

BSC

Design Calculation or Analysis Cover Sheet

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Complete only applicable items.

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8. Notes/Comments

CR 11902 had pointed out several editorial mistakes in Rev. 00A of this calculation. The purpose of this revision is to correct those mistakes and make other editorial changes, where appropriate.

Rev. B also incorporates CACN 001 to Calculation 060-SYC-CR00-00800-000-00A. It was found to have no impact on the results.

As Rev. B consists only of minor changes and the CACN 001 has demonstrated no impact on the final results, results and conclusions of Rev. 00A remain valid.

Attachments	Total Number of Pages
See Calculation Section 5	52

RECORD OF REVISIONS

9. No.	10. Reason For Revision	11. Total # of Pgs.	12. Last Pg. #	13. Originator (Print/Sign/Date)	14. Checker (Print/Sign/Date)	15. EGS (Print/Sign/Date)	16. Approved/Accepted (Print/Sign/Date)
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00B	Editorial changes to resolve CR 11902 and other changes on pages 3-6, 8-14, 51, 55, and B-30. Corrected the calculation number on Attachment Q and the source of the figure on Page Q-1. Incorporated CACN 001 on Rev. A on Page 61. Updated existing design inputs to their current revisions. Added Ref. 2.2.12	113	B-30	Surendra Goel <i>Surendra Goel</i> 5/29/08	<i>T. FRANKERT FOR Jacquelyn Henderson</i> <i>Thomas Frankert</i> 5/29/08	Thomas Frankert <i>Thomas Frankert</i> 5/29/08	Raj Rajagopal <i>Raj Rajagopal</i> 6/16/08

DISCLAIMER

The calculations contained in this document were developed by Bechtel SAIC Company, LLC (BSC) and are intended solely for use by BSC in its work for the Yucca Mountain Project.

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ACRONYMS AND ABBREVIATIONS

3D	Three-Dimensional
BDBGM	Beyond Design Basis Ground Motion
c.g.	center of gravity
CRCF	Canister Receipt and Closure Facility
DBGM-2	Design Basis Ground Motion 2
DL	Dead Load
FE	Finite Element
FEM	Finite Element Model
IBC	International Building Code
ITS	Important To Safety
LL	Live Load
SRSS	Square Root of Sum of Squares
SSCs	Structures, Systems, and Components
SSI	Soil–Structure Interaction
YMP	Yucca Mountain Project

1. PURPOSE

The purpose of this calculation is to perform response spectra analyses of the Canister Receipt and Closure Facility (CRCF). The analyses were performed using the 2007 revised soil properties and free field ground input spectra along with the SAP2000 stick model that was developed in calculation 060-SYC-CR00-00400-000-00A (Ref. 2.2.8). The basis of design of the CRCF is defined in 000-3DR-MGR0-00300-000-002, *Basis of Design for the TAD Canister-Based Repository Design Concept* (Ref.2.2.5).

Results from the response spectra analyses will yield shear wall seismic demand forces and In-structure accelerations. These results will be compared to the CRCF seismic analysis based on the 2004 soil and input spectra to validate the existing CRCF design calculations for the revised seismic analysis. This comparison will be the subject of a subsequent calculation.

2. REFERENCES

2.1 PROCEDURES/DIRECTIVES

- 2.1.1 EG-PRO-3DP-G04B-00037, Rev.012, *Calculations and Analyses*. Las Vegas, Nevada: Bechtel SAIC Company. ACC: ENG.20080519.0005.
- 2.1.2 IT-PRO-0011 Rev.009, *Software Management*. Las Vegas, Nevada: Bechtel SAIC Company. ACC: DOC.20080416.0010
- 2.1.3 Not Used.
- 2.1.4 IT-PRO-0012 Rev.006, *Qualification of Software*. Las Vegas, Nevada: Bechtel SAIC Company. ACC: DOC.20080416.0011

2.2 DESIGN INPUTS

- 2.2.1 ASCE 4-98. 2000. *Seismic Analysis of Safety-Related Nuclear Structures and Commentary*. Reston, Virginia: American Society of Civil Engineers. TIC: 253158. [ISBN # 0-7844-0433-X].
- 2.2.2 BSC (Bechtel SAIC Company) 2007. *Project Design Criteria Document*. 000-3DR-MGR0-00100-000 REV 007. Las Vegas, Nevada: Bechtel SAIC Company. ACC: ENG.20071016.0005.
- 2.2.3 SAP2000 V. 9.1.4. 2005. WINDOWS 2000. STN: 11198-9.1.4-00. [DIRS 178238].

- 2.2.4 BSC (Bechtel SAIC Company) 2007. *Seismic Analysis and Design Approach Document*. 000-30R-MGR0-02000-000-001. Las Vegas, Nevada: Bechtel SAIC Company. ACC: ENG.20071220.0029
- 2.2.5 BSC (Bechtel SAIC Company) 2008. *Basis of Design for the TAD Canister-Based Repository Design Concept*. 000-3DR-MGR0-00300-000-002. Las Vegas, Nevada: Bechtel SAIC Company. ACC: ENG. 20080229.0007.
- 2.2.6 BSC (Bechtel SAIC Company) 2006. *Canister Receipt and Closure Facility (CRCF) Mass Properties*. 060-SYC-CR00-00200-000-00A. Las Vegas, Nevada: Bechtel SAIC Company. ACC: ENG. 20061120.0019
- 2.2.7 BSC (Bechtel SAIC Company) 2008. *CRCF Soil Springs – 2007 Strain Compatible Soil Properties*. 060-SYC-CR00-00700-000-00C. Las Vegas, Nevada: Bechtel SAIC Company. ACC: ENG. 20080229.0002.
- 2.2.8 BSC (Bechtel SAIC Company) 2006. *Canister Receipt and Closure Facility (CRCF) Seismic Analysis*. 060-SYC-CR00-00400-000-00A. Las Vegas, Nevada: Bechtel SAIC Company. ACC: ENG. 20061220.0029.
- 2.2.9 MO0706DSDR5E4A.001. *Seismic Design Spectra for the Surface Facilities Area at 5E-4 APE for Multiple Dampings*. Submittal date: 6/14/2007. [DIRS 181422]
- 2.2.10 MO0706DSDR1E4A.001. *Seismic Design Spectra for the Surface Facilities Area at 1E-4 APE for Multiple Dampings*. Submittal date: 6/14/2007. [DIRS 181421]
- 2.2.11 ICC (International Code Council) 2003. *International Building Code 2000 with Errata to the 2000 International Building Code*. Falls Church, Virginia: International Code Council. TIC: 251054; 257198. [ISBN # 1-892395-25-8]
- 2.2.12 DOE (U.S. Department of Energy) 2005. *Software Validation Report for SAP2000 Version 9.1.4*. Document ID: 11198-SVR-9.1.4-00-Win2000. Las Vegas, Nevada: U.S. Department of Energy, Office of Repository Development. ACC: MOL.20051012.0425 [DIRS 176790].

2.3 DESIGN CONSTRAINTS

None

2.4 DESIGN OUTPUTS

Results from this calculation will be used in a calculation comparing the results of this calculation to the results of the CRCF seismic calculation made using the 2004 soil properties and ground input spectra.

3. ASSUMPTIONS

3.1 ASSUMPTIONS REQUIRING VERIFICATION

None

3.2 ASSUMPTIONS NOT REQUIRING VERIFICATION

None

4. METHODOLOGY

4.1 QUALITY ASSURANCE

This calculation was prepared in accordance with EG-PRO-3DP-G04B-00037, *Calculations and Analyses* (Ref. 2.1.1). Section 4.1.2 of the *Basis of Design for the TAD Canister-Based Repository Design Concept* (Ref. 2.2.5) classifies the CRCF structure as important to safety (ITS). Therefore, the approved record version of this calculation is designated as “QA: QA.”

4.2 USE OF SOFTWARE

Excel 2000 and Word 2000, which are part of the Microsoft Office 2000 suite of programs, were used in this calculation. Microsoft Office 2000 as used in this calculation is classified as Level 2 software usage, as defined in IT-PRO-0011 (Ref. 2.1.2). Microsoft Office 2000 is listed on the *Globally Registered Controlled Software for Level 2 Usage* report.

SAP2000 version 9.1.4 (Ref. 2.2.3), as used in this calculation, is classified as Level 1 software usage, as defined in IT-PRO-0011, *Software Management* (Ref. 2.1.2). This software is a commercially available computer program qualified in accordance with IT-PRO-0012, *Qualification of Software* (Ref. 2.1.4) to perform static and dynamic analyses of structural systems. This software is listed in the *Qualified and Controlled Software Report* with Software Tracking Number 11198-9.1.4-00. The *Software Validation Report for SAP2000* is given in Document ID 11198-SVR-9.1.4-00-Win2000 (Ref. 2.2.12).

The software was executed on a PC system running Microsoft Windows 2000 operating system. Excel 2000 was used to extract the SAP2000 stick model input and output data for use in this calculation. The results were verified by visual inspection and comparisons of SAP2000 output files.

The inputs are included in Attachments B and C. The outputs are included in Attachments D through O.

4.3 ANALYSIS METHOD

The analysis method consists of the following steps:

- Copy the SAP2000 stick model from Calculation 060-SYC-CR00-00400-000-00A, *Canister Receipt and Closure Facility (CRCF) Seismic Analysis* (Ref. 2.2.8). Attachment A includes floor plans and wall elevations that show the location of the stick model elements. Lumped masses that are used in the SAP2000 stick model were computed in Calculation 060-SYC-CR00-00200-000-00A, *Canister Receipt and Closure Facility (CRCF) Mass Properties* (Ref. 2.2.6).
- Change the boundary conditions of the basemat in the SAP2000 stick model to include the frequency independent soil springs that were computed in Calculation 060-SYC-CR00-00700-000-00C (Ref. 2.2.7).
- Perform modal analyses for 100' and 200' alluvium depths for lower bound, upper bound, and median soil conditions.
- Develop hybrid response spectra to reflect the following:
 - DBGM-2: 20% damping for SSI modes and 7% damping for all other modes.
 - BDBGM: 20% damping for SSI modes and 10% damping for all other modes.
- Perform response spectra analyses for the following cases:
 - DBGM-2: Lower Bound Soil Conditions for 100' and 200' alluvium
 - DBGM-2: Median Soil Conditions for 100' and 200' alluvium
 - DBGM-2: Upper Bound Soil Conditions for 100' and 200' alluvium
 - BDBGM: Lower Bound Soil Conditions for 100' and 200' alluvium
 - BDBGM: Median Soil Conditions for 100' and 200' alluvium
 - BDBGM: Upper Bound Soil Conditions for 100' and 200' alluvium

The seismic design basis (DBGM-2 and BDBGM) in terms of annual probability of exceedance for ITS structures, systems and components (SSCs) are specified in Table 5-1 of *Seismic Analysis and Design Approach Document* (Ref. 2.2.4)

5. LIST OF ATTACHMENTS

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Attachment A Floor Plan and Wall Elevations	22

Attachment B	SAP2000 Stick Model Input	30
Attachment C	SAP2000 Database Files	CD
Attachment D	DBGM-2 100 Upper Bound Results: Contains results of DBGM-2 Upper Bound 100' Alluvium Modal Analysis and Response Spectrum Analysis	CD
Attachment E	DBGM-2 100 Median Results: Contains results of DBGM-2 Median 100' Alluvium Modal Analysis and Response Spectrum Analysis	CD
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Attachment G	DBGM-2 200 Upper Bound Results: Contains results of DBGM-2 Upper Bound 200' Alluvium Modal Analysis and Response Spectrum Analysis	CD
Attachment H	DBGM-2 200 Median Results: Contains results of DBGM-2 Median 200' Alluvium Modal Analysis and Response Spectrum Analysis	CD
Attachment I	DBGM-2 200 Lower Bound Results: Contains results of DBGM-2 Lower Bound 200' Alluvium Modal Analysis and Response Spectrum Analysis	CD
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Attachment O	BDBGM 200 Lower Bound Results: Contains results of BDBGM Lower Bound 200' Alluvium Modal Analysis and Response Spectrum Analysis	CD
Attachment P	DBGM-2 and BDBGM Base Shears: Contains Base Shear Calculation for DBGM-2 and BDBGM Input Ground Motions	CD
Attachment Q	IBC Base Shear Calculation	CD

6. BODY OF CALCULATION

6.1 SEISMIC MODELING AND ANALYSIS

The SAP2000 stick model, generated in Calculation 060-SYC-CR00-00400-000-00A (Ref. 2.2.8), was utilized for this analysis. The mass of each floor was lumped at a dedicated node that was located at the coordinates of the center of mass of the floor. The lumped mass at each floor level and the corresponding center of mass were taken from Calculation 060-SYC-CR00-00200-000-00A, *Canister Receipt and Closure Facility (CRCF) Mass Properties* (Ref. 2.2.6). Rigid body constraints were used to constrain all nodes located on a diaphragm/slab. Attachment A shows the wall elevations with the SAP2000 beam elements and joints labeled for the CRCF.

Soil-structure interaction is considered using frequency independent soil springs with six degrees of freedom. The springs were placed at the center of mass (node 98 of the SAP2000 stick model) of the basemat. The spring properties calculated for 5×10^{-4} and 1×10^{-4} annual probability of exceedance seismic events were used to analyze DBGGM-2 and BDBGGM ground motions. Six sets of springs were calculated to define lower bound, median, and upper bound stiffness values for 100' and 200' depths of alluvium for each seismic event. These bounding calculations were computed in Calculation 060-SYC-CR00-00700-000-00C, *CRCF Soil Springs – 2007 Strain Compatible Soil Properties* (Ref 2.2.7).

In this section the SAP2000 stick model will be utilized to perform the following analyses:

- Modal analysis utilizing the upper bound, median, and lower bound soil cases for 100' and 200' alluvium depths for the Design Basis Ground Motion (DBGGM-2) case.
- Modal analysis utilizing the upper bound, median, and lower bound soil cases for 100' and 200' alluvium depths for the Beyond Design Basis Ground Motion (BDBGGM) case.
- Response spectra analyses for the DBGGM-2 cases utilizing results from the DBGGM-2 modal analysis. Analyses will utilize the 10 percent method (Ref. 2.2.1, Section 3.2.7.1.1.c) for combining modal responses and the square root of the sum of the squares (SRSS) method for combining the North/South (referred to as HY), East/West (referred to as HX), and vertical (referred to as VZ) spectral cases.
- Response spectra analyses for the BDBGGM cases utilizing results from the BDBGGM modal analysis. Analyses will utilize the 10 percent method (Ref. 2.2.1, Section 3.2.7.1.1.c) for combining modal responses and the square root of the sum of the squares (SRSS) method for combining the North/South (referred to as HY), East/West (referred to as HX), and vertical (referred to as VZ) spectral cases.
- 1*g vertical case to determine the $1.0 \cdot DL + 0.25 \cdot LL$ case.

From the modal analysis results for the various soil spring cases described above, it is observed that the first three modes are SSI dominated modes with 95% or more of the mass participating in each of these modes. Refer to the modal analysis results summarized in Tables 1 through 12. Based on these results, damping values of 20% will be utilized for the first three

modes (SSI modes) and 7% damping will be used for the remaining modes in the response spectra analyses for DBGM-2. For the BDBGM response spectra analyses, damping values of 20% will be utilized for first three modes and 10% damping will be used for the remaining modes. A discussion on the use of 20% damping for the SSI modes is contained in Ref. 2.2.8.

SAP2000 only allows the input of a single damped response spectrum curve for a given response spectrum analysis case. To consider the effect of different damping values specific to each mode, a ‘hybrid’ spectrum is required for input into SAP2000. This ‘hybrid’ spectrum is developed by combining the 20% and 7% damped spectra as defined in Ref. 2.2.9 for DBGM-2 analyses. Likewise the 20% and 10% damped spectra as defined in Ref. 2.2.10 is used in developing the ‘hybrid’ spectrum for the BDBGM analysis. The ‘hybrid’ spectrum consists of the 20% spectral acceleration up to the frequency of the third mode and the 7% or 10% spectral acceleration at frequencies above the third mode. Since the third mode frequency varies for each of the soil conditions, a series of ‘hybrid’ spectra are developed for the various soil conditions. The hybrid spectra are shown in Figures 1 through 24.

The 20%, 10%, and 7% ground input spectra were taken from references 2.2.9 and 2.2.10.

Table 1- MODAL ANALYSIS RESULTS FOR DBGM-2 100' UPPER BOUND CONDITION

TABLE: Modal Periods And Frequencies						
OutputCase	StepType	StepNum	Period	Frequency	CircFreq	Eigenvalue
Text	Text	Unitless	Sec	Cyc/sec	rad/sec	rad2/sec2
MODAL	Mode	1	0.153523	6.5137	40.927	1675
MODAL	Mode	2	0.151712	6.5914	41.415	1715.2
MODAL	Mode	3	0.121003	8.2643	51.926	2696.3
MODAL	Mode	4	0.06373	15.691	98.591	9720.2
MODAL	Mode	5	0.0598	16.722	105.07	11040
MODAL	Mode	6	0.045479	21.988	138.16	19087
MODAL	Mode	7	0.039508	25.312	159.04	25293
MODAL	Mode	8	0.033988	29.422	184.86	34175
MODAL	Mode	9	0.028774	34.753	218.36	47682
MODAL	Mode	10	0.026831	37.27	234.18	54839
MODAL	Mode	11	0.025981	38.49	241.84	58486
MODAL	Mode	12	0.019582	51.069	320.87	102960

TABLE: Modal Participating Mass Ratios								
OutputCase	StepNum	Period	UX	UY	UZ	SumUX	SumUY	SumUZ
Text	Unitless	Sec	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
MODAL	1	0.153523	0.94547	0.00023	0.00002	0.94547	0.00023	0.000020
MODAL	2	0.151712	0.00024	0.94147	0.00001	0.9457	0.9417	0.000034
MODAL	3	0.121003	0.000028	0.000016	0.99783	0.94573	0.94172	0.99786
MODAL	4	0.06373	0.04633	0.000016	0.000014	0.99206	0.94173	0.99788
MODAL	5	0.0598	0.000007	0.05356	0.000005	0.99207	0.99529	0.99788
MODAL	6	0.045479	0.00606	0.000008	0.000001	0.99813	0.9953	0.99788
MODAL	7	0.039508	0.000009	0.00444	6.869E-09	0.99814	0.99974	0.99788
MODAL	8	0.033988	0.00184	0.000002	2.211E-08	0.99998	0.99974	0.99788
MODAL	9	0.028774	5.76E-08	0.00026	9.938E-08	0.99998	1	0.99788
MODAL	10	0.026831	0.000018	3.12E-09	0.0000124	1	1	0.9979
MODAL	11	0.025981	0.000003	2.6E-08	0.00183	1	1	0.99973
MODAL	12	0.019582	6.19E-08	5.69E-09	7.417E-08	1	1	0.99973

Source: Attachment D

Table 2- MODAL ANALYSIS RESULTS FOR DBGM-2 100' MEDIAN CONDITION

TABLE: Modal Periods And Frequencies

OutputCase	StepType	StepNum	Period	Frequency	CircFreq	Eigenvalue
Text	Text	Unitless	Sec	Cyc/sec	rad/sec	rad2/sec2
MODAL	Mode	1	0.195975	5.1027	32.061	1027.9
MODAL	Mode	2	0.193425	5.17	32.484	1055.2
MODAL	Mode	3	0.161881	6.1774	38.814	1506.5
MODAL	Mode	4	0.069047	14.483	90.998	8280.7
MODAL	Mode	5	0.06703	14.919	93.737	8786.7
MODAL	Mode	6	0.046094	21.695	136.31	18581
MODAL	Mode	7	0.040137	24.915	156.54	24506
MODAL	Mode	8	0.034265	29.184	183.37	33625
MODAL	Mode	9	0.028873	34.635	217.62	47357
MODAL	Mode	10	0.026837	37.262	234.12	54813
MODAL	Mode	11	0.026425	37.843	237.78	56538
MODAL	Mode	12	0.021045	47.518	298.56	89139

TABLE: Modal Participating Mass Ratios

OutputCase	StepNum	Period	UX	UY	UZ	SumUX	SumUY	SumUZ
Text	Unitless	Sec	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
MODAL	1	0.195975	0.97868	0.000066	0.000019	0.97868	0.00007	0.00002
MODAL	2	0.193425	0.000068	0.9744	0.000021	0.97874	0.97447	0.00004
MODAL	3	0.161881	0.000022	0.000023	0.99931	0.97877	0.97449	0.99935
MODAL	4	0.069047	0.01926	0.000053	0.0000074	0.99802	0.97454	0.99936
MODAL	5	0.06703	0.000034	0.02427	0.0000049	0.99806	0.99881	0.99936
MODAL	6	0.046094	0.00147	0.000003	2.138E-07	0.99953	0.99881	0.99936
MODAL	7	0.040137	0.0000041	0.00112	2.397E-09	0.99953	0.99993	0.99936
MODAL	8	0.034265	0.00046	8.94E-07	1.012E-07	0.99999	0.99993	0.99936
MODAL	9	0.028873	2.89E-08	0.000071	6.415E-08	0.99999	1	0.99936
MODAL	10	0.026837	0.000004	3.08E-09	0.0000100	1	1	0.99937
MODAL	11	0.026425	0.000003	1.74E-08	0.00053	1	1	0.99991
MODAL	12	0.021045	4.326E-08	1.68E-09	4.295E-08	1	1	0.99991

Source: Attachment E

Table 3 - MODAL ANALYSIS RESULTS FOR DBGM-2 100' LOWER BOUND CONDITION

TABLE: Modal Periods And Frequencies

OutputCase	StepType	StepNum	Period	Frequency	CircFreq	Eigenvalue
Text	Text	Unitless	Sec	Cyc/sec	rad/sec	rad2/sec2
MODAL	Mode	1	0.258812	3.8638	24.277	589.37
MODAL	Mode	2	0.25519	3.9187	24.622	606.22
MODAL	Mode	3	0.219373	4.5584	28.642	820.34
MODAL	Mode	4	0.076571	13.06	82.057	6733.4
MODAL	Mode	5	0.075763	13.199	82.932	6877.7
MODAL	Mode	6	0.046487	21.512	135.16	18269
MODAL	Mode	7	0.040838	24.487	153.86	23671
MODAL	Mode	8	0.034485	28.998	182.2	33197
MODAL	Mode	9	0.029071	34.398	216.13	46712
MODAL	Mode	10	0.026967	37.083	233	54288
MODAL	Mode	11	0.026829	37.273	234.19	54845
MODAL	Mode	12	0.023357	42.814	269.01	72364

TABLE: Modal Participating Mass Ratios

OutputCase	StepNum	Period	UX	UY	UZ	SumUX	SumUY	SumUZ
Text	Unitless	Sec	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
MODAL	1	0.258812	0.99145	0.00002	0.000017	0.99145	0.00002	0.00002
MODAL	2	0.25519	0.00002	0.98824	0.000027	0.99147	0.98826	0.00004
MODAL	3	0.219373	0.00002	0.00003	0.99976	0.99149	0.98829	0.99981
MODAL	4	0.076571	0.00025	0.01105	0.000002	0.99175	0.99934	0.99981
MODAL	5	0.075763	0.00778	0.00034	0.000007	0.99952	0.99968	0.99981
MODAL	6	0.046487	0.00036	0.000001	1.11E-07	0.99988	0.99968	0.99981
MODAL	7	0.040838	0.00000	0.0003	7.45E-10	0.99988	0.99998	0.99981
MODAL	8	0.034485	0.00011	6.11E-07	1.57E-07	1	0.99998	0.99981
MODAL	9	0.029071	2.63E-08	0.000022	4.12E-08	1	1	0.99981
MODAL	10	0.026967	0.000001	1.07E-08	0.00014	1	1	0.99996
MODAL	11	0.026829	0.000002	5.21E-10	0.000007	1	1	0.99996
MODAL	12	0.023357	4.87E-08	2.21E-10	3.83E-08	1	1	0.99996

Source: Attachment F

Table 4 - MODAL ANALYSIS RESULTS FOR DBGM-2 200' UPPER BOUND CONDITION

TABLE: Modal Periods And Frequencies

OutputCase	StepType	StepNum	Period	Frequency	CircFreq	Eigenvalue
Text	Text	Unitless	Sec	Cyc/sec	rad/sec	rad2/sec2
MODAL	Mode	1	0.158105	6.3249	39.741	1579.3
MODAL	Mode	2	0.156219	6.4013	40.22	1617.7
MODAL	Mode	3	0.125231	7.9852	50.173	2517.3
MODAL	Mode	4	0.064386	15.531	97.587	9523.1
MODAL	Mode	5	0.060661	16.485	103.58	10729
MODAL	Mode	6	0.045581	21.939	137.85	19002
MODAL	Mode	7	0.039602	25.251	158.66	25172
MODAL	Mode	8	0.034031	29.385	184.63	34088
MODAL	Mode	9	0.028786	34.739	218.27	47643
MODAL	Mode	10	0.026832	37.269	234.17	54836
MODAL	Mode	11	0.026036	38.409	241.33	58241
MODAL	Mode	12	0.019747	50.641	318.19	101240

TABLE: Modal Participating Mass Ratios

OutputCase	StepNum	Period	UX	UY	UZ	SumUX	SumUY	SumUZ
Text	Unitless	Sec	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
MODAL	1	0.158105	0.95169	0.0002	0.00002	0.95169	0.0002	0.00002
MODAL	2	0.156219	0.0002	0.9475	0.00001	0.95189	0.9477	0.00003
MODAL	3	0.125231	0.00003	0.00002	0.99811	0.95191	0.94772	0.99815
MODAL	4	0.064386	0.04148	0.00002	0.00001	0.9934	0.94774	0.99816
MODAL	5	0.060661	0.00001	0.04835	0.00001	0.99341	0.99609	0.99816
MODAL	6	0.045581	0.00503	0.00001	4.43E-07	0.99844	0.99609	0.99817
MODAL	7	0.039602	0.00001	0.00369	6.29E-09	0.99845	0.99978	0.99817
MODAL	8	0.034031	0.00153	0.00000	2.99E-08	0.99998	0.99979	0.99817
MODAL	9	0.028786	5.18E-08	0.00021	9.44E-08	0.99998	1	0.99817
MODAL	10	0.026832	0.00002	3.04E-09	1.18E-05	1	1	0.99818
MODAL	11	0.026036	0.00000	2.49E-08	0.00159	1	1	0.99976
MODAL	12	0.019747	5.78E-08	4.67E-09	6.64E-08	1	1	0.99976

Source: Attachment G

Table 5 - MODAL ANALYSIS RESULTS FOR DBGM-2 200' MEDIAN CONDITION

TABLE: Modal Periods And Frequencies

OutputCase	StepType	StepNum	Period	Frequency	CircFreq	Eigenvalue
Text	Text	Unitless	Sec	Cyc/sec	rad/sec	rad2/sec2
MODAL	Mode	1	0.205024	4.8775	30.646	939.18
MODAL	Mode	2	0.202286	4.9435	31.061	964.78
MODAL	Mode	3	0.169784	5.8898	37.007	1369.5
MODAL	Mode	4	0.070007	14.284	89.751	8055.3
MODAL	Mode	5	0.068372	14.626	91.897	8445
MODAL	Mode	6	0.04617	21.659	136.09	18520
MODAL	Mode	7	0.040243	24.849	156.13	24377
MODAL	Mode	8	0.034302	29.152	183.17	33551
MODAL	Mode	9	0.028896	34.606	217.44	47280
MODAL	Mode	10	0.026839	37.26	234.11	54808
MODAL	Mode	11	0.026498	37.738	237.12	56224
MODAL	Mode	12	0.021394	46.742	293.69	86255

TABLE: Modal Participating Mass Ratios

OutputCase	StepNum	Period	UX	UY	UZ	SumUX	SumUY	SumUZ
Text	Unitless	Sec	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
MODAL	1	0.205024	0.98188	5.29E-05	0.00002	0.98188	0.00005	0.00002
MODAL	2	0.202286	0.000054	0.97779	0.00002	0.98194	0.97784	0.00004
MODAL	3	0.169784	0.000021	2.32E-05	0.99942	0.98196	0.97787	0.99946
MODAL	4	0.070007	0.01646	7.93E-05	0.000007	0.99842	0.97794	0.99947
MODAL	5	0.068372	0.000052	0.02111	0.000005	0.99847	0.99905	0.99948
MODAL	6	0.04617	0.00116	2.19E-06	1.91E-07	0.99963	0.99905	0.99948
MODAL	7	0.040243	0.000004	0.00089	1.99E-09	0.99963	0.99994	0.99948
MODAL	8	0.034302	0.00036	8.23E-07	1.13E-07	0.99999	0.99994	0.99948
MODAL	9	0.028896	2.73E-08	5.73E-05	5.99E-08	0.99999	1	0.99948
MODAL	10	0.026839	0.000003	3.3E-09	0.000011	1	1	0.99949
MODAL	11	0.026498	0.000003	1.53E-08	0.00043	1	1	0.99992
MODAL	12	0.021394	4.29E-08	1.2E-09	4E-08	1	1	0.99992

Source: Attachment H

Table 6 - MODAL ANALYSIS RESULTS FOR DBGM-2 200' LOWER BOUND CONDITION

TABLE: Modal Periods And Frequencies

OutputCase	StepType	StepNum	Period	Frequency	CircFreq	Eigenvalue
Text	Text	Unitless	Sec	Cyc/sec	rad/sec	rad2/sec2
MODAL	Mode	1	0.274146	3.6477	22.919	525.29
MODAL	Mode	2	0.270066	3.7028	23.265	541.28
MODAL	Mode	3	0.232438	4.3022	27.032	730.71
MODAL	Mode	4	0.078787	12.693	79.749	6360
MODAL	Mode	5	0.077372	12.925	81.208	6594.7
MODAL	Mode	6	0.046552	21.482	134.97	18218
MODAL	Mode	7	0.041035	24.369	153.12	23445
MODAL	Mode	8	0.034529	28.961	181.97	33112
MODAL	Mode	9	0.029148	34.308	215.56	46468
MODAL	Mode	10	0.027083	36.924	232	53823
MODAL	Mode	11	0.026836	37.264	234.14	54820
MODAL	Mode	12	0.023942	41.767	262.43	68869

TABLE: Modal Participating Mass Ratios

OutputCase	StepNum	Period	UX	UY	UZ	SumUX	SumUY	SumUZ
Text	Unitless	Sec	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
MODAL	1	0.274146	0.99281	0.000016	0.000016	0.99281	0.00002	0.00002
MODAL	2	0.270066	0.00002	0.98979	0.000028	0.99282	0.98981	0.00004
MODAL	3	0.232438	0.00002	0.000029	0.9998	0.99284	0.98984	0.99984
MODAL	4	0.078787	0.00008	0.0098	0.0000030	0.99292	0.99964	0.99985
MODAL	5	0.077372	0.00671	0.00011	0.0000057	0.99964	0.99975	0.99985
MODAL	6	0.046552	0.00027	0.0000012	9.867E-08	0.99991	0.99975	0.99985
MODAL	7	0.041035	0.000002	0.00023	6.247E-10	0.99991	0.99998	0.99985
MODAL	8	0.034529	0.000086	5.989E-07	1.608E-07	1	0.99998	0.99985
MODAL	9	0.029148	2.958E-08	0.0000175	3.781E-08	1	1	0.99985
MODAL	10	0.027083	0.0000017	8.411E-09	0.00012	1	1	0.99997
MODAL	11	0.026836	0.0000015	1.711E-09	8.433E-07	1	1	0.99997
MODAL	12	0.023942	5.27E-08	2.204E-09	3.896E-08	1	1	0.99997

Source: Attachment I

Table 7- MODAL ANALYSIS RESULTS FOR BDBGM 100' UPPER BOUND CONDITION

TABLE: Modal Periods And Frequencies

OutputCase	StepType	StepNum	Period	Frequency	CircFreq	Eigenvalue
Text	Text	Unitless	Sec	Cyc/sec	rad/sec	rad2/sec2
MODAL	Mode	1	0.173345	5.7688	36.247	1313.8
MODAL	Mode	2	0.171191	5.8414	36.703	1347.1
MODAL	Mode	3	0.139839	7.1511	44.932	2018.9
MODAL	Mode	4	0.066383	15.064	94.651	8958.7
MODAL	Mode	5	0.06334	15.788	99.198	9840.2
MODAL	Mode	6	0.04584	21.815	137.07	18788
MODAL	Mode	7	0.039854	25.091	157.65	24855
MODAL	Mode	8	0.034145	29.287	184.01	33861
MODAL	Mode	9	0.028822	34.696	218	47524
MODAL	Mode	10	0.026834	37.266	234.15	54826
MODAL	Mode	11	0.026204	38.162	239.78	57493
MODAL	Mode	12	0.020275	49.322	309.9	96037

TABLE: Modal Participating Mass Ratios

OutputCase	StepNum	Period	UX	UY	UZ	SumUX	SumUY	SumUZ
Text	Unitless	Sec	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
MODAL	1	0.173345	0.96644	0.00012	0.000019	0.96644	0.00012	1.86E-05
MODAL	2	0.171191	0.00012	0.962	0.000016	0.96656	0.96212	3.51E-05
MODAL	3	0.139839	0.00002	0.000019	0.99879	0.96659	0.96214	0.99882
MODAL	4	0.066383	0.02958	0.000025	0.000010	0.99617	0.96217	0.99883
MODAL	5	0.06334	0.00001	0.03555	0.000005	0.99618	0.99772	0.99884
MODAL	6	0.04584	0.00291	0.000004	3.116E-07	0.99909	0.99772	0.99884
MODAL	7	0.039854	0.00001	0.00215	4.317E-09	0.99909	0.99987	0.99884
MODAL	8	0.034145	0.00089	0.000001	5.963E-08	0.99999	0.99987	0.99884
MODAL	9	0.028822	3.871E-08	0.00013	7.988E-08	0.99999	1	0.99884
MODAL	10	0.026834	0.0000089	2.92E-09	0.0000103	1	1	0.99885
MODAL	11	0.026204	0.0000028	2.18E-08	0.001	1	1	0.99984
MODAL	12	0.020275	4.877E-08	2.84E-09	5.149E-08	1	1	0.99984

Source: Attachment J

Table 8 - MODAL ANALYSIS RESULTS FOR BDBGM 100' MEDIAN CONDITION

TABLE: Modal Periods And Frequencies						
OutputCase	StepType	StepNum	Period	Frequency	CircFreq	Eigenvalue
Text	Text	Unitless	Sec	Cyc/sec	rad/sec	rad2/sec2
MODAL	Mode	1	0.227588	4.3939	27.608	762.19
MODAL	Mode	2	0.224461	4.4551	27.992	783.57
MODAL	Mode	3	0.190189	5.2579	33.036	1091.4
MODAL	Mode	4	0.072402	13.812	86.782	7531
MODAL	Mode	5	0.071728	13.942	87.598	7673.4
MODAL	Mode	6	0.046323	21.588	135.64	18398
MODAL	Mode	7	0.040494	24.695	155.16	24075
MODAL	Mode	8	0.034385	29.082	182.73	33390
MODAL	Mode	9	0.028961	34.529	216.95	47069
MODAL	Mode	10	0.026845	37.251	234.06	54783
MODAL	Mode	11	0.026681	37.479	235.49	55455
MODAL	Mode	12	0.022244	44.956	282.47	79787

TABLE: Modal Participating Mass Ratios									
OutputCase	StepNum	Period	UX	UY	UZ	SumUX	SumUY	SumUZ	
Text	Unitless	Sec	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	
MODAL	1	0.227588	0.9873	0.000034	0.000017	0.9873	3.4E-05	1.67E-05	
MODAL	2	0.224461	0.000035	0.98363	0.000023	0.98733	0.98367	3.98E-05	
MODAL	3	0.190189	0.000019	0.000025	0.99962	0.98735	0.98369	0.99966	
MODAL	4	0.072402	0.01142	0.00047	4.4E-06	0.99877	0.98416	0.99966	
MODAL	5	0.071728	0.00033	0.01526	5.9E-06	0.9991	0.99942	0.99967	
MODAL	6	0.046323	0.00068	1.7E-06	1.5E-07	0.99978	0.99943	0.99967	
MODAL	7	0.040494	2.9E-06	0.00054	1.3E-09	0.99978	0.99996	0.99967	
MODAL	8	0.034385	0.00021	7E-07	1.4E-07	0.99999	0.99996	0.99967	
MODAL	9	0.028961	2.5E-08	0.000036	5.1E-08	0.99999	1	0.99967	
MODAL	10	0.026845	1.4E-06	4.9E-09	0.000021	1	1	0.99969	
MODAL	11	0.026681	3.2E-06	1E-08	0.00025	1	1	0.99995	
MODAL	12	0.022244	4.4E-08	3.3E-10	3.7E-08	1	1	0.99995	

Source: Attachment K

Table 9 - MODAL ANALYSIS RESULTS FOR BDBGM 100' LOWER BOUND CONDITION

TABLE: Modal Periods And Frequencies						
OutputCase	StepType	StepNum	Period	Frequency	CircFreq	Eigenvalue
Text	Text	Unitless	Sec	Cyc/sec	rad/sec	rad2/sec2
MODAL	Mode	1	0.30705	3.2568	20.463	418.74
MODAL	Mode	2	0.302538	3.3054	20.768	431.32
MODAL	Mode	3	0.261423	3.8252	24.035	577.66
MODAL	Mode	4	0.083788	11.935	74.989	5623.3
MODAL	Mode	5	0.081021	12.343	77.551	6014.1
MODAL	Mode	6	0.046676	21.424	134.61	18120
MODAL	Mode	7	0.041505	24.093	151.38	22917
MODAL	Mode	8	0.034622	28.883	181.48	32934
MODAL	Mode	9	0.029369	34.049	213.94	45769
MODAL	Mode	10	0.027352	36.56	229.71	52769
MODAL	Mode	11	0.026843	37.253	234.07	54788
MODAL	Mode	12	0.025094	39.85	250.39	62694

TABLE: Modal Participating Mass Ratios								
OutputCase	StepNum	Period	UX	UY	UZ	SumUX	SumUY	SumUZ
Text	Unitless	Sec	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
MODAL	1	0.30705	0.99473	0.00001	0.000015	0.99473	0.00001	0.00002
MODAL	2	0.302538	0.000012	0.9921	0.000028	0.99474	0.99211	0.00004
MODAL	3	0.261423	0.000016	0.00003	0.99986	0.99475	0.99214	0.9999
MODAL	4	0.083788	2.46E-05	0.00767	0.000003	0.99478	0.99981	0.9999
MODAL	5	0.081021	0.00501	0.000031	0.000005	0.99979	0.99985	0.99991
MODAL	6	0.046676	0.00016	0.000001	7.7E-08	0.99994	0.99985	0.99991
MODAL	7	0.041505	0.000002	0.00014	4.87E-10	0.99995	0.99999	0.99991
MODAL	8	0.034622	0.00005	0.000001	0.000000	1	0.99999	0.99991
MODAL	9	0.029369	4.26E-08	0.000012	3.16E-08	1	1	0.99991
MODAL	10	0.027352	0.00000	5.613E-09	0.00007	1	1	0.99998
MODAL	11	0.026843	7.7E-07	4.397E-09	4.09E-09	1	1	0.99998
MODAL	12	0.025094	6.34E-08	2.316E-08	4.48E-08	1	1	0.99998

Source: Attachment L

Table 10 - MODAL ANALYSIS RESULTS FOR BDBGM 200' UPPER BOUND CONDITION

TABLE: Modal Periods And Frequencies

OutputCase	StepType	StepNum	Period	Frequency	CircFreq	Eigenvalue
Text	Text	Unitless	Sec	Cyc/sec	rad/sec	rad2/sec2
MODAL	Mode	1	0.180751	5.5325	34.762	1208.4
MODAL	Mode	2	0.178439	5.6042	35.212	1239.9
MODAL	Mode	3	0.146075	6.8458	43.013	1850.2
MODAL	Mode	4	0.067233	14.874	93.454	8733.6
MODAL	Mode	5	0.064496	15.505	97.419	9490.5
MODAL	Mode	6	0.045934	21.771	136.79	18711
MODAL	Mode	7	0.039961	25.025	157.23	24723
MODAL	Mode	8	0.034188	29.25	183.79	33777
MODAL	Mode	9	0.02884	34.674	217.86	47464
MODAL	Mode	10	0.026835	37.265	234.14	54822
MODAL	Mode	11	0.026269	38.067	239.18	57208
MODAL	Mode	12	0.020566	48.623	305.51	93335

TABLE: Modal Participating Mass Ratios

OutputCase	StepNum	Period	UX	UY	UZ	SumUX	SumUY	SumUZ
Text	Unitless	Sec	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
MODAL	1	0.180751	0.9715	0.000096	0.000017	0.9715	0.000096	0.000017
MODAL	2	0.178439	0.000098	0.96715	0.000016	0.9716	0.96725	0.000034
MODAL	3	0.146075	0.000021	0.000019	0.99898	0.97162	0.96727	0.99901
MODAL	4	0.067233	0.02534	0.00003	9.2E-06	0.99697	0.9673	0.99902
MODAL	5	0.064496	0.000017	0.03089	0.000005	0.99699	0.99818	0.99903
MODAL	6	0.045934	0.00229	0.000004	2.7E-07	0.99928	0.99819	0.99903
MODAL	7	0.039961	5.3E-06	0.00171	3.7E-09	0.99928	0.99989	0.99903
MODAL	8	0.034188	0.00071	1.1E-06	7.1E-08	0.99999	0.9999	0.99903
MODAL	9	0.02884	3.5E-08	0.0001	7.5E-08	0.99999	1	0.99903
MODAL	10	0.026835	0.000007	3E-09	9.9E-06	1	1	0.99904
MODAL	11	0.026269	2.7E-06	2E-08	0.00083	1	1	0.99987
MODAL	12	0.020566	4.7E-08	2.1E-09	4.6E-08	1	1	0.99987

Source: Attachment M

Table 11- MODAL ANALYSIS RESULTS FOR BDBGM 200' MEDIAN CONDITION

TABLE: Modal Periods And Frequencies

OutputCase	StepType	StepNum	Period	Frequency	CircFreq	Eigenvalue
Text	Text	Unitless	Sec	Cyc/sec	rad/sec	rad2/sec2
MODAL	Mode	1	0.242065	4.1311	25.957	673.74
MODAL	Mode	2	0.238609	4.1909	26.333	693.4
MODAL	Mode	3	0.202127	4.9474	31.085	966.3
MODAL	Mode	4	0.073922	13.528	84.997	7224.5
MODAL	Mode	5	0.073668	13.574	85.291	7274.5
MODAL	Mode	6	0.046401	21.551	135.41	18336
MODAL	Mode	7	0.040667	24.59	154.5	23871
MODAL	Mode	8	0.034431	29.044	182.49	33302
MODAL	Mode	9	0.029014	34.466	216.56	46897
MODAL	Mode	10	0.026859	37.232	233.94	54726
MODAL	Mode	11	0.026778	37.344	234.64	55057
MODAL	Mode	12	0.022834	43.795	275.17	75718

TABLE: Modal Participating Mass Ratios

OutputCase	StepNum	Period	UX	UY	UZ	SumUX	SumUY	SumUZ
Text	Unitless	Sec	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
MODAL	1	0.242065	0.98965	0.000026	0.000015	0.98965	0.0000256	0.000015
MODAL	2	0.238609	0.000026	0.98626	0.000023	0.98967	0.98629	0.000038
MODAL	3	0.202127	0.000017	0.000024	0.99969	0.98969	0.98631	0.99973
MODAL	4	0.073922	0.0057	0.00549	0.00000028	0.99539	0.9918	0.99973
MODAL	5	0.073668	0.00395	0.00776	0.0000095	0.99934	0.99957	0.99974
MODAL	6	0.046401	0.0005	0.0000015	0.00000013	0.99983	0.99957	0.99974
MODAL	7	0.040667	0.0000027	0.0004	0.00000000	0.99984	0.99997	0.99974
MODAL	8	0.034431	0.00016	0.0000007	0.00000015	1	0.99997	0.99974
MODAL	9	0.029014	0.00000003	0.000028	0.00000005	1	1	0.99974
MODAL	10	0.026859	0.00000017	8.8E-09	0.000065	1	1	0.99981
MODAL	11	0.026778	0.00000038	4.2E-09	0.00015	1	1	0.99995
MODAL	12	0.022834	0.00000005	1.5E-13	0.00000004	1	1	0.99995

Source: Attachment N

Table 12 - MODAL ANALYSIS RESULTS FOR BDBGM 200' LOWER BOUND CONDITION

TABLE: Modal Periods And Frequencies

OutputCase	StepType	StepNum	Period	Frequency	CircFreq	Eigenvalue
Text	Text	Unitless	Sec	Cyc/sec	rad/sec	rad2/sec2
MODAL	Mode	1	0.331668	3.0151	18.944	358.88
MODAL	Mode	2	0.326908	3.059	19.22	369.41
MODAL	Mode	3	0.281755	3.5492	22.3	497.3
MODAL	Mode	4	0.087449	11.435	71.85	5162.4
MODAL	Mode	5	0.08373	11.943	75.041	5631.2
MODAL	Mode	6	0.04676	21.386	134.37	18055
MODAL	Mode	7	0.04195	23.838	149.78	22433
MODAL	Mode	8	0.034691	28.826	181.12	32805
MODAL	Mode	9	0.029634	33.745	212.02	44954
MODAL	Mode	10	0.027545	36.305	228.11	52033
MODAL	Mode	11	0.026854	37.239	233.98	54746
MODAL	Mode	12	0.025894	38.62	242.65	58881

TABLE: Modal Participating Mass Ratios

OutputCase	StepNum	Period	UX	UY	UZ	SumUX	SumUY	SumUZ
Text	Unitless	Sec	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
MODAL	1	0.331668	0.99569	0.00001	0.000014	0.99569	0.00001	0.000014
MODAL	2	0.326908	0.00001	0.99332	0.000027	0.9957	0.99333	0.000041
MODAL	3	0.281755	0.000015	0.000028	0.99988	0.99571	0.99336	0.99992
MODAL	4	0.087449	0.000015	0.00651	3.3E-06	0.99573	0.99987	0.99993
MODAL	5	0.08373	0.00412	0.000019	4.3E-06	0.99985	0.99989	0.99993
MODAL	6	0.04676	0.00011	1.2E-06	6.5E-08	0.99996	0.99989	0.99993
MODAL	7	0.04195	2.1E-06	0.0001	4.6E-10	0.99996	0.99999	0.99993
MODAL	8	0.034691	0.000034	6.3E-07	1.6E-07	1	0.99999	0.99993
MODAL	9	0.029634	6.4E-08	9.3E-06	2.8E-08	1	1	0.99993
MODAL	10	0.027545	0.000002	4.8E-09	0.000049	1	1	0.99998
MODAL	11	0.026854	5.1E-07	1.1E-08	5.5E-09	1	1	0.99998
MODAL	12	0.025894	8E-08	7.9E-08	5.5E-08	1	1	0.99998

Source: Attachment O

Figure 1 - Horizontal Response Spectra DBGM-2 100' Upper Bound

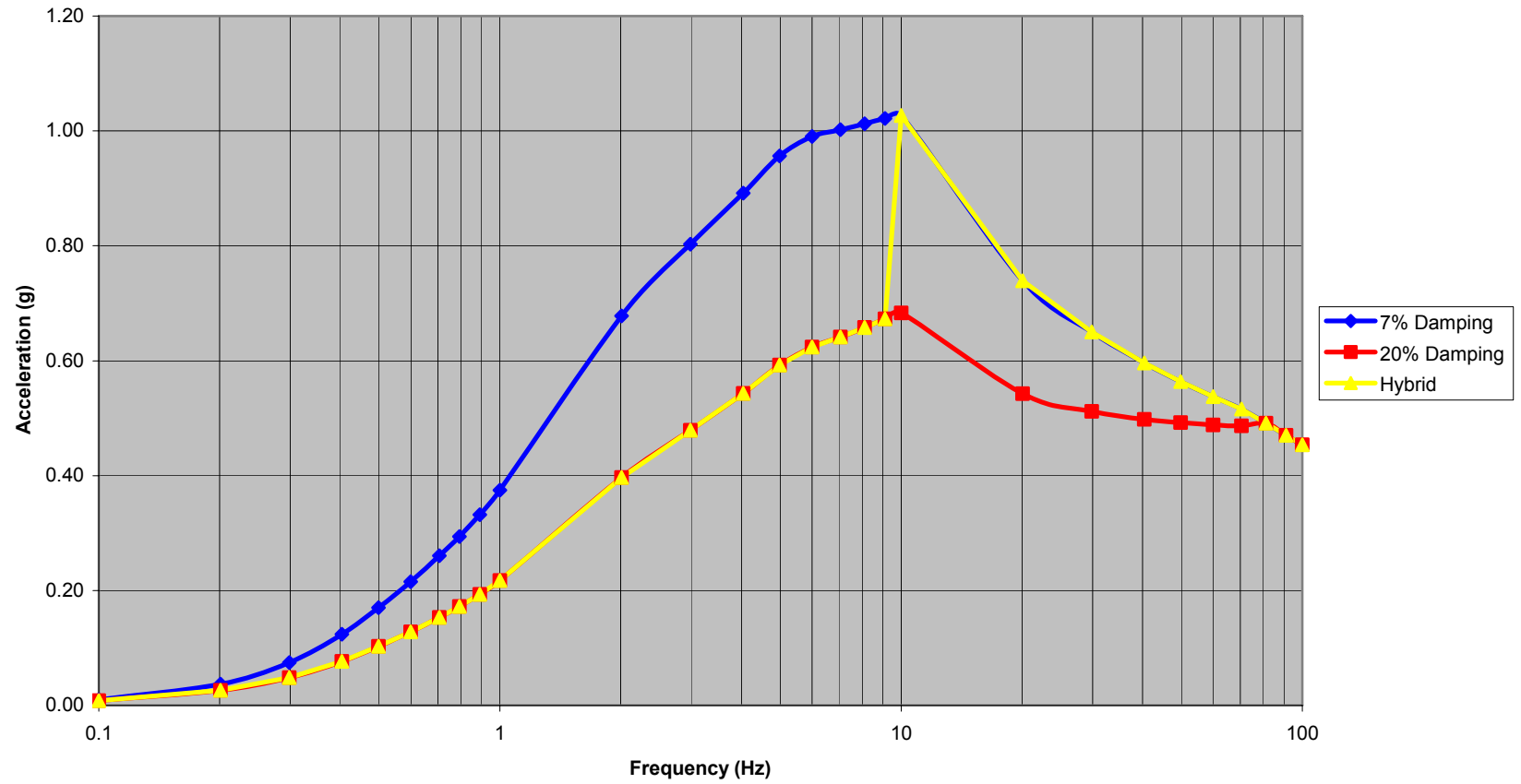


Figure 2 - Horizontal Response Spectra DBGM-2 100' Median

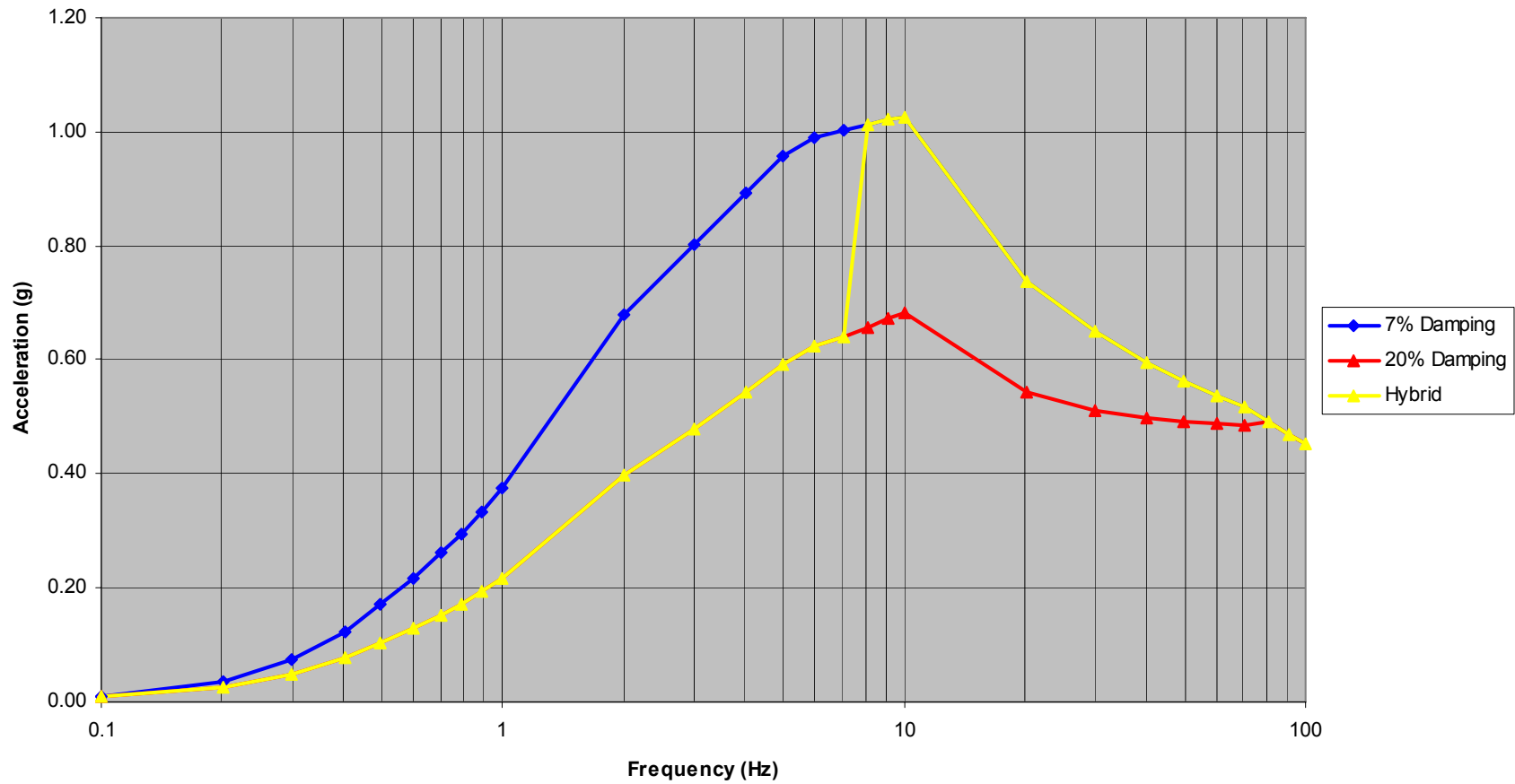


Figure 3 - Horizontal Response Spectra DBGM-2 100' Lower Bound

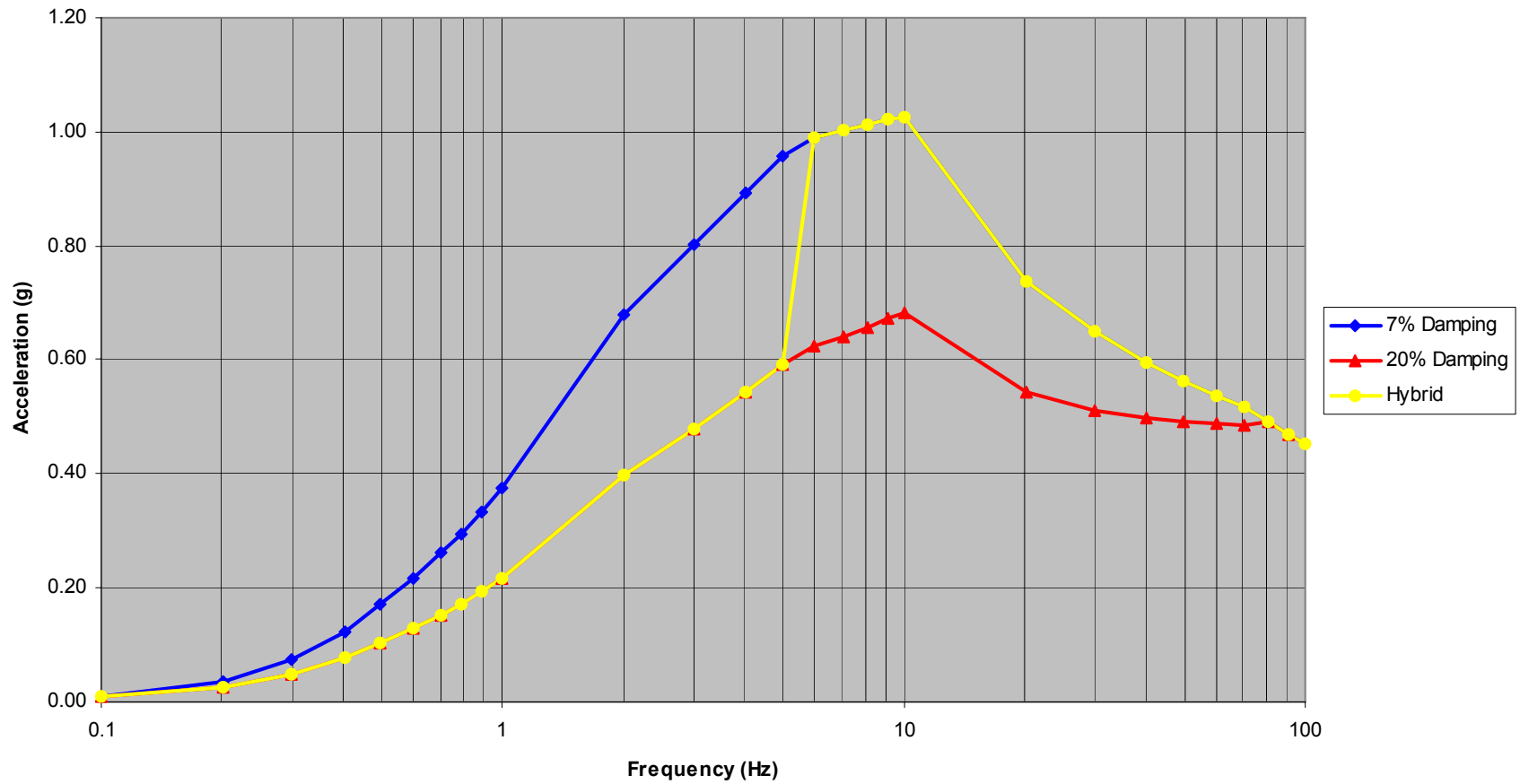


Figure 4 - Horizontal Response Spectra DBGM-2 200' Upper Bound

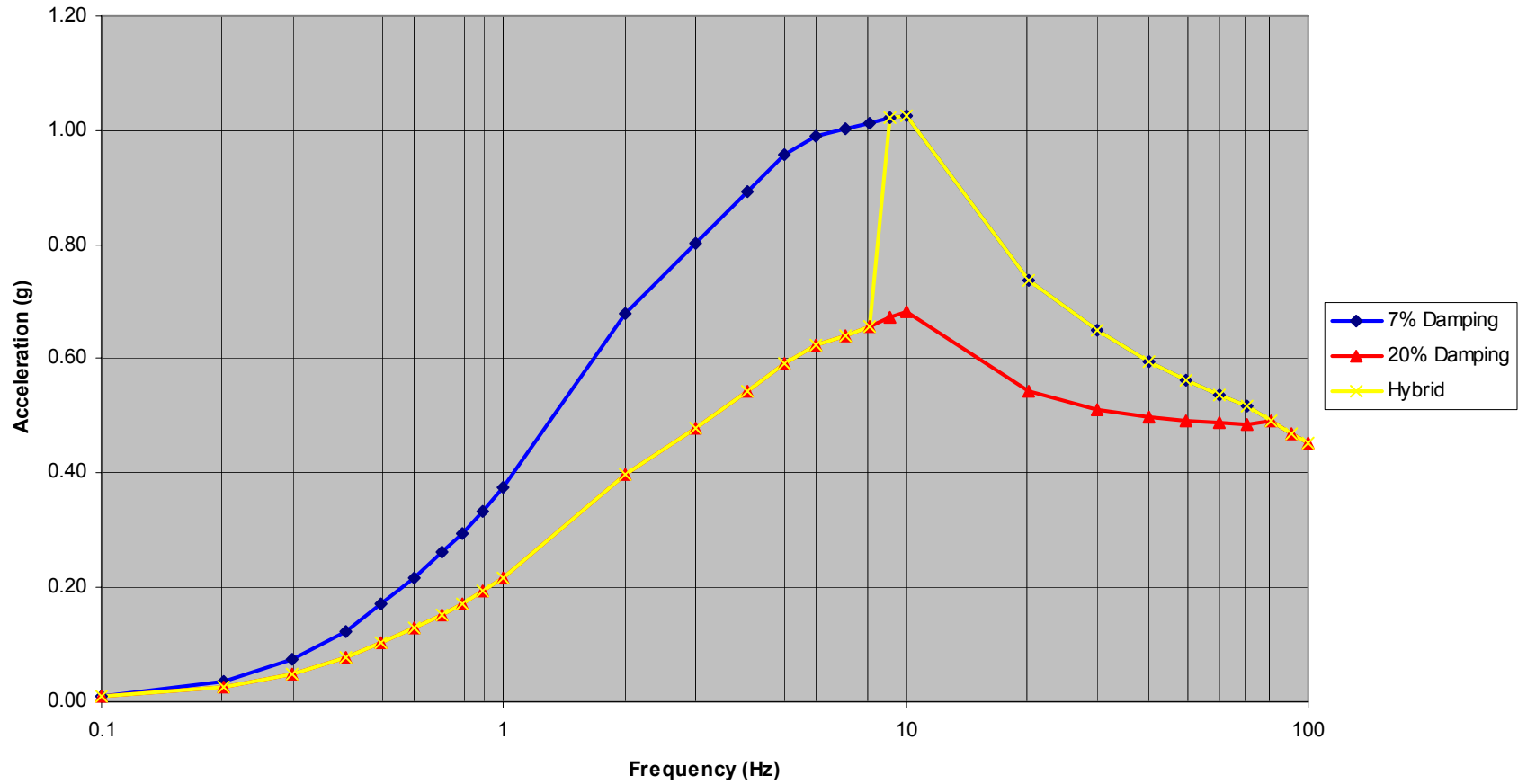


Figure 5 - Horizontal Response Spectra DBGM-2 200' Median

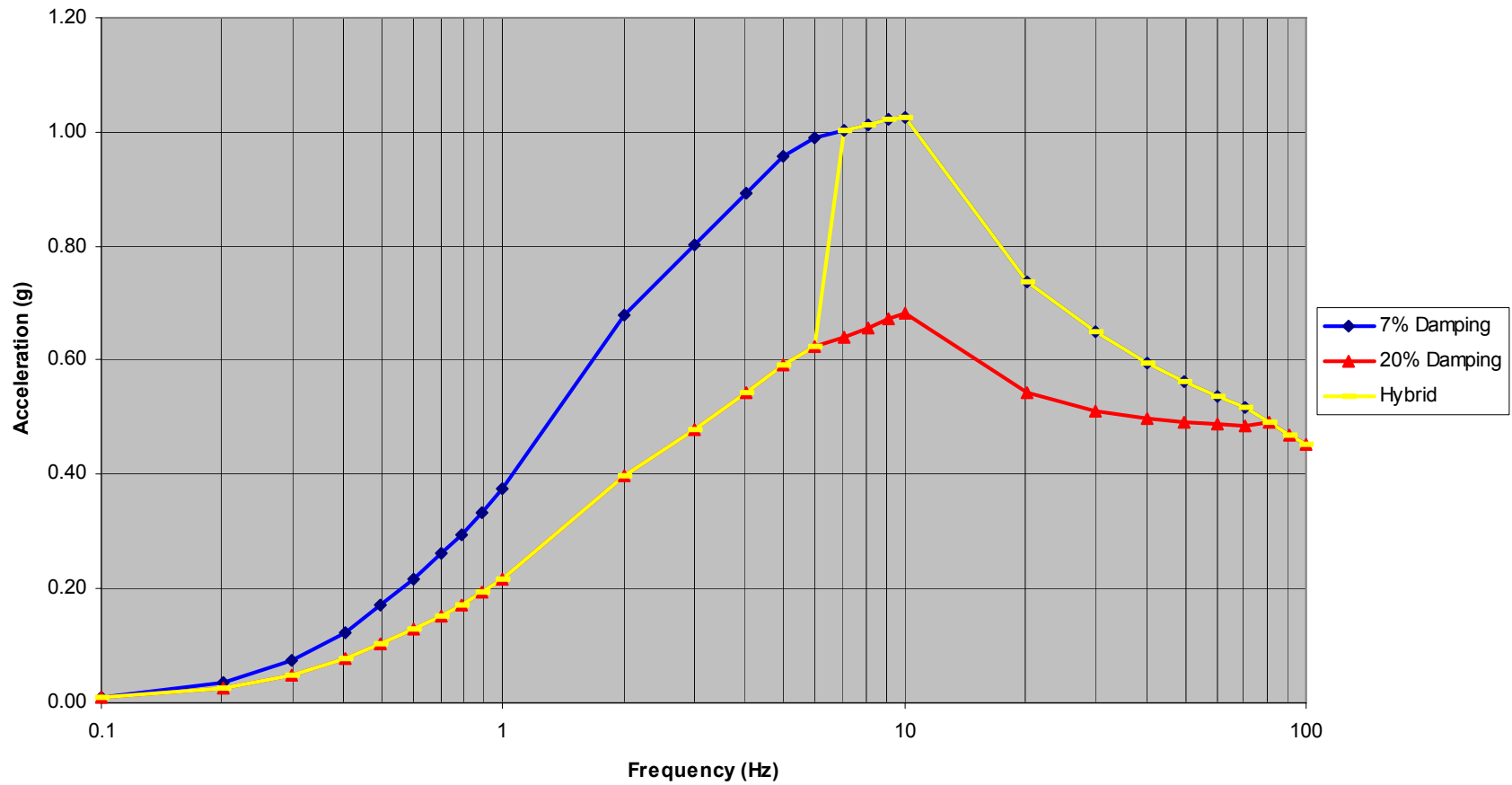


Figure 6 - Horizontal Response Spectra DBGGM-2 200' Lower Bound

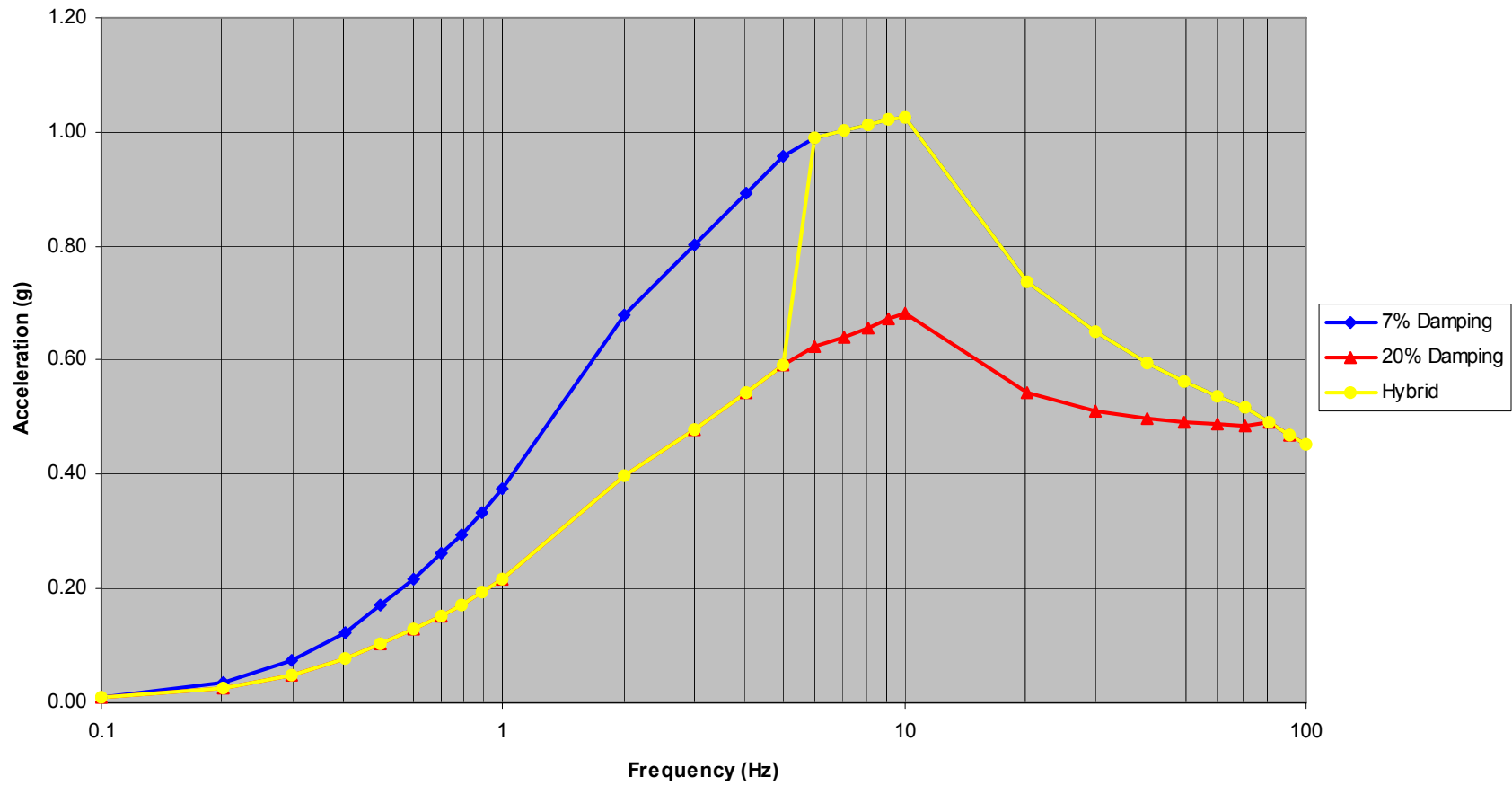


Figure 7 - Vertical Response Spectra DBGM-2 100' Upper Bound

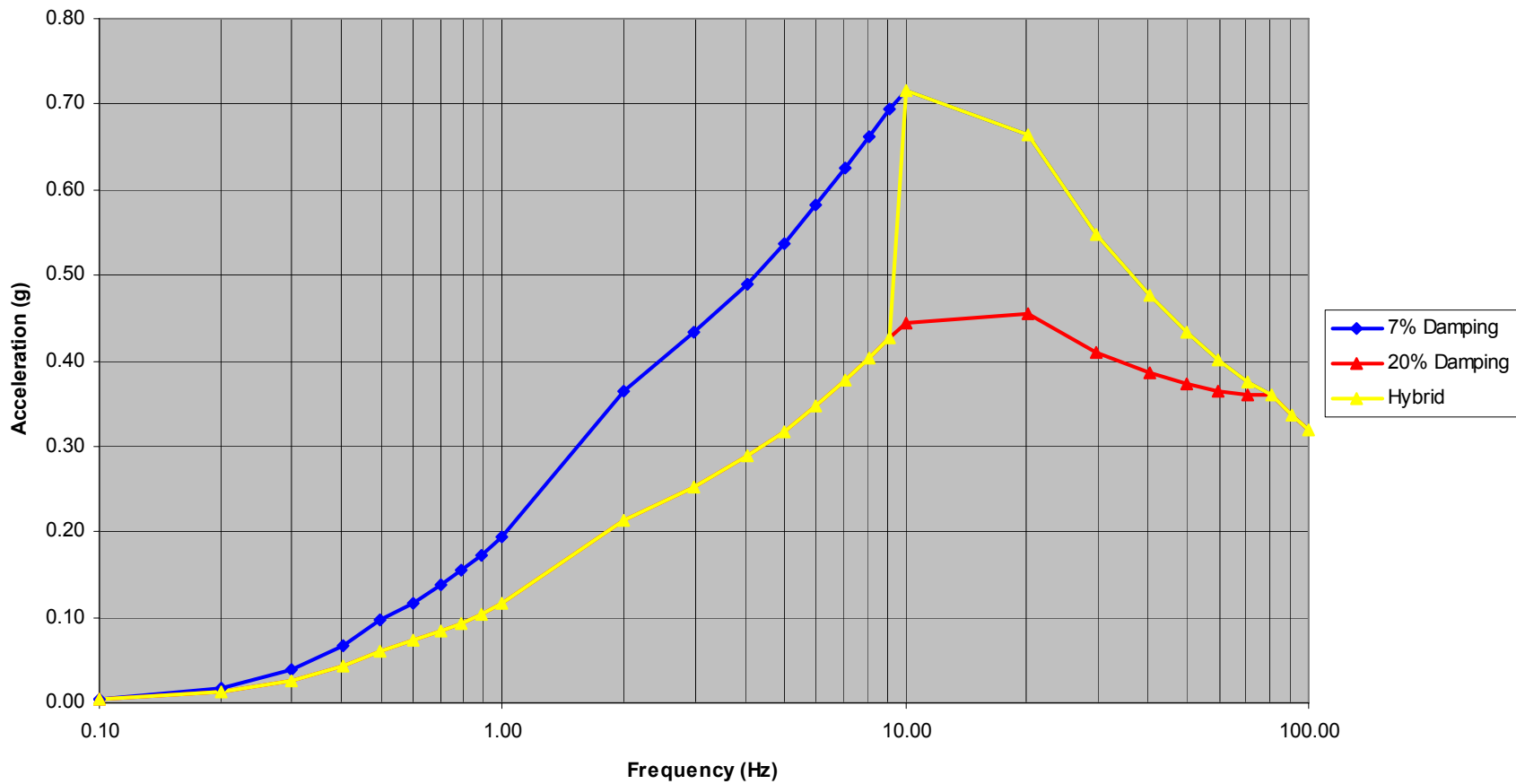


Figure 8 - Vertical Response Spectra DBGM-2 100' Median

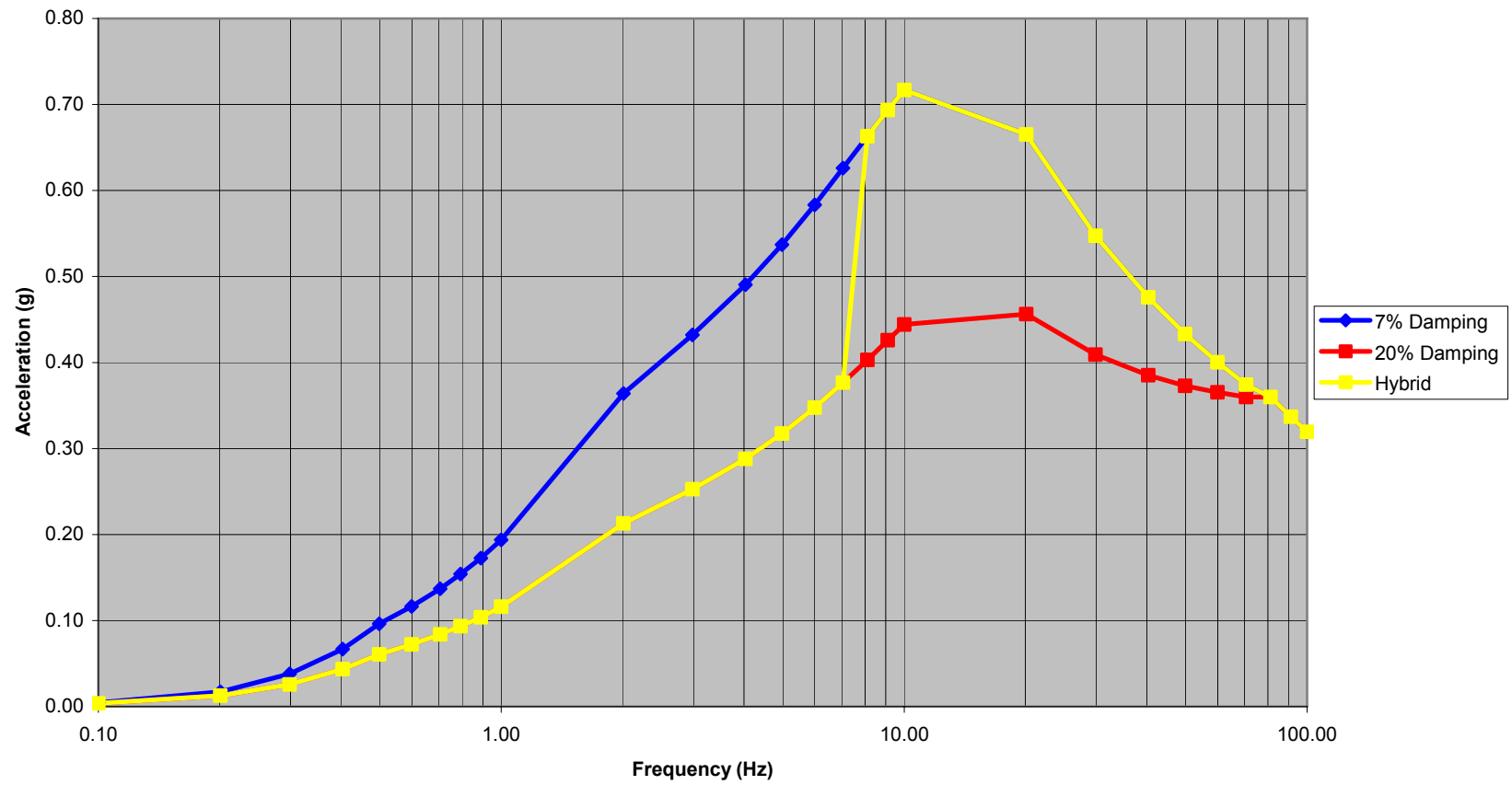


Figure 9 - Vertical Response Spectra DBGM-2 100' Lower Bound

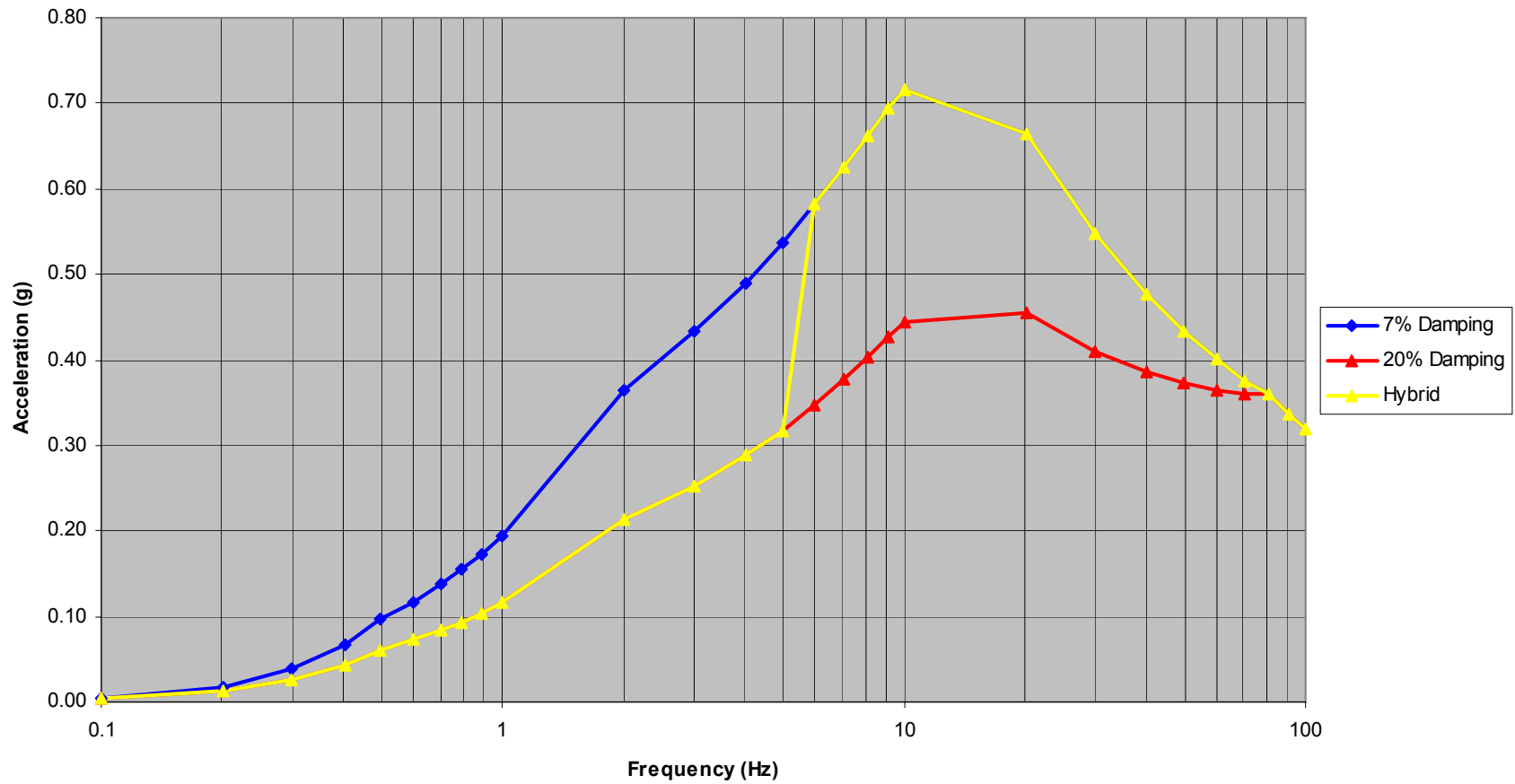


Figure 10 - Vertical Response Spectra DBGM-2 200' Upper Bound

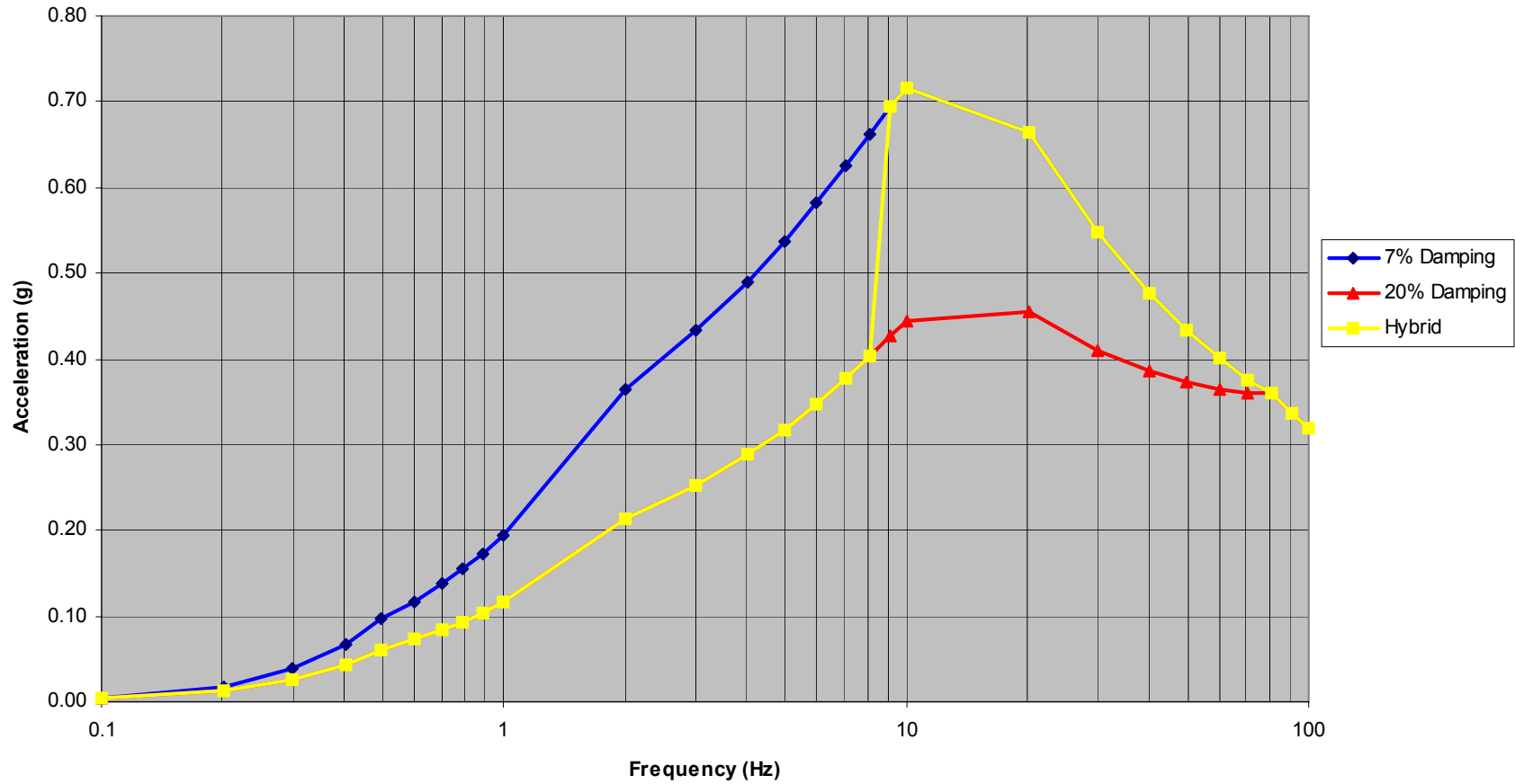


Figure 11 - Vertical Response Spectra DBGM-2 200' Median

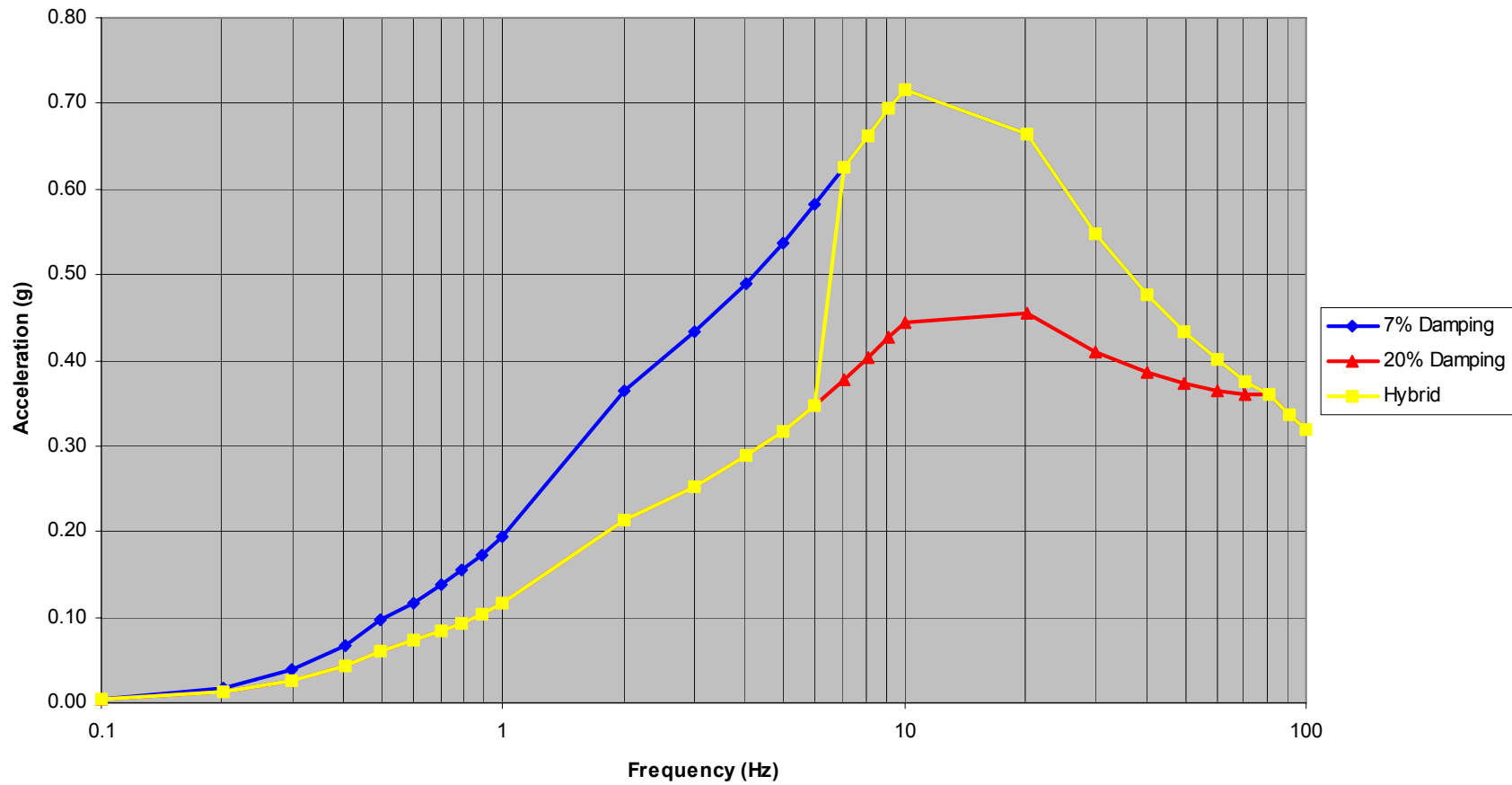


Figure 12 - Vertical Response Spectra DBGM-2 200' Lower Bound

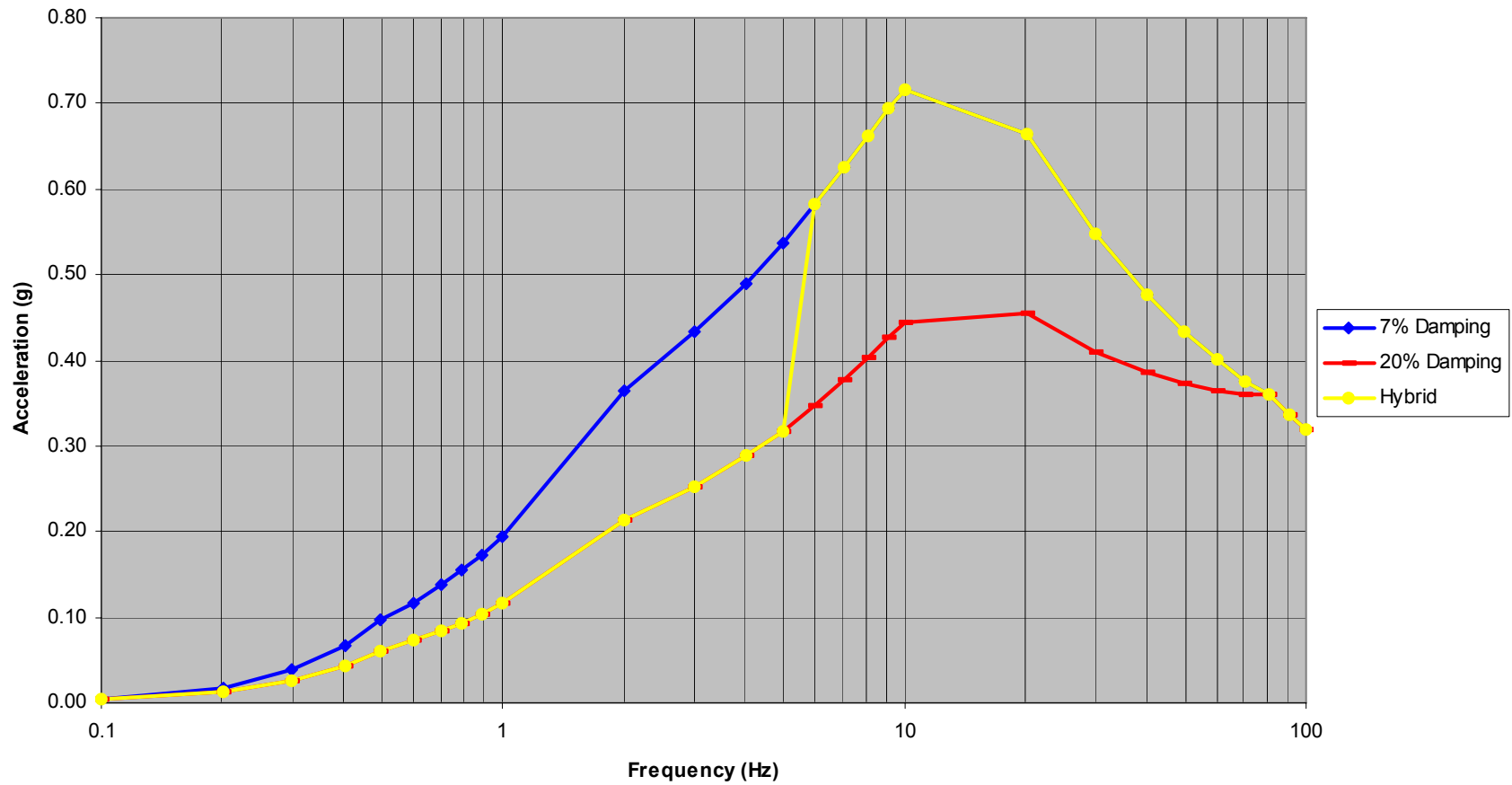


Figure 13 - Horizontal Response Spectra BDBGM 100' Upper Bound

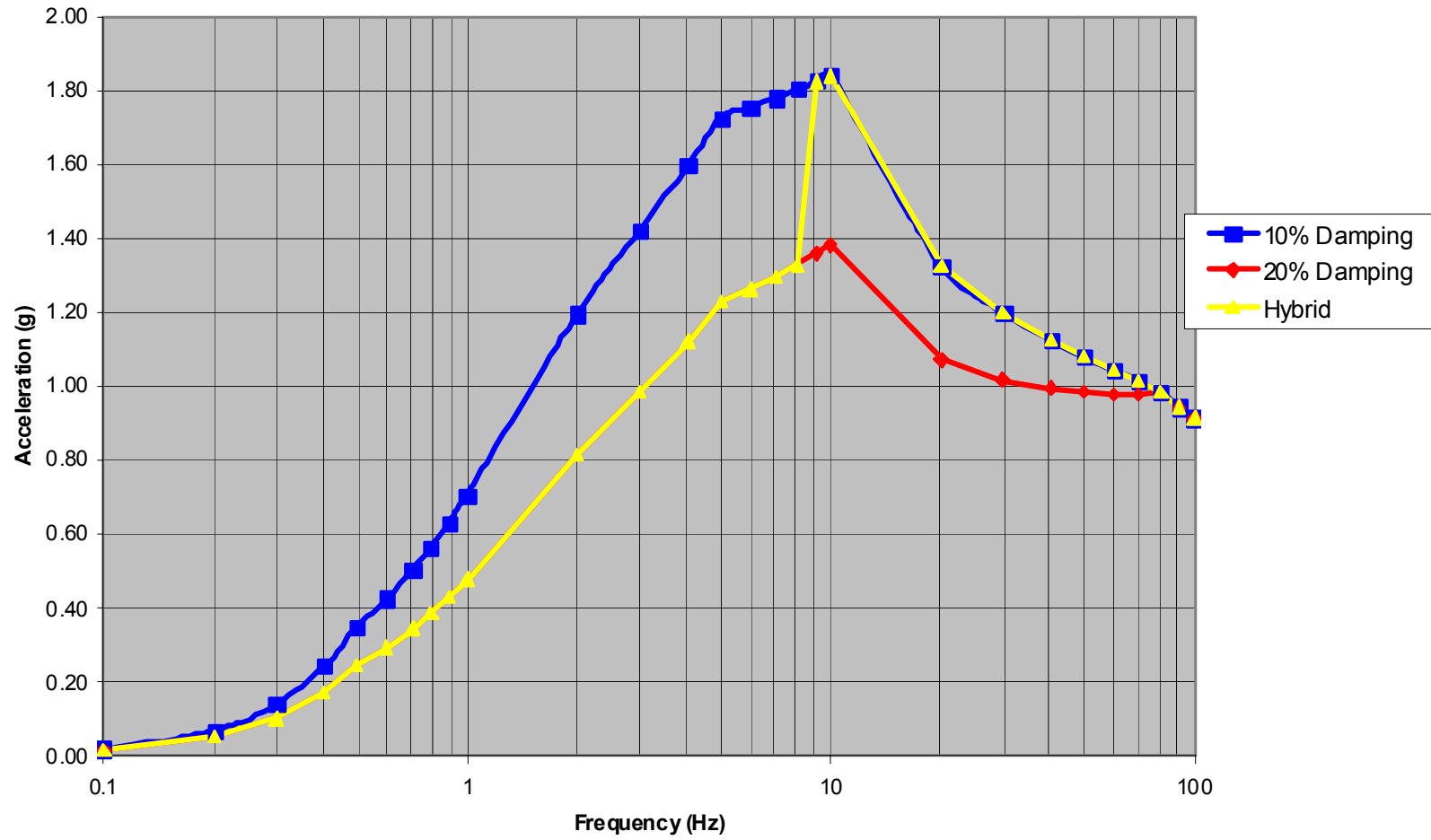


Figure 14 - Horizontal Response Spectra BDBGM 100' Median

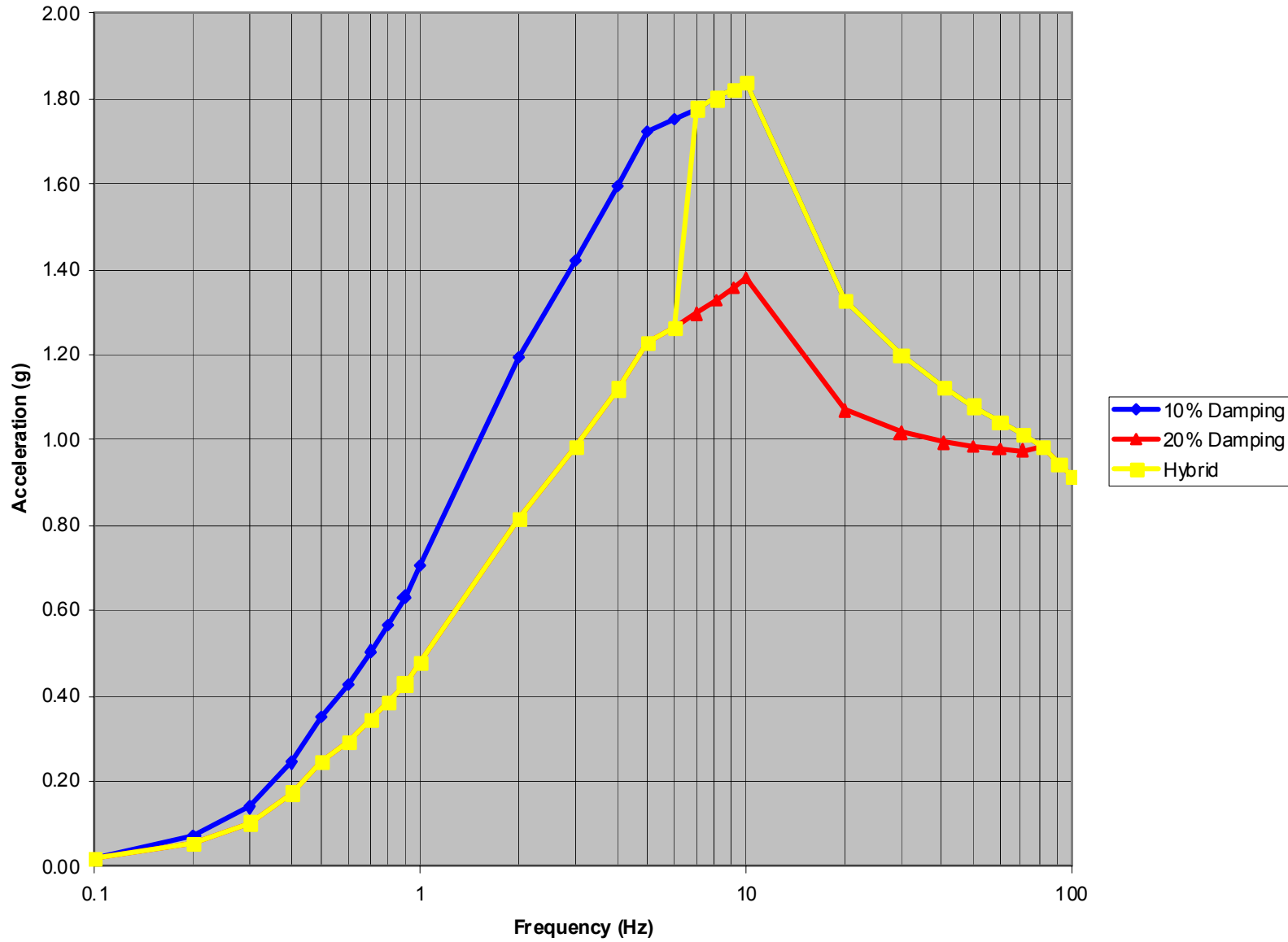


Figure 15 - Horizontal Response Spectra BDBGM 100' Lower Bound

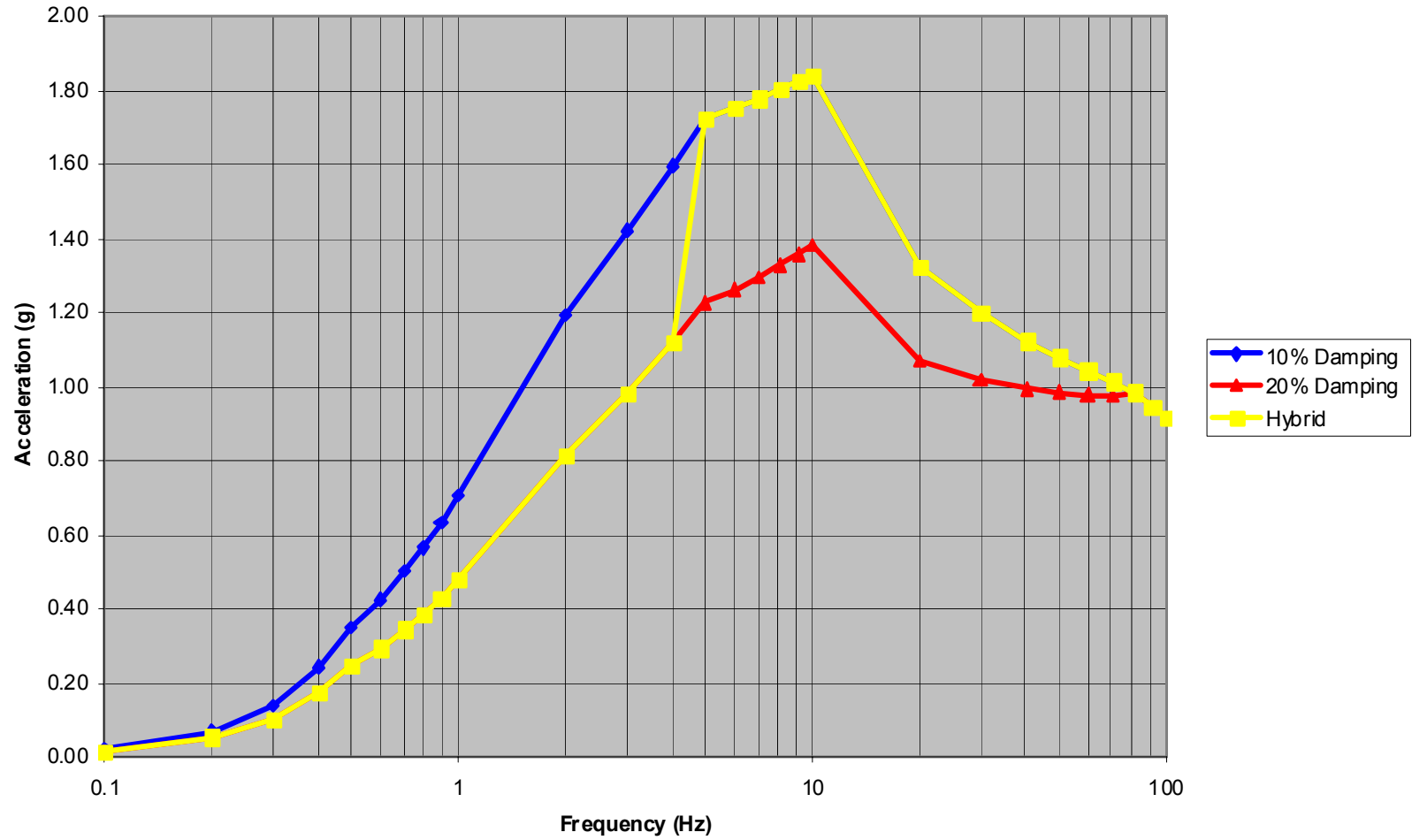


Figure 16 - Horizontal Response Spectra BDBGM 200' Upper Bound

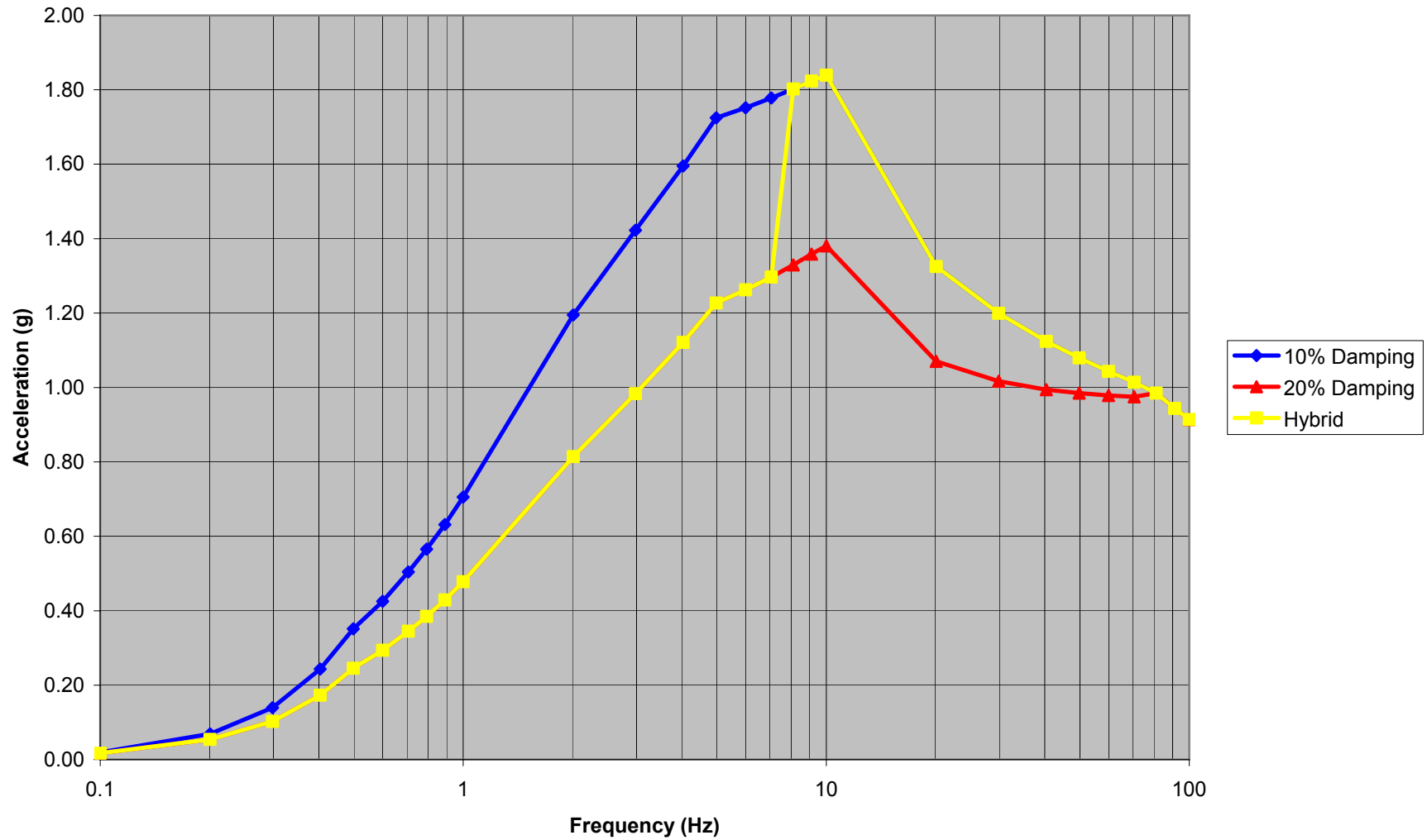


Figure 17 - Horizontal Response Spectra BDBGM 200' Median

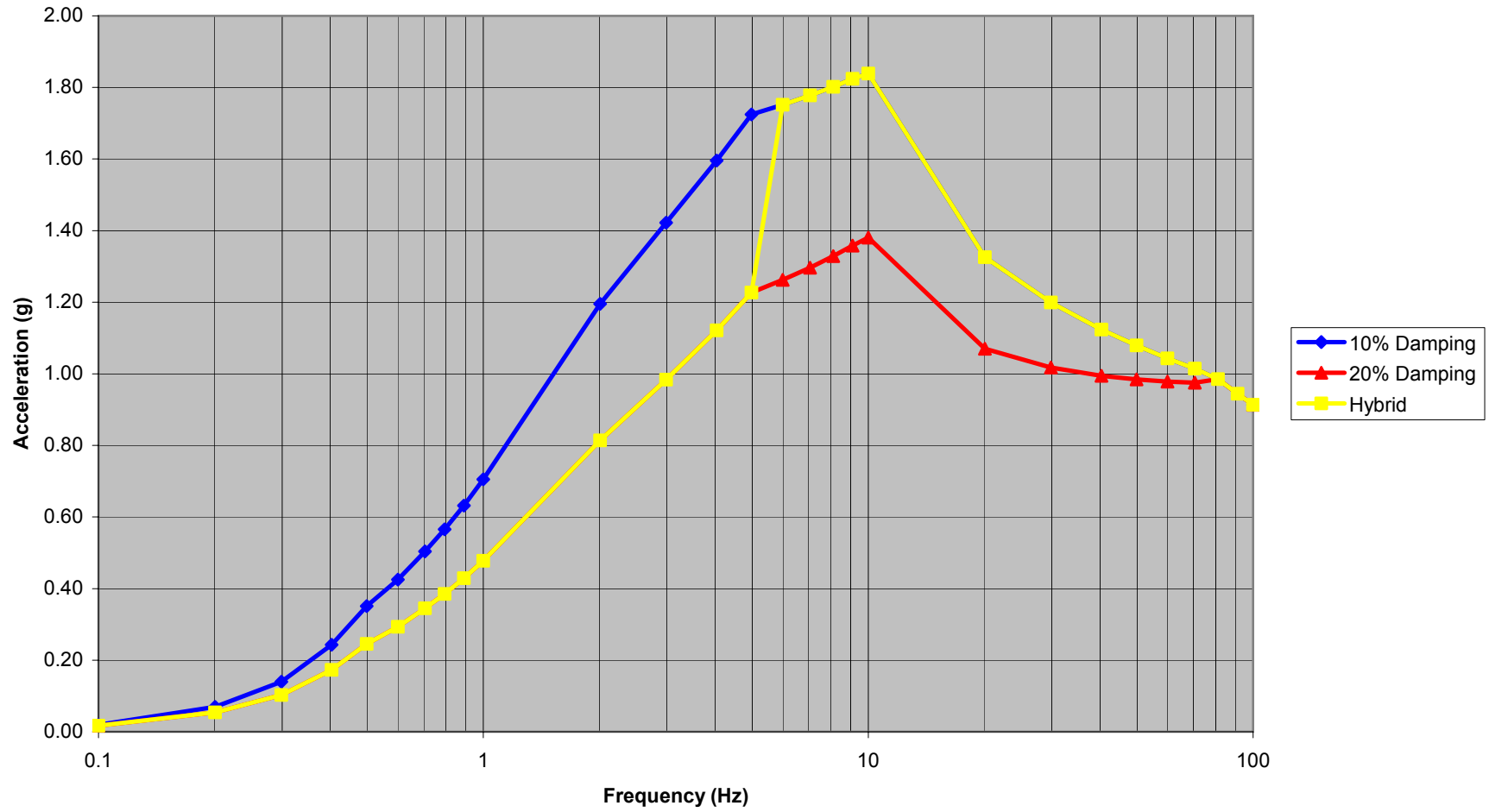


Figure 18 - Horizontal Response Spectra BDBGM 200' Lower Bound

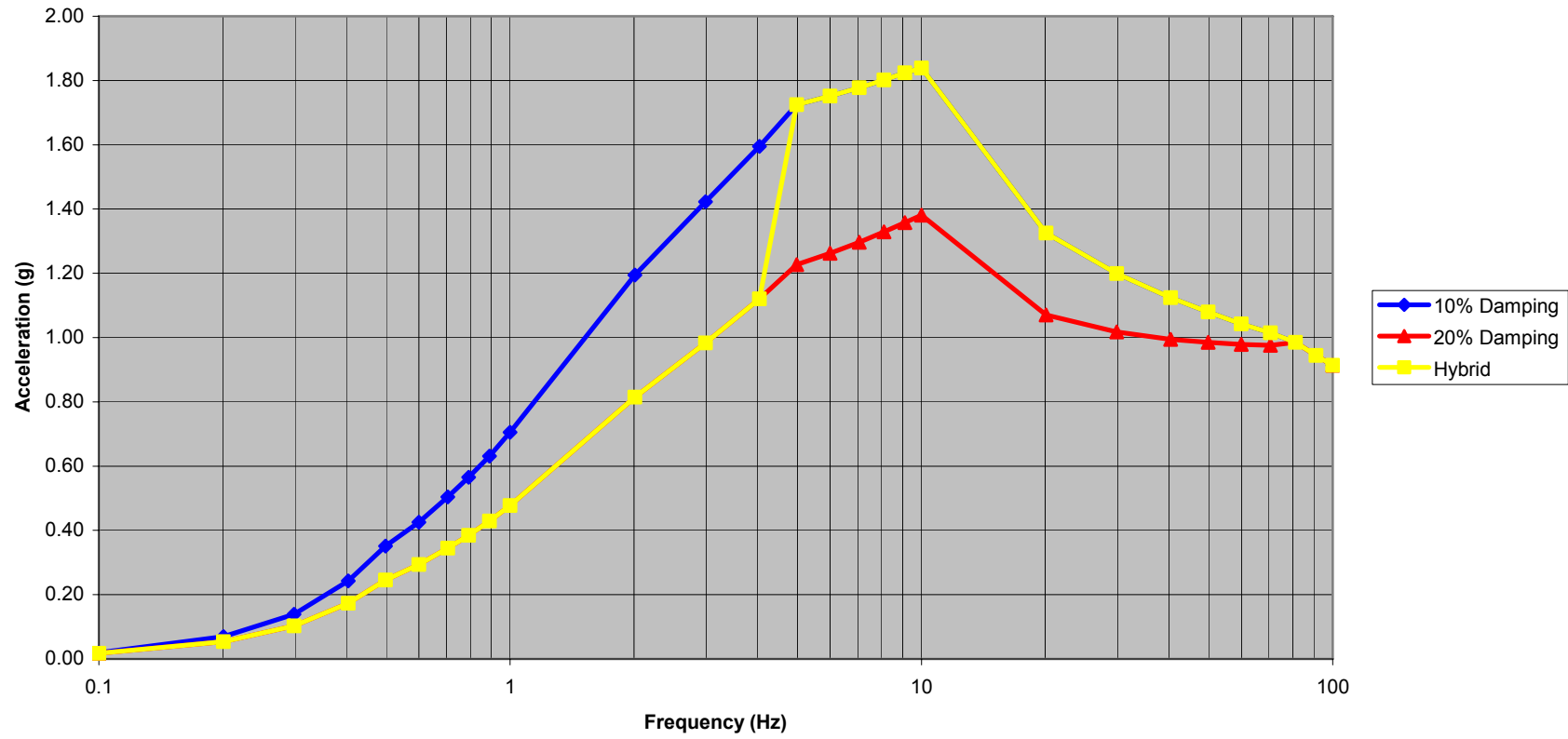


Figure 19 - Vertical Response Spectra BDBGM 100' Upper Bound

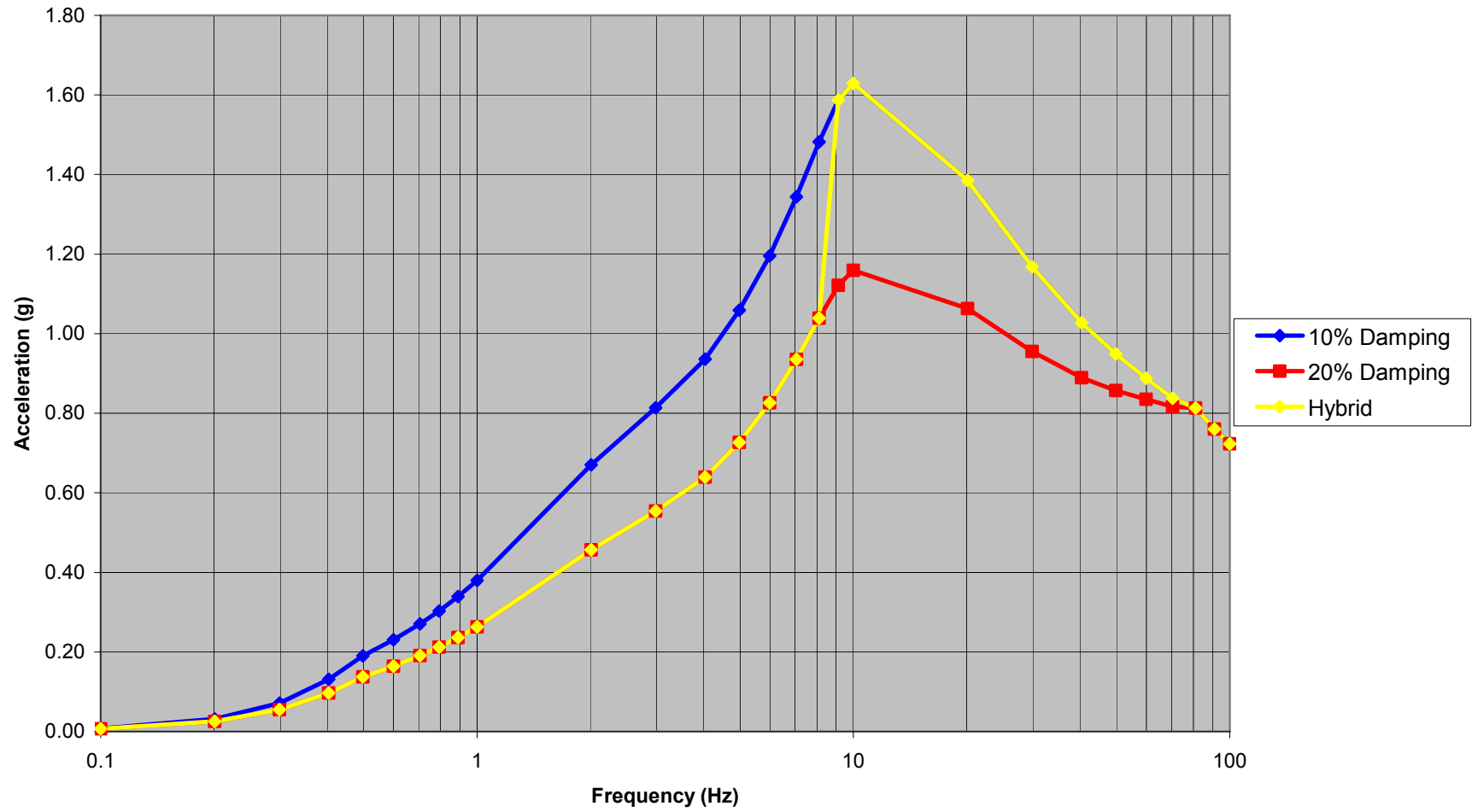


Figure 20 - Vertical Response Spectra BDBGM 100' Median

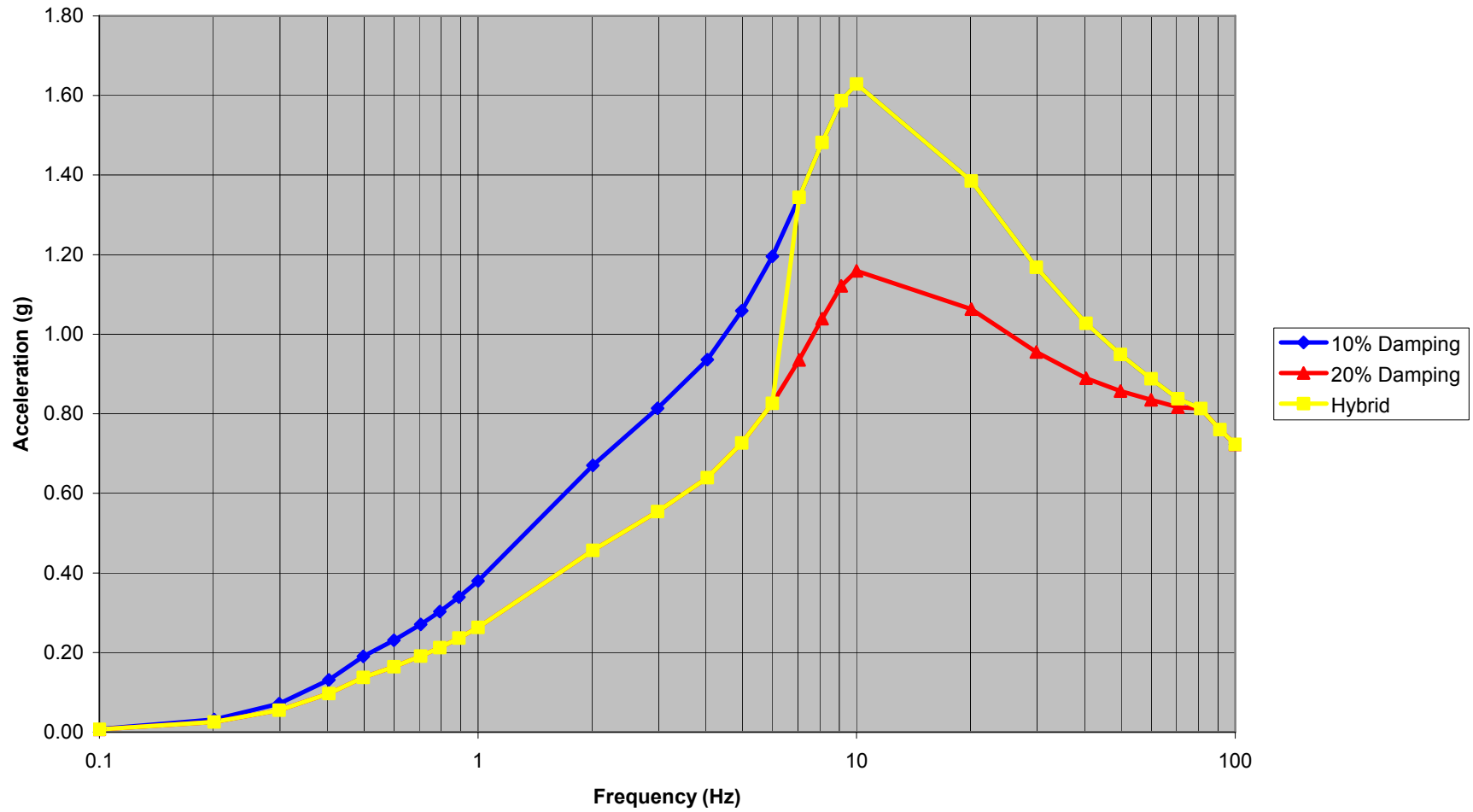


Figure 21 - Vertical Response Spectra BDBGM 100' Lower Bound

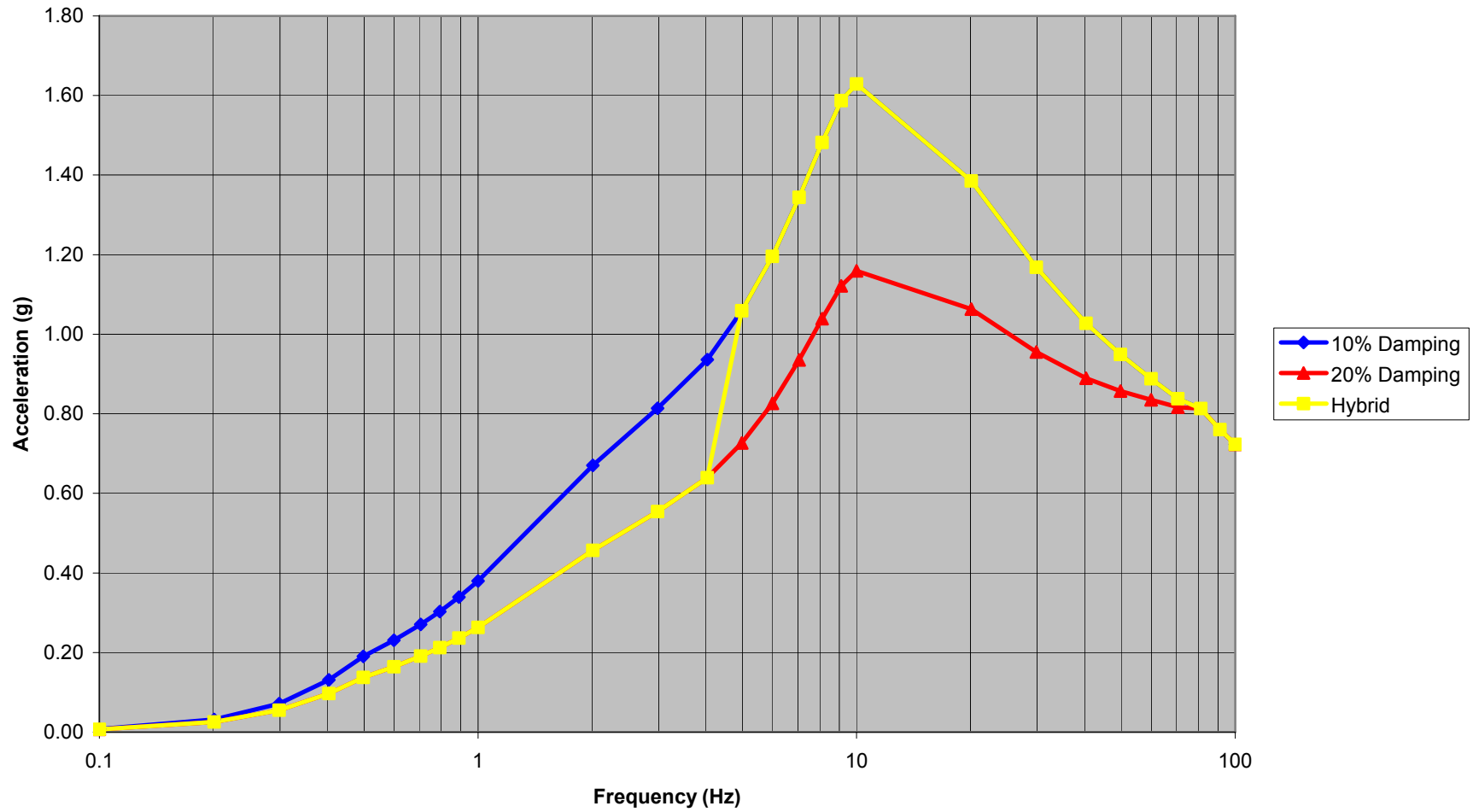


Figure 22 - Vertical Response Spectra BDBGM 200' Upper Bound

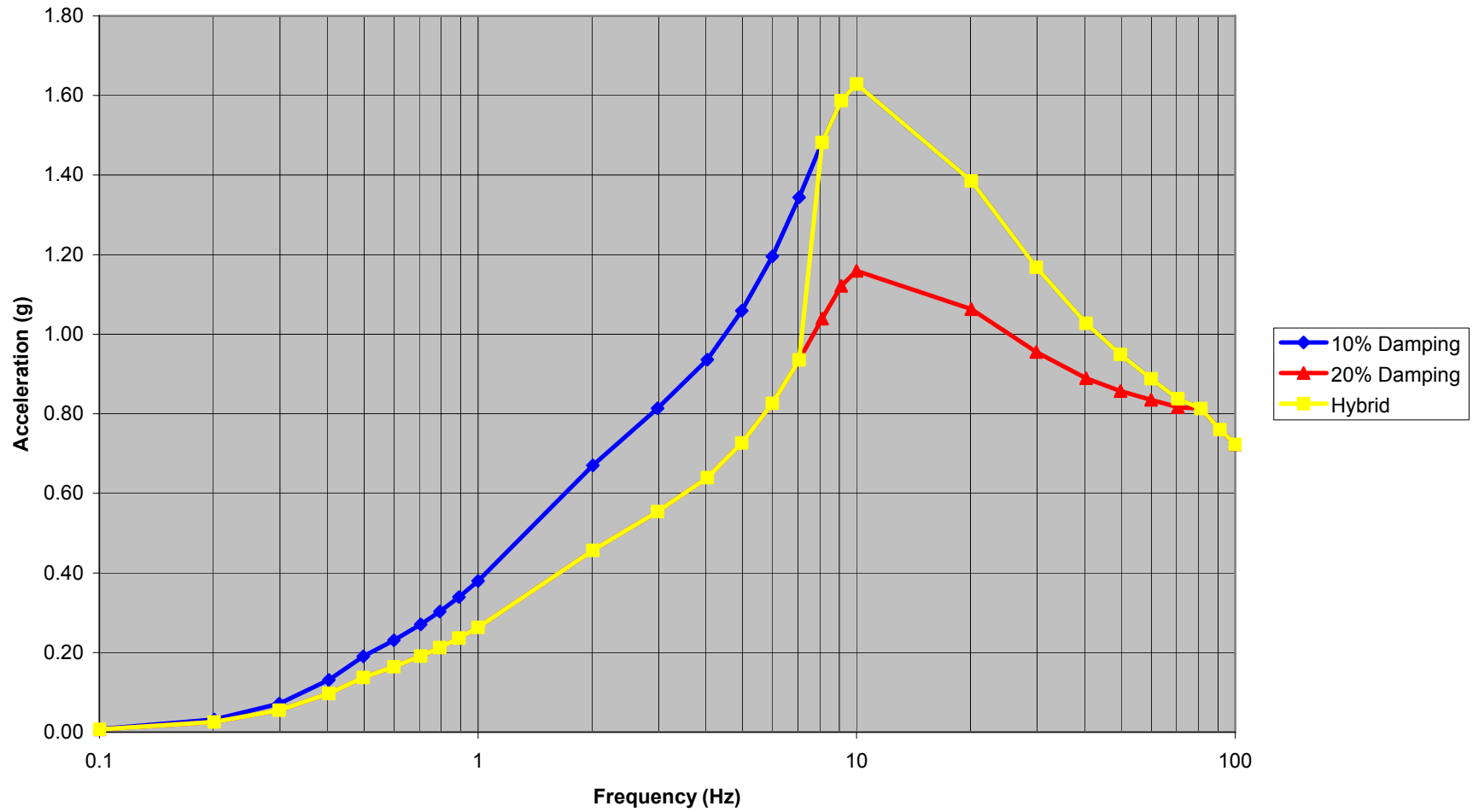


Figure 23 - Vertical Response Spectra BDBGM 200' Median

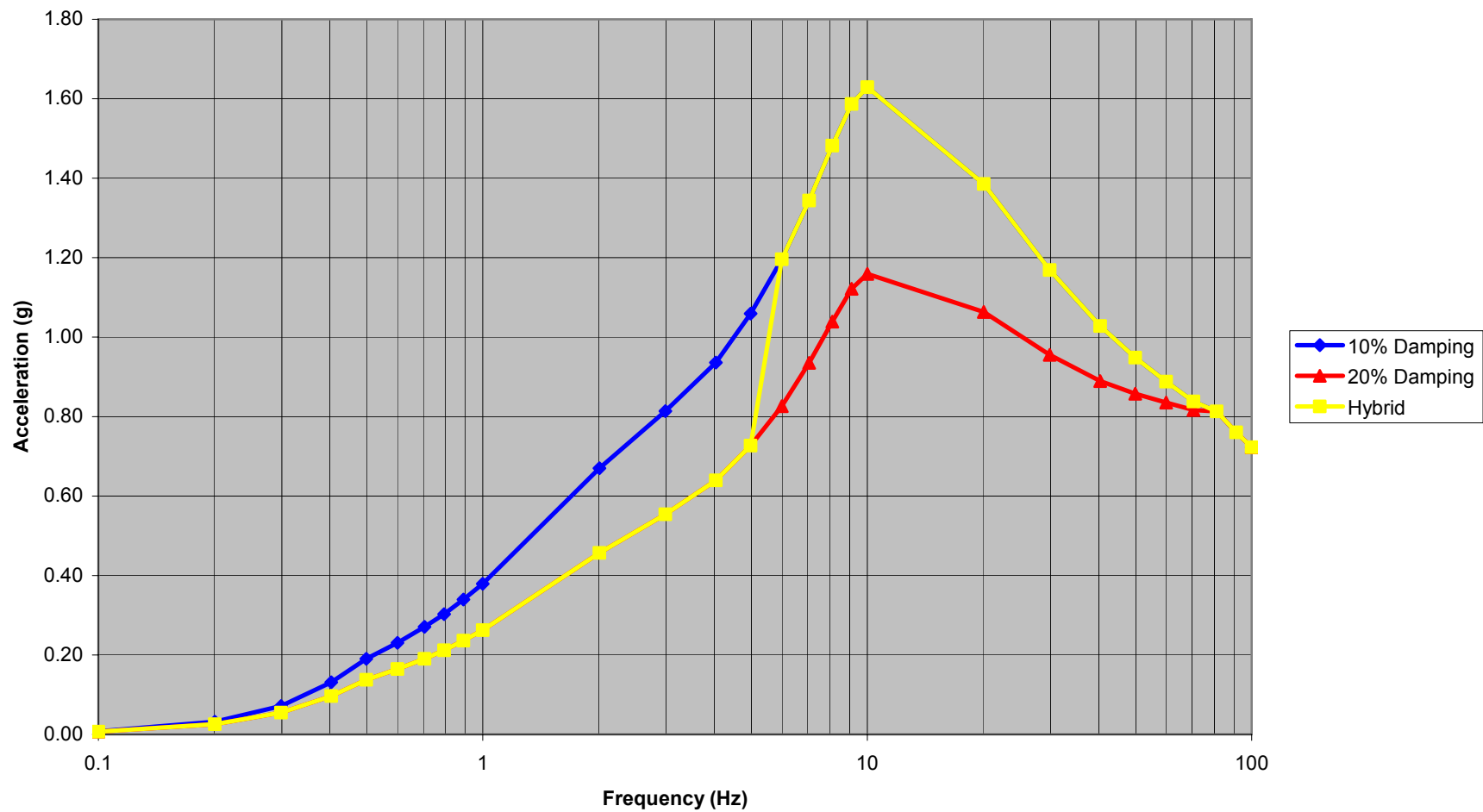
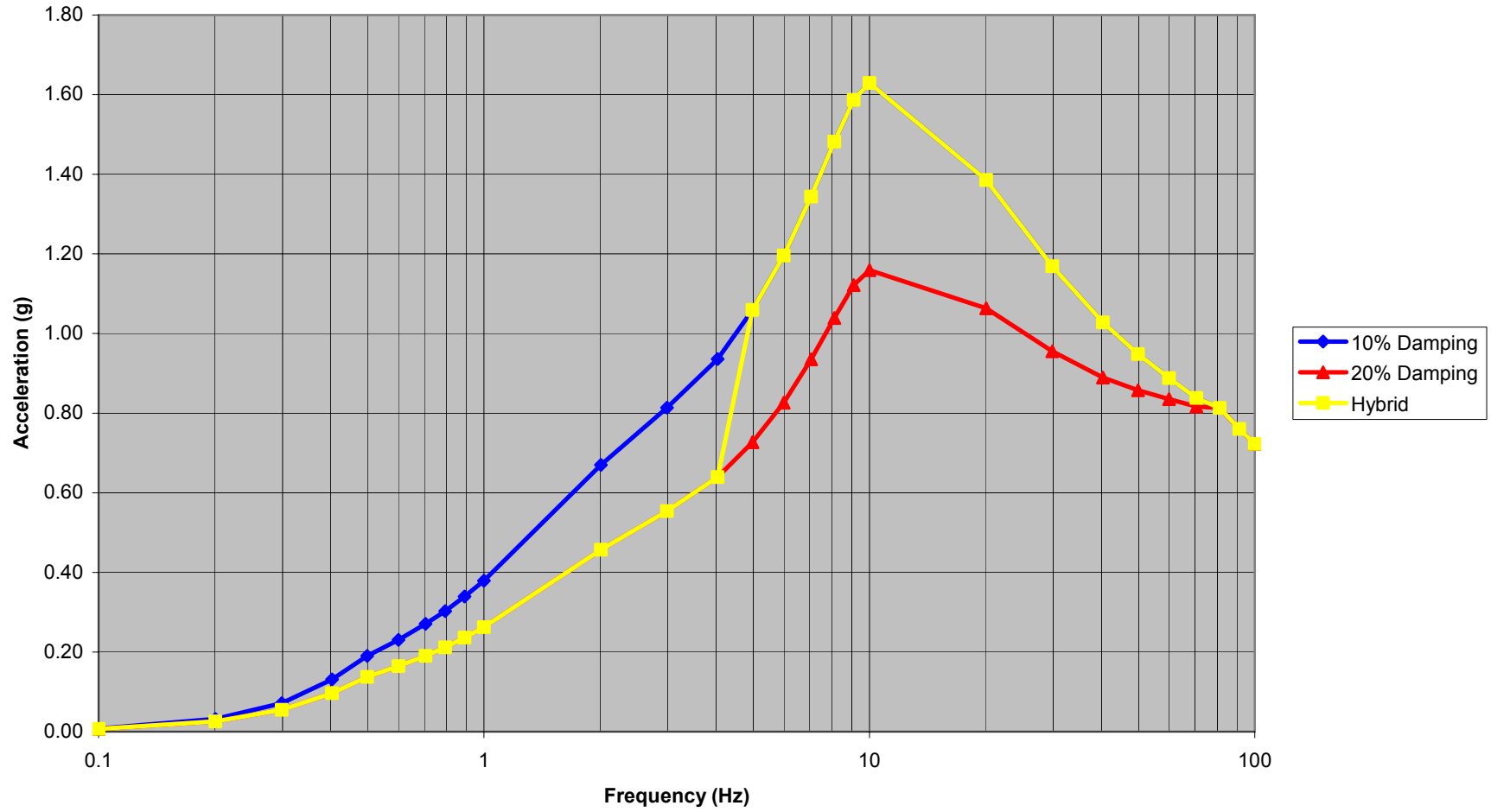


Figure 24 - Vertical Response Spectra BDBGM 200' Lower Bound



7. RESULTS AND CONCLUSIONS

7.1 RESULTS

The results from this calculation are:

- Member forces and nodal accelerations for DBGM-2 and BDBGM seismic events
- Building accelerations at diaphragm levels
- Story drifts for DBGM-2 and BDBGM seismic events due to loads in global X and Y directions
- Base Shear for all seismic load cases

Output from the following runs are contained in the referenced attachments:

Attachment D	Contains results of the DBGM-2 Upper Bound 100' Alluvium Modal Analysis and Response Spectrum Analysis
Attachment E	Contains results of the DBGM-2 Median 100' Alluvium Modal Analysis and Response Spectrum Analysis
Attachment F	Contains results of the DBGM-2 Lower Bound 100' Alluvium Modal Analysis and Response Spectrum Analysis
Attachment G	Contains results of the DBGM-2 Upper Bound 200' Alluvium Modal Analysis and Response Spectrum Analysis
Attachment H	Contains results of the DBGM-2 Median 200' Alluvium Modal Analysis and Response Spectrum Analysis
Attachment I	Contains results of the DBGM-2 Lower Bound 200' Alluvium Modal Analysis and Response Spectrum Analysis
Attachment J	Contains results of the BDBGM Upper Bound 100' Alluvium Modal Analysis and Response Spectrum Analysis
Attachment K	Contains results of the BDBGM Median 100' Alluvium Modal Analysis and Response Spectrum Analysis
Attachment L	Contains results of the BDBGM Lower Bound 100' Alluvium Modal Analysis and Response Spectrum Analysis
Attachment M	Contains results of the BDBGM Upper Bound 200' Alluvium Modal Analysis and Response Spectrum Analysis
Attachment N	Contains results of the BDBGM Median 200' Alluvium Modal Analysis and Response Spectrum Analysis
Attachment O	Contains results of the BDBGM Lower Bound 200' Alluvium Modal Analysis and Response Spectrum Analysis
Attachment P	Contains results of the DBGM-2 and BDBGM Base Shear Calculations
Attachment Q	Contains results of the IBC Base Shear Calculations

Maximum diaphragm accelerations at the center of gravity of each diaphragm are summarized in Tables 13 and 14 for the DBGM-2 cases, and Table 15 for BDBGM cases. Global X, Y, and Z directional responses as well as accelerations from SRSS combinations are presented. Figure 25 shows the plot of HX and HY response accelerations throughout the height of the structure.

Table 13 – Diaphragm Accelerations for DBGM-2 100' Upper Bound Condition

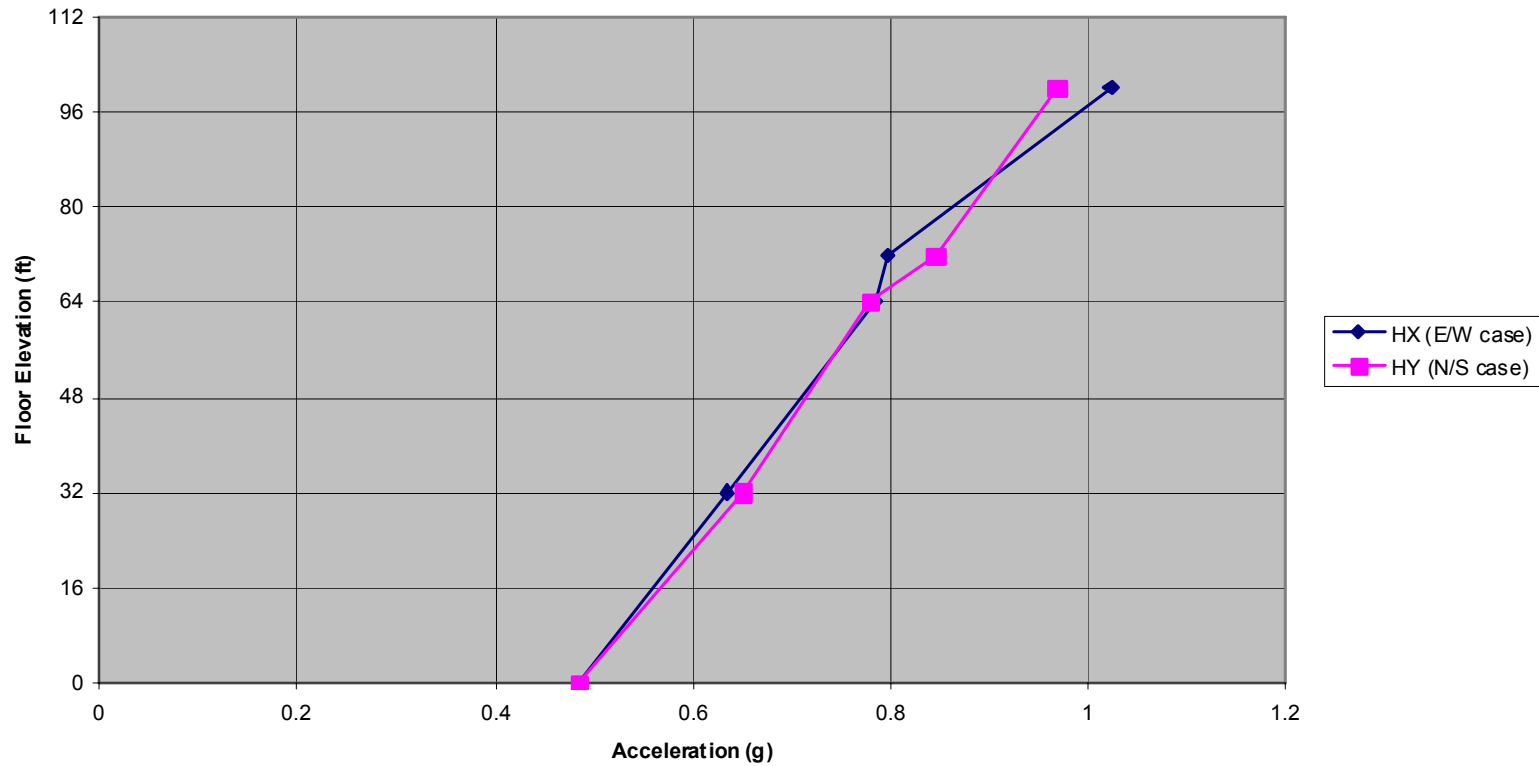
100' Alluvium, Upper Bound - HX (E/W case) Accelerations				
Floor Elevation	Node #	U_x ft/sec ²	U_y ft/sec ²	U_z ft/sec ²
0'-0"	99	15.5810	0.3381	0.1456
32'-0"	299	20.4611	0.4733	0.1441
64'-0"	499	25.2514	0.5606	0.2550
72'-0"	599	25.6625	0.6571	3.8818
100'-0"	699	32.9622	0.6963	0.9084

100' Alluvium, Upper Bound - HY (N/S case) Accelerations				
Floor Elevation	Node #	U_x ft/sec ²	U_y ft/sec ²	U_z ft/sec ²
0'-0"	99	0.3560	15.5990	0.1075
32'-0"	299	0.4701	20.9690	0.1139
64'-0"	499	0.5379	25.0670	0.2751
72'-0"	599	0.6195	27.2132	0.1494
100'-0"	699	0.8522	31.7693	0.1238

100' Alluvium, Upper Bound - VZ (Vertical case) Accelerations				
Floor Elevation	Node #	U_x ft/sec ²	U_y ft/sec ²	U_z ft/sec ²
0'-0"	99	0.1263	0.0883	12.4366
32'-0"	299	0.1083	0.0757	13.2686
64'-0"	499	0.1044	0.0797	13.7639
72'-0"	599	0.6019	0.1124	14.0862
100'-0"	699	0.2736	0.1368	14.2985

Source: Attachment D (Table Joint Accelerations – Absolute)

**Figure 25 - DBGM-2 Accelerations HX, HY
(Upper Bound 100' Alluvium)**



HX - Acceleration in X-direction due to seismic load in X-direction

HY - Acceleration in Y-direction due to seismic load in Y-direction

Table 14 – Diaphragm Accelerations for DBGM-2 SRSS Combination

Diaphragm Level	East-West X-Acceleration		North-South Y-Acceleration		Vertical Z-Acceleration	
	ft/sec ²	*g	ft/sec ²	*g	ft/Sec2	*g
0' (Node 99)	15.59	0.48g	15.6	0.48g	12.44	0.38g
32' (Node 299)	20.47	0.64g	20.97	0.65g	13.27	0.41g
64' (Node 499)	25.26	0.78g	25.07	0.78g	13.77	0.43g
72' (Node 599)	25.67	0.79g	27.22	0.85g	14.61	0.45g
100' (Node 699)	32.97	1.02g	31.78	0.997g	14.33	0.44g

Source: Attachment D

* g = 32.2 ft/sec²

Table 15 – Diaphragm Accelerations for BDBGM SRSS Combination

Diaphragm Level	East-West X-Acceleration		North-South Y-Acceleration		Vertical Z-Acceleration	
	ft/sec ²	*g	ft/sec ²	*g	ft/Sec2	*g
0' (Node 99)	32.65	1.01g	32.26	1.0g	29.33	0.91g
32' (Node 299)	40.82	1.27g	41.63	1.29g	30.77	0.96g
64' (Node 499)	48.30	1.50g	48.27	1.50g	31.62	0.98g
72' (Node 599)	48.70	1.51g	51.42	1.60g	32.97	1.02g
100' (Node 699)	58.50	1.82g	57.71	1.79g	32.52	1.01g

Source: Attachment J

* g = 32.2 ft/sec²

Table 16 – Story Drifts for DBGM-2 100’ Alluvium Upper Bound

Diaphragm Level (ft) And Corresponding SAP2000 Stick Model Joint Number	Story Displacement Δ (inches)	Story Drift (inches)	Story Height (feet)	Drift Ratio (story drift / story height)
	East-West (Global X)	East-West (Global X)		East-West (Global X)
100'-0" (Joint 699)	0.206	100'-0" (Δ699-Δ499)		(Δ699-Δ499) / 36'
		0.028	36	6.59E-05
64'-0" (Joint 499)	0.178	64'-0" (Δ499-Δ299)		(Δ499-Δ299) / 32'
		0.032	32	8.41E-05
32'-0" (Joint 299)	0.145	32'-0" (Δ299-Δ99)		(Δ299-Δ99) / 32'
		0.041	32	1.06E-04
0'-0" (Joint 99)	0.105			
Diaphragm Level (ft) And Corresponding SAP2000 Stick Model Joint Number	Story Displacement Δ (inches)	Story Drift (inches)	Story Height (feet)	Drift Ratio (story drift / story height)
	North-South (Global Y)	North-South (Global Y)		North-South (Global Y)
100'-0" (Joint 699)	0.198	100'-0" (Δ699-Δ499)		(Δ699-Δ499) / 36'
		0.026	36	6.01E-05
64'-0" (Joint 499)	0.172	64'-0" (Δ499-Δ299)		(Δ499-Δ299) / 32'
		0.026	32	6.8E-05
32'-0" (Joint 299)	0.146	32'-0" (Δ299-Δ99)		(Δ299-Δ99) / 32'
		0.047	32	1.22E-04
0'-0" (Joint 99)	0.099			

Source: Attachment D

East -West displacements are due to seismic load in global X direction (HX)

North- South displacements are due to seismic load in global Y direction (HY)

The values in Tables 16 and 17 represent the relative displacements between diaphragms. A story drift ratio is also calculated by dividing the story drift by the story height. This value is then compared to the allowable limit of 0.004 specified in Section 4.2.11.4.10 of the *Project Design Criteria Document* (Ref. 2.2.2). Since the shear deformation is the primary contributor to the story drift, this limit is applicable to the CRCF structure. Looking at the results from Tables 16 and 17, the drift ratios for both DBGM-2 and BDBGM, 100’ upper bound alluvium soil cases satisfy this requirement. Figure 26 shows the structure’s deflections along the height of the structure for the DBGM-2, 100’ alluvium upper bound case.

**Figure 26 - DBGM-2 Deflections
(Upper Bound 100' Alluvium)**

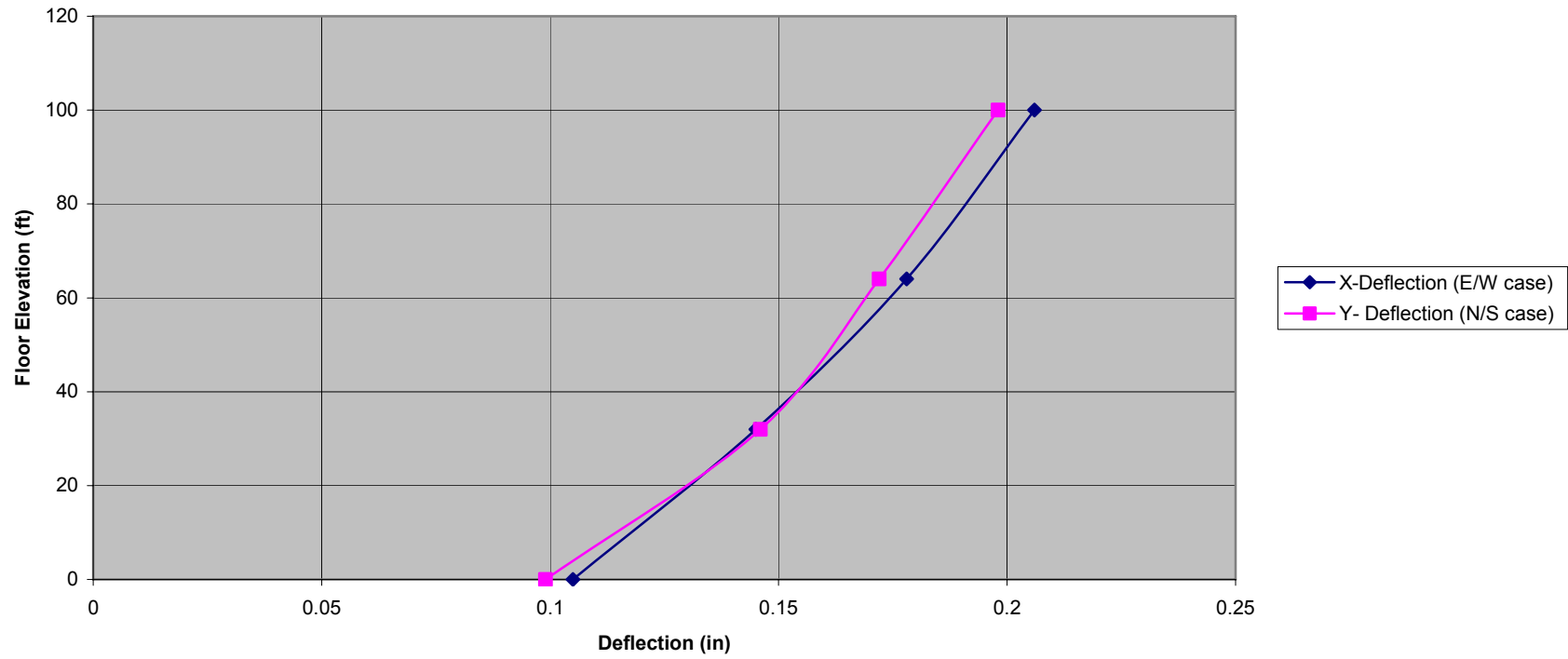


Table 17 – Story Drifts for BDBGM 100’ Alluvium Upper Bound

Diaphragm Level (ft) And Corresponding SAP2000 Stick Model Joint Number	Story Displacement, Δ (inches)	Story Drift (inches)	Story Height (feet)	Drift Ratio (story drift / story height)
	East-West (Global X)	East-West (Global X)		East-West (Global X)
100'-0" (Joint 699)	0.491	100'-0" (Δ699-Δ499)		(Δ699-Δ499) / 36'
		0.055	36	1.28E-04
64'-0" (Joint 499)	0.436	64'-0" (Δ499-Δ299)		(Δ499-Δ299) / 32'
		0.064	32	1.67E-04
32'-0" (Joint 299)	0.372	32'-0" (Δ299-Δ99)		(Δ299-Δ99) / 32'
		0.083	32	2.15E-04
0'-0" (Joint 99)	0.289			
Diaphragm Level (ft) And Corresponding SAP2000 Stick Model Joint Number	Story Displacement, Δ (inches)	Story Drift (inches)	Story Height (feet)	Drift Ratio (story drift / story height)
	North-South (Global Y)	North-South (Global Y)		North-South (Global Y)
100'-0" (Joint 699)	0.478	100'-0" (Δ699-Δ499)		(Δ699-Δ499) / 36'
		0.054	36	1.24E-04
64'-0" (Joint 499)	0.425	64'-0" (Δ499-Δ299)		(Δ499-Δ299) / 32'
		0.054	32	1.41E-04
32'-0" (Joint 299)	0.370	32'-0" (Δ299-Δ99)		(Δ299-Δ99) / 32'
		0.096	32	2.5E-04
0'-0" (Joint 99)	0.274			

Source: Attachment J

East -West displacements are due to seismic load in global X direction (HX)
 North- South displacements are due to seismic load in global Y direction (HY)

Table 18 – Story Shears for DBGM-2 for 100’ and 200’ Alluvium

Soil Case	North-South Global Y (kips)	East-West Global X (kips)
Elevation 0’-0”		
100’ Lower Bound	104,266	102,451
100’ Median	119,187	117,360
100’ Upper Bound	129,516	127,862
200’ Lower Bound	101,724	99,860
200’ Median	116,955	115,036
200’ Upper Bound	128,503	126,857
Elevation 32’-0”		
100’ Lower Bound	51,655	50,500
100’ Median	60,474	59,823
100’ Upper Bound	68,249	68,657
200’ Lower Bound	50,513	48,979
200’ Median	59,032	58,224
200’ Upper Bound	67,319	67,583
Elevation 64’-0”		
100’ Lower Bound	15,104	14,599
100’ Median	18,171	17,985
100’ Upper Bound	21,558	22,115
200’ Lower Bound	14,625	14,079
200’ Median	17,628	17,354
200’ Upper Bound	21,088	21,608

Source: Attachment P

Figure 27-Story Shear for DBGM -2 1 00' Upper Bound Alluvium
East-West and North-South

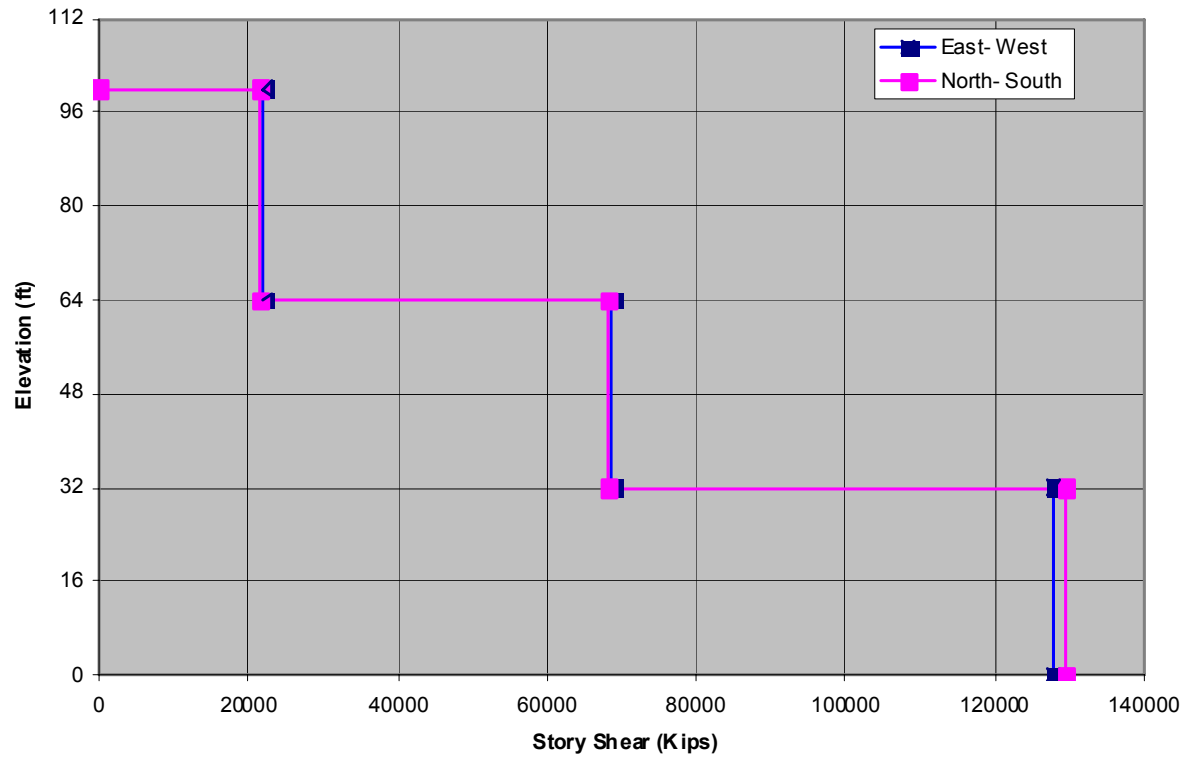


Table 19 – Story Shears for BDBGM Seismic Event

Soil Case	North-South Global Y (kips)	East-West Global X (kips)
Elevation 0'-0"		
100' Upper Bound	253,169	250,070
100' Median	229,939	225,918
100' Lower Bound	198,384	194,573
200' Upper Bound	250,445	247,323
200' Median	222,445	218,338
200' Lower Bound	190,252	186,470
Elevation 32'-0"		
100' Upper Bound	129,882	129,684
100' Median	114,447	112,364
100' Lower Bound	97,066	94,450
200' Upper Bound	127,673	127,177
200' Median	110,182	107,884
200' Lower Bound	92,794	90,131
Elevation 64'-0"		
100' Upper Bound	39,410	39,589
100' Median	33,518	32,673
100' Lower Bound	27,931	26,779
200' Upper Bound	38,440	38,420
200' Median	32,105	31,154
200' Lower Bound	26,623	25,448

Source: Attachment P

Base Shear computed using equivalent static method defined in *International Building Code 2000* (IBC, Ref. 2.2.11) is included in Attachment Q. Comparison of base shears summarized in Table 18 (story shear at El. 0'-0") to IBC base shear indicate that CRCF base shear based on site specific response spectra for DBGM-2 seismic event is greater than but comparable to those obtained using static method of IBC.

7.2 CONCLUSIONS

Results from this calculation are consistent with the results obtained in the original CRCF seismic analysis (Ref. 2.2.8). As expected the fundamental frequencies obtained in this calculation are lower than those obtained in Ref. 2.2.8 as a result of the softer soil springs computed using the 2007 data.

This calculation develops the required information to perform a comparison with the seismic analysis results obtained using the 2004 strain compatible soil properties and free field ground input spectra.

Results from this comparison will determine if the existing CRCF structural designs are adequate or will need to be revised using results from this calculation.

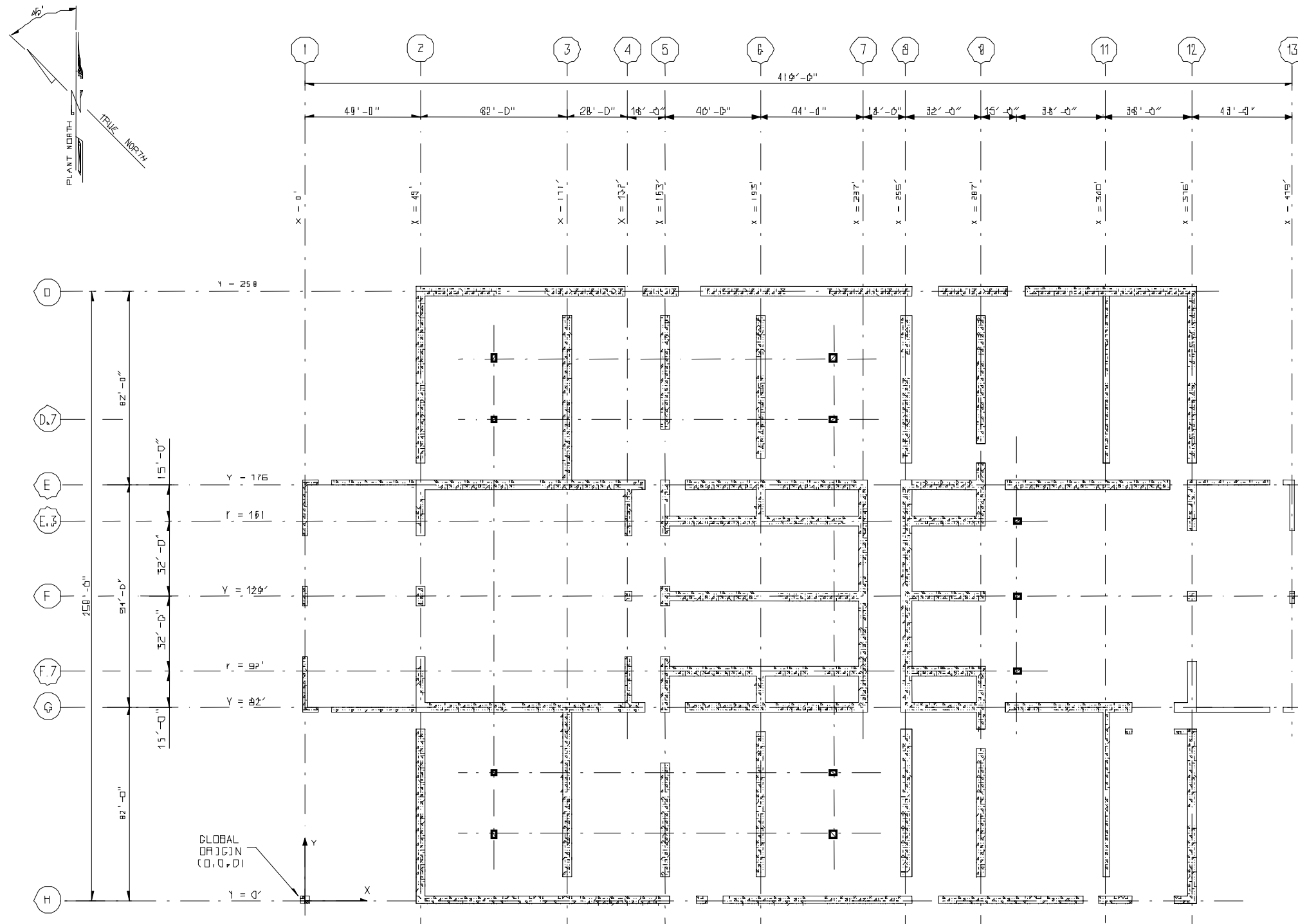
The design response spectra shown in DTNs MO0706DSDR5E4A.001 (Ref. 2.2.9) and MO0706DSDR1E4A.001 (Ref. 2.2.10) have been qualified with a caveat that indicates points with a period of 3.33 second and above are plotted incorrectly. It has been determined that the highest period that can be qualified is at 2 seconds. This caveat limits the data in DTNs MO0706DSDR5E4A.001 and MO0706DSDR1E4A.001.

It was noted that the vibration modes shown in Tables 1 through 6, that are based on the data from Ref. 2.2.9 and Tables 7 through 12 that are based on data from Ref. 2.2.10 indicate the structure's first mode for all cases has a period below 2 seconds (frequency above 0.5 hertz) threshold. Therefore, it is concluded that the building response is not impacted by omitting all responses above 2 seconds.

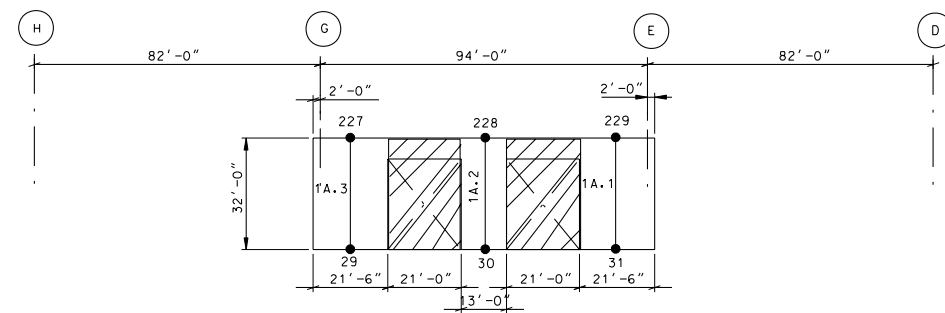
ATTACHMENT A
Floor Plan and Wall Elevations

Attachment A : Floor Plan and Wall Elevations

	Page
Ground Floor Plan At EL 0'-0"	A-3
Elevation Along Column Line 1	A-4
Elevation Along Column Line 2	A-5
Elevation Along Column Line 3	A-6
Elevation Along Column Line 4	A-7
Elevation Along Column Line 5	A-8
Elevation Along Column Line 6	A-9
Elevation Along Column Line 7	A-10
Elevation Along Column Line 8	A-11
Elevation Along Column Line 9	A-12
Elevation Along Column Line 11	A-13
Elevation Along Column Line 12	A-14
Elevation Along Column Line 13	A-15
Elevation Along Column Line D	A-16
Elevation Along Column Line E	A-17
Elevation Along Column Line E.3	A-18
Elevation Along Column Line F	A-19
Elevation Along Column Line F.7	A-20
Elevation Along Column Line G	A-21
Elevation Along Column Line H	A-22

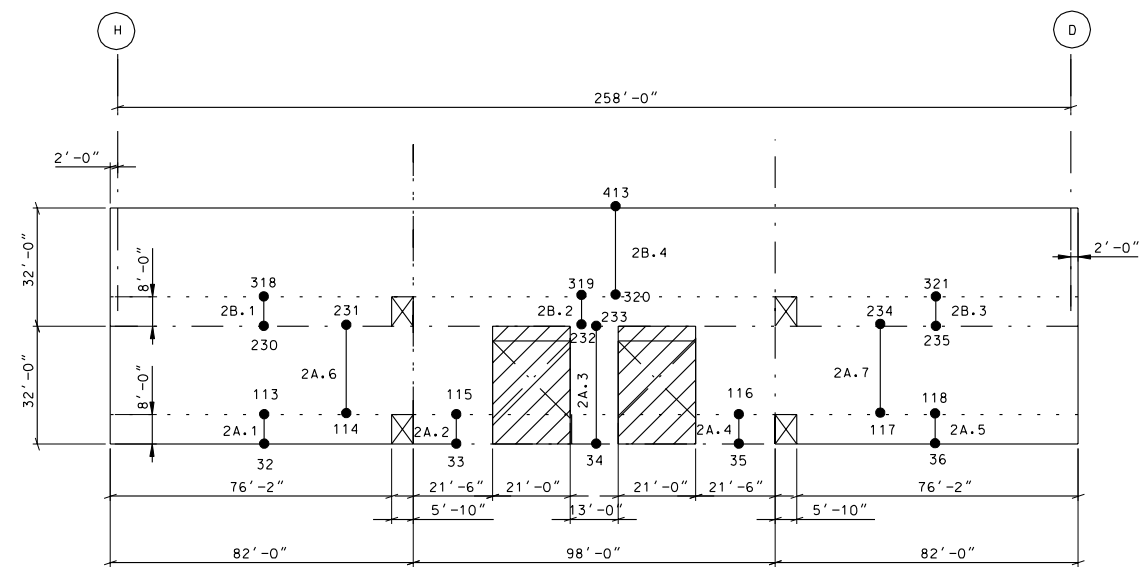


GROUND FLOOR PLAN AT EL. 0'-0"
 (All dimensions +/- 6")



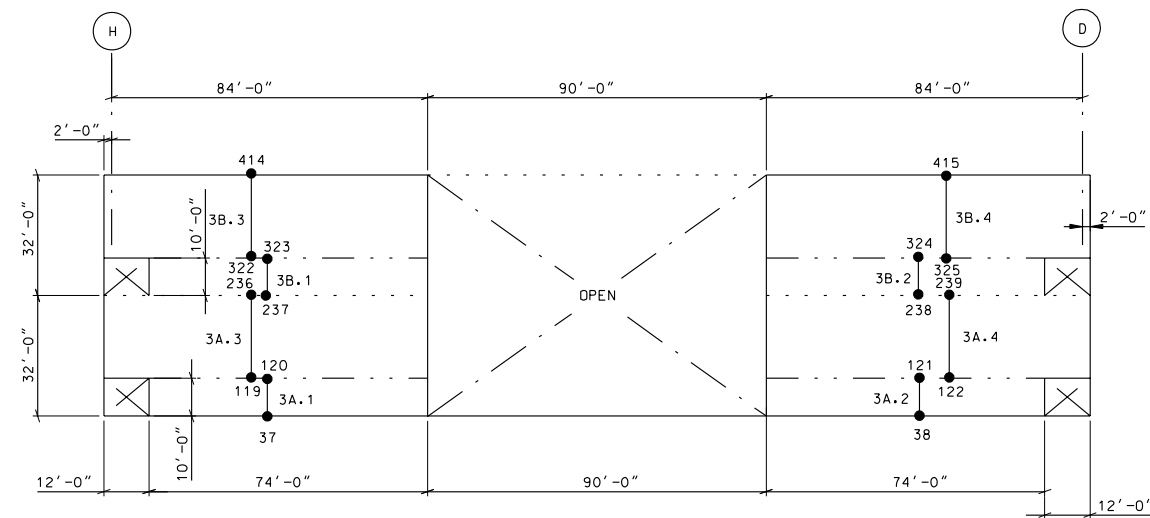
ELEVATION ALONG COLUMN LINE 1
(LOOKING WEST)

(NOTE: ALL DIMENSIONS +/- 6")



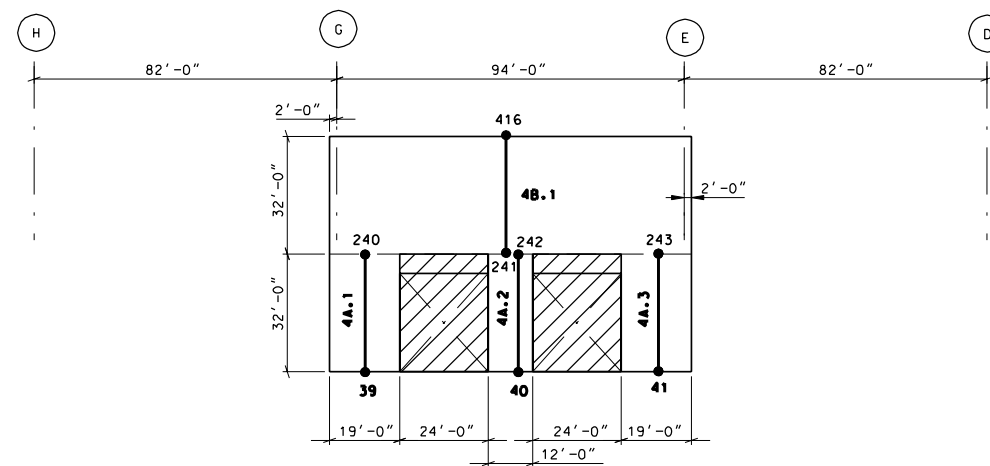
ELEVATION ALONG COLUMN LINE 2
(LOOKING WEST)

(NOTE: ALL DIMENSIONS +/- 6")



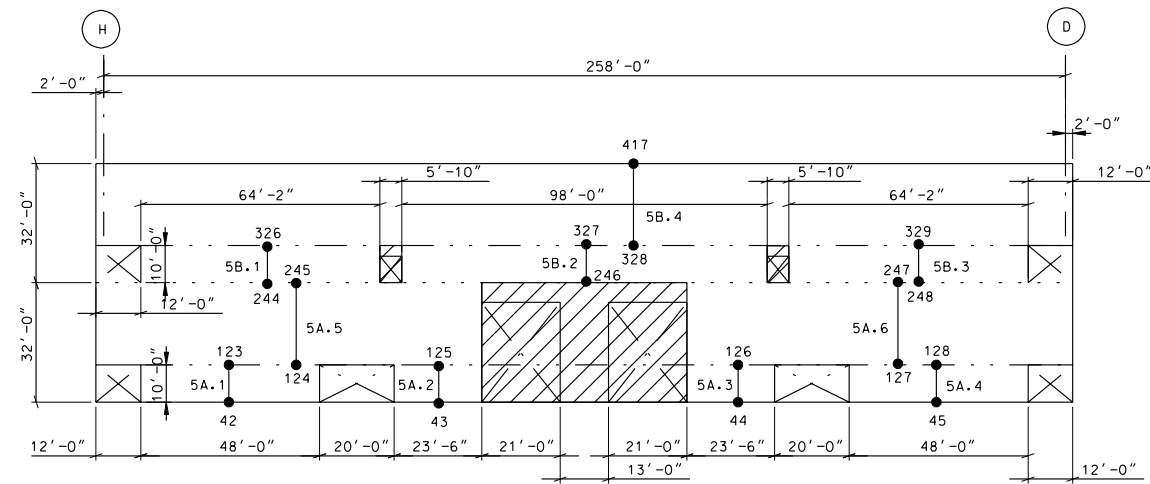
ELEVATION ALONG COLUMN LINE 3
(LOOKING WEST)

(NOTE: ALL DIMENSIONS +/- 6")



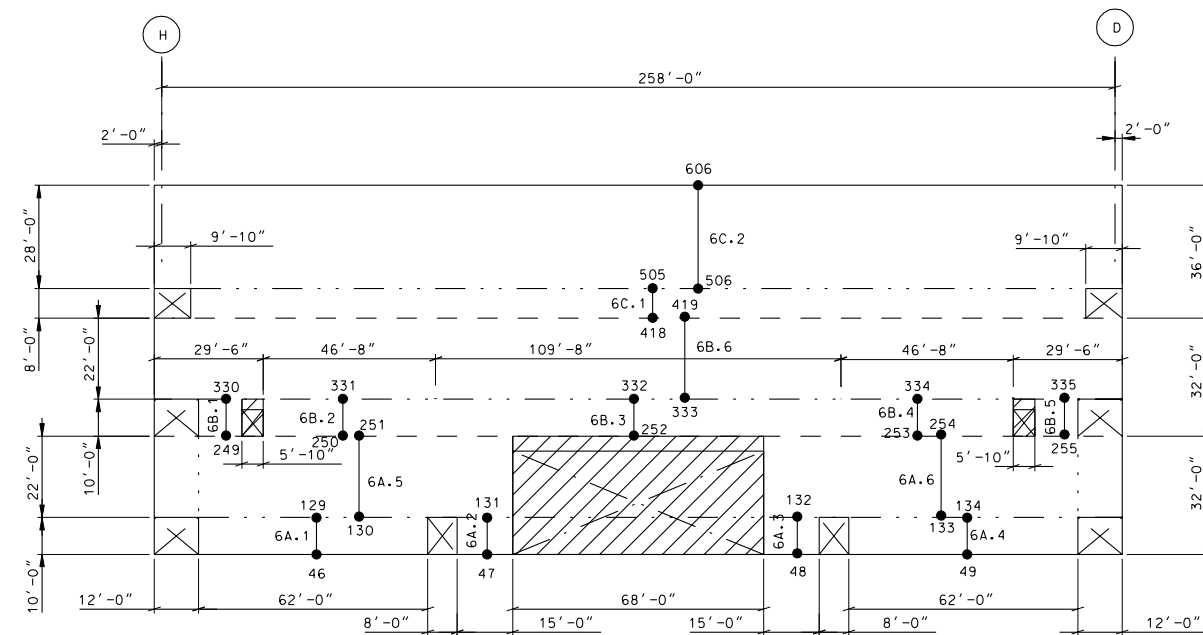
ELEVATION ALONG COLUMN LINE 4
(LOOKING WEST)

(NOTE: ALL DIMENSIONS +/- 6")



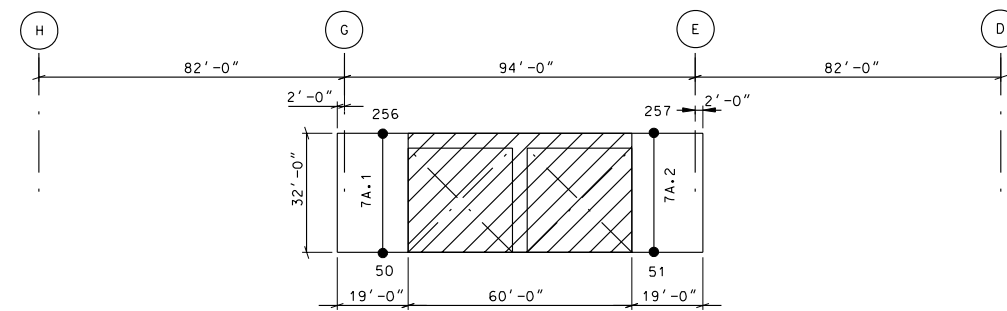
ELEVATION ALONG COLUMN LINE 5
(LOOKING WEST)

(NOTE: ALL DIMENSIONS +/- 6")

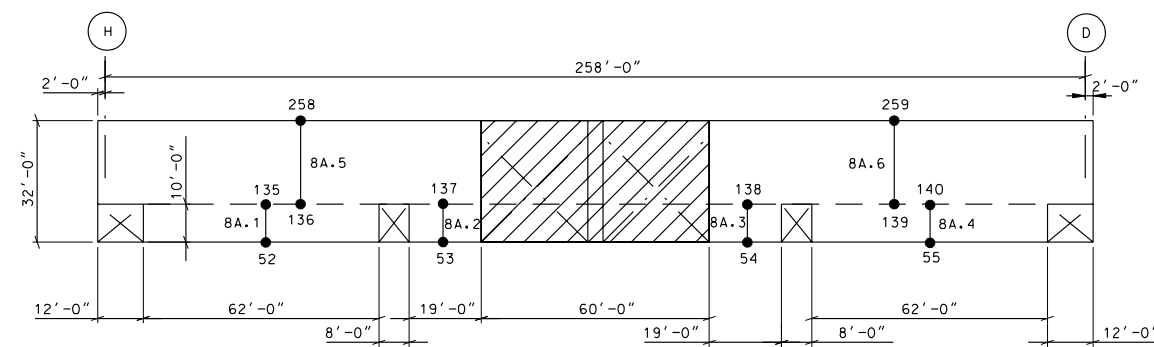


ELEVATION ALONG COLUMN LINE 6
(LOOKING WEST)

(NOTE: ALL DIMENSIONS +/- 6")

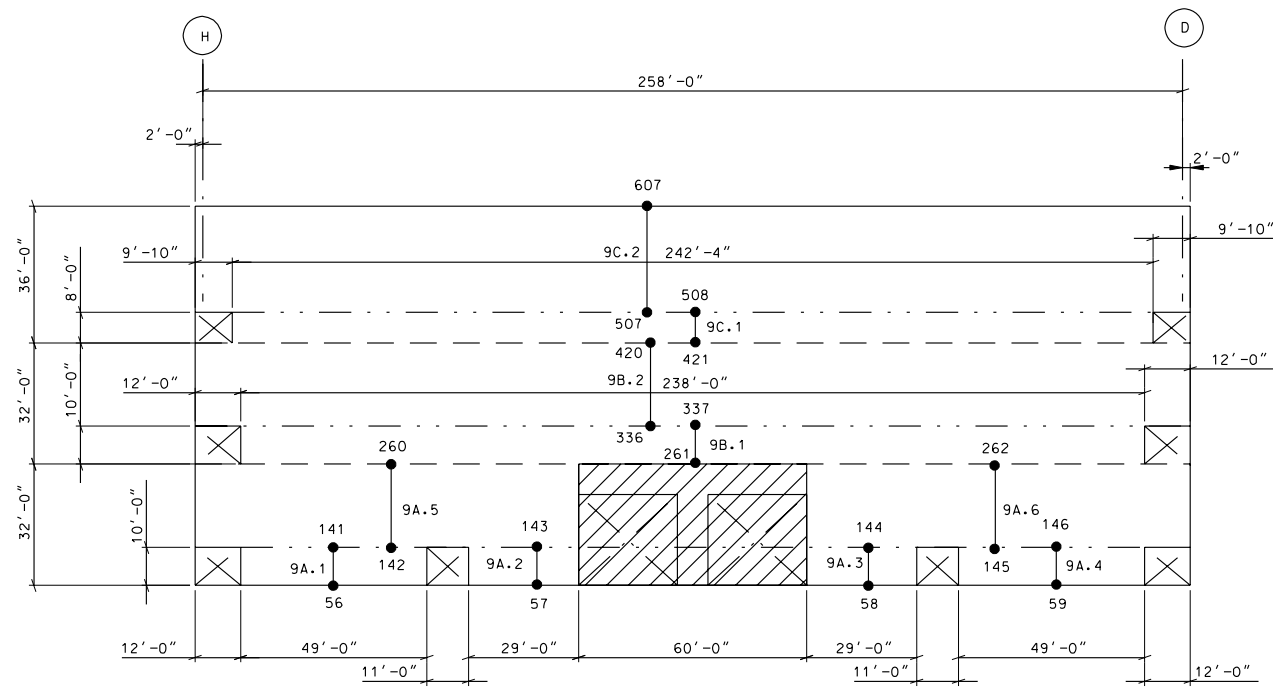


ELEVATION ALONG COLUMN LINE 7
(LOOKING WEST)
(NOTE: ALL DIMENSIONS +/- 6'')



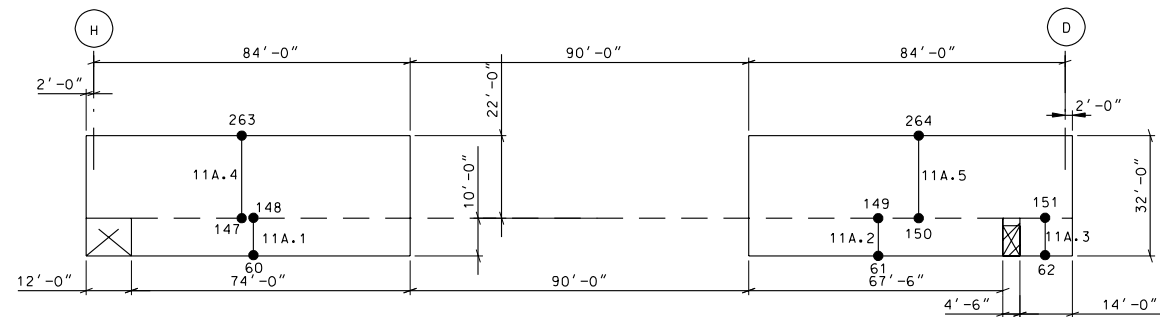
ELEVATION ALONG COLUMN LINE 8
(LOOKING WEST)

(NOTE: ALL DIMENSIONS +/- 6")



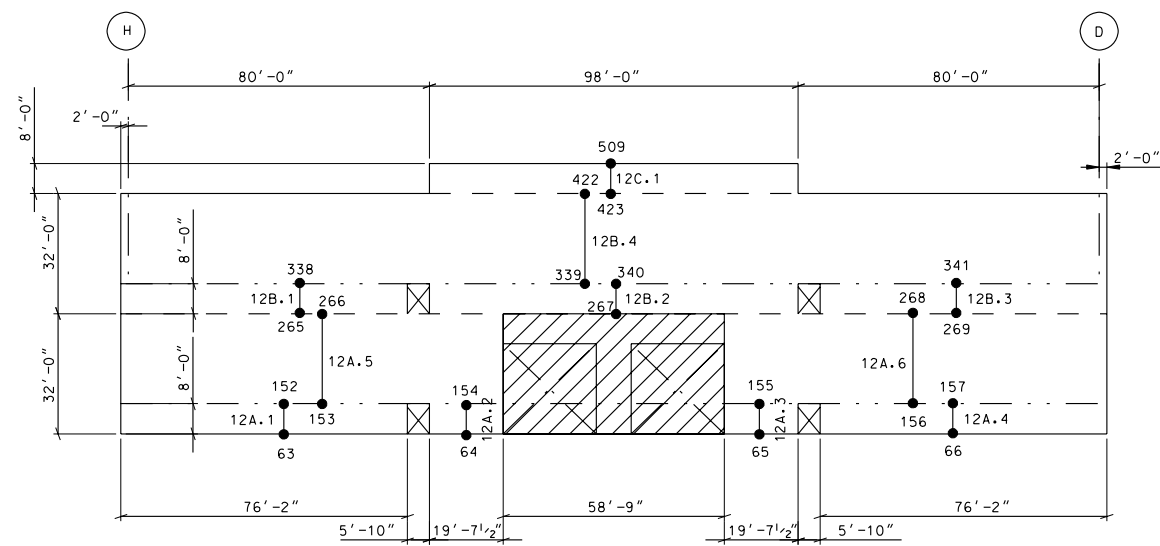
ELEVATION ALONG COLUMN LINE 9
 (LOOKING WEST)

(NOTE: ALL DIMENSIONS +/- 6")



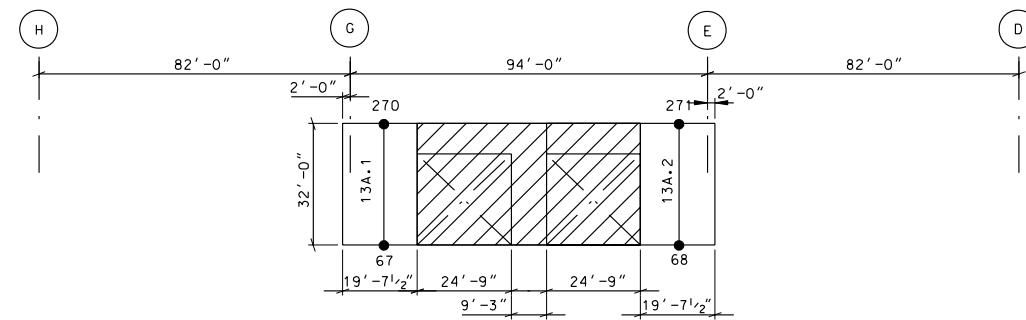
ELEVATION ALONG COLUMN LINE 11
(LOOKING WEST)

(NOTE: ALL DIMENSIONS +/- 6'')



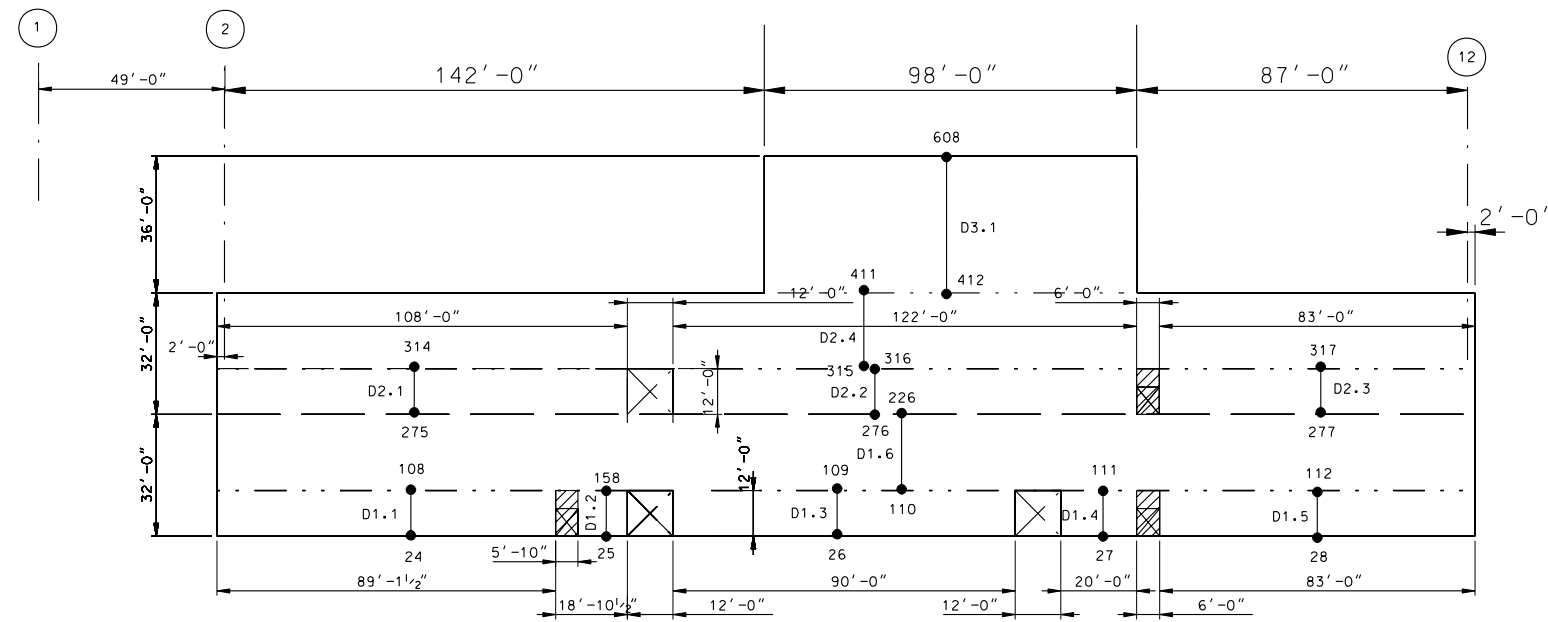
ELEVATION ALONG COLUMN LINE 12
(LOOKING WEST)

(NOTE: ALL DIMENSIONS +/- 6")

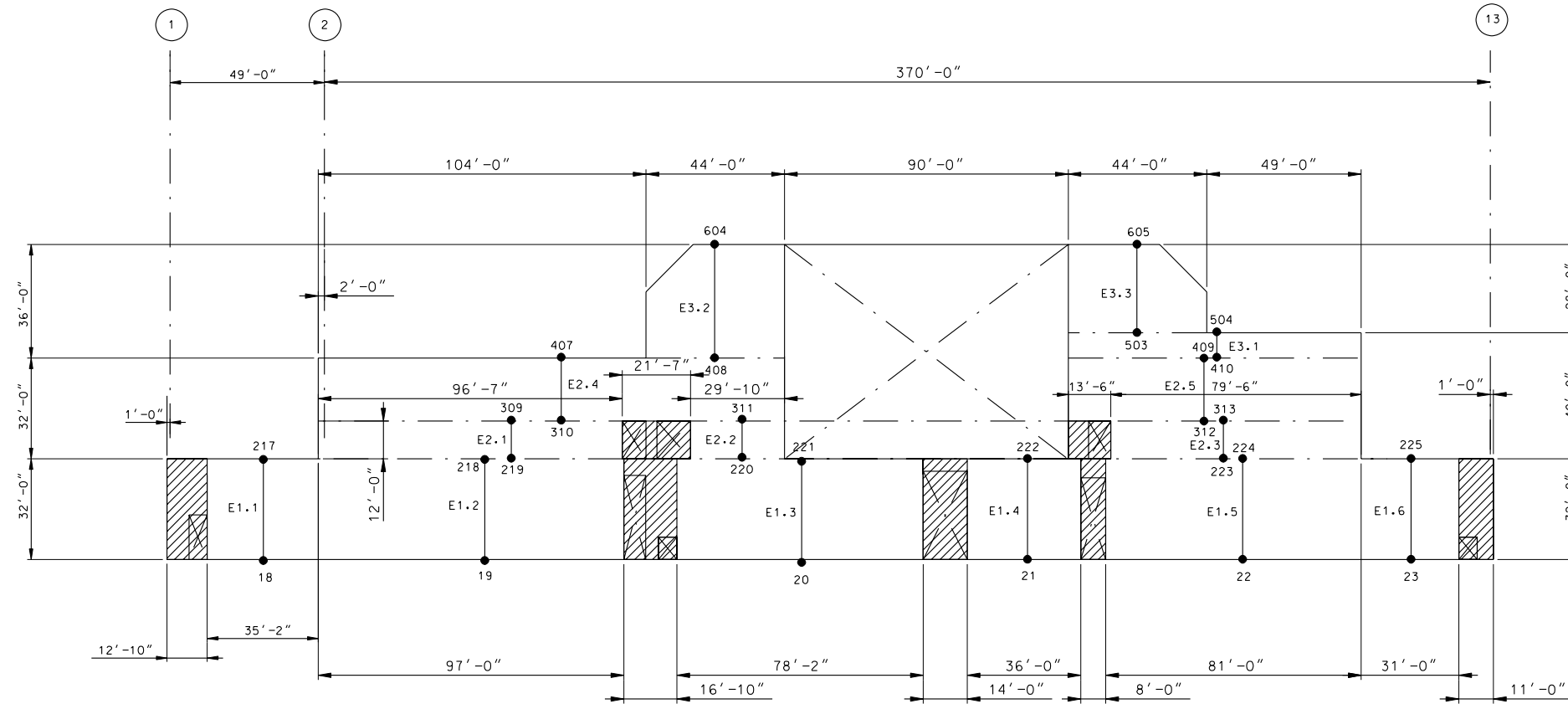


ELEVATION ALONG COLUMN LINE 13
(LOOKING WEST)

(NOTE: ALL DIMENSIONS +/- 6")

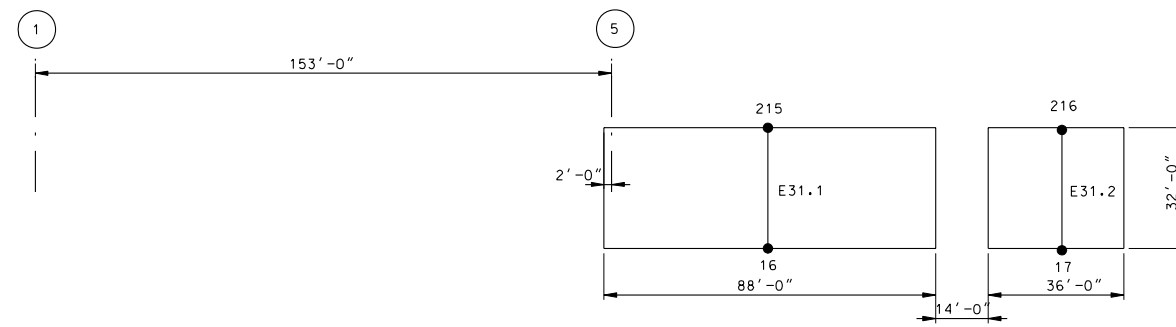


ELEVATION ALONG COLUMN LINE D
 (LOOKING NORTH)
 (NOTE: ALL DIMENSIONS +/- 6")



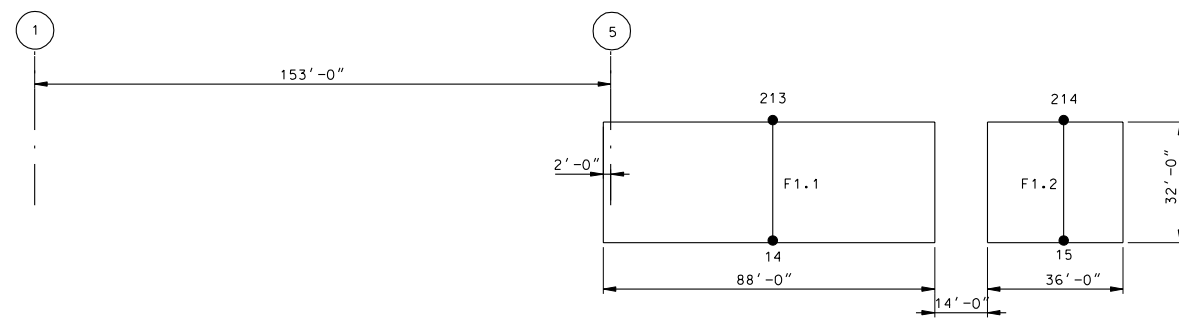
ELEVATION ALONG COLUMN LINE E
 (LOOKING NORTH)

(NOTE: ALL DIMENSIONS +/- 6")



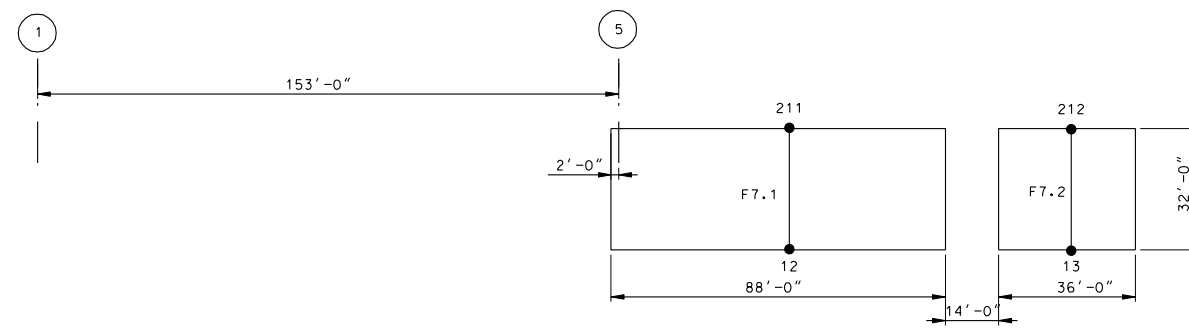
ELEVATION ALONG COLUMN LINE E.3
(LOOKING NORTH)

(NOTE: ALL DIMENSIONS +/- 6")



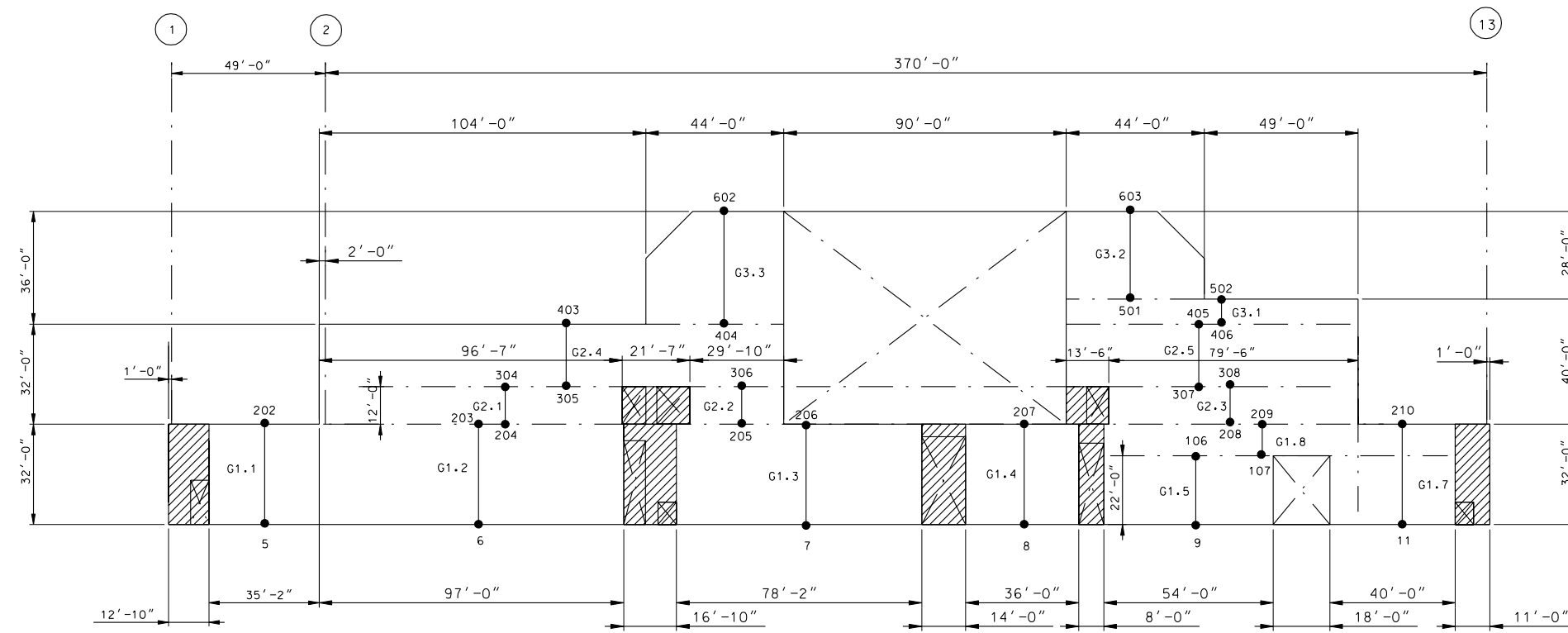
ELEVATION ALONG COLUMN LINE F
(LOOKING NORTH)

(NOTE: ALL DIMENSIONS +/- 6")



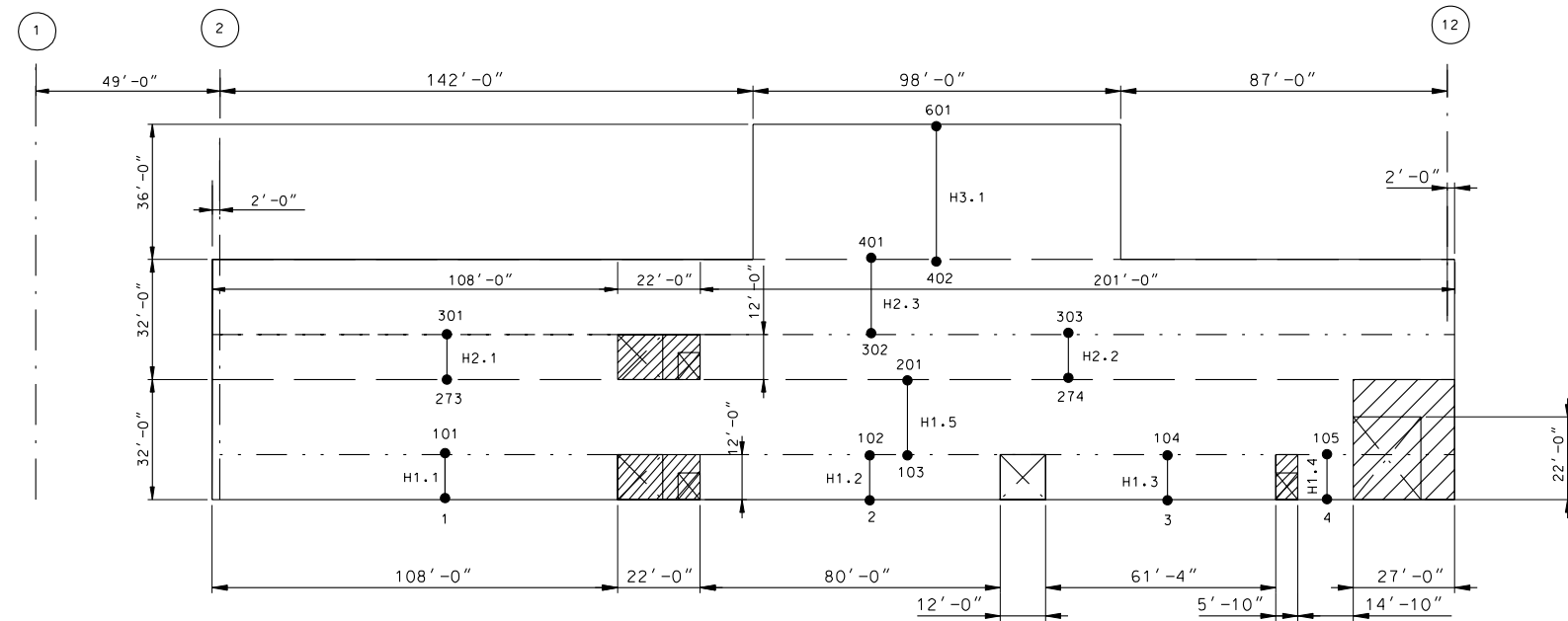
ELEVATION ALONG COLUMN LINE F.7
(LOOKING NORTH)

(NOTE: ALL DIMENSIONS +/- 6")



ELEVATION ALONG COLUMN LINE G
 (LOOKING NORTH)

(NOTE: ALL DIMENSIONS +/- 6")



ELEVATION ALONG COLUMN LINE H
(LOOKING NORTH)
(NOTE: ALL DIMENSIONS +/- 6")

ATTACHMENT B
SAP2000 Stick Model Input

Project Information	
Item	Data
Text	Text
Company Name	Bechtel SAIC Company
Client Name	DOE
Project Name	Yucca Mountain Project
Project Number	
Model Name	CRCF SAP2000
Model Description	Stick Model
Revision Number	00A
Frame Type	
Engineer	G.Rao
Checker	T.Eiler
Supervisor	M.Denlinger
Issue Code	
Design Code	

TABLE: B1 Program Control

ProgramName	Version	ProgLevel	CurrUnits
Text	Text	Text	Text
SAP2000	9.1.4	Advanced	Kip, ft, F

TABLE: B2 Material Properties 01 - General

Material	Type	DesignType	UnitMass	UnitWeight	E	U	A
Text	Text	Text	Kip-s ² /ft ⁴	Kip/ft ³	Kip/ft ²	Unitless	1/F
5ksiconc	Isotropic	None	3.11E-11	1E-09	617302	0.17	1

E = Modulus of Elasticity Section 4.2.11.6.6 Ref. 2.2.2

U = Poisons Ratio Section 4.2.11.6.6 Ref. 2.2.2

A = Coefficient of thermal expansion

(1) The weight of concrete has already been considered in mass properties calculation, (Ref. 2.2.6) therefore, the material property,5ksiconc,will be assigned anextremely small value of unit mass.

TABLE: B3 Joint Coordinates (See Attachment A)								
Joint	CoordSys	CoordType	XorR	Y	Z	GlobalX	GlobalY	GlobalZ
Text	Text	Text	ft	ft	ft	ft	ft	ft
1	GLOBAL	Cartesian	101	0	0	101	0	0
2	GLOBAL	Cartesian	217	0	0	217	0	0
3	GLOBAL	Cartesian	299.67	0	0	299.67	0	0
4	GLOBAL	Cartesian	343.54	0	0	343.54	0	0
5	GLOBAL	Cartesian	29.42	82	0	29.42	82	0
6	GLOBAL	Cartesian	95.5	82	0	95.5	82	0
7	GLOBAL	Cartesian	199.92	82	0	199.92	82	0
8	GLOBAL	Cartesian	271	82	0	271	82	0
9	GLOBAL	Cartesian	324	82	0	324	82	0
11	GLOBAL	Cartesian	389	82	0	389	82	0
12	GLOBAL	Cartesian	195	97	0	195	97	0
13	GLOBAL	Cartesian	271	97	0	271	97	0
14	GLOBAL	Cartesian	195	129	0	195	129	0
15	GLOBAL	Cartesian	271	129	0	271	129	0
16	GLOBAL	Cartesian	195	161	0	195	161	0
17	GLOBAL	Cartesian	271	161	0	271	161	0
18	GLOBAL	Cartesian	29.42	176	0	29.42	176	0
19	GLOBAL	Cartesian	95.5	176	0	95.5	176	0
20	GLOBAL	Cartesian	199.84	176	0	199.84	176	0
21	GLOBAL	Cartesian	271	176	0	271	176	0
22	GLOBAL	Cartesian	337.5	176	0	337.5	176	0
23	GLOBAL	Cartesian	393.5	176	0	393.5	176	0
24	GLOBAL	Cartesian	91.57	258	0	91.57	258	0
25	GLOBAL	Cartesian	148.5	258	0	148.5	258	0
26	GLOBAL	Cartesian	212	258	0	212	258	0
27	GLOBAL	Cartesian	279	258	0	279	258	0
28	GLOBAL	Cartesian	336.5	258	0	336.5	258	0
29	GLOBAL	Cartesian	0	90.75	0	0	90.75	0
30	GLOBAL	Cartesian	0	129	0	0	129	0
31	GLOBAL	Cartesian	0	167.25	0	0	167.25	0
32	GLOBAL	Cartesian	49	36.09	0	49	36.09	0
33	GLOBAL	Cartesian	49	90.75	0	49	90.75	0
34	GLOBAL	Cartesian	49	129	0	49	129	0
35	GLOBAL	Cartesian	49	167.25	0	49	167.25	0
36	GLOBAL	Cartesian	49	221.92	0	49	221.92	0
37	GLOBAL	Cartesian	111	47	0	111	47	0
38	GLOBAL	Cartesian	111	211	0	111	211	0
39	GLOBAL	Cartesian	137	89.5	0	137	89.5	0
40	GLOBAL	Cartesian	137	129	0	137	129	0
41	GLOBAL	Cartesian	137	168.5	0	137	168.5	0
42	GLOBAL	Cartesian	153	34	0	153	34	0
43	GLOBAL	Cartesian	153	89.75	0	153	89.75	0
44	GLOBAL	Cartesian	153	168.25	0	153	168.25	0
45	GLOBAL	Cartesian	153	224	0	153	224	0
46	GLOBAL	Cartesian	193	41	0	193	41	0
47	GLOBAL	Cartesian	193	87.5	0	193	87.5	0
48	GLOBAL	Cartesian	193	170.5	0	193	170.5	0
49	GLOBAL	Cartesian	193	217	0	193	217	0
50	GLOBAL	Cartesian	237	89.5	0	237	89.5	0

TABLE: B3 Joint Coordinates (See Attachment A)								
Joint	CoordSys	CoordType	XorR	Y	Z	GlobalX	GlobalY	GlobalZ
Text	Text	Text	ft	ft	ft	ft	ft	ft
51	GLOBAL	Cartesian	237	168.5	0	237	168.5	0
52	GLOBAL	Cartesian	255	41	0	255	41	0
53	GLOBAL	Cartesian	255	89.5	0	255	89.5	0
54	GLOBAL	Cartesian	255	168.5	0	255	168.5	0
55	GLOBAL	Cartesian	255	217	0	255	217	0
56	GLOBAL	Cartesian	287	34.5	0	287	34.5	0
57	GLOBAL	Cartesian	287	84.5	0	287	84.5	0
58	GLOBAL	Cartesian	287	173.5	0	287	173.5	0
59	GLOBAL	Cartesian	287	223.5	0	287	223.5	0
60	GLOBAL	Cartesian	340	47	0	340	47	0
61	GLOBAL	Cartesian	340	207.75	0	340	207.75	0
62	GLOBAL	Cartesian	340	253	0	340	253	0
63	GLOBAL	Cartesian	376	36.09	0	376	36.09	0
64	GLOBAL	Cartesian	376	89.82	0	376	89.82	0
65	GLOBAL	Cartesian	376	168.2	0	376	168.2	0
66	GLOBAL	Cartesian	376	221.92	0	376	221.92	0
67	GLOBAL	Cartesian	419	89.82	0	419	89.82	0
68	GLOBAL	Cartesian	419	168.2	0	419	168.2	0
98	GLOBAL	Cartesian	212	129	-3	212	129	-3
99	GLOBAL	Cartesian	211.53	129	-3	211.53	129	-3
101	GLOBAL	Cartesian	101	0	12	101	0	12
102	GLOBAL	Cartesian	217	0	12	217	0	12
103	GLOBAL	Cartesian	199	0	12	199	0	12
104	GLOBAL	Cartesian	299.67	0	12	299.67	0	12
105	GLOBAL	Cartesian	343.54	0	12	343.54	0	12
106	GLOBAL	Cartesian	324	82	22	324	82	22
107	GLOBAL	Cartesian	333	82	22	333	82	22
108	GLOBAL	Cartesian	91.57	258	12	91.57	258	12
109	GLOBAL	Cartesian	212	258	12	212	258	12
110	GLOBAL	Cartesian	212.5	258	12	212.5	258	12
111	GLOBAL	Cartesian	279	258	12	279	258	12
112	GLOBAL	Cartesian	336.5	258	12	336.5	258	12
113	GLOBAL	Cartesian	49	36.09	8	49	36.09	8
114	GLOBAL	Cartesian	49	49.75	8	49	49.75	8
115	GLOBAL	Cartesian	49	90.75	8	49	90.75	8
116	GLOBAL	Cartesian	49	167.25	8	49	167.25	8
117	GLOBAL	Cartesian	49	208.25	8	49	208.25	8
118	GLOBAL	Cartesian	49	221.92	8	49	221.92	8
119	GLOBAL	Cartesian	111	41	10	111	41	10
120	GLOBAL	Cartesian	111	47	10	111	47	10
121	GLOBAL	Cartesian	111	211	10	111	211	10
122	GLOBAL	Cartesian	111	217	10	111	217	10
123	GLOBAL	Cartesian	153	34	10	153	34	10
124	GLOBAL	Cartesian	153	49.75	10	153	49.75	10
125	GLOBAL	Cartesian	153	89.75	10	153	89.75	10
126	GLOBAL	Cartesian	153	168.25	10	153	168.25	10
127	GLOBAL	Cartesian	153	208.25	10	153	208.25	10
128	GLOBAL	Cartesian	153	224	10	153	224	10
129	GLOBAL	Cartesian	193	41	10	193	41	10

TABLE: B3 Joint Coordinates (See Attachment A)

Joint	CoordSys	CoordType	XorR	Y	Z	GlobalX	GlobalY	GlobalZ
Text	Text	Text	ft	ft	ft	ft	ft	ft
130	GLOBAL	Cartesian	193	46.5	10	193	46.5	10
131	GLOBAL	Cartesian	193	87.5	10	193	87.5	10
132	GLOBAL	Cartesian	193	170.5	10	193	170.5	10
133	GLOBAL	Cartesian	193	211.5	10	193	211.5	10
134	GLOBAL	Cartesian	193	217	10	193	217	10
135	GLOBAL	Cartesian	255	41	10	255	41	10
136	GLOBAL	Cartesian	255	48.5	10	255	48.5	10
137	GLOBAL	Cartesian	255	89.5	10	255	89.5	10
138	GLOBAL	Cartesian	255	168.5	10	255	168.5	10
139	GLOBAL	Cartesian	255	209.5	10	255	209.5	10
140	GLOBAL	Cartesian	255	217	10	255	217	10
141	GLOBAL	Cartesian	287	34.5	10	287	34.5	10
142	GLOBAL	Cartesian	287	48.5	10	287	48.5	10
143	GLOBAL	Cartesian	287	84.5	10	287	84.5	10
144	GLOBAL	Cartesian	287	173.5	10	287	173.5	10
145	GLOBAL	Cartesian	287	209.5	10	287	209.5	10
146	GLOBAL	Cartesian	287	223.5	10	287	223.5	10
147	GLOBAL	Cartesian	340	41	10	340	41	10
148	GLOBAL	Cartesian	340	47	10	340	47	10
149	GLOBAL	Cartesian	340	207.75	10	340	207.75	10
150	GLOBAL	Cartesian	340	217	10	340	217	10
151	GLOBAL	Cartesian	340	253	10	340	253	10
152	GLOBAL	Cartesian	376	36.09	8	376	36.09	8
153	GLOBAL	Cartesian	376	48.82	8	376	48.82	8
154	GLOBAL	Cartesian	376	89.82	8	376	89.82	8
155	GLOBAL	Cartesian	376	168.2	8	376	168.2	8
156	GLOBAL	Cartesian	376	209.2	8	376	209.2	8
157	GLOBAL	Cartesian	376	221.92	8	376	221.92	8
158	GLOBAL	Cartesian	148.5	258	12	148.5	258	12
201	GLOBAL	Cartesian	199	0	32	199	0	32
202	GLOBAL	Cartesian	29.42	82	32	29.42	82	32
203	GLOBAL	Cartesian	95.5	82	32	95.5	82	32
204	GLOBAL	Cartesian	95.29	82	32	95.29	82	32
205	GLOBAL	Cartesian	180.13	82	32	180.13	82	32
206	GLOBAL	Cartesian	199.92	82	32	199.92	82	32
207	GLOBAL	Cartesian	271	82	32	271	82	32
208	GLOBAL	Cartesian	338.25	82	32	338.25	82	32
209	GLOBAL	Cartesian	333	82	32	333	82	32
210	GLOBAL	Cartesian	389	82	32	389	82	32
211	GLOBAL	Cartesian	195	97	32	195	97	32
212	GLOBAL	Cartesian	271	97	32	271	97	32
213	GLOBAL	Cartesian	195	129	32	195	129	32
214	GLOBAL	Cartesian	271	129	32	271	129	32
215	GLOBAL	Cartesian	195	161	32	195	161	32
216	GLOBAL	Cartesian	271	161	32	271	161	32
217	GLOBAL	Cartesian	29.42	176	32	29.42	176	32
218	GLOBAL	Cartesian	95.5	176	32	95.5	176	32
219	GLOBAL	Cartesian	95.29	176	32	95.29	176	32
220	GLOBAL	Cartesian	180.08	176	32	180.08	176	32

TABLE: B3 Joint Coordinates (See Attachment A)								
Joint	CoordSys	CoordType	XorR	Y	Z	GlobalX	GlobalY	GlobalZ
Text	Text	Text	ft	ft	ft	ft	ft	ft
221	GLOBAL	Cartesian	199.84	176	32	199.84	176	32
222	GLOBAL	Cartesian	271	176	32	271	176	32
223	GLOBAL	Cartesian	338.25	176	32	338.25	176	32
224	GLOBAL	Cartesian	337.5	176	32	337.5	176	32
225	GLOBAL	Cartesian	393.5	176	32	393.5	176	32
226	GLOBAL	Cartesian	212.5	258	32	212.5	258	32
227	GLOBAL	Cartesian	0	90.75	32	0	90.75	32
228	GLOBAL	Cartesian	0	129	32	0	129	32
229	GLOBAL	Cartesian	0	167.25	32	0	167.25	32
230	GLOBAL	Cartesian	49	36.09	32	49	36.09	32
231	GLOBAL	Cartesian	49	49.75	32	49	49.75	32
232	GLOBAL	Cartesian	49	129	32	49	129	32
233	GLOBAL	Cartesian	49	129	32	49	129	32
234	GLOBAL	Cartesian	49	208.25	32	49	208.25	32
235	GLOBAL	Cartesian	49	221.92	32	49	221.92	32
236	GLOBAL	Cartesian	111	41	32	111	41	32
237	GLOBAL	Cartesian	111	47	32	111	47	32
238	GLOBAL	Cartesian	111	211	32	111	211	32
239	GLOBAL	Cartesian	111	217	32	111	217	32
240	GLOBAL	Cartesian	137	89.5	32	137	89.5	32
241	GLOBAL	Cartesian	137	129	32	137	129	32
242	GLOBAL	Cartesian	137	129	32	137	129	32
243	GLOBAL	Cartesian	137	168.5	32	137	168.5	32
244	GLOBAL	Cartesian	153	42.09	32	153	42.09	32
245	GLOBAL	Cartesian	153	49.75	32	153	49.75	32
246	GLOBAL	Cartesian	153	129	32	153	129	32
247	GLOBAL	Cartesian	153	208.25	32	153	208.25	32
248	GLOBAL	Cartesian	153	215.92	32	153	215.92	32
249	GLOBAL	Cartesian	193	15.84	32	193	15.84	32
250	GLOBAL	Cartesian	193	50.84	32	193	50.84	32
251	GLOBAL	Cartesian	193	46.5	32	193	46.5	32
252	GLOBAL	Cartesian	193	129	32	193	129	32
253	GLOBAL	Cartesian	193	207.17	32	193	207.17	32
254	GLOBAL	Cartesian	193	211.5	32	193	211.5	32
255	GLOBAL	Cartesian	193	242.17	32	193	242.17	32
256	GLOBAL	Cartesian	237	89.5	32	237	89.5	32
257	GLOBAL	Cartesian	237	168.5	32	237	168.5	32
258	GLOBAL	Cartesian	255	48.5	32	255	48.5	32
259	GLOBAL	Cartesian	255	209.5	32	255	209.5	32
260	GLOBAL	Cartesian	287	48.5	32	287	48.5	32
261	GLOBAL	Cartesian	287	129	32	287	129	32
262	GLOBAL	Cartesian	287	209.5	32	287	209.5	32
263	GLOBAL	Cartesian	340	41	32	340	41	32
264	GLOBAL	Cartesian	340	217	32	340	217	32
265	GLOBAL	Cartesian	376	36.09	32	376	36.09	32
266	GLOBAL	Cartesian	376	48.82	32	376	48.82	32
267	GLOBAL	Cartesian	376	129	32	376	129	32
268	GLOBAL	Cartesian	376	209.2	32	376	209.2	32
269	GLOBAL	Cartesian	376	221.92	32	376	221.92	32

TABLE: B3 Joint Coordinates (See Attachment A)								
Joint	CoordSys	CoordType	XorR	Y	Z	GlobalX	GlobalY	GlobalZ
Text	Text	Text	ft	ft	ft	ft	ft	ft
270	GLOBAL	Cartesian	419	89.82	32	419	89.82	32
271	GLOBAL	Cartesian	419	168.2	32	419	168.2	32
273	GLOBAL	Cartesian	101	0	32	101	0	32
274	GLOBAL	Cartesian	277.5	0	32	277.5	0	32
275	GLOBAL	Cartesian	101	258	32	101	258	32
276	GLOBAL	Cartesian	228	258	32	228	258	32
277	GLOBAL	Cartesian	336.5	258	32	336.5	258	32
299	GLOBAL	Cartesian	211.3	129	32	211.3	129	32
301	GLOBAL	Cartesian	101	0	44	101	0	44
302	GLOBAL	Cartesian	212.5	0	44	212.5	0	44
303	GLOBAL	Cartesian	277.5	0	44	277.5	0	44
304	GLOBAL	Cartesian	95.29	82	44	95.29	82	44
305	GLOBAL	Cartesian	121	82	44	121	82	44
306	GLOBAL	Cartesian	180.13	82	44	180.13	82	44
307	GLOBAL	Cartesian	331.5	82	44	331.5	82	44
308	GLOBAL	Cartesian	338.25	82	44	338.25	82	44
309	GLOBAL	Cartesian	95.29	176	44	95.29	176	44
310	GLOBAL	Cartesian	121	176	44	121	176	44
311	GLOBAL	Cartesian	180.08	176	44	180.08	176	44
312	GLOBAL	Cartesian	331.5	176	44	331.5	176	44
313	GLOBAL	Cartesian	338.25	176	44	338.25	176	44
314	GLOBAL	Cartesian	101	258	44	101	258	44
315	GLOBAL	Cartesian	212.5	258	44	212.5	258	44
316	GLOBAL	Cartesian	228	258	44	228	258	44
317	GLOBAL	Cartesian	336.5	258	44	336.5	258	44
318	GLOBAL	Cartesian	49	36.09	40	49	36.09	40
319	GLOBAL	Cartesian	49	129	40	49	129	40
320	GLOBAL	Cartesian	49	129	40	49	129	40
321	GLOBAL	Cartesian	49	221.92	40	49	221.92	40
322	GLOBAL	Cartesian	111	41	42	111	41	42
323	GLOBAL	Cartesian	111	47	42	111	47	42
324	GLOBAL	Cartesian	111	211	42	111	211	42
325	GLOBAL	Cartesian	111	217	42	111	217	42
326	GLOBAL	Cartesian	153	42.09	42	153	42.09	42
327	GLOBAL	Cartesian	153	129	42	153	129	42
328	GLOBAL	Cartesian	153	129	42	153	129	42
329	GLOBAL	Cartesian	153	215.92	42	153	215.92	42
330	GLOBAL	Cartesian	193	15.84	42	193	15.84	42
331	GLOBAL	Cartesian	193	50.84	42	193	50.84	42
332	GLOBAL	Cartesian	193	129	42	193	129	42
333	GLOBAL	Cartesian	193	129	42	193	129	42
334	GLOBAL	Cartesian	193	207.17	42	193	207.17	42
335	GLOBAL	Cartesian	193	242.17	42	193	242.17	42
336	GLOBAL	Cartesian	287	129	42	287	129	42
337	GLOBAL	Cartesian	287	129	42	287	129	42
338	GLOBAL	Cartesian	376	36.09	40	376	36.09	40
339	GLOBAL	Cartesian	376	129	40	376	129	40
340	GLOBAL	Cartesian	376	129	40	376	129	40
341	GLOBAL	Cartesian	376	221.92	40	376	221.92	40

TABLE: B3 Joint Coordinates (See Attachment A)								
Joint	CoordSys	CoordType	XorR	Y	Z	GlobalX	GlobalY	GlobalZ
Text	Text	Text	ft	ft	ft	ft	ft	ft
401	GLOBAL	Cartesian	212.5	0	64	212.5	0	64
402	GLOBAL	Cartesian	240	0	64	240	0	64
403	GLOBAL	Cartesian	121	82	64	121	82	64
404	GLOBAL	Cartesian	173	82	64	173	82	64
405	GLOBAL	Cartesian	331.5	82	64	331.5	82	64
406	GLOBAL	Cartesian	331.5	82	64	331.5	82	64
407	GLOBAL	Cartesian	121	176	64	121	176	64
408	GLOBAL	Cartesian	173	176	64	173	176	64
409	GLOBAL	Cartesian	331.5	176	64	331.5	176	64
410	GLOBAL	Cartesian	331.5	176	64	331.5	176	64
411	GLOBAL	Cartesian	212.5	258	64	212.5	258	64
412	GLOBAL	Cartesian	240	258	64	240	258	64
413	GLOBAL	Cartesian	49	129	64	49	129	64
414	GLOBAL	Cartesian	111	41	64	111	41	64
415	GLOBAL	Cartesian	111	217	64	111	217	64
416	GLOBAL	Cartesian	137	129	64	137	129	64
417	GLOBAL	Cartesian	153	129	64	153	129	64
418	GLOBAL	Cartesian	193	128.98	64	193	128.98	64
419	GLOBAL	Cartesian	193	129	64	193	129	64
420	GLOBAL	Cartesian	287	129	64	287	129	64
421	GLOBAL	Cartesian	287	129	64	287	129	64
422	GLOBAL	Cartesian	376	129	64	376	129	64
423	GLOBAL	Cartesian	376	129	64	376	129	64
499	GLOBAL	Cartesian	203.58	133.99	64	206.82	120.7	64
501	GLOBAL	Cartesian	307	82	72	307	82	72
502	GLOBAL	Cartesian	331.5	82	72	331.5	82	72
503	GLOBAL	Cartesian	307	176	72	307	176	72
504	GLOBAL	Cartesian	331.5	176	72	331.5	176	72
505	GLOBAL	Cartesian	193	128.98	72	193	128.98	72
506	GLOBAL	Cartesian	193	129	72	193	129	72
507	GLOBAL	Cartesian	287	129	72	287	129	72
508	GLOBAL	Cartesian	287	129	72	287	129	72
509	GLOBAL	Cartesian	376	129	72	376	129	72
599	GLOBAL	Cartesian	335.03	129	72	335.03	129	72
601	GLOBAL	Cartesian	240	0	100	240	0	100
602	GLOBAL	Cartesian	173	82	100	173	82	100
603	GLOBAL	Cartesian	307	82	100	307	82	100
604	GLOBAL	Cartesian	173	176	100	173	176	100
605	GLOBAL	Cartesian	307	176	100	307	176	100
606	GLOBAL	Cartesian	193	129	100	193	129	100
607	GLOBAL	Cartesian	287	129	100	287	129	100
608	GLOBAL	Cartesian	240	258	100	240	258	100
699	GLOBAL	Cartesian	240	129	100	240.0	129	100

TABLE: B4 Connectivity - Frame (Attachment A)							
Frame	JointI	JointJ	IsCurved	Length	CentroidX	CentroidY	CentroidZ
Text	Text	Text	Yes/No	ft	ft	ft	ft
1A.1	31	229	No	32	0	167.25	16
1A.2	30	228	No	32	0	129	16
1A.3	29	227	No	32	0	90.75	16
2A.1	32	113	No	8	49	36.09	4
2A.2	33	115	No	8	49	90.75	4
2A.3	34	233	No	32	49	129	16
2A.4	35	116	No	8	49	167.25	4
2A.5	36	118	No	8	49	221.92	4
2A.6	114	231	No	24	49	49.75	20
2A.7	117	234	No	24	49	208.25	20
2B.1	230	318	No	8	49	36.09	36
2B.2	232	319	No	8	49	129	36
2B.3	235	321	No	8	49	221.92	36
2B.4	320	413	No	24	49	129	52
3A.1	37	120	No	10	111	47	5
3A.2	38	121	No	10	111	211	5
3A.3	119	236	No	22	111	41	21
	122	239	No	22	111	217	21
3B.1	237	323	No	10	111	47	37
3B.2	238	324	No	10	111	211	37
3B.3	322	414	No	22	111	41	53
3B.4	325	415	No	22	111	217	53
4A.1	39	240	No	32	137	89.5	16
4A.2	40	242	No	32	137	129	16
4A.3	41	243	No	32	137	168.5	16
4B.1	241	416	No	32	137	129	48
5A.1	42	123	No	10	153	34	5
5A.2	43	125	No	10	153	89.75	5
5A.3	44	126	No	10	153	168.25	5
5A.4	45	128	No	10	153	224	5
5A.5	124	245	No	22	153	49.75	21
5A.6	127	247	No	22	153	208.25	21
5B.1	244	326	No	10	153	42.09	37
5B.2	246	327	No	10	153	129	37
5B.3	248	329	No	10	153	215.92	37
5B.4	328	417	No	22	153	129	53
6A.1	46	129	No	10	193	41	5
6A.2	47	131	No	10	193	87.5	5
6A.3	48	132	No	10	193	170.5	5
6A.4	49	134	No	10	193	217	5
6A.5	130	251	No	22	193	46.5	21
6A.6	133	254	No	22	193	211.5	21
6B.1	249	330	No	10	193	15.84	37
6B.2	250	331	No	10	193	50.84	37
6B.3	252	332	No	10	193	129	37
6B.4	253	334	No	10	193	207.17	37
6B.5	255	335	No	10	193	242.17	37
6B.6	333	419	No	22	193	129	53
6C.1	418	505	No	8	193	128.98	68

TABLE: B4 Connectivity - Frame (Attachment A)							
Frame	JointI	JointJ	IsCurved	Length	CentroidX	CentroidY	CentroidZ
Text	Text	Text	Yes/No	ft	ft	ft	ft
6C.2	506	606	No	28	193	129	86
7A.1	50	256	No	32	237	89.5	16
7A.2	51	257	No	32	237	168.5	16
8A.1	52	135	No	10	255	41	5
8A.2	53	137	No	10	255	89.5	5
8A.3	54	138	No	10	255	168.5	5
8A.4	55	140	No	10	255	217	5
8A.5	136	258	No	22	255	48.5	21
8A.6	139	259	No	22	255	209.5	21
9A.1	56	141	No	10	287	34.5	5
9A.2	57	143	No	10	287	84.5	5
9A.3	58	144	No	10	287	173.5	5
9A.4	59	146	No	10	287	223.5	5
9A.5	142	260	No	22	287	48.5	21
9A.6	145	262	No	22	287	209.5	21
9B.1	261	337	No	10	287	129	37
9B.2	336	420	No	22	287	129	53
9C.1	421	508	No	8	287	129	68
9C.2	507	607	No	28	287	129	86
D1.1	24	108	No	12	91.57	258	6
D1.2	25	158	No	12	148.5	258	6
D1.3	26	109	No	12	212	258	6
D1.4	27	111	No	12	279	258	6
D1.5	28	112	No	12	336.5	258	6
D1.6	110	226	No	20	212.5	258	22
D2.1	275	314	No	12	101	258	38
D2.2	276	316	No	12	228	258	38
D2.3	277	317	No	12	336.5	258	38
D2.4	315	411	No	20	212.5	258	54
D3.1	412	608	No	36	240	258	82
E1.1	18	217	No	32	29.42	176	16
E1.2	19	218	No	32	95.5	176	16
E1.3	20	221	No	32	199.84	176	16
E1.4	21	222	No	32	271	176	16
E1.5	22	224	No	32	337.5	176	16
E1.6	23	225	No	32	393.5	176	16
E2.1	219	309	No	12	95.29	176	38
E2.2	220	311	No	12	180.08	176	38
E2.3	223	313	No	12	338.25	176	38
E2.4	310	407	No	20	121	176	54
E2.5	312	409	No	20	331.5	176	54
E3.1	410	504	No	8	331.5	176	68
E3.2	408	604	No	36	173	176	82
E3.3	503	605	No	28	307	176	86
F1.1	14	213	No	32	195	129	16
F1.2	15	214	No	32	271	129	16
F7.1	12	211	No	32	195	97	16
F7.2	13	212	No	32	271	97	16
G1.1	5	202	No	32	29.42	82	16

TABLE: B4 Connectivity - Frame (Attachment A)							
Frame	JointI	JointJ	IsCurved	Length	CentroidX	CentroidY	CentroidZ
Text	Text	Text	Yes/No	ft	ft	ft	ft
G1.2	6	203	No	32	95.5	82	16
G1.3	7	206	No	32	199.92	82	16
G1.4	8	207	No	32	271	82	16
G1.5	9	106	No	22	324	82	11
G1.7	11	210	No	32	389	82	16
G1.8	107	209	No	10	333	82	27
G2.1	204	304	No	12	95.29	82	38
G2.2	205	306	No	12	180.13	82	38
G2.3	208	308	No	12	338.25	82	38
G2.4	305	403	No	20	121	82	54
G2.5	307	405	No	20	331.5	82	54
G3.1	406	502	No	8	331.5	82	68
G3.2	501	603	No	28	307	82	86
G3.3	404	602	No	36	173	82	82
H1.1	1	101	No	12	101	0	6
H1.2	2	102	No	12	217	0	6
H1.3	3	104	No	12	299.67	0	6
H1.4	4	105	No	12	343.54	0	6
H1.5	103	201	No	20	199	0	22
H2.1	273	301	No	12	101	0	38
H2.2	274	303	No	12	277.5	0	38
H2.3	302	401	No	20	212.5	0	54
H3.1	402	601	No	36	240	0	82
11A.1	60	148	No	10	340	47	5
11A.2	61	149	No	10	340	207.75	5
11A.3	62	151	No	10	340	253	5
11A.4	147	263	No	22	340	41	21
11A.5	150	264	No	22	340	217	21
12A.1	63	152	No	8	376	36.09	4
12A.2	64	154	No	8	376	89.82	4
12A.3	65	155	No	8	376	168.2	4
12A.4	66	157	No	8	376	221.92	4
12A.5	153	266	No	24	376	48.82	20
12A.6	156	268	No	24	376	209.2	20
12B.1	265	338	No	8	376	36.09	36
12B.2	267	340	No	8	376	129	36
12B.3	269	341	No	8	376	221.92	36
12B.4	339	422	No	24	376	129	52
12C.1	423	509	No	8	376	129	68
13A.1	67	270	No	32	419	89.82	16
13A.2	68	271	No	32	419	168.2	16
E31.1	16	215	No	32	195	161	16
E31.2	17	216	No	32	271	161	16

TABLE: B5 Frame Local Axes Assignments 1 - Typical (Attachment A)

Frame	Angle	MirrorAbt2	MirrorAbt3	AdvanceAxes
Text	Degrees	Yes/No	Yes/No	Yes/No
1A.1	90	No	No	No
1A.2	90	No	No	No
1A.3	90	No	No	No
2A.1	90	No	No	No
2A.2	90	No	No	No
2A.3	90	No	No	No
2A.4	90	No	No	No
2A.5	90	No	No	No
2A.6	90	No	No	No
2A.7	90	No	No	No
2B.1	90	No	No	No
2B.2	90	No	No	No
2B.3	90	No	No	No
2B.4	90	No	No	No
3A.1	90	No	No	No
3A.2	90	No	No	No
3A.3	90	No	No	No
	90	No	No	No
3B.1	90	No	No	No
3B.2	90	No	No	No
3B.3	90	No	No	No
3B.4	90	No	No	No
4A.1	90	No	No	No
4A.2	90	No	No	No
4A.3	90	No	No	No
4B.1	90	No	No	No
5A.1	90	No	No	No
5A.2	90	No	No	No
5A.3	90	No	No	No
5A.4	90	No	No	No
5A.5	90	No	No	No
5A.6	90	No	No	No
5B.1	90	No	No	No
5B.2	90	No	No	No
5B.3	90	No	No	No
5B.4	90	No	No	No
6A.1	90	No	No	No
6A.2	90	No	No	No
6A.3	90	No	No	No
6A.4	90	No	No	No
6A.5	90	No	No	No
6A.6	90	No	No	No
6B.1	90	No	No	No
6B.2	90	No	No	No
6B.3	90	No	No	No
6B.4	90	No	No	No
6B.5	90	No	No	No
6B.6	90	No	No	No
6C.1	90	No	No	No

TABLE: B5 Frame Local Axes Assignments 1 - Typical (Attachment A)

Frame	Angle	MirrorAbt2	MirrorAbt3	AdvanceAxes
Text	Degrees	Yes/No	Yes/No	Yes/No
6C.2	90	No	No	No
7A.1	90	No	No	No
7A.2	90	No	No	No
8A.1	90	No	No	No
8A.2	90	No	No	No
8A.3	90	No	No	No
8A.4	90	No	No	No
8A.5	90	No	No	No
8A.6	90	No	No	No
9A.1	90	No	No	No
9A.2	90	No	No	No
9A.3	90	No	No	No
9A.4	90	No	No	No
9A.5	90	No	No	No
9A.6	90	No	No	No
9B.1	90	No	No	No
9B.2	90	No	No	No
9C.1	90	No	No	No
9C.2	90	No	No	No
11A.1	90	No	No	No
11A.2	90	No	No	No
11A.3	90	No	No	No
11A.4	90	No	No	No
11A.5	90	No	No	No
12A.1	90	No	No	No
12A.2	90	No	No	No
12A.3	90	No	No	No
12A.4	90	No	No	No
12A.5	90	No	No	No
12A.6	90	No	No	No
12B.1	90	No	No	No
12B.2	90	No	No	No
12B.3	90	No	No	No
12B.4	90	No	No	No
12C.1	90	No	No	No
13A.1	90	No	No	No
13A.2	90	No	No	No

TABLE:B6 Frame Section Assignments (Ref. 2.2.8 Table 1)

Frame	SectionType	AutoSelect	AnalSect	DesignSect	MatProp
Text	Text	Text	Text	Text	Text
1A.1	General	N.A.	1A.1	N.A.	Default
1A.2	General	N.A.	1A.2	N.A.	Default
1A.3	General	N.A.	1A.3	N.A.	Default
2A.1	General	N.A.	2A.1	N.A.	Default
2A.2	General	N.A.	2A.2	N.A.	Default
2A.3	General	N.A.	2A.3	N.A.	Default
2A.4	General	N.A.	2A.4	N.A.	Default
2A.5	General	N.A.	2A.5	N.A.	Default
2A.6	General	N.A.	2A.6	N.A.	Default
2A.7	General	N.A.	2A.7	N.A.	Default
2B.1	General	N.A.	2B.1	N.A.	Default
2B.2	General	N.A.	2B.2	N.A.	Default
2B.3	General	N.A.	2B.3	N.A.	Default
2B.4	General	N.A.	2B.4	N.A.	Default
3A.1	General	N.A.	3A.1	N.A.	Default
3A.2	General	N.A.	3A.2	N.A.	Default
3A.3	General	N.A.	3A.3	N.A.	Default
	General	N.A.	3A.4	N.A.	Default
3B.1	General	N.A.	3B.1	N.A.	Default
3B.2	General	N.A.	3B.2	N.A.	Default
3B.3	General	N.A.	3B.3	N.A.	Default
3B.4	General	N.A.	3B.4	N.A.	Default
4A.1	General	N.A.	4A.1	N.A.	Default
4A.2	General	N.A.	4A.2	N.A.	Default
4A.3	General	N.A.	4A.3	N.A.	Default
4B.1	General	N.A.	4B.1	N.A.	Default
5A.1	General	N.A.	5A.1	N.A.	Default
5A.2	General	N.A.	5A.2	N.A.	Default
5A.3	General	N.A.	5A.3	N.A.	Default
5A.4	General	N.A.	5A.4	N.A.	Default
5A.5	General	N.A.	5A.5	N.A.	Default
5A.6	General	N.A.	5A.6	N.A.	Default
5B.1	General	N.A.	5B.1	N.A.	Default
5B.2	General	N.A.	5B.2	N.A.	Default
5B.3	General	N.A.	5B.3	N.A.	Default
5B.4	General	N.A.	5B.4	N.A.	Default
6A.1	General	N.A.	6A.1	N.A.	Default
6A.2	General	N.A.	6A.2	N.A.	Default
6A.3	General	N.A.	6A.3	N.A.	Default
6A.4	General	N.A.	6A.4	N.A.	Default
6A.5	General	N.A.	6A.5	N.A.	Default
6A.6	General	N.A.	6A.6	N.A.	Default
6B.1	General	N.A.	6B.1	N.A.	Default
6B.2	General	N.A.	6B.2	N.A.	Default
6B.3	General	N.A.	6B.3	N.A.	Default
6B.4	General	N.A.	6B.4	N.A.	Default
6B.5	General	N.A.	6B.5	N.A.	Default
6B.6	General	N.A.	6B.6	N.A.	Default
6C.1	General	N.A.	6C.1	N.A.	Default

TABLE:B6 Frame Section Assignments (Ref. 2.2.8 Table 1)

Frame	SectionType	AutoSelect	AnalSect	DesignSect	MatProp
Text	Text	Text	Text	Text	Text
6C.2	General	N.A.	6C.2	N.A.	Default
7A.1	General	N.A.	7A.1	N.A.	Default
7A.2	General	N.A.	7A.2	N.A.	Default
8A.1	General	N.A.	8A.1	N.A.	Default
8A.2	General	N.A.	8A.2	N.A.	Default
8A.3	General	N.A.	8A.3	N.A.	Default
8A.4	General	N.A.	8A.4	N.A.	Default
8A.5	General	N.A.	8A.5	N.A.	Default
8A.6	General	N.A.	8A.6	N.A.	Default
9A.1	General	N.A.	9A.1	N.A.	Default
9A.2	General	N.A.	9A.2	N.A.	Default
9A.3	General	N.A.	9A.3	N.A.	Default
9A.4	General	N.A.	9A.4	N.A.	Default
9A.5	General	N.A.	9A.5	N.A.	Default
9A.6	General	N.A.	9A.6	N.A.	Default
9B.1	General	N.A.	9B.1	N.A.	Default
9B.2	General	N.A.	9B.2	N.A.	Default
9C.1	General	N.A.	9C.1	N.A.	Default
9C.2	General	N.A.	9C.2	N.A.	Default
D1.1	General	N.A.	D1.1	N.A.	Default
D1.2	General	N.A.	D1.2	N.A.	Default
D1.3	General	N.A.	D1.3	N.A.	Default
D1.4	General	N.A.	D1.4	N.A.	Default
D1.5	General	N.A.	D1.5	N.A.	Default
D1.6	General	N.A.	D1.6	N.A.	Default
D2.1	General	N.A.	D2.1	N.A.	Default
D2.2	General	N.A.	D2.2	N.A.	Default
D2.3	General	N.A.	D2.3	N.A.	Default
D2.4	General	N.A.	D2.4	N.A.	Default
D3.1	General	N.A.	D3.1	N.A.	Default
E1.1	General	N.A.	E1.1	N.A.	Default
E1.2	General	N.A.	E1.2	N.A.	Default
E1.3	General	N.A.	E1.3	N.A.	Default
E1.4	General	N.A.	E1.4	N.A.	Default
E1.5	General	N.A.	E1.5	N.A.	Default
E1.6	General	N.A.	E1.6	N.A.	Default
E2.1	General	N.A.	E2.1	N.A.	Default
E2.2	General	N.A.	E2.2	N.A.	Default
E2.3	General	N.A.	E2.3	N.A.	Default
E2.4	General	N.A.	E2.4	N.A.	Default
E2.5	General	N.A.	E2.5	N.A.	Default
E3.1	General	N.A.	E3.1	N.A.	Default
E3.2	General	N.A.	E3.2	N.A.	Default
E3.3	General	N.A.	E3.3	N.A.	Default
F1.1	General	N.A.	F1.1	N.A.	Default
F1.2	General	N.A.	F1.2	N.A.	Default
F7.1	General	N.A.	F7.1	N.A.	Default
F7.2	General	N.A.	F7.2	N.A.	Default
G1.1	General	N.A.	G1.1	N.A.	Default

TABLE:B6 Frame Section Assignments (Ref. 2.2.8 Table 1)

Frame	SectionType	AutoSelect	AnalSect	DesignSect	MatProp
Text	Text	Text	Text	Text	Text
G1.2	General	N.A.	G1.2	N.A.	Default
G1.3	General	N.A.	G1.3	N.A.	Default
G1.4	General	N.A.	G1.4	N.A.	Default
G1.5	General	N.A.	G1.5	N.A.	Default
G1.7	General	N.A.	G1.7	N.A.	Default
G1.8	General	N.A.	G1.8	N.A.	Default
G2.1	General	N.A.	G2.1	N.A.	Default
G2.2	General	N.A.	G2.2	N.A.	Default
G2.3	General	N.A.	G2.3	N.A.	Default
G2.4	General	N.A.	G2.4	N.A.	Default
G2.5	General	N.A.	G2.5	N.A.	Default
G3.1	General	N.A.	G3.1	N.A.	Default
G3.2	General	N.A.	G3.2	N.A.	Default
G3.3	General	N.A.	G3.3	N.A.	Default
H1.1	General	N.A.	H1.1	N.A.	Default
H1.2	General	N.A.	H1.2	N.A.	Default
H1.3	General	N.A.	H1.3	N.A.	Default
H1.4	General	N.A.	H1.4	N.A.	Default
H1.5	General	N.A.	H1.5	N.A.	Default
H2.1	General	N.A.	H2.1	N.A.	Default
H2.2	General	N.A.	H2.2	N.A.	Default
H2.3	General	N.A.	H2.3	N.A.	Default
H3.1	General	N.A.	H3.1	N.A.	Default
11A.1	General	N.A.	11A.1	N.A.	Default
11A.2	General	N.A.	11A.2	N.A.	Default
11A.3	General	N.A.	11A.3	N.A.	Default
11A.4	General	N.A.	11A.4	N.A.	Default
11A.5	General	N.A.	11A.5	N.A.	Default
12A.1	General	N.A.	12A.1	N.A.	Default
12A.2	General	N.A.	12A.2	N.A.	Default
12A.3	General	N.A.	12A.3	N.A.	Default
12A.4	General	N.A.	12A.4	N.A.	Default
12A.5	General	N.A.	12A.5	N.A.	Default
12A.6	General	N.A.	12A.6	N.A.	Default
12B.1	General	N.A.	12B.1	N.A.	Default
12B.2	General	N.A.	12B.2	N.A.	Default
12B.3	General	N.A.	12B.3	N.A.	Default
12B.4	General	N.A.	12B.4	N.A.	Default
12C.1	General	N.A.	12C.1	N.A.	Default
13A.1	General	N.A.	13A.1	N.A.	Default
13A.2	General	N.A.	13A.2	N.A.	Default
E31.1	General	N.A.	E31.1	N.A.	Default
E31.2	General	N.A.	E31.2	N.A.	Default

TABLE: B7 Frame Section Properties 01 - General (Ref. 2.2.8 Table1)

SectionName	Material	Area	TorsConst	I33	I22	AS2	AS3
Text	Text	ft2	ft4	ft4	ft4	ft2	ft2
11A.1	5ksiconc	148	197.33	67537.33	49.33	123.33	0.001
11A.2	5ksiconc	135	180	51257.81	45	112.5	0.001
11A.3	5ksiconc	28	37.33	457.33	9.33	23.33	0.001
11A.4	5ksiconc	172	229.33	106009.33	57.33	143.33	0.001
11A.5	5ksiconc	172	229.33	106009.33	57.33	143.33	0.001
12A.1	5ksiconc	304.68	1624.96	147309.45	406.24	253.9	0.001
12A.2	5ksiconc	78.52	418.77	2521.39	104.69	65.43	0.001
12A.3	5ksiconc	78.52	418.77	2521.39	104.69	65.43	0.001
12A.4	5ksiconc	304.68	1624.96	147309.45	406.24	253.9	0.001
12A.5	5ksiconc	406.52	2168.11	349900.47	542.03	338.77	0.001
12A.6	5ksiconc	406.52	2168.11	349900.47	542.03	338.77	0.001
12B.1	5ksiconc	304.68	1624.96	147309.45	406.24	253.9	0.001
12B.2	5ksiconc	392	2090.67	313730.67	522.67	326.67	0.001
12B.3	5ksiconc	304.68	1624.96	147309.45	406.24	253.9	0.001
12B.4	5ksiconc	1048	5589.33	5994909.33	1397.33	873.33	0.001
12C.1	5ksiconc	392	2090.67	313730.67	522.67	326.67	0.001
13A.1	5ksiconc	39.26	52.35	1260.69	13.09	32.72	0.001
	5ksiconc	39.26	52.35	1260.69	13.09	32.72	0.001
1A.1	5ksiconc	43	57.33	1656.4	14.33	35.83	0.001
1A.2	5ksiconc	26	34.67	366.17	8.67	21.67	0.001
1A.3	5ksiconc	43	57.33	1656.4	14.33	35.83	0.001
2A.1	5ksiconc	304.68	1624.96	147309.45	406.24	253.9	0.001
2A.2	5ksiconc	86	458.67	3312.79	114.67	71.67	0.001
2A.3	5ksiconc	52	277.33	732.33	69.33	43.33	0.001
2A.4	5ksiconc	86	458.67	3312.79	114.67	71.67	0.001
2A.5	5ksiconc	304.68	1624.96	147309.45	406.24	253.9	0.001
2A.6	5ksiconc	414	2208	369572.63	552	345	0.001
2A.7	5ksiconc	414	2208	369572.63	552	345	0.001
2B.1	5ksiconc	304.68	1624.96	147309.45	406.24	253.9	0.001
2B.2	5ksiconc	392	2090.67	313730.67	522.67	326.67	0.001
2B.3	5ksiconc	304.68	1624.96	147309.45	406.24	253.9	0.001
2B.4	5ksiconc	1048	5589.33	5994909.33	1397.33	873.33	0.001
3A.1	5ksiconc	296	1578.67	135074.67	394.67	246.67	0.001
3A.2	5ksiconc	296	1578.67	135074.67	394.67	246.67	0.001
3A.3	5ksiconc	344	1834.67	212018.67	458.67	286.67	0.001
3A.4	5ksiconc	344	1834.67	212018.67	458.67	286.67	0.001
3B.1	5ksiconc	296	1578.67	135074.67	394.67	246.67	0.001
3B.2	5ksiconc	296	1578.67	135074.67	394.67	246.67	0.001
3B.3	5ksiconc	344	1834.67	212018.67	458.67	286.67	0.001
3B.4	5ksiconc	344	1834.67	212018.67	458.67	286.67	0.001
4A.1	5ksiconc	76	405.33	2286.33	101.33	63.33	0.001
4A.2	5ksiconc	48	256	576	64	40	0.001
4A.3	5ksiconc	76	405.33	2286.33	101.33	63.33	0.001
4B.1	5ksiconc	392	2090.67	313730.67	522.67	326.67	0.001
5A.1	5ksiconc	192	1024	36864	256	160	0.001
5A.2	5ksiconc	94	501.33	4325.96	125.33	78.33	0.001
5A.3	5ksiconc	94	501.33	4325.96	125.33	78.33	0.001
5A.4	5ksiconc	192	1024	36864	256	160	0.001
5A.5	5ksiconc	414	2208	369572.63	552	345	0.001

TABLE: B7 Frame Section Properties 01 - General (Ref. 2.2.8 Table1)

SectionName	Material	Area	TorsConst	I33	I22	AS2	AS3
Text	Text	ft2	ft4	ft4	ft4	ft2	ft2
5A.6	5ksiconc	414	2208	369572.63	552	345	0.001
5B.1	5ksiconc	256.68	1368.96	88079.5	342.24	213.9	0.001
5B.2	5ksiconc	392	2090.67	313730.67	522.67	326.67	0.001
5B.3	5ksiconc	256.68	1368.96	88079.5	342.24	213.9	0.001
5B.4	5ksiconc	1048	5589.33	5994909.33	1397.33	873.33	0.001
6A.1	5ksiconc	248	1322.67	79442.67	330.67	206.67	0.001
6A.2	5ksiconc	60	320	1125	80	50	0.001
6A.3	5ksiconc	60	320	1125	80	50	0.001
6A.4	5ksiconc	248	1322.67	79442.67	330.67	206.67	0.001
6A.5	5ksiconc	388	2069.33	304224.33	517.33	323.33	0.001
6A.6	5ksiconc	388	2069.33	304224.33	517.33	323.33	0.001
6B.1	5ksiconc	46.68	248.96	529.77	62.24	38.9	0.001
6B.2	5ksiconc	186.68	995.63	33883.8	248.91	155.57	0.001
6B.3	5ksiconc	438.7	2339.6	439685.6	584.9	365.6	0.001
6B.4	5ksiconc	186.68	995.63	33883.8	248.91	155.57	0.001
6B.5	5ksiconc	46.68	248.96	529.77	62.24	38.9	0.001
6B.6	5ksiconc	1048	5589.33	5994909.33	1397.33	873.33	0.001
6C.1	5ksiconc	969.2	5169.07	4741753.66	1292.27	807.67	0.001
6C.2	5ksiconc	1048	5589.33	5994909.33	1397.33	873.33	0.001
7A.1	5ksiconc	76	405.33	2286.33	101.33	63.33	0.001
7A.2	5ksiconc	76	405.33	2286.33	101.33	63.33	0.001
8A.1	5ksiconc	248	1322.67	79442.67	330.67	206.67	0.001
8A.2	5ksiconc	76	405.33	2286.33	101.33	63.33	0.001
8A.3	5ksiconc	76	405.33	2286.33	101.33	63.33	0.001
8A.4	5ksiconc	248	1322.67	79442.67	330.67	206.67	0.001
8A.5	5ksiconc	404	2154.67	343433.67	538.67	336.67	0.001
8A.6	5ksiconc	404	2154.67	343433.67	538.67	336.67	0.001
9A.1	5ksiconc	196	1045.33	39216.33	261.33	163.33	0.001
9A.2	5ksiconc	116	618.67	8129.67	154.67	96.67	0.001
9A.3	5ksiconc	116	618.67	8129.67	154.67	96.67	0.001
9A.4	5ksiconc	196	1045.33	39216.33	261.33	163.33	0.001
9A.5	5ksiconc	404	2154.67	343433.67	538.67	336.67	0.001
9A.6	5ksiconc	404	2154.67	343433.67	538.67	336.67	0.001
9B.1	5ksiconc	952	5077.33	4493757.33	1269.33	793.33	0.001
9B.2	5ksiconc	1048	5589.33	5994909.33	1397.33	873.33	0.001
9C.1	5ksiconc	969.32	5169.71	4743515.15	1292.43	807.77	0.001
9C.2	5ksiconc	1048	5589.33	5994909.33	1397.33	873.33	0.001
D1.1	5ksiconc	356.52	1901.44	236020.9	475.36	297.1	0.001
D1.2	5ksiconc	52	277.33	732.33	69.33	43.33	0.001
D1.3	5ksiconc	360	1920	243000	480	300	0.001
D1.4	5ksiconc	80	426.67	2666.67	106.67	66.67	0.001
D1.5	5ksiconc	332	1770.67	190595.67	442.67	276.67	0.001
D1.6	5ksiconc	1324	7061.33	12088230.33	1765.33	1103.33	0.001
D2.1	5ksiconc	432	2304	419904	576	360	0.001
D2.2	5ksiconc	488	2602.67	605282.67	650.67	406.67	0.001
D2.3	5ksiconc	332	1770.67	190595.67	442.67	276.67	0.001
D2.4	5ksiconc	1324	7061.33	12088230.33	1765.33	1103.33	0.001
D3.1	5ksiconc	392	2090.67	313730.67	522.67	326.67	0.001
E1.1	5ksiconc	70.34	93.79	7250.46	23.45	58.62	0.001

TABLE: B7 Frame Section Properties 01 - General (Ref. 2.2.8 Table1)

SectionName	Material	Area	TorsConst	I33	I22	AS2	AS3
Text	Text	ft2	ft4	ft4	ft4	ft2	ft2
E1.2	5ksiconc	388	2069.33	304224.33	517.33	323.33	0.001
E1.3	5ksiconc	312.68	1667.63	159220.54	416.91	260.57	0.001
E1.4	5ksiconc	144	768	15552	192	120	0.001
E1.5	5ksiconc	324	1728	177147	432	270	0.001
E1.6	5ksiconc	62	82.67	4965.17	20.67	51.67	0.001
E2.1	5ksiconc	386.32	2060.37	300289.64	515.09	321.93	0.001
E2.2	5ksiconc	119.32	636.37	8847.87	159.09	99.43	0.001
E2.3	5ksiconc	318	1696	167486.63	424	265	0.001
E2.4	5ksiconc	592	3157.33	1080597.33	789.33	493.33	0.001
E2.5	5ksiconc	372	1984	268119	496	310	0.001
E3.1	5ksiconc	372	1984	268119	496	310	0.001
E3.2	5ksiconc	176	938.67	28394.67	234.67	146.67	0.001
E3.3	5ksiconc	176	938.67	28394.67	234.67	146.67	0.001
E31.1	5ksiconc	352	1877.33	227157.33	469.33	293.33	0.001
E31.2	5ksiconc	144	768	15552	192	120	0.001
F1.1	5ksiconc	352	1877.33	227157.33	469.33	293.33	0.001
F1.2	5ksiconc	144	768	15552	192	120	0.001
F7.1	5ksiconc	352	1877.33	227157.33	469.33	293.33	0.001
F7.2	5ksiconc	144	768	15552	192	120	0.001
G1.1	5ksiconc	70.34	93.79	7250.46	23.45	58.62	0.001
G1.2	5ksiconc	388	2069.33	304224.33	517.33	323.33	0.001
G1.3	5ksiconc	312.68	1667.63	159220.54	416.91	260.57	0.001
G1.4	5ksiconc	144	768	15552	192	120	0.001
G1.5	5ksiconc	216	1152	52488	288	180	0.001
G1.7	5ksiconc	80	106.67	10666.67	26.67	66.67	0.001
G1.8	5ksiconc	288	1536	124416	384	240	0.001
G2.1	5ksiconc	386.32	2060.37	300289.64	515.09	321.93	0.001
G2.2	5ksiconc	119.68	638.29	8928.19	159.57	99.73	0.001
G2.3	5ksiconc	318	1696	167486.63	424	265	0.001
G2.4	5ksiconc	592	3157.33	1080597.33	789.33	493.33	0.001
G2.5	5ksiconc	372	1984	268119	496	310	0.001
G3.1	5ksiconc	372	1984	268119	496	310	0.001
G3.2	5ksiconc	176	938.67	28394.67	234.67	146.67	0.001
G3.3	5ksiconc	176	938.67	28394.67	234.67	146.67	0.001
H1.1	5ksiconc	432	2304	419904	576	360	0.001
H1.2	5ksiconc	320	1706.67	170666.67	426.67	266.67	0.001
H1.3	5ksiconc	245.32	1308.37	76894.92	327.09	204.43	0.001
H1.4	5ksiconc	59	314.67	1069.68	78.67	49.17	0.001
H1.5	5ksiconc	1216	6485.33	9364821.33	1621.33	1013.33	0.001
H2.1	5ksiconc	432	2304	419904	576	360	0.001
H2.2	5ksiconc	804	4288	2706867	1072	670	0.001
H2.3	5ksiconc	1324	7061.33	12088230.33	1765.33	1103.33	0.001
H3.1	5ksiconc	392	2090.67	313730.67	522.67	326.67	0.001

TABLE:B8 Joint Constraint Assignments (Attachment A)

Joint	Constraint	Type
Text	Text	Text
1	1000	Body
2	1000	Body
3	1000	Body
4	1000	Body
5	1000	Body
6	1000	Body
7	1000	Body
8	1000	Body
9	1000	Body
11	1000	Body
12	1000	Body
13	1000	Body
14	1000	Body
15	1000	Body
16	1000	Body
17	1000	Body
18	1000	Body
	1000	Body
20	1000	Body
21	1000	Body
22	1000	Body
23	1000	Body
24	1000	Body
25	1000	Body
26	1000	Body
27	1000	Body
28	1000	Body
29	1000	Body
30	1000	Body
31	1000	Body
32	1000	Body
33	1000	Body
34	1000	Body
35	1000	Body
36	1000	Body
37	1000	Body
38	1000	Body
39	1000	Body
40	1000	Body
41	1000	Body
42	1000	Body
43	1000	Body
44	1000	Body
45	1000	Body
46	1000	Body
47	1000	Body
48	1000	Body
49	1000	Body
50	1000	Body

TABLE:B8 Joint Constraint Assignments (Attachment A)

Joint	Constraint	Type
Text	Text	Text
51	1000	Body
52	1000	Body
53	1000	Body
54	1000	Body
55	1000	Body
56	1000	Body
57	1000	Body
58	1000	Body
59	1000	Body
60	1000	Body
61	1000	Body
62	1000	Body
63	1000	Body
64	1000	Body
65	1000	Body
66	1000	Body
67	1000	Body
68	1000	Body
101	1	Body
102	1	Body
103	1	Body
104	1	Body
105	1	Body
106	5	Body
107	5	Body
108	8	Body
109	8	Body
110	8	Body
111	8	Body
112	8	Body
113	32	Body
114	32	Body
115	32	Body
116	33	Body
117	33	Body
118	33	Body
119	28	Body
120	28	Body
121	29	Body
122	29	Body
123	25	Body
124	25	Body
125	25	Body
126	26	Body
127	26	Body
128	26	Body
129	21	Body
130	21	Body
131	21	Body

TABLE B8 Joint Constraint Assignments (Attachment A)

Joint	Constraint	Type
Text	Text	Text
132	22	Body
133	22	Body
134	22	Body
135	19	Body
136	19	Body
137	19	Body
138	20	Body
139	20	Body
140	20	Body
141	15	Body
142	15	Body
143	15	Body
144	16	Body
145	16	Body
146	16	Body
147	13	Body
148	13	Body
149	14	Body
150	14	Body
151	14	Body
152	10	Body
153	10	Body
154	10	Body
155	11	Body
156	11	Body
157	11	Body
158	8	Body
201	2000	Body
202	2000	Body
203	2000	Body
204	2000	Body
205	2000	Body
206	2000	Body
207	2000	Body
208	2000	Body
209	2000	Body
210	2000	Body
211	2000	Body
212	2000	Body
213	2000	Body
214	2000	Body
215	2000	Body
216	2000	Body
217	2000	Body
218	2000	Body
219	2000	Body
220	2000	Body
221	2000	Body
222	2000	Body

TABLE B8 Joint Constraint Assignments (Attachment A)

Joint	Constraint	Type
Text	Text	Text
223	2000	Body
224	2000	Body
225	2000	Body
226	2000	Body
227	2000	Body
228	2000	Body
229	2000	Body
230	2000	Body
231	2000	Body
232	2000	Body
233	2000	Body
234	2000	Body
235	2000	Body
236	2000	Body
237	2000	Body
238	2000	Body
239	2000	Body
240	2000	Body
241	2000	Body
242	2000	Body
243	2000	Body
244	2000	Body
245	2000	Body
246	2000	Body
247	2000	Body
248	2000	Body
249	2000	Body
250	2000	Body
251	2000	Body
252	2000	Body
253	2000	Body
254	2000	Body
255	2000	Body
256	2000	Body
257	2000	Body
258	2000	Body
259	2000	Body
260	2000	Body
261	2000	Body
262	2000	Body
263	2000	Body
264	2000	Body
265	2000	Body
266	2000	Body
267	2000	Body
268	2000	Body
269	2000	Body
270	2000	Body
271	2000	Body

TABLE:B8 Joint Constraint Assignments (Attachment A)

Joint	Constraint	Type
Text	Text	Text
273	2000	Body
274	2000	Body
275	2000	Body
276	2000	Body
277	2000	Body
301	2	Body
302	2	Body
303	2	Body
304	3	Body
305	3	Body
306	3	Body
307	4	Body
308	4	Body
309	6	Body
310	6	Body
311	6	Body
312	7	Body
313	7	Body
314	9	Body
315	9	Body
316	9	Body
317	9	Body
318	34	Body
319	34	Body
320	34	Body
321	34	Body
322	30	Body
323	30	Body
324	31	Body
325	31	Body
326	27	Body
327	27	Body
328	27	Body
329	27	Body
330	23	Body
331	23	Body
332	23	Body
333	23	Body
334	23	Body
335	23	Body
336	17	Body
337	17	Body
338	12	Body
339	12	Body
340	12	Body
341	12	Body
401	3000	Body
402	3000	Body
403	3000	Body

TABLE:B8 Joint Constraint Assignments (Attachment A)

Joint	Constraint	Type
Text	Text	Text
404	3000	Body
405	35	Body
406	35	Body
407	3000	Body
408	3000	Body
409	36	Body
410	36	Body
411	3000	Body
412	3000	Body
413	3000	Body
414	3000	Body
415	3000	Body
416	3000	Body
417	3000	Body
418	3000	Body
419	3000	Body
420	3000	Body
421	3000	Body
422	3000	Body
423	3000	Body
501	4000	Body
502	4000	Body
503	4000	Body
504	4000	Body
505	24	Body
506	24	Body
507	4000	Body
509	4000	Body
601	5000	Body
602	5000	Body
603	5000	Body
604	5000	Body
605	5000	Body
606	5000	Body
607	5000	Body
608	5000	Body
99	1000	Body
299	2000	Body
499	3000	Body
599	4000	Body
699	5000	Body
98	1000	Body
508	4000	Body

TABLE: B9 Joint Spring Assignments 1 - Uncoupled (Ref. 2.2.7)

100' Alluvium, BDGM-2 Median

Joint	CoordSys	U1	U2	U3	R1	R2	R3
Text	Text	Kip/ft	Kip/ft	Kip/ft	Kip-ft/rad	Kip-ft/rad	Kip-ft/rad
98	Local	11810000	12430000	15120000	2.72E+11	4.46E+11	4.69E+11

100' Alluvium, DBGGM-2 Upper Bound

Joint	CoordSys	U1	U2	U3	R1	R2	R3
Text	Text	Kip/ft	Kip/ft	Kip/ft	Kip-ft/rad	Kip-ft/rad	Kip-ft/rad
98	Local	21630000	22770000	27690000	4.98E+11	8.18E+11	8.59E+11

100' Alluvium, DBGGM-2 Lower Bound

Joint	CoordSys	U1	U2	U3	R1	R2	R3
Text	Text	Kip/ft	Kip/ft	Kip/ft	Kip-ft/rad	Kip-ft/rad	Kip-ft/rad
98	Local	6350000	6680000	8130000	1.46E+11	2.4E+11	2.52E+11

200' Alluvium,DBGGM-2 Median

Joint	CoordSys	U1	U2	U3	R1	R2	R3
Text	Text	Kip/ft	Kip/ft	Kip/ft	Kip-ft/rad	Kip-ft/rad	Kip-ft/rad
98	Local	10640000	11200000	13710000	2.46E+11	4.05E+11	4.2E+11

200' Alluvium,DBGGM-2 Upper Bound

Joint	CoordSys	U1	U2	U3	R1	R2	R3
Text	Text	Kip/ft	Kip/ft	Kip/ft	Kip-ft/rad	Kip-ft/rad	Kip-ft/rad
98	Local	20000000	21050000	25760000	4.63E+11	7.61E+11	7.89E+11

200' Alluvium,DBGGM-2 Lower Bound

Joint	CoordSys	U1	U2	U3	R1	R2	R3
Text	Text	Kip/ft	Kip/ft	Kip/ft	Kip-ft/rad	Kip-ft/rad	Kip-ft/rad
98	Local	5610000	5910000	7230000	1.3E+11	2.14E+11	2.21E+11

100' Alluvium,BDBGGM Upper Bound

Joint	CoordSys	U1	U2	U3	R1	R2	R3
Text	Text	Kip/ft	Kip/ft	Kip/ft	Kip-ft/rad	Kip-ft/rad	Kip-ft/rad
98	Local	15830000	16660000	20460000	3.68E+11	6.04E+11	6.22E+11

100' Alluvium,BDBGGM Median

Joint	CoordSys	U1	U2	U3	R1	R2	R3
Text	Text	Kip/ft	Kip/ft	Kip/ft	Kip-ft/rad	Kip-ft/rad	Kip-ft/rad
98	Local	8410000	8850000	10870000	1.95E+11	3.21E+11	3.3E+11

100' Alluvium,BDBGGM Lower Bound

Joint	CoordSys	U1	U2	U3	R1	R2	R3
Text	Text	Kip/ft	Kip/ft	Kip/ft	Kip-ft/rad	Kip-ft/rad	Kip-ft/rad
98	Local	4410000	4640000	5700000	1.03E+11	1.68E+11	1.73E+11

200' Alluvium,BDBGGM Upper Bound

Joint	CoordSys	U1	U2	U3	R1	R2	R3
Text	Text	Kip/ft	Kip/ft	Kip/ft	Kip-ft/rad	Kip-ft/rad	Kip-ft/rad
98	Local	14290000	15040000	18690000	3.36E+11	5.52E+11	5.55E+11

TABLE: B9 Joint Spring Assignments 1 - Uncoupled (Ref. 2.2.7)

200' Alluvium,BDBGM Median

Joint	CoordSys	U1	U2	U3	R1	R2	R3
Text	Text	Kip/ft	Kip/ft	Kip/ft	Kip-ft/rad	Kip-ft/rad	Kip-ft/rad
98	Local	7339000	7726000	9602000	1.73E+11	2.84E+11	2.85E+11

200' Alluvium,BDBGM Lower Bound

Joint	CoordSys	U1	U2	U3	R1	R2	R3
Text	Text	Kip/ft	Kip/ft	Kip/ft	Kip-ft/rad	Kip-ft/rad	Kip-ft/rad
98	Local	3750000	3940000	4900000	8.81E+10	1.45E+11	1.45E+11

TABLE: B10 Joint Loads - Force (Ref. 2.2.6)

Joint	LoadCase	CoordSys	F1	F2	F3	M1	M2	M3
Text	Text	Text	Kip	Kip	Kip	Kip-ft	Kip-ft	Kip-ft
99	1	GLOBAL	0	134214	0	0	0	0
99	2	GLOBAL	-134214	0	0	0	0	0
99	3	GLOBAL	0	0	-134214	0	0	0
299	1	GLOBAL	0	96852.0	0	0	0	0
299	2	GLOBAL	-96852.01	0	0	0	0	0
299	3	GLOBAL	0	0	-96852.01	0	0	0
499	1	GLOBAL	0	60758	0	0	0	0
499	2	GLOBAL	-60758	0	0	0	0	0
499	3	GLOBAL	0	0	-60758	0	0	0
599	1	GLOBAL	0	3780	0	0	0	0
599	2	GLOBAL	-3780	0	0	0	0	0
599	3	GLOBAL	0	0	-3780	0	0	0
699	1	GLOBAL	0	18626	0	0	0	0
699	2	GLOBAL	-18626	0	0	0	0	0
699	3	GLOBAL	0	0	-18626	0	0	0