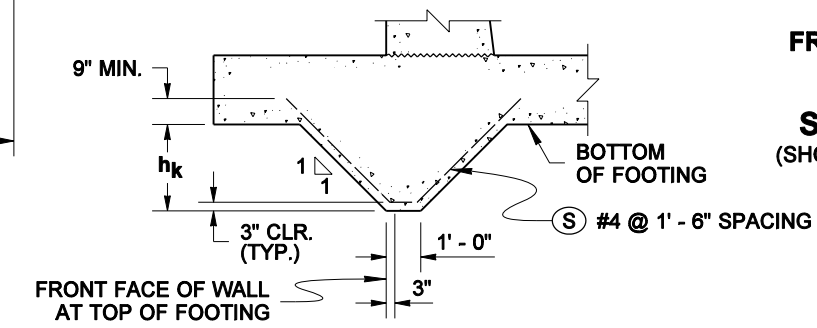


BAR Q #4		
LOCATION	WALL HEIGHT (H)	QTY.
TOP OF FOOTING	≤ 13'	4
	12' ≤ 17'	5
	18' ≤ 22'	7
	23' ≤ 29'	9
	30' ≤ 35'	13
BOTTOM OF FOOTING	≤ 13'	4
	12' ≤ 17'	5
	18' ≤ 22'	7
	23' ≤ 29'	9
	30' ≤ 35'	13



- NOTES**
1. All concrete shall be Class 4000, except as noted.
 2. For backfill requirements, see Standard Plan D-4.
 3. Concrete in the 48 foot wall sections shall be placed separately between expansion joints with a minimum 24 hour period before placing concrete in the adjacent section.
 4. This wall has been designed in accordance with the requirements of the AASHTO LRFD Bridge Design Specifications 4th Edition 2007 and interims through 2008. The seismic design of these walls has been completed using an effective PGA of 0.20 g.

EXPANSION JOINT ~ 48' CENTERS, W/ 1/2" PREMOLDED JOINT FILLER
 3" DIAM. DRAINS AT ABOUT 12' CENTERS AND 6" ABOVE FINAL GROUND LINE AT FRONT FACE OF WALL

VERTICAL FACE WALL DESIGN WITH 2:1 BACKSLOPE



NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT UNTIL IT IS APPROVED AND SEALED BY THE ENGINEER AND APPROVED FOR CONSTRUCTION BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

REINFORCED CONCRETE RETAINING WALL TYPE 5 STANDARD PLAN D-10.30-00

SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

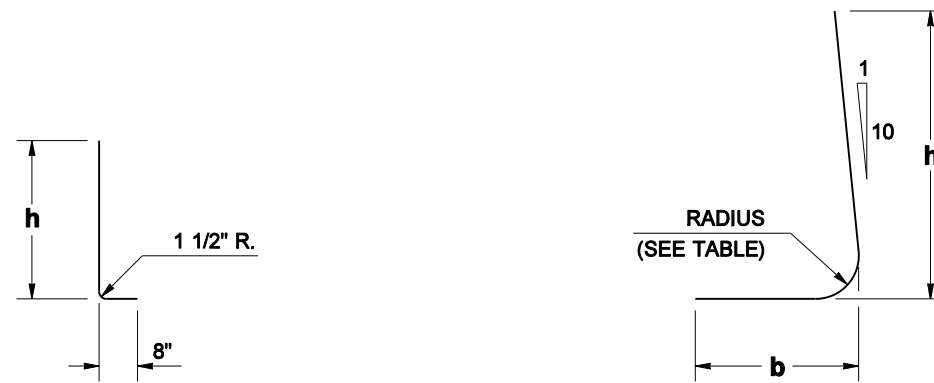
Pasco Bakotich III 07-08-08
 STATE DESIGN ENGINEER DATE

Washington State Department of Transportation

① OFFSET ~ SET TOP OF WALL BACK:
 H ≤ 20' OFFSET = 1/2"
 H ≥ 20' OFFSET (inches) = $\frac{H(ft)}{8} - 2$

KEY DETAIL
 REQUIRED ON WALLS WHERE H > 26'

WALL HT H	DIMENSIONS					FOOTING REINFORCEMENT																STEM REINFORCEMENT				MATERIAL QUANTITY		MAXIMUM SOIL PRESSURE (PSF)			
						BAR (E) #4		BAR (F)		BAR (H)		BAR (K)				BAR (M)				BAR (J)		(G) #4	CONC. CY/LF	STEEL LBS/LF	SERVICE	STRENGTH	EXTREME EVENT 1				
	B	C _v	D	h _k	A	LENGTH	h	SIZE	SPA.	LENGTH	SIZE	SPA.	LENGTH	h	b	SIZE	SPA.	LENGTH	h	b	SIZE	SPA.						LENGTH	LENGTH		
5'	4'-3"	1'-6"	1'-0"	N/A	1'-1 1/2"	3'-3 1/2"	2'-9"	#4	1'-6"	4'-0"	#4	1'-6"	4'-0"	#4	1'-6"	5'-2"	4'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	3'-10"	0.30	19.3	706	928	831	
6'	4'-3"	1'-6"	1'-0"	N/A	1'-3"	3'-3 1/2"	2'-9"	#4	1'-6"	4'-0"	#4	1'-6"	4'-0"	#4	1'-6"	6'-2"	5'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	4'-10"	0.34	21.7	825	1084	982	
7'	4'-3"	1'-6"	1'-0"	N/A	1'-4"	3'-3 1/2"	2'-9"	#4	1'-6"	4'-0"	#4	1'-6"	4'-0"	#4	1'-6"	7'-2"	6'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	5'-10"	0.39	22.8	930	1218	1169	
8'	4'-3"	1'-6"	1'-0"	N/A	1'-5"	3'-3 1/2"	2'-9"	#4	1'-6"	4'-0"	#4	1'-6"	4'-0"	#4	1'-6"	8'-2"	7'-7"	8"	N/A	N/A	N/A	N/A	N/A	N/A	6'-10"	0.44	25.3	1018	1362	1401	
9'	4'-3"	1'-6"	1'-0"	N/A	1'-6 1/2"	3'-3 1/2"	2'-9"	#4	1'-6"	4'-0"	#4	1'-6"	4'-0"	#4	1'-6"	9'-2"	8'-7 1/2"	8"	N/A	N/A	N/A	N/A	N/A	N/A	7'-10"	0.50	27.7	1211	1649	1696	
10'	4'-9"	1'-6"	1'-0"	N/A	1'-7 1/2"	3'-3 1/2"	2'-9"	#4	1'-6"	4'-6"	#4	1'-6"	4'-6"	#4	1'-6"	10'-2"	9'-7 1/2"	8"	N/A	N/A	N/A	N/A	N/A	N/A	8'-10"	0.58	32.0	1421	1946	2000	
11'	5'-6"	1'-6"	1'-0"	N/A	1'-9"	3'-3 1/2"	2'-9"	#4	1'-6"	5'-3"	#4	1'-6"	5'-3"	#4	1'-0"	11'-2"	10'-7 1/2"	8"	N/A	N/A	N/A	N/A	N/A	N/A	9'-10"	0.67	37.6	1623	2225	2283	
12'	6'-3"	1'-6"	1'-0"	N/A	1'-10"	3'-3 1/2"	2'-9"	#4	1'-0"	6'-0"	#4	1'-6"	6'-0"	#4	10"	12'-2"	11'-7 1/2"	8"	N/A	N/A	N/A	N/A	N/A	N/A	10'-10"	0.76	43.9	1826	2508	2570	
13'	6'-6"	1'-9"	1'-0"	N/A	1'-11"	3'-3 1/2"	2'-9"	#4	1'-0"	6'-3"	#4	1'-6"	6'-3"	#4	8"	13'-2 1/2"	12'-7 1/2"	8"	N/A	N/A	N/A	N/A	N/A	N/A	11'-10"	0.84	49.6	1963	2715	2769	
14'	7'-3"	1'-9"	1'-0"	N/A	2'-0 1/2"	3'-3 1/2"	2'-9"	#4	8"	7'-0"	#4	1'-6"	7'-0"	#4	6"	14'-2 1/2"	13'-7 1/2"	8"	N/A	N/A	N/A	N/A	N/A	N/A	12'-10"	0.94	61.9	2169	3001	3060	
15'	7'-9"	2'-0"	1'-3"	N/A	2'-1 1/2"	3'-6 1/2"	3'-0"	#4	8"	7'-6"	#4	1'-6"	7'-6"	#5	8"	15'-3 1/2"	14'-8"	9"	N/A	N/A	N/A	N/A	N/A	N/A	13'-7"	1.09	69.5	2306	3198	3247	
16'	8'-3"	2'-3"	1'-3"	N/A	2'-2 1/2"	3'-6 1/2"	3'-0"	#4	8"	8'-0"	#4	1'-0"	8'-0"	#5	7"	16'-3 1/2"	15'-8"	9"	N/A	N/A	N/A	N/A	N/A	N/A	14'-7"	1.19	79.2	2423	3369	3405	
17'	8'-9"	2'-3"	1'-6"	N/A	2'-3 1/2"	3'-9 1/2"	3'-3"	#4	8"	8'-6"	#4	1'-0"	8'-6"	#5	6"	17'-3 1/2"	16'-8"	9"	N/A	N/A	N/A	N/A	N/A	N/A	15'-4"	1.36	89.0	2677	3729	3777	
18'	9'-6"	2'-3"	1'-6"	N/A	2'-4 1/2"	3'-9 1/2"	3'-3"	#5	9"	9'-3"	#4	1'-0"	9'-3"	#6	7"	18'-5"	17'-8"	11"	N/A	N/A	N/A	N/A	N/A	N/A	16'-4"	1.49	108.6	2883	4015	4068	
19'	10'-0"	2'-6"	1'-9"	N/A	2'-5 1/2"	4'-0 1/2"	3'-6"	#5	9"	9'-9"	#4	1'-0"	9'-9"	#6	6"	19'-5 1/2"	18'-8"	11"	N/A	N/A	N/A	N/A	N/A	N/A	17'-1"	1.68	122.5	3021	4213	4256	
20'	10'-6"	3'-0"	2'-0"	N/A	2'-6 1/2"	4'-3 1/2"	3'-9"	#5	9"	10'-3"	#4	1'-0"	10'-3"	#6	6"	20'-5 1/2"	19'-8"	11"	N/A	N/A	N/A	N/A	N/A	N/A	17'-10"	1.88	128.5	3048	4256	4268	
21'	11'-6"	3'-6"	2'-0"	N/A	2'-7 1/2"	4'-3 1/2"	3'-9"	#5	9"	11'-3"	#4	10"	11'-3"	#6	1'-4"	14'-4"	13'-5 1/2"	11"	#6	1'-4"	5'-2 1/2"	4'-4 1/2"	11"	#6	1'-4"	18'-11"	2.05	116.0	3015	4199	4180
22'	12'-3"	3'-9"	2'-0"	N/A	2'-9"	4'-3 1/2"	3'-9"	#5	7"	12'-0"	#4	9"	12'-0"	#6	1'-4"	15'-7 1/2"	14'-10"	11"	#6	1'-4"	5'-2 1/2"	4'-4 1/2"	11"	#6	1'-4"	19'-11"	2.20	128.0	3114	4337	4307
23'	12'-9"	3'-9"	2'-3"	N/A	2'-10"	4'-6 1/2"	4'-0"	#5	7"	12'-6"	#4	9"	12'-6"	#6	1'-2"	16'-1"	15'-3 1/2"	11"	#6	1'-2"	5'-5 1/2"	4'-7 1/2"	11"	#6	1'-2"	20'-8"	2.44	141.1	3355	4679	4655
24'	13'-6"	4'-0"	2'-3"	N/A	2'-11"	4'-6 1/2"	4'-0"	#5	6"	13'-3"	#4	8"	13'-3"	#8	1'-4"	15'-3 1/2"	14'-3"	1'-3"	#8	1'-4"	7'-4 1/2"	6'-3 1/2"	1'-3"	#8	1'-4"	21'-8"	2.61	185.1	3454	4816	4780
25'	14'-3"	4'-6"	2'-6"	N/A	3'-0"	4'-9 1/2"	4'-3"	#5	6"	14'-0"	#4	7"	14'-0"	#8	1'-4"	16'-8"	15'-7 1/2"	1'-3"	#8	1'-4"	7'-7 1/2"	6'-6 1/2"	1'-3"	#8	1'-4"	22'-5"	2.88	197.5	3481	4850	4792
26'	14'-6"	4'-6"	2'-9"	2'-0"	3'-1"	5'-0 1/2"	4'-6"	#5	6"	14'-3"	#4	7"	14'-3"	#8	1'-4"	18'-0 1/2"	17'-0"	1'-3"	#8	1'-4"	7'-10 1/2"	6'-9 1/2"	1'-3"	#8	1'-4"	23'-2"	3.35	205.6	3818	5330	5279
27'	14'-9"	4'-9"	2'-9"	2'-0"	3'-2"	5'-0 1/2"	4'-6"	#5	6"	14'-6"	#4	6"	14'-6"	#8	1'-2"	18'-2 1/2"	17'-0"	1'-3"	#8	1'-2"	7'-10 1/2"	6'-9 1/2"	1'-3"	#8	1'-2"	24'-2"	3.49	227.9	3955	5538	5474
28'	15'-3"	5'-0"	3'-0"	2'-0"	3'-3"	5'-3 1/2"	4'-9"	#5	6"	15'-0"	#4	6"	15'-0"	#8	1'-0"	18'-1"	17'-0 1/2"	1'-3"	#8	1'-0"	8'-1 1/2"	7'-0 1/2"	1'-3"	#8	1'-0"	24'-11 1/2"	3.77	251.8	4097	5739	5667
29'	16'-0"	5'-6"	3'-3"	2'-0"	3'-4"	5'-6 1/2"	5'-0"	#5	6"	15'-9"	#5	8"	15'-9"	#8	10"	17'-6 1/2"	16'-6"	1'-3"	#8	10"	8'-4 1/2"	7'-3 1/2"	1'-3"	#8	10"	25'-8 1/2"	4.09	288.7	4117	5761	5667
30'	17'-0"	6'-0"	3'-3"	2'-0"	3'-5"	5'-6 1/2"	5'-0"	#6	7"	16'-9"	#5	7"	16'-9"	#9	10"	16'-9 1/2"	15'-8"	1'-6"	#9	10"	9'-8"	8'-5"	1'-6"	#9	10"	26'-8 1/2"	4.34	361.2	4102	5729	5614
31'	17'-6"	6'-3"	3'-6"	2'-0"	3'-6"	5'-9 1/2"	5'-3"	#6	7"	17'-3"	#5	7"	17'-3"	#10	1'-0"	18'-9"	17'-6"	1'-8"	#10	1'-0"	11'-4"	9'-10 1/2"	1'-8"	#10	1'-0"	27'-5 1/2"	4.66	396.1	4245	5931	5808
32'	18'-3"	6'-6"	3'-9"	2'-0"	3'-7"	6'-0 1/2"	5'-6"	#6	7"	18'-0"	#5	7"	18'-0"	#10	10"	17'-7"	16'-4"	1'-8"	#10	10"	11'-7"	10'-1 1/2"	1'-8"	#10	10"	28'-2 1/2"	5.02	450.1	4372	6103	5974
33'	19'-0"	7'-0"	4'-0"	2'-0"	3'-7 1/2"	6'-3 1/2"	5'-9"	#6	7"	18'-9"	#6	8"	18'-9"	#10	10"	19'-1"	17'-10"	1'-8"	#10	10"	11'-10"	10'-4 1/2"	1'-8"	#10	10"	28'-11 1/2"	5.40	475.6	4411	6151	6006
34'	20'-0"	7'-3"	4'-0"	2'-0"	3'-9"	6'-3 1/2"	5'-9"	#6	6"	19'-9"	#6	7"	19'-9"	#10	9"	18'-11"	17'-8"	1'-8"	#10	9"	11'-10"	10'-4 1/2"	1'-8"	#10	9"	29'-11 1/2"	5.69	538.0	4499	6267	6117
35'	20'-6"	7'-6"	4'-3"	2'-0"	3'-10"	6'-6 1/2"	6'-0"	#6	6"	20'-3"	#6	7"	20'-3"	#10	9"	20'-5"	19'-2"	1'-8"	#10	9"	12'-1"	10'-7 1/2"	1'-8"	#10	9"	30'-8 1/2"	6.05	558.4	4640	6468	6310



BAR (E)
@ 1'-6" CENTERS

BAR	RADIUS
#4	1 1/2"
#5	1 7/8"
#6	2 1/4"
#7	2 5/8"
#8	3"
#9	4 3/4"
#10	5 3/8"
#11	6"

BARS (K) AND (M)

BAR	MIN. SPLICE
#4	2'-0"
#5	2'-0"
#6	2'-0"
#7	2'-6"
#8	3'-3"
#9	4'-2"
#10	5'-3"

VERTICAL FACE WALL DESIGN WITH 2 :1 BACKSLOPE



NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT. THE ENGINEER HAS REVIEWED THE DRAWINGS AND APPROVED THE DESIGN. THE ENGINEER HAS REVIEWED THE DRAWINGS AND APPROVED THE DESIGN. THE ENGINEER HAS REVIEWED THE DRAWINGS AND APPROVED THE DESIGN. A COPY MAY BE OBTAINED UPON REQUEST.

REINFORCED CONCRETE RETAINING WALL TYPE 5 STANDARD PLAN D-10.30-00

SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

Pasco Bakotich III 07-08-08

STATE DESIGN ENGINEER

DATE

