

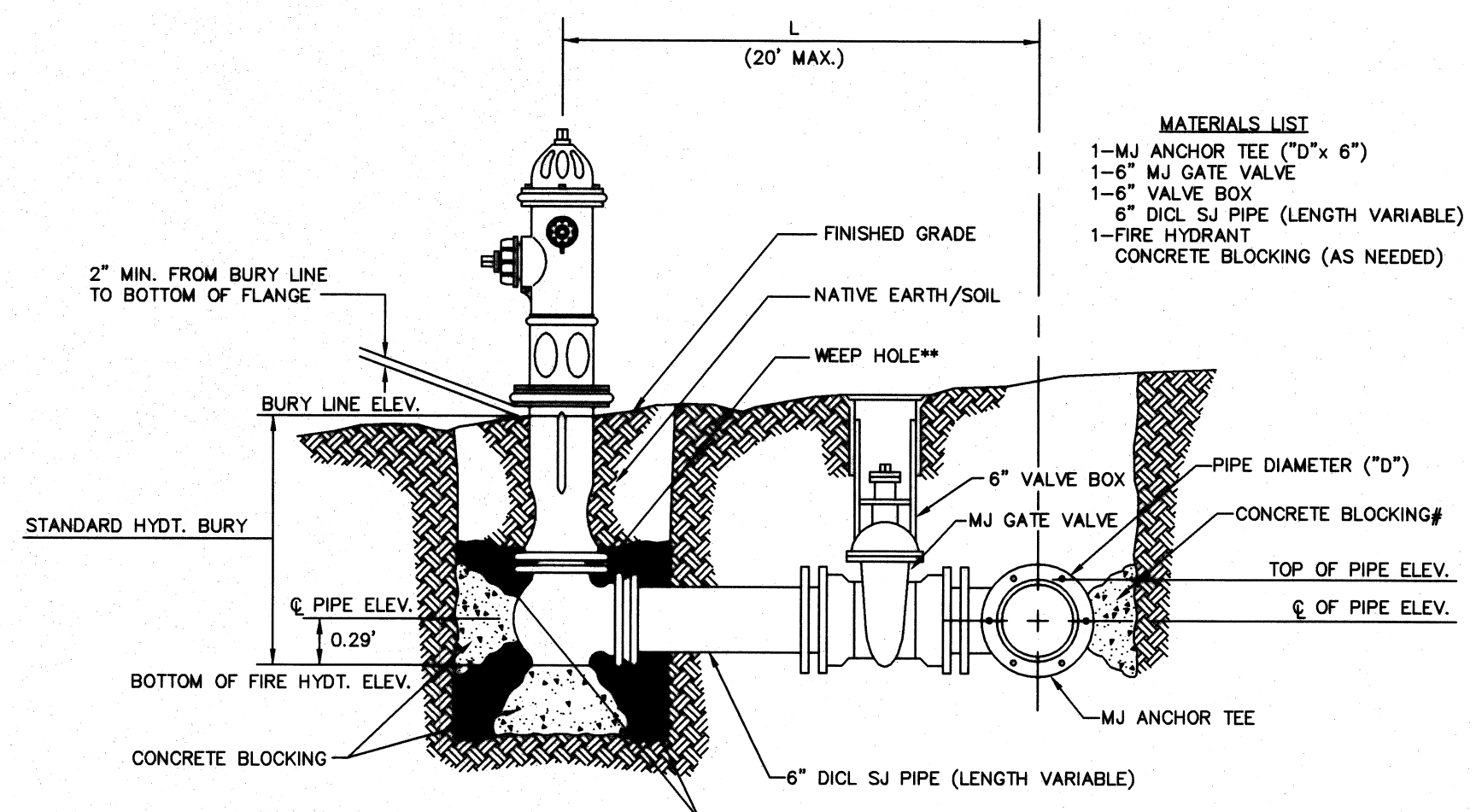
- MATERIALS LIST**
- 1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
  - 1-CMJ CAP WHEN NECESSARY
  - 1-6" VALVE BOX
  - 5' OF PIPE
  - 2 - #6 REINF. BARS
  - CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

**Notes:**

- Concrete Block at Valve to have sufficient bearing in undisturbed soil to prevent thrust movement as shown in table at right. Field Engineer to determine thrust loading of undisturbed soil and final size of thrust block.
- The thrust block shall be constructed such that bolts, nuts, and other MJ accessories are kept clear of concrete.
- All valves at dead ends and at other locations as called out on the plans shall be blocked as shown here.

| THRUST AT VALVES |                                 |
|------------------|---------------------------------|
| VALVE            | THRUST AT 150 #/in <sup>2</sup> |
| 4"               | 1809 lbs.                       |
| 6"               | 4245 lbs.                       |
| 8"               | 7540 lbs.                       |
| 12"              | 16965 lbs.                      |

**ANCHORED VALVE ASSEMBLY, SPECIAL**



- MATERIALS LIST**
- 1-MJ ANCHOR TEE ("D" x 6")
  - 1-6" MJ GATE VALVE
  - 1-6" VALVE BOX
  - 6" DIOL SJ PIPE (LENGTH VARIABLE)
  - 1-FIRE HYDRANT CONCRETE BLOCKING (AS NEEDED)

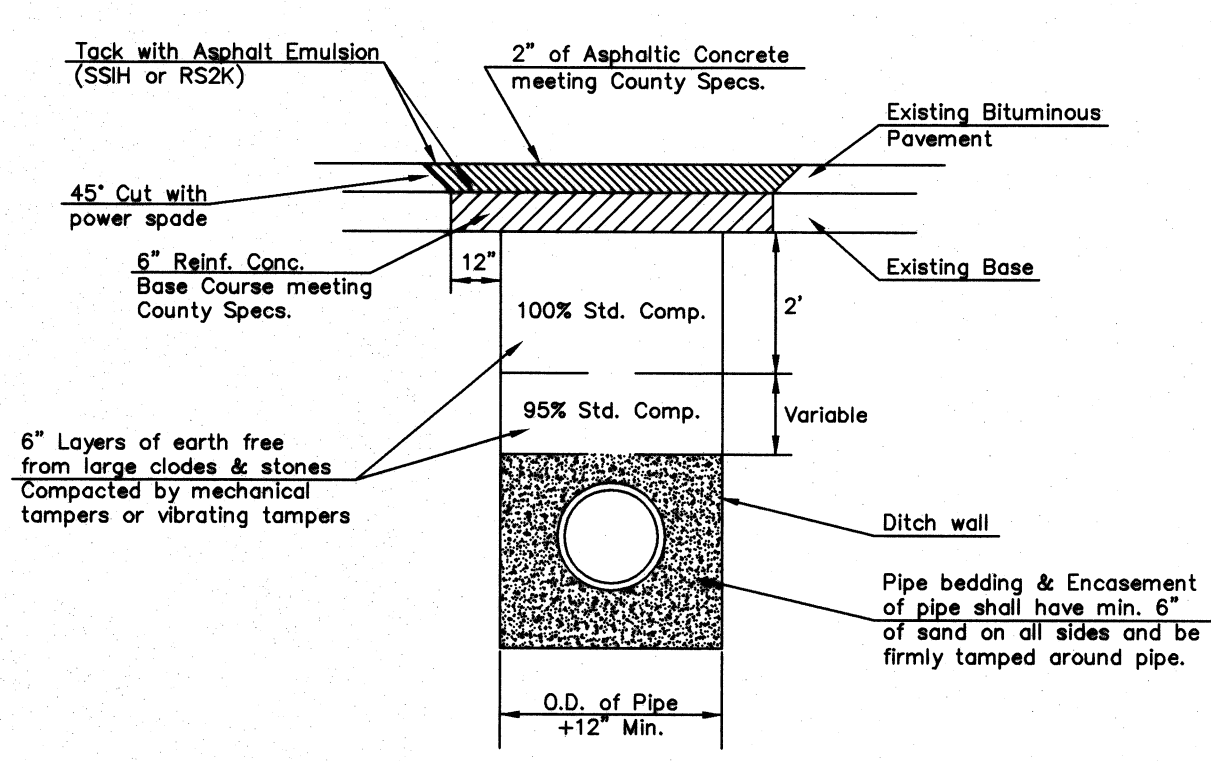
\*\* CAUTION! WEEP HOLES TO BE KEPT CLEAR DURING CONSTRUCTION AND BACKFILL. CONCRETE FOR THRUST BLOCKING SHALL NOT OBSTRUCT WEEP HOLES.

# CONCRETE THRUST BLOCKING SHALL BE KEPT CLEAR OF BOLTS, NUTS, AND MJ ACCESSORIES.

\* IF HYDRANT BURY IS IN EXCESS OF 5', CONTRACTOR SHALL USE STANDARD 5' HYDRANT BURY AND HYDRANT BARREL EXTENSIONS AS NECESSARY.

| FIRE HYDRANTS REQUIRED |                     |                       |                             |
|------------------------|---------------------|-----------------------|-----------------------------|
| STATION                | BURY LINE ELEVATION | TOP OF PIPE ELEVATION | FIRE HYDRANT BURY REQUIRED* |
| 13+69.46               | 1385.75             | 1381.46               | 4.79'                       |
| 24+31.31               | 1386.00             | 1381.78               | 4.72'                       |

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

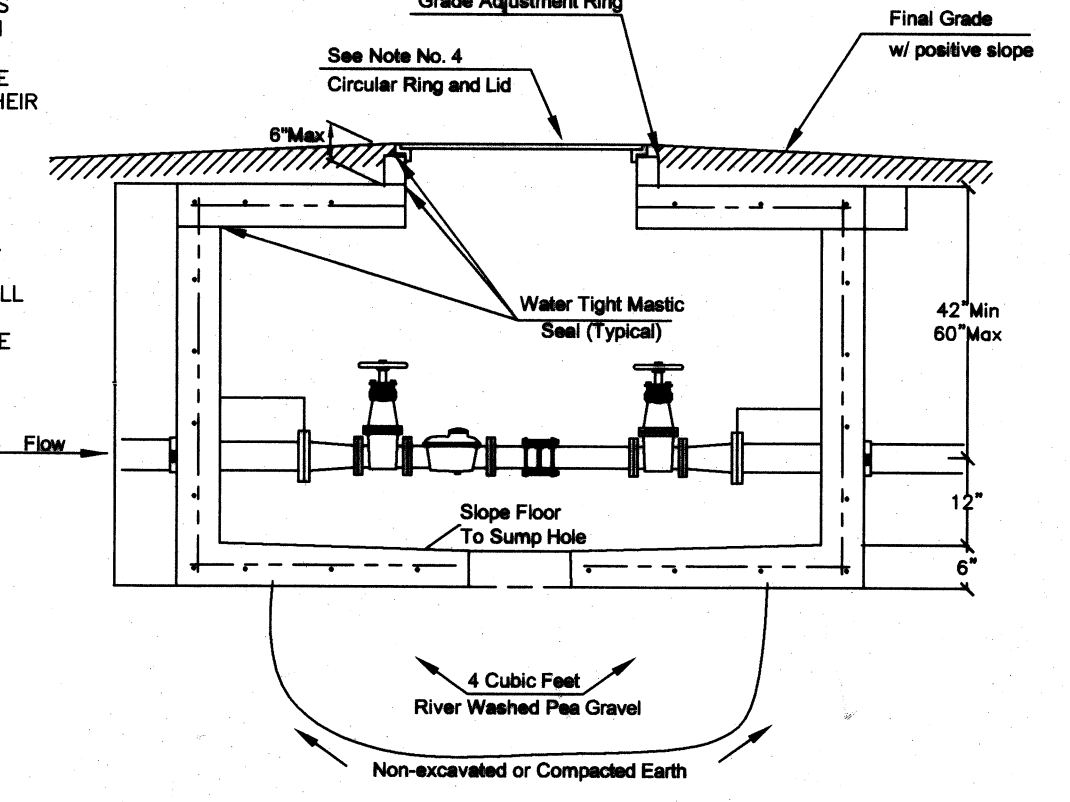
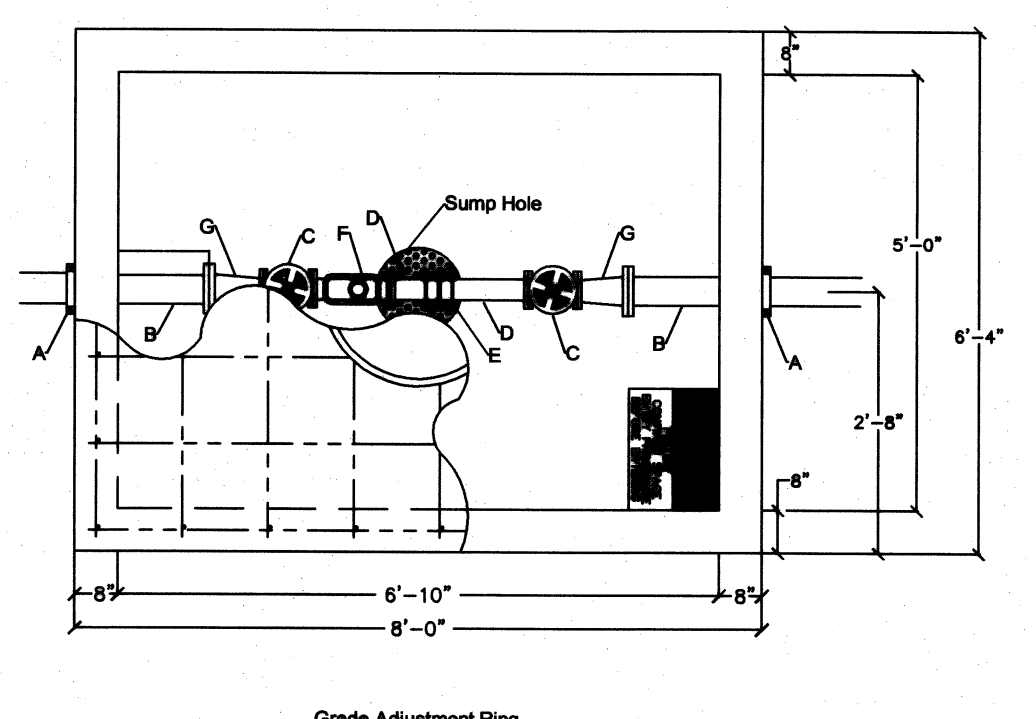


Standard Density Test, as described in the latest addition of ASTM D698, shall be performed to verify the above requirements to the Satisfaction of the Sedgewick County Director of Public Works. All testing cost shall be included in the unit price bid for the pipe in place.

When laying under paving, parallel with the centerline of the street, a minimum of one (1) Standard Density Test shall be performed on each 300 lineal feet of ditch.

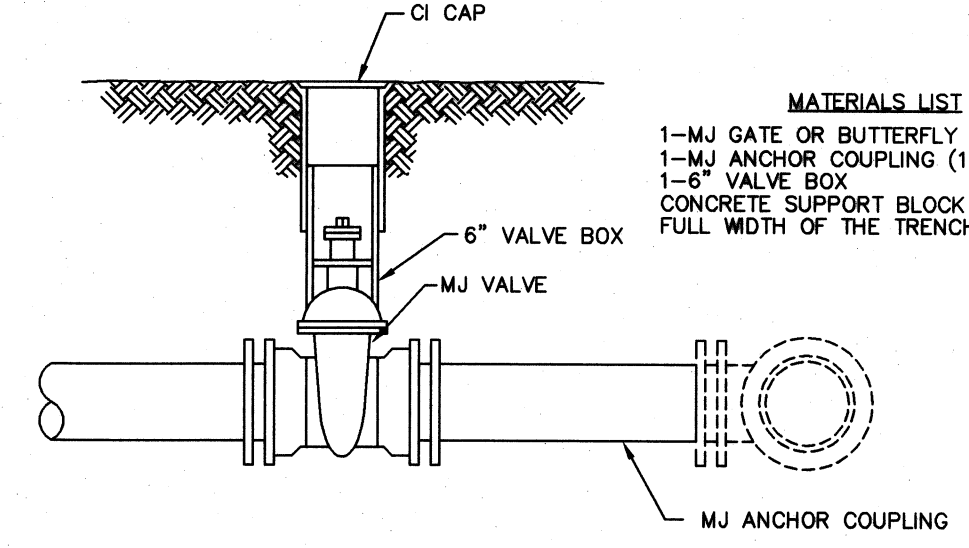
**PAVEMENT REPLACEMENT & DITCH COMPACTION UNDER EXISTING AND PROPOSED COUNTY ROADS**

- NOTES**
- NOT USED
  - THE VAULT SHALL BE POURED CONCRETE, CEMENT BLOCKS (VOIDS TO BE COMPLETELY FILLED WITH 2500 P.S.I. CONCRETE), OR APPROVED PRECAST STRUCTURE (SUCH AS CLUTTER INC. VAULTS APPROVED 8/1/2000). THE INTENT OF THESE DETAILS SHALL NOT BE LIMITED BY DRAWINGS OR STANDARDS OF PRECAST STRUCTURES.
  - NOT USED
  - THE MANHOLE RING AND LID SHALL BE NEENAH R-6034 FRAME WITH TYPE "C" SOLID LID AND DROP DOWN HANDLE OR US FOUNDRY APS-30X30 (ALUMINUM). WHERE APPLICABLE THE STANDARD 10" WICHITA WATER & SEWER PATTERN METER READING LID AND RING SHALL BE LOCATED DIRECTLY ABOVE WATER METER REGISTER. ALL METER REGISTERS SHALL HAVE AN APPROVED LID DIRECTLY VERTICAL ABOVE. ALL JOINTS OF CONCRETE TO CONCRETE OR METAL TO CONCRETE IN THE CONSTRUCTION OF THE VAULT SHALL HAVE AN APPROVED WATER TIGHT MASTIC JOINT SEAL.
  - ANY FITTINGS OR APPURTENANCES REQUIRED TO ACHIEVE PROPER ELEVATION OF PIPE THROUGH THE VAULT SHALL BE PROVIDED BY THE CONTRACTOR AND APPROPRIATELY NOTED ON AS-BUILTS SUBMITTED BY THE INSPECTING ENGINEER. SUCH FITTINGS SHALL BE A MINIMUM OF 2' FROM THE EXTERIOR WALL OF VAULT.
  - THE CONTRACTOR SHALL PROVIDE AN OUTLET FLANGE CONNECTION AS SHOWN 12-INCHES FROM THE INSIDE WALL. INLET AND OUTLET WALL SLEEVES SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AND SHALL BE IN ALIGNMENT WITH ONE ANOTHER. THE INLET AND OUTLET PIPE SHALL BE DUCTILE IRON PIPE, CEMENT LINED, CLASS 150 PER STANDARD SPECIFICATIONS AND SHALL BE CONTINUOUS THROUGH VAULT WALL AND JOINT NO LESS THAN TWO(2) FEET FROM THE EXTERIOR WALL OF VAULT. FLANGES OF INLET AND OUTLET PIPES SHALL BE IN PROPER ALIGNMENT AND BOLT PATTERN SHALL BE ROTATED IN SUCH A WAY THAT VALVES AND OTHER FITTINGS SHALL BE IN THEIR PROPER VERTICAL ALIGNMENT WHEN INSTALLED.
  - NOT USED
  - ALL VALVES, METERS, ASSEMBLIES, AND FITTINGS SHALL BE PROVIDED WITH SUFFICIENT CONCRETE OR OTHER APPROVED SUPPORTS TO THE VAULT FLOOR.
  - THE "CONFINED SPACE WARNING" SIGN SHALL BE FASTENED TO THE TOP OF ALL VAULTS. IF NECESSARY FOR LANDSCAPING OR SITE CONSIDERATIONS, THE SIGN MAY BE FASTENED TO THE VAULT LID IF IT DOES NOT IMPEDE ACCESS TO THE HANDLE. ACCEPTABLE MATERIALS: ALUMINUM 73415HH, PLASTIC 73439HH, OR S.A. VINYL 73463HH.
  - NOT USED.
  - NOT USED.



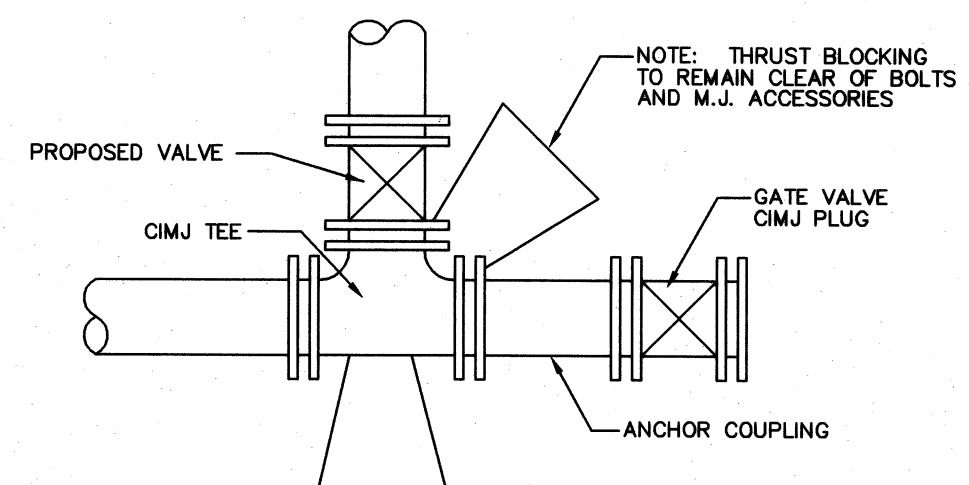
- MATERIALS LIST**
- A - 4" Vault Clamp
  - B - Min. 3" Place of 4" FL x PE DIOL Pipe
  - C - 3" Flange Non-rising Stem Gate Wheel Valve
  - D - 3" FL x PE Pipe
  - E - 3" Flax Coupling
  - F - 3" Badger Recordall II Turbo Cubic Foot Meter with ERT Register or Sensus W-3000R Cubic Foot Meter with AMR Register.
  - G - 3" x 4" FL Reducer

**STANDARD METER VAULT DETAIL**

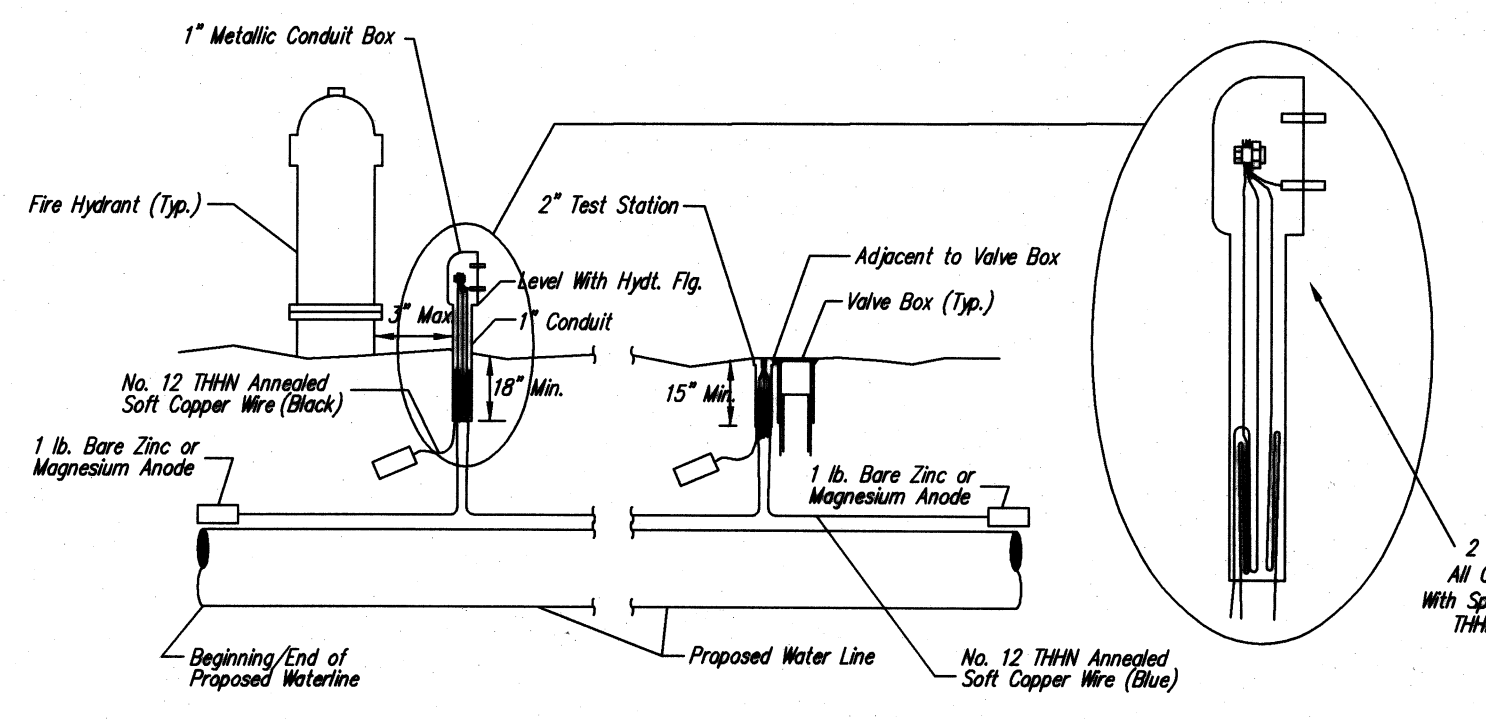


- MATERIALS LIST**
- 1-MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
  - 1-MJ ANCHOR COUPLING (12" OR SMALLER)
  - 1-6" VALVE BOX
  - CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

**ANCHORED VALVE ASSEMBLY**



**KEY BLOCK DETAIL**



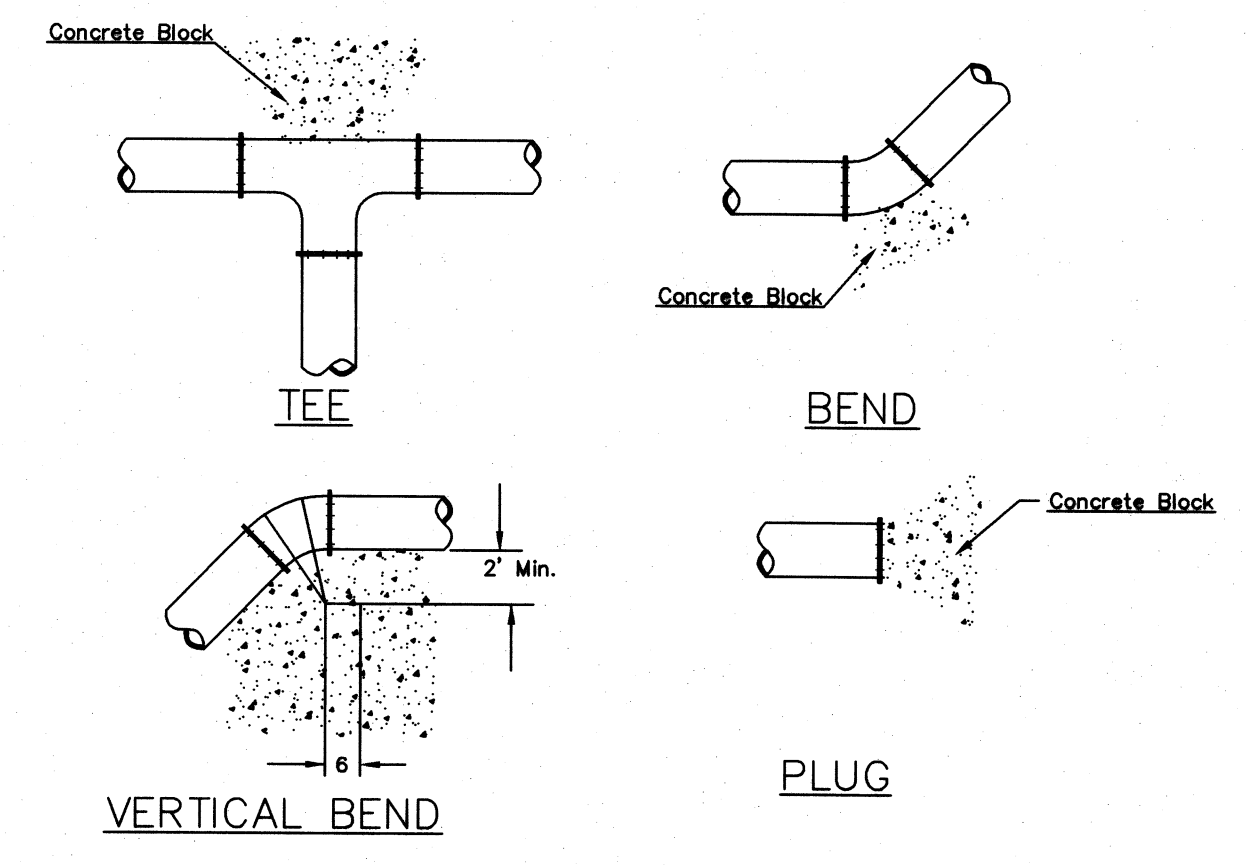
**TRACER WIRE**  
Conductive type pipe locator/tracer wire shall be installed to locate all waterline pipe regardless of pipe material. The wire shall extend the entire length of the proposed pipe. The wire shall be taped to the waterline and pulled with the pipe. Split-bolt connectors shall be used 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.

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 ACRA 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 12PS3B 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.

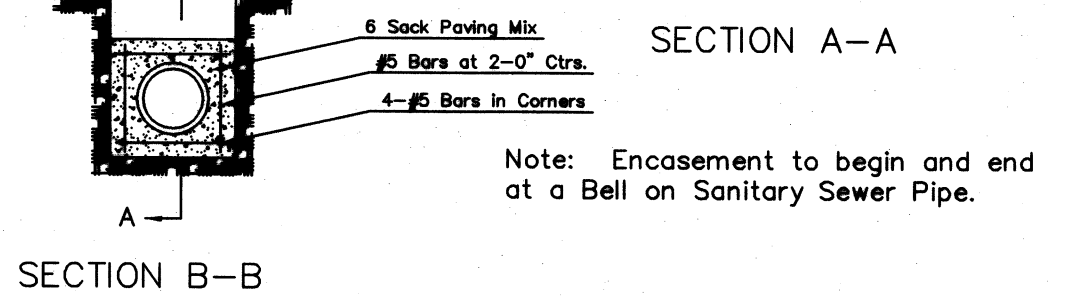
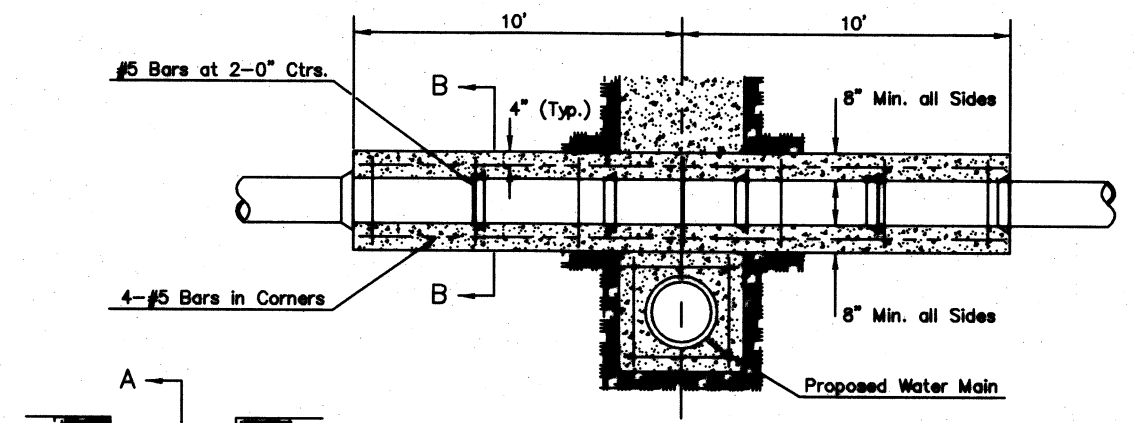
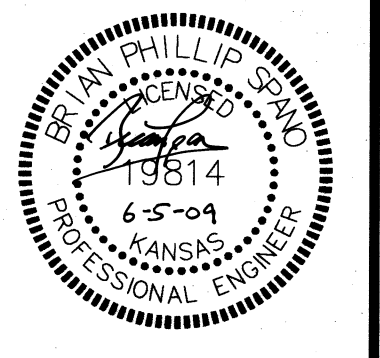
**ANODES**  
The anodes shall be 1 lb. bare zinc or magnesium. The anodes shall be buried at the same elevation as the waterline at each test station. The anodes shall be connected to Black No. 12 THHN annealed soft copper wire which shall be extended to the test station.

**TRACER WIRE DETAIL**

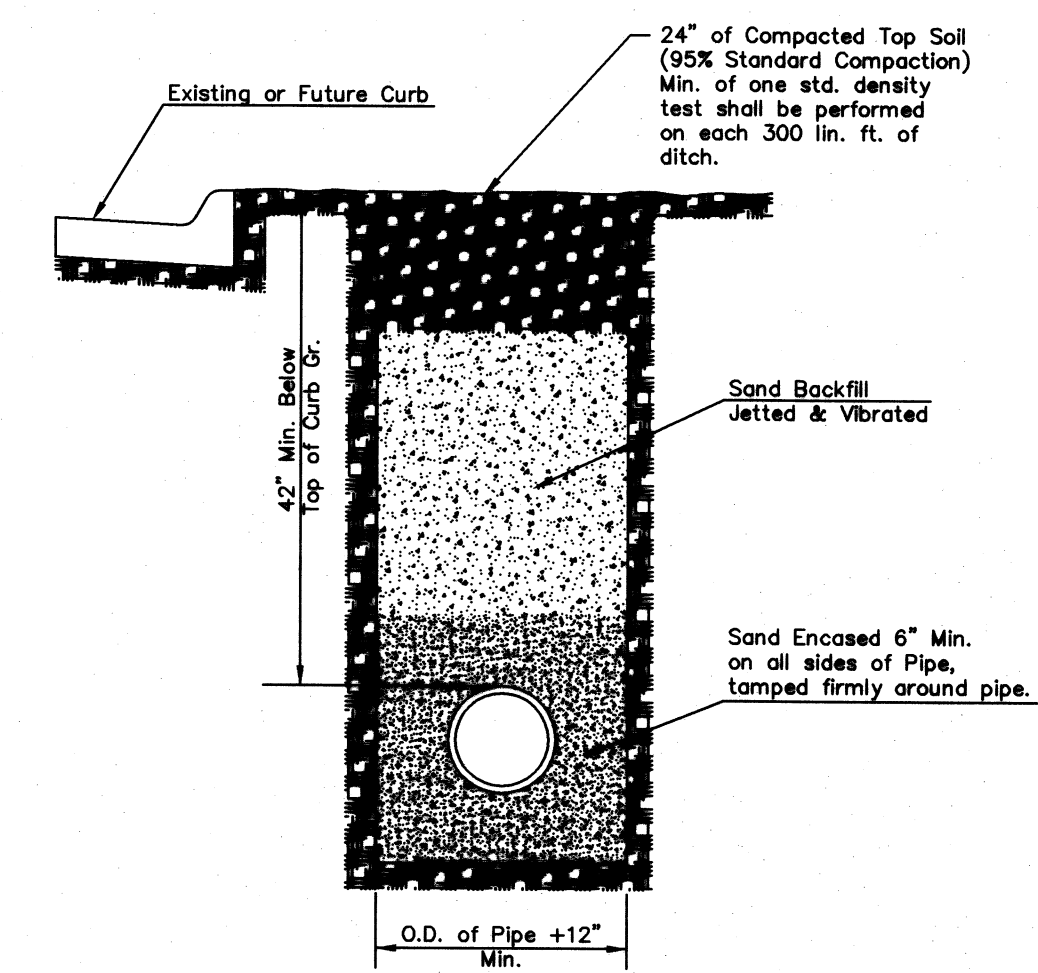


| PIPE SIZE | PLUG  | 90°  | 45°   | 22 1/2° | 11 1/4° | TEE   |
|-----------|-------|------|-------|---------|---------|-------|
| 6"        | 2.8   | 3.95 | 2.15  | 1.09    | .55     | 2.8   |
| 8"        | 4.9   | 6.95 | 3.75  | 1.90    | .96     | 4.9   |
| 12"       | 11.4  | 16.1 | 8.75  | 4.45    | 2.25    | 11.4  |
| 16"       | 20.15 | 28.5 | 15.4  | 7.85    | 3.95    | 20.15 |
| 20"       | 31.15 | 44.0 | 23.85 | 12.15   | 6.10    | 31.15 |
| 24"       | 44.55 | 63.0 | 34.1  | 17.4    | 8.75    | 44.55 |

**TYPICAL THRUST BLOCKS**



**REINFORCED CONCRETE ENCASUREMENT OF SANITARY SEWER**



**SETTLEMENT & COMPACTION ON CITY AND COUNTY ROAD RIGHT-OF-WAY EXCEPT UNDER PAVEMENT**

REVISIONS PER CITY OF WICHITA REVIEW

**WILSON & COMPANY**  
Engineers & Architects

1700 East Iron - Salina, Kansas 67401  
Tel 785 - 827-0433 Fax 785 - 827-5949

**FACILITY IMPROVEMENTS**  
CIRCLE UNIFIED SCHOOL DISTRICT U.S.D. NO 375  
GREENWICH ROAD  
NEW ELEMENTARY SCHOOL

|                           |
|---------------------------|
| DESIGN<br>DAG             |
| DRAWN<br>TMH              |
| DATE<br>April 09          |
| FILE NO.<br>08-500-037-00 |

SHEET NO.  
**C2.4**