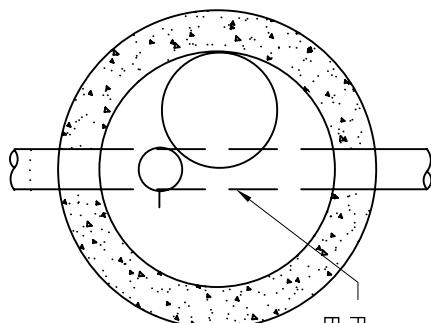


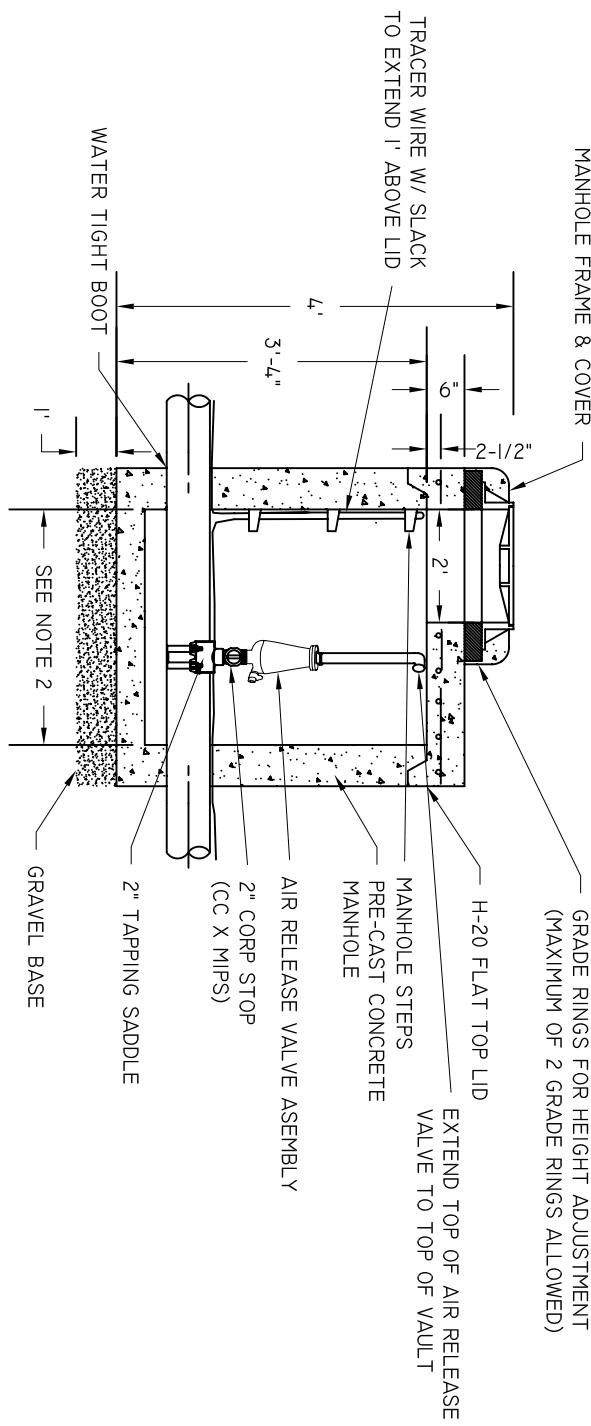
APPENDIX A – GENERAL STANDARD DETAIL DRAWINGS

<u>DRAWING NUMBER</u>	<u>TITLE</u>
G-01	Air Release Valve
G-02	Bedding Detail – Pressure Pipe
G-03	Bore and Jack Detail
G-04	Bridge Attachment – Typical
G-05	Bridge Attachment – Detail
G-06	Piling Pipeline Support
G-07	Curb Marking Detail
G-08	Restraint - Mechanical
G-09	Restraint – Thrust Blocking
G-10	Typical Service Tie-in
G-11	Submerged Crossings
G-12	Standard Valve Detail
G-13	Tapping Sleeve & Valve Detail
G-14	2" Connection
G-15	Tee and Valves

NOTES:
 1. SET TOPS OF MANHOLES FLUSH WITH
 FINAL GRADE UNLESS NOTED OTHERWISE.
 2. REFER TO SPECIFICATIONS FOR REQUIRED
 MANHOLE DIAMETER.



PLAN



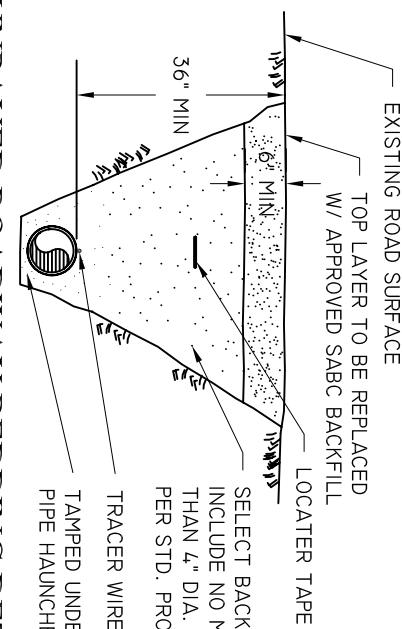
AIR RELEASE VALVE IN MANHOLE

NOT TO SCALE

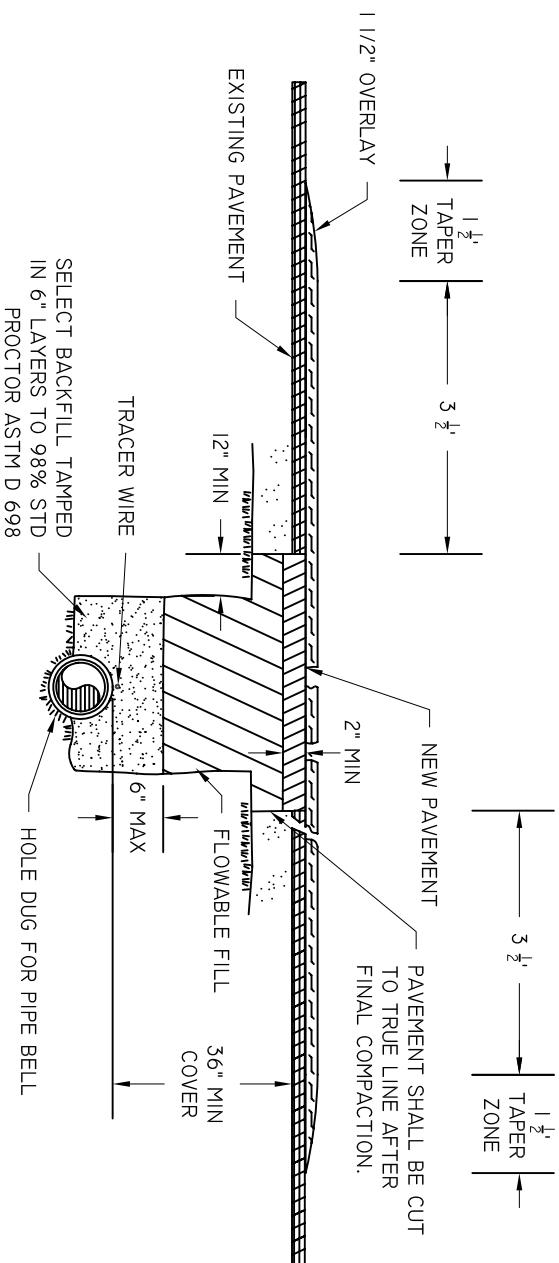
BEAUFORT - JASPER
WATER & SEWER AUTHORITY

AIR RELEASE VALVE

DATE 07/01/09	DRAWN BY BMC	DRAWING # G-01
SCALE N.T.S.	APPROVED BY ERS	

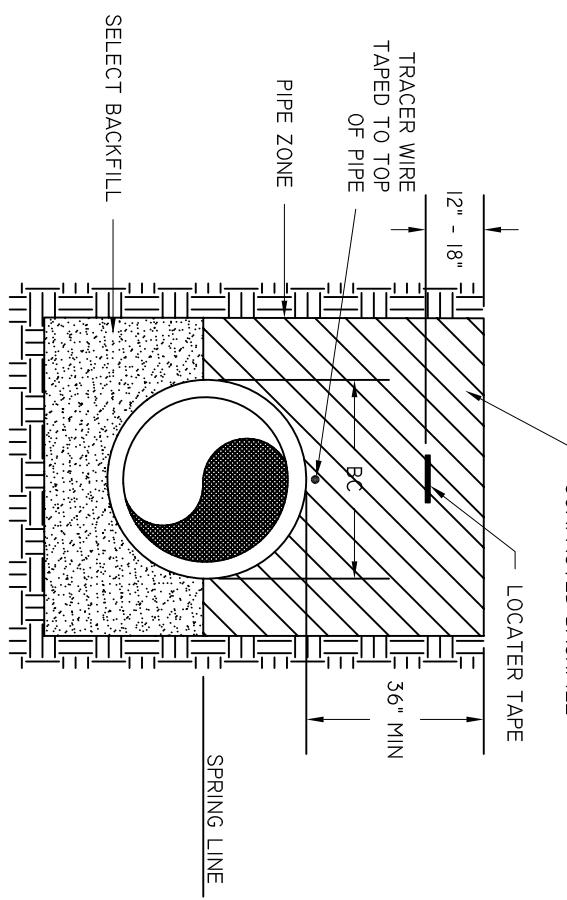


UNPAVED ROADWAY BEDDING DETAIL



NOTES:

1. PAVEMENT CUT TO EXTEND 12" BEYOND EDGES OF TRENCH AS SHOWN.
2. MATCH EXISTING PAVEMENT TYPE AND THICKNESS. MINIMUM THICKNESS OVER TRENCH IS 2".
3. ALL INSTALLATIONS IN PUBLIC ROADWAYS SHALL COMPLY WITH CONDITIONS OUTLINED ON APPLICABLE ENCROACHMENT PERMIT.



TYPICAL BEDDING DETAIL

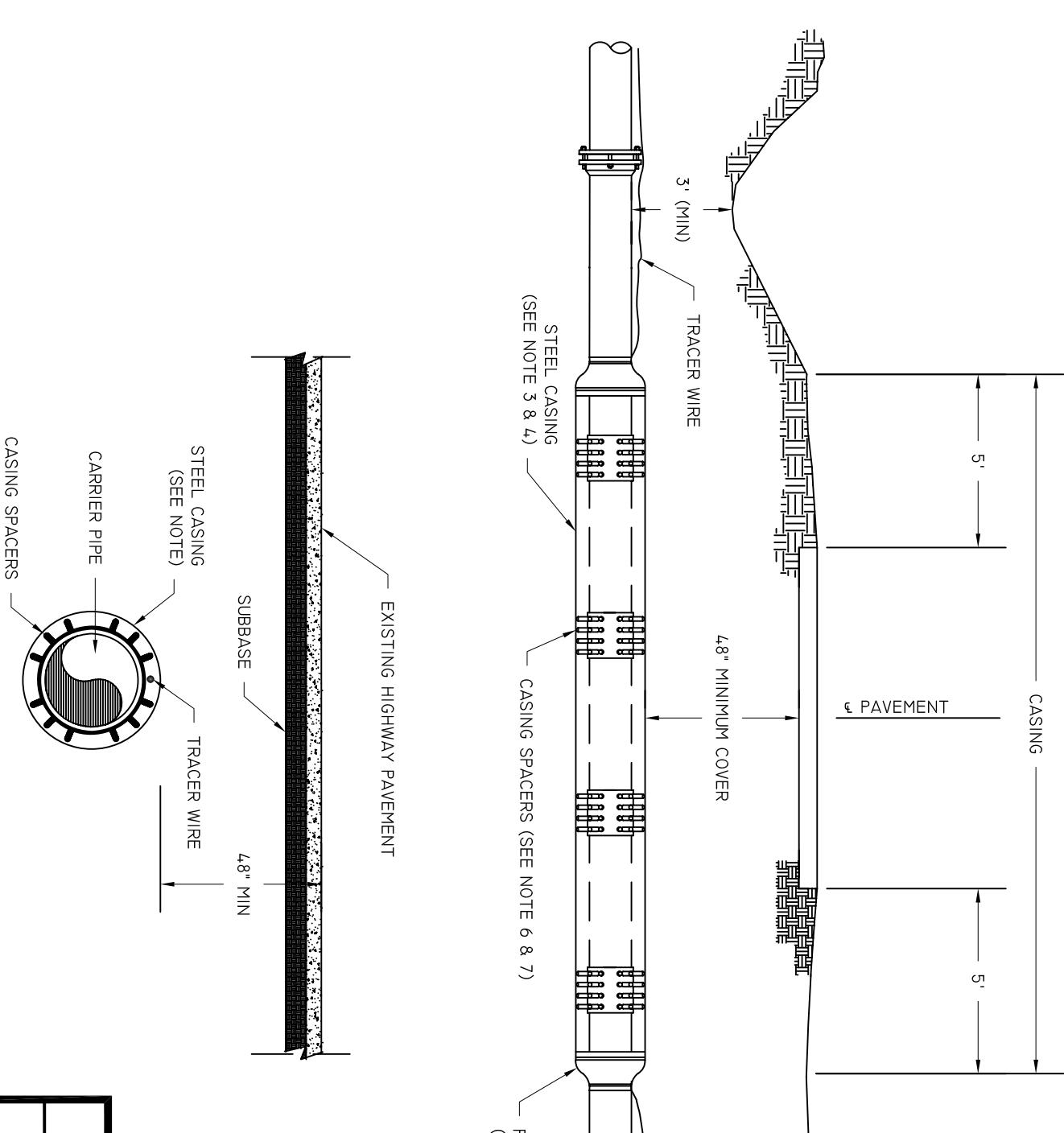
DATE	07/01/09	DRAWN BY	BMC	DRAWING #
SCALE	N.T.S.	APPROVED BY	ERS	G-02

PAVED AREA DETAIL

SELECT BACKFILL TAMPED
IN 6" LAYERS TO 98% STD
PROCTOR ASTM D 698

BEAUFORT - JASPER
WATER & SEWER AUTHORITY

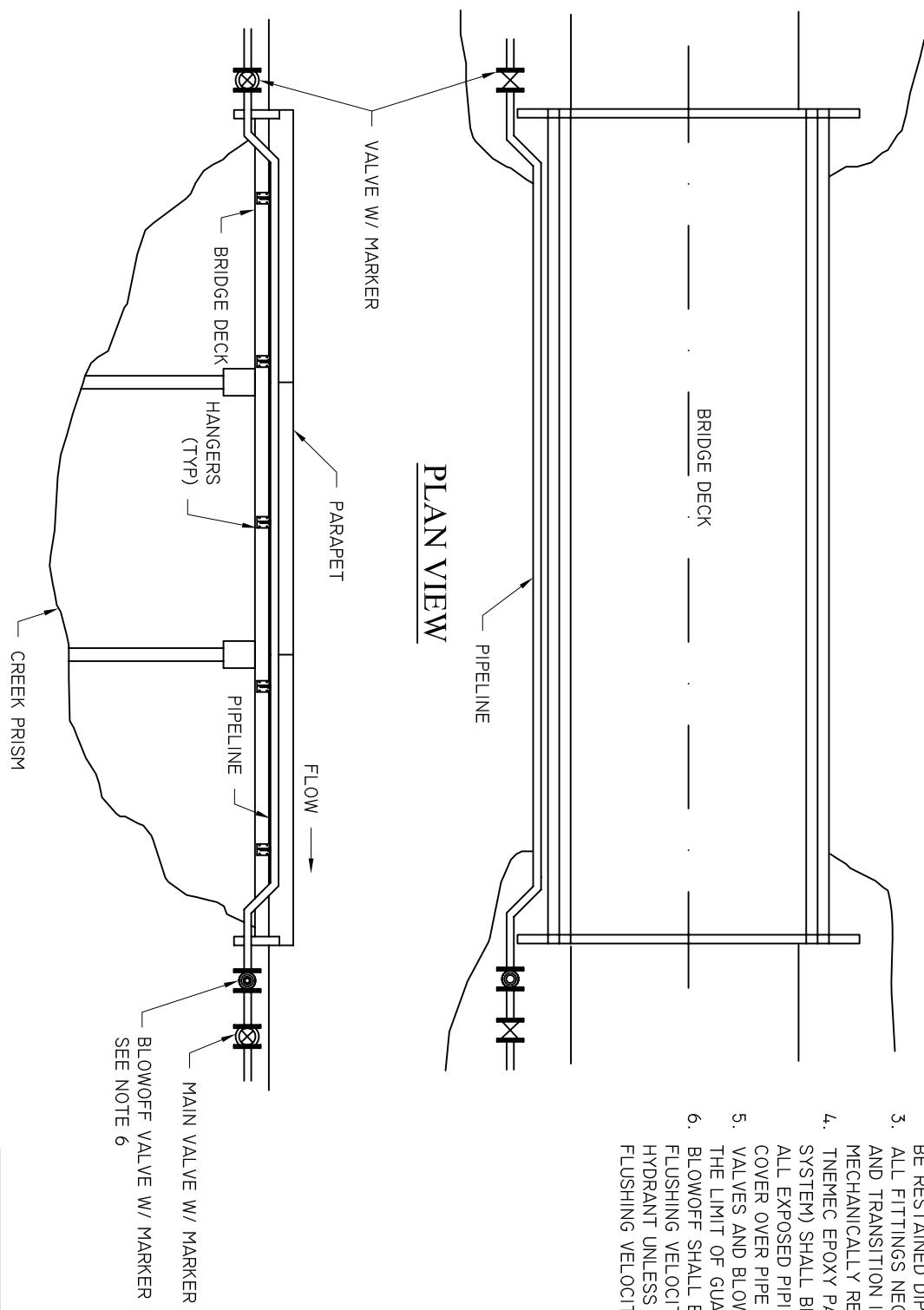
BEDDING PRESSURE PIPE DETAIL



NOTES:

1. STEEL CASING TO EXTEND MINIMUM OF 5' BEYOND EDGE OF PAVEMENT.
2. ALL CONSTRUCTION TO BE INSPECTED AND APPROVED BY LOCAL COUNTY OR STATE ROAD DEPARTMENT.
3. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WELD INSPECTIONS PRIOR TO PUSHING CASING.
4. SIZE AND WALL THICKNESS OF CASING TO BE APPROVED BY BJWSA AND DOT DEPT.
5. PLUG BOTH ENDS OF CASING WITH CASCADE CASING PLUGS.
6. CASING SPACERS SHALL BE ALL STAINLESS STEEL WITH PLASTIC SLIDES.
7. SPACING OF CASING SPACERS SHALL BE PER MANUFACTURERS SPECIFICATIONS BASED UPON CARRIER PIPE MATERIAL.

DATE 07/01/09	DRAWN BY BMC	DRAWING # G-03
SCALE N.T.S.	APPROVED BY ERS	



NOTES:
1. BRIDGE HANGERS SHALL BE CONSTRUCTED PER
BJWSA STANDARD DRAWING G-05 AND SCDOT
REQUIREMENTS

2. PIPELINES ATTACHED TO BRIDGE STRUCTURES SHALL BE RESTRAINED DIP.
3. ALL FITTINGS NECESSARY TO CLEAR WING WALLS AND TRANSITION INTO UNDERGROUND PIPING SHALL BE MECHANICALLY RESTRAINED.
4. TNEMEC EPOXY PAINT (SEE LATEST APPROVED SYSTEM) SHALL BE APPLIED BEFORE INSTALLATION TO ALL EXPOSED PIPING. COATING SHALL EXTEND UNTIL COVER OVER PIPE IS AT LEAST 2'.
5. VALVES AND BLOWOFF SHALL BE INSTALLED BEYOND THE LIMIT OF GUARD RAIL.
6. BLOWOFF SHALL BE SIZED TO PROVIDE 2.5 FPS FLUSHING VELOCITY, AND SHALL BE STANDARD HYDRANT UNLESS HYDRANT DOES NOT ALLOW FLUSHING VELOCITY.

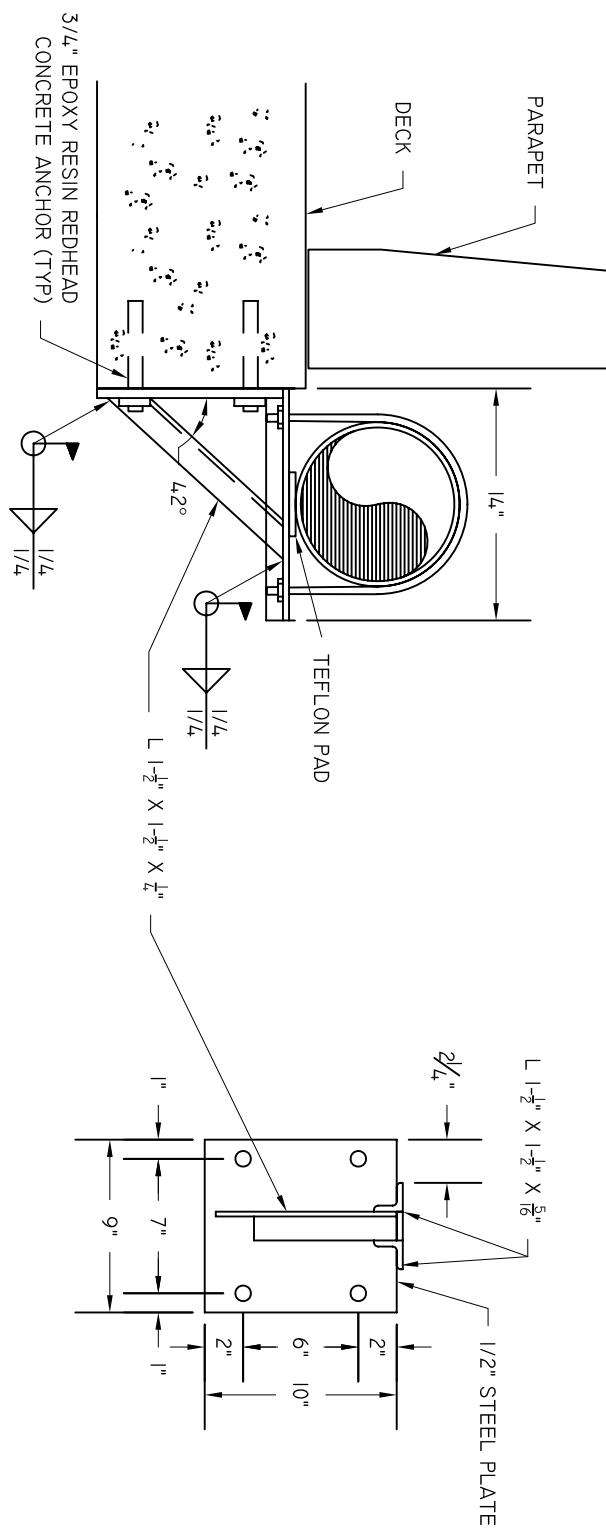
PLAN VIEW

PROFILE VIEW

TYPICAL BRIDGE ATTACHMENT	
DATE 07/01/09	DRAWN BY: BMC
SCALE: N.T.S.	APPROVED BY: ERS
DRAWING #: G-04	

FRONT VIEW

SIDE VIEW



NOTES:

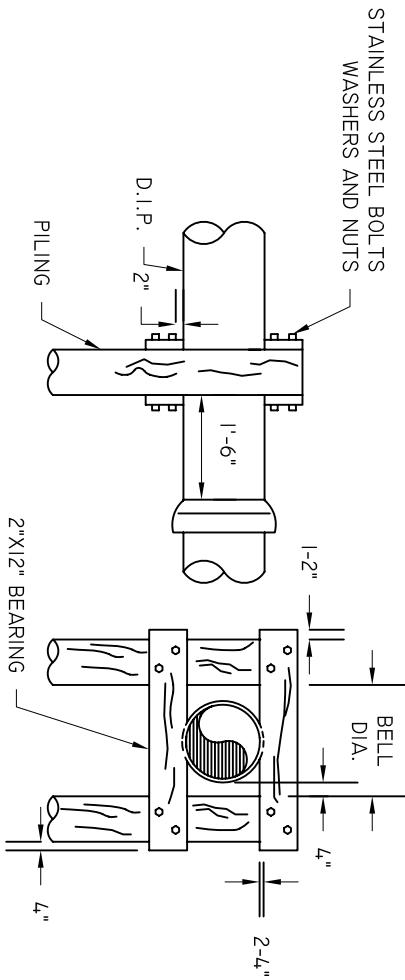
1. PIPE STRAPPING AND BRACKET MATERIAL SHALL BE 316 STAINLESS STEEL.
2. EPOXY ANCHORS SHALL BE 316 STAINLESS STEEL.
3. PIPE STRAP SHALL BE SIZED TO FIT CL 250 D.I.P. OF SIZE SPECIFIED.
4. ALL PIPING TO HAVE FINAL PAINT COAT PRIOR TO INSTALLATION.

BRIDGE ATTACHMENT DETAIL		
DATE 07/01/09	DRAWN BY: BMC	DRAWING #: G-05
SCALE: N.T.S.	APPROVED BY: ERS	

NOTES:

1. ALL PIPELINE PROJECTS REQUIRING SUPPORT PILINGS MUST BE APPROVED ON A CASE BY CASE BASIS BY BWSA BASED UPON ACCEPTED ENGINEERING PRACTICES. THIS DETAIL IS PROVIDED AS A GUIDELINE ONLY.
2. ALL PILINGS SHALL HAVE A MINIMUM TIP DIAMETER OF 8" BE DROVE TO A MINIMUM BEARING CAPACITY OF 10 TONS.
3. ALL PILING AND SUPPORTS SHALL BE RATED FOR CONTINUOUS SALT WATER SUBMERGENCE.
4. APPROPRIATELY SIZED BLOWOFF SHALL BE INSTALLED DOWNSTREAM TO PROVIDE FLUSHING CAPABILITIES.
5. ALL EXPOSED PIPING SHALL BE RESTRAINED JOINT DUCTILE AND SHALL BE PAINTED PRIOR TO INSTALLATION. PAINTED PIPE SHALL EXTEND A MINIMUM OF 2' BELOW FINAL GRADE.
6. VALVES AND BLOWOFF SHALL BE INSTALLED BEYOND THE LIMIT OF GUARD RAIL.
7. BLOW OFF SHALL BE SIZED TO PROVIDE 2.5 FPS FLUSHING VELOCITY, AND SHALL BE STANDARD HYDRANT UNLESS HYDRANT DOES NOT ALLOW FLUSHING VELOCITY.

ABOVE CHANNEL DETAIL AT BRIDGE



DETAIL 'A' - SUPPORT PILING

BEAUFORT - JASPER
WATER & SEWER AUTHORITY

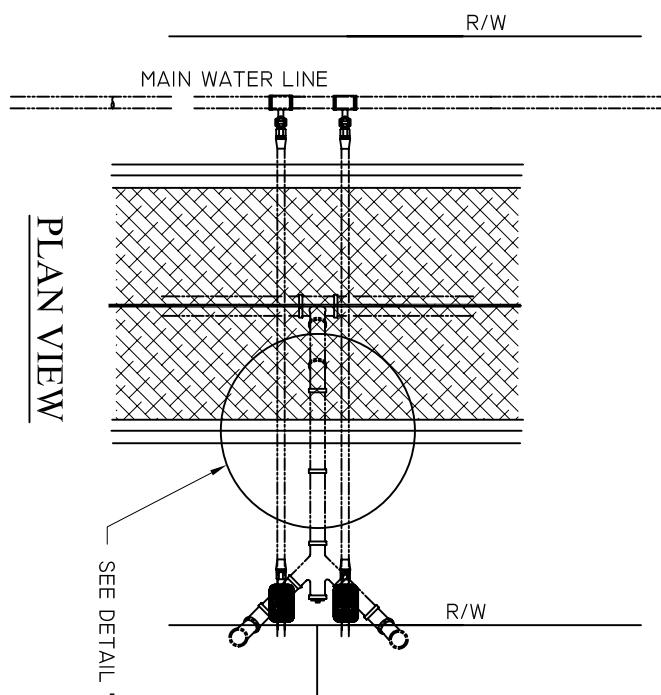
PILING PIPELINE SUPPORT

DATE	DRAWN BY	DRAWING #
07/01/09	BMC	G-06

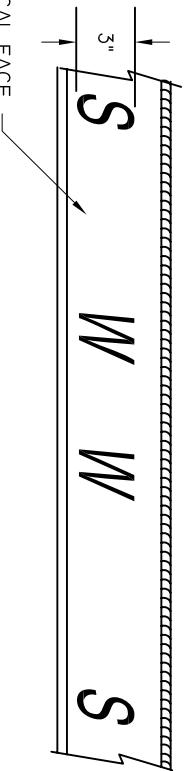
SCALE: N.T.S. APPROVED BY ERS

NOTES:

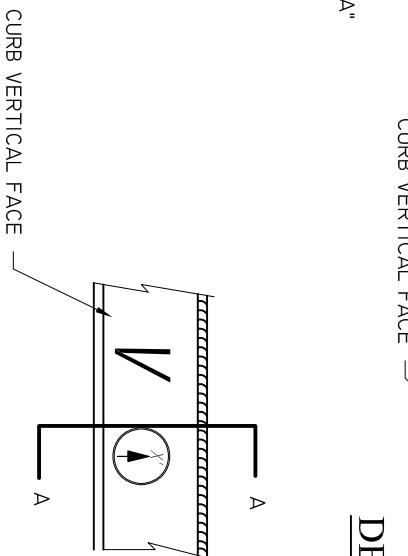
1. CURB MARKING SHALL BE PERPENDICULAR WITH SERVICE LOCATION.
2. CURB MARKING SHALL BE EMBOSSED INTO CURB FACE.
 - A. WATER SERVICES SHALL BE DENOTED WITH A "W".
 - B. SEWER SERVICES SHALL BE DENOTED WITH A "S".
 - C. VALVES SHALL BE DENOTED BY A "V".
 - D. BENDS SHALL BE DENOTED WITH A "B".
3. VALVE AND PIPELINE MARKERS ARE NOT REQUIRED IF A SURVEYORS 2"Ø BRASS DISK IS EMBEDDED ADJACENT TO EMBOSSED LETTER AND MARKED TO INDICATE LOCATION OF REFERENCED ITEM.
4. DISC MUST BE EMBEDDED, MAY NOT PROTRUDE PASS CONCRETE SURFACE OR EMBEDDED MORE THAN 3/8".



PLAN VIEW



DETAIL "A"



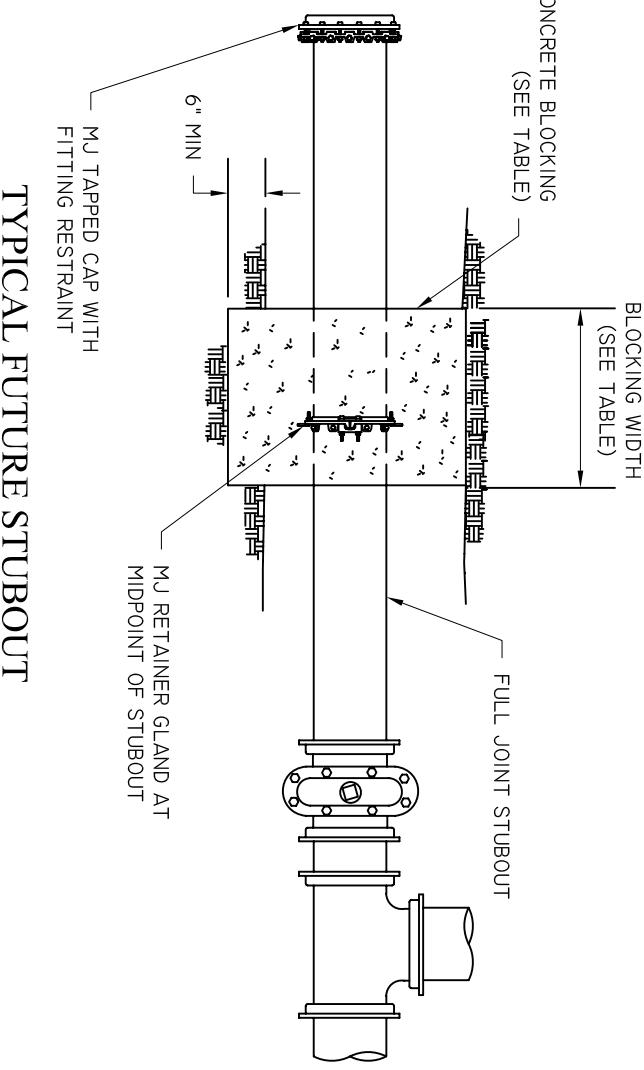
DETAIL "B"

BEAUFORT - JASPER
WATER & SEWER AUTHORITY

CURB MARKING DETAIL

DATE	DRAWN BY	REVIEWED BY	DRAWING #
07/01/09	BMC	ERS	G-07

SECTION A-A



TYPICAL FITTING AND JOINT RESTRAINT

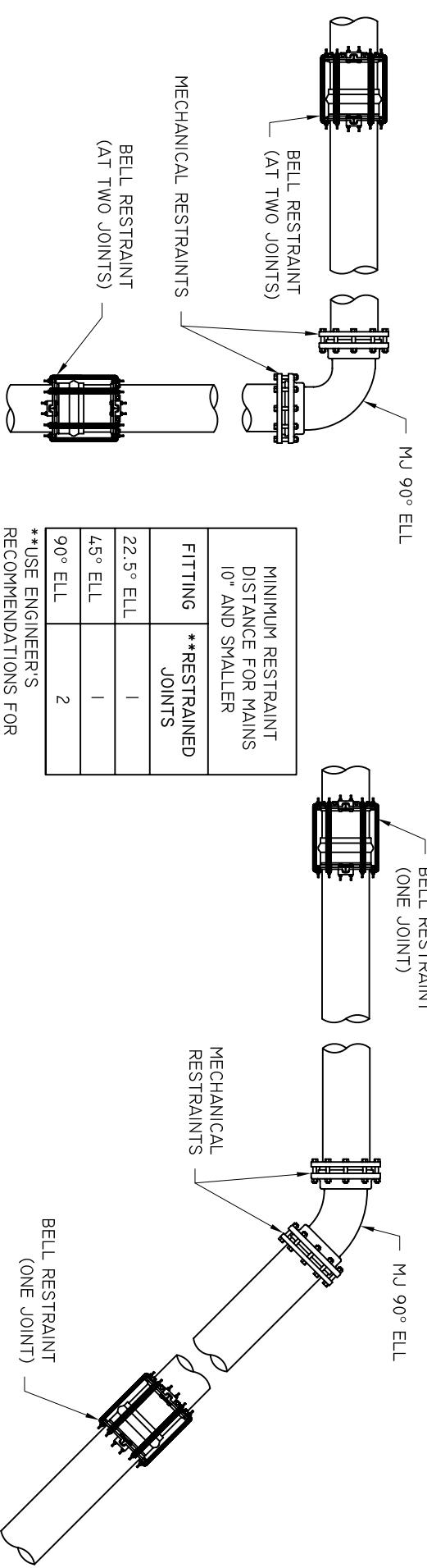
**USE ENGINEER'S
RECOMMENDATIONS FOR
SIZES GREATER THAN 10"

FITTING	**RESTRAINED JOINTS
22.5° ELL	1
45° ELL	1
90° ELL	2

MINIMUM BLOCKING DIMENSIONS

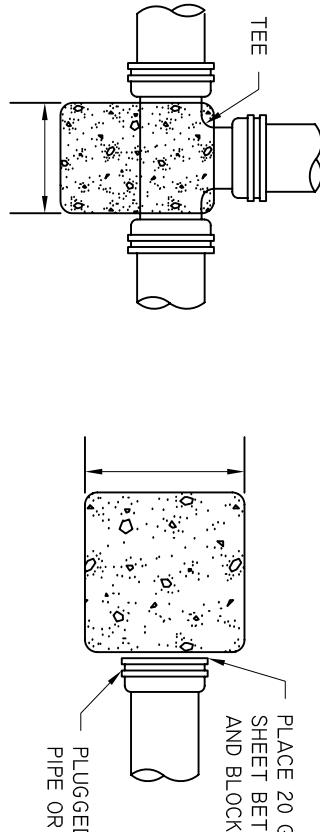
PIPE SIZE (IN)	BLOCKING BEARING AREA (FT ²)	BLOCKING WIDTH (IN)
4	2	24
6	4	24
8	7	36
10	11	36
12	15	36

NOTE:
1. THE MINIMUM DIMENSIONS TABLE IS BASED ON AN ASSUMED SOIL BEARING OF 2000 LBS PER SQ. FT. IF BEARING VALUE FOR SOIL IS LESS THAN AREA SHOWN HEREIN SHOULD BE INCREASED ACCORDINGLY.
2. JOINT IS DEFINED TO BE A MINIMUM OF 18" IN LENGTH.



BEAUFORT - JASPER
WATER & SEWER AUTHORITY
MECHANICAL RESTRAINT

DATE 07/01/09	DRAWN BY BMC	DRAWING # G-08
SCALE N.T.S.	APPROVED BY ERS	

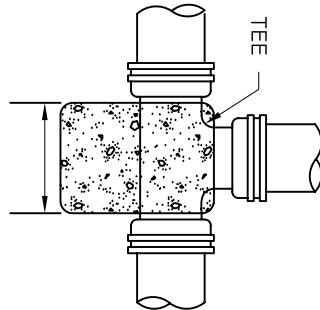
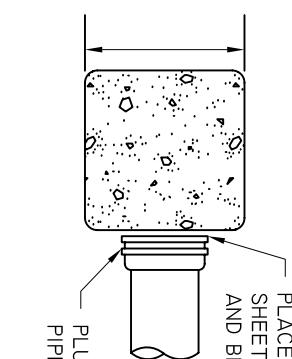
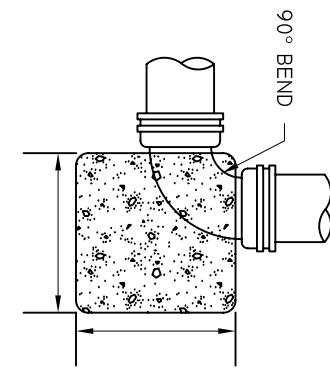


PLACE 20 GA. GALV.
SHEET BETWEEN PLUG
AND BLOCKING

NOTE:
1. CONCRETE THRUST BLOCKING SHALL ONLY BE USED
WHERE MECHANICAL RESTRAINTS ARE NOT FEASIBLE.
PRIOR APPROVAL MUST BE OBTAINED FROM BJWSA PRIOR
TO USING THRUST BLOCKING.

PIPE	AREA AGAINST UNDISTURBED SOIL
4"	1'-2" X 1'-2"
6"	1'-6" X 1'-6"
8"	1'-9" X 1'-9"
10"	2'-2" X 2'-2"
12"	2'-8" X 2'-8"

PIPE	AREA AGAINST UNDISTURBED SOIL
4"	1'-2" X 1'-2"
6"	1'-6" X 1'-6"
8"	1'-9" X 1'-9"
10"	2'-2" X 2'-2"
12"	2'-8" X 2'-8"



NO CONCRETE ON
MECHANICAL JOINT
BOLTS

PIPE	AREA AGAINST UNDISTURBED SOIL
4"	1'-0" X 1'-0"
6"	1'-3" X 1'-3"
8"	2'-0" X 2'-0"
10"	2'-6" X 2'-6"
12"	3'-0" X 3'-0"

PIPE	AREA AGAINST UNDISTURBED SOIL
4"	1'-0" X 1'-0"
6"	1'-3" X 1'-3"
8"	1'-6" X 1'-6"
10"	2'-0" X 2'-0"
12"	2'-3" X 2'-3"

PIPE	AREA AGAINST UNDISTURBED SOIL
4"	1'-0" X 1'-0"
6"	1'-3" X 1'-3"
8"	1'-6" X 1'-6"
10"	1'-6" X 1'-6"
12"	1'-8" X 1'-8"

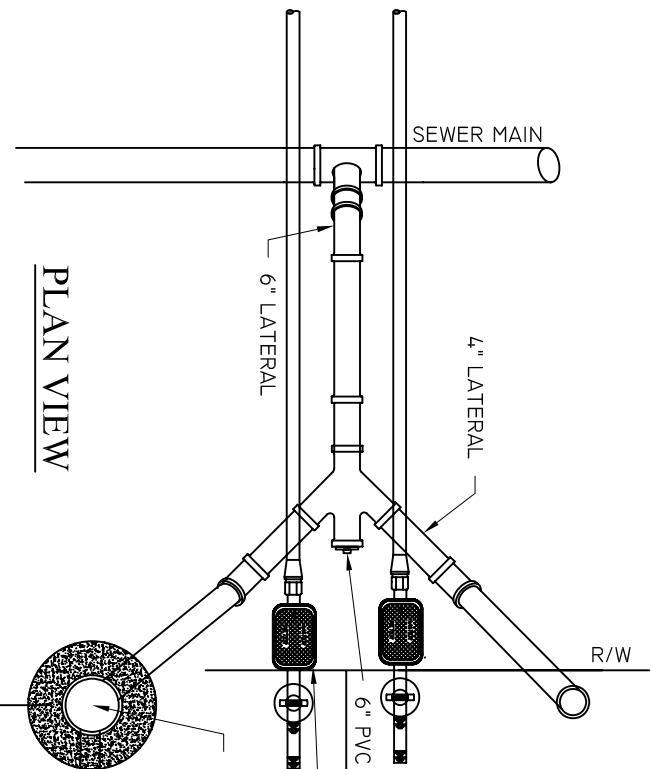
RESTRRAINT, THRUST BLOCKING
BEAUFORT - JASPER
WATER & SEWER AUTHORITY

DATE	DRAWN BY	BMC	DRAWING #
07/01/09			
SCALE	N.T.S.	APPROVED BY	ERS

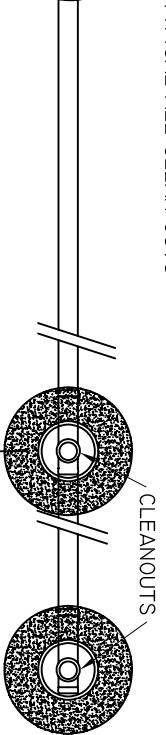
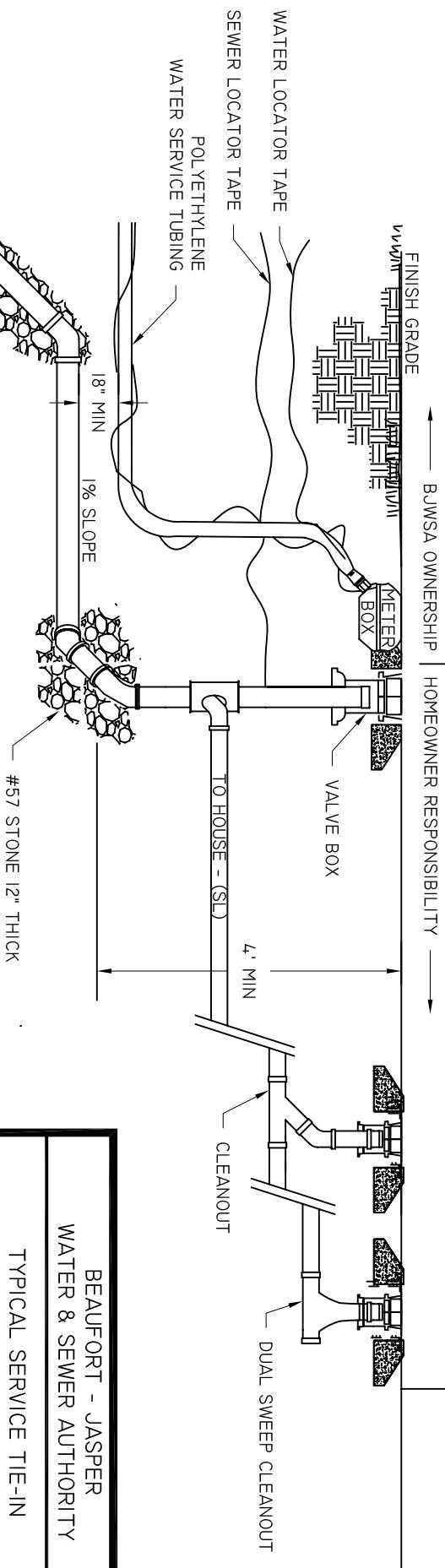
G-09

NOTES:

1. CLEANOUTS NOT MORE THAN 70' APART.
2. CLEANOUTS SHALL BE INSTALLED BY PLUMBER AT EACH SERVICE CONNECTION AND AS OTHERWISE REQUIRED.



PLAN VIEW



HOUSE

BEAUFORT - JASPER
WATER & SEWER AUTHORITY

TYPICAL SERVICE TIE-IN

DATE 07/01/09	DRAWN BY BMC	DRAWING # G-10
SCALE N.T.S.	APPROVED BY ERS	

PROFILE VIEW

NOTES:

1. DIRECTIONAL BORE MATERIAL WILL DEPEND ON APPLICATION. THE FOLLOWING ARE GENERALLY ACCEPTED:

- HDPE
- FUSIBLE PVC
- DIP

2. PIPELINE SHALL BE INSTALLED A MINIMUM OF 48" BELOW CREEK PRISM, OR DEEPER IF DIRECTED BY THE PERMITTING AUTHORITY.

3. RESTRAINT BEYOND BORE IS TO BE DESIGNED TO PREVENT MOVEMENT.

4. FLUSHING DEVICE SHALL BE PROVIDED ON DOWNSTREAM SIDE OF CROSSING AND SHALL BE SIZED TO PROVIDE 2.5 FPS FLUSHING VELOCITY IN PIPELINE.

HDPE PIPELINE (REFER TO NOTE 1)
INSIDE DIAMETER TO EQUAL INSIDE DIAMETER OF C900 PIPE

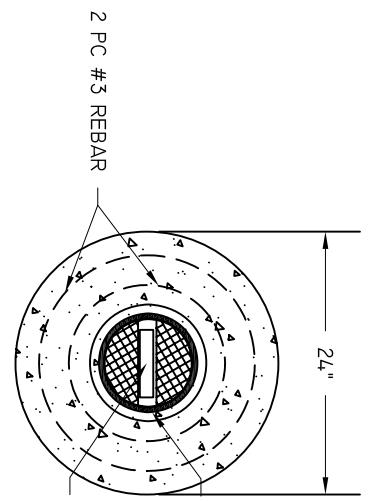
PLAN VIEW

SEE NOTE 4

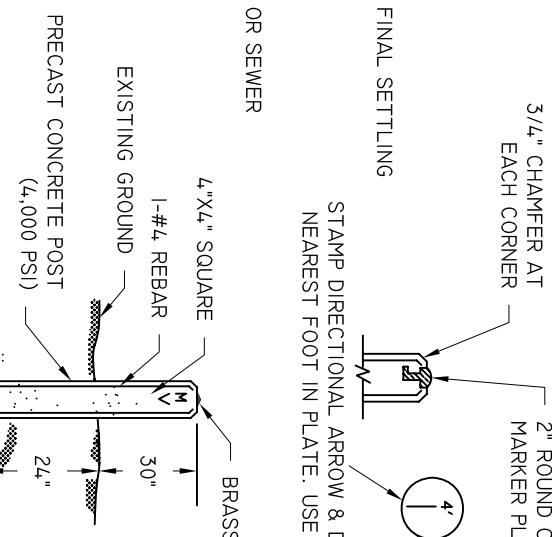
SEE NOTE 2
CREEK PRISM

PROFILE VIEW

DATE 07/01/09	DRAWN BY BMC	DRAWING # G-
SCALE N.T.S.	APPROVED BY ERS	



CONCRETE COLLAR



URBAN CONCRETE MARKER

NOTES:

1. MARKERS

A. VALVE MARKERS ARE REQUIRED FOR EACH VALVE (EXCEPT HYDRANT VALVES). PIPE LINE MARKERS ARE REQUIRED AT FITTINGS AND EACH 700' WHERE LINES RUN THROUGH AN UNDEVELOPED AREA. AN MANHOLE REQUIRES MANHOLE.

B. MARKER PAINTING

WATER - PAINTING NOT REQUIRED
SEWER INFLOW - TOP 4" GREEN
SEWER EFFLUENT - TOP 4" PURPLE

C. MARK MARKERS AS FOLLOWS

MV - MAIN VALVE

AV - AIR RELEASE VALVE

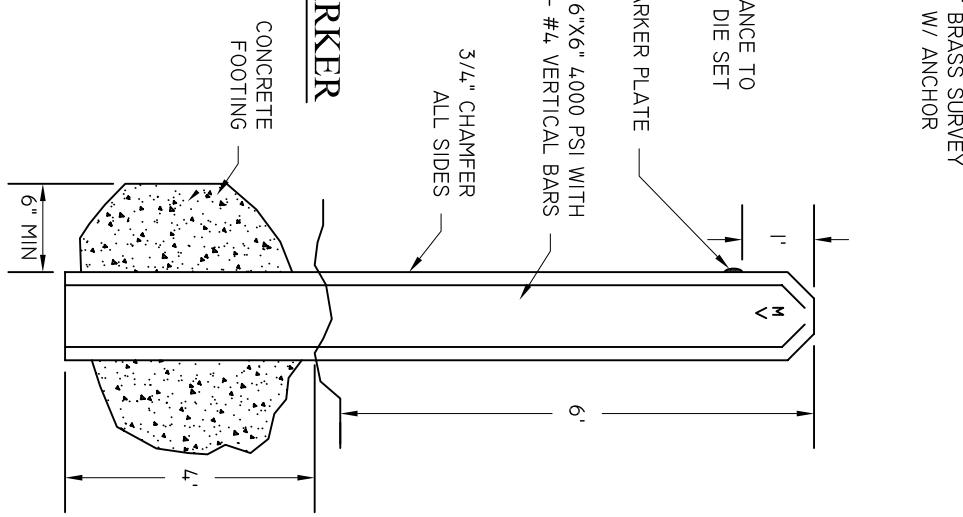
PPIPELINE - PIPELINE MARKER

D. VALVE AND PIPELINE MARKERS IN MOWED AREAS TO BE SET TO AN EXPOSURE OF NOT MORE THAN 18" OR LESS THAN 6" ABOVE FINAL GRADE.

E. IF SOILS ARE NOT STABLE ENOUGH TO MAINTAIN THE URBAN MARKERS VERTICAL, CONCRETE FOOTINGS ARE TO BE INSTALLED.

BEAUFORT - JASPER
WATER & SEWER AUTHORITY

STANDARD VALVE DETAIL



RURAL CONCRETE MARKER

VALVE AND VALVE BOX

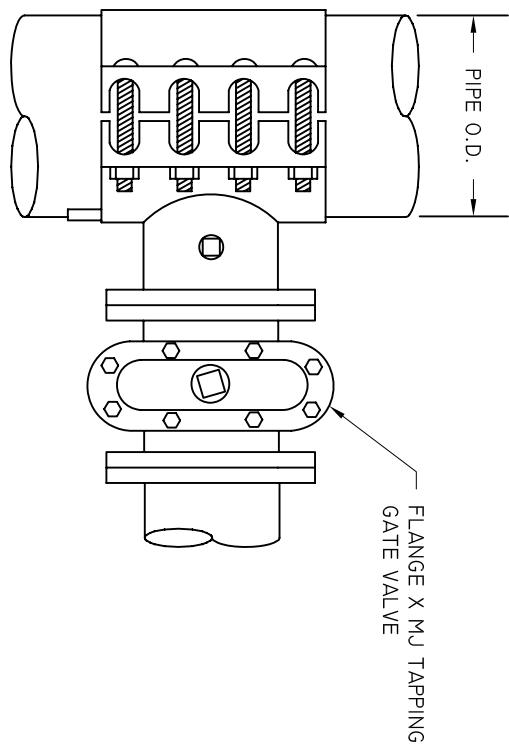
1. VALVE BOX LID SHALL BE WITHIN $\frac{1}{2}$ " OF COLLAR TOP. COLLAR TOP IS TO BE NO MORE THAN 1" ABOVE FINAL GRADE AND NO LOWER THAN 1" BELOW FINAL GRADE.
2. CONCRETE COLLAR NOT REQUIRED IN PAVEMENT. VALVE BOX TOP IS TO BE TRAFFIC RATED.

DATE 07/01/09	DRAWN BY BMC	DRAWING # G-12
SCALE N.T.S.	APPROVED BY ERS	

FINISH GRADE

NOTES:

1. ALL TAPPING SLEEVES GREATER THAN 2" SHALL BE HYDROSTATICALLY PRESSURE TESTED TO 150 PSI FOR 20 MINUTES.
2. ALL WET TAPS 12" AND UNDER SHALL BE PERFORMED BY B.JWSA.
3. TAP DIAMETER SHALL BE WITHIN $\frac{1}{8}$ " OF LINE DIAMETER.
4. NOTCH TOP OF PVC PIPE TO AVOID PINCHING TRACER WIRE.

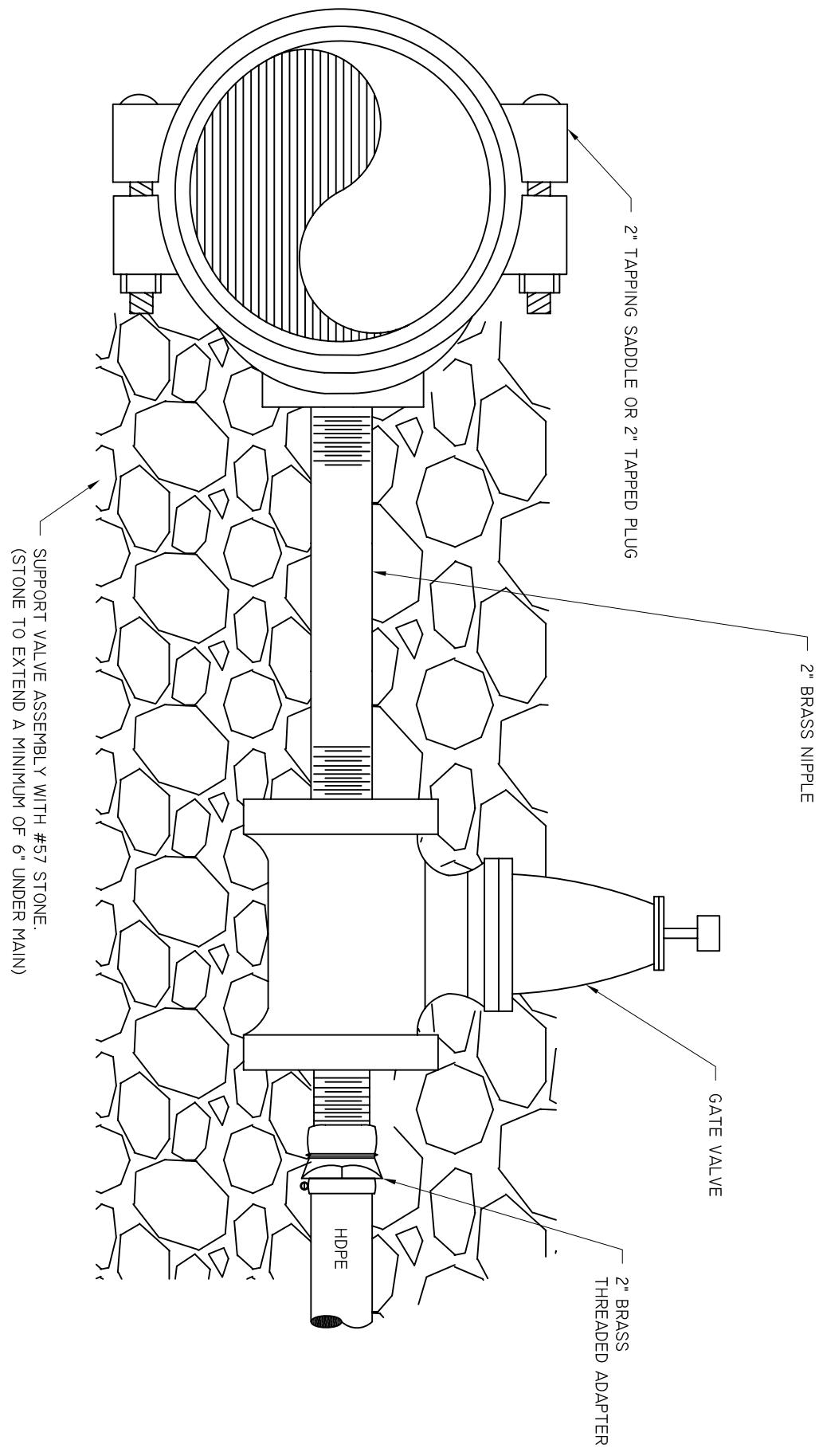


SUPPORT VALVE ASSEMBLY
WITH #57 STONE.
(STONE TO EXTEND MINIMUM
OF 6" UNDER INVERT)

DATE 07/01/09	DRAWN BY BMC	DRAWING # G-13
SCALE N.T.S.	APPROVED BY ERS	

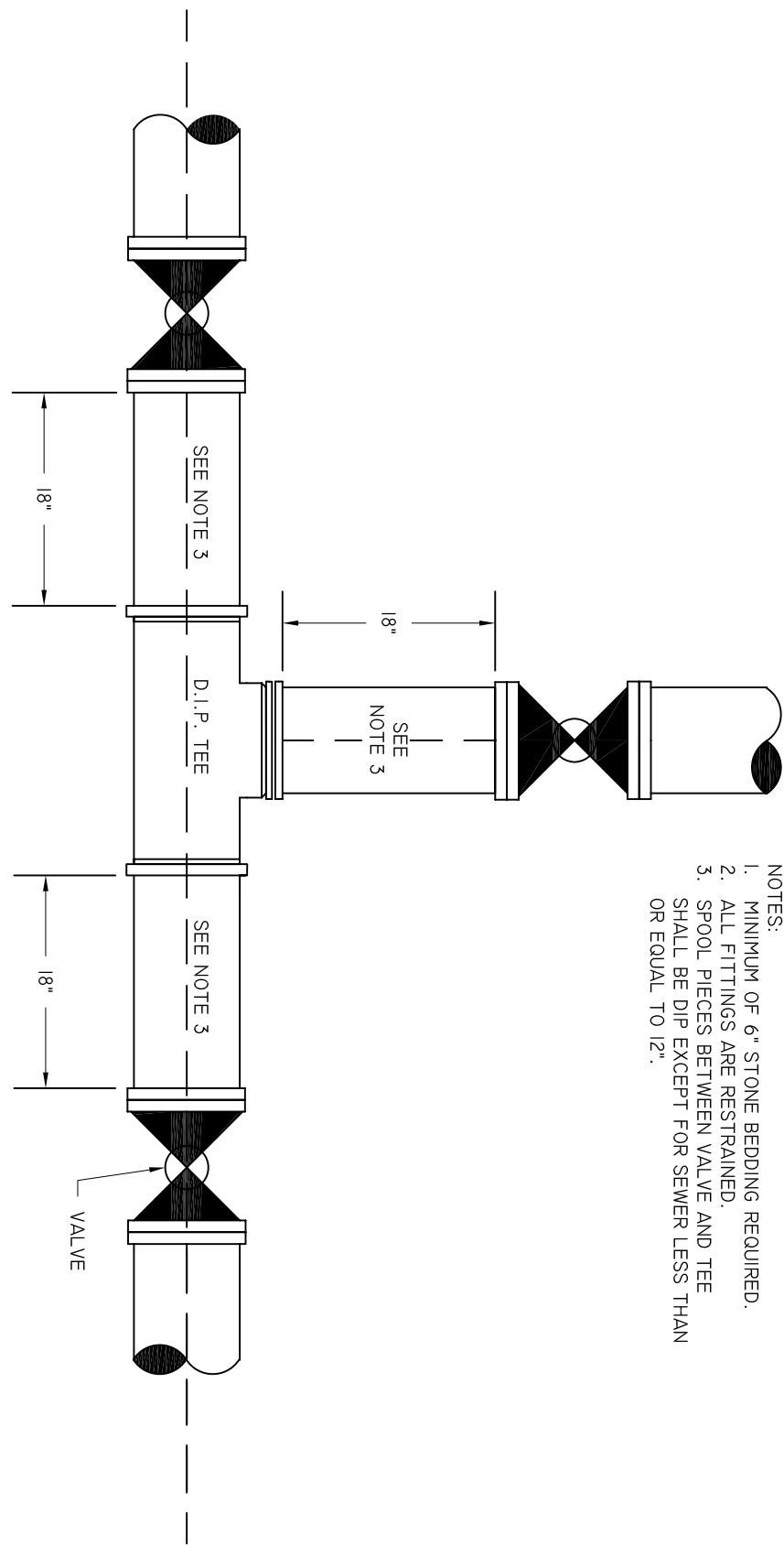
BEAUFORT - JASPER
WATER & SEWER AUTHORITY

TAPPING SLEEVE & VALVE DETAIL



BEAUFORT - JASPER
 WATER & SEWER AUTHORITY
 2" CONNECTION

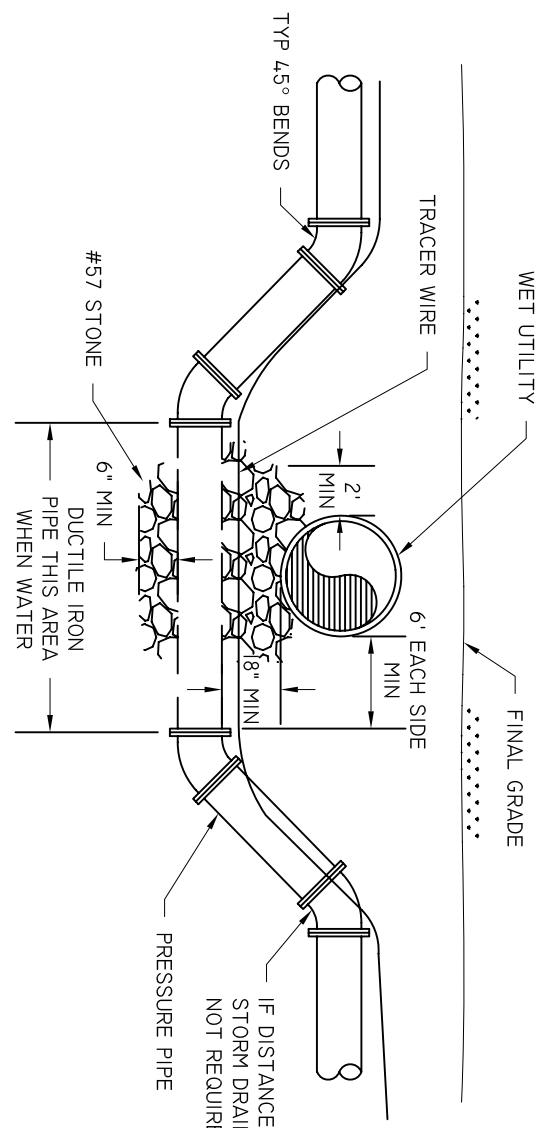
DATE	DRAWN BY	REVIEWED BY	DRAWING #
07/01/09	BMC	ERS	G-14



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WATER & SEWER AUTHORITY

TEE AND VALVES

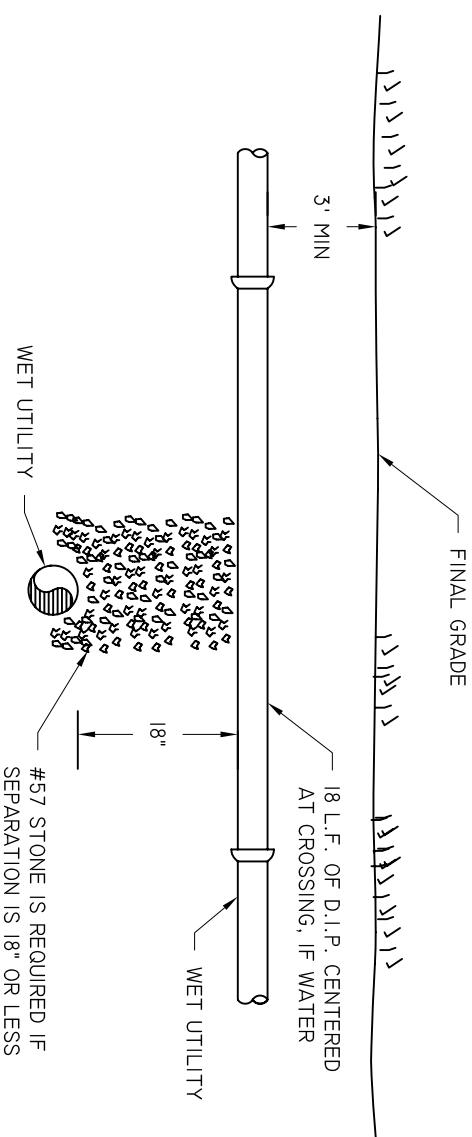
DATE	DRAWN BY	BMC	DRAWING #
07/01/09			
SCALE	APPROVED BY	ERS	
N.T.S.			G-15



NOTES:

1. WRITTEN AUTHORIZATION FROM BJWSA IS REQUIRED FOR LESS THAN 18" SEPARATION.
2. NORMAL JOINT RESTRAINT IS REQUIRED.

PRESSURE PIPE UNDER WET UTILITY
FOR FINAL DEPTH 5' OR GREATER



BEAUFORT - JASPER
WATER & SEWER AUTHORITY

WET UTILITY CROSSING

DATE 07/01/09	DRAWN BY BMC	DRAWING # G-16
SCALE N.T.S.	APPROVED BY ERS	