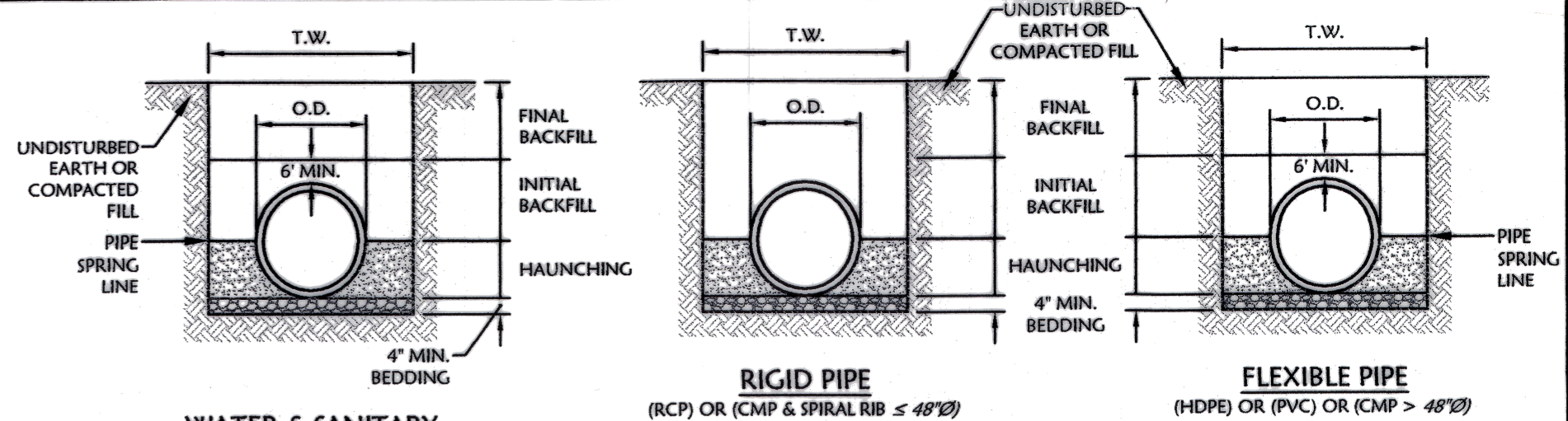


**GENERAL NOTES:**

1. BEDDING SHALL BE DUMPED CLASS A WORKED BY HAND OR CLASS B COMPACTED TO 95% STANDARD PROCTOR LOCAL CODE PERMITTING WITH GEOTECHNICAL ENGINEER AND OWNER APPROVAL. NATIVE SOIL MAY BE USED FOR BEDDING PROVIDED IT MEETS THE EMBEDMENT AND BACKFILL MATERIALS IN TABLE 1 EXCLUDING CLASS A-A.
2. HAUNCHING SHALL BE WORKED AROUND THE PIPE BY HAND TO ELIMINATE VOIDS AND SHALL BE CLASS A, OR CLASS B OR CLASS C COMPACTED TO 95% STANDARD PROCTOR. PER GRAVEL SHALL NOT BE USED AS A HAUNCHING MATERIAL. CLASS B MATERIAL SHALL BE ALLOWED FOR RIGID PIPE COMPACTED AT 95% STANDARD PROCTOR.
3. INITIAL BACKFILL SHALL BE CLASS A WORKED BY HAND OR CLASS B OR CLASS C COMPACTED TO 95% STANDARD PROCTOR. CLASS C COMPACTED 95% STANDARD PROCTOR. CLASS B & C MATERIAL SHALL BE USED FOR FLEXIBLE PIPE WHEN FILL HEIGHTS EXCEED 2'.
4. FINAL BACKFILL SHALL BE CLASS A WORKED BY HAND OR CLASS B OR CLASS C COMPACTED TO 95% STANDARD PROCTOR. CLASS B COMPACTED 95% STANDARD PROCTOR. CLASS C COMPACTED 95% STANDARD PROCTOR.
5. FINAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS B-A COMPACTED TO 95% STANDARD PROCTOR.
6. ALL MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH ASTM D 2321. (SEE TABLE 1)
7. ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 6" LIFT LIFTS IN ACCORDANCE WITH ASTM D 1557. CLASS B AND A MATERIAL SHALL BE COMPACTED NEAR OPTIMUM MOISTURE CONTENT.
8. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS AND ROCK LARGER THAN 1".
9. ALL TRENCH EXCAVATIONS SHALL BE SHORED, SHIELD, BRACED, OR OTHERWISE SUPPORTED IN ACCORDANCE WITH LOCAL REGULATIONS AND LOCAL ORDINANCES.
10. DESIGN ENGINEER SHALL DISSEMINATE ON THE PLACE WHERE WATER TIGHT JOINTS ARE TO BE REQUIRED.
11. REPLACE WET OR UNDESIRABLE SOIL AS NECESSARY TO PROVIDE A SUFFICIENT BEDDING MATERIAL BETWEEN 4" & 6" THICK.
12. WHERE GROUND WATER IS PRESENT CLASS A MATERIAL SHALL BE WRAPPED WITH A NON-WOVEN GEO-TEXTILE, INCLUDING BEDDING MATERIAL BETWEEN 4" & 6" THICK.
13. CONTRACTOR SHALL REFER TO GEOTECHNICAL REPORT FOR SOIL TYPE AND CHARACTERISTICS FOR THIS PROJECT.
14. CONTRACTOR SHALL REFER TO THE LATEST VERSION OF ASTM STANDARDS PRIOR TO CONSTRUCTION.

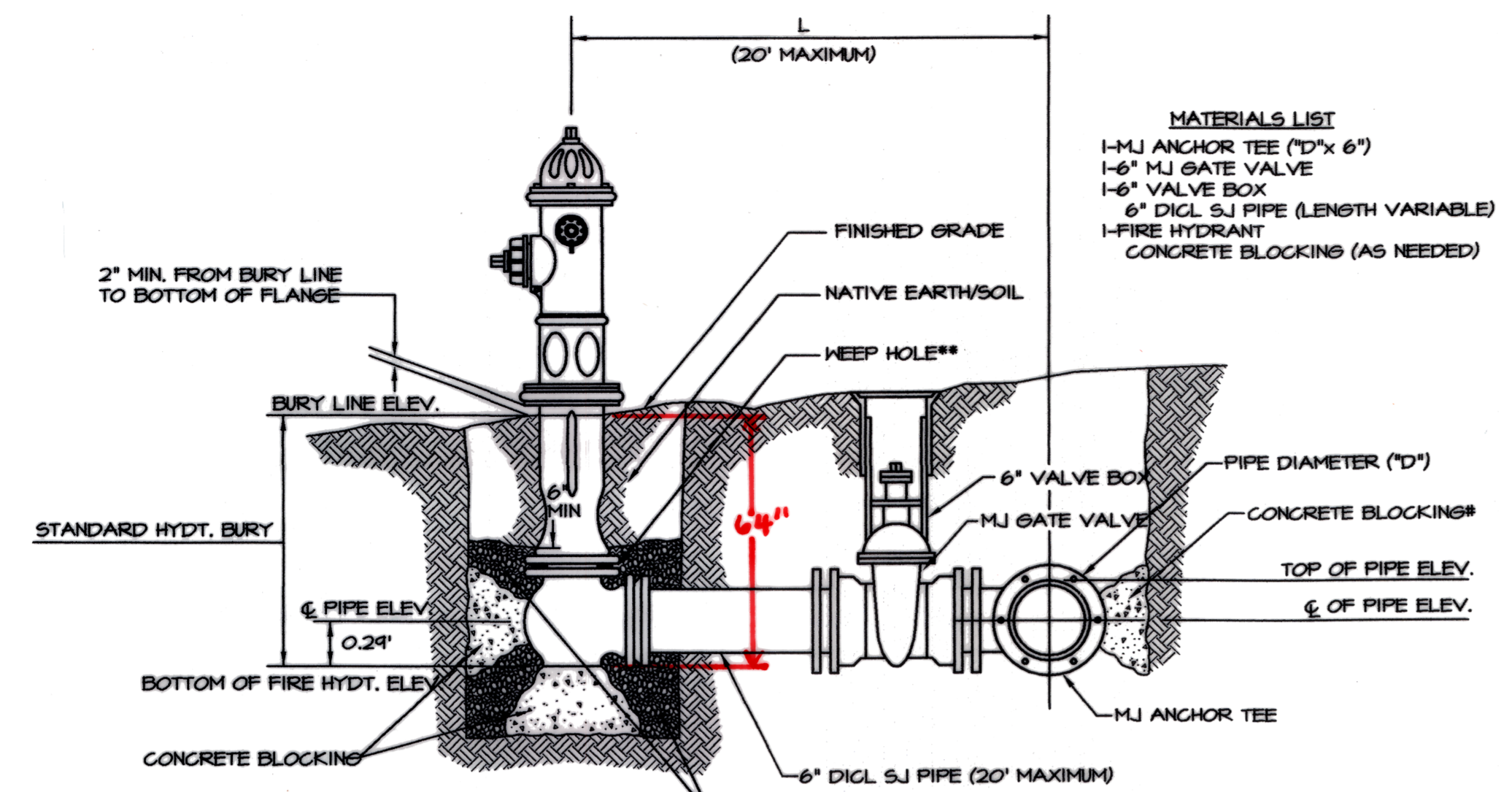


**NOTE:**  
MINIMUM TRENCH WIDTH (T.W.) SHALL BE THE GREATER OF (1.25 O.D. + 12") OR (O.D. + 16")

**TABLE 1: CLASSES OF EMBEDMENT AND BACKFILL MATERIALS**

ASTM D 2321 MATERIAL CLASS	ASTM D 2487 SOIL GROUP	MATERIAL TYPE	% PASSING			ATTEMPTING LIMITS	
			1 1/2 IN.	NO. 4	NO. 200	LL	PI
IA	NONE	MANUFACTURED OPEN GRADED AGGREGATE	100%	<10%	<5%		NON PLASTIC
IB	NONE	MANUFACTURED OPEN GRADED AGGREGATE	100%	<50%	<5%		NON PLASTIC
II	GW	COARSE-GRAINED SOILS, CLEAN	100%	<50% OF "COARSE FRACTION"	<5%		NON PLASTIC
				>50% OF "COARSE FRACTION"			
III	GM	COARSE-GRAINED SOILS W/ FINES	100%	<50% OF "COARSE FRACTION"	15% TO 50%		<50
				>50% OF "COARSE FRACTION"			>4 OR <4" LINE
							>7 OR <4" LINE
							<4 OR >4" LINE
IV-A	ML	FINE-GRAINED SOILS	100%	100%	>50%	<50	>7 OR >4" LINE

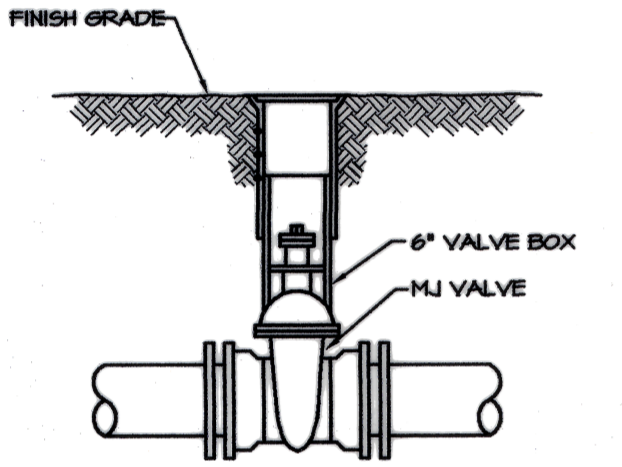
**TRENCH AND BEDDING DETAIL**  
N.T.S.



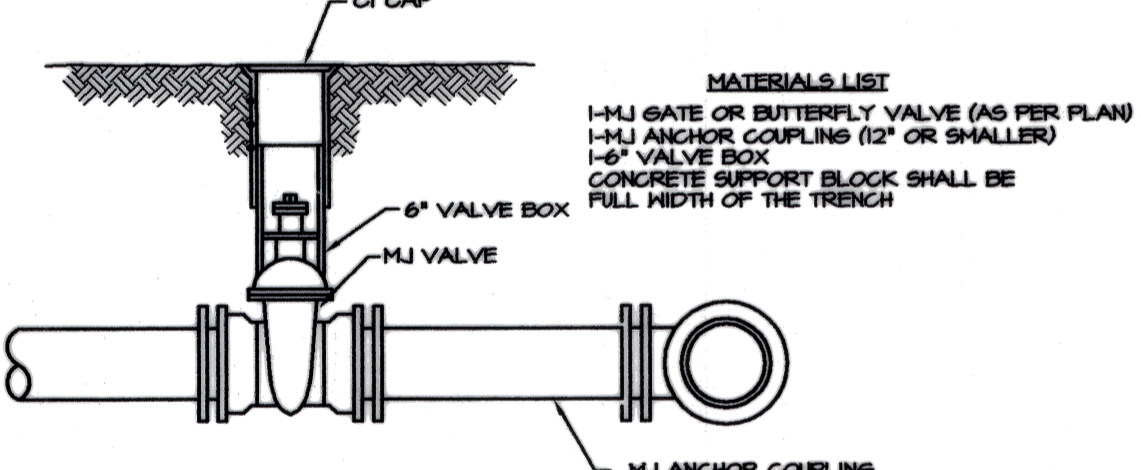
**PEA GRAVEL ## GRADATION REQUIREMENT**

SIEVE SIZE	SPECIFICATION % RETAINED
3/4"	0 - 5
1/2"	5 - 35
3/8"	40 - 85
# 4	95 - 100
# 8	97 - 100

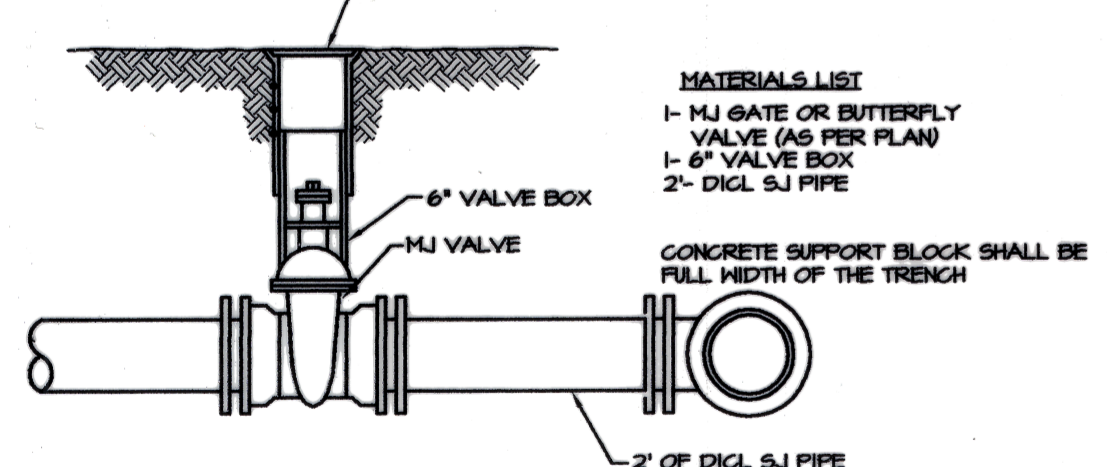
- CAUTION! WEEP HOLES TO BE KEPT CLEAR DURING CONSTRUCTION AND BACKFILL. CONCRETE FOR THRUST BLOCKING SHALL NOT OBSTRUCT WEEP HOLES.
- CONCRETE THRUST BLOCKING SHALL BE KEPT CLEAR OF BOLTS, NUTS, AND M.J. ACCESSORIES.
- IF HYDRANT BURY IS IN EXCESS OF 5', CONTRACTOR SHALL USE STANDARD 5' HYDRANT BURY AND HYDRANT BARREL EXTENSIONS AS NECESSARY.
- MINIMUM 1 CU. FT. PER WEEP HOLE



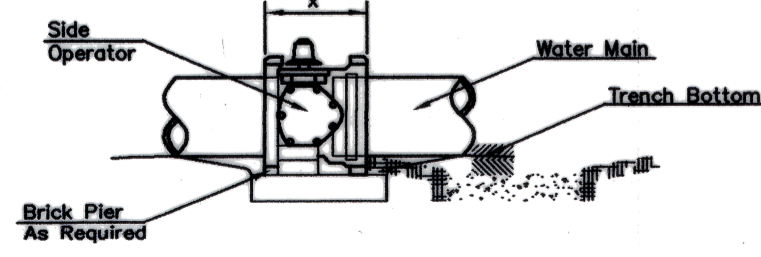
**LINE VALVE ASSEMBLY**



**ANCHORED VALVE ASSEMBLY**

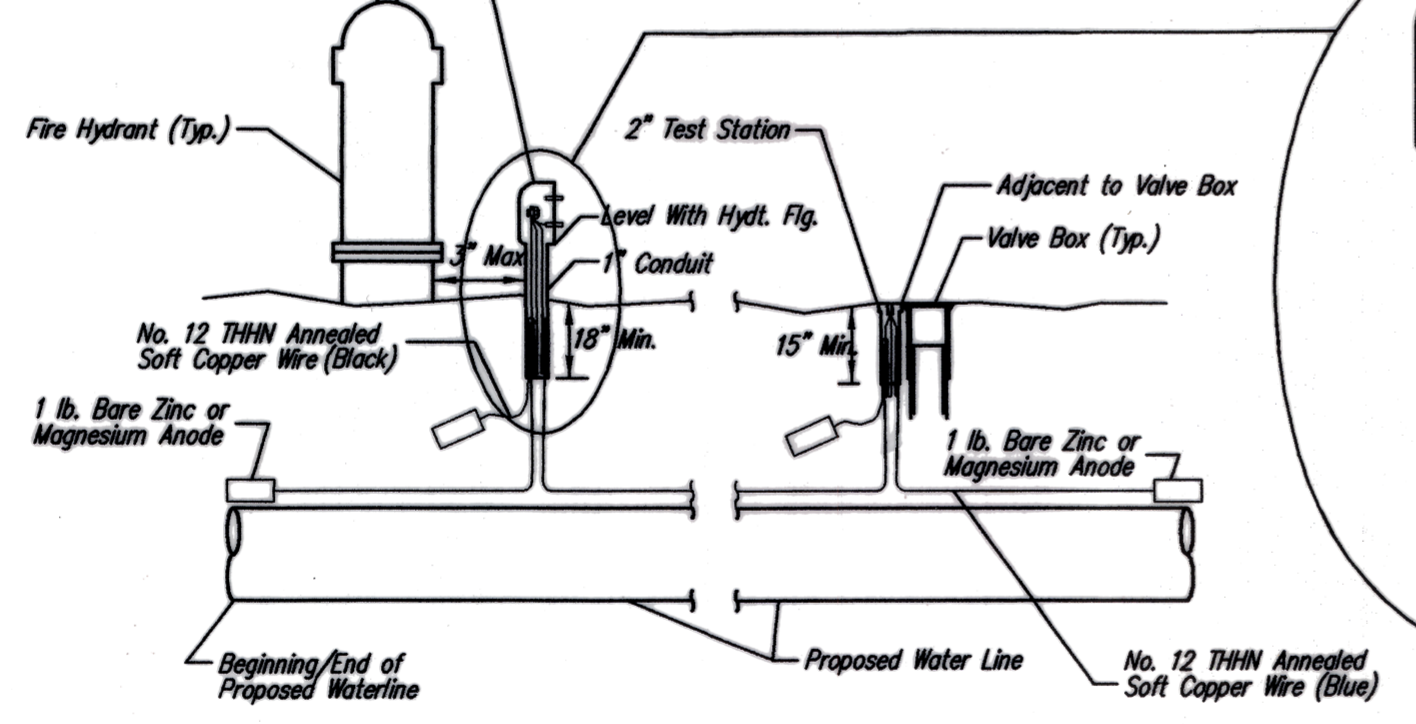


**VALVE ASSEMBLY**



**CONCRETE SUPPORT BLOCKING FOR BUTTERFLY VALVE INSTALLATION**

**FIRE HYDRANT ASSEMBLY PER CITY OF WICHITA SPECIFICATIONS**



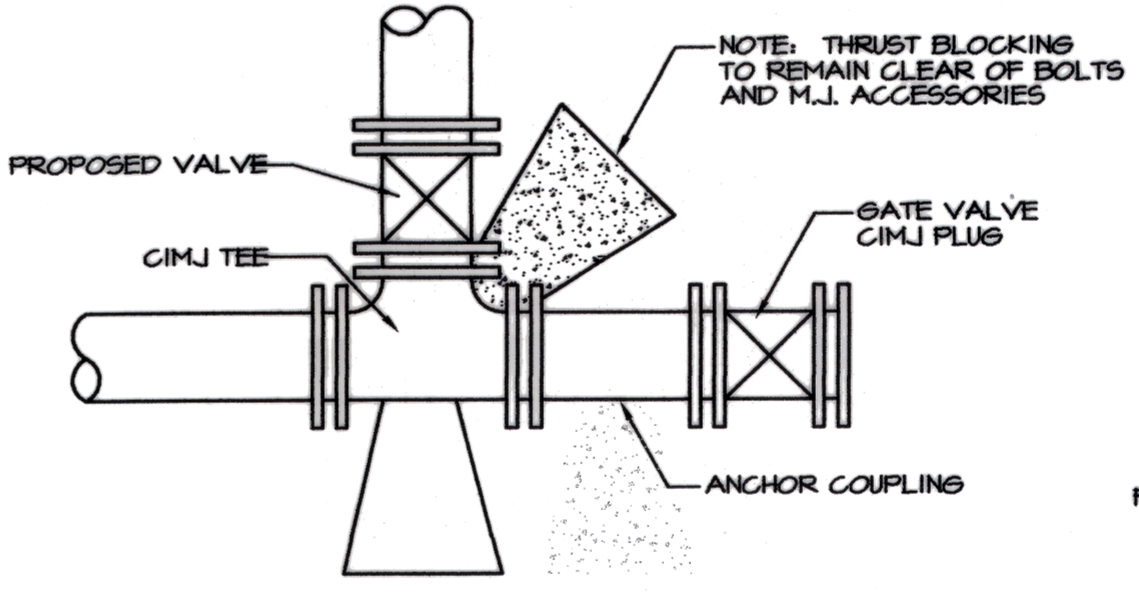
**TRACER WIRE**  
Conductive type pipe locator/tracer wire shall be installed to locate all waterline pipe regardless of pipe material. The wire shall extend the entire length of the proposed pipe. The wire shall be taped to the waterline and pulled with the pipe. Split-bolt connectors shall be used at splice locations. Electrical tape shall cover all splices so no bare wire is exposed. Test stations shall be installed adjacent to all fire hydrants along the waterline and at blowoffs or valves near the ends of the waterlines. Any exceptions to the location of test stations shall be approved by the engineer. At each test station, the tracer wire shall be connected to a 1 lb. Zinc or magnesium anode. Anodes shall also be attached to the tracer wire at both the beginning and the end of the proposed waterline. A typical layout of the tracer wire and test station is provided in the above figure.

**WIRE**  
The tracer wire shall be Blue No. 12 THHN annealed soft copper wire with thermal plastic insulation. The insulation shall be heat, oil, and gasoline resistant as manufactured by Temple Electric or approved equal. To allow for grade adjustment, a minimum of 12" of excess wire shall be coiled at the bottom of the test station for all wires. The insulation sheathing shall be removed such that 1" bare copper wire is exposed at all points of connection. Contractor shall attach wire being installed with proposed water main to any tracer wire installed with adjacent waterline projects.

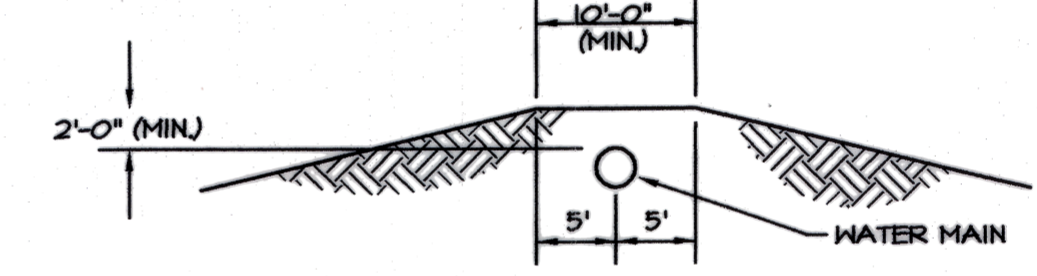
**TEST STATIONS**  
The test station for fire hydrant applications shall be a 1 inch galvanized conduit style test station as manufactured by AGRA Industries with a removable solid cover having two leads extending from the face or approved equal. The test station for valve applications shall be 2 inch flush style test station T2PS3B as manufactured by HANDLEY Industries or approved equal. The conduit style shall be attached to a 1 inch rigid galvanized conduit with a minimum length of 36" and plastic end bushing. The flush style shall have the word "WATER" stamped or molded into the lid. All test stations shall be manufactured using molded blue tops or sufficiently coated with blue enamel paint. The tracer wire and the anode wire shall be installed to allow 10 inches of wire within the test station. In concrete environments such as sidewalks or in the downtown area the contractor shall use the flush style test station. The location of all test stations shall be approved by the engineer, recorded, and shown in the as-built drawings.

**ANODES**  
The anodes shall be 1 lb. bare zinc or magnesium. The anodes shall be buried at the same elevation as the waterline at each test station. The anodes shall be connected to Black No. 12 THHN annealed soft copper wire which shall be extended to the test station.

**TRACER WIRE DETAIL**  
COST IS SUBSIDIARY TO PIPE INSTALLATION

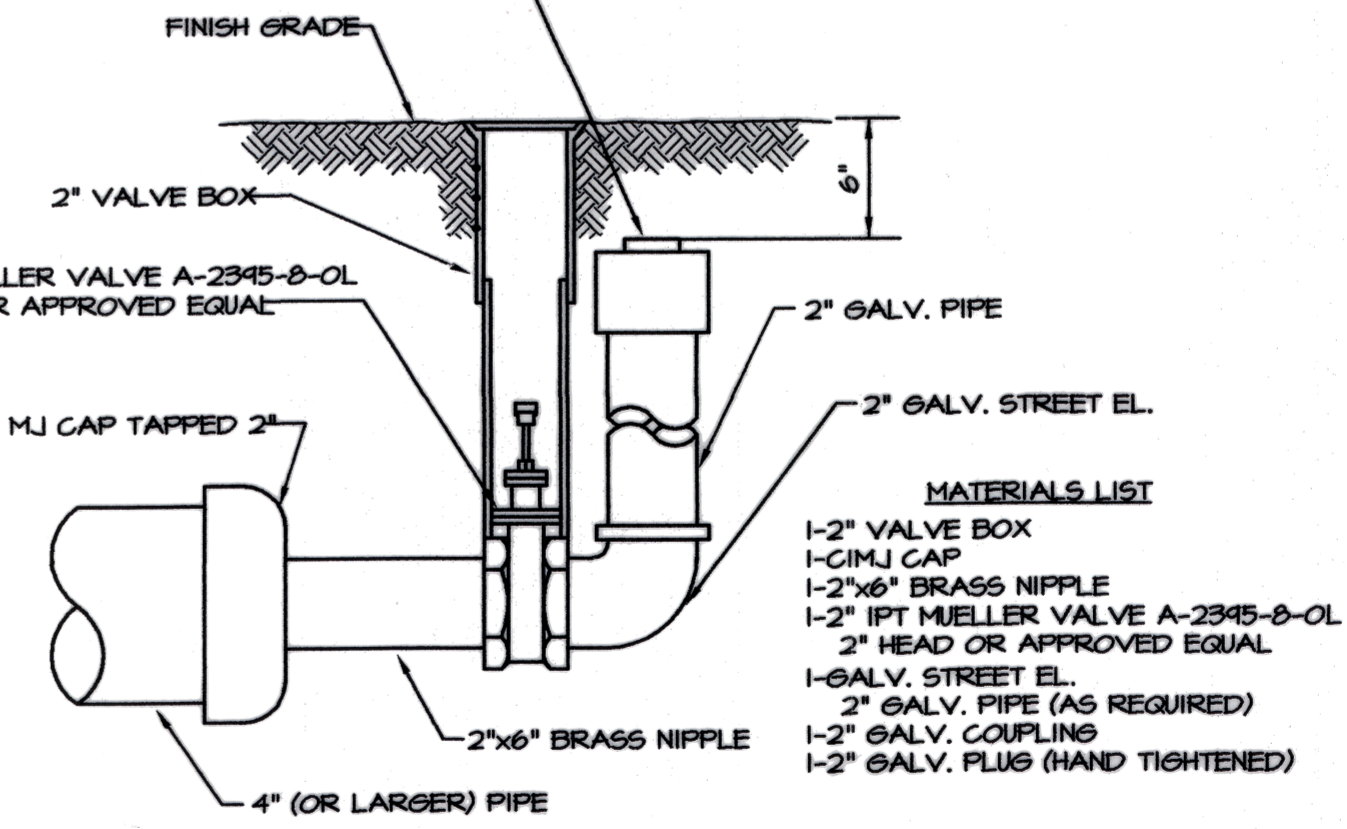


**KEY BLOCK DETAIL**



**PROTECTIVE FILL DETAIL**

MINIMUM PROTECTIVE FILL SHALL BE PROVIDED IN ALL INSTANCES WHERE COVER OVER THE PROP. WATER LINE IS LESS THAN (2) FEET. (COST SUBSIDIARY TO PIPE INSTALLATION)

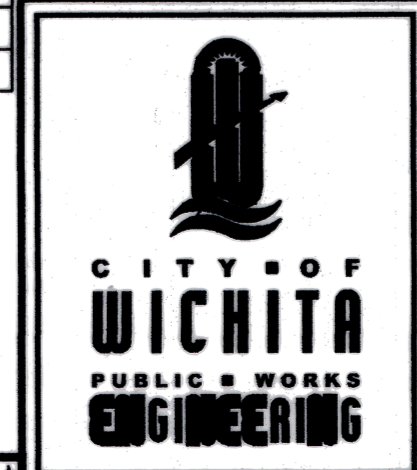


**2" BLOWOFF ASSEMBLY**

**FIRE HYDRANTS REQUIRED**

STATION	BURY LINE ELEVATION	TOP OF PIPE ELEVATION	FIRE HYDRANT BURY REQUIRED

REV: 8-14-01, MCG



**STANDARD WATER DETAILS**

CITY ENGINEER  
**JAMES L. ARMOUR, P.E., L.S.**

PROJECT NUMBER: XXX-XXXXX  
DATE: MM/YY

CITY ENGINEER'S OFFICE  
CITY HALL - SEVENTH FLOOR  
402 NORTH MAIN STREET  
WICHITA, KANSAS 67202-1620  
(316) 268-2501  
(316) 268-4114 FAX

DESIGN: ABC  
DRAWN: DEF  
SHEET: X OF X

DATE: \_\_\_\_\_

DESCRIPTION: \_\_\_\_\_



AS-BUILT PLANS  
Contractor: C.E. Plumbing/Mark Todd Plumbing  
Inspector: Randy Voth, C.E.D.  
Pdef by: C.C., 1-6-2010

DETAIL SHEET  
A NEW FACILITY FOR:  
**EASTSIDE DEVELOPMENT, LLC**  
Maize Rd. N. & W. 29th St. Wichita, Kansas

DRAWN BY: NMS  
APPV. BY: SM  
DWG. NAME: 08-0838 PPW1.dwg  
DATE: 9-9-09  
JOB NO: 08-0838  
SHEET NO: 3