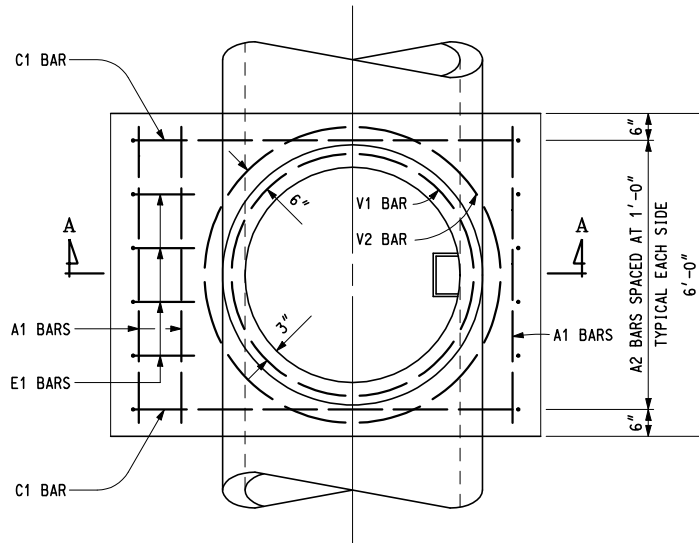


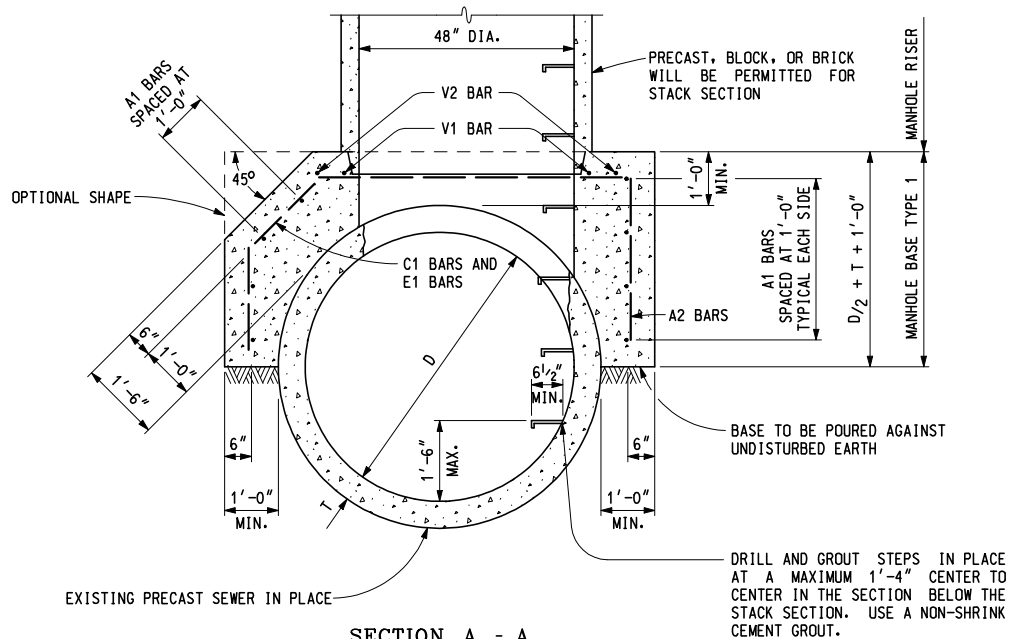


ALL STEEL REINFORCEMENT SHALL BE #5 BARS.

	<u>James D. Culp</u> ENGINEER OF CONSTRUCTION & TECHNOLOGY	ENGINEER - ROAD DESIGN <u>H.D. Miller</u> ENGINEER OF DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR			
	<u>Carwin Roberts</u> ENGINEER OF MAINTENANCE	DEPARTMENT DIRECTOR Gregory J. Rosine	MANHOLE BASE TYPE 1			
	<u>John X. O'Leary</u> ENGINEER OF TRAFFIC AND SAFETY	BY: <u>Gary D. Taylor</u> CHIEF ENGINEER/DEPUTY DIRECTOR BUREAU OF HIGHWAY TECHNICAL SERVICES	9-14-2001 F.H.W.A. APPROVAL	2-22-2001 PLAN DATE	R-2-D	SHEET 1 OF 4
	PREPARED BY DESIGN DIVISION DRAWN BY: <u>B.L.T.</u> CHECKED BY: <u>W.K.P.</u>					



PLAN



SECTION A - A

MANHOLE BASE TYPE 1 FOR 54" AND 60" DIAMETER PIPE

CONCRETE AND STEEL QUANTITIES									
EXISTING SEWER SIZE	BAR	DIMENSIONS					LENGTH	NUMBER REQ'D	BAR WEIGHT (LBS)
		A	B	C	D	E			
54"	A1	5'-6"					5'-6"	8	47
	A2	3'-2"					3'-2"	6	20
	C1	3'-10 1/2"	1'-4 1/4"	1'-4 3/4"	1'-11 3/4"	5'-6"	8'-10"	2	19
	E1	1'-11 3/4"	1'-4 1/4"	11 1/2"			3'-4"	4	14
	V1	14'-4"	1'-8"				16'-0"	1	17
	V2	17'-6"	1'-8"				19'-2"	1	20
	2.9 CYD OF CONCRETE					TOTAL WEIGHT OF STEEL = 137			

ALL STEEL REINFORCEMENT SHALL BE #5 BARS.

CONCRETE AND STEEL QUANTITIES									
EXISTING SEWER SIZE	BAR	DIMENSIONS					LENGTH	NUMBER REQ'D	BAR WEIGHT (LBS)
		A	B	C	D	E			
60"	A1	5'-6"					5'-6"	8	47
	A2	3'-6"					3'-6"	6	22
	C1	4'-1 1/2"	1'-6 3/4"	1'-5 3/4"	2'-1 1/4"	5'-10"	9'-6"	2	20
	E1	2'-1 1/4"	1'-6 3/4"	1'-1 1/4"			3'-8"	4	16
	V1	14'-4"	1'-8"				16'-0"	1	17
	V2	17'-6"	1'-8"				19'-2"	1	20
	3.1 CYD OF CONCRETE					TOTAL WEIGHT OF STEEL = 142			

ALL STEEL REINFORCEMENT SHALL BE #5 BARS.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

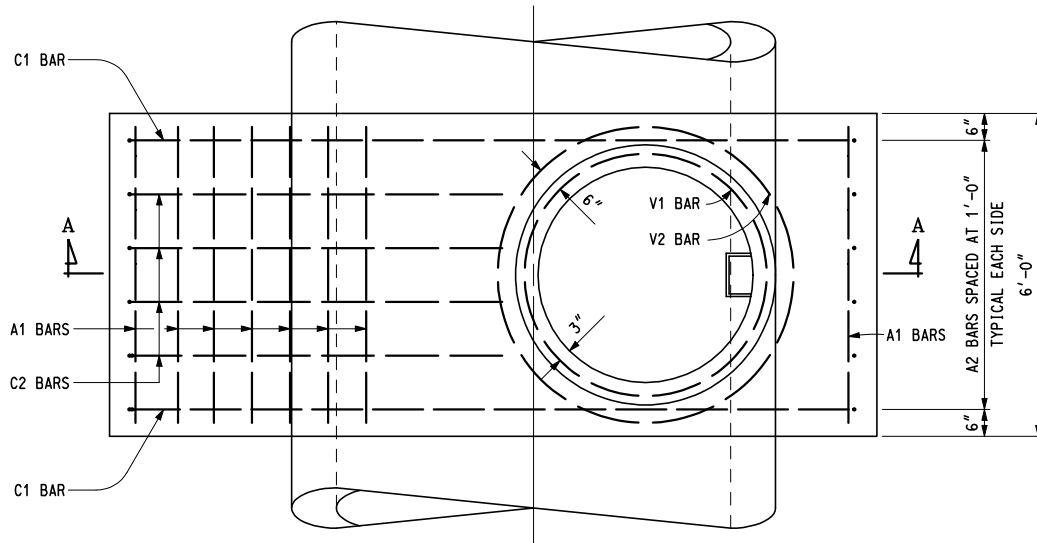
MANHOLE BASE TYPE 1

9-14-2001
F.H.W.A. APPROVAL

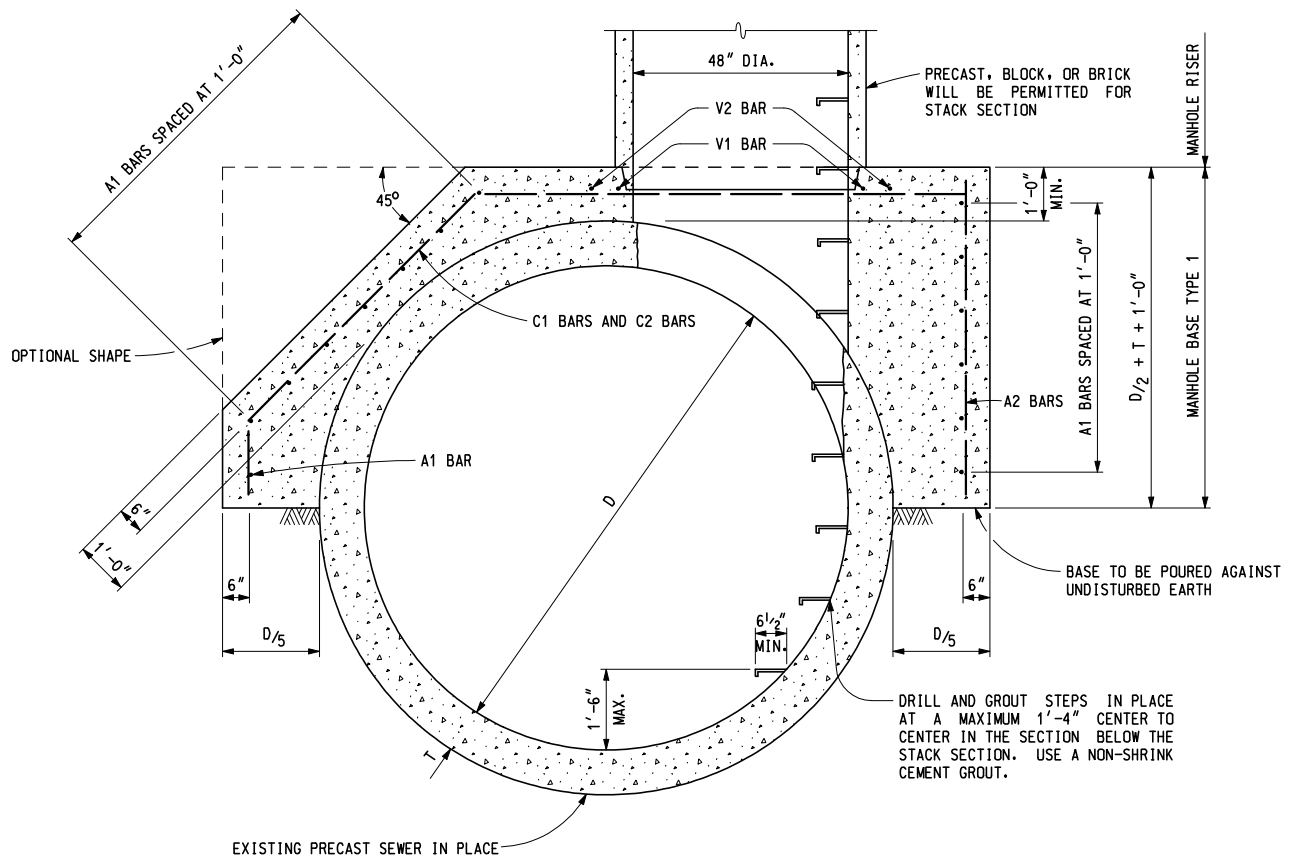
2-22-2001
PLAN DATE

R-2-D

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PLAN



SECTION A - A

MANHOLE BASE TYPE 1 FOR 66" THROUGH 108" DIAMETER PIPE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

MANHOLE BASE TYPE 1

9-14-2001
F.H.W.A. APPROVAL

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PLAN DATE

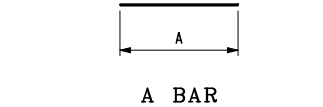
R-2-D

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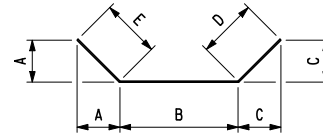
CONCRETE AND STEEL QUANTITIES

EXISTING SEWER SIZE	BAR	DIMENSIONS					LENGTH	NUMBER REQ'D	BAR WEIGHT (LBS)
		A	B	C	D	E			
66"	A1	5'-6"					5'-6"	8	47
	A2	3'-9"					3'-9"	6	24
	C1	9 ¹ / ₈ "	3'-4"	3'-10 ⁵ / ₈ "	5'-6"	1'-2"	10'-0"	2	21
	C2	9 ¹ / ₈ "	3'-4"	3 ³ / ₄ "	1"	1'-2"	4'-7"	4	19
	V1	14'-4"	1'-8"				16'-0"	1	17
	V2	17'-6"	1'-8"				19'-2"	1	20
	3.3 CYD OF CONCRETE					TOTAL WEIGHT OF STEEL = 148			
72"	A1	5'-6"					5'-6"	10	58
	A2	4'-1"					4'-1"	6	26
	C1	10 ³ / ₈ "	3'-8 ¹ / ₂ "	4'-2 ⁷ / ₈ "	6'-0"	1'-2 ¹ / ₂ "	10'-11"	2	23
	C2	10 ³ / ₈ "	3'-8 ¹ / ₂ "	3 ¹ / ₂ "	5"	1'-2 ¹ / ₂ "	5'-4"	4	23
	V1	14'-4"	1'-8"				16'-0"	1	17
	V2	17'-6"	1'-8"				19'-2"	1	20
	3.7 CYD OF CONCRETE					TOTAL WEIGHT OF STEEL = 167			
78"	A1	5'-6"					5'-6"	11	64
	A2	4'-4"					4'-4"	6	28
	C1	9 ¹ / ₈ "	4'-1"	4'-4 ³ / ₈ "	6'-2"	1'-2"	11'-5"	2	24
	C2	9 ¹ / ₈ "	4'-1"	7 ¹ / ₈ "	10"	1'-2"	6'-1"	4	26
	V1	14'-4"	1'-8"				16'-0"	1	17
	V2	17'-6"	1'-8"				19'-2"	1	20
	4.2 CYD OF CONCRETE					TOTAL WEIGHT OF STEEL = 179			
84"	A1	5'-6"					5'-6"	11	64
	A2	4'-8"					4'-8"	6	30
	C1	10 ¹ / ₄ "	4'-5 ¹ / ₂ "	5'-0 ¹ / ₂ "	7'-1"	1'-2 ¹ / ₂ "	12'-9"	2	27
	C2	10 ¹ / ₄ "	4'-5 ¹ / ₂ "	6 ³ / ₈ "	9"	1'-2 ¹ / ₂ "	6'-5"	4	27
	V1	14'-4"	1'-8"				16'-0"	1	17
	V2	17'-6"	1'-8"				19'-2"	1	20
	4.7 CYD OF CONCRETE					TOTAL WEIGHT OF STEEL = 185			
90"	A1	5'-6"					5'-6"	11	64
	A2	4'-11"					4'-11"	6	31
	C1	10 ⁵ / ₈ "	4'-10 ¹ / ₂ "	5'-3 ⁷ / ₈ "	7'-6 ¹ / ₄ "	1'-3 ¹ / ₄ "	13'-8"	2	29
	C2	10 ⁵ / ₈ "	4'-10 ¹ / ₂ "	1'-1"	1'-6 ¹ / ₄ "	1'-3 ¹ / ₄ "	7'-8"	4	33
	V1	14'-4"	1'-8"				16'-0"	1	17
	V2	17'-6"	1'-8"				19'-2"	1	20
	5.3 CYD OF CONCRETE					TOTAL WEIGHT OF STEEL = 194			
96"	A1	5'-6"					5'-6"	13	76
	A2	5'-3"					5'-3"	6	33
	C1	10 ⁵ / ₈ "	5'-2 ³ / ₄ "	5'-8 ¹ / ₂ "	8'-1"	1'-3 ¹ / ₄ "	14'-7"	2	31
	C2	10 ⁵ / ₈ "	5'-2 ³ / ₄ "	1'-4 ¹ / ₄ "	1'-11"	1'-3 ¹ / ₄ "	8'-5"	4	36
	V1	14'-4"	1'-8"				16'-0"	1	17
	V2	17'-6"	1'-8"				19'-2"	1	20
	5.8 CYD OF CONCRETE					TOTAL WEIGHT OF STEEL = 213			
102"	A1	5'-6"					5'-6"	13	76
	A2	5'-6"					5'-6"	6	35
	C1	11 ¹ / ₄ "	5'-7 ¹ / ₂ "	6'-0 ³ / ₄ "	8'-6 ³ / ₄ "	1'-3 ³ / ₄ "	15'-6"	2	33
	C2	11 ¹ / ₄ "	5'-7 ¹ / ₂ "	1'-7"	2'-2 ³ / ₄ "	1'-3 ³ / ₄ "	9'-2"	4	39
	V1	14'-4"	1'-8"				16'-0"	1	17
	V2	17'-6"	1'-8"				19'-2"	1	20
	6.3 CYD OF CONCRETE					TOTAL WEIGHT OF STEEL = 220			
108"	A1	5'-6"					5'-6"	14	82
	A2	5'-10"					5'-10"	6	37
	C1	11 ¹ / ₂ "	6'-0"	6'-5 ¹ / ₈ "	9'-1"	1'-4"	16'-5"	2	35
	C2	11 ¹ / ₂ "	6'-0"	1'-10 ¹ / ₂ "	2'-8"	1'-4"	10'-0"	4	42
	V1	14'-4"	1'-8"				16'-0"	1	17
	V2	17'-6"	1'-8"				19'-2"	1	20
	7.0 CYD OF CONCRETE					TOTAL WEIGHT OF STEEL = 233			

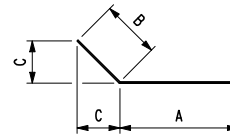
ALL STEEL REINFORCEMENT SHALL BE #5 BARS.



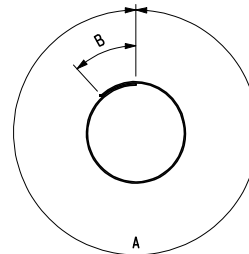
A BAR



C BAR



E BAR



V BAR

REINFORCEMENT BAR SHAPES

NOTES:

STACK SECTIONS SHALL BE ACCORDING TO STANDARD PLAN R-1-SERIES UNLESS OTHERWISE NOTED ON THIS PLAN.

STACK SECTIONS SHALL BE LOCATED ON LEFT OR RIGHT SIDE OF SEWER AS SPECIFIED ON THE PLANS.

GRANULAR MATERIAL CLASS III SHALL BE USED IN BACKFILLING AROUND ALL STRUCTURES THAT FALL WITHIN 1:1 INFLUENCE LINES FROM THE EDGE OF PAVEMENT OR BACK OF CURB.

STEPS SHALL BE OF AN APPROVED DESIGN AND MADE FROM CAST IRON, ALUMINUM, OR PLASTIC COATED STEEL. RUNGS SHALL BE A MINIMUM OF 10" IN CLEAR LENGTH, DESIGNED TO PREVENT THE FOOT FROM SLIPPING OFF THE END. THE MINIMUM HORIZONTAL PULL OUT LOAD SHALL BE 400 LBS. THE MINIMUM VERTICAL LOAD SHALL BE 800 LBS.

ALL SIZES AND FLOW LINES OF PIPES AND ELEVATIONS FOR TOP AND BOTTOM OF STRUCTURES SHALL BE DETERMINED FROM THE PLANS AND CONSTRUCTION REQUIREMENTS.

CONCRETE IN THE COLLAR POUR SHALL HAVE ATTAINED 50% OF ITS DESIGN STRENGTH PRIOR TO CUTTING THE OPENING IN THE SEWER. CARE SHALL BE EXERCISED IN MAKING THE OPENING, AS NO FRACTURES WILL BE PERMITTED IN SEWER WALL.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR

MANHOLE BASE TYPE 1

9-14-2001
F.H.W.A. APPROVAL

2-22-2001
PLAN DATE

R-2-D

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