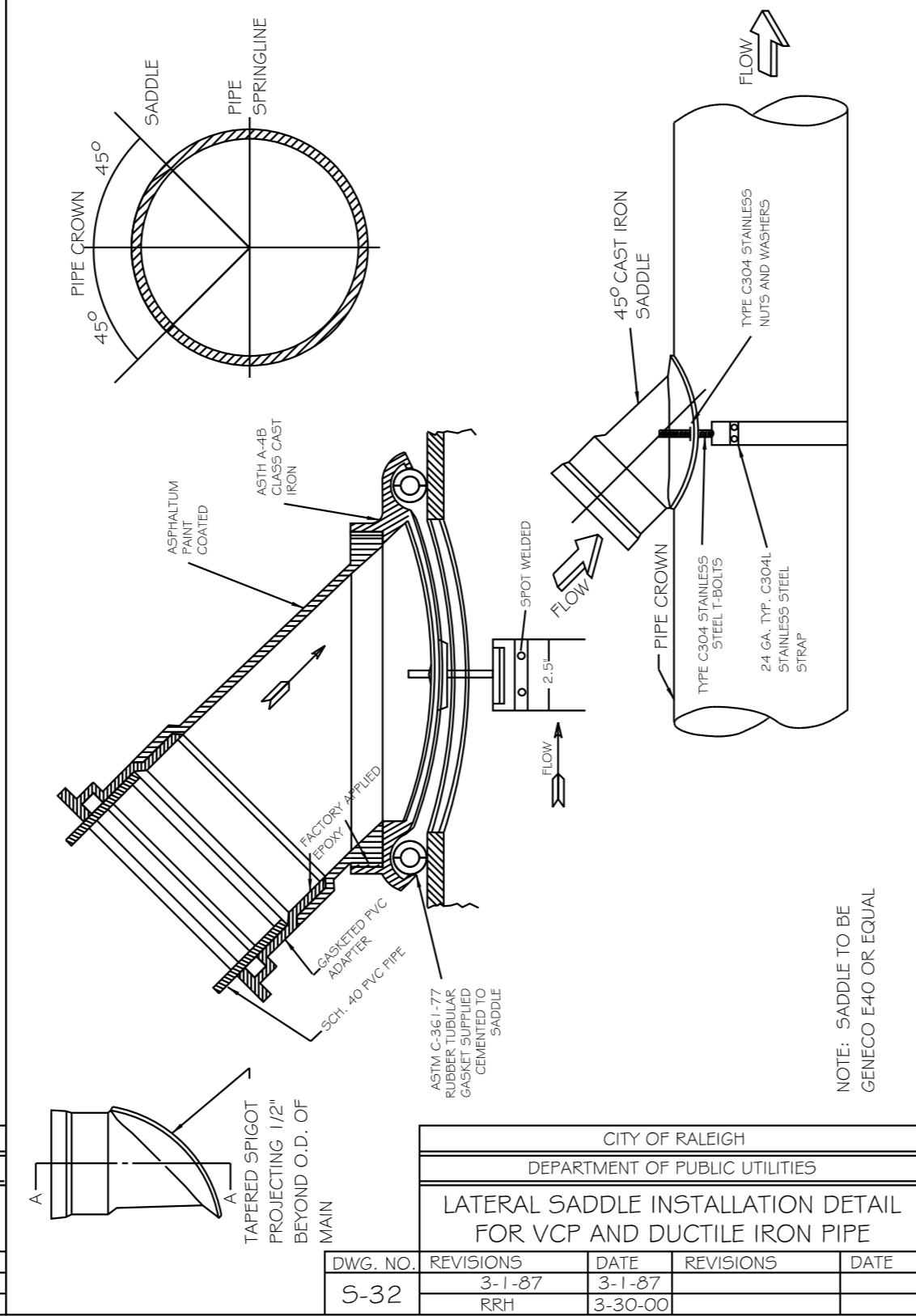
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
TYPICAL SANITARY SEWER LATERAL TRACER WIRE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-30A					
	W.K.D.	9-14			

NOTES:

1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. WHERE JOINTS ARE NECESSARY IN THE WIRE, THE JOINTS SHALL BE SECURELY WELDED TOGETHER WITH AN APPROVED WELDING PROCESS. THE WIRE SHALL BE SECURELY EMBEDDED IN THE BEDDING AND SHALL BE PROTECTED BY A CLEANOUT ASSEMBLY. CLEANOUTS SHALL BE SIMILAR TO THAT SHOWN IN DETAIL S-31.
2. THE CLEANOUT AT THE RIGHT OF WAY OR EASEMENT SHALL SERVE AS THE TEST POINT WITH THE TRACER WIRE BROUGHT UP OUTSIDE THE CLEANOUT ASSEMBLY AND WRAPPED AROUND THE STACK TWICE AT A DEPTH OF APPROXIMATELY 12\"/>



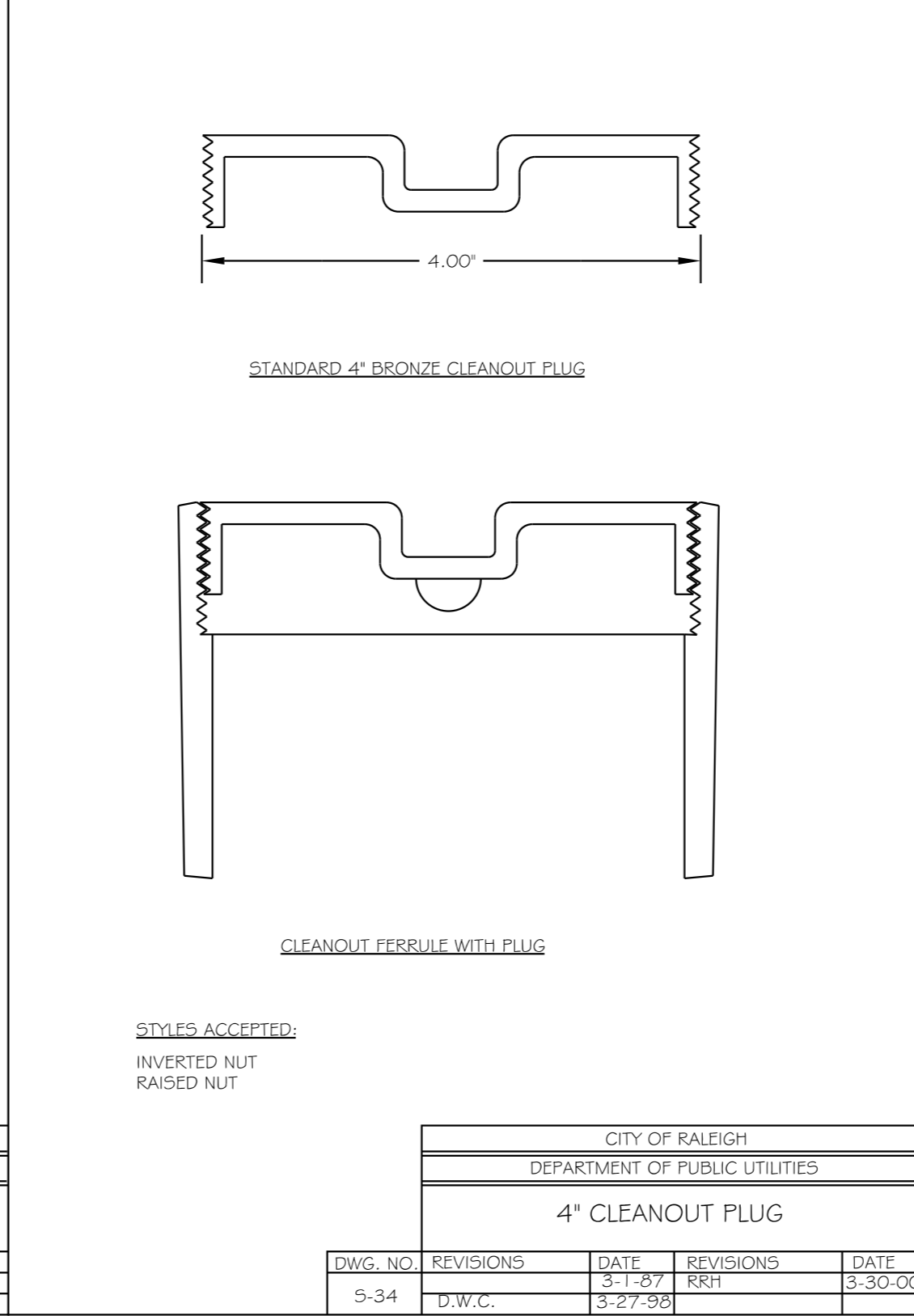
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
LATERAL SADDLE INSTALLATION DETAIL FOR PVC PIPE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-31					
	RRH	3-1-87			
		3-30-00			



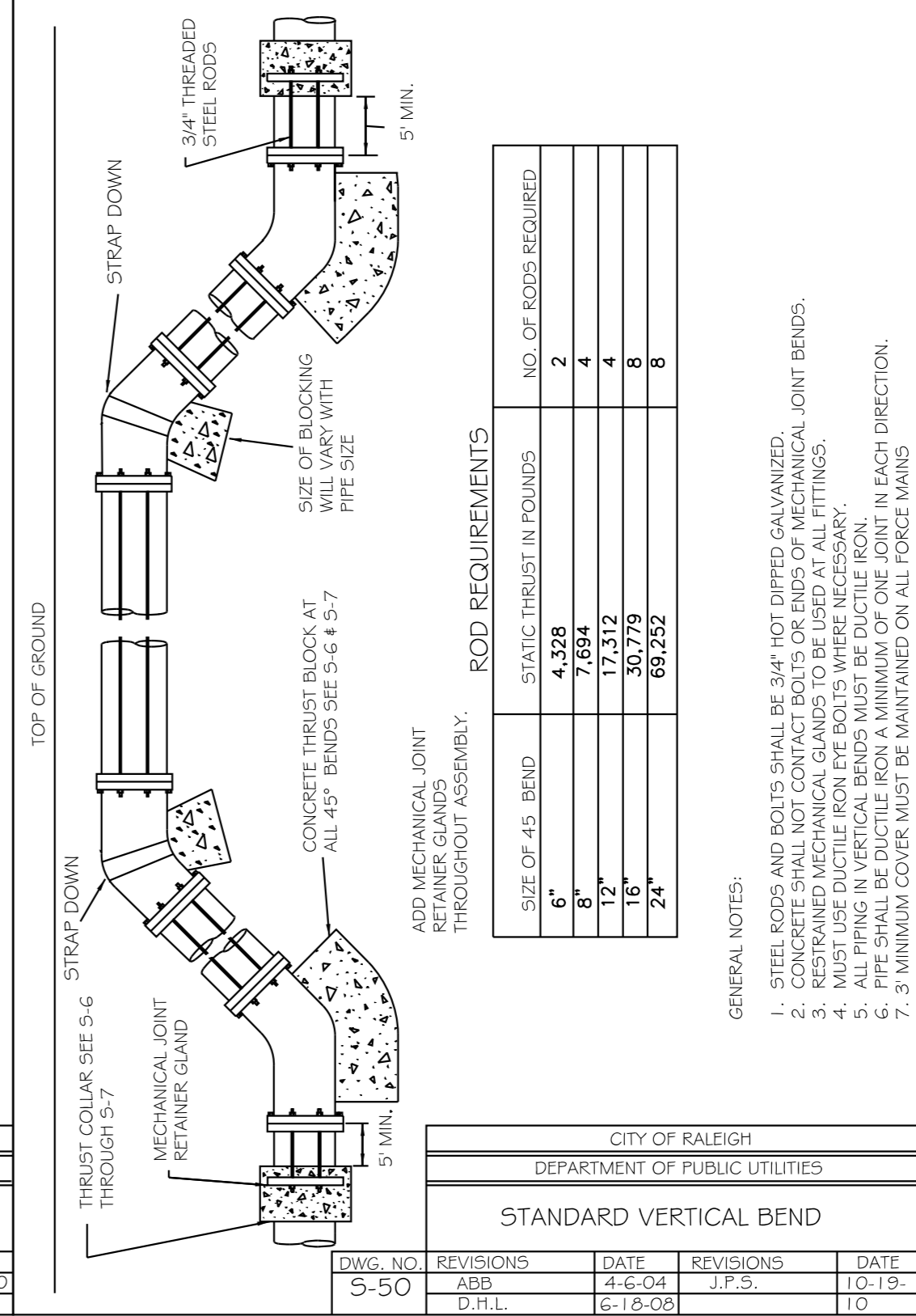
CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
LATERAL SADDLE INSTALLATION DETAIL FOR VCP AND DUCTILE IRON PIPE					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-32					
	RRH	3-1-87			
		3-30-00			

NOTE: SADDLE TO BE GENECO 540 OR EQUAL

- STYLES ACCEPTED:
- INVERTED NUT
  - RAISED NUT



CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES					
4\"/>					
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE	
S-34					
	D.W.C.	3-1-87	RRH	3-27-98	
		3-30-00			



ROD REQUIREMENTS			
SIZE OF 45\"/>			
6\"/>			
8\"/>			
12\"/>			
16\"/>			
24\"/>			

GENERAL NOTES:

1. STEEL RODS AND BOLTS SHALL BE 3/4\"/>

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 City of Raleigh Development Approval  
 City of Raleigh Review Officer



**Kimley»Horn**  
 421 FAYETTEVILLE ST, SUITE 600  
 RALEIGH, N.C. 27601

PROJECT REFERENCE NO. P-5720  
 SHEET NO. UC-4

DESIGNED BY: DGB  
 DRAWN BY: DGB  
 CHECKED BY: ZGP  
 APPROVED BY: NDR

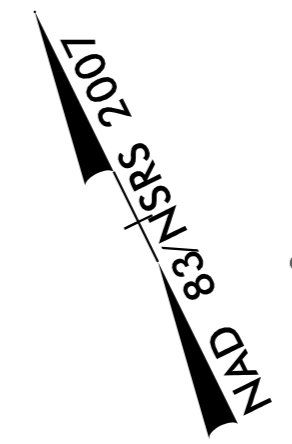
REVISED:

NORTH CAROLINA  
 DEPARTMENT OF  
 TRANSPORTATION

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

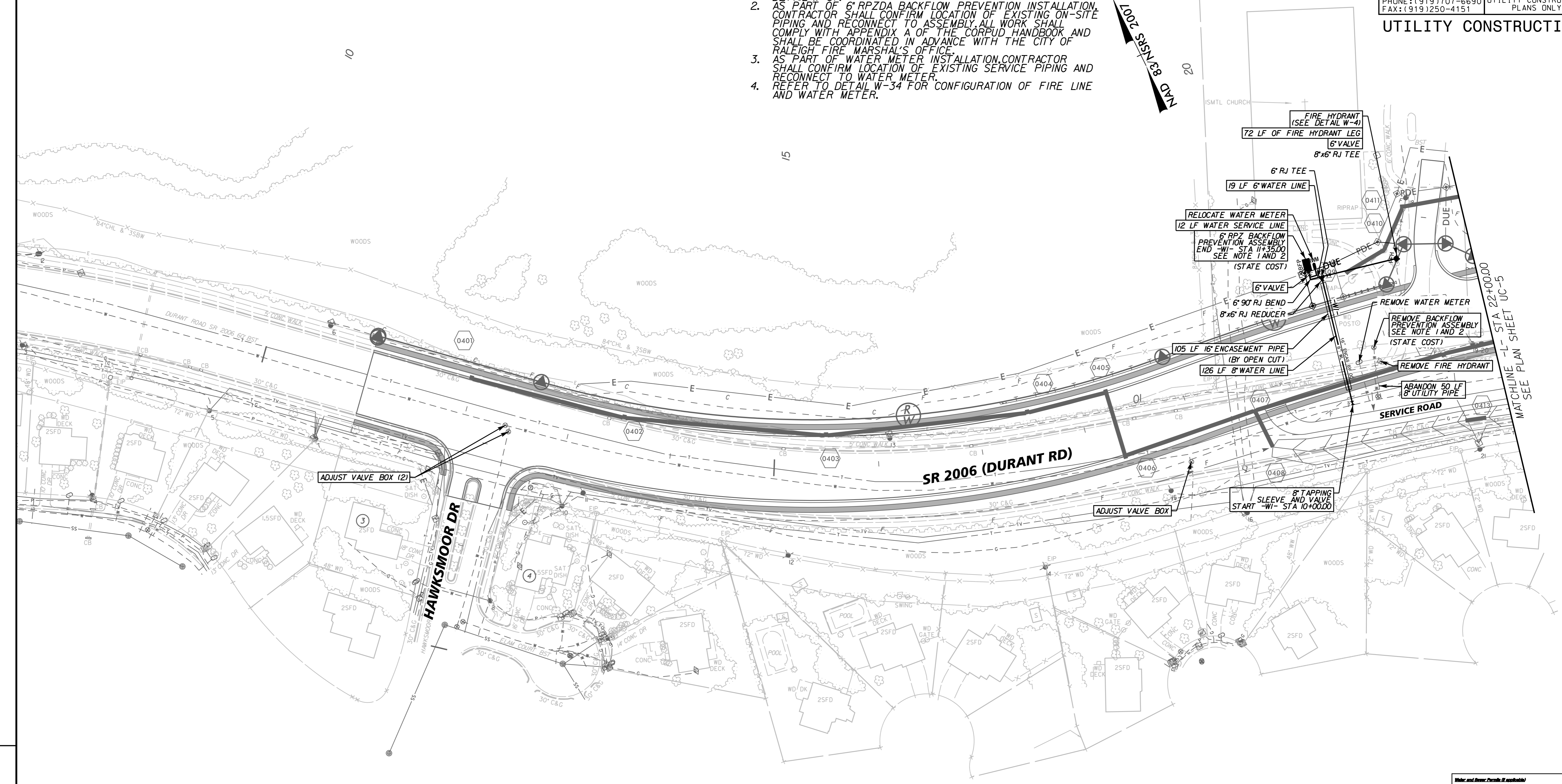
UTILITY CONSTRUCTION  
 PLANS ONLY

037953  
 12/18/2024  
 AN D. RAINY



- NOTES:
- CONTRACTOR SHALL REPLACE EXISTING 6" FEBCO SERIES 856 DOUBLE CHECK DETECTOR ASSEMBLY WITH PROPOSED 6" AMES COLT SERIES C500 REDUCED PRESSURE DETECTOR ASSEMBLY OR APPROVED EQUAL. THE HEADLOSS FOR THIS RPDA AT 243.86 GPM IS 9 PSI. THE RPDA SHALL BE INSTALLED IN AN ABOVE GRADE HEATED ENCLOSURE PER DETAIL W-37.
  - AS PART OF 6" RPZDA BACKFLOW PREVENTION INSTALLATION, CONTRACTOR SHALL CONFIRM LOCATION OF EXISTING ON-SITE PIPING AND RECONNECT TO ASSEMBLY. ALL WORK SHALL COMPLY WITH APPENDIX A OF THE CORPUS HANDBOOK AND SHALL BE COORDINATED IN ADVANCE WITH THE CITY OF RALEIGH FIRE MARSHAL'S OFFICE.
  - AS PART OF WATER METER INSTALLATION, CONTRACTOR SHALL CONFIRM LOCATION OF EXISTING SERVICE PIPING AND RECONNECT TO WATER METER.
  - REFER TO DETAIL W-34 FOR CONFIGURATION OF FIRE LINE AND WATER METER.

REVISIONS



**NOTE:**  
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 525 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

*(Water and Sewer Permits if available)*

The City of Raleigh consents to the connection and extension of the City's Public Sewer System as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # S-4499

The City of Raleigh consents to the connection and extension of the City's Public Water System as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # W-3582

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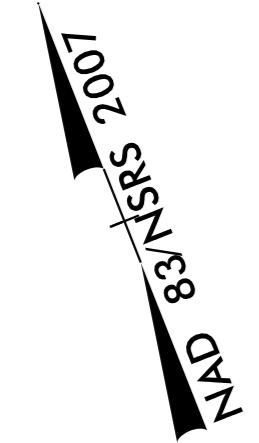
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City of Raleigh Development Approval \_\_\_\_\_  
 City of Raleigh Review Officer \_\_\_\_\_



5/14/1999

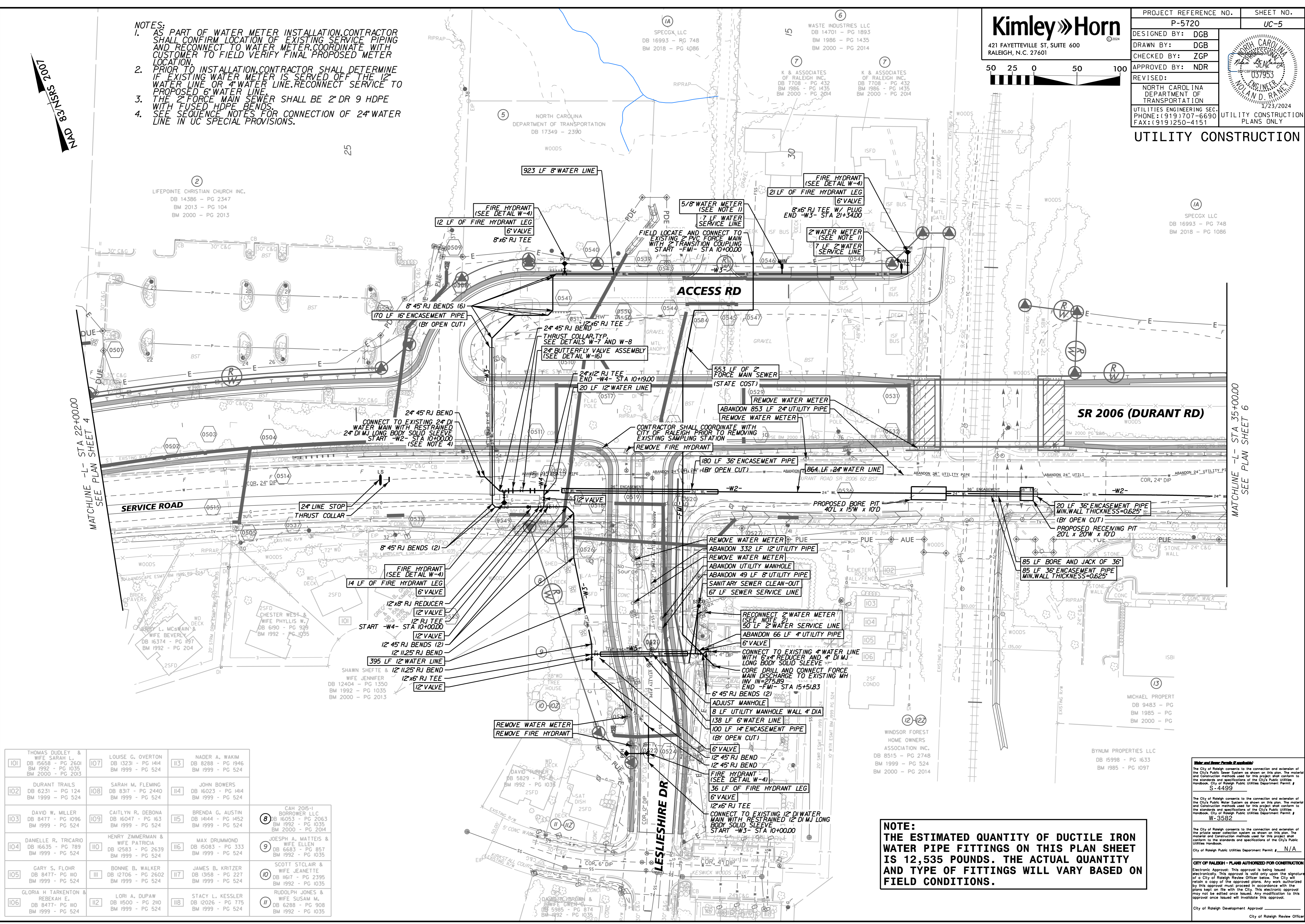
- NOTES:**
- AS PART OF WATER METER INSTALLATION CONTRACTOR SHALL CONFIRM LOCATION OF EXISTING SERVICE PIPING AND RECONNECT TO WATER METER. COORDINATE WITH CUSTOMER TO FIELD VERIFY FINAL PROPOSED METER LOCATION.
  - PRIOR TO INSTALLATION CONTRACTOR SHALL DETERMINE IF EXISTING WATER METER IS SERVED OFF THE 12" WATER LINE OR 4" WATER LINE. RECONNECT SERVICE TO PROPOSED 6" WATER LINE.
  - THE 2" FORCE MAIN SEWER SHALL BE 2" DR 9 HDPE WITH FUSED HDPE BENDS.
  - SEE SEQUENCE NOTES FOR CONNECTION OF 24" WATER LINE IN UC SPECIAL PROVISIONS.



**Kimley»Horn**  
 421 FAYETTEVILLE ST, SUITE 600  
 RALEIGH, N.C. 27601



PROJECT REFERENCE NO.	SHEET NO.
P-5720	UC-5
DESIGNED BY: DGB	
DRAWN BY: DGB	
CHECKED BY: ZGP	
APPROVED BY: NDR	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151
UTILITY CONSTRUCTION PLANS ONLY	



REVISIONS

101	THOMAS DUDLEY & WIFE SARAH L. DB 16568 - PG 2601 BM 1992 - PG 1035 BM 2000 - PG 2013	107	LOUISE G. OVERTON DB 13231 - PG 414 BM 1999 - PG 524	113	NADER A. WAKIM DB 8288 - PG 1946 BM 1999 - PG 524
102	DURANT TRAILS DB 6231 - PG 124 BM 1999 - PG 524	108	SARAH M. FLEMING DB 8317 - PG 2440 BM 1999 - PG 524	114	JOHN BOWERS DB 16023 - PG 144 BM 1999 - PG 524
103	DAVID W. MILLER DB 16374 - PG 197 BM 1992 - PG 204	109	CAITLYN R. DEBONA DB 16047 - PG 163 BM 1999 - PG 524	115	BRENDA G. AUSTIN DB 14144 - PG 1452 BM 1999 - PG 524
104	DANIELLE R. TRICARIO DB 16635 - PG 789 BM 1999 - PG 524	110	HENRY ZIMMERMAN & WIFE PATRICIA DB 12583 - PG 2639 BM 1999 - PG 524	116	MAX DRUMMOND DB 15083 - PG 333 BM 1999 - PG 524
105	GARY S. FLOHR DB 8477 - PG 110 BM 1999 - PG 524	111	BONNIE B. WALKER DB 12706 - PG 2602 BM 1999 - PG 524	117	JAMES B. KRITZER DB 13158 - PG 227 BM 1999 - PG 524
106	GLORIA H. TARKENTON & REBEKAH E. DB 8477 - PG 110 BM 1999 - PG 524	112	LORI A. DUPAW DB 1500 - PG 210 BM 1999 - PG 524	118	STACY L. KESSLER DB 12026 - PG 775 BM 1999 - PG 524
				8	CAH 2015-1 BORROWER LLC DB 16053 - PG 2063 BM 1992 - PG 1035 BM 2000 - PG 2014
				9	JOSEPH A. MATTEIS & WIFE ELLEN DB 6683 - PG 857 BM 1992 - PG 1035
				10	SCOTT STCLAIR & WIFE JEANETTE DB 1617 - PG 2395 BM 1992 - PG 1035
				11	RUDOLPH JONES & WIFE SUSAN W. DB 6288 - PG 908 BM 1992 - PG 1035

**NOTE:**  
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 12,535 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

**Water and Sewer Permits (if available)**  
 The City of Raleigh consents to the connection and extension of the City's Public Sewer System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # S-4499.

The City of Raleigh consents to the connection and extension of the City's Public Water System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # W-3582.

The City of Raleigh consents to the connection and extension of the City's Public Water System as shown on this plan. The material and construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook, City of Raleigh Public Utilities Department Permit # N/A.

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City of Raleigh Development Approval  
 City of Raleigh Review Officer

1/23/2024



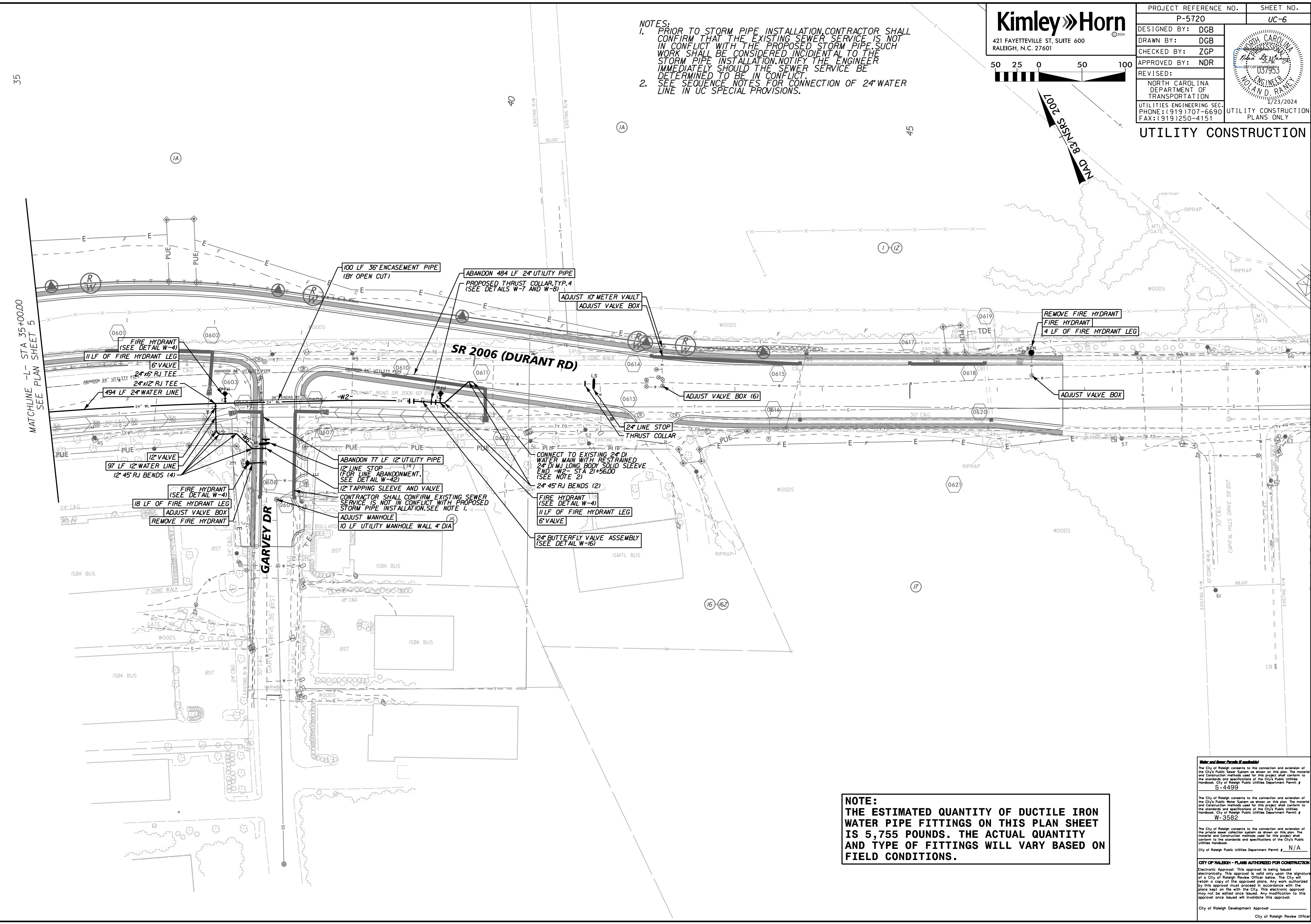
**Kimley»Horn**  
 421 FAYETTEVILLE ST, SUITE 600  
 RALEIGH, N.C. 27601

PROJECT REFERENCE NO.	SHEET NO.
P-5720	UC-6
DESIGNED BY: DGB	
DRAWN BY: DGB	
CHECKED BY: ZGP	
APPROVED BY: NDR	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	UTILITY CONSTRUCTION PLANS ONLY
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	

- NOTES:**
1. PRIOR TO STORM PIPE INSTALLATION, CONTRACTOR SHALL CONFIRM THAT THE EXISTING SEWER SERVICE IS NOT IN CONFLICT WITH THE PROPOSED STORM PIPE. SUCH WORK SHALL BE CONSIDERED INCIDENTAL TO THE STORM PIPE INSTALLATION. NOTIFY THE ENGINEER IMMEDIATELY SHOULD THE SEWER SERVICE BE DETERMINED TO BE IN CONFLICT.
  2. SEE SEQUENCE NOTES FOR CONNECTION OF 24" WATER LINE IN UC SPECIAL PROVISIONS.

REVISIONS

MATCHLINE -L- STA 35+00.00  
SEE PLAN SHEET 5



**NOTE:**  
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 5,755 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

**Water and Sewer Permits (if available)**  
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City of Raleigh Development Approval \_\_\_\_\_  
 City of Raleigh Review Officer \_\_\_\_\_

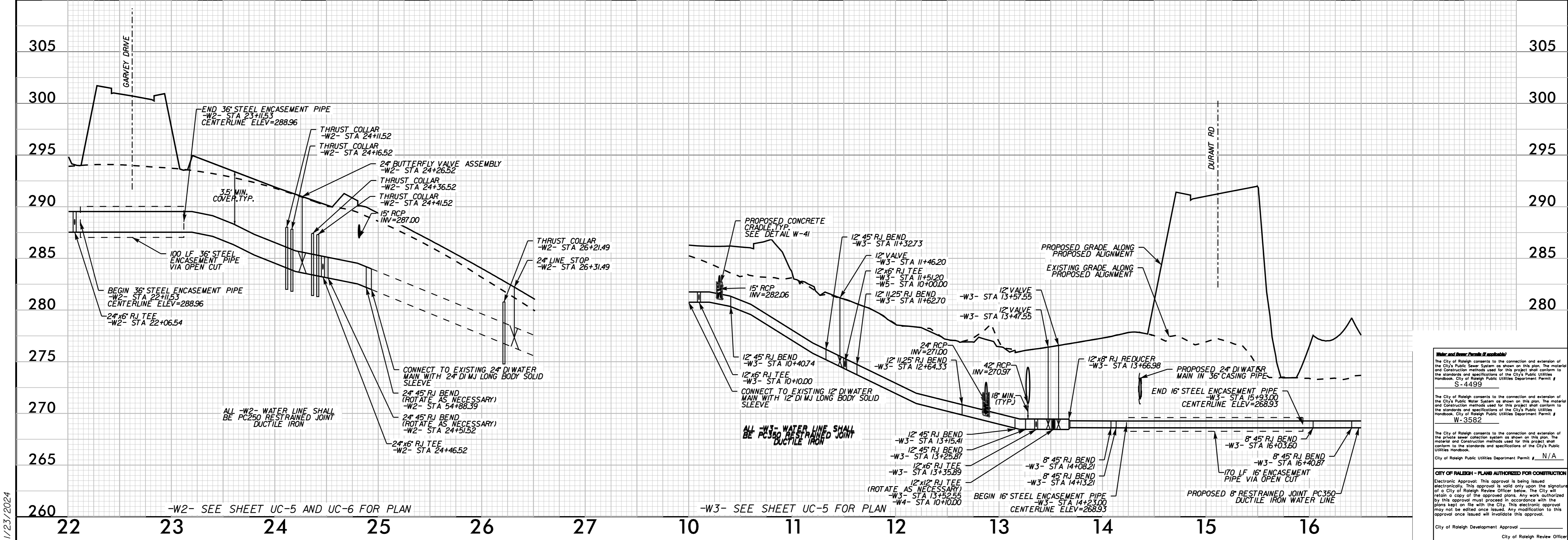
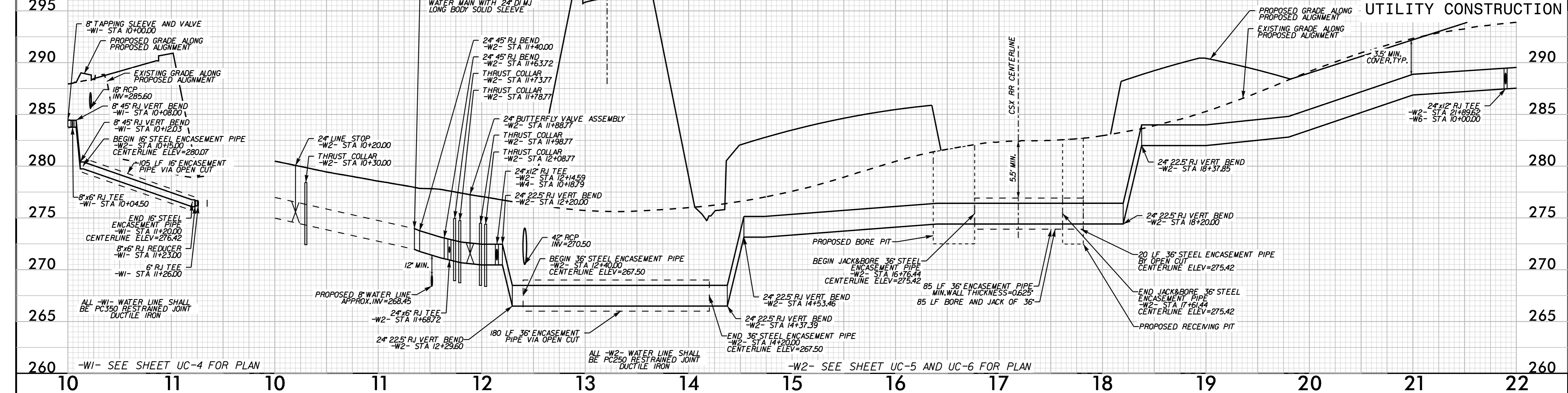


5/14/1999



421 FAYETTEVILLE ST, SUITE 600  
RALEIGH, N.C. 27601

PROJECT REFERENCE NO.	P-5720	SHEET NO.	UC-7
DESIGNED BY:	DGB		
DRAWN BY:	DGB		
CHECKED BY:	ZGP		
APPROVED BY:	NDR		
REVISED:		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITY ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
		UTILITY CONSTRUCTION PLANS ONLY	



1/23/2024

**Water and Sewer Details (if available)**

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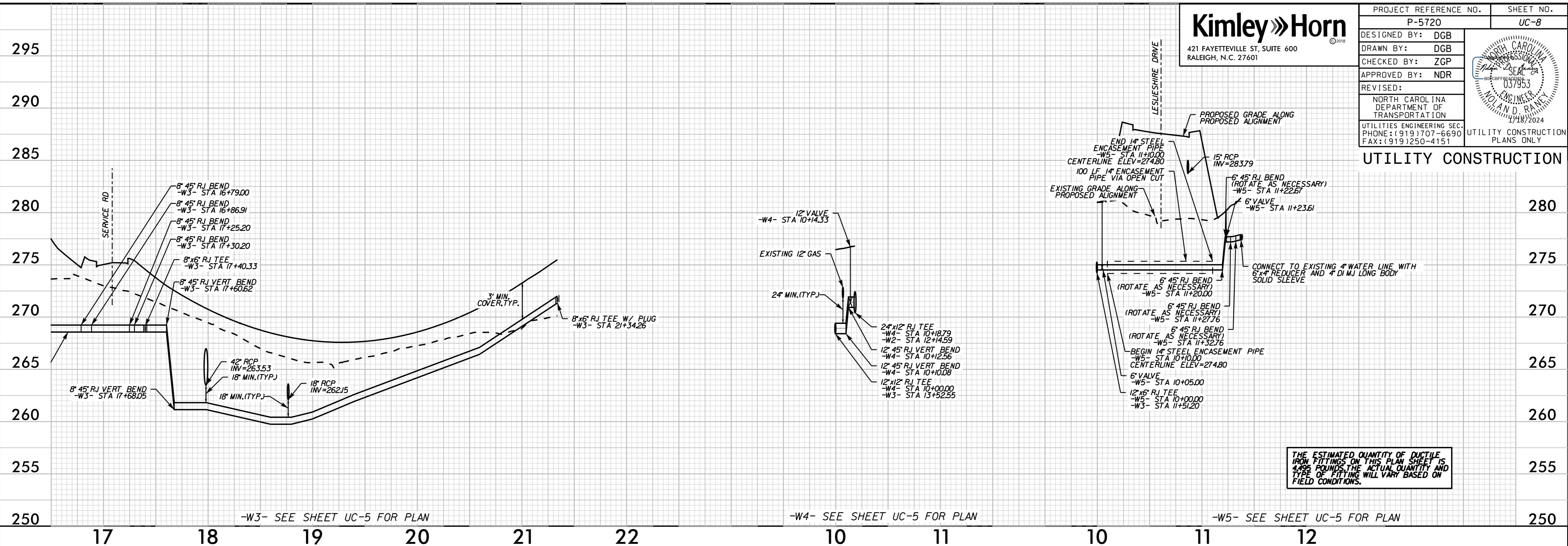


5/14/1999

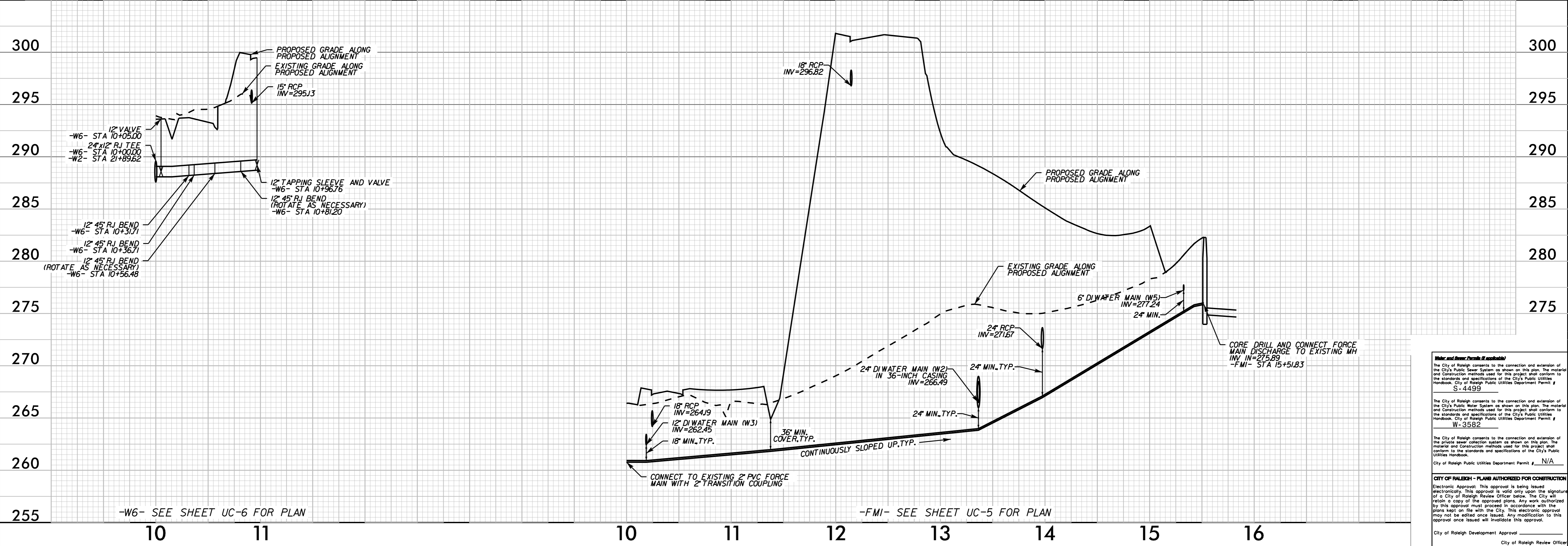
**Kimley»Horn**  
 421 FAYETTEVILLE ST, SUITE 600  
 RALEIGH, N.C. 27601

PROJECT REFERENCE NO.	SHEET NO.
P-5720	UC-8
DESIGNED BY: DGB	
DRAWN BY: DGB	
CHECKED BY: ZGP	
APPROVED BY: NDR	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.	UTILITY CONSTRUCTION PLANS ONLY
PHONE: (919) 707-6690	
FAX: (919) 250-4151	

**UTILITY CONSTRUCTION**



THE ESTIMATED QUANTITY OF DUCTILE IRON FITTINGS ON THIS PLAN SHEET IS 4,499 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTING WILL VARY BASED ON FIELD CONDITIONS.



**Water and Sewer Permits (if applicable)**  
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1/18/2024