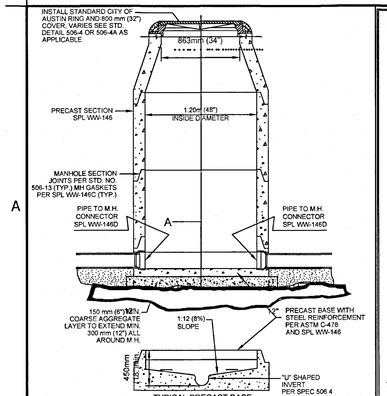
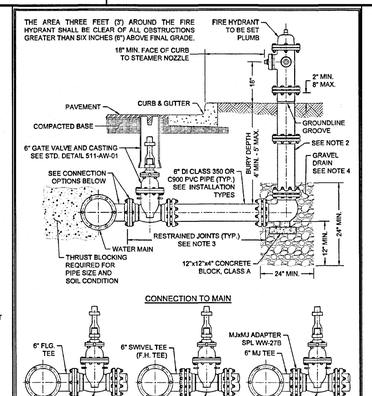


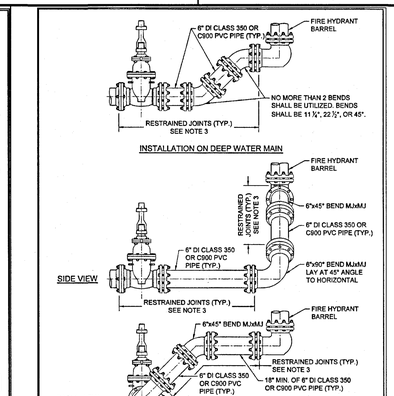
TYPICAL PRECAST BASE

NOTE:
1. THE MANHOLE BASE SHALL BE BEDDED ON 150 mm (6") COARSE AGGREGATE. THE CONTRACTOR SHALL LEVEL AND PLUMB THE BASE PRIOR TO SETTING THE PRECAST MANHOLE RISER SECTIONS ON THE PRECAST CONCRETE BASE.
2. MH FOUNDATION SHALL MEET OR EXCEED STD. SPEC. 506.5B.

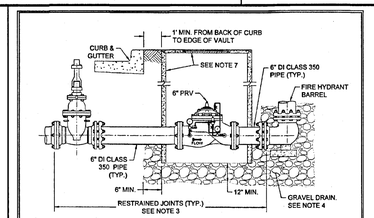
CITY OF AUSTIN AUSTIN WATER UTILITY	WASTEWATER MANHOLE ON PRECAST BASE	
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011	THE ARCHITECT/ENGINEER ASSUMES NO RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD	STANDARD NO. 506S-10



CITY OF AUSTIN AUSTIN WATER	FIRE HYDRANT	
Kathi L Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-02 1 OF 3



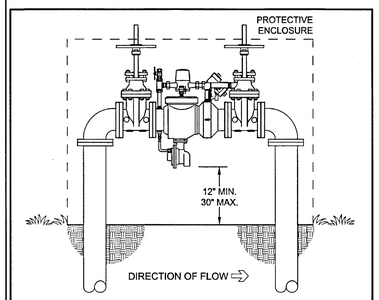
CITY OF AUSTIN AUSTIN WATER	FIRE HYDRANT	
Kathi L Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-02 2 OF 3



NOTES: APPLICABLE TO ALL INSTALLATION TYPES.

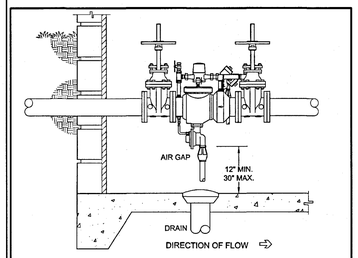
1. NO PART OF A HYDRANT OR ITS NOZZLE CAPS SHALL BE WITHIN 6' OF ANY SIDEWALK OR PEDESTRIAN RAMP. ANY FIRE HYDRANT PLACED NEAR A STREET CORNER SHALL BE LOCATED OUTSIDE THE CURVE RADIUS AND A MINIMUM OF 4' FROM RAMPS.
2. ONE BARREL EXTENSION NOT EXCEEDING 2' LENGTH MAY BE INSTALLED DIRECTLY BELOW THE FIRE HYDRANT IN ORDER TO MEET THE REQUIRED BURY DEPTH OF 4' - 5'. BREAK AWAY BOLTS (SHOE TYPED) SHALL BE PROPERLY SPACED AND PLACED.
3. FIRE LINE SHALL HAVE ALL JOINTS RESTRAINED FROM MAIN TO FIRE HYDRANT. JOINTS SHOWN MAY VARY. SEE SPL WW-27, WW-27A, AND WW-27B FOR RESTRAINT OPTIONS.
4. BELOW EACH HYDRANT, A DRAINAGE PIT 24" IN DIAMETER AND 12" DEEP SHALL BE EXCAVATED AND FILLED WITH COMPACTED COARSE GRAVEL OR BROKEN STONE MIXED WITH COARSE SAND UNDER AND AROUND THE BOWL OF THE HYDRANT, AND TO A LEVEL 12" ABOVE THE HYDRANT DRAIN OPENING (SEE STD. SPEC. 510). THE HYDRANT DRAINAGE PIT SHALL NOT BE CONNECTED TO A SANITARY SEWER. THE DRAIN GRAVEL SHALL BE COVERED WITH FILTER FABRIC PER STD. SPEC. 620S. FOR PRV, GRAVEL SHALL EXTEND UNDER THE PRV VAULT 12" MIN. DEPTH UNDER THE VAULT AND 6" MIN. BEYOND VAULT.
5. FOR FIRE HYDRANT LEADS AT A MAIN OUTLET LARGER THAN 6" DIAMETER, OUTLET SHALL BE FLANGED AND A FLG x FLG REDUCER SHALL BE INSTALLED DIRECTLY ON THE OUTLET.
6. WRAP 8 MIL. POLY-FILM WRAP ON ALL BURIED PIPE AND FITTINGS.
7. FOR HYDRANTS WITH PRV: CLASS III RCP VAULT 60" MIN. I.D. WITH REINFORCED PRECAST CONCRETE LID (AASHTO H-20 LOADING) WITH COA FRAME AND 32" COVER WITH LETTERING MODIFIED FOR WATER.

CITY OF AUSTIN AUSTIN WATER	FIRE HYDRANT	
Kathi L Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-02 3 OF 3



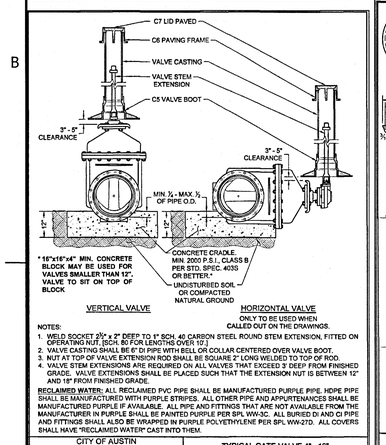
OUTDOOR INSTALLATION

1 SCALE: N.T.S. LARGE RPZ OUTDOOR



INDOOR INSTALLATION

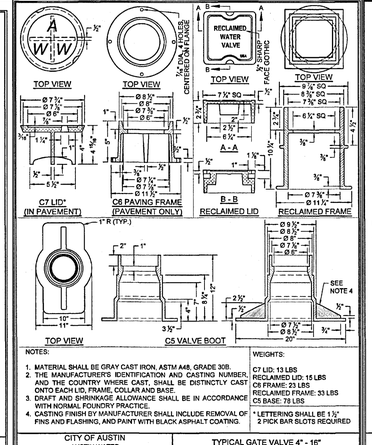
2 SCALE: N.T.S. LARGE RPZ INDOOR



NOTES:
1. WELD SOCKET 2½" x 2" DEEP TO 1" SCH. 40 CARBON STEEL ROUND STEM EXTENSION, FITTED ON OPERATING NUT. (SCH. 80 FOR LENGTHS OVER 10')
2. VALVE CASTING SHALL BE 6" DI PIPE WITH BELL OR COLLAR CENTERED OVER VALVE BOOT.
3. NUT AT TOP OF VALVE EXTENSION ROD SHALL BE SQUARE 2" LONG WELDED TO TOP OF ROD.
4. VALVE STEM EXTENSIONS ARE REQUIRED ON ALL VALVES THAT EXCEED 2' DEEP FROM FINISHED GRADE. VALVE EXTENSIONS SHALL BE PLACED SUCH THAT THE EXTENSION NUT IS BETWEEN 12" AND 18" FROM FINISHED GRADE.

RECLAIMED WATER: ALL RECLAIMED PVC PIPE SHALL BE MANUFACTURED PURPLE PIPE. HDPE PIPE SHALL BE MANUFACTURED WITH PURPLE STRIPES. ALL OTHER PIPE AND APPURTENANCES SHALL BE MANUFACTURED PURPLE IF AVAILABLE. ALL PIPE AND FITTINGS THAT ARE NOT AVAILABLE FROM THE MANUFACTURER IN PURPLE SHALL BE PAINTED PURPLE PER SPL WW-3C. ALL BURIED DI AND CI PIPE AND FITTINGS SHALL ALSO BE WRAPPED IN PURPLE POLYETHYLENE PER SPL WW-27D. ALL COVERS SHALL HAVE "RECLAIMED WATER" CAST INTO THEM.

CITY OF AUSTIN AUSTIN WATER UTILITY	TYPICAL GATE VALVE 4" - 16"	
Kathi L Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 1 OF 4

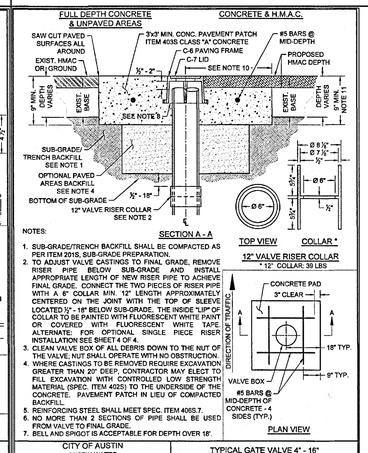


NOTES:
1. MATERIAL SHALL BE GRAY CAST IRON, ASTM A48, GRADE 30B.
2. THE MANUFACTURER'S IDENTIFICATION AND CASTING NUMBER, AND THE COUNTRY WHERE CAST, SHALL BE DISTINCTLY CAST ONTO EACH LID, FRAME, COLLAR AND BASE.
3. DRAFT AND SHRINKAGE ALLOWANCE SHALL BE IN ACCORDANCE WITH NORMAL FOUNDRY PRACTICE.
4. CASTING FINISH BY MANUFACTURER SHALL INCLUDE REMOVAL OF FINS AND FLASHING, AND PAINT WITH BLACK ASPHALT COATING.

WEIGHTS:
C7 LID: 13 LBS
RECLAIMED LID: 15 LBS
C6 FRAME: 23 LBS
RECLAIMED FRAME: 33 LBS
C5 BASE: 78 LBS

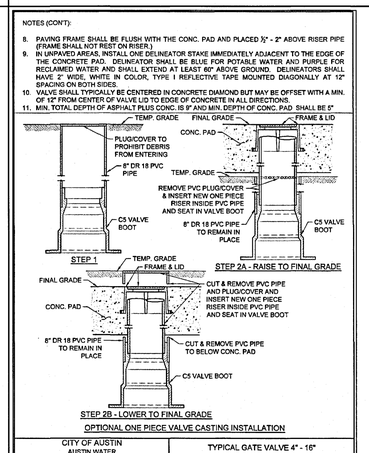
* LETTERING SHALL BE 1 ½" 2 PICK BAR SLOTS REQUIRED

CITY OF AUSTIN AUSTIN WATER UTILITY	TYPICAL GATE VALVE 4" - 16"	
Kathi L Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 2 OF 4

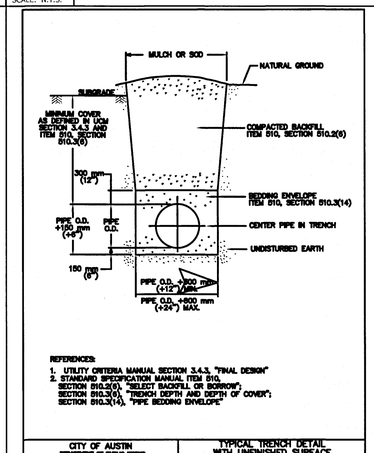


NOTES:
1. SUB-GRADE/TRENCH BACKFILL SHALL BE COMPACTED AS PER ITEM 201S, SUB-GRADE PREPARATION.
2. TO ADJUST VALVE CASTINGS TO FINAL GRADE, REMOVE RISER PIPE BELOW SUB-GRADE AND INSTALL APPROPRIATE LENGTH OF NEW RISER PIPE TO ACHIEVE FINAL GRADE. CONNECT THE TWO PIECES OF RISER PIPE WITH A 6" COLLAR MIN. 12" LENGTH APPROXIMATELY CENTERED ON THE JOINT WITH THE TOP OF SLEEVE LOCATED ½" - 18" BELOW SUB-GRADE. THE INSIDE "LIP" OF COLLAR TO BE PAINTED WITH FLUORESCENT WHITE PAINT OR COVERED WITH FLUORESCENT WHITE TAPE. ALTERNATE: FOR OPTIONAL SINGLE PIECE RISER INSTALLATION SEE SHEET 4 OF 4.
3. CLEAN VALVE BOX OF ALL DEBRIS DOWN TO THE NUT OF THE VALVE, NUT SHALL OPERATE WITH NO OBSTRUCTION.
4. WHERE CASTINGS TO BE REMOVED REQUIRE EXCAVATION GREATER THAN 20' DEEP, CONTRACTOR MAY ELECT TO FILL EXCAVATION WITH CONTROLLED LOW STRENGTH MATERIAL (SPEC. ITEM 402S) TO THE UNDERSIDE OF THE CONCRETE. PAVEMENT PATCH IN LIEU OF COMPACTED BACKFILL.
5. REINFORCING STEEL SHALL MEET SPEC. ITEM 440S.7.
6. NO MORE THAN 2 SECTIONS OF PIPE SHALL BE USED FROM VALVE TO FINAL GRADE.
7. BELL AND SPIGOT IS ACCEPTABLE FOR DEPTH OVER 18'.

CITY OF AUSTIN AUSTIN WATER UTILITY	TYPICAL GATE VALVE 4" - 16"	
Kathi L Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 3 OF 4

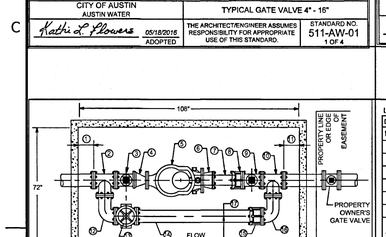


CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
Kathi L Flowers 05/18/2016 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 4 OF 4



REFERENCES:
1. UTILITY CRITERIA MANUAL SECTION 3.4.3, "FINAL DESIGN"
2. STANDARD SPECIFICATION MANUAL ITEM 510, SECTION 510.2(6), "SELECT BACKFILL OR BORROW"; SECTION 510.3(6), "TRENCH DEPTH AND DEPTH OF COVER"; SECTION 510.3(14), "PIPE BEDDING ENVELOPE"

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	TYPICAL TRENCH DETAIL WITH UNFINISHED SURFACE	
RECORD COPY SIGNED BY BILL GARDNER 03/13/08 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES NO RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 510S-5



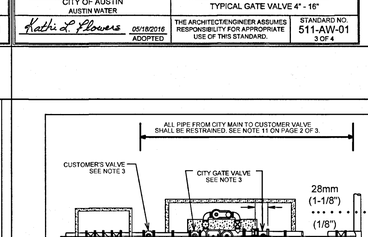
CITY OF AUSTIN AUSTIN WATER UTILITY	3", 4" AND 6" COMPOUND & TURBINE METER INSTALLATIONS	
RECORD COPY SIGNED BY KATHI L FLOWERS 11/19/2015 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD	STANDARD NO. 520-AW-06 1 OF 2

LARGE METER INSTALLATIONS

DIMENSIONS IN INCHES		3" TURBINE 3" BYPASS	3" COMPOUND 3" BYPASS	4" TURBINE 4" BYPASS	4" COMPOUND 4" BYPASS	6" TURBINE 6" BYPASS	6" COMPOUND 6" BYPASS
No.	METER LINE						
1	CLEARANCE FROM VALVE WALL TO TEE	8"	8"	12"	12"	6"	6"
2	FLANGED TEE	13"	13"	13"	13"	16"	16"
3	COA GATE VALVE SQUARE NUT	9"	9"	9"	9"	10 1/2"	10 1/2"
4	3"X 4" FLANGED REDUCER (3" METER ONLY)	7"	7"	—	—	—	—
5	METER	17"	19"	20"	23"	24"	27"
6	3"X 4" FLANGED REDUCER (3" METER ONLY)	7"	7"	—	—	—	—
7#8	⑦FLANGED X PLAIN END DI PIPE + ⑧ RESTRAINED FLANGE COUPLING ADAPTER (RFCA) OR ⑦ FLANGE X DI PIPE + ⑧ DISMANTLING JOINT (DJ)	17"	15"	20"	17"	19"	16"
9	COA GATE VALVE SQUARE NUT	9"	9"	9"	9"	10 1/2"	10 1/2"
10	FLANGED TEE	13"	13"	13"	13"	16"	16"
11	CLEARANCE FROM INSIDE WALL TO TEE	8"	8"	12"	12"	6"	6"
	TOTAL (INCHES)	108.0"	108.0"	108.0"	108.0"	108.0"	108.0"
	BYPASS LINE						
1	CLEARANCE FROM INSIDE WALL TO TEE	8"	8"	12"	12"	6"	6"
	1/2 TEE	6 1/2"	6 1/2"	6 1/2"	6 1/2"	8"	8"
12	FLANGED 90° ELBOW	6 1/2"	6 1/2"	6 1/2"	6 1/2"	8"	8"
13	BYPASS GATE VALVE WITH HAND WHEEL	9"	9"	9"	9"	10 1/2"	10 1/2"
14#15	⑦FLANGED X PLAIN END DI PIPE + ⑧ RESTRAINED FLANGE COUPLING ADAPTOR (RFCA) OR ⑦ FLANGE X FLANGE DI PIPE + ⑧ DISMANTLING JOINT (DJ)	57"	57"	49"	49"	53 1/2"	53 1/2"
16	FLANGED 90° ELBOW	6 1/2"	6 1/2"	6 1/2"	6 1/2"	8"	8"
	1/2 TEE	6 1/2"	6 1/2"	6 1/2"	6 1/2"	8"	8"
11	CLEARANCE FROM VALVE WALL TO TEE	8"	8"	12"	12"	6"	6"
	TOTAL (INCHES)	108.0"	108.0"	108.0"	108.0"	108.0"	108.0"
17	CLEARANCE FROM INSIDE WALL TO CENTER OF BYPASS LINE	23"	23"	23"	23"	20"	20"

NOTES:
1. METER VAULT MUST BE PLACED AT THE PROPERTY LINE WITHIN PUBLIC RIGHT-OF-WAY OR WITHIN A DEDICATED WATER METER EASEMENT. METER SHALL NOT BE PLACED IN THE PATH OF VEHICULAR TRAFFIC INCLUDING ROADWAYS, DRIVEWAYS AND PARKING LOTS. METERS MAY NOT BE PLACED IN SIDEWALKS UNLESS SPECIFICALLY APPROVED BY AUSTIN WATER. METERS MUST BE ACCESSIBLE TO SERVICE VEHICLES AND SHALL NOT BE ENCLOSED WITHIN PROPERTY FENCES.
2. ALL PIPE AND FITTINGS FROM MAIN TO CUSTOMER'S VALVE SHALL BE RESTRAINED.
3. FACTORY NOTCHED SPACERS OR SHIMS USED THROUGH VAULT WALL SHALL BE FILLED WITH NON-SHRINK GROUT PER SPL NO. WW-704A.

CITY OF AUSTIN AUSTIN WATER UTILITY	3", 4" AND 6" COMPOUND & TURBINE METER INSTALLATIONS	
RECORD COPY SIGNED BY KATHI L FLOWERS 11/19/2015 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD	STANDARD NO. 520-AW-06 2 OF 2



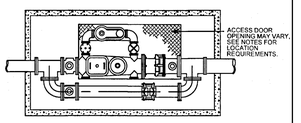
CITY OF AUSTIN AUSTIN WATER UTILITY	FIRE LINE METER INSTALLATION	
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520S-17 1 OF 1

NOTES:
1. VAULT PER SPL WW-29B OR APPROVED EQUAL. VAULT SHALL INCLUDE THRUST COLLAR WALL PIPES (IF LESS THAN 18" ALL PIPE SHALL BE RESTRAINED REGARDLESS IF VAULT PRE-CAST OR CAST IN PLACE. RESTRAINED BOTH WAYS. H20 LOADING REQUIRED FOR ALL VAULTS.
2. METER VAULT SHALL BE BEHIND CURB AND/OR WALK, AND NOT IN VEHICULAR TRAFFIC AREA.
3. MAIN LINE AND BYPASS GATE VALVES WILL BE RESILIENT SEAT TYPE WITH CORROSION RESISTANT FUSION BONDED EPOXY COATING INSIDE AND OUTSIDE. NON-RISING STEM. MAIN LINE VALVES SHALL HAVE HAND-WHEELS. BYPASS VALVES SHALL HAVE HAND-WHEELS. PROPERTY OWNER'S VALVE SHALL NOT BE LOCATED IN THE CITY OF AUSTIN METER VAULT. HAND-WHEEL EXCEPTION: IF HAND-WHEEL IS NOT LOCATED WITHIN 300mm (12") HORIZONTALLY OF ACCESS HATCH, GATE VALVE SHALL BE INSTALLED WITH OPERATING NUT ACCESSIBLE FROM RING AND COVER LOCATED ON VAULT LID PER SPL WW-632.
4. APPROVAL REQUIRED IF HEIGHT OF VAULT EXCEEDS 1.8m (72"). CONTACT THE PIPELINE ENGINEERING DIVISION OF AUSTIN WATER UTILITY. METER SHALL BE LEGIBLE TO READ FROM TOP OF VAULT.
5. ACCESS LID SHALL BE 1.2 m x 1.8 m (4'x6') DOUBLE LEAF PER SPL WW-614 (H20 LOADING REQUIRED) WITH SLAM LOCK BY HALLIDAY PRODUCTS OR APPROVED EQUAL. LOCK TO INCLUDE SECURITY OPERATOR.
6. ALL BURIED PIPE SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED BY CITY OF AUSTIN STANDARD SPECIFICATIONS 510.3 (14): BACKFILL ABOVE GRANULAR BEDDING AS REQUIRED BY 510.3 (25). ALL BURIED PIPE SHALL BE WRAPPED IN POLYETHYLENE ENCASEMENT PER SPL WW-27D.
7. FITTINGS IN VAULT SHALL BE FLANGED WITH EXCEPTION OF ONE RESTRAINED MJ ON MAIN AND BYPASS LINES EACH PER SPL WW-27A.
8. VOIDS AT PIPE WALL HOLES SHALL BE FILLED WITH NON-SHRINK GROUT, OR OTHER SEAL OR SEALANT PER SPL WW-144A.
9. THE TOP OF THE METER VAULT SHALL BE AT AN ELEVATION SUCH THAT THE SURROUNDING GROUND SLOPES AWAY FROM THE VAULT. ADDITIONAL DRAINAGE CONSIDERATION SUCH AS CONNECTION OF VAULT TO STORM SEWER, LATERAL DRAIN LINES FROM GRAVEL BED OR OTHER MEANS SHALL BE REQUIRED IF CONDITIONS CAUSE WATER TO COLLECT IN VAULT.
10. BYPASS AND MAIN PIPE SHALL BE SAME DIAMETER. ALL PIPE FROM CITY MAIN TO CUSTOMERS VALVE SHALL BE D.I.
11. ALL EQUIPMENT IN VAULT SHALL BE REMOVABLE WITHOUT ADDITIONAL RESTRAINT OR SUPPORT OF PIPE.
12. ALL CLEARANCES INDICATED ARE MINIMUM. ADDITIONAL CONSIDERATION SHALL BE MADE FOR ACCESS TO ALL COMPONENTS IN VAULT. ALL CLEARANCES SHALL BE INCLUDED ON PLANS SUBMITTED FOR APPROVAL TO AUSTIN WATER UTILITY.
13. LOCATION OF ACCESS DOORS ARE SHOWN TO INDICATE POSSIBLE LOCATION. AN ENGINEER LICENSED BY THE STATE OF TEXAS SHALL DETERMINE SIZE OF VAULT, LOCATION OF ACCESS DOOR AND COVER CASINGS APPROPRIATE FOR EQUIPMENT, ACCESS, MAINTENANCE AND CLEARANCES. METER VAULTS PER SPL WW-29B ARE ACCEPTABLE IF ALL DESIGN PARAMETERS ARE MET AND SO DETERMINED BY TEXAS LICENSED ENGINEER.

CITY OF AUSTIN AUSTIN WATER UTILITY	FIRE LINE METER INSTALLATION	
RECORD COPY SIGNED BY KATHI L FLOWERS 08/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520S-17 2 OF 3

NOTES:
14. IN ALL CASES, MINIMUM CLEARANCE FROM WALL TO TEST PORTS SHALL BE 600mm (24"). LICENSED ENGINEER SHALL CONFIRM WITH METER MANUFACTURER LOCATION OF TEST PORTS PRIOR TO SUBMITTAL OF PLANS TO AUSTIN WATER UTILITY FOR APPROVAL. PLANS SHALL INDICATE LOCATION OF TEST PORTS.
15. VAULT SIZES INDICATED ON WATER METER SCHEDULE ARE SUGGESTIONS. ACTUAL EQUIPMENT, PIPE LAYOUT, CLEARANCE, ACCESS AND OTHER INFORMATION SHALL BE TAKEN INTO CONSIDERATION BY AN ENGINEER LICENSED BY THE STATE OF TEXAS.

MINIMUM CLEARANCES	
6"	-FLOOR TO ANY PART OF PIPELINE METER ASSEMBLY -INTERIOR WALL TO FLANGE
12"	-INTERIOR WALL TO PARALLEL PIPE, VALVE OR METER. -ALL AROUND PIPELINE METER ASSEMBLY
24"	-INTERIOR WALL TO TEST PORTS
48"	-TOP OF PIPE TO INTERIOR TOP OF VAULT



WATER METER SCHEDULE				
WATER METER SIZE	SIZE OF BY-PASS	BY-PASS VALVE W/HANDWHEEL	MAIN LINE VALVE W/HANDWHEEL	VAULT O.DIR PER SPL NO. WW-29B
150 mm x 50 mm (