

AASHTO T-3 TRIAL DESIGN BRIDGE DESCRIPTION

State: Arkansas

Trial Design Designation: AR-1

Bridge Name: AHTD Job 100547 (Hwy. 135 Interchange)

Superstructure Type: 308' Continuous Composite W-Beam Unit

Span Length(s): 66' - 88' - 88' - 66'

Substructure Type: Multi-Column Intermediate Bents; Cap and Seat End Bents

Foundation: Pile Footings (Intermediate Bents)

Abutments: Standard Cap-Seat End Bents Supported by Steel-Shell Piles

Seismic Design Category (SDC): "D", and a "Critical" Bridge

Seismic Design Strategy (Type 1, 2 or 3): Type 2

Design Spectral Acceleration at 1-second Period (S_{D1}): 0.676g

Additional Description (Optional): _____

AHTD Job 100547 (Hwy. 135 Interchange)

Seismic Design Results- A General Comparison of Current vs. Proposed Seismic Guidelines

JAC September 2006

AHTD: Seismic Analysis / Design Examples

The Hwy. 135 Interchange was previously designed using the AASHTO 17th Edition Standard Specification's Seismic Code. (Plans showing the bridge layout as it was originally designed are attached as pdf files below.) For comparison purposes, the bridge was reviewed for this Trial Design Study to assist the T-3 Subcommittee using the Proposed LRFD Guidelines for the Seismic Design of Highway Bridges by Roy A. Imbsen.

- AHTD Job 100547 (Hwy. 135 Interchange): A Steel W-Beam Bridge
308' Continuous Unit (66'-88'-88'-66')
- Superstructure: Steel W-Beams with 8" concrete deck
- Overall width: 43'-2"
- Substructure alignment: 10 degree Rt. Forward Skew
- Abutments: Cap Seat Abutments with backwalls
- Bents: Two 4' diameter concrete columns which support a concrete cap beam. Columns are on footings supported by steel shell piles.
- Location: West Memphis, AR. Design Category : SDC D.
- Importance Category: CRITICAL
- Soil : Site Class D

General Comments:

First, we looked at the proposed new LRFD guidelines with respect to their content and readability. Those comments are recorded elsewhere.

Secondly, we took a general look at how the proposed guidelines would affect the design and detailing of an actual bridge (in this case, the Hwy. 135 Overpass). Job 100547 was not fully redesigned, and the calculations that were made were not included in this summary. However, the plans of the original design are included, as well as the 2 primary SEISAB runs that were made under the new USGS spectral curves, as well as the USGS curves themselves.

Changes to the Job 100547 example structure utilizing the Proposed LRFD Guidelines for the Seismic Design of the Highway Bridges vs. Arkansas' current seismic design results and detailing can be summarized as follows:

A. Design Issues & Effects on 100547 Bridge

1. Per Article 4.2.2. of the Proposed Specs., the bridge for Job 100547 is a critical bridge because it is a designated emergency route. Also, Art 4.2.2 states that Critical Bridges are not specifically addressed in the new guidelines.. however, that for such bridges, a non-linear time-history analysis is generally recommended.

This seems to set a much wider scope for the use of non-linear analysis than in the Current Code.

For the sake of the comparison however, I will proceed with the typical Multimodal Spectral Analysis used in the original design.

2. The new liquefaction analyses set forth in the Appendices were not investigated for their effect on the design. I simply used the same liquefaction depths as previously used in the original design.

3. The current superstructure is OK as per original design, except that the reinforcing steel in the slab would have to be A706 weldable reinforcing steel since this is an SDC D area.

4. Due to the larger forces involved in a 1000 yr return earthquake vs. the 500 yr quake, it was impractical to design my bridge in the elastic range as was done for the 500 yr quake. Therefore, while column size did not have to be increased, the mode of failure (plastic hinging versus elastic response) did change.

5. Due to the issue of the larger design force, I would choose to use 4' diameter columns, and check their capacity to displace under the earthquake load. Also, the backwall steel would not have to be increased. That is because the new guidelines allow a "break-away" backwall, and the increased forces from SEISAB showed that a non-breaking backwall was probably not feasible.

If a non-breaking backwall were to be used, one solution would be using a 2'-0" thick backwall, with #7 bars spaced on 6" centers. This would be one workable alternative. Soil failure would still occur however because soil pressures were up to 11.73 ksf versus 7.0 ksf maximum allowable.

6. The Piles used in my design (18" diameter steel shell piles) should still be good, although according to Article 6.4.2 they are "non-standard" piles, since they are over 16" in diameter. Missouri's notes showed that they were reducing their pile sizes to 16" from their previously used 20" or 24" diameter piles.

7. The existing footings are 4' deep, but by the new code I would have to make them 5' deep. This is because by the new guidelines, the designer is not allowed to count hooks or bends in the required anchorage of bars, in the SDC D regions (Article 8.8.4). (This is not to say that we'd eliminate the bends however, .. we just simply wouldn't rely on them in the design process).

B. Detailing Effects upon the 100547 Bridge Design

1. Because this bridge is in SDC D, the use of A706 weldable reinforcing steel is now required in the substructure and apparently the superstructure as well (Article 8.4.2).

2. In the End Bents, I had to increase the reinforcing steel in the top of cap from 6-#6's to 8-#6's. This was due to a higher shear-block-induced moment. The Int. Bent cap steel was not checked but would probably also need to be increased somewhat in the top. The effect on shear ties was not investigated.

Also, the end bent cap seat width equations are different but on this bridge my current cap width was acceptable, but by a smaller margin than in the past. The new effect of Art. 4.3.3 entitled "Displacement Magnification for Short Period Structures" applied to the 100547 bridge and in some cases could increase the required cap seat width.

3. In the original design, I have lap-spliced bars, in both the columns, and in the cap itself. These lap-splices are no longer allowed for use in SDC D regions. Also, by Art. 8.8.3, only mechanical couplers could be used for "ultimate strength" splices. I am unclear as to whether welded splices are allowed in SDC D or not.

4. In the original design, designer "cut off" 2 of the longitudinal bars in the bottom of the cap, in the cantilever portions. This seems to be discouraged by Article 8.11, in the SDC C and D regions.

5. In the original detailing of the column bents, the column steel only extended the development length into the cap. According to Art. 8.8.4, in SDC C and D regions, the longit. bars in the column would have to be lengthened so that they went into the cap as far as practical.

C. Some Force and Deflection Values for Comparison

(Diameter of Int. Bent Columns = 4 feet)

1. Movement under liquefaction

original movement at abutment = 0.41 feet (no R adjustment)

new movement at abutment = 0.535 feet (not including the R adjustment for short period structures, see Art. 4.3.3 for details.)

2. Force developed at abutment assuming no liquefaction

original force = 1476 kips

new force = 4216 kips

3. Moment developed at Bottom of Column No. 2, of Int. Bent No. 3

original moment with no liquefaction = 2812 kip-ft

original moment with liquefaction = 2944 kip-ft.

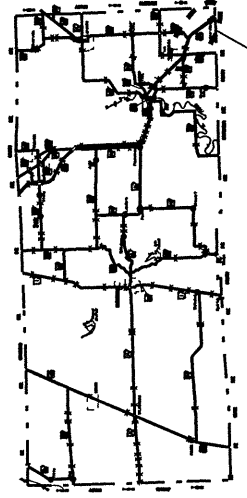
new moment with no liquefaction = 7771 kip-ft.

new moment with liquefaction = 10,024 kip-ft.

The column heights used were the same. It is surprising the moments went up so much with very little extra deflection. However, it seems to be the case. Under such high loadings, design of a plastic hinge and breakaway abutments is the economical solution. If a bridge were so critical that it had to stay in the elastic range of its strength, it would be a very costly bridge.

APR. 1968	APR. 1968	APR. 1968	STATE	FRONT PRIMA	APR. 1968
			6	6	6
			APR.	JOB NO.	100517
					WY. 05 INTERCHANGE (F)

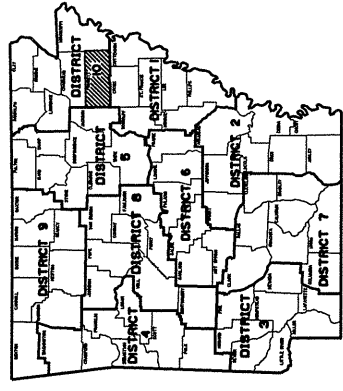
"A FULLY CONTROLLED ACCESS FACILITY"
 ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
 CONSTRUCTION PLANS FOR STATE HIGHWAY



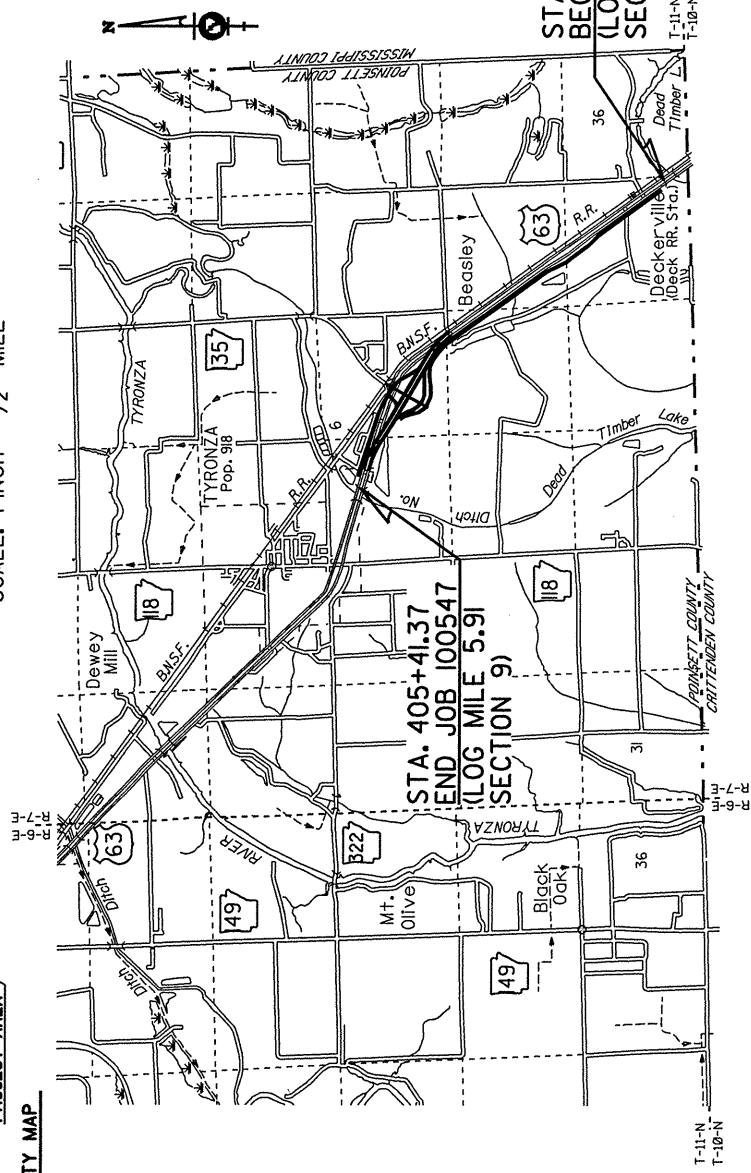
VICINITY MAP

HWY. 135 INTERCHANGE (F)

POINSETT COUNTY
 ROUTE 63 SECTION 9
 FEDERAL AID PROJ.
 JOB 100547
 SCALE: 1 INCH = 1/2 MILE



ARK. HWY. DIST. NO. 10



DESIGN TRAFFIC DATA

DESIGN YEAR	2024	HWY. 63	HWY. 135
2004 ADT	12750		2024
2024 ADT	20550		650
2024 DRV	2261		110
DIRECTIONAL DISTRIBUTION	0.60		122
TRUCKS	18%		0.60
DESIGN SPEED	70 MPH		40 MPH

STA. 20904.00
 BEGIN JOB 100547
 (LOG MILE 9.62
 SECTION 9)

MID. POINT OF PROJECT
 LATITUDE = N 35° 27' 15"
 LONGITUDE = W 90° 19' 35"

NO. LENGTH INVOLVED		FEET OR	0.000	MILES
GROSS LENGTH OF PROJECT	00000.00	"	0.000	"
NET " " ROADWAY	00000.00	"	0.000	"
NET " " BRIDGES	00000.00	"	0.000	"
NET " " PROJECT	00000.00	"	0.000	"

PRELIMINARY
 SUBJECT TO REVISION

P.E. JOB 001849
 NON-PART.

DATE REVISION	DATE REVISION	DATE REVISION	DATE REVISION	DATE REVISION	DATE REVISION	DATE REVISION	DATE REVISION	DATE REVISION	DATE REVISION
07019		INT. BENTS		46906		106547			

GENERAL NOTES

All concrete shall be Class 4000 with a minimum 28 day compressive strength, $f'_{c} = 3,500$ psi. Concrete shall be poured in the dry and all exposed surfaces to be chamfered $\frac{3}{8}$ " unless otherwise noted.

All reinforcing steel shall conform to AASHTO M61 or M63, Grade 60 (yield strength = 60,000 psi).

Top reinforcing bars shall be properly placed to avoid interference with anchor bolts or steel metal sleeves.

For additional information see layout.

NOTES FOR SPIRAL REINFORCING :

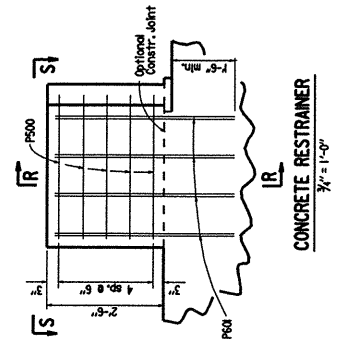
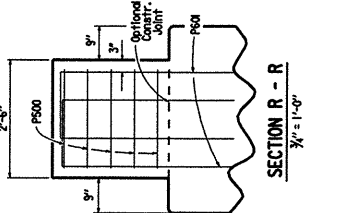
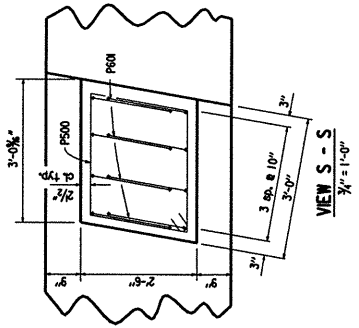
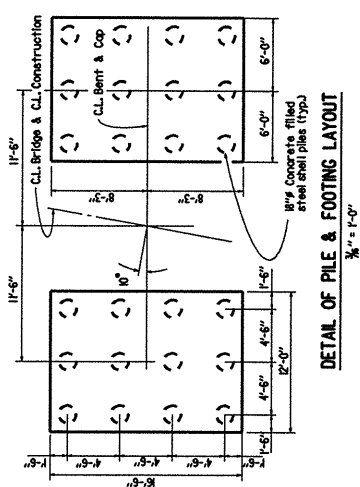
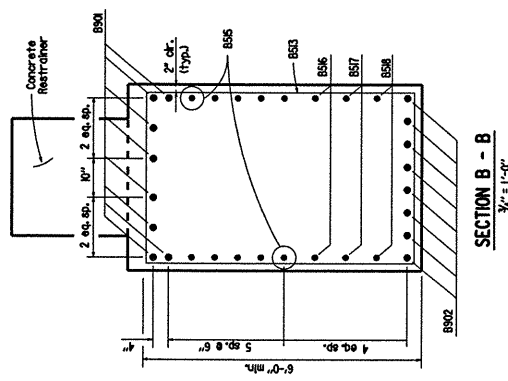
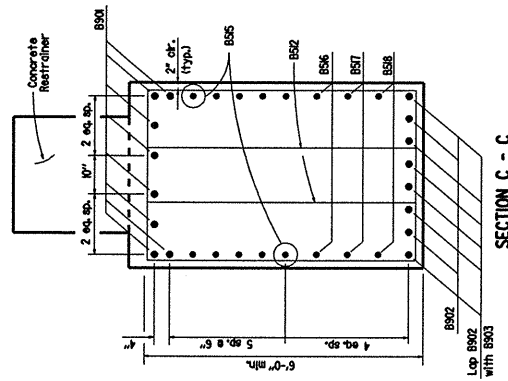
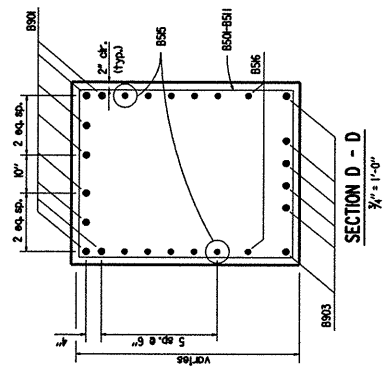
Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M61 or M63 (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M22 or M225 (Grade 70) with a minimum diameter of 0.625".

Spiral reinforcing shall be sold for at the contract unit prices bid per pound for reinforcing steel spiral (Grade 60). No additional unit prices shall be allowed for additional splices or bracing needed for assembly, shipping, handling, or erecting.

Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within 5'-9" of the top or bottom of the column.

Splices in spiral reinforcement shall be lapped a minimum of 80 bar diameters.

Spiral reinforcement of lapped splices shall be terminated by a 180° hook with a 10" tail around a vertical bar. For lapped splices, the spiral shall be terminated with 1/2" turns and a 180° hook with a 10" tail around a vertical bar.



DETAILS COMMON TO INT. BENTS

HWY. 63 OVERPASS

ROUTE 100
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DESIGNED BY: LHM
 CHECKED BY: LHM
 DRAWING NO. 07019
 DATE: 8-12-04
 SCALE: 3/4" = 1'-0" OR AS SHOWN

REGISTERED PROFESSIONAL ENGINEER
 STATE OF ARKANSAS
 LICENSE NO. 4427
 DANIEL R. BARNETT

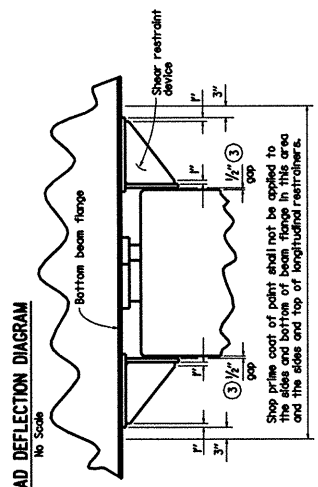
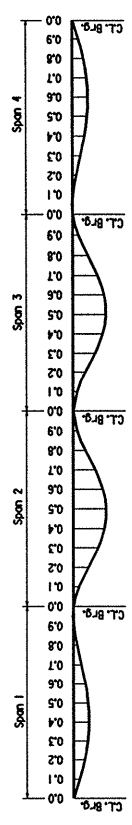
DRAWING NO. 46906

TABLE OF DEAD LOAD DEFLECTIONS-INCHES

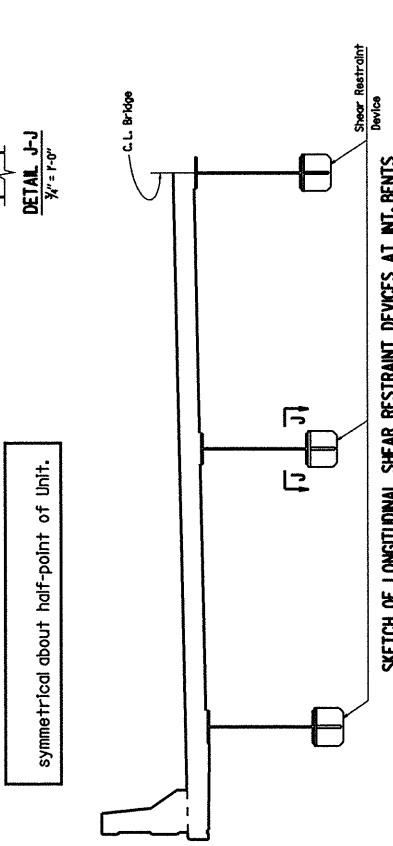
Point of Deflection	Structural Steel		Structural Steel-36		Str. Steel Reinforced	
	Interior	Exterior	Interior	Exterior	Interior	Exterior
0.1	0.029	0.029	0.80	0.83	0.85	0.78
0.2	0.053	0.053	0.330	0.299	0.358	0.327
0.3	0.069	0.069	0.428	0.388	0.464	0.424
0.4	0.076	0.076	0.464	0.420	0.503	0.460
0.5	0.072	0.072	0.435	0.394	0.472	0.432
0.6	0.059	0.059	0.352	0.326	0.382	0.350
0.7	0.044	0.044	0.232	0.211	0.253	0.232
0.8	0.020	0.020	0.087	0.097	0.105	0.095
0.9	0.004	0.004	0.025	0.026	0.025	0.022
1.0	0.000	0.000	0.000	0.000	0.000	0.000
1.1	0.029	0.029	0.866	0.850	0.883	0.857
1.2	0.059	0.059	0.446	0.402	0.490	0.447
1.3	0.097	0.097	0.727	0.656	0.797	0.727
1.4	0.125	0.125	0.920	0.833	1.008	0.920
1.5	0.133	0.133	0.974	0.880	1.067	0.973
1.6	0.120	0.120	0.876	0.791	0.959	0.875
1.7	0.090	0.090	0.659	0.588	0.714	0.652
1.8	0.051	0.051	0.366	0.330	0.402	0.367
1.9	0.026	0.026	0.115	0.122	0.125	0.118
2.0	0.000	0.000	0.000	0.000	0.000	0.000

Note: Number for Dead Load Deflection plus Vertical curve & 1/4" tolerance. For C.L. Beams, Vertical curve corrections not included. Negative sign (-) indicates point above chord.

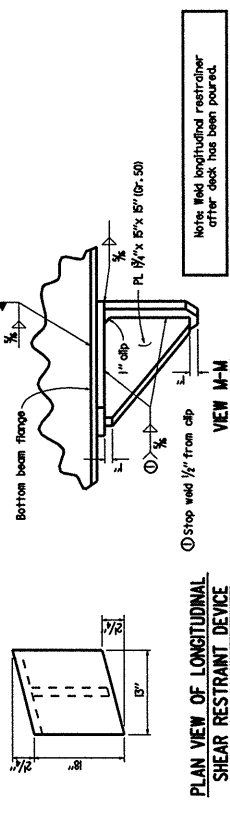
symmetrical about half-point of Unit.



Hold this dimension for all temperatures.



SKETCH OF LONGITUDINAL SHEAR RESTRAINT DEVICES AT INT. BENTS



Note: Field longitudinal restrainer after deck has been poured.

GENERAL NOTES
CONSTRUCTION SPECIFICATIONS, Arkansas State Highway and Transportation Department, Edition 1960 with applicable amendments and special provisions.
DESIGN SPECIFICATIONS, AASHTO Standard Specifications for Highway Bridges (2002 Edition).

LIVE LOADS (HS20)
METHOD OF DESIGN LOAD FACTOR
MATERIALS AND STRENGTHS:
Class S40 Concrete (Superstructure)
Reinforcing Steel (AASHTO A31 or A63 Gr. 60)
Structural Steel (AASHTO A36 Gr. 50)
Structural Steel (AASHTO A572 Gr. 50)
Structural Steel (AASHTO A572 Gr. 50)
Structural Steel (AASHTO A572 Gr. 50)
Structural Steel (AASHTO A572 Gr. 50)

REINFORCING STEEL:
Reinforcing steel shall be completely located in the forms and firmly held in place by steel wire supports, sufficient in size and number, to prevent displacement during the course of construction. The wire supports will not be paid for directly but will be considered subsidiary to the item "Epoxy-Coated Reinforcing Steel (Grade 60)".
CONCRETE:
Concrete shall be Class S40 with a minimum 28 day compressive strength $f'_c = 4000$ psi. Unless otherwise noted, the concrete shall be placed and finished in accordance with the provisions of the specifications.
FORMS:
Forms shall be designed to support the weight of the concrete and the weight of the forms and shall be braced and shored in accordance with the provisions of the specifications.
WELDS:
Welds shall be made in accordance with the provisions of the specifications.

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WELDS:
Welds shall be made in accordance with the provisions of the specifications.

SHEET 8 OF 8
DETAILS OF 308'-0" CONTINUOUS W-BEAM UNIT
HWY. 135 INTERCHANGE (F)
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: JLI DATE: 3-2-04
CHECKED BY: DATE: AS SHOWN
DESIGNED BY: DATE: AS SHOWN
BRIDGE NO. 07019 DRAWING NO. 46916



Conterminous 48 States
 2006 AASHTO Bridge Design Guidelines
 AASHTO Spectrum for 5% PE in 50 years

Latitude = 35.454000

Longitude = -090.326000

B/C Boundary

Data are based on a 0.05 deg grid spacing.

Period (sec)	Sa (g)	
0.2	1.640	Ss, B/C Boundary
1.0	0.431	S1, B/C Boundary

Conterminous 48 States
 2006 AASHTO Bridge Design Guidelines
 Spectral Response Accelerations SMs and SM1

Latitude = 35.454000

Longitude = -090.326000

SMs = FaSs and SM1 = FvS1

Site Class D - Fa = 1.00, Fv = 1.57

Data are based on a 0.05 deg grid spacing.

Period (sec)	Sa (g)	
0.2	1.640	SMs, Site Class D
1.0	0.676	SM1, Site Class D

Conterminous 48 States
 2006 AASHTO Bridge Design Guidelines
 Design Response Spectra for Site Class D

Latitude = 35.454000

Longitude = -090.326000

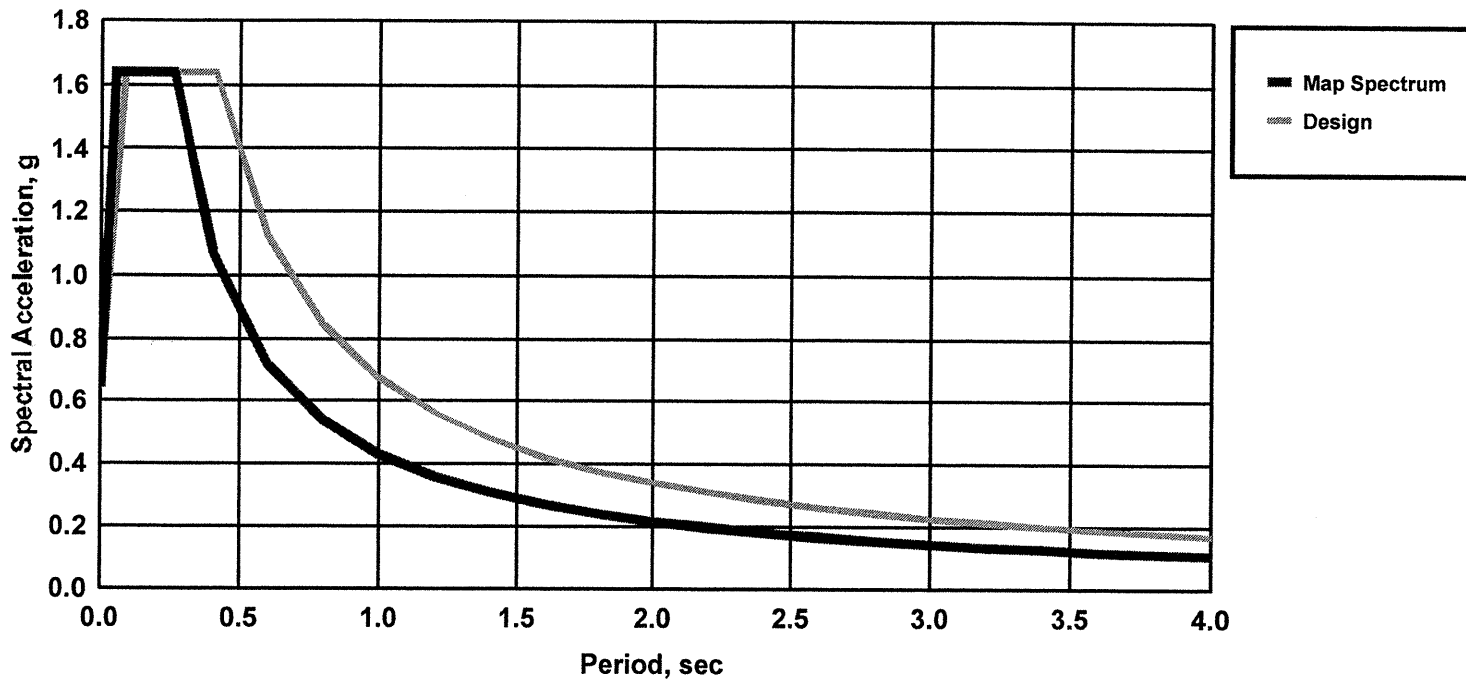
SDs = FaSs and SD1 = FvS1

Site Class D - Fa = 1.00, Fv = 1.57

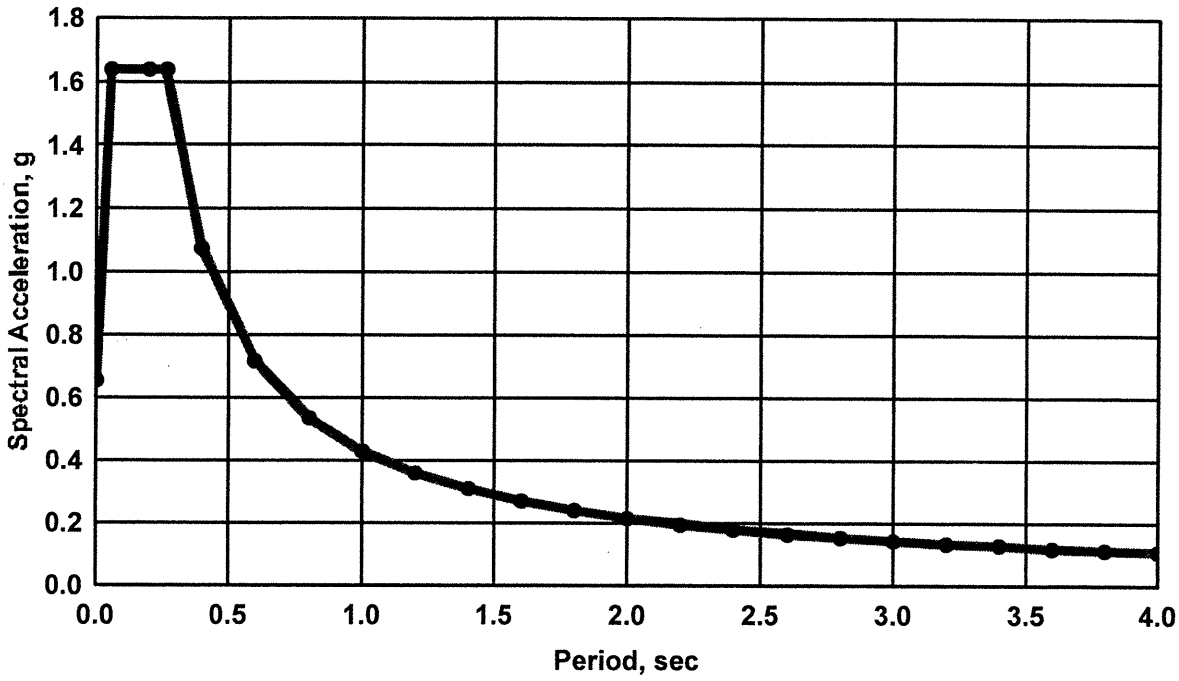
Data are based on a 0.05 deg grid spacing.

Period (sec)	Sa (g)	Sd (Spectral Displacement) in.
0.000	0.656	0.000
0.082	1.640	0.109
0.200	1.640	0.641
0.412	1.640	2.724
0.600	1.127	3.964
0.800	0.845	5.285
1.000	0.676	6.606
1.200	0.563	7.927
1.400	0.483	9.248
1.600	0.423	10.569
1.800	0.376	11.891
2.000	0.338	13.212
2.200	0.307	14.533
2.400	0.282	15.854
2.600	0.260	17.175
2.800	0.241	18.496
3.000	0.225	19.818
3.200	0.211	21.139
3.400	0.199	22.460
3.600	0.188	23.781
3.800	0.178	25.102
4.000	0.169	26.423

All Sa vs. T Spectra
5% Damping
Conterminous 48 States
Latitude = 35.4540 deg Longitude = -90.326000 deg
Site Class D Fa = 1.00 Fv = 1.57



Map Spectrum for Sa vs. T
5% Damping
Conterminous 48 States
Latitude = 35.4540 deg Longitude = -90.326000 deg
Site Class B



Graph Data	
Period, sec	Sa, g
0.00	0.65
0.05	1.63
0.20	1.63
0.26	1.63
0.40	1.07
0.60	0.71
0.80	0.53
1.00	0.43
1.20	0.35
1.40	0.30
1.60	0.26
1.80	0.23
2.00	0.21
2.20	0.19
2.40	0.17
2.60	0.16
2.80	0.15
3.00	0.14
3.20	0.13
3.40	0.12
3.60	0.11
3.80	0.11
4.00	0.10

PIN-TRANS RUN

New Code's
Run

110547,

OF

135 NO L1R2.ssb

JAC 8/20/06

SEISAB "(hwy 135 overpass) 135noliq2.SSB pin trans run"
RESPONSE SPECTRUM ANALYSIS
SUPERSTRUCTURE JOINTS 3
COLUMN JOINTS 2
OUTPUT LEVEL 0
BLOCKING FACTOR 1

ALIGNMENT

STATION 400 + 00.0
COORDINATES N 0.0 E 0.0
BEARING N 90 00 00 E

SPANS

LENGTHS	65.0	88.0	88.0	65.0
AREA	42.44	42.44	42.44	42.44
I11	4.27	4.27	4.27	4.27
I22	6681.0	6681.0	6681.0	6681.0
I33	58.35	58.35	58.35	58.35
A22	0.0	0.0	0.0	0.0
A33	0.0	0.0	0.0	0.0
DENSITY	0.1215	0.1215	0.1215	0.1215
WEIGHT	1.74	1.74	1.74	1.74
E	524757.0	524757.0	524757.0	524757.0
PRATIO	0.2	0.2	0.2	0.2

DESCRIBE

COLUMN	'COL 4.0'	"4 ft. Dia. for Bent Nos. 2-4"
AREA	12.57	
I11	25.13	
I22	12.57	
I33	12.57	
A22	0.0	
A33	0.0	
DENSITY	0.15	
E	490865.0	
PRATIO	0.2	

SPECIAL CAP 'CAP' "4 ft. x 6.0 ft."

I33	32.0
A22	24.0
E	490865.0
PRATIO	0.2

BEARING ELEMENT 'bearing' "used for end bents before lock-up"

KF1F1	33.48
KF2F2	10000000000.0
KF3F3	10000000000.0
KM1M1	10000000000.0
KM2M2	0.0
KM3M3	0.0

PILE '18Pipe' "18 in. Diameter Concrete Filled Steel Shell Pile"
 STIFFNESS
 KF1F1 2400.0
 KF2F2 23900.0
 KF3F3 2400.0
 KM1M1 208300.0
 C -- KM2M2 fixed
 KM3M3 208300.0

FOOTING
 PILE 'FTG A' "Footing used at int bents"
 TOP LAYOUT
 1 '18Pipe' AT 2.25 -2.0 4.5 ANGLE 0.0
 2 '18Pipe' AT 2.25 -2.0 0.0 ANGLE 0.0
 3 '18Pipe' AT 2.25 -2.0 -4.5 ANGLE 0.0
 4 '18Pipe' AT 6.75 -2.0 4.5 ANGLE 0.0
 5 '18Pipe' AT 6.75 -2.0 0.0 ANGLE 0.0
 6 '18Pipe' AT 6.75 -2.0 -4.5 ANGLE 0.0
 7 '18Pipe' AT -2.25 -2.0 4.5 ANGLE 0.0
 8 '18Pipe' AT -2.25 -2.0 0.0 ANGLE 0.0
 9 '18Pipe' AT -2.25 -2.0 -4.5 ANGLE 0.0
 10 '18Pipe' AT -6.75 -2.0 4.5 ANGLE 0.0
 11 '18Pipe' AT -6.75 -2.0 0.0 ANGLE 0.0
 12 '18Pipe' AT -6.75 -2.0 -4.5 ANGLE 0.0

ABUTMENT STATION 600 + 00.0
 BEARING N 10 00 00 W N 10 00 00 W
 ELEVATION TOP 241.0 AT ABUTMENT 1
 ELEVATION TOP 240.0 AT ABUTMENT 5
 CONNECTION PIN AT ABUTMENT 1
 CONNECTION TRANS AT ABUTMENT 5

WING WALL SPRING CONSTANTS AT ABUTMENT 1
 C -- KF1F1 2050.0
 C -- KF2F2 fixed
 C -- KF3F3 17300.0
 C -- KM1M1 fixed
 C -- KM2M2 fixed
 C -- KM3M3 fixed
 WING WALL SPRING CONSTANTS AT ABUTMENT 5
 C -- KF1F1 2050.0
 C -- KF2F2 fixed
 C -- KF3F3 17300.0
 C -- KM1M1 fixed
 C -- KM2M2 fixed
 C -- KM3M3 fixed

BENT
 BEARING N 10 00 00 W N 10 00 00 W N 10 00 00 W
 ELEVATION TOP 243.5 243.5 243.5
 ELEVATION BEARINGS 237.5 237.5 237.5
 ELEVATION CAP 235.5 235.5 235.5
 ELEVATION BOTTOM 205.5 205.5 205.5
 WEIGHT 170.0 170.0 170.0

COLUMN SKEWED LAYOUT 'COL 4.0' 23.0 'COL 4.0' AT BENT 2
COLUMN SKEWED LAYOUT 'COL 4.0' 23.0 'COL 4.0' AT BENT 3
COLUMN SKEWED LAYOUT 'COL 4.0' 23.0 'COL 4.0' AT BENT 4

COLUMN TOP FIX AT BENT 2
COLUMN BOTTOM FIX AT BENT 2
COLUMN TOP FIX AT BENT 3
COLUMN BOTTOM FIX AT BENT 3
COLUMN TOP FIX AT BENT 4
COLUMN BOTTOM FIX AT BENT 4

COLUMN TOP END JOINT SIZE 3.0 AT BENT 2
COLUMN BOTTOM END JOINT SIZE 2.0 AT BENT 2
COLUMN TOP END JOINT SIZE 3.0 AT BENT 3
COLUMN BOTTOM END JOINT SIZE 2.0 AT BENT 3
COLUMN TOP END JOINT SIZE 3.0 AT BENT 4
COLUMN BOTTOM END JOINT SIZE 2.0 AT BENT 4

SPECIAL CAP 'CAP' AT BENT 2
SPECIAL CAP 'CAP' AT BENT 3
SPECIAL CAP 'CAP' AT BENT 4

CONNECTION PIN AT BENT 2
CONNECTION PIN AT BENT 3
CONNECTION PIN AT BENT 4

FOUNDATION

AT BENT 2 3 4
PILE FOOTING 'FTG A' ROTATED 0.0 DEGREES
WEIGHT 119.0

AT ABUTMENT 1 5

SPRING CONSTANTS

KF1F1 49000.0
C -- KF2F2 fixed
KF3F3 28000.0
C -- KM1M1 fixed
C -- KM2M2 fixed
C -- KM3M3 fixed

WEIGHT 150.0

LOADS

USE FIXED NOTATION FOR VIBRATION INFO
USE FIXED NOTATION FOR DISPLACEMENTS
USE FIXED NOTATION FOR FORCES

RESPONSE SPECTRUM

COMBINATION FACTOR 0.3
INCLUDE VERTICAL ACCELERATION
MODE SHAPES 18
DAMPING COEFFICIENT 0.05

ARBITRARY CURVE

PERIOD	0.0000	0.0820	0.2000	0.4120	0.6000	0.8000	1.0000	-
	1.2000	1.4000	1.6000	1.8000	2.0000	2.2000	2.4000	-
	2.6000	2.8000	3.0000	3.2000	3.4000	4.0000		

VALUE	0.6560	1.6400	1.6400	1.6400	1.1270	0.8450	0.6760	-
	0.5630	0.4830	0.4230	0.3760	0.3380	0.3070	0.2820	-
	0.2600	0.2410	0.2250	0.2110	0.1990	0.1690		

GRAVITY 32.2

FINISH

----- WinSEISAB -----

(Version 5.0.7)

21-AUG-06

Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

FOUNDATION DATA

ABUTMENT FOUNDATION INFORMATION

ABUTMENT	WEIGHT	ROT. ANGLE	FOUNDATION TYPE	FTNG TITLE
1	150.00	0.00	SPRING CONSTANTS	
5	150.00	0.00	SPRING CONSTANTS	

ABUTMENT FOUNDATION SPRING CONSTANTS

ABUT	KF1F1	KF1F2	KF1F3	KF1M1	KF1M2	KF1M3
1	49000.		0.			
		KF2F2	KF2F3	KF2M1	KF2M2	KF2M3
		DOF FIXD				
			KF3F3	KF3M1	KF3M2	KF3M3
			28000.			
				KM1M1	KM1M2	KM1M3
				DOF FIXD		
					KM2M2	KM2M3
					DOF FIXD	
						KM3M3
						DOF FIXD

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

FOUNDATION DATA

ABUTMENT FOUNDATION INFORMATION

ABUTMENT	WEIGHT	ROT. ANGLE	FOUNDATION TYPE	FTNG TITLE
1	150.00	0.00	SPRING CONSTANTS	
5	150.00	0.00	SPRING CONSTANTS	

ABUTMENT FOUNDATION SPRING CONSTANTS

ABUT	KF1F1	KF1F2	KF1F3	KF1M1	KF1M2	KF1M3
1	49000.		0.			
		KF2F2	KF2F3	KF2M1	KF2M2	KF2M3
		DOF FIXD				
			KF3F3	KF3M1	KF3M2	KF3M3
			28000.			
				KM1M1	KM1M2	KM1M3
				DOF FIXD		
					KM2M2	KM2M3
					DOF FIXD	
						KM3M3
						DOF FIXD

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

FOUNDATION DATA (CONTINUED)

ABUTMENT FOUNDATION SPRING CONSTANTS (CONTINUED)

ABUT	KF1F1	KF1F2	KF1F3	KF1M1	KF1M2	KF1M3
5	49000.		0.			
		KF2F2	KF2F3	KF2M1	KF2M2	KF2M3
		DOF FIXD				
			KF3F3	KF3M1	KF3M2	KF3M3
			28000.			
				KM1M1	KM1M2	KM1M3
				DOF FIXD		
					KM2M2	KM2M3
					DOF FIXD	
						KM3M3
						DOF FIXD

□

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

FOUNDATION DATA (CONTINUED)

COLUMN FOUNDATION INFORMATION AT BENT 2

COLUMN	WEIGHT	ROT. ANGLE	FOUNDATION TYPE	FTNG TITLE
1	119.00	0.00	PILE FOOTING	FTG A
2	119.00	0.00	PILE FOOTING	FTG A

COLUMN FOUNDATION INFORMATION AT BENT 3

COLUMN	WEIGHT	ROT. ANGLE	FOUNDATION TYPE	FTNG TITLE
1	119.00	0.00	PILE FOOTING	FTG A
2	119.00	0.00	PILE FOOTING	FTG A

COLUMN FOUNDATION INFORMATION AT BENT 4

COLUMN	WEIGHT	ROT. ANGLE	FOUNDATION TYPE	FTNG TITLE
1	119.00	0.00	PILE FOOTING	FTG A
2	119.00	0.00	PILE FOOTING	FTG A

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

LOADINGS DATA INPUT

THE NUMBER OF MODE SHAPES FOUND WILL BE 18

ACCELERATION SPECTRUM INFORMATION

USER SPECIFIED ACCELERATION SPECTRUM

DAMPING COEFFICIENT = 0.05
ACCELERATION DUE TO GRAVITY = 32.20

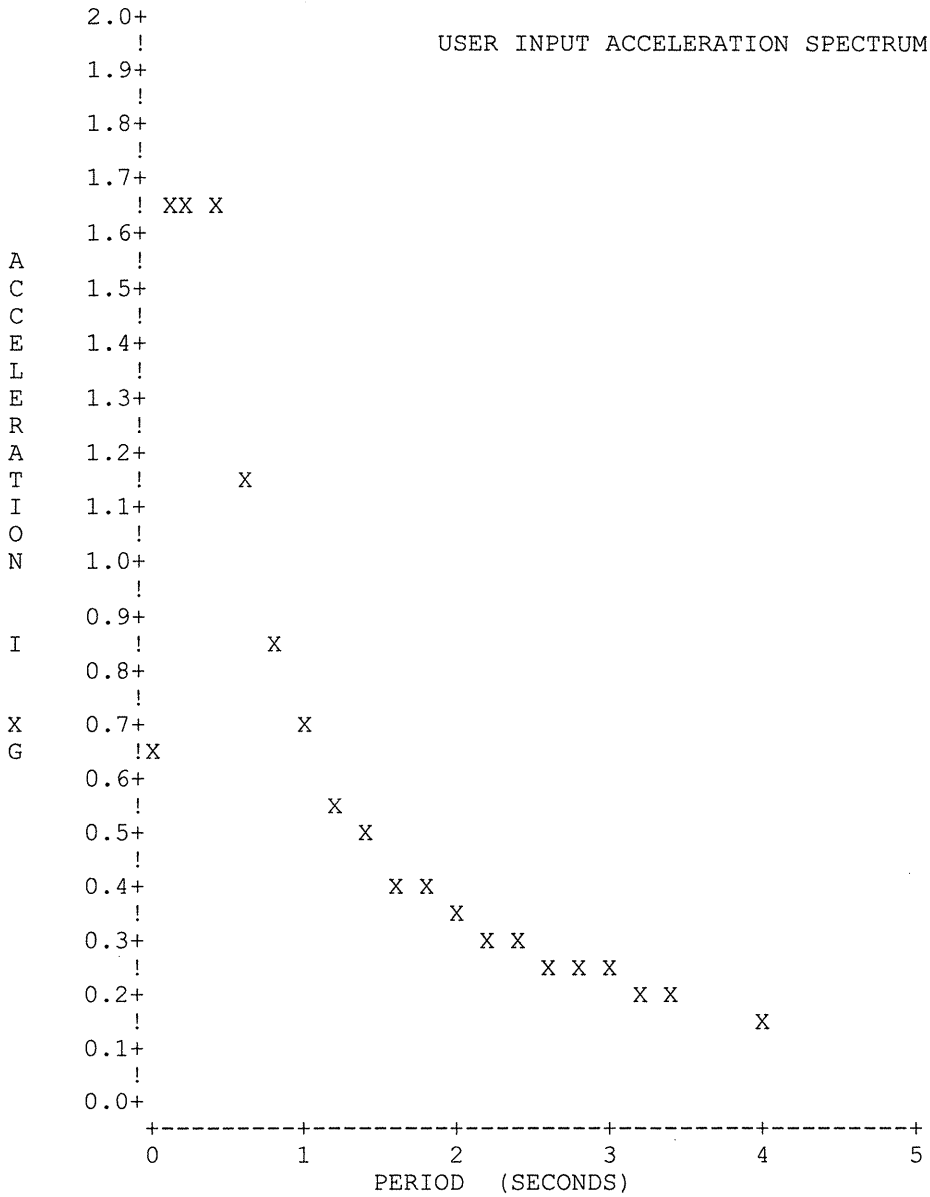
DIGITIZED ACCELERATION SPECTRUM

POINT	PERIOD	VALUE
1	0.000	0.6560
2	0.082	1.6400
3	0.200	1.6400
4	0.412	1.6400
5	0.600	1.1270
6	0.800	0.8450
7	1.000	0.6760
8	1.200	0.5630
9	1.400	0.4830
10	1.600	0.4230
11	1.800	0.3760
12	2.000	0.3380
13	2.200	0.3070
14	2.400	0.2820
15	2.600	0.2600
16	2.800	0.2410
17	3.000	0.2250
18	3.200	0.2110
19	3.400	0.1990
20	4.000	0.1690

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

LOADING DATA INPUT (CONTINUED)



WinSEISAB

(Version 5.0.7)

21-AUG-06

Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

LOADINGS DATA INPUT (CONTINUED)

LOAD CASE AND LOAD CASE COMBINATION INFORMATION

LOAD CASE/COMB	.....DIRECTION FACTORS.....			DESCRIPTION
	X	Y	Z	
1	1.000	0.000	0.000	Longitudinal
2	0.000	0.000	1.000	Transverse
3	0.000	1.000	0.000	Vertical
4				1.0*L + 0.3*T + 0.3V
5				0.3*L + 1.0*T + 0.3V
6				0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

VIBRATION CHARACTERISTICS

MODE	PERIOD	CS	PARTICIPATION FACTORS			% OF TOTAL MASS		
			Long	Vert	Tran	Long	Vert	Tran
1	0.360	1.64	0.218	0.001	0.920	0.039	0.000	0.695
2	0.345	1.64	-1.140	0.004	8.978	1.107	0.000	66.941
3	0.279	1.64	9.383	-0.241	1.234	73.466	0.052	68.192
4	0.264	1.64	0.918	2.528	0.116	74.159	5.741	68.203
5	0.186	1.64	0.837	-0.020	0.078	74.735	5.741	68.208
6	0.179	1.64	-0.050	7.313	-0.004	74.737	53.339	68.208
7	0.160	1.64	-0.281	-0.148	-0.002	74.802	53.358	68.208
8	0.126	1.64	0.000	0.000	0.000	74.802	53.358	68.208
9	0.126	1.64	0.000	0.000	0.000	74.802	53.358	68.208
10	0.126	1.64	0.000	0.000	0.000	74.802	53.358	68.208
11	0.109	1.64	-0.138	0.021	0.329	74.818	53.359	68.297
12	0.104	1.64	0.022	-0.017	-4.133	74.818	53.359	82.334
13	0.103	1.64	0.186	0.137	-0.329	74.847	53.375	82.423
14	0.080	1.62	-0.323	0.038	0.043	74.932	53.377	82.424
15	0.080	1.62	-0.664	-0.006	0.035	75.295	53.377	82.425
16	0.080	1.61	-4.848	-0.037	0.855	94.611	53.378	83.026
17	0.078	1.59	0.051	-1.932	-0.004	94.613	56.699	83.026
18	0.077	1.58	0.554	-0.061	-0.024	94.865	56.702	83.027

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

ABUTMENT CQC DISPLACEMENTS

ITEM	LC	....LEFT FACE....		....RGHT FACE....		...OPNNG/CLSNG...	
		LNGTUDNL	TRNSVRSE	LNGTUDNL	TRNSVRSE	LNGTUDNL	TRNSVRSE
ABU 1	1	0.083	0.008	0.083	0.008	0.000	0.000
	2	0.017	0.019	0.017	0.019	0.000	0.000
	3	0.001	0.000	0.001	0.000	0.000	0.000
	4	0.088	0.014	0.088	0.014	0.000	0.000
	5	0.042	0.021	0.042	0.021	0.000	0.000
	6	0.031	0.009	0.031	0.009	0.000	0.000
ABU 5	1	0.111	0.002	0.000	0.002	0.111	0.000
	2	0.023	0.020	0.002	0.020	0.024	0.000
	3	0.001	0.000	0.000	0.000	0.001	0.000
	4	0.118	0.008	0.001	0.008	0.119	0.000
	5	0.057	0.021	0.002	0.021	0.058	0.000
	6	0.042	0.007	0.001	0.007	0.042	0.000

*** LOAD CASE/COMB

DESCRIPTION

1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT CQC DISPLACEMENTS

ITEM	LC	....LEFT FACE....		....RGHT FACE....		...OPNNG/CLSNG...	
		LNGTUDNL	TRNSVRSE	LNGTUDNL	TRNSVRSE	LNGTUDNL	TRNSVRSE
BNT 2	1	0.097	0.020	0.097	0.020	0.000	0.000
	2	0.020	0.134	0.020	0.134	0.000	0.000
	3	0.009	0.002	0.009	0.002	0.000	0.000
	4	0.106	0.061	0.106	0.061	0.000	0.000
	5	0.052	0.140	0.052	0.140	0.000	0.000
	6	0.044	0.048	0.044	0.048	0.000	0.000
BNT 3	1	0.111	0.027	0.111	0.027	0.000	0.000
	2	0.023	0.209	0.023	0.209	0.000	0.000
	3	0.001	0.000	0.001	0.000	0.000	0.000
	4	0.118	0.090	0.118	0.090	0.000	0.000
	5	0.057	0.217	0.057	0.217	0.000	0.000
	6	0.042	0.071	0.042	0.071	0.000	0.000
BNT 4	1	0.116	0.017	0.116	0.017	0.000	0.000
	2	0.024	0.135	0.024	0.135	0.000	0.000
	3	0.009	0.001	0.009	0.001	0.000	0.000
	4	0.126	0.058	0.126	0.058	0.000	0.000
	5	0.061	0.140	0.061	0.140	0.000	0.000
	6	0.051	0.047	0.051	0.047	0.000	0.000

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

COLUMN CQC FORCES

CL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		

BNT 2								
1	BOT	1	73.0	1802.	75.6	1031.	81.5	0.2
		2	28.1	776.	365.5	4647.	665.5	0.1
		3	6.8	175.	37.1	272.	275.1	0.0
		4	83.4	2087.	196.4	2507.	363.7	0.3
		5	52.0	1369.	399.3	5038.	772.5	0.1
		6	37.2	949.	169.4	1976.	499.2	0.1
1	TOP	1	54.6	318.	68.5	785.	81.3	0.2
		2	23.8	129.	342.7	4237.	664.2	0.1
		3	4.8	29.	32.4	593.	273.2	0.0
		4	63.2	366.	181.0	2234.	362.5	0.3
		5	41.6	233.	373.0	4650.	770.6	0.1
		6	28.3	163.	155.7	2099.	496.9	0.1
2	BOT	1	72.9	1802.	106.1	1261.	277.1	0.2
		2	28.0	776.	362.5	4624.	641.4	0.1
		3	6.8	175.	36.4	262.	279.9	0.0
		4	83.3	2087.	225.7	2726.	553.5	0.3
		5	52.0	1369.	405.2	5081.	808.5	0.1
		6	37.1	949.	176.9	2028.	555.5	0.1
2	TOP	1	54.7	317.	97.2	1293.	276.3	0.2
		2	23.8	129.	339.7	4185.	640.2	0.1
		3	4.8	29.	31.7	585.	278.0	0.0
		4	63.2	364.	208.6	2724.	551.8	0.3
		5	41.7	232.	378.4	4748.	806.5	0.1
		6	28.3	162.	162.8	2228.	552.9	0.1

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

COLUMN CQC FORCES (CONTINUED)

CL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT 3								
1	BOT	1	81.0	2059.	108.7	1383.	172.8	0.2
		2	37.5	1045.	570.5	7281.	903.1	0.0
		3	0.9	25.	31.1	229.	236.5	0.0
		4	92.6	2380.	289.2	3636.	514.6	0.2
		5	62.1	1670.	612.4	7764.	1025.9	0.1
		6	36.5	957.	234.9	2828.	559.3	0.1
1	TOP	1	61.8	356.	99.6	1234.	172.3	0.2
		2	32.1	173.	535.0	6586.	901.4	0.0
		3	0.7	4.	27.8	507.	235.1	0.0
		4	71.6	409.	268.4	3362.	513.3	0.2
		5	50.9	281.	573.2	7108.	1023.6	0.1
		6	28.9	163.	218.2	2853.	557.2	0.1
2	BOT	1	81.0	2059.	110.9	1399.	188.8	0.2
		2	37.5	1045.	570.7	7283.	904.7	0.0
		3	0.9	25.	31.2	229.	236.4	0.0
		4	92.5	2380.	291.4	3653.	531.1	0.2
		5	62.1	1670.	613.3	7771.	1032.2	0.1
		6	36.5	957.	235.6	2834.	564.5	0.1
2	TOP	1	61.8	355.	101.7	1271.	188.3	0.2
		2	32.1	173.	535.2	6590.	903.0	0.0
		3	0.7	4.	27.9	507.	235.1	0.0
		4	71.7	408.	270.6	3400.	529.7	0.2
		5	50.9	281.	574.0	7123.	1030.0	0.1
		6	28.9	163.	218.9	2865.	562.5	0.1

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

COLUMN CQC FORCES (CONTINUED)

CL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT 4								
1	BOT	1	84.6	2172.	89.7	1108.	190.1	0.2
		2	30.2	839.	364.9	4642.	684.9	0.1
		3	6.6	169.	36.4	262.	279.9	0.0
		4	95.6	2474.	210.1	2579.	479.5	0.3
		5	57.6	1541.	402.7	5053.	825.9	0.1
		6	41.0	1072.	172.8	1987.	542.4	0.1
1	TOP	1	64.9	372.	82.0	1050.	189.5	0.2
		2	25.7	139.	342.1	4227.	683.7	0.1
		3	4.6	28.	31.8	585.	277.9	0.0
		4	74.0	422.	194.2	2493.	478.0	0.3
		5	46.6	259.	376.3	4717.	823.9	0.1
		6	31.8	181.	159.0	2168.	539.9	0.1
2	BOT	1	84.5	2172.	79.9	1034.	118.5	0.2
		2	30.2	839.	364.2	4637.	680.5	0.1
		3	6.6	169.	37.2	273.	276.1	0.0
		4	95.5	2474.	200.3	2507.	405.5	0.3
		5	57.6	1541.	399.4	5029.	798.9	0.1
		6	41.0	1072.	170.4	1974.	515.8	0.1
2	TOP	1	65.0	371.	72.7	885.	118.2	0.2
		2	25.7	139.	341.5	4216.	679.3	0.1
		3	4.6	28.	32.5	594.	274.2	0.0
		4	74.1	421.	184.9	2328.	404.2	0.3
		5	46.6	258.	373.1	4659.	797.0	0.1
		6	31.8	181.	156.8	2124.	513.4	0.1

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

ABUTMENT CQC FORCES

ITEM	LC	VERT	SHEAR	W/R TO BRIDGE C.L.		W/R TO ITEM C.L.	
				LONGITUDNL	TRANSVERSE	NORMAL	PARALLEL
ABU 1	1		112.4	3943.9	115.3	3873.9	748.6
	2		28.1	858.2	811.0	956.8	692.0
	3		194.5	49.9	12.7	49.3	14.9
	4		179.2	4216.3	362.4	4175.7	960.7
	5		120.2	2056.4	849.4	2133.7	921.1
	6		236.7	1490.6	290.6	1498.5	447.1
ABU 5	1		78.1	0.0	99.1	17.2	97.6
	2		19.4	0.0	816.5	141.8	804.1
	3		195.1	0.0	13.2	2.3	13.0
	4		142.5	0.0	348.0	60.4	342.7
	5		101.4	0.0	850.2	147.6	837.3
	6		224.3	0.0	287.9	50.0	283.5

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

ABUTMENT FOUNDATION SPRING CQC FORCES

ABUT	LC	KF1F1	KF2F2	KF3F3	KM1M1	KM2M2	KM3M3
1	1	3920.1	0.0	630.2	0.0	0.0	0.0
	2	916.1	0.0	472.0	0.0	0.0	0.0
	3	50.0	0.0	11.5	0.0	0.0	0.0
	4	4209.9	0.0	775.2	0.0	0.0	0.0
	5	2107.1	0.0	664.5	0.0	0.0	0.0
	6	1500.8	0.0	342.1	0.0	0.0	0.0
5	1	11.2	0.0	63.8	0.0	0.0	0.0
	2	92.2	0.0	557.8	0.0	0.0	0.0
	3	1.5	0.0	9.4	0.0	0.0	0.0
	4	39.3	0.0	233.9	0.0	0.0	0.0
	5	96.0	0.0	579.7	0.0	0.0	0.0
	6	32.6	0.0	195.8	0.0	0.0	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

 ABUTMENT WING WALL SPRING CQC FORCES

ABUT	LC	KF1F1	KF2F2	KF3F3	KM1M1	KM2M2	KM3M3
1	1	169.5	0.0	146.6	0.0	0.0	0.0
	2	34.3	0.0	325.1	0.0	0.0	0.0
	3	2.1	0.0	5.7	0.0	0.0	0.0
	4	180.4	0.0	245.8	0.0	0.0	0.0
	5	85.8	0.0	370.8	0.0	0.0	0.0
	6	63.3	0.0	147.2	0.0	0.0	0.0
5	1	0.4	0.0	39.5	0.0	0.0	0.0
	2	3.4	0.0	345.0	0.0	0.0	0.0
	3	0.1	0.0	5.8	0.0	0.0	0.0
	4	1.4	0.0	144.7	0.0	0.0	0.0
	5	3.5	0.0	358.6	0.0	0.0	0.0
	6	1.2	0.0	121.1	0.0	0.0	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

□

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT CQC FORCES

ITEM	LC	VERT	SHEAR	W/R TO BRIDGE C.L.		W/R TO ITEM C.L.	
				LONGITUDNL	TRANSVERSE	NORMAL	PARALLEL
BNT 2	1		264.5	159.9	101.3	172.0	78.9
	2		57.6	104.9	431.9	41.5	442.6
	3		513.6	37.6	7.0	38.2	2.1
	4		435.9	202.6	233.0	196.0	212.3
	5		291.0	164.2	464.4	104.6	466.9
	6		610.2	117.0	167.0	102.2	158.5
BNT 3	1		90.0	181.5	123.9	194.2	102.8
	2		12.0	155.7	678.0	50.4	693.8
	3		443.8	2.5	1.4	2.7	1.0
	4		226.8	228.9	327.8	210.1	311.3
	5		172.2	210.9	715.6	109.4	725.0
	6		474.4	103.7	242.0	76.1	240.0
BNT 4	1		114.7	191.5	101.4	203.3	74.9
	2		40.5	107.7	432.2	46.7	442.9
	3		514.2	36.0	6.8	36.6	2.2
	4		281.1	234.6	233.1	228.3	208.4
	5		229.2	176.0	464.6	118.7	466.1
	6		560.8	125.8	166.8	111.6	157.5

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

WinSEISAB (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES

PL	LOC	LC	.....LNGITUDNL.....		.....TRANSVRSE.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	2	-	COL	1				
1	TOP	1	19.4	46.	6.9	44.	31.3	0.0
		2	3.8	19.	32.2	201.	44.2	0.0
		3	1.0	4.	5.2	15.	16.5	0.0
		4	20.9	53.	18.1	109.	49.5	0.0
		5	10.0	34.	35.9	219.	58.5	0.0
		6	8.0	24.	17.0	88.	39.1	0.0
2	TOP	1	19.4	46.	6.9	44.	14.1	0.0
		2	3.8	19.	32.2	201.	60.4	0.0
		3	1.0	4.	5.2	15.	23.9	0.0
		4	20.9	53.	18.1	109.	39.4	0.0
		5	10.0	34.	35.9	219.	71.8	0.0
		6	8.0	24.	17.0	88.	46.3	0.0
3	TOP	1	19.4	46.	6.9	44.	21.2	0.0
		2	3.8	19.	32.2	201.	164.0	0.0
		3	1.0	4.	5.2	15.	31.4	0.0
		4	20.9	53.	18.1	109.	79.9	0.0
		5	10.0	34.	35.9	219.	179.8	0.0
		6	8.0	24.	17.0	88.	87.0	0.0
4	TOP	1	19.4	46.	6.9	44.	54.4	0.0
		2	3.8	19.	32.2	201.	35.5	0.0
		3	1.0	4.	5.2	15.	17.9	0.0
		4	20.9	53.	18.1	109.	70.4	0.0
		5	10.0	34.	35.9	219.	57.1	0.0
		6	8.0	24.	17.0	88.	44.8	0.0

*** LOAD CASE/COMB

DESCRIPTION

1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	.....LNGITUDNL.....		.....TRANSVRSE.....		AXIAL	TORSION	
			SHEAR	MOMENT	SHEAR	MOMENT			
BNT	2	-	(CONTINUED)						
	5	TOP	COL 1						
			1	19.4	46.	6.9	44.	36.7	0.0
			2	3.8	19.	32.2	201.	69.8	0.0
			3	1.0	4.	5.2	15.	25.2	0.0
			4	20.9	53.	18.1	109.	65.3	0.0
			5	10.0	34.	35.9	219.	88.4	0.0
			6	8.0	24.	17.0	88.	57.2	0.0
	6	TOP	1	19.4	46.	6.9	44.	27.8	0.0
			2	3.8	19.	32.2	201.	173.4	0.0
			3	1.0	4.	5.2	15.	32.6	0.0
			4	20.9	53.	18.1	109.	89.6	0.0
			5	10.0	34.	35.9	219.	191.5	0.0
			6	8.0	24.	17.0	88.	93.0	0.0
	7	TOP	1	19.4	46.	6.9	44.	11.2	0.0
			2	3.8	19.	32.2	201.	53.3	0.0
			3	1.0	4.	5.2	15.	15.3	0.0
			4	20.9	53.	18.1	109.	31.8	0.0
			5	10.0	34.	35.9	219.	61.3	0.0
			6	8.0	24.	17.0	88.	34.7	0.0
	8	TOP	1	19.4	46.	6.9	44.	13.3	0.0
			2	3.8	19.	32.2	201.	51.1	0.0
			3	1.0	4.	5.2	15.	22.8	0.0
			4	20.9	53.	18.1	109.	35.4	0.0
			5	10.0	34.	35.9	219.	61.9	0.0
			6	8.0	24.	17.0	88.	42.1	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	2	-	COL	1	(CONTINUED)			
9	TOP	1	19.4	46.	6.9	44.	35.5	0.0
		2	3.8	19.	32.2	201.	154.7	0.0
		3	1.0	4.	5.2	15.	30.3	0.0
		4	20.9	53.	18.1	109.	91.0	0.0
		5	10.0	34.	35.9	219.	174.4	0.0
		6	8.0	24.	17.0	88.	87.3	0.0
10	TOP	1	19.4	46.	6.9	44.	20.0	0.0
		2	3.8	19.	32.2	201.	62.7	0.0
		3	1.0	4.	5.2	15.	14.4	0.0
		4	20.9	53.	18.1	109.	43.2	0.0
		5	10.0	34.	35.9	219.	73.0	0.0
		6	8.0	24.	17.0	88.	39.3	0.0
11	TOP	1	19.4	46.	6.9	44.	35.8	0.0
		2	3.8	19.	32.2	201.	42.1	0.0
		3	1.0	4.	5.2	15.	21.8	0.0
		4	20.9	53.	18.1	109.	55.0	0.0
		5	10.0	34.	35.9	219.	59.4	0.0
		6	8.0	24.	17.0	88.	45.2	0.0
12	TOP	1	19.4	46.	6.9	44.	56.5	0.0
		2	3.8	19.	32.2	201.	145.5	0.0
		3	1.0	4.	5.2	15.	29.3	0.0
		4	20.9	53.	18.1	109.	108.9	0.0
		5	10.0	34.	35.9	219.	171.3	0.0
		6	8.0	24.	17.0	88.	89.9	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	2	-	COL	2				
1	TOP	1	19.5	46.	9.6	56.	62.3	0.0
		2	3.9	19.	32.0	200.	152.2	0.0
		3	1.0	4.	5.2	14.	31.6	0.0
		4	21.0	53.	20.7	120.	117.4	0.0
		5	10.0	34.	36.4	221.	180.4	0.0
		6	8.1	24.	17.7	91.	96.0	0.0
2	TOP	1	19.5	46.	9.6	56.	34.2	0.0
		2	3.9	19.	32.0	200.	49.2	0.0
		3	1.0	4.	5.2	14.	24.4	0.0
		4	21.0	53.	20.7	120.	56.3	0.0
		5	10.0	34.	36.4	221.	66.7	0.0
		6	8.1	24.	17.7	91.	49.4	0.0
3	TOP	1	19.5	46.	9.6	56.	10.7	0.0
		2	3.9	19.	32.0	200.	54.7	0.0
		3	1.0	4.	5.2	14.	17.1	0.0
		4	21.0	53.	20.7	120.	32.3	0.0
		5	10.0	34.	36.4	221.	63.0	0.0
		6	8.1	24.	17.7	91.	36.7	0.0
4	TOP	1	19.5	46.	9.6	56.	84.4	0.0
		2	3.9	19.	32.0	200.	143.0	0.0
		3	1.0	4.	5.2	14.	32.9	0.0
		4	21.0	53.	20.7	120.	137.2	0.0
		5	10.0	34.	36.4	221.	178.2	0.0
		6	8.1	24.	17.7	91.	101.1	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	2	-	(CONTINUED)					
5	TOP	1	19.5	46.	9.6	56.	57.3	0.0
		2	3.9	19.	32.0	200.	40.4	0.0
		3	1.0	4.	5.2	14.	25.7	0.0
		4	21.0	53.	20.7	120.	77.1	0.0
		5	10.0	34.	36.4	221.	65.3	0.0
		6	8.1	24.	17.7	91.	55.0	0.0
6	TOP	1	19.5	46.	9.6	56.	33.0	0.0
		2	3.9	19.	32.0	200.	64.1	0.0
		3	1.0	4.	5.2	14.	18.5	0.0
		4	21.0	53.	20.7	120.	57.8	0.0
		5	10.0	34.	36.4	221.	79.6	0.0
		6	8.1	24.	17.7	91.	47.6	0.0
7	TOP	1	19.5	46.	9.6	56.	42.0	0.0
		2	3.9	19.	32.0	200.	161.4	0.0
		3	1.0	4.	5.2	14.	30.4	0.0
		4	21.0	53.	20.7	120.	99.5	0.0
		5	10.0	34.	36.4	221.	183.1	0.0
		6	8.1	24.	17.7	91.	91.5	0.0
8	TOP	1	19.5	46.	9.6	56.	13.8	0.0
		2	3.9	19.	32.0	200.	58.3	0.0
		3	1.0	4.	5.2	14.	23.2	0.0
		4	21.0	53.	20.7	120.	38.3	0.0
		5	10.0	34.	36.4	221.	69.4	0.0
		6	8.1	24.	17.7	91.	44.8	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	.....LNGITUDNL.....		.....TRANSVRSE.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	2	-	COL 2 (CONTINUED)					
9	TOP	1	19.5	46.	9.6	56.	16.4	0.0
		2	3.9	19.	32.0	200.	45.4	0.0
		3	1.0	4.	5.2	14.	16.0	0.0
		4	21.0	53.	20.7	120.	34.8	0.0
		5	10.0	34.	36.4	221.	55.1	0.0
		6	8.1	24.	17.7	91.	34.5	0.0
10	TOP	1	19.5	46.	9.6	56.	27.8	0.0
		2	3.9	19.	32.0	200.	170.7	0.0
		3	1.0	4.	5.2	14.	29.4	0.0
		4	21.0	53.	20.7	120.	87.8	0.0
		5	10.0	34.	36.4	221.	187.9	0.0
		6	8.1	24.	17.7	91.	88.9	0.0
11	TOP	1	19.5	46.	9.6	56.	18.4	0.0
		2	3.9	19.	32.0	200.	67.6	0.0
		3	1.0	4.	5.2	14.	22.2	0.0
		4	21.0	53.	20.7	120.	45.3	0.0
		5	10.0	34.	36.4	221.	79.8	0.0
		6	8.1	24.	17.7	91.	48.0	0.0
12	TOP	1	19.5	46.	9.6	56.	39.4	0.0
		2	3.9	19.	32.0	200.	36.5	0.0
		3	1.0	4.	5.2	14.	15.1	0.0
		4	21.0	53.	20.7	120.	54.9	0.0
		5	10.0	34.	36.4	221.	52.8	0.0
		6	8.1	24.	17.7	91.	37.8	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	3	-	COL	1				
1	TOP	1	19.1	52.	9.8	60.	28.6	0.0
		2	4.8	26.	50.3	315.	81.5	0.0
		3	0.1	1.	3.9	12.	13.8	0.0
		4	20.6	60.	26.0	158.	57.2	0.0
		5	10.5	41.	54.4	336.	94.3	0.0
		6	7.3	24.	21.9	124.	46.9	0.0
2	TOP	1	19.1	52.	9.8	60.	11.2	0.0
		2	4.8	26.	50.3	315.	81.9	0.0
		3	0.1	1.	3.9	12.	20.0	0.0
		4	20.6	60.	26.0	158.	41.8	0.0
		5	10.5	41.	54.4	336.	91.3	0.0
		6	7.3	24.	21.9	124.	48.0	0.0
3	TOP	1	19.1	52.	9.8	60.	36.8	0.0
		2	4.8	26.	50.3	315.	244.1	0.0
		3	0.1	1.	3.9	12.	26.2	0.0
		4	20.6	60.	26.0	158.	117.9	0.0
		5	10.5	41.	54.4	336.	263.0	0.0
		6	7.3	24.	21.9	124.	110.5	0.0
4	TOP	1	19.1	52.	9.8	60.	54.2	0.0
		2	4.8	26.	50.3	315.	69.3	0.0
		3	0.1	1.	3.9	12.	13.8	0.0
		4	20.6	60.	26.0	158.	79.1	0.0
		5	10.5	41.	54.4	336.	89.7	0.0
		6	7.3	24.	21.9	124.	50.9	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	3	-	(CONTINUED)					
5	TOP	1	19.1	52.	9.8	60.	32.3	0.0
		2	4.8	26.	50.3	315.	94.7	0.0
		3	0.1	1.	3.9	12.	20.0	0.0
		4	20.6	60.	26.0	158.	66.7	0.0
		5	10.5	41.	54.4	336.	110.4	0.0
		6	7.3	24.	21.9	124.	58.1	0.0
6	TOP	1	19.1	52.	9.8	60.	32.6	0.0
		2	4.8	26.	50.3	315.	256.8	0.0
		3	0.1	1.	3.9	12.	26.2	0.0
		4	20.6	60.	26.0	158.	117.5	0.0
		5	10.5	41.	54.4	336.	274.5	0.0
		6	7.3	24.	21.9	124.	113.0	0.0
7	TOP	1	19.1	52.	9.8	60.	11.7	0.0
		2	4.8	26.	50.3	315.	94.1	0.0
		3	0.1	1.	3.9	12.	13.8	0.0
		4	20.6	60.	26.0	158.	44.0	0.0
		5	10.5	41.	54.4	336.	101.7	0.0
		6	7.3	24.	21.9	124.	45.5	0.0
8	TOP	1	19.1	52.	9.8	60.	25.6	0.0
		2	4.8	26.	50.3	315.	69.4	0.0
		3	0.1	1.	3.9	12.	20.0	0.0
		4	20.6	60.	26.0	158.	52.4	0.0
		5	10.5	41.	54.4	336.	83.0	0.0
		6	7.3	24.	21.9	124.	48.5	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	3	-	(CONTINUED)					
9	TOP	1	19.1	52.	9.8	60.	55.6	0.0
		2	4.8	26.	50.3	315.	231.5	0.0
		3	0.1	1.	3.9	12.	26.2	0.0
		4	20.6	60.	26.0	158.	132.9	0.0
		5	10.5	41.	54.4	336.	256.0	0.0
		6	7.3	24.	21.9	124.	112.3	0.0
10	TOP	1	19.1	52.	9.8	60.	30.0	0.0
		2	4.8	26.	50.3	315.	106.8	0.0
		3	0.1	1.	3.9	12.	13.8	0.0
		4	20.6	60.	26.0	158.	66.1	0.0
		5	10.5	41.	54.4	336.	119.9	0.0
		6	7.3	24.	21.9	124.	54.8	0.0
11	TOP	1	19.1	52.	9.8	60.	51.2	0.0
		2	4.8	26.	50.3	315.	57.1	0.0
		3	0.1	1.	3.9	12.	20.0	0.0
		4	20.6	60.	26.0	158.	74.3	0.0
		5	10.5	41.	54.4	336.	78.5	0.0
		6	7.3	24.	21.9	124.	52.5	0.0
12	TOP	1	19.1	52.	9.8	60.	79.2	0.0
		2	4.8	26.	50.3	315.	218.9	0.0
		3	0.1	1.	3.9	12.	26.2	0.0
		4	20.6	60.	26.0	158.	152.7	0.0
		5	10.5	41.	54.4	336.	250.6	0.0
		6	7.3	24.	21.9	124.	115.6	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	3	-	COL	2				
1	TOP	1	19.2	52.	10.0	61.	57.7	0.0
		2	4.8	26.	50.3	315.	231.7	0.0
		3	0.1	1.	4.0	12.	26.2	0.0
		4	20.7	60.	26.2	159.	135.0	0.0
		5	10.6	41.	54.5	337.	256.8	0.0
		6	7.3	24.	22.0	125.	113.0	0.0
2	TOP	1	19.2	52.	10.0	61.	27.3	0.0
		2	4.8	26.	50.3	315.	69.5	0.0
		3	0.1	1.	4.0	12.	20.0	0.0
		4	20.7	60.	26.2	159.	54.2	0.0
		5	10.6	41.	54.5	337.	83.7	0.0
		6	7.3	24.	22.0	125.	49.0	0.0
3	TOP	1	19.2	52.	10.0	61.	11.8	0.0
		2	4.8	26.	50.3	315.	94.0	0.0
		3	0.1	1.	4.0	12.	13.8	0.0
		4	20.7	60.	26.2	159.	44.2	0.0
		5	10.6	41.	54.5	337.	101.7	0.0
		6	7.3	24.	22.0	125.	45.5	0.0
4	TOP	1	19.2	52.	10.0	61.	81.5	0.0
		2	4.8	26.	50.3	315.	219.1	0.0
		3	0.1	1.	4.0	12.	26.2	0.0
		4	20.7	60.	26.2	159.	155.1	0.0
		5	10.6	41.	54.5	337.	251.4	0.0
		6	7.3	24.	22.0	125.	116.4	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	3	-	(CONTINUED)					
5	TOP	1	19.2	52.	10.0	61.	53.1	0.0
		2	4.8	26.	50.3	315.	57.3	0.0
		3	0.1	1.	4.0	12.	20.0	0.0
		4	20.7	60.	26.2	159.	76.3	0.0
		5	10.6	41.	54.5	337.	79.2	0.0
		6	7.3	24.	22.0	125.	53.1	0.0
6	TOP	1	19.2	52.	10.0	61.	31.2	0.0
		2	4.8	26.	50.3	315.	106.7	0.0
		3	0.1	1.	4.0	12.	13.8	0.0
		4	20.7	60.	26.2	159.	67.3	0.0
		5	10.6	41.	54.5	337.	120.2	0.0
		6	7.3	24.	22.0	125.	55.2	0.0
7	TOP	1	19.2	52.	10.0	61.	38.1	0.0
		2	4.8	26.	50.3	315.	244.3	0.0
		3	0.1	1.	4.0	12.	26.2	0.0
		4	20.7	60.	26.2	159.	119.3	0.0
		5	10.6	41.	54.5	337.	263.6	0.0
		6	7.3	24.	22.0	125.	110.9	0.0
8	TOP	1	19.2	52.	10.0	61.	10.7	0.0
		2	4.8	26.	50.3	315.	82.1	0.0
		3	0.1	1.	4.0	12.	20.0	0.0
		4	20.7	60.	26.2	159.	41.4	0.0
		5	10.6	41.	54.5	337.	91.3	0.0
		6	7.3	24.	22.0	125.	47.8	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	3	-	(CONTINUED)					
9	TOP	1	19.2	52.	10.0	61.	27.4	0.0
		2	4.8	26.	50.3	315.	81.4	0.0
		3	0.1	1.	4.0	12.	13.8	0.0
		4	20.7	60.	26.2	159.	55.9	0.0
		5	10.6	41.	54.5	337.	93.8	0.0
		6	7.3	24.	22.0	125.	46.4	0.0
10	TOP	1	19.2	52.	10.0	61.	32.0	0.0
		2	4.8	26.	50.3	315.	257.0	0.0
		3	0.1	1.	4.0	12.	26.2	0.0
		4	20.7	60.	26.2	159.	117.0	0.0
		5	10.6	41.	54.5	337.	274.5	0.0
		6	7.3	24.	22.0	125.	112.9	0.0
11	TOP	1	19.2	52.	10.0	61.	30.4	0.0
		2	4.8	26.	50.3	315.	94.8	0.0
		3	0.1	1.	4.0	12.	20.0	0.0
		4	20.7	60.	26.2	159.	64.9	0.0
		5	10.6	41.	54.5	337.	109.9	0.0
		6	7.3	24.	22.0	125.	57.6	0.0
12	TOP	1	19.2	52.	10.0	61.	52.9	0.0
		2	4.8	26.	50.3	315.	69.2	0.0
		3	0.1	1.	4.0	12.	13.8	0.0
		4	20.7	60.	26.2	159.	77.8	0.0
		5	10.6	41.	54.5	337.	89.2	0.0
		6	7.3	24.	22.0	125.	50.4	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	4	-	COL	1				
1	TOP	1	18.7	55.	8.1	48.	22.6	0.0
		2	3.9	21.	32.2	201.	41.9	0.0
		3	1.0	4.	5.5	14.	16.0	0.0
		4	20.2	62.	19.4	113.	39.9	0.0
		5	9.8	38.	36.3	220.	53.5	0.0
		6	7.8	27.	17.6	89.	35.3	0.0
2	TOP	1	18.7	55.	8.1	48.	9.7	0.0
		2	3.9	21.	32.2	201.	62.3	0.0
		3	1.0	4.	5.5	14.	23.2	0.0
		4	20.2	62.	19.4	113.	35.4	0.0
		5	9.8	38.	36.3	220.	72.2	0.0
		6	7.8	27.	17.6	89.	44.8	0.0
3	TOP	1	18.7	55.	8.1	48.	30.5	0.0
		2	3.9	21.	32.2	201.	165.9	0.0
		3	1.0	4.	5.5	14.	30.5	0.0
		4	20.2	62.	19.4	113.	89.4	0.0
		5	9.8	38.	36.3	220.	184.2	0.0
		6	7.8	27.	17.6	89.	89.4	0.0
4	TOP	1	18.7	55.	8.1	48.	50.2	0.0
		2	3.9	21.	32.2	201.	32.6	0.0
		3	1.0	4.	5.5	14.	15.1	0.0
		4	20.2	62.	19.4	113.	64.5	0.0
		5	9.8	38.	36.3	220.	52.2	0.0
		6	7.8	27.	17.6	89.	39.9	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) 135noliq2.SSB pin trans run

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	.....LNGITUDNL.....		.....TRANSVRSE.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	4	-	COL	1	(CONTINUED)			
5	TOP	1	18.7	55.	8.1	48.	31.1	0.0
		2	3.9	21.	32.2	201.	72.4	0.0
		3	1.0	4.	5.5	14.	22.3	0.0
		4	20.2	62.	19.4	113.	59.5	0.0
		5	9.8	38.	36.3	220.	88.4	0.0
		6	7.8	27.	17.6	89.	53.3	0.0
6	TOP	1	18.7	55.	8.1	48.	25.8	0.0
		2	3.9	21.	32.2	201.	175.8	0.0
		3	1.0	4.	5.5	14.	29.5	0.0
		4	20.2	62.	19.4	113.	87.4	0.0
		5	9.8	38.	36.3	220.	192.4	0.0
		6	7.8	27.	17.6	89.	90.0	0.0
7	TOP	1	18.7	55.	8.1	48.	9.3	0.0
		2	3.9	21.	32.2	201.	51.7	0.0
		3	1.0	4.	5.5	14.	17.1	0.0
		4	20.2	62.	19.4	113.	30.0	0.0
		5	9.8	38.	36.3	220.	59.7	0.0
		6	7.8	27.	17.6	89.	35.4	0.0
8	TOP	1	18.7	55.	8.1	48.	28.5	0.0
		2	3.9	21.	32.2	201.	52.5	0.0
		3	1.0	4.	5.5	14.	24.3	0.0
		4	20.2	62.	19.4	113.	51.5	0.0
		5	9.8	38.	36.3	220.	68.3	0.0
		6	7.8	27.	17.6	89.	48.6	0.0

***	LOAD CASE/COMB	DESCRIPTION
	1	Longitudinal
	2	Transverse
	3	Vertical
	4	1.0*L + 0.3*T + 0.3V
	5	0.3*L + 1.0*T + 0.3V
	6	0.3*L + 0.3*T + 1.0V

- - - - WinSEISAB - - - -

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WinSeisab Version 5.0.7

Length_Unit ft
Force_Unit kip
Time_Unit sec

Length_Prec 4
Force_Prec 4
Time_Prec 4
Area_Prec 6
Volume_Prec 4
Inertia_Prec 4
Moment_Prec 4
LinWeight_Prec 4
Stress_Prec 4
Density_Prec 4
Trans_K_Prec 4
Rotat_K_Prec 4
Couple_K_Prec 8
Accel_Prec 2

ShowExponentialK Yes

SEISAB "(hwy 135 overpass) liq2.ssb fixed int bents at foundation"
RESPONSE SPECTRUM ANALYSIS
SUPERSTRUCTURE JOINTS 3
COLUMN JOINTS 2
OUTPUT LEVEL 0
BLOCKING FACTOR 1

ALIGNMENT

STATION 400 + 00.0
COORDINATES N 0.0 E 0.0
BEARING N 90 00 00 E

SPANS

LENGTHS	65.0	88.0	88.0	65.0
AREA	42.44	42.44	42.44	42.44
I11	4.27	4.27	4.27	4.27
I22	6681.0	6681.0	6681.0	6681.0
I33	58.35	58.35	58.35	58.35
A22	0.0	0.0	0.0	0.0
A33	0.0	0.0	0.0	0.0
DENSITY	0.1215	0.1215	0.1215	0.1215
WEIGHT	1.74	1.74	1.74	1.74
E	524757.0	524757.0	524757.0	524757.0
PRATIO	0.2	0.2	0.2	0.2

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DESCRIBE
 COLUMN 'COLUMN' "4.0 ft. Dia. for Bent Nos. 2-4"
 AREA 12.57
 I11 25.13
 I22 12.57
 I33 12.57
 A22 0.0
 A33 0.0
 DENSITY 0.15
 E 490865.0
 PRATIO 0.2

SPECIAL CAP 'CAP' "4 ft. x 6.0 ft."
 I33 32.0
 A22 24.0
 E 490865.0
 PRATIO 0.2

BEARING ELEMENT 'bearing' "used for end bents before lock-up"
 KF1F1 3.348E+1
 KF2F2 1.0E+10
 KF3F3 1.0E+10
 KM1M1 1.0E+10
 KM2M2 0.0E+0
 KM3M3 0.0E+0

PILE '18Pipe' "18 in. Diameter Concrete Filled Steel Shell Pile"
 STIFFNESS
 KF1F1 2.4E+3
 KF2F2 2.39E+4
 KF3F3 2.4E+3
 KM1M1 2.083E+5
 C -- KM2M2 fixed
 KM3M3 2.083E+5

FOOTING
 PILE 'FTG A' "Footing used at int bents"
 TOP LAYOUT
 1 '18Pipe' AT 2.25 -2.0 4.5 ANGLE 0.0
 2 '18Pipe' AT 2.25 -2.0 0.0 ANGLE 0.0
 3 '18Pipe' AT 2.25 -2.0 -4.5 ANGLE 0.0
 4 '18Pipe' AT 6.75 -2.0 4.5 ANGLE 0.0
 5 '18Pipe' AT 6.75 -2.0 0.0 ANGLE 0.0
 6 '18Pipe' AT 6.75 -2.0 -4.5 ANGLE 0.0
 7 '18Pipe' AT -2.25 -2.0 4.5 ANGLE 0.0
 8 '18Pipe' AT -2.25 -2.0 0.0 ANGLE 0.0
 9 '18Pipe' AT -2.25 -2.0 -4.5 ANGLE 0.0
 10 '18Pipe' AT -6.75 -2.0 4.5 ANGLE 0.0
 11 '18Pipe' AT -6.75 -2.0 0.0 ANGLE 0.0
 12 '18Pipe' AT -6.75 -2.0 -4.5 ANGLE 0.0

ABUTMENT STATION 600 + 00.0
 BEARING N 10 00 00 W N 10 00 00 W

ELEVATION TOP 241.0 AT ABUTMENT 1
ELEVATION TOP 240.0 AT ABUTMENT 5

CONNECTION TRANS AT ABUTMENT 1
CONNECTION TRANS AT ABUTMENT 5

WING WALL SPRING CONSTANTS AT ABUTMENT 1

KF1F1 2.05E+3
C -- KF2F2 fixed
KF3F3 1.73E+4
C -- KM1M1 fixed
C -- KM2M2 fixed
C -- KM3M3 fixed

WING WALL SPRING CONSTANTS AT ABUTMENT 5

KF1F1 2.05E+3
C -- KF2F2 fixed
KF3F3 1.73E+4
C -- KM1M1 fixed
C -- KM2M2 fixed
C -- KM3M3 fixed

BENT

BEARING N 10 00 00 W N 10 00 00 W N 10 00 00 W

ELEVATION TOP 243.5 243.5 243.5
ELEVATION BEARINGS 237.5 237.5 237.5
ELEVATION CAP 235.5 235.5 235.5
ELEVATION BOTTOM 205.5 205.5 205.5
WEIGHT 170.0 170.0 170.0

COLUMN SKEWED LAYOUT 'COLUMN' 23.0 'COLUMN' AT BENT 2
COLUMN SKEWED LAYOUT 'COLUMN' 23.0 'COLUMN' AT BENT 3
COLUMN SKEWED LAYOUT 'COLUMN' 23.0 'COLUMN' AT BENT 4

COLUMN TOP FIX AT BENT 2
COLUMN BOTTOM FIX AT BENT 2
COLUMN TOP FIX AT BENT 3
COLUMN BOTTOM FIX AT BENT 3
COLUMN TOP FIX AT BENT 4
COLUMN BOTTOM FIX AT BENT 4

COLUMN TOP END JOINT SIZE 3.0 AT BENT 2
COLUMN BOTTOM END JOINT SIZE 2.0 AT BENT 2
COLUMN TOP END JOINT SIZE 3.0 AT BENT 3
COLUMN BOTTOM END JOINT SIZE 2.0 AT BENT 3
COLUMN TOP END JOINT SIZE 3.0 AT BENT 4
COLUMN BOTTOM END JOINT SIZE 2.0 AT BENT 4

SPECIAL CAP 'CAP' AT BENT 2
SPECIAL CAP 'CAP' AT BENT 3
SPECIAL CAP 'CAP' AT BENT 4

CONNECTION PIN AT BENT 2
CONNECTION PIN AT BENT 3
CONNECTION PIN AT BENT 4

FOUNDATION
AT BENT 2 3 4

PILE FOOTING 'FTG A' ROTATED 0.0 DEGREES
WEIGHT 119.0

AT ABUTMENT 1 5
SPRING CONSTANTS
C -- KF1F1 4.85E+4
KF2F2 fixed
KF3F3 2.8E+4
C -- KM1M1 fixed
C -- KM2M2 fixed
C -- KM3M3 fixed
WEIGHT 150.0

LOADS

USE FIXED NOTATION FOR VIBRATION INFO
USE FIXED NOTATION FOR DISPLACEMENTS
USE FIXED NOTATION FOR FORCES

RESPONSE SPECTRUM

COMBINATION FACTOR 0.3
INCLUDE VERTICAL ACCELERATION
MODE SHAPES 18
DAMPING COEFFICIENT 0.05

ARBITRARY CURVE

PERIOD	0.0000	0.0820	0.2000	0.4120	0.6000	0.8000	1.0000	-
	1.2000	1.4000	1.6000	1.8000	2.0000	2.2000	2.4000	-
	2.6000	2.8000	3.0000	3.2000	3.4000	4.0000		
VALUE	0.6560	1.6400	1.6400	1.6400	1.1270	0.8450	0.6760	-
	0.5630	0.4830	0.4230	0.3760	0.3380	0.3070	0.2820	-
	0.2600	0.2410	0.2250	0.2110	0.1990	0.1690		

GRAVITY 32.2

FINISH

□

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Imbsen and Associates, Inc.

(hwy 135 overpass) liq2.ssb fixed int bents at foundation

WinSEISAB DATA INPUT

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RESPONSE SPECTRUM

THE BRIDGE MODEL GENERATED IS BASED ON:

3 INTERMEDIATE JOINT(S) ON EACH SPAN

2 INTERMEDIATE JOINT(S) ON EACH COLUMN

□

----- WinSEISAB -----

(Version 5.0.7)

21-AUG-06

Imbsen and Associates, Inc.

(hwy 135 overpass) liq2.ssb fixed int bents at foundation

ALIGNMENT DATA INPUT

INITIAL REFERENCE POINT AND ALIGNMENT

STATION	STATION COORDINATEOFFSET.... DIR	VALUE	BEARING
40000.00	N		0.00	N 90 0 0 E
	E		0.00	

□

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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

SPAN DATA INPUT

SEGMENT LENGTHS / SECTION AND MATERIAL PROPERTIES

SEGMENT	LENGTH	AREA	I11	I22	I33
SPAN 1	65.00				
1	65.00	42.44	4.27	6681.00	58.35
SPAN 2	88.00				
1	88.00	42.44	4.27	6681.00	58.35
SPAN 3	88.00				
1	88.00	42.44	4.27	6681.00	58.35
SPAN 4	65.00				
1	65.00	42.44	4.27	6681.00	58.35

SEGMENT	A22	A33	ELASTIC MODULUS	P- RATIO	DENSITY	WT/LENGTH
SPAN 1						
1	0.0	0.0	524757.	0.20	0.122	1.740
SPAN 2						
1	0.0	0.0	524757.	0.20	0.122	1.740
SPAN 3						
1	0.0	0.0	524757.	0.20	0.122	1.740
SPAN 4						
1	0.0	0.0	524757.	0.20	0.122	1.740

□

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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

DESCRIBE DATA INPUT

COLUMN INFORMATION

NO. 1 TITLE: COLUMN
INFORMATION: 4.0 ft. Dia. for Bent Nos. 2-4

SEGMENT	LENGTH	AREA	I11	I22	I33
1	0.00	12.57	25.13	12.57	12.57

SEGMENT	A22	A33	ELASTIC MODULUS	P- RATIO	DENSITY
1	0.0	0.0	490865.	0.20	0.15

SPECIAL BENT CAP INFORMATION

NO. 1 TITLE: CAP
INFORMATION: 4 ft. x 6.0 ft.
DENSITY:
ELASTIC MODULUS: 490865.
POISSONS RATIO: 0.20

AREA	I11	I22	I33	A22	A33
SPECIAL CAP MEMBER			32.00	24.0	

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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

DESCRIBE DATA INPUT (CONTINUED)

 BEARING ELEMENT INFORMATION

NO. 1

TITLE: bearing
 INFORMATION: used for end bents before lock-u

KF1F1	KF1F2	KF1F3	KF1M1	KF1M2	KF1M3
33.	0.	0.	0.	0.	0.
KF2F2	KF2F3	KF2M1	KF2M2	KF2M3	
1.0E+10	0.	0.	0.	0.	
KF3F3		KF3M1	KF3M2	KF3M3	
1.0E+10		0.	0.	0.	
KM1M1			KM1M2	KM1M3	
1.0E+10			0.	0.	
KM2M2				KM2M3	
0.				0.	
KM3M3					
0.					

□

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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

DESCRIBE DATA INPUT (CONTINUED)

PILE INFORMATION

NO.	TITLE: 18Pipe					
1	INFORMATION: 18 in. Diameter Concrete Filled					
	KF1F1	KF1F2	KF1F3	KF1M1	KF1M2	KF1M3
	2400.	0.	0.	0.		0.
		KF2F2	KF2F3	KF2M1	KF2M2	KF2M3
		23900.	0.	0.		0.
			KF3F3	KF3M1	KF3M2	KF3M3
			2400.	0.		0.
				KM1M1	KM1M2	KM1M3
				208300.		0.
					KM2M2	KM2M3
					DOF FIXD	
						KM3M3
						208300.

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FOOTING DATA INPUT

PILE FOOTING INFORMATION

NO. 1 TITLE: FTG A
 INFORMATION:

PILE	TITLE	.....TOP/BOTTOM COORDINATES.....			ROTATION ANGLE
		-R-	-S-	-T-	
1	18Pipe	2.25	-2.00	4.50	0.000
2	18Pipe	2.25	-2.00	0.00	0.000
3	18Pipe	2.25	-2.00	-4.50	0.000
4	18Pipe	6.75	-2.00	4.50	0.000
5	18Pipe	6.75	-2.00	0.00	0.000
6	18Pipe	6.75	-2.00	-4.50	0.000
7	18Pipe	-2.25	-2.00	4.50	0.000
8	18Pipe	-2.25	-2.00	0.00	0.000
9	18Pipe	-2.25	-2.00	-4.50	0.000
10	18Pipe	-6.75	-2.00	4.50	0.000
11	18Pipe	-6.75	-2.00	0.00	0.000
12	18Pipe	-6.75	-2.00	-4.50	0.000

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ABUTMENT DATA INPUT

 GEOMETRY AND GENERAL INFORMATION

ABT	STATION	BEARING	SUPER CG ELEVATION	WALL BOT ELEVATION	ABUTMENT CONNECTION
1	60000.00	N 10 0 0 W	241.00		TRANSVERSE
5		N 10 0 0 W	240.00		TRANSVERSE

ABUTMENT WING WALL SPRING CONSTANTS

ABUT	KF1F1	KF1F2	KF1F3	KF1M1	KF1M2	KF1M3
1	2050.		0.			
		KF2F2	KF2F3	KF2M1	KF2M2	KF2M3
		DOF FIXD				
		KF3F3	KF3M1	KF3M2	KF3M3	
		17300.				
		KM1M1	KM1M2	KM1M3		
		DOF FIXD				
		KM2M2	KM2M3			
		DOF FIXD				
		KM3M3				
		DOF FIXD				

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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

ABUTMENT DATA INPUT (CONTINUED)

ABUTMENT WING WALL SPRING CONSTANTS (CONTINUED)

ABUT	KF1F1	KF1F2	KF1F3	KF1M1	KF1M2	KF1M3
5	2050.		0.			
		KF2F2	KF2F3	KF2M1	KF2M2	KF2M3
		DOF FIXD				
			KF3F3	KF3M1	KF3M2	KF3M3
			17300.			
				KM1M1	KM1M2	KM1M3
				DOF FIXD		
					KM2M2	KM2M3
					DOF FIXD	
						KM3M3
						DOF FIXD

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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

BENT DATA INPUT

BENT GEOMETRY, WEIGHT AND CAP INFORMATION

BENT	BEARING	WEIGHT	CAP TITLE	NOTE
2	N 10 0 0 W	170.00	CAP	
3	N 10 0 0 W	170.00	CAP	
4	N 10 0 0 W	170.00	CAP	

BENT ELEVATION INFORMATION

BENT	SUPER CG ELEVATION	DIAPHRAGM ELEVATION	BEAR. ELMT ELEVATION	BENT CAP ELEVATION	FOOTING ELEVATION
2	243.50		237.50	235.50	205.50
3	243.50		237.50	235.50	205.50
4	243.50		237.50	235.50	205.50

BENT CONNECTIVITY INFORMATION

BENT	SUPERSTR CONTINUITY	BENT TO SUPERSTR CONNECTION TYPE
2	CONTINUOUS	PINNED
3	CONTINUOUS	PINNED
4	CONTINUOUS	PINNED

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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

BENT DATA INPUT (CONTINUED)

BENT COLUMN LAYOUT

BENT	SPACING	COL	TITLE	DISTANCE	....GROUP OFFSET....		
					SPCNG	DIR	OFFSET
2	SKEWED	1	COLUMN	23.00			0.00
		2	COLUMN				
3	SKEWED	1	COLUMN	23.00			0.00
		2	COLUMN				
4	SKEWED	1	COLUMN	23.00			0.00
		2	COLUMN				

BENT COLUMN END INFORMATION

BNT	COL	.....TOP.....				.....BOTTOM.....														
		LT	LT	ASSTMM	BRG ELMT	JNT SIZE	LT	LT	ASSTMM	BRG ELMT	JNT SIZE									
2	1										3.00									2.00
	2										3.00									2.00
3	1										3.00									2.00
	2										3.00									2.00
4	1										3.00									2.00
	2										3.00									2.00

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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

FOUNDATION DATA

ABUTMENT FOUNDATION INFORMATION

ABUTMENT	WEIGHT	ROT. ANGLE	FOUNDATION TYPE	FTNG TITLE
1	150.00	0.00	SPRING CONSTANTS	
5	150.00	0.00	SPRING CONSTANTS	

ABUTMENT FOUNDATION SPRING CONSTANTS

ABUT	KF1F1	KF1F2	KF1F3	KF1M1	KF1M2	KF1M3
1	48500.		0.			
		KF2F2	KF2F3	KF2M1	KF2M2	KF2M3
		DOF FIXD				
			KF3F3	KF3M1	KF3M2	KF3M3
			28000.			
				KM1M1	KM1M2	KM1M3
				DOF FIXD		
					KM2M2	KM2M3
					DOF FIXD	
						KM3M3
						DOF FIXD

□

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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

FOUNDATION DATA (CONTINUED)

ABUTMENT FOUNDATION SPRING CONSTANTS (CONTINUED)

ABUT	KF1F1	KF1F2	KF1F3	KF1M1	KF1M2	KF1M3
5	48500.		0.			
		KF2F2	KF2F3	KF2M1	KF2M2	KF2M3
		DOF FIXD				
			KF3F3	KF3M1	KF3M2	KF3M3
			28000.			
				KM1M1	KM1M2	KM1M3
				DOF FIXD		
					KM2M2	KM2M3
					DOF FIXD	
						KM3M3
						DOF FIXD

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FOUNDATION DATA (CONTINUED)

COLUMN FOUNDATION INFORMATION AT BENT 2

COLUMN	WEIGHT	ROT. ANGLE	FOUNDATION TYPE	FTNG TITLE
1	119.00	0.00	PILE FOOTING	FTG A
2	119.00	0.00	PILE FOOTING	FTG A

COLUMN FOUNDATION INFORMATION AT BENT 3

COLUMN	WEIGHT	ROT. ANGLE	FOUNDATION TYPE	FTNG TITLE
1	119.00	0.00	PILE FOOTING	FTG A
2	119.00	0.00	PILE FOOTING	FTG A

COLUMN FOUNDATION INFORMATION AT BENT 4

COLUMN	WEIGHT	ROT. ANGLE	FOUNDATION TYPE	FTNG TITLE
1	119.00	0.00	PILE FOOTING	FTG A
2	119.00	0.00	PILE FOOTING	FTG A

□

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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

LOADINGS DATA INPUT

THE NUMBER OF MODE SHAPES FOUND WILL BE 18

ACCELERATION SPECTRUM INFORMATION

USER SPECIFIED ACCELERATION SPECTRUM

DAMPING COEFFICIENT = 0.05
ACCELERATION DUE TO GRAVITY = 32.20

DIGITIZED ACCELERATION SPECTRUM

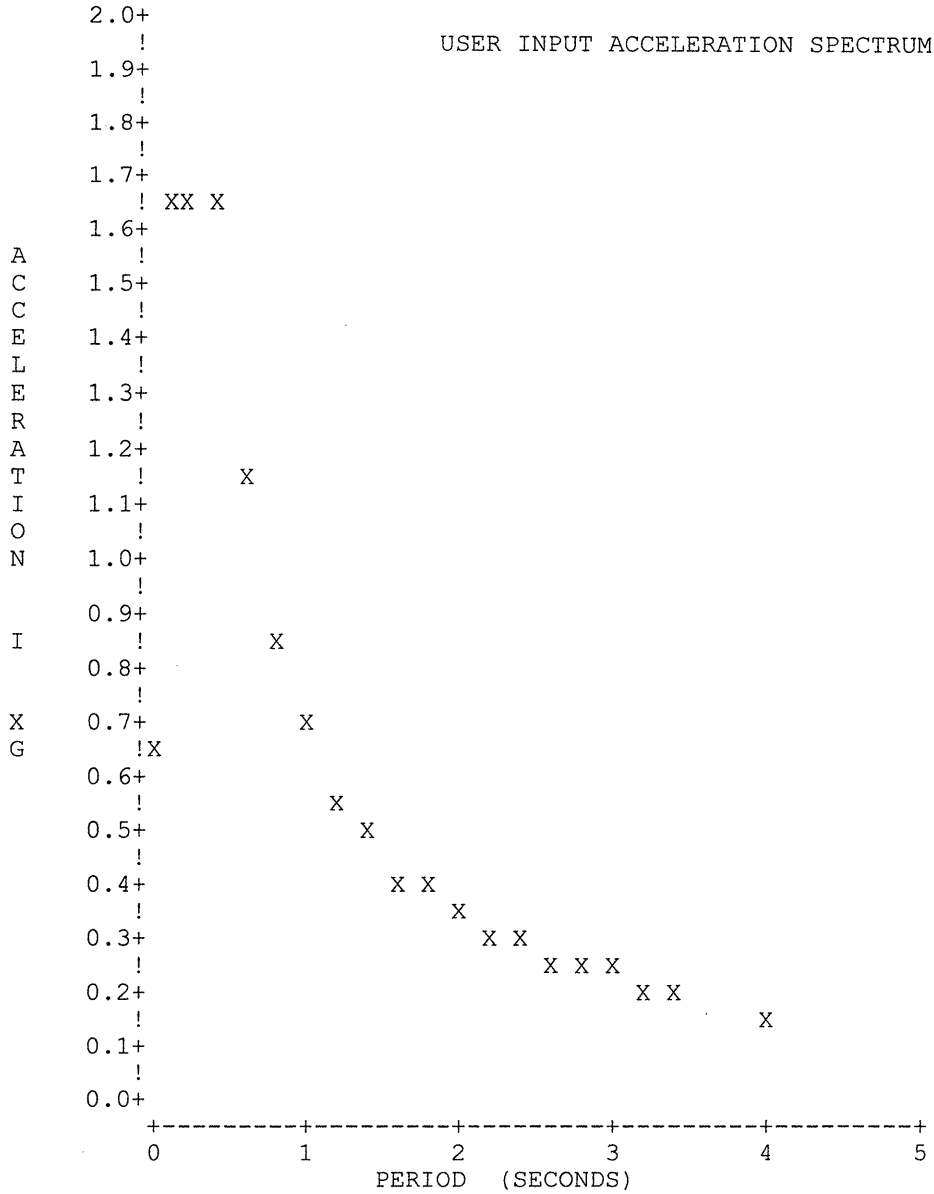
POINT	PERIOD	VALUE
1	0.000	0.6560
2	0.082	1.6400
3	0.200	1.6400
4	0.412	1.6400
5	0.600	1.1270
6	0.800	0.8450
7	1.000	0.6760
8	1.200	0.5630
9	1.400	0.4830
10	1.600	0.4230
11	1.800	0.3760
12	2.000	0.3380
13	2.200	0.3070
14	2.400	0.2820
15	2.600	0.2600
16	2.800	0.2410
17	3.000	0.2250
18	3.200	0.2110
19	3.400	0.1990
20	4.000	0.1690

□

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LOADING DATA INPUT (CONTINUED)



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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

LOADINGS DATA INPUT (CONTINUED)

LOAD CASE AND LOAD CASE COMBINATION INFORMATION

LOAD CASE/COMB	.....DIRECTION FACTORS.....			DESCRIPTION
	X	Y	Z	
1	1.000	0.000	0.000	Longitudinal
2	0.000	0.000	1.000	Transverse
3	0.000	1.000	0.000	Vertical
4				1.0*L + 0.3*T + 0.3V
5				0.3*L + 1.0*T + 0.3V
6				0.3*L + 0.3*T + 1.0V

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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

RESPONSE SPECTRUM RESULTS

VIBRATION CHARACTERISTICS

MODE	PERIOD	CS	PARTICIPATION FACTORS			% OF TOTAL MASS		
			Long	Vert	Tran	Long	Vert	Tran
1	0.921	0.74	9.272	0.031	-0.777	70.651	0.001	0.496
2	0.360	1.64	0.155	0.001	0.966	70.671	0.001	1.263
3	0.342	1.64	-0.897	0.001	-9.025	71.332	0.001	68.199
4	0.264	1.64	-0.005	2.540	0.024	71.332	5.742	68.199
5	0.187	1.64	-0.107	-0.044	0.037	71.341	5.744	68.201
6	0.179	1.64	-0.026	7.313	-0.003	71.342	53.338	68.201
7	0.160	1.64	0.002	-0.154	0.012	71.342	53.360	68.201
8	0.126	1.64	0.000	0.000	0.000	71.342	53.360	68.201
9	0.126	1.64	0.000	0.000	0.000	71.342	53.360	68.201
10	0.126	1.64	0.000	0.000	0.000	71.342	53.360	68.201
11	0.109	1.64	0.185	0.006	0.458	71.370	53.360	68.373
12	0.104	1.64	0.149	-0.007	4.132	71.388	53.360	82.406
13	0.103	1.64	0.005	0.146	0.130	71.388	53.379	82.420
14	0.080	1.62	-0.010	0.010	-0.001	71.388	53.379	82.420
15	0.080	1.62	-0.709	-0.003	0.038	71.802	53.379	82.421
16	0.080	1.61	4.888	0.023	-0.864	91.439	53.379	83.035
17	0.078	1.59	-0.033	1.911	0.006	91.440	56.628	83.035
18	0.077	1.58	0.508	0.004	-0.020	91.652	56.628	83.036

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RESPONSE SPECTRUM RESULTS

ABUTMENT CQC DISPLACEMENTS

ITEM	LCLEFT FACE....	RIGHT FACE....		...OPNNG/CLSNG...	
		LNGTUDNL	TRNSVRSE	LNGTUDNL	TRNSVRSE	LNGTUDNL	TRNSVRSE
ABU 1	1	0.000	0.006	0.521	0.006	0.521	0.000
	2	0.002	0.020	0.046	0.020	0.045	0.000
	3	0.000	0.000	0.000	0.000	0.000	0.000
	4	0.001	0.012	0.534	0.012	0.535	0.000
	5	0.002	0.021	0.202	0.021	0.202	0.000
	6	0.001	0.008	0.170	0.008	0.170	0.000
ABU 5	1	0.521	0.006	0.000	0.006	0.521	0.000
	2	0.046	0.020	0.002	0.020	0.045	0.000
	3	0.000	0.000	0.000	0.000	0.000	0.000
	4	0.534	0.012	0.001	0.012	0.535	0.000
	5	0.202	0.022	0.002	0.022	0.202	0.000
	6	0.170	0.008	0.001	0.008	0.170	0.000

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

RESPONSE SPECTRUM RESULTS

BENT CQC DISPLACEMENTS

ITEM	LC	....LEFT FACE....		....RGHT FACE....		...OPNNG/CLSNG...	
		LNGTUDNL	TRNSVRSE	LNGTUDNL	TRNSVRSE	LNGTUDNL	TRNSVRSE
BNT 2	1	0.515	0.044	0.515	0.044	0.000	0.000
	2	0.045	0.133	0.045	0.133	0.000	0.000
	3	0.009	0.002	0.009	0.002	0.000	0.000
	4	0.532	0.085	0.532	0.085	0.000	0.000
	5	0.202	0.147	0.202	0.147	0.000	0.000
	6	0.177	0.055	0.177	0.055	0.000	0.000
BNT 3	1	0.517	0.067	0.517	0.067	0.000	0.000
	2	0.046	0.207	0.046	0.207	0.000	0.000
	3	0.000	0.000	0.000	0.000	0.000	0.000
	4	0.531	0.129	0.531	0.129	0.000	0.000
	5	0.201	0.227	0.201	0.227	0.000	0.000
	6	0.169	0.082	0.169	0.082	0.000	0.000
BNT 4	1	0.515	0.044	0.515	0.044	0.000	0.000
	2	0.045	0.133	0.045	0.133	0.000	0.000
	3	0.009	0.001	0.009	0.001	0.000	0.000
	4	0.532	0.084	0.532	0.084	0.000	0.000
	5	0.202	0.147	0.202	0.147	0.000	0.000
	6	0.177	0.055	0.177	0.055	0.000	0.000

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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(hwy 135 overpass) liq2.ssb fixed int bents at foundation

RESPONSE SPECTRUM RESULTS

COLUMN CQC FORCES

CL	LOC	LC	....LNGITUDNL....		....TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT 2								
1	BOT	1	325.7	9644.	139.6	1799.	233.2	0.2
		2	28.7	835.	375.0	4780.	665.1	0.0
		3	6.8	173.	37.2	273.	275.4	0.0
		4	336.3	9946.	263.2	3315.	515.4	0.2
		5	128.4	3780.	428.0	5402.	817.6	0.1
		6	113.1	3316.	191.5	2247.	544.9	0.1
1	TOP	1	318.1	1609.	137.8	1670.	233.1	0.2
		2	27.5	140.	351.3	4331.	663.8	0.0
		3	4.7	29.	32.4	594.	273.5	0.0
		4	327.8	1659.	252.9	3148.	514.3	0.2
		5	124.3	631.	402.4	5010.	815.8	0.1
		6	108.4	553.	179.2	2394.	542.6	0.1
2	BOT	1	325.7	9644.	137.2	1781.	215.5	0.2
		2	28.6	835.	377.0	4795.	679.6	0.0
		3	6.8	173.	36.3	262.	280.1	0.0
		4	336.3	9946.	261.2	3298.	503.4	0.2
		5	128.4	3780.	429.1	5408.	828.3	0.1
		6	113.1	3316.	190.6	2235.	548.7	0.1
2	TOP	1	318.1	1609.	135.5	1630.	215.4	0.2
		2	27.5	140.	353.2	4364.	678.4	0.0
		3	4.7	28.	31.7	585.	278.2	0.0
		4	327.8	1659.	251.0	3115.	502.4	0.2
		5	124.3	631.	403.4	5029.	826.5	0.1
		6	108.4	553.	178.3	2383.	546.3	0.1

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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 Imbsen and Associates, Inc.

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RESPONSE SPECTRUM RESULTS

COLUMN CQC FORCES (CONTINUED)

CL	LOC	LCLNGITUDNL....	TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT 3								
1	BOT	1	329.2	9748.	94.6	1217.	156.6	0.2
		2	31.8	920.	579.8	7399.	917.2	0.0
		3	0.1	1.	31.2	229.	236.7	0.0
		4	338.8	10025.	277.8	3506.	502.8	0.2
		5	130.6	3845.	617.5	7833.	1035.2	0.1
		6	108.4	3202.	233.5	2814.	558.8	0.1
1	TOP	1	321.6	1626.	91.8	1116.	156.5	0.2
		2	30.0	154.	543.3	6690.	915.4	0.0
		3	0.0	0.	27.9	508.	235.3	0.0
		4	330.6	1673.	263.2	3276.	501.7	0.2
		5	126.5	642.	579.2	7177.	1033.0	0.1
		6	105.5	534.	218.4	2850.	556.9	0.1
2	BOT	1	329.2	9748.	94.6	1218.	156.9	0.2
		2	31.8	920.	580.3	7403.	921.0	0.0
		3	0.1	1.	31.1	228.	236.5	0.0
		4	338.7	10024.	278.0	3507.	504.1	0.2
		5	130.6	3845.	618.0	7837.	1039.0	0.1
		6	108.4	3202.	233.6	2814.	559.9	0.1
2	TOP	1	321.6	1626.	91.9	1117.	156.7	0.2
		2	30.0	154.	543.8	6698.	919.2	0.0
		3	0.0	0.	27.8	507.	235.1	0.0
		4	330.6	1672.	263.3	3278.	503.0	0.2
		5	126.5	642.	579.7	7185.	1036.8	0.1
		6	105.5	535.	218.5	2851.	557.9	0.1

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

COLUMN CQC FORCES (CONTINUED)

CL	LOC	LCLNGITUDNL....	TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT 4								
1	BOT	1	325.7	9644.	137.3	1784.	205.5	0.2
		2	28.6	833.	376.8	4791.	707.2	0.0
		3	6.6	170.	36.3	262.	279.4	0.0
		4	336.3	9944.	261.3	3300.	501.5	0.2
		5	128.3	3777.	428.9	5404.	852.7	0.1
		6	112.9	3313.	190.6	2234.	553.3	0.1
1	TOP	1	318.1	1609.	135.6	1629.	205.4	0.2
		2	27.4	140.	353.1	4366.	705.9	0.0
		3	4.6	28.	31.7	585.	277.5	0.0
		4	327.7	1659.	251.0	3115.	500.4	0.2
		5	124.2	631.	403.3	5030.	850.8	0.1
		6	108.3	553.	178.3	2383.	550.9	0.1
2	BOT	1	325.7	9644.	139.9	1804.	225.0	0.2
		2	28.6	833.	374.9	4776.	693.3	0.0
		3	6.7	170.	37.1	272.	275.6	0.0
		4	336.3	9944.	263.5	3318.	515.7	0.2
		5	128.3	3777.	428.0	5399.	843.5	0.1
		6	112.9	3313.	191.5	2246.	551.1	0.1
2	TOP	1	318.1	1609.	138.1	1674.	224.9	0.2
		2	27.4	140.	351.3	4334.	692.1	0.0
		3	4.6	28.	32.4	592.	273.7	0.0
		4	327.7	1659.	253.3	3152.	514.6	0.2
		5	124.3	631.	402.5	5014.	841.6	0.1
		6	108.3	553.	179.2	2395.	548.8	0.1

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

ABUTMENT CQC FORCES

ITEM	LC	VERT	SHEAR	W/R TO BRIDGE C.L.		W/R TO ITEM C.L.	
				LONGITUDNL	TRANSVERSE	NORMAL	PARALLEL
ABU 1	1		15.2	0.0	262.2	45.5	258.2
	2		19.0	0.0	804.0	139.6	791.8
	3		195.0	0.0	13.1	2.3	12.9
	4		79.4	0.0	507.3	88.1	499.6
	5		82.0	0.0	886.6	153.9	873.1
	6		205.3	0.0	332.9	57.8	327.8
ABU 5	1		13.6	0.0	262.5	45.6	258.5
	2		18.5	0.0	806.3	140.0	794.0
	3		194.9	0.0	13.6	2.4	13.4
	4		77.6	0.0	508.4	88.3	500.7
	5		81.0	0.0	889.1	154.4	875.6
	6		204.5	0.0	334.2	58.0	329.1

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

 ABUTMENT FOUNDATION SPRING CQC FORCES

ABUT	LC	KF1F1	KF2F2	KF3F3	KM1M1	KM2M2	KM3M3
1	1	29.2	0.0	161.7	0.0	0.0	0.0
	2	90.9	0.0	549.6	0.0	0.0	0.0
	3	1.5	0.0	9.4	0.0	0.0	0.0
	4	56.9	0.0	329.4	0.0	0.0	0.0
	5	100.1	0.0	600.9	0.0	0.0	0.0
	6	37.5	0.0	222.7	0.0	0.0	0.0
5	1	29.2	0.0	161.9	0.0	0.0	0.0
	2	91.1	0.0	551.8	0.0	0.0	0.0
	3	1.6	0.0	9.7	0.0	0.0	0.0
	4	57.0	0.0	330.3	0.0	0.0	0.0
	5	100.4	0.0	603.3	0.0	0.0	0.0
	6	37.7	0.0	223.8	0.0	0.0	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

□

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RESPONSE SPECTRUM RESULTS

ABUTMENT WING WALL SPRING CQC FORCES

ABUT	LC	KF1F1	KF2F2	KF3F3	KM1M1	KM2M2	KM3M3
1	1	0.8	0.0	100.2	0.0	0.0	0.0
	2	3.3	0.0	340.0	0.0	0.0	0.0
	3	0.1	0.0	5.8	0.0	0.0	0.0
	4	1.8	0.0	203.9	0.0	0.0	0.0
	5	3.6	0.0	371.8	0.0	0.0	0.0
	6	1.3	0.0	137.8	0.0	0.0	0.0
5	1	0.8	0.0	100.3	0.0	0.0	0.0
	2	3.3	0.0	341.3	0.0	0.0	0.0
	3	0.1	0.0	6.0	0.0	0.0	0.0
	4	1.9	0.0	204.5	0.0	0.0	0.0
	5	3.6	0.0	373.2	0.0	0.0	0.0
	6	1.3	0.0	138.5	0.0	0.0	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

□

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RESPONSE SPECTRUM RESULTS

BENT CQC FORCES

ITEM	LC	VERT	SHEAR	W/R TO BRIDGE C.L.		W/R TO ITEM C.L.	
				LONGITUDNL	TRANSVERSE	NORMAL	PARALLEL
BNT 2	1		26.3	534.0	166.7	498.0	254.9
	2		48.3	96.9	445.4	47.8	453.3
	3		514.1	37.2	6.9	37.8	2.0
	4		195.1	574.2	302.4	523.6	391.5
	5		210.5	268.3	497.4	208.5	530.3
	6		536.5	226.4	190.5	201.5	214.5
BNT 3	1		0.7	520.1	84.9	503.2	156.6
	2		5.3	141.1	686.7	52.1	699.1
	3		444.2	0.5	0.3	0.5	0.3
	4		135.5	562.6	291.0	519.0	366.4
	5		138.8	297.2	712.2	203.2	746.1
	6		446.0	198.8	231.7	167.1	257.0
BNT 4	1		27.6	534.1	167.1	498.0	255.3
	2		48.5	96.6	445.2	47.7	453.1
	3		513.5	36.5	6.7	37.1	2.1
	4		196.2	574.0	302.7	523.4	391.8
	5		210.8	267.8	497.4	208.2	530.3
	6		536.3	225.7	190.4	200.8	214.6

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES

PL	LOC	LCLNGITUDNL....	TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	2	-	COL	1				
1	TOP	1	32.7	234.	11.8	77.	80.3	0.0
		2	3.8	20.	33.1	207.	50.8	0.0
		3	1.1	4.	5.3	15.	16.5	0.0
		4	34.1	241.	23.3	144.	100.5	0.0
		5	13.9	92.	38.2	234.	79.8	0.0
		6	12.0	81.	18.7	100.	55.8	0.0
2	TOP	1	32.7	234.	11.8	77.	42.3	0.0
		2	3.8	20.	33.1	207.	57.0	0.0
		3	1.1	4.	5.3	15.	23.9	0.0
		4	34.1	241.	23.3	144.	66.6	0.0
		5	13.9	92.	38.2	234.	76.9	0.0
		6	12.0	81.	18.7	100.	53.7	0.0
3	TOP	1	32.7	234.	11.8	77.	17.3	0.0
		2	3.8	20.	33.1	207.	163.5	0.0
		3	1.1	4.	5.3	15.	31.4	0.0
		4	34.1	241.	23.3	144.	75.7	0.0
		5	13.9	92.	38.2	234.	178.1	0.0
		6	12.0	81.	18.7	100.	85.6	0.0
4	TOP	1	32.7	234.	11.8	77.	201.0	0.0
		2	3.8	20.	33.1	207.	50.6	0.0
		3	1.1	4.	5.3	15.	17.8	0.0
		4	34.1	241.	23.3	144.	221.6	0.0
		5	13.9	92.	38.2	234.	116.3	0.0
		6	12.0	81.	18.7	100.	93.3	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL....	TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	2	-	COL	1	(CONTINUED)			
5	TOP	1	32.7	234.	11.8	77.	162.8	0.0
		2	3.8	20.	33.1	207.	61.0	0.0
		3	1.1	4.	5.3	15.	25.2	0.0
		4	34.1	241.	23.3	144.	188.6	0.0
		5	13.9	92.	38.2	234.	117.4	0.0
		6	12.0	81.	18.7	100.	92.3	0.0
6	TOP	1	32.7	234.	11.8	77.	125.5	0.0
		2	3.8	20.	33.1	207.	166.3	0.0
		3	1.1	4.	5.3	15.	32.6	0.0
		4	34.1	241.	23.3	144.	185.2	0.0
		5	13.9	92.	38.2	234.	213.8	0.0
		6	12.0	81.	18.7	100.	120.2	0.0
7	TOP	1	32.7	234.	11.8	77.	40.9	0.0
		2	3.8	20.	33.1	207.	53.0	0.0
		3	1.1	4.	5.3	15.	15.4	0.0
		4	34.1	241.	23.3	144.	61.4	0.0
		5	13.9	92.	38.2	234.	69.9	0.0
		6	12.0	81.	18.7	100.	43.5	0.0
8	TOP	1	32.7	234.	11.8	77.	79.1	0.0
		2	3.8	20.	33.1	207.	54.8	0.0
		3	1.1	4.	5.3	15.	22.8	0.0
		4	34.1	241.	23.3	144.	102.4	0.0
		5	13.9	92.	38.2	234.	85.4	0.0
		6	12.0	81.	18.7	100.	63.0	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL....	TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	2	-	COL 1 (CONTINUED)					
9	TOP	1	32.7	234.	11.8	77.	118.4	0.0
		2	3.8	20.	33.1	207.	161.2	0.0
		3	1.1	4.	5.3	15.	30.3	0.0
		4	34.1	241.	23.3	144.	175.9	0.0
		5	13.9	92.	38.2	234.	205.8	0.0
		6	12.0	81.	18.7	100.	114.2	0.0
10	TOP	1	32.7	234.	11.8	77.	161.5	0.0
		2	3.8	20.	33.1	207.	57.2	0.0
		3	1.1	4.	5.3	15.	14.5	0.0
		4	34.1	241.	23.3	144.	183.0	0.0
		5	13.9	92.	38.2	234.	110.0	0.0
		6	12.0	81.	18.7	100.	80.1	0.0
11	TOP	1	32.7	234.	11.8	77.	199.8	0.0
		2	3.8	20.	33.1	207.	54.6	0.0
		3	1.1	4.	5.3	15.	21.9	0.0
		4	34.1	241.	23.3	144.	222.7	0.0
		5	13.9	92.	38.2	234.	121.1	0.0
		6	12.0	81.	18.7	100.	98.2	0.0
12	TOP	1	32.7	234.	11.8	77.	238.6	0.0
		2	3.8	20.	33.1	207.	159.6	0.0
		3	1.1	4.	5.3	15.	29.4	0.0
		4	34.1	241.	23.3	144.	295.3	0.0
		5	13.9	92.	38.2	234.	240.0	0.0
		6	12.0	81.	18.7	100.	148.8	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL....	TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	2	-	COL	2				
1	TOP	1	32.7	234.	11.6	76.	116.5	0.0
		2	3.8	20.	33.3	208.	162.8	0.0
		3	1.1	4.	5.3	14.	31.6	0.0
		4	34.2	241.	23.1	143.	174.8	0.0
		5	13.9	92.	38.3	235.	207.3	0.0
		6	12.1	81.	18.7	99.	115.4	0.0
2	TOP	1	32.7	234.	11.6	76.	77.7	0.0
		2	3.8	20.	33.3	208.	56.0	0.0
		3	1.1	4.	5.3	14.	24.4	0.0
		4	34.2	241.	23.1	143.	101.8	0.0
		5	13.9	92.	38.3	235.	86.6	0.0
		6	12.1	81.	18.7	99.	64.5	0.0
3	TOP	1	32.7	234.	11.6	76.	40.0	0.0
		2	3.8	20.	33.3	208.	52.1	0.0
		3	1.1	4.	5.3	14.	17.1	0.0
		4	34.2	241.	23.1	143.	60.7	0.0
		5	13.9	92.	38.3	235.	69.2	0.0
		6	12.1	81.	18.7	99.	44.8	0.0
4	TOP	1	32.7	234.	11.6	76.	236.7	0.0
		2	3.8	20.	33.3	208.	161.2	0.0
		3	1.1	4.	5.3	14.	32.9	0.0
		4	34.2	241.	23.1	143.	294.9	0.0
		5	13.9	92.	38.3	235.	242.1	0.0
		6	12.1	81.	18.7	99.	152.2	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL.....	TRANSVRSE.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	2	-	COL 2 (CONTINUED)					
5	TOP	1	32.7	234.	11.6	76.	198.3	0.0
		2	3.8	20.	33.3	208.	55.6	0.0
		3	1.1	4.	5.3	14.	25.7	0.0
		4	34.2	241.	23.1	143.	222.7	0.0
		5	13.9	92.	38.3	235.	122.8	0.0
		6	12.1	81.	18.7	99.	101.8	0.0
6	TOP	1	32.7	234.	11.6	76.	160.5	0.0
		2	3.8	20.	33.3	208.	56.2	0.0
		3	1.1	4.	5.3	14.	18.5	0.0
		4	34.2	241.	23.1	143.	182.9	0.0
		5	13.9	92.	38.3	235.	109.9	0.0
		6	12.1	81.	18.7	99.	83.5	0.0
7	TOP	1	32.7	234.	11.6	76.	17.3	0.0
		2	3.8	20.	33.3	208.	165.1	0.0
		3	1.1	4.	5.3	14.	30.5	0.0
		4	34.2	241.	23.1	143.	76.0	0.0
		5	13.9	92.	38.3	235.	179.5	0.0
		6	12.1	81.	18.7	99.	85.2	0.0
8	TOP	1	32.7	234.	11.6	76.	43.7	0.0
		2	3.8	20.	33.3	208.	58.3	0.0
		3	1.1	4.	5.3	14.	23.2	0.0
		4	34.2	241.	23.1	143.	68.1	0.0
		5	13.9	92.	38.3	235.	78.4	0.0
		6	12.1	81.	18.7	99.	53.8	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

□

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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL.....	TRANSVRSE.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	2	-	COL 2 (CONTINUED)					
9	TOP	1	32.7	234.	11.6	76.	81.4	0.0
		2	3.8	20.	33.3	208.	49.8	0.0
		3	1.1	4.	5.3	14.	16.0	0.0
		4	34.2	241.	23.1	143.	101.1	0.0
		5	13.9	92.	38.3	235.	79.0	0.0
		6	12.1	81.	18.7	99.	55.3	0.0
10	TOP	1	32.7	234.	11.6	76.	127.3	0.0
		2	3.8	20.	33.3	208.	168.1	0.0
		3	1.1	4.	5.3	14.	29.4	0.0
		4	34.2	241.	23.1	143.	186.6	0.0
		5	13.9	92.	38.3	235.	215.1	0.0
		6	12.1	81.	18.7	99.	118.0	0.0
11	TOP	1	32.7	234.	11.6	76.	164.2	0.0
		2	3.8	20.	33.3	208.	62.3	0.0
		3	1.1	4.	5.3	14.	22.2	0.0
		4	34.2	241.	23.1	143.	189.6	0.0
		5	13.9	92.	38.3	235.	118.2	0.0
		6	12.1	81.	18.7	99.	90.2	0.0
12	TOP	1	32.7	234.	11.6	76.	202.0	0.0
		2	3.8	20.	33.3	208.	49.8	0.0
		3	1.1	4.	5.3	14.	15.1	0.0
		4	34.2	241.	23.1	143.	221.5	0.0
		5	13.9	92.	38.3	235.	114.9	0.0
		6	12.1	81.	18.7	99.	90.6	0.0

*** LOAD CASE/COMB

DESCRIPTION

1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB -----

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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL.....	TRANSVRSE.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	3	-	COL	1				
1	TOP	1	32.9	236.	8.1	52.	72.3	0.0
		2	4.4	22.	51.1	320.	86.9	0.0
		3	0.0	0.	3.9	12.	13.8	0.0
		4	34.2	243.	24.6	152.	102.5	0.0
		5	14.3	93.	54.7	339.	112.7	0.0
		6	11.2	78.	21.7	124.	61.6	0.0
2	TOP	1	32.9	236.	8.1	52.	51.1	0.0
		2	4.4	22.	51.1	320.	79.5	0.0
		3	0.0	0.	3.9	12.	20.0	0.0
		4	34.2	243.	24.6	152.	80.9	0.0
		5	14.3	93.	54.7	339.	100.8	0.0
		6	11.2	78.	21.7	124.	59.2	0.0
3	TOP	1	32.9	236.	8.1	52.	38.0	0.0
		2	4.4	22.	51.1	320.	244.2	0.0
		3	0.0	0.	3.9	12.	26.2	0.0
		4	34.2	243.	24.6	152.	119.2	0.0
		5	14.3	93.	54.7	339.	263.5	0.0
		6	11.2	78.	21.7	124.	110.9	0.0
4	TOP	1	32.9	236.	8.1	52.	194.1	0.0
		2	4.4	22.	51.1	320.	83.1	0.0
		3	0.0	0.	3.9	12.	13.8	0.0
		4	34.2	243.	24.6	152.	223.1	0.0
		5	14.3	93.	54.7	339.	145.5	0.0
		6	11.2	78.	21.7	124.	97.0	0.0

*** LOAD CASE/COMB

DESCRIPTION

1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL.....	TRANSVRSE.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	3	-	(CONTINUED)					
	5 TOP	1	32.9	236.	8.1	52.	172.7	0.0
		2	4.4	22.	51.1	320.	85.8	0.0
		3	0.0	0.	3.9	12.	20.0	0.0
		4	34.2	243.	24.6	152.	204.5	0.0
		5	14.3	93.	54.7	339.	143.6	0.0
		6	11.2	78.	21.7	124.	97.6	0.0
	6 TOP	1	32.9	236.	8.1	52.	153.2	0.0
		2	4.4	22.	51.1	320.	249.7	0.0
		3	0.0	0.	3.9	12.	26.3	0.0
		4	34.2	243.	24.6	152.	236.0	0.0
		5	14.3	93.	54.7	339.	303.6	0.0
		6	11.2	78.	21.7	124.	147.1	0.0
	7 TOP	1	32.9	236.	8.1	52.	51.1	0.0
		2	4.4	22.	51.1	320.	91.9	0.0
		3	0.0	0.	3.9	12.	13.8	0.0
		4	34.2	243.	24.6	152.	82.8	0.0
		5	14.3	93.	54.7	339.	111.4	0.0
		6	11.2	78.	21.7	124.	56.7	0.0
	8 TOP	1	32.9	236.	8.1	52.	72.0	0.0
		2	4.4	22.	51.1	320.	74.5	0.0
		3	0.0	0.	3.9	12.	20.0	0.0
		4	34.2	243.	24.6	152.	100.4	0.0
		5	14.3	93.	54.7	339.	102.1	0.0
		6	11.2	78.	21.7	124.	64.0	0.0

*** LOAD CASE/COMB

DESCRIPTION

1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL.....	TRANSVRSE.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	3	-	COL	1	(CONTINUED)			
9	TOP	1	32.9	236.	8.1	52.	96.0	0.0
		2	4.4	22.	51.1	320.	239.2	0.0
		3	0.0	0.	3.9	12.	26.2	0.0
		4	34.2	243.	24.6	152.	175.6	0.0
		5	14.3	93.	54.7	339.	275.9	0.0
		6	11.2	78.	21.7	124.	126.8	0.0
10	TOP	1	32.9	236.	8.1	52.	172.6	0.0
		2	4.4	22.	51.1	320.	98.1	0.0
		3	0.0	0.	3.9	12.	13.8	0.0
		4	34.2	243.	24.6	152.	206.2	0.0
		5	14.3	93.	54.7	339.	154.0	0.0
		6	11.2	78.	21.7	124.	95.0	0.0
11	TOP	1	32.9	236.	8.1	52.	193.8	0.0
		2	4.4	22.	51.1	320.	71.0	0.0
		3	0.0	0.	3.9	12.	20.0	0.0
		4	34.2	243.	24.6	152.	221.1	0.0
		5	14.3	93.	54.7	339.	135.2	0.0
		6	11.2	78.	21.7	124.	99.5	0.0
12	TOP	1	32.9	236.	8.1	52.	216.3	0.0
		2	4.4	22.	51.1	320.	234.6	0.0
		3	0.0	0.	3.9	12.	26.2	0.0
		4	34.2	243.	24.6	152.	294.6	0.0
		5	14.3	93.	54.7	339.	307.4	0.0
		6	11.2	78.	21.7	124.	161.5	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL....	TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	3	-	COL	2				
1	TOP	1	32.9	236.	8.1	52.	96.0	0.0
		2	4.4	22.	51.2	320.	239.6	0.0
		3	0.0	0.	3.9	12.	26.2	0.0
		4	34.3	243.	24.6	152.	175.8	0.0
		5	14.3	93.	54.8	339.	276.3	0.0
		6	11.2	78.	21.7	124.	126.9	0.0
2	TOP	1	32.9	236.	8.1	52.	72.0	0.0
		2	4.4	22.	51.2	320.	74.8	0.0
		3	0.0	0.	3.9	12.	20.0	0.0
		4	34.3	243.	24.6	152.	100.5	0.0
		5	14.3	93.	54.8	339.	102.4	0.0
		6	11.2	78.	21.7	124.	64.0	0.0
3	TOP	1	32.9	236.	8.1	52.	51.1	0.0
		2	4.4	22.	51.2	320.	91.7	0.0
		3	0.0	0.	3.9	12.	13.8	0.0
		4	34.3	243.	24.6	152.	82.8	0.0
		5	14.3	93.	54.8	339.	111.2	0.0
		6	11.2	78.	21.7	124.	56.7	0.0
4	TOP	1	32.9	236.	8.1	52.	216.3	0.0
		2	4.4	22.	51.2	320.	235.0	0.0
		3	0.0	0.	3.9	12.	26.2	0.0
		4	34.3	243.	24.6	152.	294.7	0.0
		5	14.3	93.	54.8	339.	307.8	0.0
		6	11.2	78.	21.7	124.	161.6	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL.....	TRANSVRSE.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	3	-	COL	2	(CONTINUED)			
5	TOP	1	32.9	236.	8.1	52.	193.8	0.0
		2	4.4	22.	51.2	320.	71.3	0.0
		3	0.0	0.	3.9	12.	20.0	0.0
		4	34.3	243.	24.6	152.	221.2	0.0
		5	14.3	93.	54.8	339.	135.5	0.0
		6	11.2	78.	21.7	124.	99.6	0.0
6	TOP	1	32.9	236.	8.1	52.	172.6	0.0
		2	4.4	22.	51.2	320.	97.9	0.0
		3	0.0	0.	3.9	12.	13.8	0.0
		4	34.3	243.	24.6	152.	206.1	0.0
		5	14.3	93.	54.8	339.	153.8	0.0
		6	11.2	78.	21.7	124.	95.0	0.0
7	TOP	1	32.9	236.	8.1	52.	38.1	0.0
		2	4.4	22.	51.2	320.	244.7	0.0
		3	0.0	0.	3.9	12.	26.2	0.0
		4	34.3	243.	24.6	152.	119.3	0.0
		5	14.3	93.	54.8	339.	263.9	0.0
		6	11.2	78.	21.7	124.	111.0	0.0
8	TOP	1	32.9	236.	8.1	52.	51.1	0.0
		2	4.4	22.	51.2	320.	79.8	0.0
		3	0.0	0.	3.9	12.	20.0	0.0
		4	34.3	243.	24.6	152.	81.0	0.0
		5	14.3	93.	54.8	339.	101.1	0.0
		6	11.2	78.	21.7	124.	59.3	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL.....	TRANSVRSE.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	3	-	COL 2 (CONTINUED)					
9	TOP	1	32.9	236.	8.1	52.	72.3	0.0
		2	4.4	22.	51.2	320.	86.6	0.0
		3	0.0	0.	3.9	12.	13.8	0.0
		4	34.3	243.	24.6	152.	102.5	0.0
		5	14.3	93.	54.8	339.	112.5	0.0
		6	11.2	78.	21.7	124.	61.5	0.0
10	TOP	1	32.9	236.	8.1	52.	153.2	0.0
		2	4.4	22.	51.2	320.	250.2	0.0
		3	0.0	0.	3.9	12.	26.2	0.0
		4	34.3	243.	24.6	152.	236.1	0.0
		5	14.3	93.	54.8	339.	304.0	0.0
		6	11.2	78.	21.7	124.	147.2	0.0
11	TOP	1	32.9	236.	8.1	52.	172.7	0.0
		2	4.4	22.	51.2	320.	86.1	0.0
		3	0.0	0.	3.9	12.	20.0	0.0
		4	34.3	243.	24.6	152.	204.6	0.0
		5	14.3	93.	54.8	339.	143.9	0.0
		6	11.2	78.	21.7	124.	97.6	0.0
12	TOP	1	32.9	236.	8.1	52.	194.1	0.0
		2	4.4	22.	51.2	320.	82.9	0.0
		3	0.0	0.	3.9	12.	13.8	0.0
		4	34.3	243.	24.6	152.	223.1	0.0
		5	14.3	93.	54.8	339.	145.3	0.0
		6	11.2	78.	21.7	124.	96.9	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL....	TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	4	-	COL	1				
1	TOP	1	32.7	234.	11.6	76.	82.4	0.0
		2	3.8	20.	33.3	207.	47.5	0.0
		3	1.1	4.	5.4	14.	15.9	0.0
		4	34.1	241.	23.2	143.	101.4	0.0
		5	13.9	92.	38.4	234.	77.0	0.0
		6	12.0	81.	18.9	99.	54.9	0.0
2	TOP	1	32.7	234.	11.6	76.	44.7	0.0
		2	3.8	20.	33.3	207.	60.5	0.0
		3	1.1	4.	5.4	14.	23.2	0.0
		4	34.1	241.	23.2	143.	69.8	0.0
		5	13.9	92.	38.4	234.	80.9	0.0
		6	12.0	81.	18.9	99.	54.7	0.0
3	TOP	1	32.7	234.	11.6	76.	17.8	0.0
		2	3.8	20.	33.3	207.	167.3	0.0
		3	1.1	4.	5.4	14.	30.4	0.0
		4	34.1	241.	23.2	143.	77.1	0.0
		5	13.9	92.	38.4	234.	181.8	0.0
		6	12.0	81.	18.9	99.	86.0	0.0
4	TOP	1	32.7	234.	11.6	76.	203.0	0.0
		2	3.8	20.	33.3	207.	47.7	0.0
		3	1.1	4.	5.4	14.	15.1	0.0
		4	34.1	241.	23.2	143.	221.9	0.0
		5	13.9	92.	38.4	234.	113.1	0.0
		6	12.0	81.	18.9	99.	90.3	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB -----

(Version 5.0.7)

21-AUG-06

Imbsen and Associates, Inc.

(hwy 135 overpass) liq2.ssb fixed int bents at foundation

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	....LNGITUDNL....		.....TRANSV.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	4	-	COR 1 (CONTINUED)					
5	TOP	1	3.8	234.	11.6	76.	165.2	0.0
		2	1.1	20.	33.3	207.	64.4	0.0
		3	1.1	4.	5.4	14.	22.2	0.0
		4	34.1	241.	23.2	143.	191.1	0.0
		5	13.9	92.	38.4	234.	120.6	0.0
		6	12.0	81.	18.9	99.	91.1	0.0
6	TOP	1	32.7	234.	11.6	76.	128.2	0.0
		2	3.8	20.	33.3	207.	170.1	0.0
		3	1.1	4.	5.4	14.	29.4	0.0
		4	34.1	241.	23.2	143.	188.1	0.0
		5	13.9	92.	38.4	234.	217.4	0.0
		6	12.0	81.	18.9	99.	118.9	0.0
7	TOP	1	32.7	234.	11.6	76.	38.9	0.0
		2	3.8	20.	33.3	207.	49.6	0.0
		3	1.1	4.	5.4	14.	17.1	0.0
		4	34.1	241.	23.2	143.	58.9	0.0
		5	13.9	92.	38.4	234.	66.4	0.0
		6	12.0	81.	18.9	99.	43.6	0.0
8	TOP	1	32.7	234.	11.6	76.	76.7	0.0
		2	3.8	20.	33.3	207.	58.3	0.0
		3	1.1	4.	5.4	14.	24.3	0.0
		4	34.1	241.	23.2	143.	101.5	0.0
		5	13.9	92.	38.4	234.	88.6	0.0
		6	12.0	81.	18.9	99.	64.8	0.0

*** LOAD CASE/COMB

DESCRIPTION

1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) liq2.ssb fixed int bents at foundation

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	.....LNGITUDNL.....		.....TRANSVRSE.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	4	-	COL 1 (CONTINUED)					
9	TOP	1	32.7	234.	11.6	76.	115.6	0.0
		2	3.8	20.	33.3	207.	165.1	0.0
		3	1.1	4.	5.4	14.	31.6	0.0
		4	34.1	241.	23.2	143.	174.6	0.0
		5	13.9	92.	38.4	234.	209.3	0.0
		6	12.0	81.	18.9	99.	115.8	0.0
10	TOP	1	32.7	234.	11.6	76.	159.4	0.0
		2	3.8	20.	33.3	207.	53.6	0.0
		3	1.1	4.	5.4	14.	18.4	0.0
		4	34.1	241.	23.2	143.	181.1	0.0
		5	13.9	92.	38.4	234.	107.0	0.0
		6	12.0	81.	18.9	99.	82.3	0.0
11	TOP	1	32.7	234.	11.6	76.	197.4	0.0
		2	3.8	20.	33.3	207.	58.0	0.0
		3	1.1	4.	5.4	14.	25.5	0.0
		4	34.1	241.	23.2	143.	222.4	0.0
		5	13.9	92.	38.4	234.	124.8	0.0
		6	12.0	81.	18.9	99.	102.1	0.0
12	TOP	1	32.7	234.	11.6	76.	235.8	0.0
		2	3.8	20.	33.3	207.	163.6	0.0
		3	1.1	4.	5.4	14.	32.8	0.0
		4	34.1	241.	23.2	143.	294.7	0.0
		5	13.9	92.	38.4	234.	244.2	0.0
		6	12.0	81.	18.9	99.	152.6	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
 Imbsen and Associates, Inc.

(hwy 135 overpass) liq2.ssb fixed int bents at foundation

RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LC	.....LNGITUDNL.....		.....TRANSVRSE.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	4	-	COL	2				
1	TOP	1	32.7	234.	11.8	77.	117.8	0.0
		2	3.8	20.	33.1	207.	163.6	0.0
		3	1.1	4.	5.4	15.	30.3	0.0
		4	34.2	241.	23.4	144.	176.0	0.0
		5	13.9	92.	38.2	234.	208.0	0.0
		6	12.1	81.	18.9	100.	114.8	0.0
2	TOP	1	32.7	234.	11.8	77.	78.4	0.0
		2	3.8	20.	33.1	207.	57.2	0.0
		3	1.1	4.	5.4	15.	22.9	0.0
		4	34.2	241.	23.4	144.	102.4	0.0
		5	13.9	92.	38.2	234.	87.6	0.0
		6	12.1	81.	18.9	100.	63.5	0.0
3	TOP	1	32.7	234.	11.8	77.	40.0	0.0
		2	3.8	20.	33.1	207.	50.5	0.0
		3	1.1	4.	5.4	15.	15.4	0.0
		4	34.2	241.	23.4	144.	59.8	0.0
		5	13.9	92.	38.2	234.	67.1	0.0
		6	12.1	81.	18.9	100.	42.5	0.0
4	TOP	1	32.7	234.	11.8	77.	237.9	0.0
		2	3.8	20.	33.1	207.	162.1	0.0
		3	1.1	4.	5.4	15.	29.4	0.0
		4	34.2	241.	23.4	144.	295.4	0.0
		5	13.9	92.	38.2	234.	242.3	0.0
		6	12.1	81.	18.9	100.	149.4	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL....	TRANSVRSE....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		
BNT	4	-	COL 2 (CONTINUED)					
5	TOP	1	32.7	234.	11.8	77.	199.0	0.0
		2	3.8	20.	33.1	207.	57.0	0.0
		3	1.1	4.	5.4	15.	21.9	0.0
		4	34.2	241.	23.4	144.	222.7	0.0
		5	13.9	92.	38.2	234.	123.2	0.0
		6	12.1	81.	18.9	100.	98.7	0.0
6	TOP	1	32.7	234.	11.8	77.	160.6	0.0
		2	3.8	20.	33.1	207.	54.6	0.0
		3	1.1	4.	5.4	15.	14.5	0.0
		4	34.2	241.	23.4	144.	181.3	0.0
		5	13.9	92.	38.2	234.	107.1	0.0
		6	12.1	81.	18.9	100.	79.1	0.0
7	TOP	1	32.7	234.	11.8	77.	17.6	0.0
		2	3.8	20.	33.1	207.	165.7	0.0
		3	1.1	4.	5.4	15.	31.4	0.0
		4	34.2	241.	23.4	144.	76.8	0.0
		5	13.9	92.	38.2	234.	180.4	0.0
		6	12.1	81.	18.9	100.	86.4	0.0
8	TOP	1	32.7	234.	11.8	77.	43.1	0.0
		2	3.8	20.	33.1	207.	59.3	0.0
		3	1.1	4.	5.4	15.	23.9	0.0
		4	34.2	241.	23.4	144.	68.1	0.0
		5	13.9	92.	38.2	234.	79.5	0.0
		6	12.1	81.	18.9	100.	54.7	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

----- WinSEISAB ----- (Version 5.0.7) 21-AUG-06
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RESPONSE SPECTRUM RESULTS

BENT PILE CQC FORCES (CONTINUED)

PL	LOC	LCLNGITUDNL.....	TRANSVRSE.....		AXIAL	TORSION
			SHEAR	MOMENT	SHEAR	MOMENT		

			COL 2 (CONTINUED)					
BNT 4	9 TOP	1	32.7	234.	11.8	77.	81.2	0.0
		2	3.8	20.	33.1	207.	48.3	0.0
		3	1.1	4.	5.4	15.	16.5	0.0
		4	34.2	241.	23.4	144.	100.7	0.0
		5	13.9	92.	38.2	234.	77.7	0.0
		6	12.1	81.	18.9	100.	55.4	0.0
10	TOP	1	32.7	234.	11.8	77.	126.2	0.0
		2	3.8	20.	33.1	207.	168.5	0.0
		3	1.1	4.	5.4	15.	32.6	0.0
		4	34.2	241.	23.4	144.	186.5	0.0
		5	13.9	92.	38.2	234.	216.1	0.0
		6	12.1	81.	18.9	100.	121.0	0.0
11	TOP	1	32.7	234.	11.8	77.	163.6	0.0
		2	3.8	20.	33.1	207.	63.2	0.0
		3	1.1	4.	5.4	15.	25.2	0.0
		4	34.2	241.	23.4	144.	190.1	0.0
		5	13.9	92.	38.2	234.	119.8	0.0
		6	12.1	81.	18.9	100.	93.2	0.0
12	TOP	1	32.7	234.	11.8	77.	201.9	0.0
		2	3.8	20.	33.1	207.	48.4	0.0
		3	1.1	4.	5.4	15.	17.8	0.0
		4	34.2	241.	23.4	144.	221.8	0.0
		5	13.9	92.	38.2	234.	114.4	0.0
		6	12.1	81.	18.9	100.	92.9	0.0

*** LOAD CASE/COMB	DESCRIPTION
1	Longitudinal
2	Transverse
3	Vertical
4	1.0*L + 0.3*T + 0.3V
5	0.3*L + 1.0*T + 0.3V
6	0.3*L + 0.3*T + 1.0V

