STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
SUITE 1300 JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-3848
(615) 741-2221

CLAY BRIGHT
COMMISSIONER

BILL LEE
GOVERNOR

DESIGN DIVISION DRAINAGE MANUAL
REVISION 19-01

TO: TDOT Roadway Design Division Drainage Manual Users

FROM: Jennifer Lloyd, P.E. For
Director
Roadway Design Division

DATE: June 19, 2019

SUBJECT: Revision to the Drainage Manual

Chapter 6 – Appendix

Tables 6A-1, 6A-2, 6A-3, 6A-4, and 6A-5 revised to restore revisions made in Revisions 13-01, 13-02 , and 14-01.

KJL:ARH:WKA:RRD

	Fill Height (feet)				
	≤ 10 ft	**> 10 ft and ≤ 16 ft**	**> 16 ft and ≤ 24 ft**	**> 24 ft and ≤ 38 ft**	**> 38 ft**
Interstate system and any arterial with full access control *(Freeways)*					
Cross drains, Transverse median drains & Longitudinal storm drains	RCP CL III	RCP CL III	RCP CL IV	RCP CL V	*note 1*
Arterials					
Cross drains & Transverse median drains	RCP CL III CMP 10 g PVC HDPE / PP	RCP CL III CMP 10 g PVC HDPE	RCP CL IV PVC	RCP CL V	*note 1*
Longitudinal storm drains	RCP CL III PVC HDPE / PP	RCP CL III PVC HDPE / PP	RCP CL IV PVC	RCP CL V	*note 1*
Collectors					
Cross drains & Transverse median drains	RCP CL III CMP 12 g PVC *SRTRP* HDPE / PP	RCP CL III CMP 12 g PVC *SRTRP* HDPE / PP	RCP CL IV CMP 12 g PVC	RCP CL V CMP 12 g	*note 1*
Longitudinal storm drains	RCP CL III PVC HDPE / PP	RCP CL III PVC HDPE / PP	RCP CL IV PVC	RCP CL V	*note 1*
Local Roads					
Cross drains	RCP CL III CMP 14 g PVC *SRTRP* HDPE / PP	RCP CL III CMP 14 g PVC *SRTRP* HDPE/PP	RCP CL IV CMP 14 g PVC	RCP CL V CMP 14 g	*note 1*
Longitudinal Storm Drains	RCP CL III PVC *SRTRP* HDPE / PP	RCP CL III PVC SRTRP HDPE /PP	RCP CL IV PVC	RCP CL V	*note 1*
For All Road Systems					
Side Drains (Pipes under private drives, business or field entrances)	RCP CL III CMP 14 g PVC *SRTRP* HDPE / PP	RCP CL III CMP 14 g PVC *SRTRP* HDPE	RCP CL IV CMP 14 g PVC	RCP CL V CMP 14 g	*note 1*
Longitudinal Median Drains	RCP CL III CMP 14 g PVC *SRTRP* HDPE / PP	RCP CL III PVC *SRTRP* HDPE / PP	RCP CL IV PVC	RCP CL V	*note 1*

Table 6A-1
Pipe Selection Criteria Based on System and Fill Height
(*see notes on next page*)

Note 1: Only RCP CL V is allowed with fill heights for pipes over 38 feet. RCP shall be a minimum of 42" for future maintenance inspection activities. Special installation detail may be required.

RCP: Typical wall thickness for RCP is type "B" for pipes up to 42" and wall type "C" for larger pipes as shown in AASHTO Designation M-170. If alternate wall type is proposed, pipe headwall or catch basin cutout holes shall be adjusted to have D+2" opening.

CMP: All CMP shall be aluminized coated meeting AASHTO M-274.
Unless otherwise stated on Table 6A-1. For pipes ≥ 54 inches use 10-gage CMP, except on local roads.

HDPE: HDPE pipe shall meet AASHTO designation M-294-02. The maximum pipe diameter for HDPE pipe is 60 inches. The minimum cover shall be in accordance to the minimum cover depths shown on standard drawing D-PB-3 for construction loads.

PVC: PVC (Poly Vinyl Chloride) Profile Wall drainage pipe shall meet AASHTO Designation M-304(2007). The maximum pipe diameter for PVC pipe is 36 inches.

SRTRP: SRTRP shall meet AASHTO Designation MP-20. The maximum pipe diameter for SRTRP is 60 inches.

PP: Shall meet the requirements of AASHTO Designation M330. The maximum pipe diameter for PP is 60 inches.

.

RCP	Reinforced Concrete Pipe
CMP	Corrugated Metal Pipe
HDPE	High Density Polyethylene
PVC	PolyVinyl Chloride
SRTRP	Steel Reinforced Thermoplastic Ribbed Pipe
PP	Polypropylene Pipe

Table 6A-1 *(continued)*
Notes for Pipe Selection Criteria Based on System and Fill Height

CROSS DRAIN TABULATION																	
STATION	RCP CLASS III (L.F.) FILL HEIGHT < OR = 16 FT.					RCP CLASS IV (L.F.) FILL HEIGHT > 16 FT. AND < OR = 24 FT.					SKEW	RIP-RAP 709-05.06 (TON)	END TREATMENT				REMARKS
													INLET		OUTLET		
	18"	24"	30"	36"	48"	18"	24"	30"	36"	48"			TYPE	DRAWING NO. D-PE-	TYPE	DRAWING NO. D-PE-	
10+00	50										90	0	4:1 U	18A, 18B	4:1 U	18A, 18B	
12+25		65									90	0	6:1 U	24A, 24B	6:1 U	24A, 24B	
12+50						45					60	0	4:1 U	18A, 18B	4:1 U	18A, 18B	
13+00					30						90	15	6:1 U	48A, 48B	6:1 U	48A, 48B	
TOTALS	50	65	0	0	30	45	0	0	0	0		15					

Table 6A-2
Typical Cross Drain Tabulation for Freeways

CROSS DRAIN TABULATION																	
STATION	RCP CLASS III OR CMP 10 GA. OR HDPE, PP, OR PVC OR SRTRP (L.F.) FILL HEIGHT < OR = 16 FT.					RCP CLASS IV OR PVC (L.F.) FILL HEIGHT > 16 FT. AND < OR = 24 FT.					SKEW	RIP-RAP 709-05.06 (TON)	END TREATMENT				REMARKS
													INLET		OUTLET		
	18"	24"	30"	36"	48"	18"	24"	30"	36"	48"			TYPE	DRAWING NO. D-PE-	TYPE	DRAWING NO. D-PE-	
14+00	50										45	10	4:1 U	18A, 18B	4:1 U	18A, 18B	
18+50							25				90	15	4:1 U	24A, 24B	4:1 U	24A, 24B	
TOTALS	50	0	0	0	0	0	25	0	0	0		25					

Table 6A-3
Typical Cross Drain Tabulation for Arterials

CROSS DRAIN TABULATION																	
STATION	RCP CLASS III OR CMP 14 GA. OR HDPE, PP, OR PVC OR SRTRP (L.F.) FILL HEIGHT < OR = 16 FT.					RCP CLASS IV OR CMP 14 GA. OR PVC (L.F.) FILL HEIGHT > 16 FT. AND < OR = 24 FT.					SKEW	RIP-RAP 709-05.06 (TON)	END TREATMENT				REMARKS
													INLET		OUTLET		
	18"	24"	30"	36"	48"	18"	24"	30"	36"	48"			TYPE	DRAWING NO D-PE-	TYPE	DRAWING NO D-PE-	
1+35		35									90	0	4:1 U	24A, 24B	4:1 U	24A, 24B	
1+85							50				60	0	4:1 U	24A, 24B	4:1 U	24A, 24B	
1+05	30										90	0	4:1 U	18A, 18B	4:1 U	18A, 18B	
TOTALS	30	35	0	0	0	0	50	0	0	0		0					

Table 6A-4
Typical Cross Drain Tabulation for Local Roads*
*Collectors same except CMP shall be 12 guage

SIDE DRAIN TABULATION																		
STATION	LOCATION		DESCRIPTION	SURFACE WIDTH	RCP CLASS III OR CMP 16 GA. OR HDPE, PP, OR PVC OR SRTRP (L.F.) FILL HEIGHT < OR = 10 FT.					RCP CLASS III OR CMP 14 GA. OR HDPE OR PVC OR SRTRP (LF) FILL HEIGHT > 10 FT. AND < OR = 16 FT.					END TREATMENT		REMARKS
															TYPE	DRAWING NO. D-	
	LT	RT		(L.F.)	18"	24"	30"	36"	48"	18"	24"	30"	36"	48"			
16+50	X		Private, Residence	15	25										STR	PE-4	
19+25		X	Buisness, Mall	100							125				SEW	SEW-1A, PE-24A, PE-24B	
TOTALS					25	0	0	0	0	0	125	0	0	0			

Table 6A-5
Typical Side Drain Tabulation