BILLS OF REINFORCING STEEL - FOR 44' CLEAR WIDTH - BARRELS ONLY

2 SPAN 7'x3'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	110	146	146	73	73	19	8	17	4	32	46
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	18"	~	~	12"	12"
LENGTH	15'-2"	5'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	15'-2"	3'-11"	7'-8"
WEIGHT	1740	569	398	622	622	572	241	512	41	84	236

2 SPANS 7'x4'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	110	146	146	73	73	19	12	17	4	32	46
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	16"	~	~	12"	12"
LENGTH	15'-2"	6'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	15'-2"	3'-11"	9'-8"
WEIGHT	1740	666	398	622	622	572	361	512	41	84	297

2 SPANS 7'x5'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	110	146	146	73	73	19	24	17	4	32	62	46	46
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	15"	~	~	12"	18"	12"	12"
LENGTH	15'-5"	7'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	15'-5"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	1769	764	398	622	622	572	722	512	41	84	204	105	336

2 SPANS 7'x6'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	110	146	146	73	78	19	24	17	4	32	62	46	46
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7"	~	18"	~	~	12"	18"	12"	12"
LENGTH	15'-5"	8'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	15'-5"	3'-11"	5'-11"	3'-5"	12'-11"
WEIGHT	1769	861	398	622	664	572	722	512	41	84	245	105	397

3 SPANS 7'x3'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	110	146	146	146	146	29	12	25	4	48	92
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	18"	~	~	12"	12"
LENGTH	22'-8"	5'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	22'-8"	3'-11"	7'-8"
WEIGHT	2601	569	398	1243	1243	873	361	753	61	126	471

3 SPANS 7'x4'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	110	146	146	146	146	29	18	25	4	48	92
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	16"	~	~	12"	12"
LENGTH	22'-8"	6'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	22'-8"	3'-11"	9'-8"
WEIGHT	2601	666	398	1243	1243	873	542	753	61	126	594

3 SPANS 7'x5'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	110	146	146	146	146	29	32	25	4	48	62	92	92
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	15"	~	~	12"	18"	12"	12"
LENGTH	23'-0"	7'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	23'-0"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	2639	764	398	1243	1243	873	963	753	61	126	204	210	671

3 SPANS 7'x6'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	110	146	146	146	156	29	32	25	4	48	62	92	92
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½	7½"	7"	~	18"	~	~	12"	18"	12"	12"
LENGTH	23'-0"	8'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	23'-0"	3'-11"	5'-11"	3'-5"	12'-11"
WEIGHT	2639	861	398	1243	1329	873	963	753	61	126	245	210	794

4 SPANS 7'x3'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	110	146	146	219	219	39	16	33	4	62	138
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	18"	~	~	12"	12"
LENGTH	30'-2"	5'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	30'-2"	3'-11"	7'-8"
WEIGHT	3461	569	398	1865	1865	1174	482	993	81	162	707

4 SPANS 7'x4'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	110	146	146	219	219	39	24	33	4	62	138
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	16"	~	~	12"	12"
LENGTH	30'-2"	6'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	30'-2"	3'-11"	9'-8"
WEIGHT	3461	666	398	1865	1865	1174	722	993	81	162	891

4 SPANS 7'x5'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	110	146	146	219	219	39	40	33	4	62	62	138	138
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	15"	~	~	12"	18"	12"	12"
LENGTH	30'-7"	7'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	30'-7"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	3508	764	398	1865	1865	1174	1204	993	82	162	204	315	1007

4 SPANS 7'x6'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	110	146	146	219	234	39	40	33	4	62	62	138	138
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7"	~	18"	~	~	12"	18"	12"	12"
LENGTH	30'-7"	8'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	30'-7"	3'-11"	5'-11"	3'-5"	12'-11"
WEIGHT	3508	861	398	1865	1993	1174	1204	993	82	162	245	315	1191

5 SPANS 7'x3'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	110	146	146	292	292	49	20	41	4	78	184
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	18"	~	~	12"	12"
LENGTH	37'-8"	5'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	37'-8"	3'-11"	7'-8"
WEIGHT	4322	569	398	2487	2487	1475	602	1234	101	204	943

5 SPANS 7'x4'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	110	146	146	292	292	49	30	41	4	78	184
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	16"	~	~	12"	12"
LENGTH	37'-8"	6'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	37'-8"	3'-11"	9'-8"
WEIGHT	4322	666	398	2487	2487	1475	903	1234	101	204	1189

5 SPANS 7'x5'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	110	146	146	292	292	49	48	41	4	78	62	184	184
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	15"	~	~	12"	18"	12"	12"
LENGTH	38'-2"	7'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	38'-2"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	4379	764	398	2487	2487	1475	1445	1234	102	204	204	420	1342

5 SPANS 7'x6'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	110	146	146	292	312	49	48	41	4	78	62	184	184
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7"	~	18"	~	~	12"	18"	12"	12"
LENGTH	38'-2"	8'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	38'-2"	3'-11"	5'-11"	3'-5"	12'-11"
WEIGHT	4379	861	398	2487	2657	1475	1445	1234	102	204	245	420	1588

6 SPANS 7'x3'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	110	146	146	365	365	59	24	49	4	92	230
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	18"	~	~	12"	12"
LENGTH	45'-2"	5'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	45'-2"	3'-11"	7'-8"
WEIGHT	5182	569	398	3108	3108	1776	722	1475	121	241	1178

6 SPANS 7'x4'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	Z
NUMBER	110	146	146	365	365	59	36	49	4	92	230
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	16"	~	~	12"	12"
LENGTH	45'-2"	6'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	45'-2"	3'-11"	9'-8"
WEIGHT	5182	666	398	3108	3108	1776	1084	1475	121	241	1486

6 SPANS 7'x5'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	110	146	146	365	365	59	56	49	4	92	62	230	230
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7½"	~	15"	~	~	12"	18"	12"	12"
LENGTH	45'-9"	7'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	45'-9"	3'-11"	4'-11"	3'-5"	10'-11"
WEIGHT	5249	764	398	3108	3108	1776	1686	1475	122	241	204	526	1678

6 SPANS 7'x6'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K	M	Y	Z
NUMBER	110	146	146	365	390	59	56	49	4	92	62	230	230
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	7½"	7½"	7½"	7"	~	18"	~	~	12"	18"	12"	12"
LENGTH	45'-9"	8'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	45'-9"	3'-11"	5'-11"	3'-5"	12'-11"
WEIGHT	5249	861	398	3108	3321	1776	1686	1475	122	241	245	526	1985

2 SPANS 7'x7'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K'	M	Y	Z
NUMBER	110	168	168	73	78	19	30	17	4	32	62	46	46
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	6½"	6½"	7½"	7"	~	17"	~	~	12"	18"	12"	12"
LENGTH	15'-5"	9'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	15'-5"	3'-11"	6'-11"	3'-5"	14'-11"
WEIGHT	1769	1103	458	622	664	572	903	512	41	84	287	105	458

3 SPANS 7'x7'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K'	M	Y	Z
NUMBER	110	168	168	146	156	29	40	25	4	48	62	92	92
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	6½"	6½"	7½"	7"	~	17"	~	~	12"	18"	12"	12"
LENGTH	23'-0"	9'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	23'-0"	3'-11"	6'-11"	3'-5"	14'-11"
WEIGHT	2639	1103	458	1243	1329	873	1204	753	61	126	287	210	917

4 SPANS 7'x7'

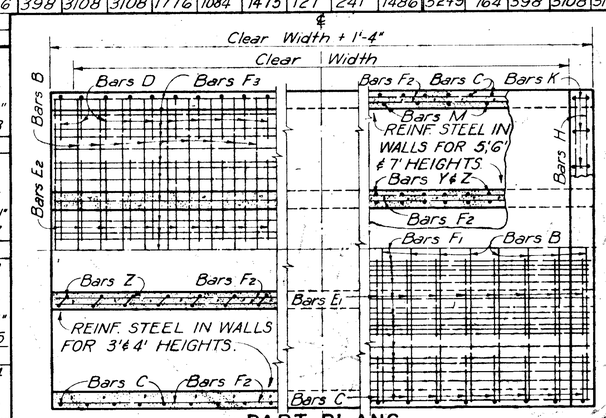
MARK	B	C	D	E1	E2	F1	F2	F3	H	K'	M	Y	Z
NUMBER	110	168	168	219	234	39	50	33	4	62	62	138	138
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	6½"	6½"	7½"	7"	~	17"	~	~	12"	18"	12"	12"
LENGTH	30'-7"	9'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	30'-7"	3'-11"	6'-11"	3'-5"	14'-11"
WEIGHT	3508	1103	458	1865	1993	1174	1505	993	82	162	287	315	1375

5 SPANS 7'x7'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K'	M	Y	Z
NUMBER	110	168	168	292	312	49	60	41	4	78	62	184	184
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	6½"	6½"	7½"	7"	~	17"	~	~	12"	18"	12"	12"
LENGTH	38'-2"	9'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	38'-2"	3'-11"	6'-11"	3'-5"	14'-11"
WEIGHT	4379	1103	458	2487	2657	1475	1806	1234	102	204	287	420	1834

6 SPANS 7'x7'

MARK	B	C	D	E1	E2	F1	F2	F3	H	K'	M	Y	Z
NUMBER	110	168	168	365	390	59	70	49	4	92	62	230	230
SIZE	#5	#4	#4	#6	#6	#4	#4	#4	#4	#4	#4	#4	#4
SPACING	10"	6½"	6½"	7½"	7"	~	17"	~	~	12"	18"	12"	12"
LENGTH	45'-9"	9'-10"	4'-1"	5'-8"	5'-8"	45'-0"	45'-0"	45'-0"	45'-9"	3'-11"	6'-11"	3'-5"	14'-11"
WEIGHT	5249	1103	458	3108	3321	1776	2107	1475	122	241	287	526	2292



PART PLANS

BOTTOM SLAB — TOP SLAB

NOTE: TOP & BOTTOM SLAB REINFORCING STEEL SIMILAR FOR CULVERT SIZES SHOWN ON THIS SHEET.

BARREL QUANTITIES FOR 44' CLEAR WIDTH

CULVERT SIZE S	CULVERT SIZE H	NO. OF SPANS	LENGTH OF STRUCT	* BARREL QUANTITIES CONC. CU YD.	* BARREL QUANTITIES STEEL LB.	QUANTITIES P.L.F. BBL. CONC. CU YD.	QUANTITIES P.L.F. BBL. STEEL LB.
7'x 3'		2	15'-6"	36.53	5637	0.789	120.91
		3	23'-0"	53.04	8699	1.145	186.76
		4	30'-6"	69.60	11757	1.502	252.60
		5	38'-0"	86.11	14822	1.858	318.44
		6	45'-6"	102.61	17878	2.214	384.28
7'x 4'		2	15'-6"	39.03	5915	0.844	127.06
		3	23'-0"	56.40	9100	1.219	195.57
		4	30'-6"	73.77	12278	1.594	264.10
		5	38'-0"	91.14	15466	1.969	332.61
		6	45'-6"	108.51	18645	2.344	401.11
7'x 5'		2	15'-9"	44.12	6751	0.956	145.34
		3	23'-4"	63.17	10148	1.368	218.52
		4	30'-11"	82.27	13541	1.781	291.70
		5	38'-6"	101.32	16941	2.193	364.90
		6	46'-1"	120.37	20335	2.605	438.06
7'x 6'		2	15'-9"	47.06	6992	1.021	150.69
		3	23'-4"	67.11	10495	1.455	226.17
		4	30'-11"	87.16	13991	1.889	301.66
		5	38'-6"	107.17	17495	2.322	377.16
		6	46'-1"	127.21	20993	2.756	452.64
7'x 7'		2	15'-9"	50.01	7578	1.086	163.64
		3	23'-4"	71.01	11203	1.541	241.78
		4	30'-11"	92.06	14820	1.997	319.95
		5	38'-6"	113.06	18446	2.452	398.13
		6	46'-1"	134.10	22065	2.908	476.27

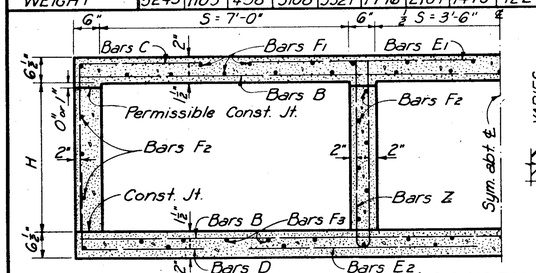
* These quantities do not include toe walls or wings.

△GENERAL NOTES:

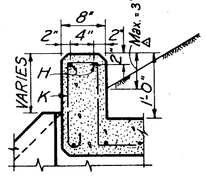
Designed for HS20 Loading and maximum fill heights shown.

The bottom edge of the top slab shall be chamfered 3 inches at the entrance. Reinforcing bars shall be adjusted to provide a minimum of 1¼ inches clear cover. Headwall heights will be reduced, if necessary, to provide a maximum of 3 inches projection above the roadway slope. No increase or decrease will be made in plan quantity of concrete or reinforcing steel for this work.

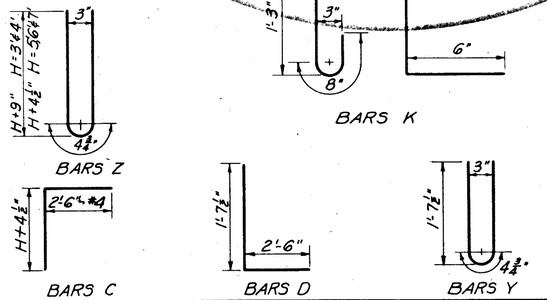
Construction joints shown at the flow line may be raised a maximum of 6 inches at the Contractor's option. Bars M may be cut off or raised, bars C and D may be reversed (D on top) and bars Y and Z may be reversed (Y on top).

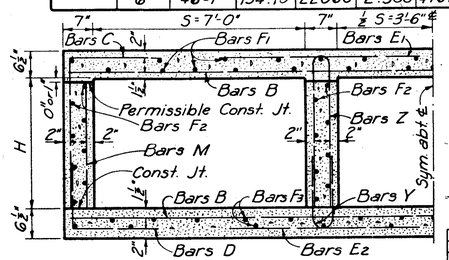


TYPICAL HALF SECT.-HEIGHT = 4' & UNDER



SECTION THRU CURB





TYPICAL HALF SECT.-HEIGHT = 5' & OVER

STATE OF TEXAS — CHARLES C. REECE — 68132 — REGISTERED PROFESSIONAL ENGINEER

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

MULTIPLE BOX CULVERTS

SIZES 7'x3', 7'x4', 7'x5', 7'x6' & 7'x7'

4'-1" TO 6'-0" FILL

MC7-3

DN.: W.H.	DRAWING	DATE	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.				SHEET NO.
CK. DN.: R.M.M.	Original	JAN. 1958	6	TEXAS					22
DW.: M.D.A.	Rev. Jan. 1959		STATE DIST. NO.	COUNTY		CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
CK. DW.: K.M.	Rev. Nov. 1964								
TR.: C.W.W.	Rev. Nov. 1967								
CK. TR.: M.D.A.	△Rev. May 1977								