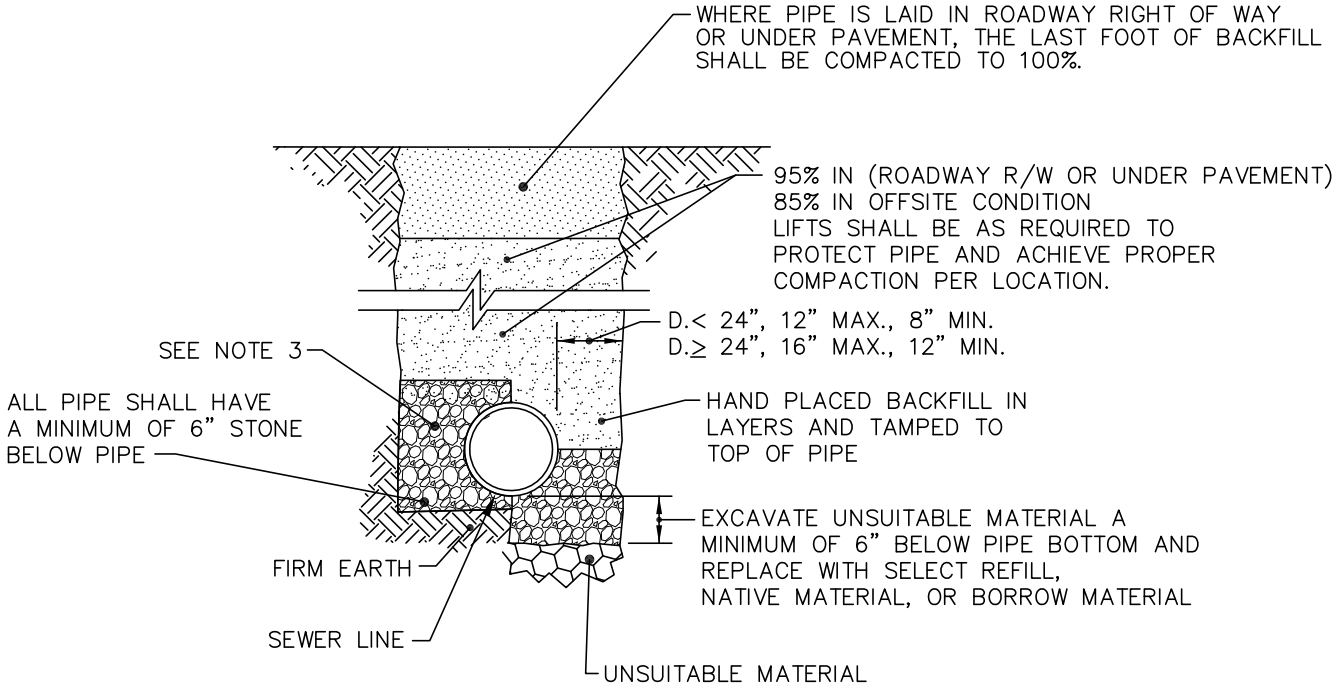


NOTE:

1. ALL COMPACTION PERCENTAGE (%) DENSITIES SHALL BE IN ACCORDANCE WITH ASTM D698, STANDARD PROCTOR.
2. ALL PVC PIPE LESS THAN 20'–0" DEEP SHALL BE STONE BEDDED TO THE SPRING LINE AS SHOWN.
3. **SPECIAL BEDDING:**
   WHERE REQUIRED, SPECIAL BEDDING SHALL BE A MINIMUM OF 6" STANDARD BEDDING SURROUNDING THE PIPE INCLUDING 6" ABOVE THE TOP OF THE PIPE.
4. ALL SANITARY SEWER 4'–0" DEEP OR LESS, SHALL BE EPOXY LINED DUCTILE IRON PIPE.

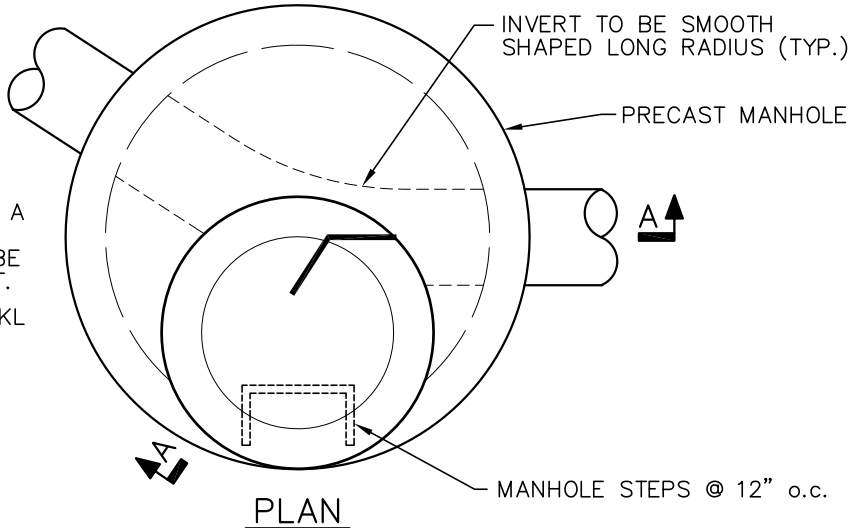
TYPICAL GRAVITY SANITARY SEWER LINE TRENCH EXCAVATION DETAIL

NO SCALE

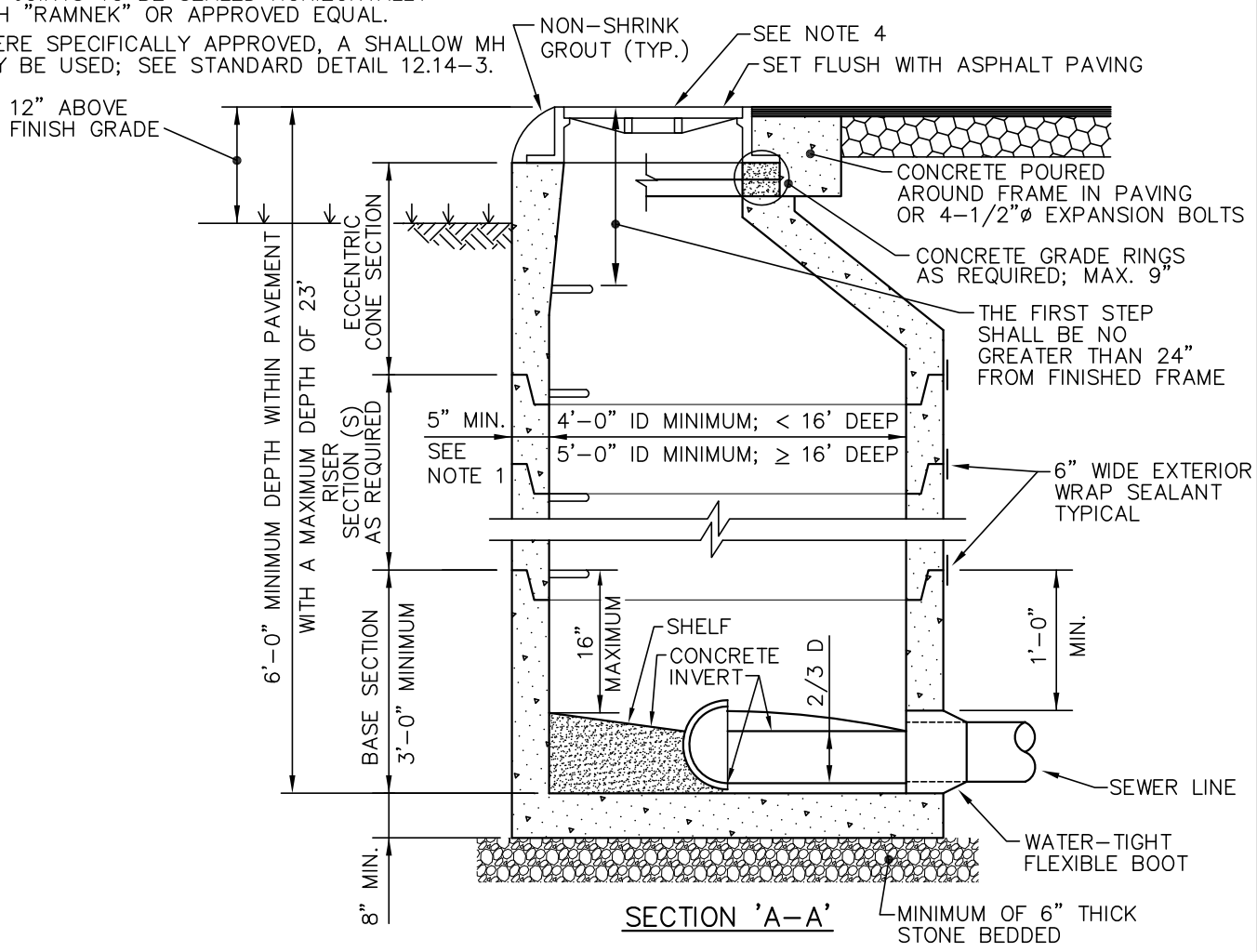
Approved By: _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____	WATER UTILITY COLUMBIA COUNTY GEORGIA ENGINEERING DEPARTMENT	STANDARD DETAIL NUMBER 12.11–1

NOTES:

1. MANHOLES 20' DEEP OR GREATER SHALL HAVE A MINIMUM WALL THICKNESS OF 6".
2. ALL STEPS SHALL BE VERTICALLY ALIGNED WITHIN THE MANHOLE AND BE POSITIONED TO ENTER ON A SHELF.
3. ALL MANHOLES SHALL HAVE A MINIMUM OF A 0.2' DIFFERENCE BETWEEN INVERT IN AND INVERT OUT ELEVATIONS. SERVICES SHALL BE A MINIMUM OF 1'–0" ABOVE LOWEST INVERT.
4. FRAME AND COVER IN PAVEMENT: USF 668KL ALL OTHER CONDITIONS SHALL BE USF 924
5. AN INVERT DIFFERENCE OF GREATER THAN 24" SHALL BE A DROP MANHOLE; SEE STANDARD DETAIL 12.14–2.
6. ALL CONNECTIONS SHALL BE CORED AND BOOTED. CHIPPING OR HAMMERING IS NOT PERMITTED.
7. ALL JOINTS TO BE SEALED HORIZONTALLY WITH "RAMNEK" OR APPROVED EQUAL.
8. WHERE SPECIFICALLY APPROVED, A SHALLOW MH MAY BE USED; SEE STANDARD DETAIL 12.14–3.



PLAN



SECTION 'A–A'

TYPICAL SANITARY SEWER MANHOLE DETAIL

NO SCALE

Approved By: _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____

WATER UTILITY

COLUMBIA COUNTY GEORGIA

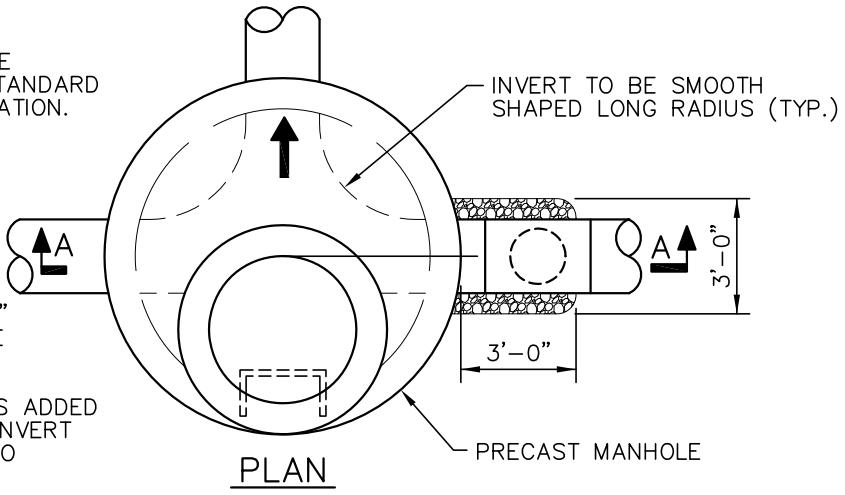
ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER

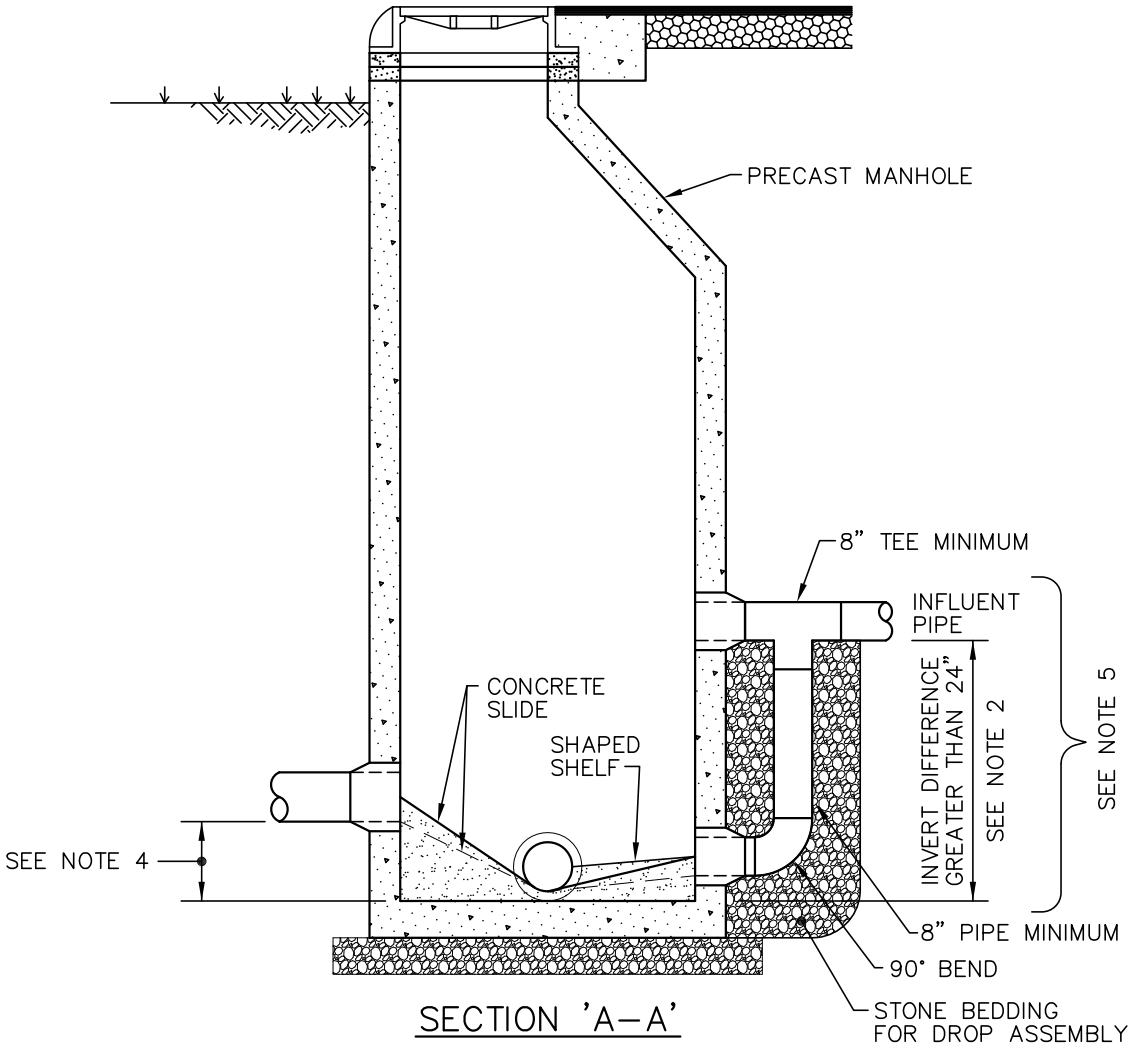
12.14–1

NOTES:

1. DROP MANHOLE CONSTRUCTION SHALL BE SIMILAR TO STANDARD MANHOLE. SEE STANDARD DETAIL 12.14–1 FOR ADDITIONAL INFORMATION.
2. ALL DROP PIPING SHALL BE THE SAME SIZE AS INFLUENT SEWER PIPE.
3. ALL DROP PIPING SHALL BE RESTRAINED JOINT. ALL PIPE TO BE DIP SHALL BE EPOXY COATED.
4. ALL INVERT DIFFERENCES LESS THAN 24" SHALL HAVE A SMOOTH CONCRETE SLIDE SHAPED INVERT.
5. WHERE A DROP MANHOLE CONNECTION IS ADDED TO AN EXISTING MANHOLE; THE LOWER INVERT SHALL BE A MINIMUM OF 'D/2' ABOVE TO INVERT OF THE EXISTING SEWER LINE.



PLAN



SECTION 'A–A'

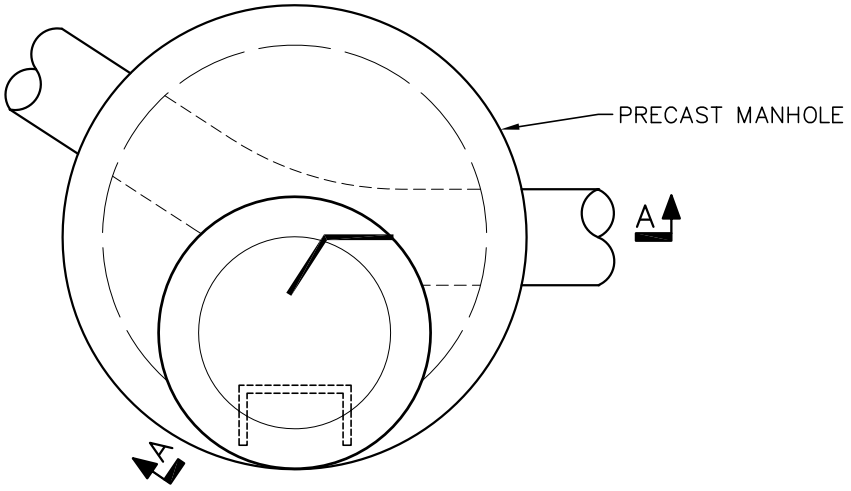
TYPICAL SANITARY SEWER DROP MANHOLE DETAIL

NO SCALE

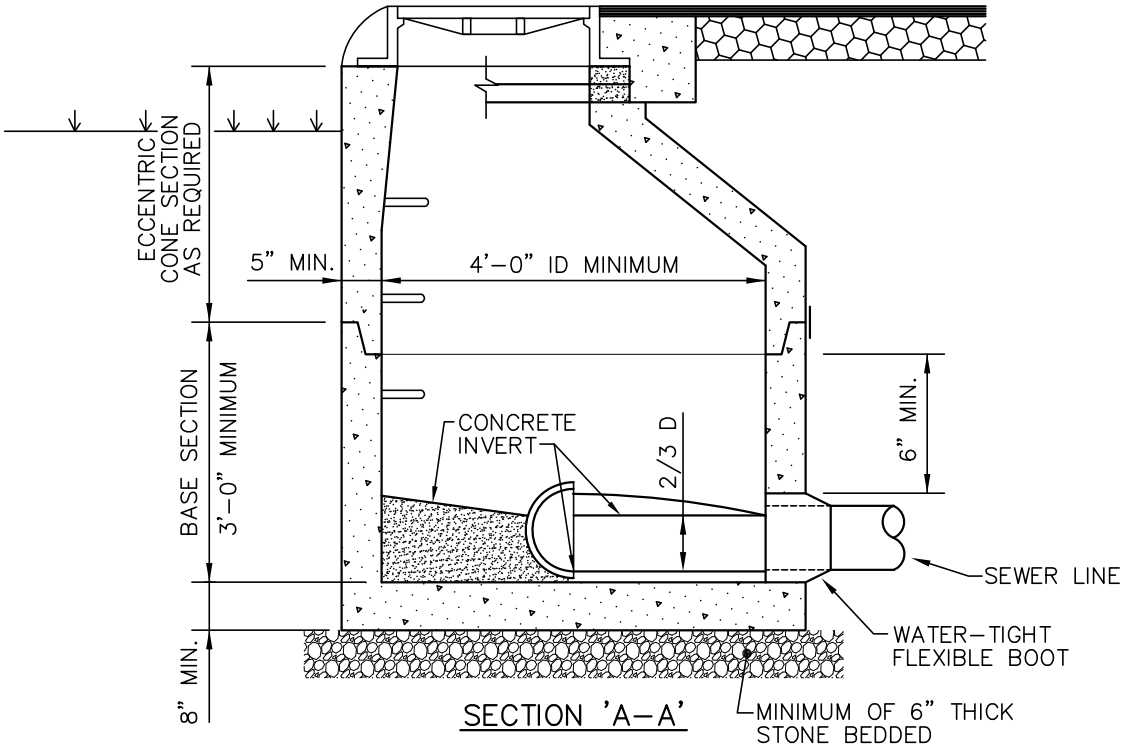
Approved By: _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____	WATER UTILITY COLUMBIA COUNTY GEORGIA ENGINEERING DEPARTMENT	STANDARD DETAIL NUMBER 12.14–2

NOTES:

1. SEE TYPICAL SANITARY SEWER MANHOLE DETAIL 12.14–1 FOR ADDITIONAL MANHOLE INFORMATION.



PLAN



SECTION 'A–A'

SHALLOW SANITARY SEWER MANHOLE DETAIL

NO SCALE

Approved By: _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____

WATER UTILITY

COLUMBIA COUNTY GEORGIA

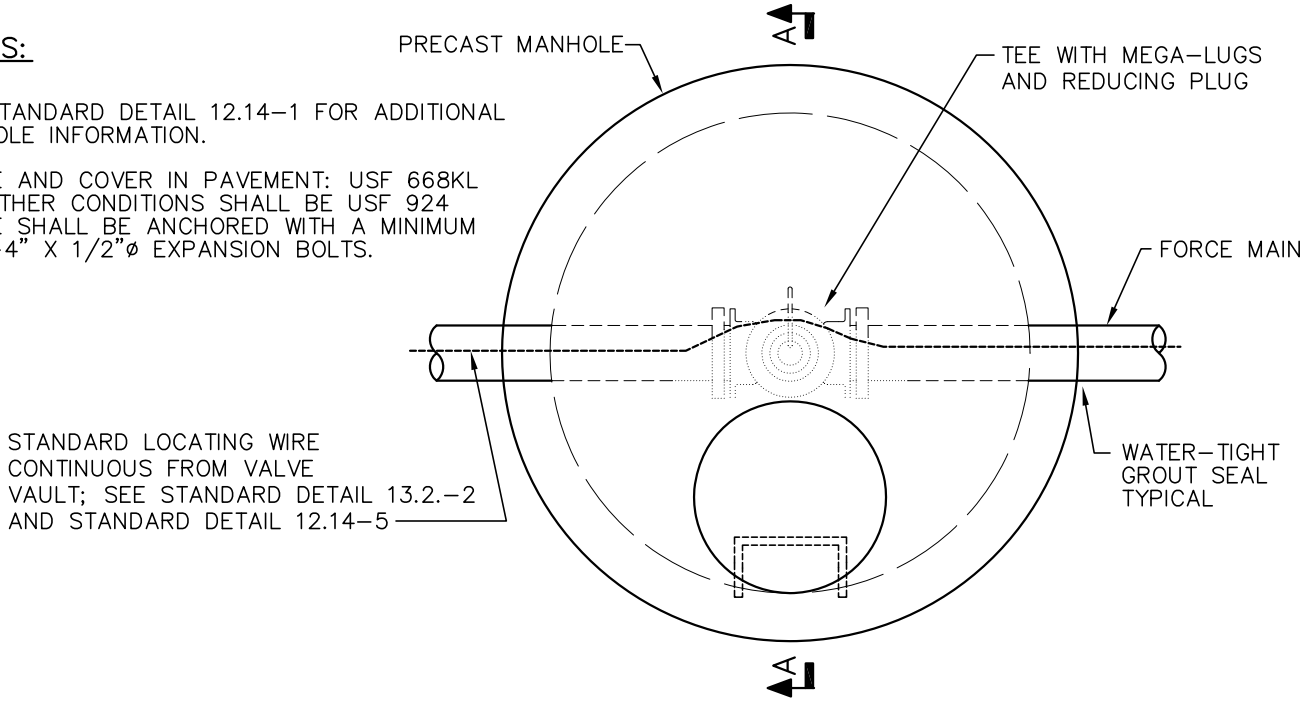
ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER

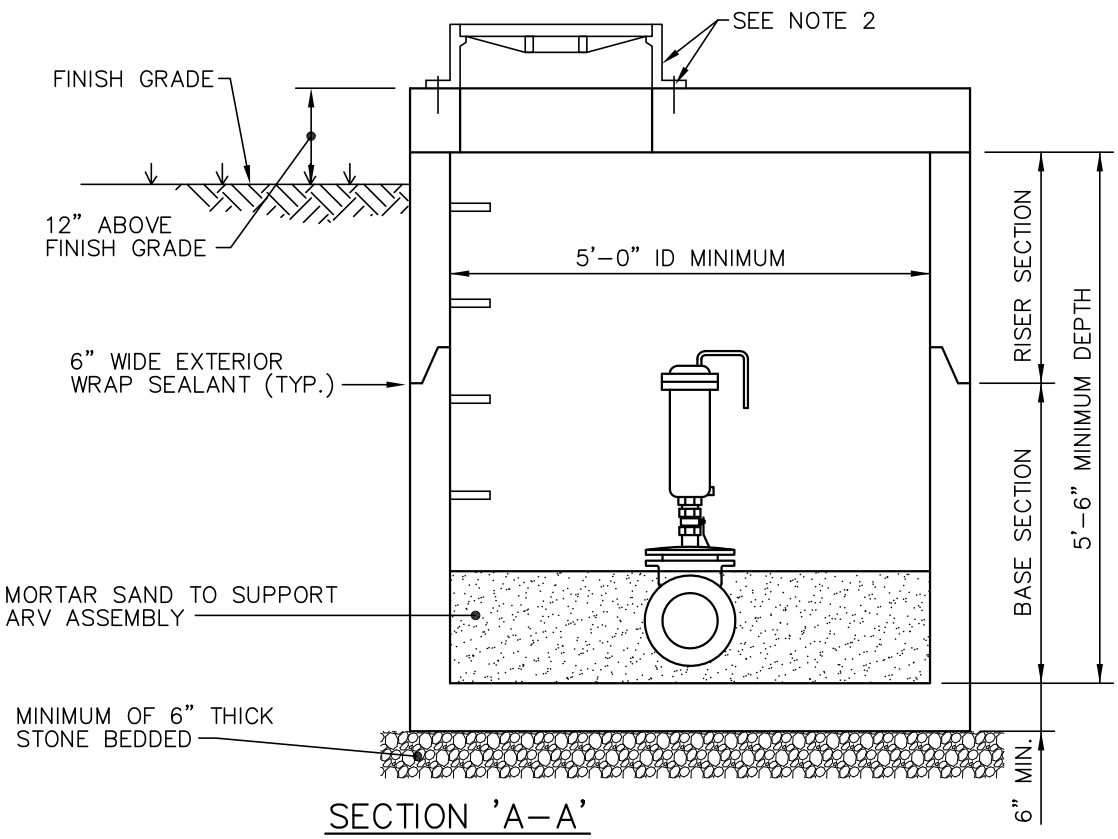
12.14–3

NOTES:

1. SEE STANDARD DETAIL 12.14–1 FOR ADDITIONAL MANHOLE INFORMATION.
2. FRAME AND COVER IN PAVEMENT: USF 668KL ALL OTHER CONDITIONS SHALL BE USF 924 FRAME SHALL BE ANCHORED WITH A MINIMUM OF 2–4" X 1/2"ø EXPANSION BOLTS.



PLAN



SECTION 'A–A'

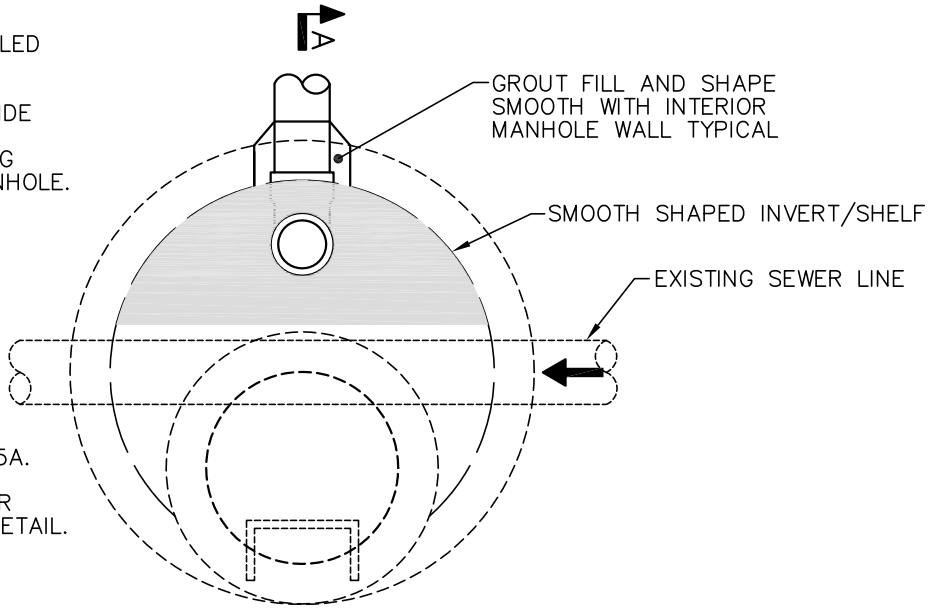
TYPICAL AIR RELEASE VALVE MANHOLE DETAIL

NO SCALE

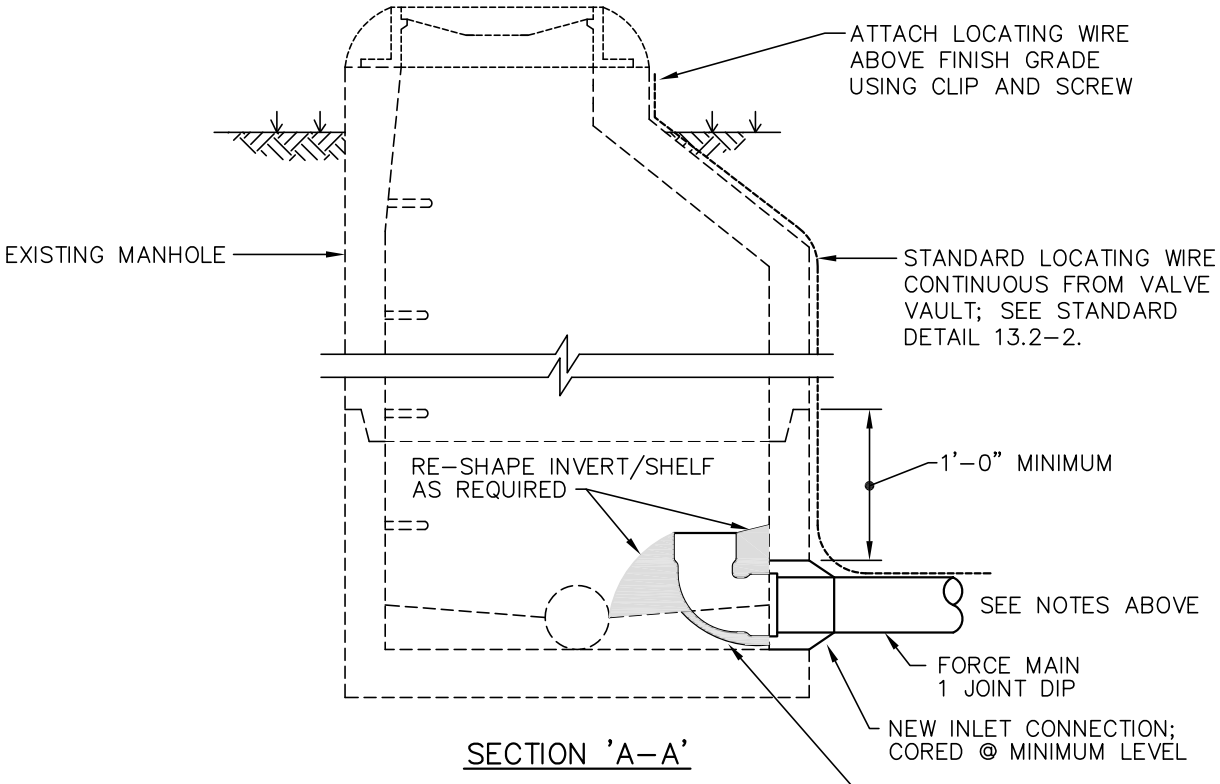
Approved By: _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____	WATER UTILITY COLUMBIA COUNTY GEORGIA ENGINEERING DEPARTMENT	STANDARD DETAIL NUMBER 12.14–4

NOTES:

1. ONE JOINT OF DIP SHALL BE INSTALLED AT END OF THE FORCE MAIN. 90° BEND SHALL BE FASTITE JOINT WITH RESTRAINING GASKET. BEND MAY SLIDE INSIDE BOOT ENOUGH TO SHAPE A SMOOTH CURVED RADIUS TO EXISTING TROUGH FOR BEST FLOW INSIDE MANHOLE.
2. A THRUST COLLAR SHALL BE ADDED TO THE SINGLE JOINT OF DIP TO RESTRAIN BEND DURING TESTING AND NORMAL OPERATIONS. A TEMPORARY PLUG SHALL BE USED DURING TESTING.
3. FORCE MAINS LARGER THAN 6" SHALL REQUIRE A NEW MANHOLE TO BE SET ON THE EXISTING SEWER LINE. SEE STANDARD DETAIL 12.14–5A.
4. SEE STANDARD DETAIL 12.14–5P FOR PRIVATE FORCE MAIN CONNECTION DETAIL.



PLAN



SECTION 'A–A'

TYPICAL FORCE MAIN CONNECTION TO EXISTING MANHOLE DETAIL

NO SCALE

Approved By: _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____

WATER UTILITY

COLUMBIA COUNTY GEORGIA

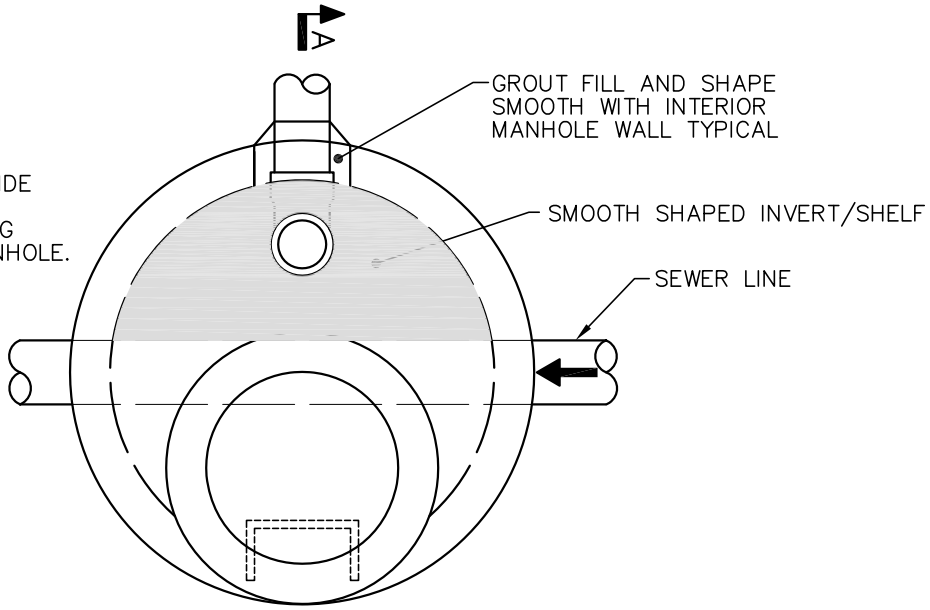
ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER

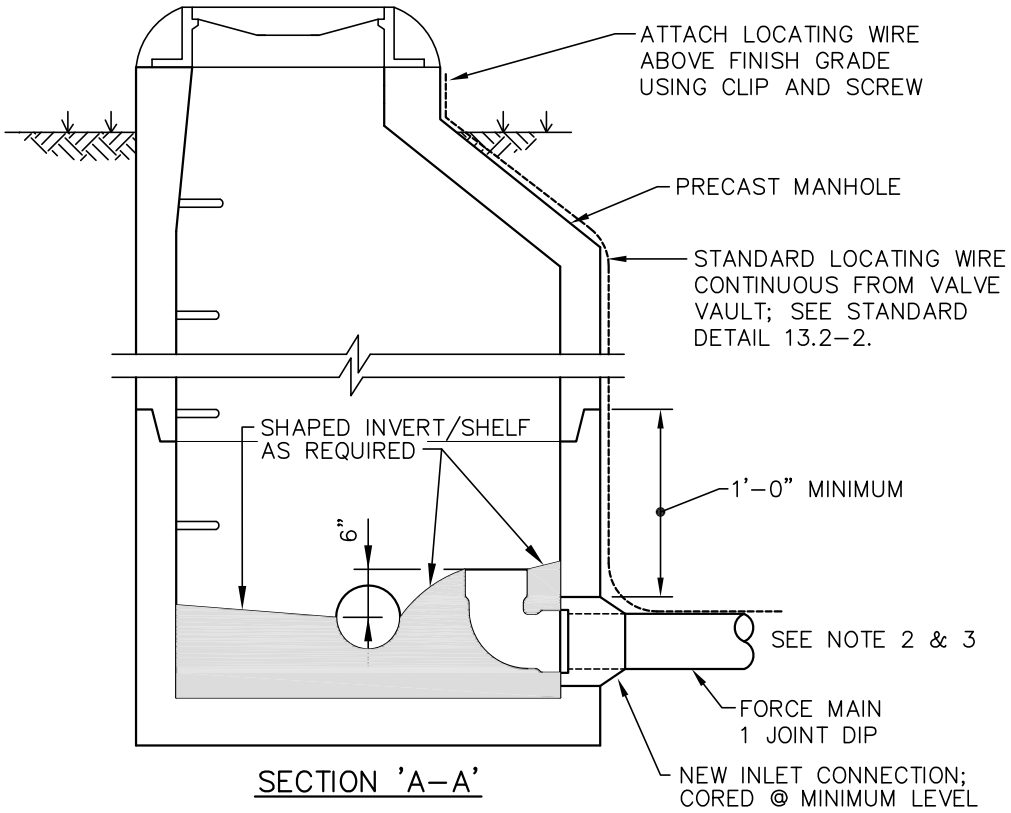
12.14–5

NOTES:

1. SEE STANDARD DETAIL 12.14–1 FOR ADDITIONAL MANHOLE INFORMATION.
2. ONE JOINT DIP SHALL BE INSTALLED AT END OF THE FORCE MAIN. 90° BEND SHALL BE FASTITE JOINT WITH RESTRAINING GASKET. BEND MAY SLIDE INSIDE BOOT ENOUGH TO SHAPE A SMOOTH CURVED RADIUS TO EXISTING TROUGH FOR BEST FLOW INSIDE MANHOLE.
3. A THRUST COLLAR SHALL BE ADDED TO THE SINGLE JOINT OF DIP TO RESTRAIN BEND DURING TESTING AND NORMAL OPERATIONS. A TEMPORARY PLUG SHALL BE USED DURING TESTING.



PLAN



SECTION 'A–A'

TYPICAL FORCE MAIN CONNECTION TO MANHOLE DETAIL

NO SCALE

Approved By: _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____

WATER UTILITY

COLUMBIA COUNTY GEORGIA

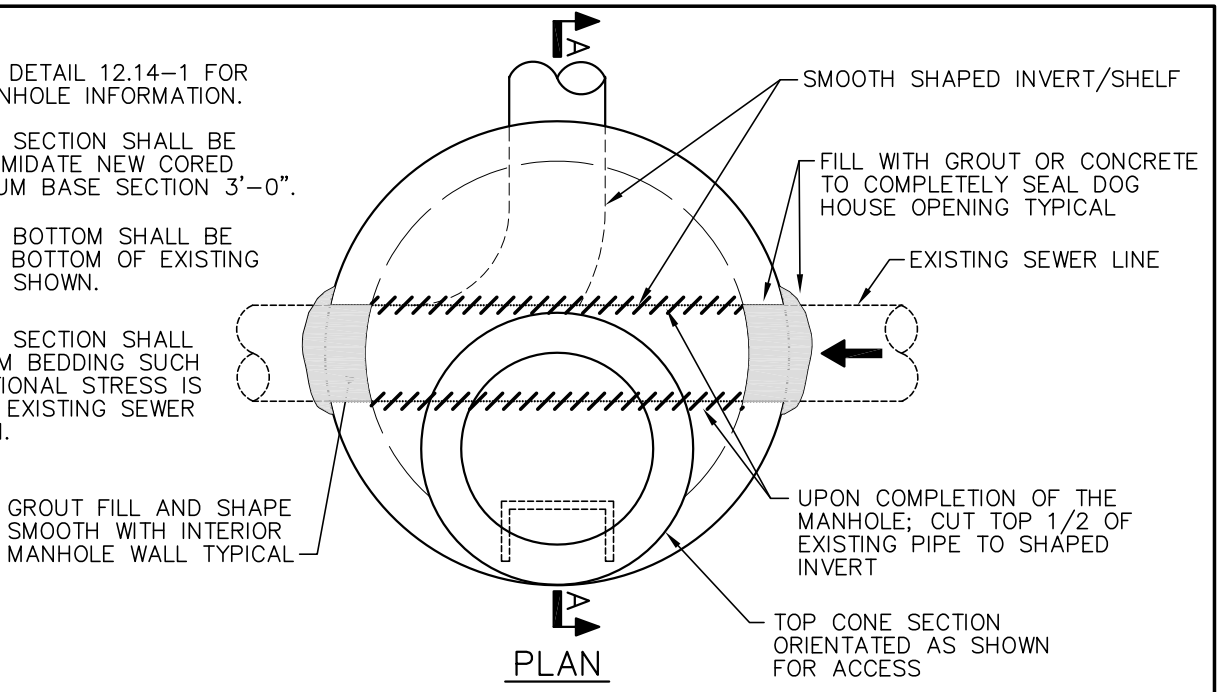
ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER

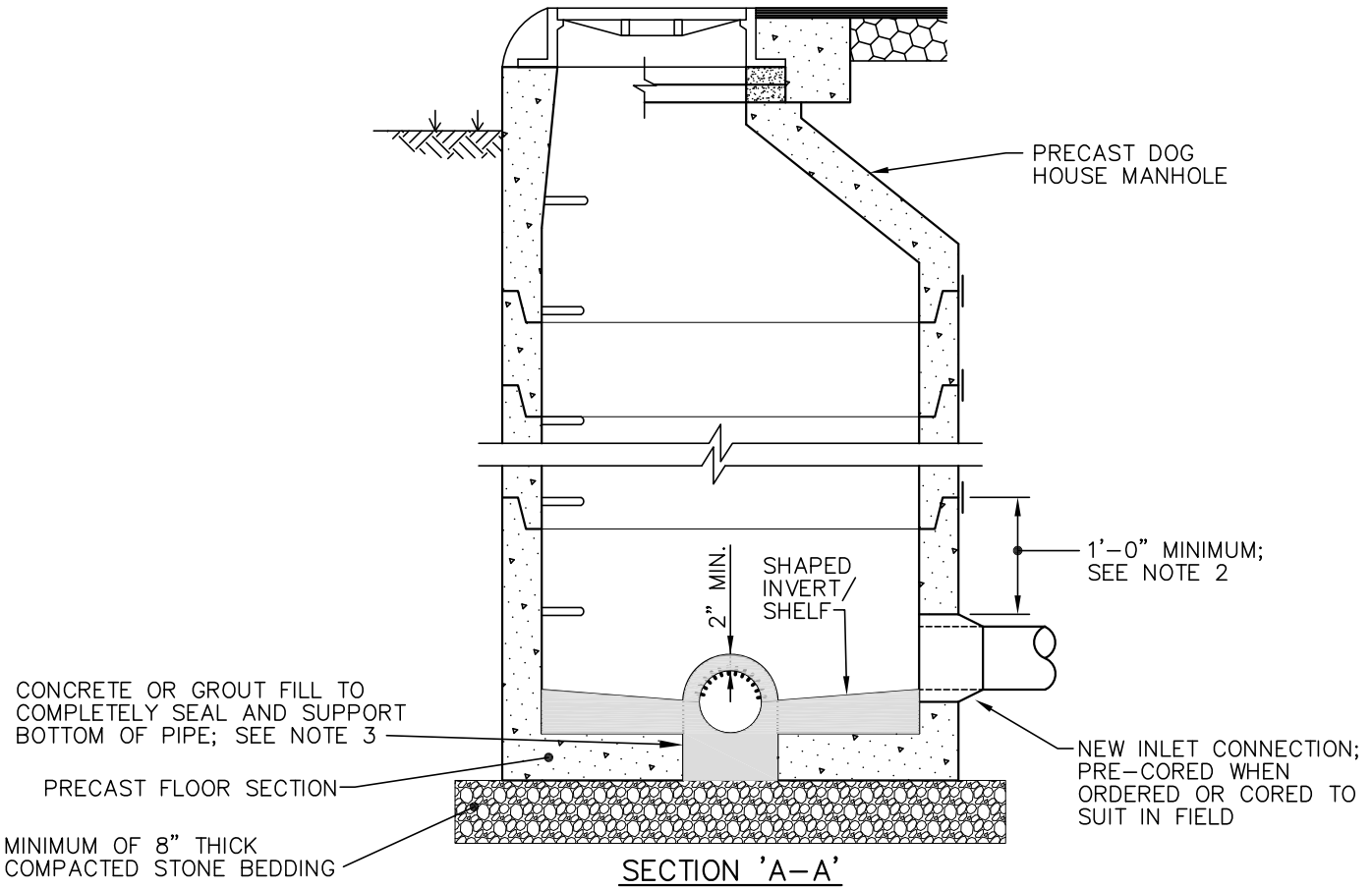
12.14–5A

NOTES:

1. SEE STANDARD DETAIL 12.14–1 FOR ADDITIONAL MANHOLE INFORMATION.
2. MANHOLE BASE SECTION SHALL BE SIZED TO ACCOMIDATE NEW CORED INVERT. MINIMUM BASE SECTION 3'–0".
3. MANHOLE BASE BOTTOM SHALL BE SET EVEN WITH BOTTOM OF EXISTING SEWER LINE AS SHOWN.
4. MANHOLE BASE SECTION SHALL BE SET ON FIRM BEDDING SUCH THAT NO ADDITIONAL STRESS IS ADDED TO THE EXISTING SEWER LINE AS SHOWN.



PLAN



SECTION 'A–A'

TYPICAL DOG HOUSE MANHOLE DETAIL

NO SCALE

Approved By: _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____

WATER UTILITY

COLUMBIA COUNTY GEORGIA

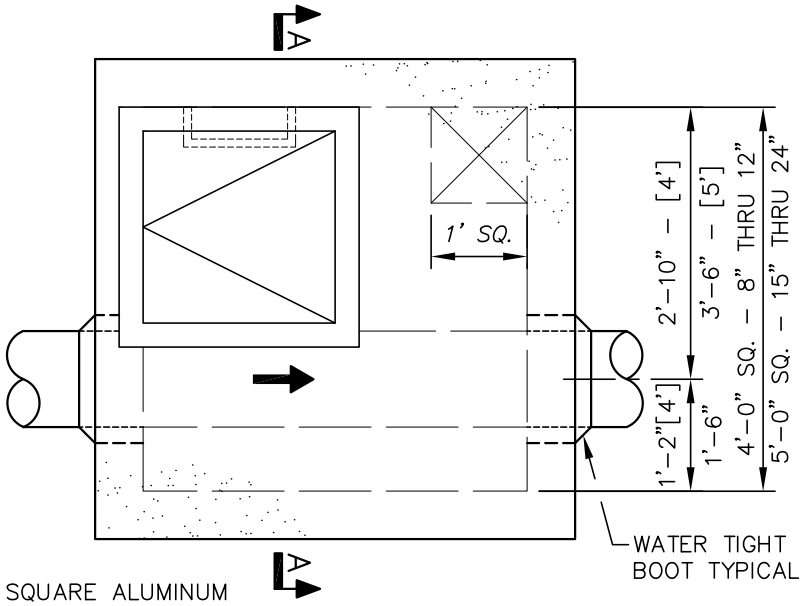
ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER

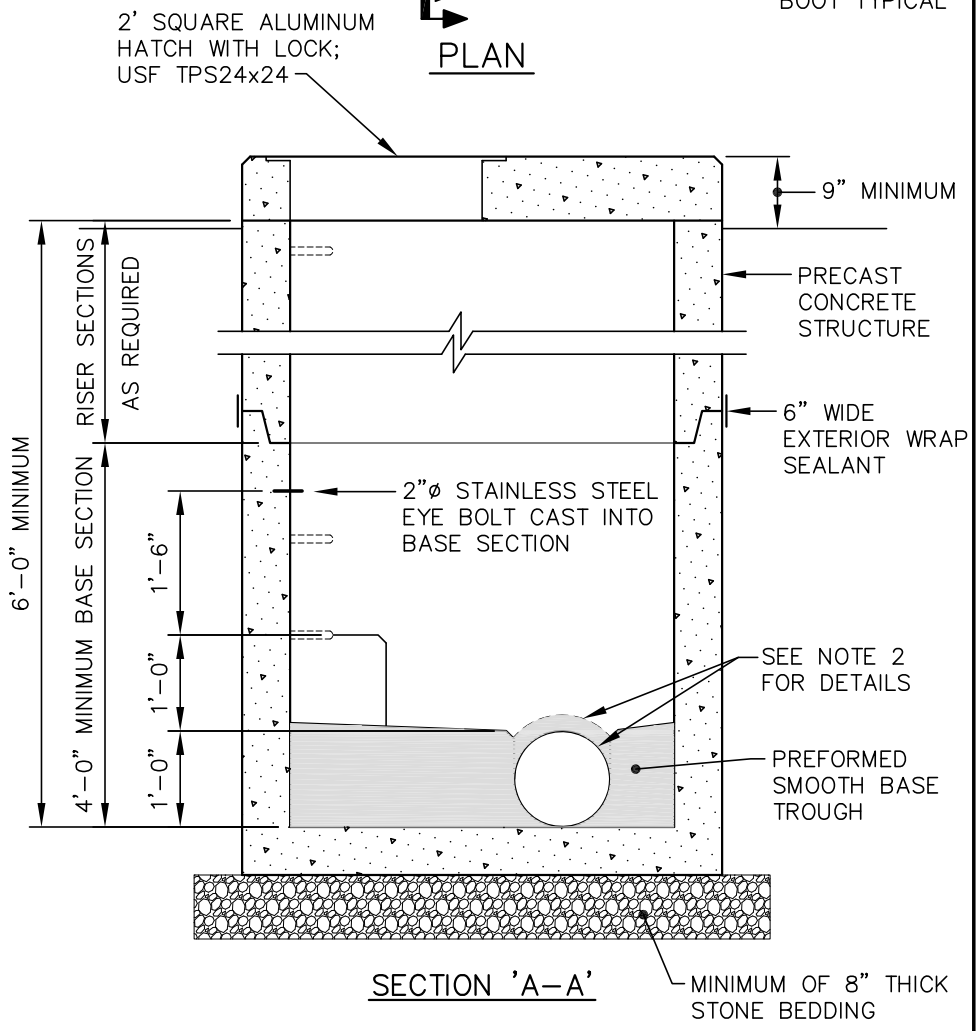
12.14–6

NOTES:

1. SEE STANDARD DETAIL 12.14–1 FOR ADDITIONAL MANHOLE INFORMATION.
2. PIPE INLET AND OUTLET SHALL BE CUT FLUSH WITH THE INSIDE WALL. ALL VOIDS SHALL BE BE GROUTED SMOOTH. NO PROTRUSIONS OR IRREGULARITIES SHALL BE PERMITTED.
3. ALL EARTH SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURE.
4. WHERE STRUCTURE MUST BE WITHIN TRAFFIC AREA, BOLLARDS MUST BE ADDED AT TRAFFIC CORNERS.



PLAN



SECTION 'A–A'

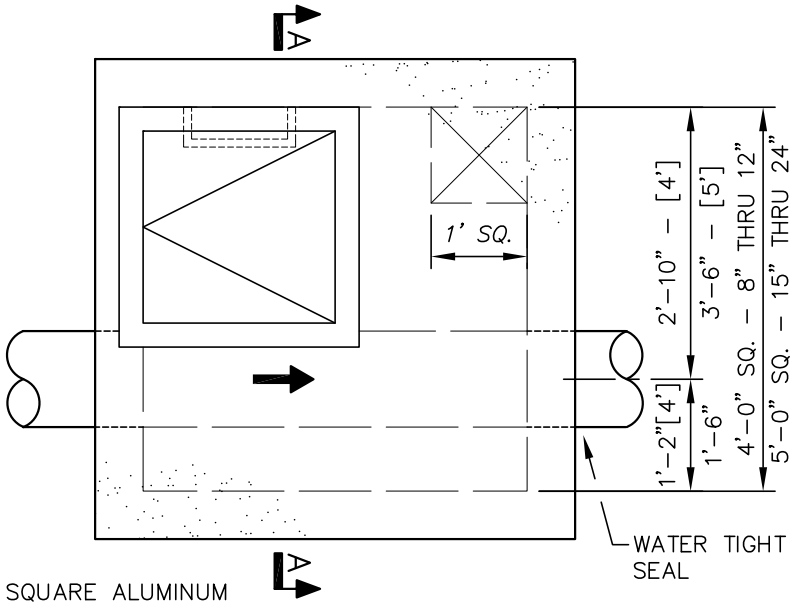
TYPICAL METERING OR MONITORING MANHOLE DETAIL

SCALE: 1/2" = 1'–0"

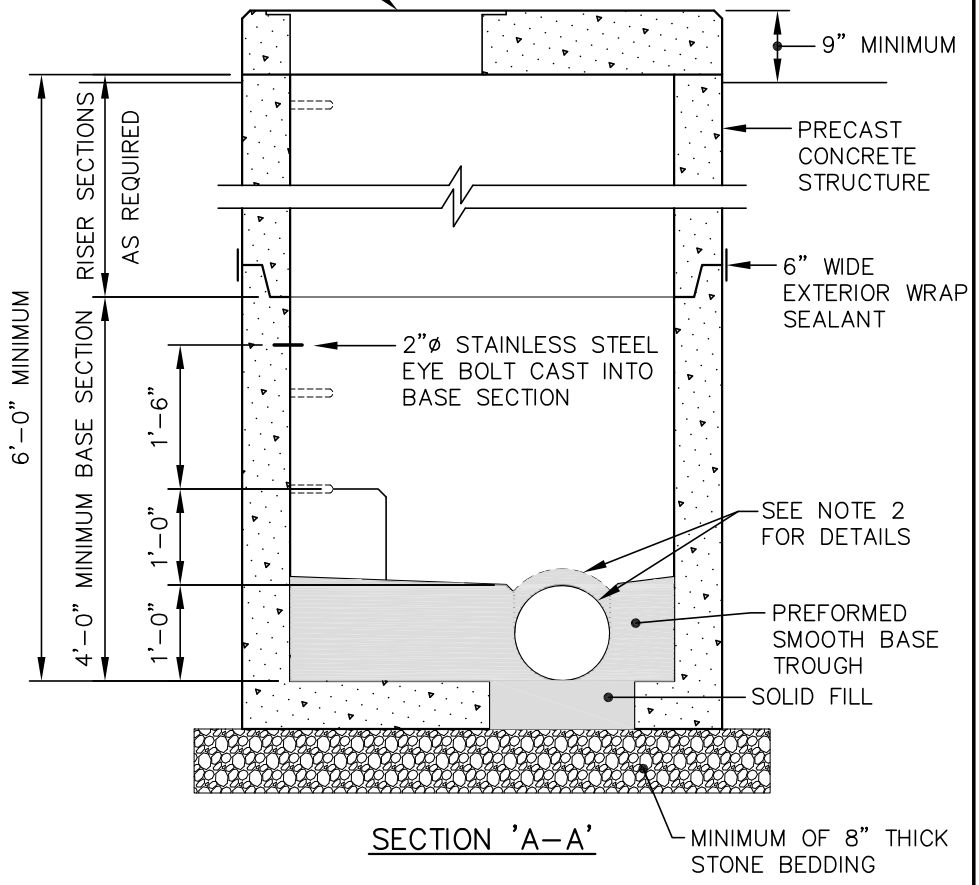
Approved By: _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____ Revision No. _____ Date: _____	WATER UTILITY COLUMBIA COUNTY GEORGIA ENGINEERING DEPARTMENT	STANDARD DETAIL NUMBER 12.14–7

NOTES:

1. SEE STANDARD DETAIL 12.14–1 FOR ADDITIONAL MANHOLE INFORMATION.
2. PIPE INLET AND OUTLET SHALL BE CUT FLUSH WITH THE INSIDE WALL. ALL VOIDS SHALL BE BE GROUTED SMOOTH. NO PROTRUSIONS OR IRREGULARITIES SHALL BE PERMITTED.
3. ALL EARTH SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURE.
4. WHERE STRUCTURE MUST BE WITHIN TRAFFIC AREA, BOLLARDS MUST BE ADDED AT TRAFFIC CORNERS.



PLAN



SECTION 'A–A'

TYPICAL DOGHOUSE METERING OR MONITORING MANHOLE DETAIL

SCALE: 1/2" = 1'–0"

Approved By: _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____

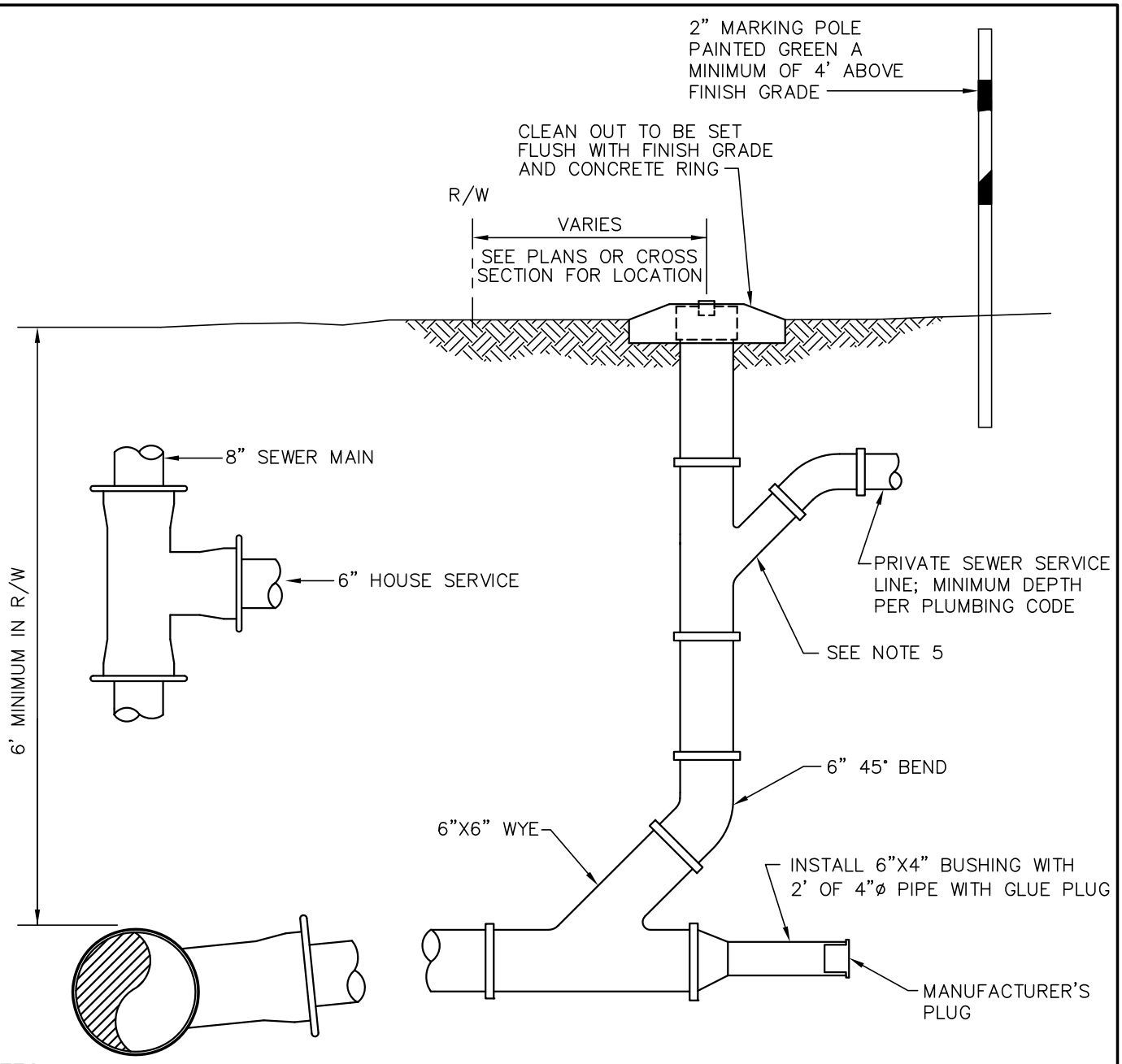
WATER UTILITY

COLUMBIA COUNTY GEORGIA

ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER

12.14–7A



NOTES:

1. ALL SEWER SERVICES SHALL BE A 6"ø MINIMUM WITH A MINIMUM SLOPE OF 1%.
2. EACH BUILDING LOT SHALL HAVE A SERVICE TAP AND THE TAP LOCATION SHALL BE MARKED IN THE GUTTER LINE WITH A "S".
3. VERTICAL INSTALLATION OF THE TEE/WYE TO THE SEWER LINE IS NOT PERMITTED.
4. NO SERVICE TAPS / LATERALS SHALL BE TAPPED DIRECTLY INTO A SEWER LINE 15" OR LARGER. ALL SEWER TAPS / LATERALS SHALL BE CONNECTED INTO A MANHOLE. IF NO MANHOLE IS AVAILABLE, A DOGHOUSE MANHOLE SHALL BE INSTALLED. SEE STANDARD DETAIL 12.16–2.
5. THE BUILDER'S PLUMBER HAS THE OPTION TO CUT INTO THE STAND PIPE AND INSTALL A 6" WYE AS SHOWN TO MINIMIZE THE DEPTH OF CONNECTION. ANY DAMAGE TO THE SEWER SERVICE OR TAP SHALL BE THE BUILDERS RESPONSIBLITY. ALL REPAIRS OR REPLACEMENT SHALL BE IN ACCORDANCE WITH COLUMBIA COUNTY WATER UTILITY SPECIFICATIONS.

TYPICAL SERVICE TAP / LATERAL DETAIL–1

NO SCALE

Approved By: _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____

WATER UTILITY

COLUMBIA COUNTY GEORGIA

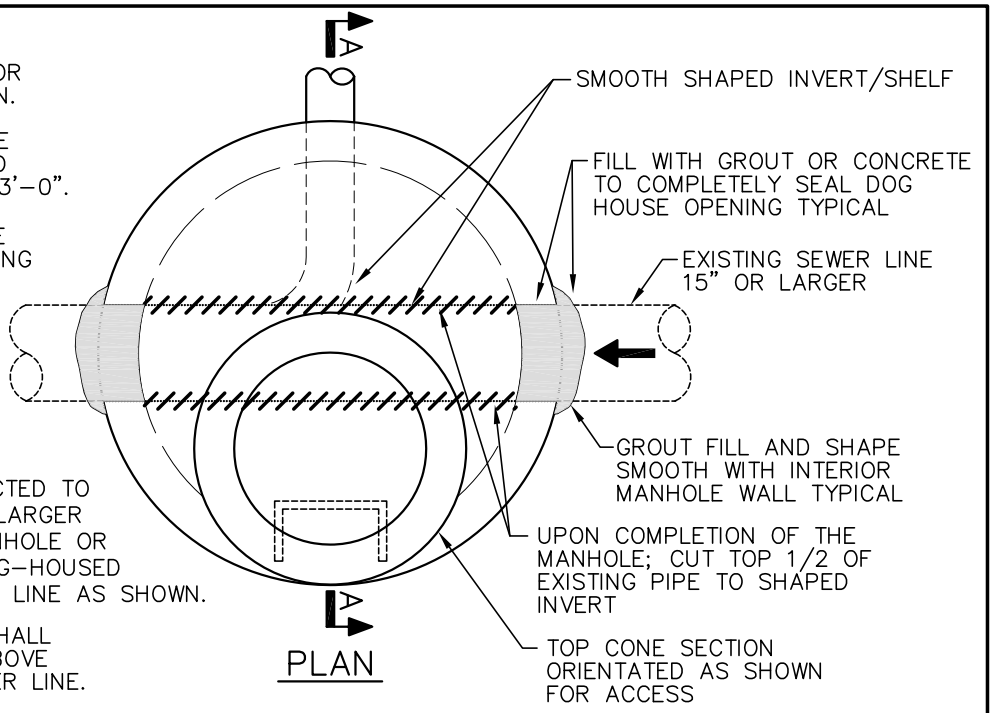
ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER

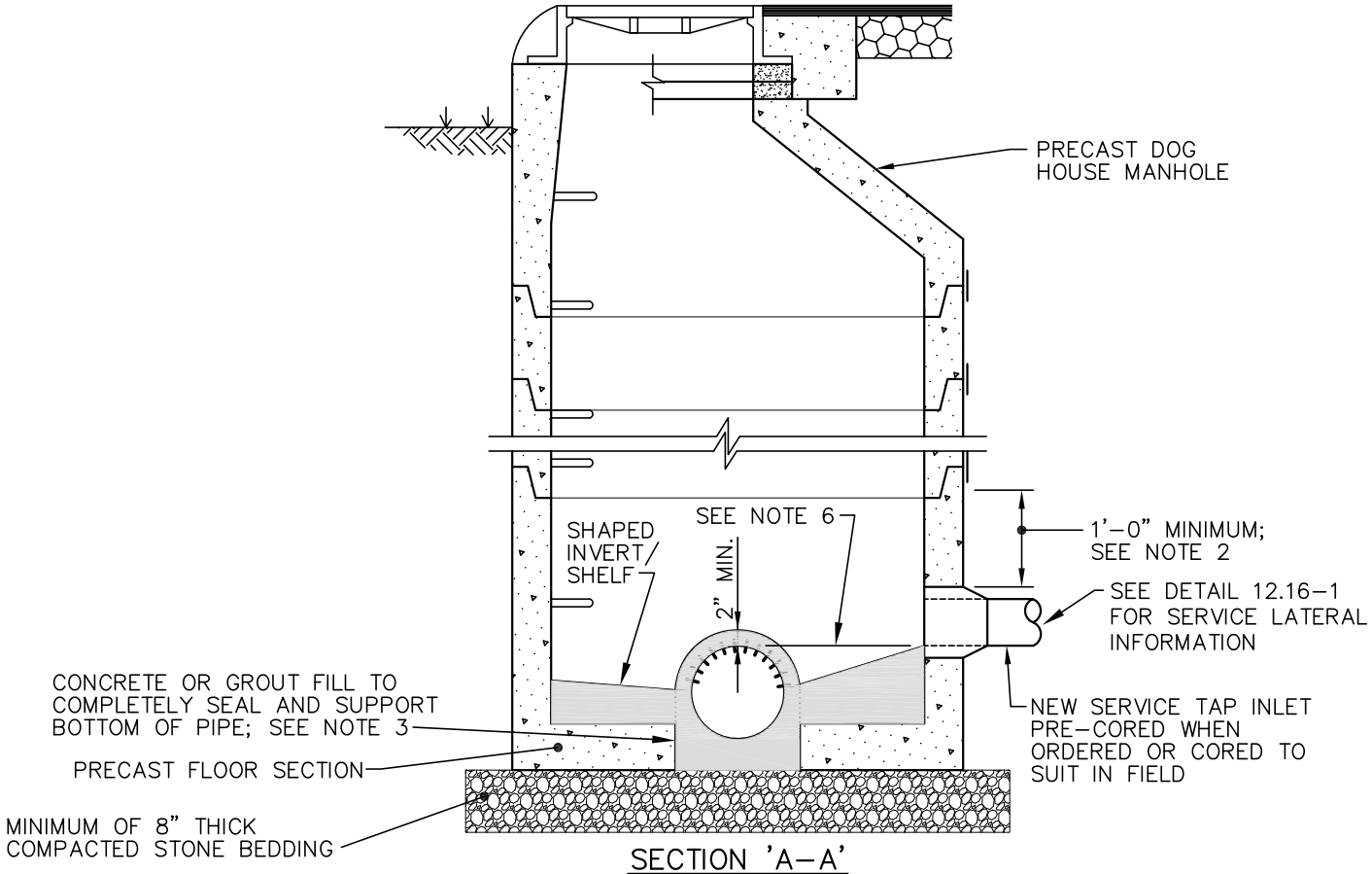
12.16–1

NOTES:

1. SEE STANDARD DETAIL 12.14–1 FOR ADDITIONAL MANHOLE INFORMATION.
2. MANHOLE BASE SECTION SHALL BE SIZED TO ACCOMIDATE NEW CORED INVERT. MINIMUM BASE SECTION 3'–0".
3. MANHOLE BASE BOTTOM SHALL BE SET EVEN WITH BOTTOM OF EXISTING SEWER LINE AS SHOWN.
4. MANHOLE BASE SECTION SHALL BE SET ON FIRM BEDDING SUCH THAT NO ADDITIONAL STRESS IS ADDED TO THE EXISTING SEWER LINE AS SHOWN.
5. ALL SERVICE TAPS TO BE CONNECTED TO SANITARY SEWER LINES 15" AND LARGER SHALL BE FROM AN EXISTING MANHOLE OR SHALL HAVE A NEW MANHOLE DOG–HOUSED OVER THE EXISTING TRUNK SEWER LINE AS SHOWN.
6. ALL NEW SERVICE TAP INVERTS SHALL BE A MINIMUM OF 1–DIAMETER ABOVE THE BOTTOM OF THE TRUNK SEWER LINE.



PLAN



SECTION 'A–A'

TYPICAL SERVICE TAP / LATERAL DETAIL–2

NO SCALE

Approved By: _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____
Revision No. _____	Date: _____

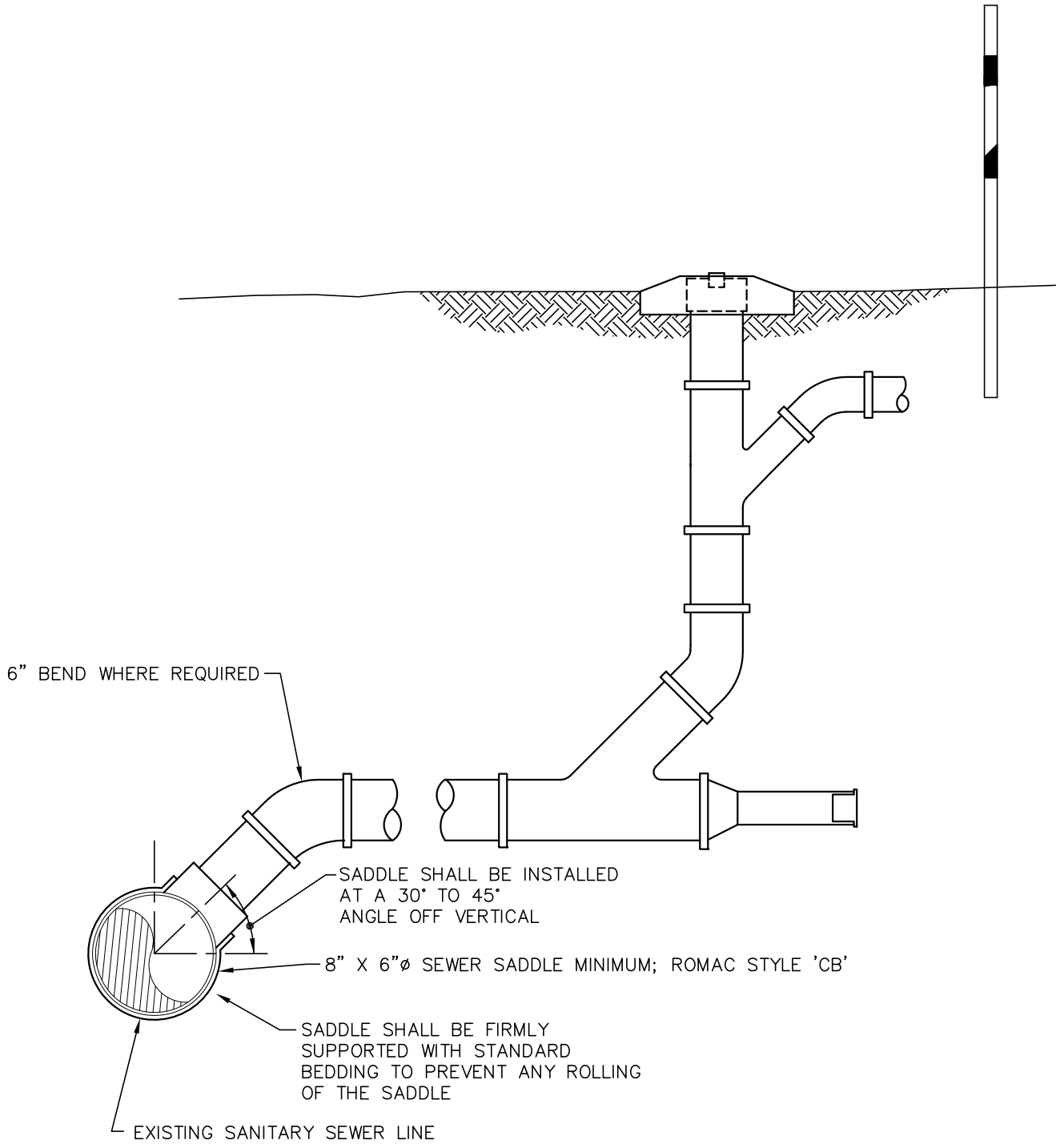
WATER UTILITY

COLUMBIA COUNTY GEORGIA

ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER

12.16–2



NOTES:

1. SEE STANDARD DETAIL 12.16–1 FOR STANDARD NOTES AND LATERAL SERVICE INFORMATION.

TYPICAL SERVICE TAP / LATERAL DETAIL–3 EXISTING SEWER LINE

NO SCALE

Approved By: _____ Date: _____	
Revision No. _____ Date: _____	
Revision No. _____ Date: _____	
Revision No. _____ Date: _____	
Revision No. _____ Date: _____	
Revision No. _____ Date: _____	

WATER UTILITY

COLUMBIA COUNTY GEORGIA

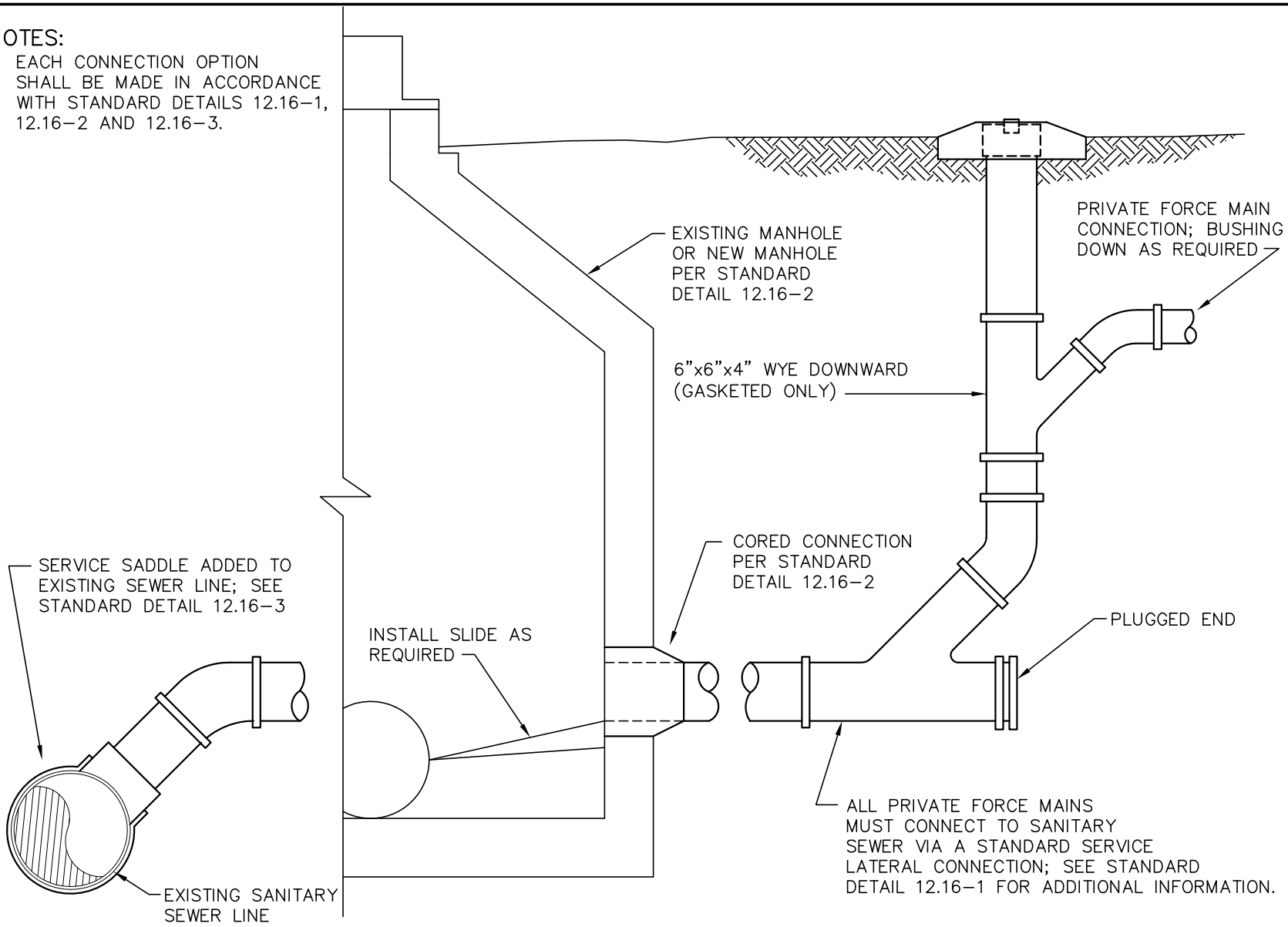
ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER

12.16–3

NOTES:

1. EACH CONNECTION OPTION SHALL BE MADE IN ACCORDANCE WITH STANDARD DETAILS 12.16–1, 12.16–2 AND 12.16–3.



OPTION 1
CONNECT TO EXISTING SANITARY SEWER LINE

OPTION 2
CONNECT TO SANITARY SEWER MANHOLE

PRIVATE FORCE MAIN CONNECTION DETAIL

NO SCALE

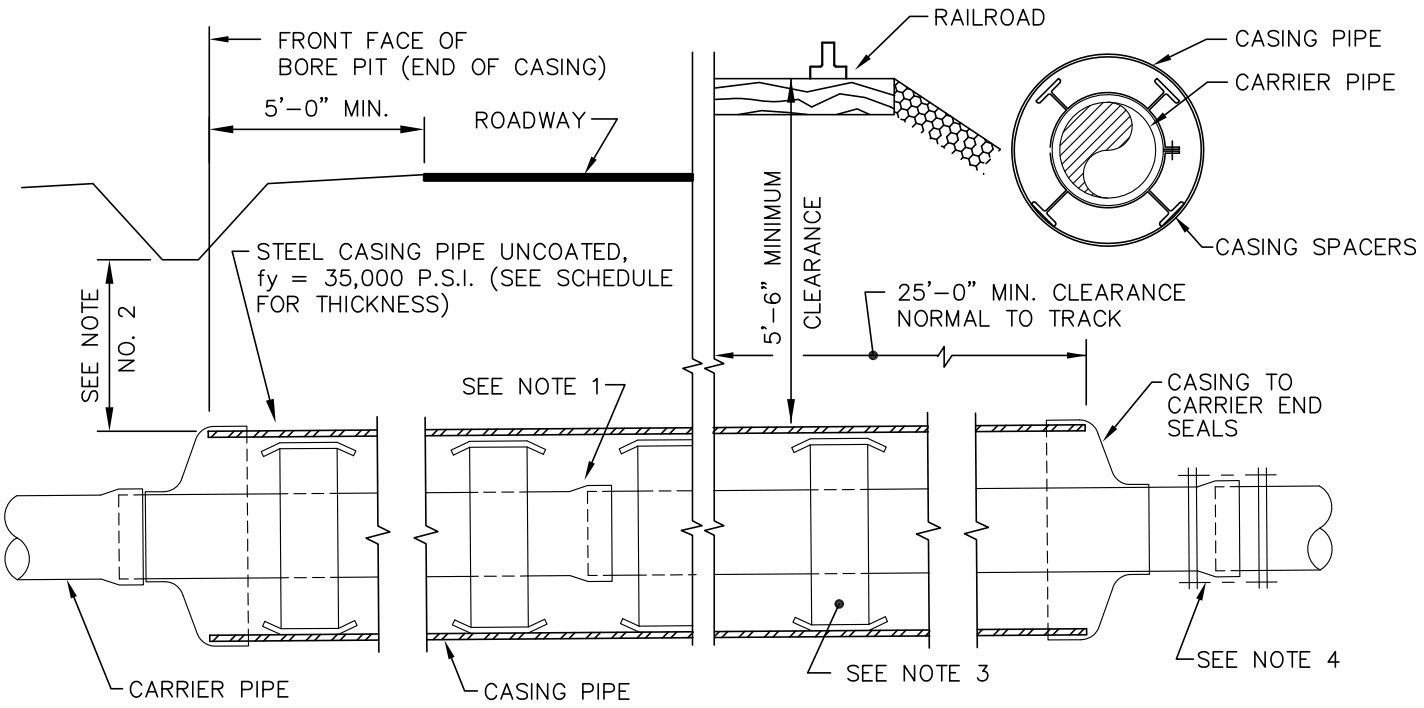
STANDARD DETAIL NUMBER 12.16–4

ENGINEERING DEPARTMENT

COLUMBIA COUNTY GEORGIA

WATER UTILITY

Approved By: _____ Date: _____
Revision No. _____ Date: _____
Revision No. _____ Date: _____
Revision No. _____ Date: _____
Revision No. _____ Date: _____
Revision No. _____ Date: _____



DUCTILE IRON CARRIER PIPE SIZE	CASING PIPE				PVC CARRIER PIPE SIZE
	SIZE	THICKNESS *		SIZE	
		ROADWAY	RAILROAD		
8"	16"	.312"	.312"	18"	8"
10"	20"	.312"	.312"	24"	10"
12"	24"	.312"	.375"	30"	12"
16"	30"	.375"	.375"	N/A	N/A
18"	36"	.50"	.50"	N/A	N/A
20"	42"	.50"	.562"	N/A	N/A
24"	42"	.50"	.562"	N/A	N/A

* .063" HAS BEEN ADDED TO MINIMUM FOR A CORROSION ALLOWANCE.

NOTE:

1. PIPE WITHIN THE CASING SHALL BE INSTALLED WITH RESTRAINED JOINTS.
2. 4'–0" MINIMUM CLEARANCE FROM LOWEST POINT OF ROADWAY CROSS SECTION. MINIMUM 4'–0" BELOW PAVEMENT.
3. PROVIDE A MINIMUM OF 2 CASING SPACERS PER JOINT OF PIPE.
4. WHERE PVC PIPE IS USED AS CARRIER PIPE, THE PIPE JOINT SHALL UTILIZE A BELL HARNESS AS A RESTRAINED JOINT. ALL CROSSING PIPE SHALL BE THE SAME MATERIAL AND PIPE DIAMETER.
5. PIPE WITHIN THE CASING SHALL BE INSTALLED WITH RESTRAINED JOINTS.

BORE AND JACK CROSSING DETAIL FOR GRAVITY SANITARY SEWER LINES

NO SCALE

Approved By: _____ Date: _____
Revision No. _____ Date: _____
Revision No. _____ Date: _____
Revision No. _____ Date: _____
Revision No. _____ Date: _____
Revision No. _____ Date: _____

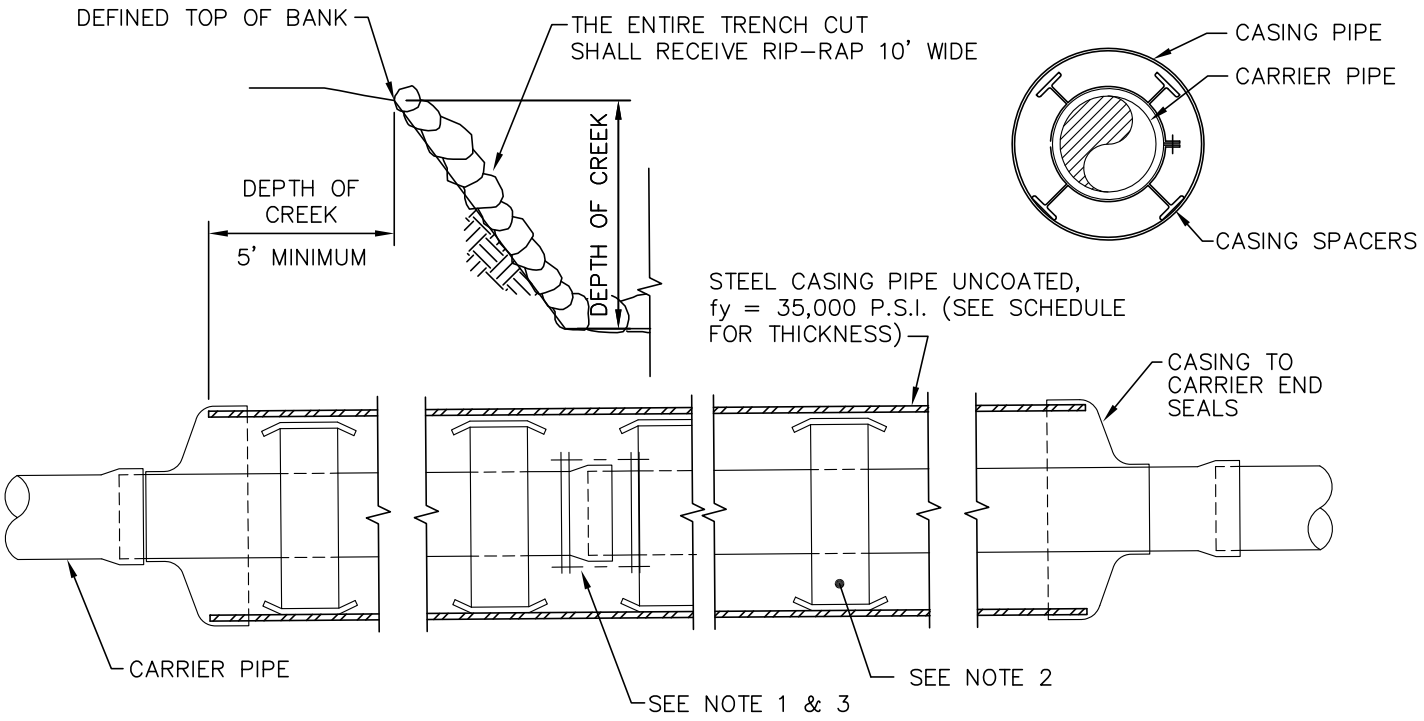
WATER UTILITY

COLUMBIA COUNTY GEORGIA

ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER

12.17–1



OPEN CUT TRENCH INSTALLATION ONLY					
DUCTILE IRON CARRIER PIPE SIZE	CASING PIPE FOR CREEK CROSSING				PVC CARRIER PIPE SIZE
	SIZE	PIPE THICKNESS *		SIZE	
8"	16"	.312"	.312"	18"	8"
10"	16"	.312"	.312"	24"	10"
12"	20"	.312"	.312"	30"	12"
16"	24"	.312"	N/A	N/A	N/A
18"	24"	.312"	N/A	N/A	N/A
20"	30"	.375"	N/A	N/A	N/A
24"	36"	.375"	N/A	N/A	N/A

* .063" HAS BEEN ADDED TO MINIMUM FOR A CORROSION ALLOWANCE.

NOTES:

1. PIPE WITHIN THE CASING SHALL BE INSTALLED WITH RESTRAINED JOINTS.
2. PROVIDE A MINIMUM OF 2 CASING SPACERS PER JOINT OF PIPE.
3. WHERE PVC PIPE IS USED AS CARRIER PIPE, THE PIPE JOINT SHALL UTILIZE A BELL HARNESS AS A RESTRAINED JOINT. ALL CROSSING PIPE SHALL BE THE SAME MATERIAL AND PIPE DIAMETER.

CREEK CROSSING DETAIL FOR GRAVITY SANITARY SEWER LINES

NO SCALE

Approved By: _____ Date: _____
Revision No. _____ Date: _____
Revision No. _____ Date: _____
Revision No. _____ Date: _____
Revision No. _____ Date: _____
Revision No. _____ Date: _____

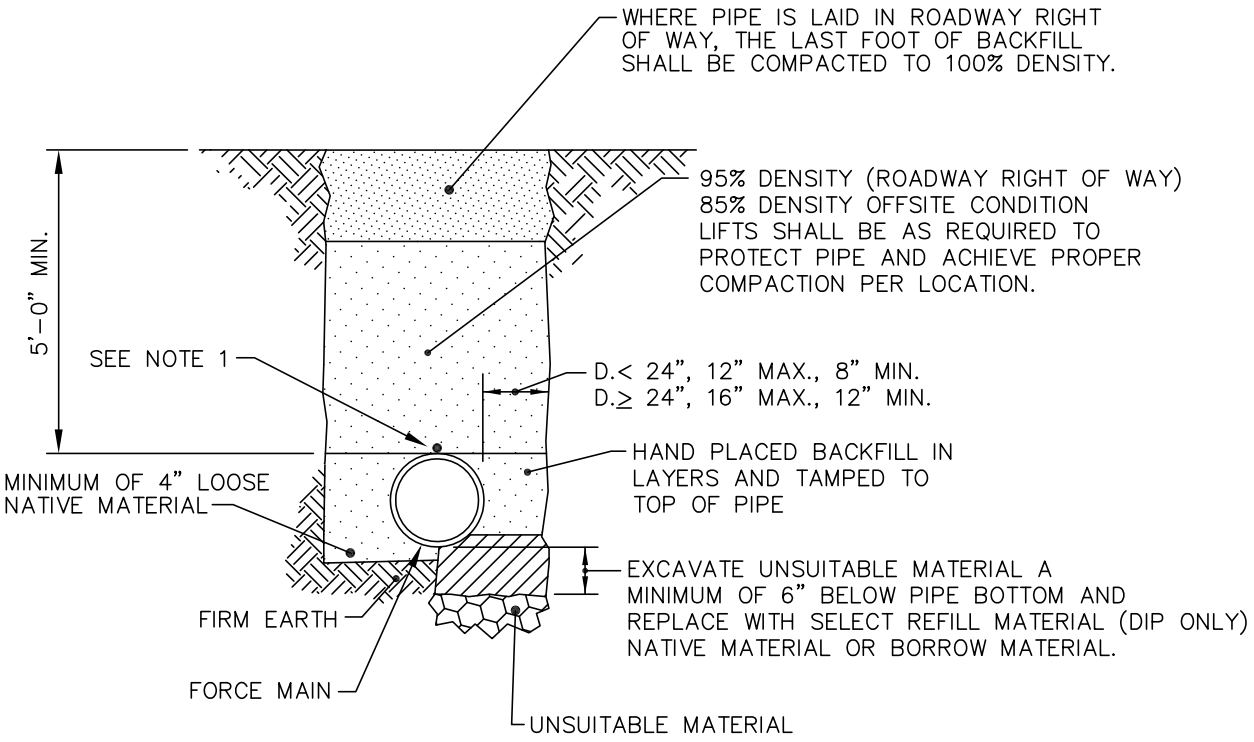
WATER UTILITY

COLUMBIA COUNTY GEORGIA

ENGINEERING DEPARTMENT

STANDARD DETAIL NUMBER

12.17-2



NOTE:

1. ALL PVC PIPE INSTALLATIONS REQUIRE 12 GAUGE LOCATING WIRE AND IDENTIFICATION TAPE FOR FORCE MAIN. WIRE SHALL BE CONTINUOUS FROM VALVE VAULT THROUGH PLUG VALVES AND AIR REALESE VALVES AND TERMINATE AT GRAVITY SYSTEM MANHOLE. SEE STANDARD DETAIL 12.14–5.
2. ALL COMPACTION DENSITIES SHALL BE IN ACCORDANCE WITH ASTM D698, STANDARD PROCTOR.

TYPE 3 TRENCH

TYPICAL FORCE MAIN TRENCH EXCAVATION DETAIL

NO SCALE

Approved By: _____ Date: _____	WATER UTILITY	COLUMBIA COUNTY GEORGIA	ENGINEERING DEPARTMENT
Revision No. _____ Date: _____			
Revision No. _____ Date: _____			
Revision No. _____ Date: _____			
Revision No. _____ Date: _____			
Revision No. _____ Date: _____			

STANDARD DETAIL NUMBER

12.18–1