

## **SECTION 3**

### **UTILITIES DETAIL DRAWINGS**

**Go to the Collier County website below for the latest revision of the Utilities Detail Drawings:**

**<http://www.colliergov.net/>**

**COLLIER COUNTY WATER-SEWER DISTRICT  
UTILITIES STANDARDS MANUAL  
SECTION 3**

**UTILITIES DETAIL DRAWINGS**

**Table of Contents**

Detail Drawing Designations:

G General  
NP Non-Potable  
W Water  
WW Wastewater

<u>Drawing</u> <u>No.</u>	<u>Title</u>	<u>Revision</u> <u>Date</u>
<b><u>General Details</u></b>		
G-1	Unpaved Area Trench Backfill Detail	04/2006
G-2	Paved Area Trench Restoration Detail for Private Roads	04/2006
G-2A	State Road, Major County Road, and Numbered County Road Flowable Fill Road/Trench Restoration	04/2006
G-2B	Road and Trench Restoration for Local Roads	04/2006
G-3	Pipe Separation Detail	04/2006
G-4	Pipe Conflict Detail	04/2006
G-5	Jack and Bore Detail	08/2008
G-6	Thrust Block Detail for Existing A / C Pipe	04/2006
G-7	Typical Valve Setting Detail	09/2006
G-8	Typical Horizontal Directional Drill (HDD) Under a Roadway	08/2008
G-9	Typical Subaqueous Horizontal Directional Drill (HDD)	04/2006
G-9A	Subaqueous Water Main Valve Vault Detail	08/2008
G-10	Pipe Restraint Schedule	04/2006
G-11	Vehicular Guard Post Detail	08/2008
<b><u>Non-Potable Water Details</u></b>		
NP-1	Standard Non-Potable Irrigation Meter Assembly Service Connection	08/2008
NP-2	Typical Irrigation Service Meter Setting Detail for Connection To Irrigation Main	08/2008
NP-3	Non-Potable Irrigation Water Air Release Valve Detail	08/2008
NP-4	Raw and Supplemental Water Air Release Valve Detail Not for Use with Reclaimed Water	08/2008
NP-E1	Reuse System Standard Service Connections Open/Close Valve Single Control Panel Site General Note and Keynotes	04/2006
NP-E2	Reuse System Standard Service Connections Open/Close Valve Single Control Panel Site Open/Closed Not-Potable Irrigation Meter Assembly	08/2008

<u>Drawing No.</u>	<u>Title</u>	<u>Revision Date</u>
NP-E3	Reuse System Standard Service Connections Open/Close Valve Single Control Panel Site Layout & Elementary	08/2008
NP-E4	Reuse System Standard Service Connections Open/Close Valve Single Control Panel Site Open/Closed MOV Control Diagram	04/2006
NP-E5	Reuse System Standard Service Connections Open/Close Valve Single Control Panel Site Electrical Equipment Elevations	08/2008
NP-E6	Reuse System Standard Service connections Open/Close Valve Single Control Panel Site Level Transducer Mounting Details	08/2008
NP-E7	Reuse System Standard Service Connections Open/Close Valve Single Control Panel Site Electrical Details	08/2008
NP-E8	Reuse System Standard Service Connections Open/Close Valve Single Control Panel Site Electrical Details	04/2006
NP-E9	Reuse System Standard Service connections Open/Close Valve Single Control Panel Site Typical RTU Antenna Tower Details	08/2008

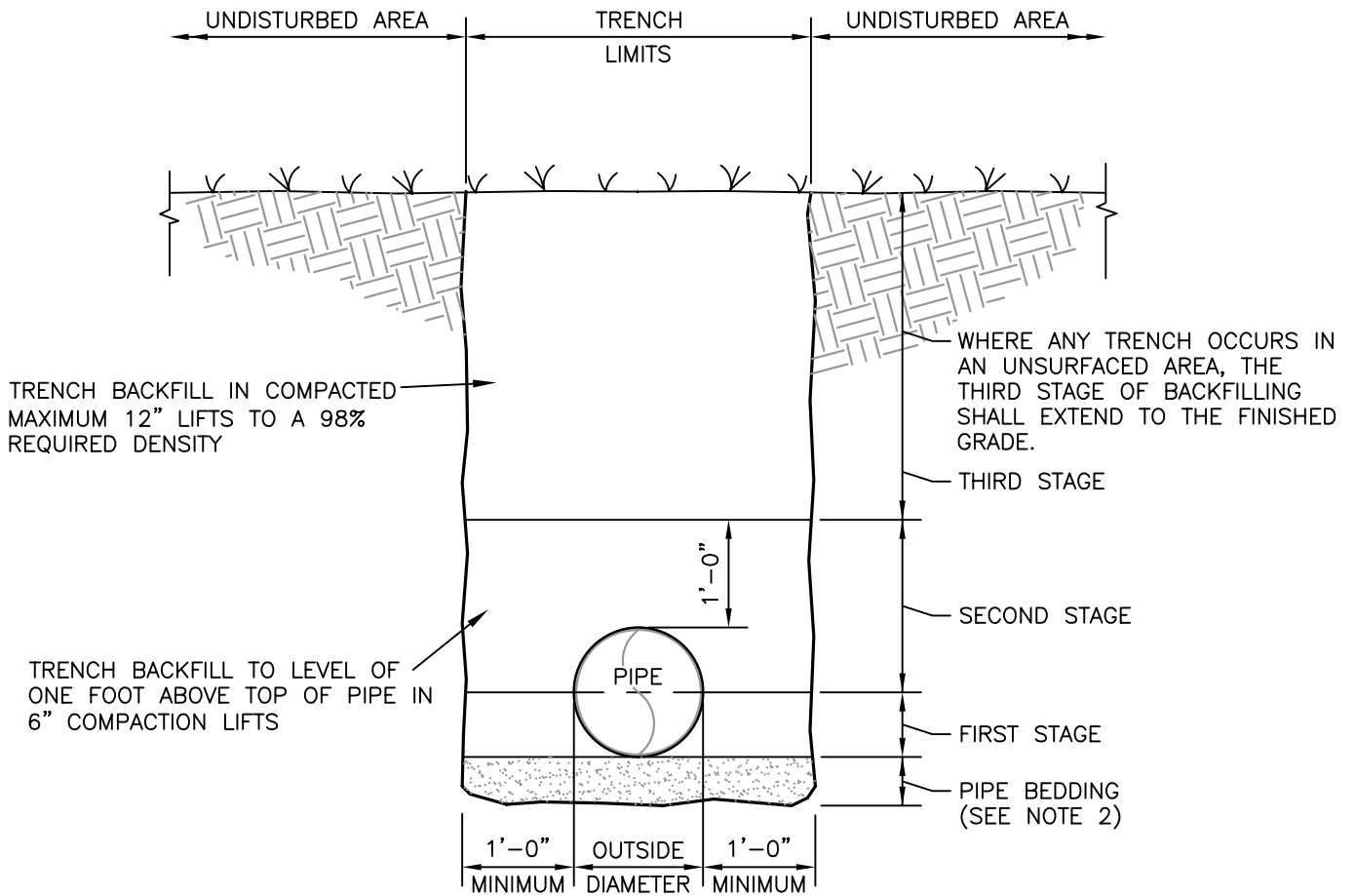
### **Water Details**

W-1	Temporary Blowoff Assembly with Bacterial Sample Point Detail	08/2008
W-2	Automatic Water Main Flushing Device Detail	08/2008
W-3	Fire Hydrant Detail	09/2006
W-4	Connection to Existing Water Main Detail (Gap Configuration)	08/2008
W-5	Potable Water Air Release Valve Detail	08/2008
W-6	Permanent Bacterial Sample Point Detail	08/2008
W-7	Not Used	
W-8	2" and 3" Fire System Detector Check Assembly Detail with No Connections Permitted Downstream	08/2008
W-9	Temporary Backflow Preventer and Fire Protection Meter Tie-In Assembly	08/2008
W-9A	Alternate Temporary Backflow Preventer and Fire Protection Meter Tie-in Assembly	08/2008
W-10	Fire System Detector Check Assembly Detail with Connections Permitted Downstream	08/2008
W-10A	4" through 10" Compact Fire System Detector Check Assembly Detail with Connections Permitted Downstream (Wilkins)	08/2008
W-11	4" and Over Fire System Detector Check Assembly Detail With No Connections Permitted Downstream	08/2008
W-11A	4" Through 10" Only Compact Fire System Detector Check Assembly Detail with No Connections Permitted Downstream (Wilkins)	08/2008
W-12	Typical Short and Long Side Water Service Meter Setting Detail for Connection to Water Main	08/2008
W-13	3" and Over Potable Water Meter Assembly Detail	08/2008

<u>Drawing No.</u>	<u>Title</u>	<u>Revision Date</u>
W-14	3" and Over Potable Water Fire and Water Meter Assembly Detail (with Temporary Construction Meter)	08/2008
W-14A	Maintenance Driveway for Water Meters 3" and Larger	09/2006
W-15	Fire Service Dual Meter Assembly with Connections Permitted Over 10" Fire Main (Dual 8" Meters)	08/2008
W-16	Fire Service Dual Meter Assembly with No Connections Permitted over 10" Fire Main (Dual 8" Meters)	08/2008

### **Wastewater Details**

WW-1	Force Main Connection to Gravity Sanitary Sewer Detail	04/2006
WW-2	Private Force Main Connection to County Force Main Detail	08/2008
WW-3	Precast Reinforced Concrete Manhole Detail	08/2008
WW-4	Shallow Manhole Detail	08/2008
WW-5	Drop Manhole Detail	08/2008
WW-6	Manhole Ring and Cover Detail	08/2008
WW-7	Pump Station Detail – Profile	08/2008
WW-7A	Pump Station Detail – Site Plan and General Requirements	08/2008
WW-8	Pump Station Detail – Plan	08/2008
WW-8A	Odor Control CFM Sizing Chart (Large Wetwells)	07/2005
WW-8B	Odor Control CFM Sizing Chart (Small Wetwells)	07/2005
WW-9	Pumping Station Control Panel Detail	08/2008
WW-10	Sewer Connection Details – Property, ROW or Easement Line	08/2008
WW-11	Sewer Clean-out Detail - Paved Areas	04/2006
WW-12	Sewer Clean-out Detail - Non Paved Areas	08/2008
WW-13	Force Main Air Release Valve Detail (Non-Traffic Area)	08/2008
WW-14	Force Main Air Release Valve Detail (Paved Area)	08/2008
WW-15	Typical Flow Line Channels Detail	04/2006
WW-16	Double Sewer Clean-out Detail	08/2008
WW-17	Telemetry Antenna Mount Detail	08/2008
WW-18	Grease Interceptor	08/2008
WW-18A	Grease Interceptor Tables	04/2006



NOTES:

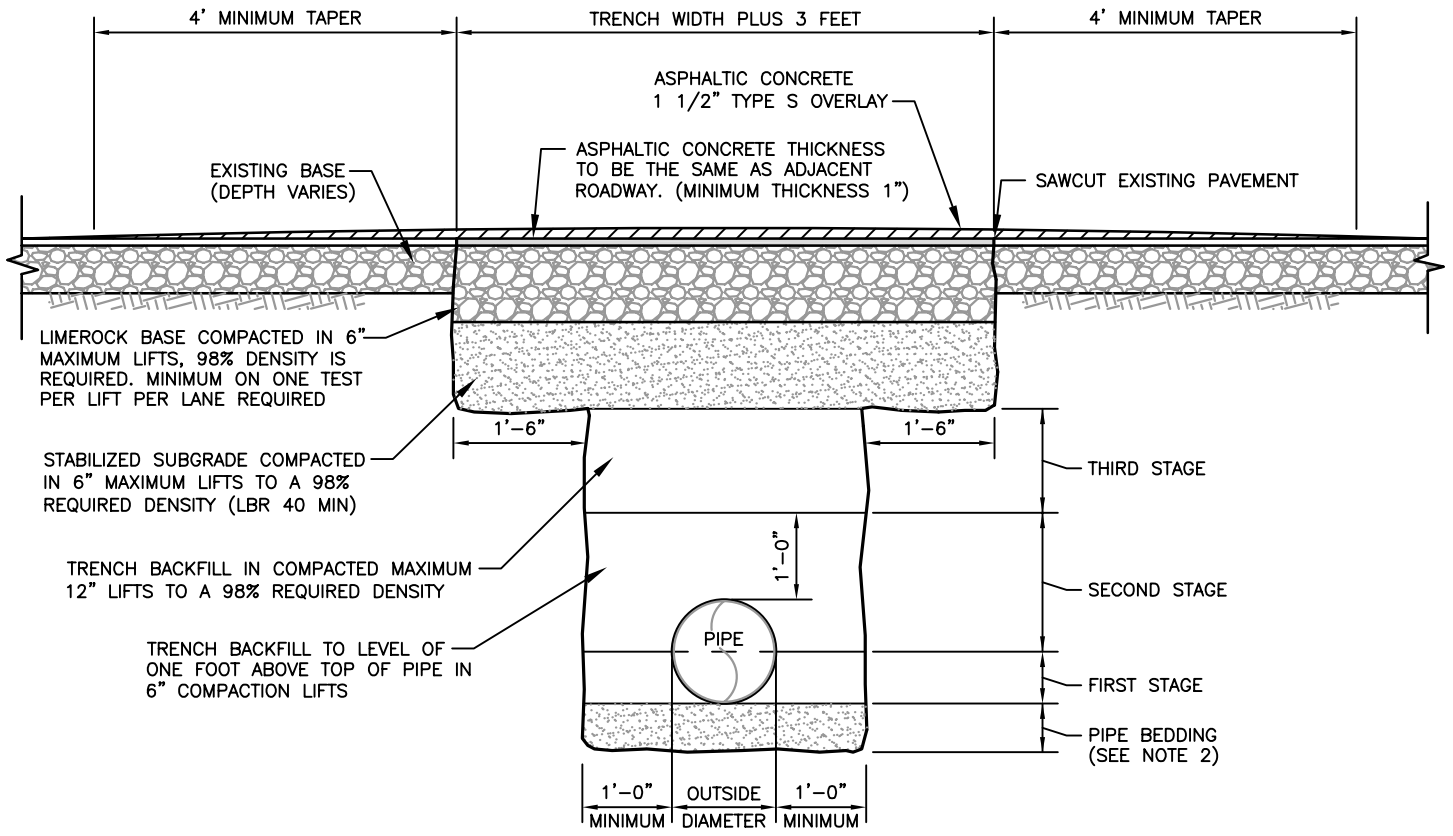
1. BACKFILL SHALL BE OF SUITABLE MATERIAL REMOVED FROM EXCAVATION EXCEPT WHERE OTHER MATERIAL IS SPECIFIED. BACKFILL MATERIAL SHALL CONSIST OF EARTH, LOAM, SANDY CLAY, GRAVEL, CRUSHED LIMESTONE, OR OTHER APPROVED MATERIAL. REFER TO TECHNICAL SPECIFICATIONS FOR DETAIL REQUIREMENTS.
2. IF TRENCH BOTTOM CONTAINS ROCK, THEN A MINIMUM OF A 6" PIPE BEDDING SHALL BE USED.

UNPAVED AREA TRENCH  
BACKFILL DETAIL

NTS

G-1

REVISED: APRIL 2006



**NOTES:**

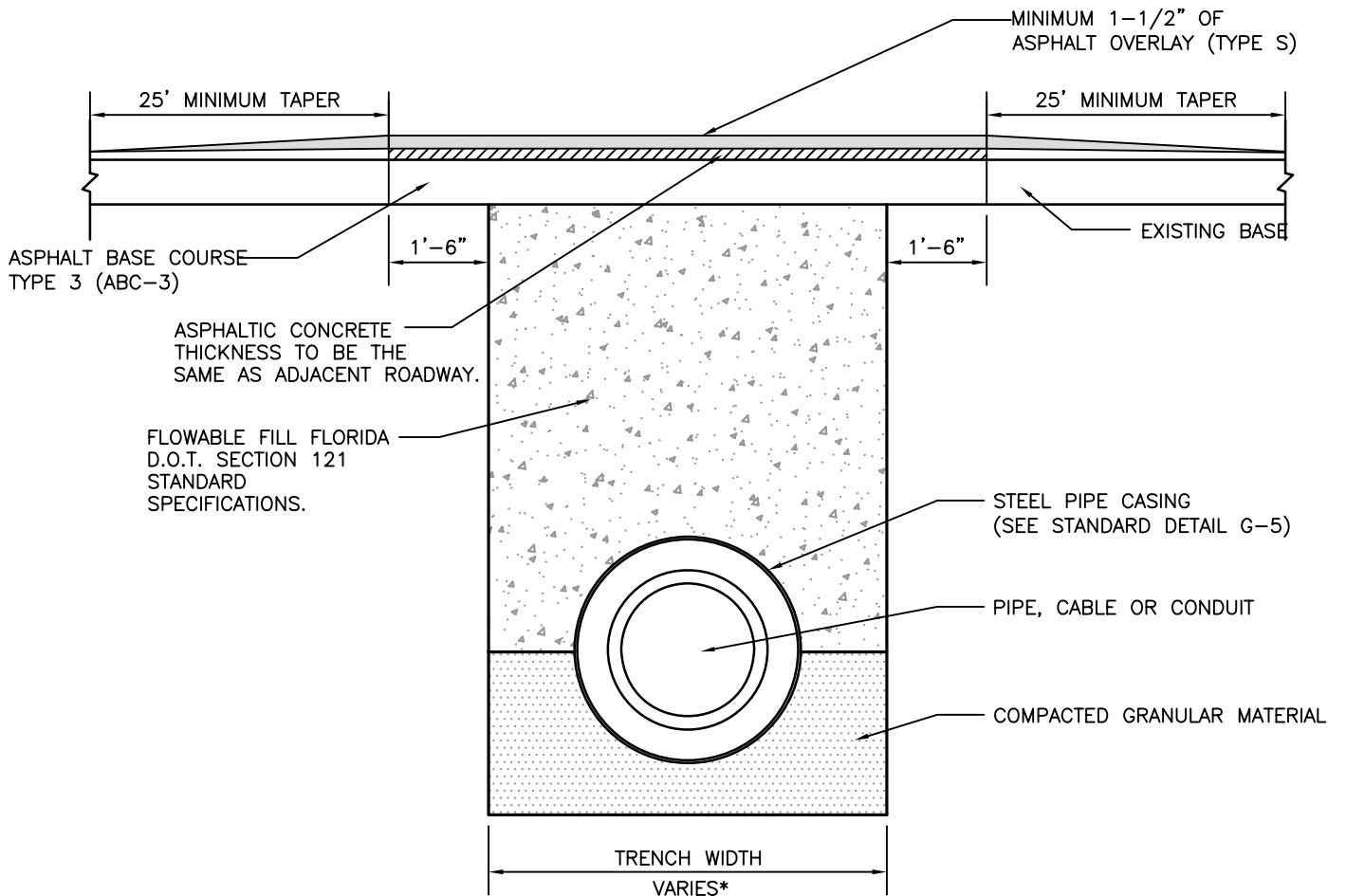
1. BACKFILL SHALL BE OF SUITABLE MATERIAL REMOVED FROM EXCAVATION EXCEPT WHERE OTHER MATERIAL IS SPECIFIED. BACKFILL MATERIAL SHALL CONSIST OF EARTH, LOAM, SANDY CLAY, GRAVEL, CRUSHED LIMESTONE, OR OTHER APPROVED MATERIAL. REFER TO TECHNICAL SPECIFICATIONS FOR DETAIL REQUIREMENTS.
2. IF TRENCH BOTTOM CONTAINS ROCK, THEN A MINIMUM OF A 6" PIPE BEDDING SHALL BE USED.
3. R.O.W. PERMIT STIPULATIONS OVERRIDE THIS DETAIL WHERE TRENCH IS LOCATED WITHIN A COUNTY R.O.W.

**PAVED AREA TRENCH RESTORATION DETAIL  
FOR PRIVATE ROADS**

NTS

G-2

REVISED: APRIL 2006



\*TRENCH WIDTH = PIPE OUTSIDE DIAMETER PLUS 2 FEET

NOTES:

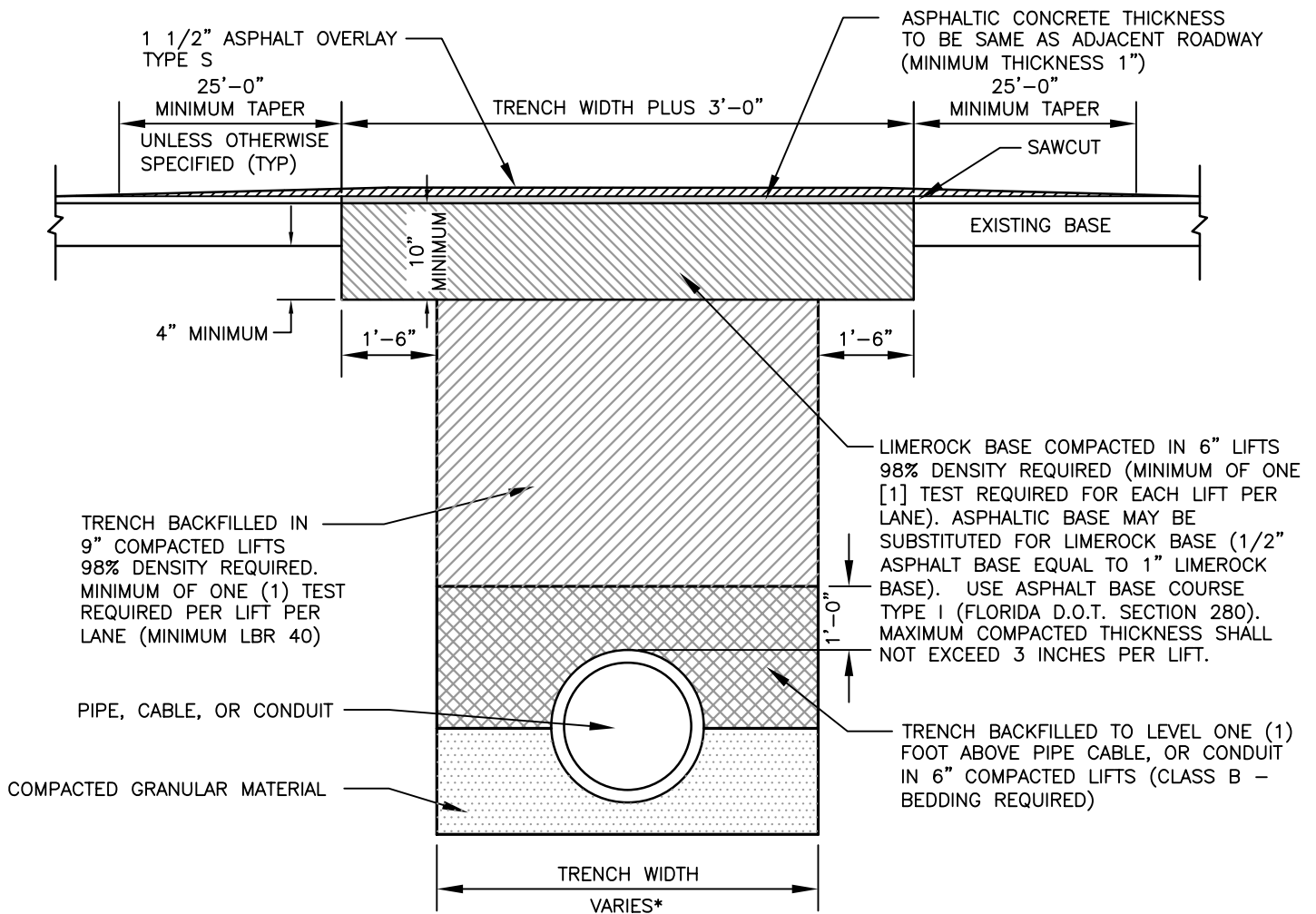
1. OVERLAY REQUIRED AT COLLIER COUNTY'S DISCRETION.
2. WRAP PIPE JOINTS WITH FILTER FABRIC.
3. ALL PIPES SHALL BE CONSTRUCTED WITHIN STEEL CASING PIPE IF INSTALLED ON A ROAD TO BE WIDENED.
4. RIGHT-OF-WAY PERMIT STIPULATIONS OVERRIDE THIS DETAIL WHERE TRENCH IS LOCATED WITHIN A COUNTY RIGHT-OF-WAY.

STATE ROAD, MAJOR COUNTY ROAD, AND NUMBERED COUNTY ROAD  
FLOWABLE FILL ROAD AND TRENCH RESTORATION

NTS

G-2A

REVISED: APRIL 2006



\*TRENCH WIDTH = PIPE OUTSIDE DIAMETER PLUS 2 FEET

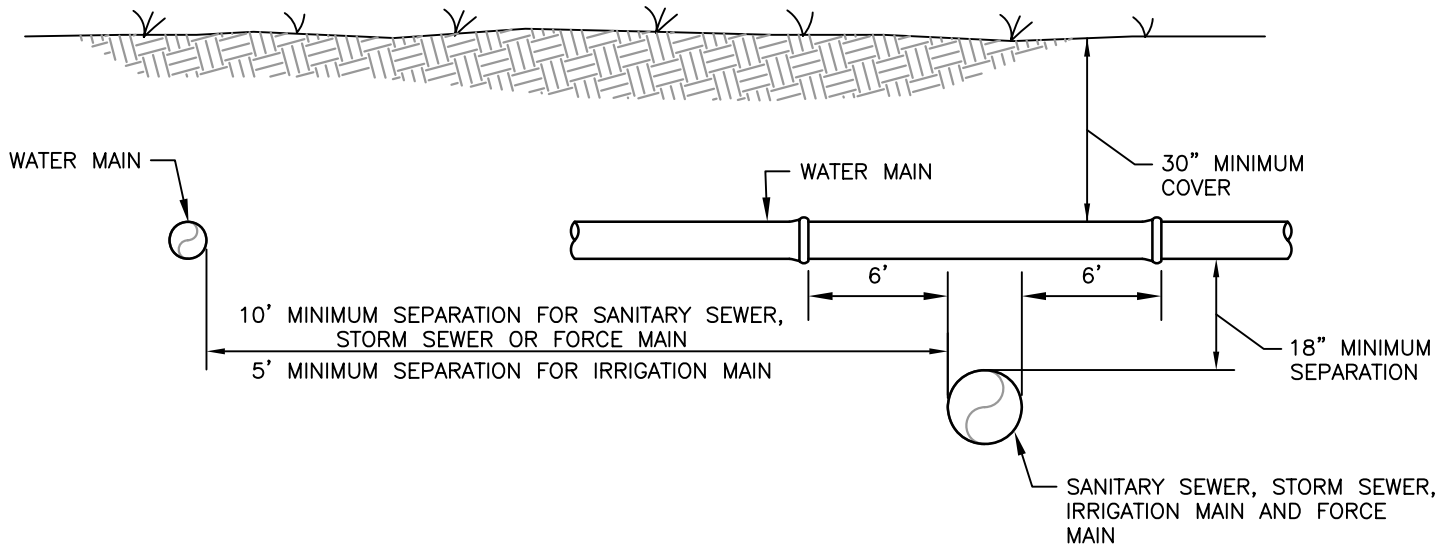
**NOTES:**

1. ALL MODIFIED PROCTOR AND DENSITY TESTS SHALL BE TAKEN BY A CERTIFIED LABORATORY.
2. ALL TESTS SHALL BE COMPLETED AND SHALL MEET MINIMUM DENSITY REQUIREMENTS PRIOR TO ADDITIONAL BACKFILLING.
3. ALL PIPES SHALL BE CONSTRUCTED WITHIN STEEL CASING PIPE IF INSTALLED ON COUNTY MAINTAINED ROADS OR IF A ROAD IS TO BE WIDENED.
4. RIGHT-OF-WAY PERMIT STIPULATIONS OVERRIDE THIS DETAIL WHERE TRENCH IS LOCATED WITHIN A COUNTY RIGHT-OF-WAY.

**ROAD AND TRENCH RESTORATION  
FOR LOCAL ROADS  
NTS**

G-2B  
REVISED: APRIL 2006





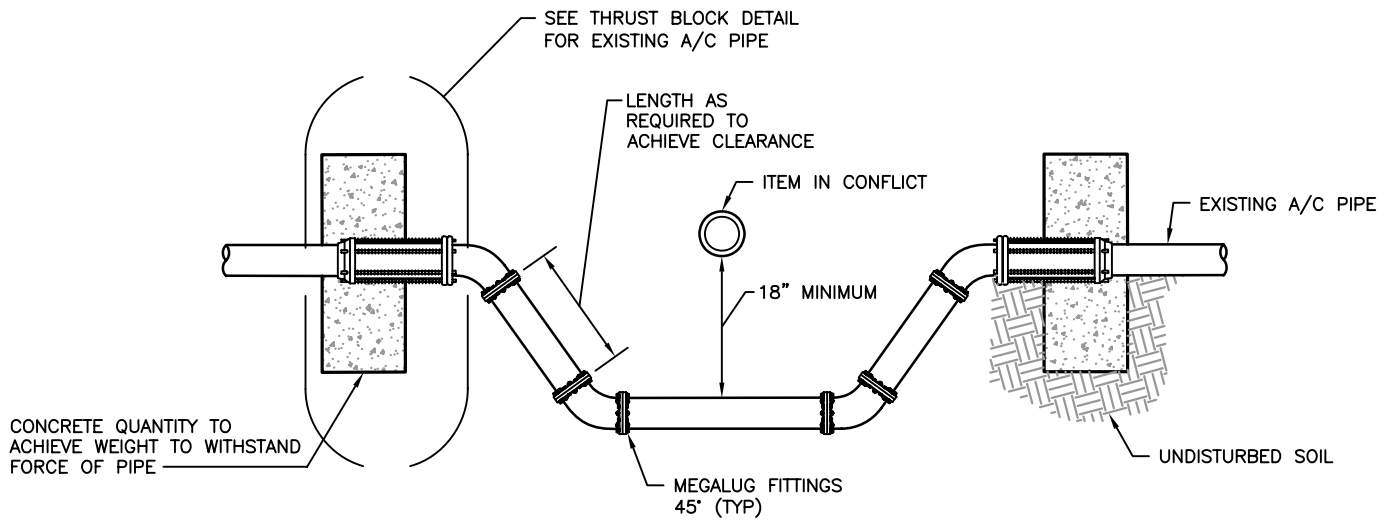
NOTES:

1. WATER MAINS SHALL BE SEPARATED FROM STORM SEWER, SANITARY SEWER, NON-POTABLE IRRIGATION MAINS, AND FORCE MAINS BY A MINIMUM CLEAR VERTICAL DISTANCE OF 18 INCHES MEASURED BETWEEN THE BOTTOM OF THE UPPER PIPE AND THE TOP OF THE LOWER PIPE. THE 18 INCHES MINIMUM VERTICAL SEPARATION DISTANCE DOES NOT APPLY TO SEPARATIONS OF SEWER LATERALS AND POTABLE WATER MAIN PIPELINE INSTALLATIONS. ALSO, WATER MAINS SHALL BE SEPARATED FROM STORM SEWER, SANITARY SEWER AND FORCE MAINS BY 10 FEET AND FROM IRRIGATION MAINS BY 5 FEET MEASURED HORIZONTALLY BETWEEN OUTSIDE OF PIPES.
2. ALL CROSSINGS WITH VERTICAL CLEARANCE LESS THAN 18 INCHES SHALL REQUIRE SUBMISSION AND APPROVAL OF A DEVIATION. IF A DEVIATION IS SUBMITTED, THE FOLLOWING MINIMUM STIPULATIONS APPLY: THE CROSSING SHALL BE MADE USING THICKNESS CLASS 200 AWWA C-900 DR14, PVC (CLASS 235 AWWA C-905, DR 18, PVC FOR PIPES GREATER THAN 12" IN DIAMETER) OR DUCTILE IRON, PRESSURE CLASS 250 PIPE FOR A HORIZONTAL DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING. WATER MAIN CONCRETE ENCASUREMENT SHALL ONLY BE MADE AFTER WRITTEN APPROVAL OF THE WATER DIRECTOR OR HIS DESIGNEE.
3. 18 INCHES CLEAR DISTANCE SHALL NOT BE REDUCED IN CASES WHERE WATER CROSSES UNDER SEWER LINE.
4. WATER MAINS, SANITARY SEWER, STORM SEWER, AND NON-POTABLE IRRIGATION MAINS SHALL BE IN SEPARATE TRENCHES.
5. WATER MAINS CROSSING ANY TYPE OF SANITARY SEWER, INCLUDING FORCE MAIN, OR STORM SEWER SHALL HAVE THE ONE FULL LENGTH OF WATER MAIN CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THAT THE WATER JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSINGS, THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, FAC, AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY- OR PRESSURE-TYPE SANITARY SEWERS, FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610.
6. 57 STONE SHALL BE UTILIZED FOR SEPARATION BETWEEN GRAVITY SANITARY SEWER LINES AND STORMWATER LINES.
7. SEE SECTION 1- DESIGN CRITERIA, SUBSECTIONS 1.2.3 AND 1.3 FOR ADDITIONAL REQUIREMENTS.

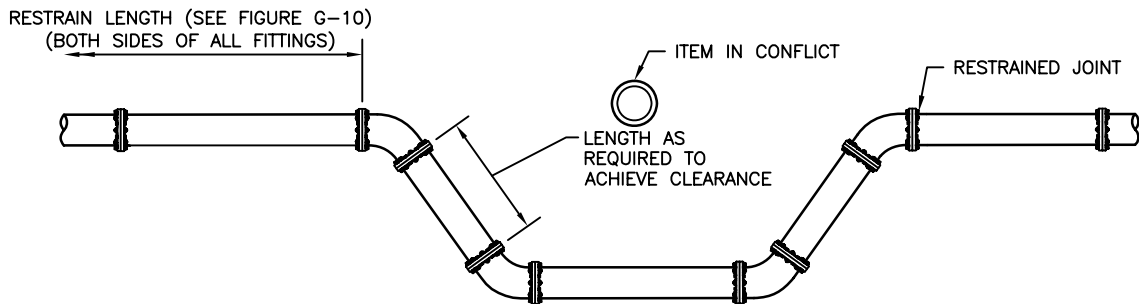
PIPE SEPARATION DETAIL  
NTS

G-3

REVISED: APRIL 2006



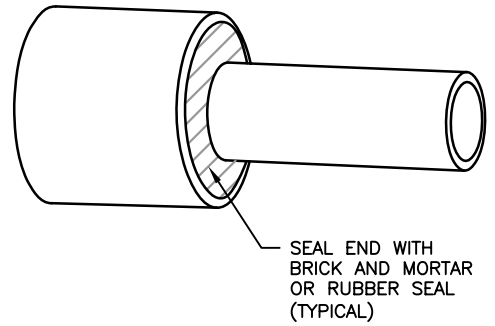
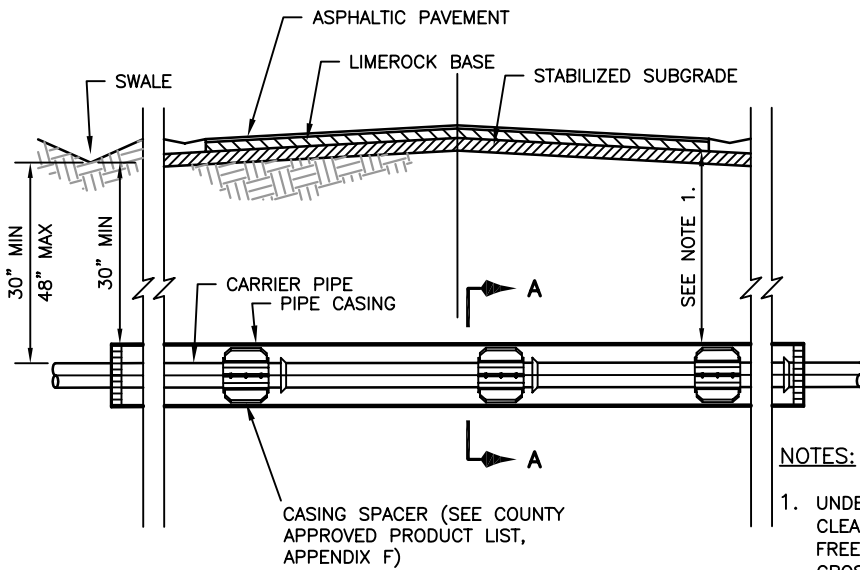
EXISTING A/C PIPE – HEADWALL



NEW & EXISTING PIPE – RESTRAINED JOINT

NOTES

1. SEE SECTION 1 – DESIGN CRITERIA FOR AIR RELEASE VALVE REQUIREMENTS.



**CASING END SEAL**

**NOTES:**

1. UNDERGROUND CROSSINGS REQUIRE A MINIMUM VERTICAL CLEARANCE OF 48" BELOW PAVEMENT SURFACE FOR FREEWAYS, 36" FOR OTHER HIGHWAYS AND SUBAQUEOUS CROSSINGS OR 30" BELOW UNPAVED GROUND INCLUDING DITCH GRADE PER FLORIDA D.O.T.
2. SEE TECHNICAL SPECIFICATIONS FOR CARRIER PIPE AND CASING PIPE REQUIREMENTS.

**STAINLESS STEEL SPACERS:**

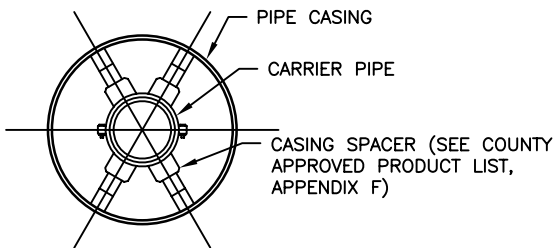
1. SPACERS SHALL BE BOLT-ON STYLE WITH A TWO PIECE SOLID SHELL MADE FROM T-304 STAINLESS STEEL OF A MINIMUM 14 GAUGE THICKNESS. THE SHELL SHALL BE LINED WITH A RIBBED PVC SHEET OF A 0.090" THICKNESS THAT OVERLAPS THE EDGES. RUNNERS MADE FROM UHMW POLYMER SHALL BE ATTACHED TO RISERS AT APPROPRIATE POSITIONS TO PROPERLY LOCATE THE CARRIER WITHIN THE CASING AND TO EASE INSTALLATION. RISERS SHALL BE MADE FROM T-304 STAINLESS STEEL OF A MINIMUM 14 GAUGE THICKNESS AND SHALL BE ATTACHED TO THE SHELL BY MIG WELDING. ALL WELDS SHALL BE FULLY PASSIVATED. ALL FASTENERS SHALL BE MADE FROM T-304 STAINLESS STEEL. CASING SPACERS (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F).

**PLACEMENT OF SPACERS ON CARRIER PIPE:**

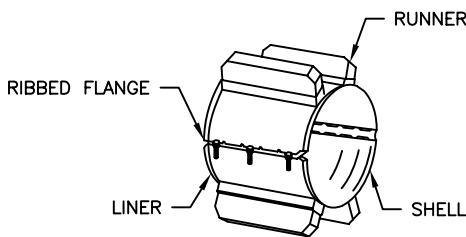
1. GENERAL - ONE SPACER SHALL BE PLACED NOT MORE THAN TWO FEET FROM EACH END OF CASING. SUBSEQUENT SPACERS SHALL BE PLACED AT 6' TO 10' INTERVALS WITHIN THE CASING, OR IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDATIONS.
2. PVC CARRIER - ONE SPACER SHALL BE PLACED ON THE SPIGOT END OF EACH SEGMENT AT THE LINE MARKING THE LIMIT OF INSERTION INTO THE BELL. WHEN THE JOINT IS COMPLETE, THE SPACER SHALL BE IN CONTACT WITH THE BELL OF THE JOINT SO THAT THE SPACER PUSHES THE JOINT AND RELIEVES COMPRESSION WITHIN THE JOINT. SUBSEQUENT SPACERS SHALL BE PLACED AT 6' TO 10' INTERVALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

**CARRIER PIPE:**

1. CARRIER PIPE SHALL BE CENTERED WITHIN CASING BY USE OF STAINLESS STEEL CASING SPACERS (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F).



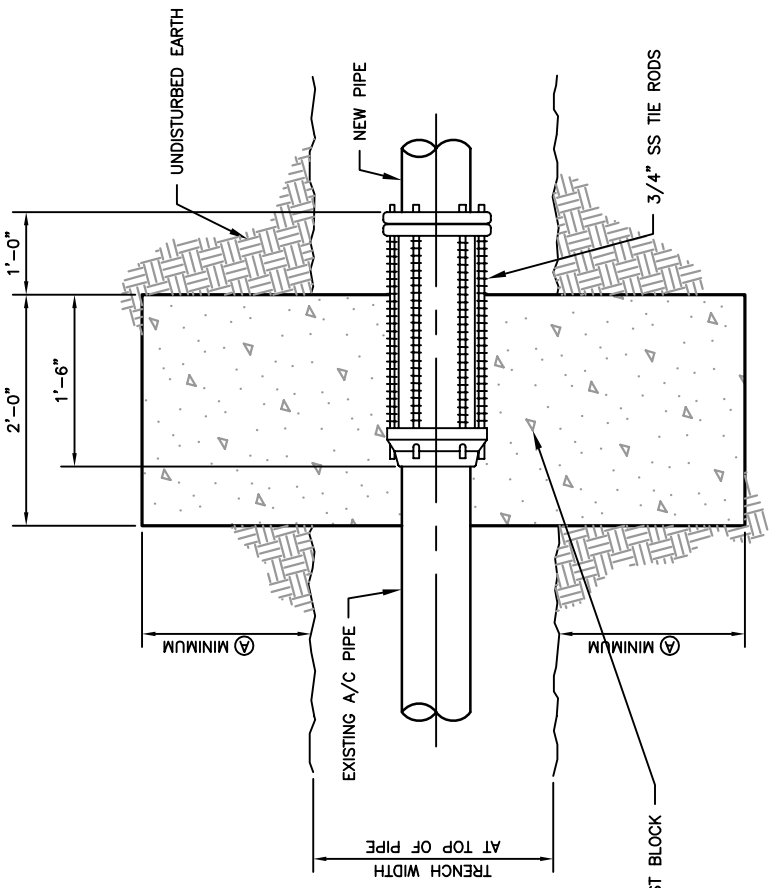
**SECTION A-A**



**SPACER**

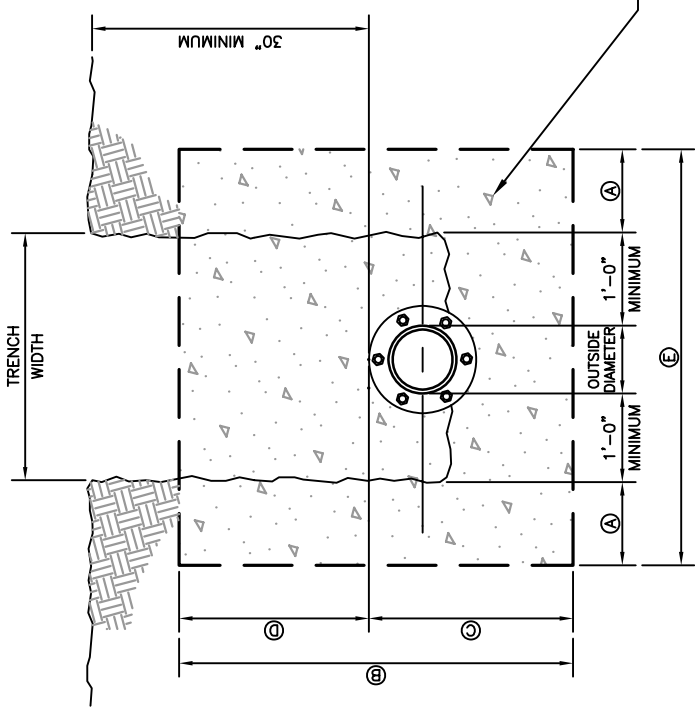
**STANDARD NUMBER OF RUNNERS REQUIRED**

UP TO 14" CARRIER PIPE	- 4 REQUIRED
OVER 14" THROUGH 36" CARRIER PIPE	- 6 REQUIRED
OVER 36" THROUGH 48" CARRIER PIPE	- 7 REQUIRED



PLAN VIEW

$$\text{CUBIC YARDS (CY)} = \frac{(\text{B}) \times (\text{E})}{12} \times 2$$



CROSS SECTION

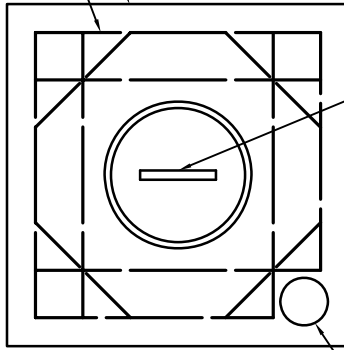
PIPE DIAMETER	A	B	C	D	E	NUMBER OF TIE RODS REQUIRED	CY.
4"	9"	36"	20"	16"	3'-10"	2	.85
6"	12"	36"	21"	15"	4'-6"	2	1.00
8"	12"	36"	22"	14"	4'-8"	2	1.04
10"	12"	36"	23"	13"	4'-10"	2	1.07
12"	18"	36"	24"	12"	6'-0"	2	1.33
16"	18"	36"	32"	4"	6'-4"	4	1.41

DESIGN ENGINEER SHALL VERIFY ABOVE DIMENSIONS AND THE NUMBER OF TIE RODS.

THRUST BLOCK DETAIL FOR EXISTING A/C PIPE  
NTS

18" x 18" x 6" CONCRETE COLLAR

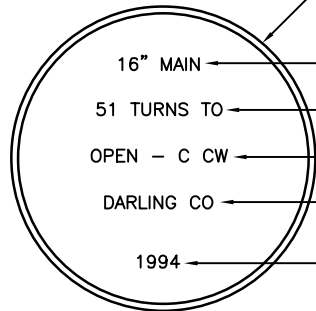
(2) #4 BARS CONTINUOUS AND  
(4) #4 BARS DIAGONAL  
(2" MINIMUM COVER FOR  
REINFORCING STEEL)



SPECIFY LETTERING  
AS "IRR", "SEWER",  
OR "WATER",  
DEPENDING ON USE

PLAN VIEW

PROVIDE A 3" DIAMETER BRASS DISC  
ANCHORED IN CONCRETE COLLAR



16" MAIN

SIZE OF MAIN OR BYPASS

51 TURNS TO

NUMBER OF TURNS TO OPEN

OPEN - C CW

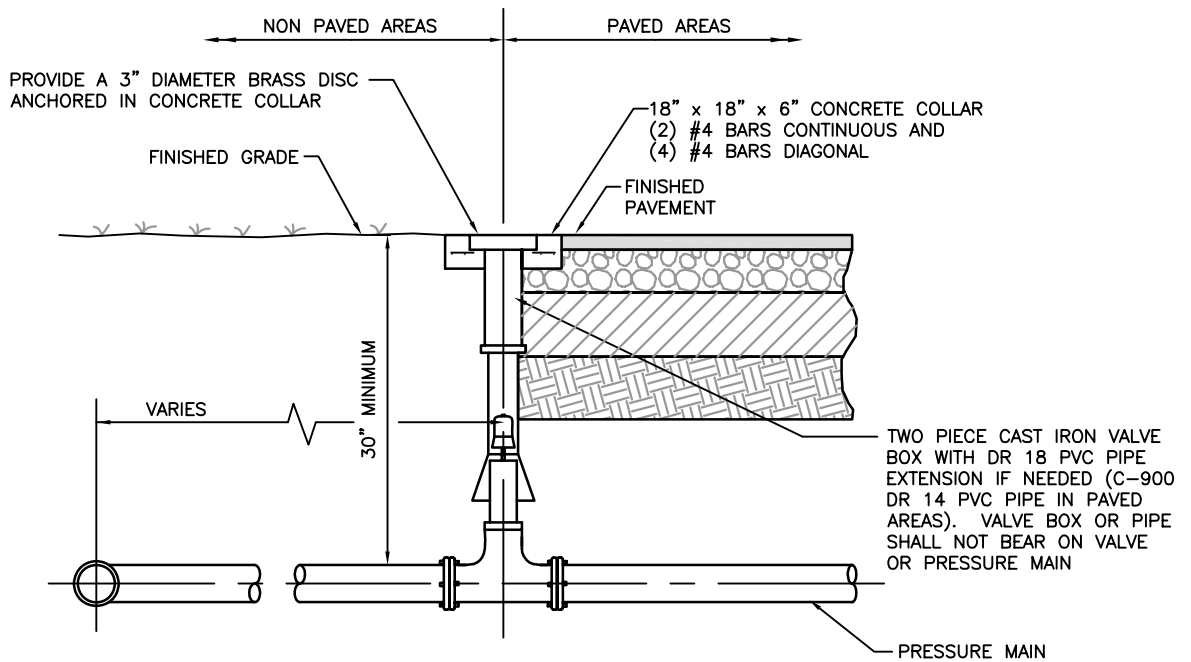
DIRECTION TO TURN TO OPEN

DARLING CO

VALVE MANUFACTURER

1994

YEAR VALVE INSTALLED

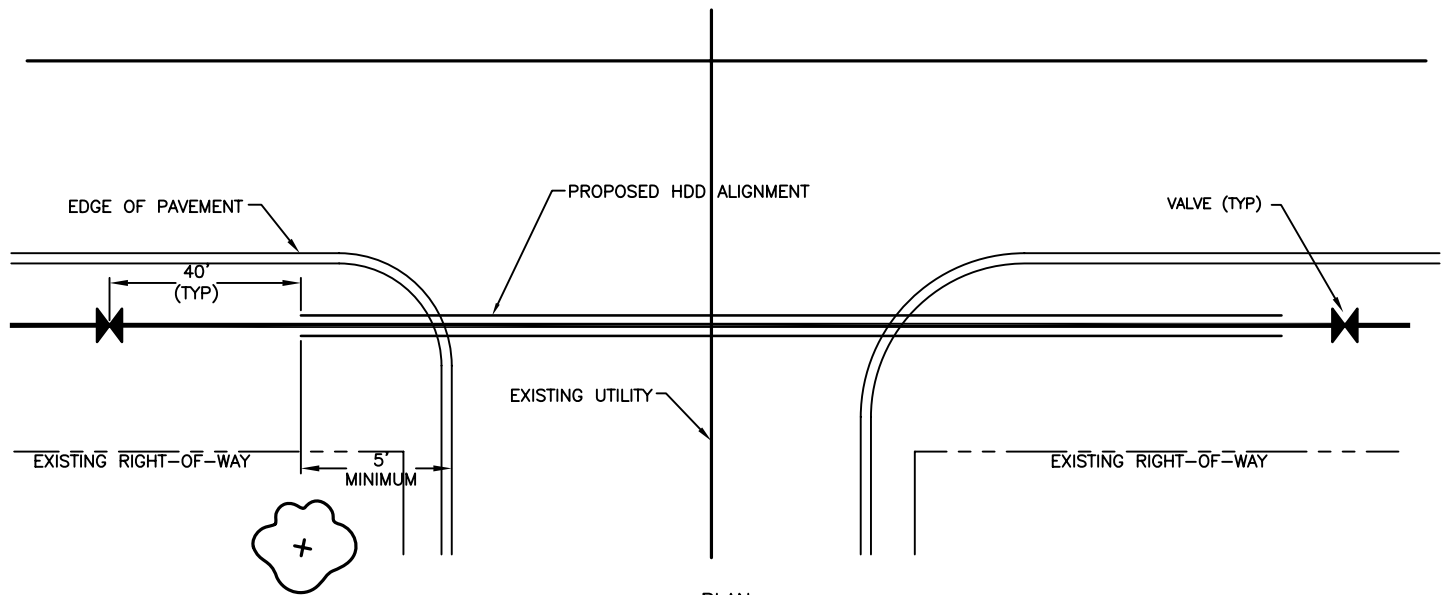


ALL VALVES USED IN WATER DISTRIBUTION  
SYSTEMS SHALL BE OF THE RESILIENT SEAT  
TYPE IN ACCORDANCE WITH AWWA C-509

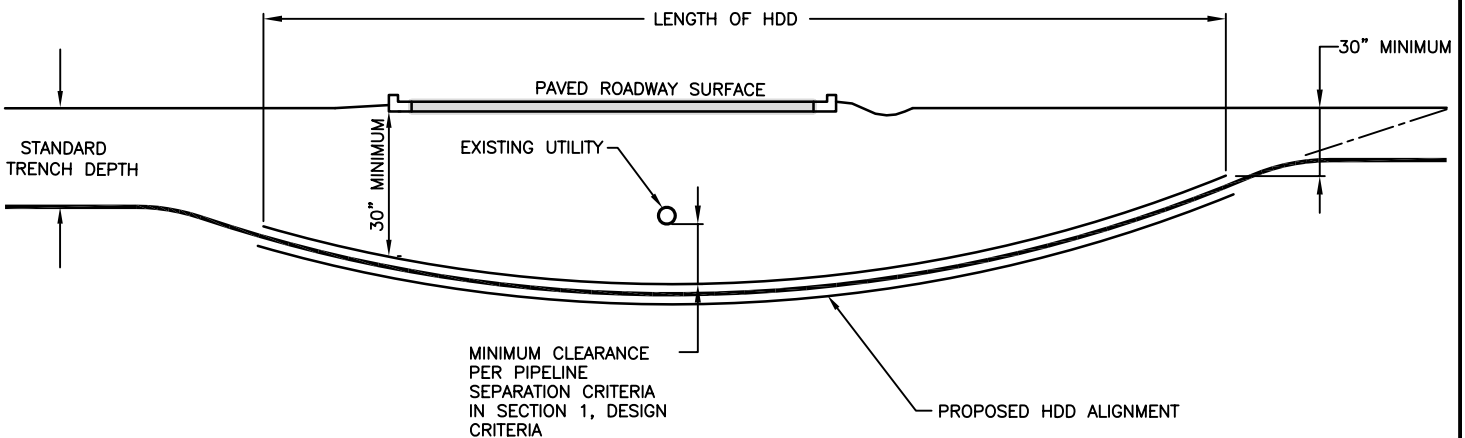
TYPICAL VALVE SETTING DETAIL  
NTS

G-7

REVISED: SEPTEMBER 2006



PLAN  
HORIZONTAL MINIMUM CLEARANCES



PROFILE  
VERTICAL MINIMUM CLEARANCES

HDD INSTALLATION NOTES:

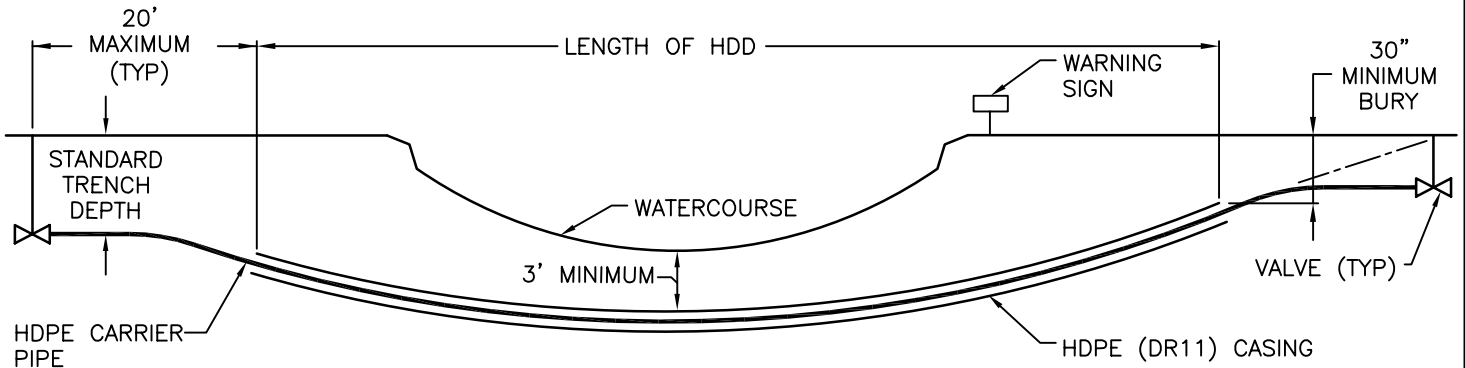
1. ALL WORK SHALL BE IN ACCORDANCE WITH SECTIONS 1 AND 099723 OF THE COLLIER COUNTY UTILITIES STANDARDS MANUAL.
2. ALL HDD INSTALLATION ACTIVITIES SHALL BE IN ACCORDANCE WITH THE FLORIDA D.O.T. UTILITY ACCOMMODATIONS MANUAL AND THE COLLIER COUNTY UTILITIES STANDARDS AND PROCEDURES ORDINANCE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFICATION OF AFFECTED AGENCIES AND COORDINATION WITH ALL UTILITIES PRIOR TO CONSTRUCTION.
4. ALL CONSTRUCTION MATERIALS, INCLUDING DRILLING FLUID, SHALL BE REMOVED FROM THE SITE PRIOR TO RESTORATION OF DISTURBED AREAS.
5. ALL RESTORATION WORK SHALL BE IN ACCORDANCE WITH THE COLLIER COUNTY UTILITIES STANDARD MANUAL.
6. EXCAVATIONS SHALL BE RESTORED IN ACCORDANCE WITH THE COLLIER COUNTY UTILITIES STANDARD MANUAL AND STANDARD DETAILS FOR TRENCH RESTORATION.
7. CASING DIAMETER SHALL BE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
8. NO SPACERS REQUIRED.
9. ALLOW 40' BETWEEN VALVE AND END OF CASING. DISTANCE LESS THAN 40' REQUIRES APPROVAL OF DEVIATION. THE 40' LENGTH SHALL NOT INCLUDE BRANCHES/TEES IN THE PIPING BETWEEN VALVE AND END OF CASING.
10. VALVES AT EACH END OF THE HDD AND CASING FOR THE HDD ARE REQUIRED FOR NUMBERED COUNTY ROADS, STATE ROADS AND AT INTERSECTIONS WITH NUMBERED COUNTY ROADS AND STATE ROADS.

TYPICAL HORIZONTAL DIRECTIONAL DRILL (HDD)  
UNDER A ROADWAY

NTS

G-8

REVISED: AUGUST 2008



## PROFILE

### HDD INSTALLATION NOTES:

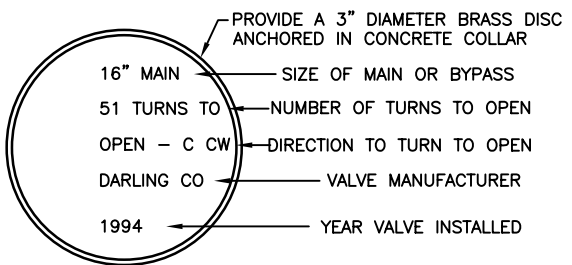
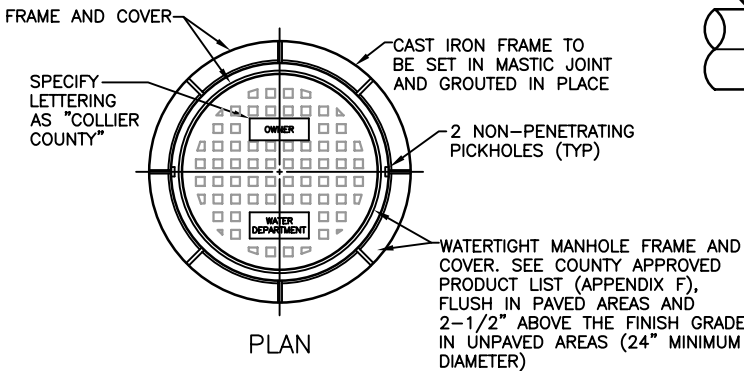
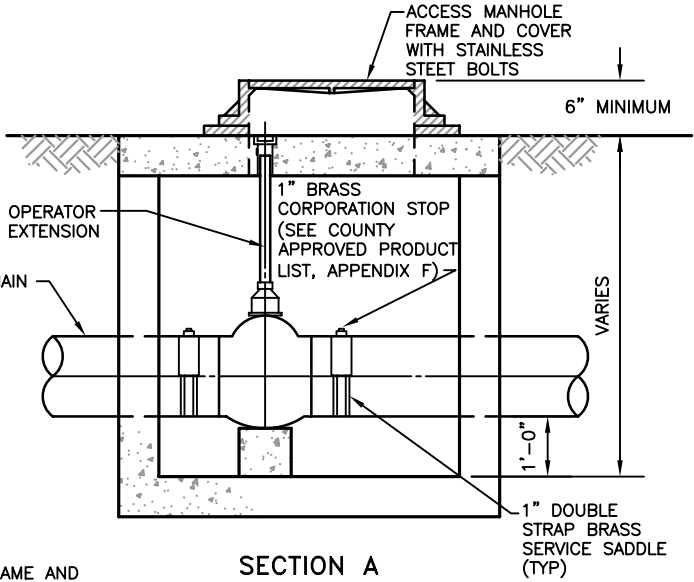
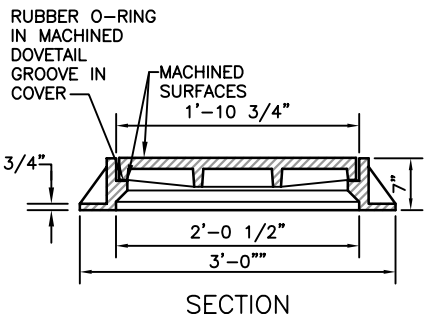
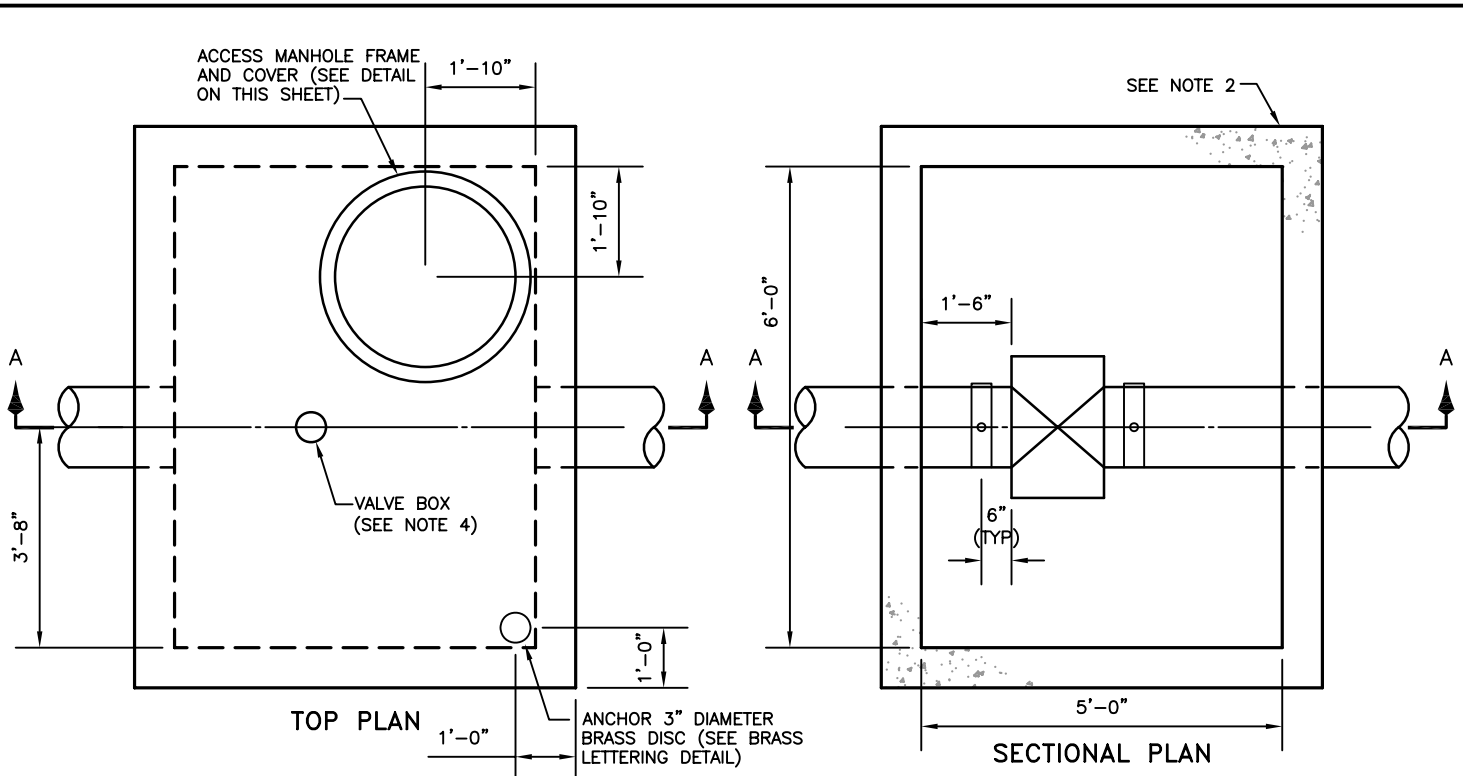
1. PROVIDE VALVES AT BOTH ENDS OF SUBAQUEOUS CROSSING. FOR WATER MAIN CROSSINGS, THE VALVE CLOSEST TO THE WATER SUPPLY SHALL BE IN A VAULT WITH PERMANENT TAPS ON EACH SIDE OF THE VALVE WITHIN THE VAULT. SEE DETAIL G-9A.
2. FOR POTABLE WATER, PROVIDE VALVE VAULT (PER DETAIL 9A) FOR MAINS 12" OR LESS IN DIAMETER.
3. PROVIDE AIR RELEASE VALVES: ONE VALVE ON EACH SIDE OF CROSSING (PER DETAIL WW-14) FOR WASTEWATER CROSSINGS AND ONE VALVE ON EACH SIDE OF CROSSING (PER DETAIL W-5) FOR WATER CROSSINGS.
4. ALL SUBAQUEOUS CROSSINGS SHALL BE DISCUSSED AT A PLAN PRE-SUBMITTAL CONFERENCE WITH REPRESENTATIVES OF THE WATER OR WASTEWATER DEPARTMENTS. SUBAQUEOUS WATER MAINS SHALL REQUIRE APPROVAL BY THE WATER OR WASTEWATER DEPARTMENT.
5. WARNING SIGN SHALL BE PLACED ALONG BANK OF WATERWAY TO CLEARLY IDENTIFY SUBAQUEOUS CROSSING. SIGN SHALL INDICATE TYPE OF PIPELINE AND DEPTH OF PIPELINE BELOW BOTTOM OF WATER BODY.
6. ALLOW 40' BETWEEN VALVE AND END OF CASING. DISTANCE LESS THAN 40' REQUIRES APPROVAL OF DEVIATION. THE 40' LENGTH SHALL NOT INCLUDE BRANCHES/TEES IN THE PIPING BETWEEN VALVE AND END OF CASING.

## TYPICAL SUBAQUEOUS HORIZONTAL DIRECTIONAL DRILL (HDD)

NTS

G-9

REVISED: APRIL 2006



**NOTES:**

1. THIS DETAIL IS ONLY APPLICABLE FOR VALVES THAT HAVE BEEN SPECIFICALLY CALLED TO BE INSTALLED IN A VAULT.
2. VAULT SHALL BE A FLAT TOP TYPE J, SCHEDULE D STRUCTURE WITH A TYPE 7 MANHOLE TOP, IN ACCORDANCE WITH FLORIDA D.O.T. STANDARD INDICES NO. 200 AND 201.
3. ALL VALVES SHALL BE OF THE RESILIENT SEATED TYPE IN ACCORDANCE WITH AWWA C 509.
4. LETTERING FOR THE VALVE COVER BOX SHALL READ "WATER".

**MANHOLE RING & COVER DETAIL**

**BRASS DISC LETTERING**

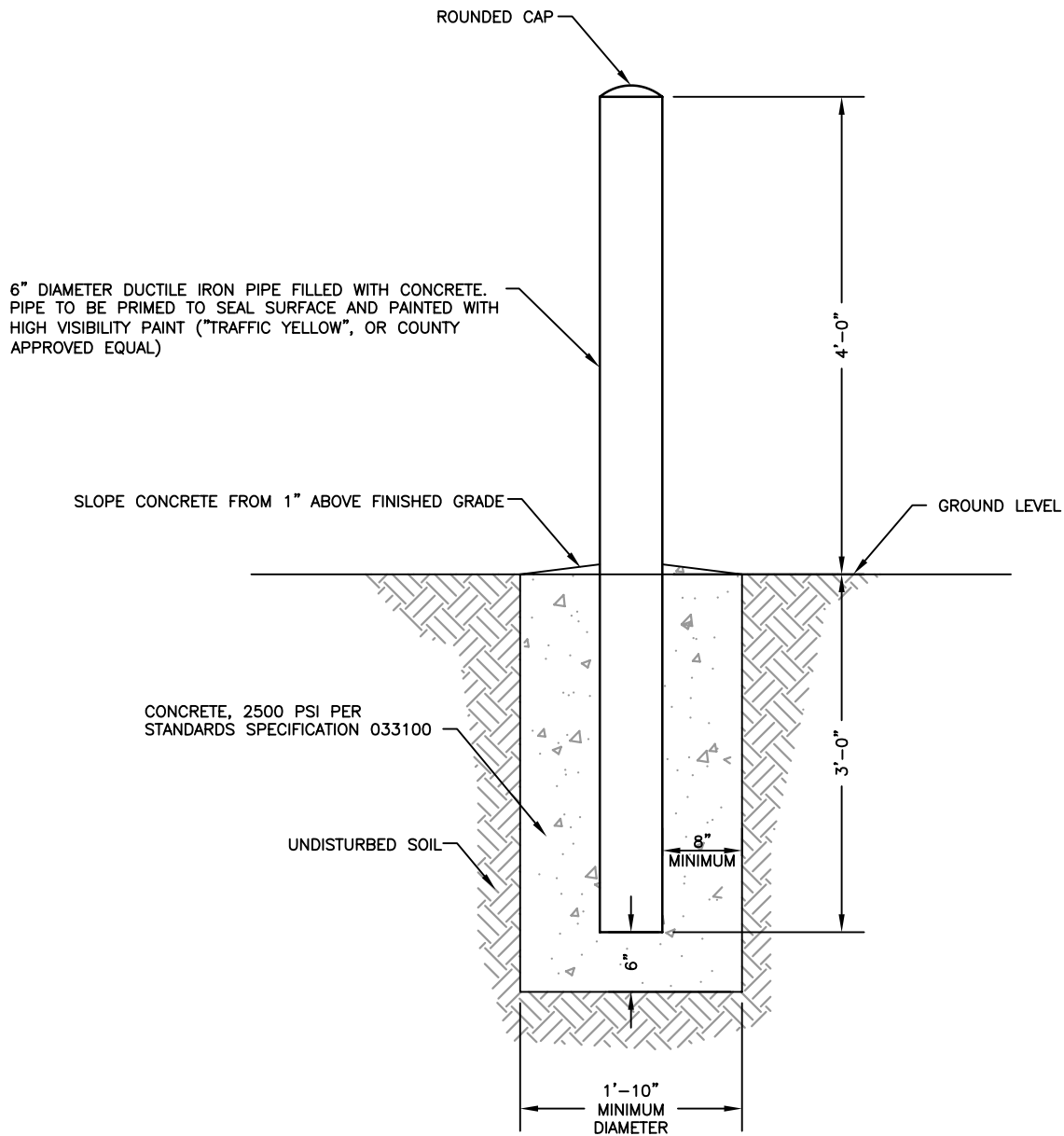


PIPE SIZE IN INCHES	RESTRAINED PIPE LENGTH IN FEET (1)						
	HORIZONTAL BENDS				DEAD ENDS (2)	45° VERTICAL BENDS	
	90°	45°	22-1/2°	11-1/4°		UPPER	LOWER
4	23	9	5	2	55	23	8
6	32	13	6	3	77	32	11
8	40	17	8	4	100	41	14
10	48	20	10	5	120	50	17
12	56	23	11	6	141	58	20
16	71	29	14	7	181	75	25
18	77	32	15	8	200	83	28
20	84	35	17	8	218	90	30
24	96	40	19	10	253	105	35
30	112	47	22	11	303	125	41
36	127	53	25	13	350	145	47

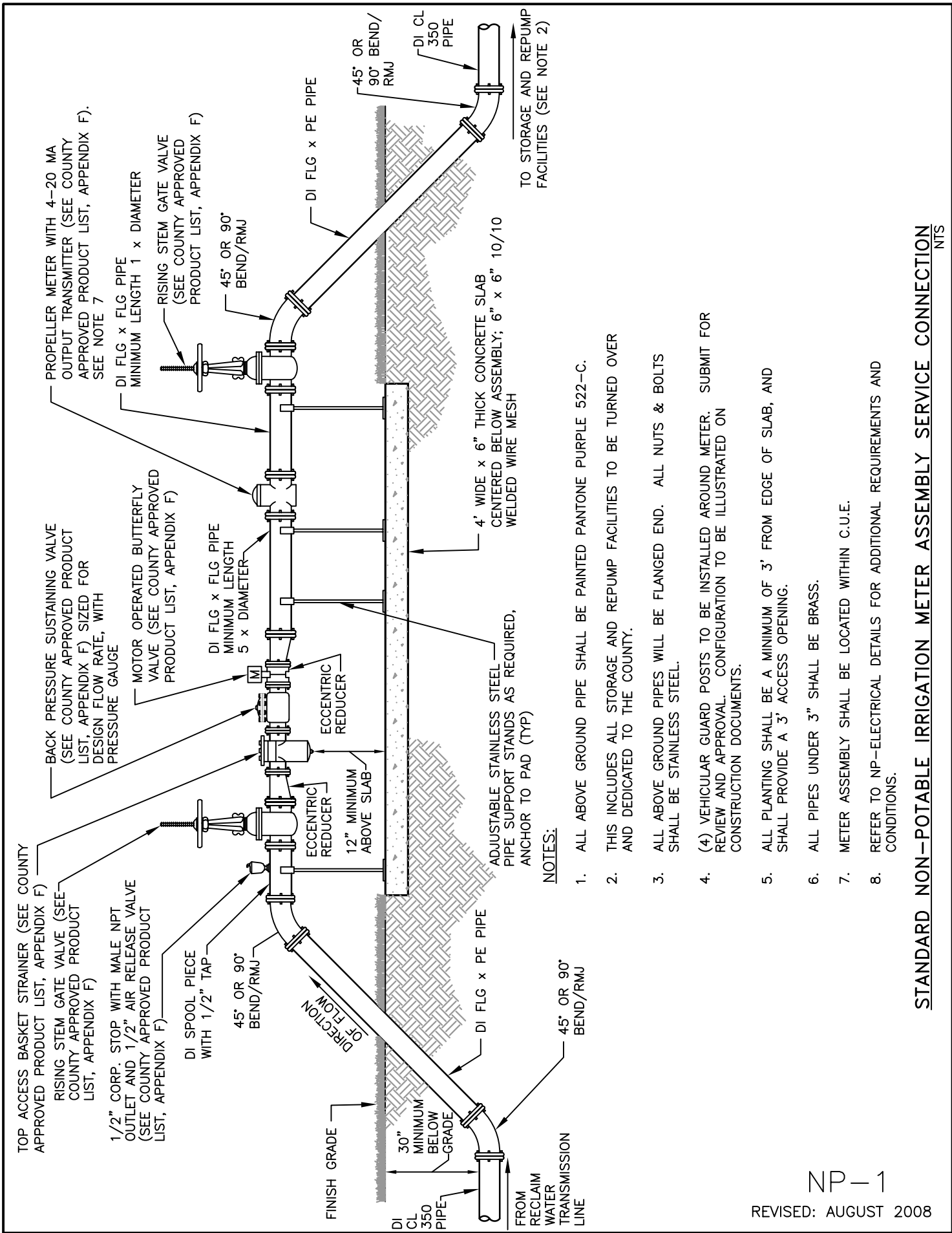
PIPE SIZE IN INCHES	RESTRAINED PIPE LENGTH IN FEET (1)	
	TEE (3)	REDUCER (4)
6 x 4	0	40
6 x 6	34	
8 x 4	0	72
8 x 8	55	
10 x 6	3	74
10 x 10	75	
12 x 4	0	122
12 x 8	31	75
12 x 12	95	
16 x 6	0	153
16 x 10	44	107
16 x 16	134	
18 x 8	0	157
18 x 12	68	108
18 x 18	152	
20 x 10	20	161
20 x 16	120	77
20 x 20	170	
24 x 12	37	187
24 x 18	132	109
24 x 24	204	
30 x 16	78	213
30 x 20	138	165
30 x 30	252	
36 x 18	84	259
36 x 24	170	191
36 x 36	298	

NOTES:

1. RESTRAIN ALL PIPE JOINTS WITHIN THE DISTANCE SHOWN ON THE TABLES MEASURED FROM THE POINT OF CONNECTION.
2. ISOLATION VALVES SHALL BE TREATED AS DEAD ENDS. WITH RESTRAINT ON BOTH SIDES OF THE VALVE.
3. RESTRAINT IS FOR BRANCH OF TEE. IF BRANCH SIZE IS NOT ON TABLE, USE NEXT LARGEST BRANCH.
4. RESTRAINT IS FOR LARGE DIAMETER SIDE OF REDUCER. IF REDUCER SIZE IS NOT ON TABLE, USE NEXT SMALLER REDUCER (SMALL END).
5. THIS SCHEDULE IS TO BE USED FOR DUCTILE IRON AND PVC PIPE.



VEHICULAR GUARD POST DETAIL  
NTS



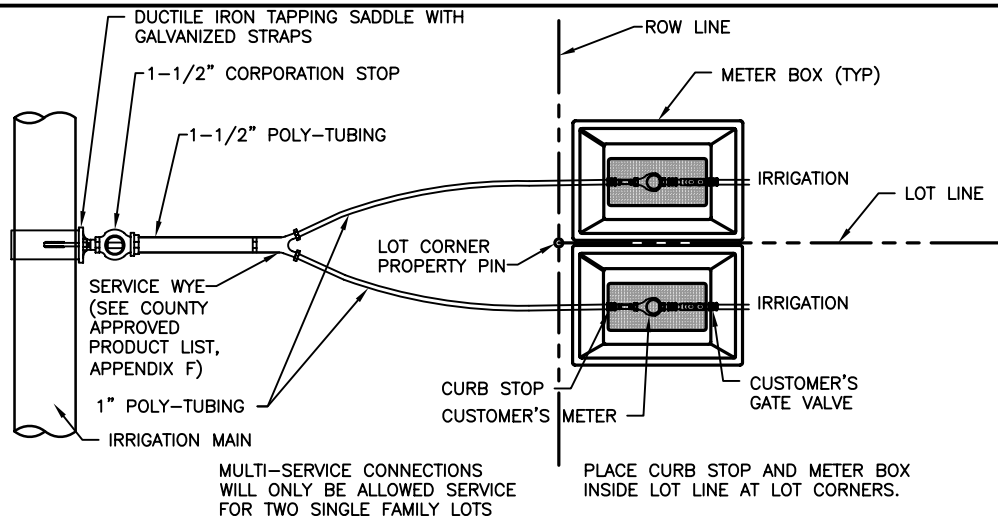
**NOTES:**

1. ALL ABOVE GROUND PIPE SHALL BE PAINTED PANTONE PURPLE 522-C.
2. THIS INCLUDES ALL STORAGE AND REPUMP FACILITIES TO BE TURNED OVER AND DEDICATED TO THE COUNTY.
3. ALL ABOVE GROUND PIPES WILL BE FLANGED END. ALL NUTS & BOLTS SHALL BE STAINLESS STEEL.
4. (4) VEHICULAR GUARD POSTS TO BE INSTALLED AROUND METER. SUBMIT FOR REVIEW AND APPROVAL. CONFIGURATION TO BE ILLUSTRATED ON CONSTRUCTION DOCUMENTS.
5. ALL PLANTING SHALL BE A MINIMUM OF 3' FROM EDGE OF SLAB, AND SHALL PROVIDE A 3' ACCESS OPENING.
6. ALL PIPES UNDER 3" SHALL BE BRASS.
7. METER ASSEMBLY SHALL BE LOCATED WITHIN C.U.E.
8. REFER TO NP-ELECTRICAL DETAILS FOR ADDITIONAL REQUIREMENTS AND CONDITIONS.

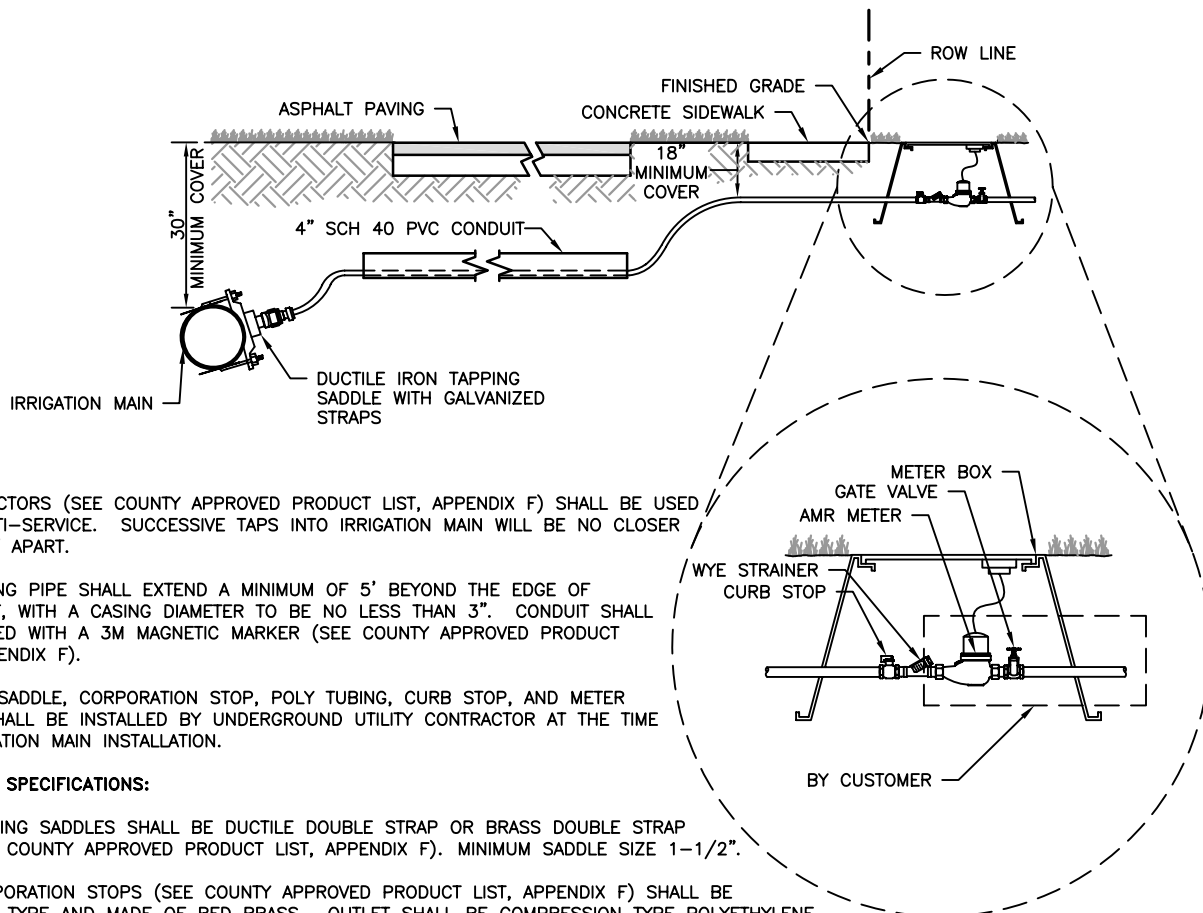
NP-1

REVISED: AUGUST 2008

**STANDARD NON-POTABLE IRRIGATION METER ASSEMBLY SERVICE CONNECTION**  
NTS

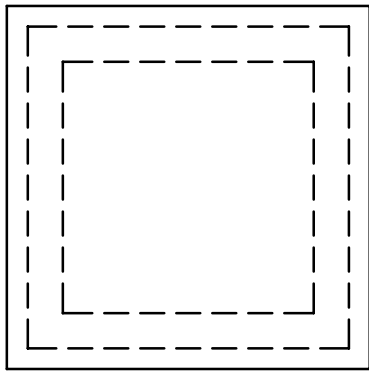


**MULTIPLE METER SERVICE CONNECTIONS**



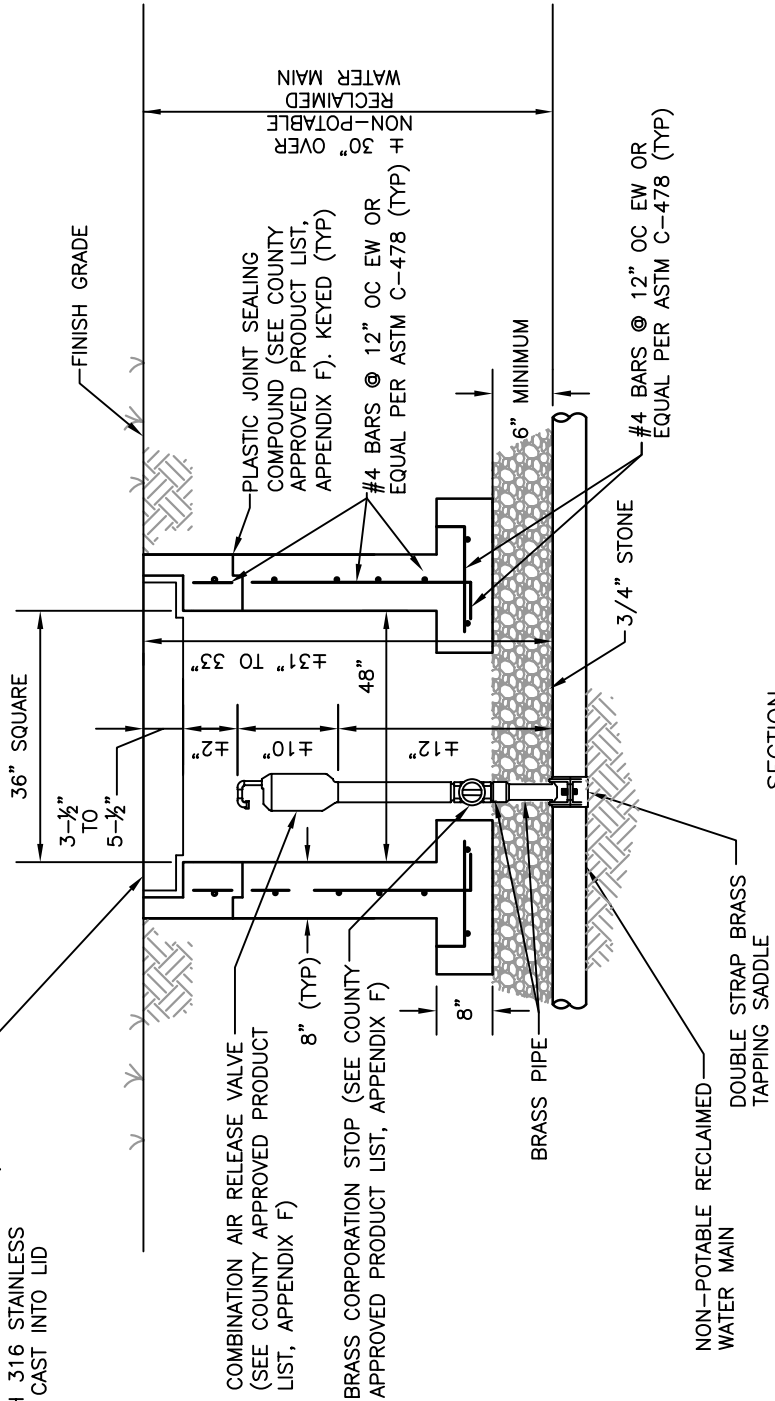
**NOTES:**

1. Y CONNECTORS (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) SHALL BE USED FOR MULTI-SERVICE. SUCCESSIVE TAPS INTO IRRIGATION MAIN WILL BE NO CLOSER THAN 24" APART.
2. ALL CASING PIPE SHALL EXTEND A MINIMUM OF 5' BEYOND THE EDGE OF PAVEMENT, WITH A CASING DIAMETER TO BE NO LESS THAN 3". CONDUIT SHALL BE MARKED WITH A 3M MAGNETIC MARKER (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F).
3. TAPPING SADDLE, CORPORATION STOP, POLY TUBING, CURB STOP, AND METER BOXES SHALL BE INSTALLED BY UNDERGROUND UTILITY CONTRACTOR AT THE TIME OF IRRIGATION MAIN INSTALLATION.
4. **MATERIAL SPECIFICATIONS:**
  - A. TAPPING SADDLES SHALL BE DUCTILE DOUBLE STRAP OR BRASS DOUBLE STRAP (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F). MINIMUM SADDLE SIZE 1-1/2".
  - B. CORPORATION STOPS (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) SHALL BE BALL TYPE AND MADE OF RED BRASS. OUTLET SHALL BE COMPRESSION TYPE POLYETHYLENE TUBE. COMPRESSION INSERT SHALL BE STAINLESS STEEL.
  - C. CURB STOPS (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) SHALL BE BALL TYPE AND MADE OF RED BRASS. INLET SHALL BE COMPRESSION JOINT. OUTLET SHALL BE SWIVEL NUT FOR METER CONNECTION.
  - D. AUTOMATIC METER READER (AMR) METER BOXES (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) SHALL HAVE CAST IRON READ LID.



PLAN

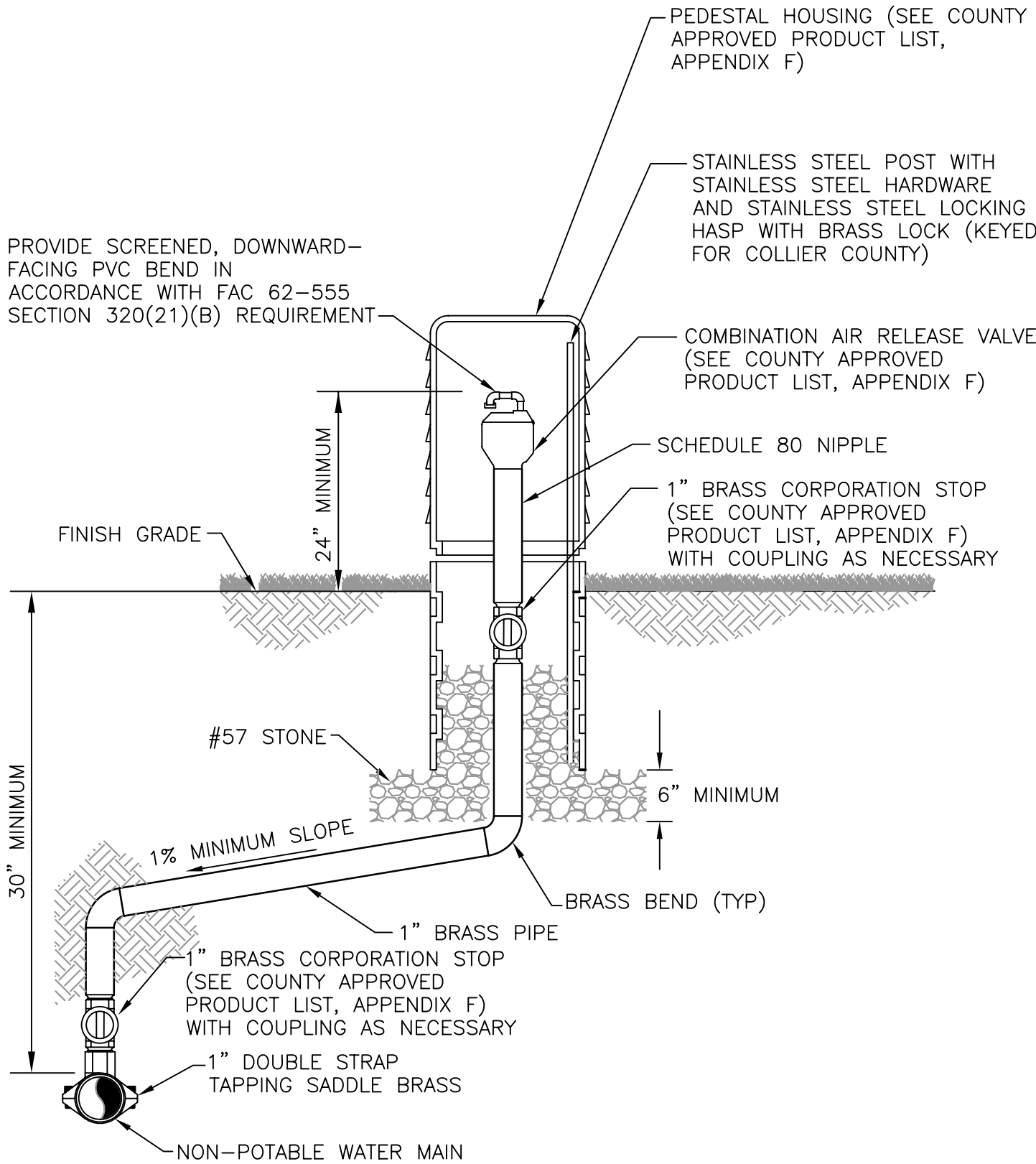
36" x 36" ALUMINUM ACCESS HATCH  
(SEE COUNTY APPROVED PRODUCT LIST,  
APPENDIX F) WITH 316 STAINLESS  
STEEL HARDWARE CAST INTO LID



RECLAIMED WATER AIR RELEASE VALVE DETAIL  
NTS

NP-3

REVISED: AUGUST 2008



**RAW AND SUPPLEMENTAL WATER AIR RELEASE VALVE DETAIL**  
**NOT FOR USE WITH RECLAIMED WATER**

NTS

(SEE DETAIL NP-3 FOR ARV ON RECLAIMED WATER MAIN)





















NP-4

REVISED: AUGUST 2008





GENERAL NOTES:

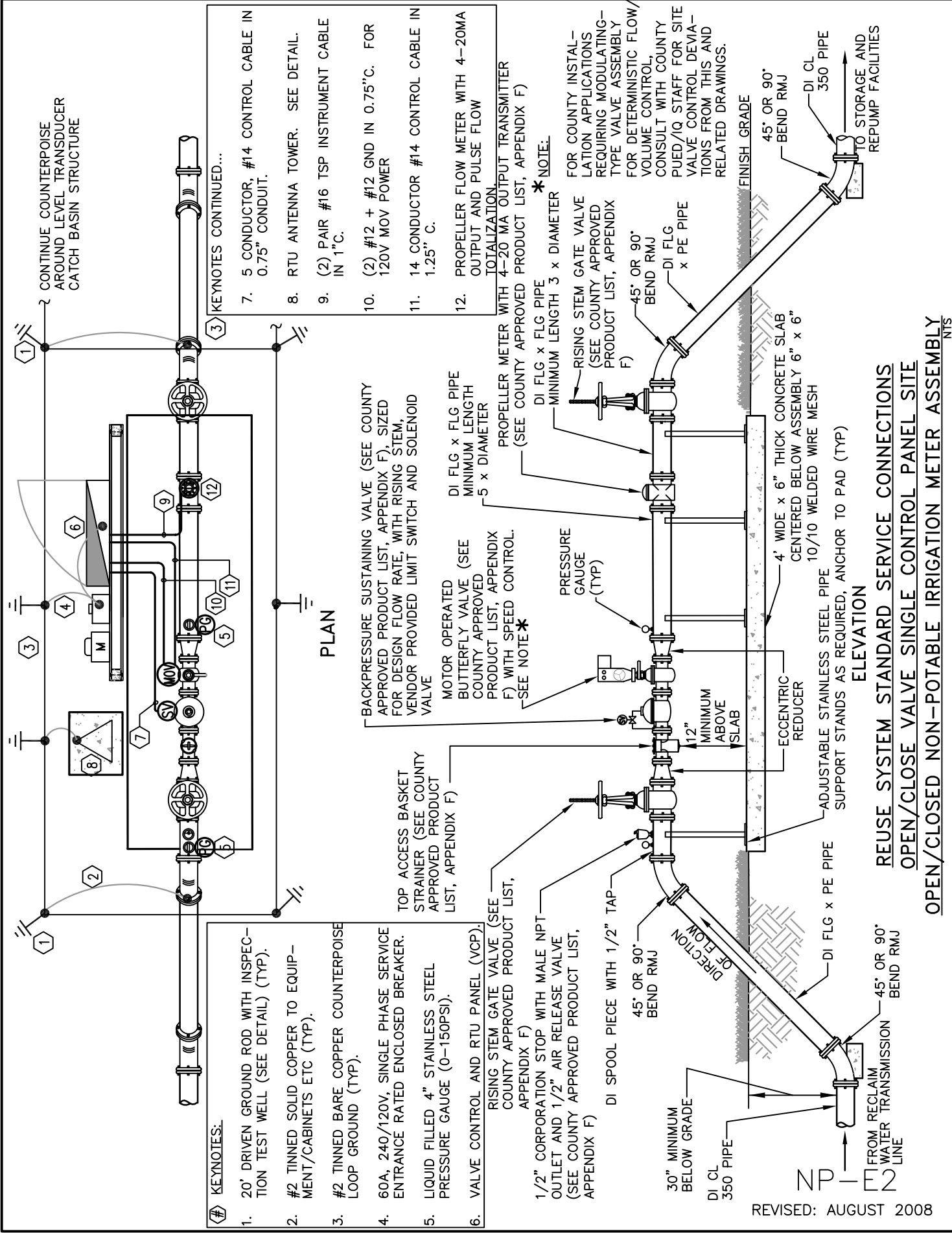
1. ALL ABOVE GROUND PIPING SHALL BE PAINTED PANTONE PURPLE 522-C.
2. ALL ABOVE GROUND PIPES WILL BE FLANGED END. ALL HARDWARE NUTS AND BOLTS SHALL BE STAINLESS STEEL.
3. (4) VEHICULAR GUARD POSTS TO BE INSTALLED AROUND METER. CONFIGURATION TO BE ILLUSTRATED ON CONSTRUCTION DOCUMENTS SUBMITTED FOR REVIEW AND APPROVAL.
4. ALL PLANTING SHALL BE A MINIMUM OF 3' FROM EDGE OF SHALL SLAB AND PROVIDE A 3' ACCESS OPENING.
5. ALL PIPES UNDER 3" SHALL BE BRASS.
6. METER ASSEMBLY SHALL BE LOCATED WITHIN COUNTY UTILITY EASEMENT.
7. ALL BELOW GRADE GROUND CONNECTIONS TO BE VIA EXOTHERMIC WELD (CADWELD) UNLESS INDICATED OTHERWISE.

CONTROL/ELEMENTARY SYMBOLS

- |   |  |
|---|--|
|    | NORMALLY OPEN CONTACT                  |
|    | NORMALLY CLOSED CONTACT                |
|    | ALARM RELAY                            |
|    | ALARM TIMER                            |
|    | CONTROL RELAY                          |
|    | FLOW INDICATOR TRANSMITTER (TOTALIZER) |
|    | LEVEL INDICATOR TRANSMITTER            |
|    | PRESSURE GAUGE                         |
|    | TAMPER SWITCH                          |
|    | SURGE SUPPRESSION DEVICE               |
|    | SOLENOID VALVE                         |
|    | ALARM INDICATING LIGHT                 |
|    | RUN INDICATING LIGHT                   |
|    | MOMENTARY CONTACT PUSHBUTTON           |
|    | MOMENTARY BREAK PUSHBUTTON OR RESET    |
|   | MAINTAINED CONTACT ON-OFF SWITCH       |
|  | FUSE                                   |
|  | MOLDED CASE CIRCUIT BREAKER            |
|  | REMOTE TERMINAL BLOCK POINT            |
|  | TSP TWISTED SHIELDED PAIRS             |

ELECTRICAL PLAN SYMBOLS

- |   |   |
|---|---|
|  | SYSTEMS CABINET AS NOTED OR MARKED                      |
|  | CONDUIT AND WIRE CONCEALED IN FLOOR SLAB OR UNDERGROUND |
|  | MOTOR OPERATED VALVE CONNECTION                         |
|  | SERVICE OR EQUIPMENT GROUND                             |



- KEYNOTES:**
- 20' DRIVEN GROUND ROD WITH INSPECTION TEST WELL (SEE DETAIL) (TYP).
  - #2 TINNED SOLID COPPER TO EQUIPMENT/CABINETS ETC (TYP).
  - #2 TINNED BARE COPPER COUNTERPOISE LOOP GROUND (TYP).
  - 60A, 240/120V, SINGLE PHASE SERVICE ENTRANCE RATED ENCLOSED BREAKER.
  - LIQUID FILLED 4" STAINLESS STEEL PRESSURE GAUGE (0-150PSI).
  - VALVE CONTROL AND RTU PANEL (VCP).
- CONTINUE COUNTERPOISE AROUND LEVEL TRANSDUCER CATCH BASIN STRUCTURE
- KEYNOTES CONTINUED...**
- 5 CONDUCTOR, #14 CONTROL CABLE IN 0.75" CONDUIT.
  - RTU ANTENNA TOWER. SEE DETAIL.
  - (2) PAIR #16 TSP INSTRUMENT CABLE IN 1" C.
  - (2) #12 + #12 GND IN 0.75" C. FOR 120V MOV POWER
  - 14 CONDUCTOR #14 CONTROL CABLE IN 1.25" C.
  - PROPELLER FLOW METER WITH 4-20MA OUTPUT AND PULSE FLOW TOTALIZATION

**PLAN**

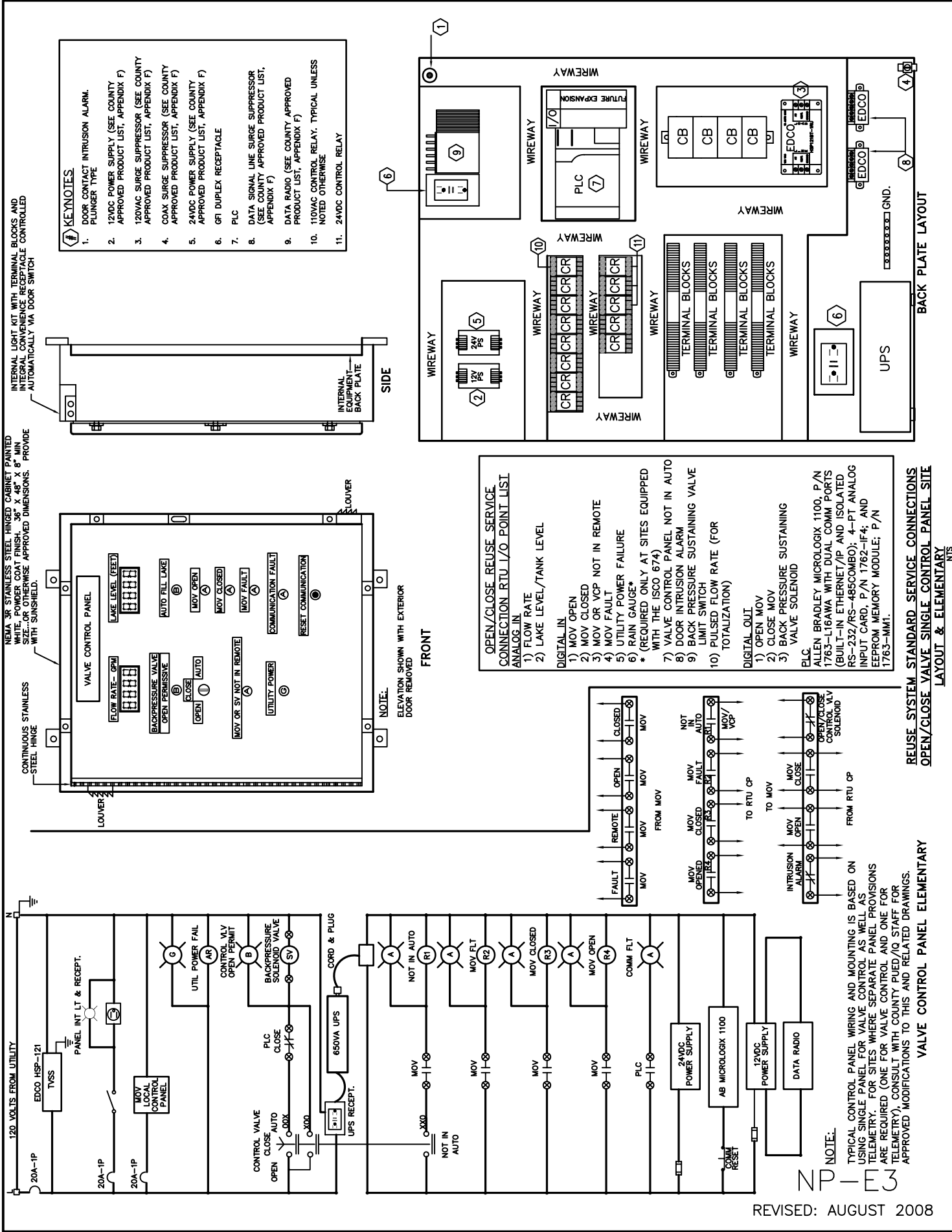
- BACKPRESSURE SUSTAINING VALVE (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F). SIZED FOR DESIGN FLOW RATE, WITH RISING STEM, VENDOR PROVIDED LIMIT SWITCH AND SOLENOID VALVE
- MOTOR OPERATED BUTTERFLY VALVE (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) WITH SPEED CONTROL. \*SEE NOTE\*
- DI FLG x FLG PIPE MINIMUM LENGTH 3 x DIAMETER
- PROPELLER METER WITH 4-20 MA OUTPUT TRANSMITTER (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F)
- RISING STEM GATE VALVE (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) FOR DETERMINISTIC FLOW/VOLUME CONTROL, CONSULT WITH COUNTY PUELD/IQ STAFF FOR SITE VALVE CONTROL DEVIATIONS FROM THIS AND RELATED DRAWINGS.

- TOP ACCESS BASKET STRAINER (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F)
- DI SPOOL PIECE WITH 1/2" TAP
- 1/2" CORPORATION STOP WITH MALE NPT OUTLET AND 1/2" AIR RELEASE VALVE (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F)
- DI FLG x PE PIPE
- 45° OR 90° BEND RMJ
- 30" MINIMUM BELOW GRADE
- DI CL 350 PIPE
- ADJUSTABLE STAINLESS STEEL PIPE SUPPORT STANDS AS REQUIRED, ANCHOR TO PAD (TYP)
- 4" WIDE x 6" THICK CONCRETE SLAB CENTERED BELOW ASSEMBLY 6" x 6" 10/10 WELDED WIRE MESH
- ECENTRIC REDUCER
- MINIMUM 12" ABOVE SLAB
- PRESSURE GAUGE (TYP)
- DI FLG x FLG PIPE MINIMUM LENGTH 3 x DIAMETER
- RISING STEM GATE VALVE (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F)
- DI FLG x PE PIPE
- 45° OR 90° BEND RMJ
- DI CL 350 PIPE
- TO STORAGE AND REUMP FACILITIES

**ELEVATION**

**REUSE SYSTEM STANDARD SERVICE CONNECTIONS**  
**OPEN/CLOSE VALVE SINGLE CONTROL PANEL SITE**  
**OPEN/CLOSED NON-POTABLE IRRIGATION METER ASSEMBLY**





**KEYNOTES**

1. DOOR CONTACT INTRUSION ALARM.
2. 120VDC POWER SUPPLY (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F)
3. 120VAC SURGE SUPPRESSOR (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F)
4. COAX SURGE SUPPRESSOR (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F)
5. 24VDC POWER SUPPLY (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F)
6. 6FT DUPLEX RECEPTACLE
7. PLC
8. DATA SIGNAL LINE SURGE SUPPRESSOR (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F)
9. DATA RADIO (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F)
10. 110VAC CONTROL RELAY. TYPICAL UNLESS NOTED OTHERWISE
11. 24VDC CONTROL RELAY

**OPEN/CLOSE/REUSE SERVICE CONNECTION RTU I/O POINT LIST**

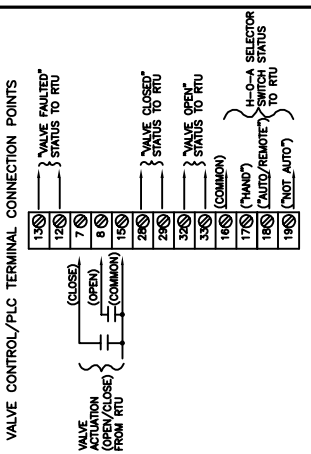
- ANALOG IN**
- 1) FLOW RATE
  - 2) LAKE LEVEL/TANK LEVEL
- DIGITAL IN**
- 1) MOV OPEN
  - 2) MOV CLOSED
  - 3) MOV OR VCP NOT IN REMOTE
  - 4) MOV FAULT
  - 5) UTILITY POWER FAILURE
  - 6) RAIN GAUGE\*
- \* (REQUIRED ONLY AT SITES EQUIPPED WITH THE ISCO 674)
- 7) VALVE CONTROL PANEL NOT IN AUTO
  - 8) DOOR INTRUSION ALARM
  - 9) BACK PRESSURE SUSTAINING VALVE LIMIT SWITCH
  - 10) PULSED FLOW RATE (FOR TOTALIZATION)
- DIGITAL OUT**
- 1) OPEN MOV
  - 2) CLOSE MOV
  - 3) BACK PRESSURE SUSTAINING VALVE SOLENOID
- PLC**
- ALLEN BRADLEY MICROLOGIX 1100, P/N 1763-L16AWA WITH DUAL COMM PORTS (BUILT-IN ETHERNET/IP AND ISOLATED RS-232/RS-485COMBO); 4-PT ANALOG INPUT CARD, P/N 1762-IF4; AND EPROM MEMORY MODULE; P/N 1763-MM1.

REUSE SYSTEM STANDARD SERVICE CONNECTIONS  
 OPEN/CLOSE VALVE SINGLE CONTROL PANEL SITE LAYOUT & ELEMENTARY

NOTE:  
 TYPICAL CONTROL PANEL WIRING AND MOUNTING IS BASED ON USING SINGLE PANEL FOR VALVE CONTROL AS WELL AS TELEMETRY. FOR SITES WHERE SEPARATE PANEL PROVISIONS ARE REQUIRED (ONE FOR VALVE CONTROL AND ONE FOR TELEMETRY) CONSULT WITH COUNTY PLUED/IQ STAFF FOR APPROVED MODIFICATIONS TO THIS AND RELATED DRAWINGS.

**LEGEND**

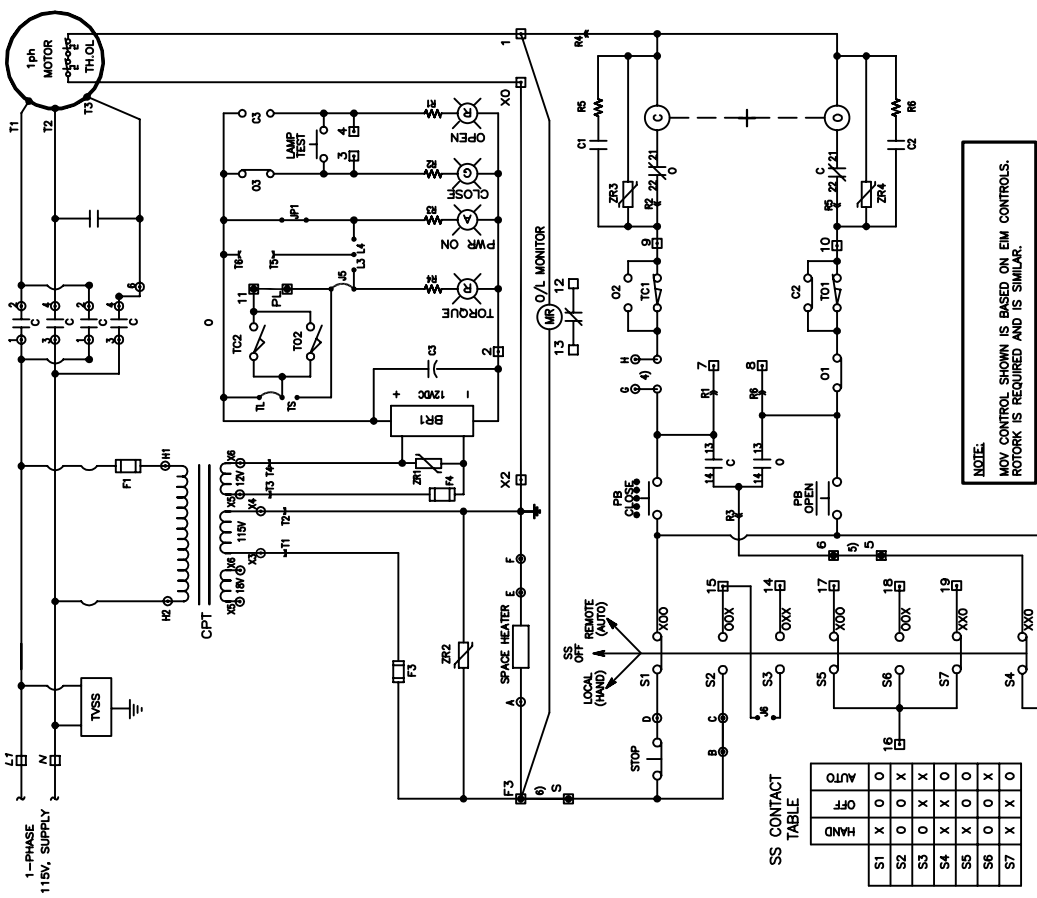
- O—OPEN CONTACT
- C—CLOSE CONTACT
- ⊖—OPENING COIL
- ⊕—CLOSING COIL
- ⊕—MECHANICAL INTERLOCK
- CPT—CONTROL POWER TRANSFORMER
- TH.O.L.—THERMAL OVERLOAD CONTACTS
- SS—SELECTOR SWITCH (LOCAL—OFF—REMOTE)
- PB—PUSHBUTTON
- MR—MONITOR RELAY
- ZR—ZENER DIODE
- ⊖—RED INDICATING LIGHT
- ⊕—AMBER INDICATING LIGHT
- ⊖—GREEN INDICATING LIGHT



**NOTES**

- 1) CONTACTS SHOWN: VALVE CLOSED; VOLTAGE: OFF; S/S: HAND
- 2) CUSTOMER WIRES TO TERMINALS ON PWR AND TBM MODULES.
- 3) M2CP INTERNAL TERMINAL INTERCONNECT WIRING POINTS
- 4) FIELD CONNECTED WIRING BY OTHERS.
- 5) TORQUE SWITCH (TC1 & "TC1" & "TC1" NC CONTACTS OPEN, AND (TC2 & "TC2" & "TO2" N.O. CONTACTS MAKE ON FIELD ADJUSTABLE MECHANICAL OVERLOAD IN (C) "CLOSE" OR IN (O) "OPEN" DIRECTION.
- 6) FOR TORQUE SEATED VALVE: INSTALL G TO H STRAP ON LSM.
- 7) FOR MAINTAINED PB CONTROL: REMOVE 5 TO 6 STRAP ON TBM.
- 8) FOR REMOTE STOP PB OR RELAY: REMOVE F3 TO S STRAP ON TBM.
- 9) O & C (22-31) REVERSING CONTACTOR NC INTERLOCK CONTACTS.
- 10) O & C (14-13) MOMENTARY PUSHBUTTON N.O. SEAL-IN CONTACTS.
- 11) MOTOR THERMAL CONTACTS OPEN WITH EXCESSIVE TEMPERATURE.
- 12) POSITION INDICATOR PILOT LIGHTS: LED SOLID-STATE
- 13) "OPEN" INDICATES: FULL OPEN (RED)
- 14) "CLOSE" INDICATES: FULL CLOSED (GREEN)
- 15) MID-POSITION: BOTH "OPEN" AND "CLOSE" ILLUMINATED.
- 16) "PWR ON" AND "TORQUE" INDICATORS ARE ONLY VISIBLE WITH COVER OPEN FOR CONVENIENCE DURING MAINTENANCE PROCEDURES.

CONTACT	VALVE POSITION	CONTACT FUNCTION
C1	CLOSE	OPEN
C2	MID	X
C3	OPEN	X
C4	CLOSE	COIL
C5	X	0
C6	X	0
C7	X	0
C8	X	0
C9	X	0
C10	X	0
C11	X	0
C12	X	0
C13	X	0
C14	X	0
C15	X	0
C16	X	0
C17	X	0
C18	X	0
C19	X	0
C20	X	0
C21	X	0
C22	X	0
C23	X	0
C24	X	0
C25	X	0
C26	X	0
C27	X	0
C28	X	0
C29	X	0
C30	X	0
C31	X	0
C32	X	0
C33	X	0
C34	X	0
C35	X	0
C36	X	0
C37	X	0
C38	X	0
C39	X	0
C40	X	0
C41	X	0
C42	X	0
C43	X	0
C44	X	0
C45	X	0
C46	X	0
C47	X	0
C48	X	0
C49	X	0
C50	X	0
C51	X	0
C52	X	0
C53	X	0
C54	X	0
C55	X	0
C56	X	0
C57	X	0
C58	X	0
C59	X	0
C60	X	0

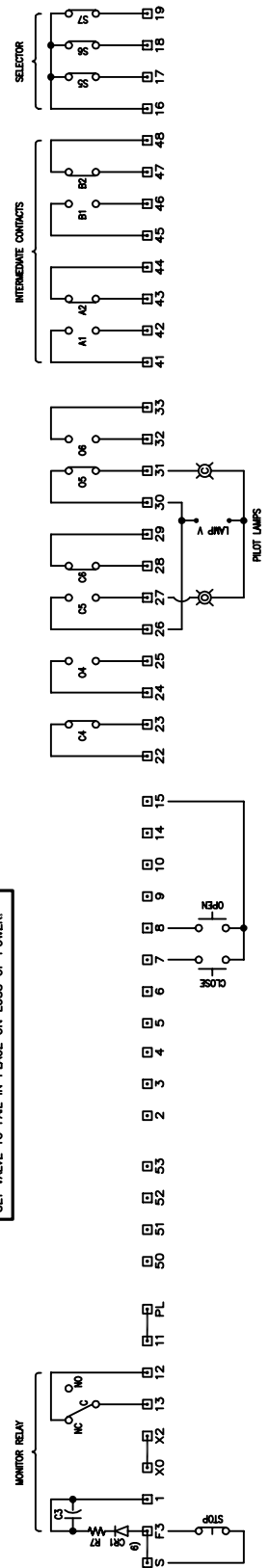


**SS CONTACT TABLE**

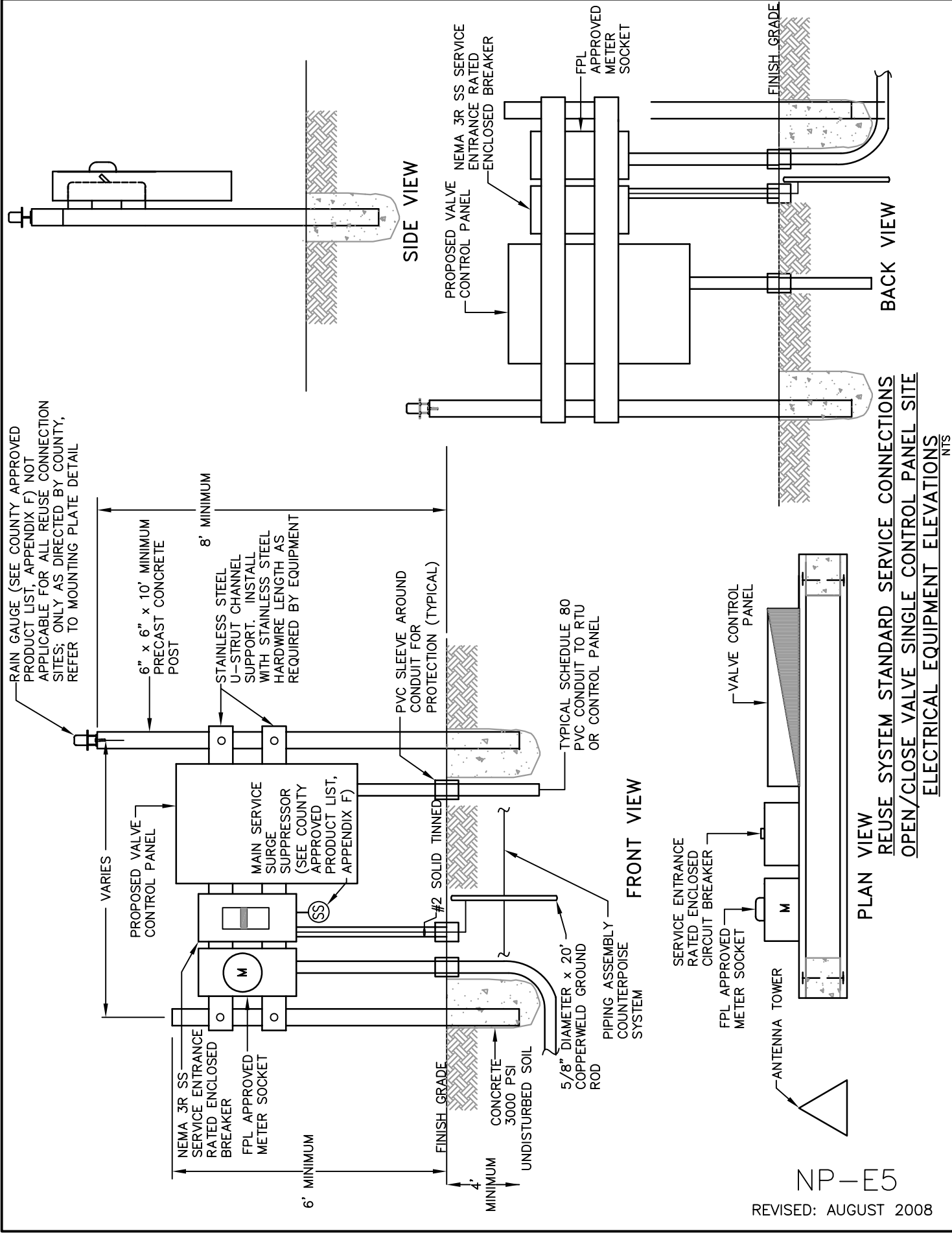
SS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
MAN	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OFF	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AUTO	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

**NOTE.**  
MOV CONTROL SHOWN IS BASED ON EIM CONTROLS. ROTORK IS REQUIRED AND IS SIMILAR.

**NOTE.**  
SET VALVE TO FAIL IN PLACE ON LOSS OF POWER.

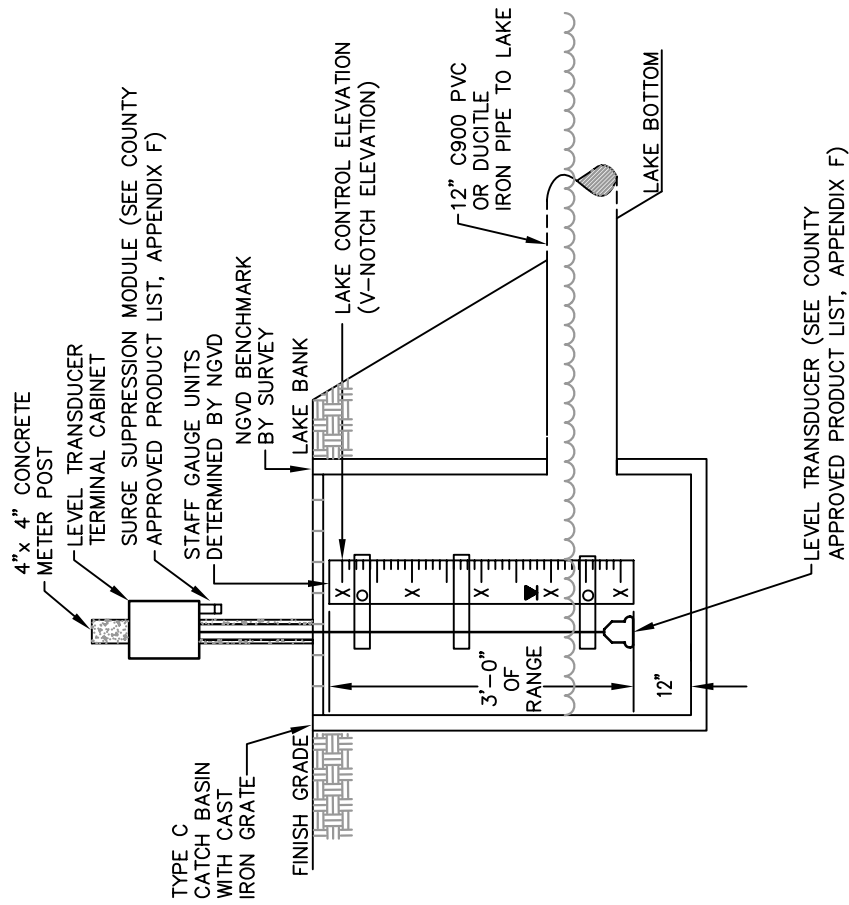


**REUSE SYSTEM STANDARD SERVICE CONNECTIONS**  
**OPEN/CLOSE VALVE SINGLE CONTROL PANEL SITE**  
**OPEN/CLOSE MOV CONTROL DIAGRAM**

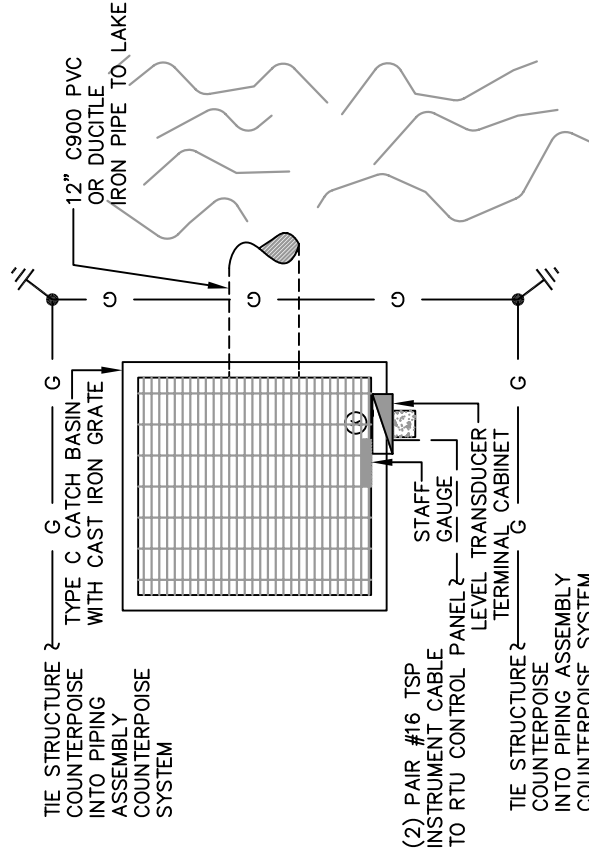


NP-E5

REVISED: AUGUST 2008

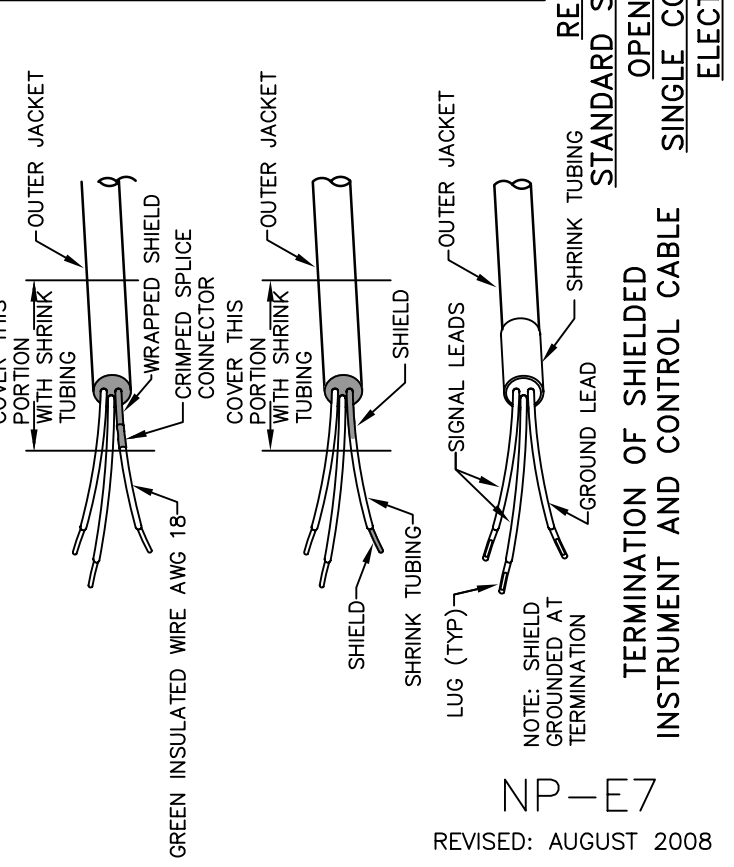
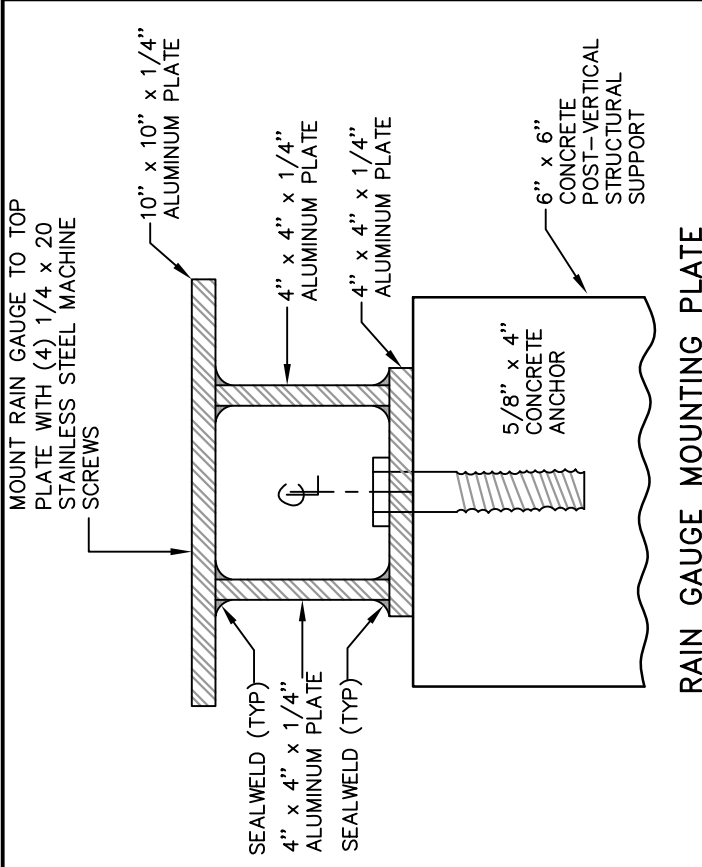
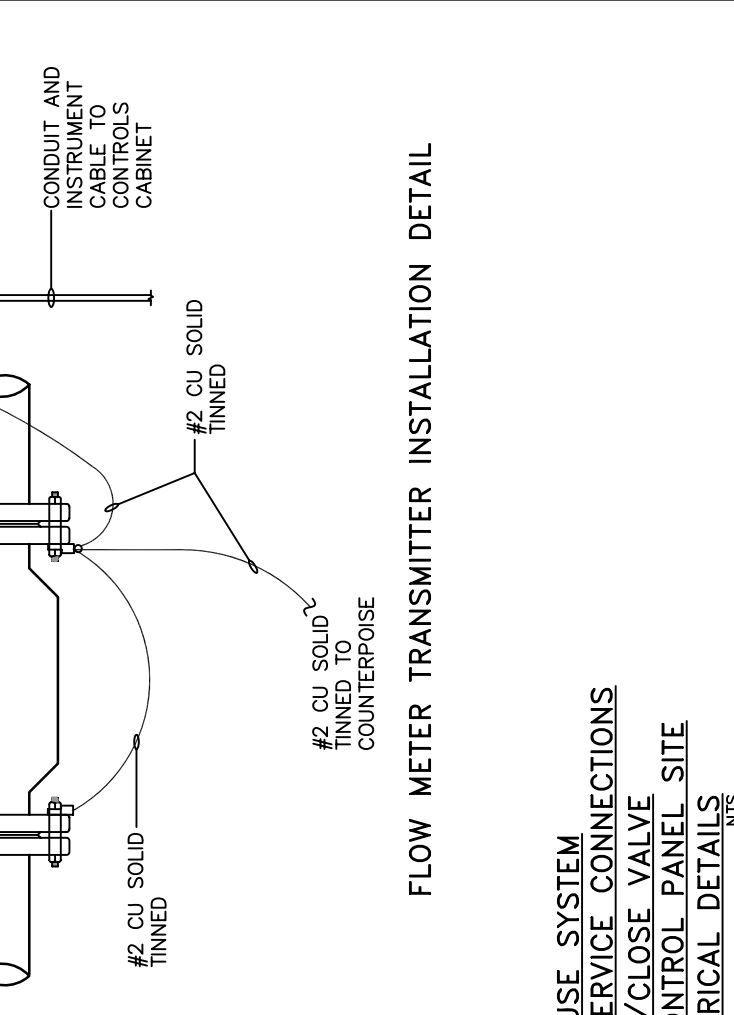
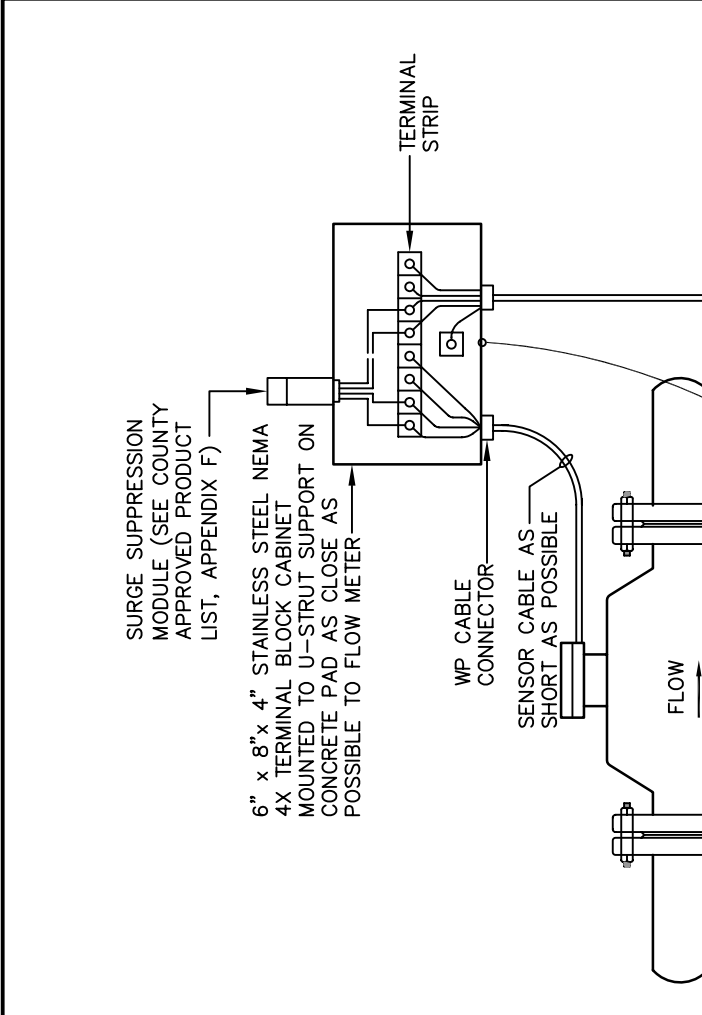


CROSS SECTION



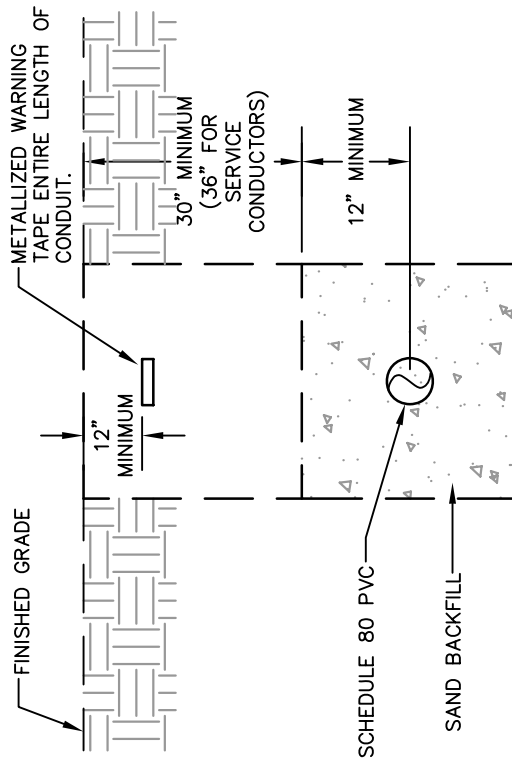
PLAN VIEW

REUSE SYSTEM STANDARD SERVICE CONNECTIONS  
OPEN/CLOSE VALVE SINGLE CONTROL PANEL SITE  
LEVEL TRANSDUCER MOUNTING DETAILS  
 NTS

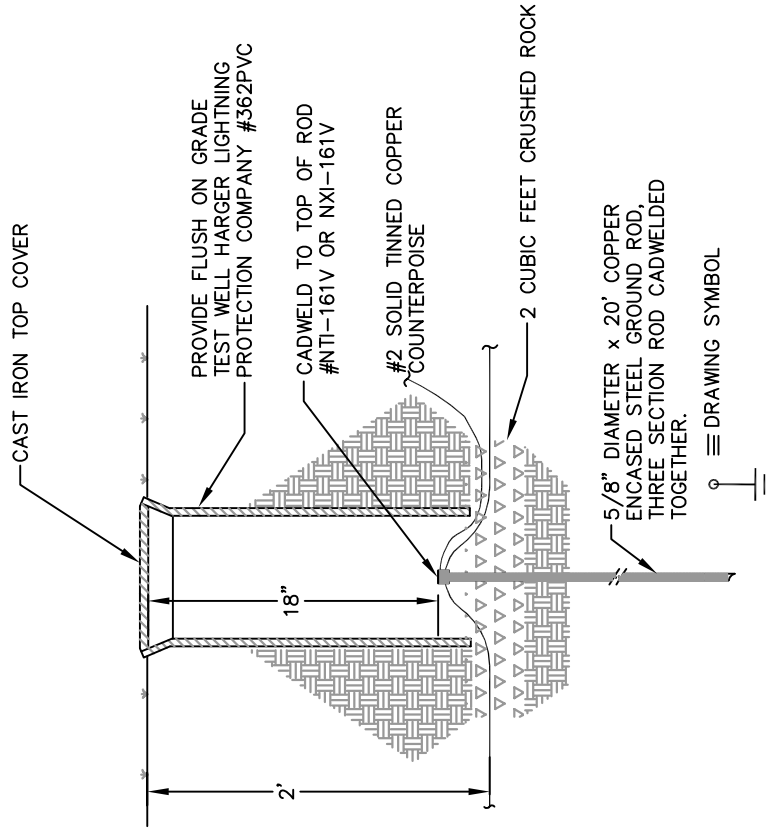


**FLOW METER TRANSMITTER INSTALLATION DETAIL**

REUSE SYSTEM  
STANDARD SERVICE CONNECTIONS  
OPEN/CLOSE VALVE  
SINGLE CONTROL PANEL SITE  
ELECTRICAL DETAILS  
 NTS

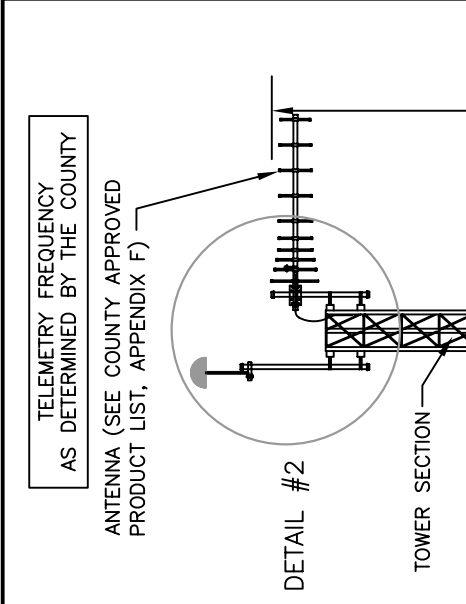


UNDERGROUND CONDUIT INSTALLATION



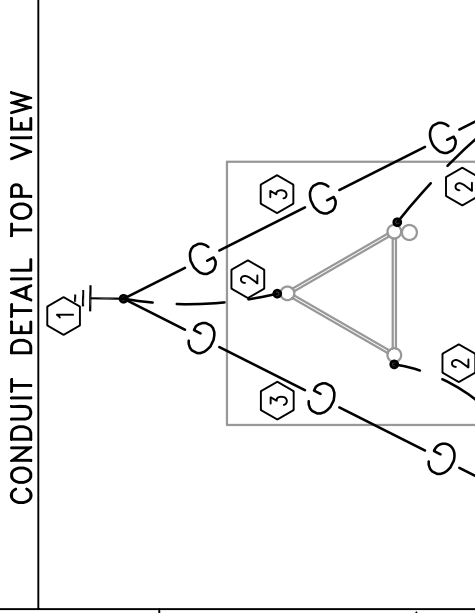
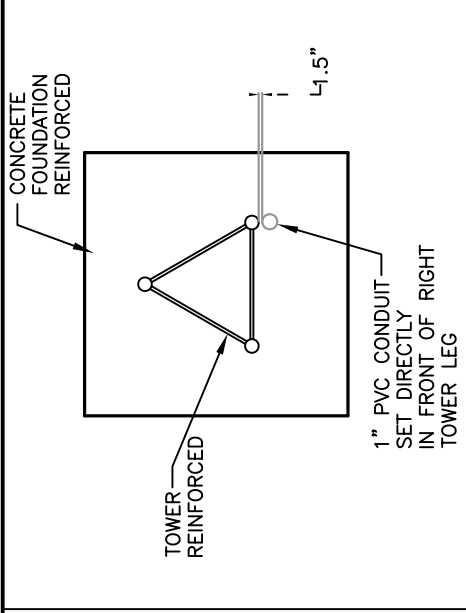
TYPICAL GROUND ROD INSTALLATION DETAIL

REUSE SYSTEM STANDARD SERVICE CONNECTIONS  
 OPEN/CLOSE VALVE SINGLE CONTROL PANEL SITE  
 ELECTRICAL DETAILS  
 NTS

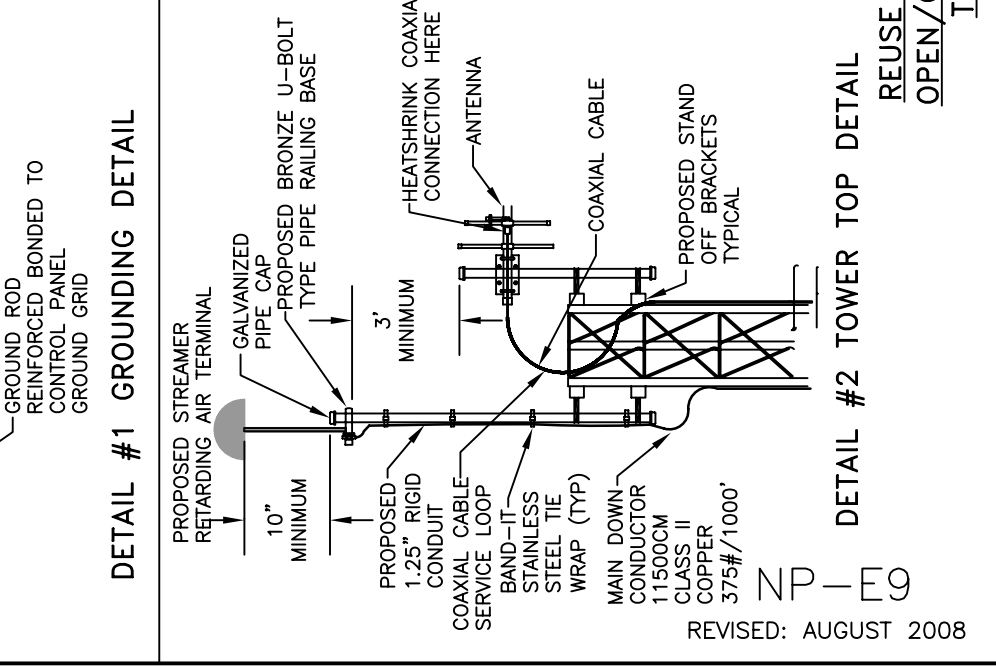
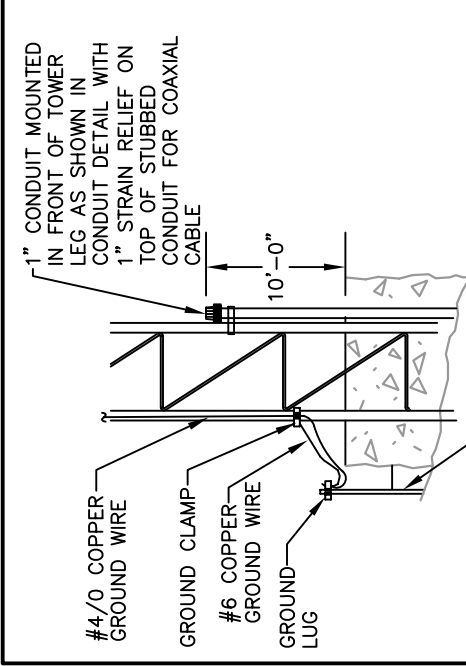


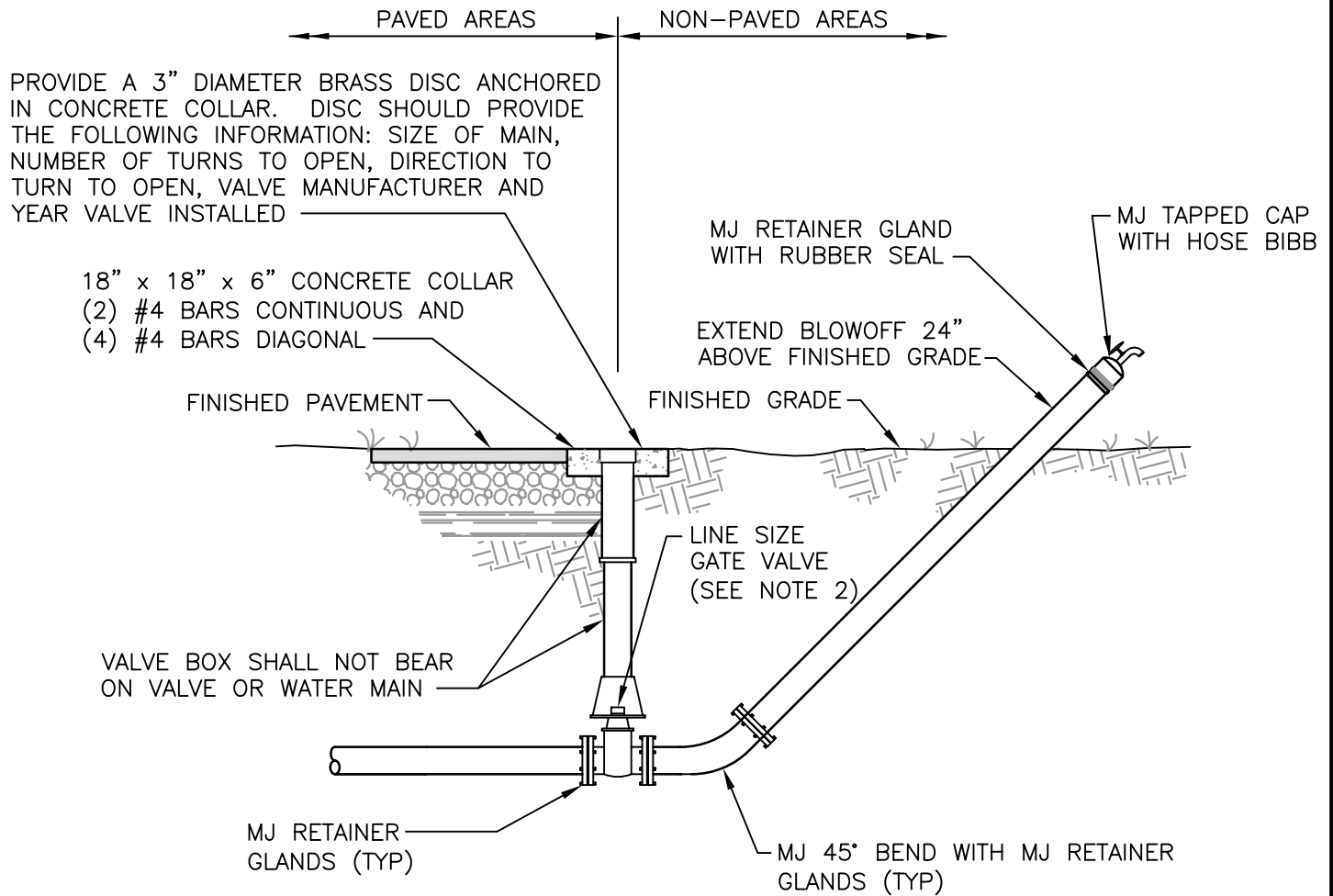
NOTE:  
TOWER/ANTENNA ASSEMBLY AND FOUNDATION CONSTRUCTION MUST MEET CURRENT EDITION FLORIDA BUILDING CODE WIND LOAD REQUIREMENTS FOR 140 MPH WIND ZONE. PROVIDE STRUCTURAL CERTIFICATION BY FLORIDA REGISTERED LICENSED PROFESSIONAL ENGINEER.

TYPICAL POLE DETAIL



REUSE SYSTEM STANDARD SERVICE CONNECTIONS  
OPEN/CLOSE VALVE SINGLE CONTROL PANEL SITE  
TYPICAL RTU ANTENNA TOWER DETAILS  
NTS





SIDE VIEW

NOTES:

1. MJ TAPPED CAP WITH HOSE BIBB IS TO BE REMOVED AFTER INITIAL BACTERIOLOGICAL CLEARANCE AND PRIOR TO WATER MAIN ACCEPTANCE.
2. SEE TECHNICAL SPECIFICATIONS SECTION 331200 FOR GATE VALVE AND VALVE BOX REQUIREMENTS.

TEMPORARY BLOWOFF ASSEMBLY WITH  
BACTERIAL SAMPLE POINT DETAIL

NTS

W-1

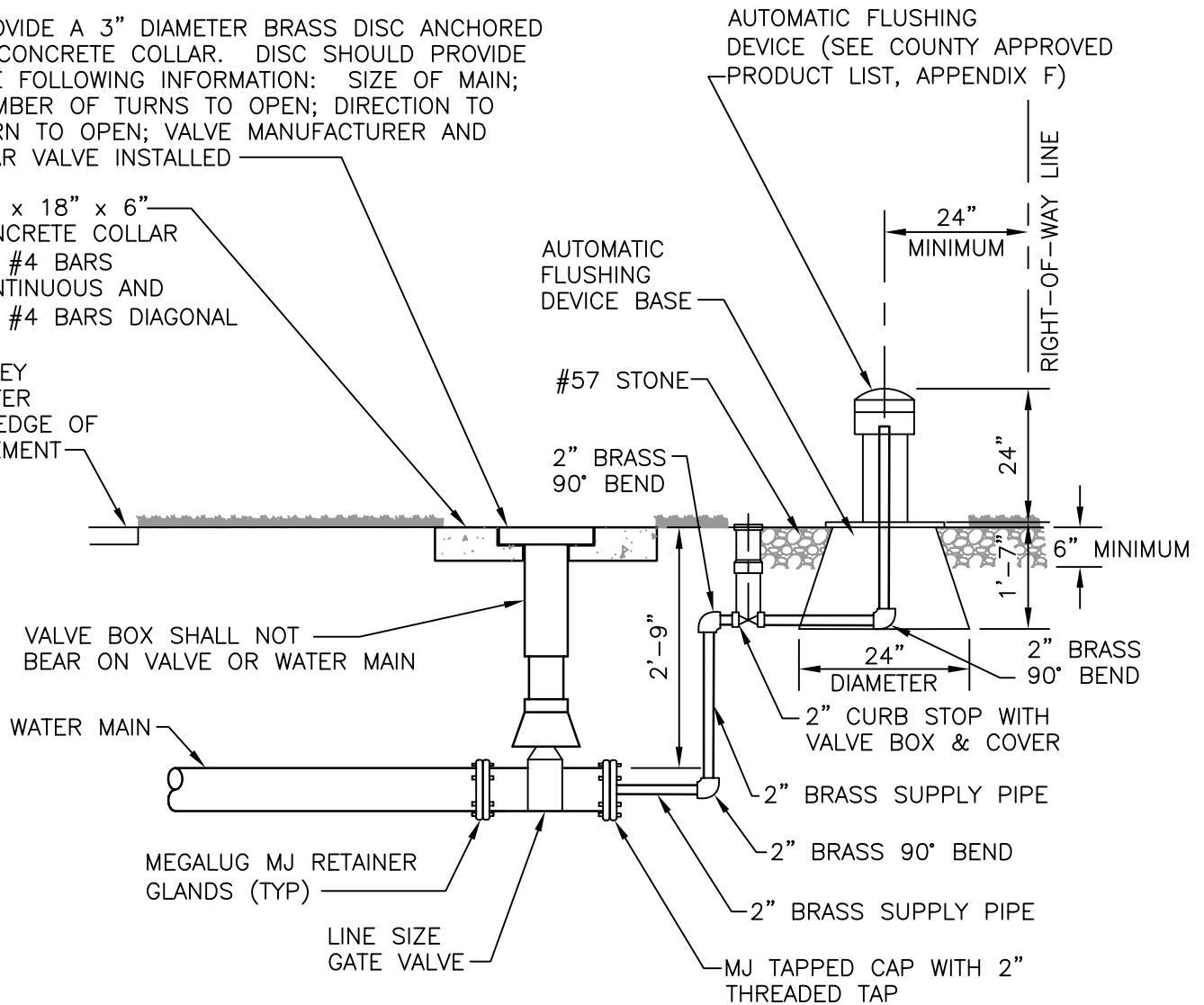
REVISED: AUGUST 2008



PROVIDE A 3" DIAMETER BRASS DISC ANCHORED IN CONCRETE COLLAR. DISC SHOULD PROVIDE THE FOLLOWING INFORMATION: SIZE OF MAIN; NUMBER OF TURNS TO OPEN; DIRECTION TO TURN TO OPEN; VALVE MANUFACTURER AND YEAR VALVE INSTALLED

18" x 18" x 6" CONCRETE COLLAR  
(2) #4 BARS CONTINUOUS AND  
(4) #4 BARS DIAGONAL

VALLEY GUTTER OR EDGE OF PAVEMENT



VALVE BOX SHALL NOT BEAR ON VALVE OR WATER MAIN

WATER MAIN

MEGALUG MJ RETAINER GLANDS (TYP)

LINE SIZE GATE VALVE

MJ TAPPED CAP WITH 2" THREADED TAP

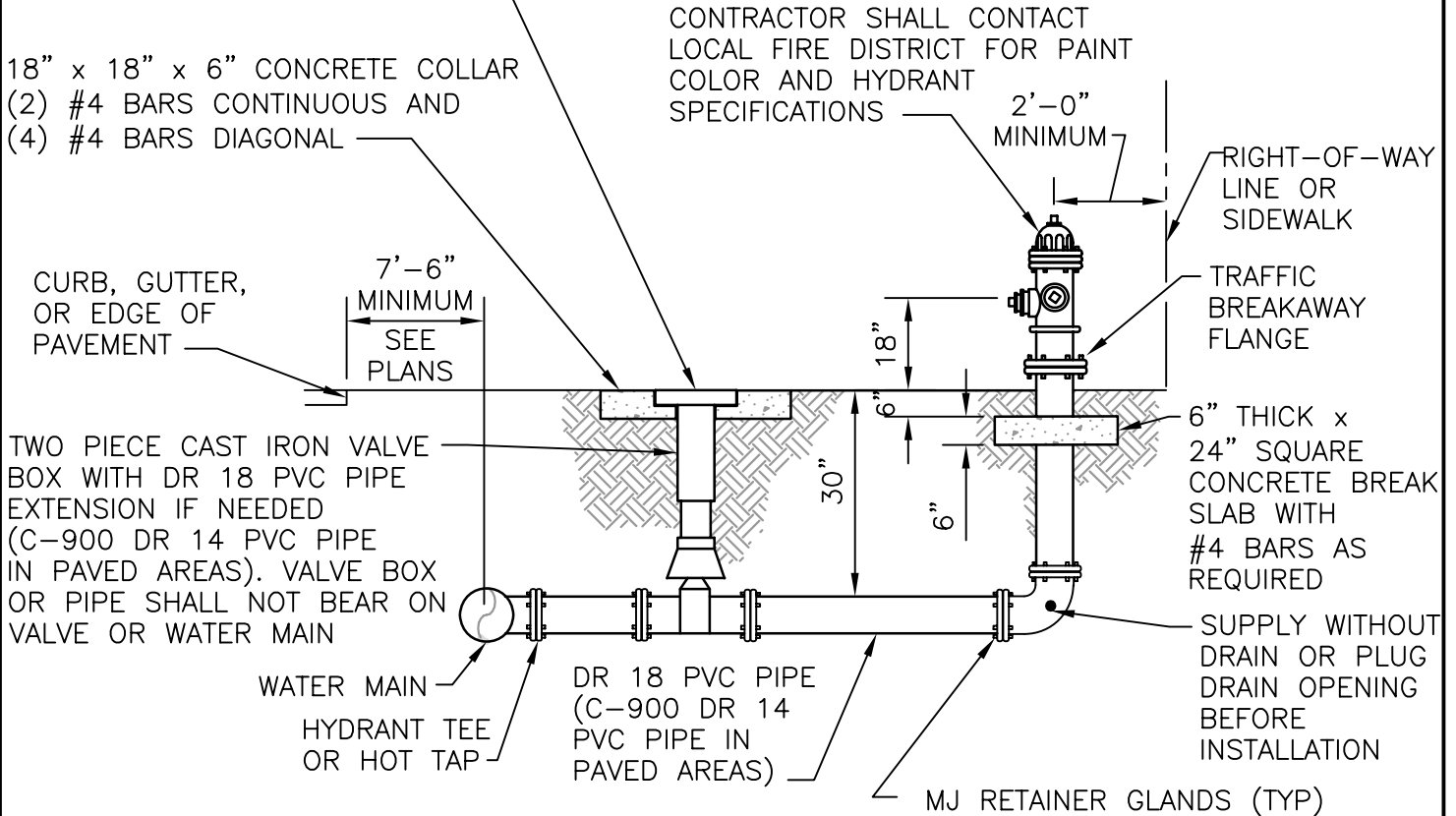
NOTES:

1. PIPING SHALL BE INSTALLED UP TO 2" CURB STOP WITH VALVE BOX AND COVER AT TIME OF MAIN INSTALLATION.
2. AUTOMATIC FLUSHING DEVICE SHALL BE SHUT OFF UNTIL MAIN LINE HAS BEEN BACTERIOLOGICALLY TESTED.
3. ALL THREAD HARD PIPING SHALL BE BRASS.
4. SEE TECHNICAL SPECIFICATIONS SECTION 331200 FOR GATE VALVE AND VALVE BOX REQUIREMENTS.
5. AT TIME OF ACCEPTANCE, WATER DEPARTMENT WILL INSTALL 2" METER.

**AUTOMATIC WATER MAIN  
FLUSHING DEVICE DETAIL**  
NTS

W-2  
REVISED: AUGUST 2008

PROVIDE A 3" DIAMETER BRASS DISC ANCHORED IN CONCRETE COLLAR. DISC SHOULD PROVIDE THE FOLLOWING INFORMATION: SIZE OF MAIN; NUMBER OF TURNS TO OPEN; DIRECTION TO TURN TO OPEN; VALVE MANUFACTURER AND YEAR VALVE INSTALLED

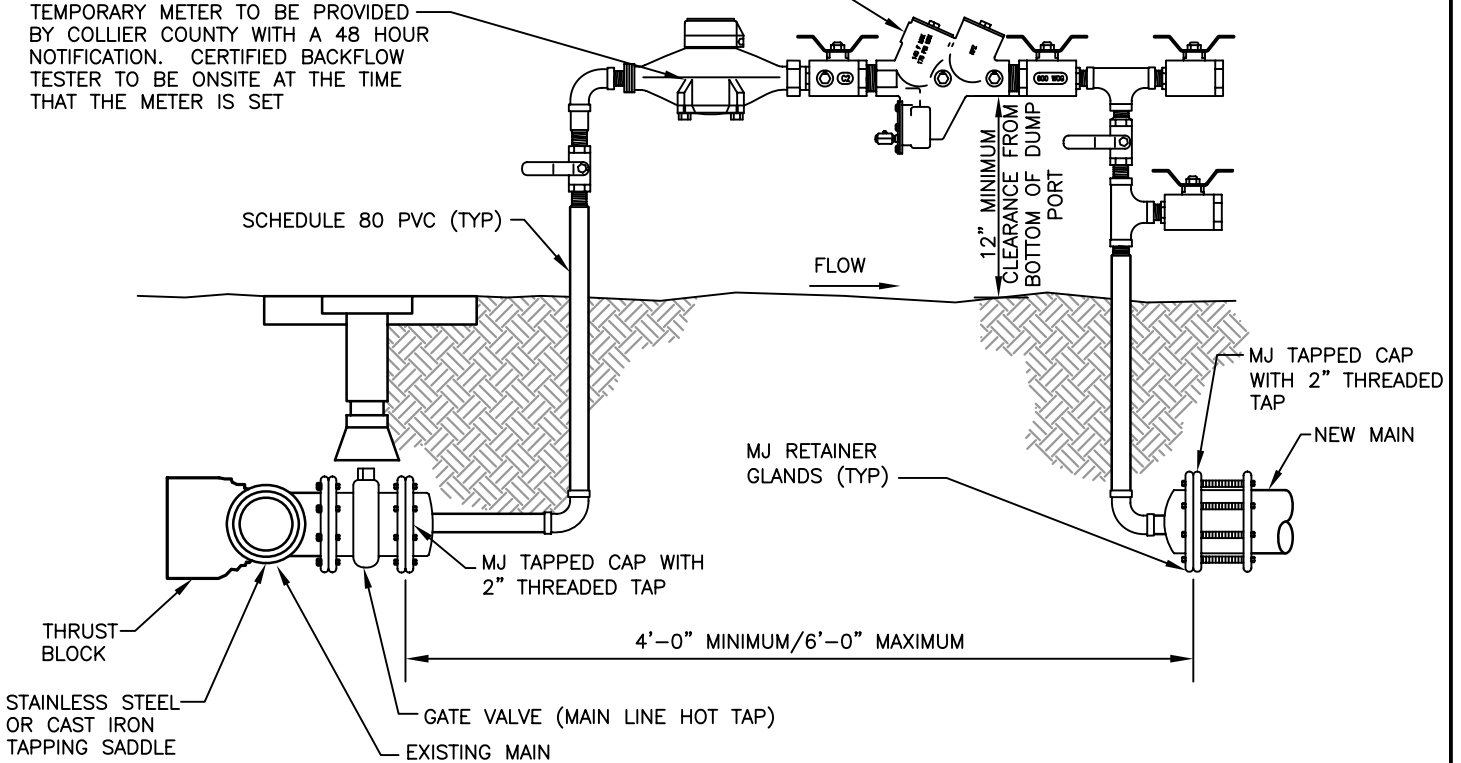


NOTES:

1. HYDRANT MUST BE CURRENT YEAR MANUFACTURE AND YEAR OF MANUFACTURE MUST BE CAST ON BARREL.
2. ALL EXISTING MAINS WHERE FIRE HYDRANTS ARE TO BE INSTALLED SHALL BE HOT TAPPED.
3. TAPPING SADDLES MAY BE EITHER STAINLESS STEEL OR DUCTILE IRON. ALL TAPPING SADDLES FOR ASBESTOS CEMENT PIPE SHALL BE STAINLESS STEEL.
4. ALL FIRE HYDRANT BARRELS SHALL BE A MINIMUM 5-1/4" IN DIAMETER.
5. ALL FIRE HYDRANTS INSTALLED SHALL BE OF THE BREAK AWAY FLANGE TYPE AND SHALL MEET THE REQUIREMENTS OF THE LOCAL FIRE CONTROL DISTRICT.
6. HYDRANT SHALL CONFORM WITH AWWA C-502.
7. THRUST RESTRAINT SHALL BE BY MJ RETAINER GLANDS.

REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY (PROVIDED BY CONTRACTOR) SUPPLIED WITH AMMONIA AND CHLORINE RESISTANT SEATS AND SILICONE RUBBER SEALS. INSTALLATION AS REQUIRED BY COUNTY ORDINANCE AND AWWA M-14 STANDARDS (SEE APPROVED BACKFLOW DEVICES, APPENDIX G)

TEMPORARY METER TO BE PROVIDED BY COLLIER COUNTY WITH A 48 HOUR NOTIFICATION. CERTIFIED BACKFLOW TESTER TO BE ONSITE AT THE TIME THAT THE METER IS SET



**NOTES:**

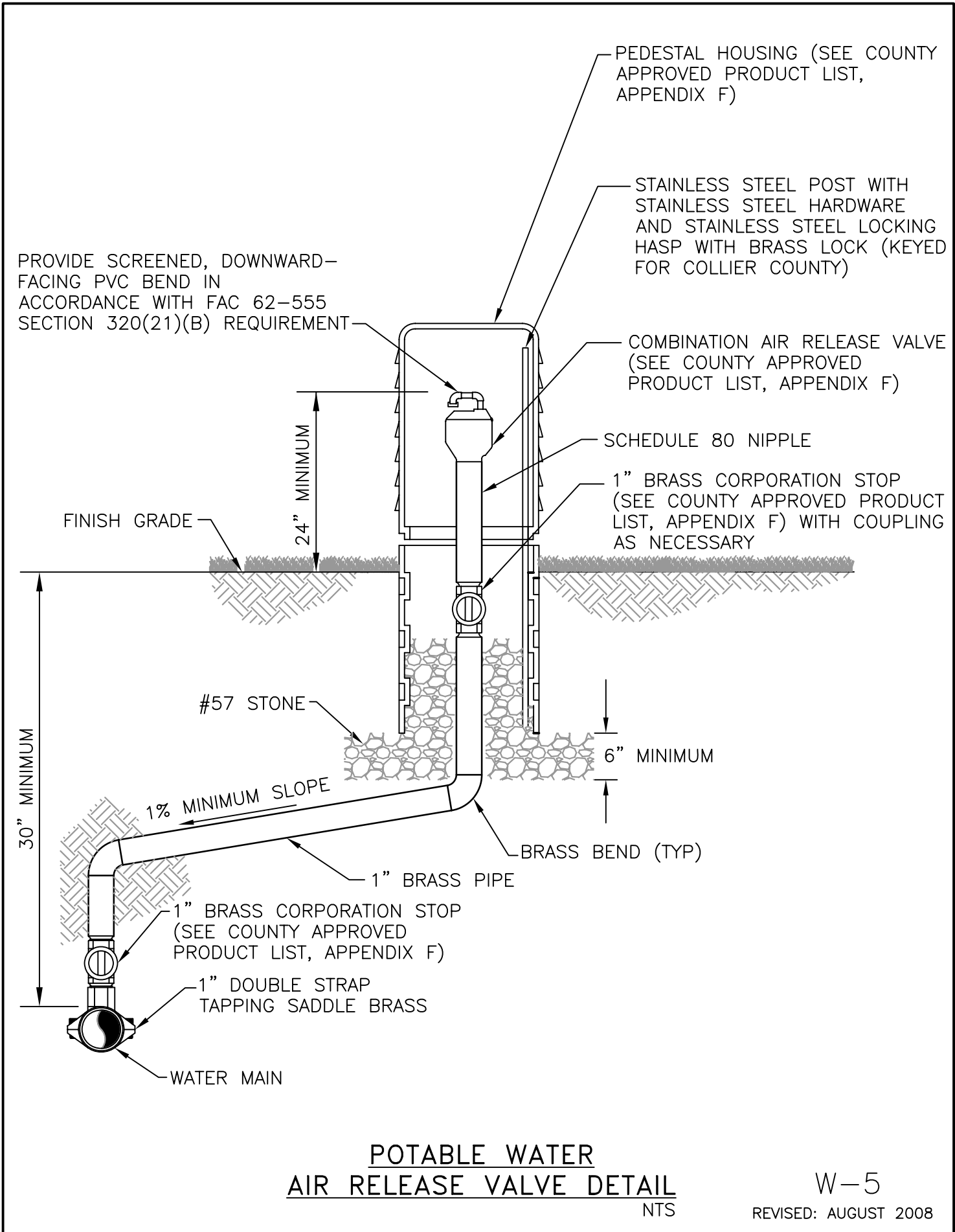
1. FINAL CONNECTION TO BE WITNESSED BY COLLIER COUNTY WATER DISTRIBUTION.
2. MJ TAPPED CAPS TO BE PROPERLY RESTRAINED.
3. INSTALL JUMPER TAP SYSTEM FOR TEMPORARY METER DOWNSTREAM OF BLIND FLANGE FOR CONSTRUCTION WATER.
4. TAPPING SADDLES MAY BE EITHER STAINLESS STEEL OR DUCTILE IRON. ALL TAPPING SADDLES FOR ASBESTOS CEMENT PIPE SHALL BE STAINLESS STEEL.
5. JUMPER ASSEMBLY MUST BE MINIMUM OF 18" ABOVE FINISHED GRADE.
6. BACKFLOW ASSEMBLY REQUIRES INITIAL CERTIFICATION BY CERTIFIED BACKFLOW TESTER.
7. THIS ASSEMBLY SHALL ONLY BE USED IF NO COMBUSTIBLES WILL BE ON SITE. IF COMBUSTIBLES ARE BROUGHT ON SITE, THEN THE TEMPORARY BACKFLOW PREVENTERS AND FIRE PROTECTION METER TIE-IN ASSEMBLY SHALL BE USED.
8. THIS ASSEMBLY IS NOT APPROVED TO PROVIDE FIRE PROTECTION WATER TO THE SITE DURING CONSTRUCTION. ASSEMBLY NOT TO BE REMOVED AND SPOOL PIECE INSTALLED FOR FINAL CONNECTION UNTIL AFTER TESTING, BACTERIAL CLEARANCE, FINAL INSPECTION AND COUNTY ACCEPTANCE.
9. GAP CONFIGURATION TO BE INSTALLED WITHIN 24 HOURS OR LESS AT THE DISCRETION OF THE WATER DISTRIBUTION DEPARTMENT.

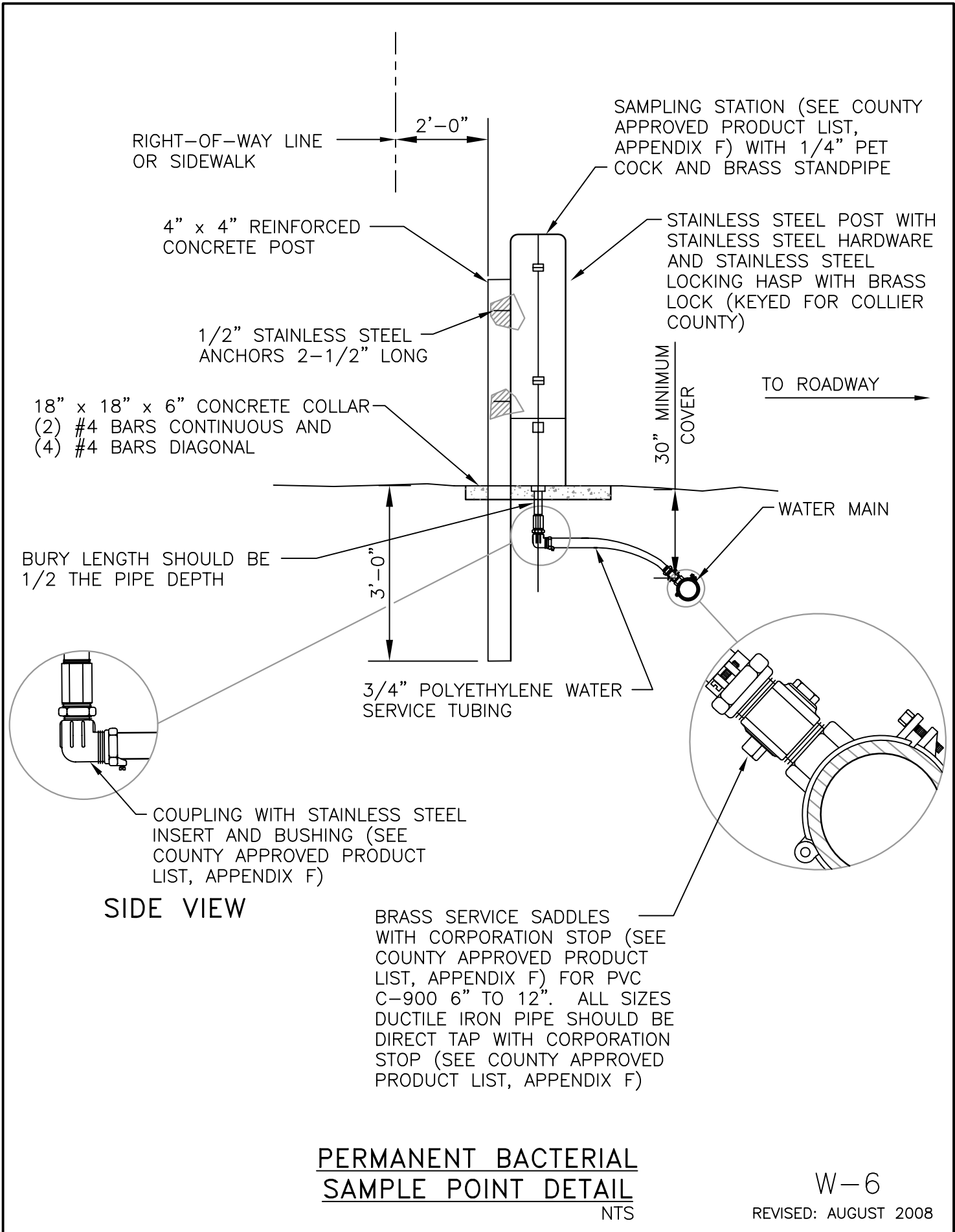
**CONNECTION TO EXISTING WATER MAIN DETAIL  
(GAP CONFIGURATION)**

NTS

W-4

REVISED: AUGUST 2008

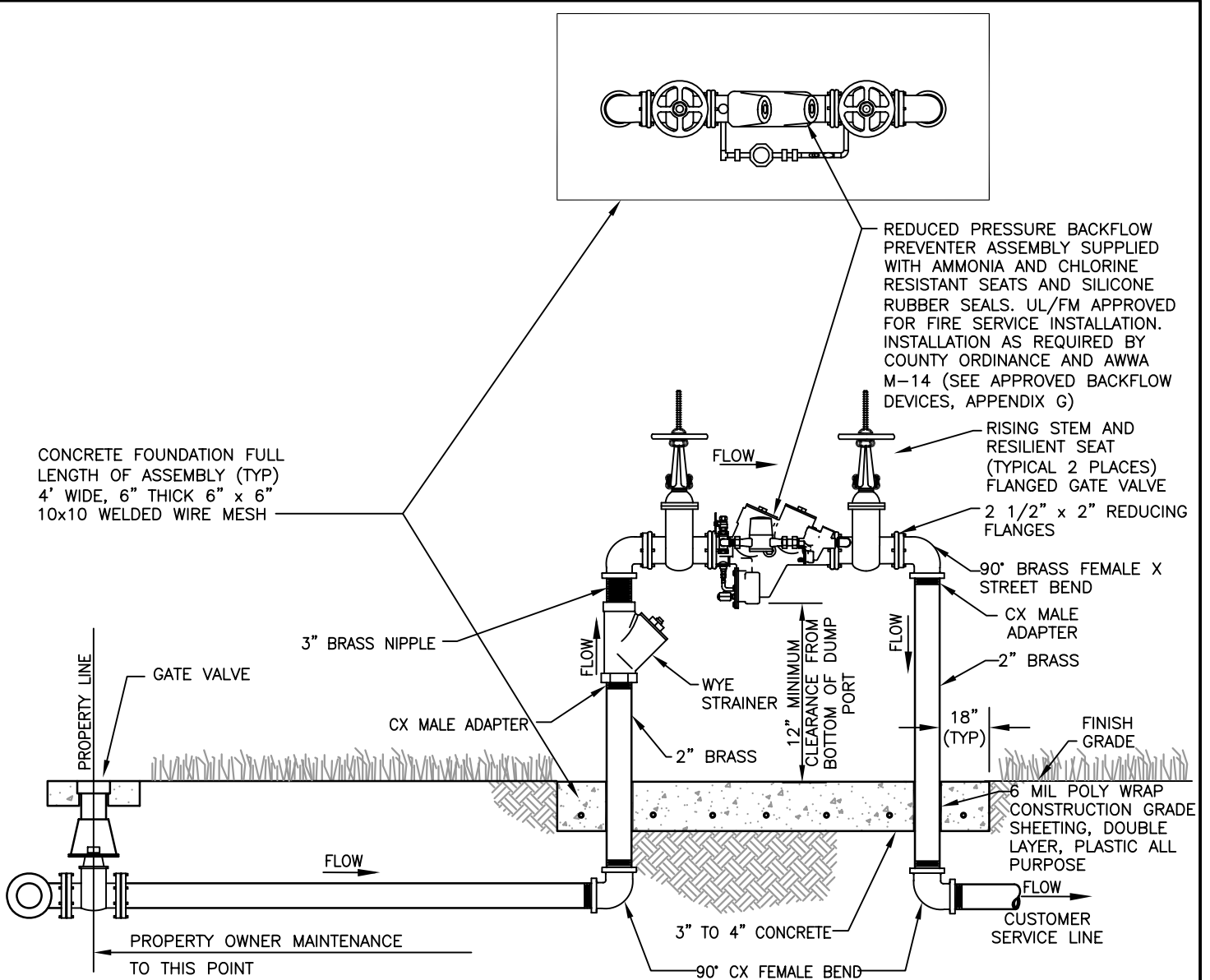




**SIDE VIEW**

**PERMANENT BACTERIAL  
SAMPLE POINT DETAIL**  
NTS

W-6  
REVISED: AUGUST 2008



**NOTES:**

1. CONNECTIONS REFER TO ANY OUTLET PERMITTING ACCESS TO INTERNAL FIRE SYSTEM (HYDRANTS, ETC).
2. ASSEMBLY WILL BE OWNED AND MAINTAINED BY PROPERTY OWNER, STARTING FROM THE GATE VALVE AT PROPERTY LINE.
3. BACKFLOW DEVICE REQUIRES INITIAL CERTIFICATION BY AN APPROVED CERTIFIED TESTER, WITH RESULTS AND ANNUAL TEST RESULTS SUBMITTED TO THE COUNTY WATER DEPARTMENT.
4. ALL PLANTING SHALL BE A MINIMUM OF 3' FROM EDGE OF SLAB, AND SHALL PROVIDE A 3' ACCESS OPENING.
5. THIS ASSEMBLY SHALL BE PAINTED WITH RED EPOXY PAINT.
6. ALL COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NSF STANDARD 61.
7. PROVIDE 3/4" BYPASS WITH FLOW METER.

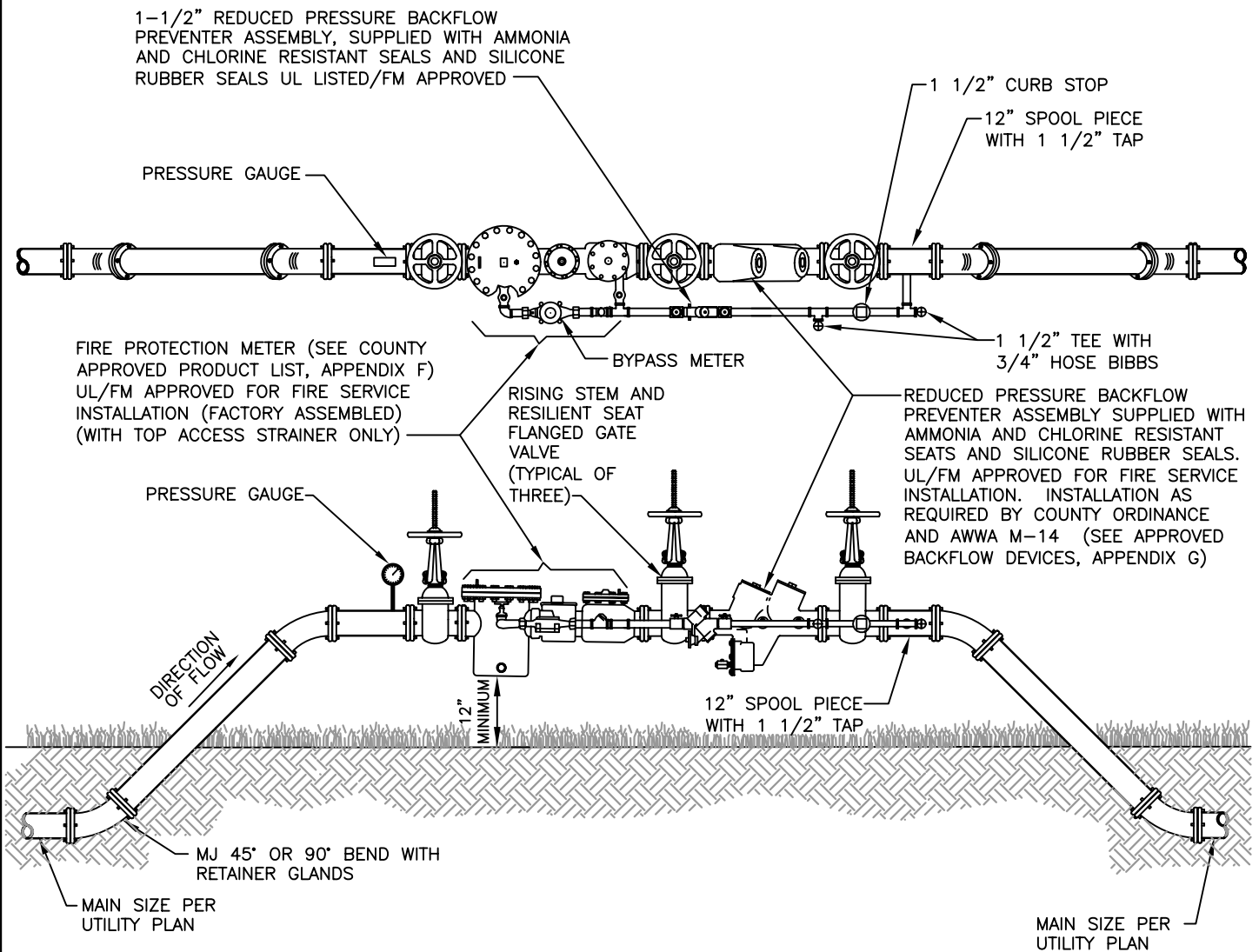
THIS DETAIL CONSTITUTES MINIMUM STANDARDS. DESIGN ENGINEERS SHALL PROVIDE STANDARDS EQUAL TO OR GREATER THAN THESE.

**2" AND 3" FIRE SYSTEM DETECTOR CHECK ASSEMBLY DETAIL**  
**WITH NO CONNECTIONS PERMITTED DOWNSTREAM**

NTS

W-8

REVISED: AUGUST 2008



**NOTES:**

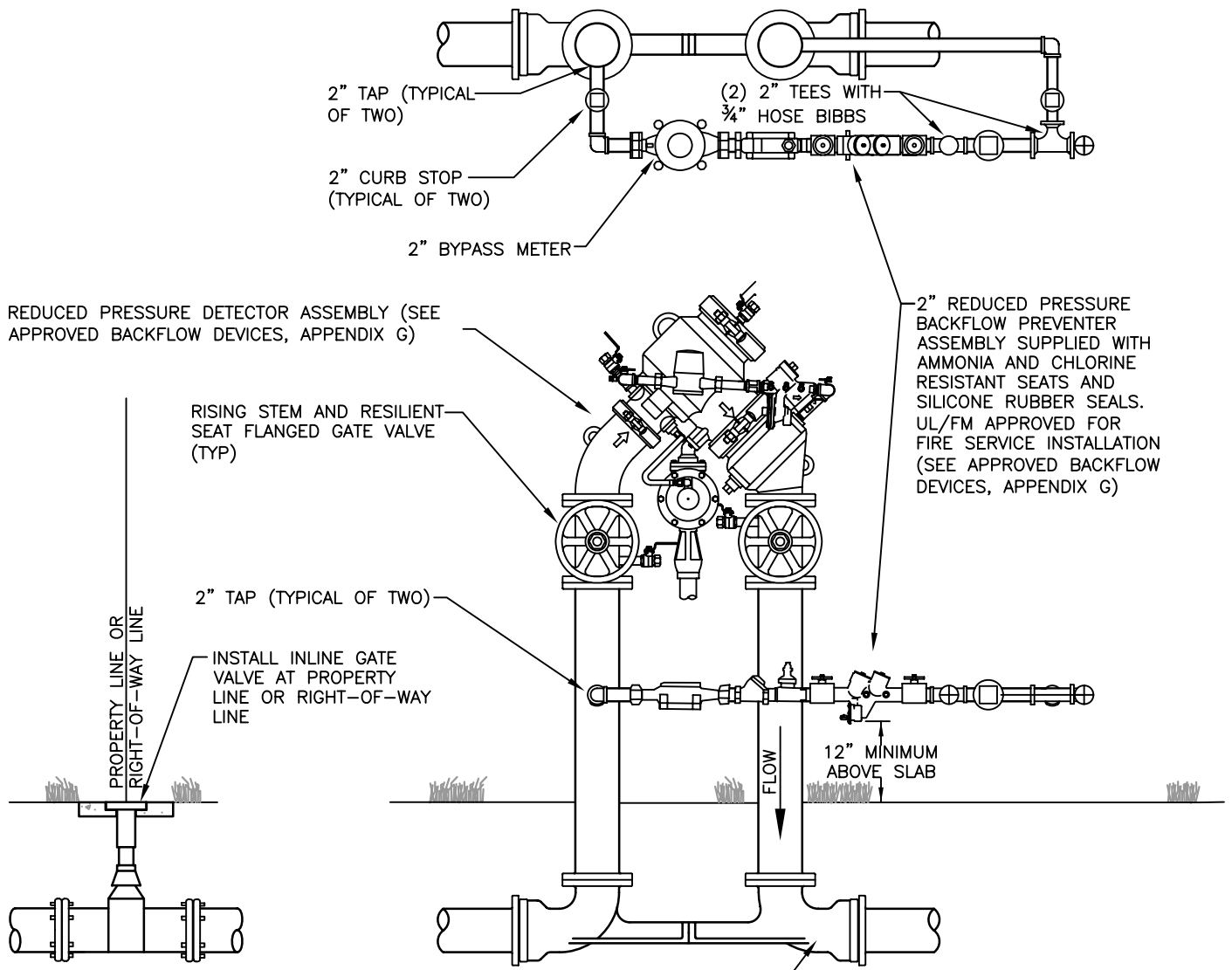
1. ALL ABOVE GROUND PIPE SHALL BE FLANGED END DUCTILE IRON PIPE, PRESSURE CLASS 350. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL.
2. WATER MAIN EXTENSION AND ASSEMBLY IS REQUIRED TO BE FLUSHED, CHLORINATED AND GIVEN BACTERIAL CLEARANCE BY THE WATER DEPARTMENT LAB BEFORE PLACEMENT IN SERVICE.
3. BACKFLOW UNIT AND METER REQUIRES INITIAL CERTIFICATION FOR OPERATION AND ACCURACY WITH RESULTS AND ANNUAL TESTS SUBMITTED TO THE COLLIER COUNTY WATER DEPARTMENT FOR RECERTIFICATION.
4. INSPECTIONS ARE REQUIRED FOR SYSTEM TIE-IN AND ASSEMBLY CONNECTION.
5. ALL PLANTINGS SHALL BE A MINIMUM OF 3' FROM THE EDGE OF SLAB, AND SHALL PROVIDE A 3' ACCESS OPENING.
6. ALL COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL COMFORM TO NSF STANDARD 61.
7. THIS ASSEMBLY SHALL BE PAINTED WITH RED EPOXY PAINT.

**TEMPORARY BACKFLOW PREVENTER AND  
FIRE PROTECTION METER TIE-IN ASSEMBLY**

NTS

W-9

REVISED: AUGUST 2008



**NOTES:**

1. ALL ABOVE GROUND PIPE SHALL BE FLANGED END DUCTILE IRON PIPE, PRESSURE CLASS 350. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL.
2. WATER MAIN EXTENSION AND ASSEMBLY IS REQUIRED TO BE FLUSHED, CHLORINATED AND GIVEN BACTERIAL CLEARANCE BY THE WATER DEPARTMENT LAB BEFORE PLACEMENT IN SERVICE.
3. BACKFLOW UNIT AND METER REQUIRES INITIAL CERTIFICATION FOR OPERATION AND ACCURACY WITH RESULTS AND ANNUAL TESTS SUBMITTED TO THE COLLIER COUNTY WATER DEPARTMENT FOR RECERTIFICATION.
4. INSPECTIONS ARE REQUIRED FOR SYSTEM TIE-IN AND ASSEMBLY CONNECTION.
5. ALL PLANTINGS SHALL BE A MINIMUM OF 3' FROM THE EDGE OF SLAB, AND SHALL PROVIDE A 3' ACCESS OPENING.
6. ALL COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL COMFORM TO NSF STANDARD 61.

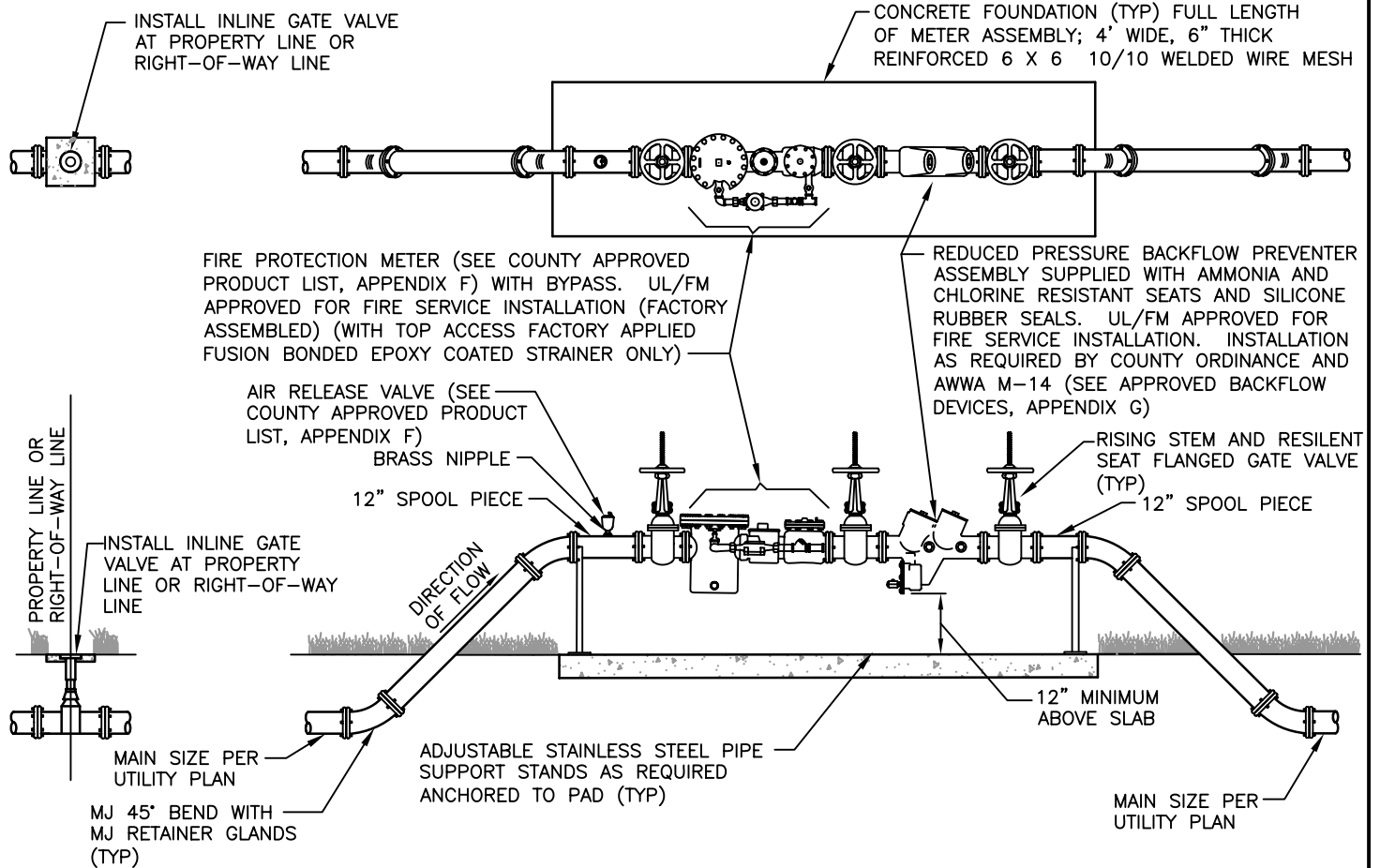
**ALTERNATE TEMPORARY BACKFLOW PREVENTER AND  
FIRE PROTECTION METER TIE-IN ASSEMBLY**

NTS

W-9A

REVISED: AUGUST 2008





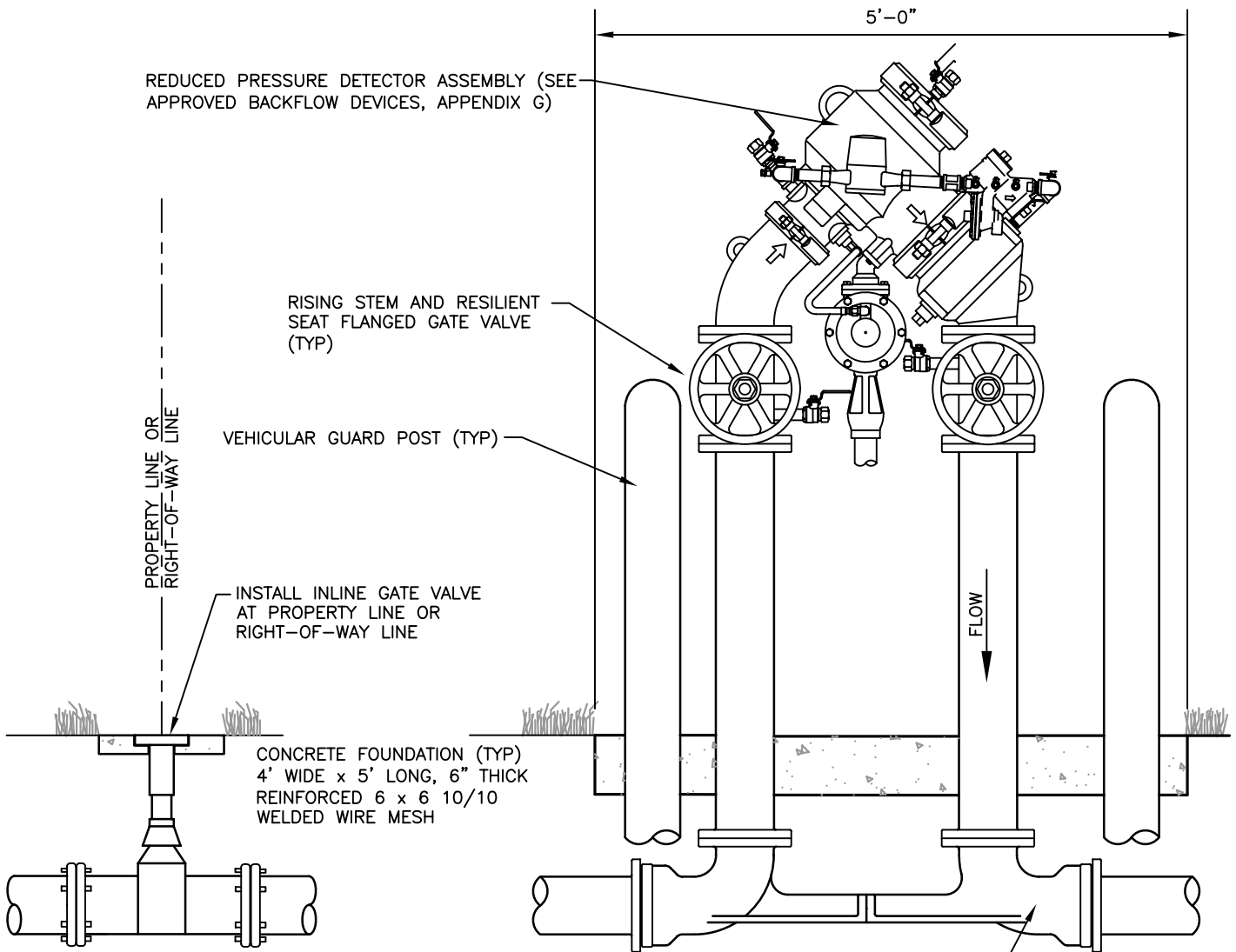
**NOTES:**

1. ALL ABOVE GROUND PIPE WILL HAVE FLANGED END DUCTILE IRON PIPE, PRESSURE CLASS 350. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL.
2. (4) VEHICULAR GUARD POSTS TO BE INSTALLED AROUND METER. CONFIGURATION TO BE ILLUSTRATED ON CONSTRUCTION DOCUMENTS SUBMITTED FOR REVIEW AND APPROVAL.
3. CONNECTIONS REFER TO ANY OUTLET PERMITTING ACCESS TO INTERNAL FIRE SYSTEM (HYDRANTS, ETC).
4. AS THIS UNIT WILL REQUIRE PERIODIC TESTING, FACILITIES REQUIRING CONTINUOUS WATER SERVICE MAY WISH TO INSTALL PARALLEL UNITS TO PREVENT SERVICE INTERRUPTIONS.
5. ASSEMBLY WILL BE OWNED AND MAINTAINED BY PROPERTY OWNER, STARTING FROM THE FIRST ISOLATION VALVE PRIOR TO ASSEMBLY.
6. COUNTY WILL REQUIRE DEDICATION OF THE MATERIAL UP TO AND PRIOR TO VALVE ON THE ASSEMBLY FROM THE COUNTY'S WATER MAIN.
7. BACKFLOW UNIT REQUIRES INITIAL CERTIFICATION BY AN APPROVED CERTIFIED TESTER WITH RESULTS AND ANNUAL TEST RESULTS SUBMITTED TO THE COUNTY WATER DEPARTMENT.
8. ALL PLANTINGS SHALL BE A MINIMUM OF 3' FROM THE EDGE OF SLAB, AND SHALL PROVIDE A 3' ACCESS OPENING.
9. THIS ASSEMBLY SHALL BE PAINTED WITH RED EPOXY PAINT.
10. ALL COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NSF STANDARD 61.
11. REFER TO APPROPRIATE SPECIFICATION IN MANUAL FOR GATE VALVES AND APPURTENANCES.

**FIRE SYSTEM DETECTOR CHECK ASSEMBLY DETAIL  
WITH CONNECTIONS PERMITTED DOWNSTREAM**

W-10  
REVISED: AUGUST 2008

NTS



**NOTES:**

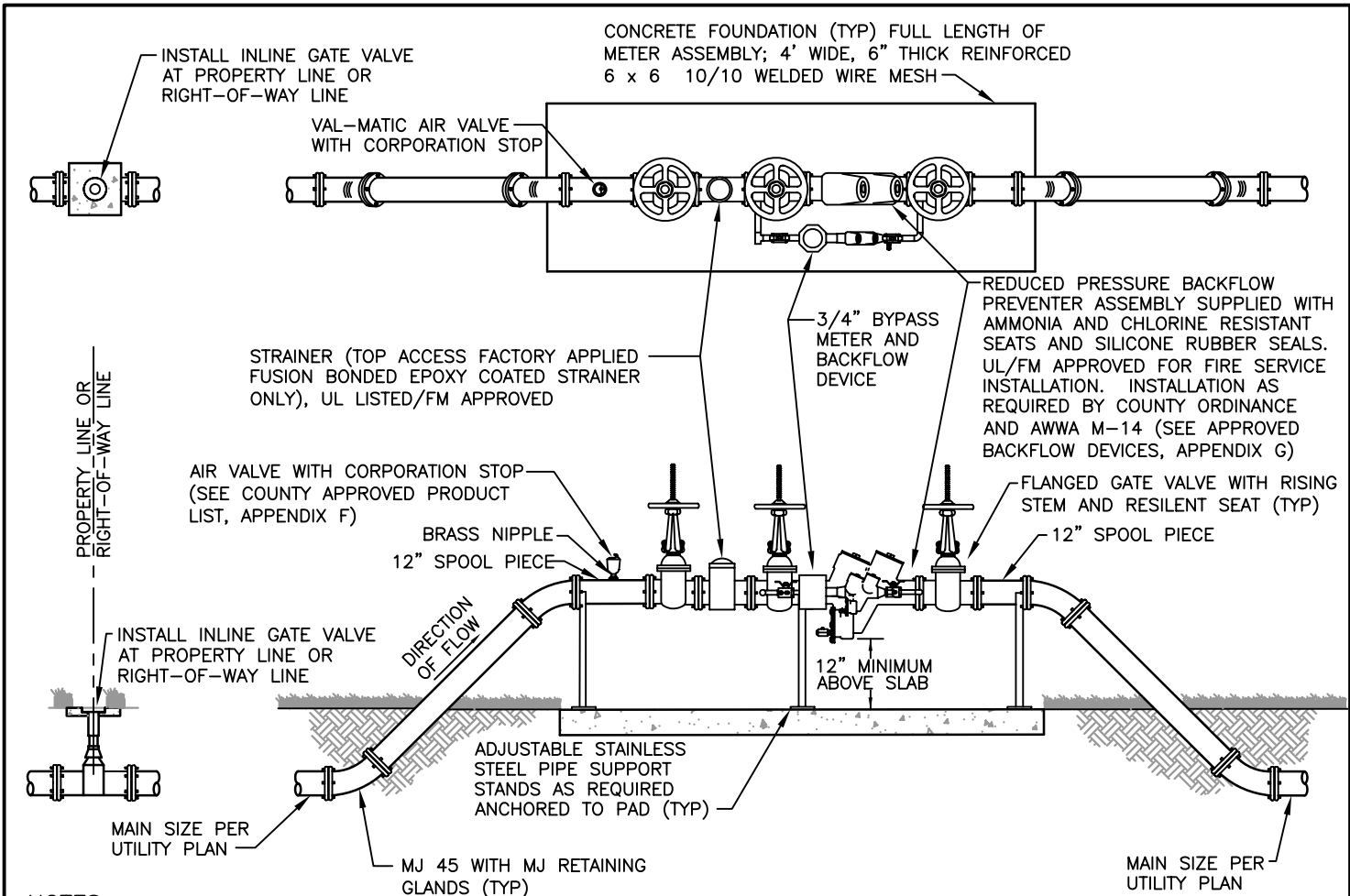
VALVE SETTER (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F)

1. ALL ABOVE GROUND PIPE WILL HAVE FLANGED END DUCTILE IRON PIPE, PRESSURE CLASS 350. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL.
2. (4) VEHICULAR GUARD POSTS TO BE INSTALLED AROUND METER. CONFIGURATION TO BE ILLUSTRATED ON CONSTRUCTION DOCUMENTS SUBMITTED FOR REVIEW AND APPROVAL.
3. CONNECTIONS REFER TO ANY OUTLET PERMITTING ACCESS TO INTERNAL FIRE SYSTEM (HYDRANTS, ETC).
4. AS THIS UNIT WILL REQUIRE PERIODIC TESTING, FACILITIES REQUIRING CONTINUOUS WATER SERVICE MAY WISH TO INSTALL PARALLEL UNITS TO PREVENT SERVICE INTERRUPTIONS.
5. ASSEMBLY WILL BE OWNED AND MAINTAINED BY PROPERTY OWNER, STARTING AFTER THE INLINE GATE VALVE AT THE PROPERTY LINE OR RIGHT-OF-WAY LINE.
6. BACKFLOW DEVICE REQUIRES INITIAL CERTIFICATION BY AN APPROVED CERTIFIED TESTER WITH RESULTS AND ANNUAL TEST RESULTS SUBMITTED TO THE COUNTY WATER DEPARTMENT
7. ALL PLANTING SHALL BE A MINIMUM OF 3' FROM THE EDGE OF SLAB, AND SHALL PROVIDE A 3' ACCESS OPENING.
8. ALL ABOVE GROUND PIPING, INCLUDING ASSEMBLY, SHALL BE PAINTED RUSTOLEUM FEDERAL SAFETY RED.
9. ALL COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NSF STANDARD 61.

**4" THROUGH 10" COMPACT FIRE SYSTEM DETECTOR CHECK ASSEMBLY DETAIL**  
**WITH CONNECTIONS PERMITTED DOWNSTREAM (WILKINS)**

NTS W-10A

REVISED: AUGUST 2008



**NOTES:**

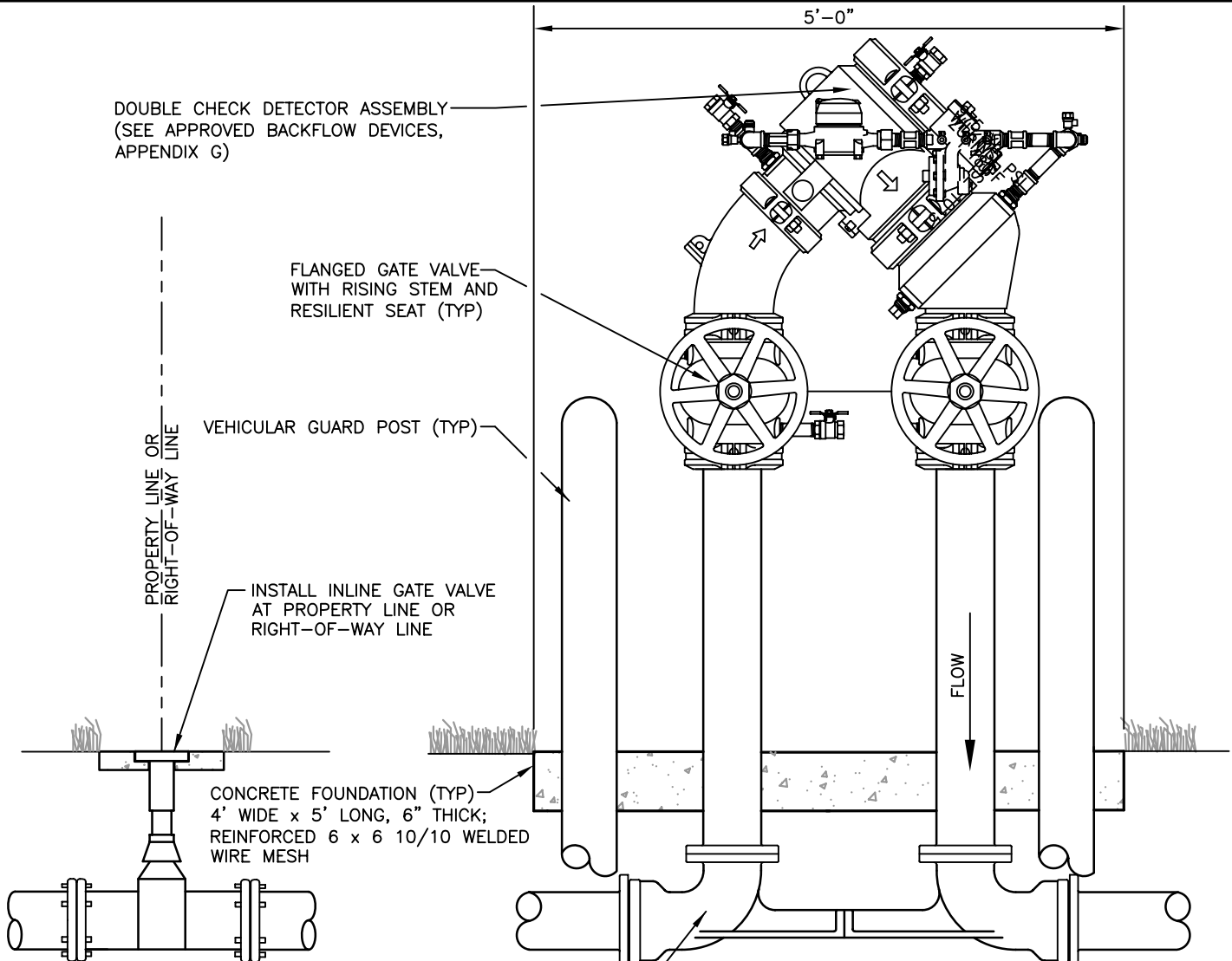
1. ALL ABOVE GROUND PIPE WILL HAVE FLANGED END DUCTILE IRON PIPE, CLASS 51. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL.
2. (4) VEHICULAR GUARD POSTS TO BE INSTALLED AROUND METER. CONFIGURATION TO BE ILLUSTRATED ON CONSTRUCTION DOCUMENTS SUBMITTED FOR REVIEW AND APPROVAL.
3. CONNECTIONS REFER TO ANY OUTLET PERMITTING ACCESS TO INTERNAL FIRE SYSTEM (HYDRANTS, ETC).
4. AS THIS UNIT WILL REQUIRE PERIODIC TESTING, FACILITIES REQUIRING CONTINUOUS WATER SERVICE MAY WISH TO INSTALL PARALLEL UNITS TO PREVENT SERVICE INTERRUPTIONS.
5. ASSEMBLY WILL BE OWNED AND MAINTAINED BY PROPERTY OWNER, STARTING FROM THE FIRST ISOLATION VALVE PRIOR TO ASSEMBLY.
6. COUNTY WILL REQUIRE DEDICATION OF MATERIAL UP TO AND PRIOR TO VALVE ON THE ASSEMBLY FROM THE COUNTY'S WATER MAIN.
7. BACKFLOW DEVICE REQUIRES INITIAL CERTIFICATION BY AN APPROVED CERTIFIED TESTER WITH RESULTS AND ANNUAL TEST RESULTS SUBMITTED TO THE COUNTY WATER DEPARTMENT.
8. ALL PLANTING SHALL BE A MINIMUM OF 3' FROM THE EDGE OF SLAB, AND SHALL PROVIDE A 3' ACCESS OPENING.
9. THIS ASSEMBLY SHALL BE PAINTED WITH RED EPOXY PAINT.
10. ALL COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NSF STANDARD 61.

**4" AND OVER FIRE SYSTEM DETECTOR CHECK ASSEMBLY DETAIL**  
**WITH NO CONNECTIONS PERMITTED DOWNSTREAM**

NTS

W-11

REVISED: AUGUST 2008



DOUBLE CHECK DETECTOR ASSEMBLY  
(SEE APPROVED BACKFLOW DEVICES,  
APPENDIX G)

FLANGED GATE VALVE  
WITH RISING STEM AND  
RESILIENT SEAT (TYP)

VEHICULAR GUARD POST (TYP)

PROPERTY LINE OR  
RIGHT-OF-WAY LINE

INSTALL INLINE GATE VALVE  
AT PROPERTY LINE OR  
RIGHT-OF-WAY LINE

CONCRETE FOUNDATION (TYP)  
4' WIDE x 5' LONG, 6" THICK;  
REINFORCED 6 x 6 10/10 WELDED  
WIRE MESH

**NOTES:**

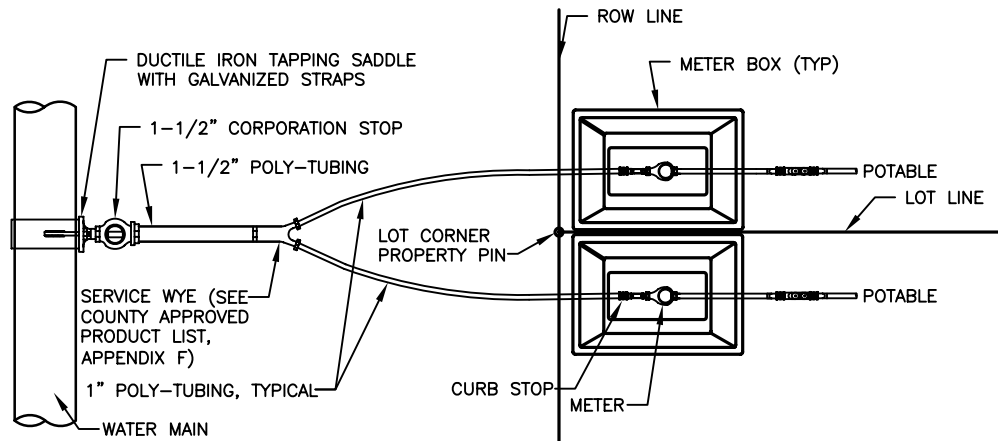
VALVE SETTER (SEE COUNTY  
APPROVED PRODUCT LIST, APPENDIX F)

1. ALL ABOVE GROUND PIPE WILL HAVE FLANGED END DUCTILE IRON PIPE, PRESSURE CLASS 350. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL.
2. (4) VEHICULAR GUARD POSTS TO BE INSTALLED AROUND METER. CONFIGURATION TO BE ILLUSTRATED ON CONSTRUCTION DOCUMENTS SUBMITTED FOR REVIEW AND APPROVAL.
3. CONNECTIONS REFER TO ANY OUTLET PERMITTING ACCESS TO INTERNAL FIRE SYSTEM (HYDRANTS, ETC).
4. AS THIS UNIT WILL REQUIRE PERIODIC TESTING, FACILITIES REQUIRING CONTINUOUS WATER SERVICE MAY WISH TO INSTALL PARALLEL UNITS TO PREVENT SERVICE INTERRUPTIONS.
5. ASSEMBLY WILL BE OWNED AND MAINTAINED BY PROPERTY OWNER, STARTING AFTER THE INLINE GATE VALVE AT THE PROPERTY LINE OR RIGHT-OF WAY LINE.
6. BACKFLOW DEVICE REQUIRES INITIAL CERTIFICATION BY AN APPROVED CERTIFIED TESTER WITH RESULTS AND ANNUAL TEST RESULTS SUBMITTED TO THE COUNTY WATER DEPARTMENT.
7. ALL PLANTING SHALL BE A MINIMUM OF 3' FROM THE EDGE OF SLAB, AND SHALL PROVIDE A 3' ACCESS OPENING.
8. ALL ABOVE GROUND PIPING INCLUDING ASSEMBLY SHALL BE PAINTED RUSTOLEUM FEDERAL SAFETY RED.
9. ALL COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NSF STANDARD 61.
10. PROVIDE 3/4" BYPASS WITH FLOW METER.

**4" THROUGH 10" ONLY COMPACT FIRE SYSTEM DETECTOR  
CHECK ASSEMBLY DETAIL WITH  
NO CONNECTIONS PERMITTED DOWNSTREAM (WILKINS)**  
NTS

W-11A

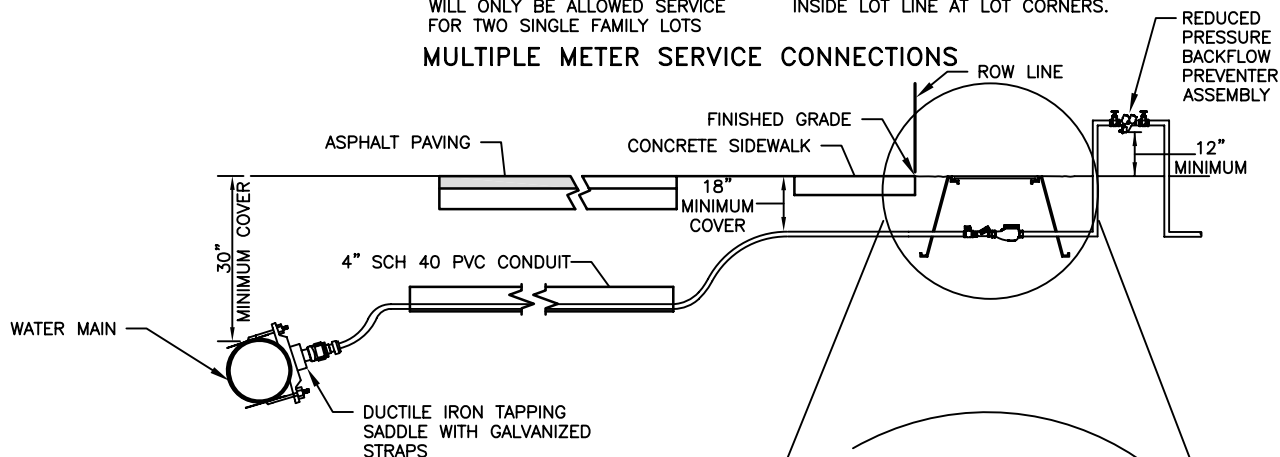
REVISED: AUGUST 2008



MULTI-SERVICE CONNECTIONS WILL ONLY BE ALLOWED SERVICE FOR TWO SINGLE FAMILY LOTS

PLACE CURB STOP AND METER BOX INSIDE LOT LINE AT LOT CORNERS.

### MULTIPLE METER SERVICE CONNECTIONS



#### NOTES:

1. CONNECTORS Y (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) SHALL BE USED FOR MULTI-SERVICE. SUCCESSIVE TAPS INTO WATER MAIN WILL BE NO CLOSER THAN 24" APART.
2. ALL CASING PIPE SHALL EXTEND A MINIMUM OF 5' BEYOND THE EDGE OF PAVEMENT, WITH A CASING DIAMETER TO BE NO LESS THAN 4". CONDUIT SHALL BE MARKED WITH A MAGNETIC MARKER (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F).
3. TAPPING SADDLE, CORPORATION STOP, POLY TUBING, CURB STOP, AND METER BOXES SHALL BE INSTALLED BY UNDERGROUND UTILITY CONTRACTOR AT THE TIME OF IRRIGATION MAIN INSTALLATION.
4. MATERIAL SPECIFICATIONS:
  - A. TAPPING SADDLES SHALL BE DUCTILE DOUBLE STRAP OR BRASS DOUBLE STRAP (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F). MINIMUM SADDLE SIZE 1-1/2".
  - B. CORPORATION STOPS (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) SHALL BE BALL TYPE AND MADE OF RED BRASS. OUTLET SHALL BE COMPRESSION TYPE POLYETHYLENE TUBE. COMPRESSION INSERT SHALL BE STAINLESS STEEL.
  - C. CURB STOPS (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) SHALL BE BALL TYPE AND MADE OF RED BRASS. INLET SHALL BE COMPRESSION JOINT. OUTLET SHALL BE SWIVEL NUT FOR METER CONNECTION.
  - D. TUBING SHALL BE POLYETHYLENE, PE3408, (AWWA C-901, SDS 9-200) AND BLUE IN COLOR; SIZES SHALL BE 1-1/2" UP TO WYE AND 1" AFTER WYE FOR LONG AND SHORT SIDE SERVICES.
  - E. AUTOMATIC METER READER (AMR) METER BOXES (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) SHALL HAVE CAST IRON READ LID.
  - F. POLYETHYLENE PIPE (PE) SHALL MEET THE REQUIREMENTS OF AWWA C-901.
5. ALL PLANTINGS SHALL BE A MINIMUM 3' FROM METER BOX.

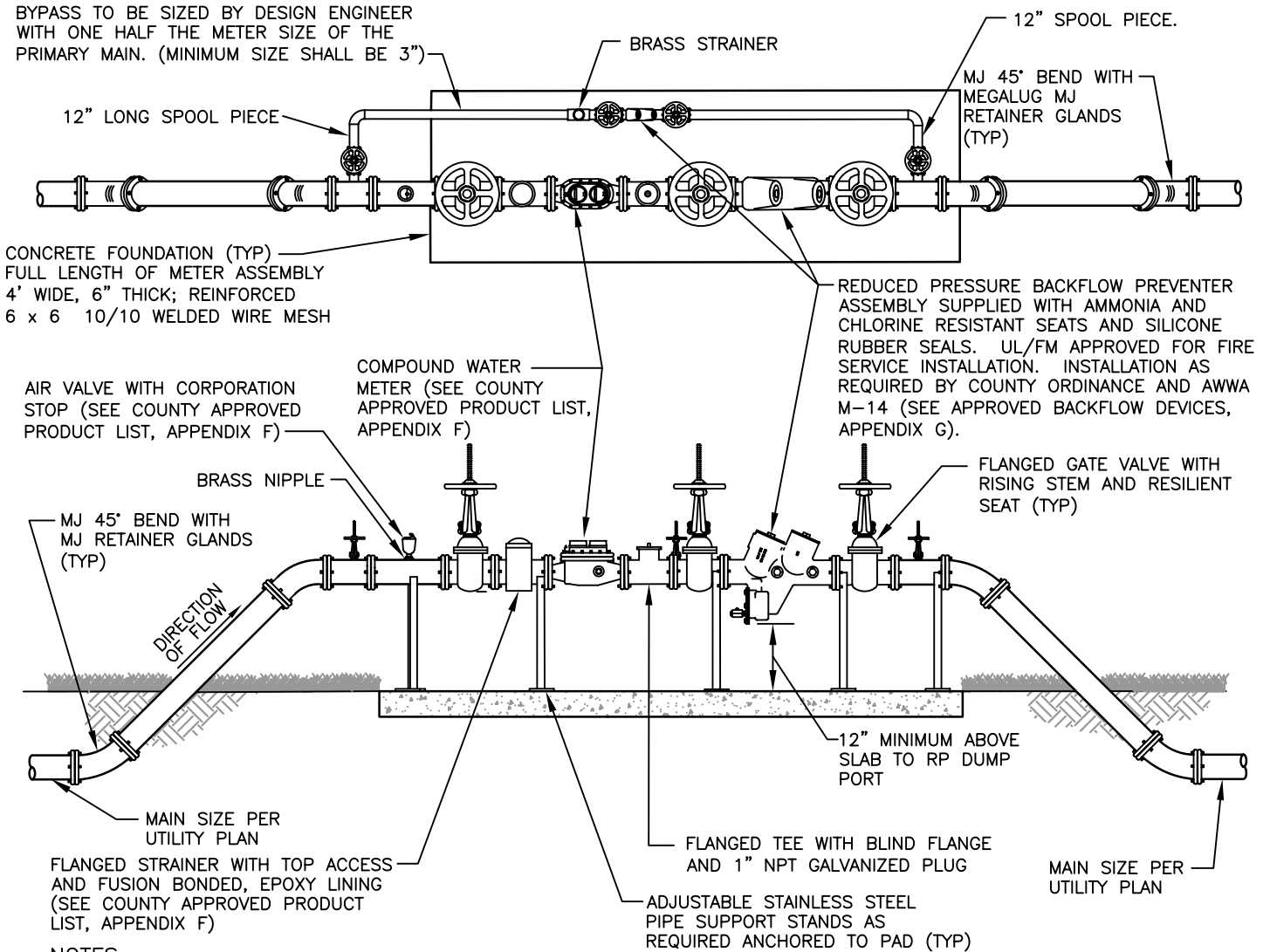
### TYPICAL SHORT AND LONG SIDE WATER SERVICE METER SETTING DETAIL FOR CONNECTION TO WATER MAIN

NTS

W-12

REVISED: AUGUST 2008

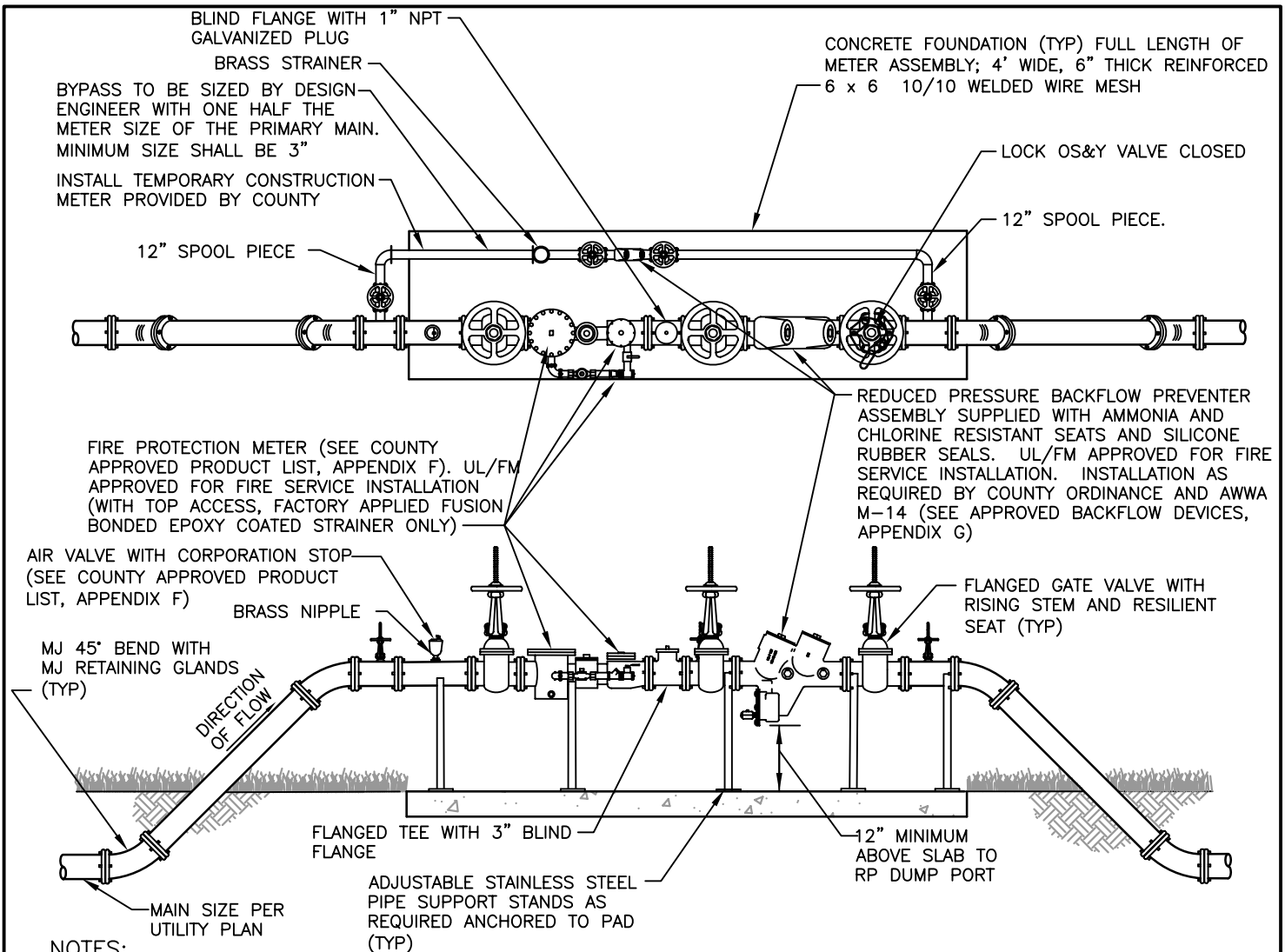
BYPASS TO BE SIZED BY DESIGN ENGINEER WITH ONE HALF THE METER SIZE OF THE PRIMARY MAIN. (MINIMUM SIZE SHALL BE 3")



**NOTES:**

1. ALL ABOVE GROUND PIPES WILL BE FLANGED END DUCTILE IRON PIPE, PRESSURE CLASS 350. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL.
2. (4) VEHICULAR GUARD POSTS TO BE INSTALLED AROUND METER. LOCATION TO BE FIELD DETERMINED BY THE ENGINEER OR HIS DESIGNEE.
3. THIS ASSEMBLY IS PERMITTED FOR POTABLE SERVICE ONLY.
4. A FULL SIZE BYPASS SHALL BE INSTALLED TO PREVENT A REDUCTION IN FLOW DURING PERIODIC TESTING.
5. BACKFLOW UNITS SHALL BE TESTED BY CERTIFIED BACKFLOW TECHNICIAN WITH TEST RESULTS SUBMITTED TO THE COUNTY WATER DEPARTMENT FOR CERTIFICATION AND APPROVAL.
6. COUNTY WILL REQUIRE DEDICATION OF ALL MATERIALS AND EQUIPMENT FROM THE METER ASSEMBLY BACK TO THE COUNTY WATER MAIN.
7. ALL PLANTINGS SHALL BE A MINIMUM OF 3' FROM EDGE OF SLAB, AND SHALL PROVIDE A 3' ACCESS OPENING.
8. ALL COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NSF STANDARD 61.

**3" AND OVER POTABLE WATER METER  
ASSEMBLY DETAIL  
NTS**

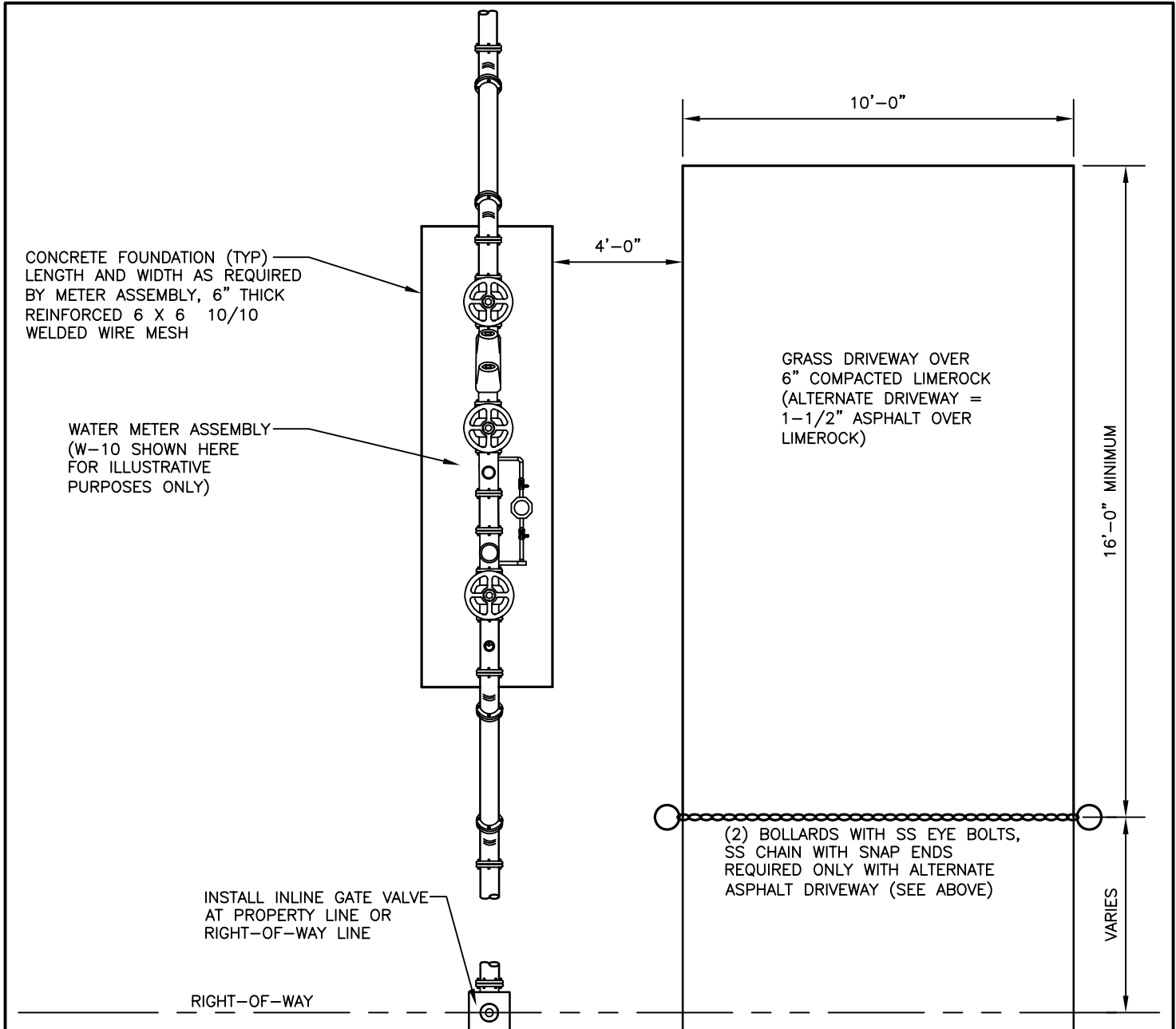


**NOTES:**

1. ALL ABOVE GROUND PIPE WILL HAVE FLANGED END DUCTILE IRON PIPE, PRESSURE CLASS 350. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL.
2. (4) VEHICULAR GUARD POSTS TO BE INSTALLED AROUND METER. CONFIGURATION TO BE ILLUSTRATED ON CONSTRUCTION DOCUMENTS SUBMITTED FOR REVIEW AND APPROVAL.
3. THIS ASSEMBLY IS PERMITTED FOR COMBINATION FIRE AND POTABLE WATER SERVICE.
4. AS THIS UNIT WILL REQUIRE PERIODIC TESTING, FACILITIES REQUIRING CONTINUOUS WATER SERVICE SHALL PROVIDE PARALLEL UNITS OR FULL SIZE BYPASSES TO PREVENT SERVICE INTERRUPTIONS.
5. BACKFLOW DEVICE REQUIRES INITIAL CERTIFICATION BY AN APPROVED CERTIFIED TESTER WITH RESULTS SUBMITTED TO THE COUNTY WATER DEPARTMENT.
6. COUNTY REQUIRES DEDICATION OF ALL ABOVE GROUND MATERIAL AND EQUIPMENT FROM THE METER ASSEMBLY BACK TO THE COUNTY MAIN.
7. ALL PLANTING SHALL BE A MINIMUM OF 3' FROM THE EDGE OF SLAB, AND SHALL PROVIDE A 3' ACCESS OPENING.
8. STRAINER SHALL HAVE FUSION-BONDED EPOXY COATING.
9. A 4' x 8' SIGN WITH 3" LETTERS OR BIGGER SHALL READ: IN CASE OF FIRE OPEN VALVE.
10. ALL COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NSF STANDARD 61.

**4" AND OVER POTABLE WATER FIRE AND WATER METER  
ASSEMBLY DETAIL  
(WITH TEMPORARY CONSTRUCTION METER)**

NTS



CONCRETE FOUNDATION (TYP)  
 LENGTH AND WIDTH AS REQUIRED  
 BY METER ASSEMBLY, 6" THICK  
 REINFORCED 6 X 6 10/10  
 WELDED WIRE MESH

WATER METER ASSEMBLY  
 (W-10 SHOWN HERE  
 FOR ILLUSTRATIVE  
 PURPOSES ONLY)

GRASS DRIVEWAY OVER  
 6" COMPACTED LIMEROCK  
 (ALTERNATE DRIVEWAY =  
 1-1/2" ASPHALT OVER  
 LIMEROCK)

INSTALL INLINE GATE VALVE  
 AT PROPERTY LINE OR  
 RIGHT-OF-WAY LINE

RIGHT-OF-WAY

(2) BOLLARDS WITH SS EYE BOLTS,  
 SS CHAIN WITH SNAP ENDS  
 REQUIRED ONLY WITH ALTERNATE  
 ASPHALT DRIVEWAY (SEE ABOVE)

16'-0" MINIMUM

VARIES

**NOTES:**

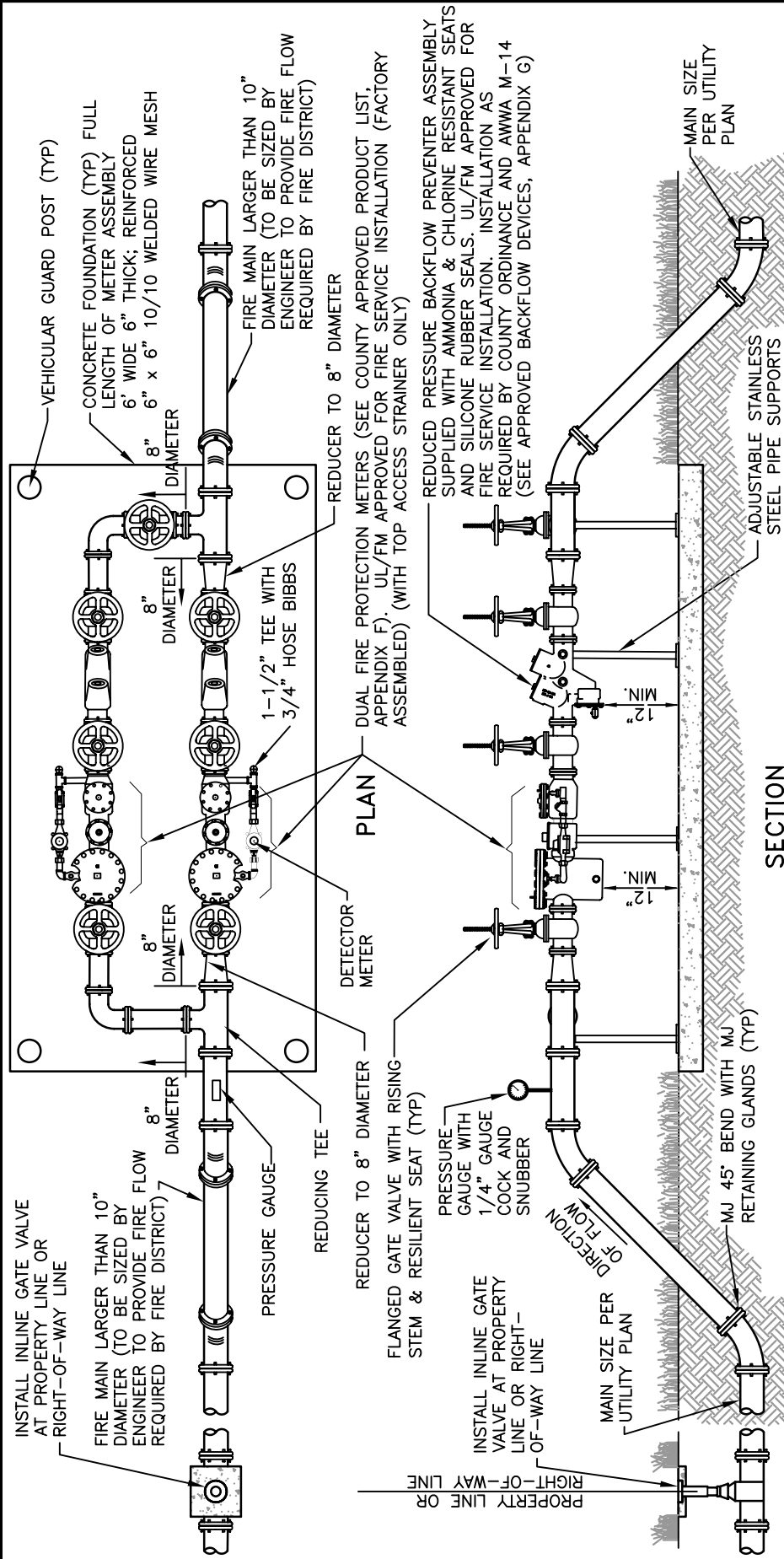
1. CONSTRUCT DRIVEWAY PER FLORIDA D.O.T. INDEX 515.
2. VEHICULAR GUARDPOSTS ARE NOT SHOWN. PROVIDE GUARDPOSTS AS REQUIRED BY WATER METER DETAIL AND SITE.
3. DRIVEWAY ORIENTATION TO BE AS APPROVED BY THE COUNTY.
4. MAINTENANCE ACCESS SHALL BE INCLUDED IN COUNTY UTILITY EASEMENT.
5. IF ROADWAY CURB EXISTS, PROVIDE CONCRETE TRANSITION ONTO DRIVEWAY.

EDGE OF PAVEMENT

**MAINTENANCE DRIVEWAY FOR WATER METERS  
 3" AND LARGER  
 NTS**

W-14A  
 REVISED: SEPTEMBER 2006





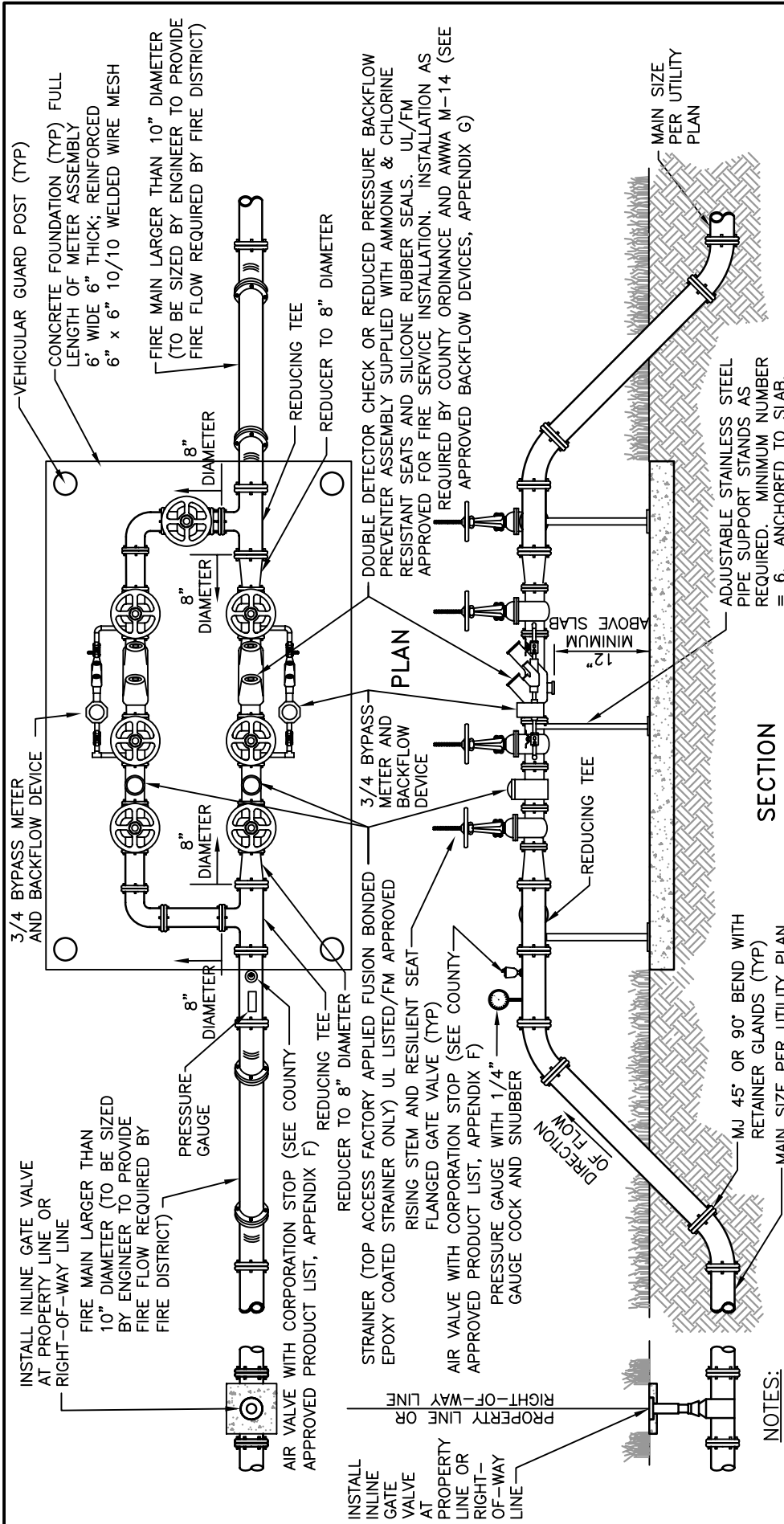
**NOTES:**

1. ALL ABOVE GROUND PIPE WILL HAVE FLANGED END DUCTILE IRON PIPE, PRESSURE CLASS 350. ALL NUTS & BOLTS SHALL BE STAINLESS STEEL.
2. (4) VEHICULAR GUARD POSTS TO BE INSTALLED AROUND METER. CONFIGURATION TO BE ILLUSTRATED ON CONSTRUCTION DOCUMENTS SUBMITTED FOR REVIEW AND APPROVAL.
3. CONNECTIONS REFER TO ANY OUTLET PERMITTING ACCESS TO INTERNAL FIRE SYSTEM (HYDRANTS, ETC).
4. AS THIS UNIT WILL REQUIRE PERIODIC TESTING, FACILITIES REQUIRING CONTINUOUS WATER SERVICE MAY WISH TO INSTALL PARALLEL UNITS TO PREVENT SERVICE INTERRUPTIONS.
5. ASSEMBLY WILL BE OWNED AND MAINTAINED BY PROPERTY OWNER,
6. BACKFLOW DEVICE REQUIRES INITIAL CERTIFICATION BY AN APPROVED CERTIFIED TESTER WITH RESULTS AND ANNUAL TEST RESULTS SUBMITTED TO THE COUNTY WATER DEPARTMENT.
7. ALL PLANTING SHALL BE A MINIMUM OF 3' FROM THE EDGE OF SLAB, AND SHALL PROVIDE A 3' ACCESS OPENING.
8. ALL ABOVE GROUND PIPING INCLUDING ASSEMBLY SHALL BE PAINTED RUSTOLEUM FEDERAL SAFETY RED.
9. ALL COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NSF STANDARD 61.
10. STRAINER SHALL HAVE FUSION-BONDED EPOXY COATING.

W-15

**FIRE SERVICE DUAL METER ASSEMBLY  
WITH CONNECTIONS PERMITTED OVER 10" FIRE MAIN (DUAL 8" METERS)**

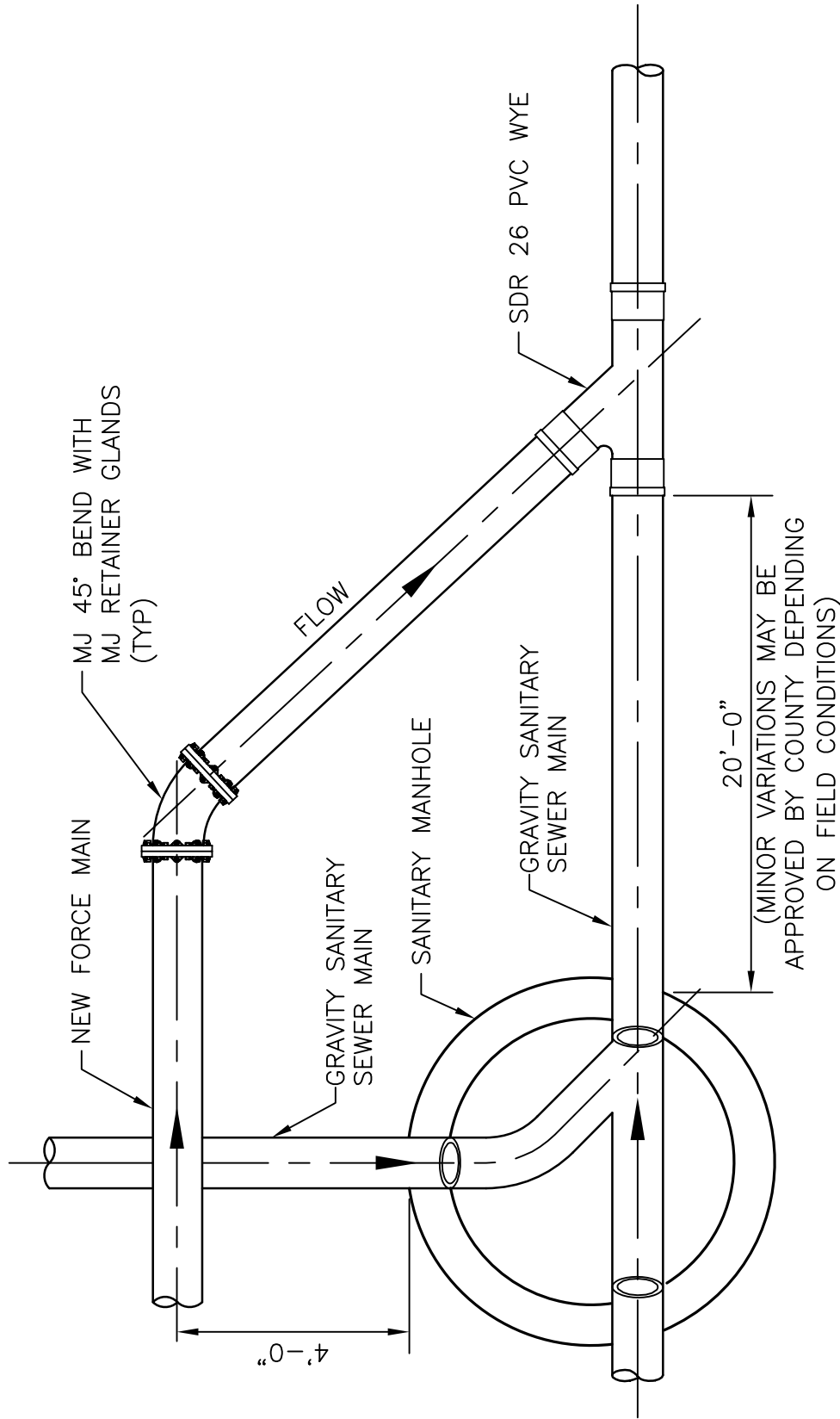
NIS



**SECTION**

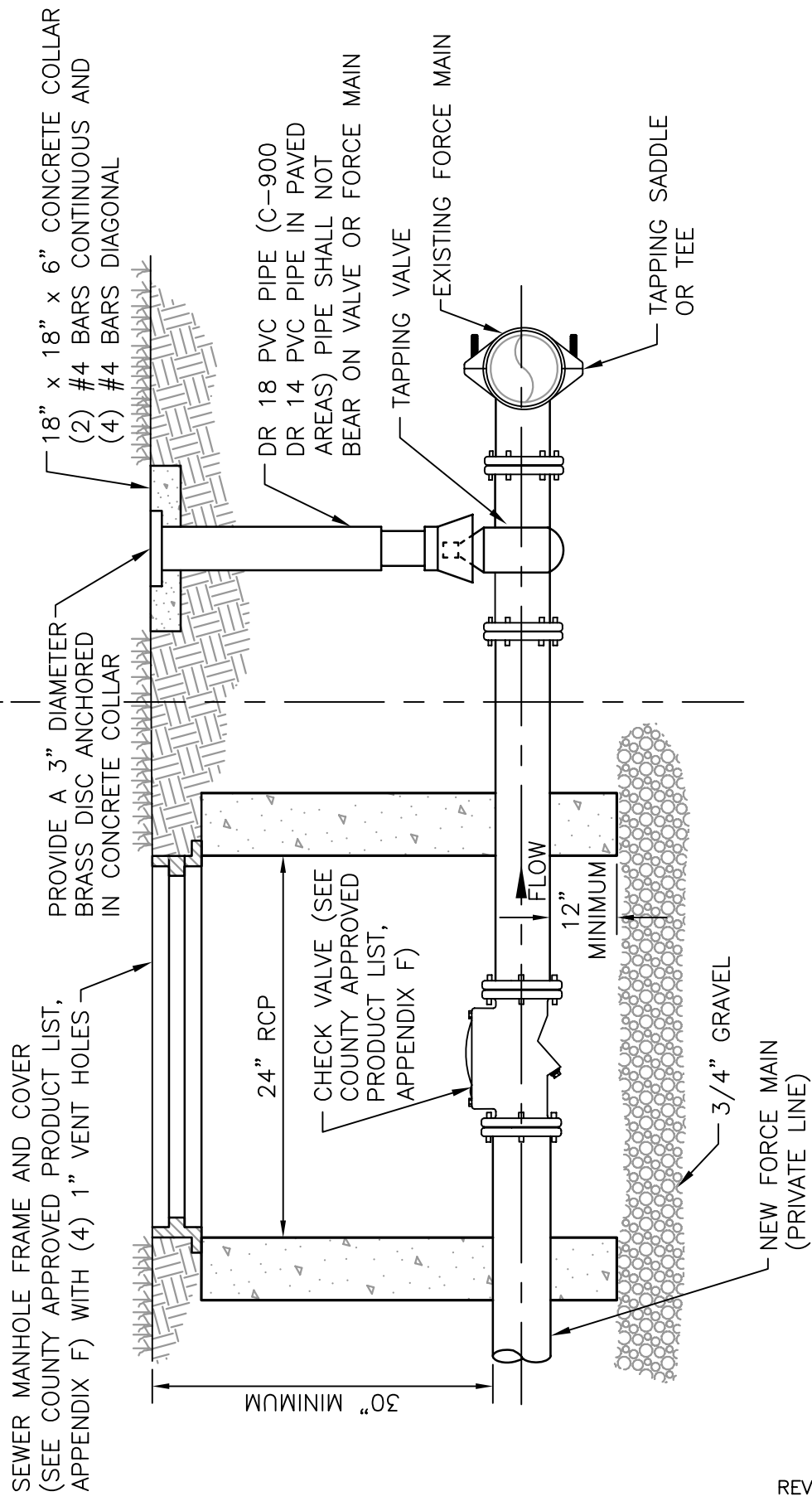
- NOTES:**
1. ALL ABOVE GROUND PIPE WILL HAVE FLANGED END DUCTILE IRON PIPE PRESSURE CLASS 350, ALL NUTS & BOLTS SHALL BE STAINLESS STEEL.
  2. (4) VEHICULAR GUARD POSTS TO BE INSTALLED AROUND METER. CONFIGURATION TO BE ILLUSTRATED ON CONSTRUCTION DOCUMENTS SUBMITTED FOR REVIEW AND APPROVAL.
  3. CONNECTIONS REFER TO ANY OUTLET PERMITTING ACCESS TO INTERNAL FIRE SYSTEM (HYDRANTS, ETC).
  4. AS THIS UNIT WILL REQUIRE PERIODIC TESTING, FACILITIES REQUIRING CONTINUOUS WATER SERVICE MAY WISH TO INSTALL PARALLEL UNITS TO PREVENT SERVICE INTERRUPTIONS.
  5. ASSEMBLY WILL BE OWNED AND MAINTAINED BY PROPERTY OWNER.
  6. BACKFLOW DEVICE REQUIRES INITIAL CERTIFICATION BY AN APPROVED CERTIFIED TESTER WITH RESULTS AND ANNUAL TEST RESULTS SUBMITTED TO THE COUNTY WATER DEPARTMENT.
  7. ALL PLANTING SHALL BE A MINIMUM OF 3' FROM THE EDGE OF SLAB, AND SHALL PROVIDE A 3' ACCESS OPENING.
  8. ALL ABOVE GROUND PIPING INCLUDING ASSEMBLY SHALL BE PAINTED RUSTOLEUM FEDERAL SAFETY RED.
  9. ALL COMPONENTS THAT COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NSF STANDARD 61.
  10. STRAINER SHALL HAVE FUSION-BONDED EPOXY COATING.

**WITH NO CONNECTIONS PERMITTED OVER 10" FIRE MAIN (DUAL 8" METERS)**

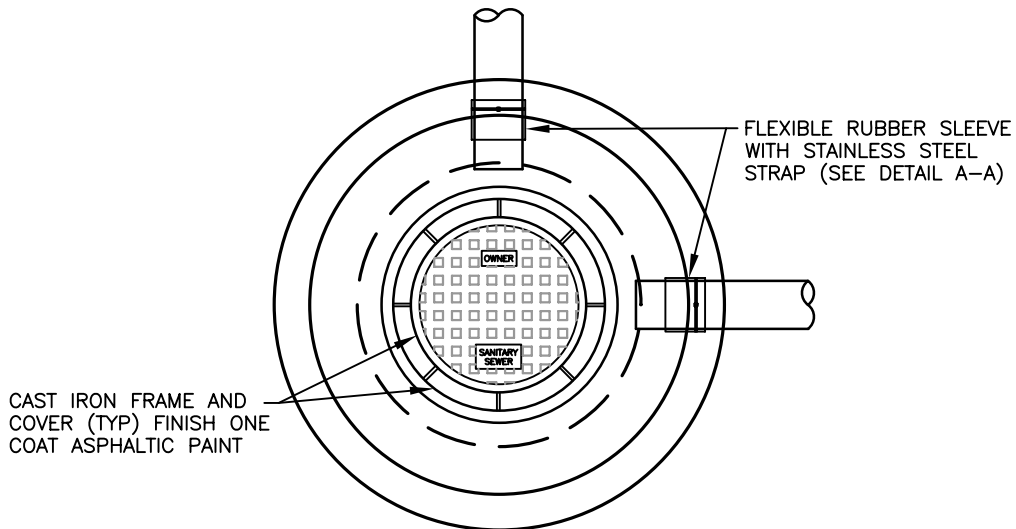


FORCE MAIN CONNECTION TO  
GRAVITY SANITARY SEWER DETAIL  
 NTS

PRIVATELY OWNED SITE COUNTY RIGHT-OF-WAY OR C.U.E.

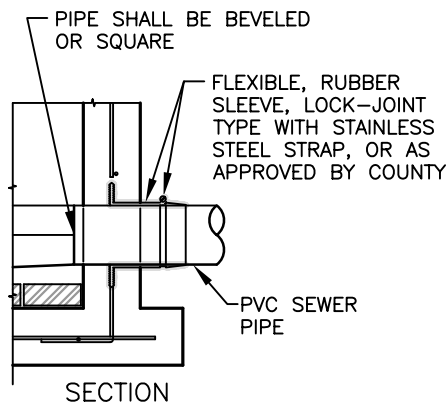


PRIVATE FORCE MAIN CONNECTION  
TO COUNTY FORCE MAIN DETAIL  
NTS

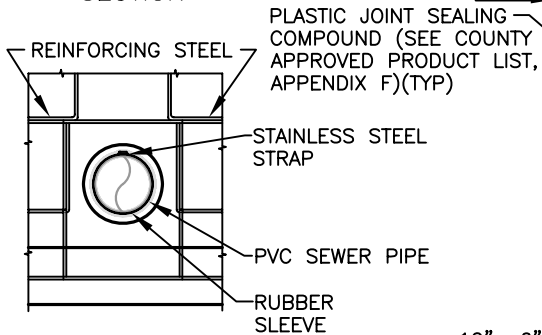


PLAN

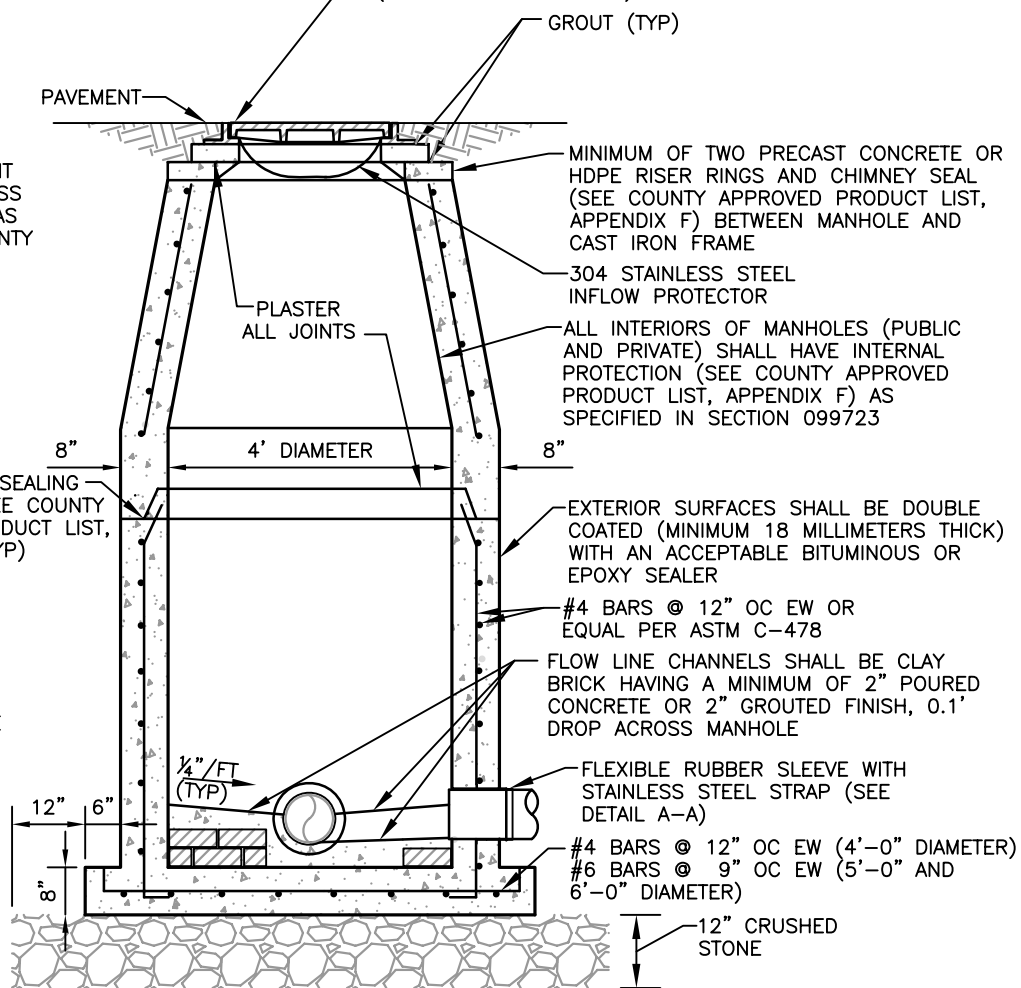
WATERTIGHT SEWER MANHOLE FRAME AND COVER (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) FLUSH WITH GRADE (24" MINIMUM DIAMETER)



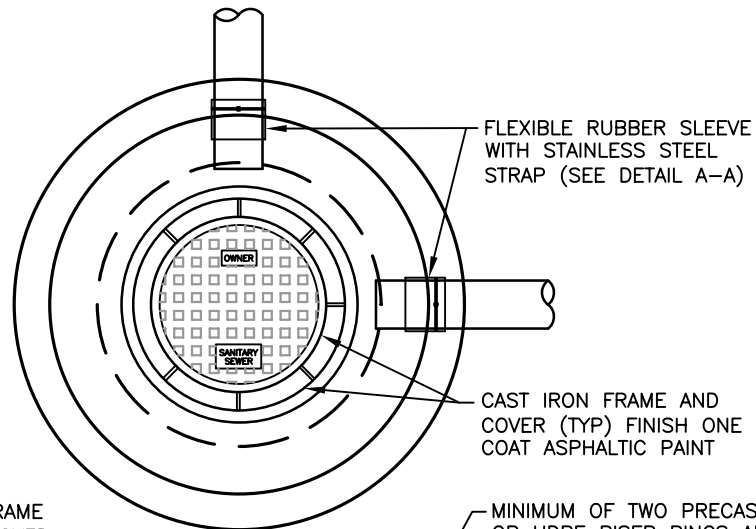
SECTION



ELEVATION  
DETAIL A-A



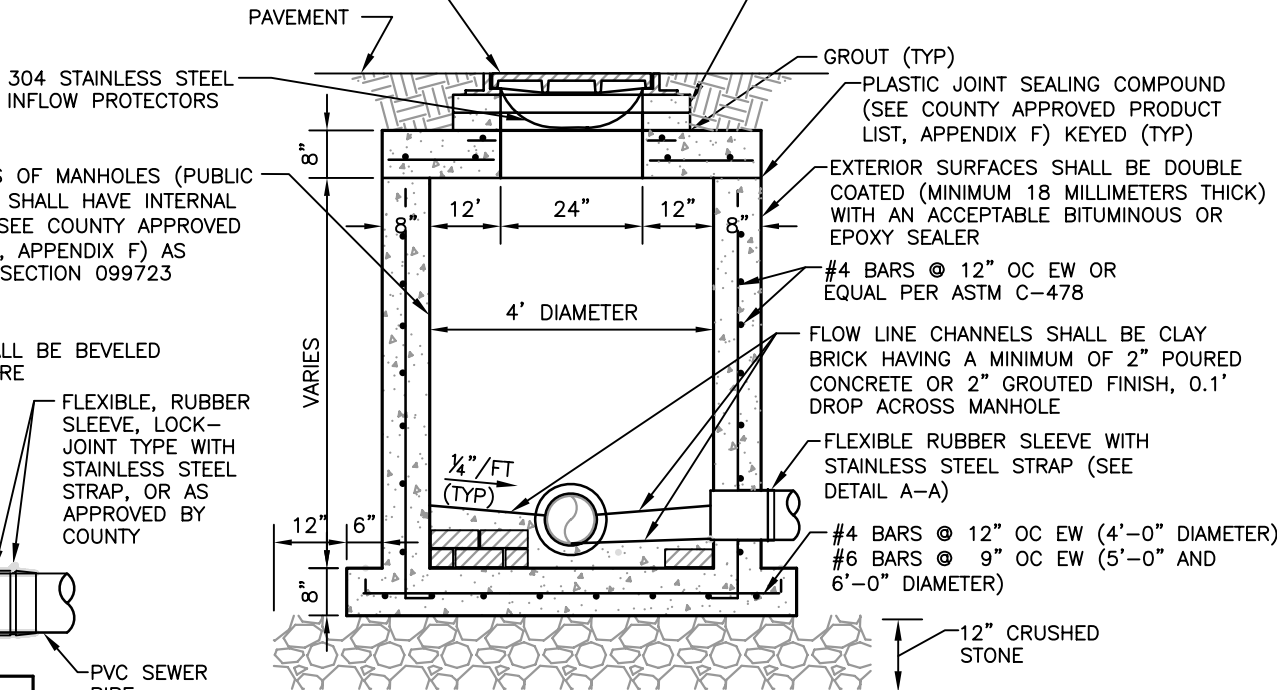
SECTION



PLAN

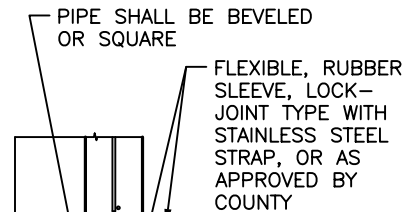
WATERTIGHT SEWER MANHOLE FRAME AND COVER (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) FLUSH WITH GRADE (24" MINIMUM DIAMETER)

MINIMUM OF TWO PRECAST CONCRETE OR HDPE RISER RINGS AND CHIMNEY SEAL (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) BETWEEN MANHOLE AND CAST IRON FRAME

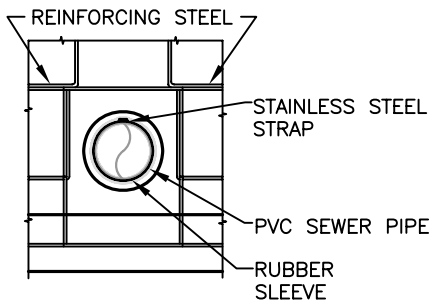


SECTION

ALL INTERIORS OF MANHOLES (PUBLIC AND PRIVATE) SHALL HAVE INTERNAL PROTECTION (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) AS SPECIFIED IN SECTION 099723



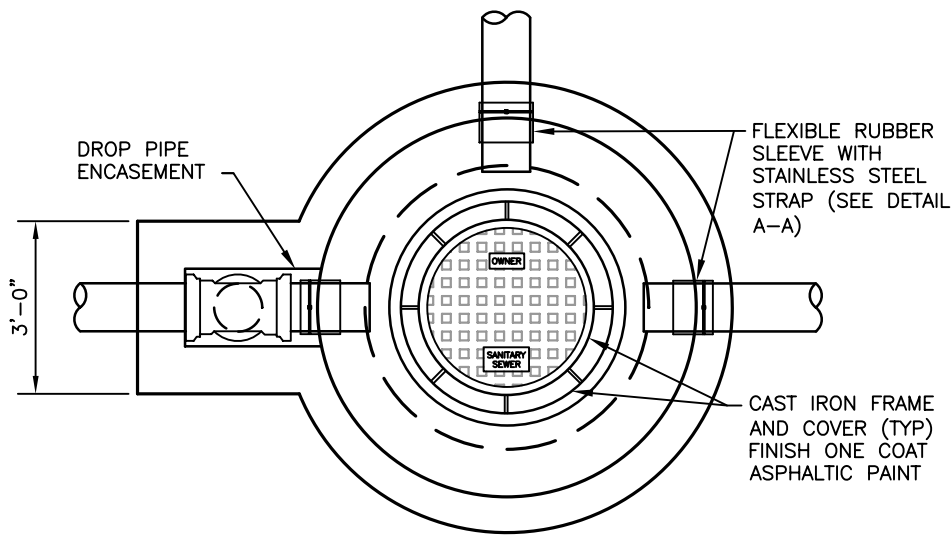
SECTION



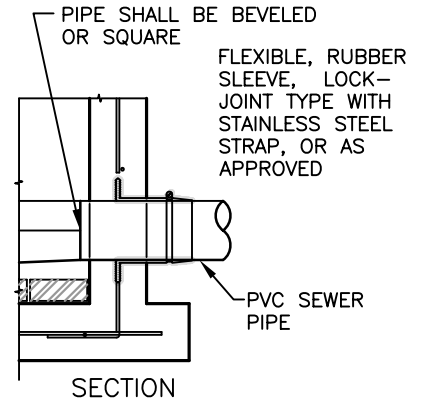
ELEVATION

DETAIL A-A

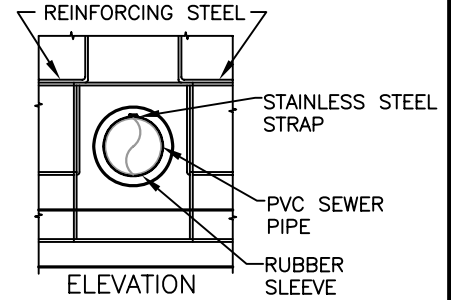
SHALLOW MANHOLE DETAIL  
NTS



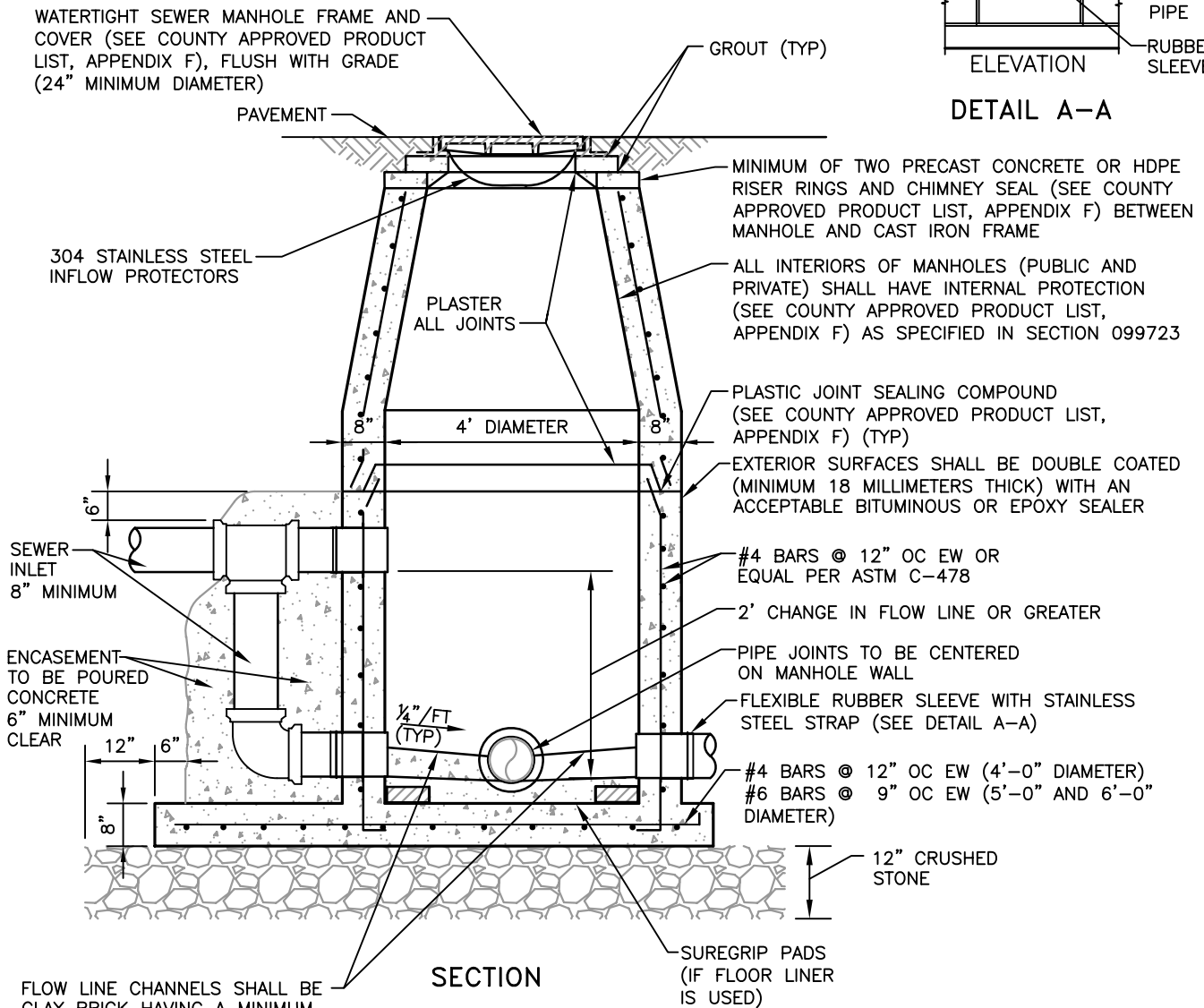
PLAN



SECTION



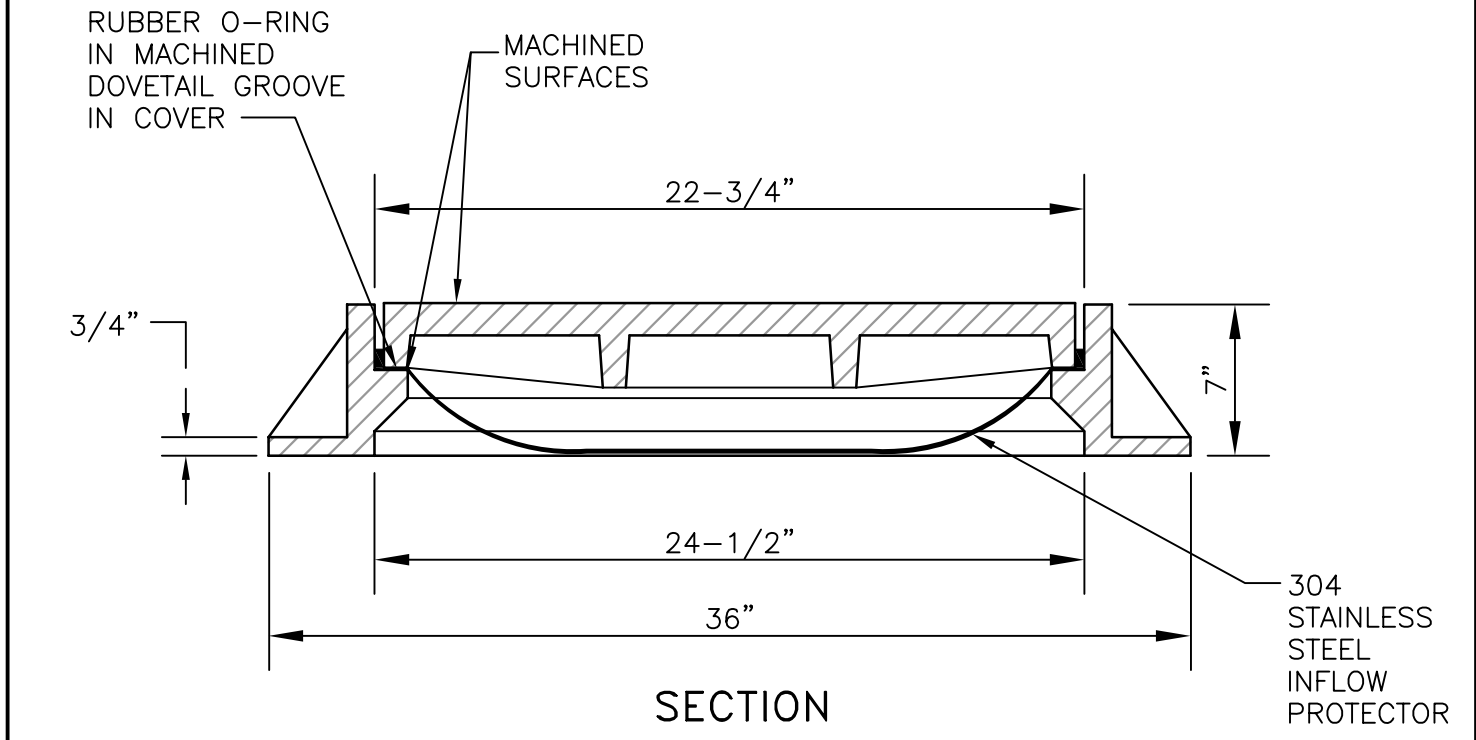
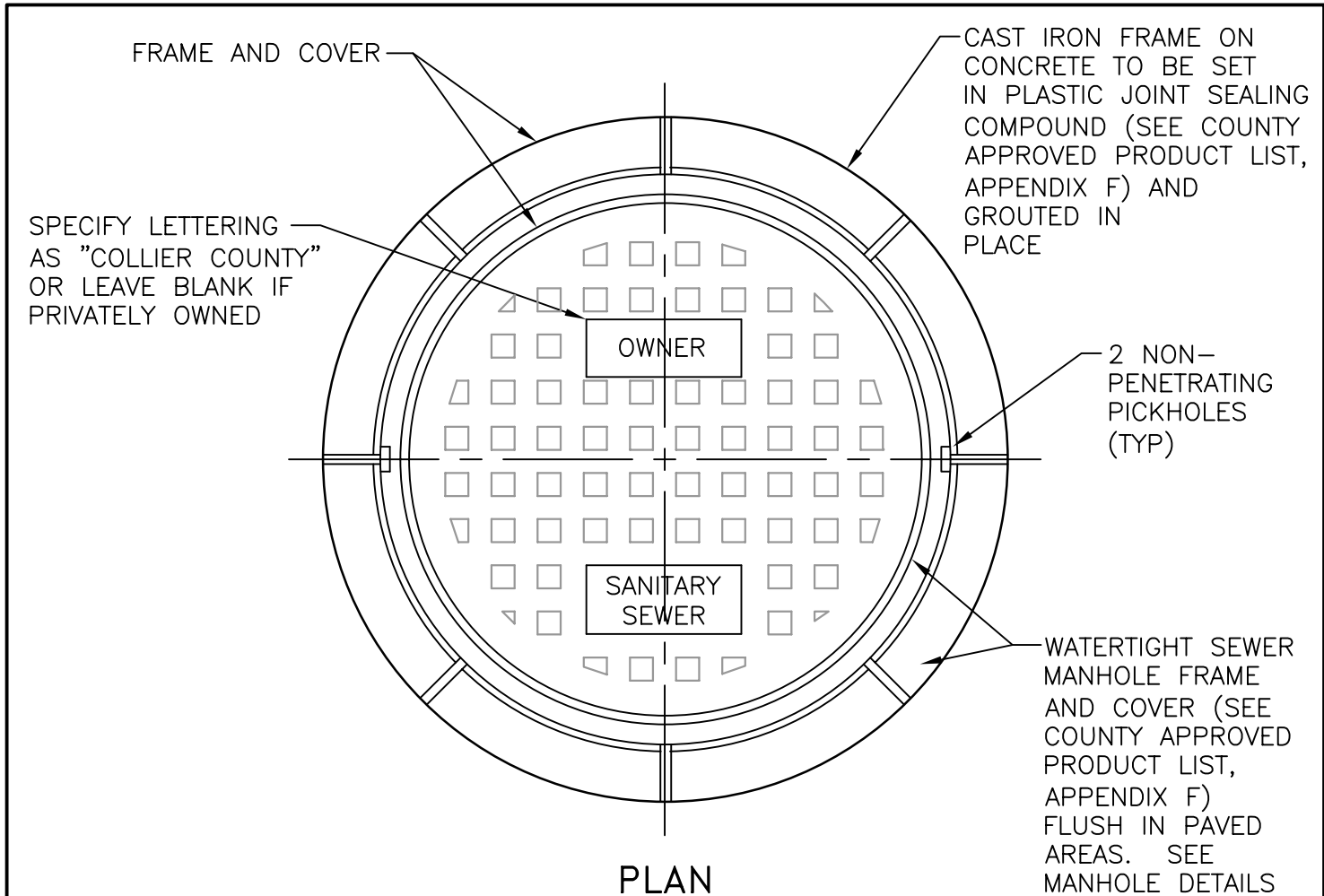
DETAIL A-A



SECTION

FLOW LINE CHANNELS SHALL BE CLAY BRICK HAVING A MINIMUM OF 2" POURED CONCRETE OR 2" GROUTED FINISH, 0.1' DROP ACROSS MANHOLE

**DROP MANHOLE DETAIL**  
NTS



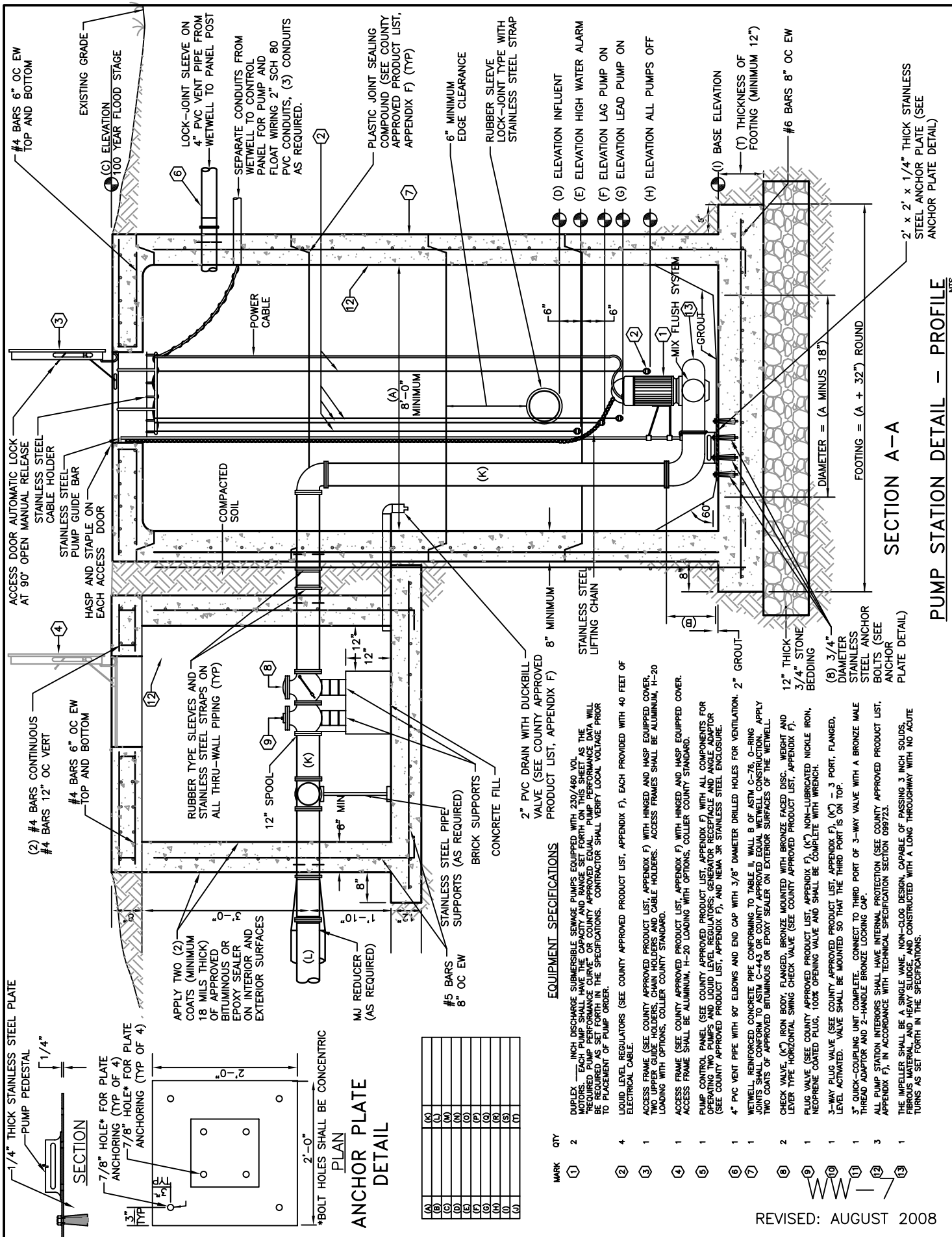
**MANHOLE RING AND COVER DETAIL**

NTS

WW-6

REVISED: AUGUST 2008





MARK	QTY
(1)	2
(2)	4
(3)	1
(4)	1
(5)	1
(6)	1
(7)	1
(8)	2
(9)	1
(10)	1
(11)	1
(12)	3
(13)	1

**EQUIPMENT SPECIFICATIONS**

(1) 1/4" THICK STAINLESS STEEL PLATE ANCHOR PLATE DETAIL

(2) DUPLEX 1/2" DISCHARGE SUBMERSIBLE SEWAGE PUMPS EQUIPPED WITH 230/460 VOL. MOTORS. EACH PUMP SHALL HAVE THE CAPACITY AND RANGE SET FORTH ON THIS SHEET AS THE REQUIRED PUMP PERFORMANCE CURVE\* OR COUNTY APPROVED EQUAL. PUMP PERFORMANCE DATA WILL BE REQUIRED AS SET FORTH IN THE SPECIFICATIONS. CONTRACTOR SHALL VERIFY LOCAL VOLTAGE PRIOR TO PLACEMENT OF PUMP ORDER.

(3) LIQUID LEVEL REGULATORS (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F), EACH PROVIDED WITH 40 FEET OF ELECTRICAL CABLE.

(4) ACCESS FRAME (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) WITH HINGED AND HASP EQUIPPED COVER. TWO UPPER GUIDE HOLDERS, CHAIN HOLDERS AND CABLE HOLDERS. ACCESS FRAMES SHALL BE ALUMINUM, H-20 LOADING WITH OPTIONS, COLLIER COUNTY STANDARD.

(5) ACCESS FRAME (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) WITH HINGED AND HASP EQUIPPED COVER. ACCESS FRAME SHALL BE ALUMINUM, H-20 LOADING WITH OPTIONS, COLLIER COUNTY STANDARD.

(6) PUMP CONTROL PANEL (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) WITH ALL COMPONENTS FOR OPERATING TWO PUMPS (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F), AND NEHA OR STAINLESS STEEL ENCLOSURE.

(7) 4" PVC VENT PIPE WITH 90° ELBOWS AND END CAP WITH 3/8" DIAMETER DRILLED HOLES FOR VENTILATION. 2" GROUT.

(8) WETWELL, REINFORCED CONCRETE PIPE CONFORMING TO TABLE II, WALL B OF ASTM C-76. O-RING APPLY JOINTS SHALL CONFORM TO ASTM C-743 OR COUNTY APPROVED EQUAL WETWELL CONSTRUCTION. TWO COATS OF APPROVED BITUMINOUS OR EPOXY SEALER ON EXTERIOR SURFACES OF THE WETWELL.

(9) CHECK VALVE, (K\*) IRON BODY, FLANGED, BRONZE MOUNTED WITH BRONZE FACED DISC. WEIGHT AND LEVER TYPE HORIZONTAL SPRING CHECK VALVE (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F).

(10) PLUG VALVE (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F), (K\*) NON-LUBRICATED NICKLE IRON, NEOPRENE COATED PLUG, 100% OPENING VALVE AND SHALL BE COMPLETE WITH WRENCH.

(11) 3-WAY PLUG VALVE (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F), (K\*) - 3 PORT, FLANGED, LEVEL ACTIVATED. VALVE SHALL BE MOUNTED SO THAT THE THIRD PORT IS ON TOP.

(12) 3" QUICK-COUPLING UNIT, COMPLETE. CONNECT TO THIRD PORT OF 3-WAY VALVE WITH A BRONZE MALE THREAD ADAPTOR AND 2-HANDLE BRONZE LOCKING CAP.

(13) ALL PUMP STATION INTERIORS SHALL HAVE INTERNAL PROTECTION (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F), IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 09972Z.

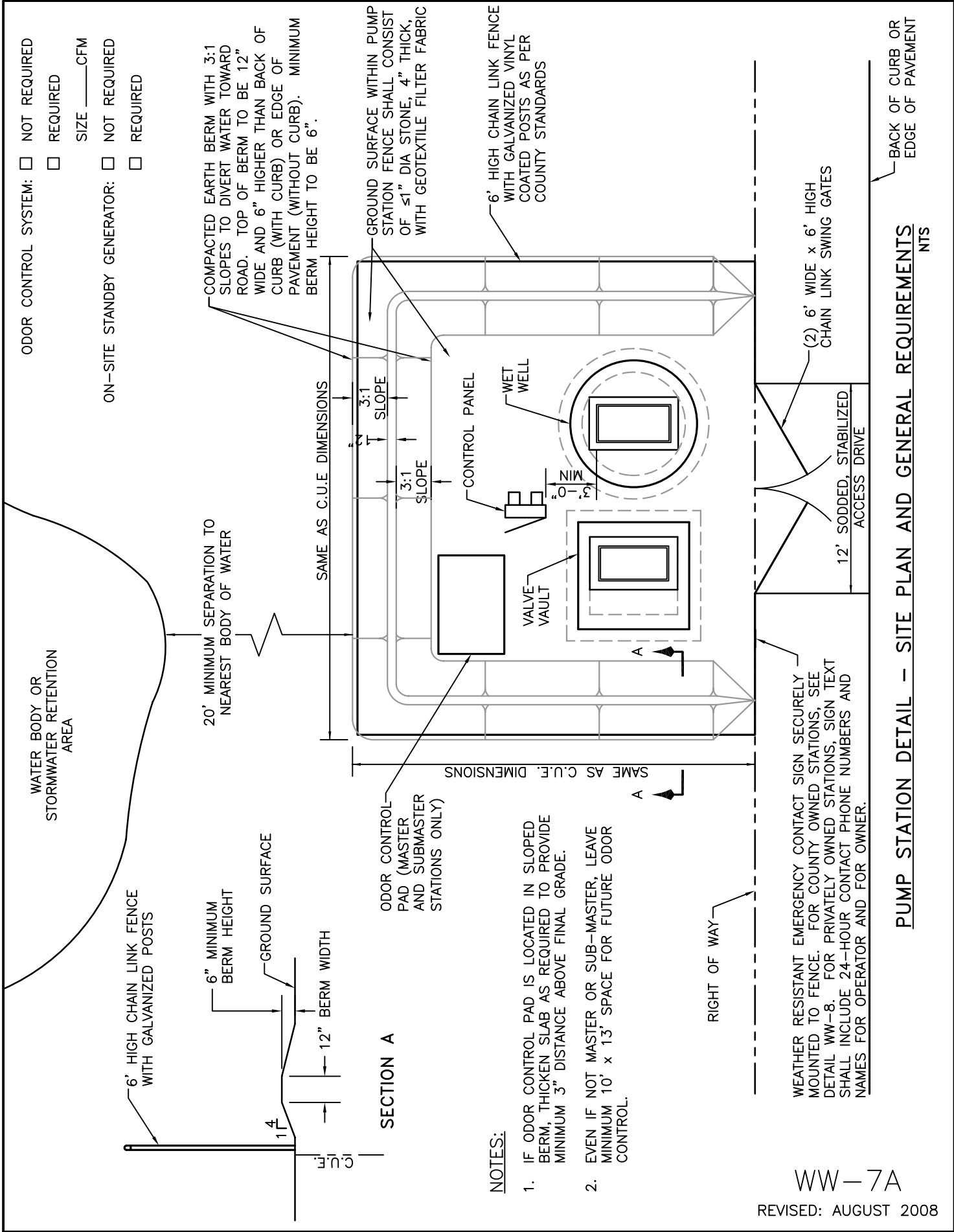
THE IMPELLER SHALL BE A SINGLE VANE, NON-CLOG DESIGN, CAPABLE OF PASSING 3 INCH SOLIDS, FIBROUS MATERIAL, AND HEAVY SLUDGE, AND CONSTRUCTED WITH A LONG THROUGHWAY WITH NO ACUTE TURNS AS SET FORTH IN THE SPECIFICATIONS.

**SECTION A-A**

**PUMP STATION DETAIL -- PROFILE**

NTS

REVISED: AUGUST 2008



**NOTES:**

1. IF ODOR CONTROL PAD IS LOCATED IN SLOPED BERM, THICKEN SLAB AS REQUIRED TO PROVIDE MINIMUM 3" DISTANCE ABOVE FINAL GRADE.
2. EVEN IF NOT MASTER OR SUB-MASTER, LEAVE MINIMUM 10' x 13' SPACE FOR FUTURE ODOR CONTROL.

WW-7A

REVISED: AUGUST 2008

**EQUIPMENT SPECIFICATIONS**

DUPLEX \_\_\_\_\_ INCH DISCHARGE SUBMERSIBLE SEWAGE PUMPS EQUIPPED WITH 230/480 VOLT MOTORS. EACH PUMP SHALL HAVE THE CAPACITY AND RANGE SET FORTH ON THIS SHEET. THE PUMP SHALL BE APPROVED EQUIPMENT OF THE COUNTY OF LOS ANGELES. PUMP PERFORMANCE DATA WILL BE REQUIRED AS SET FORTH IN THE SPECIFICATIONS. CONTRACTOR SHALL VERIFY LOCAL VOLTAGE PRIOR TO PLACEMENT OF PUMP ORDER.

LIQUID LEVEL REGULATORS (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F), EACH PROVIDED WITH A MINIMUM OF 40 FEET OF ELECTRICAL CABLE.

ACCESS FRAME (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) WITH HINGED AND HASP EQUIPPED COVER, TWO UPPER GUIDE HIGH RISE CHAIN HOLDERS, MUST COMPLY WITH COUNTY STANDARD. ACCESS FRAMES SHALL BE ALUMINUM, H-20 LOADING WITH OPTIONS, COLLIER COUNTY STANDARD.

ACCESS FRAME (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) WITH HINGED AND HASP EQUIPPED COVER. ACCESS FRAME SHALL BE ALUMINUM, H-20 LOADING WITH OPTIONS, COLLIER COUNTY STANDARD.

PUMP CONTROL PANEL: SEE TECHNICAL SPECIFICATIONS SECTION 13510, 2.1.H.

4" PVC VENT PIPE WITH 90° ELBOWS AND END CAP WITH 3/8" DIAMETER DRILLED HOLES FOR VENTILATION

WETWELL: REINFORCED CONCRETE PIPE CONFORMING TO TABLE II, WALL B OF ASTM C-76. O-RING JOINTS SHALL CONFORM TO ASTM C-443 OR COUNTY APPROVED EQUAL. WETWELL CONSTRUCTION: APPLY TWO COATS OF APPROVED EPOXY SEALER ON EXTERIOR SURFACES OF THE WELL.

CHECK VALVE (C) IRON BODY, FLANGED, BRONZE MOUNTED WITH HANDLE. VERIFY HEIGHT AND HANDLE POSITION. APPROVED PRODUCT LIST, APPENDIX F.

PLUG VALVE (K) NON-LUBRICATED NICKLE IRON, NEOPRENE COATED PLUG, 100% OPENING VALVE AND SHALL BE COMPLETE WITH WRENCH.

3-WAY PLUG VALVE (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F), (K) 3 PORT, FLANGED, LEVEL ACTIVATED. VALVE SHALL BE MOUNTED SO THAT THE THIRD PORT IS ON TOP.

3" QUICK-COUPLING UNIT COMPLETE. CONNECT TO THIRD PORT OF 3-WAY PLUG VALVE. APPROVED PRODUCT LIST, APPENDIX F AND 2-HANDLE BRONZE LOCKING CAP.

ALL PUMP STATION INTERLOCKS SHALL HAVE INTERNAL INTERLOCKING. VERIFY HEIGHT AND HANDLE POSITION. APPROVED PRODUCT LIST, APPENDIX F IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS SECTION 099723.

IN CASES WHERE PUMP STATION IS ON OPPOSITE SIDE OF STREET FROM WATER MAIN, 4" PVC CONDUIT SHALL BE INSTALLED FROM THE NEAREST LOT CORNER ON OPPOSITE OF STREET TO A POINT 5 FOOT BEYOND BACK OF SIDEWALK ON SAME SIDE OF STREET AS PUMP STATION

CHAIN LINK FENCE SHALL BE NEW, HOT DIP GALVANIZED AFTER FABRICATION WITH MINIMUM 1.2 OUNCES PER SQUARE FOOT OF ZINC COATING. FENCE FABRIC SHALL BE WOVEN #9 GALVANIZED FENCE WITH 2" RICH AND 4" RICH AND BOTTON SPACING. FENCE SHALL HAVE TOP RAIL AND BOTTOM TENSION WIRE WITH THE CLIPS AT MAX 24" INCH SPACING. FENCE SHALL HAVE WEATHER-TIGHT POST CAPS ON EACH SIDE. GATE MECHANISMS SHALL BE CONSTRUCTED TO BE SUBURBANE. MECHANISMS SHALL BE CONSTRUCTED TO BE SUBURBANE. MECHANISMS SHALL BE CONSTRUCTED TO BE SUBURBANE. INSTALLATION SHALL MEET ASTM F567.

ALL FRL TRANSFORMERS SHALL BE INSTALLED OUTSIDE OF PUMP STATION FENCE LINE

NOTE: FOR TELEMETRY ANTENNA MOUNT DETAILS, SEE WW-17

**MARK QTY**

① 2

② 4

③ 1

④ 1

⑤ 1

⑥ 1

⑦ 1

⑧ 2

⑨ 1

⑩ 1

⑪ 1

⑫ 3

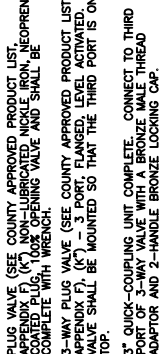
⑬ 1

⑭ 1

⑮ 1

**DIMENSION TABLE**

(A)	
(B)	
(C)	
(D)	
(E)	
(F)	
(G)	
(H)	
(I)	
(J)	
(K)	
(L)	
(M)	
(N)	
(O)	
(P)	
(Q)	
(R)	
(S)	
(T)	
(U)	
(V)	
(W)	
(X)	
(Y)	
(Z)	
(AA)	
(AB)	
(AC)	
(AD)	



**ODOR CONTROL UNITS - U.S. FILTER ZABOCS**

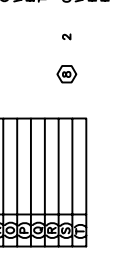
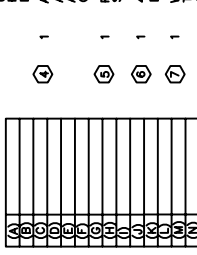
UNIT	CFM	INTAKE LINE	PAD SIZE
ZB-8000	1500	12"	10'x13'
ZB-7000	1150	12"	9'x12'
ZB-6000	850	10"	8'x11'
ZB-5000	500	8"	7'x9.5'
ZB-4000	350	6"	6'x8.5'
ZB-42	140	4"	5'x5'
ZB-30	70	4"	4'x4'

\* SLOPE DRAIN LINE AND INTAKE LINE 1/4" PER FOOT

\*\* EXTEND DRAIN LINE 1' INTO WELL

\*\*\* INTAKE LINE FLUSH WITH WALL

\*\*\*\* VOLTAGE WILL BE 230 OR 480 DEPENDING ON VOLTAGE AT STATION



LANDSCAPING OPTIONAL (LANDSCAPING TO BE OWNED AND MAINTAINED BY PROPERTY OWNER)

6" HIGH CHAIN LINK FENCE WITH GALVANIZED POSTS

ODOR CONTROL PAD (MASTER AND SUBMASTER STATIONS ONLY)

3/4" ELECTRICAL CONDUIT

GENERATOR RECEPTACLE HIGH WATER ALARM LIGHT

GROUND ROD

(2)-2" CONDUIT TO TRANSFORMER

FP&L METER

DISCONNECT-NEMA 3R STAINLESS STEEL ENCLOSURE OR BETTER

3/4" SCH 80 WATER

GROUND SURFACE WITHIN PUMP STATION FENCE SHALL CONSIST OF 51" DIA STONE, 4" THICK, WITH GEOTEXTILE FILTER FABRIC

3'-0" MINIMUM

4" PVC VENT

RUBBER TYPE SLEEVES AND STAINLESS STEEL STRAPS ON ALL THRU-WALL PIPING

STAINLESS STEEL CABLE HOLDER

STAINLESS STEEL GUIDE BARS

GRAVITY INFLUENT MAIN

8'-0" MINIMUM

8'-0" MINIMUM

TEE REDUCER

APPLY TWO COATS OF APPROVED BITUMINOUS OR EPOXY SEALER TO THE EXTERIOR SURFACES OF THE PUMP STATION WETWELL AND VALVE VAULT. FIELD APPLY INTERNAL PROTECTION (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) TO INTERIOR OF WETWELL IN ACCORDANCE WITH TECHNICAL SPECIFICATION SECTION 099723

WEATHER RESISTANT EMERGENCY CONTACT SIGN. SIGN SHALL INCLUDE THE FOLLOWING:

NOTE:

IN CASE OF EMERGENCY PLEASE CONTACT COLLIER COUNTY WASTEWATER DEPARTMENT AT:

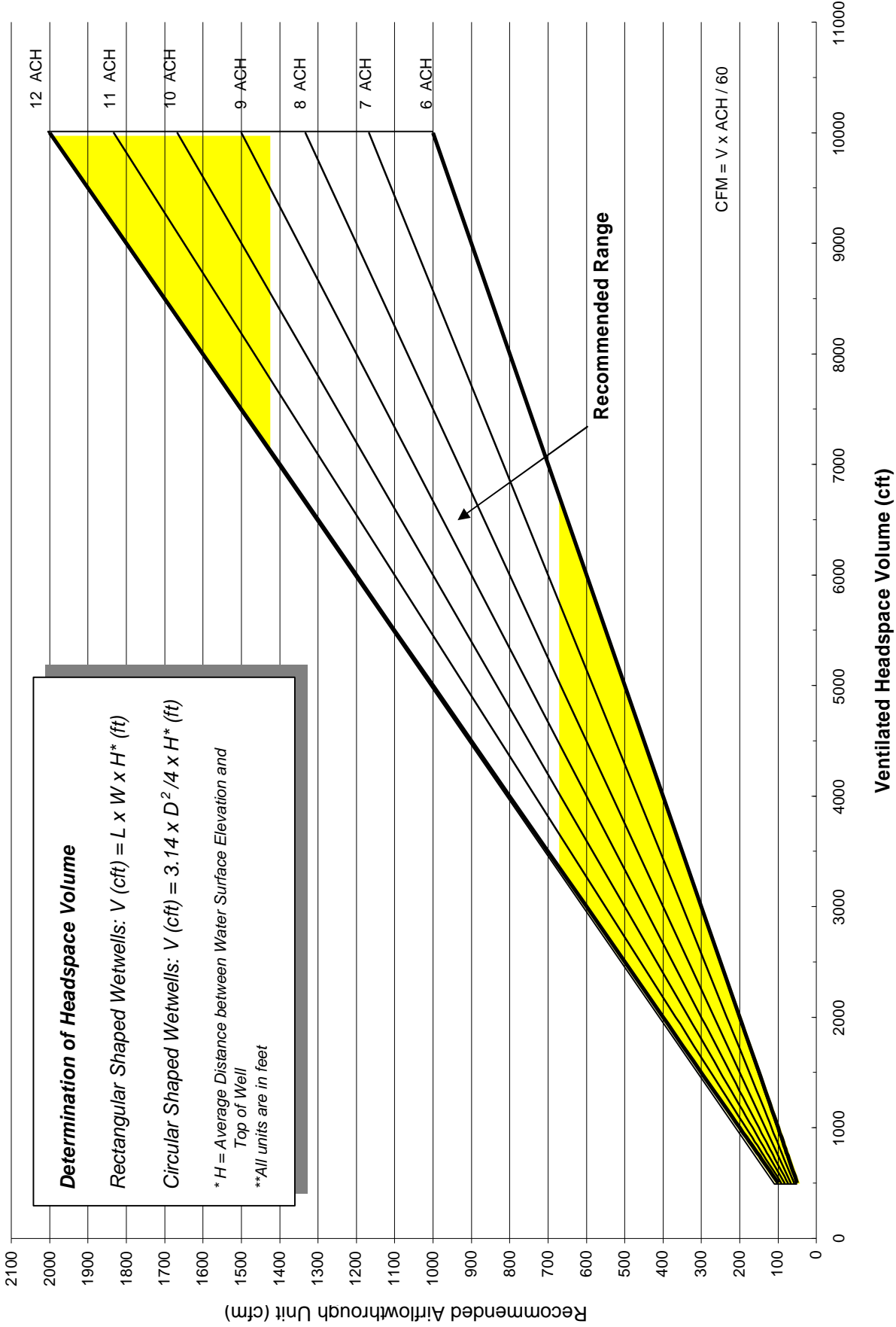
(239) 591-0186

\* ALSO SEE DETAIL WW-7A FOR ADDITIONAL INFORMATION.

REVISIONS

REVISED: AUGUST 2008

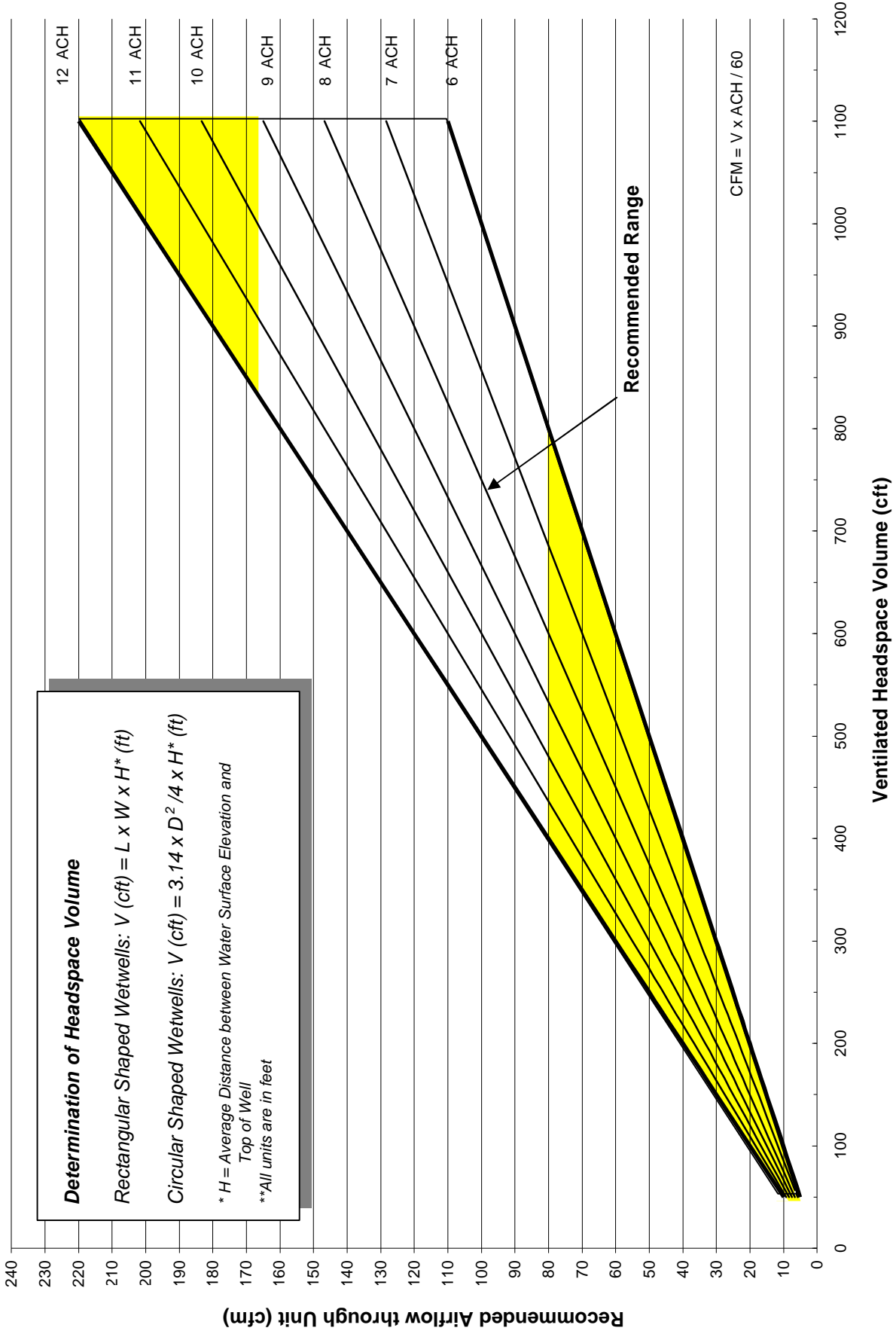
# Air Treatment Sizing Chart (Large Wetwells)



# ODOR CONTROL CFM SIZING CHART

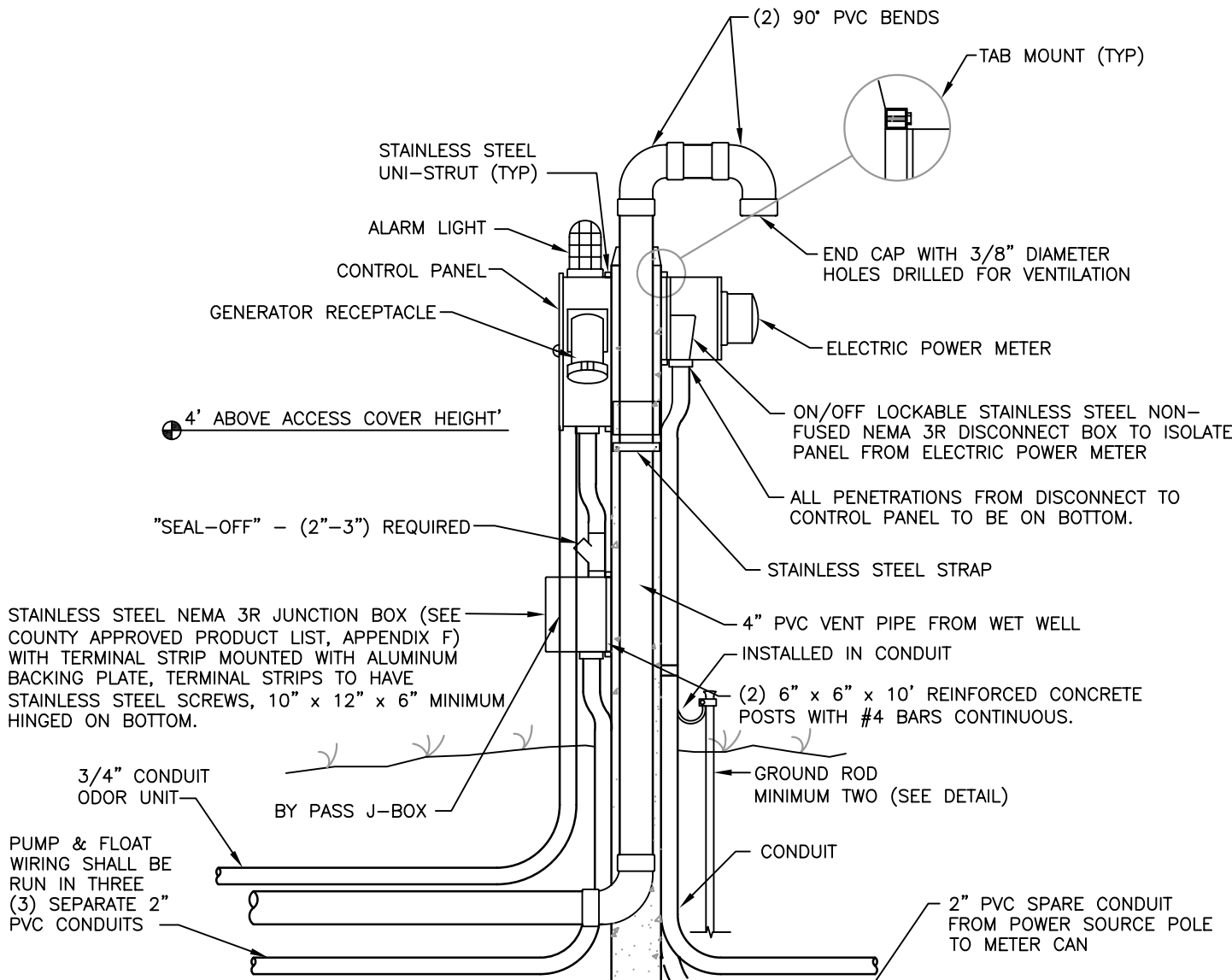
Source: "Odor Control Study for Collier County Wastewater Collection System April 2004"

# Air Treatment Sizing Chart (Small Wetwells)



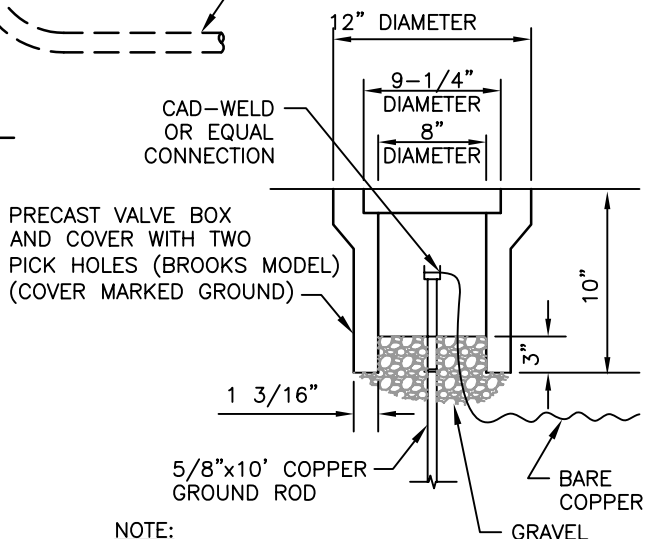
## ODOR CONTROL CFM SIZING CHART

Source: "Odor Control Study for Collier County Wastewater Collection System April 2004"



**NOTES:**

1. #10 STRAND MINIMUM FROM CONTROL PANEL TO J-BOX.
2. LIGHTNING ARRESTER (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) MUST BE INSTALLED EXTERNALLY ON LOAD SIDE OF DISCONNECT BETWEEN DISCONNECT AND MAIN BREAKER. THE PENETRATION THROUGH THE DISCONNECT MUST BE MADE BELOW THE WORKING MECHANISM OF THE DISCONNECT (AS REQUIRED BY COLLIER COUNTY PUBLIC WORKS DIVISION).
3. PUMP CONTROL PANEL (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) WITH ALL COMPONENTS FOR OPERATING TWO PUMPS AND LIQUID LEVEL REGULATORS; GENERATOR RECEPTACLE AND ANGLE ADAPTER (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) AND NEMA 3R STAINLESS STEEL ENCLOSURE.
4. SEE DETAIL WW-17 FOR ANTENNA MOUNT DETAIL.
5. GROUND WIRE FROM SERVICE SHALL BE INSTALLED IN CONDUIT.



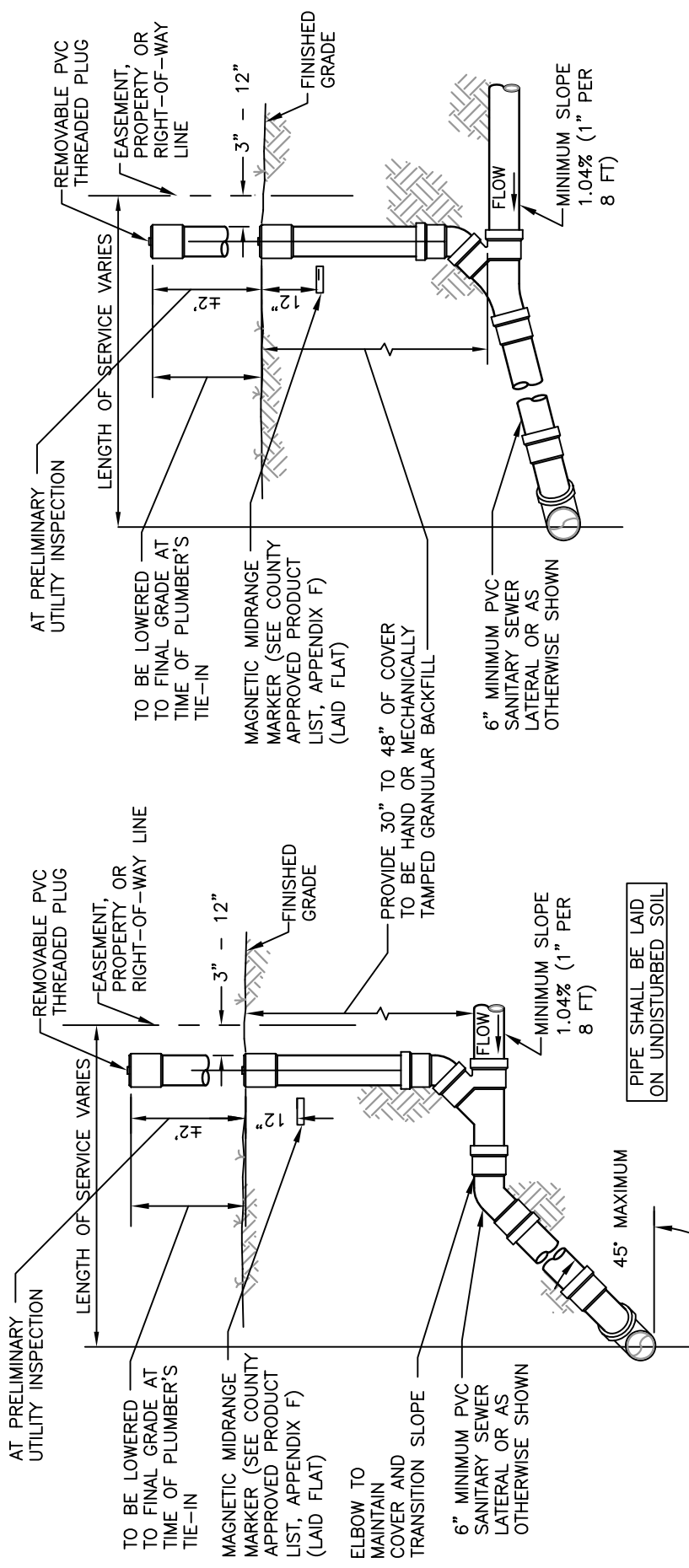
NOTE:  
DIMENSIONS SHOWN ARE  
MINIMUM REQUIREMENTS

WW-9

REVISED: AUGUST 2008

**PUMPING STATION CONTROL PANEL DETAIL**

NTS



SECTION DEPTH LESS THAN 8'

SECTION DEPTH 8' AND OVER

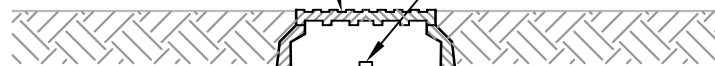
NOTE:

AT TIME OF PLUMBER'S TIE-IN,  
 ADD CONCRETE COLLAR AS PER  
 DETAIL WW-12.

SEWER CONNECTION DETAILS  
 PROPERTY, RIGHT-OF-WAY OR EASEMENT LINE  
 NTS

SEWER CLEAN-OUT RIM AND COVER (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) FLUSH IN PAVEMENT AREAS

REMOVABLE PVC THREADED PLUG



6"  
↑

CAST IRON OR TRAFFIC TYPE METER BOX

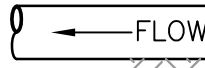
3/4" CRUSHED ROCK

PROVIDE CLEAN-OUT ON SEWER LATERALS AT UTILITY EASEMENT LIMITS. SEE PLANS

SEWER BRANCH WYE

45° BEND

6" SANITARY LATERAL



FLOW

MINIMUM SLOPE

ELEVATION

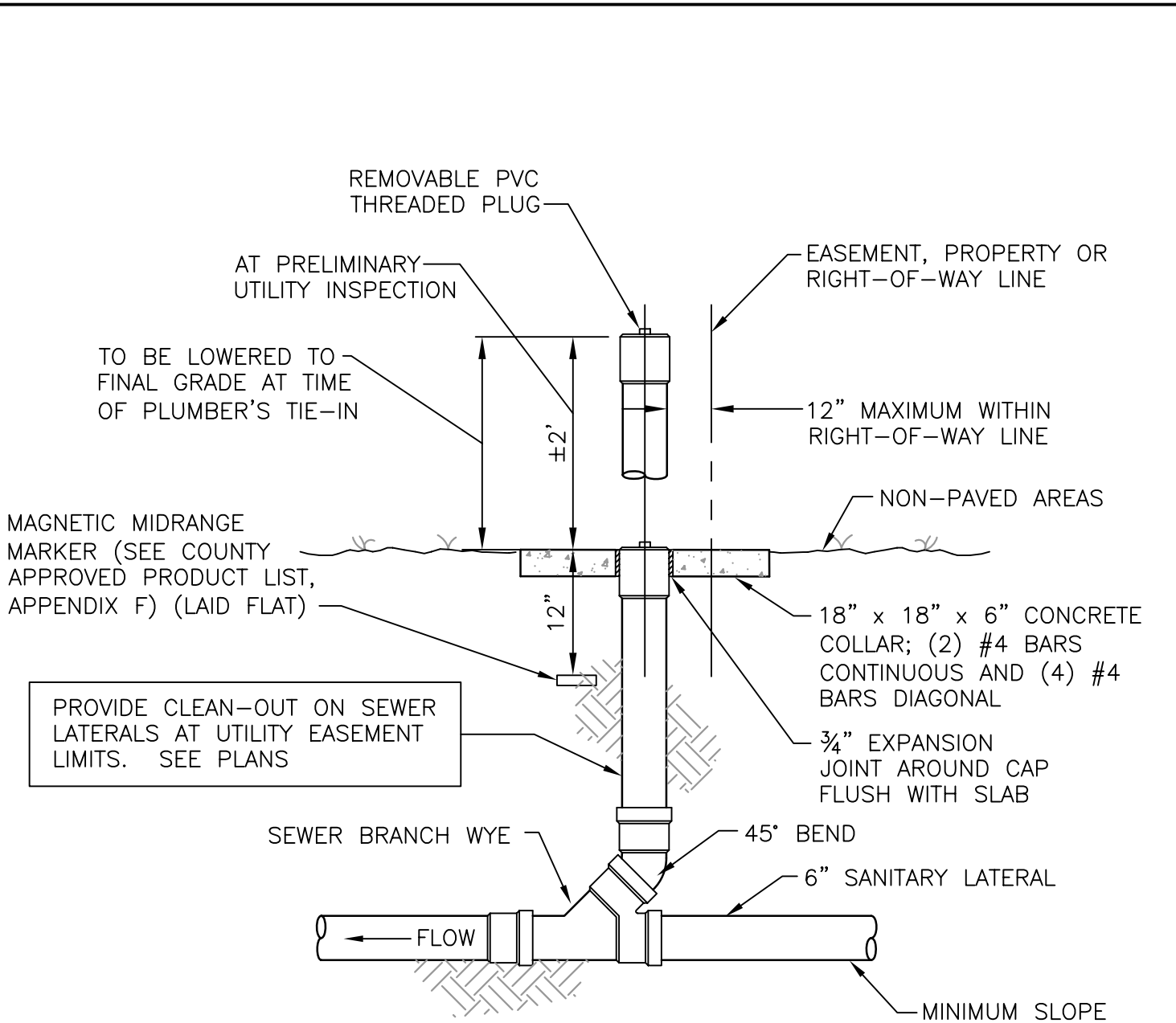
SEWER CLEAN-OUT DETAIL  
PAVED AREAS

NTS

WW-11

REVISED: APRIL 2006



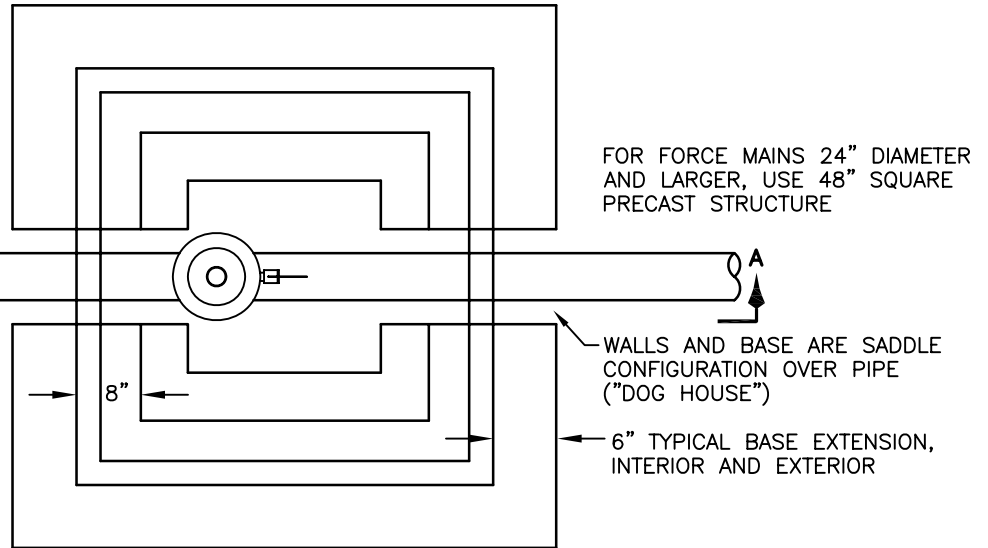


ELEVATION

SEWER CLEAN-OUT DETAIL  
NON PAVED AREAS  
NTS

**NOTES:**

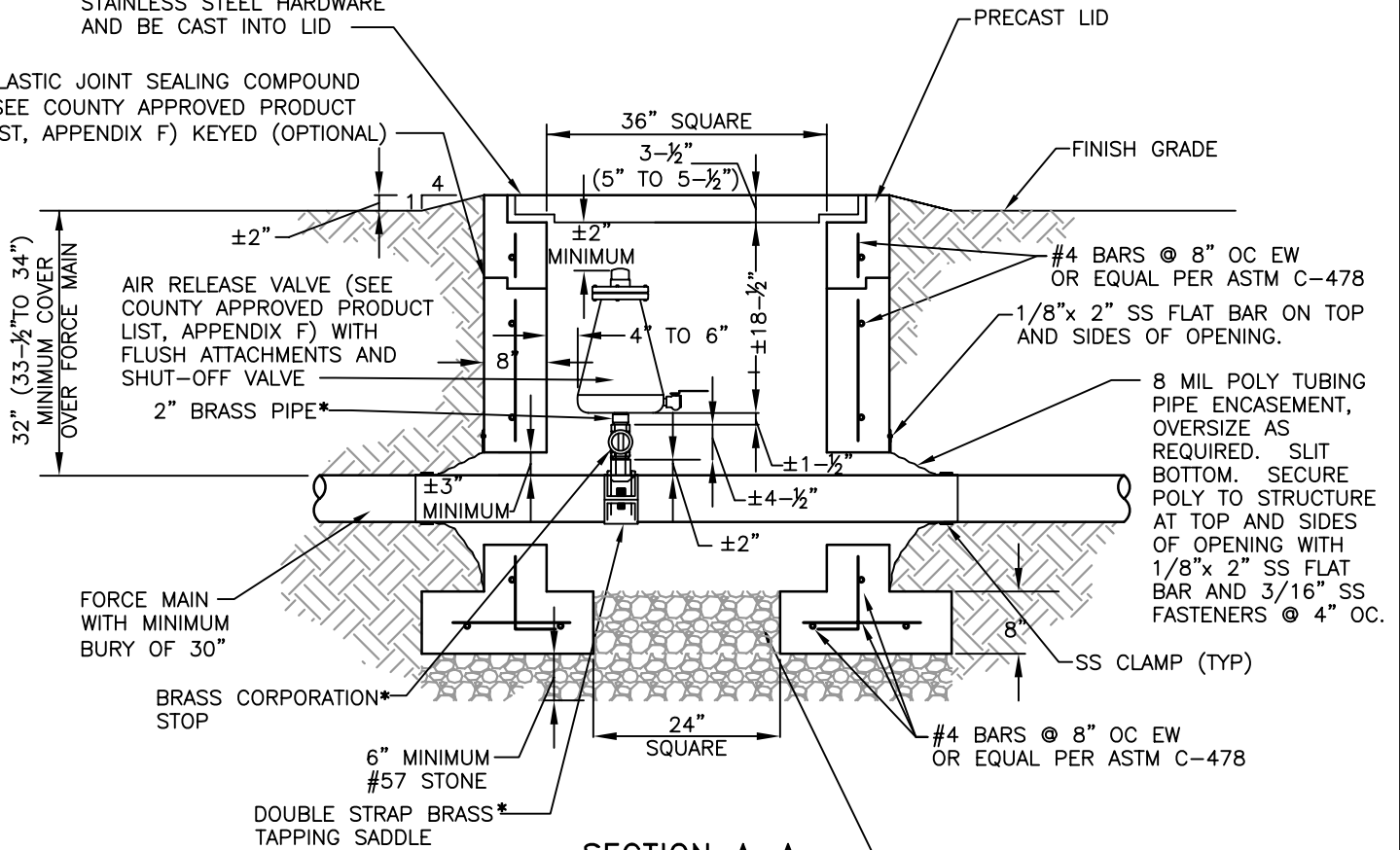
1. IN LOCATIONS WITH FORCE MAIN BURY BETWEEN 30" AND 32" (OR 34", DEPENDING ON HATCH SELECTED), PROVIDE RAISED GRADE AROUND VALVE VAULT STRUCTURE. FINISHED GRADE SLOPE SHALL NOT BE GREATER THAN 4(H):1(V). CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF HATCH SELECTION WITH AREA AVAILABLE FOR SLOPE.
2. HATCH DOORS AND POLY ENCASUREMENT NOT SHOWN FOR CLARITY.



**PLAN**

36" x 36" ALUMINUM ACCESS HATCH (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) WITH 316 STAINLESS STEEL HARDWARE AND BE CAST INTO LID

PLASTIC JOINT SEALING COMPOUND (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) KEYED (OPTIONAL)



**SECTION A-A**

**NOTES:**

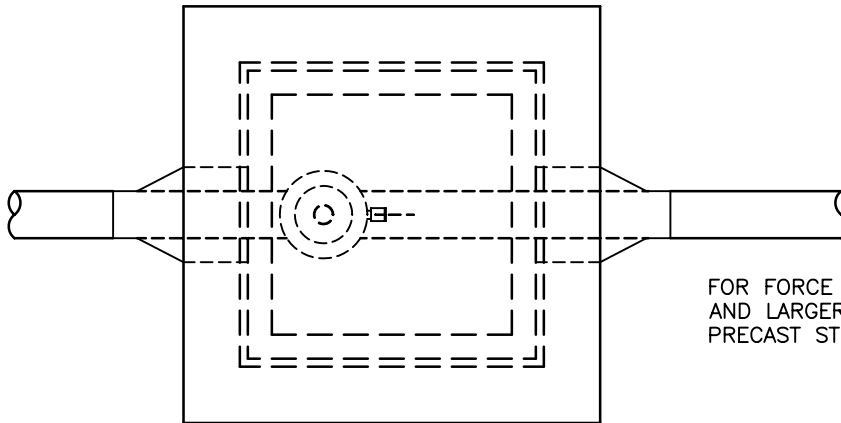
1. \*BRASS PIPE, CORPORATION STOP AND TAPPING SADDLE SHALL BE 2" FOR FORCE MAIN.
2. PRECAST STRUCTURE, NO COATING REQUIRED.

**FORCE MAIN AIR RELEASE VALVE DETAIL  
(NON-TRAFFIC AREA)**

SCALE: 1/2" = 1'-0"

WW-13

REVISED: AUGUST 2008



FOR FORCE MAINS 24" DIAMETER AND LARGER, USE 48" SQUARE PRECAST STRUCTURE

PLAN

30" x 30" CAST IRON ACCESS HATCH (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) WITH ID LETTERING ("COLLIER COUNTY" AND "SEWER ARV" OR LEAVE BLANK IF PRIVATELY OWNED). HATCH TO BE CAST INTO LID

PRECAST LID TO BE DESIGNED BY FLORIDA PROFESSIONAL ENGINEER. SUBMIT SIGNED AND SEALED CALCULATIONS.

PLASTIC JOINT SEALING COMPOUND (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) KEYED (TYP)

3 1/2" MINIMUM COVER OVER FORCE MAIN

AIR RELEASE VALVE (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) WITH FLUSH ATTACHMENTS AND SHUT-OFF VALVE

2" BRASS PIPE\*

BRASS CORPORATION\*

FORCE MAIN

DOUBLE STRAP BRASS\* TAPPING SADDLE

\*BRASS PIPE, CORPORATION STOP AND TAPPING SADDLE SHALL BE 2" FOR FORCE MAIN

SECTION

PRECAST STRUCTURE. NO COATING REQUIRED

#4 BARS @ 12" OC EW OR EQUAL PER ASTM C-478

FLEXIBLE RUBBER SLEEVE. HOLE SIZE TO BE MINIMUM OF 3" LARGER THAN OUTSIDE PIPE DIAMETER

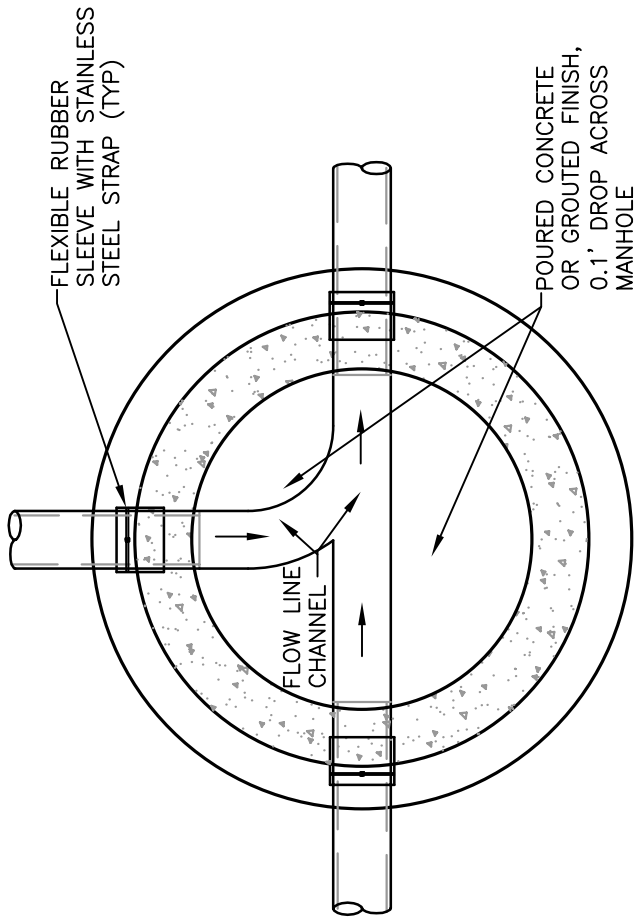
12" MINIMUM #57 STONE

#4 BARS @ 12" OC EW OR EQUAL PER ASTM C-478

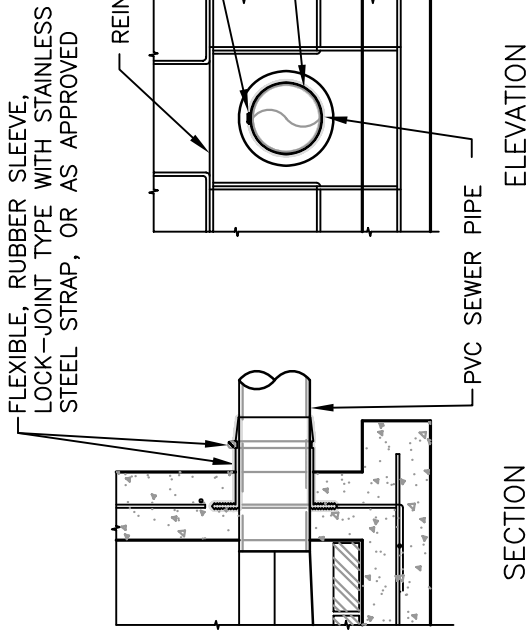
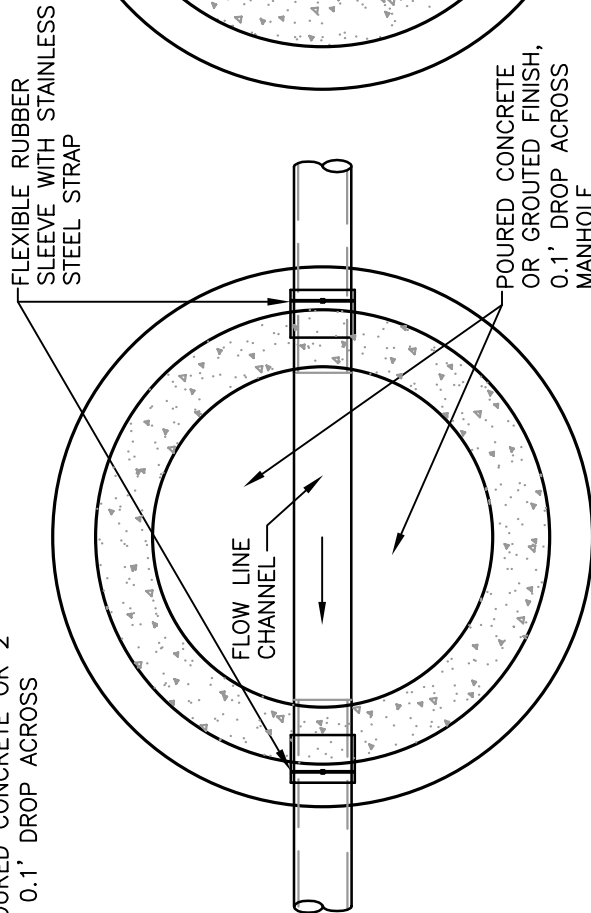
FILL BASE SLAB OPENING WITH WASHED #57 STONE

COMPACT SUBGRADE TO 98% OF MAXIMUM DENSITY PER AASHTO T-180

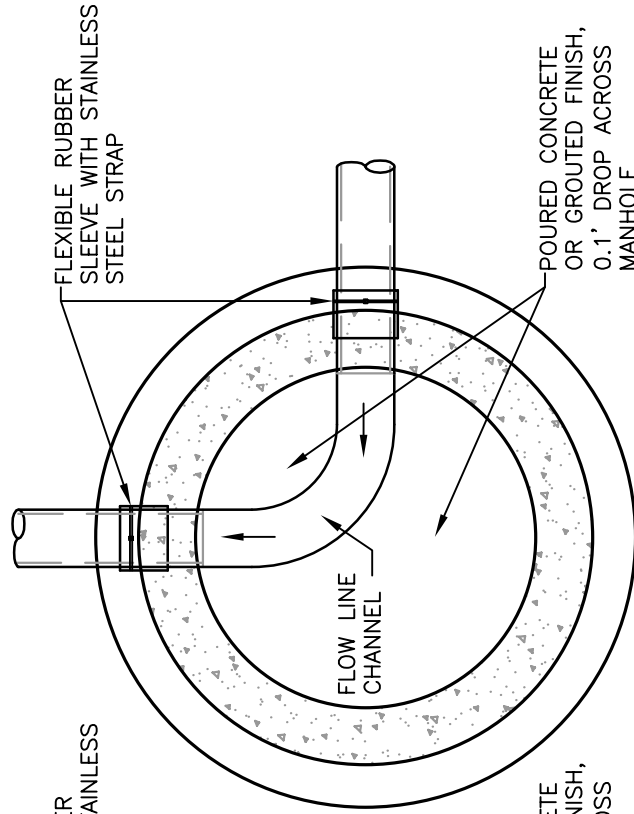
**FORCE MAIN AIR RELEASE VALVE DETAIL**  
**(PAVED AREA)**  
 SCALE: 1/2" = 1'-0"



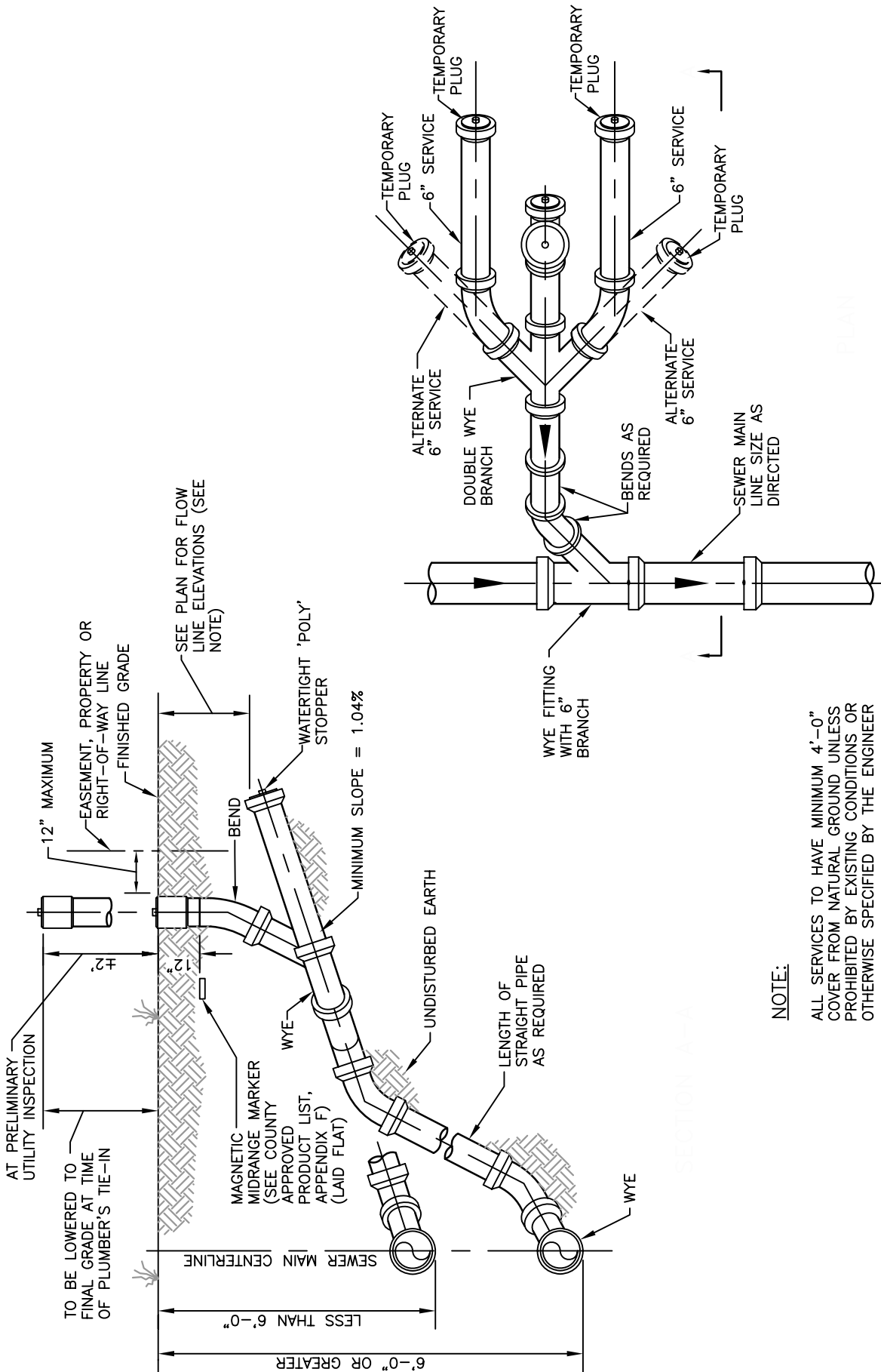
FLOW LINE CHANNELS SHALL BE CLAY BRICK HAVING A MINIMUM OF 2" POURED CONCRETE OR 2" GROUTED 0.1' DROP ACROSS MANHOLE



A-A



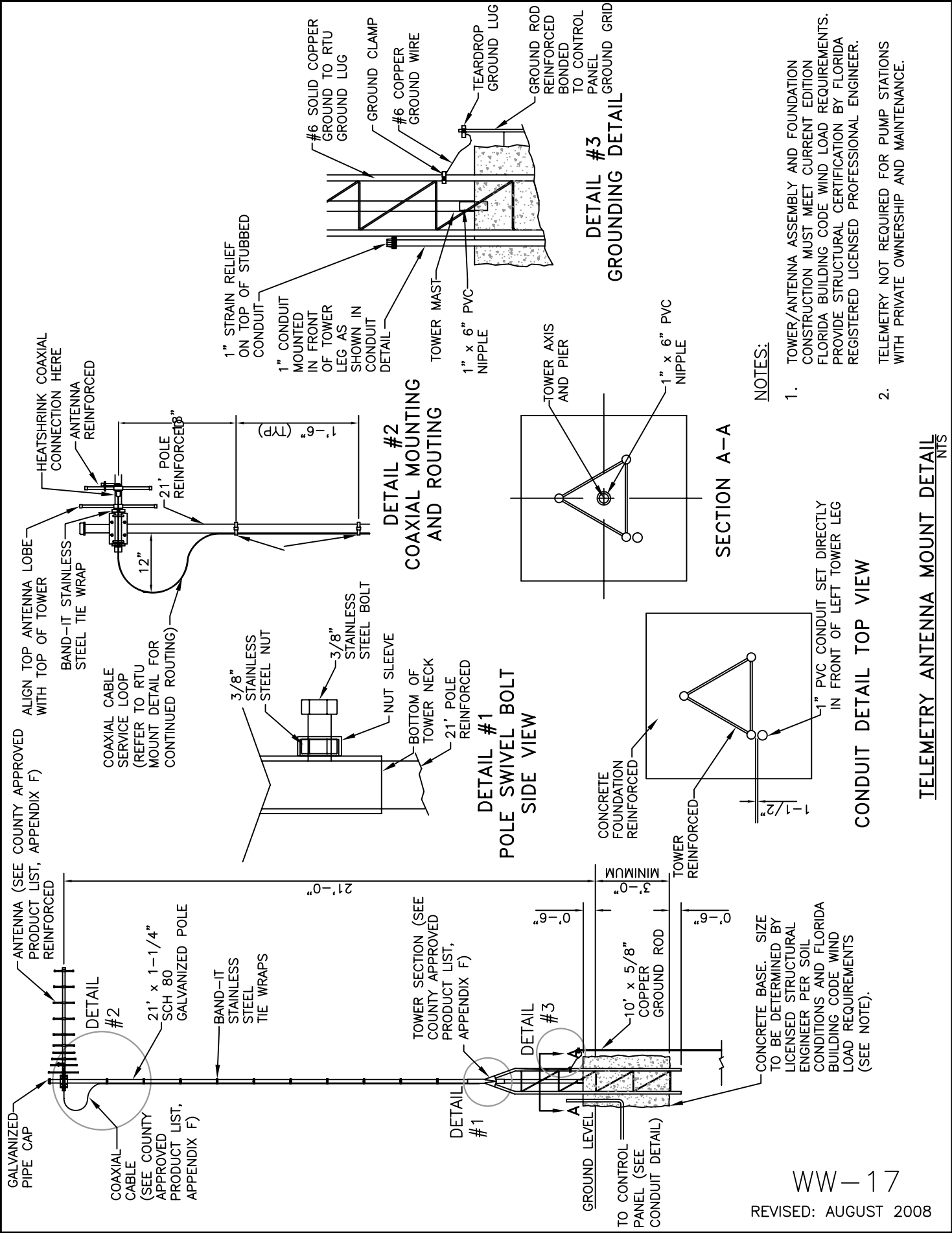
TYPICAL FLOW LINE CHANNELS DETAIL  
NTS



**NOTE:**

ALL SERVICES TO HAVE MINIMUM 4'-0" COVER FROM NATURAL GROUND UNLESS PROHIBITED BY EXISTING CONDITIONS OR OTHERWISE SPECIFIED BY THE ENGINEER

**DOUBLE SEWER CLEAN-OUT DETAIL**  
NTS



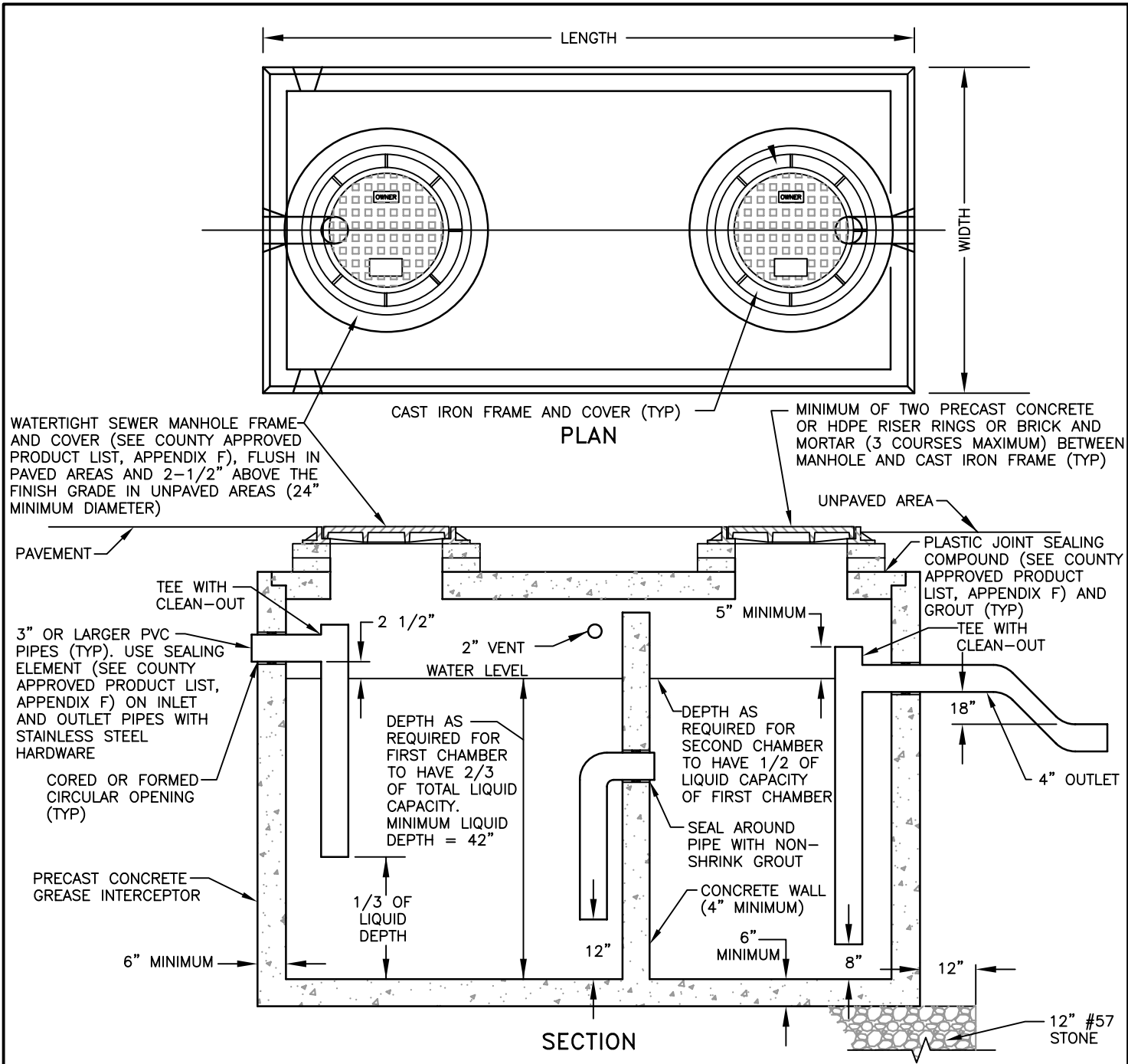
**NOTES:**

1. TOWER/ANTENNA ASSEMBLY AND FOUNDATION CONSTRUCTION MUST MEET CURRENT EDITION FLORIDA BUILDING CODE WIND LOAD REQUIREMENTS. PROVIDE STRUCTURAL CERTIFICATION BY FLORIDA REGISTERED LICENSED PROFESSIONAL ENGINEER.
2. TELEMETRY NOT REQUIRED FOR PUMP STATIONS WITH PRIVATE OWNERSHIP AND MAINTENANCE.

**TELEMETRY ANTENNA MOUNT DETAIL NTS**

WW-17

REVISED: AUGUST 2008



WATERTIGHT SEWER MANHOLE FRAME AND COVER (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F), FLUSH IN PAVED AREAS AND 2-1/2" ABOVE THE FINISH GRADE IN UNPAVED AREAS (24" MINIMUM DIAMETER)

CAST IRON FRAME AND COVER (TYP)

MINIMUM OF TWO PRECAST CONCRETE OR HDPE RISER RINGS OR BRICK AND MORTAR (3 COURSES MAXIMUM) BETWEEN MANHOLE AND CAST IRON FRAME (TYP)

PAVEMENT

TEE WITH CLEAN-OUT

3" OR LARGER PVC PIPES (TYP). USE SEALING ELEMENT (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) ON INLET AND OUTLET PIPES WITH STAINLESS STEEL HARDWARE

CORED OR FORMED CIRCULAR OPENING (TYP)

PRECAST CONCRETE GREASE INTERCEPTOR

6" MINIMUM

2 1/2"

2" VENT

DEPTH AS REQUIRED FOR FIRST CHAMBER TO HAVE 2/3 OF TOTAL LIQUID CAPACITY. MINIMUM LIQUID DEPTH = 42"

1/3 OF LIQUID DEPTH

12"

SECTION

5" MINIMUM

DEPTH AS REQUIRED FOR SECOND CHAMBER TO HAVE 1/2 OF LIQUID CAPACITY OF FIRST CHAMBER

SEAL AROUND PIPE WITH NON-SHRINK GROUT

CONCRETE WALL (4" MINIMUM)

6" MINIMUM

8"

UNPAVED AREA

PLASTIC JOINT SEALING COMPOUND (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) AND GROUT (TYP)

TEE WITH CLEAN-OUT

18"

4" OUTLET

12" #57 STONE

**NOTES:**

1. GREASE INTERCEPTOR SHALL COMPLY WITH STRUCTURAL REQUIREMENTS APPLICABLE TO SEPTIC TANKS EXCEPT THAT THE INLET INVERT SHALL DISCHARGE A MINIMUM 2-1/2 INCHES ABOVE THE LIQUID LEVEL LINE AND THE OUTLET PIPE SHALL HAVE A TEE WITH A MINIMUM DIAMETER OF FOUR (4) INCHES THAT EXTENDS TO WITHIN 8 INCHES OF THE BOTTOM OF THE TANK.
2. INTERCEPTOR MUST BE LOCATED SO AS TO PROVIDE EASY ACCESS FOR ROUTINE INSPECTION AND CLEANING.
3. WHERE A GREASE INTERCEPTOR IS REQUIRED, ONLY KITCHEN WASTEWATER SHALL FIRST PASS THROUGH THE INTERCEPTOR AND THEN BE DISCHARGED INTO THE FIRST COMPARTMENT OF A SEPTIC TANK OR OTHER APPROVED SYSTEM.
4. SIZING OF GREASE INTERCEPTORS SHALL BE BASED ON THE DETAIL WW-18A EQUATIONS. THE MINIMUM VOLUME OF ANY GREASE INTERCEPTOR SHALL BE 750 GALLONS AND THE MAXIMUM VOLUME OF A SINGLE GREASE INTERCEPTOR SHALL BE 1250 GALLONS. WHEN THE REQUIRED EFFECTIVE CAPACITY OF THE GREASE INTERCEPTOR IS GREATER THAN 1250 GALLONS, INSTALLATION OF GREASE TRAPS IN SERIES IS REQUIRED.
5. KEYED JOINT SEALED WITH BUTYL RUBBER.

SIZING FORMULA FOR RESTAURANTS, COUNTRY CLUBS  
AND ASSISTED LIVING FACILITIES

$$(S) \times (GS) \times (HR/12) \times LF = \text{EFFECTIVE CAPACITY OF GREASE INTERCEPTOR IN GALLONS}$$

WHERE:

- S = NUMBER OF SEATS IN DINING AREA.  
 GS = GALLONS OF WASTE WATER PER SEAT  
 (USE 25 GALLONS FOR RESTAURANTS WITH CHINA DISHES AND/OR AUTOMATIC DISHWASHER)  
 (USE 10 GALLONS FOR RESTAURANTS WITH PAPER OR BASKETS AND NO DISHWASHER)  
 HR = NUMBER OF HOURS RESTAURANT IS OPEN  
 LF = LOADING FACTOR  
 (USE 2.00 INTERSTATE HIGHWAY; 1.50 OTHER FREEWAYS; 1.25 RECREATIONAL AREA; 1.00 MAIN HIGHWAY; 0.75 OTHER HIGHWAY)

SIZING FORMULA FOR SCHOOLS AND OTHER ESTABLISHMENTS  
WITH COMMERCIAL KITCHENS (NO DISHWASHER)

$$(M) \times (GM) \times (LF) = \text{EFFECTIVE CAPACITY OF GREASE INTERCEPTOR IN GALLONS}$$

WHERE:

- M = MEALS PREPARED PER DAY  
 GM = GALLONS OF WASTE WATER PER MEAL  
 (USE 5 GALLONS)  
 LF = LOADING FACTOR  
 (USE 1.00 WITH DISHWASHING MACHINE AND 0.75 WITHOUT DISHWASHING MACHINE)

NO COMMERCIAL DISHWASHER, NO CHINA OR DISPOSAL CHINA ONLY  
CAPACITY OF GREASE TRAPS

TOTAL FLOW-THROUGH RATING (GPM)	GREASE RETENTION CAPACITY (POUNDS)
4	8
6	12
7	14
9	18
10	20
12	24
14	28
15	30
18	36
20	40
25	50
35	70
50	100