<u>Chatfield South Water District</u> <u>Standards for Water Tap, Meter, and Service Line Installation</u>

CONTRACTOR STANDARDS

Only contractors from Denver Water's Prequalified "Contractors for Installation of 12-inch and Smaller Lines List" will be accepted. The Contractor will be required to show proof of their status as a Licensed Contractor at the time the application for Permit is completed. All required permits shall be the responsibility of the Contractor.

INSURANCE REQUIREMENTS: The Contractor shall not commence work pursuant to any permit until he has obtained all insurance required by these Technical Standards and Specifications, nor shall the contractor allow any subcontractor to commence work until all similar insurance required of the subcontractor has been obtained and approved.

PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE: The contractor shall carry Comprehensive General Liability / Auto Liability insurance in the amount specified. All subcontractors shall be required to carry Comprehensive General Liability and Automobile Liability insurance in an amount equal to that required by the contractor. Contractor agrees that it will indemnify and hold harmless the Chatfield South Water District (the "District"), the District's engineer and all of their consultants, agents and employees from any loss, cost, damage, expense and liability including attorney's fees, by reason of property damage, personal injury, or both, arising out of the use of improper or defective materials, or on account of any poor workmanship or on account of any act of omission or commission in connection with the performance of work by contractor, its employees, agents and subcontractors. In any and all claims by or against the District, the District's engineer and their consultants, agents and employees the indemnification obligation of this paragraph shall not be limited by any required policy of insurance.

PROOF OF INSURANCE: Prior to the commencement of any work the contractor shall furnish to the District certificates of insurance, naming the District as Certificate Holder, to prove that all required insurance is in force, and shall require any subcontractor to submit similar evidence before undertaking work in the District. Each insurance policy shall contain a clause providing that it shall not be cancelled or materially altered without ten (10) days written notice to the District. The District reserves the right to review the insurance coverage and to deny the contractor if, in the District's sole discretion, such coverage is not adequate. Neither acceptance by the District of any insurance supplied by a contractor or subcontractor, nor failure to deny a contractor to inadequacy of insurance, shall relieve the contractor of subcontractors of their obligation to maintain the required insurance in full force during the period of time work is performed.

COVERAGES: Contractors shall have the following Insurance coverage in place prior to beginning the work.

1. WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE.

The Contractor shall maintain during the life of this Contract the statutory Worker's Compensation, in addition, Employer's Liability Insurance in an amount not less than \$1,000,000 for each occurrence and \$2,000,000 aggregate for all of his employees to be engaged in work on the project under this Contract and, in case any such work is sublet, the Contractor shall require the subcontractor similarly provide Worker's Compensation and Employer's Liability Insurance for all of the latter's employees to be engaged in such work. Where work under this Contract includes any water or navigational exposure, coverage shall be included to cover the Federal Longshoremen's and Harborworker's Act and the Federal Jones Act.

2. GENERAL LIABILITY INSURANCE (INCLUDING AUTOMOBILE).

The Contractor shall maintain during the life of this Contract such general liability and automobile liability insurance as will provide coverage for claims for damages for personal injury, including accidental death, as well as for claims for property damage, which may arise directly or indirectly from performance of the work done under this Contract. Amount of insurance to be provided shall be not less than \$1,000,000 for bodily injury for each occurrence, with coverage for property damage not less than \$1,000,000, plus umbrella excess liability for the general liability and automobile liability insurance in an amount not less than \$2,000,000 per occurrence in excess of the above-stated primary limits.

In the event any work under this Contract is performed by a subcontractor, the Contractor shall be responsible for any liability directly or indirectly arising out of the work performed under this Contract by a subcontractor, which liability is not covered by the subcontractor's insurance.

The District and Engineer, their officers, agents, and employees shall be named as Additional Insureds on the Contractor's and any Subcontractors general liability and automobile liability Insurance policies for any claims arising out of work performed under this Contract.

INDEMNITY: The Contractor shall indemnify and hold harmless the District, the Engineer, and their agents and employees from and against all claims, damages, losses, and expenses including attorneys' fees arising out of or resulting from the performance of the work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease, or death, or to injury or to destruction of tangible property (other than the work itself), including the loss of use resulting therefrom, and (2) is caused in whole or in part by any act or omission of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

In any and all claims against the District, the Engineer, or any of their agents or employees by any employee of the Contractor, and subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Article shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any subcontractor under Worker's Compensation Acts, Disability Benefits Acts, or other Employee Benefit Acts.

The obligation of the Contractor under this Article shall not extend to the liability of the Engineer and his agents or employees arising out of preparation or approval of maps, drawings, opinions, reports, survey, Change Orders, designs, or Specifications.

I-9 COMPLIANCE: All contractors must supply an affidavit of compliance of an I-9 for all workers prior to commencement of the job to ensure compliance with immigration and customs enforcement.

PERMIT: Contractor must secure a Douglas County Right-of-Way (ROW) and/or Grading, Erosion, and Sediment Control (GESC) Permit for the work being done.

METER INSTALLATION

TRENCH EXCAVATION FOR PIPELINES AND SERVICE LINES: Trenches shall comply with the requirements of the Occupational Safety and Health Administration (OSHA) "Safety and Health Regulations for Construction". Sheeting and shoring shall be utilized where required to prevent any excessive widening or sloughing of the trench. Excavated material shall not by placed nearer than two (2') feet from the sides of the trench. Heavy equipment shall not be used or placed near the sides of the trench unless the trench is adequately braced. The width of the trench shall comply with the requirements set forth in these Standards and Specifications and shall permit the pipe to be laid and joined properly. The allowable trench width at the top of the pipe shall not exceed the outside diameter of the pipe barrel plus twenty-four inches (24"), nor be less than the outside diameter of the pipe barrel plus twelve inches (12"). If the width of the lower portion of the trench exceeds the maximum width herein stated, the contractor, at his expense, shall furnish and install special pipe embedment or concrete encasement to protect the pipe from the additional loading. The pipe manufacturer shall determine the type and quantities of special pipe embedment, using trench-loading criteria based upon saturated backfill weighing 120 pounds per cubic foot and allowance for truck and other superimposed live loads.

SERVICE LINE STUB-INS: Service line stub-ins shall extend behind any other utilities, such as gas and electric lines.

SERVICE LINE TAPS: All taps shall be made using the appropriate, material specific tapping saddle and conform to C-105 for Polyethylene and Dielectric Coupling of service tap. All ³/₄" taps shall be wet taps, using a tapping saddle for PVC pipe (FORD Model S90 Brass for PVC or approved equal), (MUELLER Model BR2B or approved equal for Metallic Pipe) with corporation stop and ³/₄" K-copper tubing. A curb stop shall be installed a minimum one foot off of the paved surface, and a maximum of two feet. The meter shall be installed a minimum two (2) feet on center beyond the curb stop and a maximum five (5) feet, in a landscape area.

SERVICE LINE PIPE AND FITTINGS: Service lines shall be seamless copper tube. Service line materials shall conform to the following specifications:

- A. Seamless copper tube, Type K (soft), shall be used for service lines three-fourths inch (3/4").
- **B.** Fittings for "K" copper service lines shall be all brass construction.

CURB STOPS: Styles shall be Ford Ball #B-22, Mueller #H-15204, or approved equal. Curb stop shall be no deeper than 5'6". Curb stop valve box shall be 2" (+/- 1") above final grade and centered over curb stop. Inspector to verify operational condition prior to acceptance.

CURB STOP BOXES: Curb stop boxes shall be arch pattern base, which do not permit the transfer of loading onto the curb stop valve. Curb boxes shall be constructed of cast iron and steel, as manufactured by The Mueller Company or approved equal. Lid shall read "WATER".

METER SETTERS: Meter setters shall be of an all copper and brass construction and shall have a positive ½ turn shut-off valve on the inlet side of the setter with padlock wings. Horizontal meter settings for the outside-house (meter pit) installation shall be Ford Series Copper setter or approved equal, to provide a ¾ x 9" long pattern Badger Meter model 35-meter, yolk for meter installation.

Meter: (3/4" x 9") long pattern Badger Meter model 35.

Register: (3/4") model 35ADE register with a Badger Galaxy GXY-I-10 Transmitter.

METER PITS AND COVERS: Meter pits for meters shall consist of twelve-inch (12") high pre-cast concrete rings, 24" I.D., with two-inch (2") wall thickness or fiberglass. The top section shall be tapered to accommodate a 20" I.D. frame. Meter pit covers shall be airtight with a double cover. The meter pit cover shall be a 13GMI composite meter top lid (No Hole Drilled). Underneath the top lid shall be a (3") concave plastic inner lid #PIL (Frost Lid). Meter pits shall be 2" (plus or minus 1") above final grade.

PIPE BEDDING MATERIALS: Bedding material for water lines shall be a clean well graded squeegee.

BEDDING FOR PIPELINES AND SERVICE LINES: Bedding material shall be placed to uniformly support the entire pipe barrel. Bedding material shall be placed to a depth of twelve inches (12") above the top and (6") of all PVC pipe. Service lines shall have four inches (4") of bedding above and below the service line.

CORPORATION STOPS: Corporation Stops shall be manufactured in accordance with AWWA C800 (most current), with AWWA taper thread on the inlet side. The outlet connection shall be flare type. Style shall by FORD FB600 or approved equal.

TAPPING SADDLES: Water service tapping saddles for service lines shall be bronze casting. Tapping Saddle shall be placed in the upper half of the main at the ten o'clock and two o'clock positions. The tap shall be made on the same side of the main as the water meter. Service taps shall have a minimum separation of 24 inches and shall be no closer than 24 inches to a coupling or bell.

SERVICE LINE TAP: The actual act of Tapping into the supply line will be performed by the District's Service Provider and be done with the supply line isolated from the main. Contractor or homeowner will need to notify homes affected by the shutdown of service. The Contractor will supply all items as described; and the fees for the District's Service Provider performing this portion of the work are described below. The Contractor will be responsible for performing ALL OTHER WORK related to the service line installation to the building.

Upon completion of the service taps, a visual inspection shall be made by the District's Service Provider to check for leakage. If any leakage exists appropriate repair measures or modifications may be necessary, as approved by on-site personnel from the District's Service Provider or the District's operator. No partial inspections for water service will be permitted without prior approval of the excavation by the District. Contractor shall not place any backfill until after the successful inspection by the District's Service Provider.

TRENCH SUPPORT: Trenches shall be adequately supported, and the safety of the workers provided for as required by the most recent Occupational Safety and Health Administration (OSHA) "Safety and Health Regulations for Construction". These regulations are described in Subpart P, Part 1926 of the Code of Federal Regulations. Sheeting and shoring shall be utilized where required to prevent any excessive widening or sloughing of the trench which may be detrimental to human safety, to the pipe being placed, or to any existing structure. Excavated material shall not be placed nearer than two (2) feet from the sides of the trench. Heavy equipment shall not be used or placed near the sides of the trench unless the trench is adequately braced.

BACKFILLING: Fill and compact trench excavation around mainline, water service line, valve box, meter pit, and other structures. Obtain permission from Owner's Representative before backfilling. Debris, construction materials, expansive clay or large chunks of earth are not allowed in backfill. Backfill and mechanically compact as indicated below. Puddling will not be allowed. The first lift of fill material placed above pipes, conduits, tanks, or other subterranean structures shall be a one-foot loose lift. Under no conditions shall construction vehicles pass over these structures until such time as the first lift of fill has been placed, moistened and compacted and directed herein.

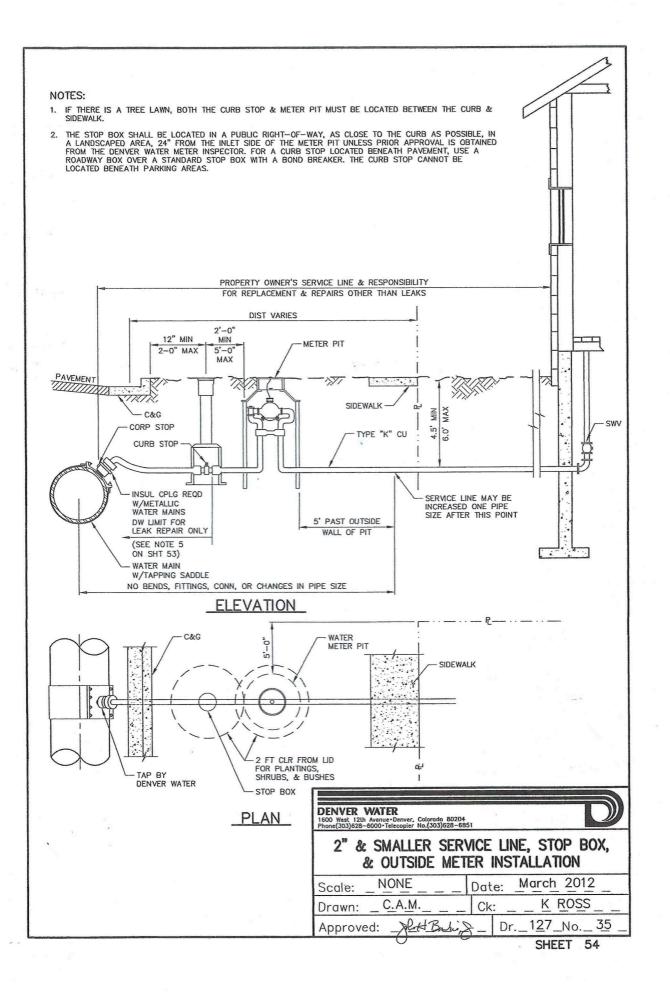
COMPACTION: Contractor shall moisture condition and compact backfill to 95% or greater of ASTM D-698 Standard Proctor Density within a +/- 2% of optimum moisture content.

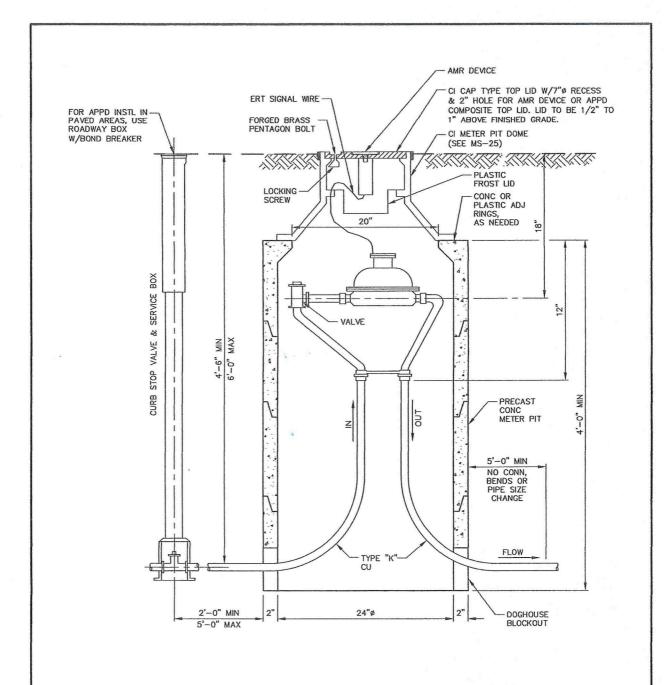
FILL AND BACKFILL WARRANTY: Settlement in backfill, fill, or structures and paving built over backfill or fill, which may occur within the one-year warranty period shall be corrected at no cost to the Owner.

LANDSCAPE RESTORATION: Contractor shall restore landscaping to the condition equal to or greater than that which existed prior to the tap and meter installation.

Fees: The fee for the District's Service Provider to perform the main supply tap and inspection will be due prior to the scheduled time of tapping and will include a final inspection after all backfill and asphalt patch work is completed. This fee will be billed at the current hourly rate for time and materials.

If the resident's contractor is not ready by the pre-arranged scheduled time, there will be an additional charge to the resident at current District Service Provider's rate (minimum 1 hour).

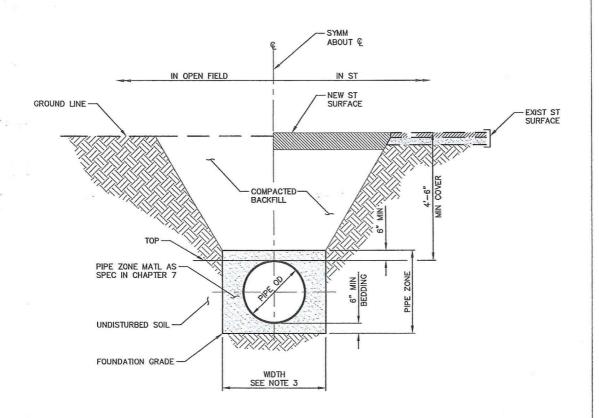




NOTE:

BENDING COPPER RISERS FOR GRADE ADJUSTMENT OF THE METER YOKE IS NOT BE PERMITTED.

DENVER WATER 1600 West 12th Avenue Denver, Colorado 80204 Phone(303)628-6000 Telecopier No.(303)628-685		
OUTSIDE SETTING FOR 3/4" & 1" METER		
Scale: NONE	Date: March 2012	
Drawn: _ C.A.M	Ck: _ K ROSS	
Approved: Att Buling	Dr127_No35_	



NOTES:

- MINIMUM COVER SHALL BE 4.5' BELOW THE OFFICIAL STREET GRADE.
- 2. TRENCH WALLS SHALL BE SUPPORTED AS REQUIRED BY OSHA.
- TRENCH WIDTH SHALL NOT BE MORE THAN 18" OR LESS THAN 12" MIDER THAN THE LARGEST OUTSIDE DIAMETER OF PIPE.
- 4. COMPACTION SHALL BE IN ACCORDANCE WITH CHAPTER 7.

DENVER WATER 1600 West 12th Avenue-Denver, Colorado 80 Phone(303)628—6000-Telecopler No.(303)628	0204 3-6851
TYPICAL TF	RENCH SECTION
Scale: NONE	Date: March 2012
Drawn: _ C.B.B	_ Ck: _ K ROSS
Approved: Approved: Dr127_No 35_	
	CHEET 12

- 1. THE PROPERTY MAY NOT BE OCCUPIED OR LANDSCAPED UNTIL AFTER THE SERVICE HAS BEEN ACTIVATED. FINES WILL BE ASSESSED FOR VIOLATIONS OF THIS PROVISION.
- 2. A SERVICE IS ACTIVATED, & THE PROPERTY MAY BE OCCUPIED OR LANDSCAPED, ONLY AFTER FEES HAVE BEEN PAID; THE METER HAS BEEN SET, INSPECTED, & APPROVED BY THE METER INSPECTOR; & SOIL AMENDMENT INSPECTION HAS BEEN COMPLETED & ACCEPTED.
- AN ON-SITE PRECONSTRUCTION MEETING WITH A METER INSPECTOR IS REQUIRED FOR TAPS & SERVICES LARGER THAN 1" & FOR PROJECTS INVOLVING MORE THAN ONE TAP & SERVICE. PRECONSTRUCTION MEETINGS MAY BE SCHEDULED BY CALLING THE METER INSPECTION SUPERVISOR AT 303-628-6000.
- 4. THE METER & AMR DEVICE LOCATION SHALL BE APPROVED BY DENVER WATER METER INSPECTION, METER SETTINGS LARGER THAN 1" SHALL BE APPROVED IN THE FIELD BY A METER INSPECTOR PRIOR TO THE INSTALLATION OF ANY SERVICE PIPE OR TAP. CALL 303-628-6000 TO MAKE AN APPOINTMENT FOR AN ON-SITE APPROVAL MEETING.
- 5. METER PITS & CURB STOPS/PROPERTY-LINE VALVES SHALL BE LOCATED IN GRASSY LANDSCAPED AREAS. WHEREVER POSSIBLE, THE STOP BOX & METER PIT SHALL BE PLACED IN THE PUBLIC ROW OR WITHIN A DEDICATED DENVER WATER EASEMENT. PLACEMENT IN A PAVED AREA REQUIRES WRITTEN APPROVAL BEFORE THE MAIN IS TAPPED & MAY REQUIRE BOND BREAKER & ADDITIONAL REQUIREMENTS.
- 6. STOP BOXES & METER PITS SHALL BE LOCATED TO PROVIDE CONVENIENT, SAFE, & UNINHIBITED ACCESS FROM A PUBLIC ROW OR DENVER WATER EASEMENT. THERE SHALL BE NO FENCES BETWEEN THE ROW OR EASEMENT & THE METER & NO OBSTRUCTIONS WITHIN 5' OF THE OUTSIDE WALL OF THE METER PIT OR VAULT. NO SHRUBS, BUSHES OR PLANTS SHALL BE WITHIN 2' OF PIT LID & STOP BOX.
- METER SETTINGS, SERVICE LINES, & APPURTENANCES LARGER THAN 1" MUST BE INSPECTED BY A DENVER WATER METER INSPECTOR BEFORE BEING BACKFILLED.
- 8. SERVICES WILL NOT BE ACTIVATED UNLESS THE METER SETTING & SERVICE LINE ARE IN COMPLIANCE WITH THE MOST CURRENT VERSION OF THE ENGINEERING STANDARDS, STANDARD DRAWINGS, APPROVED PROJECT DRAWINGS, & METER INSPECTOR WRITTEN INSTRUCTIONS, AS APPLICABLE. DEVIATIONS FROM THESE PLANS & STANDARDS MUST BE APPROVED BY DENVER WATER IN ADVANCE, IN WRITING.
- 9. METER PITS & VAULTS MUST BE SET FLUSH WITH THE FINAL GRADE OF THE LANDSCAPE, WHICH MUST INCLUDE PROPER DEPTH OF SOIL AMENDMENT. IF THE STREET OR GROUND IS NOT TO FINAL GRADE AT THE TIME OF THE METER INSTALLATION OR INSPECTION, THE OWNER MUST RAISE OR LOWER THE METER PIT/VAULT WHEN FINAL GRADE IS ESTABLISHED. THE METER SETTING MUST BE ADJUSTED TO STANDARDS AFTER PIT/VAULT GRADE IS ADJUSTED.
- 10. PROTECT THE CURB BOXES, METER PITS, & VAULTS & AUTOMATIC METER READING DEVICES THROUGHOUT CONSTRUCTION. NO METER MAY BE REMOVED FROM ITS INSTALLED LOCATION UNTIL THE EXISTING TAP HAS BEEN CUT AT THE MAIN.
- 11. SERVICE LINES SHALL RUN AT A 90° ANGLE TO THE FRONT PROPERTY LINE OR ROW/EASEMENT LINE, WITHOUT BENDS, CHANGES IN PIPE SIZE OR PIPE MATERIAL, & WITHOUT CONNECTIONS UNTIL 5' PAST THE METER PIT OR VAULT. NO JOINTS ARE PERMITTED WITHIN THE METER PIT OR VAULT, EXCEPT AS SHOWN ON THE STANDARD DRAWINGS.
- 12. A BYPASS IS REQUIRED ON METERS 1 1/2" & LARGER, EXCEPT FOR IRRIGATION SERVICES. BYPASSES ARE NOT PERMITTED ON IRRIGATION SERVICES.
- 13. DEVIATIONS MUST BE APPROVED IN WRITING BY THE CUSTOMER SERVICE FIELD SECTION PRIOR TO INSTALLATION,
- 14. IF METER LOCATIONS DO NOT PERMIT DRIVE—BY RADIO READING FROM A PUBLIC STREET, AS VERIFIED AT THE TIME OF FINAL INSPECTION, IT MAY BE NECESSARY TO INSTALL A REMOTE AMR DEVICE, WITH THE APPROVED SIGNAL CABLE ENCASED IN CONDUIT FROM THE METER TO THE AMR DEVICE, OR TO INSTALL ADDITIONAL RADIO EQUIPMENT SUCH AS A REPEATER. THE PROPERTY OWNER SHALL PROVIDE A SUITABLE LOCATION, APPROVED IN WRITING BY THE DENVER WATER CUSTOMER SERVICE FIELD SECTION, FOR MOUNTING REMOTE AMR DEVICE SUCH THAT AN ADEQUATE RADIO SIGNAL IS RECEIVED TO PERMIT DRIVE—BY METER READING FROM A DEDICATED PUBLIC STREET, SUCH INSTALLATIONS SHALL BE AT THE PROPERTY OWNER'S EXPENSE. FOR A REPEATER, THE PROPERTY OWNER SHALL PROVIDE THE MOUNTING LOCATION & 110V ELECTRIC POWER SUPPLY. [NOT APPLICABLE IN MASTER METER DISTRIBUTOR AREAS.]
- 15. BACKFLOW PREVENTION DEVICES MAY BE REQUIRED IN CONFORMANCE WITH THE ENGINEERING STANDARDS & STANDARD DETAILS. IF REQUIRED, THEY MUST BE IN PLACE BEFORE THE FINAL METER INSPECTION.
- 16. MASTER METER & READ & BILL DISTRIBUTORS MAY IMPOSE ADDITIONAL STANDARDS NOT REQUIRED BY DENVER WATER.
- 17. DENVER WATER WILL REPAIR SERVICE LINE LEAKS BETWEEN THE CORPORATION STOP & THE OUTLET TO THE CURB STOP INSIDE DENVER & IN TOTAL SERVICE AREAS ONLY. THE PROPERTY OWNER IS RESPONSIBLE FOR ALL OTHER SERVICE LINE REPAIRS OR REPLACEMENT TO THE CORPORATION STOP ON THE WATER MAIN IN THE STREET.
- 18. METER PITS SHALL BE FURNISHED WITH PLASTIC FROST LID WITH A 3" DEEP PAN, FIVE DRAIN HOLES, LIFTING HANDLE, & SLOT FOR ERT WIRE RUNNING FULL DEPTH OF LIP.
- 19. THE METER PIT SHALL BE CONSTRUCTED IN ACCORDANCE WITH CHAPTERS 3 & 6. TOTAL DEPTH OF PIT MUST BE AT LEAST 48" WITH ADJUSTMENT RINGS USED BETWEEN PIT TOP RING & DOME SO PIT LID IS FLUSH WITH FINISHED GRADE. TOP PIT RING SHALL NOT EXCEED 12" HEIGHT.
- 20. IN MOST CASES THE AMR DEVICE WILL MOUNT THROUGH THE CAST IRON LID, OR UNDER THE COMPOSITE LID. IN SOME CASES THE REMOTE AMR DEVICE WILL BE REQUIRED PER SHEET 66. METERS SHALL BE FURNISHED WITH ELECTRONIC DIGITAL ENCODER REGISTERS OR MECHANICALLY ENCODED REGISTERS WITH A REMOTE AMR DEVICE FOR EACH REGISTER.
- 21. REMOTE AMR DEVICE WILL BE INSTALLED AT A LOCATION DETERMINED BY DENVER WATER AT THE TIME OF METER INSPECTION. IN MOST CASES, REMOTE AMR DEVICE WILL BE INSTALLED ON THE OUTSIDE OF THE BUILDING FACING A PUBLIC STREET. OWNER MUST PROWDE CONDUIT & SIGNAL WIRE FROM METER TO AMR DEVICE LOCATION. (SEE SHEET 66 FOR DETAIL OF CONDUIT & OUTSIDE AMR DEVICE MOUNTING).
- 22. DENVER WATER IS NOT RESPONSIBLE FOR ANY DAMAGE THAT MAY OCCUR DUE TO A LEAK ANYWHERE ON THE SERVICE LINE. ALL DAMAGE IS THE RESPONSIBILITY OF THE PROPERTY OWNER.

DENVER WATER 1600 West 12th Avenue-Denver, Colorado Phone(303)628-6000-Telecopier No.(303)6:	80204 28-6851	
GENERAL METER & SERVICE NOTES		
Scale: NONE	_ Date: March 2012	
Drawn: _ C.B.B	_ Ck: _ <u>K ROSS</u> _	
Approved: Alt Ba	Ling _ Dr127_No 35 _	
	SHEET 5.3	