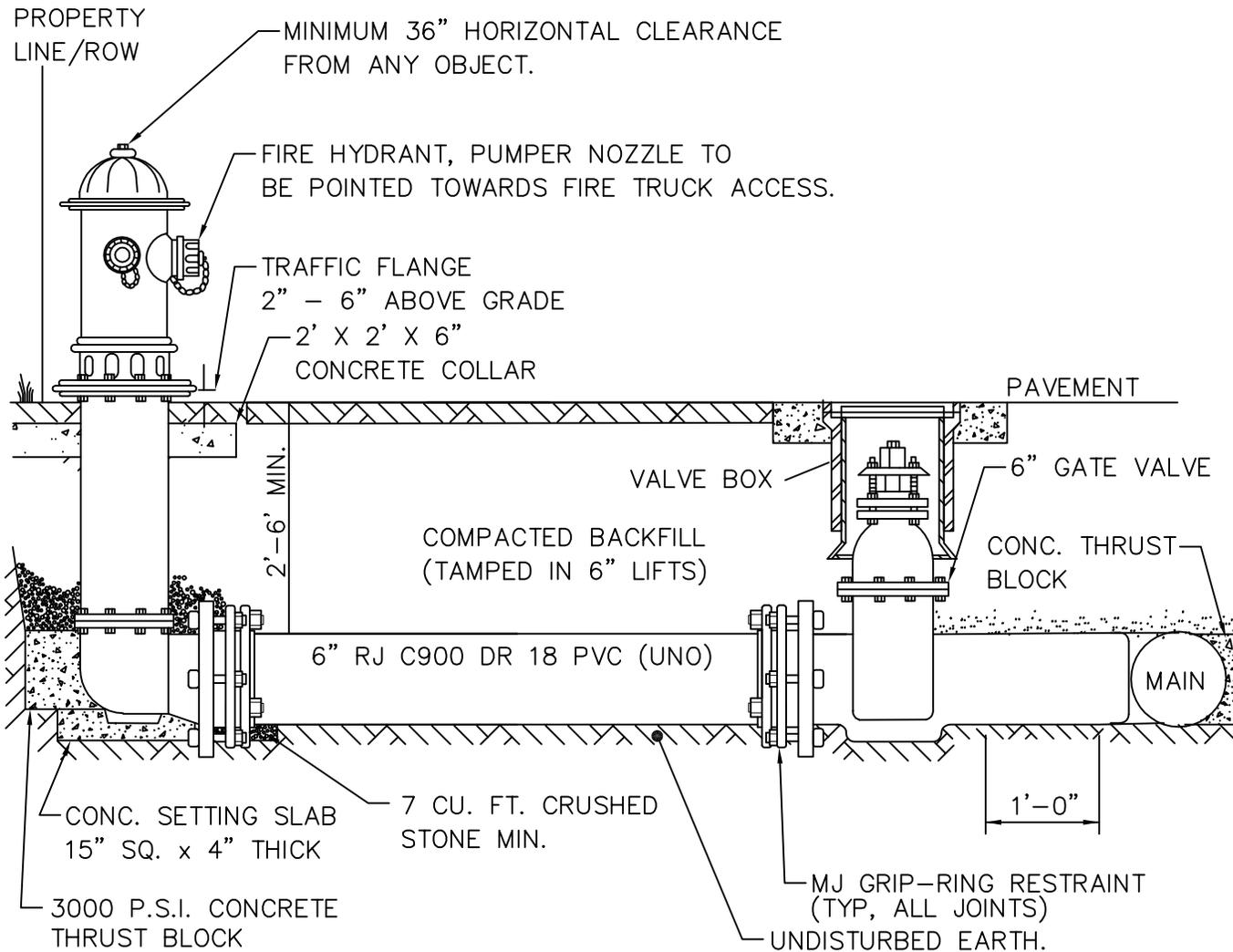


PCU STANDARD NOTES

1. A PRECONSTRUCTION MEETING IS REQUIRED BEFORE BEGINNING WORK. THE MEETING MUST BE SCHEDULED WITH PENDER COUNTY UTILITIES (PCU) AT LEAST ONE WEEK IN ADVANCE. ATTENDEES MUST INCLUDE PCU, THE SELECTED CONTRACTOR'S SUPERINTENDENT, THE SUPPLIER, AND THE CONSULTING ENGINEER.
2. ALL MATERIALS USED SHALL CONFORM TO PENDER COUNTY UTILITIES REQUIREMENTS. NON-CONFORMING MATERIAL WILL NOT BE ACCEPTED FOR FINAL CERTIFICATION.
3. ALL PIPE SHALL BE PVC. PVC PIPE WITHIN A CASING TO BE C900 DR 18 (SEE PCU STANDARD DETAIL). ALL OTHER PVC PIPE TO BE SDR 21. THE USE OF DIP PIPE IS NOT ALLOWED. PCU MUST APPROVE THE USE OF DIP IN THE FIELD BEFORE INSTALLATION AND ONLY WHEN THERE ARE NO OTHER OPTIONS.
4. PCU STANDARD WATERLINE PIPE RESTRAINING METHOD IS MJ GRIP RINGS. AT A MINIMUM ALL FITTINGS, VALVES, ETC. MUST BE RESTRAINED. (SEE PCU STANDARD DETAIL).
5. PCU MUST INSPECT CASING INSTALLATIONS PRIOR TO BACK-FILL. PCU MUST WITNESS PRESSURE TESTS, AND WITHDRAWAL OF BACTERIOLOGICAL SAMPLES. CONTACT BOB FORAND TO SCHEDULE 910-259-0212.
6. CLOSE-OUT DOCUMENTS WHICH MUST BE RECEIVED PRIOR TO PCU SIGNING THE NC PWSS APPLICANT CERTIFICATION INCLUDE: BACTERIOLOGICAL TESTS, PRESSURE TESTS, DEED OF DEDICATION, AFIDAVIT/RELEASE OF LIENS, WARRANTY, AND RECORD DRAWINGS (PDF & CAD).
7. AN 18 MONTH WARRANTY PERIOD APPLIES TO ALL WATERLINE CONSTRUCTION. THIS WARRANTY PERIOD DOES NOT BEGIN UNTIL FINAL APPROVAL OF THE SYSTEM HAS BEEN RECEIVED FROM NC PWSS.





NOTES:

1. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
2. FIRE HYDRANTS TO BE LOCATED IN RIGHT-OF-WAY.
3. INSTALL WITH BURY LINE FLUSH TO FINAL GRADE.
4. HYDRANTS TO BE AVK SERIES 2780, MUELLER SUPER CENTURION A473 W/PENDER CO. OPTIONS 981, OR CLOW MEDALLION WITH STAINLESS STEEL STEMS. HYDRANTS SHALL BE NOSTALGIC STYLE DRY BARREL.
5. HYDRANTS TO BE RED WITH SILVER CAPS AND BONNET.

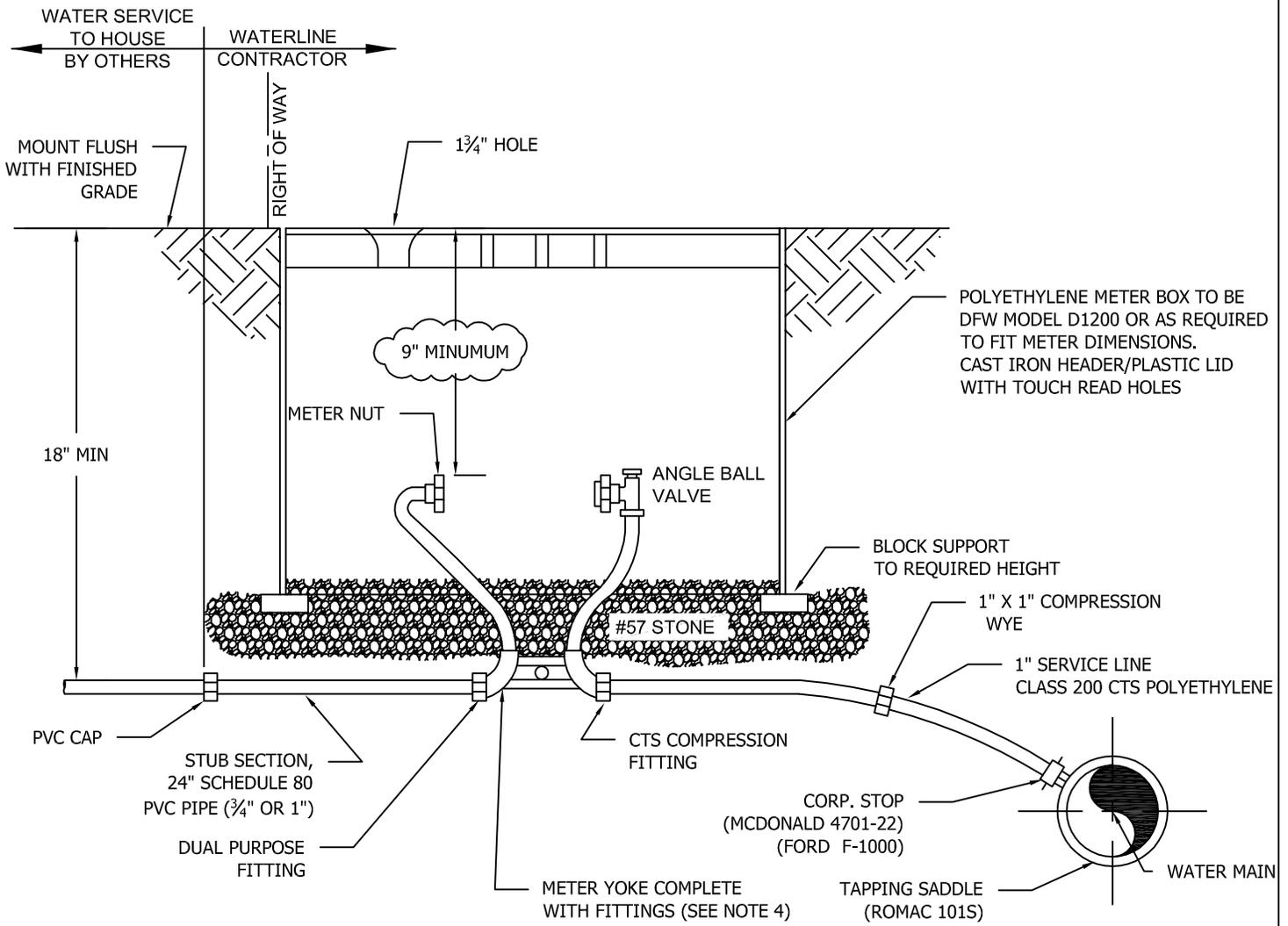
FIRE HYDRANT ASSEMBLY DETAIL

NOT TO SCALE

PENDER COUNTY UTILITIES
 605 EAST FREMONT STREET
 BURGAW, NC 28425

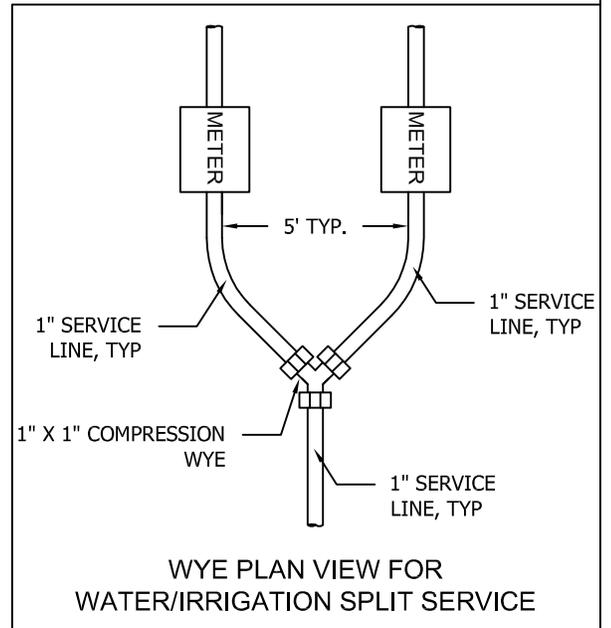


FIRE HYDRANT ASSEMBLY
 STANDARD DETAIL
 VERSION #2 - APRIL 2016



NOTE:

1. CONTRACTOR SHALL PLACE METER BOX IN NON-TRAFFIC AREA ONLY.
2. ALL TAPS TO BE MADE ON THE TOP QUARTER OF THE WATER MAIN.
3. CONTRACTOR SHALL CENTER METER YOKE IN METER BOX.
4. (3/4") MCDONALD 26-702WX2D 33, FORD VB72-7W-41-33-NL (1") MCDONALD 26-410WX2D 44, FORD VB-72-10W-41-44-NL
5. BOX TO BE ADJUSTED VERTICALLY TO ACCEPT COUNTY'S STANDARD SERVICE METER. (NEPTUNE T-10, PRO READ REGISTER, R900 MIU)
6. METER TO BE SET BY COUNTY UPON RECEIPT OF WATER SERVICE FEES, AND SATISFACTORY INSPECTION OF WATER SERVICE TO HOUSE.
7. TAPS ON WATER MAINS LARGER THAN 16" SHALL BE MADE WITH DUAL WIDE BAND, STAINLESS STEEL TAPPING SADDLES (ROMAC 202S).
8. 1 1/2" METERS REQUIRE 2" TAP AND 2" SQUARE NUT GATE VALVE PER 2" METER DETAIL. REDUCE TO 1 1/2" SERVICE PIPE.
9. INSTALL WYE TO PROVIDE A DOMESTIC METER SETTER AND IRRIGATION METER SETTER PER SPLIT SERVICE INSET.



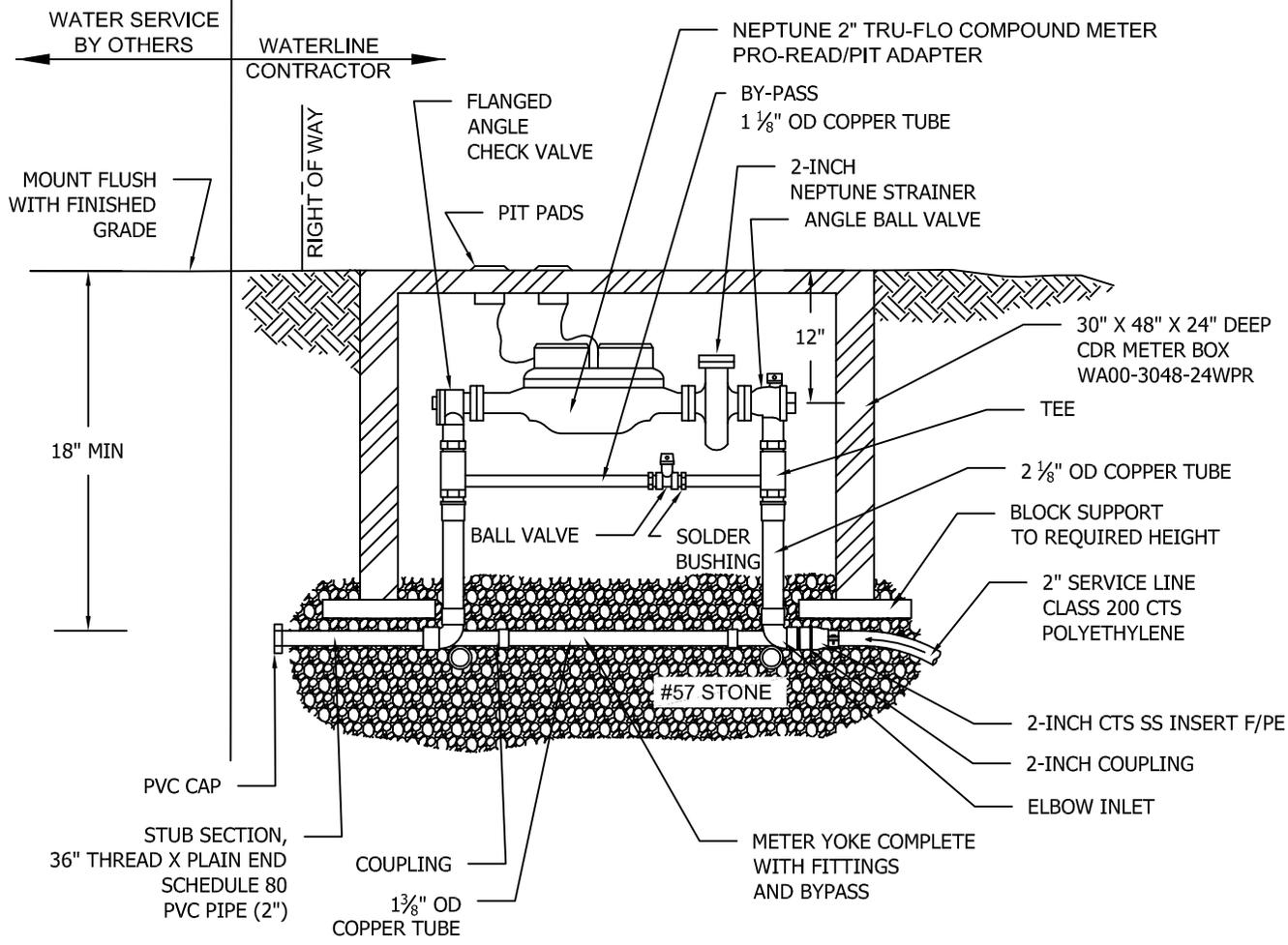
STANDARD WATER SERVICE DETAIL

NOT TO SCALE

PENDER COUNTY UTILITIES
605 EAST FREMONT STREET
BURGAW, NC 28425

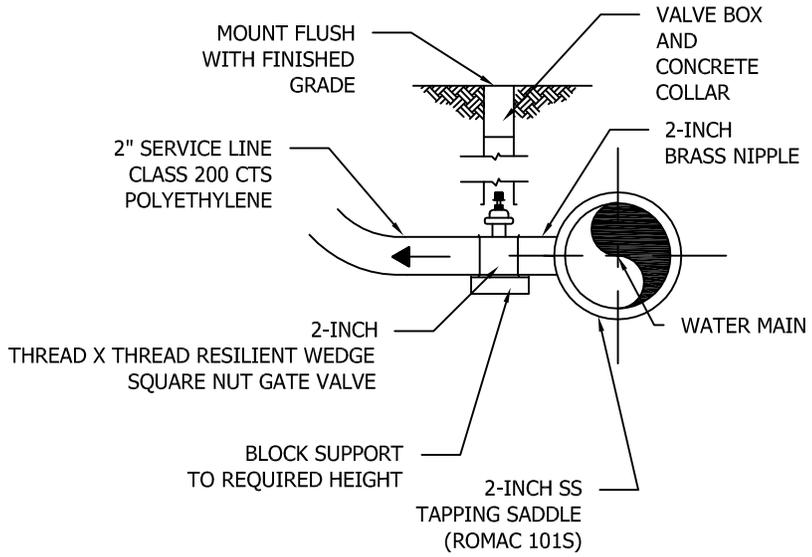


WATER SERVICE (3/4" - 1")
STANDARD DETAIL
VERSION #4 - FEB 2016



2-INCH METER DETAIL

- NOTE:**
1. CONTRACTOR SHALL PLACE METER BOX IN NON-TRAFFIC AREA ONLY.
 2. CONTRACTOR SHALL CENTER METER YOKE IN METER BOX AS REQUIRED TO PROPERLY FIT METER.
 3. BOX TO BE ADJUSTED VERTICALLY TO ACCEPT COUNTY'S STANDARD SERVICE METER AND STRAINER. (NEPTUNE 2" TRU-FLO COMPOUND METER PRO-READ/PIT ADAPTER)
 4. TAPS ON WATER MAINS LARGER THAN 16" SHALL BE MADE WITH DUAL WIDE BAND, STAINLESS STEEL TAPPING SADDLES (ROMAC 202S). ANY TAP LARGER THAN 2-INCHES SHALL BE MADE WITH A TAPPING SLEEVE AND VALVE. A STRAINER AND BY-PASS SHALL ALSO BE PROVIDED.



2-INCH TAP DETAIL

STANDARD 2-INCH WATER SERVICE DETAIL

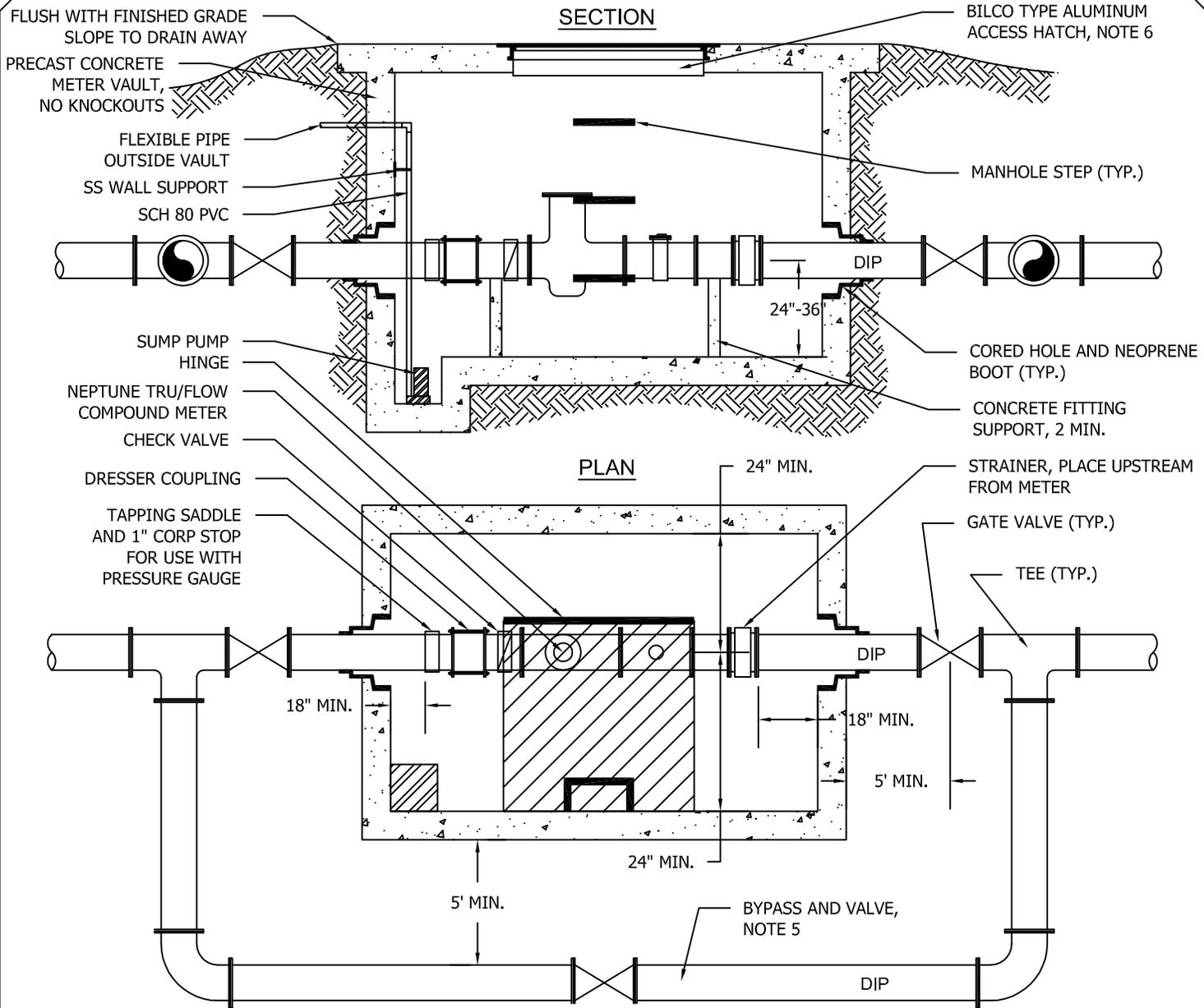
NOT TO SCALE

PENDER COUNTY UTILITIES
 605 EAST FREMONT STREET
 BURGAW, NC 28425



**2-INCH WATER SERVICE
 STANDARD DETAIL
 VERSION #1 - AUGUST 2010**

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NOTES

1. VAULTS SHALL BE PROPERLY DESIGNED AND SIZED FOR EACH SPECIFIC APPLICATION AND SITE CONDITION.
2. VAULTS SHALL BE LOCATED SUCH THAT THE RIM ELEVATION IS A MINIMUM OF 2 FEET ABOVE THE BASE FLOOD ELEVATION.
3. PROVIDE ADEQUATE DESIGN FOR ALL SITE CONDITIONS INCLUDING BUT NOT LIMITED TO FLOTATION, TRAFFIC LOADING, ACCESSIBILITY, PROJECTED DEMAND, AND OTHER DESIGN CRITERIA AS REQUIRED.
4. MINIMUM CLEARANCES SHOWN ARE REQUIRED FOR PROPER ACCESSIBILITY TO ALLOW OPERATION AND MAINTENANCE. CLEARANCES SHALL BE VERIFIED DURING THE SUBMITTAL PROCESS.
5. METERS SHALL BE PROVIDED A BYPASS WITH AT LEAST ONE VALVE OF THE SAME SIZE AS THE METER.
6. THE ACCESS HATCH SHALL BE LOCATED OVER THE METER, AND SHALL BE LOCATED TO ALLOW ENTRY WITHOUT CLIMBING OVER VAULT COMPONENTS. HATCH SHALL ALSO BE LOCATED AND OF APPROPRIATE SIZE TO ALLOW REMOVAL OF EQUIPMENT. PROVIDE 1 3/4\"
7. THRUST RESTRAINT AND SUPPORTS SHALL BE PROPERLY DESIGNED, SIZED, AND INSTALLED TO PREVENT MOVEMENT OF ALL VAULT COMPONENTS, INCLUDING THE BY PASS.
8. THERE SHALL BE NO VALVES, DIRECTIONAL CHANGES, OR OTHER DISTURBANCES WITHIN 5 PIPE DIAMETERS UPSTREAM OF THE METER THAT MAY INTERFERE WITH LAMINAR FLOW.
9. VAULTS SHALL BE PROPERLY WATERPROOFED AND HYDROSTATICALLY TESTED. AN AUTOMATIC SUMP PUMP SHALL BE PROVIDED. THE FLOOR OF THE VAULT SHALL BE SLOPED TOWARD THE SUMP.
10. AT LEAST ONE, 20 AMP, GFI OUTLET WITH STANDARD THREE PRONG RECEPTACLE SHALL BE PROVIDED ON THE ELECTRIC PANEL. THE OUTLET SHALL BE WEATHER PROOF AND HAVE A LOCKABLE COVER.
11. AT LEAST ONE SPARE BREAKER SHALL BE PROVIDED IN THE ELECTRICAL PANEL.

BULK METER DETAIL

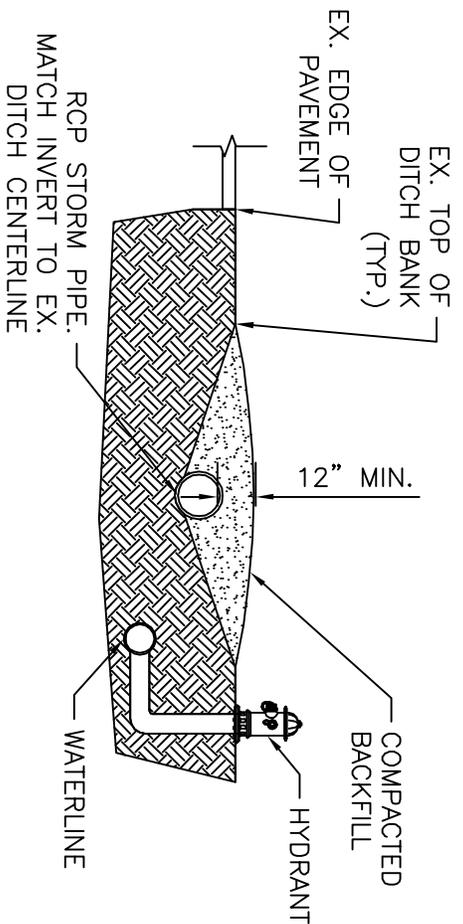
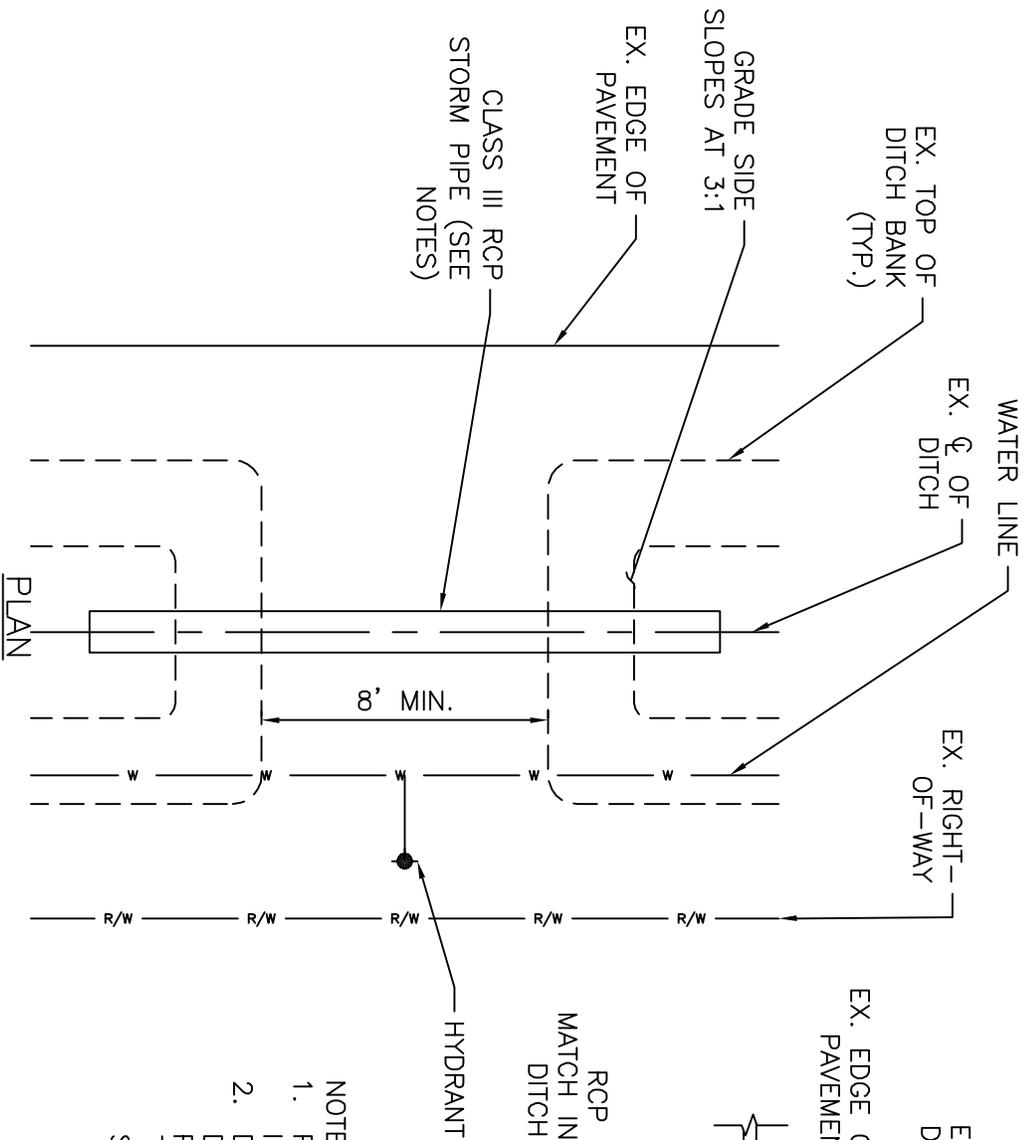
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 BURGAW, NC 28525



BULK METER
 STANDARD DETAIL
 VERSION #3 - FEB 2016

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SECTION

- NOTES:
1. FH ACCESS CULVERT SHALL BE A MINIMUM OF 8' IN LENGTH.
 2. DIAMETER OF FH ACCES CULVERT SHALL BE DETERMINED BY THE LARGER OF THE DRAINAGE PIPES IMMEDIATELY UPSTREAM OR DOWNSTREAM OF THE HYDRANT LOCATION. MINIMUM PIPE DIAMETER SHALL BE 15".

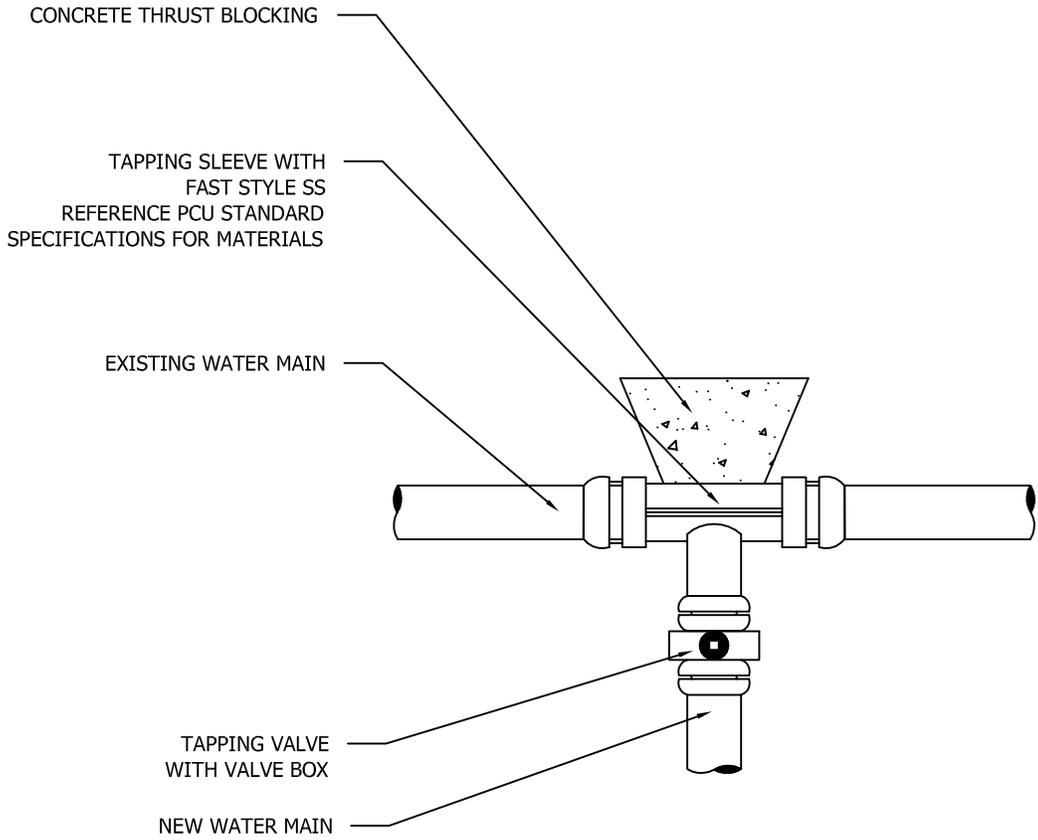
FIRE HYDRANT ACCESS DETAIL

NOT TO SCALE

PENDER COUNTY UTILITIES
 605 EAST FREMONT STREET
 BURGAW, NC 28425



FIRE HYDRANT ACCESS
 STANDARD DETAIL
 VERSION #1 - SEPTEMBER 2015



TAPPING SLEEVE AND VALVE ASSEMBLY DETAIL

NOT TO SCALE

PENDER COUNTY UTILITIES
 605 EAST FREMONT STREET
 BURGAW, NC 28425



TAPPING SLEEVE AND VALVE ASSEMBLY
 STANDARD DETAIL
 VERSION #3 - FEB 2016

Restrained Length In Feet Each Side of Fitting Joint

PIPE DIAMETER (INCHES)	D. I. P.				P. V. C.			
	90°	45°	22 1/2°	11 1/4°	90°	45°	22 1/2°	11 1/4°
3"	30'	15'	10'	5'	40'	20'	10'	5'
4"	35'	15'	10'	5'	55'	25'	15'	10'
6"	55'	25'	10'	5'	80'	35'	20'	10'
8"	65'	30'	15'	10'	90'	40'	20'	10'
10"	80'	35'	20'	10'	110'	50'	25'	15'
12"	95'	40'	20'	10'	130'	55'	30'	15'
16"	120'	50'	25'	15'	165'	70'	35'	20'
20"	150'	65'	30'	15'	200'	85'	40'	20'
24"	180'	70'	35'	20'	210'	90'	45'	25'
30"	190'	80'	40'	20'	250'	105'	50'	25'
36"	220'	95'	45'	25'	0	0	0	0
42"	245'	105'	50'	25'	0	0	0	0
48"	260'	120'	60'	30'	0	0	0	0

Restrained lengths for valves, dead ends and branches from tees shall be the same as for 90° (degree) bends

Restrained Length In Feet For Reducer

PIPE DIAMETER (INCHES)	3"	4"	6"	8"	10"	12"	16"	20"	24"	30"
3"	0	0	0	0	0	0	0	0	0	0
4"	40'	0	0	0	0	0	0	0	0	0
6"	50'	45'	0	0	0	0	0	0	0	0
8"	75'	70'	40'	0	0	0	0	0	0	0
10"	95'	90'	70'	40'	0	0	0	0	0	0
12"	120'	115'	100'	75'	40'	0	0	0	0	0
16"	160'	155'	140'	125'	100'	70'	0	0	0	0
20"	200'	195'	185'	170'	150'	130'	75'	0	0	0
24"	160'	155'	150'	140'	135'	120'	90'	50'	0	0
30"	195'	190'	185'	180'	170'	160'	120'	105'	70'	0
36"	225'	220'	215'	210'	205'	195'	180'	150'	125'	70'
42"	245'	240'	235'	230'	225'	220'	205'	180'	155'	105'
48"	255'	250'	245'	240'	235'	230'	215'	195'	175'	125'

Length of restrained joint for larger diameter pipe

NOTES:

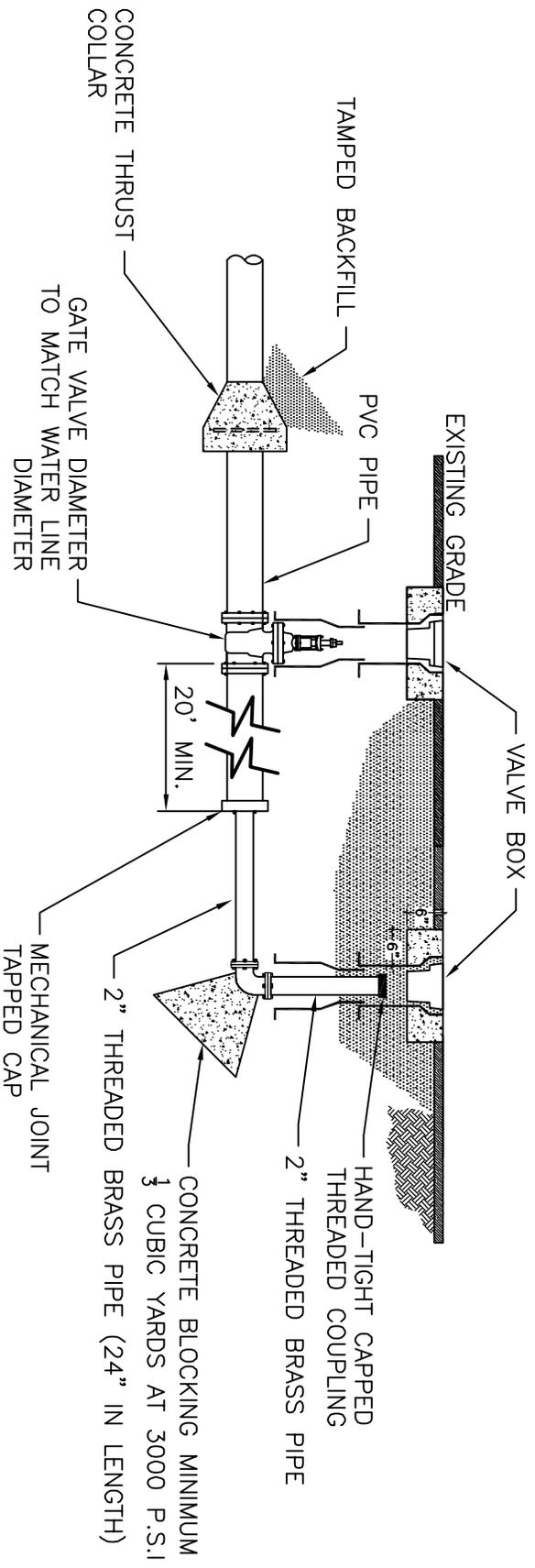
1. PENDER COUNTY STANDARD RESTRAINT METHOD IS MJ "GRIP RING" TYPE. ALL RJ TO BE MJ "GRIP RING" TYPE, UNLESS SPECIFICALLY APPROVED BY PCU IN WRITING.
2. ALL FITTINGS AND JOINTS SHALL BE RESTRAINED JOINT.
3. "L" ABOVE IS GIVEN IN FEET FROM FITTING JOINT.

PENDER COUNTY UTILITIES
605 EAST FREMONT STREET
BURGAW, NC 28425



RESTRAINED JOINT TABLE
STANDARD DETAIL
VERSION #1 - OCTOBER 2015

- NOTE:
1. ALL PVC SHALL BE RESTRAINED PER THE RESTRAINED LENGTH SCHEDULE PROVIDED ELSEWHERE.
 2. A BLOW OFF MARKER SHALL BE PLACED ON THE RIGHT OF WAY AT EACH BLOW.
 3. VALVE MARKER EXCEPT DENOTE "BO" ON MARKER RATHER THAN "MV"



TEMPORARY BLOW-OFF ASSEMBLY DETAIL

NOT TO SCALE

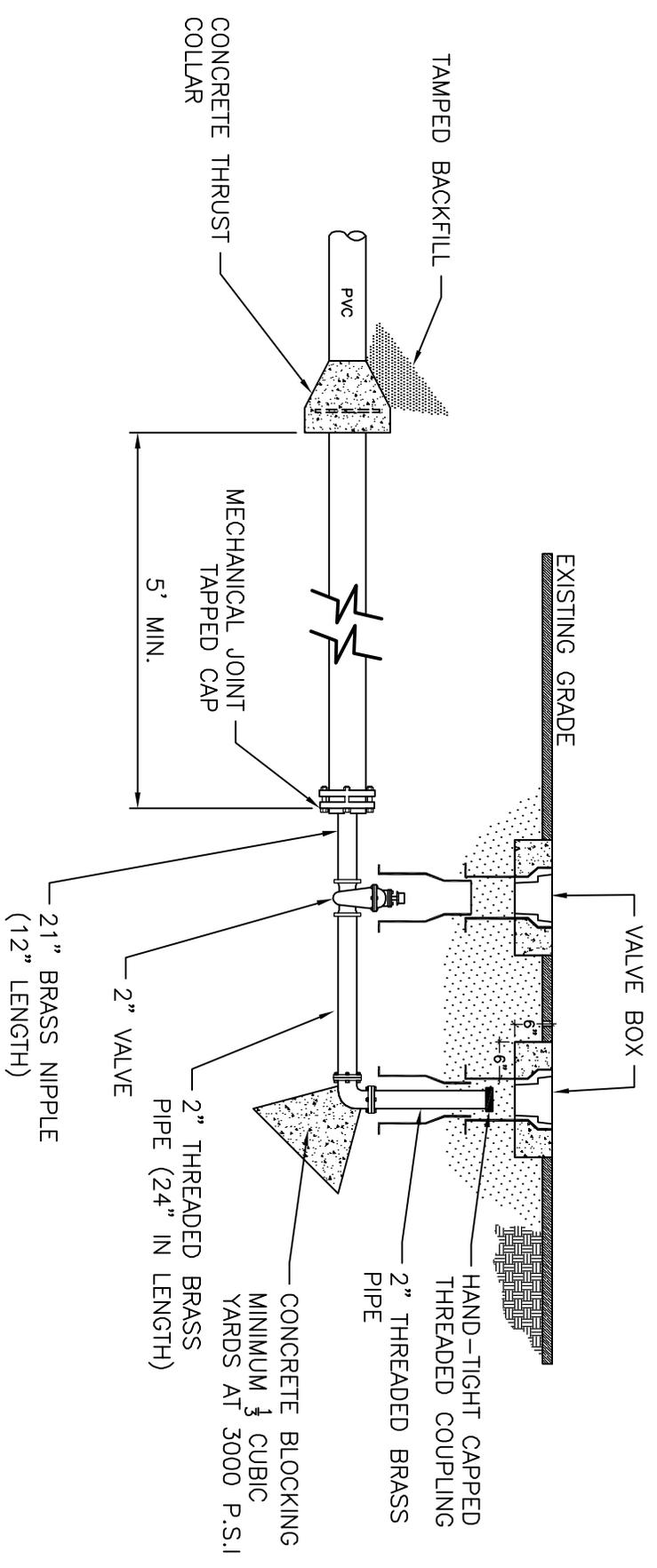
PENDER COUNTY UTILITIES
 605 EAST FREMONT STREET
 BURGAW, NC 28425



TEMPORARY BLOW-OFF ASSEMBLY
 STANDARD DETAIL
 VERSION #1 - SEPTEMBER 2015

- NOTE:
1. A BLOW OFF MARKER SHALL BE PLACED ON THE RIGHT OF WAY AT EACH BLOW.
 2. BLOW OFF MARKER TO BE SAME DESIGN AS VALVE MARKER EXCEPT DENOTE "BO" ON MARKER RATHER THAN "MV"

- NOTES:
1. ALL PVC SHALL BE RESTRAINED PER THE RESTRAINED LENGTH SCHEDULE PROVIDED ELSEWHERE.



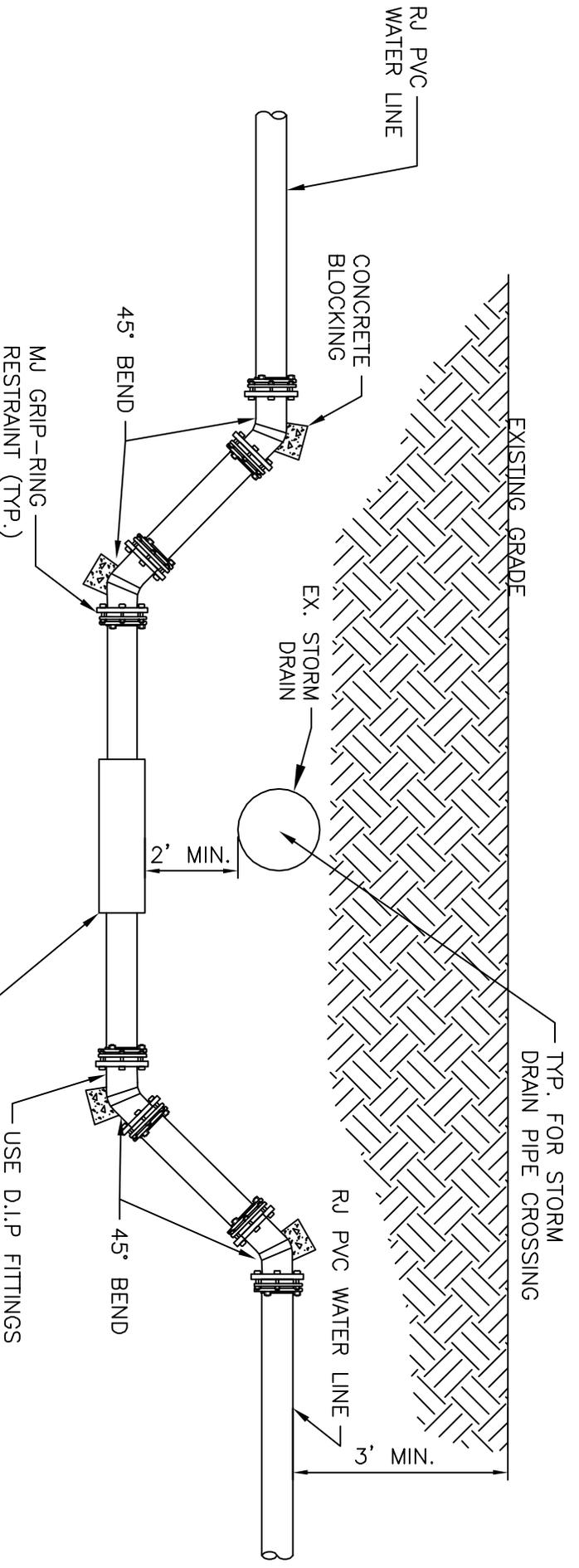
PERMANENT BLOW-OFF ASSEMBLY DETAIL

NOT TO SCALE

PENDER COUNTY UTILITIES
 605 EAST FREMONT STREET
 BURGAW, NC 28425



PERMANENT BLOW-OFF ASSEMBLY
 STANDARD DETAIL
 VERSION #1 - SEPTEMBER 2015



- NOTES:**
1. SPACERS SHALL BE PROVIDED WITHIN THE CASING PIPE AND CASING ENDS SHALL BE SEALED PER "PCU STANDARD BORE ENCASUREMENT".
 2. DIP SHALL NOT BE USED WITHOUT PRIOR APPROVAL OF PCU IN THE FIELD.
 3. CARRIER PIPE TO BE C900 DR 18 PVC.

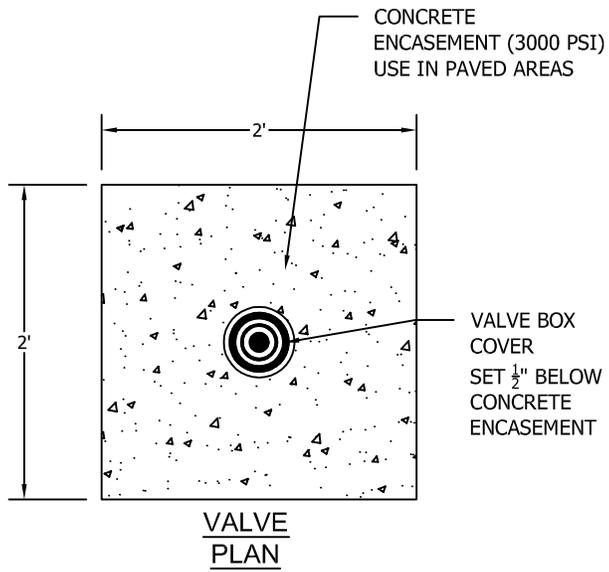
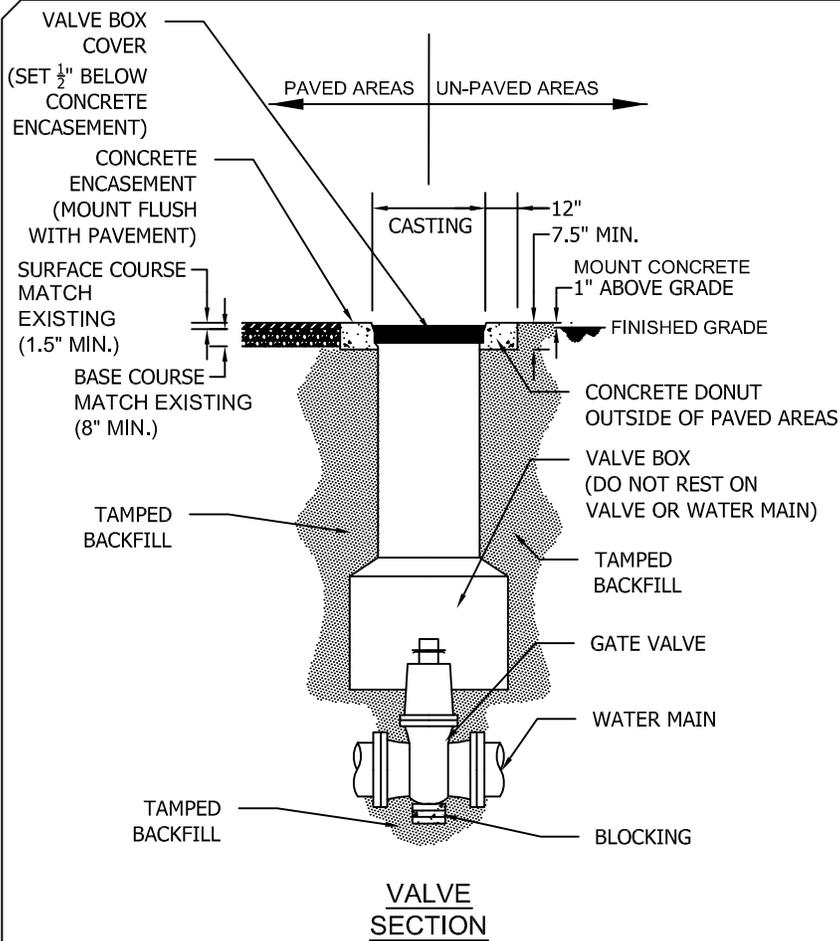
STEEL CASING TO EXTEND 10' FROM THE CL OF THE STORM DRAIN CROSSING IN BOTH DIRECTIONS. CASING TO MEET THE REQUIREMENTS OF CASING FOR BORE AND JACK INSTALLATIONS.

PIPE CROSSING "A" DETAIL
NOT TO SCALE

PENDER COUNTY UTILITIES
605 EAST FREMONT STREET
BURGAW, NC 28425

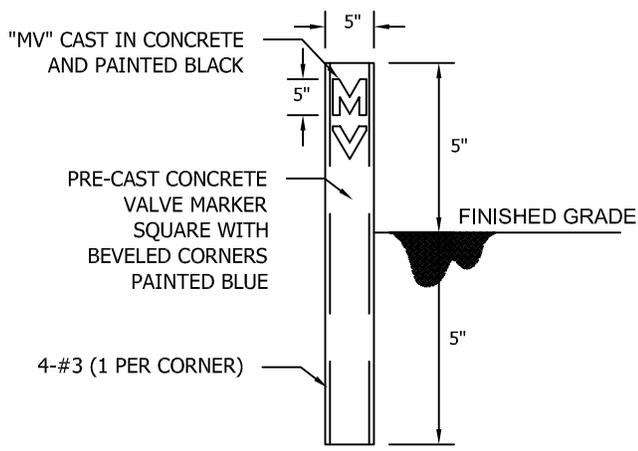


PIPE CROSSING "A"
STANDARD DETAIL
VERSION #1 - SEPTEMBER 2015



VALVE SECTION

VALVE PLAN



VALVE MARKER SECTION

- NOTE:
1. PRE-CAST CONCRETE COLLARS MAY BE USED IN LIEU OF CONCRETE ENCASEMENT (ONLY IN NON-PAVED AREAS).
 2. DO NOT ALLOW VALVE BOX TO REST ON THE VALVE OR WATER MAIN.
 3. A VALVE MARKER SHALL BE PLACED ON THE RIGHT OF WAY AT EACH ISOLATION VALVE.

VALVE INSTALLATION DETAIL

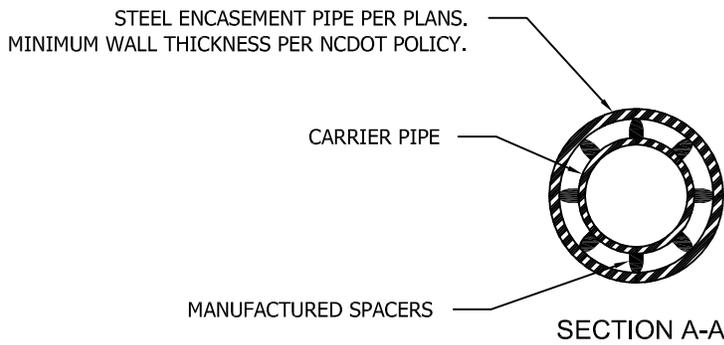
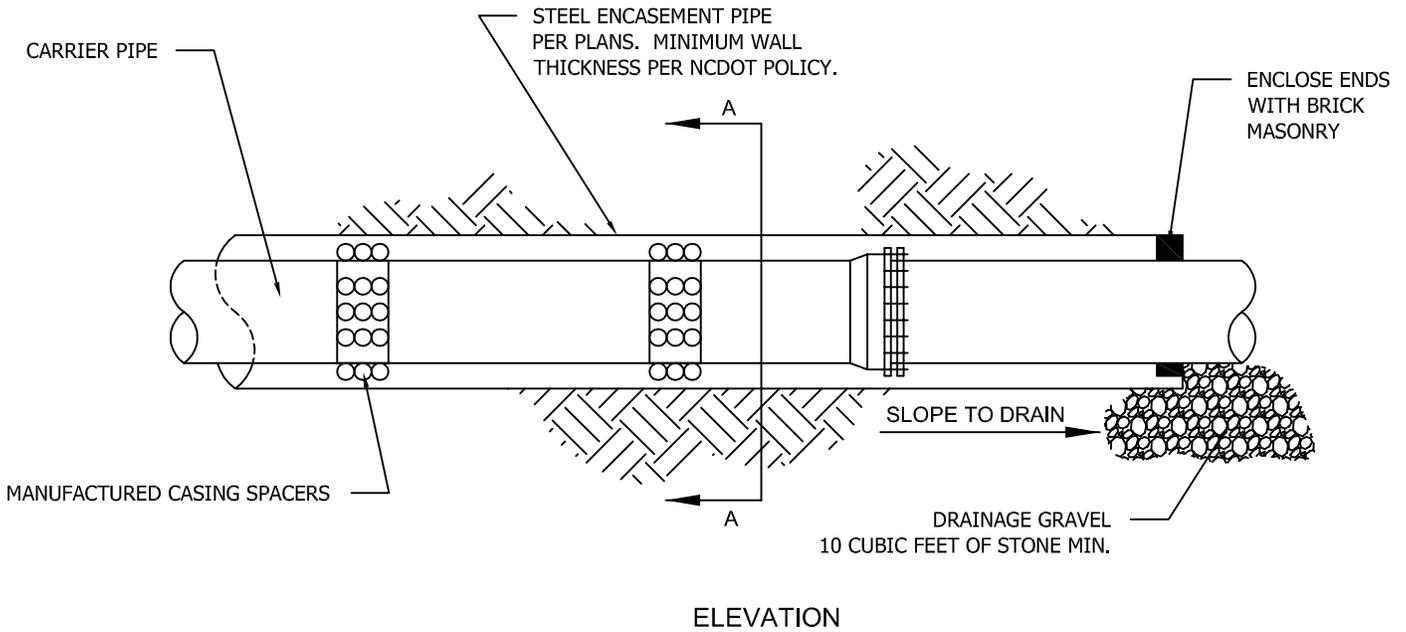
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**VALVE INSTALLATION
 STANDARD DETAIL
 VERSION #2 - SEPTEMBER 2015**

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NOTE:

1. EITHER STAINLESS STEEL OR HDPE CASING SPACERS ARE ACCEPTABLE, BUT IN EITHER CASE, THE SPACERS MUST BE MANUFACTURED.
2. CARRIER PIPE TO BE C900 PVC DR 18, ALL JOINTS RESTRAINED.
3. ENCASEMENT PIPE TO BE STEEL WITH MINIMUM WALL THICKNESS IN ACCORDANCE WITH NCDOT MINIMUM REQUIREMENTS OR BETTER.
4. TOP OF ENCASEMENT PIPE SHALL BE INSTALLED A MINIMUM OF THREE FEET BELOW EXISTING AND/OR PROPOSED PAVEMENT SUB-GRADE.

STANDARD BORE ENCASEMENT DETAIL

NOT TO SCALE

PENDER COUNTY UTILITIES
 605 EAST FREMONT STREET
 BURGAW, NC 28425



**BORE ENCASEMENT
 STANDARD DETAIL
 VERSION #2 - SEP 2015**