

**BADGER MOUNTAIN IRRIGATION DISTRICT**

**DESIGN / CONSTRUCTION  
SPECIFICATIONS FOR RESIDENTIAL  
IRRIGATION DELIVERY SYSTEMS**

REVISED: 2/25/2022

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RESOLUTION 2004-4

RESOLUTION 86-8

## **GENERAL CONDITIONS**

Prior to submitting a plat for approval by the Badger Mt. Irrigation District (BMID), otherwise known as the District, the developer shall be responsible for the design, installation and certification of an irrigation system that is in accordance with the current BMID Standards and Specifications for Residential Irrigation Water Deliver Systems.

**Certification:** Prior to plat approval, a Professional Engineer licensed in the state of Washington shall be required to provide a written inspection report to BMID certifying that said irrigation system has been designed so that it is in conformance with District standards and will deliver the required system capacity as stated herein. As an alternative to installation of the facilities prior to platting and upon written approval from the BMID Board of Directors, the responsible landowner may post bond in the amount equal to the estimated installation costs as determined by the District Manager to guarantee the installation of said facilities.

Preliminary plans and Distribution System Design Report are to be submitted to BMID for review. After changes or revisions are made to the plans, if any, a revised set shall be submitted to the BMID. Upon BMID approval of the final revised plans, construction may proceed. At the Owner's expense the design engineer or his representative shall make periodic observations of the construction to verify the construction is in conformance with the approved design plans and specifications. Furthermore, prior to plat approval, the licensed design engineer shall furnish a record of construction drawings set showing the as-constructed improvements bearing his stamp and including a statement based on the periodic observation by him or his representative, the construction was in conformance with his design.

### **Pre-application Meeting:**

A pre-application meeting is required for proposed development projects involving any of the following:

1. New housing developments within the Badger Mountain Irrigation District (BMID) service area boundaries.
2. New commercial buildings or developments within the BMID service area boundaries.
3. Any project with the BMID service boundaries that may touch, alter, modify or BMID facilities and appurtenances or be performed within any BMID easement, either domestic or irrigation.

The pre-application meeting is a free service offered by the Badger Mountain Irrigation District. The purpose of the pre-application meeting is to acquaint BMID staff with the intent of the proposed project, and to provide guidance to applicants in preparing irrigation or water engineering plans, and to familiarize applicant with BMID standards, details and system expectations.

Please contact the BMID Office at 509-628-0777 to set up a pre-application appointment.

**Construction Plan-set Approval:**

At such time engineering plans are complete and are to be submitted for the first round of reviews at the local jurisdictional level (City of Richland, City of Kennewick, or Benton County), Badger Mountain Irrigation District shall also require a full-size paper set of said plans for their review. The BMID Director shall have 30 calendar days to review and provide comment. Failure to provide this set of plans may result in final plat denial.

**Requirements for As-built Survey:**

All irrigation appurtenances installed or modified with the construction shall be surveyed by or under the employ of a Washington State Licensed Land Surveyor, and shall include but not limited to the following:

Irrigation valves, risers & meters • Fire Hydrants & valves • PRV Vaults & Manholes • Monuments (Location & Elevations)

- One (1) Electronic CSV file in the following format: comma delimited coordinate file (CSV) of all points in the following format: Point Number, Northing, Easting, Elevation, and Descriptor. Provide a copy of your company survey descriptor code sheet.
- One (1) electronic copy (AutoCAD or Civil3d format) which includes all of the surveyed data. The electronic record drawings shall contain the entire project in a single base drawing and include all sheet files.
- One (1) PDF copy of the final record drawing.
- One (1) paper copy (22"x34") of the raw survey data signed and sealed from the licensed surveyor shall be provided.

**Datum**

- The as-built survey shall utilize NAD83/91 State Plane coordinates for Horizontal Datum and NAVD 88 for Vertical Datum.

In the event that a proposed system is to extend service to a parcel or parcels of land that are not part of a short plat, the property owner (s) shall be responsible for costs associated with the design installation and certification of proper size lines and equipment in accordance with the above stated requirements for platted properties. (See Resolutions 86-7, 86-8).

**System Capacity:** The BMID system is a totally pressurized system that was designed to provide "on demand" irrigation water to all residential customers. While each service riser to an individual property is not currently metered, there is a per acre allotment based on the BMID water permit as issued by the Washington State Dept. of Ecology.

Accordingly, delivery valves to each lot are sized to produce flows to approximate the water allotment of 3.5 acre-feet per irrigable acre per irrigation season. This translates to 6.2 GPM/Acre.

Distribution piping serving residential developments shall be in accordance with the design criteria on page 12.

For delivery systems having lots with a variety of size ranges, the total system capacity shall be the sum of system capacities calculated for each group of lots within each size range.

**Existing Facilities:** Facilities in place at the time of platting or annexing to the District which will deliver uninterrupted flow equal to the system capacity as stated above need not be replaced. However, the system will have to meet BMID standards and approvals. In addition, the facility shall have an anticipated remaining useful life of 20 years (minimum).

**Additional Requirements:**

1. Prior to beginning the system design, the engineer shall contact BMID to determine the nearest water deliver point.
2. All new systems must successfully operate for a period of one year. At that time, the system must be turned over to the BMID for operation and maintenance. Any needed repair before the period of one year and the system turnover shall be paid for at the owner's expense.
3. All assessments must be paid current prior to approval of the plat.
4. When working in a multi-Jurisdictional area, design shall follow the standard of the agency with the highest standard. This is not to include flow rates, pressures, or water rights, where BMID standards will be used at all times.

**Indemnification:**

Statement below to be included on all Construction Plans submitted to BMID:

The BMID, Board of Directors, Officers, Agents and Employees shall not be liable for, and shall be held harmless from and indemnified for all damages, injuries, and claims arising from or related to any design and engineering specification and standards herein or approval given hereunder. This holds harmless and indemnification provision applies to claims of negligence and any other theory of liability.

**Final Approval:**

Statement Below to be included on all Final Plats for District Signature of Approval:

THE PROPERTY DESCRIBED HEREIN IS LOCATED WHOLLY OR IN PART WITHIN THE BOUNDARIES OF THE BADGER MOUNTAIN IRRIGATION DISTRICT ("DISTRICT"). SAID PROPERTY IS CLASSIFIED AS IRRIGABLE LAND AND IS ENTITLED TO IRRIGATION WATER UNDER THE EXISTING OPERATING RULES AND REGULATIONS OF THE DISTRICT. THE DISTRICT HEREBY CERTIFIES THAT THE IRRIGATION EASEMENTS AND RIGHT-OF-WAYS SHOWN ON THE PLAT ARE ADEQUATE TO SERVE ALL LOTS AND/OR CERTAIN TRACTS LOCATED WITHIN THE PLAT, SATISFY THE REQUIREMENTS OF RCW 58.17.310, AND THAT THE IRRIGATION ASSESSMENTS HAVE FULLY BEEN PAID THROUGH THE YEAR 20\_\_\_. A COPY OF THE FINAL AS-BUILT ENGINEERING PLANS HAVE BEEN DELIVERED TO THE DISTRICT OFFICE AND HAVE BEEN REVIEWED BY THE DISTRICT MANAGER, AND THOSE COMPLETED AS-BUILT DRAWINGS AND IRRIGATION FACILITIES: \_\_\_ ARE APPROVED; OR \_\_\_ WILL NOT BE REQUIRED.

THE DEVELOPER AND SUBSEQUENT LOT OWNERS ("OWNER") ACKNOWLEDGES THE USE AND THE EXISTENCE OF IRRIGATION WATER AND DELIVERY SYSTEMS MUST COMPLY WITH ALL DISTRICT RULES AND REGULATIONS AND MAY CAUSE DAMAGE OR BE A HAZARD TO PROPERTY AND PERSONS. THE OWNER ASSUMES ALL RISK ASSOCIATED WITH THE USE AND DELIVERY OF IRRIGATION WATER AND HOLDS THE DISTRICT HARMLESS AND WAVES ON BEHALF OF THEMSELVES AND THEIR SUCCESSORS IN INTEREST ANY CLAIMS FOR DAMAGES OF ANY KIND AGAINST THE DISTRICT WHICH MAY BE CAUSED BY THE CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE IRRIGATION FACILITIES; OR FROM THE DELIVERY, LEAKAGE, OR SEEPAGE OF WATER.

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MANAGER – BADGER MOUNTAIN IRRIGATION DISTRICT

RESIDENTIAL STANDARD SPECIFICATIONS  
IRRIGATION WATER DELIVER SYSTEMS  
BADGER MOUNTAIN IRRIGATION DISTRICT

- A. PIPE:** All pipes shall be polyvinyl Chloride (PVC) Schedule 40 or better.
1. Pipe two-inch diameter shall be solvent welded. Minimum pipe diameter shall be two inches.
  2. Pipe larger than two-inch diameter shall be ring gasket joints and purple type C900.
  3. Service lines shall be AWWA C901-96 PE 3408 (CTS) DR 9 (200 PSI) Polyethylene tubing purple in color or stripped.
- B. FITTINGS:** All solvent welded PVC fittings shall be schedule 40 and meet or exceed the pressure rating of the pipe.
1. Threaded PVC fitting shall be steel banded reinforced schedule 80.
  2. Fittings larger than six-inch diameter shall be cast iron and must meet current AWWA requirements. PVC fittings may be substituted where applicable and with prior approval from BMID.
  3. Proper poly compression fittings with stiffener inserts must be used with service lines.
  4. Double strap bolt on saddles shall be used for all customer services.
- C. VALVES:** All distribution valves within each residential delivery valve box shall be of domestic manufacture.
1. Gate Valves:
    - a. Valves are to be used as isolation valves.
    - b. Valves shall have a minimum, working pressure of 125 PSI.
    - c. Valves three inches or smaller shall have threaded connections, bronze body, non rising stems, and come equipped with a hand wheel.
    - d. Valves four inches and larger shall have flanged connections with cast iron bodies and come equipped with a 2" square operating nut.
    - e. All valves must meet or exceed current AWWA standards.
    - f. All valves should be suitable for underground service.
  2. Service Valves:
    - a. Service valve is to be Ford BA41-444W-NL CTS inlet x FEM IRON THR OUTLET or equal.
    - b. Size range is from ¾" to 1".

3. Ball Valves
  - a. Size range is from 1" and greater.
  - b. Valves shall have threaded connections and come equipped with a handle.
  - c. Type must be of quality manufacture.
  
4. Air Relief Valves/vac relief
  - a. Air relief valves shall be sized according to the pipe size. Minimum of 2".
  - b. Galvanized 2"
  - c. Valves shall be Val-Matic or approved equal and designed for continuous operation.
  
5. Blow-Off Valve Assemblies:
  - a. Blow-off assemblies shall be installed at the end of all pipelines.
  - b. Blow-off shall have a PVC cap lightly attached.
  - c. Fittings shall be of appropriate material and quality.
  - d. Valves shall be 2" FLG. AWWA Gate Valve.
  - e. Valve boxes shall conform to section D of this document.
  - f. Minimum depth of top of riser to be no less than 6" to grade and Maximum depth no more than 10" to grade.
  
6. Drain Valve Assemblies:
  - a. Pipe and fittings must conform to section A and section B.
  - b. The drain valve shall be of 1" Ford Compression (CTS) x FIP or equal.
  - c. Drains shall have drain rock installed to depth of valve and an additional 12" below valve.

**D. VALVE BOXES:** All underground valves shall be protected and made accessible with the installation of valve boxes.

1. Valve boxes for isolation valves within paved public street right of way shall be installed for all buried valves. Valve boxes shall be cast-iron, two piece slip type standard design with a base corresponding to the total size of the valve. Top of valve box to be installed flush with the surface of pavement refer to detail B-5.
2. Isolation valve boxes located within unpaved areas of public street right of way shall be provided with a six-inch-thick concrete collar, twenty-four inches square. Lid to be flush with finished grade.
3. Isolation and/or Drain Valve Boxes outside of public street right of way may be constructed of PVC pipe, provided that the pipe is 6" diameter sewer pipe and cap. Cap elevation shall be six inches above existing grade.
4. Residential distribution valve boxes shall be located at the street side portion of the property served and shall be within six feet of respective property corners. These boxes shall be "Carson 910" round valve boxes (or equal), or rectangular and jumbo size depending on application and



approval from district. Valve box assemblies shall include: base unit, risers and purple lid. The top of the valve box shall be installed flush with finished grade. The valve box shall be as shown in BMID detail B-1 Type B Service.

**E. THRUST BLOCKING:**

1. Thrust block are required at tees, bends and dead ends for pipe larger than 2" diameter. Concrete for thrust blocks shall have a minimum compressive strength of 3000 PSI at 28 days. Concrete thrust blocks are to be poured against undisturbed earth. Any pipe or fitting shall be wrapped in protective plastic wrap prior to pouring of thrusting. For thrust block and bearing area details refer to B-2 Hall Engineering figure of thrust blocking that shows bearing areas.

**F. IDENTIFYING TAPE & TRACER WIRE:**

1. Identifying tape shall be installed twelve (12) inches below finish grade over buried PVC pipe.
2. Pipe Locator Tape shall be clearly marked "Caution Buried Water Line".
3. Tracer Wire shall be installed securely on all main, sub, and service lines, and shall be accessible in all distribution valve boxes. The wire shall be type UF#8 AWG single strand sprinkler and irrigation control cable or approved equal. The insulation on the wire shall be purple in color. The wire shall be continuous throughout the project, with 6" minimum overlap and brass split-bolt connectors. 8"-10" Tails shall be installed in every valve box. A continuity test shall be performed by the District to ensure continuity between all tracer-wire.

**G. PIPE INSTALLATION:** All PVC pipe shall be assembled and installed in accordance with the pipe manufacturer's recommendations. Thrust blocks shall be placed at locations as described in section E.1 of this document as shown in detail B-2.

1. Thrust Blocks shall be placed so that accessibility to the pipe and fittings is not impaired.
2. Pipe installed outside of street right of way shall have a minimum of thirty (30) inches of cover. Maximum of (60) inches of cover. Utilities encountered in the pipe zone shall be crossed below.
3. Pipe Base and Pipe Zone Backfill: Materials for pipe installed outside the street right of way shall include the full width of the trench from (4) inches below the bottom of the pipe to six (6) inches above the top of the pipe. Backfill material may be excavated native material containing no rock, organic matter, or materials larger than ½ inches. Where the volume of quality native excavated materials is inadequate, sand will be used for pipe

base and pipe zone backfill. The backfill material shall be placed and compacted sufficiently to preclude future settlement.

4. Pipe Base and Pipe Zone Backfill materials for pipe installed inside street right of way shall as a minimum conform to section G above. In addition, backfill methods and materials shall be in accordance with the requirements of the entity in whose right of way the pipe is being installed. All work within public road right of way shall meet these specifications.

#### **H. HYDROSTATIC PRESSURE TESTING:**

1. All water mains and appurtenances in sections of convenient length under a hydrostatic pressure equal to 150 psi in excess of that under which they will operate or in no case shall the test pressure be less than 200 psi. All pumps, gauges, plugs, saddles, corporation stops, miscellaneous hose and piping, and measuring equipment necessary for performing the test shall be furnished and operated by the Contractor.
2. The pipeline shall be backfilled sufficiently to prevent movement of the pipe under pressure. All thrust blocks shall be in place and time allowed for the concrete to cure before testing. Where permanent blocking is not required, the Contractor shall furnish and install temporary blocking and remove it after testing.
3. The mains shall be filled with water and allowed to stand under pressure a sufficient length of time to allow the escape of air and allow the lining of the pipe to absorb water. The Contracting Agency will furnish the water necessary to fill the pipelines for testing at a time of day when sufficient quantities of water are available for normal system operation. (Exception: Contractor shall provide water for testing during that portion of the year that irrigation is not available)
4. The test shall be accomplished by pumping the main up to the required pressure, stopping the pump for 15 minutes and then pumping the main up to the test pressure again. During the test, the section being tested shall be observed to detect any visible leakage. The quantity of water required to restore the pressure shall be accurately determined by pumping through a positive displacement water meter. The meter shall be approved by the District.
5. The quantity of water lost from the main shall not exceed the number of gallons as determined by the formula, per WSDOT Section 7-09.3(23) for Road, Bridge, and Municipal Construction:

$$L = \frac{SD\sqrt{P}}{266,400}$$

L = Allowable leakage, gallons/hour

D = Nominal diameter of pipe in inches

P = Average test pressure during leakage test (psi)

S = Gross length of pipe tested, feet

6. There shall not be an appreciable or abrupt loss in pressure during the 15-minute test period. Any visible leakage detected shall be corrected by the Contractor regardless of the allowable leakage specified above. Should the test section fail to meet the pressure test successfully as specified, the Contractor shall, at no expense to the Contracting Agency, locate and repair the defects and then retest the pipeline.
7. Sections to be tested shall normally be limited to 1,500 feet. Lying of pipe shall not be continued more than an additional 1000 feet until the first section has been tested successfully.
8. Prior to calling out the District to witness the pressure test. The Contractor shall have all equipment set up completely ready for operation and shall have successfully performed the test to ensure that the pipe is in satisfactory condition. Give 24hrs advance notice of Test.

**I. ADDITIONAL REQUIREMENTS:**

1. Piping shall be located with the point of delivery into the system located in the subdivision, short plat, lot, tract, parcel, or site at the point nearest the BMID designated delivery point for that area and at a site suitable for future extension onto adjacent properties. Where the acreage being divided has an existing and adequate on-site delivery point the piping shall begin at that point. Where the site delivery point is a BMID Line, the connection to that line shall be made by BMID crews for a fee equal to the cost of labor and materials required to make the connection, or under the direct supervision of BMID personnel.
2. Isolation valves shall be installed on all laterals at or near the inlet to the new system. Valve type shall be as described in section C.
3. Drawings detailing pipe, isolation and drain valve locations, distribution valve boxes, pipe sizes and depths are to be provided to BMID. Drawings shall be provided on a reproducible copy.
4. Testing/Inspection: The contractor will contact the BMID 48 hours before inspection. Trenches shall be left open for inspection by BMID personnel. Following inspection, the trench shall be partially backfilled leaving the pipe joints accessible for examination during the pressure test. Sufficient backfill shall be placed over the pipe barrel between the joints to prevent movement. Before testing all dirt and foreign material shall be flushed from the system and all air vented from any high points. The completed system shall be hydrostatically tested. The pressure shall be maintained until the BMID representative has determined that the system is specification compliant.
5. Air relief valves shall be installed at any high point on each sub-main or lateral. Additional Air Relief Valves may be required if there are sufficient grade changes (high spots) to warrant them.

6. Drain valves shall be installed along the pipeline if there are significant low spots along the pipe route that would not enable the individual distribution valve boxes to drain.
7. Delivery piping shall be installed within the BMID irrigation easements.
8. Pressure Reducing Valves to be installed per BMID Standard as where needed to maintain proper operational pressures. All PRV stations will need to be fenced or secured from public access with a concrete pad poured around the PRV large enough for access to all sides of the PRV inside the fence.

**IRRIGATION NOTES TO BE ADDED TO ALL CONSTRUCTION PRINTS**

1. NO WORK SHALL BE DONE WITHIN BMID EASEMENTS OR RIGHTS OF WAYS WITHOUT PERMISSION FROM BMID.
2. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST REVISION OF BADGER MOUNTAIN IRRIGATION DISTRICT STANDARD SPECIFICATIONS.
3. CDF OR CONCRETE IS NEEDED WHEN THERE IS LESS THAN 12-INCHES OF CLEARANCE BETWEEN MAINS.
4. IRRIGATION MAINS SHALL BE INSTALLED WITH A MINIMUM OF 30-INCHES OF COVER AND A MAXIMUM OF 60 INCHES.
5. ALL PIPELINES SHALL BE C900/DR 18 (235 PSI) PVC. PVC PIPELINES SHALL BE PURPLE IN COLOR. SERVICES SHALL BE PURPLE-STRIPED POLYETHYLENE PIPE SIZED PER BMID GUIDELINES WITH A CURB-STOP AND BOX.
6. 14 GA PURPLE LOCATE WIRES SHALL BE INSTALLED OVER THE MAINS AND SERVICE LINES.
7. IRRIGATION SERVICES SHALL BE TYPE B RISER, INSTALLED A MINIMUM OF 5-FEET AWAY FROM DOMESTIC WATER SERVICES AND SEWER SERVICES.
8. IRRIGATION VALVE BOXES OR LIDS WITHIN THE ROADWAY OR PUBLIC RIGHT OF WAY NEED TO BE PER CITY OF RICHLAND SPEC: "RICH 931" CAST IRON LID AND SHALL HAVE "IRR" CAST INTO THE TOP.
9. ALL FITTINGS SHALL BE CEMENT LINED, MECHANICAL JOINT OR MECHANICAL JOINT X FLANGE, DUCTILE IRON, RUBBER GASKET FOLLOWER GLANDS AND BOLTS AWWA C-110 APPROPRIATE GASKET TRANSITION COUPLERS OR C-153 AND C-111; SLEEVES AS NEEDED. NO PVC FITTINGS ALLOWED. FITTINGS SHALL BE RESTRAINED WITH ADEQUATE NUMBER OF RESTRAINED JOINTS ON EACH SIDE OR THRUST-BLOCKED PER COK STD DWG 4-6.
10. CONTRACTOR SHALL SUPPLY WATER FOR PRESSURE TESTING EQUIPMENT TO TEST AT OPERATING PRESSURE PLUS 50 PSI PERE WSDOT 7-09.3(23) .

**Badger Mountain Irrigation District**  
**Design Criteria for Irrigation Systems**  
**Serving Residential Development**  
**February, 2022**

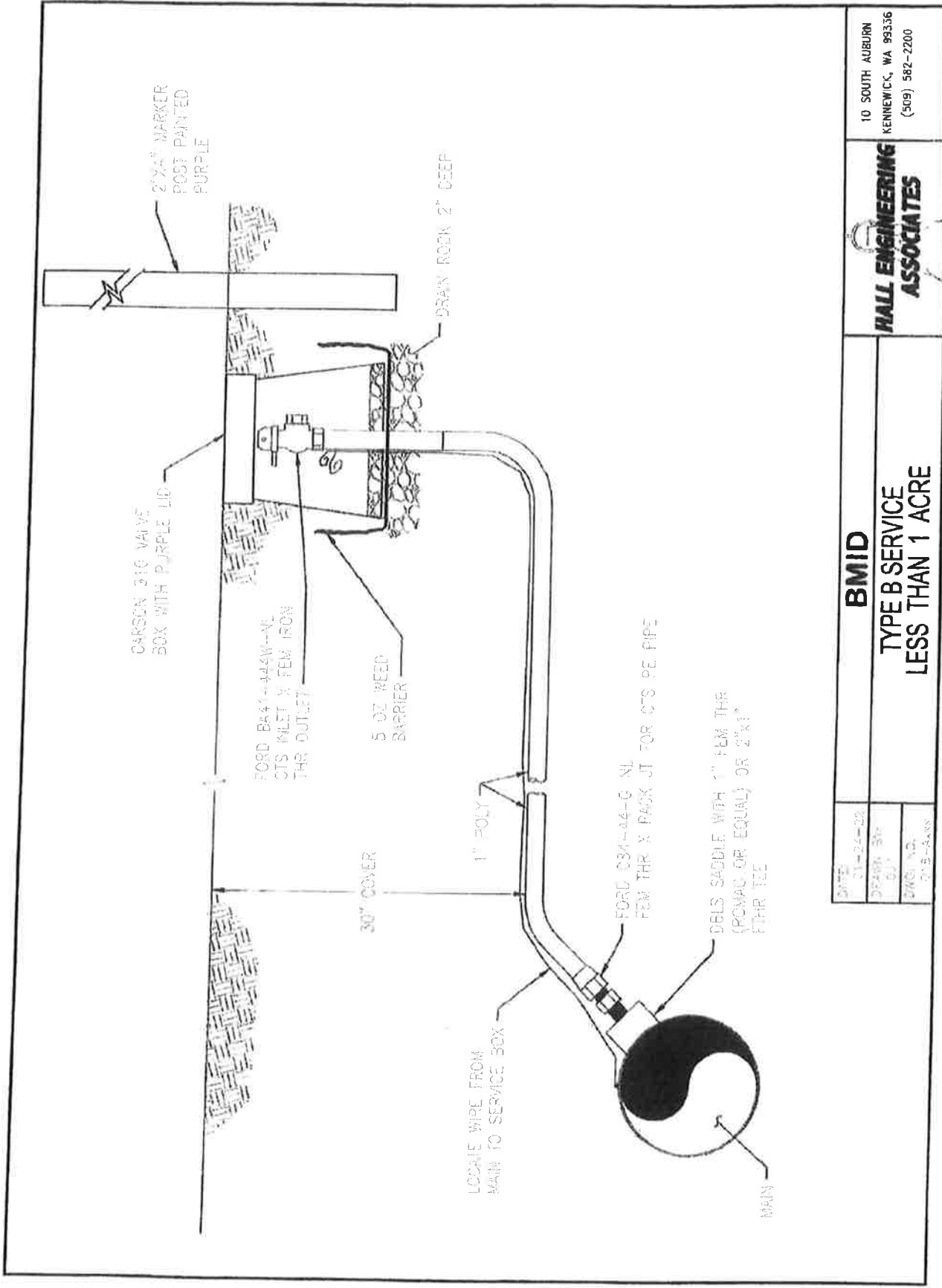
The intent of these design criteria is to ensure that the systems meet short duration peak flow rates for safe and reliable operation. The criteria are not an assurance of the stated flow rates. In fact, the District's water right is for only approximately half the rates stated.

For Lots less than 1 acre:

1. Pipelines to be sized at a flow rate of 30 gpm for the most distant lot from the source and an additional 3 gpm per lot thereafter  
or  
6.0 gpm per acre, based on gross acreage, whichever is greater.
2. Size pipelines using nominal diameters at 5 feet per second maximum velocity.
2. Use 4" minimum nominal diameter.
3. Use class 235 C900 PVC (DR18) pipe.
4. Minimum delivery pressure shall be 40 PSI at the high point of the lot. Increase pipe diameter to achieve this minimum. If the minimum cannot be achieved in this manner, the District may require the developer to install booster pumps.

For Lots from 1 to 5 acres:

1. Pipelines to be sized at a flow rate of 80 gpm for the most distant lot from the source and an additional 30 gpm per lot thereafter  
or  
8.0 gpm per acre, based on gross acreage, whichever is greater.
2. Size pipelines using nominal diameters at 5 feet per second maximum velocity.
2. Use 4" minimum nominal diameter.
3. Use class 235 C900 PVC (DR18) pipe.
4. Minimum delivery pressure shall be 60PSI at the high point of the lot. Increase pipe diameter to achieve this minimum. If the minimum cannot be achieved in this manner, the District may require the developer to install booster pumps.



DATE	01-24-22	<b>BMID</b> <b>TYPE B SERVICE</b> <b>LESS THAN 1 ACRE</b>	 <b>HALL ENGINEERING ASSOCIATES</b>	10 SOUTH AUBURN KENNEWICK, WA 98336 (509) 582-2200
DRAWN BY	SH			
DWG. NO.	01-B-24-001			

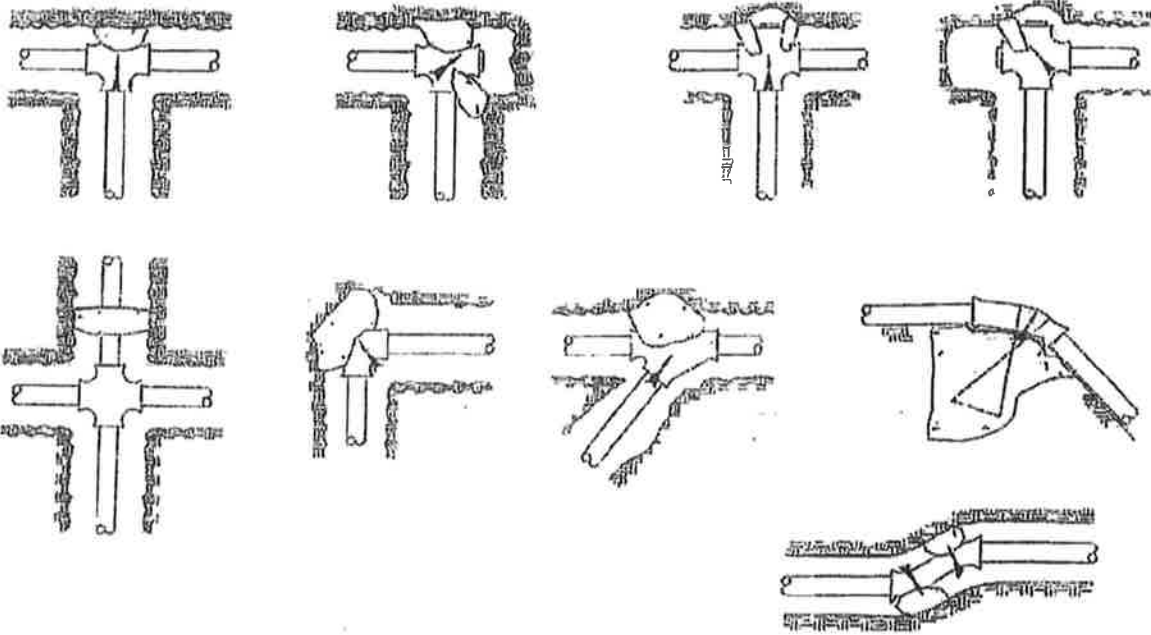


TABLE FOR BEARING AREAS OF THRUST BLOCKS IN SQUARE FEET  
 HANGING THRUST BLOCKS ARE IN CUBIC YARDS OF CONCRETE

PIPE SIZE	TEES AND DEAD ENDS	90 DEGREE BEND	45 DEGREE BEND	11 1/4 DEGREE 22 1/2 DEGREE BEND
4" & LESS	1.41	2.00	1.14	0.57
	HANGING THRUST BLOCK		0.57 CY	0.29 CY
6"	3.18	4.52	2.56	1.29
	HANGING THRUST BLOCK		1.26 CY	0.63 CY
8"	5.75	8.10	4.62	2.31
	HANGING THRUST BLOCK		2.28 CY	1.14 CY
10"	8.90	12.8	7.10	3.59
	HANGING THRUST BLOCK		3.51 CY	1.77 CY
12"	12.72	18.00	10.24	5.19
	HANGING THRUST BLOCK		5.06 CY	2.55 CY

**NOTES:**

1. CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH AND SHALL BE CLASS 5 CONCRETE.
2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES.
3. PLACE AN 8 MIL OR TWO LAYERS OF 4 MIL POLYETHYLENE SHEETING BETWEEN THE FITTING AND THE THRUST BLOCK.
4. BEARING LOAD IS CALCULATED AT 2,000 LB. PER SQ. FT.
5. 200 PSI TEST PRESSURE.

THRUST BLOCKING

NTS

BADGER MOUNTAIN IRRIGATION DISTRICT	
DESIGN CHECK DATE BY	NONE BADGER COUNTY
	<b>B-2</b>

ACRES

VALVE SIZE

1.0-1.5.....1"

1.5-2.5.....1 1/4"

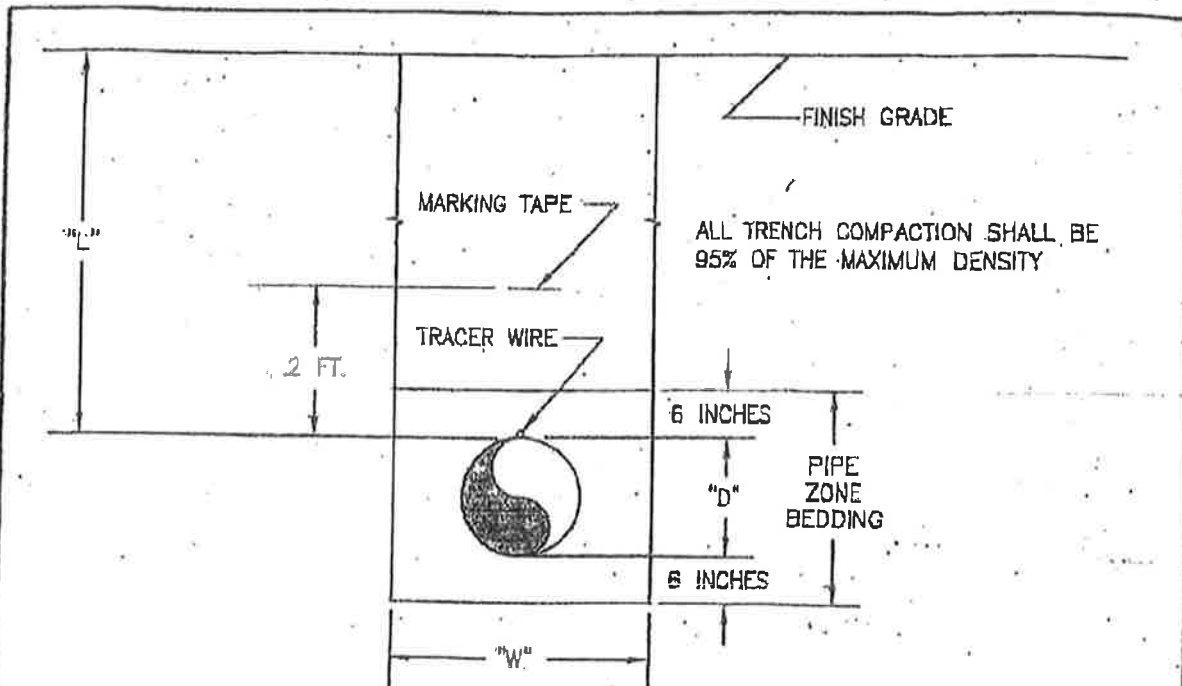
2.5-3.5.....1 1/2"

OVER 3.5.....2"

DATE	REVISION	BY
RESIDENTIAL VALVE SIZING		
BADGER MOUNTAIN IRRIGATION DISTRICT		
CREATED	RL	
CHECKED		BMD
SCALE	NONE	
DATE		

B-3



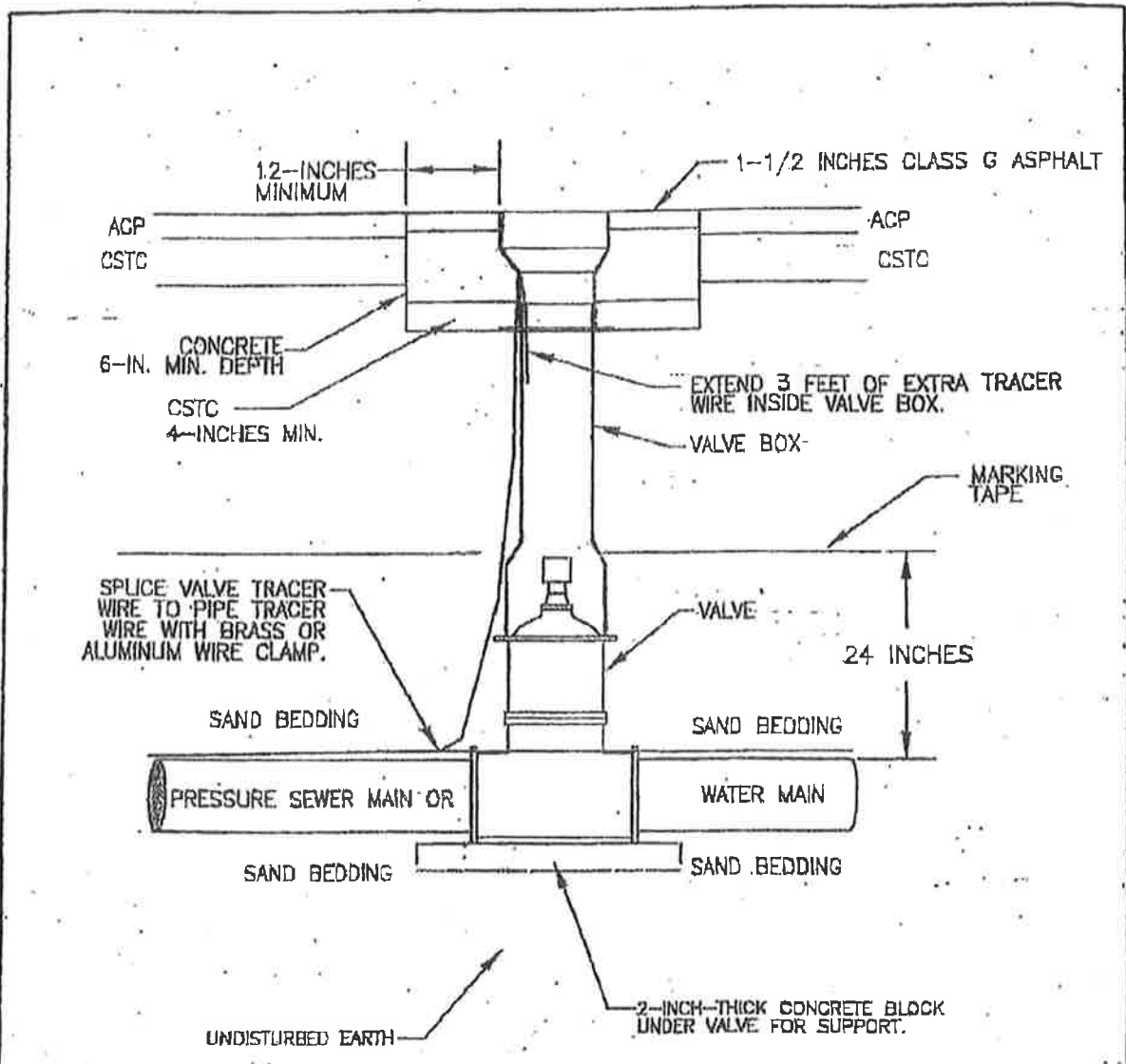


MINIMUM TRENCH WIDTH - "W"		
IRRIGATION AND DOMESTIC WATER MAINS		
MINIMUM TRENCH WIDTH FOR MAINS IS PIPE SIZE PLUS 18 INCHES. ALL TRENCHES SHALL MEET WAC CHAPTER 296-155 FOR CONSTRUCTION WORK.		
	MINIMUM PIPE COVER "L"	MINIMUM PIPE DIAMETER "D"
IRRIGATION / WATER MAINS	42 INCHES	8 INCH
IRRIGATION / WATER SERVICES	42 INCHES	3/4 INCH
IRRIGATION / WATER SERVICES	42 INCHES	1 - 2 INCH
IRRIGATION SERVICES	42 INCHES	2 INCH +

**NOTES:**

1. TRACER WIRE SHALL BE TAPED AT 10-FOOT INTERVALS TO THE TOP OF ALL IRRIGATION AND DOMESTIC PRESSURE MAINS.
2. BEDDING MATERIAL SHALL BE PLACED UNDER ALL PIPE PRIOR TO PLACING PIPE.
3. TRENCHES MAY BE BACKFILLED WITH CONTROLLED DENSITY FILL.
4. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE SPECIFICATIONS AND BE APPROVED BY THE BADGER MOUNTAIN IRRIGATION DISTRICT.

DATE	REVISION	BY
<b>TRENCHING AND BEDDING</b>		
BADGER MOUNTAIN IRRIGATION DISTRICT		
DRAWN RI	BMD	
SCALE NONE	B-4	
DATE 01-08	PROJECT COUNTY	MANIPULATOR



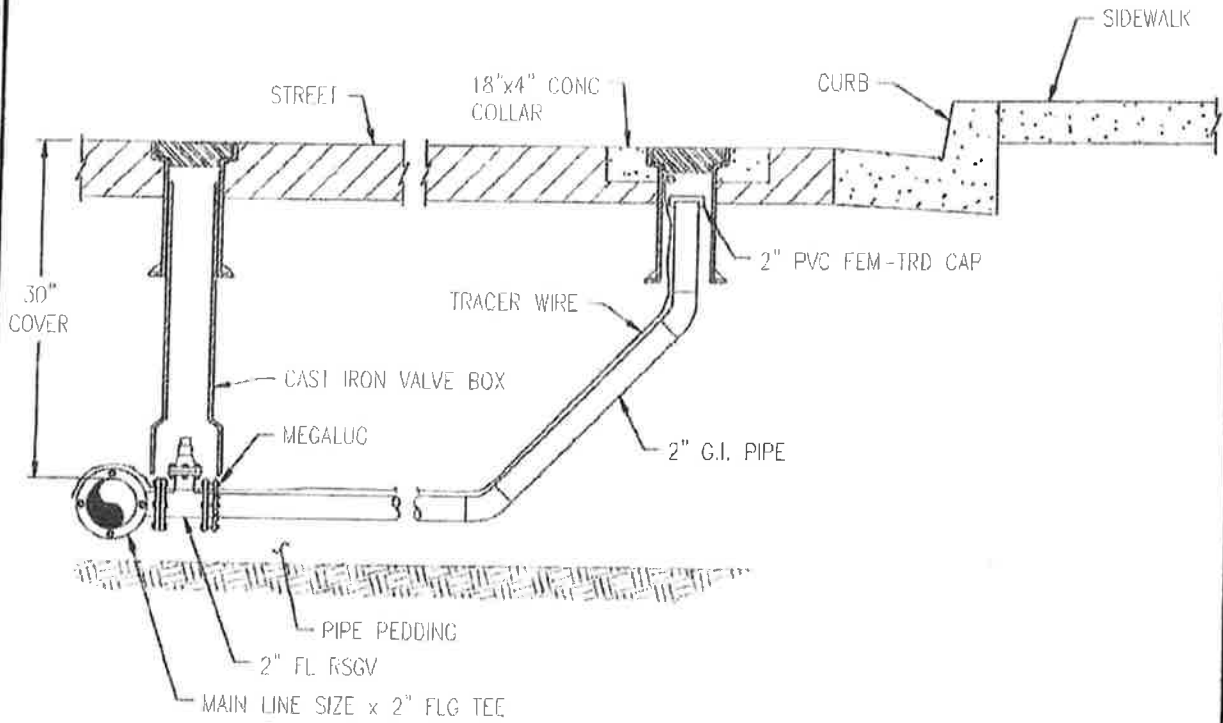
NOTES:

1. TRACER WIRE SHALL BE TAPED AT 10-FOOT INTERVALS TO THE TOP OF ALL NON-METALLIC MAINS AND ON WATER SERVICE LINES UP TO WATER METER TILE.
2. VALVE BOX AND LID SHALL BE SET 1/4 INCH BELOW FINISH GRADE IN ASPHALT AREAS. SET VALVE BOX TO GRADE IN UNPAVED AREAS AND CENTER IN A CONCRETE PAD SLOPED IN DIRECTION OF TRAVEL WITH A MINIMUM DEPTH OF 6 INCHES AND A MINIMUM WIDTH OF 1 FOOT AROUND OUTSIDE OF VALVE BOX.
3. VALVE OPERATING NUT MORE THAN 4 FEET BELOW GRADE SHALL HAVE AN APPROVED EXTENSION INSTALLED TO BRING TOP OF OPERATING NUT TO 24 INCHES TO 36 INCHES BELOW FINISH GRADE.
4. ALL CONSTRUCTION AND MATERIALS SHALL MEET THE SPECIFICATIONS AND BE APPROVED BY THE BADGER MOUNTAIN IRRIGATION DISTRICT

DATE	REVISION	BY
<b>VALVE AND TRACER WIRE INSTALLATION</b>		
BADGER MOUNTAIN IRRIGATION DISTRICT		
<small>DRAWN</small> RLG <small>CHECK</small> GH <small>SCALE</small> NONE <small>DATE</small> 01-08	BMD	B-5

RECLAIMED WATER  
DO NOT DRINK

DETAIL 1 (LOCKING VALVE BOX COVER)  
SCALE: NONE



DATE:  
01-21-22

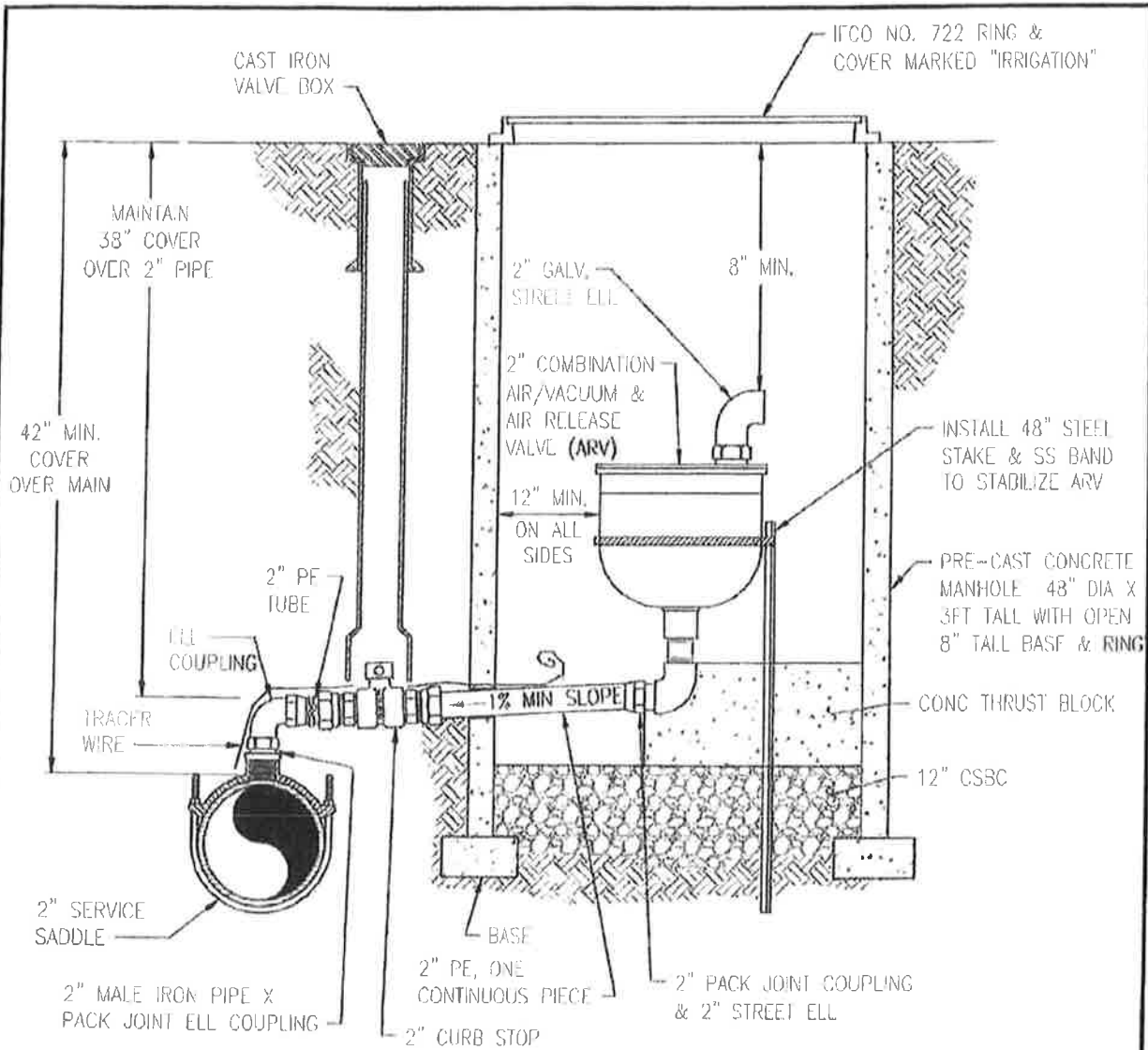
DRAWN BY:  
JUR

CHECKED BY:  
JUR

**BMID**  
**BLOW-OFF ASSEMBLY**



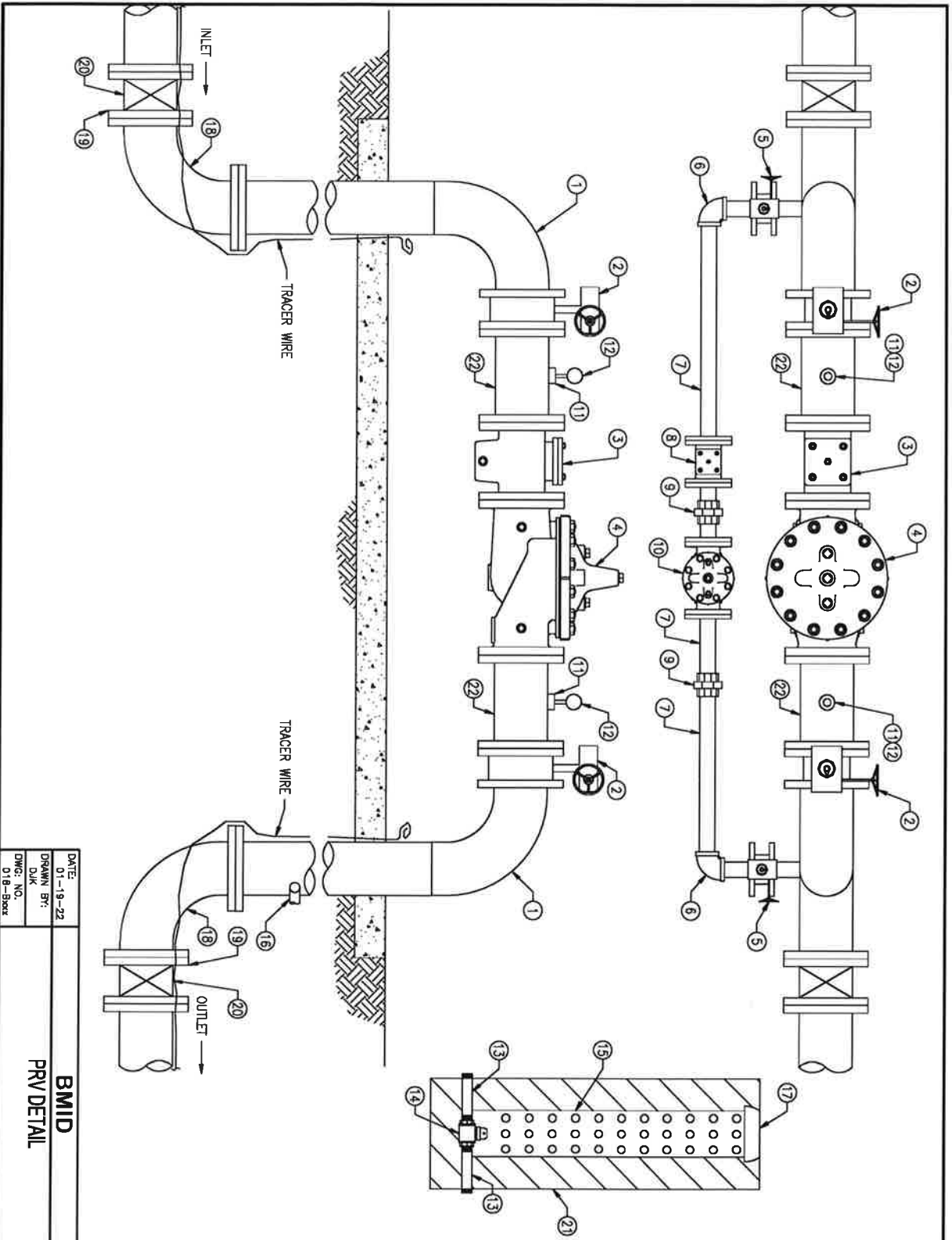
10 SOUTH AUBURN  
KENNEWICK, WA 99336  
(509) 582-2200



**NOTES:**

1. ARV SHALL BE APCO #145C.
2. GROUT ALL PENETRATIONS.
3. CURB STOP VALVE & COUPLINGS SHALL BE FORD OR MUELLER BRAND. SADDLE SHALL BE FORD FS202, SMITH/BLAIR 317, OR ROMAC 202S STAINLESS STEEL. PE PIPE TO BE 200 PSI, COPPER O.D.
4. BLOW OFF STRAINER SHALL BE 2" MALE THREADED STRAINER WITH SCREENING.

DATE 01-24-22	<b>BMID</b>  <b>2" COMBINATION AIR &amp; VACUUM VALVE ASSEMBLY (ARV)</b>	<b>HALL ENGINEERING ASSOCIATES</b>	10 SOUTH AUBURN
DRAWN BY BJK			KENNEWICK, WA 99336
DWG. NO. DTE-ANEX			(509) 582-2200



**ITEM LIST**

- ① 6" 90° BEND (FLPE)
- ② BUTTERFLY VALVE (FLFL)
- ③ STRAINER (FLFL)
- ④ 6" PRESSURE REDUCING VALVE, CLA-VAL 90-01 (FLFL)
- ⑤ 2" BUTTERFLY VALVE
- ⑥ 2" 90° BEND
- ⑦ 2" SPOOL
- ⑧ 2" STRAINER
- ⑨ 2" UNION
- ⑩ 2" PRESSURE REDUCING VALVE, CLA-VAL 90-01
- ⑪ 2" THREADED 1/2" COUPLER FOR ARV
- ⑫ PSI GAUGE
- ⑬ 2" X 6" GALV. NIPPLE
- ⑭ 2" CURB STOP
- ⑮ 6" PERF SEWER PIPE
- ⑯ 2" HALF COUPLER (THREADED WITH 2" CURB STOP, 6" GALV NIPPLE
- ⑰ 6" CAP
- ⑱ 6" RESTRAINED JOINT 90° BEND
- ⑲ 6" RESTRAINED JOINT ADAPTER
- ⑳ 6" GATE VALVE
- ㉑ DRAIN ROCK
- ㉒ 6"x12" FL SPOOL

DATE: 01-19-22	<b>B MID</b>	<b>PRV DETAIL</b>	<b>HALL ENGINEERING ASSOCIATES</b>	10 SOUTH AUBURN KENNEBICK, WA 98355 (509) 582-2200
DRAWN BY: DAK				
DWG. NO. 01B-SBox				



 **COPY**

Badger Mountain Irrigation District

Benton County, Washington


**Resolution 2004-4**  
**Superseding Resolution 86-7**

A RESOLUTION of the Board of Directors of Badger Mountain Irrigation District adopting a policy for determining costs for extension of services to parcels in the district.

WHEREAS, a property owner(s) which may include developer(s) shall be responsible for all costs associated with installation of proper sized lines and equipment as necessary, with final approval by the District.

ADOPTED by the Board of Directors of Badger Mountain Irrigation District, Benton County, Washington at a regular meeting held this 7<sup>th</sup> day of July 2004.

  
\_\_\_\_\_  
Director

  
\_\_\_\_\_  
Director

  
\_\_\_\_\_  
Director

BADGER MOUNTAIN IRRIGATION DISTRICT

Benton County, Washington

 COPY

RESOLUTION 86-8


A RESOLUTION of the Board of Directors of Badger Mountain Irrigation District adopting a policy for requiring parties platting and/or short platting parcels of land to install irrigation water distribution facilities.

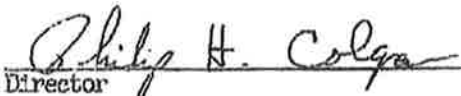
WHEREAS, The Washington State Legislature has adopted HB 1353 amending RW 58.17.310; and

WHEREAS, irrigation facilities in developing lands within the Badger Mountain Irrigation District need to be installed according to district standards, NOW THEREFORE BE IT HEREBY RESOLVED AS FOLLOWS:

Irrigation facilities and equipment necessary for the distribution of irrigation water to all platted properties; shall be installed by the responsible landowner per district standards as determined by the District Manager and approved by the Board of Directors prior to the District approving platting of such properties. As an alternative to installation of the facilities prior to platting and upon written approval from the Board of Directors, the responsible landowner may post bond in an amount equal to the estimated installation costs as determined by the District Manager to guarantee the installation of said facilities.

ADOPTED by the Board of Directors of Badger Mountain Irrigation District, Benton County, Washington at a regular meeting held the 6th day of August 1986.

  
Director

  
Director

  
Director