

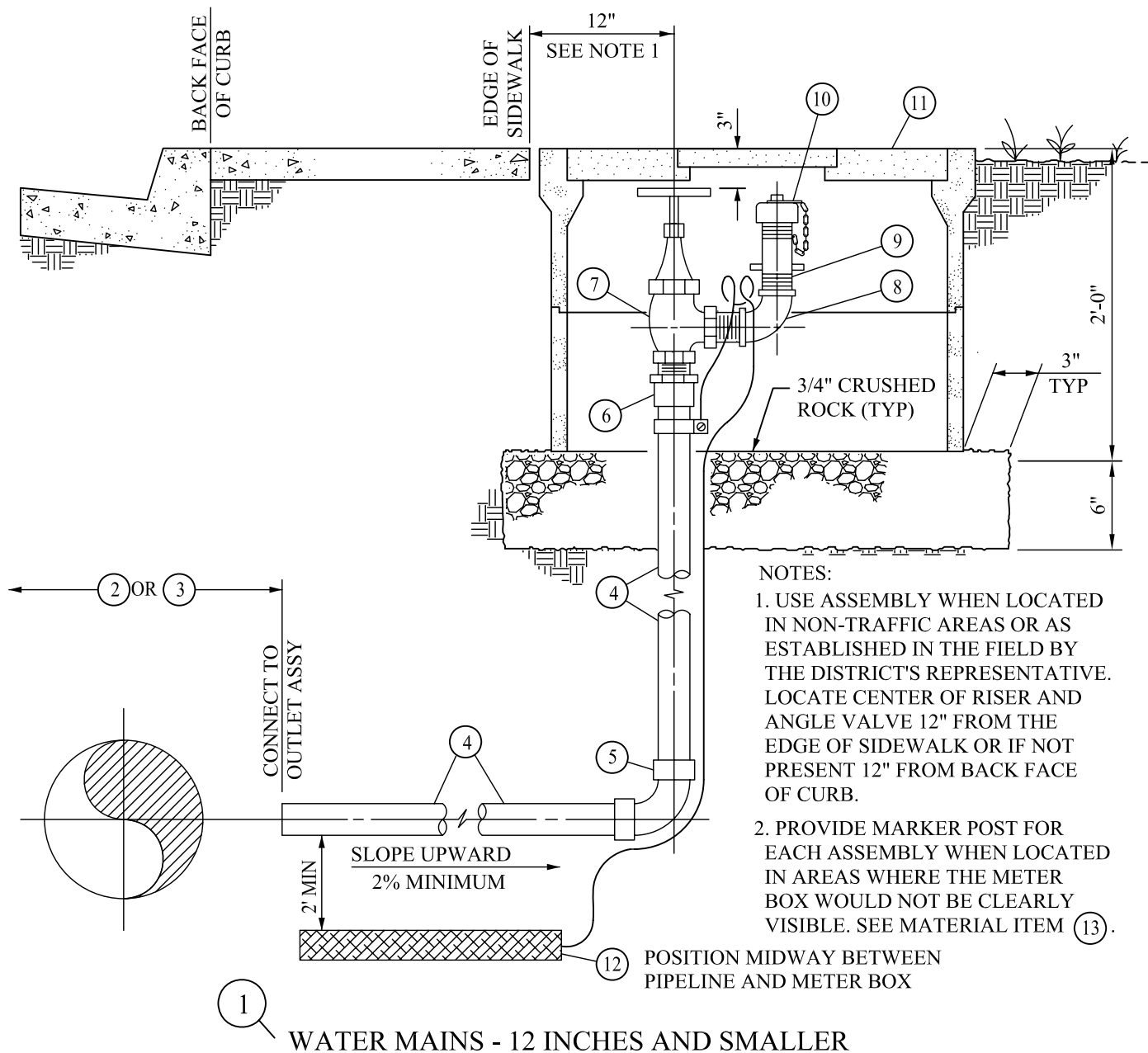
ITEM	DESCRIPTION	SPEC/DWG
1	2-INCH BLOW-OFF ASSEMBLY FOR PIPELINES 12 INCHES AND SMALLER	15090
2	OUTLET ON DUCTILE IRON PIPE, 0-200 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 0-200 PSI	15061/D-1.2
4	OUTLET ON PVC PRESSURE PIPE, 0-200 PSI	15292/D-1.3
5	2" COPPER WATER TUBE, TYPE K, SOFT	15220
6	MARKER POST, REDWOOD	15090
7	2" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
8	2" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
9	2" BRONZE ANGLE VALVE WITH FEMALE IPT, 0-300 PSI	15080
10	2-1/2" x 2" CL 125 CAST BRONZE RDC ELBOW WITH CLOSE BRASS NIPPLE	15220
11	2-1/2" BRONZE EXT NIPPLE WITH MALE IPT x OUTSIDE HOSE THREADS	15090
12	2-1/2" PLASTIC HOSE CAP WITH CHAIN RING AND CHAIN	15090
13	METER BOX AND COVER FOR NON-TRAFFIC AREA, EISEL NO. 655-1/2	15090
14	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

2-INCH BLOW-OFF ASSEMBLY
WORKING PRESSURE 0-200 PSI

STD DWG NO.
A-1.1
JUNE 2008



ITEM	DESCRIPTION	SPEC/DWG
1	2-INCH BLOW-OFF ASSEMBLY FOR PIPELINES 12 INCHES AND SMALLER	15090
2	OUTLET ON DUCTILE IRON PIPE, 201-300 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 201-300 PSI	15061/D-1.2
4	2" COPPER WATER TUBE, TYPE K, SOFT	15220
5	2" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
6	2" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
7	2" BRONZE ANGLE VALVE WITH FEMALE IPT, 0-300 PSI	15080
8	2-1/2" x 2" CL 250 CAST BRONZE RDC ELBOW WITH CLOSE BRASS NIPPLE	15220
9	2-1/2" BRONZE EXT NIPPLE WITH MALE IPT x OUTSIDE HOSE THREADS	15090
10	2-1/2" PLASTIC HOSE CAP WITH CHAIN RING AND CHAIN	15090
11	METER BOX AND COVER FOR NON-TRAFFIC AREA	15090
12	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
13	MARKER POST, REDWOOD	15090

OLIVENHAIN MUNICIPAL WATER DISTRICT

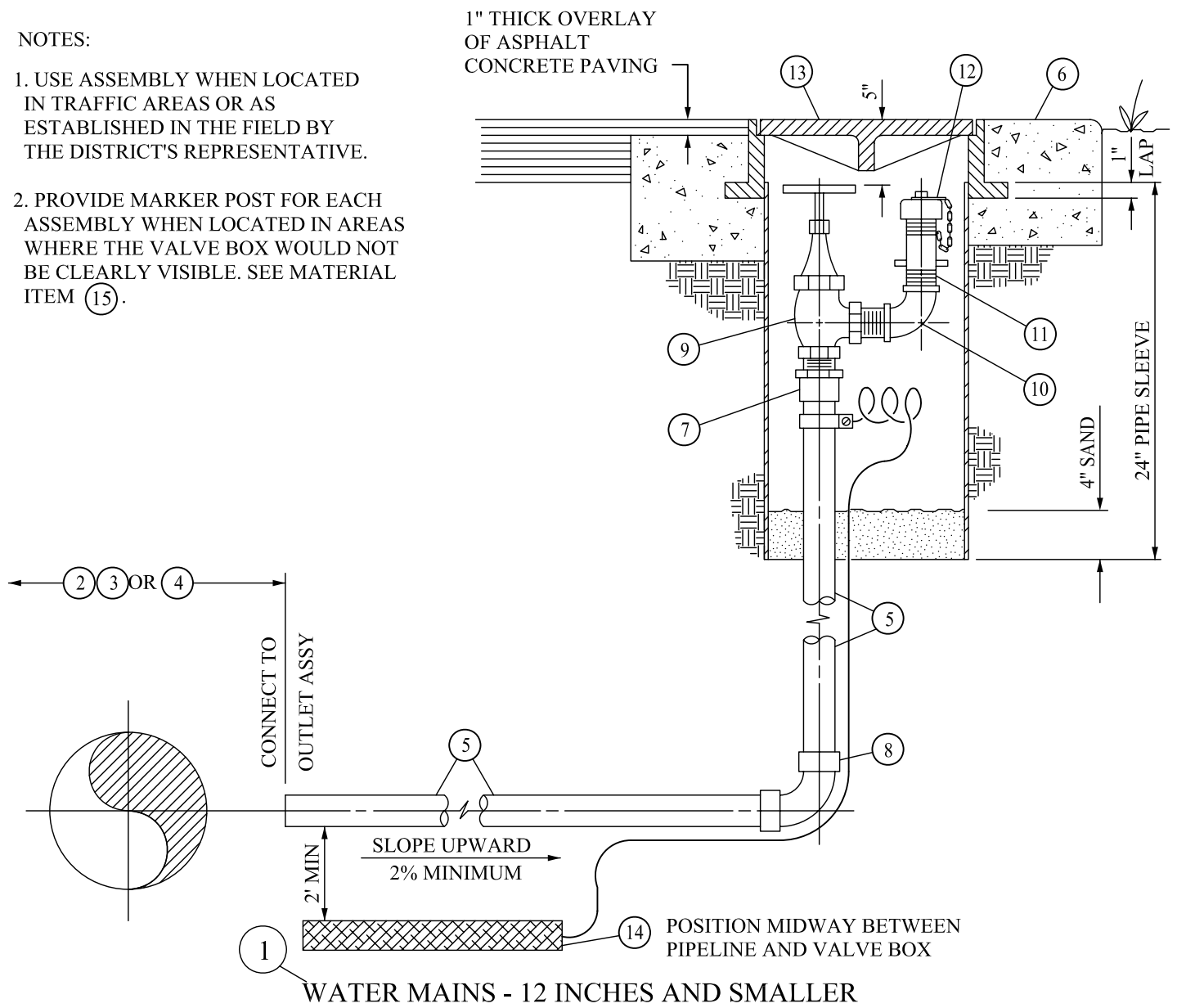
BOYLE
ENGINEERING
CORPORATION

2-INCH BLOW-OFF ASSEMBLY
WORKING PRESSURE 201-300 PSI

STD DWG NO.
A-1.2
JUNE 2008

NOTES:

1. USE ASSEMBLY WHEN LOCATED IN TRAFFIC AREAS OR AS ESTABLISHED IN THE FIELD BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE MARKER POST FOR EACH ASSEMBLY WHEN LOCATED IN AREAS WHERE THE VALVE BOX WOULD NOT BE CLEARLY VISIBLE. SEE MATERIAL ITEM (15).



ITEM	DESCRIPTION	SPEC/DWG
1	2-INCH BLOW-OFF ASSEMBLY FOR PIPELINES 12 INCHES AND SMALLER	15090
2	OUTLET ON DUCTILE IRON PIPE, 0-200 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 0-200 PSI	15061/D-1.2
4	OUTLET ON PVC PRESSURE PIPE, 0-200 PSI	15292/D-1.3
5	2" COPPER WATER TUBE, TYPE K, SOFT	15220
6	30" DIAMETER x 8" THICK CONCRETE RING	15090
7	2" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
8	2" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
9	2" BRONZE ANGLE VALVE WITH FEMALE IPT, 0-300 PSI	15080
10	2-1/2" x 2" CL 125 CAST BRONZE RDC ELBOW WITH CLOSE BRASS NIPPLE	15220
11	2-1/2" BRONZE EXT NIPPLE WITH MALE IPT x OUTSIDE HOSE THREADS	15090
12	2-1/2" PLASTIC HOSE CAP WITH CHAIN RING AND CHAIN	15090
13	VALVE BOX INSTALLATION FOR BURIED ASSEMBLIES	15090/E-1.1
14	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
15	MARKER POST, REDWOOD	15090

OLIVENHAIN MUNICIPAL WATER DISTRICT

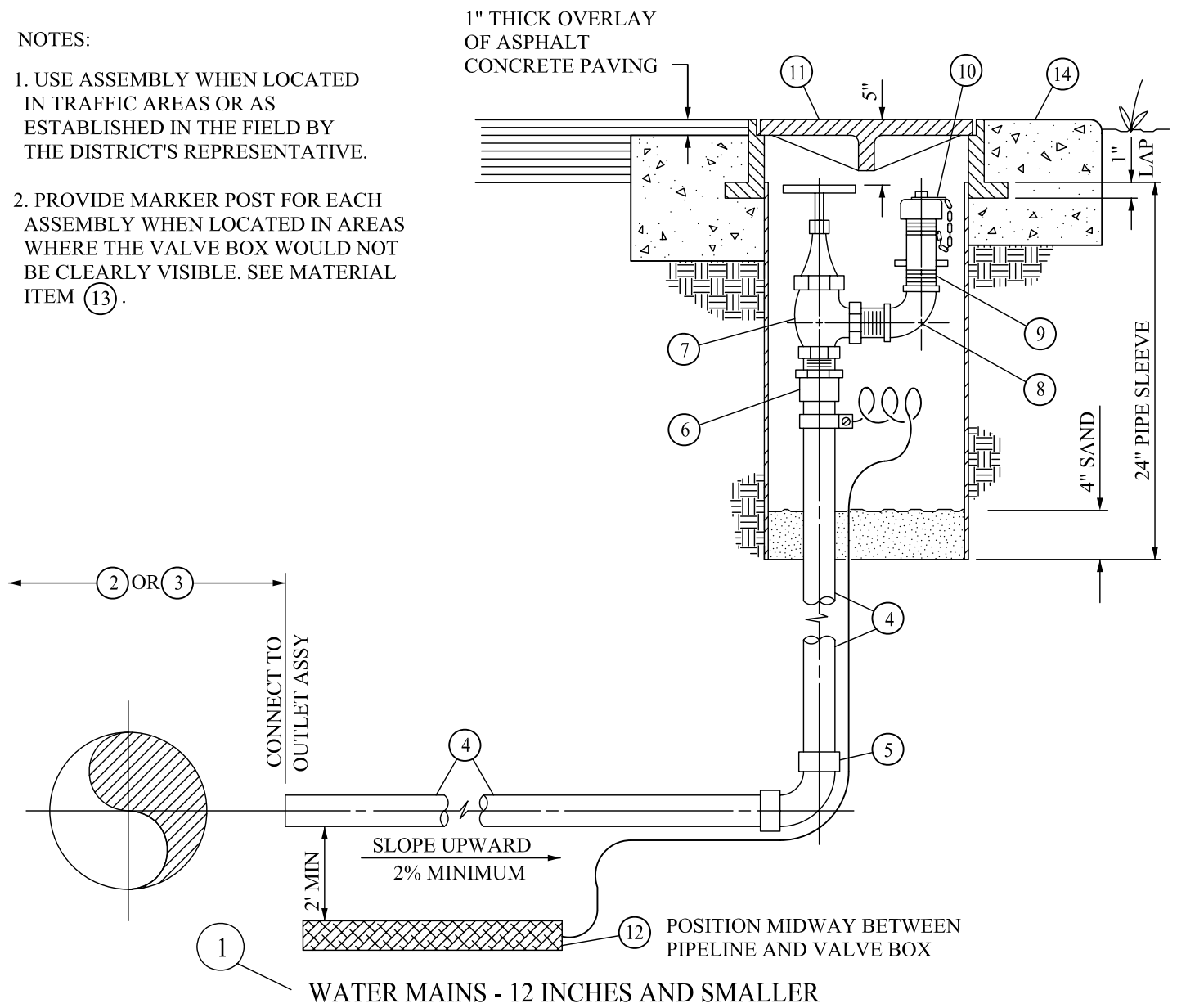
BOYLE
ENGINEERING
CORPORATION

2-INCH BLOW-OFF ASSEMBLY
WORKING PRESSURE 0-200 PSI

STD DWG NO.
A-1.3
JUNE 2008

NOTES:

1. USE ASSEMBLY WHEN LOCATED IN TRAFFIC AREAS OR AS ESTABLISHED IN THE FIELD BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE MARKER POST FOR EACH ASSEMBLY WHEN LOCATED IN AREAS WHERE THE VALVE BOX WOULD NOT BE CLEARLY VISIBLE. SEE MATERIAL ITEM (13).



ITEM	DESCRIPTION	SPEC/DWG
1	2-INCH BLOW-OFF ASSEMBLY FOR PIPELINES 12 INCHES AND SMALLER	15090
2	OUTLET ON DUCTILE IRON PIPE, 201-300 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 201-300 PSI	15061/D-1.2
4	2" COPPER WATER TUBE, TYPE K, SOFT	15220
5	2" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
6	2" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
7	2" BRONZE ANGLE VALVE WITH FEMALE IPT, 0-300 PSI	15080
8	2-1/2" x 2" CL 250 CAST BRONZE RDC ELBOW WITH CLOSE BRASS NIPPLE	15220
9	2-1/2" BRONZE EXT NIPPLE WITH MALE IPT x OUTSIDE HOSE THREADS	15090
10	2-1/2" PLASTIC HOSE CAP WITH CHAIN RING AND CHAIN	15090
11	VALVE BOX INSTALLATION FOR BURIED ASSEMBLIES	15090/E-1.1
12	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
13	MARKER POST, REDWOOD	15090
14	30" DIAMETER x 8" THICK CONCRETE RING	15090

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

2-INCH BLOW-OFF ASSEMBLY
WORKING PRESSURE 201-300 PSI

STD DWG NO.
A-1.4
JUNE 2008

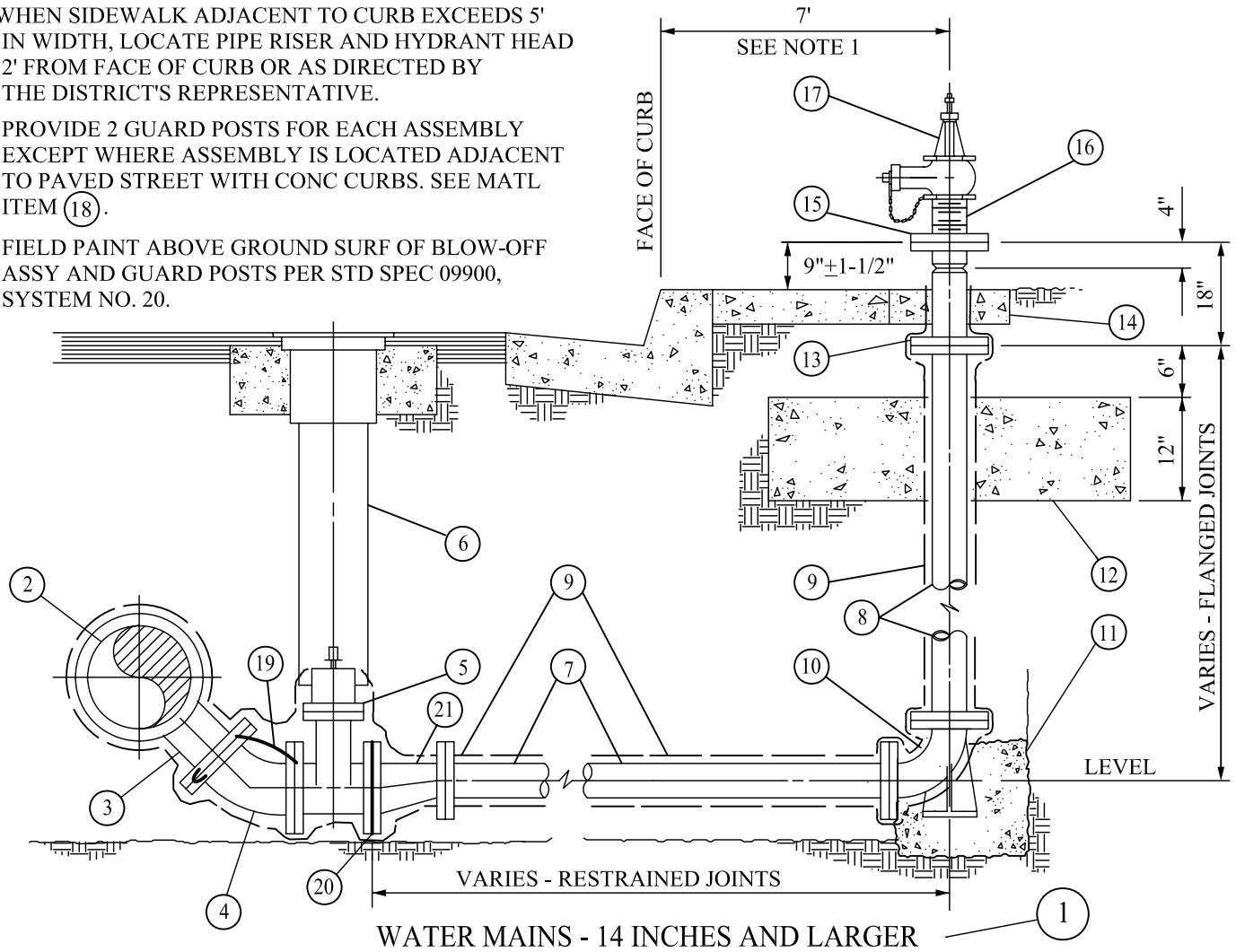
1. WHEN SIDEWALK ADJACENT TO CURB EXCEEDS 5' IN WIDTH, LOCATE PIPE RISER AND HYDRANT HEAD 2' FROM FACE OF CURB OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONC CURBS. SEE MATL ITEM (18).
3. FIELD PAINT ABOVE GROUND SURF OF BLOW-OFF ASSY AND GUARD POSTS PER STD SPEC 09900, SYSTEM NO. 20.

OLIVENHAIN MUNICIPAL WATER DISTRICT

STD DWG NO.
A-1.5
JUNE 2008

NOTES:

1. WHEN SIDEWALK ADJACENT TO CURB EXCEEDS 5' IN WIDTH, LOCATE PIPE RISER AND HYDRANT HEAD 2' FROM FACE OF CURB OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONC CURBS. SEE MATL ITEM (18).
3. FIELD PAINT ABOVE GROUND SURF OF BLOW-OFF ASSY AND GUARD POSTS PER STD SPEC 09900, SYSTEM NO. 20.



ITEM	DESCRIPTION	SPEC/DWG
1	4-INCH BLOW-OFF ASSEMBLY FOR PIPELINES 14 INCHES AND LARGER	15090
2	DUCTILE IRON PIPE	15240
3	DUCTILE IRON TEE WITH 6" CL 150 FLANGED OUTLET	15240
4	6" DUCTILE IRON 1/8 BEND WITH CL 150 FLANGES	15240
5	6" RESILIENT SEATED GATE VALVE WITH CL 125 FLANGES, 0-250 PSI	15101
6	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
7	4" DUCTILE IRON PIPE WITH RESTRAINED JOINTS OR CL 150 FLANGES	15240
8	4" CLASS 53 DUCTILE IRON PIPE WITH CL 150 FLANGES	15240
9	POLYETHYLENE ENCASEMENT	09954
10	4" DUCTILE IRON BASE BEND WITH CL 150 FLANGES	15240
11	CONCRETE ANCHOR BLOCK WITH 6 CUBIC FEET	15090
12	42" SQUARE x 12" THICK CONCRETE ANCHOR BLOCK	15090
13	4" BREAK-OFF RISER WITH CL 150 FLANGES AND CUT GROOVE	15090
14	36" SQUARE x 4" THICK CONCRETE PAD	15090
15	4" CAST BRONZE CL 150 FLANGE WITH FEMALE IPT	15220
16	4" BRASS NIPPLE, REGULAR WALL, IPT, 5" LONG	15220
17	4" FEMALE IPT x 2-1/2" MALE NH BRONZE HYDRANT HEAD ANGLE VALVE	15080
18	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15090/E-1.4
19	BOND WIRES	13110
20	INSULATING FLANGE KIT	13110
21	6"x4" DUCTILE IRON ECCENTRIC REDUCER WITH CL 150 FLG x FLG	15240

OLIVENHAIN MUNICIPAL WATER DISTRICT

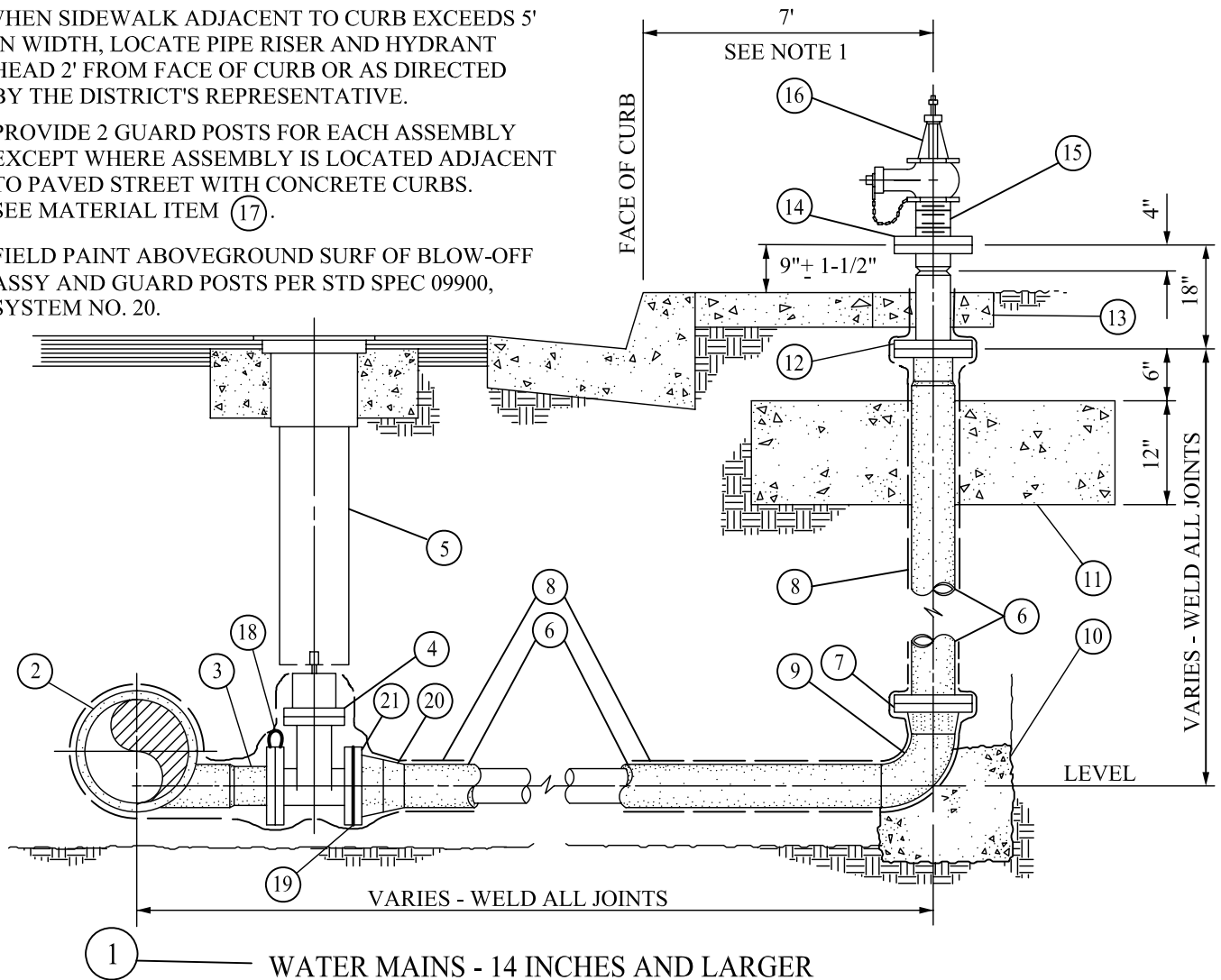
BOYLE
ENGINEERING
CORPORATION

4-INCH BLOW-OFF ASSEMBLY
WORKING PRESSURE 0-250 PSI

STD DWG NO.
A-1.6
JUNE 2008

NOTES:

1. WHEN SIDEWALK ADJACENT TO CURB EXCEEDS 5' IN WIDTH, LOCATE PIPE RISER AND HYDRANT HEAD 2' FROM FACE OF CURB OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONCRETE CURBS. SEE MATERIAL ITEM (17).
3. FIELD PAINT ABOVEGROUND SURF OF BLOW-OFF ASSY AND GUARD POSTS PER STD SPEC 09900, SYSTEM NO. 20.



ITEM	DESCRIPTION	SPEC/DWG
1	4-INCH BLOW-OFF ASSEMBLY FOR PIPELINES 14 INCHES AND LARGER	15090
2	STEEL PIPE, CEMENT MORTAR LINED AND COATED	15061
3	6" STEEL TANGENT OUTLET WITH CL 150 FLANGE, CML&C	15061
4	6" RESILIENT SEATED GATE VALVE WITH CL 125 FLANGES, 0-250 PSI	15101
5	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
6	4" STD WT STEEL PIPE WITH CL 150 FLANGES, CML&C	15253
7	4" CL 150 WELDING NECK FLANGE, CML&C	15253
8	POLYETHYLENE ENCASEMENT	09954
9	4" STD WT STEEL 90° ELBOW, LONG RADIUS, CML&C	15253
10	CONCRETE ANCHOR BLOCK WITH 6 CUBIC FEET	15090
11	42" SQUARE x 12" THICK CONCRETE ANCHOR BLOCK	15090
12	4" BREAK-OFF RISER WITH CL 150 FLANGES AND CUT GROOVE	15090
13	36" SQUARE x 4" THICK CONCRETE PAD	15090
14	4" CAST BRONZE CL 150 FLANGE WITH FEMALE IPT	15220
15	4" BRASS NIPPLE, REGULAR WALL, IPT, 5" LONG	15220
16	4" FEMALE IPT x 2-1/2" MALE NH BRONZE HYDRANT HEAD ANGLE VALVE	15080
17	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15090/E-1.4
18	BOND WIRES	13110
19	INSULATING FLANGE KIT	13110
20	6"x4" STD WT STEEL CONCENTRIC REDUCER, CML&C	15253
21	6" CL 150 WELDING NECK FLANGE, CML&C	15253

OLIVENHAIN MUNICIPAL WATER DISTRICT

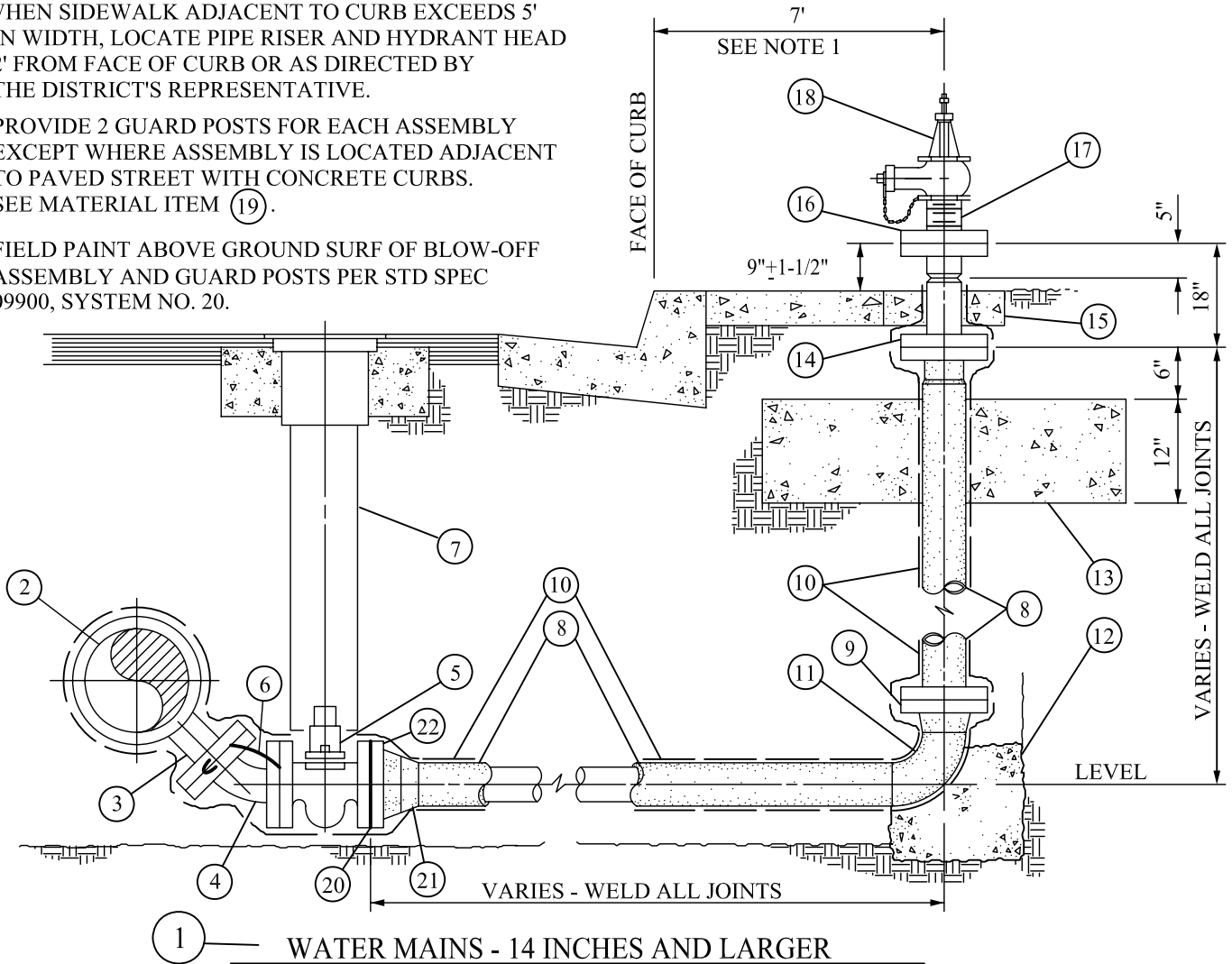
BOYLE
ENGINEERING
CORPORATION

4-INCH BLOW-OFF ASSEMBLY
WORKING PRESSURE 0-250 PSI

STD DWG NO.
A-1.7
JUNE 2008

NOTES:

1. WHEN SIDEWALK ADJACENT TO CURB EXCEEDS 5' IN WIDTH, LOCATE PIPE RISER AND HYDRANT HEAD 2' FROM FACE OF CURB OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONCRETE CURBS. SEE MATERIAL ITEM (19).
3. FIELD PAINT ABOVE GROUND SURF OF BLOW-OFF ASSEMBLY AND GUARD POSTS PER STD SPEC 09900, SYSTEM NO. 20.



ITEM	DESCRIPTION	SPEC/DWG
1	4-INCH BLOW-OFF ASSEMBLY FOR PIPELINES 14 INCHES AND LARGER	15090
2	DUCTILE IRON PIPE	15240
3	DUCTILE IRON TEE WITH 6" CL 300 FLANGED OUTLET	15240
4	6" DUCTILE IRON 1/8 BEND WITH CL 300 FLANGES	15240
5	6" BALL VALVE WITH CL 250 OR 300 FLANGES	-
6	BOND WIRES	13110
7	VALVE BOX INSTALLATION FOR BURIED VALVES	E-1.2/E-1.3
8	4" STD WT STEEL PIPE WITH CL 300 FLANGES, CML&C	15253
9	4" CL 300 WELDING NECK FLANGE, CML&C	15253
10	POLYETHYLENE ENCASEMENT	09954
11	4" STD WT STEEL 90° ELBOW, LONG RADIUS, CML&C	15253
12	CONCRETE ANCHOR BLOCK WITH 6 CUBIC FEET	15090
13	42" SQUARE x 12" THICK CONCRETE ANCHOR BLOCK	15090
14	4" BREAK-OFF RISER WITH CL 300 FLANGES AND CUT GROOVE	15090
15	36" SQUARE x 4" THICK CONCRETE PAD	15090
16	4" CAST BRONZE CL 300 FLANGE WITH FEMALE IPT	15220
17	4" BRASS NIPPLE, REGULAR WALL, IPT, 5" LONG	15220
18	4" FEMALE IPT x 2-1/2" MALE NH BRONZE HYDRANT HEAD ANGLE VALVE	15080
19	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15090/E-1.4
20	INSULATING FLANGE KIT	13110
21	6"x4" STD WT STEEL CONCENTRIC REDUCER, CML&C	15253
22	6" CL 300 WELDING NECK FLANGE, CML&C	15253

OLIVENHAIN MUNICIPAL WATER DISTRICT

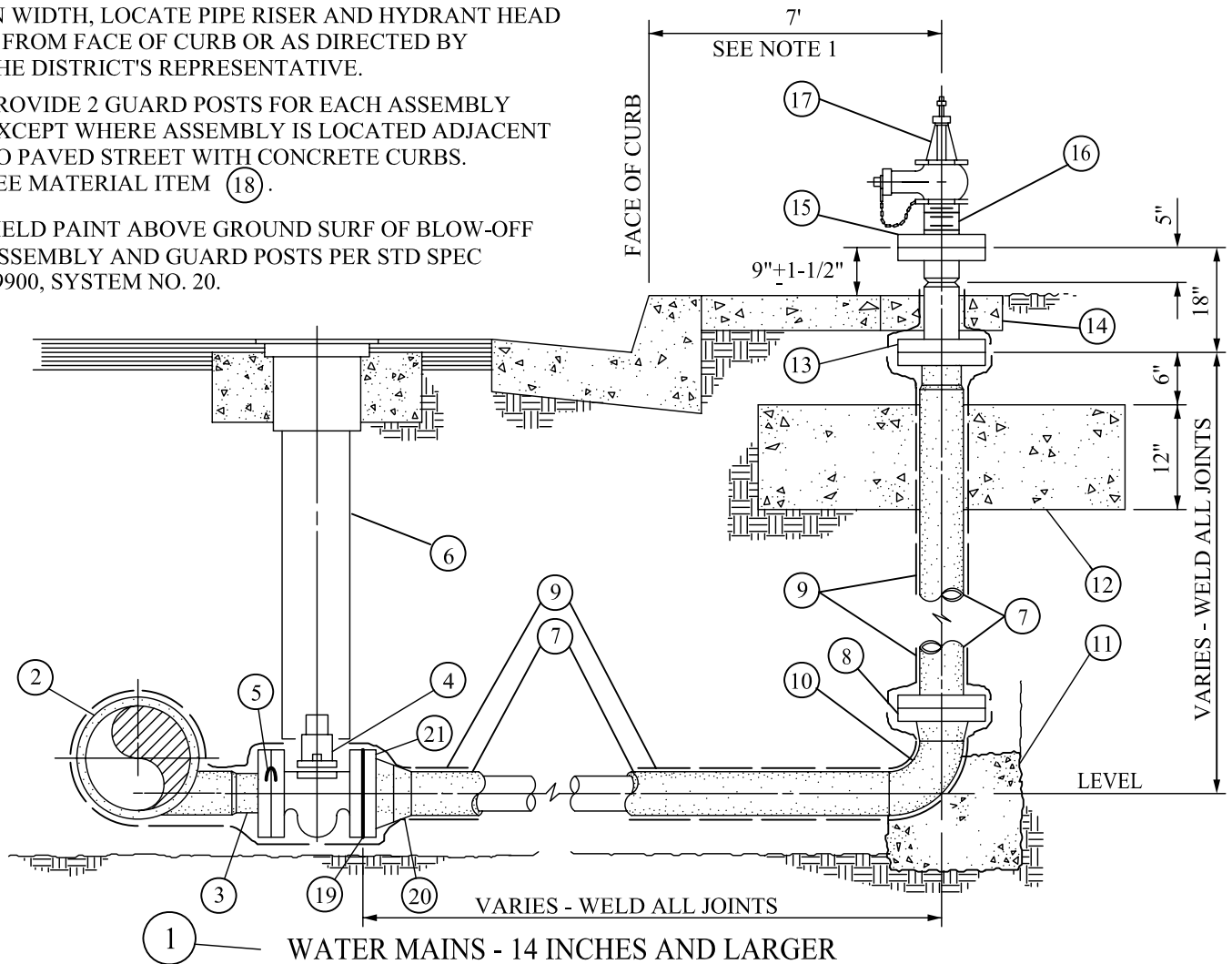
BOYLE
ENGINEERING
CORPORATION

4-INCH BLOW-OFF ASSEMBLY
WORKING PRESSURE 251-300 PSI

STD DWG NO.
A-1.8
JUNE 2008

NOTES:

1. WHEN SIDEWALK ADJACENT TO CURB EXCEEDS 5' IN WIDTH, LOCATE PIPE RISER AND HYDRANT HEAD 2' FROM FACE OF CURB OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONCRETE CURBS. SEE MATERIAL ITEM (18).
3. FIELD PAINT ABOVE GROUND SURF OF BLOW-OFF ASSEMBLY AND GUARD POSTS PER STD SPEC 09900, SYSTEM NO. 20.



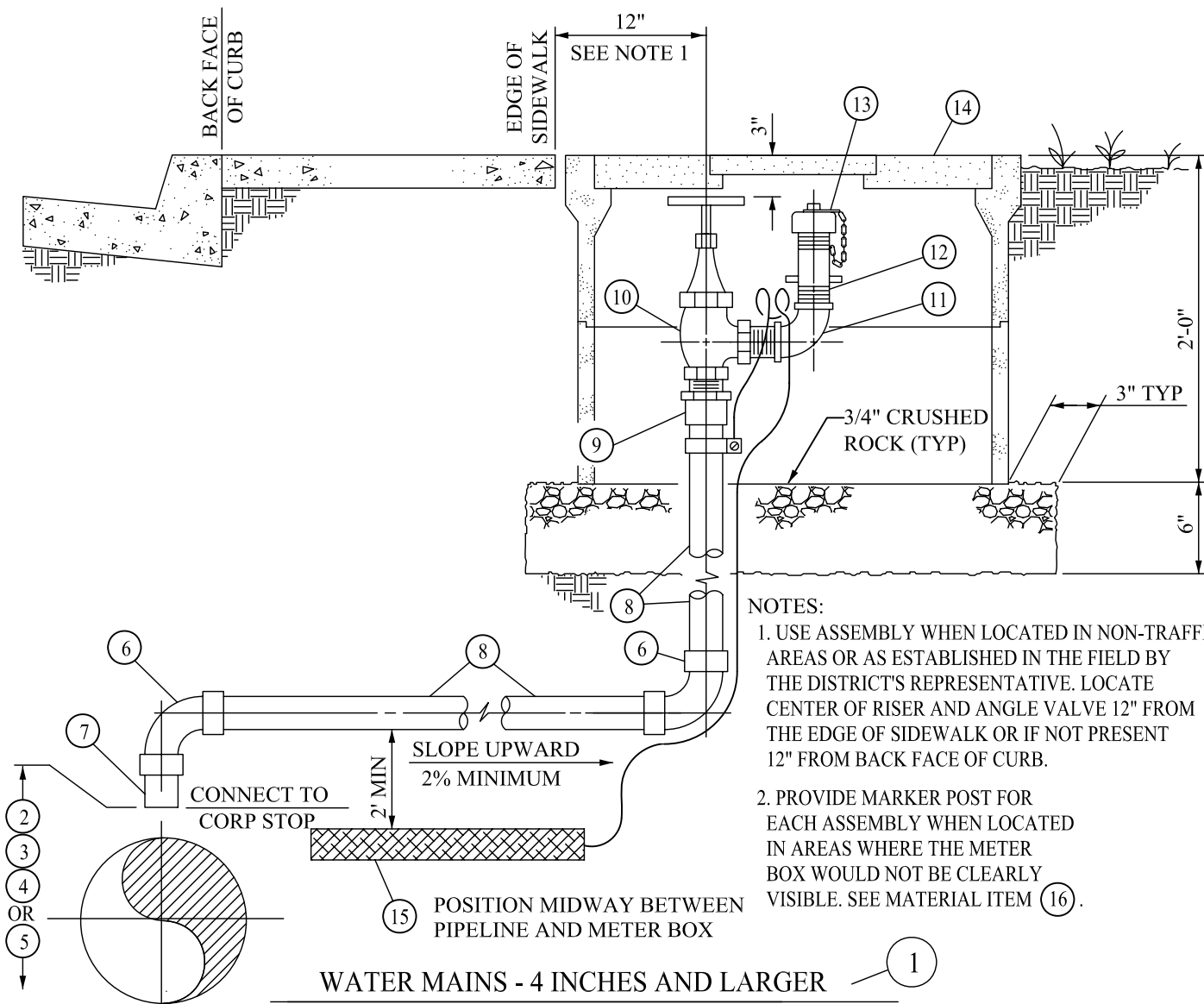
ITEM	DESCRIPTION	SPEC/DWG
1	4-INCH BLOW-OFF ASSEMBLY FOR PIPELINES 14 INCHES AND LARGER	15090
2	STEEL PIPE, CEMENT MORTAR LINED AND COATED	15061
3	6" STEEL TANGENT OUTLET WITH CL 300 FLANGE, CML&C	15061
4	6" BALL VALVE WITH CL 250 OR 300 FLANGES	-
5	BOND WIRES	13110
6	VALVE BOX INSTALLATION FOR BURIED VALVES	E-1.2/E-1.3
7	4" STD WT STEEL PIPE WITH CL 300 FLANGES, CML&C	15253
8	4" CL 300 WELDING NECK FLANGE, CML&C	15253
9	POLYETHYLENE ENCASEMENT	09954
10	4" STD WT STEEL 90° ELBOW, LONG RADIUS, CML&C	15253
11	CONCRETE ANCHOR BLOCK WITH 6 CUBIC FEET	15090
12	42" SQUARE x 12" THICK CONCRETE ANCHOR BLOCK	15090
13	4" BREAK-OFF RISER WITH CL 300 FLANGES AND CUT GROOVE	15090
14	36" SQUARE x 4" THICK CONCRETE PAD	15090
15	4" CAST BRONZE CL 300 FLANGE WITH FEMALE IPT	15220
16	4" BRASS NIPPLE, REGULAR WALL, IPT, 5" LONG	15220
17	4" FEMALE IPT x 2-1/2" MALE NH BRONZE HYDRANT HEAD ANGLE VALVE	15080
18	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15090/E-1.4
19	INSULATING FLANGE KIT	13110
20	6"x4" STD WT STEEL CONCENTRIC REDUCER, CML&C	15253
21	6" CL 300 WELDING NECK FLANGE, CML&C	15253

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

4-INCH BLOW-OFF ASSEMBLY
WORKING PRESSURE 251-300 PSI

STD DWG NO.
A-1.9
JUNE 2008



ITEM	DESCRIPTION	SPEC/DWG
1	2-INCH MAR ASSEMBLY FOR PIPELINES 4 INCHES AND LARGER	15091
2	OUTLET ON DUCTILE IRON PIPE, 0-200 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 0-200 PSI	15061/D-1.2
4	OUTLET ON PVC PRESSURE PIPE, 0-200 PSI	15292/D-1.3
5	OUTLET ON PVC DISTRIBUTION PIPE, 0-150 PSI	15293/D-1.4
6	2" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
7	2" COPPER WATER TUBE, TYPE K, SOFT, 6" LONG	-
8	2" COPPER WATER TUBE, TYPE K, SOFT	15220
9	2" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
10	2" BRONZE ANGLE VALVE WITH FEMALE IPT, 0-300 PSI	15080
11	2-1/2" x 2" CL 125 CAST BRONZE RDC ELBOW WITH CLOSE BRASS NIPPLE	15220
12	2-1/2" BRONZE EXT NIPPLE WITH MALE IPT x OUTSIDE HOSE THREADS	15091
13	2-1/2" PLASTIC HOSE CAP WITH CHAIN RING AND CHAIN	15091
14	METER BOX AND COVER FOR NON-TRAFFIC AREA	15091
15	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
16	MARKER POST, REDWOOD	15091

OLIVENHAIN MUNICIPAL WATER DISTRICT

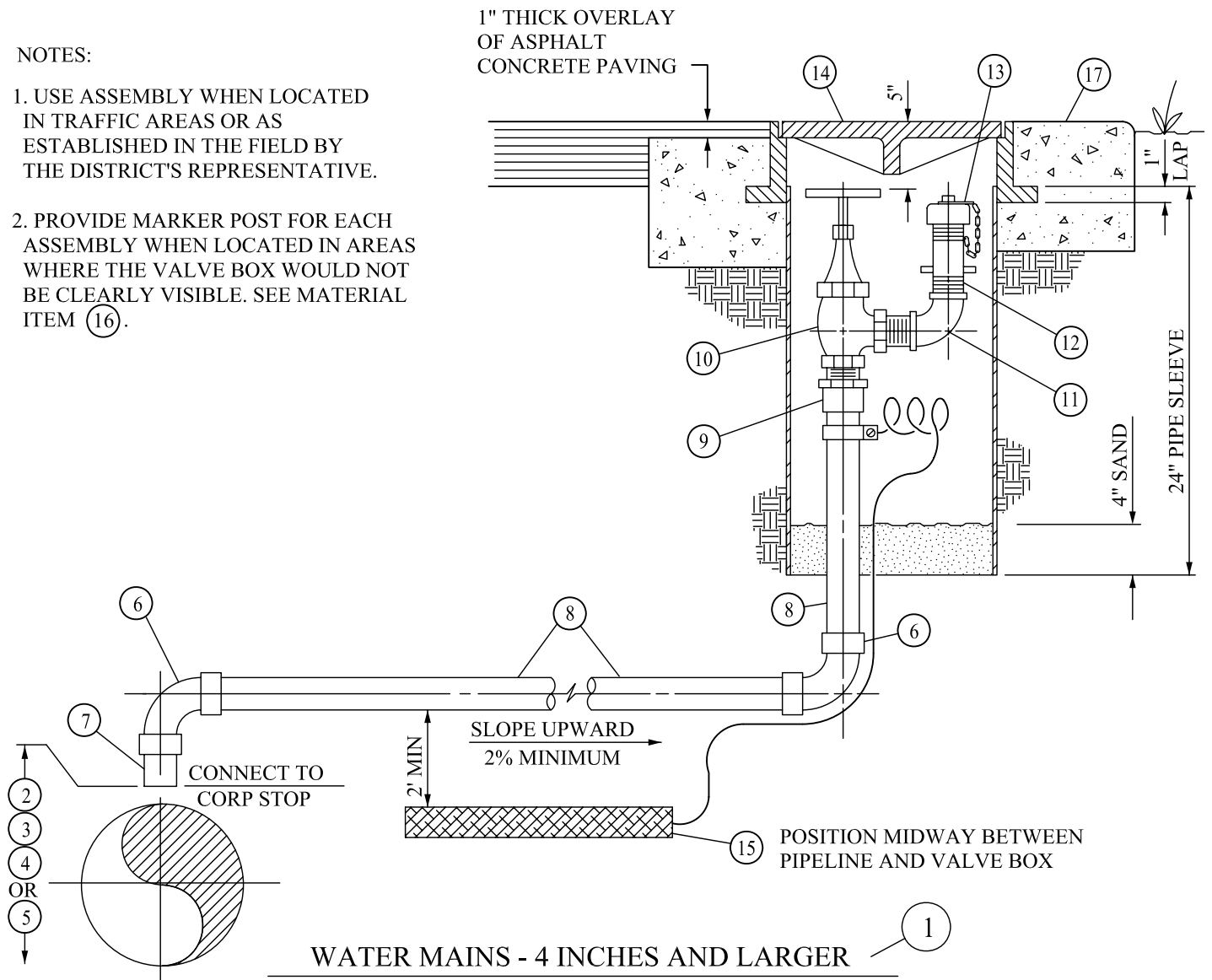
BOYLE
ENGINEERING
CORPORATION

2-INCH MANUAL AIR RELEASE ASSY
WORKING PRESSURE 0-200 PSI

STD DWG NO.
A-2.1
JUNE 2008

NOTES:

1. USE ASSEMBLY WHEN LOCATED IN TRAFFIC AREAS OR AS ESTABLISHED IN THE FIELD BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE MARKER POST FOR EACH ASSEMBLY WHEN LOCATED IN AREAS WHERE THE VALVE BOX WOULD NOT BE CLEARLY VISIBLE. SEE MATERIAL ITEM (16).



ITEM	DESCRIPTION	SPEC/DWG
1	2-INCH MAR ASSEMBLY FOR PIPELINES 4 INCHES AND LARGER	15091
2	OUTLET ON DUCTILE IRON PIPE, 0-200 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 0-200 PSI	15061/D-1.2
4	OUTLET ON PVC PRESSURE PIPE, 0-200 PSI	15292/D-1.3
5	OUTLET ON PVC DISTRIBUTION PIPE, 0-150 PSI	15293/D-1.4
6	2" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
7	2" COPPER WATER TUBE, TYPE K, SOFT	15220
8	2" COPPER WATER TUBE, TYPE K, SOFT	15220
9	2" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
10	2" BRONZE ANGLE VALVE WITH FEMALE IPT, 0-300 PSI	15080
11	2-1/2" x 2" CL 125 CAST BRONZE RDC ELBOW WITH CLOSE BRASS NIPPLE	15220
12	2-1/2" BRONZE EXT NIPPLE WITH MALE IPT x OUTSIDE HOSE THREADS	15091
13	2-1/2" PLASTIC HOSE CAP WITH CHAIN RING AND CHAIN	15091
14	VALVE BOX INSTALLATION FOR BURIED ASSEMBLIES	15091/E-1.1
15	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
16	MARKER POST, REDWOOD	15091
17	30" DIAMETER x 8" THICK CONCRETE RING	15091

OLIVENHAIN MUNICIPAL WATER DISTRICT

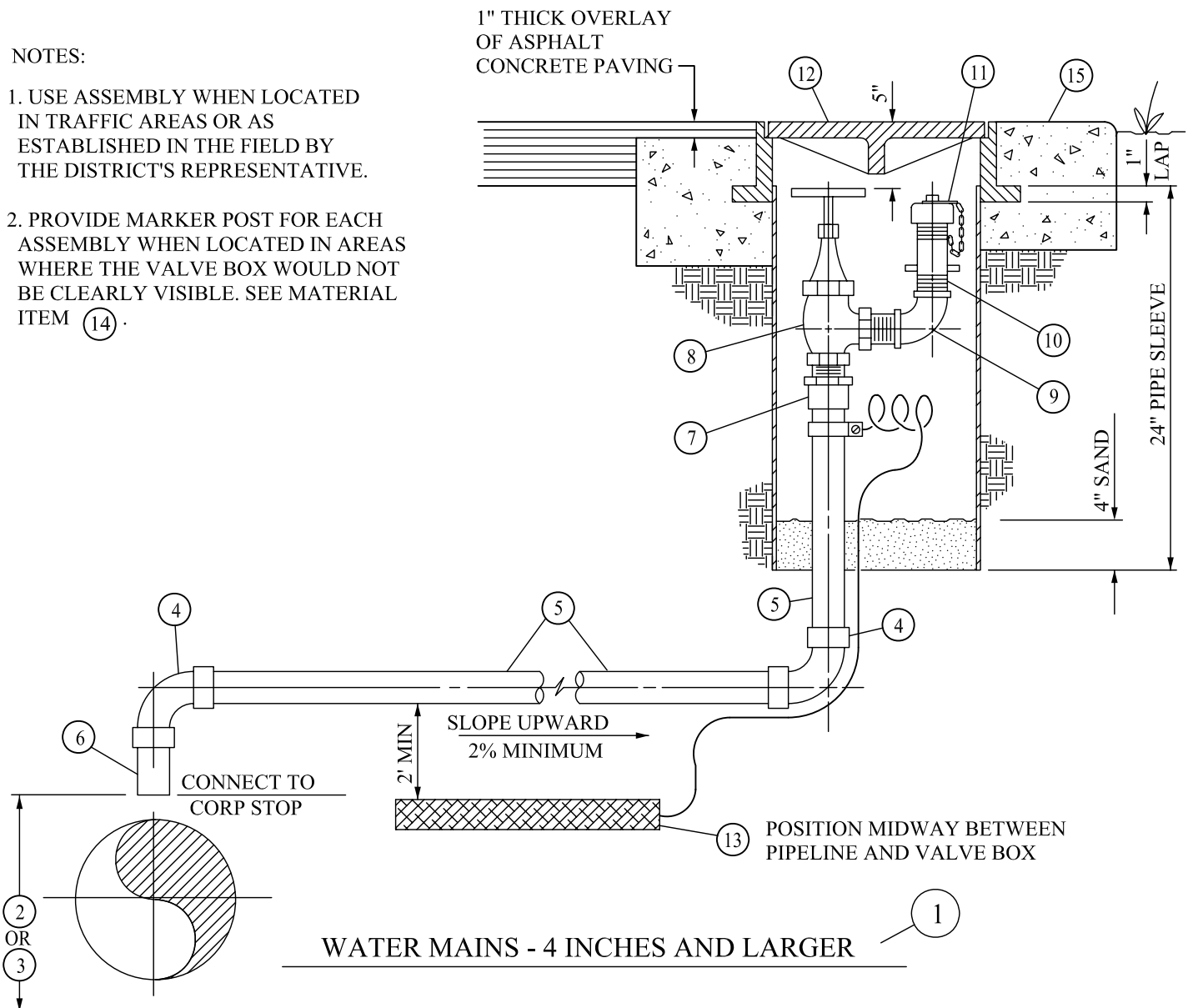
BOYLE
ENGINEERING
CORPORATION

2-INCH MANUAL AIR RELEASE ASSY
WORKING PRESSURE 0-200 PSI

STD DWG NO.
A-2.3
JUNE 2008

NOTES:

1. USE ASSEMBLY WHEN LOCATED IN TRAFFIC AREAS OR AS ESTABLISHED IN THE FIELD BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE MARKER POST FOR EACH ASSEMBLY WHEN LOCATED IN AREAS WHERE THE VALVE BOX WOULD NOT BE CLEARLY VISIBLE. SEE MATERIAL ITEM (14).



ITEM	DESCRIPTION	SPEC/DWG
1	2-INCH MAR ASSEMBLY FOR PIPELINES 4 INCHES AND LARGER	15091
2	OUTLET ON DUCTILE IRON PIPE, 201-300 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 201-300 PSI	15061/D-1.2
4	2" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
5	2" COPPER WATER TUBE, TYPE K, SOFT	15220
6	2" COPPER WATER TUBE, TYPE K, SOFT, 6" LONG	15220
7	2" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
8	2' BRONZE ANGLE VALVE WITH FEMALE IPT, 0-300 PSI	15080
9	2-1/2" x 2" CL 125 CAST BRONZE RDC ELBOW WITH CLOSE BRASS NIPPLE	15220
10	2-1/2" BRONZE EXT NIPPLE WITH MALE IPT x OUTSIDE HOSE THREADS	15091
11	2-1/2" PLASTIC HOSE CAP WITH CHAIN RING AND CHAIN	15091
12	VALVE BOX INSTALLATION FOR BURIED ASSEMBLIES	15091/E-1.1
13	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
14	MARKER POST, REDWOOD OR SCHEDULE 80 PVC PIPE	15091
15	30" DIAMETER x 8" THICK CONCRETE RING	15091

OLIVENHAIN MUNICIPAL WATER DISTRICT

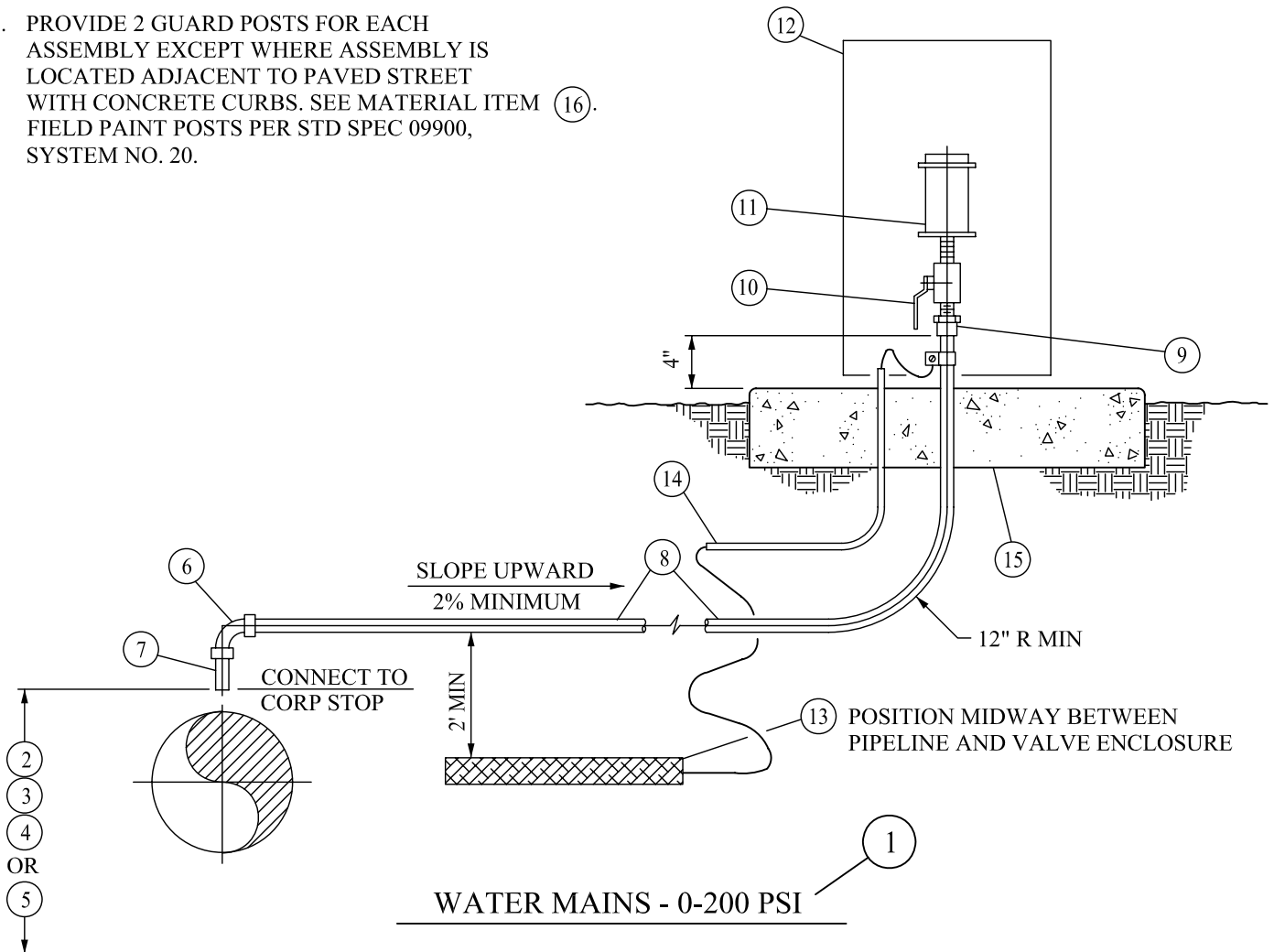
BOYLE
ENGINEERING
CORPORATION

2-INCH MANUAL AIR RELEASE ASSY
WORKING PRESSURE 201-300 PSI

STD DWG NO.
A-2.4
JUNE 2008

NOTES:

1. LOCATE AIR VALVE AND ENCLOSURE WHERE SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONCRETE CURBS. SEE MATERIAL ITEM (16). FIELD PAINT POSTS PER STD SPEC 09900, SYSTEM NO. 20.



ITEM	DESCRIPTION	SPEC/DWG
1	1-INCH COMBINATION AIR VALVE ASSEMBLY	15092
2	OUTLET ON DUCTILE IRON PIPE, 0-200 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 0-200 PSI	15061/D-1.2
4	OUTLET ON PVC PRESSURE PIPE, 0-200 PSI	15292/D-1.3
5	OUTLET ON PVC DISTRIBUTION PIPE, 0-150 PSI	15293/D-1.4
6	1" COPPER 90° ELB, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
7	1" COPPER WATER TUBE, TYPE K, SOFT, 6" LONG	15220
8	1" COPPER WATER TUBE, TYPE K, SOFT	15220
9	1" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
10	1" BRONZE BALL VALVE WITH FEMALE IPT, 0-300 PSI	15080
11	1" COMBINATION AIR RELEASE AND VACUUM VALVE WITH MALE IPT	15108
12	AIR VALVE ENCLOSURE FOR 1-INCH CAV ASSEMBLY	15092
13	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
14	1/2" SCHEDULE 40 PVC CONDUIT WITH SWEEP BEND	15092
15	30" SQUARE x 6" THICK CONCRETE PAD	15092
16	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15092/E-1.4

OLIVENHAIN MUNICIPAL WATER DISTRICT

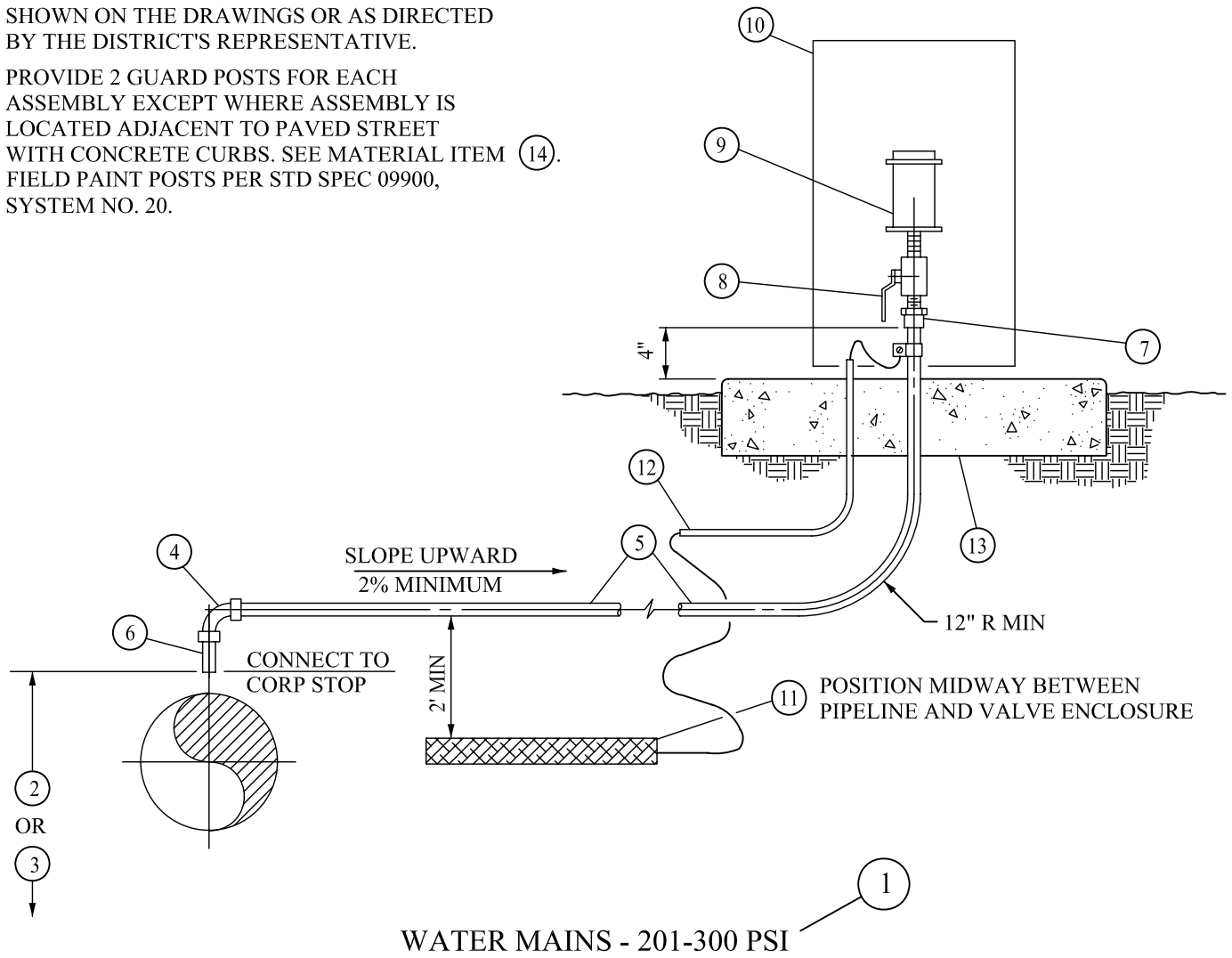
BOYLE
ENGINEERING
CORPORATION

1-INCH COMB AIR VALVE ASSEMBLY
WORKING PRESSURE 0-200 PSI

STD DWG NO.
A-3.1
JUNE 2008

NOTES:

1. LOCATE AIR VALVE AND ENCLOSURE WHERE SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONCRETE CURBS. SEE MATERIAL ITEM (14). FIELD PAINT POSTS PER STD SPEC 09900, SYSTEM NO. 20.



ITEM	DESCRIPTION	SPEC/DWG
1	1-INCH COMBINATION AIR VALVE ASSEMBLY	15092
2	OUTLET ON DUCTILE IRON PIPE, 201-300 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 201-300 PSI	15061/D-1.2
4	1" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
5	1" COPPER WATER TUBE, TYPE K, SOFT	15220
6	1" COPPER WATER TUBE, TYPE K, SOFT, 6" LONG	15220
7	1" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
8	1" BRONZE BALL VALVE WITH FEMALE IPT, 0-300 PSI	15080
9	1" COMBINATION AIR RELEASE AND VACUUM VALVE WITH MALE IPT	15108
10	AIR VALVE ENCLOSURE FOR 1-INCH CAV ASSEMBLY	15092
11	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
12	1/2" SCHEDULE 40 PVC CONDUIT WITH SWEEP BEND	15092
13	30" SQUARE x 6" THICK CONCRETE PAD	15092
14	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15092/E-1.4

OLIVENHAIN MUNICIPAL WATER DISTRICT

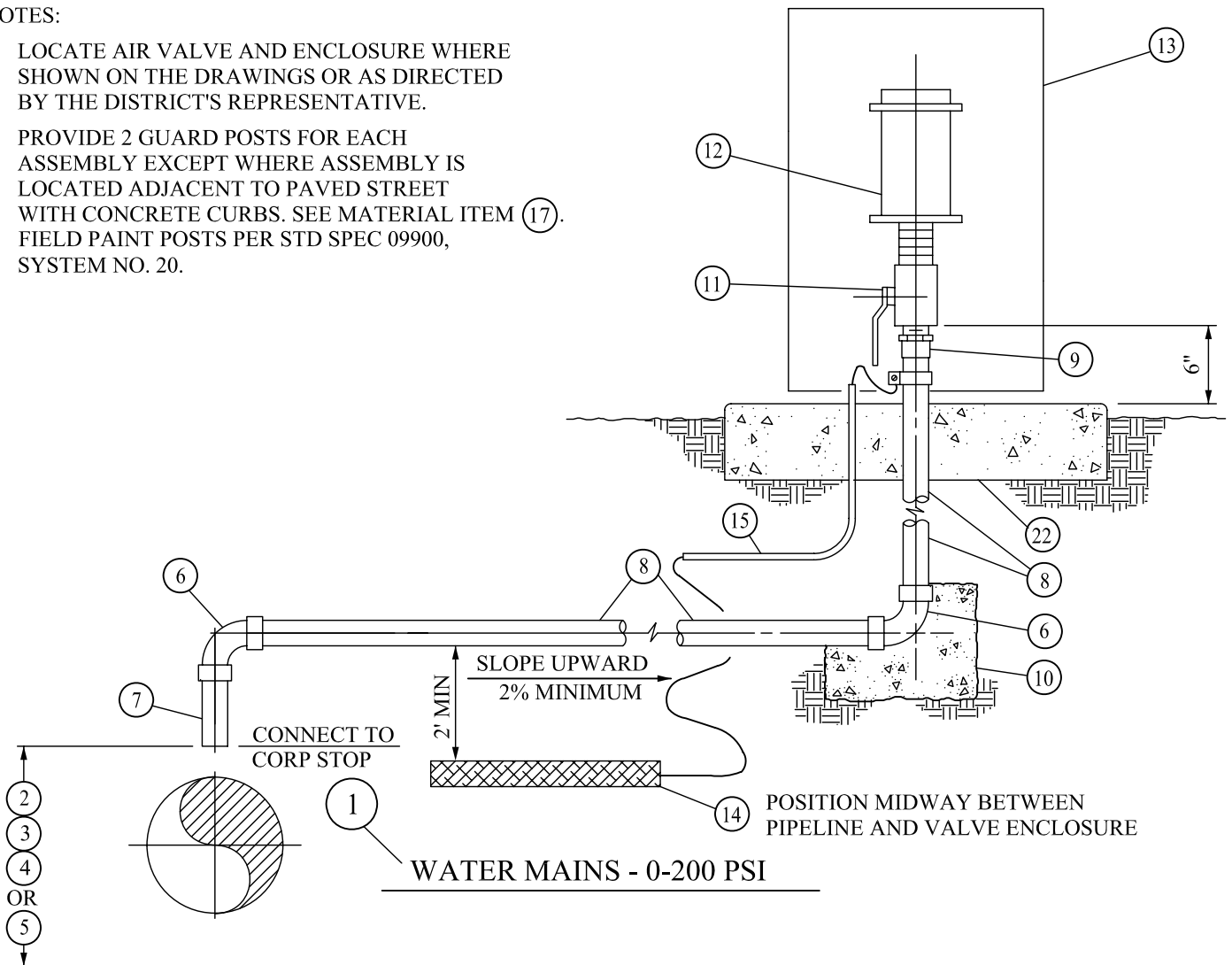
BOYLE
ENGINEERING
CORPORATION

1-INCH COMB AIR VALVE ASSEMBLY
WORKING PRESSURE 201-300 PSI

STD DWG NO.
A-3.2
JUNE 2008

NOTES:

1. LOCATE AIR VALVE AND ENCLOSURE WHERE SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONCRETE CURBS. SEE MATERIAL ITEM (17). FIELD PAINT POSTS PER STD SPEC 09900, SYSTEM NO. 20.



ITEM	DESCRIPTION	SPEC/DWG
1	2-INCH COMBINATION AIR VALVE ASSEMBLY	15092
2	OUTLET ON DUCTILE IRON PIPE, 0-200 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 0-200 PSI	15061/D-1.2
4	OUTLET ON PVC PRESSURE PIPE, 0-200 PSI	15292/D-1.3
5	OUTLET ON PVC DISTRIBUTION PIPE, 0-150 PSI	15293/D-1.4
6	2" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
7	2" COPPER WATER TUBE, TYPE K, SOFT, 6" LONG	15220
8	2" COPPER WATER TUBE, TYPE K, SOFT	15220
9	2" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
10	CONCRETE ANCHOR BLOCK WITH 2 CUBIC FEET	02223
11	2" BRONZE BALL VALVE WITH FEMALE IPT, 0-300 PSI	15080
12	2" COMBINATION AIR RELEASE AND VACUUM VALVE WITH MALE IPT	15108
13	AIR VALVE ENCLOSURE FOR 2-INCH CAV ASSEMBLY	15092
14	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
15	1/2" SCHEDULE 40 PVC CONDUIT WITH SWEEP BEND	15092
16	30" SQUARE x 6" THICK CONCRETE PAD	15092
17	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15092/E-1.4

OLIVENHAIN MUNICIPAL WATER DISTRICT

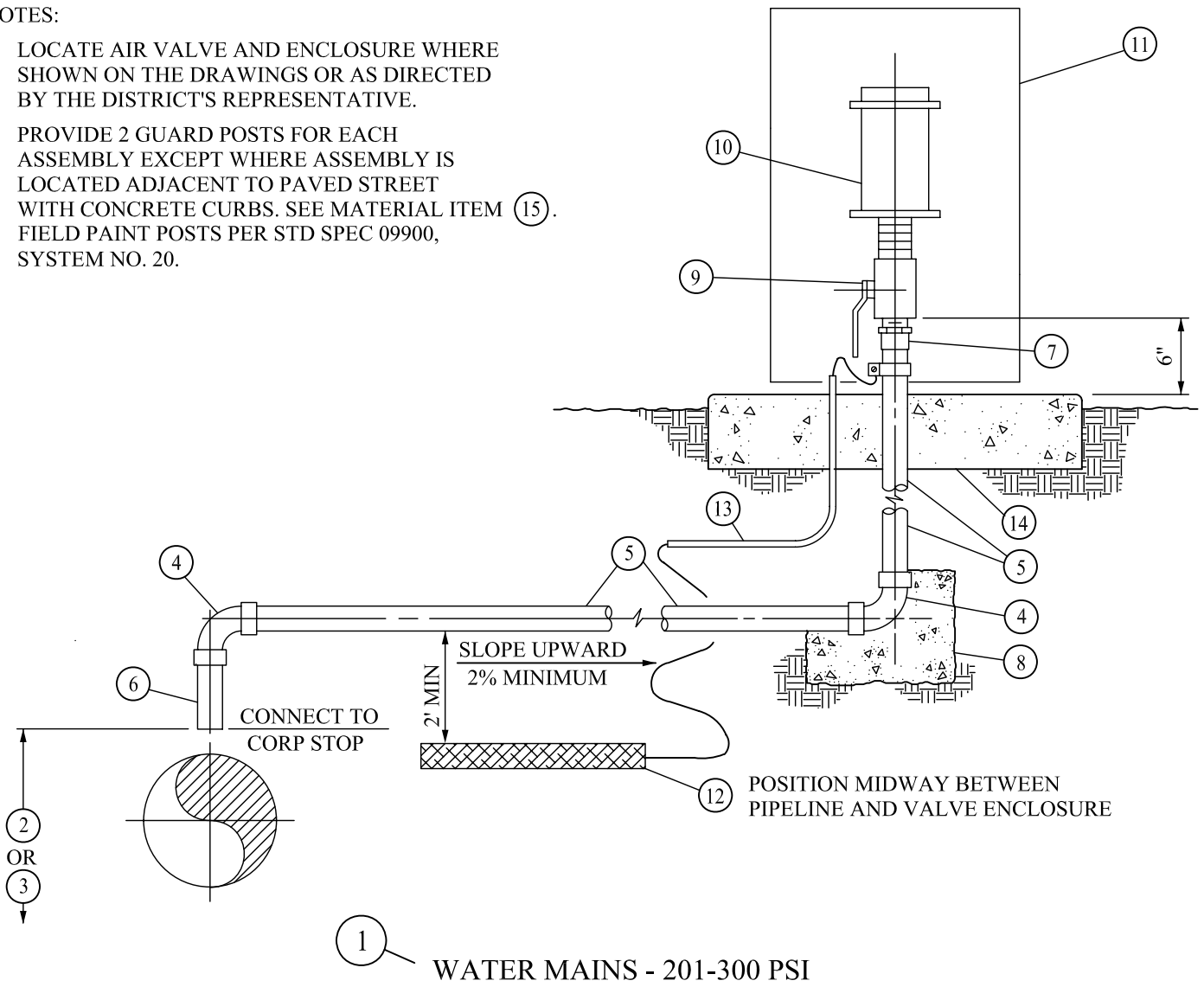
BOYLE
ENGINEERING
CORPORATION

2-INCH COMB AIR VALVE ASSEMBLY
WORKING PRESSURE 0-200 PSI

STD DWG NO.
A-3.3
JUNE 2008

NOTES:

1. LOCATE AIR VALVE AND ENCLOSURE WHERE SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONCRETE CURBS. SEE MATERIAL ITEM (15). FIELD PAINT POSTS PER STD SPEC 09900, SYSTEM NO. 20.



ITEM	DESCRIPTION	SPEC/DWG
1	2-INCH COMBINATION AIR VALVE ASSEMBLY	15092
2	OUTLET ON DUCTILE IRON PIPE, 201-300 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 201-300 PSI	15061/D-1.2
4	2" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
5	2" COPPER WATER TUBE, TYPE K, SOFT	15220
6	2" COPPER WATER TUBE, TYPE K, SOFT, 6" LONG	15220
7	2" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
8	CONCRETE ANCHOR BLOCK WITH 2 CUBIC FEET	02223
9	2" BRONZE BALL VALVE WITH FEMALE IPT, 0-300 PSI	15080
10	2" COMBINATION AIR RELEASE AND VACUUM VALVE WITH MALE IPT	15108
11	AIR VALVE ENCLOSURE FOR 2-INCH CAV ASSEMBLY	15092
12	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
13	1/2" SCHEDULE 40 PVC CONDUIT WITH SWEEP BEND	15092
14	30" SQUARE x 6" THICK CONCRETE PAD	15092
15	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15092/E-1.4

OLIVENHAIN MUNICIPAL WATER DISTRICT

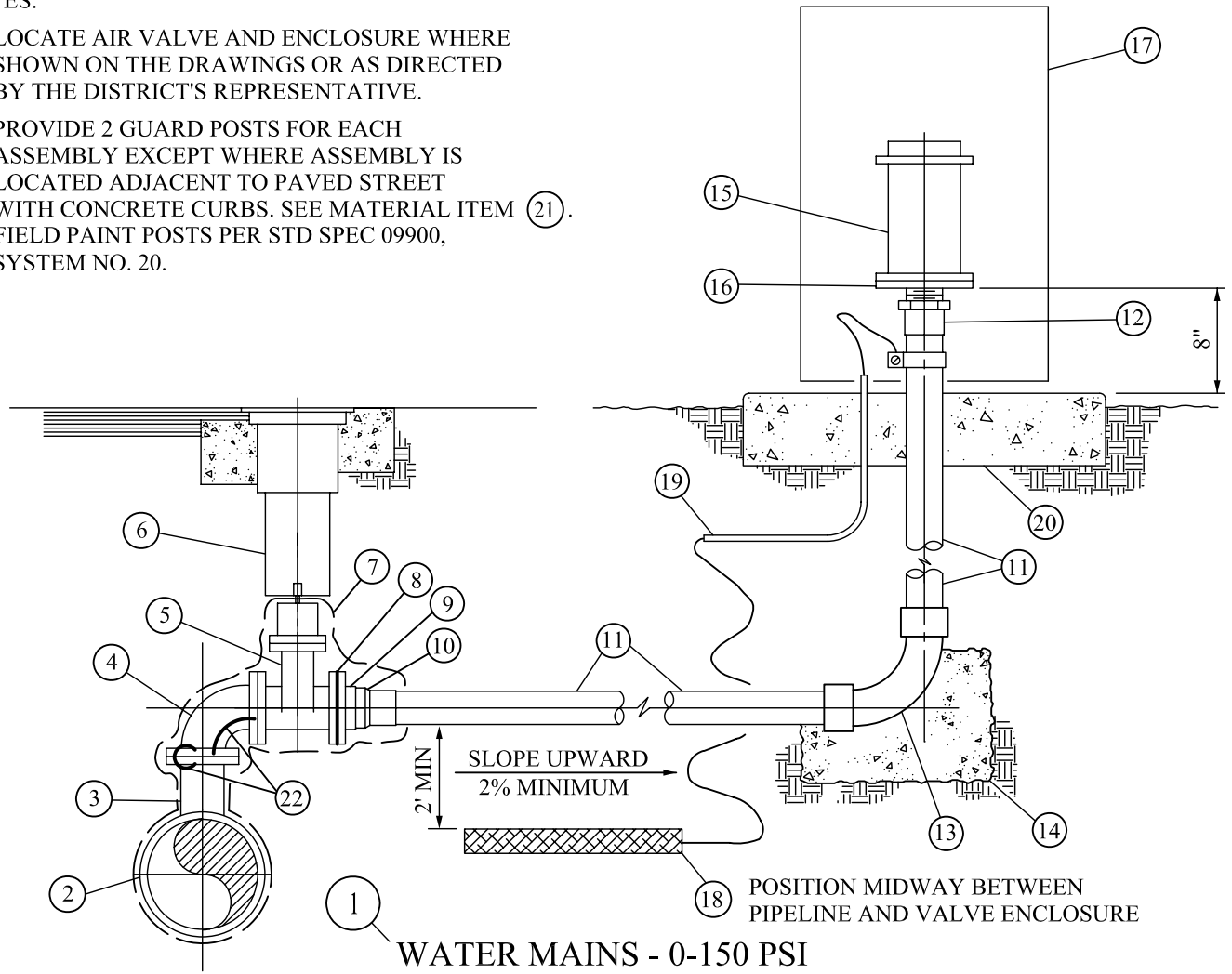
BOYLE
ENGINEERING
CORPORATION

2-INCH COMB AIR VALVE ASSEMBLY
WORKING PRESSURE 201-300 PSI

STD DWG NO.
A-3.4
JUNE 2008

NOTES:

1. LOCATE AIR VALVE AND ENCLOSURE WHERE SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONCRETE CURBS. SEE MATERIAL ITEM (21). FIELD PAINT POSTS PER STD SPEC 09900, SYSTEM NO. 20.



ITEM	DESCRIPTION	SPEC/DWG
1	3-INCH COMBINATION AIR VALVE ASSEMBLY	15092
2	DR 18 PVC DISTRIBUTION PIPE 14 INCHES AND LARGER	15293
3	DUCTILE IRON TEE WITH 6" CL 150 FLANGED OUTLET	15293
4	6" DUCTILE IRON 1/4 BEND WITH CL 150 FLANGES	15293
5	6" RESILIENT SEATED GATE VALVE WITH CL 125 FLANGES, 0-250 PSI	15101
6	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
7	POLYETHYLENE ENCASEMENT	09954
8	INSULATING FLANGE KIT	13110
9	6" CL 150 CAST BRZ COMPANION FLANGE WITH COPPER SOLDER JOINT, 0-225 PSI	15220
10	6" x 3" COPPER REDUCER, SLIP FTG x COPPER SOLDER JT, 0-300 PSI	15220
11	3" COPPER WATER TUBE, TYPE K, HARD	15220
12	3" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
13	3" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
14	CONCRETE ANCHOR BLOCK WITH 2 CUBIC FEET	02223
15	3" COMBINATION AIR RELEASE AND VACUUM VALVE WITH CL 125 FLANGE	15108
16	3" CL 150 CAST BRONZE FLANGE WITH FEMALE IPT, 0-225 PSI	15220
17	AIR VALVE ENCLOSURE FOR 3-INCH CAV ASSEMBLY	15092
18	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
19	1/2" SCHEDULE 40 PVC CONDUIT WITH SWEEP BEND	15092
20	30" SQUARE x 6" THICK CONCRETE PAD	15092
21	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15092/E-1.4
22	BOND WIRES	13110

OLIVENHAIN MUNICIPAL WATER DISTRICT

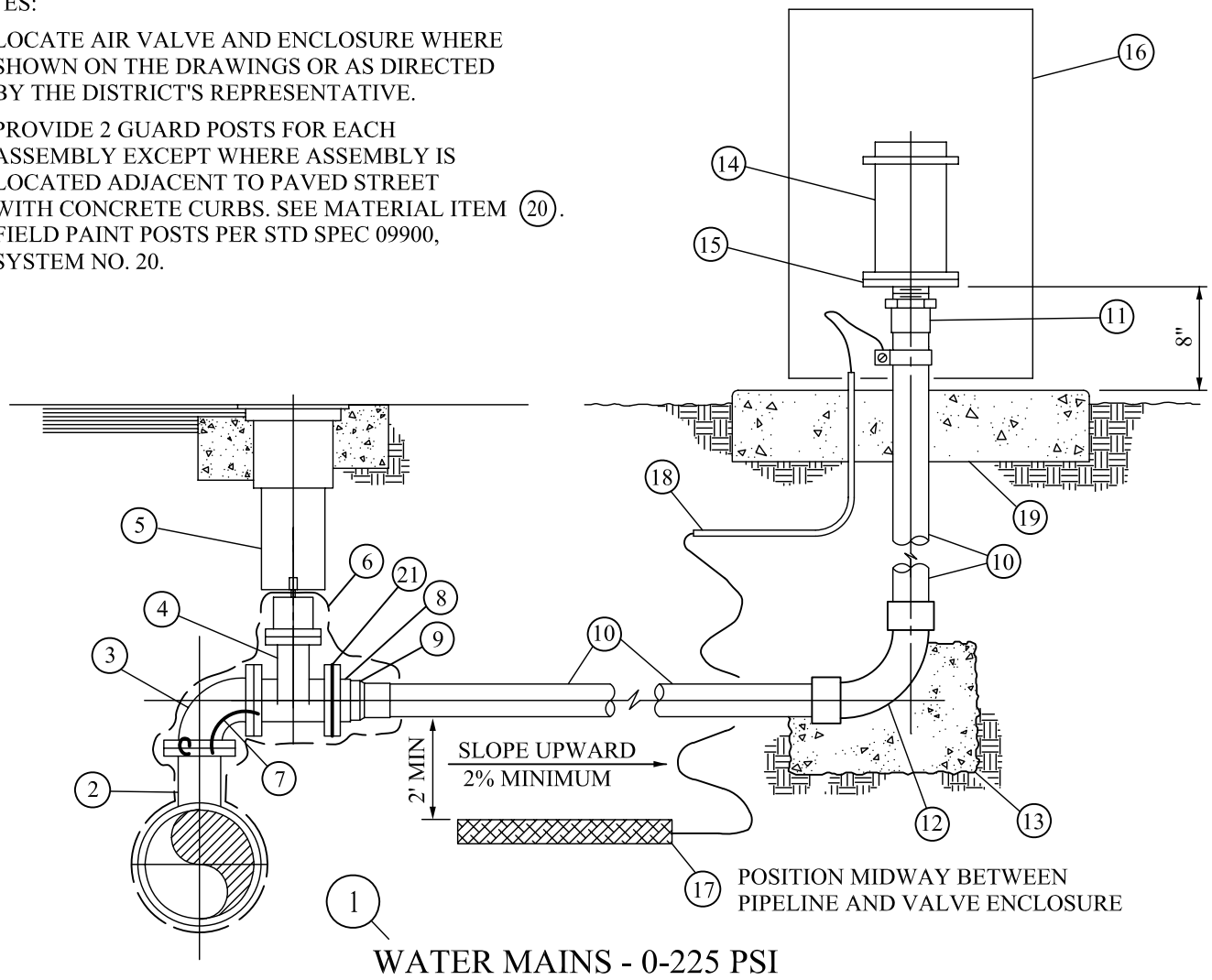
BOYLE
ENGINEERING
CORPORATION

3-INCH COMB AIR VALVE ASSEMBLY
WORKING PRESSURE 0-150 PSI

STD DWG NO.
A-3.5
JUNE 2008

NOTES:

1. LOCATE AIR VALVE AND ENCLOSURE WHERE SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONCRETE CURBS. SEE MATERIAL ITEM (20). FIELD PAINT POSTS PER STD SPEC 09900, SYSTEM NO. 20.



ITEM	DESCRIPTION	SPEC/DWG
1	3-INCH COMBINATION AIR VALVE ASSEMBLY	15092
2	6" CL 150 FLG OUTLET ON DUCTILE IRON OR STEEL PIPE	15240/15061
3	6" DUCTILE IRON 1/4 BEND WITH CL 150 FLANGES	15240
4	6" RESILIENT SEATED GATE VALVE WITH CL 125 FLANGES, 0-250 PSI	15101
5	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
6	POLYETHYLENE ENCASEMENT	09954
7	BOND WIRES	13110
8	6" CL 150 CAST BRZ COMPANION FLANGE WITH COPPER SOLDER JOINT, 0-225 PSI	15220
9	6" x 3" COPPER REDUCER, SLIP FTG x COPPER SOLDER JT, 0-300 PSI	15220
10	3" COPPER WATER TUBE, TYPE K, HARD	15220
11	3" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
12	3" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
13	CONCRETE ANCHOR BLOCK WITH 2 CUBIC FEET	02223
14	3" COMBINATION AIR RELEASE AND VACUUM VALVE WITH CL 250 FLANGE	15108
15	3" CL 300 CAST BRONZE FLANGE WITH FEMALE IPT, 0-300 PSI	15220
16	AIR VALVE ENCLOSURE FOR 3-INCH CAV ASSEMBLY	15092
17	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
18	1/2" SCHEDULE 40 PVC CONDUIT WITH SWEEP BEND	15092
19	30" SQUARE x 6" THICK CONCRETE PAD	15092
20	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15092/E-1.4
21	INSULATING FLANGE KIT	13110

OLIVENHAIN MUNICIPAL WATER DISTRICT

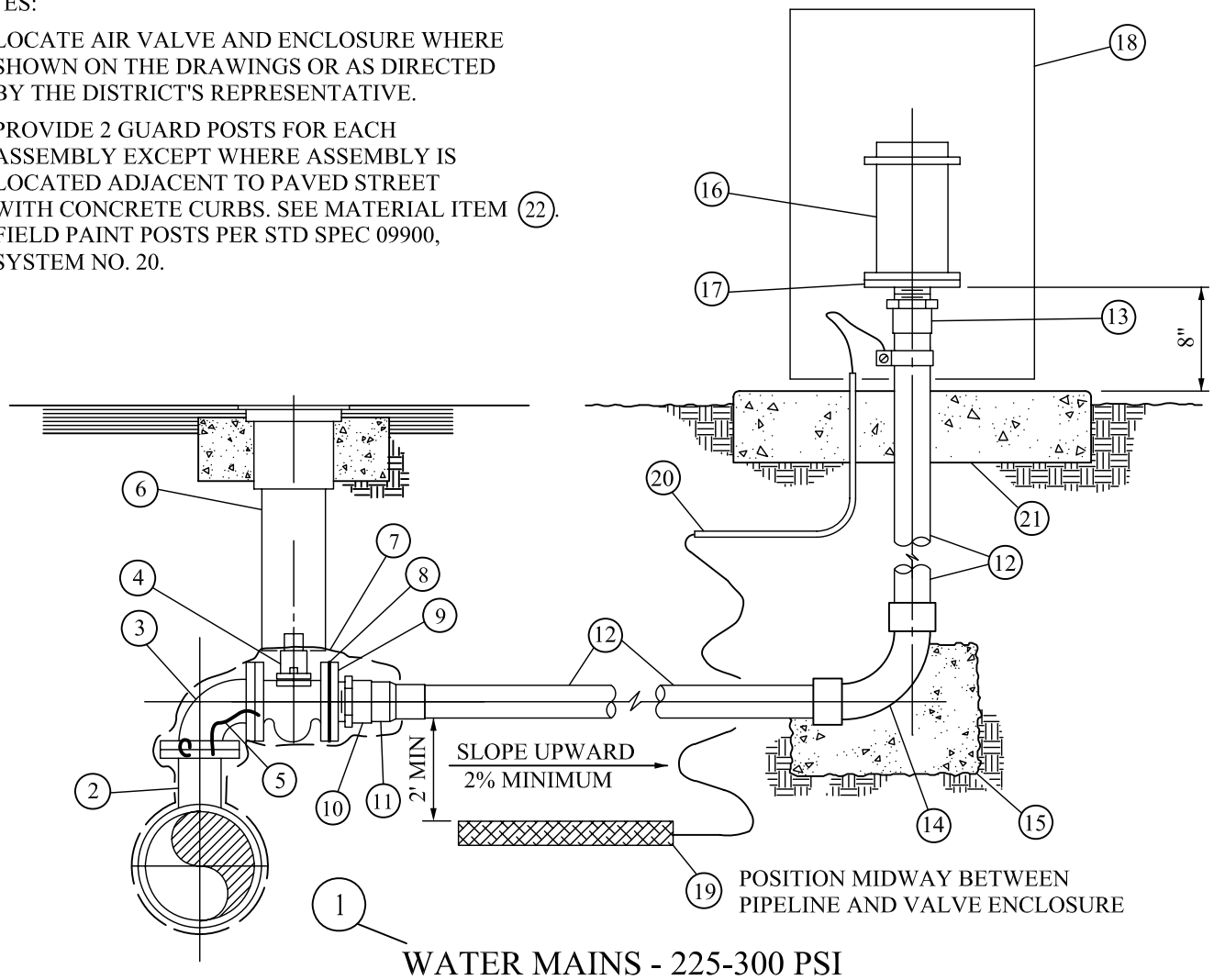
BOYLE
ENGINEERING
CORPORATION

3-INCH COMB AIR VALVE ASSEMBLY
WORKING PRESSURE 0-225 PSI

STD DWG NO.
A-3.6
JUNE 2008

NOTES:

1. LOCATE AIR VALVE AND ENCLOSURE WHERE SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONCRETE CURBS. SEE MATERIAL ITEM (22). FIELD PAINT POSTS PER STD SPEC 09900, SYSTEM NO. 20.



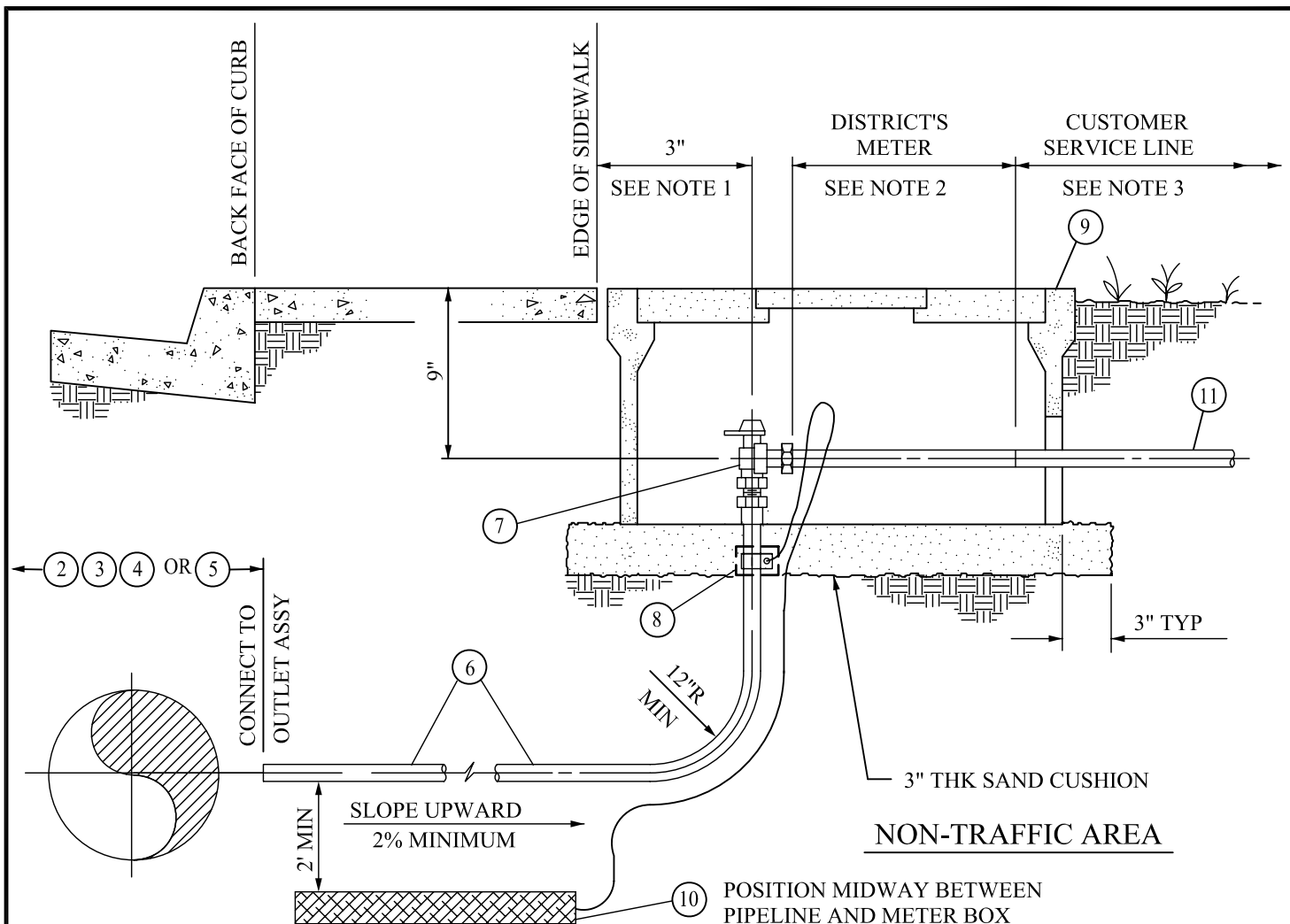
ITEM	DESCRIPTION	SPEC/DWG
1	3-INCH COMBINATION AIR VALVE ASSEMBLY	15092
2	6" CL 300 FLG OUTLET ON DUCTILE IRON OR STEEL PIPE	15240/15061
3	6" DUCTILE IRON 1/4 BEND WITH CL 300 FLANGES	15240
4	6" BALL VALVE WITH CL 250 OR 300 FLANGES	-
5	BOND WIRES	13110
6	VALVE BOX INSTALLATION FOR BURIED VALVES	15104/E-1.2/E-1.3
7	POLYETHYLENE ENCASEMENT	09954
8	INSULATING FLANGE KIT	13110
9	6" CL 300 CAST BRZ FLANGE WITH FEMALE IPT, 0-300 PSI	15220
10	6" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
11	6" x 3" COPPER REDUCER, SLIP FTG x COPPER SOLDER JT, 0-300 PSI	15220
12	3" COPPER WATER TUBE, TYPE K, HARD	15220
13	3" COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT, 0-300 PSI	15220
14	3" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
15	CONCRETE ANCHOR BLOCK WITH 2 CUBIC FEET	02223
16	3" COMBINATION AIR RELEASE AND VACUUM VALVE WITH CL 250 FLANGE	15108
17	3" CL 300 CAST BRONZE FLANGE WITH FEMALE IPT, 0-300 PSI	15220
18	AIR VALVE ENCLOSURE FOR 3-INCH CAV ASSEMBLY	15092
19	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
20	1/2" SCHEDULE 40 PVC CONDUIT WITH SWEEP BEND	15092
21	30" SQUARE x 6" THICK CONCRETE PAD	15092
22	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15092/E-1.4

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

3-INCH COMB AIR VALVE ASSEMBLY
WORKING PRESSURE 225-300 PSI

STD DWG NO.
A-3.7
JUNE 2008



NOTES:

1. WHERE SIDEWALKS ARE NOT PRESENT, LOCATE CENTER OF ANGLE BALL VALVE 3" FROM BACK FACE OF CURB.
2. AFTER THE SPECIFIED COMPONENTS HAVE BEEN INSTALLED BY OTHERS, THE DISTRICT WILL FURNISH AND INSTALL A METER AND BALL VALVE IN THE INDICATED SPACE.
3. AFTER DISTRICT'S METER INSTALLATION, CONNECT CUSTOMER SERVICE LINE TO INSTALLED BALL VALVE. USE A NON-METALLIC PIPE NIPPLE AT THE VALVE.

WATER MAINS - 0-200 PSI

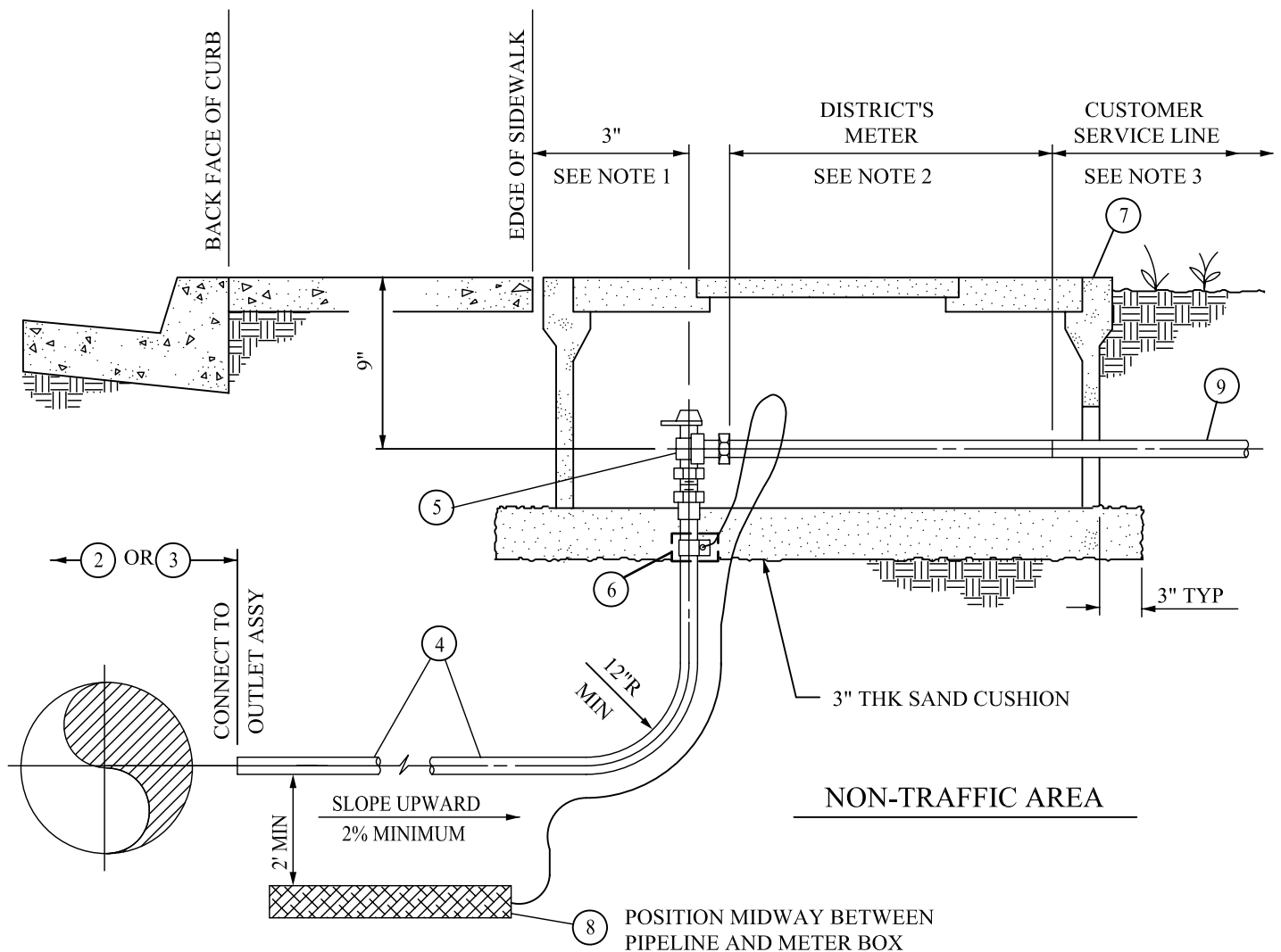
ITEM	DESCRIPTION	SPEC/DWG
1	1-INCH WATER SERVICE ASSY FOR 5/8", 3/4" OR 1" WATER METER	15081
2	OUTLET ON DUCTILE IRON PIPE, 0-200 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 0-200 PSI	15061/D-1.2
4	OUTLET ON PVC PRESSURE PIPE, 0-200 PSI	15292/D-1.3
5	OUTLET ON PVC DISTRIBUTION PIPE, 0-150 PSI	15293/D-1.4
6	1" COPPER WATER TUBE, TYPE K, SOFT	15220
7	1" BRZ ANGLE BALL VALVE W/INLET QUICK JOINT x METER CPLG NUT	15081
8	WAX TAPE COATING SYSTEM	09952
9	METER BOX AND TWO PIECE POLYMER COVER	15081
10	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW VALVE	13110
11	CUSTOMER SERVICE LINE	—

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

WTR SERVICE ASSY FOR 3/4" OR
1" METER-WKG PRESS 0-200 PSI

STD DWG NO.
B-1.1
JUNE 2008



NOTES:

1. WHERE SIDEWALKS ARE NOT PRESENT, LOCATE CENTER OF ANGLE BALL VALVE 3" FROM BACK FACE OF CURB.
2. AFTER THE SPECIFIED COMPONENTS HAVE BEEN INSTALLED BY OTHERS, THE DISTRICT WILL FURNISH AND INSTALL A HIGH PRESSURE METER AND BALL VALVE IN THE INDICATED SPACE.
3. AFTER DISTRICT'S METER INSTALLATION, CONNECT CUSTOMER SERVICE LINE TO INSTALLED BALL VALVE. USE A NON-METALLIC PIPE NIPPLE AT THE VALVE.

WATER MAINS - 201-300 PSI

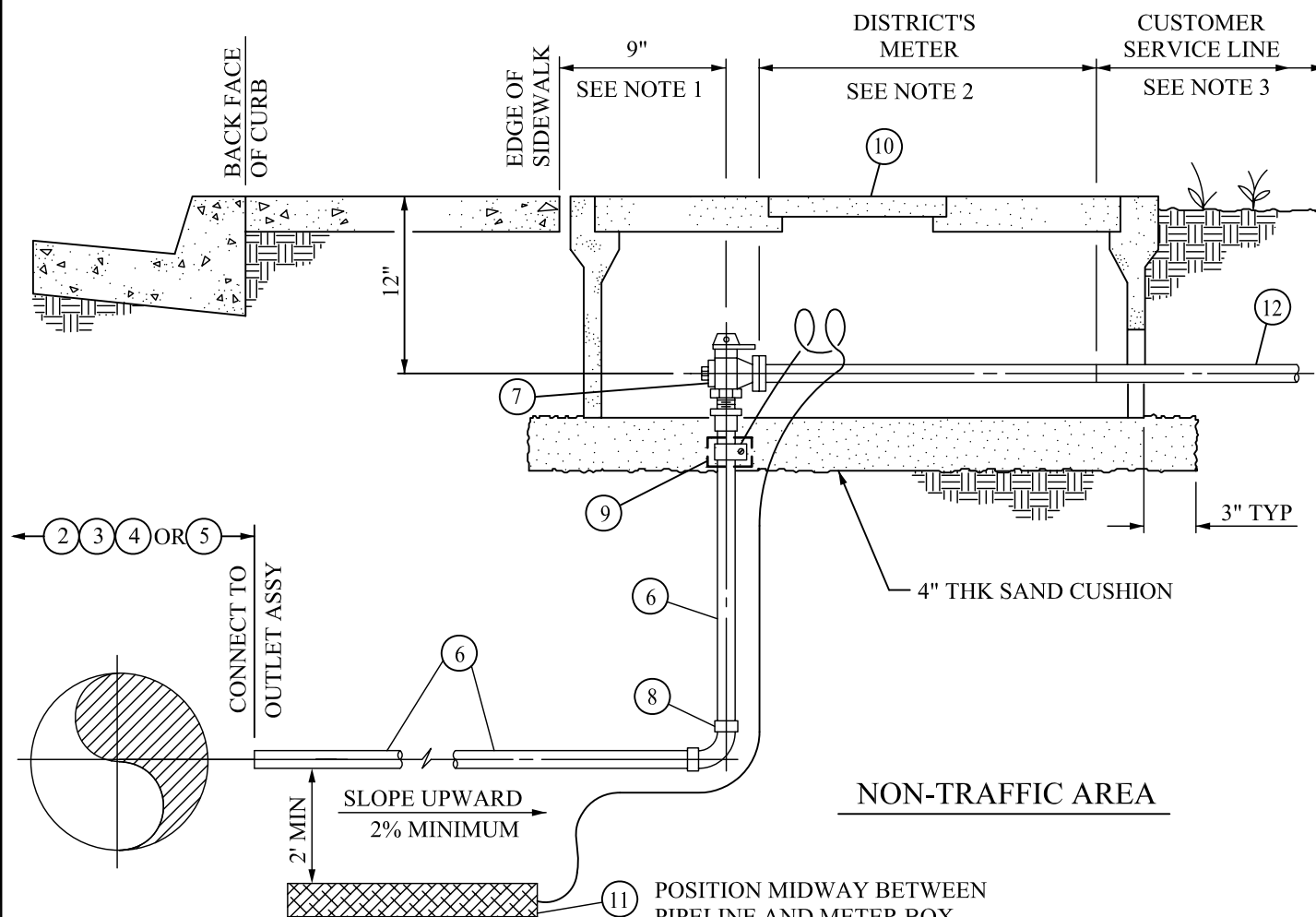
ITEM	DESCRIPTION	SPEC/DWG
1	1-INCH WATER SERVICE ASSY FOR 5/8", 3/4" OR 1" WATER METER	15081
2	OUTLET ON DUCTILE IRON PIPE, 201-300 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 201-300 PSI	15061/D-1.2
4	1" COPPER WATER TUBE, TYPE K, SOFT	15220
5	1" BRZ ANGLE BALL VALVE W/INLET QUICK JOINT x METER CPLG NUT	15081
6	WAX TAPE COATING SYSTEM	09952
7	METER BOX AND TWO PIECE POLYMER COVER	15081
8	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW VALVE	13110
9	CUSTOMER SERVICE LINE	—

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

WTR SERVICE ASSY FOR 3/4" OR
1" METER-WKG PRESS 201-300 PSI

STD DWG NO.
B-1.2
JUNE 2008



NOTES:

1. WHERE SIDEWALKS ARE NOT PRESENT, LOCATE CENTER OF ANGLE BALL VALVE 9" FROM BACK FACE OF CURB.
2. AFTER THE SPECIFIED COMPONENTS HAVE BEEN INSTALLED BY OTHERS, THE DISTRICT WILL FURNISH AND INSTALL A METER AND BALL VALVE IN THE INDICATED SPACE
3. AFTER DISTRICT'S METER INSTALLATION, CONNECT CUSTOMER SERVICE LINE TO INSTALLED BALL VALVE. USE A NON-METALLIC PIPE NIPPLE AT THE VALVE.

WATER MAINS - 0-200 PSI

1

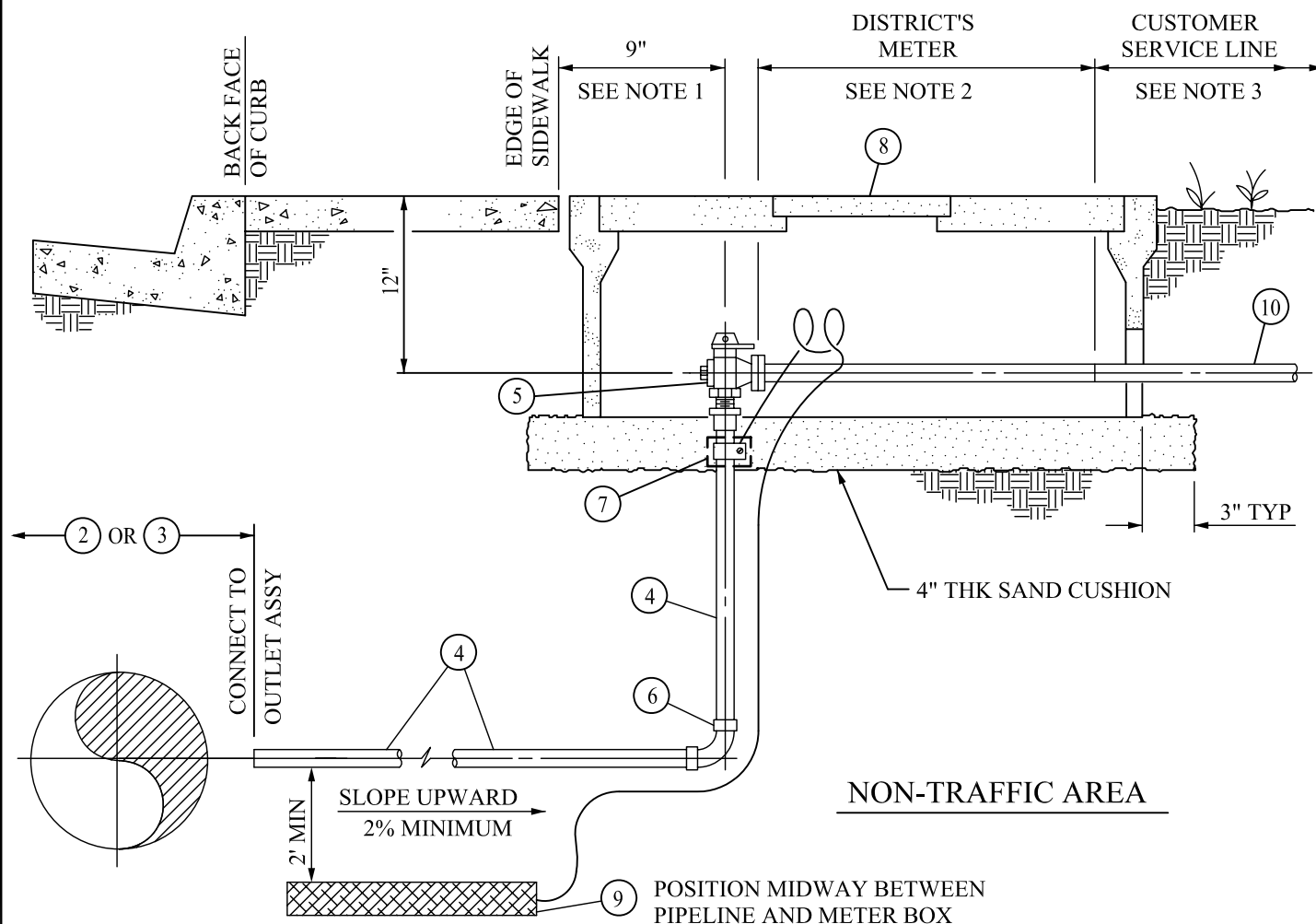
ITEM	DESCRIPTION	SPEC/DWG
1	1-1/2" WATER SERVICE ASSY FOR 1-1/2" WATER METER	15081
2	OUTLET ON DUCTILE IRON PIPE, 0-200 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 0-200 PSI	15061/D-1.2
4	OUTLET ON PVC PRESSURE PIPE, 0-200 PSI	15292/D-1.3
5	OUTLET ON PVC DISTRIBUTION PIPE, 0-150 PSI	15293/D-1.4
6	1-1/2" COPPER WATER TUBE, TYPE K, SOFT	15220
7	1-1/2" BRZ ANGLE BALL VALVE W/INLET QUICK JOINT x METER FLG	15081
8	1-1/2" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
9	WAX TAPE COATING SYSTEM	09952
10	METER BOX AND TWO PIECE POLYMER COVER	15081
11	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW VALVE	13110
12	CUSTOMER SERVICE LINE	—

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

WATER SERVICE ASSY FOR 1-1/2"
METER - WORKING PRESS 0-200 PSI

STD DWG NO.
B-1.3
JUNE 2008



NOTES:

1. WHERE SIDEWALKS ARE NOT PRESENT, LOCATE CENTER OF ANGLE BALL VALVE 9" FROM BACK FACE OF CURB.
2. AFTER THE SPECIFIED COMPONENTS HAVE BEEN INSTALLED BY OTHERS, THE DISTRICT WILL FURNISH AND INSTALL A HIGH PRESSURE METER AND BALL VALVE IN THE INDICATED SPACE.
3. AFTER DISTRICT'S METER INSTALLATION, CONNECT CUSTOMER SERVICE LINE TO INSTALLED BALL VALVE. USE A NON-METALLIC PIPE NIPPLE AT THE VALVE.

WATER MAINS - 201-300 PSI

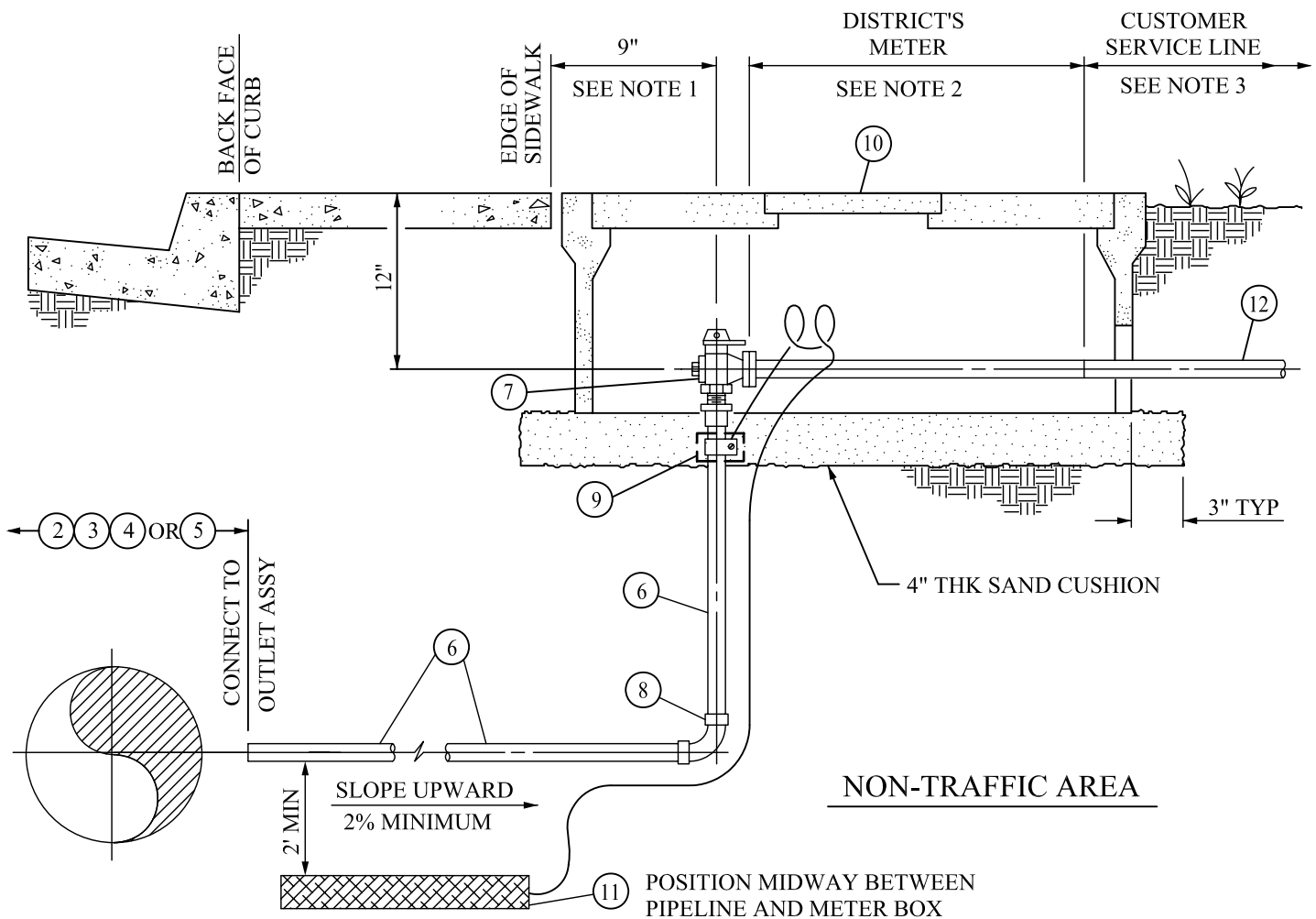
ITEM	DESCRIPTION	SPEC/DWG
1	1-1/2" WATER SERVICE ASSY FOR 1-1/2" WATER METER	15081
2	OUTLET ON DUCTILE IRON PIPE, 201-300 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 201-300 PSI	15061/D-1.2
4	1-1/2" COPPER WATER TUBE, TYPE K, SOFT	15220
5	1-1/2" BRZ ANGLE BALL VALVE W/INLET QUICK JOINT x METER FLG	15081
6	1-1/2" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
7	WAX TAPE COATING SYSTEM	09952
8	METER BOX AND TWO PIECE POLYMER COVER	15081
9	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW VALVE	13110
10	CUSTOMER SERVICE LINE	—

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

WATER SERVICE ASSY FOR 1-1/2"
METER - WORKING PRESS 201-300 PSI

STD DWG NO.
B-1.4
JUNE 2008



NOTES:

- WHERE SIDEWALKS ARE NOT PRESENT, LOCATE CENTER OF ANGLE BALL VALVE 9" FROM BACK FACE OF CURB.
- AFTER THE SPECIFIED COMPONENTS HAVE BEEN INSTALLED BY OTHERS, THE DISTRICT WILL FURNISH AND INSTALL A METER AND BALL VALVE IN THE INDICATED SPACE.
- AFTER DISTRICT'S METER INSTALLATION, CONNECT CUSTOMER SERVICE LINE TO INSTALLED BALL VALVE. USE A NON-METALLIC PIPE NIPPLE AT THE VALVE.

WATER MAINS - 0-200 PSI

1

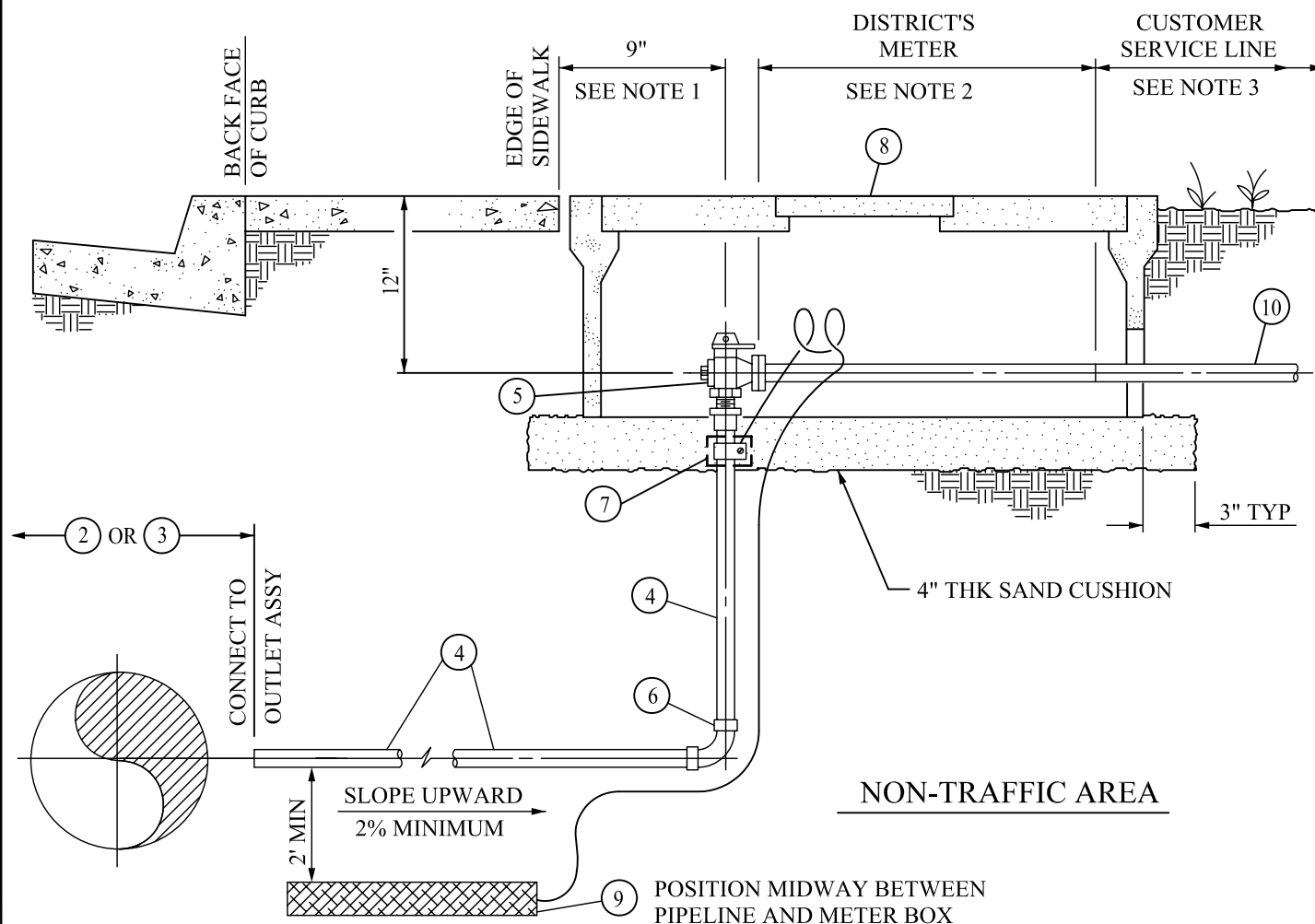
ITEM	DESCRIPTION	SPEC/DWG
1	2" WATER SERVICE ASSY FOR 2" WATER METER	15081
2	OUTLET ON DUCTILE IRON PIPE, 0-200 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 0-200 PSI	15061/D-1.2
4	OUTLET ON PVC PRESSURE PIPE, 0-200 PSI	15292/D-1.3
5	OUTLET ON PVC DISTRIBUTION PIPE, 0-150 PSI	15293/D-1.4
6	2" COPPER WATER TUBE, TYPE K, SOFT	15220
7	2" BRZ ANGLE BALL VALVE W/INLET QUICK JOINT x METER FLG	15081
8	2" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
9	WAX TAPE COATING SYSTEM	09952
10	METER BOX AND TWO PIECE POLYMER COVER	15081
11	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW VALVE	13110
12	CUSTOMER SERVICE LINE	—

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

WATER SERVICE ASSY FOR 2" METER
WORKING PRESSURE 0-200 PSI

STD DWG NO.
B-1.5
JUNE 2008



NOTES:

1. WHERE SIDEWALKS ARE NOT PRESENT, LOCATE CENTER OF ANGLE BALL VALVE 9" FROM BACK FACE OF CURB.
2. AFTER THE SPECIFIED COMPONENTS HAVE BEEN INSTALLED BY OTHERS, THE DISTRICT WILL FURNISH AND INSTALL A HIGH PRESSURE METER AND BALL VALVE IN THE INDICATED SPACE.
3. AFTER DISTRICT'S METER INSTALLATION, CONNECT CUSTOMER SERVICE LINE TO INSTALLED BALL VALVE. USE A NON-METALLIC PIPE NIPPLE AT THE VALVE.

ITEM	DESCRIPTION	SPEC/DWG
1	2" WATER SERVICE ASSY FOR 2" WATER METER	15081
2	OUTLET ON DUCTILE IRON PIPE, 201-300 PSI	15240/D-1.1
3	OUTLET ON CML&C STEEL PIPE, 201-300 PSI	15061/D-1.2
4	2" COPPER WATER TUBE, TYPE K, SOFT	15220
5	2" BRZ ANGLE BALL VALVE W/INLET QUICK JOINT x METER FLG	15081
6	2" COPPER 90° ELBOW, LONG RADIUS, COPPER SOLDER JOINTS, 0-300 PSI	15220
7	WAX TAPE COATING SYSTEM	09952
8	METER BOX AND TWO PIECE POLYMER COVER	15081
9	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW VALVE	13110
10	CUSTOMER SERVICE LINE	—

OLIVENHAIN MUNICIPAL WATER DISTRICT

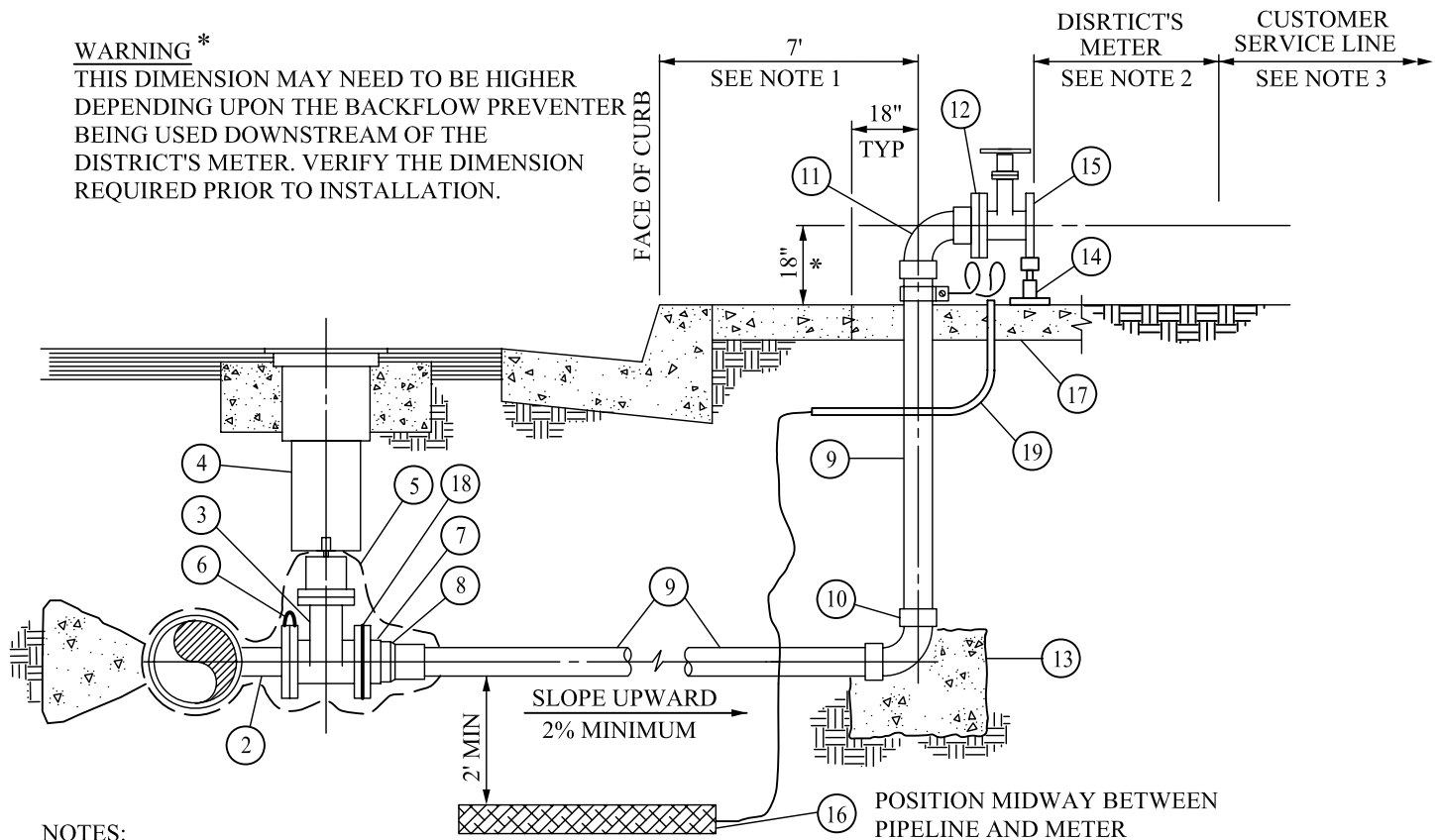
BOYLE
ENGINEERING
CORPORATION

WATER SERVICE ASSY FOR 2" METER
WORKING PRESSURE 201-300 PSI

STD DWG NO.
B-1.6
JUNE 2008

WARNING *

THIS DIMENSION MAY NEED TO BE HIGHER DEPENDING UPON THE BACKFLOW PREVENTER BEING USED DOWNSTREAM OF THE DISTRICT'S METER. VERIFY THE DIMENSION REQUIRED PRIOR TO INSTALLATION.

**NOTES:**

1. WHEN SIDEWALK ADJACENT TO CURB EXCEED 5' IN WIDTH, LOCATE ASSEMBLY AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE. ASSEMBLY MAY BE INSTALLED PERPENDICULAR TO FACE OF CURB AS SHOWN OR ROTATED 90° TO BE PARALLEL TO FACE OF CURB.
2. AFTER THE SPECIFIED COMPONENTS HAVE BEEN INSTALLED BY OTHERS, THE DISTRICT WILL FURNISH AND INSTALL A METER, GATE VALVE, AND PIPE SUPPORT IN THE INDICATED SPACE.
3. AFTER DISTRICT'S METER INSTALLATION, CONNECT CUSTOMER SERVICE LINE TO INSTALLED GATE VALVE. POUR A CONCRETE PAD ON GRADE FOR THE COMPLETED ASSEMBLY.
4. PROVIDE GUARD POSTS WHEN DIRECTED BY THE DISTRICT'S REPRESENTATIVE.

WATER MAINS - 0-200 PSI

1

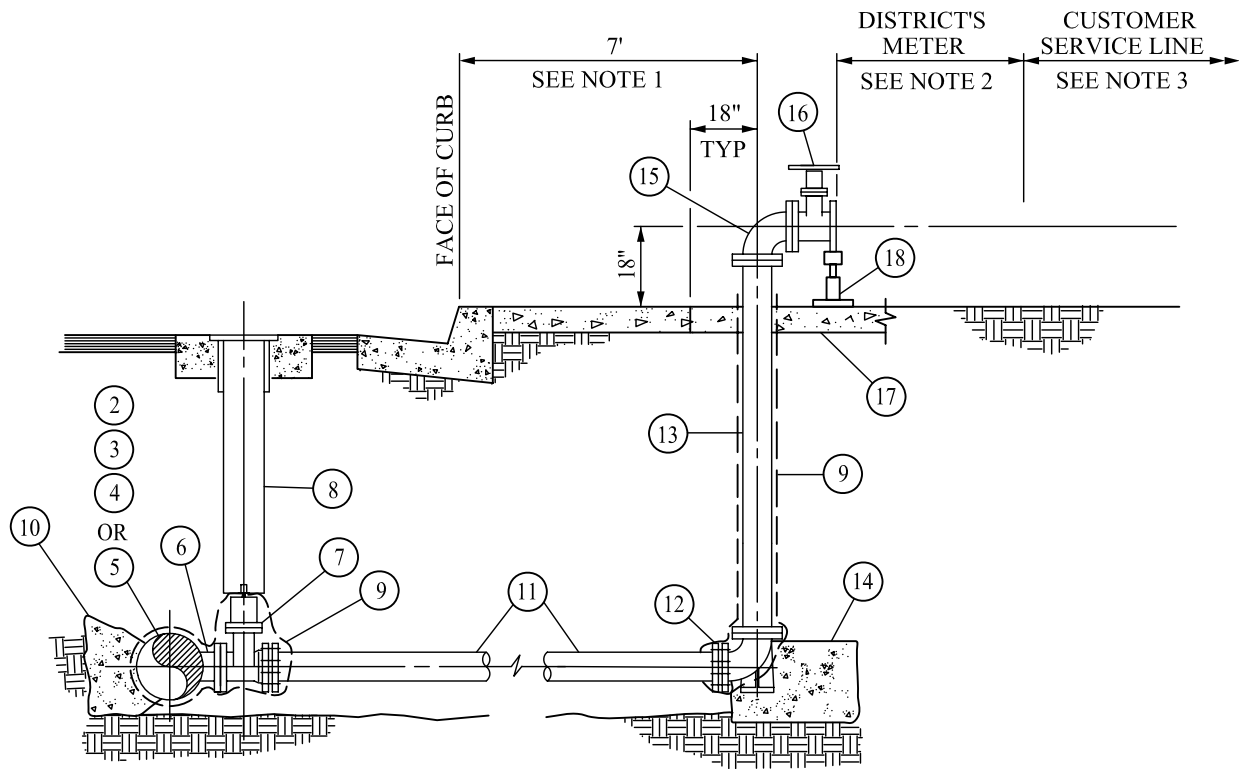
ITEM	DESCRIPTION	SPEC/DWG
1	3-INCH WATER SERVICE ASSY FOR 3" WATER METER	15081
2	6" CL 150 FLG OUTLET ON DUCTILE IRON, STEEL OR PVC PRESSURE PIPE	15240/15061/15292
3	6" RESILIENT SEATED GATE VALVE WITH CL 125 FLANGES, 0-250 PSI	15101
4	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
5	POLYETHYLENE ENCASEMENT	09954
6	BOND WIRES	13110
7	6" CL 150 CAST BRZ COMPANION FLANGE WITH COPPER SOLDER JOINT, 0-225 PSI	15220
8	6" x 3" COPPER REDUCER, SLIP FTG x COPPER SOLDER JT, 0-300 PSI	15220
9	3" COPPER WATER TUBE, TYPE K, HARD	15220
10	3" COPPER 90° ELBOW, CLOSE ROUGH, COPPER SOLDER JOINTS, 0-300 PSI	15220
11	3" COPPER 90° ELBOW, CLOSE ROUGH, SLIP JT x COPPER SOLDER JT, 0-300 PSI	15220
12	3" CL 150 CAST BRZ COMPANION FLANGE WITH COPPER SOLDER JOINT, 0-225 PSI	15220
13	CONCRETE ANCHOR BLOCK WITH 2 CUBIC FEET	02223
14	ADJUSTABLE PIPE SUPPORT	15081
15	3" RESILIENT SEATED GATE VALVE WITH CL 125 FLANGES, 0-250 PSI	15101
16	30 LB ZINC ANODE WITH ANODE LEAD WIRE AND PIPE CLAMP 1" BELOW FITTING	13110
17	36" WIDE x 4" THICK CONCRETE PAD, LENGTH VARIES	15081
18	INSULATING FLANGE KIT	13110
19	1/2" SCHEDULE 40 PVC CONDUIT WITH SWEEP BEND	15092

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

WATER SERVICE ASSY FOR 3" METER
WORKING PRESSURE 0-200 PSI

STD DWG NO.
B-1.7
JUNE 2008



NOTES:

1. WHEN SIDEWALK ADJACENT TO CURB EXCEED 5' IN WIDTH, LOCATE ASSEMBLY AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE. ASSEMBLY MAY BE INSTALLED PERPENDICULAR TO FACE OF CURB AS SHOWN OR ROTATED 90° TO BE PARALLEL TO FACE OF CURB.
2. AFTER THE SPECIFIED COMPONENTS HAVE BEEN INSTALLED BY OTHERS, THE DISTRICT WILL FURNISH AND INSTALL A PRESSURE REDUCING VALVE (IF NECESSARY), METER, GATE VALVE, AND PIPE SUPPORT IN THE INDICATED SPACE.
3. AFTER DISTRICT'S METER INSTALLATION, CONNECT CUSTOMER SERVICE LINE TO INSTALLED GATE VALVE. POUR A CONCRETE PAD ON GRADE FOR THE COMPLETED ASSEMBLY.
4. PROVIDE GUARD POSTS WHEN DIRECTED BY THE DISTRICT'S REPRESENTATIVE.

WATER MAINS - 0-200 PSI

1

ITEM	DESCRIPTION	SPEC/DWG
1	4" THRU 10" WATER SERVICE ASSY FOR 4" THRU 10" WATER METER	15081
2	DUCTILE IRON PIPE AND DI TEE WITH CL 150 FLANGED OUTLET, 0-200 PSI	15240
3	STEEL PIPE, CML&C AND STEEL OUTLET WITH CL 150 FLANGE, 0-200 PSI	15061
4	CL 150 OR 200 PVC PRESSURE PIPE 12 INCHES AND SMALLER, 0-200 PSI	15292
5	DR 18 PVC DISTRIBUTION PIPE 14 INCHES AND LARGER, 0-150 PSI	15293
6	DI TEE WITH CL 150 FLANGED OUTLET FOR PVC PIPE INSTALLATION	15292/15293
7	RESILIENT SEATED GATE VALVE WITH CL 125 FLANGE x MECH JT, 0-250 PSI, 6" MIN SIZE	15101
8	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
9	POLYETHYLENE ENCASEMENT	09954
10	CONCRETE THRUST BLOCK	D-3.3/D-3.4
11	CL 150 OR 200 PVC PRESSURE PIPE PER WORKING PRESSURE	15292
12	DI BASE BEND WITH CL 150 FLANGE x MECHANICAL JOINT	15240
13	CLASS 53 DUCTILE IRON PIPE WITH CL 150 FLANGES	15240
14	CONCRETE THRUST BLOCK	D-3.5/D-3.6
15	DUCTILE IRON 1/4 BEND WITH CL 150 FLANGES	15240
16	RESILIENT SEATED GATE VALVE WITH CL 125 FLANGES, 0-250 PSI	15101
17	36" WIDE x 4" THICK CONCRETE PAD, LENGTH VARIES PER SIZE	15081
18	ADJUSTABLE PIPE SUPPORT	15081

OLIVENHAIN MUNICIPAL WATER DISTRICT

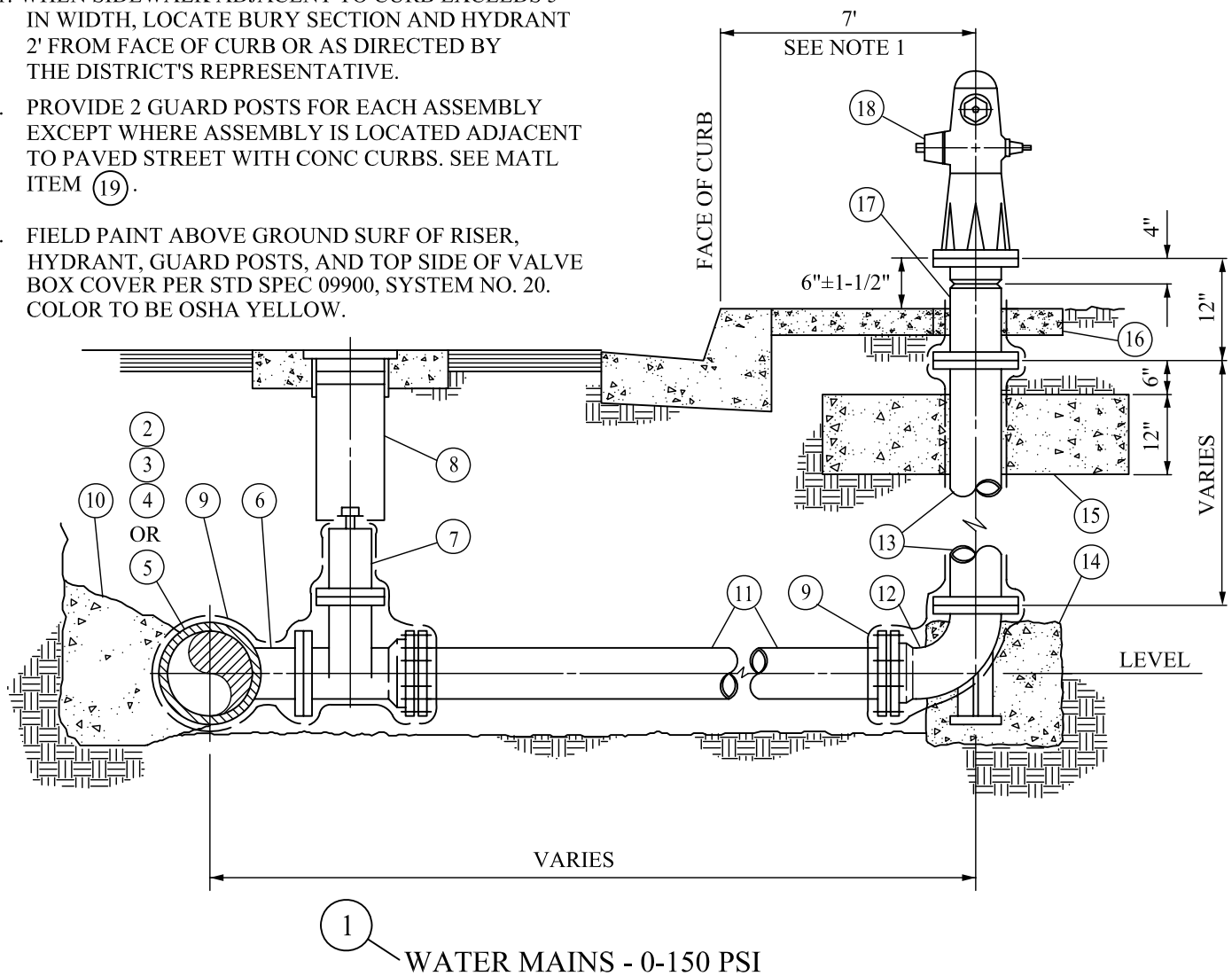
BOYLE
ENGINEERING
CORPORATION

**WATER SERVICE ASSY FOR 4" THRU 10"
METER - WORKING PRESSURE 0-200 PSI**

STD DWG NO.
B-1.8
JUNE 2008

NOTES:

1. WHEN SIDEWALK ADJACENT TO CURB EXCEEDS 5' IN WIDTH, LOCATE BURY SECTION AND HYDRANT 2' FROM FACE OF CURB OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONC CURBS. SEE MATL ITEM (19).
3. FIELD PAINT ABOVE GROUND SURF OF RISER, HYDRANT, GUARD POSTS, AND TOP SIDE OF VALVE BOX COVER PER STD SPEC 09900, SYSTEM NO. 20. COLOR TO BE OSHA YELLOW.



ITEM	DESCRIPTION	SPEC/DWG
1	6-INCH FIRE HYDRANT ASSEMBLY	15109
2	DUCTILE IRON PIPE AND DI TEE WITH 6" CL 150 FLANGED OUTLET	15240
3	STEEL PIPE, CML&C AND 6" STEEL OUTLET WITH CL 150 FLANGE	15061
4	CL 150 PVC PRESSURE PIPE 12 INCHES AND SMALLER	15292
5	DR 18 PVC DISTRIBUTION PIPE 14 INCHES AND LARGER	15293
6	DI TEE WITH 6" CL 150 FLANGED OUTLET FOR PVC PIPE INSTALLATION	15292/15293
7	6" RESILIENT SEATED GATE VALVE WITH CL 125 FLG x MECH JT, 0-250 PSI	15101
8	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
9	POLYETHYLENE ENCASEMENT	09954
10	CONCRETE THRUST BLOCK WITH 8 SQUARE FEET OF BEARING AREA	02223/D-3.3
11	6" CL 150 PVC PRESSURE PIPE	15292
12	6" BURY ELBOW SECTION WITH BASE AND MECHANICAL JT x FLANGED END	15109
13	6" BURY EXTENSION SECTION WITH FLANGED ENDS	15109
14	CONCRETE THRUST BLOCK WITH 11 SQUARE FEET OF BEARING AREA	02223/D-3.5
15	42" SQUARE x 12" THICK CONCRETE ANCHOR BLOCK	15109
16	36" SQUARE x 4" THICK CONCRETE PAD	15109
17	6" BREAK-OFF RISER WITH FLANGED ENDS AND CUT GROOVE	15109
18	BRONZE FIRE HYDRANT, FOR 150 PSI MAXIMUM WORKING PRESSURE	15109
19	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15109/E-1.4

OLIVENHAIN MUNICIPAL WATER DISTRICT

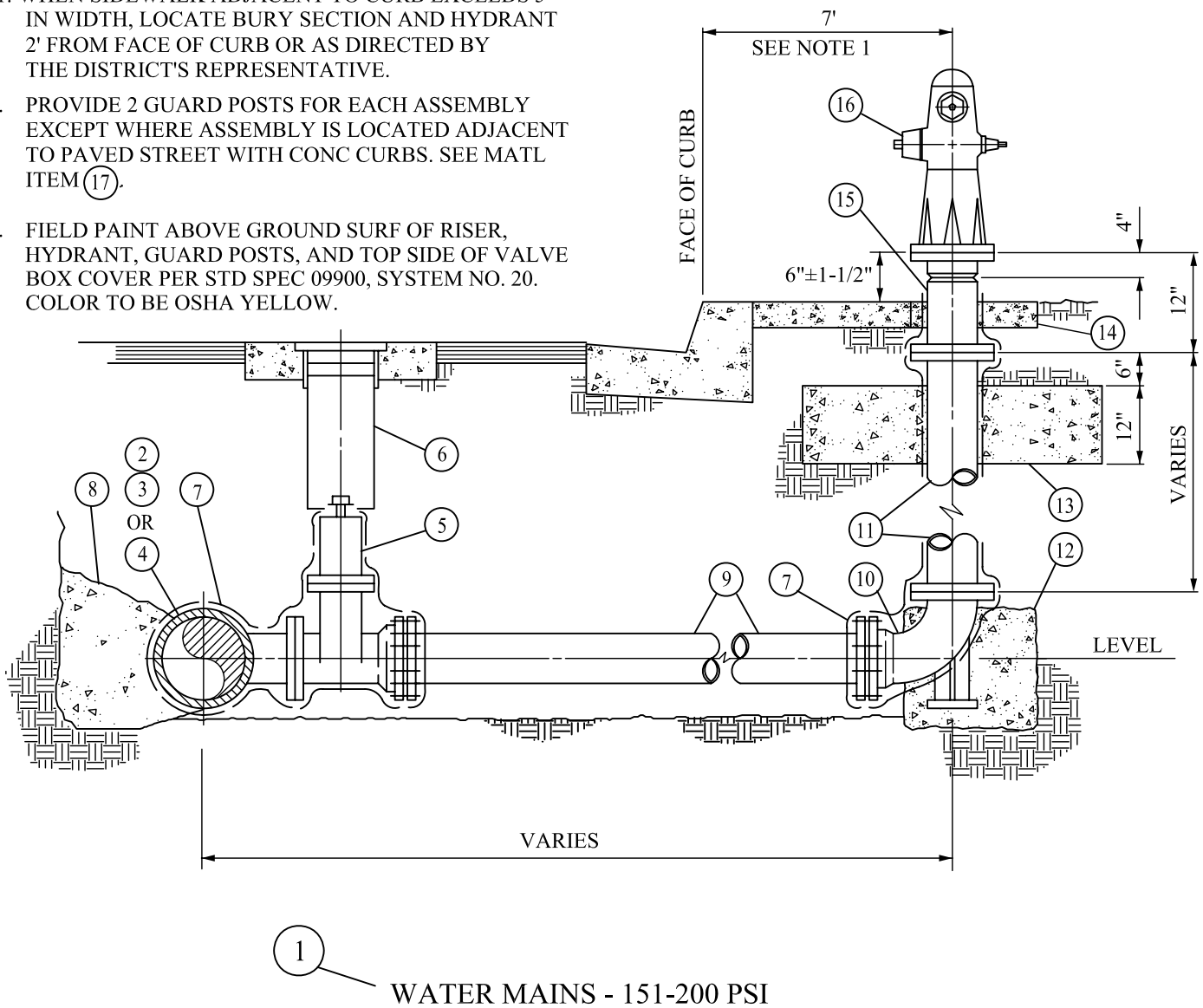
BOYLE
ENGINEERING
CORPORATION

**FIRE HYDRANT ASSEMBLY
WORKING PRESSURE 0-150 PSI**

STD DWG NO.
C-1.1
JUNE 2008

NOTES:

1. WHEN SIDEWALK ADJACENT TO CURB EXCEEDS 5' IN WIDTH, LOCATE BURY SECTION AND HYDRANT 2' FROM FACE OF CURB OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONC CURBS. SEE MATL ITEM (17).
3. FIELD PAINT ABOVE GROUND SURF OF RISER, HYDRANT, GUARD POSTS, AND TOP SIDE OF VALVE BOX COVER PER STD SPEC 09900, SYSTEM NO. 20. COLOR TO BE OSHA YELLOW.



ITEM	DESCRIPTION	SPEC/DWG
1	6-INCH FIRE HYDRANT ASSEMBLY	15109
2	DUCTILE IRON PIPE AND DI TEE WITH 6" CL 150 FLANGED OUTLET	15240
3	STEEL PIPE, CML&C AND 6" STEEL OUTLET WITH CL 150 FLANGE	15061
4	CL 200 PVC PRESSURE PIPE, 12" AND SMALLER & DI TEE W/6" CL 150 FLG	15292
5	6" RESILIENT SEATED GATE VALVE WITH CL 125 FLG x MECH JT, 0-250 PSI	15101
6	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
7	POLYETHYLENE ENCASEMENT	09954
8	CONCRETE THRUST BLOCK WITH 10 SQUARE FEET OF BEARING AREA	02223/D-3.4
9	6" CL 200 PVC PRESSURE PIPE	15292
10	6" BURY ELBOW SECTION WITH BASE AND MECHANICAL JT x FLANGED END	15109
11	6" BURY EXTENSION SECTION WITH FLANGED ENDS	15109
12	CONCRETE THRUST BLOCK WITH 14 SQUARE FEET OF BEARING AREA	02223/D-3.6
13	42" SQUARE x 12" THICK CONCRETE ANCHOR BLOCK	15109
14	36" SQUARE x 4" THICK CONCRETE PAD	15109
15	6" BREAK-OFF RISER WITH FLANGED ENDS AND CUT GROOVE	15109
16	BRONZE FIRE HYDRANT, FOR 200 PSI MAXIMUM WORKING PRESSURE	15109
17	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15109/E-1.4

OLIVENHAIN MUNICIPAL WATER DISTRICT

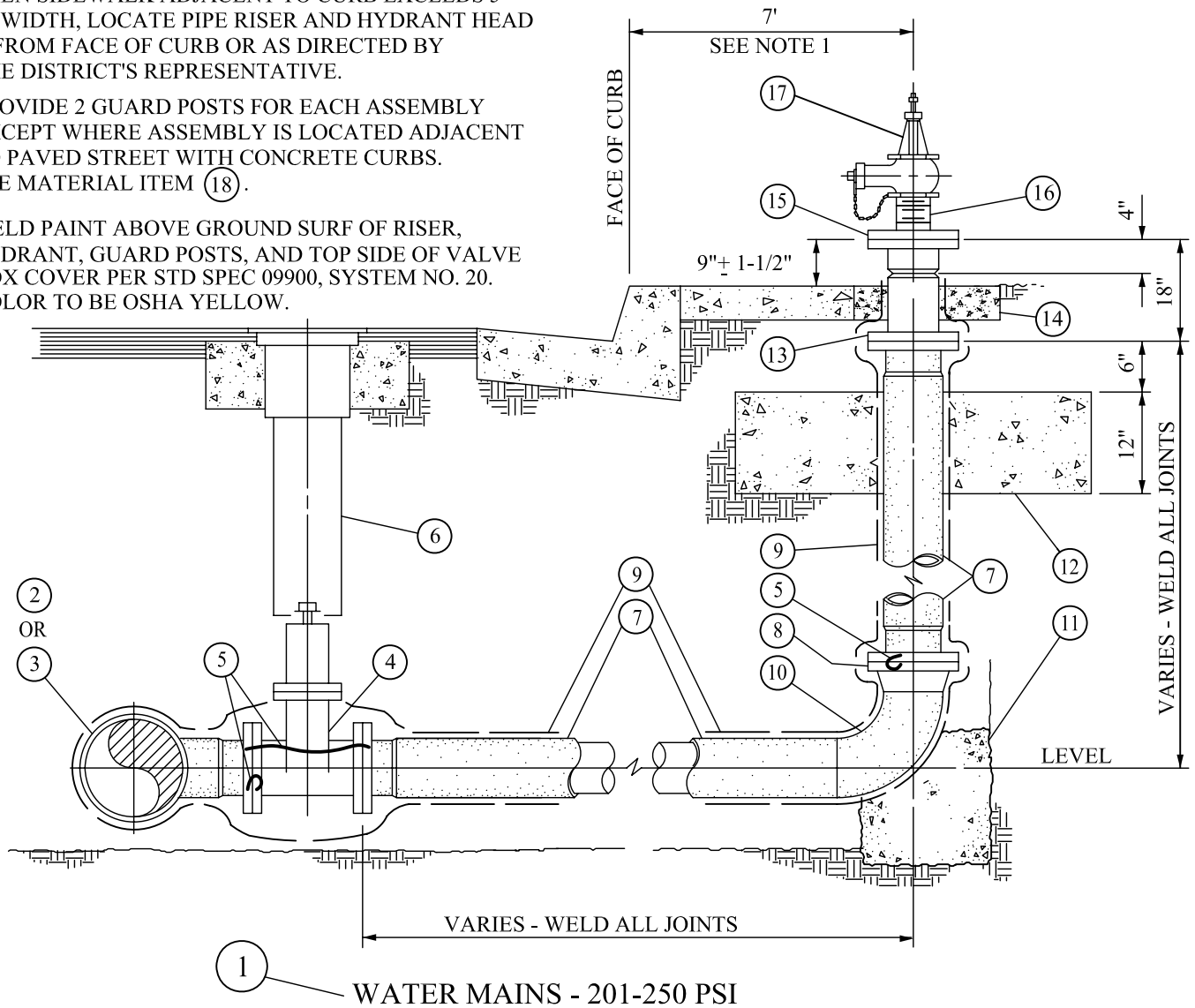
BOYLE
ENGINEERING
CORPORATION

FIRE HYDRANT ASSEMBLY
WORKING PRESSURE 151-200 PSI

STD DWG NO.
C-1.2
JUNE 2008

NOTES:

1. WHEN SIDEWALK ADJACENT TO CURB EXCEEDS 5' IN WIDTH, LOCATE PIPE RISER AND HYDRANT HEAD 2' FROM FACE OF CURB OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONCRETE CURBS. SEE MATERIAL ITEM (18).
3. FIELD PAINT ABOVE GROUND SURF OF RISER, HYDRANT, GUARD POSTS, AND TOP SIDE OF VALVE BOX COVER PER STD SPEC 09900, SYSTEM NO. 20. COLOR TO BE OSHA YELLOW.



ITEM	DESCRIPTION	SPEC/DWG
1	6-INCH FIRE HYDRANT ASSEMBLY	15109
2	DUCTILE IRON PIPE AND DI TEE WITH 6" CL 150 FLANGED OUTLET	15240
3	STEEL PIPE, CML&C AND 6" STEEL OUTLET WITH CL 150 FLANGE	15061
4	6" RESILIENT SEATED GATE VALVE WITH CL 125 FLANGES, 0-250 PSI	15101
5	BOND WIRES	13110
6	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
7	6" STD WT STEEL PIPE WITH CL 150 FLANGES, CML&C	15253
8	6" CL 150 WELDING NECK FLANGE, CML&C	15253
9	POLYETHYLENE ENCASEMENT	09954
10	6" STD WT STEEL 90° ELBOW, LONG RADIUS WITH CML&C	15253
11	CONCRETE ANCHOR BLOCK WITH 6 CUBIC FEET	15109
12	42" SQUARE x 12" THICK CONCRETE ANCHOR BLOCK	15109
13	6" BREAK-OFF RISER WITH CL 150 FLANGES AND CUT GROOVE	15109
14	36" SQUARE x 4" THICK CONCRETE PAD	15109
15	4" FEMALE IPT x 11" OD DUCTILE IRON CL 150 REDUCING FLANGE	15109
16	4" BRASS NIPPLE, REGULAR WALL, IPT, 5" LONG	15220
17	4" FEMALE IPT x 2-1/2" MALE NH BRONZE HYDRANT HEAD ANGLE VALVE	15109
18	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15092/E-1.4

OLIVENHAIN MUNICIPAL WATER DISTRICT

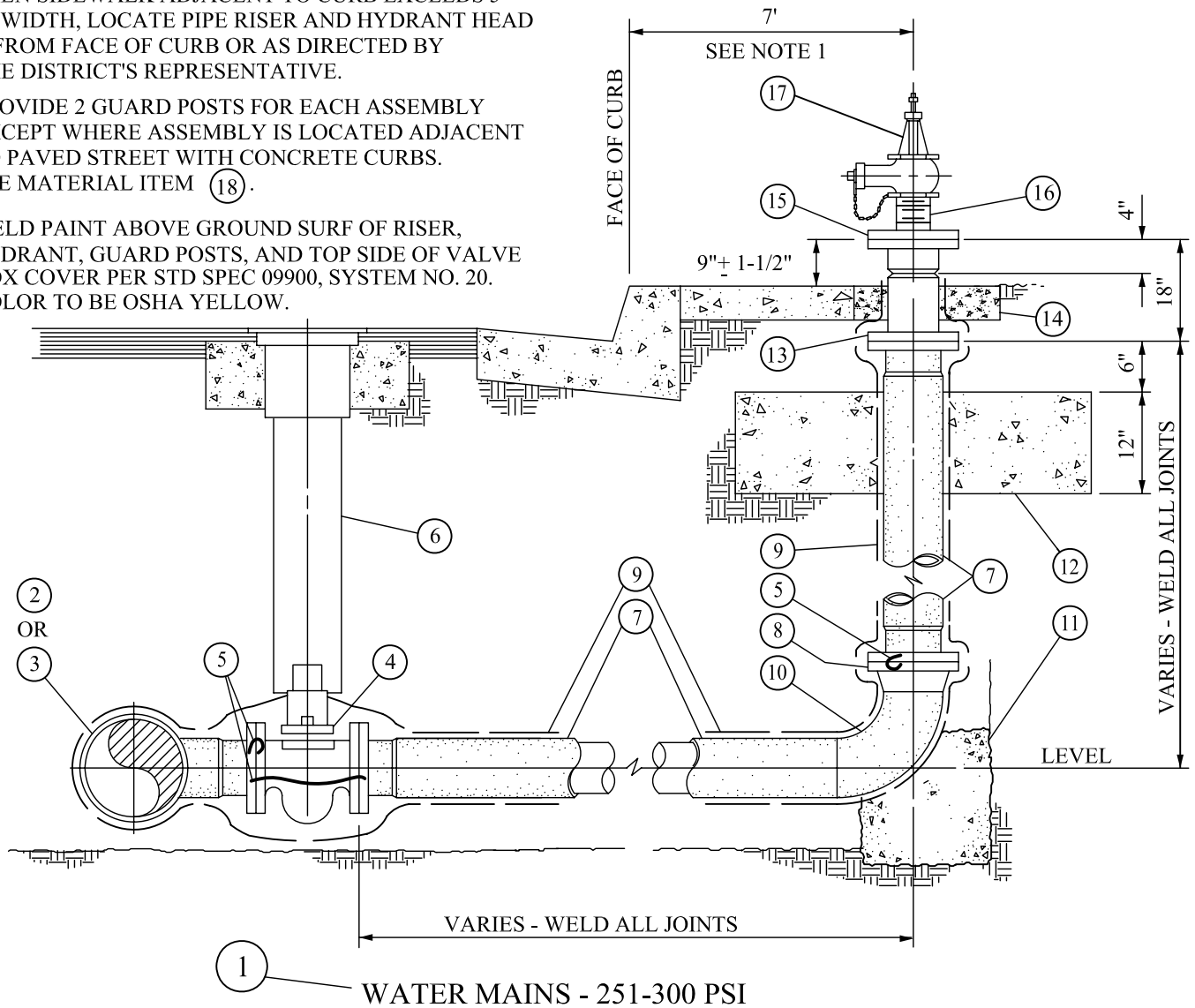
BOYLE
ENGINEERING
CORPORATION

FIRE HYDRANT ASSEMBLY
WORKING PRESSURE 201-250 PSI

STD DWG NO.
C-1.3
JUNE 2008

NOTES:

1. WHEN SIDEWALK ADJACENT TO CURB EXCEEDS 5' IN WIDTH, LOCATE PIPE RISER AND HYDRANT HEAD 2' FROM FACE OF CURB OR AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONCRETE CURBS. SEE MATERIAL ITEM (18).
3. FIELD PAINT ABOVE GROUND SURF OF RISER, HYDRANT, GUARD POSTS, AND TOP SIDE OF VALVE BOX COVER PER STD SPEC 09900, SYSTEM NO. 20. COLOR TO BE OSHA YELLOW.



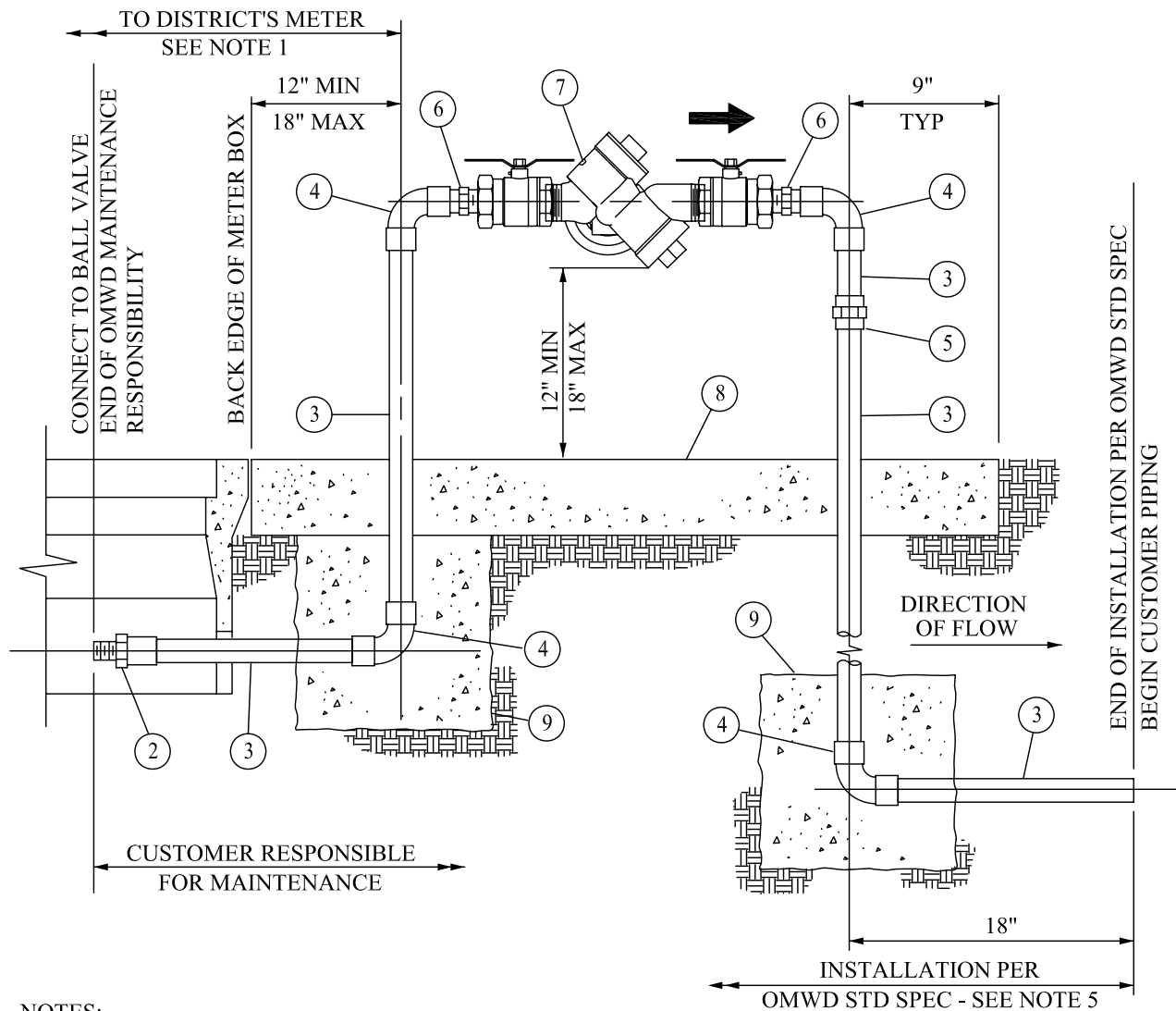
ITEM	DESCRIPTION	SPEC/DWG
1	6-INCH FIRE HYDRANT ASSEMBLY	15109
2	DUCTILE IRON PIPE AND DI TEE WITH 6" CL 300 FLANGED OUTLET	15240
3	STEEL PIPE, CML&C AND 6" STEEL OUTLET WITH CL 300 FLANGE	15061
4	6" BALL VALVE WITH CL 250 OR 300 FLANGES	—
5	BOND WIRES	13110
6	VALVE BOX INSTALLATION FOR BURIED VALVES	15104/E-1.2/E-1.3
7	6" STD WT STEEL PIPE WITH CL 300 FLANGES, CML&C	15253
8	6" CL 300 WELDING NECK FLANGE, CML&C	15253
9	POLYETHYLENE ENCASEMENT	09954
10	6" STD WT STEEL 90° ELBOW, LONG RADIUS WITH CML&C	15253
11	CONCRETE ANCHOR BLOCK WITH 6 CUBIC FEET	15109
12	42" SQUARE x 12" THICK CONCRETE ANCHOR BLOCK	15109
13	6" BREAK-OFF RISER WITH CL 300 FLANGES AND CUT GROOVE	15109
14	36" SQUARE x 4" THICK CONCRETE PAD	15109
15	4" FEMALE IPT x 11" OD DUCTILE IRON CL 300 REDUCING FLANGE	15109
16	4" BRASS NIPPLE, REGULAR WALL, IPT, 5" LONG	15109
17	4" FEMALE IPT x 2-1/2" MALE NH BRONZE HYDRANT HEAD ANGLE VALVE	15109
18	GUARD POST INSTALLATION FOR ABOVE GROUND ASSEMBLIES	15092/E-1.4

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

FIRE HYDRANT ASSEMBLY
WORKING PRESSURE 251-300 PSI

STD DWG NO.
C-1.4
JUNE 2008



NOTES:

1. NO OUTLETS WILL BE ALLOWED IN THE PIPING BETWEEN THE METER AND BACKFLOW PREVENTER. BACKFLOW PREVENTER SHALL BE THE SAME SIZE AS THE METER AND PIPING TO THE ASSEMBLY. A PRESSURE REGULATOR MAY BE INSTALLED BETWEEN THE METER AND BACKFLOW PREVENTER. CUSTOMER IS RESPONSIBLE FOR MAINTENANCE FROM THE METER.
2. BRASS PIPE WITH THREADED FITTINGS HAVING THE SAME CONFIGURATION MAY BE USED IN LIEU OF THE COPPER WATER TUBE.
3. PROVIDE GUARD POSTS AND/OR ENCLOSURE WHEN DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
4. OMWD MAINTENANCE RESPONSIBILITY STOPS AT THE METER.
5. NO OTHER PIPING OR UTILITIES ARE ALLOWED WITHIN BACKFLOW PREVENTER INSTALLATION AREA.

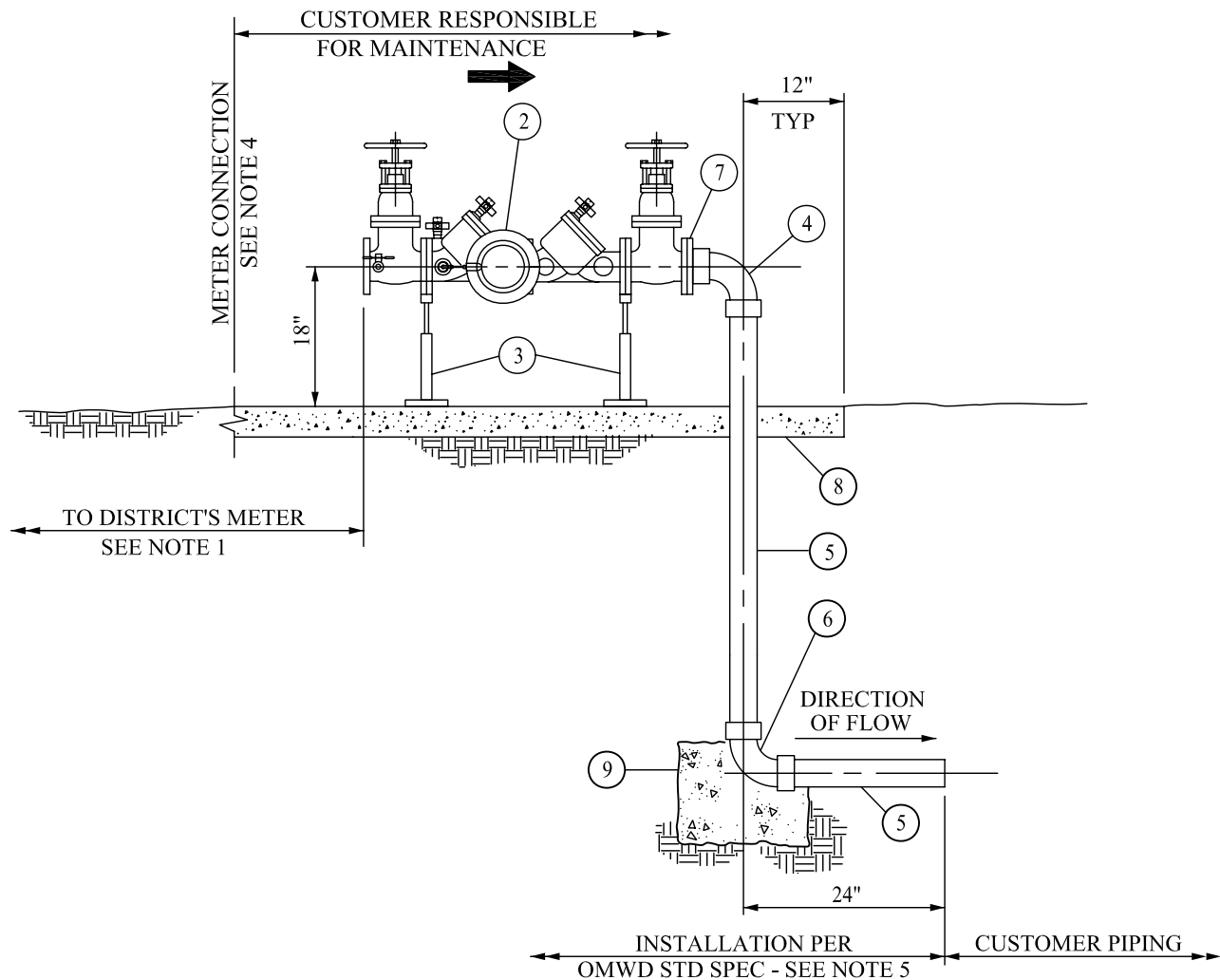
ITEM	DESCRIPTION	SPEC/DWG
1	3/4" THRU 2" REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY	15112
2	COPPER ADAPTER, COPPER SOLDER JOINT x MALE IPT	15220
3	COPPER WATER TUBE, TYPE K, HARD	15220
4	COPPER 90° ELBOW WITH COPPER SOLDER JOINTS	15220
5	COPPER UNION WITH COPPER SOLDER JOINTS	15220
6	COPPER ADAPTER, MALE SOLDER x MALE IPT	15220
7	REDUCED PRESSURE BACKFLOW PREVENTER WITH BALL VALVES	15112
8	18" WIDE x 4" THICK CONCRETE PAD, LENGTH VARIES PER SIZE	15112
9	CONCRETE ANCHOR BLOCK WITH 1 CUBIC FOOT	15112

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

**REDUCED PRESSURE BACKFLOW PREVENTER
ASSY FOR SIZES 3/4-INCH THRU 2-INCH**

STD DWG NO.
C-2.1
JUNE 2008



NOTES:

1. NO OUTLETS WILL BE ALLOWED IN THE PIPING BETWEEN THE METER AND BACKFLOW PREVENTER. BACKFLOW PREVENTER SHALL BE THE SAME SIZE AS THE METER AND PIPING TO THE ASSEMBLY. A PRESSURE REGULATOR MAY BE INSTALLED BETWEEN THE METER AND BACKFLOW PREVENTER. CUSTOMER IS RESPONSIBLE FOR MAINTENANCE FROM THE METER.
2. FIELD PAINT PIPE SUPPORTS PER STD SPEC 09900, SYSTEM NO. 20. COLOR TO BE OSHA BLUE.
3. PROVIDE GUARD POSTS AND/OR ENCLOSURE WHEN DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
4. OMWD MAINTENANCE RESPONSIBILITY STOPS AT THE METER.
5. NO OTHER PIPING OR UTILITIES ARE ALLOWED WITHIN BACKFLOW PREVENTER INSTALLATION AREA.

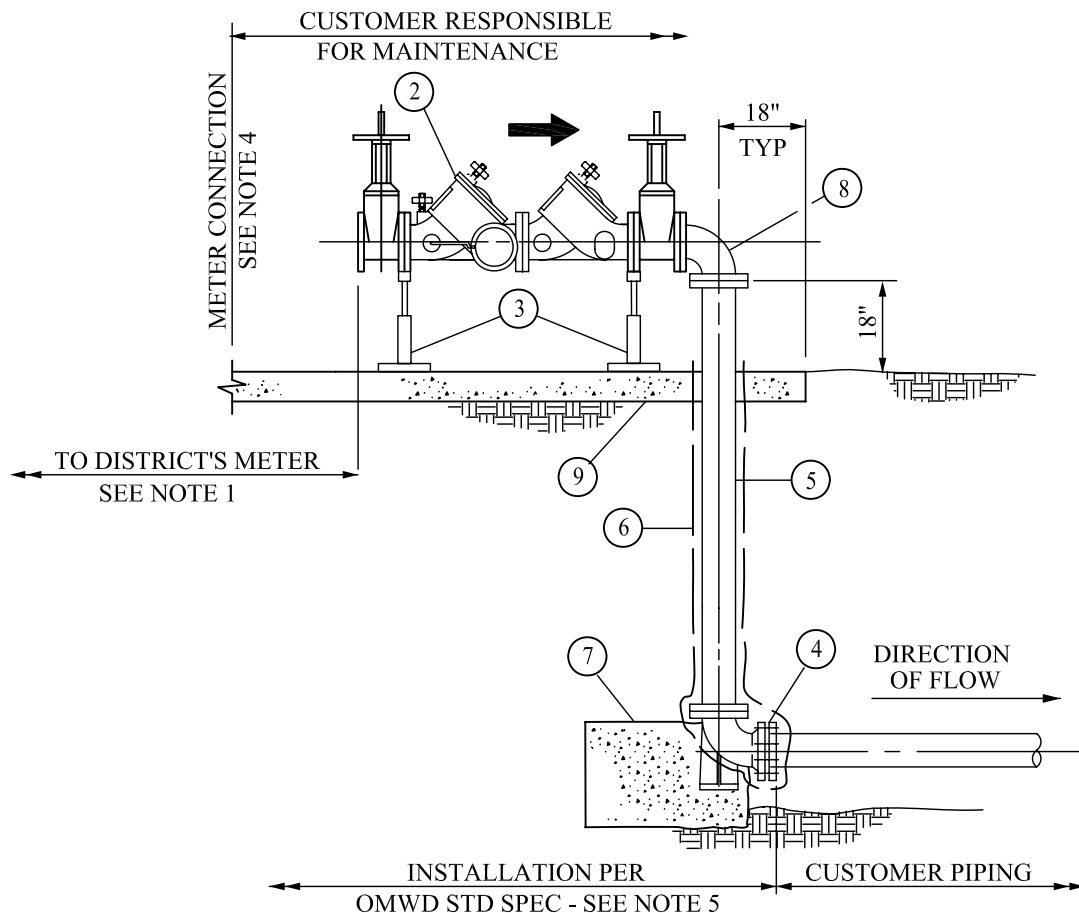
ITEM	DESCRIPTION	SPEC/DWG
1	2-1/2" AND 3" REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY	15112
2	REDUCED PRESSURE BACKFLOW PREVENTER WITH VALVES	15112
3	ADJUSTABLE PIPE SUPPORT	15112
4	COPPER 90° ELBOW, CLOSE ROUGH, SLIP JT x COPPER SOLDER JT	15220
5	COPPER WATER TUBE, TYPE K, HARD	15220
6	COPPER 90° ELBOW, CLOSE ROUGH, COPPER SOLDER JOINTS	15220
7	CL 150 CAST BRZ COMPANION FLANGE WITH COPPER SOLDER JOINT END	15220
8	24" WIDE x 4" THICK CONCRETE PAD, LENGTH VARIES PER SIZE	15112
9	CONCRETE ANCHOR BLOCK WITH 2 CUBIC FEET	15112

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

REDUCED PRESSURE BACKFLOW PREVENTER
ASSY FOR SIZES 2-1/2-INCH AND 3-INCH

STD DWG NO.
C-2.2
JUNE 2008



NOTES:

1. NO OUTLETS WILL BE ALLOWED IN THE PIPING BETWEEN THE METER AND BACKFLOW PREVENTER. BACKFLOW PREVENTER SHALL BE THE SAME SIZE AS THE METER AND PIPING TO THE ASSEMBLY. A PRESSURE REGULATOR MAY BE INSTALLED BETWEEN PREVENTER. CUSTOMER IS RESPONSIBLE FOR MAINTENANCE FROM THE METER.
2. FIELD PAINT ABOVE GROUND SURFACES OF PIPES, FITTINGS, AND PIPE SUPPORTS PER STD SPEC 09900, SYSTEM NO. 20. COLOR TO BE OSHA BLUE.
3. PROVIDE GUARD POSTS AND/OR ENCLOSURE WHEN DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
4. OMWD MAINTENANCE RESPONSIBILITY STOPS AT THE METER.
5. NO OTHER PIPING OR UTILITIES ARE ALLOWED WITHIN BACKFLOW PREVENTER INSTALLATION AREA.

ITEM	DESCRIPTION	SPEC/DWG
1	4" THRU 8" REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY	15112
2	REDUCED PRESSURE BACKFLOW PREVENTER WITH VALVES	15112
3	ADJUSTABLE PIPE SUPPORT	15112
4	DI BASE BEND WITH CL 150 FLANGE x MECHANICAL JOINT	15240
5	CLASS 53 DUCTILE IRON PIPE WITH CL 150 FLANGES	15240
6	POLYETHYLENE ENCASEMENT	09954
7	CONCRETE THRUST BLOCK	D-3.5/D-3.6
8	DUCTILE IRON 1/4 BEND WITH CL 150 FLANGES	15240
9	36" WIDE x 4" THICK CONCRETE PAD, LENGTH VARIES PER SIZE	15112

OLIVENHAIN MUNICIPAL WATER DISTRICT

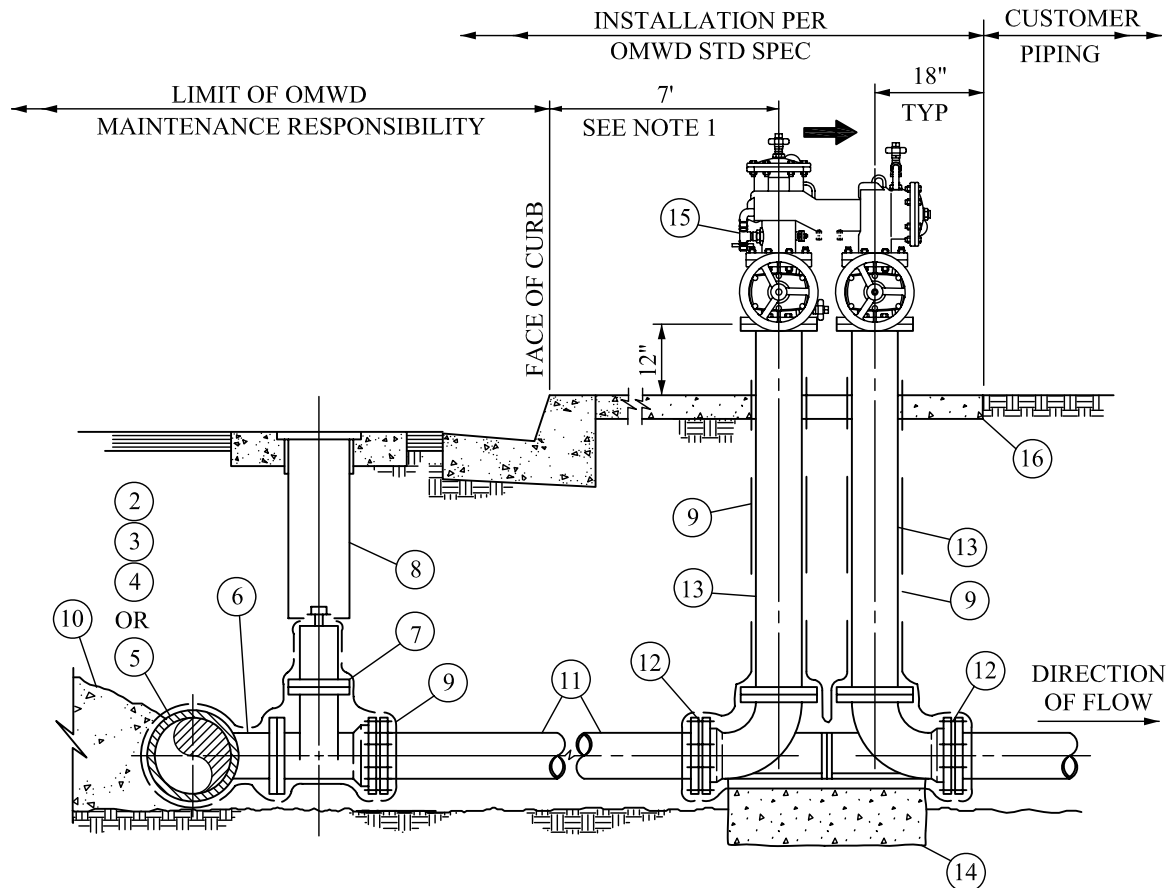
BOYLE
ENGINEERING
CORPORATION

REDUCED PRESSURE BACKFLOW PREVENTER
ASSY FOR SIZES 4-INCH THRU 10-INCH

STD DWG NO.
C-2.3
JUNE 2008

NOTES:

1. WHEN SIDEWALK ADJACENT TO CURB EXCEEDS 5' IN WIDTH, LOCATE ASSEMBLY AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE. DETECTOR CHECK ASSEMBLY SHALL BE INSTALLED PERPENDICULAR TO FACE OF CURB AS SHOWN.
2. FIELD PAINT ABOVE GROUND SURFACES OF PIPE AND FLANGES PER STD SPEC 09900, SYSTEM NO. 20. COLOR TO BE OSHA BLUE.
3. DETECTOR CHECKS SHALL BE THE SAME SIZE AS THE OUTLET AND PIPING TO THE ASSEMBLY.
4. PROVIDE GUARD POSTS WHEN DIRECTED BY THE DISTRICT'S REPRESENTATIVE.



ITEM	DESCRIPTION	SPEC/DWG
1	4" THRU 8" DOUBLE CHECK DETECTOR CHECK ASSEMBLY	15112
2	DUCTILE IRON PIPE AND DI TEE WITH CL 150 FLANGED OUTLET	15240
3	STEEL PIPE, CML&C AND STEEL OUTLET WITH CL 150 FLANGE	15061
4	CL 150 OR 200 PVC PRESSURE PIPE 12 INCHES AND SMALLER	15292
5	DR 18 PVC DISTRIBUTION PIPE 14 INCHES AND LARGER	15293
6	DI TEE WITH CL 150 FLANGED OUTLET FOR PVC PIPE INSTALLATION	15292/15293
7	RESILIENT SEATED GATE VALVE WITH CL 125 FLG x MECH JT, 0-250 PSI	15101
8	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
9	POLYETHYLENE ENCASEMENT	09954
10	CONCRETE THRUST BLOCK	D-3.3/D-3.4
11	CL 150 OR 200 PVC PRESSURE PIPE PER WORKING PRESSURE	15292
12	DUCTILE IRON VALVE SETTER WITH CL 125 FLANGE x MECH JOINT	15112
13	CLASS 53 DUCTILE IRON PIPE WITH CL 150 FLANGES	15240
14	CONCRETE ANCHOR BLOCK WITH 6 CUBIC FEET	15112
15	DOUBLE CHECK DETECTOR CHECK WITH BYPASS METER AND VALVES	15112
16	36" WIDE x 4" THICK CONCRETE PAD, LENGTH VARIES PER SIZE	15112

OLIVENHAIN MUNICIPAL WATER DISTRICT

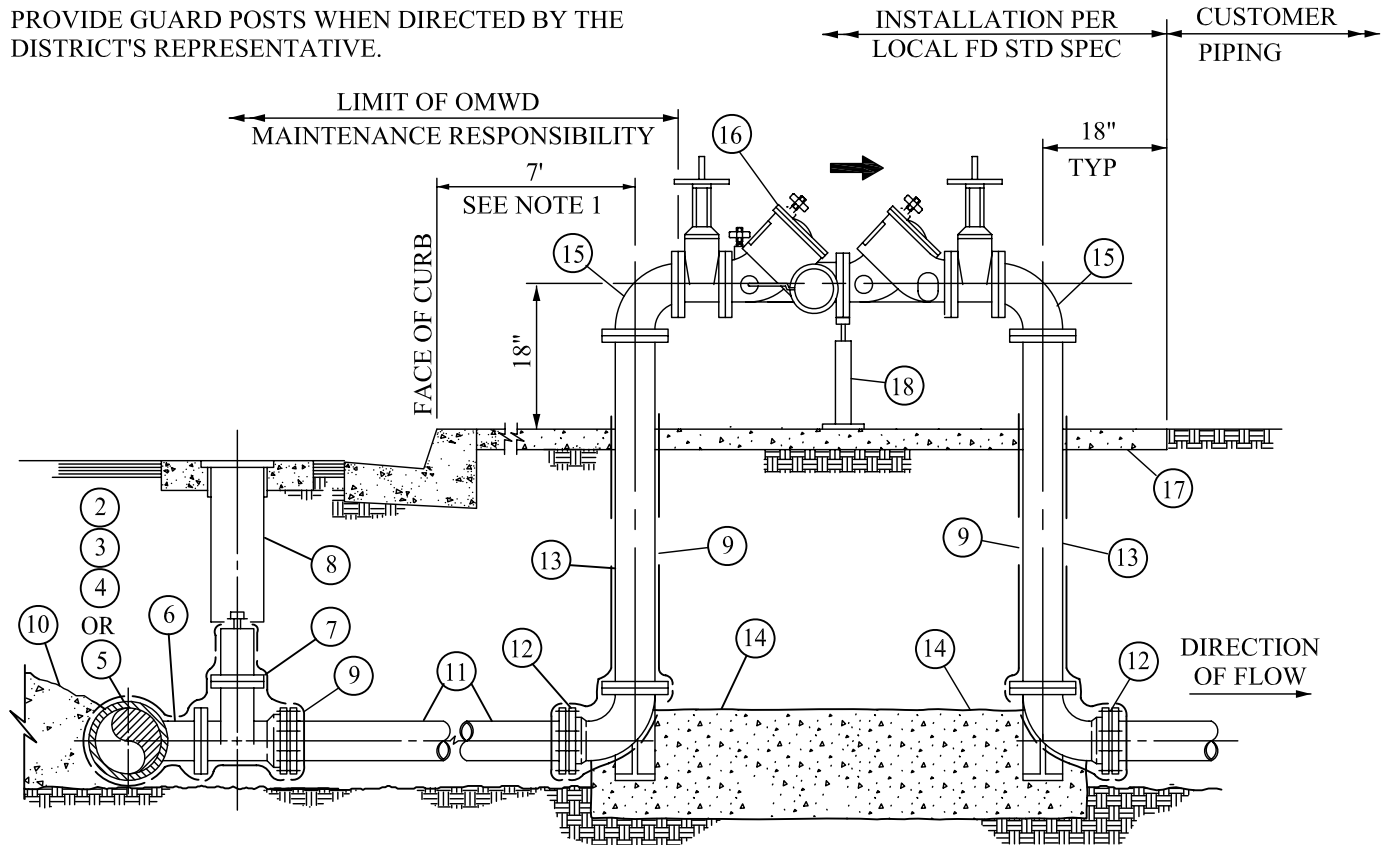
BOYLE
ENGINEERING
CORPORATION

DOUBLE CHECK DETECTOR CHECK
ASSEMBLY FOR SIZES 4-INCH THRU 8-INCH

STD DWG NO.
C-3.1
JUNE 2008

NOTES:

1. WHEN SIDEWALK ADJACENT TO CURB EXCEEDS 5' IN WIDTH, LOCATE ASSEMBLY AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE. DETECTOR CHECK ASSEMBLY MAY BE INSTALLED PERPENDICULAR TO FACE OF CURB AS SHOWN OR ROTATED 90° TO BE PARALLEL TO FACE OF CURB.
2. FIELD PAINT ABOVE GROUND SURFACES OF PIPE, FITTINGS, AND PIPE SUPPORT PER STD SPEC 09900, SYSTEM NO. 20. COLOR TO BE OSHA BLUE.
3. DETECTOR CHECKS SHALL BE THE SAME SIZE AS THE OUTLET AND PIPING TO THE ASSEMBLY.
4. PROVIDE GUARD POSTS WHEN DIRECTED BY THE DISTRICT'S REPRESENTATIVE.



ITEM	DESCRIPTION	SPEC/DWG
1	4" THRU 10" DOUBLE CHECK DETECTOR CHECK ASSEMBLY	15112
2	DUCTILE IRON PIPE AND DI TEE WITH CL 150 FLANGED OUTLET	15240
3	STEEL PIPE, CML&C AND STEEL OUTLET WITH CL 150 FLANGE	15061
4	CL 150 OR 200 PVC PRESSURE PIPE 12 INCHES AND SMALLER	15292
5	DR 18 PVC DISTRIBUTION PIPE 14 INCHES AND LARGER	15293
6	DI TEE WITH CL 150 FLANGED OUTLET FOR PVC PIPE INSTALLATION	15292/15293
7	RESILIENT SEATED GATE VALVE WITH CL 125 FLG x MECH JT, 0-250 PSI	15101
8	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
9	POLYETHYLENE ENCASEMENT	09954
10	CONCRETE THRUST BLOCK	D-3.3/D-3.4
11	CL 150 OR 200 PVC PRESSURE PIPE PER WORKING PRESSURE	15292
12	DI BASE BEND WITH CL 150 FLANGE x MECHANICAL JOINT	15240
13	CLASS 53 DUCTILE IRON PIPE WITH CL 150 FLANGES	15240
14	CONCRETE THRUST BLOCK - POUR BACK TO BACK	D-3.5/D-3.6
15	DUCTILE IRON 1/4 BEND WITH CL 150 FLANGES	15240
16	DOUBLE CHECK DETECTOR CHECK WITH BYPASS METER AND VALVES	15112
17	36" WIDE x 4" THICK CONCRETE PAD, LENGTH VARIES PER SIZE	15112
18	ADJUSTABLE PIPE SUPPORT	15112

OLIVENHAIN MUNICIPAL WATER DISTRICT

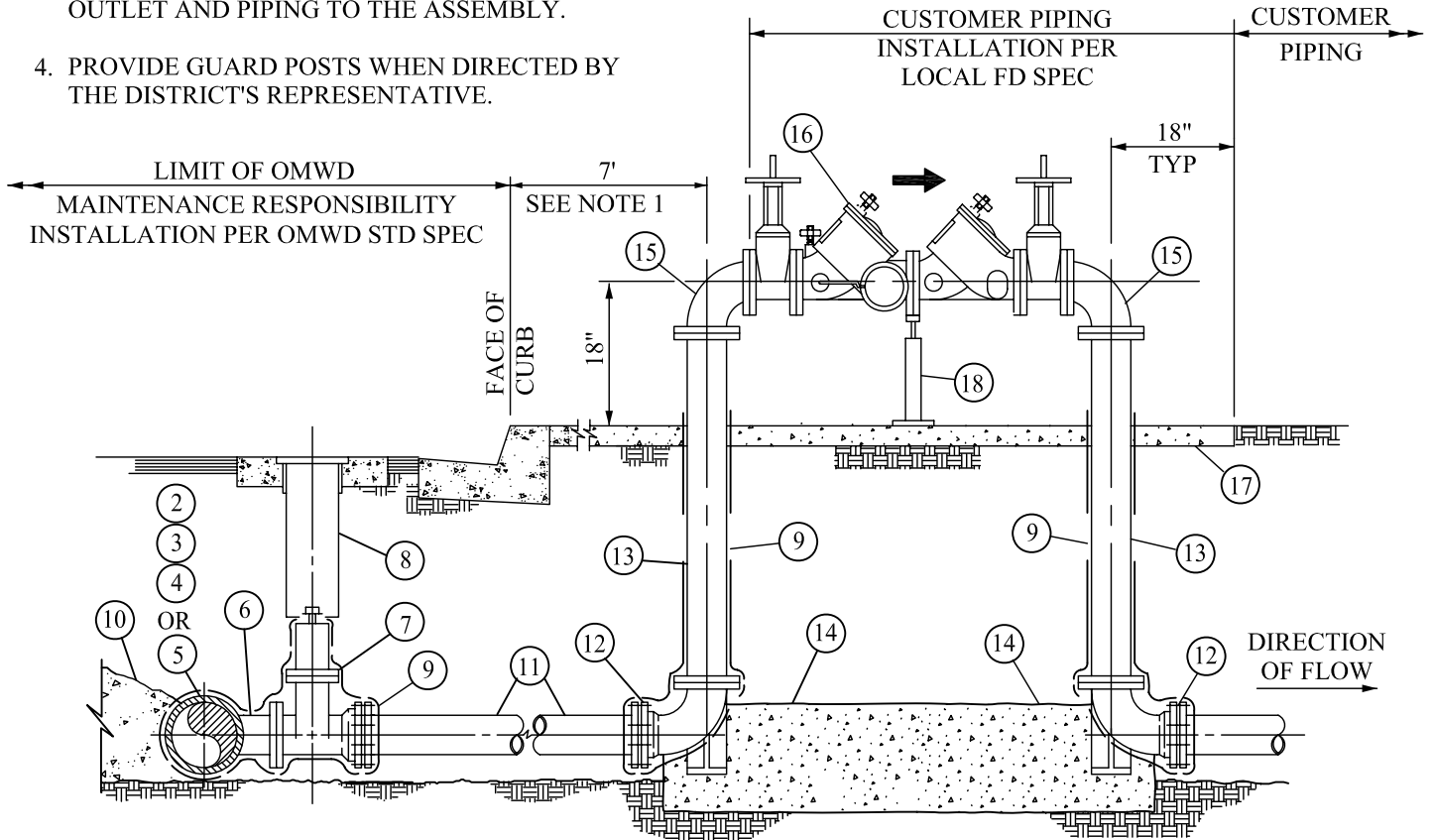
BOYLE
ENGINEERING
CORPORATION

DOUBLE CHECK DETECTOR CHECK
ASSEMBLY FOR SIZES 4-INCH THRU 10-INCH

STD DWG NO.
C-3.2
JUNE 2008

NOTES:

1. WHEN SIDEWALK ADJACENT TO CURB EXCEEDS 5' IN WIDTH, LOCATE ASSEMBLY AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE. DETECTOR CHECK ASSEMBLY MAY BE INSTALLED PERPENDICULAR TO FACE OF CURB AS SHOWN OR ROTATED 90° TO BE PARALLEL TO FACE OF CURB.
2. FIELD PAINT ABOVE GROUND SURFACES OF PIPE, FITTINGS, AND PIPE SUPPORT PER STD SPEC 09900, SYSTEM NO. 20. COLOR TO BE OSHA BLUE.
3. DETECTOR CHECKS SHALL BE THE SAME SIZE AS THE OUTLET AND PIPING TO THE ASSEMBLY.
4. PROVIDE GUARD POSTS WHEN DIRECTED BY THE DISTRICT'S REPRESENTATIVE.



ITEM	DESCRIPTION	SPEC/DWG
1	4" THRU 10" REDUCED PRESSURE DETECTOR CHECK ASSEMBLY	15112
2	DUCTILE IRON PIPE AND DI TEE WITH CL 150 FLANGED OUTLET	15240
3	STEEL PIPE, CML&C AND STEEL OUTLET WITH CL 150 FLANGE	15061
4	CL 150 OR 200 PVC PRESSURE PIPE 12 INCHES AND SMALLER	15292
5	DR 18 PVC DISTRIBUTION PIPE 14 INCHES AND LARGER	15293
6	DI TEE WITH CL 150 FLANGED OUTLET FOR PVC PIPE INSTALLATION	15292/15293
7	RESILIENT SEATED GATE VALVE WITH CL 125 FLG x MECH JT, 0-250 PSI	15101
8	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
9	POLYETHYLENE ENCASEMENT	09954
10	CONCRETE THRUST BLOCK	D-3.3/D-3.4
11	CL 150 OR 200 PVC PRESSURE PIPE PER WORKING PRESSURE	15292
12	DI BASE BEND WITH CL 150 FLANGE x MECHANICAL JOINT	15240
13	CLASS 53 DUCTILE IRON PIPE WITH CL 150 FLANGES	15240
14	CONCRETE THRUST BLOCK-POUR BACK TO BACK	D-3.5/D-3.6
15	DUCTILE IRON 1/4 BEND WITH CL 150 FLANGES	15240
16	REDUCED PRESSURE DETECTOR CHECK WITH BYPASS METER AND VALVES	15112
17	36" WIDE x 4" THICK CONCRETE PAD, LENGTH VARIES PER SIZE	15112
18	ADJUSTABLE PIPE SUPPORT	15112

OLIVENHAIN MUNICIPAL WATER DISTRICT

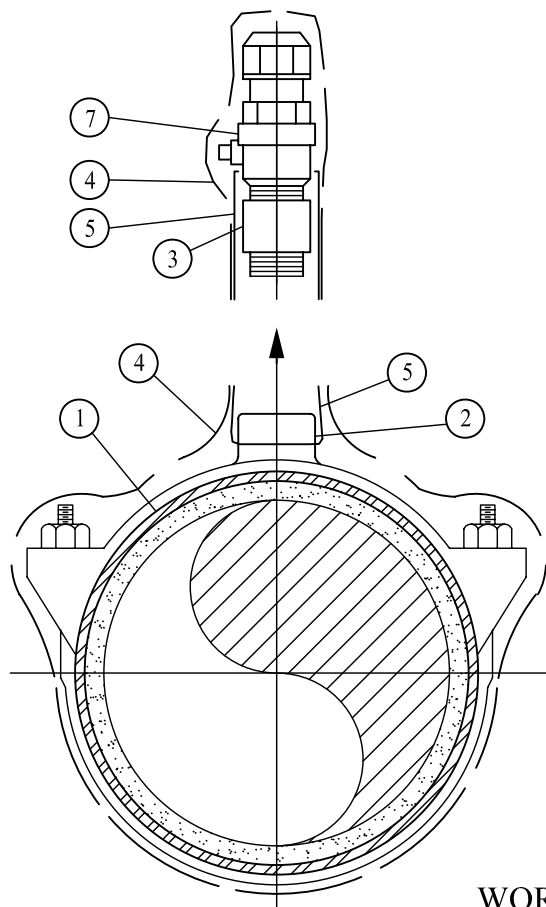
BOYLE
ENGINEERING
CORPORATION

REDUCED PRESSURE DETECTOR CHECK
ASSEMBLY FOR SIZES 4-INCH THRU 10-INCH

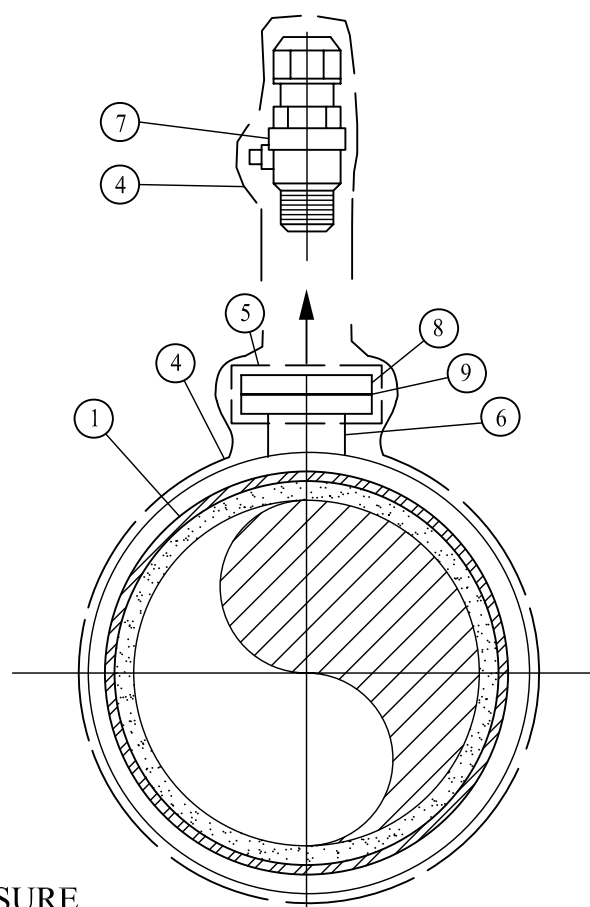
STD DWG NO.
C-3.3
JUNE 2008

NOTES:

1. OUTLETS FOR MANUAL AIR RELEASE ASSEMBLIES AND COMBINATION AIR VALVE ASSEMBLIES ARE ON THE TOP OF PIPE.
2. OUTLETS FOR BLOW-OFF ASSEMBLIES AND WATER SERVICE ASSEMBLIES ARE ON THE SIDE OR SPRINGLINE OF PIPE.



0-200 PSI



201-300 PSI

ASSEMBLY SIZE	② SIZE	③ SIZE	⑦ VALVE SIZE	⑧ OUTLET SIZE
1"	1"	1"	1"	1"
1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
2"	2"	2"	2"	2"

ITEM	DESCRIPTION	SPEC/DWG
1	DUCTILE IRON PIPE	15240
2	BRONZE SERVICE SADDLE WITH FEMALE IPT OUTLET	15240
3	INSULATING COUPLING WITH CLOSE BRASS NIPPLE	15080
4	POLYETHYLENE ENCASEMENT	09954
5	WAX TAPE COATING SYSTEM	09952
6	DUCTILE IRON TEE WITH 4" CL 300 FLANGED OUTLET, 0-300 PSI	15240
7	BRZ CORP STOP BALL TYPE W/INLET MALE IPT x OUTLET QUICK JOINT, 0-300 PSI	15080
8	CAST BRONZE REDUCING FLANGE WITH FEMALE IPT OUTLET	15220
9	INSULATING FLANGE KIT	13110

OLIVENHAIN MUNICIPAL WATER DISTRICT

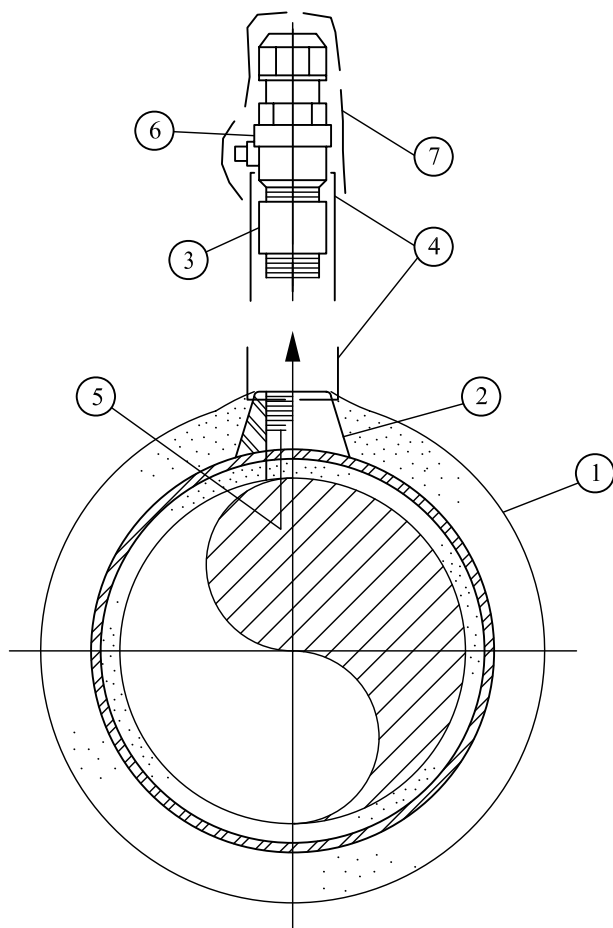
BOYLE
ENGINEERING
CORPORATION

OUTLETS ON DUCTILE IRON PIPE FOR
1-INCH THRU 2-INCH ASSEMBLIES

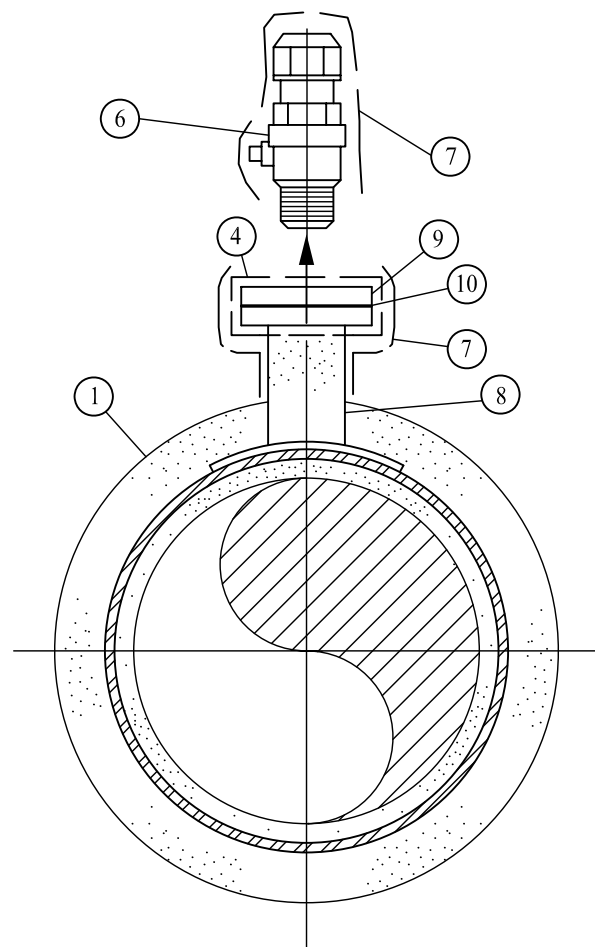
STD DWG NO.
D-1.1
JUNE 2008

NOTES:

1. OUTLETS FOR MANUAL AIR RELEASE ASSEMBLIES AND COMBINATION AIR VALVE ASSEMBLIES ARE ON THE TOP OF PIPE.
2. OUTLETS FOR BLOW-OFF ASSEMBLIES AND WATER SERVICE ASSEMBLIES ARE ON THE SIDE OR SPRINGLINE OF PIPE.



0-200 PSI



201-300 PSI

WORKING PRESSURE

ASSEMBLY SIZE	② SIZE	③ SIZE	⑥ VALVE SIZE	⑨ OUTLET SIZE
1"	1"	2"	1"	1"
1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
2"	2"	2"	2"	2"

ITEM	DESCRIPTION	SPEC/DWG
1	STEEL PIPE, CEMENT MORTAR LINED AND COATED	15061
2	STEEL OUTLET WITH FEMALE IPT - WELD TO PIPE	15061
3	INSULATING COUPLING WITH CLOSE STAINLESS STEEL NIPPLE	15080
4	WAX TAPE COATING SYSTEM	09952
5	PAINT COATING SYSTEM NO. 5 APPLIED TO INSIDE STEEL SURFACES	09900
6	BRZ CORP STOP BALL TYPE W/INLET MALE IPT x OUTLET QUICK JOINT, 0-300 PSI	15080
7	POLYETHYLENE ENCASEMENT	09954
8	4" STEEL OUTLET WITH CL 300 FLANGE, CML&C	15061
9	CAST BRONZE REDUCING FLANGE WITH FEMALE IPT OUTLET	15220
10	INSULATING FLANGE KIT	13110

OLIVENHAIN MUNICIPAL WATER DISTRICT

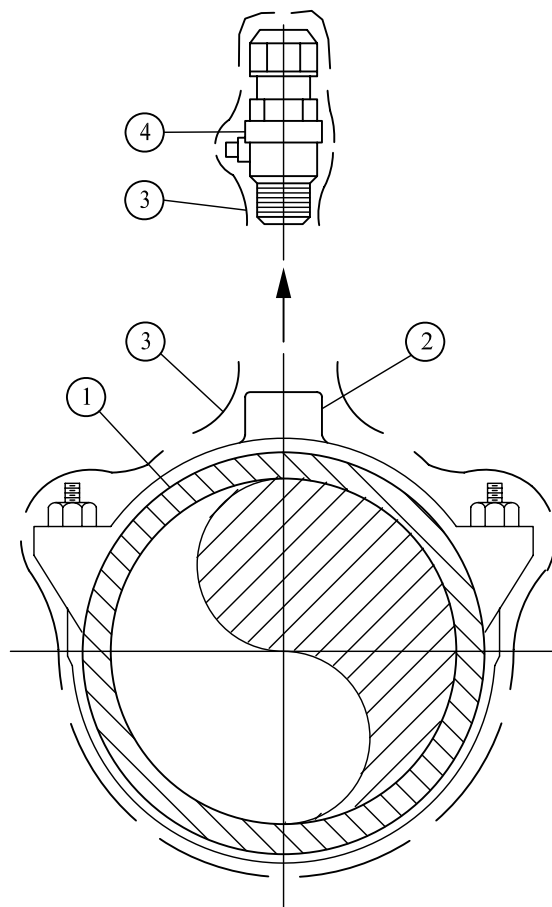
BOYLE
ENGINEERING
CORPORATION

OUTLETS ON CML&C STEEL PIPE FOR
1-INCH THRU 2-INCH ASSEMBLIES

STD DWG NO.
D-1.2
JUNE 2008

NOTES:

1. OUTLETS FOR MANUAL AIR RELEASE ASSEMBLIES AND COMBINATION AIR VALVE ASSEMBLIES ARE ON THE TOP OF PIPE.
2. OUTLETS FOR BLOW-OFF ASSEMBLIES AND WATER SERVICE ASSEMBLIES ARE ON THE SIDE OR SPRINGLINE OF PIPE.



0-200 PSI

WORKING PRESSURE

ASSEMBLY	② SIZE	④ VALVE SIZE
1"	1"	1"
1-1/2"	1-1/2"	1-1/2"
2"	2"	2"

ITEM	DESCRIPTION	SPEC/DWG
1	PVC PRESSURE PIPE - AWWA C900 CL 150 OR CL 200	15292
2	BRONZE SERVICE SADDLE WITH FEMALE IPT OUTLET	15292
3	POLYETHYLENE ENCASEMENT	09954
4	BRZ CORP STOP BALL TYPE W/INLET MALE IPT x OUTLET QUICK JOINT, 0-300 PSI	15080

OLIVENHAIN MUNICIPAL WATER DISTRICT

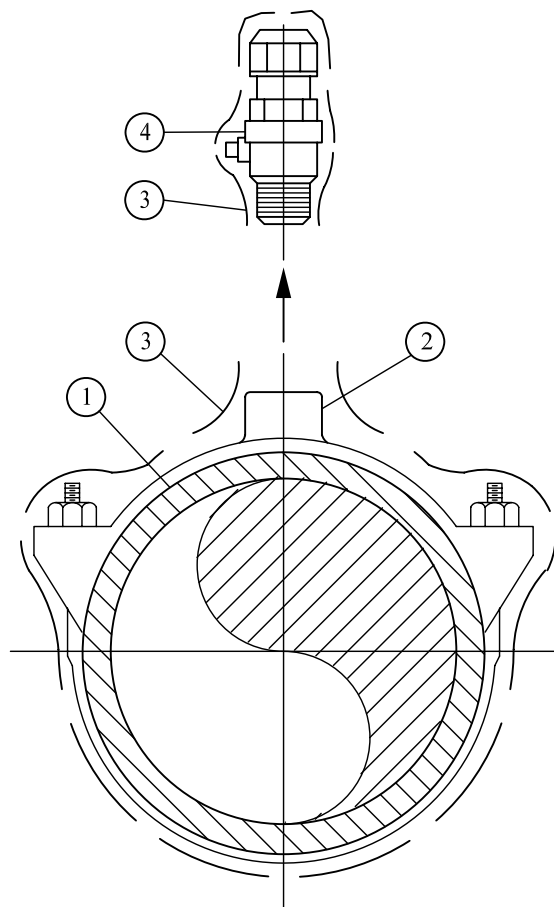
BOYLE
ENGINEERING
CORPORATION

OUTLETS ON PVC PRESSURE PIPE FOR
1-INCH THRU 2-INCH ASSEMBLIES

STD DWG NO.
D-1.3
JUNE 2008

NOTES:

1. OUTLETS FOR MANUAL AIR RELEASE ASSEMBLIES AND COMBINATION AIR VALVE ASSEMBLIES ARE ON THE TOP OF PIPE.
2. OUTLETS FOR BLOW-OFF ASSEMBLIES AND WATER SERVICE ASSEMBLIES ARE ON THE SIDE OR SPRINGLINE OF PIPE.



0-150 PSI

WORKING PRESSURE

ASSEMBLY	② SIZE	④ VALVE SIZE
1"	1"	1"
1-1/2"	1-1/2"	1-1/2"
2"	2"	2"

ITEM	DESCRIPTION	SPEC/DWG
1	DR 18 PVC DISTRIBUTION PIPE - AWWA C905	15293
2	BRONZE SERVICE SADDLE WITH FEMALE IPT OUTLET	15293
3	POLYETHYLENE ENCASEMENT	09954
4	BRZ CORP STOP BALL TYPE W/INLET MALE IPT x OUTLET QUICK JOINT, 0-300 PSI	15080

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

OUTLETS ON PVC DISTRIBUTION PIPE FOR
1-INCH THRU 2-INCH ASSEMBLIES

STD DWG NO.
D-1.4
JUNE 2008

VALVE CHARACTERISTICS

GATE VALVES — SEE STANDARD SPECIFICATION SECTION 15101.

SIZE RANGE: 3" THRU 12"; 14", 16", 18", AND 24"
WORKING PRESSURE: 0-250 PSI; 0-250 PSI
VALVE ENDS: CL 125 FLANGE x CL 125 FLANGE,
CL 125 FLANGE x MECHANICAL JOINT,
CL 125 FLANGE x PUSH ON (PVC),
MECHANICAL JOINT x MECHANICAL JOINT

VALVE SELECTION CHART

WORKING PRESSURE	VALVE SIZE, TYPE AND RATING									
	3"	4"	6"	8"	10"	12"	14"	16"	18"	24"
0-150 PSI	GATE (0-250 PSI)						GATE (0-250 PSI)			
151-200 PSI	GATE (0-250 PSI)						GATE (0-250 PSI)			
201-250 PSI	GATE (0-250 PSI)						GATE (0-250 PSI)			
251-300 PSI	PROJECT SPECIFIC									

NOTE: WHERE VALVES ARE INSTALLED WITH PIPE HAVING NON-RESTRAINED JOINTS, PROVIDE REINFORCED CONCRETE ANCHOR AND ADAPTER WITH THRUST COLLAR. SPECIAL DESIGN REQUIRED FOR INSTALLATIONS WITH WORKING PRESSURE ABOVE 200 PSI.

OLIVENHAIN MUNICIPAL WATER DISTRICT

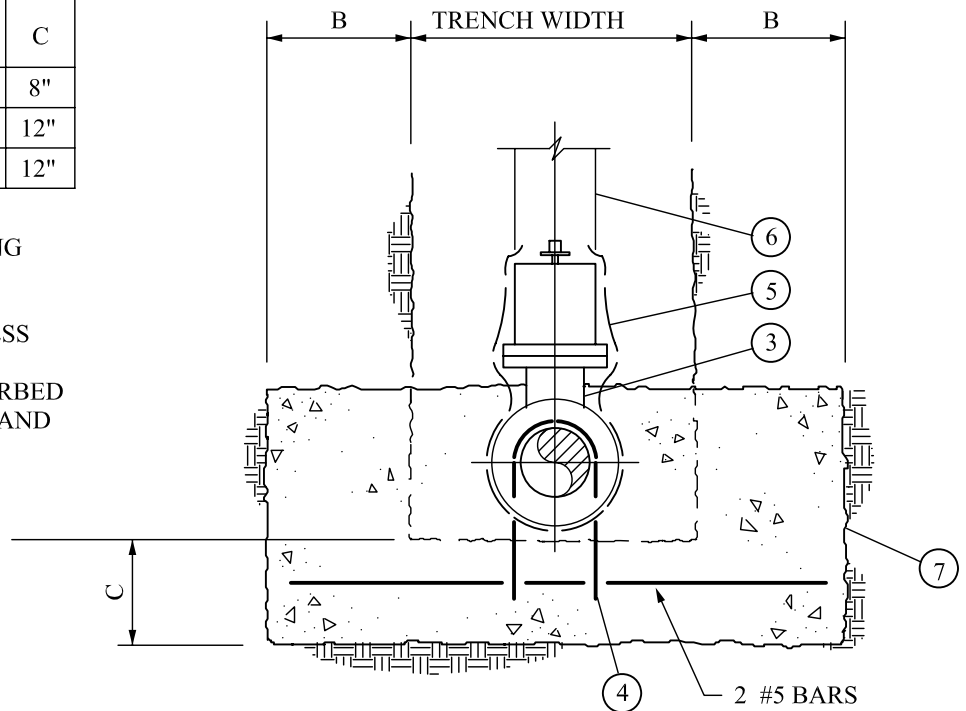
BOYLE
ENGINEERING
CORPORATION

SELECTION OF LINE & BRANCH
VALVES FOR WATER MAINS

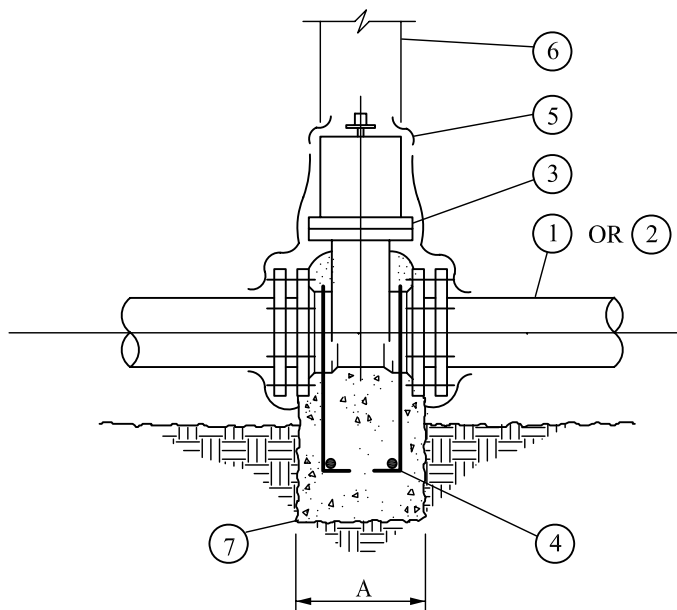
STD DWG NO.
D-2.1
JUNE 2008

VALVE SIZE	WKG PRESS	A	B	C
6"	0-150	12"	12"	8"
8"	0-150	12"	16"	12"
10"	0-150	12"	24"	12"

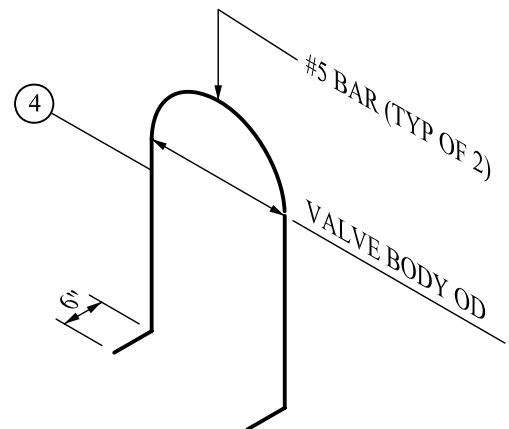
NOTE: BASED ON SOIL BEARING CAPACITY OF 2000 LBS/SF. SPECIAL DESIGN REQUIRED IF SOIL BEARING CAPACITY IS LESS THAN 2000 LBS/SF. PLACE CONCRETE AGAINST UNDISTURBED GROUND IN TRENCH BOTTOM AND SIDES.



TRENCH SECTION



TRENCH ELEVATION



6"-10" WATER MAINS - 0-150 PSI

ITEM	DESCRIPTION	SPEC/DWG
1	DUCTILE IRON PIPE WITH NON-RESTRAINED JOINTS	15240
2	CL 150 PVC PRESSURE PIPE WITH NON-RESTRAINED JOINTS	15292
3	RESILIENT SEATED GATE VALVE WITH MECHANICAL JOINTS	15101
4	STEEL ANCHOR, GALVANIZED STRAPS & BOLTS OR REINF STEEL	15101
5	POLYETHYLENE ENCASEMENT	09954
6	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
7	CONCRETE ANCHOR BLOCK WITH REINFORCING STEEL	02223

OLIVENHAIN MUNICIPAL WATER DISTRICT

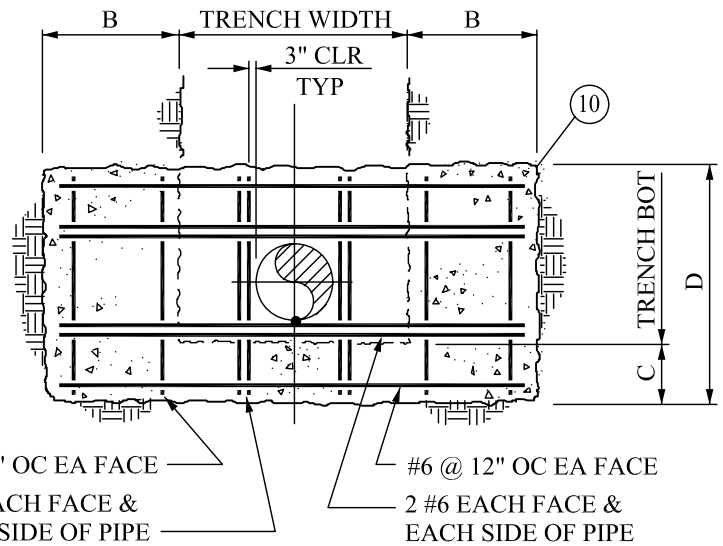
BOYLE
ENGINEERING
CORPORATION

GATE VALVE INSTALLATION WITH CONCRETE ANCHOR BLOCK

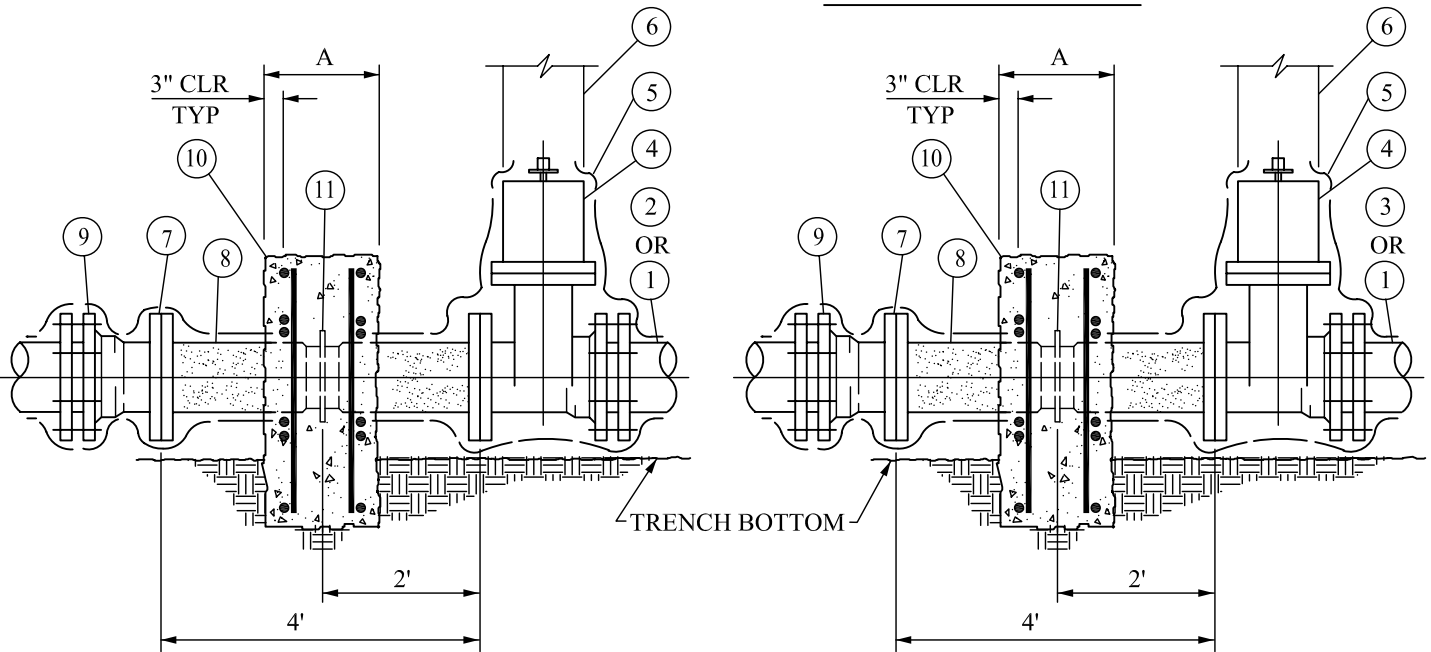
STD DWG NO.
D-2.2
JUNE 2008

VALVE SIZE	WKG PRESS	A	B	C	D
12"	0-150	21"	32"	12"	36"
6"	151-200	18"	13"	12"	27"
8"	151-200	18"	22"	12"	32"
10"	151-200	18"	30"	12"	37"
12"	151-200	21"	38"	12"	42"

NOTE: BASED ON SOIL BEARING CAPACITY OF 2000 LBS/SF. SPECIAL DESIGN REQUIRED IF SOIL BEARING CAPACITY IS LESS THAN 2000 LBS/SF OR FOR INSTALLATIONS WITH WORKING PRESSURE ABOVE 200 PSI. PLACE CONCRETE AGAINST UNDISTURBED GROUND IN TRENCH BOTTOM AND SIDES.



TRENCH SECTION



TRENCH ELEVATIONS

12" WATER MAIN - 0-150 PSI

&

6"-12" WATER MAINS - 151-200 PSI

ITEM	DESCRIPTION	SPEC/DWG
1	DUCTILE IRON PIPE WITH NON-RESTRAINED JOINTS	15240
2	CL 150 PVC PRESSURE PIPE WITH NON-RESTRAINED JOINTS	15292
3	CL 200 PVC PRESSURE PIPE WITH NON-RESTRAINED JOINTS	15292
4	RESILIENT SEATED GATE VALVE WITH CL 125 FLANGE x MECHANICAL JOINT	15101
5	POLYETHYLENE ENCASEMENT	09954
6	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
7	STD WT STEEL PIPE WITH CL 150 FLANGES	15253
8	CEMENT MORTAR LINING 5/16" THK & COATING 1-1/4" THK	15253
9	DUCTILE IRON FLANGE ADAPTER WITH CL 150 FLG x MECHANICAL JT OR PUSH ON	15240/15292
10	CONCRETE ANCHOR BLOCK WITH REINFORCING STEEL	02223
11	1/4" THK x 9" LG WRAPPER PLATE W/ 1" THK x 1-1/2" HIGH ANNULAR RING PLATE	15061/D-2.8

OLIVENHAIN MUNICIPAL WATER DISTRICT

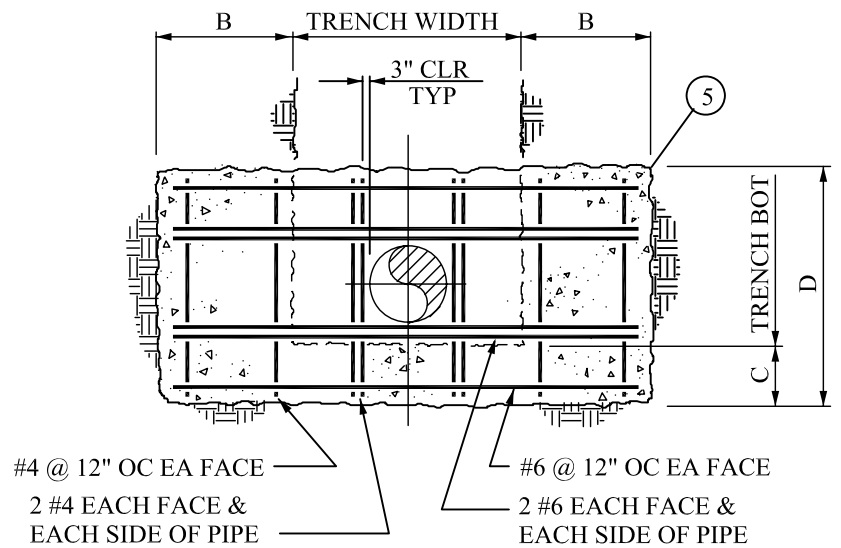
BOYLE
ENGINEERING
CORPORATION

GATE VALVE INSTALLATION
WITH CONCRETE ANCHOR BLOCK

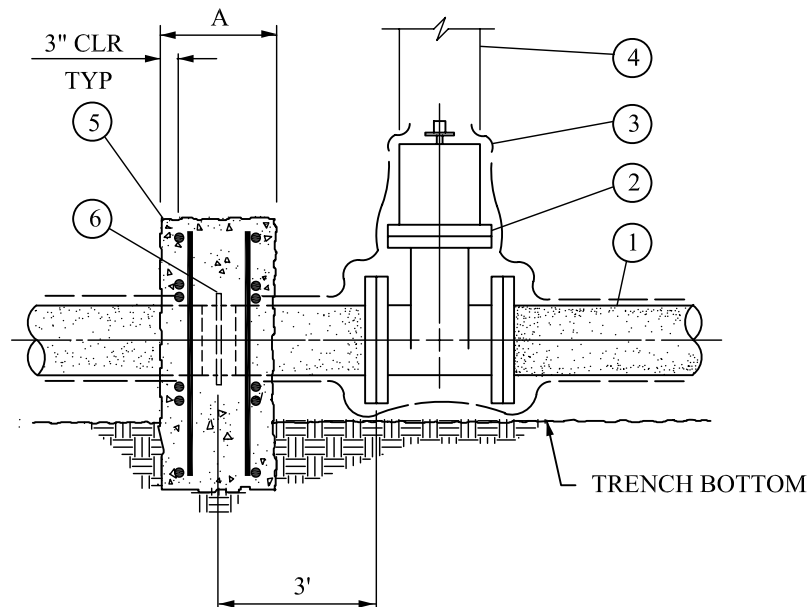
STD DWG NO.
D-2.3
JUNE 2008

VALVE SIZE	WKG PRESS	A	B	C	D
6"	0-200	18"	13"	12"	27"
8"	0-200	18"	22"	12"	32"
10"	0-200	18"	30"	12"	37"
12"	0-200	21"	38"	12"	42"

NOTE: BASED ON SOIL BEARING CAPACITY OF 2000 LBS/SF. SPECIAL DESIGN REQUIRED IF SOIL BEARING CAPACITY IS LESS THAN 2000 LBS/SF OR FOR INSTALLATIONS WITH WORKING PRESSURE ABOVE 200 PSI. PLACE CONCRETE AGAINST UNDISTURBED GROUND IN TRENCH BOTTOM AND SIDES.



TRENCH SECTION



TRENCH ELEVATION

6"-12" WATER MAINS - 0-200 PSI

ITEM	DESCRIPTION	SPEC/DWG
1	STEEL PIPE, CML&C WITH NON-RESTRAINED JOINTS & CL 150 FLANGES	15061
2	RESILIENT SEATED GATE VALVE WITH CL 125 FLANGES	15101
3	POLYETHYLENE ENCASEMENT	09954
4	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
5	CONCRETE ANCHOR BLOCK WITH REINFORCING STEEL	02223
6	1/4" THK x 9" LG WRAPPER PL W/1" THK x 1-1/2" HIGH ANNULAR RING PL	15061/D-2.8

OLIVENHAIN MUNICIPAL WATER DISTRICT

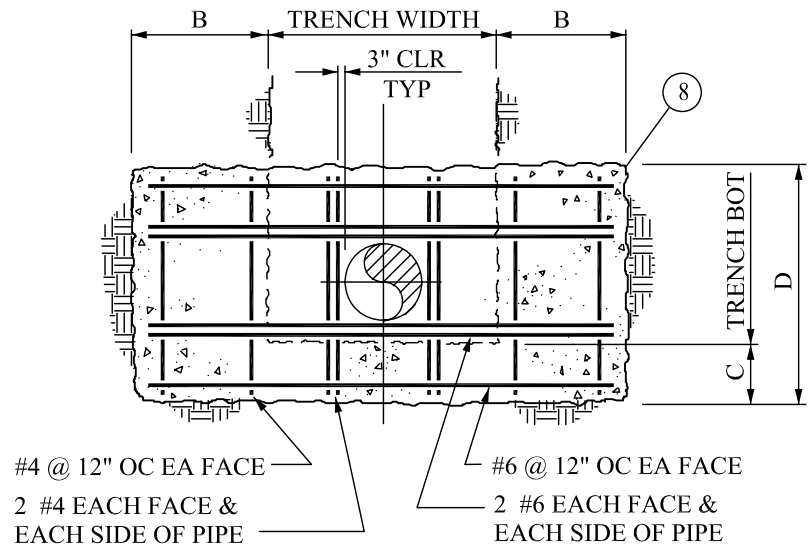
BOYLE
ENGINEERING
CORPORATION

**GATE VALVE INSTALLATION
WITH CONCRETE ANCHOR BLOCK**

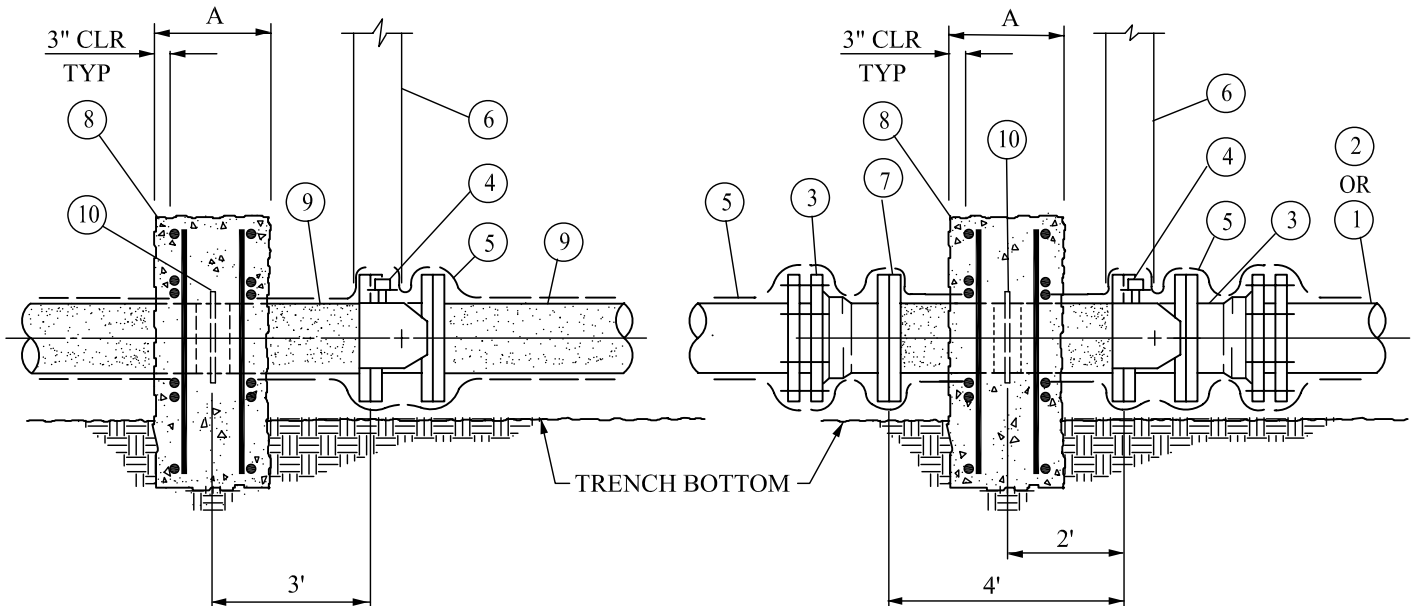
STD DWG NO.
D-2.4
JUNE 2008

VALVE SIZE	WKG PRESS	A	B	C	D
14"	0-150	24"	38"	15"	42"
16"	0-150	24"	44"	15"	48"
18"	0-150	24"	48"	18"	54"
24"	0-150	SPECIAL			

NOTE: BASED ON SOIL BEARING CAPACITY OF 2000 LBS/SF. SPECIAL DESIGN REQUIRED IF SOIL BEARING CAPACITY IS LESS THAN 2000 LBS/SF. PLACE CONCRETE AGAINST UNDISTURBED GROUND IN TRENCH BOTTOM AND SIDES.



TRENCH SECTION



TRENCH ELEVATIONS

14"-24" WATER MAINS - 0-150 PSI

ITEM	DESCRIPTION	SPEC/DWG
1	DUCTILE IRON PIPE WITH NON-RESTRAINED JOINTS	15240
2	DR 18 PVC DISTRIBUTION PIPE WITH NON-RESTRAINED JOINTS	15293
3	DUCTILE IRON FLANGE ADAPTER WITH CL 150 FLG x MECHANICAL JT OR PUSH ON	15240/15293
4	GATE VALVE WITH CL 125 FLANGES	15101
5	POLYETHYLENE ENCASEMENT	09954
6	VALVE BOX INSTALLATION FOR BURIED VALVES	15101/E-1.2/E-1.3
7	STEEL PIPE SPOOL, CML&C & CL 150 FLANGES	15061
8	CONCRETE ANCHOR BLOCK WITH REINFORCING STEEL	02223
9	STEEL PIPE, CML&C WITH NON-RESTRAINED JOINTS & CL 150 FLANGES	15061
10	1/4" THK x 9" LG WRAPPER PL W/1" THK x 1-1/2" HIGH ANNULAR RING PL	15061/D-2.8

OLIVENHAIN MUNICIPAL WATER DISTRICT

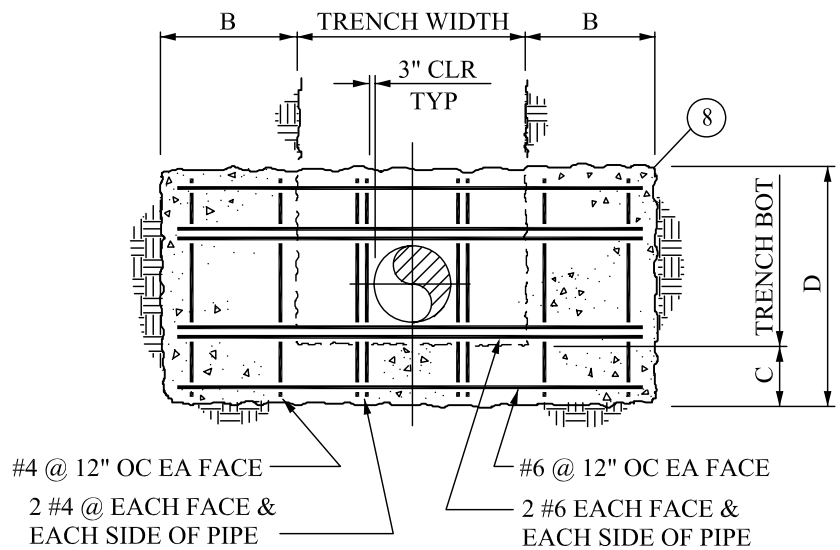
BOYLE
ENGINEERING
CORPORATION

GATE VALVE INSTALLATION
WITH CONCRETE ANCHOR BLOCK

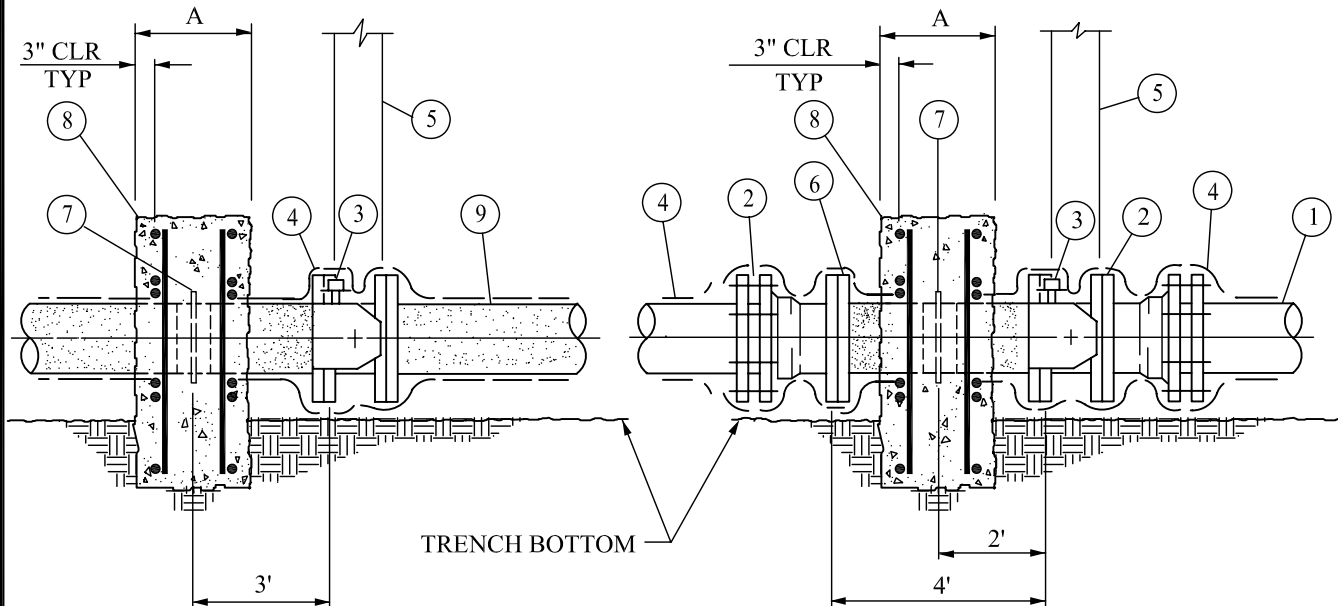
STD DWG NO.
D-2.5
JUNE 2008

VALVE SIZE	WKG PRESS	A	B	C	D
14"	151-200	24"	45"	15"	50"
16"	151-200	24"	50"	15"	55"
18"	151-200	24"	55"	18"	63"
24"	151-200	SPECIAL			

NOTE: BASED ON SOIL BEARING CAPACITY OF 2000 LBS/SF. SPECIAL DESIGN REQUIRED IF SOIL BEARING CAPACITY IS LESS THAN 2000 LBS/SF OR FOR INSTALLATIONS WITH WORKING PRESSURE ABOVE 200 PSI. PLACE CONCRETE AGAINST UNDISTURBED GROUND IN TRENCH BOTTOM AND SIDES.



TRENCH SECTION



TRENCH ELEVATIONS

14"-24" WATER MAINS - 151-200 PSI

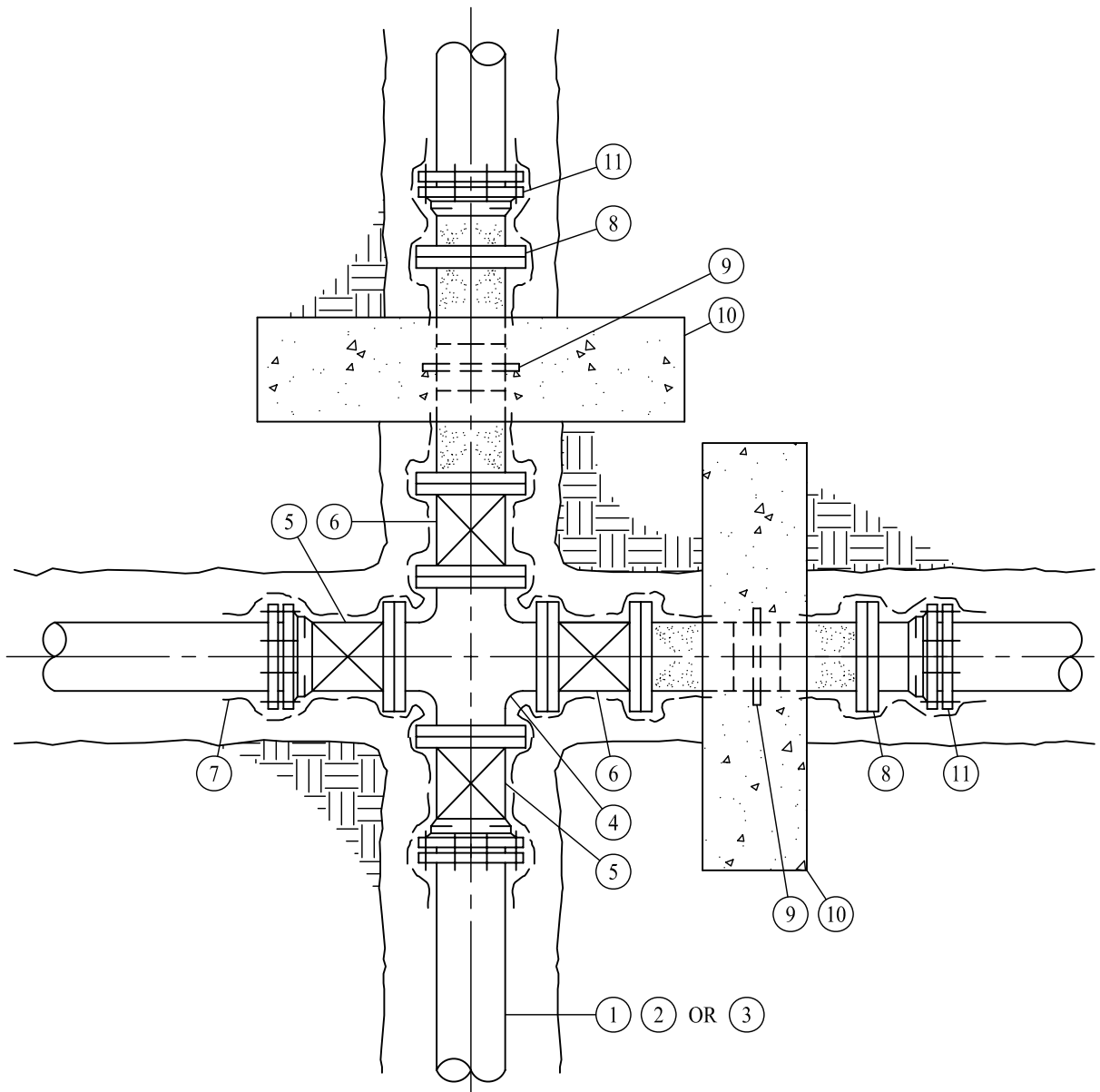
ITEM	DESCRIPTION	SPEC/DWG
1	DUCTILE IRON PIPE WITH NON-RESTRAINED JOINTS	15240
2	DUCTILE IRON FLANGE ADAPTER WITH CL 150 FLG x MECHANICAL JT OR PUSH ON	15240
3	GATE VALVE WITH CL 125 FLANGES	15101
4	POLYETHYLENE ENCASEMENT	09954
5	VALVE BOX INSTALLATION FOR BURIED VALVES	15104/E-1.2/E-1.3
6	STEEL PIPE SPOOL, CML&C & CL 150 FLANGES	15061
7	1/4 " THK x 12" LG WRAPPER PL W/1" THK x 2" HIGH ANNULAR RING PL	15061/D-2.8
8	CONCRETE ANCHOR BLOCK WITH REINFORCING STEEL	02223
9	STEEL PIPE, CML&C WITH NON-RESTRAINED JOINTS & CL 150 FLANGES	15061

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

GATE VALVE INSTALLATION
WITH CONCRETE ANCHOR BLOCK

STD DWG NO.
D-2.6
JUNE 2008



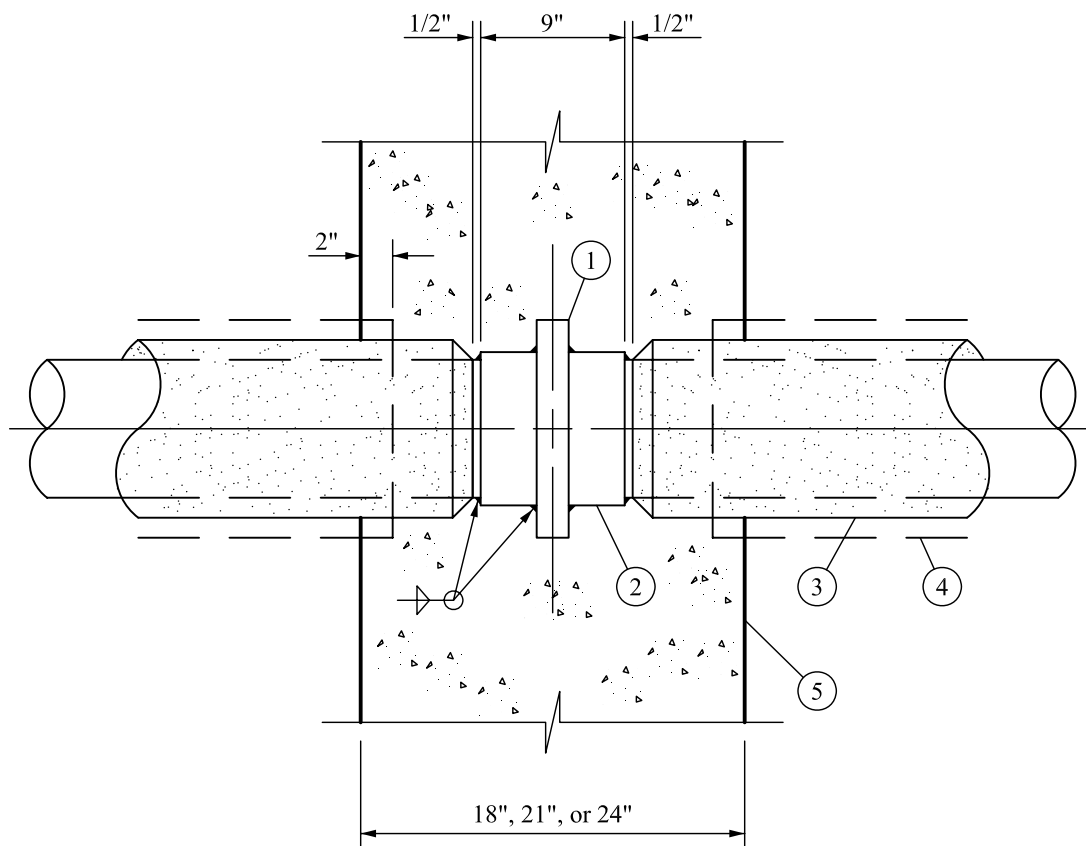
ITEM	DESCRIPTION	SPEC/DWG
1	DUCTILE IRON PIPE WITH NON-RESTRAINED JOINTS	15240
2	CL 150 OR 200 PVC PRESSURE PIPE	15292
3	DR 18 PVC DISTRIBUTION PIPE	15293
4	DUCTILE IRON CROSS WITH CL 150 FLANGES	15240/15292/15293
5	RESILIENT SEATED GATE VALVE WITH CL 125 FLG x MECHANICAL JT OR PUSH ON	15101
6	RESILIENT SEATED GATE VALVE WITH CL 125 FLANGE x FLANGE	15101
7	POLYETHYLENE ENCASEMENT	09954
8	STEEL PIPE SPOOL, CML&C, AND CL 150 FLANGES	15061/15253
9	1/4" THK x 9" LG WRAPPER PLATE W/1" THK x 1-1/2" HIGH ANNULAR RING PLATE	15061/15253/D-2.8
10	CONCRETE ANCHOR BLOCK WITH REINFORCING STEEL	D-2.3/D-2.5/D-2.6
11	DUCTILE IRON FLANGE ADAPTER WITH CL 150 FLG x MECHANICAL JT OR PUSH ON	15240/15292/15293

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

INSTALLATION OF CROSS WITH
GATE VALVES AND ANCHOR BLOCKS

STD DWG NO.
D-2.7
JUNE 2008



ANCHOR PLATE

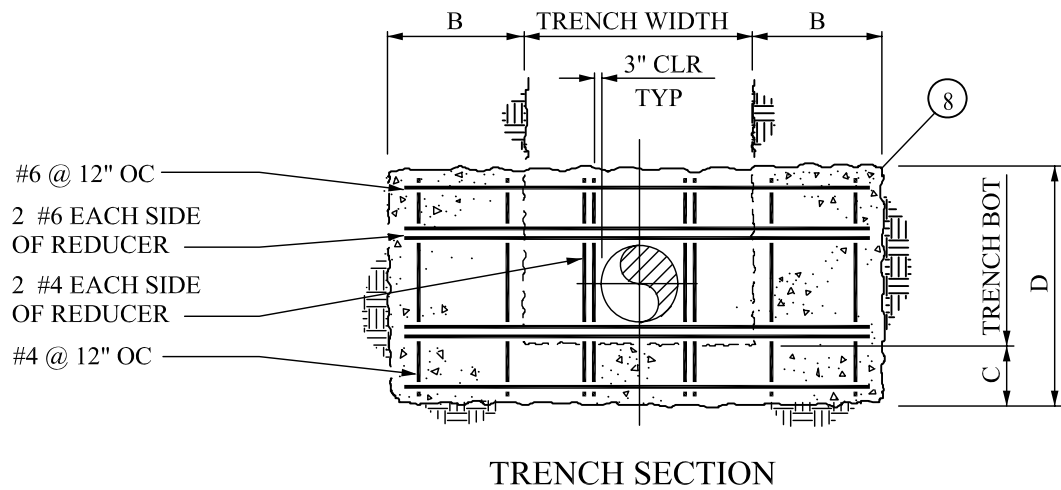
ITEM	DESCRIPTION	SPEC/DWG
1	1" THK x 1-1/2" OR 2" HIGH ANNULAR RING PLATE	15061/15253
2	1/4" THK x 9" LONG WRAPPER PLATE	15061/15253
3	STEEL PIPE, CML&C	15061/15253
4	POLYETHYLENE ENCASEMENT	09954
5	CONCRETE ANCHOR BLOCK WITH REINFORCING STEEL	02223

OLIVENHAIN MUNICIPAL WATER DISTRICT

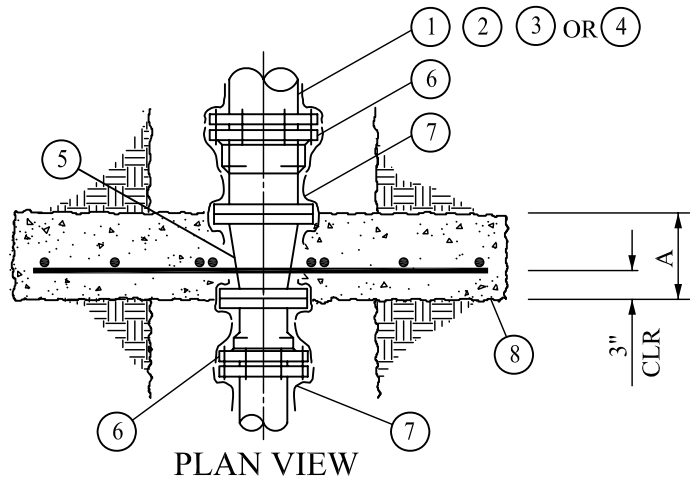
BOYLE
ENGINEERING
CORPORATION

ANCHOR PLATE DETAIL

STD DWG NO.
D-2.8
JUNE 2008



NOTE: BASED ON SOIL BEARING CAPACITY OF 2000 LBS/SF. SPECIAL DESIGN REQUIRED IF SOIL BEARING CAPACITY IS LESS THAN 2000 LBS/SF. PLACE CONCRETE AGAINST UNDISTURBED GROUND IN TRENCH BOTTOM AND SIDES.



MINIMUM DIMENSIONS OF BLOCK IN INCHES															
SIZE	16"			14"		12"		10"		8"		6"		4"	
18"	A=19 C=12	B=11 D=42	A=19 C=12	B=22 D=42	A=19 C=12	B=33 D=42	A=19 C=18	B=35 D=48	A=19 C=18	B=38 D=54					
16"			A=18 C=12	B=11 D=42	A=18 C=12	B=22 D=42	A=18 C=12	B=32 D=42	A=18 C=18	B=32 D=48	A=18 C=18	B=38 D=48			
14"					A=16 C=12	B=11 D=42	A=16 C=12	B=18 D=42	A=16 C=12	B=27 D=42	A=16 C=12	B=32 D=42			
12"							A=14 C=12	B=11 D=42	A=14 C=12	B=14 D=42	A=14 C=12	B=22 D=42	A=14 C=12	B=27 D=42	
10"									A=12 C=12	B=9 D=36	A=12 C=12	B=11 D=42	A=12 C=12	B=16 D=42	
8"											A=11 C=12	B=9 D=36	A=11 C=12	B=11 D=42	
6"													A=9 C=12	B=9 D=36	

4"-18" WATER MAINS - 0-150 PSI

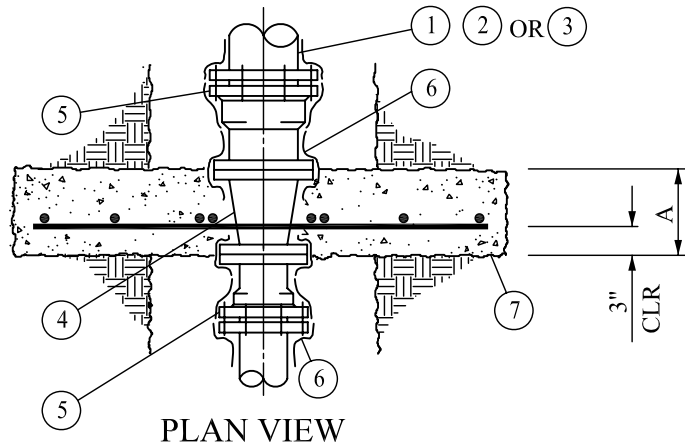
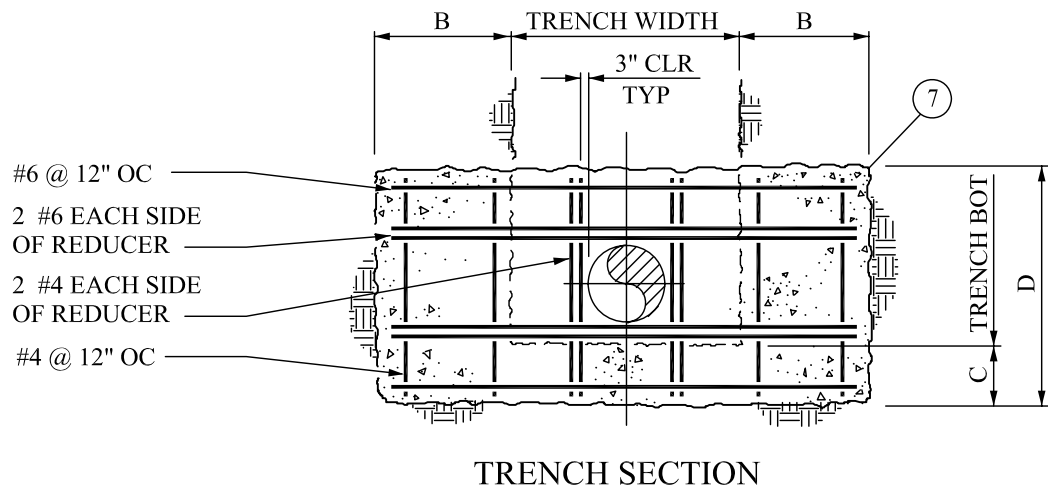
ITEM	DESCRIPTION	SPEC/DWG
1	DUCTILE IRON PIPE WITH NON-RESTRAINED JOINTS	15240
2	STEEL PIPE, CML&C WITH NON-RESTRAINED JOINTS	15061
3	CL 150 PVC PRESSURE PIPE, 12" & SMALLER WITH NON-RESTRAINED JOINTS	15292
4	DR 18 PVC DISTRIBUTION PIPE, 14 INCHES & LARGER W/NON-RESTRAINED JT	15293
5	DI CONCENTRIC REDUCER W/ CL 150 FLANGES FOR DI OR PVC PIPE - STEEL NOT SHOWN	15240/15292/15293
6	DUCTILE IRON FLANGE ADAPTER WITH CL 150 FLG x MECHANICAL JT OR PUSH ON	15240/15292/15293
7	POLYETHYLENE ENCASEMENT	09954
8	CONCRETE THRUST BLOCK WITH REINFORCING STEEL	02223

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

THRUST BLOCK FOR PIPE REDUCERS
WORKING PRESSURE 0-150 PSI

STD DWG NO.
D-3.1
JUNE 2008



NOTE: BASED ON SOIL BEARING CAPACITY OF 2000 LBS/SF. SPECIAL DESIGN REQUIRED IF SOIL BEARING CAPACITY IS LESS THAN 2000 LBS/SF OR FOR INSTALLATIONS WITH WORKING PRESSURE ABOVE 200 PSI. PLACE CONCRETE AGAINST UNDISTURBED GROUND IN TRENCH BOTTOM AND SIDES.

MINIMUM DIMENSIONS OF BLOCK IN INCHES															
SIZE	16"			14"		12"		10"		8"		6"		4"	
18"	A=19 C=12	B=14 D=42	A=19 C=15	B=25 D=48	A=19 C=18	B=36 D=48	A=19 C=18	B=42 D=54	A=19 C=18	B=46 D=60					
16"			A=18 C=12	B=12 D=42	A=18 C=15	B=22 D=48	A=18 C=18	B=32 D=48	A=18 C=18	B=36 D=54	A=18 C=18	B=42 D=54			
14"					A=16 C=12	B=12 D=42	A=16 C=15	B=18 D=48	A=16 C=15	B=27 D=48	A=16 C=18	B=34 D=48			
12"							A=14 C=12	B=12 D=36	A=14 C=12	B=18 D=42	A=14 C=15	B=22 D=48	A=14 C=15	B=27 D=48	
10"									A=12 C=12	B=11 D=36	A=12 C=12	B=14 D=42	A=12 C=12	B=20 D=42	
8"											A=11 C=12	B=9 D=36	A=11 C=12	B=12 D=36	
6"													A=9 C=12	B=9 D=36	

4"-18" WATER MAINS - 151-200 PSI

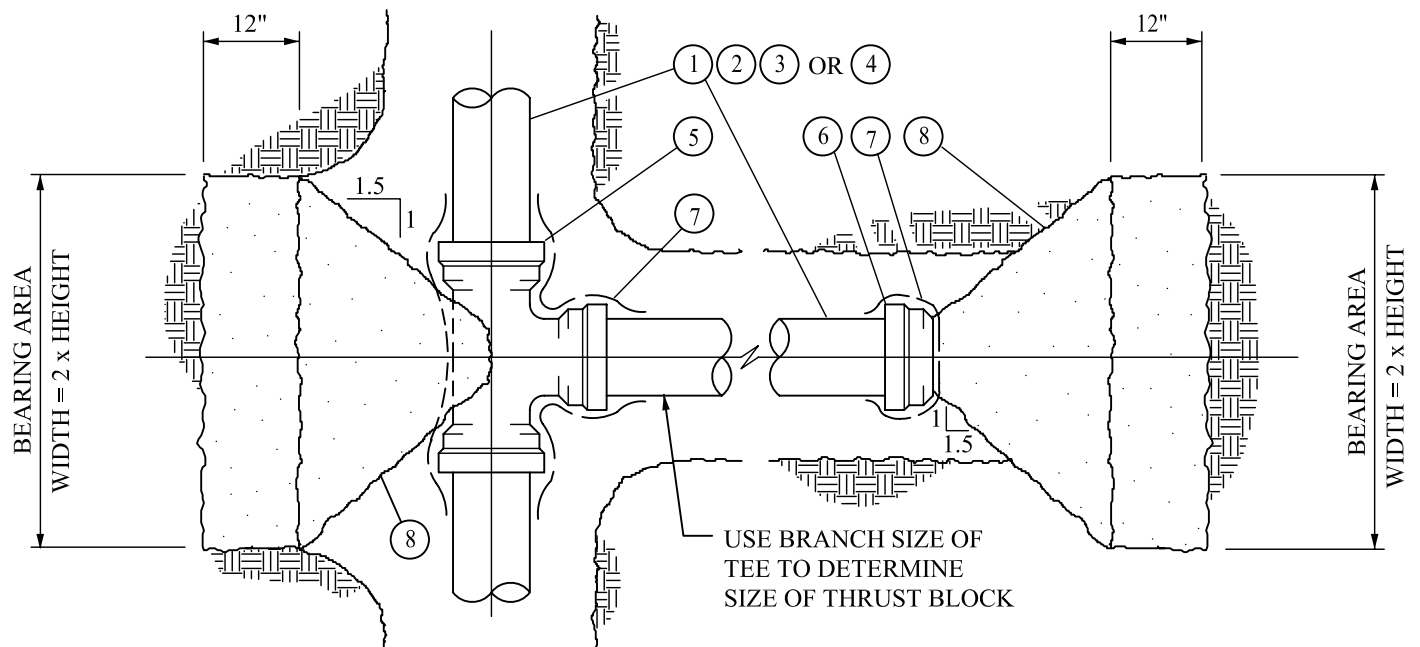
ITEM	DESCRIPTION	SPEC/DWG
1	DUCTILE IRON PIPE WITH NON-RESTRAINED JOINTS	15240
2	STEEL PIPE, CML&C WITH NON-RESTRAINED JOINTS	15061
3	CL 200 PVC PRESSURE PIPE, 12 INCHES & SMALLER WITH NON-RESTRAINED JT	15292
4	DI CONCENTRIC REDUCER W/ CL 150 FLANGES FOR DI OR PVC PIPE - STEEL NOT SHOWN	15240/15292
5	DUCTILE IRON FLANGE ADAPTER WITH CL 150 FLG x MECHANICAL JT OR PUSH ON	15240/15292
6	POLYETHYLENE ENCASEMENT	09954
7	CONCRETE THRUST BLOCK WITH REINFORCING STEEL	02223

OLIVENHAIN MUNICIPAL WATER DISTRICT

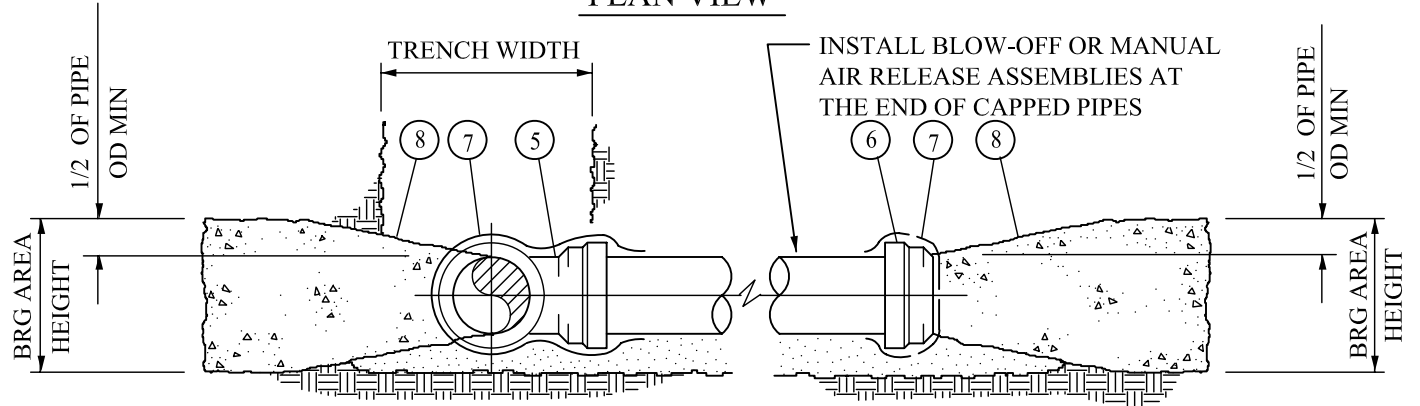
BOYLE
ENGINEERING
CORPORATION

**THRUST BLOCK FOR PIPE REDUCERS
WORKING PRESSURE 151-200 PSI**

STD DWG NO.
D-3.2
JUNE 2008



PLAN VIEW



TRENCH SECTION

MINIMUM BEARING AREA OF BLOCK IN SQUARE FEET								
SIZE	4"	6"	8"	10"	12"	14"	16"	18"
TÉE	3	6	10	15	21	28	36	45
CAP	3	6	10	15	21	28	36	45

$$\text{HEIGHT} = \sqrt{\frac{\text{BRG AREA}}{2}}$$

$$\text{WIDTH} = 2 \times \text{HEIGHT}$$

NOTE BASED ON SOIL BEARING CAPACITY OF 2000 LBS/SF. SPECIAL DESIGN REQUIRED IF SOIL BEARING CAPACITY IS LESS THAN 2000 LBS/SF. PLACE CONCRETE AGAINST UNDISTURBED GROUND IN TRENCH BOTTOM AND SIDE.

4"-18" WATER MAINS - 0-150 PSI

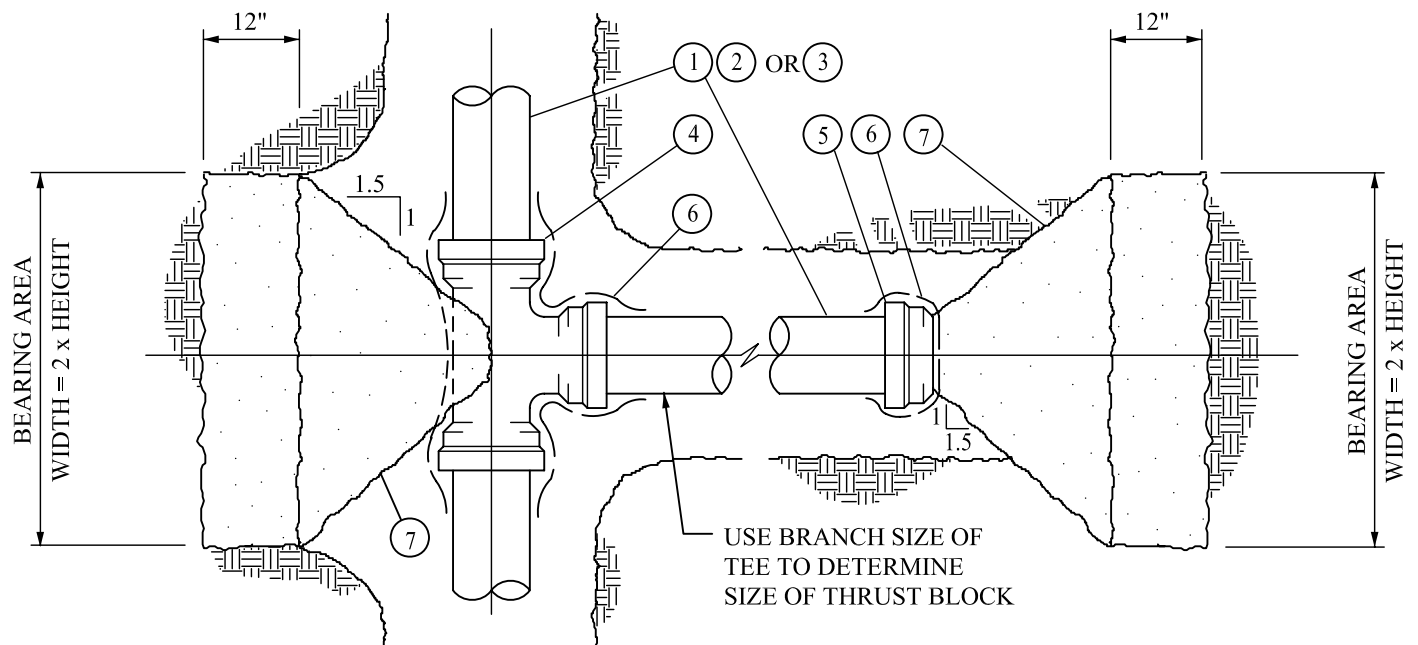
ITEM	DESCRIPTION	SPEC/DWG
1	DUCTILE IRON PIPE WITH NON-RESTRAINED JOINTS	15240
2	STEEL PIPE, CML&C WITH NON-RESTRAINED JOINTS	15061
3	CL 150 PVC PRESSURE PIPE, 12 INCHES & SMALLER WITH NON-RESTRAINED JT	15292
4	DR 18 PVC DISTRIBUTION PIPE, 14 INCHES & LARGER W/NON-RESTRAINED JT	15293
5	DUCTILE IRON TEE FOR DI OR PVC PIPE - STEEL OUTLET NOT SHOWN	15240/15292/15293
6	DUCTILE IRON CAP FOR DI OR PVC PIPE - STEEL BULKHEAD NOT SHOWN	15240/15292/15293
7	POLYETHYLENE ENCASEMENT	09954
8	CONCRETE THRUST BLOCK	02223

OLIVENHAIN MUNICIPAL WATER DISTRICT

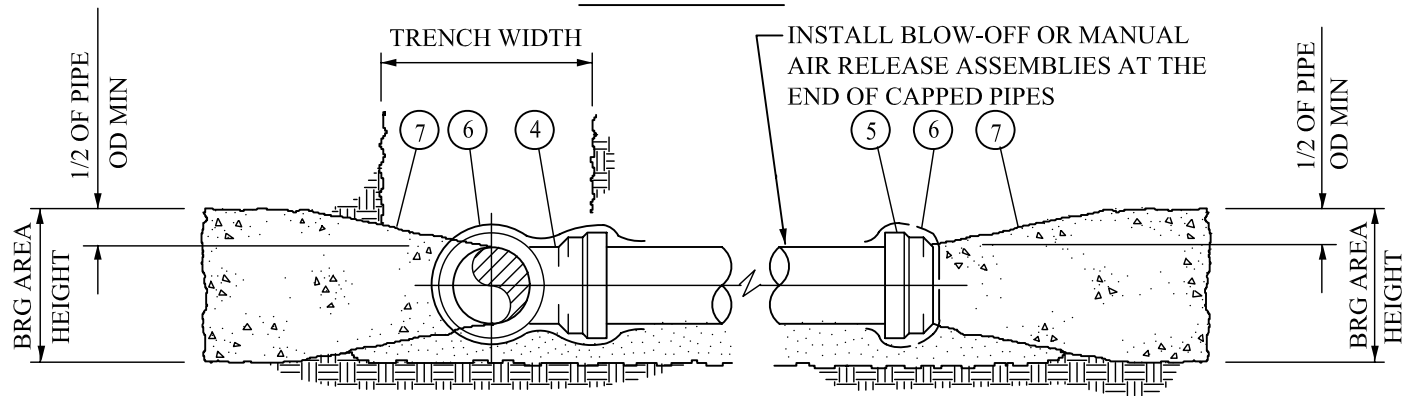
BOYLE
ENGINEERING
CORPORATION

THRUST BLOCK FOR TEES OR CAPS
WORKING PRESSURE 0-150 PSI

STD DWG NO.
D-3.3
JUNE 2008



PLAN VIEW



TRENCH SECTION

MINIMUM BEARING AREA OF BLOCK IN SQUARE FEET								
SIZE	4"	6"	8"	10"	12"	14"	16"	18"
TEE	4	8	13	19	26	35	45	56
CAP	4	8	13	19	26	35	45	56

$$\text{HEIGHT} = \sqrt{\frac{\text{BRG AREA}}{2}}$$

$$\text{WIDTH} = 2 \times \text{HEIGHT}$$

NOTE: BASED ON SOIL BEARING CAPACITY OF 2000 LBS/SF. SPECIAL DESIGN REQUIRED IF SOIL BEARING CAPACITY IS LESS THAN 2000 LBS/SF OR FOR INSTALLATIONS WITH WORKING PRESSURE ABOVE 200 PSI. PLACE CONCRETE AGAINST UNDISTURBED GROUND IN TRENCH BOTTOM AND SIDE.

4"-18" WATER MAINS - 151-200 PSI

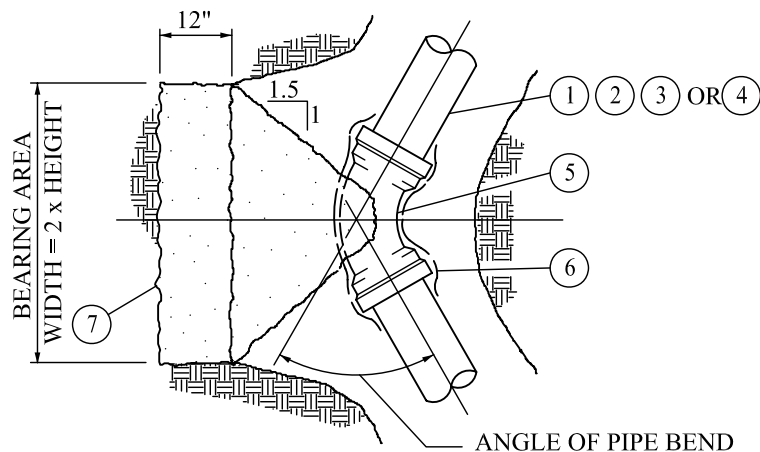
ITEM	DESCRIPTION	SPEC/DWG
1	DUCTILE IRON PIPE WITH NON-RESTRAINED JOINTS	15240
2	STEEL PIPE, CML&C WITH NON-RESTRAINED JOINTS	15061
3	CL 200 PVC PRESSURE PIPE, 12 INCHES & SMALLER WITH NON-RESTRAINED JT	15292
4	DUCTILE IRON TEE FOR DI OR PVC PIPE - STEEL OUTLET NOT SHOWN	15240/15292
5	DUCTILE IRON CAP FOR DI OR PVC PIPE - STEEL BULKHEAD NOT SHOWN	15240/15292
6	POLYETHYLENE ENCASEMENT	09954
7	CONCRETE THRUST BLOCK	02223

OLIVENHAIN MUNICIPAL WATER DISTRICT

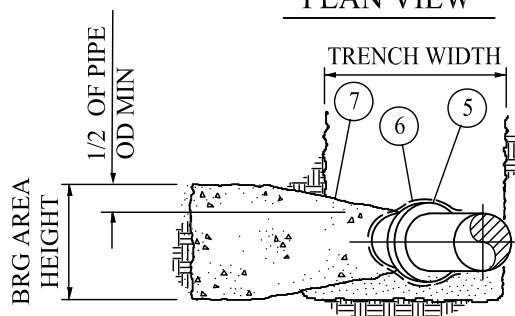
BOYLE
ENGINEERING
CORPORATION

THRUST BLOCK FOR TEES OR CAPS
WORKING PRESSURE 151-200 PSI

STD DWG NO.
D-3.4
JUNE 2008



PLAN VIEW



TRENCH SECTION

MINIMUM BEARING AREA OF BLOCK IN SQUARE FEET									
ANGLE OF PIPE BEND	SIZE	4"	6"	8"	10"	12"	14"	16"	18"
	11-1/4°	1	2	2	3	5	6	8	9
	22-1/2°	2	2	4	6	8	11	14	18
	33-3/4°	2	4	6	9	12	17	21	26
	45°	2	5	8	11	16	21	28	35
	56-1/4°	3	5	10	14	20	26	34	43
	67-1/2°	3	7	11	17	23	31	40	50
	90°	5	8	14	21	29	39	51	64

$$\text{HEIGHT} = \sqrt{\frac{\text{BRG AREA}}{2}}$$

$$\text{WIDTH} = 2 \times \text{HEIGHT}$$

NOTE: BASED ON SOIL BEARING CAPACITY OF 2000 LBS/SF. SPECIAL DESIGN REQUIRED IF SOIL BEARING CAPACITY IS LESS THAN 2000 LBS/SF. PLACE CONCRETE AGAINST UNDISTURBED GROUND IN TRENCH BOTTOM AND SIDE.

4"-18" WATER MAINS - 0-150 PSI

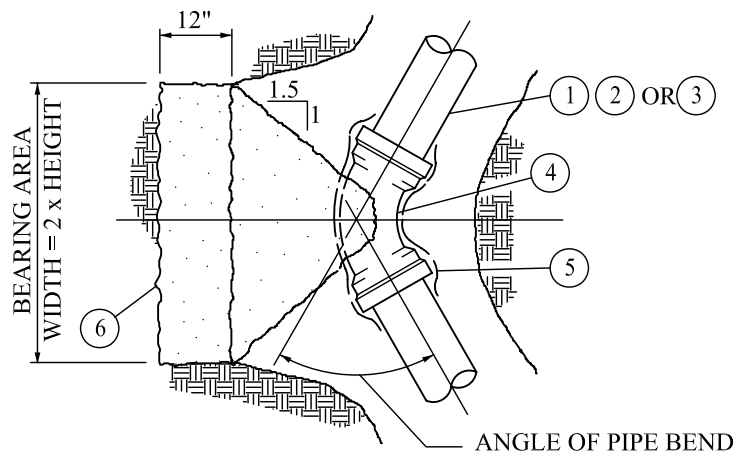
ITEM	DESCRIPTION	SPEC/DWG
1	DUCTILE IRON PIPE WITH NON-RESTRAINED JOINTS	15240
2	STEEL PIPE, CML&C WITH NON-RESTRAINED JOINTS	15061
3	CL 150 PVC PRESSURE PIPE, 12 INCHES & SMALLER WITH NON-RESTRAINED JT	15292
4	DR 18 PVC DISTRIBUTION PIPE, 14 INCHES & LARGER W/NON-RESTRAINED JT	15293
5	DUCTILE IRON BEND FOR DI OR PVC PIPE - STEEL NOT SHOWN	15240/15292/15293
6	POLYETHYLENE ENCASEMENT	09954
7	CONCRETE THRUST BLOCK	02223

OLIVENHAIN MUNICIPAL WATER DISTRICT

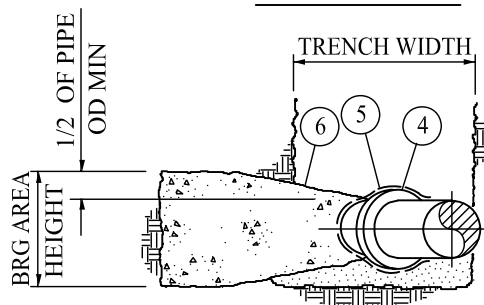
BOYLE
ENGINEERING
CORPORATION

THRUST BLOCK FOR PIPE BENDS
WORKING PRESSURE 0-150 PSI

STD DWG NO.
D-3.5
JUNE 2008



PLAN VIEW



TRENCH SECTION

MINIMUM BEARING AREA OF BLOCK IN SQUARE FEET									
ANGLE OF PIPE BEND	SIZE	4"	6"	8"	10"	12"	14"	16"	18"
11-1/4°	2	2	3	4	6	8	10	11	
22-1/2°	2	3	5	8	11	14	18	23	
33-3/4°	2	5	8	11	15	21	26	33	
45°	3	6	10	14	20	26	35	44	
56-1/4°	4	7	13	18	25	33	43	54	
67-1/2°	4	9	14	21	29	39	50	63	
90°	6	11	18	26	37	49	64	80	

$$\text{HEIGHT} = \sqrt{\frac{\text{BRG AREA}}{2}}$$

$$\text{WIDTH} = 2 \times \text{HEIGHT}$$

NOTE: BASED ON SOIL BEARING CAPACITY OF 2000 LBS/SF. SPECIAL DESIGN REQUIRED IF SOIL BEARING CAPACITY IS LESS THAN 2000 LBS/SF OR FOR INSTALLATIONS WITH WORKING PRESSURE ABOVE 200 PSI. PLACE CONCRETE AGAINST UNDISTURBED GROUND IN TRENCH BOTTOM AND SIDE.

4"-18" WATER MAINS - 151-200 PSI

ITEM	DESCRIPTION	SPEC/DWG
1	DUCTILE IRON PIPE WITH NON-RESTRAINED JOINTS	15240
2	STEEL PIPE, CML&C WITH NON-RESTRAINED JOINTS	15061
3	CL 200 PVC PRESSURE PIPE, 12 INCHES & SMALLER WITH NON-RESTRAINED JT	15292
4	DUCTILE IRON BEND FOR DI OR PVC PIPE - STEEL NOT SHOWN	15240/15292
5	POLYETHYLENE ENCASUREMENT	09954
6	CONCRETE THRUST BLOCK	02223

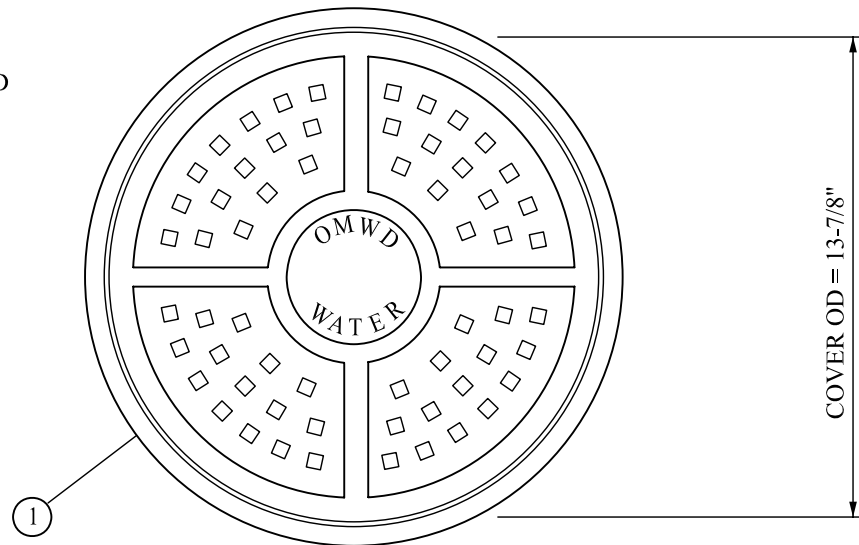
OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

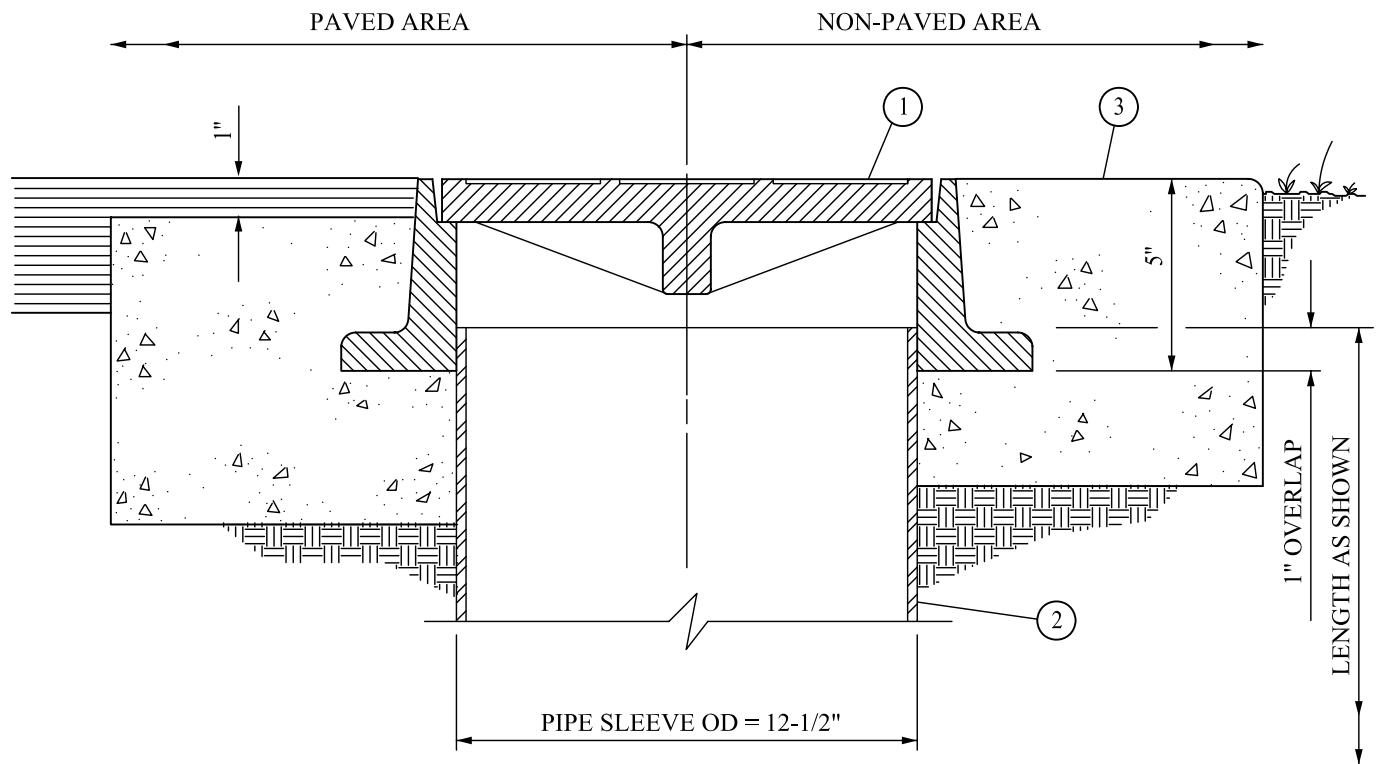
THRUST BLOCK FOR PIPE BENDS
WORKING PRESSURE 151-200 PSI

STD DWG NO.
D-3.6
JUNE 2008

NOTE:
FIELD PAINT TOP SIDE OF
VALVE BOX COVER PER STD
SPEC 09900, SYSTEM NO. 20.



PLAN



SECTION

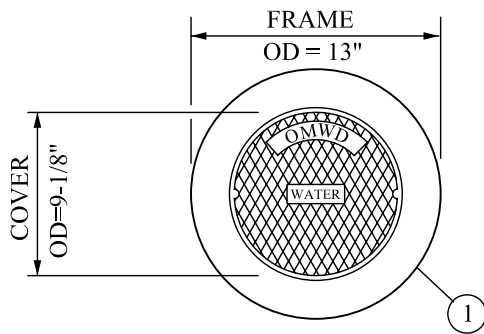
ITEM	DESCRIPTION	SPEC/DWG
1	CAST IRON FRAME AND LID FOR TRAFFIC LOADING	15090/15091
2	12" PVC GRAVITY SEWER PIPE SDR 35	15090/15091
3	30" DIAMETER x 8" THICK CONCRETE RING	03000

OLIVENHAIN MUNICIPAL WATER DISTRICT

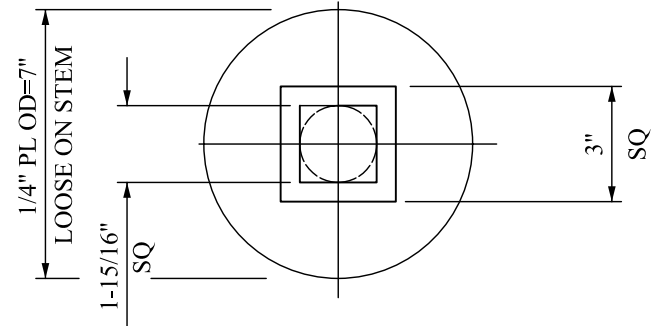
BOYLE
ENGINEERING
CORPORATION

VALVE BOX INSTALLATION
FOR BURIED ASSEMBLIES

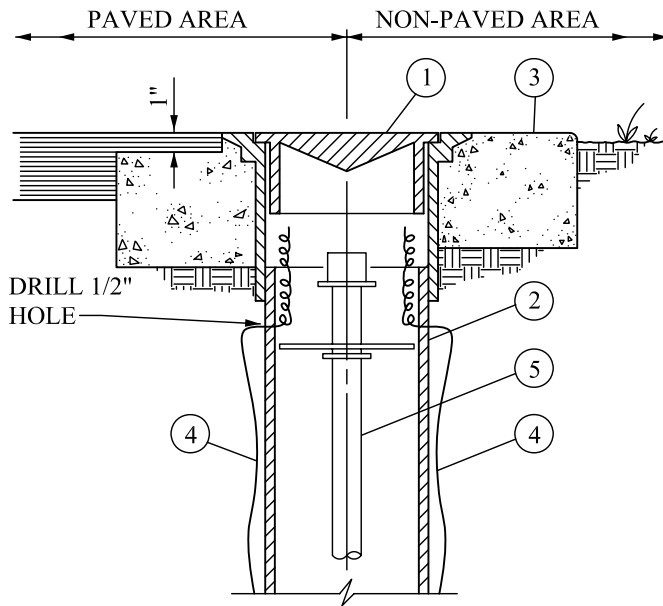
STD DWG NO.
E-1.1
JUNE 2008



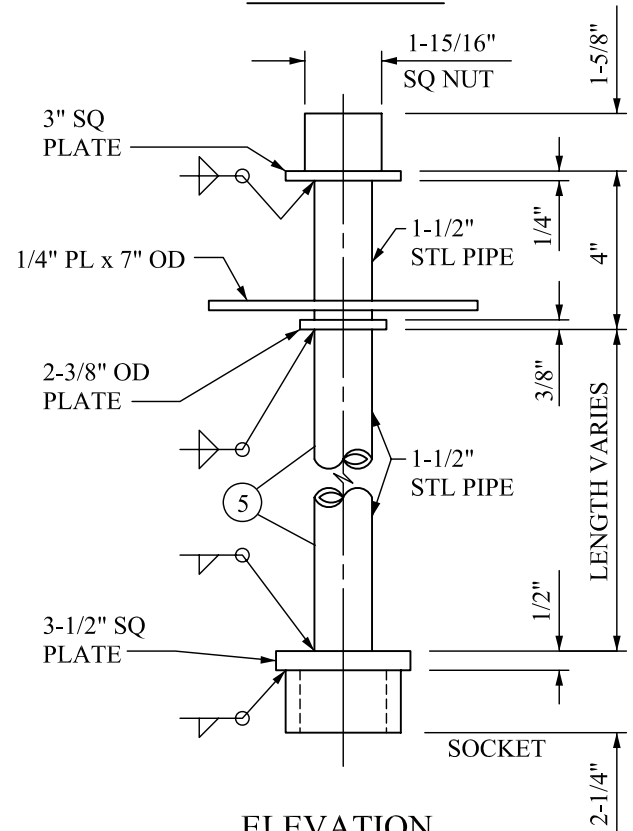
PLAN



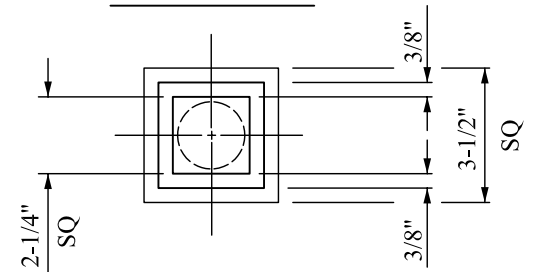
TOP VIEW



SECTION



ELEVATION



BOTTOM VIEW

NOTES:

1. FIELD PAINT TOP SIDE OF VALVE BOX FRAME AND COVER PER STD SPEC 09900, SYSTEM NO. 20. COLOR TO BE OSHA BLUE, OSHA ORANGE, OSHA YELLOW, OSHA WHITE, OR OSHA RED DEPENDING ON VALVE PURPOSE.
2. PROVIDE EXTENSION STEM IF VALVE OPERATING NUT IS MORE THAN 2 FEET BELOW VALVE BOX COVER.

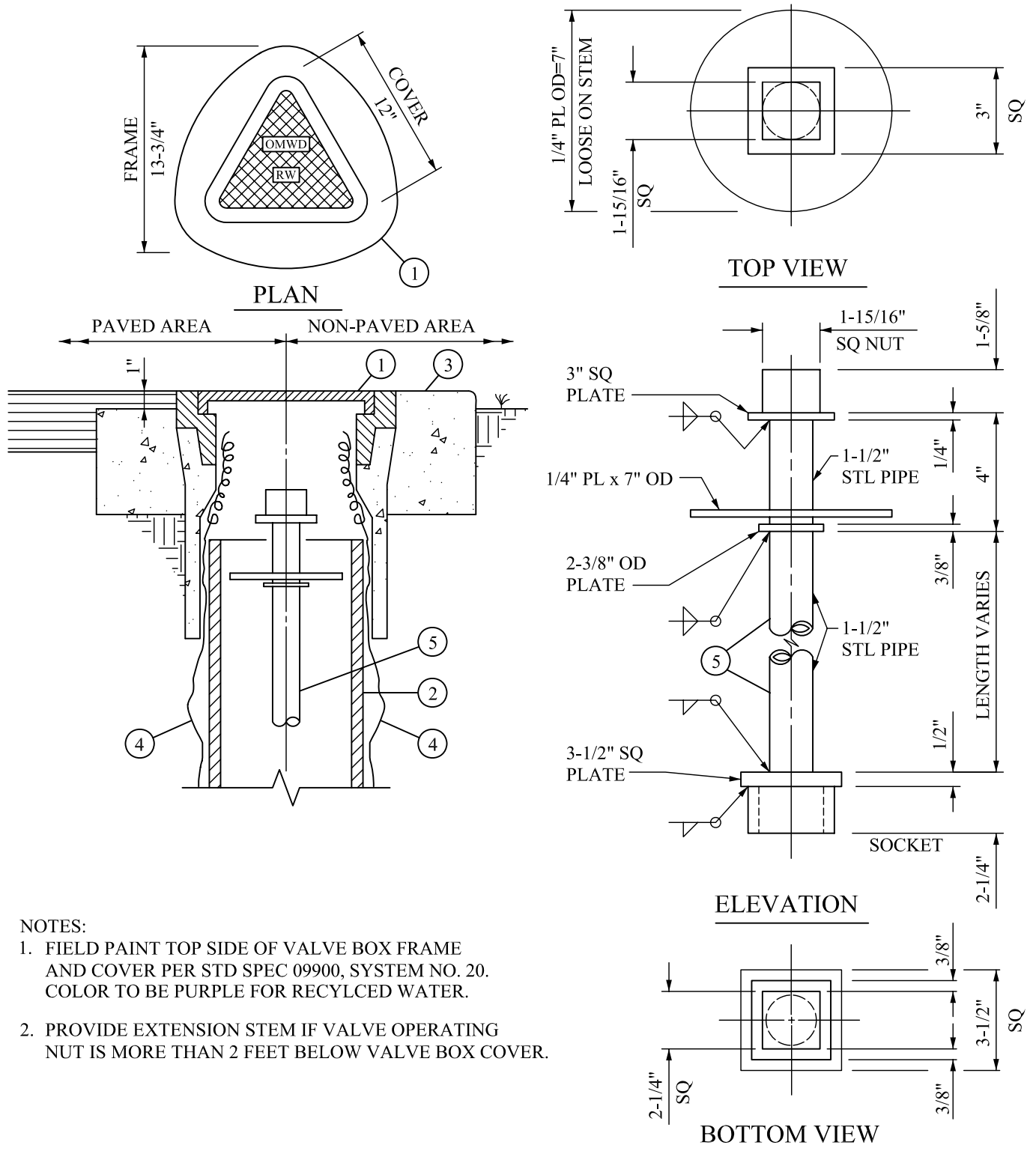
ITEM	DESCRIPTION	SPEC/DWG
1	CAST IRON FRAME AND COVER FOR TRAFFIC LOADING	15101
2	8" PVC PLASTIC IRRIGATION PIPE (PIP) SDR 41 - EXTENSION PIPE	15101
3	24" DIAMETER x 6" THICK CONCRETE RING	03000
4	TRACER WIRE, SECURE W/PLASTIC ADHESIVE TAPE TO EXTENSION PIPE	15292/15293
5	EXTENSION STEM, HOT DIP GALVANIZE AFTER FABRICATION	15101

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

VALVE BOX INSTALLATION
FOR BURIED POTABLE WATER VALVES

STD DWG NO.
E-1.2
JUNE 2008



NOTES:

1. FIELD PAINT TOP SIDE OF VALVE BOX FRAME AND COVER PER STD SPEC 09900, SYSTEM NO. 20. COLOR TO BE PURPLE FOR RECYLCED WATER.
2. PROVIDE EXTENSION STEM IF VALVE OPERATING NUT IS MORE THAN 2 FEET BELOW VALVE BOX COVER.

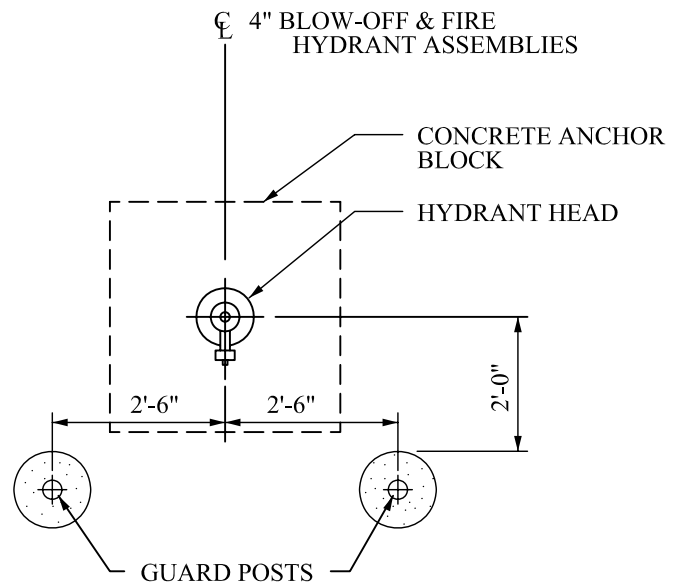
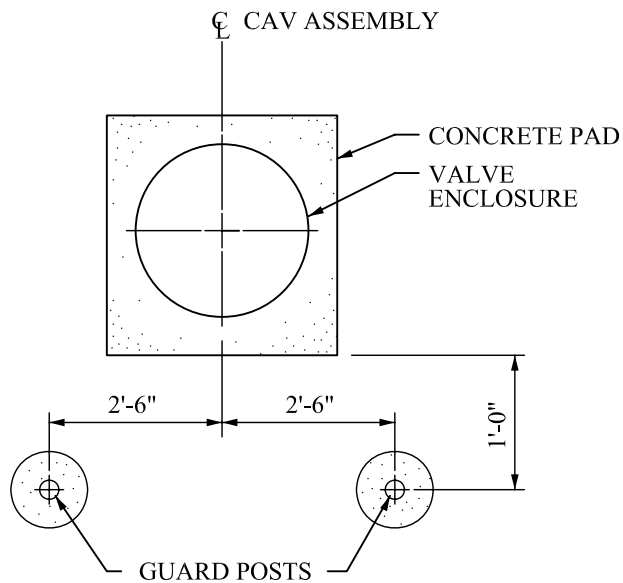
ITEM	DESCRIPTION	SPEC/DWG
1	TRIANGULAR SHAPED CAST IRON FRAME AND COVER FOR TRAFFIC LOADING	15101
2	8" CL 150 PVC PRESSURE PIPE (AWWA C900)	15101
3	24" DIAMETER x 6" THICK CONCRETE RING	03000
4	TRACER WIRE, SECURE W/PLASTIC ADHESIVE TAPE TO EXTENSION PIPE	15292/15293
5	EXTENSION STEM, HOT DIP GALVANIZE AFTER FABRICATION	15101

OLIVENHAIN MUNICIPAL WATER DISTRICT

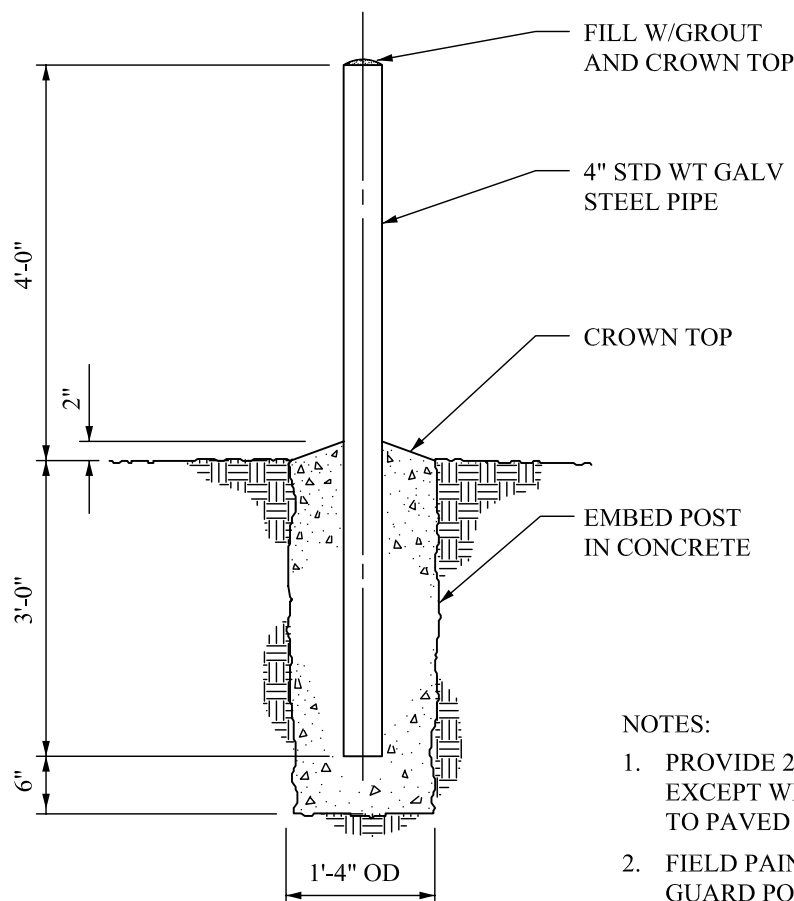
BOYLE
ENGINEERING
CORPORATION

VALVE BOX INSTALLATION
FOR BURIED RECYCLED WATER VALVES

STD DWG NO.
E-1.3
JUNE 2008



PLAN VIEWS



NOTES:

1. PROVIDE 2 GUARD POSTS FOR EACH ASSEMBLY EXCEPT WHERE ASSEMBLY IS LOCATED ADJACENT TO PAVED STREET WITH CONCRETE CURBS.
2. FIELD PAINT ABOVE GROUND SURFACES OF GUARD POSTS PER STD SPEC 09900, SYSTEM NO. 20. COLOR TO BE OSHA YELLOW.

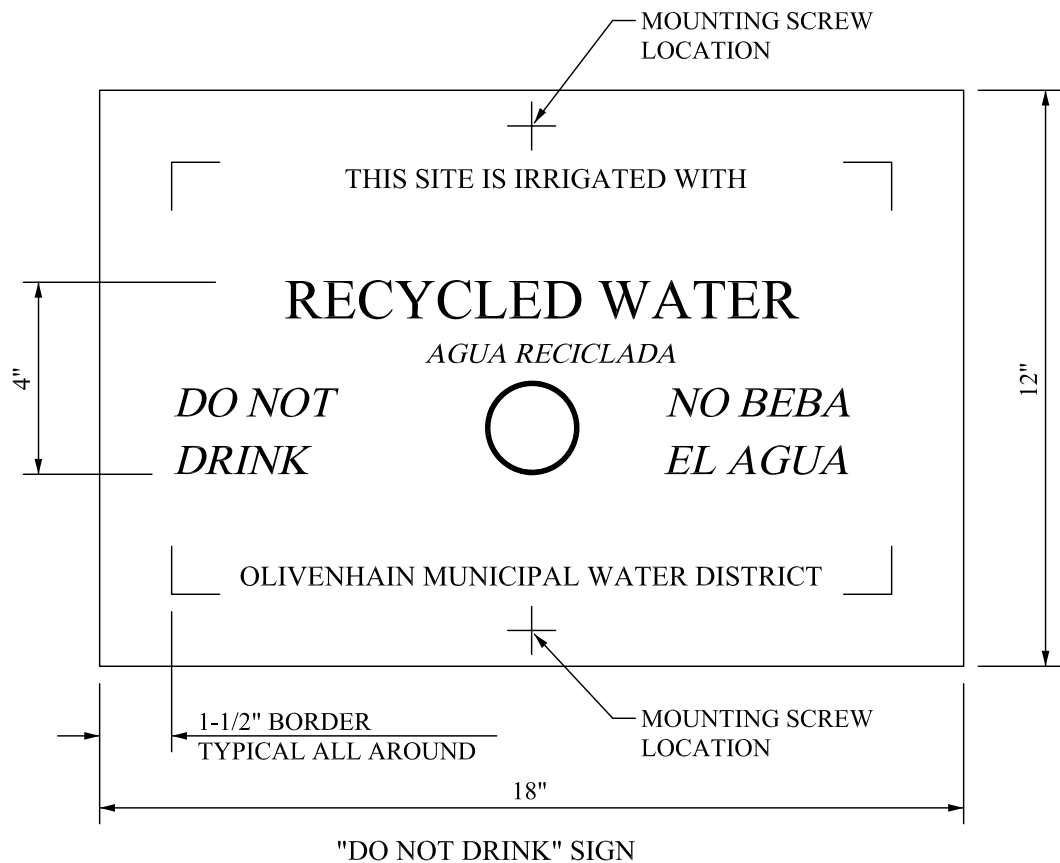
SECTION

OLIVENHAIN MUNICIPAL WATER DISTRICT

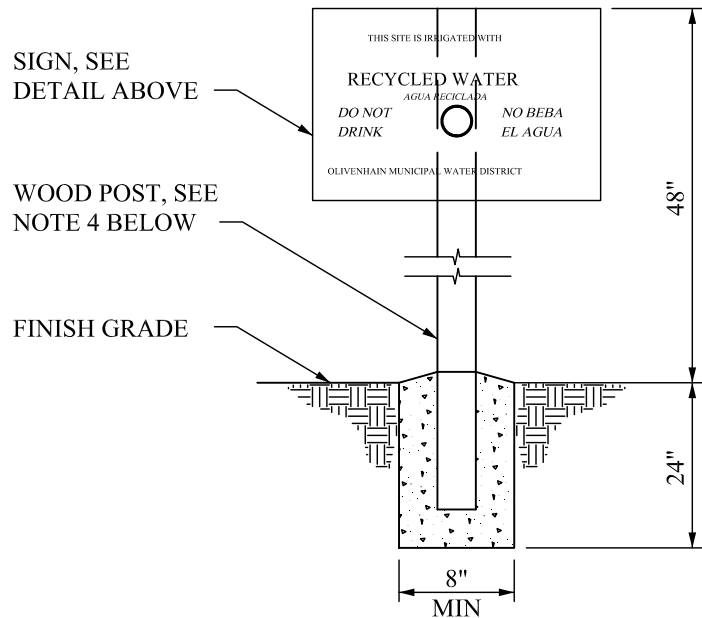
BOYLE
ENGINEERING
CORPORATION

**GUARD POST INSTALLATION
FOR ABOVE GROUND ASSEMBLIES**

STD DWG NO.
E-1.4
JUNE 2008



"DO NOT DRINK" SIGN



NOTES:

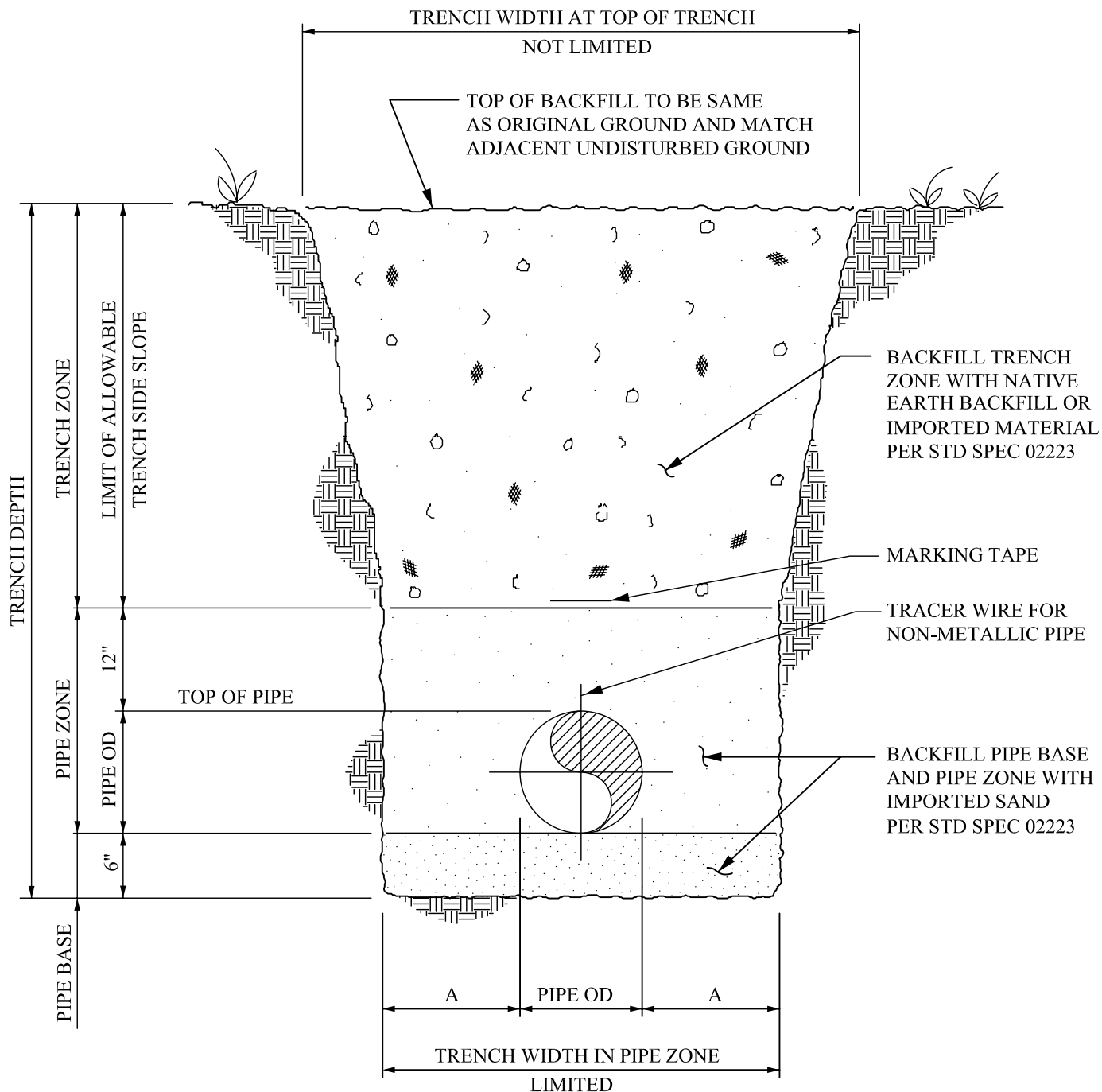
1. REFER TO SECTION 15151 OF THE SPECIFICATIONS.
2. SIGNS SHALL BE MANUFACTURED OF ALUMINUM SHEET, THICKNESS SHALL BE 18 GAGE.
3. THE SIGN SHALL INCORPORATE A PURPLE BACKGROUND WITH WHITE LETTERS AND SYMBOLS.
4. SIGNS SHALL BE MOUNTED ON A 4" x 4" PRESSURE TREATED WOOD POST 36" FROM FINISHED GRADE. ATTACH THE SIGN TO THE POST USING 1/4" x 2-1/2" ANODIZED LAG SCREWS AND WASHERS (2 EACH).

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

RECYCLED WATER SIGN

STD DWG NO.
E-1.5
JUNE 2008



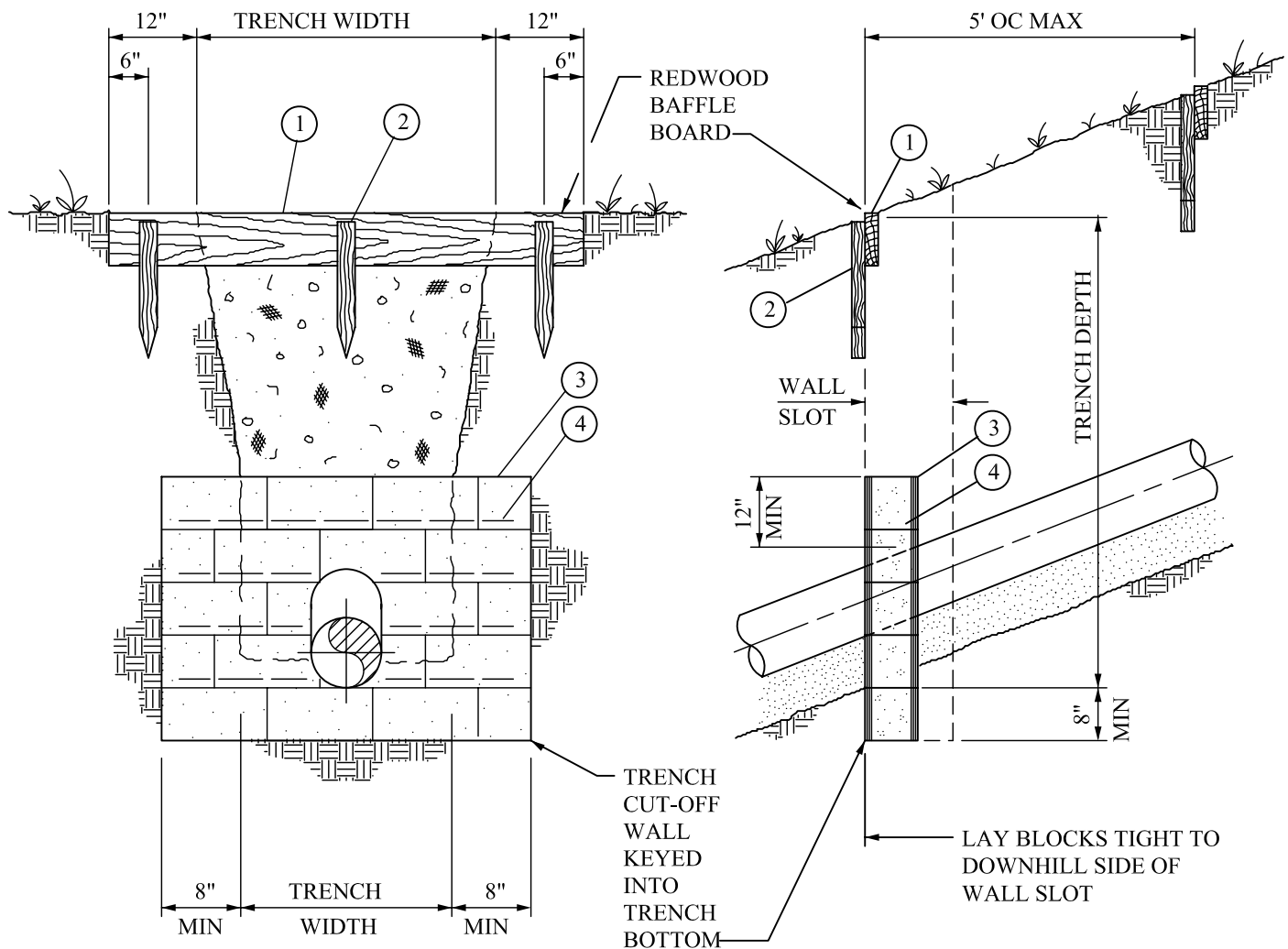
A	PIPE DIAMETER	MIN	MAX
	1" THROUGH 8"	6"	9"
	10" THROUGH 16"	8"	12"
	18" THROUGH 24"	10"	18"
	27" THROUGH 36"	12"	24"

OLIVENHAIN MUNICIPAL WATER DISTRICT

BOYLE
ENGINEERING
CORPORATION

TYPICAL TRENCH SECTION
FOR WATER MAINS

STD DWG NO.
E-2.1
JUNE 2008



TRENCH SECTION

TRENCH ELEVATION

NOTES:

1. INSTALL TRENCH CUT-OFF WALLS AT 25 FEET ON CENTER ON SLOPES 35% AND STEEPER. PLACE CONCRETE BLOCKS IN HORIZONTAL LAYERS AND REINFORCE WITH LADDER STEEL. LAY BLOCKS FULL-BEDDED IN MORTAR AND FILL HEAD JOINTS SOLID WITH MORTAR. CUT BLOCKS TO FIT AROUND THE PIPE AND MORTAR IN PLACE. PROVIDE ONE 1/2" DIAMETER WEEP HOLE FOR EACH 1.5 SF OF WALL IN THE TRENCH PIPE ZONE. GROUT ALL CELLS OF THE WALL SOLID.
2. USE REDWOOD BAFFLE BOARDS ON SLOPES 35% AND STEEPER OR AS DETERMINED BY THE DISTRICT'S REPRESENTATIVE. PLACE BAFFLE BOARDS 5 FEET ON CENTER MAXIMUM OR AS DIRECTED. INSTALL BOARDS IN A VERTICAL POSITION AND LEVEL WITH THE CONTOURS OF THE SLOPE. INSTALL REDWOOD STAKES ON THE DOWNHILL SIDE OF THE BAFFLE BOARD AT 3 FEET ON CENTER.
3. EXTEND TRENCH CUT-OFF WALLS AND REDWOOD BAFFLE BOARDS INTO THE UNDISTURBED GROUND BEYOND THE LIMITS OF ACTUAL TRENCH EXCAVATION.

ITEM	DESCRIPTION	SPEC/DWG
1	2" x 12" MERCHANTABLE HEART GARDEN GRADE REDWOOD BAFFLE BOARD	02223
2	2" x 2" x 24" MERCHANTABLE HEART GARDEN GRADE REDWOOD STAKE	02223
3	8" x 8" x 16" CONCRETE MASONRY BLOCK - GROUT CELLS SOLID	02223
4	NO. 9 WIRE LADDER TYPE STEEL REINFORCING IN ALL HORIZONTAL JOINTS	02223

OLIVENHAIN MUNICIPAL WATER DISTRICT

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**TRENCH CUT-OFF WALL
AND REDWOOD BAFFLE BOARD**

STD DWG NO.
E-2.2
JUNE 2008