

# WATER EXHIBITS

Exhibit No.

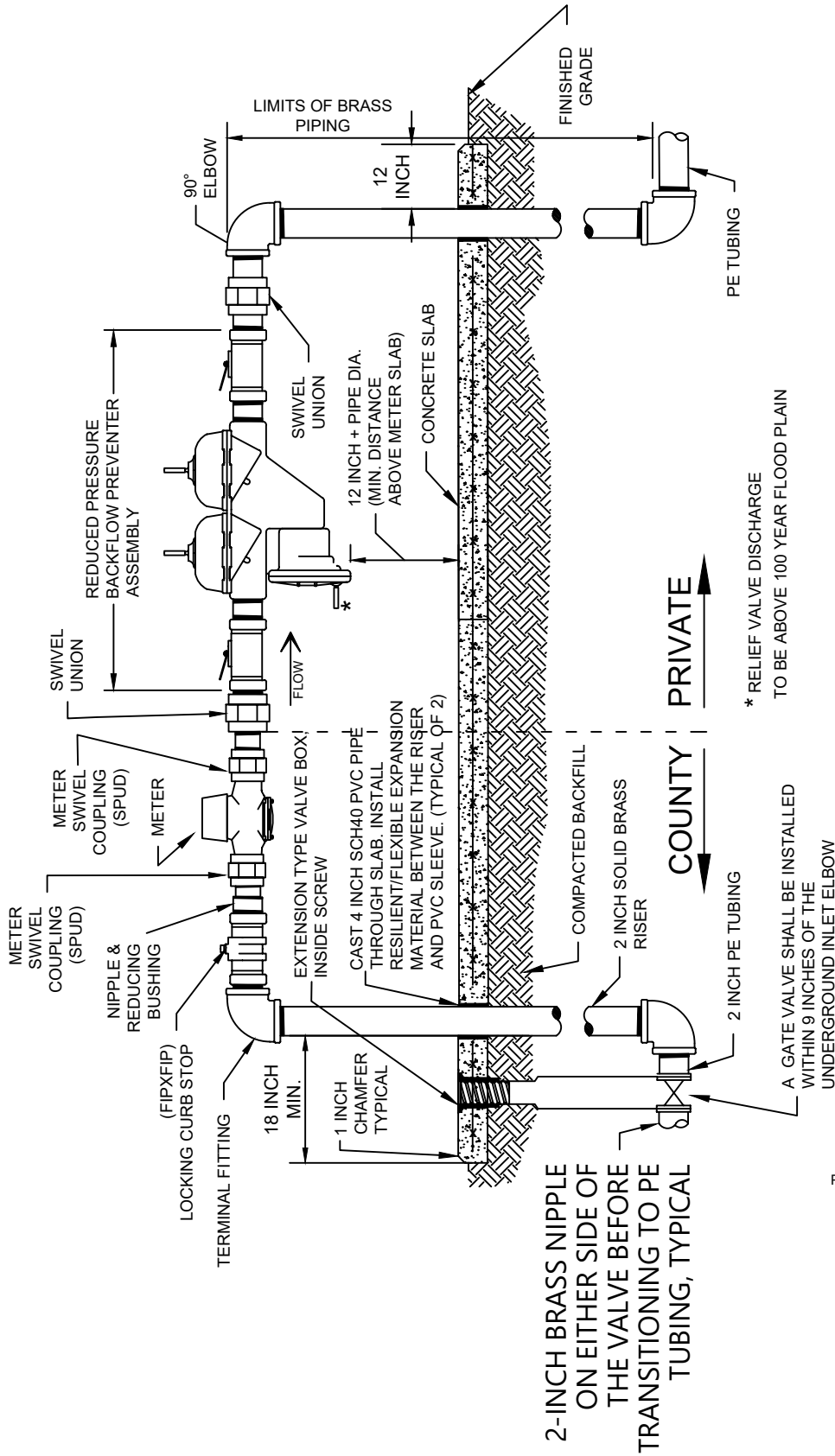
|        |  |
|--------|--|
| W-1A   | WATER METER ASSEMBLY - COMMERCIAL METERS LESS THAN 1-1/2 INCH                          |
| W-1B   | WATER METER ASSEMBLY - COMMERCIAL 1-1/2 INCH & 2 INCH METERS                           |
| W-1C   | MASTER WATER METER ASSEMBLY SITE DEVELOPMENT - 3 INCH METER & LARGER (PROFILE VIEW)    |
| W-1D   | MASTER WATER METER ASSEMBLY SITE DEVELOPMENT - 3 INCH METER & LARGER (PLAN VIEW)       |
| W-1E   | MASTER WATER METER ASSEMBLY SITE DEVELOPMENT W/ FIRE FLOW                              |
| W-1F   | TEMPORARY CONSTRUCTION BACKFLOW ASSEMBLY FOR RESIDENTIAL OR COMMERCIAL DEVELOPMENT     |
| W-1G   | NOTES WATER METER ASSEMBLIES   |
| △ W-2A | DEDICATED FIRE CONNECTION BACKFLOW ASSEMBLY - 2-INCH AND LESS                          |
| W-2B   | BACKFLOW PREVENTION DEVICE RPDA (FIRE SERVICE ONLY)                                    |
| W-3A   | RESIDENTIAL SERVICE LAYOUT   |
| W-3B   | RESIDENTIAL SINGLE METER SERVICE   |
| W-3C   | RESIDENTIAL DUAL METER SINGLE LOT SERVICE  |
| W-3D   | RESIDENTIAL METER SERVICE INSTALLATION (METER OVER MAIN)                               |
| W-3E   | RESIDENTIAL METER SERVICE INSTALLATION (NEAR SIDE)                                     |
| W-3F   | RESIDENTIAL METER SERVICE INSTALLATION (FAR SIDE)                                      |
| W-3G   | RESIDENTIAL DUAL LOT METERED SERVICE (FAR SIDE)  |
| W-4    | POTABLE WATER METER BOX  |
| W-5A   | FIRE HYDRANT (RESTRAINED)  |
| W-5B   | FIRE HYDRANT FOR LIMITED SPACE (RESTRAINED)  |
| W-5C   | WATER MAIN EXTENSION WITH HYDRANT DETAIL   |
| W-5D   | FAR SIDE HYDRANT DETAIL  |
| W-6A   | BLOW-OFF ASSEMBLY  |
| W-6B   | BLOW-OFF ASSEMBLY AND FIRE HYDRANT AT CUL-DE-SAC ROAD UP TO 150 FEET                   |
| W-6C   | BLOW-OFF ASSEMBLY AND FIRE HYDRANT AT CUL-DE-SAC ROAD GREATER THAN 150 FEET            |
| W-7A   | RESTRAINED JOINT-STANDARD  |
| W-7B   | RESTRAINED JOINT FOR PVC C-900 PIPE (4 INCH TO 12 INCH)                                |
| W-8A   | AIR RELIEF VALVE-MANUAL  |
| W-8B   | AUTOMATIC AIR RELIEF VALVE ASSEMBLY-STANDARD   |
| W-8C   | AUTOMATIC AIR RELIEF VALVE ASSEMBLY-OFFSET   |
| W-8D   | AUTOMATIC AIR RELIEF VALVE ASSEMBLY - OFFSET<br>NEW CONSTRUCTION (LINE OUT OF SERVICE) |
| W-8E   | AIR RELEASE RING AND COVER   |
| W-9A   | VALVE BOX AND MARKER INSTALLATION FOR PAVED AREAS                                      |
| W-9B   | CONCRETE VALVE PAD (FOR UNPAVED AREAS)   |
| W-10   | CASING DETAILS - JACK AND BORE   |
| W-11   | DITCH BOTTOM CLEARANCE AND CONCRETE PROTECTIVE SLAB                                    |
| W-12A  | VALVE AND TRACER WIRE (FOR PAVED AND NON-PAVED AREAS)                                  |
| W-12B  | VALVE EXTENSION FOR GATE VALVES  |
| W-13   | BORING FOR UTILITIES   |
| W-14   | TRENCH DETAILS - BACKFILL & COMPACTION   |

LISTING OF WATER EXHIBITS

10/2021

HILLSBOROUGH COUNTY, FLORIDA

SCALE: N.T.S.

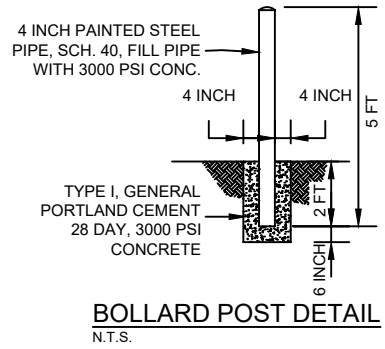


2-INCH BRASS NIPPLE ON EITHER SIDE OF THE VALVE BEFORE TRANSITIONING TO PE TUBING, TYPICAL

\* RELIEF VALVE DISCHARGE TO BE ABOVE 100 YEAR FLOOD PLAIN  
 A GATE VALVE SHALL BE INSTALLED WITHIN 9 INCHES OF THE UNDERGROUND INLET ELBOW

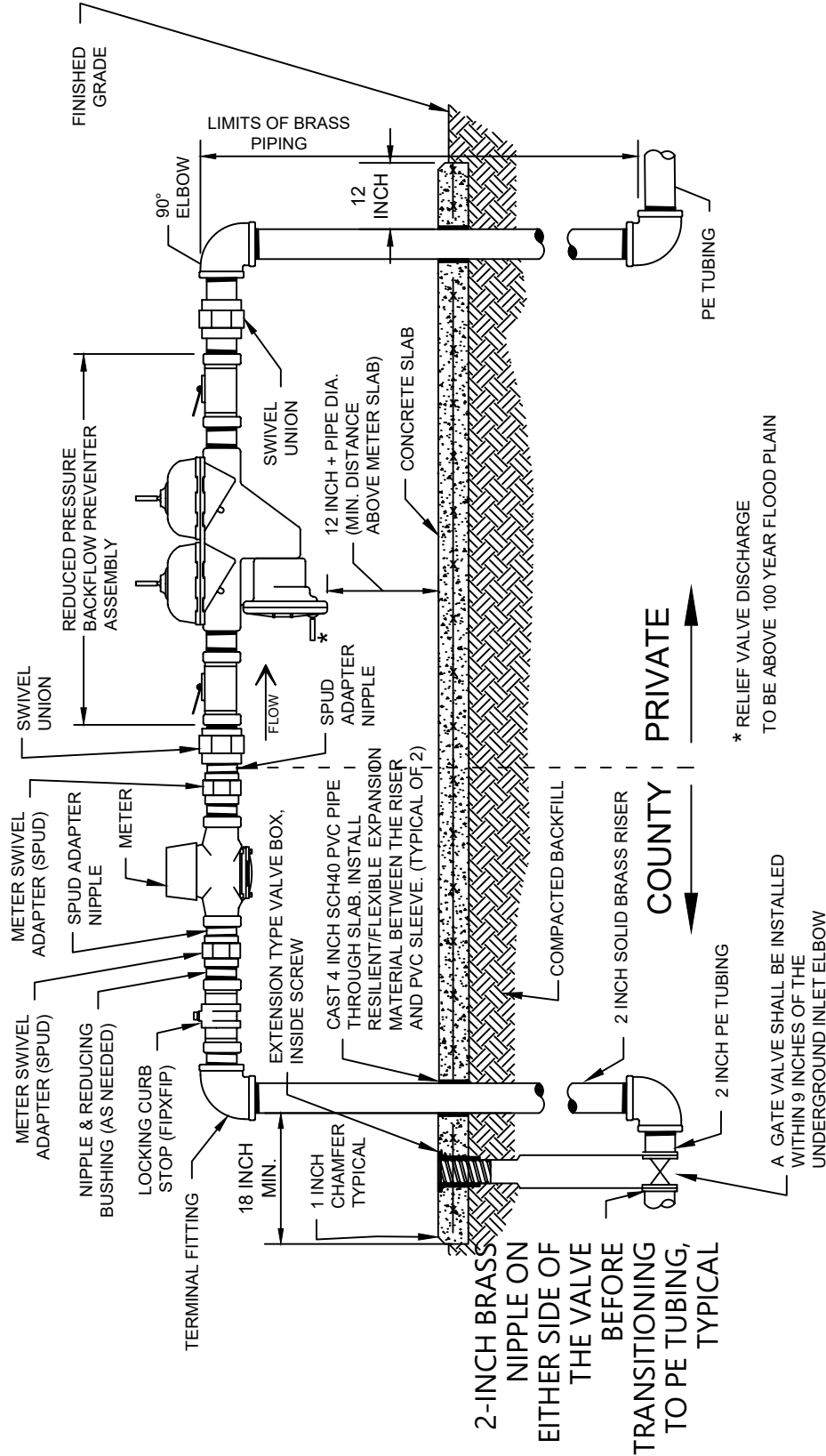
NOTES:

1. ALL PIPING TO BE A MINIMUM OF 2-INCHES UP THROUGH THE LOCKING CURB STOP.
2. 2 INCH COMMERCIAL SERVICE LINES SHALL USE A 2 INCH SADDLE & TAPPING VALVE (INSTEAD OF A CORPORATION STOP) AT THE WATER MAIN CONNECTION. WHEN THE TAPPING VALVE IS LOCATED WITHIN 10 FEET OF THE METER ASSEMBLY RISER, AND IT MEETS PUD SAFETY CRITERIA, THE 2" GATE VALVE MAY AT THE ASSEMBLY BE ELIMINATED BY SPECIAL REQUEST TO DSD.
3. SEE EXHIBIT W-1D FOR BOLLARD LAYOUT. (TYPICAL)
4. SEE EXHIBIT W-1G FOR A LISTING OF GENERAL NOTES.
5. JOINTS BETWEEN DIFFERING MATERIALS SHALL BE ISOLATED PER THE FLORIDA PLUMBING CODE.
- 6.



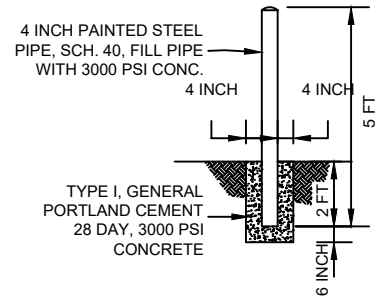
WATER METER ASSEMBLY  
 COMMERCIAL - METERS LESS THAN 1-1/2 INCH  
 HILLSBOROUGH COUNTY, FLORIDA

10/2021  
 SCALE: N.T.S.



**NOTES:**

1. ALL PIPING TO BE A MINIMUM OF 2-INCHES UP THROUGH THE LOCKING CURB STOP.
2. 2 INCH COMMERCIAL SERVICE LINES SHALL USE A 2 INCH SADDLE & TAPPING VALVE (INSTEAD OF A CORPORATION STOP) AT THE WATER MAIN CONNECTION.
3. WHEN THE TAPPING VALVE IS LOCATED WITHIN 10 FEET OF THE METER ASSEMBLY RISER, AND IT MEETS PUD SAFETY CRITERIA, THE 2" GATE VALVE AT THE METER ASSEMBLY MAY BE ELIMINATED BY SPECIAL REQUEST TO DSD.
4. SEE EXHIBIT W-1D FOR BOLLARD LAYOUT. (TYPICAL)
5. SEE EXHIBIT W-1G FOR A LISTING OF GENERAL NOTES.
6. JOINTS BETWEEN DIFFERING MATERIALS SHALL BE ISOLATED PER THE FLORIDA PLUMBING CODE.

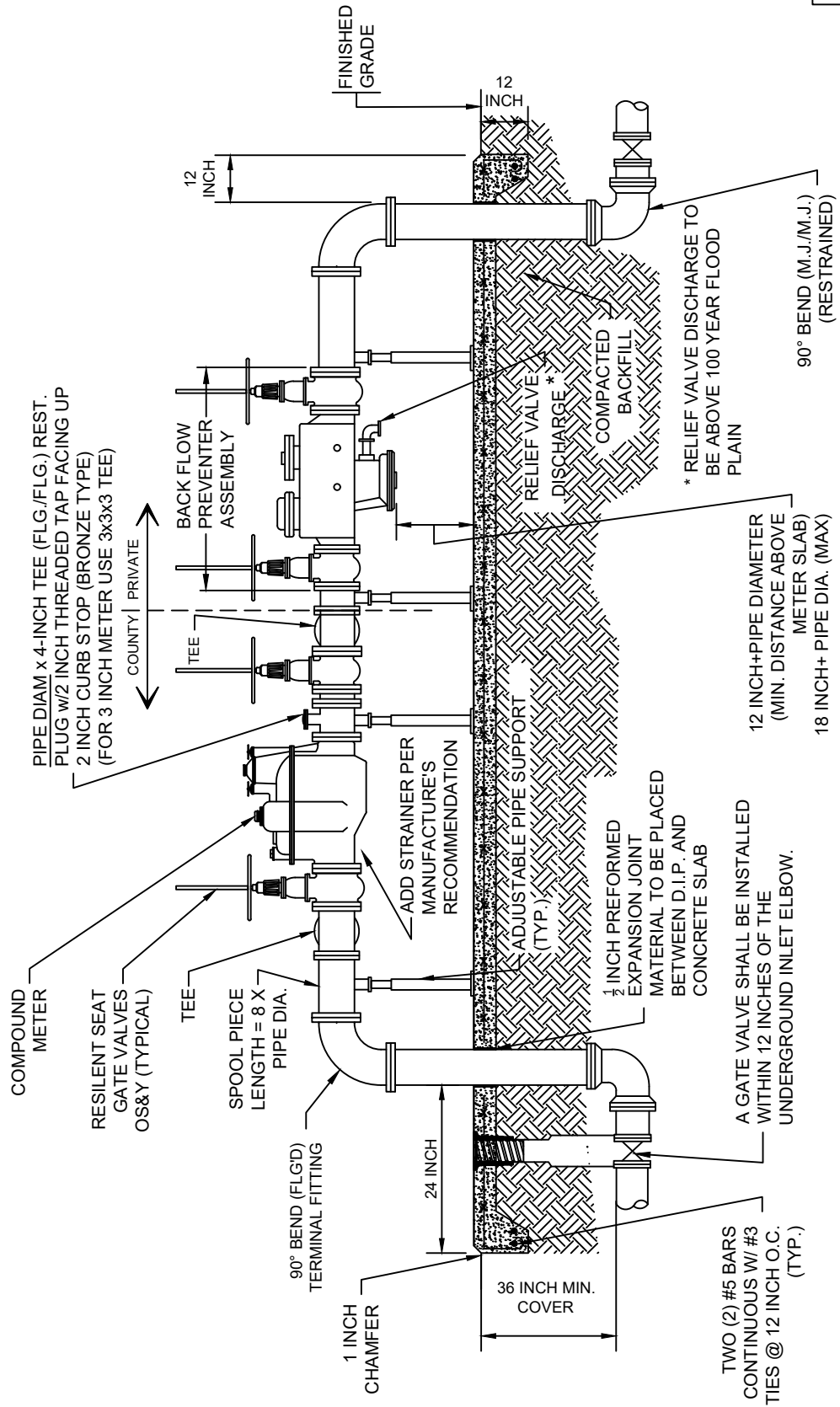


**BOLLARD POST DETAIL**  
N.T.S.

**WATER METER ASSEMBLY  
COMMERCIAL - 1-1/2 INCH & 2 INCH METERS  
HILLSBOROUGH COUNTY, FLORIDA**

**10/2021**

**SCALE: N.T.S.**

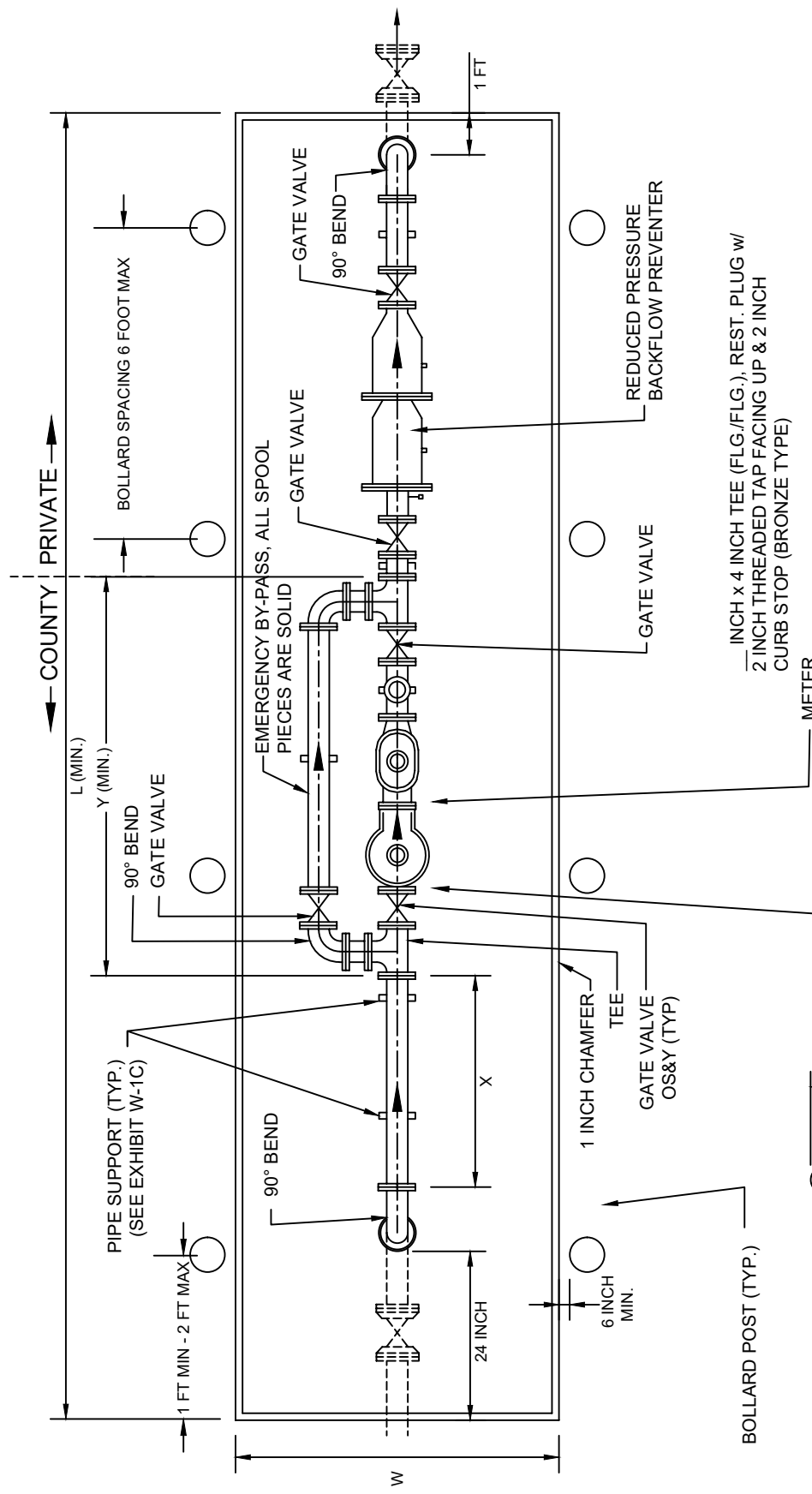


**NOTES:**

1. SEE EXHIBIT W-1G FOR GENERAL NOTES
2. SEE EXHIBIT W-1D FOR BOLLARD LAYOUT, PLAN VIEW, AND SLAB DIMENSIONS

**MASTER WATER METER ASSEMBLY**  
**SITE DEVELOPMENT- 3" METER & LARGER (PROFILE)**  
**HILLSBOROUGH COUNTY, FLORIDA**

**10/2021**  
**SCALE: N.T.S.**

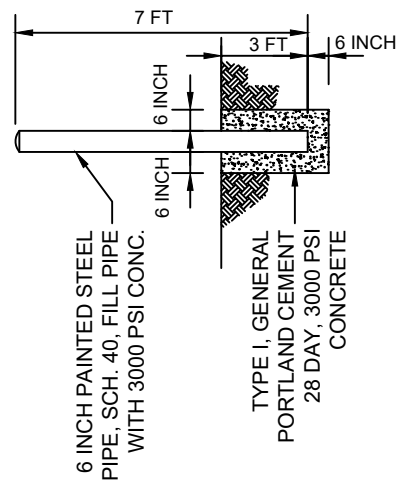


**NOTE: ALL ABOVE GRADE VALVES TO BE OS&Y**

| METER SIZE | L (MIN) VARIES | X   | Y (MIN) VARIES | W  |
|------------|----------------|-----|----------------|----|
| 8"         | 24'-6"         | 64" | 112"           | 9' |
| 6"         | 23'-6"         | 48" | 98"            | 9' |
| 4"         | 22'-8"         | 32" | 73"            | 7' |
| 3"         | 21'-6"         | 24" | 62"            | 7' |

**NOTES:**

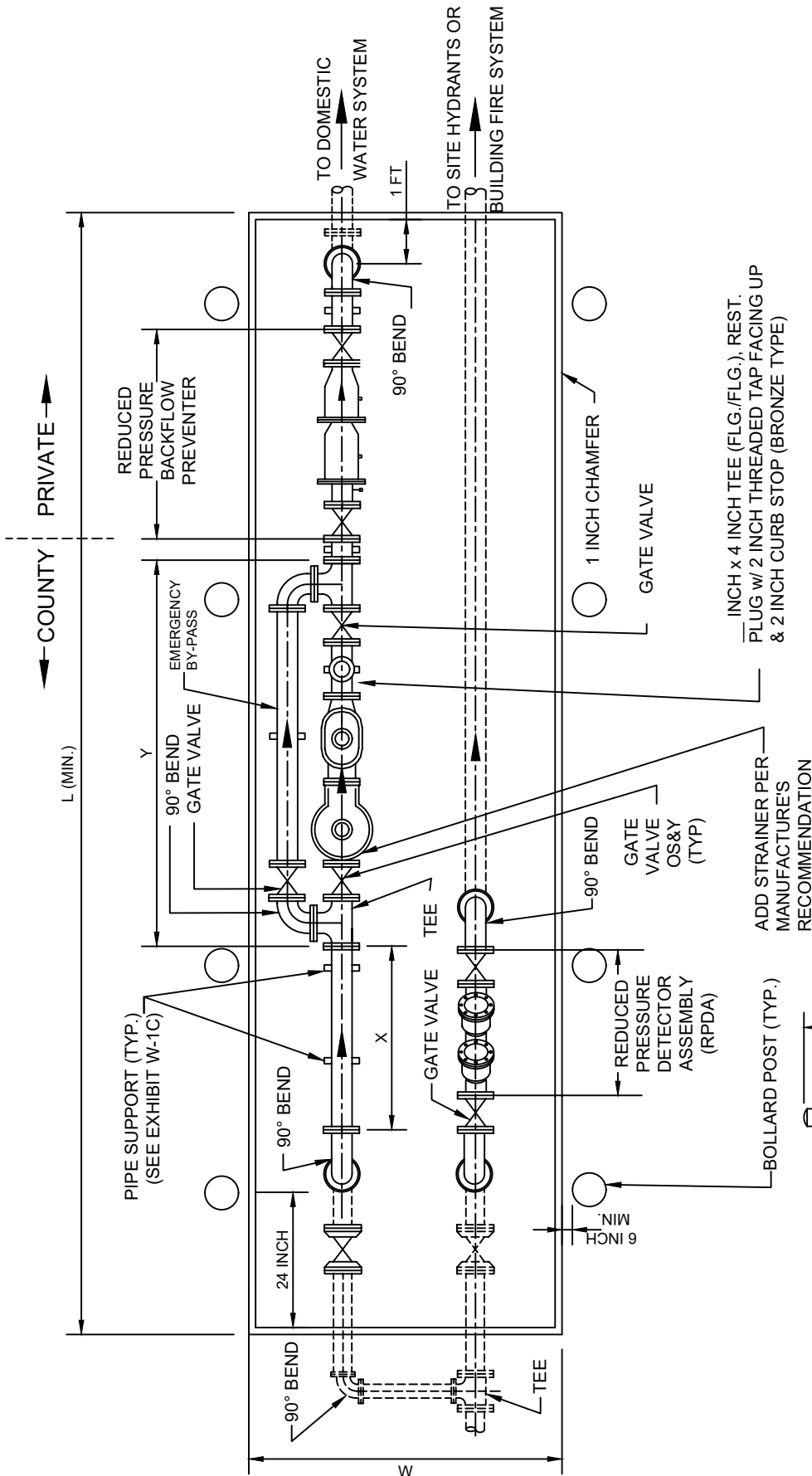
1. SEE EXHIBIT W-1G FOR GENERAL NOTES
2. BOLLARD SPACING NOT TO EXCEED 6 FEET



**BOLLARD POST DETAIL**  
N.T.S.

**MASTER WATER METER ASSEMBLY FOR SITE DEVELOPMENT-3 INCH & LARGER (PLAN)**  
**HILLSBOROUGH COUNTY, FLORIDA**

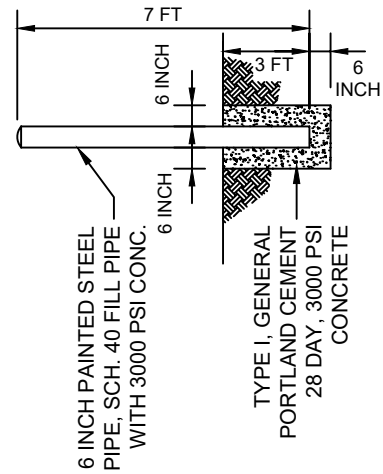
10/2021  
SCALE: N.T.S.



**NOTE: ALL ABOVE GRADE VALVES TO BE OS&Y**

**NOTES:**

1. SEE EXHIBIT W-1G FOR GENERAL NOTES
2. SEE EXHIBIT W-1D FOR L, W, X AND Y DIMENSIONS AND BOLLARD SPACING

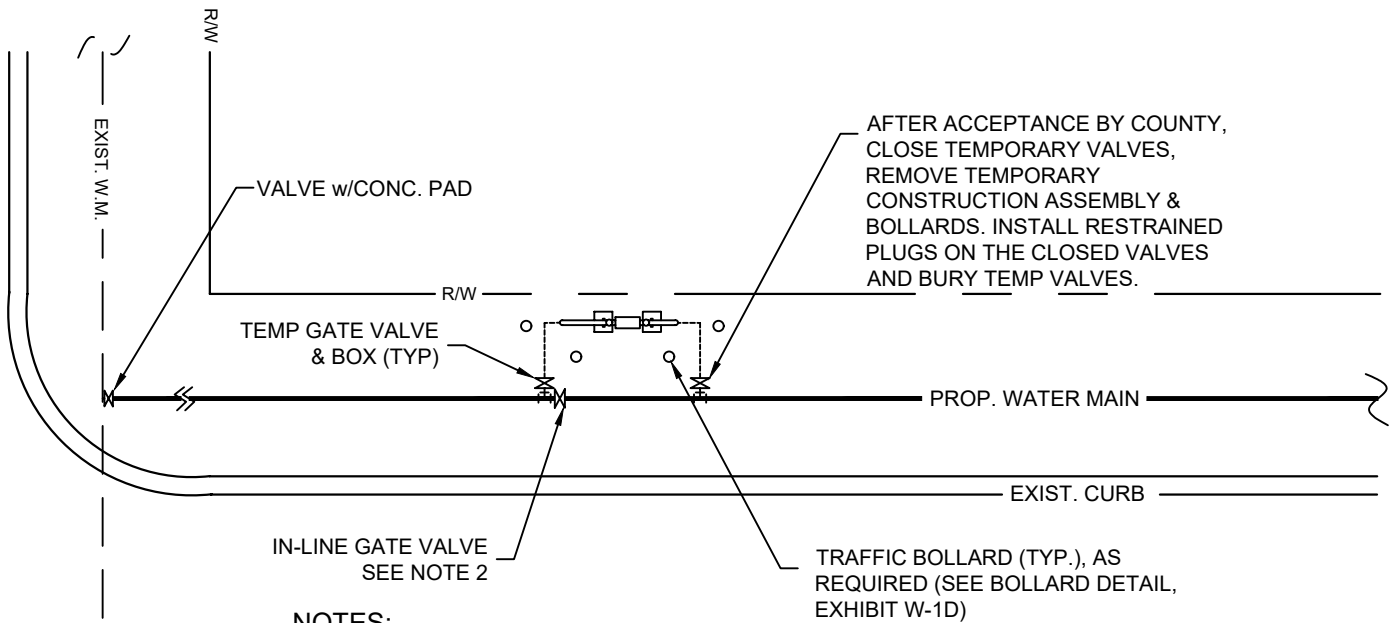
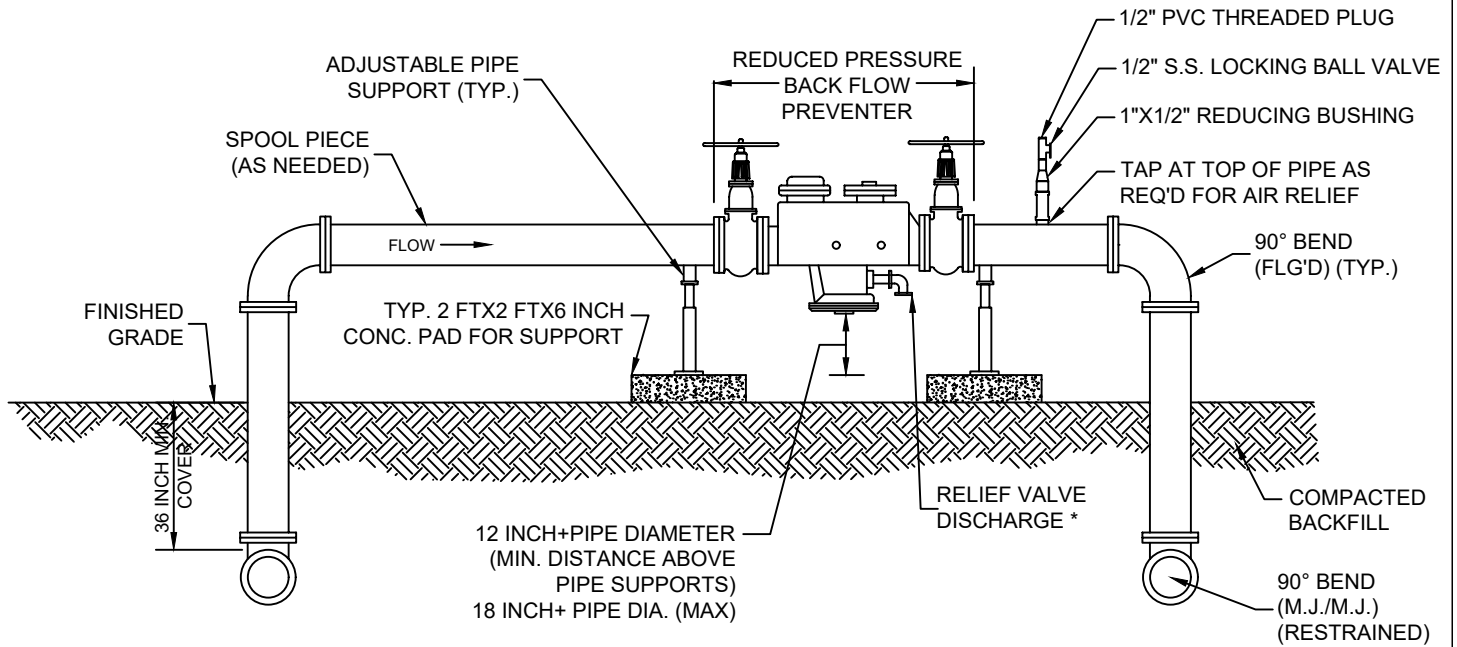


**BOLLARD POST DETAIL**  
N.T.S.

**MASTER WATER METER ASSEMBLY FOR  
SITE DEVELOPMENT W/ FIRE FLOW  
HILLSBOROUGH COUNTY, FLORIDA**

10/2021

SCALE: N.T.S.



**NOTES:**

1. NO TAPS ON PIPING UPSTREAM OF THE BACKFLOW PREVENTER AND NO MODIFICATION OR USE OF BACKFLOW PREVENTER TEST PORTS FOR ANYTHING OTHER THAN TESTING.
2. AFTER REMOVAL OF THE TEMPORARY BACKFLOW ASSEMBLY, THE IN-LINE GATE VALVE SHALL HAVE A VALVE BOX, COVER, AND A 2'X2'X6" CONCRETE PAD INSTALLED PER EXHIBIT W-9A OR W-9B.
3. SEE ALSO TEMPORARY CONSTRUCTION BACKFLOW ASSEMBLY (TCA) NOTES, EXHIBIT W-1G.

TEMPORARY CONSTRUCTION BACKFLOW ASSEMBLY (TCA)  
FOR RESIDENTIAL OR COMMERCIAL DEVELOPMENT 6" AND LARGER

10/2021

HILLSBOROUGH COUNTY, FLORIDA

SCALE: N.T.S.

GENERAL NOTES:

1. A MASTER METER ASSEMBLY SHALL BE DIRECTLY ACCESSIBLE BY A MAINTENANCE VEHICLE OFF A COUNTY ROW, OR BY AN INTERIOR ROAD THAT IS NOT BLOCKED BY A WALL OR GATE. THE TRUCK ACCESS ROAD SHALL BE 12 FT WIDE (MIN.) AND PAVED (CONCRETE OR ASPHALT)
2. ALL ABOVE GROUND PIPES AND FITTINGS SHALL BE CLASS 53 D.I.P. FOR 4 INCH AND LARGER PIPE.
3. CERTIFICATION OF PROPER OPERATION WILL BE REQUIRED FROM A CERTIFIED BACKFLOW TESTER PRIOR TO THE WATER MAIN ACCEPTANCE BY THE HILLSBOROUGH COUNTY PUBLIC UTILITIES DEPARTMENT.
4. ALL BACKFLOW ASSEMBLIES OR DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH AND SHALL MEET THE REQUIREMENTS FOUND IN CHAPTER 121 OF THE HILLSBOROUGH COUNTY CODE OF ORDINANCES, PART B, PUBLIC UTILITIES.
5. THE PROPER OPERATION, MAINTENANCE, AND TESTING OF THE BACKFLOW PREVENTION ASSEMBLY, SHALL BE IN ACCORDANCE WITH CHAPTER 121 OF THE HILLSBOROUGH COUNTY CODE OF ORDINANCES PART B, PUBLIC UTILITIES.
6. THE 6 INCH CONCRETE SLAB SHALL BE REINFORCED WITH 6x6-W1.4xW1.4 WELDED WIRE FABRIC AND SHALL BE TYPE I, PORTLAND CEMENT WITH A MINIMUM 28-DAY STRENGTH OF 3000psi.
7. SLAB WIDTH AND LENGTH SHALL VARY WITH ASSEMBLY. THE TOP OF SLAB SHALL BE 2 INCHES ABOVE FINISHED GRADE.
8. THE METER ASSEMBLY & BOLLARDS SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATION 331001, PART 2.6.
9. IF THE METER ASSEMBLY IS LOCATED WITHIN OR ADJACENT TO A TRAFFIC/VEHICLE AREA (PARKING LOT, DRIVEWAY, OR WITHIN 15 FT OF EDGE OF PAVEMENT/BACK OF CURB), METERS UP TO 2 INCHES SHALL HAVE A MINIMUM OF 4 TRAFFIC BOLLARD PROTECTION POSTS, AND FOR METERS 3 INCHES & LARGER A MINIMUM OF 6 TRAFFIC BOLLARDS ARE REQUIRED.

TEMPORARY CONSTRUCTION BACKFLOW ASSEMBLY (TCA) NOTES:

1. THE IN-LINE VALVE IS TO REMAIN CLOSED UNTIL AFTER THE CONSTRUCTION AND FINAL ACCEPTANCE OF THE DEVELOPMENT WATER DISTRIBUTION SYSTEM. NO DOWNSTREAM TIE-INS TO THE WRD WATER DISTRIBUTION SYSTEM ARE ALLOWED UNTIL AFTER A PASSING PRESSURE TEST AND 2 BAC-T TESTS ARE CERTIFIED BY THE EOR AND SUBMITTED TO PUD INSPECTION. ONCE FINAL TIE-INS ARE MADE 2 ADDITIONAL BAC-T TESTS ARE REQUIRED FOR EACH TIE-IN BEFORE SUBMITTING TO THE DOH FOR FINAL CLEARANCE.
2. THE BACKFLOW ASSEMBLY IS TO BE REMOVED BY THE CONTRACTOR AFTER FINAL ACCEPTANCE OF THE WATER DISTRIBUTION SYSTEM BY BOTH THE HILLSBOROUGH COUNTY DOH AND HILLSBOROUGH COUNTY DSD.
3. ALL CONSTRUCTION MUST MEET APPLICABLE STATE AND/OR LOCAL ROADWAY/ROADSIDE DESIGN STANDARDS INCLUDING, BUT NOT LIMITED TO, CLEAR ZONE REQUIREMENTS.

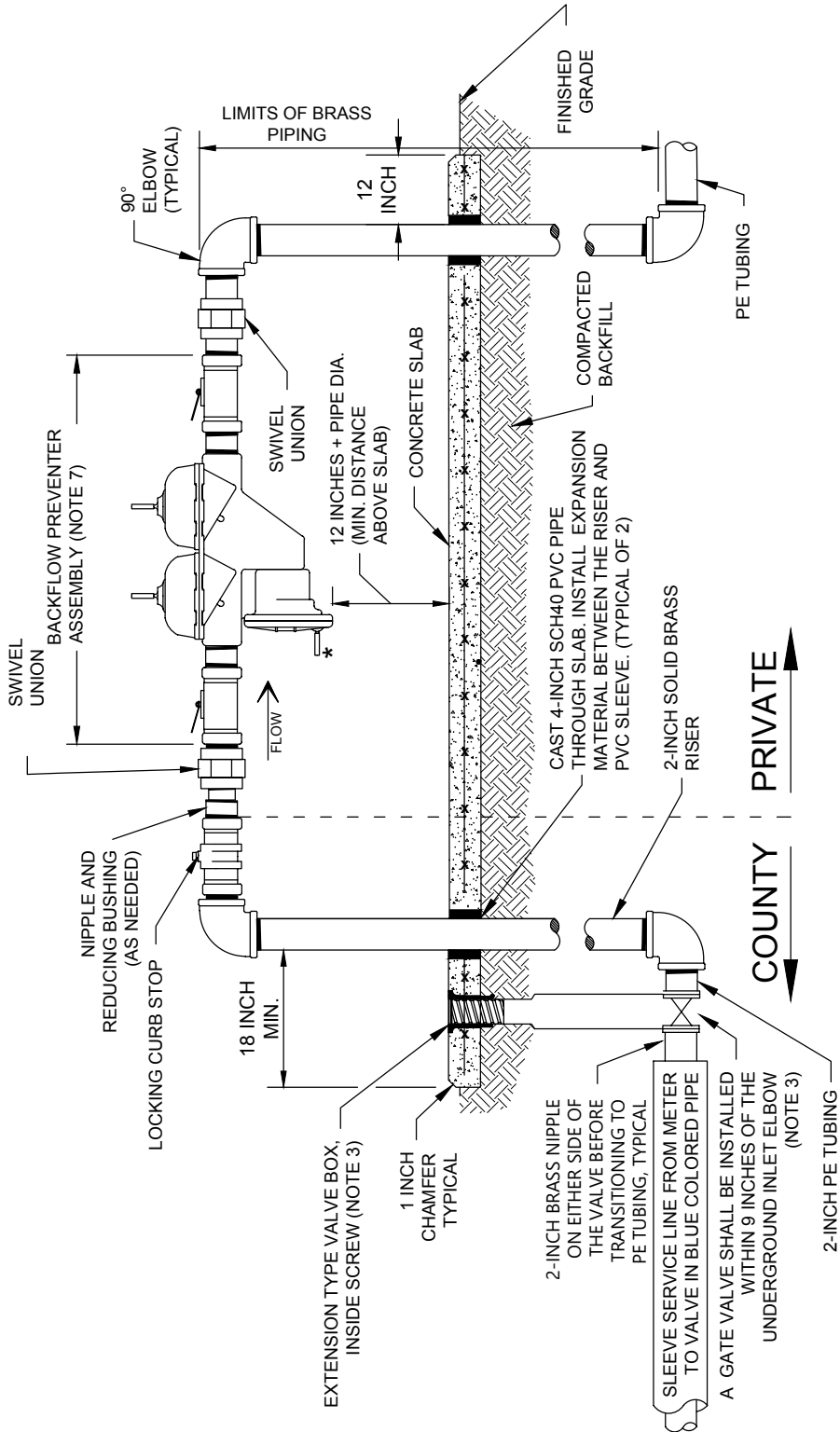
**NOTES WATER METER ASSEMBLIES**

**10/2021**

**HILLSBOROUGH COUNTY, FLORIDA**

**SCALE: N.T.S.**

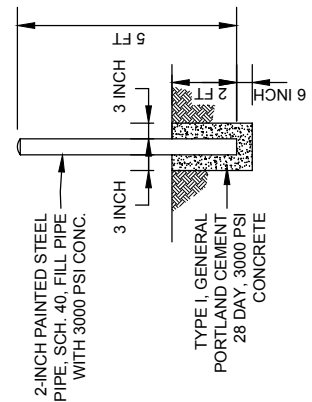




\* RELIEF VALVE DISCHARGE  
TO BE ABOVE 100 YEAR FLOOD PLAIN

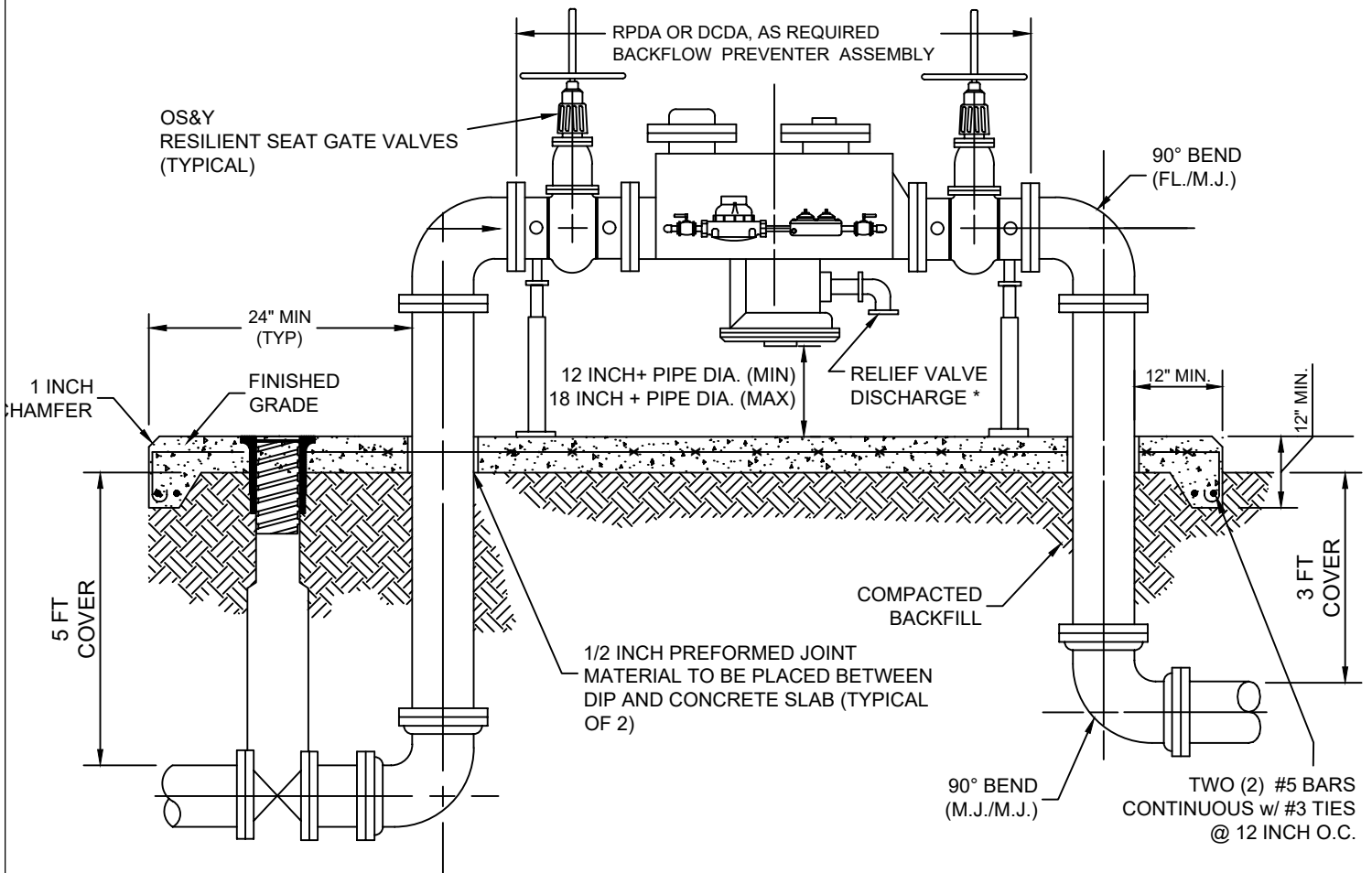
**NOTES:**

1. ALL PIPING TO BE A MINIMUM OF 2 INCHES UP THROUGH THE LOCKING CURB STOP.
2. 2-INCH COMMERCIAL SERVICE LINES SHALL USE A 2-INCH SADDLE & TAPPING VALVE (INSTEAD OF A CORPORATION STOP) AT THE WATER MAIN CONNECTION.
3. WHEN THE TAPPING VALVE IS LOCATED WITHIN 10 FEET OF THE METER ASSEMBLY RISER, AND IT MEETS PUD SAFETY CRITERIA, THE 2-INCH GATE VALVE AT THE ASSEMBLY MAY BE ELIMINATED BY SPECIAL REQUEST TO DSD.
4. FOUR BOLLARDS, TO PROTECT ASSEMBLY.
5. SEE EXHIBIT W-1G FOR GENERAL NOTES.
6. JOINTS BETWEEN DIFFERING MATERIALS SHALL BE ISOLATED PER THE FLORIDA PLUMBING CODE.
7. NON-HEALTH HAZARD - DCDA; HEALTH HAZARD - RP.



**DEDICATED FIRE SERVICE CONNECTION  
BACKFLOW ASSEMBLY - 2-INCH AND LESS  
HILLSBOROUGH COUNTY, FLORIDA**

**10/2021  
SCALE: N.T.S.**



ALL ABOVE GRADE VALVES TO BE OS&Y

\* DISCHARGE ABOVE 100 YEAR FLOOD PLAIN

NOTES:

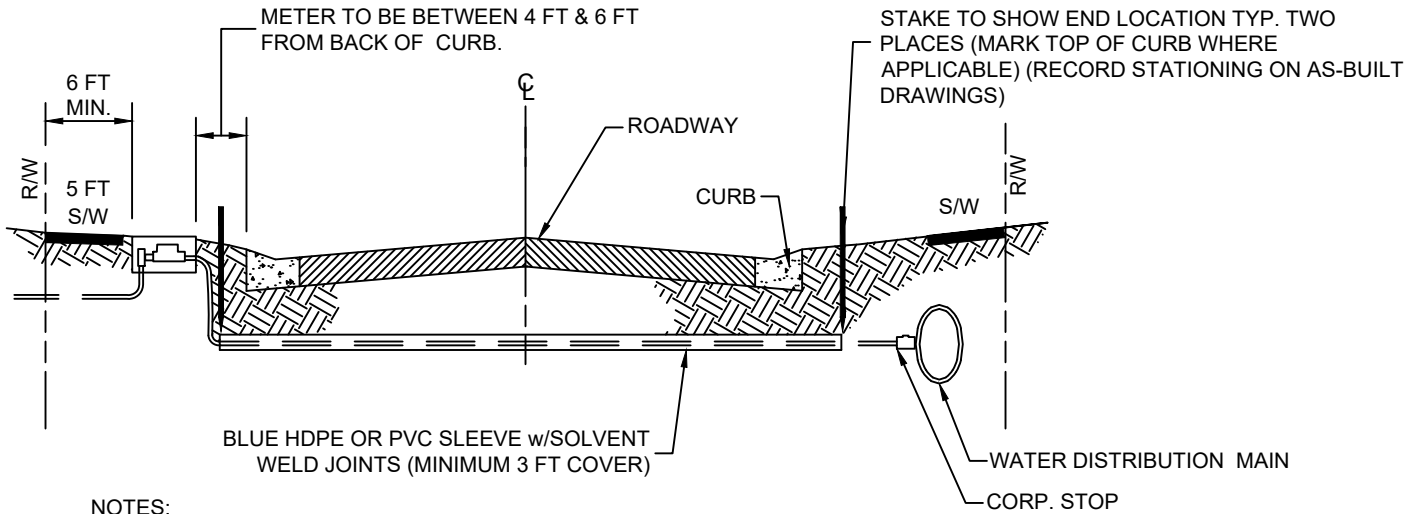
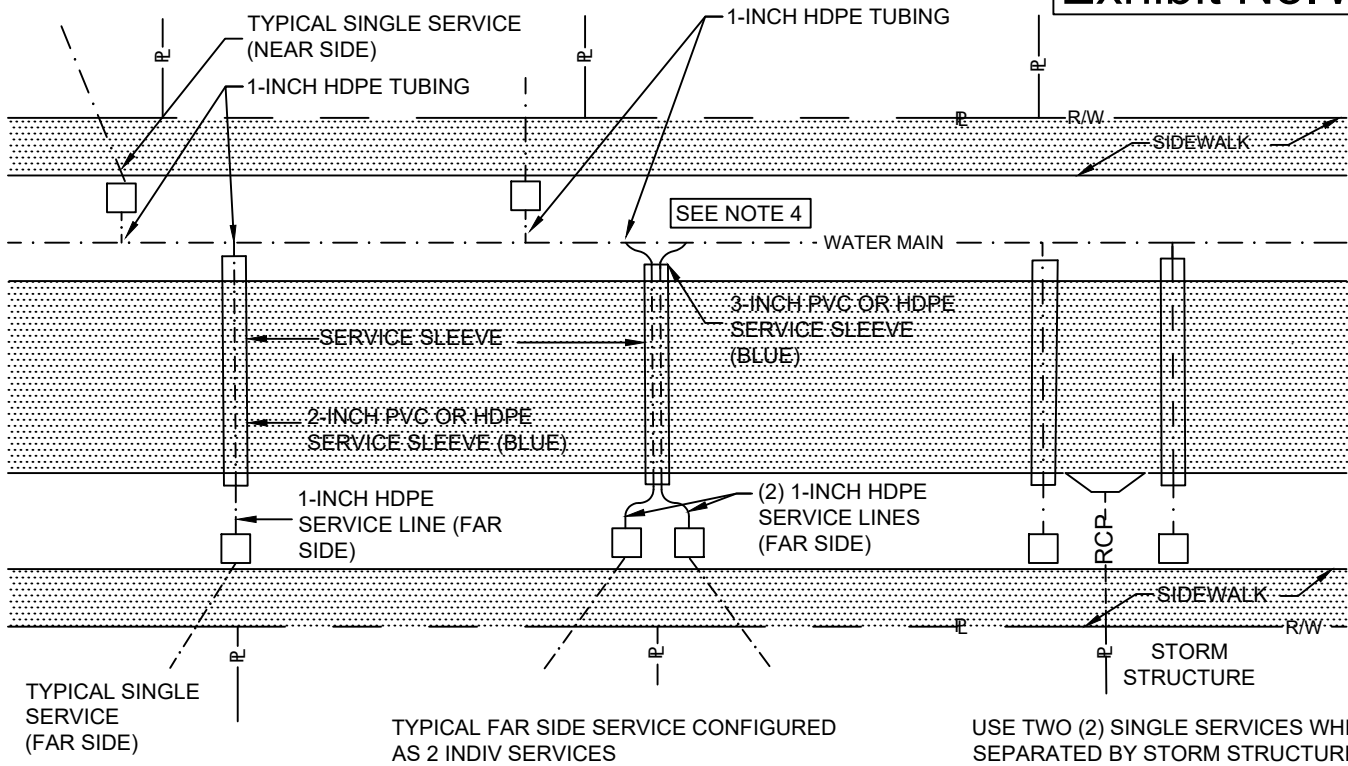
1. ALL PIPE AND FITTINGS SHALL BE DUCTILE IRON, CLASS 53, CEMENT LINED INTERIOR WITH FLANGE FITTINGS FOR ABOVE GROUND USE. MANUFACTURERS RESTRAINED JOINTS SHALL BE USED FOR UNDERGROUND PIPING.
2. CERTIFICATION OF PROPER INSTALLATION AND OPERATION WILL BE REQUIRED FROM THE ENGINEER OF RECORD PRIOR TO WATER MAIN ACCEPTANCE BY THE HILLSBOROUGH COUNTY PUBLIC UTILITIES DEPARTMENT. THE ASSEMBLY SHALL ALSO BE TESTED BY A CERTIFIED TESTER, AS REQUIRED BY THE POINT OF SERVICE BACKFLOW ASSEMBLY PERMIT.
3. ALL BACKFLOW ASSEMBLIES OR DEVICES SHALL BE IN ACCORDANCE WITH AND SHALL MEET THE REQUIREMENTS FOUND IN CHAPTER 121 OF THE HILLSBOROUGH COUNTY CODE OF ORDINANCES, PART B, PUBLIC UTILITIES.
4. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR THE PROPER OPERATION, MAINTENANCE AND TESTING OF THE BACKFLOW PREVENTION ASSEMBLY.
5. THE 6 INCH CONCRETE SLAB SHALL BE REINFORCED WITH 6x6-W1.4xW1.4 WELDED WIRE FABRIC AND SHALL BE TYPE I, PORTLAND CEMENT WITH A MINIMUM 28-DAY STRENGTH OF 3000psi.
6. SLAB WIDTH SHALL BE 5 FT TYPICAL AND LENGTH SHALL VARY WITH ASSEMBLY.
7. WHEN ASSEMBLY IS LOCATED WITHIN A TRAFFIC/VEHICLE AREA SEE W-1D FOR BOLLARD LAYOUT. A MINIMUM OF (4) FOUR 6 INCH BOLLARDS ARE REQUIRED.

BACKFLOW PREVENTION DEVICE RPDA  
(FOR FIRE SERVICE ONLY)

10/2021

HILLSBOROUGH COUNTY, FLORIDA

SCALE: N.T.S.



**NOTES:**

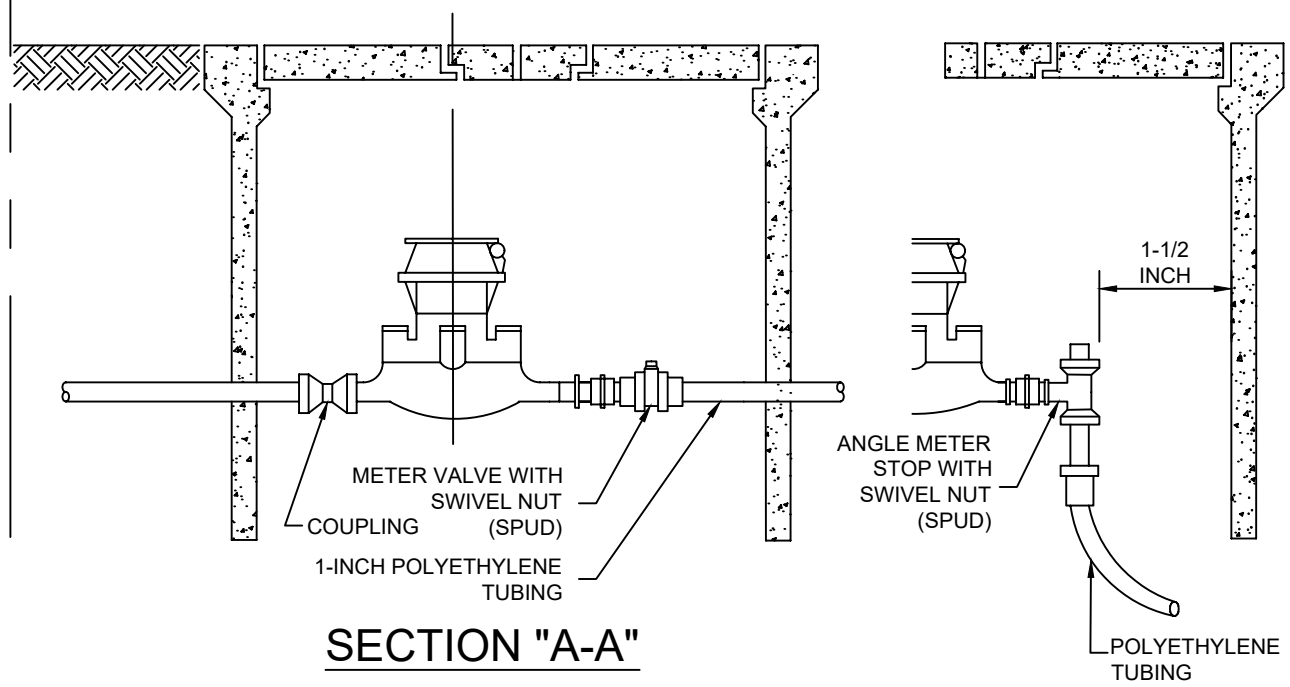
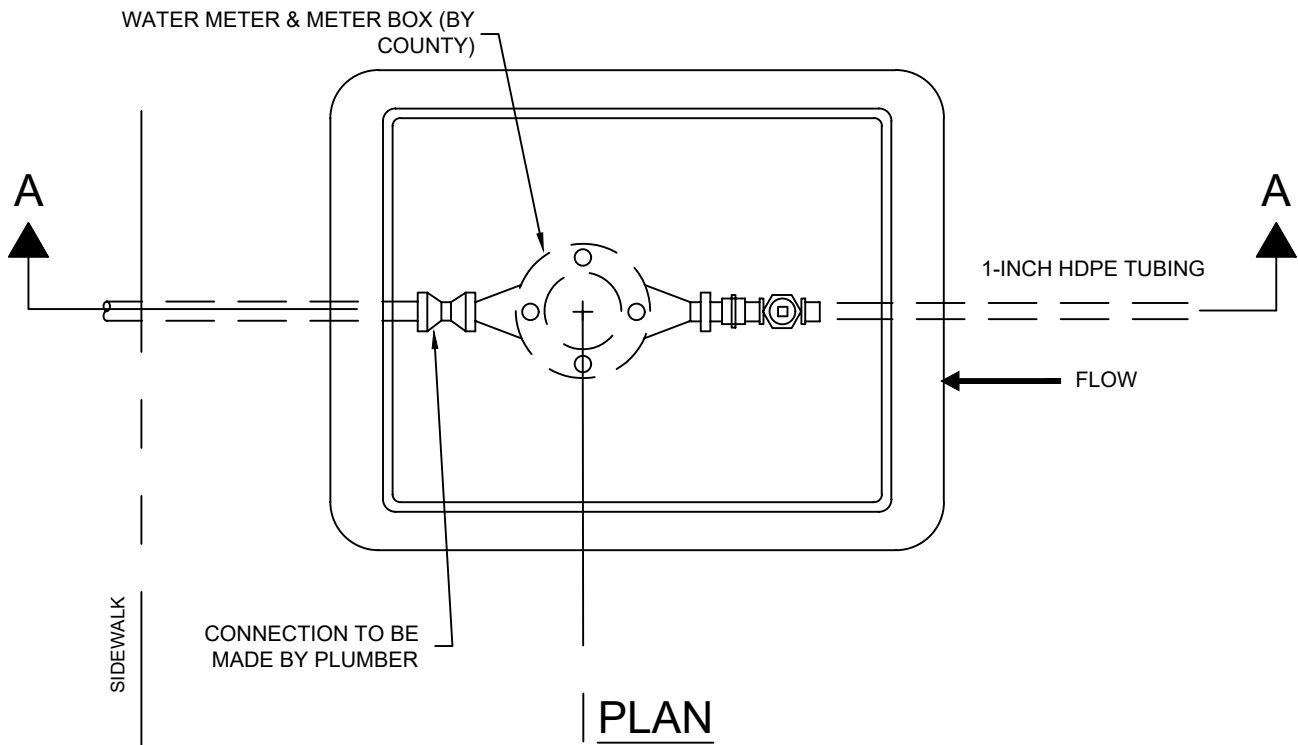
1. SLEEVE SHALL BE EXTENDED 24 INCHES PAST ANY PAVED SURFACE WITHIN DEDICATED R/W.
2. EACH SERVICE SHALL TERMINATE AT A CURB METER VALVE WHICH SHALL BE BURIED 6 INCHES, ± 1 INCH, BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2 INCH x 2 INCH x 18 INCH STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE LOT(S) NUMBER SERVED.
3. STATIONING NOT REQUIRED IF SERVICE IS LOCATED ON LOT LINE.
4. 18 INCH MIN. SPACING BETWEEN SERVICE TAPS ON WATER MAIN SHALL BE MAINTAINED.
5. A NEAR SIDE DUAL SERVICE CONNECTION SERVICING MORE THAN ONE RESIDENCE IS ONLY ALLOWED WHERE RECLAIMED WATER SERVICE IS AVAILABLE.

**RESIDENTIAL SERVICE LAYOUTS**

**10/2021**

**HILLSBOROUGH COUNTY, FLORIDA**

**SCALE: N.T.S.**

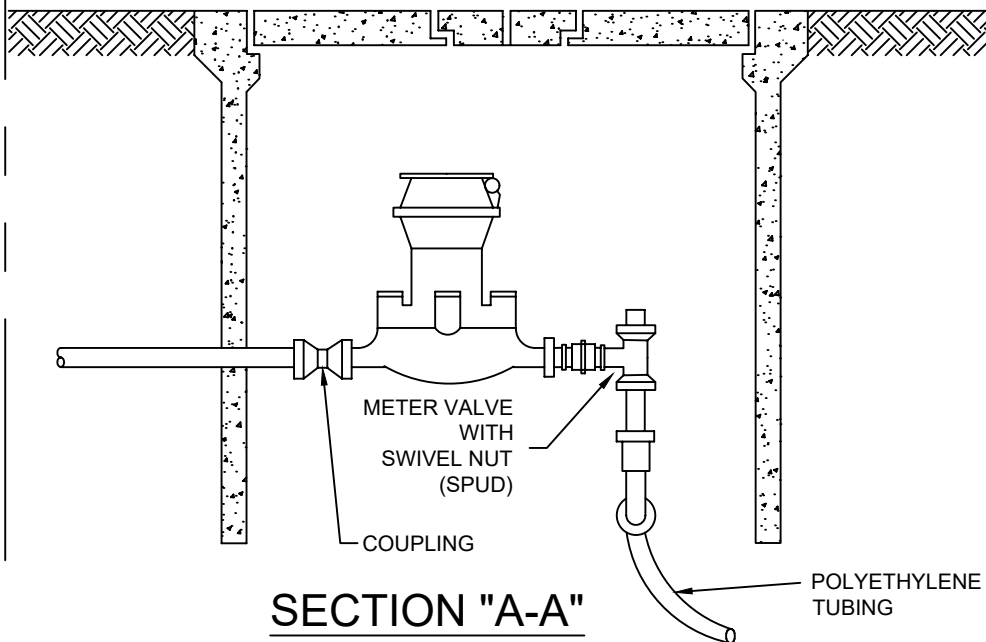
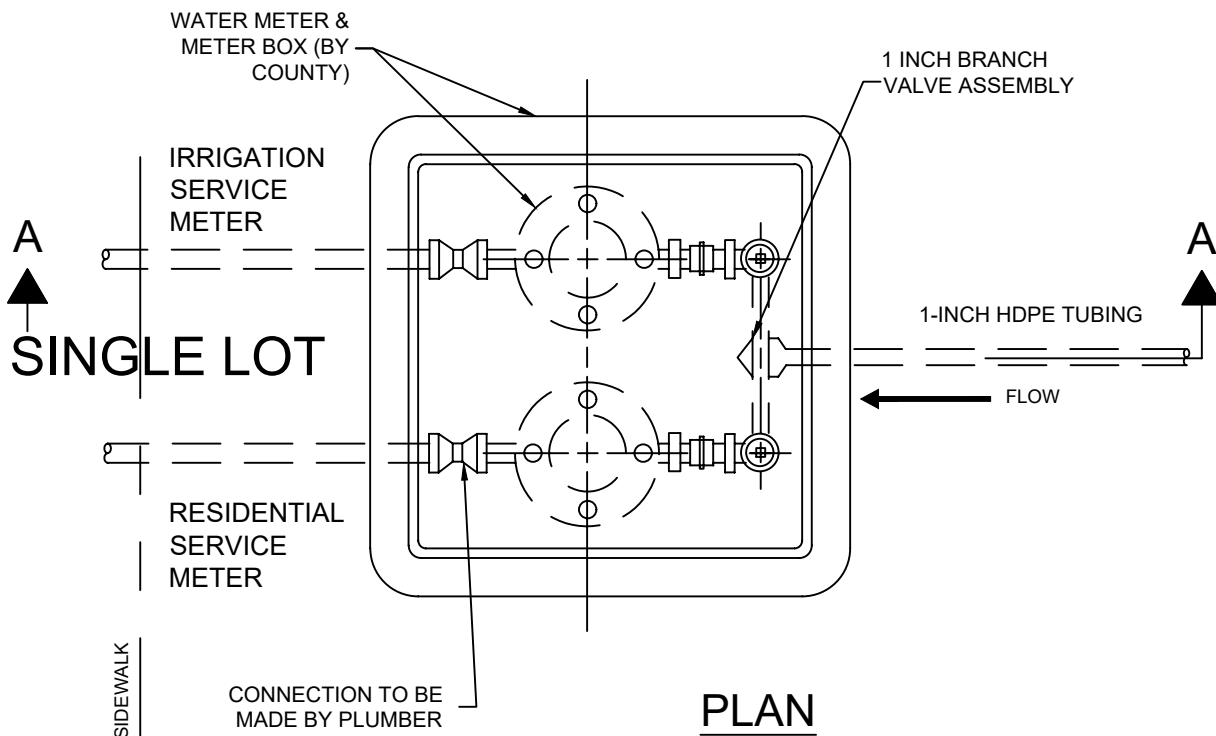


**NOTES:**

1. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
2. TEMPORARY IDENTIFICATION: EACH SERVICE SHALL TERMINATE AT A METER VALVE WHICH SHALL BE BURIED 6 INCHES, ± 1 INCH, BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2 INCH x 2 INCH x 18 INCH STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE LOT NUMBER SERVED.

**RESIDENTIAL SINGLE METER SERVICE  
(NEAR SIDE & FAR SIDE)  
HILLSBOROUGH COUNTY, FLORIDA**

**10/2021  
SCALE: N.T.S.**



NOTES:

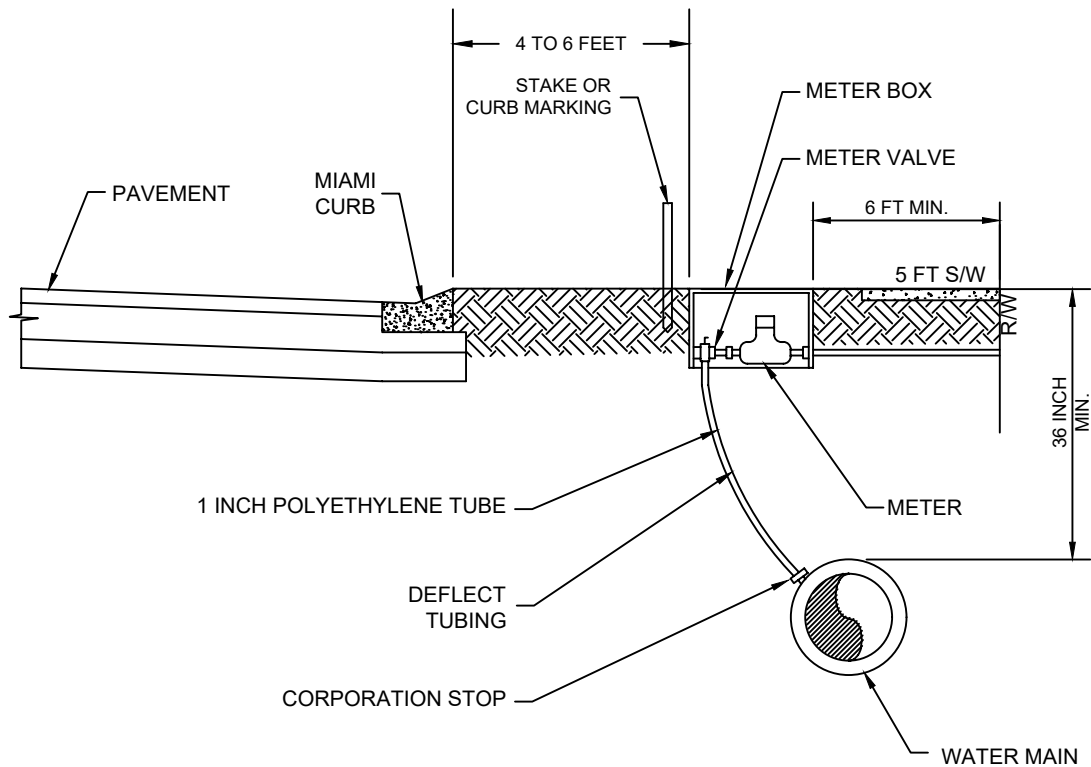
1. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
2. TEMPORARY IDENTIFICATION: EACH SERVICE SHALL TERMINATE AT A METER VALVE WHICH SHALL BE BURIED 6 INCHES, ± 1 INCH, BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2 INCH x 2 INCH x 18 INCH STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE LOT NUMBER SERVED.

RESIDENTIAL DUAL METER  
SINGLE LOT SERVICE

HILLSBOROUGH COUNTY, FLORIDA

10/2021

SCALE: N.T.S.



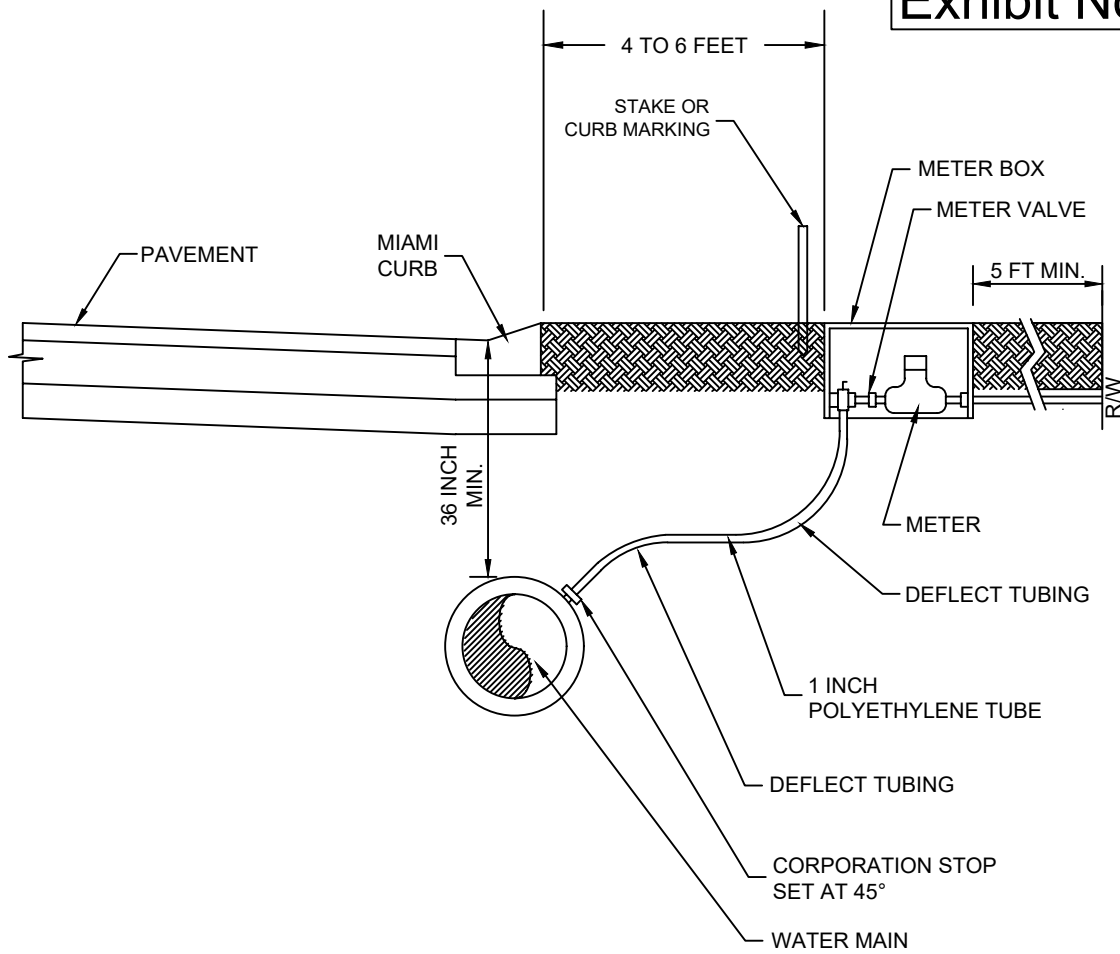
NOTE:

1. CAST BRONZE COMPRESSION FITTING CONNECTIONS SHALL BE USED & INSTALLED IN ACCORDANCE WITH COUNTY SPECIFICATIONS.
2. METER AND METER BOX SUPPLIED BY HILLSBOROUGH COUNTY.
3. USE 1-INCH DIAMETER HDPE FOR SINGLE SERVICE.
4. REDUCE HDPE AT THE METER WITH A BRASS REDUCER.
5. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
6. EACH SERVICE SHALL TERMINATE AT A METER VALVE WHICH SHALL BE BURIED 6 INCHES,  $\pm$  1 INCH, BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2 INCH x 2 INCH x 18 INCH STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE LOT NUMBER SERVED.

**RESIDENTIAL METER SERVICE  
INSTALLATION (METER OVER MAIN)  
HILLSBOROUGH COUNTY, FLORIDA**

**10/2021**

**SCALE: N.T.S.**



NOTE:

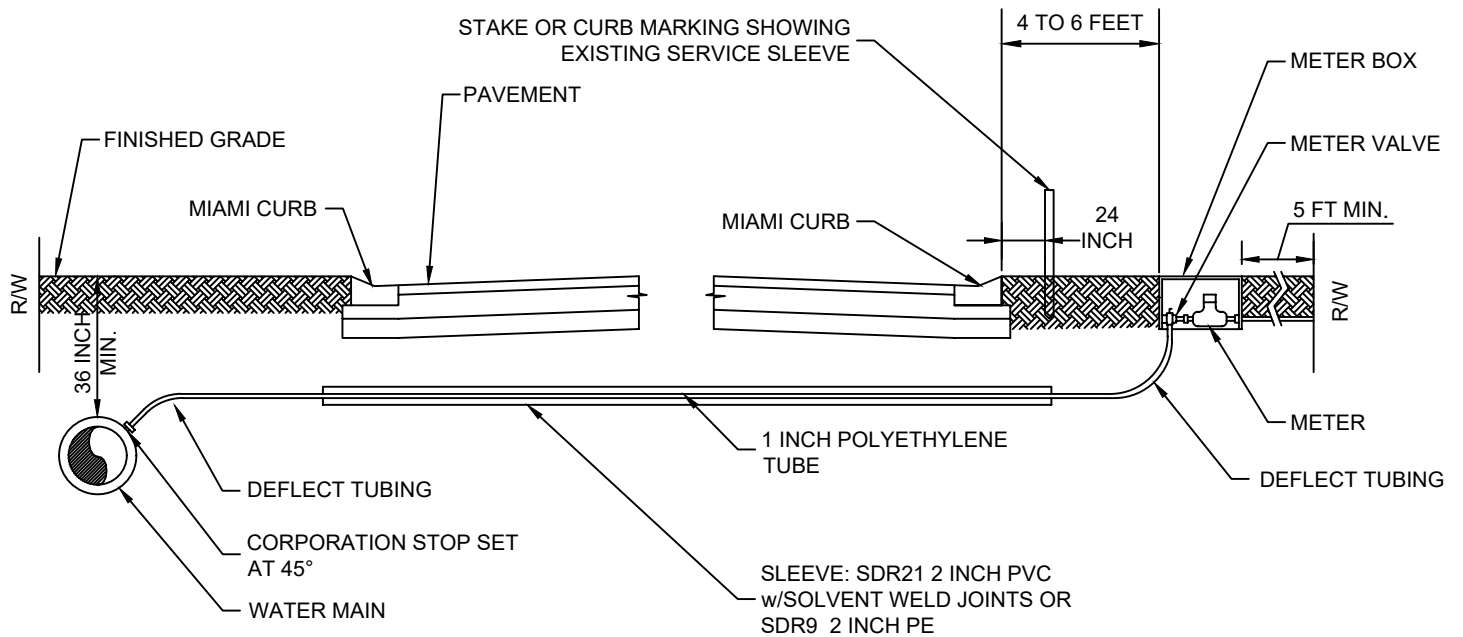
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2. METER AND METER BOX SUPPLIED BY HILLSBOROUGH COUNTY.
3. USE 1-INCH DIAMETER HDPE FOR SINGLE SERVICE.
4. REDUCE HDPE AT THE METER WITH A BRASS REDUCER.
5. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
6. EACH SERVICE SHALL TERMINATE AT A METER VALVE WHICH SHALL BE BURIED 6 INCHES, ± 1 INCH, BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2 INCH x 2 INCH x 18 INCH STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE LOT NUMBER SERVED.

RESIDENTIAL METER SERVICE  
INSTALLATION (NEAR SIDE)

10/2021

HILLSBOROUGH COUNTY, FLORIDA

SCALE: N.T.S.



**NOTE:**

1. CAST BRONZE COMPRESSION FITTING CONNECTIONS SHALL BE USED & INSTALLED IN ACCORDANCE WITH COUNTY SPECIFICATIONS.
2. METER AND METER BOX SUPPLIED BY HILLSBOROUGH COUNTY.
3. USE 1-INCH DIAMETER HDPE FOR SINGLE SERVICE.
4. REDUCE HDPE AT THE METER WITH A BRASS REDUCER.
5. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
6. EACH SERVICE SHALL TERMINATE AT A METER VALVE WHICH SHALL BE BURIED 6 INCHES, ± 1 INCH, BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2 INCH x 2 INCH x 18 INCH STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE LOT NUMBER SERVED.

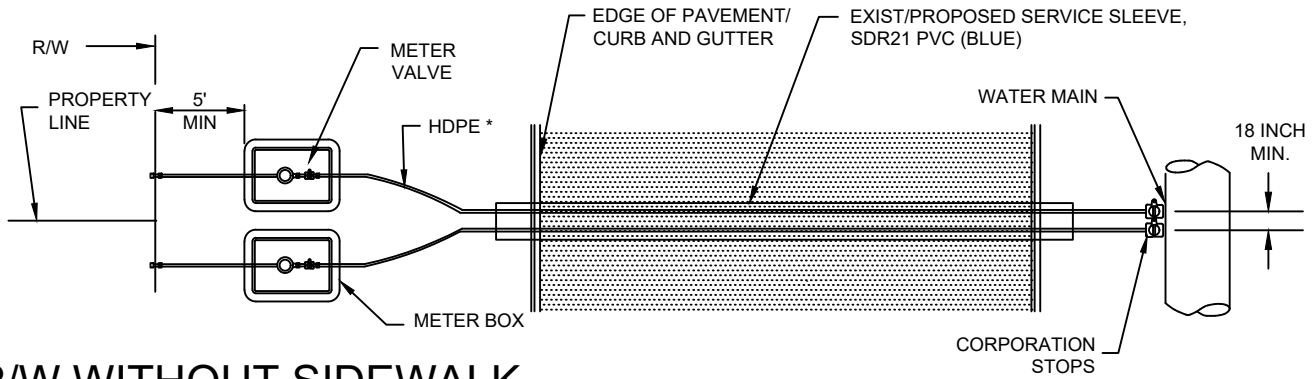
**RESIDENTIAL METER SERVICE  
INSTALLATION (FAR SIDE)**

**10/2021**

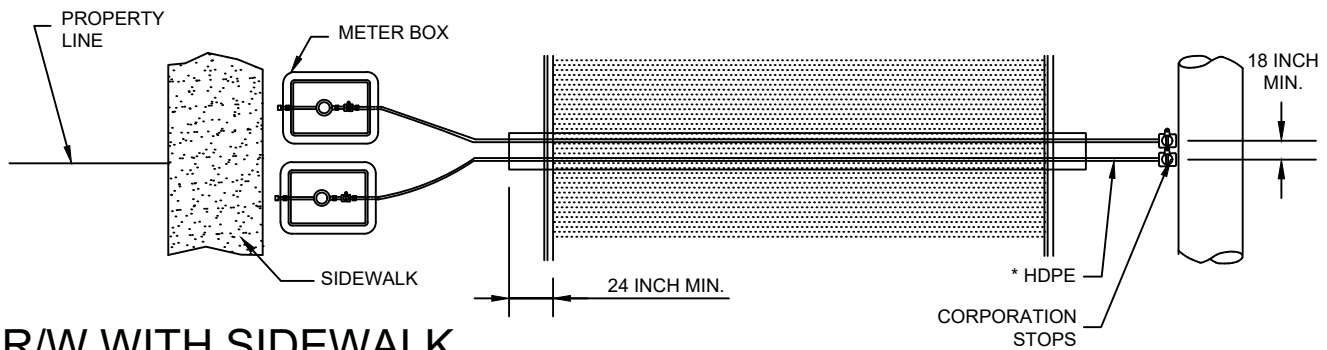
**HILLSBOROUGH COUNTY, FLORIDA**

**SCALE: N.T.S.**



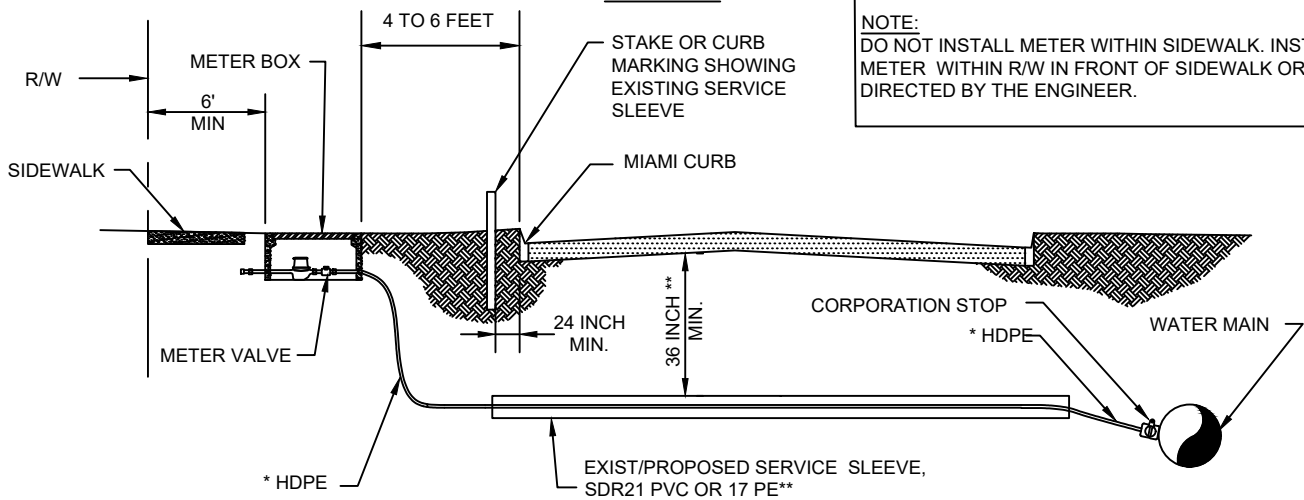


**R/W WITHOUT SIDEWALK**



**R/W WITH SIDEWALK**

**PLAN**



**NOTE:**  
DO NOT INSTALL METER WITHIN SIDEWALK. INSTALL METER WITHIN R/W IN FRONT OF SIDEWALK OR AS DIRECTED BY THE ENGINEER.

\*\* 36 INCH MIN. OR GREATER IF REQUIRED BY APPROPRIATE PERMITTING AGENCY

**PROFILE**

| METER SIZE                | *EACH SERVICE LINE SIZE (IN) | CASING SIZE (inches) |
|---------------------------|------------------------------|----------------------|
| 5/8 & 1 Inch Dual Service | 1                            | 3 ***                |

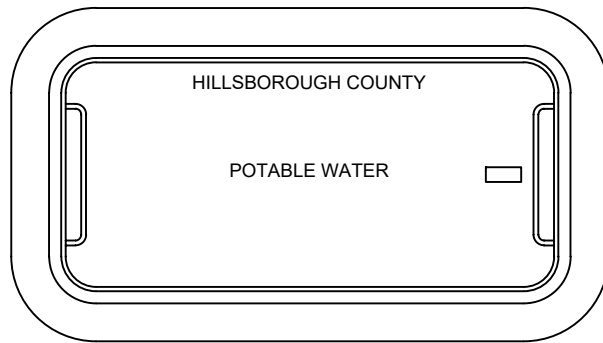
\*\*\* FOR SERVICES > 50 FT (E.G., CUL DE SAC CROSSINGS), A 4-INCH DIAMETER CASING IS REQUIRED

**RESIDENTIAL DUAL LOT  
METERED SERVICE (FAR SIDE)**

**10/2021**

**HILLSBOROUGH COUNTY, FLORIDA**

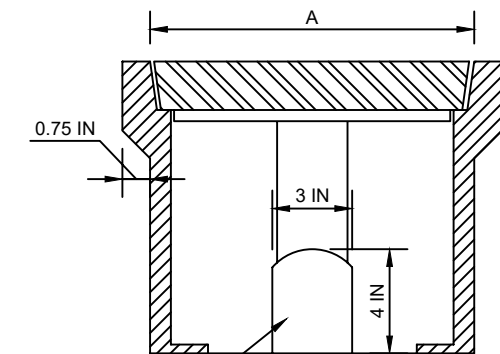
**SCALE: N.T.S.**



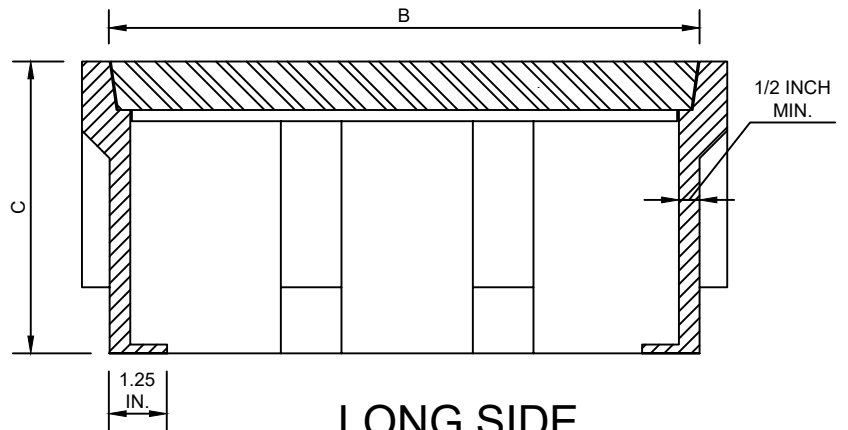
PLAN VIEW

NOTE:

1. ALL LETTERING SHALL BE CAPITALIZED AND AT LEAST ONE INCH IN HEIGHT.
2. REMAINDER OF OPEN SURFACE SHALL BE CROSS HATCHED TO REDUCE SLIPPING ACCIDENTS.
3. COLOR OF BOX AND LID SHALL BE BLACK.
4. A METAL REINFORCED PICK HOLE SHALL BE CENTERED ON THE LIFTING SIDE OF THE LID.
5. THE OPTION OF HAVING LOCKING TABS TO PREVENT "FLOATING" SHALL BE BY REQUEST ONLY.
6. METER BOXES ARE TRAFFIC RATED (H-20).
7. LID THICKNESS TO BE 1.5 INCH MIN.



SHORT SIDE VIEW



LONG SIDE VIEW

| DIMENSION * | SINGLE        | DUAL          |
|-------------|---------------|---------------|
| A           | 11-1/8 INCHES | 14-5/8 INCHES |
| B           | 18 INCHES     | 16-5/8 INCHES |
| C           | 12 INCHES     | 12 INCHES     |

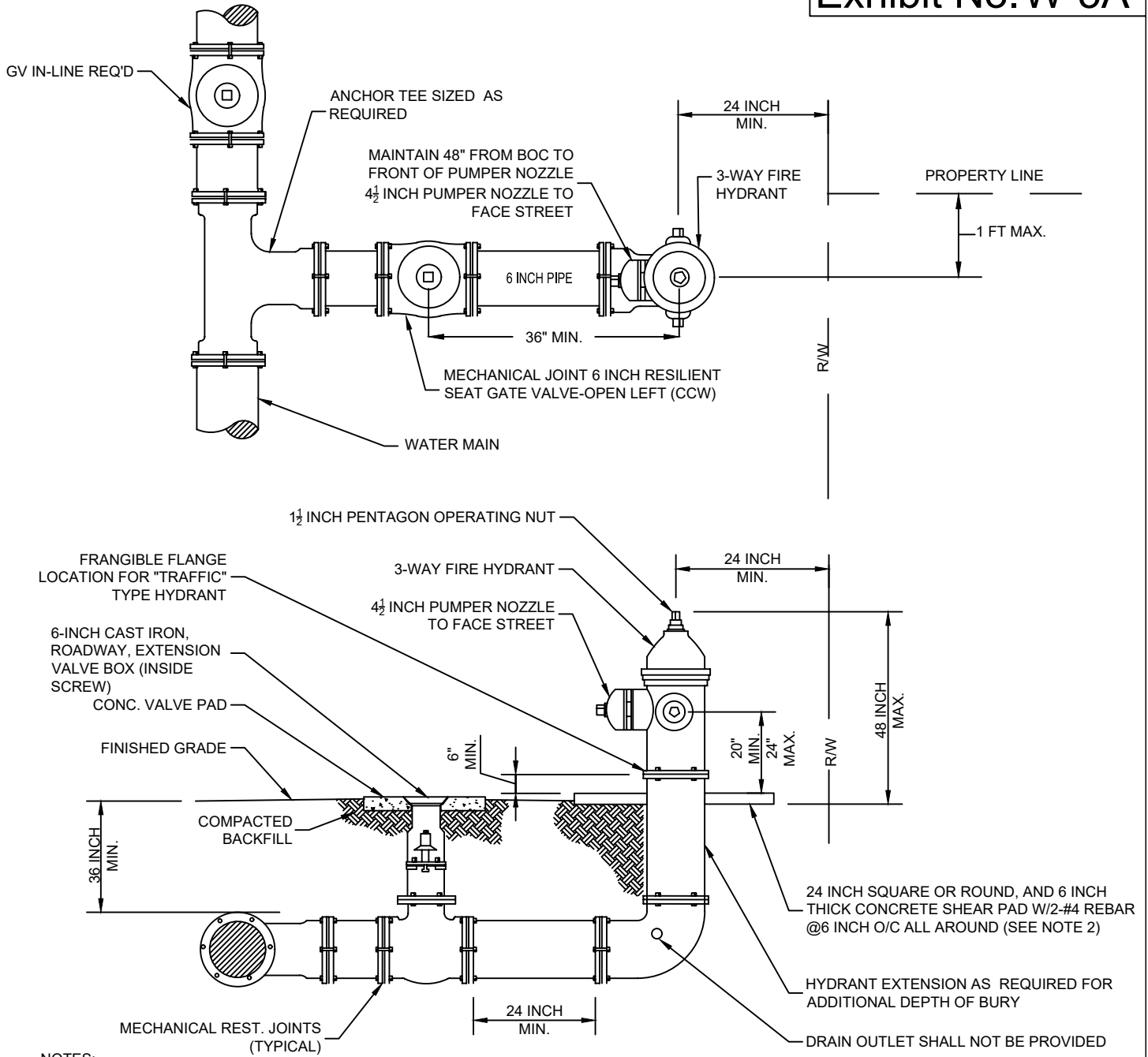
\* ALL DIMENSIONS ± 1/8 INCH

POTABLE WATER METER BOX

10/2021

HILLSBOROUGH COUNTY, FLORIDA

SCALE: N.T.S.



**NOTES:**

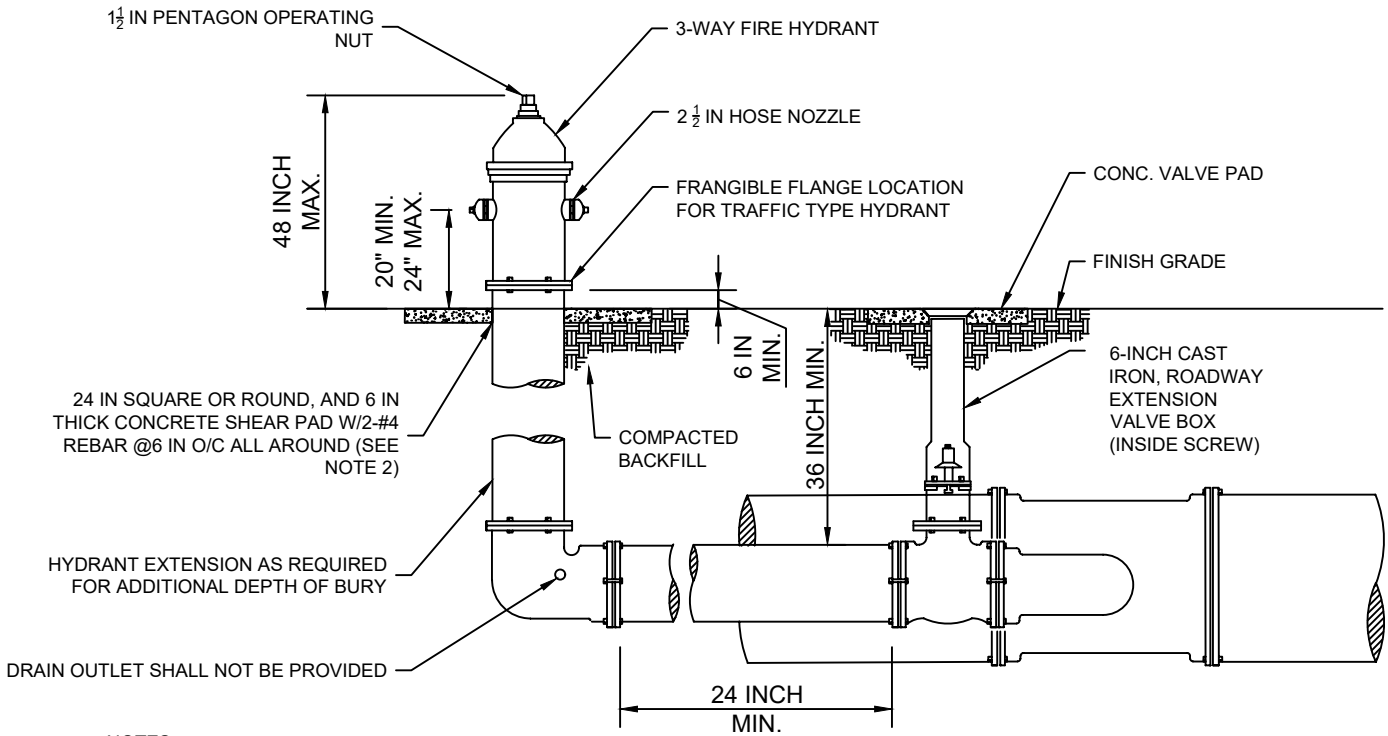
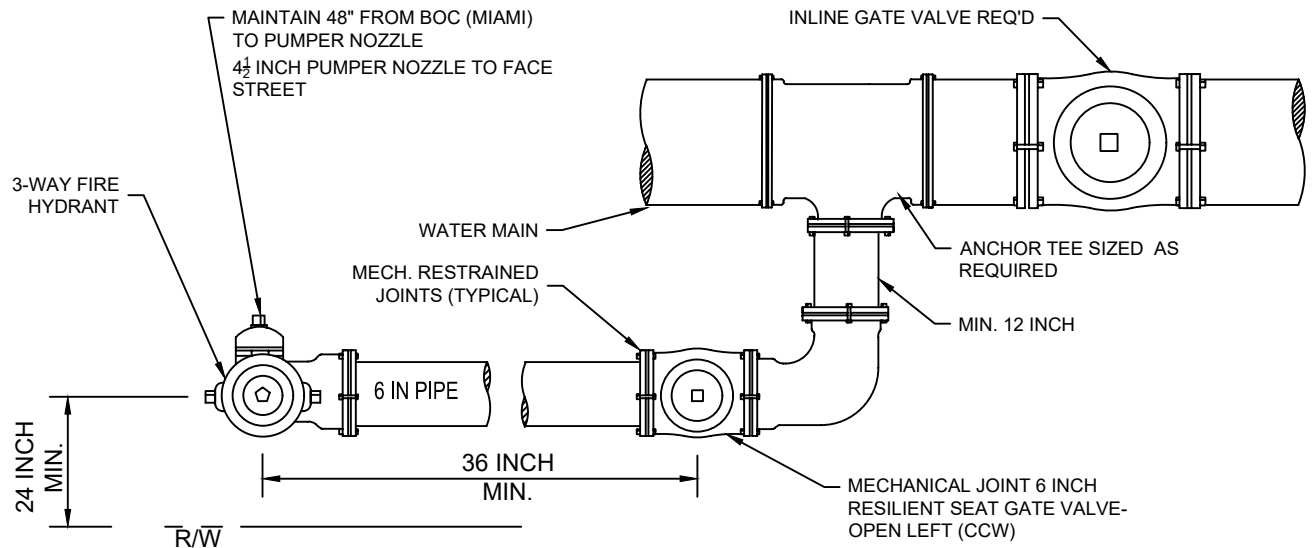
1. SHEAR PAD REQUIRED FOR ALL HYDRANTS ALONG ARTERIAL AND COLLECTOR ROADWAYS . 20 INCH MIN CLEARANCE TO BE MAINTAINED BETWEEN PAD AND HYDRANT NOZZLES.
2. CLEARANCE BETWEEN BOTTOM OF FLANGE AND TOP OF SHEAR PAD SHALL BE 6 INCH ± 1/2 INCH TOLERANCE.
3. FIRE HYDRANTS SHALL BE INSTALLED BETWEEN BACK OF CURB AND FACE OF SIDEWALK EXCEPT WHERE CONDITIONS AND/OR REGULATIONS PROHIBIT.
4. PUMPER NOZZLE TO FACE STREET.
5. PER NFPA 1, CLEARANCES OF 5' IN FRONT AND 3' TO SIDES THE FIRE HYDRANT, AND 3 FEET TO THE REAR OF THE HYDRANT MUST BE MAINTAINED.
6. WHEN AN INLINE ISOLATION VALVE FALLS WITHIN 50 FT OF AN EXISTING ISOLATION VALVE, THE EOR MAY CONTACT THE UTILITY DESIGN TEAM TO DETERMINE IF THE NUMBER OF VALVES CAN BE REDUCED.
7. MAINTAIN 3 FT CLEARANCE BETWEEN ALL VALVES AND HYDRANTS

**FIRE HYDRANT  
(RESTRAINED)**

**10/2021**

**HILLSBOROUGH COUNTY, FLORIDA**

**SCALE: N.T.S.**



**NOTES:**

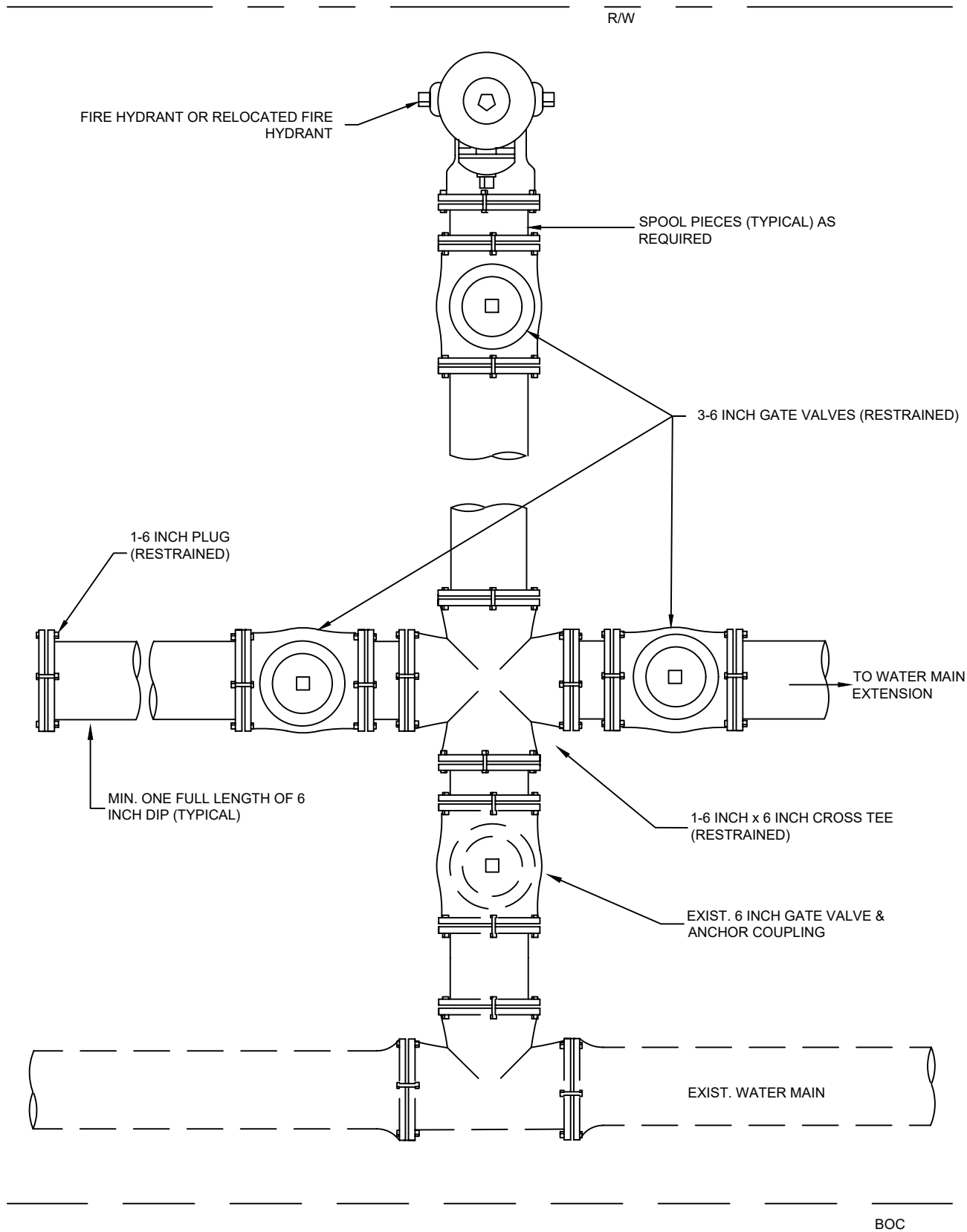
1. SHEAR PAD REQUIRED FOR ALL HYDRANTS ALONG ARTERIAL AND COLLECTOR ROADWAYS. 20 IN MIN CLEARANCE TO BE MAINTAINED BETWEEN PAD AND HYDRANT NOZZLES.
2. CLEARANCE BETWEEN BOTTOM OF FLANGE AND TOP OF SHEAR PAD SHALL BE 6 INCH ± 1/2 IN TOLERANCE.
3. FIRE HYDRANTS SHALL BE INSTALLED BETWEEN BACK OF CURB AND FACE OF SIDEWALK EXCEPT WHERE CONDITIONS AND/OR REGULATIONS PROHIBIT.
4. PUMPER NOZZLE TO FACE STREET.
5. PER NFPA 1, CLEARANCES OF 5 FEET TO FRONT AND 3 FT TO SIDES, AND 3 FT TO THE REAR OF THE HYDRANT MUST BE MAINTAINED.
6. WHEN AN INLINE ISOLATION VALVE FALLS WITHIN 50 FT OF AN EXISTING ISOLATION VALVE, THE EOR MAY CONTACT THE UTILITY DESIGN TEAM TO DETERMINE IF THE NUMBER OF VALVES CAN BE REDUCED.
7. MAINTAIN 3 FT CLEARANCE BETWEEN ALL VALVES AND HYDRANTS

**FIRE HYDRANT FOR LIMITED SPACE  
(RESTRAINED)**

10/2021

**HILLSBOROUGH COUNTY, FLORIDA**

**SCALE: N.T.S.**

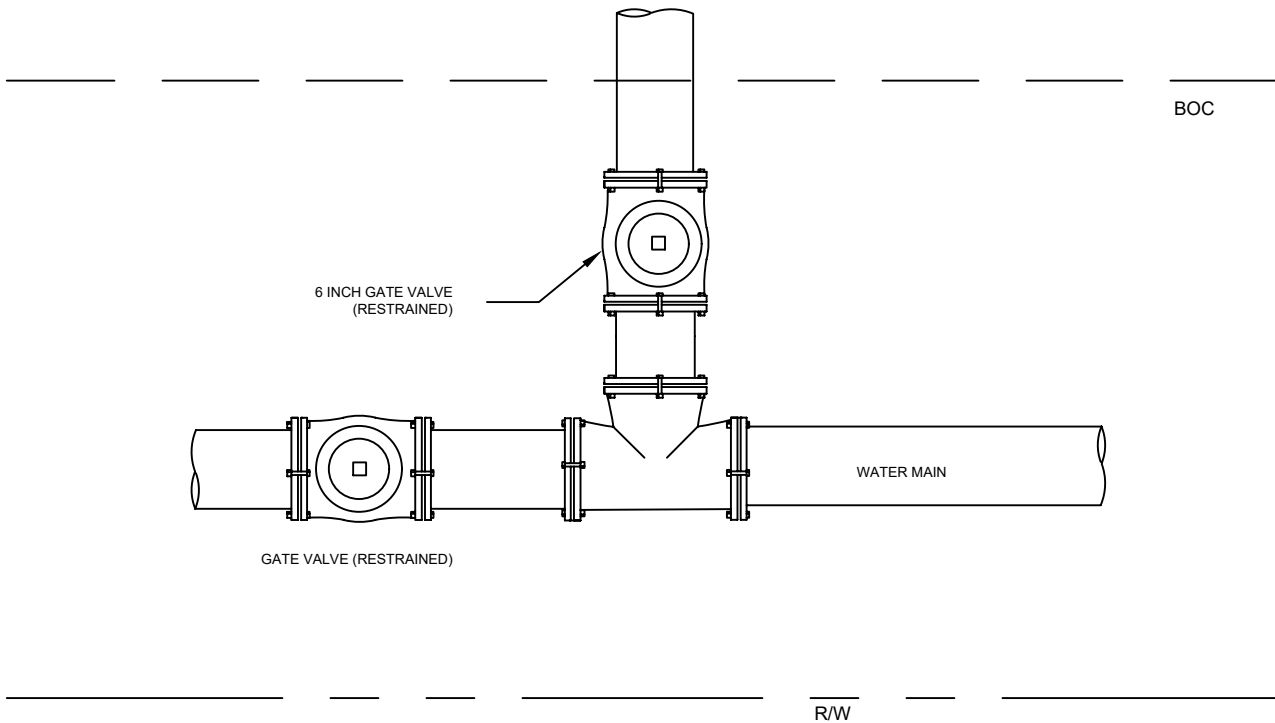
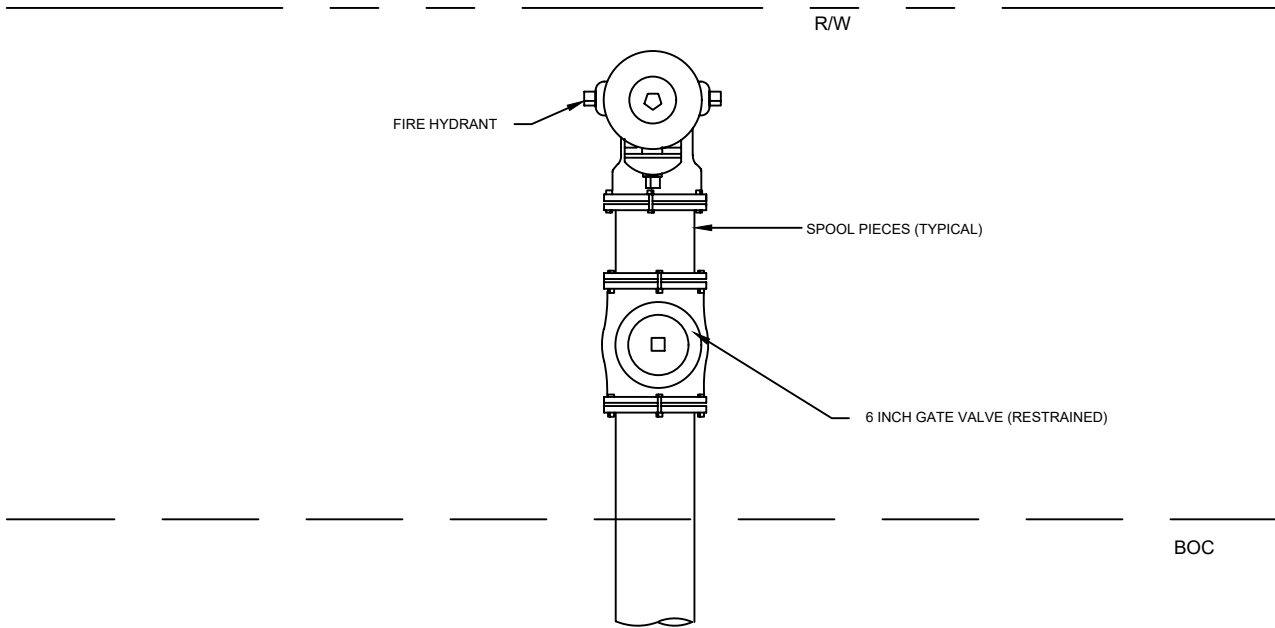


WATER MAIN EXTENSION  
WITH HYDRANT DETAIL

10/2021

HILLSBOROUGH COUNTY, FLORIDA

SCALE: N.T.S.

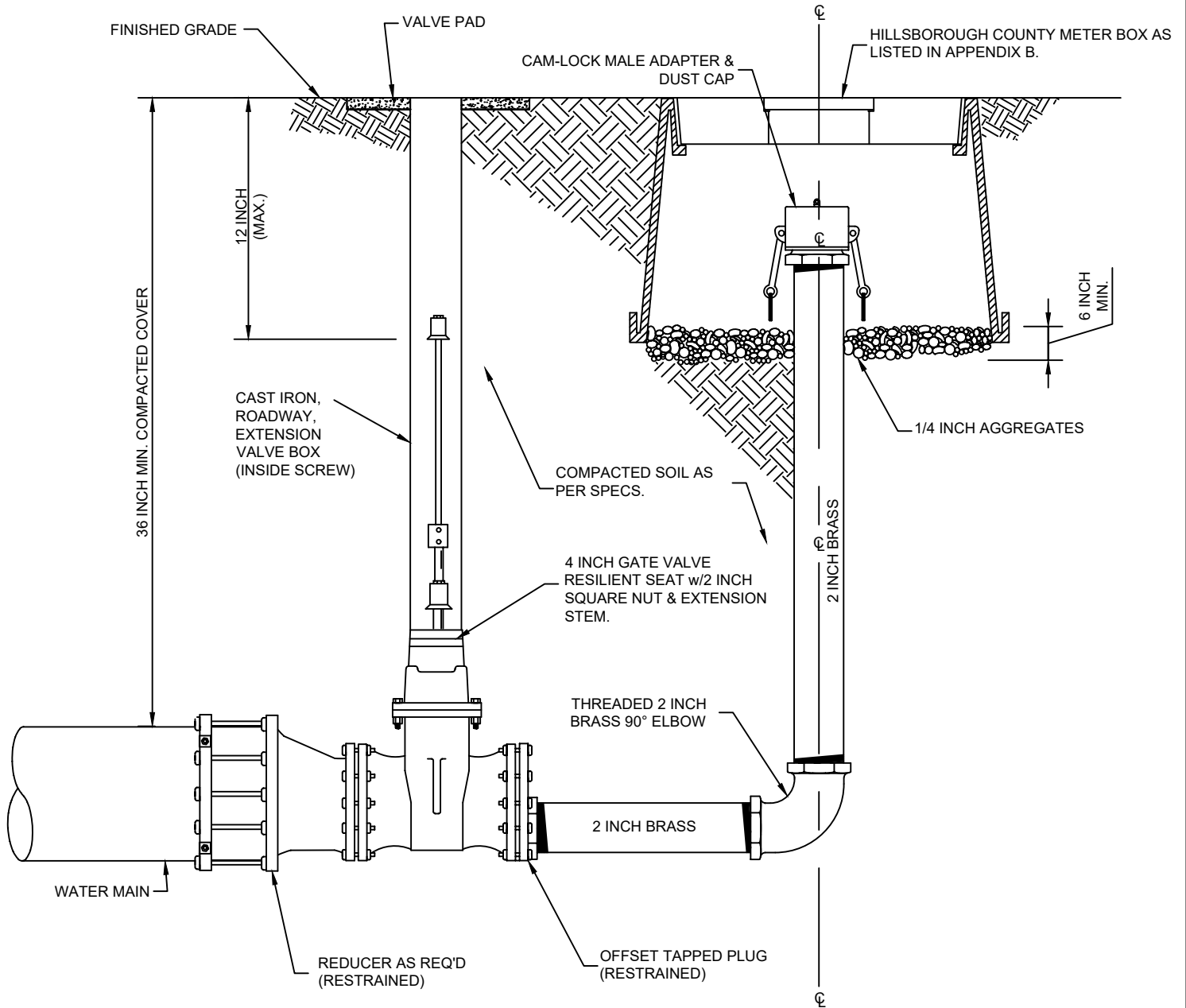


FAR SIDE HYDRANT DETAIL

10/2021

HILLSBOROUGH COUNTY, FLORIDA

SCALE: N.T.S.



**NOTES:**

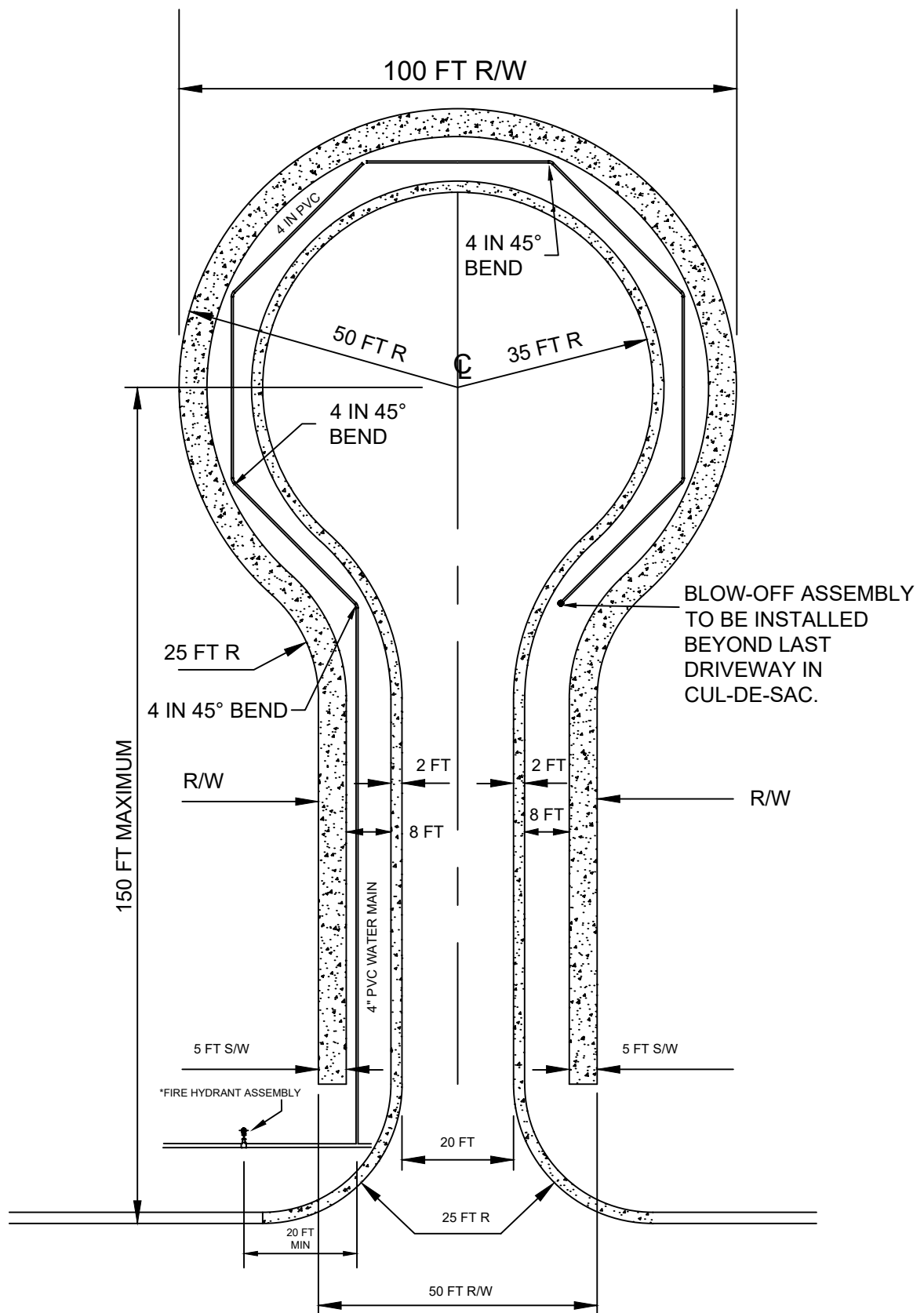
1. ALL BRASS PIPE AND FITTINGS SHALL BE THREADED SCH. 40.
2. CAM-LOCK MALE ADAPTER & DUST CAP SHALL BE STAINLESS STEEL/THREADED.
3. ACTUAL LENGTH OF THE BLOWOFF PIPING TO BE DETERMINED IN THE FIELD.
4. DEFLECT OR INSTALL FITTINGS AS REQUIRED TO MAINTAIN COVER AND TO SET BLOW-OFF ASSEMBLY PLUMB.
5. EXTENSION OF VALVE BOX SHALL BE SET SO AS TO RESERVE 1/2 OF THE ADJUSTMENT LENGTH FOR FUTURE USE.
6. A FULL SIZE IN-LINE VALVE MAY BE USED AT PROJECT PHASE LINES. THE VALVE MAY REQUIRE RELOCATION, IF THE VALVE FALLS WITHIN CONCRETE IN THE NEXT PHASE.

**BLOWOFF ASSEMBLY**

10/2021

HILLSBOROUGH COUNTY, FLORIDA

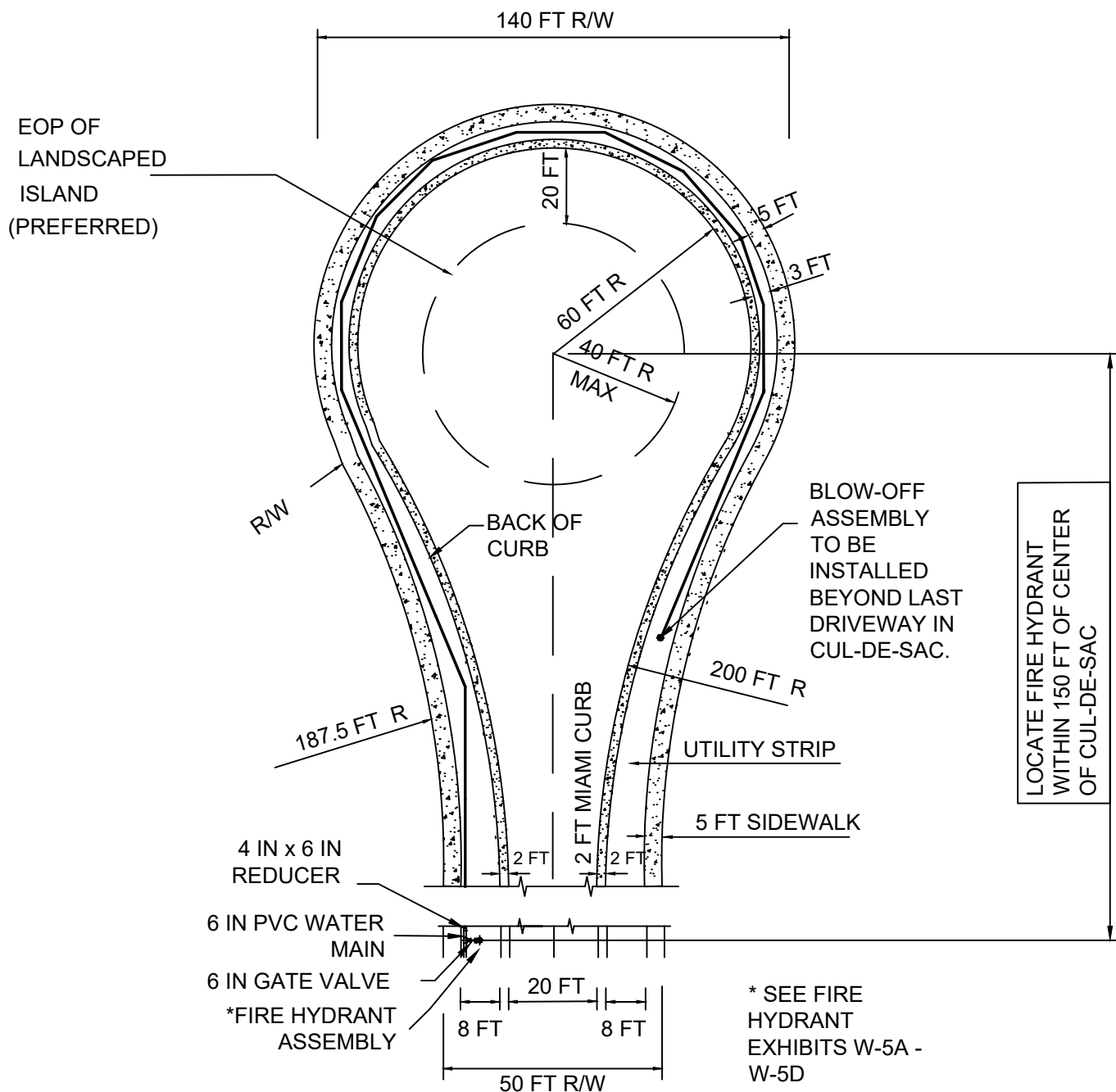
SCALE: N.T.S.



BLOW-OFF ASSEMBLY AND FIRE HYDRANT  
 @ CUL-DE-SAC ROAD UP TO 150 FT IN LENGTH  
 HILLSBOROUGH COUNTY, FLORIDA

10/2021  
 SCALE: N.T.S.

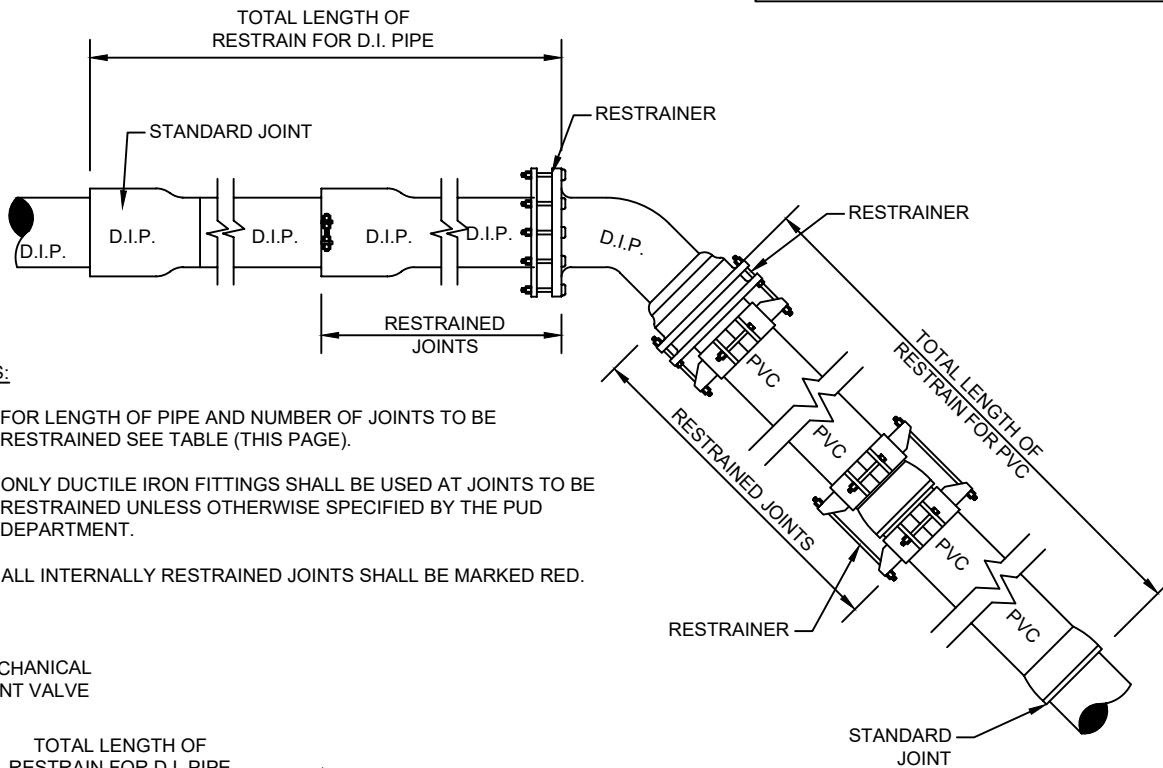




BLOW-OFF ASSEMBLY AND FIRE HYDRANT  
 @ CUL-DE-SAC GREATER THAN 150 FT IN LENGTH  
 HILLSBOROUGH COUNTY, FLORIDA

10/2021

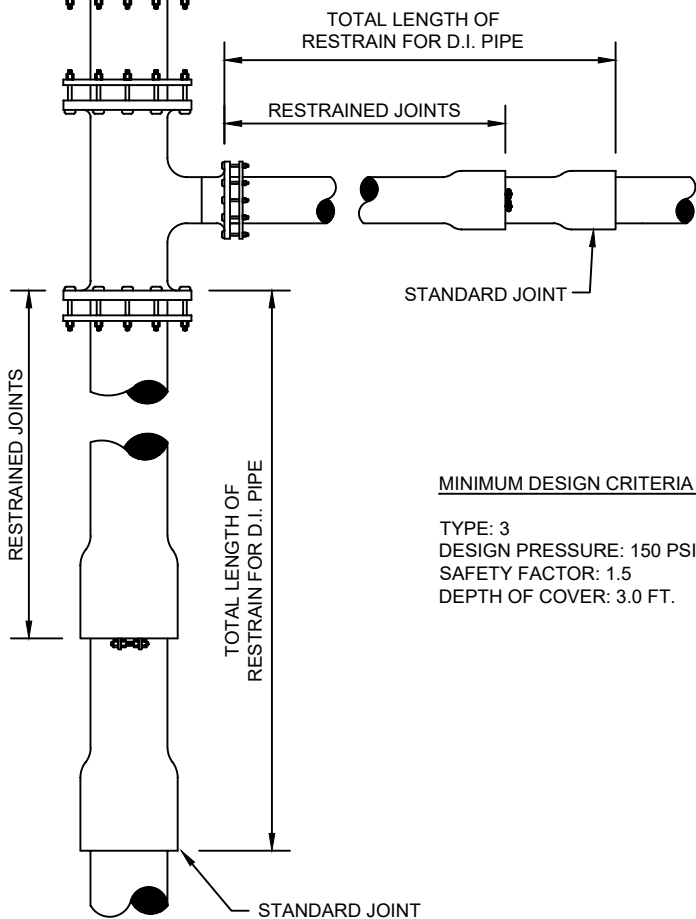
SCALE: N.T.S.



**NOTES:**

1. FOR LENGTH OF PIPE AND NUMBER OF JOINTS TO BE RESTRAINED SEE TABLE (THIS PAGE).
2. ONLY DUCTILE IRON FITTINGS SHALL BE USED AT JOINTS TO BE RESTRAINED UNLESS OTHERWISE SPECIFIED BY THE PUD DEPARTMENT.
3. ALL INTERNALLY RESTRAINED JOINTS SHALL BE MARKED RED.

DESIGN ENGINEER SHALL CALCULATE PROPER VALUES AND FILL IN TABLE PRIOR TO SUBMITTAL.



**MINIMUM DESIGN CRITERIA BEDDING**

TYPE: 3  
 DESIGN PRESSURE: 150 PSI.  
 SAFETY FACTOR: 1.5  
 DEPTH OF COVER: 3.0 FT.

**MINIMUM FOOTAGE OF PIPE RESTRAINT**

|                |      | PIPE SIZE (INCHES) |     |     |     |     |
|----------------|------|--------------------|-----|-----|-----|-----|
|                |      | 12"                | 14" | 16" | 18" | 20" |
| 11-1/4°        | H-B  |                    |     |     |     |     |
|                | VU-B |                    |     |     |     |     |
|                | VD-B |                    |     |     |     |     |
| 22-1/2°        | H-B  |                    |     |     |     |     |
|                | VU-B |                    |     |     |     |     |
|                | VD-B |                    |     |     |     |     |
| 45°            | H-B  |                    |     |     |     |     |
|                | VU-B |                    |     |     |     |     |
|                | VD-B |                    |     |     |     |     |
| 90°            | H-B  |                    |     |     |     |     |
|                | VU-B |                    |     |     |     |     |
|                | VD-B |                    |     |     |     |     |
| TEE            |      |                    |     |     |     |     |
| *DEAD END PLUG |      |                    |     |     |     |     |
| REDUCER        |      |                    |     |     |     |     |

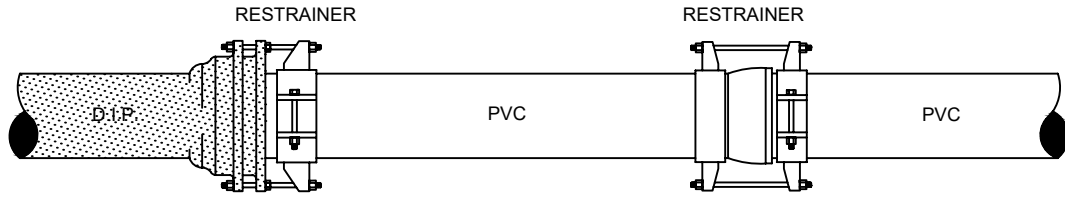
H-B: HORIZONTAL BEND  
 VU-B: VERTICAL-UP BEND  
 VD-B: VERTICAL-DOWN BEND  
 \*CONSIDER VALVES AS A DEAD END PLUG

**RESTRAINED JOINT-STANDARD**

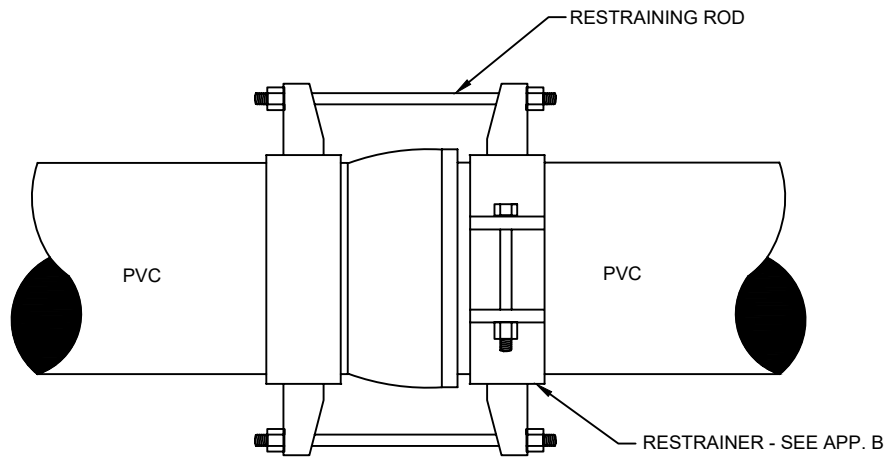
**10/2021**

**HILLSBOROUGH COUNTY, FLORIDA**

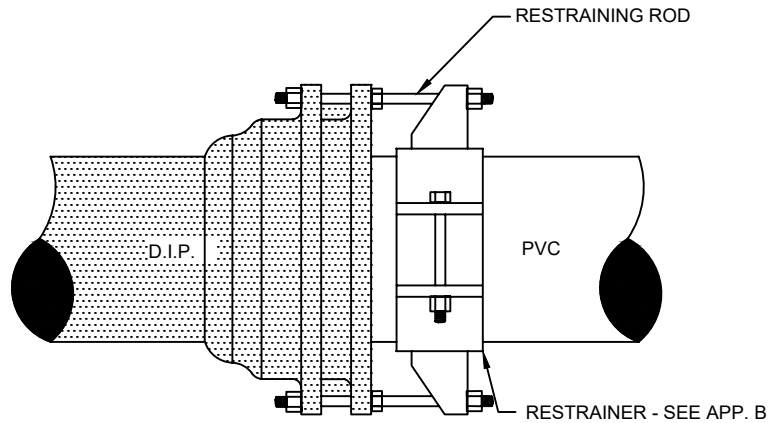
**SCALE: N.T.S.**



METHOD OF RESTRAINING PUSH-ON JOINT PIPE



DETAIL PUSH-ON JOINT

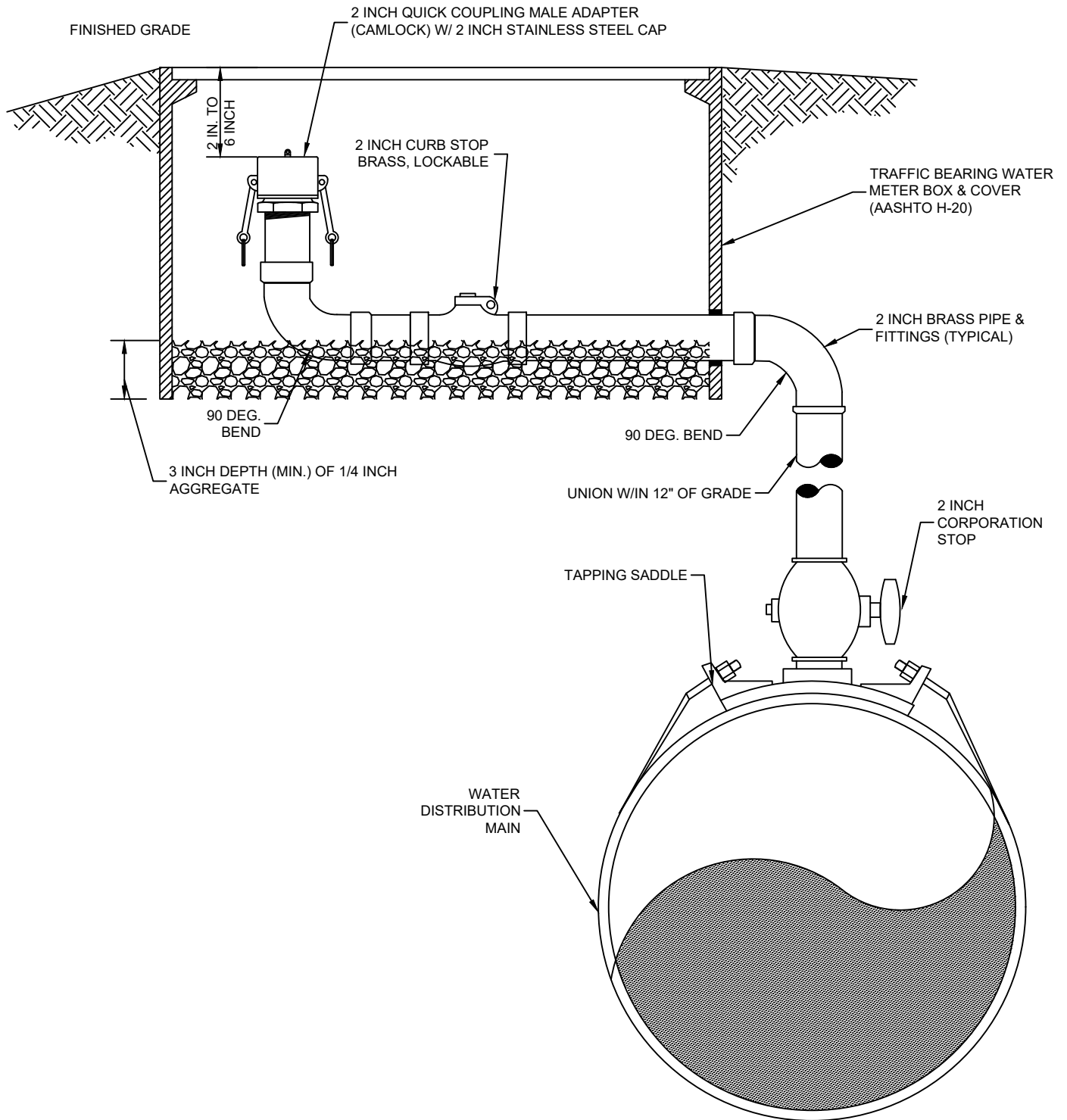


DETAIL M.J. JOINT

RESTRAINED JOINT  
FOR PVC C-900 PIPE (4 IN TO 12 IN)  
HILLSBOROUGH COUNTY, FLORIDA

10/2021

SCALE: N.T.S.

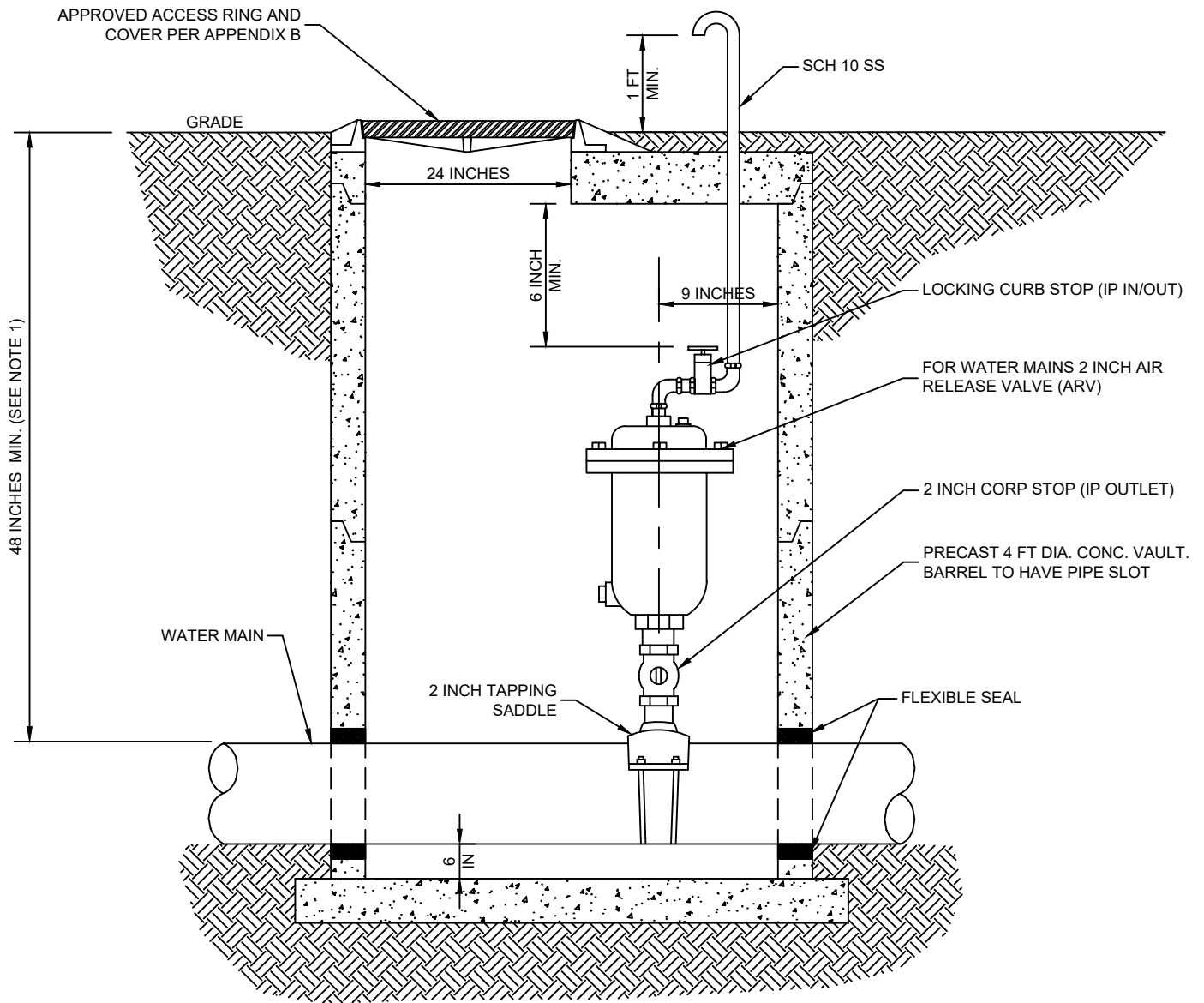


AIR RELIEF VALVE - MANUAL

10/2021

HILLSBOROUGH COUNTY, FLORIDA

SCALE: N.T.S.



**NOTES:**

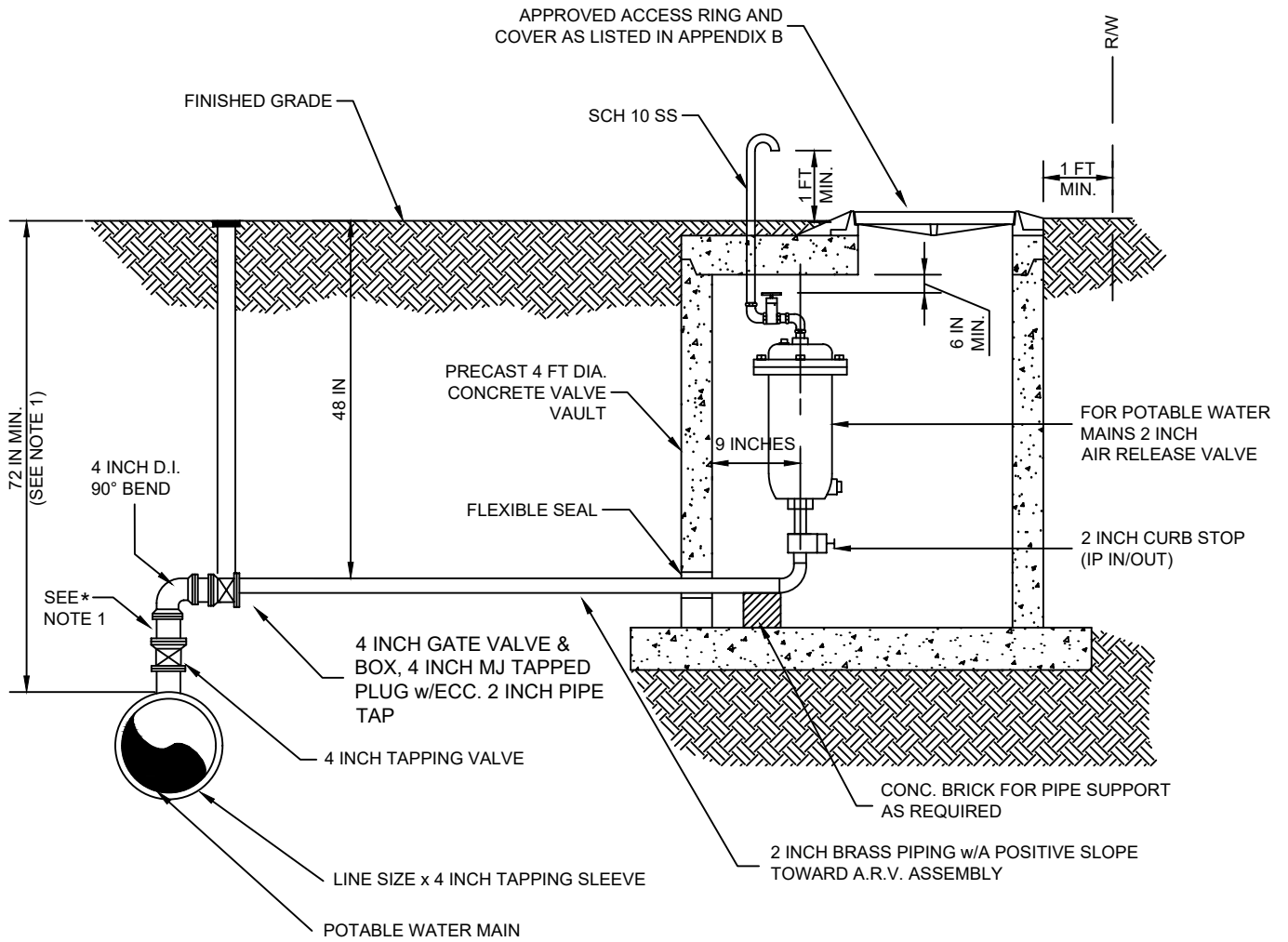
1. THE MINIMUM DEPTH OF THE ENTIRE PROPOSED WATER MAIN SHALL BE INCREASED AS SHOWN TO ENSURE THE VALVE VAULT FOR AN AUTOMATIC ARV CAN BE INSTALLED FLUSH WITH THE PROPOSED GRADE.
2. ENGINEER SHALL SUBMIT A FLOTATION CALCULATION TO THE COUNTY. VAULT SHALL BE TRAFFIC BEARING (H-20).
3. THE OPEN END OF THE AIR RELIEF PIPE WILL BE PROVIDED WITH A SCREENED, DOWNWARD-FACING ELBOW.
4. SEE APPENDIX B FOR APPROVED PRODUCTS.

**AUTOMATIC AIR RELIEF VALVE  
ASSEMBLY-STANDARD**

**HILLSBOROUGH COUNTY, FLORIDA**

**10/2021**

**SCALE: N.T.S.**



**NOTE:**

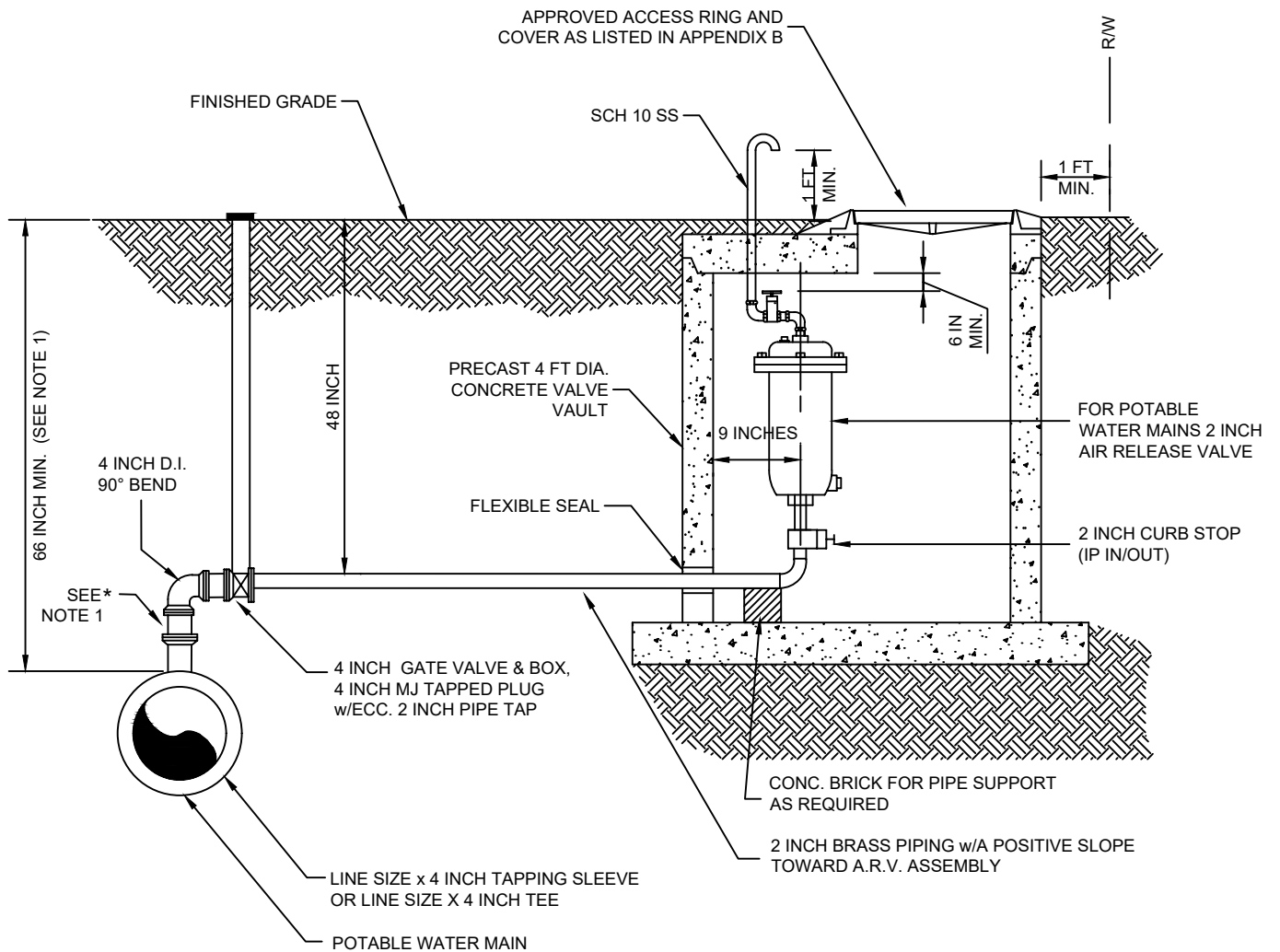
1. THE MINIMUM DEPTH OF THE ENTIRE PROPOSED WATER MAIN SHALL BE INCREASED AS SHOWN TO ENSURE THE VALVE VAULT FOR AN AUTOMATIC ARV CAN BE INSTALLED FLUSH WITH THE PROPOSED GRADE. \* IF A FOSTER ADAPTER IS USED THE DEPTH OF BURY CAN BE REDUCED 10 INCHES
2. ENGINEER SHALL SUBMIT A FLOTATION CALCULATION TO THE COUNTY. VAULT SHALL BE TRAFFIC BEARING (H-20).
3. THE OPEN END OF THE AIR RELIEF PIPE WILL BE PROVIDED WITH A SCREENED, DOWNWARD-FACING ELBOW.
4. SEE APPENDIX B FOR APPROVED PRODUCTS.

**AUTOMATIC AIR RELIEF VALVE  
ASSEMBLY-OFFSET**

**HILLSBOROUGH COUNTY, FLORIDA**

**10/2021**

**SCALE: N.T.S.**



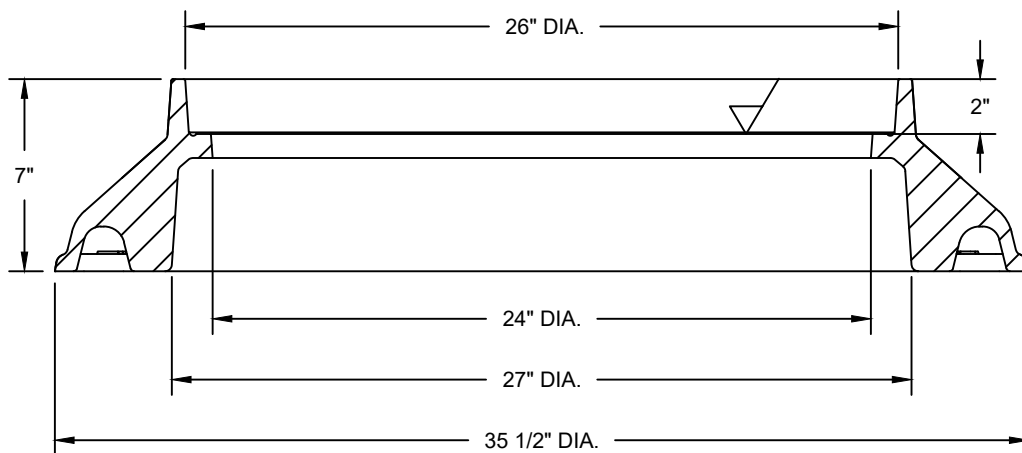
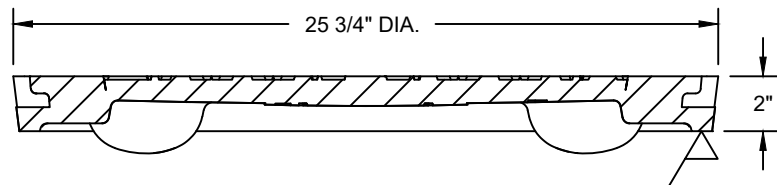
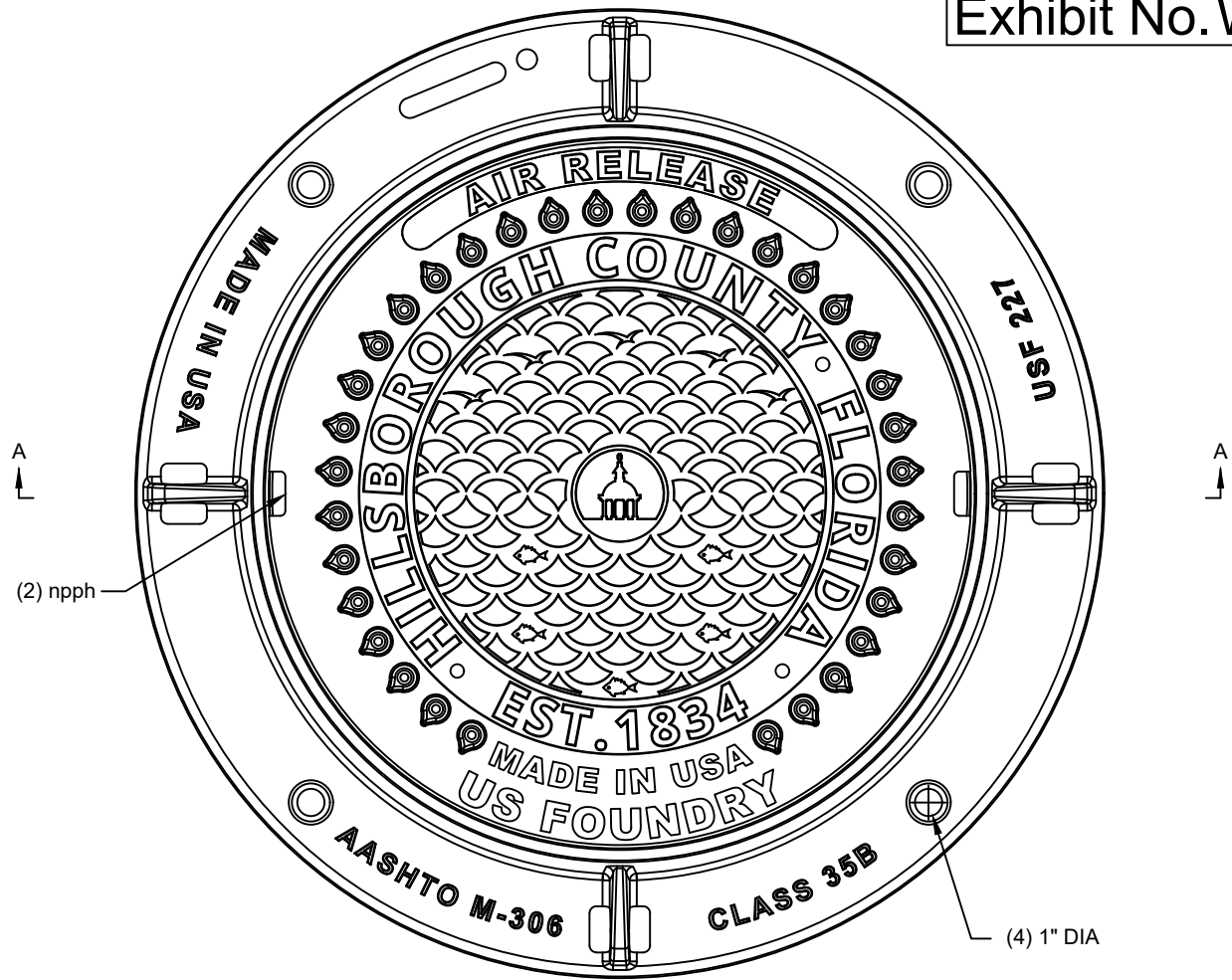
**NOTE:**

1. THE MINIMUM DEPTH OF THE ENTIRE PROPOSED WATER MAIN SHALL BE INCREASED AS SHOWN TO ENSURE THE VALVE VAULT FOR AN AUTOMATIC ARV CAN BE INSTALLED FLUSH WITH THE PROPOSED GRADE. \*IF A FOSTER ADAPTER IS USED THE DEPTH OF BURY CAN BE DECREASED 10 INCHES.
2. ENGINEER SHALL SUBMIT A FLOTATION CALCULATION TO THE COUNTY. VAULT SHALL BE TRAFFIC BEARING (H-20).
3. THE OPEN END OF THE AIR RELIEF PIPE WILL BE PROVIDED WITH A SCREENED, DOWNWARD-FACING ELBOW.
4. SEE APPENDIX B FOR APPROVED PRODUCTS.

**NEW CONSTRUCTION (NOT IN SERVICE)  
AIR RELIEF VALVE ASSEMBLY - OFFSET  
HILLSBOROUGH COUNTY, FLORIDA**

**10/2021**

**SCALE: N.T.S.**



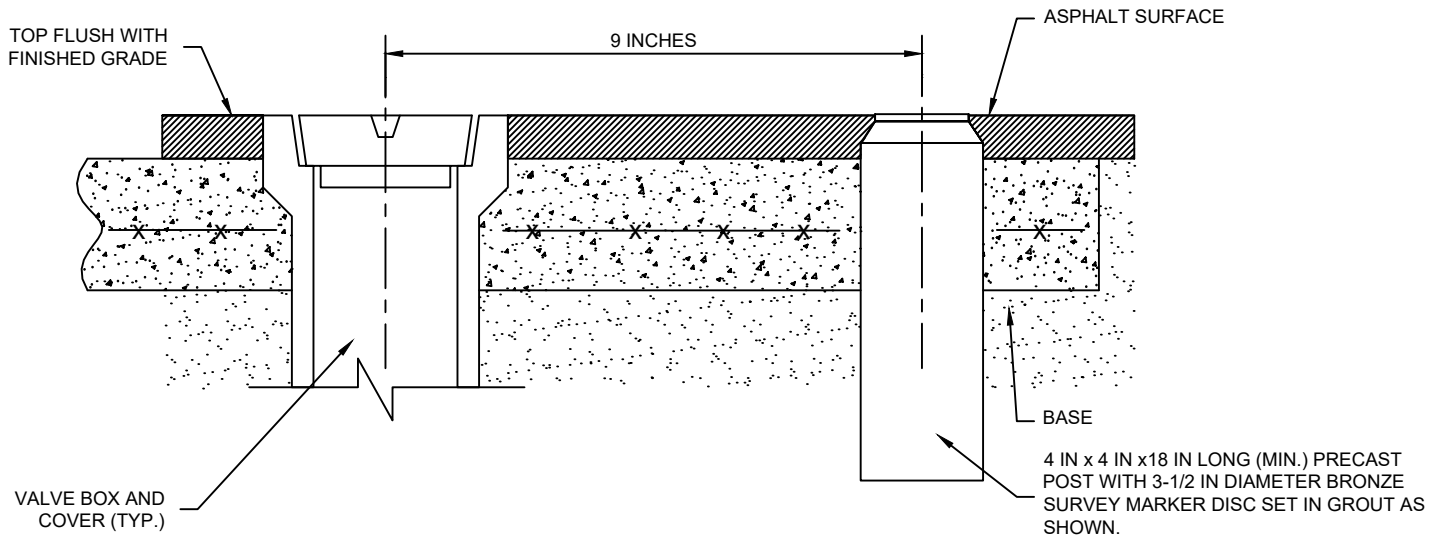
AIR RELEASE RING AND COVER

10/2021

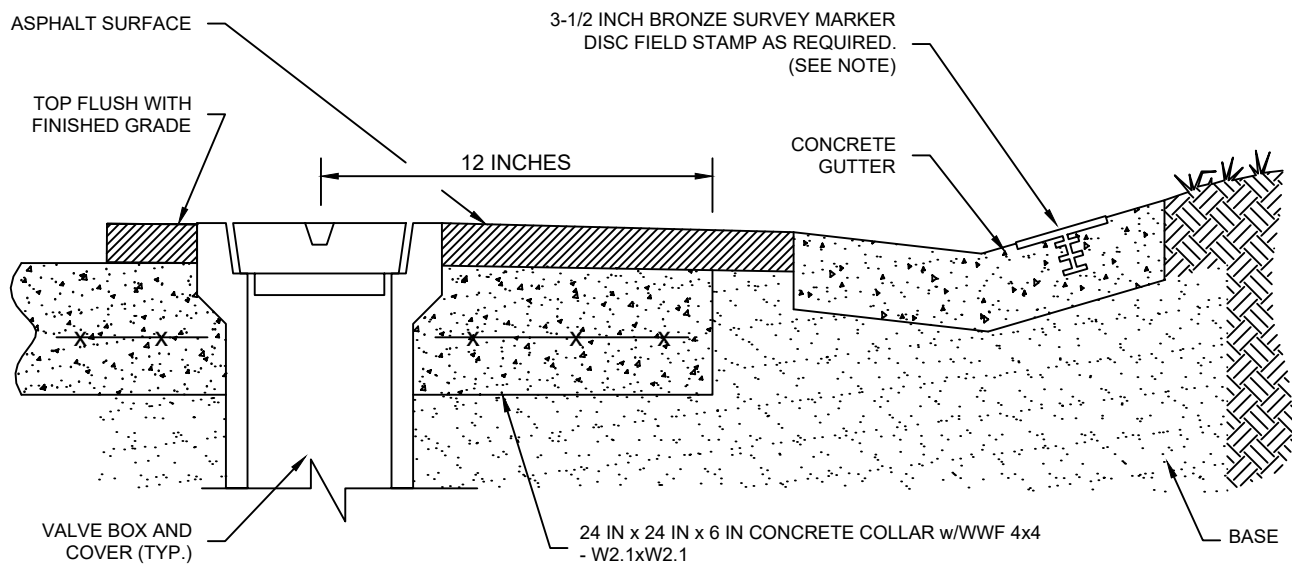
HILLSBOROUGH COUNTY, FLORIDA

SCALE: N.T.S.



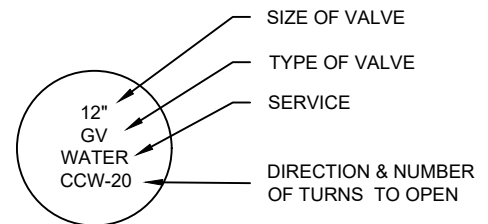


**EXAMPLE "A"**



**EXAMPLE "B"**

NOTE:  
BRONZE IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES.



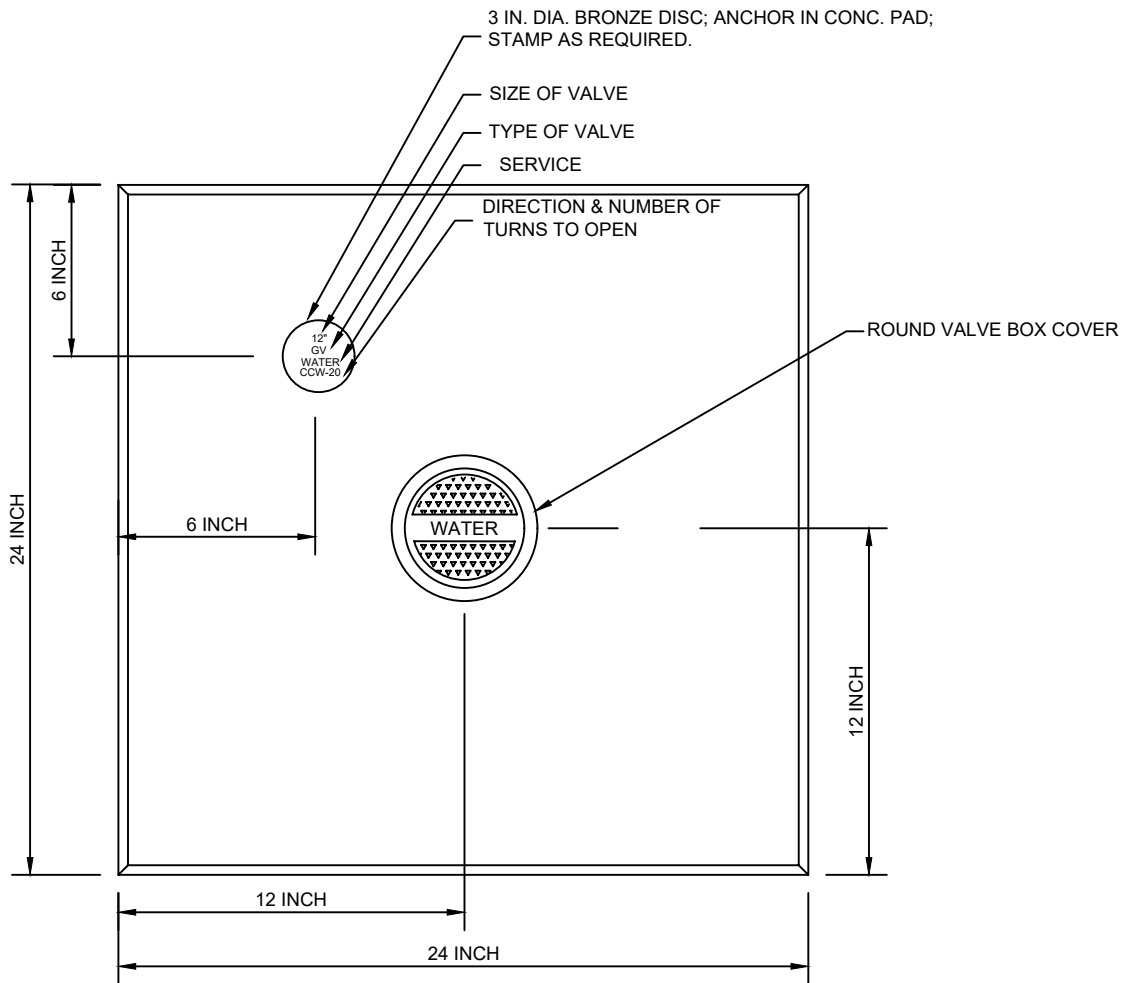
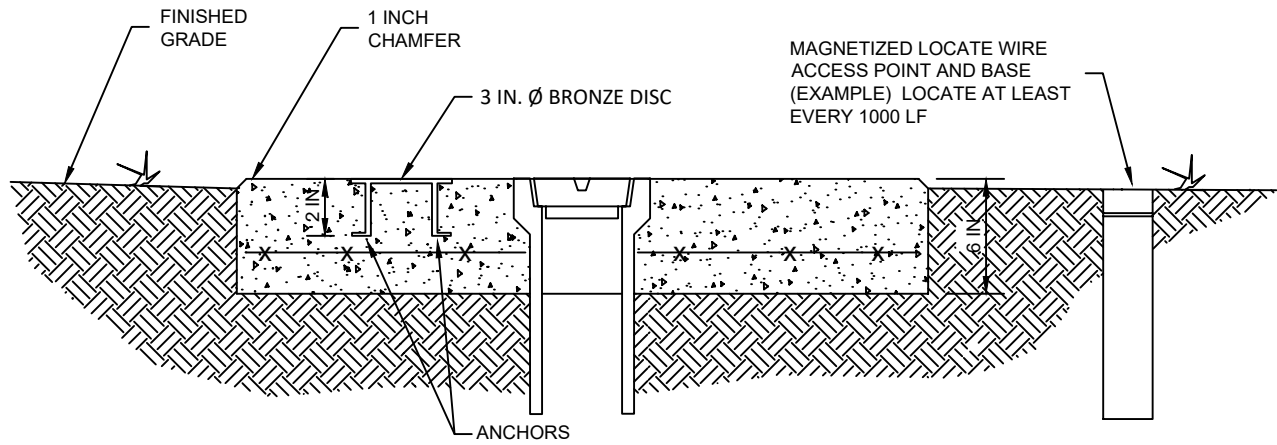
**MARKER DISC DETAIL**

VALVE BOX & MARKER INSTALLATION  
FOR PAVED AREAS

10/2021

HILLSBOROUGH COUNTY, FLORIDA

SCALE: N.T.S.



NOTES:

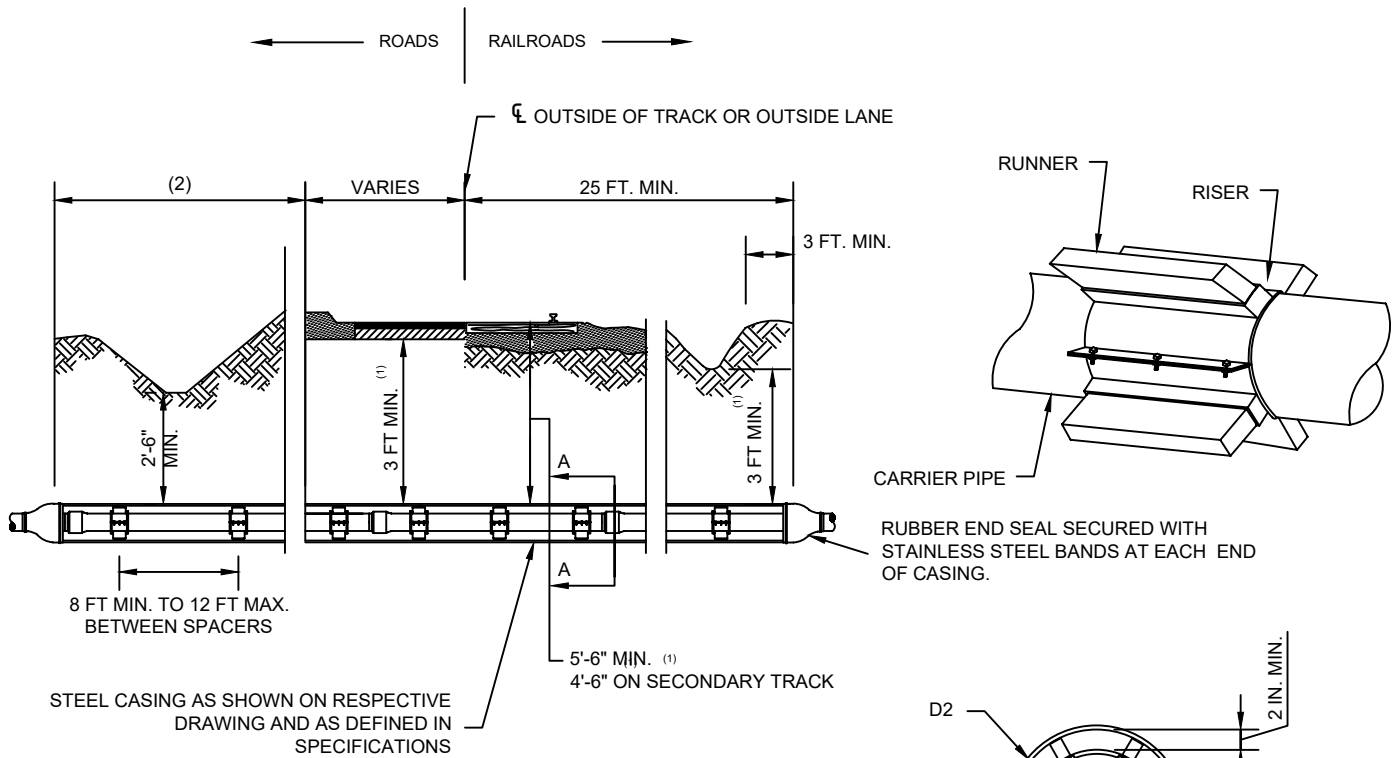
1. CONCRETE TO BE TYPE I GENERAL PORTLAND CEMENT WITH 3/4 IN. TOP SIZE AGGREGATE AND SHALL DEVELOP A 28-DAY STRENGTH OF 3000 psi
2. REINFORCING STEEL SHALL BE WELDED WIRE FABRIC 6x6 - W1.4 x W1.4
3. CONCRETE VALVE PAD SHALL BE POURED IN PLACE AND SHALL BE SET 1 IN. ABOVE FINISHED GRADE

**CONCRETE VALVE PAD  
(FOR UNPAVED AREAS)**

**HILLSBOROUGH COUNTY, FLORIDA**

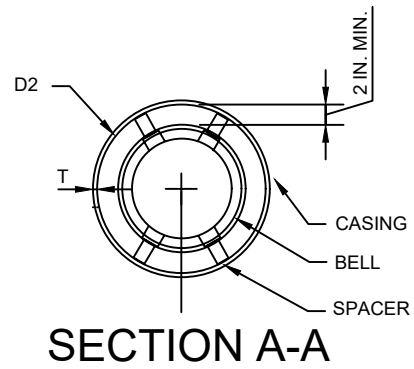
10/2021

SCALE: N.T.S.



**NOTES:**

1. VERTICAL DIMENSIONS TYPICAL FOR CASINGS
2. WITH CURB: 6 FT STATE & 2 FT COUNTY ROADS MINIMUM  
WITHOUT CURB: 8 FT STATE & 4 FT COUNTY ROADS MINIMUM
3. STEEL CASING PIPE SHALL CONFORM TO THE REQUIREMENTS OF AWWA C-200 AND ASTM A-139, GRADE B.
4. WHEN CASING IS INSTALLED WITHOUT BENEFIT OF A PROTECTIVE COATING, AND SAID CASING IS NOT CATHODICALLY PROTECTED, THE WALL THICKNESS SHOWN SHALL BE INCREASED TO THE NEAREST STANDARD SIZE WHICH IS A MINIMUM OF 0.063" GREATER THAN THE THICKNESS SHOWN EXCEPT FOR DIAMETERS LESS THAN 12.75 IN.
5. FOR REFERENCE ONLY.



PRESSURE MAIN TO BE RESTRAINED WITH MANUFACTURERS RESTRAINED JOINTS THROUGH CASING. USE (3) SS CASING SPACER CENTERED ON EACH PIPE LENGTH.

**MINIMUM CASING SIZE AND THICKNESS (INCHES)**

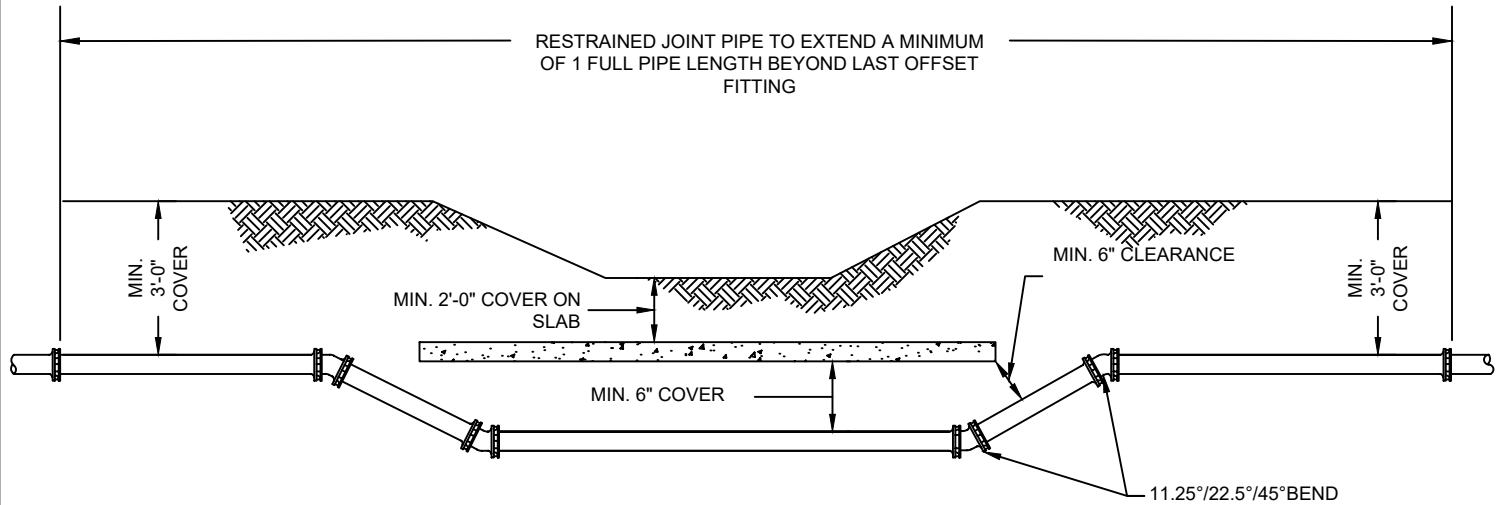
|                             |                   |      |      |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------------------|-------------------|------|------|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|
|                             | —                 | —    | 4    | 6    | —   | 8    | 10   | 12   | 14   | 16   | 18   | 20   | —    | 24   | 30   | 36   | 42   | 48   |
| D.I.P.-M.J.                 | —                 | 4    | —    | 6    | 8   | 10   | 12   | —    | 14   | 16   | 18   | 20   | 24   | —    | 30   | 36   | 42   | 48   |
| D.I.P.-P.O.                 | —                 | 4    | 6    | —    | 8   | 10   | 12   | —    | —    | —    | —    | —    | —    | —    | —    | —    | —    | —    |
| PVC                         | 4                 | 6    | 8    | 10   | 12  | —    | —    | —    | —    | —    | —    | —    | —    | —    | —    | —    | —    | —    |
| PVC FUSIBLE                 | 10 <sup>(5)</sup> | 12   | 14   | 16   | 18  | 20   | 24   | 24   | 30   | 30   | 30   | 36   | 36   | 42   | 48   | 54   | 60   | 66   |
| (3) STEEL CASING PIPE (D2)  | .188              | .188 | .25  | .25  | .25 | .25  | .25  | .25  | .312 | .312 | .312 | .375 | .375 | .5   | .5   | .5   | .5   | .5   |
| WALL THICKNESS (T) ROADS    | .188              | .188 | .188 | .219 | .25 | .281 | .312 | .312 | .406 | .406 | .406 | .469 | .469 | .562 | .625 | .719 | .781 | .875 |
| (4) WALL THICKNESS (T) R.R. |                   |      |      |      |     |      |      |      |      |      |      |      |      |      |      |      |      |      |

**CASING DETAILS  
JACK & BORE**

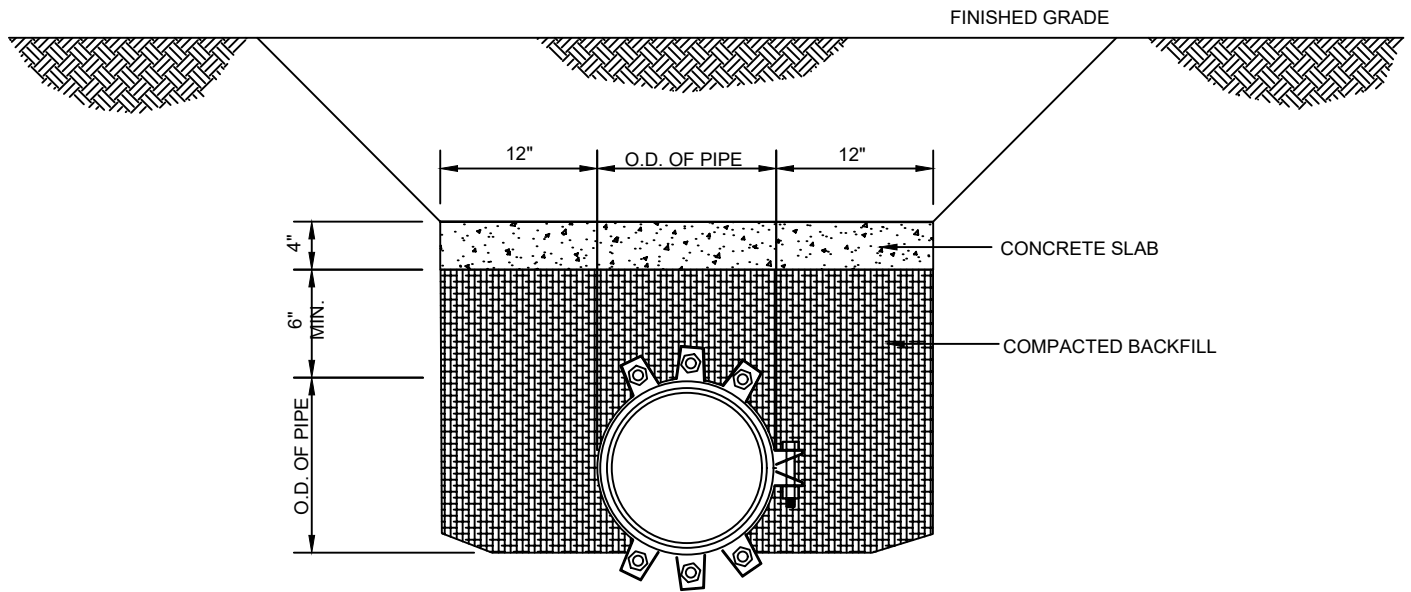
10/2021

**HILLSBOROUGH COUNTY, FLORIDA**

**SCALE: N.T.S.**



DITCH BOTTOM CLEARANCE DETAIL



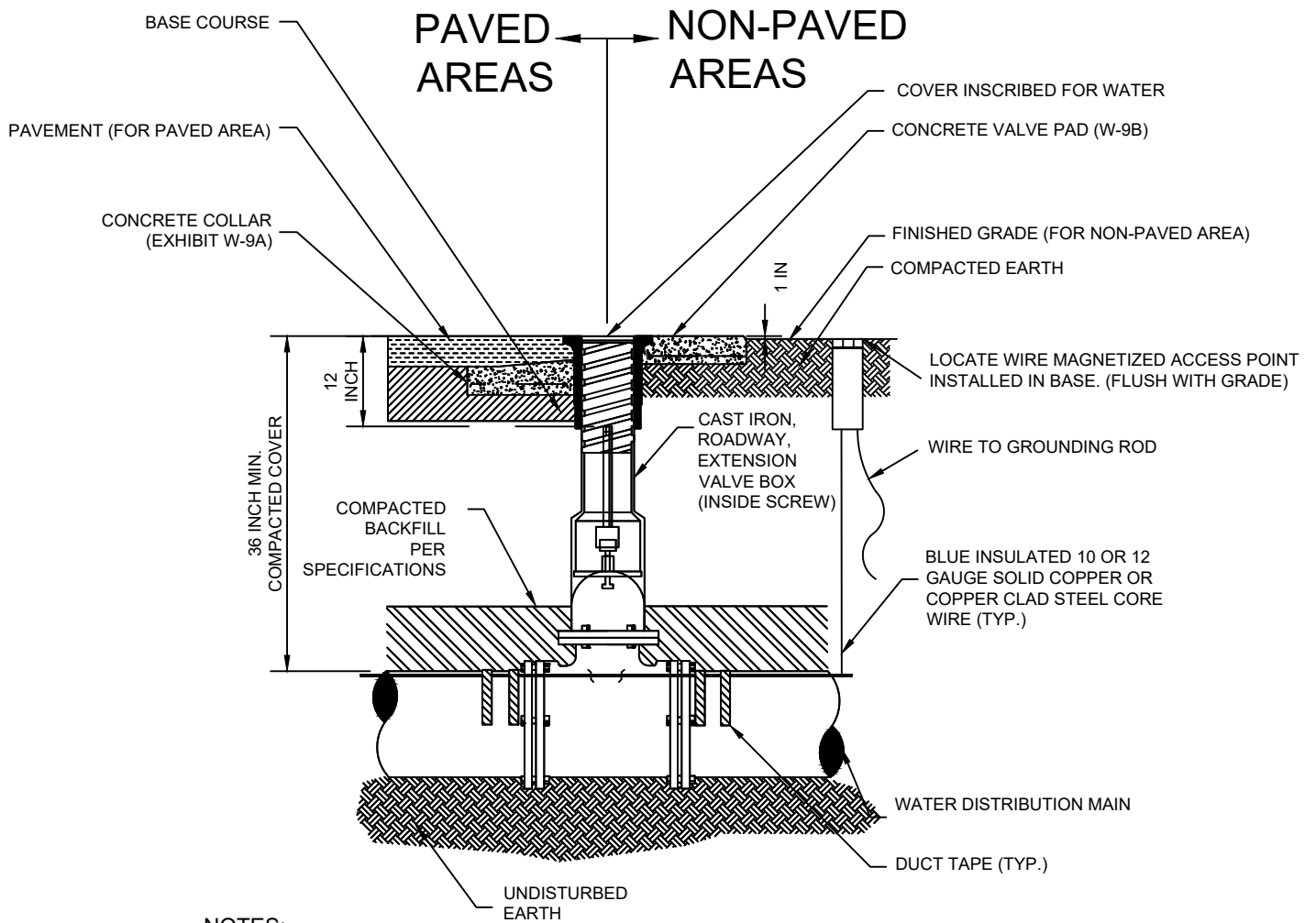
CONCRETE SLAB

NOTE: SLAB CONCRETE SHALL HAVE A MINIMUM OF 28 DAY COMPRESSIVE STRENGTH OF 3000 psi (min).

DITCH BOTTOM CLEARANCE  
AND CONCRETE PROTECTIVE SLAB  
HILLSBOROUGH COUNTY, FLORIDA

10/2021

SCALE: N.T.S.



NOTES:

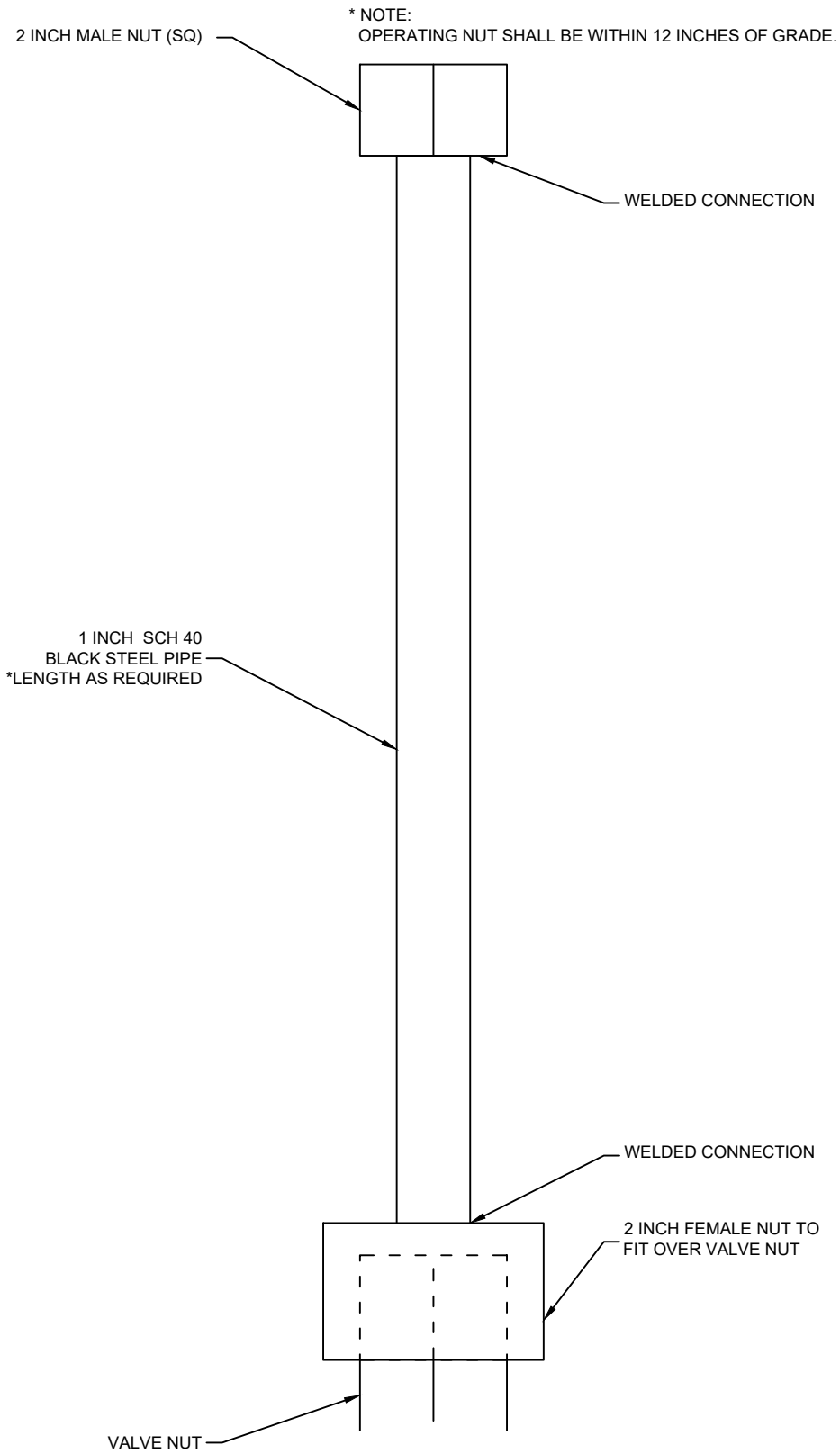
1. VALVE BOX EXTENSIONS MUST BE SET SO AS TO RESERVE 1/2 OF THE ADJUSTMENT LENGTH FOR FUTURE USE. VALVE BOX EXTENSIONS MUST BE CAST IRON.
2. THE VALVE OPERATING NUT MUST BE WITHIN 12 INCHES OF FINAL GRADE. A VALVE EXTENSION MUST BE INSTALLED AS NEEDED. REFER TO EXHIBIT W-12B.
3. ALL PIPE MUST BE INSULATED WITH 10 OR 12 GAUGE SOLID COPPER OR COPPER CLAD STEEL CORE LOCATING WIRE TAPED WITH 2 INCH WIDE DUCT TAPE AT THE 10:00 OR 2:00 POSITION ON THE PIPE AT EVERY JOINT AND 4 TO 5 FEET SPACING. REFER TO 331001 PART 4.3.13.
4. LOCATING WIRES TO TERMINATE AT MAGNETIZED ACCESS POINTS IN A BASE LOCATED NO MORE THAN OF 1000 LF APART. ACCESS POINTS TO BE TWO TERMINALS (MIN.) AND HAVE A GROUNDING ROD AT EACH ACCESS POINT AND BASE.
5. LOCATING WIRES MUST BE CAPABLE OF DETECTION BY A CABLE LOCATOR AND PASS A FIELD LOCATE TEST FROM THE POINT OF CONNECTION TO END OF WIRES THAT IS CERTIFIED BY THE EOR. THE TEST MUST BE BY THE CONTRACTOR OR BY A SUE FIRM.
6. SPLICES MUST BE CAPABLE OF COMPLETE SUBMERSION.
7. NO MORE THAN 6 SPLICES BETWEEN ACCESS POINTS.

VALVE AND TRACER WIRE  
PAVED OR NON-PAVED AREAS

HILLSBOROUGH COUNTY, FLORIDA

10/2021

SCALE: N.T.S.



VALVE EXTENSION FOR GATE VALVES

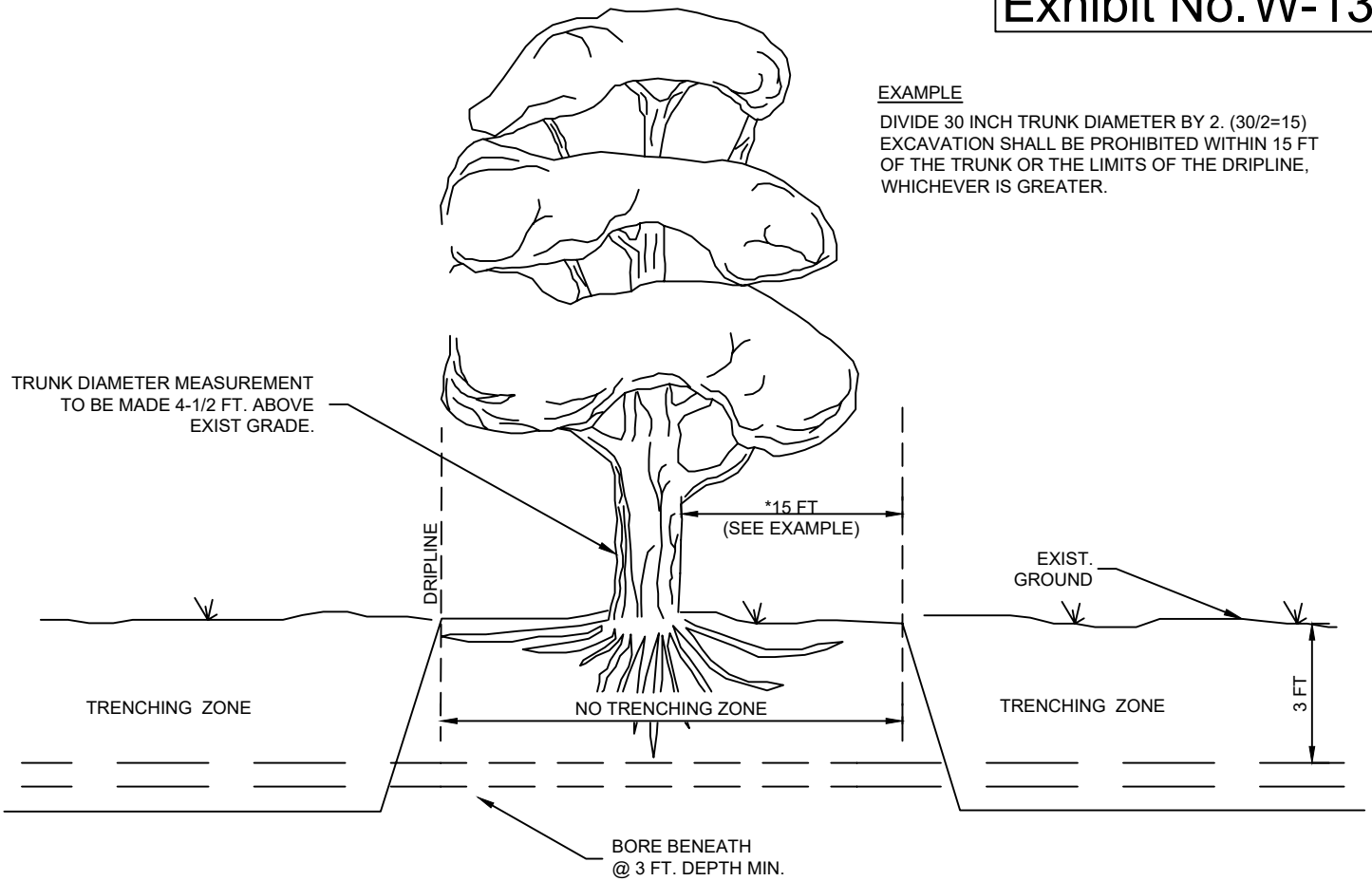
10/2021

HILLSBOROUGH COUNTY, FLORIDA

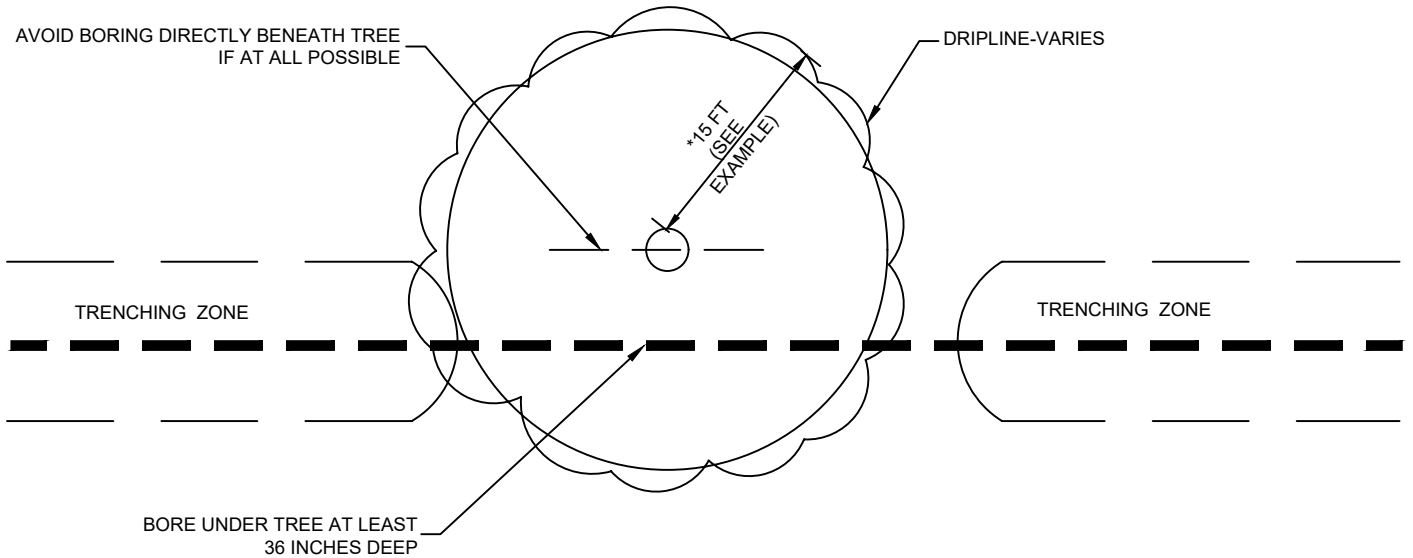
SCALE: N.T.S.

EXAMPLE

DIVIDE 30 INCH TRUNK DIAMETER BY 2. ( $30/2=15$ )  
 EXCAVATION SHALL BE PROHIBITED WITHIN 15 FT  
 OF THE TRUNK OR THE LIMITS OF THE DRIPLINE,  
 WHICHEVER IS GREATER.



PROFILE VIEW



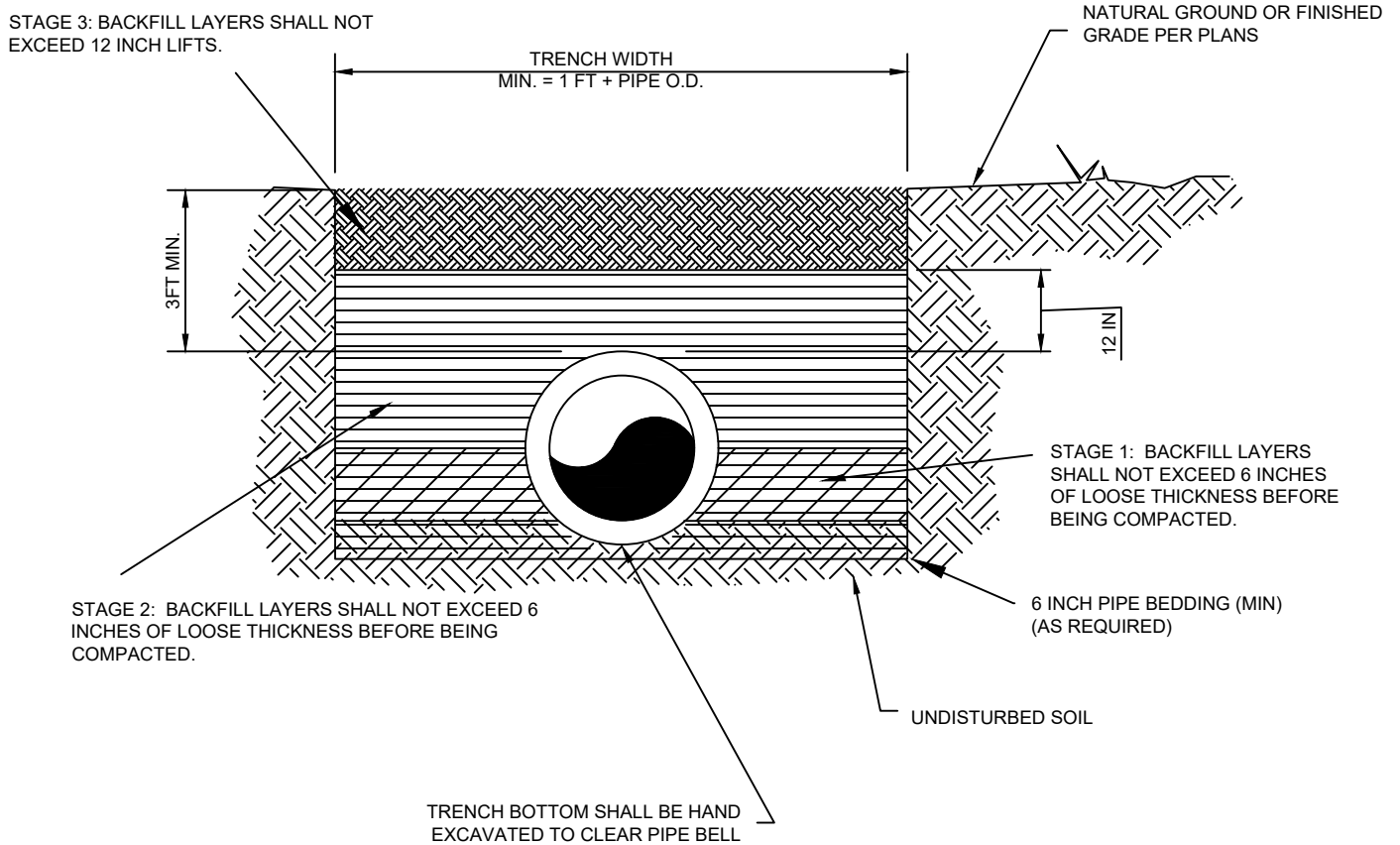
PLAN VIEW

**BORING FOR UTILITIES**

**10/2021**

**HILLSBOROUGH COUNTY, FLORIDA**

**SCALE: N.T.S.**



NOTES:

1. TESTING: SEE SPECIFICATION 331001, PART 4.12 FOR TESTING REQUIREMENTS.
2. BEDDING: 6 INCHES BEDDING (MIN) AS REQUIRED. IN THE EVENT UNSUITABLE OR UNSTABLE SOIL IS ENCOUNTERED, REMOVE IT AND REPLACE WITH MATERIAL MEETING AASHTO SOIL CLASSIFICATION A-1, A-2, OR A-3. SEE SPECIFICATION 331001 PART 4.4.
3. STAGE 1: ADEQUATE COMPACTED FILL SHALL BE PLACED ABOVE THE BEDDING MATERIAL AND BENEATH THE HAUNCHES OF THE PIPE. BACKFILL LAYERS SHALL NOT EXCEED 6 INCHES OF LOOSE THICKNESS BEFORE BEING COMPACTED.
4. STAGE 2: BACKFILL LAYERS SHALL NOT EXCEED 6 INCHES OF LOOSE THICKNESS BEFORE BEING COMPACTED. COMPACTION SHALL BE 98% OF THE MAXIMUM DENSITY (AASHTO T-180/ASTM D1557) TO A POINT 1 FT ABOVE THE PIPE (OR AS STATED IN THE SPECIFICATION).
5. STAGE 3: BACKFILL LAYERS SHALL NOT EXCEED 12-INCH LIFTS. COMPACTION SHALL BE 98% OF THE MAXIMUM DENSITY (AASHTO T-180/ASTM D1557) OR AS STATED IN THE SPECIFICATION

TRENCH DETAIL  
BACKFILL & COMPACTION

HILLSBOROUGH COUNTY, FLORIDA

10/2021

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