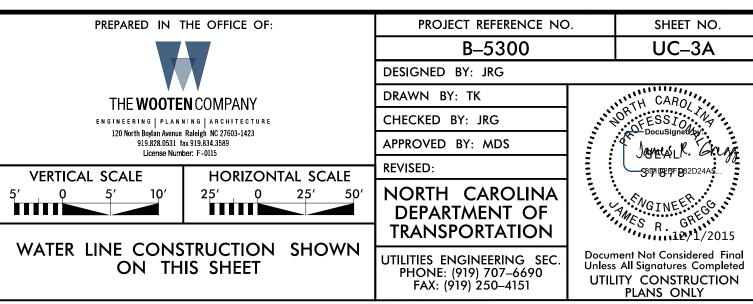
## PROJECT TYPICAL WATER DETAILS

12"ø & UP

D=ELEVATION

PLAN & ELEVATION PLUGS



- MEASUREMENT LIMITS FOR CREEK CROSSING OR RIVER CROSSING PAY UNITS -

MINIMUM RADIUS =
1200 X DRILL ROD DIAMETER, OR
50 X PIPE DIAMETER, WHICHEVER IS GREATER.

CREEK OR RIVER CROSSING WITH HDPE

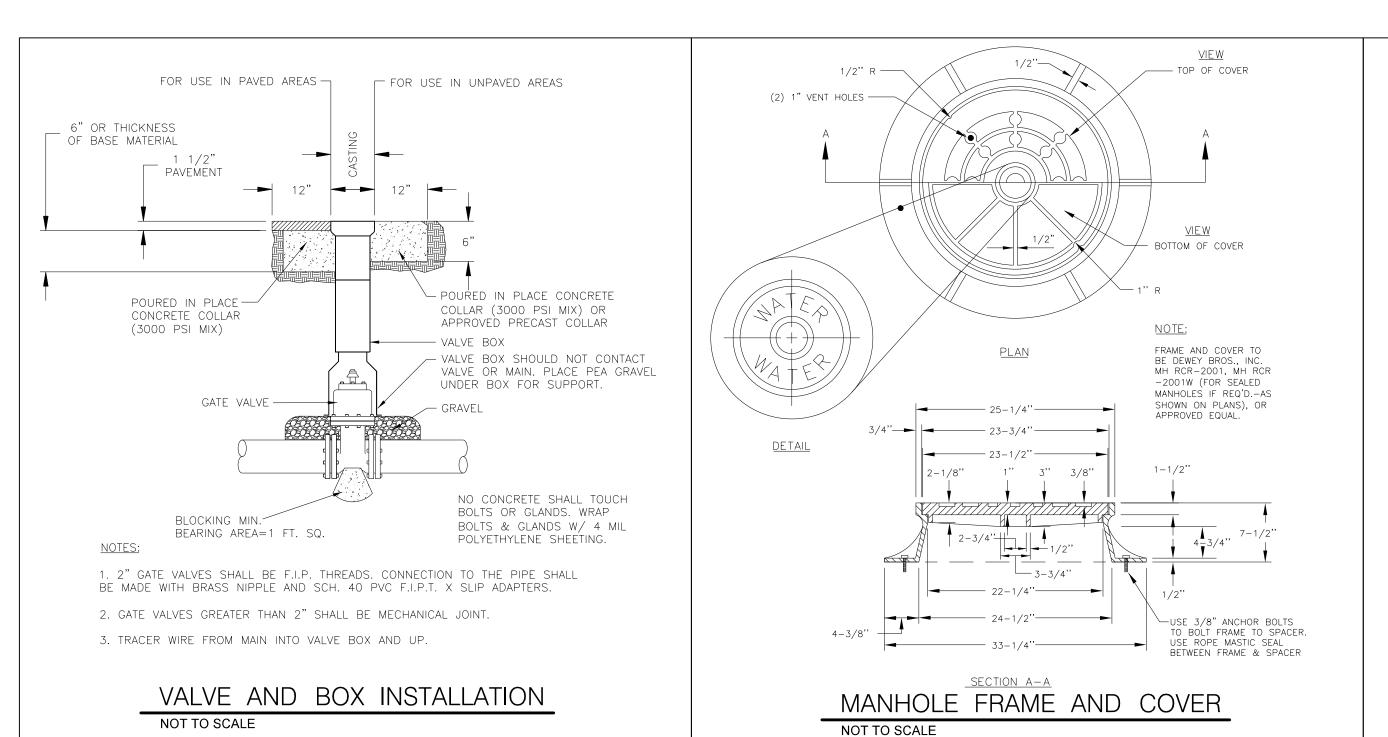
HDPE TO BE INSTALLED UNDER CREEK OR RIVER BY HORIZONTAL DIRECTIONAL DRILLING

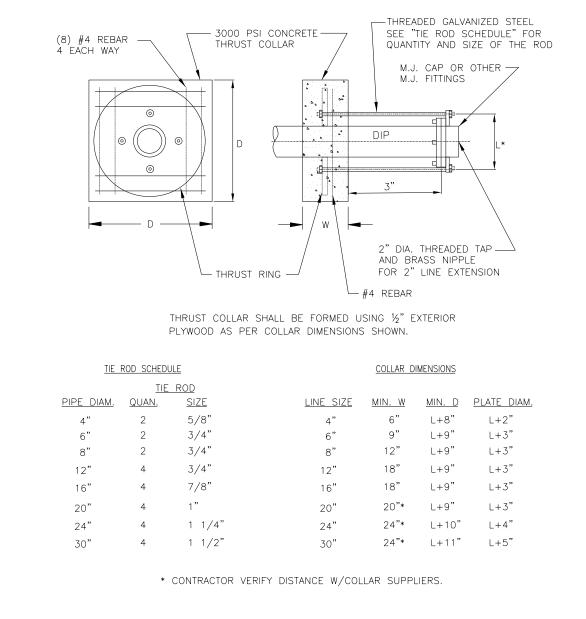
## UTILITY CONSTRUCTION

MECHANICAL JOINT WITH GRIPPING RING RESTRAINT

PVC WATER LINE

HDPE, SDR 9
PE3408 WATER LINE GRIPPING RING RESTRAINT





NORMAL EARTH FOUNDATION

I.D. - THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. - THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

NORMAL EARTH FOUNDATION

I.D. - THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

D. - THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

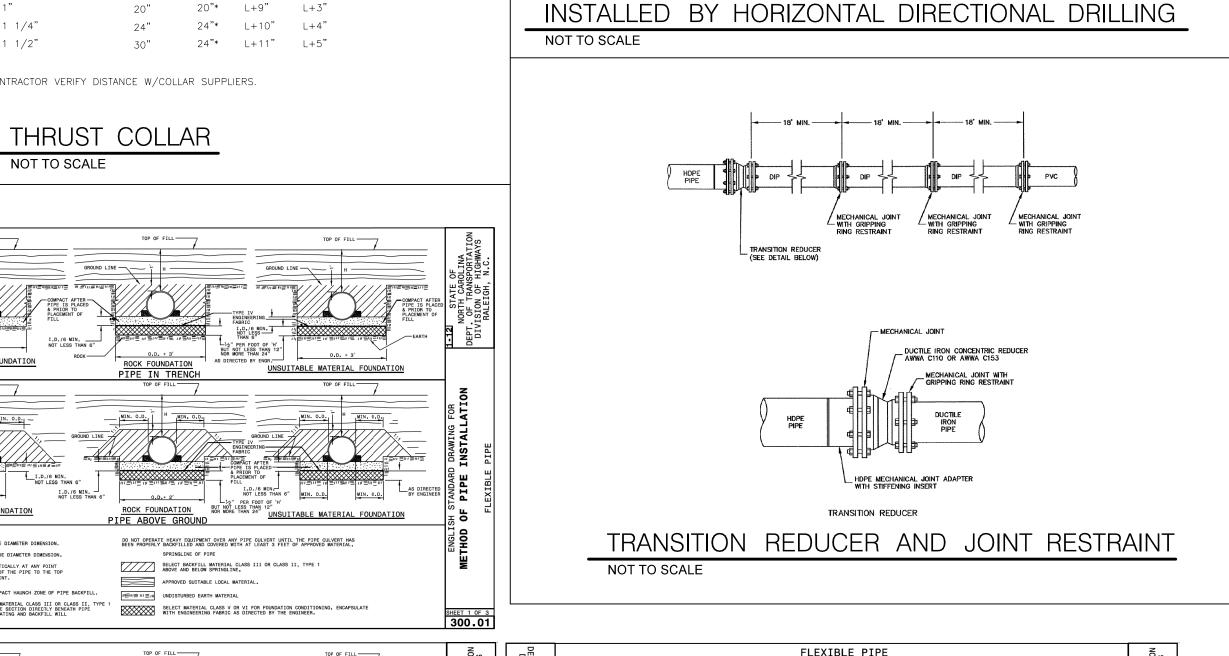
= THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOGSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE-FOR PIPE BEDDING, LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPI
FOR PIPE BEDDING, LEAVE SECTION DIRECTLY BENEATH PIPE
UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL
ACCOMPLISH COMPACTION.

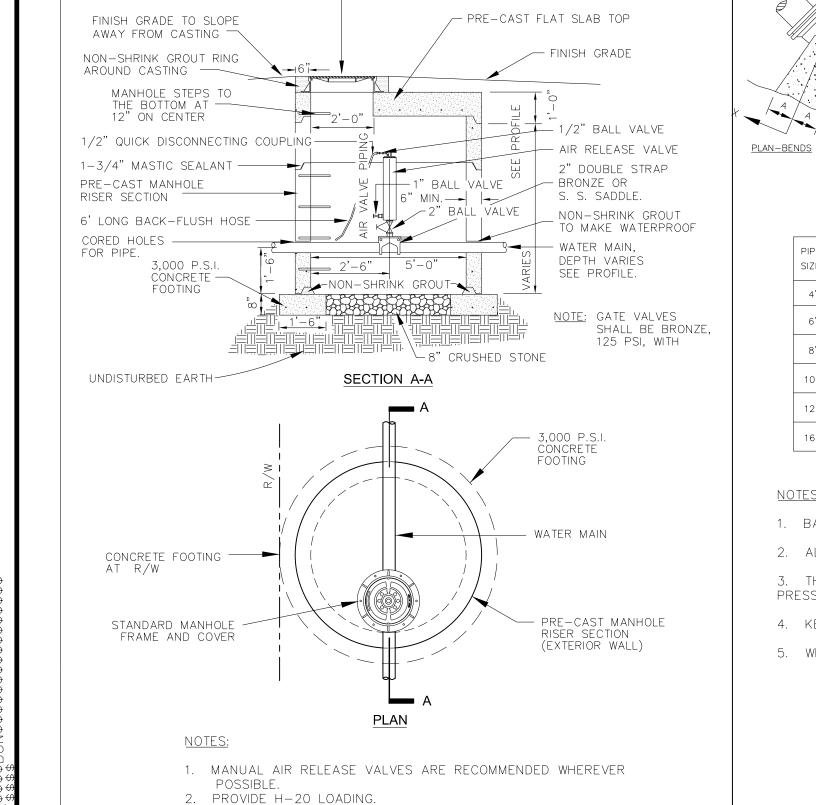


MECHANICAL JOINT WITH GRIPPING RING RESTRAINT

20' MIN. HORIZONTAL

MECHANICAL JOINT WITH GRIPPING RING RESTRAINT

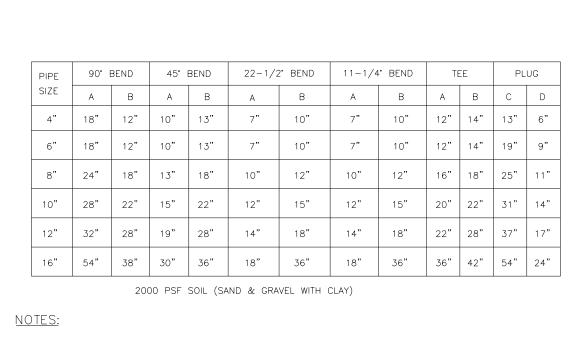
PVC WATER LINE -



WATER AIR RELEASE MANHOLE

NOT TO SCALE

FRAME AND COVER



18" MIN.-10" DIA. OR LESS

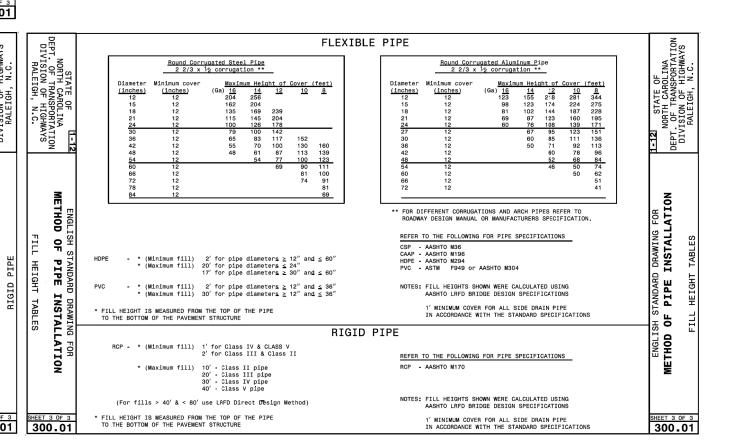
24" MIN.-12" DIA. OR GREATER

## 1. BASED ON 200 PSI STATIC PRESSURE PLUS AWWA WATER HAMMER ALLOWANCE.

- 2. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED GROUND.
- 3. THRUST BLOCKS TO BE USED AT ALL UNRESTRAINED LINES OPERATING UNDER
- 4. KEEP ALL PIPING JOINTS CLEAR OF CONCRETE THRUST BLOCKS.
- 5. WRAP ALL FITTINGS IN 4 MIL POLYETHYLENE SHEETING.

PLAN-TEES

THRUST BLOCKING



METHOD OF PIPE INSTALLATION

UNSUITABLE MATERIAL FOUNDATION

I.D./6 MIN MIN. O.D. MIN. O.D.

ROCK FOUNDATION
BUT NOT LESS THAN 12"
NOR MORE THAN 24"
UNSUITABLE MATERIAL FOUNDATION
UNSUITABLE MATERIAL FOUNDATION

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING, ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

"⊑"≡"'≡" UNDISTURBED EARTH MATERIAL

APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.