

PIPE CULVERT MATERIALS ALTERNATE CHART

TYPE OF PIPE INSTALLATION			CORRUGATED STEEL AASHTO M-36		CORRUGATED ALUMINUM AASHTO M-196	PLASTIC					
			ALUMINUM COATED (TYPE 2) CORRUGATED STEEL	PLAIN ZINC COATED	PLAIN UNCOATED ALUMINUM	CORRUGATED POLY-ETHYLENE AASHTO M-252	CORR. POLY-ETHYLENE SMOOTHED LINED AASHTO M-294 TYPE 'S'	POLY VINYL CHLORIDE (PVC) PROFILE WALL AASHTO M-304	POLY VINYL CHLORIDE (PVC) CORRUGATED INTERIOR ASTM F-949		
S T O R M D R A I N	LONGITUDINAL INTERSTATE AND TRAVEL BEARING		X								
	LONGITUDINAL NON-INTERSTATE AND NON-TRAVEL BEARING		X	X	X		X	X	X		
	C R O S S D R A I N	GRADE ≤ 10%	ADT < 250	X	X	X		X	X	X	
			250 < ADT < 1,500	X		X		X	X	X	
			1,500 < ADT < 15,000	X				X	X	X	
			ADT > 15,000	X							
	D R A I N	GRADE > 10%	ADT < 250		X	X		X	X	X	
			ADT > 250			X		X	X	X	
	SIDE DRAIN		X	X	X	X		X	X	X	
	PERMANENT SLOPE DRAIN			X	X	X		X	X	X	
PERFORATED UNDERDRAIN			X	X	X	X	X		X		

NOTE:

1. ALLOWABLE MATERIALS ARE INDICATED BY AN "X".
2. STRUCTURE REQUIREMENTS OF STORM DRAIN PIPE WILL BE IN ACCORDANCE WITH GEORGIA STANDARD 1030-D OR 1030-P, WHICHEVER IS APPLICABLE, AND THE STANDARD SPECIFICATIONS.
3. GRADED AGGREGATE BACKFILL SHALL BE USED IN CROSS DRAIN APPLICATIONS FOR ALL PLASTIC PIPES (AASHTO M-294, HDPE PIPE; AASHTO M-304, PVC PIPE; ASTM F-949, PVC PIPE).
4. USE THE ALLOWABLE MATERIALS CHART UNLESS NOTED OTHERWISE IN THE PLANS.
5. TEMPORARY PIPE MAY BE PLASTIC, CMP, OR CONCRETE.
6. THE CONTRACTOR SHALL PROVIDE ADDITIONAL STORM SEWER CAPACITY CALCULATIONS IF A PIPE MATERIAL OTHER THAN CONCRETE IS SELECTED.
7. CROSS DRAIN AND STORM DRAIN PIPE:
 UNLESS NOTED OTHERWISE IN THE PLANS, THE PIPE SIZES SPECIFIED FOR CROSS DRAIN PIPE AND STORM DRAIN PIPE ARE BASED ON A MANNING'S "N" DESIGN VALUE OF 0.012. ALTERNATE PIPE MATERIALS WITH MANNING'S N DESIGN VALUES LESS THAN OR EQUAL TO 0.012 MAY BE USED AS NOTED IN THE ALLOWABLE PIPE MATERIALS CHART.

THE CONTRACTOR MAY, AT HIS OWN EXPENSE, SUBMIT OTHER DESIGNS CONSIDERING ALTERNATIVE PIPE MATERIALS WITH MANNING'S N DESIGN VALUES GREATER THAN 0.012 TO THE PROJECT ENGINEER FOR APPROVAL. THE SUBMITTED DESIGN SHALL BE STAMPED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER.

8. SIDE DRAIN PIPE AND UNDER DRAIN PIPE:

ALTERNATE PIPE MATERIALS MAY BE USED AS NOTED IN THE ALLOWABLE PIPE MATERIALS CHART. SIDE DRAIN PIPE IS NORMALLY DESIGNED USING A MANNING'S N VALUE FOR CORRUGATED METAL PIPE. SUBMISSION OF ALTERNATE DESIGNS WITH LESSER FRICTION COEFFICIENTS IS NOT REQUIRED.