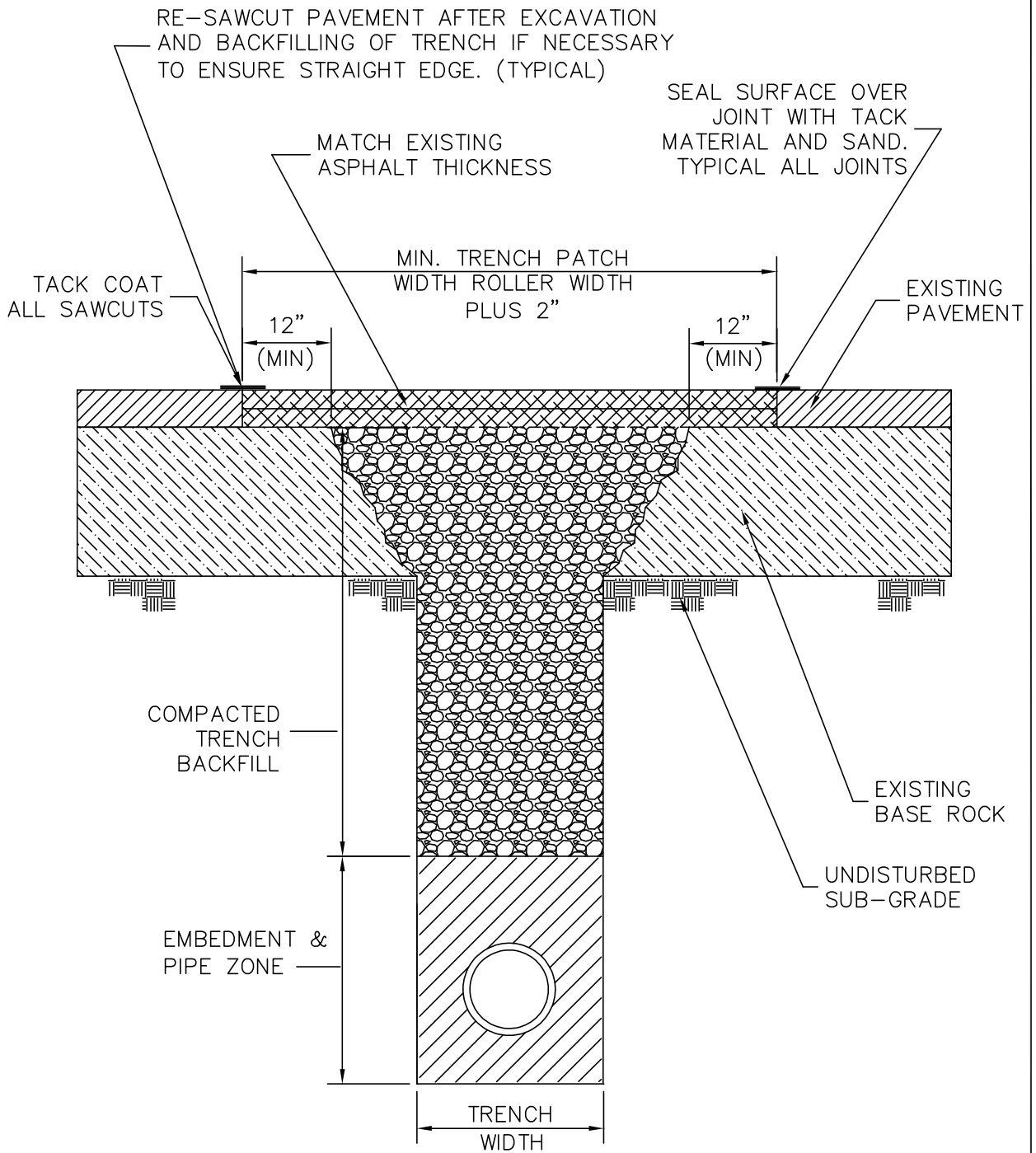


NOTE: *SEE O.S.H.A. CONSTRUCTION STANDARDS FOR EXCAVATION

WHERE TRENCH PASSES THROUGH EXISTING PAVEMENT, THE PAVEMENT SHALL BE CUT ALONG A NEAT VERTICAL LINE A MINIMUM OF 12" FROM THE EDGE OF THE TRENCH OPENING. WHERE NEAT LINE IS LESS THAN 3' FROM EDGE OF EXISTING PAVEMENT OR CURB AND GUTTER SECTION, REMOVE AND REPLACE ENTIRE PAVEMENT SECTION BETWEEN TRENCH AND EDGE OF PAVEMENT.

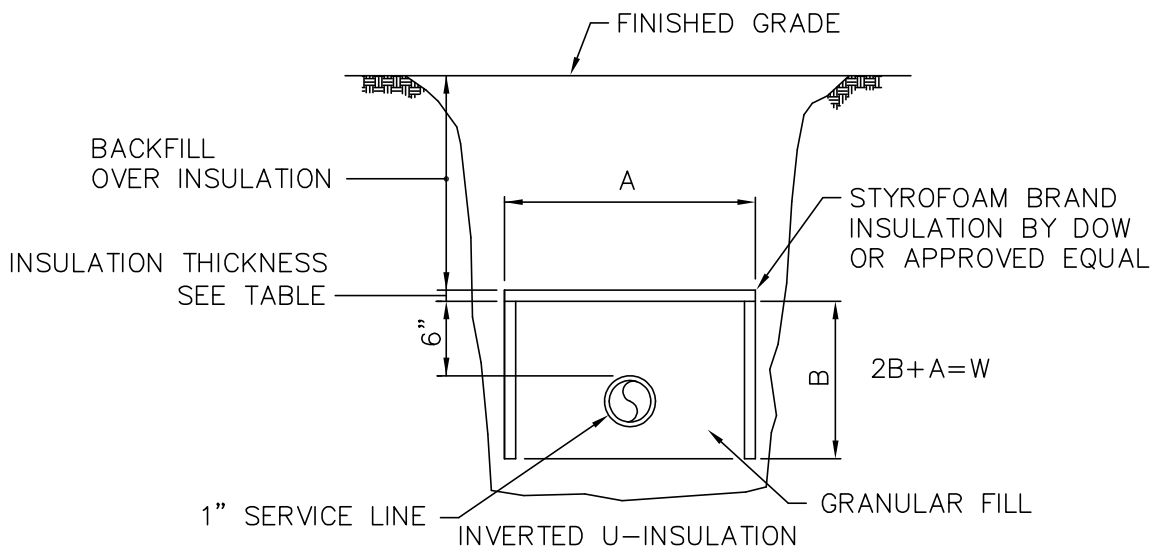
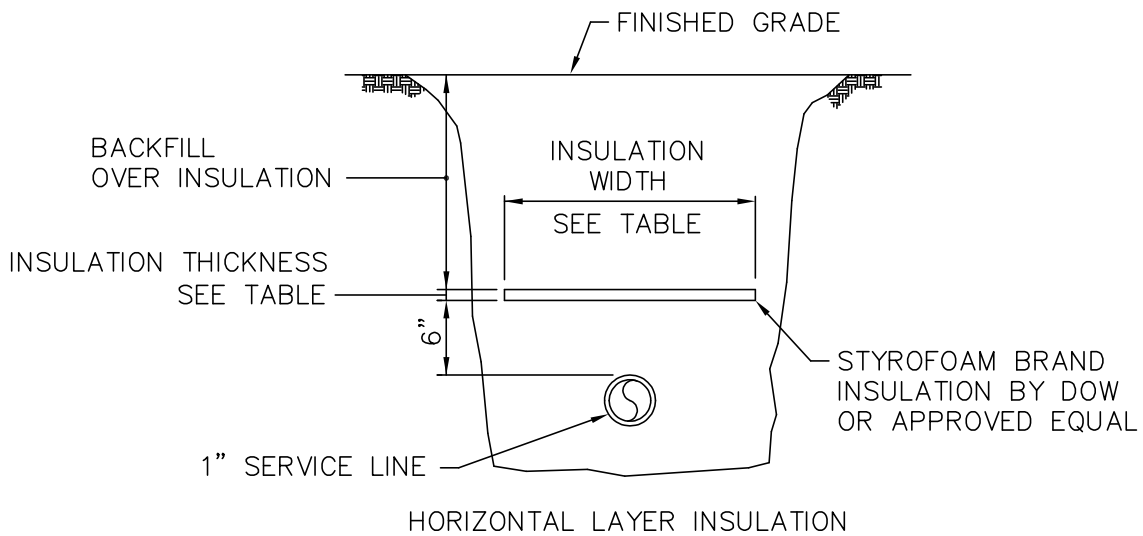
Date: March 26, 2001

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	TRENCH BEDDING AND BACKFILL	DETAIL NO. BS-101
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Date: Feb. 26, 2001

<p>BIG SKY WSD 363 STANDARD SPECIFICATIONS</p>	<p>SCALE: NONE</p>	<p>TRENCH BEDDING AND BACKFILL</p>	<p>DETAIL NO. BS-102</p>
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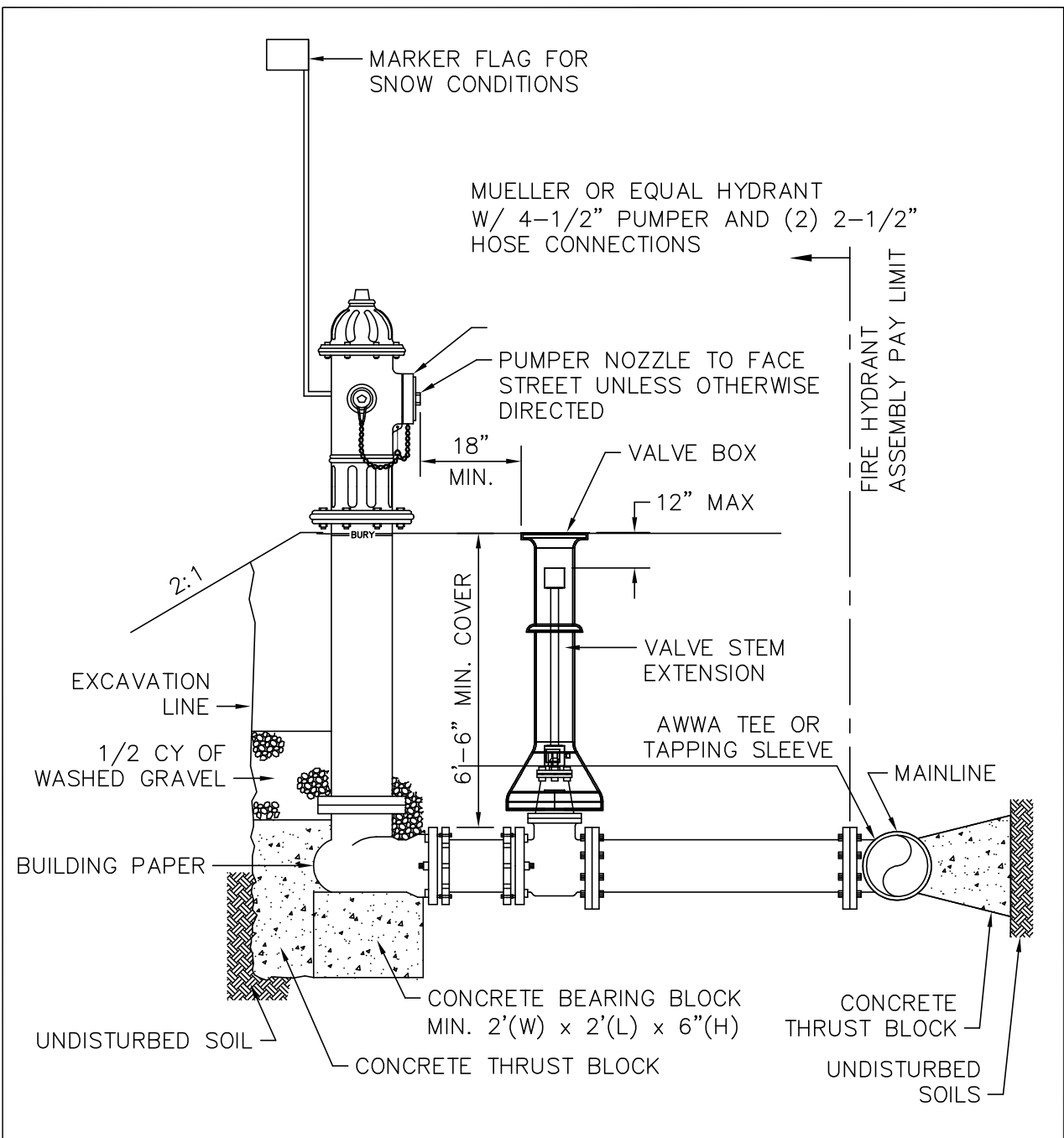


HORIZONTAL LAYER INSULATION			INVERTED U-INSULATION		
DEPTH OF BACKFILL OVER INSULATION	INSULATION THICKNESS	INSULATION WIDTH	DEPTH OF BACKFILL OVER INSULATION	INSULATION THICKNESS	$2B + A \geq$ WIDTH OF HORIZONTAL LAYER INSULATION
					$2B + A$
2'-0"	3.0	5'-6"	2'-0"	3.0	$\geq 5'-6"$
3'-0"	2.5	5'-1"	3'-0"	2.5	$\geq 5'-1"$
4'-0"	2.0	3'-1"	4'-0"	2.0	$\geq 3'-1"$
5'-0"	1.5	1'-1"	5'-0"	1.5	$\geq 1'-1"$
6'-0"	1.0	1'-0"	6'-0"	1.0	$\geq 1'-0"$
7'-0"*	1.0	1'-0"	7'-0"	1.0	$\geq 1'-0"$

*INSULATE UNDER PAVING, SIDEWALK AND DRIVEWAYS ONLY

Date: March 28, 2001

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	BURIED WATER SERVICE LINE INSULATION	DETAIL NO. BS-103
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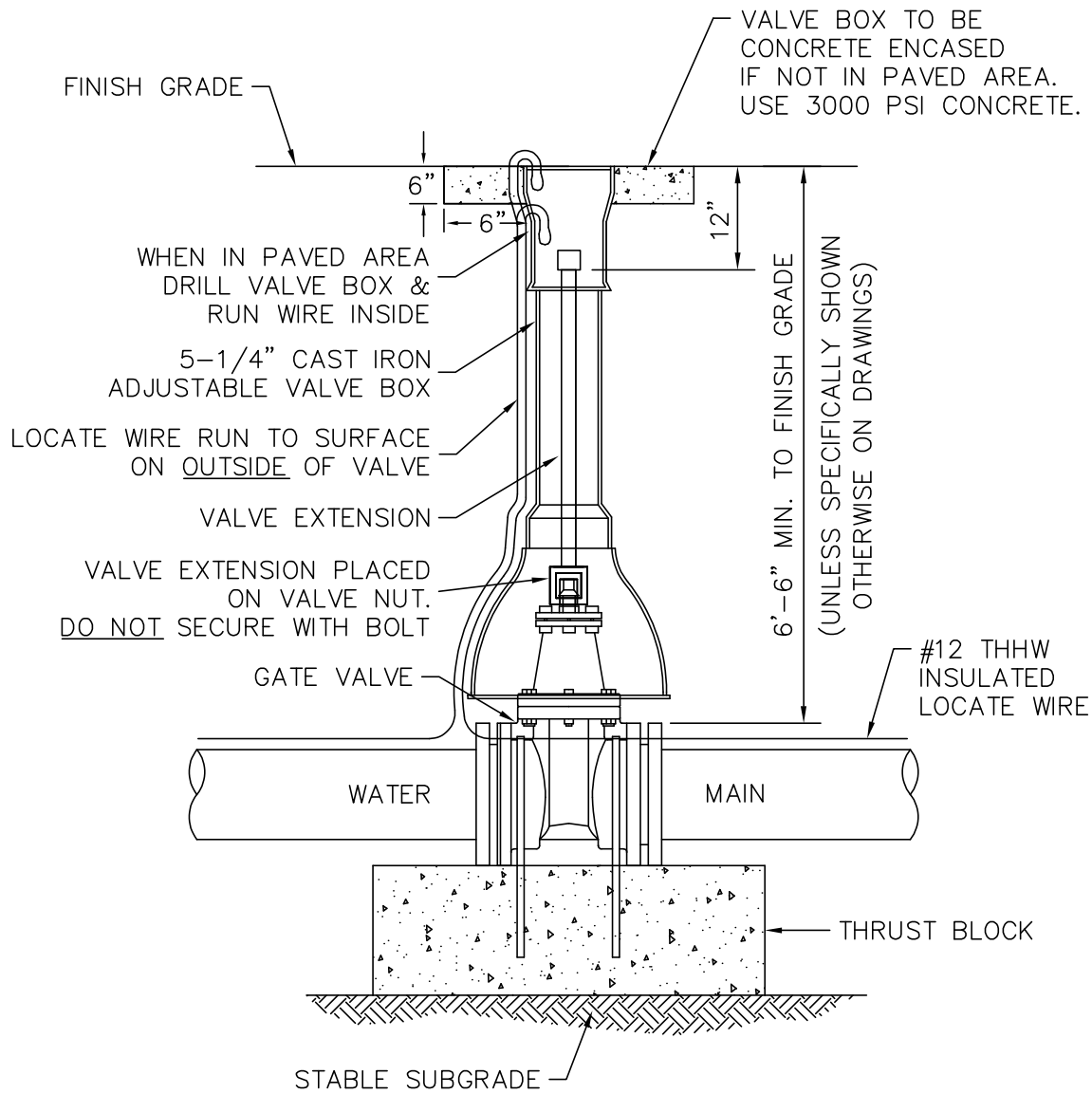


NOTES:

1. THRUST BLOCKING TO BE IN CONFORMANCE TO MPW STANDARD DRAWING 2713-1.
2. FOR BOLTED FITTINGS, BLOCKING SHALL NOT OBSTRUCT BOLTS
3. HYDRANT WEEP HOLES TO REMAIN UNOBSTRUCTED.

Date: AUGUST 8, 2002

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	FIRE HYDRANT SETTING	DETAIL NO. BS-201
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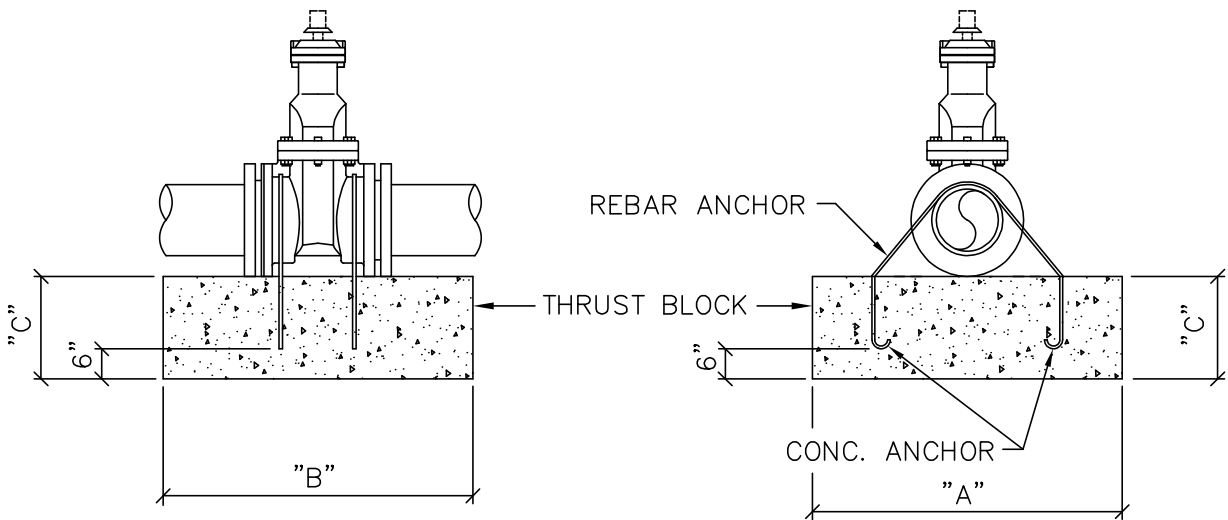


NOTES

1. GATE VALVE SHALL CONFORM TO AWWA C-500 OR C-509.
2. VALVE BOXES SHALL BE PLUMB AND CENTERED DIRECTLY OVER THE VALVE NUT.
3. VALVE BOX TOP SHALL BE ADJUSTED TO MEET FINISHED GRADE.
4. VALVE EXTENSIONS SHALL BE INSTALLED WITH CENTERING RING AND WITHIN 1 FOOT OF FINISH GRADE. EXTENSIONS SHALL NOT BE ATTACHED TO VALVE.

Date: April 21, 2005

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	GATE VALVE & VALVE BOX WITH THRUST BLOCK	DETAIL NO. BS-202
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NOTE:
 COAT RODS WITH "KOPPERS" BITUMASTIC NO. 50 COATING OR EQUAL

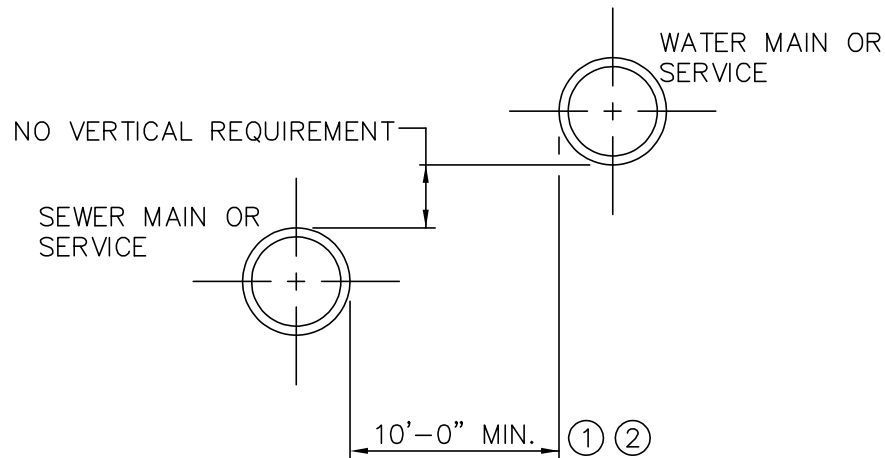
THRUST BLOCK BEARING AREAS																
ANCHOR ROD SIZE	VALVE SIZE	100 PSI			150 PSI			200 PSI			250 PSI			300 PSI		
		"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"
3/4"	6" & 8"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-7"
3/4"	10"	2'-0"	2'-0"	2'-0"	2'-6"	2'-6"	2'-0"	2'-9"	2'-6"	2'-6"	3'-0"	3'-0"	3'-0"	3'-7"	3'-0"	3'-0"
3/4"	12"	2'-3"	2'-0"	2'-0"	3'-0"	3'-0"	2'-8"	3'-5"	3'-0"	3'-0"	4'-3"	3'-0"	3'-0"	5'-1"	3'-0"	3'-0"
1"	14"	2'-3"	2'-0"	2'-4"	3'-5"	3'-0"	3'-0"	4'-6"	3'-0"	3'-0"	4'-0"	4'-0"	4'-0"	4'-9"	4'-0"	4'-0"
1 1/8"	16"	3'-0"	3'-0"	2'-11"	4'-4"	3'-0"	3'-0"	4'-1"	4'-0"	4'-0"	5'-1"	4'-0"	4'-0"	6'-1"	4'-0"	4'-0"
1 1/4"	18"	3'-8"	3'-0"	3'-0"	5'-5"	3'-0"	3'-0"	5'-1"	4'-0"	4'-0"	6'-4"	4'-0"	4'-0"	5'-9"	5'-0"	5'-0"
1 3/8"	24"	4'-4"	4'-0"	4'-0"	6'-5"	4'-0"	4'-0"	6'-6"	5'-0"	5'-0"	6'-5"	6'-0"	6'-0"	7'-8"	6'-0"	6'-0"

NOTE:
 PRESSURES SHOWN ABOVE ARE MAXIMUM WORKING PRESSURE IN SYSTEM.

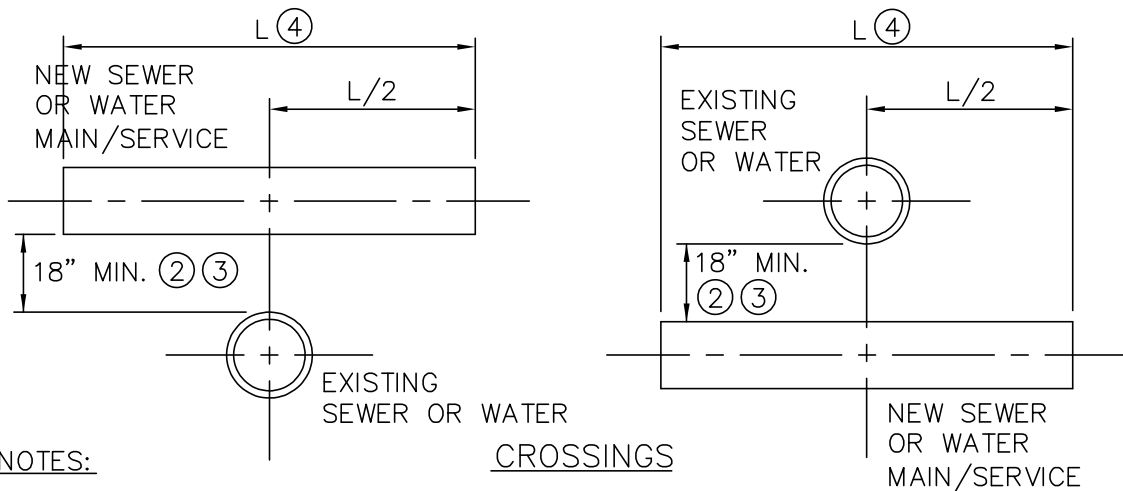
THRUST BLOCKING AND ANCHORS ARE REQUIRED ON VALVES ONLY
 WHEN SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS

Date: Feb. 26, 2001

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	THRUST BLOCKING FOR WATER MAIN VALVES	DETAIL NO. BS-203
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PARALLEL ARRANGEMENT

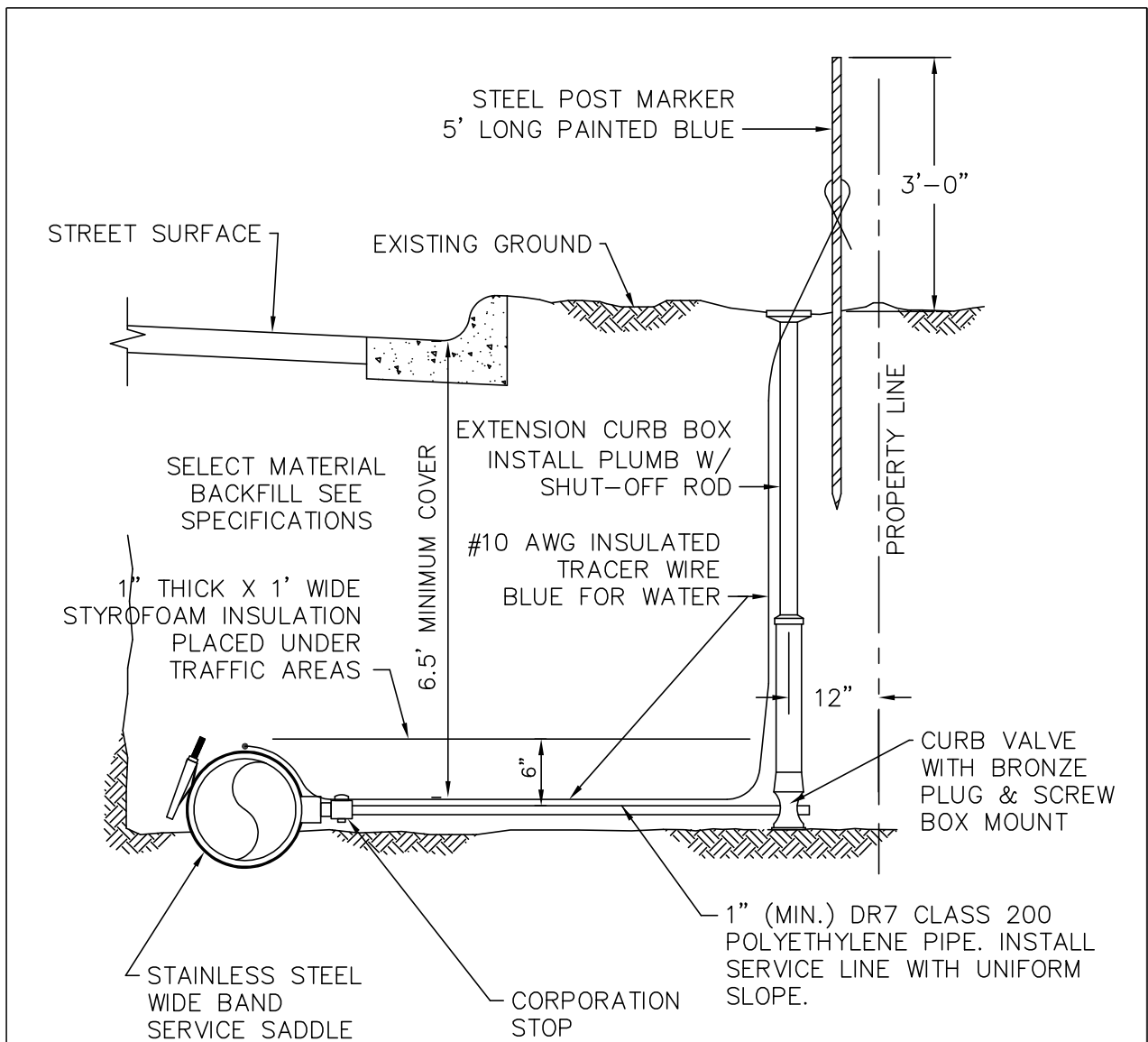


NOTES:

- ① SPECIFIC MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY APPROVAL IS REQUIRED FOR A DISTANCE LESS THAN 10 FEET BETWEEN WATER MAIN AND GRAVITY SEWER. THIS SEPERATION SHALL ALSO APPLY TO WATER AND SEWER SERVICES.
- ② NO EXCEPTION TO THE MIN. SEPARATION REQUIREMENT IS PERMITTED WHEN THE SEWAGE CARRYING PIPE IS A FORCE MAIN. AT CROSSINGS, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE LOCATED SO THAT BOTH JOINTS WILL BE AS FAR FROM THE FORCE MAIN AS POSSIBLE.
- ③ LESS THAN 18 INCHES OF SEPARATION IS PERMITTED WHEN THE GRAVITY SEWER AT THE CROSSING IS MADE FROM A SINGLE 20 FOOT LENGTH OF AWWA PRESSURE PIPE AND THE CROSSING ANGLE IS APPROXIMATELY 90 DEGREES. SPECIFIC MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY APPROVAL IS REQUIRED FOR A VERTICAL SEPARATION OF LESS THAN 18 INCHES BETWEEN WATER MAIN AND SANITARY SEWER.
- ④ "L" IS A STANDARD LENGTH OF PIPE AS SUPPLIED BY A PIPE MANUFACTURER.
- ⑤ ADEQUATE STRUCTURAL SUPPORT FOR PIPES AT CROSSINGS SHALL BE PROVIDED.

Date: Feb. 26, 2001

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	WATER AND SEWER MAIN AND SERVICE SEPARATION	DETAIL NO. BS-204
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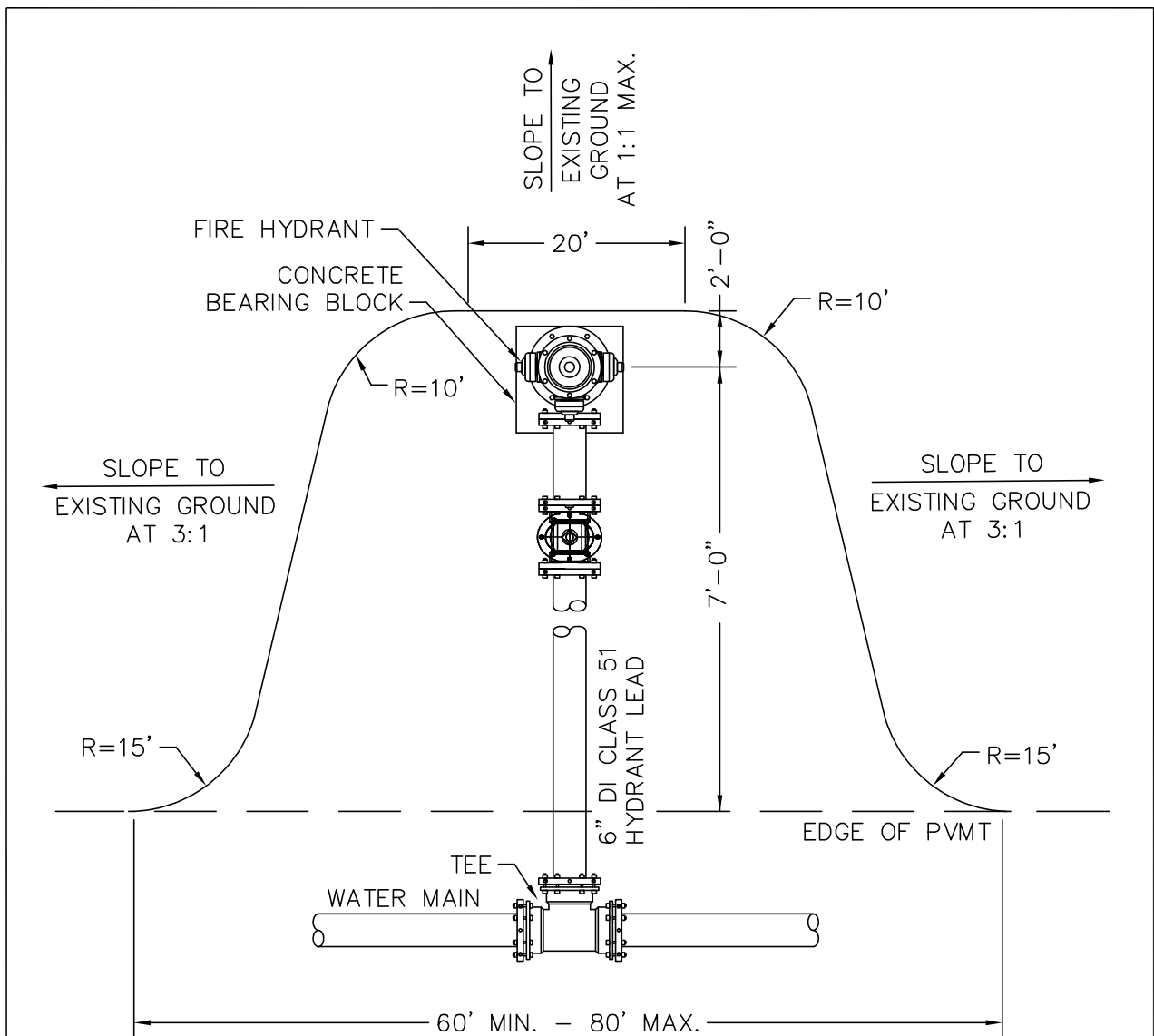


NOTES

1. MINIMUM COVER FOR SERVICE LINES SHALL BE MEASURED FROM EXISTING GROUND LINE WHEN GROUND IS LEVEL OR FALLING AWAY FROM STREET, AND MEASURED FROM TOP OF STREET CURB WHEN GROUND IS RISING AWAY FROM STREET.
2. WATER SERVICE LINES SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS OR AS SPECIFIED.
3. BEDDING AND PIPE ZONE MATERIAL SHALL BE WASHED ROCK HAVING A MAXIMUM $\frac{3}{4}$ " SIZE WITHIN 6" OF SERVICE PIPE.
4. WHERE SERVICE LINE IS BURIED UNDER AREAS TRAVELLED BY VEHICLES OR PEDESTRIANS PLACE 2 INCH THICK BY 24 INCH WIDE STYROFOAM INSULATION.

Date: AUGUST 8, 2002

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	WATER SERVICE LINE	DETAIL NO. BS-205
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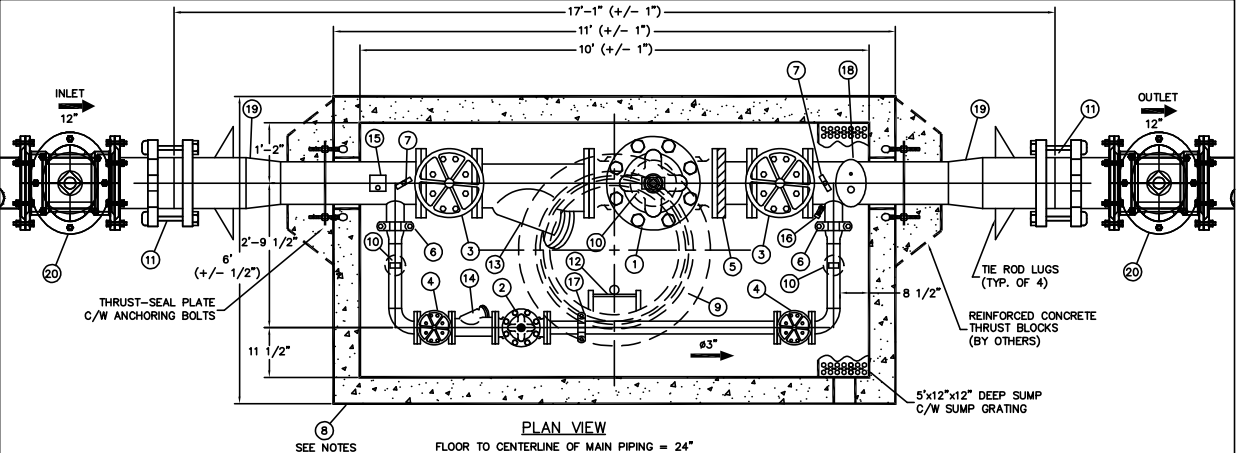
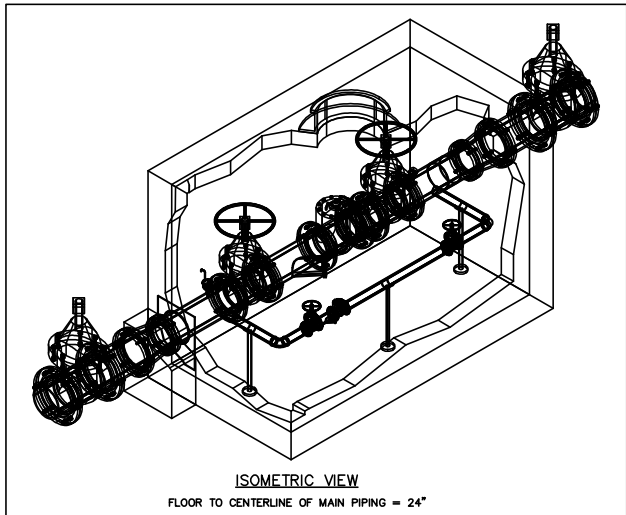


NOTES:

1. CONSTRUCT PULLOUT WITH THE FOLLOWING ROAD SECTION:
 BASE: 6" MINUS PIT RUN – MIN. 9" DEPTH
 FINISH SURFACE: MIN. 3" DEPTH OF 1" MINUS ROAD MIX.
2. GRAVEL BASE COURSE SHALL BE PLACED IN UNIFORM THICKNESS OF 8" AND COMPACTED TO 95% OF MAX. DRY DENSITY AS DETERMINED BY AASHTO T-180.
3. PULLOUT CONSTRUCTION MUST CONFORM TO THE REQUIREMENTS OF THE ROAD DESIGN STANDARDS IN THE GALLATIN COUNTY SUBDIVISION REGULATIONS.
4. THE FINISHED SURFACE OF EACH HYDRANT PULLOUT SHALL BE UNIFORMLY SLOPED FROM THE EDGE OF PAVEMENT TO THE BURY LINE ON THE HYDRANT.

Date: April 25, 2001

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	FIRE HYDRANT PLACEMENT WITH ROADSIDE PULL-OUT	DETAIL NO. BS-206
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NOTE CALLOUTS

- ① 10" CLA-VAL 90G-01BCS PRESSURE REDUCING VALVE C/W X101 POSITION INDICATOR DI BODY, BRONZE TRIM - #150 FLGD (QTY. 1)
- ② 3" CLA-VAL 90G-01BCS PRESSURE REDUCING VALVE C/W X101 POSITION INDICATOR DI BODY, BRONZE TRIM - #150 FLGD (QTY.1)
- ③ 10" MUELLER A2360-6W41 W55 RW NRS GATE VALVE C/W HANDWHEEL - #150 FLGD (QTY. 2)
- ④ 3" MUELLER A2360-6W41 W55 RW NRS GATE VALVE C/W HANDWHEEL - #150 FLGD (QTY. 2)
- ⑤ 10" VICTAULIC #741 COUPLING (QTY. 1)
- ⑥ 4" VICTAULIC #07 COUPLING (QTY. 2)
- ⑦ 4" ENFM 6211 (0-200PSI) PRESSURE GAUGE C/W GAUGE COCK (QTY. 2)
- ⑧ #10565 PRECAST CONCRETE VAULT C/W WHITE LATEX INTERIOR & BLACK TAR EXTERIOR, TOP HALF TO BE INSULATED WITH SPRAYED POLYURETHANE FOAM TO R20 (APPR. 3" THICK) (QTY.1)

NOTE CALLOUTS

- ⑨ 30" Ø MANHOLE COVER AND FRAME W/ IFC0773 FROST PROOF COVER & RING, 24" BOLT DOWN COVER H20 STATIC (OFF ROADWAY) LOADING (QTY. 1)
- ⑩ ADJUSTABLE PIPE SUPPORTS (QTY. 3)
- ⑪ 12" ROMAC TRANSITION COUPLINGS (QTY. 2)
- ⑫ ALUMINUM LADDER WITH SAFETY POST (QTY. 1)
- ⑬ 10" MUELLER 758 CAST IRON BODY "Y" STRAINER C/W BLOWDOWN VALVE - #125 FLGD (QTY. 1)
- ⑭ 3" MUELLER 758 CAST IRON BODY "Y" STRAINER C/W BLOWDOWN VALVE - #125 FLGD (QTY. 1)
- ⑮ 1" APCO 50.3 AIR RELEASE VALVE C/W ISOLATION VALVE, EXTENSION & BRASS UNION (QTY. 1)
- ⑯ 3/4" HOSE BIB ASSEMBLY (QTY. 1)
- ⑰ 3" VICTAULIC #07 COUPLING (QTY. 1)
- ⑱ 1" APCO 143C.1 COMBINATION AIR VALVE C/W ISOLATION VALVE, EXTENSION & BRASS UNION (QTY. 1)
- ⑲ 12" x 10" REDUCER, MJ
- ⑳ 12" MUELLER A2360-20 MxMJ RW NRS GATE VALVE W/ OPENING NUT (QTY. 2)

STANDARD FABRICATION & FINISHING SPECIFICATION

FABRICATED STEEL PIPE & FITTINGS TO BE SCHEDULE NO. 40 STEEL PIPE FOR SIZES TO 10", AND 3/8" WALL FOR 12" AND LARGER. ALL, 3" LARGER PIPE, INSIDE WETTED SURFACES TO BE SANDBLASTED, EPOXY LINED AND COATED TO AWWA C-210 AND NSF-61 SPECIFICATION. FINISH COATING WILL BE BLUE ENAMEL.

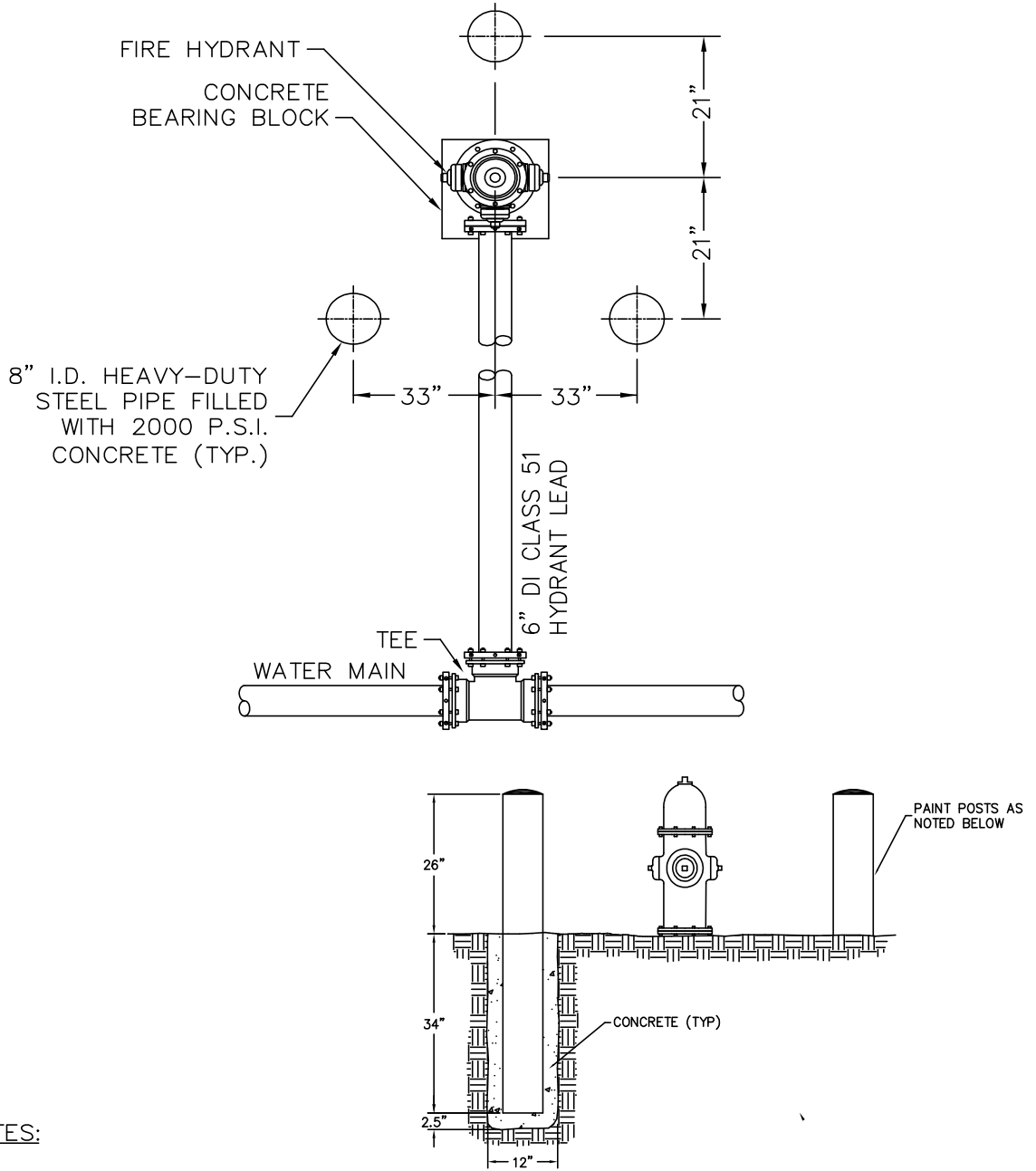
NOTES:

- 1. VAULT #10565 (H-20 LOADING) INSIDE DIMENSIONS 10' L x 5' W x 6'-6" H
- 2. VAULT WEIGHT: TOP.....12,300 Lbs BOTTOM.....12,000 Lbs : WEIGHTS ±10%



Date: April 11, 2001

<p>BIG SKY WSD 363 STANDARD SPECIFICATIONS</p>	<p>SCALE: NONE</p>	<p>PRV STATION</p>	<p>DETAIL NO. BS-207</p>
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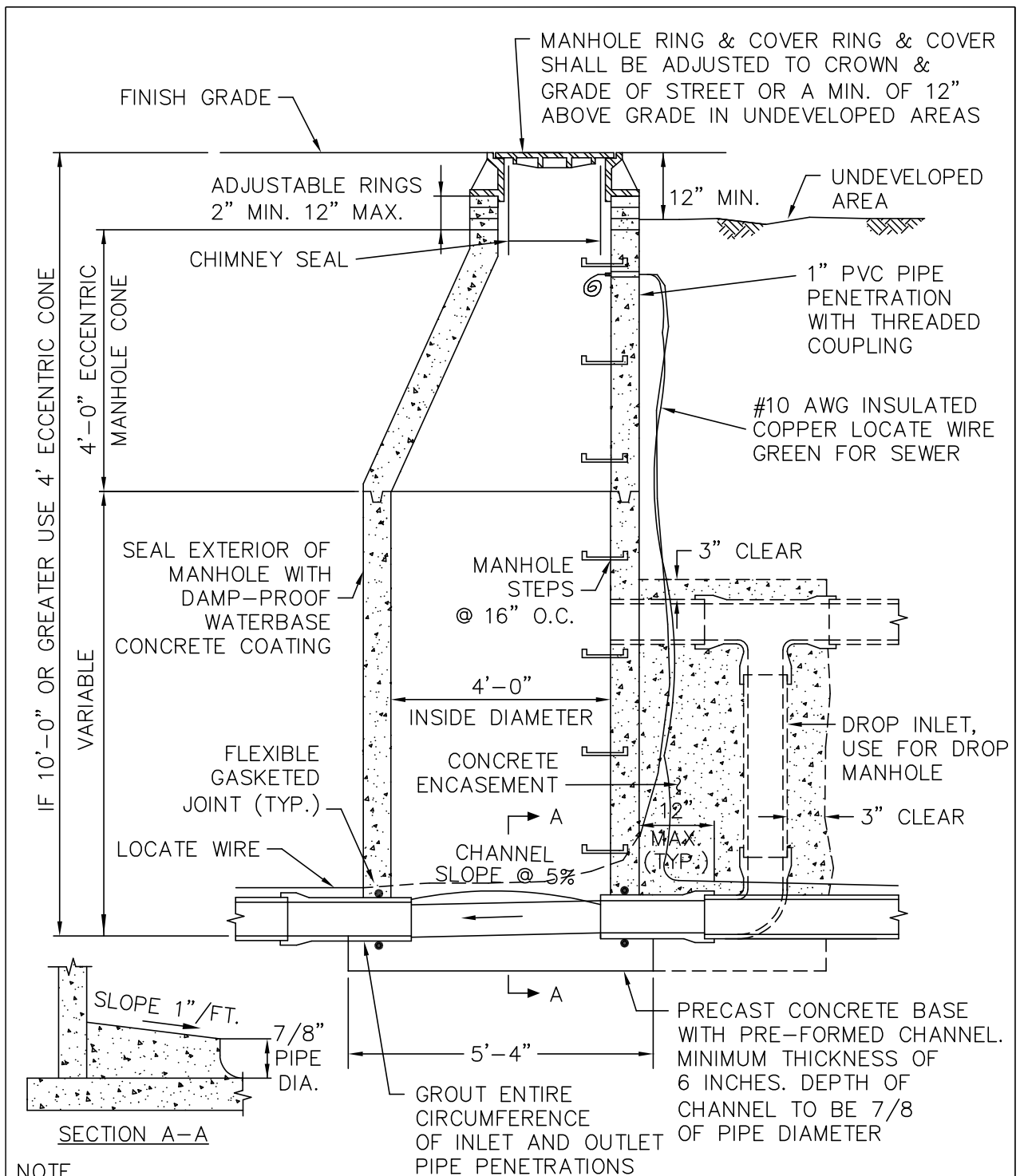


NOTES:

1. PLACE BOLLARDS AROUND FIRE HYDRANTS LOCATED IN PARKING LOTS AND AT OTHER LOCATIONS WHERE HYDRANT IS POSSIBLE TO BE HIT BY VEHICLES.
2. BOLLARDS SHALL BE SET AT A MINIMUM OF 3 FEET BELOW FINISHED GRADE
3. PAINT POSTS WITH SHERWIN-WILLIAMS METALATEX SEMI-GLOSS COATING, SAFETY RED (B42 R38 620-4069)

Date: April 11, 2001

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	BOLLARD PLACEMENT AT FIRE HYDRANT	DETAIL NO. BS-208
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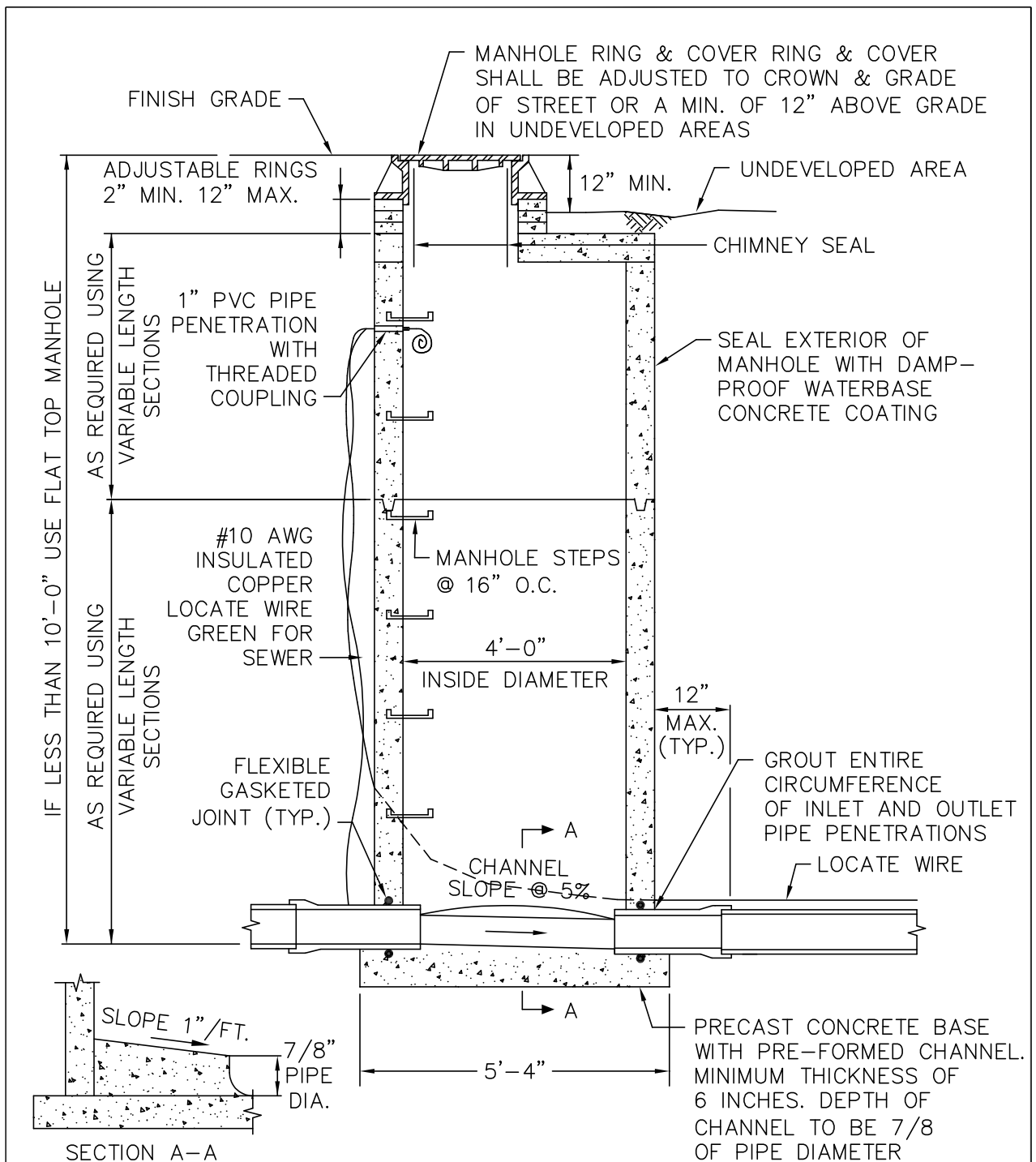


NOTE

ALL JOINTS BETWEEN MANHOLE SECTIONS, ADJUSTING RINGS, MANHOLE RING & TOP SECTION, AND AROUND SEWER PIPE INTO MANHOLE SHALL BE WATERTIGHT. JOINTING MATERIAL SHALL BE "RAM-NEK" OR EQUAL FOR ALL JOINTS EXCEPT BETWEEN SEWER PIPE AND MANHOLE WALL WHERE GASKETED, FLEXIBLE, WATERTIGHT CONNECTIONS SHALL BE USED.

Date: Mar. 26, 2001

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	SANITARY SEWER MANHOLE	DETAIL NO. BS-301
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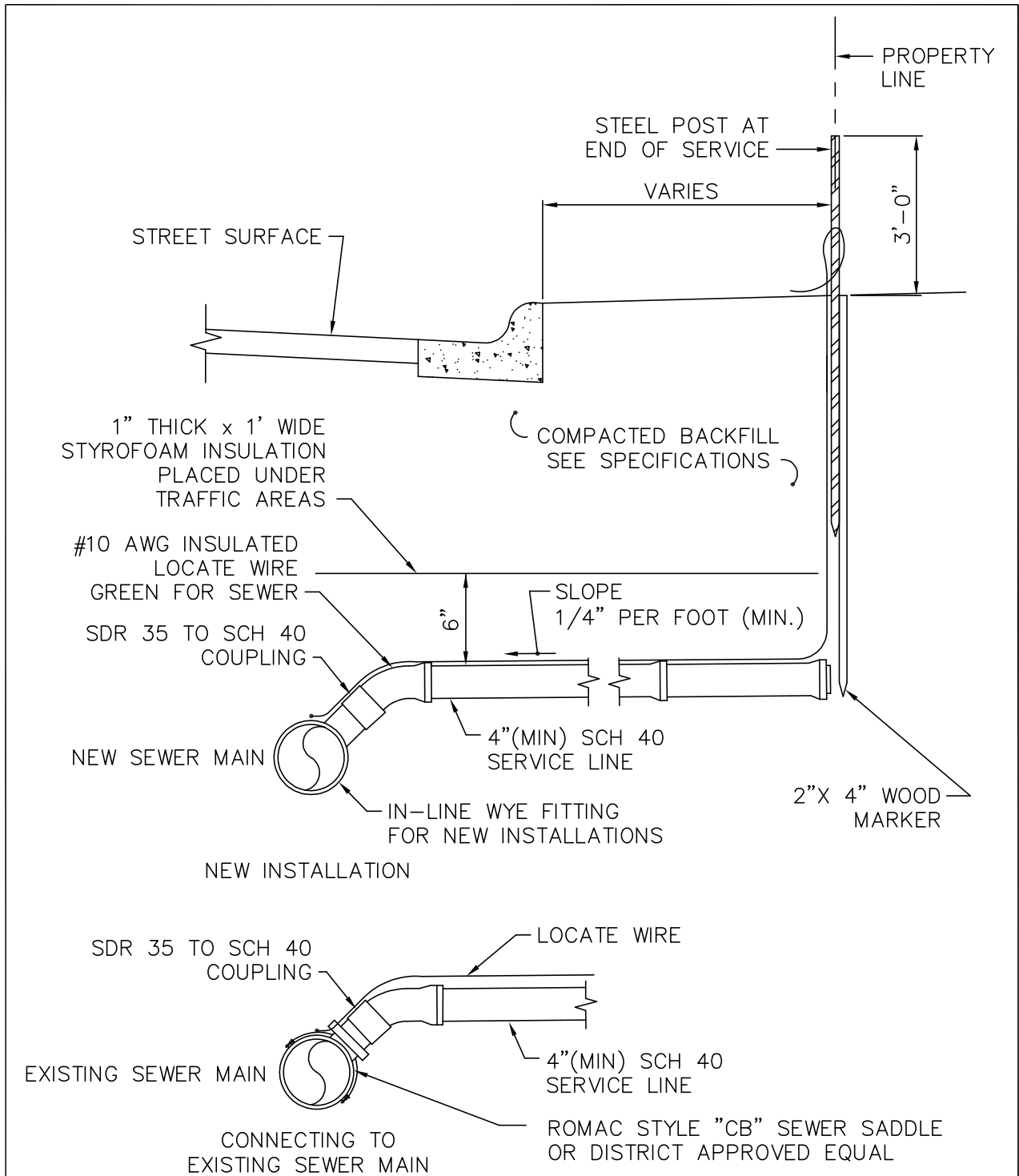


NOTE

ALL JOINTS BETWEEN MANHOLE SECTIONS, ADJUSTING RINGS, MANHOLE RING & TOP SECTION, AND AROUND SEWER PIPE INTO MANHOLE SHALL BE WATERTIGHT. JOINTING MATERIAL SHALL BE "RAM-NEK" OR EQUAL FOR ALL JOINTS EXCEPT BETWEEN SEWER PIPE AND MANHOLE WALL WHERE GASKETED, FLEXIBLE, WATERTIGHT CONNECTIONS SHALL BE USED.

Date: Feb. 26, 2001

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	SANITARY AND STORM SEWER MANHOLE	DETAIL NO. BS-302
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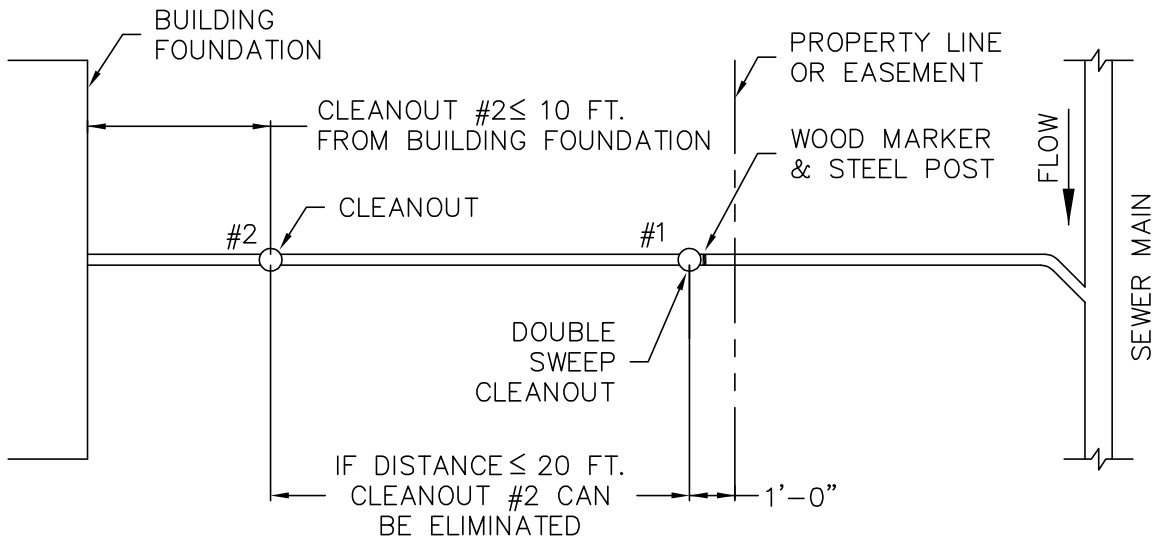


NOTE

1. WHERE SERVICE LINE IS BURIED UNDER AREAS TRAVELLED BY VEHICLES OR PEDESTRIANS PLACE 1 INCH THICK BY 12 INCH WIDE STYROFOAM INSULATION.

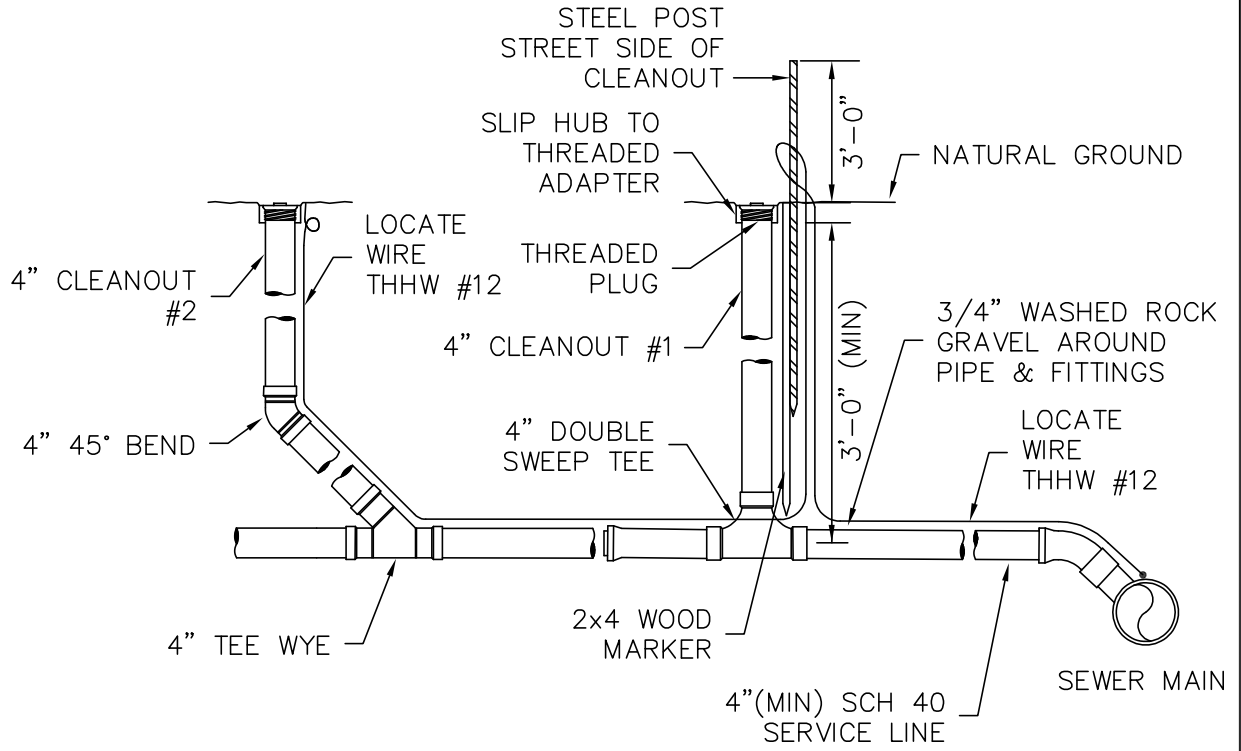
Date: March 28, 2001

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	SANITARY SEWER SERVICE LINE	DETAIL NO. BS-303
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NOTES:

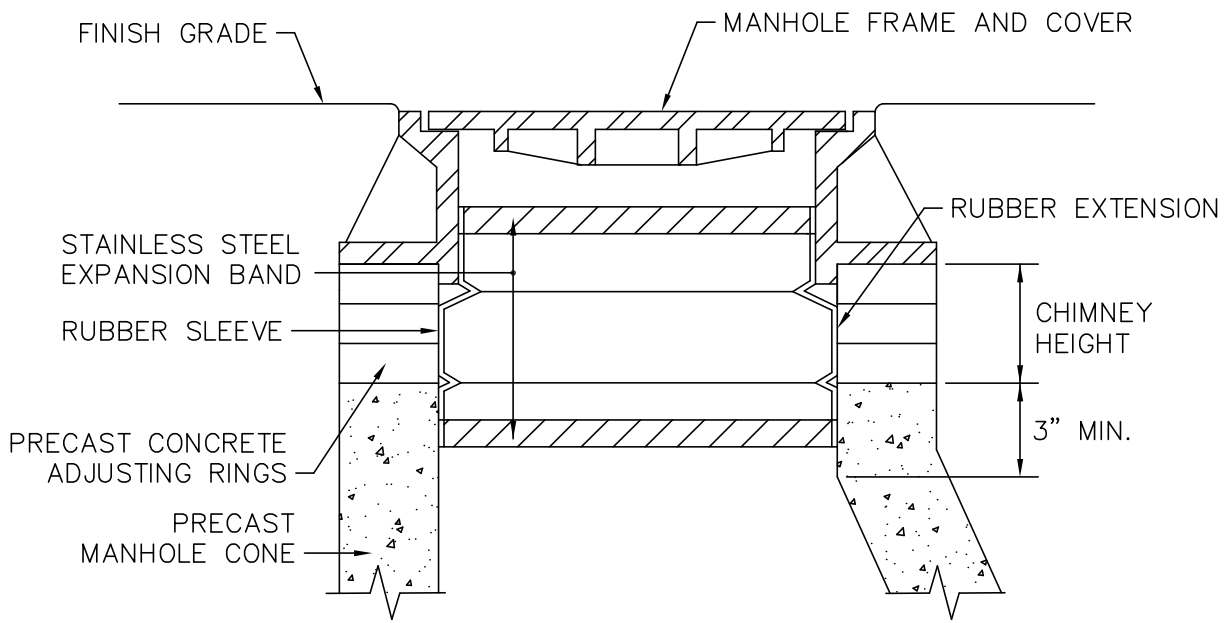
1. CLEANOUTS EVERY 100 FEET.
2. ALL CLEANOUTS NEED TO BE READILY ACCESSIBLE AT THE COMPLETION OF THE PROJECT.



NOTE:
SEE DETAIL NO BS-305 FOR INSULATION REQUIREMENTS

Date: April 7, 2005

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	SANITARY SEWER CLEANOUT	DETAIL NO. BS-303A
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SECTION

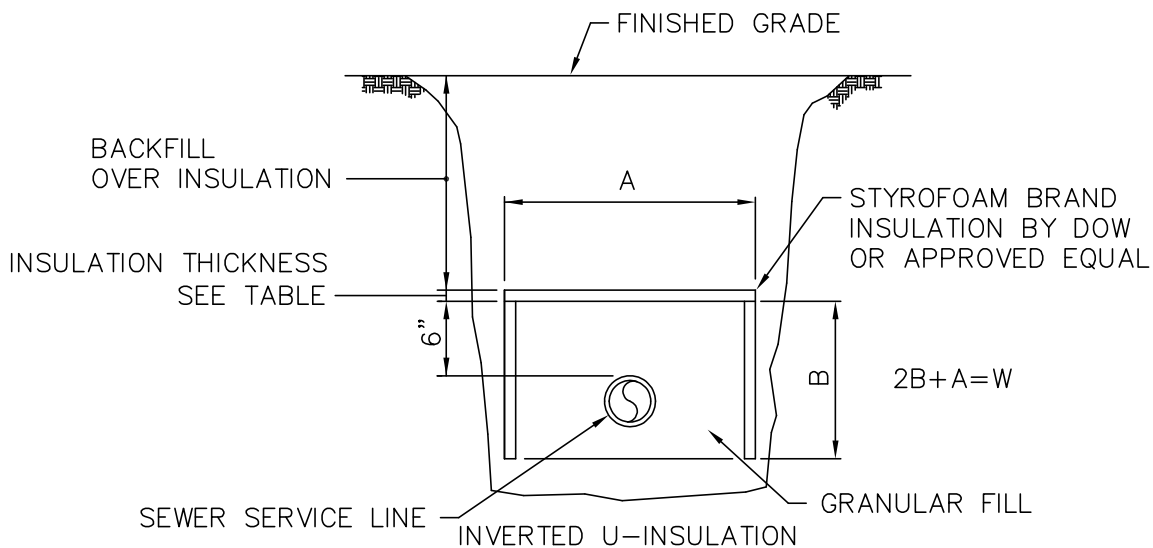
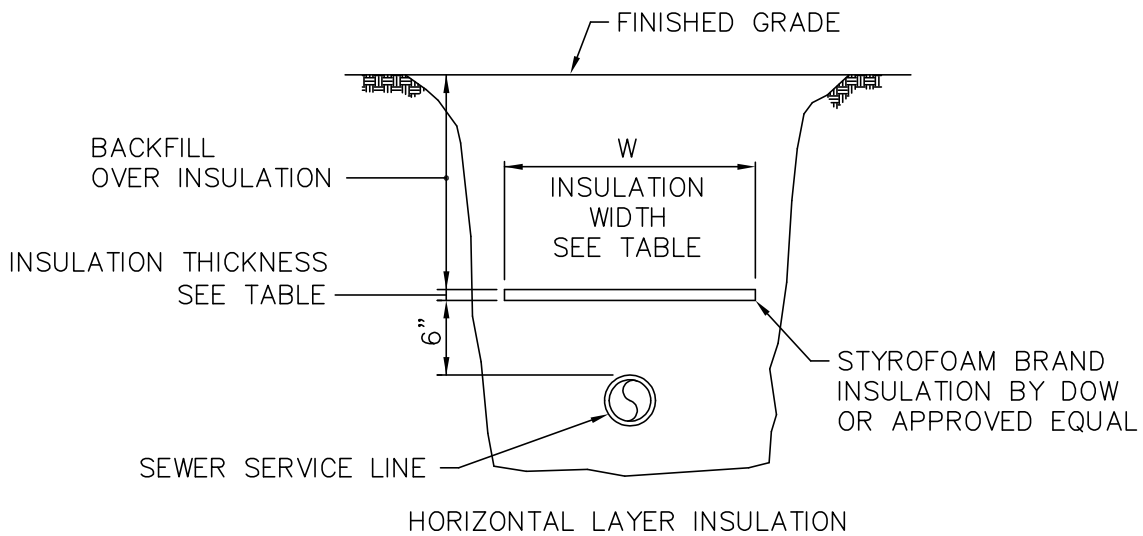
NOTES

1. SEE CHIMNEY HEIGHT TABLE FOR SEAL AND EXTENSION COMBINATIONS NEEDED TO SPAN FROM THE FRAME TO THE TOP OF THE CONE ON MANHOLES WITH VARIOUS CHIMNEY HEIGHTS. FRAME OFFSETS OR DIAMETER DIFFERENTIALS WILL REDUCE THESE SPAN HEIGHTS.
2. THE TOP OF THE CONE MUST HAVE A MINIMUM 3" HIGH VERTICAL SURFACE THAT IS SMOOTH AND FREE OF ANY FORM OFFSETS OR EXCESSIVE HONEYCOMB. IF A 3" HIGH VERTICAL SURFACE IS NOT AVAILABLE ONE MAY BE CREATED USING A CONE DISK FORM AND A NON SHRINK PATCHING MORTAR.

CHIMNEY HEIGHT TABLE		
COMBINATIONS OF SEALS AND EXTENSIONS	TO SPAN HEIGHTS OF:	
	WITH STANDARD SEAL	WITH WIDE SEAL
SEAL ONLY	0" - 4.5"	2" - 7.5"
SEAL + 7" EXTENSION	OVER 4.5" - 10.5"	OVER 7.5" - 13.5"
SEAL + 10" EXTENSION	OVER 10.5" - 13"	OVER 13.5" - 16"
SEAL + MULT. EXTENSIONS	OVER 13"	OVER 16"
ADD 6" OF COVERAGE FOR EACH ADDITIONAL 7" EXTENSION		
ADD 8.5" OF COVERAGE FOR EACH ADDITIONAL 10" EXTENSION		

Date: Feb. 26, 2001

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	INTERNAL MANHOLE CHIMNEY SEAL WITH EXTENSION	DETAIL NO. BS-304
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HORIZONTAL LAYER INSULATION			INVERTED U-INSULATION		
DEPTH OF BACKFILL OVER INSULATION	INSULATION THICKNESS	INSULATION WIDTH W	DEPTH OF BACKFILL OVER INSULATION	INSULATION THICKNESS	2B+A ≥ WIDTH OF HORIZONTAL LAYER INSULATION
					2B+A
2'-0"	3.0	6'-6"	2'-0"	3.0	≥ 6'-6"
3'-0"	2.5	6'-1"	3'-0"	2.5	≥ 6'-1"
4'-0"	2.0	4'-1"	4'-0"	2.0	≥ 4'-1"
5'-0"	1.5	2'-1"	5'-0"	1.5	≥ 2'-1"

Date: March 28, 2001

BIG SKY WSD 363 STANDARD SPECIFICATIONS	SCALE: NONE	BURIED SEWER SERVICE LINE INSULATION	DETAIL NO. BS-305
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