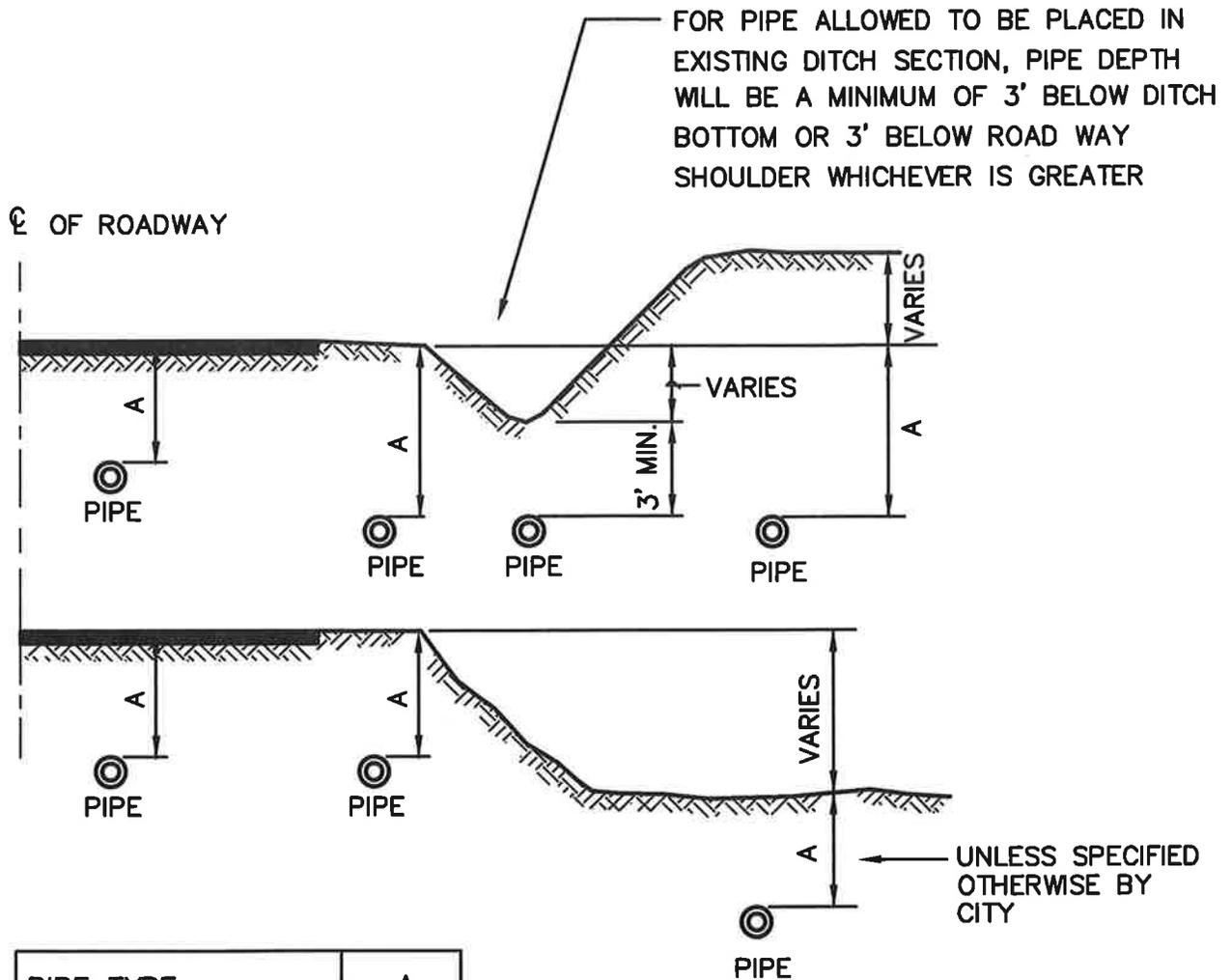


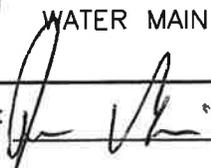
WATER SYSTEM DETAILS

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PIPE TYPE	A
TRANSMISSION	42"
DISTRIBUTION	36"

* MINIMUM DEPTH

 <h2 style="margin: 0;">CITY OF ALGONA</h2> <h3 style="margin: 0;">WATER MAIN DEPTH REQUIREMENTS</h3>	
APPROVED: 	DWG. NO. WA-MAIN
DATE: 04/06/2015	

FINISHED GRADE

BACKFILL MATERIAL
CONSISTING OF:
CRUSHED SURFACING, OR
CDF AS DIRECTED BY THE
CITY

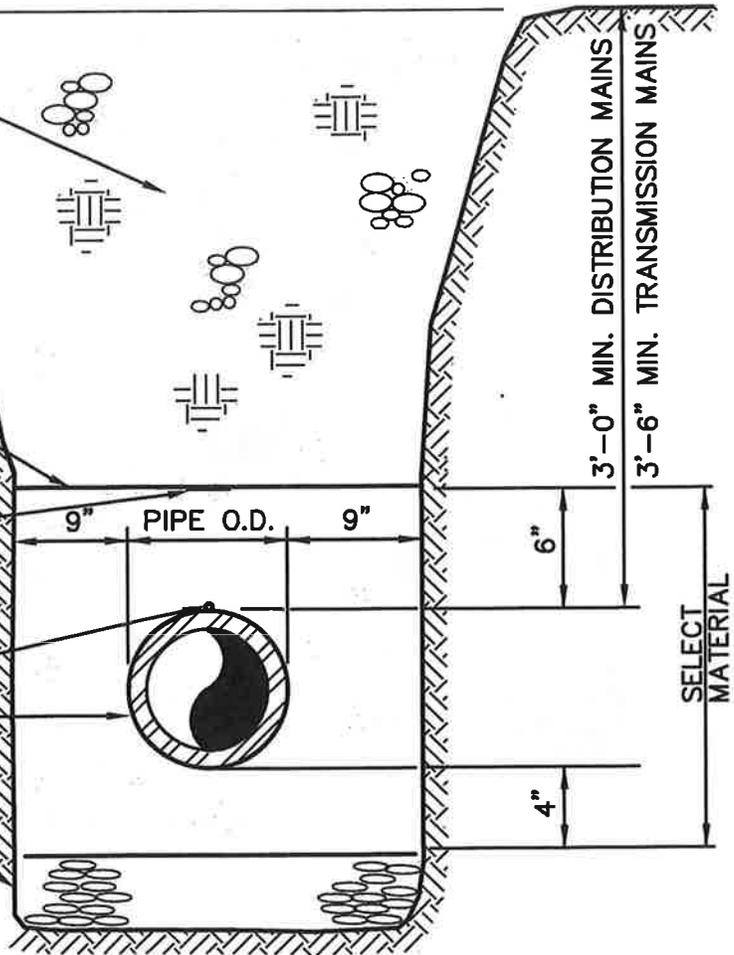
ALL BACKFILL SHALL BE
COMPACTED TO 95%
MODIFIED PROCTOR,
ASTM D1557.

BACKFILL SHALL BE
HAND TAMPED TO THIS
LEVEL ABOVE PIPE.

3" MIN WIDTH FLOURESCENT
IDENTIFICATION TAPE TO
RUN CONTINUOUS WITH
PIPE.

#12 COPPER TRACE WIRE
W/THHN INSULATION
DUCTILE IRON WATER
MAIN

FOUNDATION GRAVEL
AS REQUIRED



NOTE:

BACKFILL MATERIAL AND COMPACTION
SHALL BE IN CONFORMANCE WITH THE
CITY'S STANDARDS AND/OR STATE OR
COUNTY PERMIT REQUIREMENTS.

SELECT MATERIAL SHALL BE CRUSHED
SURFACING OR GRAVEL BACKFILL FOR
PIPE ZONE BEDDING.



CITY OF ALGONA

WATER MAIN TRENCH SECTION

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WA-MAIN2

Example Thrust Block Calculation

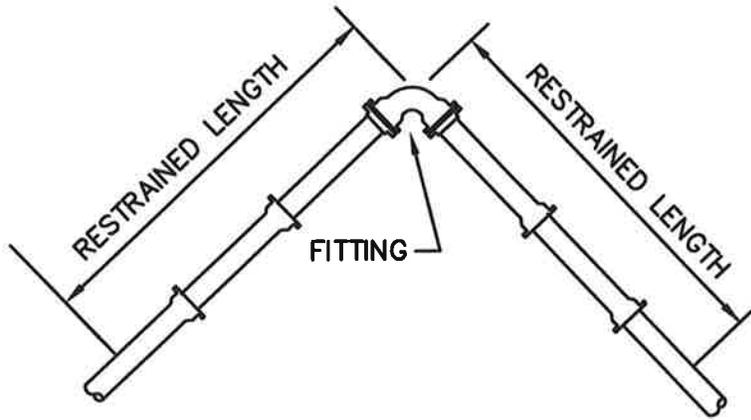
		Thrust at Fitting in Pounds				
Pipe Diam	Pressure	Tee and Dead End	90° bend	45° bend	22.5° bend	11.25° bend
4	200	2,513	3,554	1,924	981	493
6	200	5,655	7,997	4,328	2,206	1,109
8	200	10,053	14,217	7,694	3,923	1,971
10	200	15,708	22,214	12,022	6,129	3,079
12	200	22,619	31,989	17,312	8,826	4,434
16	200	40,212	56,869	30,777	15,690	7,883

Soil Type	Safe Soil Bearing Pressure (LBS/SF)	Comment
Muck, Peat	0	Use Restrained Joint
Soft Clay	1,000	Typical Soil in Algona
Sand	2,000	
Sand & Gravel	3,000	
Sand & Gravel Cemented with Clay	4,000	

Example:

For 8-inch pipe determine thrust block size needed for 250 psi at a 90-degree bend

1. Multiply Thrust at fitting by ratio of pressure to 200 psi
 $14,217 * 250/200 = 17,772 \text{ lbs}$
2. Determine Volume of Thrust Block. Assume 150 lbs/CF concrete
 $17,772/150 = 118.5 \text{ CF concrete}$
 $= 4.4 \text{ CY concrete}$
3. Determine Bearing Area of Thrust Block in soft clay
 $17,772 \text{ lbs} / 1,000 \text{ lbs/SF} = 17.8 \text{ SF bearing area}$



PIPE SIZE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	TEE OR DEAD END CAP
	RESTRAINED LENGTH IN FEET				
4"	40	17	8	4	30
6"	55	23	11	6	39
8"	73	31	15	8	53
10"	88	37	18	9	67
12"	103	43	21	10	82
16"	133	55	27	13	110
18"	145	60	29	15	124

NOTES:

- ① RESTRAINED LENGTHS SHOWN ARE MINIMUM AND FOR LINEAL FEET REQUIRED ON EACH SIDE OF FITTING INDICATED.
- ② FOOTAGES ARE BASED ON 250 PSI PRESSURE AND 42 INCHES COVER. IF PRESSURE IS GREATER OR COVER IS LESS, THE RESTRAINED LENGTH SHALL BE INCREASED ACCORDINGLY



CITY OF ALGONA

THRUST RESTRAINT FOR DUCTILE IRON PIPE

APPROVED: _____

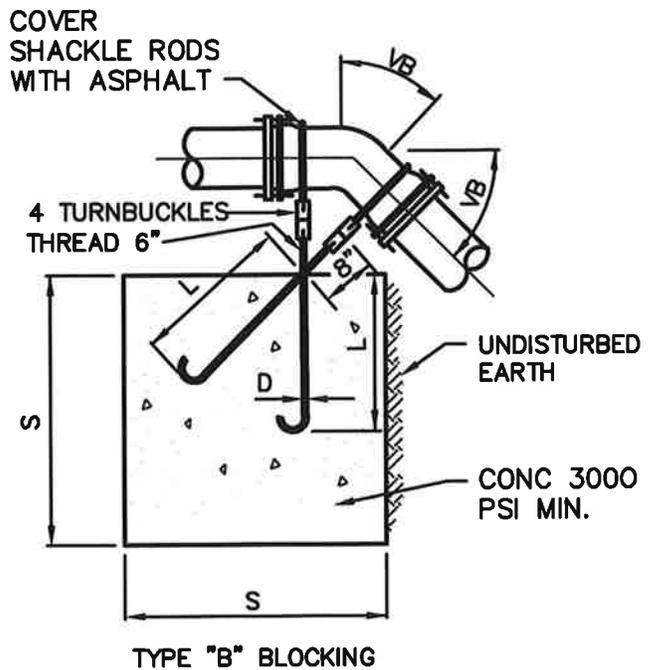
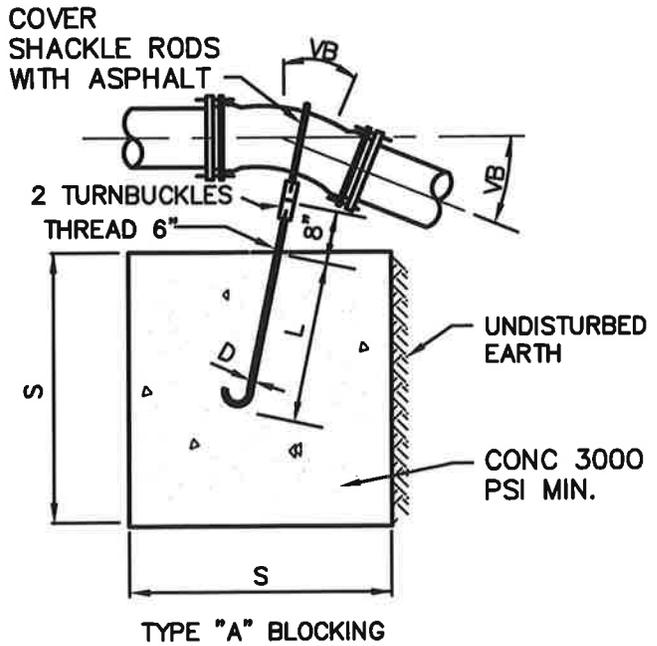
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DATE: 04/06/2015

DWG. NO.
DUCT-PIP

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TYPE "A" BLOCKING						
FOR 11 1/4°-22 1/2°-30° VERTICAL BENDS						
PIPE SIZE NOMINAL DIAMETER-- INCHES	TEST PRESSURE PSI	VB		S	D	L
		VERTICAL BEND DEGREES	No. OF CU. FT. OF CONC. BLOCKING			
4"	300	11 1/4	8	2	5/8"	1.5
		22 1/2	11	2.2		2.0
		30	17	2.6		
6"	300	11 1/4	11	2.2	5/8"	2.0
		22 1/2	25	2.9		
		30	41	3.5		
8"	300	11 1/4	16	2.5	5/8"	2.0
		22 1/2	47	3.6		
		30	70	4.1		
12"	250	11 1/4	32	3.2	5/8"	2.0
		22 1/2	88	4.5	7/8"	3.0
		30	132	5.1		
16"	225	11 1/4	70	4.1	7/8"	3.0
		22 1/2	184	5.7	1 1/8"	4.0
		30	275	6.5	1 1/4"	
20"	200	11 1/4	91	4.5	7/8"	3.0
		22 1/2	225	6.1	1 1/4"	4.0
		30	330	6.9	1 3/8"	4.5
24"	200	11 1/4	128	5.0	1"	3.5
		22 1/2	320	6.8	1 3/8"	4.5
		30	480	7.9	1 7/8"	5.5
TYPE "B" BLOCKING						
FOR - 45° VERTICAL BENDS						
		VB		S	D	L
4"	300	45	30	3.1	5/8"	2.0
6"			68	4.1		
8"			123	5.0		
12"	250		232	6.1	3/4"	2.5
16"	225		478	7.8	1 1/8"	4.0
20"	200		560	8.2	1 1/4"	
24"			820	9.4	1 3/8"	4.5



THIS TABLE REPRESENTS THE "MINIMUM" CONSTRUCTION STANDARD. APPROPRIATELY SIZED ANCHOR BLOCKS BASED ON EXISTING AND LOCAL CONDITIONS ARE REQUIRED



CITY OF ALGONA

VERTICAL ANCHOR BLOCK

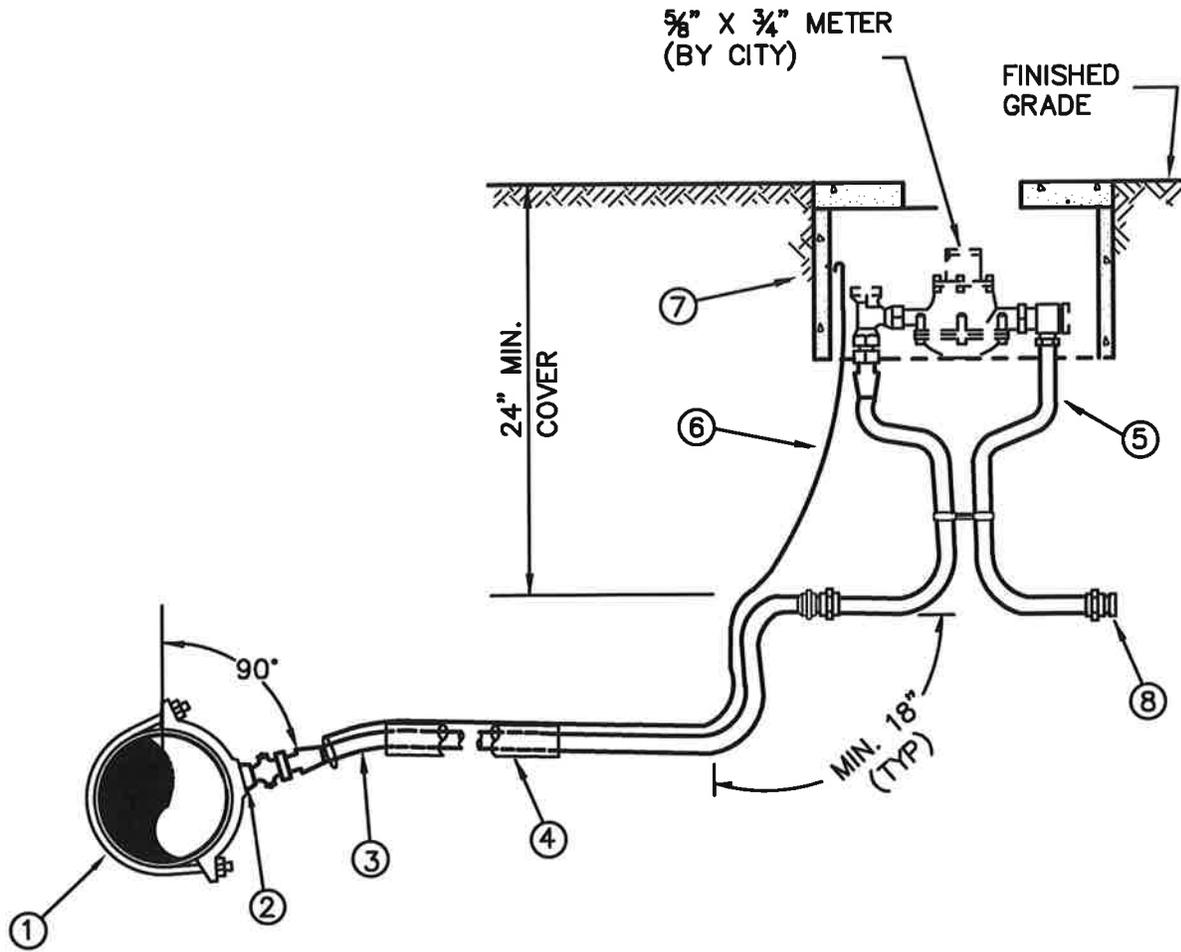
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DATE: 04/06/2015

DWG. NO.

ANCH-BLO

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NOTES:

METER LOCATION TO BE IN
PLANTER STRIP IF EXISTING OR
BACK OR SIDEWALK.



CITY OF ALGONA

1" AND SMALLER WATER SERVICE

APPROVED: _____

DATE: 04/06/2015

DWG. NO.
WAT-SERV

LEGEND

- ① SERVICE SADDLE – SINGLE STRAP FOR PIPE DIAMETERS LESS THAN 10" (ROMAC 101S OR EQUAL) AND DOUBLE STRAP FOR PIPE DIAMETERS 10" AND GREATER (ROMAC 202S OR EQUAL).
- ② 1" BALL STYLE CORP STOP MIP X PEP JOINT (MUELLER B-25029 OR EQUAL)
- ③ 1" HIGH MOLECULAR (200 PSI, SDR 7) "POLY" PIPE (LENGTH AS REQUIRED)
- ④ INSTALL SERVICE LINE IN 2" PVC GUARD PIPE (SCH-80) WHEN BORING UNDER ROADWAY (3' MINIMUM BEYOND AND BENEATH PAVEMENT SECTION) OR AT UTILITY CROSSINGS AS DIRECTED BY CITY.
- ⑤ COPPER SETTER WITH ANGLE BALL VALVE AND ANGLE DOUBLE CHECK VALVE (MUELLER B2404-2A OR EQUAL)
- ⑥ #10 GAUGE COPPER WIRE w/ THHN BLUE PLASTIC INSULATION FROM MAINLINE TAP TO METER BOX AND EXPOSE 6" MINIMUM IN BOX (RUN INSIDE 2" PVC GUARD CONDUIT WHERE APPLICABLE). MINIMUM OF 1 WRAP AROUND SERVICE LINE EVERY 5' FEET.
- ⑦ METER BOX – FOGTITE NO.9 WITH HINGED LID DRILLED FOR TRPL HOLE FOR TOUCH READ METERS, H2O LOADING. (SET FLUSH WITH FINISHED GRADE)
- ⑧ PROVIDE APPROVED WATERTIGHT PLUG UNTIL CONNECTION TO PRIVATE SYSTEM IS MADE.

1" AND SMALLER WATER SERVICE



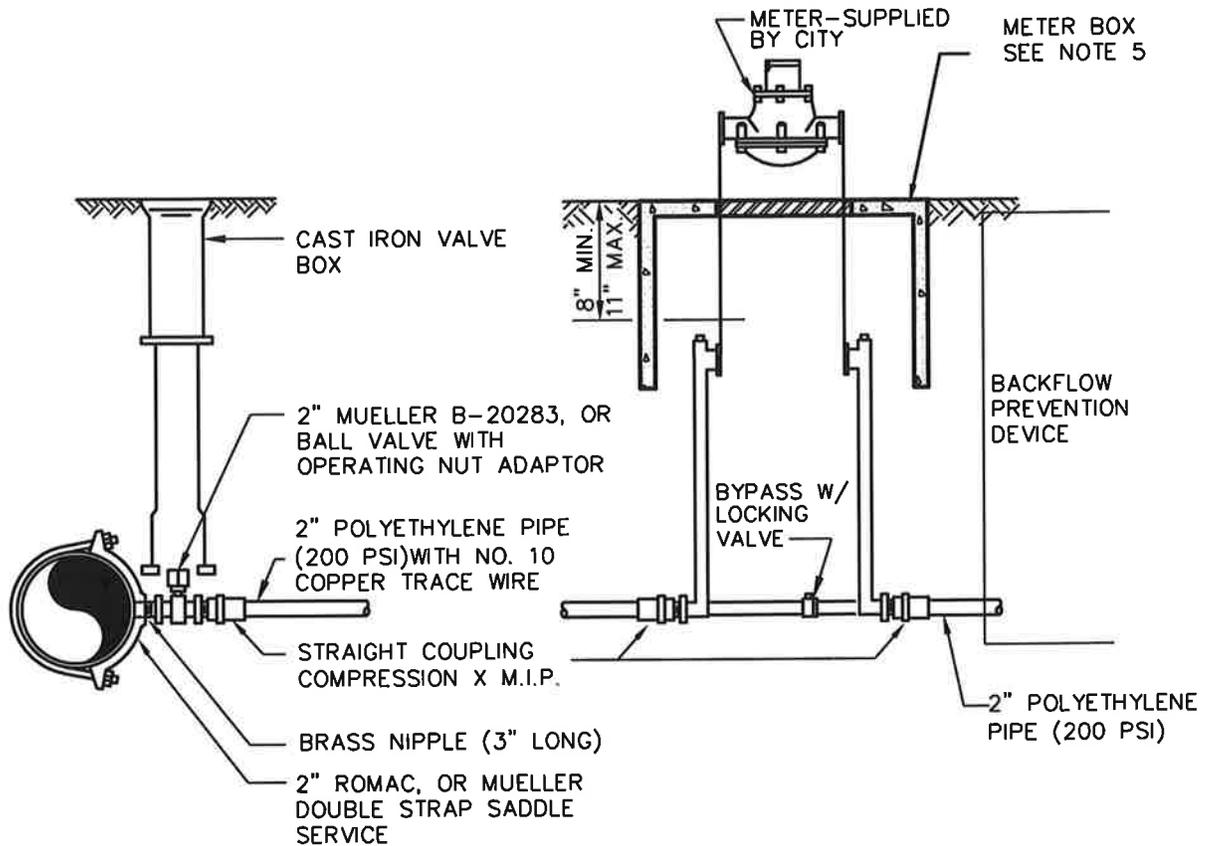
CITY OF ALGONA

1" AND SMALLER WATER SERVICE

APPROVED: 

DATE: 04/06/2015

DWG. NO.
WAT-SERV



NOTES:

1. NO SPLICES IN 2" COPPER PIPE ALLOWED.
2. SERVICE FROM METER BOX TO STRUCTURE BY PROPERTY OWNER.
3. INDIVIDUAL SERVICES REQUIRED FOR EACH STRUCTURE.
4. 2-INCH METER SETTER (WITH ADAPTERS IF 1 1/2-INCH METER USED), FORD 70 SERIES OR MUELLER H-1427 WITH BALL VALVE AND CHECK VALVE.
5. METER BOX - FOGTITE NO.2 WITH STEEL LID AND DRILLED FOR TRPL HOLE FOR TOUCH READ. BOX SHALL BE H-20 LOAD RATED WHERE REQUIRED.
6. ESMT PROVIDED TO CITY TO AND AROUND METERS LOCATED OUTSIDE R/W.
7. ALL SERVICES SHALL HAVE WASHINGTON STATE APPROVED RPBA FOR BACKFLOW PREVENTION. CONFIRM LOCATION OF ASSEMBLY WITH CITY. INITIAL AND ANNUAL TEXTING REQUIRED. MULTIFAMILY ALLOWED TO USE DCVA IN LIEU OF RPBA.



CITY OF ALGONA

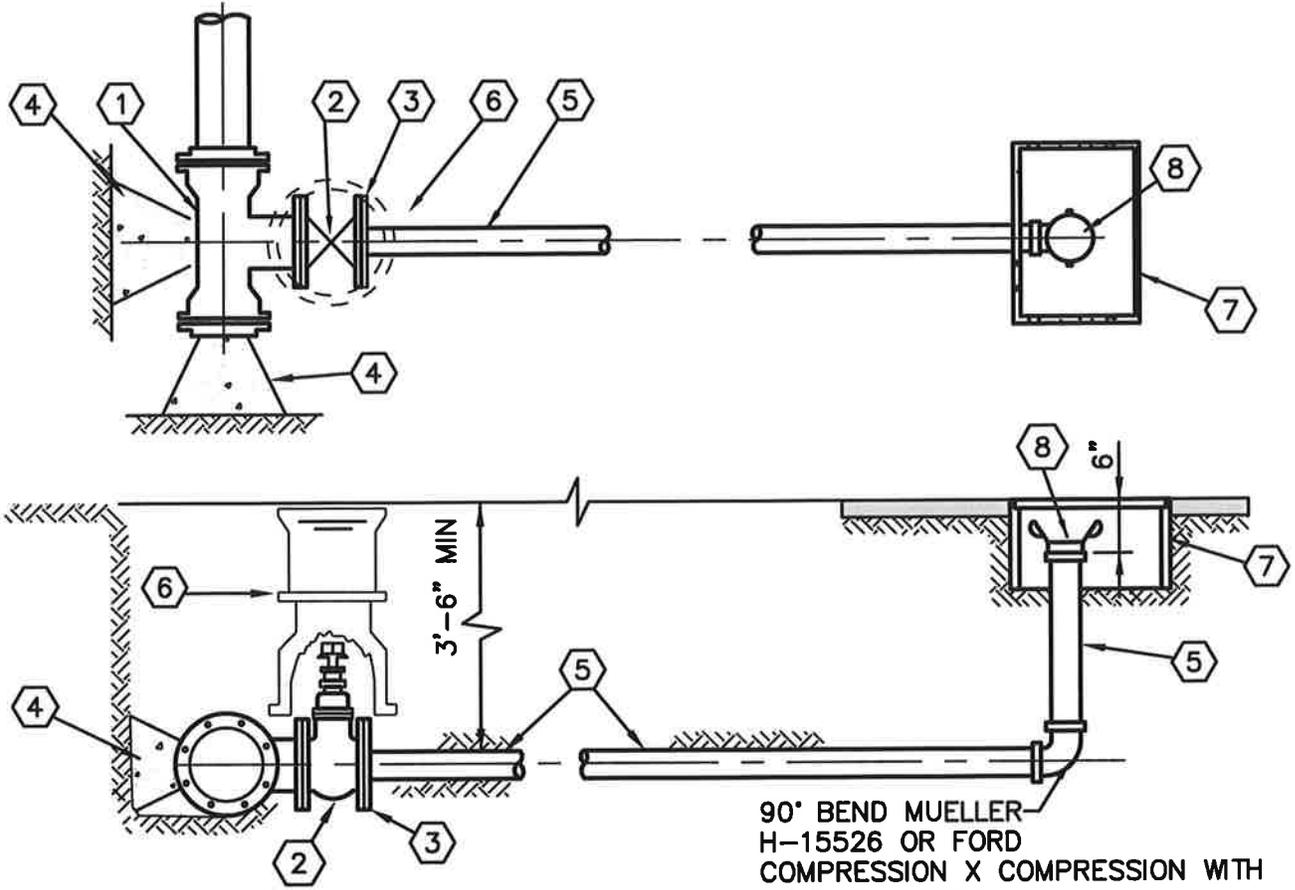
1 1/2" & 2" WATER SERVICE

APPROVED:

DATE: 04/06/2015

DWG. NO.

2-WAT



90° BEND MUELLER
H-15526 OR FORD
COMPRESSION X COMPRESSION WITH
1/8" WEEP HOLE

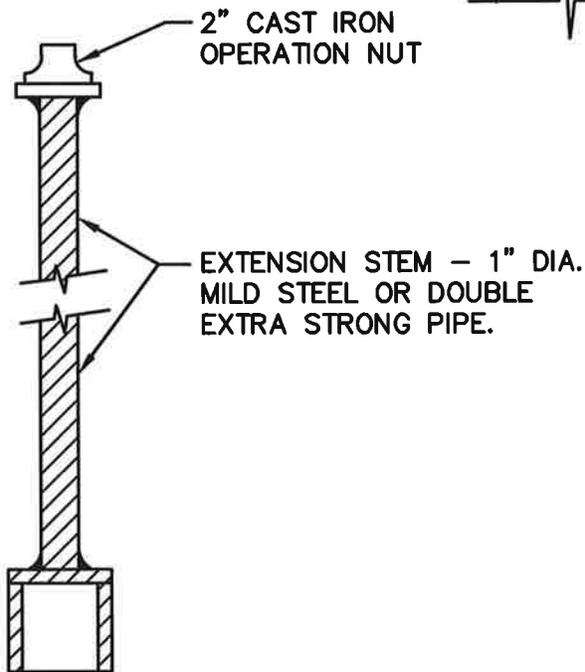
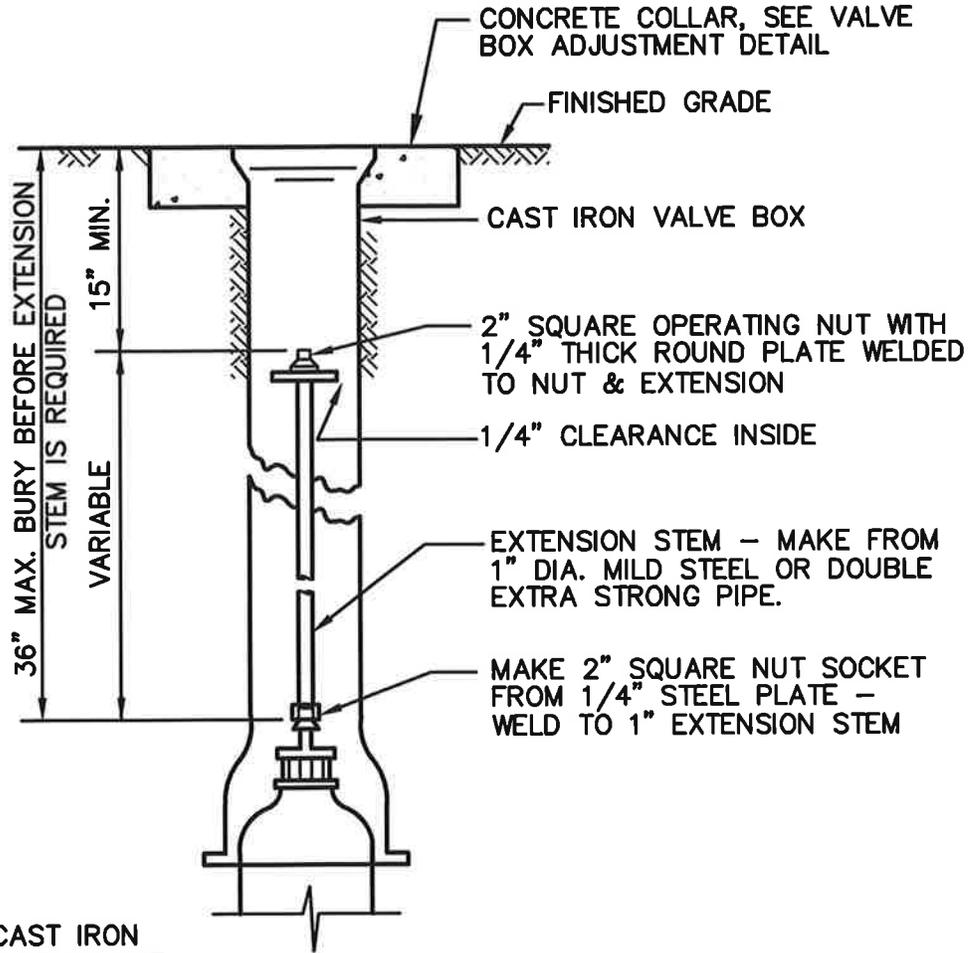
- ① MJ X MJ X 4" FL D.I. TEE.
- ② 4" AWWA RESILIENT SEAT GATE VALVE, FL X FL, WITH OPERATING NUT.
- ③ 4" BLIND FLANGE, TAPPED FOR 2". MAINS LARGER THAN 8" REQUIRE 4-INCH BLOW-OFF OR HYDRANT.
- ④ CONCRETE THRUST BLOCK.
- ⑤ 2" TYPE K COPPER PIPE.
- ⑥ CAST IRON VALVE BOX PER VALV-BOX
- ⑦ METER BOX - FOGTITE NO. 2. BOX SHALL BE H-20 LOAD RATED.
- ⑧ ALUMINUM CAM-LOCK AND CAP. DRILL 1/8" HOLE IN CAP. (PLASTIC CAM LOCK FITTING NOT ALLOWED)

NOTES

1. INSTALL DIELECTRIC COMPOUNDS FOR SEPARATION AT DISSIMILAR METALS.

 <p>CITY OF ALGONA</p> <p>2" BLOW-OFF ASSEMBLY</p>	
APPROVED: 	DWG. NO. BLOW-OFF
DATE: 04/06/2015	

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CITY OF ALGONA

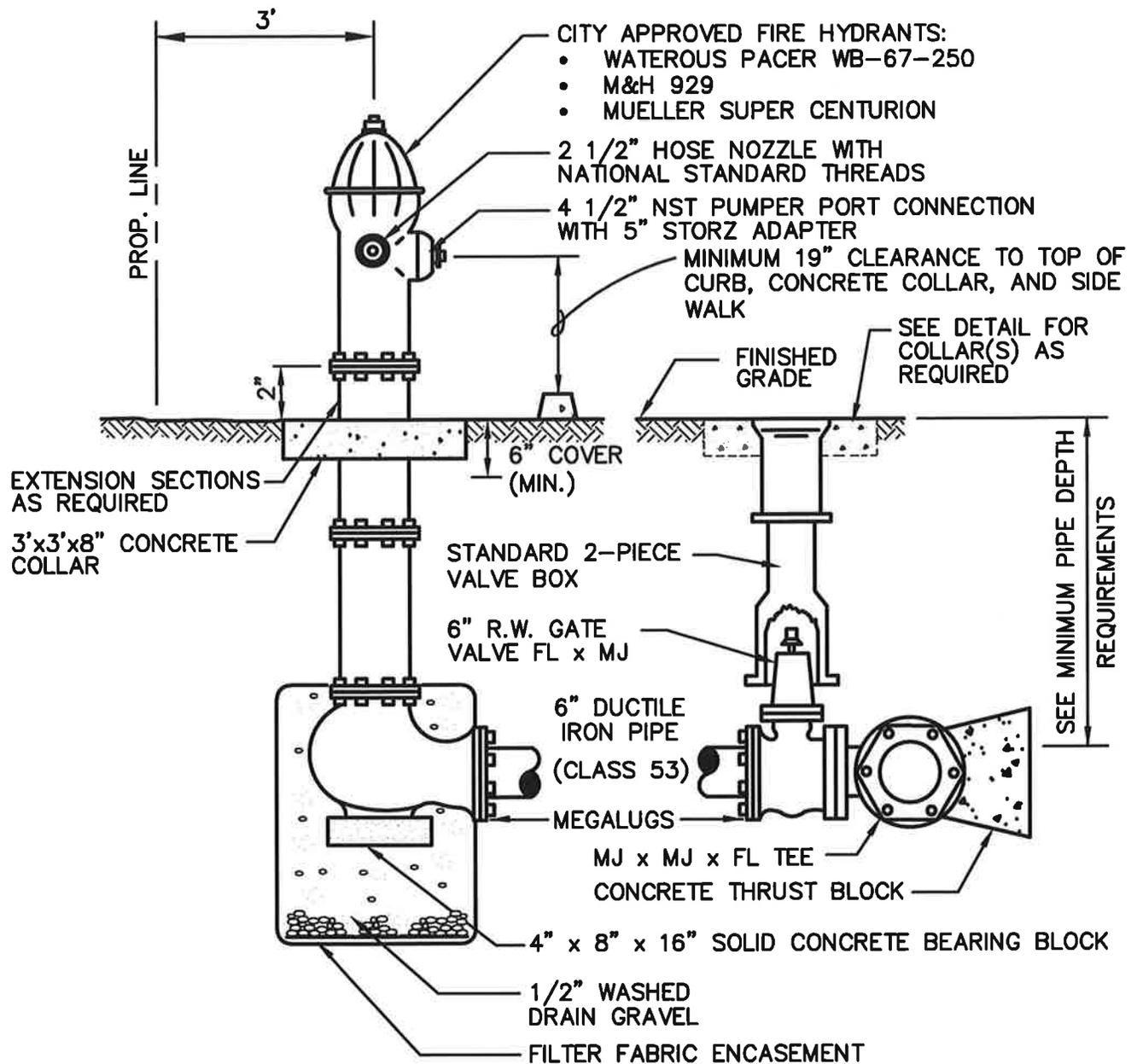
WATER VALVE STEM EXTENSION

APPROVED:

DATE: 04/06/2015

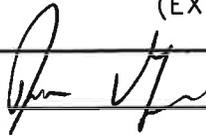
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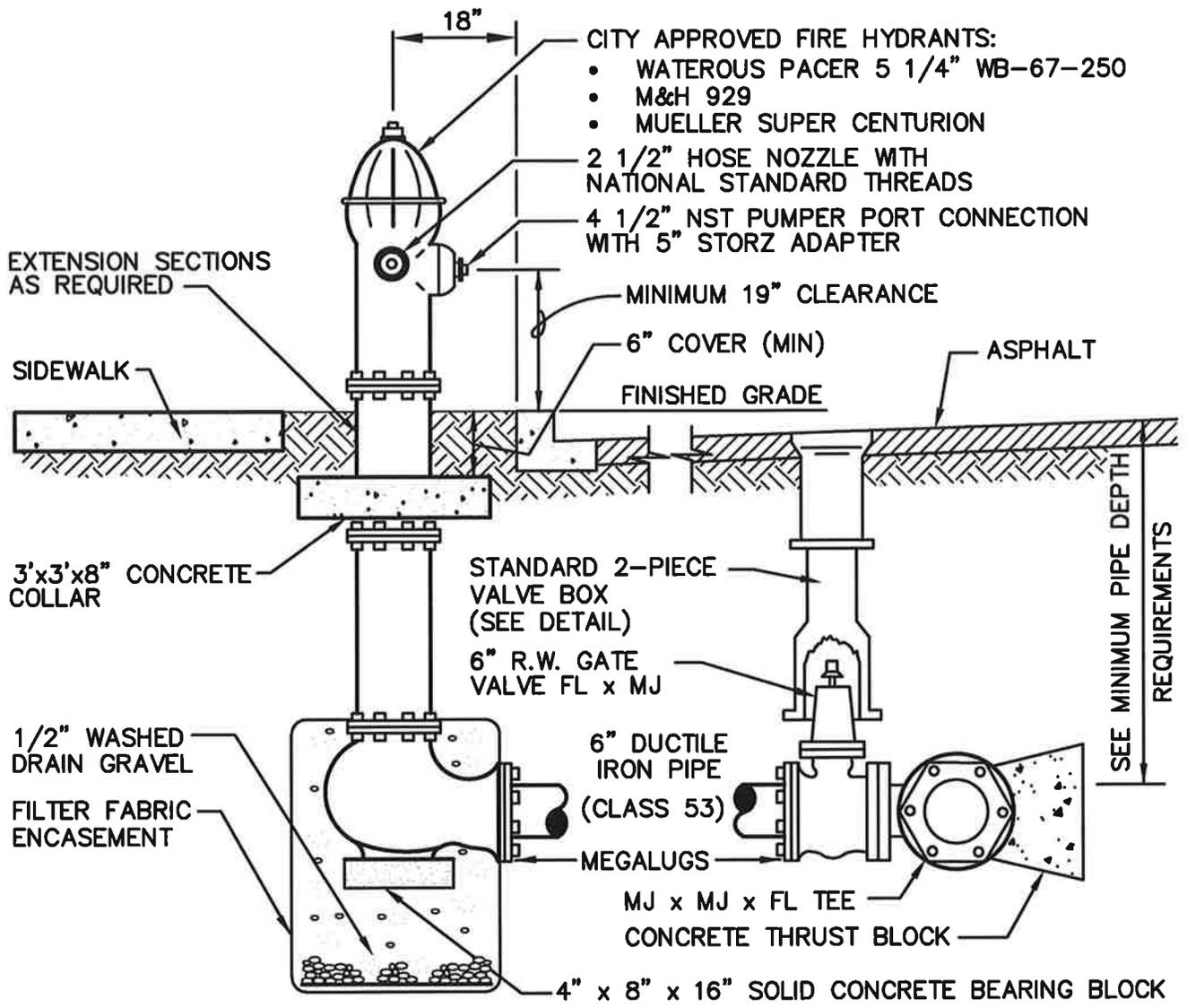
WAT-VALV



NOTES:

1. FIRE HYDRANTS TO BE PAINTED WITH RUSTOLEUM ENAMEL SAFETY YELLOW.
2. INSTALL BLUE LANE REFLECTOR IN PAVEMNT.

 <h2 style="margin: 0;">CITY OF ALGONA</h2> <p style="margin: 0;">FIRE HYDRANT INSTALLATION (EXTRUDED CURB)</p>	
APPROVED: 	DWG. NO. FIRE-HYD
DATE: 04/06/2015	



- CITY APPROVED FIRE HYDRANTS:
- WATEROUS PACER 5 1/4" WB-67-250
 - M&H 929
 - MUELLER SUPER CENTURION
- 2 1/2" HOSE NOZZLE WITH NATIONAL STANDARD THREADS
- 4 1/2" NST PUMPER PORT CONNECTION WITH 5" STORZ ADAPTER

EXTENSION SECTIONS AS REQUIRED

SIDEWALK

MINIMUM 19" CLEARANCE

6" COVER (MIN)

ASPHALT

FINISHED GRADE

3'x3'x8" CONCRETE COLLAR

STANDARD 2-PIECE VALVE BOX (SEE DETAIL)

6" R.W. GATE VALVE FL x MJ

SEE MINIMUM PIPE DEPTH REQUIREMENTS

1/2" WASHED DRAIN GRAVEL

FILTER FABRIC ENCASEMENT

6" DUCTILE IRON PIPE (CLASS 53)

MEGALUGS

MJ x MJ x FL TEE

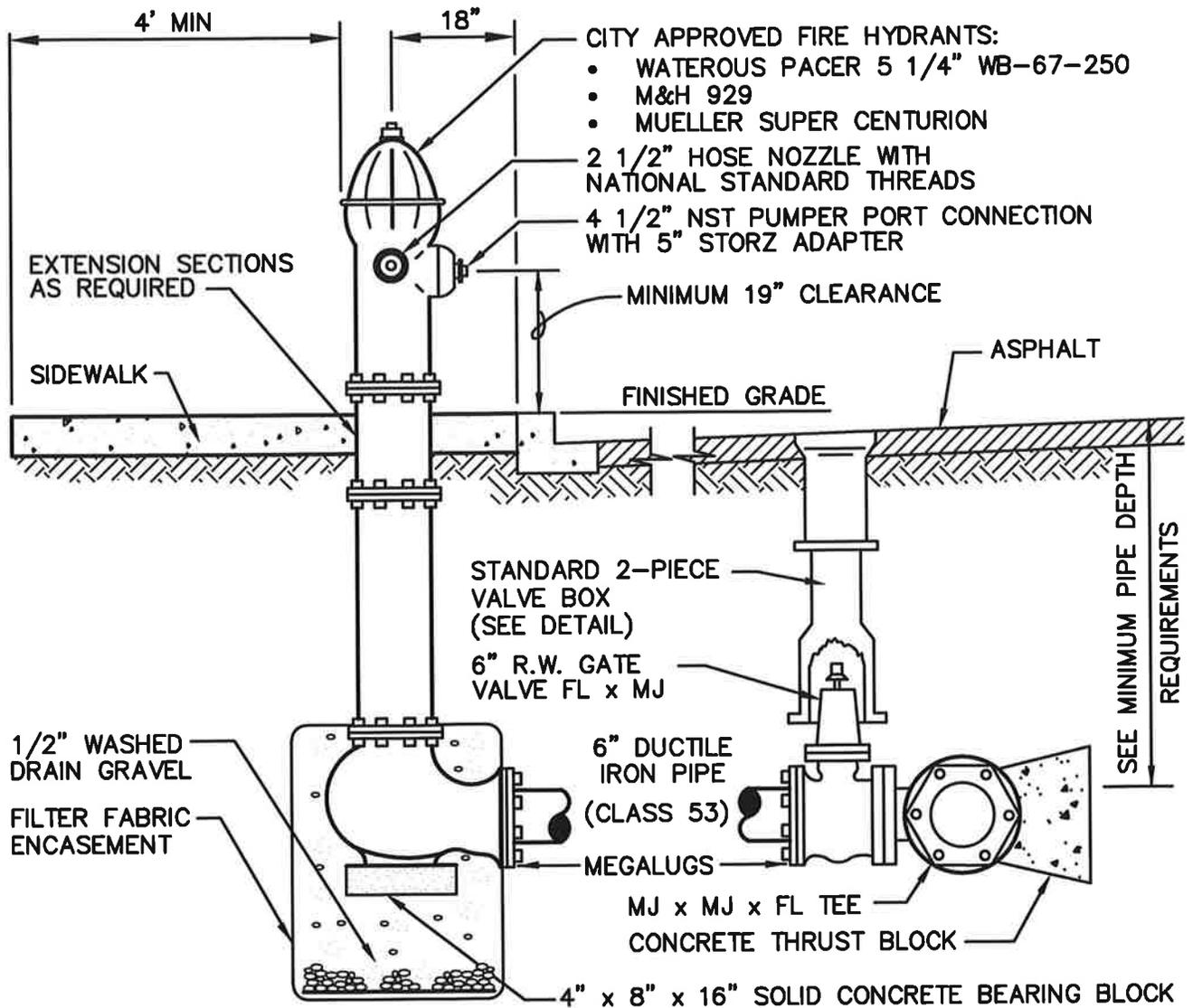
CONCRETE THRUST BLOCK

4" x 8" x 16" SOLID CONCRETE BEARING BLOCK

NOTES:

1. FIRE HYDRANTS TO BE PAINTED WITH RUSTOLEUM ENAMEL SAFETY YELLOW.
2. INSTALL BLUE LANE REFLECTOR IN PAVEMNT.

	<h2>CITY OF ALGONA</h2> <p>FIRE HYDRANT IN PLANTER STRIP (CURB, GUTTER, SIDEWALK)</p>	
	<p>APPROVED: <i>[Signature]</i></p> <p>DATE: 04/06/2015</p>	<p>DWG. NO. FIRE-HYD2</p>



- CITY APPROVED FIRE HYDRANTS:
- WATEROUS PACER 5 1/4" WB-67-250
 - M&H 929
 - MUELLER SUPER CENTURION
- 2 1/2" HOSE NOZZLE WITH NATIONAL STANDARD THREADS
- 4 1/2" NST PUMPER PORT CONNECTION WITH 5" STORZ ADAPTER

EXTENSION SECTIONS AS REQUIRED

MINIMUM 19" CLEARANCE

SIDEWALK

FINISHED GRADE

ASPHALT

STANDARD 2-PIECE VALVE BOX (SEE DETAIL)

6" R.W. GATE VALVE FL x MJ

1/2" WASHED DRAIN GRAVEL

FILTER FABRIC ENCASEMENT

6" DUCTILE IRON PIPE (CLASS 53)

MEGALUGS

MJ x MJ x FL TEE

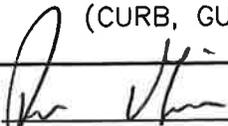
CONCRETE THRUST BLOCK

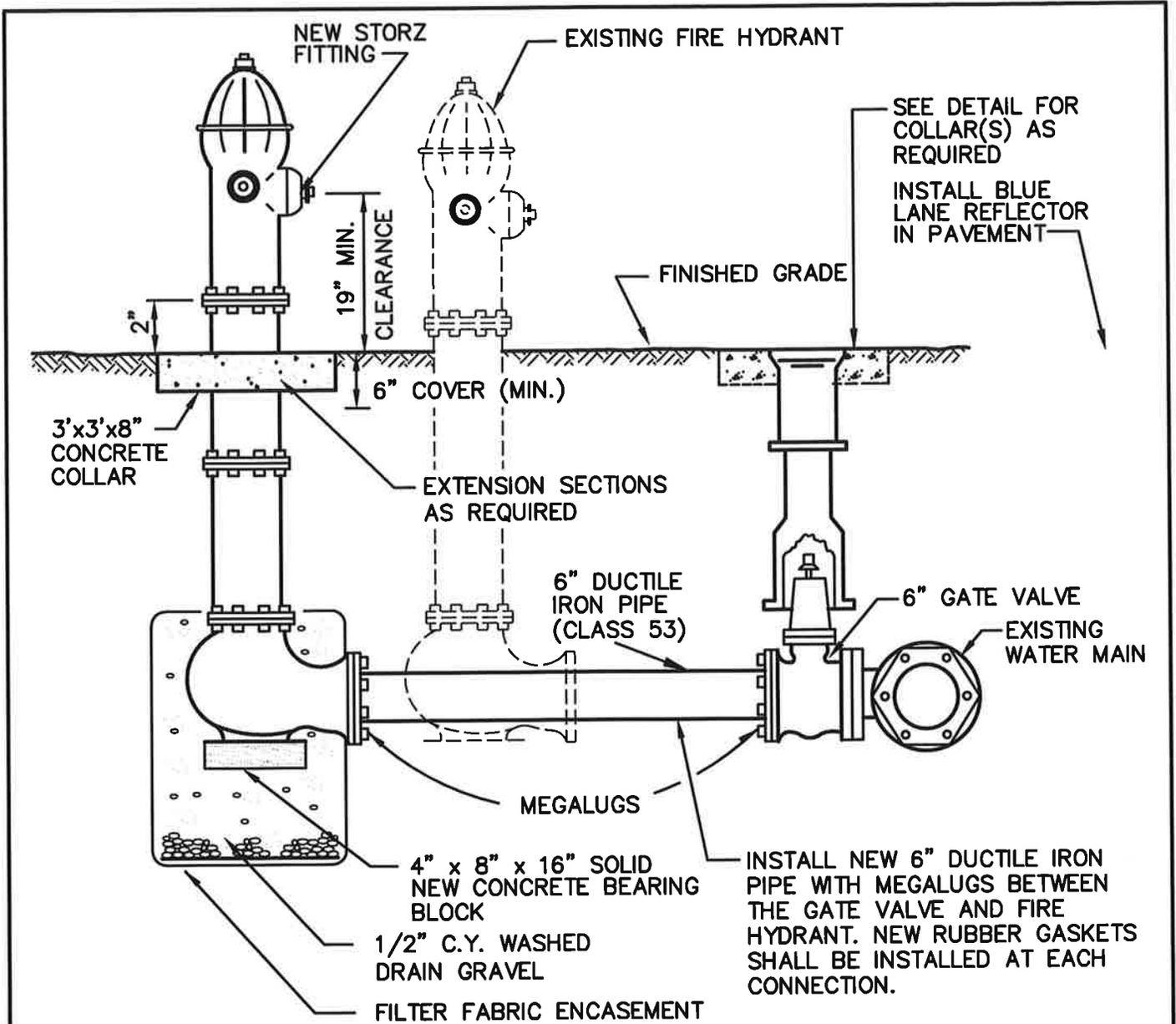
4" x 8" x 16" SOLID CONCRETE BEARING BLOCK

SEE MINIMUM PIPE DEPTH REQUIREMENTS

NOTES:

1. FIRE HYDRANTS TO BE PAINTED WITH RUSTOLEUM ENAMEL SAFETY YELLOW.
2. INSTALL BLUE LANE REFLECTOR IN PAVEMNT.

	<h2>CITY OF ALGONA</h2> <p>FIRE HYDRANT IN SIDEWALK (CURB, GUTTER, SIDEWALK)</p>	
	<p>APPROVED: </p> <p>DATE: 04/06/2015</p>	<p>DWG. NO. FIRE-HYD2</p>



NOTES :

1. ALL RELOCATED 4 1/2" PUMPER PORTS ON FIRE HYDRANTS SHALL BE FITTED WITH 5" STORZ ADAPTOR.
2. PROVIDE MIN. 3' - 0" CLEARANCE AND LEVEL AREA AROUND RELOCATED HYDRANT.



CITY OF ALGONA

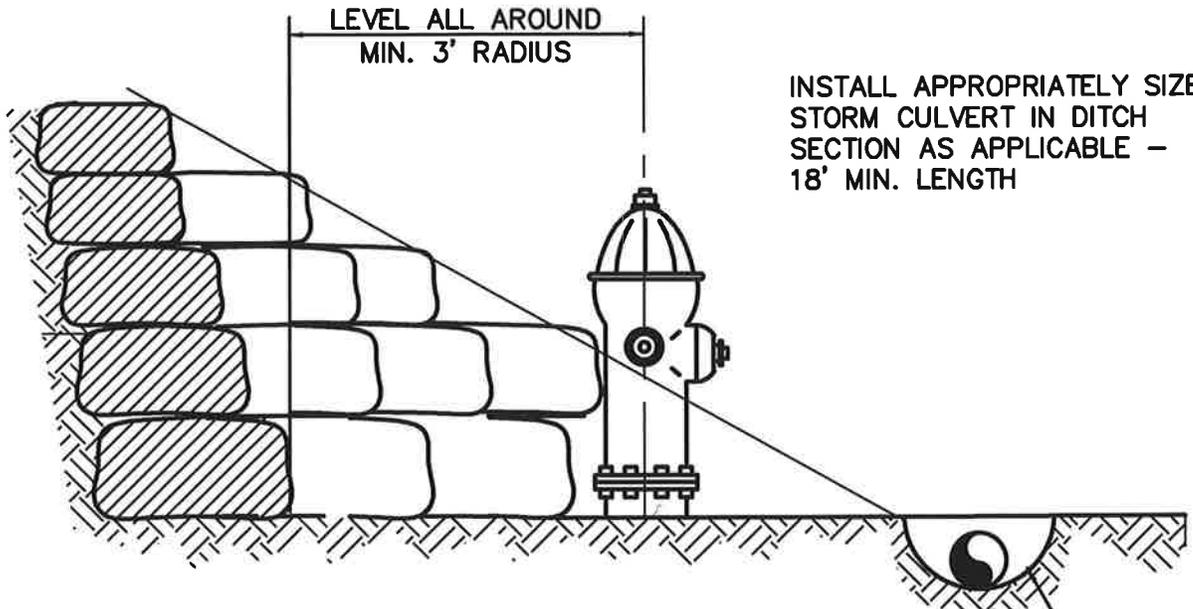
FIRE HYDRANT RELOCATION

APPROVED:

DATE: 04/06/2015

DWG. NO.
FIRE-HYD3

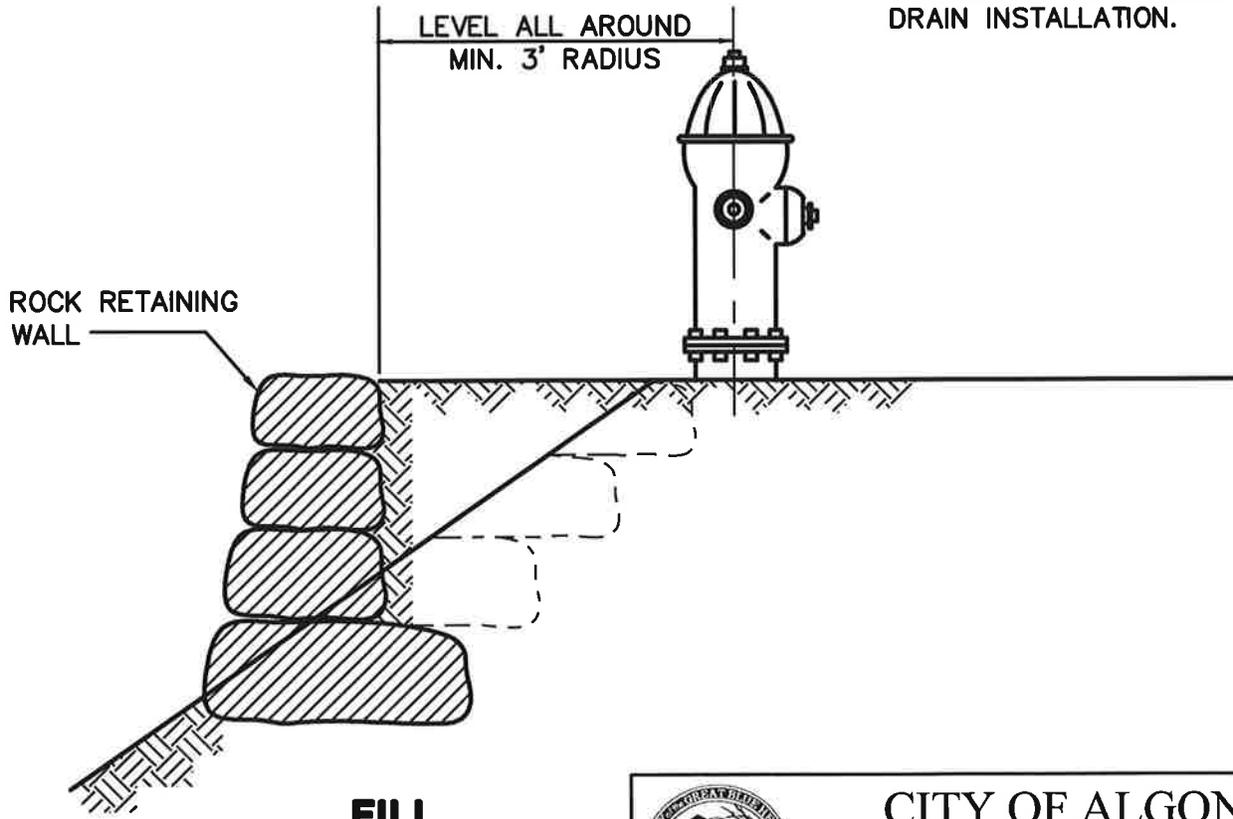
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CUT

INSTALL APPROPRIATELY SIZED STORM CULVERT IN DITCH SECTION AS APPLICABLE - 18' MIN. LENGTH

REFER TO CITY STANDARDS FOR STORM DRAIN INSTALLATION.



FILL



CITY OF ALGONA

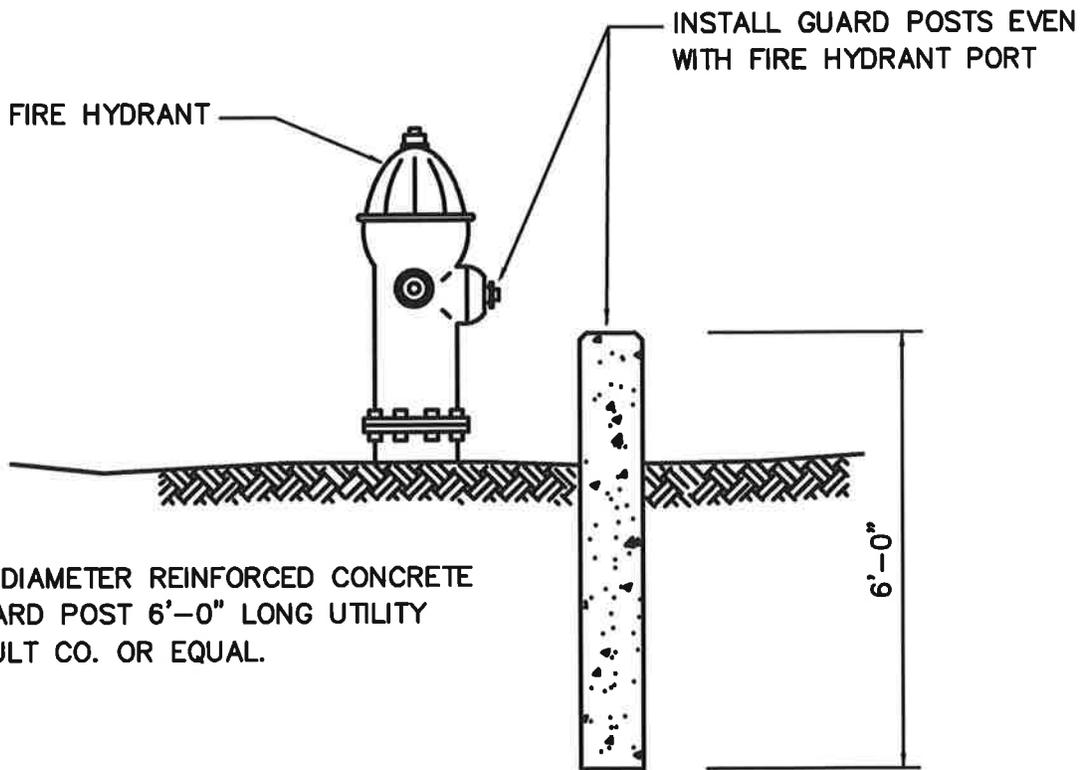
FIRE HYDRANT IN CUT OR FILL

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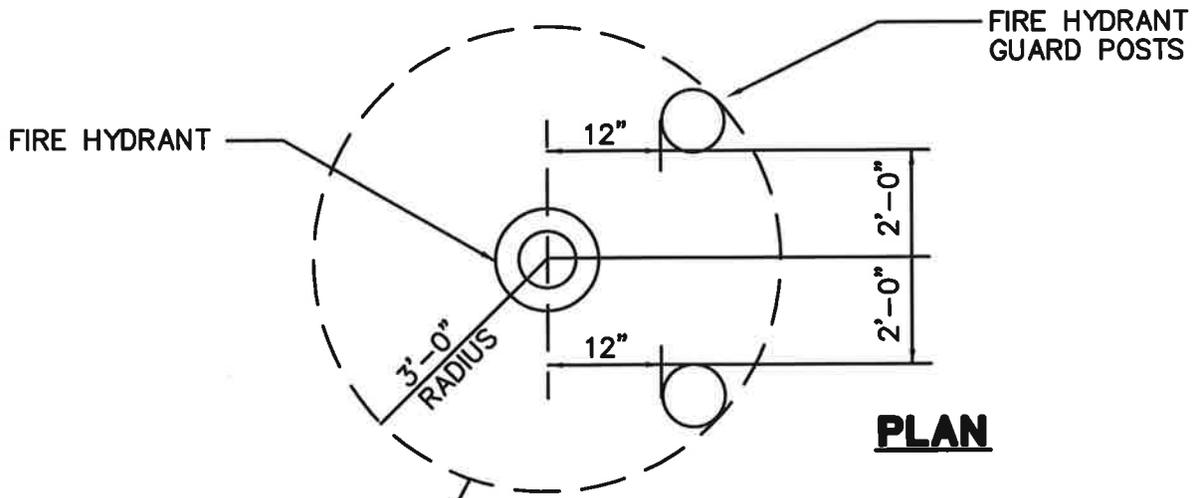
DATE: 04/06/2015

DWG. NO.

FIRE-HYD4



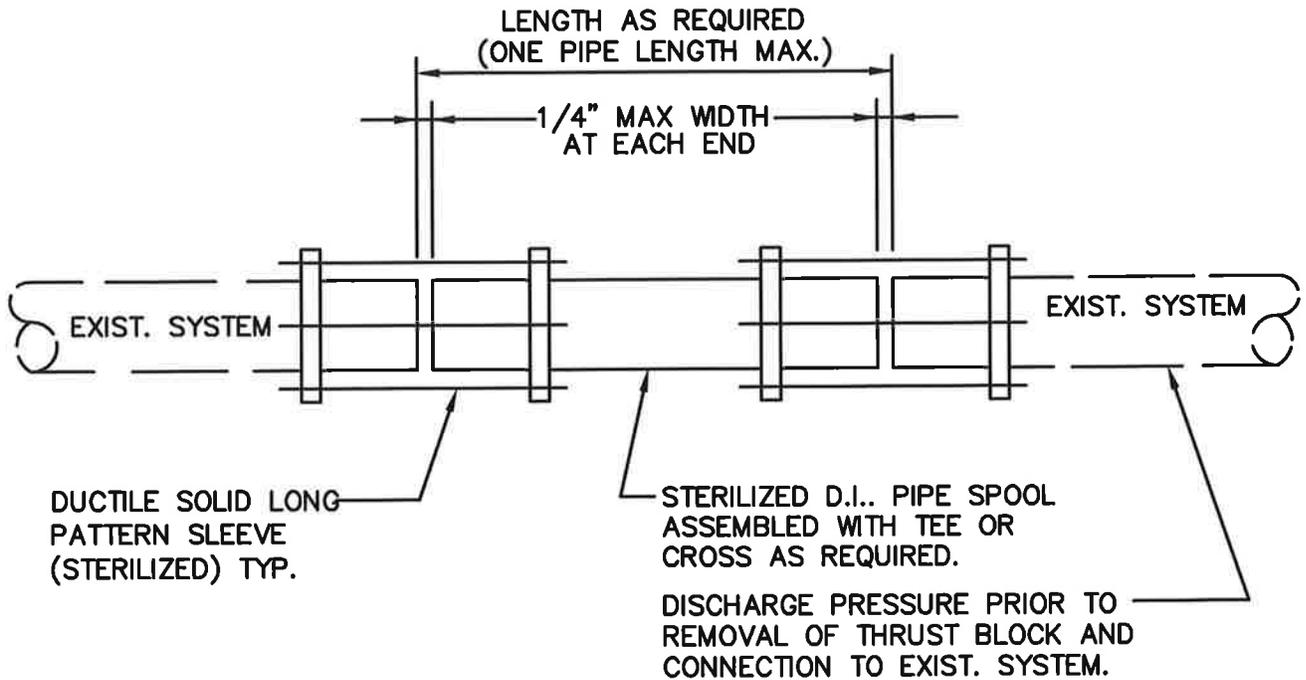
ELEVATION



PLAN

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	CITY OF ALGONA FIRE HYDRANT GUARD POST INSTALLATION	
	APPROVED: 	DWG. NO. FIRE-HYD5
DATE: 04/06/2015		



NOTE:

1. NO DEFLECTION SHALL BE ALLOWED AT EITHER COUPLING.
2. CUT-IN CONNECTIONS ON NON-D.I. PIPE SHALL USE EXTENDED RANGE COUPLING (ROMAC XR501 COUPLING OR EQUAL)
3. IN-LINE VALVE(S) IN EXISTING SYSTEM MAY BE REQUIRED AT THE SOLE DISCRETION OF THE CITY AT ALL NEW INTERTIE LOCATIONS. (NOTE: VALVE(S) ARE NOT SHOWN ABOVE FOR CLARITY)



CITY OF ALGONA

CUT IN CONNECTION

APPROVED:

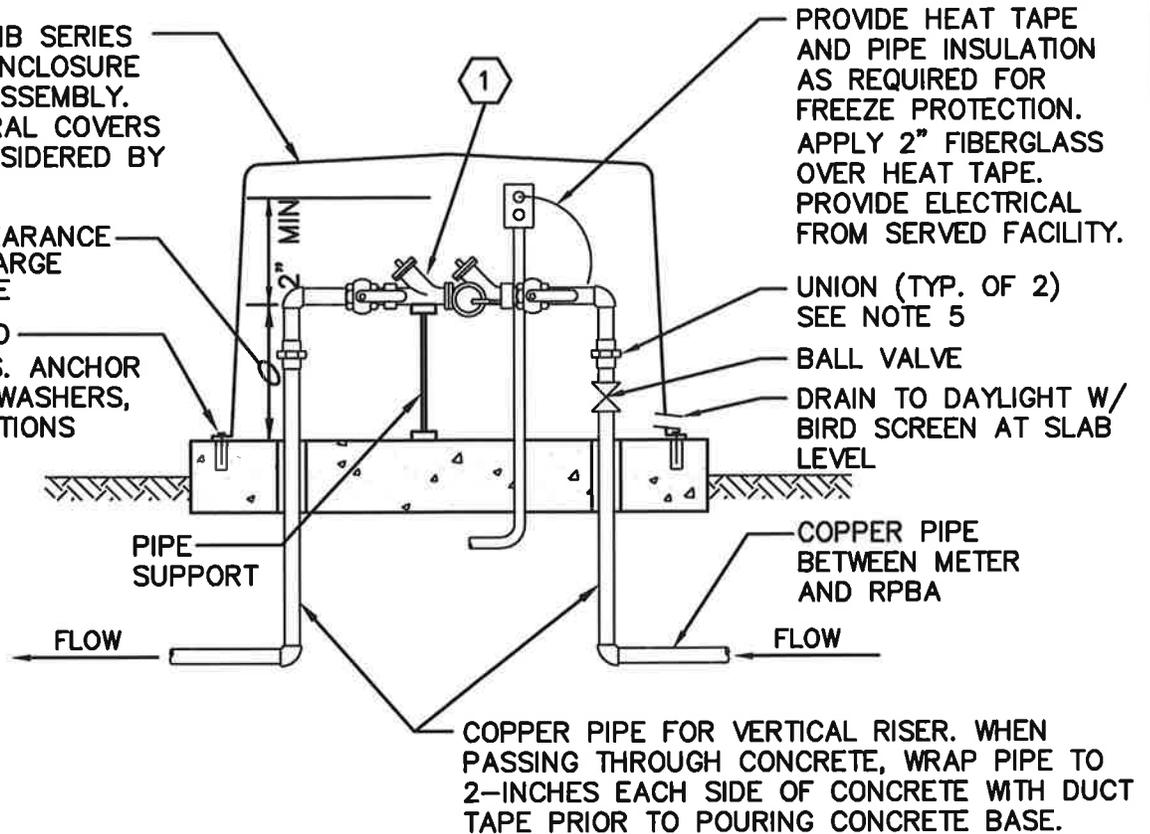
DATE: 04/06/2015

DWG. NO.
CUT-CONN

"HOT BOX" HB SERIES INSULATED ENCLOSURE SIZED FOR ASSEMBLY. ARCHITECTURAL COVERS WILL BE CONSIDERED BY CITY.

12" MIN. CLEARANCE FROM DISCHARGE TO CONCRETE

BOLT TO PAD W/ 3/8" S.S. ANCHOR BOLTS AND WASHERS, MIN. 4 LOCATIONS



PROVIDE HEAT TAPE AND PIPE INSULATION AS REQUIRED FOR FREEZE PROTECTION. APPLY 2" FIBERGLASS OVER HEAT TAPE. PROVIDE ELECTRICAL FROM SERVED FACILITY.

UNION (TYP. OF 2) SEE NOTE 5

BALL VALVE

DRAIN TO DAYLIGHT W/ BIRD SCREEN AT SLAB LEVEL

COPPER PIPE BETWEEN METER AND RPBA

COPPER PIPE FOR VERTICAL RISER. WHEN PASSING THROUGH CONCRETE, WRAP PIPE TO 2-INCHES EACH SIDE OF CONCRETE WITH DUCT TAPE PRIOR TO POURING CONCRETE BASE.

REDUCED PRESSURE BACKFLOW DEVICE (<3")

NOT TO SCALE

1 WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) WITH TEST COCK PROTECTION AND BRONZE BODY BALL VALVE AT EACH END.

NOTES:

1. CONCRETE TO BE 2500 PSI (MINIMUM) MIX WITH AIR ENTRAINMENT.
2. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, CITY AND MANUFACTURER STANDARDS.
3. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL RPBA IS APPROVED BY THE CITY AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
4. RPBA IS CONSIDERED PART OF THE PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
5. DIELECTRIC UNIONS SHALL BE USED TO SEPARATE DISSIMILAR MATERIALS.
6. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND RPBA.



CITY OF ALGONA

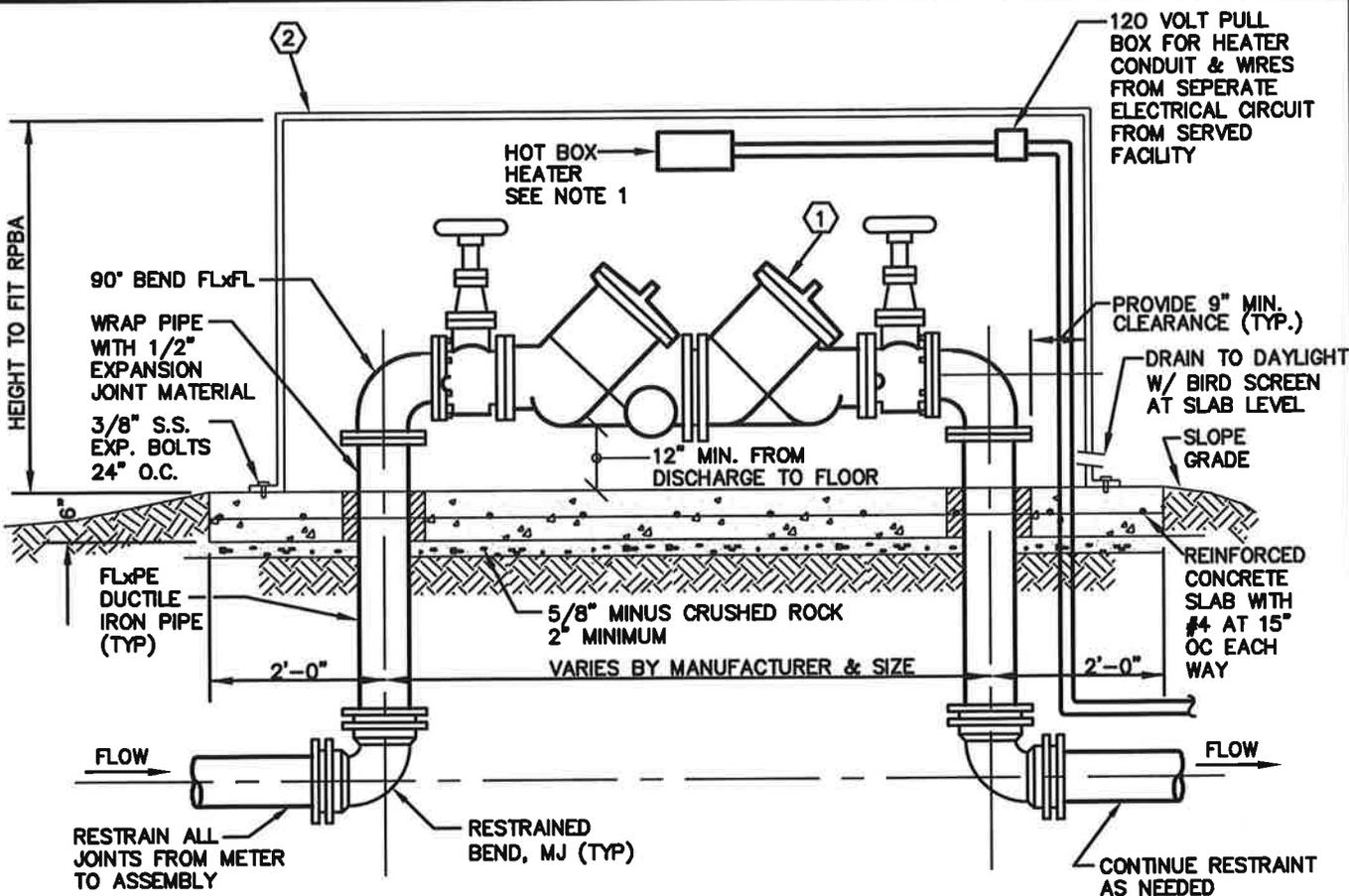
REDUCED PRESSURE BACKFLOW ASSEMBLY 3/4" TO 2"

APPROVED: _____

DATE: 04/06/2015

DWG. NO.

RPBA



- ① WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) WITH RESILIENT SEAT GATE VALVE EACH END
- ② ALUMINUM "HOT BOX" MODELS 4 THROUGH 10 FOR RESPECTIVE SIZE RPBA SHALL BE MODIFIED TO FIT ABOVE HEIGHT REQUIREMENTS. VALVE STEM SHALL NOT EXTEND OUTSIDE OF BOX.

NOTES:

1. "HOT BOX" TO BE LOCATED OUTDOORS AND ACCESSIBLE TO CITY. ALTERNATE LOCATION REQUIRES CITY APPROVAL
2. HEATERS AND WIRING SHALL BE RATED AT 2,000 WATT FOR 8" AND UNDER; 3,000 WATT FOR 10".
3. CONCRETE TO BE 2500 PSI (MINIMUM) MIX WITH AIR ENTRAINMENT.
4. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, CITY AND MANUFACTURER STANDARDS.
5. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL RPBA IS APPROVED BY THE CITY AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
6. RPBA IS CONSIDERED PART OF THE PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
7. DRAIN TO DAYLIGHT WITH BIRD SCREEN LOCATED AT SLAB LEVEL (SIZED PER MANUFACTURERS RECOMMENDATION).
8. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND RPBA.



CITY OF ALGONA

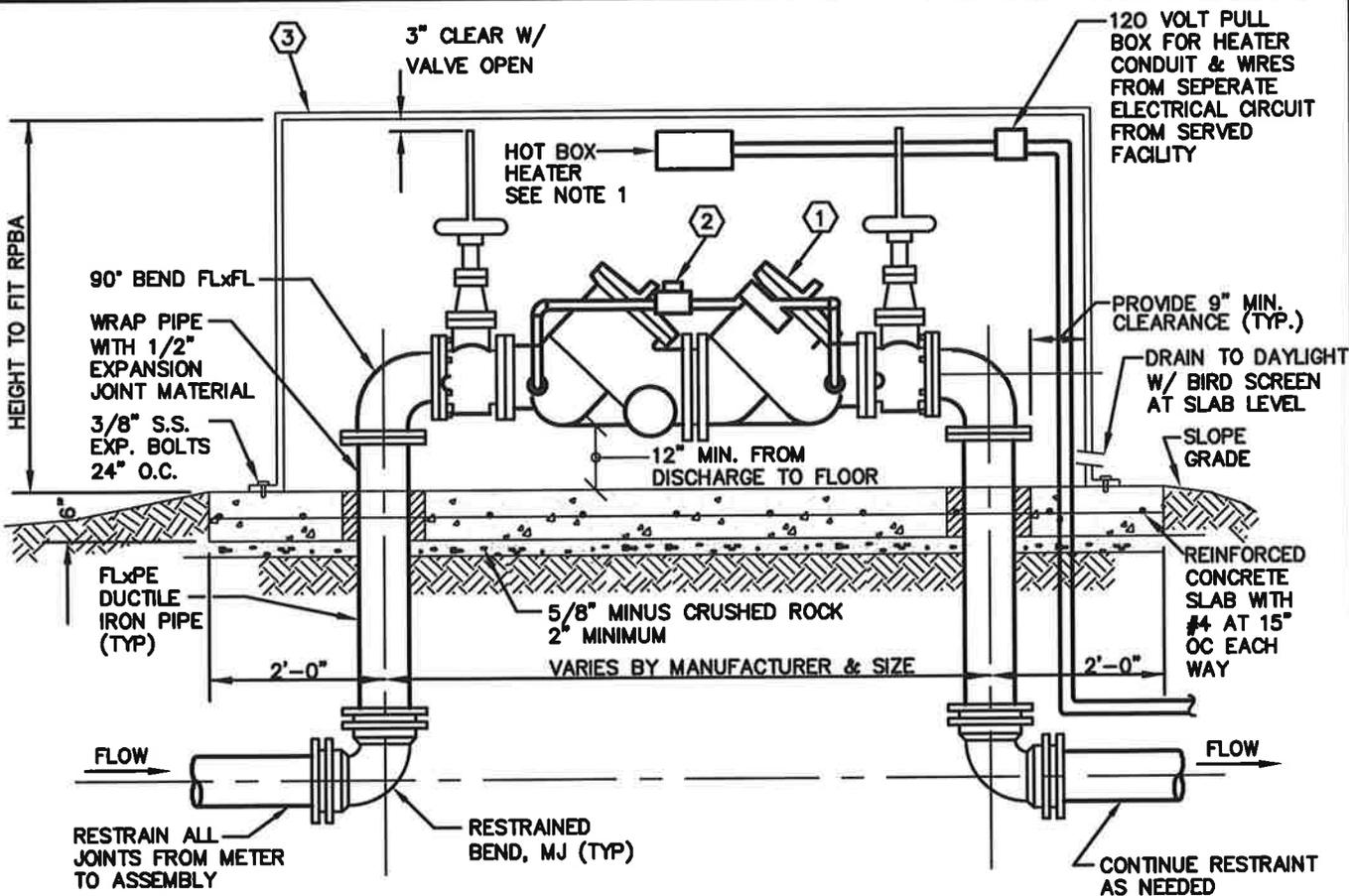
REDUCED PRESSURE BACKFLOW ASSEMBLY 3" AND LARGER

APPROVED:

DATE: 04/06/2015

DWG. NO.

RPBA-2



- ① WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) WITH OS&Y RESILIENT SEAT GATE VALVE EACH END AND LOW FLOW METER ASSEMBLY.
- ② LOW FLOW BYPASS METER, INCLUDING 5/8"x3/4" SENSUS RADIO READ WATER METER WITH SENSUS AMR AND MXU RADIO UNIT, WASHINGTON STATE APPROVED DOUBLE CHECK VALVE ASSEMBLY (DCVA) AND 2 BRONZE BODY ISOLATION BALL VALVES, BRASS OR TYPE K COPPER PIPING.
- ③ ALUMINUM "HOT BOX" MODELS 4 THROUGH 10 FOR RESPECTIVE SIZE RPBA SHALL BE MODIFIED TO FIT ABOVE HEIGHT REQUIREMENTS. VALVE STEM SHALL NOT EXTEND OUTSIDE OF BOX.

NOTES:

1. HEATERS AND WIRING SHALL BE RATED AT 2,000 WATT FOR 8" AND UNDER: 3,000 WATT FOR 10".
2. CONCRETE TO BE 2500 PSI (MINIMUM) MIX WITH AIR ENTRAINMENT.
3. COMPLETE ALL WORK IN ACCORDANCE WITH STATE, CITY AND MANUFACTURER STANDARDS.
4. SYSTEM SHALL NOT BE PUT INTO SERVICE UNTIL RPBA IS APPROVED BY THE CITY AND TESTED/CERTIFIED BY A WASHINGTON STATE LICENSED TESTER.
5. RPBA IS CONSIDERED PART OF THE PRIVATE SYSTEM AND SHALL BE MAINTAINED BY THE PROPERTY OWNER WITH ANNUAL CERTIFICATION REQUIRED.
6. DRAIN TO DAYLIGHT WITH BIRD SCREEN LOCATED AT SLAB LEVEL (SIZED PER MANUFACTURERS RECOMMENDATION).
7. NO BRANCH CONNECTIONS ALLOWED BETWEEN METER AND RPBA.



CITY OF ALGONA

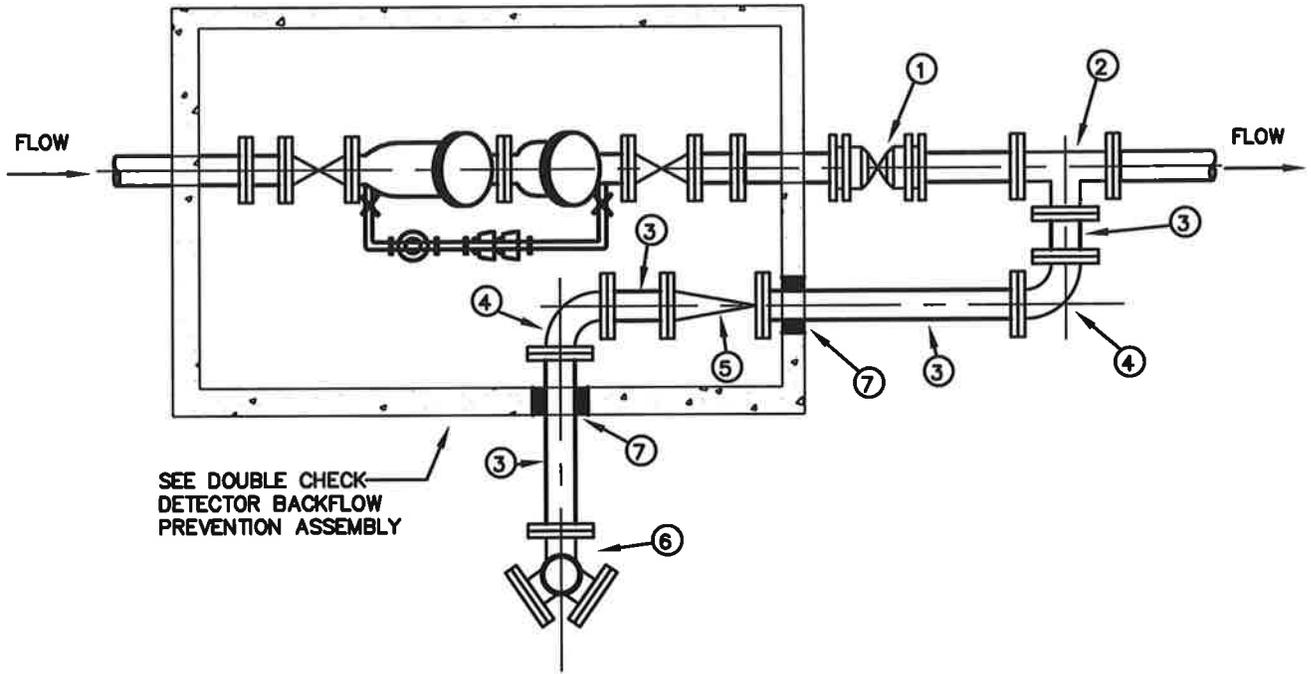
REDUCED PRESSURE BACKFLOW
DETECTOR ASSEMBLY 3" AND LARGER

APPROVED:

DATE: 04/06/2015

DWG. NO.

RPBA-2



SEE DOUBLE CHECK
DETECTOR BACKFLOW
PREVENTION ASSEMBLY

NO.	DESCRIPTION
1	POST INDICATOR VALVE, MJ WITH MEGALUGS
2	4" TEE, MJ WITH MEGALUGS OR FLANGE
3	4" DUCTILE IRON PIPE, CLASS 52
4	4" x 90° BENDS, MJ WITH MEGALUGS OR FLANGE
5	4" FLAPPER CHECK VALVE, MJ WITH MEGALUGS OR FLANGE
6	FIRE DEPARTMENT CONNECTION, MJ WITH MEGALUGS OR FLANGE. CONNECTION TO COMPLY WITH FIRE DEPARTMENT REQUIREMENTS.
7	WATERTIGHT GROUT



CITY OF ALGONA

FIRE LINE CONNECTION

APPROVED:

DATE: 04/06/2015

DWG. NO.
FIRELINE

4"x4" CONC. MARKER POST PAINTED BLUE WITH BLACK STENCILED DISTANCE & DIRECTION TO VALVE

PAINT BLUE THAT PORTION ABOVE GROUND

17" x 28" CONC. METER BOX WITH 3/8" STEEL DIAMOND PLATE COVER, FOG-TITE METER SEAL CO. NO.2

2" BEEHIVE STRAINER

2" OPEN PATTERN RETURN BEND

CONCRETE COLLAR, SEE VALVE BOX ADJUSTMENT DETAIL

FINISHED GRADE

2'-0"

CAST IRON VALVE BOX

2" GATE VALVE

2"x90° ELL UNION

2" GALV. IRON PIPE SLOPE

FILTER FABRIC

18" MAX

BACKFILL W/ SAWDUST

2, 2" x 90° EL GALV. WITH WEEP HOLE IN ONE, 2" SWING JOINT

1/4 CU. WASHED ROCK

2" MIPxCTS ADAPTOR (TYP)

2" PIPE TYPE K COPPER

2" NIPPLE & UNIONS

FOUNDATION ROCK

DOUBLE STRAP SERVICE CLAMP

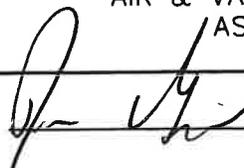
DUCTILE IRON WATER MAIN

2" AIR & VACUUM RELEASE VALVE, "APCO" OR OWNER APPROVED EQUAL

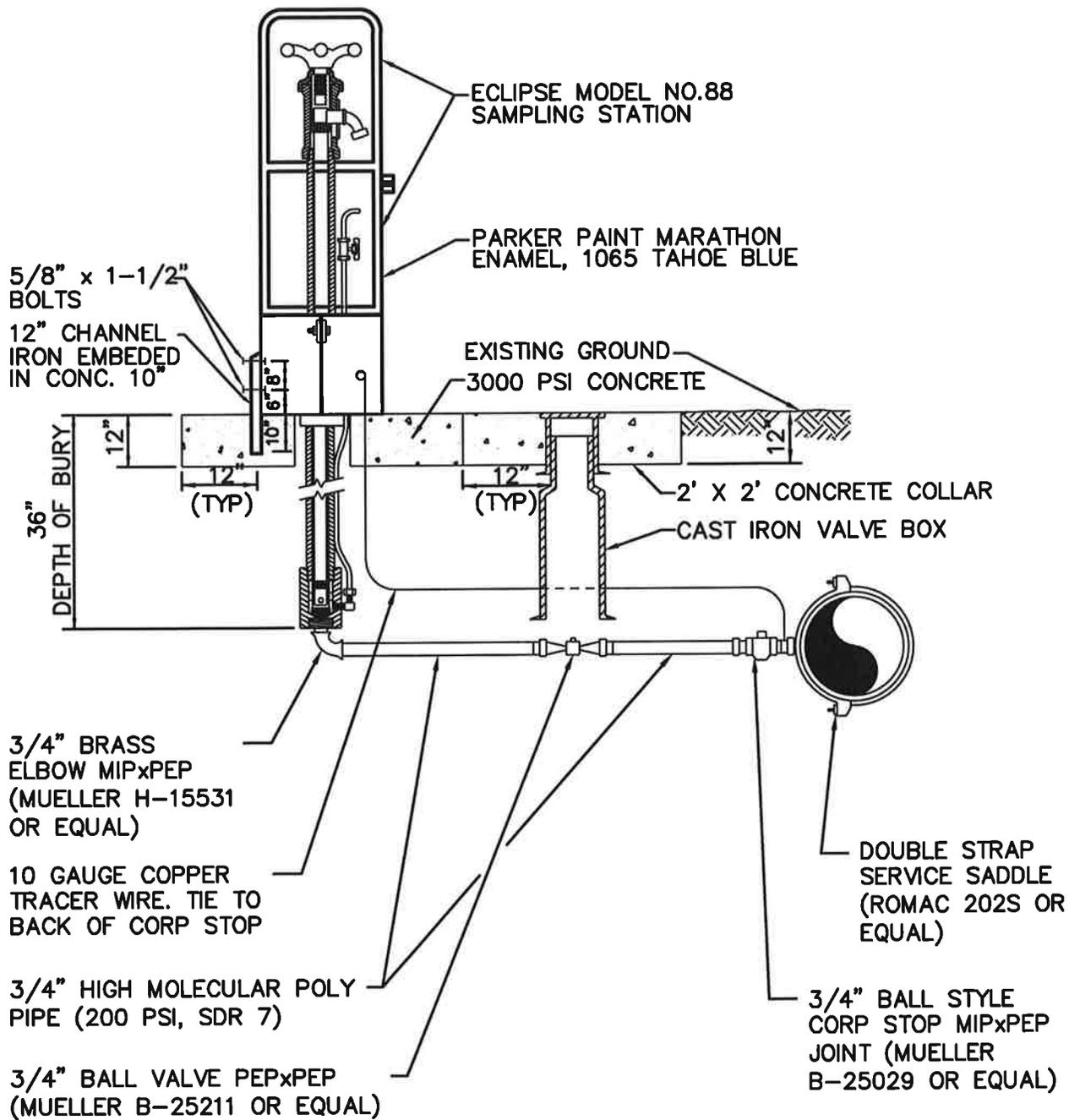
UNDISTURBED EARTH

NOTES:

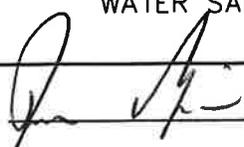
1. GATE VALVE: AWWA RESILIENT SEAL, THRD x THRD WITH OPERATING NUT
2. ALL PIPING BETWEEN DOUBLE STRAP SADDLE AND INLET SIDE OF COMBINATION AIR & VAC ASSEMBLY SHALL BE TYPE K COPPER
3. TAP MAIN AT SYSTEM HIGH POINT. LOCATION TO BE APPROVED BY THE CITY
4. PAINT PORTION ABOVE GROUND WITH TWO COATS RUSTOLEUM ENAMEL SAFETY YELLOW

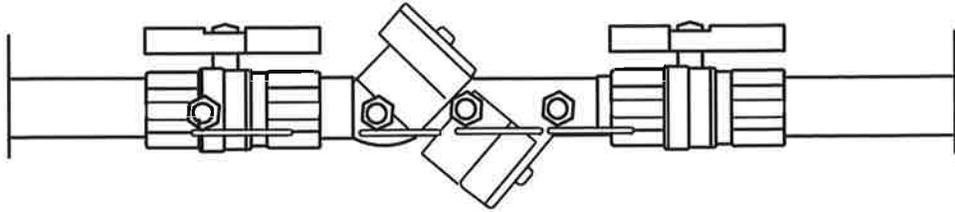
 <h2 style="margin: 0;">CITY OF ALGONA</h2> <p style="margin: 0;">AIR & VACUUM RELEASE ASSEMBLY</p>	
<p>APPROVED: </p>	<p>DWG. NO.</p>
<p>DATE: 04/06/2015</p>	<p>AIR-RLS</p>

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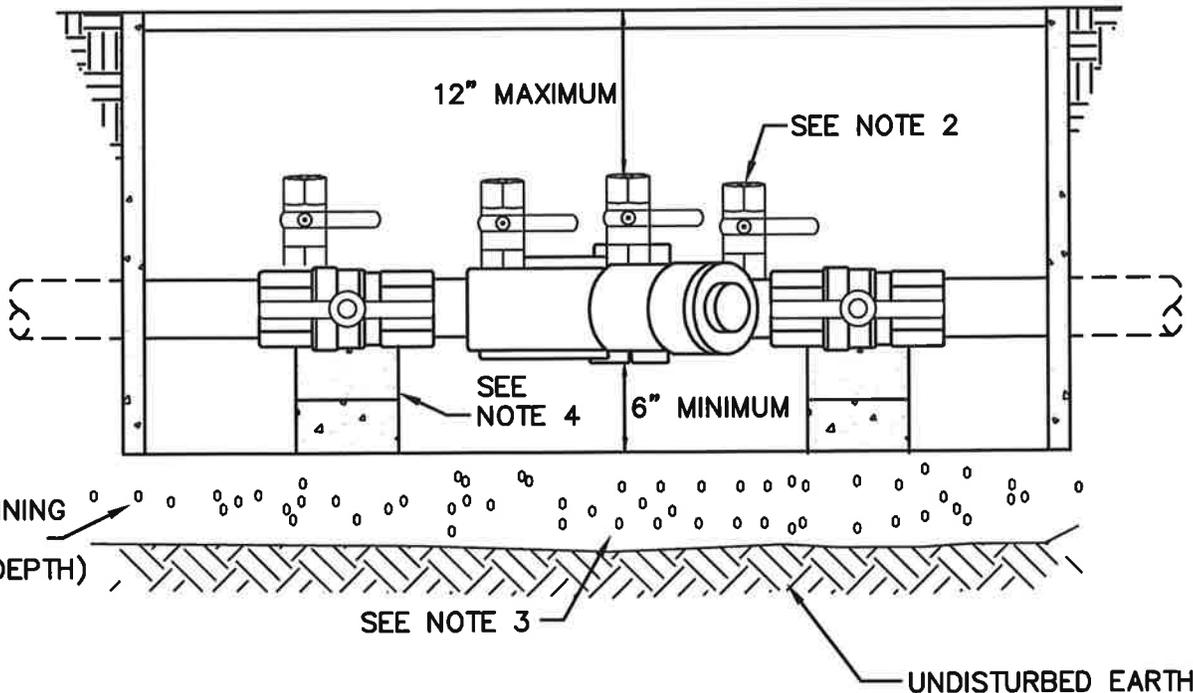


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 <h2 style="margin: 0;">CITY OF ALGONA</h2> <p style="margin: 0;">WATER SAMPLING STATION</p>	
APPROVED: 	DWG. NO. WAT-SAMP
DATE: 04/06/2015	

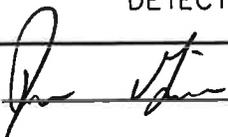


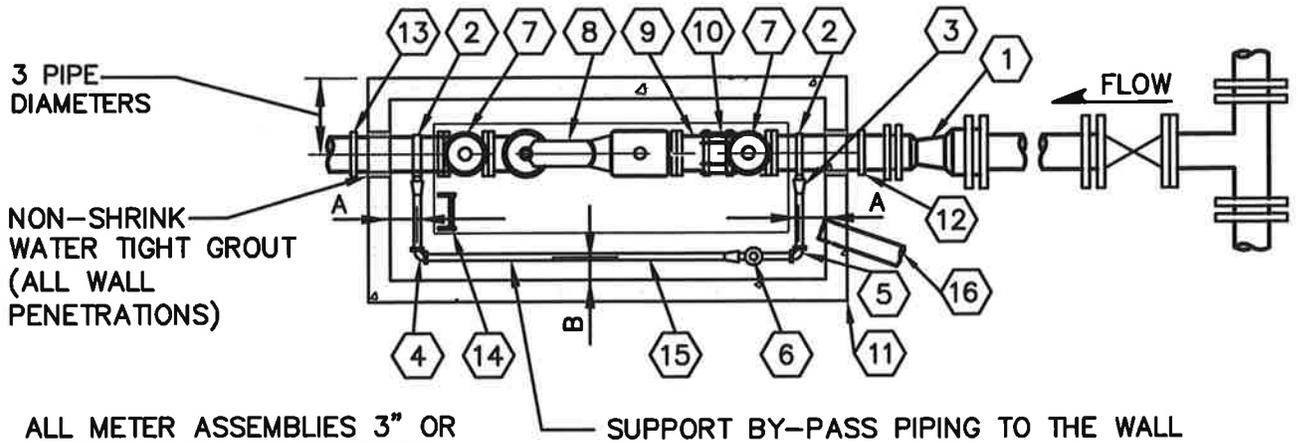
PLAN VIEW



NOTES:

1. MINIMUM BOX SIZE 3/4" - 1" ASSEMBLIES, 10"x13"
1 1/4" - 2" ASSEMBLIES, 14"x20"
2. ASSEMBLY MUST BE INSTALLED WITH TEST COCKS FACING UP OR TO ONE SIDE. INSTALL WATERTIGHT PLUGS IN ALL TEST COCKS.
3. SUFFICIENT DRAINAGE MUST BE PROVIDED TO PREVENT ASSEMBLY FROM BEING SUBMERGED.
4. PROVIDE SUPPORT BLOCKS AS MAY BE REQUIRED.
5. PROVIDE A STRAINER WITH BLOW OUT VALVE AHEAD OF DEVICE IF REQUIRED BY CITY.
6. THOROUGHLY FLUSH THE LINE, PRIOR TO THE INSTALLATION OF THE DCVA.
7. PROTECT DEVICE FROM FREEZING BY INSTALLING IN BELOW GROUND STRUCTURE OR PER "HOT BOX" SHOWN IN REDUCED PRESSURE BACKFLOW DEVICE DETAIL.

	CITY OF ALGONA "INDIVIDUAL" DOUBLE CHECK DETECTOR ASSEMBLY	
	APPROVED:  DATE: 04/06/2015	DWG. NO. DBL-CHCK



ALL METER ASSEMBLIES 3" OR LARGER SHALL BE REVIEWED AND APPROVED BY CITY.

PLAN

- ① REDUCER, M.J.
- ② SINGLE STRAP SERVICE CLAMP, ROMAC 101 WITH IPS TAP, OR EQUAL (1 1/2" OR 2" BYPASS, 4-INCH AND LARGER BYPASS REQUIRES D.I. TEE).
- ③ FITTINGS AS REQUIRED.
- ④ BEND CPLG COPPER TO COPPER MUELLER H-15525, OR EQUAL.
- ⑤ BEND CPLG, COPPER TO OUTSIDE I.P. THREAD MUELLER H-15530, OR EQUAL.
- ⑥ BALL VALVE WITH PADLOCK WING OR LOCK CAP, FORD B21-444W OR B21-666 WITH LOCK CAP OR B21-777 WITH LOCK CAP. SIZED TO LINE.
- ⑦ RESILIENT SEAT GATE VALVE, FL X FL SIZED TO METER.
- ⑧ 3" TO 10" SENSUS METER FOR IRRIGATION SERVICES AND 3" TO 10" COMPOUND METER IF FOR DOMESTIC SERVICE. READ IN CUBIC FEET WITH MXU RADIO UNIT AS SPECIFIED BY CITY SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.
- ⑨ D.I. PIPE SPOOL FL X PE LENGTH TO FIT.
- ⑩ FL CPLG. ADAPT.
- ⑪ PRECAST CONCRETE VAULT, UTILITY VAULT OR EQUAL, SEE PAGE 2 FOR SIZING AND REQUIREMENTS.
- ⑫ MEGA-LUG FOLLOWER INSTALLED ON INFLOW SIDE OF VAULT WITH CONCRETE THRUST BLOCK OR SHACKLE TO THRUST BLOCK TO PREVENT MOVEMENT IF METER IS REMOVED. (BLOCK NOT SHOWN)
- ⑬ DIELECTRIC CPLG. TO BUILDING SERVICE. SIZE AS REQUIRED.
- ⑭ GALV. STEEL OR ALUMINUM LADDER. SECURE TO VAULT LID AND FLOOR. COORDINATE LOCATION FOR ACCESS.
- ⑮ BY-PASS (SIZE BY TABLE BELOW).
- ⑯ 4" PVC TO CATCH BASIN OR DAYLIGHT. WHERE GRAVITY DRAIN IS NOT FEASIBLE, PROVIDE SUMP, ELECTRICAL SERVICE AND PUMP WITH DISCHARGE TO SURFACE DRAIN. PUMP SHALL BE 1/2 HP ZOELLER M-53, WITH CHECK VALVE ON DISCHARGE LINE.
- ⑰ ALL PIPES AND FITTINGS 4-INCH OR LARGER SHALL BE DI., CL 52.

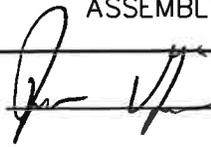
METER SIZE	MAIN-LINE	BYPASS	A	B
3"	4" DI.	2" COPPER	9"	4"
3"	4" DI.	2" COPPER	9"	4"
4"	6" DI.	4" DI.	9"	4"
6"	8" DI.	4" DI.	14"	6"
8"	10" DI.	8" DI.	16"	6"

NOTES:
SEE PAGE 2 FOR ELEVATION AND NOTES.
PAGE 1 OF 2



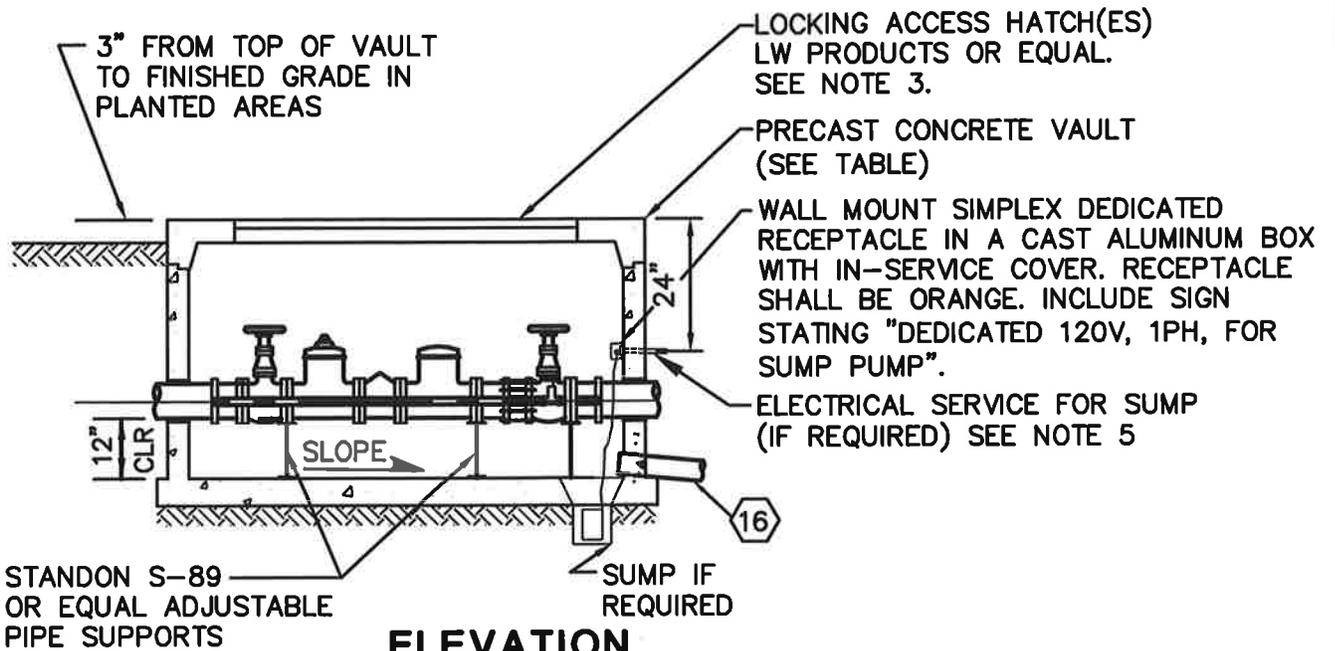
CITY OF ALGONA

METER AND METER VAULT
ASSEMBLY 3" THROUGH 10"

APPROVED: 

DATE: 04/06/2015

DWG. NO.
3MM



ELEVATION

SEE DETAIL V-W16A FOR CALLOUTS

METER SIZE	MAIN-LINE	MINIMUM I/S VAULT DIM. L x W x H			UTILITY VAULT CO APPROVED MODEL	MIN. HATCH OPENING
3"	4" DI.	8'-4"	4'-4"	6'-2"	4484-LA	3' x 6'
4"	4" DI.	8'-4"	4'-4"	6'-2"	4484-LA	3' x 6'
6"	6" DI.	10'-6"	5'-0"	6'-2"	5106-LA	3' x 6'
8"	8" DI.	12'-0"	6'-0"	6'-6"	612-LA	3' x 6'
10"	10" DI.	14'-0"	8'-0"	6'-6"	814-LA	3' x 6'

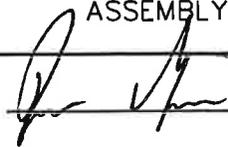
NOTES:

- WASHINGTON STATE APPROVED REDUCED PRESSURE BACKFLOW PREVENTOR REQUIRED. SEE RPBA-2. CONFIRM INSTALLATION WITH CITY. INITIAL AND ANNUAL TEST REQUIRED.
- METER SHALL BE INSTALLED SUCH THAT IT CAN BE READ WITHOUT ENTERING VAULT WITH ACCESS HATCH OPEN.
- COORDINATE ORIENTATION OF HATCH(ES) TO PROVIDE CLEAR VERTICAL ACCESS TO METER ASSEMBLY, AND WITH LADDER LOCATION. VERIFY WITH CITY.
- DRAIN DRAIN HATCH(ES) TO VAULT FLOOR WITH PVC PIPE AND FITTINGS.
- 3/4" (MINIMUM) PVC SCH-40 CONDUIT. WIRING SHALL BE COMPLETELY SEALED 120V, UNDER GROUND. CONTRACTOR TO SEAL CONDUIT PENETRATION WITH NON-SHRINK GROUT. (NOT REQUIRED IF GRAVITY VAULT DRAIN PROVIDED).
- ESMT TO BE PROVIDED TO CITY AROUND METERS LOCATED OUTSIDE RIGHT-OF-WAY.
- SEE PAGE 1 FOR PLAN AND NOTES.



CITY OF ALGONA

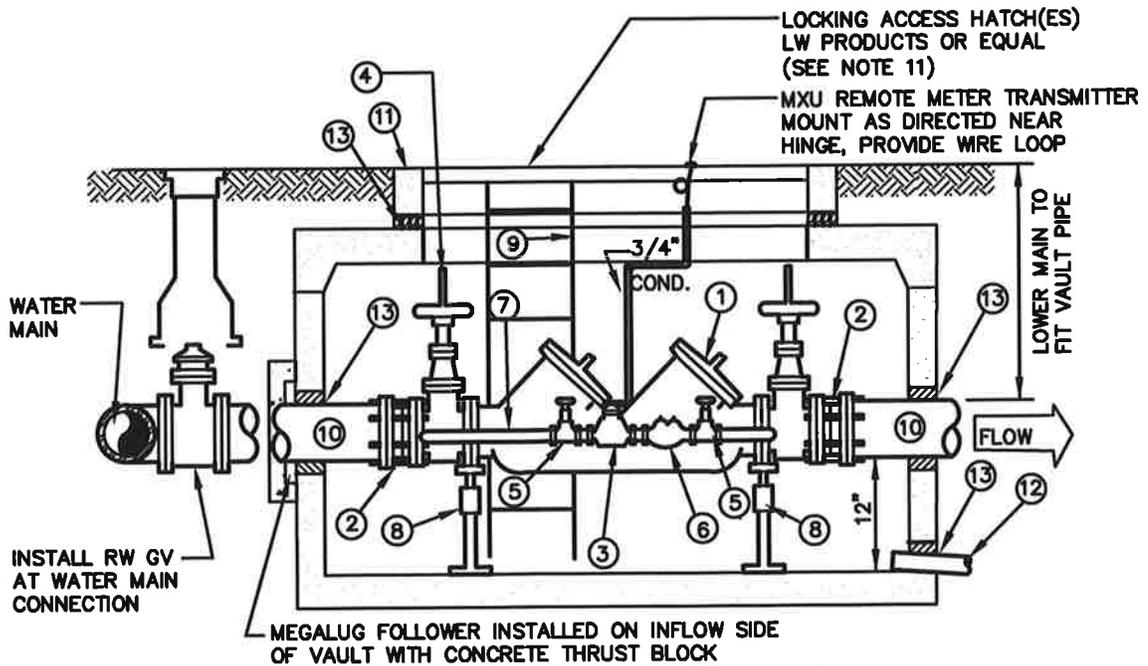
METER AND METER VAULT
ASSEMBLY 3" THROUGH 10"

APPROVED: 

DATE: 04/06/2015

DWG. NO.

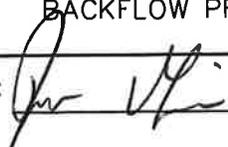
3MM



NO.	DESCRIPTION
1	STATE APPROVED DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) BACKFLOW PREVENTION ASSEMBLY WITH O.S.&Y. R.W. GATE VALVE
2	ROMAC STYLE 'FCA 501' FLANGED COUPLING ADAPTER
3	5/8" x 3/4" SENSUS CUBIC FEET READING METER COMPLETE WITH SPUD NUT
4	LOCATE CENTER OF VALVE 15" FROM CENTER OF VAULT TO ALLOW STEMS TO EXTEND INTO ACCESS OPENING WHEN APPLICABLE
5	3/4" SHUTOFF VALVE; BRASS GATE VALVE
6	STATE APPROVED 3/4" DOUBLE CHECK VALVE ASSEMBLY (DCVA)
7	BRASS OR TYPE K COPPER, DETECTOR CHECK PIPING (BY PASS LINE)
8	2 EA. GALVANIZED ADJUSTABLE STANCHIONS (LOCATE AT ENDS OF DOUBLE CHECK ASSEMBLY)
9	GALVANIZED STEEL LADDER, LOCATE AS DIRECTED BY DISTRICT, SECURE TO VAULT.
10	PIPE SPOOL, CL. 52 D.I., PLAIN END
11	"UTILITY VAULT" OR APPROVED EQUAL 4" DCDC, USE 575 LA (4'-2" x 6'-6" x 4'-0" INSIDE) 6" DCDC, 4484 LA (4'-4" x 8'-4" x 6'-2" INSIDE) 6" DCDC, 5106 LA (5'-0" x 10'-6" x 4'-4" INSIDE) 8" DCDC, 5106 LA (5'-0" x 10'-6" x 6'-2" OR 4'-4" INSIDE) 10" DCDC, 5106 LA (3 HATCH) (5'-0" x 10'-6" x 6'-2" OR 4'-4") ORIENTATION AND LOCATION OF HATCHES TO PROVIDE CLEAR ACCESS TO VALVES AND DETECTOR CHECK ASSEMBLY
12	6" PVC DRAIN, DISCHARGE TO DAYLIGHT OR TO CATCH BASIN. MINIMUM SLOPE 1% UNLESS OTHERWISE APPROVED. ADD SCREENS AT BOTH ENDS.
13	WATERTIGHT GROUT, INLET AND OUTLET PIPE, DRAIN PIPE AND ACCESS OPENING

NOTE:

AFTER PRESSURE TEST AND PURITY SAMPLES ARE RECEIVED, A CERTIFIED BACKFLOW TECHNICIAN SHALL SUPPLY DISTRICT WITH A WRITTEN TEST REPORT ON EACH BACKFLOW ASSEMBLY.

 <h2 style="margin: 0;">CITY OF ALGONA</h2> <p style="margin: 0;">DOUBLE-CHECK DETECTOR BACKFLOW PREVENTION ASSEMBLY</p>	
APPROVED: 	DWG. NO. DCD-BPA
DATE: 04/06/2015	