



Fulton County, GA

Department of Purchasing & Contract Compliance

Cecil S. Moore, CPPO, CPPB, CPSM, C.P.M., A.P.P
Director

September 13, 2011

RE: 11ITB79910K-NH W042-ALPHARETTA WATER TRANSMISSION MAIN (GAP ON KIMBALL BRIDGE RD)

Dear Proposers:

Attached is one (1) copy of Addendum 3, hereby made a part of the above referenced ITB.

Except as provided herein, all terms and conditions in the ITB number **11ITB79910K-NH W042-ALPHARETTA WATER TRANSMISSION MAIN (GAP ON KIMBALL BRIDGE RD)** referenced above remain unchanged and in full force and effect.

Sincerely,

N. Harrison

Nancy Harrison, CPPB
Assistant Purchasing Agent

Winner 2000 - 2009 Achievement of Excellence in
Procurement Award • National Purchasing Institute



**11ITB79910K-NH W042-Alpharetta Water Transmission Main (GAP on Kimball Bridge Rd)
Addendum No. 3**

This Addendum forms a part of the contract documents and **modifies** the original ITB documents as noted above:

Please be advised that the due date for the ITB referenced above has been changed to Friday, September 23, 2011 at 11:00 am.

ACKNOWLEDGEMENT OF ADDENDUM NO. 3

The undersigned proposer acknowledges receipt of this addendum by returning one (1) copy of this form with the bid package to the Purchasing Department, Fulton County Public Safety Building, 130 Peachtree Street, Suite 1168, Atlanta, Georgia 30303 by the ITB due date and time **Friday, September 23, 2011 at 11:00 A.M.**

This is to acknowledge receipt of Addendum No. 3, _____ day of _____, 2011.

Legal Name of Bidder

Signature of Authorized Representative

Title

The following information is offered in response to questions and requests for clarification.

Question 1. Will rock be paid for as a change order or is it be included in the pipe bid item?

Answer: Rock will **not** be paid for as a change order. A geotechnical report is available for review in the Public Works Department at 141 Pryor Street, Suite 6001.

Question 2. Are the jack and bores guaranteed or will a tunnel/rock bore be a change order if necessary?

Answer: Rock bore will **not** be paid for as a change order. A geotechnical report is available for review in the Public Works Department at 141 Pryor Street, Suite 6001.

Question 3. Where the 54" line is installed in the road is the compaction 95% standard proctor or modified?

Answer: Compaction requirements in the road will be 95% standard proctor.

Question 4. When the line is outside of the pavement is the compaction 90% standard proctor or modified?

Answer: Compaction outside the pavement is 90% standard proctor.

Question 5. Will the compaction of sub-grade be done under GDOT requirements?

Answer: Compaction of the sub-grade will be done under GDOT requirements.

Question 6: What is the correct paving section that will be placed in the road? The type C detail call for 18" of flowable fill with 1.5" of asphalt on top of that. Is that the detail that will be used?

Answer: Correct.

Question 7: Is the pay item for remove and replace asphalt roadway to be 18" of flowable fill and 1.5" of asphalt?

Answer: Yes .

Question 8: What are the limits of the resurfacing item? Is it just for the 1000' where the line is in the road or is it for all of the roadway between the two CW Matthews projects?

Answer: The limits of resurfacing is not limited to the area where the line is in the road but includes all of the roadway between the two C.W. Matthews projects. Also included are contingencies to cover temporary paving and any additional paving that may be required by the City of Alpharetta as restoration.

Question 9: Will the resurfacing item include the 1.5" of asphalt that is over the ditch?

Answer: Yes.

Question 10: Does the resurfacing include milling the road?

Answer: Yes.

Question 11: The pressure pipe detail shows the 18" concrete and asphalt patch for the width of the ditch while the pavement patch detail Type C has a one foot cut out on each side of the trench. Which is the correct width for payment?

Answer: Type C detail is the correct detail.

Question 12: Is there a bid item for striping the road after it has been resurfaced?

Answer: Striping the road after it has been resurfaced should be considered incidental to the resurfacing and should be included with resurfacing cost.

Question 13: In the area off of the roadway where the ground is very wet and trench stabilization will be necessary there is a pay item to cover the stabilization stone below the pipe, but how will the imported backfill material above the pipe be paid for if the native material is too wet to meet the specifications or compaction requirements?

Answer: If the native material is not suitable to comply with the specifications or compaction requirements, imported backfill material will be paid for from the appropriate allowance.

Question 14. General Note 14 on the sheet 000-C-001 notes that a message board must be up for a minimum of one week before construction. How many message boards are required, where will they be located, and how long do they need to be up?

Answer: A minimum of one message board for each direction of traffic flow to be located as approved in the traffic control plans submitted during the submittal process and approved by the City of Alpharetta. Message boards to remain in place for a minimum of one (1) week.

Question 15. Is it correct that two paved lanes of traffic must be maintained on Kimball Bridge Road, except for between 9 am and 4 pm Monday through Friday when one lane traffic flagging is permitted?

Answer: Correct.

Question 16. Can a pay item for Lump Sum Traffic Control be added to the bid form like it is referenced in measurement and payment so that all temporary pavement, temporary storm structures, temporary striping, concrete barrier walls, and construction signage can be paid for in conjunction with the work being done rather than putting it in the pipe item and having to wait until the pipe is installed to be paid?

Answer: No.

Question 17. There is approximately 1000' of 54" line in the road on Kimball Bridge. If the pay width is 9', then the quantity is only approximately 1,000 square yards versus the 2,000 in the bid item. Is there are reason for the extra quantity?

Answer: See answer to question 8.

Question 18. Will temporary asphalt be paid for with the asphalt roadway bid item?

Answer: Yes, Correct.

Question 19. Where are the 1,000 square yards of asphalt driveway replacement that there is a bid item for?

Answer: Contingency for potential driveway replacement at the various drives along the north-side of Kimball Bridge Road including the greenway parking lot, Sheridan Ridge CT, Collingwood Lane, and Grey Owl Road.

Question 20. Is the bid item for 1,000 LF of sidewalk replacement to pay for the 1,800 feet of 5' sidewalk on the north side of Kimball Bridge that will be replaced during the 12" and 54" construction as well as the approximately 500' of greenway sidewalk that is going to be replaced?

Answer: Yes.

Question 21. Does the greenway sidewalk have a different specification than the standard 4" thickness with welded wire mesh?

Answer: No; The greenway sidewalk does not have a different specification than the standard 4-inch thickness. No welded wire fabric required.

Question 22. Will signage be required at the two locations that are being closed?

Answer: Two signs stating sidewalk closed may be temporarily placed at the limits of replacement of the greenway sidewalks. The remainder of the greenway will not be closed.

Question 23. When the greenway is closed at the creek crossing will temporary access be required from another location?

Answer: The greenway will not be closed. The greenway shall remain open at all times with the proper safety measures.

Question 24. How much room is available for constructing the temporary 4' gravel trail for the greenway near the fire station? It appears that a safety fence would be needed between the pipeline project and the temporary trail, but also some substantial grading will be necessary to get a safe and flat area for the temporary trail. How is this work to be paid for?

Answer: All construction pertaining to the temporary 4' gravel trail will be paid for from pay item B-12.b

Question 25. What are the limits of the permanent and temporary easements from the fire station down to the creek? It is hard to distinguish limits on the plans and with the slope that has been built by CW Matthews it appears a good deal of dirt will have to be piled up somewhere while the work area is benched out to accommodate the large equipment necessary for installation.

Answer: The topography might be changed and therefore should be field verified. The permanent easement shall be 10-feet on both side of the centerline of the pipe for a total width of 20-feet. The easement is marked on the plans.

Question 26. Can the silt fence be placed at the limits of the construction easement below the pipeline? It shows the fence very close to the ditch line, but all of the easement will be necessary to work.

Answer: Yes. The silt fence can be placed at the limits of the easement below the pipeline.

Question 27. There is a guardrail that will have to be removed and replaced near the fire station where the 54" line crosses Kimball Bridge. Will a pay item be added or is this to be in the pipe item?

Answer: Yes. The removal and replacement of the guardrail should be considered incidental to the work and should be included in the pay item for pipe.

Question 28. Where is concrete blocking on the 12" water line paid for?

Answer: Concrete blocking on the 12-inch water main shall be paid from pay item B-21.

Question 29. What pay item is the 6x6 pad under the 54" line at STA 139+00 included in?

Answer : Pay items B-17.a

Question 30. What size is the gravity line that runs parallel to the 54" line from STA 139+00 to 141+00? It appears that it is much shallower than the 54" and could be closer than the 10' minimum separation required.

Answer: Gravity sewer is 10-inches in diameter. If the sewer comes within 10-feet horizontally or 1.5-feet vertically the sewer line should be concrete encased.

Question 31. Where is the 20 LF of 8" Sanitary Sewer relocation and 4' manhole on the plans and what is the material of the 8" line? This is necessary to determine what type of material and bypassing may be necessary to include in the per foot replacement price?

Answer: Materials shall be 8-inch DIP. Bypass shall be included in the per foot replacement price.

Question 32. Are brick inverts required in sanitary sewer manholes?

Answer: Yes.

Question 33. Will the county pay for the temporary removal of guy wires and pole holding that will be necessary with the Utility Conflict Resolution Allowance?

Answer: Yes.

Question 34. How is the material required for reconnecting the large meter vaults at Grey Owl and the apartment complex to be paid for?

Answer: It shall be paid from the task allowance.

Question 35. There is a remove and replace meter box item. Is this only for ¾" meters that may be on the project?

Answer: It might be ¾" to 2" meter size; bigger size shall be paid from task allowance.

Question 36. The meter box item reads by the each but the pay item unit is LF. Please clarify.

Answer: Pay item unit should be "EA" (Bid Form changed to reflect this).

Question 37. Can the ¾" to 2" service lines that need to be replaced please be identified? There is a large difference in price between a ¾" copper short side service and a 2" copper long side service and there are no services shown on the plans.

Answer: If service line appears more than 2", it shall be paid from task allowance.

Question 38. Is the B-15 Creek Crossing bid item a linear foot price to include all coffer dams, dewatering, rip rap, concrete encasement, 54" DIP, stream bank restoration, and anything else necessary for a complete crossing?

Answer: Yes, B-15 Creek Crossing bid item a linear foot price to include all coffer dams, dewatering, rip rap, concrete encasement, 54" DIP, stream bank restoration, and anything else necessary for a complete crossing.

Question 39. What are the limits of construction across Big Creek, what permit is this under, and are there any time restrictions?

Answer: County will provide Corps of Engineers permit for creek crossing. The permit will identify the limits of disturbance.

Question 40. Is the contractor responsible for obtaining any permits on this project?

Answer: Yes. Fulton County will only provide Corps of Engineers permit for creek crossing.

Question 41. Will the lead time on production of the pipe be considered when issuing an NTP?

Answer: Yes. 90 days lead-time will be considered for the manufacture of 54-inch pipe.

Question 42. It appears that the 54" line runs under the wing-walls and apron of a cast-in-place box culvert that will be complete before this project begins. How does the county intend for the contractor to get under that culvert?

Answer: The pipe will not be under the wing wall but adjacent to it. It is not under box culvert. 54-inch line shall be off of box culvert wing-wall.

Question 43. There appears to be a steel gas main that was installed during the bridge project which does not appear on your plans, but could be in direct conflict with the 54" line as it is shown near the box culvert and creek. Can this line be shown on the plans and will the county relocate the 54" line to avoid this conflict? The gas line will also be in conflict with the blow offs as they are depicted.

Answer: Gas line may be relocated if it is a direct conflict. Payment shall be paid from cash allowance.

Question 44. It appears that the ARV detail for the 54" line is a 54x36 tee out the side of the 54" line, with some 36" DIP leading to a 36"x36" tee where the double 8" ARV's are mounted. Why wouldn't the two 8" ARV's be mounted to the 36 x 54 tee with the 36" outlet on the top and an 8" steel vent pipe run to the area outside of the road? This would eliminate the need for all of the 36" pipe, additional tee, and concrete, while the manhole would stay the same diameter.

Answer: Yes, we can accept this proposal. But ARV operation key shall be vertical screw nut system (Bid Form has been changed to reflect this alternate).

Question 45. The pay item B-8.a lists the quantity as 1 ARV assembly complete paid by the each. Is this pay item for 1 Each to include the 2 8" Vent-o-mat valves shown in the detail?

Answer: ARV assembly & Vent-o-mat valves shall be paid separately.

Question 46. Are the ARV Manholes precast?

Answer: Yes. Manholes shall be precast.

Question 47. Are the Butterfly Valve manholes precast?

Answer: Butterfly valve manholes shall be cast-in-place.

Question 48. Is the rip rap in the Blow off manhole and at the outlet of the storm pipe included in the blow off pay item?

Answer: It shall be paid from pay item B-1.f

Question 49. How will the landscape restoration be paid for?

Answer: It shall be paid from task allowance.

Question 50. There is an electronic speed limit sign on the north side of Kimball Bridge in conflict with the 12" water line. Is the contractor responsible for removal and replacement? If so where is this paid for?

Answer: It shall be paid from task allowance with reasonable market price

Question 51. Will tree save fence be required where clearing is necessary for the 12" water line?

Answer: Yes, orange tree fence will be necessary for 12" line installation.

Question 52. The limits of the jack and bores of the 54" line are not shown on the plan or profile. Please provide this information so that the correct shoring and trench boxes that will be necessary can be determined based on the depth of the pit.

Answer: Size and depth of receiving pit and bore pit to be determined in field.

Question 53. What is the depth and detail of item B-10. a, b, c

Answer: See answer to question 6 & 7.

Question 54. Do we include milling the entire street under this item B-10?

Answer: Yes. Item B10b will include milling and paving as resurfacing for the entire road.

Question 55. The above referenced project has within the specifications a requirement for General Contractors Licenses. This projects scope of work is a pipeline project and there is no vertical construction and normally pipeline projects only require a Utility Contractors License. Please specify if this project does or does not require general contractors Licenses.

Answer: A Utility Contractor License is required.

Question 56. Are we missing the Fulton County Standard Details or Geotechnical investigation?

Answer: A subsurface geotechnical report done in the vicinity of the project is available for review in the Department of Public Works, 141 Pryor Street, Suite 6001. Contact All Fulton County Standard Details relevant to the project is currently included in the documents.

Question 57. Is the 85 LF of 72- Inch steel casing at Sta. 151+05 meant to be jack and bored or is it open cut?

Answer: Jack and bore.

The following information should be noted as changes to the Plans and/or Contract documents.

Plans:

1. Drawing Number 010-C-04- Water main blow-off Detail- Station shall be 155+43 instead of 157+35.
2. Drawing Number 010-C-04- Water main blow-Blow-off connection shall be 54"x24" tee with MJ fittings instead of welded on outlet.
3. Drawing Number 031-C-09- Install butterfly valve (instead of Butterfly G.V.) with vault & thrust block (T.B.)

Contract documents:

1. **Measurement & payment:** Section 01025 Page 135 of 238 Article "L" item 2.- Payment for AIR RELEASE VALVE, itself shall be made at the unit price named for the construction of the air release valve at the station indicated. The price shall constitute full payment for the assembly of air valve including piping, tee, tapping, fittings, manhole, frame & cover, stone and all related items as called for on the drawings and in the specifications.
2. **Water Mains and Accessories:** Section 022665 Page 243 of 288 Article "2.13" item E.
Air release and vacuum valves shall be manufactured in compliance with ANSI/AWWA C512 and shall be Vent-O-Mat as manufactured by Valve or equal, modified to provide the specified features and to meet the specified operating conditions.

Attachments:

Attachment 1 - Revised Drawings

Attachment 2 - Revised Bid Form "Segment B.1"

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104	REINFORCED PLASTIC STEP
105	STRUCTURE ADJUSTMENT
106	MANDREL DETAIL FOR PVC PIPE INSTALLATION
107	ROADWAY CROSSING BORE AND CASE DETAIL
108	TRENCH TERMINOLOGY
109	PAVEMENT CUT REPAIRS TYPE A, B, & C
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123	TAPPING SLEEVE LENGTH
124	STUB OUT DETAIL
125	THRUST RESTRAINT CONCRETE COLLAR
126	THRUST RESTRAINT: TIE ROD CHART
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134	SIDEWALK, CURB AND GUTTER REPAIRS

GENERAL NOTES

FULTON COUNTY STANDARD DETAIL
INDEX AND GENERAL NOTES

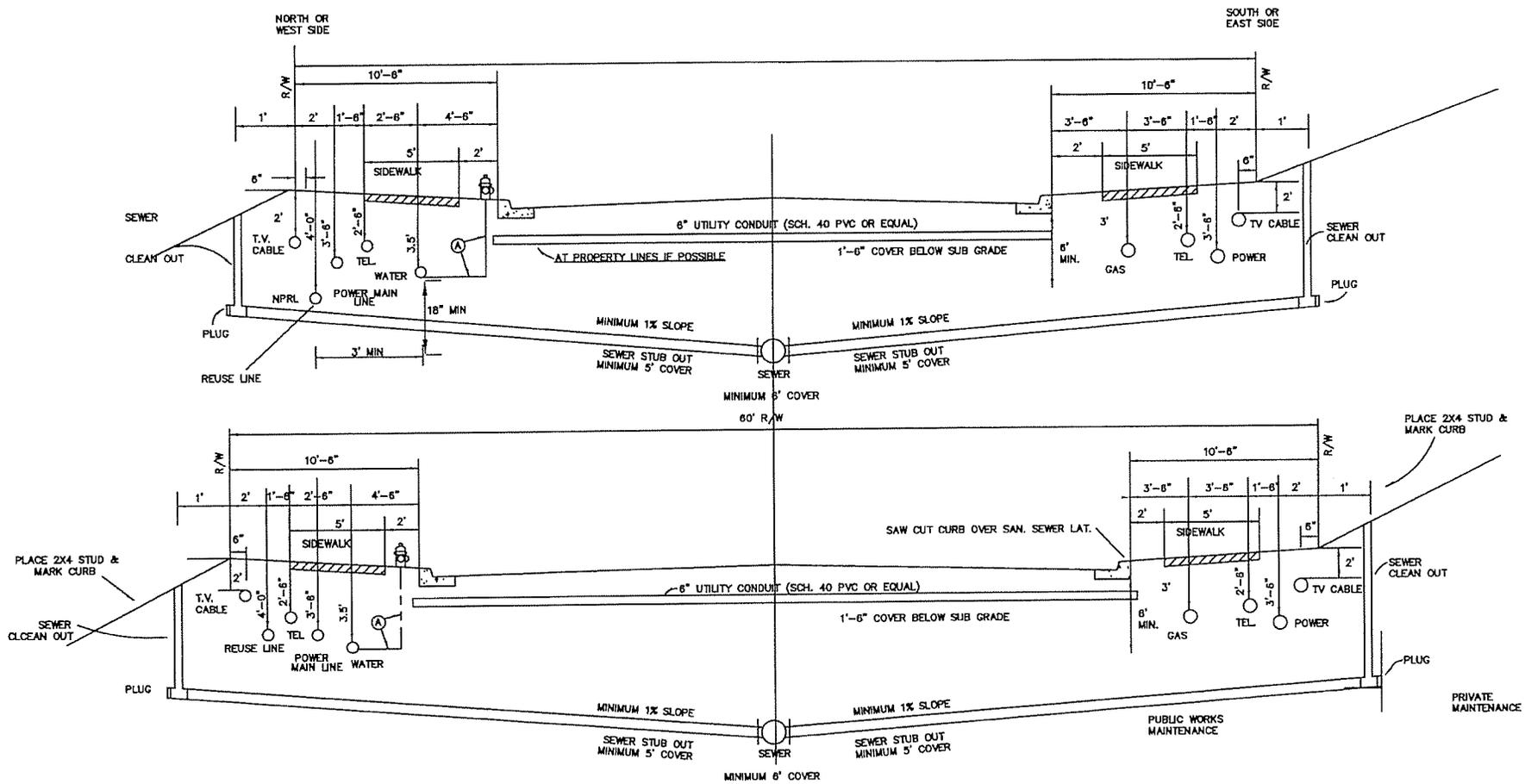
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APPROVED: REW
DATE: 12-02-05



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DRAWING NO.
100



FULTON COUNTY STANDARD DETAIL 101
 UTILITY LOCATION
 UNDERGROUND UTILITY WITH REUSE
 TYPICAL CROSS SECTION

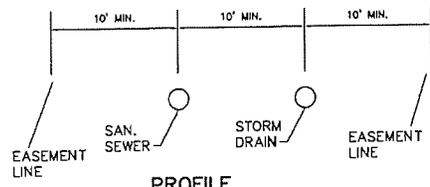
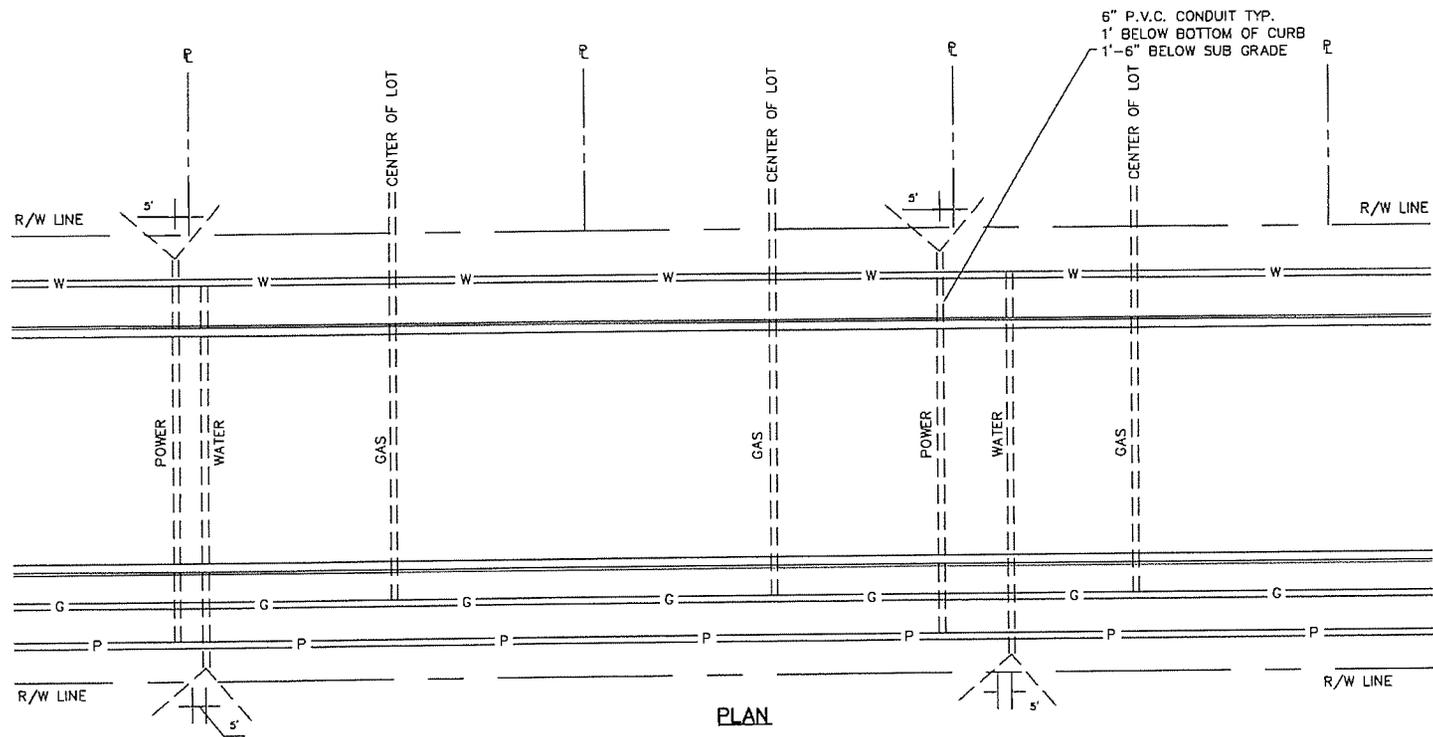
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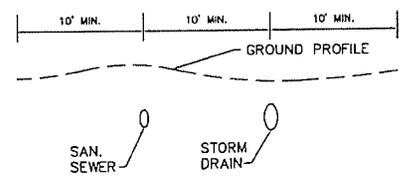
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DRAWING NO.
 101



PROFILE
N.T.S.

TYPICAL COMBINATION SAN. SEWER
AND STORM DRAIN PERMANENT EASEMENT



PROFILE VIEW
N.T.S.

FULTON COUNTY STANDARD DETAIL 102
CONDUIT LOCATION FOR
UNDERGROUND UTILITIES
COMBINATION SEWER EASEMENT

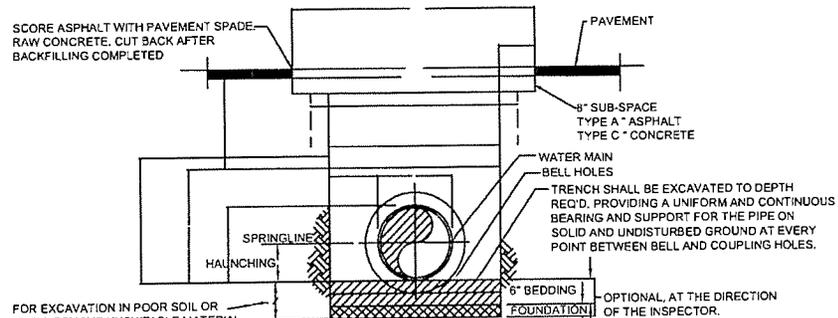
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DRAWING NO.
102



FOR EXCAVATION IN POOR SOIL OR ROCK, REMOVE UNSUITABLE MATERIAL TO WIDTH AND DEPTH DIRECTED. BEFORE PIPE IS LAID, THE SUBGRADE SHALL BE BACKFILLED WITH AN APPROVED MATERIAL IN 3" LAYERS. EACH LAYER SHALL BE THOROUGHLY TAMPED TO 95% COMPACTION.

NOTES:

1. COMPACTION: BACKFILLS SHALL BE BUILT-UP IN LAYERS AND EACH LAYER SHALL BE THOROUGHLY COMPACTED BEFORE BEGINNING ANOTHER LAYER. LAYERS SHALL BE NO MORE THAN 6" IN DEPTH. PUDDLING WILL NOT BE PERMITTED, NOR WILL FROZEN OR WET MATERIAL BE PLACED IN TRENCHES.
2. COMPACTION STANDARDS: ALL BACKFILL MATERIALS USED SHALL CONTAIN A SUFFICIENT AMOUNT OF MOISTURE FOR PROPER COMPACTION AND THESE MATERIALS SHALL BE COMPACTED AT NOT LESS THAN 95% OF THEIR OPTIMUM COMPACTION FOR ANY SPECIFIC SOIL CLASSIFICATION AS DETERMINED BY THE MODIFIED PROCTOR TEST A STM. D698
3. COMPACTION TESTS: COMPACTION TESTS MAY BE REQUIRED IN EXISTING OR PROPOSED STREETS, SIDEWALKS, DRIVES AND OTHER EXISTING OR PROPOSED PAVED AREAS AT VARYING DEPTHS AND AT INTERVALS AS DETERMINED BY THE ENGINEER WITH A MINIMUM OF ONE TEST PER JOB, AND A MAXIMUM OF ONE REQUIRED TEST FOR EACH 400' OR LESS OF WATER MAIN CONSTRUCTION, UNLESS SOIL CONDITIONS OR CONSTRUCTION PRACTICES, IN THE OPINION OF THE ENGINEER, WARRANT THE NEED FOR ADDITIONAL TESTS.
4. NO BOULDERS OR LOOSE ROCKS PERMITTED IN THE BACKFILL AT THE BOTTOM OF PIPE TRENCH TO 2'-0" ABOVE PIPE.
5. ALL DESIGNS BASED ON FULLY COMPACTED BACKFILL AND UNIFORMLY SUPPORTED PIPE.
7. FOR PAVEMENT CUT REPAIRS SEE DRAWING 109.

ALLOWABLE TRENCH WIDTHS

PIPE SIZE (NOM)	A SIDE CLEARANCE INCH		B DITCH WIDTH INCH				C SHORING WIDTH (ADDITIONAL-INCH)	D CUT REPAIR WIDTH FEET			
	SOIL	ROCK	SOIL		ROCK			SOIL		ROCK	
			MJ	SJ	MJ	SJ		MJ	SJ	MJ	SJ
3/4"-2"	2	6	NA	8	NA	14	AS APPROVED	NA	3.00	NA	3.17
4"	9	12	25	23	27	23	AS APPROVED	4.08	3.92	4.25	4.06
6"	9	12	28	28	30	30	AS APPROVED	4.33	4.33	4.50	4.50
8"	9	12	32	30	34	32	AS APPROVED	4.67	4.50	4.63	4.67
10"	9	12	34	32	36	34	AS APPROVED	4.83	4.67	5.00	4.83
12"	9	12	36	34	38	36	AS APPROVED	5.00	4.83	5.17	5.00
14"	9	14	39	36	41	38	AS APPROVED	5.23	5.00	5.42	5.17
16"	9	14	42	38	44	40	AS APPROVED	5.50	5.17	5.57	5.33
20"	9	14	45	44	47	46	AS APPROVED	5.75	5.67	5.92	5.63
24"	9	14	50	48	52	50	AS APPROVED	6.17	6.00	6.33	6.17
30"	9	18	58	54	60	56	AS APPROVED	6.83	6.50	7.00	6.67
36"	9	18	64	61	66	63	AS APPROVED	7.33	7.08	7.50	7.25
42"	9	18	72	64	74	66	AS APPROVED	8.00	7.33	8.17	7.50
48"	9	18	78	73	80	76	AS APPROVED	8.50	8.08	9.34	8.25

FULTON COUNTY STANDARD DETAIL 103
ALLOWABLE TRENCH WIDTHS

DATE	REVISIONS	DATE	REVISIONS

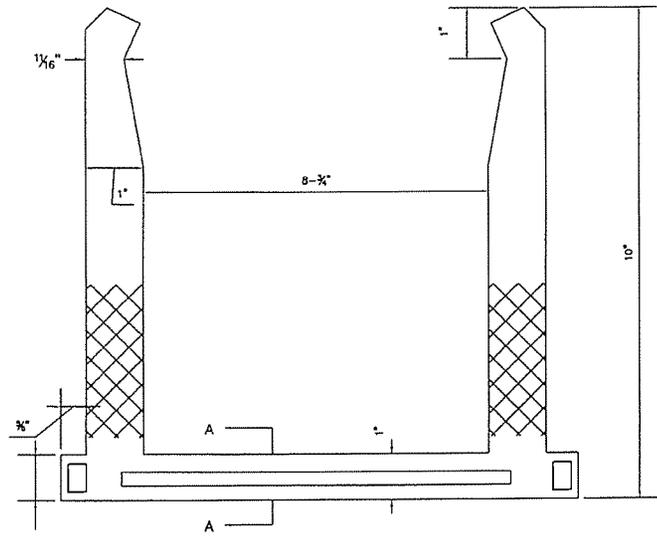
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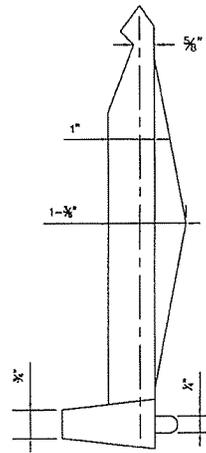
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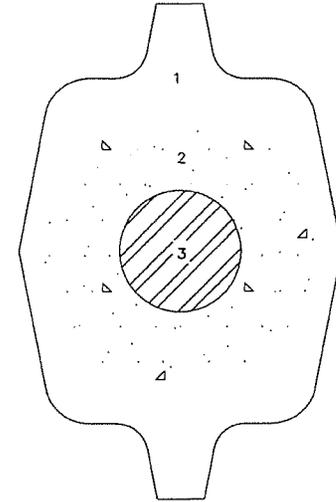
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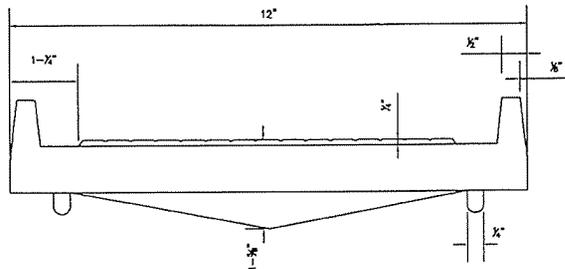
PLAN VIEW
N.T.S.



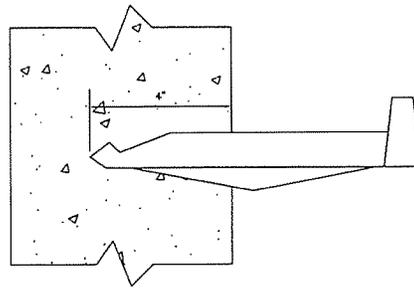
SIDE VIEW
N.T.S.



SECTION A-A
N.T.S.



FRONT VIEW
N.T.S.



- MATERIAL**
1. POLYPROPYLENE PLASTIC SOLID OUTER SHELL
 2. POLYPROPYLENE PLASTIC POROUS MASS
 3. 3/8" STEEL REINFORCING ROD, GRADE 60 MEETING ASTM A-615

FULTON COUNTY STANDARD DETAIL 104
REINFORCED PLASTIC STEP

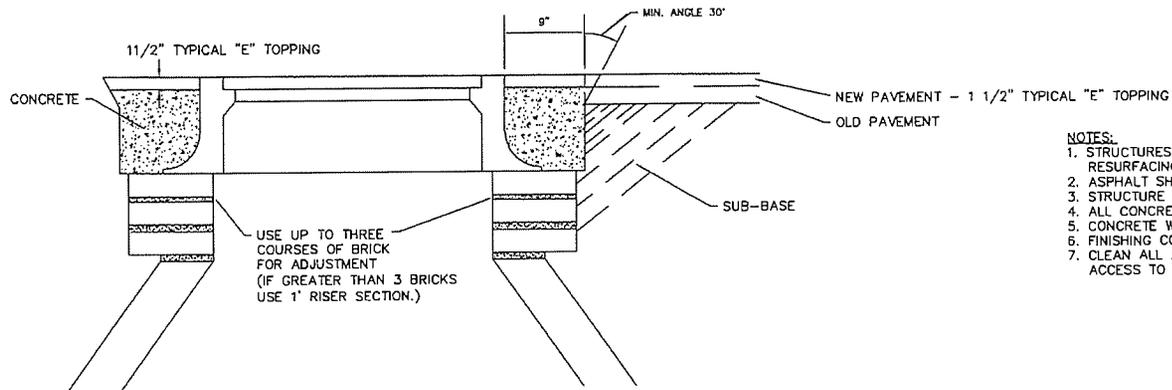
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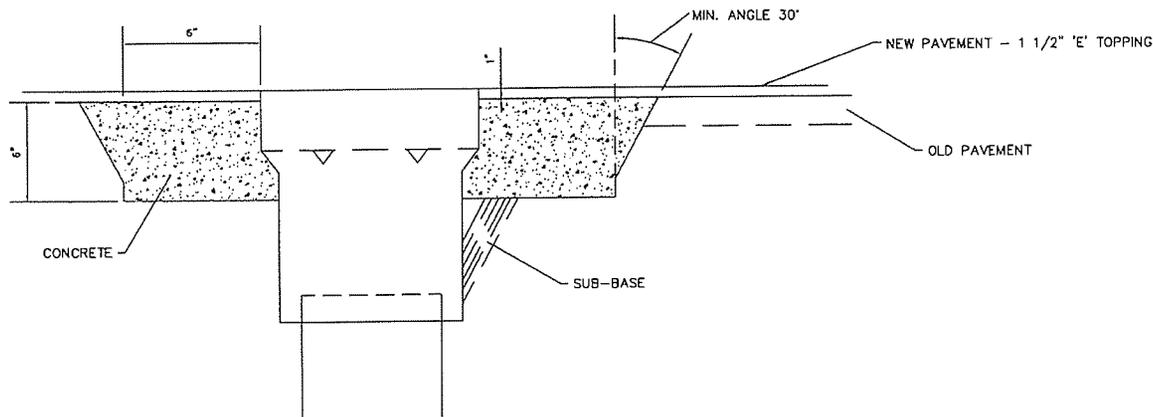
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104



NOTES:

1. STRUCTURES SHALL NOT BE ADJUSTED FOR A PERIOD OF 24 HOURS AFTER RESURFACING IS COMPLETED IN THAT AREA.
2. ASPHALT SHALL BE SAWCUT TO MAKE A SMOOTH, EVEN EDGE.
3. STRUCTURE COVER SHALL BE ADJUSTED TO FIT FLUSH WITH STREET SURFACE.
4. ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 4000 PSI.
5. CONCRETE WILL BE USED TO BACKFILL THE ENTIRE WORKING AREA.
6. FINISHING CONCRETE SHALL BE DONE BY USE OF A TROWEL OR FLOAT.
7. CLEAN ALL ASPHALT OFF SEWER MANHOLES AT TIME OF PAVING TO ALLOW ACCESS TO SYSTEM AT ALL TIMES.

MANHOLE
N.T.S.



VALVE
N.T.S.

FULTON COUNTY STANDARD DETAIL 105
STRUCTURE ADJUSTMENT

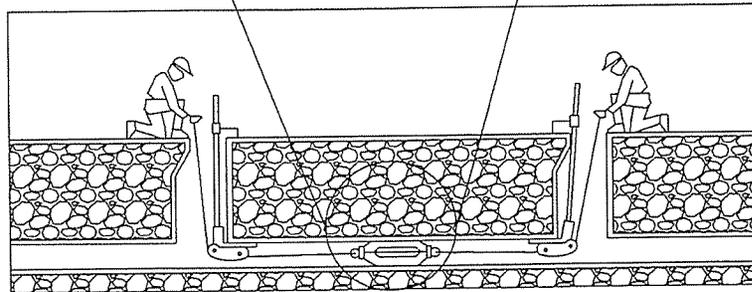
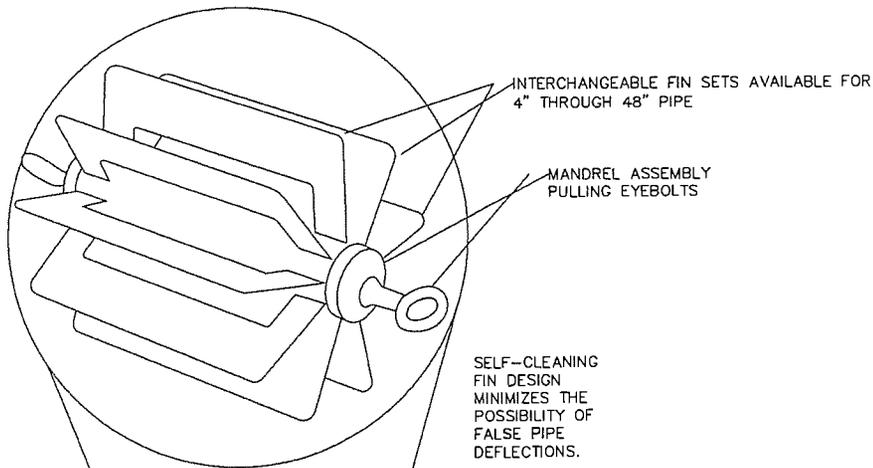
DATE	REVISIONS	DATE	REVISIONS

OGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
105



THE DEFLECTION TEST GAUGE CAN BE PULLED EASILY THROUGH THE PIPELINE.

NOTES:

1. AFTER INSTALLATION A DEFLECTION TEST IS REQUIRED NO SOONER THAN 24 HOURS OF TRENCH BACKFILLING. INITIAL DEFLECTION SHALL BE LIMITED TO 3% OF THE UNDEFLECTED DIAMETER.
2. PIPE SHALL BE ASTM D-3034, SDR 35 IN 12.5 FOOT LAYING LENGTHS WITH ELASTOMERIC SEALED JOINTS IN ACCORDANCE WITH ASTM D-3212.
3. MANDREL TO BE MADE FROM AIRCRAFT-QUALITY ALUMINUM OR APPROVED EQUAL.
4. EACH FIN SET IS TO BE STAMPED WITH THE PIPE DIAMETER AND PERCENT DEFLECTION.
5. MANDREL LENGTH TO BE 10 INCHES, MANDREL WEIGHT TO BE 4 LBS.
6. MANDREL TO BE PROVIDED BY CONTRACTOR IT MUST BE MEASURED AND APPROVED FIRST BY FULTON COUNTY INSPECTOR.
7. A SECOND DEFLECTION TEST MAY BE REQUIRED AT THE END OF THE MAINTENANCE PERIOD. THE FULTON COUNTY INSPECTOR MAY REQUIRE A 5% DEFLECTION TEST AT THIS TIME PRIOR TO THE RELEASE OF THE MAINTENANCE BONDS AND THE FINAL ACCEPTANCE OF THE IMPROVEMENTS INTO COUNTY MAINTENANCE.

BASE INSIDE DIAMETER AND 3%, 5%, 7.5% MANDREL DIMENSIONS

NORMAL SIZE INCHES	AVERAGE SIZE DIAMETER	BASE INSIDE DIAMETER	3% DEFLECTION	5% DEFLECTION	7.5% DEFLECTION
6	5.893	5.742	5.569	5.454	5.31
8	7.891	7.665	7.435	7.281	7.09
10	9.864	9.563	9.276	9.084	8.84
12	11.737	11.361	11.020	10.792	10.51
15	14.374	13.898	13.481	13.203	12.86

FULTON COUNTY STANDARD DETAIL 106
MANDREL DETAIL FOR
PVC PIPE INSTALLATION

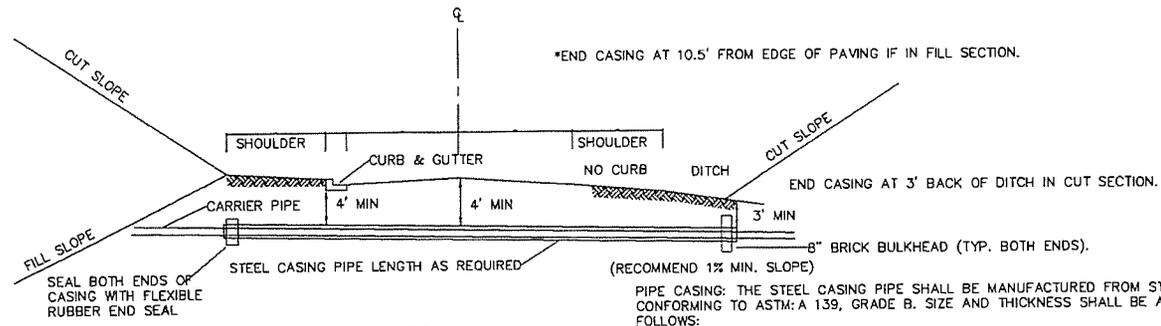
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
106



BORING NOTES:

CASING TO BE STEEL PIPE (ROUND) WITH 45° BEVELED EDGES.
 ALL CUTS TO BE SQUARED TO END.
 JOIN ALL PIPE WITH DOUBLE BEAD BUTT WELDS.
 AUGER HEAD DIAMETER CANNOT EXCEED DIAMETER OF CASING BY MORE THAN 2".
 BORING AND CASING SHALL BE INSTALLED SIMULTANEOUSLY.
 ANYTHING 6" OR LARGER REQUIRES BORE AND CASE.
 CASING PIPE SHALL HAVE A PROTECTIVE COATING CONSISTING OF A COAL-TAR PRIMER COAT AND AN APPLICATION OF HOT COAL-TAR ENAMEL $\frac{3}{16}$ " ($\pm \frac{1}{32}$ ") THICK PLUS A BONDED 15 LB. ASBESTOS WRAP.
 PIT TO BE NO CLOSER THAN 4' BEHIND CURB OR EDGE OF PAVEMENT.
 TYPICAL PIT IS 32' LONG BY 10' WIDE.
 CASING SHALL BE MANUFACTURED FROM STEEL CONFORMING TO ASTM: A 139, GRADE B.
 2 STAINLESS STEEL CASING SPACERS REQUIRED PER JOINT.
 ALL BORING MUST BE APPROVED AND A PERMIT OBTAINED FROM PUBLIC WORKS (404) 730-7400.
 CARRIER PIPE SHALL BE DUCTILE IRON.

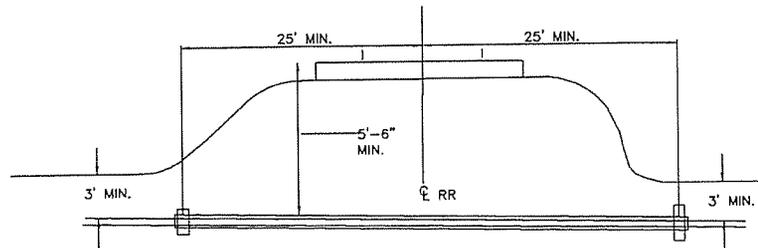
SECTION
N.T.S.

PIPE CASING: THE STEEL CASING PIPE SHALL BE MANUFACTURED FROM STEEL CONFORMING TO ASTM: A 139, GRADE B. SIZE AND THICKNESS SHALL BE AS FOLLOWS:

UNDER RAILROADS

PIPE DIAMETER INCHES (I.D.)	CASING DIAMETER INCHES (I.D.) MIN.	WALL THICKNESS INCHES
6	14	0.250
8	18	0.375
10	20	0.375
12	22	0.375
14	24	0.375
16	30	0.406
18	30	0.406
20	32	0.469
24	36	0.469
30	42	0.500

RR SECTION



UNDER HIGHWAYS

PIPE DIAMETER INCHES (I.D.)	CASING DIAMETER INCHES (I.D.) MIN.	WALL THICKNESS INCHES
6	12	0.250
8	16	0.250
10	18	0.250
12	20	0.375
16	24	0.375
18	30	0.375
20	30	0.375
24	36	0.375
30	42	0.375

FULTON COUNTY STANDARD DETAIL 107
 ROADWAY CROSSING
 BORE AND CASE DETAIL

DATE	REVISIONS	DATE	REVISIONS

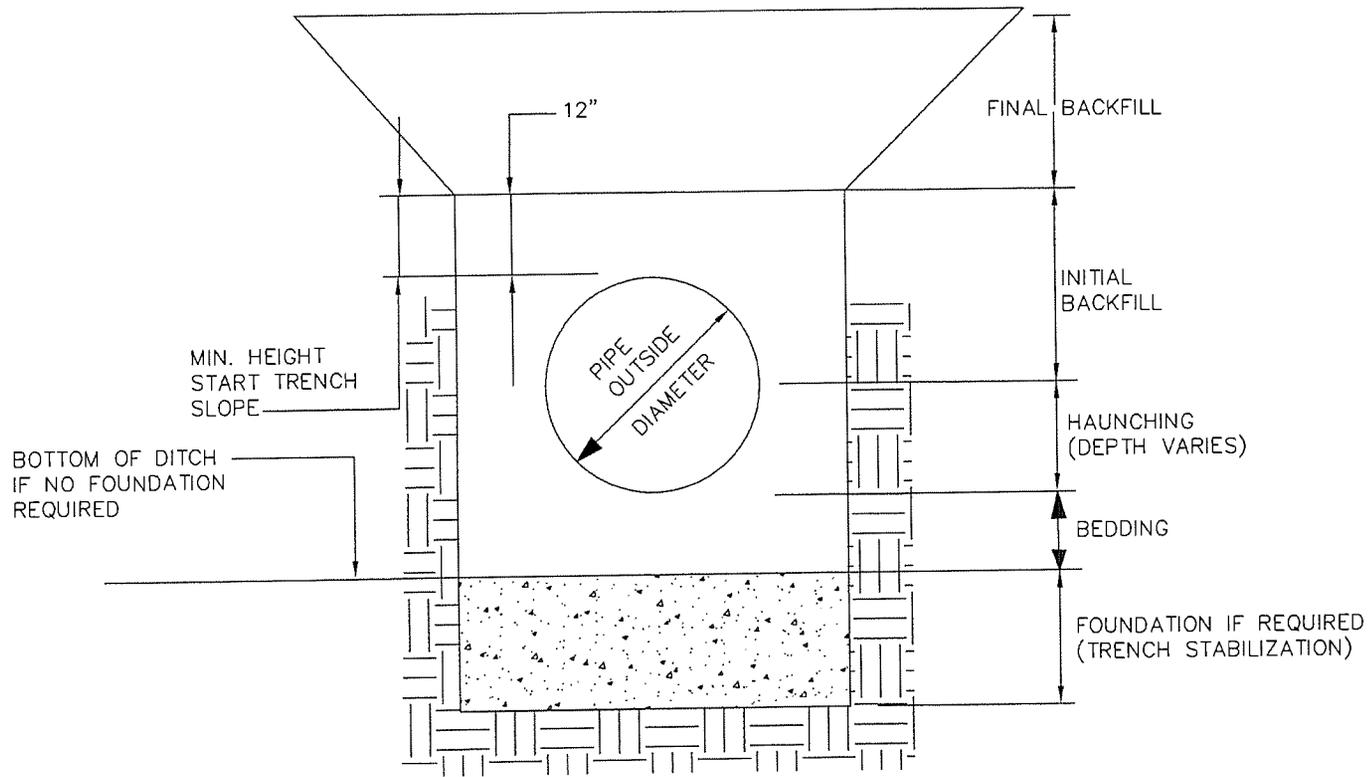
DGS/DRN/CHKD: CMS
 APPROVED: REW
 DATE: 12-2-05



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DRAWING NO.

107



NOTE: SEE DETAIL # 103 AND #109 FOR DIMENSIONS AND MATERIALS

FULTON COUNTY STANDARD DETAIL 108
TRENCH TERMINOLOGY

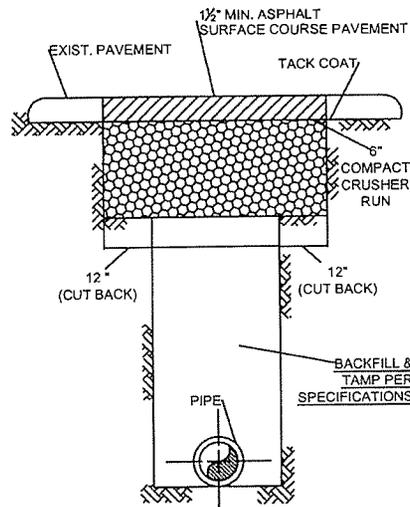
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: JM
APPROVED: REW
DATE: 12-2-05

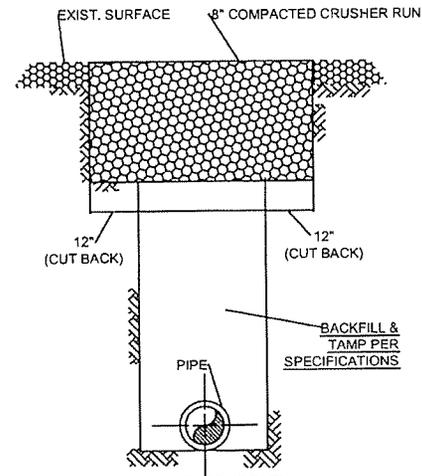


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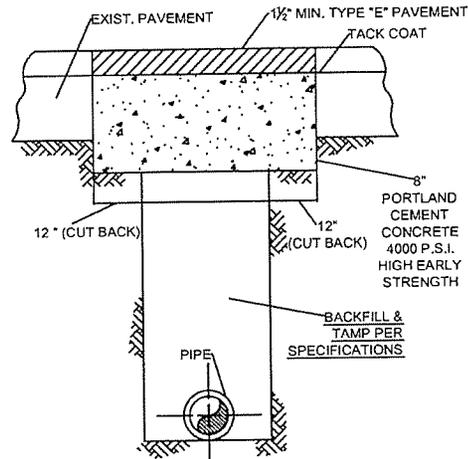
DRAWING NO.
108



TYPE "A" CUT REPAIR DETAIL
T & G OR ASPHALT RDS. (DRIVEWAYS, A-30)



TYPE "B" CUT REPAIR DETAIL
DIRT OR GRAVEL RDS. (DRIVEWAYS, A-30)



TYPE "C" CUT REPAIR DETAIL
GEORGIA D.O.T. AND FULTON CO.

NOTES:

1. ALL MATERIALS AND METHODS OF INSTALLATION SHALL COMPLY WITH THE GA. D.O.T.'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", 1983 EDITION OR LATEST REVISION THERETO.
2. FOR TYPE "C", THE CONTRACTOR SHALL COVER THE POURED CONCRETE WITH STEEL PLATES A MINIMUM OF 24 HOURS TO ALLOW ADEQUATE SET-UP.
3. CONTRACTOR'S TRAFFIC CONTROL PLAN MUST BE APPROVED BY THE AUTHORITY HAVING JURISDICTION BEFORE WORK BEGINS.
4. FINAL APPROVAL OF CONTRACTOR'S PAVEMENT CUT REPAIRS RESIDES WITH THE AUTHORITY HAVING JURISDICTION. CONTRACTOR SHALL MEET ALL REQUIREMENTS OF SAID AUTHORITY.

FULTON COUNTY STANDARD DETAIL 109
PAVEMENT CUT REPAIRS
TYPE A, B & C

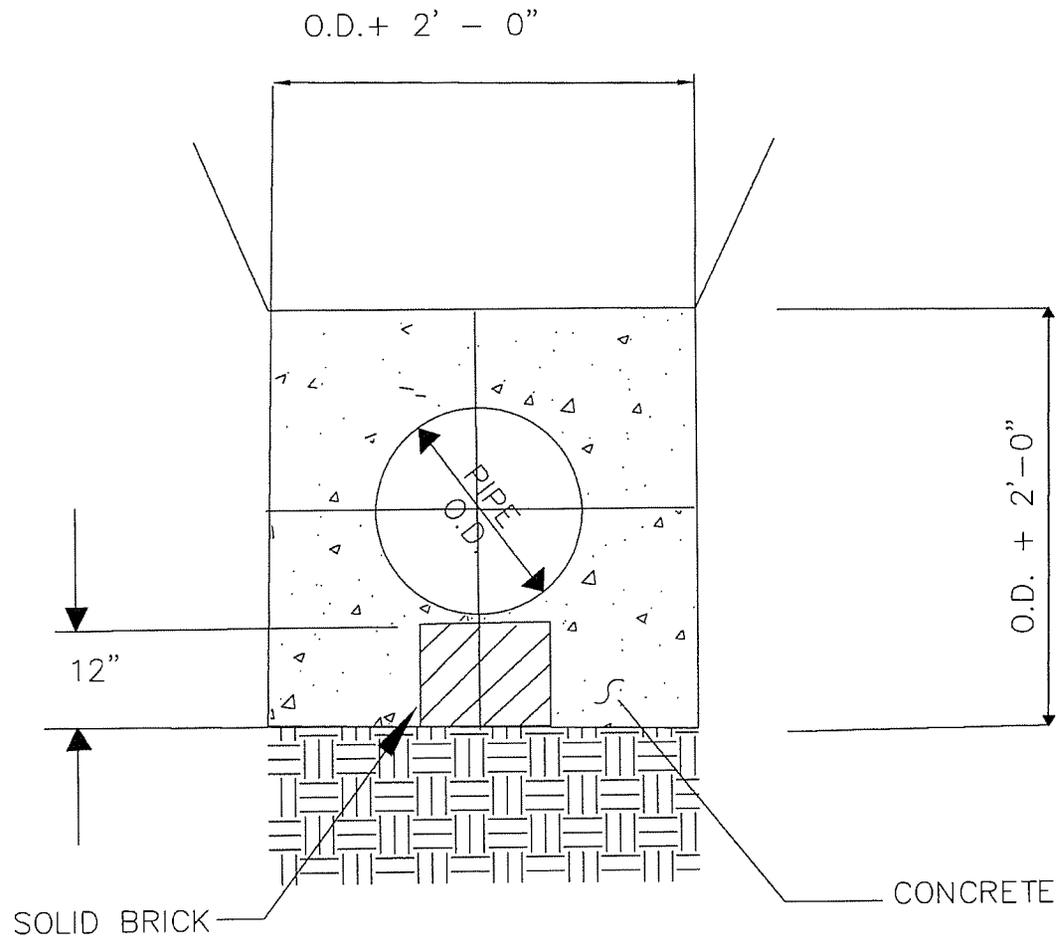
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DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
109



FULTON COUNTY STANDARD DETAIL 110
CONCRETE ENCASUREMENT

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: JM
APPROVED: REW
DATE: 12-2-05



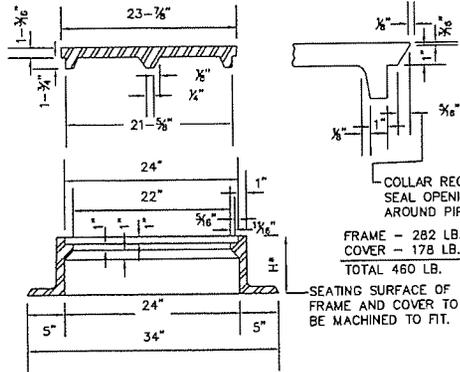
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DRAWING NO.

110

NOTE REQUIRED:
CONCRETE STRENGTH TEST MAY BE REQUIRED
FOR ALL POURED IN PLACE CONCRETE.

WATERTIGHT C.I. MANHOLE FRAME AND COVER
CORRUGATION AND 2 PICK HOLE IN COVER, NO PERFORATIONS.
N.T.S.



460# M.H. FRAME AND COVER
FOR USE IN STREETS AND ROADS
N.T.S.

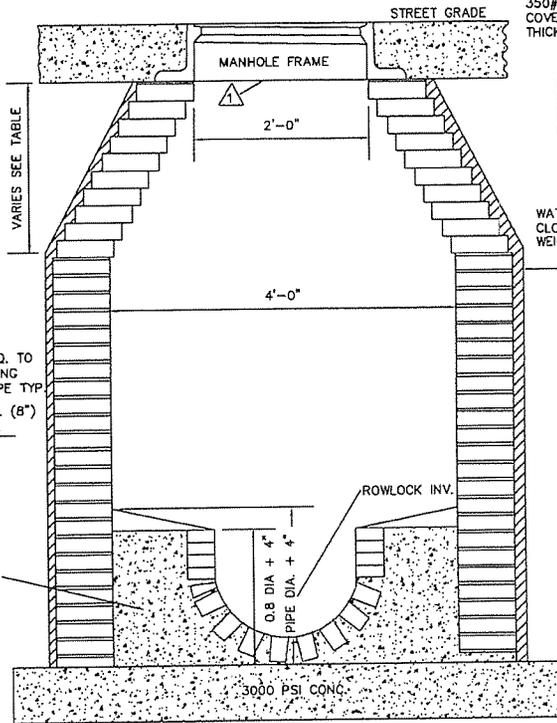
NOTE:
BRICK MANHOLES SHOULD ONLY
BE USED IN SPECIAL
CIRCUMSTANCES
WHERE THE USE OF PRECAST
SECTORS MAY BE AFFECTED BY
OBSTACLES.

3000 PSI CONC.

COLLAR REQ. TO
SEAL OPENING
AROUND PIPE TYP

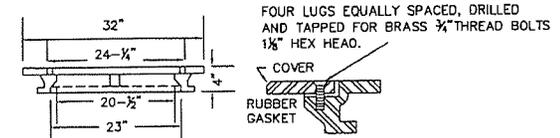
FRAME - 282 LB. (8")
COVER - 178 LB.
TOTAL 460 LB.

SEATING SURFACE OF
FRAME AND COVER TO
BE MACHINED TO FIT.



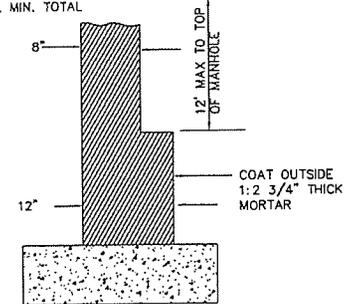
ELEVATION AT @ MANHOLE
SEAL M.H. RING TO STRUCTURE WITH TWO CONCENTRIC RINGS OF ASPHALTIC MASTIC.

NOTE:
ALL M.H. COVERS ON OUTFALL M.H.'S OUTSIDE OF ROADWAY R/W
TO BE CAST IN PLACE IN CONE SECTIONS OF MHS.
350# FRAMES & COVERS MAY BE USED OUTSIDE OF STREETS AND ROADS.
COVER TO BE SIMILAR TO 460# FRAME TO BE REDUCED IN HEIGHT AND
THICKNESS. MANHOLES OUTSIDE R/W SHALL BE 24" ABOVE GRADE.



WATERTIGHT MANHOLE FRAME & COVER TO BE
CLOW F-3370 OR EQUAL MIN. TOTAL
WEIGHT 270 LBS.

PLASTER 1:2
MORTAR 3/4"
THICK ON OUTSIDE



WALL DETAIL FOR DEPTH
OVER 12'-20"

NOTE:
FOR DEPTH OVER 20' INCREASE
WALL THICKNESS TO 16"

FULTON COUNTY STANDARD DETAIL 111
BRICK MANHOLE DETAIL AND
MANHOLE FRAME AND COVER

DATE	REVISIONS	DATE	REVISIONS

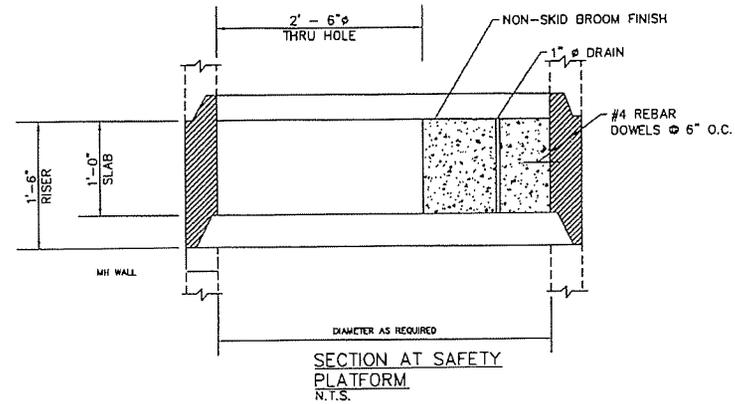
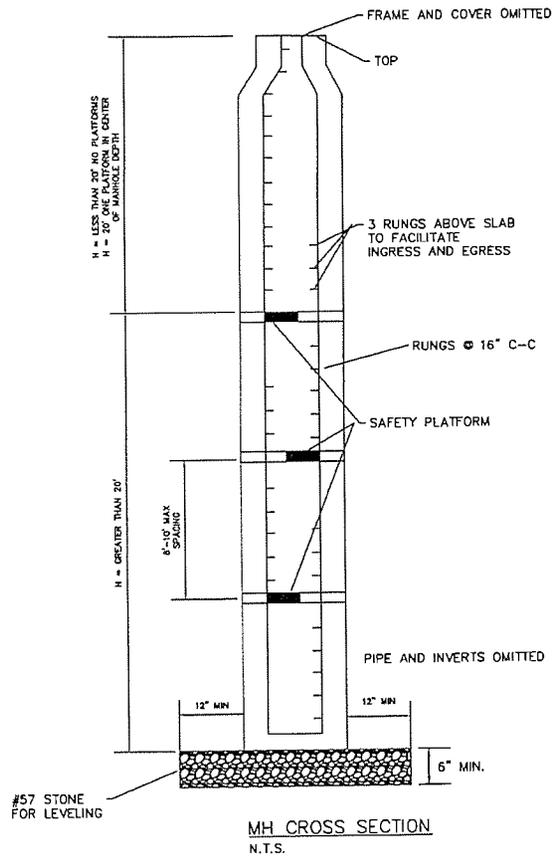
DGS/DRN/CHKO: REB
APPROVED: REW
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
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DRAWING NO.

111



NOTES:

1. A DEEP MANHOLE IS CONSIDERED TO BE GREATER THAN 24'.
 2. SAFETY PLATFORMS ARE REQUIRED ON ALL MANHOLES EQUAL TO OR GREATER THAN 20' IN DEPTH.
 3. SAFETY PLATFORMS ARE TO BE PLACED A MAX. DISTANCE OF 8'-10' APART.
 4. PLATFORMS ARE TO BE DESIGNED TO OBTAIN A STRENGTH OF 4000 PSI IN 28 DAYS.
 5. MANHOLE AND PLATFORM DESIGN SHALL CONFORM TO A.S.T.M. SPECS. C478 LATEST EDITION.
 6. REINFORCING STEEL HAS A MIN. YIELD STRENGTH OF 60,000 PSI.
 7. SAFETY PLATFORM SLAB IS DESIGNED FOR A CONCENTRATED LOAD (P) AS FOLLOWS:
- | MH DIAMETER (FT.) | P (LB.) |
|-------------------|---------|
| 4 | 12,000 |
| 5 | 10,000 |
| 6 | 8,000 |
8. SAFETY PLATFORM IS TO BE PLACED BETWEEN RISERS.
 9. SAFETY PLATFORM IS TO BE PLACED AT MIDPOINT OF A MANHOLE OVER 20' IN DEPTH. TWO PLATFORMS TO BE PLACED EQUAL DISTANCE AT A MANHOLE DEPTH OF 24'.
 10. SAFETY PLATFORM IS TO BE PRECAST CONCRETE OR APPROVED EQUAL.
 11. ALTERNATE OPENINGS IN SAFETY PLATFORMS AS INDIVIDUAL DESCENDS.
 12. MANHOLES IN EXCESS OF 24' IN DEPTH SHALL BE PRE-APPROVED BY PUBLIC WORKS AND HAVE SAFETY PLATFORMS WITH 8'-10' SPACING.

FULTON COUNTY STANDARD DETAIL 112
SAFETY PLATFORM FOR DEEP
PRECAST MANHOLES

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05

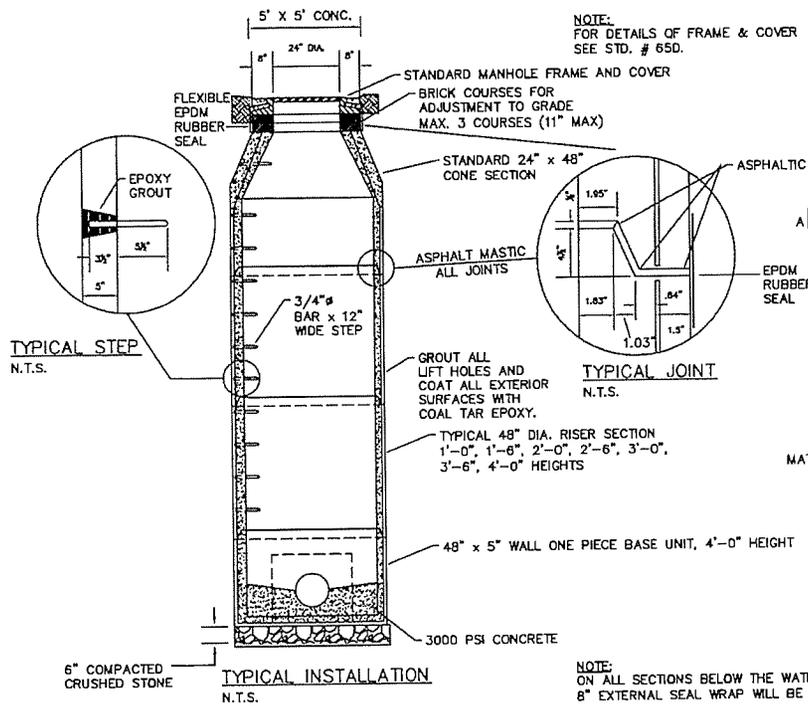


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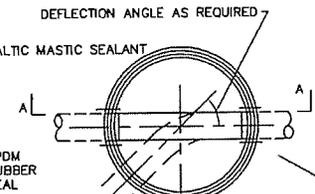
DRAWING NO.

112

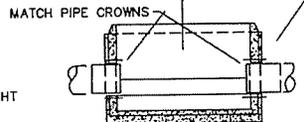
- NOTES:**
1. ALL HOLES MUST BE PRECAST.
 2. MAXIMUM HOLE SIZE = PIPE O.D. + 4"
 3. USE CONCENTRIC CONIC SECTIONS IN RIGHT-OF-WAY.
 4. OUTFALL MANHOLES MUST HAVE CAST IN PLACE RINGS.
 5. SEE STANDARD NO. 112 FOR MANHOLE DEPTH GREATER THAN 20'.



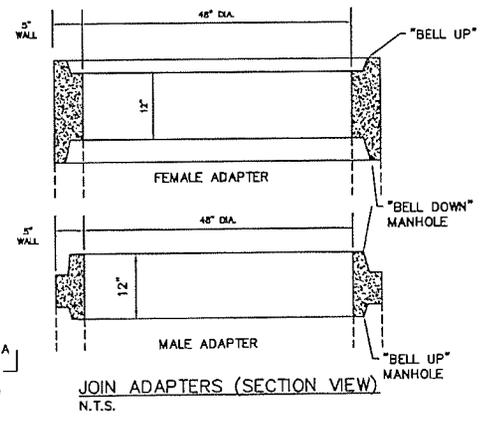
NOTE:
FOR DETAILS OF FRAME & COVER
SEE STD. # 65D.



PLAN VIEW
ONE PIECE BASE UNIT
N.T.S.



SECTION "A-A"
THRU ONE PIECE BASE UNIT
N.T.S.



JOIN ADAPTERS (SECTION VIEW)
N.T.S.

MANHOLE MUST BE CORED
RUBBER BOOT IS REQUIRED

NOTE:
ON ALL SECTIONS BELOW THE WATER TABLE
8" EXTERNAL SEAL WRAP WILL BE REQUIRED.

FULTON COUNTY STANDARD DETAIL 113
MANHOLES
PRECAST DETAILS

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



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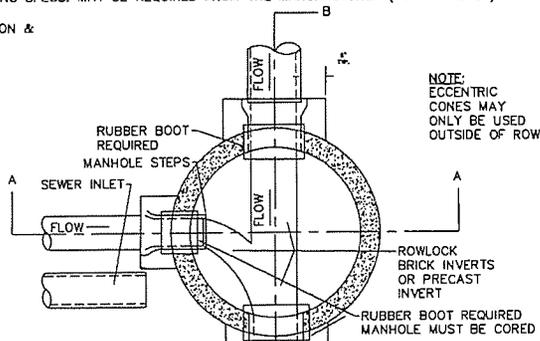
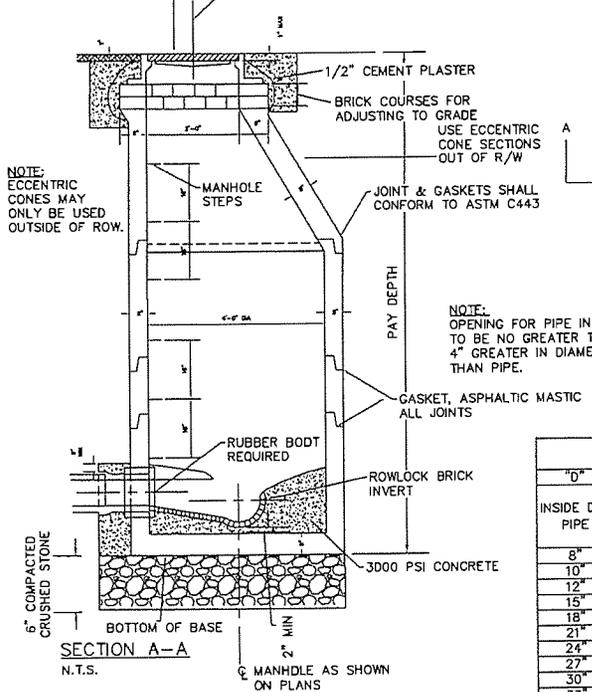
DRAWING NO.
113

NOTE:
SEWER STAFF IS OF THE VIEW
THAT ECCENTRIC MANHOLES
SHOULD NOT BE USED. DIFFICULTY
WITH ACCESS.

NOTE:
FOR OUTFALL LINES, MANHOLE TOP TO BE 18" TO 24" ABOVE SURROUNDING GROUND SURFACE.

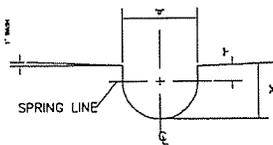
ALL MANHOLES WITHIN TEN FEET OF PUBLIC RIGHT OF WAY SHALL BE TOPPED WITH A HEAVY DUTY TRAFFIC BEARING RING & COVER MOUNTED FLUSH TO EXISTING GRADE. LOADING SPECS. MAY BE REQUIRED FROM THE MANUFACTURER (RING & COVER).**

C.I. FRAME & COVER
CENTER OF MANHOLE TO BE PLACED AT STATION & OFFSET SHOWN ON PLANS.

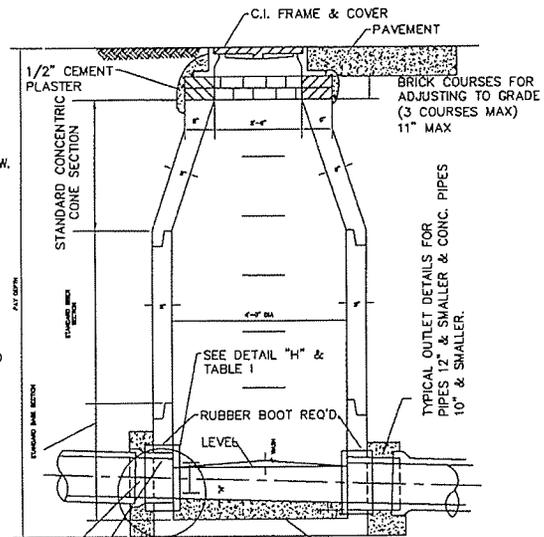


SECTIONAL PLAN
STANDARD PRECAST 4'-0" DIAMETER MANHOLE
N.T.S.

TABLE I		
"D"	"T"	"H"
8"	2 1/2"	6 1/2"
10"	3"	8"
12"	3 1/2"	9 1/2"
15"	4 1/2"	12"
18"	5 1/2"	14 1/2"
21"	6 1/2"	17"
24"	7 1/2"	19 1/2"
27"	8"	21 1/2"
30"	9"	24"
33"	10"	26 1/2"
36"	11"	29"



DETAIL "H"
NOTE: "H" & "T" DIMENSIONS APPLY ONLY AT THE UPSTREAM, INSIDE EDGE OF M.H.
N.T.S.



SECTION B-B
N.T.S.

FULTON COUNTY STANDARD DETAIL 114
STANDARD SEWER MANHOLES
PRECAST CONCRETE

DATE	REVISIONS	DATE	REVISIONS

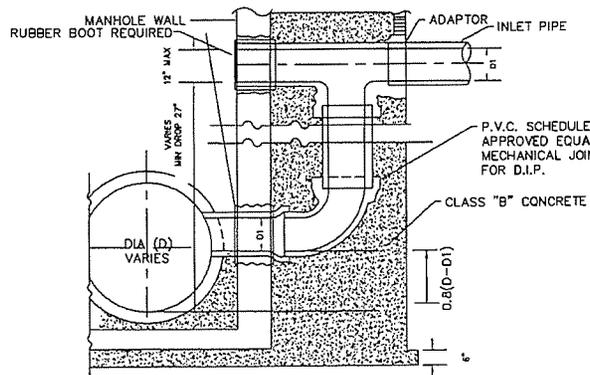
DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



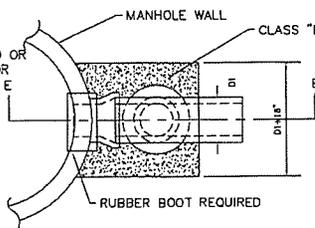
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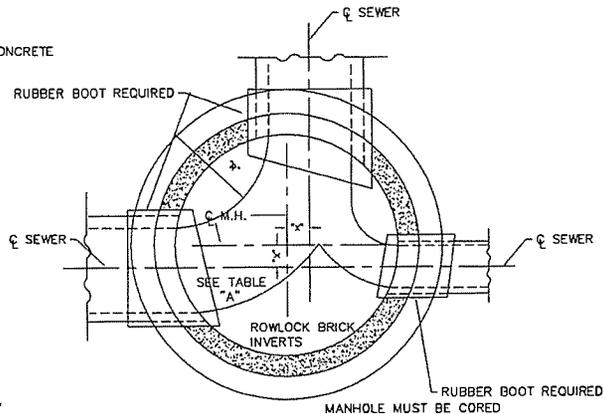
114



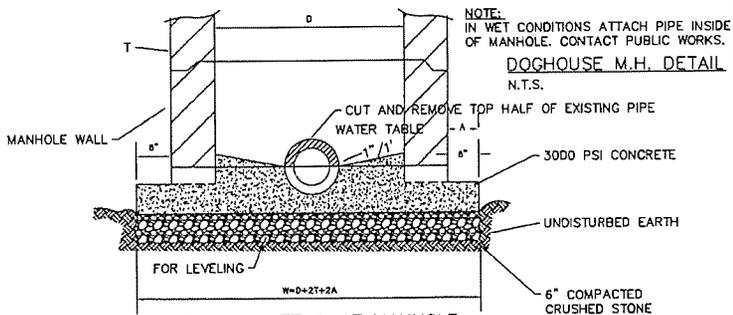
SECTION E-E
N.T.S. TYPICAL VERTICAL DROP INLET AT MANHOLE
(OUTSIDE DROP)



PART PLAN



SECTIONAL PLAN
N.T.S.



TYPICAL DETAIL AT MANHOLE
CONSTRUCTED OVER EXISTING PIPE
N.T.S.

NOTE:
IN WET CONDITIONS ATTACH PIPE INSIDE
OF MANHOLE. CONTACT PUBLIC WORKS.
DOGHOUSE M.H. DETAIL
N.T.S.

TABLE "A"

STANDARD PRECAST MANHOLES				
SCHEDULE OF GOVERNING DIMENSIONS				
PIPE SIZE	ANGLE	M.H. DIAMETER	"R"	"X"
8" thru 12"	0° to 90°	4'	1'-0"	0"
15"	0° to 60°	4'	1'-3"	0"
15"	60° to 90°	4'	1'-3"	6"
18"	0° to 60°	4'	1'-6"	0"
18"	60° to 90°	4'	1'-4"	8"
21"	0° to 60°	4'	1'-9"	0"
21"	60° to 90°	5'	1'-9"	9"
24"	0° to 60°	4'	2'-0"	0"
24"	60° to 90°	5'	1'-6"	9"
27"	0° to 60°	5'	2'-3"	0"
27"	60° to 90°	6'	2'-0"	1'-0"
30"	0° to 60°	5'	2'-6"	0"
30"	60° to 90°	6'	1'-9"	8"
36"	0° to 90°	PRE-BED PIPE, M.H. BASE & ELBOW UNIT		

FULTON COUNTY STANDARD DETAIL 115
STANDARD SEWER MANHOLES
PRECAST CONCRETE

DATE	REVISIONS	DATE	REVISIONS

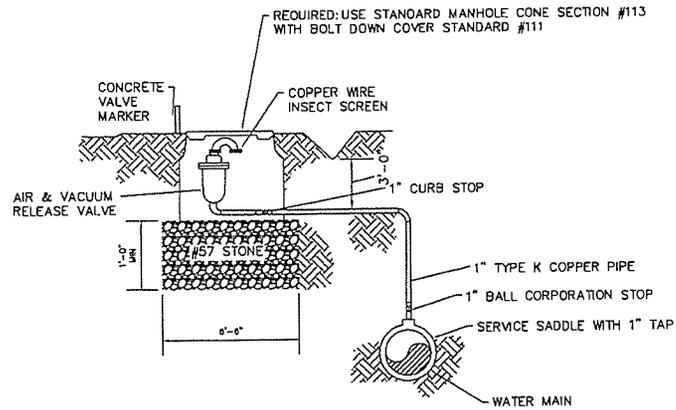
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DRAWING NO.

115

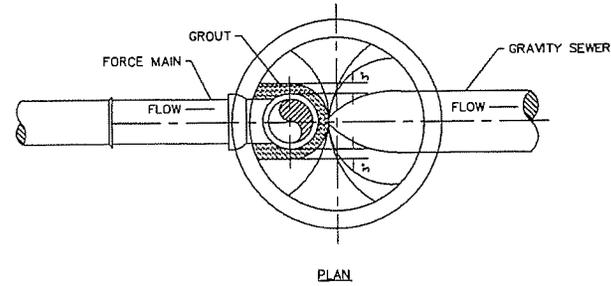


AIR & VACUUM RELEASE VALVE ASSEMBLY
N.T.S.

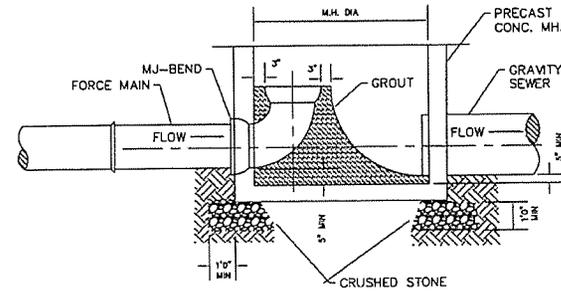
NOTES:

ALL FORCE MAINS SHALL BE " DIA. DIP, CLASS 50 PUSH-ON JOINTS EXCEPT AT CREEK CROSSINGS, BORINGS, AND FITTINGS. ALL CONSTRUCTION METHODS AND MATERIALS AND MAJOR GLANDS TO BE USED IN FULTON COUNTY MUST BE MADE OF DUCTILE IRON AND COMPLY TO THE ANSI/AWWA A21.111/C111-85 STANDARD SPECIFICATIONS. GLANDS THAT DO NOT MEET THE SPECIFICATIONS WILL NOT BE ACCEPTED. THRUST BLOCKING WILL BE USED ON ALL TEES AND BENDS. INSPECTOR MUST BE NOTIFIED 24 HOURS BEFORE CONSTRUCTION.

FOR COMMERCIAL USE ONLY



PLAN



SECTION

(END OF LINE CONNECTION)

FORCE MAIN DISCHARGE MANHOLE DETAIL
N.T.S.

FULTON COUNTY STANDARD DETAIL 116
FORCE MAIN DETAILS
AIR & VACUUM RELEASE VALVE
ASSEMBLY

DATE	REVISIONS	DATE	REVISIONS

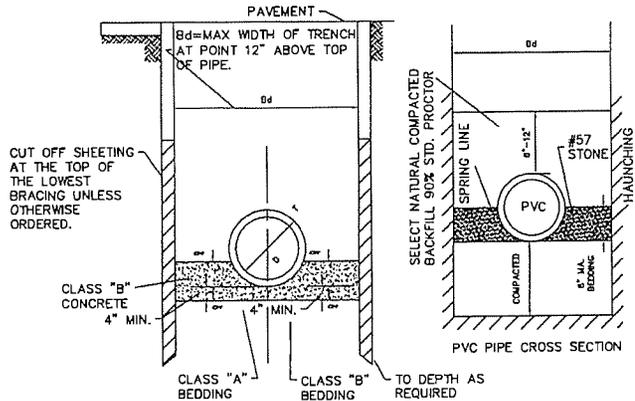
DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



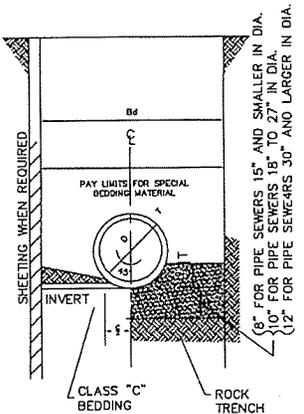
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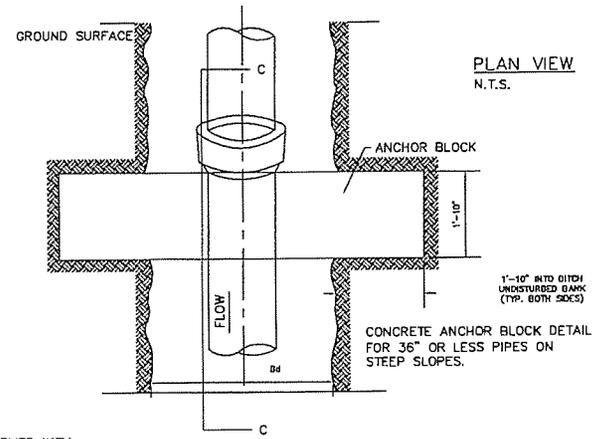
116



TYPICAL TRENCH DETAILS
N.T.S.



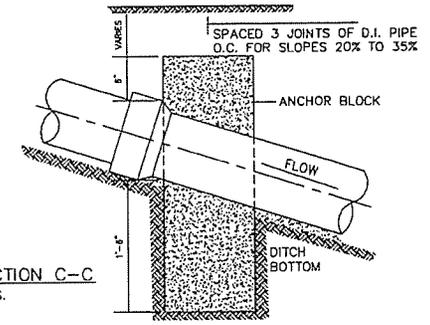
NOTE: ALL O.S.H.A. REGULATIONS MUST BE COMPLIED WITH.



PLAN VIEW
N.T.S.

A.S.T.M. A746 DUCTILE IRON PIPE					A.S.T.M. C78- REINF. CONC. PIPE				A.S.T.M. C14- EX. STR. CONC. SEWER PIPE				A.S.T.M.-3034 SDR 35 P.V.C. PIPE			
O. IN	T. IN	Bd FT	C FT	*CRADLE	T. IN	Bd FT	C FT	*CRADLE	T. IN	Bd FT	C FT	*CRADLE	T. IN	Bd FT	C FT	*CRADLE
6	0.38	2	0.41	0.034					7 / 8	2.15	0.6	0.041	0.24	2.7		
8	0.42	2.09	0.53	0.036					1	2.33	0.7	0.047	0.3	2.88		
10	0.48	2.26	0.65	0.043					1-3/8	2.56	0.87	0.055	0.36	3.04		
12	0.52	2.43	0.78	0.049					1-5/8	2.85	1.08	0.066	0.437	3.28		
15					2	2.67	0.95	0.06	2	3.17	1.3	0.086				
18	0.73	2.96	1.15	0.072	2-1/4	3	1.15	0.073	2	3.17	1.3	0.086				
21					2-1/2	3.25	1.35	0.088	2-1/4	3.46	1.5	0.105				
24	0.85	3.48	1.52	0.18	1-3/4	3.54	1.55	0.109	2-5/8	3.77	1.72	0.128				
27					3	3.83	1.75	0.131								
30	0.99	4	1.88	0.149	3	4.08	1.95	0.153								
33					3-1/2	4.42	2.2	0.184								
36	1.19	4.5	2.27	0.198	3-3/4	4.75	2.4	0.215								
42	1.32	5	2.63	0.253	4	5.67	2.6	0.288								
48	1.44	5.5	3	0.314	4-1/2	6.25	3	0.36								
54					5	6.83	3.5	0.44								
60					5-1/2	7.42	3.75	0.54								
66					6	8	4.25	0.63								
72					6-1/2	8.58	4.65	0.74								
					7	9.17	5.07	0.86								

NOTE: PAYMENT QUANTITY IN CU. YDS./LIN./FT. OF TRENCH TO BE COMPACTED TO A DENSITY OF 90% STANDARD PROCTOR. BACKFILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, OR OTHER FOREIGN DEBRIS AND SHALL BE PLACED AT OR NEAR OPTIMUM MOISTURE.



SECTION C-C
N.T.S.

PVC BEDDING DETAIL
COMPACTION-
THE BACKFILL OF ALL TRENCHES TO BE COMPACTED TO A DENSITY OF 90% STANDARD PROCTOR. BACKFILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, OR OTHER FOREIGN DEBRIS AND SHALL BE PLACED AT OR NEAR OPTIMUM MOISTURE.

FULTON COUNTY STANDARD DETAIL 117
PIPE SEWER DATA
PVC PIPE INSTALLATION

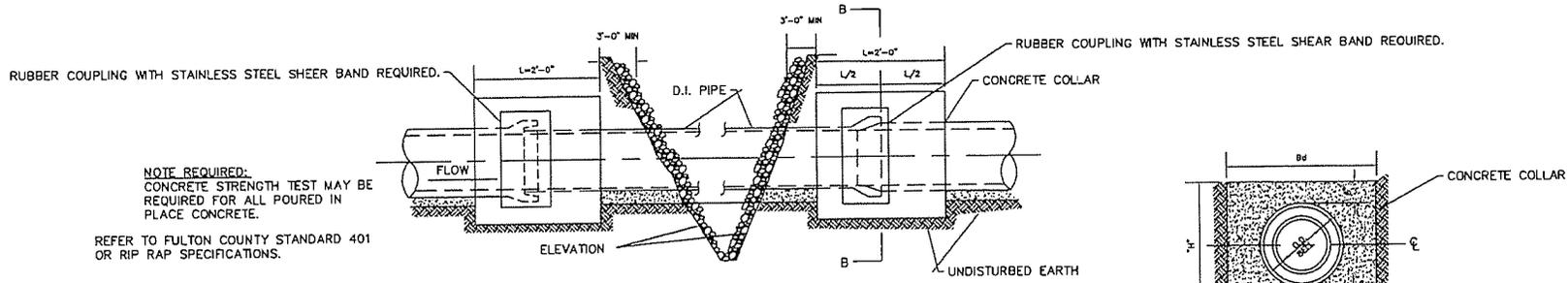
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
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DATE: 12-2-05



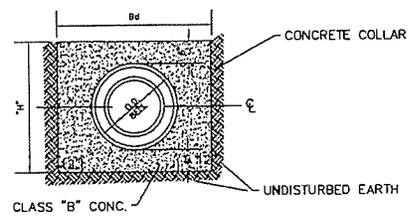
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DRAWING NO.
117



NOTE REQUIRED:
CONCRETE STRENGTH TEST MAY BE
REQUIRED FOR ALL POURED IN
PLACE CONCRETE.
REFER TO FULTON COUNTY STANDARD 401
OR RIP RAP SPECIFICATIONS.

TYPICAL DITCH CROSSING
N.T.S.



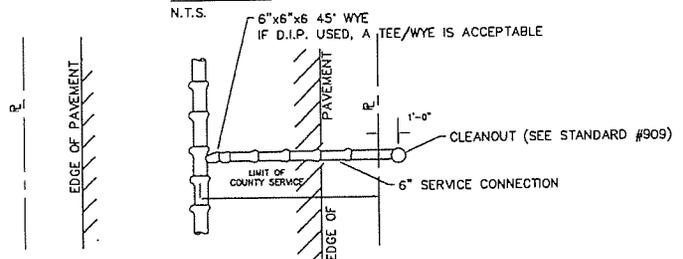
SECTION B-B
N.T.S.

NOTES:
WHERE SEWER PIPES RUN PARALLEL WITH CREEKS OR
STREAMS, RIP RAP IS REQUIRED WITHIN 10 FEET SEWER
EASEMENT. ALL SEWER OUTFALLS MUST BE LEFT ACCESSABLE
TO COUNTY SERVICE TRUCKS.
GATES (12 FEET) WILL BE REQUIRED ON FENCES ACROSS
OUTFALLS HAVING A DIAMETER OF 12" OR LARGER.

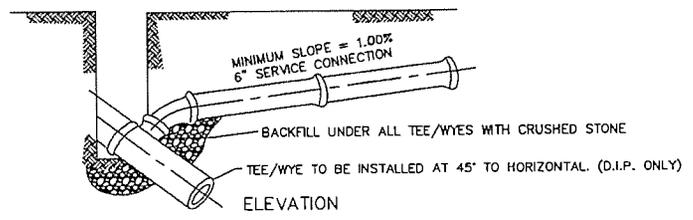
STEEL PIPE COATED INSIDE AND COATED AND WRAPPED OUTSIDE MAY BE USED.

NOTE:
THE UNION OF UNLIKE PIPE (D.I.P., CLAY, P.V.C. OR
CONCRETE) SHALL BE JOINED TOGETHER WITH A
CONCRETE COLLAR AS SHOWN ABOVE AND
FLEXIBLE NEOPRENE COUPLING WITH STAINLESS
STEEL BANDS AND SHEAR RING.

PLAN VIEW



NOTE:
WHERE SERVICE LINE CROSSES STATE HWY. R/W, PIPE AND FITTINGS SHALL
BE MECHANICAL JOINT D.I. PIPE, AS SPECIFIED UNDER ITEM NO. 7 D.I. PIPE
AND TRENCH SHALL BE BACKFILLED WITH CRUSHED STONE.



TYPICAL SERVICE CONNECTION
N.T.S.

FULTON COUNTY STANDARD DETAIL 118
PIPE SEWER DATA

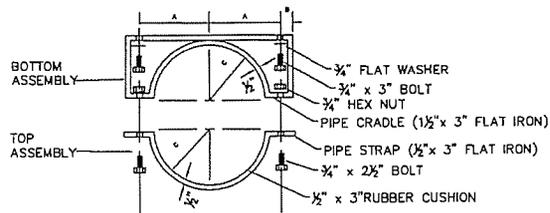
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
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DATE: 12-2-05

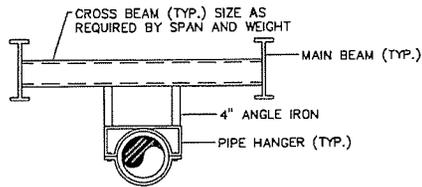


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DRAWING NO.
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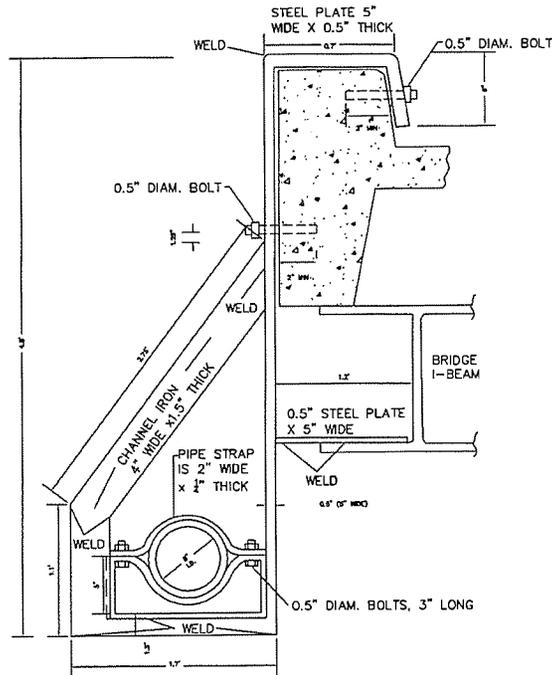
DIMENSION IN INCHES FOR PIPE HANGERS			
PIPE SIZE	A	B	C (RADIUS)
8	6.53	2.00	4.53
12	8.60	2.00	6.60
16	10.70	2.00	6.70



TYPICAL WATER MAIN SUPPORT DETAILS
N.T.S.

NOTES:

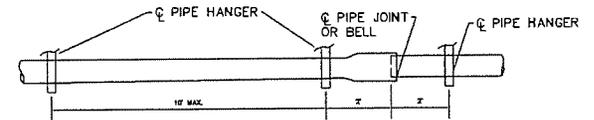
1. PRIMER SHALL BE NO. 1-8 ORANGE PRIMER AND CONFORM TO GEORGIA D.O.T. ARTICLE 670.02 PRIMER SHALL BE APPLIED TO A MINIMUM THICKNESS OF 4 MILS.
2. PAINT SHALL BE NO. 3-A GREEN, BRUSHING, ROLLER, AIRLESS TYPE AND CONFORM TO GEORGIA D.O.T. ARTICLE 870.02. PAINT SHALL BE APPLIED TO A MINIMUM THICKNESS OF 10 MILS.
3. TWO BOTTOM ASSEMBLIES USED TOGETHER MAY BE REQUIRED FOR SOME INSTALLATIONS.
4. PROVIDE TWO SUPPORTS PER JOINT, TWO FEET FROM JOINT.
5. DESIGN SUPPORTS DETAILS FOR WATER MAIN LARGER THAN 16\"/>



PIPE HANGER SECTION
(FOR 8\"/>

NOTES:

1. PROVIDE TWO SUPPORTS PER JOINT, TWO FEET FROM JOINT.
2. ENGINEER SHALL DESIGN SUPPORT DETAILS FOR WATER MAINS LARGER THAN 8\"/>



PLAN FOR PIPE HANGER SPACING
N.T.S.

FULTON COUNTY STANDARD DETAIL 119
TYPICAL PIPE HANGER AND SUPPORT DETAILS

DATE	REVISIONS	DATE	REVISIONS

OCS/DRN/CHKD: CMS
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DATE: 12-2-05



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DRAWING NO.

119

**MAXIMUM
PERMISSIBLE DEFLECTIONS**

SIZE (NOM)	PUSH-ON JOINT (18 FT. JOINTS)		MECHANICAL JOINT (18 FT. JOINTS)	
	DEGREE	MAX. OFFSET	DEGREE	MAX. OFFSET
3"	4.0	15"	4.5	17"
4"	4.0	15"	4.5	17"
6"	4.0	15"	4.5	17"
8"	4.0	15"	4.5	17"
10"	4.0	15"	4.5	17"
12"	4.0	15"	4.5	17"
14"	2.5	9.4"	3.0	11"
16"	2.0	7.5"	3.0	11"
20"	2.0	7.5"	2.0	7.5"
24"	2.0	7.5"	2.0	7.5"
30"	1.5	5.5"	2.0	7.5"
36"	1.5	5.5"	2.0	7.5"
42"	1.5	5.5"	1.5	5.5"
48"	1.5	5.5"	1.5	5.5"

NOTES:

1. WHEN A PIPE IS DEFLECTED, THE PIPE SHALL FIRST BE ASSEMBLED IN A STRAIGHT LINE, BOTH HORIZONTALLY AND VERTICALLY BEFORE THE DEFLECTION IS MADE.
2. FOR MECHANICAL JOINT PIPE, THE BOLTS SHALL BE PARTIALLY TIGHTENED BEFORE THE LENGTH OF PIPE IS DEFLECTED. ANY SUPPORTED PIPE, SHALL BE SO SUPPORTED THAT THERE IS ZERO DEFLECTION EXCEPT WHERE EITHER A HORIZONTAL OR VERTICAL CURVE ON A BRIDGE OR OTHER STRUCTURE IS INVOLVED.
3. THRUST RESTRAINTS MAY BE REQUIRED ON THE DEFLECTED JOINTS.

FULTON COUNTY STANDARD DETAIL 120
MAXIMUM PERMISSIBLE JOINT DEFLECTIONS

DATE	REVISIONS	DATE	REVISIONS

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DRAWING NO.
120

NOM. PIPE DIA.	BELL DEPTH	BOLTS				JOINT ACCESSORY WEIGHT-Lbs.
		DIAMETER	LENGTH	NUMBER PER JOINT	REC. TORQUE Ft.-Lbs.	
4	2 1/2"	3/4"	3 1/2"	4	75-90	10
6	2 1/2"	3/4"	3 1/2"	6	75-90	16
8	2 1/2"	3/4"	4"	6	75-90	25
10	2 1/2"	3/4"	4"	8	75-90	30
12	2 1/2"	3/4"	4"	8	75-90	40
14	3 1/2"	3/4"	4 1/2"	10	75-90	45
16	3 1/2"	3/4"	4 1/2"	12	75-90	55
18	3 1/2"	3/4"	4 1/2"	12	75-90	65
20	3 1/2"	3/4"	4 1/2"	14	75-90	85
24	3 1/2"	3/4"	5"	16	75-90	105
30	4"	1"	6"	20	100-120	220
36	4"	1"	6"	24	100-120	285
42	4"	1 1/4"	6"	28	120-150	400
48	4"	1 1/4"	6"	32	120-150	475

FULTON COUNTY STANDARD DETAIL 121
MECHANICAL JOINT BOLT USAGE CHART

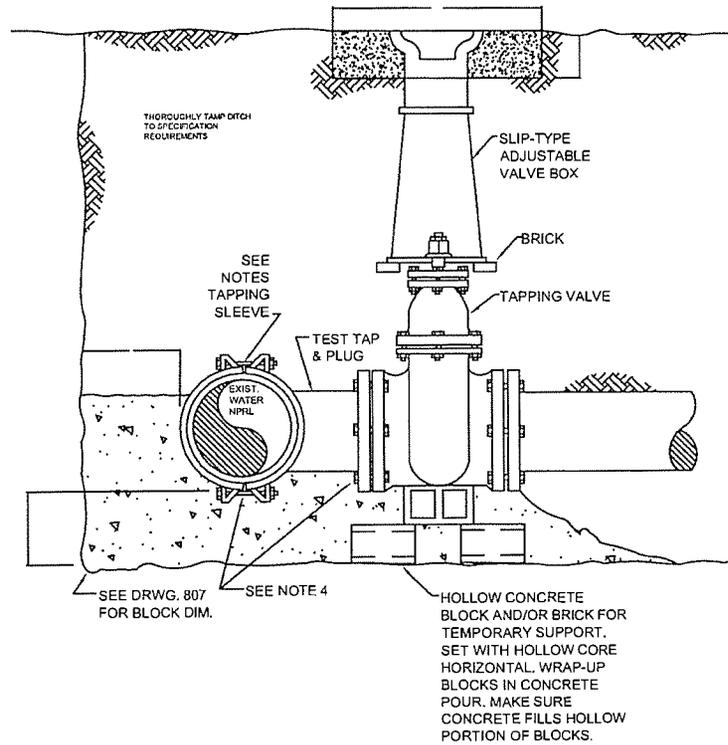
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DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
121



NOTES:

1. TEMPORARILY SUPPORT TAPPING SADDLE AND VALVE AND APPLY STANDARD HYDROSTATIC TEST.
2. IF NO LEAKS, POUR INDICATED PERMANENT CONCRETE BLOCK AND SUPPORT PAD.
3. MAKE TAP, LINE EXTENSION AND BACKFILL.
4. COVER GLANDS AND BOLTS WITH HEAVY POLYETHYLENE SHEETING TO KEEP CONCRETE FROM BONDING. TYPICAL WHENEVER BOLTS OR GLANDS MAY BE "WRAPPED-UP" IN CONCRETE.
5. COAT TAPPING SLEEVE AND BOLTS WITH AN APPROVED BITUMASTIC COATING BEFORE POURING CONCRETE. TYPICAL FOR ALL STEEL INCLUDING RODS, COUPLINGS, STRAPS, AND OTHER BURIED STEEL. SEE NOTE 3, DRWG. 127 FOR COATING.

FULTON COUNTY STANDARD DETAIL 122
TAPPING SLEEVE AND VALVE INSTALLATION DETAILS

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
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DRAWING NO.
122

MAXIMUM TAPPING SLEEVE LENGTH

MAIN & TAP (IN. NOMINAL)	LENGTH (ALONG RUN)
6x6, 6x3, 6x4, 6x2	18"
8x2, 8x3, 8x4, 8x6	19"
8x8	21"
10x2, 10x3, 10x4, 10x6	19"
10x8, 10x10	23"
12x2, 12x3, 12x5, 12x6	19"
12x8	21"
12x10, 12x12	25"

NOTES:

1. ALL TAPPING SLEEVES AND VALVES SHALL BE HYDROSTATICALLY TESTED BEFORE TAP IS MADE. SEE DRWG. 123 FOR TYPICAL INSTALLATION AND NOTES.
2. WORKMEN INSTALLING TAPPING SLEEVE AND VALVE SHALL FOLLOW MANUFACTURER'S INSTALLATION PROCEDURES AND THE REQUIRMENTS OF FULTON COUNTY ENGINEER'S OFFICE.

FULTON COUNTY STANDARD DETAIL 123
TAPPING SLEEVE LENGTH

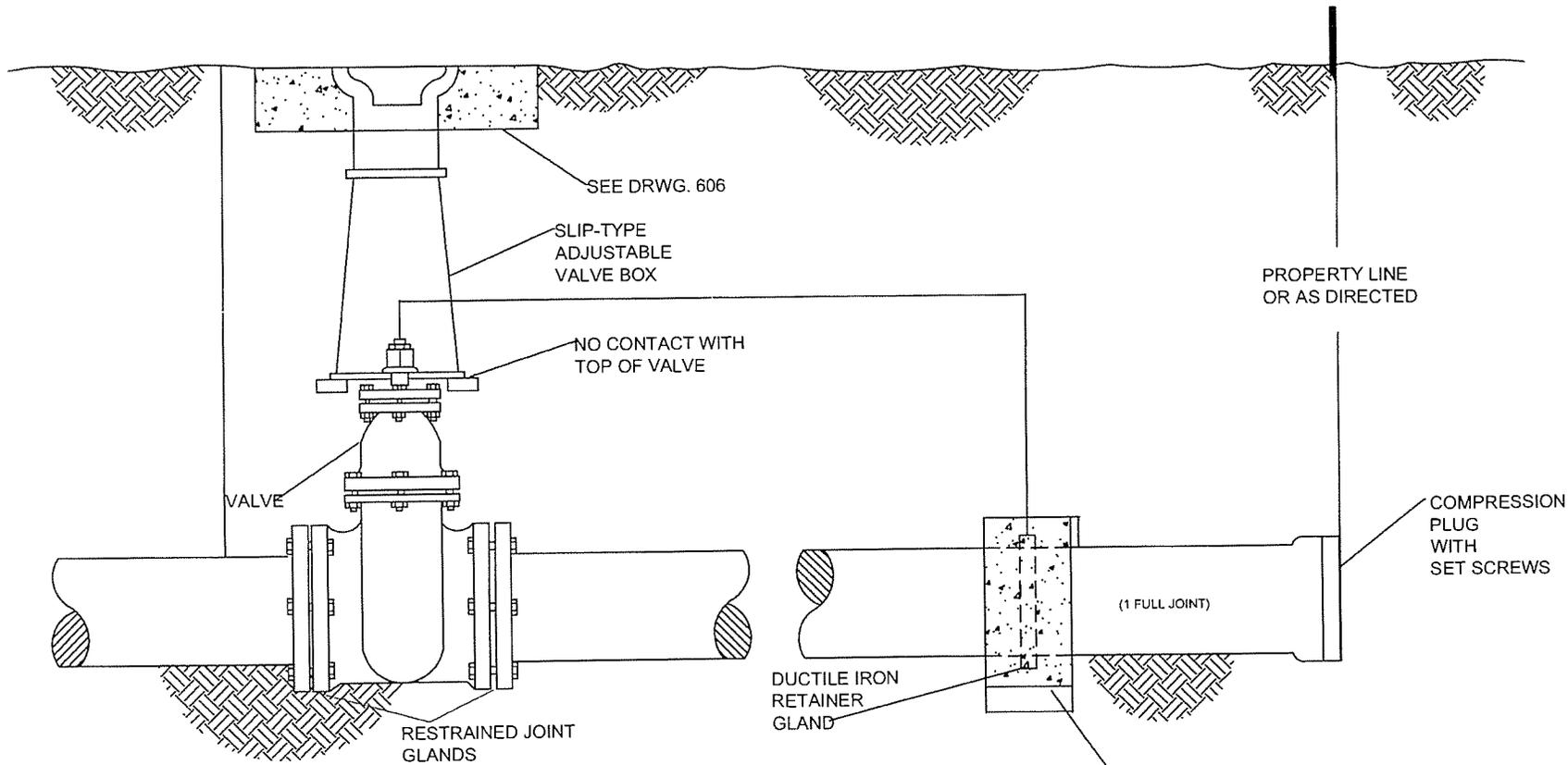
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
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DRAMNG NO.
123



- NOTES:**
1. STUB OUT MUST BE HYDROSTATICALLY TESTED WITH REST OF WATER MAIN.
 2. IN LIEU OF SLIP-JOINT AND COMPRESSION PLUG, AN M.J. JOINT MAY BE USED WITH AN M.J. PLUG.

FULTON COUNTY STANDARD DETAIL 124
STUB OUT DETAIL

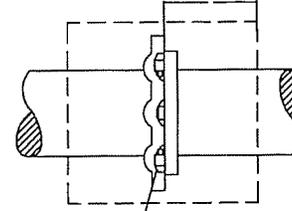
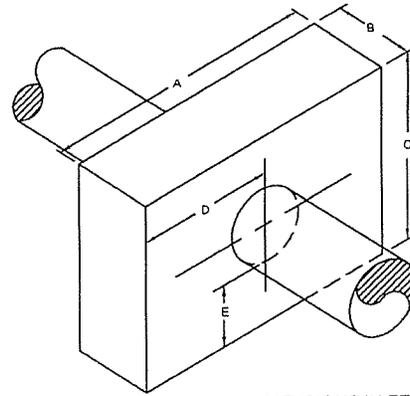
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DRAWING NO.
124



TORQUE SET SCREWS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. INSPECTOR MUST WITNESS INSTALLATION.

MINIMUM DIMENSIONS IN FEET FOR CONCRETE COLLAR ON DUCTILE IRON PIPE TO BE USED WITH EMBEDDED DUCTILE IRON RETAINER GLAND

PIPE SIZE	A	B	C	D	E	VOLUME CU. YDS.	CONC. WT.	THRUST
4"	3'-6"	3'-0"	1'-5"	1'-6"	1'-0"	0.55	2230	3150
6"	4'-0"	3'-0"	2'-7"	2'-0"	1'-0"	1.15	4650	7070
8"	4'-6"	3'-0"	3'-0"	2'-3"	1'-3"	1.50	6075	12,570
10"	5'-2"	3'-0"	3'-2"	2'-7"	1'-3"	1.81	7330	19,635
12"	5'-9"	3'-0"	3'-8"	2'-10 $\frac{1}{2}$ "	1'-8"	2.34	9475	28,775
14"	6'-6"	3'-0"	4'-0"	3'-3"	1'-9"	2.89	11,700	38,490
16"	6'-9"	3'-0"	4'-9"	3'-3"	2'-3"	3.56	14,410	50,270

NOTES:

- ALL MAINS GREATER THAN 13" I.D. SHALL BE INDIVIDUALLY CALCULATED BY THE FULTON COUNTY ENGINEERING DEPARTMENT.
- SOIL CONDITIONS SHALL BE VERIFIED BY THE ENGINEER BEFORE THRUST RESTRAINT DESIGN IS IMPLEMENTED.
- PIPE MUST BE DUCTILE IRON.

DESIGN DATA:

- DIMENSION OF THRUST RESTRAINT IN FEET BASED ON 2000 POUNDS PER SQUARE FOOT SOIL BEARING PRESSURE AND 230 PER SQUARE INCH TEST PRESSURE. ACTUAL INSIDE DIAMETER OF DUCTILE IRON PIPE, CLASS 31, USED AS STANDARD.
- CONCRETE SHALL BE CLASS A, 3000 P.S.I.
- UNDER ADVERSE CONTRUCTION CONDITIONS, CONCRETE SHALL BE "HIGH EARLY" TYPE.

FULTON COUNTY STANDARD DETAIL 125
THRUST RESTRAINT CONCRETE COLLAR

DATE	REVISIONS	DATE	REVISIONS

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DRAWING NO.

125

	PIPE SIZE	ROD DIA.	NO. RODS	TOTAL THRUST (Lbs)
TEES, PLUGS & VALVES	6"	3/4"	2/3	5,655
	8"	3/4"	2/3	10,055
	10"	3/4"	3	15,710
	12"	3/4"	4	22,620
	14"	3/4"	6	30,800
	16"	3/4"	4	40,215
	20"	3/4"	6	62,635
	24"	3/4"	8	90,480
	30"	1"	6	141,375
	36"	1"	6	203,595
1 1/2" B	6"	3/4"	2	1,110
	8"	3/4"	2	1,970
	10"	3/4"	2	3,080
	12"	3/4"	2	4,435
	14"	3/4"	2	6,035
	16"	3/4"	2	7,885
	20"	3/4"	2	12,320
	24"	3/4"	2	17,740
	30"	1"	2	27,720
	36"	1"	2	39,910
2 1/2" B	6"	3/4"	2	2,210
	8"	3/4"	2	3,925
	10"	3/4"	2	6,130
	12"	3/4"	2	8,825
	14"	3/4"	2	12,015
	16"	3/4"	2	15,690
	20"	3/4"	2	24,515
	24"	3/4"	2	35,305
	30"	1"	2	55,160
	36"	1"	2	79,435
4 1/2" B	6"	3/4"	2/3	4,430
	8"	3/4"	2/3	7,700
	10"	3/4"	2	12,025
	12"	3/4"	4	17,312
	14"	3/4"	4	23,565
	16"	3/4"	4	30,780
	20"	3/4"	4	48,090
	24"	3/4"	6	69,250
	30"	1"	4	108,205
	36"	1"	6	155,810
90" B	6"	3/4"	2/3	8,000
	8"	3/4"	3	14,220
	10"	3/4"	4	22,214
	12"	3/4"	6	32,000
	14"	3/4"	6	43,540
	16"	3/4"	4	56,870
	20"	3/4"	6	88,860
	24"	3/4"	8	127,960
	30"	1"	6	199,930
	36"	1"	6	287,900

NOTES:

- ON PIPE SIZES 6"-14" ROD AND NUT WILL HAVE MIN. YIELD STRENGTH OF 50,000 PSI. ON PIPE SIZES 16"-24" ROD AND NUT WILL HAVE MIN. YIELD STRENGTH OF 100,000 PSI.
- RODS HAVE 6" OF THREAD ON EACH END.
- ALL METAL TO BE CLEANED AND COATED WITH AN APPROVED PROTECTIVE COATING FOLLOWING INSTALLATION AND PRIOR TO BACKFILLING. SEE NOTE 3, DRWG. 127.

FULTON COUNTY STANDARD DETAIL 126
THRUST RESTRAINTS: TIE ROD CHART

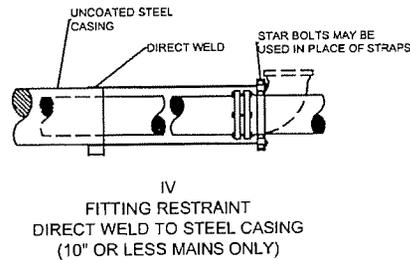
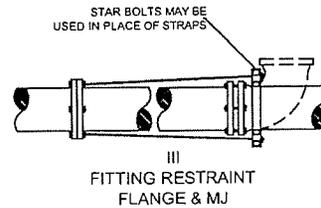
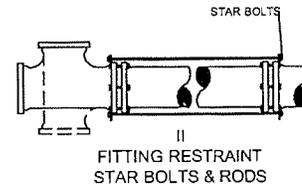
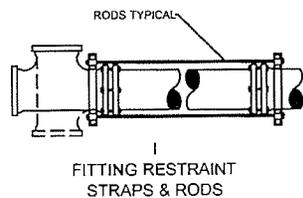
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DRAWING NO.
126



NOTES:

1. SEE DWG. 126 FOR NUMBER AND DIAMETER OF RODS REQUIRED.
2. NO FLANGES ARE TO BE BURIED.
3. AFTER INSTALLATION, TIE-RODS AND CLAMP ASSEMBLIES SHALL BE CLEANED AND THOROUGHLY COATED WITH ROYSTON LABORATORIES, INC. ROSKOTE PLASTIC NO. A 939 OR KOPPERS CO., INC. BITUMASTIC SUPERSERVICE BLACK OR APPROVED EQUIVALENT.
4. WHEN RESTRAINING FITTINGS TO STEEL CASING PIPE, THE TIE-RODS MUST BE DIRECT WELDED TO THE CASING - USE OF STAR BOLTS PROHIBITED. CASING MUST BE FULLY WELDED THROUGHOUT ITS LENGTH AND BE A MINIMUM OF 30' IN LENGTH. AREA TO BE WELDED MUST BE COMPLETELY BARE AND FREE OF ANY COATING MATERIAL.

FULTON COUNTY STANDARD DETAIL 127
THRUST RESTRAINTS: TIE-ROD INSTALLATION

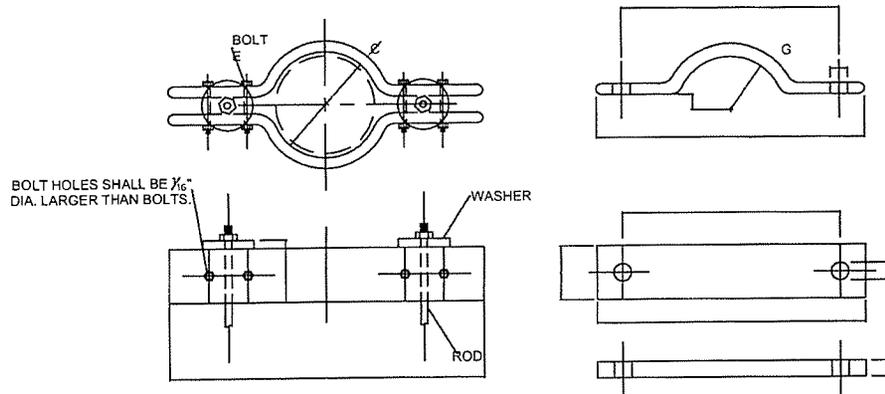
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30303
404-730-7400 FAX: 404-224-0498

DRAWING NO.
127



STEEL SOCKET CLAMP DIMENSIONS (INCHES)							
SIZE	A	B	C	D	E	T	ROD & C WASH SIZE
4	5	14 5/8	1/2	2	5/8 x 3 1/2	5/8	3/4
6	7 1/8	18 7/8	1/2	2	5/8 x 3 1/2	5/8	3/4
8	9 5/16	19 1/8	5/8	2 1/2	5/8 x 3 3/4	5/8	3/4
10	11 1/2	21 3/8	5/8	2 1/2	5/8 x 3 3/4	3/4	3/4
12	13 1/2	25 1/8	5/8	3	5/8 x 3 3/4	3/4	3/4
14	13 3/4	28 1/4	3/4	3	7/8 x 4 1/2	7/8	3/4
16	17 7/8	31 3/8	3/4	4	7/8 x 4 1/2	7/8	3/4
20	22 1/8	37 3/4	3/4	4 1/2	1 1/4 x 5	1 1/8	3/4
24	26 3/8	44 1/4	3/4	5	1 1/2 x 5 1/2	1 1/4	3/4

ABOVE ANCHOR STRAP DIMENSIONS (INCHES)							
SIZE	B	C	H	L	R	S	
4	10 1/8	5/8 X 2 1/2	13/16	12 1/2	2 1/2	3/4	
6	12 1/8	5/8 X 2 1/2	13/16	14 1/2	3 9/16	3/4	
8	14 3/8	5/8 X 2 1/2	13/16	16 3/4	4 21/32	3/4	
10	16 11/16	5/8 X 2 1/2	1 1/16	19 1/16	5 3/4	3/4	
12	19 3/16	5/8 X 3	1 1/16	22 5/16	6 3/4	7/8	

NOTES:

1. INSTALLATION OF, AND MATERIALS FOR RODS, CLAMPS, STRAPS, BOLTS AND WASHERS SHALL CONFORM TO THE NATIONAL FIRE CODES - NFFA NO. 24 LATEST REVISION.
2. YOKES AND ANCHOR STRAPS FOR FITTINGS LARGER THAN 12" SHALL BE DESIGNED AND APPROVED FOR SPECIFIC INSTALLATION.
3. RODS TO BE HIGH TENSILE, NOT ROLLED STEEL WITH TENSILE STRENGTH OF 110,000 P.S.I. AND A MIN. OF 95,000 YIELD STRENGTH.
4. NUTS TO HAVE HEAVY DUTY SEMI-FINISH WITH NATIONAL COURSE THREADS.
5. AFTER INSTALLATION TIE RODS AND CLAMP ASSEMBLY SHALL BE THOROUGHLY COVERED WITH ROYSTON LABORATORIES, INC. ROSKOTE MASTIC ND A939 OR KOPPERS CO., INC. BITUMASTIC SUPERSERVICE BLACK OR APPROVED EQUIVALENT.

FULTON COUNTY STANDARD DETAIL 128
THRUST RESTRAINTS STRAP AND ROD DETAILS

DATE	REVISIONS	DATE	REVISIONS

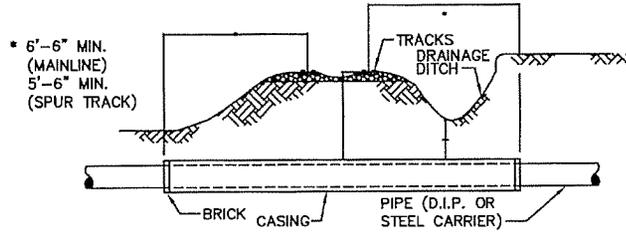
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APPROVED: REW
DATE: 12-2-05



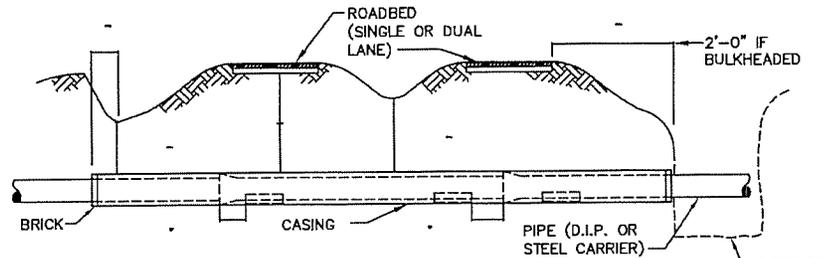
FULTON COUNTY PUBLIC WORKS
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404-730-7400 FAX: 404-224-0498

DRAWING NO.

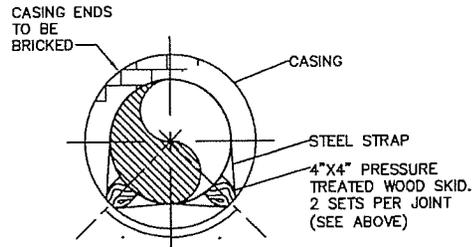
128



RAIL ROADS



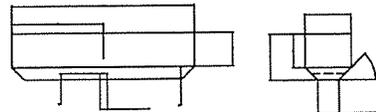
INTERSTATE/LIMITED ACCESS/
STATE ROADS



CASING-END VIEW
PIPE ACCESSIBLE

BORED CASINGS			
PIPE SIZE	PIPE O.D.	CASING SIZE	CASING I.D.
6"	6.90"	12"	11.376"
8"	9.05"	16"	14.314"
12"	13.20"	20"	17.938"
16"	17.40"	24"	21.564"
20"	21.60"	28"	27.0"
24"	25.80"	36"	35.0"

NOTE: IF CASING UNDER RAILROAD IS NOT COATED OR CATHODICALLY PROTECTED, INCREASE THICKNESS .062"



WOOD SKID DETAIL

FULTON COUNTY STANDARD DETAIL 129
CASING/PIPE SUPPORT INSTALLATION

DATE	REVISIONS	DATE	REVISIONS

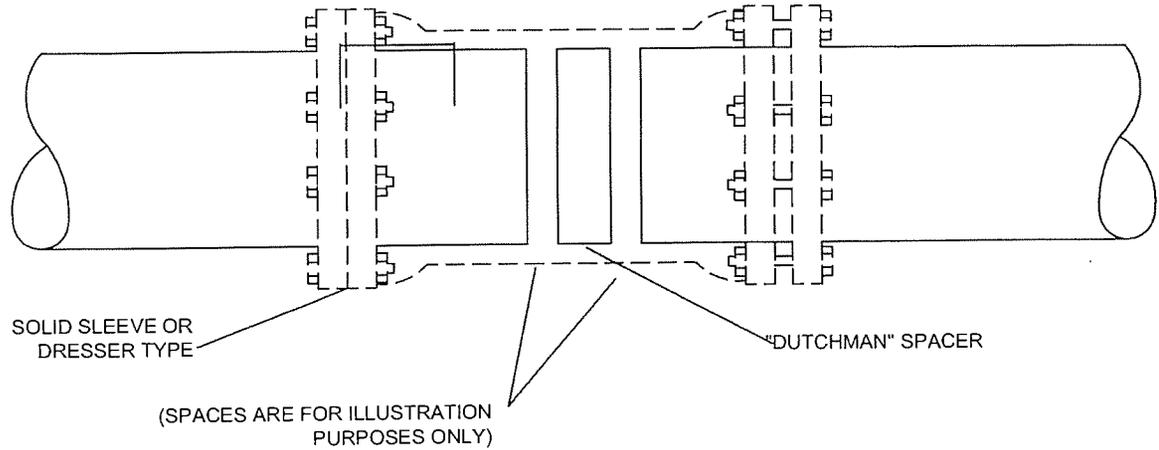
DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
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DRAWING NO.

129



NOTES:

1. IF "G" IS GREATER THAN $\frac{1}{2}$ " AT IT'S NARROWEST POINT, THEN A FULL CIRCLE SPACER OR "DUTCHMAN" MUST BE CUT AND PLACED IN THE GAP BEFORE THE SLEEVE IS USED TO CLOSE THE JOINT.
2. THE "DUTCHMAN" SPACER SHALL BE CUT TO A WIDTH NO LESS THAN $\frac{1}{4}$ " LESS THAN THE NARROWEST WIDTH OF "G".
3. EACH PIPE SPIGOT SHALL BE MARKED TO INDICATE THE POINT WHERE THE SLEEVE WILL BE PROPERLY CENTERED OVER THE POINT.
4. "FULL-CIRCLE" REPAIR CLAMPS ARE NOT APPROVED FOR JOINING PIPE. SUCH CLAMPS ARE SPECIFICALLY DESIGNED FOR REPAIRS ONLY.
5. IF "STEEL" SLEEVE IS USED, PROPERLY COAT BEFORE BACKFILLING.

FULTON COUNTY STANDARD DETAIL 130
PIPE JOINING: USE OF SOLID SLEEVE

DATE	REVISIONS	DATE	REVISIONS

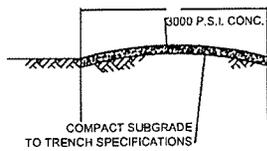
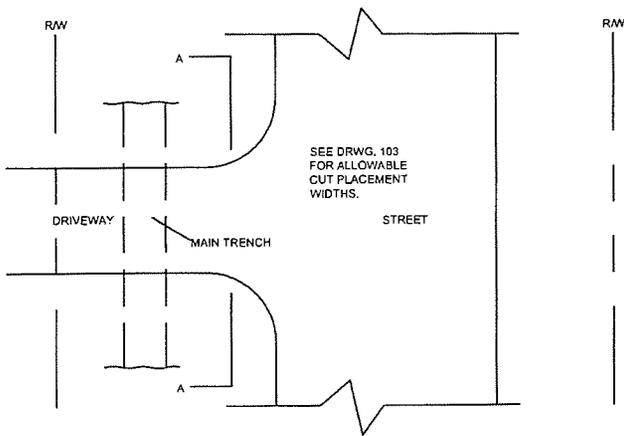
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APPROVED: REW
DATE: 12-2-05



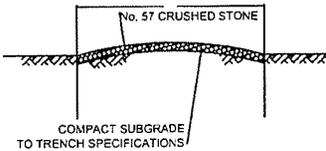
FULTON COUNTY PUBLIC WORKS
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404-730-7400 FAX: 404-224-0498

DRAWING NO.

130

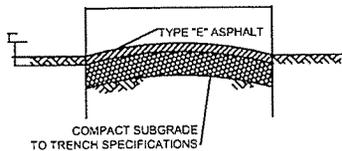


CONCRETE
"A" - "A"



GRAVEL
"A" - "A"

-- FINISH SURFACE OF REPAIRED AREA TO MATCH EXISTING SURFACE. EDGES OF CUT TO BE SAWN VERTICAL. EXPANSION MATERIAL TO BE USED AS DIRECTED.



ASPHALT
"A" - "A"

NOTE:

1. FINISHED GRADE TO BE FLUSH WITH THE EDGE OF THE DRIVE - TYPICAL ALL DRIVES.

(SEE DRWG. 110 FOR STREET CUT REPAIRS)

FULTON COUNTY STANDARD DETAIL 131
DRIVEWAY CUT REPAIRS CONCRETE, GRAVEL & ASPHALT

DATE	REVISIONS	DATE	REVISIONS

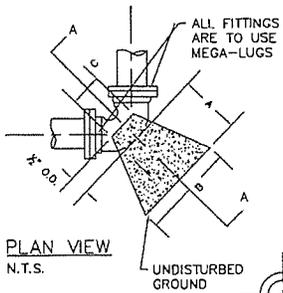
DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.

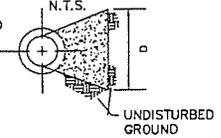
131



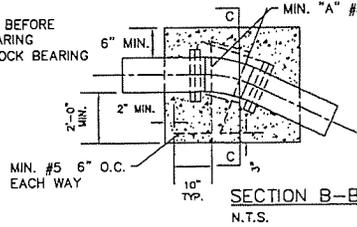
PLAN VIEW
N.T.S.

- GENERAL NOTES:**
1. THRUST BLOCK DIMENSIONS ARE BASED ON 2000 LB. PER SQ. FT. SOIL BEARING PRESSURE AND 250 LBS. PER SQ. IN. TEST PRESSURE. ACTUAL INSIDE DIAMETER OF DUCTILE IRON PIPE CLASS 52 USED AS STANDARD.
 2. SOIL CONDITIONS SHALL BE VERIFIED BY ENGINEER BEFORE THRUST BLOCK IS CONSTRUCTED WHERE SOIL BEARING PRESSURE IS LESS THAN 2000 LB/FT. THRUST BLOCK BEARING AREA SHALL BE INCREASED APPROPRIATELY.
 3. ALL CONCRETE SHALL BE CLASS A, 4000 P.S.I.

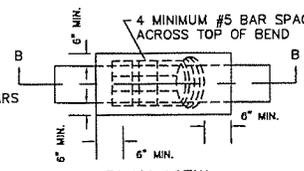
SECTION A-A
N.T.S.



HORIZONTAL THRUST DETAIL
N.T.S. ①

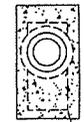


SECTION B-B
N.T.S.

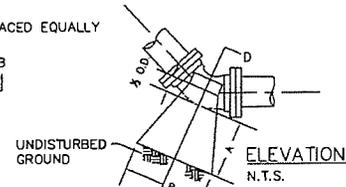


PLAN VIEW
N.T.S.

UPWARD THRUST DETAIL ②
N.T.S.

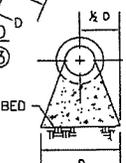


SECTION C-C
N.T.S.



ELEVATION
N.T.S.

DOWNWARD THRUST DETAIL ③
N.T.S.



SECTION D-D
N.T.S.

DIMENSIONS FOR CONCRETE BLOCKING FOR BENDS-DOWNWARD THRUST

BEND	SIZE	A (FT)	B (FT)	C (IN)	D (FT)	VOLUME (CU. YD.)
11 1/2'	6"	1.0	2.0	7"	1.0	0.04
	8"	1.0	2.0	7"	1.0	0.05
	12"	1.0	2.0	11"	2.0	0.1
	16"	2.0	3.0	15"	2.0	0.3
	20"	2.0	3.0	19"	3.0	0.5
22 1/2'	6"	1.0	2.0	7"	1.0	0.05
	8"	1.0	2.0	7"	2.0	0.1
	12"	2.0	3.0	11"	2.0	0.3
	16"	2.0	4.0	15"	3.0	0.6
	20"	3.0	5.0	19"	3.0	1.0
45'	6"	1.5	2.0	7"	1.5	0.11
	8"	2.0	3.0	7"	2.0	0.3
	12"	2.0	4.0	11"	3.0	0.7
	16"	3.0	5.0	15"	4.0	1.4
	20"	4.0	8.0	19"	5.0	2.8
90'	6"	1.75	2.5	7"	2.0	0.2
	8"	2.0	3.0	7"	3.0	0.4
	12"	4.0	6.0	11"	4.0	2.1
	16"	4.0	7.0	15"	5.0	3.1
	20"	5.0	8.0	19"	7.0	5.3

TEE BRANCHES
PLUGS & CAPS
(FOR ALL CIRCUMSTANCES)

DIMENSIONS FOR CONCRETE BLOCKING HORIZONTAL THRUST ①

BEND	SIZE	A (FT)	B (FT)	C (IN)	D (FT)	VOLUME (CU. YD.)
11 1/2'	6"	1.0	2.0	7"	1.0	0.04
	8"	1.0	2.0	7"	1.0	0.05
	12"	1.0	2.0	11"	2.0	0.1
	18"	2.0	3.0	15"	2.0	0.3
	20"	2.0	3.0	19"	3.0	0.5
22 1/2'	6"	1.0	2.0	7"	1.0	0.05
	8"	1.0	2.0	7"	2.0	0.1
	12"	2.0	3.0	11"	2.0	0.3
	18"	2.0	4.0	15"	3.0	0.6
	20"	3.0	5.0	19"	3.0	1.0
45'	6"	1.5	2.0	7"	1.5	0.11
	8"	2.0	3.0	7"	2.0	0.3
	12"	2.0	4.0	11"	3.0	0.7
	18"	3.0	5.0	15"	4.0	1.4
	20"	4.0	6.0	19"	5.0	2.6
90'	6"	1.75	2.5	7"	2.0	0.2
	8"	2.0	3.0	7"	3.0	0.4
	12"	4.0	6.0	11"	4.0	2.1
	18"	4.0	7.0	15"	5.0	3.1
	20"	5.0	8.0	19"	7.0	5.3
TEE BRANCHES PLUGS & CAPS (FOR ALL CIRCUMSTANCES)	6"	1.5	2.0	7"	1.75	0.13
	8"	2.0	3.0	7"	2.0	0.3
	12"	2.0	4.0	11"	4.0	0.8
	18"	3.0	5.0	15"	5.0	1.5
	20"	4.0	7.0	19"	6.0	3.9

CONCRETE REQUIRED TO RESIST UPWARD THRUST

BEND	SIZE	VOLUME (CU. YD.)	"A" NO. OF VERT. BARS REQ'D.
11 1/2'	6"	0.3	2
	8"	0.5	2
	12"	1.4	2
	16"	2.4	3
	20"	3.8	3
22 1/2'	6"	0.7	2
	8"	1.2	2
	12"	2.7	2
	16"	4.8	3
	20"	7.4	3
45'	6"	1.2	2
	8"	2.2	2
	12"	4.9	2
	16"	8.8	3
	20"	13.7	3
90'	6"	1.8	2
	8"	3.1	2
	12"	7.0	3
	16"	12.4	3
	20"	19.4	4

FULTON COUNTY STANDARD DETAIL 132
STANDARD THRUST BLOCKS FOR WATER

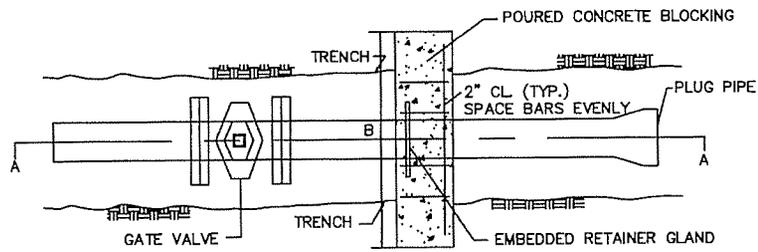
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05

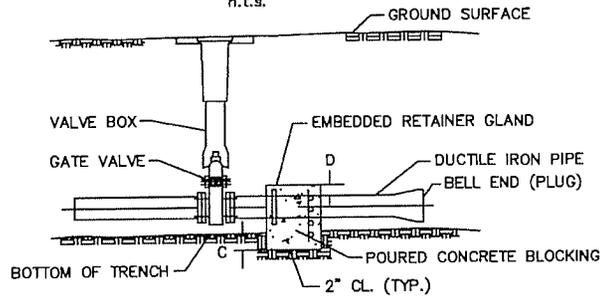


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DRAWING NO.
132

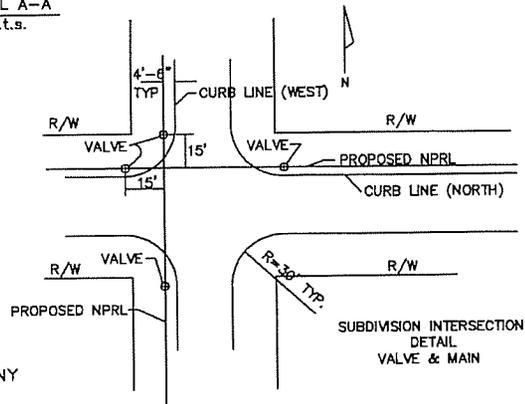


PLAN VIEW
n.t.s.



DETAIL A-A
n.t.s.

BLOCKING DETAILS					
PIPE SIZE	A (IN.)	B (IN.)	C (IN.)	D (IN.)	REQD. STEEL (EACH WAY)
8"	10	32	12	8	4 - #4
10"	12	40	15	10	4 - #4
12"	14	54	24	12	4 - #4
16"	18	80	30	16	6 - #4



SUBDIVISION INTERSECTION
DETAIL
VALVE & MAIN

NOTES:

1. ANCHOR BLOCKING DETAIL TO BE USED AT THE END OF ANY COUNTY ROAD WHERE NPRL MAY BE EXTENDED AT A FUTURE DATE.
2. ALL CONCRETE TO BE 3000psi
3. ALL STEEL TO BE 60,000psi

FULTON COUNTY STANDARD DETAIL 133
MAIN EXTENSION BLOCKING DETAILS
SUBDIVISION INTERSECTION DETAIL VALVE MAIN

DATE	REVISIONS	DATE	REVISIONS

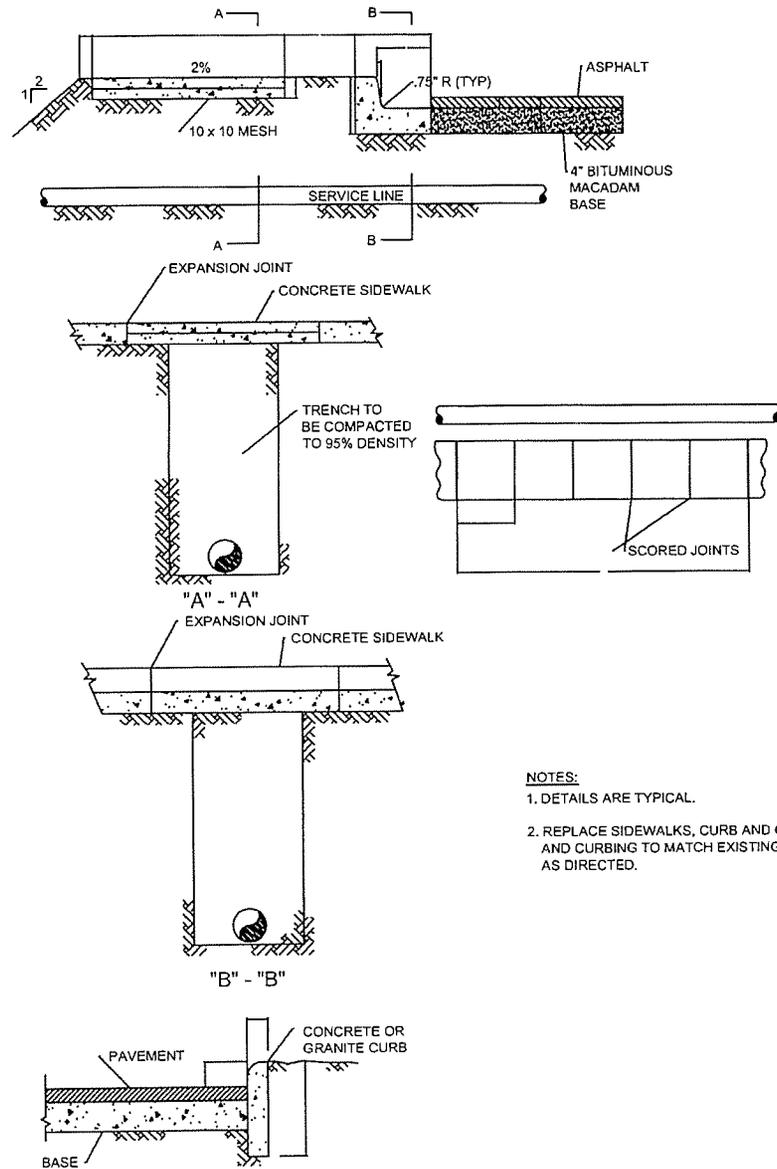
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APPROVED: REW
DATE: 12-2-05



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DRAWING NO.

133



NOTES:
 1. DETAILS ARE TYPICAL.
 2. REPLACE SIDEWALKS, CURB AND GUTTER AND CURBING TO MATCH EXISTING MATERIALS AS DIRECTED.

FULTON COUNTY STANDARD DETAIL 134
 SIDEWALK, CURB AND GUTTER REPAIRS

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
 APPROVED: REW
 DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
 141 PRYOR ST. ATLANTA, GA. 30303
 404-730-7400 FAX: 404-224-0498

DRAWING NO.
 134

INDEX

DWG NO.	DESCRIPTION
300	INDEX AND GENERAL NOTES
301	TYPICAL SECTIONS STREETS
302	TYPICAL SECTIONS STREETS
303	TYPICAL SECTION (CUL-DE-SAC)
304	DRIVEWAY DETAILS
305	DIVDED ENTRANCE DETAILS
306	MISCELLANEOUS DETAILS
307	CURB AND GUTTER DETAILS
308	STANDARD SIDEWALK SECTION
309	TYPICAL SECTION TWO LANE DECELERATION LANE DETAILS
310	LEFT TURN LANE WITH WIDING ON BOTH SIDES
311	LEFT TURN LANE WITH WIDING ON ONE SIDE
312	HANDICAP RAMP DETAILS
313	MINI ROUNDABOUT
314	CHICANES
315	SPEED TABLE
316	INTERSECTION HUMP
317	ONE LANE CHOKER
318	ENTRANCE TREATMENT
319	CENTER ISLAND
320	BEAM TYPE GUARD RAIL
321	BEAM TYPE GUARD RAIL (CONT.)
322	RAILROADS GRADE CROSSING, SECTIONS, DETAILS
323	RAILROADS GRADE CROSSING, SECTIONS, DETAILS (CONT.)
324	SIGNS STREET NAME, DETAILS & LOCATION
325	PAVEMENT WDE

GENERAL NOTES

FULTON COUNTY STANDARD DETAIL
INDEX AND GENERAL NOTES

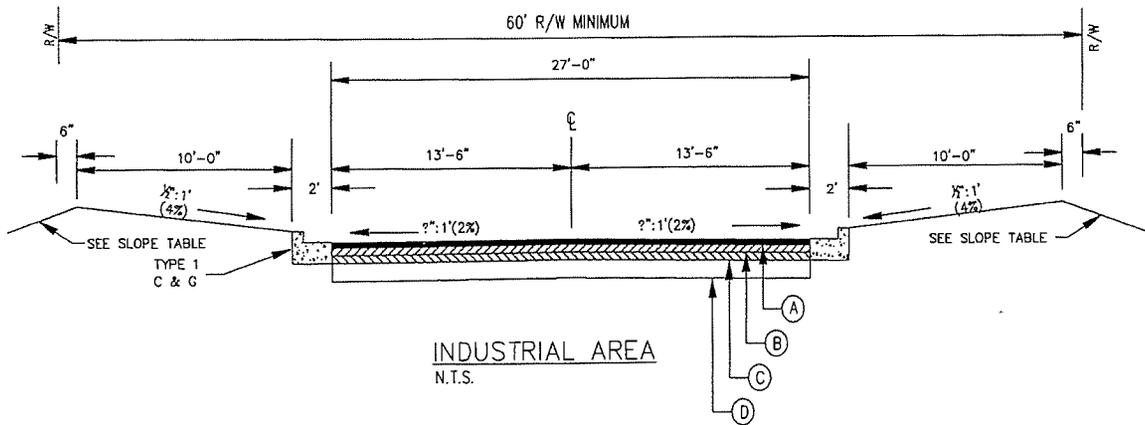
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DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-02-05



FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30303
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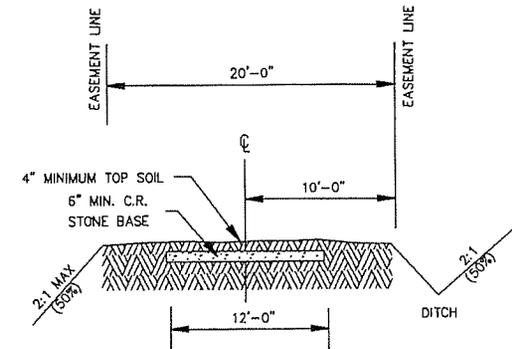
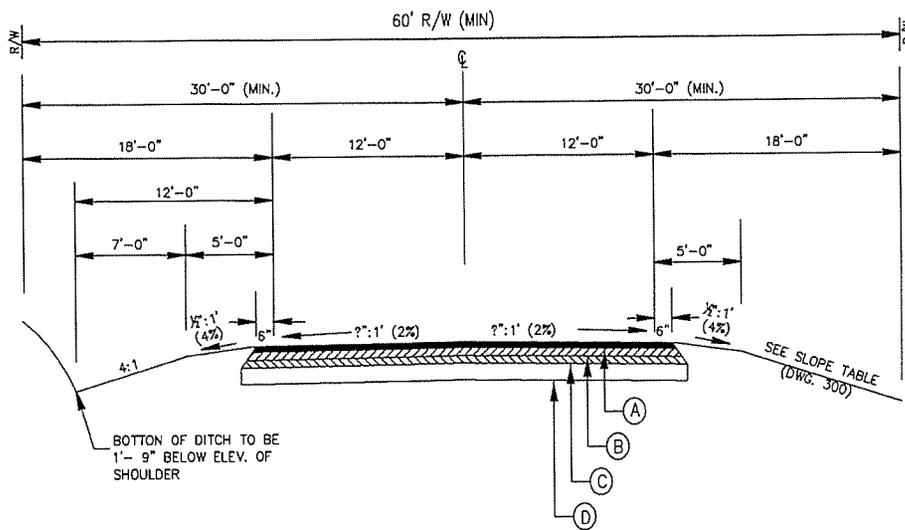
DRAWING NO.
INDEX
300



INDUSTRIAL & COUNTY ROADS

PAVEMENT MATERIAL SCHEDULE	
(A)	ASPH. CONC. 9.5 mm SUPERPAVE, 135 lb/yd ² (1")
(B)	ASPH. CONC. 19 mm SUPERPAVE, 220 lb/yd ² (2")
(C)	ASPH. CONC. 25 mm SUPERPAVE, 330 lb/yd ² (3")
(D)	GRADED AGGREGATE BASE CRS, 8"

THE DIR. OF PUBLIC WORKS DUE TO TRAFFIC CHARACTERISTICS MAY REQUIRE A HEAVIER PAVEMENT SECTION.



20' ACCESS EASEMENT

(DETENTION POND ROAD)
N.T.S.

FULTON COUNTY STANDARD DETAIL 301
TYPICAL SECTIONS
STREETS

DATE	REVISIONS	DATE	REVISIONS

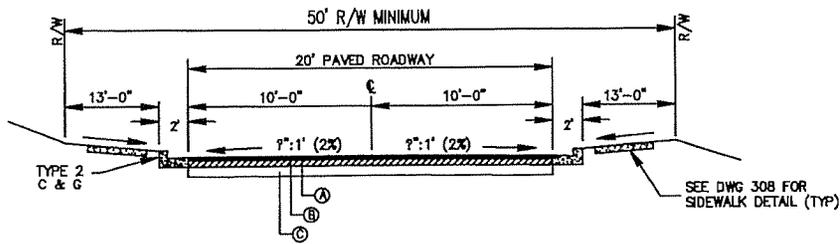
DGS/DRN/CHKD: KAH
APPROVED: LJM
DATE: 4-19-05



FULTON COUNTY PUBLIC WORKS
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DRAWING NO.

301

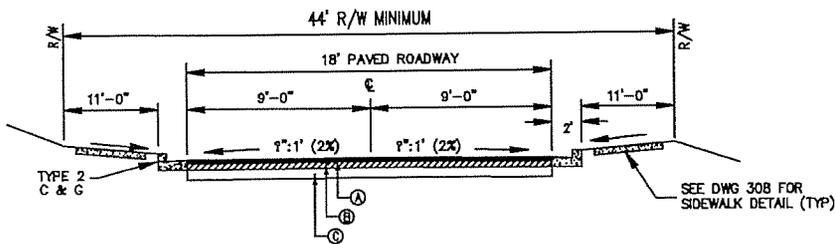


MAJOR SUB. DIV. STREETS & ENTRANCE ROADS

PAVEMENT MATERIAL SCHEDULE	
(A)	ASPH. CONC. 9.5 mm SUPERPAVE, 135 lb/yd ² (1")
(B)	ASPH. CONC. 19 mm SUPERPAVE, 220 lb/yd ² (2")
(C)	GRADED AGGREGATE BASE CRS, 8"

MAJOR SUBDIVISION STREET & ENTRANCE ROADS

SERVING 40 OR MORE HOUSING UNITS
N.T.S.



MINOR SUB. DIV. STREETS & SIDE ROADS

PAVEMENT MATERIAL SCHEDULE	
(A)	ASPH. CONC. 9.5 mm SUPERPAVE, 135 lb/yd ² (1")
(B)	ASPH. CONC. 19 mm SUPERPAVE, 220 lb/yd ² (2")
(C)	GRADED AGGREGATE BASE CRS, 6"

MINOR SUBDIVISION STREET & SIDE ROADS

SERVING LESS THAN 40 HOUSING UNITS
N.T.S.

FULTON COUNTY STANDARD DETAIL 302
TYPICAL SECTIONS
STREETS

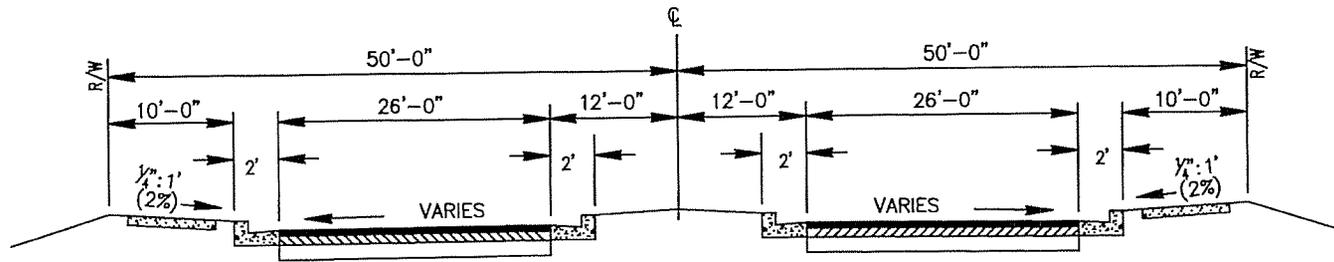
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: KAH
APPROVED: LJM
DATE: 4-18-05

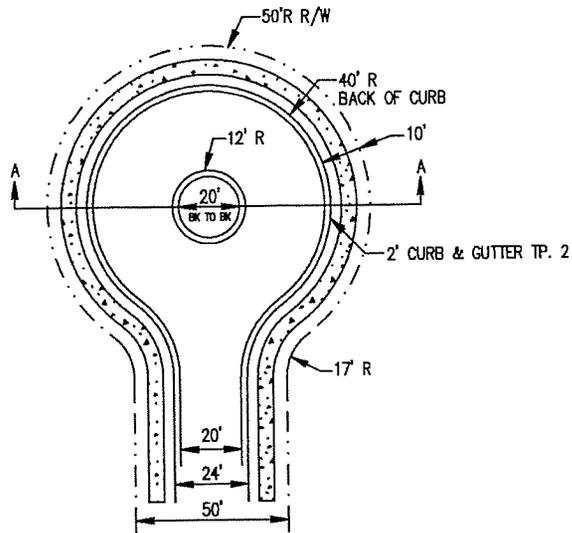


FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30305 362
404-730-7400 FAX: 404-730-6325

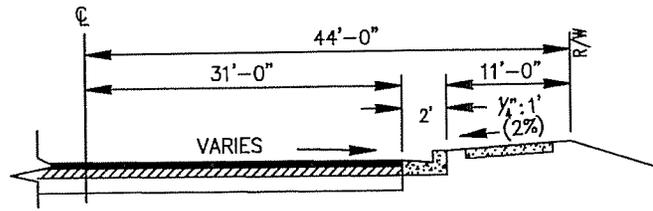
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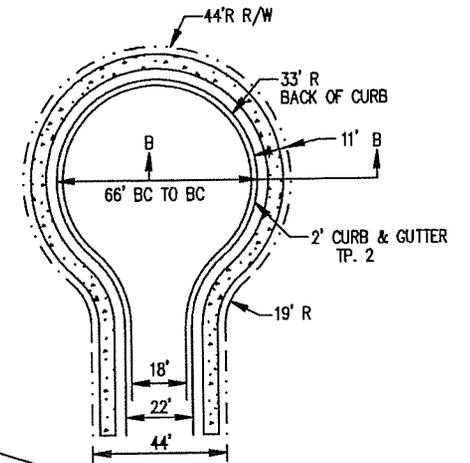
SECTION A-A



CUL-DE-SAC PLAN
MAJOR SUBDIVISION STREET
N.T.S.



SECTION B-B
(HALF SECTION)



CUL-DE-SAC PLAN
MINOR SUBDIVISION STREET
N.T.S.

FULTON COUNTY STANDARD DETAIL 303
TYPICAL SECTIONS
CUL-DE-SAC

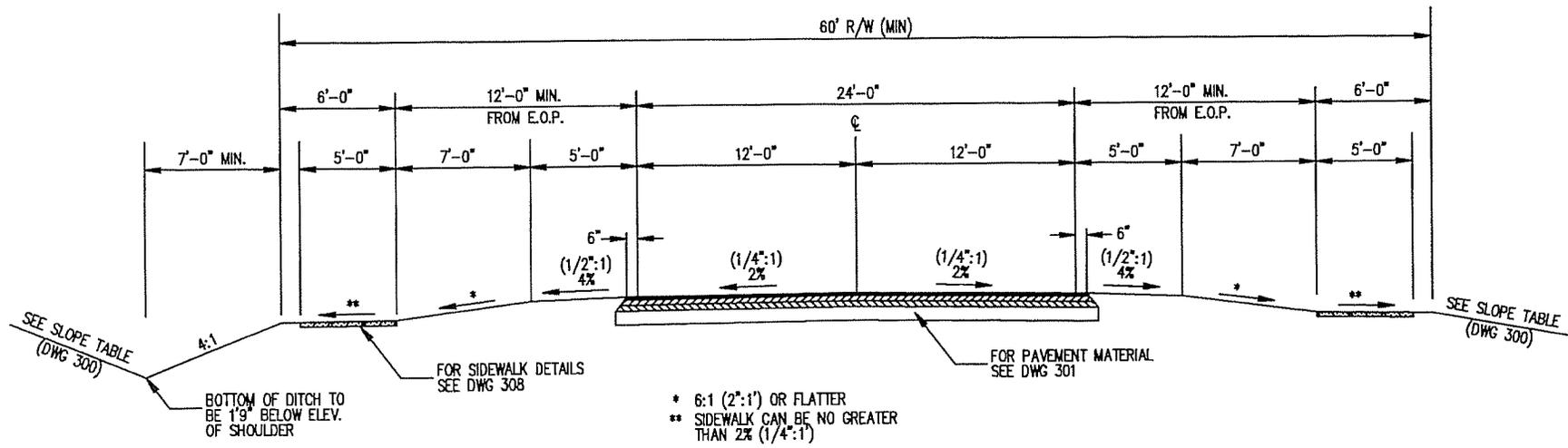
DATE	REVISIONS	DATE	REVISIONS

DES/DRN/CHKD: KAH
APPROVED: LAM
DATE: 4-19-06

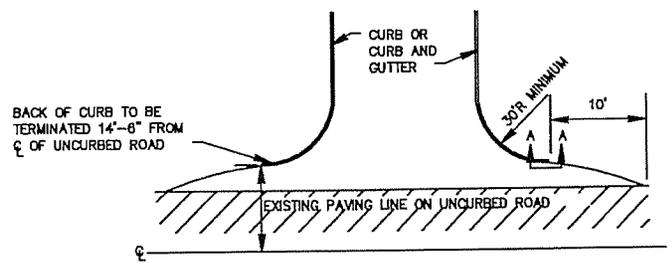


FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30303 303
404-730-7400 FAX: 404-730-6325

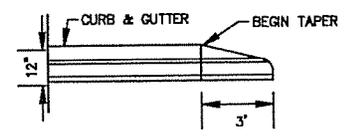
DRAWING NO.



COUNTY ROADS, NOT CURBED WITH SIDEWALK
 N.T.S.



NOTE:
 IF EXISTING UNCURBED ROAD IS WIDER THAN 28', THE DIMENSION IS TO BE 6'-6" FROM EXISTING EDGE OF PAVEMENT.



SECTION A-A
 N.T.S.

INTERSECTION OF CURBED AND UNCURBED ROADS
 WITH NO TURN LANES
 N.T.S.

FULTON COUNTY STANDARD DETAIL 308
 MISCELLANEOUS DETAILS

DATE	REVISIONS	DATE	REVISIONS

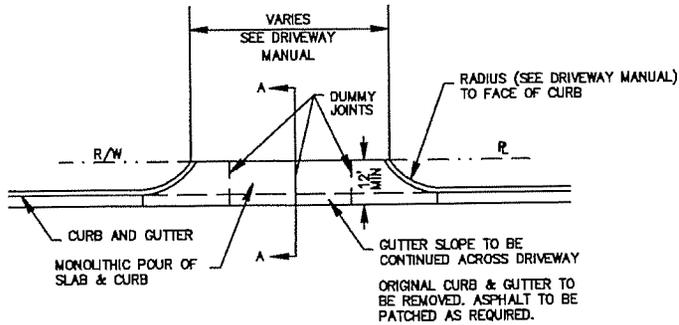
DGS/DRN/CHKD: KAH
 APPROVED: LM
 DATE: 4-18-05



FULTON COUNTY PUBLIC WORKS
 141 PRYOR ST. ATLANTA, GA. 30305 308
 404-730-7400 FAX: 404-730-8325

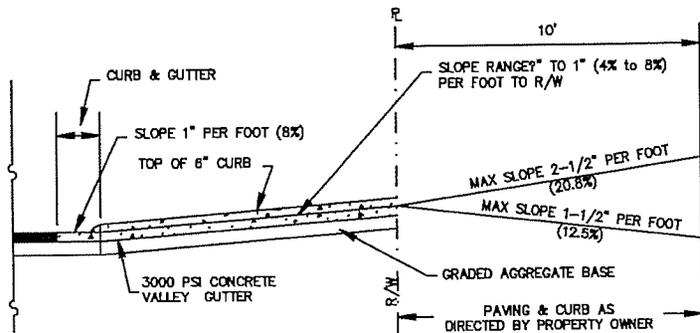
DRAWING NO.

DRIVEWAY/INTERSECTION USE	WIDTH IN FEET		MIN. RADIUS IN FEET
	MIN.	MAX.	
RESIDENTIAL DRIVEWAY (1-3 UNITS)	14	18	5' (RADIUS OR FLARE)
RESIDENTIAL STREET (TWO LANES)	20	25	30'
COMMERCIAL DRIVEWAY	24	30	35'
WHEN DESIGNED FOR TRUCKS	24	40	75'
TWO-LANE DIVIDED DRIVEWAY	SEE DETAIL 305		30'
FOUR-LANE DIVIDED DRIVE	SEE DETAIL 305		30'



COMMERCIAL DRIVEWAY PLAN VIEW

N.T.S.



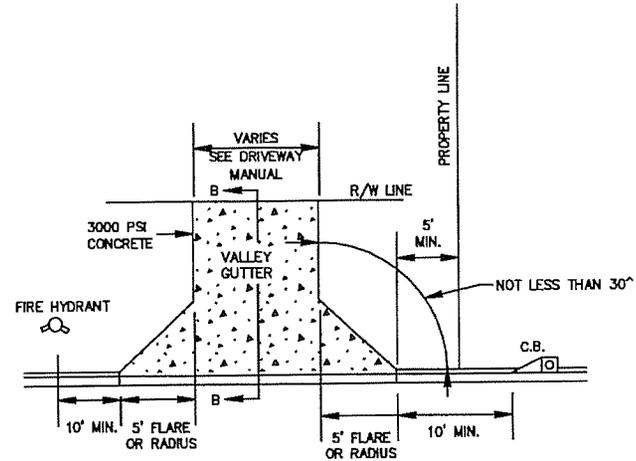
SECTION A-A

N.T.S.

CONCRETE DRIVES:

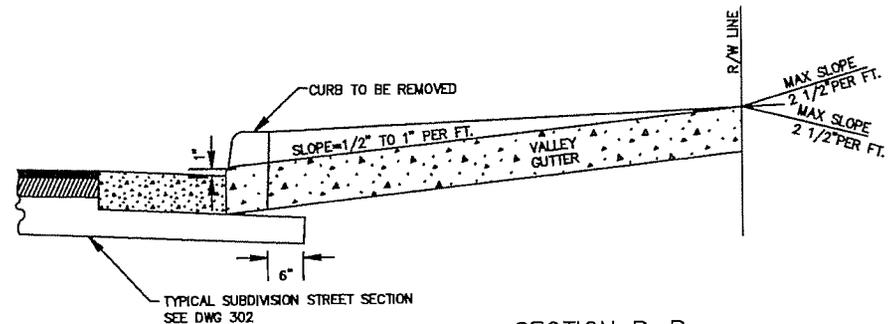
RESIDENTIAL	COMMERCIAL
6" CONCRETE VALLEY GUTTER	8" CONCRETE VALLEY GUTTER
4" CONCRETE DRIVEWAY	8" CONCRETE DRIVEWAY

NOTE: PUBLIC STREET INTERSECTIONS SHALL BE ASPHALT



RESIDENTIAL DRIVEWAY (1-3 UNITS)

N.T.S.



SECTION B-B

N.T.S.

FULTON COUNTY STANDARD DETAIL 304
DRIVEWAYS

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: KAH
APPROVED: LJM
DATE: 4-19-05



FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30305 364
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DRAWING NO.

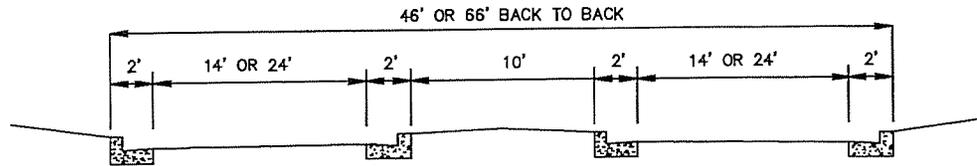
DRIVEWAY/INTERSECTION USE	WIDTH IN FEET		MIN. RADIUS IN FEET
	MIN.	MAX.	
RESIDENTIAL DRIVEWAY (1-3 UNITS)	14	18	5' (RADIUS OR FLARE)
RESIDENTIAL STREET (TWO LANES)	20	25	30'
COMMERCIAL DRIVEWAY	24	30	35'
WHEN DESIGNED FOR TRUCKS	24	40	75'
TWO-LANE DIVIDED DRIVEWAY	SEE DETAIL 305		30'
FOUR-LANE DIVIDED DRIVE	SEE DETAIL 305		30'

CONCRETE DRIVES:

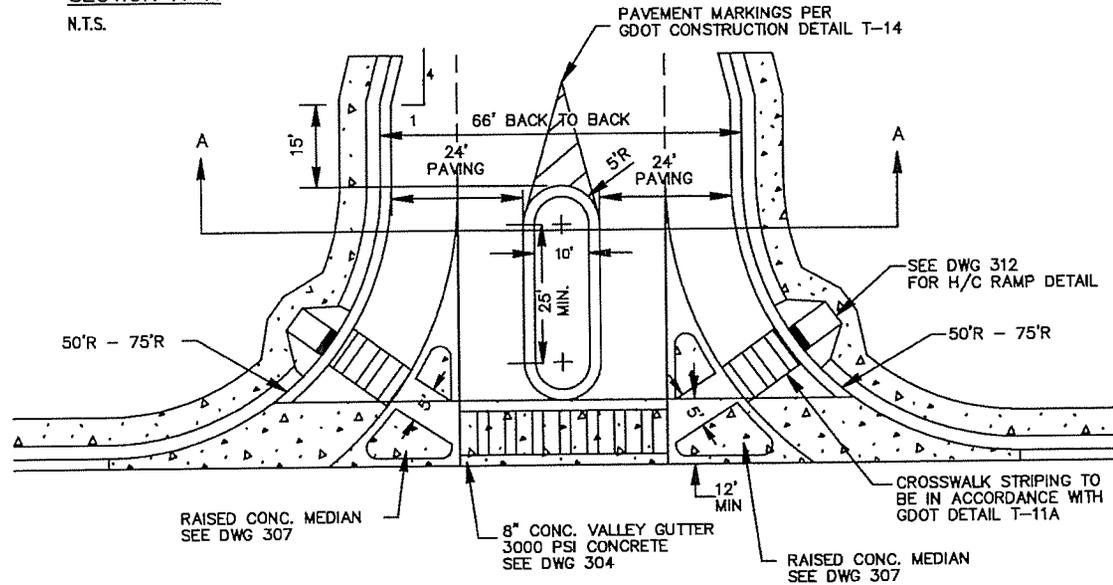
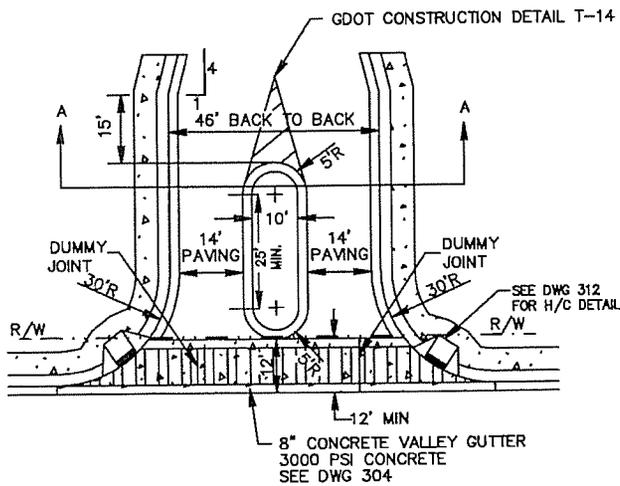
RESIDENTIAL	COMMERCIAL
6" CONCRETE VALLEY GUTTER	8" CONCRETE VALLEY GUTTER
4" CONCRETE DRIVEWAY	8" CONCRETE DRIVEWAY

NOTES:

1. PUBLIC STREET INTERSECTIONS SHALL BE ASPHALT
2. ALL STRIPING MUST BE DONE IN THERMOPLASTIC PER GDOT SPECIFICATION SECTION 653



SECTION A-A
N.T.S.



OPTIONAL DIVIDED ENTRANCE (PRIVATE OR COMMERCIAL)

N.T.S.

FULTON COUNTY STANDARD DETAIL 305
DIVIDED ENTRANCE DETAILS

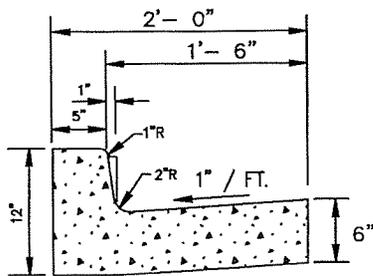
DATE	REVISIONS	DATE	REVISIONS

DWG/DRN/CHKD: KAH
APPROVED: LJM
DATE: 4-19-05

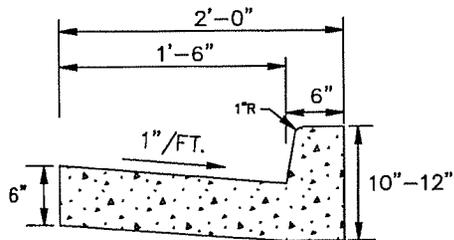


FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30303 305
404-730-7400 FAX: 404-730-8325

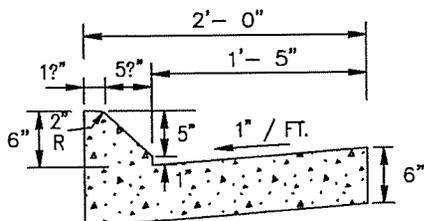
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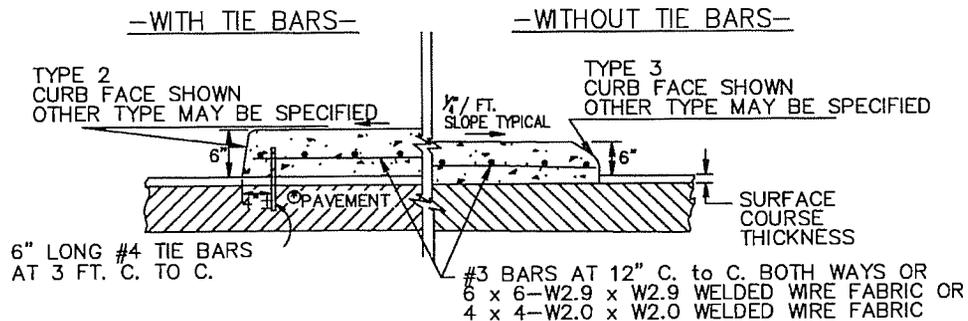
TYPE 1 CONCRETE CURB & GUTTER
INDUSTRIAL ROAD
N.T.S.



TYPE 2 CONCRETE CURB & GUTTER
MAJOR & MINOR RESIDENTIAL S.D. STREETS ONLY
N.T.S.



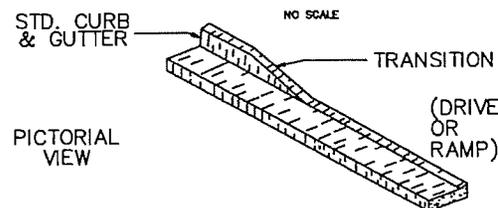
TYPE 3 MOUNTABLE CURB & GUTTER
N.T.S.



NOTE: IF CONCRETE MEDIAN INTERCEPTS PEDESTRIAN CROSSWALKS, WHEELCHAIR RAMPS (DWG 312) WILL BE REQUIRED.

CONCRETE MEDIANS (ISLAND)
N.T.S.

- * **P. C. PAVEMENT**
TIE BARS WILL BE PLACED AFTER FINISHING & BEFORE INITIAL SET HAS TAKE PLACE.
- * **ASPHALT PAVEMENT**
TIE BARS MAY BE DRIVEN IN OR DRILLED & GROUTED.



NOTE: CURB & GUTTER WILL BE MEASURED FOR PAYMENT THRU THE DRIVE OR RAMP OPENING

DETAILS OF RECESSED CURB
TYPICAL USE: AT DRIVEWAYS OR CURB CUT RAMPS
N.T.S.

FULTON COUNTY STANDARD DETAIL 307
CURB & GUTTER
DETAILS

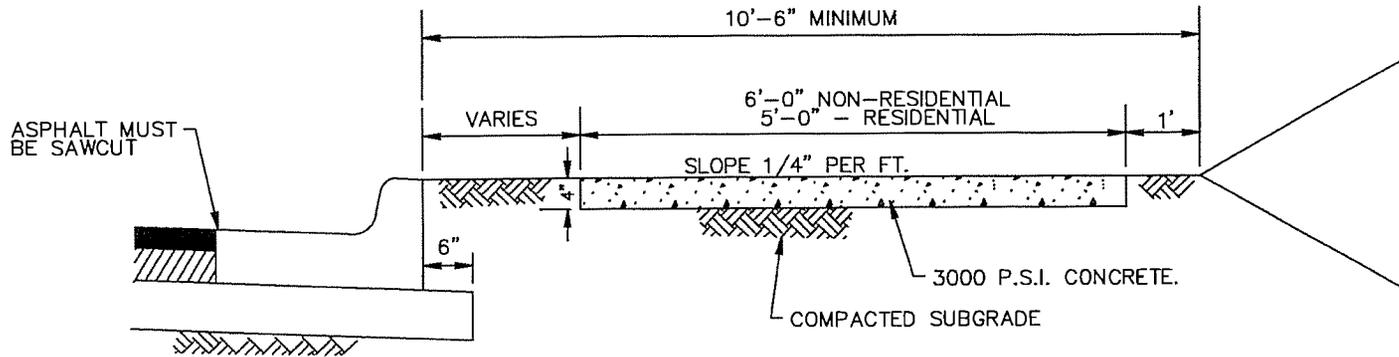
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: KAH
APPROVED: LJM
DATE: 4-19-06

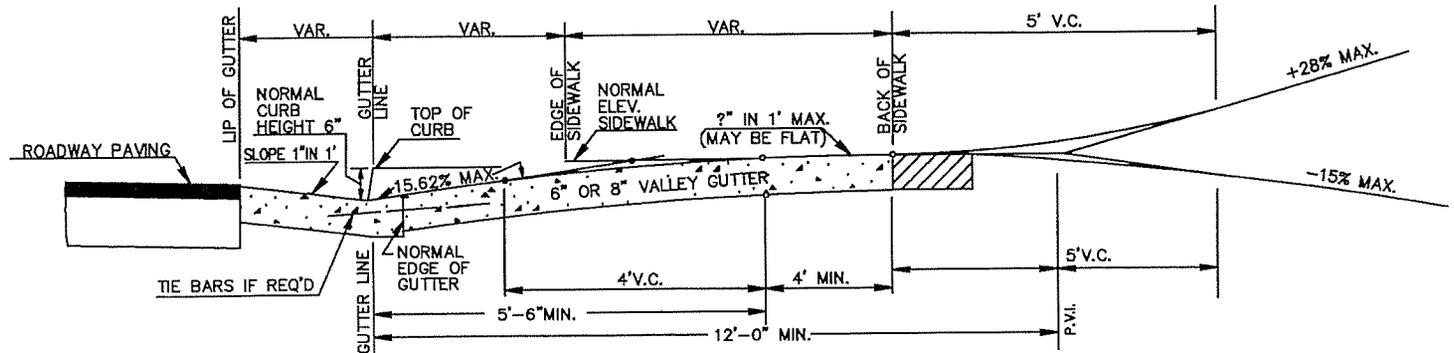


FULTON COUNTY PUBLIC WORKS
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DRAWING NO.
307



TYPICAL SECTION OF SIDEWALK
N.T.S.



SECTION AT C OF DRIVEWAY

NOTES:

1. USE 3/8" X 4" EXPANSION JOINTS AT CHANGE OF DIRECTIONS, CURBS, RIGID STRUCTURES AND RIGID PAVEMENT. ON STRAIGHT RUNS PROVIDE EXPANSION JOINTS EVERY 24 FEET.
2. TOOL ALL EXPOSED EDGES AND JOINTS TO 1/4" RADIUS.
3. BROOM FINISH ACROSS DIRECTION OF TRAVEL.
4. PROVIDE 3/8" DEEP SAW CUT CONTRACTION JOINTS EVERY 5'-0".
5. ZONING OVERLAY REQUIREMENTS MAY SUPERCEDE STANDARD DETAIL.

FULTON COUNTY STANDARD DETAIL 308
STANDARD SIDEWALK SECTION

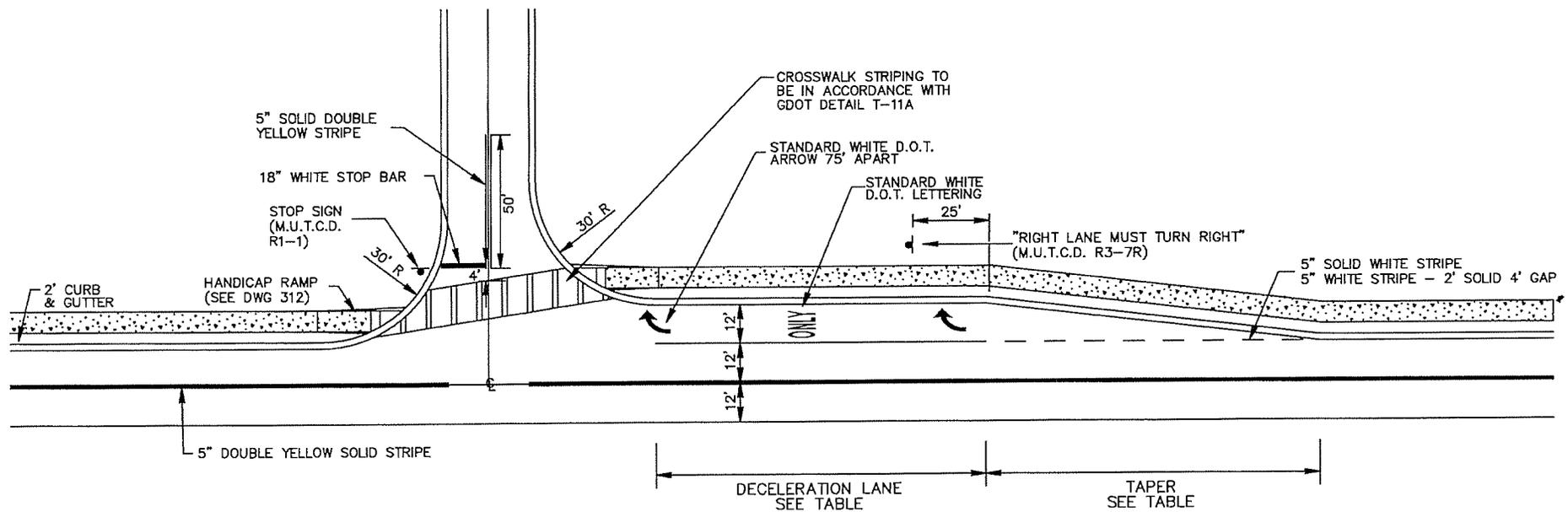
DATE	REVISIONS	DATE	REVISIONS

DWG/DRN/CHKD: KAH
APPROVED: LJM
DATE: 4-10-05



FULTON COUNTY PUBLIC WORKS
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DRAWING NO.



SPEED LIMIT MPH	DECELERATION LANE	TAPER
35	100	50
40	150	50
45	175	100
50	225	100
55	250	100

NOTES:

1. ALL STRIPING MUST BE DONE IN THERMOPLASTIC PER GDOT SPECIFICATION SECTION 653
2. CONTACT E&CD TRAFFIC INSPECTOR PRIOR TO ANY CONSTRUCTION AND 1 WEEK PRIOR TO STRIPING FOR INSPECTION OF LAYOUT..
3. STRIPING LAYOUT IS SUBJECT TO FIELD MODIFICATION PER THE FIELD INSPECTION.

FULTON COUNTY STANDARD DETAIL 309
TYPICAL SECTION TWO LANE ROAD
DECELERATION LANE

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: KAH
APPROVED: LJM
DATE: 4-19-05



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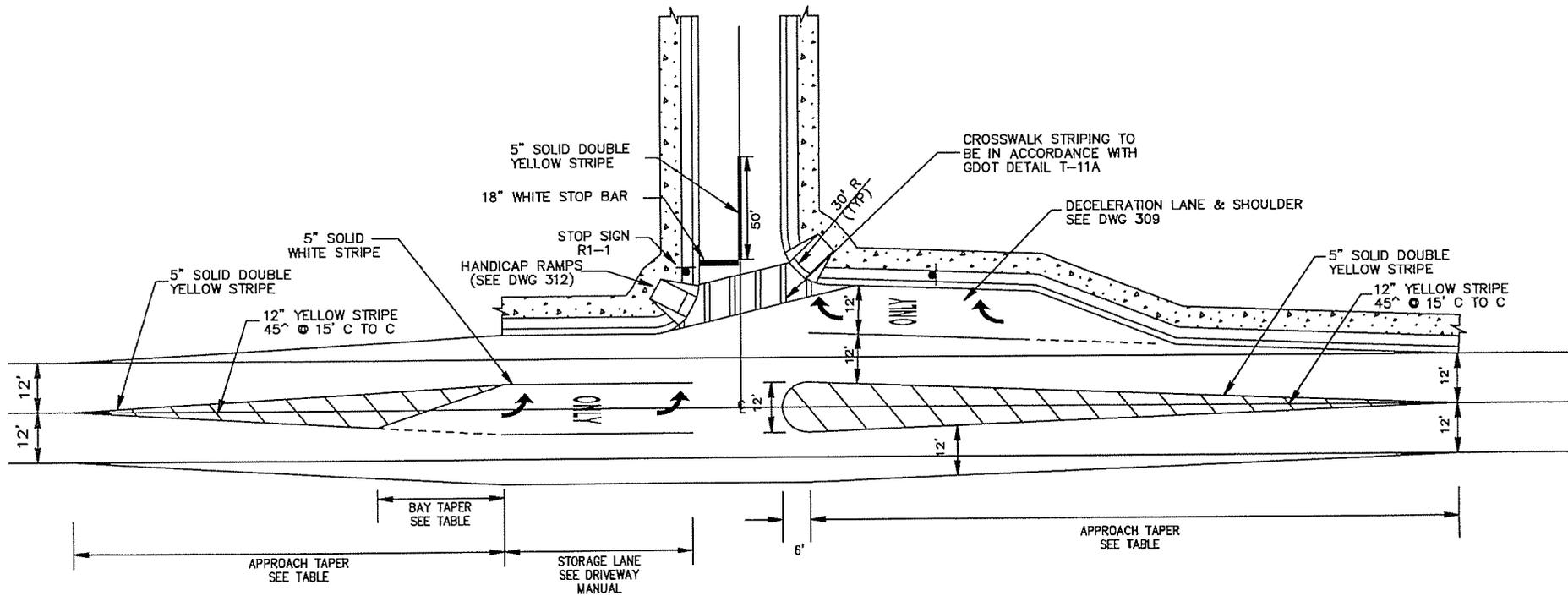
DRAWING NO.

309

POSTED SPEED LIMIT, MPH	APPROACH TAPER 6' SHIFT	BAY TAPER	STORAGE LANE
35	125	50	95-190
40	160	50	95-190
45	270	100	95-210
50	300	100	95-210
55	330	100	95-210

NOTES:

1. LEFT STORAGE TURN LANE LENGTH TO BE IN ACCORDANCE WITH TABLE 14 OF THE FULTON COUNTY DRIVEWAY MANUAL.
2. ALL STRIPING MUST BE DONE IN THERMOPLASTIC PER GDOT SPECIFICATION SECTION 653
3. CONTACT E&CD TRAFFIC INSPECTOR PRIOR TO ANY CONSTRUCTION AND 1 WEEK PRIOR FOR INSPECTION OF LAYOUT.
4. STRIPING LAYOUT IS SUBJECT TO FIELD MODIFICATION PER THE FIELD INSPECTION.



FULTON COUNTY STANDARD DETAIL 310
LEFT TURN LANE
WITH WIDING ON BOTH SIDES

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: KAH
APPROVED: LM
DATE: 4-19-05



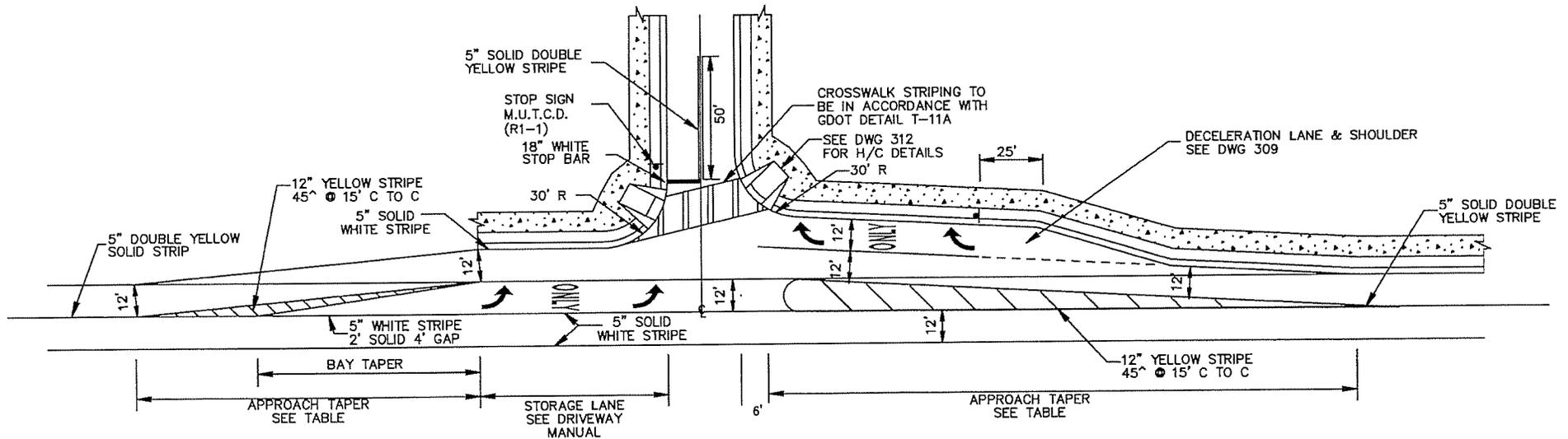
FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30303
404-730-7400 FAX: 404-730-8325

DRAWING NO.
310

POSTED SPEED LIMIT, MPH	APPROACH TAPER 12' SHIFT	BAY TAPER	STORAGE LANE
35	250	50	95-190
40	320	50	95-190
45	540	100	95-210
50	600	100	95-210
55	660	100	95-210

NOTES:

1. LEFT STORAGE TURN LANE LENGTH TO BE IN ACCORDANCE WITH TABLE 14 OF THE FULTON COUNTY DRIVEWAY MANUAL.
2. ALL STRIPING MUST BE DONE IN THERMOPLASTIC PER GDOT SPECIFICATION SECTION 653
3. CONTACT E&CD TRAFFIC INSPECTOR PRIOR TO ANY CONSTRUCTION AND 1 WEEK PRIOR TO STRIPING FOR INSPECTION OF LAYOUT.
4. STRIPING LAYOUT IS SUBJECT TO FIELD MODIFICATION PER THE FIELD INSPECTION.



FULTON COUNTY STANDARD DETAIL 311
LEFT TURN LANE
WITH WIDENING ON ONE SIDE

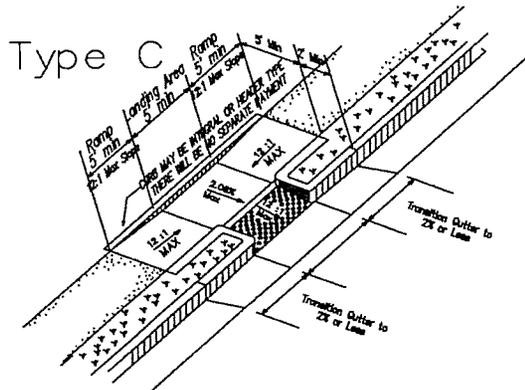
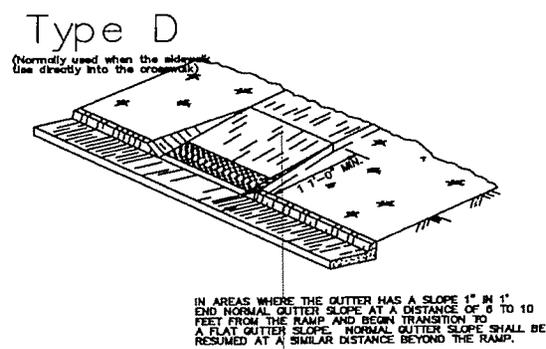
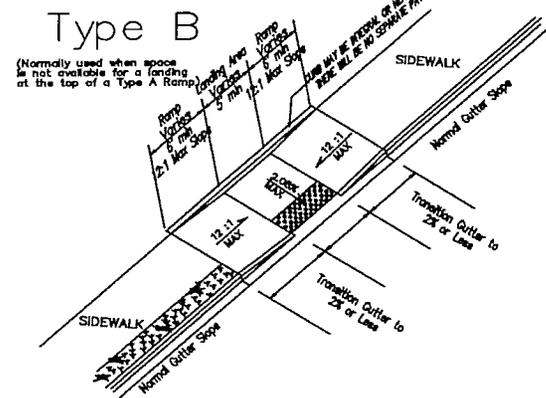
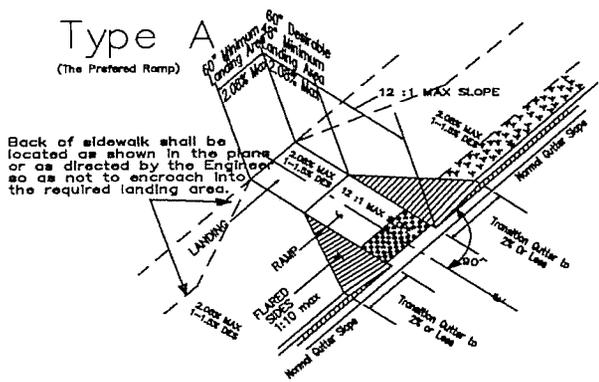
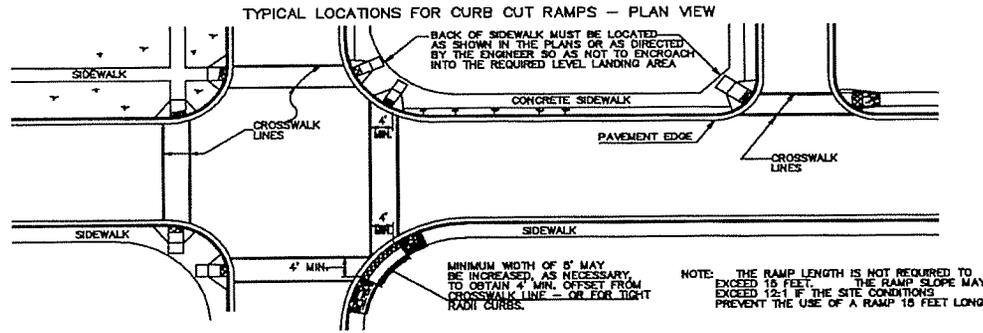
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: KAH
APPROVED: LJM
DATE: 4-19-05

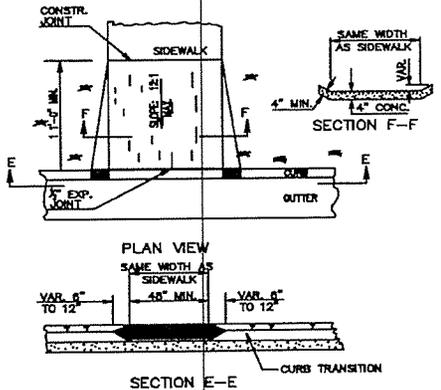
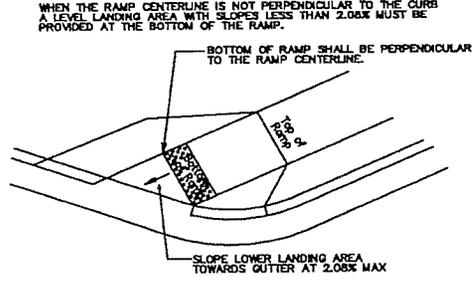


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DRAWING NO.
311



Skewed Ramp Details
(Applies to Type A & Type D Ramps Only)



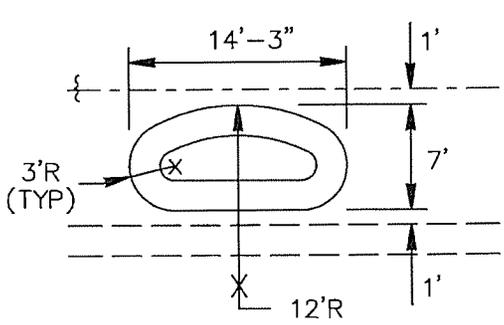
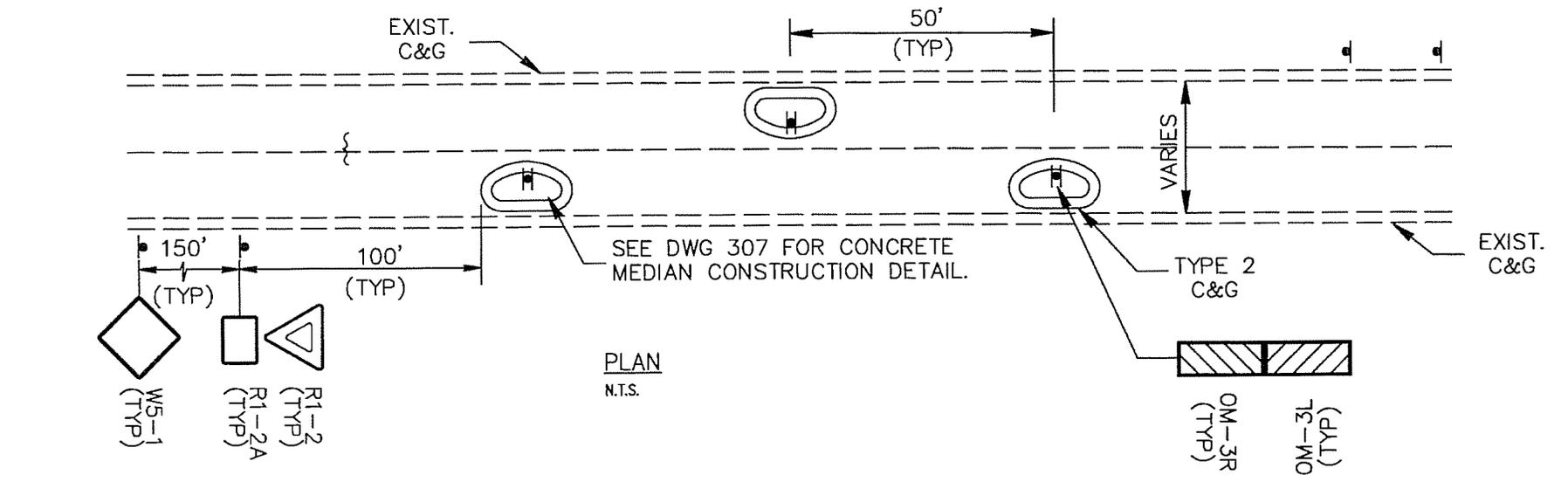
FULTON COUNTY STANDARD DETAIL 312
HANDICAP RAMP DETAILS

DATE	REVISIONS	DATE	REVISIONS

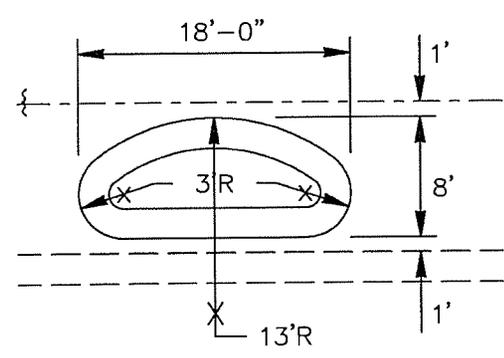
DGS/DRN/CHKD: KAH
APPROVED: LJM
DATE: 4-19-08



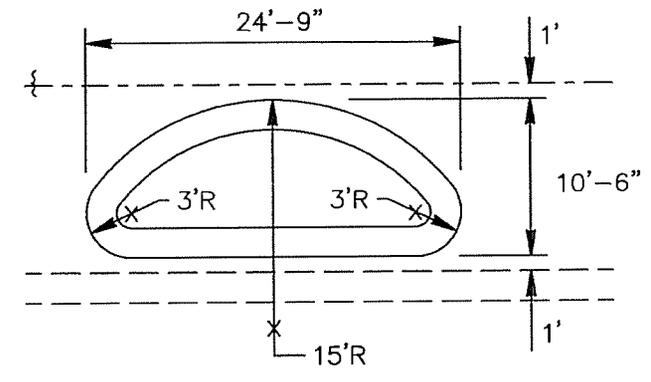
FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30303 312
404-730-7400 FAX: 404-730-6325



EXIST. 18' ROAD WIDTH
N.T.S.



EXIST. 20' ROAD WIDTH
N.T.S.



EXIST. 25' ROAD WIDTH
N.T.S.

FULTON COUNTY STANDARD DETAIL 314
CHICANES

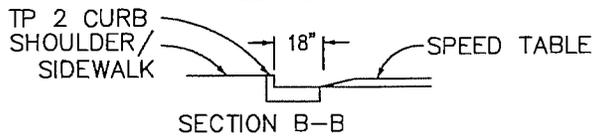
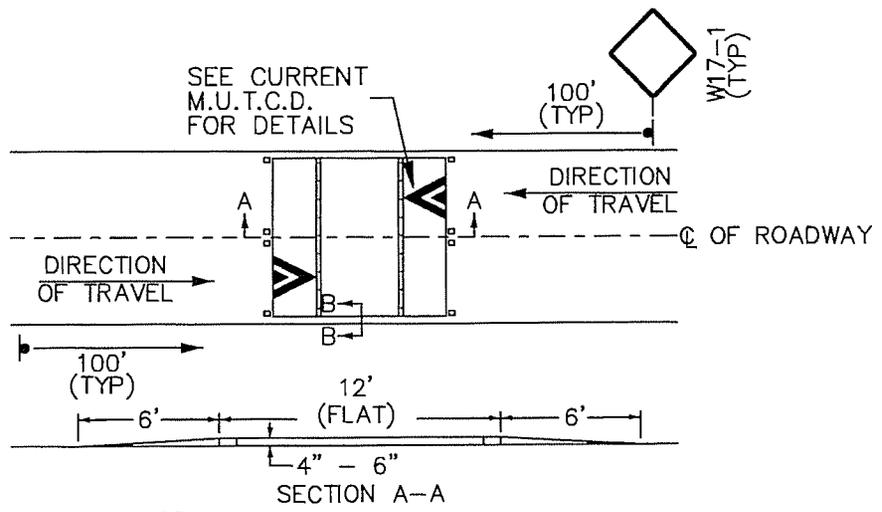
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: KAH
APPROVED: LJM
DATE: 4-19-05

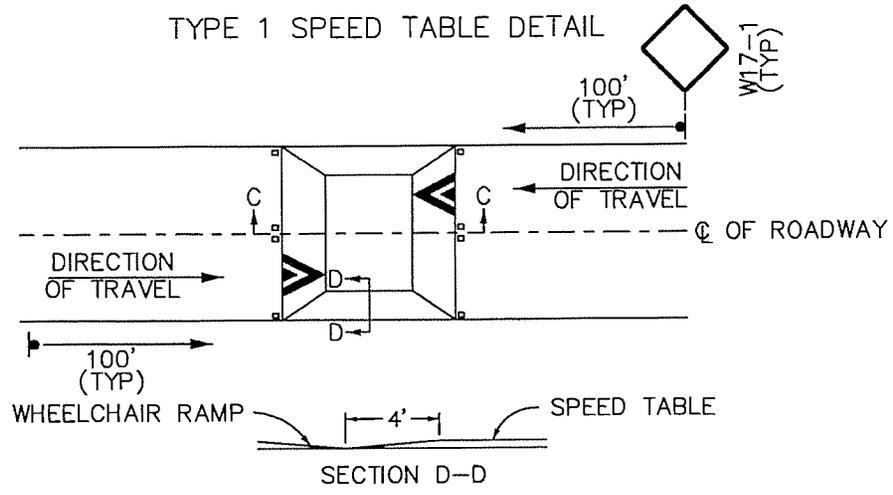


FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30303 314
404-730-7400 FAX: 404-730-6325

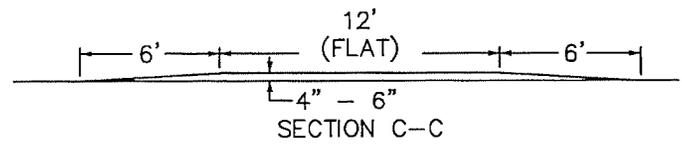
DRAWING NO.



TYPE 1 SPEED TABLE DETAIL



TYPE 2 SPEED TABLE DETAIL



NOTES:

1. USE TYPE 2 SPEED TABLES IN CONJUNCTION WITH CROSSWALKS, ONLY.
 2. SPEED TABLES MAY BE CONSTRUCTED USING ASPHALT OR CONCRETE, PER FULTON COUNTY TRAFFIC ENGINEER.
- A. CONCRETE CONSTRUCTION:
1. CONSTRUCT SPEED TABLES USING 3000 PSI HIGH/EARLY CONCRETE REINFORCED WITH #3 BARS AT 12" C. TO C. BOTH WAYS, OR 6 X 6-W2.9 X W2.9 WELDED WIRE FABRIC, OR 4 X 4-W2.0 X W2.0 WELDED WIRE FABRIC.
 2. CONCRETE WILL BE COLORED AND TOP STAMPED WITH TEXTURE PER FULTON COUNTY TRAFFIC ENGINEER
- B. ASPHALT CONSTRUCTION:
1. CONSTRUCT SPEED TABLES USING ASPHALTIC CONCRETE 12.5 MM SUPERPAVE IN ACCORDANCE WITH SECTION 402 OF THE GEORGIA DOT STANDARD SPECIFICATIONS, CURRENT EDITION.
 2. APPLY TACK COAT AT A RATE OF 0.04 TO 0.06 GALLONS PER SQUARE YARD IN ACCORDANCE WITH SECTION 413 OF THE GEORGIA DOT STANDARD SPECIFICATIONS, CURRENT EDITION, OR AS DIRECTED BY ENGINEER.
 3. APPLY PAVEMENT MARKINGS USING WHITE THERMOPLASTIC 0.090 INCHES IN THICKNESS IN ACCORDANCE WITH SECTION 653 OF THE GEORGIA DOT STANDARD SPECIFICATIONS, CURRENT EDITION.
- A. APPLY RAISED PAVEMENT MARKERS, TP 11 (YELLOW/YELLOW) (CENTERLINE) AND TP 13 (CLEAR/RED) (EDGE OF PAVEMENT), USING HEATED BITUMINOUS ADHESIVE IN ACCORDANCE WITH SECTION 868 OF THE OF THE GEORGIA DOT SPECIAL SHELF PROVISION SPECIFICATIONS, CURRENT EDITION.

FULTON COUNTY STANDARD DETAIL 315
SPEED TABLE

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: KAH
APPROVED: LJM
DATE: 4-19-05

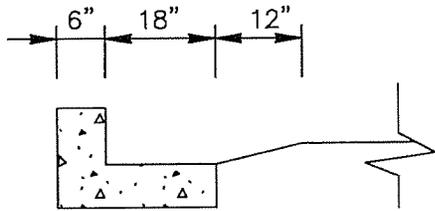
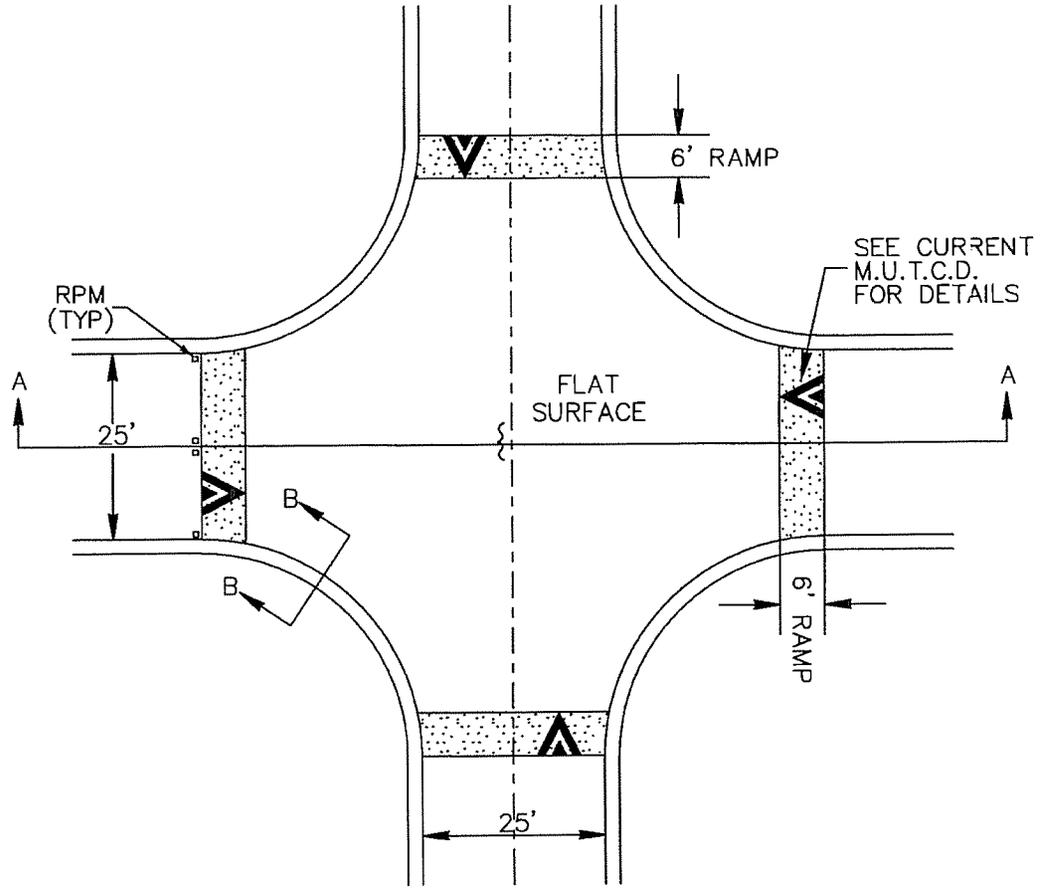


FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30305 315
404-730-7400 FAX: 404-730-8325

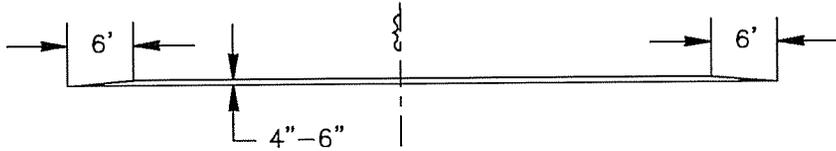
DRAWING NO.

NOTES:

1. MINIMUM 1" SLOPE REQUIRED IN ALL AREAS FOR DRAINAGE.
 2. A 30" X 30" YELLOW WARNING SIGN WITH THE LEGEND "RAISED INTERSECTION" MAY BE REQUIRED ON ALL APPROACHES NOT CONTROLLED BY A STOP SIGN.
 3. INTERSECTION HUMP MAY BE CONSTRUCTED USING ASPHALT OR CONCRETE, PER FULTON COUNTY TRAFFIC ENGINEER.
- A. CONCRETE CONSTRUCTION:
1. CONSTRUCT INTERSECTION HUMP USING 3000 PSI HIGH/EARLY CONCRETE REINFORCED WITH #3 BARS AT 12" C. TO C. BOTH WAYS, OR 6 X 6-W2.9 X W2.9 WELDED WIRE FABRIC, OR 4 X 4-W2.0 X W2.0 WELDED WIRE FABRIC.
 2. CONCRETE WILL BE COLORED AND TOP STAMPED WITH TEXTURE PER FULTON COUNTY TRAFFIC ENGINEER
- B. ASPHALT CONSTRUCTION:
1. CONSTRUCT INTERSECTION HUMP USING ASPHALTIC CONCRETE 12.5 MM SUPERPAVE IN ACCORDANCE WITH SECTION 402 OF THE GEORGIA DOT STANDARD SPECIFICATIONS, CURRENT EDITION.
 2. APPLY TACK COAT AT A RATE OF 0.04 TO 0.06 GALLONS PER SQUARE YARD IN ACCORDANCE WITH SECTION 413 OF THE GEORGIA DOT STANDARD SPECIFICATIONS, CURRENT EDITION, OR AS DIRECTED BY ENGINEER
 3. APPLY PAVEMENT MARKINGS USING WHITE THERMOPLASTIC 0.090 INCHES IN THICKNESS IN ACCORDANCE WITH SECTION 653 OF THE GEORGIA DOT STANDARD SPECIFICATIONS, CURRENT EDITION.
- A. APPLY RAISED PAVEMENT MARKERS, TP 11 (YELLOW/YELLOW) (CENTERLINE) AND TP 13 (CLEAR/RED) (EDGE OF PAVEMENT), USING HEATED BITUMINOUS ADHESIVE IN ACCORDANCE WITH SECTION 868 OF THE OF THE GEORGIA DOT SPECIAL SHELF PROVISION SPECIFICATIONS, CURRENT EDITION.



SECT. B-B



SECT. A-A

FULTON COUNTY STANDARD DETAIL 318
INTERSECTION HUMP

DATE	REVISIONS	DATE	REVISIONS

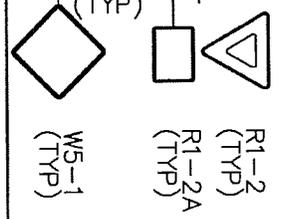
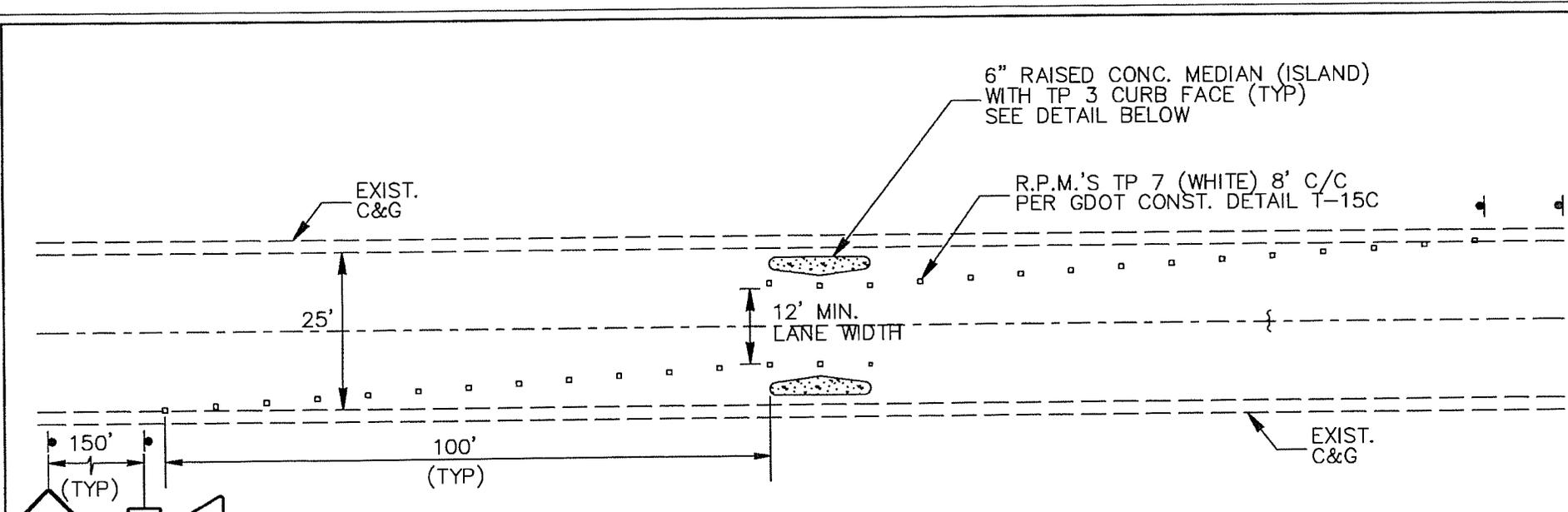
DGS/DRN/CHKD: KAH
APPROVED: LIM
DATE: 4-19-08



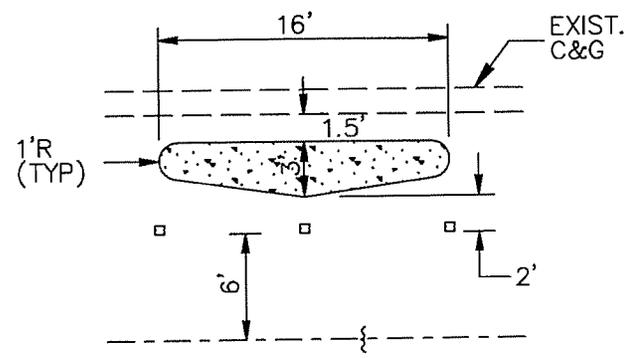
FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30305
404-730-7400 FAX: 404-730-8325

DRAWING NO.

318



PLAN
N.T.S.



CONC. ISLAND DETAIL
N.T.S.

NOTE: SEE DWG 307 FOR CONCRETE MEDIAN CONSTRUCTION DETAIL.

FULTON COUNTY STANDARD DETAIL 317
ONE LANE CHOKER

DATE	REVISIONS	DATE	REVISIONS

DOS/DRN/CHKD: KAH
APPROVED: LJM
DATE: 4-19-05



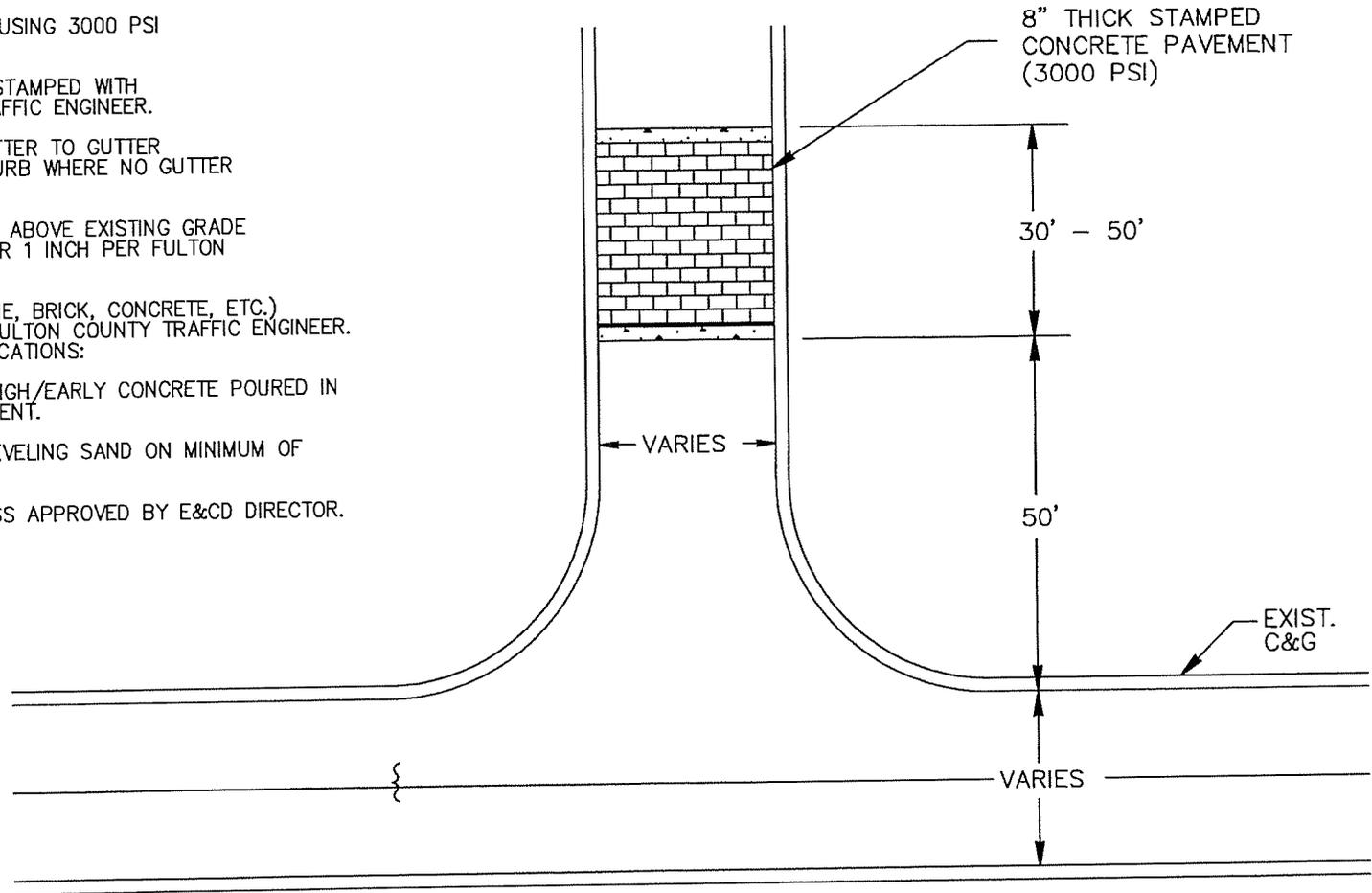
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DRAWING NO.

317

NOTES:

1. CONSTRUCT ENTRANCE TREATMENT USING 3000 PSI HIGH/EARLY CONCRETE.
2. CONCRETE WILL BE COLORED AND STAMPED WITH TEXTURE PER FULTON COUNTY TRAFFIC ENGINEER.
3. TREATMENT WILL EXTEND FROM GUTTER TO GUTTER OR FACE OF CURB TO FACE OF CURB WHERE NO GUTTER EXISTS.
4. CONCRETE MAY BE FORMED 1 INCH ABOVE EXISTING GRADE WITH EDGE SLOPED TO GRADE OVER 1 INCH PER FULTON COUNTY TRAFFIC ENGINEER.
5. ALTERNATE PAVER MATERIAL (STONE, BRICK, CONCRETE, ETC.) MAY BE USED AS APPROVED BY FULTON COUNTY TRAFFIC ENGINEER. IF USED, APPLY FOLLOWING MODIFICATIONS:
 - A. 18 INCH BAND OF 3000 PSI HIGH/EARLY CONCRETE POURED IN PLACE AT EXTENT OF TREATMENT.
 - B. ALL PAVERS SET IN 1 INCH LEVELING SAND ON MINIMUM OF 4 INCH CONCRETE BASE.
6. FOR PRIVATE STREETS ONLY UNLESS APPROVED BY E&CD DIRECTOR.



FULTON COUNTY STANDARD DETAIL 318
ENTRANCE TREATMENT

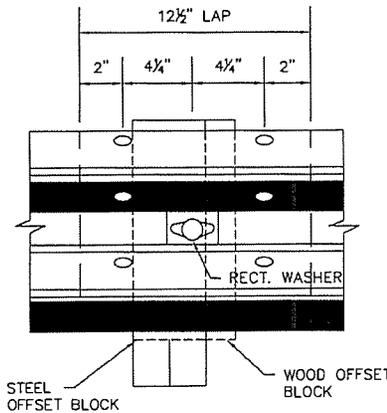
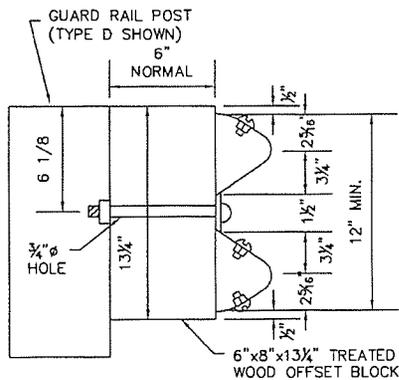
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: KAH
APPROVED: LJM
DATE: 4-19-05



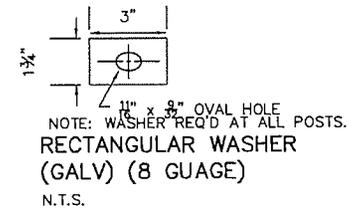
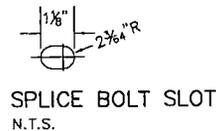
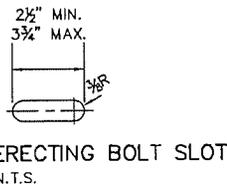
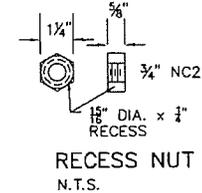
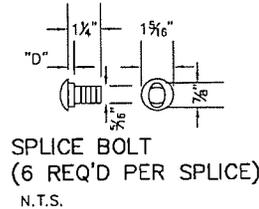
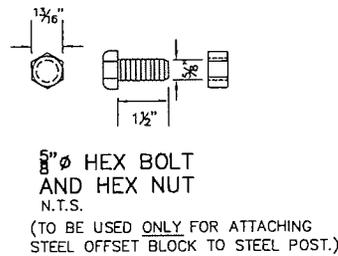
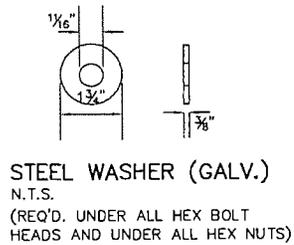
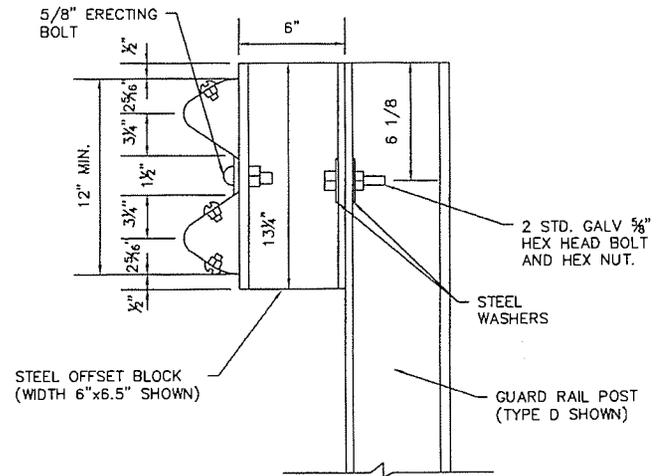
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DRAWING NO.
318



NOTE: OFFSET BLOCKS MAY BE WOOD OR STEEL.

GUARD RAIL SPLICE AT POST
N.T.S.



FULTON COUNTY STANDARD 321
BEAM TYPE GUARD RAIL (CONT.)

BY	REVISION	DATE	BY	REVISION	DATE

SCALE
N.T.S.

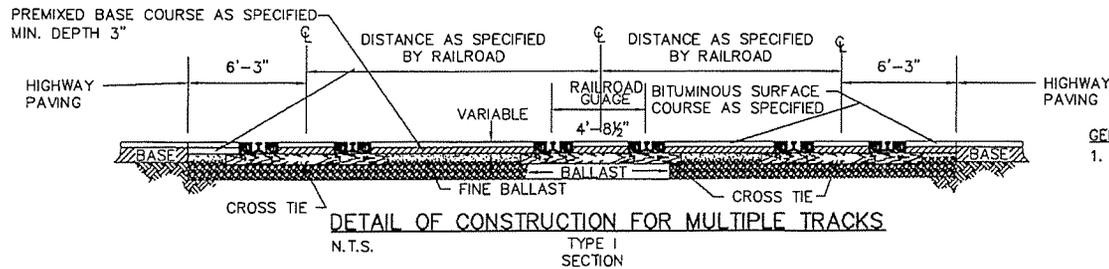
DSG/DRN/CHKD: CJP
APPROVED: SLS
DATE: 1-19-03

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404-730-7400 FAX: 730-6325

DWG. NO.
321

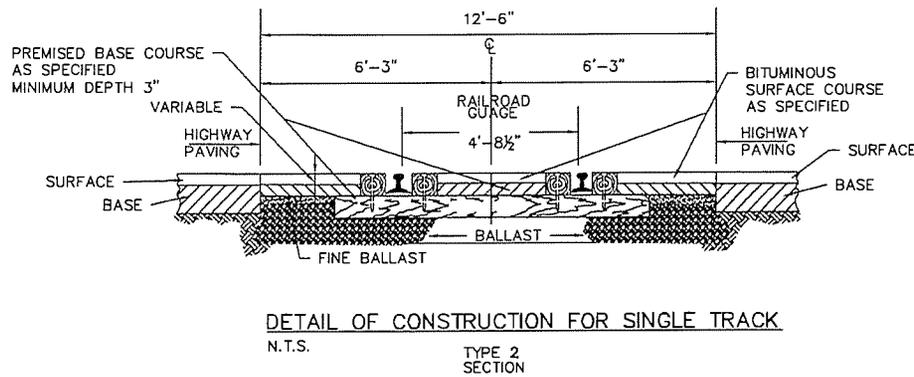


SHEET: _____
OF: _____



GENERAL NOTES

1. THE RAILROAD IS TO BE NOTIFIED BEFORE ANY WORK IS DONE BY HIGHWAY MAINTENANCE FORCES OR HIGHWAY CONTRACTORS BETWEEN THE RAILS AND WITHIN 8' OF THE CENTERLINE OF TRACK ON TANGENTS AND 10' OF CENTERLINE OF TRACK ON CURVES. A RAILROAD REPRESENTATIVE IS TO BE PRESENT TO SUPERVISE THE WORK BEING DONE AND TO PROTECT THE FORCES WORKING FROM RAILWAY TRAFFIC.
2. BALLAST, TIES, RUNNING RAILS, GUARD TIMBERS AND FILLERS (IF REQUIRED) FOR FLANGEWAY AND OUTSIDE OF RAIL, ARE TO BE FURNISHED AND PLACED BY RAILROAD WITH COSTS, ELIGIBLE FOR REIMBURSEMENT, BEING BILLED TO THE STATE UNDER FORCE ACCOUNT AGREEMENTS.
3. THE HIGHWAY CONTRACTOR TO FURNISH ALL WORK AND MATERIALS NECESSARY FOR CONSTRUCTING THE SURFACE COURSE AND BASE COURSE OF THE CROSSING. THE COST OF FLAGGING SERVICE REQUIRED BY THE RAILROADS FOR ANY CONSTRUCTION ACTIVITY AT GRADE CROSSINGS SHALL BE AT A COST TO THE CONTRACTOR. THIS COST SHALL BE BORNE BY THE CONTRACTOR, WHETHER THE FLAGGING SERVICE IS PERFORMED BY THE CONTRACTOR'S PERSONNEL OR, IF REQUIRED BY THE RAILROADS, TO BE DONE BY THE RAILROAD PERSONNEL.
4. BASIS OF PAYMENT:
 - A. BITUMINOUS SURFACE COURSE AS SPECIFIED.
 - B. PREMIXED BASE COURSE AS SPECIFIED
 - C. PRECAST REINFORCED CONCRETE SLABS - PER SQ.YD.



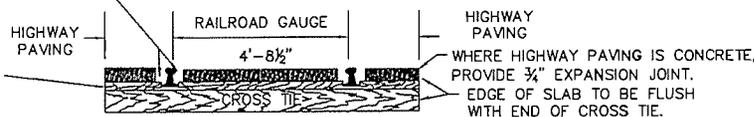
DETAIL OF CONSTRUCTION FOR SINGLE TRACK

N.T.S. TYPE 2 SECTION

IF REQUIRED, FILLERS FOR FLANGEWAY AND OUTSIDE OF RAIL TO BE FURNISHED AND PLACED BY RAILROAD IN ACCORDANCE WITH RAILROAD SPECIFICATIONS

THE NUMBER OF SLABS BETWEEN THE RAILS MAY BE 2 OR 3, DEPENDING ON THE TYPE OF DESIGN.

WOODEN SHIMS, IF REQUIRED, TO BE AS SPECIFIED BY RAILROAD AND FURNISHED BY CONTRACTOR, MINIMUM THICKNESS TO SHIM 1 3/4"



COMMERCIAL PRECAST REINFORCED CONCRETE SLABS

N.T.S.

NOTE:

DIMENSIONS OF PRECAST REINFORCED CONCRETE CLABS WILL VARY WITH DIFFERENT DESIGN. THE TYPE 2 SECTION ABOVE IS TYPICAL OF ONE TYPE OF COMMERCIAL PRECAST SECTION AND IS TO BE USED FOR INFORMATION ONLY

GENERAL SPECIFICATIONS FOR COMMERCIAL PRECAST REINFORCED CONCRETE SLAB FOR RAILWAY CROSSING:

1. THE PLACING OF PRECAST REINFORCED CONCRETE SLABS WILL BE PERMITTED WHEN APPROVED BY THE RAILROAD AND THE STATE HIGHWAY ENGINEER.
2. SLABS TO BE OF THE TYPE THAT CAN BE ANCHORED TO TIES AND REMOVED.
3. IF SLABS ARE OVER MULTIPLE TRACKS, THE INTERTRACK SLABS ARE TO BE PLACED ON LEVEL COMPACTED EARTH.
4. THE DEPTH OF THE SLABS SHALL BE SUCH THAT THE TOP SURFACE OF THE CROSSING WILL BE IN THE SAME PLANE AS THE TOP OF THE RAIL. SHIMS WILL BE USED IF REQUIRED.
5. ALL EXPOSED EDGES OF SLABS SHALL BE ARMORED.
6. PROTECTION OF THE END SLABS AGAINST DRAGGING BRAKE RIGGING WILL BE PROVIDED.
7. IN GENERAL, THE DESIGN OF SLABS WILL BE IN ACCORDANCE WITH (AREA) AMERICAN RAILWAY ENGINEERING ASSOCIATION SPECIFICATIONS.
8. THE TYPE OF COMMERCIAL PRECAST CONCRETE SLABS SELECTED BY THE CONTRACTOR MUST BE APPROVED BY THE ENGINEER.

FULTON COUNTY STANDARD 322

RAILROADS
GRADE CROSSING, SECTIONS, DETAILS

BY	REVISION	DATE	BY	REVISION	DATE

SCALE

N.T.S.

DSG/DRN/CHKD: CJP
APPROVED: REW
DATE: 2/19/04

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141 PRYOR ST. ATLANTA, GA. 30303
404-730-7400 FAX: 730-6325

DWG. NO.

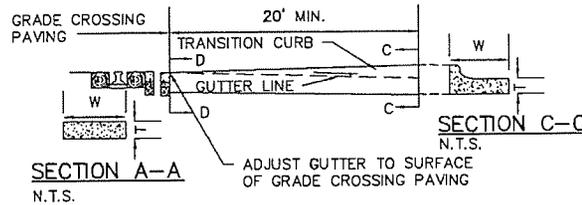
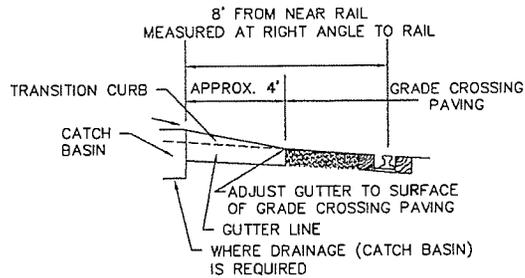
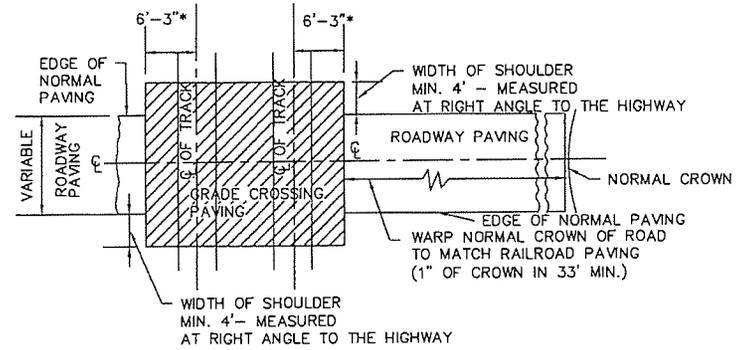
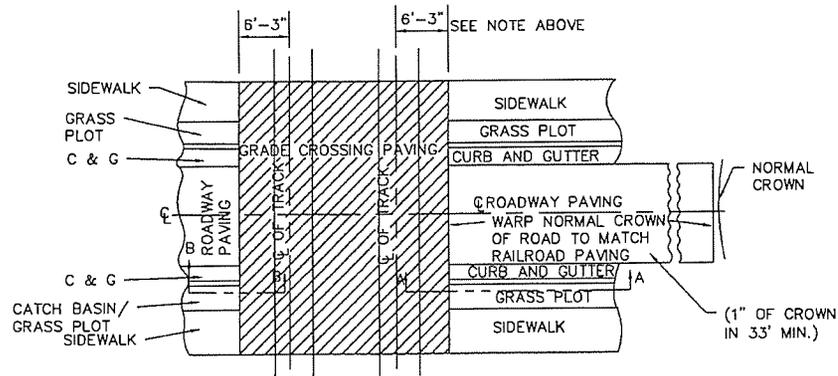
322



SHEET: _____

OF: _____

NOTE:
 END HIGHWAY PAVING ADJACENT TO THE CROSSING AT THE CROSS TIES INSTEAD OF
 6'-3" FROM \bar{C} OF TRACK, IF PRECAST REINFORCED CONCRETE SLABS ARE USED.



NOTE:
 THE SECTION "A-A" AND "B-B" ARE TYPICAL OF ONE CONDITION AND ARE TO BE USED FOR INFORMATION ONLY. THE TRANSITION FOR THE CURB AND GUTTER SECTION TO THE GRADE CROSSING PAVING IS TO BE ADJUSTED AS DIRECTED BY THE ENGINEER.

FULTON COUNTY STANDARD 323
 RAILROADS
 GRADE CROSSING, SECTIONS, DETAILS (CONT.)

BY	REVISION	DATE	BY	REVISION	DATE

SCALE
 N.T.S.

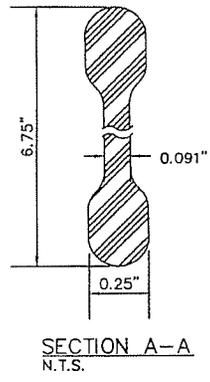
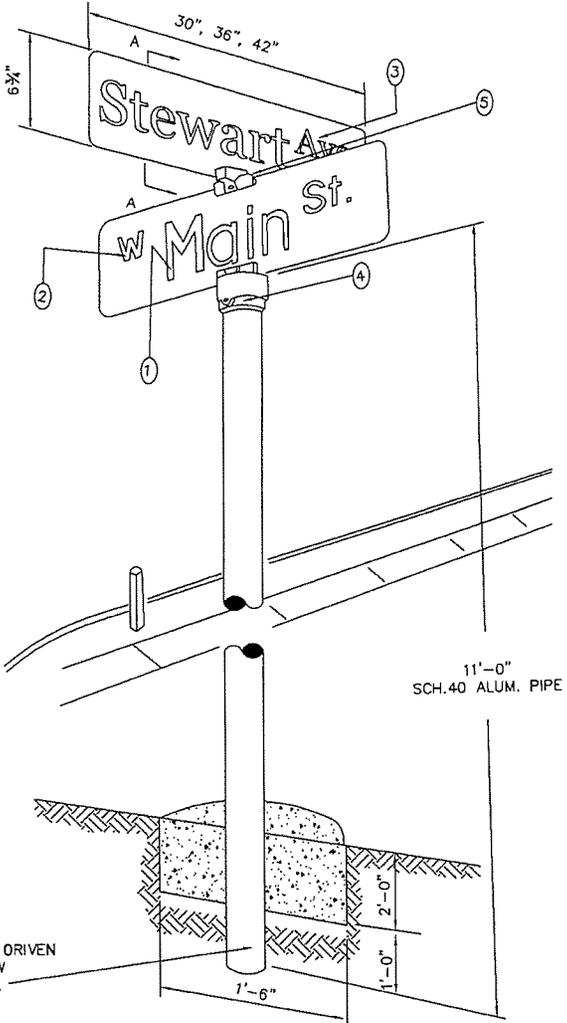
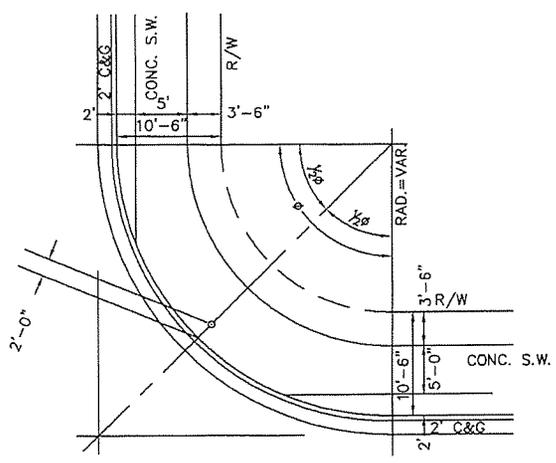
DSG/DRN/CHKD: CJP
 APPROVED: SLS
 DATE: 1-19-03

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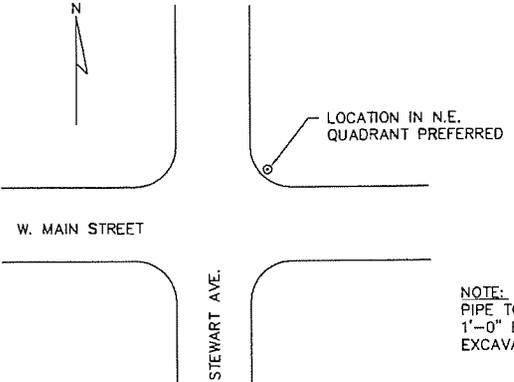
DWG. NO.
 323



SHEET: _____
 OF: _____



- ④ & ⑤ VULCAN SIGN CO.
VSS-1 OR EQUAL
- ③ SUFFIX 2" U.C.; 1 1/2" L.C.
- ② PREFIX 2" U.C., 1 1/2" L.C.
- ① PRIMARY 4" U.C., 3" L.C, 6 3/4" W.DTH.



FULTON COUNTY STANDARD 324
SIGNS
STREET NAME,
DETAILS & LOCATION

BY	REVISION	DATE	BY	REVISION	DATE

SCALE
N.T.S.

DSG/DRN/CHKD: CJP
APPROVED: SLS
DATE: 1-19-03

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DWG. NO.
324



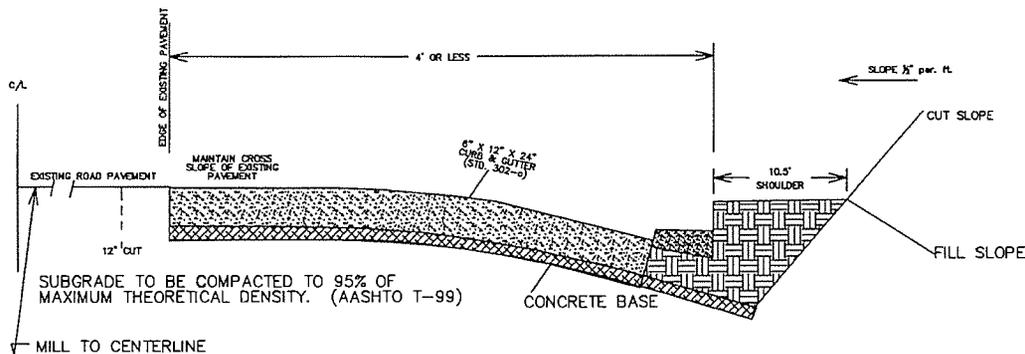
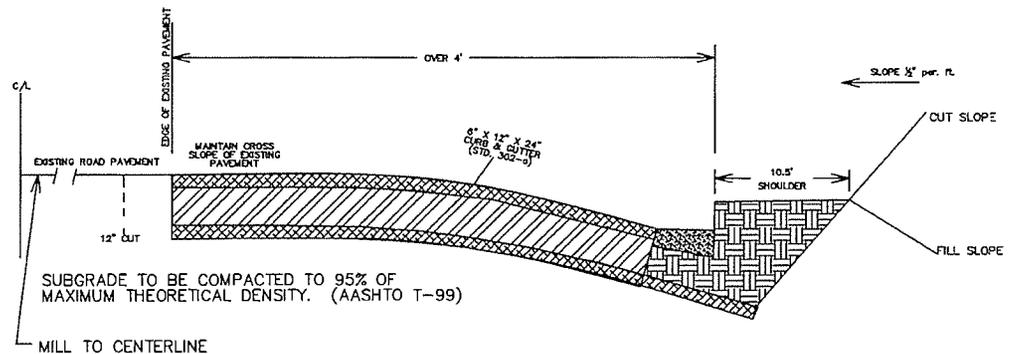
SHEET: _____
OF: _____

*** ON EXISTING PAVEMENTS WHERE LANE WIDENING IS REQUIRED. SAW CUT THE FIRST 12 INCHES OF PAVEMENT AND ESTABLISH REQUIRED SUB-GRADE MATERIAL AND THICKNESS.

* NEW PAVEMENT IS REQUIRED ACROSS THE ENTIRE LENGTH AND WIDTH OF ALL PROPERTY FRONTAGE AND INSTALLED AS PER F.C. INSPECTORS INSTRUCTIONS.

PAVEMENT COMPOSITION

- 1 1/2" TYPE "E" OR "F" WEARING COURSE
- 5" CLASS A CONCRETE BASE (LOCAL STREETS AND MINOR COLLECTORS) OR
- 2" CLASS A CONCRETE BASE (MAJOR COLLECTORS AND ARTERIALS)



SUBGRADE TO BE COMPACTED TO 95% OF MAXIMUM THEORETICAL DENSITY. (AASHTO T-99)

PAVEMENT COMPOSITION

- 1 1/2" "E" TOPPING
- TACK COAT CRS - 2H OR AC-30 REQ.
- 2" PLANT MIX "B" BINDER MODIFIED PRIME RC-70
- "B" GRADED AGGREGATE BASE (CRUSHER RUN)

FULTON COUNTY STANDARD DETAIL 325
PAVEMENT WIDENING

DATE	REVISIONS	DATE	REVISIONS

DES/DRN/CHKD: CMS
APPROVED: LJM
DATE: 4-19-05



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DRAWING NO.
325

INDEX

GENERAL NOTES

DWG NO.	DESCRIPTION
400	INDEX AND GENERAL NOTES
401	SANITARY SEWER TYPICAL RIP-RAP CHANNEL PIPE CROSSING
402	CONSTRUCTION EXIT-TEMPORARY
403	CONCRETE PIER AND FOOTING DETAIL
404	TEMPORARY SILT FENCE
405	DETAIL OF SOD DITCH
406	CONCRETE PIER AND FOOTING DETAIL
407	EROSION CONTROL-CHECK DAMS

FULTON COUNTY STANDARD DETAIL
INDEX AND GENERAL NOTES

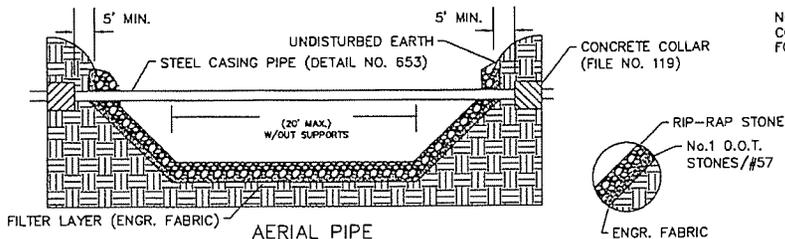
DATE	REVISIONS	DATE	REVISIONS

DCS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-02-05

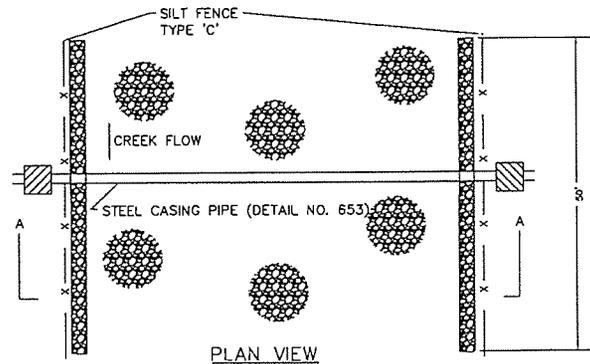
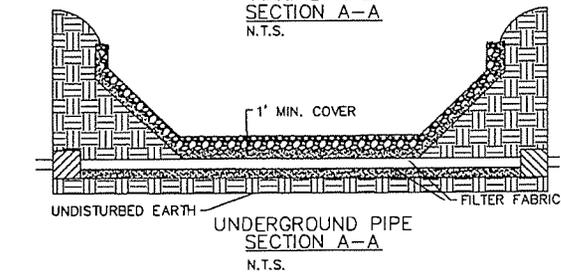


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DRAWING NO.
INDEX
400



NOTE REQUIRED—
CONCRETE STRENGTH TEST MAY BE REQUIRED
FOR ALL POURED IN PLACE CONCRETE.



- NOTES:**
1. MINIMUM STONE SIZE SHALL BE 125 LBS.
 2. STONE SIZE SHALL BE PROVIDED BY DESIGN ENGINEER OR FULTON COUNTY PUBLIC WORKS ENGINEER.
 3. ALL EROSION CONTROL DEVICES MUST BE IN PLACE PRIOR TO ANY GRADING OR CLEARING.
 4. ALL EROSION CONTROL SHALL CONFORM TO FULTON COUNTY STANDARDS.
 5. RIM OF MANHOLE SHALL BE 2' ABOVE GRADE. IF IN A FLOOD ZONE, RIM SHALL BE ABOVE 25 YEAR STORM ELEVATION.
 6. SEE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA FOR MORE INFORMATION.

GRADED RIP-RAP STONE

FLOW VELOCITY (FT./SEC.)	N.S.A. *1	SIZE INCHES (SQ. OPENING)			PARTICLE WEIGHT (LBS.)*2
		MAX.	AVG.	MIN.	
2.5	R-1	1 1/2	3/4	NO.8	---
4.5	R-2	3	1 1/2	1	---
6.5	R-3	6	3	2	20
9.0	R-4	12	6	3	60
11.5	R-5	18	9	5	150
13.0	R-6	24	12	7	300
14.5	R-7	30	15	12	700
---	R-8	48	24	15	1500

- *1. NATIONAL STONE ASSOCIATION.
*2. AT LEAST 50% OF ALL INDIVIDUAL STONE PARTICLES MUST WEIGH AT LEAST THE LISTED AMOUNT.

GRADED RIP-RAP STONE

D.O.T. *NO.1	SIZE INCHES (SQ. OPENING)			COMMON USES
	MAX.	AVG.	MIN.	
TYPE 3	12	9	5	CREEK BANKS, PIPE OUTLETS, LAKES, SHORELINES & RIVERS
TYPE 1	24	12	7	

*1. GEORGIA DEPARTMENT OF TRANSPORTATION.

GRADED RIP-RAP STONE

- TYPE 3: FOR GENERAL USE NORMAL DRAINAGE CONDITIONS: THE LARGEST PIECES OF MATERIAL SHALL HAVE A MAXIMUM APPROXIMATE VOLUME OF ONE CUBIC FOOT. AT LEAST 35% OF THE MASS SHALL BE COMPRISED OF PIECES WHICH WEIGH 15 POUNDS OR MORE.
- TYPE 1: FOR SEVERE DRAINAGE CONDITIONS OR MODERATE WAVE ACTION: THE LARGEST PIECES OF MATERIAL SHALL HAVE A MAXIMUM OF TWO CUBIC FEET. AT LEAST 35% OF THE MASS SHALL BE COMPRISED OF PIECES WHICH WEIGH 125 POUNDS OR MORE.

FULTON COUNTY STANDARD DETAIL 401
SANITARY SEWER TYPICAL RIP-RAP
CHANNEL PIPE CROSSING

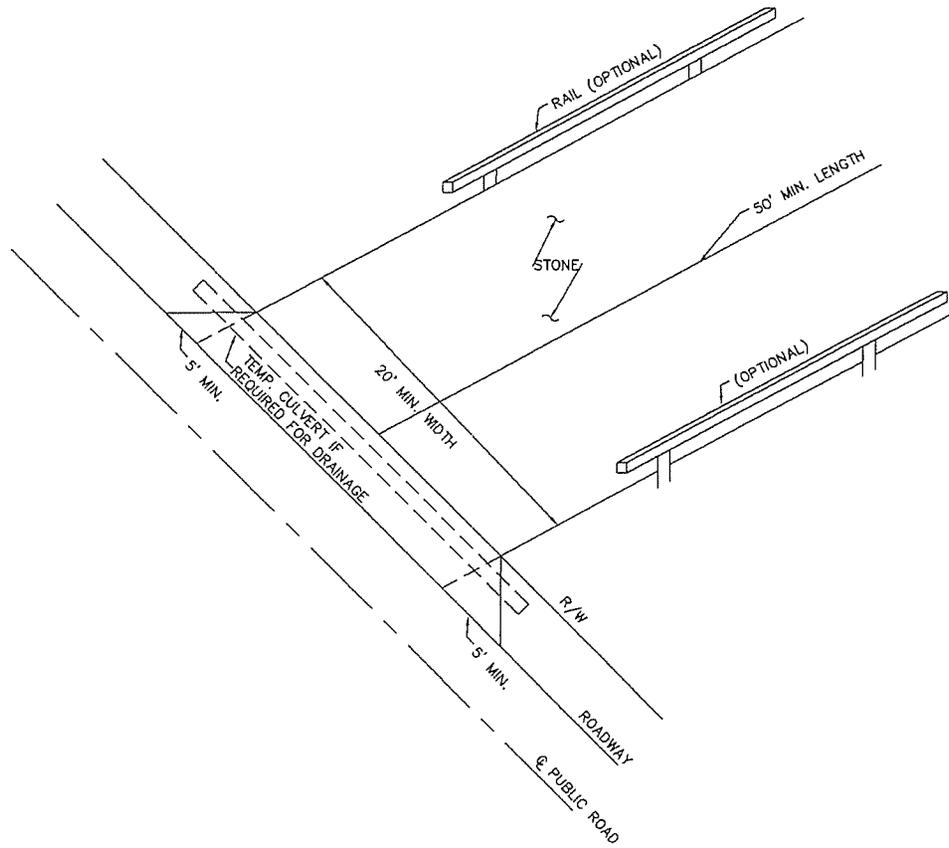
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
401



NOTES:

1. STONE SIZE ASTM. D448 SIZE NO. 1, (1.5" - 3.5" DIA.)
2. PAD THICKNESS 6" MIN.
3. MIN. SIZE: 20'x50'.
4. IF NECESSARY, INCLUDE WASHING
5. MAY REQUIRE PERIODIC TOP DRESSING WITH 2" STONE.
6. MAINTAIN IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC ROADS.
7. PLACE STONE OVER FABRIC MATERIAL.
8. USE RAIL WHEN THERE IS A POSSIBILITY OF HAZZARD OUE TO SLOPE.
9. SEE ADDITIONAL EROSION CONTROL MEASURES IN THE EROSION CONTROL AND SEDIMENTATION ORDINANCE MANUAL AND THE GA. STATE EROSION CONTROL MANUAL.

FULTON COUNTY STANDARD DETAIL 402
CONSTRUCTION EXIT-TEMPORARY

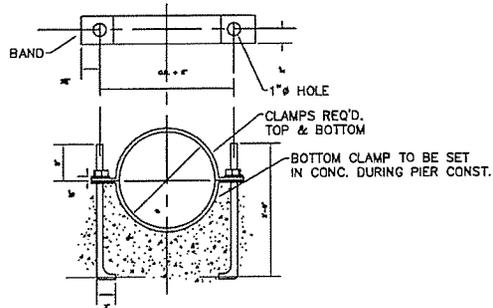
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05

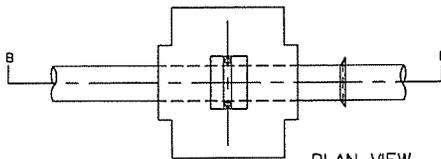
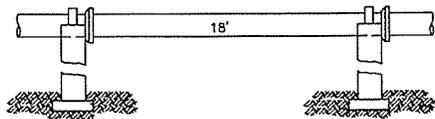


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DRAWING NO.
402

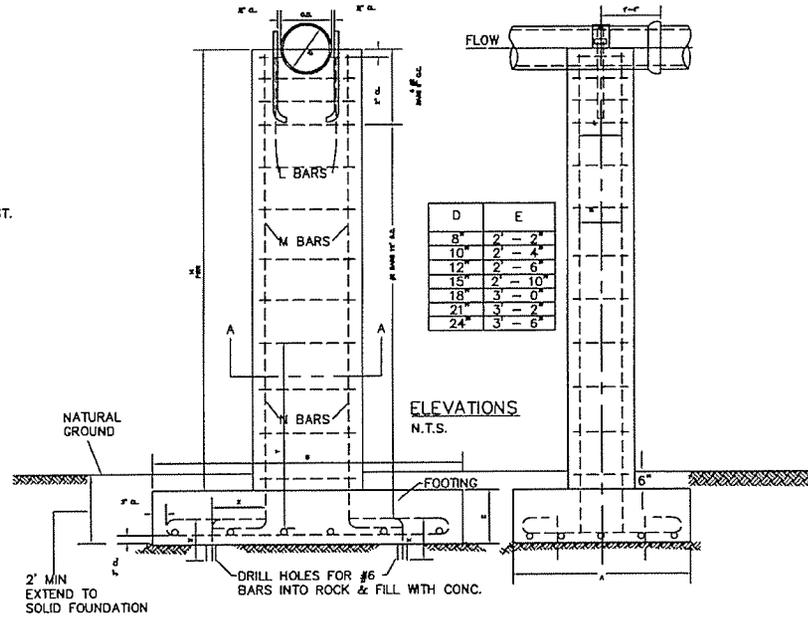


CLAMP DETAIL
N.T.S.

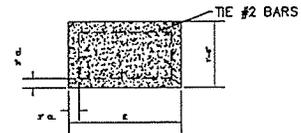


PLAN VIEW
N.T.S.

1. PIER LOCATION DETERMINED BY ENGR.
2. CONCRETE TO BE 3,000 P.S.I.
3. UNDER UNSTABLE CONDITIONS, ENG. PLANS FOR PIER DESIGN MUST BE SUBMITTED TO & APPROVED BY THE PUBLIC WORKS DEPT.
4. PIERS AT EVERY BELL.
5. ENGR. TO SUBMIT DESIGN FOR
6. STEEL REINFORCEMENT TO BE A.S.T.M DESIGNATION A -15 - 54T UNLESS OTHERWISE SPECIFIED, BENDS IN BARS TO CONFORM TO A.C.I. STANDARD.



ELEVATIONS
N.T.S.



SECTION A-A
N.T.S.

FULTON COUNTY STANDARD DETAIL 403
CONCRETE PIER AND FOOTING DETAIL

DATE	REVISIONS	DATE	REVISIONS

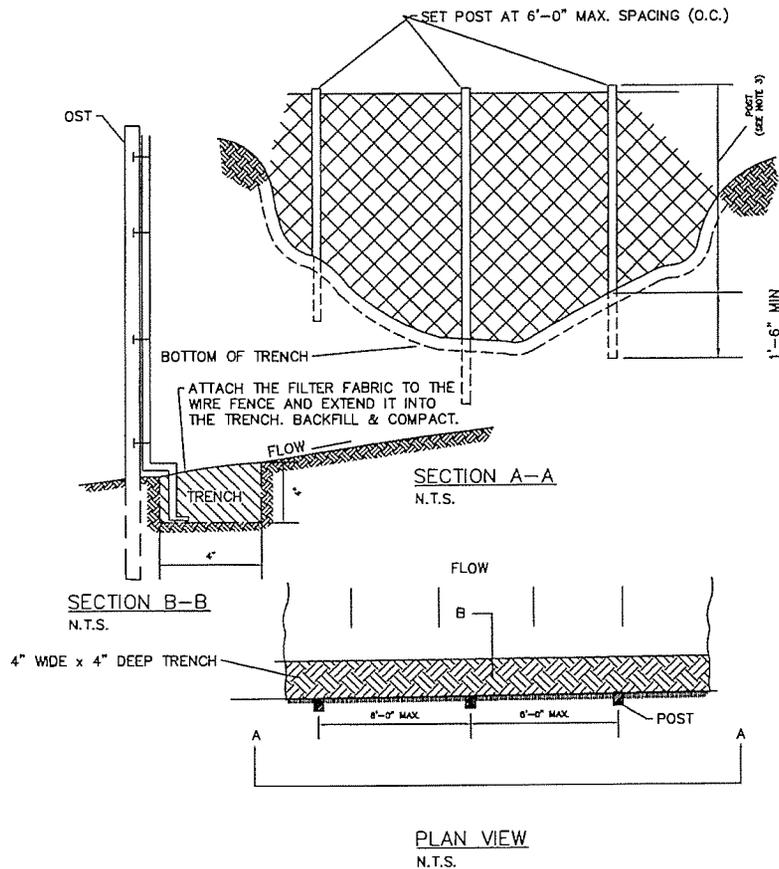
DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.

403



TEMPORARY SILT FENCE

1. TYPE A. DESCRIPTION: WATER PERMEABLE FILTER FENCE MATERIAL COMPOSED OF STRONG ROT PROOF SYNTHETIC FIBERS FORMED INTO A MATRIX OF WOVEN OR NONWOVEN FABRIC. EITHER TYPE OF FABRIC SHALL BE FREE OF ANY TREATMENT OR COATING WHICH MIGHT SIGNIFICANTLY ALTER IT'S PHYSICAL PROPERTIES AFTER INSTALLATION. THE FABRIC SHALL CONTAIN STABILIZER AND/OR INHIBITORS TO MAKE THE FILAMENTS RESISTANT TO DETERIORATION RESULTING FROM EXPOSURE TO SUNLIGHT OR HEAT. THE FABRIC SHALL BE A PERVIOUS SHEET OF SYNTHETIC FIBERS ORIENTED INTO A NETWORK SO THAT THE FIBERS RETAIN THEIR RELATIVE POSITION WITH RESPECT TO EACH OTHER. EDGES OF THE FABRIC SHALL BE FINISHED TO PREVENT THE OUTER YARN FROM PULLING AWAY FROM THE MATERIAL. THE FABRIC SHALL BE FREE OF DEFECTS OR FLAWS WHICH SIGNIFICANTLY AFFECT THE PHYSICAL AND/OR FILTERING PROPERTIES. THE FABRIC SHALL HAVE A MINIMUM WIDTH OF THIRTY SIX (36) INCHES. SHEETS OF FABRIC MAY BE PERMITTED DUE TO THE PRESENCE OF THE SEAM. THE FABRIC MAY BE MANUFACTURED WITH POCKETS FOR POSTS, HEMS WITH CORD OR WITH POSTS PREATTACHED USING STAPLES OR BUTTON HEAD NAILS.
2. TYPE B. DESCRIPTION: TYPE B FILTER FABRIC SHALL MEET THE SAME STANDARDS AS TYPE A. FILTER FABRIC SHALL BE A MINIMUM OF 22" WDE.
3. MATERIALS
 - A. POSTS
 1. HARDWOOD: 1.5"x1.5"x48" MINIMUM FOR TYPE A FABRIC. FOR TYPE B FABRIC, 1"x1"x36" MINIMUM.
 2. SOFTWOOD: 3" DIAMETER MINIMUM OR NOM. 2"x4" AND STRAIGHT ENOUGH TO PROVIDE A FENCE WITHOUT NOTICABLE MISALIGNMENT FOR TYPE A FABRIC. FOR TYPE B FABRIC, AT LEAST 2" IN DIAMETER OR NOM. 2"x2".
 3. STEEL: POSTS SHALL BE ROUND, U.T. OR C SHAPED WITH A MINIMUM WEIGHT OF 1.3 POUNDS PER FOOT AND HAVE PROJECTIONS FOR FASTENING THE WIRE TO THE FENCE FOR TYPE A FABRIC. FOR TYPE B FABRIC, POSTS SHALL HAVE A MINIMUM WEIGHT OF 0.75 POUNDS PER FOOT AND ROUND POSTS SHALL BE A MINIMUM OF 1" IN DIAMETER.
 - B. SPACING: SIX (6) FOOT CENTERS MAXIMUM.
 - C. FABRIC: GEORGIA DOT QUALIFIED PRODUCTS LIST #36 ONLY.
 - D. FASTENERS: WIRE STAPLES WILL BE NO. 17 GAGE MINIMUM AND SHALL HAVE A CROWN AT LEAST 3/4 INCH WIDE AND LEGS AT LEAST 1/2 INCH LONG. STAPLES SHALL BE EVENLY SPACED WITH AT LEAST 5 PER POST. NAILS SHALL BE 14 GAGE MINIMUM ONE INCH LONG WITH 3/4 INCH BUTTON HEADS. NAILS SHALL BE EVENLY SPACED WITH AT LEAST 4 PER POST.
4. INSTALLATION: TEMPORARY SILT FENCE INSTALLATION SHALL CONFORM TO THE STANDARDS SET FORTH IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA.
5. MAINTENANCE: THE DEVELOPER/CONTRACTOR SHALL MAINTAIN THE SILT FENCE UNTIL THE LDA IS COMPLETE AND FINAL STABILIZATION IS ACHIEVED. FILTER FABRIC SHALL BE REMOVED AND REPLACED WHENEVER IT HAS DETERIORATED OR BEEN OTHERWISE DAMAGED TO SUCH EXTENT THAT IT REDUCES THE EFFECTIVENESS OF THE SILT FENCE. INSTALLATION OF FABRIC FENCE MATERIAL IN AREAS OF CONCENTRATED FLOW IS NOT RECOMMENDED UNLESS PROPER PROVISIONS ARE MADE TO SUPPLEMENT OR OTHERWISE STRENGTHEN THE FENCE TO WITHSTAND INCREASED DRAINAGE WATER VELOCITIES.

NOTE:

VENDOR MUST SUPPLY LETTER OF WARRENTY FOR AFOREMENTIONED SPECIFICATIONS. IN ADDITION, THIS LETTER SHOULD STATE THAT THE FABRIC IS ON THE GEORGIA QPL #36.

FULTON COUNTY STANDARD DETAIL 404
TEMPORARY SILT FENCE

DATE	REVISIONS	DATE	REVISIONS

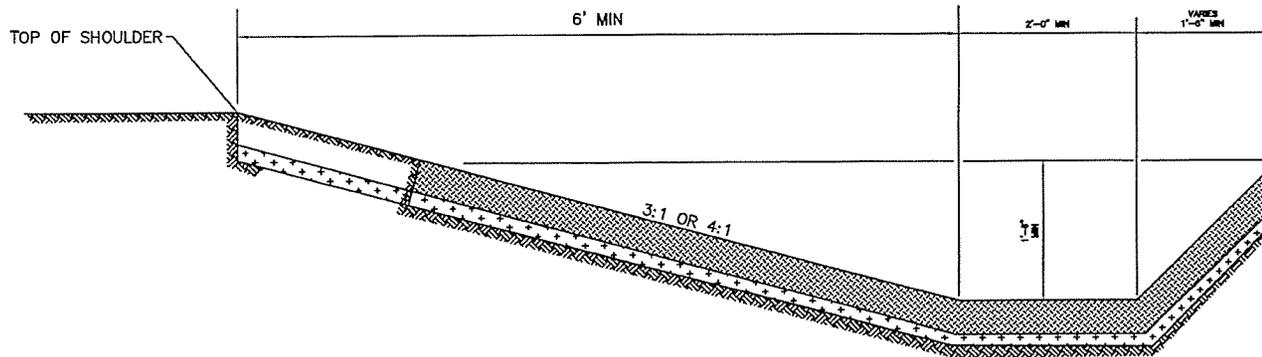
DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



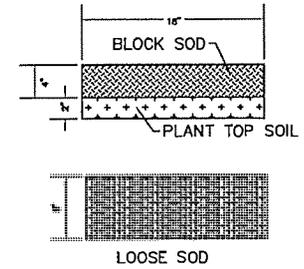
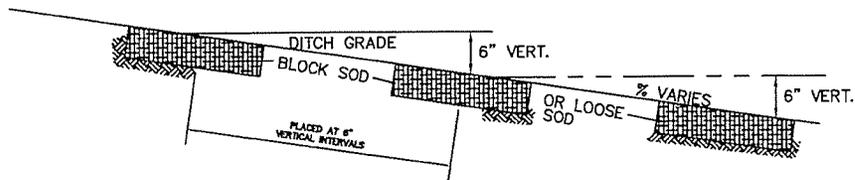
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DRAWING NO.

404



NOTE:
RIP RAP CHECK DAMS TO BE PLACED
AS NECESSARY DEPENDING ON GRADE
OF DITCH.



NOTE:
SOD DITCH CHECKS MAY BE OF LOOSE SOD OR BLOCK SOD.
SOD DITCH CHECKS TO BE PLACED AT 6" VERTICAL INTERVALS.
THIS STANDARD TO BE USED WHERE EROSION IN ROADSIDE DITCHES
IS EXCESSIVE DUE TO TYPE OF SOIL OR GRADE.

FULTON COUNTY STANDARD DETAIL 405
DETAIL OF SOD DITCH

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
405

STANDARD REINFORCED PIER

FOOTING DIMENSIONS AND REINFORCEMENT								PIER REINFORCEMENT								
PIER	FOOTING				NO. OF #5 BARS EA. DIRECTION				BARS M			BARS N			X	Y
	H	A	B	C	8" & 10"D.	12" & 14"D.	16" & 18"D.	20" & 24"D.	NO.	SIZE	LENGTH	NO.	SIZE	LENGTH		
0'-4"	3'-0"	6'-0"	1'-3"	5	5	5	5	NONE			6	#6	H + 2' - 0"	1'-9"	H + 10"	
5'	3'-2"	6'-2"	1'-3"	5	5	5	5	NONE			6	#6	H + 2' - 0"	1'-9"	H + 10"	
6'	3'-4"	6'-4"	1'-3"	5	5	5	5	4	#6	4'-10"	6	#6	5'-4"	1'-9"	4'-2"	
7'	3'-6"	6'-6"	1'-3"	5	5	5	6	4	#6	5'-10"	6	#6	5'-4"	1'-9"	4'-2"	
8'	3'-8"	6'-8"	1'-3"	5	5	5	6	4	#6	7'-10"	6	#6	5'-4"	1'-9"	4'-2"	
9'	3'-10"	6'-10"	1'-3"	5	5	6	7	4	#6	8'-10"	6	#6	5'-4"	1'-9"	4'-2"	
10'	4'-0"	7'-0"	1'-3"	5	5	6	7	4	#6	9'-10"	6	#6	5'-4"	1'-9"	4'-2"	
11'	4'-2"	7'-2"	1'-3"	5	5	7	8	4	#6	10'-10"	6	#6	5'-4"	1'-9"	4'-2"	
12'	4'-4"	7'-4"	1'-3"	5	5	7	8	4	#6	11'-10"	6	#6	5'-4"	1'-9"	4'-2"	
13'	4'-6"	7'-6"	1'-6"	5	6	7	8	4	#6	12'-10"	6	#6	5'-7"	1'-9"	4'-5"	
14'	4'-8"	7'-8"	1'-6"	6	6	8	9	4	#6	13'-10"	6	#6	5'-7"	1'-9"	4'-5"	
15'	4'-10"	7'-10"	1'-6"	6	6	8	9	4	#6	14'-10"	6	#6	5'-7"	1'-9"	4'-5"	
16'	5'-0"	8'-0"	1'-6"	6	6	8	9	4	#6	15'-10"	6	#6	5'-7"	1'-9"	4'-5"	
17'	5'-2"	8'-2"	1'-6"	6	7	9	10	4	#6	16'-10"	6	#6	5'-7"	1'-9"	4'-5"	
18'	5'-4"	8'-4"	1'-6"	7	8	9	10	4	#6	17'-10"	6	#6	5'-7"	1'-9"	4'-5"	
19'	5'-6"	8'-6"	1'-6"	7	8	10	11	4	#6	18'-10"	6	#6	5'-7"	1'-9"	4'-5"	
20'	5'-8"	8'-8"	1'-6"	7	9	10	12	4	#6	19'-10"	6	#6	5'-7"	1'-9"	4'-5"	
21'	5'-10"	8'-10"	1'-6"	8	9	11	12	4	#6	19'-10"	6	#6	6'-0"	1'-9"	4'-9"	
22'	6'-0"	9'-0"	1'-6"	9	10	12	13	4	#6	19'-10"	6	#6	7'-0"	1'-9"	5'-9"	
23'	6'-2"	9'-2"	1'-6"	9	10	12	13	4	#6	19'-10"	6	#6	8'-0"	1'-9"	6'-9"	
24'	6'-4"	9'-4"	1'-6"	10	11	13	15	4	#6	19'-10"	6	#6	9'-0"	1'-9"	7'-9"	
25'	6'-6"	9'-6"	1'-6"	10	11	14	16	4	#6	19'-10"	6	#6	11'-0"	1'-9"	9'-3"	
26'	6'-8"	9'-8"	1'-6"	11	12	15	16	4	#6	19'-10"	6	#6	12'-0"	1'-9"	10'-3"	
27'	6'-10"	9'-10"	1'-6"	12	13	16	17	4	#6	19'-10"	6	#6	13'-0"	1'-9"	11'-3"	
28'	7'-0"	10'-0"	1'-6"	12	13	16	18	4	#6	19'-10"	6	#6	14'-0"	1'-9"	12'-3"	

BARS L	H	NO.-SIZE-LENGTH		
	0'-4"	NONE		
	4'-28"	2	#6	2'-6"

FULTON COUNTY STANDARD DETAIL 406
CONCRETE PIER AND FOOTING DETAIL

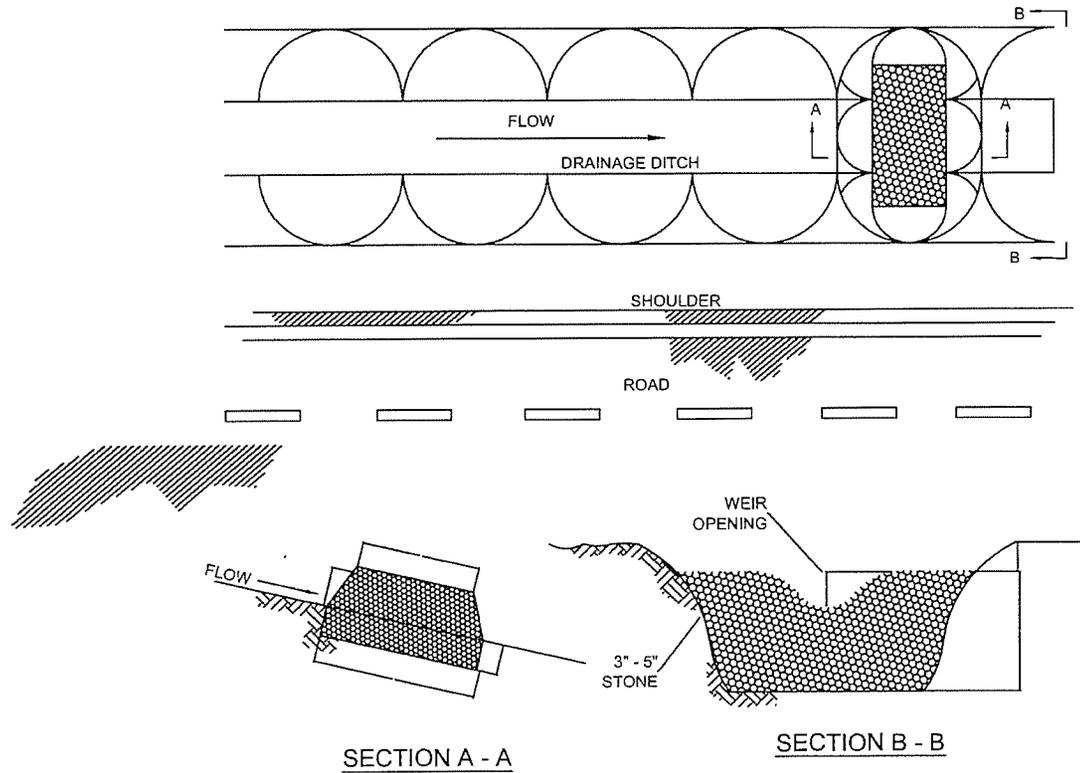
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
406



NOTES:

1. USE AND LOCATION OF CHECK DAMS SHALL BE AS DIRECTED BY INSPECTOR.

FULTON COUNTY STANDARD DETAIL 407
 EROSION CONTROL
 CHECK DAMS

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
 APPROVED: REW
 DATE: 12-2-05



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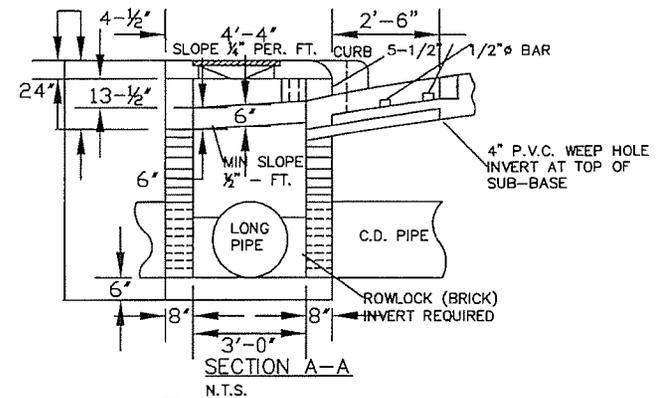
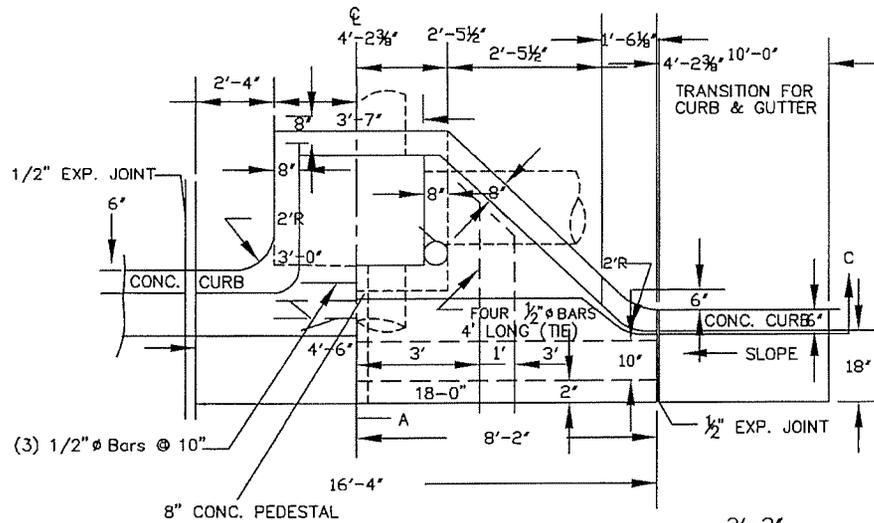
DRAWING NO.
 407

INDEX

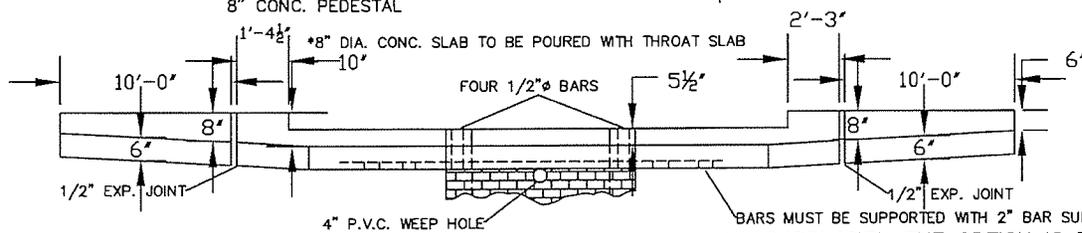
DWG NO.	DESCRIPTION
500	INDEX AND GENERAL NOTES
501	CATCH BASIN ONE FOOT OFFSET, SINGLEWING (FACE OF CURB)
502	CATCH BASIN DOUBLEWING ONE FOOT OFFSET (FACE OF CURB)
503	STANDARD CATCH BASINS WITH ROLLED CURB & GUTTER 10" OFFSET (BOC)
504	SINGLE WING ON LINE CATCH BASIN (BRICK)
505	CATCH BASIN DOUBLEWING ONLINE
506	CATCH BASIN TOPS
507	STANDARD PRECAST ROUND CATCH BASINS
508	LOCATION OF ROUND CATCH BASIN
509	DROP INLETS, BRICK & CATCH BASIN EXTENSION
510	DROP INLETS, CONCRETE, DETAILS FOR PAVED SECTIONS ONLY
511	DROP INLETS DIMENSION
512	DROP INLETS WEIR TYPE
513	DROP INLETS, BRICK & CATCH BASIN EXTENSION
514	PRECAST CONCRETE HEADWALL SYSTEM
515	INLET HEADWALL-OUTLET HEADWALL-INLET HEADWALL WITH TAPERED PIPE
516	ENERGY DISSIPATOR ALTERNATE
517	CONCRETE PIER & FOOTING DETAIL
518	CONCRETE PIER AND FOOTING DETAIL
519	STRUCTURAL PLATE PIPE-ARCH CULVERT
520	STANDARD PIPE CULVERTS
521	PIPE CULVERTS (TABLES)
522	PIPE CULVERTS (TABLES CONT.)
523	PERFORATED UNDERDRAIN
524	PIPE GAUGE AND CLASS (CONCRETE & CORRUGATED STEEL PIPE)
525	EARTHFILL DAM FOR DETENTION PONDS
526	FENCE DETAIL FOR DETENTION PONDS (ATL. TO CHAIN LINK)
527	FENCE DETAIL FOR DETENTION PONDS

GENERAL NOTES

FULTON COUNTY STANDARD DETAIL INDEX AND GENERAL NOTES		DATE	REVISIONS	DATE	REVISIONS	OGS/DRN/CHKD: CMS APPROVED: REW DATE: 12-02-05	 FULTON COUNTY	FULTON COUNTY PUBLIC WORKS 141 PRYOR ST. ATLANTA, GA. 30303 404-730-7400 FAX: 404-730-6325	DRAWING NO. 500



NOTE:
ALL POURED-IN-PLACE CONC. TO BE CLASS "A" 3000 P.S.I.

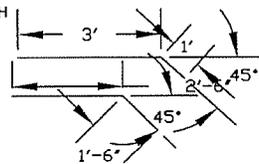


NOTE REQUIRED:
CONCRETE STRENGTH TEST REQUIRED
FOR ALL POURED IN PLACE CONCRETE.

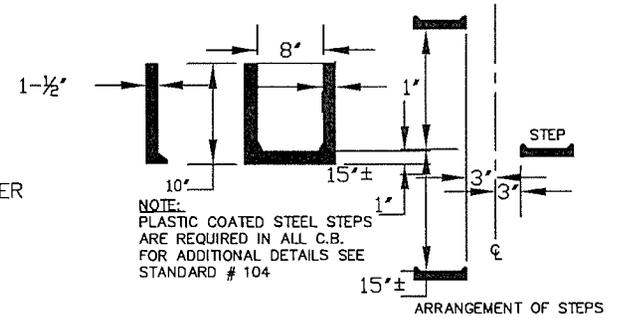
NOTE:
FOR ALL CATCH BASINS, 1/2" EXPANSION JOINT
MATERIAL SHALL BE PLACED AROUND THE CATCH
BASIN WHERE SIDEWALK OR MEDIAN PAVEMENT
IS PLACED ADJACENT TO THE CATCH BASIN

SECTION C-C
(CAST IN PLACE)
N.T.S.

IN ANY SUBDIVISION THE OPTION IS TO USE EITHER
ALL ONLINE CATCH BASINS
OR ALL ONE FOOT OFFSET CATCH BASINS.
ONE FOOT OFFSET REQUIRED IN ALL CUL-DE-SACS.



INSIDE DIAMETER OF PIPE IN INCHES	MINIMUM H
12-18	4'-10"
24	5'-6"
30	6'-2"



FULTON COUNTY STANDARD DETAIL 501
CATCH BASIN
ONE FOOT OFFSET, SINGLEWING
(FACE OF CURB)

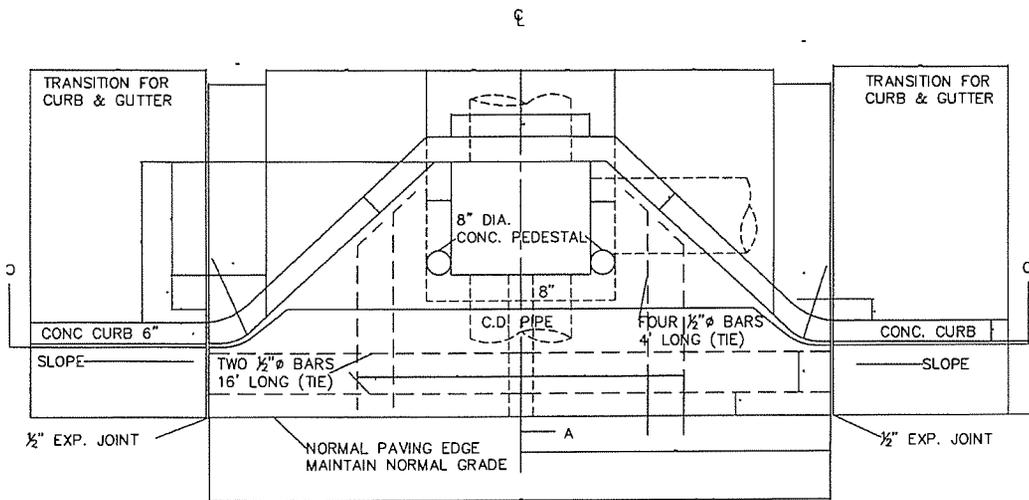
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05

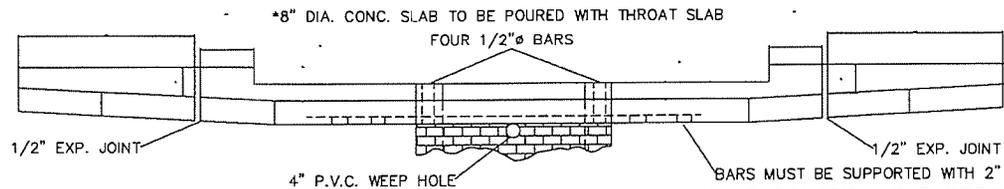


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DRAWING NO.
501



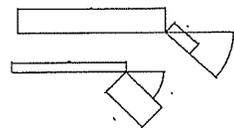
TOP OMITTED FOR CLARITY



SECTION C-C
(CAST IN PLACE)
N.T.S.

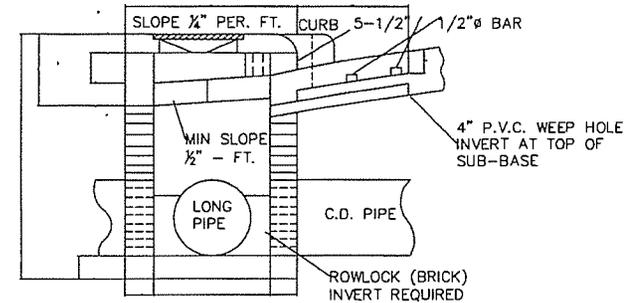
NOTE REQUIRED:
CONCRETE STRENGTH TEST REQUIRED
FOR ALL POURED IN PLACE CONCRETE.

NOTE:
FOR ALL CATCH BASINS, 1/2" EXPANSION JOINT
MATERIAL SHALL BE PLACED AROUND THE CATCH
BASIN WHERE SIDEWALK OR MEDIAN PAVEMENT
IS PLACED ADJACENT TO THE CATCH BASIN



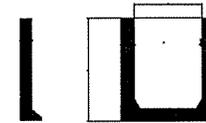
IN ANY SUBDIVISION THE OPTION IS TO USE EITHER
ALL ONLINE CATCH BASINS
OR ALL ONE FOOT OFFSET CATCH BASINS.
ONE FOOT OFFSET REQUIRED IN ALL CUL-DE-SACS.

INSIDE DIAMETER OF PIPE IN INCHES	MINIMUM H
12-18	4'-10"
24	5'-6"
30	6'-2"

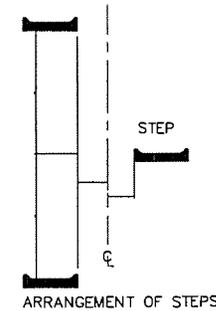


SECTION A-A
N.T.S.

NOTE:
ALL POURED-IN-PLACE CONC. TO BE CLASS "A" 3000 P.S.I.



NOTE:
PLASTIC COATED STEEL STEPS
ARE REQUIRED IN ALL C.B.
FOR ADDITIONAL DETAILS SEE
STANDARD # 104



ARRANGEMENT OF STEPS

FULTON COUNTY STANDARD DETAIL 502
CATCH BASIN DOUBLING
ONE FOOT OFFSET
(FACE OF CURB)

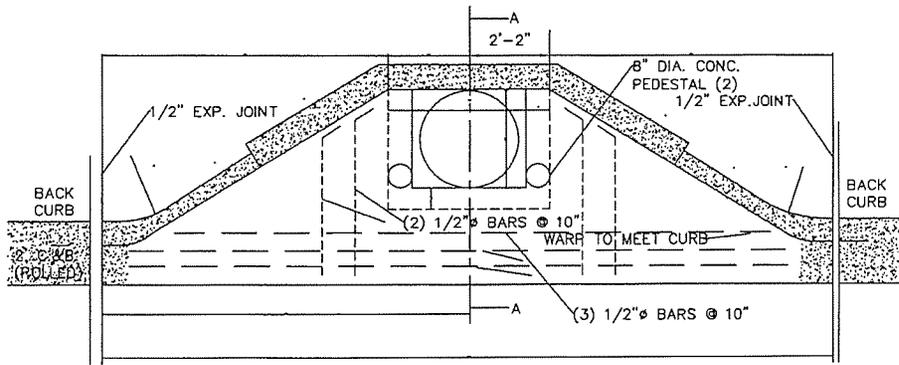
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05

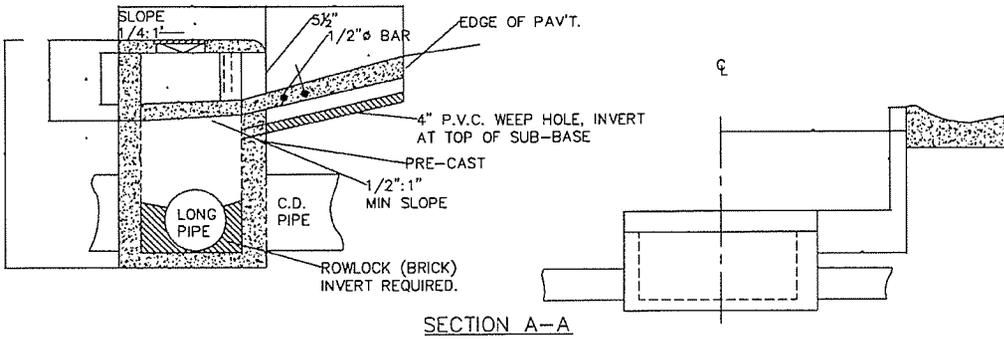
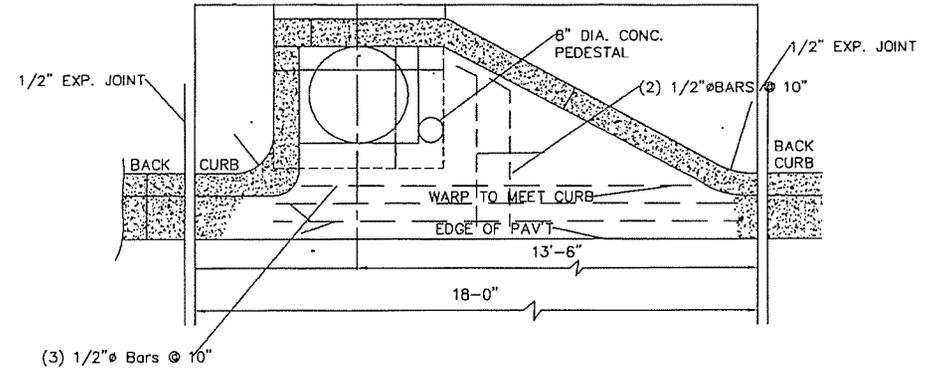


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DRAWING NO.
502



TOP OMITTED FOR CLARITY



SECTION A-A

NOTES:

TOLERANCES -

- 1) OPENING FOR CATCH BASIN - 5 1/2" - 7" MAX.
- 2) TOTAL DIMENSIONS FOR TOPS ± 2" (LENGTH) ± 2" (WIDTH)

ROWLOCK BRICK INVERTS ONLY

COLLAR WALLS - FULL 360° - REQUIRED AT ALL JUNCTURES OF STORM PIPE TO BOXES.

IF THE DESIGN OF CATCH BASIN DOES NOT MEET THE REQUIREMENTS - YOU MAY NOT USE PRE-CAST STRUCTURES AND THE CATCH BASIN MUST BE BUILT OUT OF BRICK.

PIPE SIZE	H
18	4'-10"
24	5'-6"
30	6'-2"

FULTON COUNTY STANDARD DETAIL 503
FOR PRIVATE DEVELOPMENT ONLY
STANDARD CATCH BASINS WITH ROLLED
CURB & GUTTER 10" OFFSET
(BACK OF CURB)

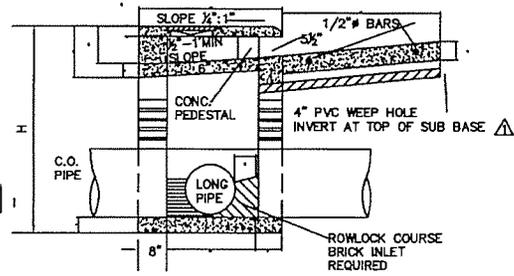
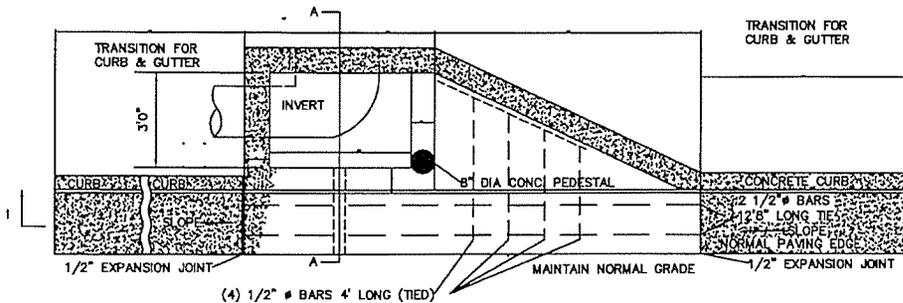
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05

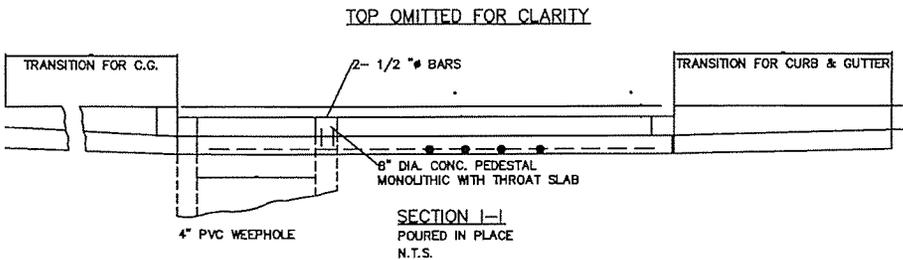


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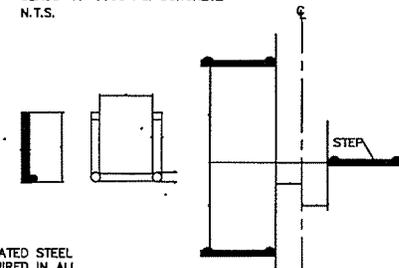
DRAWING NO
503



SECTION A-A
CLASS "A" 3000 PSI CONCRETE
N.T.S.



SECTION I-I
POURED IN PLACE
N.T.S.



NOTE:
PLASTIC COATED STEEL
STEPS REQUIRED IN ALL
CATCH BASINS

FOR ADDITIONAL
DETAILS SEE
STANDARD #104

ARRANGEMENT OF STEPS

NOTE:
FOR ALL CATCH BASINS 1/2" EXPANSION JOINT
MATERIAL SHALL BE PLACED AROUND THE
CATCH BASIN WHERE SIDEWALK OR MEDIAN
PAVEMENT IS PLACED ADJACENT TO THE
CATCH BASIN

△ D.O.T. STANDARD #1033D IS ALLOWABLE ALTERNATIVE

INSIDE DIAMETER OF PIPE IN INCHES	MINIMUM H
18"	4'-10"
24"	5'-6"
30"	6'-2"

FULTON COUNTY STANDARD DETAIL 504
SINGLE WING ON LINE CATCH
BASIN (BRICK)

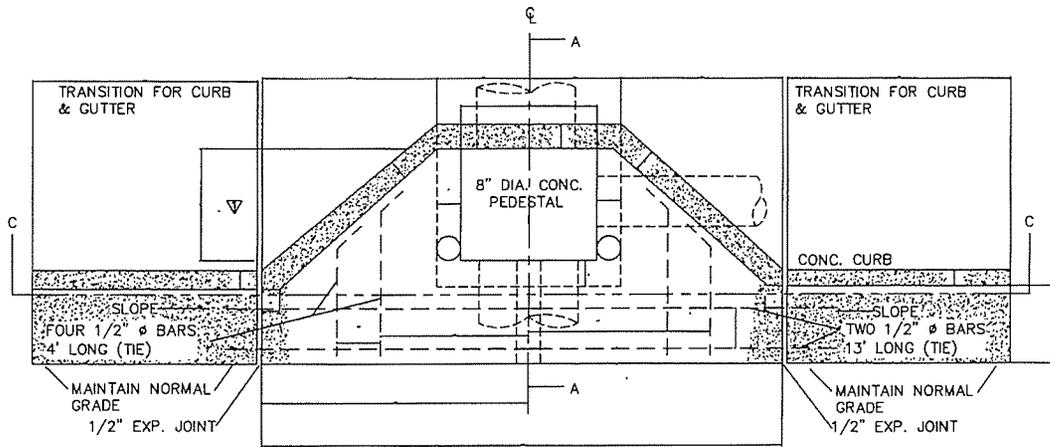
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05

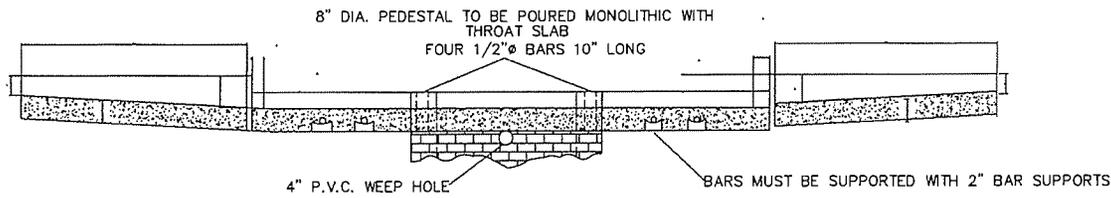


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DRAWING NO.
504

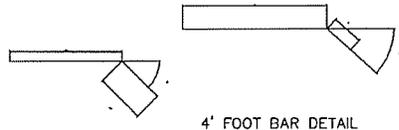


TOP OMITTED FOR CLARITY



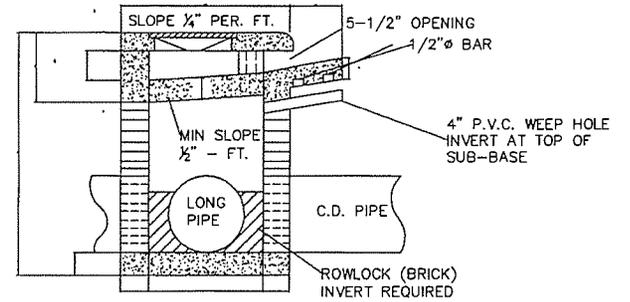
SECTION C-C
(CAST IN PLACE)
N.T.S.

NOTE:
FOR ALL CATCH BASINS, 1/2" EXPANSION JOINT MATERIAL SHALL BE PLACED AROUND THE CATCH BASIN WHERE SIDEWALK OR MEDIAN PAVEMENT IS PLACED ADJACENT TO THE CATCH BASIN



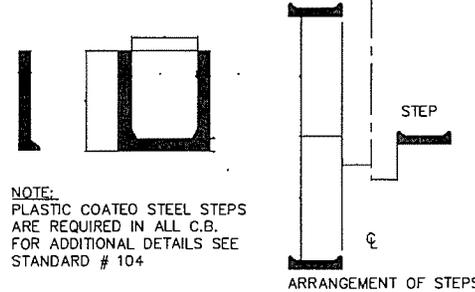
NOTE:
OPENING AT CATCH BASIN SHALL BE BETWEEN 5 1/2" AND 7"

INSIDE DIAMETER OF PIPE IN INCHES	MINIMUM H
18	4'-10"
24	5'-6"
30	6'-2"



SECTION A-A
N.T.S.

NOTE:
ALL POURED-IN-PLACE CONC. TO BE CLASS "A" 3000 P.S.I.



NOTE:
PLASTIC COATED STEEL STEPS ARE REQUIRED IN ALL C.B. FOR ADDITIONAL DETAILS SEE STANDARD # 104

△ G.D.O.T. STANDARD #1034D IS ALLOWABLE ALTERNATIVE

FULTON COUNTY STANDARD DETAIL 505
CATCH BASIN DOUBLEWING
ONLINE

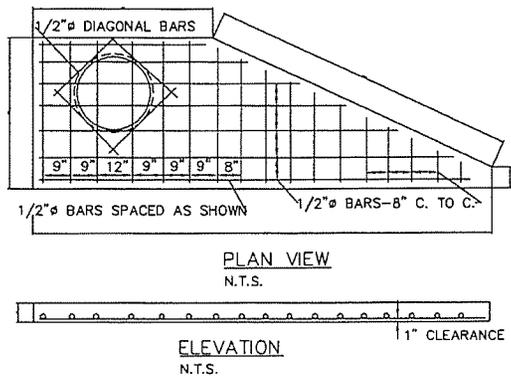
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05

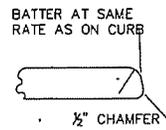


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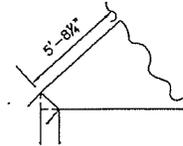
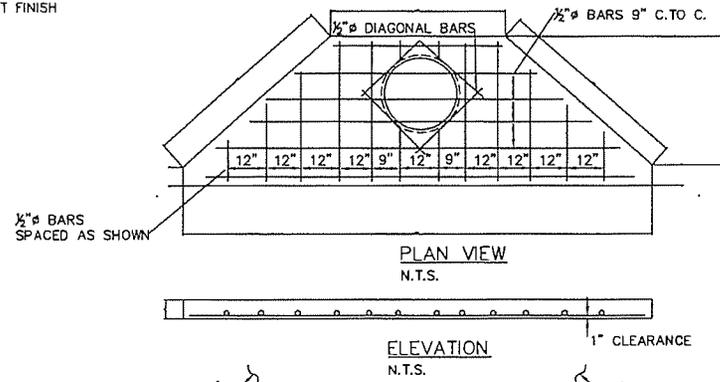
DRAWING NO.
505



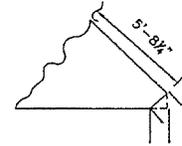
TOP SLAB TO HAVE WOOD FLOAT FINISH



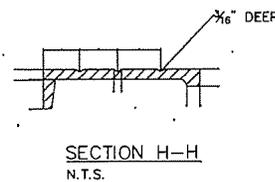
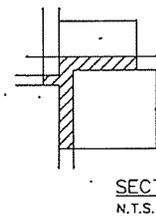
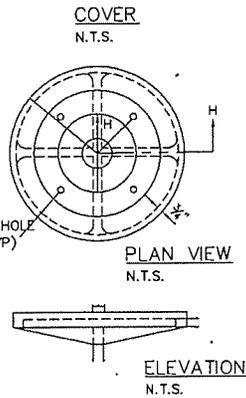
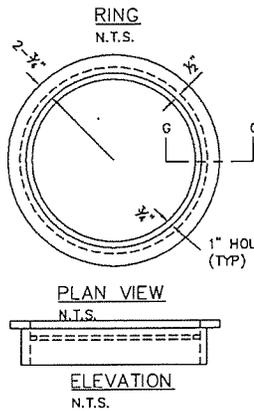
DETAIL OF TOP SLAB
N.T.S.



USE FOR OFFSET CATCH BASIN



USE FOR OFFSET CATCH BASIN



APPROXIMATE WEIGHTS-
CAST IRON RING 78 LBS.
CAST IRON COVER 63 LBS.

⚠ G.D.O.T. STANDARD #1033D IS ALLOWABLE ALTERNATIVE
G.D.O.T. STANDARD #1034D IS ALLOWABLE ALTERNATIVE.

FULTON COUNTY STANDARD DETAIL 506
CATCH BASIN TOPS

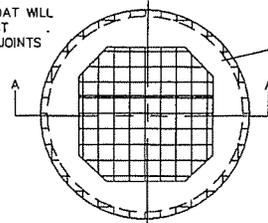
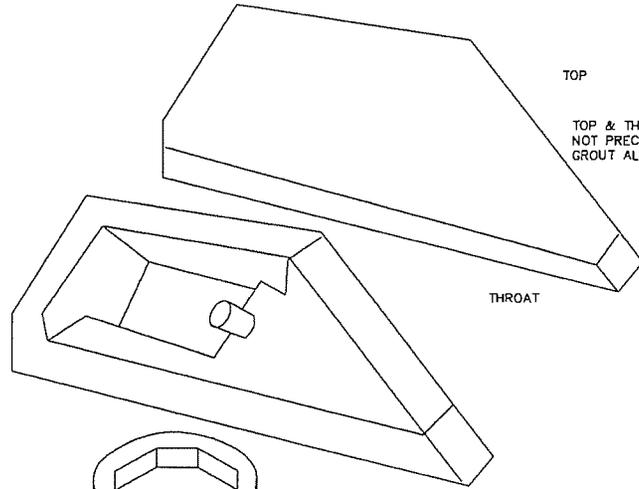
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



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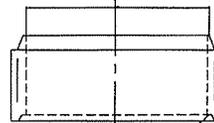
DRAWING NO.
506



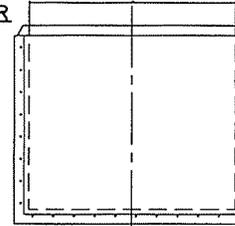
ROUND TO SQUARE ADAPTER
N.T.S.



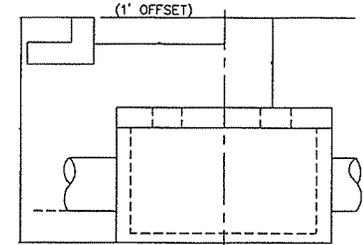
SECTION A-A
N.T.S.



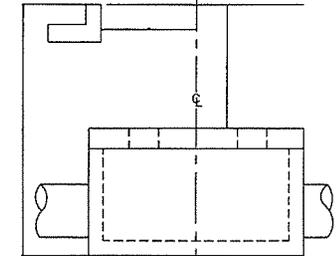
REINFORCING 2/2 6x6 WELDED WIRE FABRIC
 RISER
N.T.S.



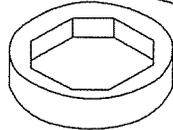
NOTE:
STEPS TO BE INSTALLED ON 15" VERTICAL SPACING. SEE PRECAST MANHOLE STANDARD FOR SPECIFICATIONS.



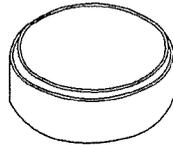
(1' OFFSET)



CENTERLINE OF CATCH BASINS

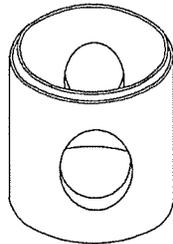


SQUARE TO ROUND ADAPTER



RISER SECTION (if req'd)
AVAILABLE IN HEIGHTS
1'-0", 1'-6", 2'-0", 2'-6",
3'-0", 3'-6", 4'-0"

NOTE:
FOR ROLLED CURB & GUTTER, SEE STD. NO. 600 - B FOR BOX LOCATION.



MONOLITHIC BASE
HOLES MUST BE PRECAST

BASE HEIGHT	METAL PIPE	CONC PIPE	*H (MIN.)
4' DIA - 2'-6"	18"	12"	5" - 0"
3' - 0"	24"	18"	5" - 6"
3' - 6"	30"	24"	6" - 0"
4' - 0"		30"	6" - 6"

*OTHERWISE BOX MUST BE BUILT OUT OF BRICK

NOTE:
ALL CONCRETE SHALL BE 4000 PSI

NOTE:
CATCH BASIN SHALL BE INSTALLED WITH PIPE OPENING AS SPECIFIED.

FULTON COUNTY STANDARD DETAIL 507
STANDARD PRECAST
ROUND CATCH BASIN

DATE	REVISIONS	DATE	REVISIONS

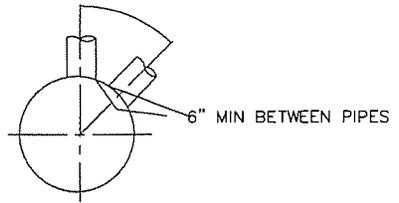
DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
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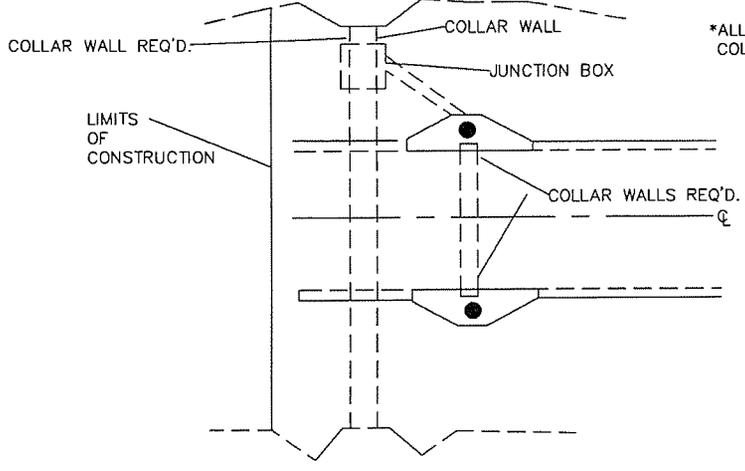
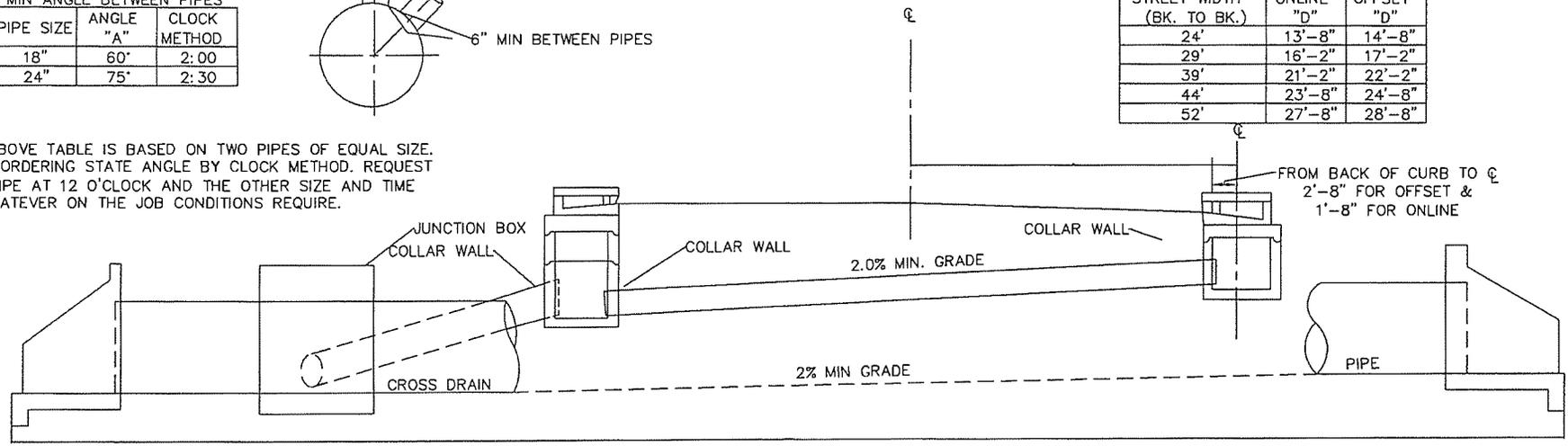
DRAWING NO.
507

MIN ANGLE BETWEEN PIPES		
PIPE SIZE	ANGLE "A"	CLOCK METHOD
18"	60°	2:00
24"	75°	2:30

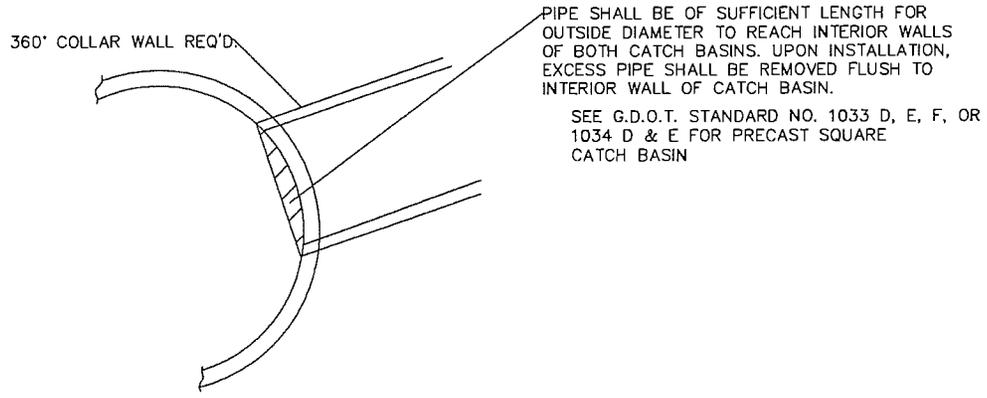


THE ABOVE TABLE IS BASED ON TWO PIPES OF EQUAL SIZE. WHEN ORDERING STATE ANGLE BY CLOCK METHOD. REQUEST ONE PIPE AT 12 O'CLOCK AND THE OTHER SIZE AND TIME AT WHATEVER ON THE JOB CONDITIONS REQUIRE.

CL LOCATION OF CATCH BASIN BOX FROM STREET CL		
STREET WIDTH (BK. TO BK.)	ONLINE "D"	OFFSET "D"
24'	13'-8"	14'-8"
29'	16'-2"	17'-2"
39'	21'-2"	22'-2"
44'	23'-8"	24'-8"
52'	27'-8"	28'-8"



*ALL STORM PIPE WITHIN THE RIGHT OF WAY MUST BE CONCRETE. COLLAR WALLS REQUIRED.



FULTON COUNTY STANDARD DETAIL 508
LOCATION
OF ROUND CATCH BASIN

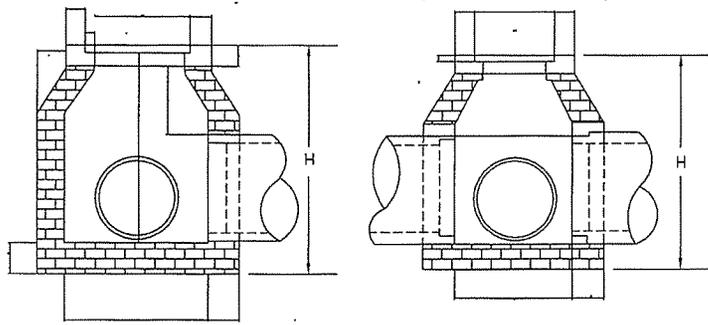
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



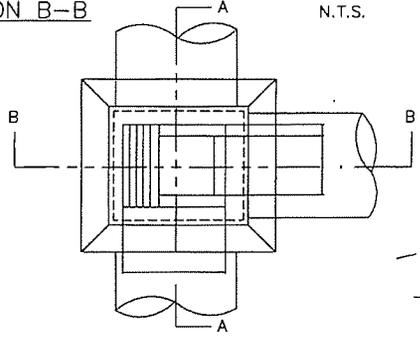
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DRAWING NO.
508



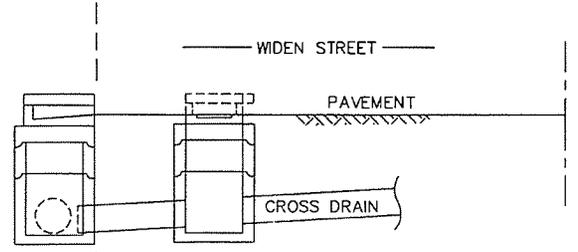
SECTION B-B
N.T.S.

SECTION A-A
N.T.S.

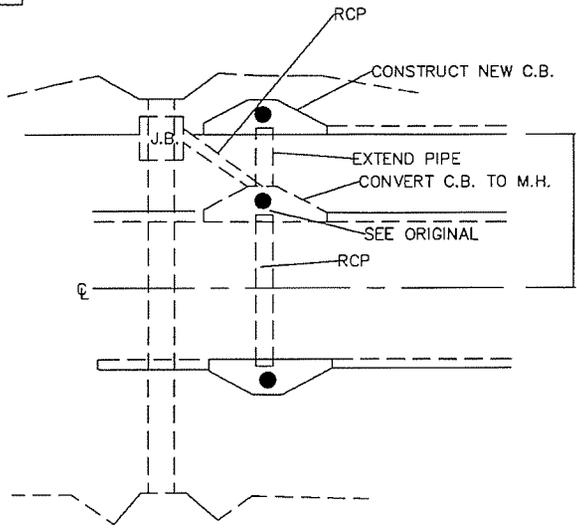


PLAN VIEW
N.T.S.

NOTE:
REMOVE EXIST. TOP & THROAT OF CATCH BASIN
ADD BRICK COURSES FOR GRADE ADJUSTMENT
COMPLETE BY ADDING STANDARD MANHOLE
FRAME & COVER (#460 LBS. AND SET IN 8"
MIN. REINFORCED CONC. SLAB)



STREET WIDENING
CONVERTING CATCH BASIN TO MANHOLE
N.T.S.



ALL PIPES WITHIN R/W SHALL BE RCP.
THIS INCLUDES PIPE PARALLEL TO ROAD.
SEE STANDARD # 511
FOR DIMENSION TABLE

FULTON COUNTY STANDARD DETAIL 509
DROP INLETS, BRICK
&
CATCH BASIN EXTENSION

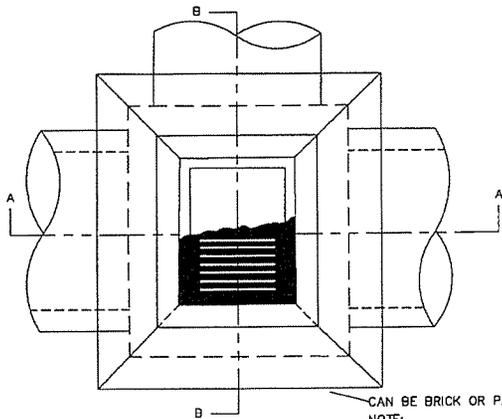
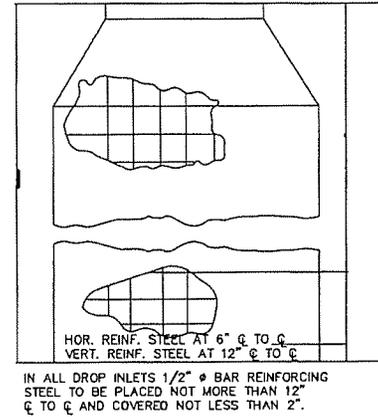
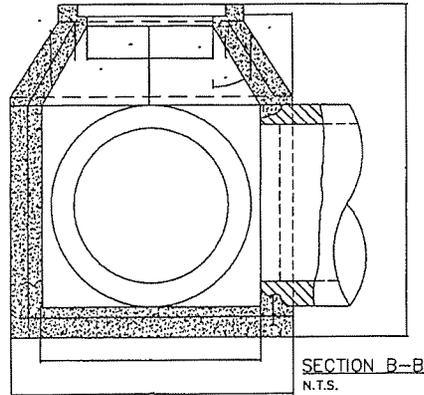
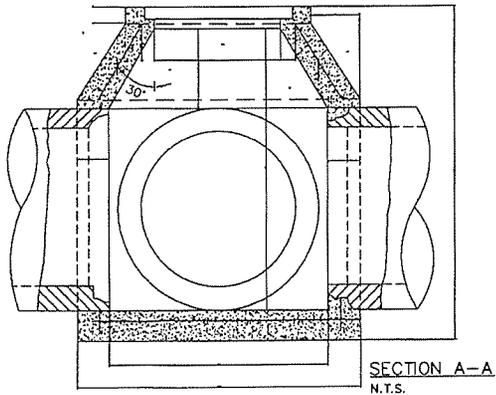
DATE	REVISIONS	DATE	REVISIONS

OGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



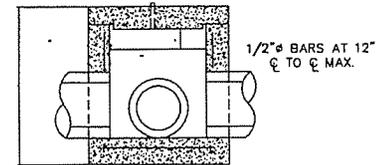
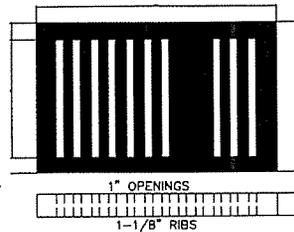
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DRAWING NO.
509



TYPE A

DETAIL OF CAST IRON GRATING
N.T.S. APPROX. WT. 200 LB.



TYPE B

SEE SHEET NO. 511 FOR DIMENSIONS

FULTON COUNTY STANDARD DETAIL 510
DROP INLETS, CONCRETE,
DETAILS FOR PAVED SECTIONS ONLY

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
510

TYPE B

D	W1	MIN.-W2	W3	a	b	MIN-H	NORMAL W OR W1	MIN-h	MIN-h
15"	2'-2"	2'-11"	2'-9"	0'-4 1/2"	0'-8"	3'-9 1/2"	2'-0"	2'-7 1/2"	3'-7 1/2"
18"	2'-2"	3'-2 1/2"	2'-9"	0'-4 1/2"	0'-8"	4'-1"	2'-0"	2'-10"	3'-10"
24"	2'-8"	3'-3"	3'-3"	0'-7 1/2"	1'-1 1/4"	4'-9"	3'-0"	3'-8"	4'-8"
30"	3'-7 1/4"	4'-0"	3'-10"	1'-0"	1'-9"	5'-10"	3'-6 1/2"	4'-2 1/2"	5'-10"
36"	4'-2"	6'-0 1/2"	4'-9"	1'-4 1/2"	2'-2 1/4"	6'-11"	4'-2"	4'-10"	5'-10"
42"	4'-5"	7'-1 3/4"	5'-0"	1'-6"	2'-7 1/4"	8'-0 1/4"	4'-8 1/2"	5'-4 1/2"	6'-11 1/2"
48"	5'-0"	8'-2 3/4"	5'-7"	1'-9 1/2"	3'-1 1/4"	9'-1 1/4"	5'-3 1/2"	5'-11 1/2"	6'-11 1/2"
54"	5'-7"	9'-4"	6'-2"	2'-1'	3'-7 1/2"	10'-2 1/2"	5'-10"	6'-6"	7'-6"
60"	6'-2"	10'-5"	6'-9"	2'-4 1/2"	4'-1 1/2"	11'-3 1/4"	6'-4 1/2"	7'-0 1/2"	3'-0 1/2"
60"	6'-9"	11'-6"	7'-4"	2'-8"	4'-7 1/2"	12'-4 1/2"	6'-11"	7'-7"	8'-7"
72"	7'-4"	12'-7"	7'-11"	2'-11 1/2"	5'-2"	13'-5 1/2"	7'-5 1/2"	8'-1 1/2"	9'-1 1/2"

BRICK D.I.

TYPE B

D	W1	MIN.-W2	W3	a	b	MIN-H	NORMAL W OR W1	MIN -h	MIN-h
15"	2'-0"	2'-6 1/2"	2'-7"	0'-3 1/2"	0'-6"	3'-3"	2'-0"	2'-7 1/2"	3'-9 1/2"
18"	2'-0"	2'-9 1/2"	2'-7"	0'-3 1/2"	0'-6"	3'-6"	2'-3"	2'-10"	4'-0"
24"	2'-8"	4'-1 1/2"	3'-3"	0'-7 1/2"	1'-1"	4'-9"	3'-0"	3'-8"	4'-10"
30"	3'-4"	5'-1 1/2"	3'-11"	0'-11 1/2"	1'-8"	5'-10"	3'-6 1/2"	4'-2 1/2"	5'-4 1/2"
36"	3'-10"	6'-1 1/2"	4'-5"	1'-2 1/2"	2'-1 1/4"	6'-10"	4'-2"	4'-10"	6'-0"
42"	4'-5"	7'-2 1/2"	5'-0"	1'-6"	2'-7 1/2"	7'-11"	4'-8 1/2"	5'-4 1/2"	6'-6 1/2"
48"	5'-0"	8'-3 1/2"	5'-7"	1'-9 1/2"	3'-1 1/4"	9'-0"	5'-3 1/2"	5'-11 1/2"	7'-1 1/2"
54"	5'-7"	9'-4 1/2"	6'-2"	2'-1'	3'-7 1/4"	10'-1"	5'-10"	6'-6"	7'-8"
60"	6'-2"	10'-5 1/2"	6'-9"	2'-4 1/2"	4'-1 1/2"	11'-2"	6'-4 1/2"	7'-0 1/2"	8'-2 1/2"
60"	6'-9"	11'-6 1/2"	7'-4"	2'-8"	4'-7 1/2"	12'-3"	6'-11"	7'-7"	8'-9"
72"	7'-4"	12'-7 1/2"	7'-11"	2'-11 1/2"	5'-1 1/4"	13'-4"	7'-5 1/2"	8'-1 1/2"	9'-3"

CONCRETE D.I.

FULTON COUNTY STANDARD DETAIL 511
DROP INLETS DIMENSION

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



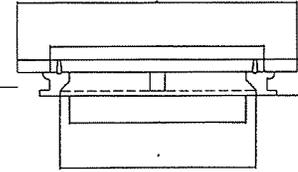
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DRAWING NO.
511

OPENINGS OPTIONAL
ON 1 TO 4 SIDES

#4 BARS
12" O.C.

STANDARD CATCH BASIN CASTING
SEE STANDARD NO. 112 FOR DETAILS



TOP VIEW
N.T.S.

CONCRETE PILLARS
DOWELLED AND POURED
IN PLACE

GUTTER LINE

CONCRETE PILLARS
DOWELLED AND POURED INTO PLACE

GROUND LINE

GROUND LINE

8" BRICK OR 6" REINFORCED CONCRETE

NOTE:
FOR DETAILS ON ROUND TO SQUARE ADAPTER,
SEE FILE NO. 507

6" - 3000 PSI CONCRETE

FRONT VIEW
N.T.S.

ALT. FRONT VIEW
FOR ROUND PRECAST BOX
N.T.S.

NOTE:
BRICK OR MASONRY INVERT REQUIRED (ROWLOCK).

FULTON COUNTY STANDARD DETAIL 512
DROP INLETS
WEIR TYPE

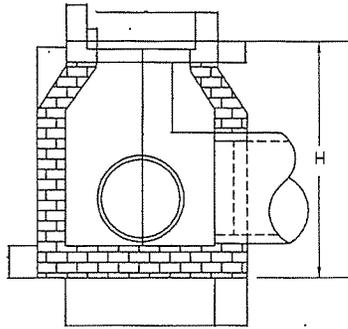
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05

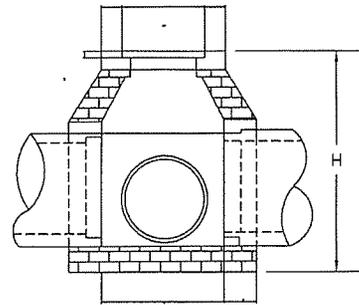


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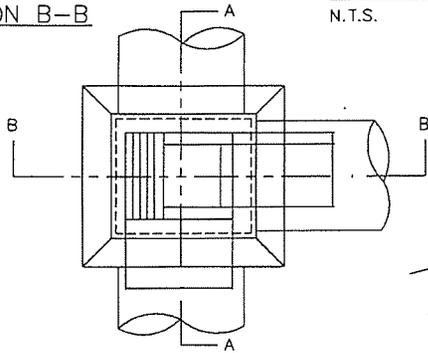
DRAWING NO.
512



SECTION B-B
N.T.S.

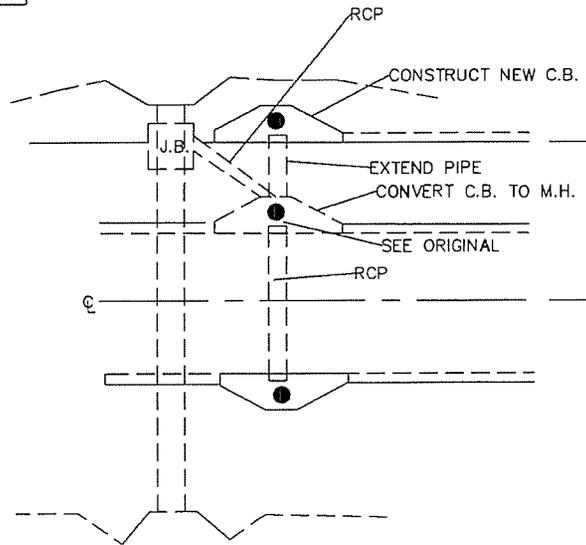


SECTION A-A
N.T.S.

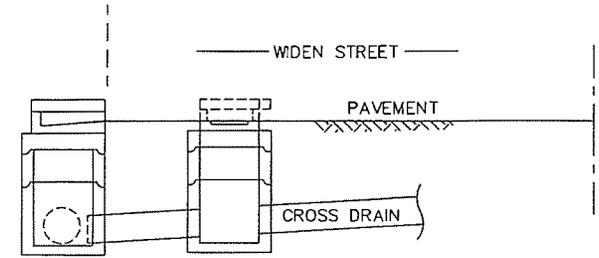


PLAN VIEW
N.T.S.

ALL PIPES WITHIN R/W SHALL BE RCP.
THIS INCLUDES PIPE PARALLEL TO ROAD.
SEE STANDARD NO. 511
FOR DIMENSION TABLE



NOTE:
REMOVE EXIST. TOP & THROAT OF CATCH BASIN
ADD BRICK COURSES FOR GRADE ADJUSTMENT
COMPLETE BY ADDING STANDARD MANHOLE
FRAME & COVER (#460 LBS. AND SET IN 8"
MIN. REINFORCED CONC. SLAB)



STREET WIDENING
CONVERTING CATCH BASIN TO MANHOLE
N.T.S.

FULTON COUNTY STANDARD DETAIL 513
DROP INLETS, BRICK
&
CATCH BASIN EXTENSION

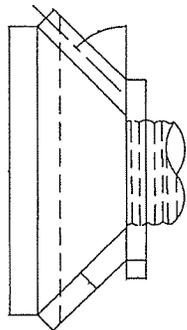
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



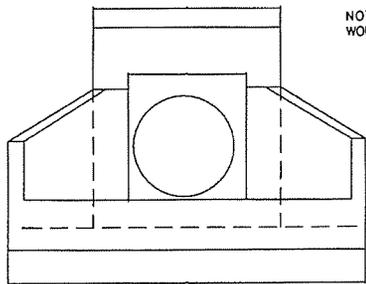
FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30303
404-730-7400 FAX: 404-224-0498

DRAWING NO.
513

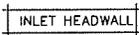


PLAN VIEW
N.T.S.

NOTE: COLLAR WALLS REQ'D. IN R/W

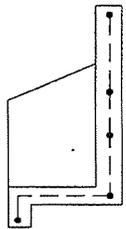


FRONT ELEVATION
N.T.S.

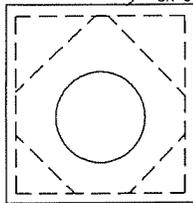


INLET HEADWALL
N.T.S.

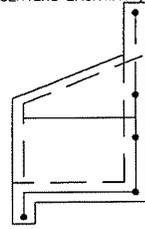
NOTE: HEADWALLS OVER 30" TO HAVE STEEL ON 6" CENTERS EACHWAY (2" CLEARANCE TYP.)



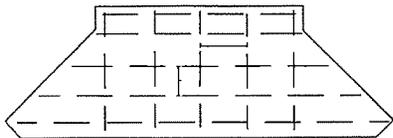
BASE & WALL SECTION
N.T.S.



WALL SECTION
N.T.S.

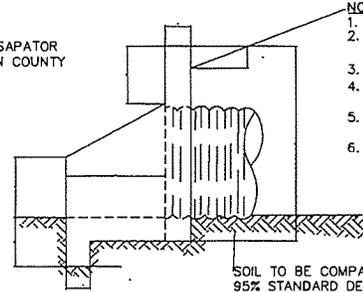


WING SECTION
N.T.S.



BASE SECTION
N.T.S.

NOTE: AN ALTERNATE DESIGN FOR THE ENERGY DISSIPATOR WOULD BE ACCEPTABLE ONCE APPROVED BY FULTON COUNTY

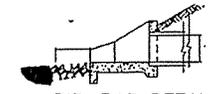


SIDE VIEW
N.T.S.

SOIL TO BE COMPACTED TO 95% STANDARD DENSITY

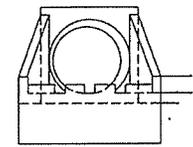
NOTES:

1. ALL CONC. SHALL BE 4000 P.S.I.
2. REINFORCEMENT STEEL SHALL BE $\frac{1}{2}$ " ϕ AT INTERMEDIATE GRADE.
3. CHAMFER ALL EXPOSED EDGES $\frac{3}{4}$ "
4. ENERGY DISSIPATOR REQ. ON PIPES OVER 30" DIA. IF EXIT VELOCITY >6 F.P.S.
5. RIP RAP TO BE PLACED AT OUTLET, LENGTH TO BE 6xD.
6. FOR PIPES LARGER THAN 54" USE FULTON CO. STD.#515 OR G.D.O.T. STD. #1125.



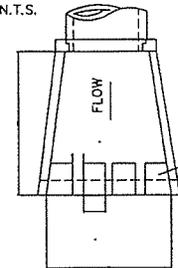
RIP-RAP DETAIL
N.T.S.

FRONT ELEVATION
N.T.S.



OUTLET HEADWALL
N.T.S.

PLAN VIEW
N.T.S.



ENERGY DISSIPATOR

STONE & FILTER MATERIAL: RIP RAP		
VELOCITY	STONE SIZE	FILTER MATERIAL
<6 FT/SEC	10 - 50 LBS.	1.5"
6 TO 8 FT/SEC.	20 - 100 LBS.	3"
8 TO 10 FT/SEC.	25 - 250 LBS.	4.5"

STONE OF DURABLE MATERIAL WEIGHING 150 LBS/FT³

TABLE I									
HEADWALL DIMENSION FOR METAL PIPE*									
INSIDE DIA. OF PIPE	W1	W2	H1	H2	D	E	WT.	SQ. FT. IN BASE AREA	
18"	3' - 2"	4' - 3"	1' - 3"	3' - 2"	1' - 3"	1' - 9"	1,550	7.34	
21", 24"	3" - 8"	5' - 3"	1' - 9"	3' - 8"	1' - 6"	2' - 7"	2,100	9.9	
30"	4' - 2"	6' - 5"	2' - 0"	4' - 2"	1' - 10"	2' - 9"	2,850	13.5	
36"	4' - 8"	7' - 7"	2' - 4"	4' - 8"	2' - 2"	3' - 3"	3,700	17.65	
42", 48"	5' - 8"	10' - 1"	3' - 3"	5' - 8"	2' - 11"	4' - 3"	5,600	28.6	
54"	6' - 8"	11' - 11"		6' - 8"	3' - 4"	5' - 3"	7,500	35.6	

FULTON COUNTY STANDARD DETAIL 514
PRECAST CONCRETE
HEADWALL SYSTEM

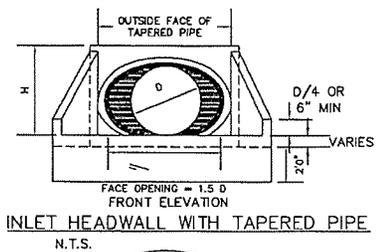
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05

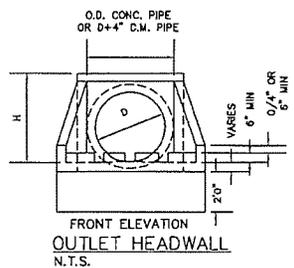


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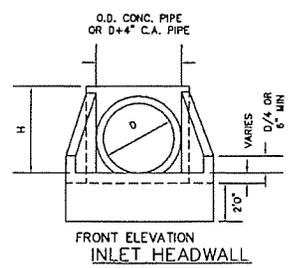
DRAWING NO.
514



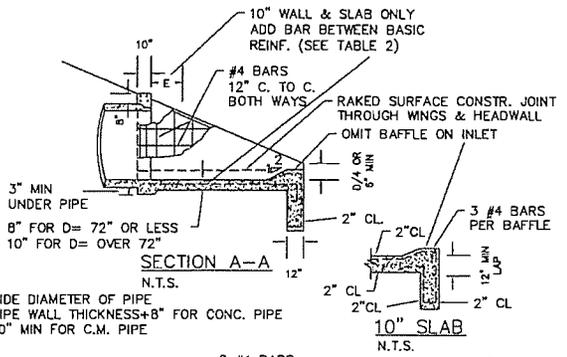
INLET HEADWALL WITH TAPERED PIPE
N.T.S.



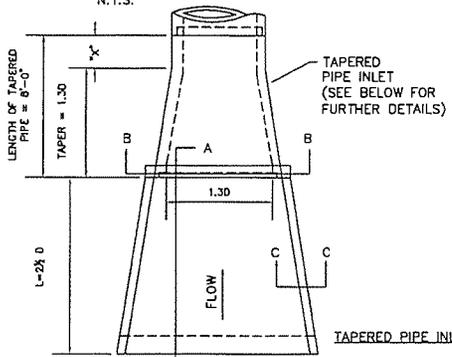
OUTLET HEADWALL
N.T.S.



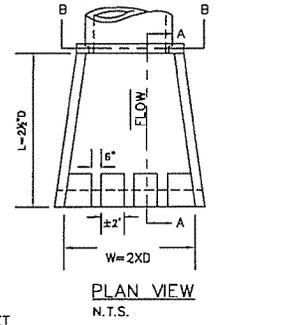
INLET HEADWALL
N.T.S.



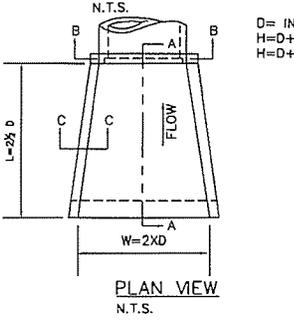
SECTION A-A
N.T.S.



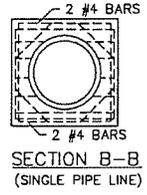
TAPERED PIPE INLET



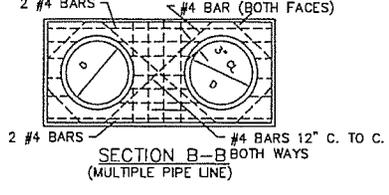
PLAN VIEW
N.T.S.



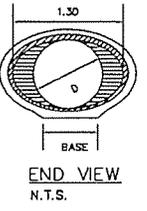
PLAN VIEW
N.T.S.



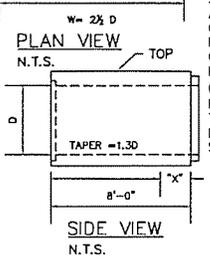
SECTION B-B
(SINGLE PIPE LINE)



SECTION B-B BOTH WAYS
(MULTIPLE PIPE LINE)



END VIEW
N.T.S.



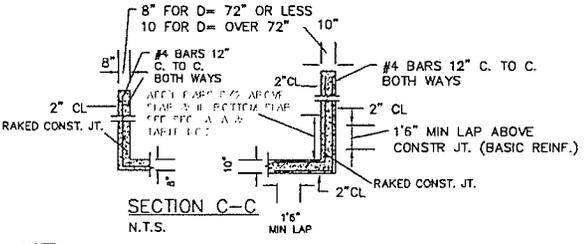
SIDE VIEW
N.T.S.

CONCRETE TAPERED PIPE: STRUCTURAL REQUIREMENTS WILL BE ACCORDING TO ASTM, C307 FOR CLASS HE-1 HORIZONTAL ELLIPTICAL PIPE. CORRUGATED METAL: MATERIAL REQUIREMENTS TO MEET SEC. 844 (STEEL PIPE) OR SEC. 840 (ALUMINUM PIPE). C.M. PIPE WILL CONFORM TO THE SAME INTERNAL LINES AND DIMENSIONS SHOWN. DETAILS ARE SHOWN FOR CONCRETE.

D	ADD'L BAR	E
84"	#4	5'
96"	#4	8'

D	1.5D	"X"	MIN. THICKNESS (INS.)	
			COR. STEEL	COR. ALUM
24"	3.00	3.00	①	—
30"	3.75	4.25	.064	.060
36"	4.50	3.50	.109	.133
42"	5.25	2.75	.109	.133
48"	6.00	2.00	.138	.164
54"	6.75	1.25	.168	.064
60"	7.50	0.50	—	.075

① DENOTES 2 2/3" x 1/2"
② DENOTES 3" x 1" OR 123mm x 23mm CORRUGATION



SECTION C-C
N.T.S.

NOTE:
1. ALTERNATE DESIGN FOR PIPES LARGER THAN 54" USE G.D.O.T STANDARD #1125.
2. RUBBLE MASONRY CONSTRUCTION NOT ALLOWED ON PIPES OVER 54".
3. AN ALTERNATE DESIGN FOR THE ENERGY DISSIPATOR WOULD BE ACCEPTED ONCE APPROVED BY FULTON COUNTY. SEE STANOARD #516

FULTON COUNTY STANDARD DETAIL 515
INLET HEADWALL - OUTLET
HEADWALL - INLET HEADWALL
WITH TAPERED PIPE FOR PIPES 60" - 96" DIA.

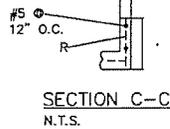
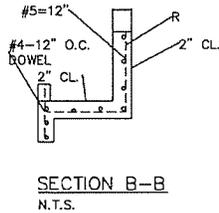
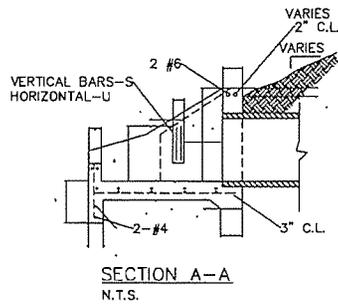
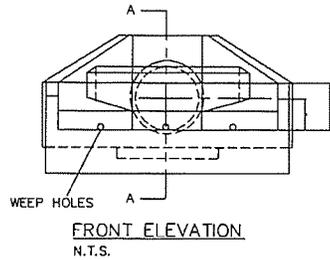
DATE	REVISIONS	DATE	REVISIONS

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DATE: 12-2-05



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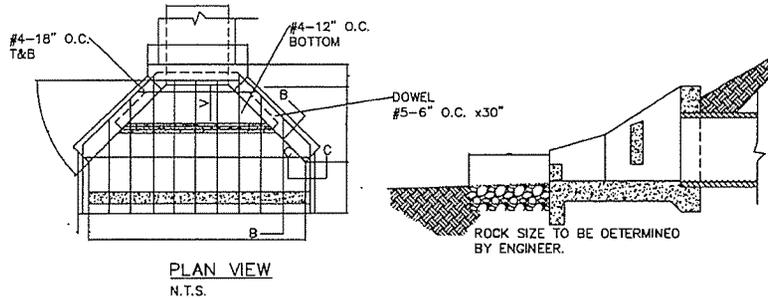
DRAWING NO.
515



D	E	F	G	H	J	K	L	N	V	W	T	R	S	U
18"	3'-0"	7'-6"	3'-0"	3'-0"	2'-0"	8"	8"	8"	2'-0"	1'-0"	6"	# 5 -12" O.C.	# 4-12" O.C.	# 4 -8" O.C.
21"	3'-4"	7'-9"	"	3'-3"	"	"	"	"	2'-0"	1'-6"	"	"	"	"
24"	3'-8"	8'-0"	"	3'-6"	"	"	"	"	2'-0"	2'-0"	"	"	"	"
27"	3'-11"	8'-3"	"	4'-0"	"	"	"	"	2'-0"	2'-0"	"	"	"	"
30"	4'-2"	8'-6"	"	4'-0"	2'-1"	"	"	10"	2'-0"	2'-0"	"	"	"	"
36"	4'-8"	10'-0"	3'-6"	4'-6"	2'-3"	"	10"	"	2'-3"	2'-6"	"	"	"	"
42"	5'-3"	11'-6"	4'-0"	5'-0"	2'-9"	"	"	"	2'-4"	3'-0"	8"	"	"	# 5-8" O.C.
48"	5'-10"	13'-0"	4'-6"	5'-6"	3'-0"	"	"	12"	2'-6"	3'-6"	"	"	# 5 -12" O.C.	"
54"	6'-5"	14'-6"	5'-0"	6'-0"	3'-6"	9"	12"	"	2'-8"	5'-0"	"	# 6-8" O.C.	"	"
60"	7'-0"	16'-0"	5'-6"	6'-6"	4'-3"	"	"	"	2'-11"	"	"	"	"	"
66"	7'-7"	17'-6"	6'-0"	7'-0"	4'-6"	"	"	14"	3'-0"	"	"	"	"	"
72"	8'-2"	19'-0"	6'-6"	7'-0"	5'-8"	"	"	"	3'-2"	5'-6"	"	"	"	"

NOTES:

1. HEADWALL PARALLEL TO CENTER LINE OF HIGHWAY WITHIN RIGHT OF WAY SHALL BE FLARED-END (SEE G.O.D.T. STD #1120).
2. CONCRETE SHALL BE 3,000 PSI 28 DAYS STR.
3. WEEP HOLES SHALL BE 3" DIA. AT F/4 O.C.
4. RANDOM RUBBLE 3" TO 12" IN DIA.



FULTON COUNTY STANDARD DETAIL 516
ENERGY DISSIPATOR
ALTERNATE

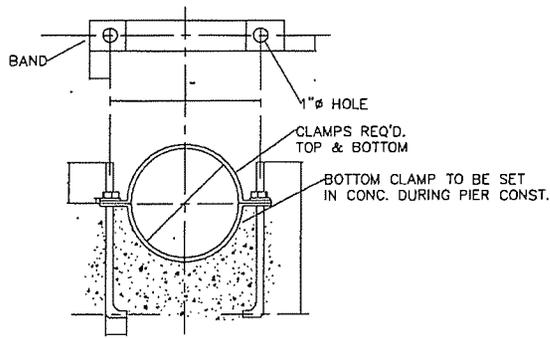
DATE	REVISIONS	DATE	REVISIONS

DCS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05

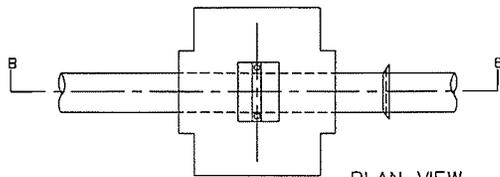
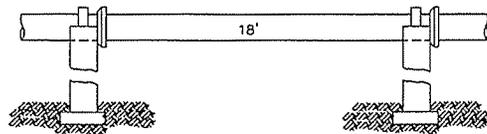


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DRAWING NO.
516

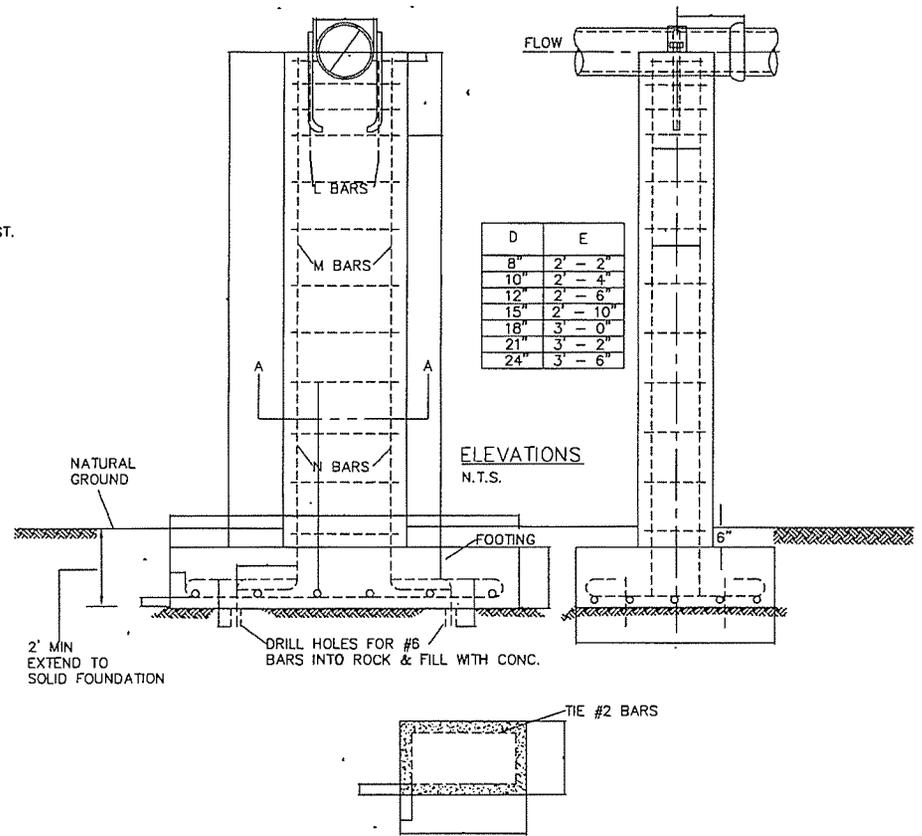


CLAMP DETAIL
N.T.S.



PLAN VIEW
N.T.S.

1. PIER LOCATION DETERMINED BY ENGR.
2. CONCRETE TO BE 3,000 P.S.I.
3. UNDER UNSTABLE CONDITIONS, ENG. PLANS FOR PIER DESIGN MUST BE SUBMITTED TO & APPROVED BY THE PUBLIC WORKS DEPT.
4. PIERS AT EVERY BELL.
5. ENGR. TO SUBMIT DESIGN FOR
6. STEEL REINFORCEMENT TO BE A.S.T.M DESIGNATION A-15 - 54T UNLESS OTHERWISE SPECIFIED, BENDS IN BARS TO CONFORM TO A.C.I. STANDARD.



SECTION A-A
N.T.S.

FULTON COUNTY STANDARD DETAIL 517
CONCRETE PIER
&
FOOTING DETAIL

DATE	REVISIONS	DATE	REVISIONS

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DATE: 12-2-05



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DRAWING NO.
517

STANDARD REINFORCED PIER

FOOTING DIMENSIONS AND REINFORCEMENT								PIER REINFORCEMENT								
PIER	FOOTING			NO. OF #5 BARS EA. DIRECTION				BARS M			BARS N					
	H	A	B	C	8" & 10"D.	12" & 14"D.	16" & 18"D.	20" & 24"D.	NO.	SIZE	LENGTH	NO.	SIZE	LENGTH	X	Y
0'-4'	3'-0"	6'-0"	1'-3"		5	5	5	5	NONE			6	#6	H + 2' -0"	1'-9"	H + 10"
5'	3'-2"	6'-2"	1'-3"		5	5	5	5	NONE			6	#6	H + 2' -0"	1'-9"	H + 10"
6'	3'-4"	6'-4"	1'-3"		5	5	5	5	4	#6	4'-10"	6	#6	5'-4"	1'-9"	4'-2"
7'	3'-6"	6'-6"	1'-3"		5	5	5	6	4	#6	5'-10"	6	#6	5'-4"	1'-9"	4'-2"
8'	3'-8"	6'-8"	1'-3"		5	5	5	6	4	#6	7'-10"	6	#6	5'-4"	1'-9"	4'-2"
9'	3'-10"	6'-10"	1'-3"		5	5	6	7	4	#6	8'-10"	6	#6	5'-4"	1'-9"	4'-2"
10'	4'-0"	7'-0"	1'-3"		5	5	6	7	4	#6	9'-10"	6	#6	5'-4"	1'-9"	4'-2"
11'	4'-2"	7'-2"	1'-3"		5	5	7	8	4	#6	10'-10"	6	#6	5'-4"	1'-9"	4'-2"
12'	4'-4"	7'-4"	1'-3"		5	5	7	8	4	#6	11'-10"	6	#6	5'-4"	1'-9"	4'-2"
13'	4'-6"	7'-6"	1'-6"		5	6	7	8	4	#6	12'-10"	6	#6	5'-7"	1'-9"	4'-5"
14'	4'-8"	7'-8"	1'-6"		6	6	8	9	4	#6	13'-10"	6	#6	5'-7"	1'-9"	4'-5"
15'	4'-10"	7'-10"	1'-6"		6	6	8	9	4	#6	14'-10"	6	#6	5'-7"	1'-9"	4'-5"
16'	5'-0"	8'-0"	1'-6"		6	6	8	9	4	#6	15'-10"	6	#6	5'-7"	1'-9"	4'-5"
17'	5'-2"	8'-2"	1'-6"		6	7	9	10	4	#6	16'-10"	6	#6	5'-7"	1'-9"	4'-5"
18'	5'-4"	8'-4"	1'-6"		7	8	9	10	4	#6	17'-10"	6	#6	5'-7"	1'-9"	4'-5"
19'	5'-6"	8'-6"	1'-6"		7	8	10	11	4	#6	18'-10"	6	#6	5'-7"	1'-9"	4'-5"
20'	5'-8"	8'-8"	1'-6"		7	9	10	12	4	#6	19'-10"	6	#6	5'-7"	1'-9"	4'-5"
21'	5'-10"	8'-10"	1'-6"		8	9	11	12	4	#6	19'-10"	6	#6	6'-0"	1'-9"	4'-9"
22'	6'-0"	9'-0"	1'-6"		9	10	12	13	4	#6	19'-10"	6	#6	7'-0"	1'-9"	5'-9"
23'	6'-2"	9'-2"	1'-6"		9	10	12	13	4	#6	19'-10"	6	#6	8'-0"	1'-9"	6'-9"
24'	6'-4"	9'-4"	1'-6"		10	11	13	15	4	#6	19'-10"	6	#6	9'-0"	1'-9"	7'-9"
25'	6'-6"	9'-6"	1'-6"		10	11	14	16	4	#6	19'-10"	6	#6	11'-0"	1'-9"	9'-3"
26'	6'-8"	9'-8"	1'-6"		11	12	15	16	4	#6	19'-10"	6	#6	12'-0"	1'-9"	10'-3"
27'	6'-10"	9'-10"	1'-6"		12	13	16	17	4	#6	19'-10"	6	#6	13'-0"	1'-9"	11'-3"
28'	7'-0"	10'-0"	1'-6"		12	13	16	18	4	#6	19'-10"	6	#6	14'-0"	1'-9"	12'-3"

BARS L	H	NO.-SIZE-LENGTH		
	0'-4"	NONE		
	4'-28"	2	#6	2'-6"

FULTON COUNTY STANDARD DETAIL 518
CONCRETE PIER
&
FOOTING DETAIL

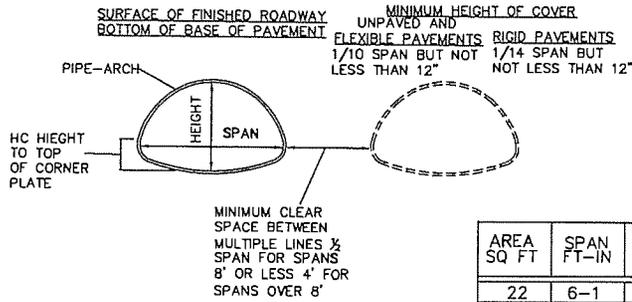
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



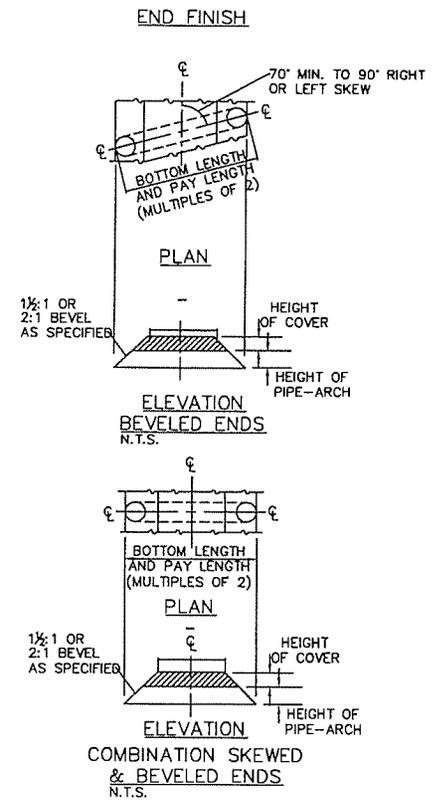
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DRAWING NO.
518



AREA SQ FT	SPAN FT-IN	HEIGHT FT-IN	FT-IN	* DIA INCHES	HEIGHT OF COVER (FEET)														
					MINIMUM THICKNESS US STD GAGE														
					1	2	3	4	5-7	8	9	10	11	12	13	14	15		
22	6-1	4-7	2-4	66"	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
24	6-4	4-9	2-1	69"	12	12	12	12	12	12	12	12	12	12	12	12	12	10	
26	6-9	4-11	2-5	72"	10	12	12	12	12	12	12	12	12	12	12	12	10	10	
28	7-0	5-1	2-4	75"	10	12	12	12	12	12	12	12	12	12	12	12	10	10	
31	7-3	5-3	2-1	78"	10	10	12	12	12	12	12	12	12	12	12	10	10	10	
33	7-6	5-5	2-4	81"	10	10	12	12	12	12	12	12	12	12	10	10	10	10	
35	7-11	5-7	2-2	84"	10	10	10	12	12	12	12	12	12	12	10	10	10	10	
38	8-2	5-9	2-0	87"	10	10	10	12	12	12	12	12	12	12	10	10	10	10	
40	8-7	5-11	2-4	90"	10	10	10	10	10	10	10	10	10	10	10	10	10	8	
43	8-10	6-1	2-2	93"	10	10	10	10	10	10	10	10	10	10	10	10	8	8	
46	9-4	6-3	2-5	96"	8	10	10	10	10	10	10	10	10	10	10	8	8	8	
49	9-6	6-5	2-4	99"	8	10	10	10	10	10	10	10	10	10	10	8	8	8	
52	9-9	6-7	2-2	102"	8	8	10	10	10	10	10	10	10	10	8	8	8	7	
55	10-3	6-9	2-5	105"	8	8	10	10	10	10	10	10	10	10	8	8	8	7	
58	10-8	6-11	2-10	108"	8	8	8	10	10	10	10	10	10	10	8	8	8	7	
61	10-11	7-1	2-7	111"	8	8	8	10	10	10	8	8	8	8	7	7	7	5	
64	11-5	7-3	2-10	114"	7	8	8	8	10	10	8	8	8	8	7	7	7	5	
67	11-7	7-5	2-8	117"	7	8	8	8	10	10	8	8	8	8	7	7	7	5	
71	11-10	7-7	2-6	120"	7	8	8	8	8	8	8	8	8	7	7	5	5	3	
74	12-4	7-9	2-10	125"	7	7	8	8	8	8	8	8	8	7	7	5	5	3	
78	12-6	7-11	2-8	126"	7	7	8	8	8	8	8	8	8	7	7	5	5	3	
81	12-8	8-1	2-6	129"	7	7	8	8	8	8	8	8	8	7	7	5	5	3	
85	12-10	8-4	2-4	132"	5	7	8	8	8	8	8	8	7	7	5	5	3	1	
89	13-5	8-5	2-7	135"	5	5	7	8	8	8	7	7	5	5	5	3	1	1	
93	13-11	8-7	2-11	138"	5	5	7	7	8	7	7	5	5	3	3	1	1	1	
97	14-1	8-9	2-10	141"	5	5	7	7	8	7	7	5	5	3	3	1	1	1	
101	14-3	8-11	2-7	144"	3	5	5	7	7	7	5	5	5	3	3	1	1	1	
105	14-10	9-1	2-11	147"	3	5	5	7	7	7	5	3	3	1	1				
109	15-4	9-3	3-2	150"	3	3	5	7	7	7	5	3	3	1	1				
113	15-6	9-5	3-0	153"	3	3	5	5	7	7	5	3	3	1	1				
118	15-8	9-7	2-10	156"	3	3	5	5	7	7	5	3	3	1	1				
122	15-10	9-10	2-8	159"	1	3	5	5	7	5	3	3	1	1					
126	16-5	9-11	3-0	162"	1	3	3	5	5	5	3	1	1						
131	16-7	10-1	2-10	165"	1	3	3	5	5	5	3	1	1						
26	5-8	6-6	1-3	78"	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
32	5-10	7-8	1-3	87"	12	12	12	12	12	12	12	12	12	12	12	12	12	12	

- NOTES:
 1. SPECIFICATIONS - GEORGIA STANDARD
 2. DESIGN DATA - H-20 LIVE LOAD
 3. GAGES SHOWN ARE MINIMAL STRUCTURAL REQUIREMENTS FOR USE WITH ADEQUATE BACKFILL.
 4. FOR END FINISH, SHAPE OR CONDITION OTHER THAN SHOWN, SEE SPECIAL DESIGN.

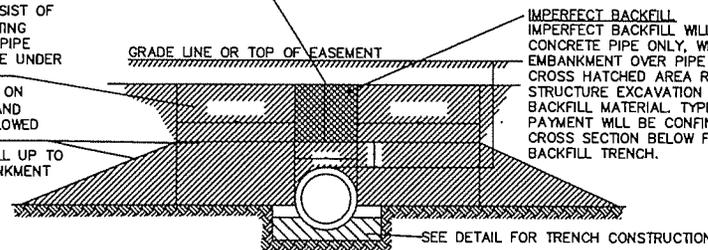


FULTON COUNTY STANDARD DETAIL 519 STRUCTURAL PLATE PIPE-ARCH CULVERT		DATE	REVISIONS	DATE	REVISIONS		DGS/DRN/CHKD: CMS APPROVED: REW DATE: 12-2-05	 FULTON COUNTY	FULTON COUNTY PUBLIC WORKS 141 PRYOR ST. ATLANTA, GA. 30303 404-730-7400 FAX: 404-224-0498	DRAWING NO. 519
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NORMAL BACKFILL

BACKFILL, AS SHOWN BY THE BROKEN LINE SECTIONS, SHALL CONSIST OF PLACING COMPACTABLE SOIL IN 6" (LOOSE) LAYERS AND COMPACTING EACH LAYER TO 100% MAXIMUM DENSITY ON BOTH SIDES OF THE PIPE FOR ITS FULL LENGTH. MEASUREMENT AND PAYMENT WILL BE MADE UNDER ROADWAY EXCAVATION ITEMS FOR FORMATION OF EMBANKMENT. NORMAL EMBANKMENT SHALL BE PLACED A MINIMUM OF 12" WIDE ON EACH SIDE OF THE PIPE AND A MINIMUM OF 12' OVER THE PIPE AND COMPACTED TO THE REQUIRED DENSITY BEFORE EQUIPMENT IS ALLOWED TO CROSS. AFTER BACKFILL HAS BEEN COMPACTED, THE BALANCE OF THE FILL UP TO GRADE LINE SHALL BE CONSTRUCTED IN ACCORDANCE WITH EMBANKMENT SPECIFICATIONS.

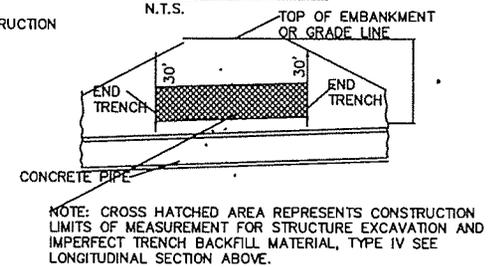
EMBANKMENT TO BE PLACED TO THIS ELEVATION BEFORE TRENCH FOR IMPERFECT BACKFILL IS EXCAVATED.



IMPERFECT BACKFILL

IMPERFECT BACKFILL WILL BE USED WITH CONCRETE PIPE ONLY, WHERE THE HEIGHT OF EMBANKMENT OVER PIPE IS 30 FEET OR MORE. CROSS HATCHED AREA REPRESENTS LIMITS OF STRUCTURE EXCAVATION AND IMPERFECT TRENCH BACKFILL MATERIAL. TYPE III MEASUREMENT AND PAYMENT WILL BE CONFINED TO THESE LIMITS. SEE CROSS SECTION BELOW FOR LENGTH OF IMPERFECT BACKFILL TRENCH.

CROSS SECTION OF IMPERFECT TRENCH BACKFILL

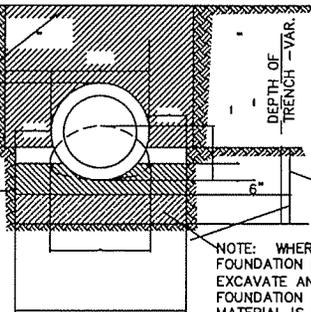


DETAIL OF TRENCH CONSTRUCTION

N.T.S.

GRADE LINE OR TOP OF EASEMENT

BACKFILL TO BE MECHANICALLY COMPACTED TO THE TOP OF THE TRENCH OR TO A HEIGHT OF 12" ABOVE THE TOP OF THE PIPE, WHICHEVER IS GREATER. FOR CONSTRUCTION DETAILS SEE NOTE FOR NORMAL BACKFILL.



FOUNDATION BACKFILL MATERIAL TYPE I AND/OR TYPE II

FOR EXCAVATION FOR PIPE-ARCH CULVERTS SUBSTITUTE OPEN AND RISE FOR OUTSIDE DIAMETER OF PIPE IN HORIZONTAL AND VERTICAL DIMENSIONS SPECIFIED IN DETAIL.

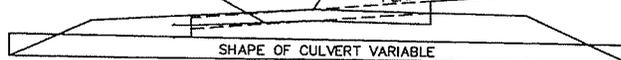
MIN. DEPTH OF TRENCH 6" + 0.30(O.D.)

NOTE: WHERE AN INCOMPRESSIBLE FOUNDATION EXISTS, EXCAVATE AN ADDITIONAL 6". WHERE AN UNSTABLE FOUNDATION MATERIAL IS ENCOUNTERED, EXCAVATE AN ADDITIONAL DEPTH AS DIRECTED BY THE ENGINEER.

DETAIL SHOWING MINIMUM COVER FOR PIPE CULVERTS

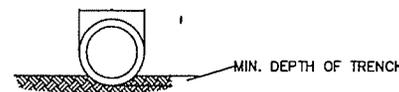
N.T.S.

PAVING OF BASE PROFILE GRADE PLANE OF S.E.



DETAIL OF TRENCH CONSTRUCTION FOR SIDE DRAIN AND MEDIAN DRAIN PIPE

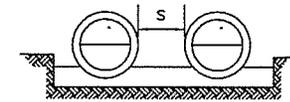
N.T.S.



NOTE: THE PIPE SHALL BE BEDDED TO TIME AND GRADE IN A FIRM FOUNDATION SHAPED TO FIT THE LOWER PART OF THE PIPE EXTERIOR. WHERE ROCK EXISTS, EXCAVATE AND BACKFILL WITH COMPRESSIBLE MATERIAL (UNCLASSIFIED EXCAVATION) A MINIMUM OF 6" BELOW THE PIPE.

SPACING FOR MULTIPLE PIPE CULVERTS

N.T.S.



S=ONE INSIDE DIAMETER OF PIPE OR 3 FEET, WHICHEVER IS SMALLER. FOR PIPE-ARCH CULVERTS SUBSTITUTE SPAN FOR INSIDE DIAMETER.

SPECIAL NOTE:

AASHTO M294 (HDPE) PIPE IS ALLOWABLE IF GDOT SECTION 550 GUIDELINES ARE FOLLOWED, APPROVED ON GDOT OPL 51:

PE PIPE IS ALLOWABLE FOR THE FOLLOWING CONDITIONS:

- A. PE PIPE MAY BE USED AS AN ALTERNATE TO LONGITUDINAL PIPE UNDER ALLOWABLE FILL SHOWN, FOR NON-TRAFFIC BEARING AND LOCAL ROAD BEARING APPLICATIONS.
- B. PIPE MAY BE USED AS AN ALTERNATE TO PERFORATED UNDERDRAIN PIPE.
- C. PE PIPE IS ALLOWABLE IN ALL SIDE DRAIN AND SLOPE DRAIN APPLICATIONS.

SEE THE TABLES ON STANDARDS # 521 AND 522.

FULTON COUNTY STANDARD DETAIL 520
STANDARD
PIPE CULVERTS

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
520

TABLE SHOWING GAUGES OF CORRUGATED STEEL AND THICKNESS IN INCHES OF CORRUGATED ALUMINUM PIPE ARCH FOR VARIOUS HEIGHT OF FILL ABOVE THE TOP OF THE PIPE-ARCH

* DIA. IN INCHES	SPAN IN INCHES	RISE IN INCHES	HEIGHT OF FILL IN FEET					TYPE OF PIPE
			1-2	3-10	11-15	16-20	21-25	
15	18	11	16	16	16	16	16	Steel
			0.06	0.06	0.06	0.06	0.06	Alum
18	22	13	16	16	16	16	16	Steel
			0.06	0.06	0.06	0.06	0.073	Alum
21	25	16	16	16	16	16	16	Steel
			0.06	0.06	0.06	0.06	NP	Alum
24	29	18	14	14	14	14	14	Steel
			0.073	0.075	0.075	0.105	NP	Alum
30	36	22	14	14	14	14	14	Steel
			0.073	0.075	0.075	0.105	NP	Alum
34	43	27	12	12	12	12	12	Steel
			0.105	0.105	0.105	0.135	NP	Alum
42	50	31	12	12	12	10	10	Steel
			0.105	0.105	0.105	NP	NP	Alum
48	56	34	10	12	10	10	10	Steel
			0.135	0.105	0.135	NP	NP	Alum
54	65	40	10	12	10	8	NP	Steel
60	72	44	8	10	8	NP	NP	Steel

* DIAMETER OF PIPE OF EQUAL PERIPHERY.
 FOR SIZES LARGER THAN SHOWN ABOVE, USE STRUCTURAL PLATE
 PIPE-ARCH, GA. STD. 2011A (SEE TABLE NO.2 FOR CIRCULAR PIPE)

HEIGHT OF FILL IN FEET OVER TOP OF PIPE CLASS OF CONCRETE PIPE AND TYPE OF BACKFILL		
HEIGHT OF FILL (H) IN FEET **	CLASS OF PIPE	TYPE OF BACKFILL
1 to 15	III	NORMAL
15 to 20	IV	NORMAL
20 to 30	V	NORMAL
30 to 50	V	IMPERFECT
50 to 70	V	IMPERFECT

FULTON COUNTY STANDARD DETAIL 521
 PIPE CULVERTS (TABLES)

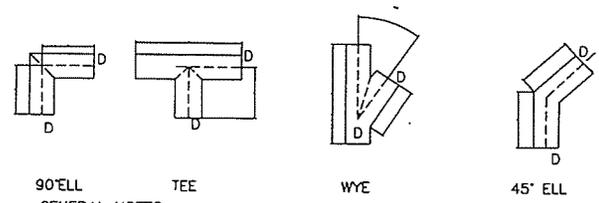
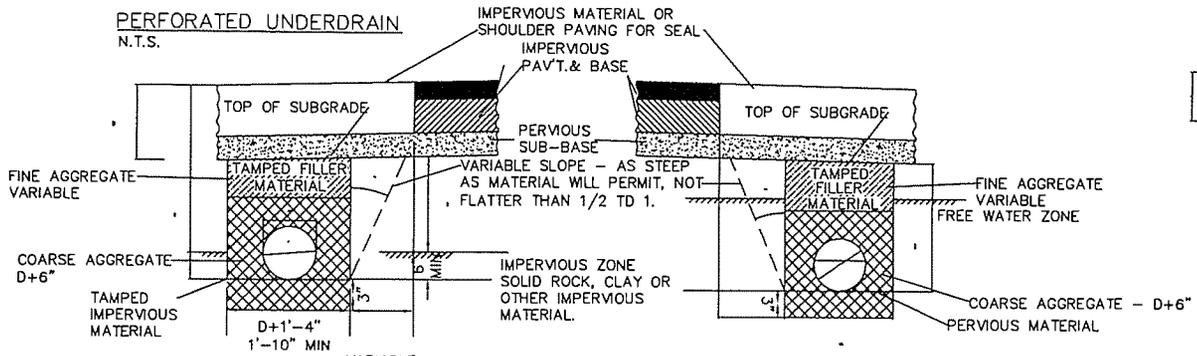
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
 APPROVED: REW
 DATE: 12-2-05



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DRAWING NO.
 521



GENERAL NOTES:
 UNDERDRAINS MAY BE PLACED IN SHOULDER AREAS OR AS TRANSVERSE DRAINAGE UNDER PAVEMENT. SEE TYPICAL SECTION AND PLAN AND PROFILE SHEETS FOR SPECIAL CONDITIONS. TRENCH SHALL BE SHAPED WITH SIDES AS NEARLY VERTICAL AS IS PRACTICAL AND WITH A FLAT BOTTOM. MINIMUM GRADIENTS FOR UNDERDRAIN PIPE SHALL BE 0.15%. THE LOWER ROW OF PERFORATIONS IN THE PIPE SHALL BE PLACED ABOVE THE BOTTOM OF THE TRENCH AS SHOWN. DEAD ENDS OF PIPE SHALL BE CLOSED CAPS OR CONCRETE PLUGS. OUTFALL ENDS OF PIPE SHALL BE EQUIPPED WITH SCREEN. LATERAL CONNECTIONS SHALL BE MADE WITH SUITABLE STANDARD FITTINGS (ELLS, WYES OR TEES AS DETAILED). THE DIMENSIONS (A THRU G) SHOWN ABOVE ON THE LATERAL CONNECTIONS FOR THE VARIOUS KINDS AND SIZES OF PERFORATED UNDERDRAIN SHALL BE IN AGREEMENT WITH THE MANUFACTURERS STANDARD PRACTICE. MARKERS: EACH OUTLET END OF THE DRAINAGE SYSTEM SHALL BE MARKED WITH A 5"x4"x4" PRESERVATIVE TREATED WOOD POST PLACED 3' IN THE GROUND IN A VERTICAL POSITION AT THE EXTREME OUTLET END AND ADJACENT TO THE SIDE OF THE PIPE.

IMPERVIOUS TRENCH BOTTOM (INTERCEPTOR)

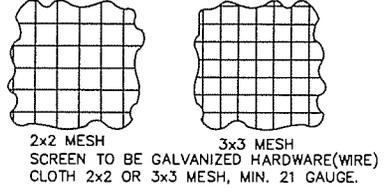
NOTE:
 COARSE AGGREGATE FOR UNDERDRAIN TO BE COMPOSED OF NO. 7 STONE. FINE AGGREGATE FOR UNDERDRAIN TO BE COMPOSED OF NO. 2 SAND.

NOTE:
 PERFORATED UNDERDRAIN PIPE WILL BE INSTALLED COMPLETE PRIOR TO PLACING PERVIOUS SUB-BASE MATERIAL.

NOTE:
 FABRIC MATERIAL REQUIRED WHEN USING PERFORATED UNDERDRAIN.

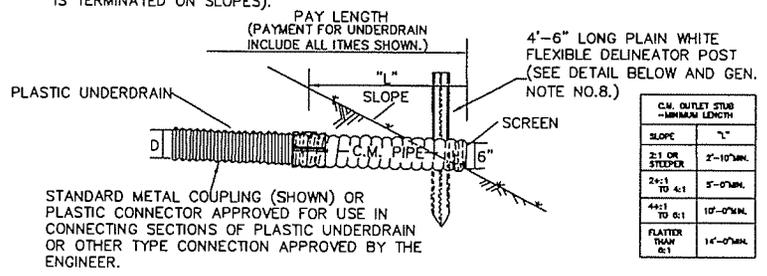
PERVIOUS TRENCH BOTTOM (TO LOWER WATER TABLE)

SCREEN FOR UNDERDRAIN
 N.T.S.



SCREEN TO BE PLACED OVER THE END OF PIPE AS SHOWN AND SECURED FIRMLY IN PLACE BY WRAPPING GALVANIZED WIRE AROUND PIPE AND SCREEN. OTHER METHODS FOR SECURING SCREEN FIRMLY OVER END OF PIPE MAY BE USED IF APPROVED BY THE ENGINEER.

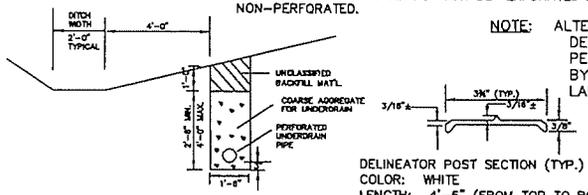
OUTLET DETAIL FOR PLASTIC UNDERDRAIN (REQUIRED AT ALL OUTLETS WHERE PERFORATED PLASTIC UNDERDRAIN IS TERMINATED ON SLOPES).



C.M. OUTLET STUB - MINIMUM LENGTH	
SLOPE	1"
2:1 OR STEEPER	2'-10 7/8"
2 1/2:1 TO 4:1	3'-0 7/8"
4 1/2:1 TO 6:1	10'-0 7/8"
FLATTER THAN 6:1	14'-0 7/8"

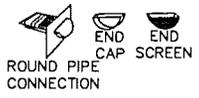
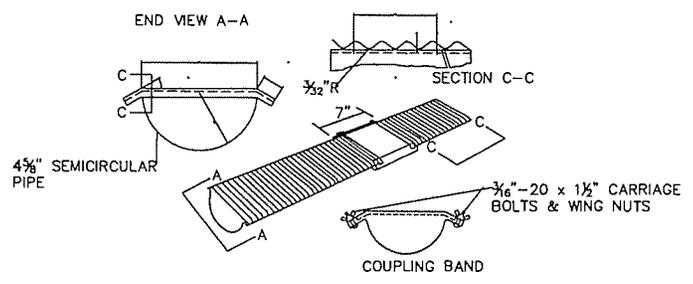
NOTE: "L" = MINIMUM LENGTH OF CORRUGATED METAL PIPE SECTION. THE C.M. OUTLET STUB SECTION MAY BE PERFORATED OR MAY BE NON-PERFORATED.

NOTE: ALTERNATE FLEXIBLE DELINEATORS PERMITTED IF APPROVED BY THE D.O.T. LABORATORY.



DELINATOR POST SECTION (TYP.)
 COLOR: WHITE
 LENGTH: 4'-6" (FROM TOP TO BOTTOM POINT)
 SPECIFICATION: SEC. 911 (EXCEPT REFLECTIVE SHEETING IS NOT REQUIRED.)

SEMICIRCULAR UNDERDRAIN PIPE



FULTON COUNTY STANDARD DETAIL 523
 PERFORATED UNDERDRAIN

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
 APPROVED: REW
 DATE: 12-2-05



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DRAWING NO.
 523

HEIGHT OF FILL IN FEET ABOVE TOP OF PIPE**	PIPE DIAMETER (IN INCHES)																																	
	15		18		24		30		36		42		48		54		60		66		72		78		84		90		96		102		108	
	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S		
1-10	III	16	III	16	III	16	III	16	III	16	III	16	III	16	III	14	III	12	III	12	III	10	III	8	III	8	III		III		III		III	
10-15	III	16	III	16	III	16	III	16	III	16	III	16	III	16	III	14	III	12	III	12	III	10*	III	8	III	8	III		III		III		III	
15-20	IV	16	IV	16	IV	16	IV	16	IV	16	IV	14	IV	12	IV	10*	IV	8*	IV	12*	IV	10*	IV	8*	IV	8*	IV		IV		IV		IV	
20-25	V	16	V	16	V	16	V	14	V	10	V	16*	V	16*	V	14*	V	12*	V	12*	V	10*	V	8*	V		V		V		V		V	
25-30	V	16	V	16	V	16	V	10	V	14*	V	14*	V	14*	V	14*	V	12*	V	10*	V	8*	V		V		V		V		V		V	
30-35	V	16	V	16	V	12	V	8*	V	12*	V	14*	V	14*	V	12*	V	10*	V	10*	V		V		V		V		V		V		V	
35-40	V	16	V	16	V	12	V	12*	V	10*	V	12*	V	12*	V	8*	V	8*	V		V		V		V		V		V		V		V	
40-50	V	16	V	14	V	10	V	8*	V	10	V	8*	V	0*	V	0	V		V		V		V		V		V		V		V		V	
50-60	V	16	V	12	V	ø	V	ø	V	8	V	0	V	0	V	0	V		V		V		V		V		V		V		V		V	
60-70	V	14	V	12	V	ø	V	ø	V	10*	V	0	V	0	V	0	V		STR. PLT.		V		V		V		V		V		V		V	
70-80	V	12	V	10	V	ø	V	ø	V	0	V	0	V	0	V	0	V		STR. PLT.		V		V		V		V		V		V		V	

- * PIPE SHALL BE SHAPE II CIRCULAR CROSS SECTION FACTORY ELONGATED
- ** WHERE H=10', 15', 20' ETC. USE GAUGE THICKNESS IN INCHES OR CLASS OF PIPE SPECIFIED FOR NEXT HIGHEST INCREMENTS OF HEIGHT OF FILL
- NP NOT PERMITTED
- C REINFORCED CONCRETE PIPE
- S CORRUGATED METAL PIPE
- ø USE 60" STRUCTURAL PLATE PIPE

NOTE.

ALL C.M.P. PIPE SHALL BE 1/2 COATED WITH A PAVED INVERT, EXCEPT AS FOLLOWS:
 FULLY COATED PIPE WITH A PAVED INVERT MAY BE USED UNDER THE FOLLOWING CONDITIONS:

- (1) A SMALL PIECE OF ONE OF THE PIPES IN EACH SIZE CATEGORY WILL BE CHOSEN AT RANDOM BY A FULTON COUNTY INSPECTOR.
- (2) THIS PIPE IS TO BE TESTED FOR GAUGE AND COMPOSITION BY AN INDEPENDENT TESTING LABORATORY.
- (3) IF, AFTER TESTING, THE TEST REPORT INDICATES THAT THE PIPE DOES NOT MEET COUNTY SPECIFICATIONS, THE CONTRACTOR MUST IMMEDIATELY REMOVE ALL PIPE ON THE JOB AND TEST EACH PIECE.
- (4) COST OF ALL TESTS ARE TO BE BORN BY THE DEVELOPER.
- (5) CONC. PIPE REQUIRED UNDER ALL ROADWAYS & ON CROSS DRAINS.

GAGE	THICKNESS				
	0.064"	0.079"	0.109"	0.138"	0.168"
	16	14	12	10	8

TABLE THICKNESS TO GAGE RATIO

FULTON COUNTY STANDARD DETAIL 524
 PIPE GAUGE AND CLASS
 (CONCRETE & CORRUGATED STEEL PIPE)

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
 APPROVED: REW
 DATE: 12-2-05

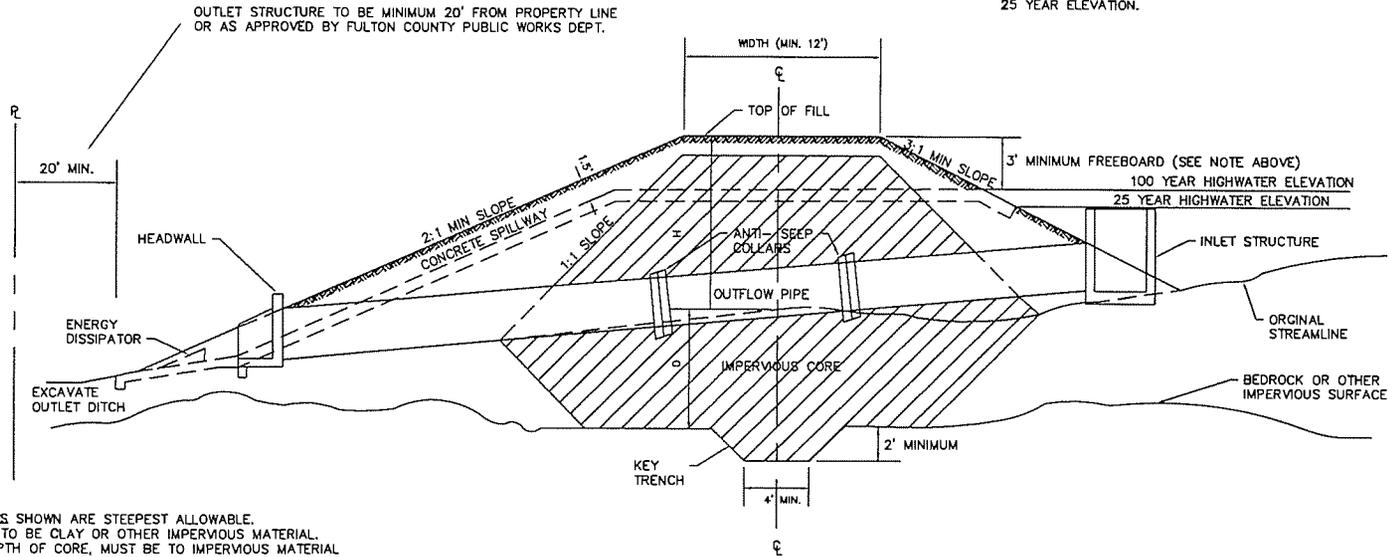


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DRAWING NO.

524

NOTES:
 IT IS PREFERABLE TO HAVE A FREEBOARD OF 2 FEET MINIMUM. FOR SMALL DETENTION FACILITIES, AN ABSOLUTE MINIMUM FREEBOARD OF 1 FOOT SHALL BE PROVIDED. REFERENCE PAGE 172 OF MANUAL ON DRAINAGE DESIGN FOR FULTON COUNTY, JANUARY 1983.
 A SMALL DETENTION FACILITY US 3 FEET OR LESS TO THE 25 YEAR ELEVATION.



NOTES SHOWN ARE STEEPEST ALLOWABLE.
 CORE TO BE CLAY OR OTHER IMPERVIOUS MATERIAL.
 D, DEPTH OF CORE, MUST BE TO IMPERVIOUS MATERIAL OR A MINIMUM DEPTH EQUAL TO H.
 CORE TO BE PLACED IN 6" LAYERS & COMPACTED TO 95% STANDARD PROCTOR.
 WIDTH = (H/5) + 12.

EMERGENCY SPILLWAYS ARE TO BE CUT IN NATURAL GROUND WHERE APPLICABLE.

ANTI SEEP COLLARS REQ'D.

ALTERNATE DESIGNS MAY BE APPROVED OR WILL BE CONSIDERED BY FULTON COUNTY PUBLIC WORKS.

PROVIDE CONCRETE OR ALUMINUM FOR OUTFLOW PIPE AND OUTLET STRUCTURE MATERIAL

FULTON COUNTY STANDARD DETAIL 525
 EARTHFILL DAM
 FOR
 DETENTION PONDS

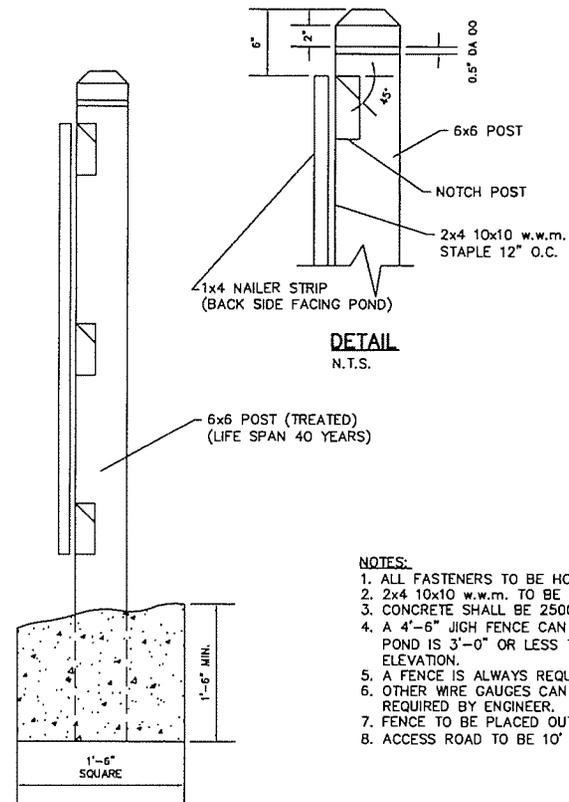
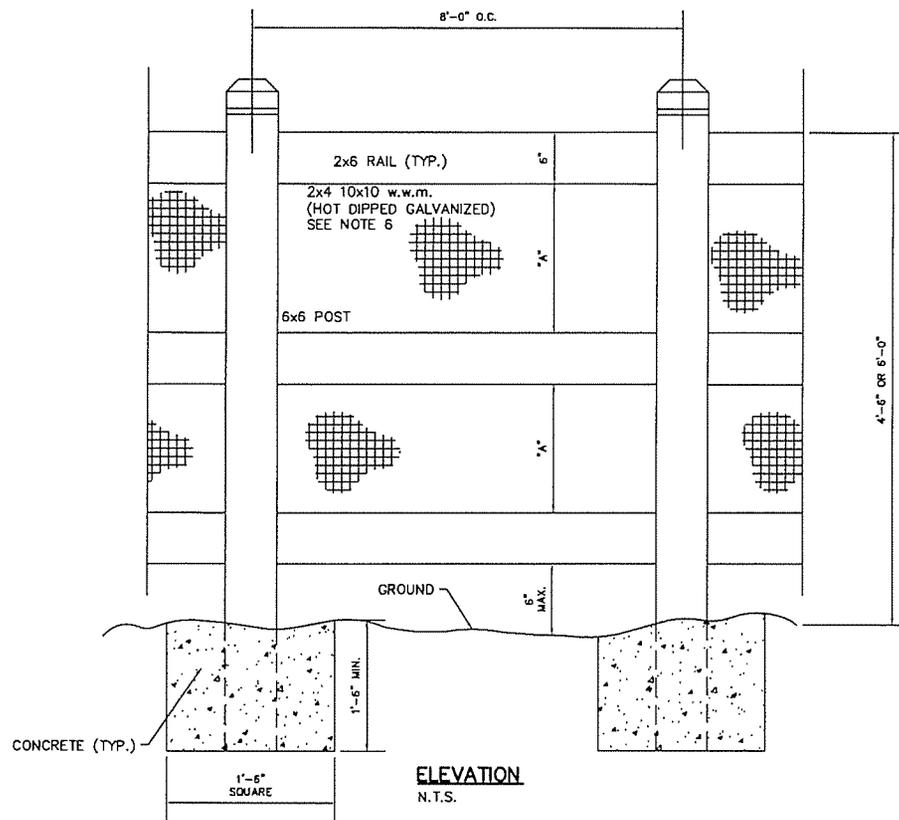
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
 APPROVED: REW
 DATE: 12-2-05



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DRAWING NO.
 525



NOTES:

1. ALL FASTENERS TO BE HOT-DIPPED GALVANIZED.
2. 2x4 10x10 w.w.m. TO BE HOT-DIPPED GALVANIZED.
3. CONCRETE SHALL BE 2500 P.S.I.
4. A 4'-6" JIGH FENCE CAN BE ERECTED WHEN THE POND IS 3'-0" OR LESS TO THE 25 YEAR STORM ELEVATION.
5. A FENCE IS ALWAYS REQUIRED.
6. OTHER WIRE GAUGES CAN BE ACCEPTED AS REQUIRED BY ENGINEER.
7. FENCE TO BE PLACED OUTSIDE OF ACCESS.
8. ACCESS ROAD TO BE 10' INSIDE OF FENCE.

FULTON COUNTY STANDARD DETAIL 526
FENCE DETAIL FOR
DETENTION PONDS
(ATL. TO CHAIN LINK)

DATE	REVISIONS	DATE	REVISIONS

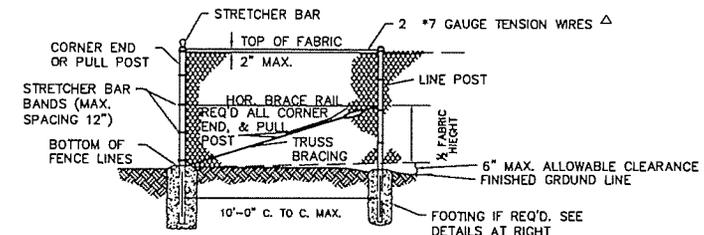
DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



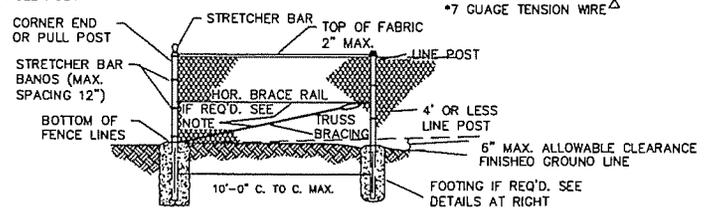
FULTON COUNTY PUBLIC WORKS
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DRAWING NO.

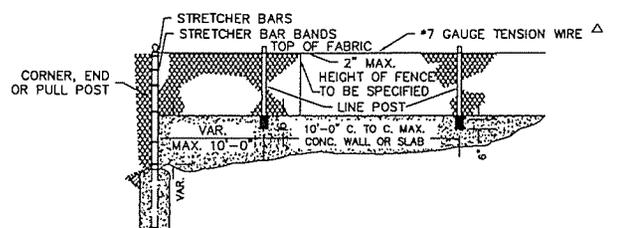
526



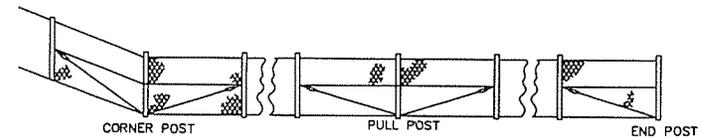
CHAIN LINK WIRE FENCE
(OVER 4' HEIGHT)
N.T.S.



CHAIN LINK WIRE FENCE
(4' OR LESS HEIGHT)
N.T.S.



METHOD OF INSTALLATION OVER CONCRETE WALL OR SLAB AND ALSO WHERE HEIGHT OF FENCE CHANGES.
N.T.S.

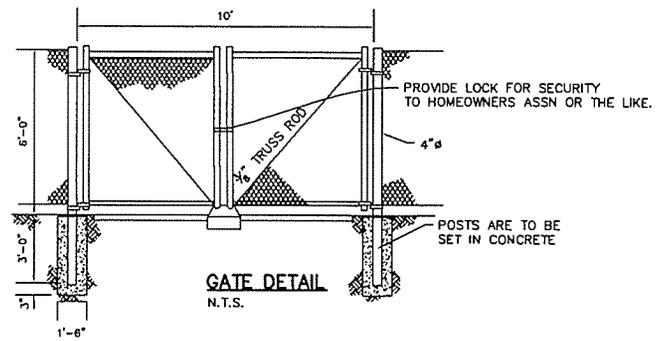
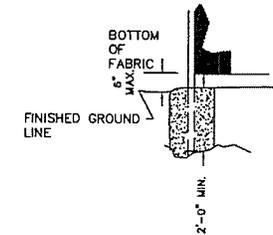


METHOD OF BRACING END, CORNER AND PULL POST
N.T.S.

NOTES:
FABRIC SHALL BE FASTENED TO LINE POST AT INTERVALS NOT GREATER THAN 14".
TENSION WIRES SHALL BE TIED TO FABRIC WITH 9 GA. WIRE OR 11 GA. HOG RINGS AT 24" C. TO C. MAX SPACINGS.
WHERE A PROPERTY OWNERS CHAIN LINK WIRE FENCE HAS TO BE REPLACED BY THE DEPARTMENT AS PART OF THE CONSTRUCTION PROJECT, AND THE EXISTING FENCE HAD A TOP RAIL, THEN THE NEW REPLACEMENT FENCE SHALL ALSO HAVE A SIMILAR TYPE RAIL INSTEAD OF TENSION WIRES AT THE TOP OF THE FENCE.
HORIZONTAL BRACE RAILS AND TRUSS BRACING SHALL BE REQUIRED AT ALL CORNER, END AND PULL POSTS, EXCEPT WHERE A CONTINUOUS TOP RAIL IS SPECIFIED (SEE NOTE ABOVE) WITH A FENCE 4 FT. OR LESS IN HEIGHT.

***ALTERNATE:**
TYPE "C" LINE POSTS OR 2 1/2" DIA TUBE LINE POSTS OR OTHER TYPE LINE POSTS APPROVED BY THE D.O.T. LABORATORY MAY BE DRIVEN TO A MINIMUM DEPTH OF THREE (3) FEET INSTEAD OF CONCRETE FOOTING SHOWN PROVIDING SOIL IS EITHER CLASS I, II, III, OR V SOIL. CONCRETE FOOTING REQUIRED FOR LINE POSTS INSTALLED IN MARSHY OR SWAMPY AREAS (CLASS IV SOILS).

ALL CORNER, END AND PULL POSTS SHALL HAVE CONCRETE FOOTINGS AS SHOWN.



GATE DETAIL
N.T.S.

FULTON COUNTY STANDARD DETAIL 527
FENCE DETAIL FOR
DETENTION PONDS

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30303
404-730-7400 FAX: 404-224-0498

DRAWING NO.
527

INDEX

DWG NO. DESCRIPTION

600	INDEX AND GENERAL NOTES
601	5/8" METER INSTALLATION
602	1" METER INSTALLATION
603	1 1/2" METER INSTALLATION
604	2" METER INSTALLATION
605	LARGE METERS AND VAULT
606	BRASS FITTINGS FOR METER INSTALLATION ON NPRL
607	METER LOCATIONS: 3/4" - 2"
608	VALVE COVER MARKINGS/VALVE BOX
609	LINE/VALVE MARKER LABEL
610	CUSTOMER SIGNS
611	POLYETHYLENE ENCASEMENT INSTALLATION
612	CUL-DE-SAC FLUSH POINT DETAIL
613	IN LINE FLUSH POINT DETAIL
614	NPRL TERMINATION CUL-DE-SAC
615	ROUND CONNECTION DETAIL

GENERAL NOTES

FULTON COUNTY STANDARD DETAIL
INDEX AND GENERAL NOTES

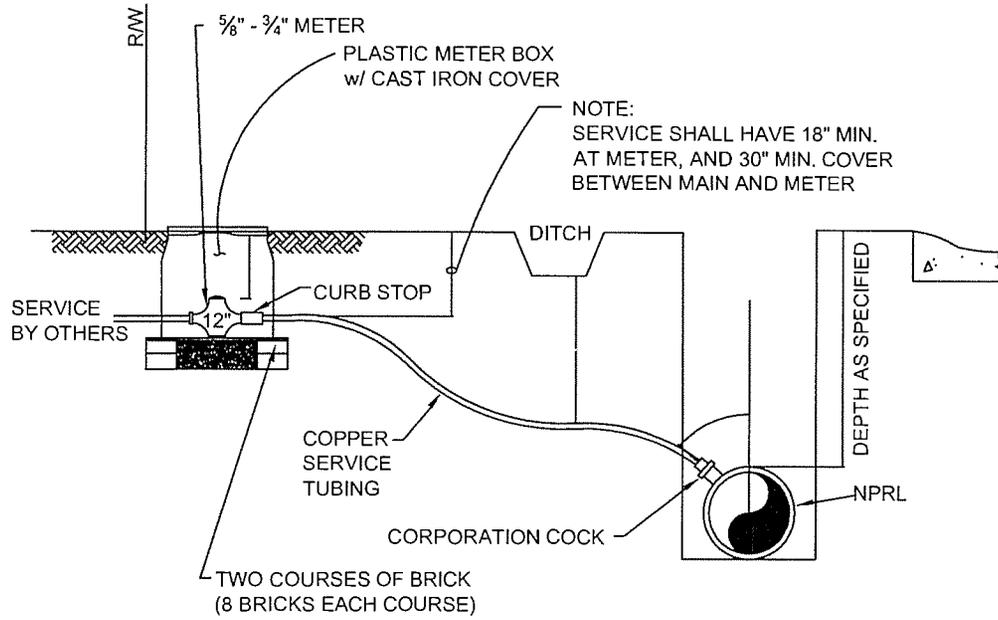
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-02-05



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DRAWING NO.
INDEX
600



NOTES:

1. SERVICE LINE SHALL BE 3/4" DIAMETER FROM MAIN TO METER
2. USE ALL FLARE JOINTS
3. INSTALLATION SHALL ALLOW ADEQUATE ROOM TO REMOVE AND/OR REPAIR METER.
4. METER BOX SHALL BE APPROXIMATELY 12" x 18".

FULTON COUNTY STANDARD DETAIL 601
5/8" METER INSTALLATION

DATE	REVISIONS	DATE	REVISIONS

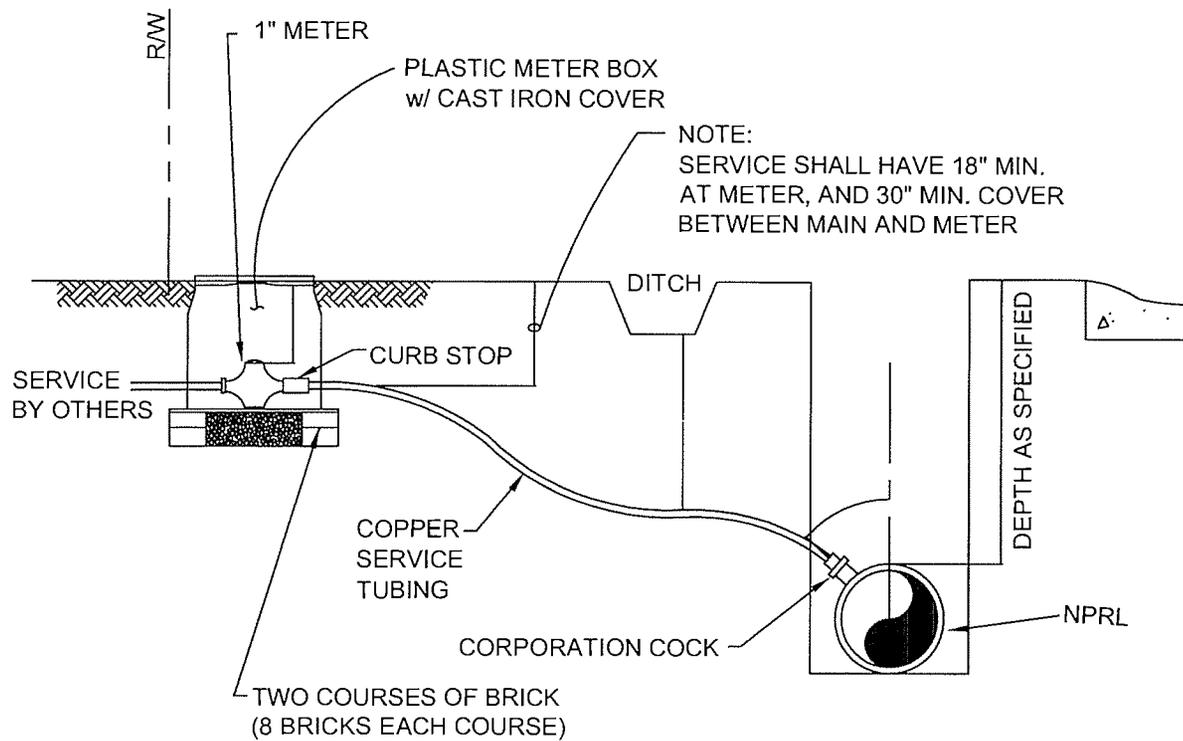
DGS/DRN/CHKD: CMS
 APPROVED: ML
 DATE: 12-2-05



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DRAWING NO.

601



NOTES:

1. SERVICE LINE SHALL BE 1" FROM MAIN TO METER.
2. USE ALL FLARE JOINTS.
3. INSTALLATION SHALL ALLOW ADEQUATE ROOM TO REMOVE AND/OR REPAIR METER.
4. METER BOX SHALL BE APPROXIMATELY 18" x 24".

FULTON COUNTY STANDARD DETAIL 602
1" METER INSTALLATION

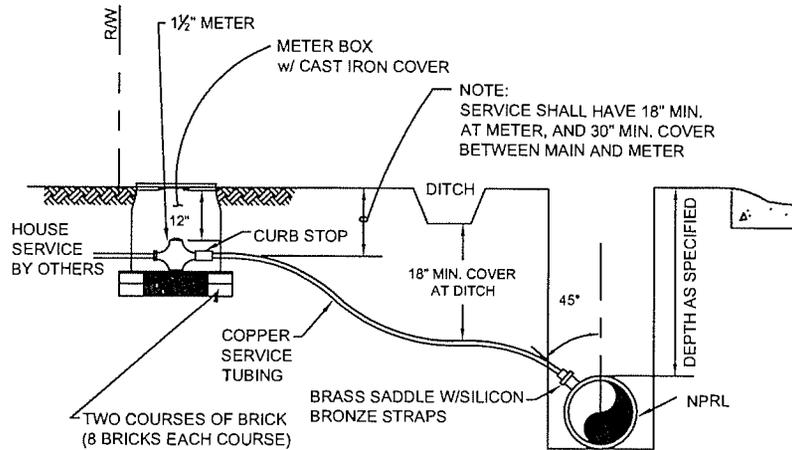
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKO: CMS
APPROVED: ML
DATE: 12-2-05



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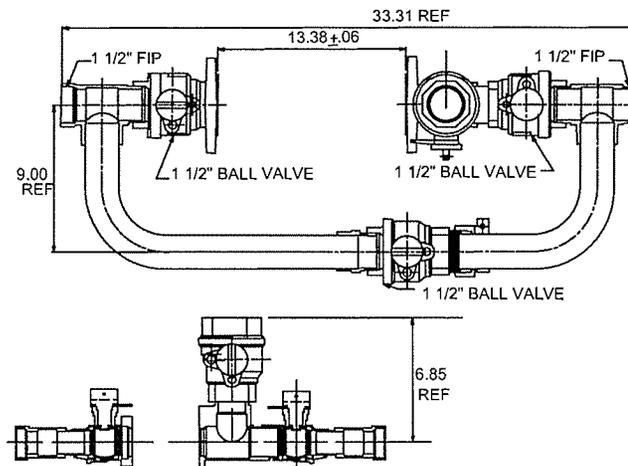
DRAWING NO.
602



NOTE:
SERVICE SHALL HAVE 18" MIN.
AT METER, AND 30" MIN. COVER
BETWEEN MAIN AND METER

NOTES:

1. SERVICE LINE SHALL BE 1 1/2" FROM THE MAIN TO THE METER.
2. USE ALL COMPRESSION GRIP JOINT.
3. INSTALLATION SHALL ALLOW ADEQUATE ROOM TO REMOVE AND/OR REPAIR METER.
4. METER BOX SHALL BE APPROXIMATELY 24" x 36".



FULTON COUNTY STANDARD DETAIL 603
1 1/2" METER INSTALLATION

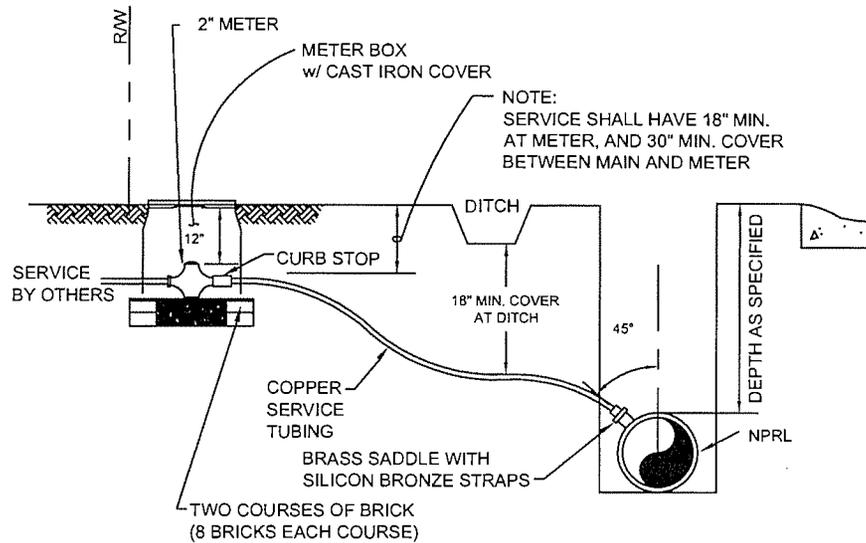
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: ML
DATE: 12-2-05



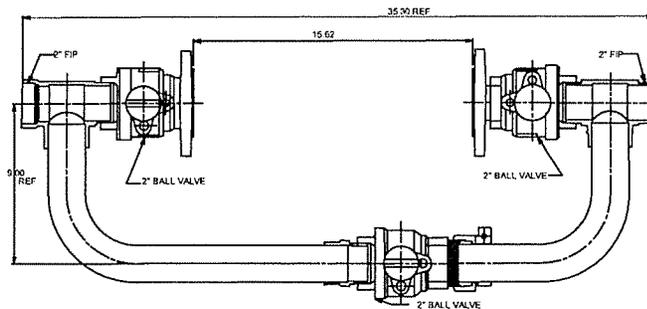
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DRAWING NO.
603



NOTES:

1. SERVICE LINE SHALL BE 2" DIAMETER FROM THE MAIN TO THE METER
2. USE ALL COMPRESSION GRIP JOINTS.
3. INSTALLATION SHALL ALLOW ADEQUATE ROOM TO REMOVE AND/OR REPAIR METER.
4. METER BOX SHALL BE APPROXIMATELY 24" x 36".



FULTON COUNTY STANDARD DETAIL 604
2" METER INSTALLATION

DATE	REVISIONS	DATE	REVISIONS

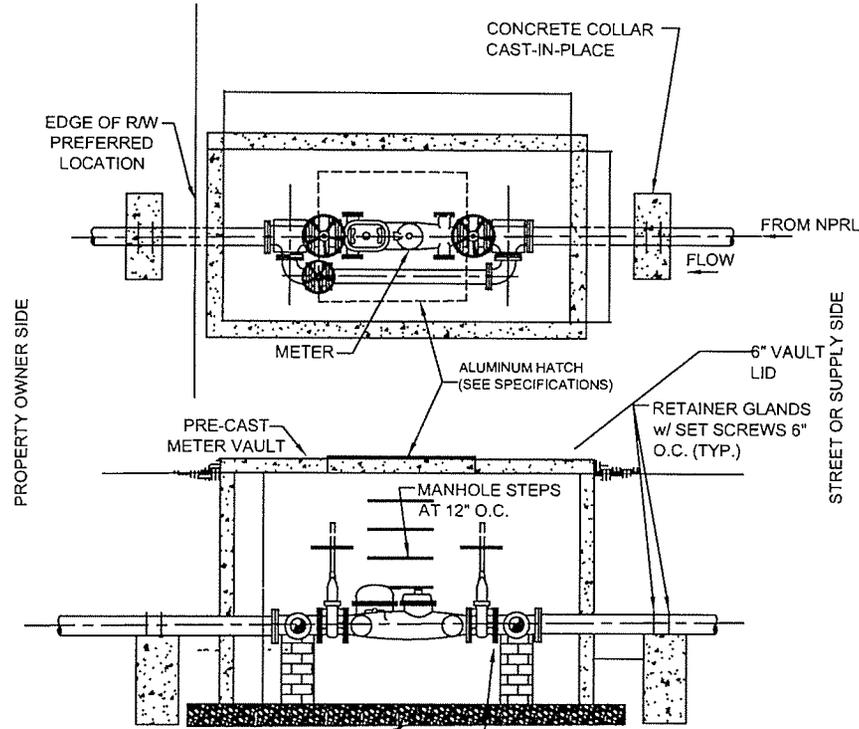
DGS/DRN/CHKD: CMS
 APPRVD: ML
 DATE: 12-2-05



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DRAWING NO.

604



NOTES: 8" GRAVEL (#57 STONE) PROVIDE DUCTILE IRON FLANGED ADAPTER BETWEEN METER ASSEMBLY AND GATE VALVE.

1. BOXES EXCEEDING 5' IN DEPTH MUST BE APPROVED BY FULTON COUNTY.
2. WHEN METER BOX CANNOT BE LOCATED ENTIRELY ON RW, A PERMANENT EASEMENT SHALL BE OBTAINED TO PREVENT FENCES OR OTHER OBSTRUCTIONS FROM BEING ERRECTED AROUND THE METER BOX.
3. COVER OPENING & STEPS TO BE PLACED NEAREST THE METER REGISTER.
4. THE METER MUST BE INSTALLED WITH AT LEAST 8 DIAMETERS OF STRAIGHT PIPE SAME SIZE AS METER ON THE INLET SIDE TO PERMIT ON-SITE MAINTENANCE AND CALIBRATION. A STRAINER MAY BE PROVIDED IN LIEU OF THE STRAIGHT PIPE IN ACCORDANCE WITH THE METER MANUFACTURER'S RECOMMENDATIONS. AN INLET AND OUTLET GATE VALVE WITH BYPASS LINE ARE REQUIRED (SEE ILLUSTRATION).
5. THESE BOXES ARE NOT TO BE INSTALLED IN TRAFFIC AREAS WITHOUT PRIOR PERMISSION FROM FULTON COUNTY.
6. ALL VALVES AND FITTINGS INSIDE THE VAULT SHALL BE FLANGED.
7. ALL FITTINGS OUTSIDE THE VAULT SHALL BE PUSH-ON JOINT WITH AMERICAN 'FAST-GRIP' GASKETS OR APPROVED EQUAL.
8. ALL METERS SHALL COME EQUIPPED WITH A TOUCHREAD OR TOUCHLESS SENSOR COMPATIBLE WITH FULTON COUNTY'S METER READING EQUIPMENT.
9. THIS DETAIL ALSO AUTHORIZED FOR INSTALLATION OF 3" AND LARGER RE-USE METERS.
10. HATCH SHALL BE 4' X 6' DOUBLE LEAF, FLUSH MOUNT, 1/4" DIAMOND PLATE, ALUMINUM DOORS LOCKABLE WITH A 5/8" ROD. HATCH SHALL BE BILCO # PDCM-3 OR PRE-APPROVED EQUAL FOR 6" & 8" METERS. HATCH SHALL BE 3'6" X 3'6" SINGLE LEAF FLUSH MOUNT 1/4" DIAMOND PLATE, ALUMINUM DOOR LOCKABLE WITH 5/8" ROD. HATCH SHALL BE B.LCO#PCM - 5 OR PRE-APPROVED EQUAL FOR 3" & 4" METERS.

METER SIZE	VAULT			HATCH SIZE
	L	W	D	
3"	9'	5'	6'	3'6" X 3'6"
4"	9'	5'	6'	3'6" X 3'6"
6"	12'	6'	6'	4' X 6'
8"	12'	6'	6'	4' X 6'

FULTON COUNTY STANDARD DETAIL 605
LARGE METERS AND VAULT

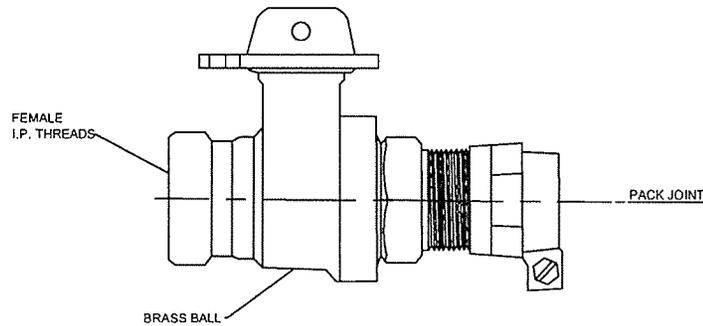
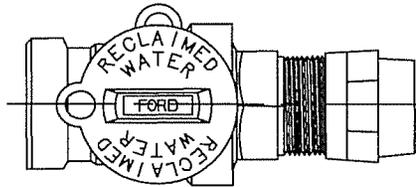
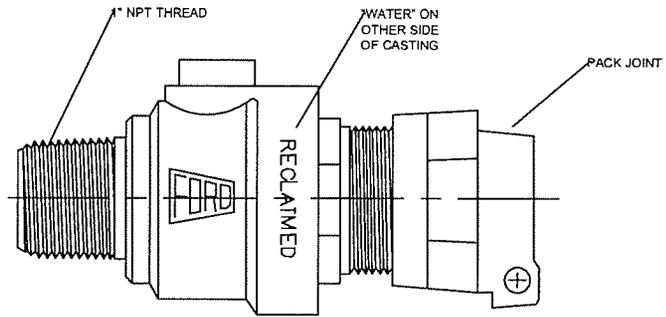
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: ML
DATE: 12-2-05



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DRAWING NO.
605



ALL BRASS
AWWA C800
ASTM B62

FULTON COUNTY STANDARD DETAIL 606
BRASS FITTINGS FOR METER INSTALLATION ON NPRL

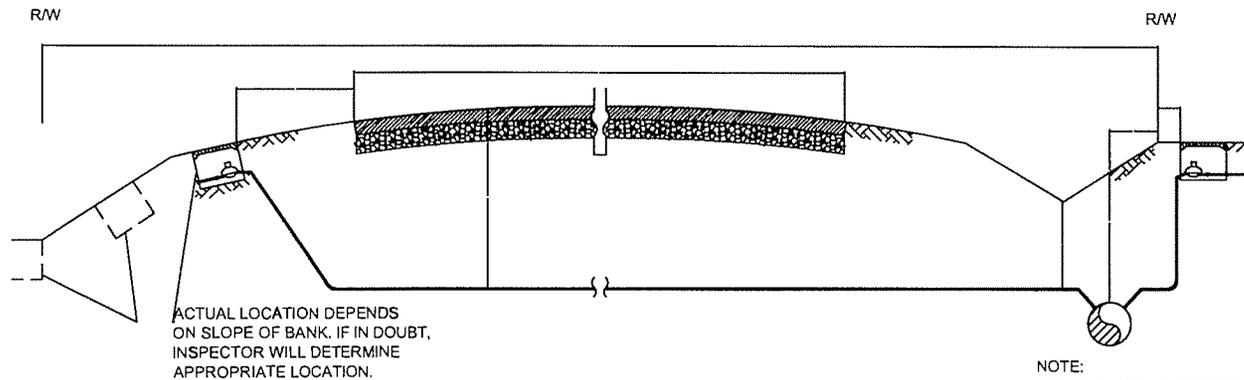
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DGS/DRN/CHKD: CMS
APPROVED: ML
DATE: 12-2-05



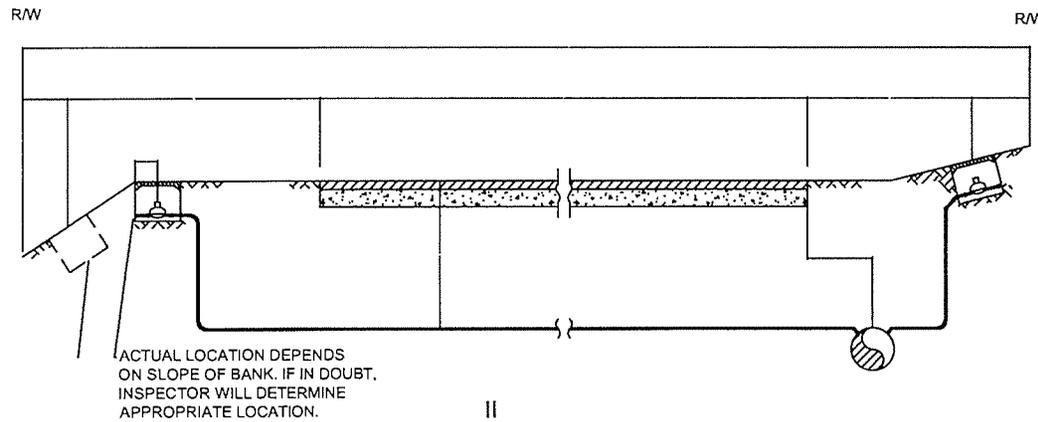
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DRAWING NO.
606



I
CROWNED ROAD
DITCH & EMBANKMENT

NOTE:
ABOVE IS APPROVED STANDARD
METER LOCATION WHERE THE
METER MAY BE LOCATED OUTSIDE
OF THE R/W WITHOUT PRIOR
ENGINEERING APPROVAL.



II
FLAT OR CONCRETE ROAD
SLIGHT DITCH & EMBANKMENT

FULTON COUNTY STANDARD DETAIL 607
METER LOCATIONS: 3/4"-2"

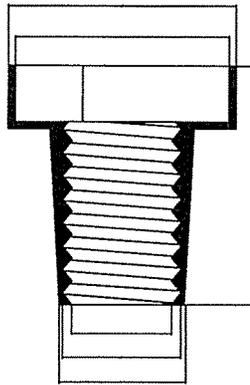
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: ML
DATE: 12-2-05

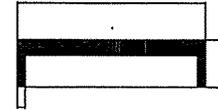


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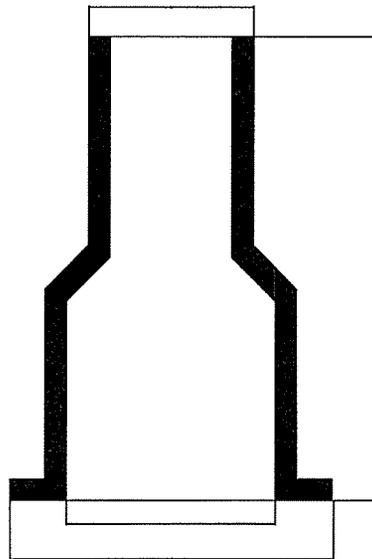
DRAWING NO.
607



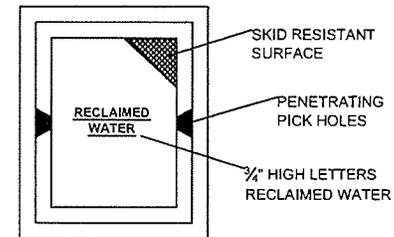
TOP SECTION



COVER



BOTTOM SECTION



SKID RESISTANT SURFACE

PENETRATING PICK HOLES

3/4" HIGH LETTERS RECLAIMED WATER

FULTON COUNTY STANDARD DETAIL 608
VALVE COVER MARKINGS/VALVE BOX

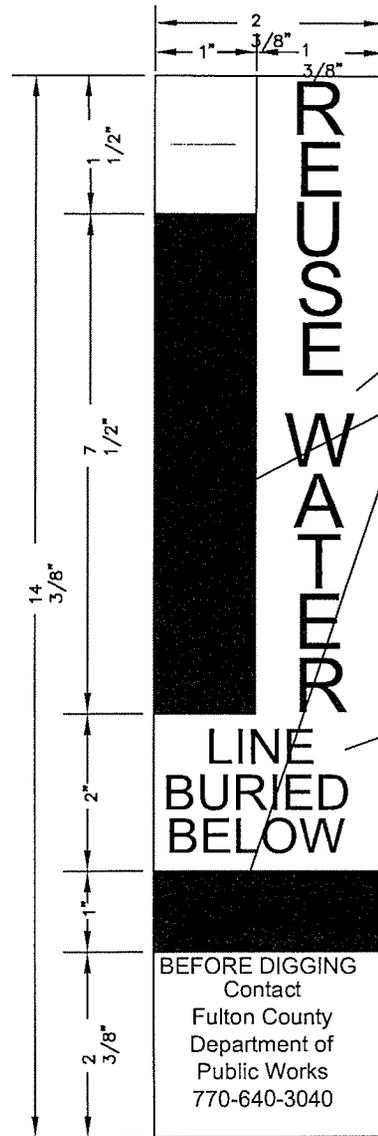
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: ML
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
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DRAWING NO.
608



NOTES

1. LABELS TO BE PROVIDED BY FULTON COUNTY INSPECTOR AND PROJECT MANAGER
2. LABELS TO BE PLACED ON BOTH SIDES OF WHITE DRIVABLE MARKERS - CARSONITE #CIB-380
3. MARKERS TO BE INSTALLED WITH EACH VALVE OR AS DIRECTED BY FULTON COUNTY
4. LINE MARKERS TO BE INSTALLED AS DIRECTED BY FULTON COUNTY

BLACK LETTERING ON PURPLE BACKGROUND (Color to be approved by Fulton County)

Substitute "VALVE" for valve marker labels

BLACK LETTERING ON WHITE BACKGROUND

FULTON COUNTY STANDARD DETAIL 609
LINE/VALVE MARKER LABEL

DATE	REVISIONS	DATE	REVISIONS

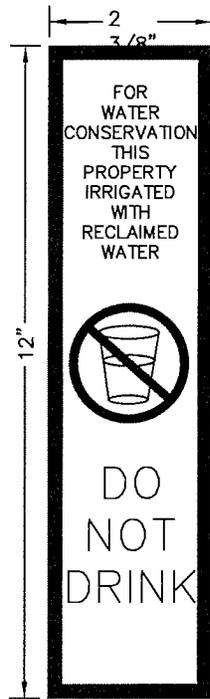
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APPROVED: ML
DATE: 12-2-05



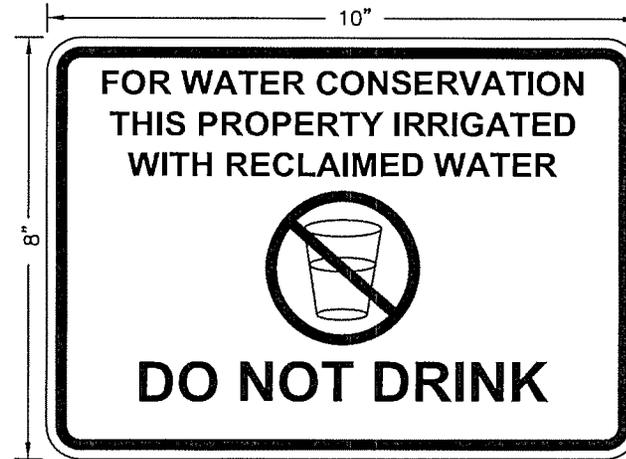
FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30303
404-730-7400 FAX: 404-224-0498

DRAWING NO.

609



LABEL SIGNS
N.T.S.



STEEL OR PLASTIC
SIGNS
N.T.S.

NOTES

1. SIGNS ARE TO BE PLACED AT EACH USER OF RECLAIMED WATER NEAR THE RECLAIMED METER
2. ALL SIGNS ARE WHITE WITH PURPLE LETTERING (COLOR TO BE APPROVED BY FULTON COUNTY)
3. STEEL OR PLASTIC SIGNS MAY BE AFFIXED TO OTHER POSTS OR STRUCTURES THAN THOSE PROVIDED BY FULTON COUNTY
4. LABEL SIGNS MUST BE AFFIXED TO WHITE DRIVABLE MARKER #CIB-380 (MANUFACTURED BY CARSONITE INTERNATIONAL) AND PROTRUDE ABOVE FINISHED GRADE NO MORE THAN 36" AND NO LESS THAN 18"

FULTON COUNTY STANDARD DETAIL 610
CUSTOMER SIGNS

DATE	REVISIONS	DATE	REVISIONS

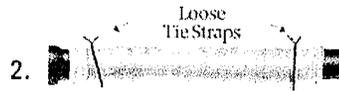
DGS/DRN/CHKD: CMS
APPROVED: ML
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
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404-730-7400 FAX: 404-224-0498

DRAWING NO.

610



NOTES

1. REMOVE ALL LUMPS OF CLAY, MUD, CINDERS, ETC. WHICH MAY HAVE ACCUMULATED ON THE SURFACE OF THE PIPE. A POLYETHYLENE TUPE SHOULD BE CUT SO THAT IT IS APPROXIMATELY TWO FEET LONGER THAN THE PIPE SECTION. SLIP THE TUBE ONTO THE PIPE. ALLOW APPROXIMATELY ONE FOOT OF THE TUBE TO OVERHANG EACH END OF THE PIPE.
2. PUSH BACK THE OVERHANG TUBE ENDS UNTIL THEY CLEAR THE PIPE ENDS
3. TAKE UP THE SLACK IN THE TUBE TO MAKE A SNUG BUT NOT TIGHT FIT. FOLD EXCESS BACK OVER THE TOP OF PIPE
4. SECURE THE FOLD WITH POLYETHYLENE COMPATIBLE ADHESIVE TAPE AT SEVERAL LOCATIONS ALONG THE PIPE BARREL
5. DIG A SHALLOW BELL-HOLE IN THE TRENCH BOTTOM AT THE JOINT LOCATION
6. PLACE PIPE INTO THE TRENCH
7. ASSEMBLE THE JOINT
8. PULL THE POLYETHYLENE TUBE END OF THE PREVIOUSLY INSTALLED PIPE OVER THE NEW PIPE AND SECURE WITH THE TIE STRAP FROM THE PRECEDING PIPE BELL.
9. OVERLAP THE SECURED TUBE END OF THE NEW PIPE SECTION. SECURE THE NEW TUBE END IN PLACE WITH THE SPIGOT END TIE STRAP
10. REPAIR ALL RIPS, TEARS, OR OTHER TUBE DAMAGE WITH SUITABLE ADHESIVE TAPE. PIN POINT PUNCTURES NEED NOT BE REPAIRED

FULTON COUNTY STANDARD DETAIL 611
POLYETHYLENE ENCASEMENT INSTALLATION

DATE	REVISIONS	DATE	REVISIONS

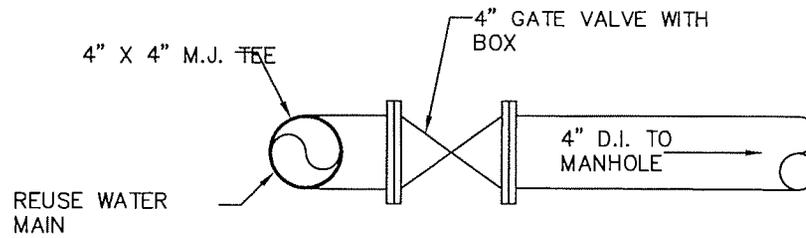
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DATE: 12-2-05



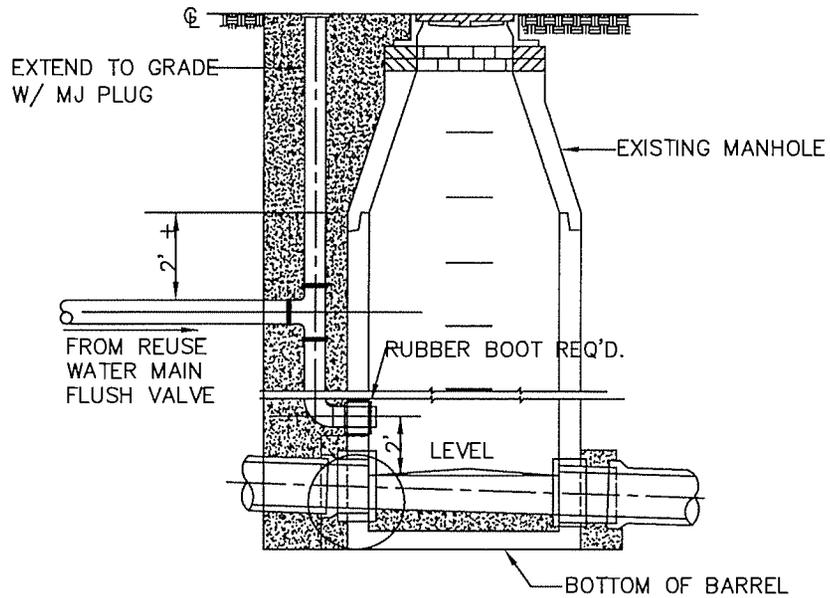
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DRAWING NO.

611



CUL-DE-SAC
REUSE FLUSH POINT DETAIL



MANHOLE CONNECTION DETAIL

FULTON COUNTY STANDARD DETAIL 612
CUL-DE-SAC
FLUSH POINT DETAIL

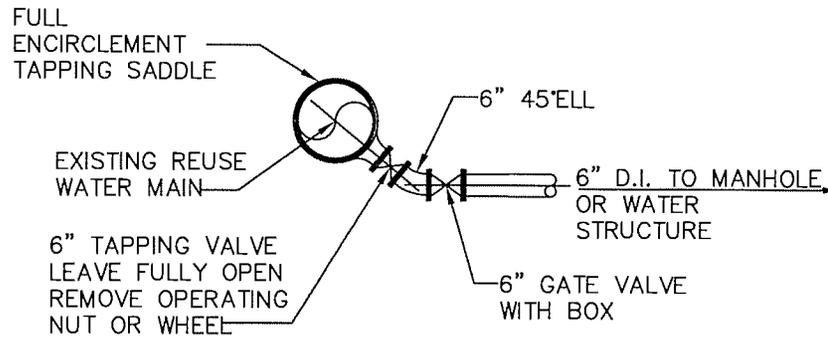
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DGS/DRN/CHKD: CMS
APPROVED: ML
DATE: 12-2-05

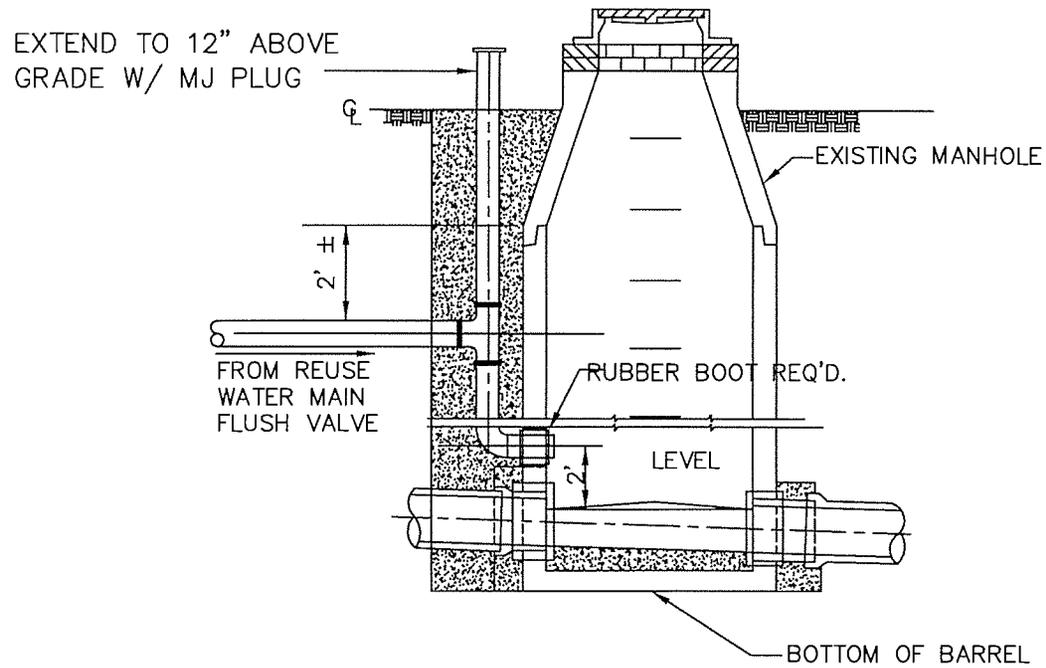


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DRAWING NO.
612



REUSE TAP AND VALVE DETAIL



FULTON COUNTY STANDARD DETAIL 613
IN LINE FLUSH POINT DETAIL

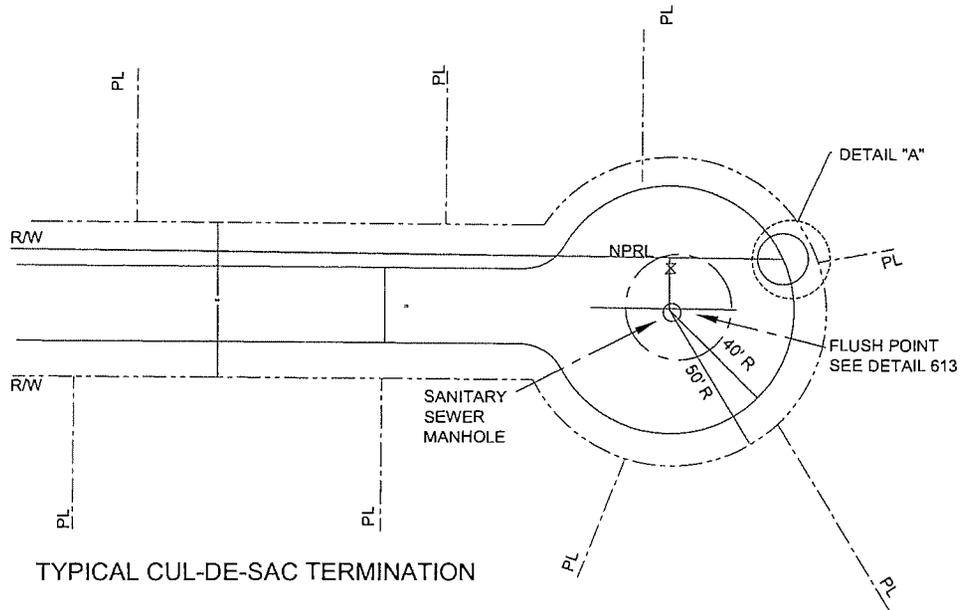
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: ML
DATE: 12-2-05

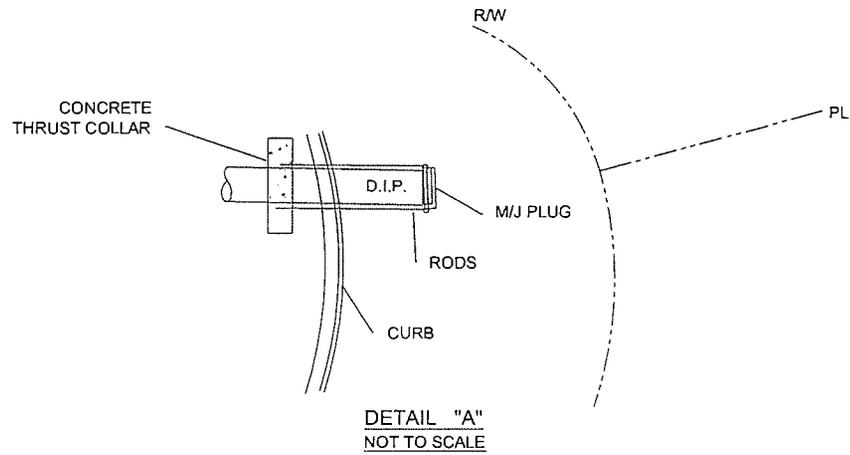


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DRAWING NO.
613



TYPICAL CUL-DE-SAC TERMINATION



FULTON COUNTY STANDARD DETAIL 614
NPRL TERMINATION CUL-DE-SAC

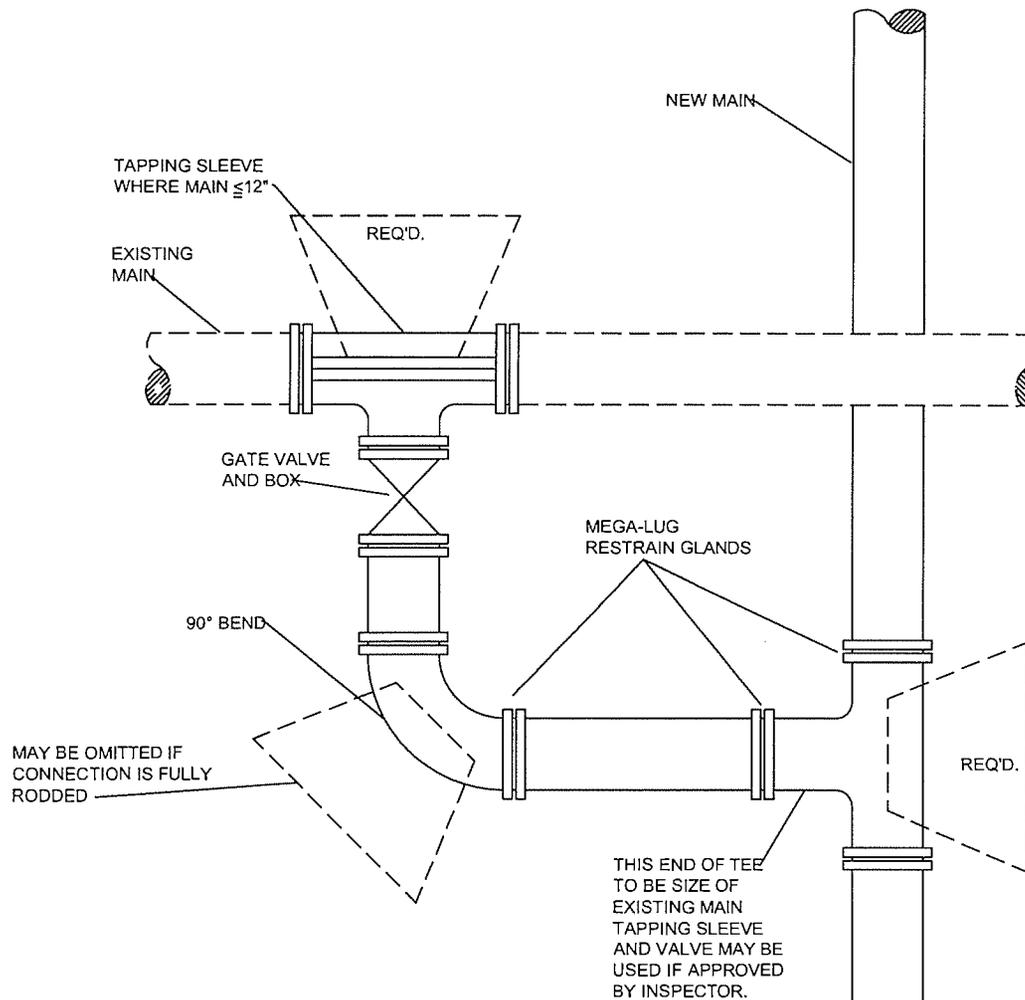
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
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DRAWING NO.
614



MAY BE OMITTED IF CONNECTION IS FULLY RODDED

NOTES:

1. GATE VALVES AND FITTINGS USED IN THIS CONNECTION TO BE SAME SIZE AS EXISTING MAIN WHERE EXISTING MAIN IS 12" OR SMALLER.

THIS END OF TEE TO BE SIZE OF EXISTING MAIN TAPPING SLEEVE AND VALVE MAY BE USED IF APPROVED BY INSPECTOR.

FULTON COUNTY STANDARD DETAIL 615
ROUND CONNECTION DETAIL

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: ML
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
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DRAWING NO.
615

INDEX

DWG NO. DESCRIPTION

700	INDEX AND GENERAL NOTES
701	GREASE/SOLIDS/OIL INTERCEPTOR 4 TANKS IN SERIES
702	SINGLE TANKS
703	TRASH COMPACTOR AND DUMPSTER PAD DETAILS
704	SANITARY SEWER EASEMENT
705	STRUCTURAL PLATE PIPE CULVERT
706	DETAIL OF OPTIONAL STEEL PIER
707	SERVICE CONNECTION ON NEW SEWERS
708	SERVICE CONNECTION ON EXISTING SEWERS
709	SERVICE CONNECTION CLEANOUT
710	WATERSTOP COLLAR
711	SEWER LATERAL INSTALLATION DETAILS FOR CURBED STREETS

GENERAL NOTES

FULTON COUNTY STANDARD DETAIL
INDEX AND GENERAL NOTES

DATE	REVISIONS	DATE	REVISIONS

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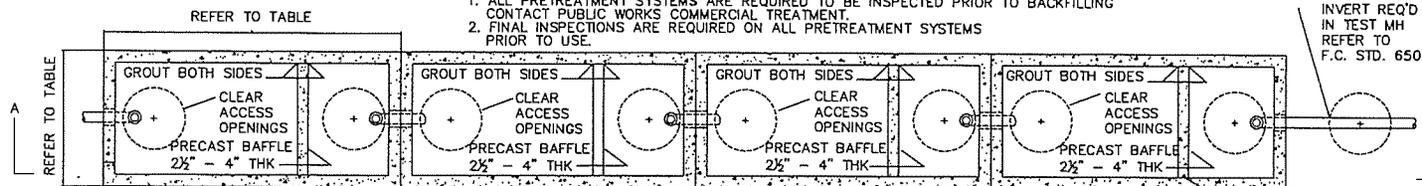


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DRAWING NO.
700

INSPECTIONS:

1. ALL PRETREATMENT SYSTEMS ARE REQUIRED TO BE INSPECTED PRIOR TO BACKFILLING. CONTACT PUBLIC WORKS COMMERCIAL TREATMENT.
2. FINAL INSPECTIONS ARE REQUIRED ON ALL PRETREATMENT SYSTEMS PRIOR TO USE.

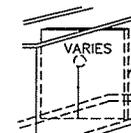


PLAN VIEW
N.T.S.

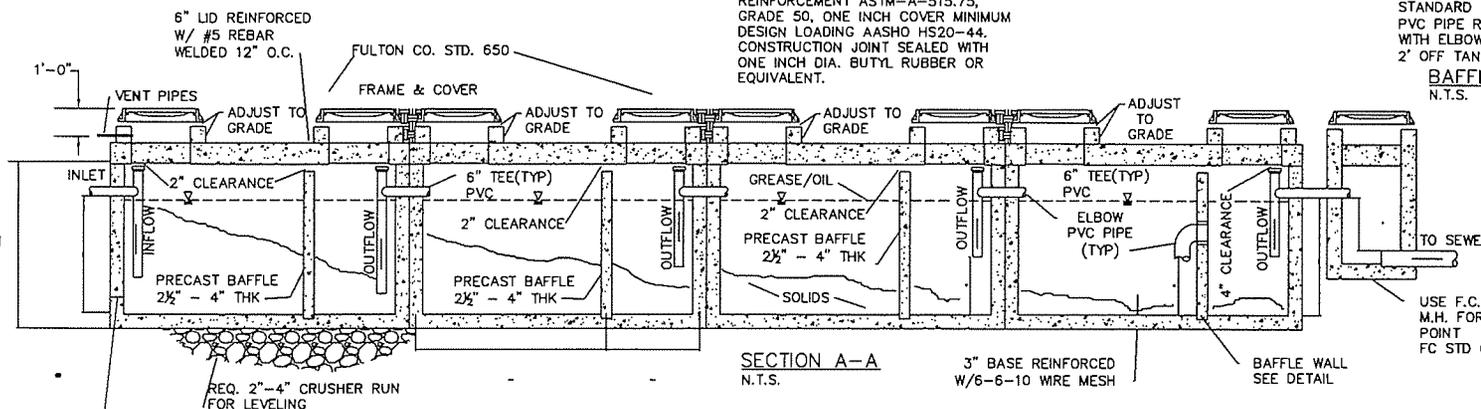
***SPECIFICATIONS**

CONCRETE MINIMUM STRENGTH 4000 PSI AT 28 DAYS. STEEL REINFORCEMENT ASTM-A-515.75, GRADE 50, ONE INCH COVER MINIMUM. DESIGN LOADING AASHO HS20-44. CONSTRUCTION JOINT SEALED WITH ONE INCH DIA. BUTYL RUBBER OR EQUIVALENT.

BAFFLE STANDS 50" IN HEIGHT AND IS 2 1/2" IN THICKNESS REINFORCED W/ 6-6-10 WIRE MESH



PIPE DIAMETER MAY VARY STANDARD 3"-5" PVC PIPE REQ'D ON WALL WITH ELBOW TURNED DOWN MAX. 2' OFF TANK BOTTOM



SECTION A-A
N.T.S.

USE F.C. STD 650 M.H. FOR SAMPLING POINT FC STD 650

GALLON CAPACITY	*OUTSIDE DIMENSIONS			INLET TEE HGT.	OUTLET TEE HGT.
	(L) LENGTH	(W) WIDTH	(H) HEIGHT		
3000	15'-7"	9'-7"	8'-6.5"	5'-2"	5'-0"
1500	11'-0"	6'-0"	4'-7"	3'-10"	4'-0"
1000	8'-6"	5'-3"	4'-6"	3'-10"	4'-0"

*DIMENSIONS OF PREFAB CONCRETE TANKS MAY VARY BASED ON MANUFACTURER, HOWEVER THE GALLON CAPACITY MUST BE EQUIVALENT TO THE TANK SIZE SPECIFIED FOR INSTALLATION.

NOTES:

1. ANY ALTERNATIVE PRETREATMENT SYSTEMS SHALL BE APPROVED BY WATER AND POLLUTION CONTROL SECTION PRIOR TO INSTALLATION.
2. USE CONCRETE PREFAB TANKS.
3. NO INTERCEPTOR SHALL BE LESS THAN 1,000 GALLONS WHERE SEATING IS LESS THAN 50 AND NO SINGLE CHAMBER INTERCEPTOR SHALL BE GREATER THAN 3000 GALLONS.
4. FOR RESTAURANTS USE MINIMUM ONE 1515 GALLON TANK PER 100 SEATS.
5. MULTI-CHAMBERED TANKS SHALL BE CONNECTED BY 8" ABS OR PVC PIPE; MIN. 6" PVC ACCEPTED.
6. SAMPLING MANHOLE SHALL BE INSTALLED UNLESS EXCLUDED BY W&PC.
7. ALL MANHOLES MUST ADJUST TO GRADE.
8. DISTANCE BETWEEN MULTIPLE TANKS NO GREATER THAN 12".
9. TEST MANHOLE NO GREATER THAN 6 FEET AFTER PRETREATMENT SYSTEM.
10. MULTIPLE TANKS MUST BE PLACED IN TANDEM (SINGLE LINE).

FULTON COUNTY STANDARD DETAIL 701
GREASE/SOLIDS/OIL INTERCEPTOR
4 TANKS IN SERIES

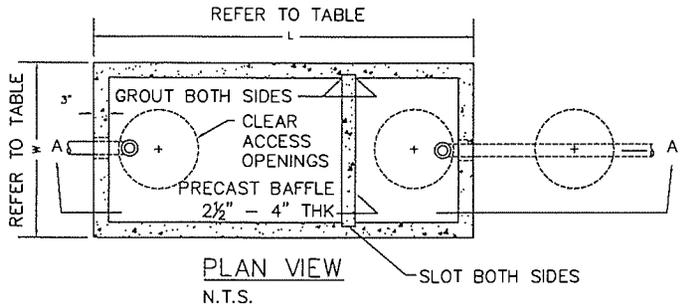
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: JM
APPROVED: REW
DATE: 12-2-05



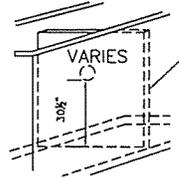
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DRAWING NO.
701



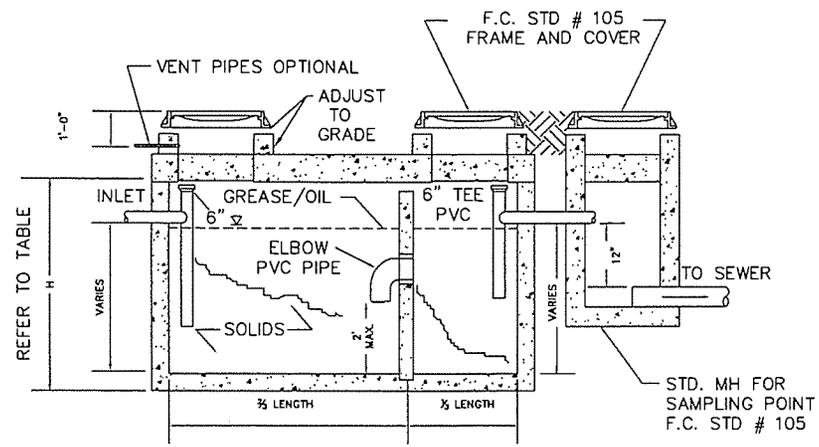
GALLON CAPACITY	*OUTSIDE DIMENSIONS			INLET TEE HGT. *VARIES BASED ON TANK SIZE	OUTLET TEE HGT.
	LENGTH	WIDTH	HEIGHT		
3000	15'-7"	9'-7"	8'-6.5"	5'-2"	5'-0"
1500	11'-0"	6'-0"	4'-7"	3'-10"	4'-0"
1000	8'-6"	5'-3"	4'-6"	3'-10"	4'-0"
750	7'-0"	4'-8"	4'-6"	3'-10"	4'-0"

*DIMENSIONS OF PREFAB CONCRETE TANKS MAY VARY BASED ON MANUFACTURER, HOWEVER THE GALLON CAPACITY MUST BE EQUIVALENT TO THE TANK SIZE SPECIFIED FOR INSTALLATION.



BAFFLE STANDS 50" IN HEIGHT AND IS 2½" IN THICKNESS REINFORCED W/ 6-6-10 WIRE MESH
 PIPE DIAMETER MAY VARY STANDARD 3"-5"
 PVC PIPE REQ'D ON WALL WITH ELBOW TURNED DOWN MAX. 2' OFF TANK BOTTOM
 * BAFFLE WALL OPTIONAL ON SINGLE TANK INSTALLATIONS.

BAFFLE WALL*
 N.T.S.



SECTION A-A
 N.T.S.

FULTON COUNTY STANDARD DETAIL 702
 SINGLE TANK

DATE	REVISIONS	DATE	REVISIONS

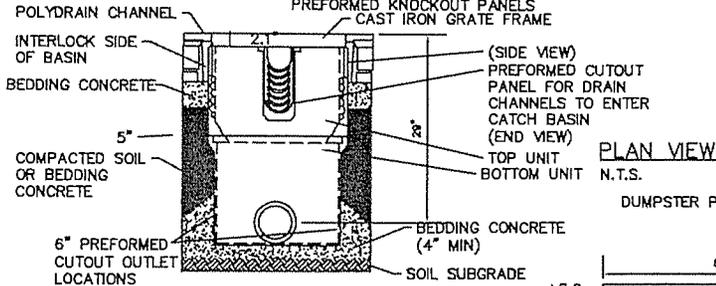
DGS/DRN/CHKD: JM
 APPROVED: REW
 DATE: 12-2-05



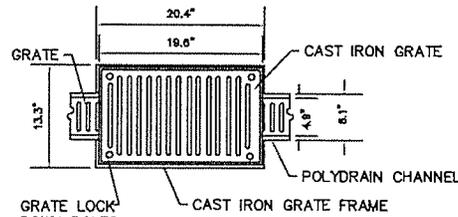
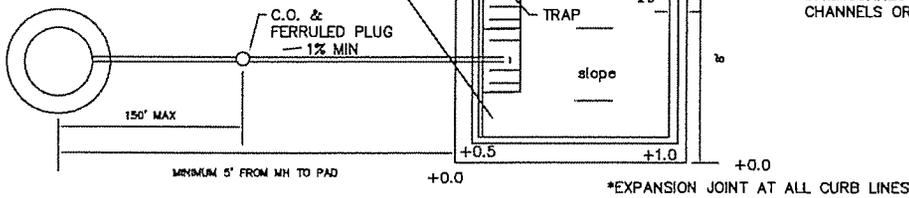
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DRAWING NO.
 702

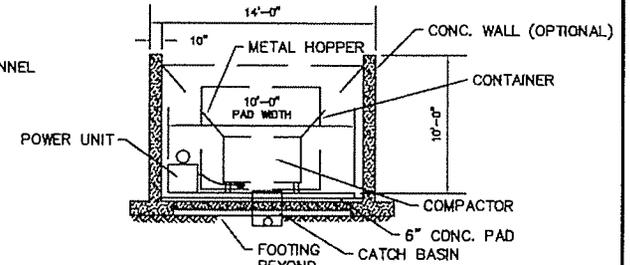
NOTE: CHANNELS MAY ALSO ENTER CATCH BASIN ON SIDES THROUGH PREFORMED KNOCKOUT PANELS
CAST IRON GRATE FRAME



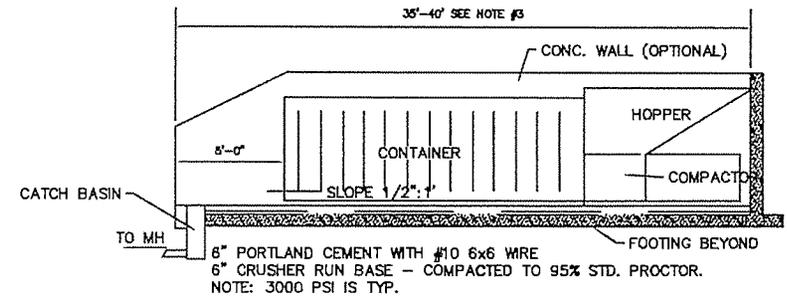
SIDE VIEW
N.T.S.



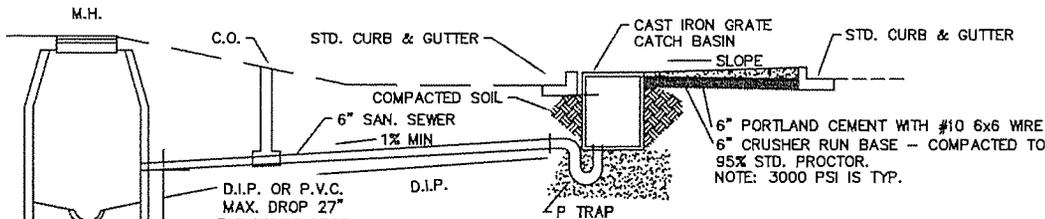
500 SERIES CATCH BASIN
INTERCONNECTED POLYDRAIN
CHANNELS OR APPROVED EQUAL



REAR ELEVATION
N.T.S.



SIDE ELEVATION
N.T.S.
TRASH COMPACTOR



PAD ELEVATION
N.T.S.

NOTES:

1. WATER BIBB REQUIRED WITHIN 50' OF PAD FOR CLEANSING.
2. APPROVAL FROM HEALTH DEPT. REQUIRED.
3. COMPACTOR PAD TO BE 10'-0" WIDE AND A LENGTH OF 5'-0" GREATER THAN THE COMBINED LENGTH OF THE COMPACTOR AND CONTAINER.
4. RUBBER BOOT REQUIRED FOR P.V.C. PIPE. (MANHOLE CONNECTOR) WATER BIBB TO HAVE BACK FLOW PREVENTER.
5. DO NOT CONNECT DRAIN TO GREASE TRAP. SURFACE WATER RUNOFF MUST BE SLOPED AWAY FROM PAD.
6. DO NOT ALLOW STORM WATER RUNOFF ON PAD.
7. 4 FOOT CHAIN LINK FENCE WITH 3-4 FOOT ACCESS GATE IS REQUIRED AROUND ALL COMPACTORS AND HOPPERS.

FULTON COUNTY STANDARD DETAIL 703
TRASH COMPACTOR
AND
DUMPSTER PAD DETAILS

DATE	REVISIONS	DATE	REVISIONS

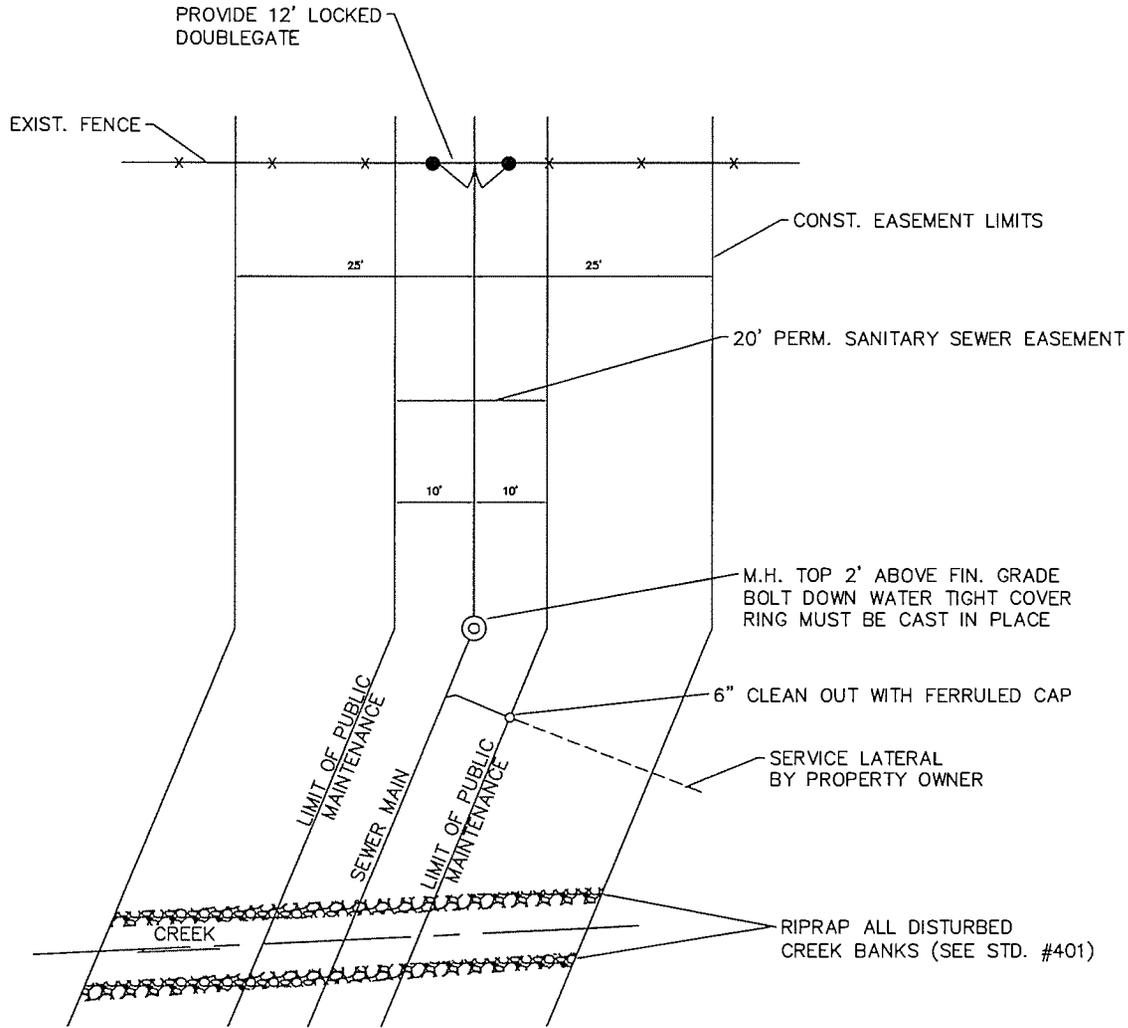
DGS/DRN/CHKD: JM
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.

703



NOTES:

1. NO POOLS STRUCTURES DECKS, BRIDGES OR PATIOS MAY BE PLACED IN THE PERM. EASEMENT.
2. CLEAR ALL TREES IN PERM EASEMENT AND MAINTAIN CLEARANCE.
3. RESEED, FERTILIZE AND MULCH ALL DISTURBED AREAS PER EROSION CONTROL STANDARDS, MAINTAIN 1% SLOPE DRAINAGE.
4. NO PERMANENT STRUCTURES INSIDE PERMANENT EASEMENT.
5. NO BURY PITS ALLOWED IN EASEMENT.

FULTON COUNTY STANDARD DETAIL 704
SANITARY SEWER EASEMENT

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: JM
APPROVED: REW
DATE: 12-2-05



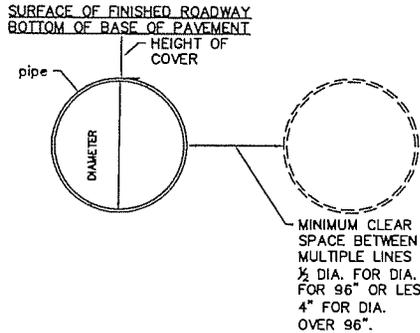
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DRAWING NO.
704

MINIMUM HEIGHT OF COVER

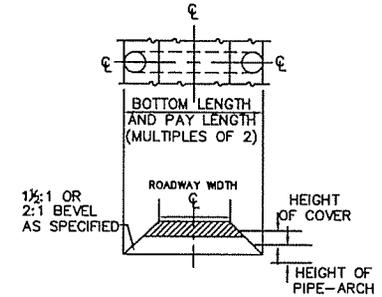
UNPAVED AND FLEXIBLE PAVEMENTS
 FOR 72" DIA. TO 120" DIA. - 1/3 DIA.
 FOR 120" DIA. AND OVER - NOT LESS THAN 24".

RIGID PAVEMENTS
 FOR 72" DIA. TO 120" DIA. - 1/7 DIA. BUT NOT LESS THAN 12"
 FOR 120" DIA. AND OVER - NOT LESS THAN 18".



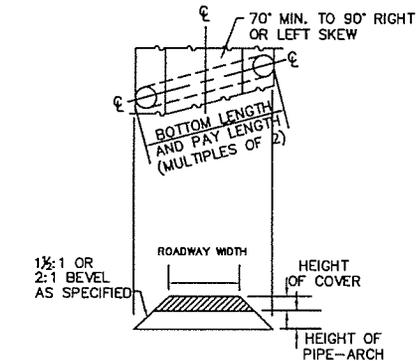
- GENERAL NOTES:**
- SPECIFICATIONS - GEORGIA STANDARD
 - DESIGN DATA - H-20 LIVE LOAD
 - GAGES SHOWN ARE MINIMAL STRUCTURAL REQUIREMENTS FOR USE WITH ADEQUATE BACKFILL.
 - FOR END FINISH, SHAPE OR CONDITION OTHER THAN SHOWN, SEE SPECIAL DESIGN.

- NOTES:**
- GAGES SHOWN IN ABOVE TABLE ARE FOR STRUCTURAL PLATE PIPE ASSEMBLED WITH A 4 BOLT PER FOOT OF LONGITUDINAL SEAM AND VERTICALLY ELONGATED 5% BY SHOP FORMING, EXCEPT AS NOTED IN NO. 2.
 - BEYOND HEIGHTS OF COVER FOR 4 BOLTS AND TO HEIGHTS OF COVER SHOWN FOR 6 BOLTS, IN COLUMN AT RIGHT, NO.1 GAGE STRUCTURAL PIPE WITH 6 BOLTS PER FOOT OF LONGITUDINAL SEAM AND VERTICALLY ELONGATED 3% BY SHOP FORMING SHALL BE USED.
 - ONLY R.C.P ALLOWED UNDER COUNTY ROADS.



AREA SQ.FT	DIA. INCHES	HEIGHT OF COVER (FEET)																1 GAGE 6 BOLTS
		1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-90	91-100	
		MINIMUM THICKNESS U.S. STD. GAGE - 4 BOLTS																
28	72							12	12	10	10	8	8	7	5	3	1	165'
33	78							12	12	10	10	8	8	8	5	3	1	150'
38	84						12	12	12	10	10	8	8	7	5	3	1	140'
44	90	12	12	12	12	12	12	10	10	8	8	7	5	3	1			130'
50	96	12	12	12	12	12	12	10	10	10	8	7	5	3	1			125'
57	102	12	12	12	12	10	10	10	10	8	8	7	5	5	1			115'
64	108	12	12	12	10	10	10	10	10	8	7	5	5	3	1			110'
71	114	10	12	10	10	10	10	10	8	8	7	5	5	3	1			105'
79	120	10	12	10	10	10	10	10	8	7	5	5	3	1				100'
87	126	10	12	10	10	10	10	10	8	7	5	3	3	1				95'
95	132	10	10	10	10	10	10	8	8	7	5	3	1	1				90'
104	138	10	10	10	10	10	10	8	7	5	3	3	1					85'
113	144	10	10	10	10	8	8	7	5	3	1	1						80'
123	150	10	10	10	8	8	8	7	5	3	1							80'
133	156	10	10	10	8	8	8	5	3	1	1							75'
145	162	10	10	10	8	8	7	5	3	1								70'
154	168	10	10	10	8	8	7	5	3	1								70'
165	174	8	10	8	8	8	7	5	3	1								65'
177	180	8	10	8	8	8	5	3	1									65'

FOR STRUCTURES IN THIS ZONE, SEE NOTE NO. 2 ABOVE



FULTON COUNTY STANDARD DETAIL 705
 STANDARD
 STRUCTURAL PLATE
 PIPE CULVERT

DATE	REVISIONS	DATE	REVISIONS

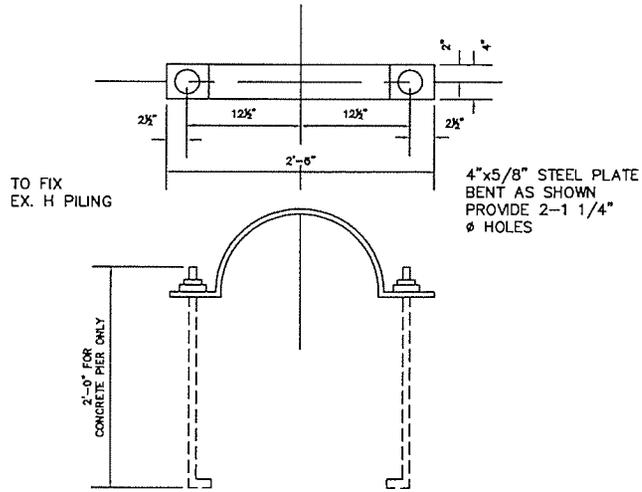
DGS/DRN/CHKD: JM
 APPROVED: REW
 DATE: 12-2-05



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DRAWING NO.
 705

DETAIL OF CLAMP
N.T.S.



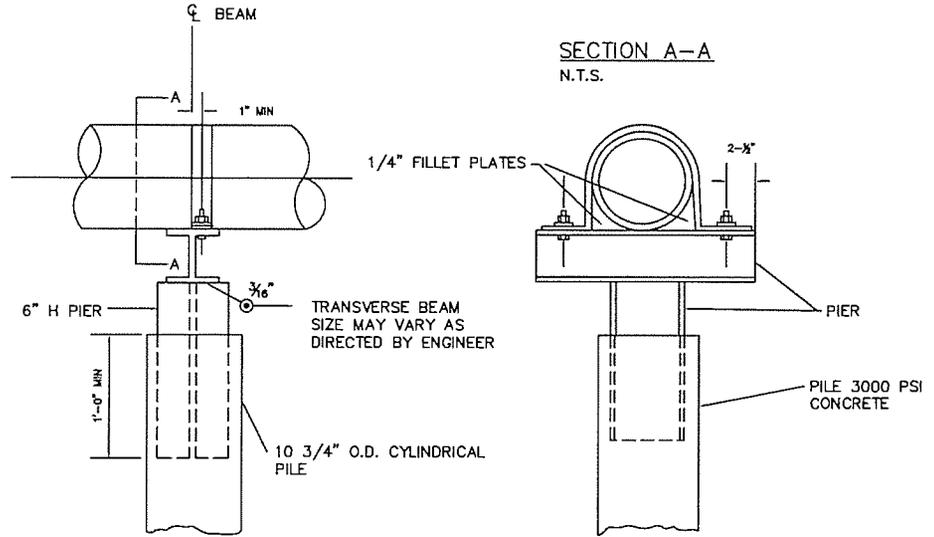
TO FIX
EX. H PILING

4"x5/8" STEEL PLATE
BENT AS SHOWN
PROVIDE 2-1 1/4"
Ø HOLES

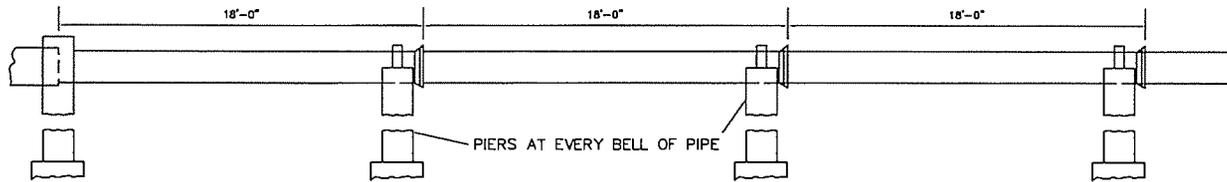
2-1" Ø STAINLESS STEEL ANCHOR BOLTS
WITH A.S.A. HEX
NUT AND WASHERS

NOTE:
ENGINEER TO SUBMIT DESIGN.

SECTION A-A
N.T.S.



NOTE:
PILE TO BE DRIVEN TO REFUSAL OR 10 TON
BEARING MIN., THEN FILLED WITH 3000 P.S.I. CONCRETE.
TRANSVERSE BEAM TO BE WELDED TO PIER BEFORE SETTING CONCRETE.



PIER LOCATION TO BE DETERMINED BY ENGINEER OR FULTON COUNTY INSPECTOR.

DETAIL OF OPTIONAL STEEL PIER
N.T.S.

FULTON COUNTY STANDARD DETAIL 706
DETAIL OF OPTIONAL STEEL
PIER

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: JM
APPROVED: REW
DATE: 12-2-05

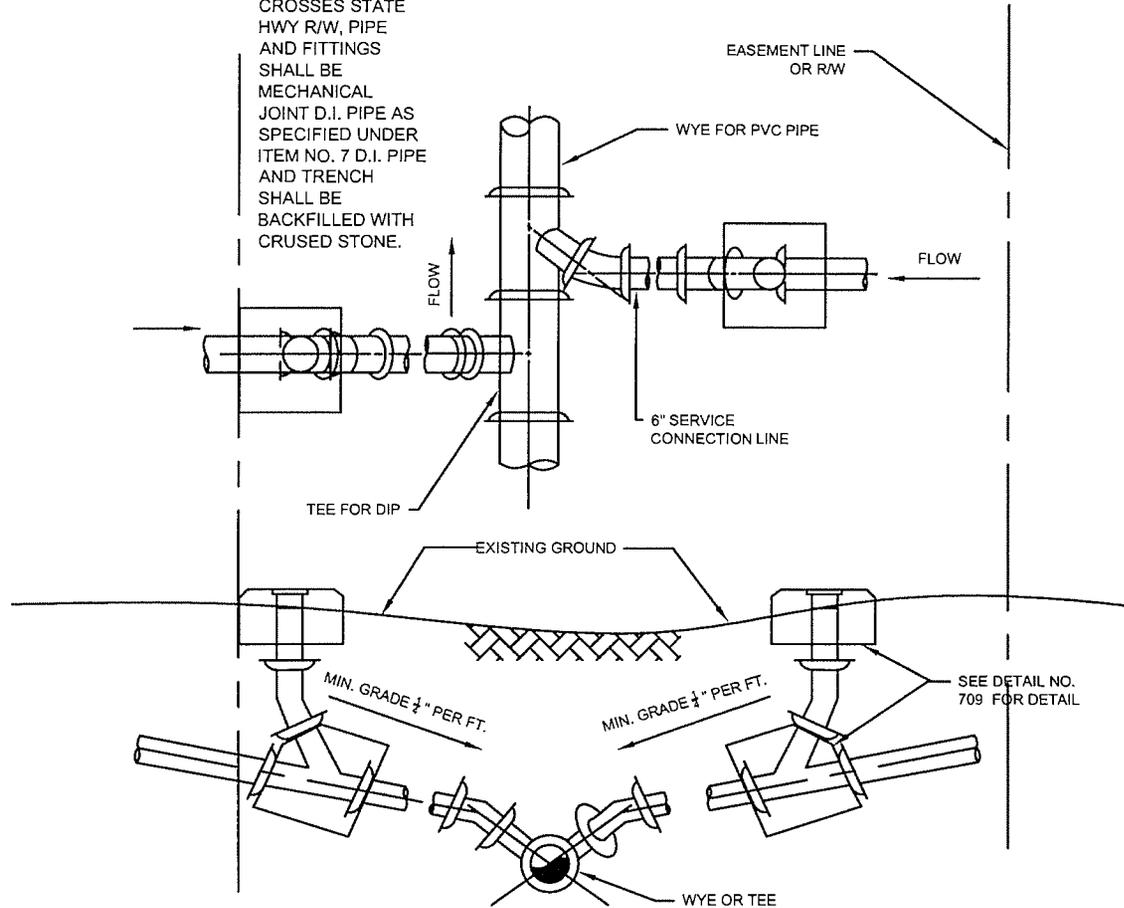


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DRAWING NO.

706

- NOTES:
 1. CONNECTION TO NEW SEWER SHALL BE WITH TEE OR WYE.
 2. NO TEES OR WYES ON SEWERS LARGER THAN 18".
 3. WHERE SERVICE LINE CROSSES STATE HWY R/W, PIPE AND FITTINGS SHALL BE MECHANICAL JOINT D.I. PIPE AS SPECIFIED UNDER ITEM NO. 7 D.I. PIPE AND TRENCH SHALL BE BACKFILLED WITH CRUSSED STONE.



FULTON COUNTY STANDARD DETAIL 707
 SERVICE CONNECTION ON NEW SEWERS

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: JM
 APPROVED: REW
 DATE: 12-2-05



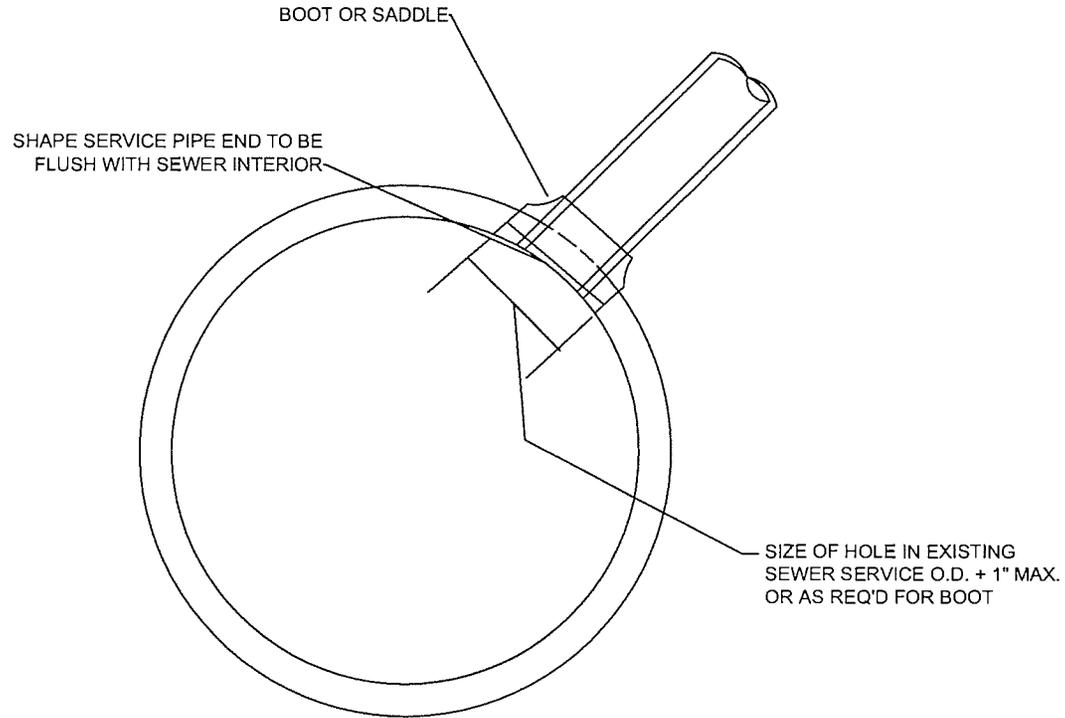
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DRAWING NO.

707

NOTES:

1. HOLE IN EXISTING SEWER SHALL BE CORED.
2. CONNECT SERVICE TO SEWER WITH:
 -BOOT ON RCP AND VCP SEWERS -TAPPING SADDLE ON DIP SEWERS
 -MANUFACTURED SADDLE ON PVC PIPE SEWERS
3. NO HAMMER TAPS



FULTON COUNTY STANDARD DETAIL 708
 SERVICE CONNECTION ON EXISTING SEWERS

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: JM
 APPROVED: REW
 DATE: 12-2-05

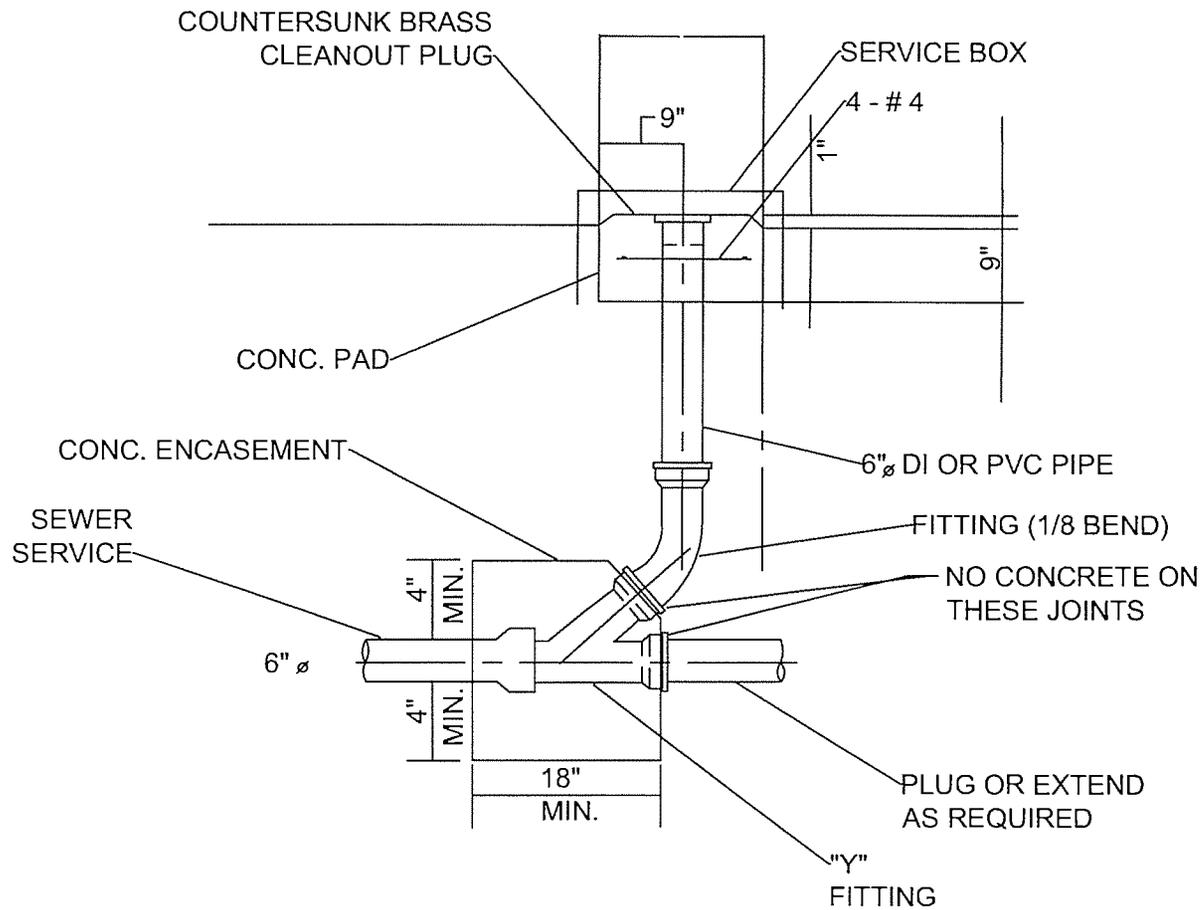


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DRAWING NO.
 708

NOTES:

1. TOP OF SERVICE BOX SHALL BE FLUSH WITH FINAL SURFACE IN SIDEWALKS AND PAVED AREAS.



FULTON COUNTY STANDARD DETAIL 709
SERVICE CONNECTION CLEANOUT

DATE	REVISIONS	DATE	REVISIONS

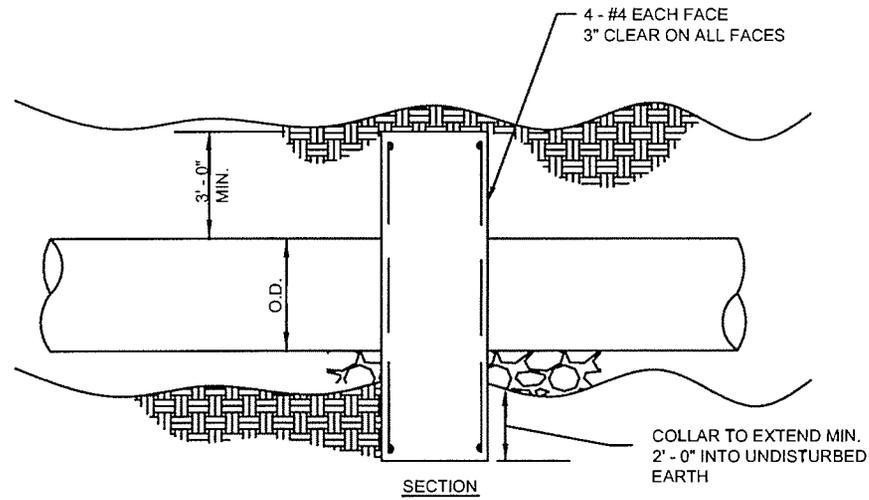
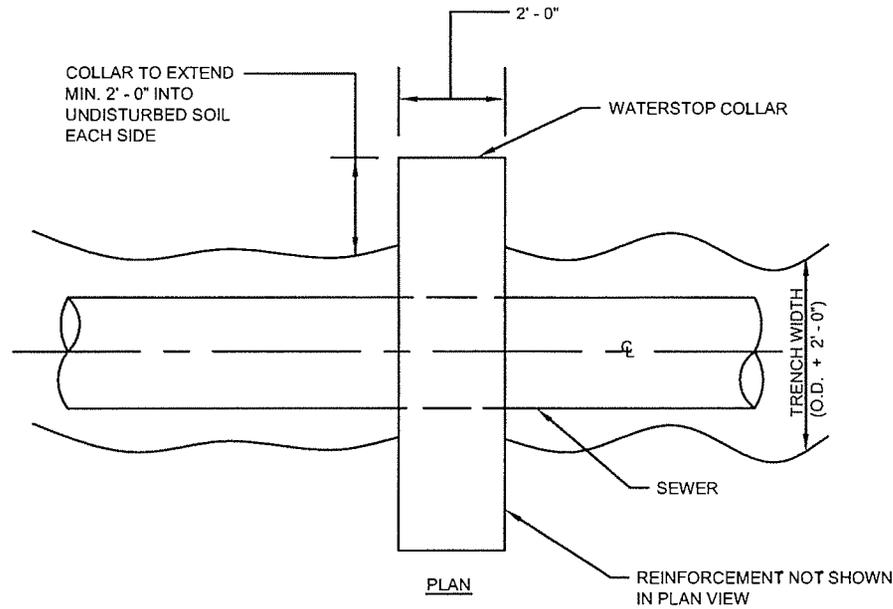
DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.

709



FULTON COUNTY STANDARD DETAIL 710
WATERSTOP COLLAR

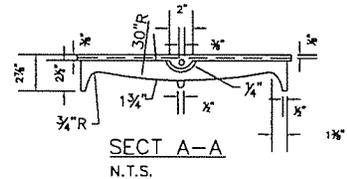
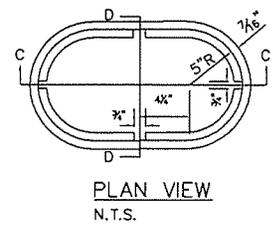
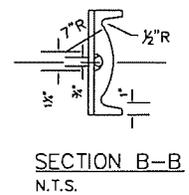
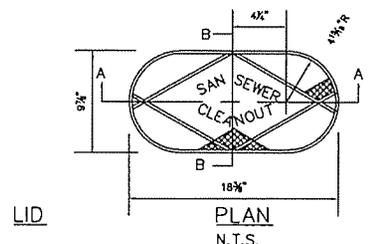
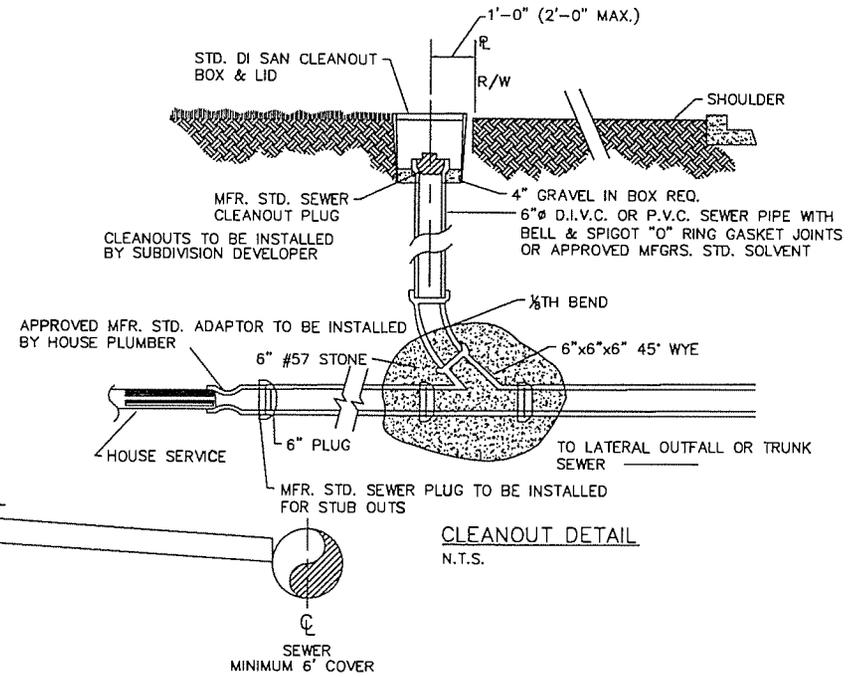
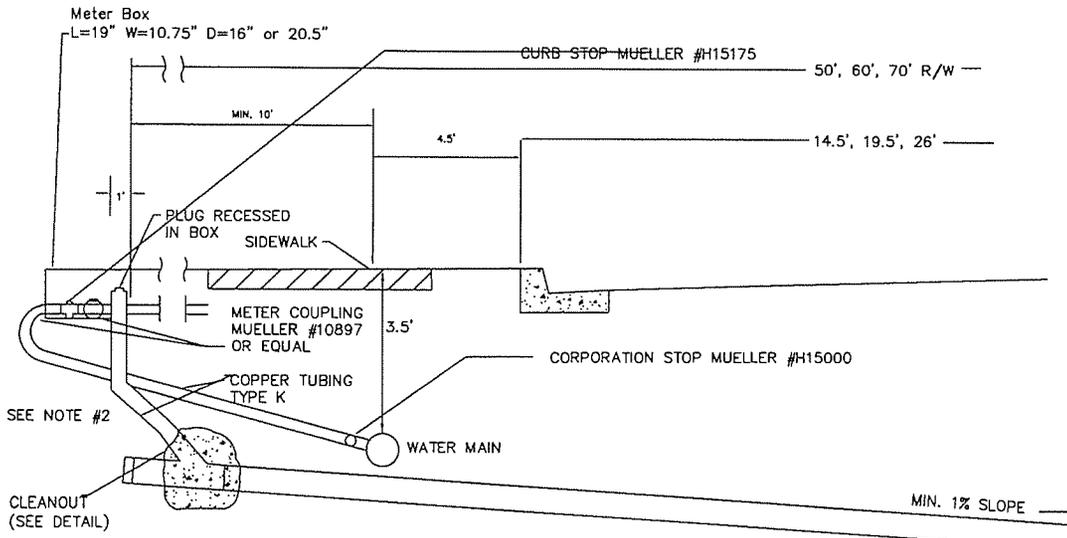
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: JM
APPROVED: REW
DATE: 12-2-05



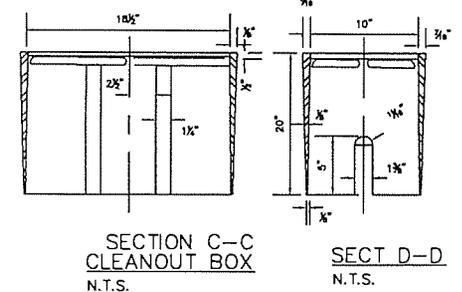
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DRAWING NO.
710



NOTES

1. CAST IRON SHALL CONFORM TO A.S.T.M. SPEC A48 LATEST REV. FOR CLASS 20 GREY IRON CASTINGS.
2. IF THE RISER IS GREATER THAN 6'-0" THE JOINT WILL BE ENCASED IN 6" OF 1:3.5 CONCRETE.



FULTON COUNTY STANDARD DETAIL 711
SEWER LATERAL INSTALLATION
DETAILS FOR CURBED STREETS

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
711

INDEX

DWG NO.	DESCRIPTION
800	INDEX AND GENERAL NOTES
801	5/8" METER INSTALLATION
802	1" METER INSTALLATION
803	1 1/2" METER INSTALLATION
804	2" METER INSTALLATION
805	LARGE METERS AND VAULT
806	3/4" - 1" METER SETTING SHORT AND LONG SIDES
807	REDUCED PRESSURE PRINCIPLE BACKFLOW-PREVENTION ASSEMBLY
808	REDUCED PRESSURE PRINCIPLE BACKFLOW-PREVENTION ASSEMBLY
809	DOUBLE CHECK VALVE ASSEMBLY
810	DOUBLE CHECK VALVE ASSEMBLY
811	PRESSURE VACUUM BREAKER ASSEMBLY
812	ATMOSPHERIC VACUUM BREAKER ASSEMBLY
813	WATER METER INSTALLATION & 3/4" COPPER SERVICE WATER VALVE MARKERS
814	HYDRANT LOCATION DETAIL FOR CURB & GUTTER STREETS
815	FIRE HYDRANT STREET UNCURBED
816	FIRE HYDRANT INSTALLATION DETAILS
817	A & V RELEASE VALVE ASSEMBLY 1" OR 2"
818	TYPICAL ANCHORS
819	UNDERGROUND VALVE BOX
820	WATER MAIN TERMINATION
821	WATER VALVE MARKER
822	FIRE LINE VAULT-TYPE I
823	RESTRAINED JOINT PIPE STANDARD LENGTHS
824	WATER SVS. TOWNHOME/APT./CONDOMINIUM PRIVATE DEVELOPMENT
825	FM ASSEMBLY

GENERAL NOTES

FULTON COUNTY STANDARD DETAIL
INDEX AND GENERAL NOTES

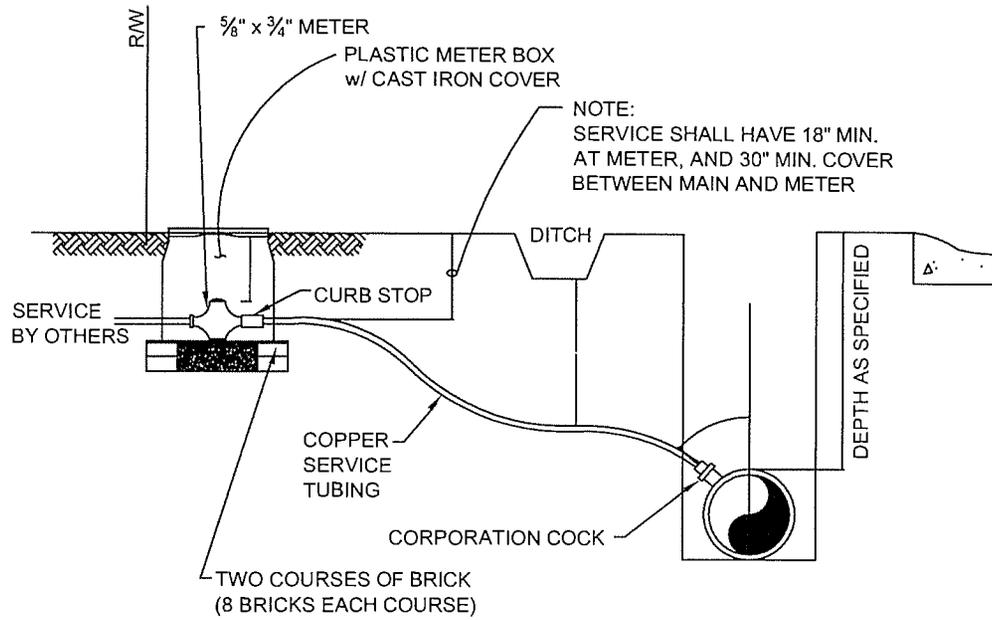
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-02-05



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DRAWING NO.
INDEX
800



NOTE:
SERVICE SHALL HAVE 18" MIN.
AT METER, AND 30" MIN. COVER
BETWEEN MAIN AND METER

NOTES:

1. SERVICE LINE SHALL BE 3/4" DIAMETER FROM MAIN TO METER
2. USE ALL FLARE JOINTS
3. INSTALLATION SHALL ALLOW ADEQUATE ROOM TO REMOVE AND/OR REPAIR METER.
4. METER BOX SHALL BE APPROXIMATELY 12" x 18".

FULTON COUNTY STANDARD DETAIL 801
3/8" METER INSTALLATION

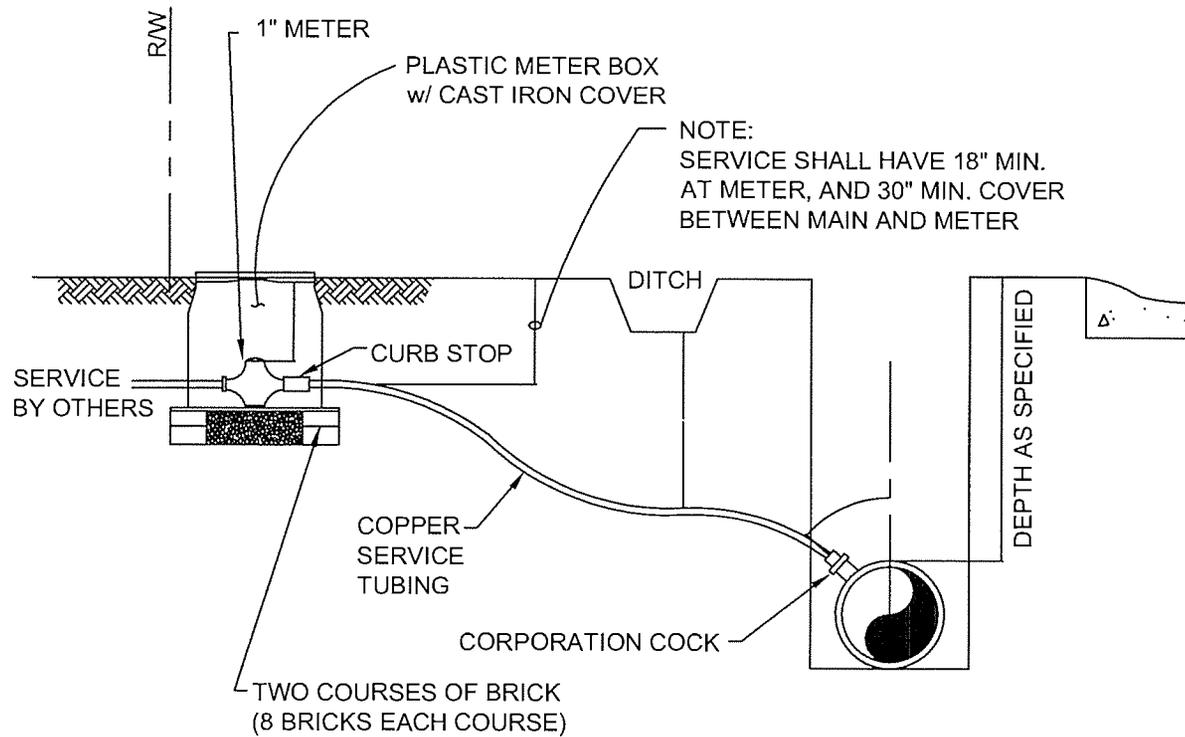
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
801



NOTE:
 SERVICE SHALL HAVE 18" MIN.
 AT METER, AND 30" MIN. COVER
 BETWEEN MAIN AND METER

NOTES:

1. SERVICE LINE SHALL BE 1" FROM MAIN TO METER.
2. USE ALL FLARE JOINTS.
3. INSTALLATION SHALL ALLOW ADEQUATE ROOM TO REMOVE AND/OR REPAIR METER.
4. METER BOX SHALL BE APPROXIMATELY 18" x 24".

FULTON COUNTY STANDARD DETAIL 802
 1" METER INSTALLATION

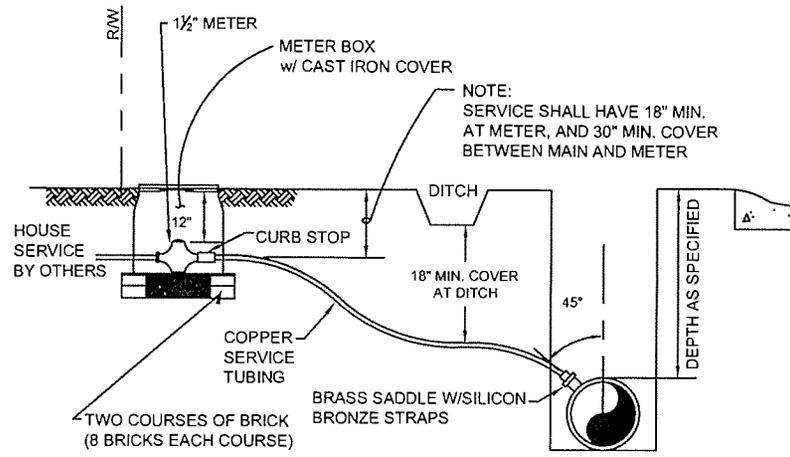
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
 APPROVED: REW
 DATE: 12-2-05



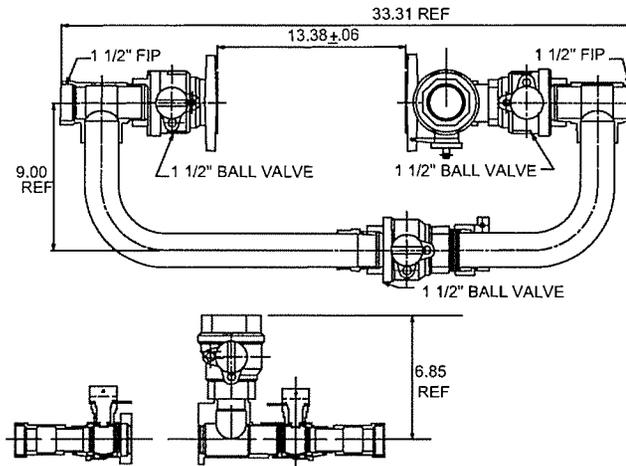
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DRAWING NO.
 802



NOTES:

1. SERVICE LINE SHALL BE 1 1/2" FROM THE MAIN TO THE METER.
2. USE ALL COMPRESSION GRIP JOINT.
3. INSTALLATION SHALL ALLOW ADEQUATE ROOM TO REMOVE AND/OR REPAIR METER.
4. METER BOX SHALL BE APPROXIMATELY 24" x 36".



FULTON COUNTY STANDARD DETAIL 803
1 1/2" METER INSTALLATION

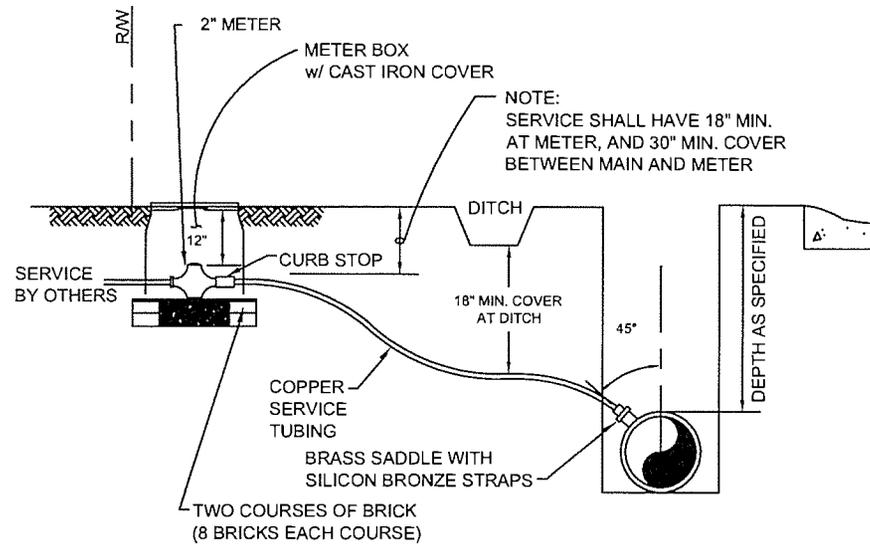
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
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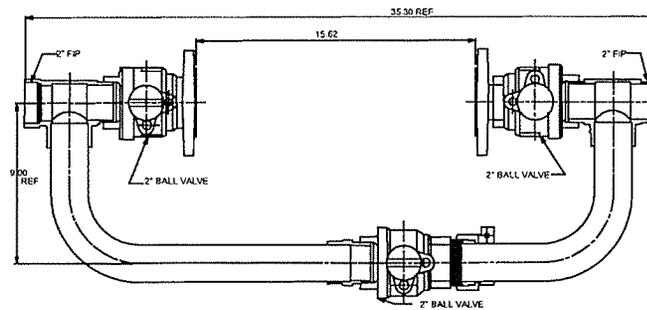
DRAWING NO.
803



NOTE:
SERVICE SHALL HAVE 18" MIN.
AT METER, AND 30" MIN. COVER
BETWEEN MAIN AND METER

NOTES:

1. SERVICE LINE SHALL BE 2" DIAMETER FROM THE MAIN TO THE METER
2. USE ALL COMPRESSION GRIP JOINTS.
3. INSTALLATION SHALL ALLOW ADEQUATE ROOM TO REMOVE AND/OR REPAIR METER.
4. METER BOX SHALL BE APPROXIMATELY 24" x 36".



FULTON COUNTY STANDARD DETAIL 804
2" METER INSTALLATION

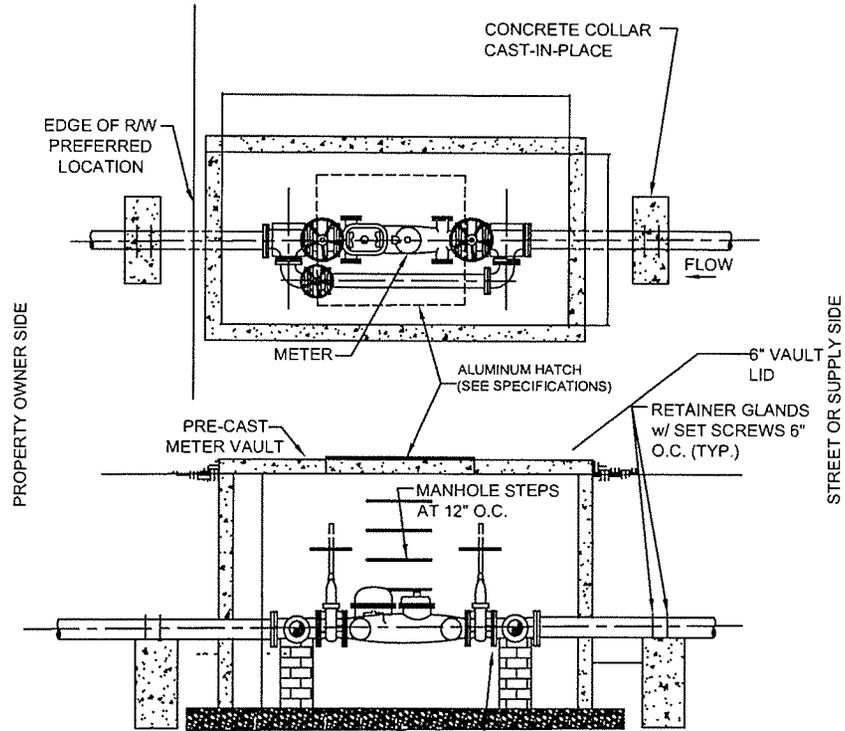
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
804



NOTES: 8" GRAVEL (#57 STONE)
 1. BOXES EXCEEDING 5' IN DEPTH MUST BE APPROVED BY FULTON COUNTY.
 2. WHEN METER BOX CANNOT BE LOCATED ENTIRELY ON R/W, A PERMANENT EASEMENT SHALL BE OBTAINED TO PREVENT FENCES OR OTHER OBSTRUCTIONS FROM BEING ERRECTED AROUND THE METER BOX.
 3. COVER OPENING & STEPS TO BE PLACED NEAREST THE METER REGISTER.
 4. THE METER MUST BE INSTALLED WITH AT LEAST 8 DIAMETERS OF STRAIGHT PIPE SAME SIZE AS METER ON THE INLET SIDE TO PERMIT ON-SITE MAINTENANCE AND CALIBRATION. A STRAINER MAY BE PROVIDED IN LIEU OF THE STRAIGHT PIPE IN ACCORDANCE WITH THE METER MANUFACTURER'S RECOMMENDATIONS. AN INLET AND OUTLET GATE VALVE WITH BYPASS LINE ARE REQUIRED (SEE ILLUSTRATION).
 5. THESE BOXES ARE NOT TO BE INSTALLED IN TRAFFIC AREAS WITHOUT PRIOR PERMISSION FROM FULTON COUNTY.
 6. ALL VALVES AND FITTINGS INSIDE THE VAULT SHALL BE FLANGED.
 7. ALL FITTINGS OUTSIDE THE VAULT SHALL BE PUSH-ON JOINT WITH AMERICAN 'FAST-GRIP' GASKETS OR APPROVED EQUAL.
 8. ALL METERS SHALL COME EQUIPPED WITH A TOUCHREAD OR TOUCHLESS SENSOR COMPATIBLE WITH FULTON COUNTY'S METER READING EQUIPMENT.
 9. THIS DETAIL ALSO AUTHORIZED FOR INSTALLATION OF 3" AND LARGER RE-USE METERS.
 10. HATCH SHALL BE 4' X 6', DOUBLE LEAF, FLUSH MOUNT, 1/4" DIAMOND PLATE, ALUMINUM DOORS LOCKABLE WITH A 5/8" ROD. HATCH SHALL BE BILCO # PDCM-3 OR PRE-APPROVED EQUAL FOR 6" & 8" METERS. HATCH SHALL BE 3'6" X 3'6" SINGLE LEAF FLUSH MOUNT 1/4" DIAMOND PLATE, ALUMINUM DQOR LOCKABLE WITH 5/8" ROD. HATCH SHALL BE B.LCO#PCM - 5 OR PRE-APPROVED EQUAL FOR 3" & 4" METERS.

METER SIZE	VAULT			HATCH SIZE
	L	W	D	
3"	9'	5'	6'	3'6" X 3'6"
4"	9'	5'	6'	3'6" X 3'6"
6"	12'	6'	6'	4' X 6'
8"	12'	6'	6'	4' X 6'

FULTON COUNTY STANDARD DETAIL 805
 LARGE METERS AND VAULT

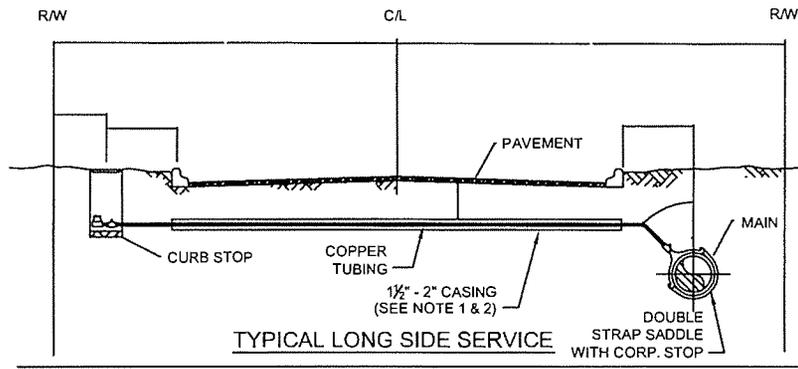
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
 APPROVED: REW
 DATE: 12-2-05

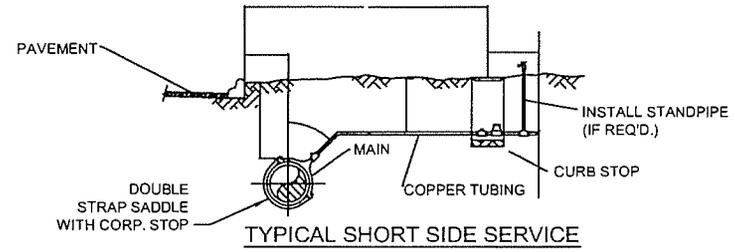


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 805



TYPICAL LONG SIDE SERVICE



TYPICAL SHORT SIDE SERVICE

NOTES

1. IN THE EVENT CASING IS NOT PRESENT ON LONG SIDE LOT, BORING SHALL BE PERMITTED. WHEN CASING DOES EXIST - 1" OR 3/4" PIPE SHALL BE INSERTED THROUGH CASING TO COMPLETE THE INSTALLATION FROM THE MAIN TO THE METER.
2. APPROVAL MUST BE OBTAINED BY FULTON COUNTY DEPARTMENT OF PUBLIC WORKS TRANSPORTATION DIVISION. PRIOR TO ROAD CUT, THE PUBLIC WORKS WATER SERVICES DIVISION DOES NOT HAVE THE AUTHORITY TO APPROVE ROAD CUTS. NO ROAD CUT SHALL BE PERMITTED UNTIL 3 ATTEMPTS HAVE BEEN MADE AT BORING OR LOCATING CASING.
3. 24" COVER (MIN.) FROM SURFACE TO TOP OF SERVICE PIPE APPLIES TO COUNTY MAINTAINED ROADS FOR STATE ROADS SAID MINIMUM CLEARANCE SHALL BE 48".
4. ALL CUTS IN PAVEMENT SHALL BE REPAIRED IN ACCORDANCE WITH EITHER GA. D.O.T. OR FULTON CO. STANDARDS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER DITCH COMPACTION, CUT BACK OF DITCH SIDES AND PAVING OF THE REQUIRED CONCRETE SUB-BASE AND PLATING THE DITCH TO ALLOW TRAFFIC FLOW WHILE CONCRETE IS SETTING UP. STEEL TRAFFIC PLATES WILL COVER POURED CONCRETE FOR A MINIMUM OF 24 HOURS.
5. METERS ARE TO BE SET DIRECTLY OPPOSITE TAP ON MAIN. THE METER SHALL NOT BE OFFSET LATERALLY FROM TAP ON WATER MAIN.

FULTON COUNTY STANDARD DETAIL 806
 3/4" - 1" METER SETTING
 SHORT AND LONG SIDES

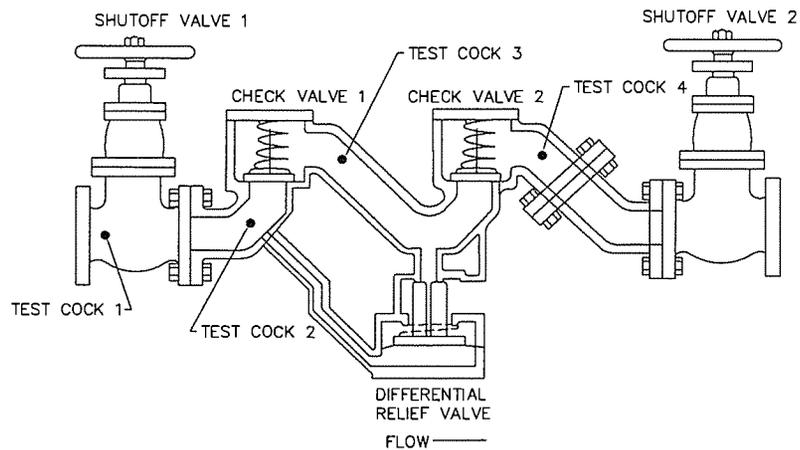
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
 APPROVED: ML
 DATE: 12-2-05



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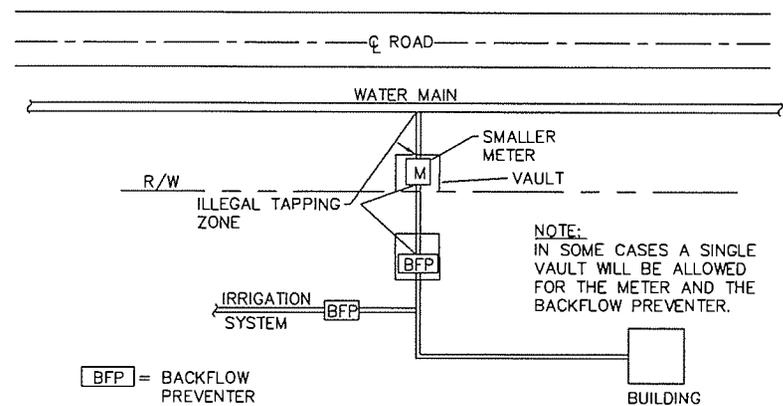
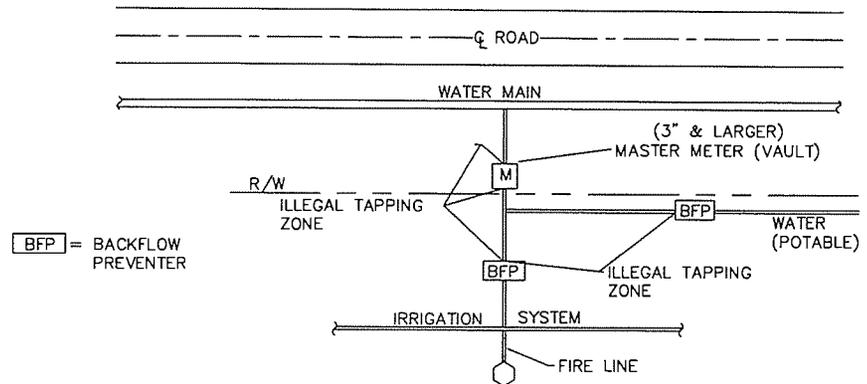
DRAWING NO.
 806



NOTE:

THE AIR-GAP OR MECHANICAL BACKFLOW PREVENTION ASSEMBLY SHALL BE INSTALLED SUBJECT TO THE APPROVAL OF FULTON COUNTY PUBLIC WORKS. ANY DEVIATION FROM THE METHODS DESCRIBED ABOVE MUST RECEIVE APPROVAL PRIOR TO INSTALLATION. ALL MECHANICAL BACKFLOW PREVENTION ASSEMBLIES APPROVED BY FULTON COUNTY PUBLIC WORKS FOR INSTALLATION AT THE SERVICE CONNECTION MUST BE APPROVED BY THE FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH, UNIVERSITY OF SOUTHERN CALIFORNIA. THESE ASSEMBLIES ARE ONLY APPROVED FOR THE HORIZONTAL ORIENTATIONS. CHOICE OF THE TYPE OF BACKFLOW PREVENTION ASSEMBLY, I.E. REDUCED PRESSURE PRINCIPLE OR DOUBLE CHECK VALVE ASSEMBLY, WILL BE BASED ON THE DEGREE OF HAZARD AS EVALUATED BY FULTON COUNTY PUBLIC WORKS.

FOR FURTHER INFORMATION REFER TO THE FULTON COUNTY MANUAL ON CROSS CONNECTIONS.



FULTON COUNTY STANDARD DETAIL 807
REDUCED PRESSURE PRINCIPLE
BACKFLOW-PREVENTION ASSEMBLY

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD; REB
APPROVED: REW
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
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DRAWING NO.
807

REDUCED - PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY (RPBA)

DESCRIPTION

THE APPROVED REDUCED-PRESSURE PRINCIPLE BACKFLOW-PREVENTION ASSEMBLY CONSISTS OF TWO INDEPENDENTLY ACTING, APPROVED CHECK VALVES TOGETHER WITH A HYDRAULICALLY OPERATING, MECHANICALLY INDEPENDENT PRESSURE DIFFERENTIAL RELIEF VALVE LOCATED BETWEEN THE CHECK VALVES AND BELOW THE FIRST CHECK VALVE. THESE UNITS ARE LOCATED BETWEEN TWO TIGHTLY CLOSING RESILIENT-SEATED SHUTOFF VALVES, AS AN ASSEMBLY, AND ARE EQUIPPED WITH PROPERLY LOCATED RESILIENT-SEATED TEST COCKS AS SHOWN.

APPLICATION

THE RPBA IS EFFECTIVE AGAINST BACKFLOW CAUSED BY BACKPRESSURE AND BACKSIPHONAGE. THE RPBA IS NORMALLY USED IN LOCATIONS WHERE AN APPROVED AIR GAP IS IMPRACTICAL.

INSTALLATION

THE RPBA SHALL BE INSTALLED WITH ADEQUATE SPACE TO FACILITATE MAINTENANCE AND TESTING. THE INSTALLATION SHOULD NOT REQUIRE PLATFORMS, LADDERS, OR LIFTS FOR ACCESS. ADEQUATE CLEARANCE FROM THE FLOOR, CEILING, AND WALLS MUST BE PROVIDED TO FACILITATE THE REMOVAL OF THE RELIEF VALVE AND/OR CHECK VALVES.

AN RPBA MUST BE PROTECTED FROM FREEZING TEMPERATURES AND IF INSTALLED WHERE TEMPERATURES WILL REACH 110 DEGREES FAHRENHEIT (43 DEGREES CELSIUS) OR ABOVE, THE HOT-WATER TYPE OF ASSEMBLY MUST BE USED. CONSULT MANUFACTURER'S SPECIFICATIONS FOR RECOMMENDATIONS.

AN RPBA SHALL NOT BE INSTALLED IN A PIT BELOW GROUND LEVEL. SEMIBURIED PITS ARE ACCEPTABLE IF THE RPBA IS INSTALLED ABOVE THE GROUND OR THE MAXIMUM FLOOD LEVEL WITH THE APPROVED AIR GAP BETWEEN THE RELIEF VALVE PORT AND THE DAYLIGHT DRAIN.

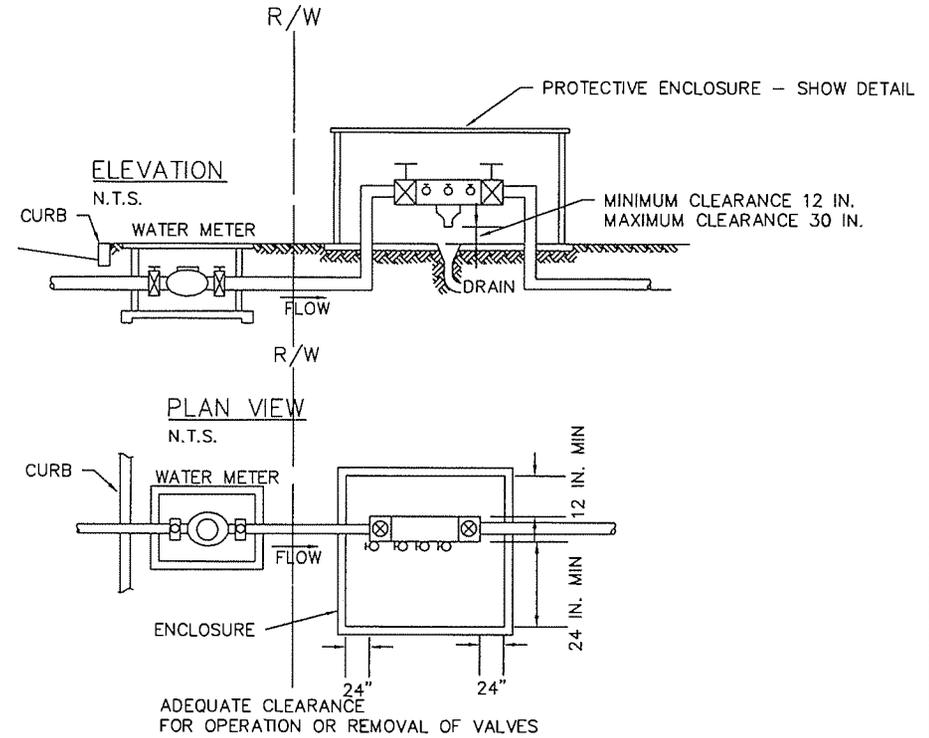
THE DAYLIGHT DRAIN FROM ABOVE GROUND OR SEMIBURIED VAULTS MUST PROVIDE: ADEQUATE DRAINAGE FOR THE DISCHARGE FROM THE REDUCED-PRESSURE PRINCIPLE ASSEMBLY RELIEF VALVE PORT. ACCESS FOR MAINTENANCE AND PERIODIC TESTING MUST ALSO BE PREPARED.

BEFORE INSTALLING AN RPBA, ENSURE THAT THE RELIEF VALVES ARE IN GOOD WORKING CONDITION.

IF THE RPBA IS LOCATED INSIDE A BUILDING, A DRAIN MUST BE PROVIDED TO RECEIVE SPILLAGE FROM THE RELIEF VALVE PORT. THE RELIEF VALVE PORT MUST ALWAYS HAVE AN APPROVED AIR GAP BETWEEN IT AND THE DRAIN OR MAXIMUM FLOOD LEVEL, WHICHEVER IS HIGHEST.

ALL REDUCED-PRESSURE PRINCIPLE ASSEMBLIES SHALL BE INSTALLED IN THE

THE RPBA SHALL NOT BE INSTALLED IN AN AREA WHERE CORROSIVE FUMES OR GASES COULD RENDER THE ASSEMBLY INOPERABLE.



FULTON COUNTY STANDARD DETAIL 808
 REDUCED PRESSURE PRINCIPLE
 BACKFLOW-PREVENTION ASSEMBLY

DATE	REVISIONS	DATE	REVISIONS

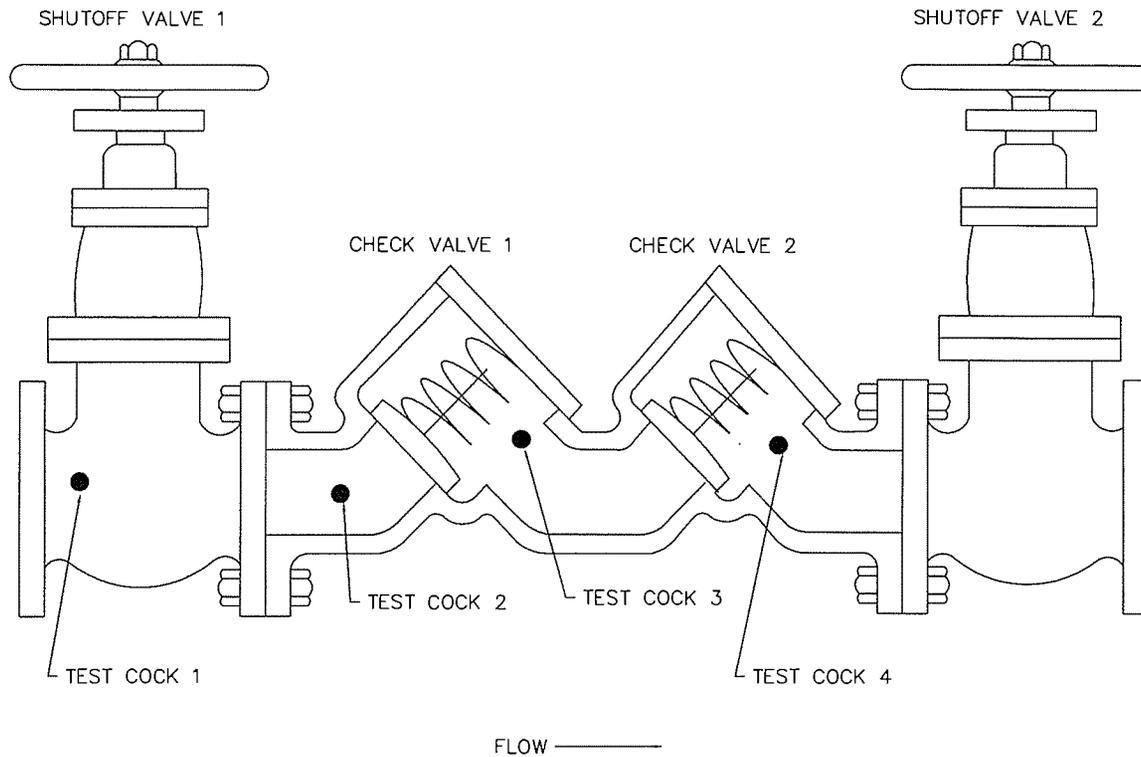
DGS/DRN/CHKD: REB
 APPROVED: REW
 DATE: 12-2-05



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808



NOTE: THE AIR-GAP OR MECHANICAL BACKFLOW PREVENTION ASSEMBLY SHALL BE INSTALLED SUBJECT TO THE APPROVAL OF FULTON COUNTY PUBLIC WORKS. ANY DEVIATION FROM THE METHODS DESCRIBED ABOVE MUST RECEIVE APPROVAL PRIOR TO INSTALLATION. ALL MECHANICAL BACKFLOW PREVENTION ASSEMBLIES APPROVED BY FULTON COUNTY PUBLIC WORKS FOR INSTALLATION AT THE SERVICE CONNECTION MUST BE APPROVED BY THE FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH, UNIVERSITY OF SOUTHERN CALIFORNIA. THESE ASSEMBLIES ARE ONLY APPROVED FOR THE HORIZONTAL ORIENTATIONS. CHOICE OF THE TYPE OF BACKFLOW PREVENTION ASSEMBLY, I.E. REDUCED PRESSURE PRINCIPLE OR DOUBLE CHECK VALVE ASSEMBLY, WILL BE BASED ON THE DEGREE OF HAZARD AS EVALUATED BY FULTON COUNTY PUBLIC WORKS.

FOR FURTHER INFORMATION REFER TO THE FULTON COUNTY MANUAL ON CROSS CONNECTIONS.

FULTON COUNTY STANDARD DETAIL 809
DOUBLE CHECK VALVE ASSEMBLY

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.

809

DOUBLE CHECK VALVE ASSEMBLE (DCVA)

DESCRIPTION

THIS ASSEMBLY CONSISTS OF TWO INTERNALLY LOADED CHECK VALVES, EITHER SPRING-LOADED OR INTERNALLY WEIGHTED, INSTALLED AS A UNIT BETWEEN TWO TIGHTLY CLOSING RESILIENT-SEATED SHUTOFF VALVES AS AN ASSEMBLY, AND FITTINGS WITH PROPERLY LOCATED RESILIENT-SEATED TEST COCKS AS SHOWN.

APPLICATION

THE DCVA IS EFFECTIVE AGAINST BACKFLOW CAUSED BY BACKPRESSURE AND BACKSIPHONAGE AND IS USED TO PROTECT THE WATER SYSTEM FROM POLLUTANTS THAT WOULD NOT CONSTITUTE AN ACTUAL HEALTH HAZARD, BUT THAT MIGHT BE OBJECTIONABLE TO THE WATER SUPPLY SYSTEM.

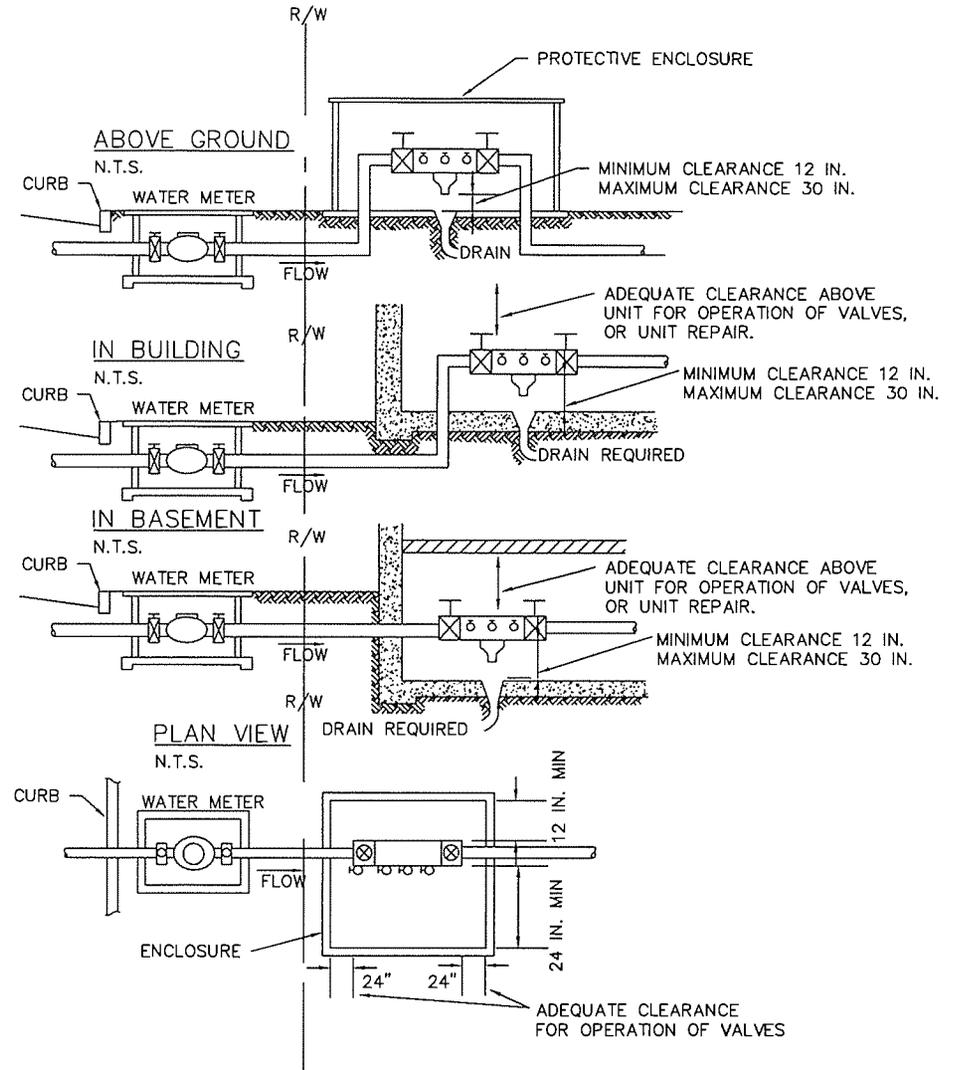
INSTALLATION

THE DCVA SHOULD BE INSTALLED WITH ADEQUATE SPACE TO FACILITATE MAINTENANCE AND TESTING AND SHOULD HAVE FREE ACCESS WITHOUT THE USE OF PLATFORMS, LADDERS, OR LIFTS.

A DCVA SHOULD NOT BE INSTALLED BELOW GROUND LEVEL UNLESS PROVIDED WITH ADEQUATE DRAINAGE TO MAINTAIN A DRY LOCATION. WHERE AN ASSEMBLY MUST BE INSTALLED IN A LOCATION THAT IS SUSCEPTIBLE TO FLOODING, SUCH AS A BASEMENT, THE TEST COCKS SHALL BE PLUGGED.

ALL DCVAS SHALL BE INSTALLED IN A HORIZONTAL POSITION UNLESS OTHERWISE RECOMMENDED BY THE MANUFACTURER AND/OR FULTON COUNTY PUBLIC WORKS.

A DCVA MUST BE PROTECTED FROM FREEZING TEMPERATURES. FOR TEMPERATURES OF 100 DEGREES FAHRENHEIT (43 DEGREES CELSIUS) OR ABOVE, CONSULT MANUFACTURER'S LITERATURE FOR RECOMMENDATIONS.



TYPICAL INSTALLATIONS WITH MINIMUM CLEARANCES
DOUBLE CHECK VALVE ASSEMBLIES

FULTON COUNTY STANDARD DETAIL 810
DOUBLE CHECK VALVE ASSEMBLY

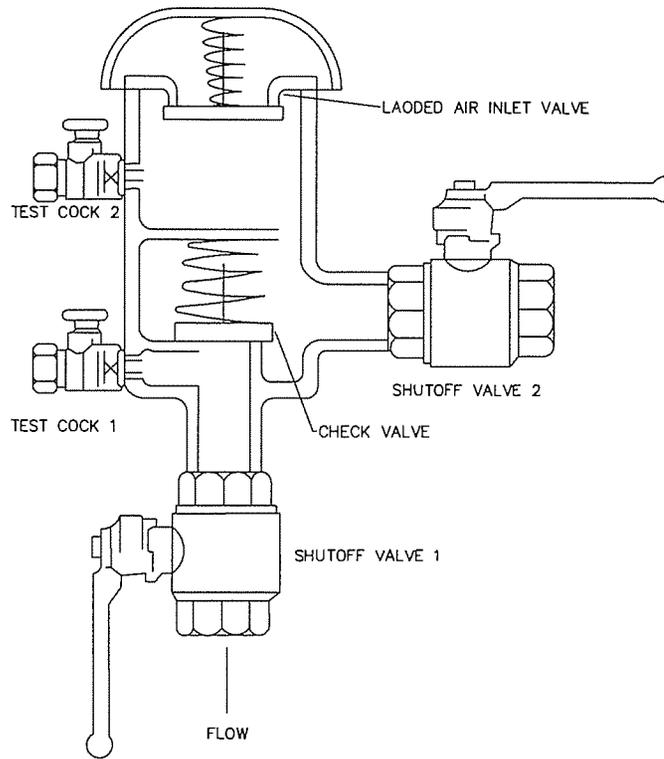
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
810



NOTE:

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FOR FURTHER INFORMATION REFER TO THE FULTON COUNTY BACKFLOW PREVENTION PROGRAM.

FULTON COUNTY STANDARD DETAIL 811
PRESSURE VACUUM BREAKER ASSEMBLY

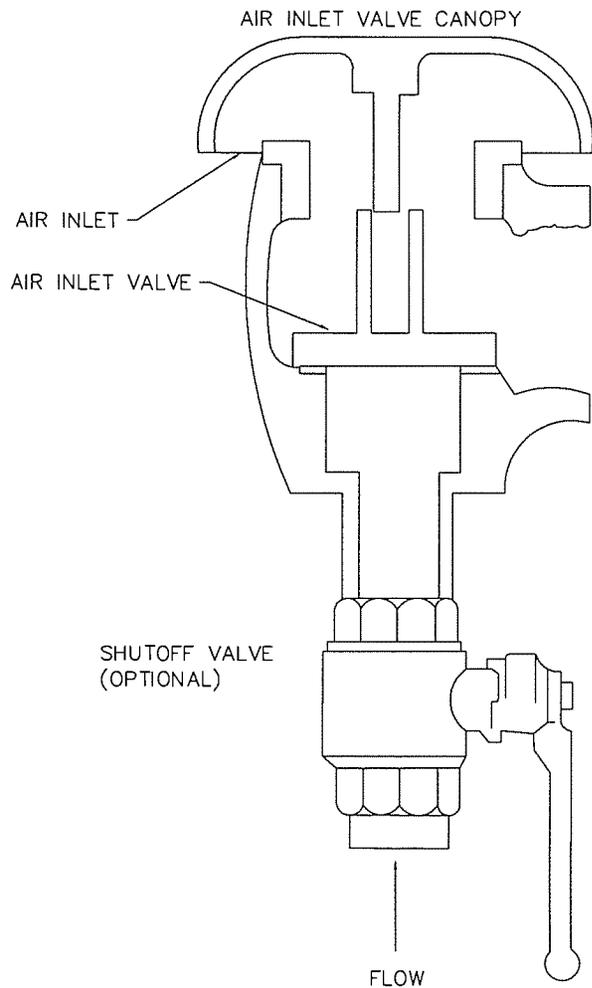
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.
811



NOTE:

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FOR FURTHER INFORMATION REFER TO THE FULTON COUNTY BACKFLOW PREVENTION PROGRAM.

FULTON COUNTY STANDARD DETAIL 812
ATMOSPHERIC VACUUM BREAKER ASSEMBLY

DATE	REVISIONS	DATE	REVISIONS

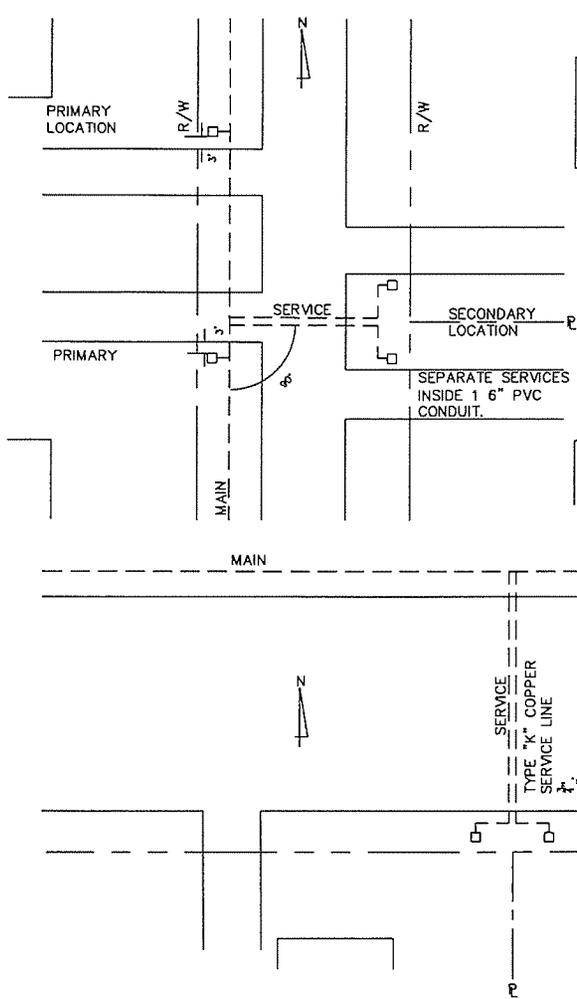
DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



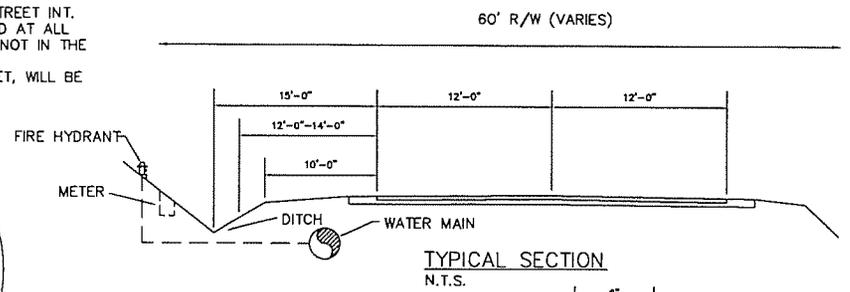
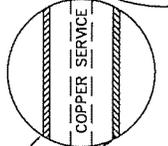
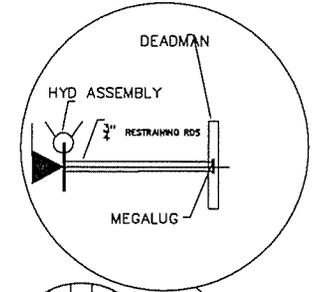
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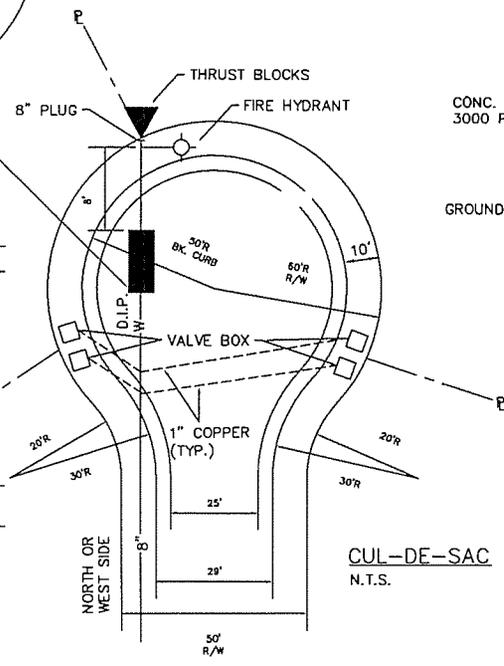
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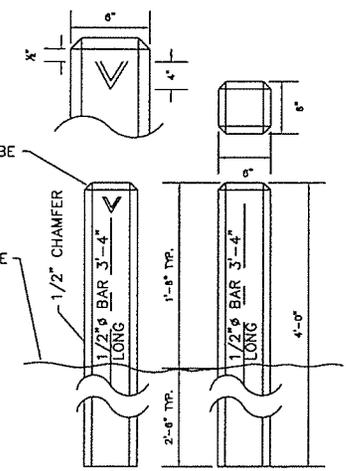
SEE STD. # 808 FOR VALVE LOC. AT STREET INT.
 WATER VALVE MARKERS WILL BE PLACED AT ALL
 LOCATIONS WHERE WATER VALVES ARE NOT IN THE
 STREET.
 WATER VALVES THAT ARE IN THE STREET, WILL BE
 CLEARLY MARKED ON THE CURB.



TYPICAL SECTION
 N.T.S.



CUL-DE-SAC
 N.T.S.



WATER VALVE MARKER DETAILS
 N.T.S.

SERVICE
 TYPE "K" COPPER
 SERVICE LINE
 4"
 6" P.V.C. SCH. 40 OR
 EQUAL AS CASING

FULTON COUNTY STANDARD DETAIL 813
 WATER METER INSTALLATION & 3/4" COPPER SERVICE
 WATER VALVE MARKERS

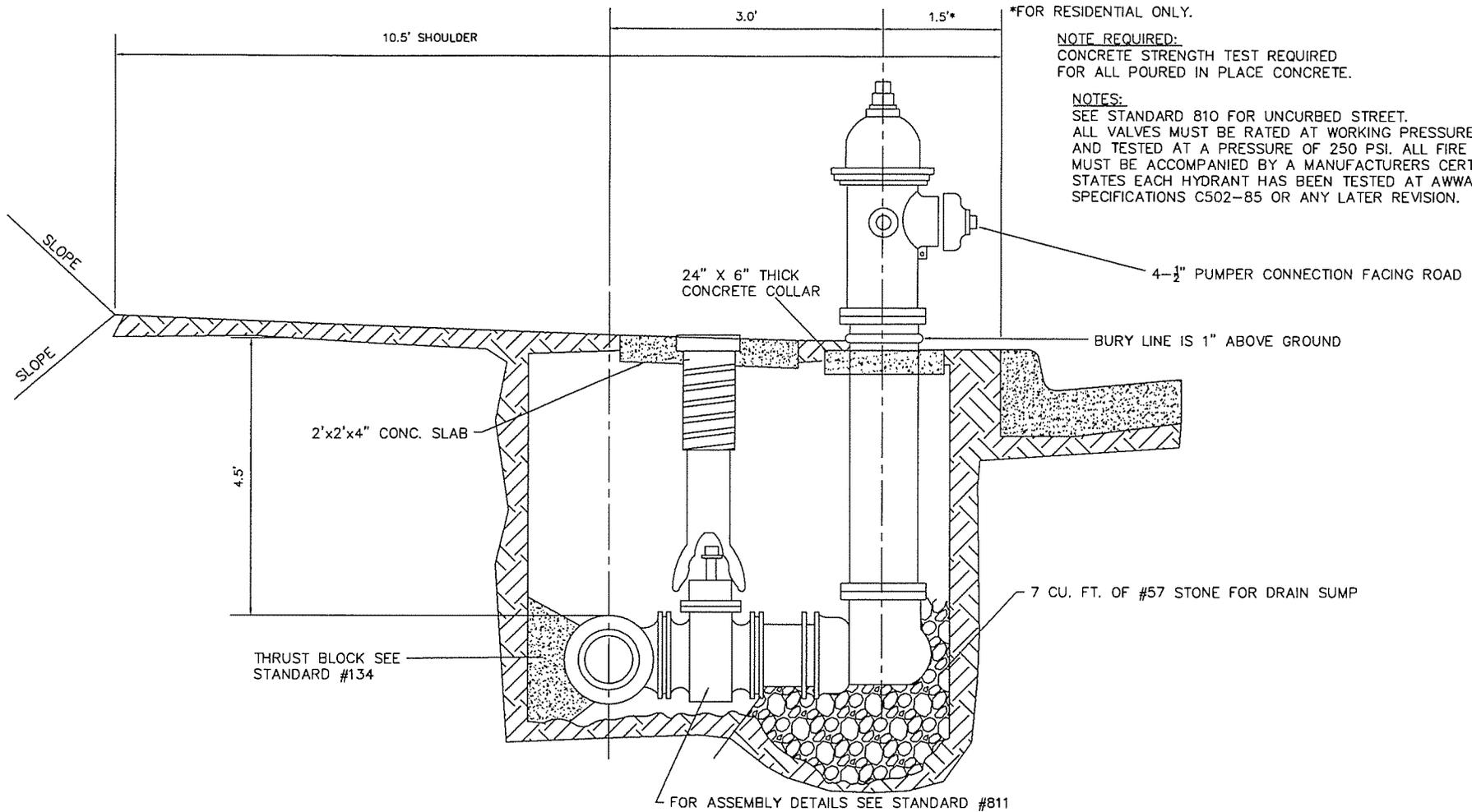
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
 APPROVED: REW
 DATE: 12-2-05



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DRAWING NO.
 813



*FOR RESIDENTIAL ONLY.

NOTE REQUIRED:
CONCRETE STRENGTH TEST REQUIRED
FOR ALL POURED IN PLACE CONCRETE.

NOTES:
SEE STANDARD 810 FOR UNCURBED STREET.
ALL VALVES MUST BE RATED AT WORKING PRESSURE OF 200 PSI
AND TESTED AT A PRESSURE OF 250 PSI. ALL FIRE HYDRANTS
MUST BE ACCOMPANIED BY A MANUFACTURERS CERTIFICATE THAT
STATES EACH HYDRANT HAS BEEN TESTED AT AWWA
SPECIFICATIONS C502-85 OR ANY LATER REVISION.

FULTON COUNTY STANDARD DETAIL 814
HYDRANT LOCATION DETAIL FOR
CURB & GUTTER STREETS

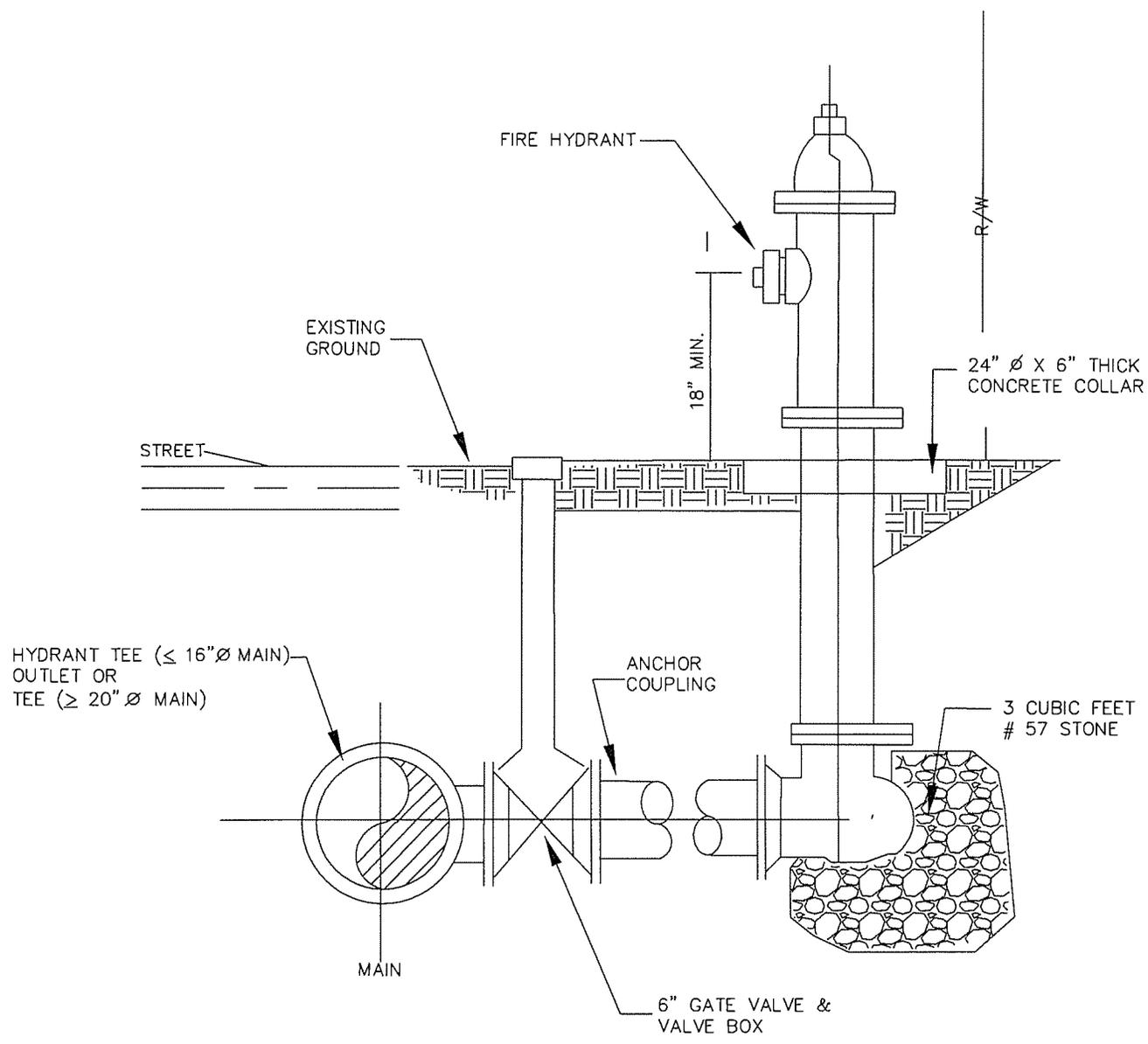
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



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814



FULTON COUNTY STANDARD DETAIL 815
FIRE HYDRANT STREET UNCURBED

DATE	REVISIONS	DATE	REVISIONS

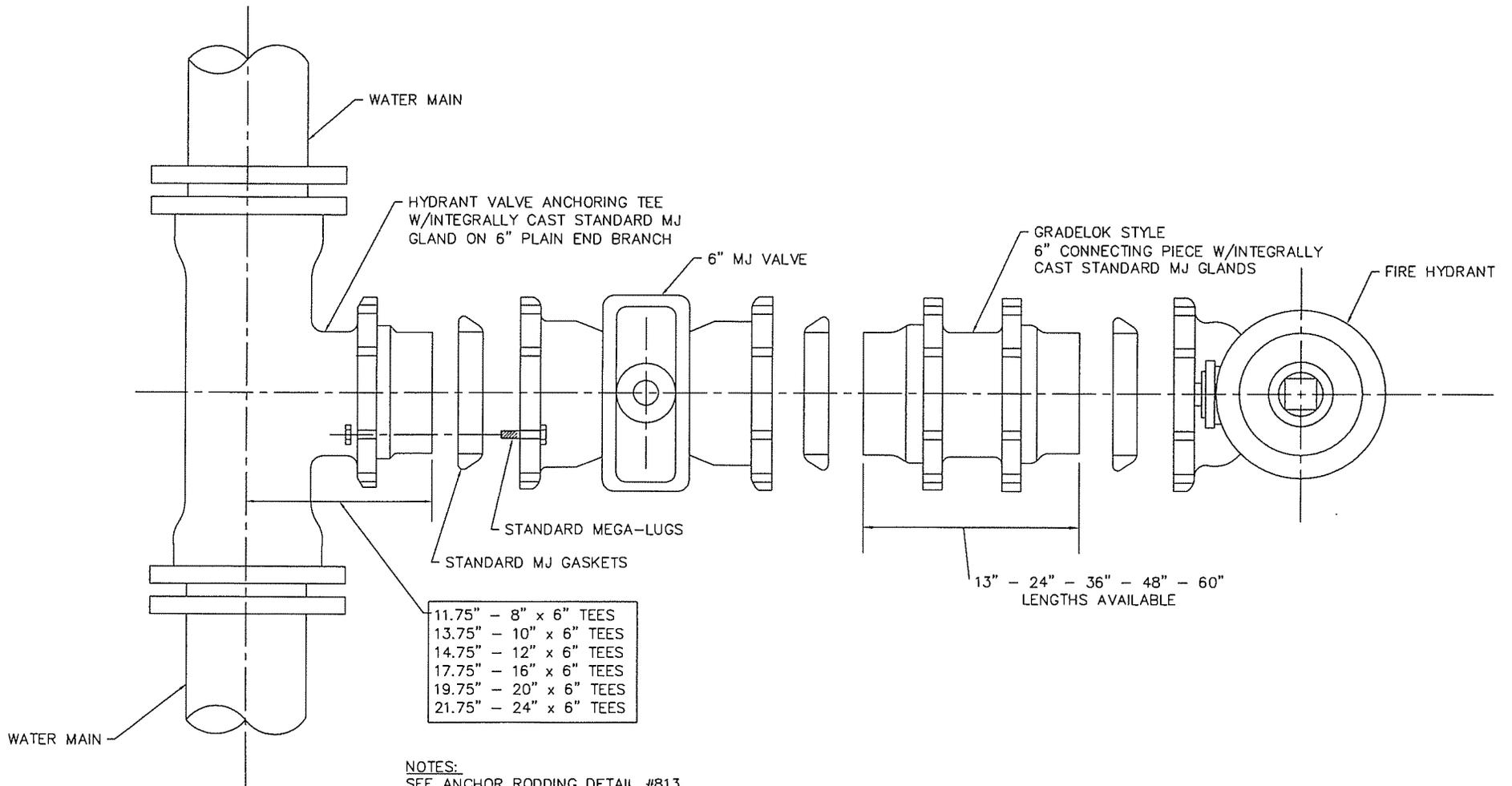
DGS/DRN/CHKD: REB
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DRAWING NO.

815



- 11.75" - 8" x 6" TEES
- 13.75" - 10" x 6" TEES
- 14.75" - 12" x 6" TEES
- 17.75" - 16" x 6" TEES
- 19.75" - 20" x 6" TEES
- 21.75" - 24" x 6" TEES

NOTES:
 SEE ANCHOR RODDING DETAIL #813.
 GRADE-LOCS CAN BE USED TO ADJUST
 HYDRANTS TO PROPER BURY DEPTH.

FULTON COUNTY STANDARD DETAIL 816
 FIRE HYDRANT INSTALLATION DETAILS

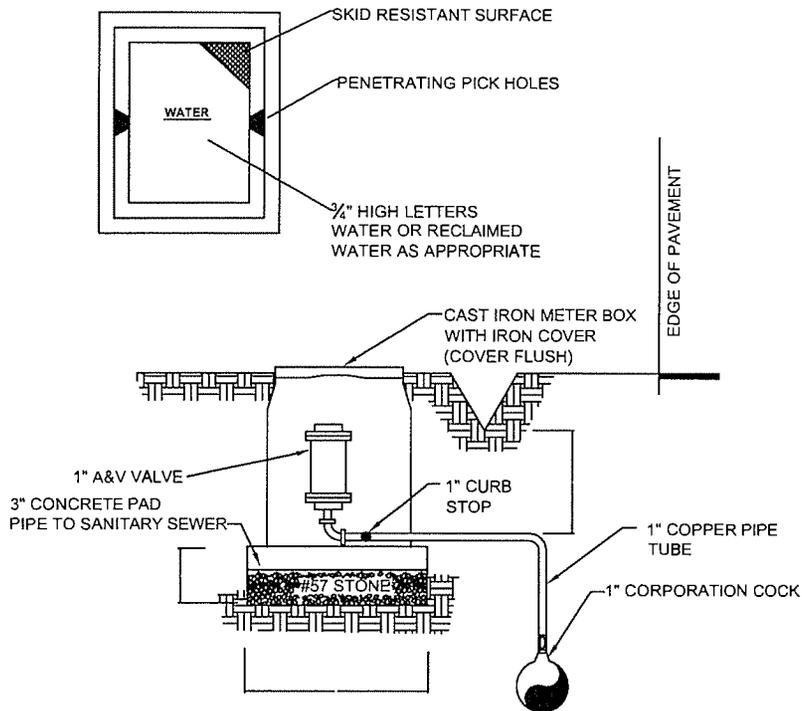
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
 APPROVED: REW
 DATE: 12-2-05



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 816



NOTES:

1. VALVE MARKER REQUIRED.
2. A & V VALVE AND COPPER SHALL BE SIZED IN ACCORDANCE WITH VALVE MANUFACTURER'S RECOMMENDATIONS.
3. METER BOX SHALL BE CDR 10 X 15HC OR APPROVED EQUAL
4. A & V VALVE SHALL BE VENT-O-MAT SERIES RBX OR EQUAL

FULTON COUNTY STANDARD DETAIL 817
 A & V RELEASE VALVE ASSEMBLY
 1" OR 2"

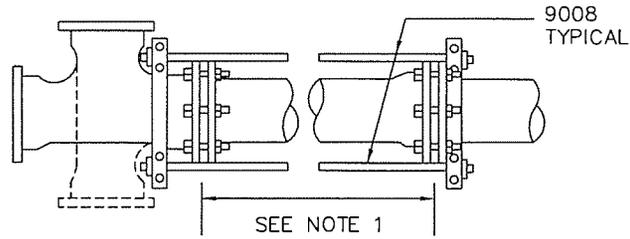
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
 APPROVED: REW
 DATE: 12-2-05

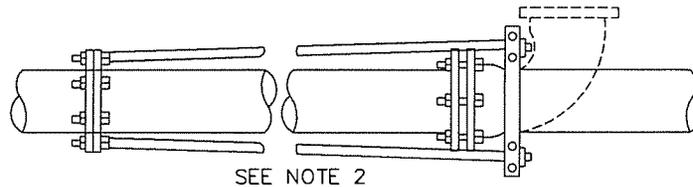


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DRAWING NO.
 817



TEE ANCHOR
N.T.S.



PIPE OR BEND ANCHOR TO FLANGE SPIGOT
N.T.S.

NOTES:

1. IN THE ASSEMBLIES OF RODS AND CLAMPS SHOWN, RODS RUN FROM A LUG ON THE FITTING (OR A CLAMP BEHIND THE HUB OF A BELL) TO A CLAMP AGAINST THE FACE OF A BELL. NOTE THAT THIS ARRANGEMENT ANCHORS ONLY ONE JOINT. THE STABILITY OF THE JOINT WHERE THE CLAMP IS AGAINST THE FACE OF THE BELL DEPENDS ON HAVING SOIL ABOVE A RELATIVELY LONG PIECE OF PIPE ON BOTH SIDES OF THE JOINT. CONSEQUENTLY, IF THE DISTANCE BETWEEN THE FIRST AND SECOND JOINT IS LESS THAN 12 FEET, THE SECOND JOINT SHOWN SHALL BE ANCHORED BY A CLAMP BEHIND THE HUB OF THE BELL AND RODS TO A CLAMP AT THE FACE OF THE NEXT BELL.
2. IN THE ASSEMBLIES SHOWN FOR RODS TO FLANGED FITTINGS, NOTE THAT THE FLANGED FITTING IS NOT TO BE BURIED IN SOIL.
3. AFTER INSTALLATION TIE RODS AND CLAMP ASSEMBLY SHALL BE THOROUGHLY COVERED WITH ROYSTON LABORATORIES INC. ROSKOTE MASTIC NO. A-938 OR KOPPERS CO INC. BITUMASTIC SUPERSERVICE BLACK OR APPROVED EQUIVALENT.
4. RODS TO BE HIGH TENSILE, HOT ROLLED STEEL WITH TENSILE STRENGTH OF 150,000 P.S.I. AND A MINIMUM YIELD STRENGTH OF 130,000 P.S.I.

FULTON COUNTY STANDARD DETAIL 818
TYPICAL ANCHORS

DATE	REVISIONS	DATE	REVISIONS

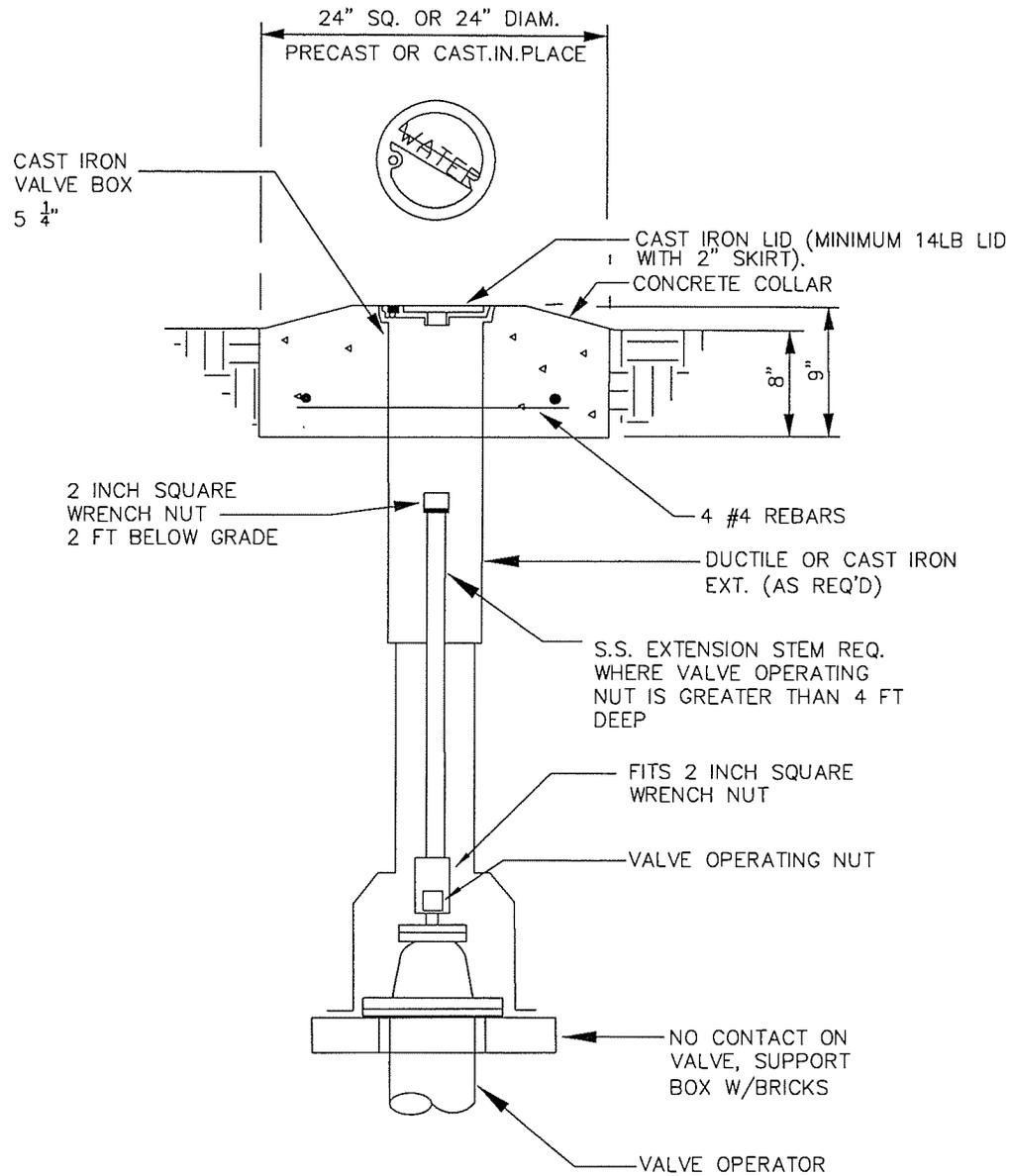
DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.

818



FULTON COUNTY STANDARD DETAIL 819
UNDERGROUND VALVE BOX

DATE	REVISIONS	DATE	REVISIONS

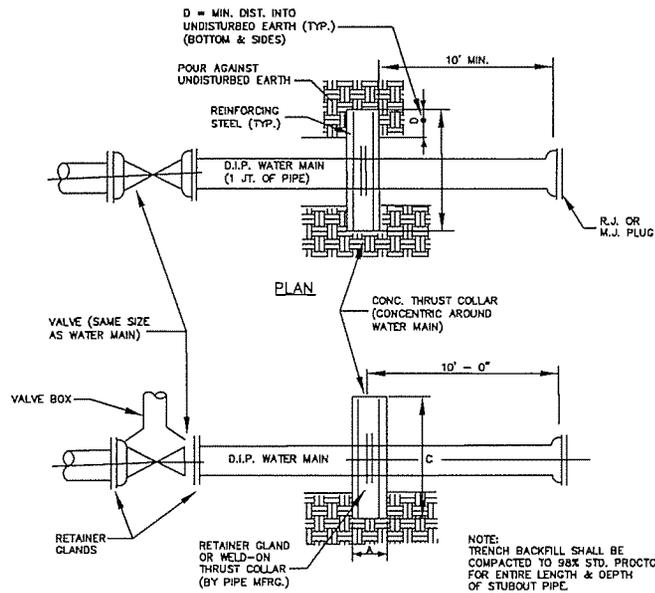
DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
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DRAWING NO.

819



SECTION

MAIN DIA	CONCRETE COLLAR DIM.				REINFORCING STEEL
	A	B	C	D	
24"	1'-10"	9'-3"	9'-3"	2'-9"	#9 @ 12" O.C. E.W.E.F.
18"	1'-3"	6'-6"	6'-6"	1'-10"	#8 @ 12" O.C. E.W.E.F.
10" OR 12"	1'-2"	5'-3"	5'-3"	1'-4"	#7 @ 12" O.C. E.W.E.F.
6" OR 8"	1'-0"	4'-0"	4'-0"	1'-0"	#6 @ 12" O.C. E.W.E.F.

TEST PRESSURE: 250 P.S.I.
SOIL BEARING PRESSURE: 2500 P.S.F.

NOTE:
TERMINATION DETAIL FOR LARGER
DIAMETER PIPE SHALL BE
DETERMINED FOR EACH PROJECT.

FULTON COUNTY STANDARD DETAIL 820
WATER MAIN TERMINATION

DATE	REVISIONS	DATE	REVISIONS

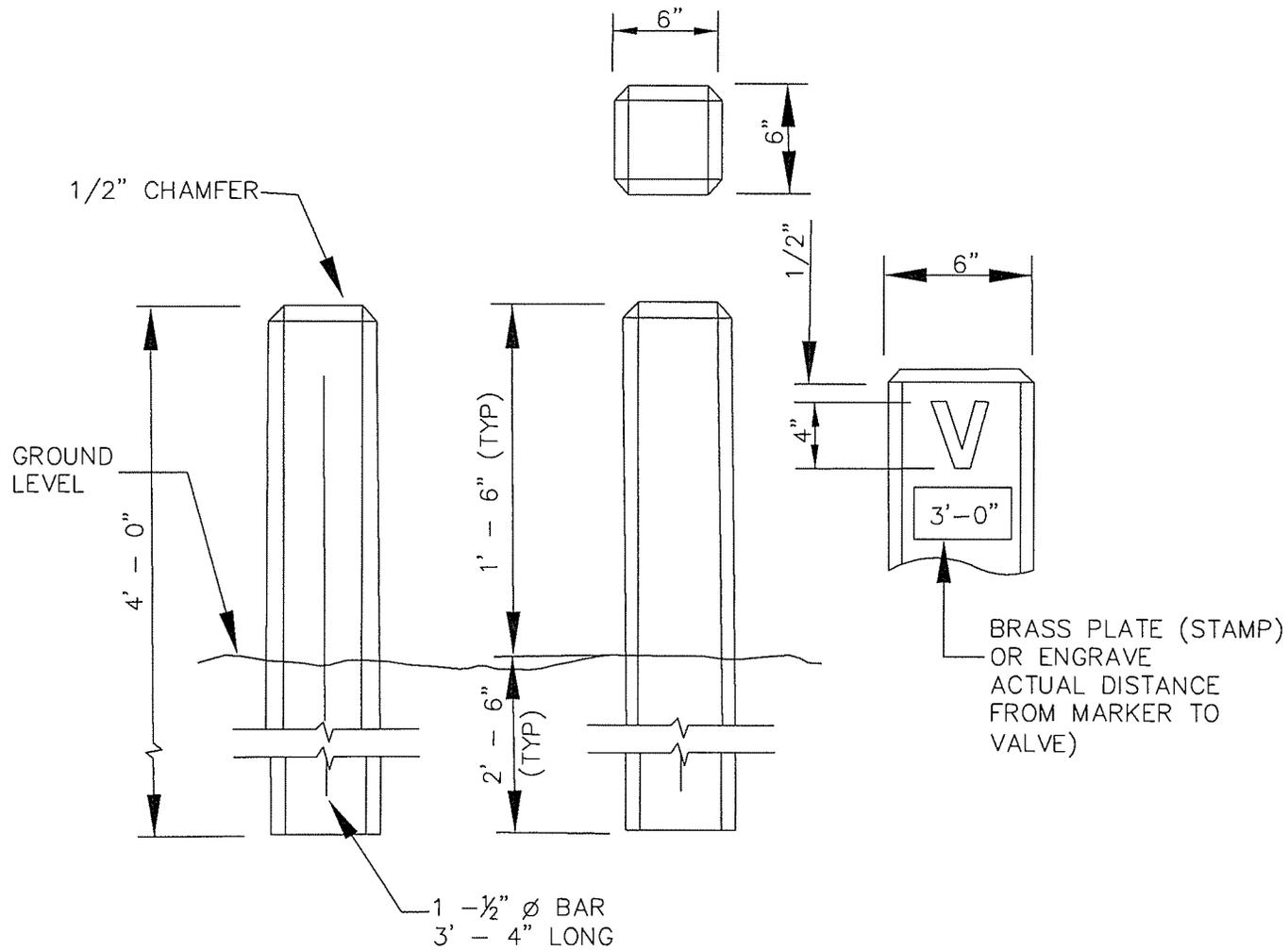
DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



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DRAWING NO.

820



FULTON COUNTY STANDARD DETAIL 821
WATER VALVE MARKER

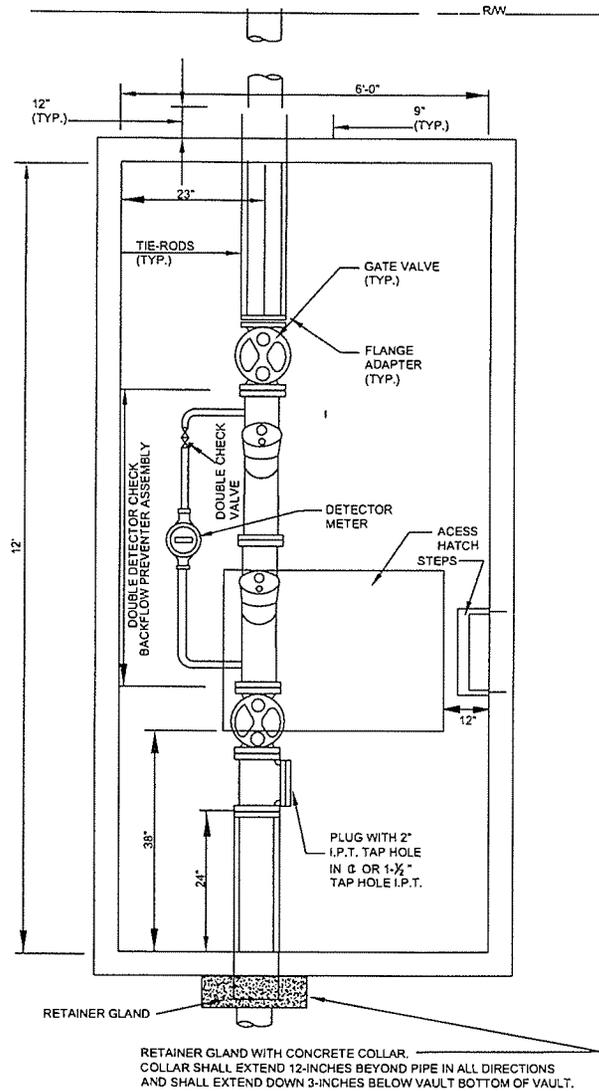
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30303
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DRAWING NO.
821



1. TYPE I VAULT SHALL BE USED FOR 3,4,6 OR 8-INCH DOUBLE DETECTOR CHECK BACKFLOW PREVENTER FOR USE WITH 1, 1-½ AND 2-INCH METER.
2. SEE SPECIFICATION SECTION 02665 FOR MATERIAL SPECIFICATIONS. ALL MATERIAL TO BE FURNISHED BY CONTRACTOR.
3. ALL FITTING SHALL BE DUCTILE IRON WITH FLANGED JOINTS. GATE VALVES SHALL BE OUTSIDE STEM AND YOKE (OSY) WITH HANDWHEEL.
4. VAULT SHALL BE PRECAST CONCRETE. MIN. INSIDE HEIGHT SHALL BE 6 FEET. LOAD BEARING VAULT SHALL BE DESIGNED BY PROPERTY OWNER'S ENGINEER, AND SUBMITTED TO COUNTY FOR APPROVAL.
5. ACCESS HATCH/FLOOR DOOR SHALL BE MIN. 36" X 36".
6. VAULT FLOOR SHALL BE # 57 CRUSHED STONE, MIN. 6-INCHES THICK.
7. PROVIDE CONCRETE PIER UNDER BFP 12" X 12" X 18" HIGH.
8. PROVIDE RETAINER GLAND ON PIPE BEYOND VAULT WALLS. PROVIDE TWO TIE RODS FROM FIRST INTERIOR FLANGE TO RETAINER GLANDS, WITH DOUBLE NUTS AND WASHERS. ENCASE RETAINER GLANDS IN CONCRETE. ALSO, PROVIDE TIE RODS FROM RETAINER GLAND TO TAPPING VALVE OR CASING UNDER ROAD, WHICH-EVER IS CLOSER. RODS SHALL BE PROVIDED WITH BITUMASTIC COATING.
9. VAULT WALL OPENINGS SHALL BE SEALED WITH NON-SHRINK GROUT. ENSURE 1-INCH CLEARANCE BETWEEN TOP OF PIPE AND PRECAST WALL.
10. MANHOLE STEPS SHALL BE DOWELLED INTO VAULT WALL AND CENTERED ON ACCESS HATCH.

FULTON COUNTY STANDARD DETAIL 822
FIRE LINE VAULT-TYPE I

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
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DRAWING NO.
822

ASSUMPTIONS FOR STANDARD LENGTHS

PIPE: DUCTILE IRON, AWWA C-151
SOIL: GC & SC. CLAYEY GRAVELS, CLAYEY SANDS, GRAVEL-SAND-CLAY MIXTURES, SAND-CLAY MIXTURES.
AVERAGE DEPTH OF BURY: 4 FT
TRENCH TYPE: 4
TEST PRESSURE: 250 PSI
SAFETY FACTOR: 1.5:1 (BASED ON TEST PRESSURE)

NOTES:

1. A FULL LENGTH OF PIPE ATTACHED TO EACH SIDE RUN OR BRANCH OUTLET SHALL BE INSTALLED, NO CUT OR PIECE OF PIPE SHALL BE USED.
2. WHERE FILL DIRT HAS BEEN ADDED TO SHOULDER, DEADMAN WILL BE INSTALLED 10 FT. FROM ANY BRANCH OUTLET OR END PIPE.
3. ALL JOINTS THAT FALL WITHIN THESE STANDARD LENGTH SHOULD BE RESTRAINED. (ON EACH SIDE OF BENDS ON THE BRANCH OUTLET OF TEES, AND BEFORE DEAD-ENDS).
4. STANDARD LENGTHS SHALL BE MODIFIED IF ACTUAL CONDITIONS DO NOT MEET MINIMUM REQUIREMENTS IN "ASSUMPTIONS FOR STANDARD LENGTHS".

RECOMMENDED RESTRAINED LENGTHS OF DUCTILE IRON PIPE

NOM. PIPE SIZE (IN)	90 DEG. BEND	45 DEG. BEND	22.5 DEG. BEND	11.25 DEG. BEND	SIZE ON SIZE TEE*	VALVE/ DEAD-END
6	19 FT	8 FT	4 FT	2 FT	3 FT	35 FT
8	25 FT	11 FT	5 FT	3 FT	13 FT	46 FT
10	30 FT	13 FT	6 FT	3 FT	23 FT	56 FT
12	36 FT	15 FT	7 FT	4 FT	34 FT	67 FT
14	41 FT	17 FT	8 FT	4 FT	43 FT	77 FT
16	46 FT	19 FT	9 FT	5 FT	53 FT	87 FT
18	51 FT	21 FT	10 FT	5 FT	63 FT	96 FT
20	56 FT	23 FT	11 FT	6 FT	72 FT	106 FT
24	65 FT	27 FT	13 FT	7 FT	91 FT	126 FT

*RECOMMENDED RESTRAINED LENGTHS FOR TEES ARE FOR THE BRANCH OUTLET AND ASSUME A MINIMUM 10 FT. SECTION OF PIPE ATTACHED TO EACH SIDE OF THE RUN. RESTRAINT DEVICES SHOULD ALSO BE INSTALLED ON BOTH RUN JOINTS OF THE TEE ITSELF.

FULTON COUNTY STANDARD DETAIL 823
RESTRAINED JOINT PIPE STANDARD
LENGTHS

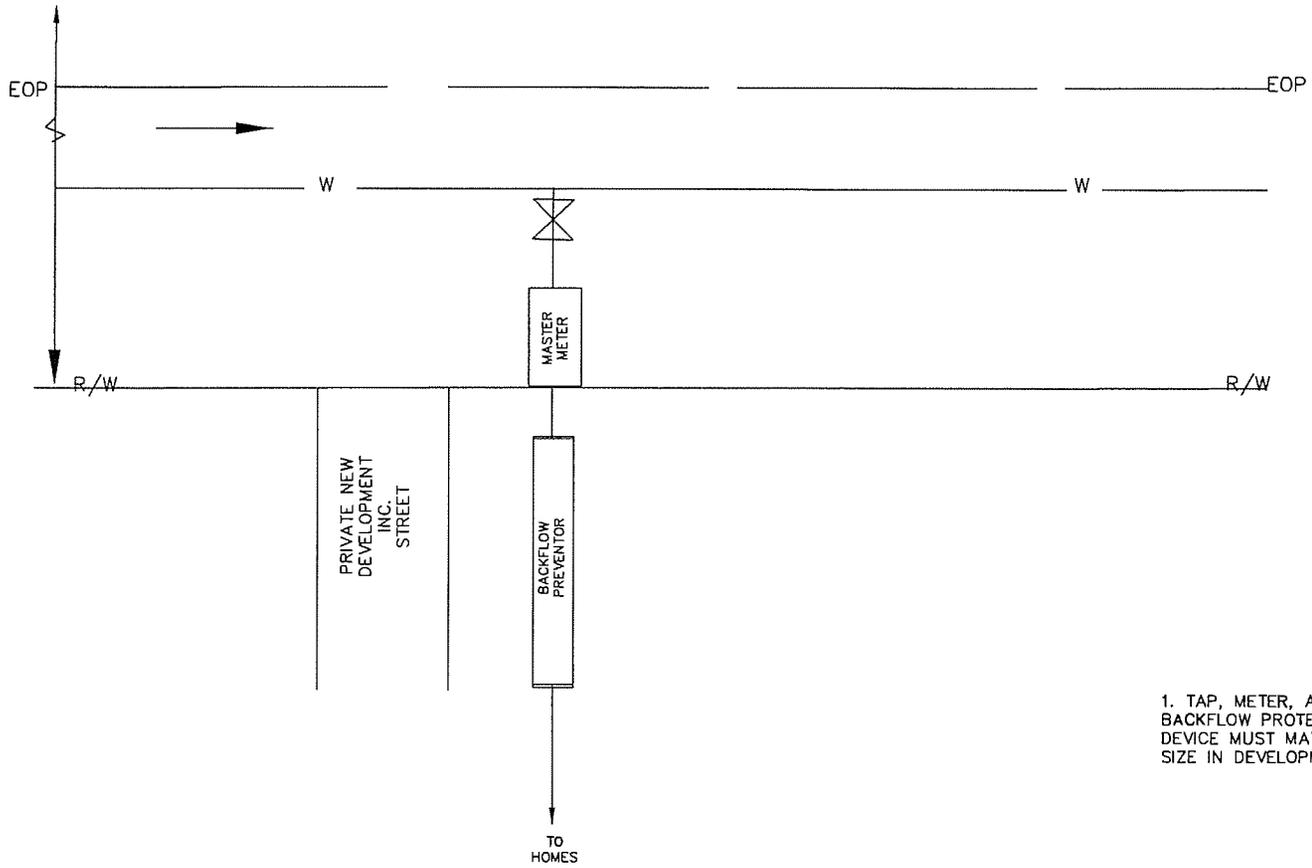
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: REB
APPROVED: REW
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
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DRAWING NO.
823



1. TAP, METER, AND
BACKFLOW PROTECTION
DEVICE MUST MATCH MAIN
SIZE IN DEVELOPMENT.

N.T.S.

FULTON COUNTY STANDARD DETAIL 824
WATER SERVICES
TOWNHOME/APT./CONDOMINIUM
PRIVATE DEVELOPMENT

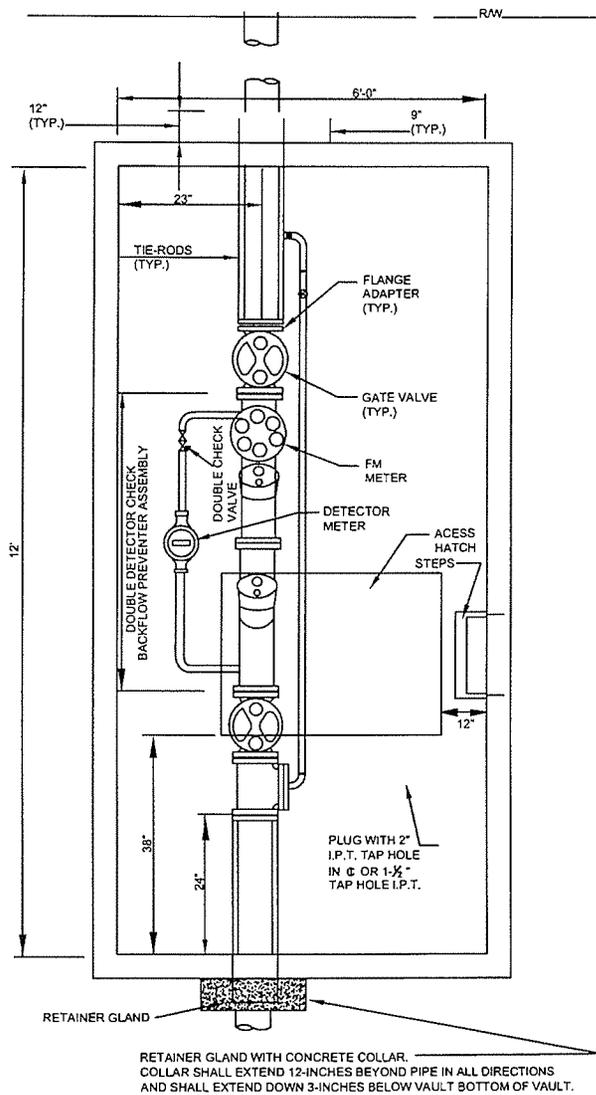
DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 12-2-05



FULTON COUNTY PUBLIC WORKS
141 PRYOR ST. ATLANTA, GA. 30303
404-730-7400 FAX: 404-224-0498

DRAWING NO.
824



1. TYPE I VAULT SHALL BE USED FOR 3,4,6 OR 8-INCH FM METER.
2. SEE SPECIFICATION SECTION 02665 FOR MATERIAL SPECIFICATIONS. ALL MATERIAL TO BE FURNISHED BY CONTRACTOR.
3. ALL FITTINGS SHALL BE DUCTILE IRON WITH FLANGED JOINTS. GATE VALVES SHALL BE WITH HANDWHEELS.
4. VAULT SHALL BE PRECAST CONCRETE. MIN. INSIDE HEIGHT SHALL BE 6 FEET. LOAD BEARING VAULT SHALL BE DESIGNED BY PROPERTY OWNER'S ENGINEER, AND SUBMITTED TO COUNTY FOR APPROVAL.
5. ACCESS HATCH/FLOOR DOOR SHALL BE MIN. 36"X36" (BILCO MODEL PCM-5) FOR 3 & 4-INCH METERS OR 54"X54" (BILCO MODEL PDCM-3) FOR 6 & 8-INCH METERS.
6. VAULT FLOOR SHALL BE # 57 CRUSHED STONE, MIN. 6-INCHES THICK.
7. PROVIDE RETAINER GLAND ON PIPE BEYOND VAULT WALLS. PROVIDE TWO TIE RODS FROM FIRST INTERIOR FLANGE TO RETAINER GLANDS, WITH DOUBLE NUTS AND WASHERS. ENCASE RETAINER GLANDS IN CONCRETE. ALSO, PROVIDE TIE RODS FROM RETAINER GLAND TO TAPPING VALVE OR CASING UNDER ROAD, WHICHEVER IS CLOSER. RODS SHALL BE PROVIDED WITH BITUMASTIC COATING.
8. VAULT WALL OPENINGS SHALL BE SEALED WITH NON-SHRINK GROUT. ENSURE 1-INCH CLEARANCE BETWEEN TOP OF PIPE AND PRECAST WALL.
9. MANHOLE STEPS SHALL BE DOWELLED INTO VAULT WALL AND CENTERED ON ACCESS HATCH.

FM METER		
METER SIZE	6" & 8"	3" & 4"
VAULT INTERIOR DIMENSION	12' X 6'	9' X 5'

FULTON COUNTY STANDARD DETAIL 825
FM ASSEMBLY

DATE	REVISIONS	DATE	REVISIONS

DGS/DRN/CHKD: CMS
APPROVED: REW
DATE: 3-7-06



FULTON COUNTY PUBLIC WORKS
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DRAWING NO.
825

SEGMENT B.1**ITEM B-1 - EROSION AND SEDIMENTATION CONTROL**

a	6000	L.F.	Reinforced Silt Fence (Type-C)	\$ _____/LF	\$ _____
b	17	Each	Hay Bale Check Dam	\$ _____/EA	\$ _____
c	3	Each	Curb Inlet Filter	\$ _____/EA	\$ _____
d	7,500	S.Y.	Water Main Grassing	\$ _____/SY	\$ _____
e	2,000	S.Y.	Sod	\$ _____/SY	\$ _____
f	50	S.Y.	Rip Rap	\$ _____/SY	\$ _____

ITEM B-2 - DUCTILE IRON PIPE WATER MAIN

a	2,920	L.F.	54-Inch DIP, Class 250, RJP	\$ _____/LF	\$ _____
b	1,550	L.F.	12-Inch DIP, Class 350,	\$ _____/LF	\$ _____
c	30	L.F.	36-Inch DIP, Class 250, RJP	\$ _____/LF	\$ _____
d	60	L.F.	24-Inch DIP, Class 250, RJP	\$ _____/LF	\$ _____
e	30	L.F.	8-Inch DIP, Class 350, RJP	\$ _____/LF	\$ _____
f	60	L.F.	6-Inch DIP, Class 350, RJP	\$ _____/LF	\$ _____
g	30	Each	Electronic Locator Balls for 12" line	\$ _____/EA	\$ _____
h	60	Each	Electronic Locator Full Range for 54" line	\$ _____/EA	\$ _____

ITEM B-3 - FITTINGS

a	15	Tons	Fittings, DIP, RJ	\$ _____/TN	\$ _____
b	1	Each	54"x24" Tee (MJ Fitting)	\$ _____/EA	\$ _____
c	2	Each	8" Welded On Outlet (ARV)	\$ _____/EA	\$ _____
d	1	Each	36" Plug Welded (ARV)	\$ _____/EA	\$ _____
e	1	Each	36"x36" Tee (ARV)	\$ _____/EA	\$ _____

ITEM B-4 - FIRE HYDRANTS

a	2	Each	Fire Hydrant Assembly - Complete	\$ _____/EA	\$ _____
b	20	V.F.	Hydrant Extension	\$ _____/VF	\$ _____

ITEM B-5 - VALVES

a	3	Each	54" Butterfly Valve, Class 250	\$ _____/EA	\$ _____
b	1	Each	36" Butterfly Valve & Box, Class 250	\$ _____/EA	\$ _____
c	1	Each	24" Gate Valve & Box, Class 350(For ARV)	\$ _____/EA	\$ _____
d	1	Each	8" Gate Valve & Box, Class 350 (For Blow-OFF)	\$ _____/EA	\$ _____
e	3	Each	6" Gate Valve & Box, Class 350	\$ _____/EA	\$ _____
f	3	Each	Vault, for 54" Butterfly Valve	\$ _____/EA	\$ _____

ITEM B-7 - CONNECT TO EXISTING WATER MAINS

a	2	Each	Remove Existing Plug & tie 12-Inch Water Line	\$ _____/EA	\$ _____
b	1	Each	Remove Existing Plug & tie to 54-Inch Water Line	\$ _____/EA	\$ _____
c	1	Each	54"-Install Dead-man & Plug (FC.Std.)	\$ _____/EA	\$ _____
d	2	Each	12-Inch Tapping Sleeve and Valve	\$ _____/EA	\$ _____

ITEM B-8 – AIR RELEASE / BLOW-OFF VALVE ASSEMBLY

a	1	Each	ARV Assembly Complete (With Vent-O-Mat DN200 8" Size)	\$____/EA	\$_____
b	1	Each	Blow-off Valve Assembly Complete	\$____/EA	\$_____

ITEM B-9 - BORE AND JACK CASING

a	135	L.F.	72-Inch Steel Casing Pipe	\$____/LF	\$_____
b	185	L.F.	18-Inch Steel Casing Pipe	\$____/LF	\$_____

ITEM B-10 - REMOVE AND REPLACE PAVEMENT

a	2,000	S.Y	Asphalt Roadway	\$____/SY	\$_____
b	3,000	S.Y.	Resurface Asphalt Pavement	\$____/SY	\$_____
c	1000	S.Y.	Asphalt Driveway	\$____/SY	\$_____
d	500	S.Y.	Concrete Driveway	\$____/SY	\$_____
e	50	L.F.	Railing (remove and replace with new)	\$____/LF	\$_____

ITEM B-11 - REMOVE AND REPLACE CURB AND GUTTER

a	3,000	L.F.	Concrete Curb and Gutter	\$____/LF	\$_____
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ITEM B-12 – REMOVE AND REPLACE SIDEWALK

a	1000	L.F.	Concrete Sidewalk	\$____/LF	\$_____
b	60	L.F.	Temporary 4' Wide Gravel For Greenway	\$____/LF	\$_____

ITEM B-13-WATER SERVICES CHANGE OVER

a	5	Each	3"/4–2" Copper Service Line Connection	\$____/EA	\$_____
b	5	Each	Remove & Replace with new service meter box	\$____/EA	\$_____

ITEM B-14 – PIPE ENCASEMENT

a	280	L.F.	Polyethylene Encasement	\$____/LF	\$_____
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ITEM B-15 – CREEK CROSSING

a	105	L. F.	54- Inch DIP Class 250 RJP (Including all accessories & erosion control measure)	\$____/LF	\$_____
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ITEM B-16 – UTILITY RELOCATION

a	20	L.F.	8" SS Relocation	\$____/LF	\$_____
b	10	V.F.	4' Dia. Manhole (base, cone & cover)	\$____/LF	\$_____

***** ADDITIONAL WORK IF ORDERED BY THE OWNER OR ENGINEER *****

ITEM B-17 – CONCRETE ENCASEMENT

a	120	C.Y.	Concrete Encasement	\$____/CY	\$_____
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ITEM B-18 - TRENCH ROCK EXCAVATION

a	1000	C.Y.	Trench Rock Excavation	\$____/CY	\$_____
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ITEM B-19 - TRENCH STABILIZATION

a	1,000	C.Y.	Beyond Bedding	\$____/CY	\$_____
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ITEM B-20 – TREE PROTECTION

a 2,500 L.F. Orange Safety Fence \$ ____/LF \$ _____

ITEM B-21 - THRUST RESTRAINT

a 400 C.Y. Thrust Blocking & Collar including Reinf. \$ ____/CY \$ _____

**SEGMENT “B.1” SUBTOTAL – ITEMS B-1 THRU B-21-
ITEM B-22 CASH ALLOWNCES:**

a	Soils, Concrete, Asphalt and Materials Testing	\$ <u>50,000</u>
b	Construction Verification Surveying	\$ <u>25,000</u>
c	Blasting Monitoring	\$ <u>25,000</u>
d	Additional Landscaping (Not shown on Drawings)	\$ <u>25,000</u>
e	Utility Conflict Resolution	\$ <u>100,000</u>
f	Unforeseen Conditions	\$ <u>100,000</u>
g	Work to be directed by Owner	\$ <u>225,000</u>

TOTAL – ITEMS (B-1 THRU B-21) + B-22 \$ _____

The Bidder agrees hereby to commence work under this Contract, with adequate personnel and equipment, on a date to be specified in a written order of the Contracting Officer and to fully complete all work under this Contract within 240 consecutive calendar days from and including said date.

The Bidder declares that he understands that the quantities shown for the unit prices items are subject to either increase or decrease, and that should the quantities of any of the items of work be increased, the Bidder proposes to do the additional work at the unit prices stated herein; and should the quantities be decreased, the Bidder also understands that payment will be made on the basis of actual quantities at the unit price bid and will make no claim for anticipated profits for any decrease in quantities; and that actual quantities will be determined upon completion of work, at which time adjustments will be made to the contract amount by direct increase or decrease.

In case of discrepancies between the figures shown in the unit prices and the totals, the unit prices shall apply and the totals shall be corrected to agree with the unit prices. In case of discrepancies between written amounts and figures, written amounts shall take precedence over figures and the sum of all Bid extensions (of unit prices) plus lump sum items shall take precedence over BID TOTAL.

The Bidder furthermore agrees that, in the case of a failure on his part to execute the Contract Agreement and Bonds within ten (10) days after receipt of conformed contract documents for execution, the Bid Bond accompanying his bid and the monies payable thereon shall be paid into the funds of the Owner as liquidated damages for such failure.