

SURVEYED BY _____
SUPERVISED BY AAA
DESIGNED BY BBB

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	FEDERAL AID		STATE		SHEET NO.
		PROJECT	ROUTE	PROJECT		
	VA.					

TABLE A - ALLOWABLE TYPE OF PIPE CULVERT FOR ROADWAYS THAT ARE CONSTRUCTED, FUNDED OR WILL ULTIMATELY BE MAINTAINED BY VDOT			
FUNCTIONAL CLASSIFICATION OF ROADS SYSTEM UNDER WHICH PIPE IS TO BE INSTALLED	HIGHER FUNCTIONAL CLASS - HFC		ENTRANCE PIPE
	RURAL - PRINCIPAL ARTERIAL, URBAN - PRINCIPAL ARTERIAL, RURAL MINOR ARTERIAL, URBAN MINOR ARTERIAL, RURAL COLLECTOR ROADS, URBAN COLLECTOR STREETS, SUBDIVISION STREETS WITH AN ADT LESS THAN OR EQUAL TO 4000	LOWER FUNCTIONAL CLASS - LFC	
ALLOWABLE PIPE CULVERTS NOTES 1 & 2	STATEWIDE EXCEPT LOCATIONS SHOWN IN TABLE B	LOCATION SHOWN IN TABLE B	STATEWIDE EXCEPT LOCATIONS SHOWN IN TABLE B
CONCRETE	✓	✓	✓
ALUMINUM COATED TYPE 2 CORRUGATED STEEL	✓		✓
NOTE 3			
POLYMER COATED (10/10) CORRUGATED STEEL	✓	✓	✓
NOTE 3			
UNCOATED GALVANIZED CORRUGATED STEEL			✓
NOTES 3 & 4			
GALVANIZED STEEL STRUCTURAL PLATE			✓
NOTE 3			
GALVANIZED STEEL STRUCTURAL PLATE WITH CONCRETE INVERT	✓		✓
NOTE 3			
CORRUGATED ALUMINUM ALLOY	✓	✓	✓
NOTE 3			
CORRUGATED ALUMINUM ALLOY STRUCTURAL PLATE	✓	✓	✓
NOTE 3			
POLYVINYLCHLORIDE (PVC) RIBBED PIPE (SMOOTH INTERIOR)	✓	✓	✓
POLYETHYLENE (PE) CORRUGATED TYPE C	✓	✓	✓
POLYETHYLENE (PE) CORRUGATED TYPE S	✓	✓	✓

NOTES:

- ALLOWABLE TYPES OF PIPES FOR A SPECIFIC AREA ARE TO CONFORM TO THE CRITERIA SHOWN IN TABLES A, A1, B, AND C. ANY DEVIATION MUST BE APPROVED BY THE STATE LOCATION AND DESIGN ENGINEER AND THE DISTRICT MATERIALS ENGINEER.
- SEE HEIGHT OF COVER TABLES FOR MINIMUM AND MAXIMUM COVER LIMITATIONS FOR EACH TYPE OF PIPE.
- SEE TABLE C FOR MINIMUM AND MAXIMUM pH, RESISTIVITY, AND VELOCITY LIMITATIONS FOR METAL PIPES.
- USE ONLY UNDER ENTRANCES WHERE THE PIPE SIZE IS LESS THAN OR EQUAL TO 30" DIAMETER (OR EQUIVALENT) AND THE HEIGHT OF COVER IS LESS THAN OR EQUAL TO 15' AND AS AN OUTLET PIPE FOR STANDARD DI-15 SHOULDER SLOT INLETS.

SPECIFICATION REFERENCE	302	232
	107.20A	

ALLOWABLE PIPE CRITERIA FOR CULVERTS AND STORM SEWERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SHEET 17 OF 18

REV. 9/06
107.20A

PC-1

TABLE A1 - ALLOWABLE TYPE OF STORM SEWER PIPE FOR ROADWAYS THAT ARE CONSTRUCTED, FUNDED OR WILL ULTIMATELY BE MAINTAINED BY VDOT			
FUNCTIONAL CLASSIFICATION OF ROADS SYSTEM UNDER WHICH PIPE IS TO BE INSTALLED	HIGHER FUNCTIONAL CLASS - HFC		ENTRANCE PIPE
	RURAL - PRINCIPAL ARTERIAL, URBAN - PRINCIPAL ARTERIAL, RURAL MINOR ARTERIAL, URBAN MINOR ARTERIAL, RURAL COLLECTOR ROADS, URBAN COLLECTOR STREETS, SUBDIVISION STREETS WITH AN ADT LESS THAN OR EQUAL TO 4000	LOWER FUNCTIONAL CLASS - LFC	
ALLOWABLE PIPE CULVERTS NOTES 1 & 2	STATEWIDE EXCEPT LOCATIONS SHOWN IN TABLE B	LOCATION SHOWN IN TABLE B	STATEWIDE EXCEPT LOCATIONS SHOWN IN TABLE B
CONCRETE	✓	✓	✓
CORRUGATED STEEL ALUMINUM COATED TYPE 2 FULLY CONCRETE LINED			✓
NOTE 3			
ALUMINUM COATED TYPE 2 STEEL SPIRAL RIB	✓	✓	✓
NOTE 3			
POLYMER COATED (10/10) CORRUGATED STEEL SPIRAL RIB	✓	✓	✓
NOTE 3			
POLYMER COATED (10/10) CORRUGATED STEEL DOUBLE WALL (SMOOTH INTERIOR)	✓	✓	✓
NOTE 3			
ALUMINUM SPIRAL RIB	✓	✓	✓
NOTE 3			
POLYVINYLCHLORIDE (PVC) RIBBED PIPE (SMOOTH INTERIOR)	✓	✓	✓
POLYETHYLENE (PE) CORRUGATED TYPE S	✓	✓	✓

TABLE B EXCEPTIONS TO STATEWIDE APPLICATIONS	
COUNTIES (INCLUDING TOWNS)	CITIES
ARLINGTON - EAST OF AND INCLUDING RTES. 95 & 395	SUFFOLK - EAST OF AND INCLUDING RTE. 32
FAIRFAX - EAST OF AND INCLUDING RTES. 95 & 395	CHESAPEAKE
PRINCE WILLIAM - EAST OF AND INCLUDING RTES. 95 & 395	VIRGINIA BEACH
WESTMORELAND	HAMPTON
LANCASTER	PORTSMOUTH
MATTHEWS	NEWPORT NEWS
GLoucester	NORFOLK
	ALEXANDRIA
	FREDERICKSBURG

TABLE C			
PIPE TYPE	ALLOWABLE pH RANGE (SEE NOTE 6)		ALLOWABLE VELOCITY (FPS) (SEE NOTE 5)
	MIN.	MAX.	
ALUMINUM COATED TYPE 2 CORRUGATED STEEL	5.0	9.0	5
GALVANIZED STEEL STRUCTURAL PLATE WITH CONCRETE INVERT	6.0	9.0	15
GALVANIZED STEEL STRUCTURAL PLATE	6.0	9.0	5
POLYMER COATED (10/10) CORRUGATED STEEL	4.0	9.0	15
UNCOATED GALVANIZED CORRUGATED STEEL	6.0	10.0	5
CORRUGATED ALUMINUM ALLOY	4.0	9.0	5
CORRUGATED ALUMINUM ALLOY STRUCTURAL PLATE	4.0	9.0	5
ALUMINUM SPIRAL RIB	4.0	9.0	5
ALUMINUM COATED TYPE 2 SPIRAL RIB	5.0	9.0	5
CORRUGATED STEEL ALUMINUM COATED TYPE 2 FULLY CONCRETE LINED	5.0	9.0	15
POLYMER COATED CORRUGATED STEEL SPIRAL RIB	4.0	9.0	15
POLYMER COATED CORRUGATED STEEL DOUBLE WALL	4.0	9.0	15

NOTES:

- ALLOWABLE TYPES OF PIPES FOR A SPECIFIC AREA ARE TO CONFORM TO THE CRITERIA SHOWN IN TABLES A, A1, B, AND C. ANY DEVIATION MUST BE APPROVED BY THE STATE LOCATION AND DESIGN ENGINEER AND THE DISTRICT MATERIALS ENGINEER.
- SEE HEIGHT OF COVER TABLES FOR MINIMUM AND MAXIMUM COVER LIMITATIONS FOR EACH TYPE OF PIPE.
- SEE TABLE C FOR MINIMUM AND MAXIMUM pH, RESISTIVITY, AND VELOCITY LIMITATIONS FOR METAL PIPES.
- USE ONLY UNDER ENTRANCES WHERE THE PIPE SIZE IS LESS THAN OR EQUAL TO 30" DIAMETER (OR EQUIVALENT) AND THE HEIGHT OF COVER IS LESS THAN OR EQUAL TO 15' AND AS AN OUTLET PIPE FOR STANDARD DI-15 SHOULDER SLOT INLETS.
- ALLOWABLE VELOCITY WHERE ABRASIVE BEDLOAD IS PRESENT OR ANTICIPATED, MAXIMUM VELOCITY BASED ON 10 YEAR DESIGN DISCHARGE (Q).
- pH VALUES APPLY TO BOTH THE SOIL AND WATER.

SPECIFICATION REFERENCE	302	232
	107.21	

ALLOWABLE PIPE CRITERIA FOR CULVERTS AND STORM SEWERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SHEET 18 OF 18

REV. 9/06
107.21

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
----------	---------	----------	-----------