

BT4RIGHT.OUT
 THE ANALYSIS AND DESIGN OF PIERS FOR BRIDGES - V 4.2.07 - AASHTO SPECS 1984 INTERIM
 175/175 NW CORRIDOR - BRIDGE NO.5 RT WIDENING - BENT 4 HAMMER HEAD

0 PROBLEM NO. 0001 INPUT DATA

DESIGN NO.	CAN	NO.	COL.	NO.	SKEW	ANG	F'C	FC	N	FY	FS	EC	ES	CONC.	Z	* * *	* * *	* * *	CAP	REINFORCING	STEEL	* * *	* * *	CAP	
OPTIONS							PSI	PSI		PSI	PSI	KSI	KSI	STRAIN	FACT					MAX	MIN	MIN	TOP	MIN	BOT
D	D	D	L	2	1	4	0-00-00	3500.	1400.	9.	60000.	24000.	3409.	29000.	0.0030	170.	11	5	9	11	5	9	11	2	2.00

0 CAP DATA

OCN	C	L	A	DE	BC	BE	DH	LH	XB1	XB2	XB3	XB4	XB5	XB6	XB7	XB8
011	C	4.625	0.000	3.000	3.000	0.000	0.000	0.000	2.667	1.167						
012	2	SAME AS	CANTILEVER	1												

0 COLUMN DATA

OCN	P	I	T	S	HT	A	DT	BT	DB	BB	DL	FLEX	ND	NB	SZ	SLOPE	EP	AP									
021	0	C	T		25.000	0.000	3.000	3.000	0.000	0.000	0.000	0.000	2	4	11	0	0	0	99	99	11	0	0	0	0.000	0.000	0.000

0 FOOTING DATA

OCN	S/P	B	D	T	DEL.B	DEL.D	DEL.T	R.B/D	R.D/B	S.HT.	NP	SYM.	BP	DP	SET.
031	P	5.000	5.000	3.250	0.250	0.250	0.250	1.000	1.000	3.000	0	3	0.000	0.000	0.000

0 GROUP II WIND SUPERSTRUCTURE AREA*STD. WIND ON SUPERSTRUCTURE INTENSITIES * WIND FORCE ARM * WIND ON PIER

TRANS.	LONG.	WIND	FT1	FL1	FT2	FL2	FT3	FL3	FT4	FL4	FT5	FL5	APT	APL	FT	FL	PT	PL
0	33.	17.	1	50	0	44	6	41	12	33	16	17	19	5.167	1.833	1.596	2.346	

0 GROUP III WIND STD. * WIND ON SUPERSTRUCTURE INTENSITIES * STD. * WIND ON LIVE LOAD INTENSITIES * LENGTHS OF LL * WIND ON LL ARMS

WIND	FT1	FL1	FT2	FL2	FT3	FL3	FT4	FL4	FT5	FL5	TRANS.	LONGI.	APT	APL											
0	1	50	0	44	6	41	12	33	16	17	19	100	0	88	12	82	24	66	32	34	38	60.0	60.0	11.833	11.833

0 MISCELLANEOUS FORCES CENTRI. TRACTION FORCE AND ARMS EXPANSION SHRINKAGE STREAM FLOW

FT	FL	APT	APL	COEFFICIENT	COEFFICIENT	PT	PL	
0	0.000	2.820	0.000	1.833	0.00018000	0.00044000	0.000	0.000

0 DEAD LOAD SUPERSTRUCTURE AND LIVE LOAD CASES

O.I.D.	NL	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
0	0	65.678	0.000	0.000	68.966								
0	1	31.544	0.000	0.000	34.977								
0	2	0.000	0.000	0.000	31.229								
0	3	22.489	0.000	0.000	34.977								
0	4	39.978	0.000	0.000	38.726								

0 COLUMN MOMENTS(KIP-FEET), SHEARS(KIPS), REACTIONS(KIPS) TRANSVERSE * LONGITUDINAL

UUNIT	F.AT	CL.CAP	COL	PC	MT	V	MB	RF	ML	MR	MT	V	MB	MF
0	DEAD	LOAD	TOTAL	1	147.132	8.769	0.000	-8.769	180.882	189.602	-198.371	0.000	0.000	0.000

0 TRAC. FORCE 1 LN WIND ON SUBSTR. OGROUP 2 WIND 1 1 1 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 -5.169 -2.820 -75.669 -75.669

0 OGROUP 2 WIND 1 1 1 0.000 -8.526 3.246 89.676 0.000 0.000 0.000 0.000 -2.346 -58.650 -58.650

0 OGROUP 2 WIND 1 2 1 0.000 -8.526 3.246 89.676 0.000 0.000 0.000 0.000 -2.346 -58.650 -58.650

0 OGROUP 2 WIND 2 1 1 0.000 -7.502 3.048 83.702 0.000 0.000 0.000 0.000 -1.87 -2.448 -61.387 -61.387

0 OGROUP 2 WIND 2 2 1 0.000 -7.502 3.048 83.702 0.000 0.000 0.000 0.000 -1.87 -2.448 -61.387 -61.387

0 OGROUP 2 WIND 3 1 1 0.000 -6.991 2.949 80.716 0.000 0.000 0.000 0.000 -1.74 -2.550 -64.124 -64.124

0 OGROUP 2 WIND 3 2 1 0.000 -6.991 2.949 80.716 0.000 0.000 0.000 0.000 -1.74 -2.550 -64.124 -64.124

0 OGROUP 2 WIND 4 1 1 0.000 -5.627 2.685 72.752 0.000 0.000 0.000 0.000 -1.499 -2.618 -65.949 -65.949

0 OGROUP 2 WIND 4 2 1 0.000 -5.627 2.685 72.752 0.000 0.000 0.000 0.000 -1.499 -2.618 -65.949 -65.949

0 OGROUP 2 WIND 5 1 1 0.000 -2.899 2.157 56.824 0.000 0.000 0.000 0.000 -0.592 -2.669 -67.317 -67.317

0 OGROUP 2 WIND 5 2 1 0.000 -2.899 2.157 56.824 0.000 0.000 0.000 0.000 -0.592 -2.669 -67.317 -67.317

0 OGROUP 3 WIND 1 1 1 0.000 -73.556 6.974 247.901 0.000 0.000 0.000 0.000 -0.704 -17.595 -17.595

0 OGROUP 3 WIND 1 2 1 0.000 -73.556 6.974 247.901 0.000 0.000 0.000 0.000 -0.704 -17.595 -17.595

0 OGROUP 3 WIND 2 1 1 0.000 -64.729 6.194 219.589 0.000 0.000 0.000 0.000 -8.576 -1.454 -44.936 -44.936

0 OGROUP 3 WIND 2 2 1 0.000 -64.729 6.194 219.589 0.000 0.000 0.000 0.000 -8.576 -1.454 -44.936 -44.936

0 OGROUP 3 WIND 3 1 1 0.000 -60.316 5.805 205.433 0.000 0.000 0.000 0.000 -17.152 -2.205 -72.277 -72.277

0 OGROUP 3 WIND 3 2 1 0.000 -60.316 5.805 205.433 0.000 0.000 0.000 0.000 -17.152 -2.205 -72.277 -72.277

0 OGROUP 3 WIND 4 1 1 0.000 -48.547 4.766 167.684 0.000 0.000 0.000 0.000 -22.869 -2.705 -90.504 -90.504

0 OGROUP 3 WIND 4 2 1 0.000 -48.547 4.766 167.684 0.000 0.000 0.000 0.000 -22.869 -2.705 -90.504 -90.504

0 OGROUP 3 WIND 5 1 1 0.000 -25.009 2.687 92.186 0.000 0.000 0.000 0.000 -27.157 -3.081 -104.174 -104.174

0 OGROUP 3 WIND 5 2 1 0.000 -25.009 2.687 92.186 0.000 0.000 0.000 0.000 -27.157 -3.081 -104.174 -104.174

0 OLIVE LOAD LL 1 1 66.521 9.156 0.000 -9.156 66.521 84.128 -93.284 0.000 0.000 0.000 0.000 0.000

0 OLIVE LOAD LL 2 1 31.229 83.288 0.000 -83.288 31.229 0.000 -83.288 0.000 0.000 0.000 0.000 0.000 0.000

0 COLUMN MOMENTS(KIP-FEET), SHEARS(KIPS), REACTIONS(KIPS) TRANSVERSE * LONGITUDINAL

OLIVE	LOAD	LL	3	COL	PC	MT	V	MB	RF	ML	MR	MT	V	MB	MF
0	OLIVE	LOAD	LL	3	1	57.466	33.305	0.000	-33.305	57.466	59.978	-93.284	0.000	0.000	0.000
0	OLIVE	LOAD	LL	4	1	78.704	-3.339	0.000	3.339	78.704	106.621	-103.282	0.000	0.000	0.000

CAP ANALYSIS AND DESIGN DATA
 CAP MOMENTS AND SHEARS

0 POINT D.L.TOT. G1 MAX.+ G1 MAX.- G2 MAX.+ G2 MAX.- G3 MAX.+ G3 MAX.- DL T.LT DL T.RT G1 + LT G1 + RT G1 - LT G1 - RT

OP	1	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364
0	OP	2	-108.209	-108.209	-209.496	-108.209	-108.209	-108.209	-108.209	-108.209	-168.860	-90.866	-90.866	-90.866	-90.866	-177.658	-177.658								
0	OC	1L	-246.482	-246.482	-477.957	-246.482	-246.482	-246.482	-246.482	-385.090	-93.498	-93.498	-93.498	-93.498	-180.291	-180.291									
0	OC	1R	-257.882	-257.882	-482.108	-257.882	-257.882	-257.882	-257.882	-392.149	95.140	97.773	179.214	181.847	95.140	97.773									
0	OP	3	-113.198	-113.198	-211.312	-113.198	-113.198	-113.198	-113.198	-171.949	95.140	97.773	179.214	181.847	95.140	97.773									
0	OP	4	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	-3.364	93.092	3.436	177.166	3.436	93.092	3.436									

0 CAP DESIGN DATA LEFT STIRRUPS RIGHT STIRRUPS D FC PS FS/FF FS/FZ

PT.	M+ UNF.	M- UNF.	TOP REINFORCE.	BOT. REINFORCE.	LEFT STIRRUPS	RIGHT STIRRUPS	D	FC	PS	FS/FF	FS/FZ	
0	OP	1	-2.588	-2.588	3.12 2 # 11	3.12 2 # 11	0.00 0.000 #5@ 0.00	16.33 0.034 #5@16.33	36.00	0.27	0.000	0.014
0	OP	2	-83.238	-129.892	3.12 2 # 11	3.12 2 # 11	16.33 0.036 #5@16.33	16.33 0.036 #5@16.33	36.00	0.40	0.295	0.708
0	OC	1	-189.602	-301.653	3.38 3 # 11	3.12 2 # 11	16.33 0.037 #5@16.33	16.33 0.038 #5@16.25	36.00	0.29	0.528	0.969
0	OP	3	-87.075	-132.268	3.12 2 # 11	3.12 2 # 11	16.33 0.037 #5@16.33	16.33 0.037 #5@16.33	36.00	0.40	0.288	0.721
0	OP	4	-2.588	-2.588	3.12 2 # 11	3.12 2 # 11	16.33 0.035 #5@16.33	0.00 0.000 #5@ 0.00	36.00	0.27	0.000	0.014

0 CRITICAL COLUMN LOADS

CN	B	GR	LLC	WC	R	E	C	S	PF	MTF	MLF	PM	PM	MLM	PU	MTU	MLU	PU/PM	B	D
0	1	T	1	LL	4	0			362.1	4.2	0.0	362.1	129.9	123.5	2501.2	899.2	854.5	6.909	36.00	36.00
0	1	B	3	LL	2	1.1	R		275.7	-441.9	121.2	275.7	481.7	131.7	1021.6	1784.3	487.9	3.704	36.00	36.00

0 COLUMN DESIGN DATA

CN	B	NO.	FACE	NO.	FACE	NO.	FACE	NO.	FACE	AS	PS	BD12	BD	SUMPU	SUMPC	DEL.T	DEL.L	CM	R	PHIC					
0	1	T	6	#	11	6	#	11	4	#	11	4	#	11	31.20	2.407	1.00	0.364	384.	2344.	1.196	1.137	1.000	1	0.70
0	1	B	6	#	11	6	#	11	4	#	11	4	#	11	31.20	2.407	1.00	0.039	254.	3076.	1.090	1.086	1.000	1	0.70

BT4RIGHT.OUT																				
FOOTING 1 DESIGN LOADS																				
0	OF	G	LLID	WC	ES	C	S	P	MT	VT	ML	VL	P4	P3	P2	P1	MTF	VBF	VPF	LOAD
01	3	LL	4	3.1R				244.250	-211.514	-5.805	223.615	7.845	71.546	9.268	66.863	129.141	13.779	0.000	-0.531	MAX.P1
01	3	LL	4	1.1R				317.525	-330.176	-9.066	219.613	8.247	75.812	14.208	104.119	165.723	19.070	0.000	-0.691	MAX.MT
01	3	LL	2	1.1R				267.833	-420.848	-9.066	121.243	4.581	38.270	4.237	116.815	150.848	18.902	0.000	-0.730	MAX.VT
01	3	LL	4	3.1R				317.525	-274.968	-7.546	290.699	10.198	93.009	12.049	86.922	167.882	17.913	0.000	-0.691	MAX.VP
01	3	LL	4	5.1R				317.525	-127.747	-3.493	332.166	11.337	118.704	26.452	61.226	153.479	19.250	0.000	-0.691	MAX.ML
01	3	LL	2	1.1R				267.833	-420.848	-9.066	121.243	4.581	38.270	4.237	116.815	150.848	12.860	0.000	-0.730	MAX.VL
01	3	LL	2	3.1R				206.026	-281.262	-5.805	147.946	5.025	42.667	1.598	76.630	117.699	13.651	0.000	-0.561	MAX.P3
FOOTING 1 ANALYSIS/DESIGN RESULTS																				
BAR REINFORCEMENT STEEL																				
SECTION CAPACITIES																				
0	B	D	T	P1/PA	AS	NO.	SIZE	SPAC.	PLACEMENT	MT.	VB	VP	DS	FC						
0	6.500	6.500	3.250	0.538	0.24	8	# 4	@ 9.750	TOP TRAN	25.525	28.060	56.120	23.250	0.000						
0					0.24	8	# 4	@ 9.750	BOT.LONG	26.079	28.663	57.327	23.750	0.000						
NUMBER OF PILES = 4 BP = 2.000 DP = 2.000																				