Attachment 2

Example No. 2

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

JOINT MOVEMENTS CALCULATIONS [a]

DSD-D-0129 (REV. 5/93)

EA	DISTRICT	COUNTY	ROUTE	PM	BRIDGE NAME AND NUMBER
03-000000	03	Sac	5	0.2/2.4	Dry Creek O.C. 29-000

TYPE STRUCTURE	TYPE ABUTMENT	TYPE EXPANSION (2" elasto pads, etc)
Reinf. Conc. Box and CIP P/S	A1 - 70T Piles/A7 - Spd. Ftg.	Bent 3 - Steel Hangers/Bent 5 - 2 1/2" Pads

① TEMPERATURE EXTREMES (from Preliminary Report)			② THERMAL MOVEMENT (inches/100 feet)		ANTICIPATED SHORTENING (inches/100 feet)		③ MOVEMENT FACTOR (inches/100 feet)
Maximum 110 °F	Steel	Range (____ °F) (0.0000065 x 1,200)	= ___ . ___	+	0.00	=	___ . ___
– Minimum 23 °F	Concrete (*Conventional*)	Range (87 °F) (0.0000060 x 1,200)	= 0 . 63	+	0.06	=	0 . 69
	Concrete (*Pretensioned*)	Range (____ °F) (0.0000060 x 1,200)	= ___ . ___	+	0.12 [g]	=	___ . ___
= Range 87 °F	Concrete (*Post Tensioned*)	Range (87 °F) (0.0000060 x 1,200)	= 0 . 63	+	0.63 [g]	=	1 . 26

ITEM ① DESIGNER	DATE	ITEM ② CHECKED BY	DATE

To be filled in by Office of Structures Design [b]

To be filled in by SR [c]: W. T. Trustworthy Date: 2/21/94

Location	Skew (degrees) Do not use in calculation	④ Contributing Length (feet)	Calculated Movement (inches) ③ x ④ / 100	M.R. (inches) (Round up to 1/2")	Seal Type A, B (Others) or Open Joint	Seal Width Limits [d] Catalog Number	W_1 (inches) Maximum	⑤ W_2 (inches) Min. ● Max. Temperature	Groove (saw cut) Width or Installation Width [e] Structure Temperature (°F) [f]	⑥ Adjust from Maximum Temp. (inches) ▲[c]/① x ② x ④/100	Width at Temp. Listed (inches) w = ⑤ + ⑥
Abut. 1 (Conv.)	0	64	0.44	1/2	A						
Span 3 Hinge (Conv.)	0	166	1.15	–							
Span 3 Hinge (CIP P/S)	0	220	2.77	–							
Span 3 Hinge Total	0	386	3.92	4	Joint Seal Assembly						
Span 5 Hinge (CIP P/S)	0	100	1.26	–							
Span 5 Hinge (Conv.)	0	156	1.08	–							
Span 5 Hinge Total	0	256	2.34	2 1/2	Joint Seal Assembly						
Abut 7 (Conv.)	0	34	0.23	1/2	A						

a Project Designer: Send to RE or SR with Preliminary Report.
b Show line drawing of structure on reverse side; show points of no movement and contributory lengths. Retain copy for design calculations file.
c RE or SR: Complete and return to Structure Construction with final report.
d Type B information from TransLab reports.
e Groove width adjustment based on ▲[c] = (maximum temperature extreme) minus (superstructure temperature).
f Measure superstructure temperature by placing bulb of concrete thermometer ± 6 inches into expansion joint.
g When MR is greater than 4 inches, increase anticipated shortening 25%.