



VAIL WATER

**GENERAL NOTES AND
STANDARD DETAILS**

2023 EDITION

VAIL WATER STANDARD DETAILS

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Prepared October 2023

PRE CONSTRUCTION NOTES (PC)

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| 1. | ALL CONSTRUCTION SHALL CONFORM TO "TUCSON WATER STANDARD SPECIFICATIONS AND DETAILS, LATEST EDITION" EXCEPT AS MODIFIED HEREON. SAID STANDARDS SHALL REMAIN ON SITE AT ALL TIMES DURING CONSTRUCTION. |
|----|---|
2. CONTRACTOR SHALL NOTIFY VAIL WATER COMPANY A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO ANY CONSTRUCTION TO SCHEDULE A PRE-CONSTRUCTION CONFERENCE. WORK SHALL NOT COMMENCE UNTIL A "NOTICE TO PROCEED" HAS BEEN ISSUED BY VAIL WATER COMPANY AND THE CERTIFICATION OF "APPROVAL TO CONSTRUCT" HAS BEEN RECEIVED BY VAIL WATER COMPANY FROM THE PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL QUALITY. ANY PIPE INSTALLED PRIOR TO THE "NOTICE TO PROCEED" SHALL BE REMOVED BY THE CONTRACTOR AT HIS OWN EXPENSE.
 3. THE CONTRACTOR IS REQUIRED TO CONTACT "BLUE STAKE" (1-800-782-5348) FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION TO DETERMINE ACCURATE UTILITY LOCATIONS.
 4. WATER MAINS TO BE INSTALLED AFTER SEWER INSTALLATION AND GRADING OF STREETS AND WALK AREAS TO WITHIN 6" OF FINAL GRADE FOR NEW CONSTRUCTION AND BEFORE DRY UTILITIES (ELEC., TEL., ETC.)
 5. A REGISTERED ENGINEER OR A REGISTERED LAND SURVEYOR MUST CERTIFY THAT THE GRADE IS WITHIN 6" OF FINAL GRADE AND PROVIDE LAYOUT SHEETS PRIOR TO NOTICE TO PROCEED, FOR NEW CONSTRUCTION.
 6. CONTRACTOR TO PROVIDE ALL CUT SHEETS, SHOP DRAWINGS AND EQUIPMENT LISTS AT PRE-CONSTRUCTION MEETING WITH VAIL WATER COMPANY. CONSTRUCTION SHALL NOT BEGIN UNTIL ALL CONSTRUCTION MATERIALS ARE APPROVED BY VAIL WATER COMPANY STAFF.
 7. ALL WATER MAINS WILL BE INSPECTED BEFORE BACKFILL. FINAL ACCEPTANCE WILL NOT BE GRANTED WITHOUT AUTHORIZATION FROM VAIL WATER COMPANY SHOWING INSPECTION HAS BEEN PERFORMED.
 8. OWNER (DEVELOPER) TO PAY FOR ALL INSPECTIONS AND FEES, ALL FEES TO BE PAID IN FULL BEFORE ACCEPTANCE OF WATER SYSTEM.
 9. LINE EXTENSION AGREEMENTS MUST BE SIGNED BEFORE ANY WATER CONSTRUCTION BEGINS.
 10. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
 11. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING MAINS FOR PROPOSED CONNECTIONS PRIOR TO COMMENCEMENT OF WORK.
 12. WATER MAINS TO BE INSTALLED WITH A MINIMUM OF 44" OF COVER FOR ALL MAINS 12" AND SMALLER UNDER PAVEMENT, EXCEPT AS OTHERWISE NOTED ON THESE PLANS. ALL MAINS INSTALLED OUTSIDE PAVEMENT SHALL BE INSTALLED WITH A MINIMUM OF 60 INCHES (60") OF COVER.



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PRE CONSTRUCTION NOTES (PC) CONTINUED

13. WHERE WATER MAINS CROSS OVER THE TOP OF EXISTING OR PROPOSED DRAINAGE STRUCTURE;
 - 1) A MINIMUM 24" VERTICAL SEPARATION IS REQUIRED BETWEEN THE BOTTOM OF THE WATER MAIN AND THE TOP OF THE DRAINAGE STRUCTURE.
 - 2) A MINIMUM 44" OF COVER TO THE FINISHED GRADE ABOVE THE WATER MAIN.
 IF THESE REQUIRED CONDITIONS DO NOT EXIST, THEN THE WATER MAIN SHALL BE INSTALLED BELOW THE EXISTING OR PROPOSED DRAINAGE STRUCTURE IN ACCORDANCE TO THE "DRAINAGE STRUCTURE/CULVERT CROSSING DETAIL."
14. ALL WATER MAINS TO HAVE A MINIMUM HORIZONTAL SEPARATION FROM SEWER MAINS OF 6' AND A MINIMUM VERTICAL SEPARATION ON 2'. SANITARY SEWER HCS'S WHICH CROSS OVER WATER MAINS SHALL HAVE A MINIMUM VERTICAL SEPARATION OF 6" AND SHALL BE DIP. SEE ADEQ STANDARDS FOR FORCE MAINS.
15. WHEN A WATER MAIN CROSSES A SEWER PIPE AT A POINT AT WHICH THE SEWER IS TWO FEET (2') OR MORE BELOW THE WATER PIPE, EXTRA PROTECTION IS NOT REQUIRED. AT ALL OTHER CROSSINGS, THE SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH MECHANICAL JOINTS, OR APPROVED EQUAL, FOR A DISTANCE OF AT LEAST TEN (10') FEET IN EACH DIRECTION MEASURED PERPENDICULAR TO THE OUTSIDE OF EDGE OF THE WATERLINE. REQUIREMENTS PER ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING BULLETIN NO. 10, CHAPTER 7.
16. ELECTRIC LINES SHALL NOT BE INSTALLED WITHIN A HORIZONTAL DISTANCE OF 6' FROM A WATER MAIN UNLESS SHOWN IN A JOINT TRENCH DETAIL ON THE APPROVED PLANS THEN THE MINIMUM HORIZONTAL SEPARATION SHALL BE 3'.
17. NO CONNECTION TO THE EXISTING VAIL WATER COMPANY SYSTEM WILL BE PERMITTED UNLESS PRIOR APPROVAL HAS BEEN OBTAINED IN WRITING FROM A VAIL WATER COMPANY REPRESENTATIVE.
18. IF NEW CONSTRUCTION REQUIRES THE WATER TO BE SHUT OFF TO MAKE THE TIE-INS TO THE EXISTING SYSTEM, THE CONTRACTOR SHALL PROVIDE TO VAIL WATER COMPANY WITH A WRITTEN SCHEDULE OF THE PROPOSED CONNECTIONS AT LEAST 48 HOURS PRIOR TO THE START OF SUCH TIE-INS. HOWEVER, NO WATER WILL BE TURNED OFF UNTIL ALL AFFECTED WATER USERS HAVE BEEN NOTIFIED BY THE CONTRACTOR OF THE SCHEDULE NOT LESS THAN TWENTY-FOUR (24) HOURS BEFORE WATER IS TO BE TURNED OFF.
19. THE CONTRACTOR IS REQUIRED TO NOTIFY ALL VAIL WATER CO. OF ANY POSSIBLE SERVICE INTERRUPTION OR INCONVENIENCE DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A PHONE NUMBER AT WHICH HE/SHE CAN BE REACHED AT ANY TIME.
20. THE CONTRACTOR SHALL NOTIFY VAIL WATER COMPANY A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO ANY CONSTRUCTION WHICH MAY COME IN CONTACT WITH TRANSITE (AC) PIPE. IF REMOVAL OF AC PIPE IS NECESSARY, A CERTIFIED CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL AC PIPE MATERIAL UNDER ALL CURRENT CODES AND REGULATIONS.



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PRE CONSTRUCTION NOTES (PC) CONTINUED

21. **VAIL WATER COMPANY IS NOT RESPONSIBLE FOR PROVIDING FIRE FLOW.**
22. VAIL WATER IS FOLLOWING THE TUCSON WATER 'NO DEFLECTION' STANDARD BUT WILL ALLOW NO MORE THAN 2 DEGREES IN AND OUT OF A STANDARD BEND. VERTICAL/HORIZONTAL DEFLECTION BETWEEN 2-4 DEGREES WILL BE ALLOWED USING A ROMAC ALPHA FLEX COUPLING OTHERWISE A STANDARD BEND WILL BE REQUIRED.
23. **CONTRACTOR SHALL FULLY RESTRAIN ALL JOINTS ON ENTIRE PROJECT. (3" AND LARGER)**
24. CONTRACTOR TO PAY ALL RE-TEST FEES TO VAIL WATER COMPANY PRIOR TO ANY RE-SCHEDULING.
25. IF THE 'APPROVAL TO CONSTRUCT' FROM THE PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL EXPIRES THE WATER PLANS WILL HAVE TO BE RE-APPROVED BY THE WATER COMPANY AND WILL NEED TO BE BROUGHT UP TO CURRENT WATER COMPANY STANDARDS
26. THE CONTRACTOR SHALL ADD OR REMOVE THE NECESSARY SOIL TO FINISH GRADE WITH-IN 1 TO 2 INCHES BEFORE TRENCHING FOR THE WATER MAINS AND APPURTENANCES. THIS MUST BE COMPLETED TO ENSURE THERE IS ENOUGH PROTECTIVE COVER OVER THE WATER MAINS AND APPURTENANCES.
27. THE CONTRACTOR SHALL REMOVE 4" TO 6" (OR ALL DEFICIENCIES, GOUGES, ETC.) FROM THE END OF THE EXISTING TIE-IN MAIN PRIOR TO CONNECTING TO THE WATER SYSTEM.

MATERIALS (MS)

1. ALL PIPE SHADING AND BEDDING MATERIAL SHALL BE IMPORTED CLEAN SANDY MATERIAL CONFORMING TO TUCSON WATER STANDARD SPECIFICATION 0209.0309.
2. ALL FIRE HYDRANT RUNS TO BE CONSTRUCTED WITH RESTRAINED JOINT D.I.P. CLASS 350. FIRE HYDRANTS MUST BE SECURED WITH MUELLER HYDRANT DEFENDERS.
3. ALL WATER MAINS SHALL BE CONSTRUCTED WITH GATE VALVES W/BOX AND COVER IN ACCORDANCE WITH TUCSON WATER STANDARD SPECIFICATIONS. ALL RISERS SHALL BE EQUIPPED WITH DIRT SHIELDS, SW SERVICES MODEL DC456 5 7/8"-6 1/4" ID.
4. ALL D.I.P. RUNS WILL BE MECHANICAL JOINTS, WITH D.I.P. MEGA-LUG WRAPPED IN PLASTIC, D.I.P. TO BE CLASS 350, OR VAIL WATER COMPANY APPROVED EQUAL. DURING INSTALLATION OF D.I.P. DRAINAGE CROSSINGS, THE VAIL WATER COMPANY RESERVES THE RIGHT TO HAVE THE CONTRACTOR MAKE MODIFICATIONS OF CROSSINGS AS VAIL WATER COMPANY DEEMS NECESSARY.
5. VALVE NUT EXTENSIONS, IF REQUIRED, SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR. PER TUCSON WATER STANDARD DETAIL NO. 305.
6. ALL MECHANICAL JOINT (M.J.) FITTINGS TO BE OF THE MEGALUG RESTRAINT TYPE DESIGN OR APPROVED EQUAL, AND ALL INSTALLATION FOR THRUST CONTROL ON ALL PIPELINES SHALL PER TUCSON WATER STANDARD 600.
7. SOLID SLEEVE ADAPTERS SHALL BE REQUIRED FOR ALL PIPING TRANSITIONS. ADAPTERS SHALL HAVE M.J. FITTINGS TYLER, 12" MINIMUM LENGTH OR APPROVED EQUAL.
8. ALL TAPPING SLEEVES SHALL CONSIST OF MINIMUM TYPE 304 STAINLESS STEEL BODY, FLANGE AND ALL ACCESSORIES.



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MATERIALS (MS) CONT'D

9. **THE ONLY APPROVED PIPING MATERIAL FOR WATER LINES ARE: COPPER TYPE K, DIP CLASS 350 (FULLY RESTRAINED).** APPROVED MANUFACTURERS OF SAID MATERIALS ARE LISTED IN THE "TUCSON WATER STANDARD SPECIFICATIONS AND DETAILS, LATEST EDITION".
10. SAMPLING STATIONS SHALL BE KORALEEN STATION GUARD XLT.
11. CONTRACTOR SHALL USE MUELLER FIRE HYDRANT DEFENDERS ON ALL NEW HYDRANTS, MODEL #HSZ002000 FOR WATEROUS HYDRANTS, MODEL #HSZ001000 FOR MUELLER HYDRANTS AND HYDRA SHIELD HEAVY-DUTY CUSTODIAN HYDRANT LOCKS IN WITHIN THE CITY OF TUCSON.

BACKFLOW (BF)

1. ALL CONSTRUCTION WATER WILL BE METERED WITH AN APPROPRIATE SIZE WATER METER AND BACKFLOW PREVENTION DEVICE. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE WATER METER AND BACKFLOW DEVICE FROM VAIL WATER COMPANY.

CONTRACTOR SHALL INSTALL REDUCED PRESSURE ASSEMBLY (RPA) PER TUCSON WATER APPROVED STANDARD DETAILS FOR BACKFLOW ASSEMBLIES ON ALL COMMERCIAL AND IRRIGATION SERVICES. ALL BACKFLOW PREVENTERS SHALL BE ENCLOSED IN AN APPROPRIATELY SIZED GUARD SHACK CAGE (COLOR TAN). SUBMITTALS FOR SAID ASSEMBLIES SHALL BE SUBMITTED TO VAIL WATER COMPANY FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
3. ALL BACKFLOW PREVENTION DEVICES SERVING ARE TO BE CONSTRUCTED PER U.P.C. STANDARDS.

DETECTOR TAPE AND TRACER WIRE (DT)

1. CONTRACTOR TO INSTALL DETECTOR TAPE ABOVE ALL WATER LINES AND WATER SERVICES. TAPE IS TO BE PLACED 18" BELOW FINAL GRADE, PER TUCSON WATER STD. SPEC. SECTION 0210.
2. THE CONTRACTOR IS REQUIRED TO INSTALL BLUE COLOR #10 UF STANDARD DIRECT BURIAL WIRE ON TOP OF THE PIPE AND TIED DOWN WITH TIE STRAPS WITH 3' LOOPS BROUGHT UP AROUND VALVE RISERS (SEE NOTE ON "TRACER WIRE, MODIFIED DVA AND DVA DETAIL". VALVE RISERS ARE TO BE FIELD SELECTED BY THE VAIL WATER COMPANY OR THEIR REPRESENTATIVE. (SEE "TRACER WIRE, MODIFIED DVA AND DVA DETAIL")
3. TRACER WIRE TO BE BROUGHT UP ON ALL BLOWOFFS AND IN LINE VALVES, PIPES STUBS, HYDRANTS, WATER SERVICES OR ANY OTHER BURIED WATER APPURTENANCE. PER TUCSON WATER STANDARD 116.
4. THE TRACER WIRE IS TO BE CERTIFIED BY A LICENSED ELECTRICAL CONTRACTOR FOR CONTINUITY AFTER PAVING OPERATIONS ARE COMPLETED. FINAL ACCEPTANCE WILL NOT BE GRANTED UNTIL CERTIFICATION IS RECEIVED BY THE VAIL WATER COMPANY. SPLICES SHALL BE MADE WITH DRY-CONN WEATHER PROOF CONNECTORS, WRAPPED WITH ELECTRICAL TAPE AND MUST BE INSPECTED. SIGNAL INDUCED TEST RESULTS WILL NOT BE ACCEPTED. VAIL WATER COMPANY RECOMMENDS AND ENCOURAGES THE CONTRACTOR TO PRETEST THE TRACER WIRE PRIOR TO PAVING OPERATIONS TO AVOID RE-PAVING COSTS THAT MAY INCURRED BY THIS PROCEDURE.



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WATER SERVICES (WS)

1. THE DEVELOPER/APPLICANT SHALL HAVE ALL CURB STOPS LOCATED AND PROTECTED DURING ALL PHASES OF CONSTRUCTION.
2. INSTALL TOP OF CURB STOPS 18" BEHIND BACK OF CURB OR WALK (AS APPLICABLE) FROM STREET WITH CURBS AND 8" TO 10" BELOW TOP OF CURB OR WALK (SEE DETAIL).
3. FOR STREETS WITHOUT CURBS, INSTALL TOP OF CURB STOPS 8" TO 10" BELOW FINISH GRADE AND A DIMENSION FROM PROPERTY LINE THAT WILL PLACE THE METER BOX JUST ADJACENT TO SAID PROPERTY LINE.
4. CURB STOPS SHALL NOT BE INSTALLED AT THE SAME LOT CORNERS AS THE ELECTRICAL SERVICE. WHERE THIS CANNOT BE ACCOMPLISHED, CONTACT VAIL WATER COMPANY REPRESENTATIVE.
5. METER BOXES AND LIDS TO BE FURNISHED BY CONTRACTOR/DEVELOPER AND INSTALLED TO FINISH GRADE BY CONTRACTOR. ALL METER BOX SIZES SHALL CONFORM TO VAIL WATER COMPANY STANDARDS. METER BOX SHALL BE INSTALLED TO 0.1' ABOVE FINISHED GRADE. (SEE NOTE WS #6 FOR METER BOX REQUIREMENTS).
6. METER BOX REQUIREMENTS:
DFW PLASTICS MODEL # DFW1324C-18-1
7. WATER SERVICE TO REMAIN MARKED DURING CONSTRUCTION. ANY RELOCATION OF SERVICES TO BE BY CONTRACTOR, INCLUDING HEIGHT ADJUSTMENTS. NOTIFY VAIL WATER COMPANY IN ADVANCE OF ANY RELOCATION OR ADJUSTMENTS.
8. PAVING CONTRACTOR TO MARK CURBS WITH "W" AT ALL SERVICE LOCATIONS.
9. CONTRACTOR TO CONSULT WITH VAIL WATER COMPANY STAFF PRIOR TO INSTALLING ANGLE METER STOPS 1" AND LARGER.
10. DEVELOPER OR BUILDER IS REQUIRED TO INSTALL A CUSTOMER CUTOFF BALL VALVE WITH HANDLE INSIDE OF METER BOX IN ACCORDANCE WITH THE VAIL WATER COMPANY STANDARDS.
BALL VALVE ASSEMBLY :
3/4" METER; FORD # B13-332 W/HBS 3-1/4" LONG HANDLE
MUELLER # B-24351
1" METER; FORD # B13-444 W/HBS 3-1/4" LONG HANDLE
MUELLER # B-24351
11. WATER SERVICES IN CONCRETE DRIVEWAYS, SIDEWALKS OR CURBS ARE NOT ALLOWED WITHOUT PRIOR APPROVAL OF VAIL WATER COMPANY. WATER SERVICES OR METERS BOXES AND LIDS INSTALLED WITHIN CONCRETE PAVED DRIVEWAYS, SIDEWALKS OR CURBS MUST BE TRAFFIC RATED AND INCREASED ONE (1) SIZE.
12. VAIL WATER COMPANY WILL NOT ALLOW 4 INCH (4") OR SMALLER WATER MAINS.
13. ALL WATER SERVICES TO BE CONTINUOUS (NO REPAIRS) FROM WATER MAIN TAP TO ANGLE METER STOP.



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WATER SERVICES (WS) CONTINUED

14. METERS SHALL BE PLACED 2 FEET FROM THE PROPERTY LINE AND 5 FEET FROM AN ELECTRICAL PEDESTAL OR TRANSFORMER. METERS SHALL NOT BE PLACED IN DRIVEWAYS. IF THIS CANNOT BE ACCOMPLISHED, VAIL WATER COMPANY WILL REVIEW THE METER LOCATIONS ON AN INDIVIDUAL BASIS.
15. ALL RESIDENTIAL WATER SERVICES SHALL BE 1" SINGLE SERVICES WITH A BA43342-WG FORD CURB STOP OR MUELLER B-24258 CURB STOP UNLESS OTHERWISE NOTED ON THE PLANS. THE CONTRACTOR SHALL COORDINATE WITH VAIL WATER COMPANY ABOUT THE ANTICIPATED SIZE OF THE WATER METERS FOR THE PROJECT TO DETERMINE THE PROPER SIZE OF THE ANGLE METER STOP PRIOR TO INSTALLATION.

AIR RELEASES (AR)

1. THE LOCATION OF AIR RELEASE VALVE ASSEMBLIES SHOWN IN THESE PLANS IS FOR INFORMATION ONLY. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF HIGH POINTS IN THE WATER MAIN, THESE LOCATIONS MUST BE APPROVED BY VAIL WATER REPRESENTATIVE OR ENGINEER'S INSPECTOR. AIR RELEASE VALVE ASSEMBLIES SHALL NOT BE INSTALLED IN STREETS, DRIVEWAYS, OR SIDEWALKS. INSTALLATION SHALL BE PER COMBINATION AIR RELEASE VALVE DETAIL THIS PAGE.
2. ALL AIR RELEASE VALVES SHALL BE ARMSTRONG AR21 FOR 3/4" SIZE AND CRISPIN UL TYPE FOR 1" TO 2" SIZES (COMBINATION AIR RELEASE AND VACUUM). ALL AIR RELEASE VALVES SHALL HAVE STAINLESS STEEL OR BRASS NETTING INSTALLED WITH STAINLESS STEEL HOSE CLAMP ON ELBOW.
3. AIR RELEASE VALVES SHALL BE ENCLOSED IN BPGI GUARDSHACK MODEL NO. GS-2, MOUNTED AND SECURED TO BPGI ENCPAD MODEL NO. EP-2 PER MANUFACTURER'S SPECIFICATIONS. COLOR OF GUARDSHACK TO BE TAN.

FLUSHING OUTLET (FO)

1. ALL FLUSHING OUTLETS ASSEMBLIES SHALL HAVE CONCRETE COLLARS AND SHALL MEET VAIL WATER COMPANY SPECS (SEE DETAIL) AND HAVE VAIL WATER CO. APPROVED AND ACCEPTED BOXES AND LIDS.
2. ALL FLUSHING OUTLET ASSEMBLIES LOCATIONS TO BE PER VAIL WATER COMPANY. WATER SERVICES WILL NOT BE ALLOWED PAST THE MAIN VALVE.
3. METER BOX REQUIREMENTS:
DFW PLASTICS MODEL # DFW1324C-18-1



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FINAL CONSTRUCTION NOTES (FCN)

1. THE CONTRACTOR SHALL SUBMIT A "PRELIMINARY FLUSHING SEQUENCE" TO VAIL WATER COMPANY FOR APPROVAL PRIOR TO FLUSHING. THE SUBMITTAL SHALL BE PER TUCSON WATER'S OFFICE PROCEDURE NO. 6, "PRELIMINARY FLUSHING SEQUENCE."
2. EXISTING DEAD-END MAINS SHALL BE THOROUGHLY FLUSHED BEFORE TIE-INS ARE MADE TO NEW LINES BEING INSTALLED BY THIS PROJECT.
4. THE CONTRACTOR SHALL NOTIFY VAIL WATER COMPANY FOUR (4) WORKING DAYS IN ADVANCE FOR SCHEDULING WATER MAIN PRESSURE TESTING AND BACTERIAL TESTING. VAIL WATER COMPANY REP WILL NOTIFY P.C.D.E.Q. AND COORDINATE WITH CONTRACTOR.
5. NO TIE-INS TO EXISTING WATER MAINS UNTIL BACTERIOLOGICAL TESTING RESULTS ARE REPORTED NEGATIVE AND THE APPROVAL OF CONSTRUCTION IS RECEIVED.
6. "AS BUILT" PLANS AND AN ENGINEERS CERTIFICATE OF COMPLETION PER P.C.D.E.Q. REQUIREMENTS STAMPED BY A PROFESSIONAL ENGINEER TO BE PROVIDED BEFORE ACCEPTANCE BY VAIL WATER COMPANY (MYLAR AND FOUR (4) T-BOND PRINTS AND PDF FILE).
7. THE DEVELOPER/APPLICANT SHALL HAVE ALL WATER VALVES IDENTIFIED AND LOCATED PRIOR TO PAVING AND SHALL HAVE ALL VALVE BOXES SET TO FINAL GRADE AFTER PAVING, OR FINAL GRADING IF NOT IN PAVED AREAS.
8. AFTER THE PAVING, CURBS, AND SIDEWALKS HAVE BEEN INSTALLED, A VAIL WATER COMPANY UTILITY REPRESENTATIVE WILL CHECK ALL VALVE RISERS, SERVICE METER BOXES, AND FIRE HYDRANTS FOR OPERATION AND FIELD ADJUSTMENT PRIOR TO FINAL APPROVAL.
9. FINAL ACCEPTANCE WILL NOT BE GRANTED UNTIL THE PIPE CERTIFICATION, BACKFILL CERTIFICATION WITH TESTING RESULTS, VALVE CERTIFICATION, AND THE PASSING MICROBIOLOGICAL TEST AND P.C.D.E.Q. CERTIFICATION OF "APPROVAL OF CONSTRUCTION" HAVE BEEN RECEIVED BY VAIL WATER COMPANY REPRESENTATIVE.
10. ALL CONSTRUCTION WATER SHALL BE METERED INCLUDING FLUSHING, COMPACTING, AND DUST CONTROL.
11. FIRE HYDRANTS SHALL BE PROTECTED WITH A MINIMUM OF THREE (3) POST BARRICADES PER PC/COT STANDARD DETAIL IF NO CURB IS INSTALLED.



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HORIZONTAL AND VERTICAL SEPARATION REQUIREMENTS

WATER AND SEWER MAINS SHALL MAINTAIN A MINIMUM HORIZONTAL AND VERTICAL SEPARATION. HORIZONTAL SEPARATIONS ARE SUMMARIZED IN TABLE 1, WATER/SEWER HORIZONTAL SEPARATION REQUIREMENTS, AND VERTICAL SEPARATIONS ARE SUMMARIZED IN TABLE 2, WATER/SEWER VERTICAL SEPARATION REQUIREMENTS.

TABLE 1. WATER/ SEWER HORIZONTAL SEPARATION REQUIREMENTS

WATER/SEWER HORIZONTAL SEPARATION REQUIREMENT TABLE	TYPE OF PARALLEL UTILITY							
	WATER SERVICE CONNECTION	DISTRIBUTION WATER MAIN	TRANSMISSION WATER MAIN	SEWER MAIN/ RECLAIMED MAIN	SEWER SERVICE CONNECTION	DRY UTILITIES ¹	PRIVATE FIRE LINE SERVICE	STORM DRAINS / CULVERT AND IRRIGATION ¹
DISTRIBUTION WATER MAIN	3'-0" (MINIMUM)	3'-0" (MINIMUM)	3'-0" (MINIMUM)	6'-0" (MINIMUM)	6'-0" (MINIMUM)	6'-0" (MINIMUM)	3'-0" (MINIMUM)	6'-0" (MINIMUM)
TRANSMISSION WATER MAIN	3'-0" (MINIMUM)	3'-0" (MINIMUM)	3'-0" (MINIMUM)	6'-0" (MINIMUM)	6'-0" (MINIMUM)	6'-0" (MINIMUM)	3'-0" (MINIMUM)	6'-0" (MINIMUM)
WATER SERVICE CONNECTION	3'-0" (MINIMUM)	3'-0" (MINIMUM)	3'-0" (MINIMUM)	6'-0" (MINIMUM)	6'-0" (MINIMUM)	6'-0" (MINIMUM)	3'-0" (MINIMUM)	3'-0" (MINIMUM)
PRIVATE FIRE LINE SERVICE	3'-0" (MINIMUM)	3'-0" (MINIMUM)	3'-0" (MINIMUM)	6'-0" (MINIMUM)	6'-0" (MINIMUM)	6'-0" (MINIMUM)	3'-0" (MINIMUM)	6'-0" (MINIMUM)
SEWER MAIN / RECLAIMED MAIN	6'-0" (MINIMUM)	6'-0" (MINIMUM)	6'-0" (MINIMUM)	3'-0" (MINIMUM)	3'-0" (MINIMUM)	6'-0" (MINIMUM)	6'-0" (MINIMUM)	3'-0" (MINIMUM)
SEWER SERVICE CONNECTION	6'-0" (MINIMUM)	6'-0" (MINIMUM)	6'-0" (MINIMUM)	3'-0" (MINIMUM)	3'-0" (MINIMUM)	3'-0" (MINIMUM)	6'-0" (MINIMUM)	3'-0" (MINIMUM)

¹ MINIMUM SEPARATION REQUIRED BY VAIL WATER. UTILITY OWNER MAY REQUIRE A GREATER SEPARATION.

NOTE:

THIS TABLE APPLIES TO ALL ABOVE GROUND OR UNDERGROUND UTILITIES/STRUCTURES.



STANDARD DETAIL

**HORIZONTAL WATER
CROSSING TABLE**

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TABLE 2. WATER/ SEWER VERTICAL SEPARATION REQUIREMENTS

TYPE OF PARALLEL UTILITY								
WATER/SEWER VERTICAL SEPARATION REQUIREMENT TABLE	WATER SERVICE CONNECTION	DISTRIBUTION WATER MAIN	TRANSMISSION WATER MAIN	SEWER MAIN/ RECLAIMED MAIN	SEWER SERVICE CONNECTION	DRY UTILITIES ³	PRIVATE FIRE LINE SERVICE	STORM DRAINS / CULVERT AND IRRIGATION ³
DISTRIBUTION WATER MAIN ABOVE UTILITY ²	6" (MINIMUM)	1'-0" (MINIMUM)	2'-0" (MINIMUM)	1'-0" (MINIMUM)	6" (MINIMUM)	1'-0" (MINIMUM)	1'-0" (MINIMUM)	1'-0" (MINIMUM)
DISTRIBUTION WATER MAIN BELOW UTILITY	6" (MINIMUM)	1'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	1'-0" (MINIMUM)	1'-0" (MINIMUM)	2'-0" (MINIMUM)
TRANSMISSION WATER MAIN ABOVE UTILITY	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)
TRANSMISSION WATER MAIN BELOW UTILITY	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)
PRIVATE FIRE LINE SERVICE ABOVE UTILITY	6" (MINIMUM)	1'-0" (MINIMUM)	2'-0" (MINIMUM)	1'-0" (MINIMUM)	6" (MINIMUM)	1'-0" (MINIMUM)	1'-6" (MINIMUM)	1'-0" (MINIMUM)
PRIVATE FIRE LINE SERVICE BELOW UTILITY	6" (MINIMUM)	1'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	1'-0" (MINIMUM)	1'-6" (MINIMUM)	2'-0" (MINIMUM)
WATER SERVICE CONNECTION ABOVE OR BELOW UTILITY	6" (MINIMUM)	6" (MINIMUM)	2'-0" (MINIMUM)	6" (MINIMUM)	6'-0" (MINIMUM)	6" (MINIMUM)	6" (MINIMUM)	1'-0" (MINIMUM)
SEWER MAIN / RECLAIMED MAIN ABOVE UTILITY	6" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	1'-0" (MINIMUM)	6'-0" (MINIMUM)	1'-0" (MINIMUM)	2'-0" (MINIMUM)	1'-0" (MINIMUM)
SEWER MAIN / RECLAIMED MAIN BELOW UTILITY	6" (MINIMUM)	1'-0" (MINIMUM)	2'-0" (MINIMUM)	1'-0" (MINIMUM)	6" (MINIMUM)	1'-0" (MINIMUM)	1'-0" (MINIMUM)	1'-0" (MINIMUM)
SEWER SERVICE CONNECTION ABOVE UTILITY	6" (MINIMUM)	2'-0" (MINIMUM)	2'-0" (MINIMUM)	6" (MINIMUM)	6" (MINIMUM)	6" (MINIMUM)	2'-0" (MINIMUM)	1'-0" (MINIMUM)
SEWER SERVICE CONNECTION BELOW UTILITY	6" (MINIMUM)	6" (MINIMUM)	2'-0" (MINIMUM)	6" (MINIMUM)	6" (MINIMUM)	6" (MINIMUM)	2'-0" (MINIMUM)	1'-0" (MINIMUM)

¹ EXTRA PROTECTION IS REQUIRED FOR WATER MAINS AND PRIVATE FIRE LINE SERVICES THAT ARE BETWEEN 1 AND 2 FEET ABOVE SEWER MAIN, STORM DRAIN OR IRRIGATION LINE. REFER TO NOTE BELOW.

² WHERE A TRENCHING OPERATION CROSSES UNDER EXISTING 12 INCH OR SMALLER WATERLINES, SECTION 601.2.8 OF THE ORO VALLEY WATER UTILITY SUPPLEMENTS TO PAG MUST BE FOLLOWED.

³ MINIMUM SEPARATION REQUIRED BY VAIL WATER OWNER MAY REQUIRE A GREATER SEPARATION.

NOTE:

CLEARANCES ARE MEASURED FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE. MINIMUM SEPARATION AND EXTRA PROTECTION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN ARIZONA ADMINISTRATIVE CODE AAC R18-5-502.



STANDARD DETAIL

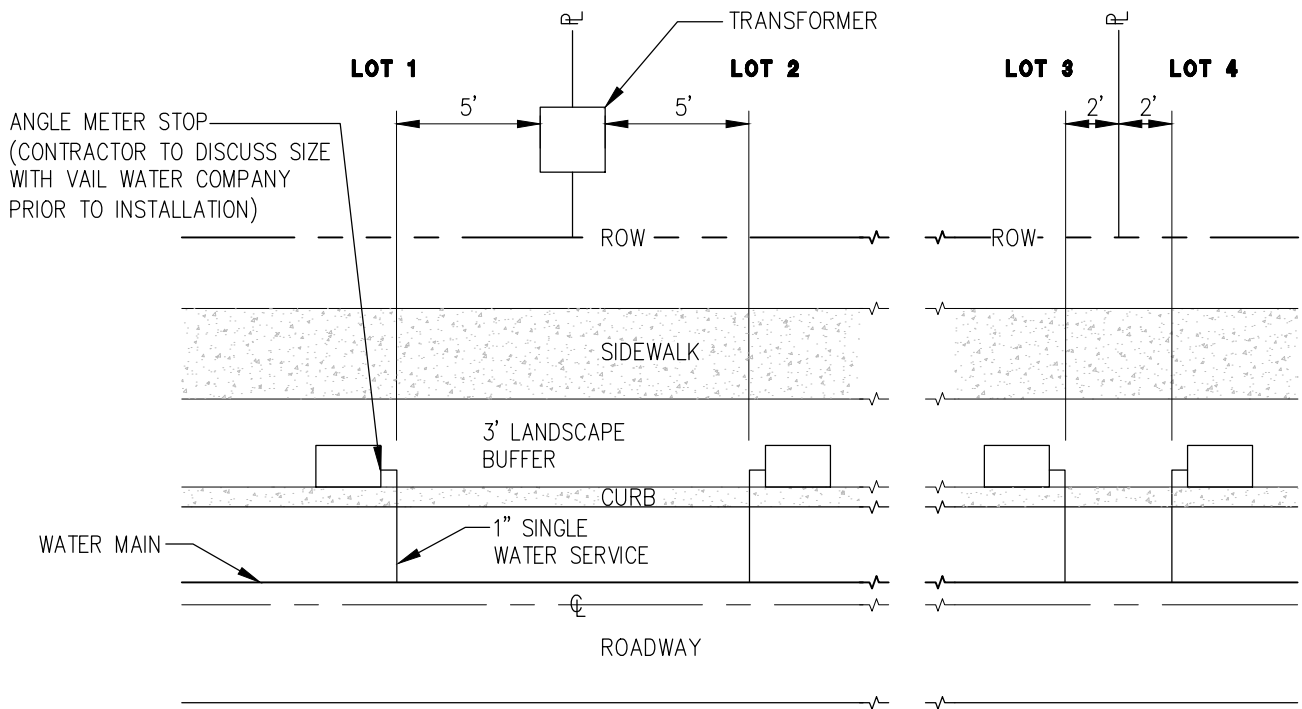
VERTICAL WATER CROSSING TABLE

DETAIL NUMBER:

VW-202

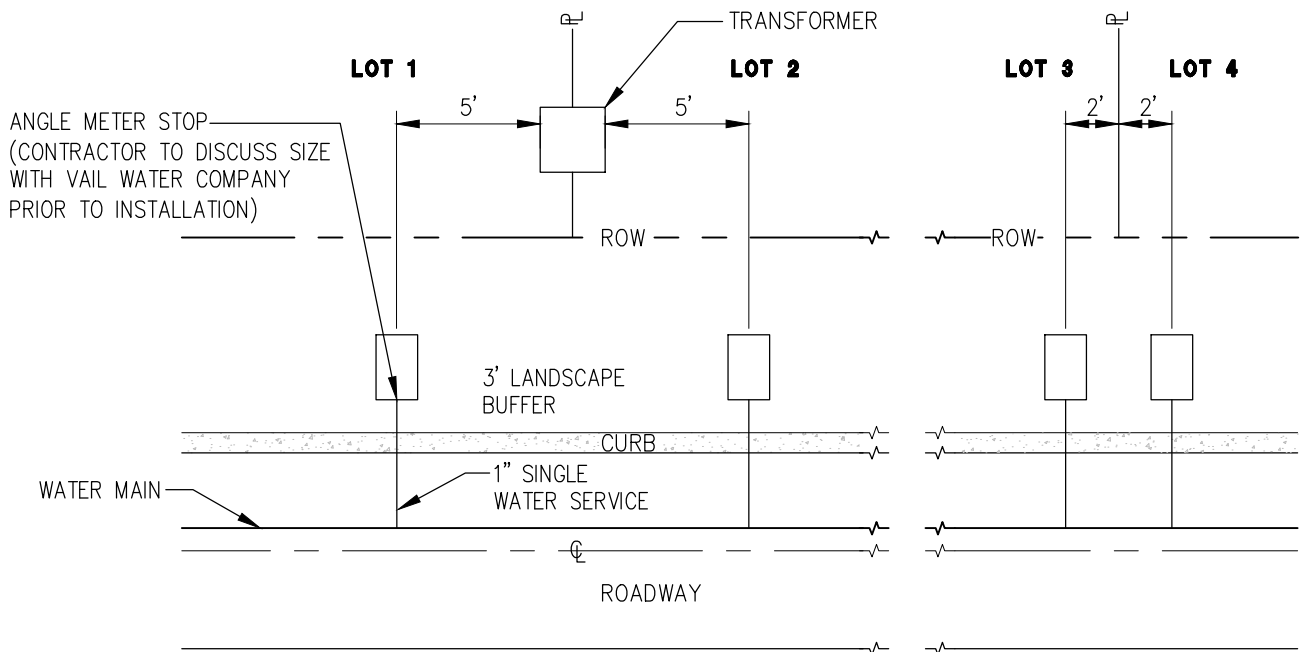
SHEET 1 OF 1

ISSUED 10/23 REV



SIDEWALK INSTALLATION

N.T.S.



WITHOUT SIDEWALK INSTALLATION

N.T.S.



STANDARD DETAIL

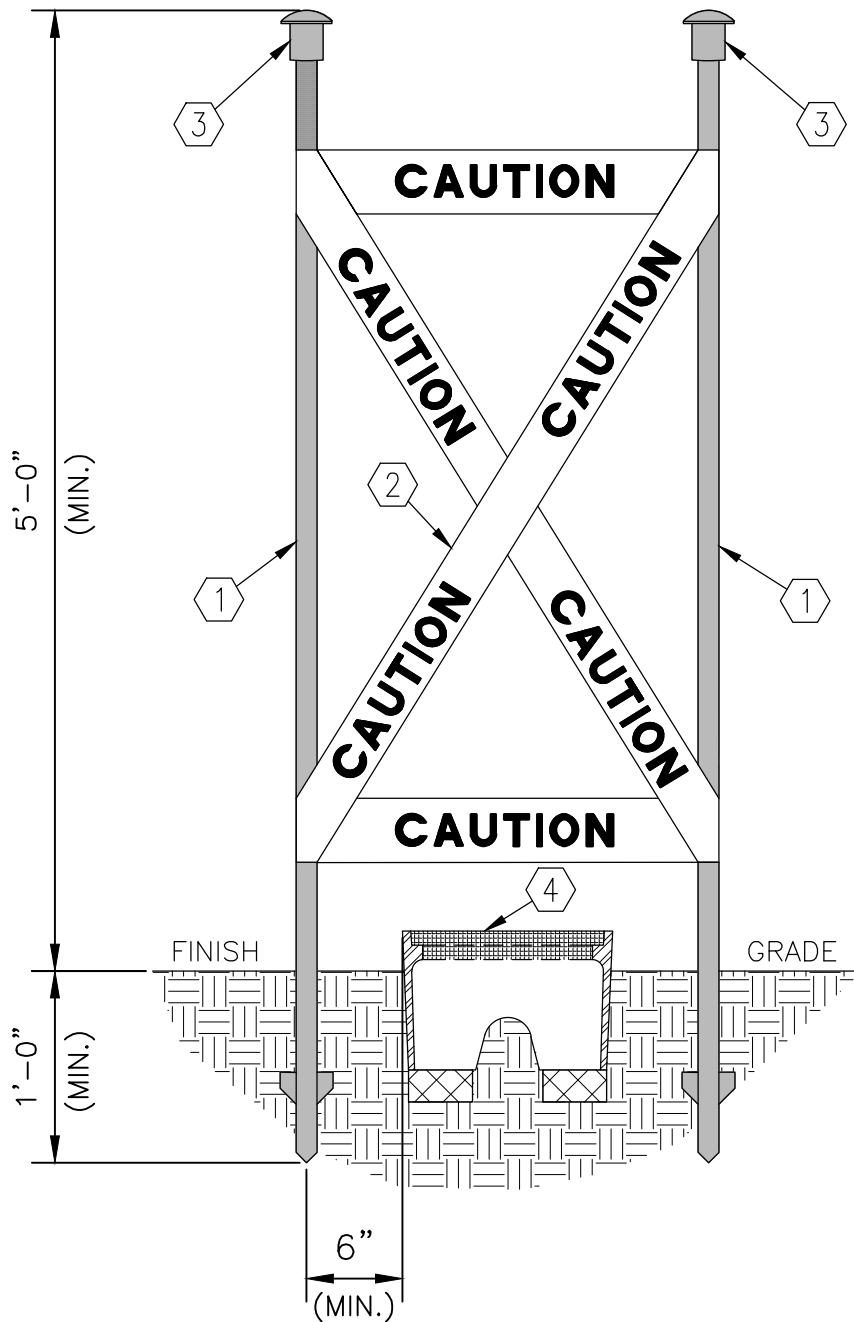
METER BOX INSTALLATION

DETAIL NUMBER:

VW-203

SHEET 1 OF 1

ISSUED 10/23 REV



KEYNOTES

- ① METAL HEAVY DUTY FENCE T-POST, U-POST, #4 REBAR OR APPROVED EQUAL
- ② BRIGHT YELLOW W/BOLD BLACK TEXT 3" WIDE CAUTION TAPE OR APPROVED EQUAL
- ③ OSHA REBAR SAFETY CAP
- ④ METER BOX (SEE METER BOX PER VAIL WATER STANDARDS)



STANDARD DETAIL

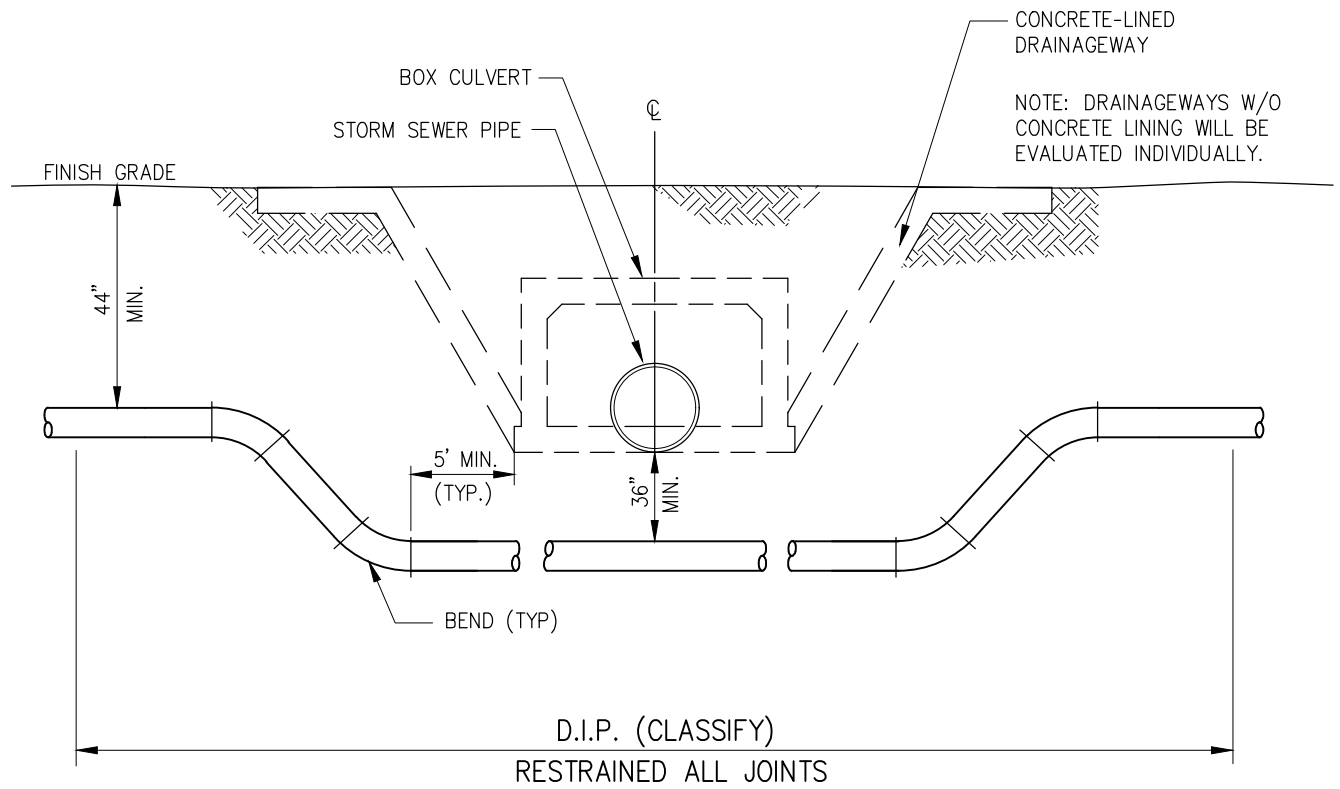
METER BOX PROTECTION DETAIL

DETAIL NUMBER:

VW-204

SHEET 1 OF 1

ISSUED 10/23 REV



NOTE: FOR 6" TO 12" WATER MAINS



STANDARD DETAIL

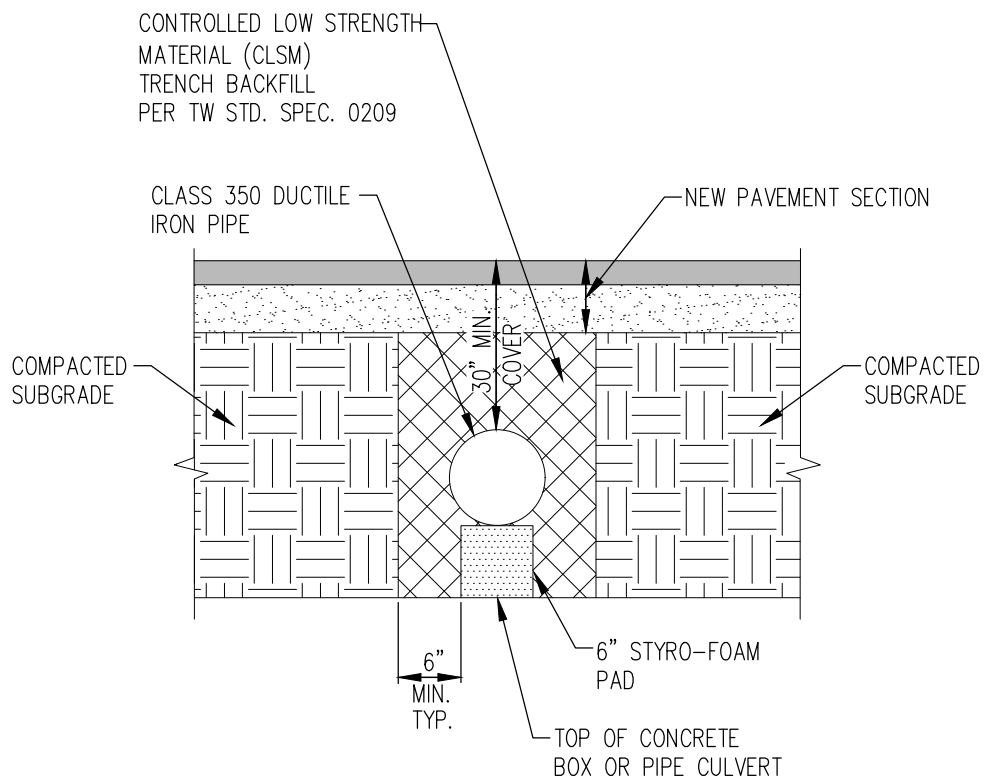
DRAINAGE STRUCTURE/CULVERT
CROSSING DETAIL

DETAIL NUMBER:

VW-205

SHEET 1 OF 1

ISSUED 10/23 REV



NOTE:
 THIS DETAIL SHOULD BE USED WHEN
 THE WATER MAIN WILL EXCEED 10' OF
 DEPTH WHEN CROSSING UNDER A
 CULVERT. VAIL WATER WILL EVALUATE
 ON A CASE BY CASE BASIS.



STANDARD DETAIL

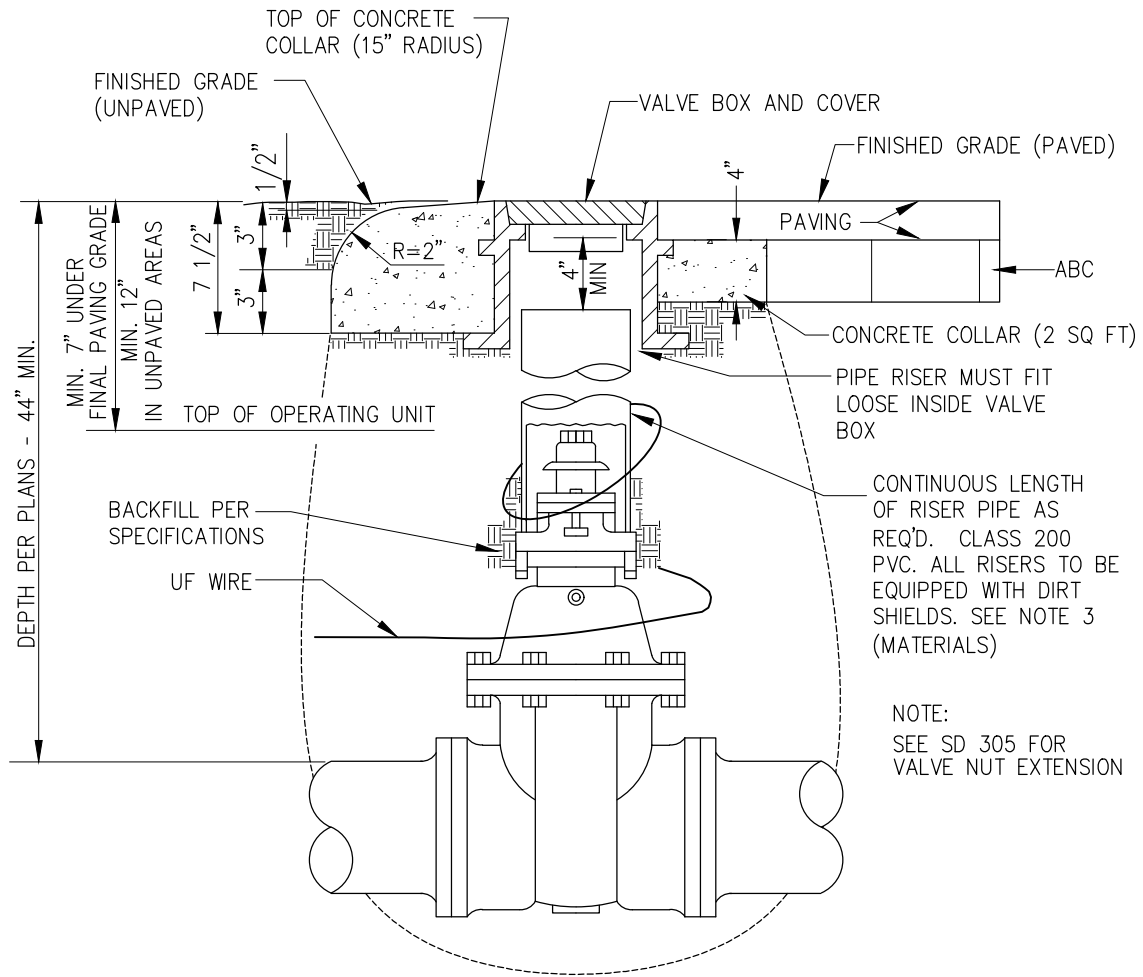
TOP OF CULVERT CROSSING DETAIL
 FOR 6" TO 12" WATER MAINS

DETAIL NUMBER:

VW-206

SHEET 1 OF 1

ISSUED 10/23 REV



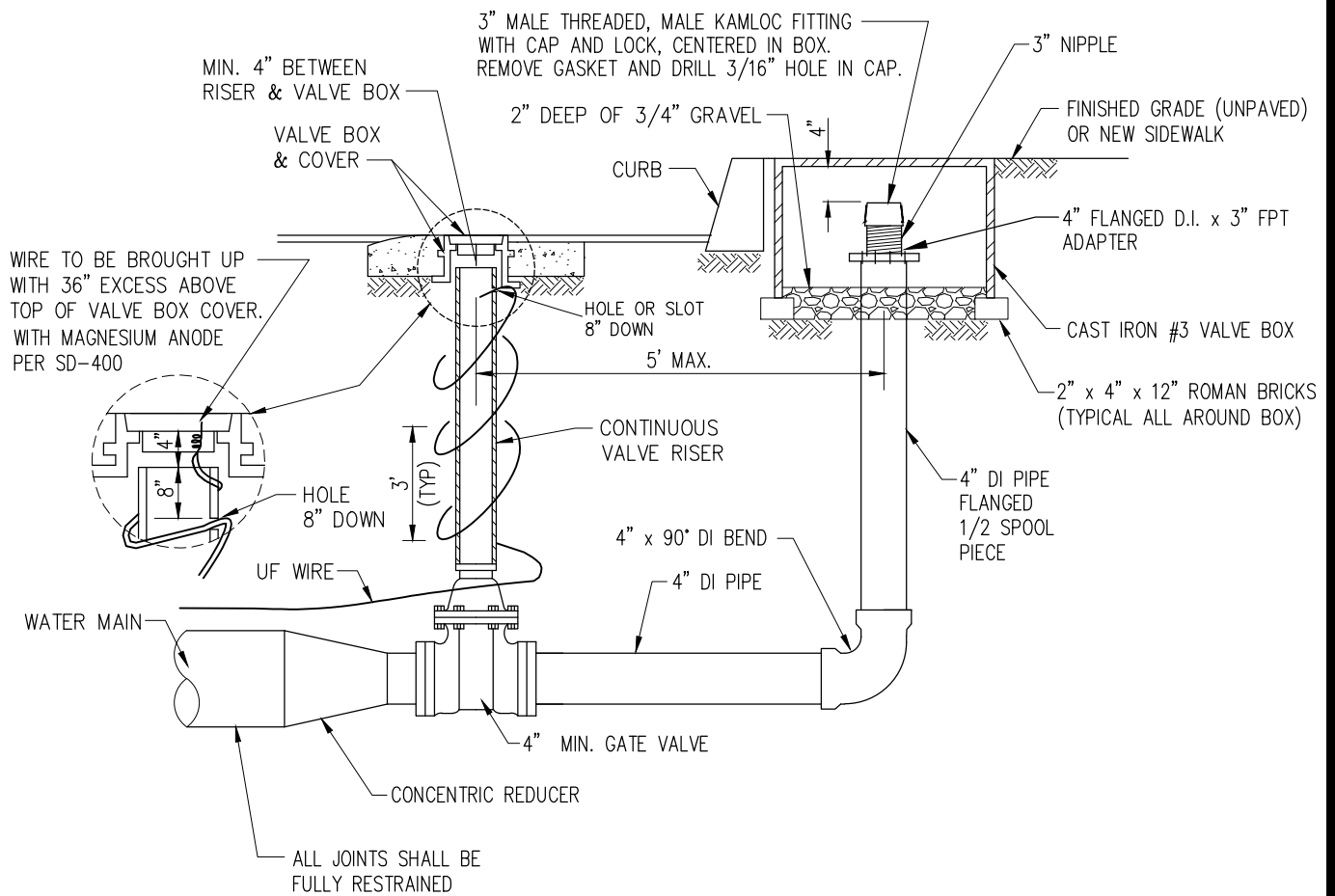
1. ALL WATER MAINS SHALL BE CONSTRUCTED WITH GATE VALVES W/BOX AND COVER IN ACCORDANCE WITH TUCSON WATER STANDARD SPECIFICATIONS. ALL RISERS SHALL BE EQUIPPED WITH DIRT SHIELDS, SW SERVICES MODEL DC456 5 7/8"-6 1/4" ID.

SD 300 AND SD 305 REFERS TO STANDARD DETAIL NUMBERS FROM "TUCSON WATER COMPANY'S STANDARD SPECIFICATIONS AND DETAILS", LATEST EDITION.



STANDARD DETAIL
VALVE AND VALVE BOX INSTALLATION

DETAIL NUMBER: VW-207	
SHEET 1 OF 1	
ISSUED 10/23	REV

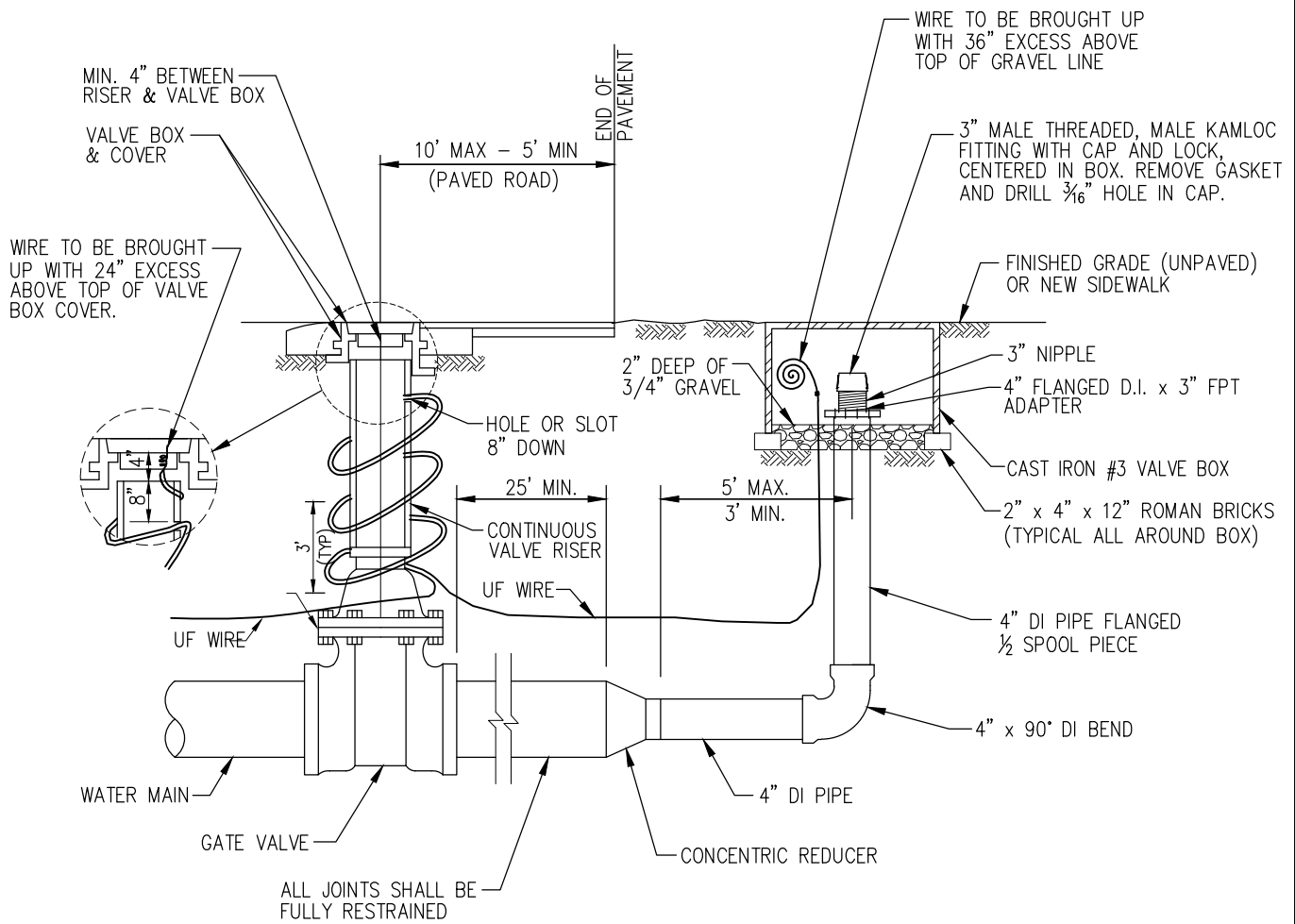


NOTES:

1. ALL JOINTS TO BE FULLY RESTRAINED
2. PIPE ACCESS HOLES IN MID-STATES BOX SHALL BE BLOCKED WITH SUITABLE MATERIAL TO PREVENT BACKFILL OR DIRT INTO BOX
3. MID-STATES BOX ORIENTATION WILL BE DETERMINED IN A CASE BY CASE BASIS.
4. CONTRACTOR MUST FURNISH A CAMLOC LOCKING DIRT CAP WITH A LOCKING DEVICE FOR EACH FLUSHING OUTLET



STANDARD DETAIL		DETAIL NUMBER:	
FLUSHING OUTLET		VW-208	
		SHEET 1 OF 1	
		ISSUED	REV
		10/23	



NOTES:

1. ALL JOINTS TO BE FULLY RESTRAINED
2. PIPE ACCESS HOLES IN VALVE BOX SHALL BE BLOCKED WITH SUITABLE MATERIAL TO PREVENT BACKFILL OR DIRT INTO BOX
3. MID-STATES BOX ORIENTATION WILL BE DETERMINED IN A CASE BY CASE BASIS.
4. CONTRACTOR MUST FURNISH A KAMLOC LOCKING DIRT CAP WITH A LOCKING DEVICE FOR EACH FLUSHING OUTLET



STANDARD DETAIL

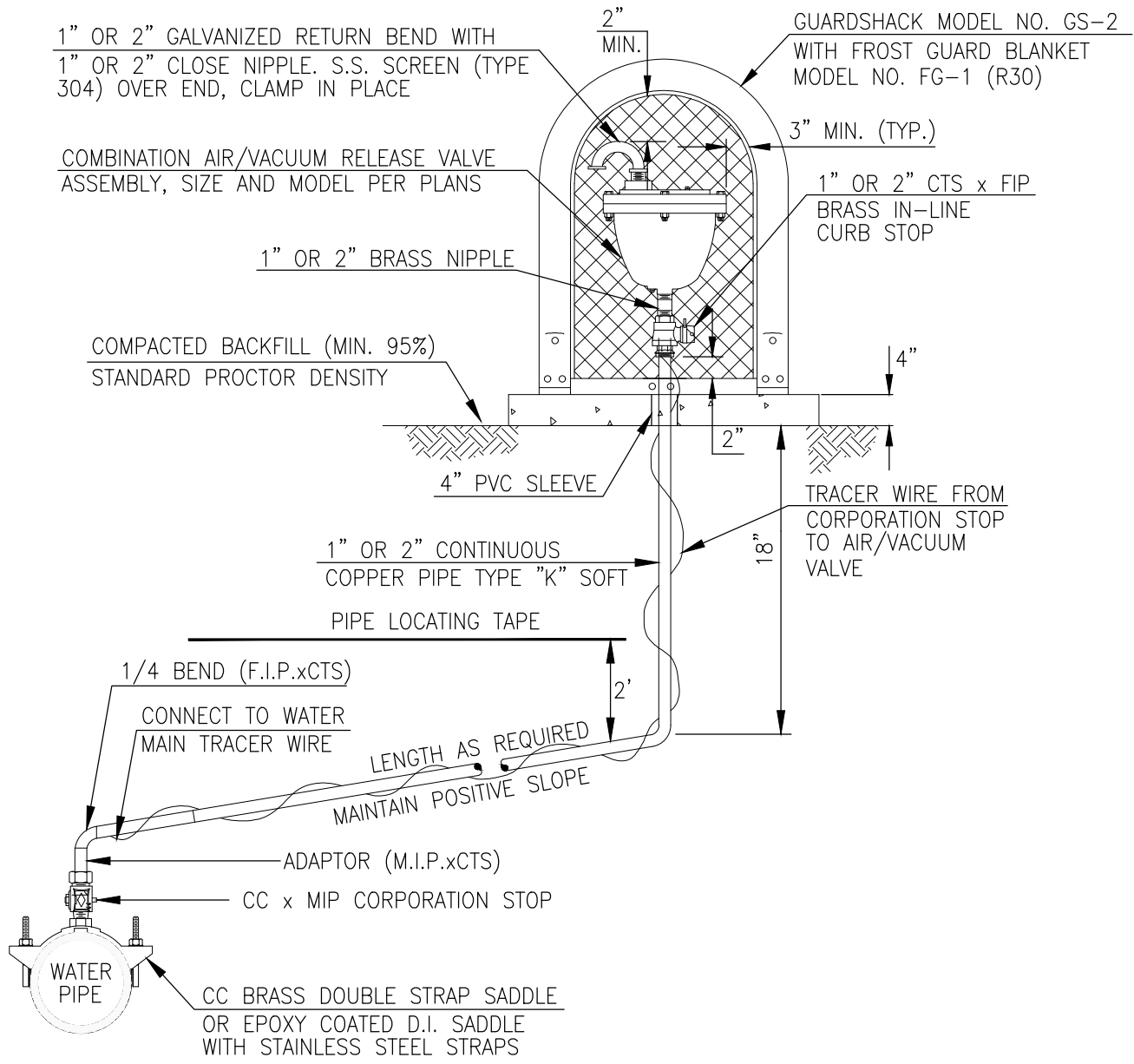
MODIFIED FLUSHING OUTLET

DETAIL NUMBER:

VW-209

SHEET 1 OF 1

ISSUED 10/23 REV



STANDARD DETAIL

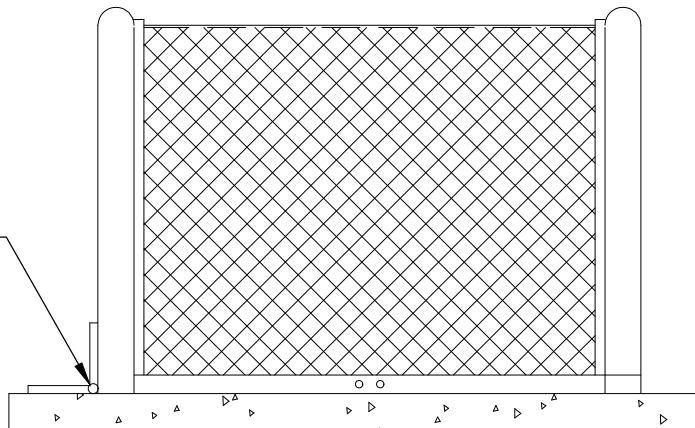
**COMBINATION AIR RELEASE VALVE DETAIL
(2" AND SMALLER)**

DETAIL NUMBER:
VW-210

SHEET 1 OF 2

ISSUED 10/23 REV

GUARDSHACK SHALL
BE MOUNTED AND
SECURED TO A 40"L
x 18"W x 4" THICK
CONC. PAD



GUARDSHACK SIDE VIEW

NOTES:

1. ASSEMBLIES SHALL BE PROTECTED WITH A MINIMUM OF THREE (3) POST BARRICADES PER PC/COT STANDARD DETAIL 106, TYPE B. VAIL WATER COMPANY WILL DETERMINE LOCATION OF POST BARRICADES BASED ON EXISTING CONDITIONS.
2. ITEMS INDICATED MAY BE SUBSTITUTED BY AN APPROVED EQUAL.
3. IF ANY VARIANCE TO THE ENCLOSURE IS TO BE MADE, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE COMBINATION AIR RELEASE/AIR VACUUM VALVE ENCLOSURE PRIOR TO CONSTRUCTION.
4. BENDS MAY VARY TO LOCATE ARV OUTSIDE TRAVELED WAY. MAINTAIN POSITIVE SLOPE FOR DRAINAGE.



STANDARD DETAIL

COMBINATION AIR RELEASE VALVE DETAIL
(2" AND SMALLER)

DETAIL NUMBER:

VW-211

SHEET 2 OF 2

ISSUED 10/23 REV