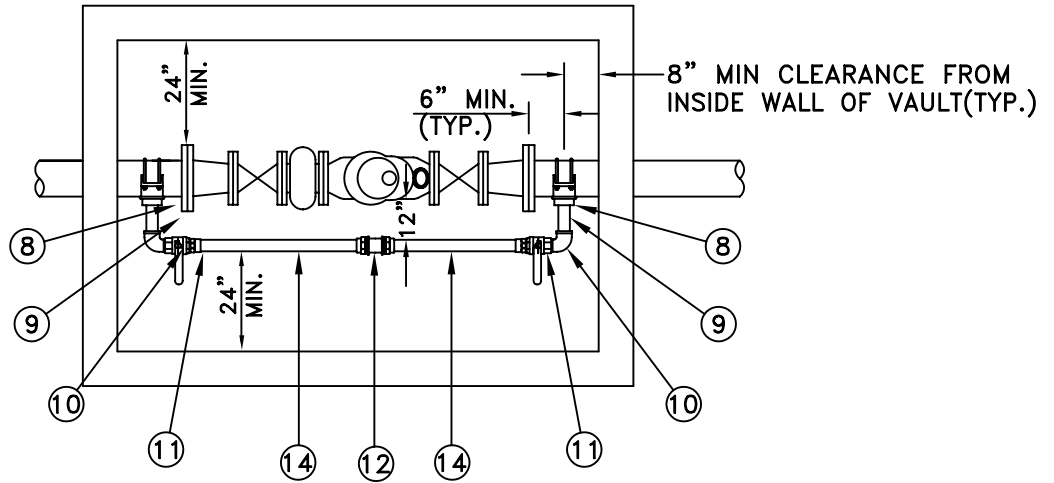




# CITY OF GARDEN GROVE PUBLIC WORKS STANDARD PLANS

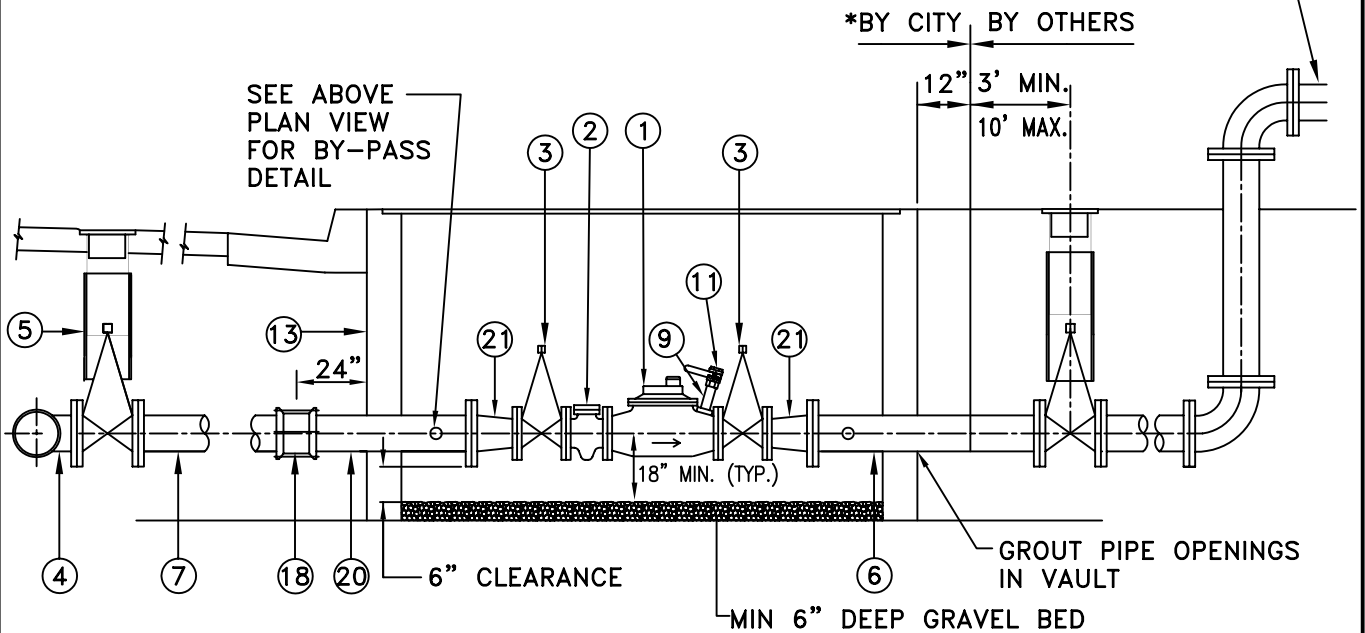
## SERIES B-700 WATER

- B-724 3", 4", & 6" COMPOUND METER AND SERVICE INSTALLATION
- B-725 3", 4", & 6" TURBO METER AND SERVICE INSTALLATION
- B-729 SERVICE LATERAL INSTALLATION FOR PRIVATE FIRE HYDRANTS
- B-730 2-1/2" TEMPORARY WATER SERVICE
- B-740 1" AIR AND VACUUM RELIEF VALVE ASSEMBLY
- B-741 2" AIR AND VACUUM RELIEF VALVE ASSEMBLY
- B-742 AIR RELEASE & VACUUM RELIEF ENCLOSURE ASSEMBLY
- B-743 AIR RELEASE & VACUUM RELIEF ENCLOSURE SETBACK DETAIL
- B-744 2" BLOWOFF INSTALLATION AT END OF 4" WATER MAIN PIPE
- B-745 4" BLOWOFF INSTALLATION FOR 6" MAINS AND LARGER
- B-750 TAPPING SLEEVE AND GATE VALVE
- B-751 WELDED TAPPING NOZZLE AND GATE VALVE FOR STEEL CYLINDER PIPE
- B-752 GATE VALVE CAN ASSEMBLY
- B-753 GATE VALVE CAN ASSEMBLY FOR CONCRETE AREAS
- B-760 SEPARATION REQUIREMENTS FOR NEW WATER MAIN & EXIST. SEWER MAIN
- B-761 SEPARATION REQUIREMENTS FOR NEW SEWER MAIN & EXIST. WATER MAIN
- B-762 SEWER MAIN CROSSING UNDER WATER MAIN
- B-763 WATER MAIN CROSSING UNDER SEWER MAIN
- B-764 INSTALLATION OF WATER PIPE THROUGH STEEL CASING
- B-765 DUCTILE IRON VERTICAL OFFSET
- B-766 DUCTILE IRON HORIZONTAL OFFSET
- B-767 WELDED STEEL OFFSET
- B-769 ABOVE GROUND FIRE LINE AND BACKFLOW DEVICE SCREENING AND SETBACK REQUIREMENTS
- B-770 TYPICAL 2" OR SMALLER REDUCED PRESSURE PRINCIPAL DEVICE (RPPD)
- B-771 TYPICAL 2-1/2" OR LARGER REDUCED PRESSURE PRINCIPAL DEVICE (RPPD)
- B-773 TYPICAL 2-1/2" OR LARGER DOUBLE CHECK DETECTOR FIRE LINE ONLY
- B-781 WARNING IDENTIFICATION TAPE AND TRACER WIRE INSTALLATION



4" AND 6" TO HAVE SAME SIZE BY-PASS (SEE SHEET 2)

REDUCED PRESSURE PRINCIPAL DEVICE ( RPPD ) PER CITY STD PLAN B-771, BY OTHERS



\* DEVELOPER'S CONTRACTOR MAY BE RESPONSIBLE FOR INSTALLATION. DETERMINATION TO BE MADE BY CITY DURING PLAN CHECK PROCESS. INSTALLATION TO BE PER THIS STANDARD AND INSPECTED BY CITY. CONTRACTOR TO HAVE C-34, OR CLASS A LICENSE.

PROPERTY OWNER MUST OPEN A WATER ACCOUNT UPON INSTALLATION OF METER.



City of  
Garden Grove  
California

### 3" , 4" & 6" COMPOUND WATER METER AND SERVICE INSTALLATION

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

City Engineer

R.C.E. 50353

Exp.06-30-09

B-724

SHEET 1 OF 3

## LIST OF MATERIALS

ITEM NO.	DESCRIPTION	3" METER		4" METER		6" METER	
		QTY.	SIZE	QTY.	SIZE	QTY.	SIZE
1	COMPOUND WATER METER SRH SENSUS W/ TOUCH READ METER	1	3"	1	4"	1	6"
2	BRONZE STRAINER	1	3"	1	4"	1	6"
3	RESILIENT WEDGE GATE VALVE, FLG'D W/2" OPERATING NUT	2	3"	2	4"	2	6"
4	TAPPING SLEEVE AND GATE VALVE PER STD. B-750	1	4"	1	4"	1	6"
5	GATE VALVE CAN ASSEMBLY PER STD. B-753	1		1		1	
6	DUCTILE IRON PIPE SPOOL, FLG'D	1	4"	1	4"	1	6"
7	AWWA C-900 PVC WATER MAIN PIPE, CLASS 200		4"		4"		6"
8	SERVICE SADDLE FOR DIP PIPE, WITH 2" FEMALE I.P. THREADS	2	3"				
9	2" COPPER NIPPLE, 7" LONG	3					
10	2" STREET ELL, BRASS	2					
11	2" FULL PORT BALL VALVE, BRASS BODY	2	2"				
12	2" COMPRESSION COUPLING, BRASS	1					
13	METER VAULT	1	*	1	*	1	*
14	2" COPPER	2					
15	DUCTILE IRON TEE, FLG'D			2	4"	2	6"
16	RESILIENT WEDGE GATE VALVE, FLG x MJ			2	4"	2	6"
17	DUCTILE IRON 90° BEND, FLG'D			2	4"	2	6"
18	FLEX COUPLING (Smith & Blair)			1	4"	1	6"
19	FLANGE COUPLING ADAPTOR			2	4"	2	6"
20	DUCTILE IRON PIPE SPOOL, FLG'D x P.E. (CUT TO FIT)	1	4"	1	4"	1	6"
21	3" x 4" FLG. x FLG. REDUCER - 3" METER ONLY	2	3"x4"				

**NOTES**

1. ALL GATE VALVES SHALL BE FUSION EPOXY LINED AND COATED.
2. CONCRETE VAULT SHALL BE SIZED TO HOUSE METER INSTALLATION WITH MINIMUM CLEARANCES SHOWN IN SHEETS 1 & 2.
3. TRAFFIC RATING SHALL BE APPROVE BY WATER SERVICES DIVISION.
4. BILCO TORSION ASSISTED VAULT LIDS OR APPROVED EQUAL TO BE PROVIDED.



City of  
Garden Grove  
California

### 3" , 4" & 6" COMPOUND WATER METER AND SERVICE INSTALLATION

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

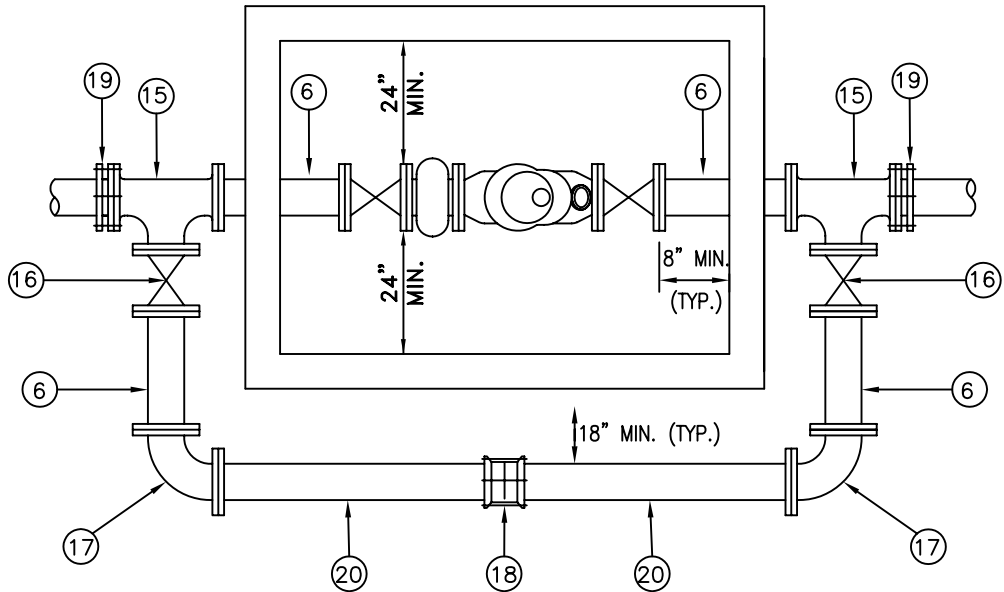
DATE

STD. PLAN NUMBER

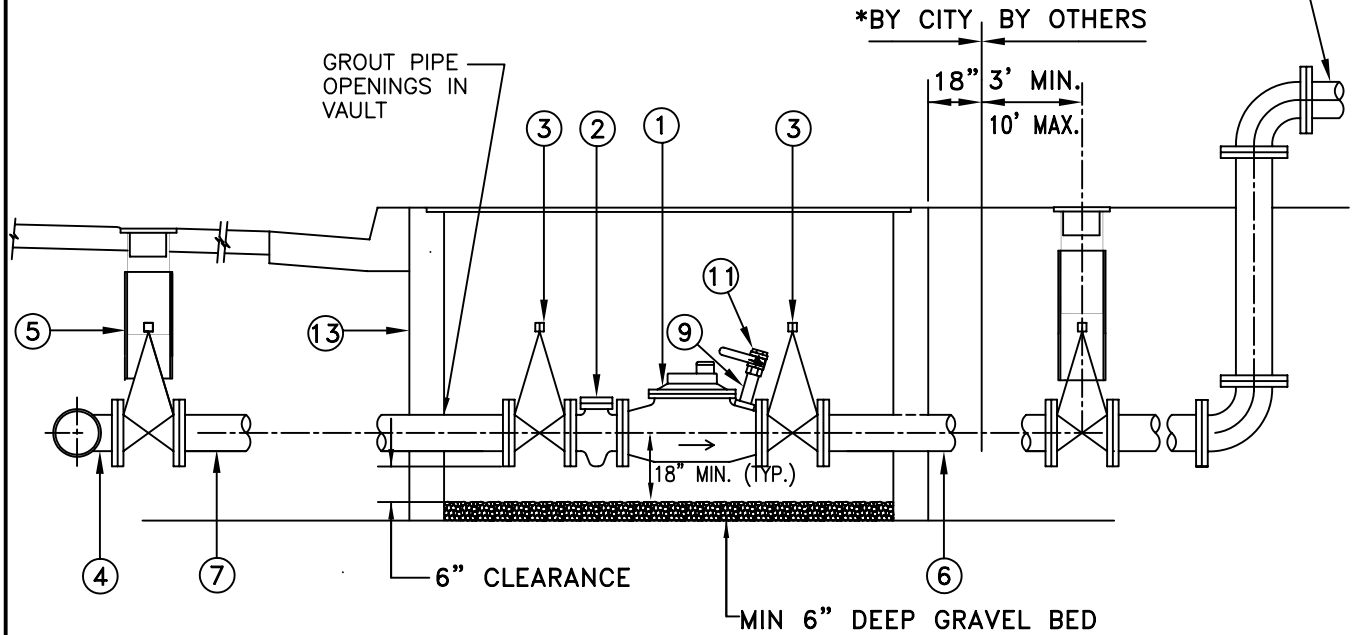
B-724

City Engineer R.C.E. 50353 Exp.06-30-09

SHEET 3 OF 3



REDUCED PRESSURE PRINCIPAL DEVICE (RPPD) PER CITY STD PLAN B-771, BY OTHERS



\* DEVELOPER'S CONTRACTOR MAY BE RESPONSIBLE FOR INSTALLATION. DETERMINATION TO BE MADE BY CITY DURING PLAN CHECK PROCESS. INSTALLATION TO BE PER THIS STANDARD AND INSPECTED BY CITY. CONTRACTOR TO HAVE C-34, CLASS A LICENSE.



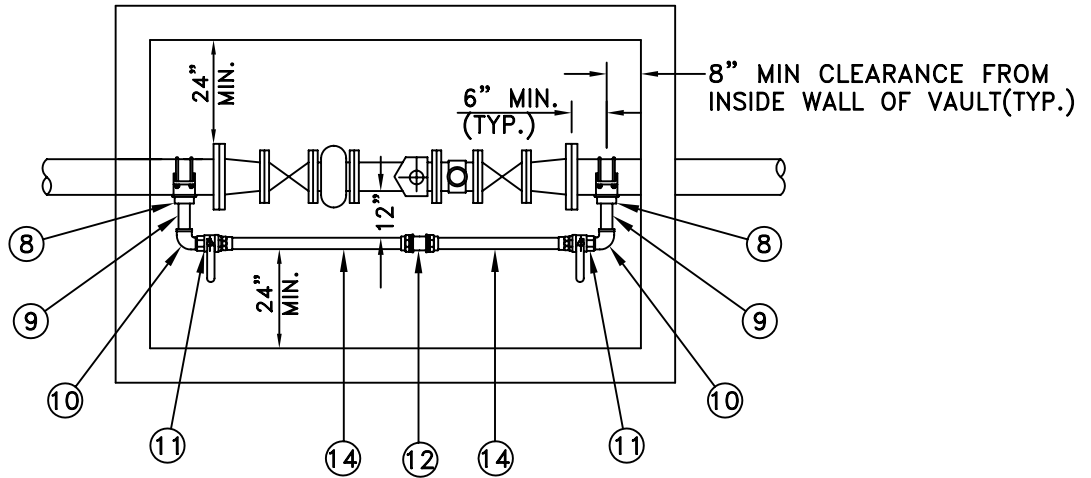
City of  
Garden Grove  
California

### 3" , 4" & 6" COMPOUND WATER METER AND SERVICE INSTALLATION

Approved \_\_\_\_\_ Date \_\_\_\_\_  
City Engineer R.C.E. 50353 Exp.06-30-09

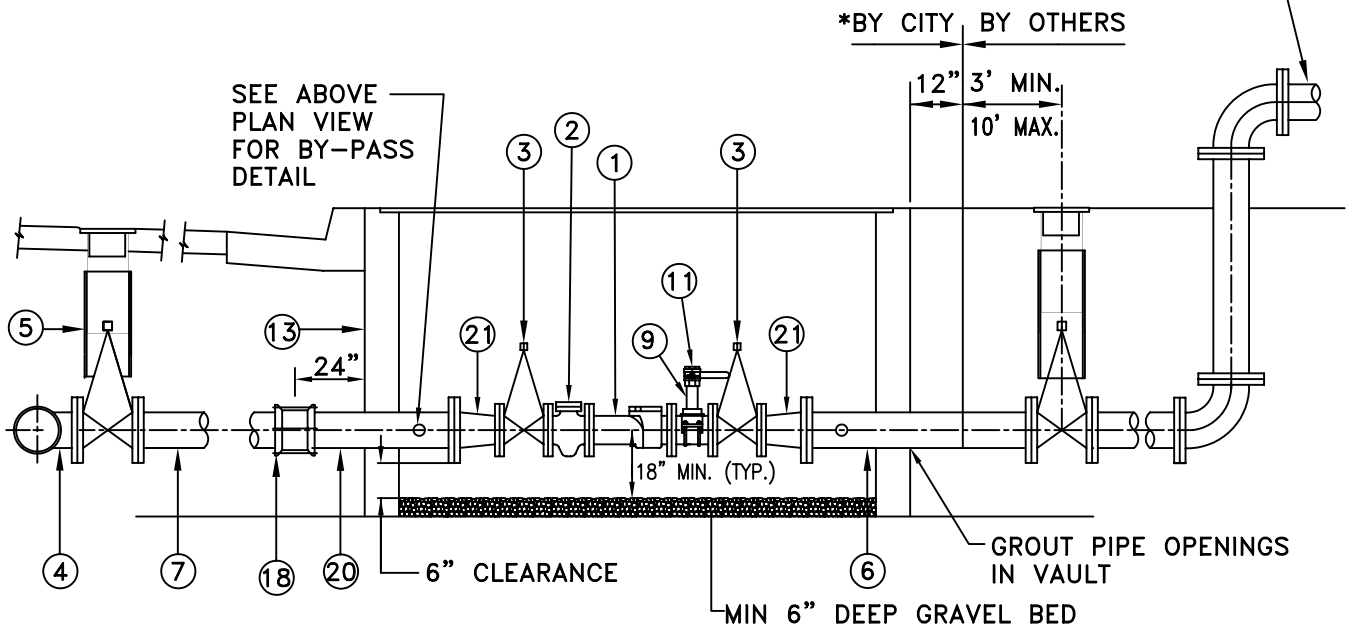
REVISIONS	BY	DATE

STD. PLAN NUMBER  
**B-724**  
SHEET 2 OF 3



4" AND 6" TO HAVE SAME SIZE BY-PASS (SEE SHEET 2)

REDUCED PRESSURE PRINCIPAL DEVICE (RPPD) PER CITY STD PLAN B-771, BY OTHERS



\* DEVELOPER'S CONTRACTOR MAY BE RESPONSIBLE FOR INSTALLATION. DETERMINATION TO BE MADE BY CITY DURING PLAN CHECK PROCESS. INSTALLATION TO BE PER THIS STANDARD AND INSPECTED BY CITY. CONTRACTOR TO HAVE C-34, OR CLASS A LICENSE.

PROPERTY OWNER MUST OPEN A WATER ACCOUNT UPON INSTALLATION OF METER.



City of  
Garden Grove  
California

### 3" , 4" & 6" TURBO METER AND SERVICE INSTALLATION

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

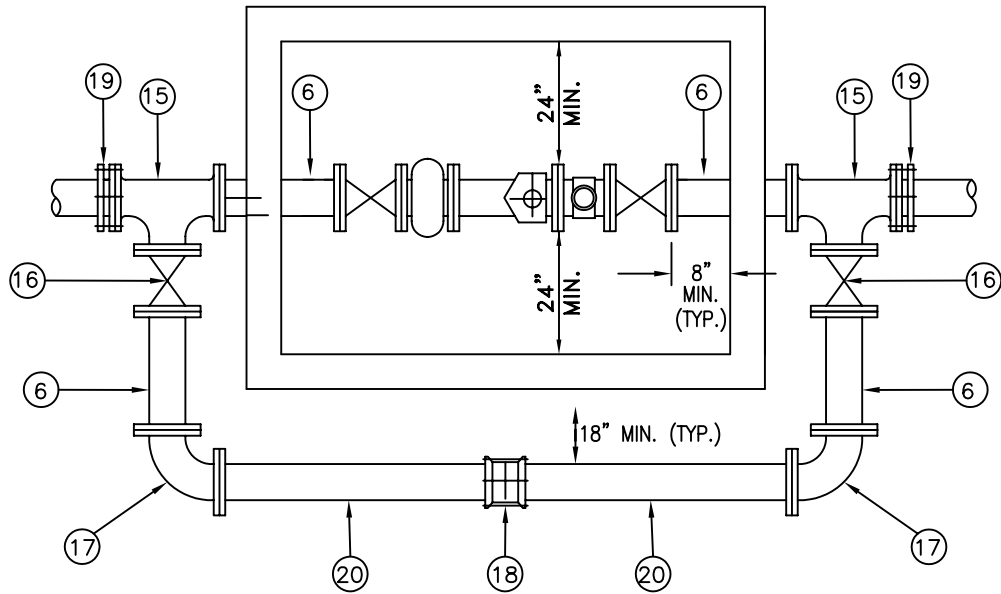
City Engineer

R.C.E. 50353

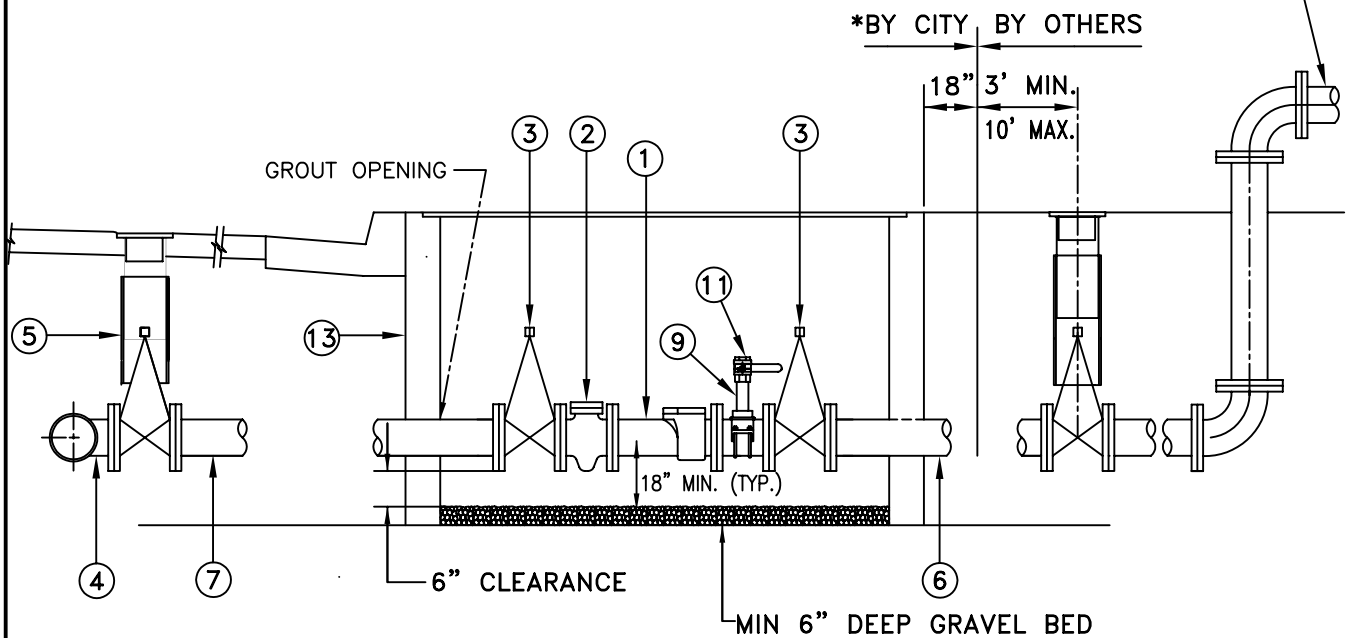
Exp.06-30-09

B-725

SHEET 1 OF 3



REDUCED PRESSURE PRINCIPAL DEVICE  
( RPPD ) PER CITY STD PLAN B-771,  
BY OTHERS



\* DEVELOPER'S CONTRACTOR MAY BE RESPONSIBLE FOR INSTALLATION. DETERMINATION TO BE MADE BY CITY DURING PLAN CHECK PROCESS. INSTALLATION TO BE PER THIS STANDARD AND INSPECTED BY CITY. CONTRACTOR TO HAVE C-34, OR CLASS A LICENSE.

PROPERTY OWNER MUST OPEN A WATER ACCOUNT UPON INSTALLATION OF METER.



City of  
Garden Grove  
California

### 3" , 4" & 6" TURBO METER AND SERVICE INSTALLATION

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

City Engineer

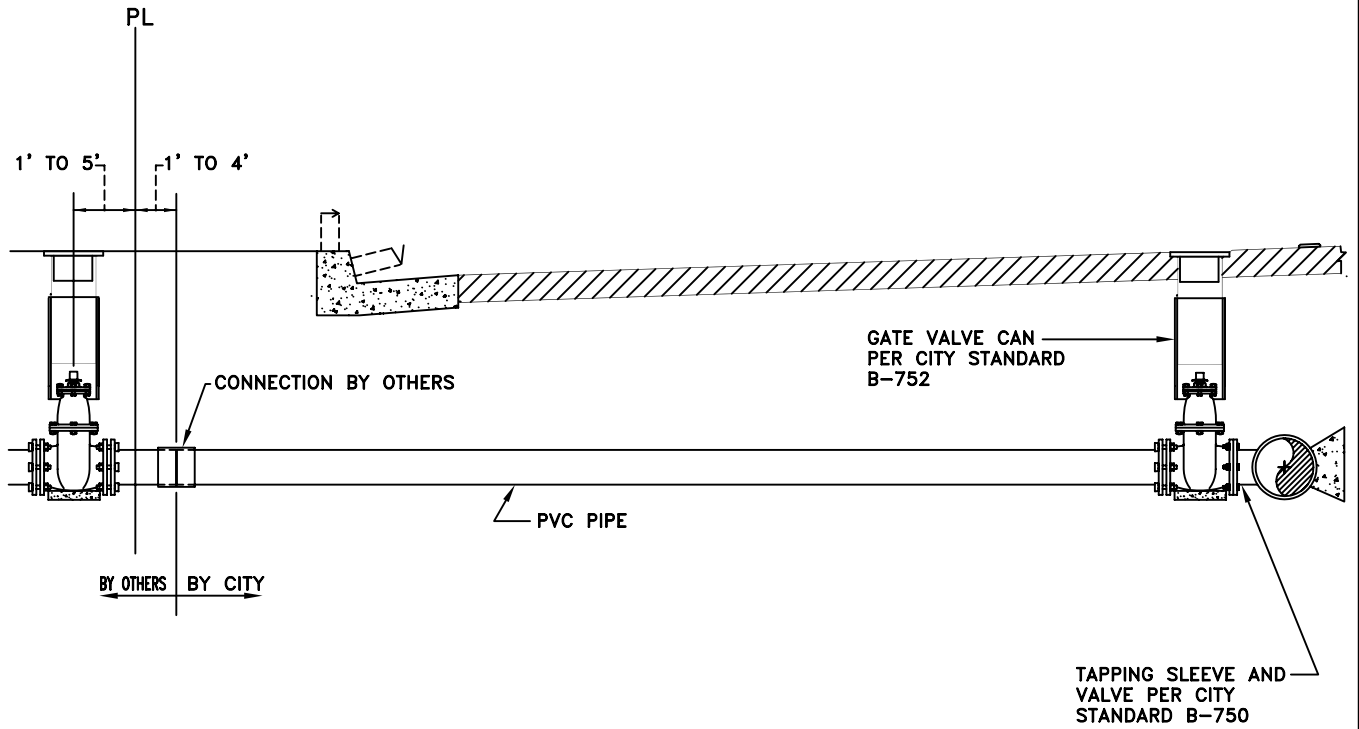
R.C.E. 50353

Exp.06-30-09

B-725

SHEET 2 OF 3





City of  
Garden Grove  
California

## SERVICE LATERAL INSTALLATION FOR PRIVATE FIRE HYDRANTS

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

City Engineer

R.C.E. 50353

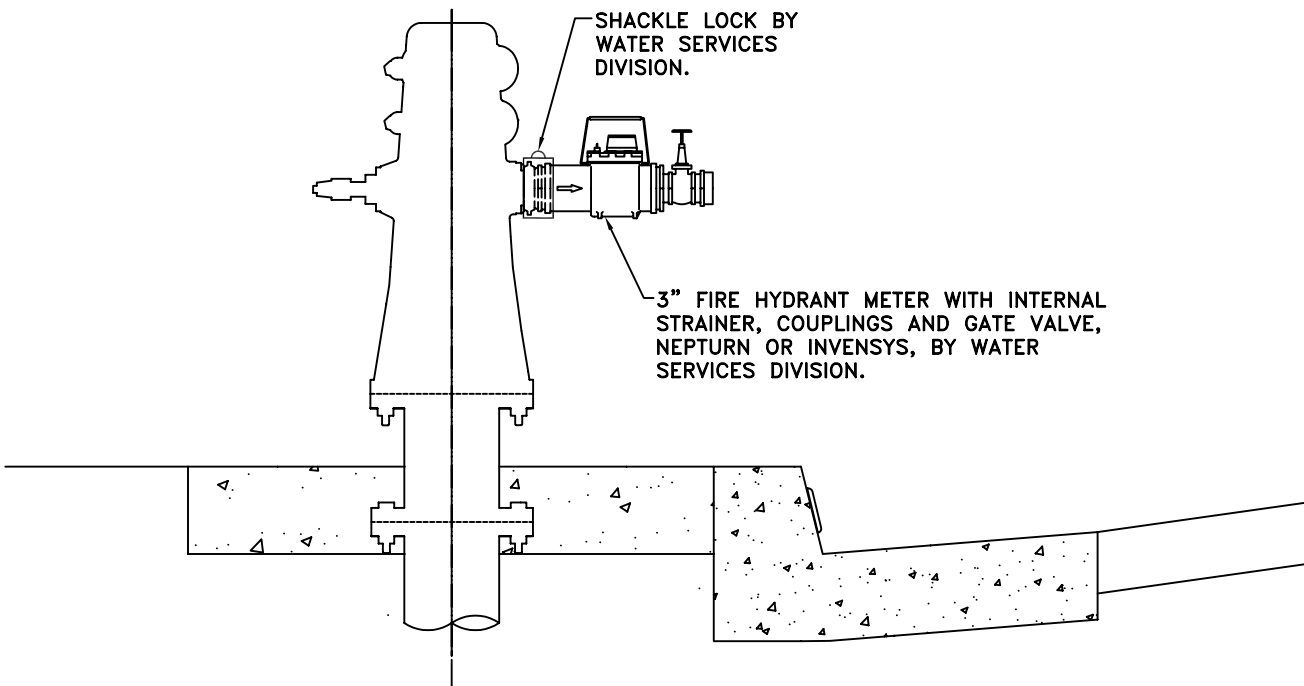
Exp.06-30-09

B-729

SHEET 1 OF 1



FIRE HYDRANT



**NOTES**

1. OPENING AND CLOSING OF HYDRANT IS PERMITTED ONLY WITH A HYDRANT WRENCH. GATE VALVE WILL BE USED TO CONTROL WATER FLOW.
2. SERVICE MAY BE MOVED FROM ONE LOCATION TO ANOTHER ONLY BY THE WATER SERVICES DIVISION.
3. BACKFLOW DEVICES MAY BE REQUIRED FOR CERTAIN USES.
4. SERVICE CONNECTION MAY BE TERMINATED AT ANY TIME AT THE DISCRETION OF THE WATER SERVICES DIVISION.
5. CHARGES FOR LOSS OR DAMAGE TO ANY SERVICE MATERIAL WILL BE BASED UPON CURRENT PRICES.



City of  
Garden Grove  
California

2-1/2" TEMPORARY  
WATER SERVICE

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

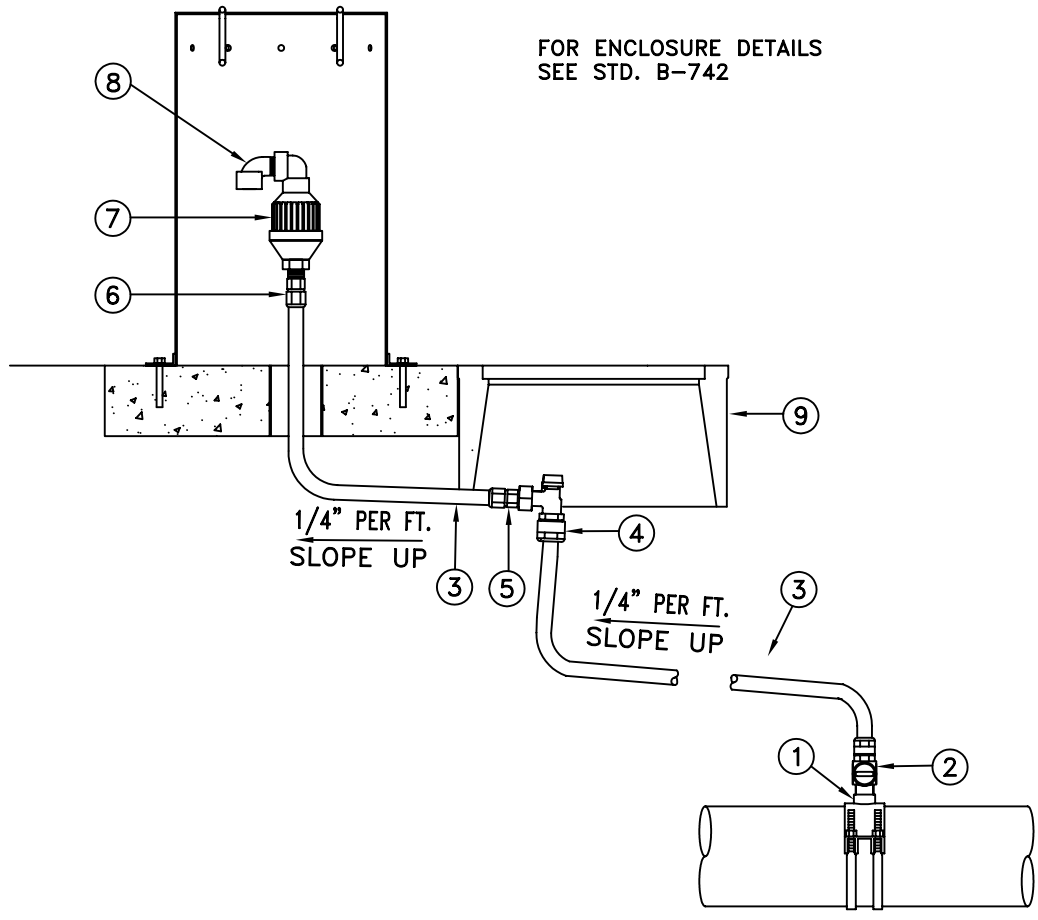
B-730

City Engineer

R.C.E. 50353

Exp.06-30-09

SHEET 1 OF 1



MATERIAL LIST

ITEM NO.	QUAN.	DESCRIPTION	MFR.
①		SERVICE SADDLE WITH 1" F.I.P. CONNECTION	
②		1" CORPORATION STOP	
③		1"Ø TYPE "K" SOFT COPPER TUBING	
④		1" ANGLE METER VALVE	
⑤		1" M.I.P. x COMPRESSION FITTING	
⑥		1" F.I.P. x COMPRESSION COUPLING	
⑦		AIR AND VACUUM RELIEF VALVE, PLASTIC BODY	BERMAD 4405 OR EQUAL
⑧		2" PVC STREET ELBOW	
⑨		#65 METER BOX	

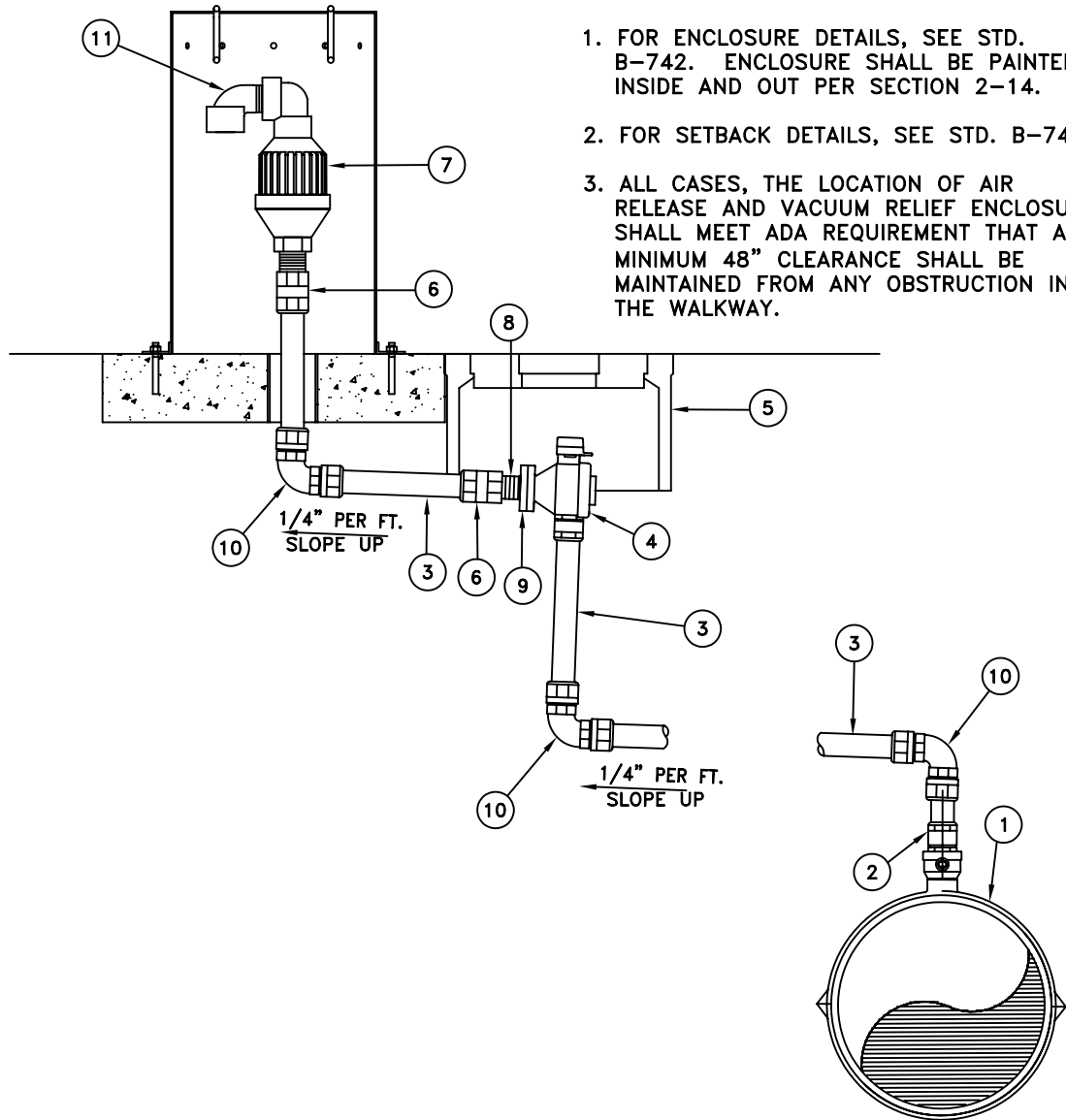


1" AIR AND VACUUM RELIEF VALVE ASSEMBLY

Approved _____	Date _____	REVISIONS	BY	DATE	STD. PLAN NUMBER
City Engineer	R.C.E. 50353				B-740
	Exp.06-30-09				SHEET 1 OF 1

**NOTES:**

1. FOR ENCLOSURE DETAILS, SEE STD. B-742. ENCLOSURE SHALL BE PAINTED INSIDE AND OUT PER SECTION 2-14.
2. FOR SETBACK DETAILS, SEE STD. B-743.
3. ALL CASES, THE LOCATION OF AIR RELEASE AND VACUUM RELIEF ENCLOSURE SHALL MEET ADA REQUIREMENT THAT A MINIMUM 48" CLEARANCE SHALL BE MAINTAINED FROM ANY OBSTRUCTION IN THE WALKWAY.



**MATERIAL LIST**

ITEM NO.	QUAN.	DESCRIPTION	MFR.
①		SERVICE SADDLE, 2"Ø F.I.P.	
②		2" CORPORATION STOP, COMPRESSION FITTING	
③		2"Ø TYPE "K" SOFT COPPER	
④		2" ANGLE METER VALVE	
⑤		#65 CONCRETE METER BOX	
⑥		2" F.I.P. x COMPRESSION COUPLING	
⑦		2" AIR AND VACUUM RELIEF VALVE, PLASTIC BODY	BERMAN 4415
⑧		2"Ø BRONZE CLOSE NIPPLE	
⑨		2" METER FLANGE WITH 2" F.I.P.	
⑩		2"Ø 90° COMPRESSION ELBOW	
⑪		2" • PVC STREET ELBOW	



City of  
Garden Grove  
California

**2" AIR AND VACUUM RELIEF VALVE ASSEMBLY**

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

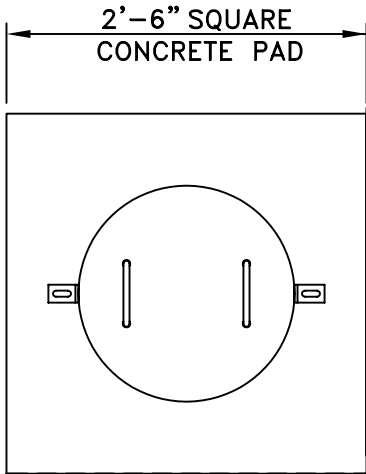
**B-741**

City Engineer

R.C.E. 50353

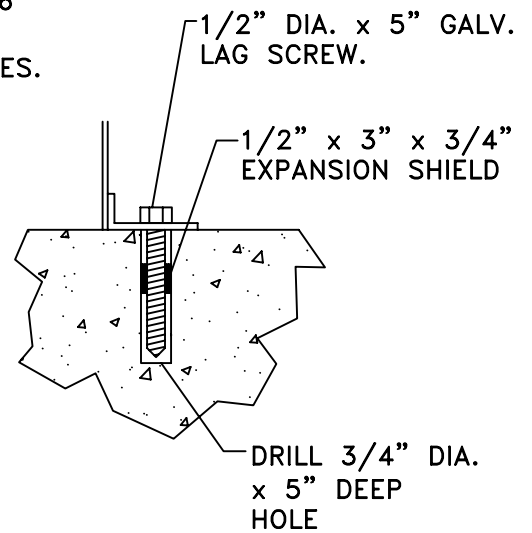
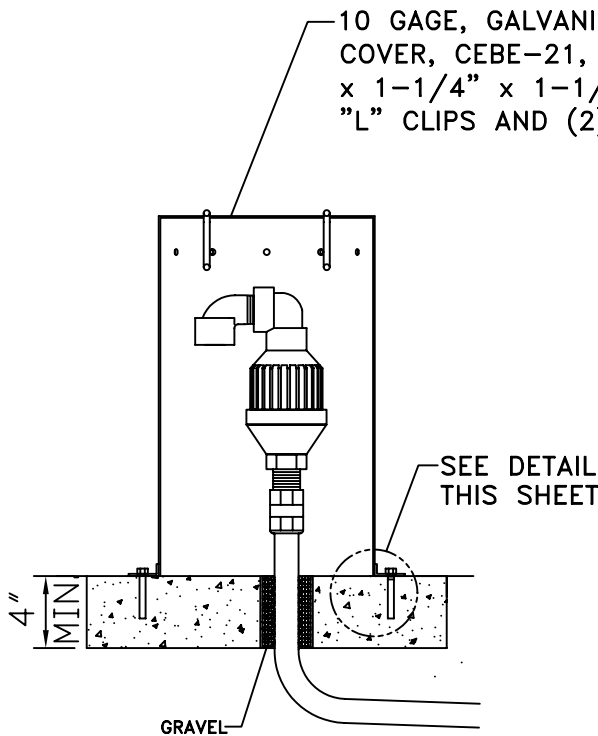
Exp.06-30-09

SHEET 1 OF 1



**NOTES:**

1. FOR ENCLOSURE DETAILS, SEE STD. B-742. ENCLOSURE SHALL BE PAINTED INSIDE AND OUT PER SECTION 2-14.
2. FOR SETBACK DETAILS, SEE STD. B-743.
3. ALL CASES, THE LOCATION OF AIR RELEASE AND VACUUM RELIEF ENCLOSURE SHALL MEET ADA REQUIREMENT THAT A MINIMUM 48" CLEARANCE SHALL BE MAINTAINED FROM ANY OBSTRUCTION IN THE WALKWAY.



City of  
Garden Grove  
California

AIR RELEASE & VACUUM RELIEF  
ENCLOSURE ASSEMBLY

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

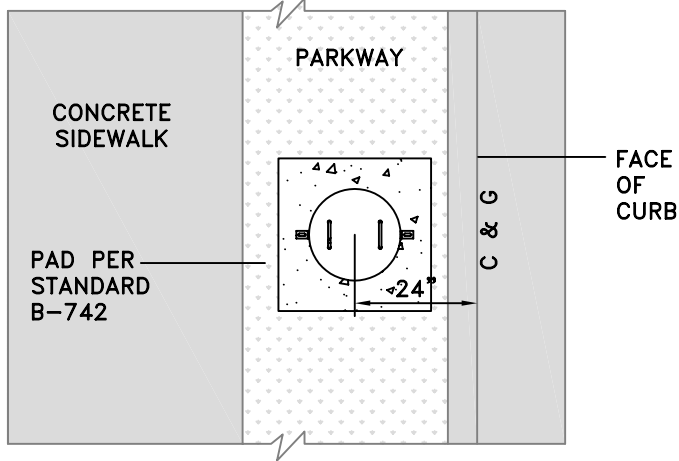
City Engineer

R.C.E. 50353

Exp.06-30-09

B-742

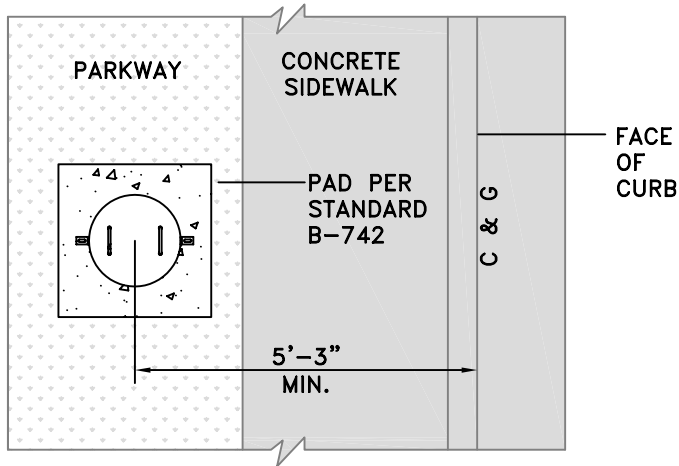
SHEET 1 OF 1



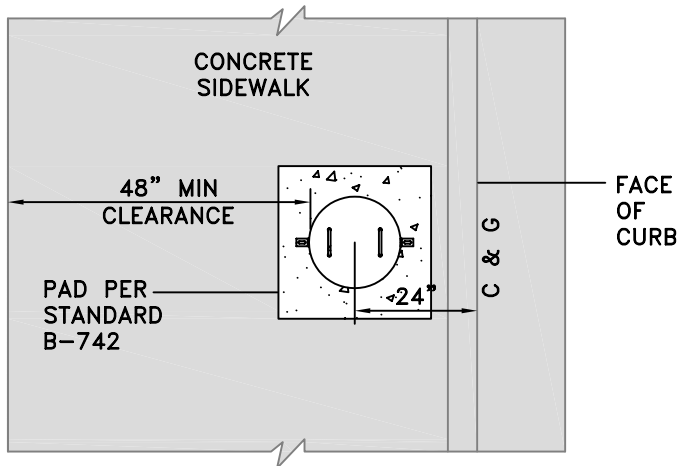
DETACHED SIDEWALK

**NOTE:**

FOR ALL CASES, THE LOCATION OF AIR RELEASE AND VACUUM RELIEF ENCLOSURE SHALL MEET ADA REQUIREMENTS THAT A MINIMUM 48" CLEARANCE SHALL BE MAINTAINED FROM ANY OBSTRUCTION IN THE WALKWAY.



4' WIDE ATTACHED SIDEWALK



6' OR WIDER SIDEWALK



City of  
Garden Grove  
California

AIR RELEASE & VACUUM RELIEF  
ENCLOSUER SETBACK DETAIL

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

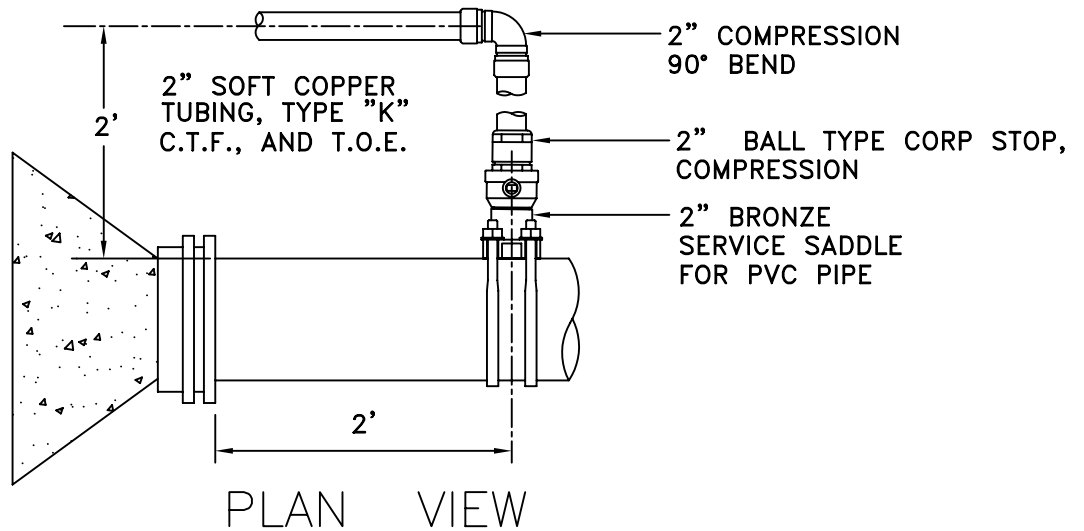
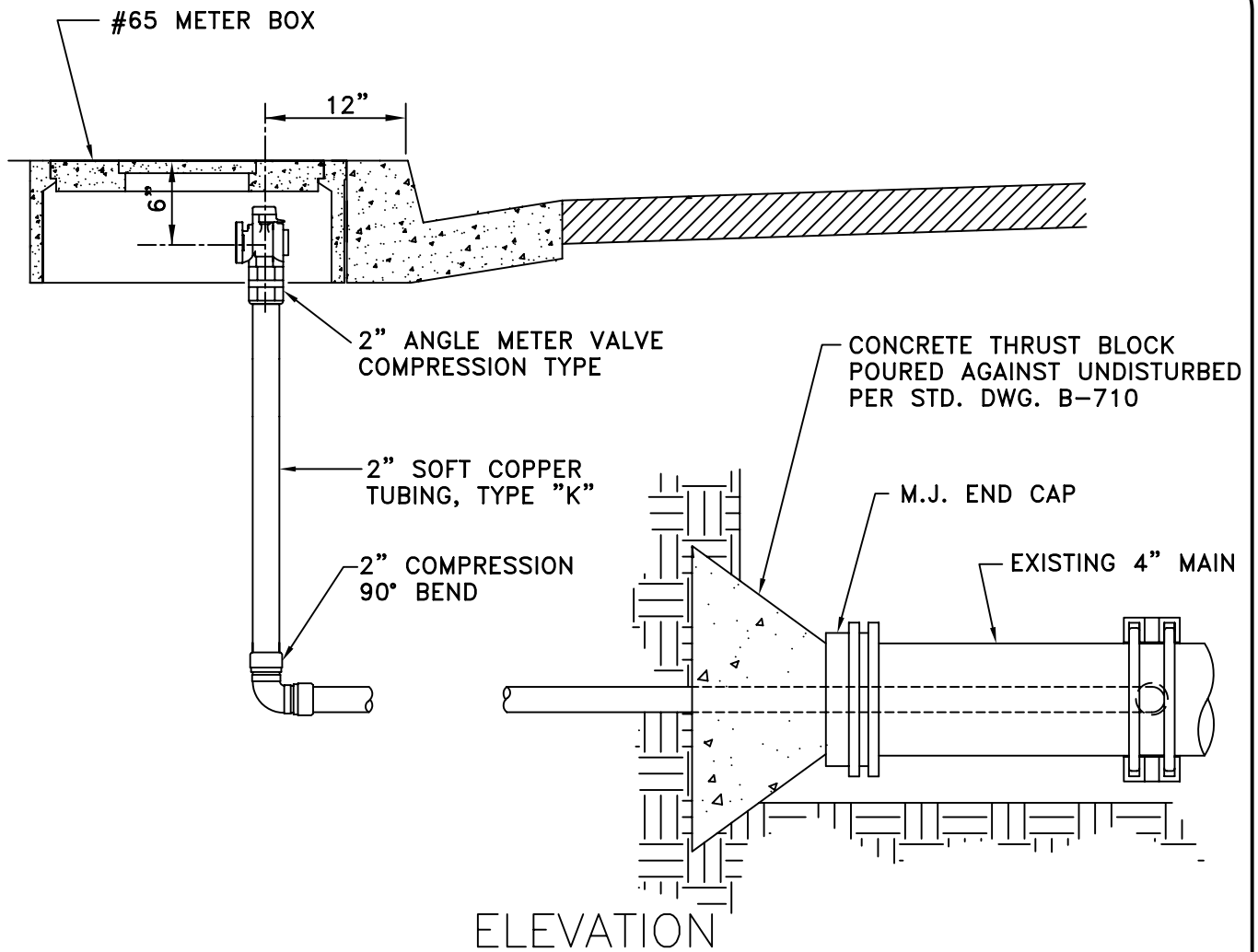
City Engineer

R.C.E. 50353

Exp.06-30-09

B-743

SHEET 1 OF 1



City of  
Garden Grove  
California

## 2" BLOWOFF INSTALLATION AT END OF 4" WATER MAIN PIPE

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

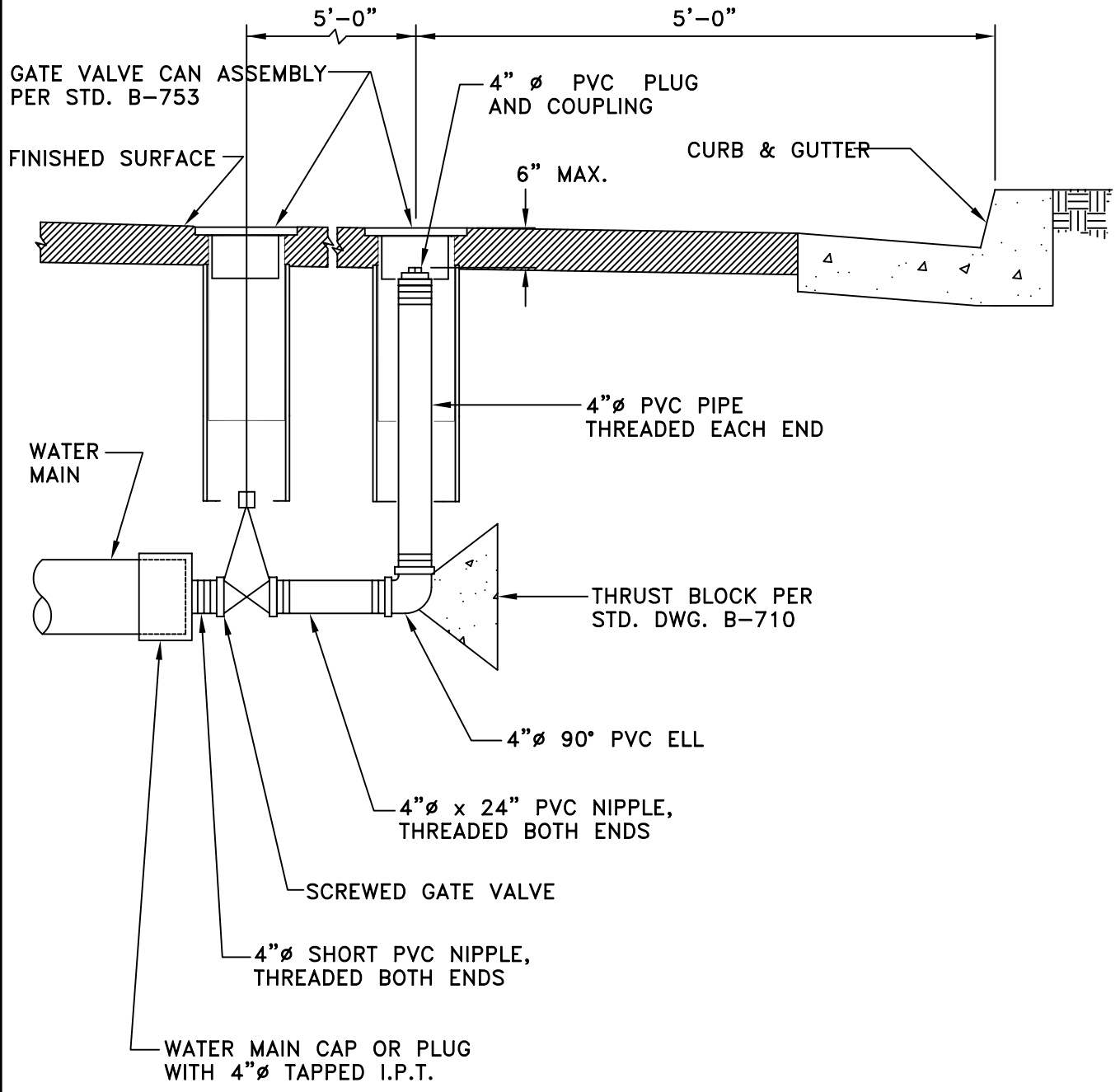
STD. PLAN NUMBER

City Engineer

R.C.E. 50353 Exp.06-30-09

B-744

SHEET 1 OF 1



**NOTE**  
 THIS DRAWING APPLIES TO PIPES 6" & 8" WATER MAINS.  
 FOR 10" & 12" WATER MAIN INSTALL A FIREHYDRANT.

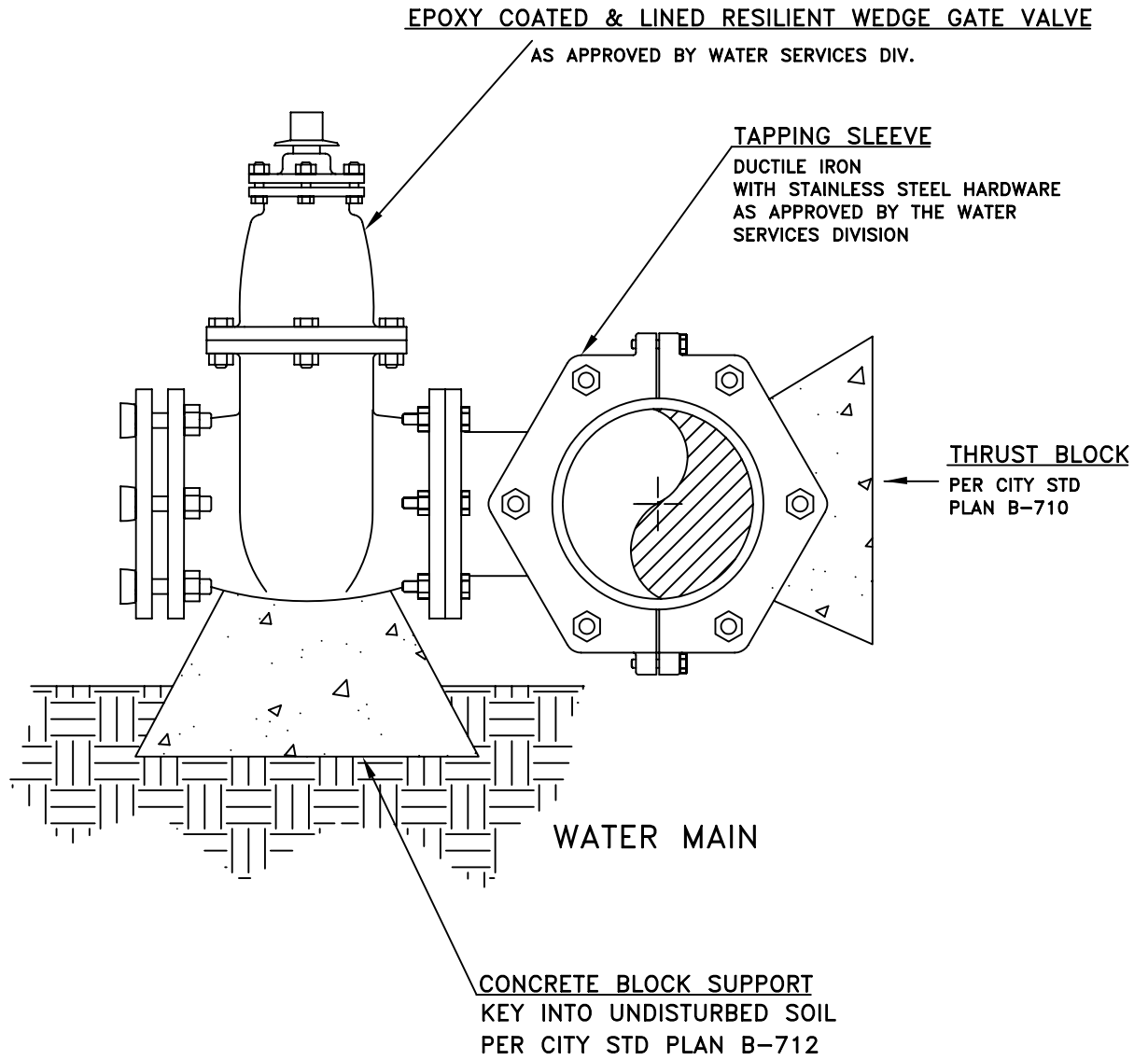


## 4" BLOWOFF INSTALLATION FOR 6" MAINS AND LARGER

Approved \_\_\_\_\_ Date \_\_\_\_\_  
 City Engineer R.C.E. 50353 Exp.06-30-09

REVISIONS	BY	DATE

STD. PLAN NUMBER  
**B-745**  
 SHEET 1 OF 1



**NOTES:**

1. TAPPING CUTTER SHALL BE MAXIMUM ALLOWABLE DIAMETER CONSISTENT WITH NOMINAL GATE VALVE SIZE. WHEN TAPPING GATE SIZE EQUALS THE DIAMETER OF THE PIPE TO BE TAPPED, REDUCE CUTTER DIAMETER, AS APPROVED BY CITY.
2. GATE VALVE SHALL BE RESILIENT WEDGE EPOXEY LINED AND COATED TYPE, FLG. x MECH. JOINT OR FLG x PUSH ON.



City of  
Garden Grove  
California

TAPPING SLEEVE  
AND GATE VALVE

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

City Engineer

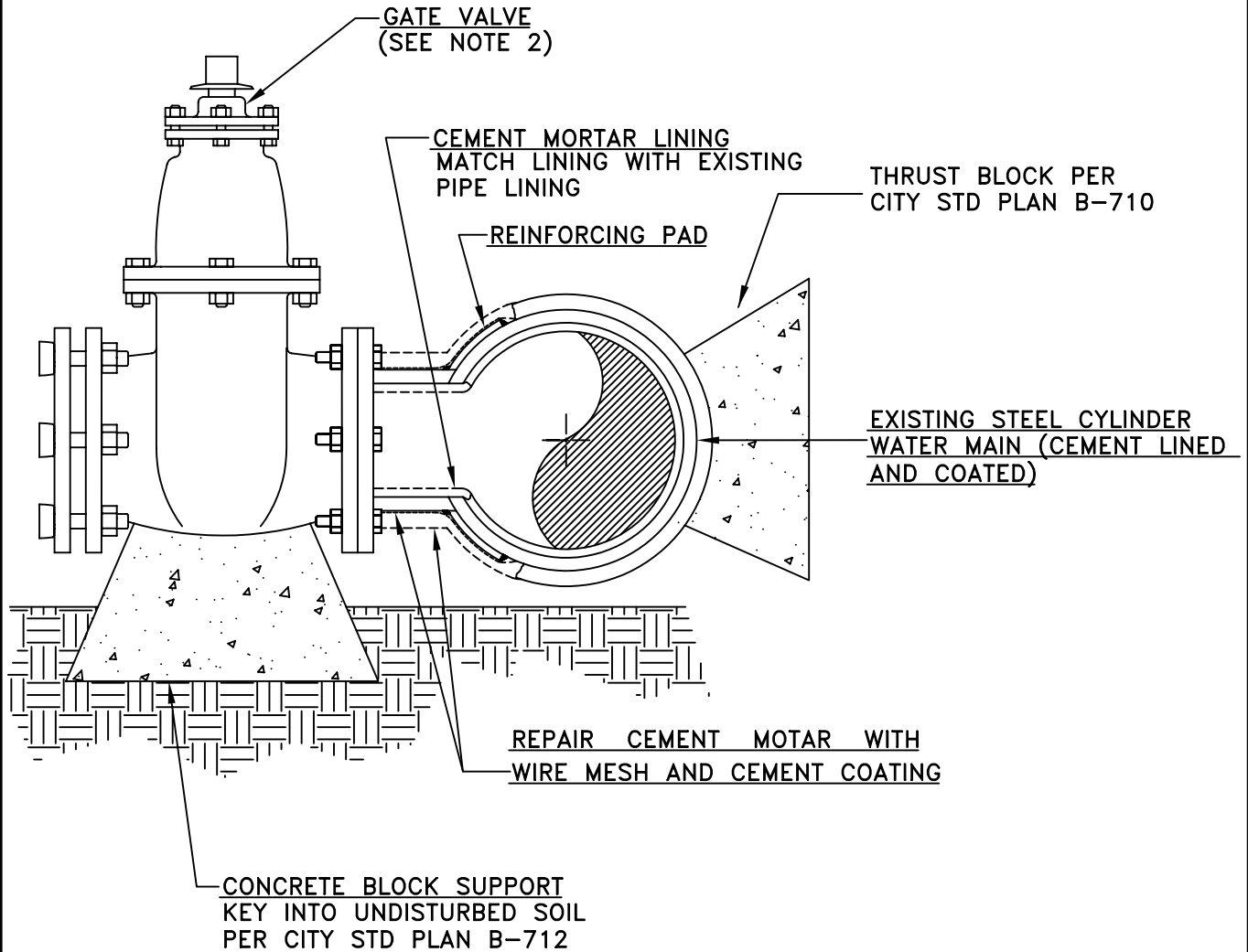
R.C.E. 50353

Exp.06-30-09

B-750

SHEET 1 OF 1





**NOTES:**

1. CEMENT LINED FLANGED NOZZLE WITH REINFORCING PAD. ALL WORK SHALL BE DONE BY A CONTRACTOR APPROVED BY THE ENGINEER. (CERTIFIED WELDER REQUIRED)
2. GATE VALVES SHALL BE RESILIENT WEDGE EPOXEY LINED AND COATED TYPE, FLANGED x MECHANICAL JOINT, OR FLG x PUSH-ON.
3. TAPPING CUTTER SHALL BE MAXIMUM ALLOWABLE DIAMETER CONSISTENT WITH NOMINAL GATE VALUE SIZE. WHEN THE TAPPING GATE SIZE EQUALS THE DIAMETER OF THE PIPE TO BE TAPPED, REDUCE CUTTER DIAMETER, AS APPROVED BY THE CITY.
4. CONTRACTOR TO PROVIDE CERTIFICATION FOR WELDER.
5. MAKE TAP A MINIMUM OF 3' CLEAR OF ANY PIPE JOINT.



City of  
Garden Grove  
California

WELDED TAPPING NOZZLE  
AND GATE VALVE FOR  
STEEL CYLINDER PIPE

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

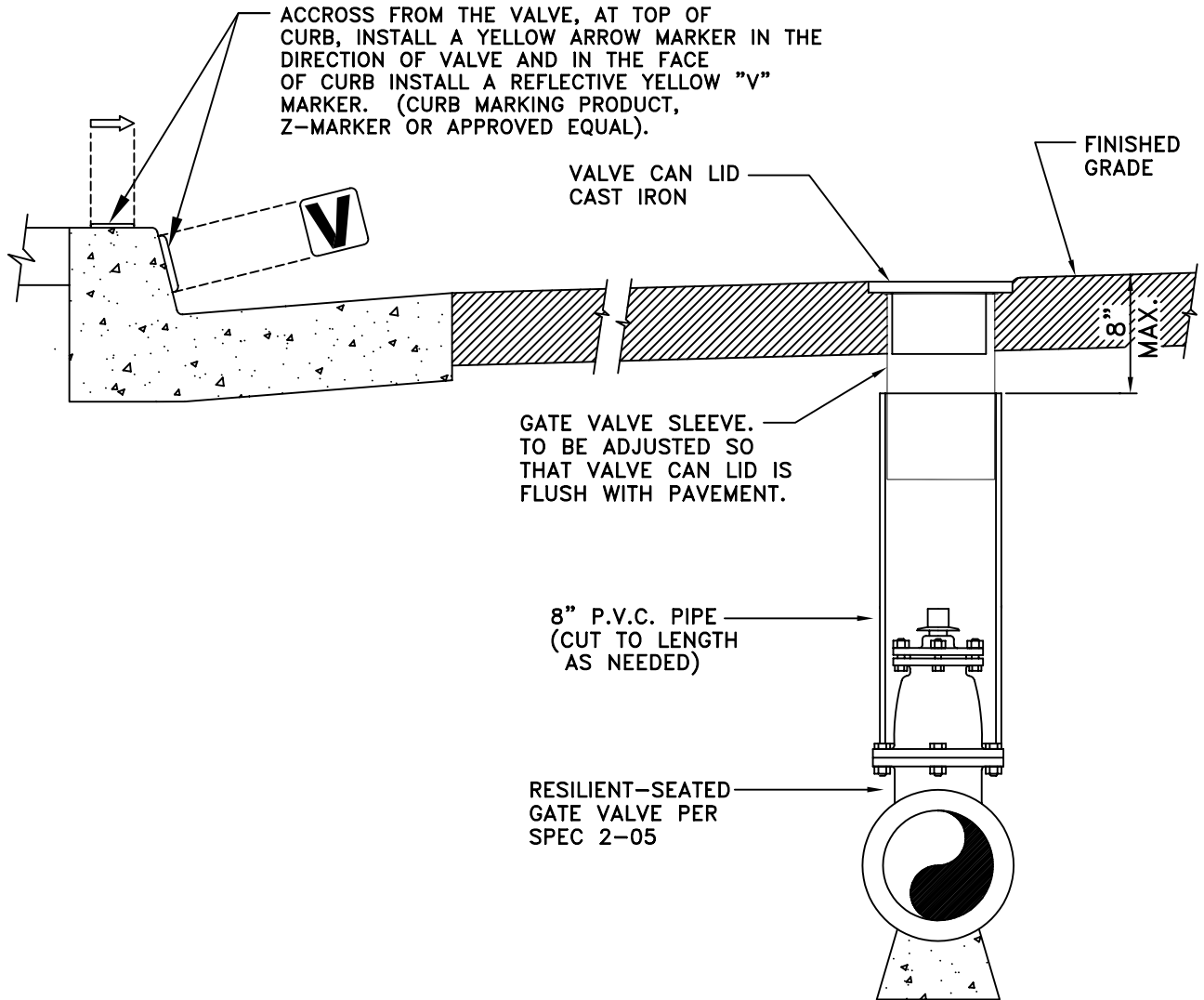
\_\_\_\_\_  
City Engineer

R.C.E. 50353

Exp.06-30-09

B-751

SHEET 1 OF 1



**NOTES:**

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RAISING VALVE CAN TO GRADE AFTER STREET IS PAVED.
2. COMPACT NATIVE SOIL TO 90% RELATIVE COMPACTION AND AGGREGATE BASE TO 95% RELATIVE COMPACTION.
3. GATE VALVE CAN ASSEMBLY AVAILABLE FROM CITY OF GARDEN GROVE WATER SERVICES DIVISION ONLY. PURCHASE LID AND TOP SECTION AT THE PUBLIC WORKS COUNTER IN CITY HALL.



City of  
Garden Grove  
California

GATE VALVE  
CAN ASSEMBLY

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

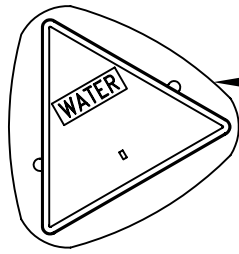
City Engineer

R.C.E. 50353

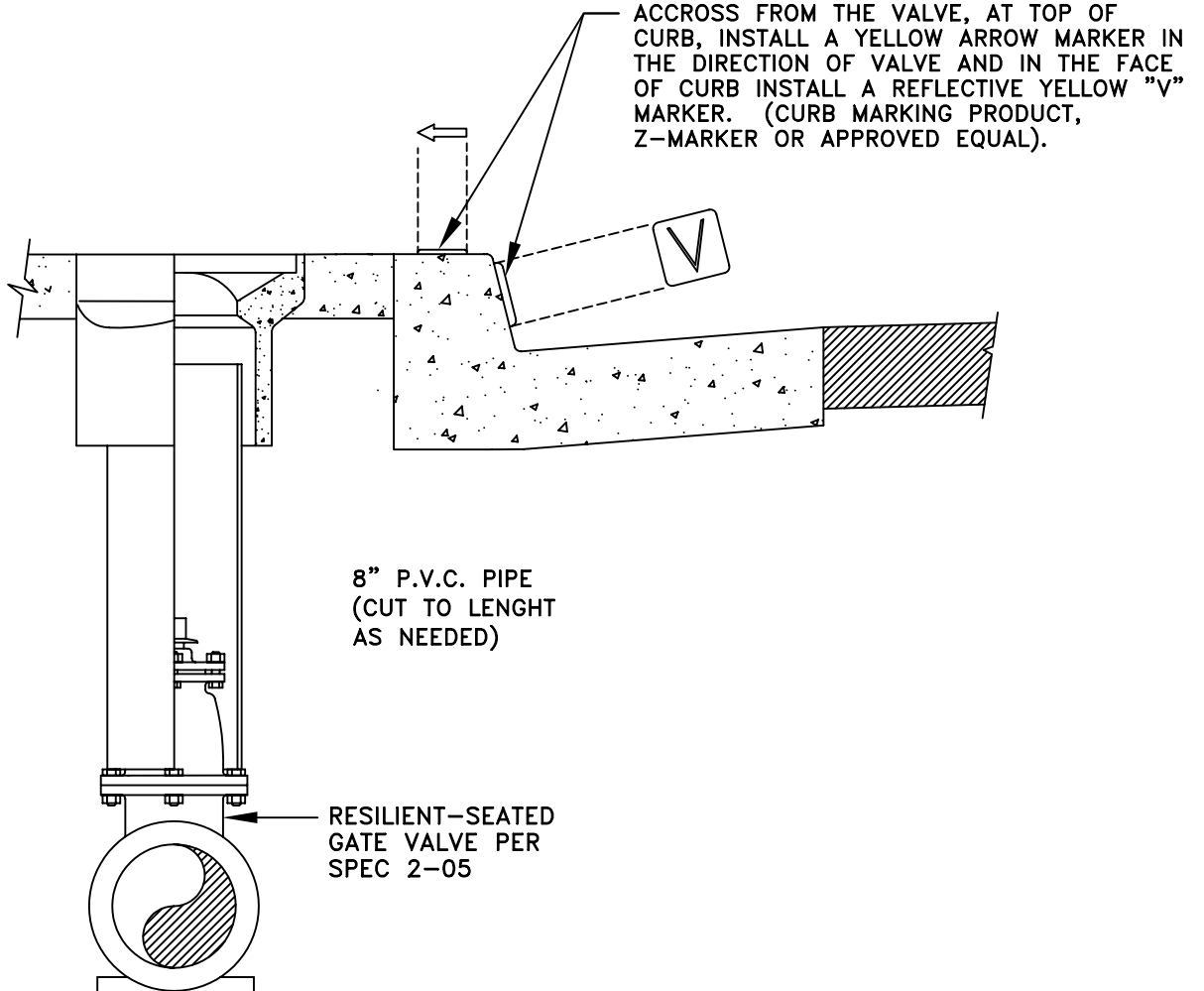
Exp.06-30-09

B-752

SHEET 1 OF 1



BROOKS 4-TT TRAFFIC BOX WITH TRIANGULAR LID



**NOTES:**

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RAISING VALVE CAN TO GRADE PRIOR TO FORMING AND POURING NEW CONCRETE.
2. GATE VALVE CANS FOR CONCRETE AREAS TO BE PURCHASED FROM WATER WORK SUPPLY HOUSE.



City of  
Garden Grove  
California

GATE VALVE CAN ASSEMBLY  
FOR CONCRETE AREAS

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

City Engineer

R.C.E. 50353

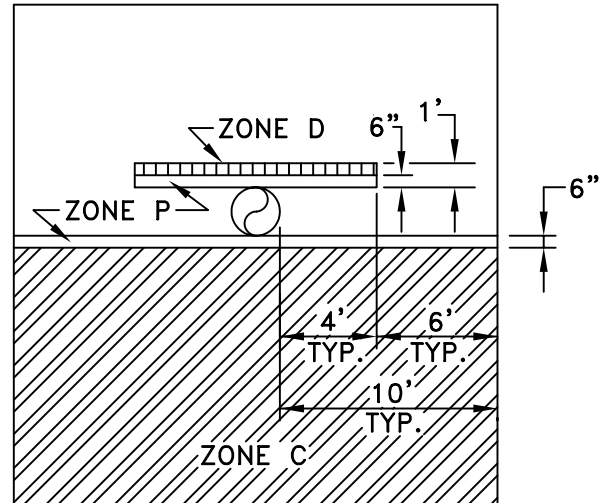
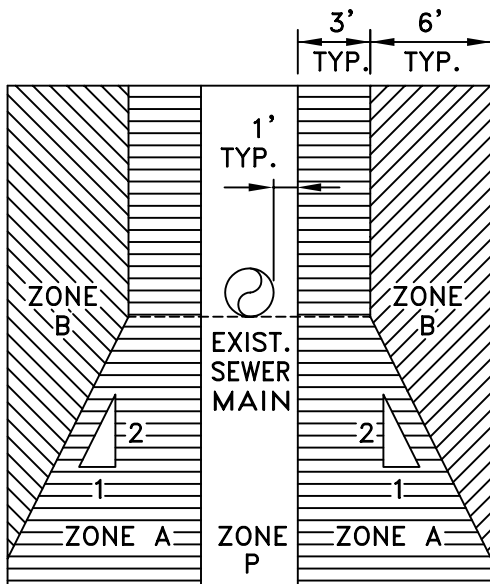
Exp.06-30-09

B-753

SHEET 1 OF 1

PARALLEL CONSTRUCTION

PERPENDICULAR CONSTRUCTION



IF WATER MAIN CANNOT BE LOCATED TEN OR MORE FEET FROM SEWER MAIN AND MUST BE LOCATED WITHIN ANY OF THE ABOVE INDICATED ZONES, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS SHOWN BELOW.

IF WATER MAIN MUST CROSS SEWER MAIN WITHIN ANY OF THE ABOVE INDICATED ZONES, SPECIAL CONSTRUCTION WILL BE REQUIRED AS SHOWN BELOW.

**ZONES**

- A WATER MAIN CONSTRUCTION PARALLEL TO SEWER MAIN SHALL NOT BE PERMITTED WITHOUT THE APPROVAL FROM THE CITY ENGINEER AND THE STATE OF CALIFORNIA HEALTH DEPARTMENT
- B AWWA C-900, CLASS 200, PVC WATER MAIN PIPE SHALL BE USED.
- C CENTER A FULL 20' LENGTH OF AWWA C-900, CLASS 200, PVC WATER MAIN PIPE UNDER SEWER MAIN PIPE PER DETAIL ON STD. PLAN B-763
- D CENTER A FULL 20' LENGTH OF AWWA C-900, CLASS 200 PVC WATER MAIN PIPE OVER SEWER MAIN PIPE PER DETAIL ON STD PLAN B-762.
- P PROHIBITED ZONE

**NOTE:**

NO WATER MAIN SHALL BE CONSTRUCTED IN ZONES A,B, OR C NEAR FORCE SEWER MAIN. NEW WATER MAIN CROSSING PERPENDICULAR TO A FORCE SEWER MAIN SHALL FOLLOW THE REQUIREMENTS FOR ZONE D WITH A MINIMUM CLEARANCE OF 12 FEET.



City of  
Garden Grove  
California

SEPARATION REQUIREMENTS FOR NEW  
WATER MAIN & EXIST SEWER MAIN

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

City Engineer

R.C.E. 50353

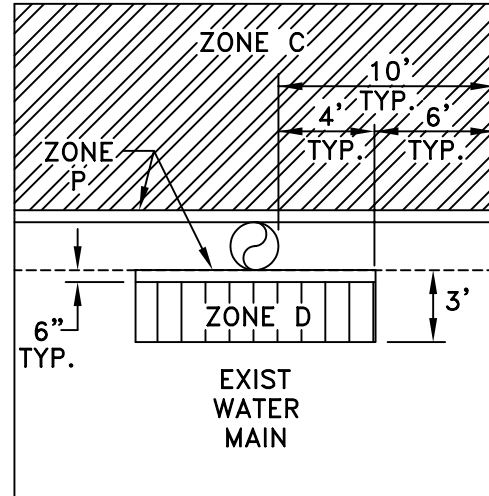
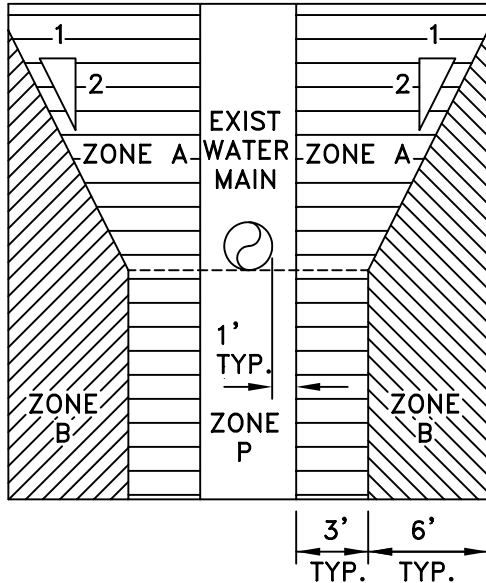
Exp.06-30-09

B-760

SHEET 1 OF 1

PARALLEL CONSTRUCTION

PERPENDICULAR CONSTRUCTION



IF SEWER MAIN CANNOT BE LOCATED TEN OR MORE FEET FROM WATER MAIN AND MUST BE LOCATED WITHIN ANY OF THE ABOVE INDICATED ZONES, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS NOTED BELOW.

IF SEWER MAIN MUST CROSS WATER MAIN WITHIN ANY OF THE ABOVE INDICATED ZONES, SPECIAL CONSTRUCTION WILL BE REQUIRED AS NOTED BELOW.

ZONES

- A SEWER MAIN CONSTRUCTION PARALLEL TO WATER MAIN SHALL NOT BE PERMITTED WITHOUT THE APPROVAL FROM THE CITY ENGINEER AND THE STATE OF CALIFORNIA HEALTH DEPARTMENT
- B CLASS 200, AWWA C-900 WATER MAIN PIPE WITH JOINTS CAN BE STAINLESS STEEL REPAIR COUPLINGS AS APPROVED BY THE CITY ENGINEER. ALL C-900 PIPE TO BE WRAPPED WITH SEWER MARKING TAPE.
- C & D CENTER A FULL LENGTH OF AWWA C-900, CLASS 200 PVC WATER MAIN OVER/UNDER WATER MAIN PIPE PER CITY STD. B-762 OR B-763
- P PROHIBITED ZONE

NOTE:

NO WATER MAIN SHALL BE CONSTRUCTED IN ZONES A,B, OR C NEAR FORCE SEWER MAIN. NEW WATER MAIN CROSSING PERPENDICULAR TO A FORCE SEWER MAIN SHALL FOLLOW THE REQUIREMENTS FOR ZONE D WITH A MINIMUM CLEARANCE OF 12 FEET.



City of  
Garden Grove  
California

SEPARATION REQUIREMENTS FOR NEW  
SEWER MAIN & EXIST WATER MAIN

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

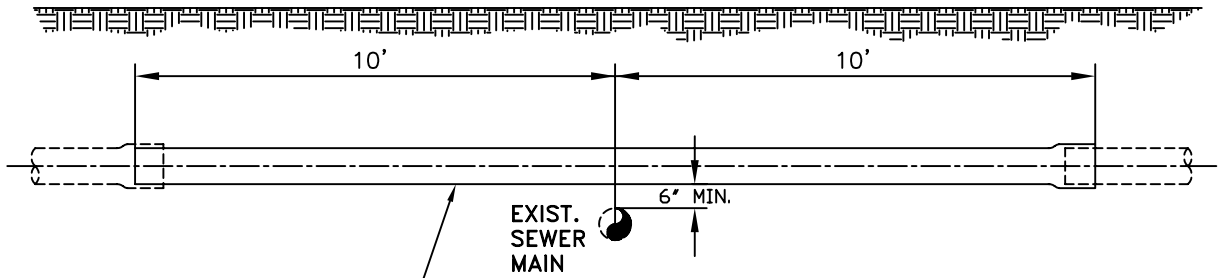
City Engineer

R.C.E. 50353

Exp.06-30-09

B-761

SHEET 1 OF 1

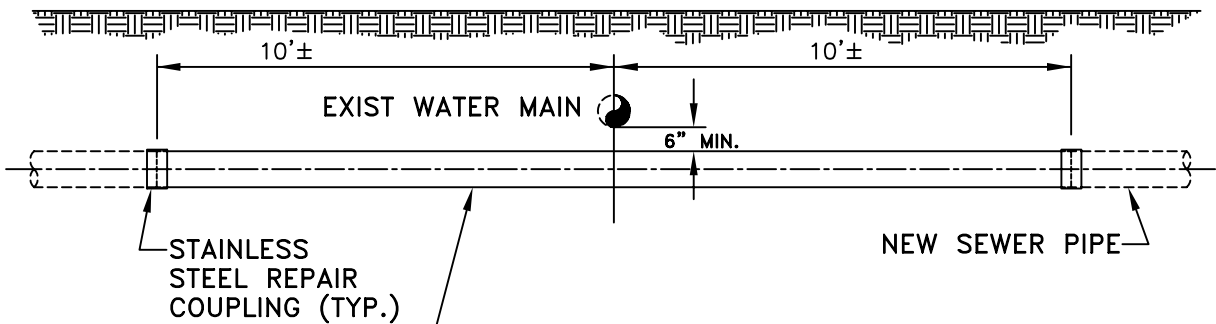


EXIST. SEWER MAIN

6" MIN.

CENTER FULL 20 FOOT LENGTH OF AWWA C-900, CLASS 200, PVC WATER MAIN PIPE OVER SEWER MAIN. WATER AND SEWER MAINS TO BE AS CLOSE TO PERPENDICULAR TO ONE ANOTHER AS POSSIBLE.

NEW WATER MAIN CROSSING OVER EXISTING SEWER MAIN  
N.T.S.



STAINLESS STEEL REPAIR COUPLING (TYP.)

EXIST WATER MAIN

NEW SEWER PIPE

6" MIN.

CENTER FULL LENGTH OF AWWA C-900, CLASS 200 PVC SEWER MAIN UNDER WATER MAIN. WATER AND SEWER MAINS TO BE AS CLOSE TO PERPENDICULAR TO ONE ANOTHER AS POSSIBLE. WRAP THIS PORTION OF C-900 PIPE WITH SEWER MARKING TAPE. CUT OFF BELL.

NEW SEWER MAIN CROSSING UNDER EXISTING WATER MAIN  
N.T.S.



City of  
Garden Grove  
California

SEWER MAIN CROSSING  
UNDER WATER MAIN

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

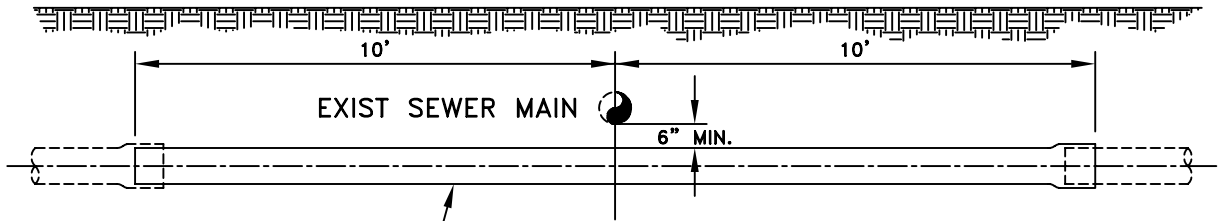
City Engineer

R.C.E. 50353

Exp.06-30-09

B-762

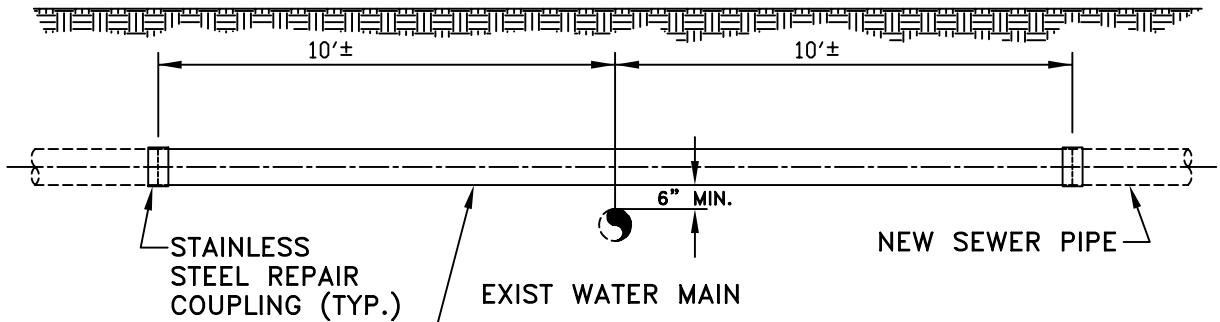
SHEET 1 OF 1



CENTER FULL 20 FOOT LENGTH OF AWWA C-900, CLASS 200, PVC WATER MAIN PIPE UNDER SEWER MAIN. WATER AND SEWER MAINS TO BE AS CLOSE TO PERPENDICULAR TO ONE ANOTHER AS POSSIBLE.

NEW WATER MAIN CROSSING UNDER EXISTING SEWER MAIN

N.T.S.



CENTER FULL LENGTH OF AWWA C-900, CLASS 200 PVC SEWER MAIN OVER WATER MAIN. WATER AND SEWER MAINS TO BE AS CLOSE TO PERPENDICULAR TO ONE ANOTHER AS POSSIBLE. WRAP THIS PORTION OF C-900 PIPE WITH SEWER MARKING TAPE. CUT OFF BELL.

NEW SEWER MAIN CROSSING OVER EXISTING WATER MAIN

N.T.S.



City of  
Garden Grove  
California

WATER MAIN CROSSING  
UNDER SEWER MAIN

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

City Engineer

R.C.E. 50353 Exp.06-30-09

B-763

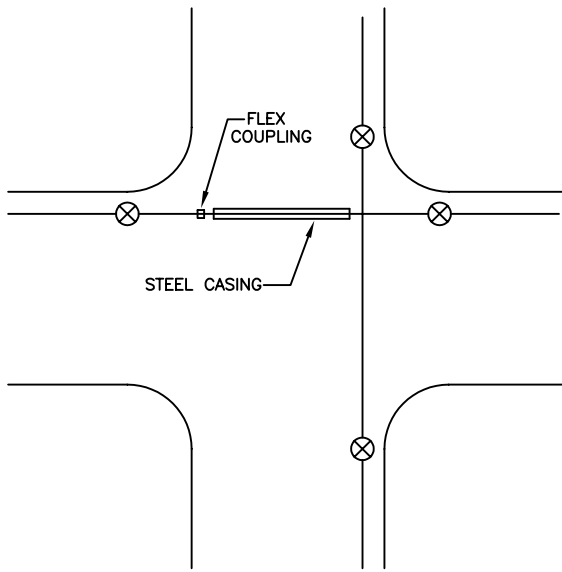
SHEET 1 OF 1

# STEEL CASING SCHEDULE

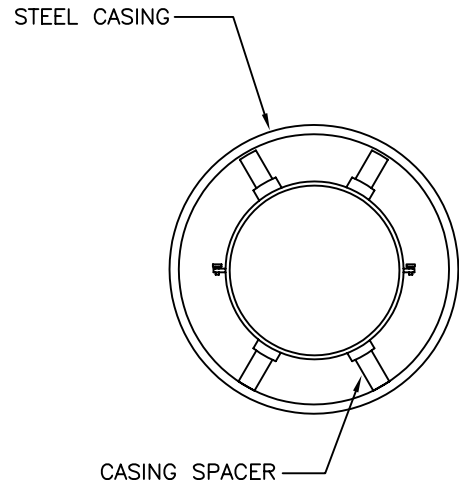
NOMINAL PIPE SIZE	MINIMUM CASING SIZE	MIN. WALL	CASING SPACERS
6"	12" I.D.	1/4"	CASCADE WATERWORKS MFG. OR APPROVED EQUAL
8"	16" I.D.	1/4"	
10"	18" I.D.	1/4"	
12"	20" I.D.	1/4"	
14"	24" I.D.	1/4"	
16"	26" I.D.	1/4"	
18"	28" I.D.	1/4"	

## GENERAL NOTES

1. Casing shall be installed by the bore jack and/or tunnel method.
2. Use stainless steel casing spacers at intervals required by mfg.
3. Size and thickness of casing shall be as shown in schedule at left.
4. When casing is over 60 feet long, a gate valve at each end will be required and one flex coupling.
5. Each end of casing shall be sealed with concrete or an approved flexible seal.
6. Voids around casing shall be pressure grout (4 to 1) mix cement.
7. All casing sections to be joined by continuous weld.



TYPICAL STREET CROSSING  
(100 FT OR WIDER)



CROSS SECTION



City of  
Garden Grove  
California

## INSTALLATION OF WATER PIPE THROUGH STEEL CASING

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

City Engineer

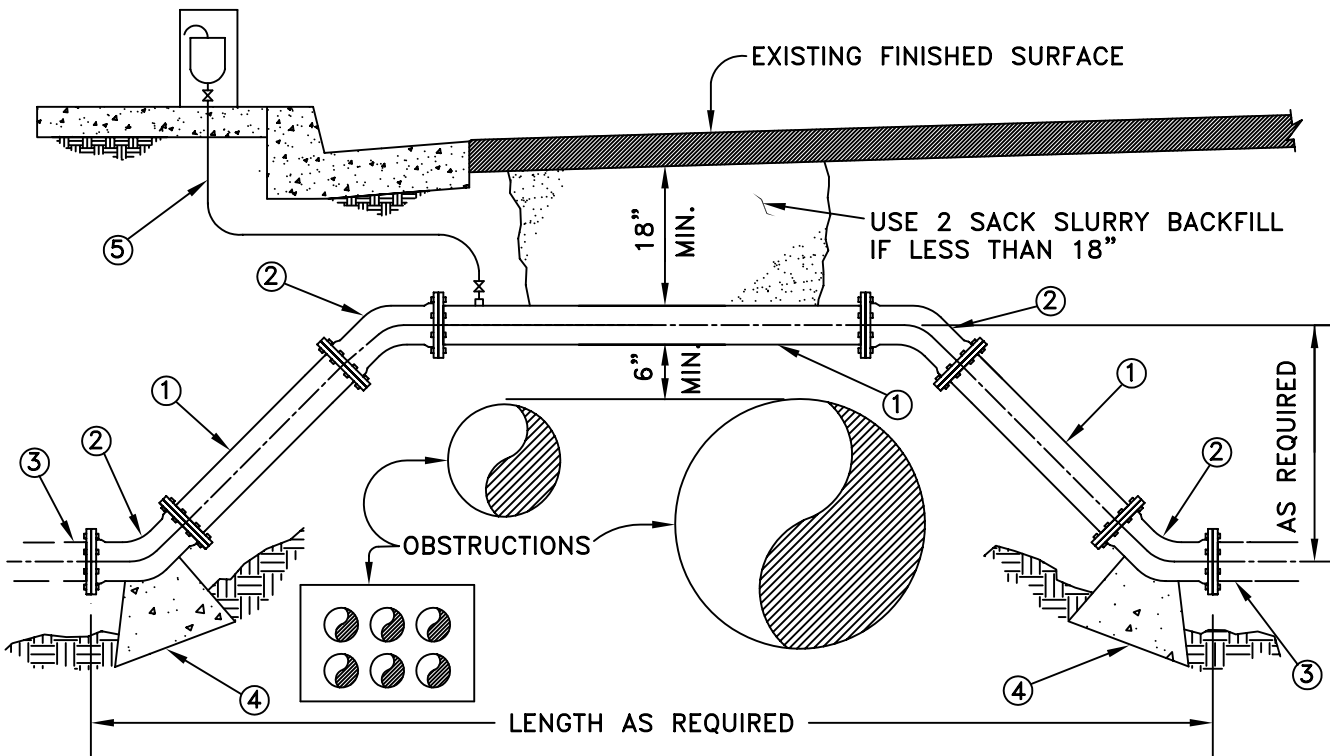
R.C.E. 50353

Exp.06-30-09

B-764

SHEET 1 OF 1





**CONSTRUCTION NOTES**

1. DUCTILE IRON FLANGED SPOOL (CLASS 150) AS PER AWWA STANDARDS C115-75, C150-76, C151-76, C104-80, & C111-80 (LENGTH AS REQUIRED).
2. 45° CAST IRON FLANGED BEND AS PER AWWA STANDARDS C110-71, C104-80, C111-80.
3. RT x FLG ADAPTER (IF REQ'D.).
4. ANCHOR BLOCK PER STD. DWG. B-710.
5. 1" AIR RELEASE ASSEMBLY PER STD. DWG. B-740 (INSTALL ON HIGH END).

**NOTE:** COAT ALL EXPOSED BOLTS WITH EC-244 COATING.



City of  
Garden Grove  
California

DUCTILE IRON  
VERTICAL OFFSET

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

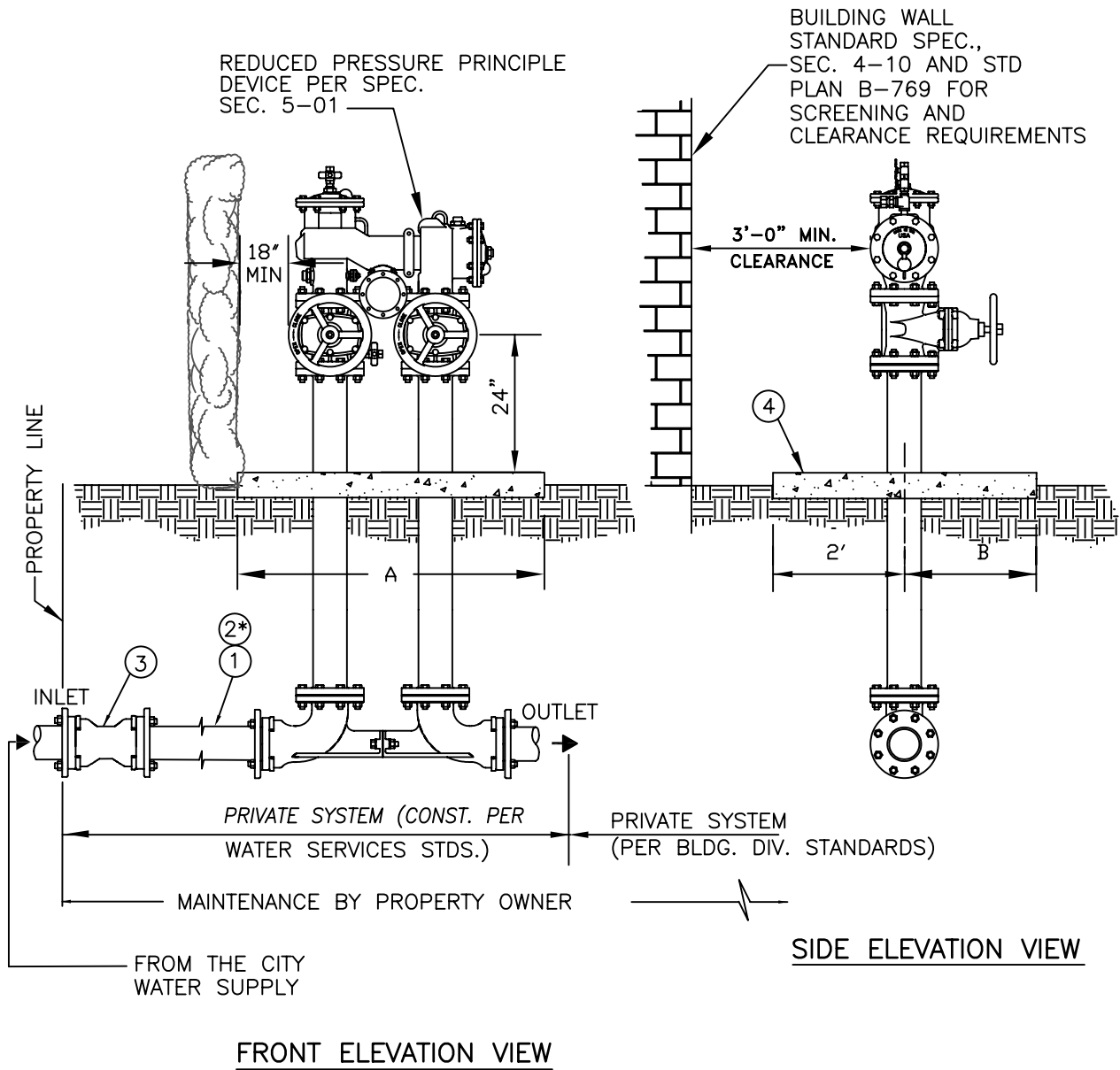
City Engineer

R.C.E. 50353

Exp.06-30-09

B-765

SHEET 1 OF 1



\* FOR PVC WATER MAIN CONSTRUCTION ONLY - SEE ITEM 2\* AND NOTES 9 AND 10 ON SHEET 2.



# TYPICAL 2-1/2" OR LARGER REDUCED PRESSURE PRINCIPLE DEVICE (RPPD)

Approved \_\_\_\_\_ Date \_\_\_\_\_  
 City Engineer R.C.E. 50353 Exp.06-30-09

REVISIONS	BY	DATE

STD. PLAN NUMBER  
**B-771**  
 SHEET 1 OF 2

LIST OF MATERIAL

ITEM	DESCRIPTION
1	PIPE SIZE X FIELD LENGTH D.I. SPOOL, P.E.. X P.E. (TYP).
2*	IN LIEU OF ITEM 1, PIPE SHALL BE AWWA C900 PVC, CLASS 200 (DR14), P.E.XP.E. (SEE NOTES 9 AND 10)
3	D.I. SOLID SLEEVE M.J. X M.J. (SEE NOTE 8); M.J.'S SHALL BE RESTRAINED PER SECTION 2-12.01
4	CONCRETE PAD 4" THICK, SIZE AS INDICATED HEREIN; CLASS 520-C-2500 CONCRETE

BACKFLOW DEVICE SIZE	A	B
2 1/2"	6.0'	3.0'
3"	6.5'	3.5'
4"	6.5'	4.0'
6"	7.0'	4.5'
8"	7.5'	5.0'
10"	8.0'	6.0'

NOTES:

1. APPROVED PRESSURE PRINCIPLE DEVICE SHALL BE PER SECTION 5-01.
2. LOCATION AND INSTALLATION SHALL BE PER PLAN AS SUBMITTED TO AND APPROVED BY THE CITY.
3. ALL PIPE SHALL BE DUCTILE IRON PER SECTION 2-01.
4. ALL PIPE FITTINGS AND APPURTENANCES (GASKETS, NUTS, BOLTS, RESTRAINTS) SHALL BE PER SECTION 2-08 AND 2-12.
5. SEE STANDARD DRAWING B-769 FOR ABOVE GROUND ASSEMBLY INSTALLATION REQUIREMENTS.
6. THE COMPLETED ASSEMBLY SHALL BE PAINTED PER SECTION 2-14.
7. NO CONNECTIONS TO BE MADE BETWEEN METER AND BACKFLOW PREVENTER.
8. ITEM 3 ABOVE IS REQUIRED IF THE BACKFLOW DEVICE IS NOT INSTALLED AT THE SAME TIME OF THE LATERAL INSTALLATION.
9. PVC WATER CONSTRUCTION SHALL BE PER SECTION 2-02.
10. MECHANICAL JOINT RESTRAINT FOR PVC PIPE SHALL BE 2000PV RESTRAINT OR EQUAL AS PER SPECIFICATION SECT. 2-12.01 FOR PVC.



City of  
Garden Grove  
California

TYPICAL 2-1/2" OR LARGER REDUCED PRESSURE PRINCIPAL DEVICE (RPPD)

Approved \_\_\_\_\_ Date \_\_\_\_\_

City Engineer R.C.E. 50353 Exp.06-30-09

REVISIONS

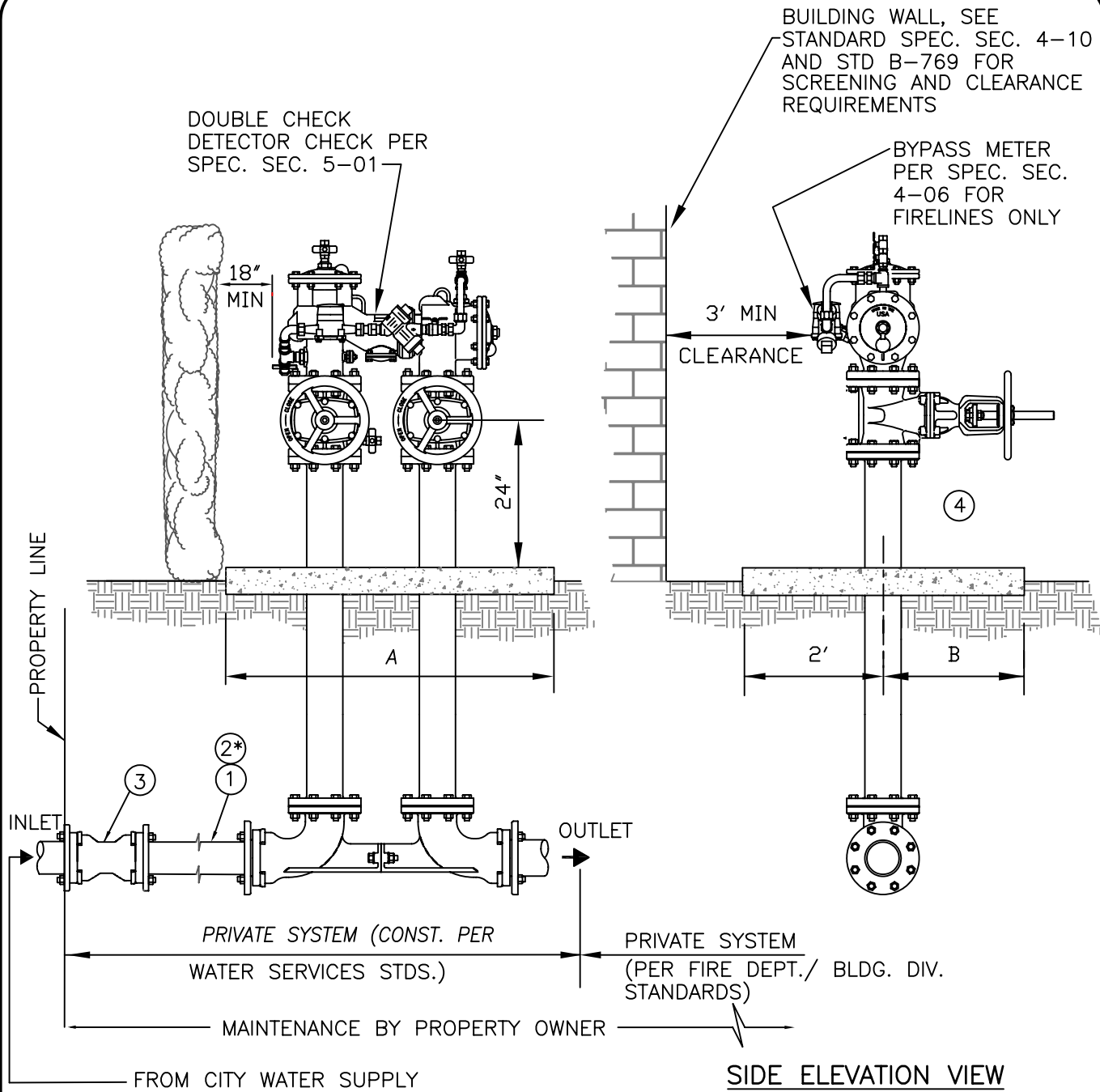
BY

DATE

STD. PLAN NUMBER

B-771

SHEET 2 OF 2



**FRONT ELEVATION VIEW**

\* FOR PVC WATER MAIN CONSTRUCTION ONLY- SEE ITEM 2\* AND NOTES 12 AND 13 ON SHEET 2



City of  
Garden Grove  
California

**TYPICAL 2-1/2" OR LARGER DOUBLE CHECK DETECTOR FIRE LINE ONLY**

Approved \_\_\_\_\_ Date \_\_\_\_\_  
City Engineer R.C.E. 50353 Exp.06-30-09

REVISIONS	BY	DATE

STD. PLAN NUMBER  
**B-773**  
SHEET 1 OF 2

LIST OF MATERIAL

ITEM	DESCRIPTION
1	PIPE SIZE X FIELD LENGTH D.I. SPOOL, P.E.. X P.E. (TYP).
2*	IN LIEU OF ITEM 1, PIPE SHALL BE AWWA C900 PVC, CLASS 200 (DR14), P.E.XP.E. (SEE NOTES 12 AND 13)
3	D.I. SOLID SLEEVE M.J. X M.J. (SEE NOTE 11); M.J.'S SHALL BE RESTRAINED PER SECTION 2-12.01
4	CONCRETE PAD 4" THICK, SIZE AS INDICATED HEREIN; CLASS 520-C-2500 CONCRETE

BACKFLOW DEVICE SIZE	A	B
2 1/2"	6.0'	3.0'
3"	6.5'	3.5'
4"	6.5'	4.0'
6"	7.0'	4.5'
8"	7.5'	5.0'
10"	8.0'	6.0'

NOTES:

1. APPROVED DOUBLE CHECK DETECTOR CHECK SHALL BE PRE SECTION CHECK DETECTOR ASSEMBLY, SEE SECTION 5-01.
2. LOCATION AND INSTALLATION SHALL BE PER PLAN AS SUBMITTED TO AND APPROVED BY THE CITY.
3. FIRE DEPT. CONNECTIONS CANNOT BE PLACED ON THE ASSEMBLY WITHOUT PRIOR APPROVAL, CONTACT FIRE DEPT. AT 741-5628. WHERE APPROVED BY FIRE DEPT., A FLG X FLG X FLG, D.I., CEMENT MORTAR LINED TEE MAY BE INSTALLED ON FIRELINES.
4. O.S.&Y. VALVES TO BE LOCKED IN OPEN POSITION WITH CHAIN AND OWNER'S PADLOCK(S). PADLOCK(S) SHALL BE BREAKAWAY TYPE.
5. ALL PIPE SHALL BE DUCTILE IRON PER SECTION 2-01.
6. ALL PIPE FITTINGS AND APPURTENANCES (GASKETS, NUTS, BOLTS, RESTRAINTS) SHALL BE PER SECTION 2-08 AND 2-12.
7. SEE STANDARD DRAWING W-769 (SHEET 2) FOR ABOVE GROUND ASSEMBLY INSTALLATION REQUIREMENTS.
8. THE COMPLETED ASSEMBLY SHALL BE PAINTED PER SECTION 2-14.
9. NO CONNECTIONS TO BE MADE BEFORE BACKFLOW PREVENTER.
10. BACKFLOW DEVICE SIZE SHALL BE EQUAL TO OR GREATER THAN PIPE SIZE.
11. ITEM 3 ABOVE IS REQUIRED IF THE BACKFLOW DEVICE ASSEMBLY IS NOT INSTALLED AT THE SAME TIME OF THE LATERAL INSTALLATION.
12. PVC WATER CONSTRUCTION SHALL BE PER SECTION 2-02.
13. MECHANICAL JOINT RESTRAINT FOR PVC PIPE SHALL BE AS PER SECT. 2-12.01; RESTRAINT SHALL BE 2000PV BY EBBA IRON OR EQUAL.



City of  
Garden Grove  
California

TYPICAL 2-1/2" OR LARGER DOUBLE  
CHECK DETECTOR FIRE LINE ONLY

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

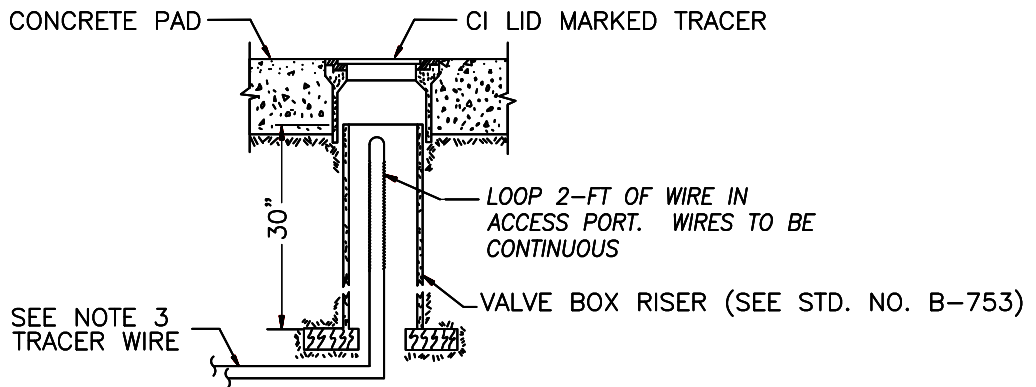
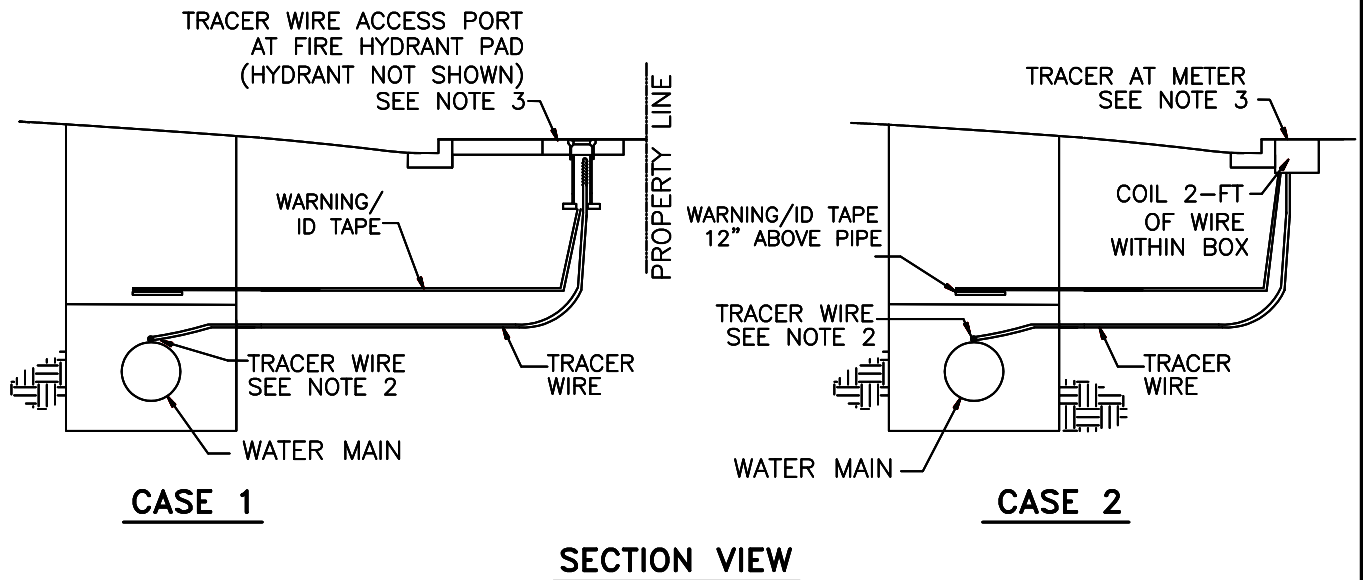
City Engineer

R.C.E. 50353

Exp.06-30-09

B-773

SHEET 2 OF 2



**NOTES:**

1. TRACER WIRE TO BE 14 GAUGE SOLID COPPER WIRE, UF OR THWN.
2. TRACER WIRE SHALL BE SECURED TO THE PIPE AT 10-FOOT INTERVALS WITH PLASTIC ADHESIVE TAPE, DUCT TAPE OR PLASTIC TIE STRAPS. THE WIRE SHALL RUN CONTINUOUSLY ALONG THE TOP OF PIPE FOR THE ENTIRE LENGTH OF PIPE.
3. TRACER WIRE ACCESS PORT (SHOWN ABOVE) SHALL BE INSTALLED WITHIN THE CONCRETE PAD OF ALL NEW FIRE HYDRANTS INSTALLED AS A PART OF THE WORK. TRACER MAY TERMINATE WITHIN METER BOXES, BLOW OFF BOXES, CP TEST BOXES OR AIR VALVE ENCLOSURES ONLY AS DIRECTED BY THE ENGINEER AT INTERVALS OF NOT MORE THAN 1000- FEET.
4. SUFFICIENT SLACK SHALL BE LEFT IN LEADS NEAR CONNECTIONS TO PIPE TO PREVENT BREAKAGE OF CONNECTION DURING BACKFILLING.
5. WARNING/ IDENTIFICATION TAPE SHALL BE 6-INCH WIDE, BLUE IN COLOR AND MARKED "CAUTION WATER LINE BELOW".
6. A CONTINUITY TEST IS TO BE PERFORMED ON ALL TRACER WIRES.



City of  
Garden Grove  
California

## WARNING IDENTIFICATION TAPE AND TRACER WIRE INSTALLATION

Approved \_\_\_\_\_

Date \_\_\_\_\_

REVISIONS

BY

DATE

STD. PLAN NUMBER

City Engineer

R.C.E. 50353

Exp.06-30-09

B-781

SHEET 1 OF 1