APPENDIX G

WATER STANDARD DRAWINGS

CITY OF INDIO

Indio Water Authority
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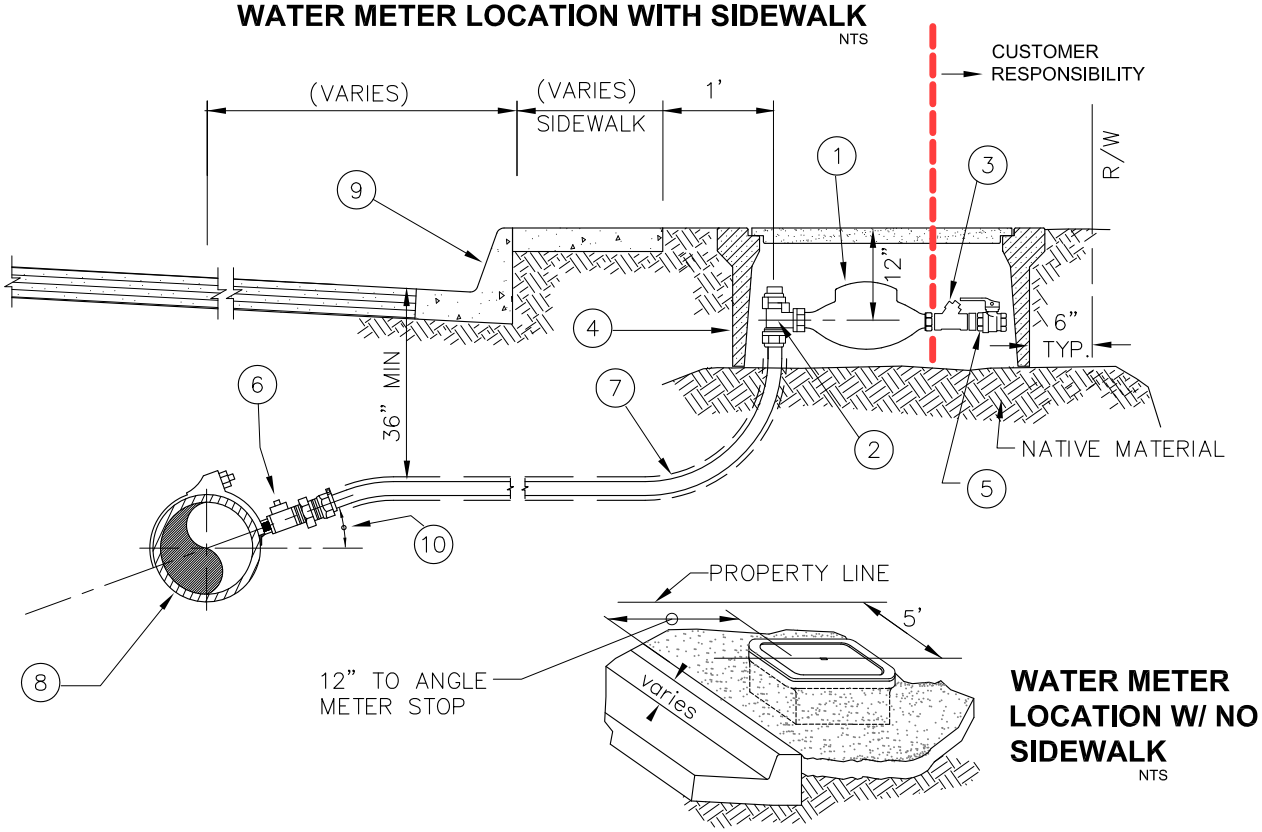
STANDARD DRAWINGS - WATER FACILITIES

GENERAL DETAIL

DWG. NO.	TITLE	REV.
700 A	1" Service Connection (3/4" Meter Size)	2016
700 B	1-1/2" Service Connection (1" Meter Size)	2016
700 C	2" Service Connection (1-1/2" & 2" Meter Size)	2016
700 D	3" Larger Service Connection	2016
701	Service Manifold	2016
702 A	1" and 2" Reduced Pressure Backflow	2020
702 B	3" & Larger Reduced Pressure Backflow	2020
703	Fire Double Detector Check Backflow Assembly	2020
704 A	Wet Barrel Public Fire Hydrant	2018
704 B	Wet Barrel Private Fire Hydrant	2018
705 A	Combination Air Vac and Air Release Assembly	2016
705 B	Air Vac, Vent, Riser and Valve Enclosure	2016
706	Bollards to Protect Fire Hydrants	2016
707	2" Blow-Off Assembly	2016
708	4" and Above Blow-Off Assembly	2016
709 A	Thrust and Anchor Blocks	2016
709 B	Thrust and Anchor Blocks	2016
710	Well Site Blow-Off Inlet Assembly	2016
711 A	Water Main and Sewer Separation Requirements Parallel	2016
711 B	Water Main and Sewer Separation Requirements Crossing	2018
712	Water/ Sewer Lateral Separation	2016
713 A	Valve Cover Assembly and Valve Stem Extension	2016
713 B	Valve Cover Details	2016
713 C	Gate Valve Installation	2016
713 D	Butterfly Valve / Valve Cover Assembly And Valve Stem Extension	2016
713 E	Butterfly Valve Installation	2016
713 F	Butterfly Valve Layout	2016
714	Hot Tap Detail	2016
715 A	Temporary Trench Repair Detail	2016
715 B	Full Width Trench Detail	2016
716 A	Sampling Station	2016
716 B	Sampling Point Cover	2016
717 A	Well & Plant Site Improvement Gate Details	2016
717 B	Well & Plant Site Improvement Fence Details	2016
718 A	Standard Restraint for Dead End-Each side of Vale	2016
718 B	Standard Restraint for Ductile Iron Pipe Horiz. and Vert. Bend	2016
718 C	Standard Restraint for Ductile Iron Pipe Tee	2016
719 A	Dead End Street Service Tap Locations	2016
720	Temporary Chlorination Point	2016
721	Inverted Siphon Assembly	2016
722	Siphon Assembly	2016
723 A	Tee Connection - DIP to Existing AC Pipe	2016
723 B	Tee Connection - DIP to Existing DIP Pipe	2018
724 A	Backflow Protection-Enclosure	2020
724 B	Backflow Protection-Lock	2020
725	1" - 2" Stand Assembly Pipe for Irrigation with Temporary Hose Connection	2020
730	Powered Advanced Metering Infrastructure Pole	2018
731	Solar Advanced Metering Infrastructure Pole	2018
732	Advanced Metering Infrastructure Pole Footing	2018

WATER METER LOCATION WITH SIDEWALK

NTS



WATER METER LOCATION W/ NO SIDEWALK

NTS

ITEM	DESCRIPTION
1	3/4"x 1" METER, BRONZE, FURNISHED BY IWA AT CUSTOMER'S EXPENSE.
2	1" BRASS ANGLE METER STOP.
3	1"THREADED STRAIGHT DOUBLE CHECK VALVE (SEE LIST OF APPROVED MATERIALS) **SEE NOTES .**
4	POLYMER METER BOX W/ SOLID LID. A 2" DIAMETER HOLE IS REQUIRED ON THE COVER. (SEE LIST OF APPROVED MATERIALS)
5	1" CUSTOMERS BALL VALVE OR ISOLATION VALVE (SEE LIST OF APPROVED MATERIALS)
6	1" BRASS CORPORATION STOP. (COMPRESSION FITTING X MIPT.)
7	1" TYPE K SOFT COPPER TUBING W/ 6mil POLY SLEEVE (SEE LIST OF APPROVED MATERIALS)
8	DOUBLE STRAP BRASS SERVICE SADDLE REQUIRED FOR DUCTILE IRON MAINS. A WELDED COUPLING IS REQUIRED FOR STEEL MAINS. SERVICE SHALL NOT BE INSTALLED WITHIN 24" OF VALVE, COUPLING JOINT, OR FITTING. USE TRIPLE STRAP STAINLESS STEEL EPOXY COATED SADDLE FOR WATER MAINS ABOVE 12" DIAMETER.
9	STAMP "W" IN CURB FACE AT SERVICE LOCATION (3" SIZE LETTERING)
10	45° ANGLE FROM HORIZONTAL

NOTES:

1. THE WATER METER SERVICE LINE SHALL BE LAID PERPENDICULAR FROM THE WATER MAIN TO THE METER STOP.
2. METER BOX SHALL BE SET BEHIND SIDEWALK IF RIGHT-OF-WAY PERMITS OR FLUSH WITH TOP OF CURB IN PARKWAY IF NO SIDEWALK EXISTS.
3. NO STRUCTURE (BLOCK WALL, PLANTER, ETC.) SHALL BE CONSTRUCTED WITHIN 1' OF METER BOX (TO BE DETERMINE BY IWA)
4. METERS PROVIDED BY IWA AT CUSTOMERS EXPENSE.
5. NEW INSTALLATION MUST COMPLY WITH THE DEVELOPMENT PROCEDURAL GUIDELINES.
6. DUAL CHECK VALVE INSTALLATIONS ARE INTENDED FOR RESIDENTIAL SERVICE CONNECTIONS ONLY.

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BRIAN MACY P.E.
GENERAL MANAGER
RCE C 78718

November 2016
DATE

1" SERVICE CONNECTION
(3/4" METER SIZE)

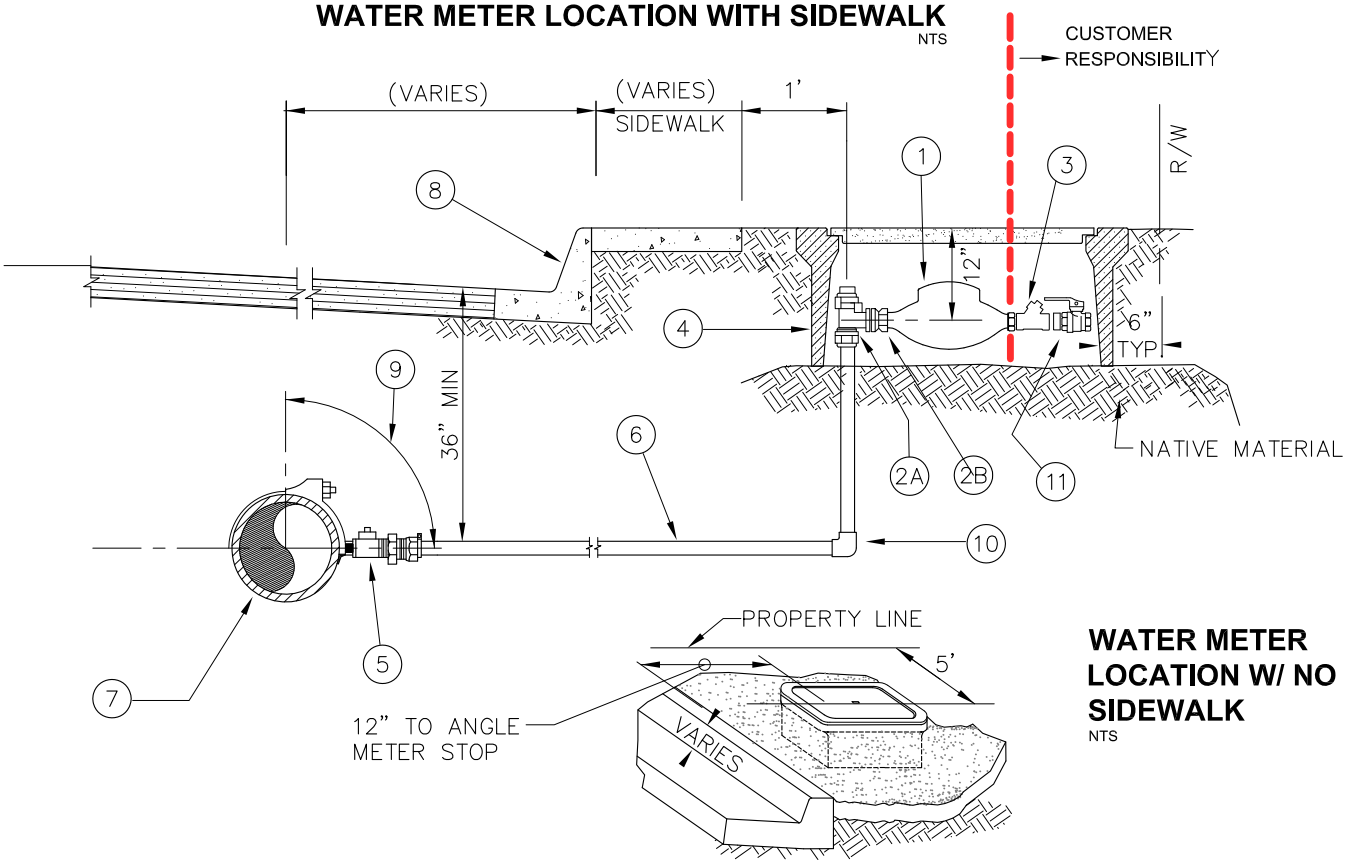
STANDARD PLAN NUMBER

700 A

SHEET 1 OF 3

REVISION	DATE	REVISION	DATE

WATER METER LOCATION WITH SIDEWALK
NTS



WATER METER LOCATION W/ NO SIDEWALK
NTS

ITEM	DESCRIPTION
1	1" METER, BRONZE, FURNISHED BY IWA AT CUSTOMER'S EXPENSE.
2A	1-1/2" BRASS ANGLE STOP,(SEE LIST OF APPROVED MATERIALS)
2B	1-1/2"METER FLANGE,1-1/2"X1" BUSHING, 1"X2"METER COUPLING(SEE LIST OF APPROVED MATERIALS)
3	1-1/2" FLANGE STRAIGHT CASCADING CHECK VALVE,(SEE LIST OF APPROVED MATERIALS) **SEE NOTES**
4	POLYMER METER BOX W/ SOLID LID. A 2" DIAMETER HOLE IS REQUIRED ON THE COVER. (SEE LIST OF APPROVED MATERIALS)
5	1-1/2" BRASS CORPORATION STOP. (COMPRESSION FITTING X MIPT.)
6	1-1/2" TYPE K SOFT COPPER TUBING WITH 6mil POLY SLEEVE (SEE LIST OF APPROVED MATERIALS)
7	DOUBLE STRAP BRASS SERVICE SADDLE REQUIRED FOR DIP MAINS. A WELDED COUPLING IS REQUIRED FOR STEEL MAINS. SERVICE SHALL NOT BE INSTALLED WITHIN 24" OF VALVE, COUPLING JOINT OR FITTING, USE TRIPLE STRAP STAINLESS STEEL EPOXY COATED SADDLE FOR WATER MAINS ABOVE 12" DIA.
8	STAMP "W" IN CURB FACE AT SERVICE LOCATION (3" SIZE LETTERING)
9	90° ANGLE FROM HORIZONTAL FOR 1-1/2" SERVICE
10	1-1/2" COMPRESSION OR SWEAT ELBOW
11	1-1/2"FIPT ISOLATION VALVE OR BALL VALVE (SEE LIST OF APPROVED MATERIALS))

NOTES:

1. THE WATER METER SERVICE LINE SHALL BE LAID PERPENDICULAR FROM THE WATER MAIN TO THE METER STOP.
2. METER BOX SHALL BE SET BEHIND SIDEWALK IF RIGHT-OF-WAY PERMITS OR FLUSH WITH TOP OF CURB IN PARKWAY IF NO SIDEWALK EXISTS.
3. NO STRUCTURE (BLOCK WALL, PLANTER, ETC.) SHALL BE CONSTRUCTED WITHIN 1' OF METER BOX.
4. METERS PROVIDED BY IWA AT CUSTOMERS EXPENSE.
5. NEW INSTALLATION MUST COMPLY WITH THE DEVELOPMENT PROCEDURAL GUIDELINES.
6. DOUBLE CHECK VALVE INSTALLATIONS ARE INTENDED FOR RESIDENTIAL SERVICE CONNECTIONS ONLY.

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GENERAL MANAGER
RCE C 78718

November 2016
DATE

1-1/2" SERVICE CONNECTION
(1" METER SIZE)

STANDARD PLAN NUMBER

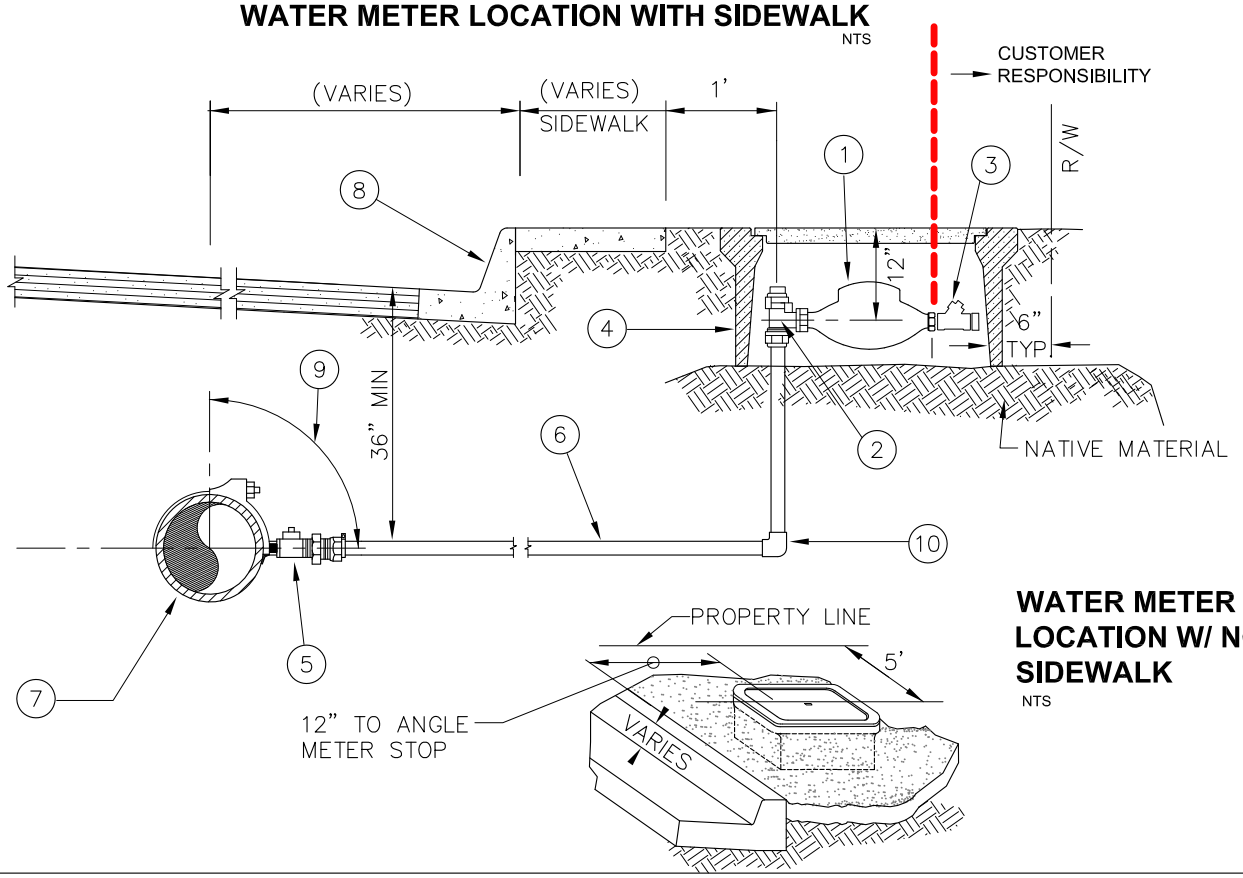
700 B

SHEET 2 OF 3

REVISION	DATE	REVISION	DATE

WATER METER LOCATION WITH SIDEWALK

NTS



WATER METER LOCATION W/ NO SIDEWALK

NTS

ITEM	DESCRIPTION
1	2" METER, BRONZE, FURNISHED BY IWA AT CUSTOMER'S EXPENSE.
2	FOR 2" METER CONNECTION USE 2" BRASS ANGLE METER STOP.
3	2" FLANGE STRAIGHT CASCADING CHECK VALVE,(SEE LIST OF APPROVED MATERIALS) **SEE NOTES**
4	POLYMER METER BOX W/ SOLID LID. A 2" DIAMETER HOLE IS REQUIRED ON THE COVER. (SEE LIST OF APPROVED MATERIALS)
5	2" BRASS CORPORATION STOP. (COMPRESSION FITTING X MIPT.)
6	2" TYPE K SOFT COPPER TUBING WITH 6mil POLY SLEEVE (SEE LIST OF APPROVED MATERIALS)
7	DOUBLE STRAP BRASS SERVICE SADDLE REQUIRED FOR DUCTILE IRON MAINS. A WELDED COUPLING IS REQUIRED FOR STEEL MAINS. SERVICE SHALL NOT BE INSTALLED WITHIN 24" OF VALVE, COUPLING JOINT, OR FITTING. USE TRIPLE STRAP STAINLESS STEEL EPOXY COATED SADDLE FOR WATER MAINS ABOVE 12" DIAMETER.
8	STAMP "W" IN CURB FACE AT SERVICE LOCATION (3" SIZE LETTERING)
9	90° ANGLE FROM HORIZONTAL FOR 2" SERVICE
10	2" COMPRESSION OR SWEAT ELBOW

NOTES:

1. THE WATER METER SERVICE LINE SHALL BE LAID PERPENDICULAR FROM THE WATER MAIN TO THE METER STOP.
2. METER BOX SHALL BE SET BEHIND SIDEWALK IF RIGHT-OF-WAY PERMITS OR FLUSH WITH TOP OF CURB IN PARKWAY IF NO SIDEWALK EXISTS.
3. NO STRUCTURE (BLOCK WALL, PLANTER, ETC.) SHALL BE CONSTRUCTED WITHIN 1' OF METER BOX (TO BE DETERMINE BY IWA)
4. METERS PROVIDED BY IWA AT CUSTOMERS EXPENSE.
5. NEW INSTALLATION MUST COMPLY WITH THE DEVELOPMENT PROCEDURAL GUIDELINES.
6. DUAL CHECK VALVE INSTALLATIONS ARE INTENDED FOR RESIDENTIAL SERVICE CONNECTIONS ONLY.

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RCE C 78718

November 2016
DATE

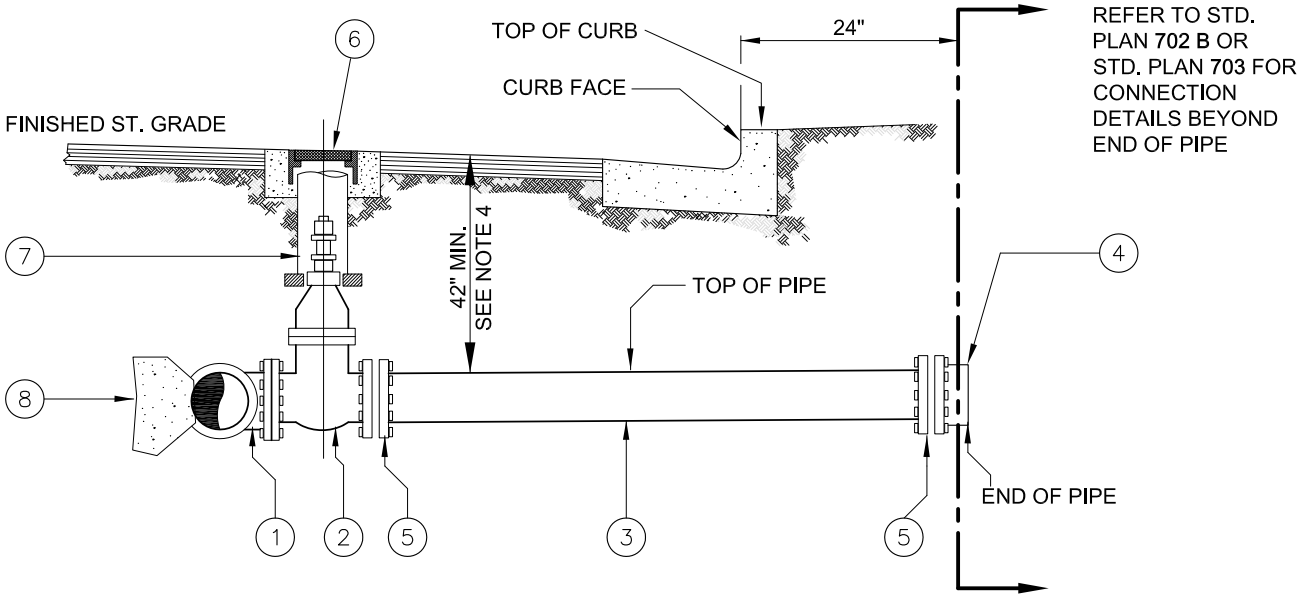
2" SERVICE CONNECTION
(1-1/2" & 2" METER SIZE)

STANDARD PLAN NUMBER

700 C

SHEET 3 OF 3

REVISION	DATE	REVISION	DATE



ITEM	DESCRIPTION
1	MAIN SIZE X 4"(MIN.), FLANGE OR MECHANICAL JOINT X FLANGE,DUCTILE IRON TEE
2	VALVE–FLG X FLG DUCTILE IRON RESILIENT WEDGE GATE VALVE.
3	LATERAL–DIP (SEE TABLE A) W/ 12mIL POLY SLEEVE (SEE LIST OF APPROVED MATERIALS)
4	USE MJ CAP W/ WEDGE ACTION RESTRAINING DEVICE & 2" OUTLET IF REDUCED PRESSURE BACKFLOW ASSEMBLY OR FIRE DOUBLE BACKFLOW ASSEMBLY IS NOT INSTALLLED AT THE SAME TIME
5	FLG. X MJ ADAPTER WITH RESTRAINED JOINTS
6	REFER TO STANDARD PLAN 713B FOR VALVE COVER DETAILS
7	REFER TO STANDARD PLAN 713A FOR VALVE COVER ASSEMBLY AND VALVE STEM EXTENSION
8	USE RESTRAINED JOINTS. USE THRUST BLOCK PER STANDARD PLAN 709 IF CONNECTION IS MADE TO AC PIPE

NOTES:

1. METER SIZE AND LATERAL SIZE ARE DETERMINED BY IWA.
2. PIPE, VALVE, TEE OUTLET AND CAP SHALL BE OF THE SAME NOMINAL DIAMETER, EXCEPT FOR 3" METER.
3. PLUG 2" OUTLET AFTER DISINFECTION AND FLUSHING OF LATERAL.
4. 42" MINIMUM COVER IF CONNECTING TO NEW MAIN.
5. USE RESTRAINT GASKETS OR APPROVED EQUAL REQUIRED FOR ALL PUSH ON JOINTS.

TABLE A

MINIMUM LATERAL PIPE SIZE FOR METER SIZE	
METER SIZE	MINIMUM PIPE SIZE
3 INCHES	4 INCHES
4 INCHES	4 INCHES
6 INCHES	6 INCHES
DUAL 6 INCHES	8 INCHES
8 INCHES & LARGER	SPECIAL DESIGN

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November 2016
DATE

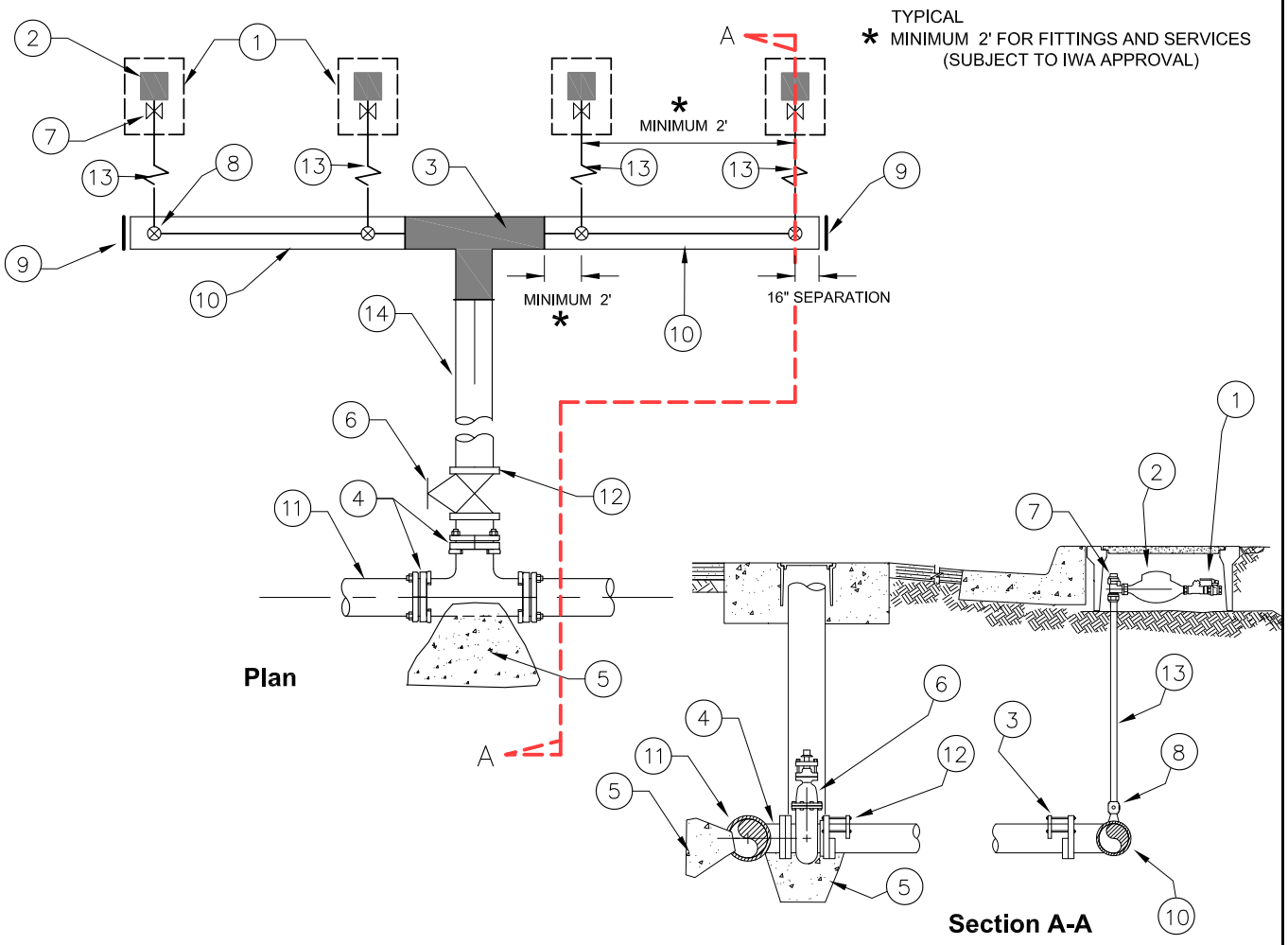
3" & LARGER SERVICE CONNECTION

STANDARD PLAN NUMBER

700 D

SHEET 4 OF 4

REVISION	DATE	REVISION	DATE



ITEM	DESCRIPTION
1	SEE IWA STANDARD PLAN 700 FOR SERVICE CONNECTION DETAILS
2	METERS PROVIDED BY IWA AT CUSTOMERS EXPENSE
3	TEE FITTING (MJ X MJ X MJ, ALL JOINTS RESTRAINED)
4	MJ X MJ X FLANGE TEE. USE RESTRAINED JOINTS
5	THRUST BLOCKS PER IWA STANDARD DRAWING 709A (IF CONNECTION IS MADE TO AC PIPE)
6	GATE VALVE – RWG FLG X FLG
7	ANGLE STOP (TYPICAL)
8	SERVICE TAPS SHALL BE I.P. X COMPRESSION FITTINGS
9	MJ CAPS (BOTH ENDS) AND RESTRAINED JOINTS
10	DIP MANIFOLD (SIZE TO BE APPROVED BY IWA ENGINEER)
11	WATER MAIN
12	FLG X MJ ADAPTER RESTRAINED
13	TYPE K SOFT COPPER SERVICE LINE
14	DUCTILE IRON PIPE (DIP)

NOTES: GREATER THAN 4 SERVICES AND / OR SERVICES LARGER THAN 1" ARE SUBJECT TO IWA APPROVAL

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RCE C 78718

November 2016
DATE

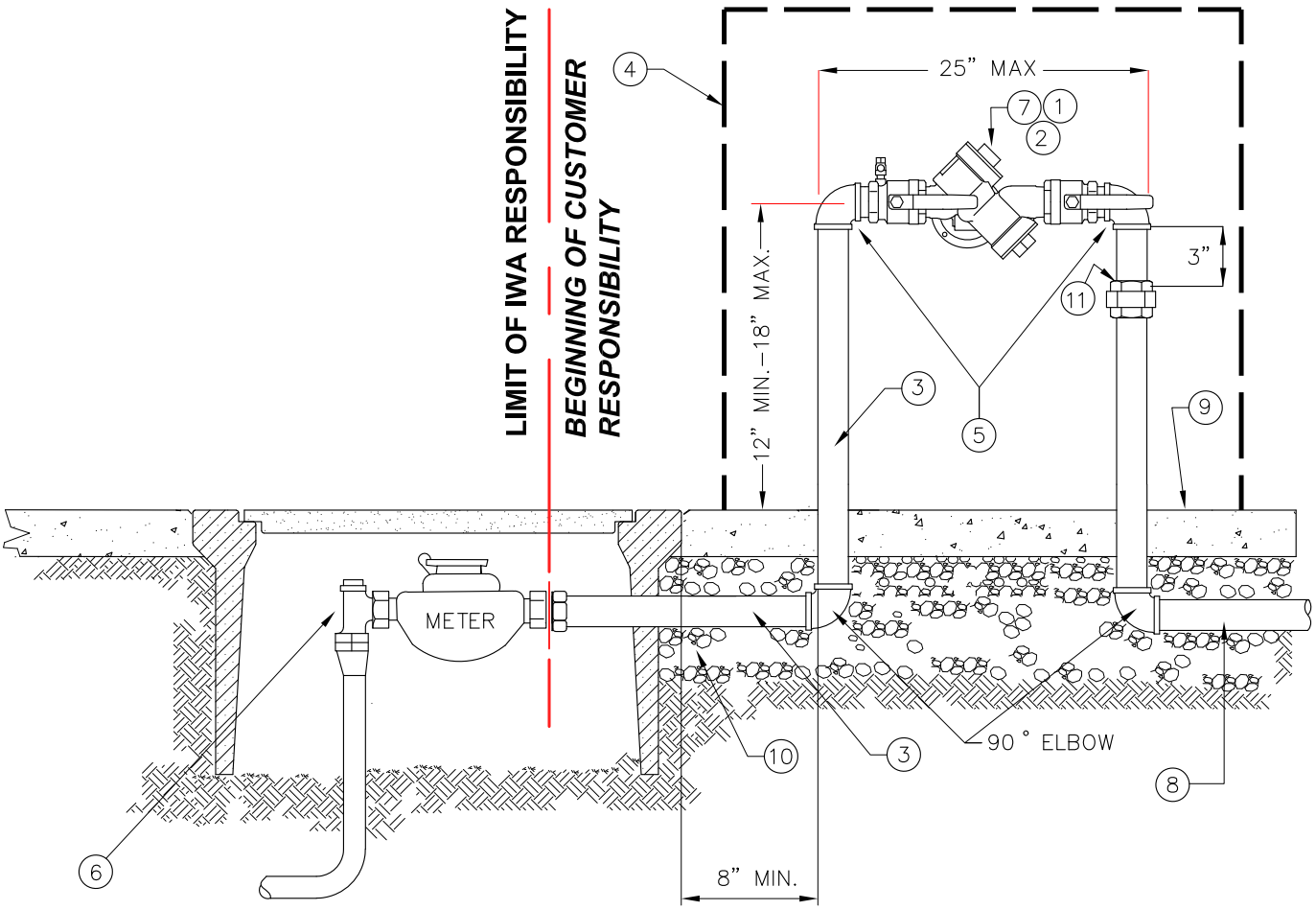
SERVICE MANIFOLD

STANDARD PLAN NUMBER

701

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE



ITEM	DESCRIPTION
1	ASSEMBLY SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE METER.
2	**THE LOCATION NEEDS TO BE APPROVED BY THE IWA BACKFLOW INSPECTOR**
3	PIPING MATERIALS SHALL BE BRASS OR COPPER.
4	BACKFLOW ENCLOSURE OR CABLE GUARD MUST BE STANDARD DESIGN FROM THE APPROVED MATERIALS LIST ON STANDARD PLAN 724A OR 724B
5	2–90° STREET ELBOWS
6	ANGLE STOP
7	REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTOR (SEE LIST OF APPROVED MATERIALS)
8	PIPE MATERIALS AS SELECTED BY CUSTOMER.
9	CONC. PAD (CLASS 560–C–3250). SIZE, REFER TO STD. PLAN724 A
10	MINIMUM 8"THK 3/4" GRAVEL
11	BRASS UNION

NOTE:
1. IRRIGATION AND DOMESTIC BACKFLOWS SHOULD BE PAINTED–KRYLON OR RUST–OLEUM (HUNTER GREEN) (LANDSCAPE GRASS AREA)–DESERT TAN (HARDSCAPE AREA)
2. THE INSTALLATION SHALL BE INSPECTED BY THE IWA BACKFLOW INSPECTOR PRIOR TO BACKFILLING OR BEING PLACED IN SERVICE.
3. BACKFLOW ASSEMBLIES, METERS AND PADLOCKS SHALL BE APPROVED BY IWA PRIOR TO INSTALLATION.

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GENERAL MANAGER
RCE C 78718

November 2016
DATE

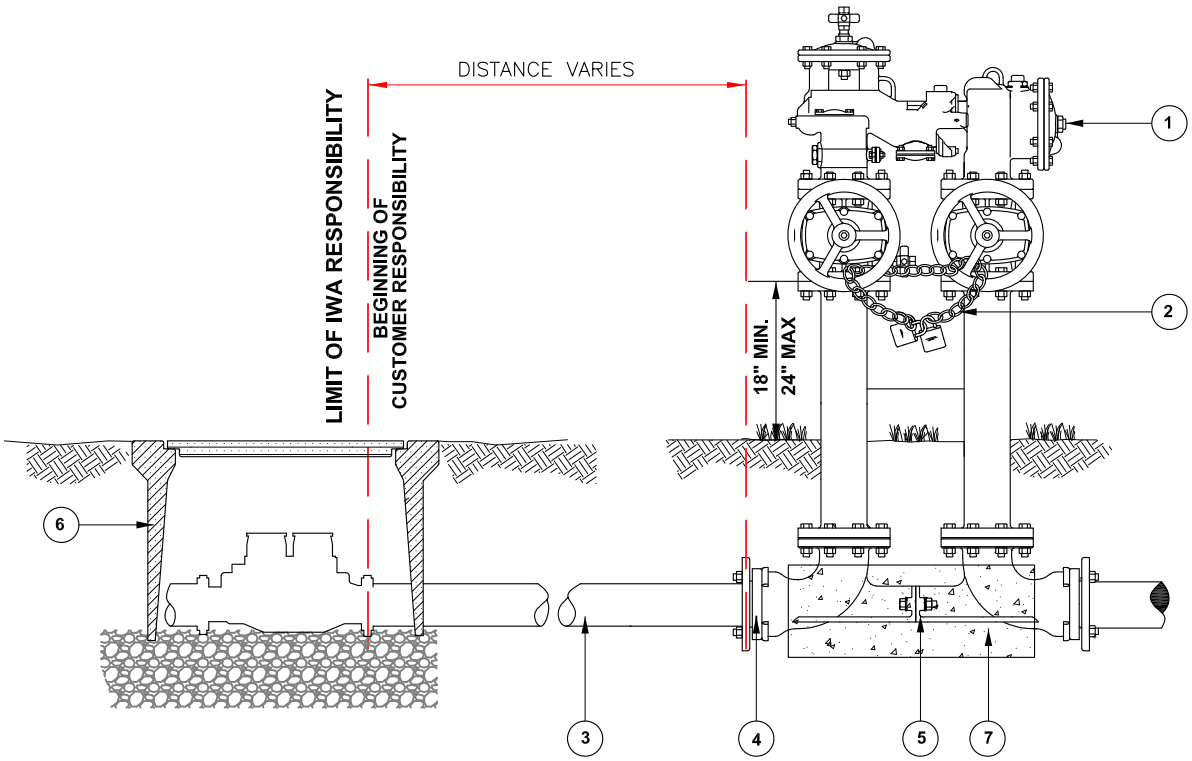
1" AND 2" REDUCED PRESSURE BACKFLOW

STANDARD PLAN NUMBER

702 A

SHEET 1 OF 2

REVISION	DATE	REVISION	DATE
1	8/20		



ITEM	DESCRIPTION
1	REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY (SEE LIST OF APPROVED MATERIALS)
2	INSTALL ⅜" STAILESS STEEL CHAIN– (PADLOCK MUST BE IWA APPROVED.)
3	DUCTILE IRON PIPE CL 350 FOR 12" AND BELOW
4	MECHANICAL JOINTS SHALL BE RESTRAINED
5	VALVE SETTER.
6	POLYMER VAULT WITH METER (SEE LIST OF APPROVED MATERIALS)
7	PLACE CONCRETE (560 C–3250) TO STABILIZED THE ASSEMBLY IN PLACE.

NOTES:

1. REDUCED PRESSURE BACKFLOW ASSEMBLY SHALL BE INSTALLED ABOVE GROUND.
2. ALL BACKFLOW PREVENTION DEVICES SHALL SET AS CLOSE TO THE WATER METER AS POSSIBLE.
3. BACKFLOW PREVENTION DEVICE SHALL BE EPOXY COATED. SEE LIST OF APPROVED MATERIALS.
4 TEST COCKS SHALL BE IN PLACE AT ALL TIMES.
5. IWA SHALL HAVE ACCESS TO BACKFLOW PREVENTION DEVICE AT ALL TIMES.
6. ALL PIPES AND FITTINGS SHALL BE RESTRAINED.
7. AFTER INSTALLATION DEVICE SHOULD BE PAINTED–KRYLON OR RUST–OLEUM (DESERT TAN)
8. ALL 3" & LARGER SERVICES & BACKFLOWS REQUIRE SHUT–OFF VALVE @ MAIN.

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BRIAN MACY P.E.
GENERAL MANAGER
RCE C 78718

November 2016
DATE

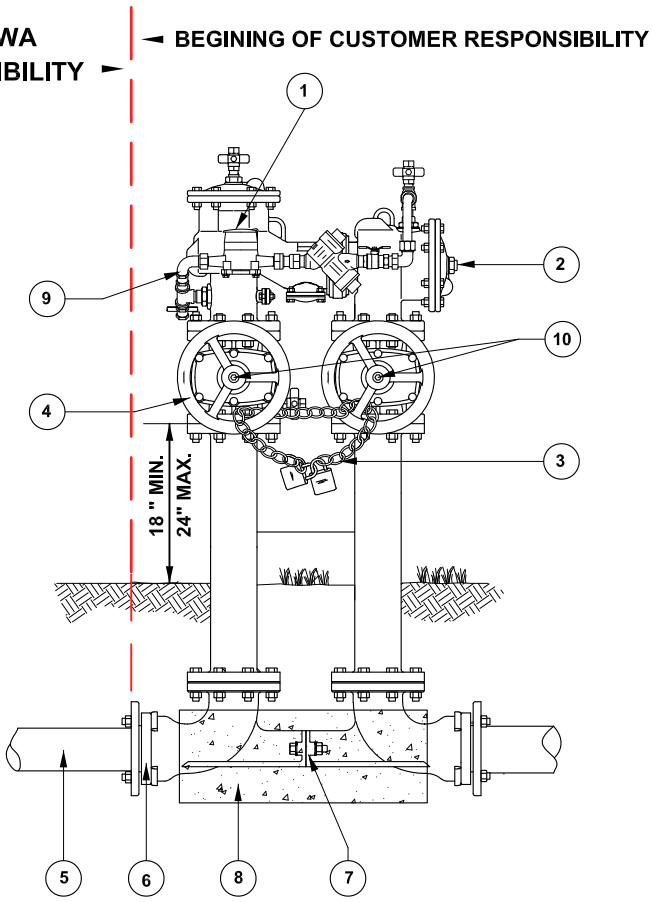
3" & Larger Reduced Pressure Backflow

STANDARD PLAN NUMBER

702 B

SHEET 2 OF 2

REVISION	DATE	REVISION	DATE



ITEM	DESCRIPTION
1	BYPASS METER (SEE LIST OF APPROVED MATERIALS)
2	DOUBLE CHECK DETECTOR ASSEMBLY (PURCHASED BY CUSTOMER)(SEE LIST OF APPROVED MATERIALS
3	INSTALL ⅜" STAILESS STEEL CHAIN (PADLOCKS MUST BE IWA APPROVED).
4	TAMPER SWITCH TO BE APPROVED BY FIRE DEPARTMENT.
5	DUCTILE IRON PIPE CL 350.
6	MECHANICAL JOINTS SHALL BE RESTRAINED.
7	VALVE SETTER.
8	PLACE CONCRETE (560 C-3250) TO STABILIZED THE ASSEMBLY IN PLACE.
9	SENTRY FIRE DETECTOR CHECK BYPASS BACKFLOW GUARD (OPTIONAL)(SEE LIST OF APPROVED MATERIALS) (PADLOCKS MUST BE IWA APPROVED).
10	(OS & Y) OUTSIDE STEM AND YOKE (REQUIRED BY FIRE DEPARTMENT)

NOTES:

1. FIRE DOUBLE DETECTOR CHECK BACKFLOW ASSEMBLY SHALL BE INSTALLED ABOVE GROUND.
2. THE BACKFLOW PREVENTION DEVICE SHALL BE EPOXY COATED. SEE LIST OF APPROVED MATERIALS.
3. TEST COCKS SHALL BE IN PLACE AT ALL TIMES.
4. IWA SHALL HAVE ACCESS TO BACKFLOW ASSEMBLY AT ALL TIMES.
5. ALL PIPES AND FITTINGS SHALL BE RESTRAINED.
6. AFTER INSTALLATION DEVICE SHOULD BE PAINTED KRYLON OR RUST-OLEUM (FEDERAL SAFETY RED)
7. ALL FIRE DCDA REQUIRE SHUT-OFF VALVES AT MAIN.

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RCE C 78718

November 2016
DATE

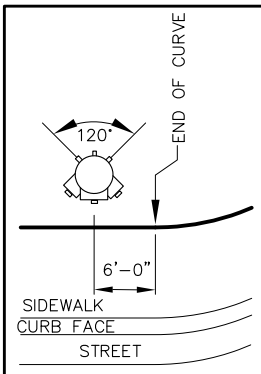
FIRE DOUBLE CHECK DETECTOR ASSEMBLY

STANDARD PLAN NUMBER

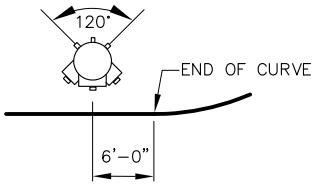
703

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE

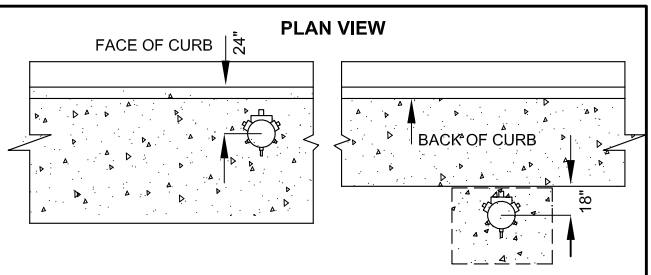


WITH CURB



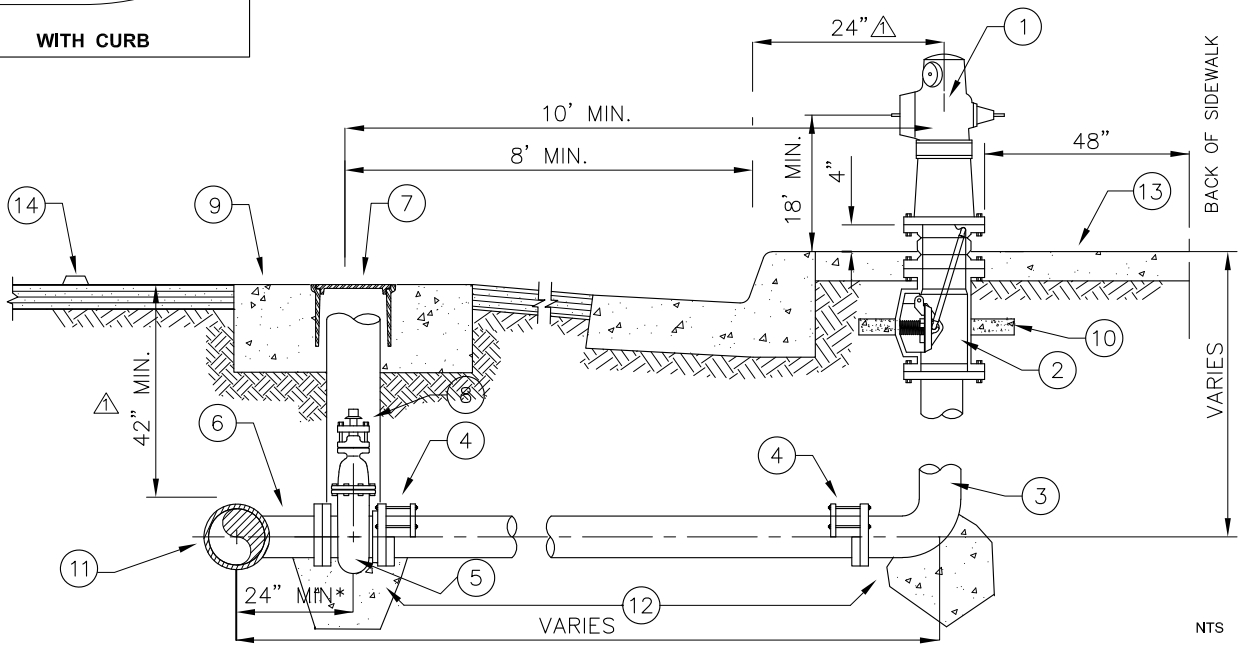
WITHOUT CURB

PLAN VIEW



SW WIDER THAN 5.5

SW 5.5 WIDE OR LESS
(See Note 5 below If Hydrant not positioned on sidewalk)



NTS

ITEM	DESCRIPTION
①	WET BARREL, DUCTILE IRON. ONE–4" AND TWO 2–1/2" PORTS WITH AMERICAN NATIONAL FIRE HOSE CONNECTION SCREW THREADS ("NHT"), HARD PLASTIC OR CAST IRON CAPS. (SEE LIST OF APPROVED MATERIALS) ⚠1
②	HYDRANT RISER – BREAK OFF CHECK EXTENSION.
③	BURY
④	USE MECHANICAL RESTRAINED JOINT FOR HYDRANT RUNS.
⑤	FLANGE X FLANGE RESILIENT WEDGE GATE VALVE, DUCTILE IRON WITH FLG X MJ ADAPTER.
⑥	MAIN SIZE X 6" FLANGE OR MECHANICAL JOINT X FLANGE, DUCTILE IRON TEE.
⑦	VALVE RISER ASSEMBLY IN PAVEMENT BOX AND LID: LID MARKED IWA – SEE DETAIL 713B.
⑧	8" VALVE CAN/RISER PIPE PVC C900; OR EQUAL.
⑨	12" CONCRETE COLLAR, USE CLASS 560–C 3250 FIBER REINFORCED CONCRETE
⑩	3' X 3' X 6" CONCRETE PAD.–CLASS 560–C 3250 CONCRETE
⑪	WATER MAIN
⑫	CONCRETE THRUST BLOCKS PER IWA STANDARD PLAN 709A AND 709B.
⑬	SIDEWALK SHALL MEET ADA ACCESS GUIDELINES.
⑭	HYDRANT STREET MARKER (BLUE REFLECTOR MARKER) ⚠1

NOTES:

1. ALL UNDERGROUND NUTS AND BOLTS SHALL BE SS 316 WITH BLUE NUTS.
2. HYDRANT VALVE MIN.10' FROM HYDRANT.(FOR NEW HYDRANT)
3. HYDRANTS TO BE PAINTED RUSTOLEUM, FEDERAL SAFETY YELLOW.
4. BOLLARDS MAY BE REQUIRED (SEE STD. PLAN 706)
5. HYDRANT PLACEMENT (ON CENTER OF PAD) ON AREAS W / O CURB & SIDEWALK SHALL BE 1FT. 6 INCHES INSIDE STREET RIGHT OF WAY 3'x3'X6" ROUGH SURFACE CONC. PAD W/ 3' RAD. OF CLEAR ACCESS TO UNIT FOR FIRE DEPT., PROVIDE 18" MIN. CLEARANCE BETWEEN 4" PORT TO GRADE.

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BRIAN MACY P.E.
GENERAL MANAGER
RCE C 78718

November 2016
DATE

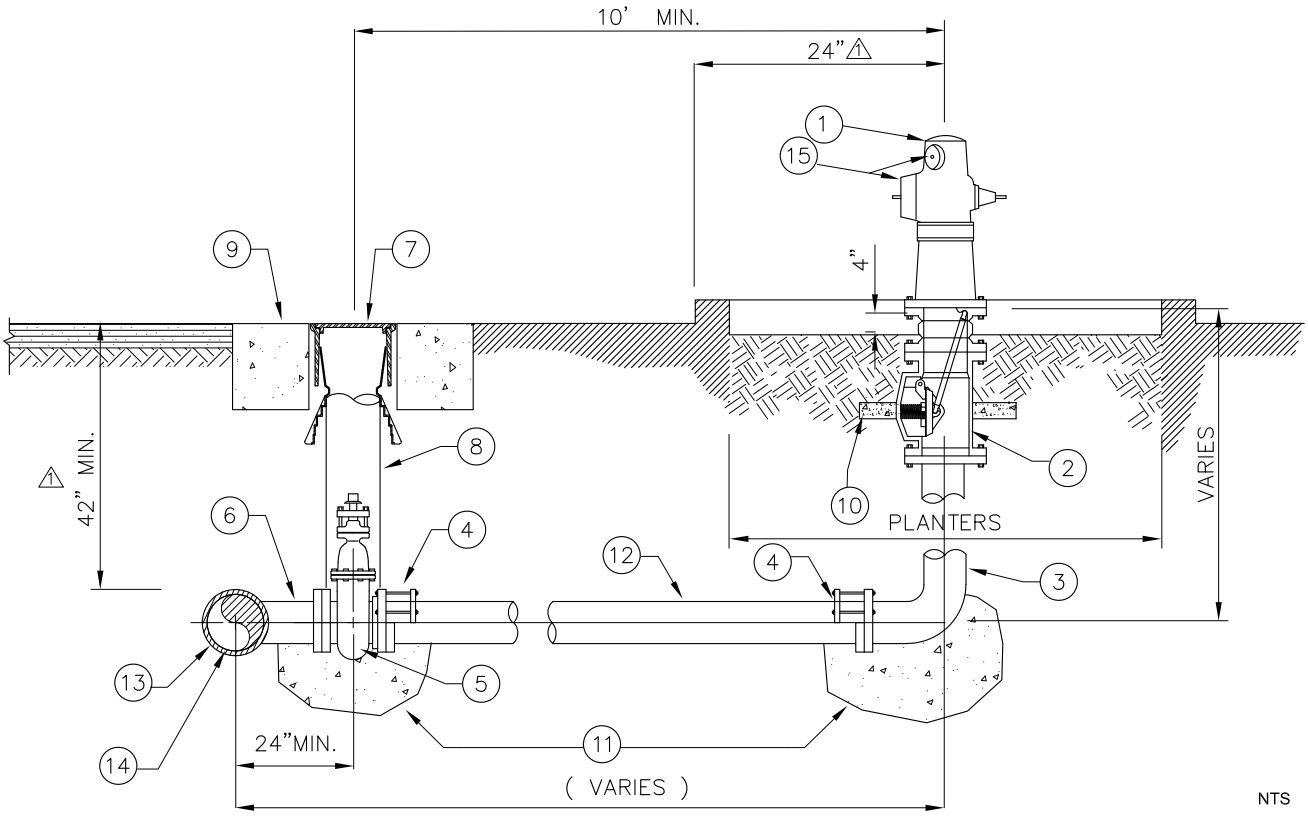
WET BARREL PUBLIC FIRE HYDRANT

STANDARD PLAN NUMBER

704 A

SHEET 1 OF 2

REVISION	DATE	REVISION	DATE
⚠1	NOV.2018		



ITEM	DESCRIPTION
1	WET BARREL, DUCTILE IRON OR BRONZE BODIED. ONE–4" AND TWO 2–1/2" PORTS WITH AMERICAN NATIONAL FIRE HOSE CONNECTION SCREW THREADS ("NHT"), HARD PLASTIC OR CAST IRON CAPS. 1
2	HYDRANT RISER – BREAK OFF EXTENSION.
3	BURY
4	USE MECHANICAL RESTRAINT JOINT FOR HYDRANT RUNS.
5	FLANGE X FLANGE RESILIENT WEDGE GATE VALVE, D.I WITH FLG X MJ ADAPTER.
6	MAIN SIZE X 6", FLANGE OR MECHANICAL JOINT X FLANGE, DUCTILE IRON TEE.
7	VALVE RISER ASSEMBLY IN PAVEMENT BOX AND LID.COVER MARKED **"IWA"**
8	8" VALVE CAN/RISER PIPE PVC C900. OR EQUAL
9	12" CONCRETE COLLAR, USE CLASS 560–C 3250 FIBER REINFORCED CONCRETE.
10	3" X 3" X 6" CONCRETE PAD, USE CLASS 560–C 3250
11	CONCRETE THRUST BLOCKS (PER FIRE DEPARTMENT STANDARD).
12	DUCTILE IRON PIPE OR C900.
13	PRIVATE FIRE MAIN.
14	MAIN LINE
15	LOCKING DEVICE PER IWA REQUIREMENTS (SEE LIST OF APPROVED MATERIALS)

NOTES:

ALL UNDERGROUND NUTS AND BOLTS SHALL BE SS 316
HYDRANTS TO BE PAINTED RUSTOLEUM, FEDERAL SAFETY RED

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BRIAN MACY P.E.
GENERAL MANAGER
RCE C 78718

November 2016
DATE

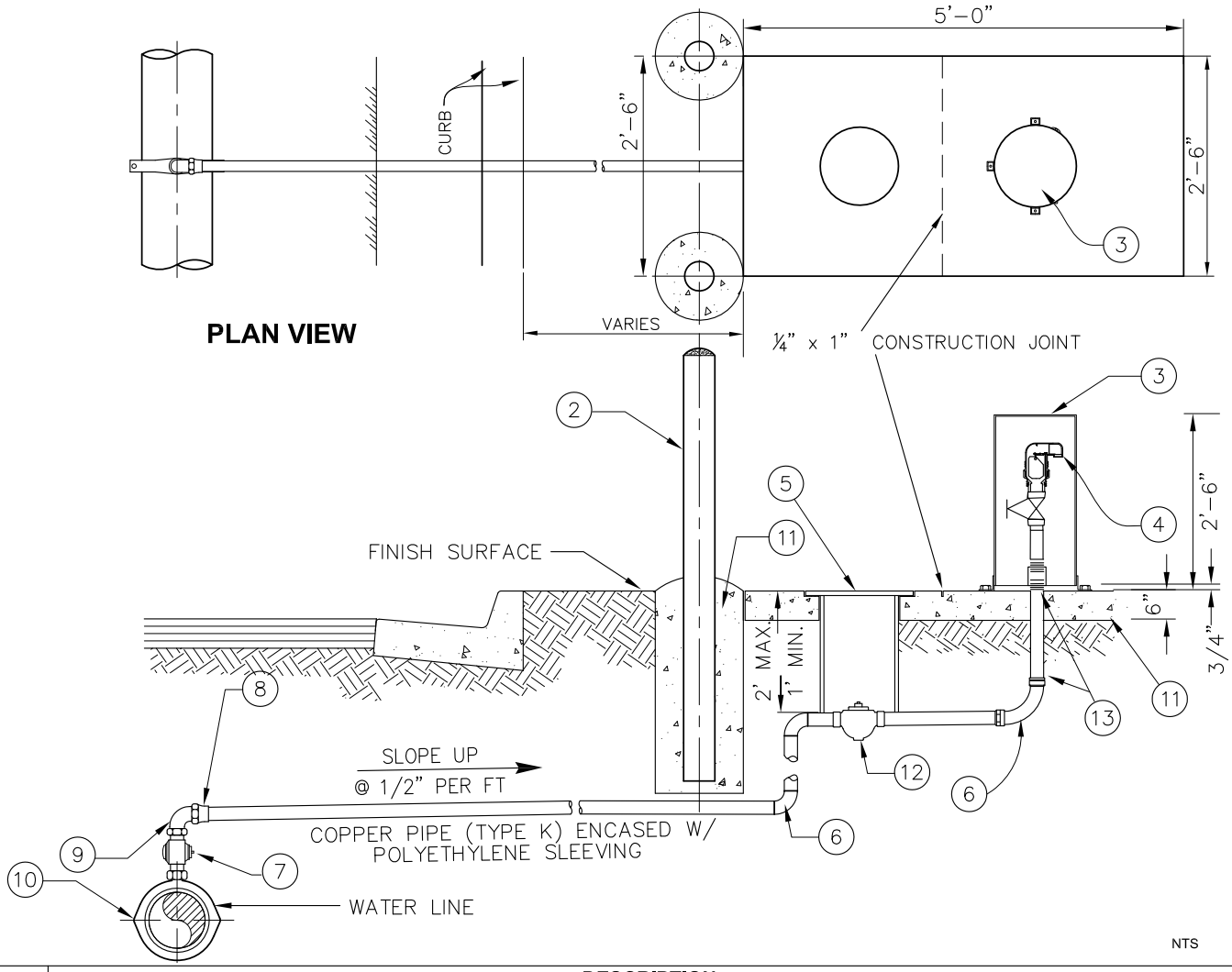
WET BARREL PRIVATE FIRE HYDRANT

STANDARD PLAN NUMBER

704 B

SHEET 2 OF 2

REVISION	DATE	REVISION	DATE
1	NOV.2018		



ITEM	DESCRIPTION
1	(NOT IN USE)
2	WHEN BOLLARD DEEMED NECESSARY BY IWA ENGINEER, INSTALL PER STD. DWG. 706
3	AIR VAC ENCLOSURE.(SEE STD. DWG. 705 B)
4	AUTOMATIC AIR RELEASE VALVE.
5	4TT VALVE BOX.
6	SG CTS X FIP 90° ELL / LF BUSHING
7	BRASS CORPORATION STOP.
8	COPPER COMPRESSION TO IRON PIPE THREAD ADAPTER.
9	BRASS 90° CORPORATION ADAPTER.
10	PIPE SIZE X 1" OR 2" DOUBLE STRAP BRASS SADDLE, SEE LIST OF APPROVED MATERIALS
11	CLASS 560-C-3250 CONCRETE
12	CURB VALVE, SEE LIST OF APPROVED MATERIALS.
13	BRASS NIPPLE / PVC. SCH 80 THREDED COUPLING.

NOTES:
1. ALL BRASS BURIED OR ENCASED PIPE OR FITTINGS SHALL BE WRAPPED 20 MIL POLYETHYLENE TAPE BEFORE BACKFILLING.
2. LOCATION OF AIR VAC & AIR RELEASE ASSEMBLY SHALL BE LOCATED PER IWA REVIEW & APPROVAL.

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RCE C 78718

November 2016
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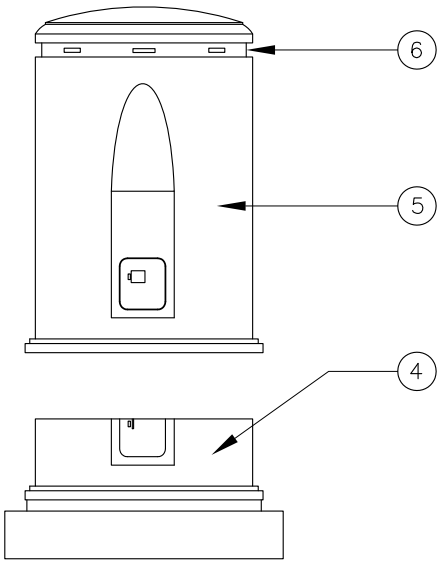
COMBINATION AIR VAC AND AIR RELEASE ASSEMBLY

STANDARD PLAN NUMBER

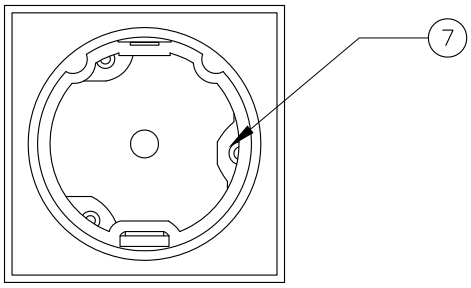
705 A

SHEET 1 OF 2

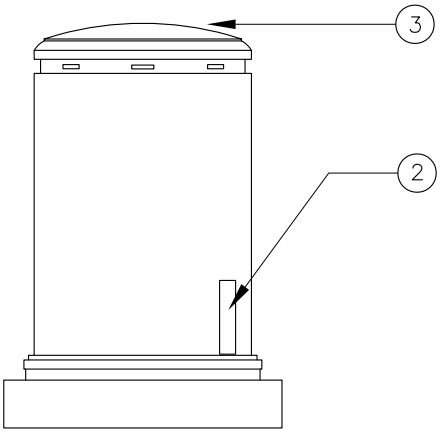
REVISION	DATE	REVISION	DATE



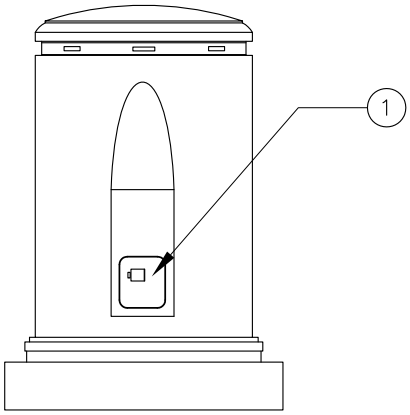
FRONT VIEW (OPENED)



TOP VIEW



SIDE VIEW



FRONT VIEW

NTS

ITEM	DESCRIPTION
1	STAINLESS STEEL PADLOCK BACKING PLATE
2	COVER ALIGNMENT TAB
3	DOMED TOP
4	BOLT – DOWN BASE
5	VALVE COVER
6	8–1/4" X 1–3/4" VENT SLOTS
7	3–1/2" CONCRETE ANCHORS WITH STAINLESS FENDER WASHERS

NOTES: 18"DIA. X 30" TALL VALVE ENCLOSURE. ENCLOSURE TO HAVE A BOLT DOWN BASE WITH REMOVABLE COVER. COVER AND BASE TO BE MANUFACTURED FROM 3/16" WALL POLYETHYLENE W/ UV STABILIZERS. COVER SHALL LOCK TO BASE WITH AN INTEGRAL AUTO–LATCH AND PADLOCK HASP.COVER TO BE PIPE–LINE PRODUCTS' MODEL #VCAS–1830 OR APPROVED EQUAL.(**COLOR - SANDSTONE**)

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November 2016
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AIR VAC , VENT, RISER AND VALVE ENCLOSURE

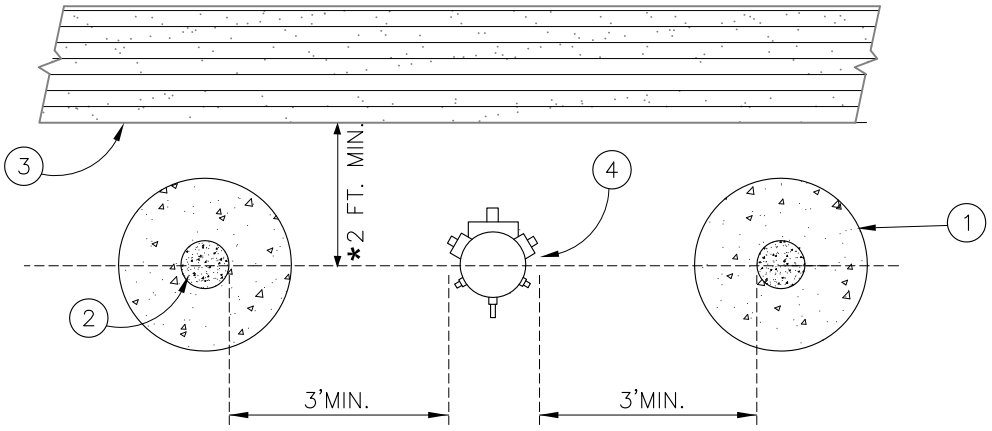
STANDARD PLAN NUMBER

705 B

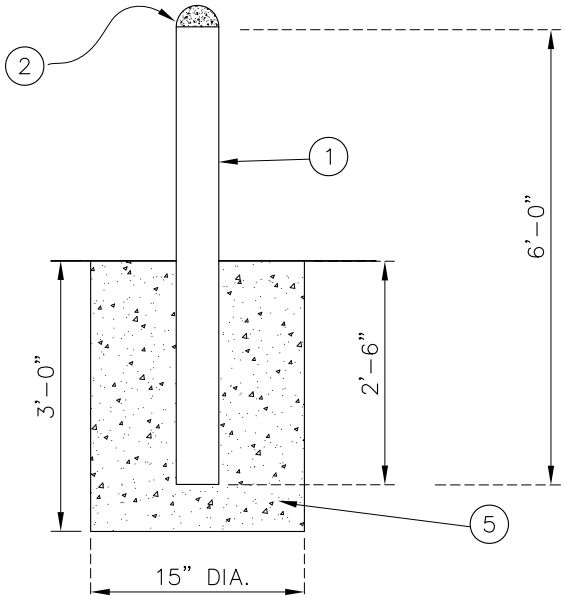
SHEET 2 OF 2

REVISION	DATE	REVISION	DATE

ALONG A STREET WITHOUT A CURB

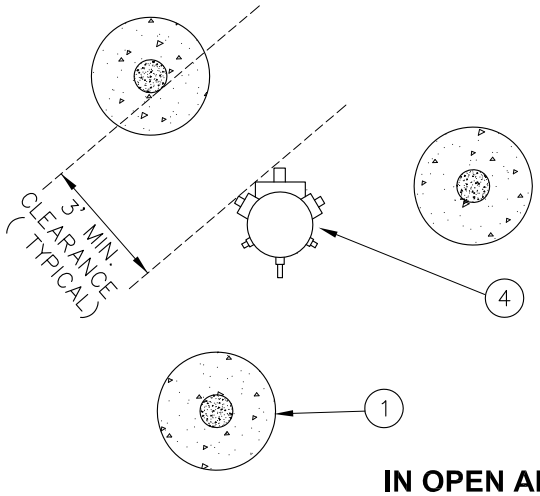


NTS



ELEVATION-SECTION

NTS



IN OPEN AREA

NTS

NOTE: *POSITION BOLLARDS FOR UNOBSTRUCTED ACCESS TO FIRE HYDRANT PORTS*

ITEM	DESCRIPTION
1	GALVANIZED 4" STEEL PIPE, FILLED WITH CONCRETE AND PAINTED RUSTOLEUM FEDERAL SAFETY YELLOW OR APPROVED EQUAL.
2	CONCRETE ROUNDED CAP.
3	EDGE OF PAVEMENT.
4	FIRE HYDRANT.
5	CLASS 560-C-3250 CONCRETE.

NOTES:

1. QUANTITY AND PLACEMENT OF BOLLARDS TO BE DETERMINED BY FIELD INSPECTION AND SUBJECT TO IWA APPROVAL.
2. BOLLARDS SHALL BE KEPT CLEAR OF HYDRANTS OUTLET.
3. (*) MAXIMUM DISTANCE TO BE DETERMINED BY IWA REPRESENTATIVE.

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November 2016
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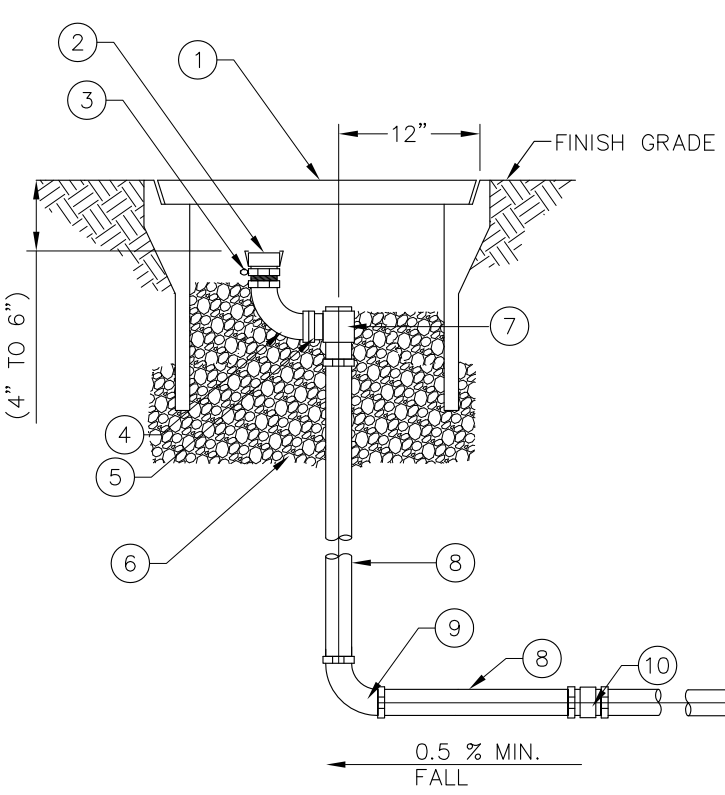
BOLLARDS TO PROTECT FIRE HYDRANTS

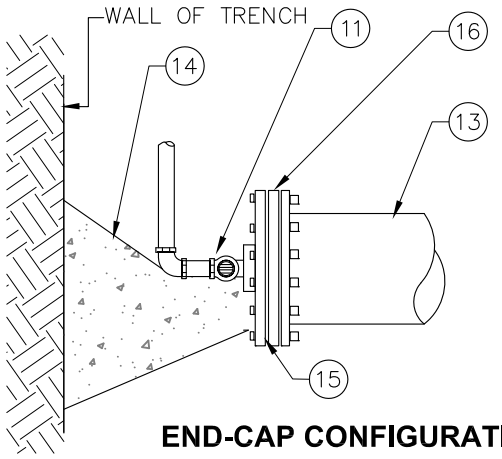
STANDARD PLAN NUMBER

706

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE





END-CAP CONFIGURATION

NTS

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	POLYMER METER BOX W/ LID 17"X30"	9	2" 90° BRONZE COMPRESSION ELL.
2	2" CAM & GROOVE ADAPTER X MIPT LOCKING DUST CAP..	10	2" BRONZE SOLDERED COUPLING COPPER TO COPPER. (IF REQUIRED)
3	$\frac{1}{4}$ " PRESSURE PET CAP.	11	2" BRONZE MIPT X COMP CORPORATION STOP.
4	2" 90° BRONZE MIPT X FIPT ELL.	12	2" SERVICE SADDLE.
5	2" OVAL METER FLANGE FLG X FIPT, W/ GASKET.	13	WATER MAIN
6	$\frac{3}{8}$" ROCK, 4" TO 6" DEEP.	14	THRUST BLOCK (PER IWA STD. 709A)
7	2" BRONZE CAP X FLG. ANGLE METER STOP.	15	END CAP
8	2" X REQ. LENGTH COPPER PIPE TYPE K RIGID OR SHORT.	16	MJ X FLG ADAPTER W/ 2" THREADED HOLE ON COMPANION FLG

NOTES:

1. SET TOP OF METER BOX FLUSH WITH SIDEWALK, CURB OR FINISH GRADE.
2. ON STEEL MAIN, USE WELD ON COUPLINGS. ON DUCTILE IRON, USE SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED).
3. CAM AND GROOVE ADAPTER SHALL BE DRILLED AND TAPPED AS REQUIRED FOR THE PRESSURE PET COCK.
4. SEE LIST OF APPROVED MATERIALS SELECTED FROM INDO WATER AUTHORITY.
5. USE A TRIPLE STRAP STAINLESS STEEL SADDLE FOR WATERMAINS LARGER THAN 12".

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November 2016
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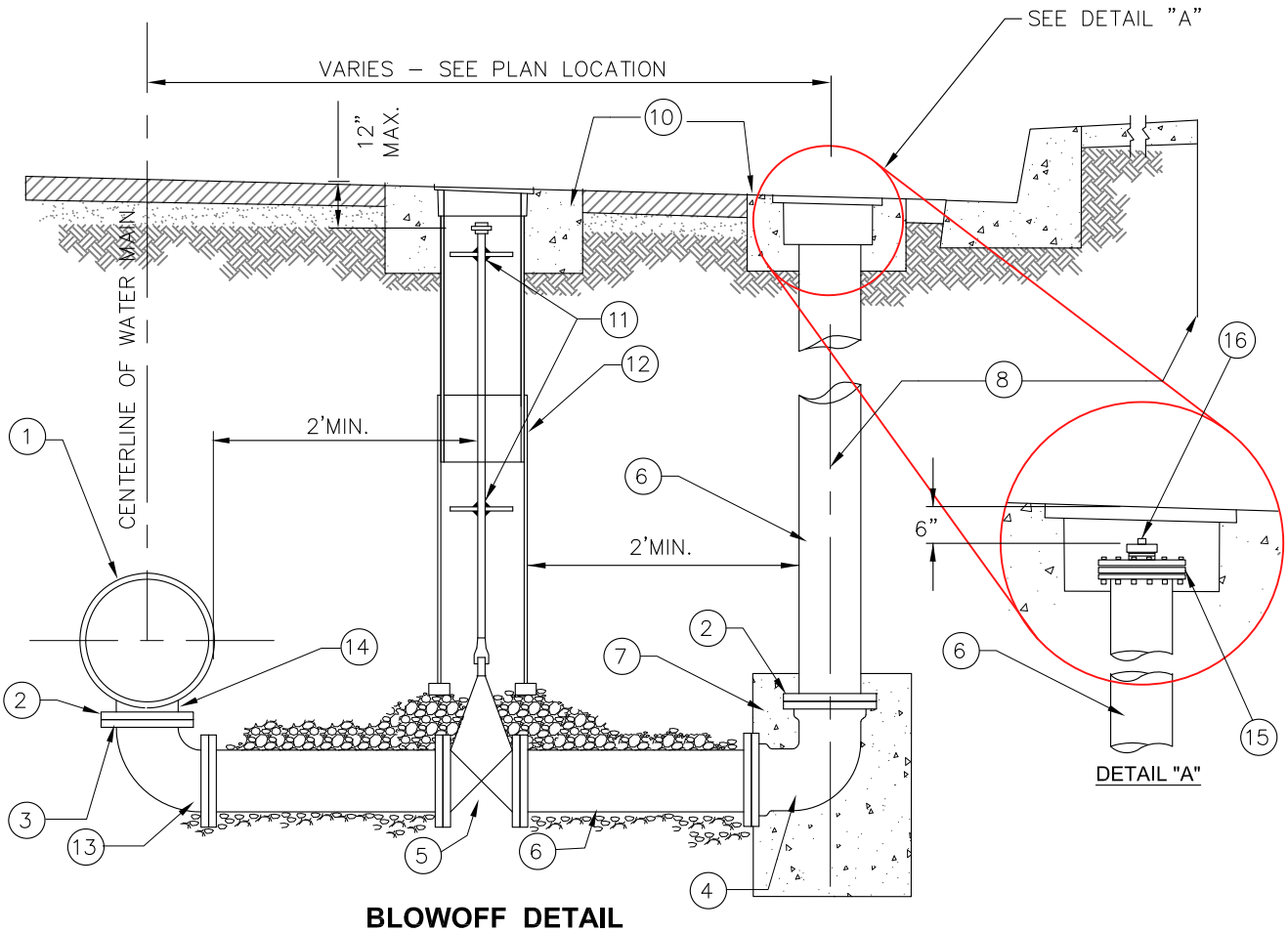
2" BLOW-OFF ASSEMBLY

STANDARD PLAN NUMBER

707

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE



BLOWOFF DETAIL

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	WATER MAIN	15	MJ X FLG
2	RESTRAINED JOINT REQUIRED.	16	2–1/2"MNPT X 2–1/2" MNSPT BRASS ADAPTOR W/ HYDRANT CAP COVER
3	4" FLANGE OUTLET		
4	4"–90° BEND MJ X MJ		
5	4" RESILIENT SEAT GATE VALVE		
6	4" DUCTILE IRON PIPE(2' MINIMUM LENGTH FLG. TO FLG)		**NOTE:** BLOWOFF COVER MARKED WATER (SEE LIST OF APPROVED MATERIALS)
7	ENCASED WITH CLASS 560–C–3250 CONCRETE 8" ALL AROUND.		
8	ALTERNATE LOCATIONS (SUBJECT TO IWA APPROVAL)		
9	NOT IN USE		
10	12" CONCRETE COLLAR CLASS 560–C–3250 FIBER REINFORCED CONCRETE.		
11	TACT WELD BRACING PLATE TO STEM		
12	ADJUSTABLE VALVE CAN AND COVER PER STD. DWG. 713B.		
13	FLG X MJ 90° BEND		
14	MAIN SIZE X 4" FLANGE OR MECHANICAL JOINT X FLANGE, DUCTILE IRON TEE.		

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November 2016
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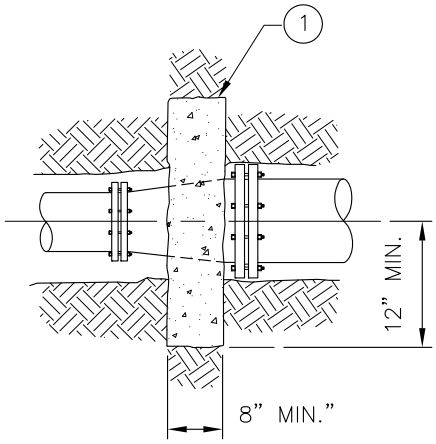
4" AND ABOVE BLOW-OFF ASSEMBLY

STANDARD PLAN NUMBER

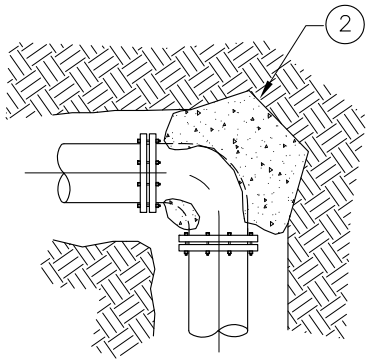
708

SHEET 1 OF 1

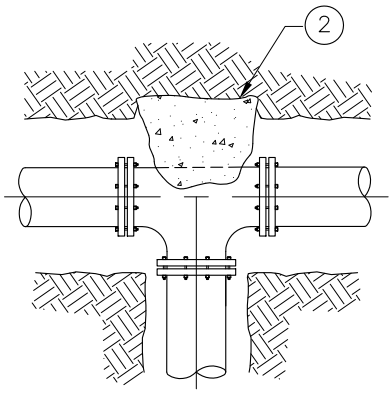
REVISION	DATE	REVISION	DATE



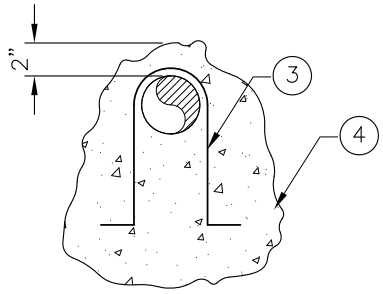
REDUCER



BEND

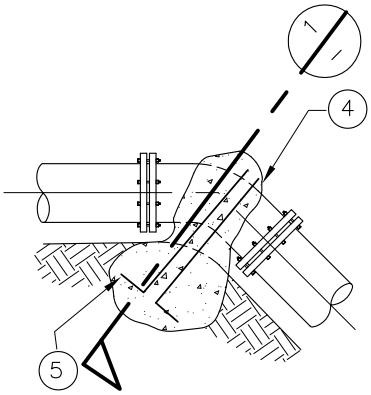


TEE OR PLUG

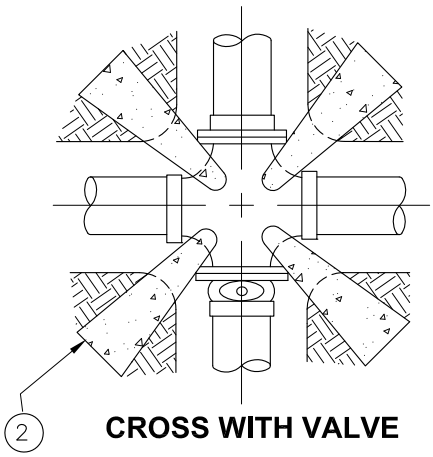


SECTION 1/—

NTS



VERTICAL BEND



CROSS WITH VALVE

ITEM	DESCRIPTION
1	CONSTRUCT SYMMETRICAL AROUND PIPE.
2	THRUST BEARING AREA
3	2– # 4 REINFORCING BARS (EPOXY COATED)
4	CONCRETE THRUST BLOCK–CLASS 560–C–3250 IN ACCORDANCE WITH S.S.P.W.C.
5	HOOK END 6" MINIMUM

THRUST BEARING AREA (SQUARE FEET)

PIPE SIZE		6"	8"	10"	12"
TEST PRESSURE (PSI)		150	150	150	200
BENDS	90°	4	7.5	11.5	16
	45°	2.5	4	6	9
	22.5°	2	2	3.5	4.5
	11.25°	2	2	2	2.5
PLUG		6	10.5	16	23
TEE/VALVE		3	5	8	11.5
CROSS *		3	5	8	11.5
REDUCER		2	4	7	10

NOTES:

1. (*) WITH A VALVE
2. PROVIDE CALCULATIONS BY DESIGN ENGINEER FOR CONNECTIONS GREATER THAN 12" SIZE.

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RCE C 78718

November 2016
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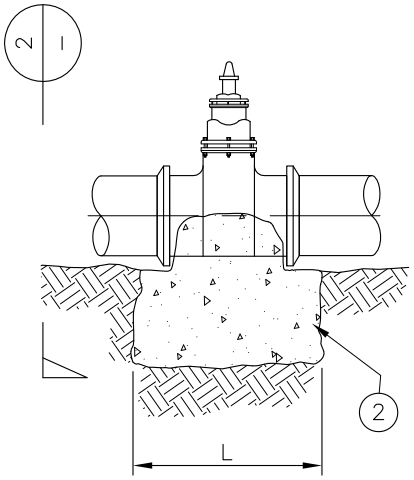
THRUST AND ANCHOR BLOCKS

STANDARD PLAN NUMBER

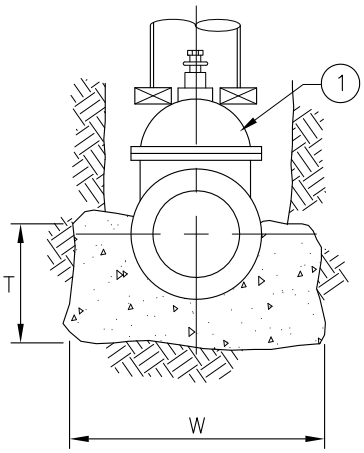
709 A

SHEET 1 OF 2

REVISION	DATE	REVISION	DATE



VALVE



SECTION 2/–

ITEM	DESCRIPTION
1	FXF R/W GATE VALVE D.I. AWWA C505
2	THRUST BEARING AREA

VERTICAL ANCHOR (CUBIC FEET OF P.C.C.)

PIPE SIZE / TEST PRESSURE (PSI)		6" / 150	8" / 150	10" / 150	12" / 200
BENDS	90°	62	111	173	249
	45°	44	78	122	176
	22.5°	24	42	66	95
	11.25°	12	22	34	49

THRUST BEARING AREA (SQUARE FEET)

PIPE SIZE / TEST PRESSURE (PSI)		6" / 150	8" / 150	10" / 150	12" / 200
BENDS	90°	4	7.5	11.5	16
	45°	2.5	4	6	9
	22.5°	2	2	3.5	4.5
	11.25°	2	2	2	2.5
PLUG		6	10.5	16	23
TEE/VALVE		3	5	8	11.5
CROSS *		3	5	8	11.5
REDUCER		2	4	7	10

* WITH A VALVE

TABLE(S) BASED ON SOIL BEARING VALUE OF 1500 lb. PER SQUARE FOOT.

CALCULATIONS MUST BE SUBMITTED FOR OTHER SOIL BEARING VALUES OR OTHER TEST PRESSURE IN WATER MAIN.

NOTES:

1. THRUST BLOCKS MUST BEAR ON UNDISTURBED SOIL.
2. CONCRETE FOR THRUST & ANCHOR BLOCKS SHALL BE OF CLASS 560-C-3250 IN ACCORDANCE WITH S.S.P.W.C. IT SHALL BE POURED (12" THICK MIN.) AGAINST UNDISTURBED SOIL. P.C.C. SHALL BE KEPT CLEAR OF JOINTS & BOLTS.
3. WHEN BOLTED JOINTS ARE UTILIZED, SET FORMS TO SEPARATE BOLTS FROM P.C.C. TO ASSURE ACCESS TO BOLTS & JOINTS.

VALVE AND PIPE SIZE	(L) LENGTH	(W) WIDTH	(T) THICKNESS
6"	2'	2'-0"	12"
8"	3'	2'-2"	14"
10"	3'	2'-4"	14"
12"	4'	2'-6"	15"

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GENERAL MANAGER
RCE C 78718

November 2016
DATE

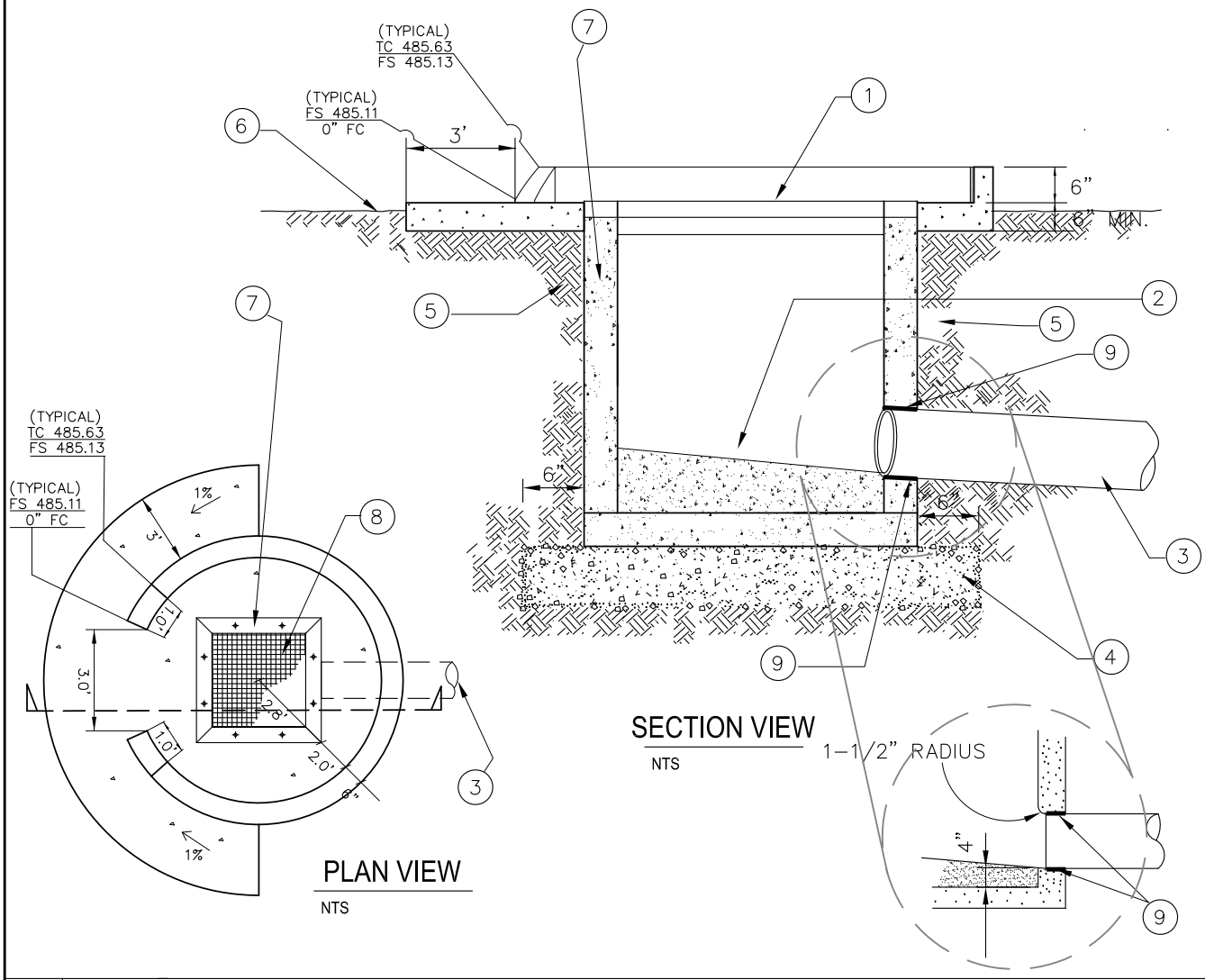
THRUST AND ANCHOR BLOCKS

STANDARD PLAN NUMBER

709 B

SHEET 2 OF 2

REVISION	DATE	REVISION	DATE



ITEM	DESCRIPTION
1	FINISHED GRADE - WIRE MESH SCREEN
2	CONCRETE APRON (CLASS 560-C 3250 CONCRETE)1% SLOPE (SLOPE TO BLOW-OFF DISCHARGE LINE)
3	WELL BLOW-OFF PIPE (MIN.12 INCHES DIAMETER) REINFORCE CONCRETE PIPE TO MAXWELL
4	12 INCHES COMPACTED DEPTH OF CRUSHED ROCK
5	NATIVE MATERIAL
6	EXISTING NATURAL GRADE (SLOPE GRADE AWAY FROM INLET ASSEMBLY)
7	4 FEET SQUARE PRE-CAST CONCRETE DRAIN BOX
8	3/8 INCH SQUARE STAINLESS STEEL SQUARE MESH WELDED TO CORNER OFTUBE
9	USE FINE GROUT ALL AROUND ANNULAR SPACE OF PIPE (1 PART CEMENT TO 2-1/2 PARTS SAND)

NOTES :

DRAIN BLOW-OFF LINE TO NEAREST STORM DRAIN INLET (IWA APPROVED SYSTEM).

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November 2016
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WELL SITE BLOW-OFF INLET ASSEMBLY

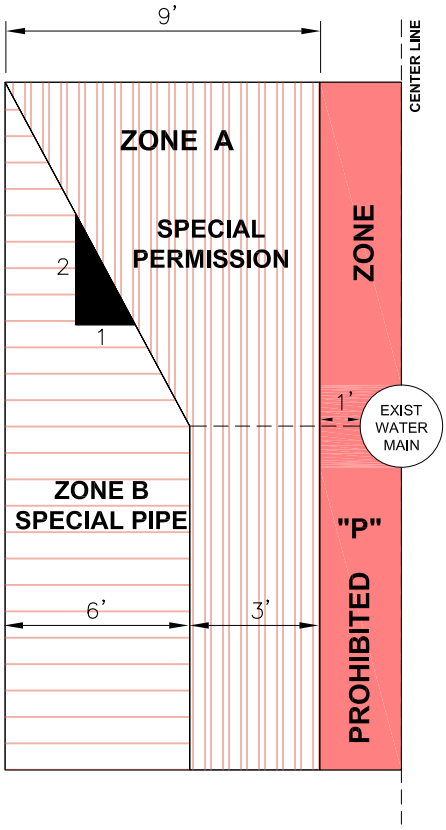
STANDARD PLAN NUMBER

710

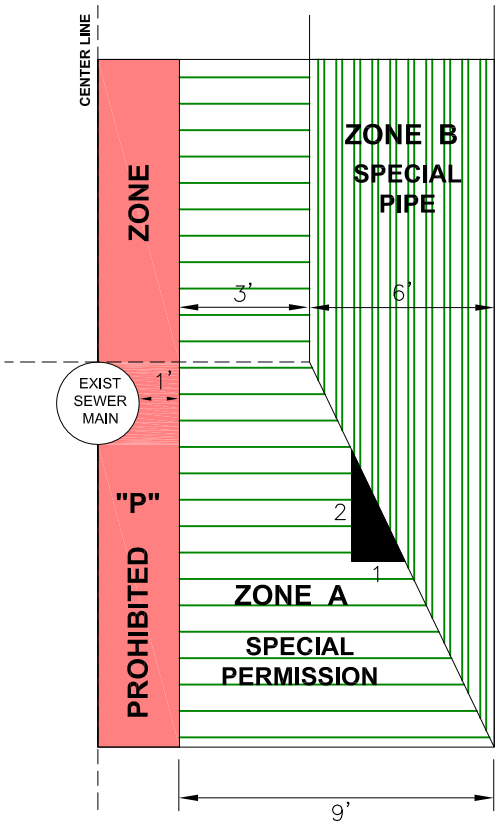
SHEET 1 OF 1

REVISION	DATE	REVISION	DATE

CASE 1
NEW SEWER MAIN



CASE 2
NEW WATER MAIN



PARALLEL CONSTRUCTION

NOTES:

1. ZONE 'P' IS A PROHIBITED ZONE PER SECTION 64572 (a) (2) CALIFORNIA CODE OF REGULATIONS, TITLE 22.
2. ZONE 'A' IS A NO CONSTRUCTION ZONE WITHOUT APPROVAL FROM RESPONSIBLE HEALTH AGENCY AND WATER SUPPLIER.
3. ZONE 'B' : NEW WATER MAIN SHALL BE CONSTRUCTED OF DIP CLASS 350 FOR PIPE SIZE 12 INCHES OR SMALLER AND CLASS 250 FOR PIPE SIZE LARGER THAN 12 INCHES. RESTRAINED JOINTS WITH 12 MIL POLYWRAP SHALL BE USE.
4. PIPE, COATING AND LINING SHALL BE PER AWWA STANDARD SPECIFICATIONS.
5. ZONE "B": NEW SEWER LINE TO COMPLY WITH CDPH REQUIREMENTS.

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November 2016
DATE

WATER MAIN AND SEWER SEPARATION REQUIREMENTS - PARALLEL

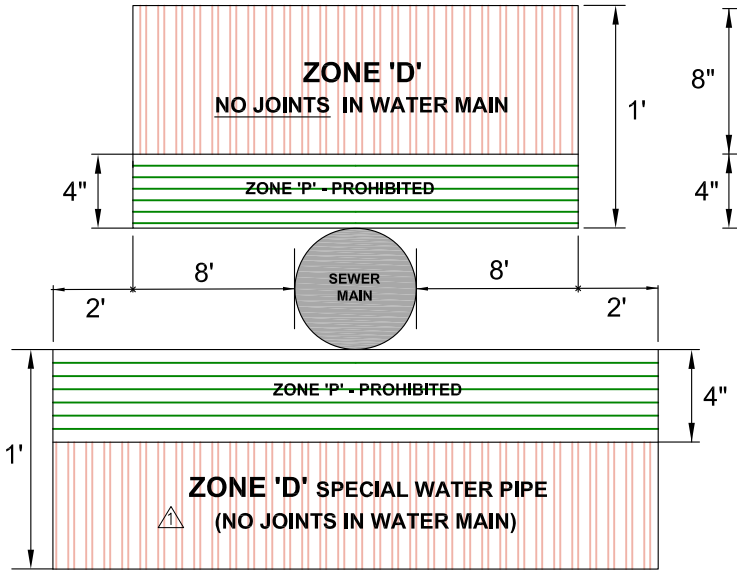
STANDARD PLAN NUMBER

711 A

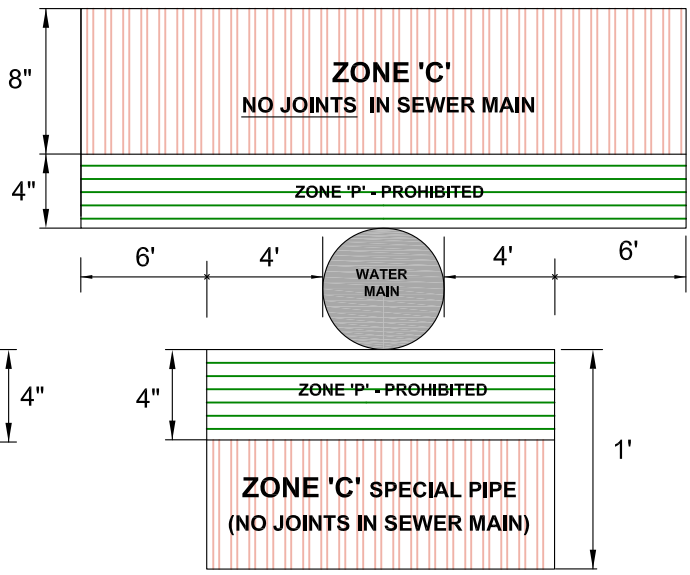
SHEET 1 OF 2

REVISION	DATE	REVISION	DATE

(CASE 2)
NEW WATER MAIN



(CASE 1)
NEW SEWER MAIN



CROSSING

NOTES:

1. ZONE 'P' IS A PROHIBITED ZONE PER SECTION 64572 (a) (2) CALIFORNIA CODE OF REGULATIONS, TITLE 22.
2. ZONE 'C': NEW WATER MAIN SHALL BE CONSTRUCTED OF DIP CLASS 350 FOR PIPE SIZE 12 INCHES OR SMALLER AND CLASS 250 FOR PIPE LARGER THAN 12 INCHES. RESTRAINED JOINTS WITH 12 MIL POLYWRAP SHALL BE USED.
3. ZONE 'C': NEW SEWER LINE WILL BE CONSTRUCTED PER SANITATION APPROVED MATERIALS.
4. ZONE 'D': NEW WATER MAIN SHALL BE CONSTRUCTED OF DIP CLASS 350 FOR PIPE SIZE 12 INCHES OR SMALLER AND CLASS 250 FOR PIPE LARGER THAN 12 INCHES. RESTRAINED JOINTS WITH 12 MIL POLYWRAP SHALL BE USED.
5. PIPE, COATING AND LINING SHALL BE PER A.W.W.A. STANDARD SPECIFICATIONS
6. ALL AWWA STANDARDS REFER TO LATEST EDITION;
7. RESTRAINED JOINTS FOR ALL CROSSING.

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November 2016
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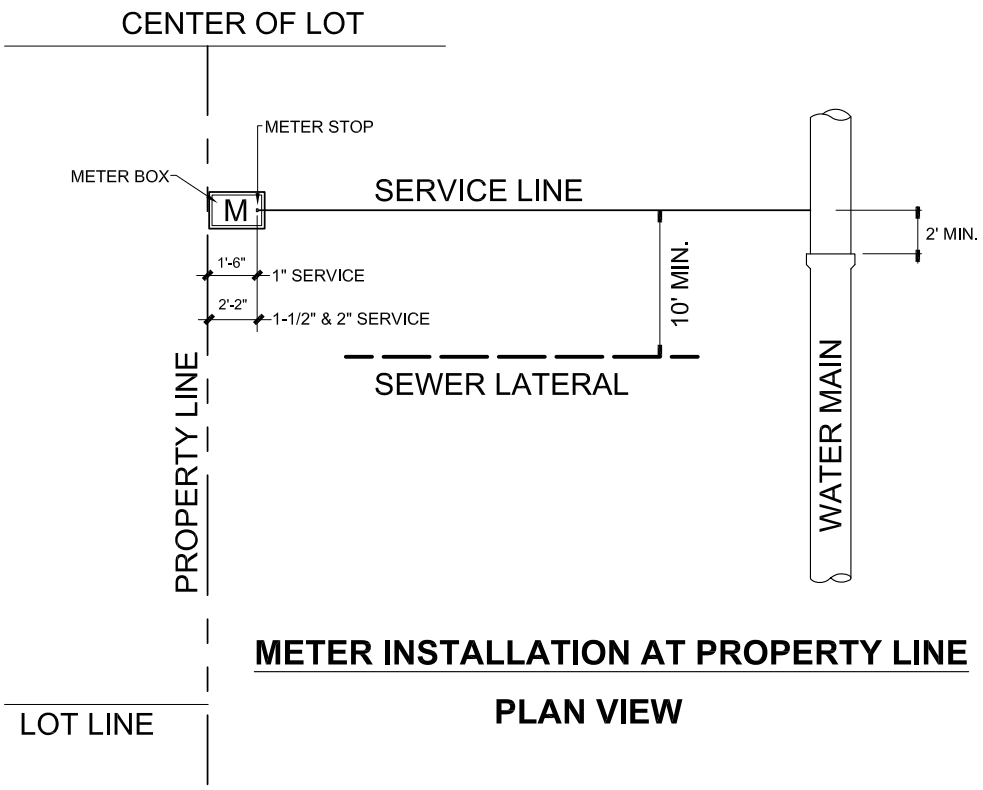
WATER MAIN AND SEWER SEPARATION REQUIREMENTS - CROSSING

STANDARD PLAN NUMBER

711 B

SHEET 2 OF 2

REVISION	DATE	REVISION	DATE
1	NOV.2018		

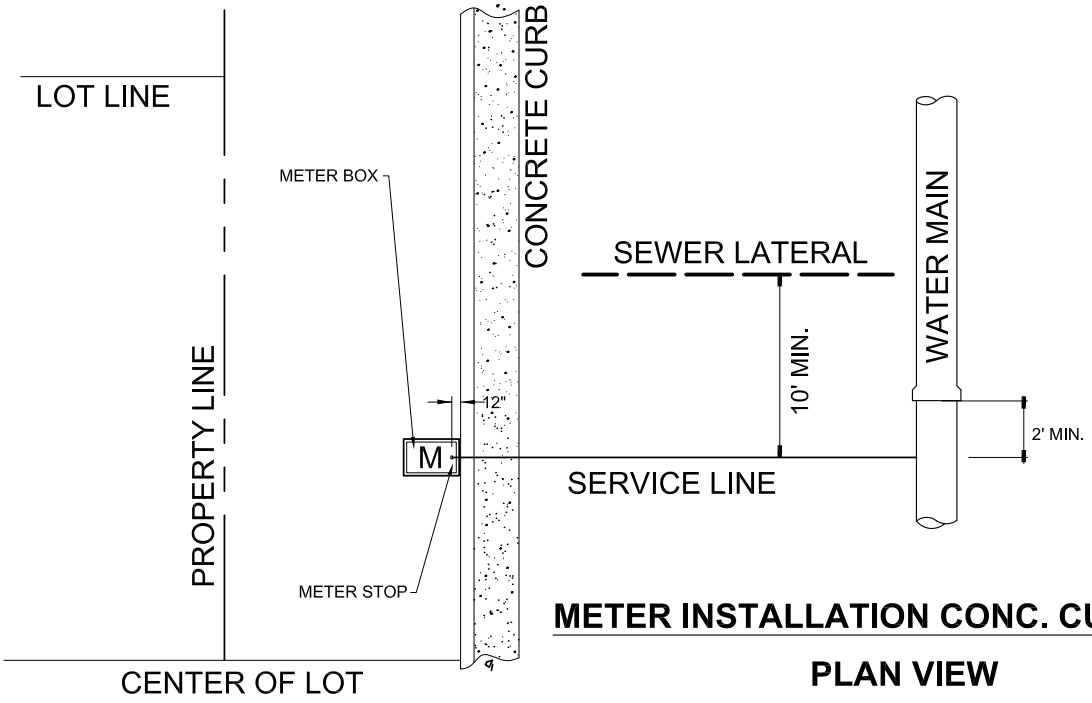


METER INSTALLATION AT PROPERTY LINE

PLAN VIEW

NOTES:

IF SIDE WALK IS ADJACENT TO THE CURB THE METER BOX IS TO BE LOCATED OUTSIDE AND ADJACENT TO SIDEWALK.
(SEE STANDARD PLAN 700).



METER INSTALLATION CONC. CURB LINE

PLAN VIEW

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BRIAN MACY P.E.
GENERAL MANAGER
RCE C 78718

November 2016
DATE

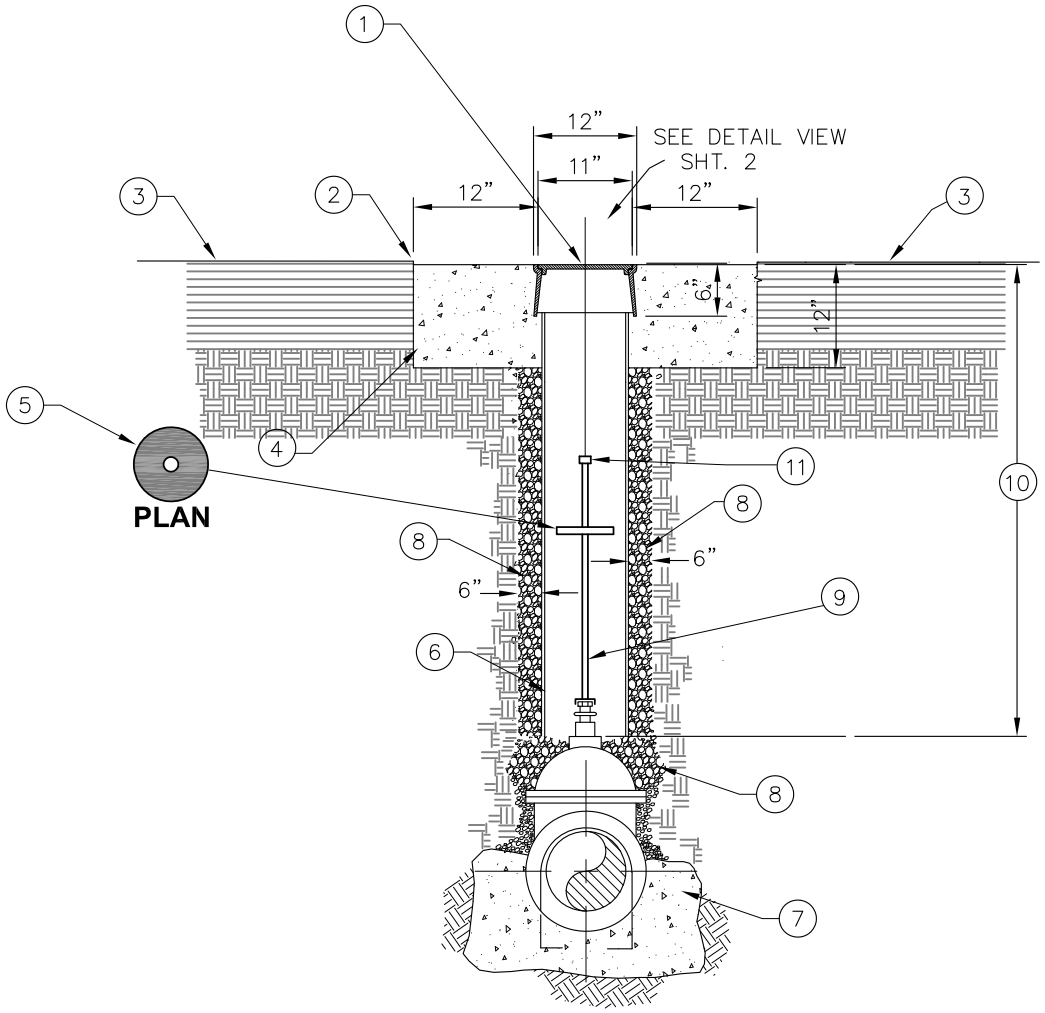
WATER/SEWER LATERAL SEPARATION

STANDARD PLAN NUMBER

712

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE



NTS

ITEM	DESCRIPTION
1	COVER MARKED – **" IWA "**
2	⅛" LIP
3	PAVEMENT SURFACE
4	12" CONCRETE COLLAR CLASS 560–C 3250 FIBER REINFORCED CONCRETE W/ SONOTUBE & REMOVE PRIOR TO BACKFILLING
5	6" X ¼" SOLID DISK, TACK WELD TO SHAFT EXTENSION
6	8" C–900 PVC
7	THRUST BLOCK PER IWA STANDARD PLAN 709A AND 709B
8	¾" ROCK OR PEA GRAVEL
9	VALVE STEM EXTENSION, 1–1/4" STEEL TUBE, CENTER AND PLUMB OVER OPERATING NUT
10	IF DEPTH EXCEEDS 4'–0", PROVIDE STEM EXTENSION TO 36" BELOW FINISHED SURFACE (MIN)
11	2" SQUARE OPERATING NUT

NOTES:

1. STAMP ON CURB FACE A 3" TALL **"V"** AND THE DISTANCE IN FEET FROM THE CURB FACE TO CENTER OF VALVE CAN.
2. ALL VALVES NEED TO BE ACCESSIBLE WHEN WATER MAIN IS UNDER CONSTRUCTION.

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GENERAL MANAGER
RCE C 78718

November 2016
DATE

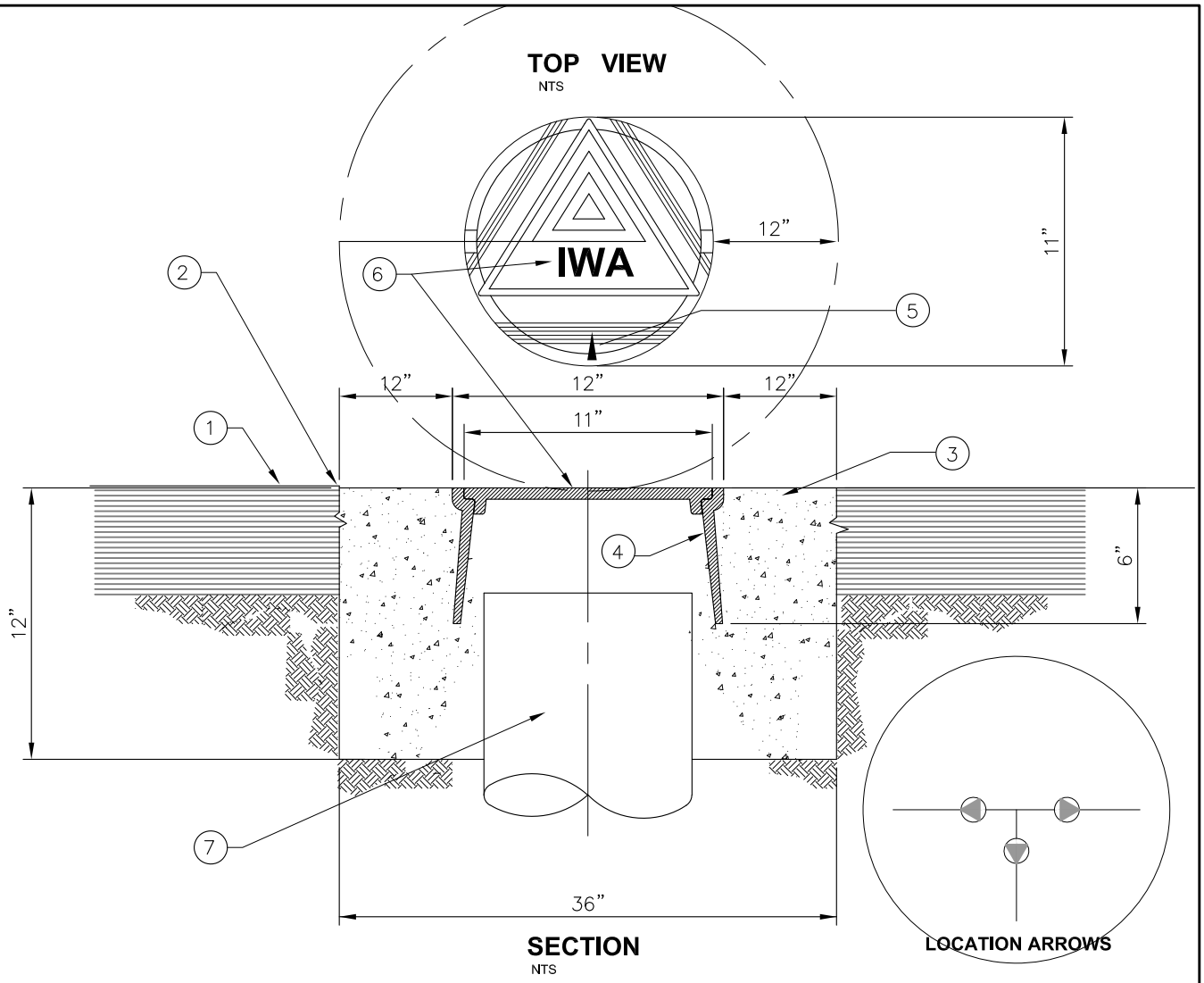
VALVE COVER ASSEMBLY AND VALVE STEM EXTENSION

STANDARD PLAN NUMBER

713 A

SHEET 1 OF 6

REVISION	DATE	REVISION	DATE



ITEM	DESCRIPTION
1	PAVEMENT SURFACE
2	⅛” LIP
3	12” CONCRETE COLLAR CLASS 560–C3250 FIBER REINFORCED CONCRETE W/ SONOTUBE AND REMOVE PRIOR TO BACKFILLING
4	CAST IRON WATER VALVE BOX
5	ARROW ON COVER–DIRECTION OF MAIN
6	COVER MARKED – **" IWA "** CAST IRON.PAINTED BLUE/OUTSIDE LID PAINTED W/ PERMANENT PLACK PAINT
7	8” PVC C900

NOTES:

1. APPROVED WATER VALVE. (REFER TO LIST OF APPROVED MATERIALS)
2. PAINT COVER WITH PERMANENT BLUE PAINT.
3. STAMP ON CURB FACE A 3” TALL **"V"** AND THE DISTANCE IN FEET FROM THE CURB FACE TO CENTER OF VALVE CAN.
4. ALL VALVES NEED TO BE ACCESSIBLE WHEN WATER MAIN IS IN PROGRESS

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GENERAL MANAGER
RCE C 78718

November 2016
DATE

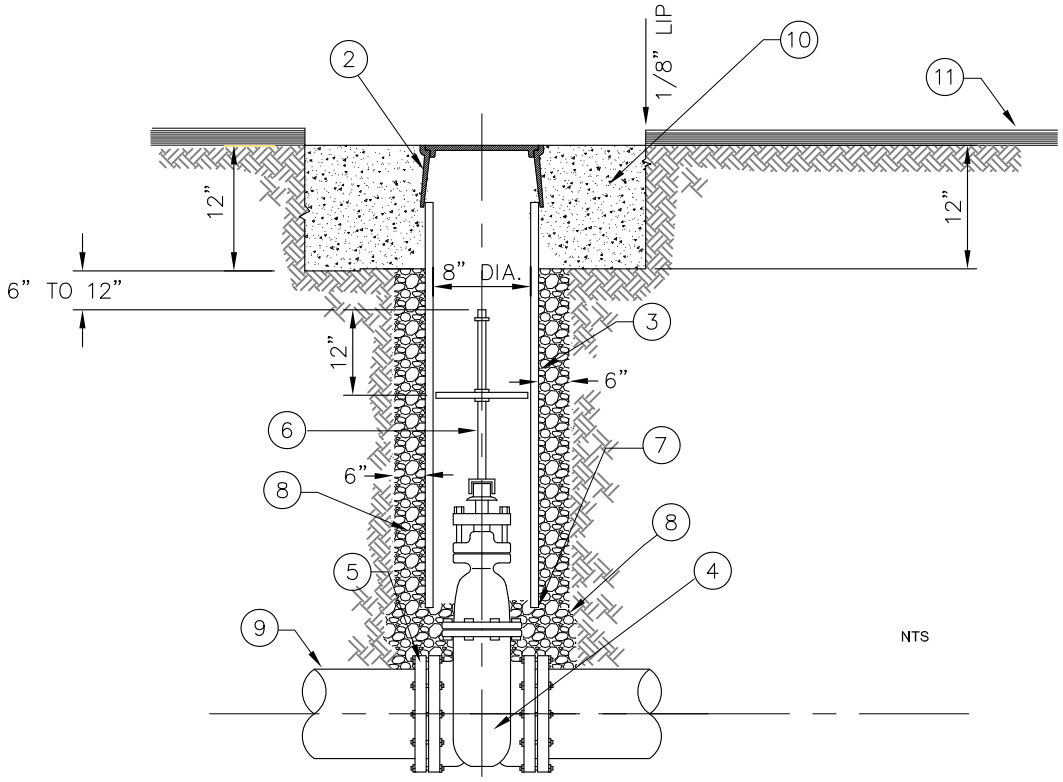
VALVE COVER DETAILS

STANDARD PLAN NUMBER

713 B

SHEET 2 OF 6

REVISION	DATE	REVISION	DATE



ITEM	DESCRIPTION
1	NOT USE
2	WATER VALVE BOX
3	8" C-900, PVC VALVE BOX
4	FLANGE JOINT RESILIENT-SEATED GATE VALVE WITH 2" OPERATING NUT
5	RESTRAINED FITTING
6	VALVE OPERATOR EXTENSION, SEE STANDARD DRAWING 713A FOR INSTALLATIONS 4'-0" OR DEEPER
7	TERMINATE VALVE BOX JUST BELOW PACKING GLAND OF VALVE
8	¾" ROCK OR PEA GRAVEL
9	DUCTILE IRON MAIN
10	12" CONCRETE COLLAR CLASS 560-C3250 FIBER REINFORCED CONCRETE
11	PAVEMENT SURFACE

NOTES:

1. VALVE OPERATOR EXTENSION IS REQUIRED WHEN DEPTH TO VALVE OPERATOR EXCEEDS 4'. VALVE OPERATOR EXTENSION SHALL BE 36".
2. STAMP ON CURB FACE A 3" TALL "V" AND THE DISTANCE IN FEET FROM THE CURB FACE TO CENTER OF VALVE CAN.
3. SEE STANDARD DRAWING 709A AND 709B FOR THRUST BLOCK REQUIREMENTS.
4. ALL VALVES NEED TO BE ACCESSIBLE WHEN WATER MAIN IS UNDER CONSTRUCTION.

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RCE C 78718

November 2016
DATE

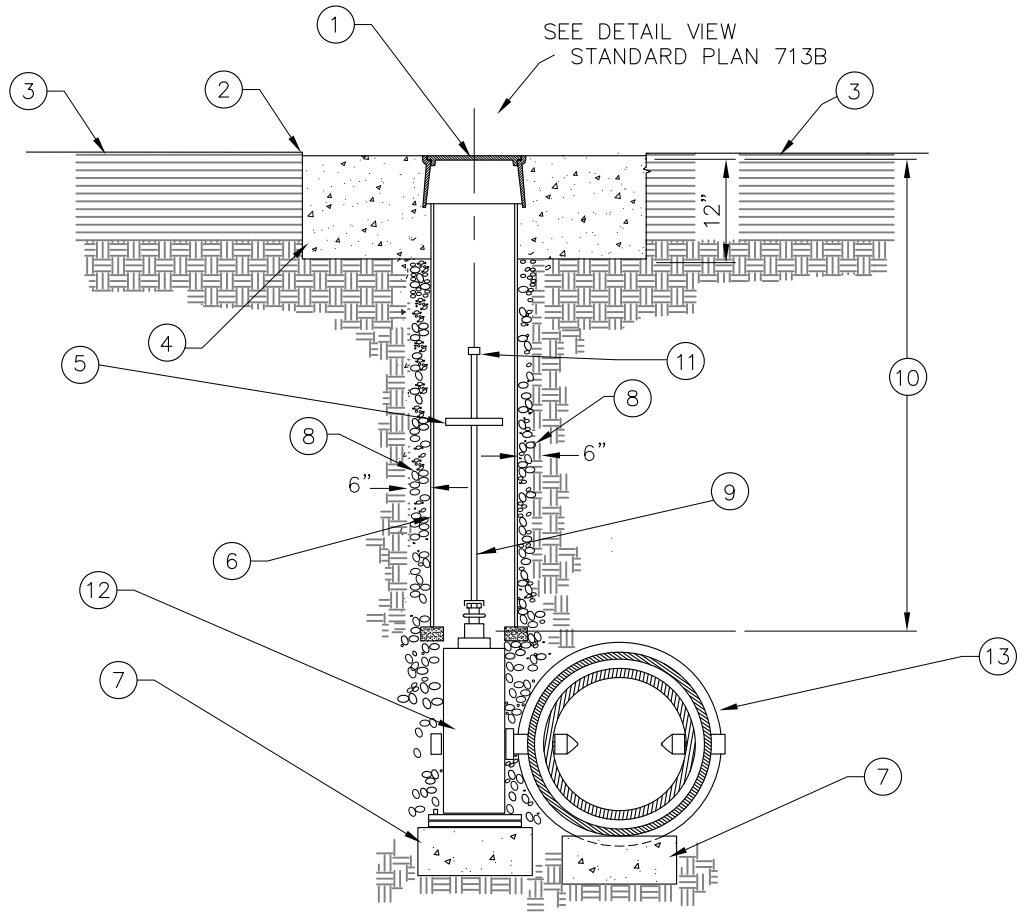
GATE VALVE INSTALLATION

STANDARD PLAN NUMBER

713 C

SHEET 3 OF 6

REVISION	DATE	REVISION	DATE



ITEM	DESCRIPTION
1	COVER MARKED – **"IWA"**(Refer to Std. Plan 713B for Valve Cover details)
2	1/8" LIP
3	PAVEMENT SURFACE
4	12" CONC. COLLAR CLASS 560–C 3250 FIBER REINFORCED CONCRETE. (FORM CONC.COLLAR IN UNIMPROVED AREAS W/ SONOTUBE AND REMOVE PRIOR TO BACKFILLING.)
5	6" X 1/4" SOLID DISK, TACK WELD TO SHAFT EXTENSION
6	8" C–900 PVC
7	PRE–CAST CONCRETE BLOCKS OR POURED IN–PLACE (3,000 PSI) MIN. 8" THICK
8	$\frac{3}{4}$" ROCK OR PEA GRAVEL
9	VALVE STEM EXTENSION, 1–1/4" STEEL TUBE, CENTER AND PLUMB OVER OPERATING NUT
10	IF DEPTH EXCEEDS 4'–0", PROVIDE STEM EXTENSION TO 36" BELOW FINISHED SURFACE (MIN)
11	2" SQUARE OPERATING NUT
12	VALVE OPERATOR
13	VALVE SHALL BE A SEATED RUBBER BUTTERFLY VALVE, FURNISHED WITH FLANGED ENDS. A DUCTILE IRON BODY AND DISC. AND MOULDED RUBBER SEAT. THE INTERIOR SHALL BE CL–150 UNLESS OTHERWISE SPE– AND SHALL CONFORM TO AWWA C504. REFER TO LIST OF APPR'V MAT. FOR ACCEPTED MANUFACTURERS.

NOTES:
1. Stamp on curb face a 3" tall "v" and the distance in feet from the curb face to center of valve can.
2. All valves need to be accessible when water main is in progress.

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RCE C 78718

November 2016
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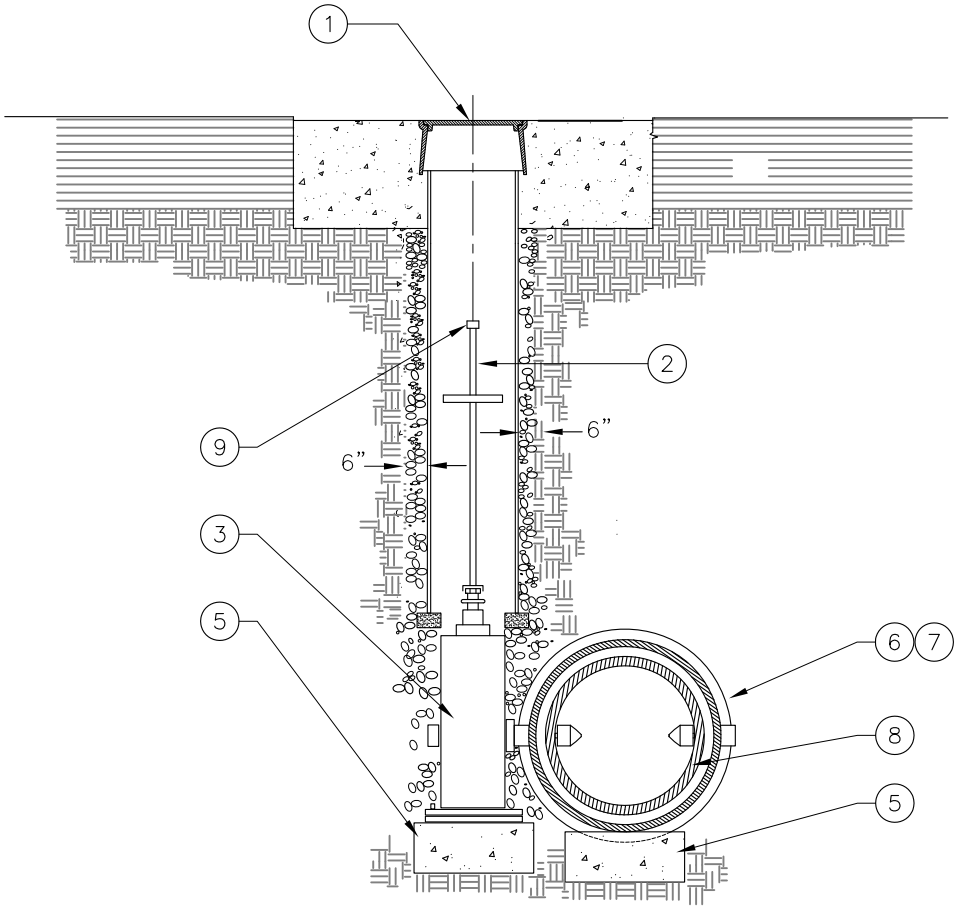
BUTTERFLY VALVE COVER ASSEMBLY AND VALVE STEM EXTENSION

STANDARD PLAN NUMBER

713 D

SHEET 4 OF 6

REVISION	DATE	REVISION	DATE



ITEM	DESCRIPTION
1	COVER MARKED – "IWA"(REFER TO STD. PLAN 713B FOR VALVE COVER DETAILS)
2	SEE STANDARD PLAN 713A FOR VALVE EXTENSION
3	VALVE OPERATOR
4	8 INCHES C–900 PVC
5	PRE–CAST CONCRETE BLOCKS OR POURED IN–PLACE (3,000 PSI) MINIMUM 8 INCHES THICK.
6	ALL VALVES SHALL BE CL–150–B RUBBER SEAT TIGHT CLOSING TYPE MEETING OR EXCEEDING AWWA STD.C–504 UNLESS WORKING PRESSURE EXCEEDS 150 PSI.
7	THE VALVE BODY SHALL BE SHORT TYPE, DIP CONFORMING TO ASTM A–126, CL B
8	THE RUBBER VALVE SEAT SHALL BE MECHANICALLY SECURED BY A STAINLESS STEEL RING CONFORMING TO ASTM A–276, TYPE 304, 18 B
9	THE OPERATING NUT SHALL BE 2" MANUAL OPERATOR. THE OPERATING NUT SHALL TURN COUNTER CLOCKWISE TO OPEN. PLACE NORTH OR WEST OF THE WATER MAIN ℄

NOTE:
CONTRACTOR TO DISINFECT IN ACCORDANCE WITH AWWA STANDARD C651.

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RCE C 78718

November 2016
DATE

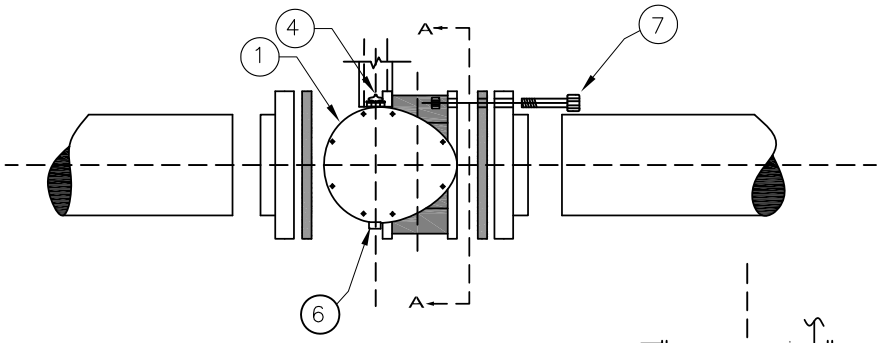
BUTTERFLY VALVE INSTALLATION

STANDARD PLAN NUMBER

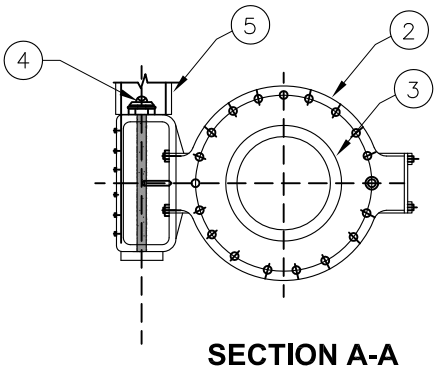
713 E

SHEET 5 OF 6

REVISION	DATE	REVISION	DATE

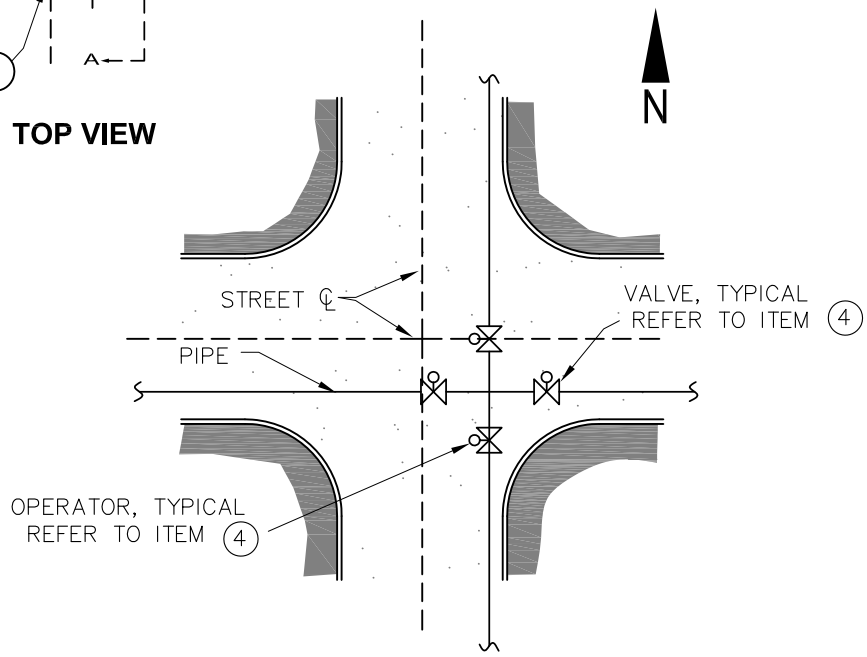


TOP VIEW



SECTION A-A

NTS



BUTTERFLY VALVE OPERATOR POSITION

ITEM	DESCRIPTION
1	ALL VALVES SHALL BE CLASS 150–B RUBBER SEAT TIGHT CLOSING TYPE MEETING OR EXCEEDING A.W.W.A. STANDARD C–504 UNLESS WORKING PRESSURE EXCEEDS 150 PSI.
2	THE VALVE BODY SHALL BE SHORT TYPE, DUCTILE IRON CONFORMING TO A.S.T.M. A–126, CLASS B.
3	THE RUBBER VALVE SEAT SHALL BE MECHANICALLY SECURED BY A STAINLESS STEEL RING CONFORMING TO A.S.T.M. A–276 TYPE 304, 18–B.
4	THE OPERATING NUT SHALL BE 2 INCH MANUAL OPERATOR. THE OPERATING NUT SHALL TURN COUNTER CLOCKWISE TO OPEN. PLACE NORTH OR WEST OF THE WATER MAIN ℄ .
5	INSTALL A VALVE BOX PER STANDARD DRAWING 713B.
6	FLANGE BUTTERFLY VALVE, TRAVELING NUT TYPE ONLY (SIZE PER PLAN)
7	BOLTS AND NUTS SHALL BE STAINLESS STEEL A.S.T.M. A–307 GRADE A OR B WITH COARSE SCREW THREADS, SERIES CLASS 2A AND 2B.
8	BUTTERFLY VALVE TO BE USED ON WATER LINES 12" OR GREATER."

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RCE C 78718

November 2016
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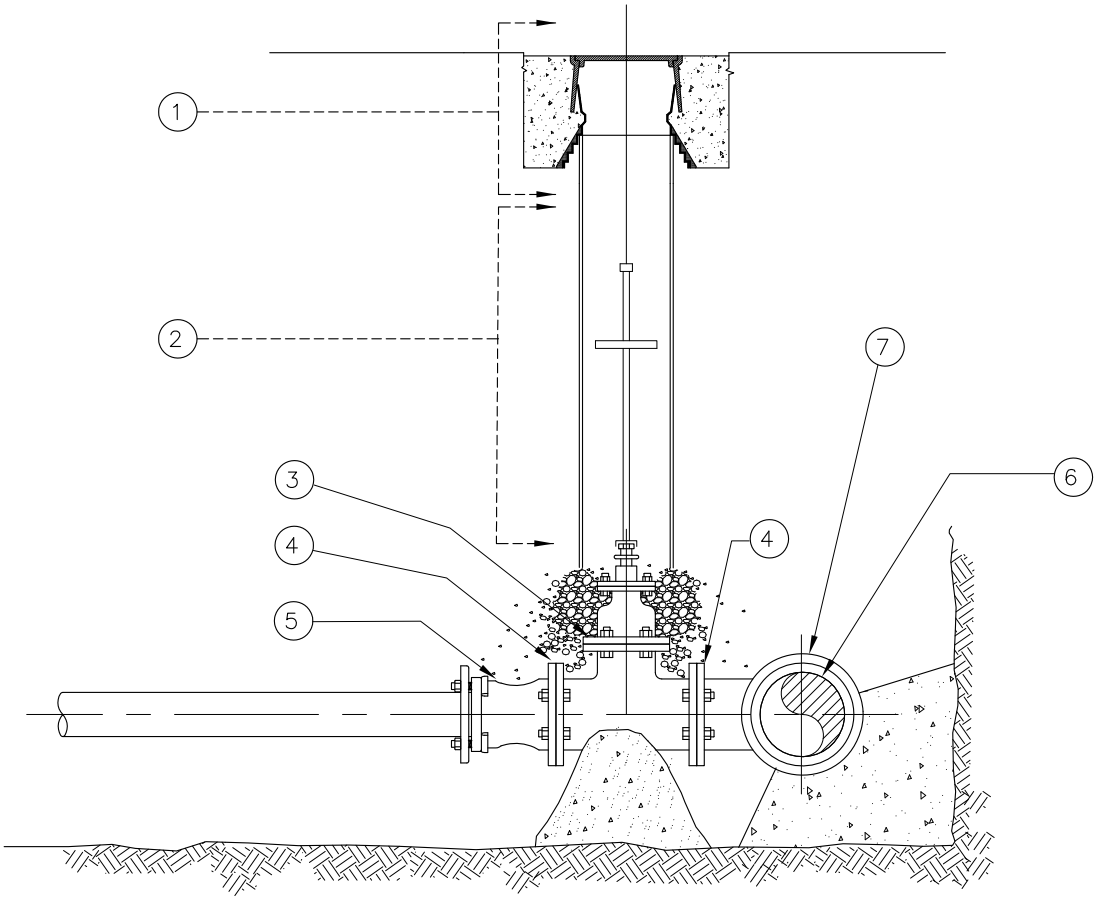
BUTTERFLY VALVE LAYOUT

STANDARD PLAN NUMBER

713 F

SHEET 6 OF 6

REVISION	DATE	REVISION	DATE



NTS

ITEM	DESCRIPTION
1	VALVE COVER ASSEMBLY. SEE IWA STD. PLAN 713B
2	VALVE SHAFT EXTENSION. SEE IWA STD. PLAN 713D
3	RESILIENT GATE VALVE
4	FLANGE X FLANGE
5	FLANGE X MJ ADAPTER
6	EXISTING MAIN
7	STAINLESS STEEL TAPPING TEE OR AS APPROVED BY IWA. SEE LIST OF APPROVED MATERIALS

NOTES:

1. THE CONTRACTOR SHALL EXPOSE EXISTING MAIN, THOROUGHLY CLEAN AND FLASH CHORINATE IT PRIOR TO SETTING THE TAPPING TEE.
2. THE CONTRACTOR SHALL FLASH CHLORINATE PIPE, VALVE, HUB ADAPTOR, TEE & CAP PRIOR TO INSTALLATION.
3. AIR TEST TAPPING
4. HOT TAP SHALL BE ONE PIPE DIAMETER SIZE SMALLER OR LESS THAN THE EXISTING PIPELINE.
5. ALL HOT TAPS MUST BE APPROVED BY IWA.

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RCE C 78718

November 2016
DATE

HOT TAP DETAIL

STANDARD PLAN NUMBER

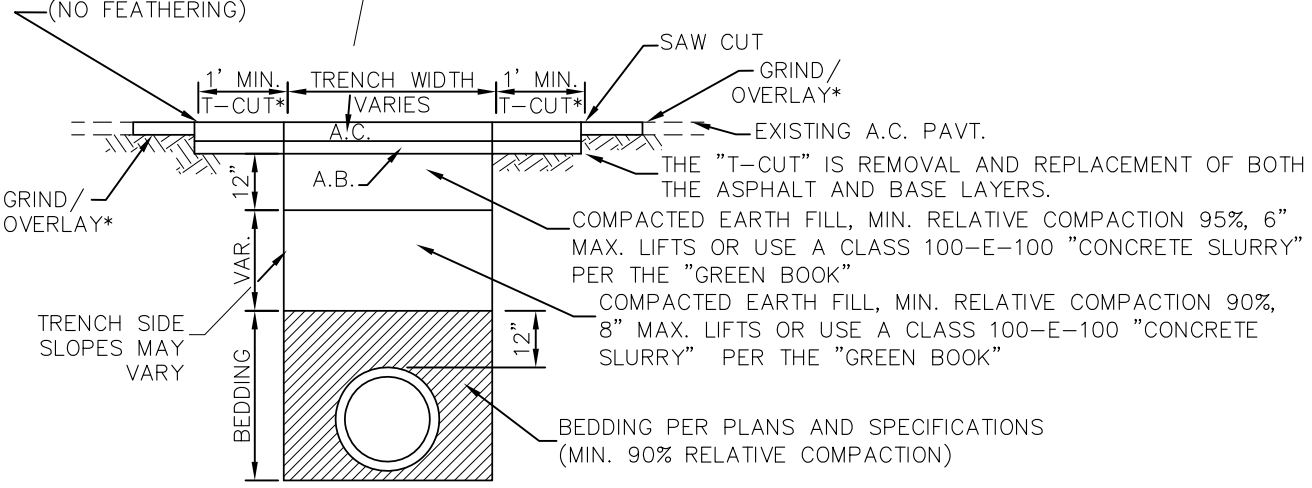
714

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE

STREET STRUCTURAL SECTION REQUIRED
RESIDENTIAL STREETS:
4" A.C. (MIN.) OVER 4" A.B. (MIN.)
ALL OTHER STREETS:
5" A.C. (MIN.) OVER 8" A.B. (MIN.)

NOTE: IF EITHER THE EXISTING A.C. OR A.B. IS THICKER THAN THE ABOVE, THEN THE EXISTING A.C. OR A.B. THICKNESS SHALL BE USED.



"T-TRENCH" DETAIL
NOT TO SCALE

* AS REQUIRED (SEE BELOW)

LONGITUDINAL TRENCH CUTS IN DRIVING LANES

0" TO 12" WIDE – REPAIR TRENCH WIDTH, PLUS 1.5" GRIND AND OVERLAY FROM LANE LINE TO LANE LINE.

> 12" WIDE – REPAIR TRENCH WIDTH PLUS ADDITIONAL 1' "T-CUT" ON BOTH SIDES, PLUS 1.5" GRIND/OVERLAY FROM LANE LINE TO LANE LINE.

TRANSVERSE TRENCH CUTS (PERPENDICULAR TO CENTERLINE OD ROAD)

0" TO 12" WIDE – REPAIR TRENCH WIDTH ONLY.

12" TO 24" WIDE – REPAIR TRENCH WIDTH PLUS ADDITIONAL 1' "T-CUT" ON BOTH SIDES.

>24" WIDE – REPAIR TRENCH WIDTH PLUS ADDITIONAL 1' "T-CUT" ON BOTH SIDES, PLUS GRIND/OVERLAY 1.5" MIN. THICK FOR AN ADDITIONAL 3' ON BOTH SIDES.

SHOULDER TRENCH CUTS

AT EDGE OF GUTTER – REPAIR TRENCH WIDTH ONLY (NO "T-TRENCH").

OFF EDGE OF GUTTER – NO LESS THAN 2' "FLOATER" BETWEEN TRENCH AND GUTTER.

SLURRY OR FOG SEAL MAY BE REQUIRED UNLESS THE ROADWAY IS A DESIGNATED BIKE ROUTE, WHICH WOULD REQUIRE A 1.5" THICK GRIND/OVERLAY FROM EDGE OF GUTTER TO LANE LINE.

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RCE C 78718

November 2016
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TRENCH REPAIR DETAIL

STANDARD PLAN NUMBER

715 A

SHEET 1 OF 2

REVISION	DATE	REVISION	DATE

SPECIAL NOTES FOR TRENCH REPAIR DETAIL

A. ASPHALT CONCRETE (A.C.):

1. A.C. SURFACE LAYER, OR CAP, SHALL BE 1/2–INCH MAXIMUM, MEDIUM, PG 70–10 MATERIAL PER CALTRANS SPECIFICATIONS.
2. A.C. BASE OR BOTTOM, LAYER(S) SHALL BE 3/4–INCH MAXIMUM, MEDIUM, PG 70–10 MATERIAL PER CALTRANS SPECIFICATIONS.
3. MAXIMUM A.C. LIFT THICKNESS = 3.0".
4. ALL A.C. BASE LAYERS AND ALL EDGES TO RECEIVE HEAVY TACK COAT.
5. WHEN SURFACE WIDTH OF A.C. TRENCH TO BE PAVED IS 10', OR WIDER, A BARBARA–GREEN PAVER, OR EQUAL, SHALL BE USED.

B. AGGREGATE BASE (A.B.):

1. AGGREGATE BASE (A.B.) SHALL BE CLASS II A.B. PER CALTRANS SPECIFICATIONS.
2. ALL A.B. AS PART OF STRUCTURAL SECTION SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.
3. A.B. MAY BE USED AS TRENCH BACKFILL; HOWEVER, THE PORTION THAT IS PART OF THE STREET STRUCTURAL SECTION AND THE ADDITIONAL TOP 12" OF A.B. SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.

C. CONCRETE SLURRY:

1. FOR TRENCH WIDTHS 0" TO 12", CONCRETE SLURRY MAY BE BROUGHT TO 3" BELOW TOP OF A.C. SURFACE.
2. FOR TRENCH WIDTHS > 12", CONCRETE SLURRY MAY BE BROUGHT TO BOTTOM OF A.B. LAYER (I.E. NEED COMPLETE A.B. AND A.C. LAYERS).

D. TIMING OF FINAL A.C. LAYER (OR CAP):

1. THE A.C. SURFACE LAYER, OR CAP, SHALL BE PLACED THE SAME DAY AS THE BASE A.C. UNLESS SPECIFICALLY APPROVED OTHERWISE BY CITY ENGINEER.
2. IF THE A.C. SURFACE LAYER IS NOT PLACED THE SAME DAY AS THE BASE A.C. LAYER(S), THEN,
   - NO "LIPS" SHALL BE LEFT OPEN TO TRAFFIC ("LIPS" SHALL BE RAMPED, TRENCH CAPPED WITH COLD–MIX, OR OTHERWISE ADDRESSED TO SATISFACTION OF THE CITY ENGINEER).
   - THE A.C. SURFACE LAYER SHALL BE PLACED AS SOON AS POSSIBLE, BUT IN NO CASE LONGER THAN 14 CALENDAR DAYS, AFTER THE BASE A.C. LAYER(S) ARE PLACED.

E. SPECIAL SITUATIONS:

1. THE CITY ENGINEER MAY REQUIRE ADDITIONAL REQUIREMENTS FOR TRENCH REPAIR FOR SPECIAL SITUATIONS.
2. SPECIAL SITUATIONS SHALL INCLUDE, BUT NOT BE LIMITED TO:
   1) MULTIPLE TRENCHES IN SAME AREA,
   2) TRENCHING ON ROAD CAPPED WITH RUBBER ASPHALT, AND
   3) TRENCHING IN ROADWAY THAT WAS PAVED WITHIN THE PAST 3 YEARS (THIS WILL ONLY BE ALLOWED IN LIMITED CIRCUMSTANCES).

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BRIAN MACY P.E.
GENERAL MANAGER
RCE C 78718

November 2016
DATE

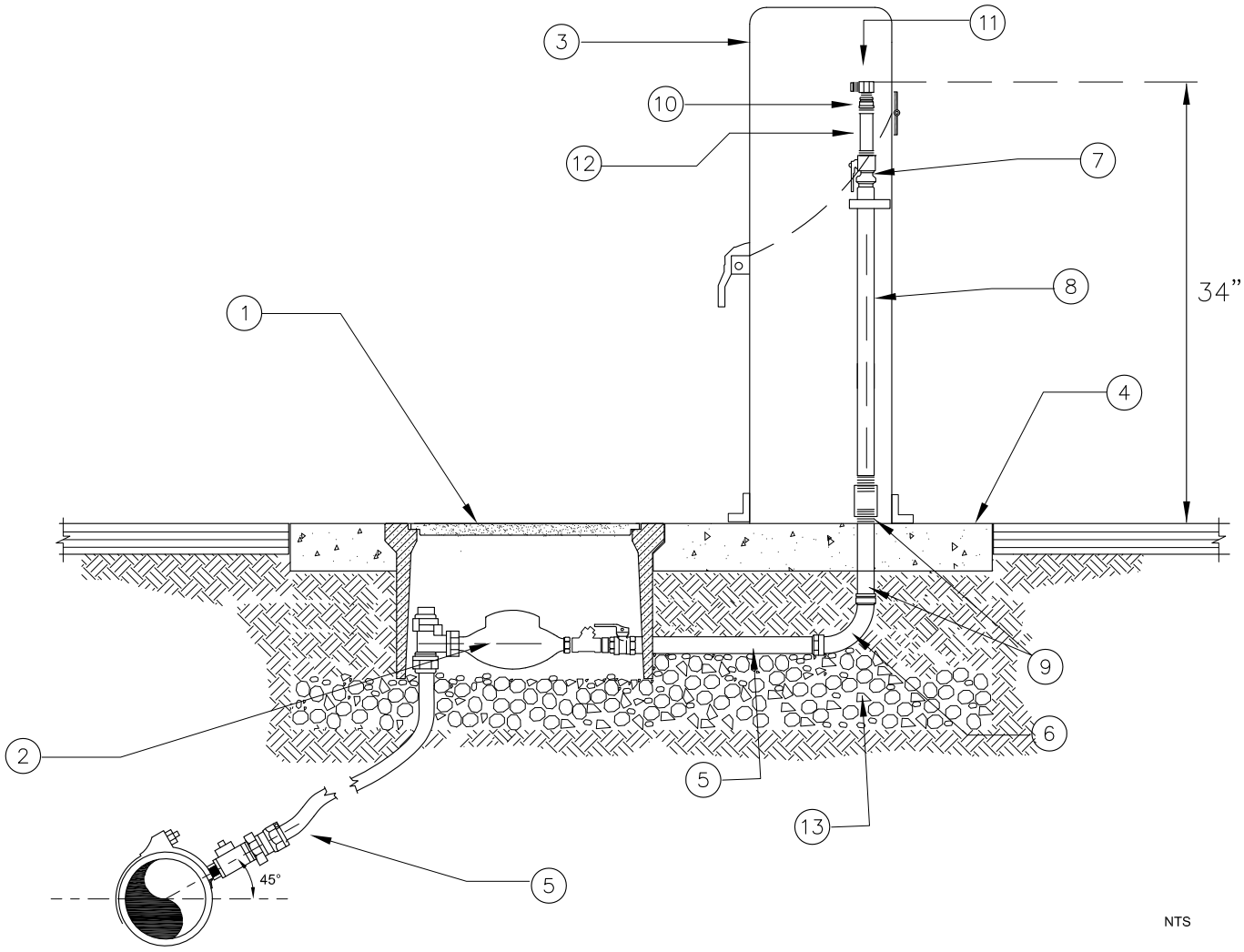
FULL WIDTH TRENCH DETAIL

STANDARD PLAN NUMBER

715 B

SHEET 2 OF 2

REVISION	DATE	REVISION	DATE



ITEM	DESCRIPTION
1	POLYMER METER BOX (SEE LIST OF APPROVED MATERIALS)
2	REFER TO STANDARD PLAN 700A
3	SAMPLING ENCLOSURE –SEE STANDARD PLAN 716B
4	24”X48”X4” CONCRETE PAD (USE–CLASS 560–C 3250 CONCRETE)
5	1” TYPE K SOFT COPPER TUBING (POLYSLEEVE) (REFER TO STANDARD PLAN 700 FOR FOR SERVICE CONNECTION DETAILS
6	1–1” SG CTS X FIP 90° ELL / 1X3/4” LF BUSHING/ 20 MIL POLYETHYLENE TAPE
7	1–3/4” BRS WOG 2 PC THRD FP BV
8	1–3/4” X 24” BRS NIP
9	1–3/4”X 8” BRS NIP / PVC SCH 80 THRD COUP
10	1–3/4”X 1/2”BRS LF REDUCER CPLG
11	1– LF 3/8” OD X ½” MIP COMP ELL
12	1–3/4” X 4” BRS NIP
13	MINIMUM 8” THICK CLASS II AGGREGATE BASE

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November 2016
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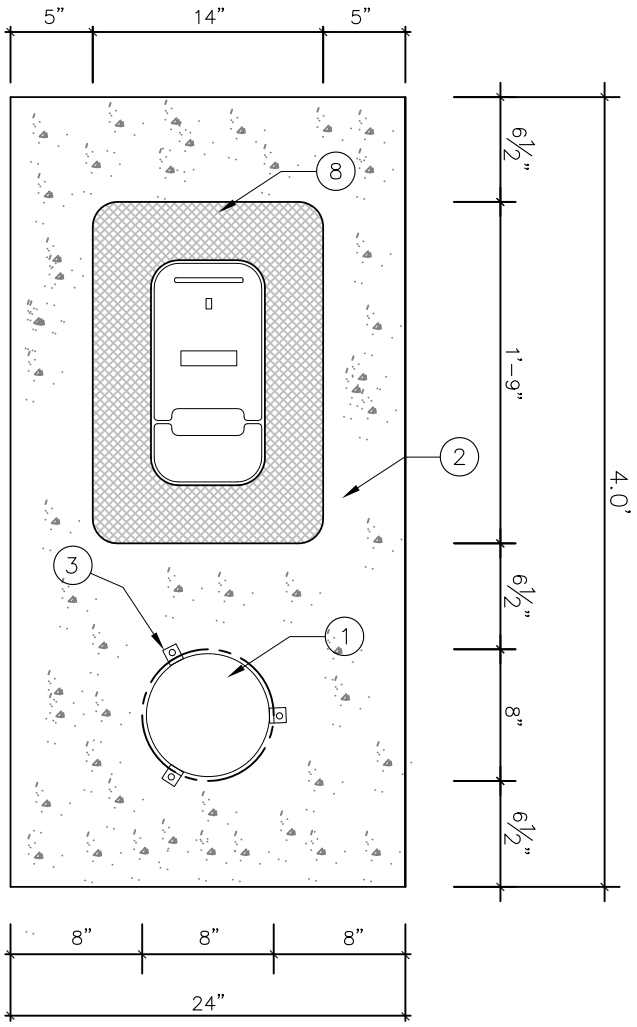
SAMPLING STATION INSTALLATION

STANDARD PLAN NUMBER

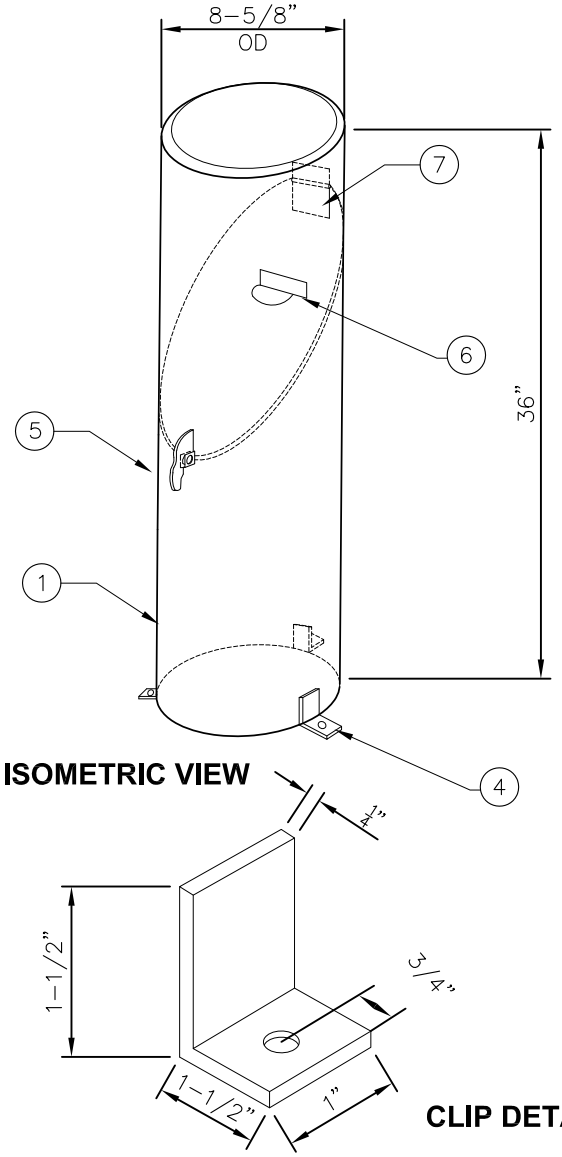
716 A

SHEET 1 OF 2

REVISION	DATE	REVISION	DATE



PLAN



ISOMETRIC VIEW

CLIP DETAIL

NTS

ITEM	DESCRIPTION
1	SAMPLING ENCLOSURE – (SEE LIST OF APPROVED MATERIALS)
2	CONCRETE PAD, 24”x48”x4”–CLASS 560 C 3250
3	½” DIA. STUDS, TYPICAL OF 3 PLACES (”REDHEAD” TYPE ANCHORS)
4	3 EACH ¼ INCHES ”L” CLIPS WITH ¼” FILLET WELD AND 9/16” DIA. HOLE, SEE DETAIL HEREON
5	LATCH ASSEMBLY FOR PADLOCK
6	INSIDE MOUNT AND U–BOLT TO HOLD 3/4” PIPE RISER
7	HINGE
8	POLYMER METER BOX (SEE LIST OF APPROVED MATERIALS)

NOTES: 1. SAMPLING ENCLOSURE SHALL BE 10 GAUGE STEEL
2. LEG MOUNT SHALL HAVE ½” DIAMETER HOLES

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RCE C 78718

November 2016
DATE

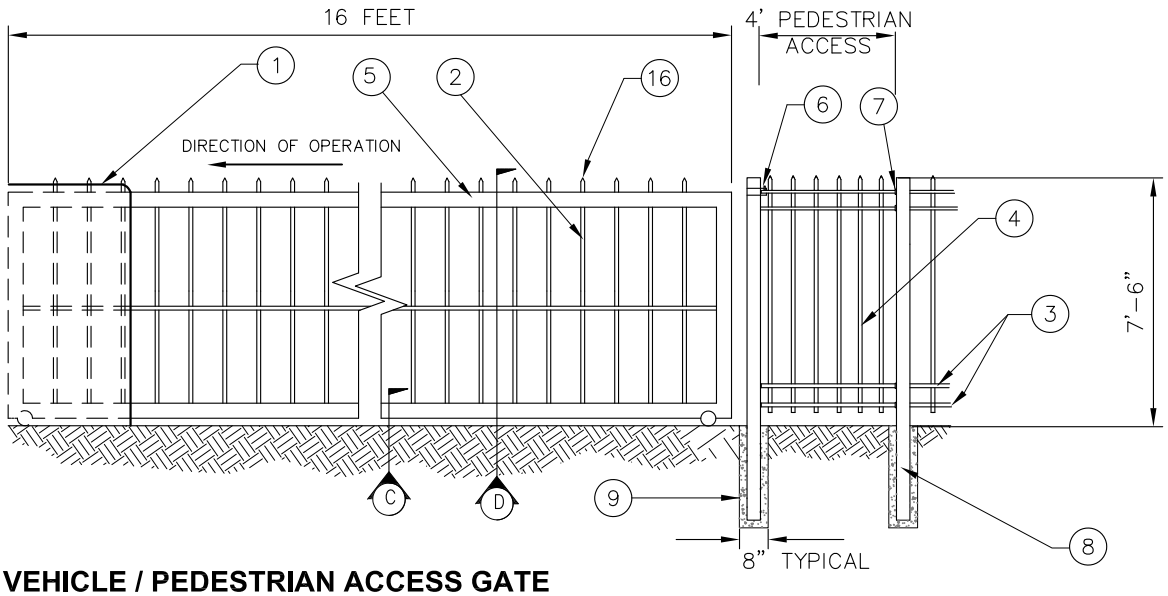
SAMPLING POINT COVER

STANDARD PLAN NUMBER

716 B

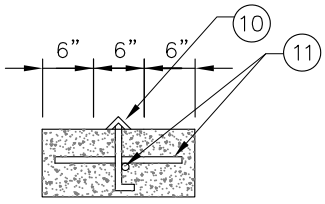
SHEET 2 OF 2

REVISION	DATE	REVISION	DATE



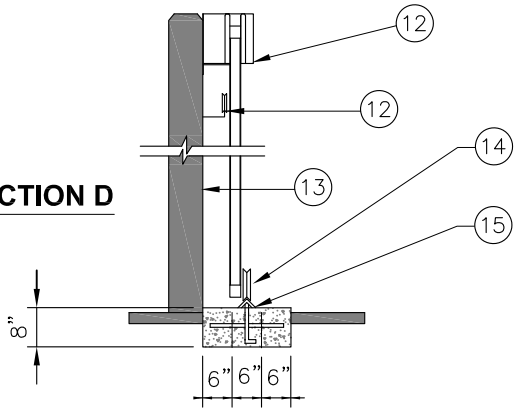
VEHICLE / PEDESTRIAN ACCESS GATE

NTS



SECTION C

NTS



SECTION D

NTS

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	EXISTING OR BLOCK WALL.	9	CLASS 560-C 3250 CONCRETE
2	1" SQUARE STEEL TUBE VERT. MEMBERS @ 8" O.C.	10	1-1/2" X 1-1/2" ANGLE W/ NELSON ANCHOR BOLTS @ 24" OC & 6" FROM ENDS
3	$\frac{3}{4}$" SQUARE BARS (TYPICAL)	11	# 4 REBAR CONT.W/ #4 DOWELS 15" LONG @ 24" OC
4	$\frac{1}{2}$" SQUARE BARS (TYPICAL)	12	GATE TRACK WITH WHEEL
5	2"X4"MIN. STEEL TUBE PERIMETER FRAME AND HORIZONTAL SUPPORT	13	CONCRETE SCREEN WALL BEYOND
6	LATCH	14	GATE WHEEL
7	HINGES	15	PAVING-'V' ANGLE RACK SMOOTH CONC.FIN. PAVING STRIP TRANSITION W/WHEEL TRACK
8	3-1/2" SQUARE STEEL POST (TYPICAL)	16	4" PICKETS
	THIS SPACE "NOT IN USE"		

NOTES:

1. SUBMIT SHOP DRAWING TO THE IWA ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
2. PROVIDE 3 GATE WHEELS PER EACH GATE LEAF.
3. THE MATERIAL USED TO CONSTRUCT THE FENCE SHALL BE SAME USED TO CONSTRUCT THE GATE.

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GENERAL MANAGER
RCE C 78718

November 2016
DATE

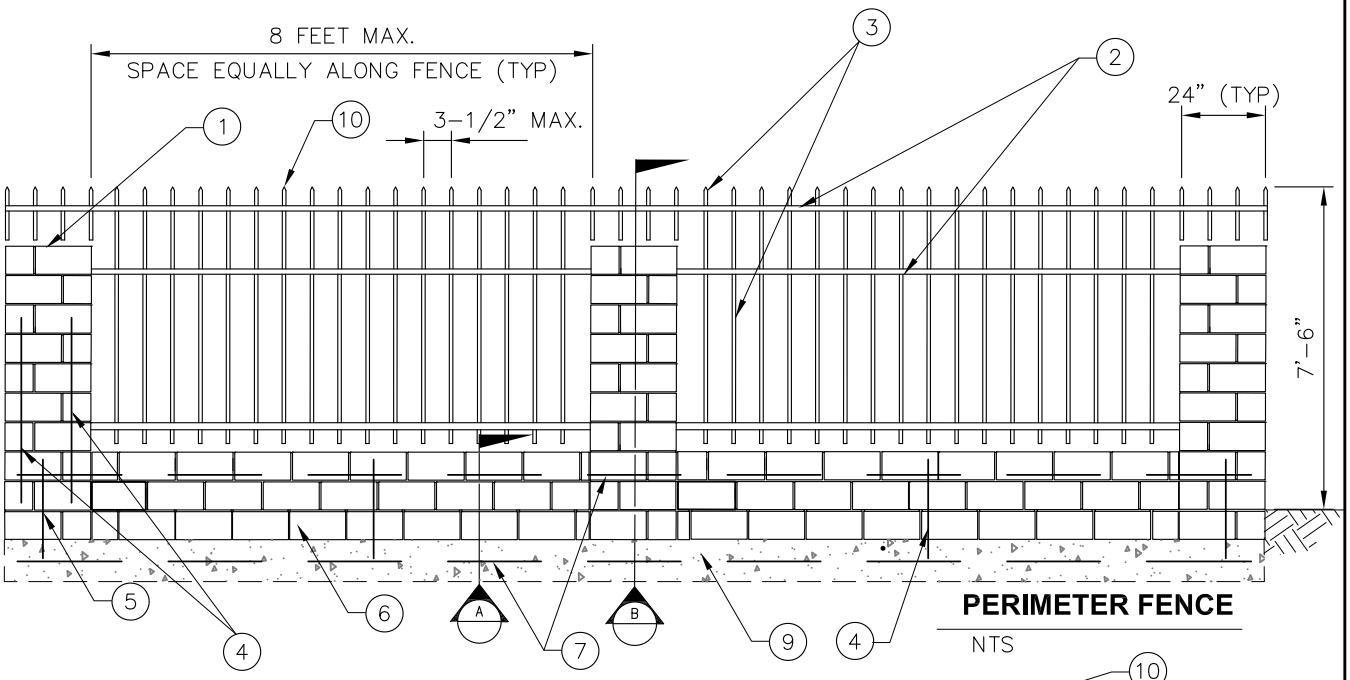
WELL & PLANT SITE IMPROVEMENT GATE DETAILS

STANDARD PLAN NUMBER

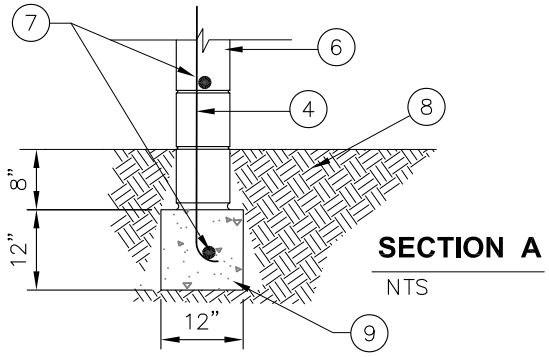
717 A

SHEET 1 OF 2

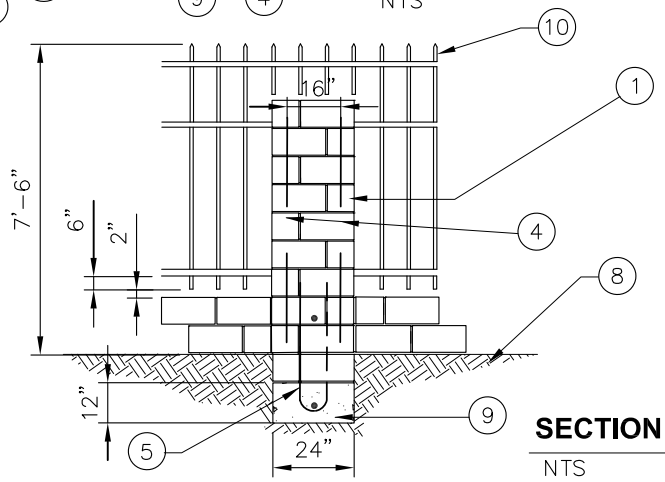
REVISION	DATE	REVISION	DATE



PERIMETER FENCE
NTS



SECTION A
NTS



SECTION B
NTS

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	PILASTER (TYPICAL) 8"X8"X16" SPLIT-FACE BLOCK WALL	6	8"X8"X16" SPLIT-FACE BLOCK WALL, SUBMIT SAMPLE TO IWA FOR APPROVAL
2	3/4" SQUARE BARS (TYPICAL)	7	#6 CONTINOUS REBAR
3	1/2" SQUARE BARS (TYPICAL)	8	COMPACTED SUB-GRADE
4	2-#6 (TYPICAL AT EACH PILASTER)	9	CONCRETE FOOTING CLASS 560-C-3250 CONCRETE
5	#6 @ 48" O.C.	10	4" PICKETS

NOTES:

1. SAND AND GRIND ALL WELDS SMOOTH, PRIMED AND PAINT BLACK.
2. SEE SCREEN WALL SECTION A (REFER STANDARD PLAN 717 A) FOR HEIGHT.
3. THE MATERIAL USED TO CONSTRUCT THE FENCE SHALL BE SAME USED TO CONSTRUCT THE GATE.
4 PROVIDE 1/2" VERTICAL EXPANSION JOINTS AT 50 FEET O.C.

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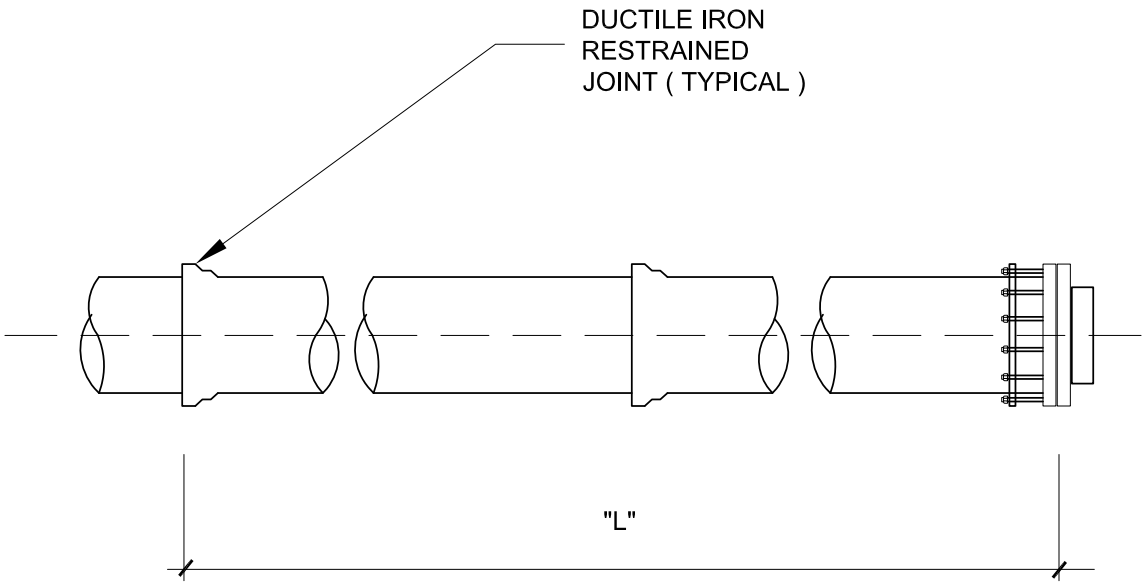
WELL & PLANT SITE IMPROVEMENT FENCE DETAILS

STANDARD PLAN NUMBER

717 B

SHEET 2 OF 2

REVISION	DATE	REVISION	DATE



PIPE SIZE	4	6	8	12	16	18	20	24
RESTRAINED LENGTH (FT)	104	148	191	240	309	342	374	438

DEAD END / EACH SIDE OF VALVE

GENERAL NOTES FOR RESTRAINED JOINTS:

1. ALL JOINTS WITHIN LENGTH "L" SHALL BE RESTRAINED.

2. DEPTH OF COVER - EIGHT INCHES IN DIAMETER AND LESS 3.5 FEET MINIMUM.

   TWELVE INCHES IN DIAMETER AND GREATER 4.0 FEET MINIMUM.

3. ASSUMPTIONS FOR DETERMINING LENGTHS SHOWN:(SUBJECT TO CHANGE, BASED ON SUBSRFACE CONDITIONS.

   A. TEST PRESSURE : 225 PSI
   B. TYPE 4 LAYING CONDITION
   C. A SAFETY FACTOR OF 2
   D. SAND / SILT SOIL CONDITION
   E. POLYETHYLENE WRAP

4. LENGTH OF EACH SIDE OF RUN FOR A TEE SHALL BE CALCULATED AS DEAD END.

5. LENGTH CALCULATED USING DIPRA RESTRAINED JOINT PROGRAM.

6. IF ACTUAL CONDITIONS DIFFER FROM THOSE LISTED ABOVE OR THE REQUIRED RESTRAINED LENGTH CANNOT BE MET, THE RESTRAINED LENGTH SHALL BE DETERMINED BY THE DESIGN ENGINEER AND APPROVED BY THE IWA ENGINEERING DEPT.

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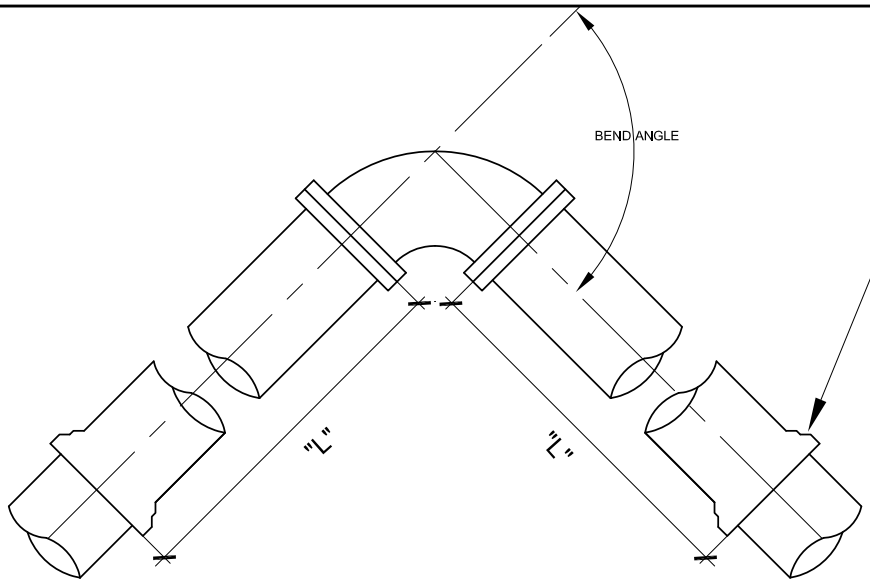
STANDARD RESTRAINT FOR DEAD END/ EACH SIDE OF VALVE

STANDARD PLAN NUMBER

718 A

SHEET 1 OF 3

REVISION	DATE	REVISION	DATE

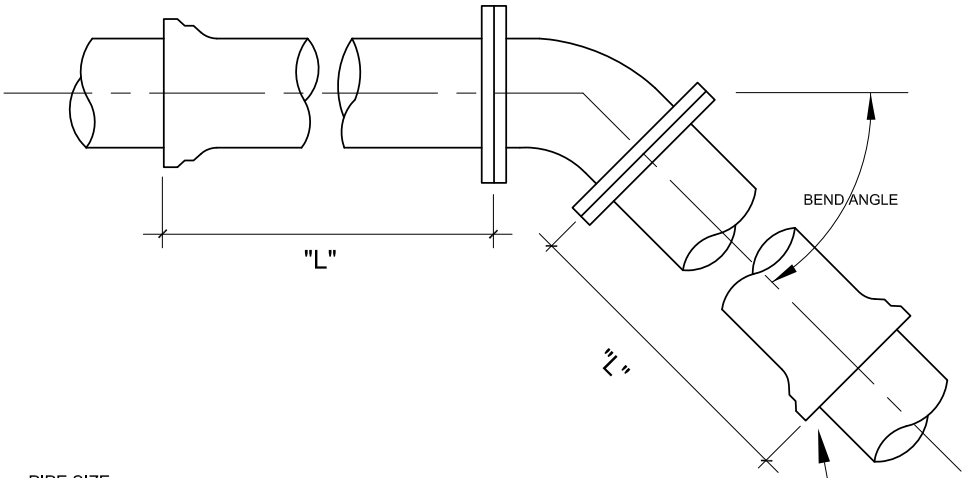


PIPE SIZE

BEND ANGLE	4	6	8	12	16	18	20	24
11.25"	3	5	6	7	9	10	11	13
22.5"	7	9	12	15	19	21	23	26
45"	14	19	25	31	39	43	47	54
90"	33	46	59	74	94	104	113	131

RESTRAINED LENGTHS "L" IN FEET

HORIZONTAL BEND



PIPE SIZE

BEND ANGLE	4	6	8	12	16	18	20	24
11.25"	10	15	19	24	30	34	37	43
22.5"	21	29	38	48	61	68	74	87
45"	43	61	79	100	128	142	155	181

RESTRAINED LENGTHS "L" IN FEET

VERTICAL BEND

DUCTILE IRON
RESTRAINED JOINT
(TYPICAL)

NOTE:

BEND FITTING CAN BE FLANGED OR RESTRAINED JOINT

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November 2016
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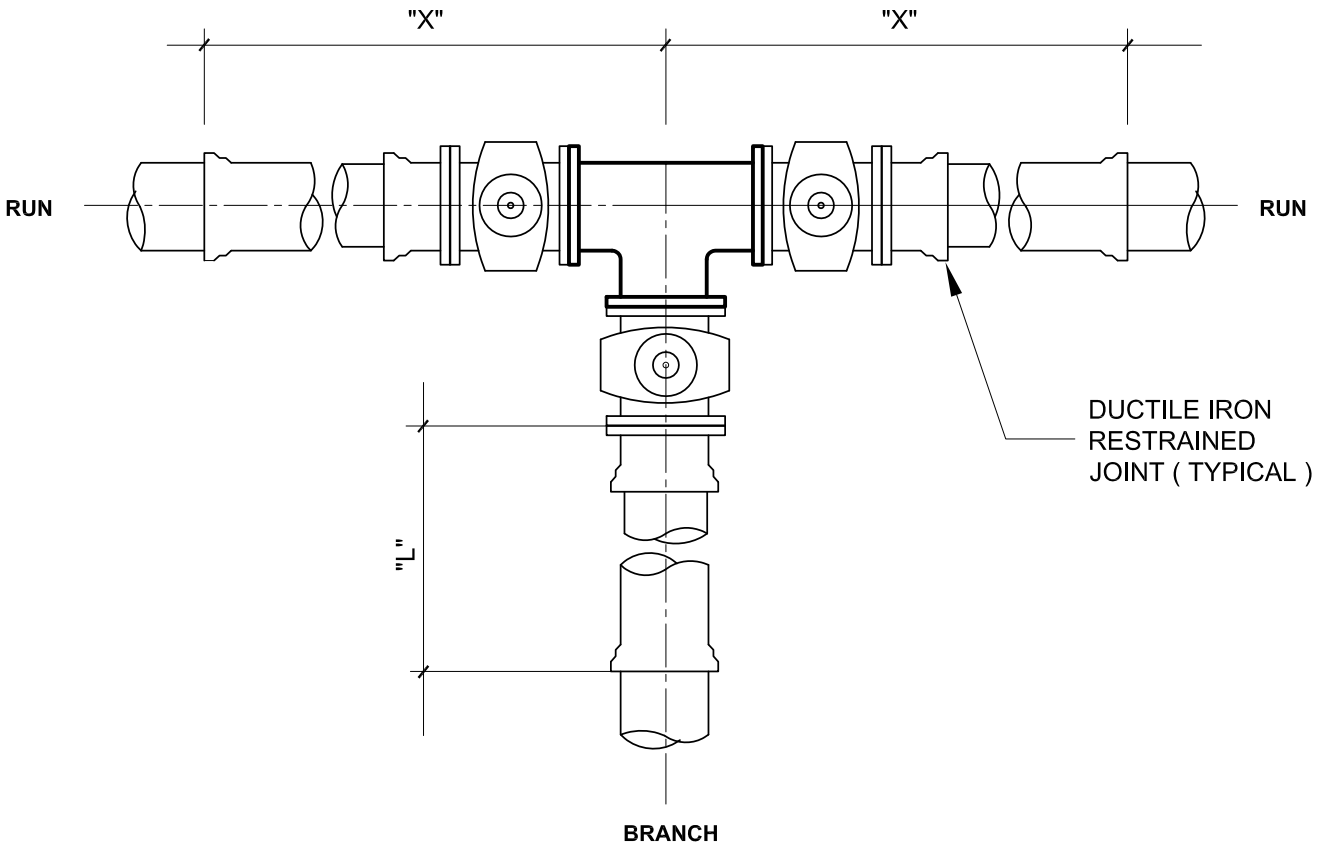
STANDARD RESTRAINT FOR DUCTILE IRON PIPE HOZ. AND VERT. BEND

STANDARD PLAN NUMBER

718 B

SHEET 2 OF 3

REVISION	DATE	REVISION	DATE



PIPE SIZE (RUN)

TEE	4	6	8	12	16	18	20	24
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6		N/A	N/A	N/A	N/A	N/A	N/A	N/A
8			191	169	169	169	169	169
12				240	240	240	240	240
16					309	309	309	309
18						342	342	342
20							374	374
24								438

PIPE SIZE (BRANCH)

RESTRAINED LENGTHS "L" IN FEET

NOTES: "X" SHALL BE DETERMINED BY LENGTH VALUES GIVEN IN THE DEAD END/EACH SIDE OF VALVE CHART OR BY DIPRA DESIGN METHOD.

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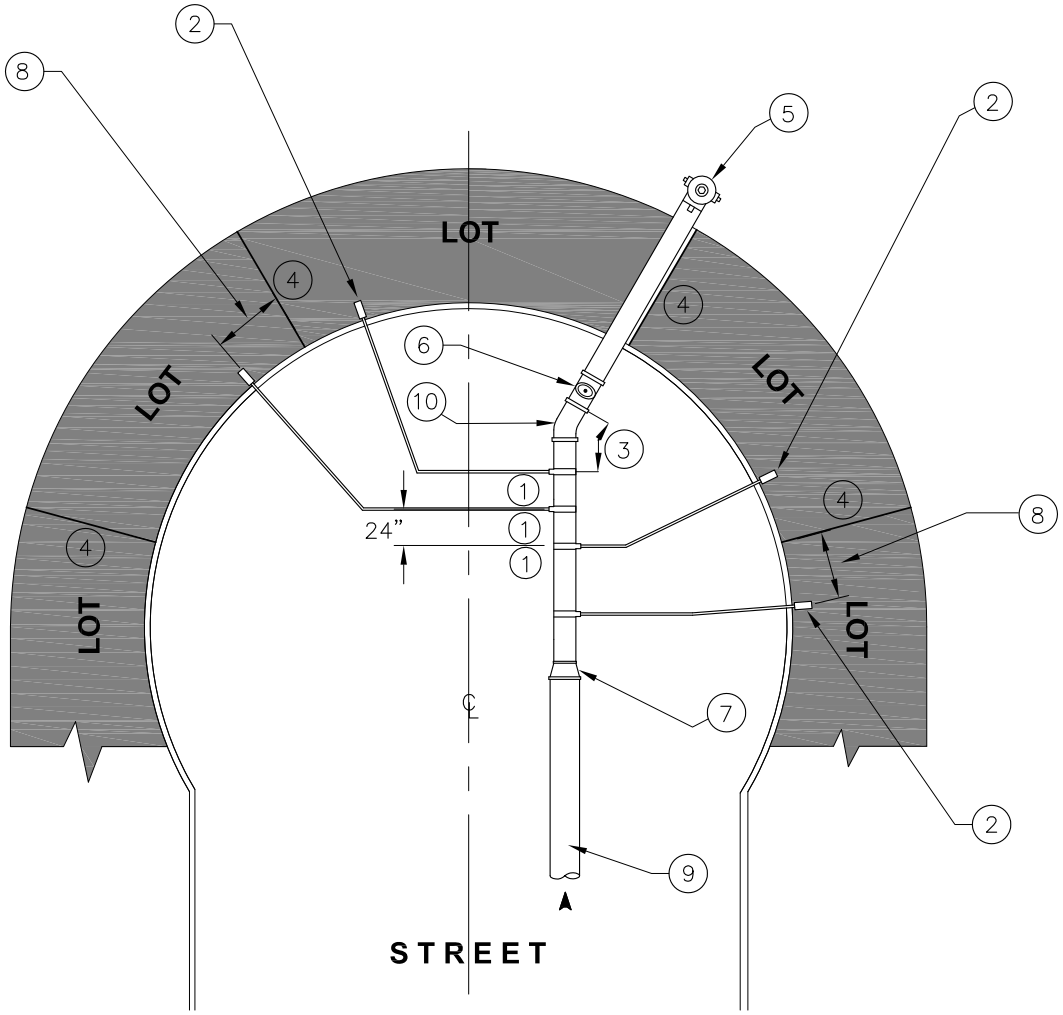
STANDARD RESTRAINT FOR DUCTILE IRON PIPE (TEE)

STANDARD PLAN NUMBER

718 C

SHEET 3 OF 3

REVISION	DATE	REVISION	DATE



PLAN VIEW
NTS

ITEM	DESCRIPTION
1	DISTANCE BETWEEN SERVICE CONNECTION SHALL BE A MINIMUM OF 24"
2	SERVICE CONNECTION PER STANDARD DRAWING NO. 700A,B,C
3	MINIMUM 5' OF PIPE LENGTH FROM HYDRANT ISOLATION VALVE TO CLOSEST SERVICE CONNECTION
4	COMMON PROPERTY LINE
5	6" WET BARREL FIRE HYDRANT PER STANDARD DRAWING NO. 704A
6	FLANGE X FLANGE RW GATE VALVE WITH FLG X MJ ADAPTER
7	6" X MAIN SIZE REDUCER (IF REQUIRED) MJ WITH RESTRAINT
8	SERVICE CONNECTION MINIMUM 5' OFFSET FROM PROPERTY LINE (TYPICAL)
9	DUCTILE IRON PIPE WATER MAIN (SIZE PER PLANS)
10	6"– 45° BEND MJ X MJ

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November 2016
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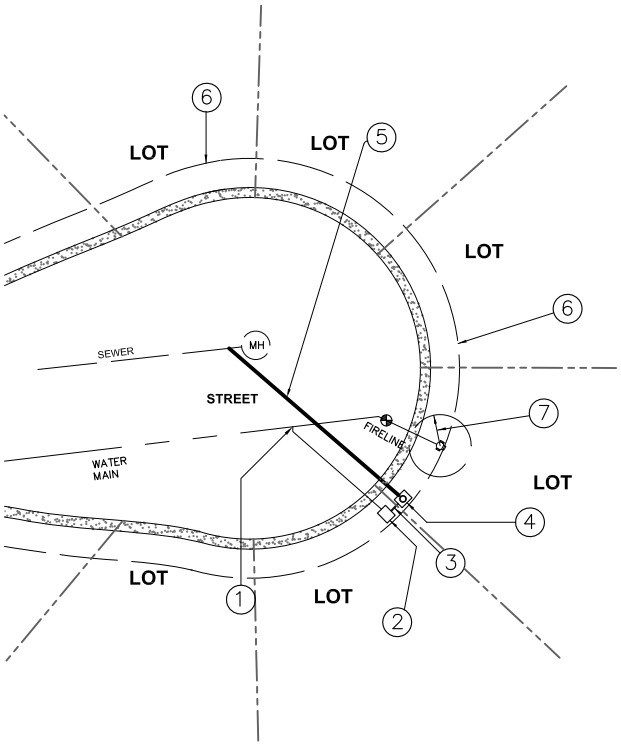
DEAD END STREET SERVICE TAP LOCATION

STANDARD PLAN NUMBER

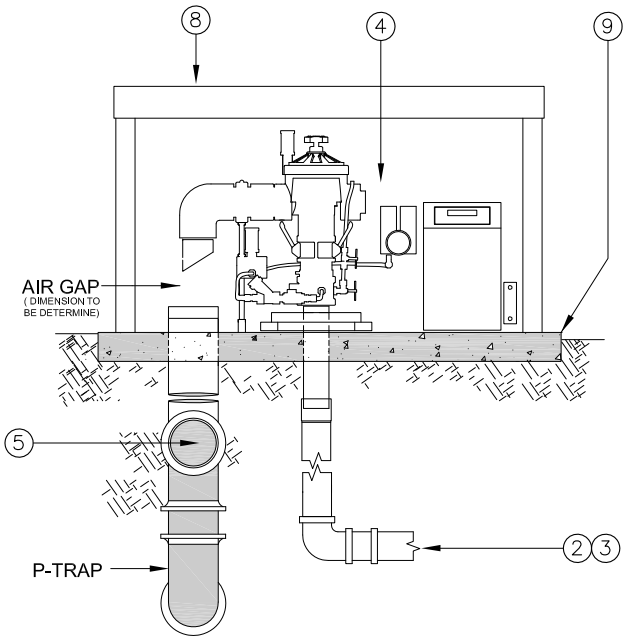
719 A

SHEET 1 OF 3

REVISION	DATE	REVISION	DATE



PLAN
NOT TO SCALE



SECTION ELEVATION
NOT TO SCALE

ITEM	DESCRIPTION
1	2" SERVICE LINE POINT OF CONNECTION. REFER TO IWA STD. PLAN 700C.
2	2" WATER METER. SEE STANDARD PLAN 700C. (FROM 2" WATER METER)
3	**WATER CONNECTION** 2" COPPER PIPE & BRASS. FITTINGS AS NECESSARY TO MAKE CONNECTION COMPLETE.
4	FLUSHING SYSTEM (ECLIPSE i-SERIES, #9800WC-i).
5	PROVIDE & INSTALL 6" PVC PIPE & FITTINGS. SLOPE @ 2% MIN. **TO SEWER SYSTEM** AND CONNECT TO SYSTEM PER UTILITY REQUIREMENTS. PROVIDE AND INSTALL P-TRAP & CLEANOUTS FOR ANY CHANGE IN DIRECTIONS EQUAL TO OR GREATER THAN 45°.
6	PROPERTY RIGHT OF WAY.
7	3' CLEARANCE (ALL AROUND) FIRE HYDRANT.
8	THERMAL ENCLOSURE (IWA APPROVAL) WITH 1/2" X 2" SLOTS
9	5" THICK x 4'L x 3'W CONCRETE PAD (CLASS 560-C-3250 CONCRETE)

NOTES:

1. LOCATION SHALL BE PROPOSED BY THE DESIGN ENGINEER AND APPROVED BY IWA.

2. SEE APPROVED MATERIALS LIST.

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November 2016
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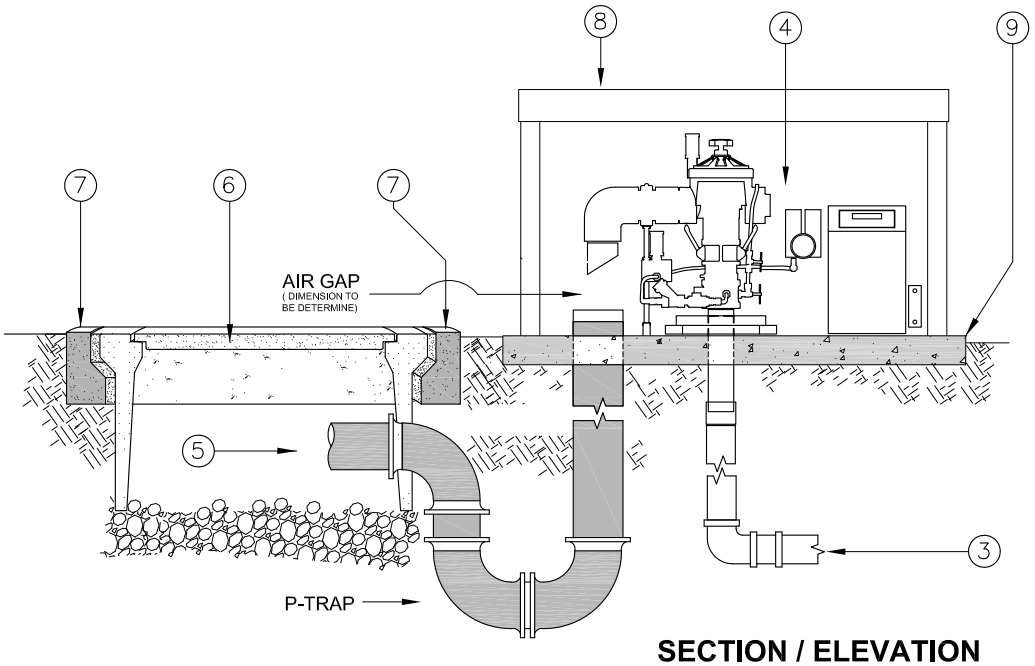
DEAD END AUTOMATIC FLUSHING SYSTEM DETAIL WITH CONNECTION TO SEWER

STANDARD PLAN NUMBER

719 B

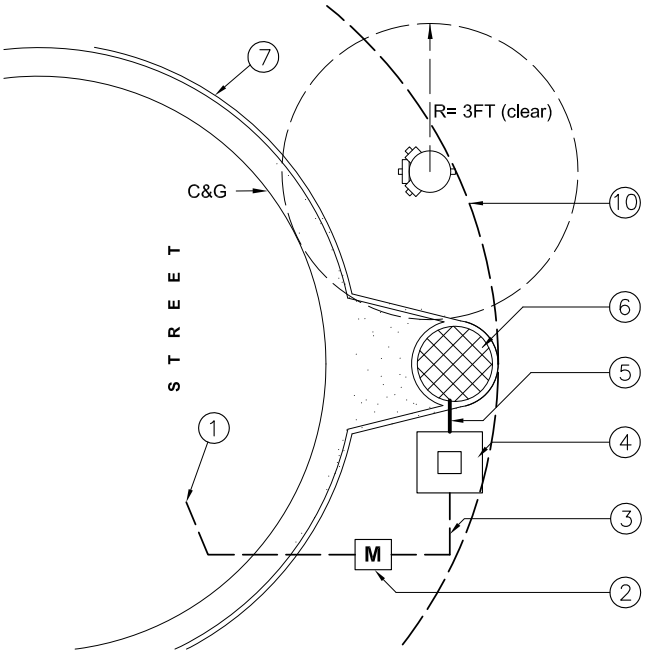
SHEET 2 OF 3

REVISION	DATE	REVISION	DATE



SECTION / ELEVATION

NOT TO SCALE



PLAN

NOT TO SCALE

ITEM	DESCRIPTION
1	2" SERVICE LINE P.O.C., SEE STD. PLAN 700C
2	2" WATER METER, SEE STD. PLAN 700C
3	2"COPPER PIPE & BRASS. FITTINGS AS NECESSARY TO MAKE CONNECTION COMPLETE
4	FLUSHING SYSTEM (Eclipse i-Series, # 9800WC-i)
5	4"PVC DISCHARGE PIPING W/ P-TRAP STUB TO CONCRETE MANHOLE W/ MIN. DEPTH OF 4'-0" (ADJUST AS NECESSARY)
6	CONCRETE MANHOLE W/ PERFORATED LID COVER W/ DRAIN
7	CONNECT TO CONCRETE COLLAR SLOPE TO CURB OR SIDEWALK
8	THERMAL ENCLOSURE (IWA APPROVAL) WITH 1/2" x 2" SLOTS
9	5" THICK X 4'L X 3'W CONCRETE PAD (CLASS 560-C-3250 CONCRETE)
10	PROPERTY RIGHT OF WAY

NOTES: LOCATION SHALL BE PROPOSED BY THE DESIGN ENGINEER AND APPROVED BY IWA.

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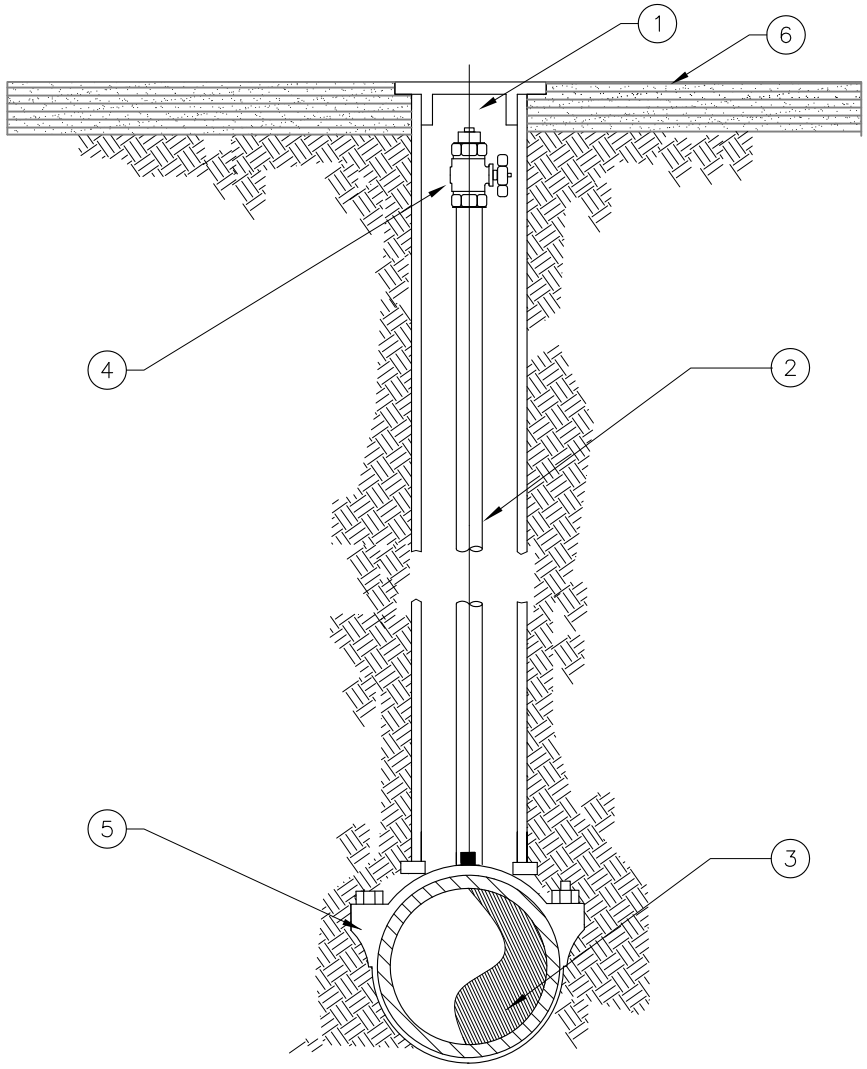
DEAD END AUTOMATIC FLUSHING SYSTEM DETAIL WITH CONNECTION TO STORM DRAIN

STANDARD PLAN NUMBER

719 C

SHEET 3 OF 3

REVISION	DATE	REVISION	DATE



MAIN TAP CHLORINATION
SAMPLE POINT

ITEM	DESCRIPTION
1	4TT VALVE BOX
2	2" GALVANIZED RISER PIPE
3	DUCTILE IRON MAIN
4	ECONOMIC GATE VALVE
5	BRASS SADDLE
6	EXISTING SURFACE

NOTES:

1. AFTER TESTING AND ACCEPTANCE OF WATER MAIN BY IWA, REMOVE VALVE BOX, 2" RISER PIPE AND GATE VALVE AND PLACE BRASS PLUG ON SADDLE.
2. PIPE THREADS SHALL BE CLEAN, SHARP AND SEALED WITH AN APPROVED JOINT COMPOUND.

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TEMPORARY CHLORINATION POINT

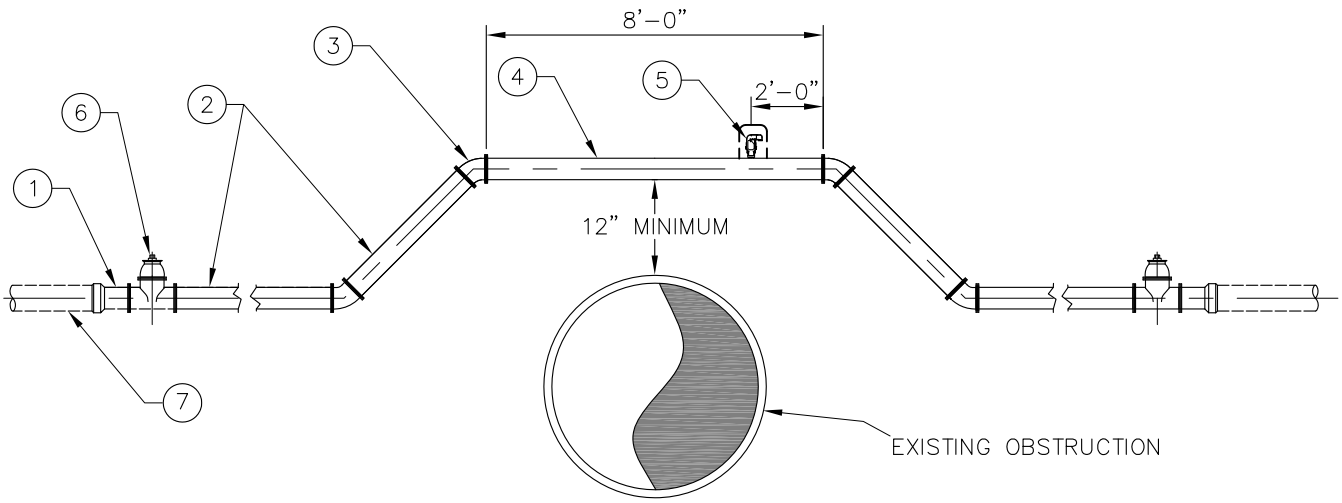
STANDARD PLAN NUMBER

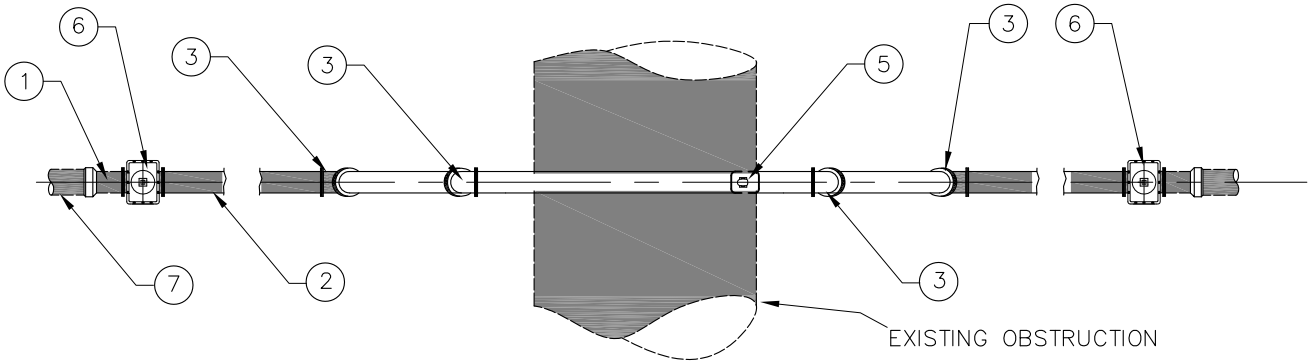
720

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE

SIDE VIEW
NTS





PLAN VIEW
NTS

ITEM	DESCRIPTION
1	TRANSITION COUPLING FLANGE X MJ
2	DUCTILE IRON PIPE WITH RESTRAINT FITTINGS
3	45° BEND MJ X MJ WITH RESTRAINED JOINTS (SEE NOTE BELOW)
4	DUCTILE IRON PIPE
5	AIR RELEASE VALVE PER STD. DRAWING NO. 705
6	GATE VALVE FLANGE X FLANGE (BOTH SIDES) WITH ADAPTERS (LOCATION TO BE DETERMINE BY IWA ENGINEER
7	WATER MAIN

NOTES:
1. THE TOTAL NO. OF RESTRAINED JOINTS TO BE DETERMINED BY DESIGN ENGINEER & APPROVED BY IWA.
2. LOCATE AIR RELEASE VALVE ASSEMBLY ON SIDE WITH HIGHEST ELEVATION.
3. A MINIMUM OF ONE(1) AIR RELIEF VALVE IS REQUIRED. AN ADDITIONAL AIR RELIEF VALVE MAY BE REQUIRED IF DETERMINED BY THE IWA ENGINEER.

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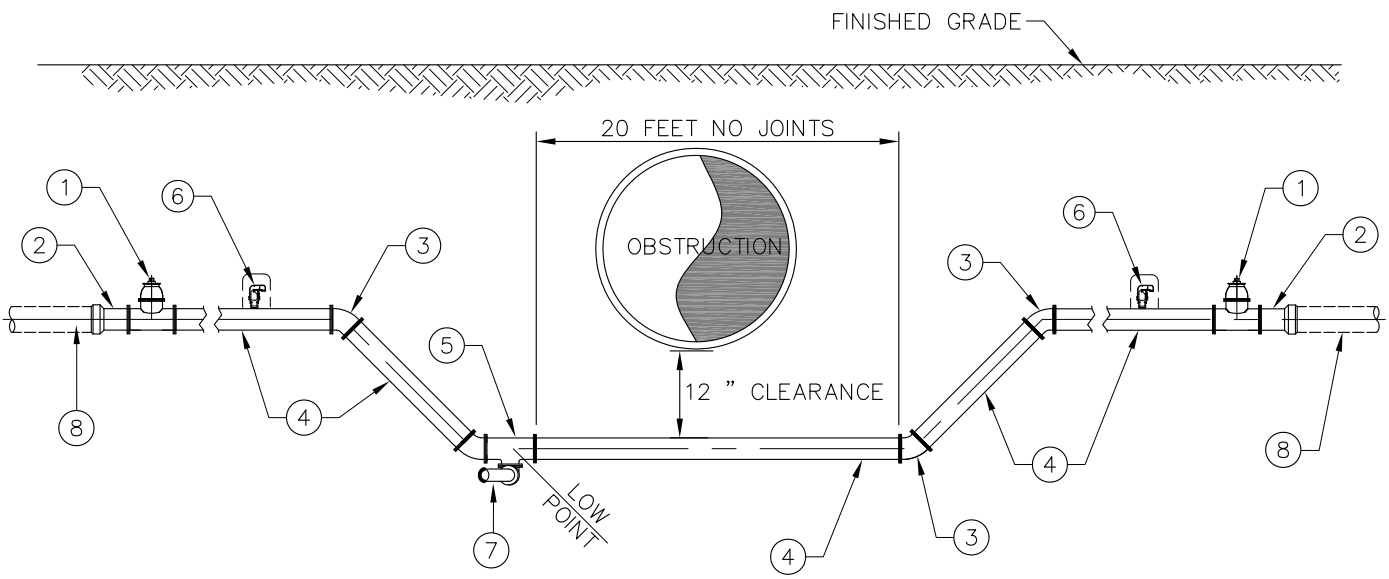
INVERTED SIPHON ASSEMBLY

STANDARD PLAN NUMBER

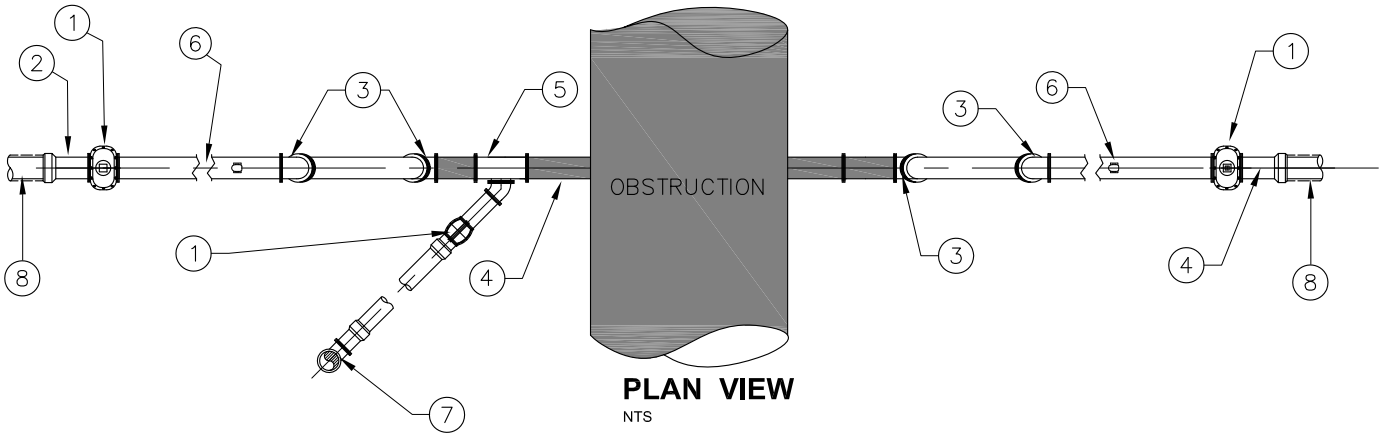
721

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE



SIDE VIEW
NTS



PLAN VIEW
NTS

ITEM	DESCRIPTION
1	GATE VALVE FLANGE X FLANGE(LOCATION TO BE APPROVED BY IWA ENGINEER)
2	FLANGE X MJ COUPLING
3	45° FLANGE X FLANGE OR RESTRAINED JOINT (SEE NOTE BELOW)
4	DUCTILE IRON PIPE OR APPROVED EQUAL
5	MJ X MJ FLANGE TEE AND FLANGE X FLANGE 45° BEND
6	AIR RELIEF VALVE PER STANDARD DRAWING NO. 705A
7	PUMP OUT ASSEMBLY RISER (MIN. 4" DIA.) LOCATION AS APPROVED ON PLAN, SEE STANDARD DRAWING 708 FOR DETAIL
8	WATER MAIN

NOTES:
1. A MINIMUM OF ONE(1) AIR RELIEF VALVE IS REQUIRED.AN ADDITIONAL AIR RELIEF VALVE MAY BE REQUIRED IF DETERMINED BY THE IWA ENGINEER.
2. THE TOTAL NUMBER OF RESTRAINED JOINTS TO BE DETERMINED BY DESIGN ENGINEER AND APPROVED BY IWA..

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November 2016
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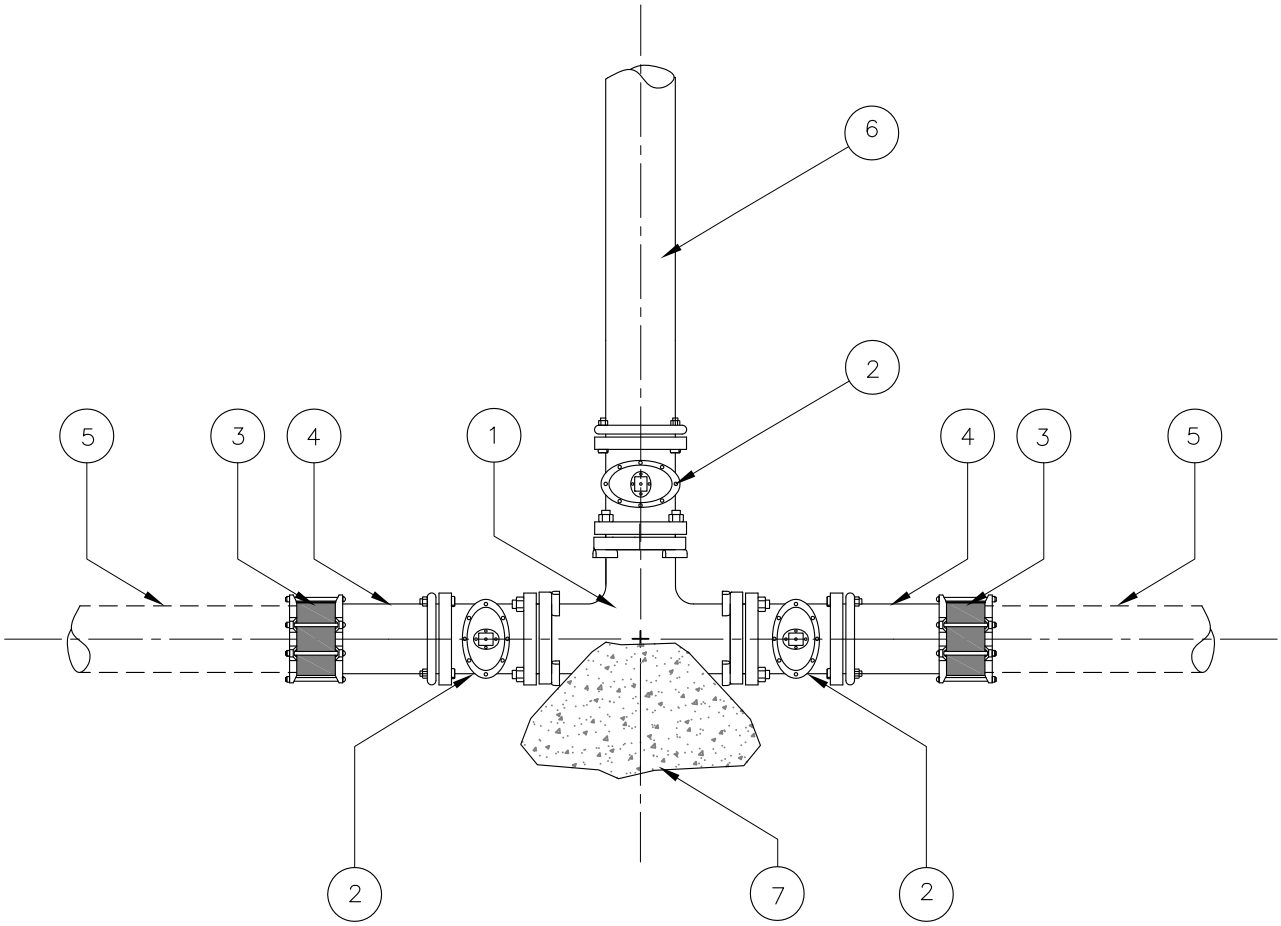
SIPHON ASSEMBLY

STANDARD PLAN NUMBER

722

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE



PLAN VIEW
NTS

ITEM	DESCRIPTION
1	DUCTILE IRON FLANGE TEE
2	FLANGE X FLANGE GATE VALVE
3	TRANSITION COUPLING (SEE LIST OF APPROVED MATERIALS)
4	PLAIN END SPOOL, VARIABLE LENGTH TO FIT FIELD CONDITIONS OR AS DIRECTED BY IWA
5	EXISTING AC PIPE
6	NEW DUCTILE IRON PIPE
7	THRUST BLOCK PER INDIO WATER AUTHORITY STANDARD DRAWING 709

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November 2016
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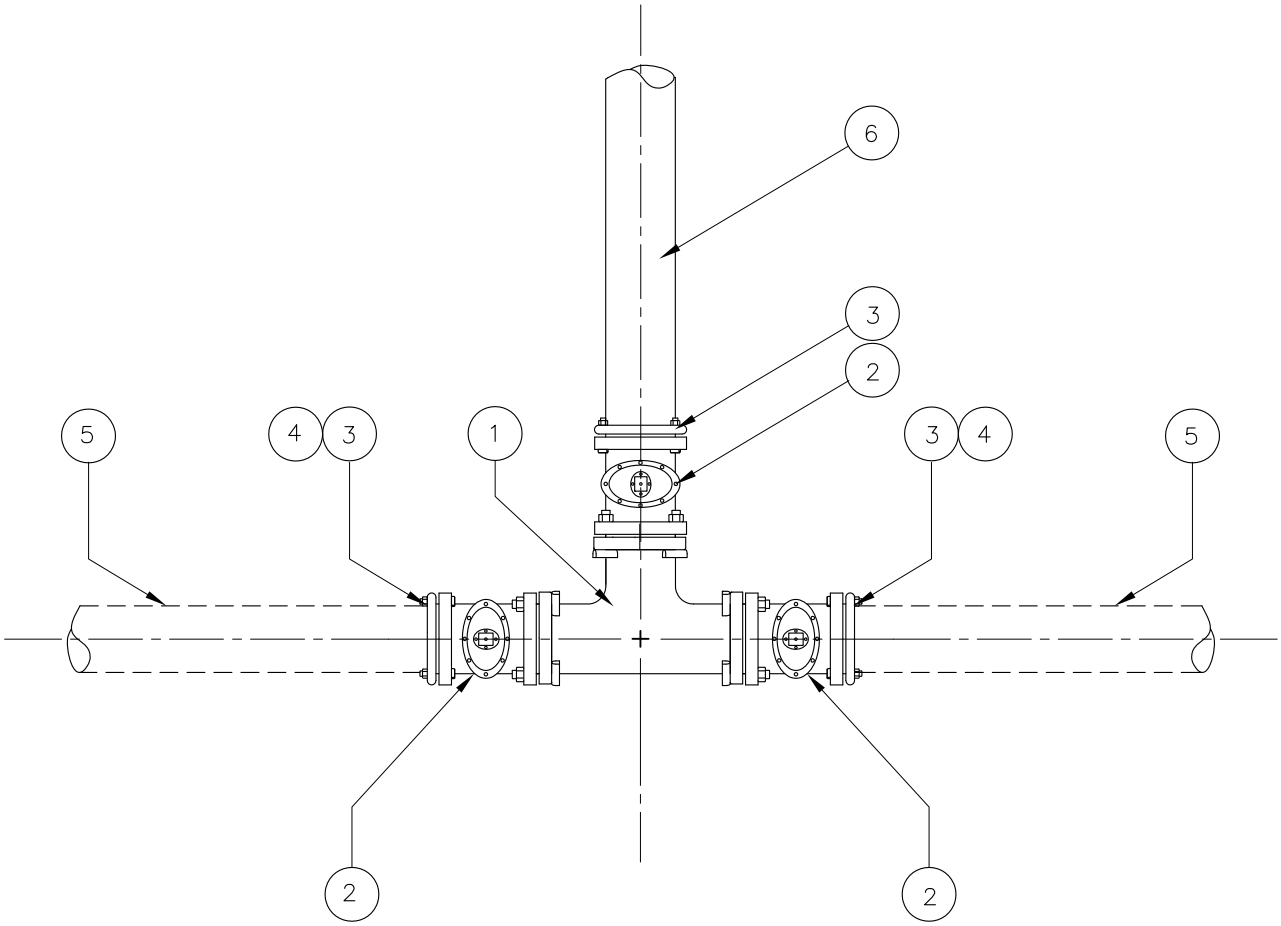
TEE CONNECTION DIP TO EXISTING AC PIPE

STANDARD PLAN NUMBER

723-A

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE



PLAN VIEW
NTS

△1

ITEM	DESCRIPTION
1	DUCTILE IRON FLANGE TEE
2	FLANGE X FLANGE GATE VALVE
3	TRANSITION MECHANICAL JOINT X FLANGE ADAPTOR (SEE LIST OF APPROVED MATERIALS)
4	SEE STANDARD DRAWING 718 C FOR RESTRAINED JOINT PIPE LENGTHS.
5	EXISTING DUCTILE IRON PIPE
6	NEW DUCTILE IRON PIPE

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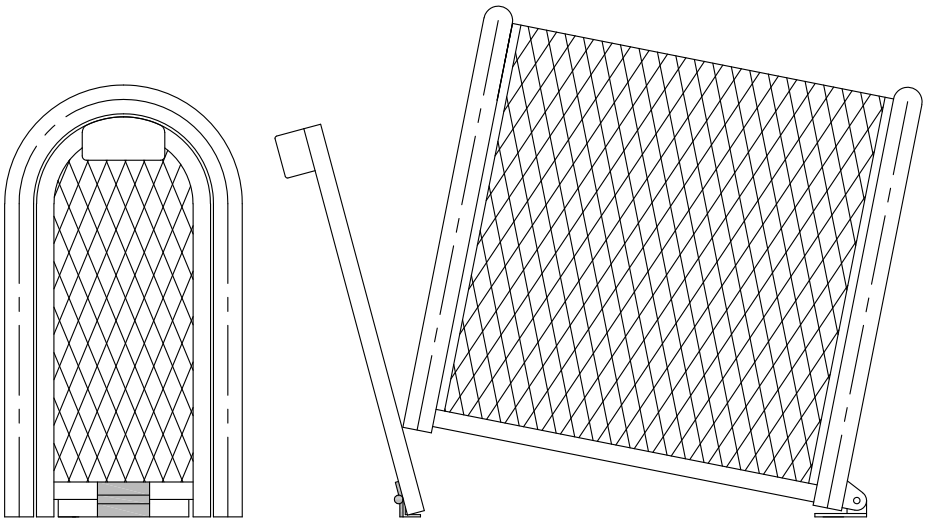
TEE CONNECTION DIP TO EXISTING DIP PIPE

STANDARD PLAN NUMBER

723-B

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE
△1	NOV.2018		



FRONT VIEW

SIDE VIEW

INTERNAL DIMENSIONS 10" W X 24" H X 30" L

NOTES:

1. ENCLOSURE TO BE ANCHORED ON A MINIMUM OF 28" X 46" X 6" THICK CONCRETE PAD. USE 560-C-325 CONCRETE.

2. ENCLOSURE: GUARDSHACK MODEL HGS-2.

3. ALL CAGES IN GREENERY MUST BE POWDER COATED - FOREST GREEN.

4. ALL CAGES IN DESERT LANDSCAPE MUST BE POWDER COATED - WOODLANDS TAN.

5. THE USE OF ANY OTHER CAGE MUST BE APPROVED BY IWA PRIOR TO INSTALLATION (CONTACT IWA ENGINEER).

6. ANY PADLOCK MUST BE IWA APPROVED PRIOR TO INSTALLATION.

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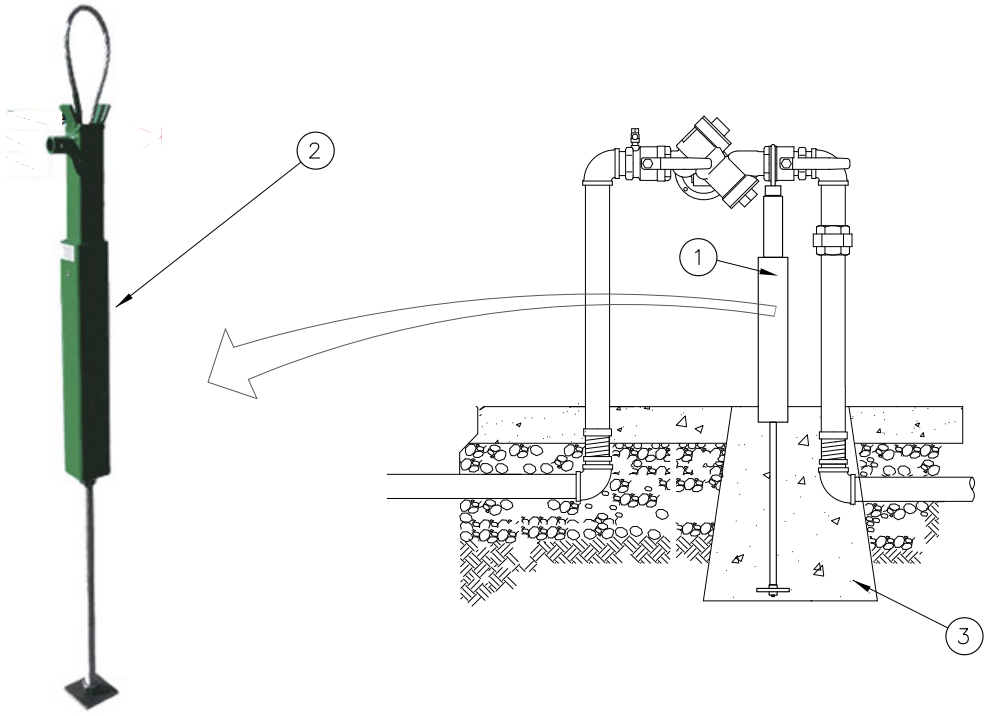
BACKFLOW PROTECTION-ENCLOSURE

STANDARD PLAN NUMBER

724-A

SHEET 1 OF 2

REVISION	DATE	REVISION	DATE



ITEM	DESCRIPTION
1	SENTRY BACKFLOW THEFT PREVENTION (SEE LIST OF APPROVED MATERIALS)
2	ALL LOCKS MUST BE IWA APPROVED (COLOR TO BE APPROVED BY IWA ENGINEER)
3	USE 560-C-325 CONCRETE

NOTE:

FOR MORE DETAIL INFORMATION, CONTACT IWA ENGINEERING DEPARTMENT.
COLOR FINISH SHALL BE POWDER COATED.

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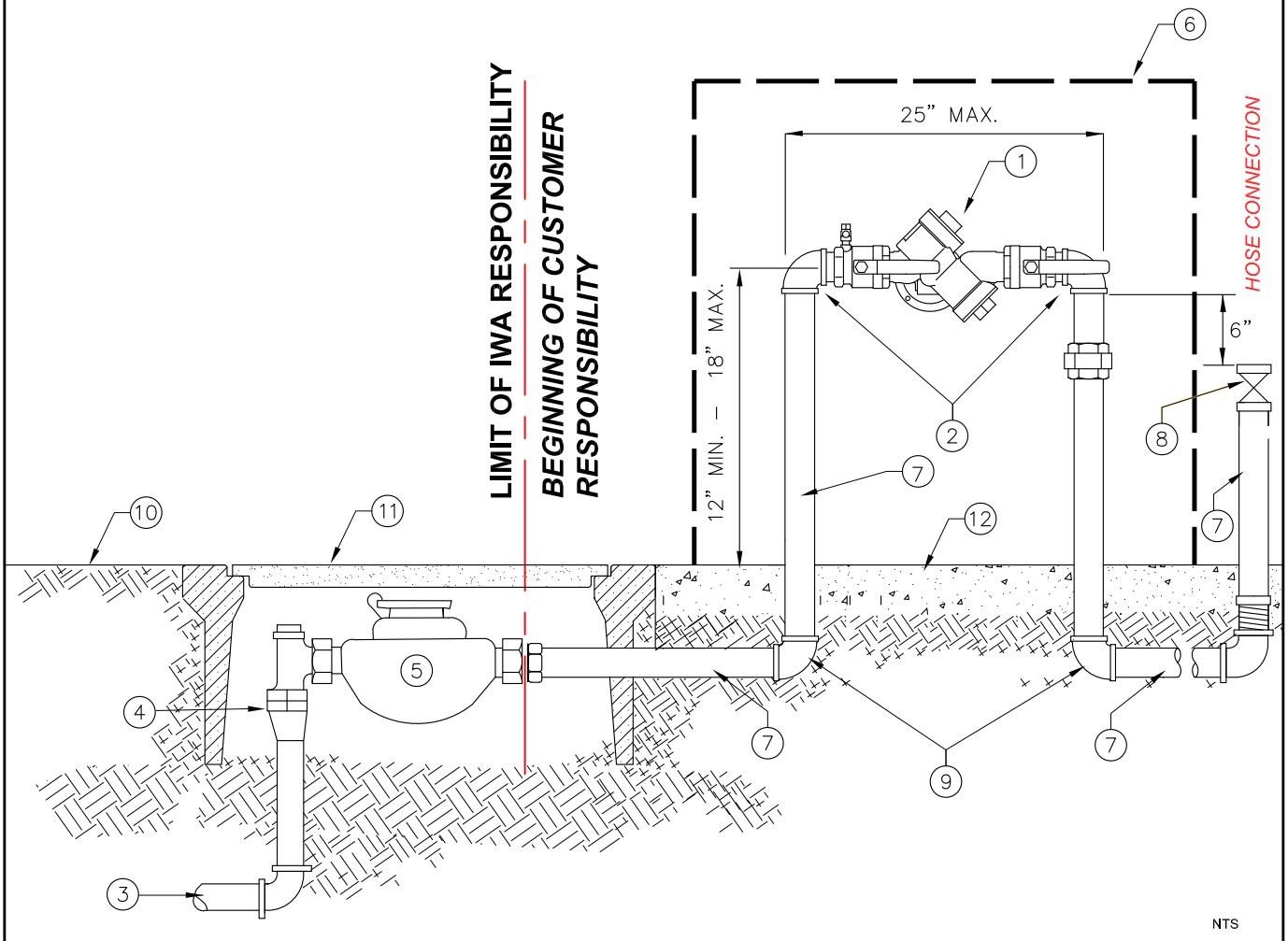
BACKFLOW PROTECTION-LOCK

STANDARD PLAN NUMBER

724-B

SHEET 2 OF 2

REVISION	DATE	REVISION	DATE



ITEM	DESCRIPTION
1	REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTOR,(SEE LIST OF APPROVED MATERIALS)
2	2–90° STREET ELBOWS
3	SERVICE LINE (SEE STANDARD PLAN 700A,B,C)
4	ANGLE STOP(SEE STANDARD PLAN 700A,B,C)
5	IWA APPROVED WATER METER (SEE STANDARD PLAN 700A,B,C)

ITEM	DESCRIPTION
6	REFER TO IWA STD.PLAN 724A OR 724B
7	PIPING MATERIALS SHOULD BE BRASS OR COPPER
8	GATE VALVE
9	90° ELBOW (COPPER OR BRASS)
10	FINISHED GRADE
11	POLYMER BOX COVER(SEE STD. PLAN 700A,B,C)
12	4"X24" CONCRETE PAD–USE CLASS 560–C 3250 FIBER REINFORCE CONCRETE

NOTES:

1. ASSEMBLY SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE METER.
2. WHEN INSTALLATION IS NEAR A BUILDING OR WALL, THE BACKFLOW PREVENTER SHALL BE ACCESSIBLE FOR TESTING, MAINTENANCE, REPAIR OR REPLACEMENT.
3. THE INSTALLATION WILL BE INSPECTED BY THE IWA BACKFLOW INSPECTOR PRIOR TO BACKFILLING OR BEING PLACED IN SERVICE.
4. BACKFLOW PREVENTERS SHALL BE SCREENED FROM PUBLIC VIEW

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BRIAN MACY P.E.
GENERAL MANAGER
RCE C 78718

November 2016
DATE

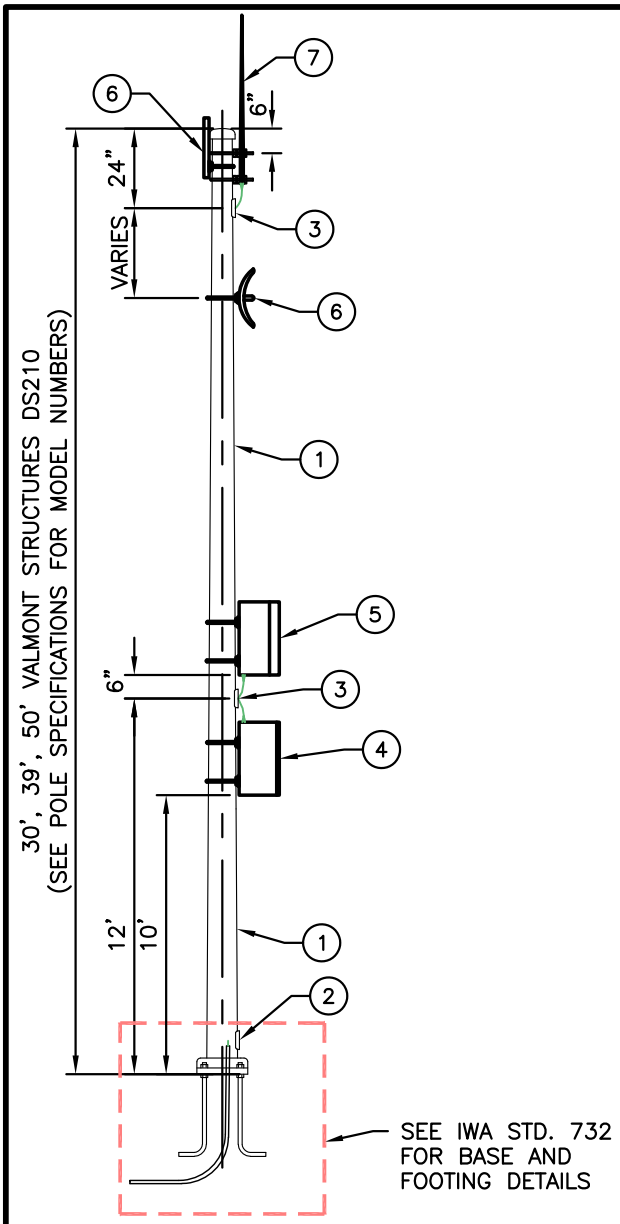
1"-2" STAND PIPE ASSEMBLY FOR IRRIGATION W/ TEMPORARY HOSE CONNECTION

STANDARD PLAN NUMBER

725

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE



ALL EQUIPMENT, ELEVATIONS, AND ORIENTATIONS TO BE COORDINATED WITH IWA FOR APPROVAL.

1. ELECTRICAL REQUIREMENTS: CONTRACTOR/DEVELOPER TO PROVIDE ELECTRICAL SERVICE CONNECTION AND APPURTENANCES.

2. POLE SPECIFICATIONS: THE LIGHT POLE, CAP, AND RELATED HARDWARE SHALL BE VALMONT STRUCTURES MODEL DS210:
- 30' PRODUCT NO. 800E300
- 39' PRODUCT NO. 900E389
- 50' PRODUCT NO. H00J500

(SEE DESIGN PARAMETERS FOR ADDITIONAL HARDWARE) OR IWA APPROVED EQUAL.

3. DESIGN PARAMETERS FOR POLE AND RELATED HARDWARE:
- 100 MPH WIND FACTOR
- 1.3 GUST FACTOR
- ANCHOR BOLTS SHALL COME WITH TWO NUTS AND TWO WASHERS AND SHALL MEET ASTM F1554 GRADE 55 SPECIFICATION.
- POLE SHALL BE TAPERED AND SHALL BE GALVANIZED IN CONFORMANCE WITH ASTM A123 HANDHOLE WITH LOCKING REMOVABLE COVER (4.0" x 6.5" MIN),
  - BASE COVER
  - SPECIAL ORDER (2) (3.0" x 5" MIN) LOCKING REMOVABLE COVER (SEE DETAIL FOR LOCATIONS)
  - REMOVABLE POLE CAP REQUIRED WITH THE POLE

4. WIRE AND CONDUIT REQUIREMENTS:
- FROM ELECTRICAL SOURCE TO POLE BASE SIZE, PULL BOXE(S) AND WIRE PER ④ REQUIREMENTS TO MEET NEC.
  - –GRAY PVC SCH 40, CONDUIT REQUIRED

POWERED GATEWAY SETUP
R900 GATEWAY: 19 LBS WITH MOUNTING BRACKET
UPS: 30 LBS
ANTENNA: 1.75 LBS
51± LBS TOTAL WEIGHT

IWA WIRELESS RADIO SYSTEM
RADIO : 1 LBS
DISH: 2.16 LBS
MOUNT ARM/BRACKETS: 6.5 LBS
10± LBS TOTAL WEIGHT

ITEM	DESCRIPTION
①	VALMONT STRUCTURES POLE, MODEL DS210 (SEE POLE SPECIFICATIONS FOR SIZE AND MODEL OPTIONS)
②	VALMONT STRUCTURES HANDHOLE W/LOCKING REMOVABLE COVER (4.0" x 6.5" MIN)
③	VALMONT STRUCTURES HANDHOLE W/LOCKING REMOVABLE COVER (SIZE PER MANUFACTURE'S RECOMMENDATIONS). DRILL HOLES ON COVER FOR APPURTENANCE WIRES W/WEATHERPROOF GROMMETS
④	TSI POWER PANEL WITH UNINTERRUPTIBLE POWER SUPPLY: UPS–PL2448HP–18, 24V, 18Ah BATT, AND 48V PoE SWITCH
⑤	NEPTUNE TECHNOLOGY GROUP R900 GATEWAY V4
⑥	CAMBIUM NETWORKS PMP 450 RADIO OR UBIQUITI NETWORKS LITEBEAM AC GEN2 DISH
⑦	PCTEL RF ANTENNA

NOTES:
DISH ⑥ TO BE POINTED TOWARDS PRIMARY RECEIVER (TOWER AT NORTH INDIO HILLS OR LOST HORSE)

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MARIO A. CAMACHO
SENIOR WATER ENGINEER
RCE C88420

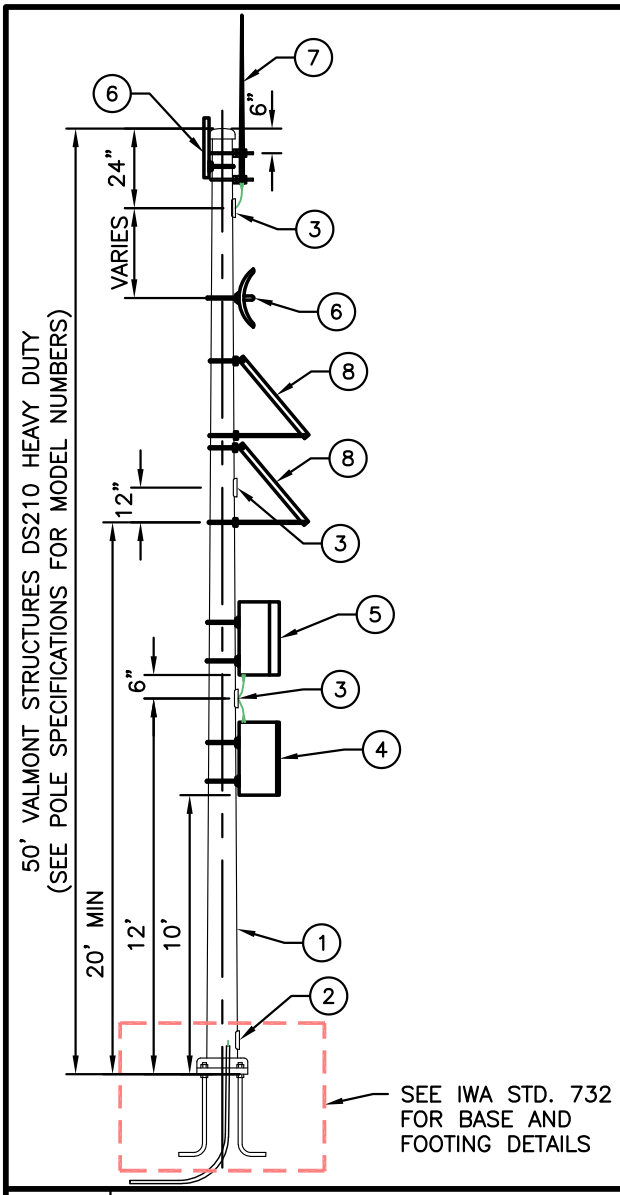
July 2018
DATE

POWERED ADVANCED METERING INFRASTRUCTURE POLE

730

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE



ALL EQUIPMENT, ELEVATIONS, AND ORIENTATIONS TO BE COORDINATED WITH IWA FOR APPROVAL.

1. ELECTRICAL REQUIREMENTS:
- 150W SOLAR PANEL
- BATTERY ENCLOSURE
- 12V AND 24V BATTERY

2. POLE SPECIFICATIONS: THE LIGHT POLE, CAP, AND RELATED HARDWARE SHALL BE VALMONT STRUCTURES MODEL DS210 HEAVY DUTY:
- 50' PRODUCT NO. H00J500 (SEE DESIGN PARAMETERS FOR ADDITIONAL HARDWARE)

OR IWA APPROVED EQUAL.

3. DESIGN PARAMETERS FOR POLE AND RELATED HARDWARE:
- 100 MPH WIND FACTOR
- 1.3 GUST FACTOR
- ANCHOR BOLTS SHALL COME WITH TWO NUTS AND TWO WASHERS AND SHALL MEET ASTM F1554 GRADE 55 SPECIFICATION.
- POLE SHALL BE TAPERED AND SHALL BE GALVANIZED IN CONFORMANCE WITH ASTM A123
- HANDHOLE WITH LOCKING REMOVABLE COVER (4.0" x 6.5" MIN), BASE COVER, SPECIAL ORDER (2) (3.0" x 5" MIN) LOCKING REMOVABLE COVER (SEE DETAIL FOR LOCATIONS) AND REMOVABLE POLE CAP REQUIRED WITH THE POLE

4. WIRE AND CONDUIT REQUIREMENTS:
- POLE BASE TO TOP OF POLE
  –NO CONDUIT REQUIRED

SOLAR GATEWAY SETUP
R900 GATEWAY: 19 LBS WITH MOUNTING BRACKET
UPS: 30 LBS
BATTERY ENCLOSURE: 23
BATTERY: 66 LBS
150W SOLAR PANEL: 25.4 LBS
ANTENNA: 1.75 LBS
166± LBS TOTAL WEIGHT

IWA WIRELESS RADIO SYSTEM
RADIO : 1 LBS
DISH: 2.16 LBS
MOUNT ARM/BRACKETS: 6.5 LBS
10± LBS TOTAL WEIGHT

ITEM	DESCRIPTION
①	VALMONT STRUCTURES POLE, MODEL DS210 (SEE POLE SPECIFICATIONS FOR SIZE AND MODEL OPTIONS)
②	VALMONT STRUCTURES HANDHOLE W/LOCKING REMOVABLE COVER (4.0" x 6.5" MIN)
③	VALMONT STRUCTURES HANDHOLE W/LOCKING REMOVABLE COVER (3.0" x 5.0" MIN) DRILL HOLES ON COVER FOR APPURTENANCE WIRES W/WEATHERPROOF GROMMETS
④	TSI POWER PANEL WITH UNINTERRUPTIBLE POWER SUPPLY: UPS–PL2448HP–18, 24V, 18Ah BATT, AND TYCO ENC–PL–14X10X5 NEMA4 ENCLOSURE, 48V PoE INJECTOR, SWITCH
⑤	NEPTUNE TECHNOLOGY GROUP R900 GATEWAY V4 WITH POLE MOUNTING ASSEMBLY
⑥	CAMBIUM NETWORKS PMP 450 RADIO/UBIQUITI NETWORKS LITEBEAM AC GEN2 DISH, W/ MOUNTING ASSY
⑦	PCTEL RF ANTENNA WITH POLE MOUNTING ASSEMBLY
⑧	150W SOLAR PANEL 26"X58" WITH POLE MOUNTING ASSEMBLY (FOR NEPTUNE AND IWA RADIO ASSY)

NOTES:
DISH ⑥ TO BE POINTED TOWARDS PRIMARY RECEIVER (TOWER AT NORTH INDIO HILLS OR LOST HORSE)

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MARIO A. CAMACHO
SENIOR WATER ENGINEER
RCE C88420

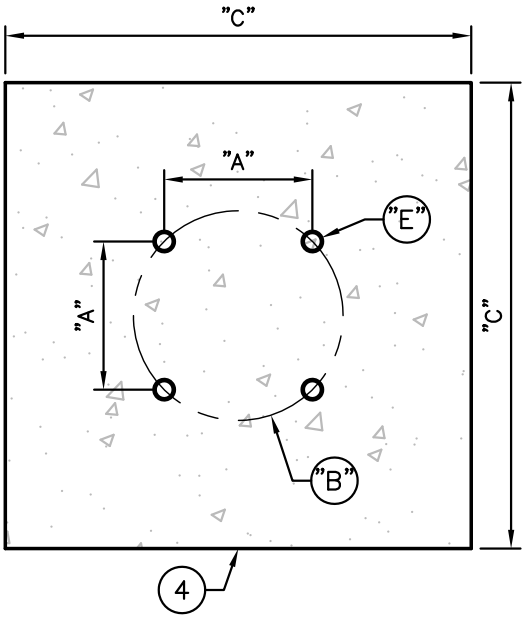
July 2018
DATE

SOLAR ADVANCED METERING INFRASTRUCTURE POLE

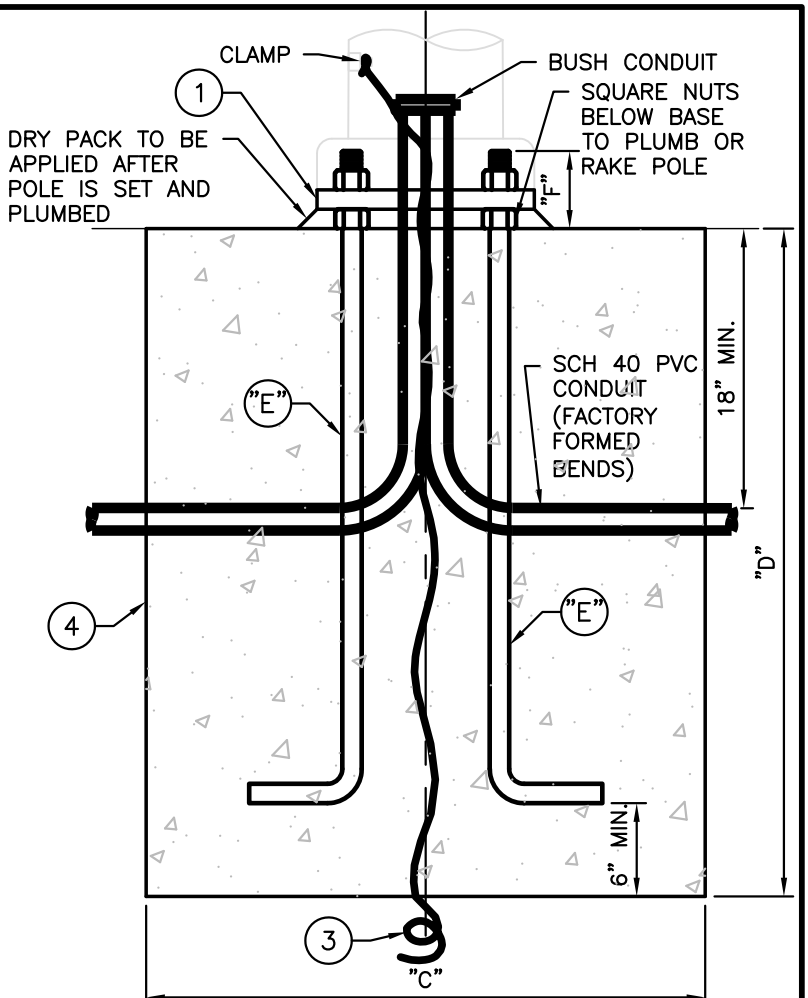
731

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE



PLAN VIEW



PROFILE VIEW

POLE	"A"	"B"	"C"	"D"	"E"	"F"
30'	7.78"	11" DIA.	3'	4'	1.25"X42"X6"	5"
39'	8.84"	12.5" DIA.	3'	4'	1.25"X42"X6"	5"
50'	9.55"	13.5" DIA.	4'	7'	1.75"X84"X6"	6.50"

ITEM	DESCRIPTION
1	VALMONT STRUCTURES DS210 ROUND TAPERED STEEL POLE BASE PLATE, SEE TABLE FOR SIZE.
2	(4) ANCHOR BOLTS (SEE TABLE FOR SIZE), ASTM F1554 GRADE 55, ANCHOR BOLTS WITH (2) HEX NUTS AND (2) FLAT WASHERS. BOLTS HAVE AN "L" BEND ON ONE END AND ARE GALVANIZED A MINIMUM 12" ON THE THREAD END
3	NO. 4 COPPER GROUND WIRE WELL BURIED IN EARTH BELOW CONCRETE
4	"C" X "C" X "D" DEEP 560-C-3250 CONCRETE FOOTING (FOOTING MAY BE ROUND OR SQUARE)

NOTES:
X
X

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MARIO A. CAMACHO
SENIOR WATER ENGINEER
RCE C88420

July 2018
DATE

ADVANCED METERING INFRASTRUCTURE POLE FOOTING

732

SHEET 1 OF 1

REVISION	DATE	REVISION	DATE