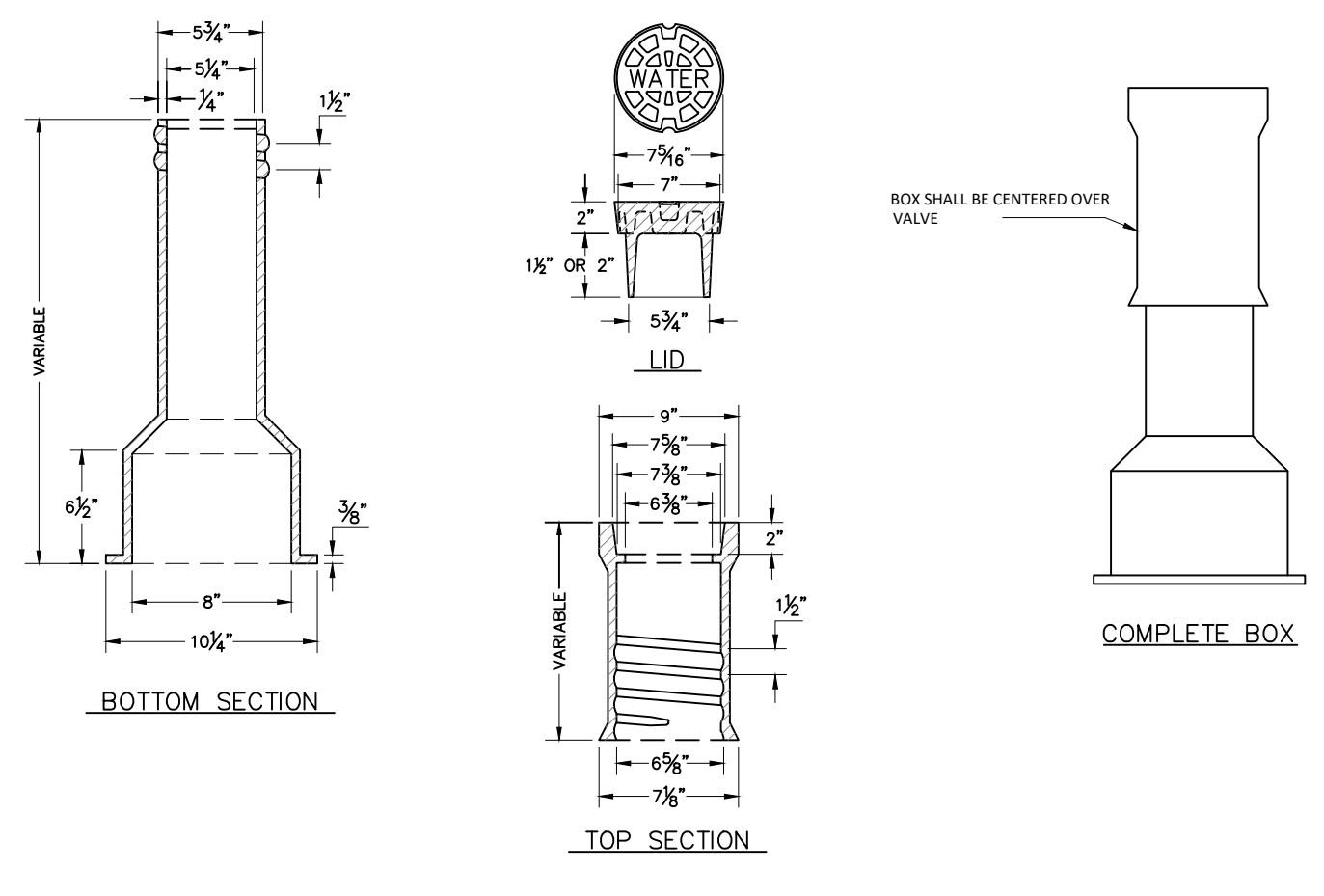
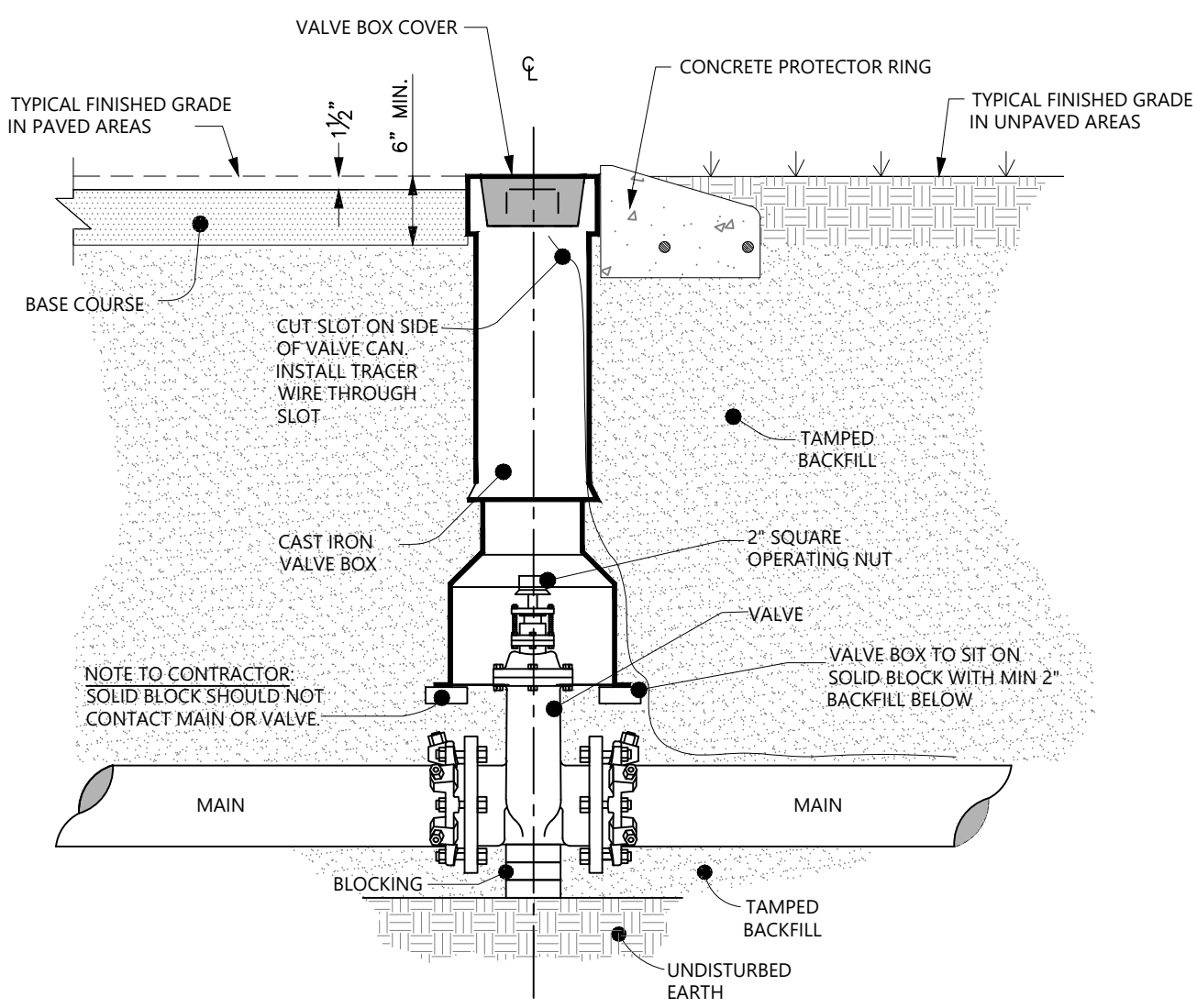
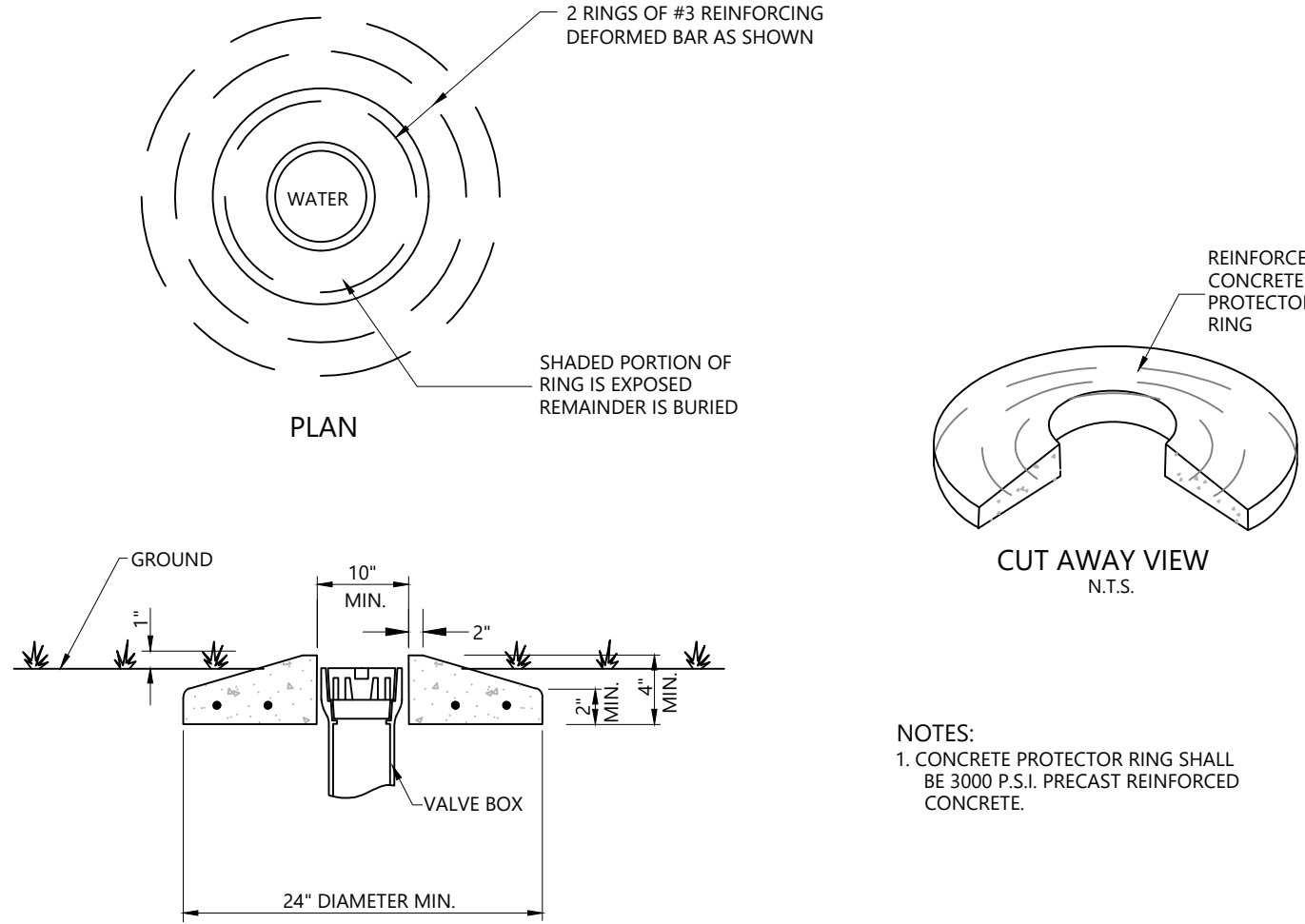


Tuesday, April 12, 2022 ANSI A (8.50 X 11.00 Inches)
 4/12/2022 \\vhb.com\gbl\proj\Raleigh_38564.19 NCDOT\Utilities\R5819 UC_PLAN.dwg
 Mark Edwards

PROJECT REFERENCE NO. R5819/R5820	SHEET NO. UC- DT2
REVISION NO.	UTILITIES ENGINEER
90% DESIGN - 11/30/21	
100% DESIGN - 3/02/22	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared by 	
VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606	

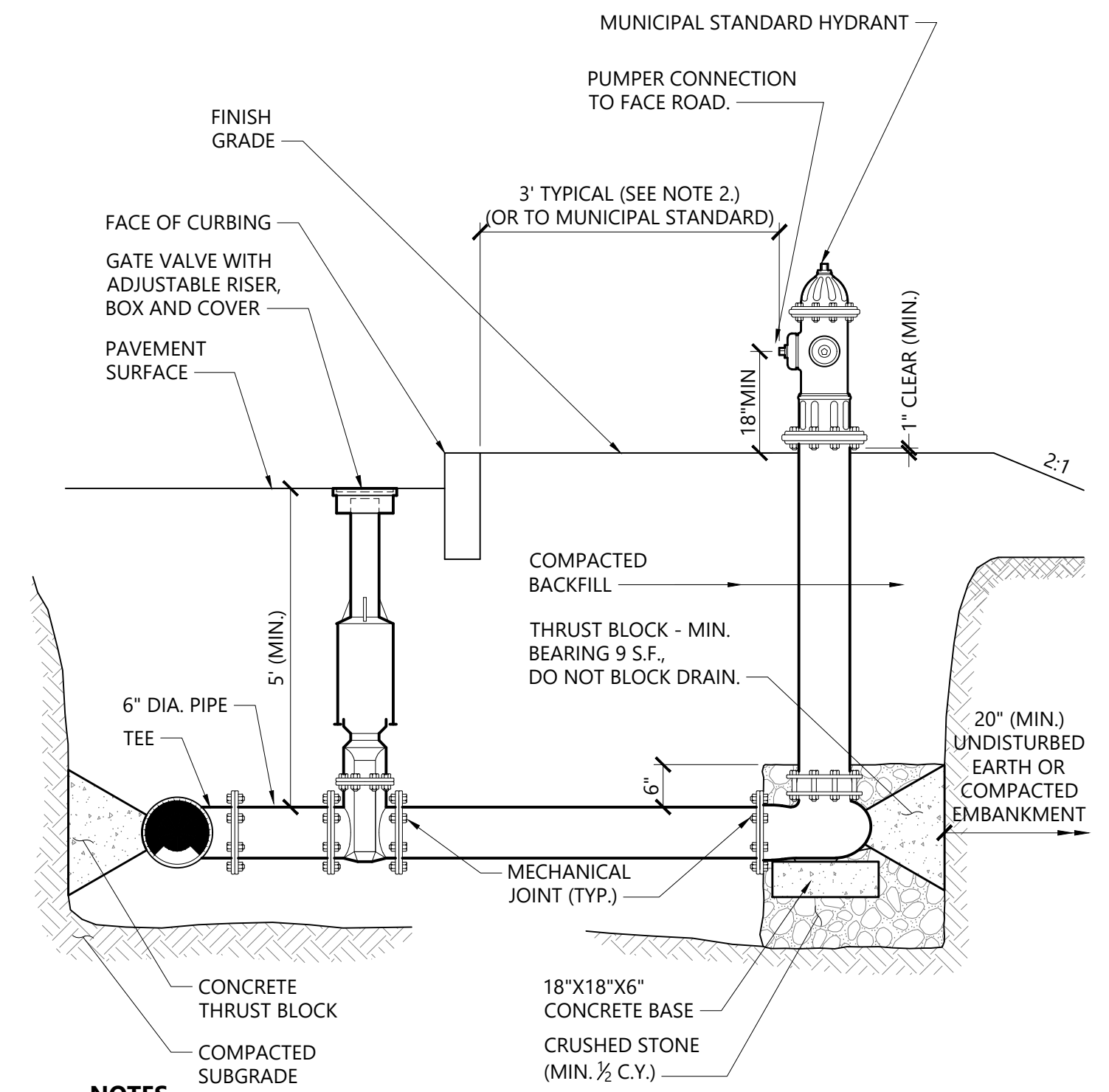


DIMENSIONS IN INCHES	
LENGTH	
TOP	BOTTOM
10	15
10	24
16	24
20	36
26	48
26	60



Valve Box

N.T.S. Source: VHB



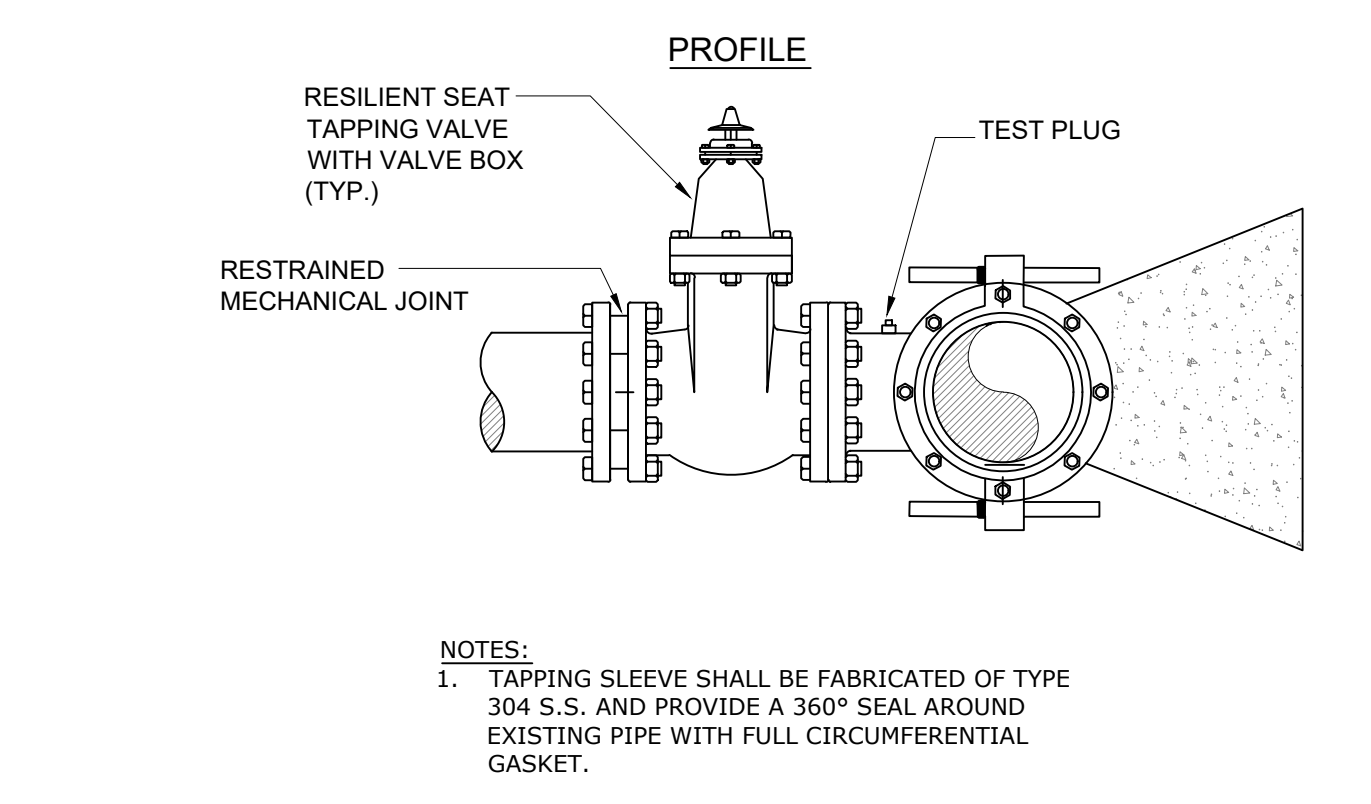
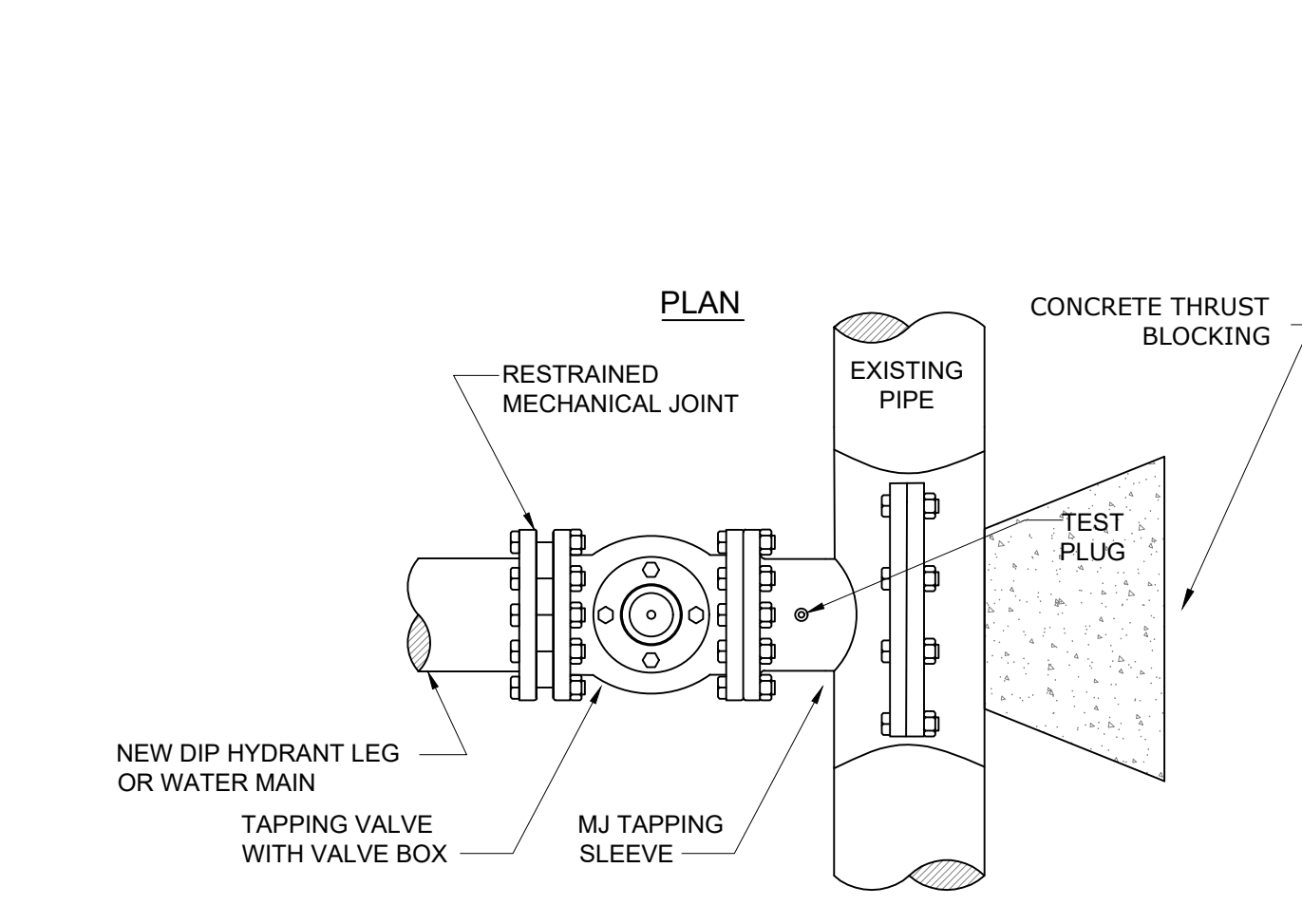
- NOTES**
- CONCRETE THRUST BLOCKS TO BE USED ONLY WHERE THEY CAN BEAR ON UNDISTURBED EARTH AS SHOWN. USE CLAMPS AND TIE RODS OR OTHER ACCEPTABLE METHOD OF JOINT RESTRAINT WHERE SOIL CONDITIONS PROHIBIT THE USE OF THRUST BLOCKS.
 - HYDRANT IN SIDEWALK AREAS TO BE LOCATED TO PROVIDE MINIMUM CLEAR SIDEWALK PASSAGE WIDTH OF 3 FEET AT HYDRANT.
 - A 36-INCH CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE HYDRANT UNLESS OTHERWISE APPROVED BY AUTHORITY HAVING JURISDICTION.

Hydrant Construction

N.T.S. Source: VHB 12/18 LD_250

Concrete Protector Ring

N.T.S. Source: VHB

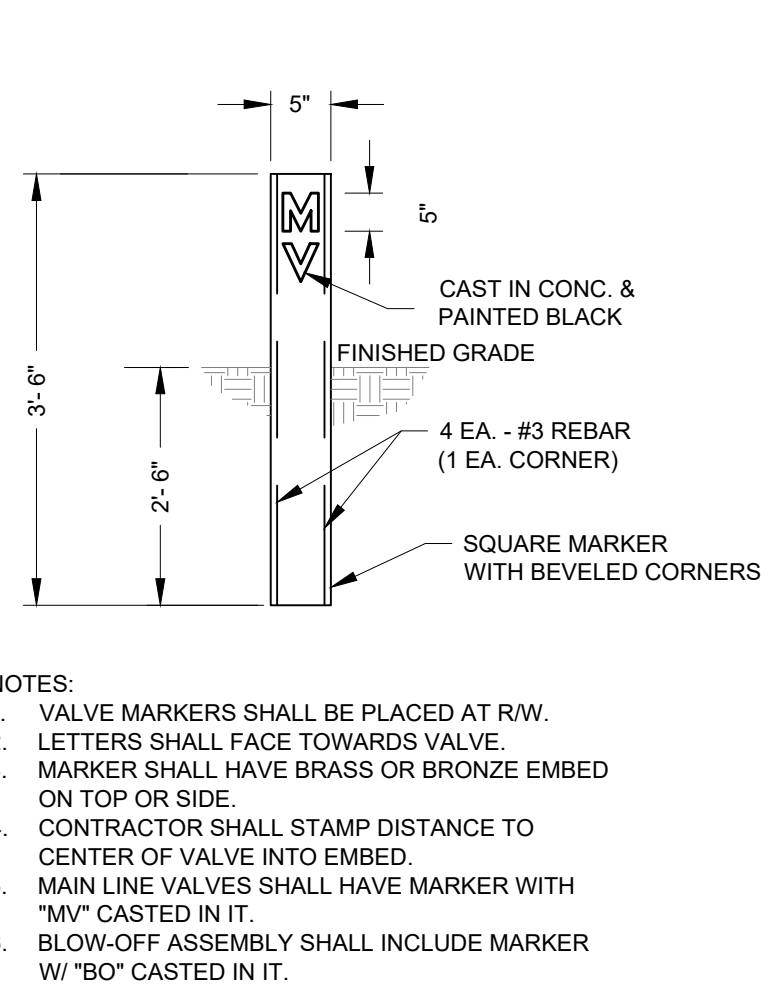


Tapping Sleeve & Valve Assembly

N.T.S. Source: VHB

Valve and Valve Box Installation

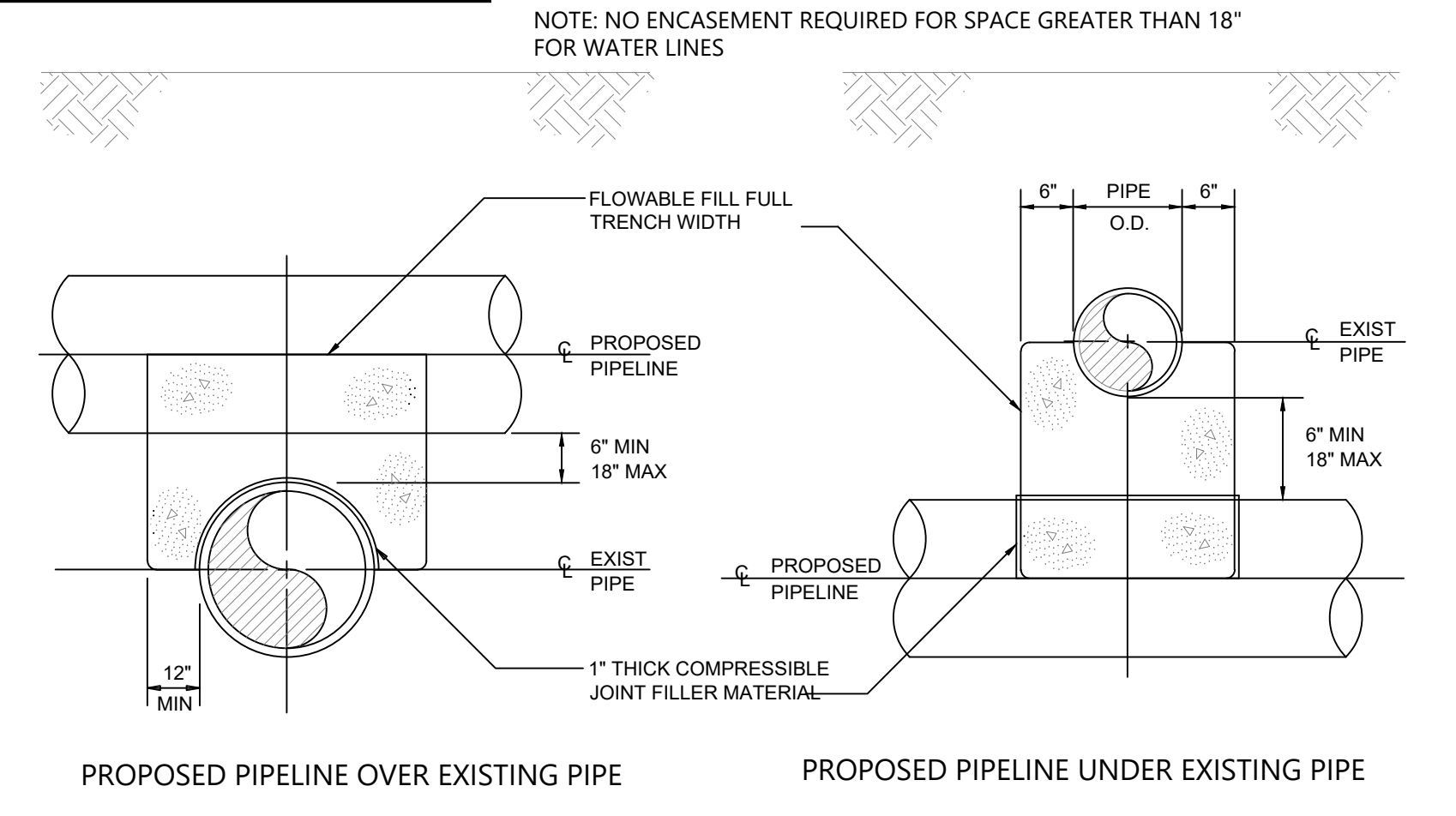
N.T.S. Source: VHB



Valve Marker

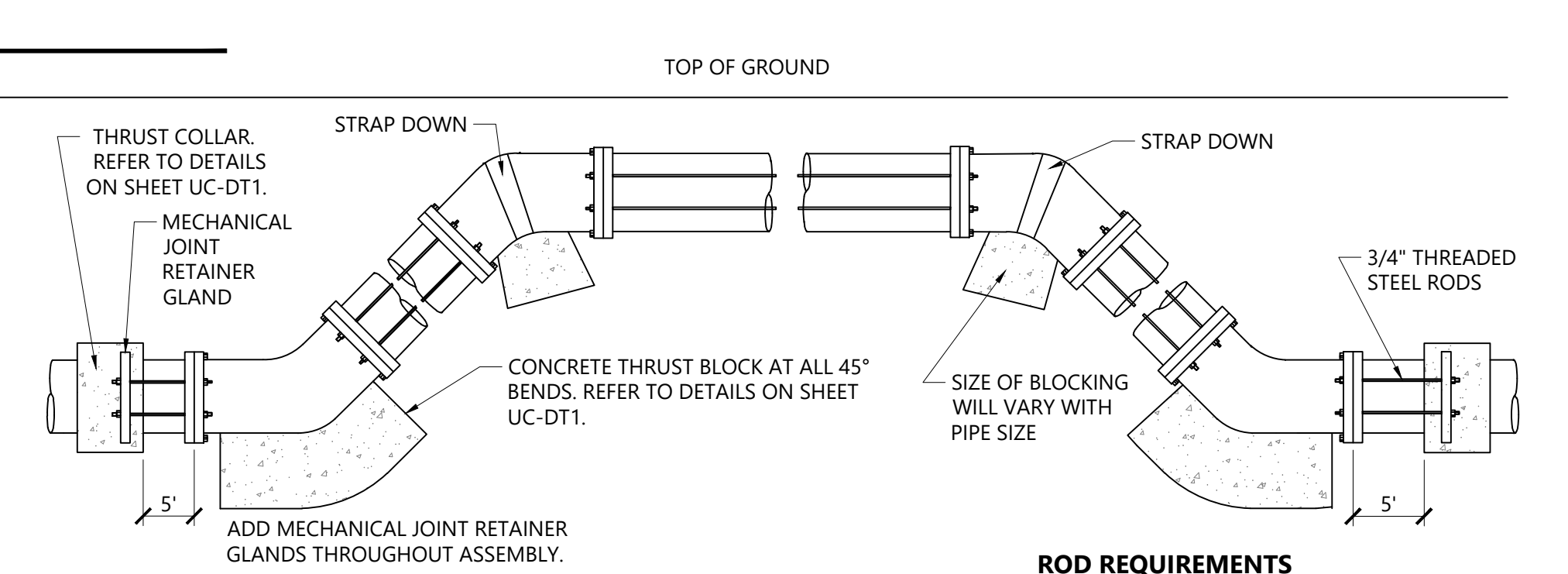
N.T.S. Source: VHB

- NOTES**
- VALVE MARKERS SHALL BE PLACED AT R/W.
 - LETTERS SHALL FACE TOWARDS VALVE.
 - MARKER SHALL HAVE BRASS OR BRONZE EMBED ON TOP OR SIDE.
 - CONTRACTOR SHALL STAMP DISTANCE TO CENTER OF VALVE INTO EMBED.
 - MAIN LINE VALVES SHALL HAVE MARKER WITH "MV" CASTED IN IT.
 - BLOW-OFF ASSEMBLY SHALL INCLUDE MARKER W/ "BO" CASTED IN IT.



Concrete Cradle Protection for Water and Force Main Crossings

N.T.S. Source: VHB



- GENERAL NOTES:**
- STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
 - CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
 - RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
 - MUST USE DUCTILE IRON EYE BOLTS WHERE NECESSARY.
 - 3" MINIMUM COVER MUST BE MAINTAINED ON ALL WATER MAINS

Standard Vertical Bend

N.T.S. Source: VHB

ROD REQUIREMENTS		
SIZE OF 45 BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8"	7,694	4
12"	17,312	4
16"	30,779	8
24"	69,252	8