

| BENDS | "8" | "10" | "12" | "14" | "16" |
|-------------|-----|------|------|------|------|
| 6"-11 1/4" | 8" | 15" | 12" | 24" | 10" |
| 8"-22 1/2" | 8" | 19" | 12" | 24" | 18" |
| 8"-45" | 8" | 30" | 12" | 24" | 15" |
| 8"-90" | 8" | 30" | 12" | 24" | 28" |
| 8"-11 1/4" | 8" | 20" | 12" | 24" | 10" |
| 8"-22 1/2" | 8" | 30" | 12" | 24" | 18" |
| 8"-45" | 8" | 31" | 12" | 24" | 15" |
| 8"-90" | 8" | 38" | 12" | 24" | 28" |
| 12"-11 1/4" | 8" | 30" | 12" | 24" | 18" |
| 12"-22 1/2" | 8" | 30" | 12" | 24" | 25" |
| 12"-45" | 8" | 40" | 12" | 24" | 40" |
| 12"-90" | 8" | 60" | 12" | 24" | 55" |
| 16"-11 1/4" | TL | 28" | 20" | 24" | 28" |
| 16"-22 1/2" | TL | 38" | 20" | 24" | 38" |
| 16"-45" | TL | 50" | 20" | 24" | 55" |
| 16"-90" | TL | 91" | 20" | 24" | 60" |
| 20"-11 1/4" | TL | 34" | 24" | 28" | 28" |
| 20"-22 1/2" | TL | 48" | 24" | 28" | 38" |
| 20"-45" | TL | 74" | 24" | 28" | 55" |
| 20"-90" | TL | 136" | 24" | 28" | 60" |
| 24"-11 1/4" | TL | 40" | 28" | 32" | 40" |
| 24"-22 1/2" | TL | 56" | 28" | 32" | 56" |
| 24"-45" | TL | 101" | 28" | 32" | 60" |
| 24"-90" | TL | 188" | 28" | 32" | 60" |
| 30"-11 1/4" | TL | 45" | 34" | 30" | 48" |
| 30"-22 1/2" | TL | 79" | 34" | 30" | 60" |
| 30"-45" | TL | 154" | 34" | 30" | 60" |
| 30"-90" | TL | 285" | 34" | 30" | 60" |

| TEES | "10" | "12" | "14" | "16" | "18" |
|-------------|------|------|------|------|------|
| 6"x6"x6" | 12" | 24" | 24" | 18" | |
| 8"x8"x8" | 12" | 24" | 24" | 18" | |
| 8"x8"x8" | 12" | 24" | 24" | 18" | |
| 12"x12"x12" | 12" | 24" | 24" | 18" | |
| 12"x12"x12" | 12" | 24" | 24" | 18" | |
| 12"x12"x12" | 12" | 24" | 24" | 18" | |
| 24"x24"x18" | 16" | 32" | 28" | 33" | |

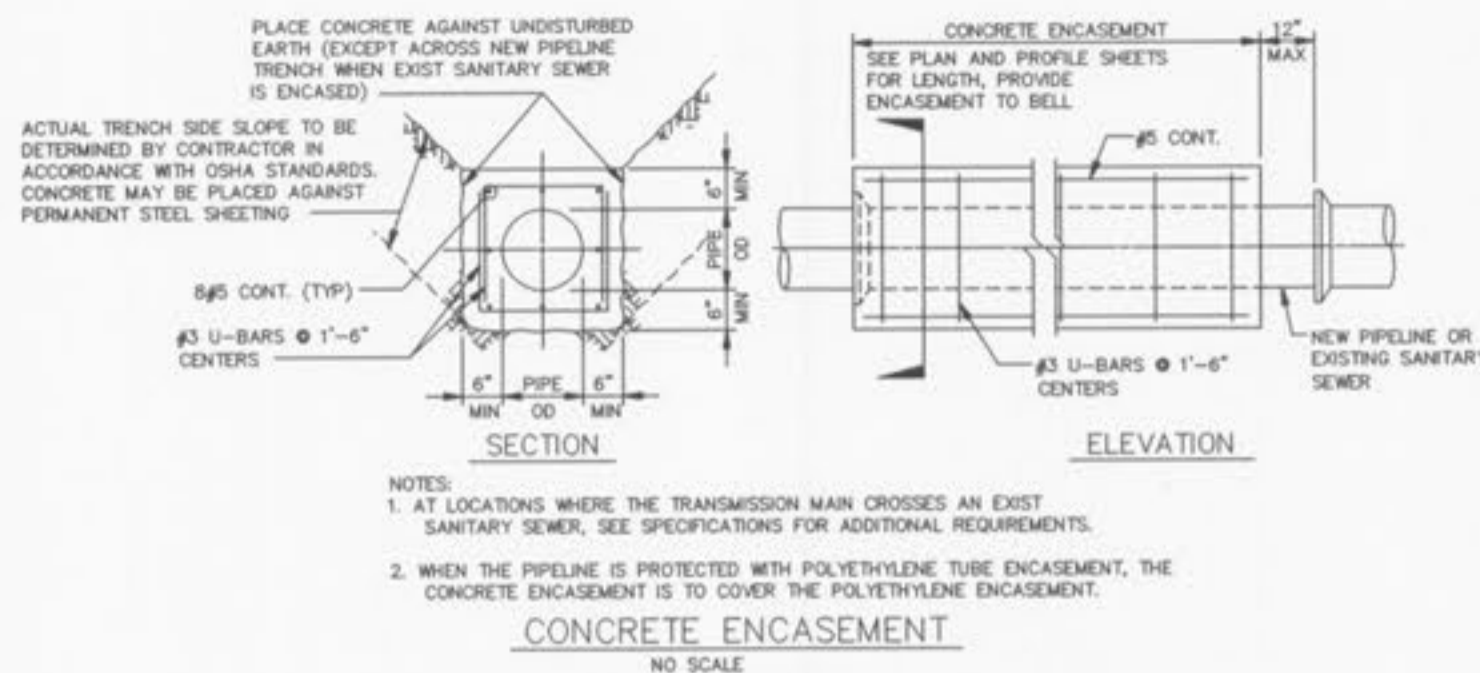
NOTES:
 1. 2" & 4" FITTINGS EQUIVALENT TO 6" FITTINGS.
 2. TAPPING SLEEVES TO HAVE BACKING BLOCKS SAME SIZE AS REQUIRED FOR TEES.
 3. "TL" = TOTAL LENGTH OF FITTING MINUS CLEARANCE FOR BELLS.

INTERNAL WATER PRESSURE 6" through 12"=200 psi
 INTERNAL WATER PRESSURE 16" through 30"=210 psi
 BEARING PRESSURE OF SOIL=2000 psi

BACKING BLOCKS
 NOT TO SCALE

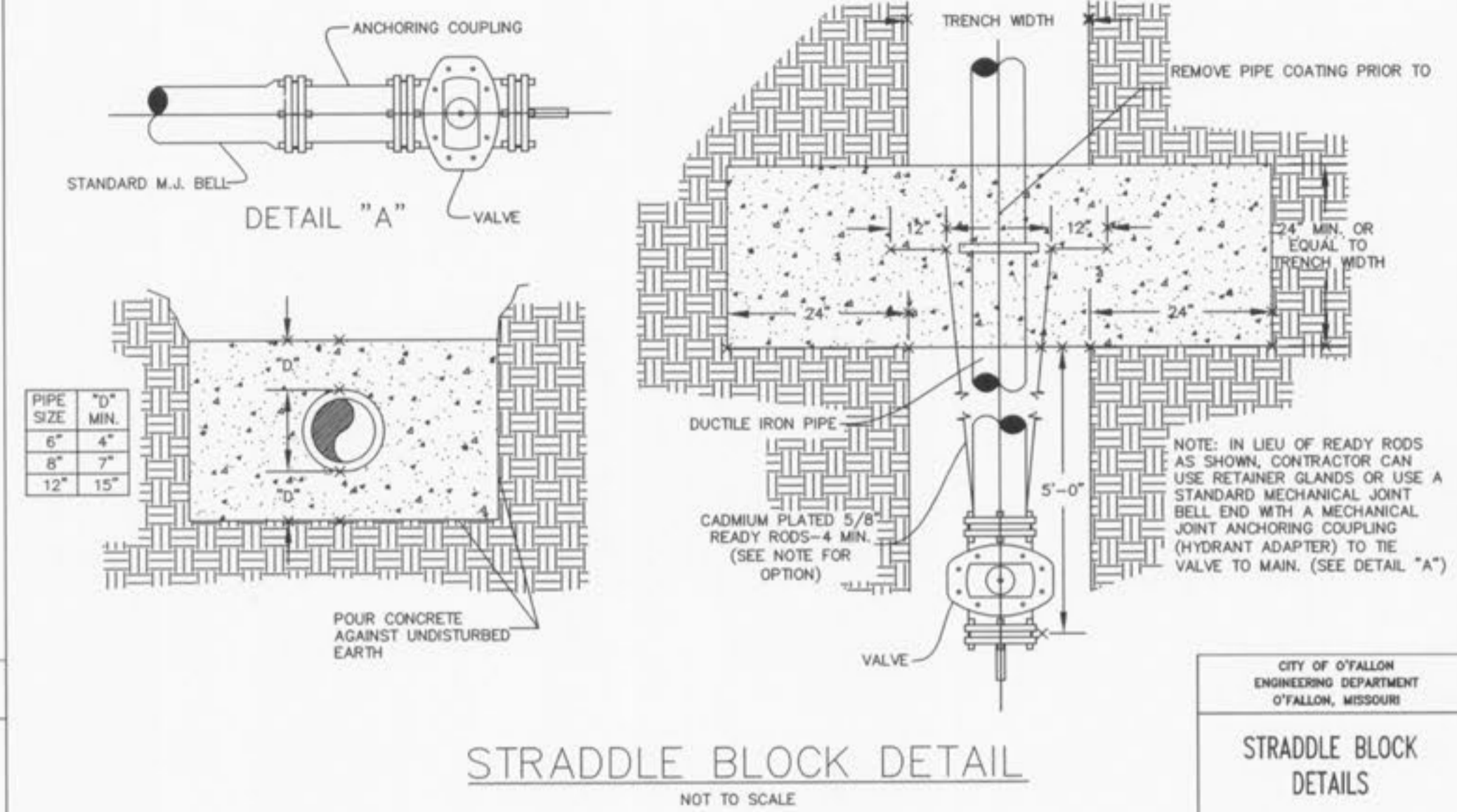
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BACKING BLOCK DETAILS AND LOCATIONS



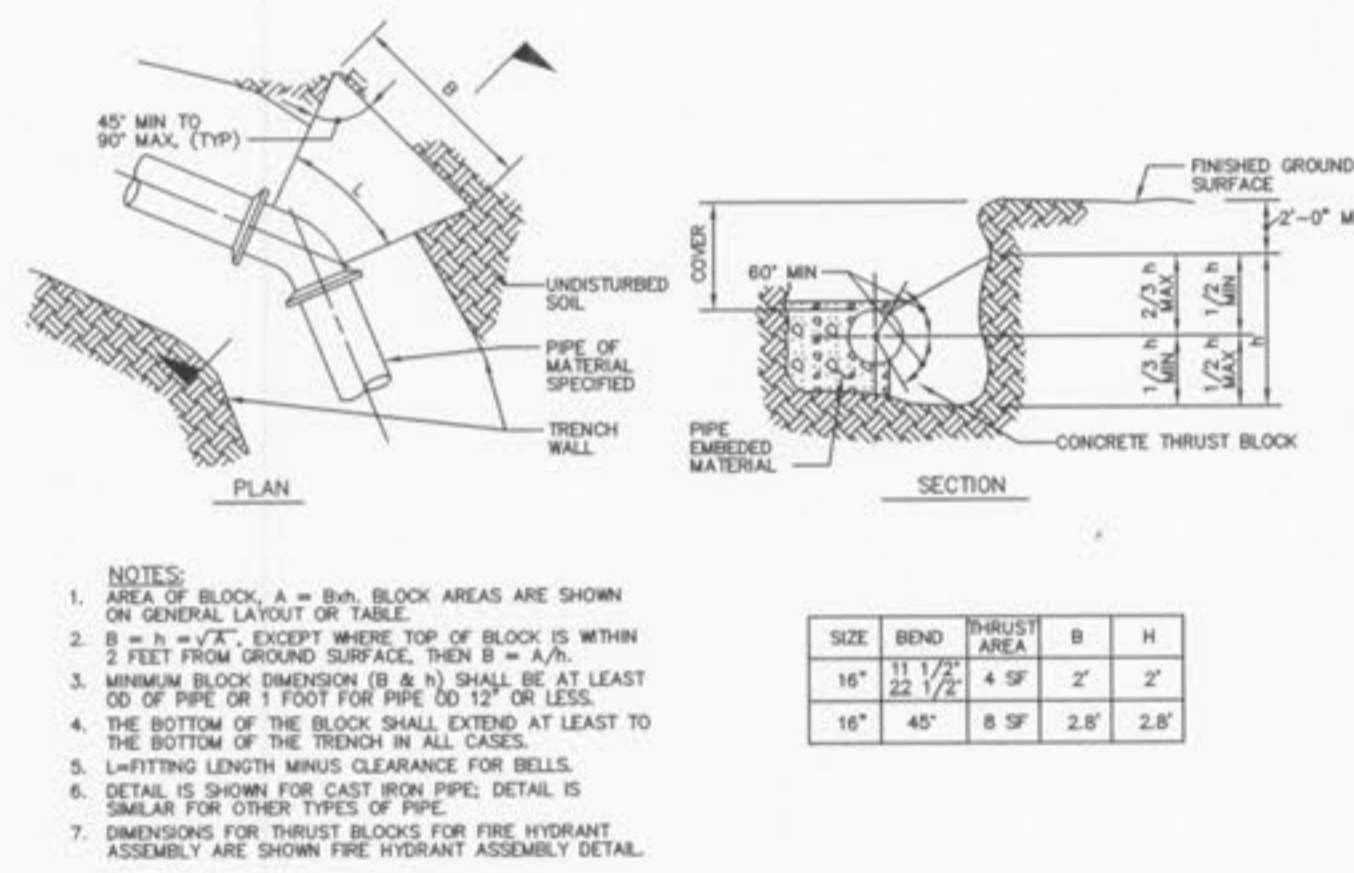
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CONCRETE ENCASEMENT DETAILS



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STRADDLE BLOCK DETAILS



CONCRETE THRUST BLOCKING
 NOT TO SCALE

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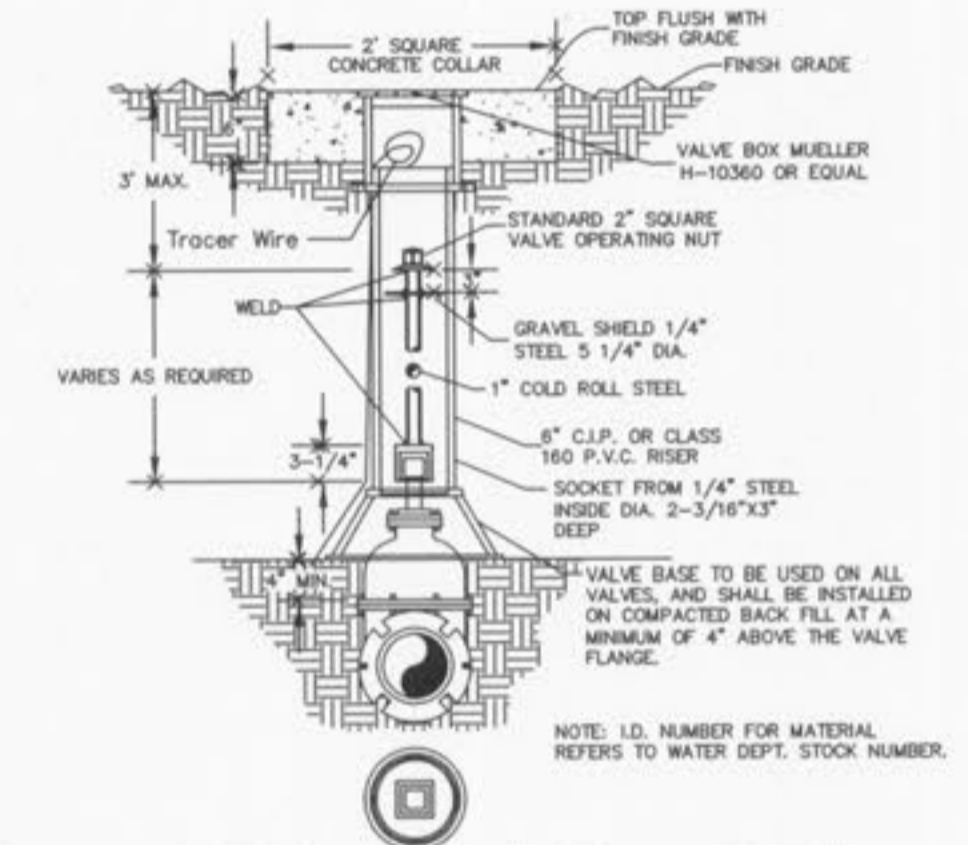
CONCRETE THRUST BLOCKING DETAILS



Note 1. Concrete collar joint pattern is required in paved areas such as roadways, driveways, sidewalks or other areas of paved surfaces.
 2. Concrete collars are optional in other non-paved areas.

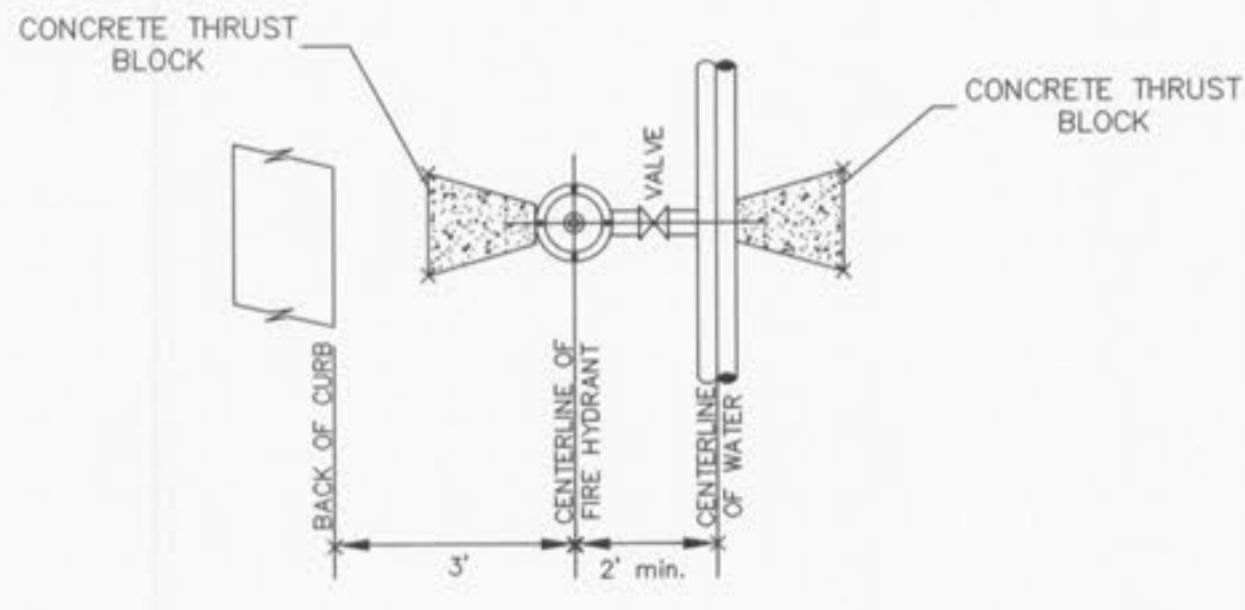
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CONCRETE COLLAR DETAIL



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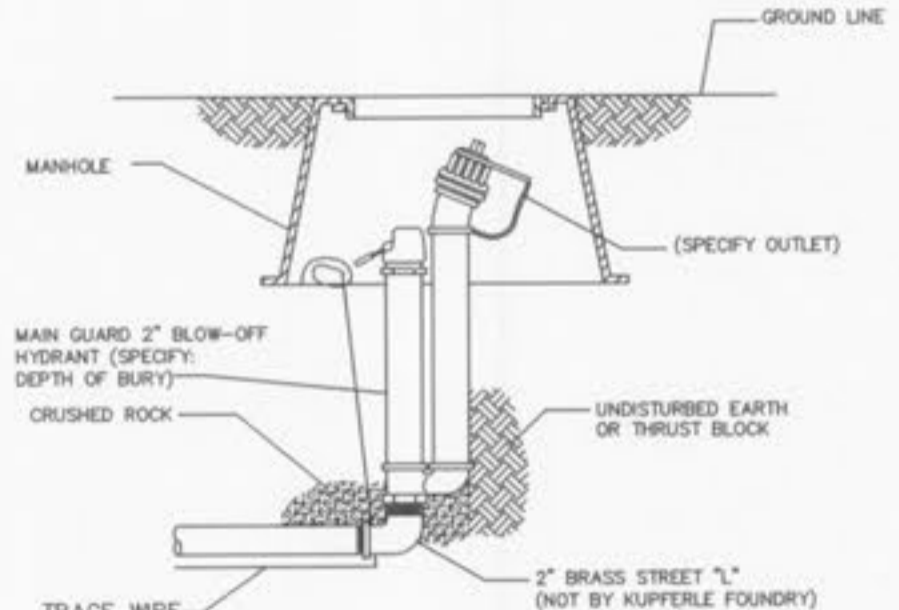
WATER VALVE DETAIL



TYPICAL WATER MAIN AND FIRE HYDRANT LOCATIONS
 NOT TO SCALE

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WATER MAIN FIRE HYDRANT DETAIL



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BLOW-OFF HYDRANT DETAIL

CITY APPROVAL 02/01/11
 CITY COMMENTS 01/26/11
 CITY COMMENTS 01/13/11

THE CROSSING AT RIVERSIDE CENTRE
 CITY WATER DETAILS

02/01/11

STATE OF MISSOURI
 REGISTERED PROFESSIONAL ENGINEER
 GEORGE MICHAEL STOCK
 NUMBER E-25116

GEORGE M. STOCK E-25116
 CIVIL ENGINEER
 CERTIFICATE OF AUTHORITY
 NUMBER: 000996

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|------------------|----------------|--------------------|----------------|----------------------|------------|
| DRAWN BY: P.R.G. | DATE: 12/21/10 | CHECKED BY: G.M.S. | DATE: 12/21/10 | JOB NUMBER: 210-4626 | SHEET: C17 |
|------------------|----------------|--------------------|----------------|----------------------|------------|