

**ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (A.D.E.Q.) REQUIRED NOTES**

- ALL MATERIALS AND SUPPLIES USED IN THE DRINKING WATER SYSTEM SHALL CONFORM TO NATIONAL SANITATION FOUNDATION (NSF) STANDARD 61 AND A.A.C. R-18-4-213.C STANDARDS.
- CONSTRUCTION MATERIALS USED IN THE WATER SYSTEM SHALL BE LEAD FREE AS IN ACCORDANCE WITH A.A.C. R18-5-504 AND R18-4-101.
- WATER LINES SHALL BE PRESSURE AND LEAKAGE TESTED IN ACCORDANCE WITH A.N.W.A. 6805-54.
- WATER LINES SHALL BE DISINFECTED BY CHLORINATION IN ACCORDANCE WITH A.N.W.A. 6551-05 STANDARD OR A.D.E.Q. BULLETIN NO. 8.
- WATER/SEWER LINE SEPARATION SHALL BE IN ACCORDANCE WITH A.A.C. R-18-5-502.C. A WATER MAIN SHALL NOT BE PLACED:
  - WITHIN 6 FEET, HORIZONTAL DISTANCE, AND BELOW 2 FEET, VERTICAL DISTANCE, ABOVE THE TOP OF A SEWER MAIN UNLESS EXTRA PROTECTION IS PROVIDED. EXTRA PROTECTION SHALL CONSIST OF CONSTRUCTING THE SEWER MAIN WITH MECHANICAL JOINT DUCTILE IRON PIPE OR WITH SLIP-JOINT DUCTILE IRON PIPE IF JOINT RESTRAINT IS PROVIDED. ALTERNATE EXTRA PROTECTION SHALL CONSIST OF ENCASEING BOTH THE WATER AND SEWER MAINS IN AT LEAST 6 INCHES OF CONCRETE FOR AT LEAST 2 FEET BEYOND THE AREA COVERED BY THIS SUBSECTION (C)(1)(A).
  - WITHIN 2 FEET HORIZONTALLY AND 2 FEET BELOW THE SEWER MAIN.
- PIPE FITTINGS, VALVES, FIRE HYDRANTS, AND OTHER APPURTENANCES SHALL CONFORM TO THE CURRENT STANDARDS OF THE A.N.W.A.

**GENERAL SPECIFICATIONS**

- THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ) AND THE TOWN OF MARANA UTILITY DEPARTMENT (T.M.U.D.) RULES AND SPECIFICATIONS SUPERSEDE THE DESIGN PLANS UNLESS PRIOR WRITTEN AUTHORIZATION IS PROVIDED BY THE T.M.U.D. THE T.M.U.D. MAY REQUEST THE CONTRACTOR OBTAIN SUPPLEMENTAL INFORMATION, DESIGN PLANS AND/OR CALCULATIONS FROM THE DESIGN ENGINEER AND/OR ADEQ FOR T.M.U.D. REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
- PLAN ACCEPTANCE BY THE T.M.U.D. DOES NOT CONSTITUTE APPROVAL OF "PRIVATE PLUMBING". "PRIVATE PLUMBING" INCLUDES ALL BACK FLOW PROTECTION & PLUMBING FROM THE WATER METER TO THE PREMISE OR FIRE SERVICES BEYOND THE RIGHT OF WAY, PROPERTY OR EASEMENT LINES. CONTACT THE TOWN BUILDING OFFICIAL FOR "PRIVATE PLUMBING" REVIEW.
- TUCSON WATER STANDARD DETAIL SD-105 "GENERAL CONSTRUCTION NOTES" SHALL APPLY TO, AND BECOME AN INTEGRAL PART OF THESE PLAN AND CONTRACT DOCUMENTS. REQUIREMENTS OF TUCSON WATER STANDARD SPECIFICATIONS AND DETAILS, LATEST EDITION, UNLESS MODIFIED HEREIN.
- ANY WORK INCLUDING EXCAVATION AND/OR TRENCHING SHALL BE IN COMPLIANCE WITH ALL CURRENT OSHA STANDARDS.
- UNDER NO CIRCUMSTANCES IS THE CONTRACTOR TO OPERATE ANY VALVE, TURN ON ANY PUMP, OR MAKE ANY CHANGES TO THE OPERATING CONDITION OF THE T.M.U.D.'S DISTRIBUTION SYSTEM WITHOUT THE CONSENT AND PRESENCE OF A T.M.U.D. REPRESENTATIVE.
- ANY WORK THAT TAKES PLACE IN THE TOWN OF MARANA RIGHT(S)-OF-WAY WILL REQUIRE A TOWN OF MARANA RIGHT-OF-WAY USE PERMIT. THIS INCLUDES EQUIPMENT PARKED IN THE RIGHT(S)-OF-WAY WHEN THE WORK IS TAKING PLACE ELSEWHERE. PLEASE CONTACT THE TOWN OF MARANA DEVELOPMENT SERVICES DEPARTMENT AT (520) 382-2600.
- SAMPLE STATIONS SHALL BE DESIGNED INTO ALL WATER PLANS ACCORDING TO AN APPROVED SITE SAMPLE PLAN.
- ANY WORK THAT INVOLVES ANY TYPE OF FLUSHING ACTIVITY WILL REQUIRE AN ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (APDES) AUTHORIZATION TO DISCHARGE PERMIT. CONTACT ADEQ @ (800) 234-5677 OR BY INTERNET AT <http://www.ades.state.az.us/> FOR THE PERMIT APPLICATION FORM AND INSTRUCTIONS. THE CONTRACTOR SHALL SUPPLY ALL STAKES SET FOR LINES, LEVELS, OR MEASUREMENTS OF THE WORK IN THEIR PROPER PLACES. SAID WORK SHALL BE ACCOMPLISHED BY A REGISTERED LAND SURVEYOR. ANY EXPENSE INCURRED IN REPLACING ANY STAKES WHICH THE CONTRACTOR AND/OR HIS SUBORDINATES MAY HAVE FAILED TO PRESERVE SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE, PROTECTION, AND MAINTENANCE OF FACILITIES CALLED FOR ON THE PLANS AND/OR IN THE CONTRACT DOCUMENTS TO REMAIN AND TO BE PROTECTED IN PLACE. IN THE EVENT FACILITIES ARE DAMAGED, REMOVED, ALTERED, OR LIKE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT THEREOF SOLELY AT THE CONTRACTOR'S COST. ALL WORK SHALL BE ACCOMPLISHED TO THE SATISFACTION OF THE TOWN OF MARANA.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH, HAUL AND APPLY ALL WATER REQUIRED FOR COMPACTION, CONSTRUCTION PROCESSES, AS THE CASE MAY BE, AND THE CONTROL OF DUST FROM CONSTRUCTION ACTIVITIES. THE COST THEREOF SHALL BE CONSIDERED TO BE INCIDENTAL TO THE PIPE INSTALLATION COST. UNIT PRICES FOR IMPROVED FILL SHALL BE FOR FILL COMPACTION IN PLACE TO THE REQUIRED DENSITY AT OPTIMUM MOISTURE.
- OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE DRAWINGS, NOTES, AND DETAILS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN A TIMELY MANNER. ISSUES SHALL BE RESOLVED BEFORE PROCEEDING WITH THE WORK.
- ALL GRADING SHALL CONFORM TO P.C./C.O.T. GRADING STANDARDS LATEST EDITION OR THE TOWN OF MARANA LAND DEVELOPMENT CODE TITLE 19 (STANDARDS FOR GRADING AND RELATED SITE WORK), DEPENDING ON JURISDICTION.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED BY GOVERNMENT AGENCIES. THE COST THEREOF SHALL BE CONSIDERED AS INCIDENTAL TO THE VARIOUS CONTRACT ITEMS.
- A COPY OF THE ACCEPTED PLAN SHALL BE KEPT IN AN EASILY ACCESSIBLE LOCATION ON THE JOB SITE AT ALL TIMES DURING CONSTRUCTION.
- IF UNANTICIPATED CONDITIONS ARE ENCOUNTERED DURING THE COURSE OF CONSTRUCTION THAT ARE BEYOND THE SCOPE OF THE DESIGN, THE ENGINEER SHALL SUBMIT THE NECESSARY REVISED OR SUPPLEMENTAL IMPROVEMENT PLANS FOR REVIEW AND ACCEPTANCE BY THE TOWN OF MARANA AND ITS ENGINEER.
- DRAINAGE STRUCTURE CROSSINGS SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF TUCSON WATER DETAIL SD-107 AND WITH THE FOLLOWING REQUIREMENTS:
  - DUCTILE IRON IS REQUIRED UNDER ALL CROSSINGS.
  - JOINTS OR FITTINGS ARE NOT ALLOWED UNDER ANY TYPE OF DRAINAGE STRUCTURE, WHERE THIS CANNOT BE ACCOMPLISHED, A STEEL CASING WILL BE REQUIRED IN ACCORDANCE WITH THE REQUIREMENTS OF TUCSON WATER STANDARD DETAIL SD-800.
- IF ANY ARCHAEOLOGICAL MATERIALS ARE DISCOVERED DURING CONSTRUCTION, OR AT ANYTIME, ALL WORK MUST STOP IN THE AREA OF THE FIND AND THE ARIZONA STATE MUSEUM (621-4795) AND THE TOWN OF MARANA CULTURAL RESOURCES MANAGER (382-2600) MUST BE CONTACTED TO EVALUATE THE FIND, PURSUANT TO THE ARIZONA ANTIQUITIES ACT, A.R.S. §41-841 ET SEQ.
- IF ANY HUMAN REMAINS OR FUNERARY ITEMS ARE DISCOVERED DURING CONSTRUCTION, OR AT ANY TIME, ALL WORK MUST STOP IN THE AREA OF THE REMAINS AND THE REPATRIATION COORDINATOR MUST BE CONTACTED IMMEDIATELY AT (520) 621-4795, PURSUANT TO A.R.S. §41-844 AND A.R.S. §41-865.

**PRECONSTRUCTION NOTES**

- ALL CONSTRUCTION SHALL CONFORM TO TUCSON WATER STANDARD SPECIFICATIONS AND DETAILS, LATEST EDITION, EXCEPT AS MODIFIED HEREIN. SAID STANDARDS SHALL REMAIN ON SITE AT ALL TIMES DURING CONSTRUCTION.
- CONTRACTOR SHALL NOTIFY T.M.U.D. A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO ANY CONSTRUCTION TO SCHEDULE A PRECONSTRUCTION CONFERENCE. WORK SHALL NOT COMMENCE UNTIL A "NOTICE TO PROCEED" HAS BEEN ISSUED BY THE T.M.U.D. AND THE CERTIFICATION OF "APPROVAL TO CONSTRUCT" HAS BEEN RECEIVED BY THE T.M.U.D. FROM THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY. ANY PIPE INSTALLED PRIOR TO THE "NOTICE TO PROCEED" MAY REQUIRE REMOVAL BY THE CONTRACTOR AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL CONTACT "BLUE STAKE" (1-800-782-5348) TWO (2) FULL WORKING DAYS (48 HOURS) PRIOR TO COMMENCING CONSTRUCTION ACTIVITY TO DETERMINE ACCURATE UTILITY LOCATIONS. SATURDAY AND SUNDAY ARE NOT CONSIDERED WORKING DAYS.
- UTILITY FACILITIES, ABOVE AND BELOW THE SURFACE, SHOWN ON THE PLANS WERE BASED ON THE BEST AVAILABLE INFORMATION TO THE CONSULTANT. UTILITY LOCATIONS ARE NOT INTENDED TO BE EXACT. THEREFORE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATIONS, DEPTHS, AND EXTENT OF ALL UTILITY FACILITIES WITHIN THE PROJECT LIMITS THAT MAY BE AFFECTED BY THE WORK AS CALLED FOR ON THE PLANS OR IN THE CONTRACT DOCUMENTS. THE T.M.U.D. MAKES NO GUARANTEE OF THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED.
- WATER MAINS ARE TO BE INSTALLED WITH A MINIMUM OF 44" OF COVER FOR ALL MAINS 12" AND SMALLER UNDER PAVEMENT, EXCEPT AS OTHERWISE NOTED ON THE PLANS. ALL MAINS INSTALLED OUTSIDE PAVEMENT SHALL BE INSTALLED WITH SIXTY INCHES (60") MINIMUM COVER.

**PRECONSTRUCTION NOTES (CONTINUATION)**

- WATER MAINS ARE TO BE INSTALLED AFTER SANITARY SEWER INSTALLATION AND GRADING OF STREETS AND WALK AREAS TO WITHIN 6" OF FINAL GRADE FOR NEW CONSTRUCTION AND BEFORE DRY UTILITY (ELECTRIC, TELEPHONE, ETC.) INSTALLATION. A REGISTERED ENGINEER OR A REGISTERED LAND SURVEYOR SHALL CERTIFY THAT THE GRADE IS WITHIN 6" OF FINAL GRADE AND PROVIDE LAYOUT SHEETS PRIOR TO NOTICE TO PROCEED, FOR NEW CONSTRUCTION.
- CONTRACTOR TO PROVIDE ALL CUT SHEETS, SHOP DRAWINGS AND EQUIPMENT LISTS AT PRECONSTRUCTION MEETING TO THE T.M.U.D. CONSTRUCTION SHALL NOT BEGIN UNTIL ALL CONSTRUCTION MATERIALS ARE APPROVED BY THE T.M.U.D. STAFF.
- ALL WATER MAINS SHALL BE INSPECTED BEFORE BACKFILL. FINAL ACCEPTANCE WILL NOT BE GRANTED WITHOUT AUTHORIZATION FROM THE T.M.U.D. SHOWING INSPECTION HAS BEEN PERFORMED.
- THE OWNER (DEVELOPER) SHALL PAY FOR ALL TESTING AND RE-TESTING INSPECTIONS AND FEES. ALL FEES SHALL BE PAID IN FULL BEFORE ACCEPTANCE OF WATER SYSTEM.
- A WATER SERVICE AGREEMENT MUST BE SIGNED BEFORE WATER CONSTRUCTION BEGINS.
- WHERE WATER MAINS CROSS EXISTING OR FUTURE DRAINAGE STRUCTURES, A MINIMUM VERTICAL SEPARATION OF 24" IS REQUIRED ABOVE STRUCTURE. IT IS THE T.M.U.D.'S PREFERENCE TO INSTALL ALL MAINS ABOVE DRAINAGE STRUCTURES. THE TOWN WILL EVALUATE ALTERNATIVE METHODS FOR CROSSING DRAINAGE STRUCTURES ON AN INDIVIDUAL BASIS. IF A MAIN MUST BE INSTALLED BELOW A DRAINAGE STRUCTURE IT SHALL BE PER TUCSON WATER STANDARD DETAIL SD-107 AND BE INSTALLED WITH DUCTILE IRON PIPE (DIP) WITH RESTRAINED JOINTS IN ACCORDANCE WITH THE REQUIREMENTS OF TUCSON WATER STANDARDS.
- ALL WATER MAINS CROSSING SEWER (GRAVITY OR PRESSURE) OR NON-POTABLE/RECLAIMED MAINS SHALL MAINTAIN THE SEPARATION IN ACCORDANCE WITH THE REQUIREMENTS OF TUCSON WATER STANDARDS AND THE ARIZONA ADMINISTRATIVE CODE.
- A SANITARY HOUSE CONNECTION SEWER (HCS) WHICH CROSSES OVER WATER MAINS SHALL BE D.I.P. (MINIMUM, 6" EACH SIDE OF WATER MAIN) AND HAVE A MINIMUM VERTICAL SEPARATION OF SIX INCHES (6").
- ELECTRIC LINES SHALL NOT BE INSTALLED WITHIN A HORIZONTAL DISTANCE OF 6" FROM THE EDGE OF THE WATER MAIN UNLESS SHOWN IN A JOINT TRENCH DETAIL ON THE APPROVED PLANS. THEREFORE, MINIMUM HORIZONTAL SEPARATION SHALL BE THREE FEET (3'). SEPARATION SHALL BE FROM OUTSIDE TO OUTSIDE OF PIPE.
- NO CONNECTION TO THE EXISTING T.M.U.D. DISTRIBUTION SYSTEM WILL BE PERMITTED UNLESS PRIOR APPROVAL HAS BEEN OBTAINED IN WRITING FROM A T.M.U.D. REPRESENTATIVE.
- IF NEW CONSTRUCTION REQUIRES THE WATER TO BE SHUT OFF FOR 48 HOURS TO THE EXISTING DISTRIBUTION SYSTEM, THE CONTRACTOR SHALL PROVIDE THE T.M.U.D. WITH A WRITTEN SCHEDULE OF THE CONNECTIONS A MINIMUM OF 14 WORKING DAYS PRIOR TO THE START OF SUCH TIE-INS. HOWEVER, NO WATER WILL BE TURNED OFF UNTIL ALL AFFECTED WATER USERS HAVE BEEN NOTIFIED IN WRITING BY THE CONTRACTOR OF THE SCHEDULE NOT LESS THAN TWENTY-FOUR (24) HOURS BEFORE WATER IS TO BE TURNED OFF.
- THE CONTRACTOR IS REQUIRED TO NOTIFY ALL WATER USERS IN THE IMMEDIATE VICINITY OF ANY PROPOSED SERVICE INTERRUPTION OR INCONVENIENCE DURING CONSTRUCTION AND IS TO PROVIDE A PHONE NUMBER AT WHICH THE CONTRACTOR CAN BE REACHED 24 HOURS A DAY IN THE EVENT OF CUSTOMER INQUIRY.
- THE CONTRACTOR SHALL NOTIFY THE T.M.U.D. 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 IN ACCORDANCE WITH THE REQUIREMENTS OF ALL CURRENT LAWS AND GUIDELINES.

**AIR RELEASE VALVES**

- THE LOCATION OF THE AIR RELEASE VALVE ASSEMBLIES SHOWN ON THE PLANS ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL FIELD VERIFY THE ACTUAL LOCATION OF HIGH POINTS IN THE WATER MAIN. VALVE BOX AND COVERS SHALL BE INSTALLED 1.25" ABOVE EXISTING GROUND (SEE DETAIL 1 THIS SHEET) AND IN ACCORDANCE WITH THE REQUIREMENTS OF TUCSON WATER STANDARD DETAIL NO. 330. AIR RELEASE VALVE ASSEMBLIES SHALL NOT BE INSTALLED IN STREETS, DRIVEWAYS, OR SIDEWALKS.
- ALL AIR RELEASE VALVES SHALL HAVE STAINLESS STEEL OR BRASS SCREENS INSTALLED ON THE ELBOW. SERVICE LINES FOR ARV'S SHALL BE 1" MIN.
- NON-POTABLE/RECLAIMED WATER AND POTABLE WATER AIR VALVE BOXES SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF SIX (6) FEET AS MEASURED FROM THE OUTSIDE OF THE METER BOXES.

**MATERIALS**

- ALL MATERIALS SHALL BE AMERICAN MADE. MATERIALS THAT ARE IMPORTED WILL BE REPLACED AT NO COST TO THE TOWN OF MARANA.
- ALL FIRE LINE STUB OUTS SHALL BE EQUIPPED WITH A DVA PER THE T.M.U.D. STANDARD DETAIL. (SEE DETAIL 4 THIS SHEET).
- DVA BOXES SHALL NOT BE INSTALLED IN PAVED AREAS, SIDEWALKS, ETC., AND SHALL BE LOCATED IN DESIGNATED EXEMPTIONS OR RIGHTS OF WAY.
- ALL PVC PIPE DELIVERED TO THE SITE SHALL BE PROTECTED FROM UV LIGHT AND HEAT. THE T.M.U.D. INSPECTOR MAY REQUEST THE CONTRACTOR OBTAIN WRITTEN DOCUMENTATION FROM THE PVC PIPE MANUFACTURER STATING THAT THE DELIVERED PIPE MEETS THE MANUFACTURER'S SPECIFICATIONS AND IS SUITABLE FOR USE AT THE TIME OF INSTALLATION. ANY PIPE NOT ACCEPTABLE BY THE MANUFACTURER OR THE T.M.U.D. INSPECTOR SHALL BE IMMEDIATELY REMOVED FROM THE SITE BY THE CONTRACTOR.
- ALL PIPE SHOWING AND BECOMING MATERIAL SHALL BE IMPORTED CLEAN SANDY MATERIAL CONFORMING TO TUCSON WATER STANDARD SPECIFICATIONS 0209.0309.
- ALL FIRE HYDRANT RUNS TO BE CONSTRUCTED WITH RESTRAINED JOINTS AND D.I.P. CLASS 350.
- ALL TAPPING SLEEVE VALVES SHALL BE EQUIPPED WITH A MECHANICAL JOINT PLUG OR APPROVED EQUAL TO PREVENT TAMPERING DURING CONSTRUCTION.
- ALL D.I.P. DOES NOT ACCEPT UMI-FLANGES.
- ALL WATER MAINS SHALL BE CONSTRUCTED WITH GATE VALVES W/BOX AND COVER. VALVE NUT EXTENSIONS, IF REQUIRED, SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR, IN ACCORDANCE WITH THE REQUIREMENTS OF TUCSON WATER STANDARD DETAIL NO. 305.
- SOLID SLEEVE ADAPTERS SHALL BE REQUIRED FOR ALL PIPING TRANSITIONS. ADAPTERS SHALL HAVE TYLER M.J. FITTINGS, 12" MINIMUM LENGTH OR APPROVED EQUAL.
- SIZE ON SIZE TAPPING SLEEVES SHALL CONSIST OF MINIMUM TYPE 304 STAINLESS STEEL BODY, FLANGE AND ALL ACCESSORIES, BUT MUST BE APPROVED BY THE T.M.U.D. AFTER THE EXISTING MAIN IS EXPOSED.
- THE ONLY APPROVED PIPING MATERIALS FOR POTABLE WATER LINES ARE: COPPER TYPE K WITH CTS COMPRESSION FITTINGS, PVC C-900 DR 14 (CLASS 305) AND DIP CLASS 350. APPROVED MANUFACTURERS OF SAID MATERIALS ARE LISTED IN THE TUCSON WATER STANDARD SPECIFICATIONS AND DETAILS, LATEST EDITION.
- ALL VALVE RISERS SHALL BE ONE CONTINUOUS PIECE OF 6" PVC C-900. (SEE DETAILS 3 & 4 THIS SHEET).
- ALL DRAIN VALVE, AND MODIFIED DRAIN VALVE ASSEMBLIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE T.M.U.D. SPECS. (SEE DETAILS 3 & 4 THIS SHEET).
- DUCTILE IRON AND CAST IRON ARE TO BE WRAPPED WITH POLYETHYLENE WITH 10 MIL. TAPE INCLUDING ALL FITTINGS, VALVES AND SADDLES.
- FIRE HYDRANTS SHALL BE 5.25" BORE AMERICAN FLOW CONTROL WATEROUS PACER (W667-250) OR APPROVED EQUAL (SHOP DRAWINGS REQUIRED). THE SAME TYPE OF HYDRANT WILL BE REQUIRED FOR AN ENTIRE SUBDIVISION.
- HYDRA SHIELD LOOKS ARE REQUIRED ON ALL FIRE HYDRANTS.
- ALL SAMPLE STATIONS SHALL BE KUPFERLE ECLIPSE MODEL 88WC, OR APPROVED EQUAL.
- ALL TEES AND CROSSES WITH VALVES SHALL HAVE FLANGED FITTINGS.
- DUCTILE IRON PIPE SHALL EXTEND A MINIMUM OF 20' BEYOND THE TOP VERTICAL BEND ON ALL PIPE LOWERING SECTIONS.

**DETECTOR TAPE AND TRACER WIRE**

- CONTRACTOR TO INSTALL DETECTOR TAPE ABOVE ALL POTABLE AND NON-POTABLE WATER LINES AND WATER SERVICES. TAPE IS TO BE PLACED 18" BELOW FINISH GRADE.
- CONTRACTOR IS REQUIRED TO INSTALL ONE #12 UF STANDARD DIRECT BURIAL WIRE TAPED TO THE TOP OF PVC PIPE OR BAGGED DIP WITH 3' LOOPS BROUGHT UP AROUND VALVE RISERS. (SEE DETAILS 3 & 4 THIS SHEET)
- THE TRACER WIRE SHALL BE CERTIFIED BY A LICENSED ELECTRICAL CONTRACTOR FOR CONTINUITY AFTER PAIVING OPERATIONS ARE COMPLETED. IT IS RECOMMENDED THAT THE CONTRACTOR PERFORM PRELIMINARY TESTS PRIOR TO PAIVING. FINAL ACCEPTANCE WILL NOT BE GRANTED UNTIL CERTIFICATION IS RECEIVED BY THE T.M.U.D. SPLICES SHALL BE MADE WITH SILICON SPLICE AND SHALL BE INSPECTED. SIGNAL INDUCED TEST RESULTS WILL NOT BE ACCEPTED.

**DETECTOR TAPE AND TRACER WIRE (CONTINUATION)**

- TRACER WIRE TO BE BROUGHT UP ON ALL DRAIN VALVE ASSEMBLIES AND IN-LINE VALVES. (SEE DETAILS 3 & 4 THIS SHEET)
- TRACER WIRE REQUIRED FOR ALL WATER MAIN LINES. WIRE SHALL BE TAPED TO THE WATER MAIN WITH 10 MIL. TAPE EVERY 60 FEET, INCLUDING SERVICE LINES.

**WATER SERVICES**

- THE DEVELOPER/APPLICANT SHALL HAVE ALL CURB STOPS LOCATED AND PROTECTED DURING ALL PHASES OF CONSTRUCTION. NO METERS WILL BE SET UNTIL METER BOX IS PROPERLY INSTALLED.
- THE CONTRACTOR SHALL SET CURB STOPS 18" BEHIND BACK OF CURB OR SIDEWALK (AS APPLICABLE) FROM STREET WITH CURBS AND 8" BELOW FINISH GRADE.
- THE CONTRACTOR SHALL SET CURB STOPS 3' FROM PROPERTY LINE FOR STREETS WITHOUT CURBS AND 8" BELOW FINISH GRADE.
- CURB STOPS SHALL NOT BE INSTALLED AT THE SAME LOT CORNERS AS THE ELECTRICAL SERVICE, WHERE THIS CANNOT BE ACCOMPLISHED, CONTACT THE T.M.U.D. REPRESENTATIVE.
- METER BOXES AND LIDS TO BE FURNISHED BY CONTRACTOR/DEVELOPER AND INSTALLED BY CONTRACTOR. ALL METER BOX SIZES SHALL CONFORM TO THE T.M.U.D. STANDARDS.
- METER BOX SHALL BE INSTALLED TO 0.1' ABOVE FINISHED GRADE. METER BOXES SHALL HAVE A MINIMUM OF 4 FEET CLEARANCE FROM ANY OBSTRUCTIONS.
- METER BOXES SHALL BE ARMORCAST ROTOCAST METER BOX OR DFW. RPM COVER WITH RADIO REB RETENTION, OR APPROVED EQUAL. NO METER BOXES WITH STEEL LIDS SHALL BE USED.
- WATER SERVICE SHALL REMAIN MARKED DURING CONSTRUCTION. ALL RELOCATION OF SERVICES SHALL BE DONE BY THE CONTRACTOR, INCLUDING HEIGHT ADJUSTMENTS.
- THE PAVING CONTRACTOR SHALL STAMP CURBS WITH "M" AT ALL SERVICE LOCATIONS. THE DEVELOPER OR BUILDER IS REQUIRED TO INSTALL A CUSTOMER CUTOFF BALL OR GATE VALVE WITH HANDLE WITHIN METER BOX OR IN A SEPARATE BOX OF IT'S OWN.
- WATER SERVICE WILL BE PROVIDED AS SHOWN ON APPROVED PLAN. ANY CHANGES TO PARCEL CONFIGURATION MAY REQUIRE ADDITIONAL REQUIREMENTS.
- SEPARATE METERS WILL BE REQUIRED FOR IRRIGATION SYSTEMS. DOMESTIC AND IRRIGATION SERVICE SHALL NOT BE INTERCONNECTED.
- SERVICES NOT BE ALLOWED IN DRAINAGEWAYS OR APRONS TO DRAINAGEWAYS.
- METERS AND BOXES SHALL NOT BE PLACED IN DRIVEWAYS, SIDEWALKS, STREETS, ETC.
- ALL SERVICE LINES SHALL BE A MINIMUM 1" AND SHALL BE TYPE K SOFT COPPER.
- WATER SERVICE LINES SHALL BE INSTALLED WITH ADDITIONAL SLACK TO PROVIDE FINISH GRADE ADJUSTMENT. (SEE DETAIL 1 THIS SHEET)
- ALL FITTINGS USED WITH COPPER SHALL BE CTS COMPRESSION FITTINGS.
- ON 2-INCH SERVICES, HARD COPPER CAN BE USED WITH CTS COMPRESSION OR SWEAT.
- THE T.M.U.D. REQUIRES A 1"x3/4" ANGLE METER STOP FOR THE INSTALLATION OF A 5/8"x3/4" METER FOR DOMESTIC SERVICE. IF FIRE SPRINKLER SERVICE IS REQUIRED FOR ANY SERVICE WITHIN THE SUBDIVISION BLOCK THE CONTRACTOR SHALL SUPPLY A 1"x1" ANGLE METER STOP ON ALL SERVICES WITH APPROPRIATE REDUCERS FOR ALL OTHER ANGLE METER STOPS.

**BACKFLOW**

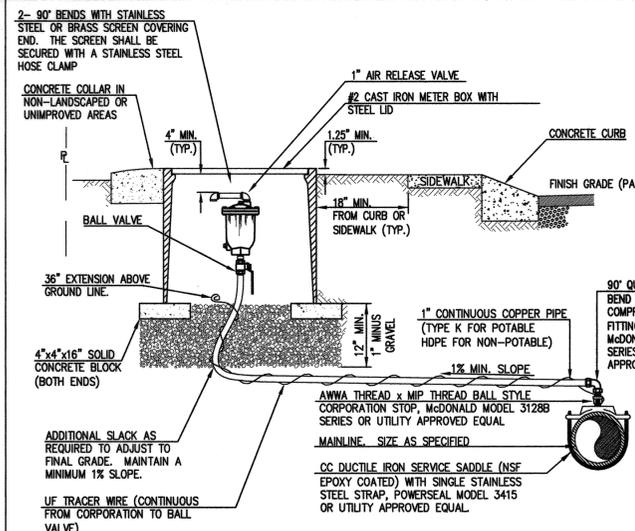
- ALL CONSTRUCTION WATER WILL BE METERED WITH AN APPROPRIATE SIZE WATER METER AND BACKFLOW PREVENTION DEVICE. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE WATER METER FROM THE T.M.U.D.. BACKFLOW DEVICE SHALL BE PROVIDED BY CONTRACTOR.
- THE CONTRACTOR SHALL INSTALL REDUCED PRESSURE ASSEMBLY (RPA) IN ACCORDANCE WITH THE REQUIREMENTS OF TUCSON WATER STANDARD DETAILS FOR BACKFLOW ASSEMBLIES ON ALL COMMERCIAL AND SERVICES WITH NON-POTABLE CONNECTIONS WITH A LOCKABLE GATE. A PERMIT FOR BACKFLOW IS REQUIRED THROUGH THE T.M.U.D.. SUBMITTALS FOR SAID ASSEMBLIES SHALL BE SUBMITTED TO THE T.M.U.D. AND BUILDING OFFICE FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
- ALL BACKFLOW PREVENTION DEVICES SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENTLY ADOPTED PLUMBING CODE STANDARDS, AND APPROVED BY THE TOWN BUILDING OFFICIAL.
- BACKFLOW DEVICE TO BE SIZED ACCORDING TO METER SIZE AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE TOWN OF MARANA ADOPTED PLUMBING CODE.
- BACKFLOW PREVENTION INSPECTION TEST RESULTS WILL BE REQUIRED PRIOR TO FINAL WALK THROUGH FOR THE PROJECT.
- TEMPORARY BACKFLOW ADJUSTOR USED FOR CONSTRUCTION MAY REQUIRE MONTHLY TESTING AND RECERTIFICATION BY THE CONTRACTOR AT THE DISCRETION OF THE TOWN OF MARANA.

**FINAL CONSTRUCTION NOTES**

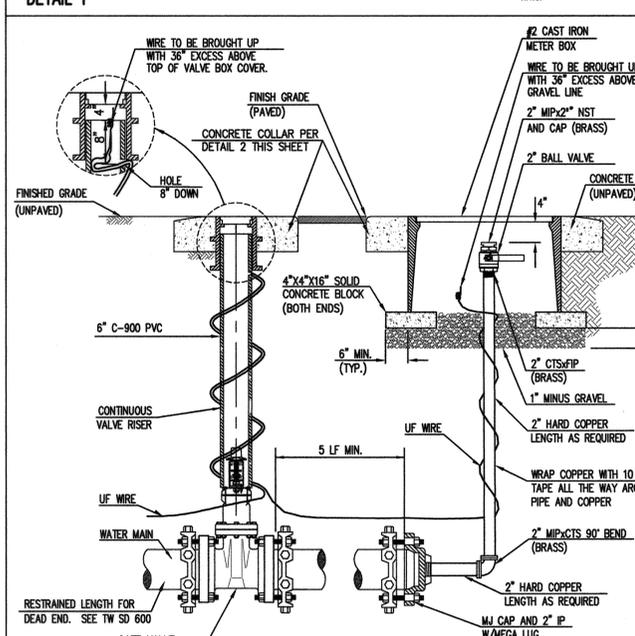
- THE CONTRACTOR SHALL SUBMIT A "PRELIMINARY FLUSHING SEQUENCE" TO THE T.M.U.D. REPRESENTATIVE FOR APPROVAL PRIOR TO ANY FLUSHING OPERATIONS. EXISTING DEAD-END MAINS SHALL BE THOROUGHLY FLUSHED BEFORE TIE-INS ARE MADE TO NEW LINES BEING INSTALLED.
- THE CONTRACTOR SHALL NOTIFY THE T.M.U.D. REPRESENTATIVE FOUR (4) WORKING DAYS IN ADVANCE FOR SCHEDULING WATER MAIN PRESSURE TESTING AND BACTERIOLOGICAL TESTING. T.M.U.D. REPRESENTATIVE WILL COORDINATE WITH CONTRACTOR.
- NO TIE-INS TO EXISTING WATER MAINS WILL BE PERMITTED UNTIL BACTERIOLOGICAL TESTING RESULTS ARE REPORTED NEGATIVE.
- "RECORD DRAWINGS" ELECTRONIC FILES, AND AN ENGINEER'S CERTIFICATE OF COMPLETION PER ADEQ REQUIREMENTS SEALED AND SIGNED BY A PROFESSIONAL ENGINEER TO BE PROVIDED BEFORE ACCEPTANCE BY THE T.M.U.D. ONE (1) XEROX MYLAR, TWO (2) T-BOND PRINTS, CAD FILES AND A PDF FILE OF "RECORD DRAWINGS".
- THE DEVELOPER/APPLICANT SHALL HAVE ALL WATER VALVES IDENTIFIED AND LOCATED PRIOR TO PAIVING AND SHALL HAVE ALL VALVES "FRAMES AND COVERS" SET TO FINISH GRADE AFTER PAIVING, OR FINISH GRADING IF NOT IN PAVED AREAS.
- AFTER THE PAIVING, CURBS AND GUTTERS, AND SIDEWALKS HAVE BEEN INSTALLED, A T.M.U.D. REPRESENTATIVE WILL CHECK ALL VALVES, SERVICE METER BOXES, AND FIRE HYDRANTS FOR OPERATION AND ADJUSTMENTS PRIOR TO FINAL APPROVAL.
- FINAL ACCEPTANCE WILL NOT BE GRANTED UNTIL THE PIPE CERTIFICATION, BACK FILL COMPACTION TESTING RESULTS, VALVE CERTIFICATION, AND THE PASSING MICROBIOLOGICAL TEST AND A.D.E.Q. CERTIFICATION OF "APPROVAL OF CONSTRUCTION" HAVE BEEN RECEIVED BY THE T.M.U.D..
- ADDITIONAL T.M.U.D. INSPECTION FEES WILL BE CHARGED FOR ANY WORK NOT PERFORMED DURING THE REFERENCED WORKING DAYS AND TIMES.
- FIRE LINE/SPRINKLER SERVICE LINES AND STUB OUTS SHALL BE INCLUDED IN THE PRESSURE TEST AND BAC-T SAMPLING TEST.
- TREES SHALL NOT BE PLANTED WITHIN TEN (10) FEET OF ANY WATER MAINS 4" AND LARGER AND ALL IRRIGATION LINES SHALL MAINTAIN SEPARATIONS FROM POTABLE AND NON POTABLE MAINS.

**NON-POTABLE/RECLAIMED SYSTEM**

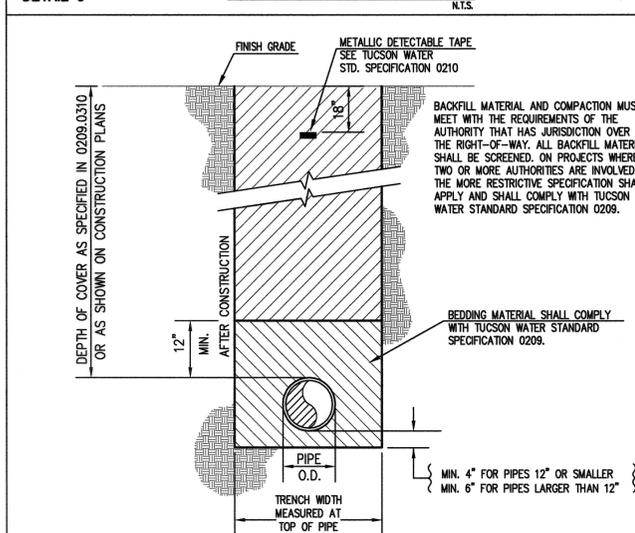
- NON-POTABLE/RECLAIMED WATER MAINS SHALL BE INSTALLED WITH A MINIMUM OF 44" (FORTY-FOUR INCHES) OF COVER FROM FINISH GRADE EXCEPT AS OTHERWISE NOTED ON APPROVED PLANS AND 60" MINIMUM OUTSIDE OF PAVEMENT.
- ALL NON-POTABLE WATER MAINS SHALL BE INSTALLED WITH A MINIMUM HORIZONTAL SEPARATION FROM POTABLE WATER AND SANITARY SEWER OF 6" AND A MINIMUM VERTICAL SEPARATION OF TWO FEET (2').
- NON-POTABLE/RECLAIMED WATER SERVICES SHALL BE INSTALLED WITH A MINIMUM OF 36" OF COVER AND 12" (MIN.) OF VERTICAL SEPARATION FROM GAS LINE AND ALL DRY UTILITIES.
- IRRIGATION, VALVE, ARV, AND DVA BOX LIDS SHALL HAVE THE LETTERS "RW" CAST INTO THE LID. THE LETTERS SHALL BE 3" (THREE INCHES) IN HEIGHT. ALL APPURTENANCES WITHIN SAID BOXES SHALL BE PAINTED PURPLE.
- SERVICES ONE INCH AND LARGER SHALL BE HDPE WITH PURPLE STRIPE OR HDPE WITH PURPLE POLYWRAP SLEEVE.
- ALL NON POTABLE/RECLAIMED MAINS CROSSING SEWER (GRAVITY OR PRESSURE) OR POTABLE WATER MAINS SHALL MAINTAIN THE SEPARATION IN ACCORDANCE WITH THE REQUIREMENTS OF TUCSON WATER STANDARDS AND THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING BULLETIN NO. 10, CHAPTER 7.
- CONTRACTOR TO STAMP ALL CURBS WITH "RW" AT ALL SERVICE LOCATIONS.



**1" AIR RELEASE VALVE DETAIL (BELOW GRADE)**  
N.T.S.



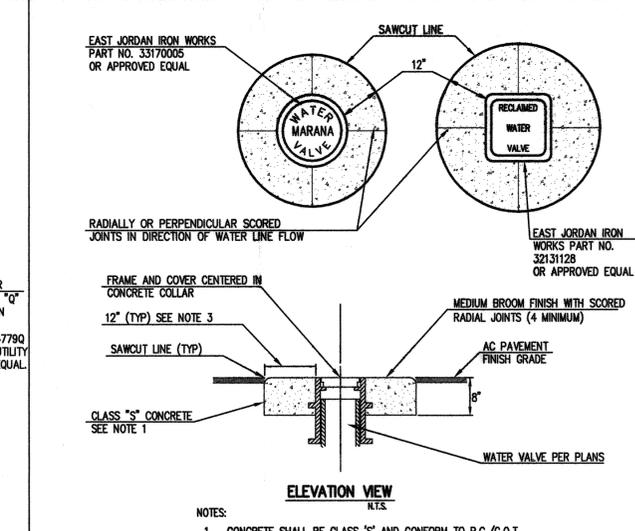
**MODIFIED DRAIN VALVE ASSEMBLY**  
N.T.S.



**WATER TRENCH DETAIL**  
N.T.S.

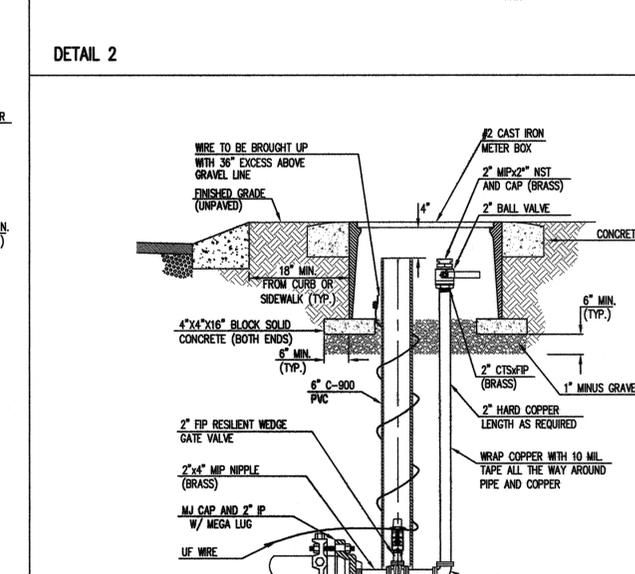
- TRENCH WIDTH MEASURED AT THE TOP OF THE PIPE SHALL BE 18" FOR 4" AND 6" MAINS, AND 24" FOR 8" MAINS. TRENCH WIDTH FOR 12" AND LARGER SHALL BE O.D. + 18" MIN., O.D. + 24" MAX.

**DETAIL 5**



**WATER FRAME AND COVER PAVEMENT INSTALLATION**  
N.T.S.

- CONCRETE SHALL BE CLASS "S" AND CONFORM TO P.C./C.O.T. SECTION 1006
- TOOL FINISH EDGE WITH 1/4" RADIUS.
- CONFIGURATION OF CONCRETE COLLAR SHALL BE CIRCULAR. RECTANGULAR OR SQUARE COLLARS ARE NOT PERMITTED.



**DRAIN VALVE ASSEMBLY**  
N.T.S.

**DETAIL 4**

**NOTICE TO DESIGN ENGINEER**

THE GENERAL NOTES AND STANDARD DETAILS AS SHOWN ON THIS DRAWING ARE FOR REFERENCE ONLY. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO VERIFY THE APPLICABILITY OF EACH STANDARD NOTE AND DETAIL FOR THE PROJECT. ALL MODIFICATIONS TO SAID DETAILS SHALL HAVE PRIOR APPROVAL FROM TOWN OF MARANA UTILITY DEPARTMENT AND ITS ENGINEERS.

THOMAS ANTHONY MARTINEZ  
MARANA CONTRACT UTILITIES ENGINEER  
EXPRES 9/30/2016

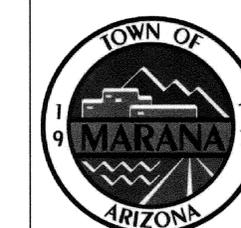
**TOWN OF MARANA UTILITY DEPARTMENT**

**GENERAL NOTES AND STANDARD DETAILS**

DATE: 3-24-14  
TOWN OF MARANA UTILITY DIRECTOR

DATE: 3-24-14  
TOWN OF MARANA BUILDING OFFICIAL

MARCH, 2014 Revised



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