WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
BRIDGE & STRUCTURES BRANCH

Project..... Sheet No..... of..... sheets

S. R. ..... Made by ..... Check by ..... Date ..... Supv. .....

Rdwy slab, Member 4

Moment @ Face of support. 3½" From ℄ Int Wall

$-M_D = 3.95 - (3.95 - 3.17)\frac{3\frac{1}{2}/12}{1.483/2} = 3.64^{k'}$

$-M_{L+I} = 12.13 - (12.13 - 9.44)$ " $= 11.07^{k'}$

$M_{L+I} = .52^{k'}$ small

$M_H = -.31^{k'}$

$M_{NW} = .36(-2.36) = .71$

$M_T = -.29^{k'}$

M_S. Case A. $M_S = 10.31^{k'}$ Bot. tension

B $M_S = 10.77^{k'}$

$t = 14$ $e = \frac{14}{2} - 6.25 = .75$ $M_{pe} = 9.77^{k}$ Tension Bot.

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BRIDGE & STRUCTURES BRANCH

Project 3rd Lake Wash. Floating Bridge - Stage II Sheet No. 11 of ____ sheets
S. R. 90 Made by YMT. Check by ____ Date ____ Supv. YFC/RTS

Transverse Design — pontoon D near Wall 5
Section at Rdwy Slab - Member 4 Face of support near ○L4

$t = 14$ $c = .75$ $M_{pe} = 4.77^{k'}$
$A = 14(12) = 168$ $S = \frac{12}{6}(14)^2 = 392$

Group S①: $D + H + (L + I) + M_{P/S}$ 100%

	Case A	Case B	Case C
M_D	-3.64		
M_H	-.31		
M_L	-11.07	.52	
M_{pe}	4.77		
M_{2nd}	10.77		
	(11.59)		
	(.52) 12.11		

Group S③: S① + .3 Wave 125%

	Case A	Case B	Case C
S①	12.11 $^{k'}$		
.3W	.71		
	12.82 $^{k'}$		

Group S④: S① + T 125%

	Case A	Case B	Case C
S①			
T			

Group S⑥: S③ + T 140%

	Case A	Case B	Case C
S③	12.82		
T	.24		
	13.06 $^{k'}$		

$$f = -\frac{76.27}{168} \pm \frac{13.06(12)}{392} = -.454 \pm .400 = -.054^{ksi} \text{ Max} < 2.0^{ksi}$$
$$= -.054^{ksi} \text{ Min.} \quad 0^{ksi}$$
O.K.

Flood Damage

Group S⑦: S① + DM

	Case A	Case B	Case C
S①			
DM			

Group S⑨: S③ + DM

	Case A	Case B	Case C
S③			
DM			

$f = ___ \pm ___ = ___ \pm ___ = ___^{ksi}$ Max $< 2.0^{ksi}$
$= ___^{ksi}$ Min. $-.212^{ksi}$

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BRIDGE & STRUCTURES BRANCH

Project..... Sheet No..... of..... sheets

S. R. ..... Made by ..... Check by ..... Date ..... Supv. .....

Rdwy slab Int. cell .164.

$M_D = -2.49$

$M_{LL} = -6.75^{k'} + 3.21$

$M_H = -.32^{k'}$

$M_{NW} = 20\%(-2.01) = -.60$

$M_T = -.25$

$M_S = 10.77^{k'}$ Bot. tension.

$t = 12.01'$ $e = \frac{12}{2} - 6.25 = -.25$ $M_{pe} = -1.59$ tension top.

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BRIDGE & STRUCTURES BRANCH

Project 3rd Lake Wash. Floating Bridge - Stage II Sheet No. [illegible] of ____ sheets
S. R. 90 Made by YMT. Check by ____ Date ____ Supv. YFC/RTS

Transverse Design — pontoon D near Wall 5
Section at .164

$t = 12.01''$ $e = -.25''$ $M_{pe} = 76.27(-.25/12) = 1.59^{k'}$ tension top.
$A = 12(12) = 144$ $S = 288$

Group S①: $D + H + (L + I) + M_{P/S}$ 100%

	Case A	Case B	Case C
M_D	-2.49		
M_H	-.32		
M_L	-6.75	3.21	
M_{pe}	-1.59		
M_{end}	10.77 (6.37)		
	-.38	9.58	

Group S③: S① + .3 Wave 125%

	Case A	Case B	Case C
S①	9.58		
3W	-.61		
	8.97		

Group S④: S① + T 125%

	Case A	Case B	Case C
S①	9.58		
T	.25		
	9.83		

Group S⑥: S③ + T 140%

	Case A	Case B	Case C
S③	8.97		
T	.25		
	9.22		

$$f = \frac{76.27}{144} \pm \frac{9.83(12)}{288} = -.530 \pm -.410 = -.939^{ksi} \text{ Max} < 2.0^{ksi}$$
$$= -.120^{ksi} \text{ Min.} \quad 0^{ksi}$$
OK.

Flood Damage

Group S⑦: S① + DM

	Case A	Case B	Case C
S①			
DM			

Group S⑨: S③ + DM

	Case A	Case B	Case C
S③			
DM			

$f = ___ \pm ___ = ___ \pm ___ = ___^{ksi}$ Max $< 2.0^{ksi}$
$= ___^{ksi}$ Min. $-.212^{ksi}$

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BRIDGE & STRUCTURES BRANCH

Project..... Sheet No. ..... of..... sheets

S. R. ..... Made by ..... Check by ..... Date ..... Supv. .....

Rdwy slab ·24

$M_{DL} = -1.44^{k'}$

$M_{LH} = -5.46^{k'} \quad +4.21^{k'}$

$M_H = -.32^{k'}$

$M_{NW} = (-1.97)\,30\% = -.59$

$M_T = -.25^{k'}$

$M_S = 10.77^{k'}$

$t = 9.54'' \quad e = \frac{9.54}{2} - 6.25 = 1.48$ below N.A. $\quad M_{pe} = -9.41^{k'}$ tension top.

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BRIDGE & STRUCTURES BRANCH

Project 3rd Lake Wash. Floating Bridge - Stage II Sheet No. 7 of sheets
S. R. 90 Made by YMT. Check by Date Supv. YFC/RTS

Transverse Design — pontoon D near Wall 5
Section at

$t = 9.54$ $c = -1.48$ $M_{pe} = -9.41$ tension top.
$A = 9.54(12) = 114$ $S = (9.52)^2 \frac{12}{6} = 182$

Group 5①: D + H + (L + I) + $M_{P/S}$ 100%

	Case A	Case B	Case C
M_D	-1.44		
M_H	-.32		
M_L	-5.46	+4.21	
M_{pe}	-9.41		
M_{2nd}	10.77 (-.40)		
	-5.86	3.81	

Group 5③: 5① + .3 Wave 125%

	Case A	Case B	Case C
5①	-5.86	3.81	
.3W	-.59	-.59	
	-6.45	4.40	

Group 5④: 5① + T 125%

	Case A	Case B	Case C
5①	-5.86	3.81	
T	-.25	.25	
	-6.11	4.06	

Group 5⑥: 5③ + T 140%

	Case A	Case B	Case C
5③	-6.45		
T	-.25		
	6.70		

$f = \frac{76.27}{114} \pm \frac{6.70(12)}{182} = -.669 \pm -.442 = -1.111$ ksi Max < 2.0 ksi
$= -.227$ ksi Min. 0 ksi
O.K.

Flood Damage

Group 5⑦: 5① + DM

	Case A	Case B	Case C
5①			
DM			

Group 5⑨: 5③ + DM

	Case A	Case B	Case C
5③			
DM			

$f =$ ± = ± = ksi Max < 2.0 ksi
= ksi Min. -.212 ksi

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Project..... Sheet No..... of..... sheets

S. R. ..... Made by ..... Check by ..... Date ..... Supv. .....

Rdwy slab : SL4 ~ ℄ of Int. span

$M_{DL} = -.34^{k'}$

$M_{CTT} = -2.34 \quad +5.32$

$M_H = -.34$

$M_{NW} = 36\%(-.59) = -.18$

$M_T = \pm .27$

$M_S = 10.77$

$t = 9'' \quad e = \frac{9}{2} - 6.25 = -1.75'' \quad M_{pe} = -11.12^{k'}$ tension top.

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Project 3rd Lake Wash. Floating Bridge - Stage II Sheet No. ____ of ____ sheets
S. R. 90 Made by YMT. Check by ____ Date ____ Supv. YFC/RTS

Transverse Design — pontoon D near Wall 5
Section at ℄ span member 4

$t = 9''$ $e = -1.75$ $M_{pe} = -11.12^{k'}$
$A = 9(12) = 108$ $S = \frac{12}{6}(9)^2 = 162$

Group 5①: D + H + (L + I) + $M_{P/S}$ 100%

	Case A	Case B	Case C
M_D	-.34		
M_H	-.34		
M_L	-2.34	+5.32	
M_{pe}	-11.12		
M_{2nd}	10.77		
	(-1.03)		
	-3.37	+4.29$^{k'}$	

Group 5③: 5① + .3 Wave 125%

	Case A	Case B	Case C
5①	-3.34	4.29	
.3W	-.18	-.18	
	-3.52	4.11	

Group 5④: 5① + T 125%

	Case A	Case B	Case C
5①	4.29		
T	.27		
	4.56		

Group 5⑥: 5③ + T 140%

	Case A	Case B	Case C
5③	4.11		
T	.27		
	4.38		

$$f = \frac{-76.27}{108} \pm \frac{-4.56(12)}{162} = -.706 \pm -.338 = -1.044^{ksi} \text{ Max} < 2.0^{ksi}$$
$$= -.368^{ksi} \text{ Min.} \quad 0^{ksi}$$

Flood Damage

Group 5⑦: 5① + DM

	Case A	Case B	Case C
5①			
DM			

Group 5⑨: 5③ + DM

	Case A	Case B	Case C
5③			
DM			

$f =$ ____ ± ____ = ____ ± ____ = ____ ksi Max < 2.0 ksi
= ____ ksi Min. -.212 ksi

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