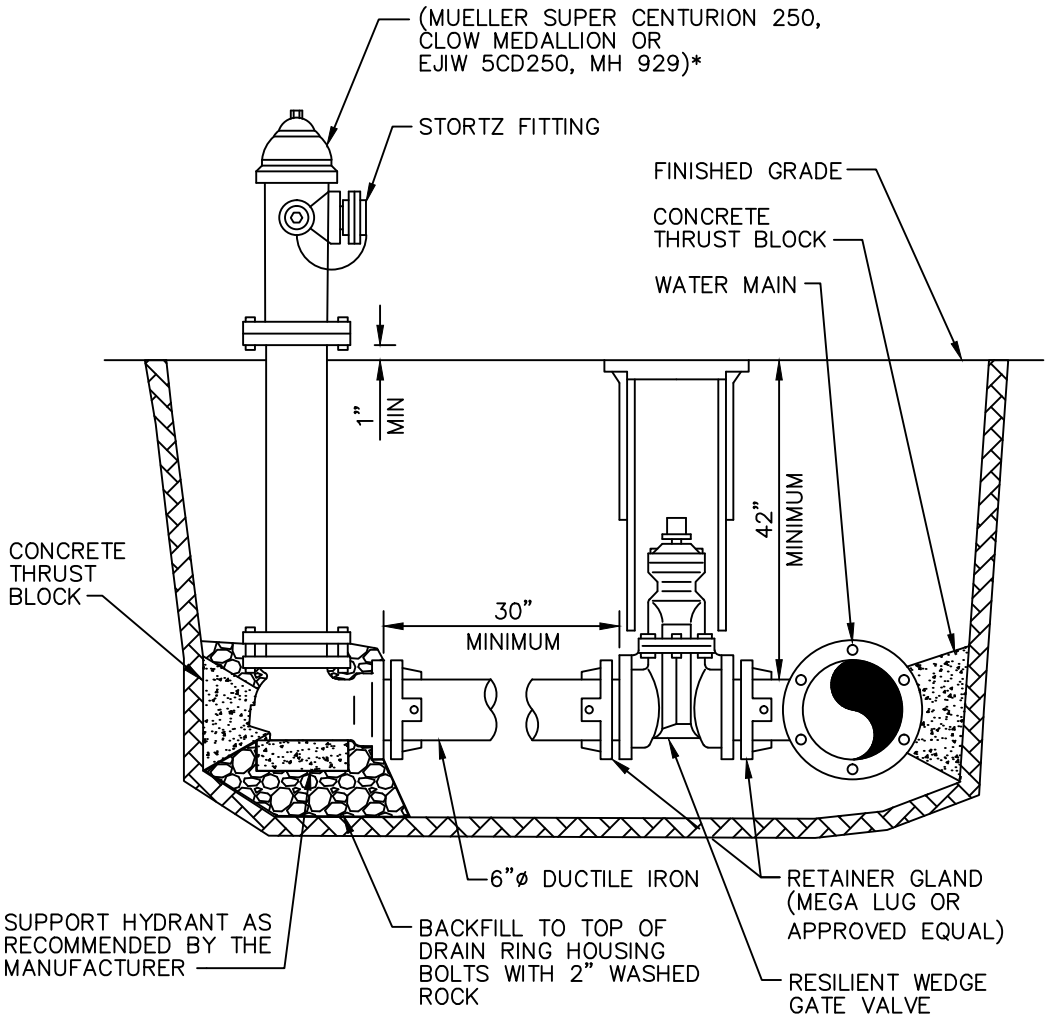

HYDRANT ASSEMBLY

* (OR APPROVED EQUAL)

NOTES:

1. DEAD END MAIN EXTENSIONS OVER 50' SHALL BE 8" MINIMUM.
2. USE PORT 5" STORTZ, MVO 5–1/4", WITH ALL OPERATING NUTS THE SAME SIZE.
3. AN UNOBSTRUCTED THREE FOOT MINIMUM WORKING AREA RADIUS SHALL BE PROVIDED AROUND ALL HYDRANTS.
4. FABRIC TO BE INSTALLED AROUND BASE OF HYDRANT AFTER PLACEMENT OF DRAIN ROCK.
5. FIELD LOCK GASKETS ON ALL PIPE JOINTS.
6. MEGA LUG ON ALL M J CONNECTIONS.

CITY OF GIG HARBOR
ENGINEERING DIVISION

HYDRANT ASSEMBLY

DETAIL NO. 4-01

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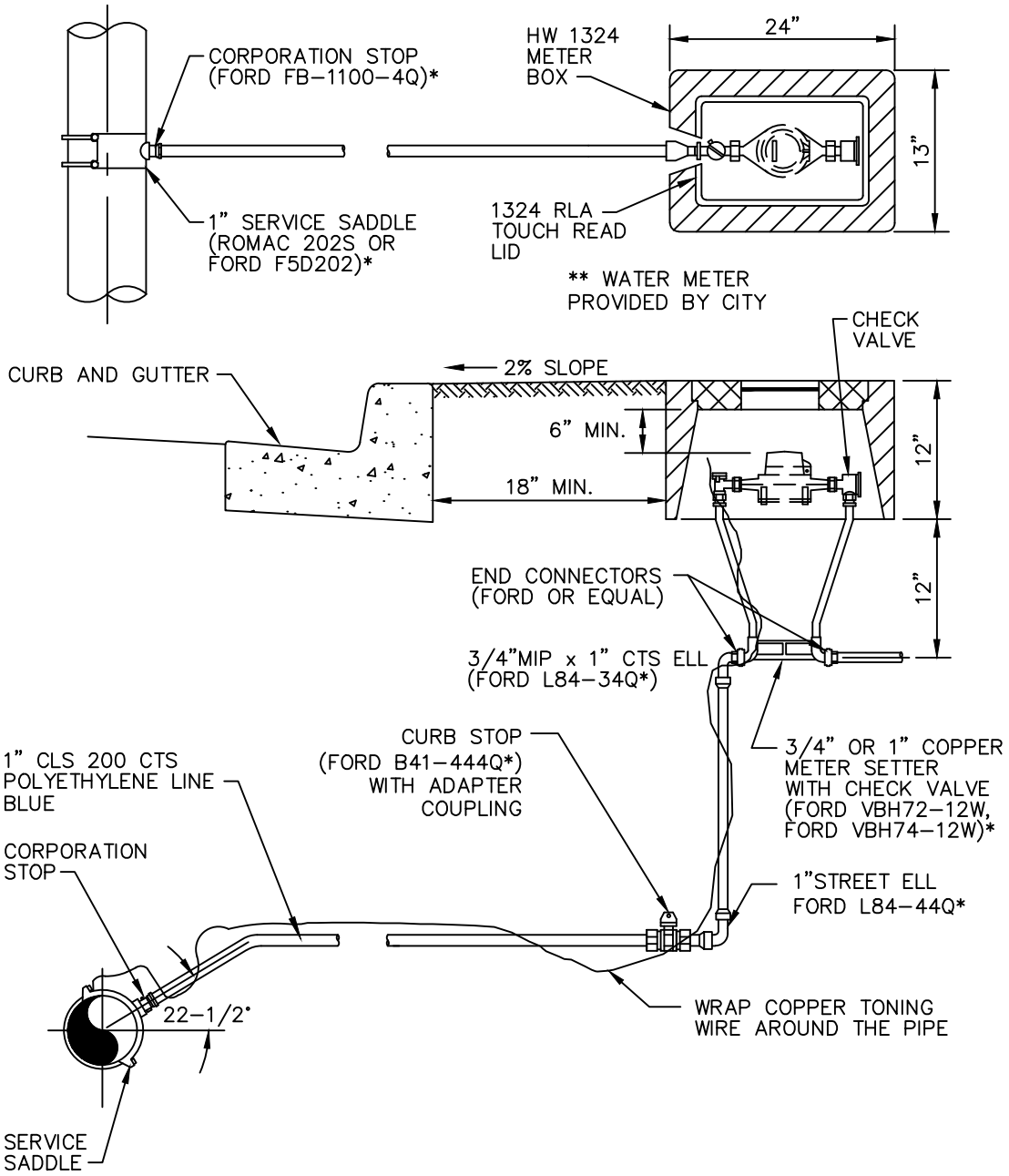
CITY ENGINEER _____ DATE MAY 16, 2016



1 INCH
SERVICE CONNECTION

NOTES:

1. STAINLESS STEEL INSERTS REQUIRED FOR ALL COMPRESSION FITTINGS.
2. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET AND I.P. THREADS.

CITY OF GIG HARBOR
ENGINEERING DIVISION

1 INCH SERVICE CONNECTION	DETAIL NO. 4-02

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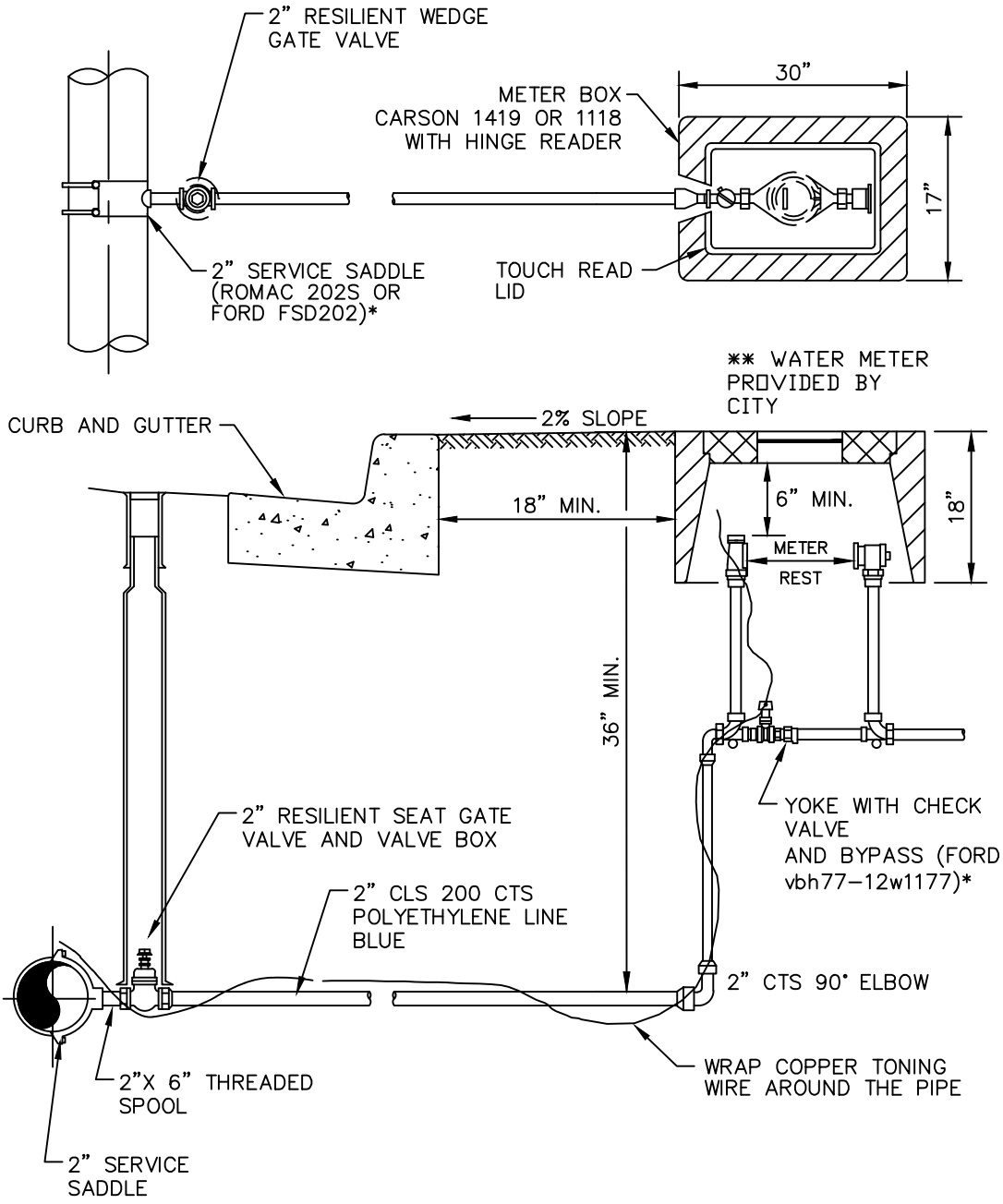

2" WATER SERVICE CONNECTION

* (OR APPROVED EQUAL)

NOTES:

1. STAINLESS STEEL INSERTS REQUIRED FOR ALL COMPRESSION FITTINGS
2. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET AND I.P. THREADS.
3. CARSON 1419 METER BOXES SHALL ONLY BE USED IN NON-TRAFFIC/PEDESTRIAN LOCATIONS. CARSON 1118 BOXES SHALL BE USED IN TRAFFIC FOR PEDESTRIAN LOCATIONS, OR WHERE METER BOX WILL BE LOCATED IN CONCRETE OR ASHPALT PAVING.

CITY OF GIG HARBOR
ENGINEERING DIVISION

2" WATER SERVICE CONNECTION	DETAIL NO. 4-03

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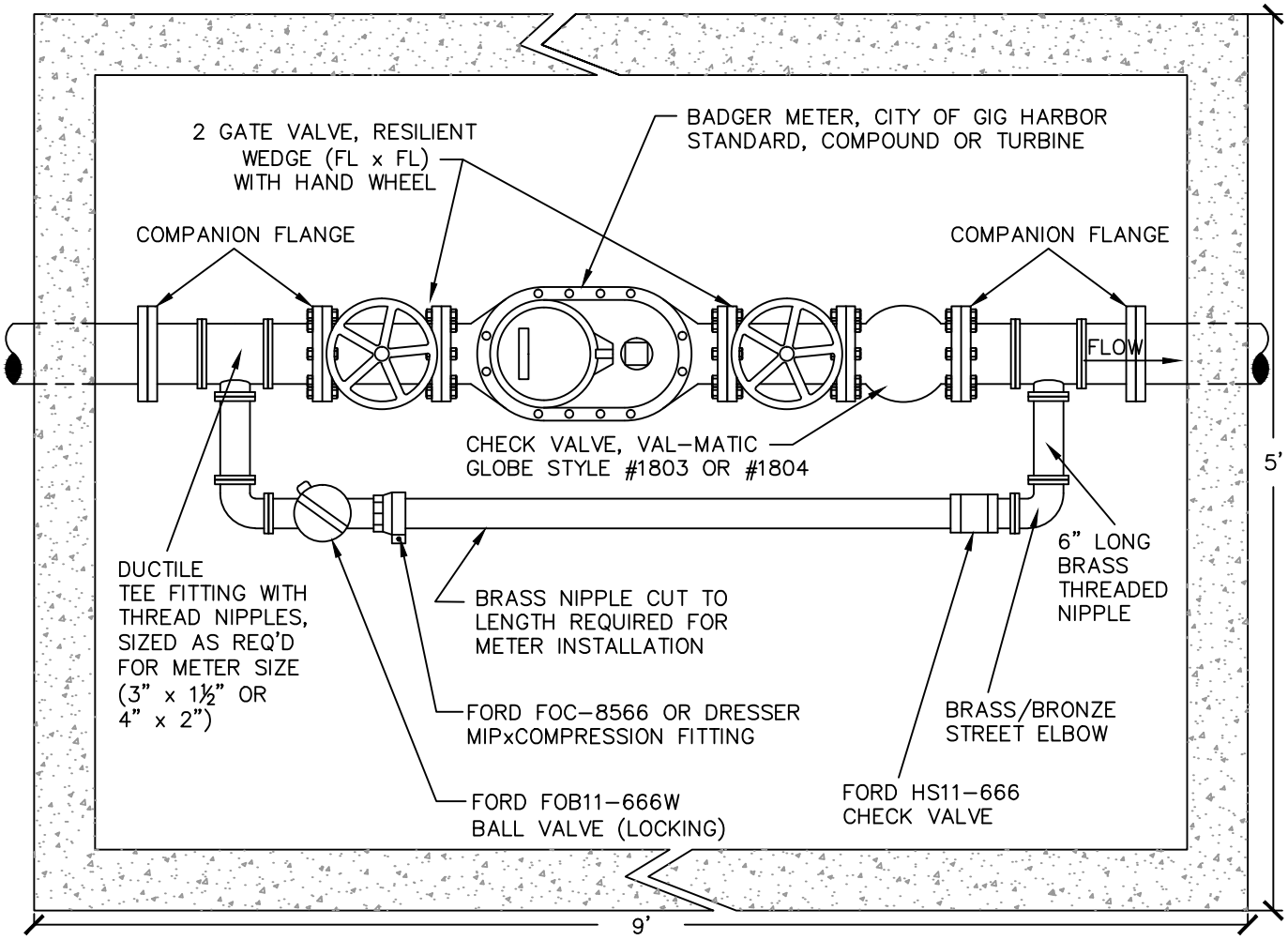

PLAN VIEW

NOTES:

1. 3" METERS SHALL HAVE 3" PLUMBING AND 1½" BYPASS PLUMBING.
2. 4" METERS SHALL HAVE 4" PLUMBING AND 2" BYPASS PLUMBING.
3. A MINIMUM OF 10 PIPE DIAMETERS OF STRAIGHT UNOBSTRUCTED PIPE SHALL BE REQUIRED UPSTREAM OF THE INSTALLED METER.
4. THE METER BOX PIT SHALL BE BEDDED WITH 6" DEPTH OF CRUSHED ROCK.
5. USE CONCRETE UTILITY VAULT SIZED ACCORDINGLY WITH TRAFFIC-RATED HINGED ACCESS HATCHED(S) AND READER LID. VAULT SHALL HAVE CONCRETE BOTTOM WITH DRAIN TO DAYLIGHT/OR PROVIDE MECHANICAL SUMP PUMP. INSIDE DEPTH SHALL NOT EXCEED 4'.
6. BYPASS AND GLOBE STYLE CHECK VALVE NOT REQUIRED FOR IRRIGATION ONLY INSTALLATION.
7. ALL PLUMBING SHALL BE SUPPORTED BY ADJUSTABLE JACK STANDS. THESE STANDS SHALL BE PLACED IN FOUR LOCATIONS TO PROVIDE THE INSTALLATION WITH A FIRM SUPPORT.
8. REMOTE READER ABOVE GROUND BOX SHALL BE INSTALLED. ALLIED MOULDED PRODUCTS #1056 WITH A TOUCH READ READER WINDOW.
9. REMOTE METER READER BOX SHALL BE MOUNTED A MIN. 3' ABOVE GROUND ON A 1½" GALVANIZED UNI-STRUT POST SET IN CONCRETE.
10. INSTALL ¾" PVC ELECTRICAL CONDUIT FROM METER VAULT TO REMOTE READER BOX.
11. METER VAULT SHALL HAVE GRAVITY DRAIN INSTALLED.

CITY OF GIG HARBOR
ENGINEERING DIVISION

STANDARD PLUMBING CONFIGURATION FOR 3" AND 4" METERS

DETAIL NO. 4-04

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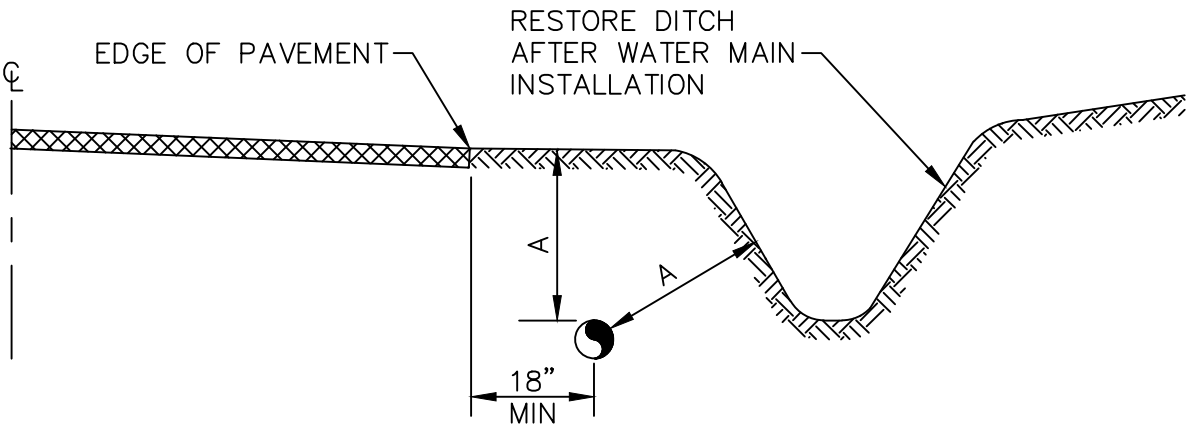
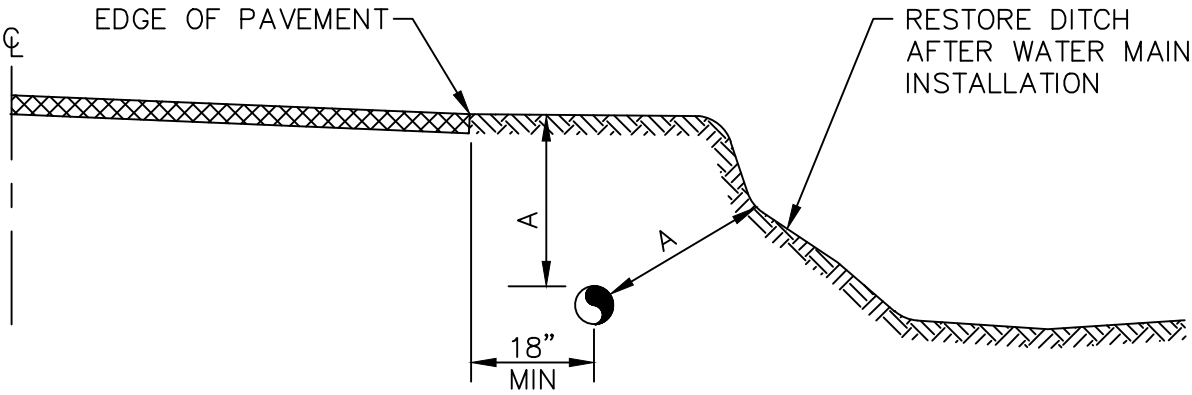


DITCH



SLOPE

PIPE SIZE	A
6"–18"	42"
20" & OVER	48"

CITY OF GIG HARBOR
ENGINEERING DIVISION

WATER MAIN DEPTH REQUIREMENTS

DETAIL NO. 4-05

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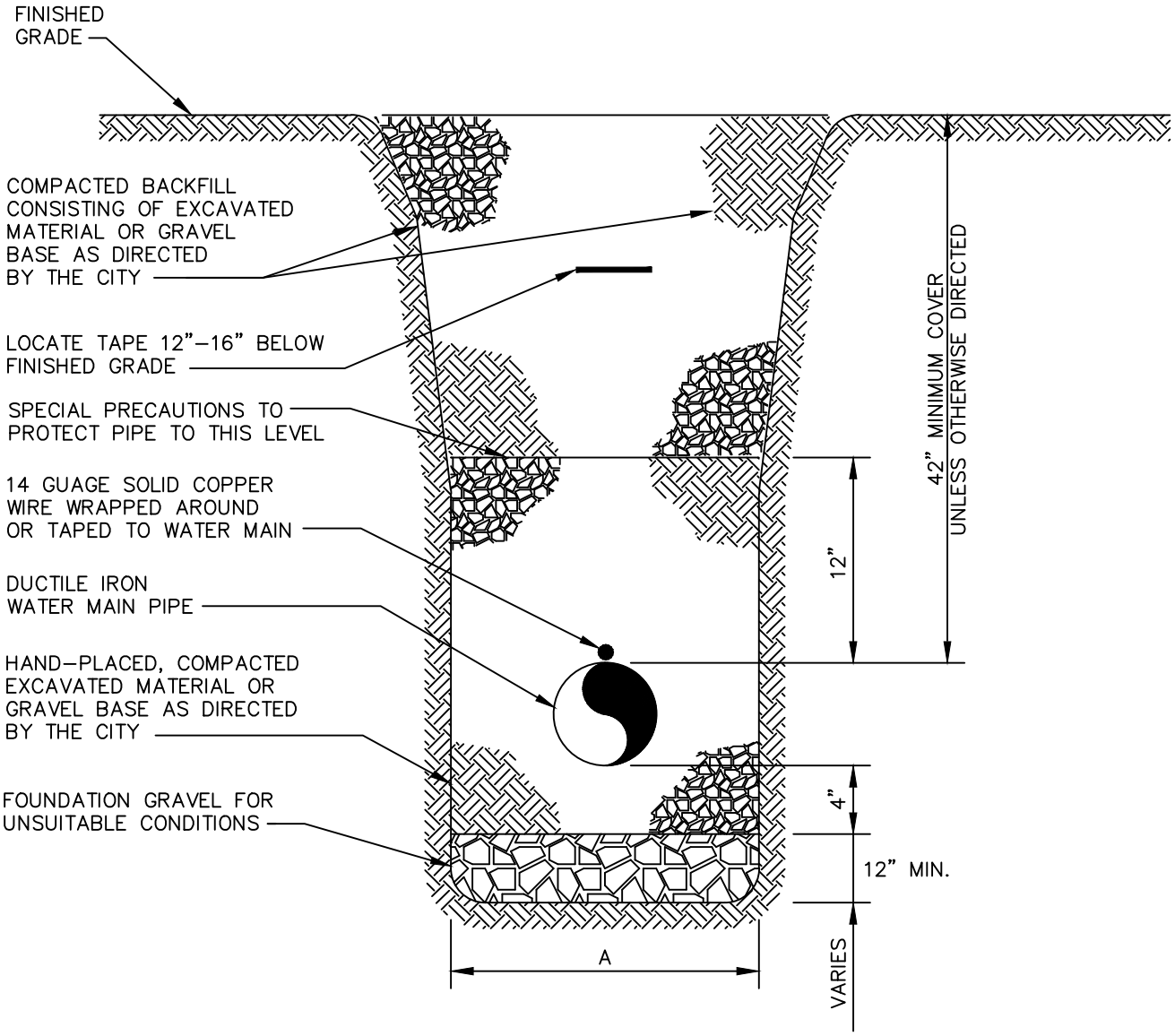

WATER
MAIN TRENCH SECTION

PIPE SIZE	A
6"	24"
8"	30"
10" & 12"	36"
16" AND 18"	42"

CITY OF GIG HARBOR
ENGINEERING DIVISION

WATER
MAIN TRENCH SECTION

DETAIL NO.
4-06

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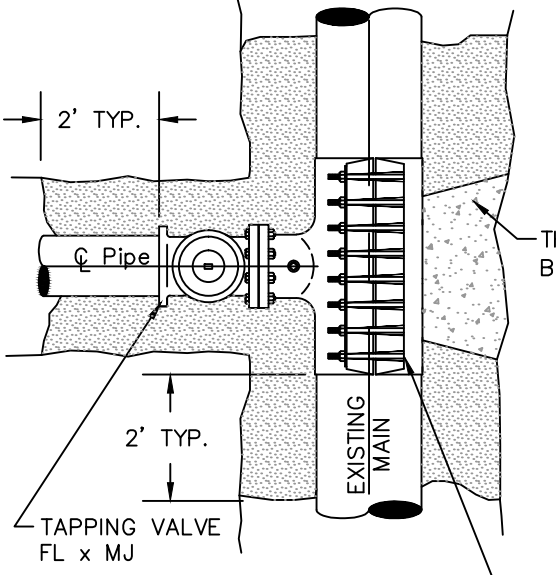
LIVE TAP

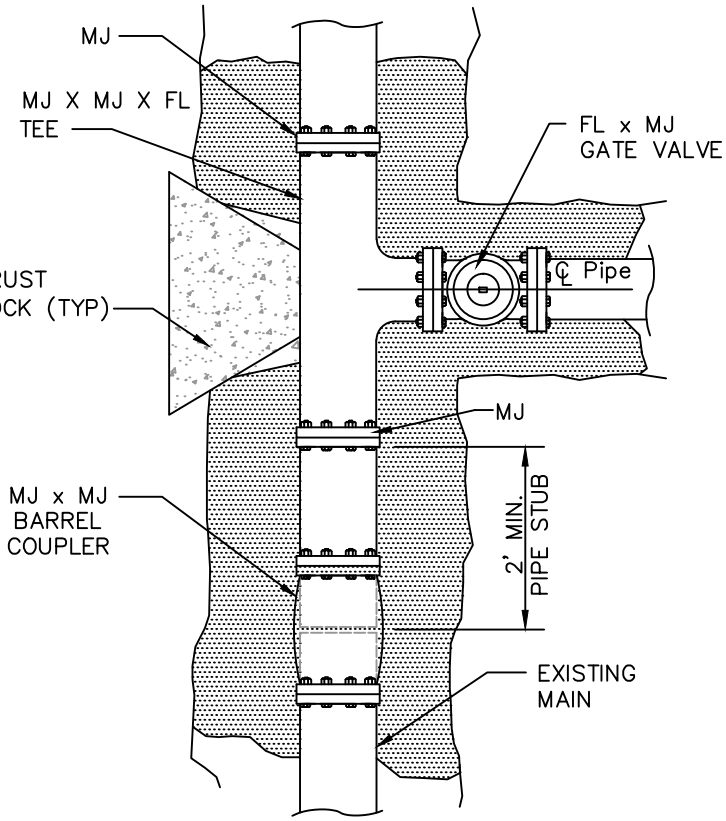
(ONLY BY APPROVAL OF CITY ENGINEER)

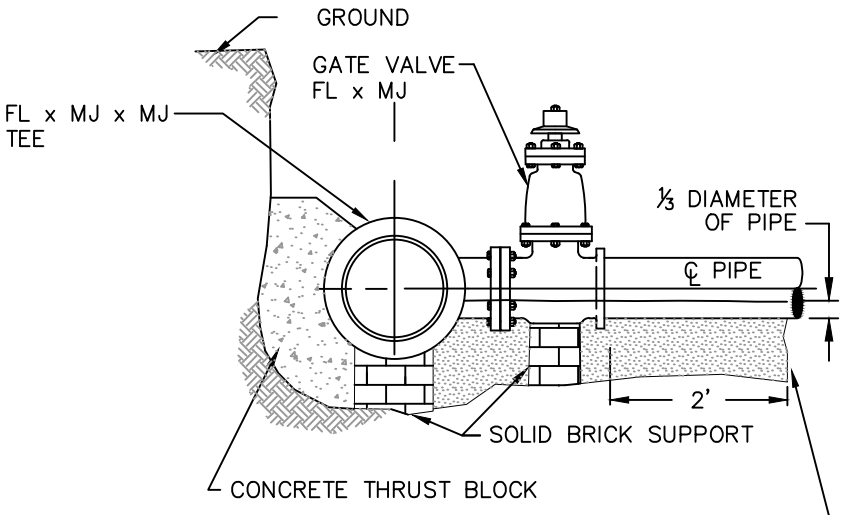


VALVE AND SLEEVE SHALL BE SUPPORTED AND BACKFILLED AS SHOWN BELOW–RIGHT.

ASTM APPROVED TAPPING SLEEVE (12" DIAMETER AND UNDER SHALL BE STAINLESS STEEL).

CUT–IN–TEE





NOTES:

1. 11 MIL. PLASTIC OR CONSTRUCTION FABRIC SHALL BE WRAPPED AROUND PIPE AND FITTINGS BEFORE THRUST BLOCK AND BACKFILL ARE POURED.
2. CONTROLLED DENSITY BACKFILL IS A PLANT MIX CONSISTING OF: 3100# SAND, 450# WATER, AND ONE SACK (94#) OF CEMENT.
3. SUPPORT VALVE AND SLEEVE CONTINUOUSLY THROUGH INSTALLATION.
4. MEGA LUG RESTRAINT JOINT REQUIRED ON ALL MECHANICAL JOINT FOLLOWERS.
5. ADDITIONAL VALVES MAY BE REQUIRED ON CUT–IN–TEE'S AT THE DISCRETION OF THE CITY ENGINEER.

CITY OF GIG HARBOR
ENGINEERING DIVISION

CONNECTION TO EXISTING MAIN

DETAIL NO. 4-07

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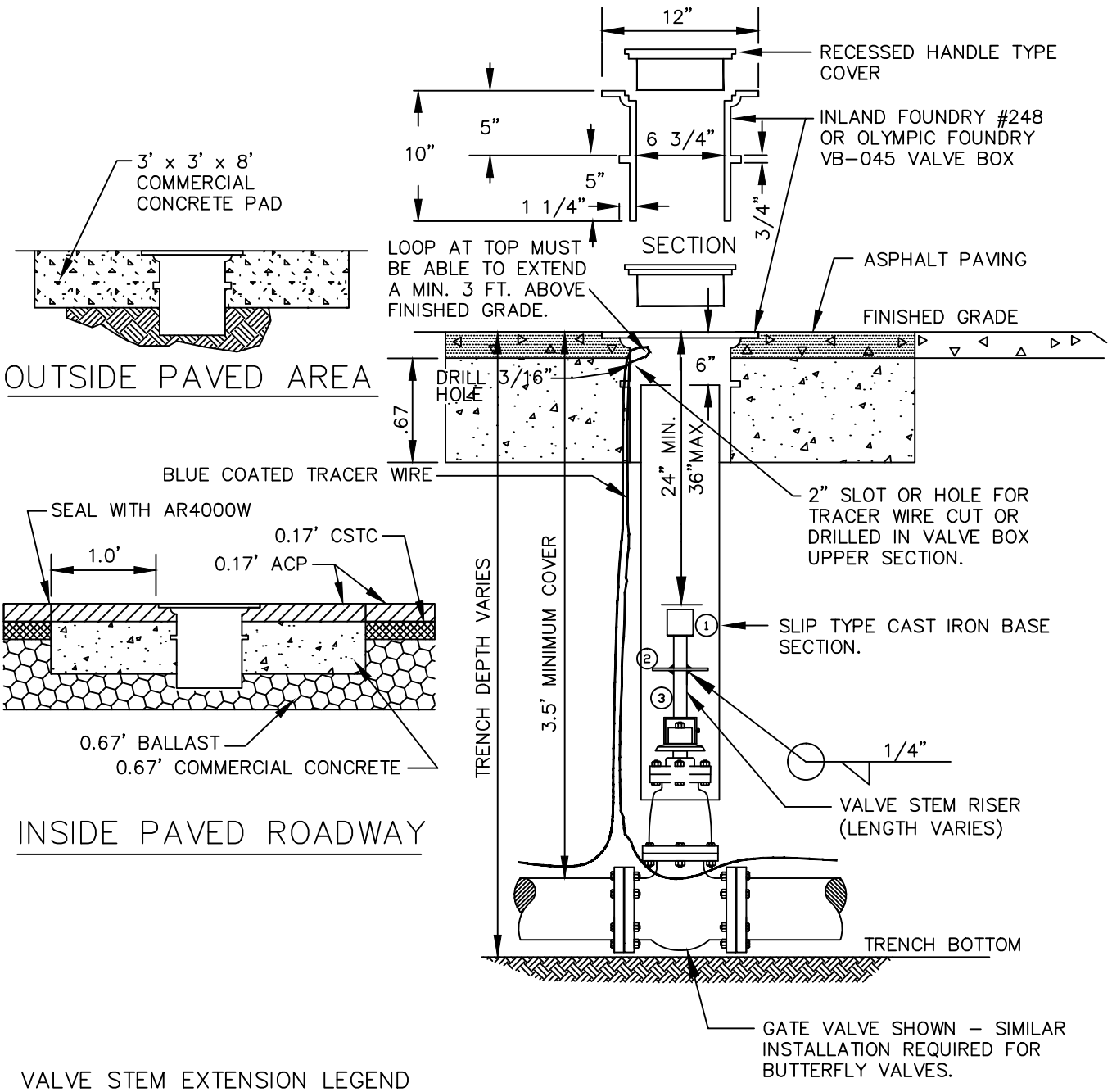

VALVE STEM EXTENSION LEGEND

① VALVE OPERATING NUT OR 1⅞" x 1⅞" x 2" HIGH GRADE STEEL WELDED TO GUIDE PLATE.

② 3/16" THICK x 5⅛" DIA STEEL GUIDE PLATE WELDED TO RISER SHAFT.

③ 2" x 2" x 3/16" SQUARE STRUCTURAL STEEL TUBING TO FIT OPERATING NUT. LENGTH AS REQUIRED.

NOTES:

1. ALL WELDS TO SHAFT SHALL BE FILLET WELD ALL AROUND, AS SPECIFIED ABOVE.
2. ALL VALVES MUST HAVE 14 GAUGE BLUE COATED COPPER TRACER WIRE TIED OFF AT VALVE BODY, EXTENDED OUTSIDE CAST IRON RISER PIPE THEN EXTENDED ONE FOOT TOP OF VALVE BOX.

CITY OF GIG HARBOR
ENGINEERING DIVISION

STANDARD VALVE BOX & ASSEMBLY

DETAIL NO. 4-08

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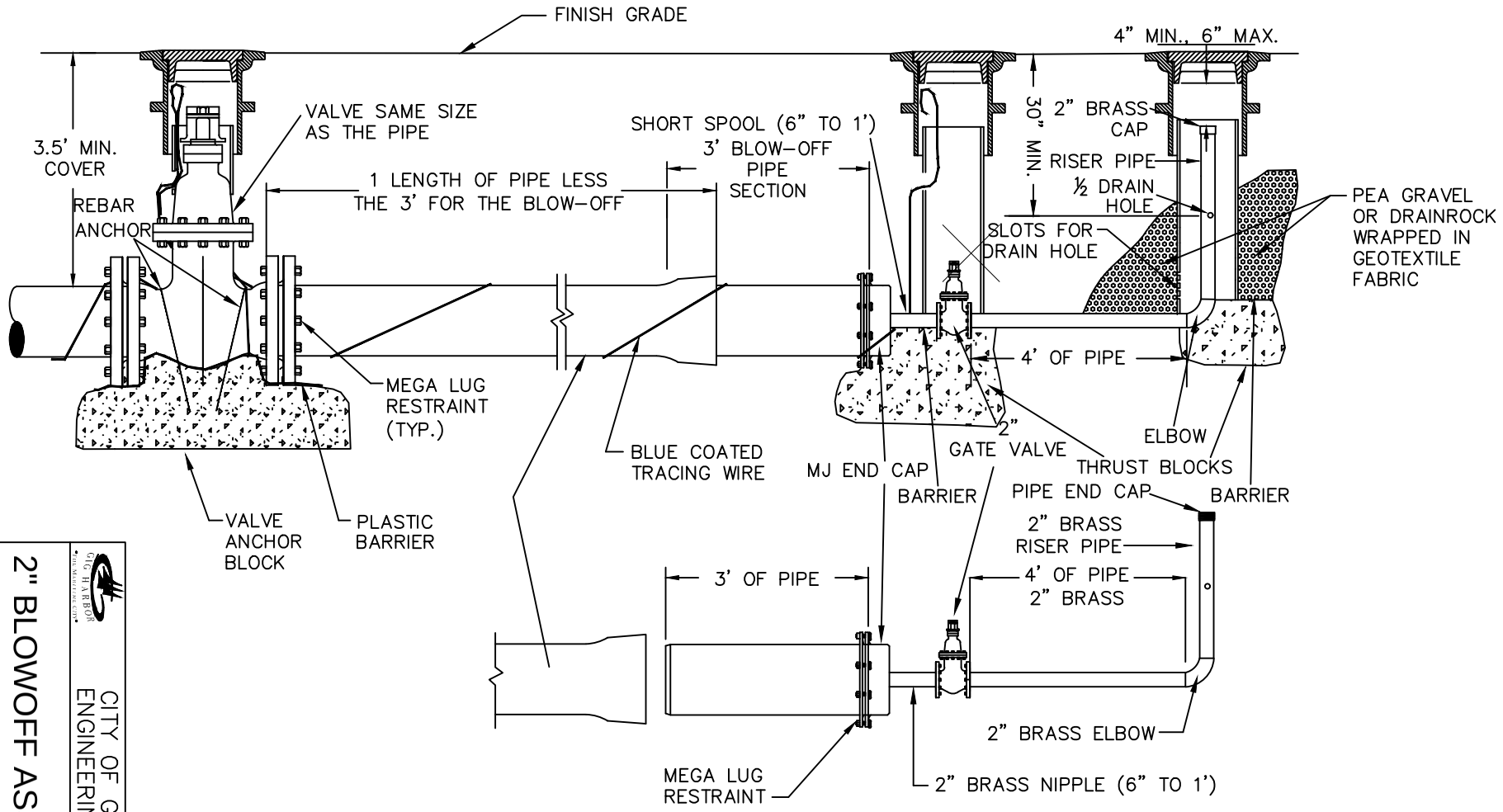

NOTES:

1. FOR VALVE BOX REQUIREMENTS SEE DETAIL 4-09.
2. FILL THE AREA OUTSIDE OF THE BLOW-OFF RISER STAND PIPE WITH PEA GRAVEL.
3. FOR PIPING REQUIREMENTS SEE GENERAL NOTE #5.
4. ALL FITTINGS AND PIPING SHALL BE BRASS.

CITY OF GIG HARBOR
ENGINEERING DIVISION

2" BLOWOFF ASSEMBLY

DETAIL NO. 4-09

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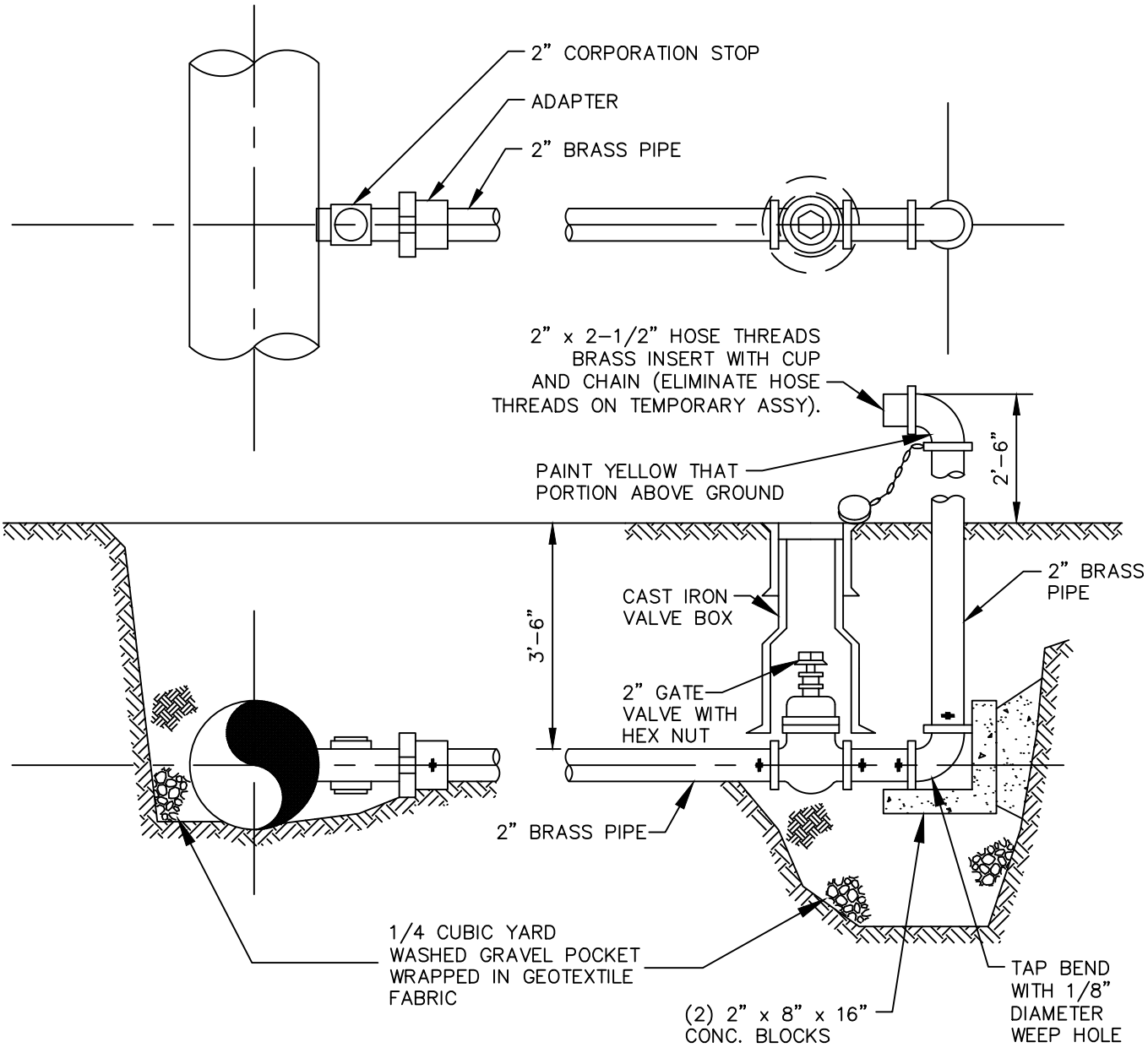

CITY OF GIG HARBOR
ENGINEERING DIVISION

IN-LINE BLOWOFF ASSEMBLY

DETAIL NO. 4-10

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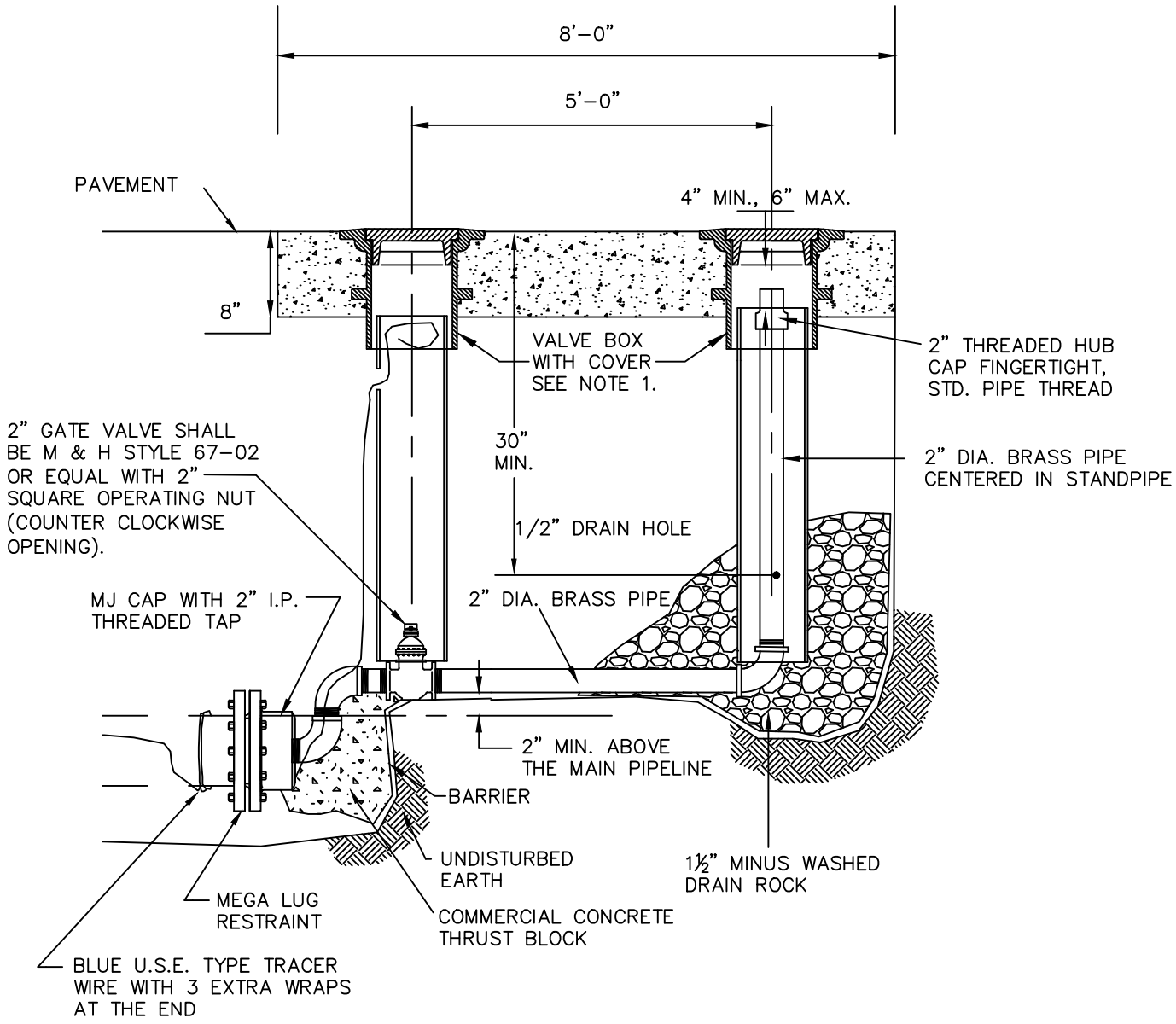

NOTES:

1. VALVE BOX, COVER AND PAD SHALL BE PER CITY OF GIG HARBOR VALVE BOX DETAIL 4–09.
2. ALL FITTING AND PIPING SHALL BE BRASS.

CITY OF GIG HARBOR
ENGINEERING DIVISION

2" BLOWOFF ASSEMBLY FOR DEAD END LINE

DETAIL NO. 4-11

APPROVED FOR PUBLICATION
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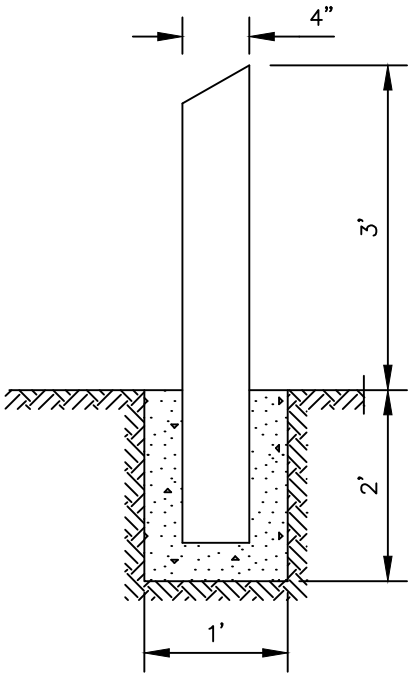
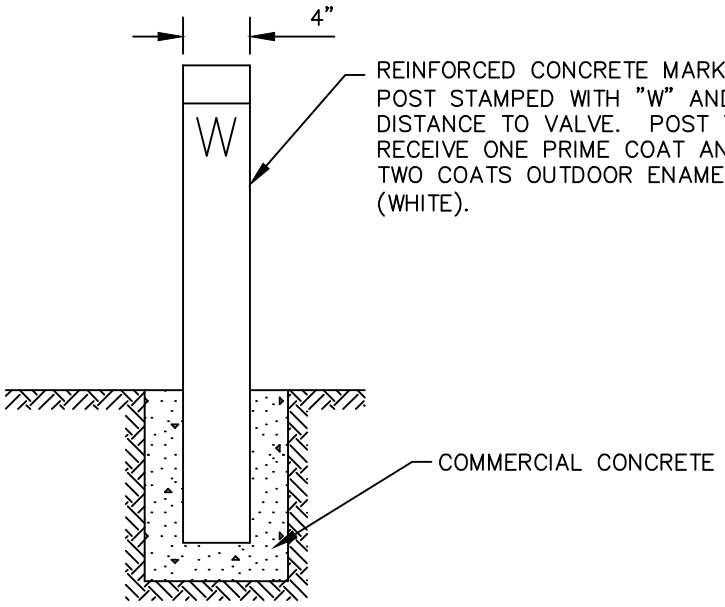
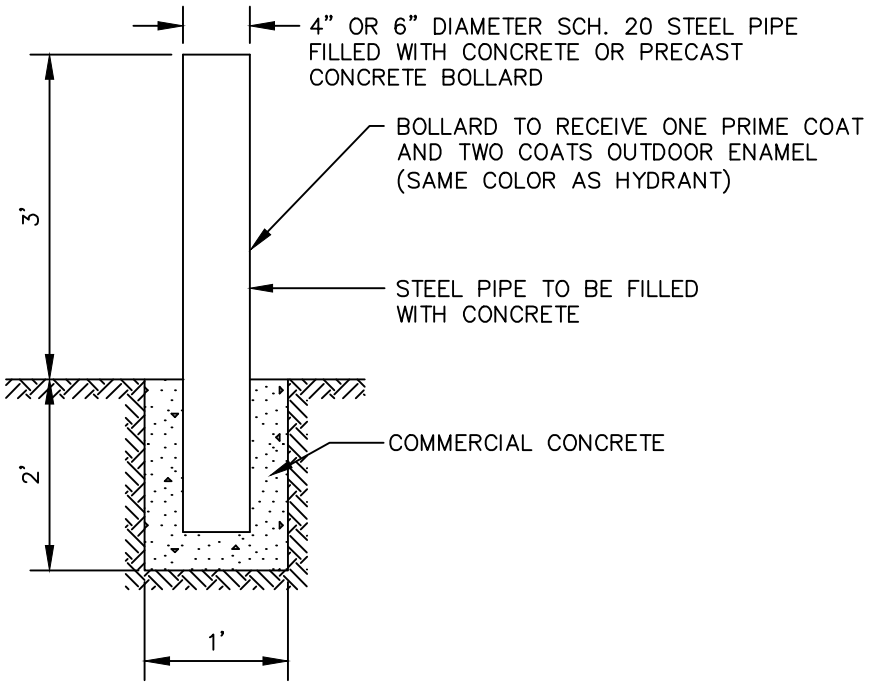


SIDE



FRONT

VALVE MARKER POST



HYDRANT BOLLARD

NOTE:

1. LOCATE BOLLARDS 3' FROM HYDRANT DO NOT BLOCK HYDRANT PORTS.

CITY OF GIG HARBOR
ENGINEERING DIVISION

VALVE MARKER POST AND HYDRANT BOLLARD	DETAIL NO. 4-12

APPROVED FOR PUBLICATION
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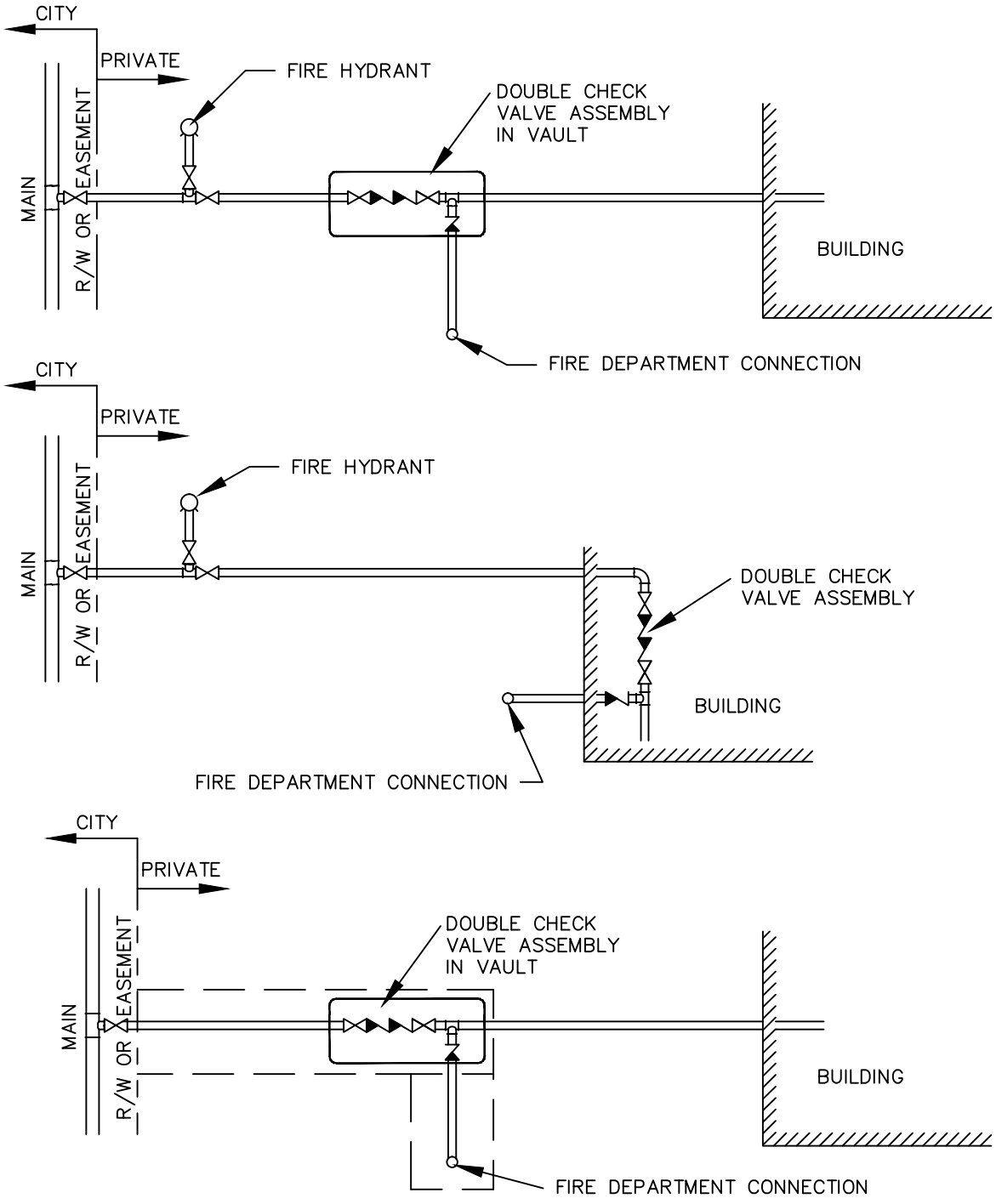

NOTES:

1. ALL PIPE EASEMENTS ARE TO BE 15 FEET WIDE WITH PIPE CENTERED IN EASEMENT.
2. WHEN THE DCVA IS IN A VAULT, OUTSIDE THE BUILDING, THE CITY EASEMENT SHALL END AT THE CITY VALVE.
3. WHEN THE DCVA IS LOCATED WITHIN THE BUILDING, THE CITY EASEMENT SHALL END AT THE CITY VALVE.

CITY OF GIG HARBOR
ENGINEERING DIVISION

FIRE SPRINKLER UNDERGROUND EASEMENT LIMITS

DETAIL NO. 4-13

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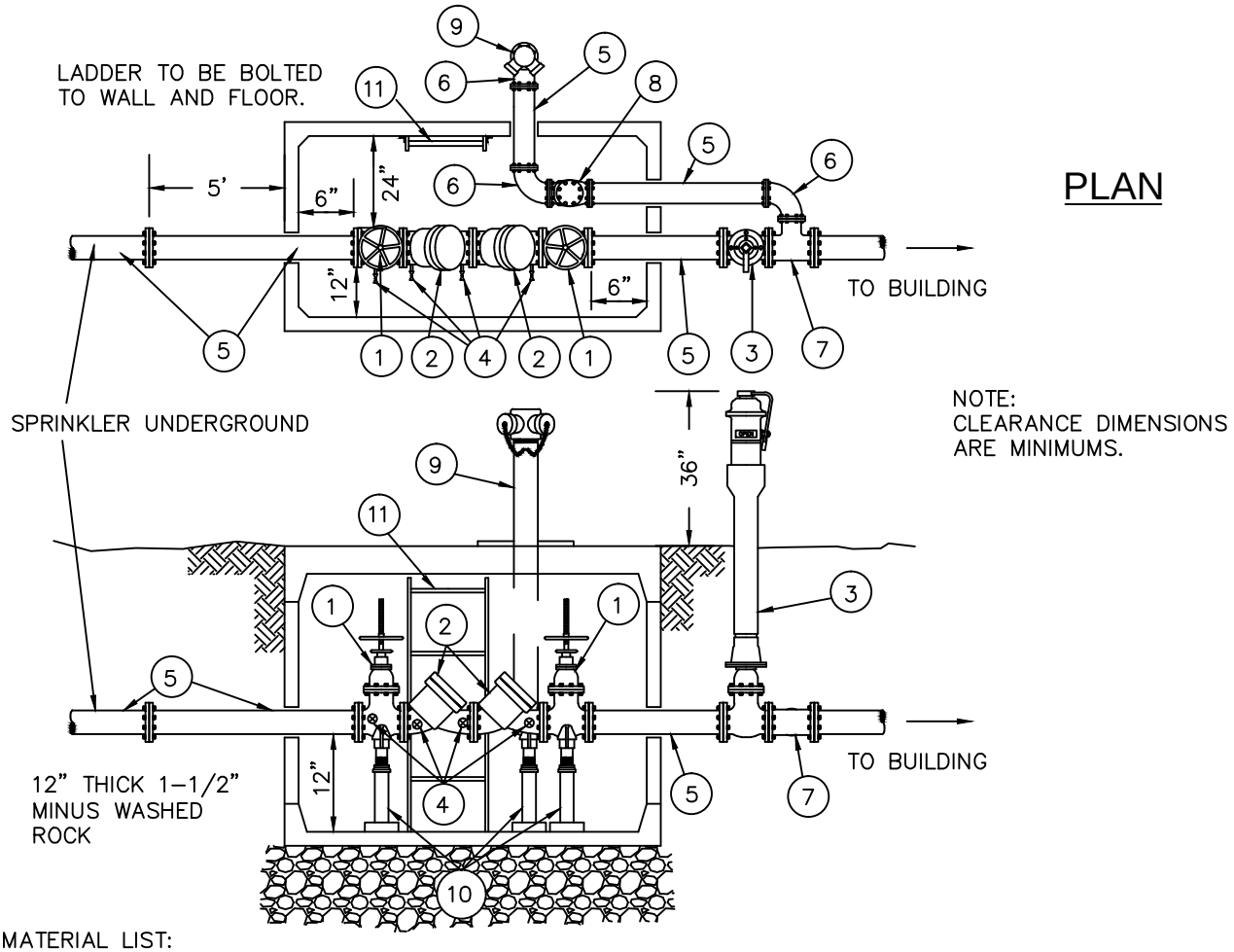
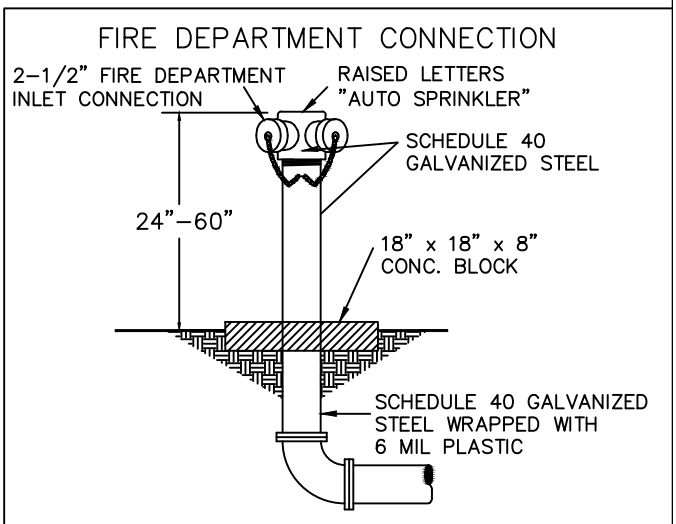


MATERIAL LIST:

1. OS & Y GATE VALVE W/HANDWHEEL FL x FL
2. D.S.H.S. APPROVED CHECK VALVE FL x FL
3. POST INDICATOR VALVE
4. TEST COCK – 4 REQUIRED
5. CLASS 52 DI WALL PIPE FL x FL
6. CLASS 52 DI 90° BEND FL x FL
7. CLASS 52 DI TEE FL x FL
8. SWING CHECK VALVE W/BALL DRIP ASSEMBLY
9. FIRE DEPARTMENT CONNECTION
10. VALVE STANDS
11. LADDER

GENERAL NOTES:

1. THOROUGHLY FLUSH LINES PRIOR TO INSTALLING BACK FLOW ASSEMBLY.
2. PIPE FROM VAULT TO BUILDING SHALL BE CLASS 52 DI.
3. TAMPER SWITCHES SHALL BE INSTALLED ON 1 AND 3 CONNECTED TO BUILDING FIRE ALARM SYSTEM.
4. WHERE PIPING PASSES THROUGH CONCRETE WALL PROVIDE 2" CLEARANCE W/WATERPROOF MASTIC OR FLEXIBLE SEALANT.
5. DIAMETER OF PIPE AND FITTINGS TO BE DETERMINED BY CERTIFIED SPRINKLER DESIGNER.
6. ALL PIPING SHALL BE A MINIMUM OF 4" DIA. AS PER NFPA13.
7. ALL VAULTS SHALL BE EQUIPPED WITH A DRAIN TO DAYLIGHT OR BE INSTALLED ABOVE GROUND.
8. ALL FIRE SPRINKLER LINES UP TO THE FIRST VALVE ON THE DCVA SHALL BE DISINFECTED, PRESSURE TESTED, FLUSHED AND TESTED FOR PURITY PER THE CITY OF GIG HARBOR STANDARDS.



CITY OF GIG HARBOR
ENGINEERING DIVISION

SINGLE SERVICE DOUBLE CHECK VALVE ASSEMBLE WITH FDC

DETAIL NO. 4-14

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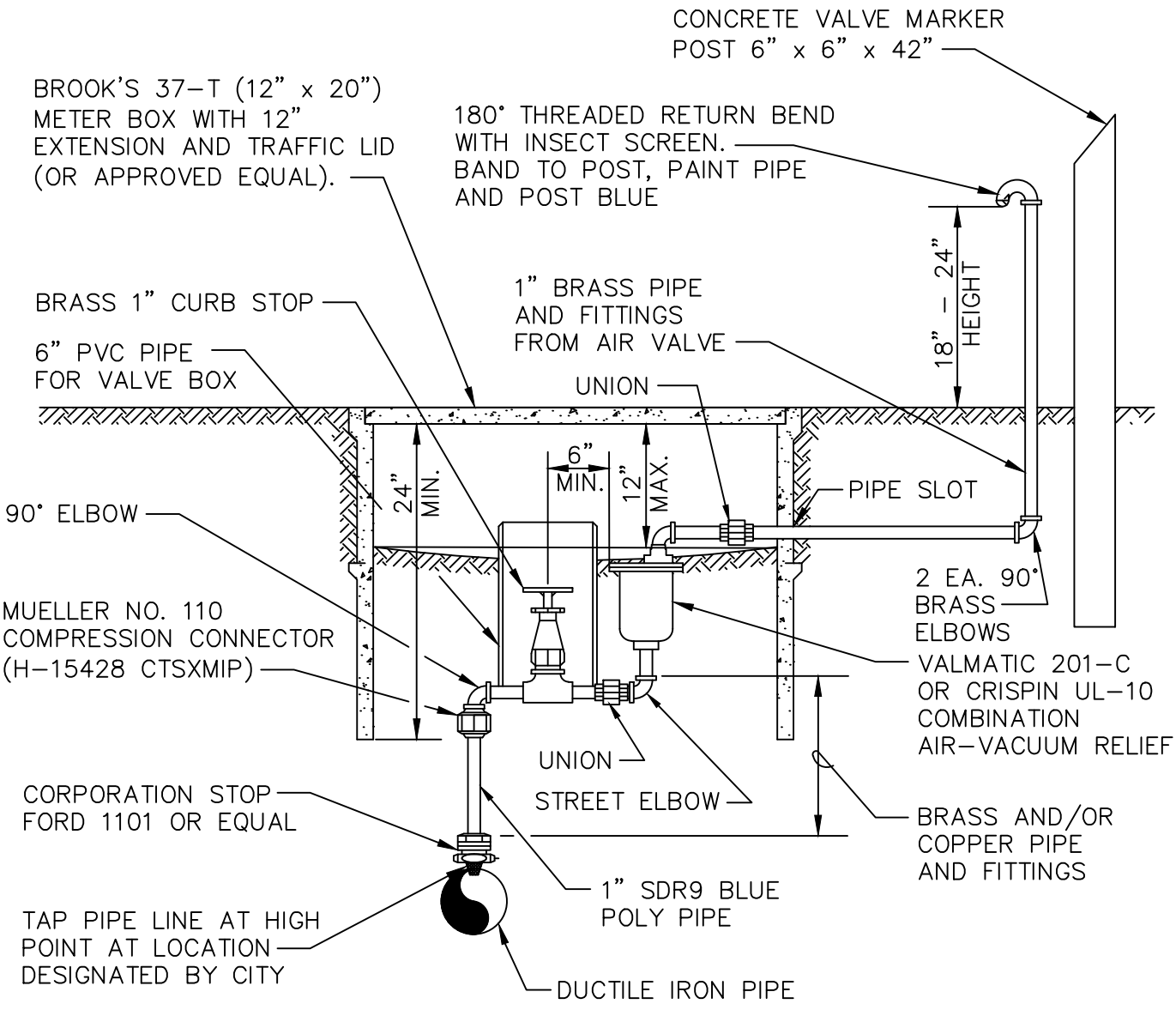

NOTES:

AIR VAC TO BE LOCATED OUTSIDE OF ROADWAY TRAVEL LANES

CITY OF GIG HARBOR
ENGINEERING DIVISION

1" AIR AND VACUUM RELEASE ASSEMBLY

DETAIL NO. 4-15

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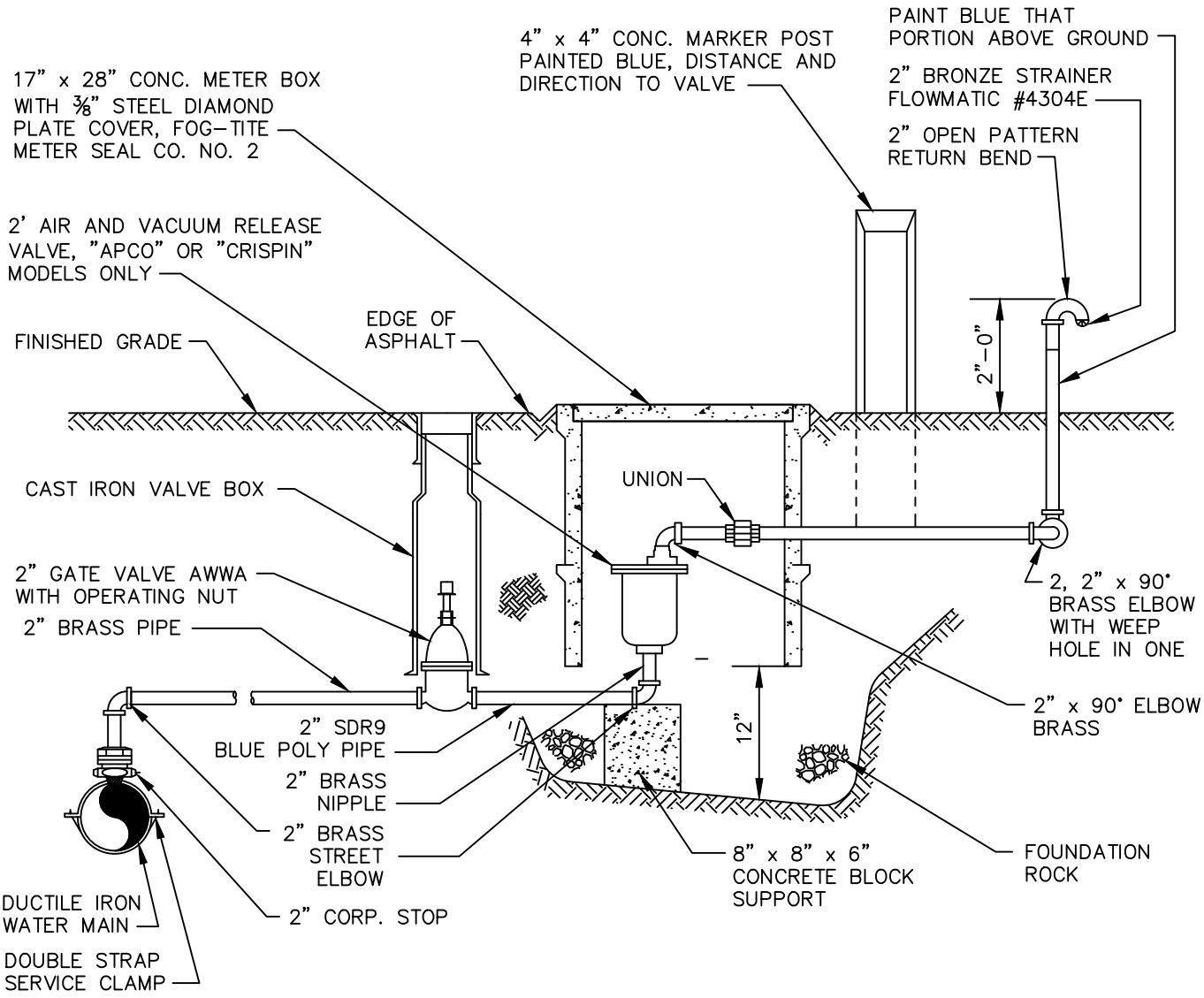

NOTES:

1. AIR VAC TO BE LOCATED OUTSIDE OF ROADWAY TRAVEL LANES.
2. LOCATE GATE VALVE AS CLOSE TO WATER MAIN AS POSSIBLE.

CITY OF GIG HARBOR
ENGINEERING DIVISION

2" AIR AND VACUUM RELEASE ASSEMBLY

DETAIL NO. 4-16

APPROVED FOR PUBLICATION
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THRUST LOADS

THRUST AT FITTINGS IN POUNDS AT 200 POUNDS PER SQUARE INCH OF WATER PRESSURE

PIPE DIAMETER	90° BEND	45° BEND	22.5° BEND	11.25° BEND	DEAD END OR TEE
4"	3600	2000	1000	500	2600
6"	8000	4400	2300	1200	5700
8"	14300	7700	4000	2000	10100
10"	22300	12100	6200	3100	15800
12"	32000	17400	8900	4500	22700
14"	43600	23600	12100	6100	30800
16"	57000	30800	15700	7900	40300

NOTES:

1. BLOCKING SHALL BE COMMERCIAL CONCRETE POURED IN PLACE AGAINST UNDISTURBED EARTH. FITTING SHALL BE ISOLATED FROM CONCRETE THRUST BLOCK WITH PLASTIC OR SIMILAR MATERIAL.
2. TO DETERMINE THE BEARING AREA OF THE THRUST BLOCK IN SQUARE FEET (SF):
   EXAMPLE: 12" – 90° BEND IN SAND AND GRAVEL
   32000 LBS/3000 LB/SF = 10.7 SF OF AREA
3. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZE, PRESSURES, AND SOIL CONDITIONS.
4. BLOCKING SHALL BE ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.

SAFE SOIL BEARING LOADS

FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET

SOIL	POUNDS PER SQUARE FOOT
MUCK, PEAT	0
SOFT CLAY	1,000
SAND	2,000
SAND AND GRAVEL	3,000
SAND AND GRAVEL CEMENTED WITH CLAY	4,000
HARD SHALE	10,000

CITY OF GIG HARBOR
ENGINEERING DIVISION

THRUST LOADS

DETAIL NO. 4-17

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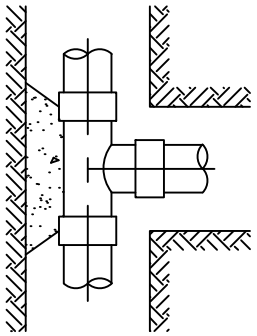
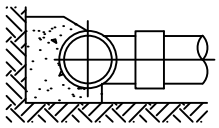
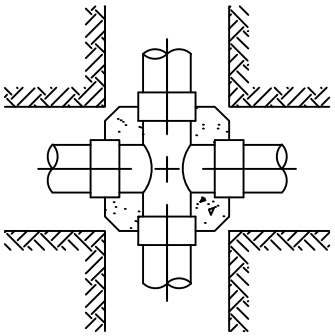


TOP VIEW

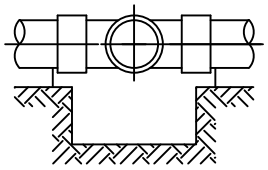


SIDE VIEW

TEE

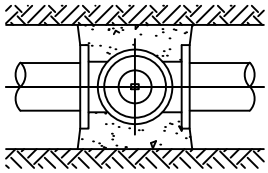


TOP VIEW

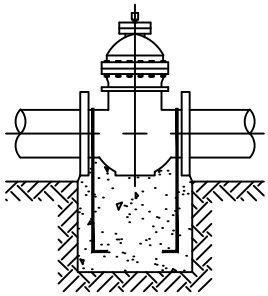


SIDE VIEW

CROSS

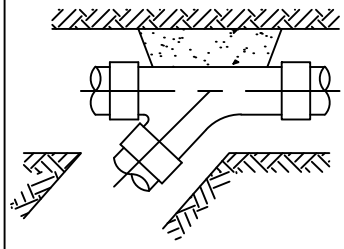


TOP VIEW

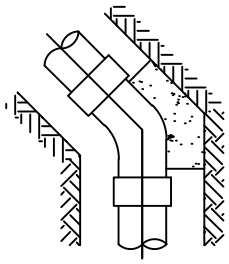


SIDE VIEW

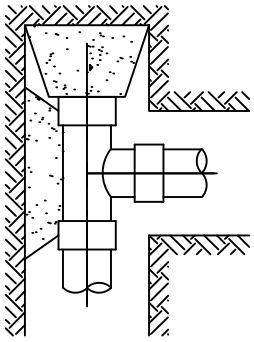
GATE VALVE



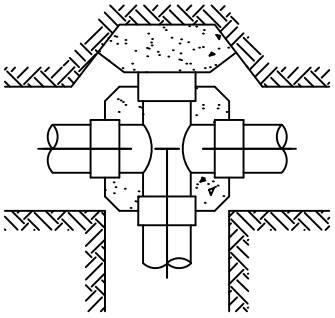
WYE



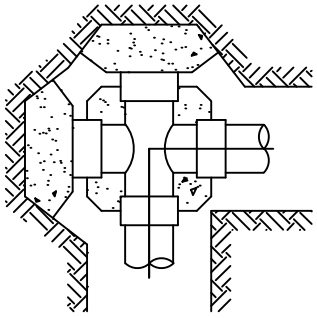
HORIZ. BEND



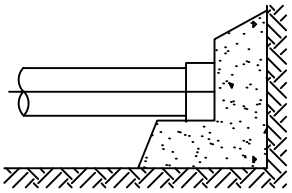
TEE WITH PLUG



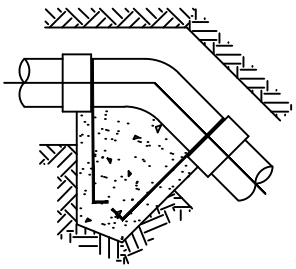
CROSS
WITH PLUG



CROSS
WITH PLUGS



PLUG OR CAP



45° – 90°
VERTICAL BEND

NOTES:

1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. PLASTIC BARRIER SHALL BE PLACED BETWEEN ALL THRUST BLOCKS AND FITTINGS.
3. ANCHOR REBAR SHALL BE ⅝" MINIMUM DIAMETER.

CITY OF GIG HARBOR
ENGINEERING DIVISION

STANDARD BLOCKING DETAILS

DETAIL NO. 4-18

APPROVED FOR PUBLICATION
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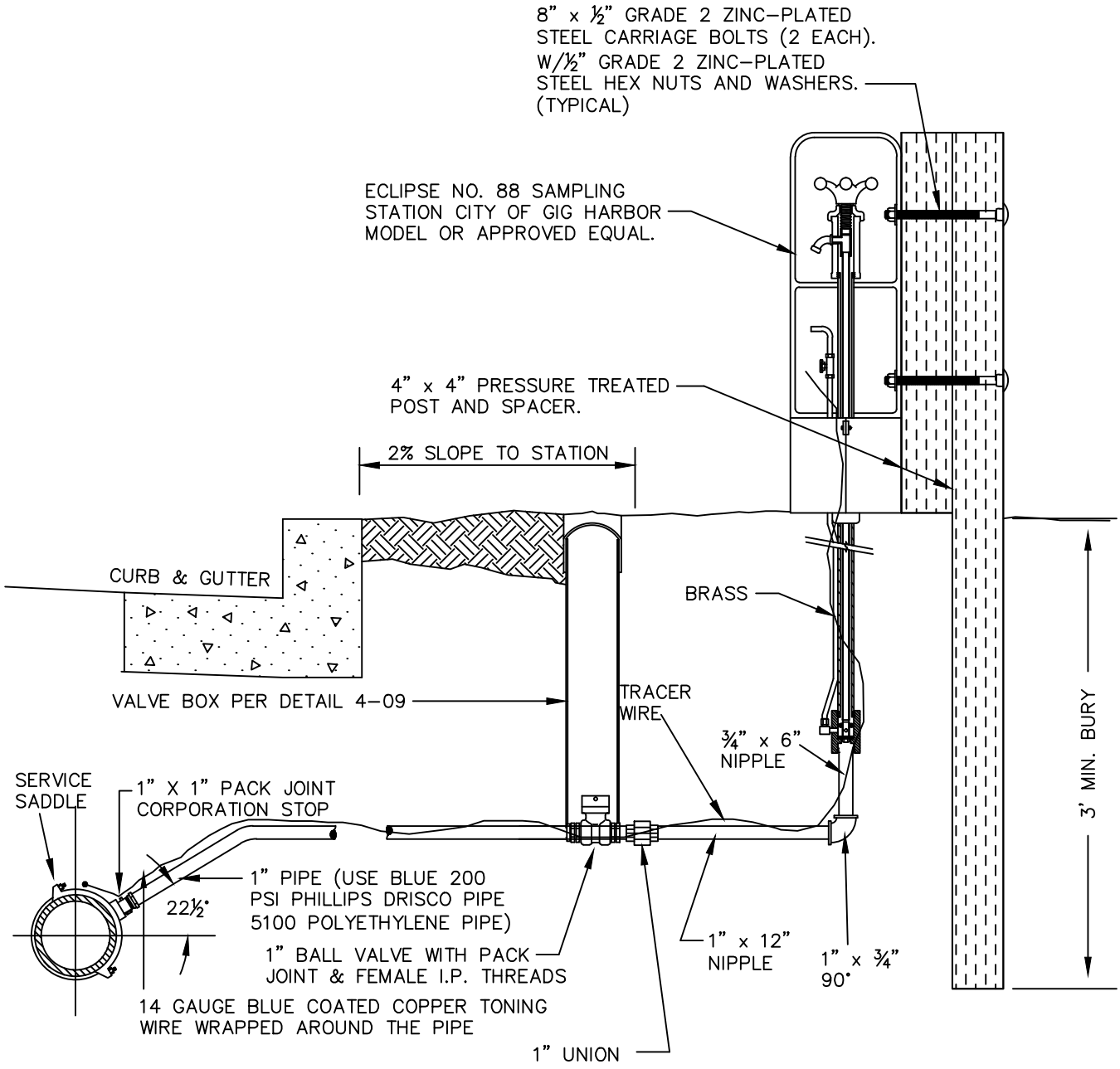

NOTES:

1. STAINLESS STEEL INSERTS REQUIRED FOR ALL PACK JOINTS.
2. ALL SERVICE SADDLES SHALL HAVE RUBBER GASKET AND I.P. THREADS.
3. THE WATERLINE FOR THE SAMPLING STATION SHALL BE INSULATED FROM 1' BELOW GROUND LEVEL TO THE SAMPLING SPIGOT WITH 1" THICK FOAM PLUMBING INSULATION AND SECURED WITH NYLON TIES.
4. PAINT SAMPLE STATION WITH 2 COATS GREEN HI-GRADE EPOXY ENAMEL PAINT.
5. ALL PIPING AND FITTINGS SHALL BE BRASS.

CITY OF GIG HARBOR
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SAMPLING STATION

DETAIL NO. 4-19

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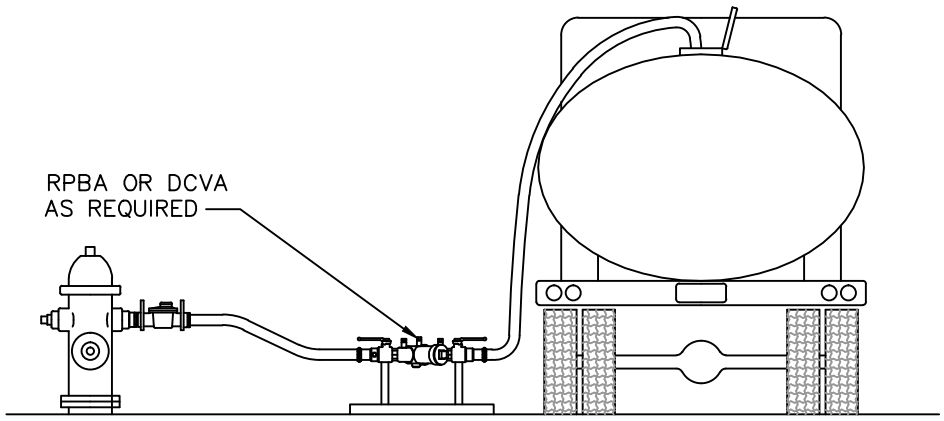

NOTE:

FOR ALL VEHICLES WITH OR WITHOUT AIR GAP

CITY OF GIG HARBOR
ENGINEERING DIVISION

BACKFLOW PREVENTION FOR VEHICLE FILLING

DETAIL NO. 4-20

APPROVED FOR PUBLICATION
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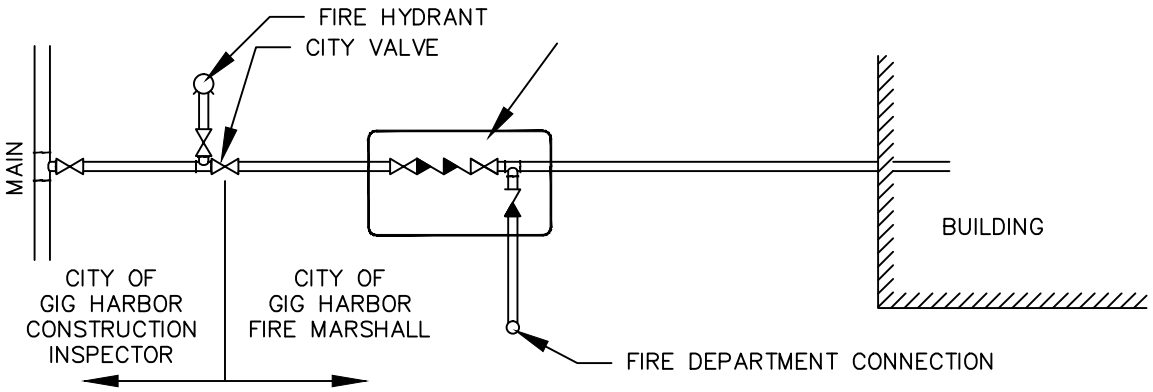

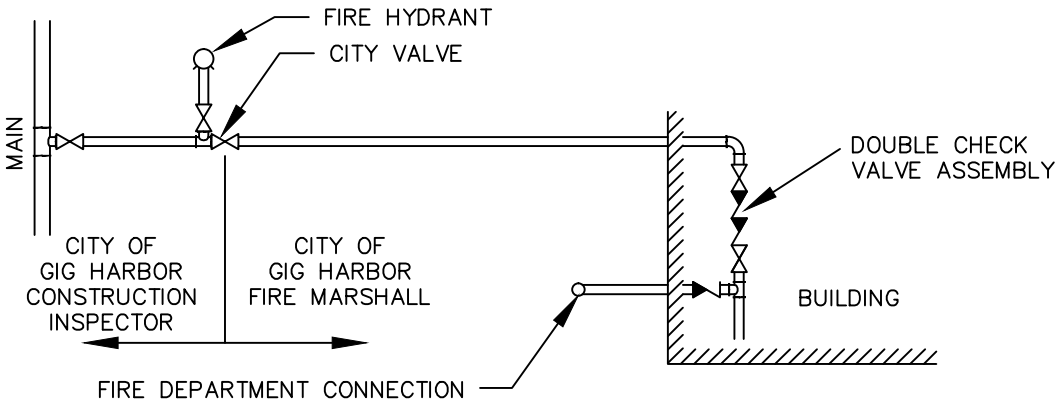

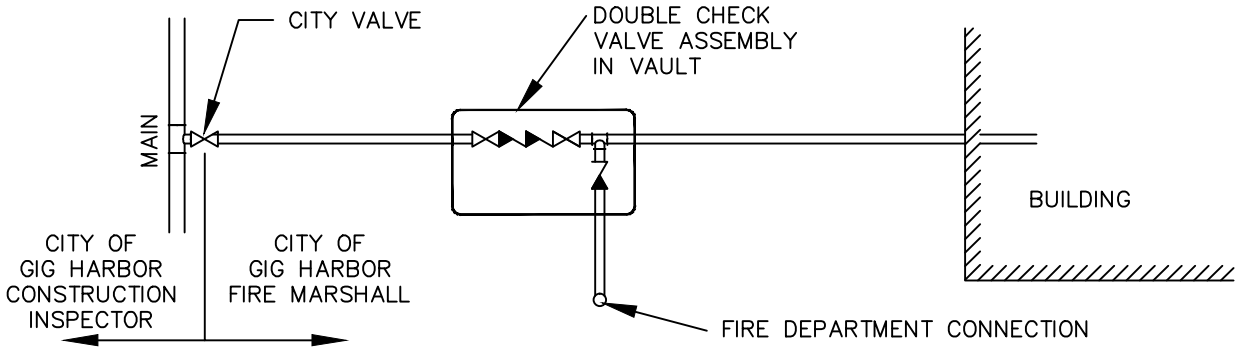

NOTES:

1. THE CITY WILL INSPECT AND TEST ALL MAINS AND HYDRANTS UP TO THE CITY VALVE.
2. ALL PIPE PAST CITY VALVE SHALL BE CLASS 52 D.I.
3. SEE PUBLIC WORKS STANDARDS SECTION 4.11 FOR MORE INFORMATION ON BACKFLOW PREVENTION.

CITY OF GIG HARBOR
ENGINEERING DIVISION

FIRE SPRINKLER UNDERGROUND TESTING LIMITS

DETAIL NO. 4-21

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