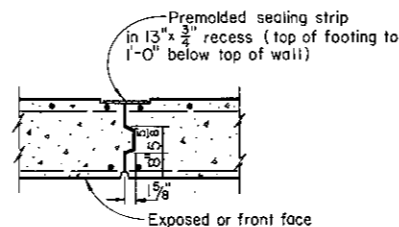


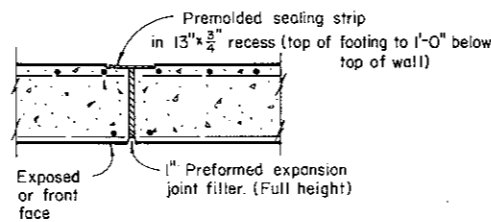
RETAINING WALLS WITH LEVEL FILL																						
Dimensions			Dowel Bars						Stem Reinforcing Steel											Stem Quantities Per Lin. Ft.		
H	b	W	N		P		R		S		T		U	V	Rein.	Conc.	H					
			Size	Spa.	g	Size	Spa.	g	Size	Spa.	L	Size	Spa.	L	Size	Spa.	L	no.	Lbs.	Cu. Yd.		
6'	1'-9"	1'-9 1/2"	6	1'-6"	3'-5"				5	3'-0"	4'-1"				3'-10"	4	12	.25	6'			
8'	1'-10"	1'-10 1/2"	6	1'-6"	3'-6"				5	3'-0"	6'-0"				5'-9"	6	16	.38	8'			
10'	2'-0"	2'-0"	6	1'-6"	3'-8"				5	3'-0"	7'-10"				7'-7"	8	19	.51	10'			
12'	2'-1"	2'-1 1/2"	6	1'-6"	3'-9"				5	3'-0"	9'-9"				9'-6"	10	23	.65	12'			
14'	2'-3"	2'-2 1/2"	6	3'-0"	3'-11"	6	3'-0"	4'-8"	5	3'-0"	11'-7"				11'-4"	12	27	.81	14'			
16'	2'-4"	2'-4 1/2"	6	3'-0"	4'-0"	6	3'-0"	6'-8"	5	3'-0"	13'-6"				13'-3"	14	31	.97	16'			
18'	2'-6"	2'-5 1/2"	6	1'-6"	5'-0"	6	1'-6"	8'-8"	5	3'-0"	15'-4"				15'-1"	16	44	1.13	18'			
20'	2'-7"	2'-7"	6	1'-4"	6'-0"	6	1'-4"	10'-8"	5	2'-8"	17'-3"				17'-0"	18	54	1.31	20'			
22'	2'-8"	2'-8 1/2"	7	1'-4"	4'-8"	7	1'-4"	8'-9"	7	2'-8"	10'-6"	5	2'-8"	19'-2"	18'-11"	20	70	1.50	22'			
24'	2'-10"	2'-9 1/2"	8	1'-6"	5'-11"	8	1'-6"	10'-8"	8	3'-0"	12'-6"	5	3'-0"	21'-0"	20'-9"	22	85	1.69	24'			
26'	2'-11"	2'-11 1/2"	9	1'-6"	5'-6"	9	1'-6"	11'-10"	9	3'-0"	14'-8"	5	3'-0"	22'-11"	22'-8"	24	109	1.89	26'			
28'	3'-1"	3'-0 1/2"	10	1'-6"	6'-11"	10	1'-6"	13'-9"	10	3'-0"	17'-11"	5	3'-0"	24'-9"	24'-6"	26	142	2.10	28'			
30'	3'-2"	3'-1 1/2"	11	1'-6"	6'-6"	11	1'-6"	14'-7"	11	3'-0"	18'-10"	5	3'-0"	26'-8"	26'-5"	28	179	2.30	30'			
32'	3'-3"	3'-3"	9	9"	5'-10"	9	9"	10'-10"	9	1'-6"	12'-9"	9	1'-6"	20'-4"	5	3'-0"	17'-5"	28'-4"	30	221	2.52	32'

RETAINING WALLS WITH 2 FT. LIVE LOAD SURCHARGE																						
Dimensions			Dowel Bars						Stem Reinforcing Steel											Stem Quantities Per Lin. Ft.		
H	b	W	N		P		R		S		T		U	V	Rein.	Conc.	H					
			Size	Spa.	g	Size	Spa.	g	Size	Spa.	L	Size	Spa.	L	Size	Spa.	L	no.	Lbs.	Cu. Yd.		
6'	1'-9"	1'-9 1/2"	6	1'-6"	3'-5"				5	3'-0"	4'-1"				3'-10"	4	12	.25	6'			
8'	1'-10"	1'-10 1/2"	6	1'-6"	3'-6"				5	3'-0"	6'-0"				5'-9"	6	16	.38	8'			
10'	2'-0"	2'-0"	6	1'-6"	3'-8"				5	3'-0"	7'-10"				7'-7"	8	19	.51	10'			
12'	2'-1"	2'-1 1/2"	6	3'-0"	3'-9"	6	3'-0"	5'-9"	5	3'-0"	9'-9"				9'-6"	10	24	.65	12'			
14'	2'-3"	2'-2 1/2"	6	3'-0"	3'-11"	6	3'-0"	6'-9"	5	3'-0"	11'-7"				11'-4"	12	28	.81	14'			
16'	2'-4"	2'-4 1/2"	6	1'-6"	4'-0"	6	1'-6"	8'-9"	5	3'-0"	13'-6"				13'-3"	14	40	.97	16'			
18'	2'-6"	2'-5 1/2"	6	1'-4"	4'-2"	6	1'-4"	10'-9"	5	2'-8"	15'-4"				15'-1"	16	49	1.13	18'			
20'	2'-7"	2'-7"	7	1'-4"	4'-7"	7	1'-4"	9'-0"	7	2'-8"	10'-7"	5	2'-8"	17'-3"	17'-0"	18	67	1.31	20'			
22'	2'-8"	2'-8 1/2"	8	1'-4"	4'-11"	8	1'-4"	10'-5"	8	2'-8"	12'-9"	5	2'-8"	19'-2"	18'-11"	20	88	1.50	22'			
24'	2'-10"	2'-9 1/2"	9	1'-4"	5'-7"	9	1'-4"	11'-8"	9	2'-8"	14'-10"	5	2'-8"	21'-0"	20'-9"	22	115	1.69	24'			
26'	2'-11"	2'-11 1/2"	10	1'-4"	5'-11"	10	1'-4"	12'-6"	10	2'-8"	16'-7"	5	2'-8"	22'-11"	22'-8"	24	147	1.89	26'			
28'	3'-1"	3'-0 1/2"	11	1'-4"	6'-5"	11	1'-4"	14'-3"	11	2'-8"	19'-0"	5	2'-8"	24'-9"	24'-6"	26	192	2.10	28'			
30'	3'-2"	3'-1 1/2"	11	1'-2"	6'-6"	11	1'-2"	15'-3"	11	2'-4"	20'-4"	5	3'-0"	26'-8"	26'-5"	28	225	2.30	30'			
32'	3'-3"	3'-3"	10	9"	6'-3"	10	9"	11'-5"	10	1'-6"	12'-10"	10	1'-6"	22'-7"	5	3'-0"	20'-2"	28'-4"	30	285	2.52	32'

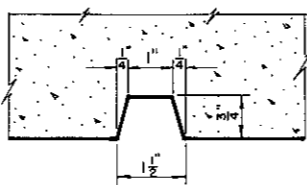
RETAINING WALLS WITH 2:1 INFINITE SLOPE FILL																						
Dimensions			Dowel Bars						Stem Reinforcing Steel											Stem Quantities Per Lin. Ft.		
H	b	W	N		P		R		S		T		U	V	Rein.	Conc.	H					
			Size	Spa.	g	Size	Spa.	g	Size	Spa.	L	Size	Spa.	L	Size	Spa.	L	no.	Lbs.	Cu. Yd.		
6'	1'-9"	1'-9 1/2"	6	1'-6"	3'-5"				5	3'-0"	4'-1"				3'-10"	4	12	.25	6'			
8'	1'-10"	1'-10 1/2"	6	1'-6"	3'-6"				5	3'-0"	6'-0"				5'-9"	6	16	.38	8'			
10'	2'-0"	2'-0"	6	1'-6"	3'-8"				5	3'-0"	7'-10"				7'-7"	8	19	.51	10'			
12'	2'-1"	2'-1 1/2"	6	3'-0"	3'-9"	6	3'-0"	5'-9"	5	3'-0"	9'-9"				9'-6"	10	24	.65	12'			
14'	2'-3"	2'-2 1/2"	6	3'-0"	3'-11"	6	3'-0"	6'-9"	5	3'-0"	11'-7"				11'-4"	12	28	.81	14'			
16'	2'-4"	2'-4 1/2"	6	1'-6"	4'-0"	6	1'-6"	8'-9"	5	3'-0"	13'-6"				13'-3"	14	40	.97	16'			
18'	2'-6"	2'-5 1/2"	7	1'-6"	4'-6"	7	1'-6"	7'-6"	7	3'-0"	8'-4"	5	3'-0"	15'-4"	15'-1"	16	49	1.13	18'			
20'	2'-7"	2'-7"	8	1'-6"	4'-10"	8	1'-6"	9'-1"	8	3'-0"	10'-5"	5	3'-0"	17'-3"	17'-0"	18	73	1.31	20'			
22'	2'-8"	2'-8 1/2"	9	1'-4"	5'-3"	9	1'-4"	10'-0"	9	2'-8"	12'-7"	5	2'-8"	19'-2"	18'-11"	20	103	1.50	22'			
24'	2'-10"	2'-9 1/2"	10	1'-4"	5'-10"	10	1'-4"	11'-6"	10	2'-8"	14'-7"	5	2'-8"	21'-0"	20'-9"	22	137	1.69	24'			
26'	2'-11"	2'-11 1/2"	11	1'-4"	6'-3"	11	1'-4"	12'-11"	11	2'-8"	16'-9"	5	2'-8"	22'-11"	22'-8"	24	178	1.89	26'			
28'	3'-1"	3'-0 1/2"	11	1'-0"	6'-5"	11	1'-0"	12'-9"	9	1'-0"	18'-2"	5	3'-0"	8'-4"	24'-6"	26	237	2.10	28'			
30'	3'-2"	3'-1 1/2"	10	9"	6'-2"	10	9"	11'-1"	10	1'-6"	12'-11"	10	1'-6"	20'-9"	5	3'-0"	16'-4"	26'-5"	28	271	2.30	30'
32'	3'-3"	3'-3"	11	9"	6'-7"	11	9"	11'-8"	11	1'-6"	2'-10"	11	1'-6"	22'-4"	5	3'-0"	17'-6"	28'-4"	30	347	2.52	32'



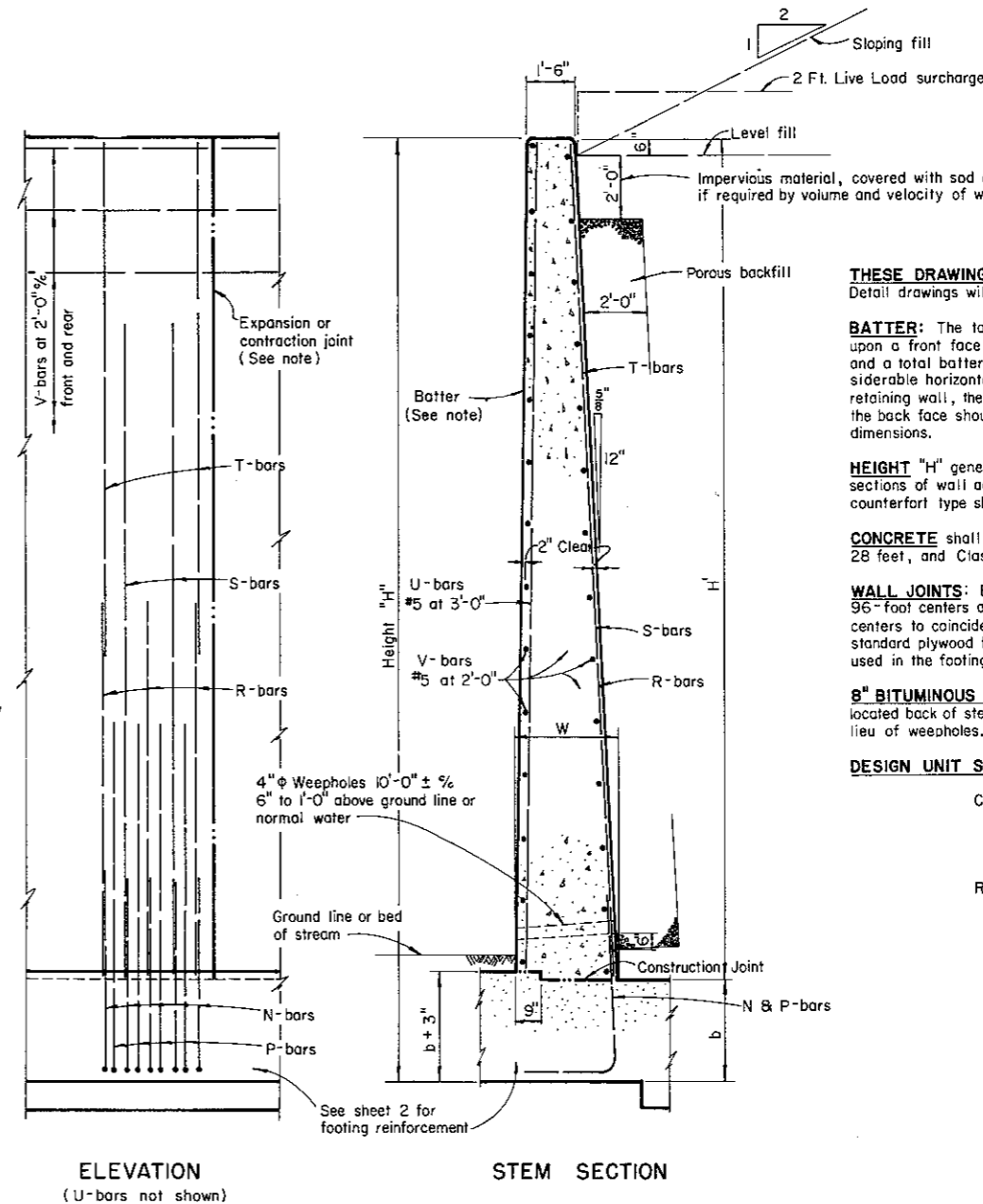
CONTRACTION JOINT DETAIL



EXPANSION JOINT DETAIL



VERTICAL RUSTICATION GROOVE Spaced 4'-0" c/c



ELEVATION (U-bars not shown)

STEM SECTION

THESE DRAWINGS are to be used as a guide to the designer. Detail drawings will be required for individual projects.

BATTER: The tabulated stem and footing dimensions are based upon a front face batter of 1/8 inch per foot for H of 24 feet or less, and a total batter of 3' for H greater than 24 feet. Where considerable horizontal curvature appreciably increases the stability of a retaining wall, the front face should be made vertical and the batter of the back face should be increased in order to maintain tabulated stem dimensions.

HEIGHT "H" generally should not exceed 28 feet except for short sections of wall adjacent to sections of less height. For higher walls a counterfort type should be considered.

CONCRETE shall be Class "E" for stems where "H" does not exceed 28 feet, and Class "C" for "H" greater than 28 feet.

WALL JOINTS: Expansion joints shall be spaced at approximately 96-foot centers and contraction joints at approximately 32-foot centers to coincide with a 4-foot spacing of rustication grooves to fit standard plywood forms. Generally, only construction joints should be used in the footings.

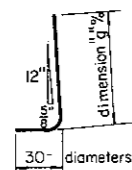
8" BITUMINOUS COATED PERFORATED METAL PIPE DRAIN located back of stem and connected to an outlet pipe may be used in lieu of weepholes.

DESIGN UNIT STRESSES:

Concrete, Class "C" - $f_c = 1333$ psi.
Class "E" - $f_c = 1133$ psi.

Reinforcing Steel - ASTM A15, A16, A160, Deformed, intermediate or Hard Grade. $f = 20,000$ psi.

This drawing furnishes information for the designer, but is not intended for use as a construction drawing.



N & P bars

REVISIONS		STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES			
		STEM DESIGN DATA FOR REINFORCED CONCRETE RETAINING WALLS CANTILEVER TYPE			
APPROVED:		<i>[Signature]</i> ENGINEER OF BRIDGES		DRAWING NUMBER RW-1-63	
DATE: 12-20-63		PREPARED:	TRACED:	CHECKED:	REVIEWED:
		JM JDR	JTK	WCK	RAC MPB COB HHH BFG
					SHEET NO. 1 OF 2 SHEETS