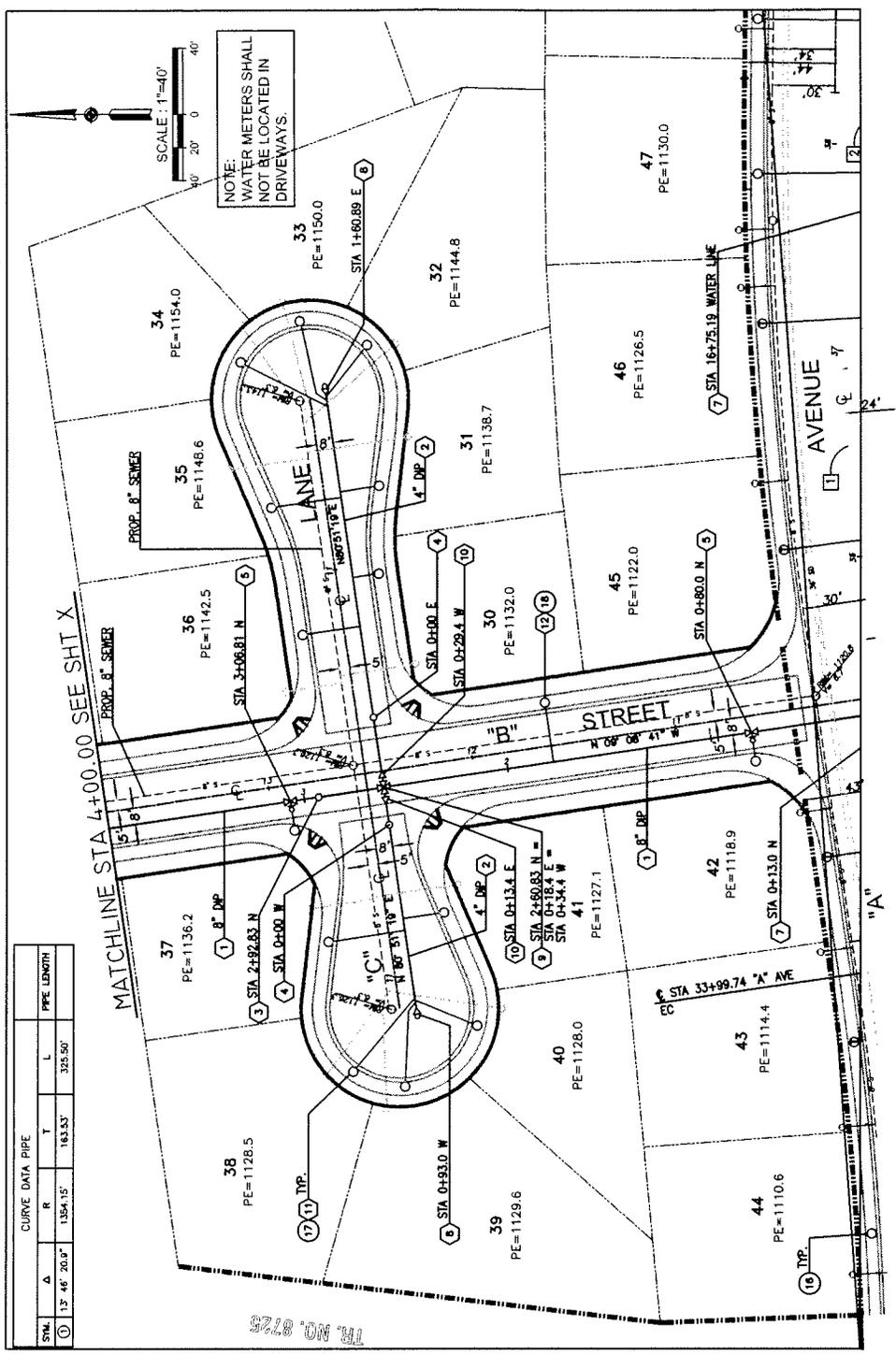
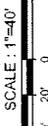


0	DRAWN MMC	DATE 10-09	CHECK	APPROV.	1	DRAWN	DATE	CHECK	APPROV.	2	DRAWN	DATE	CHECK	APPROV.	3	DRAWN	DATE	CHECK	APPROV.
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CURVE DATA PIPE			
STA	Δ	R	T
1	13° 46' 20.3"	1354.15'	163.33'
			L
			325.50'
			PPE LENGTH

NOTE:
WATER METERS SHALL
NOT BE LOCATED IN
DRIVEWAYS.



NOTE: THIS SYSTEM SERVED BY _____ ZONE.

PROJECT NAME: WATER IMPROVEMENT PLANS

CITY OF RIVERSIDE
PUBLIC UTILITIES DEPARTMENT
WATER DIVISION

ENGINEERING COMPANY TITLE
BLOCK INCLUDE ENGINEER'S
SIGNATURE AND STAMP

APPROVED BY: _____ DATE: _____
INCLUDE THE CONTRACTOR'S
SIGNATURE AND DATE

APPROVED BY: _____ DATE: _____
INCLUDE THE CONTRACTOR'S
SIGNATURE AND DATE

UNDERGROUND SERVICE ALERT
CALL TOLL FREE
1-800-227-2600
TWO WORKING DAYS BEFORE DIGGING

DATE: 4/25/10

SCALE: AS SHOWN

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL PLAN LAYOUT

0	DRAWN	WEF	DATE	10-09	CHECK	APPROV.	1	DRAWN	DATE	CHECK	APPROV.	2	DRAWN	DATE	CHECK	APPROV.	3	DRAWN	DATE	CHECK	APPROV.
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NOTES AND DEFINITIONS

1. HEALTH AGENCY -- THE DEPARTMENT OF HEALTH SERVICES. FOR THOSE WATER SYSTEMS SUPPLYING FEWER THAN 200 SERVICE CONNECTIONS, THE LOCAL HEALTH OFFICER SHALL ACT FOR THE DEPARTMENT OF HEALTH SERVICES.
2. WATER SUPPLIER -- "PERSON OPERATING A PUBLIC WATER SYSTEM" OR "SUPPLIER OF WATER" MEANS ANY PERSON WHO OWNS OR OPERATES A PUBLIC WATER SYSTEM.
3. LOW HEAD WATER MAIN -- ANY WATER MAIN WHICH HAS A PRESSURE OF FIVE PSI (POUNDS PER SQUARE INCH) OR LESS AT ANY TIME AT ANY POINT IN THE MAIN.
4. DIMENSIONS ARE FROM THE OUTSIDE OF WATER MAIN TO THE OUTSIDE OF SANITARY SEWER LINE OR MANHOLE.
5. COMPRESSION JOINT -- A PUSH-ON JOINT THAT SEALS BY MEANS OF THE COMPRESSION OF A RUBBER RING OR GASKET BETWEEN THE PIPE AND A BELL OR COUPLING.
6. MECHANICAL JOINTS -- BOLTED JOINTS.
7. RATED WORKING WATER PRESSURE OR PRESSURE CLASS -- A PIPE CLASSIFICATION SYSTEM BASED UPON INTERNAL WORKING PRESSURE OF THE FLUID IN THE PIPE, TYPE OF PIPE MATERIAL, AND THE THICKNESS OF THE PIPE WALL.
8. FUSED JOINT -- THE JOINING OF SECTIONS OF PIPE USING THERMAL OR CHEMICAL BONDING PROCESSES.
9. SLEEVE -- A PROTECTIVE TUBE OF STEEL WITH A WALL THICKNESS OF NOT LESS THAN ONE-FOURTH INCH INTO WHICH A PIPE IS INSERTED.
10. GROUND WATER -- SUBSURFACE WATER FOUND IN THE PART OF THE GROUND THAT IS WHOLLY SATURATED.
11. HOUSE LATERAL -- A SANITARY SEWER CONNECTING THE HOUSE LATERAL DRAIN, BUILDING DRAIN, AND THE MAIN SANITARY SEWERLINE.

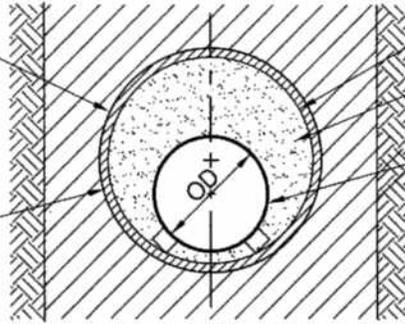
WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

WATER MAIN AND SANITARY SEWER
SEPARATION
NOTES

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1/4" MIN WELDED
STEEL CASING.

COMPACT EARTH
AROUND ENCASEMENT
AS REQUIRED ON
PLANS & DETAIL
SPECS



OD = OUTSIDE DIAMETER OF BELL,
COLLAR, OR COUPLING.

ID CASING = OD+6"

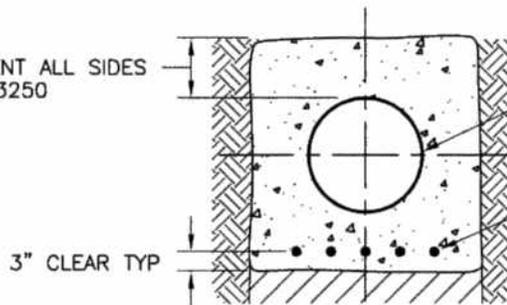
FILL ANNULAR SPACE WITH
PER PLAN NOTES.

SEWER PIPE OR WATER PIPE

NOTE: SUPPORT AT LEAST
2' OF EACH END OF CASING
ON UNDISTURBED EARTH.

TYPE A - PIPE CASING
SECTION A

6" TYP ENCASEMENT ALL SIDES
W/ PCC 560-C-3250

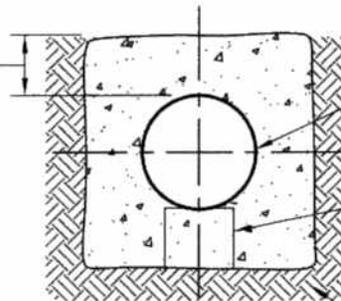


SEWER PIPE OR WATER PIPE

#5 @ 6" MAX CONTINUOUS
FOR LENGTH OF ENCASEMENT
SUPPORT AT LEAST 2' OF EACH
END OF ENCASEMENT ON
UNDISTURBED EARTH.
COMPACT EARTH AS REQUIRED
ON PLANS & DETAIL SPECS.

TYPE B - REINFORCED ENCASEMENT
SECTION B

6" TYP ENCASEMENT ALL SIDES
W/ PCC 520-C-2500



SEWER PIPE OR WATER PIPE
(PROTECT PIPE AGAINST FLOATATION)

SUPPORT ON CONCRETE BLOCKS

POUR AGAINST UNDISTURBED EARTH

TYPE C - PLAIN ENCASEMENT
SECTION C

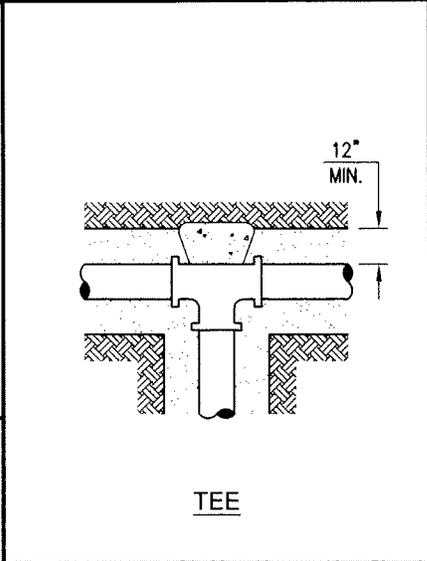
GENERAL NOTES

- 1.) ALL MATERIALS OF CONSTRUCTION SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION"

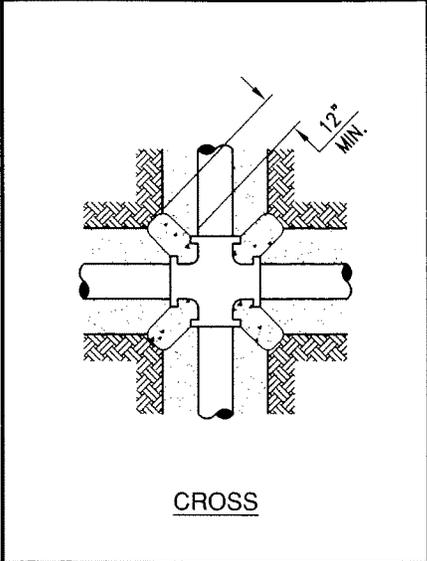
WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

STRUCTURE INTERFERENCE
ENCASEMENT SECTIONS

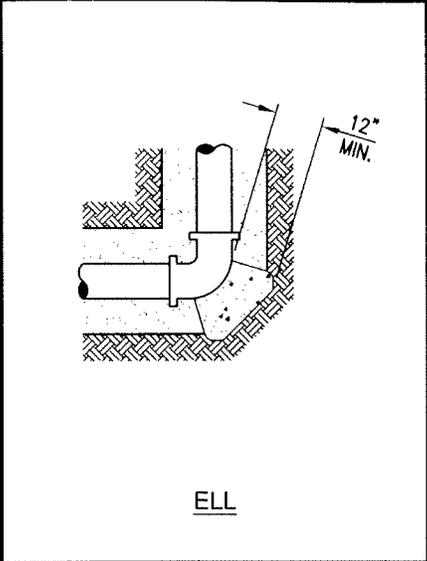
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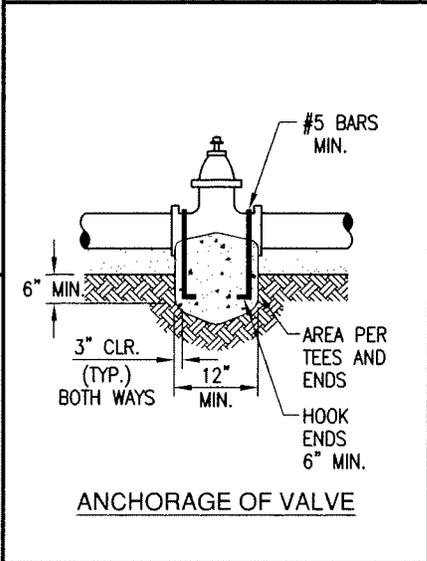
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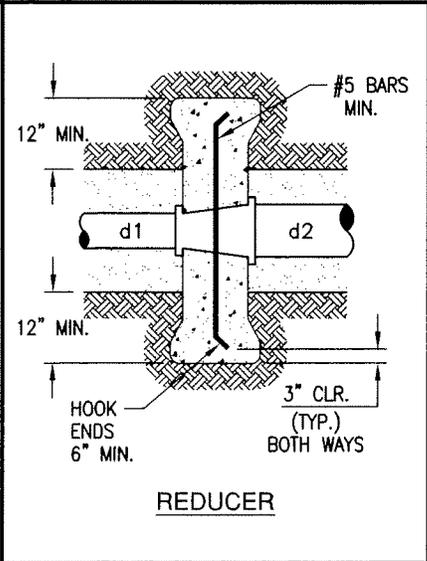
CROSS



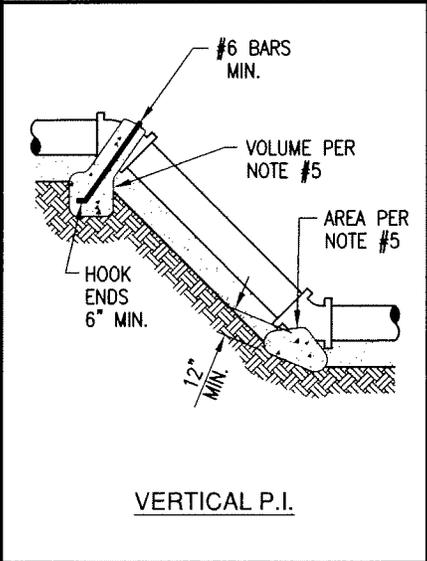
ELL



ANCHORAGE OF VALVE



REDUCER



VERTICAL P.I.

GUIDELINE

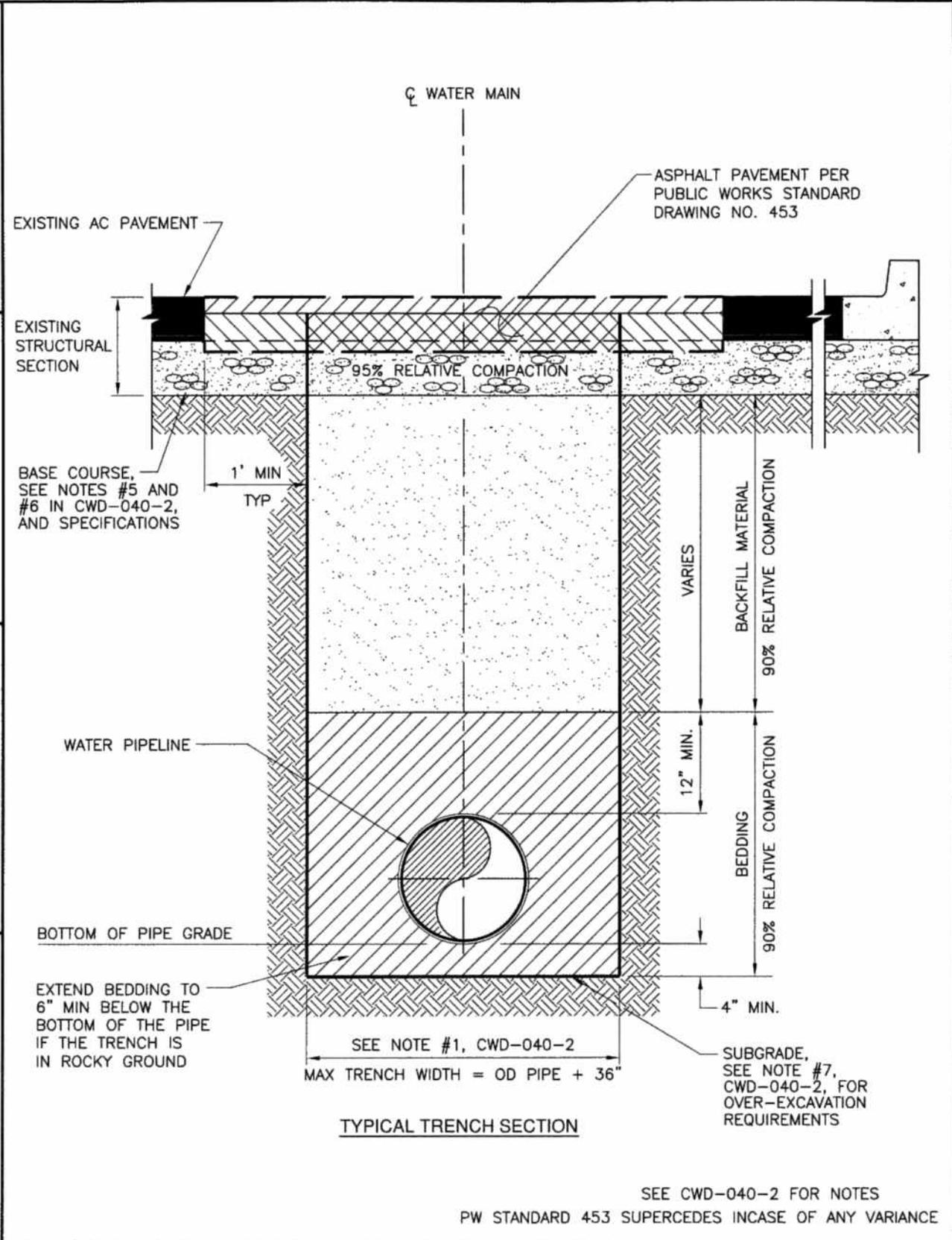
NOTES:

- 1.) ALL MATERIALS OF CONSTRUCTION SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".
- 2.) THRUST AND ANCHOR BLOCKS FOR D.I.P. AND M.L.&C. STEEL PIPE SHALL BE OF PCC 450-C-2000 CONCRETE AND SHALL BE POURED AGAINST UNDISTURBED SOIL. CONCRETE SHALL BE KEPT CLEAR OF THE BELL END OF FITTINGS FOR DUCTILE IRON PIPE.
- 3.) ENGINEERED-APPROVED RESTRAINED JOINTS MAY BE USED IN-LIEU OF THRUST BLOCKS.
- 4.) ANCHOR BLOCK FOR GATE VALVES SHALL BE KEYED A MINIMUM OF 12 INCHES INTO TRENCH WALL AND 6 INCHES INTO BOTTOM OF TRENCH.
- 5.) THE ENGINEER OF RECORD SHALL SIZE ALL THRUST BLOCKS ON THE BASIS OF THE SOIL PASSIVE PRESSURE.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

THRUST BLOCK DETAILS
TYPICAL

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WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

**TYPICAL PIPE TRENCH,
BEDDING, BACKFILL AND PAVEMENT
REQUIREMENTS**

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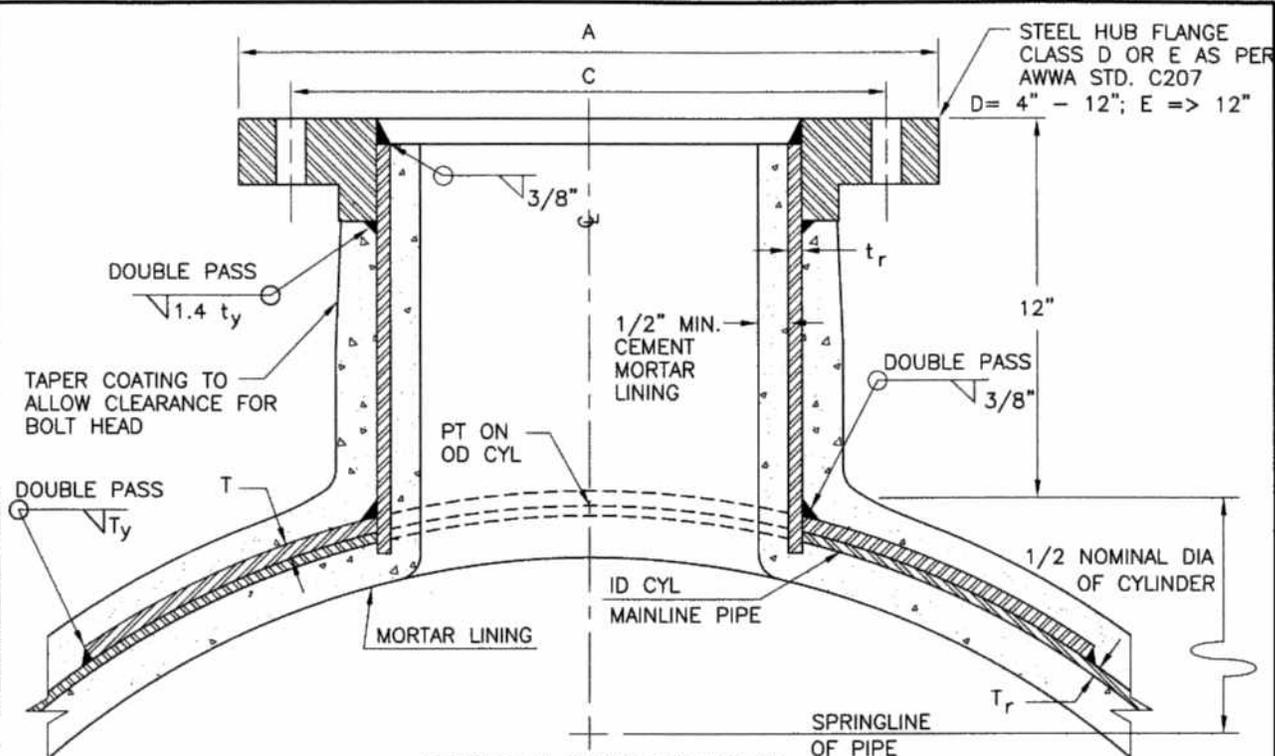
GENERAL NOTES:

- 1.) MINIMUM TRENCH WIDTH = O.D. + 12" FOR 4" TO 12" NOMINAL DIAMETER PIPE AND O.D. + 18" FOR GREATER THAN 12" NOMINAL DIAMETER PIPE.
- 2.) THE MATERIAL FOR BEDDING SHALL BE COHESIONLESS SANDY LOAM, SAND, OR SANDY GRAVEL MATERIAL OBTAINED FROM PROJECT EXCAVATION OR FROM APPROVED BORROW AREAS. THE BEDDING MATERIAL SHALL NOT CONTAIN ANY ROCKS OR OTHER MATERIAL DELETERIOUS TO THE PIPE.
- 3.) SAND BEDDING SHALL BE USED WHEN THE SAND EQUIVALENT OF THE NATIVE MATERIAL IS LESS THAN 30, PER ASTM D2419.
- 4.) FOR PAVED AND UNPAVED AREAS, THE COMPACTION OF BEDDING AND BACKFILL MATERIALS AND PAVEMENT REPLACEMENT SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION "GREEN BOOK" LATEST EDITION.
- 5.) COMPACTED BACKFILL MATERIAL IN THE UNPAVED AREAS SHALL COMPLY WITH THE SAME REQUIREMENTS AS THE BACKFILL MATERIAL COMPACTION IN THE STREETS.
- 6.) THE BASE COURSE MATERIAL SHALL BE CRUSHED AGGREGATE BASE MATERIAL AS SPECIFIED IN SECTION 200-2 "UNTREATED BASE MATERIALS" OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.
- 7.) IF THE ENGINEER DETERMINES THAT THE SOIL UPON WHICH THE PIPE IS TO BE PLACED IS UNSTABLE, THE CONTRACTOR SHALL OVER-EXCAVATE THE BOTTOM OF THE TRENCH TO A DEPTH OF 12" OR AS DIRECTED BY THE ENGINEER AND PLACE A LAYER OF CRUSHED ROCK ON THE TRENCH SUBGRADE COMPACTED TO 90% RELATIVE COMPACTION.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL PIPE TRENCH,
BEDDING, BACKFILL AND PAVEMENT
REQUIREMENTS (GENERAL NOTES)

APPROV. CHECK DATE DRAWN 3 APPROV. CHECK DATE DRAWN 2 APPROV. CHECK DATE DRAWN 1 APPROV. CHECK DATE DRAWN 0



SECTIONAL DETAIL OF OUTLET

NOTE: ALL WELDS ARE FULL DOUBLE PASS WELDS.

NOMINAL OUTLET DIA (in.)	MINIMUM "t _r " (in.)	HUB FLANGE	
		"C" (in.)	A (in.)
4	0.237	7 1/2	9
6	0.280	9 1/2	11
8	0.322	11 3/4	13 1/2
10	0.366	14 1/4	16
12	0.375	17	19
14	0.375	18 3/4	21
16	0.375	21 1/4	23 1/2
18	0.375	22 3/4	25
20	0.375	25	27 1/2

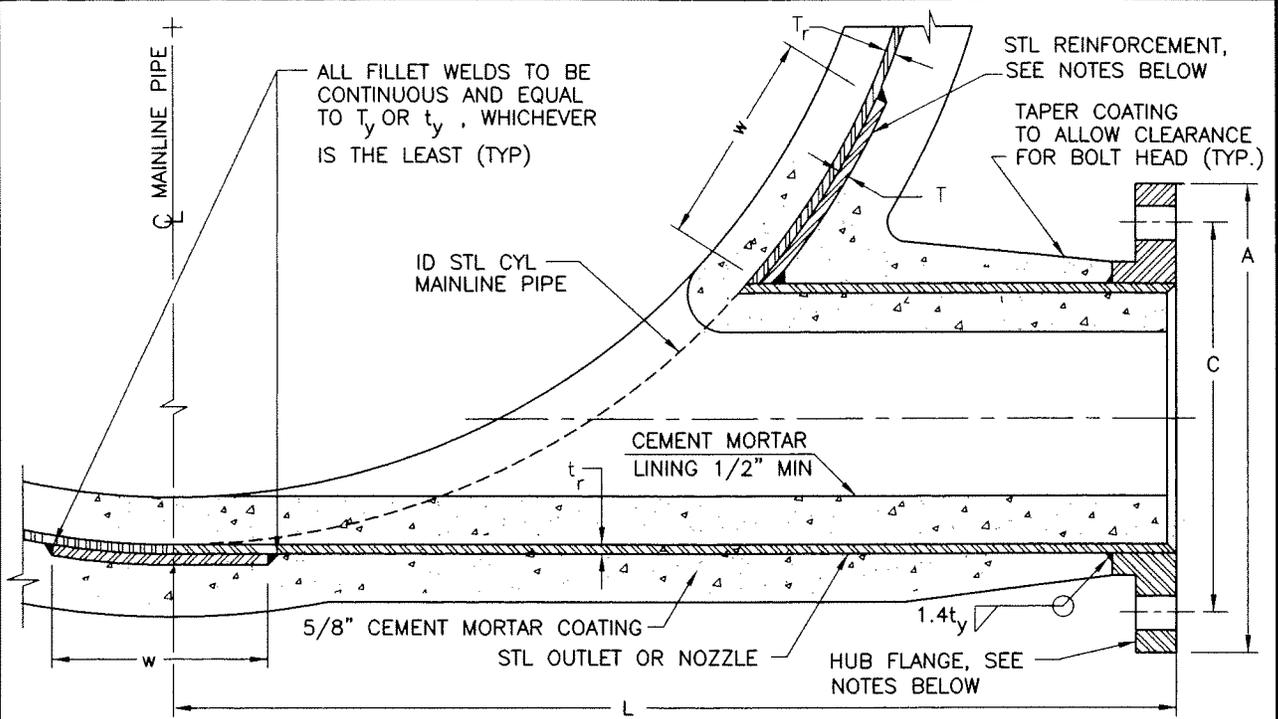
NOTES:

- 1.) SEE MAINLINE PIPING DRAWING FOR POSITION AND USE OF OUTLET.
- 2.) STEEL HUB FLANGE CLASS D, OR E AS PER AWWA STD C207- SEE ABOVE.
- 3.) SEE MAINLINE PIPE DRAWING FOR MINIMUM DESIGN THICKNESS "T_r".
- 4.) "w" AND "T", REINFORCEMENT PLATE DIMENSIONS FOR OUTLET JOINTS, TO BE DESIGNED PER AWWA M11, OR EQUAL TO MANUFACTURERS REINFORCING GUIDE.
- 5.) "T_y" = MAINLINE CYLINDER THICKNESS.
- 6.) "T_r" = REQUIRED MAINLINE CYLINDER THICKNESS.
- 7.) "t_y" = BRANCH CYLINDER THICKNESS.
- 8.) "t_r" = REQUIRED BRANCH CYLINDER THICKNESS.

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

TYPICAL FLANGED OUTLET 4" THROUGH 20"

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SECTIONAL DETAIL OF OUTLET

NOMINAL OUTLET DIA (in)	MINIMUM "t _r " (in)	HUB FLANGE	
		"c" (in)	"A" (in)
4	0.237	7 1/2	9
6	0.280	9 1/2	11
8	0.322	11 3/4	13 1/2
10	0.366	14 1/4	16
12	0.375	17	19

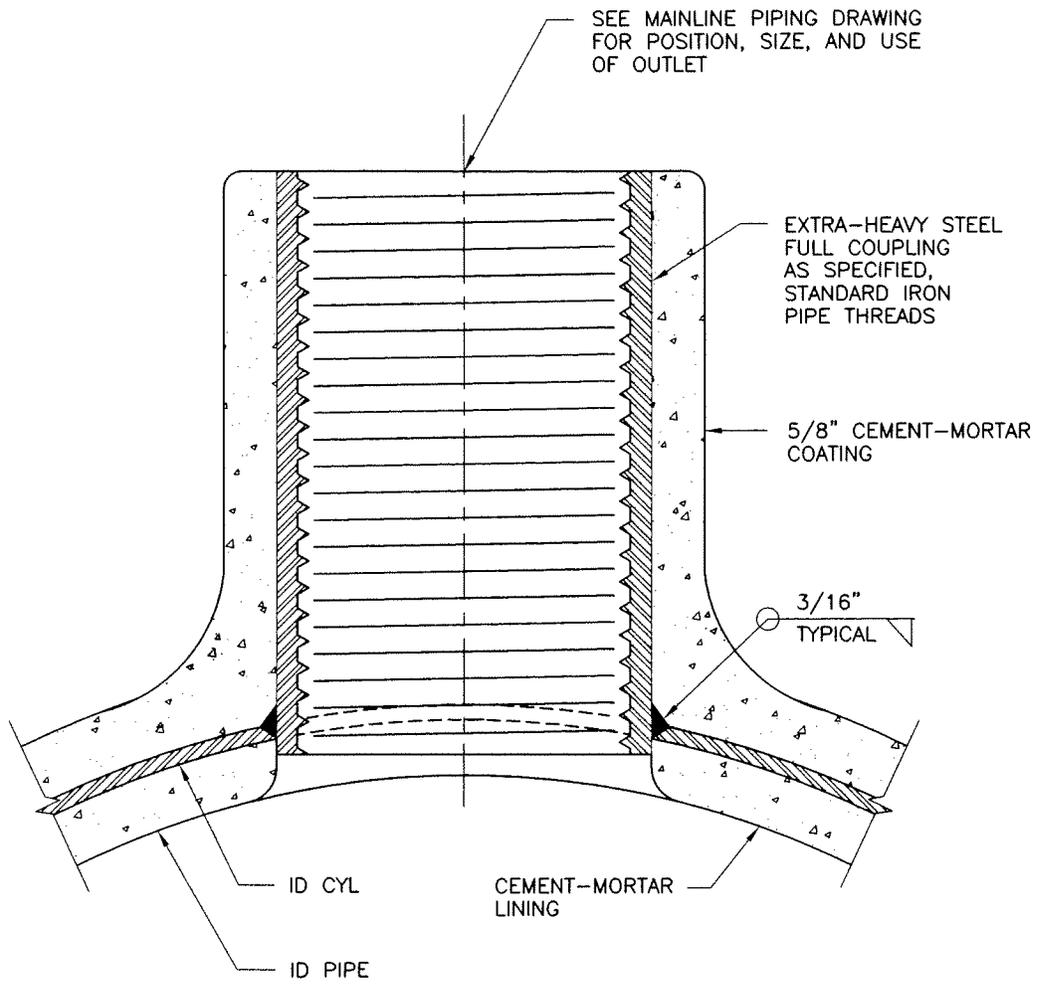
NOTES:

- 1.) SEE MAINLINE PIPING DRAWING FOR POSITION AND USE OF OUTLET.
- 2.) STEEL HUB FLANGE CLASS D AS PER AWWA STD. C207-86.
- 3.) SEE MAINLINE PIPING DRAWING FOR MINIMUM DESIGN THICKNESS "T_r".
- 4.) "w" AND "T", REINFORCEMENT PLATE DIMENSIONS FOR OUTLET JOINTS, TO BE DESIGNED PER AWWA MII, 13.3-13.6, OR EQUAL TO MANUFACTURERS REINFORCING GUIDE.
- 5.) "T_y" = MAINLINE CYLINDER THICKNESS.
- 6.) "T_r" = REQUIRED MAINLINE CYLINDER THICKNESS.
- 7.) "t_y" = BRANCH CYLINDER THICKNESS.
- 8.) "t_r" = REQUIRED BRANCH CYLINDER THICKNESS.
- 9.) "L" = $\frac{\text{NOMINAL DIA}}{2} + 12"$

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL FLANGED TANGENT OUTLET
4" THROUGH 12" DIAMETER

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2	DRAWN		DATE		CHECK		3	DRAWN	3	DATE		CHECK		APPROV.	



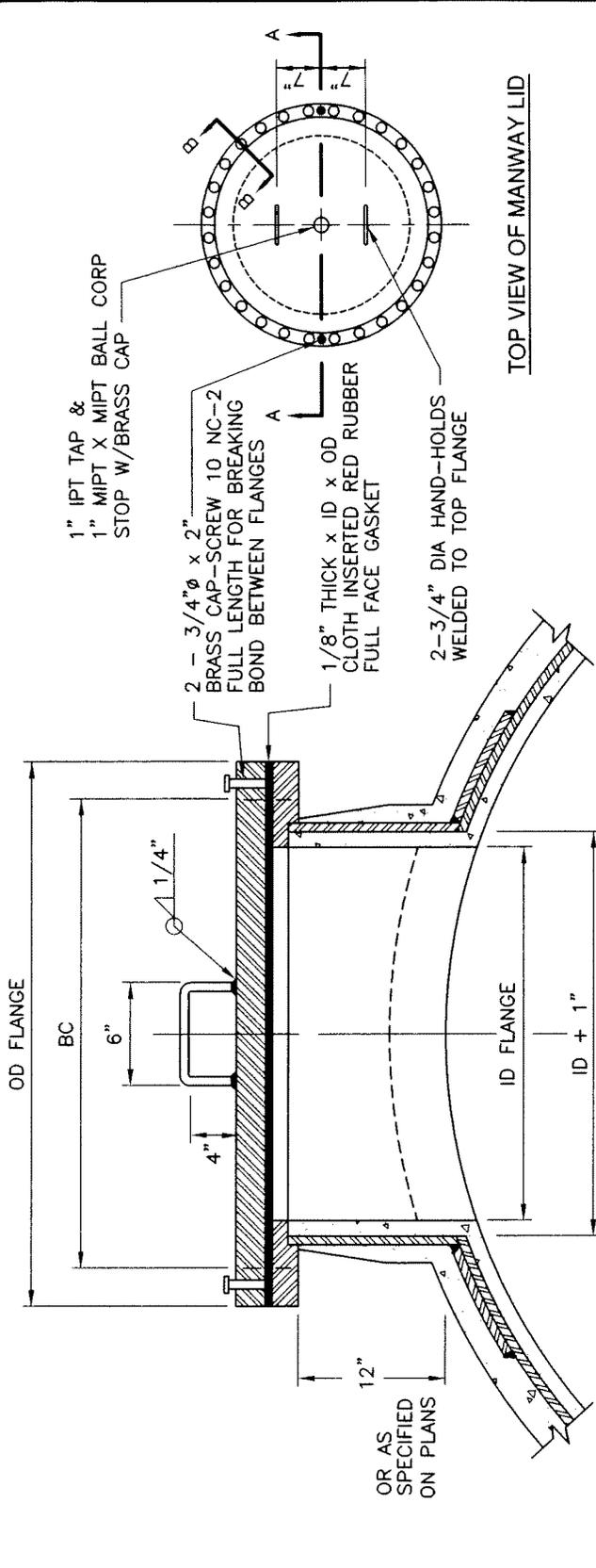
CROSS-SECTION OF OUTLET

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL THREADED OUTLET
1" THRU 2 1/2" DIAMETER



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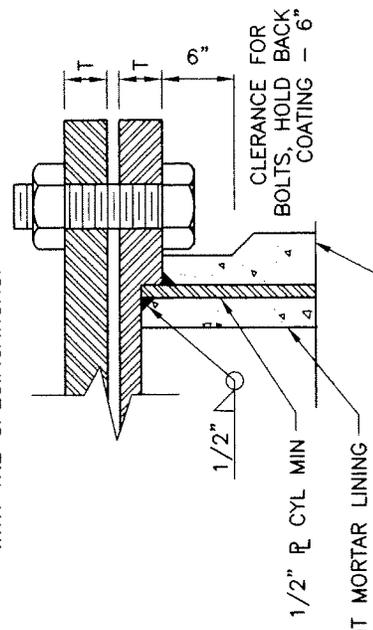


CROSS-SECTION OF MANWAY A-A

- NOTES:
- 1.) PAINT ALL EXPOSED INTERIOR & EXTERIOR METAL SURFACES OF FLANGES, EXCEPT GASKET SURFACE, PER SPECIFICATIONS.
 - 2.) 150 LB. HUB FLANGES SHALL BE USED IF WORKING PRESSURE 175 PSI OR LESS, 300 LB. FLANGES SHALL BE USED IF WORKING PRESSURE OVER 175 PSI.
 - 3.) REINFORCE MANWAY IN ACCORDANCE WITH AWWA M11 OR EQUAL, MANUFACTURER'S REINFORCING GUIDE.
 - 4.) MANWAY STATIONS MAY BE VARIED IN ORDER TO LOCATE THE 24" DIA OPENING @ MIDPOINT IN INDIVIDUAL PIPE LENGTHS THUS PERMITTING THE MANUFACTURE OF A UNIVERSAL PIPE LENGTH.
 - 5.) PAINT UNDERSIDE OF BLIND FLANGE WITH EPOXY PER SPECIFICATIONS.
 - 6.) REINFORCEMENT PLATE DIMENSIONS FOR OUTLET JOINTS, TO BE DESIGNED PER AWWA M11, 13.3 - 13.6, OR EQUAL TO MANUFACTURERS R/F GUIDE. 1/2" CEMENT MORTAR LINING

TOP VIEW OF MANWAY LID

HEX HEAD NUTS AND BOLTS IN ACCORDANCE WITH THE SPECIFICATIONS.



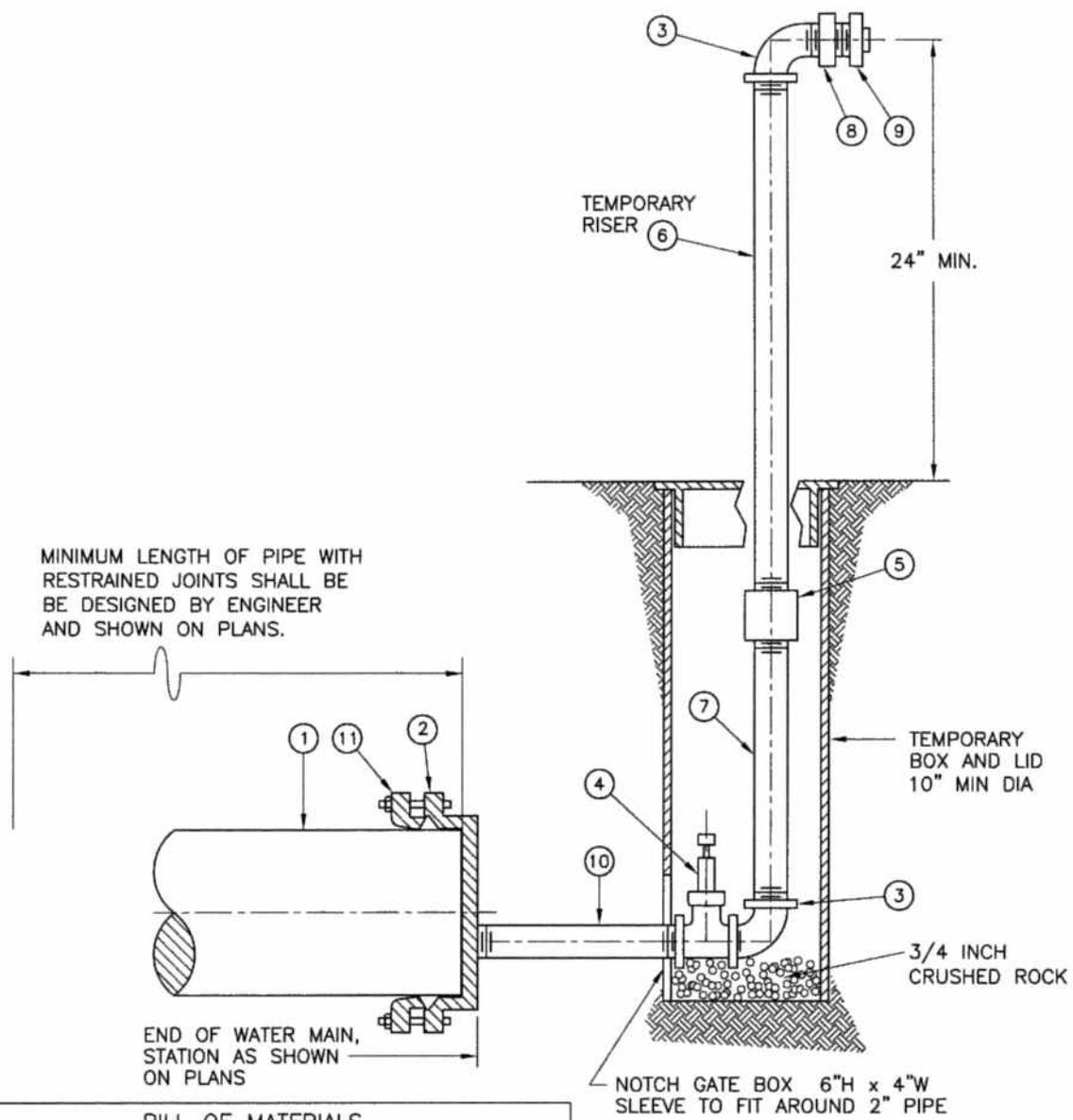
CROSS SECTION OF BOLT ASSEMBLY B-B

ID	FLANGE OD	BC	T	BOLT DIA	NO. BOLTS	PIPE SIZE
24"	32"	29 1/2"	1 1/4"	1 1/4"	20	24" TO 30"
30"	38 3/4"	36"	1 3/8"	1 1/4"	28	36" & LARGER

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

TYPICAL MANWAY FOR LARGE PIPELINES

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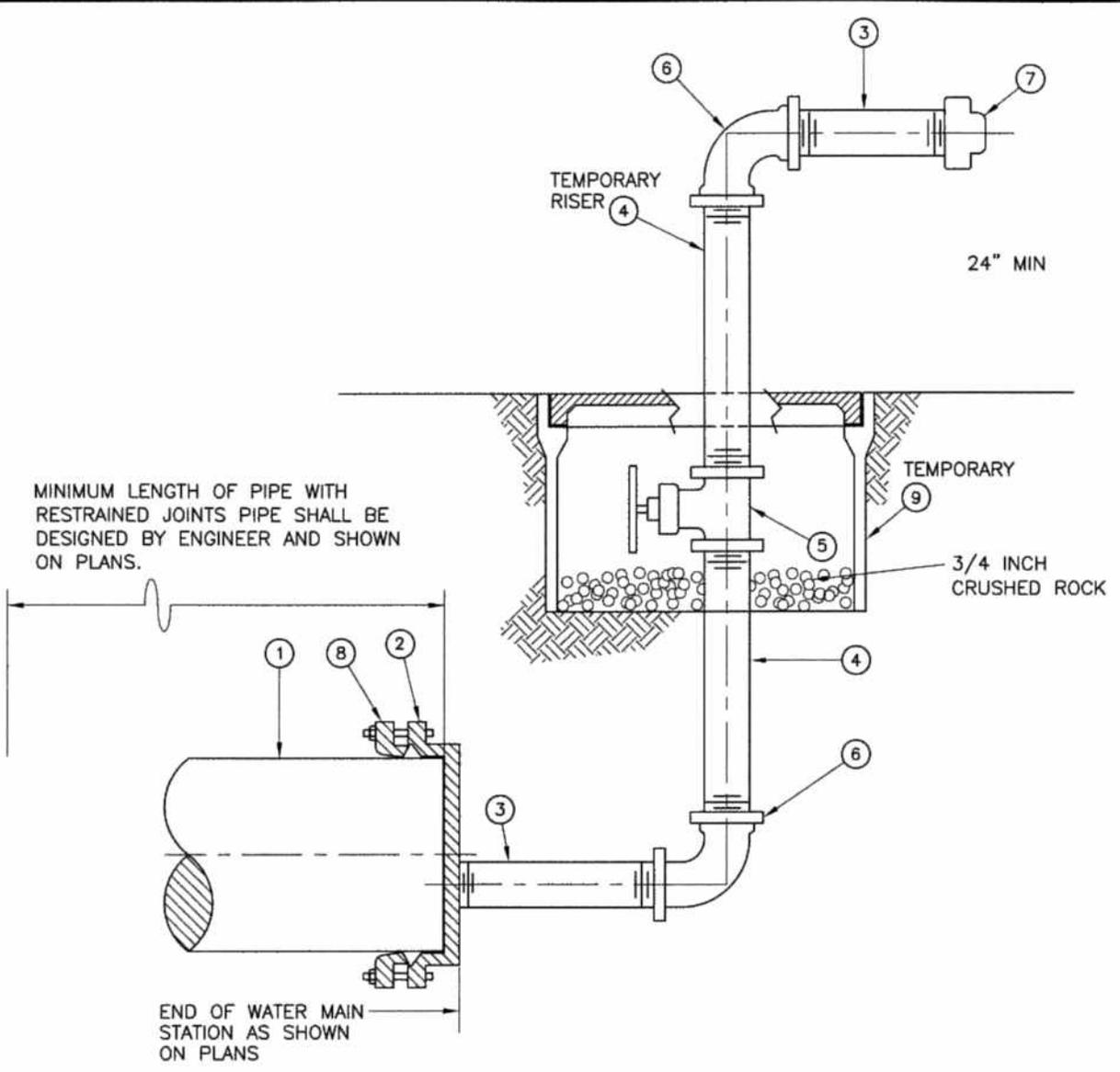
BILL OF MATERIALS	
	QUANTITY
① 4" THROUGH 10" WATER MAIN	PER PLAN
② MJ END CAP WITH 2" TAP	1
③ 2" GALV 90° STREET ELL (IPT)	2
④ 2" GATE (IPT)	1
⑤ 2" GALV COUPLING (IPT)	1
⑥ 2" x 30"± GALV PIPE (IPT)	1
⑦ 2" x 24"± GALV PIPE (IPT)	1
⑧ 2" IPF x 2 1/2" MHT BUSHING	1
⑨ 2 1/2" HOSE CAP	1
⑩ 2" x 12"± GALV NIPPLE (IPT)	1
⑪ MAIN SIZE GRIP RING KIT	1

NOTES:
 1.) CONTRACTOR SHALL LEAVE END CAP IN PLACE UNTIL FINAL CONNECTION BY CITY FORCES

WATER
 DISTRIBUTION & TRANSMISSION
 CONSTRUCTION METHODS

4" THROUGH 10"
 TEMPORARY CONSTRUCTION END CAPS
 FOR FLUSHING, TESTING, & CHLORINATION

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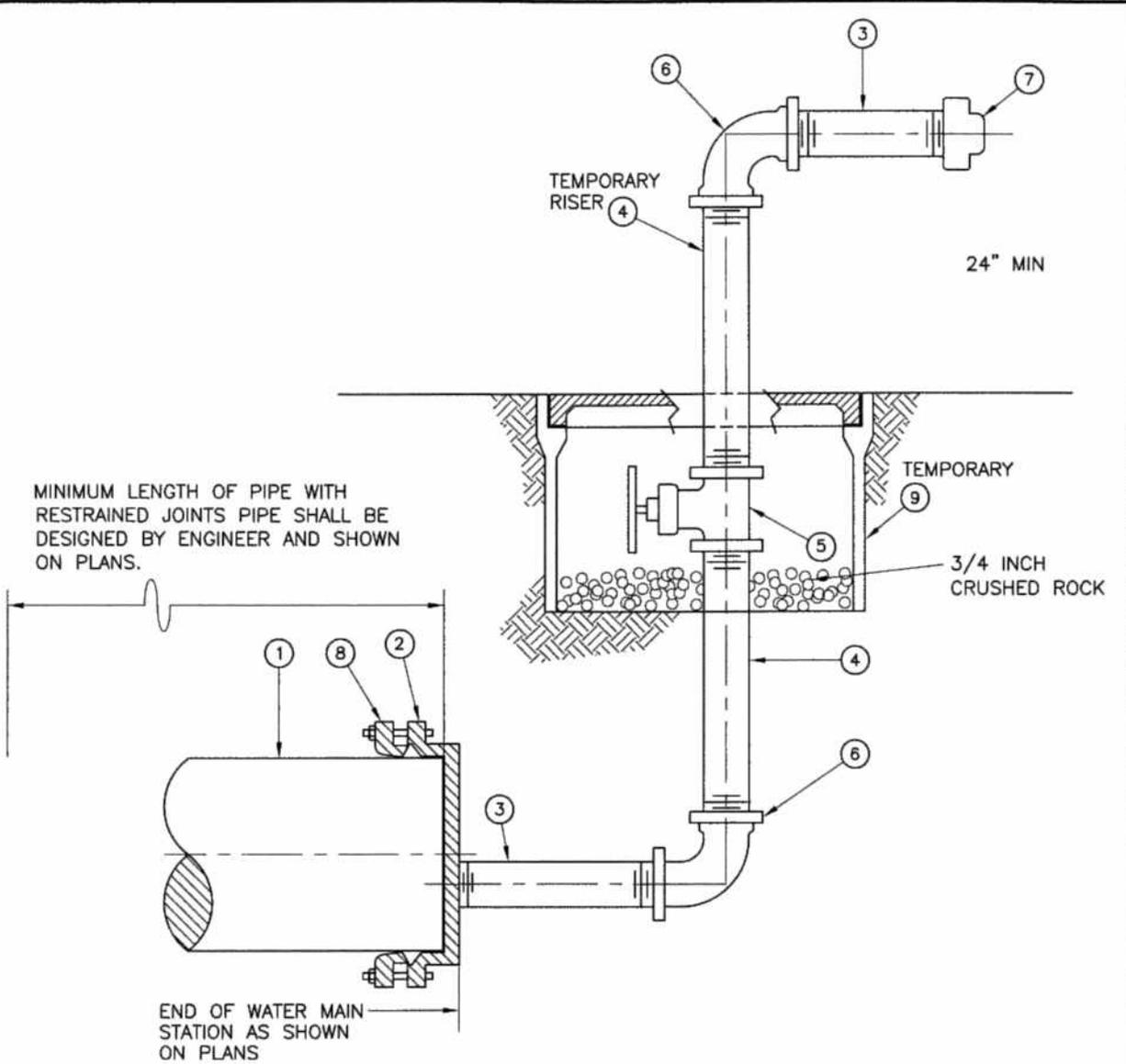
BILL OF MATERIALS	
ITEM	QUANTITY
① 12" - 20" WATER MAIN	PER PLAN
② 12" - 20" MJ END CAP W/4" ECCENTRIC TAP (IPT)	1
③ 4" x 12" GALV STEEL PIPE (IPT)	2
④ 4" GALV STEEL PIPE (IPT)	6 LF ±
⑤ 4" VALVE (FIPT), PER SPECIFICATIONS	1
⑥ 4" x 90° GALV STEEL ELL (FIPT)	2
⑦ 4" GALV END CAP (FIPT)	1
⑧ MAIN SIZE GRIP RING KIT	1
⑨ METER VAULT PER SPECIFICATIONS	1

NOTES:
 1.) CONTRACTOR SHALL LEAVE END CAP IN PLACE UNTIL FINAL CONNECTION BY CITY FORCES

WATER
 DISTRIBUTION & TRANSMISSION
 CONSTRUCTION METHODS

12" -20" DI TEMPORARY CONSTRUCTION
 END CAP FOR FLUSHING, TESTING,
 AND CHLORINATION

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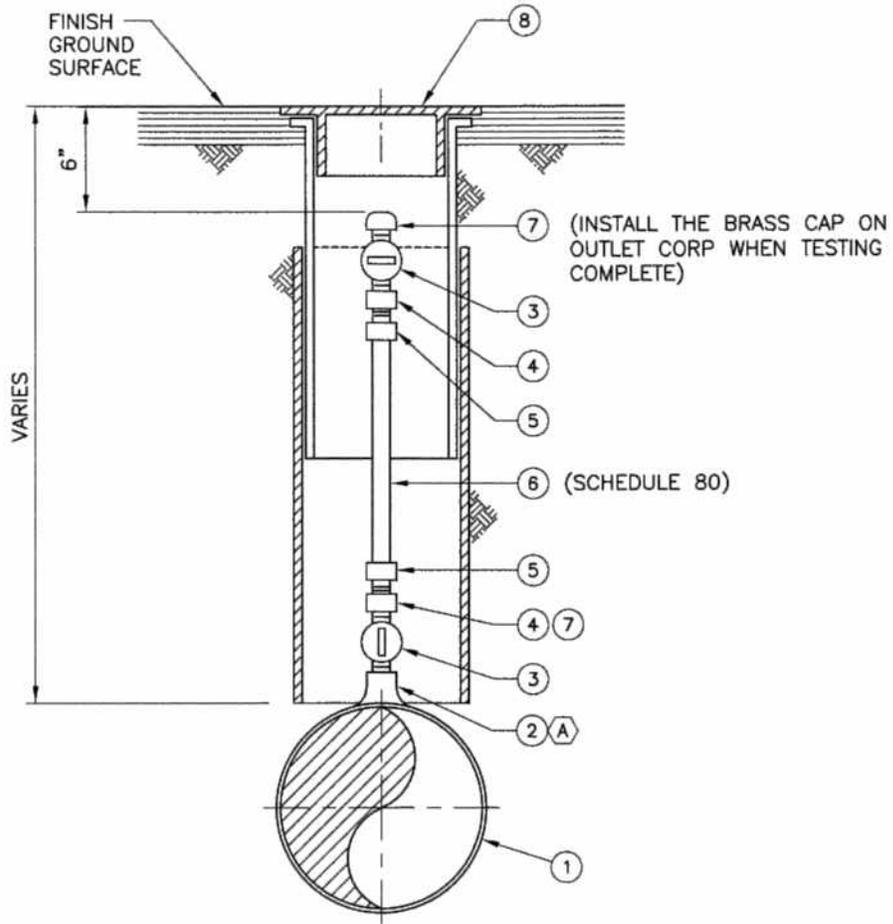
BILL OF MATERIALS	
ITEM	QUANTITY
① 16" - 54" WATER MAIN	PER PLAN
② 16" MJ END CAP W/4" ECCENTRIC TAP (IPT)	1
③ 16"-54" GALV STEEL PIPE (IPT)	2
④ 16"-54" GALV STEEL PIPE (IPT)	6 LF ±
⑤ 16"-54" VALVE (FIPT), PER SPECIFICATIONS	1
⑥ 16"- 54"x 90' GALV STEEL ELL (FIPT)	2
⑦ 16" -54" GALV END CAP (FIPT)	1
⑧ MAIN SIZE GRIP RING KIT	1
⑨ METER VAULT PER SPECIFICATIONS	1

- NOTES:**
- 1.) CONTRACTOR SHALL LEAVE END CAP IN PLACE UNTIL FINAL CONNECTION BY CITY FORCES

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

FOR STEEL 16" - 54" CML & C TEMPORARY
CONSTRUCTION END CAP FOR FLUSHING
TESTING AND CHLORINATION

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BILL OF MATERIALS

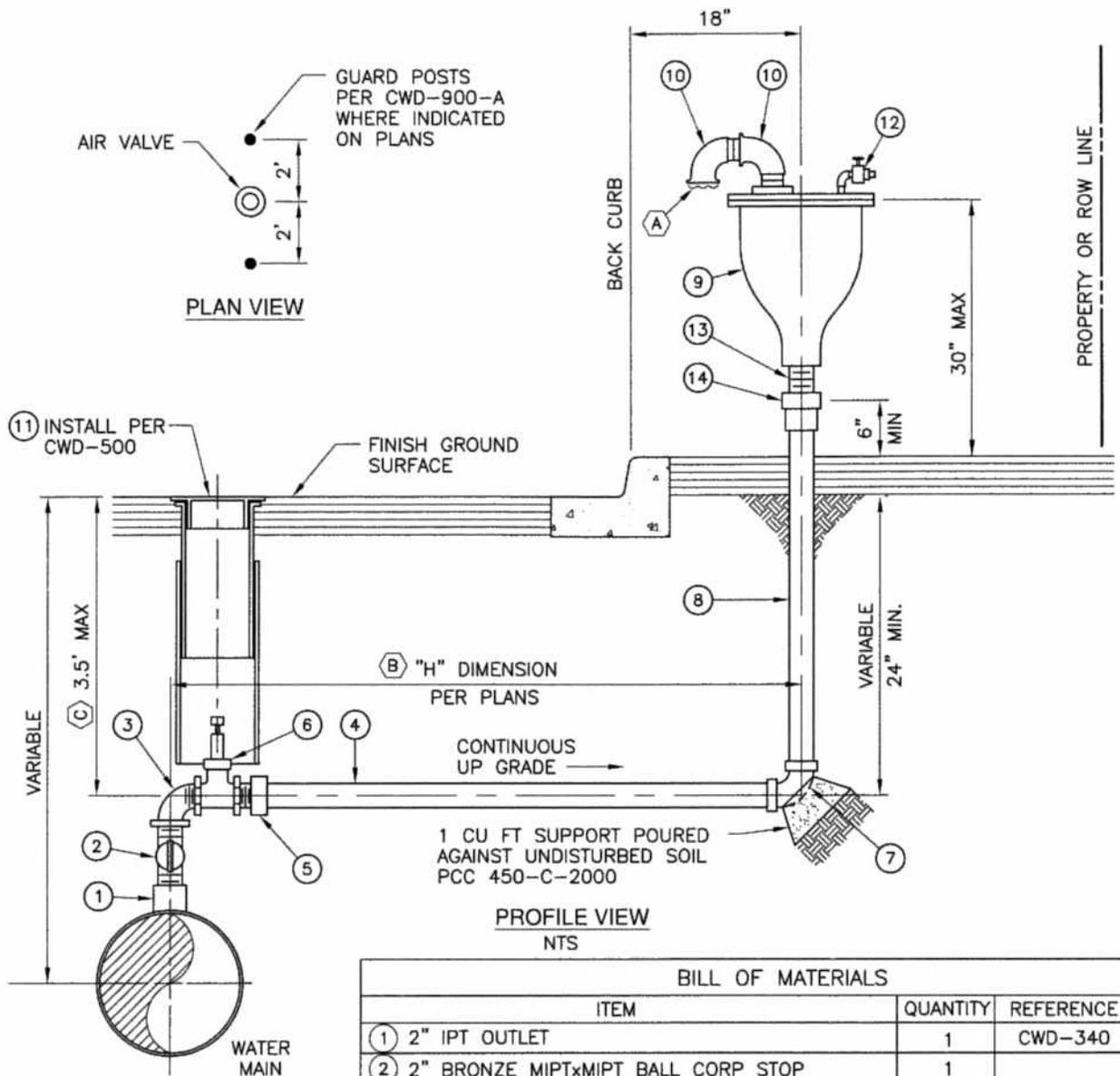
	QUANTITY	REF
① ML&C STEEL OR DIP WATER MAIN	PER PLAN	
② 1" THREADED OUTLET	1	CWD-340
③ 1" MIPT x MIPT BALL CORP STOP	2	
④ 1" GALV STEEL COUPLING	2	
⑤ 1" PVC ADAPTER	2	
⑥ 1" PVC PIPE	VARIES	
⑦ 1" BRASS CAP	1	
⑧ 10" GATE BOX AND SPLIT-SLEEVE	1	CWD-515

- NOTES:
- CONTRACTOR SHALL REMOVE VALVE BOX, CLOSE AND CAP 1" BALL CORP STOP AND REMOVE PVC RISER FOLLOWING ACCEPTANCE OF THE TRANSMISSION MAIN.
 - STATION, LOCATION AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.
- (A) DOUBLE-STRAP SERVICE SADDLES SHALL BE USED ON ALL DIP CONNECTIONS

WATER
 DISTRIBUTION & TRANSMISSION
 CONSTRUCTION METHODS

TEMPORARY
 WATER SAMPLER

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			3			3			



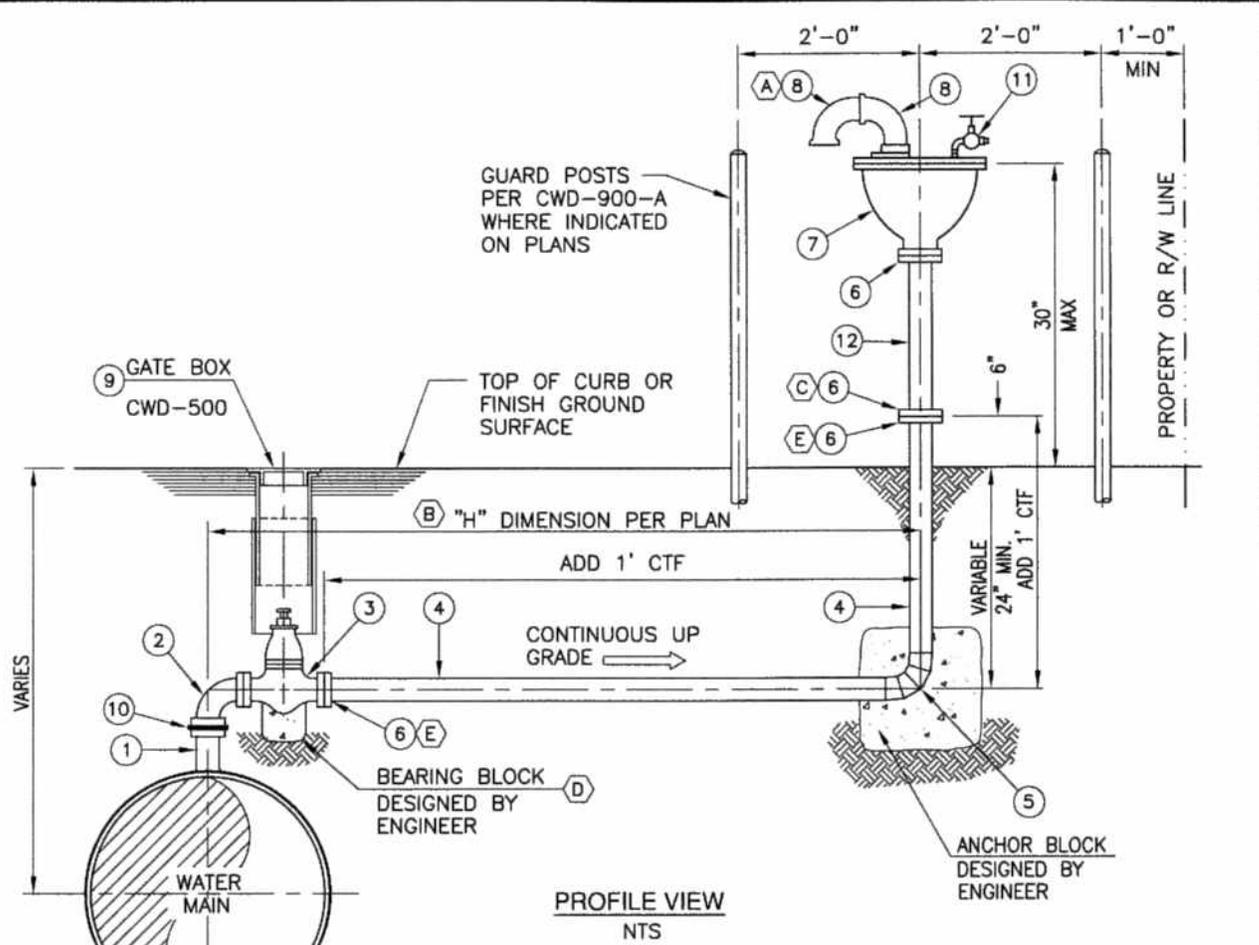
- NOTES:**
- (A) A 1/8" SQ MESH GALVANIZED SCREEN SHALL BE EPOXIED FLAT INTO OPEN ST ELL.
 - (B) STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.
 - (C) USE 2" COPPER PIPE BETWEEN CORP STOP AND ELL TO ADJUST DEPTH - IF NEEDED.
 - (D) DOUBLE-STRAP SERVICE SADDLES SHALL BE USED ON ALL DIP CONNECTIONS.

BILL OF MATERIALS		
ITEM	QUANTITY	REFERENCE
① 2" IPT OUTLET	1	CWD-340
② 2" BRONZE MIPTxMIPT BALL CORP STOP	1	
③ 2" BRASS STREET ELL	1	
④ 2" TYPE K COPPER PIPE (SOFT)	VARIABLE	
⑤ 2" SW x IPM BRONZE ADAPTER	1	
⑥ 2" RW GATE VALVE	1	
⑦ 2" SW x SW 90° ELL	1	
⑧ 2" HARD DRAWN COPPER PIPE, TYPE K	VARIABLE	
⑨ 2" UNIVERSAL AIR VALVE	1	
⑩ 2" GALV STREET ELL	2	
⑪ 8" GATE VALVE CAP, GALV SPLIT SLEEVE, & 12 GA STL PIPE	1	CWD-500
⑫ 1/4" BRASS GATE VALVE, 1/4" BRASS PLUG, 1/4" x 2" BRASS NIPPLE, 1/4" BRASS STREET ELL	1 EA	
⑬ 2"ø x 6" NIPPLE	1 EA	
⑭ 2" SW x IPF BRONZE ADAPTER	1 EA	

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS

TYPICAL 2" AIR VALVE INSTALLATION

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PROFILE VIEW
NTS

NOTES:

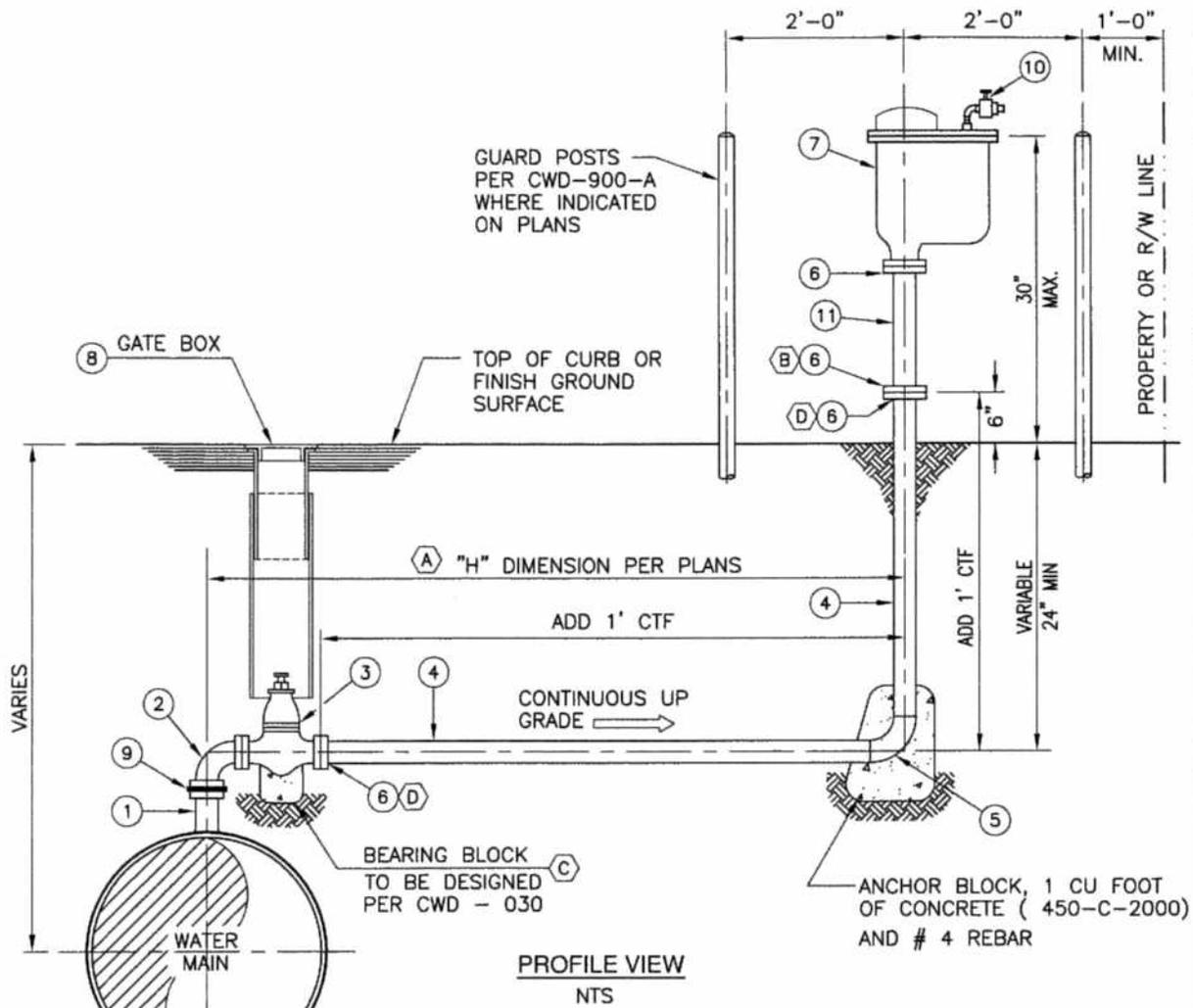
- (A) A 1/8" SQ. MESH, GALVANIZED SCREEN, SHALL BE EPOXIED INTO OPEN STREET ELL.
- (B) STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.
- (C) BREAK-OFF BOLTS, CADMIUM-PLATED OR GALVANIZED. INSTALL WITH NUT ON TOP AND COUNTER-BORE, PACKED WITH SILICONE.
- (D) BEARING BLOCK SHALL NOT REST ON MAIN AND SHALL BE NOTCHED ON BOTH SIDES PER CWD-500
- (E) HOLD BACK COATING 6"

BILL OF MATERIALS		
ITEM	QUANTITY	REFERENCE
(1) 4" FLANGED OUTLET	1	CWD-300
(2) 4" 90° ELL F/F	1	
(3) 4" RW GATE VALVE F/F	1	
(4) 4" ML&C STL PIPE, 10 GA 4" ID, 5/16" CML, 3/4" CMC	VARIABLE	
(5) 4" - 4 PC 90° ELL (WELD)	1	
(6) 4" WELD FLANGE, SHIP LOOSE	3	
(7) 4" UNIVERSAL AIR VALVE	1	
(8) 4" GALV STREET ELL	2	
(9) 8" GATE BOX CAP, GALV SPLIT-SLEEVE, AND 12 GA STL PIPE	1	CWD-500
(10) FLANGE INSULATION KIT AS REQUIRED PER SPECIFICATIONS	1	
(11) 1/2" BRASS GV 1/2" x 2" BRASS NIPPLE, 1/2" BRASS STREET ELL, & 1/2" BRASS PLUG	1	
(12) 4" DIA X 12" STL SPOOL, PE X PE, ML & NO COATING	1	

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL 4" AIR VALVE
INSTALLATION

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APPROV.	APPROV.
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DATE	DATE
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1	1
APPROV.	APPROV.
CHECK	CHECK
DATE	DATE
DRAWN	DRAWN
0	0



NOTES:

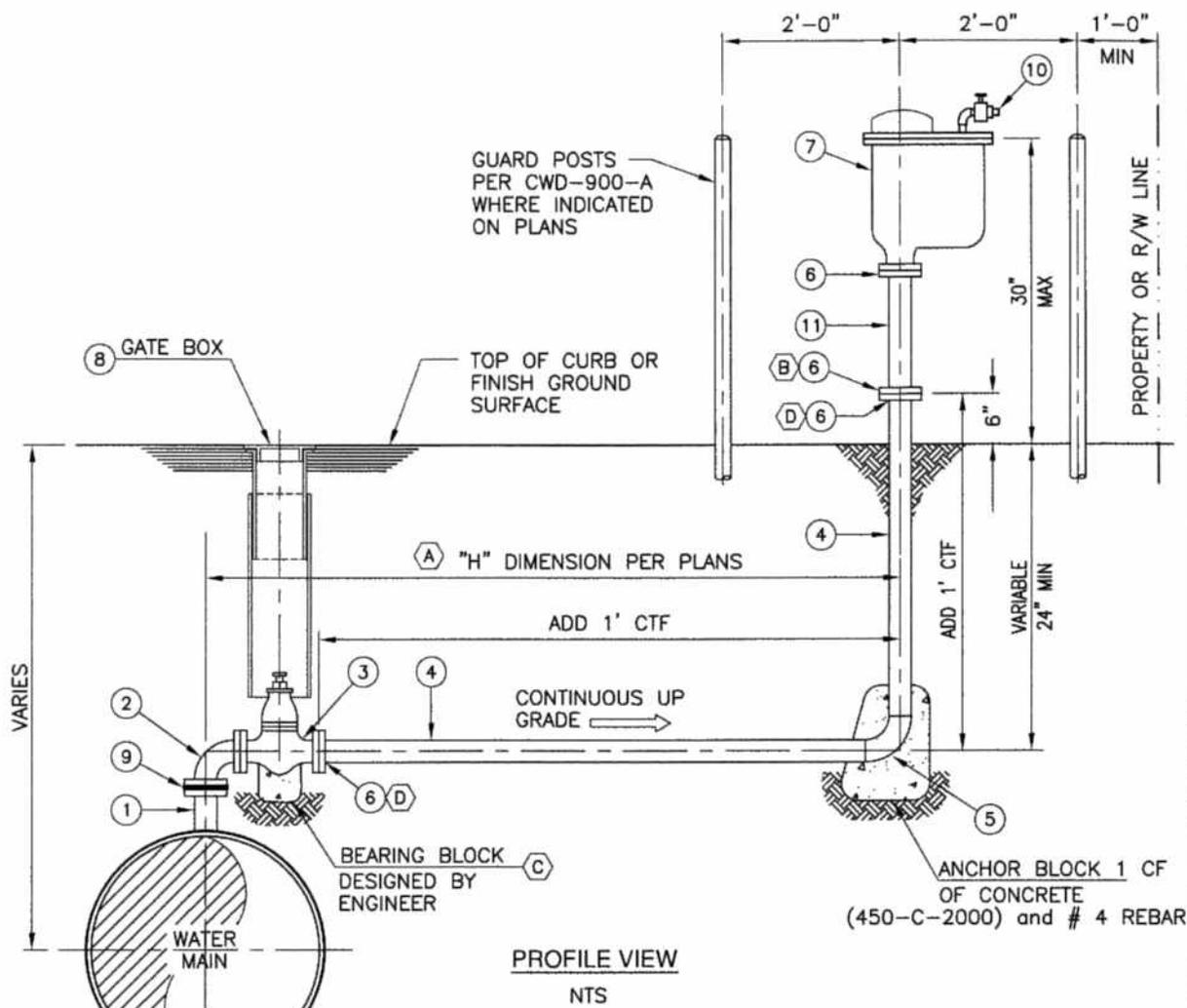
- (A) STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.
- (B) BREAK-OFF BOLTS, CADMIUM-PLATED OR GALVANIZED. INSTALL WITH NUT ON TOP AND COUNTER-BORE, PACKED WITH SILICONE.
- (C) BEARING BLOCK SHALL NOT REST ON MAIN AND SHALL BE NOTCHED ON BOTH SIDES PER CWD-500
- (D) HOLD BACK COATING 18"

BILL OF MATERIALS		
ITEM	QUANTITY	REFERENCE
(1) 6" FLANGED OUTLET	1	CWD-300
(2) 6" 90° ELL F/F	1	
(3) 6" RW GATE VALVE F/F	1	CWD-500
(4) 6" ML&C STL PIPE, 10 GA 6" ID, 5/16" CML, 3/4" CMC	VARIABLE	
(5) 6" - 90° WELD ELL	1	
(6) 6" WELD FLANGE, SHIP FLG LOOSE	6	
(7) 6" COMBINATION AIR VALVE, PER SPEC	1	
(8) 8" GATE BOX CAP, GALV SPLIT-SLEEVE, AND 12 GA STL PIPE	1	CWD-515
(9) FLANGE INSULATION KIT AS REQUIRED PER SPECIFICATIONS	1	
(10) 1/2" BRASS GV, 1/2" x 2" BRASS NIPPLE, 1/2" BRASS STREET ELL, 1/2" BRASS PLUG	1 EA	
(11) 6" DIA X 12" STL SPOOL, PE X PE, ML & NO COATING	1	

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL 6" AIR VALVE
INSTALLATION

APPROV.	3	CHECK	APPROV.	3	CHECK	APPROV.	3	CHECK	APPROV.	3	
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APPROV.	2	CHECK	APPROV.	2	CHECK	APPROV.	2	CHECK	APPROV.	2	
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DRAWN		DRAWN		DRAWN		DRAWN		DRAWN		DRAWN	
APPROV.	1	CHECK	APPROV.	1	CHECK	APPROV.	1	CHECK	APPROV.	1	
DATE	10-09	DATE		DATE		DATE		DATE		DATE	
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NOTES:

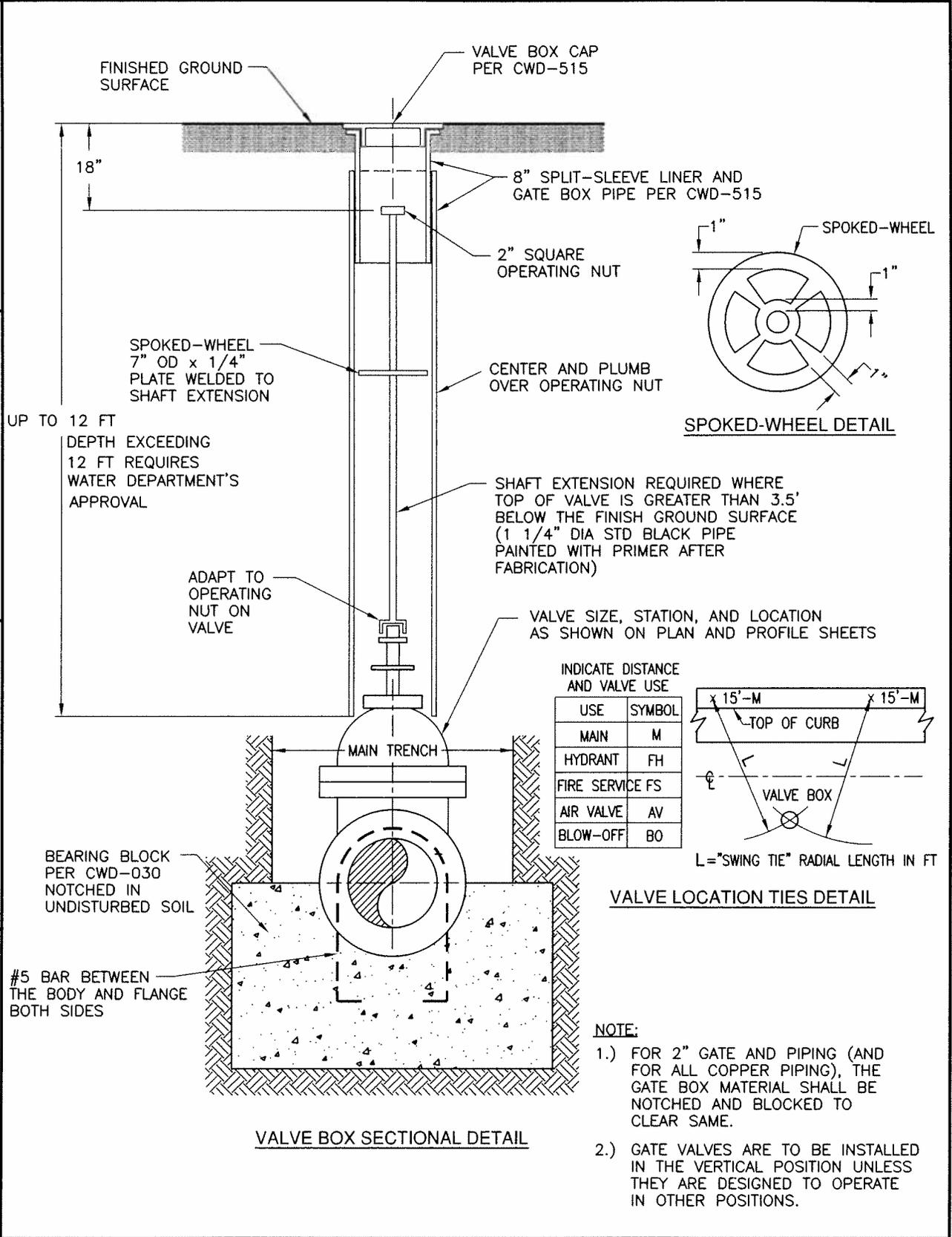
- (A) STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.
- (B) BREAK-OFF BOLTS, CADMIUM-PLATED OR GALVANIZED. INSTALL WITH NUT ON TOP AND COUNTER-BORE, PACKED WITH SILICONE.
- (C) BEARING BLOCK SHALL NOT REST ON MAIN AND SHALL BE NOTCHED ON BOTH SIDES PER CWD-500
- (D) HOLD BACK COATING 18".

BILL OF MATERIALS (ALL PIPE...)		
ITEM	QUANTITY	REFERENCE
(1) 8" FLANGED OUTLET	1	CWD-300
(2) 8" 90° ELL F x F	1	
(3) 8" RW GATE VALVE F x F	1	CWD-500
(4) 8" ML&C STL PIPE, 10 GA 8" ID, 5/16" CML, 3/4" CMC	VARIABLE	
(5) 8" - 90° WELD ELL	1	
(6) 8" WELD FLANGE, SHIP LOOSE	6	
(7) 8" COMBINATION AIR VALVE, PER SPEC	1	
(8) 8" GATE BOX CAP, GALV SPLIT-SLEEVE, AND 12 GA STL PIPE	1	CWD-515
(9) FLANGE INSULATION KIT AS REQUIRED PER SPECIFICATIONS	1	
(10) 1/2" BRASS GV 1/2" x 2" BRASS NIPPLE, 1/2" BRASS STREET ELL, 1/2" BRASS PLUG	1 EA	
(11) 8" DIA X 12" STL SPOOL, PE X PE, ML & NO COATING	1	

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

**TYPICAL 8" AIR VALVE
INSTALLATION**

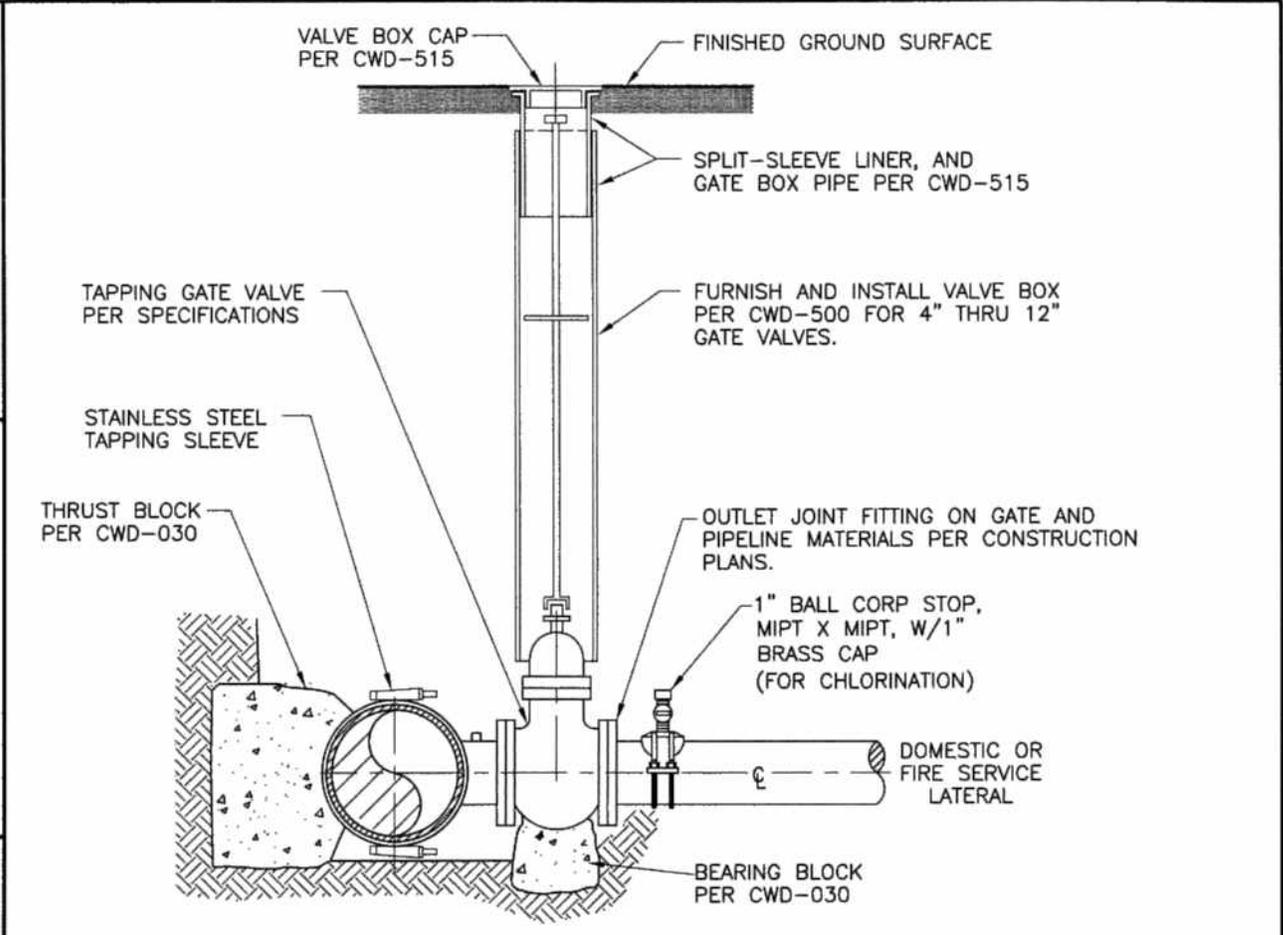
APPROV.	
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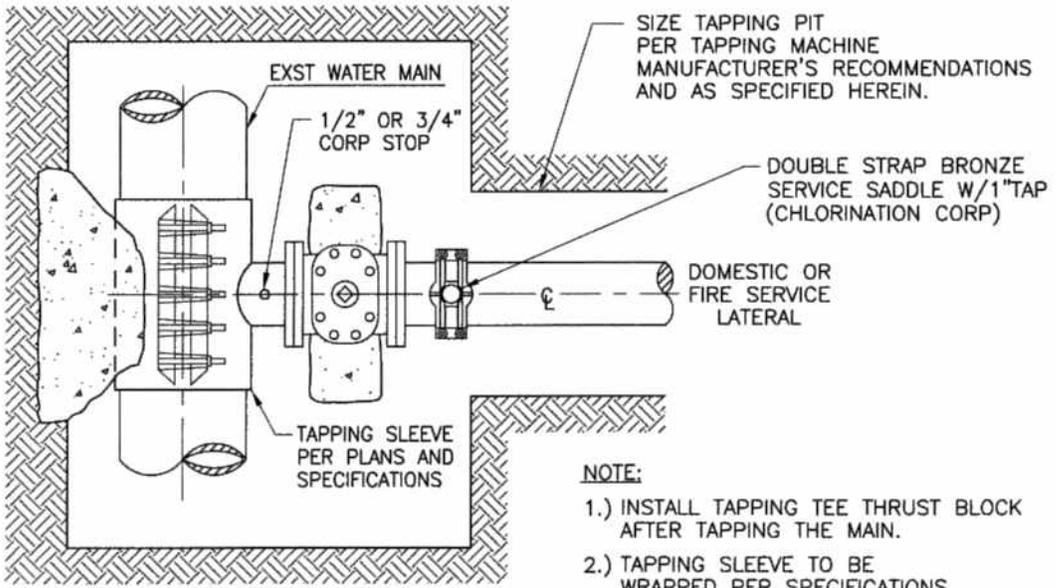
WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL VALVE BOX
FOR GATE VALVES

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SECTIONAL VIEW



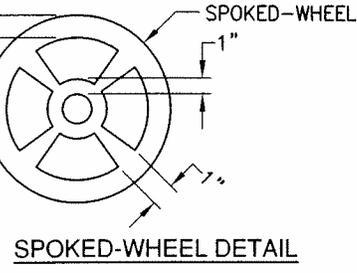
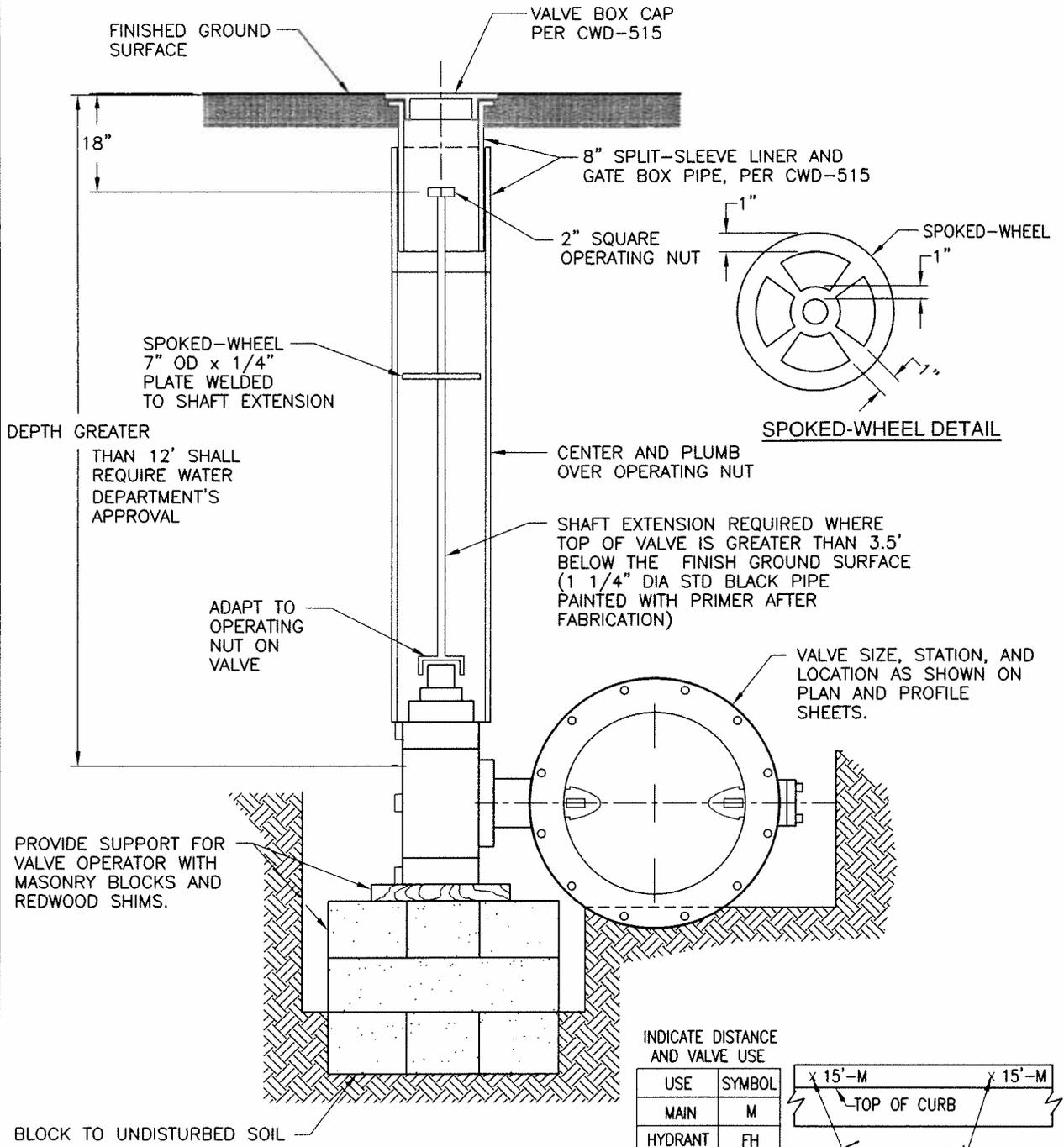
PLAN VIEW

- NOTE:**
- 1.) INSTALL TAPPING TEE THRUST BLOCK AFTER TAPPING THE MAIN.
 - 2.) TAPPING SLEEVE TO BE WRAPPED PER SPECIFICATIONS.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

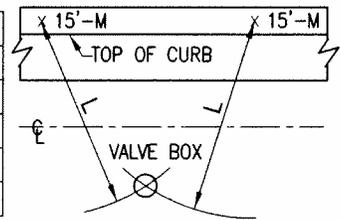
**TAPPING SLEEVE AND
TAPPING VALVE DETAIL FOR
DOMESTIC AND FIRE SERVICES**

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INDICATE DISTANCE AND VALVE USE

USE	SYMBOL
MAIN	M
HYDRANT	FH
FIRE SER	FS
AIR VALVE	AV
BLOW-OFF	BO



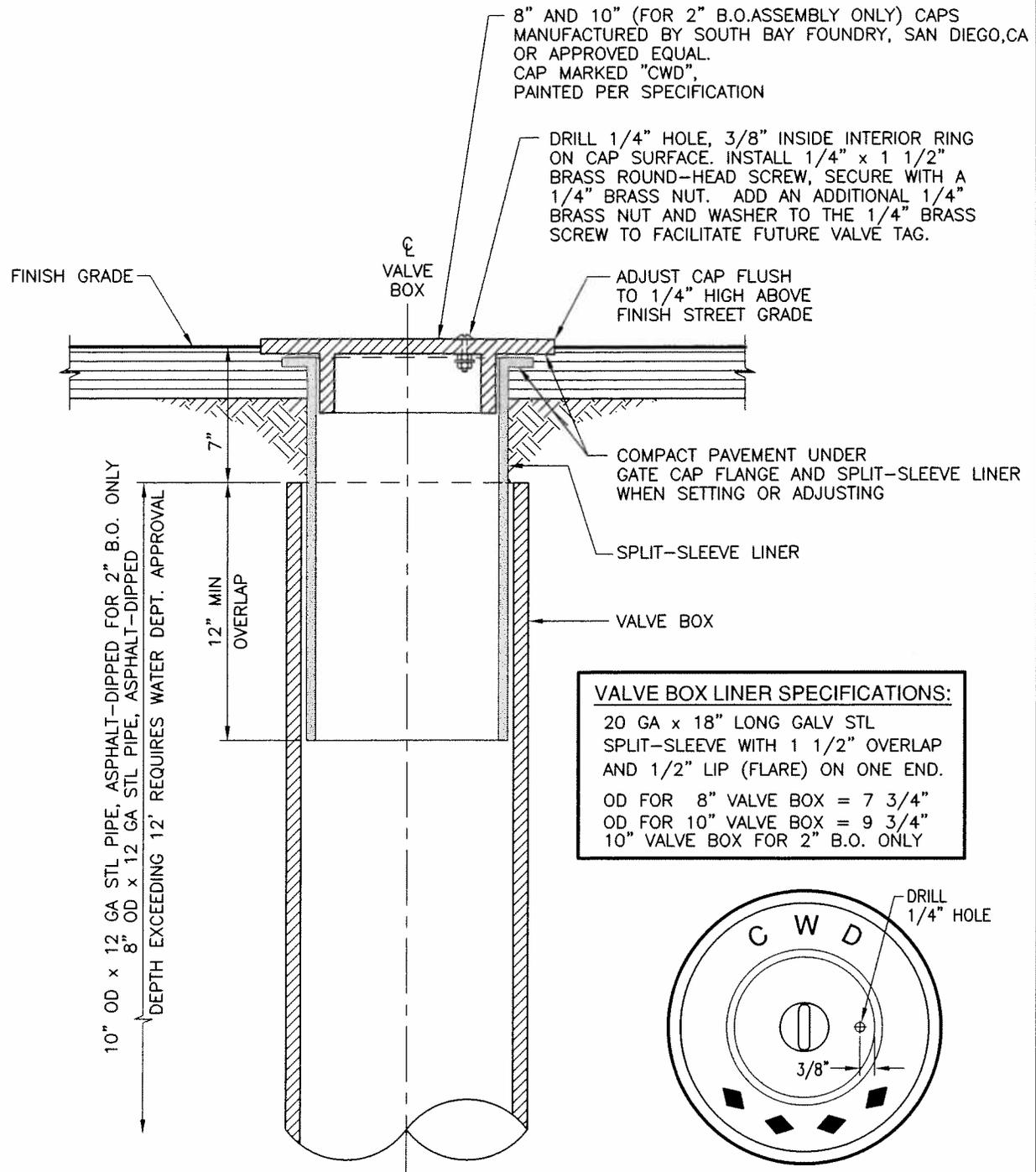
SECTIONAL VIEW

VALVE LOCATION TIES DETAIL

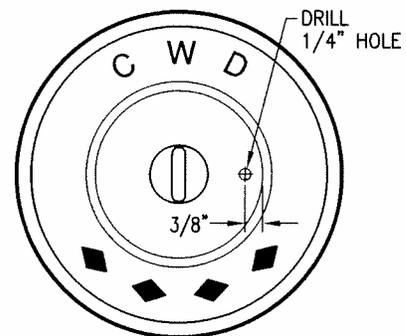
WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL VALVE BOX
FOR BUTTERFLY VALVES

0	DRAWN	WEF	DATE	10-09	CHECK		APPROV.	
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3	DRAWN		DATE		CHECK		APPROV.	



VALVE BOX LINER SPECIFICATIONS:
 20 GA x 18" LONG GALV STL
 SPLIT-SLEEVE WITH 1 1/2" OVERLAP
 AND 1/2" LIP (FLARE) ON ONE END.
 OD FOR 8" VALVE BOX = 7 3/4"
 OD FOR 10" VALVE BOX = 9 3/4"
 10" VALVE BOX FOR 2" B.O. ONLY



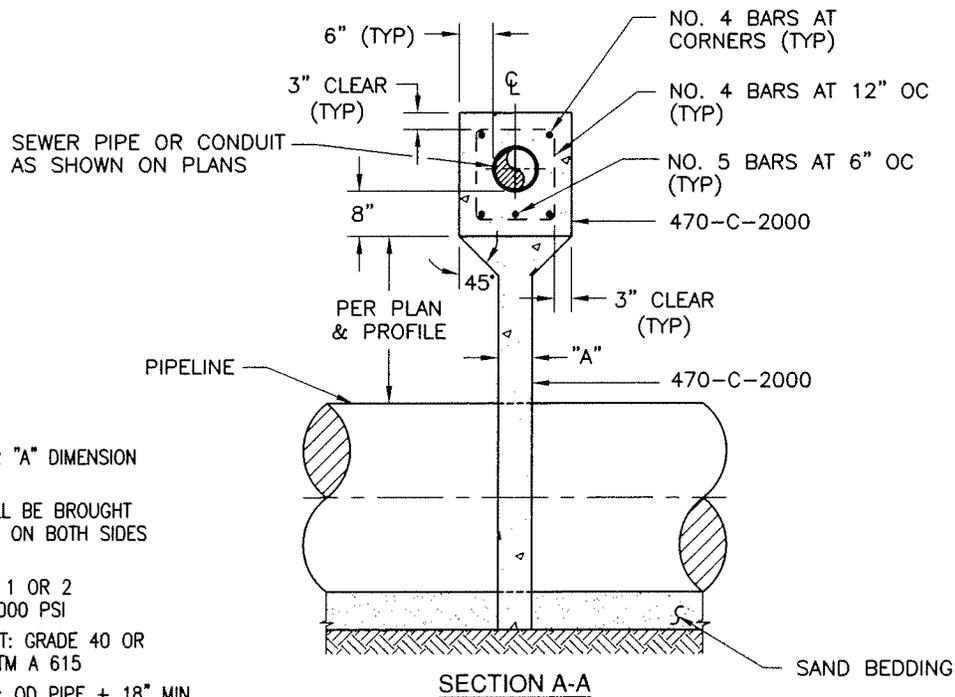
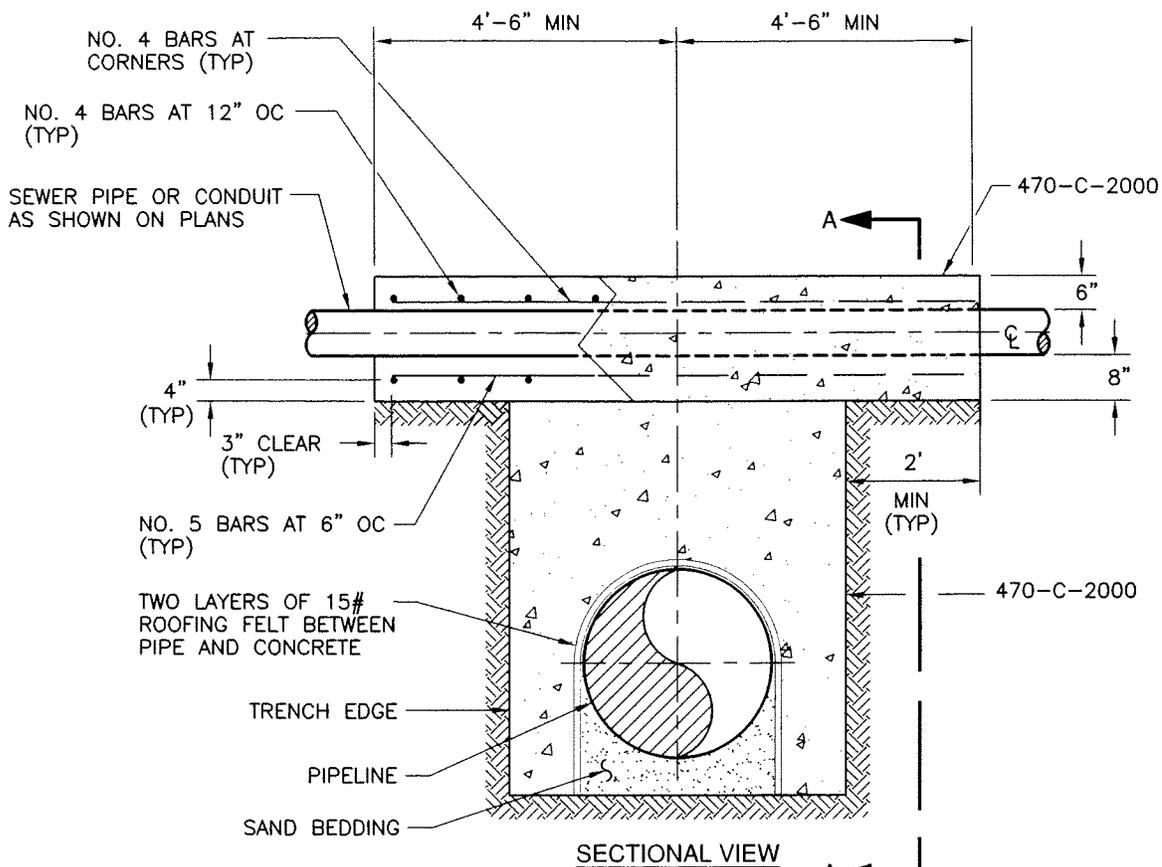
TYPICAL VALVE BOX CAP

- NOTES:**
- 1.) THIS STANDARD IS TO BE USED IN CONJUNCTION WITH STANDARD DRAWINGS CWD-500, CWD-504, AND CWD-510.

WATER
 DISTRIBUTION & TRANSMISSION
 CONSTRUCTION METHODS

TYPICAL SPLIT-SLEEVE LINER AND
 CAP FOR 8" AND 10" VALVE BOX

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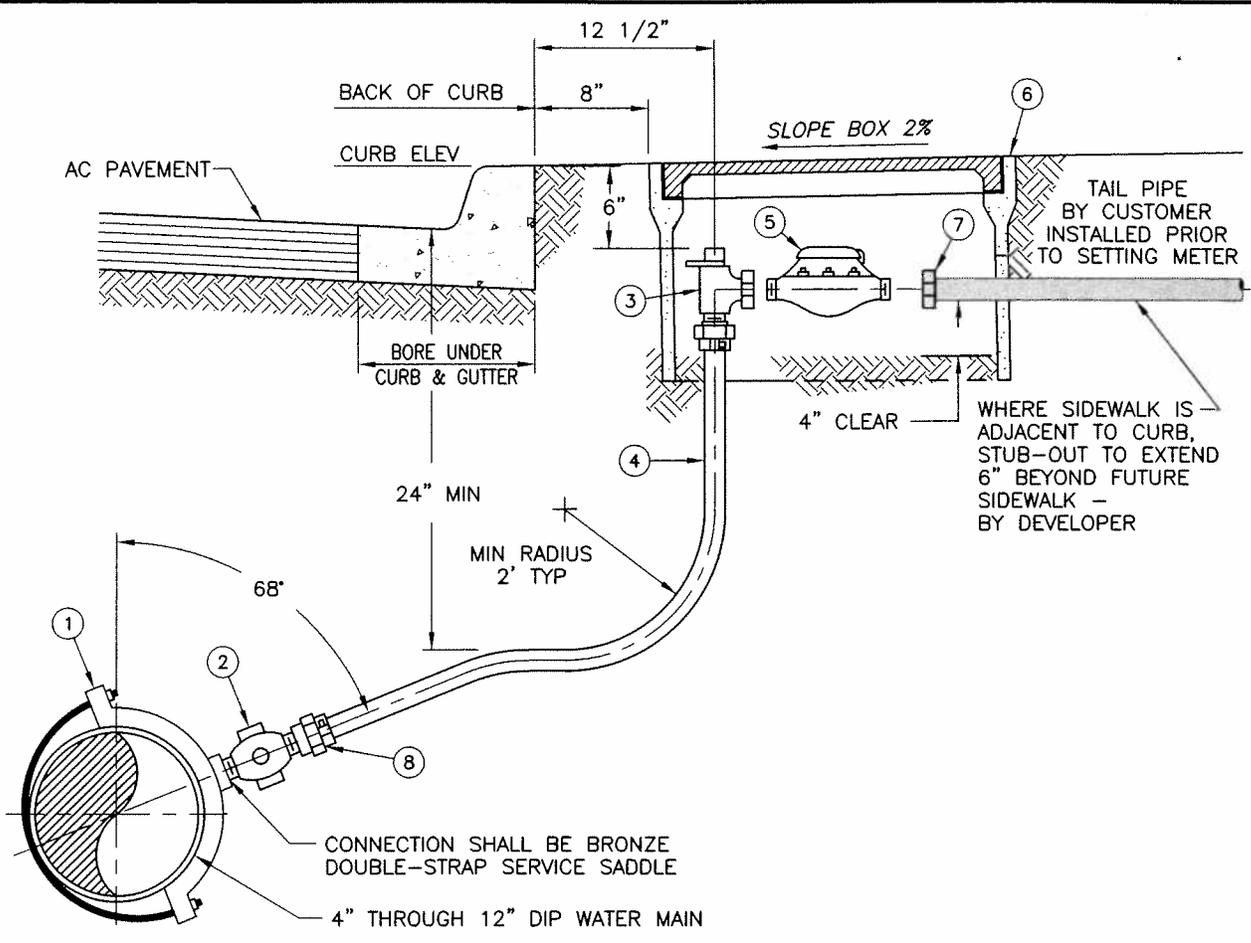
NOTES

- 1.) SEE PLAN FOR "A" DIMENSION (8" MIN)
- 2.) BACKFILL SHALL BE BROUGHT UP UNIFORMLY ON BOTH SIDES OF WALL.
- 3.) CEMENT: TYPE 1 OR 2
ASTM 5150, 2000 PSI
- 4.) REINFORCEMENT: GRADE 40 OR
GRADE 60, ASTM A 615
- 5.) TRENCH WIDTH: OD PIPE + 18" MIN

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL CONDUIT SUPPORT

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TYPICAL STREET INSTALLATION

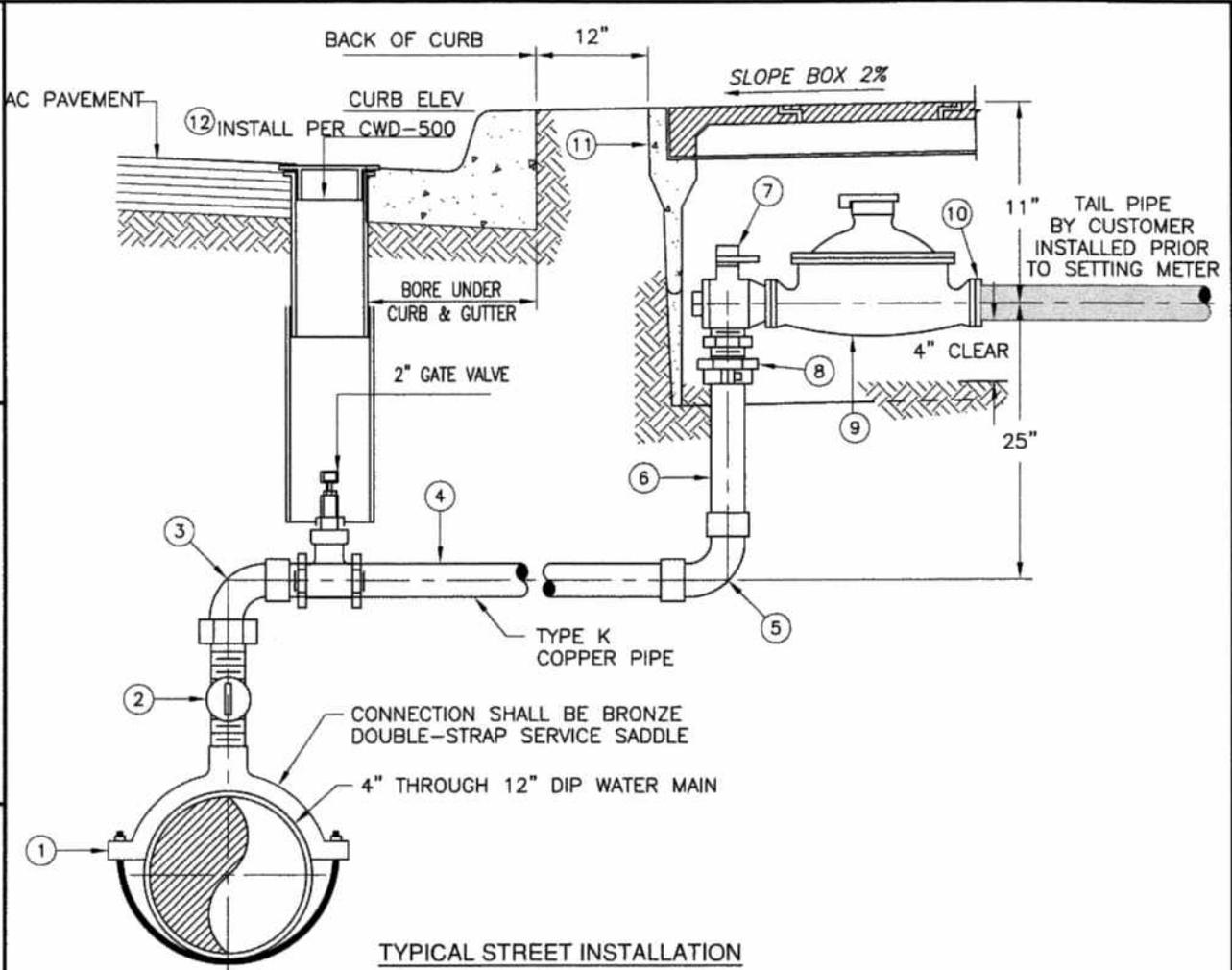
BILL OF MATERIALS	
ITEM	QUANTITY
① BRONZE DOUBLE-STRAP SERVICE SADDLE (IPT)	1
② 1" BRONZE MIPT x MIPT BALL CORP STOP	1
③ ANGLE BALL METER STOP COMPRESSION x METER COUPLING (WITH 1" x 3/4" ADAPTER FOR 3/4" METER) PER SPECIFICATIONS	1
④ 1" TUBING, SOFT COPPER, TYPE K)	VARIES
⑤ METER INSTALLED BY CITY FORCES	1
⑥ METER BOX PER SPECIFICATIONS AND/OR PLANS.	1
⑦ 1" OR 3/4" COUPLINGS	1
⑧ 1" FIPT x COMPRESSION ADAPTOR	1

- NOTES:**
- METER BOX COVER TO BE CAST IRON WHERE BOX IS IN ALLEY OR DRIVEWAY.
 - CONTRACTOR SHALL INSTALL METER BOXES WITH READING HOLE AT TIME ANGLE METER STOPS ARE INSTALLED.
 - CITY WILL FURNISH A TEMPORARY SERVICE METER JUMPER, PRIOR TO INSTALLING METER, UPON PAYMENT OF FEES.
 - METER BOX TO BE CLEANED BEFORE NEW METER CAN BE INSTALLED BY CITY FORCES.

WATER
 DISTRIBUTION & TRANSMISSION
 CONSTRUCTION METHODS

1-INCH WATER SERVICE

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TYPICAL STREET INSTALLATION

BILL OF MATERIALS	
ITEM	QUANTITY
① BRONZE DOUBLE-STRAP SERVICE SADDLE (IPT)	1
② 2" BALL CORPORATION STOP MIPT x MIPT	1
③ 2" FIPT/SW BRASS 90° ELL	1
④ 2" TYPE K COPPER PIPE (SOFT)	VARIABLE
⑤ 2" SW/SW COPPER 90° ELL	1
⑥ RISER PIPE (2" HARD DRAWN COPPER)	1
⑦ 2" ANGLE BALL METER STOP (IPF x METER FLG)	1
⑧ 2" COUPLING (COMP x MIPT)	1
⑨ 1 1/2" OR 2" METER (INSTALLED BY CITY)	1
⑩ 1 1/2" OR 2" METER FLANGE (INSTALLED BY CITY)	1
⑪ METER BOX: CONCRETE COVER 2 PC OR STEEL COVER 2 PC	1
⑫ 8" GATE VALVE CAP, GALV SPLIT SLEEVE, & 12 GA STL PIPE - PER CWD - 500	1

NOTES:

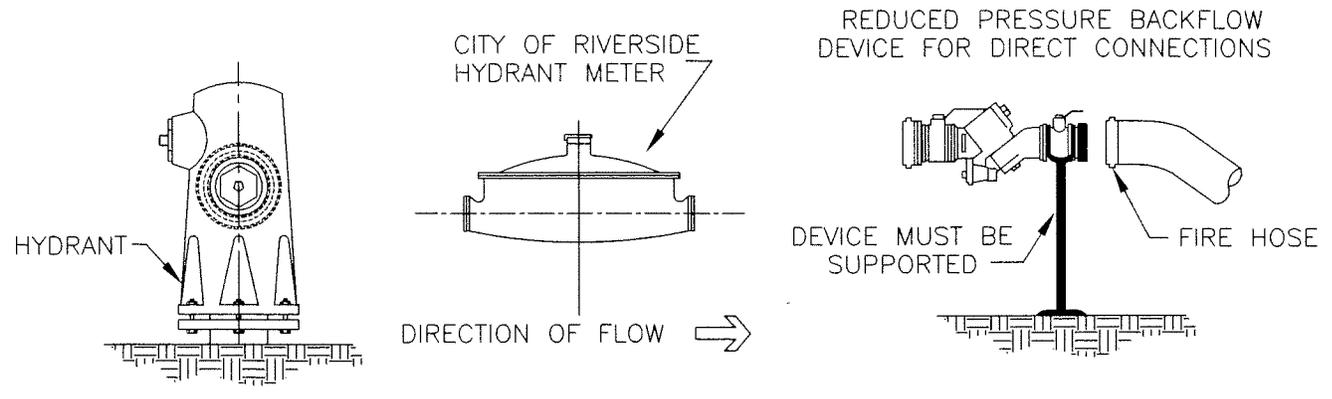
- 1.) A STEEL METER BOX LID IS REQUIRED IN ALLEY OR DRIVEWAY.
- 2.) DOUBLE GASKETS SHALL BE USED ON EACH SIDE OF METER SPACER (JUMPER) UNTIL METER IS INSTALLED BY CITY.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

2-INCH WATER SERVICE

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WATER SERVICE CONNECTION , NOT LIMITED TO HYDRANT CONNECTIONS.



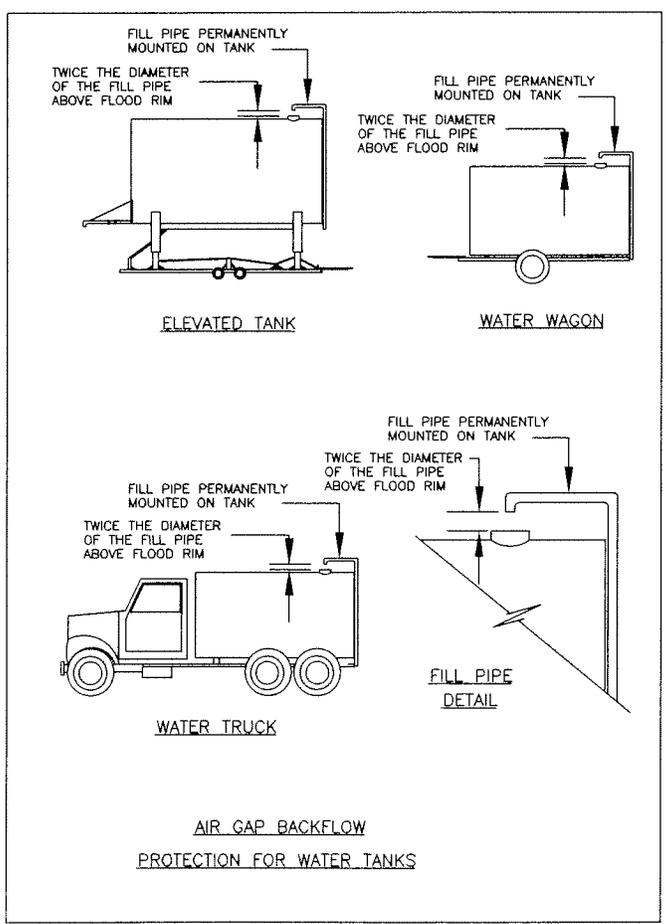
GUIDELINES:

1. AN AIR GAP IS REQUIRED AT SERVICE CONNECTION WHEN:
 - a) A REDUCED PRESSURE BACKFLOW DEVICE (RP) IS NOT AVAILABLE.
 - b) THE POTABLE WATER SUPPLY IS USED TO SUPPLEMENT A NONPOTABLE OR RECYCLED WATER SUPPLY.
2. A REDUCED PRESSURE BACKFLOW DEVICE (RP) IS REQUIRED WHEN:
 - a) AN AIR GAP IS NOT PRACTICAL.
 - b) CUSTOMER'S LENGTH OF HOSE EXCEEDS 50'.
 - c) WATER IS APPLIED DIRECTLY VIA HOSE.
 - d) THERE IS ANY PROCESS OR EQUIPMENT DIRECTLY SUPPLIED VIA CONNECTION.
 - e) THERE IS ANY RIDGED PIPING OR VALVE DOWNSTREAM OF CONNECTION.

CONNECTION IS SUBJECT TO APPROVAL OF THE PROGRAM SPECIALIST. CONNECTION AND BACKFLOW DEVICE MUST BE INSPECTED IMMEDIATELY AFTER INSTALLATION. TO SCHEDULE AN APPOINTMENT, CALL 951-351-6320 OR 951-351-6282.

TEMPORARY CONNECTION METER CONTACTS

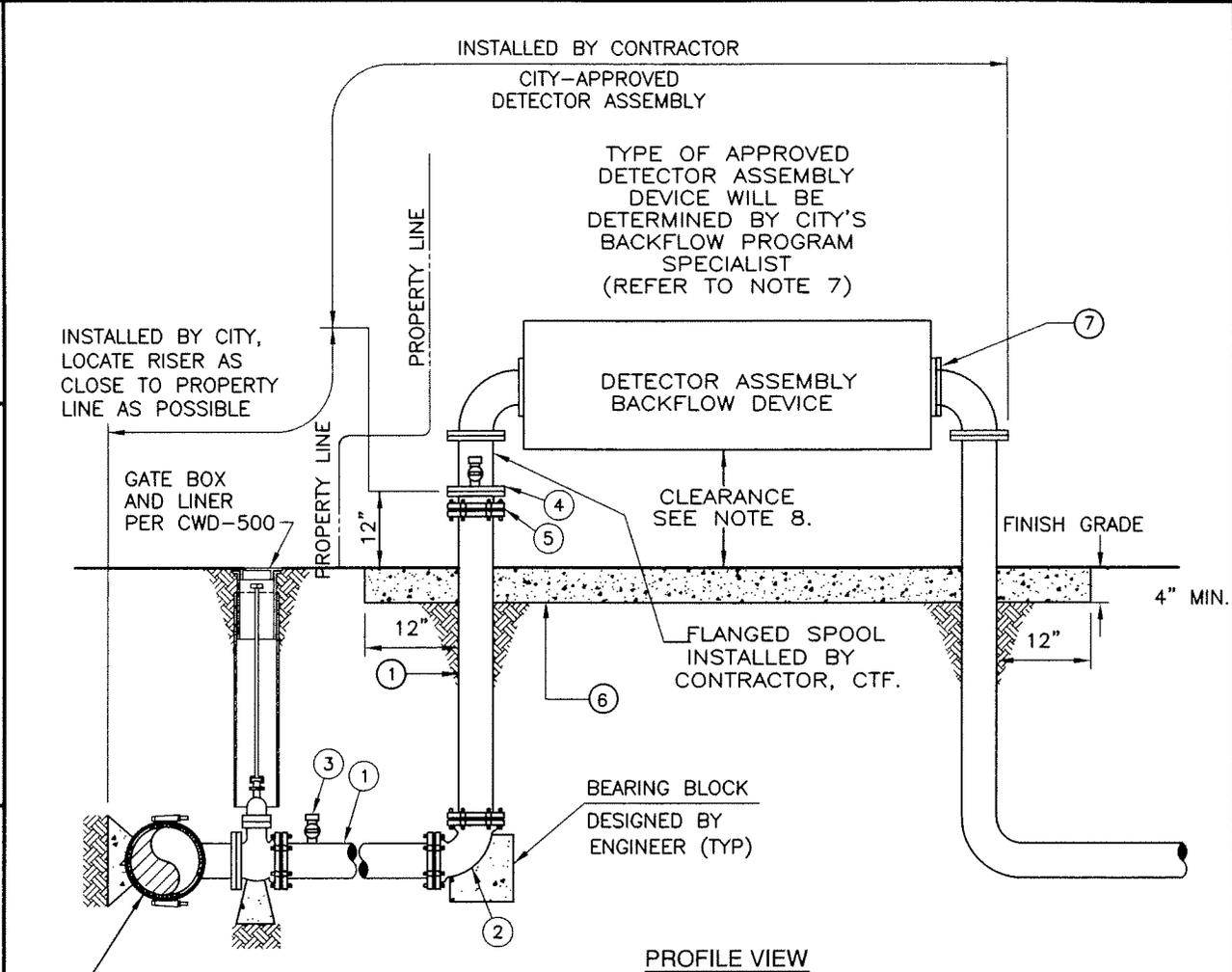
- 951-826-5285 - WATER ENGINEERING
- 951-351-6320 - WATER OPERATIONS/ BACKFLOW
- 951-351-4350 - WATER MAINTENANCE
- 951-782-0330 - CUSTOMER SERVICE



WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TEMPORARY, EMERGENCY, OR CONSTRUCTION
WATER SERVICE/ BACKFLOW PROTECTION

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PROFILE VIEW

NOTES

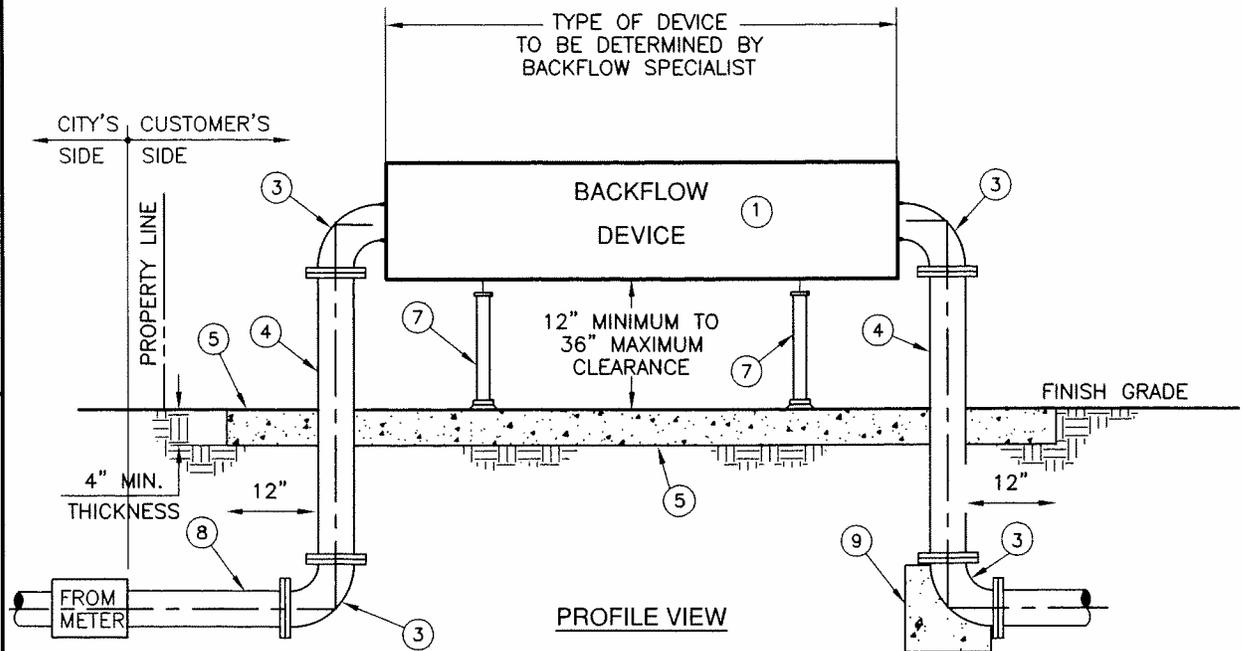
1. PRIME AND WRAP BURIED PIPE TO 6" ABOVE GRADE WITH POLYKEN #927 AND #900, OR APPROVED EQUAL.
2. CITY FORCES WILL BLIND FLANGE CONNECTION POINT. WATER INSPECTOR IS TO BE PRESENT WHEN BLIND FLANGE IS REMOVED AND DETECTOR ASSEMBLY IS INSTALLED.
3. FACILITIES TO BE DISINFECTED PER SPECIFICATION 205, PART 5.
4. CONTRACTOR TO SWAB CONNECTING VALVES WITH 600 PPM CHLORINE WHEN MAKING CONNECTION.
5. CONTRACTOR TO PAINT ALL ABOVE GRADE PIPING AND DETECTOR ASSEMBLY.
6. FOR 10" DETECTOR ASSEMBLY INSTALL 12" LATERAL AND PIPING. CUSTOMER TO SUPPLY 12" x 10" FLANGED REDUCERS ON BOTH SIDES OF DETECTOR ASSEMBLY.
7. CONTACT CITY BACKFLOW PROGRAM SPECIALIST FOR DETECTOR ASSEMBLY SPECIFICATION, AND FOR INSPECTION AND TESTING IMMEDIATELY AFTER INSTALLATION AT 951-351-6320.
8. FOR DETECTOR ASSEMBLY CLEARANCE REQUIREMENTS REFER TO CWD-616-1 AND CWD-617.
9. RESTRAIN ALL JOINTS WITH APPROVED RESTRAINT ASSEMBLY.

MATERIALS	
ITEM	
①	DUCTILE IRON PIPE (CLASS 350)
②	90° ELL
③	1" BALL CORPORATION STOP INLET FOR CHLORINATION POINT TO BE CLOSED AND CAPPED AFTER SUCCESSFUL DISINFECTION.
④	TEMPORARY BLIND FLANGE WITH 1" IPT TAP AND 1" BALL CORPORATION STOP FOR SAMPLE.
⑤	FLANGE X MECHANICAL JOINT ADAPTOR, AS REQUIRED.
⑥	4" MIN. CONCRETE SLAB-NECESSARY FOR EROSION PREVENTION
⑦	TEST PLATE REQUIRED FOR PRESSURE TEST

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

4" THRU 12" ABOVE GROUND
FIRE SERVICE

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DATE	10/2009
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NOTES:

1. PRIOR TO INSTALLATION, LOCATION OF THE BACKFLOW DEVICE SHALL BE SUBJECT TO THE APPROVAL OF THE BACKFLOW PROGRAM SPECIALIST 951-351-6320/6282. DEVICE SHALL BE LOCATED AS CLOSE TO METER AS PRACTICAL (MIN. 18", MAX. 24" BACK OF RW)
2. PLACE BOTTOM OF DEVICE A MINIMUM OF 12 INCHES AND NOT MORE THAN 36 INCHES ABOVE FINISH GRADE.
3. INSPECTION OF PLUMBING IS REQUIRED PRIOR TO CONCRETE THRUST BLOCK AND/OR ABOVE GROUND SLAB BEING POURED.
4. MATERIALS SHALL BE IN COMPLIANCE WITH THE APPROVED MATERIALS SPECIFIED BELOW.
5. THE DEVICE MUST BE INSPECTED AND TESTED IMMEDIATELY AFTER INSTALLATION. TO SCHEDULE AN APPOINTMENT CALL 951-351-6320/6282.

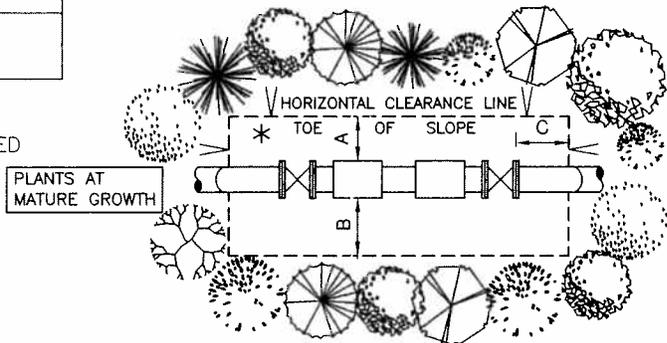
ITEM	EACH	DESCRIPTION
①	1	BACKFLOW DEVICE (TYPE OF DEVICE TO BE DETERMINED BY BACKFLOW PROGRAM SPECIALIST)
③	2	90 DEGREE ELBOW
④	2	FLANGED RISER PIPE
⑤		CONCRETE PAD (NECESSARY TO PREVENT EROSION)

ITEM	EACH	DESCRIPTION
⑦	2	PIPE SUPPORT
⑧	1	SERVICE LINE (NO PVC)
⑨	1	CONCRETE THRUST BLOCK

ADEQUATE AND SAFE CLEARANCE MUST BE PROVIDED TO PERMIT TESTING AND REPAIR WORK

MINIMUM CLEARANCE SCHEDULE			
SIZE	* A	B	C
3" AND UP	24"	24"	12"

*REFERENCE TO INCLINE AND DECLINE SLOPES



OVERHEAD VIEW OF CLEARANCE REQUIREMENTS

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

BACKFLOW PREVENTION ASSEMBLY
3" & LARGER ABOVE GROUND INSTALLATION

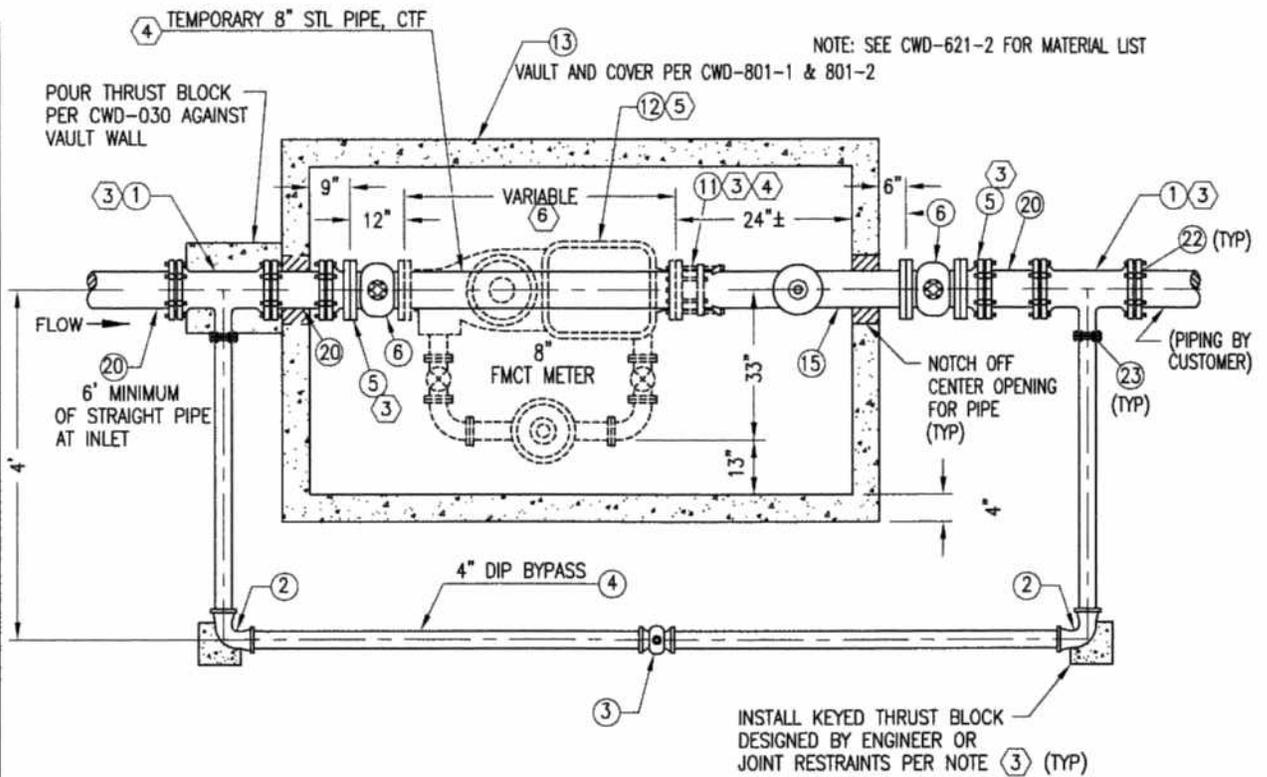
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BILL OF MATERIALS				
ITEM	QUANTITIES			REFERENCE
	3" METER	4" METER	6" METER	
① DIA x 18" ADAPTER, FLG x MJ	1-(4" DIA)	1	1	
② GATE VALVE, DIA x FLG x FLG	2-(4" DIA)	2	2	
③ DIA x 2" BRONZE SERVICE SADDLE	2-(4" DIA)	2	2	
④ WELD FLANGE x DIA	1	1	1	
⑤ 2" x 12" BRASS NIPPLE	1	1	1	
⑥ 4" x 3" BRASS BUSHING	2	NA	NA	
⑦ 3" x 6" BRASS NIPPLE	1	NA	NA	
⑧ 2" GATE VALVE - BRONZE	3	3	3	
⑨ 4" SCREW FLANGE	2-(4" DIA)	NA	NA	
⑩ 2" BRASS PLUG	1	1	1	
⑪ COMPOUND METER, DIA x FLG x FLG	1	1	1	PUR REQ
⑫ DIA x FLANGED COUPLING ADAPTER	1	1	1	
⑬ VAULT AND COVER	1	1	1	CWD-800-1/2
⑭ STEEL PIPE, DIA x (SCHEDULE 40)	3 LNR FT CTF			
⑮ 2" HEAVY BLACK COUPLING	1	1	1	
⑯ DIA X 36" DIP SPOOL FLG x FLG	1-(4" DIA)	1	1	
⑰ 3" SCREW FLANGE	2	NA	NA	
⑱ 3/4" CRUSHED ROCK	16 CU FT			
⑲ CONCRETE PCC 480-C-2000	15 CU FT			
⑳ NO. 4 REBAR	48 LNR FT±			
2" BY-PASS (ALT A)				
⑳ 2" x 90° ELL SW x MIPT	2	2	2	
㉑ 2" COPPER PIPE, SOFT	7 LNR FT ±			
㉒ 2" BRASS UNION	1	1	1	
㉓ 2" x 3" BRASS NIPPLE	2	2	2	
2" BY-PASS (ALT B)				
㉔ 2" x 90° STREET ELL	2	2	2	
㉕ 2" BRASS PIPE	7 LNR FT ±			
㉖ 2" BRASS UNION	1	1	1	
㉗ 2" x 3" GALV NIPPLE	2	2	2	

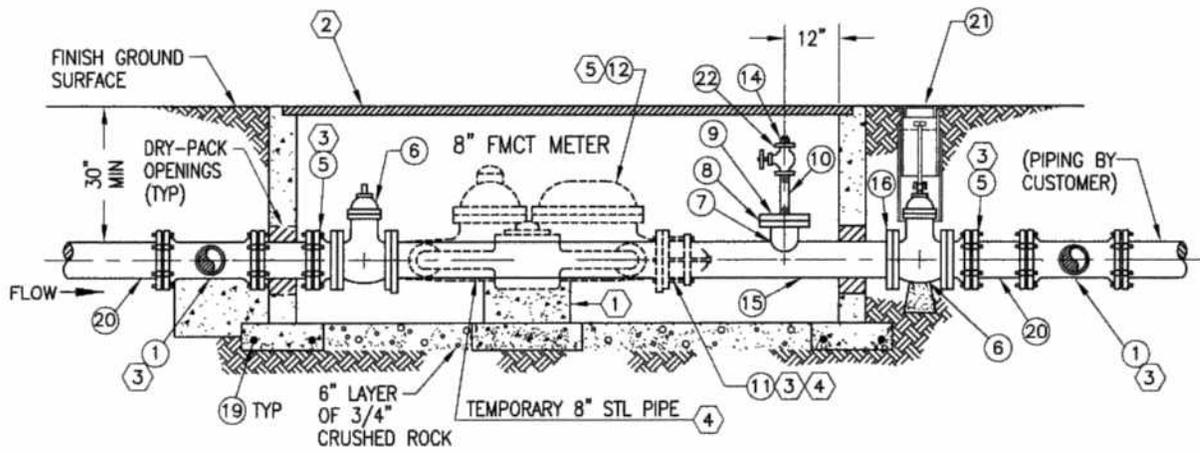
WATER
 DISTRIBUTION & TRANSMISSION
 CONSTRUCTION METHODS

BILL OF MATERIALS FOR
 3", 4" AND 6" COMPOUND METER
 WATER SERVICE

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PLAN VIEW



PROFILE VIEW

GENERAL NOTES:

- ① SUPPORT METER ON CONCRETE PAD AND CONCRETE BLOCK.
- ② ADJUST VAULT AND COVER TO MEET SIDEWALK AND CURB GRADE. PAINT PER CONSTRUCTION SPECIFICATION SECTION 310.
- ③ PROVIDE JOINT RESTRAINTS PER CONSTRUCTION SPECIFICATION.
- ④ CONTRACTOR SHALL INSTALL ALL PIPE, FITTINGS, AND MATERIALS BETWEEN THE TAPPING GATE AND "PIPING BY CUSTOMER", INCLUDING TEMPORARY FLANGE COUPLING CONNECTION AT THE INFLUENT VALVE LOCATION.
- ⑤ CITY FORCES WILL FURNISH AND INSTALL 8" FMCT METER AND FAB METER READING LID.
- ⑥ VARIABLE LENGTH IS PER MANUFACTURER'S REQUIREMENTS.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

8" FMCT WATER SERVICE

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BILL OF MATERIALS		
ITEM	QUANTITY	REFERENCE
① 8" x 4" TEE MJ X MJ	2	
② 4" - 90° ELL MJ X MJ	2	
③ 4" RW GATE VALVE MJ X MJ	1	
④ 4" DI PIPE	23 FT±	
⑤ 8" FLG X MJ ADAPTER	2	
⑥ 8" GATE VALVE F X F	2	
⑦ 6" STL PIPE (SCHEDULE 40)	1 FT	
⑧ 6" WELD FLANGE	1	
⑨ 6" BLIND FLANGE W/2" IPT TAP	1	
⑩ 2" X 12" GALV NIPPLE	1	
⑪ 8" FLANGED COUPLING ADAPTER	1	
⑫ 8" COMPOUND METER	1	
⑬ VAULT AND COVER	1	CWD-801-1/2
⑭ 2" BRASS PLUG	1	
⑮ 8" STL PIPE (SCHEDULE 40)	7 FT±	
⑯ 8" WELD FLANGE	1	
⑰ CONCRETE PCC 480-C-2000	20 CU FT±	
⑱ 3/4" CRUSHED ROCK	28 CU FT	
⑲ NO 4 REBAR	64 FT±	
⑳ 8" DI PIPE	2 FT	
㉑ 8" GATE BOX MATERIAL	1	CWD-500
㉒ 2" GATE VALVE - BRONZE	1	

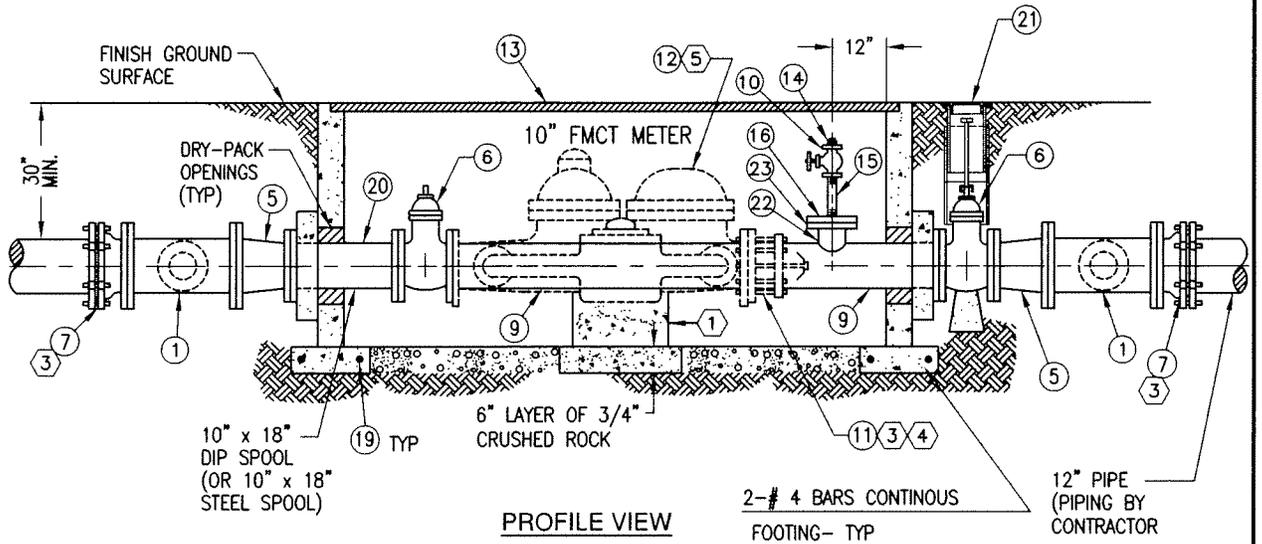
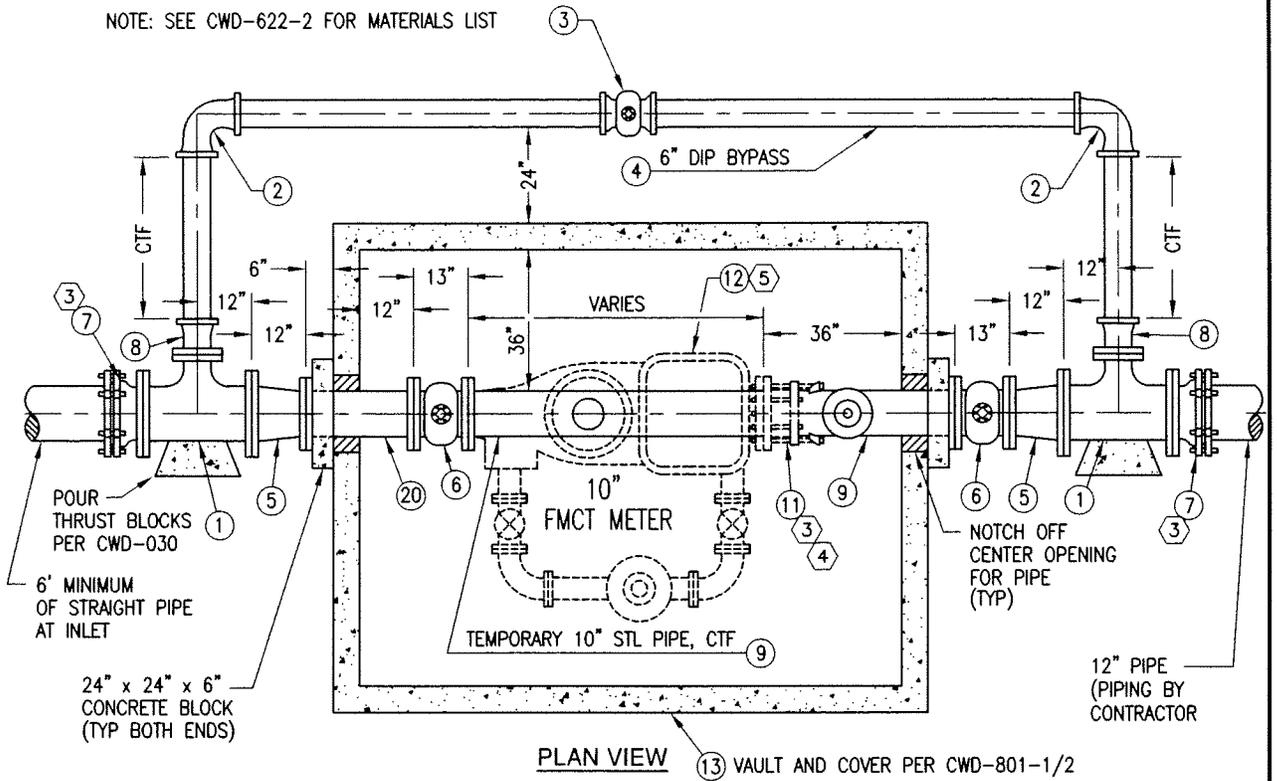
WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

BILL OF MATERIALS FOR
8" FMCT WATER SERVICE



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NOTE: SEE CWD-622-2 FOR MATERIALS LIST



GENERAL NOTES:

- ① SUPPORT METER ON CONCRETE PAD AND CONCRETE BLOCK.
- ② ADJUST VAULT AND COVER TO MEET SIDEWALK AND CURB GRADE. PAINT PER CONSTRUCTION SPECIFICATION, SECTION 310.
- ③ PROVIDE JOINT RESTRAINTS, PER CONSTRUCTION SPECIFICATION.
- ④ CONTRACTOR SHALL INSTALL ALL PIPE, FITTINGS, AND MATERIALS BETWEEN THE TAPPING GATE AND "PIPING BY CONTRACTOR", INCLUDING TEMPORARY FLANGE COUPLING CONNECTION AT INFLUENT VALVE.
- ⑤ CITY FORCES WILL FURNISH AND INSTALL 10" COMPOUND METER AND FAB. METER READING LID.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

10" DOMESTIC WATER SERVICE

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BILL OF MATERIALS		
ITEM	QUANTITY	REFERENCE
① 12" x 6" TEE F/F*	2	
② 6" 90° ELL RT	2	
③ 6" RW GATE VALVE MJ X MJ	1	
④ 6" DI PIPE	20 FT±	
⑤ 12" x 10" REDUCER F/F	2	
⑥ 10" GATE VALVE F/F	2	
⑦ 12" FLG X MJ ADAPTER	2	
⑧ 6" F/MJ ADAPTER	2	
⑨ 10" STL PIPE (SCHEDULE 40)	10 FT±	
⑩ 2" BRONZE GATE VALVE	1	
⑪ 10" FLANGE COUPLING ADAPTER	1	
⑫ 10" COMPOUND METER	1	
⑬ VAULT AND COVER	1	CWD-802-1/2
⑭ 2" BRASS PLUG	1	
⑮ 2" X 12" GALV NIPPLE	1	
⑯ 6" BLIND FLG W/2" IPT TAP	1	
⑰ CONCRETE PCC 480-6-2000	40 CU FT	
⑱ 3/4" CRUSHED ROCK	40 CU FT	
⑲ NO 4 REBAR	64 FT±	
⑳ 10" x 18" DIP SPOOL, F/F	ALTERNATE FOR STEEL	
㉑ 8" GATE BOX MATERIAL	1	
㉒ 6" STL PIPE (SCHEDULE 40)	1 FT	
㉓ 6" WELD FLG	1	

* 12" x 12" TEE F/F WITH 12" x 6" REDUCER
MAY BE USED INSTEAD OF 12" x 12" x 6" TEE.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

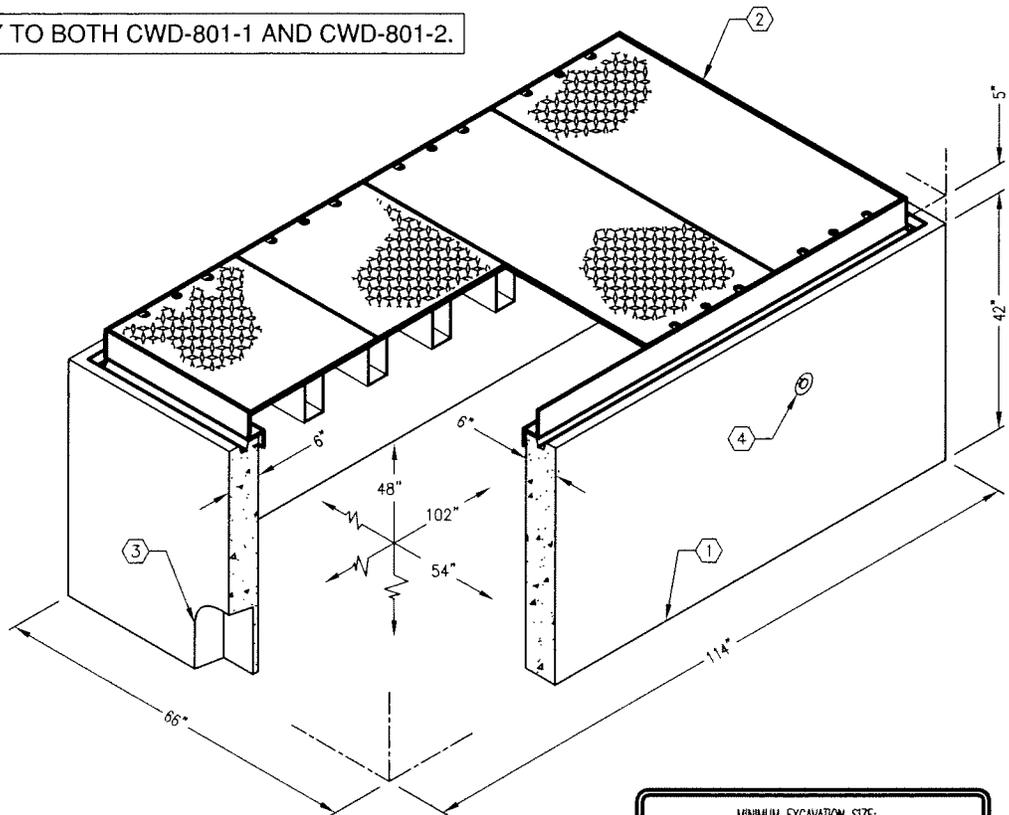
BILL OF MATERIALS FOR
10" COMPOUND WATER SERVICE

4' - 6" x 8' - 6" TRAFFIC VAULT X 47" DEEP

GENERAL NOTES:

- DESIGNED IN ACCORDANCE WITH AASHTO H-20-44 TRAFFIC BRIDGE LOADING USING 5,500 PSI [37.92MPa] COMPRESSIVE STRENGTH CONCRETE AND 60,000 PSI [413.2MPa] YIELD STRENGTH ASTM A-706 STEEL REINFORCEMENT.
 - COVER DESIGNED FOR H-20-44 TRAFFIC LOADING FOR USE IN OFF STREET LOCATIONS.
 - HANDHOLE TO BE PLACED ON A 6" [15cm] BASE OF CRUSHER RUN FOR EASE OF INSTALLATION AND EVEN LOAD DISTRIBUTION.
 - MINIMUM SOIL BEARING CAPACITY IS HEREBY ASSUMED TO BE 2000 PSF.
 - INSTALLATION OF MANHOLES, VAULTS, HANDHOLES.
 - ALL PERMISSIBLE TOLERANCES SHALL BE MET PER THE REQUIREMENTS OF THE MANUFACTURER.
1. 42" LOWER SECTION.
 2. TRAFFIC COVER ASSEMBLY, INCLUDES: (1) FRAME FRAME, (7) BLACK TUBE BEAMS, (4) BLACK COVER BLACK COVER, (32) 1/2" PLATED SHAKEPROOF WASHER, (16) 1/2" x 1-1/2" H.H.S.S. BOLTS, (16) 1/2" UNISTRUT SPRING
 3. 12" x 12" PIPE SLOT KNOCKOUT x 5 1/2" DEEP. LOCATE AS FOLLOWS: LOWER SECTION, (2) SHELL MTD.
 4. 2 TON x 3 3/8" GALVANIZED RISS ANCHOR FOR HANDLING. LOCATE AS FOLLOWS: LOWER SECTION, (4) SHELL MTD.

THESE NOTES APPLY TO BOTH CWD-801-1 AND CWD-801-2.

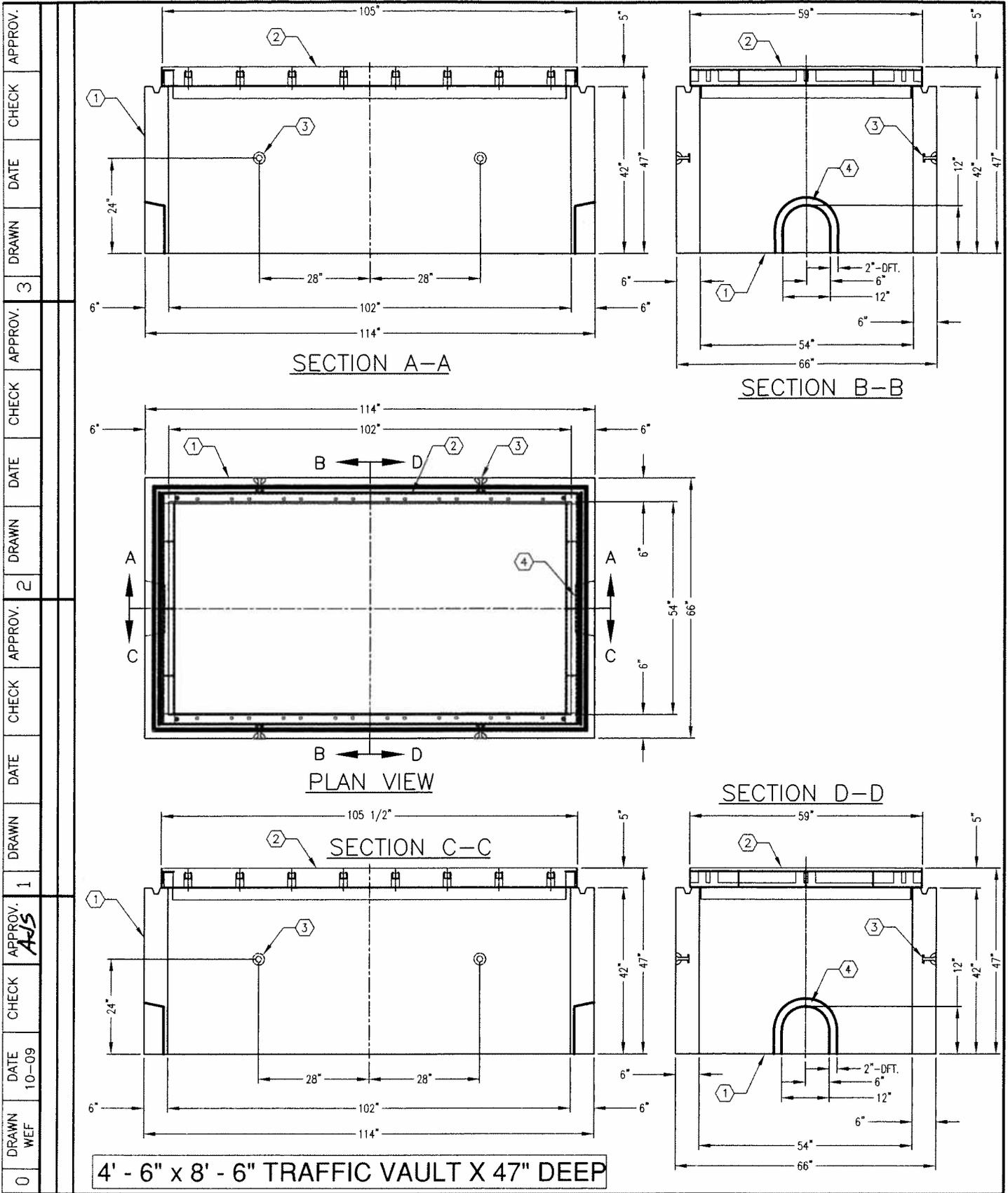


MINIMUM EXCAVATION SIZE:
6'-6" x 10'-6" x DEPTH REQ'D

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TRAFFIC RATED VAULT FOR
3" THRU 6" COMPOUND METERS

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WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TRAFFIC RATED VAULT FOR
3" THRU 6" COMPOUND METERS

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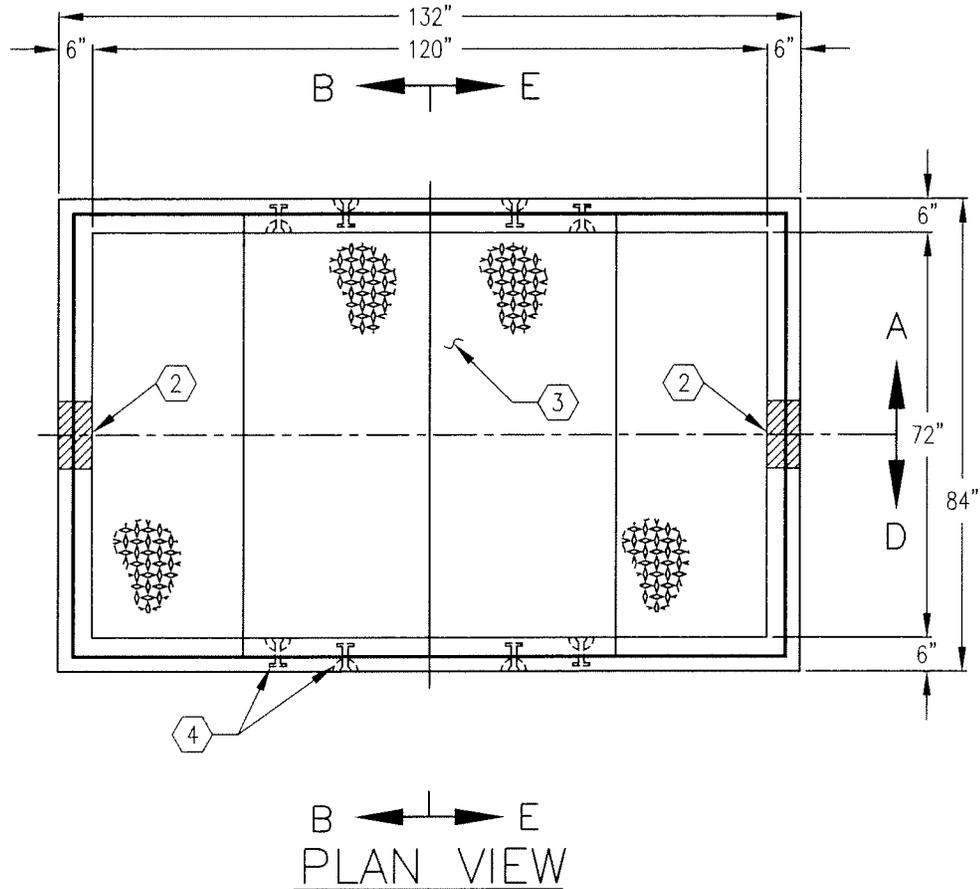
6'-0" x 10'-0" TRAFFIC VAULT X 48 DEEP

GENERAL NOTES:

- A . VAULT DESIGNED IN ACCORDANCE WITH AASHTO H-20-44 TRAFFIC BRIDGE LOADING USING 5,500 PSI [37.92MPa] COMPRESSIVE STRENGTH CONCRETE AND 60,000 PSI [413.2MPa] YIELD STRENGTH ASTM A-706 STEEL REINFORCEMENT PER CALC.
- B . VAULT TO BE PLACED ON A MIN. 6" BASE OF CRUSHER RUN FOR EASE OF INSTALLATION AND EVEN LOAD DISTRIBUTION.
- C . MIN. SOIL BEARING CAPACITY ASSUMED TO BE 2,000 PSF.
- D . INSTALLATION OF VAULT WILL BE PER THE MANUFACTURER'S REQUIREMENTS AND PROCEDURES.
- E . ALL TOLERANCES MUST MEET THE MANUFACTURER'S REQUIREMENTS.

1. 42" LOWER SECTION . WT. 8,950 Lbs.
2. 12"DIA x 18" H MOUSE HOLE . LOCATE AS FOLLOWS: LOWER SECTION, (2) CORE MTD.
3. (4) PIECE GALV. BOLT DOWN TRAFFIC COVER, AND FRAME W/ (11) REMOVABLE BEAM.
4. 4 TON x 4 3/4" GALVANIZED RISS FOR HANDLING, LOCATE AS FOLLOWS: LOWER SECTION (4) CORE & SHELL MTD.

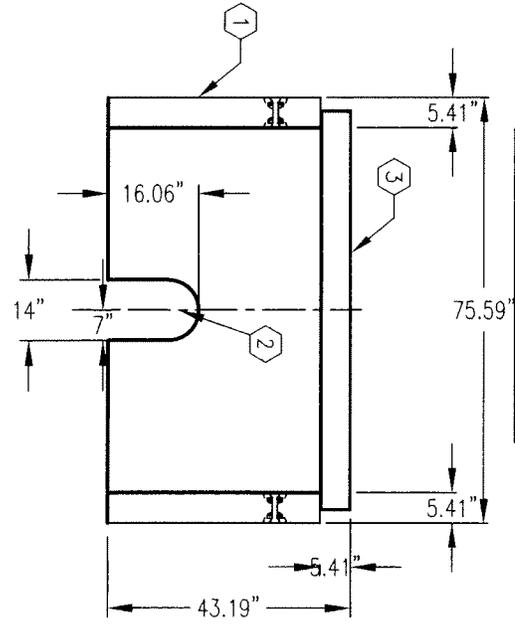
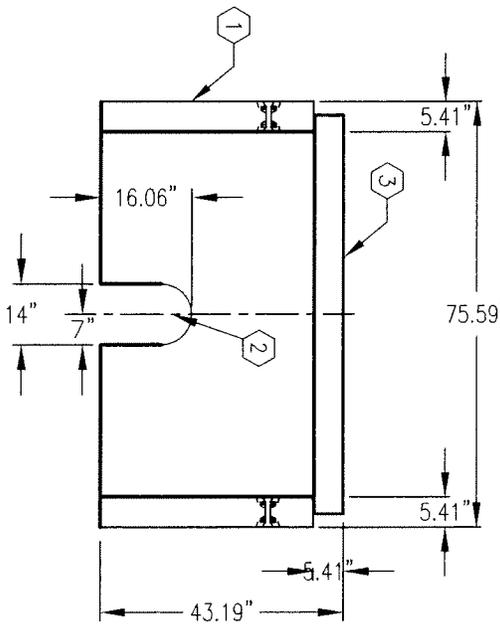
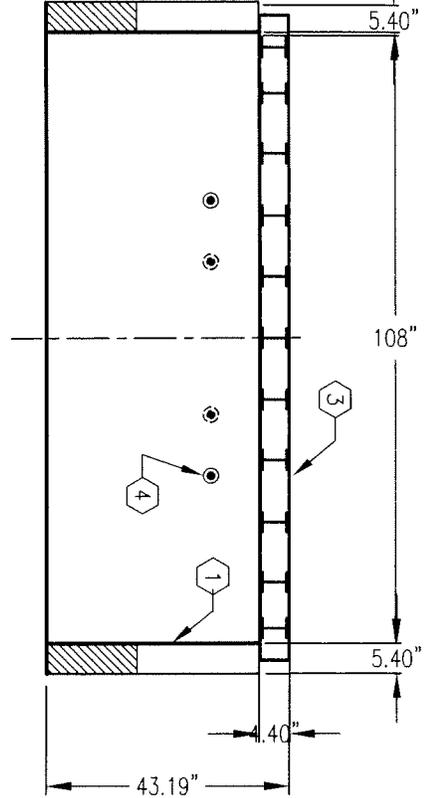
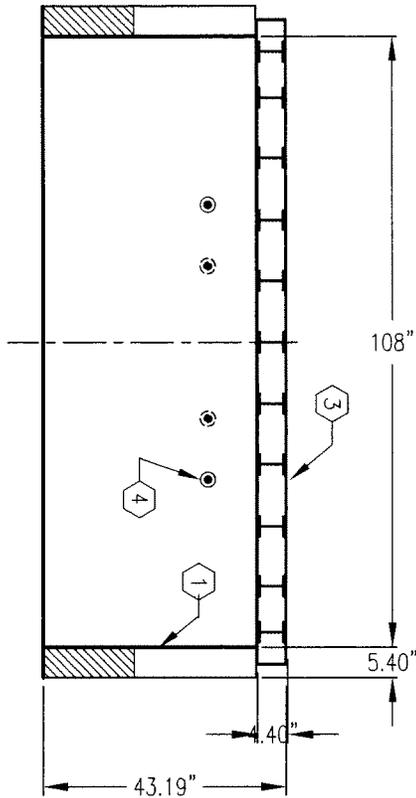
THESE NOTES APPLY TO BOTH CWD-801-1 AND CWD-801-2



WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TRAFFIC RATED VAULT FOR
8", 10" & 12" COMPOUND METERS

6'-0" x 10'-0" TRAFFIC VAULT X 48 DEEP



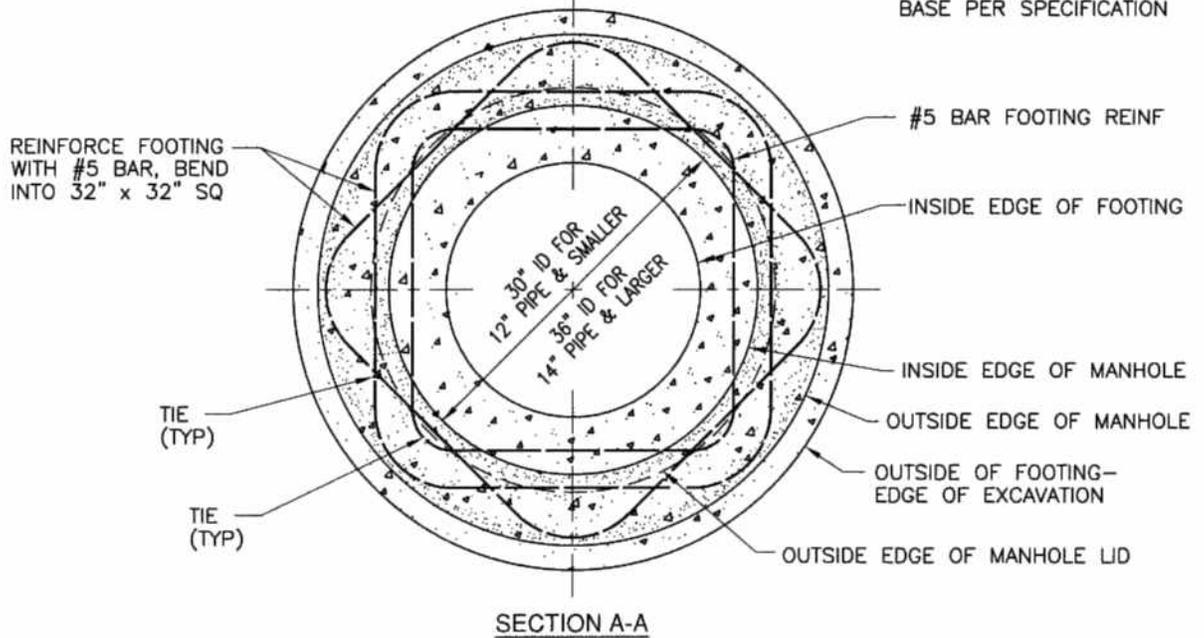
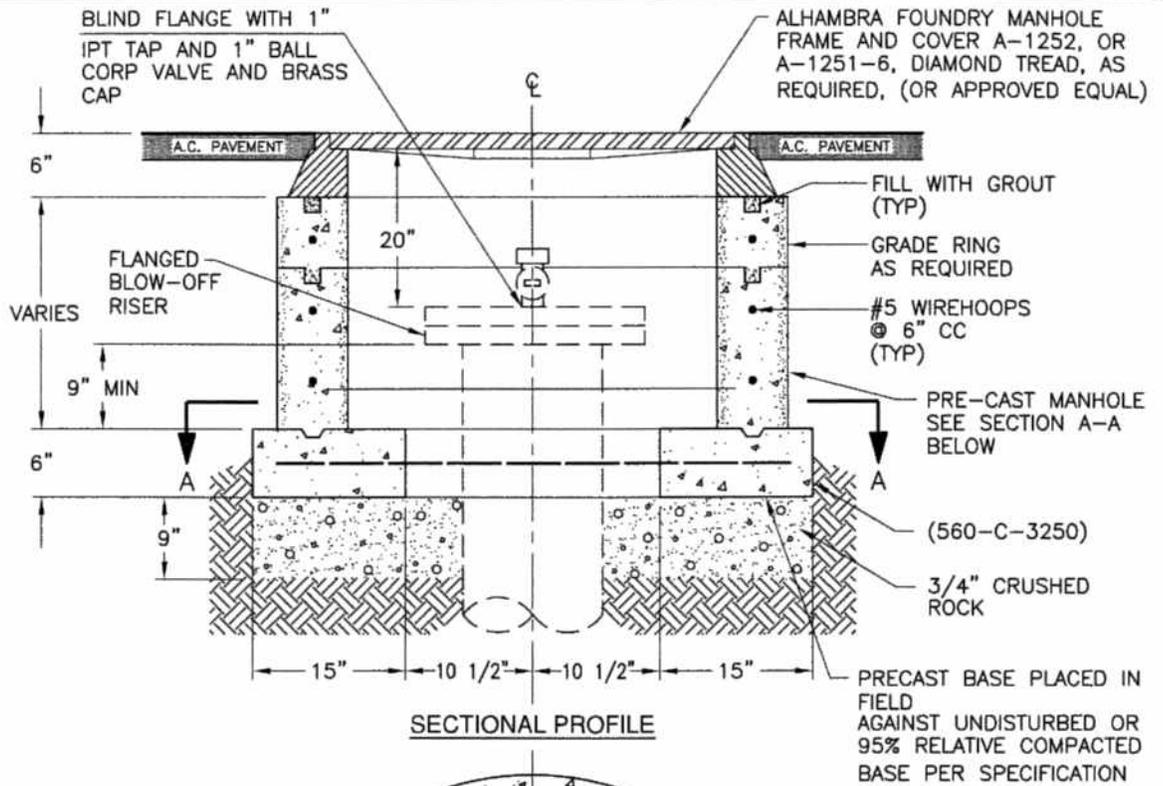
SECTION VIEW

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WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TRAFFIC RATED VAULT FOR
8", 10" & 12" COMPOUND METERS

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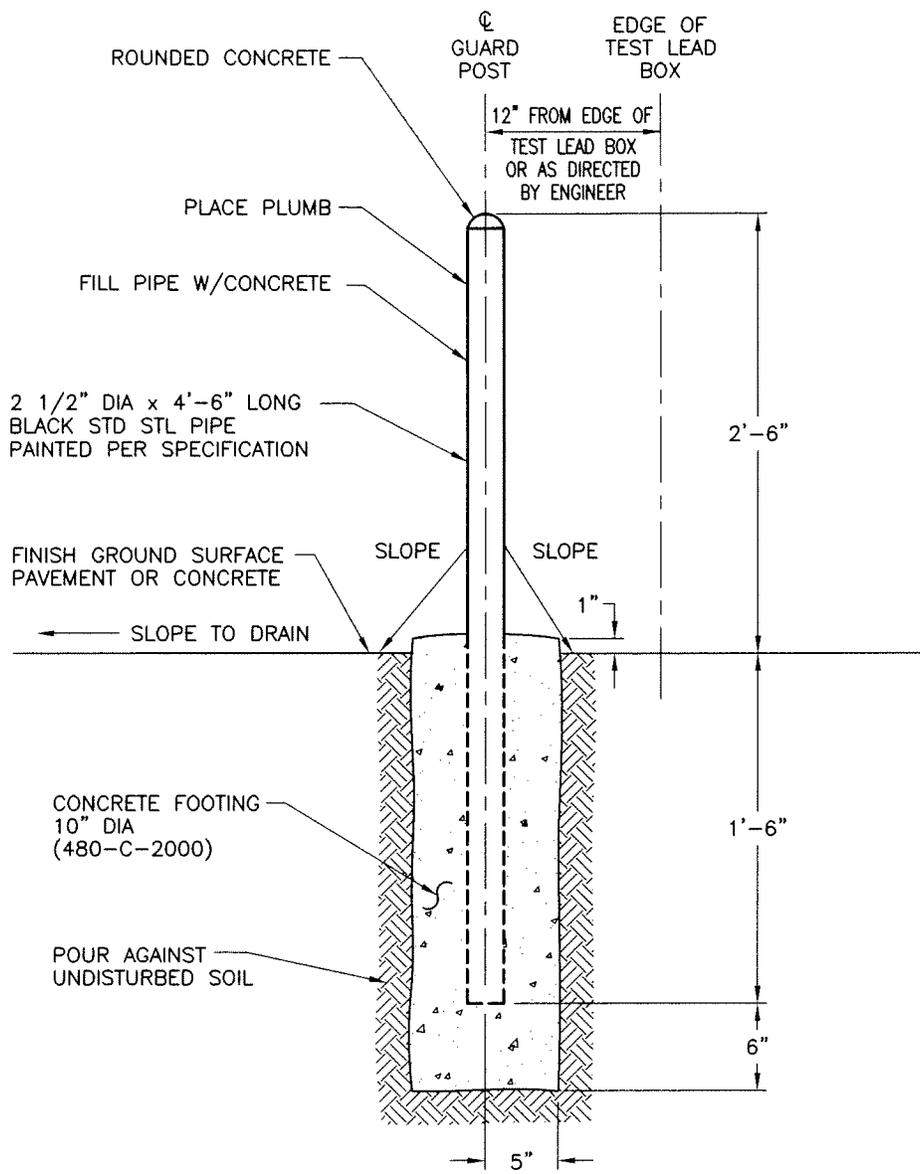


- PRE-CAST MANHOLE SECTION SPECIFICATIONS:**
- 1) DESIGN LOADING H = 20 - S 16
 - 2) CEMENT: TYPE II, ASTM C150, 3250 PSI
 - 3) REINFORCEMENT: GRADE 40 OR GRADE 60 ASTM A615
 - 4) COVER TO BE DIAMOND-TREAD FINISH, LETTERED "CWD"

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

BLOW-OFF MANHOLE
INSTALLATION

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AJS	AJS



SECTIONAL VIEW

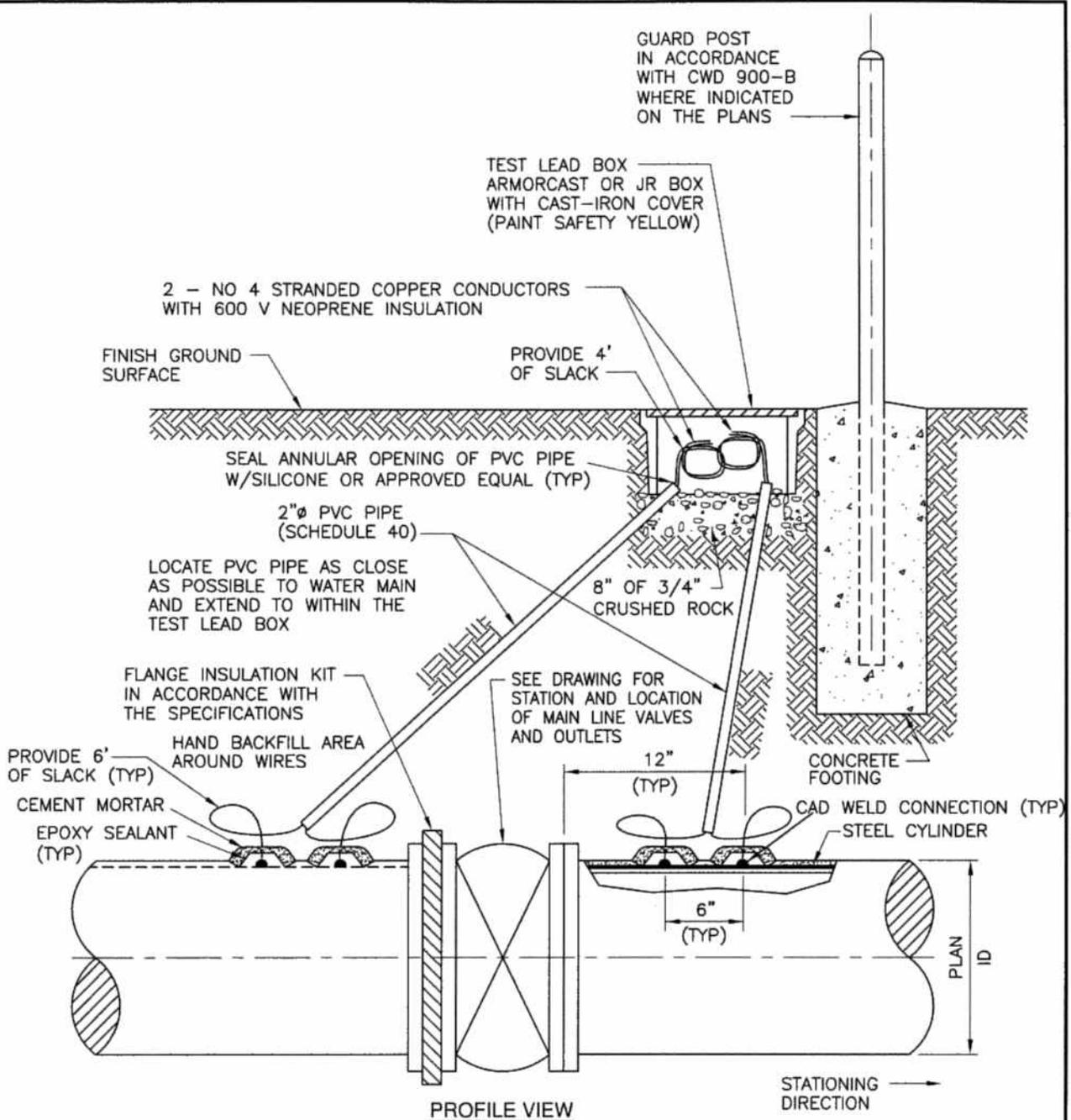
NOTES:

- 1.) NUMBER AND POSITION OF GUARD POSTS AS SPECIFIED ON PLANS.
- 2.) REFER TO "STANDARD SPECIFICATIONS PUBLIC WORKS CONSTRUCTION", SEC 210 AND 310.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

2.5" DIA. GUARD POST INSTALLATION

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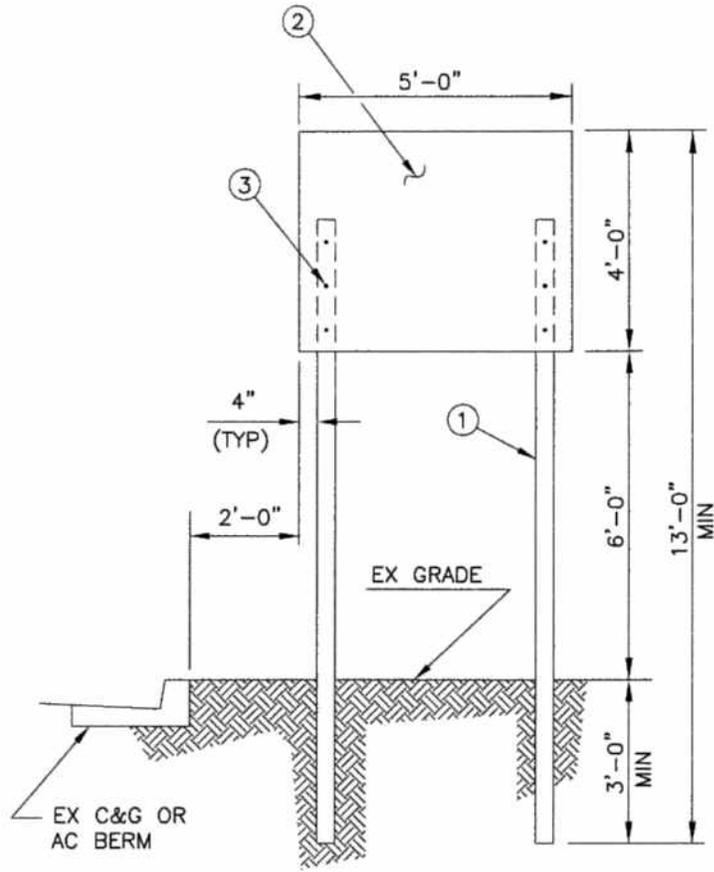
NOTES

- 1.) FLANGE INSULATION GASKETS SHALL BE FULL-FACED, NEOPRENE-COATED FABRIC-REINFORCED PHENOLIC, 1/8 INCH THICK. A ONE-PIECE SLEEVE AND WASHER, SEPARATE PHENOLIC WASHER, AND TWO CADMIUM-PLATED STEEL WASHERS SHALL BE USED FOR EACH BOLT OR CAP SCREW.
- 2.) FLANGE KITS SHALL BE FURNISHED IN ACCORDANCE WITH THE SPECIFICATIONS.
- 3.) TEST LEAD CONNECTIONS AND LOCATIONS IN ACCORDANCE WITH CWD-922.
- 4.) TEST LEADS SHALL BE TAGGED AND/OR COLOR-CODED EAST/WEST OR NORTH/SOUTH OF VALVE.
- 5.) TEST LEAD INSULATION KIT SHALL BE STRIPPED BACK ONE INCH FROM ENDS.
- 6.) WHEN FLANGE KITS ARE SPECIFIED: SIZE _____ - 150# - TYPE EN-DW.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

**FLANGE INSULATION
AND TEST LEAD INSTALLATION**

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CONSTRUCTION NOTES:

- ① 2 - DOUGLAS FIR CONSTRUCTION GRADE 4" X 4" POST.
- ② 3/4" THICK PLYWOOD.
- ③ FASTEN PLYWOOD SIGN TO POST W/6 - 5"± CARRIAGE BOLTS W/NUTS, FLAT WASHERS, AND JAM NUTS.

NOTES:

- 1) EXACT LOCATION OF SIGN TO BE DETERMINED BY ENGINEER WITH APPROVAL BY CITY PUBLIC UTILITIES DEPARTMENT.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

NOTIFICATION SIGN