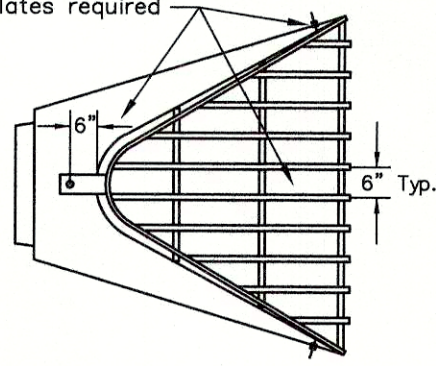
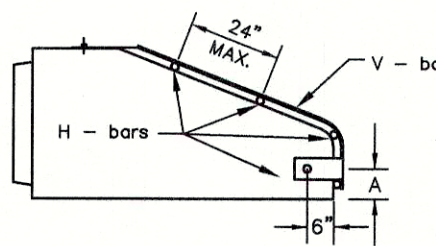


- NOTE:
1. BARS & PLATES ARE HOT-ROLLED STEEL.
2. BARS, PLATES & PIPE ARE FINISHED WITH 2 COATS OF ALUMINUM PAINT.
3. BOLTS ARE GALVANIZED.
4. SEE STD. PLATES A-10 & A-11 FOR APRON DIMENSIONS.

Bolt to apron 6" from edge of concrete. 3 bolt plates required 1/4" x 4" x 10"



PLAN VIEW

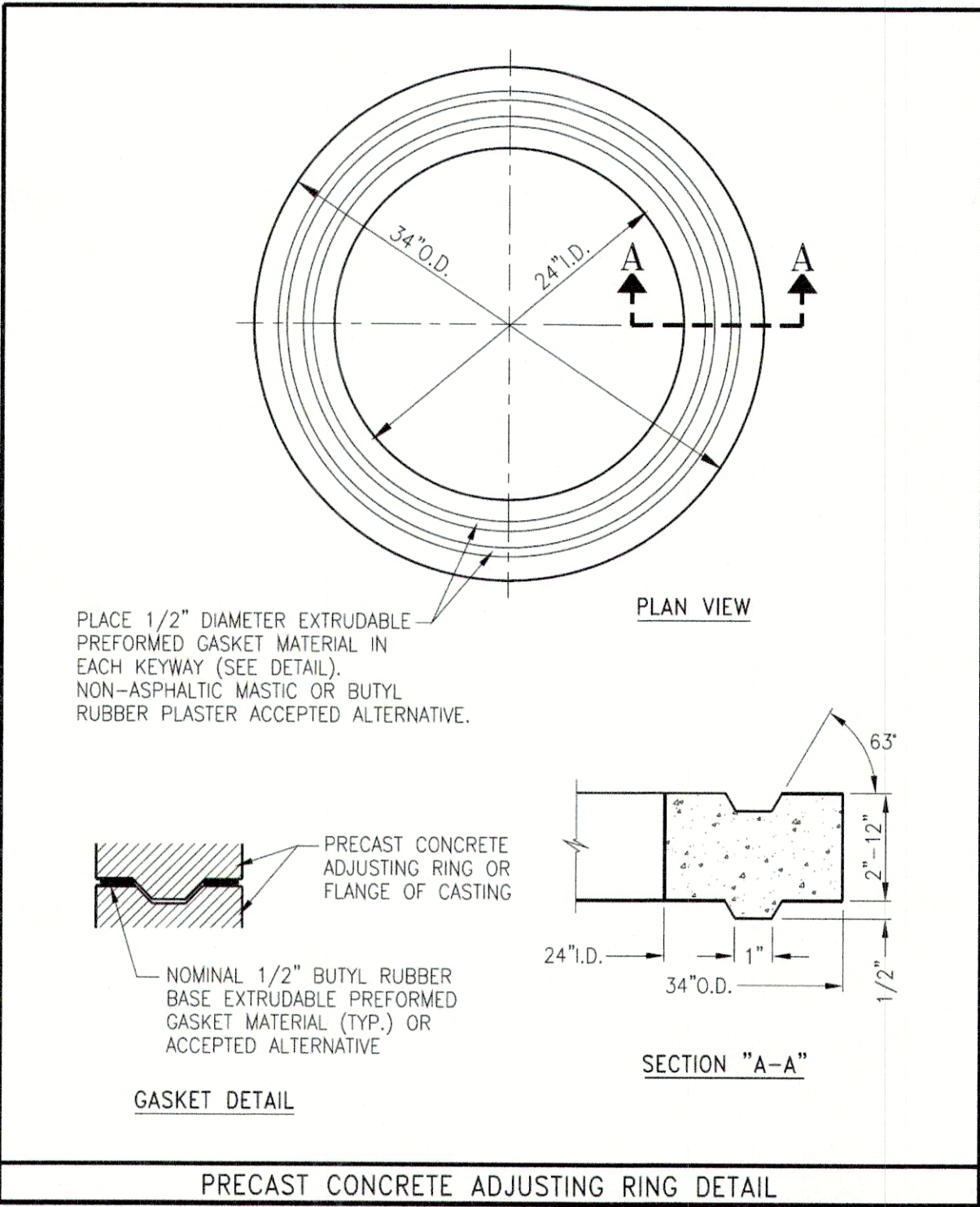


LONGITUDINAL SECTION

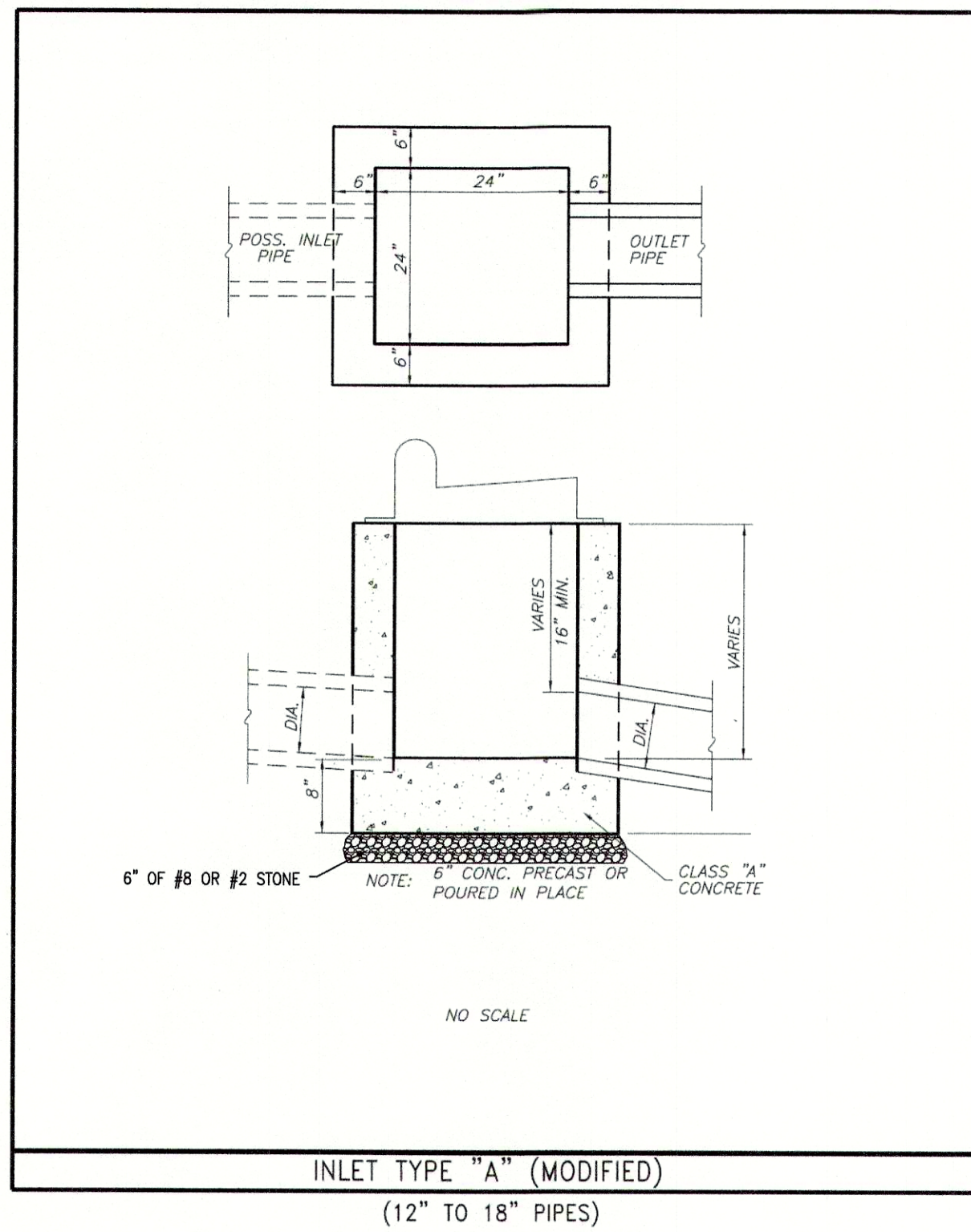
END SECTION TRASH GUARD
NOT TO SCALE

Arch. pipe aprons	Apron Size	V-bar Size	H-bar Size	No. of H-bars Req'd	Bolt Dia.	"A" Dim.
	Inches			Inches		
	18	1/2 ϕ	5/8 ϕ	3	1/2	5
	24	5/8 ϕ	3/4 ϕ	4	1/2	7
	30	5/8 ϕ	3/4 ϕ	4	1/2	7 1/2
	36	3/4 ϕ	1 ϕ	4	1/2	10 1/2
	42	3/4 ϕ	1 ϕ	4	3/4	11
	48	3/4 ϕ	1 1/2 pipe	4	3/4	12
	54	3/4 ϕ	1 1/2 pipe	4	3/4	12
	60	3/4 ϕ	1 1/2 pipe	5	3/4	14
	72	3/4 ϕ	1 1/2 pipe	5	3/4	14
	84	3/4 ϕ	1 1/2 pipe	6	3/4	15

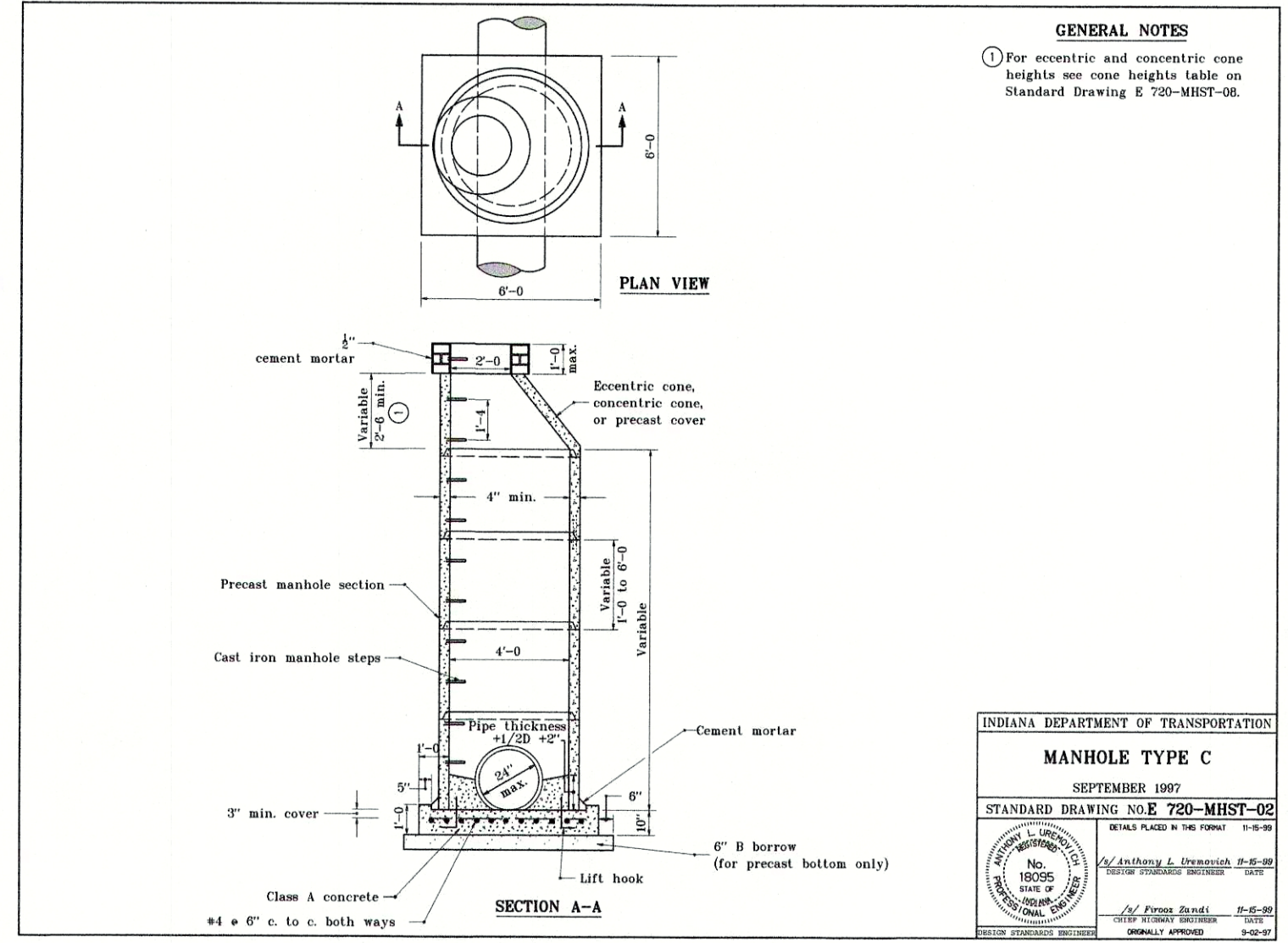
Round pipe aprons	12	1/2 ϕ	5/8 ϕ	3	1/2	4
	15	1/2 ϕ	5/8 ϕ	3	1/2	4 1/2
	18	1/2 ϕ	5/8 ϕ	4	1/2	4 1/2
	21	1/2 ϕ	5/8 ϕ	4	1/2	5
	24	5/8 ϕ	3/4 ϕ	4	1/2	5
	27	5/8 ϕ	3/4 ϕ	4	1/2	5 1/2
	30	5/8 ϕ	3/4 ϕ	4	1/2	5 1/2
	36	3/4 ϕ	1 ϕ	4	3/4	8
	42	3/4 ϕ	1 ϕ	4	3/4	8
	48	3/4 ϕ	1 ϕ	5	3/4	8
	54	3/4 ϕ	1 1/2 pipe	5	3/4	8
	60	3/4 ϕ	1 1/2 pipe	5	3/4	8
	66	3/4 ϕ	1 1/2 pipe	6	3/4	8
	72	3/4 ϕ	1 1/2 pipe	6	3/4	9
	84	3/4 ϕ	1 1/2 pipe	7	3/4	10
	90	3/4 ϕ	1 1/2 pipe	7	3/4	14



PRECAST CONCRETE ADJUSTING RING DETAIL



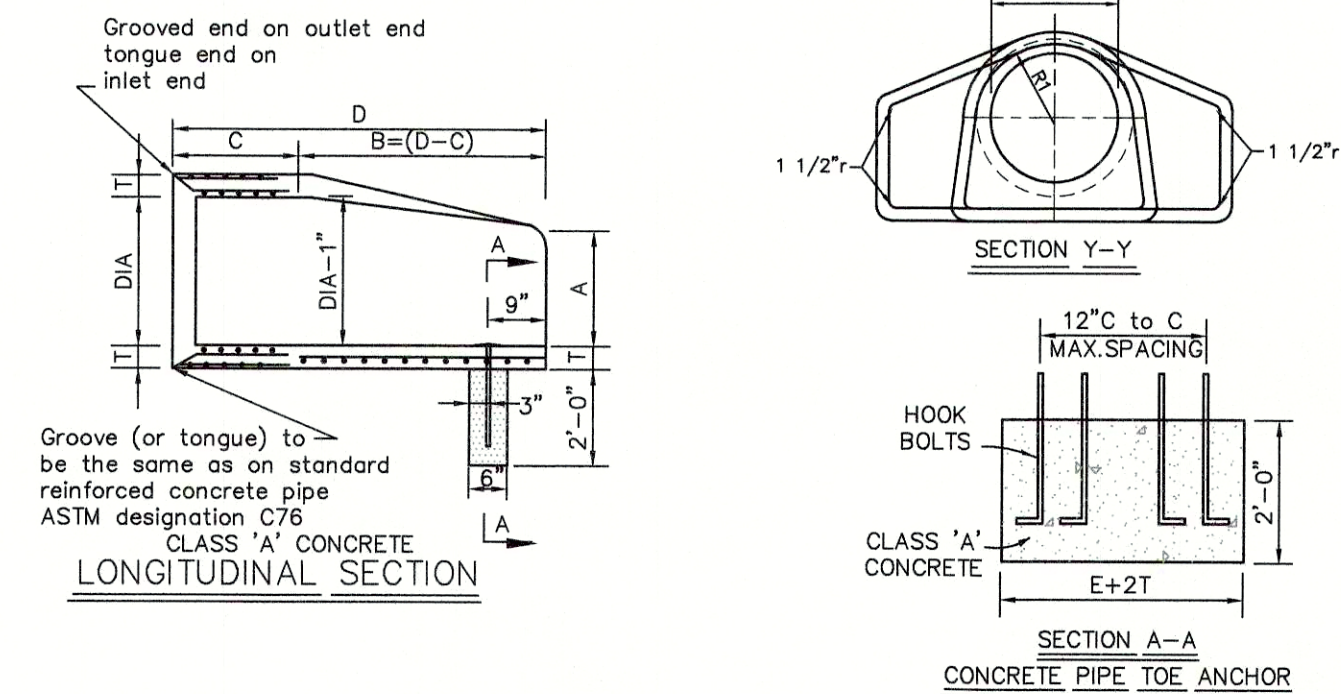
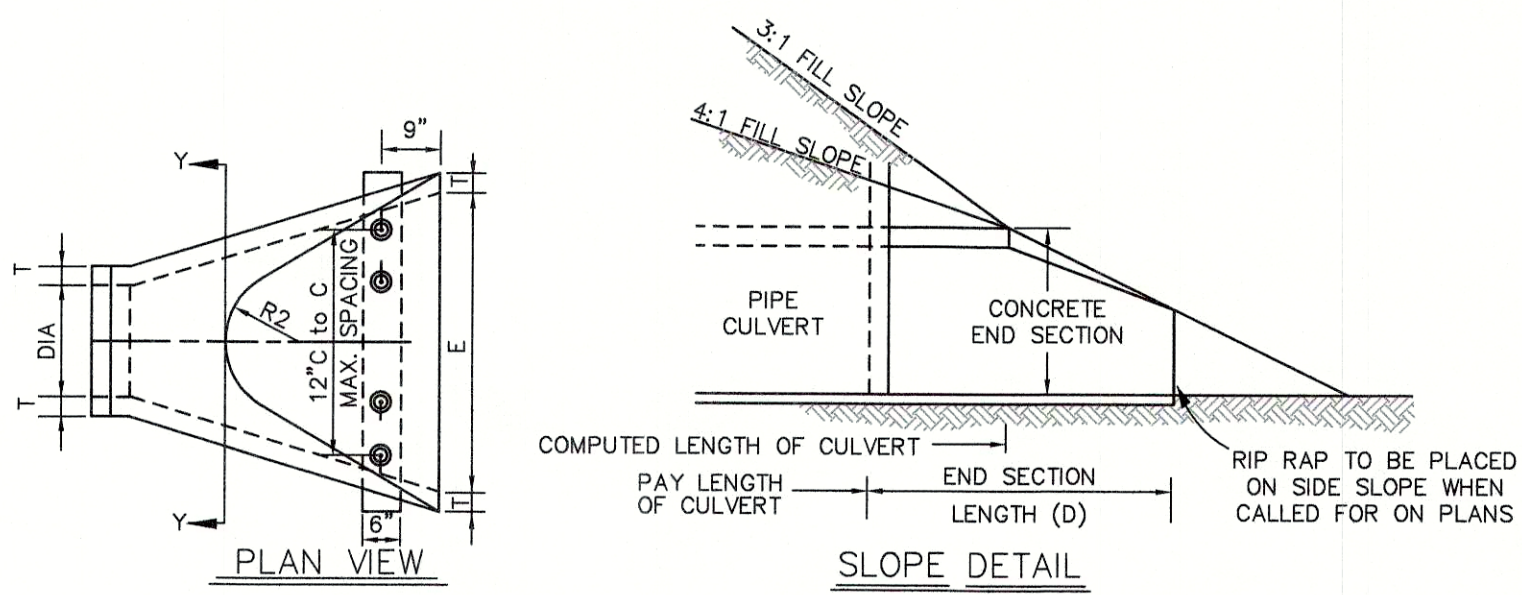
GENERAL NOTE FOR ALL STORM STRUCTURES:
BENCH WALLS SHALL BE SHAPED AND FORMED FOR A CLEAN TRANSITION WITH PROPER HYDRAULICS TO ALLOW THE SMOOTH TRANSITION OF FLOW THROUGH THE MANHOLE OR BOX INLET. THE BENCH WALL SHALL FORM A DEFINED CHANNEL, TO A MINIMUM HEIGHT OF 80-PERCENT OF THE INSIDE DIAMETER OF THE INLET AND OUTLET PIPES TO FORM A "V" SHAPED CHANNEL, CONSTRUCTED AT A MINIMUM 1/4" PER FOOT SLOPE TO THE MANHOLE WALL.



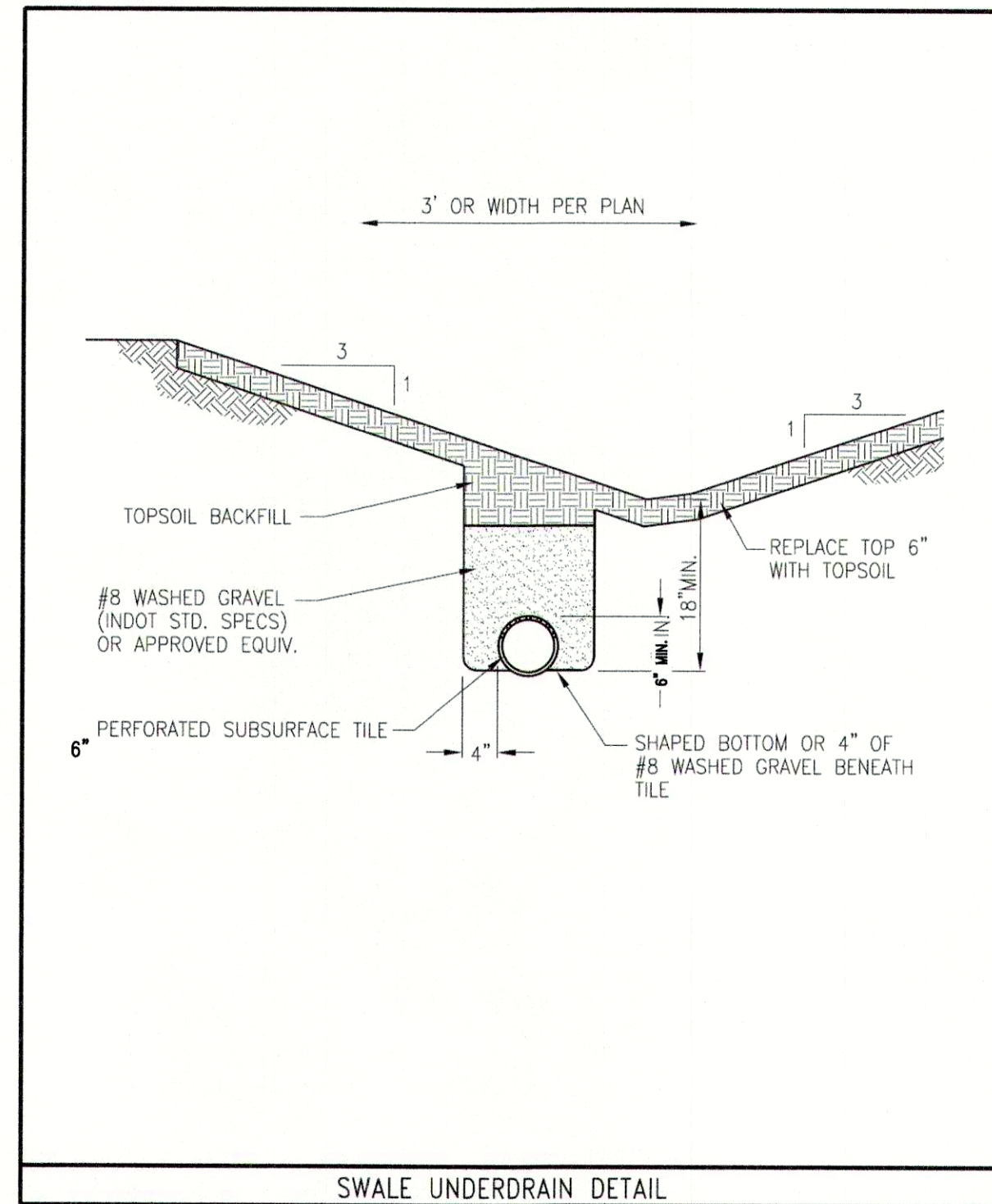
STORM MANHOLE TYPE C
NOT TO SCALE

DIMENSIONS OF CONCRETE END SECTIONS FOR ROUND PIPE										
DIA	T (MIN)	A *	C *	D *	E *	K	R ₁	R ₂	APPROX. WEIGHT	
12"	2"	5"	4'-3"	6'-2"	2'-0"	1.3	10 1/8"	9"	800	
15"	2 1/4"	7"	4'-0"	6'-3"	2'-6"	1.5	12 1/2"	11"	1,100	
18"	2 1/2"	11"	4'-1"	6'-2"	3'-0"	1.8	15 1/2"	12"	1,300	
21"	2 3/4"	11"	3'-6"	6'-3"	3'-6"	2.1	16 1/8"	13"	1,500	
24"	3"	1'-0"	2'-8"	6'-3"	4'-0"	2.3	16 3/16"	14"	1,800	
27"	3 1/4"	1'-1"	2'-5"	6'-3"	4'-6"	2.6	18 1/2"	14 1/2"	2,100	
30"	3 1/2"	1'-2"	1'-10"	6'-3"	5'-0"	2.9	18 3/16"	15"	2,400	
33"	3 3/4"	1'-3"	3'-6"	8'-3"	5'-6"	3.1	18 1/2"	17 1/2"	4,100	
36"	4"	1'-5"	3'-1"	8'-3"	6'-0"	3.4	23 3/4"	20"	4,200	
48"	5"	2'-0"	2'-2"	8'-2"	7'-0"		28 1/8"	22"	6,500	

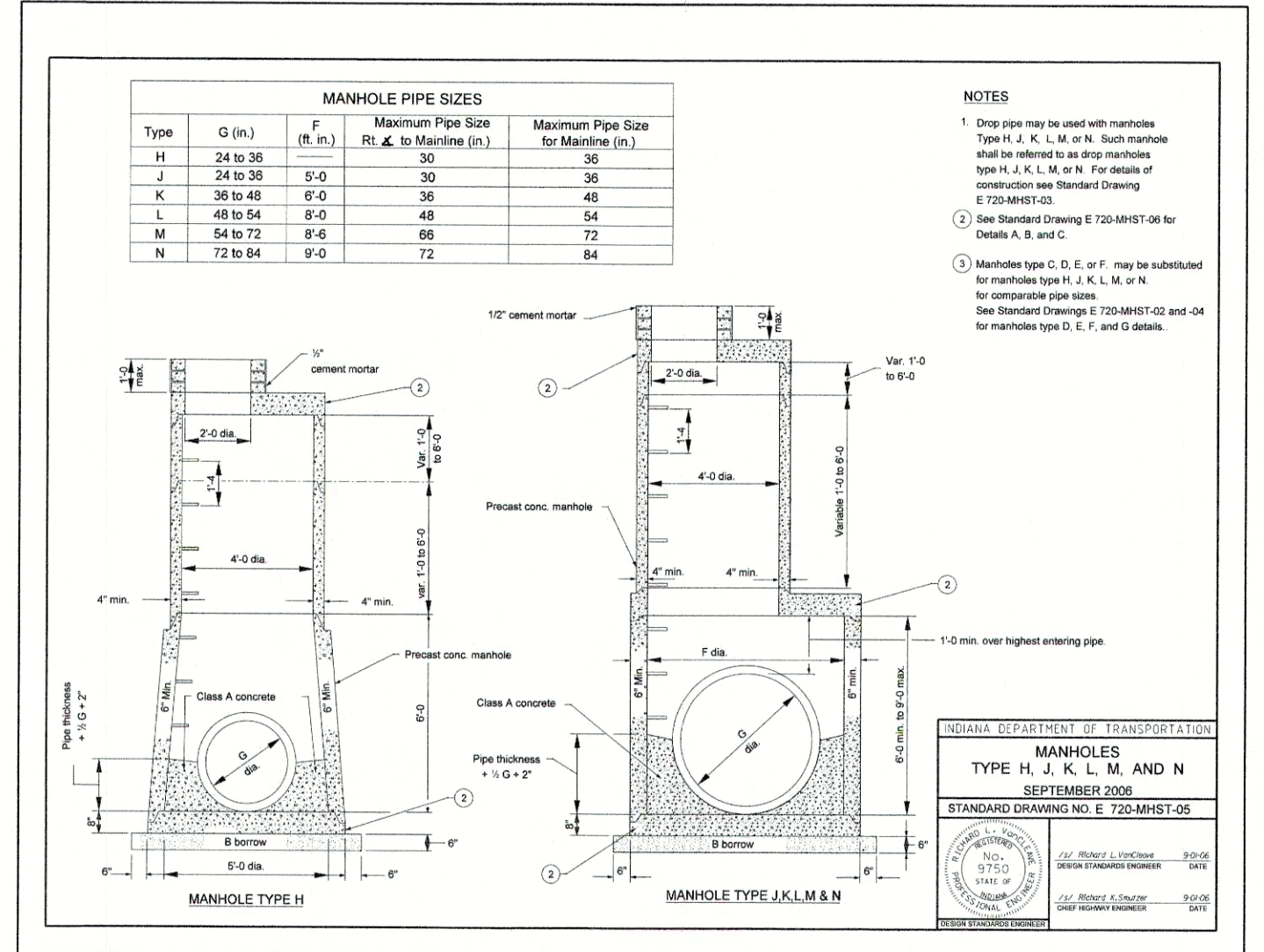
* TOLERANCE +/- 1"



PRE CAST CONCRETE END SECTION
NOT TO SCALE

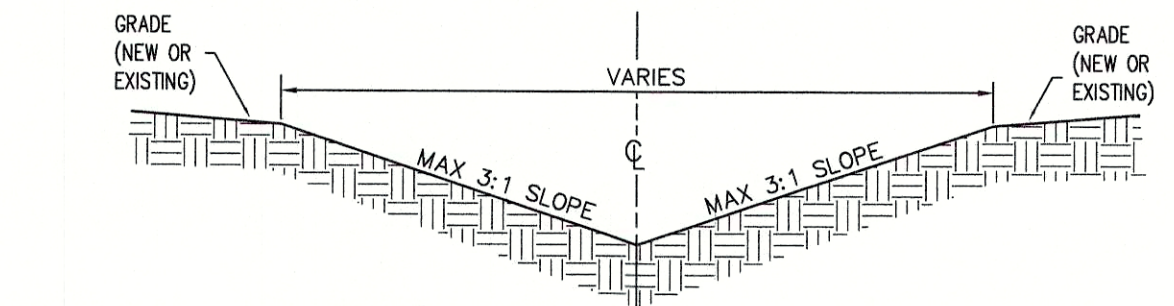


SWALE UNDERDRAIN DETAIL



STORM MANHOLE TYPE J
NOT TO SCALE

TABLE 404-02: MINIMUM MANHOLE DIAMETERS		
PIPE SIZE	PIPES ENTERING/EXITING AT 0-45 DEGREES	PIPES ENTERING/EXITING AT 45-90 DEGREES
12"-21"	48"	48"
24"	48"	60"
27"-30"	60"	60"
33"-36"	60"	72"



TYPICAL SWALE SECTION
NOT TO SCALE

REVISIONS

DATE	DESCRIPTION	BY

HWC
ENGINEERING
INDIANAPOLIS - TERRE HAUTE
LAFAYETTE - MUNCIE - NEW ALBANY
www.hwcengineering.com

ESTES PARK SECTION 2
MADISON COUNTY, INDIANA
CONSTRUCTION DETAILS

PREPARED BY
No. PE10809001
NOT FOR CONSTRUCTION
STATE OF INDIANA
REGISTERED PROFESSIONAL ENGINEER

DRAWN BY
TD/LM/KS
CHECKED BY
MM
DATE
SEPTEMBER 8, 2020
SCALE
AS SHOWN
SHEET

C8.2
CONSTRUCTION DETAILS