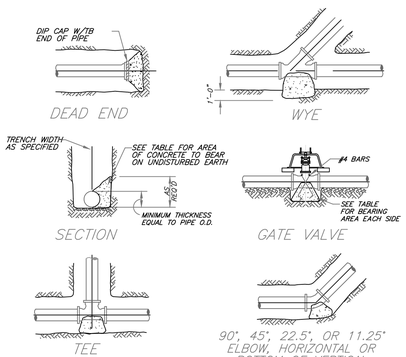
NOTE ALL DETAILS ARE SUBJECT TO CHANGE BASED UPON CURRENT CONSTRUCTION TECHNIQUES FIELD CONDITIONS, AND SOIL CONDITIONS. CITY OF ASPEN RESERVES THE RIGHT TO CHANGE OR MODIFY THESE DETAILS AT ANY TIME. CITY OF ASPEN IS REQUIRED TO BE CONTACTED PRIOR TO USE OF THESE DETAILS 970-920-5110. NOT TO BE USED WITHOUT CITY OF ASPEN CONSENT.



CONCRETE KICKBLOCKS
MINIMUM SURFACE BEARING AREA
(IN SQUARE FEET)

Pipe Diameter	STATIC PRESSURE = 150 PSI					STATIC PRESSURE = 200 PSI				
	BENDS				TEE OR DEAD END	BENDS				TEE OR DEAD END
	11-1/4	22-1/2	45	90		11-1/4	22-1/2	45	90	
6"	1.00	1.25	2.50	4.50	3.25	1.00	1.50	3.00	5.50	4.00
8"	1.00	2.25	4.25	8.00	5.50	1.25	2.75	5.00	9.50	6.75
10"	1.75	3.25	6.50	12.00	8.50	2.00	4.00	7.75	14.25	10.00
12"	2.25	4.75	9.00	16.75	12.00	2.75	5.50	11.00	20.00	14.00
14"	2.75	5.25	10.00	19.00	16.00	3.25	6.50	12.75	23.50	19.00
16"	3.50	7.00	13.50	24.75	20.50	4.25	8.50	16.50	30.50	24.75
18"	4.50	8.50	17.00	31.00	26.00	5.25	10.50	20.75	38.00	31.00

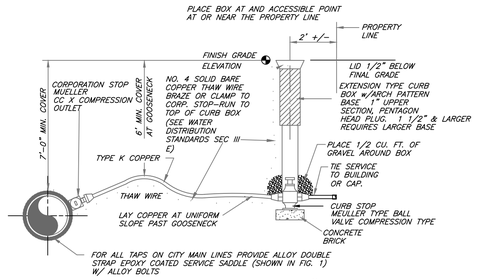
(IN SQUARE FEET)

NOTES:
1. ALL BENDS AND FITTINGS SHALL HAVE "MEGA LUGS" IN ADDITION TO CONCRETE KICKBLOCKS, OR TIE RODS.
2. ALL DOUBLE BENDS SHALL HAVE "MEGA LUGS" BETWEEN EACH BEND AND THE CONNECTING SPOOL AND ON AN 18 FOOT LENGTH OF PIPE EACH WAY FROM THE DOUBLE BEND.
3. PROVIDE POLY-WRAP "BOND-BREAKER" BETWEEN DIP AND CONCRETE.
4. ALL BENDS, FITTINGS, AND RESTRAINT SYSTEMS SHALL MEET AWWA STANDARDS

Pipe Diameter	STATIC PRESSURE = 250 PSI					STATIC PRESSURE = 300 PSI				
	BENDS				TEE OR DEAD END	BENDS				TEE OR DEAD END
	11-1/4	22-1/2	45	90		11-1/4	22-1/2	45	90	
6"	1.00	1.75	3.50	6.50	4.50	1.50	2.00	4.00	7.25	5.00
8"	1.50	3.00	6.00	11.00	7.75	1.75	3.50	6.75	12.50	9.00
10"	2.25	4.50	9.00	16.50	11.75	2.75	5.25	10.25	18.75	13.25
12"	3.25	6.50	12.50	23.25	16.50	3.75	7.50	14.50	26.50	18.75
14"	4.00	7.75	15.00	28.00	22.00	4.50	9.00	17.50	32.25	25.00
16"	5.00	10.00	19.50	36.00	28.50	5.75	11.50	22.50	41.50	32.50
18"	6.25	12.50	24.50	45.25	36.00	7.25	14.50	28.25	52.25	41.00

(IN SQUARE FEET)

CONCRETE THRUST RESTRAINT DETAILS



TYP. WATER SERVICE DETAIL FOR 2" AND SMALLER

N.T.S.

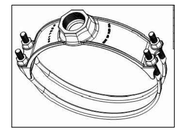
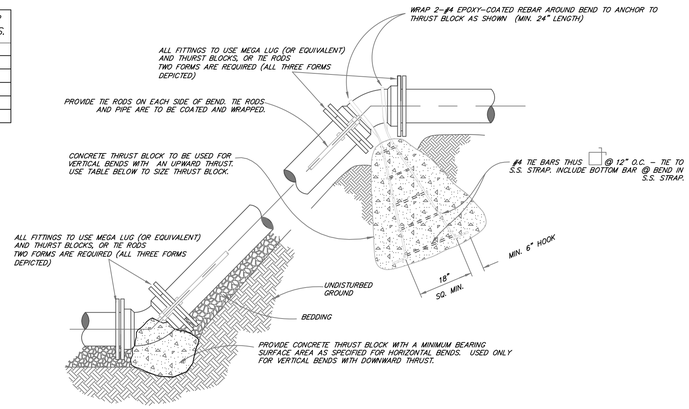


FIGURE 1

MUELLER TYPE DR2A SADDLE WITH OUTLET TAPPED AWWA TAPER C.C. THREAD

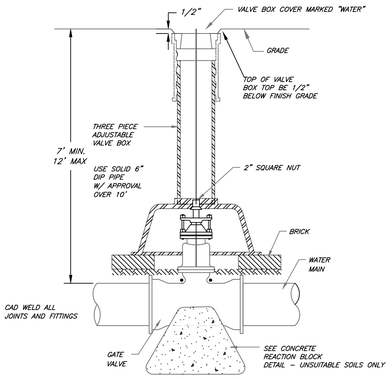
MINIMUM VOLUME OF CONCRETE FOR UPPER FITTING VERTICAL THRUST BLOCK IN CU. YDS.			
	BEND - ANGLE		
PIPE SIZE	11-1/4°	22-1/2°	45°
4"	0.2	0.3	0.5
6"	0.3	0.6	1.1
8"	0.5	1.0	1.7
10"	0.8	1.4	2.7

**MIN. 4.0 CU. YDS. FOR 12" @ 45°



THRUST RESTRAINT DETAIL

N.T.S.

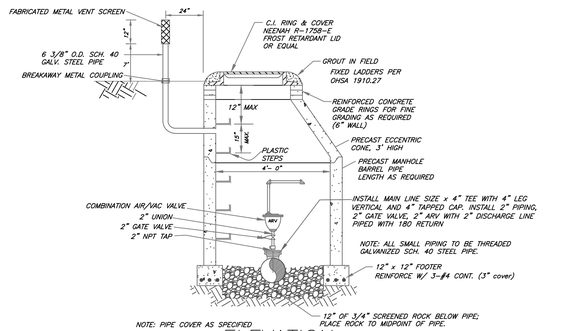


TYPICAL GATE VALVE

N.T.S.

NOTES:
1. ALL VALVES TO BE MJ x MJ MUELLER VALVES OR PRE-APPROVED EQUIVALENT WITH MEGA LUGS
2. NO VALVES IN CURB, GUTTER, OR VALLEY PANS. INSTALLED VALVES WHICH CONFLICT WITH CONCRETE AREAS SHALL BE RELOCATED AT THE CONTRACTOR'S EXPENSE.
3. ALL JOINTS AND FITTINGS TO BE CAD WELDED

MANHOLE CONSTRUCTION NOTES:
1. USE RUB-R-NEK PREFORMED GASKET (2 LAYERS) OR GROUT IN PLACE BETWEEN ALL BOTTOM SECTION, BARREL SECTIONS, CONCRETE GRADE RINGS, AND TOP CASTINGS.
2. BACKFILL WITHIN 24" OF MANHOLE: CLASS 2 AGGREGATE OR NATIVE MATERIALS WITH LESS THAN 3" SIZE.
3. PRECAST RINGS OR METAL RISER RING COURSE SHALL BE UTILIZED WHERE REQUIRED WITH 2 COURSES MINIMUM AND 12 COURSES MAXIMUM (2 MINIMUM, 12" MAXIMUM HEIGHT).
4. GRADE ADJUSTMENT AS FOLLOWS: GREATER THAN, OR EQUAL TO, 1 FOOT, CONCRETE BARREL SECTIONS; LESS THAN 1 FOOT, CONCRETE OR METAL GRADE RINGS.
5. FINISH GRADE AS FOLLOWS: WITH ASPHALT OR CONCRETE PAVEMENTS FLUSH; WITH BASE COURSE SURFACE OR DIRT/TOPSOIL -3" BELOW GRADE.

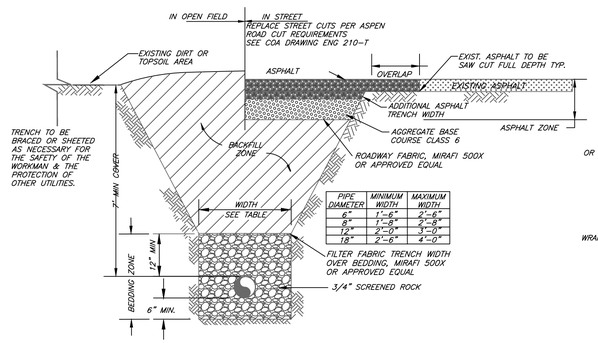


ELEVATION

LOCATE AT ANY HIGH POINT IN THE SYSTEM REGARDLESS OF DESIGN DRAWING LOCATIONS OR IF NOT SHOWN ON DRAWINGS

COMBINATION AIR VALVE MANHOLE DETAIL

N.T.S.

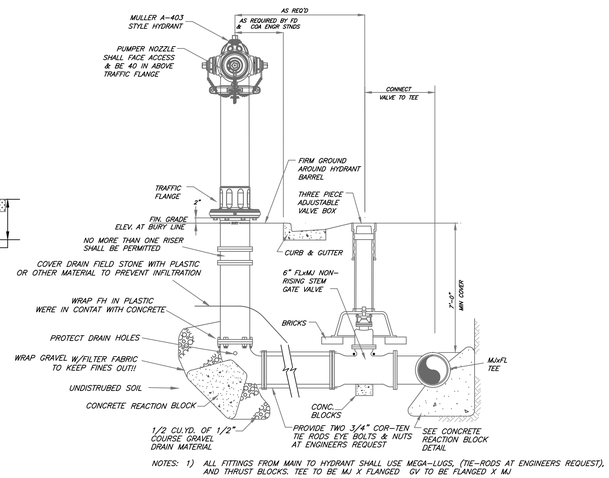


PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
6"	1'-6"	2'-6"
8"	1'-8"	2'-8"
12"	2'-0"	3'-0"
18"	2'-6"	4'-0"

1) ASPHALT ZONE SHALL BE INSTALLED PER CITY OF ASPEN CONSTRUCTION AND EXCAVATION STANDARDS AND RIGHT OF WAY PERMIT
2) BACKFILL ZONE SHALL BE INSTALLED PER CITY OF ASPEN CONSTRUCTION AND EXCAVATION STANDARDS AND RIGHT OF WAY PERMITS
3) BEDDING ZONE SHALL BE: ¾" CRUSHED ANGULAR SCREENED ROCK FREE OF FINES
4) COMPACTION REQUIREMENTS SHALL FOLLOW THE CITY OF ASPEN CONSTRUCTION AND EXCAVITION STANDARDS

WATER MAIN TRENCH CROSS SECTION

N.T.S.



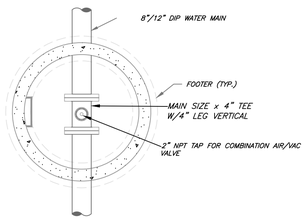
NOTES:
1) ALL FITTINGS FROM MAIN TO HYDRANT SHALL USE MEGA-LUGS, (TIE-RODS AT ENGINEERS REQUEST), AND THRUST BLOCKS. TEE TO BE MJ X FLANGED GV TO BE FLANGED X MJ
2) HYDRANT, VALVE AND FITTINGS TO BE 250 P.S.I. RATED.
3) ALL HYDRANT LEAD PIPING TO BE 6" D.I.P.
4) HYDRANT LOCATION TO BE PER COA FIRE DEPT. REQUIREMENTS FOR DISTANCE FROM BACK OF CURB OR EDGE OF SHOULDER TO FIRE HYDRANT
5) MUELLER FIRE HYDRANTS TO BE USED
6) CAD WELD ALL JOINTS AND FITTINGS
7) SWIVEL TEE MAY BE USED
8) HYDRANTS TO BE MUELLER - 40 IN, A-403 STYLE HYDRANTS

FIRE HYDRANT ASSEMBLY INSTALLATION DETAIL

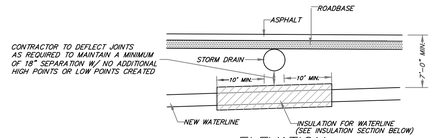
N.T.S.

VERTICAL THRUST BLOCK DETAIL

N.T.S.

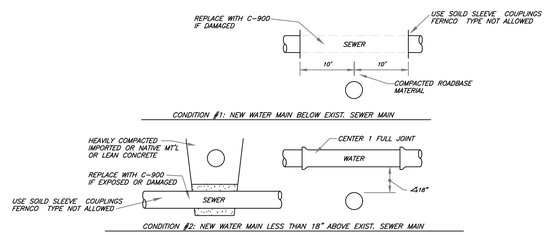


PLAN



ELEVATION WATERLINE/CULVERT CROSSING

N.T.S.



1) SEWER LINE TO BE CONSTRUCTED OF ONE JOINT (18' MINIMUM) OF C-900 PVC, DR-18 PIPE, CENTERED ON SEWER/WATER LINE FOR PERPENDICULAR CROSSING. FOR SKEW CROSSINGS, USE C-900 PIPE UNTIL HORIZONTAL SEPARATION EXCEEDS 10'.
2) SEE ACSD DETAILS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION ON WATER AND SEWER LINE CROSSINGS

WATER / SEWER CROSSING

N.T.S.

Number	Revision Description	By	Date

CITY OF ASPEN
WATER DEPARTMENT

WATER DISTRIBUTION SYSTEM STANDARDS
ALL DEVELOPMENT AND CONSTRUCTION

STANDARD
INSTALLATION DETAILS

CITY OF ASPEN

DESIGN: JAD
DETAIL: GDD
CHECK: TC
DATE: SEPT 2021

PROJECT NUMBER
ALL

Drawing Number:
STDS 1