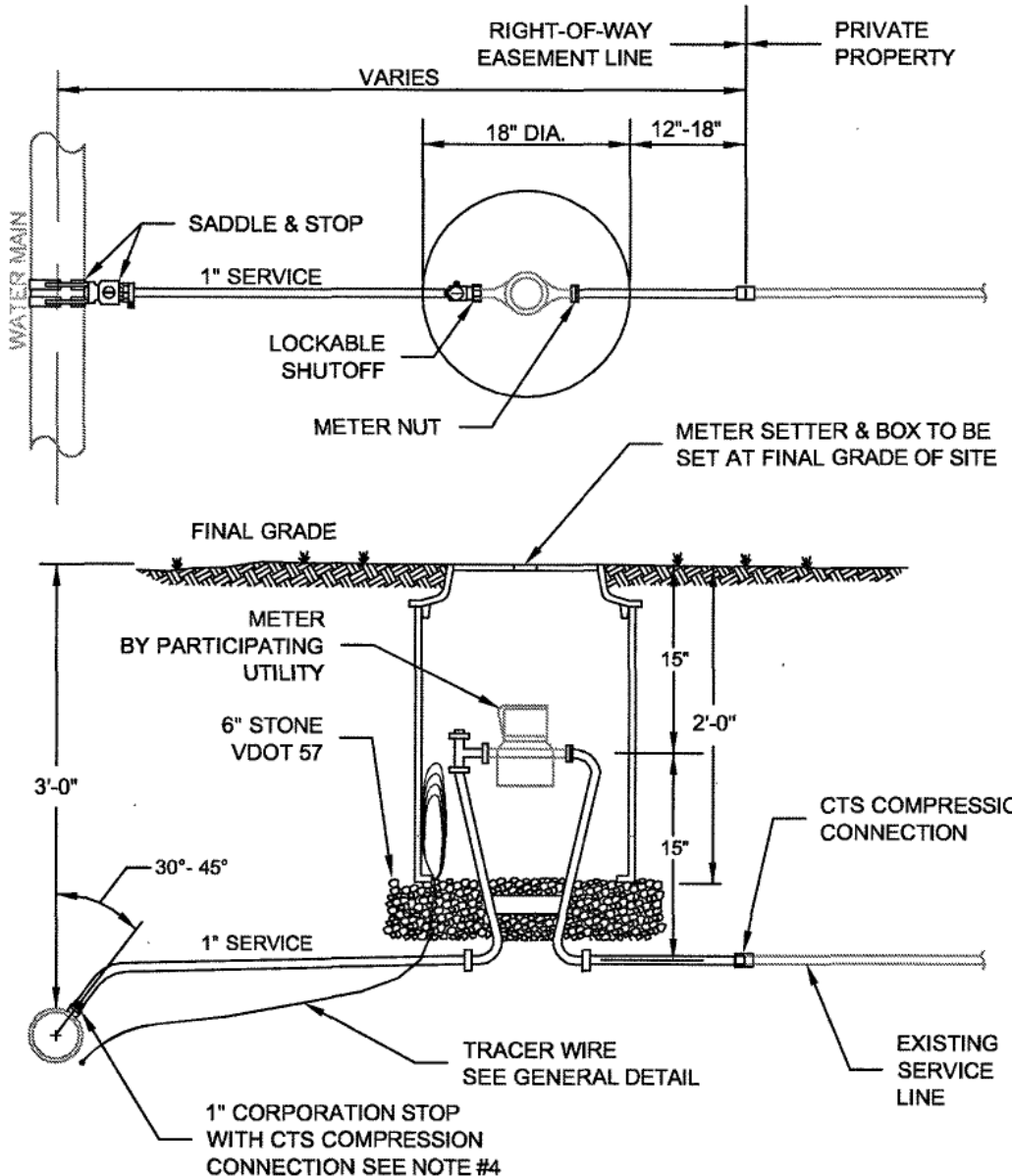


1. SETTER TO BE A.Y. McDONALD 720-215WDD33, FORD VB72-15W-11-33 OR APPROVED EQUAL.
2. SADDLES MUST BE USED WITH ALL PLASTIC & DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH WATER DISTRIBUTION PIPING SPECIFICATION. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE: POWERSEAL 3417, OR 3412AS, ROMAC 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE OR POWERSEAL 3413, ROMAC 202 OR FORD METER F202.
3. METER BOX SHALL BE CARSON/MID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD A32-T (ELECTRONIC READ LID), ADS CORRUGATED HDPE BOX WITH FORD A32-T (ELECTRONIC READ LID), OR A.Y. McDONALD MODEL 74M32AT CAST IRON BASE & COVER OR APPROVED EQUAL. METER BOX SHALL NOT BE PLACED IN AREAS SUBJECT TO VEHICULAR TRAFFIC. IF TRAFFIC BEARING BOX IS REQUIRED, DESIGN ENGINEER SHALL CONSULT WITH PARTICIPATING UTILITY TO DETERMINE SITE SPECIFIC REQUIREMENTS.
4. CORPORATION STOP SHALL BE FORD FB1000-4-G-NL, MUELLER B-25008 OR APPROVED EQUAL.
5. SERVICE SHALL BE "K" TYPE COPPER, OR COPPER TUBE SIZE POLYETHYLENE (PE) 4710, SODR-9 (200 psi).
6. WHENEVER SIDEWALK EXISTS OR IS PROPOSED, MODIFY METER LOCATION AS DIRECTED.



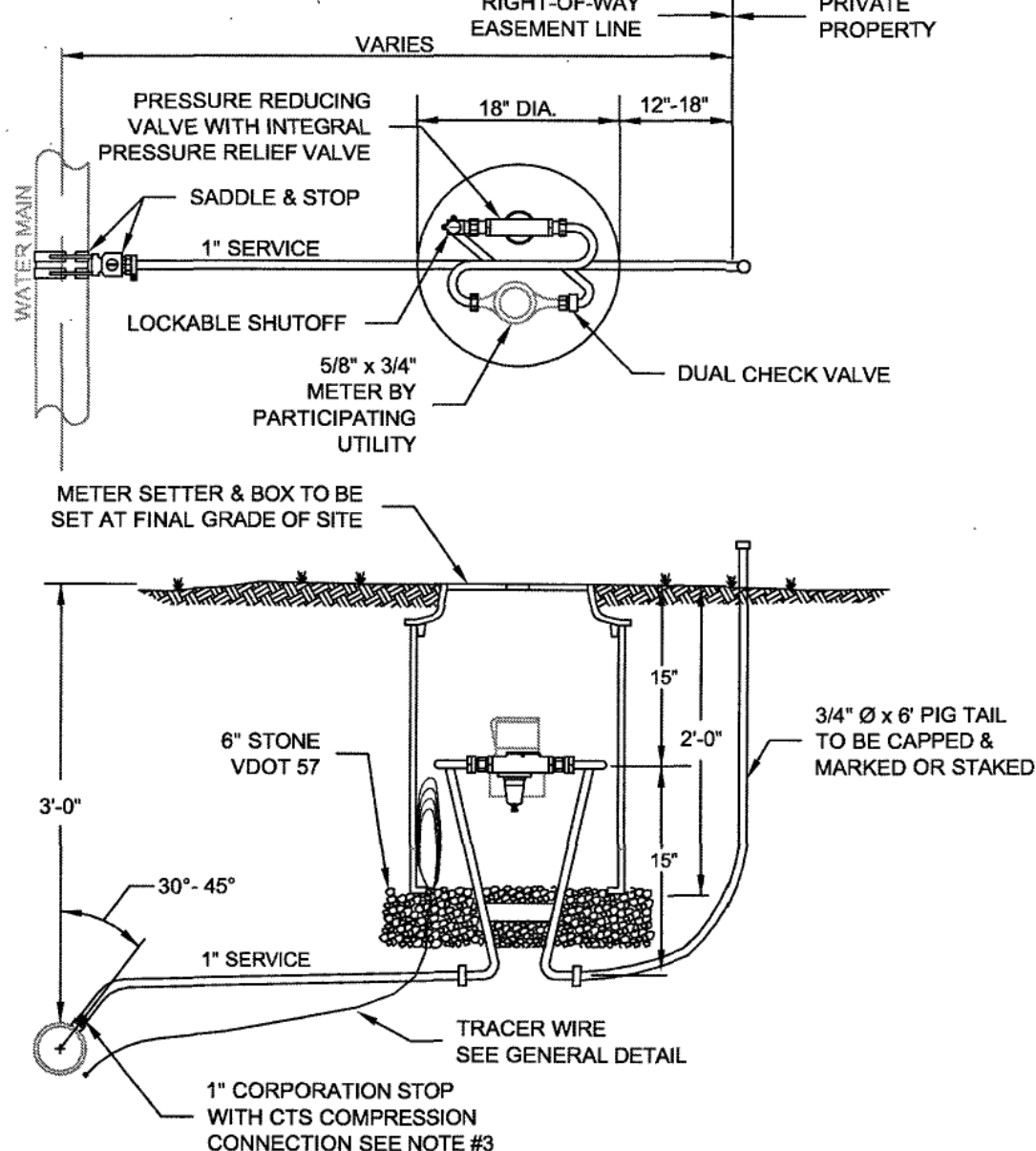
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

SINGLE RESIDENTIAL
WATER SERVICE
(REPLACEMENT OF EXISTING SERVICE)

W-2

02/10/15

1. TANDEM SETTERS TO BE A.Y. McDONALD 750-215WDD33, FORD TVBH72-15W-11-33 OR APPROVED EQUAL.
2. SADDLES MUST BE USED WITH ALL PLASTIC & DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH WATER DISTRIBUTION PIPING SPECIFICATION. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE: POWERSEAL 3417, OR 3412AS, ROMAC 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE OR POWERSEAL 3413, ROMAC 202 OR FORD METER F202.
3. CORPORATION STOP SHALL BE FORD FB1000-4-G-NL, MUELLER B-25008 OR APPROVED EQUAL.
4. METER BOX SHALL BE CARSON/MID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD A32-T (ELECTRONIC READ LID), ADS CORRUGATED HDPE BOX WITH FORD A32-T (ELECTRONIC READ LID), OR A.Y. McDONALD MODEL 74M32AT CAST IRON BASE & COVER OR APPROVED EQUAL.
5. SERVICE SHALL BE "K" TYPE COPPER, OR COPPER TUBE SIZE POLYETHYLENE (PE) 4710, SODR-9 (200 psi).
6. PRESSURE REDUCING VALVE WITH INTEGRAL PRESSURE RELIEF VALVE SHALL BE WILKINS NR3XLEC OR APPROVED EQUAL. TO BE SUPPLIED AND INSTALLED BY CONTRACTOR UPSTREAM OF METER.
7. THIS CONFIGURATION IS REQUIRED WHEN THE WATER PRESSURE AT THE WATER MAIN EXCEEDS 120 PSI.
8. WHENEVER SIDEWALK EXISTS OR IS PROPOSED, MODIFY METER LOCATION AS DIRECTED.



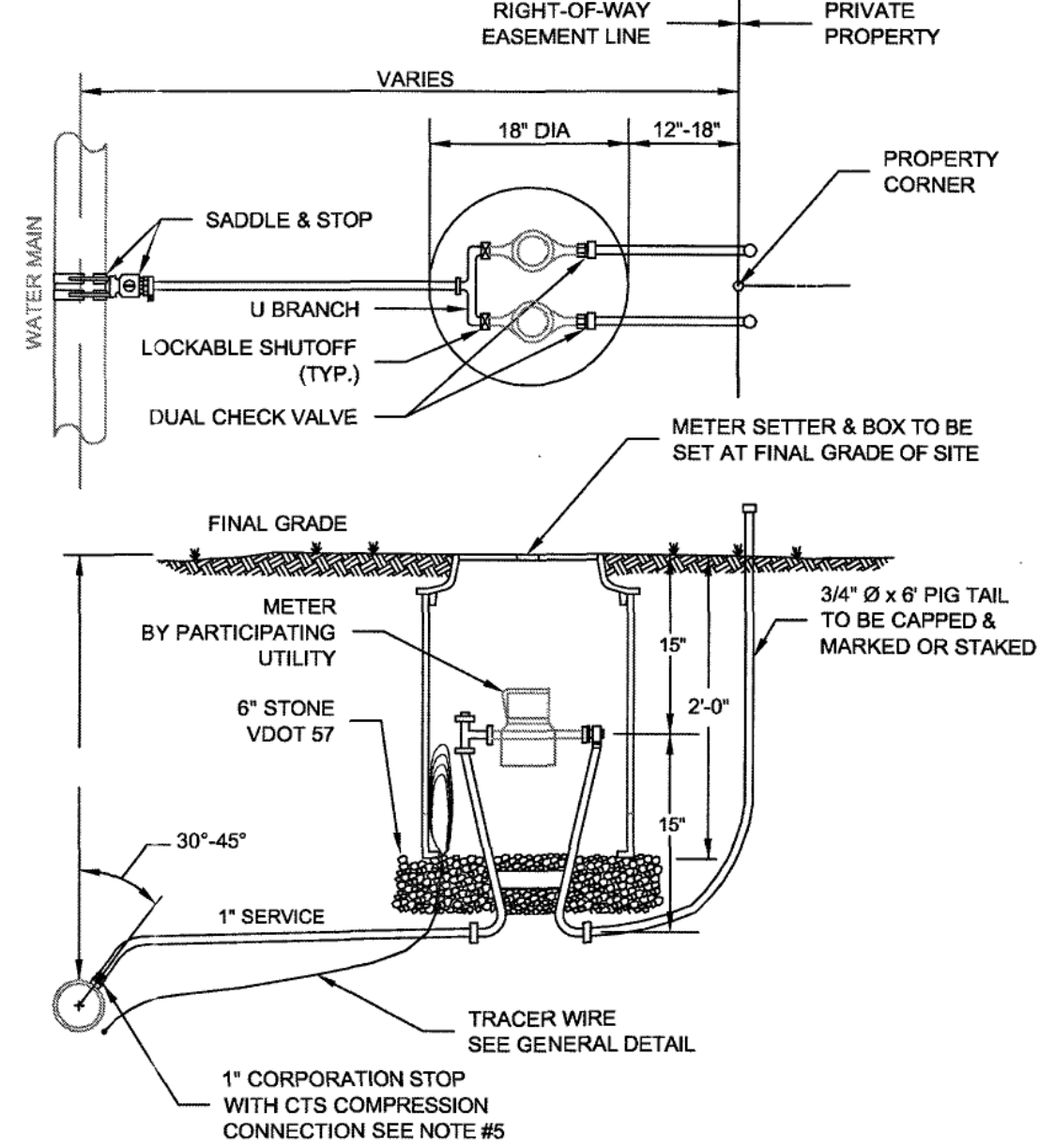
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

SINGLE RESIDENTIAL
WATER SERVICE FOR HIGH PRESSURE
(LINE PRESSURE OVER 120 PSI)

W-3

02/10/15

1. SETTER TO BE A.Y. McDONALD 720-215 WDD33, FORD VBH72-15W-11-33 OR APPROVED EQUAL.
2. SADDLES MUST BE USED WITH ALL PLASTIC DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH WATER DISTRIBUTION PIPING SPECIFICATION. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE: POWERSEAL 3417, OR 3412AS, ROMAC 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE OR POWERSEAL 3413, ROMAC 202 OR FORD METER F202.
3. METER BOX SHALL BE CARSON/MID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD A32-T (ELECTRONIC READ LID), ADS CORRUGATED HDPE BOX WITH FORD A32-T (ELECTRONIC READ LID), OR A.Y. McDONALD MODEL 74M32AT CAST IRON BASE & COVER OR APPROVED EQUAL. USE OF TRAFFIC BEARING BOX SHALL BE APPROVED BY THE AUTHORITY. METER BOX SHALL NOT BE PLACED IN AREAS SUBJECT TO VEHICULAR TRAFFIC. IF TRAFFIC BEARING BOX IS REQUIRED, DESIGN ENGINEER SHALL CONSULT WITH PARTICIPATING UTILITY TO DETERMINE SITE SPECIFIC REQUIREMENTS.
4. WHENEVER SIDEWALK EXISTS OR IS PROPOSED, MODIFY METER LOCATION AS DIRECTED.
5. CORPORATION STOP SHALL BE FORD FB1000-4-G-NL, MUELLER B-25008 OR APPROVED EQUAL.
6. SERVICE SHALL BE "K" TYPE COPPER, OR COPPER TUBE SIZE POLYETHYLENE (PE) 4710, SODR-9 (200 psi).



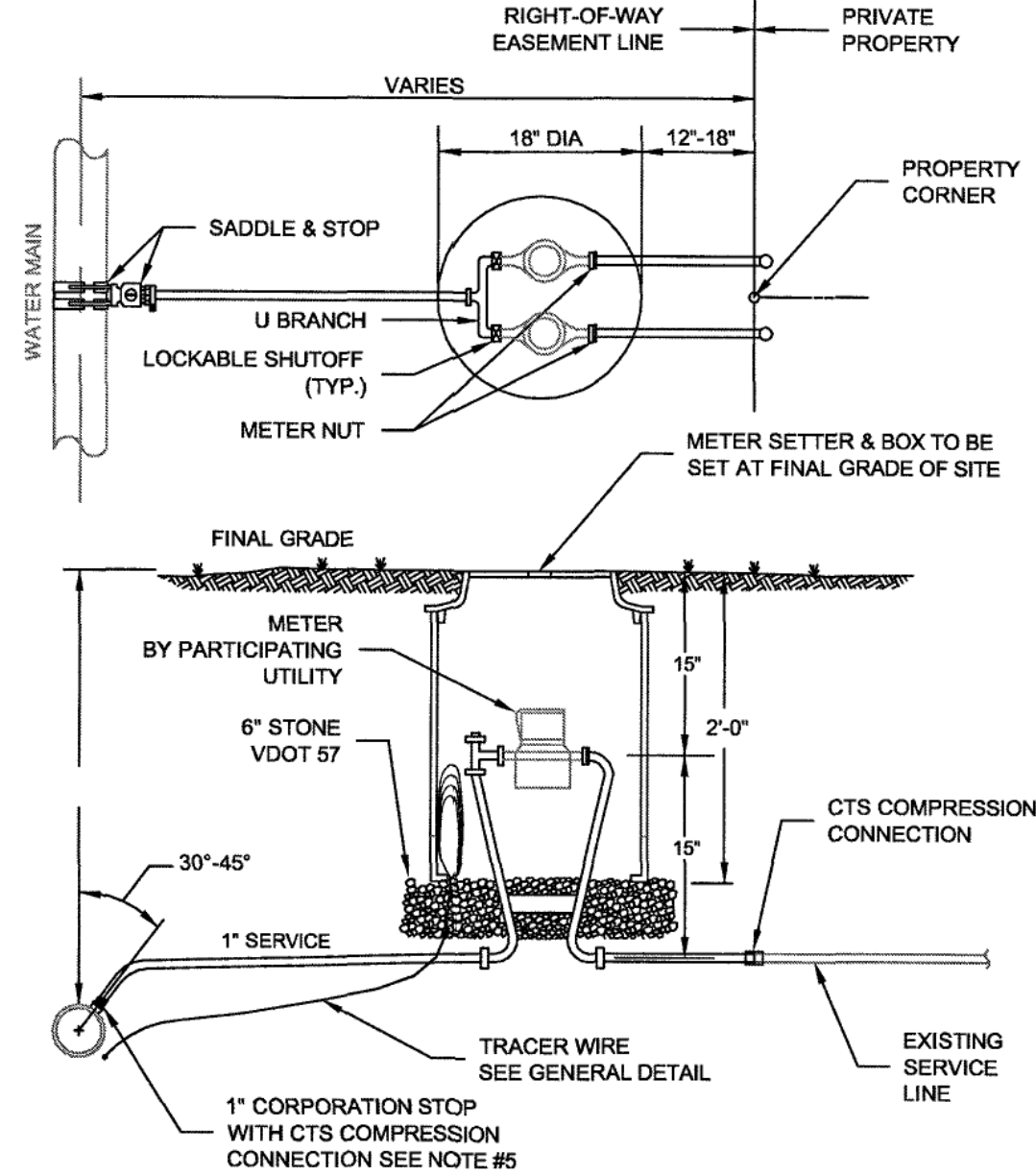
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

DOUBLE RESIDENTIAL
WATER SERVICE
(LINE PRESSURE UNDER 120 PSI)

W-4

02/10/15

1. SETTER TO BE A.Y. McDONALD 720-215 WDD33, FORD VB72-15W-11-33 OR APPROVED EQUAL.
2. SADDLES MUST BE USED WITH ALL PLASTIC DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH WATER DISTRIBUTION PIPING SPECIFICATION. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE: POWERSEAL 3417, OR 3412AS, ROMAC 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE OR POWERSEAL 3413, ROMAC 202 OR FORD METER F202.
3. METER BOX SHALL BE CARSON/MID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD A32-T (ELECTRONIC READ LID), ADS CORRUGATED HDPE BOX WITH FORD A32-T (ELECTRONIC READ LID), OR A.Y. McDONALD MODEL 74M32AT CAST IRON BASE & COVER OR APPROVED EQUAL. USE OF TRAFFIC BEARING BOX SHALL BE APPROVED BY THE AUTHORITY. METER BOX SHALL NOT BE PLACED IN AREAS SUBJECT TO VEHICULAR TRAFFIC. IF TRAFFIC BEARING BOX IS REQUIRED, DESIGN ENGINEER SHALL CONSULT WITH PARTICIPATING UTILITY TO DETERMINE SITE SPECIFIC REQUIREMENTS.
4. WHENEVER SIDEWALK EXISTS OR IS PROPOSED, MODIFY METER LOCATION AS DIRECTED.
5. CORPORATION STOP SHALL BE FORD FB1000-4-G-NL, MUELLER B-25008 OR APPROVED EQUAL.
6. SERVICE SHALL BE "K" TYPE COPPER, OR COPPER TUBE SIZE POLYETHYLENE (PE) 4710, SODR-9 (200 psi).



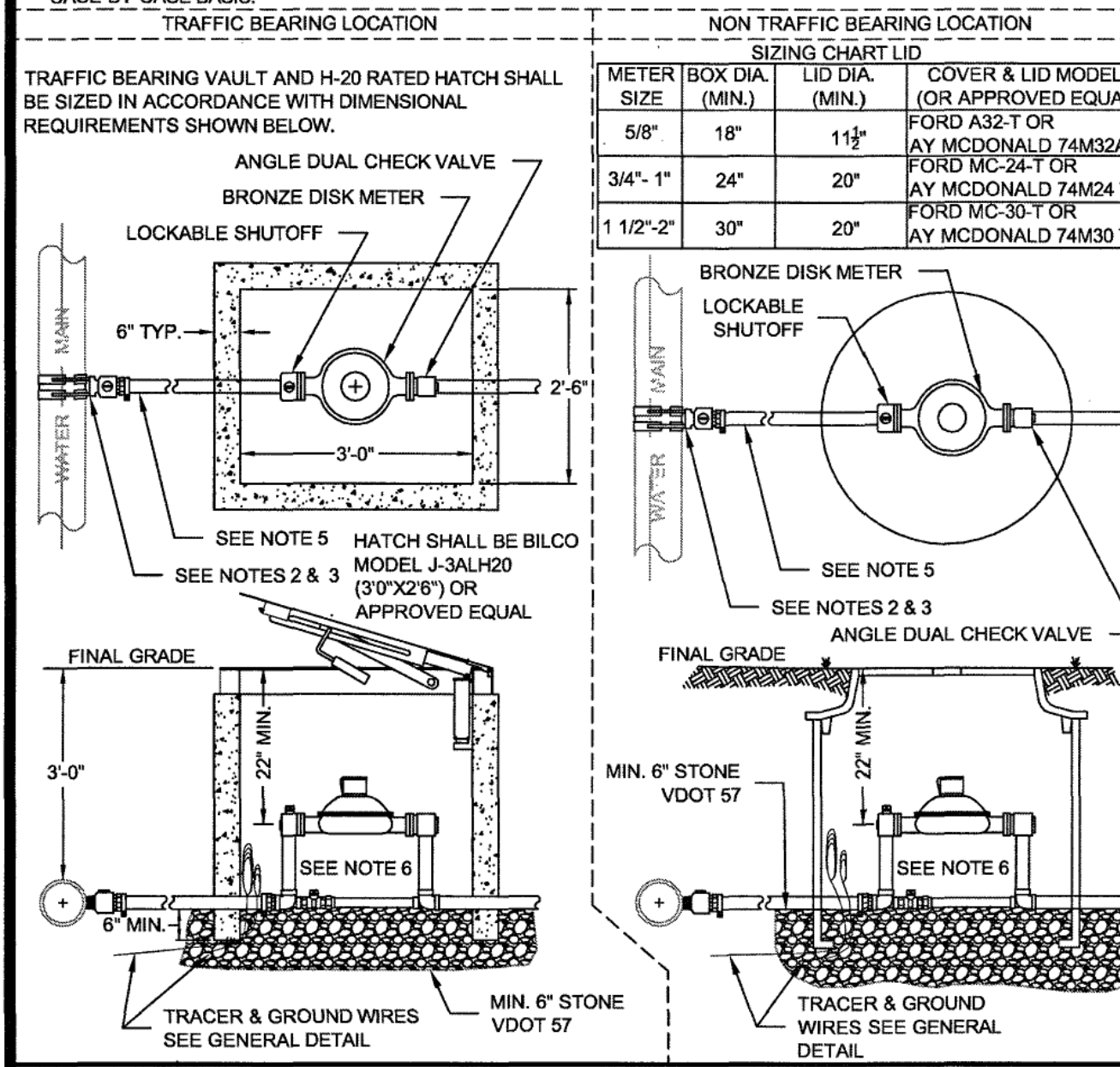
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

DOUBLE RESIDENTIAL
WATER SERVICE
(REPLACEMENT OF EXISTING SERVICE)

W-4E

02/10/15

1. ALL METERS ARE TO BE PROVIDED AND INSTALLED BY PARTICIPATING UTILITY AT OWNER/DEVELOPER'S EXPENSE. METER BOX, SERVICE, AND SETTER TO BE FURNISHED AND INSTALLED BY OWNER/DEVELOPER IN ACCORDANCE WITH THE MINIMUM REQUIREMENTS SHOWN BELOW.
2. SADDLES MUST BE USED WITH ALL PLASTIC & DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH WATER DISTRIBUTION PIPING SPECIFICATION. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE: POWERSEAL 3417, OR 3412AS, ROMAC 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE OR POWERSEAL 3413, ROMAC 202 OR FORD METER F202.
3. CORPORATION STOP SHALL BE FORD FB1000-4-G-NL, MUELLER B-25008 OR APPROVED EQUAL.
4. METER BOXES LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE CONCRETE WITH H-20 RATED TRAFFIC BEARING HATCH. ALL OTHER METER BOXES SHALL BE CARSON/MID-STATES PLASTICS, INC. PLASTIC BOX, ADS CORRUGATED HDPE BOX, OR APPROVED EQUAL. MINIMUM METER BOX & LID DIAMETERS SHALL BE IN ACCORDANCE WITH SIZING CHART BELOW.
5. SERVICE SHALL BE "K" TYPE COPPER OR P.E. 4710, CTS O.D., MINIMUM CELL CLASS 445474E AND 445474D.
6. COPPER METER SETTER TO BE FORD, A.Y. McDONALD OR APPROVED EQUAL WITH ANGLE DUAL CHECK VALVE AND BYPASS HAVING LOCKABLE SHUTOFF VALVE.
7. SERVICES REQUIRING METERS LARGER THAN 2-INCH SHALL BE REVIEWED BY THE PARTICIPATING UTILITY ON A CASE BY CASE BASIS.



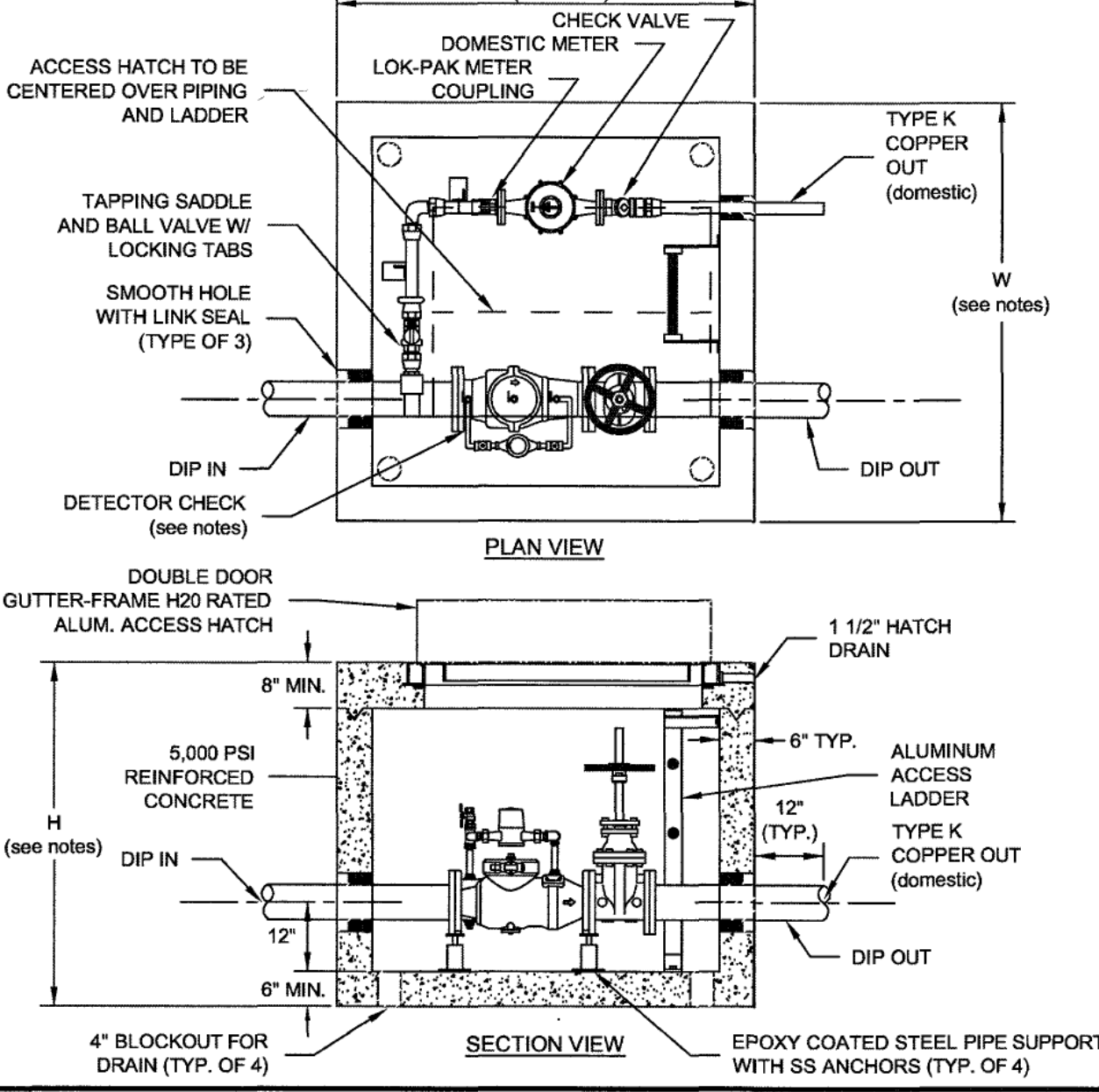
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

COMMERCIAL
WATER SERVICE
METER SIZES 5/8" - 2"

W-5

02/10/15

1. FOR 6" FIRE LINE, EXTERIOR VAULT DIMENSIONS SHALL BE (L x W x H) 6' x 6' x 5' WITH DOMESTIC TAP MADE INSIDE VAULT AS SHOWN BELOW.
2. FOR 8" FIRE LINE EXTERIOR VAULT DIMENSIONS SHALL BE (L x W x H) 6' x 6' x 5' WITH DOMESTIC TAP MADE OUTSIDE VAULT. BALL VALVE WITH LOCKING TABS SHALL BE PROVIDED INSIDE VAULT TO ALLOW FOR ISOLATION OF DOMESTIC METER.
3. SINGLE DETECTOR CHECK VALVE SHALL BE WILKINS 310 DALM, WATTS ES-S307F, BP, OR APPROVED EQUAL WITH FLANGED END CONNECTIONS, BYPASS ASSEMBLY, AND ONE OS&Y GATE VALVE.
4. BYPASS ASSEMBLY SHALL INCLUDE 2 BALL VALVES TO ISOLATE METER.
5. DOMESTIC SHALL BE TYPE K COPPER WITH GRIP JOINT FITTINGS, BALL VALVE AT TAPPING SADDLE (WITH LOCKING TABS) AND CHECK VALVE ON OUTLET.
6. DOMESTIC METER AND BYPASS METER TO BE SUPPLIED BY OWNER AND INSTALLED BY VENDOR.
7. "UNI FLANGE" ADAPTOR FLANGE, OR APPROVED EQUAL, OR FLANGED - FLAN END PIPING REQUIRED FOR INLET AND OUTLET PIPING.
8. VAULT TO BE INSTALLED ON MIN. 6" COMPACTED VDOT #57 STONE WITH FILTER FABRIC PLACED BETWEEN BOTTOM OF VAULT & STONE BEDDING. FILTER FABRIC TO EXTEND VERTICALLY A MINIMUM OF 6" ON ALL FOUR SIDES OF VAULT.



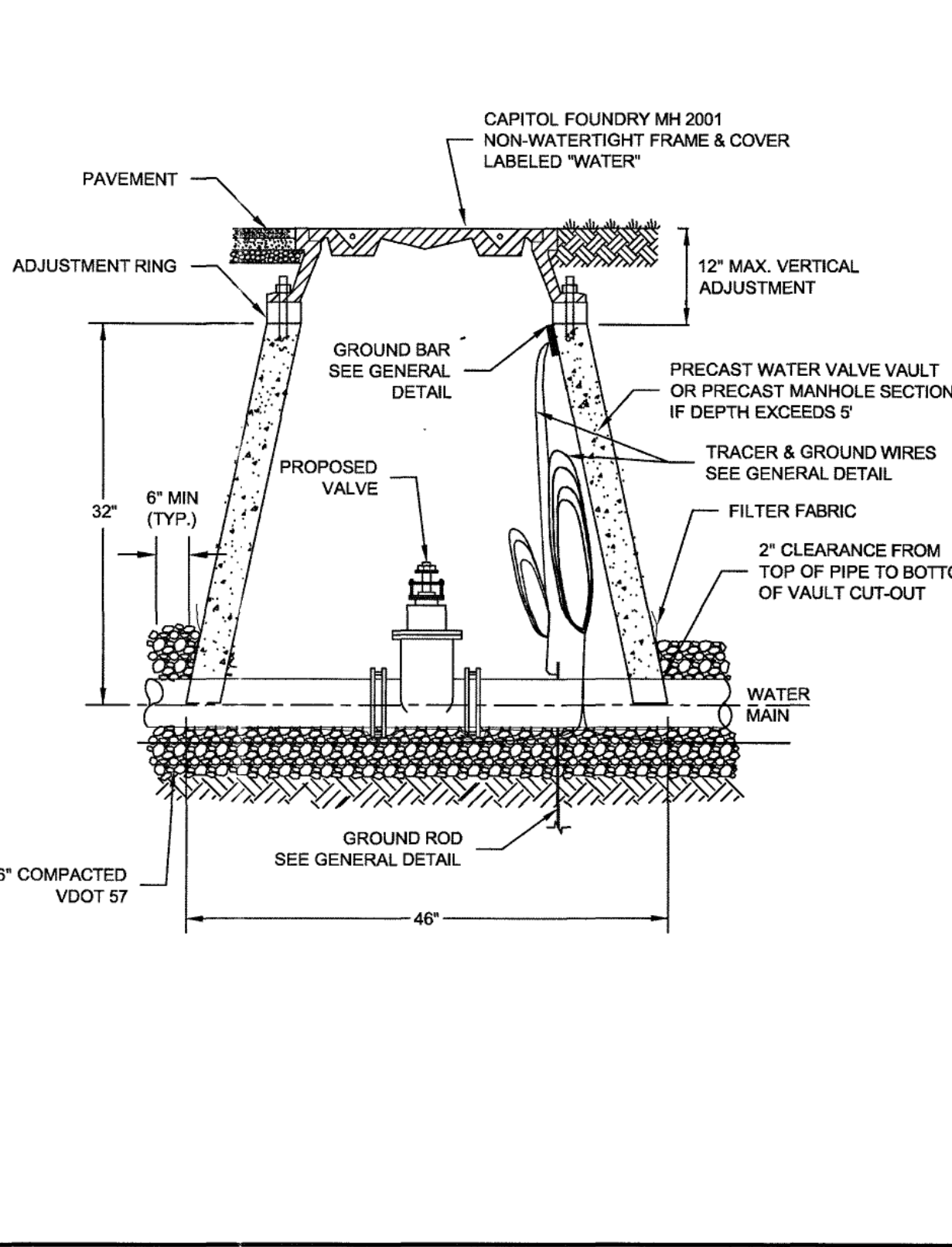
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

COMMERCIAL METER VAULT

W-7

02/10/15

1. FILTER FABRIC TO BE INSTALLED BETWEEN BOTTOM OF PIPE AND STONE BEDDING. FABRIC TO EXTEND VERTICALLY A MINIMUM OF 6" FROM BOTTOM OF VAULT (FULL CIRCUMFERENCE).



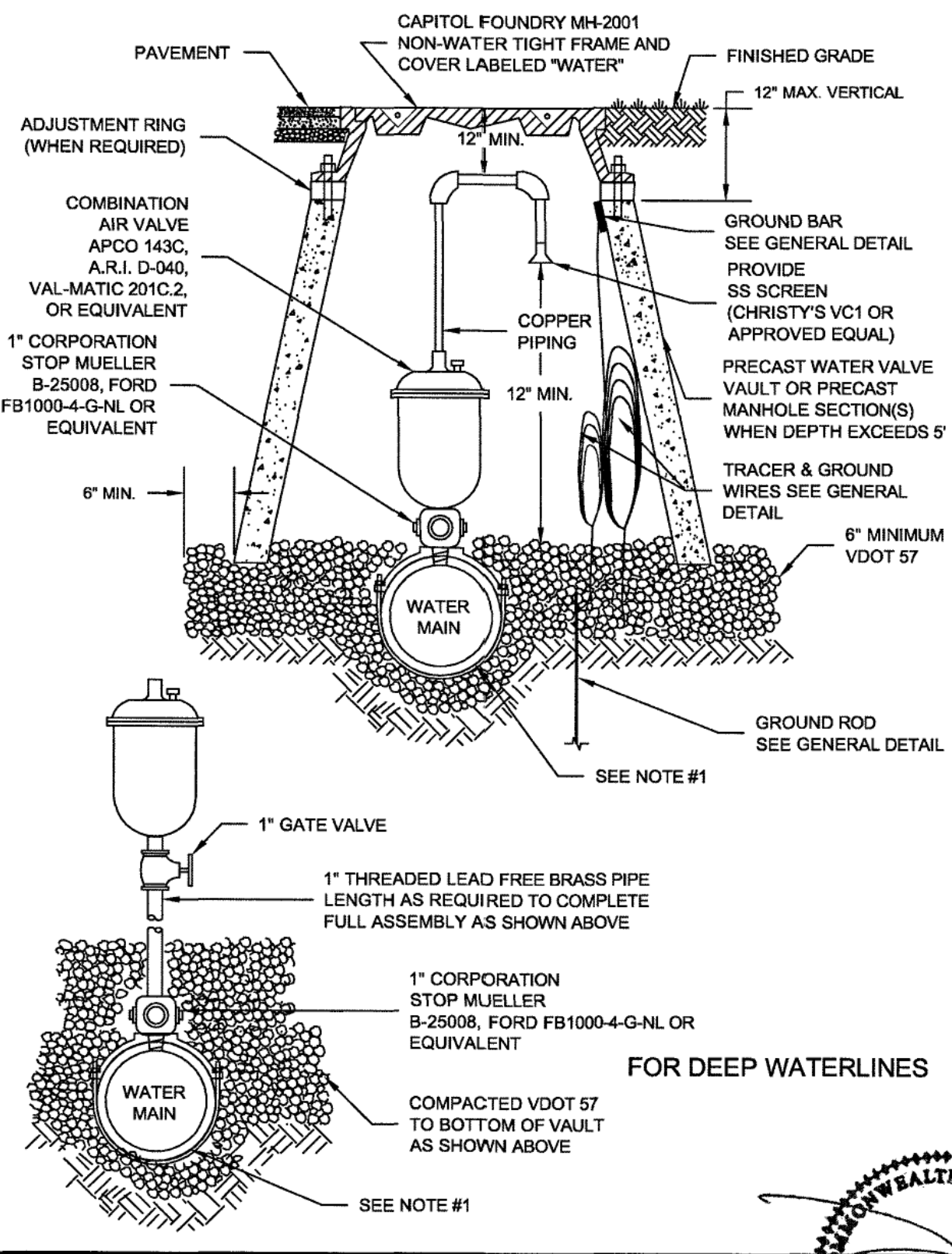
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

WATER LINE VALVE
& VAULT

W-9

01/01/14

1. SEE RESIDENTIAL WATER SERVICE DETAIL FOR SADDLE REQUIREMENTS.
2. LARGER COMBINATION VALVE MAY BE REQUIRED DEPENDING ON APPLICATION.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

COMBINATION AIR VALVE ASSEMBLY

W-9

01/01/14



ANDERSON & ASSOCIATES, INC.
Professional Design Services
www.andassoc.com

100 Ardmore St.
Blacksburg, Va. 24060
540-552-5592

DATE : 29 JAN 16
DESIGNED: BJM
DRAWN: BJM
CHECKED: DAA
QA / QC: DAA

REV. #

COMMENTS

DATE

ELM AVENUE WATER MAIN REPLACEMENT - PHASE 1
WESTERN VIRGINIA WATER AUTHORITY

WWA WATER STANDARD DETAILS 1

DOCUMENT NO.
31987 - 021
SHEET
6 OF
7

McNinney, Brian / 2/17/2016 11:09 AM / \\caprojects\projects\31\31987\31987_engineering\design\plans\31987_srm_ave_waterline_sheets.dwg