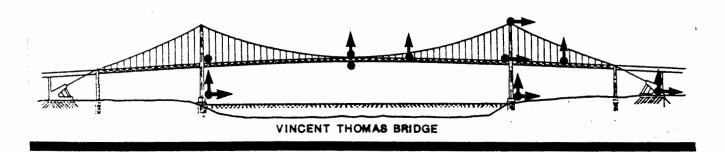
CSMIP STRONG-MOTION RECORDS FROM THE WHITTIER, CALIFORNIA EARTHQUAKE

OF 1 OCTOBER 1987



CALIFORNIA DEPARTMENT OF CONSERVATION DIVISION OF MINES AND GEOLOGY OFFICE OF STRONG MOTION STUDIES REPORT OSMS 87-05

1987





DIVISION OF MINES AND GEOLOGY

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FROM THE

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CSMIP STRONG-MOTION RECORDS FROM THE WHITTIER, CALIFORNIA

EARTHQUAKE OF 1 OCTOBER 1987

Introduction

Strong-motion records were recovered from 100 stations of the California Strong Motion Instrumentation Program (CSMIP) after the earthquake of October 1, 1987 which occurred north of Whittier, California, approximately 15 km east of downtown Los Angeles. Records were recovered from 63 CSMIP ground-response stations and 38 extensively-instrumented structures. These structures include 27 buildings, eight dams, a suspension bridge, an airport control tower and a power plant. This report includes all CSMIP data from the Whittier earthquake and supersedes the brief compilation distributed immediately after the earthquake (CDMG, 1987). In addition to the records recovered by CSMIP, records were also recovered by the U.S. Geological Survey, the University of Southern California, and other agencies. In total this set of data will be the largest ever recorded from an earthquake, exceeding that recovered in the 1971 San Fernando earthquake.

The estimated earthquake location and magnitude are (Caltech):

Epicenter: 34.058N, 118.075W. Depth: 9 km.

Origin Time: 14:42:20 GMT (07:42:20 PDT), 1 October 1987

Magnitude: 6.1 ML

Damage was moderate over a broad area and extensive in certain localized areas such as downtown Whittier. Damage studies by other organizations are still underway at this time. A preliminary report completed by the engineering firm EQE, Inc. (EQE, 1987) provides a good, early overview of damage to various types of construction in the Los Angeles area. A preliminary report by Burdick and others (1987) reviewed damage to power generating facilities. EQE estimates that the total damage will exceed \$100 million.

Highlights of CSMIP Strong-Motion Data

A total of 128 strong-motion records recovered from many geologic environments and types of structures are included in this report. These 128 records contain a total of 641 channels of strong-motion data. Certain features of this large data set are of particular interest:

o Vincent Thomas Suspension Bridge. This large suspension bridge near Long Beach was instrumented with 26 sensors in 1981 with funding support from the Federal Highway Department. It was a difficult installation because sensors had to be mounted high on the towers, and cable runs back to the recorder were very long. The records obtained in the Whittier earthquake make those efforts worthwhile however. These are the first significant records ever obtained of the motions of a long-span suspension bridge during earthquake shaking. The bridge is 40 km from the epicenter, so the amplitude of motion at the base of the towers was only 8% g. The motion of the suspended deck in the side-span reached 28% g, and a preliminary calculation indicates that the deck edge moved about

- 10 cm vertically as the deck oscillated in torsion during the earthquake shaking. For reference, the center span of this bridge, 1500 feet in length, is approximately one third that of the San Fransisco Golden Gate Bridge, and approximately equal to the span length of the suspended sections of the Oakland Bay Bridge. The data from this earthquake can be compared with the results of an earlier study of ambient vibrations of the bridge (Abdel-Ghaffar and Housner, 1977).
- o Tarzana ground-response station. The largest acceleration recorded at a CSMIP ground-response station was 62% g at Tarzana, about 45 km from the epicenter. This value is surprisingly high given that less than 45% g was recorded at close-in ground response stations. For example, Obregon Park, 10 km from the epicenter, recorded the next largest acceleration (45% g). The station at Tarzana meets current standards for good ground response installations (a light fiber-glass enclosure, or T-hut, over a 4-foot square concrete pad). The Tarzana site is located in a region of low rolling hills between the alluvial San Fernando Valley and the Santa Monica Mountains. The station is underlain by shallow (10 m or less) soil over siltstone. Because of the high acceleration, the instrument was recalibrated in the field after the earthquake; no indication of instrument malfunction was observed in the test records. In contrast to the mainshock record, the peak acceleration (9% g) in the record from the 5.5 ML aftershock is not particularly unusual.
- o CSULA Administration Building. The administration building of the California State University at Los Angeles is a 9-story reinforced concrete structure located 9 km from the epicenter. The structure has a "soft first story" design very similar to the Imperial County Services Building in El Centro which suffered column failure in the 1979 Imperial Valley earthquake. The maximum acceleration in the CSULA building was about 40% g at the base and 50% g at the roof. For comparison, the 1979 Imperial County Services record had a peak value of about 35% g at the base, and 60% g at the roof. The CSULA record has less long period energy and is shorter in duration than the 1979 record. Early field reports indicate primarily architectural rather than structural damage in the building.
- o Base-Isolated Rancho Cucamonga Law and Justice Center. A low-level record similar to that recorded in recent earthquakes was recorded at this building. Although the peak value for this earthquake is slightly higher at the roof (6% g) than for the 1986 Palm Springs earthquake, these levels are still too low for the base-isolation features to be effective.
- o Special Network Arrays. Two southwest-northeast station alignments are included in the network of CSMIP stations which recorded this earthquake. An alignment north and west of the Los Angeles basin, called the Lake Hughes array, represents an expansion of a similar array in place in the 1971 San Fernando earthquake. Although the station spacing (10-20 km) is too great for high resolution analysis of wave propagation, the azimuthal spread of the stations should allow productive source mechanism studies. A second alignment extends northwestward across the Los Angeles basin from Palos Verdes on the coast to Mt. Wilson northeast of Pasadena. Finally, a special small array of six stations in the Leona Valley in northern Los Angeles County recorded the motion, but the motions may be too small (less than 5% g) for productive studies.

- o Pacoima Dam. During the 1971 San Fernando earthquake a then-unprecedented value of 1.25 g was recorded at the upper left abutment of this concrete arch dam north of San Fernando Valley. Since the 1971 earthquake, the dam has been extensively instrumented with sensors on the crest and face of the dam. The Whittier earthquake triggered the system for the first time, and although the levels of motion are low (5% g on the crest, 6% g on the abutment), the records will allow studies of the dam response and any localized amplification effects.
- o Olive View Hospital. During the 1971 earthquake the Olive View Hospital in San Fernando Valley was severely damaged. A new hospital was subsequently built at the site, and completed only last year. The structure was built to high strength requirements, and strong-motion instruments were installed by the owner at the time of construction. The records recovered during this earthquake are the first from this building, and allow analyses of its specialized structure. A peak acceleration of 20% g was recorded at the roof level.
- o San Fernando Valley Buildings. Several buildings in the San Fernando Valley were instrumented with limited instrumentation during the 1971 San Fernando earthquake. Two of these buildings, one in Van Nuys and one in North Hollywood, have since been extensively instrumented by CSMIP with 16 sensors each. A peak acceleration of 20% g was recorded during the Whittier earthquake at the roof level of each building. Analysis of the detailed records from these buildings can utilize the analyses of the response of these buildings during the 1971 earthquake and also allow quantitative verification of the seismic strengthening modifications.
- o Hollywood Storage Building and Lot. The Whittier earthquake is the third earthquake in the last 35 years (after Kern County, 1952 and San Fernando, 1971) to be recorded at this pair of stations first installed to provide data for soil-structure interaction studies. The amplitudes recorded during this event (21% g in the lot, 12% g in the basement) are quite similar to those from the San Fernando earthquake. The extensive instrumentation of the structure performed since the 1971 earthquake will allow a thorough study of the soil-structure interaction for the first time.

Additional Strong-Motion Data

Several agencies in addition to CSMIP have strong-motion instruments in the Los Angeles area. The largest set of instruments is the Los Angeles network of the University of Southern California (Anderson and others, 1981). This network is comprised of 80 stations located in small structures at various locations in the basin. The U.S. Geological Survey also maintains instruments of its own and of other agencies in this area, and Etheredge and Porcella (1987) have prepared a report on the data from the 52 stations of this group. In addition to these stations, smaller groups of instruments are maintained by the California Institute of Technology, Southern California Edison and other agencies.

In addition to the above networks, several other groups have collected data, and private building owners in the City of Los Angeles have instruments in their buildings, as required by the City code. It is estimated that over 200 buildings in Los Angeles have been instrumented by the building owners with at least one recorder at the roof. Some of these records have been recovered; CSMIP plans to recover the remaining records in the near future, pending arrangements with the

City and building owners. All private building records recovered by CSMIP, or sent to CSMIP by the building owners, will be included in a future CSMIP report if possible. That report, to be completed within several months, will also include records recovered at stations of the Los Angeles Department of Water and Power and the Los Angeles County Flood Control District.

Order of Data Presentation

Three complementary tables are included in this report to make cross-referencing of stations and records as convenient as possible. The CSMIP strong-motion stations in the Los Angeles vicinity are shown on the station map in Figure 1. A three-digit identification code is shown adjacent to each station on the map. This identification code and the corresponding station name are cross-referenced in Table 1, positioned opposite the station map. In Table 2, the stations are listed in alphabetical order and station parameters such as coordinates and site geology are given. The page number where the record from that station appears is also given, if the station was triggered. Finally, Table 3 list earthquake-dependent information, such as epicentral distance and peak acceleration values from the record. The page number where the accelerogram appears is again listed.

To make accessing the data from the stations more convenient, three station areas have been defined as shown on Figure 1. Area 1 is a central area including the Los Angeles basin and San Fernando Valley; Area 2 is the area to the east from Pomona to Palm Springs; and Area 3 is the region to the northwest beyond the San Fernando Valley. In Table 3 the stations are listed in approximate epicentral distance order within each of these three areas. The actual records themselves are also presented in this order in this report.

The part of the report containing the accelerograms has two main sections based on station type: ground response and structural response. The structural response section is further separated into building stations and lifeline stations. The first section contains the records from ground response stations, two records per page. The second section contains building response records, and for most buildings the presentation includes a picture of the building, a brief description of the structural system, and a schematic of the sensor layout. These are followed by one to three pages of records, depending on the number of recording instruments associated with the building. Many buildings have ground-response stations nearby to provide reference ground motion information. For convenience, a second copy of each reference-station record is included in the ground-response section. For distant stations with low amplitude records, the sensor layout is not included. By convention, the orientation of sensors in buildings is given by reference directions parallel to the principal building dimensions; the relationship of these directions to true geographic directions is given on each building record.

The third section contains copies of records from instrumented lifeline structures, including a bridge, eight dams, an airport control tower, and a power plant. The presentation follows the format used for building records; a schematic of the sensor layout at the station is presented for all significant records.

Aftershock Data

The 5.5 ML aftershock on October 4, 1987 triggered many of the same stations that recorded the main shock. Peak amplitudes are generally smaller and the records are

of shorter duration. Peak values of all records recovered from the aftershock are given in Table A1 in the Appendix. Selected records are also given in the Appendix. Most of the near-in ground-response records are shown. The structural response record from the Sears Warehouse building in Los Angeles is also included as particularly noteworthy - the peak accelerations in the structure were greater in the aftershock than in the mainshock. The record from the Tarzana station is also included because of the unusual record from the mainshock. As indicated in Table A1 there are several other records of interest from the aftershock. However, the focus of this report is the mainshock data and only selected aftershock records have been included so the report could be completed in a timely manner.

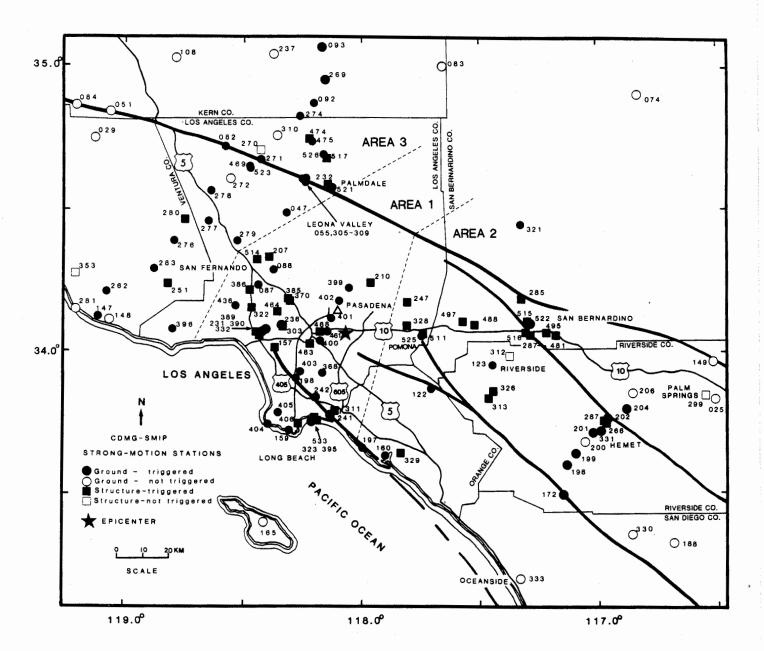
Acknowledgments

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The records presented in this report were recovered at stations originally instrumented by CSMIP technicians M. Huston, H. LaGesse, R. Meneely, M. Seaton, L. Stange, C. Hallstrom and V. Steeves. Record recovery after the earthquake was performed by W. Williams, H. LaGesse, S. Rider, C. Petersen and M. Malinowski. W. Williams and R. Boylan assisted in verifying station and instrument information. M. Malinowski and S. Weaver assisted in the preparation of this report. The joint efforts of all those involved made the timely publication of these data possible.

References

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Station-Code Reference Table

<u>Code</u>	Station Name	<u>Code</u>	Station Name
025	Palm Springs - Airport	299	Palm Springs - Desert Hospital
029	Lockwood Valley - Plus Ranch	303	Los Angeles - Hollywood Storage Bldg. FF
047	Vasquez Rocks Park	305	Leona Valley #1
051 055	Cuddy Valley - Tubbs Ranch Leona Valley #5 - Ritter Ranch	306 307	Leona Valley #2
074	Yermo - Fire Station	308	Leona Valley #3 Leona Valley #4
082	Sawmill Mountain - Caltech Seismic Sta.	309	Leona Valley #6
083	Boron	310	Antelope Buttes
084	Mt. Able - Kern Co. Highway Maint. Sta.	311	Long Beach - CSULB Engineering Bldg. 1
087	Arleta - Nordhoff Ave Fire Station	312	Riverside - Riverside Co. Admin. Bldg.
088	Pacoima - Kagel Canyon	313	Lake Mathews - Main Dam
092	Rosamond - Airport	321	Hesperia
093	Mojave - LADWP Storage Shed	322	Sherman Oaks - Union Bank Bldg.
108 122	Wheeler Ridge - Tejon Hills Oil Field Featherly Park - Park Maint. Bldg.	323 326	Long Beach - Harbor Admin. Bldg. Lake Mathews - Dike 1
123	Riverside - Airport	328	Puddingstone Reservoir - Puddingstone Dam
147	Point Mugu - Naval Air Station	329	Irvine - UCI Engineering Bldg.
148	Point Mugu - Laguna Peak	330	Palomar Mountain - Palomar Observatory
149	Desert Hot Springs - Pierson Blvd Fire Sta.	331	Hemet - Stetson Ave Fire Station
157	Los Angeles - Baldwin Hills	332	Los Angeles - Century City Bullock Store
159		333	Oceanside B
160 165	Newport Beach - Irvine Ave Fire Station Santa Catalina Island - Airport	353 368	Ventura - Hall of Justice Downey - County Maint. Bldg.
168	Puerta La Cruz - USFS Storage Bldg.	370	Burbank - California Fed. Savings Bldg.
172	Temecula - CDF Fire Station	385	Burbank - Pacific Manor
196	Inglewood - Union Oil Yard	386	Van Nuys - Holiday Inn
197	Huntington Beach - Lake St. Fire Station	389	Century City - LACC North
198	Murrieta Hot Springs - Collins Ranch	390	Century City - LACC South
199	Winchester - Bergman Ranch	395	Long Beach - Harbor Admin. Bldg. FF
200	Winchester - Hidden Valley Farms	396	Malibu - Point Dume School
201 202	Winchester - Page Bros. Ranch	399 400	Mt. Wilson - Caltech Seismic Station
202	San Jacinto - Valley Cemetery San Jacinto - Soboba	401	Los Angeles - Obregon Park San Marino - Southwestern Academy
206	Silent Valley - Poppet Flat	402	Altadena - Eaton Canyon Park
207	Pacoima Dam	403	Los Angeles - 116th St. School
210	Cogswell Reservoir - Cogswell Dam	404	Rancho Palos Verdes - 30840 Hawthorne Blvd.
23 1	Los Angeles - UCLA Math-Science Bldg.	405	Rolling Hills Estates - Rancho Vista School
232	Palmdale - Holiday Inn	406	Los Angeles - Vincent Thomas Bridge
236	Los Angeles - Hollywood Storage Bldg.	436 461	Tarzana - Cedar Hill Nursery
237 241	Mojave - Oak Creek Canyon Long Beach - Recreation Park	463	Alhambra - Fremont School Los Angeles - Sears Warehouse
242	Long Beach - Rancho Los Cerritos	464	North Hollywood - Sheraton-Universal Hotel
247	Big Dalton Reservoir - Big Dalton Dam	466	Etiwanda - SCE Power Plant #3
251	Wood Ranch Reservoir - Dam and Dikes	468	Los Angeles - CSULA Admin. Building
266	Hemet - City Library	469	Lake Hughes #4
267	Hemet - Valley Hospital	474	Lancaster - Airport Control Tower
269	Actis - HWY 14/Backus Road	475	Lancaster - Airport FF
270	Fairmont Reservoir - Fairmont Dam	481 495	Redlands - Redlands Fed. Savings Bldg. Redlands - Interstate Van Lines Warehouse
271 272	Lake Hughes #1 Lake Hughes #9	497	Rancho Cucamonga - Law & Justice Center
274	Rosamond - Godde Ranch	511	Pomona - First Federal Savings Bldg.
276	Piru	514	Sylmar - Olive View Medical Center
277	Castaic - Hasley Canyon	515	San Bernardino - Vanir Towers
278	Castaic - Old Ridge Route	516	San Bernardino - Sunwest Office Bldg.
279	Newhall - LA County Fire Station	517	Lancaster - Medical Office Bldg.
280	Lake Piru - Santa Felicia Dam	521 522	Palmdale - Holiday Inn FF San Bernardino - 2nd & Arrowhead
281 282	Port Hueneme - Naval Lab. Camarillo - Fire Dept. Supply Bldg.	523	
283	Moorpark - Ventura County Fire Dept.	525	Pomona - 4th & Locust FF
285	San Bernardino - CSUSB Library	526	Lancaster - Medical Office Bldg. FF
287	San Bernardino - Hilton Inn	533	Long Beach - City Hall

CSMIP Strong-Motion Stations - Whittier Earthquake

Station Name	N.Lat.	W.Long.	Sta.	<u>Code</u>	Site Re Geology	ecord on Page*
Actis - HWY 14/Backus Road	34.956	118.159	24269	269	Shallow(.5m?) alluvium over r	56
Alhambra - Fremont School	34.070	118.150	24461	461	Alluvium	25
Altadena - Eaton Canyon Park	34.177	118.096	24402	402	Alluvium	27
Antelope Buttes	34.758	118.361	24310	310	Weathered granite	NT
Arleta - Nordhoff Ave Fire Station Big Dalton Reservoir - Big Dalton Dam Boron		118.439	24087	087	Deep alluvium	33
	34.170	117.808	23247	247	Igneus rock (Diorite)	157
		117.650	33083	083	Alluvium	NT
Burbank - Cal. Fed. Savings Bldg.		118.308	24370	370	Alluvium	71
Burbank - Pacific Manor		118.311	24385	385	Alluvium	75
Camarillo - Fire Dept. Supply Bldg.		119.079	25282	282	Alluvium	55
Castaic - Hasley Canyon	_	118.650	24277	277	Shallow alluvium	49
Castaic - Old Ridge Route		118.642	24278	278		52
Century City - LACC North	_	118.418	24389	389	Alluvium	31
Century City - LACC South	_	118.416	24390	390	Alluvium	31
Cogswell Dam		117.964	23210	210	Weathered crystalline roc	
Cuddy Valley - Tubbs Ranch		119.066	25051	051	Alluvium	NT NT
Desert Hot Springs- Pierson Blvd Fire Station	1	116.509	12149	149	Alluvium	
Downey - County Maint. Bldg.					Deep alluvium	27
Etiwanda - SCE Power Plant #3		117.527	23466		Cuantha	173 NT
Fairmont Reservoir - Fairmont Dam		118.426	•		Granite	
Featherly Park - Park Maint. Bldg.		117.709	-		Alluvium Deep alluvium	130
Hemet - City Library		116.966			Deep alluvium	42
Hemet - Stetson Ave Fire Station		116.979	12331			131
Hemet - Valley Hospital		116.959			Deep alluvium	39
Hesperia		3 117.327				
Huntington Beach - Lake St. Fire Station	33.662	2 117.997	13197	197	Sand over alluvium	37

Station Name	N.Lat. W.Long.	Sta. <u>No. Code</u>	Site <u>Geology</u>	Record on Page
Inglewood - Union Oil Yard	33.905 118.279	14196 196	Terrace deposits	29
Irvine - UCI Engineering Bldg.	33.645 117.840	13329 329	Soil over	123
Lake Hughes #1 Fire Station #78	34.674 118.430	24271 271	sandstone Alluvium (~300m)	50
Lake Hughes #4 Camp Mendenhall	34.650 118.478	24469 469	over granitics	50
Lake Hughes #4B Camp Mendenhall	34.650 118.477	24523 523	granite Weathered	51
Lake Hughes #9	34.608 118.558	24272 272	granite Gneiss	NT
Lake Mathews - Dike 1	33.854 117.444	13326 326		165
Lake Mathews - Main Dam	33.836 117.461	13313 313		165
Lake Piru - Santa Felicia Dam	34.460 118.753	24280 280	Sandstone, shale	170
Lancaster - Airport Control Tower	34.739 118.214	24474 474	Alluvium	171
Lancaster - Airport FF	34.739 118.214	24475 475	Alluvium	52,172
Lancaster - Medical Office Bldg.	34.688 118.157	24517 517	Alluvium	134
Lancaster - Medical Office Bldg. FF	34.688 118.156	24526 526	Alluvium	45,135
Leona Valley #1	34.594 118.242	24305 305		46
Leona Valley #2	34.595 118.243	24306 306		46
Leona Valley #3	34.596 118.243	24307 307		47
Leona Valley #4	34.598 118.242	24308 308		47
Leona Valley #5 - Ritter Ranch	34.600 118.241	24055 055	Alluvium	48
Leona Valley #6	34.604 118.244	24309 309		48
Lockwood Valley Plus Ranch	34.749 119.131	25029 029	Alluvium	NT
Long Beach - City Hall	33.768 118.195	14533 533	Terrace deposits	93
Long Beach - CSULB Engineering Bldg.	33.783 118.112	14311 311	Alluvium	83
Long Beach - Harbor Admin. Bldg.	33.755 118.200	14323 323	Alluvium	97
Long Beach - Harbor Admin. Bldg. FF	33.754 118.200	14395 395	Alluvium	32,101
Long Beach - Rancho Los Cerritos	33.840 118.194	14242 242	Alluvium	30
Long Beach - Recreation Park	33.778 118.133	14241 241	Terrace deposits	[,] 32

			Sta.		Site	Doored
Station Name	N.Lat.	W.Long.		Code	Geology	Record on Page
Los Angeles - 116th St. School	33.929	118.260	14403	403	Terrace deposits	28
Los Angeles - Baldwin Hills	34.009	118.361	24157	157	Fill over shale, sandstone	30
Los Angeles - Century City Bullock Store		118.417	24332	332	Alluvium	89
Los Angeles - CSULA Admin. Building		118.168	24468	468		59
Los Angeles - Hollywood Storage Bldg.	34.090	118.338	24236	236	Alluvium (130m?)	67
Los Angeles - Hollywood Storage Bldg. Fi		118.339	24303	303	over sandstone, Alluvium (130m?) over sandstone,	29,70
Los Angeles - Obregon Park		118.178	24400	400	Alluvium	26
Los Angeles - Sears Warehouse	34.028	118.223	24463	463		63
Los Angeles - UCLA Math-Science Bldg.	34.069	118.442	24231	231	Alluvium	91
Los Angeles - Vincent Thomas Bridge	33.750	118.271	14406	406		139
Malibu -	34.077	118.800	24396	396		49
Point Dume School Mojave -	35.070	118.175	34093	093	Alluvium	56
LADWP Storage Shed Mojave -	35.042	118.377	34237	237	Alluvium	NT
Oak Creek Canyon Moorpark -	34.288	118.881	24283	283	Alluvium	53
Ventura County Fire Dept. Mt. Able -	34.860	119.210	25084	084	Fill (1m) over	NT
Kern Co. HWY Maint. Shed Mt. Wilson	34.224	118.057	24399	399	schist Quartz diorite	28
Caltech Seismic Station Murrieta Hot Springs -	33.599	117.132	13198	198	Thin soil (1m) ov	
Collins Ranch Newhall -	34.390	118.530	24279	279	weathered gran Alluvium	1te 44
LA County Fire Department Newport Beach -	33.634	117.902	13160	160	Alluvium	38
Irvine Ave Fire Station North Hollywood -	34.138	118.359	24464	464	Sandstone, shale	79
Sheraton-Universal Hotel Oceanside B	33.201	117.331	13333	333		NT
Fire Station #3 Pacoima Dam	34.334	118.396	24207	207	Diorite gneiss	161
Pacoima -	34.288	118.375	24088	088	Sandstone	33
Kagel Canyon Palm Springs -	33.829	116.501	12025	025	Sand (3m) over alluvium	NT
Airport Palm Springs - Desert Hospital	33.838	116.541	12299	299		NT

TABLE 2 (Continued)

Station Name	N.Lat.	W.Long.	Sta. <u>No</u> .	<u>Code</u>	Site Geology	Record on Page
Palmdale - Holiday Inn	34.581	118.134	24232	232	Alluvium	132
Palmdale - Holiday Inn FF	34.581	118.135	24521	521	Alluvium	45,133
Palomar Mountain - Palomar Observatory	33.353	116.862	12330	330	Granite	NT
Piru	34.389	118.795	24276	276	Shallow alluvium	51
Point Mugu - Laguna Peak	34.109	119.065	25148	148	Shale	NT
Point Mugu - Naval Air Station	34.119	119.113	25147	147	Sand, alluvium	55
Pomona - First Federal Savings Bld		117.749	23511	511		115
Pomona - 4th & Locust FF	34.056	117.748	23525	525		36,118
Port Hueneme - Naval Lab.	34.145	119.206	25281	281	Deep alluvium	NT
Puddingstone Reservoir - Puddingstone Dam	34.091	117.808	23328	328	Volcanic rock, shale	153
Puerta La Cruz - USFS Storage Bldg.	33.324	116.683	12168	168	Thin alluvium (8m?) over gr	NT anite
Rancho Cucamonga - Law & Justice Center	34.104	117.574	23497	497		37,119
Rancho Palos Verdes - 30840 Hawthorne Blvd.	33.746	118.396	14404	404	Basalt, shale	35
Redlands - Interstate Van Lines	34.066	117.214	23495	495		128
Redlands - Redlands Fed. Savings	34.056	117.178	23481	481		129
Riverside - Airport	33.951	117.446	13123	123	Alluvium	38
Riverside - Riverside Co. Admin. Bldg		117.373	13312	312	Alluvium	NT#
Rolling Hills Estates - Rancho Vista School	_	118.356	14405	405	Shale	34
Rosamond - Airport -	34.870	118.206	24092	092	Alluvium	54
Rosamond - Godde Ranch	34.827	118.265	24274	274	Alluvium	54
San Bernardino - 2nd & Arrowhead	34.103	117.289	23522	522		39
San Bernardino - CSUSB Library	34.183	117.323	23285	285	Alluvium	124
San Bernardino - Hilton Inn	34.065	117.279	23287	287		127
San Bernardino - Sunwest Office Bldg.	34.065	117.289	23516	516		126
San Bernardino - Vanir Towers	34.104	117.292	23515	515		125

Station Name	N.Lat.	W.Long.	Sta. <u>No</u> .	Code	Site <u>Geology</u>	Record on Page*
San Jacinto - Soboba	33.797	116.880	12204	204	Alluvium	43
San Jacinto - Valley Cemetery	33.760	116.960	12202	202	Alluvium	42
San Marino - Southwestern Academy	34.115	118.130	24401	401	Alluvium	26
San Pedro - 25th St. Fire Station	33.722	118.309	14159	159	Sandstone	34
Santa Catalina Island - Airport	33.402	118.414	14165	165	Crystalline rock	NT
Sawmill Mountain - Caltech Seismic Station		118.581	24082	082	Granite	53
Sherman Oaks - Union Bank Bldg.		118.465	24322	322	Alluvium	103
Silent Valley - Poppet Flat		116.852	12206	206	Weathered granite	NT
Sylmar - Olive View Medical Center		118.444	24514	514		35,111
Tarzana - Cedar Hill Nursery		118.534	24436	436	Shallow alluvium (10m?) over sil	_
Temecula- CDF Fire Station		117.149	13172	172	Alluvium	41
Van Nuys - Holiday Inn		118.471	24386	386	Alluvium	107
Vasquez Rocks Park		118.320	24047	047	Shallow alluvium (~3m) over sand	
Ventura - Hall of Justice Wheeler Ridge -		119.210	25353	353 108	Alluvium	NT
Tejon Hills Oil Field Winchester -		117.094	34108 13199		Weathered	NT 40
Bergman Ranch Winchester -		117.056	13200		granite Thin soil (1m)	nt
Hidden Valley Farms Winchester -		117.022	13201	201	over schist,gr Deep (200m?)	
Page Bros. Ranch Wood Ranch Reservoir -		118.820	24251		alluvium Sandstone	168
Main Dam and Dikes Yermo -		116.823	22074		Alluvium	NT.
Fire Station	J4.303	110.023	22017	014	UTT (A Trim	14.1

Footnote:

NT - Instrument not triggered, though operational. NT# - Instrument not triggered, probable instrument malfunction.

TABLE 3 - Strong Motion Data - Whittier Earthquake

Station		Structure E	picenter	Trigger		Accele		
Name_	No.	Type,Size*	Dist.	Time#	Comp.	(g)	(g)	Pg.
		MAP AREA	1					
Alhambra Fremont School	24461	1-story bldg.	7		270 Up 180	0.40 0.20 0.30		25
San Marino Southwestern Acade 2800 Monterey Rd.	24401 my	1-story bldg.	8	22.3	360 Up 270	0.20 0.14 0.15		26
Los Angeles CSULA Admin. Bldg.	24468	8-story bldg. (16 sensors)	9		180 Up 90	0.30 0.14 0.39		59
Los Angeles Obregon Park	24400	1-story bldg.	10	22.8	360 Up 270	0.44 0.15 0.45		26
Altadena Eaton Canyon Park	24402	1-story bldg.	13	24.4	90 Up 360	0.16 0.18 0.32		27
Los Angeles Sears Warehouse	24463	5-story bldg. (13 sensors)	14		350 Up 260	0.14 0.09 0.18	0.18 0.24	63
Downey County Maint. Bldg 11283 S. Garfield		1-story bldg.	17		270 Up 180	0.16 0.17 0.20		27
Mt. Wilson Caltech Seismic Station	24399	Seismic Vault	19	24.0	-	0.19 0.12 0.13		28
Los Angeles 116th St. School-	14403	1-story bldg.	22	25.4	_	0.40 0.11 0.29		28
Cogswell Reservoir Cogswell Dam	23210	Earth dam (9 sensors)	23	24.5	150 Up 60	0.06 0.06 0.08	0.14	149
Los Angeles Hollywood Storage Bldg.	24236	14-story bldg. (12 sensors)	25		90 Up 360	0.06 0.04 0.12		67
Los Angeles Hollywood Storage Bldg. FF	24303	Instr. shltr. H	25		90 Up 360	0.12 0.08 0.21		29,70
Inglewood Union Oil Yard 13707 S. Broadway	14196	Instr. shltr. A	25	26.0	Ūр	0.23 0.07 0.27		29

TABLE 3 - Strong Motion Data - Area 1 (Continued)

Station		Structure	Epicenter	Trigger		Accele: Grnd.	ration Struct.	
Name_	No.	Type,Size*	Dist.	Time#			(g)	
Burbank Cal. Fed. Savings Bldg.	24370	6-story bldg. (13 sensors)	26		130 Up 40	0.22 0.10 0.17	0.30 0.18	71
Burbank Pacific Manor	24385	10-story bldg. (16 sensors)	26		40 Up 310	0.26 0.06 0.22	0.41 0.54	7 5
Long Beach Rancho Los Cerritos	14242 s	Instr. shltr. H	27	26.1	90 Up 360	0.25 0.09 0.15		30
Los Angeles Baldwin Hills	24157	Instr. shltr. A	27	26.2	90 Up 360	0.17 0.11 0.15	•	30
Big Dalton Reservoir Big Dalton Dam	23247	Concrete dam (9 sensors)	28	26.3	293 Up 203	 	0.15 0.07 0.10	157
North Hollywood Sheraton-Universal Hotel	24464	20-story bldg. (16 sensors)	28	25.2	90 Up 360	0.09 0.07 0.11	0.13	79
Long Beach CSULB Eng. Bldg. 1	14311	5-story bldg. (9 sensors)	31		90 Up 360	0.10 0.05 0.10	0.36	83
Century City Los Angeles Country Club South	24390 y	Instr. shltr. H	32	30.3	90 Up 360	0.07 0.02 0.06		31
Century City Los Angeles Countr Club North	24389 Y	Instr. shltr. H	32	27.1	90 Up 360	0.10 0.04 0.08		31
Long Beach Recreation Park	14241	Instr. shltr. H	32	28.1		0.05 0.05 0.06		32
Los Angeles Century City Bullo Department Store	24332 ck	3-story bldg. (15 sensors	32		51 Up 321	0.04 0.03 0.06	0.06	89
Los Angeles UCLA Math-Science Bldg.	24231	6-story bldg. (12 sensors	34		90 Up 360			91

TABLE 3 - Strong Motion Data, Area 1 (Continued)

.		C t	7 -1	Max. Acceleration Grnd. Struct.					
Station Name	No.	Structure Type, Size*	Epicenter Dist.**	Trigger Time#			Struct (g)		
Long Beach City Hall	14533	15-story bldg. (16 sensors)	34	28.3	135 Up 45	0.06 0.02 0.04	0.07 0.04 0.05	93	
Long Beach Harbor Admin. Bldg.	14323	7-story bldg. (18 sensors)	36	31.3	90 Up 360	0.07 0.02 0.05	0.12	97	
Long Beach Harbor Admin. Bldg.	14395 FF	Instr. shltr. H	36	30.4	90 Up 360	0.07 0.03 0.05	3	2,101	
Sherman Oaks Union Bank Bldg.	24322	13-story bldg. (15 sensors	38.		90 Up 360	0.15 0.04 0.10		103	
Pacoima Kagel Canyon LA Co. Fire Sta. #7	24088 74	1-story bldg.	38	27.0	Ūр	0.16 0.06 0.16		33	
Los Angeles Vincent Thomas Brid		Suspension bridge (26 sensors	39		180 Up 90	0.06 0.03 0.08	_	139	
Arleta Nordhoff Ave Fire S	24087 Sta.	1-story bldg.	39		270 Up 180	0.09 0.09 0.09		33	
Rolling Hills Estates Rancho Vista School		1-story bldg.	40	28.8	90 Up 360	0.02 0.02 0.02		34	
Van Nuys Holiday Inn	24386	7-story bldg. (16 sensors	41		360 Up 270	0.17	0.20	107	
Pacoima Dam	24207	Concrete arch dam (20 sensors	43	34.9	180 Up 270		0.02	161	
San Pedro 25th St. Fire Stat 1414 W. 25th Stree		1-story bldg.	43		270 Up 180			34	
Tarzana Cedar Hill Nursery 18320 Tarzana Dr.	24436	Instr. shltr. H	1 11			0.62 0.26 0.46		25	

TABLE 3 - Strong Motion Data - Area 1 (Continued)

Station Name No.			Trigger Time#	(Grnd.	ration Struct. (g) Pg.
Sylmar 24514 Olive View Medical Center	6-story bldg. (13 sensors)	45	28.2	90 Up 360	0.06 0.05 0.06	0.16 111 0.20
Sylmar 24514 Olive View Medical Center Free Field	Small 1-story bldg.	45	28.2	90 Up 360	0.05 0.04 0.06	35,114
Rancho Palos Verdes 14404 30840 Hawthorne Blvd.	1-story bldg.	46	32.2		0.02 0.02 0.02	35
	MAP AREA 2	!				
Puddingstone 23328 Reservoir Puddingstone Dam	Earth dam (18 sensors)	25	26.2	333 Up 243	0.07 0.07 0.06	
Pomona 23511 First Fed. Savings Bldg.	2-story bldg. (10 sensors)	30	26.2	360 Up 270		0.15 115 0.16
Pomona 23525 4th & Locust FF	Instr. shltr. H	30	25.9	102 Up 12	0.06 0.06 0.07	36,118
Featherly Park 13122 Park Maint. Bldg.	1-story bldg.	40		-	0.08 0.05 0.08	36
Huntington Beach 13197 Lake St. Fire Sta. 530 Lake Street	1-story bldg.	45	· .	•	0.04 0.03 0.05	37
Rancho Cucamonga - 23497 Law & Justice Center	4-story base- isolated bldg. (16 sensors)	47	28.9	_	0.03 0.03 0.03	0.06 119 0.03 0.05
Rancho Cucamonga 23497 Law & Justice Center Free Field	Instr. shltr. D	47	28.9		0.05 0.04 0.06	37,122
Newport Beach 13160 Irvine Ave Fire Sta.	1-story bldg.	50		90 Up 360	0.03 0.02 0.03	38
Irvine 13329 UCI Engineering Bldg.	8-story bldg. (12 sensors)	51		225 Up 135	0.03 0.02 0.03	

TABLE 3 - Strong Motion Data - Area 2 (Continued)

						_		
		5 1		m		cceler		
Station	N.		icenter	Trigger Time#			Struct.	
<u>Name</u>	No.	Type,Size-	Dist.	111167	сощр.	7R7	<u>(g)</u>	FK.
Etiwanda SCE Power Plant #3	23466	Steam generating plant (12 sensors)	51		180 Up 90	0.03 0.02 0.03	0.05 0.06 0.05	173
Riverside Airport	13123	1-story bldg.	59	31.3	270 Up 180	0.06 0.05 0.05		38
Lake Mathews Dike 1	13326	Earth dam (9 sensors)	62	32.1	75 Up 345	0.05 0.03 0.07	0.05 0.04 0.06	165
Lake Mathews Main Dam	13313	Earth dam (6 sensors)	63	31.7	350 Up 260	 	0.05 0.05 0.06	165
San Bernardino CSULB Library	23285	5-story bldg. (10 sensors)	71		215 Up 125	0.02 0.02 0.01	0.06	124
San Bernardino Vanir Towers	23515	9-story bldg. (13 sensors)	73	34.3	180 Up 90	0.03 0.02 0.03	0.03	125
San Bernardino Sunwest Office Bld	23516 g•	3-story bldg. (13 sensors)	73	33.4	360 Up 270	0.03 0.02 0.03	0.08	126
San Bernardino 2nd & Arrowhead	23522	Instr. shltr. H	73	32.3	270 Up 360	0.04 0.02 0.02		39
San Bernardino Hilton Inn	23287	6-story bldg. (9 sensors)	74		180 Up 90	0.03 0.02 0.03	0.10 0.07	127
Redlands Interstate Van Lir Warehouse	23495 ne s	1-story warehouse (12 sensors)	80	36.0	360 Up 90	0.02 0.01 0.03	0.08	128
Hesperia	23321	1-story	81	44.4	90 Up 360	0.02 0.02 0.03		39
Redlands Redlands Fed. Sav Bldg.	23481 ings	7-story bldg. (13 sensors)	83	36.5	180 Up 270	0.02 0.02 0.02	0.03 0.02	129

TABLE 3 - Strong Motion Data - Area 2 (Continued)

Station		Structure	Epicenter	Trigger			ration Struct	
Name_	No.	Type,Size*	Dist.	Time#			(g)	Pg.
Murrieta Hot Springs Collins Ranch	13198	Instr. shltr. A	101	38.0	90 Up 360	0.02 0.01 0.02		40
Winchester Bergman Ranch	13199	Instr. shltr. A	102	50.0	90 Up 360	0.03 0.03 0.02		40
Winchester Page Bros. Ranch	13201	Instr. shltr. A	105	50.3	90 Up 360	0.04 0.02 0.03		41
Temecula CDF Fire Station	13172	Instr. shltr. H	106	38.8	90 Up 360	0.02 0.02 0.03		41
Hemet Stetson Ave Fire S	12331 ta.	1-story bldg.	108	39•3	360 Up 270	0.04 0.03 0.03		42
Hemet City Library	12266	1-story bldg. (6 sensors)	108		360 Up 270	0.05 0.04 0.04	0.09	130
San Jacinto Valley Cemetery	12202	1-story bldg.	108	42.4	360 Up 270	0.03 0.02 0.04		42
Hemet Valley Hospital	12267	4-story bldg. (10 sensors)	109		315 Up 225	0.04 0.04 0.03	0.13	131
San Jacinto Soboba Castile Cyn Rd. ·	12204	1-story bldg.	114	54.2		0.02 0.02 0.02		43
		MAP ARE	A 3					
Vasquez Rocks Park	24047	Instr. shltr. A	53	29.0	-	0.07 0.04 0.05		† †
Newhall LA County Fire Sta	24279	1-story bldg.	56	31.1	270 Up 180			44

TABLE 3 - Strong Motion Data - Area 3 (Continued)

Station Name	No.	Structure Type,Size*	Epicenter Dist.**	Trigger Time#		irnd. S	ration Struct. (g) Pg.
Palmdale Holiday Inn	24232	4-story bldg. (9 sensors)	58		140 Up 50	0.04 0.02 0.03	0.17 132 0.04 0.05
Palmdale Holiday Inn FF	24521	Instr. shltr. H	58		272 Up 2	0.02 0.02 0.03	45,133
Leona Valley #1	24305	Instr. shltr. H	61	37.3	90 Up 360	0.02 0.02 0.02	46
Leona Valley #2	24306	Instr. shltr. H	62	38.5	90 Up 360	0.03 0.01 0.03	46
Leona Valley #3	24307	Instr. shltr. H	62	41.4	90 Up 360	0.02 0.02 0.03	47
Leona Valley #4	24308	Instr. shltr. H	62	41.2	90 Up 360	0.03 0.01 0.03	47
Leona Valley #5 Ritter Ranch	24055	Instr. shltr. A	62	33.1	90 Up 360	0.05 0.03 0.05	48
Leona Valley #6	24309	Instr. shltr. H	62	35.8	90 Up 360	0.05 0.02 0.04	48
Malibu Point Dume School	24396	1-story bldg.	67	33.9		0.05 0.03 0.05	49
Castaic Hasley Canyon LADWP Pump House	24277	1-story bldg.	69			0.03 0.03 0.03	49
Lancaster Medical Office Blo Antelope Valley Ho	_	3-story bldg. (13 sensors	70	33.5	115 Up 25	0.06 0.02 0.04	
Lancaster Medical Office Blo	24526 ig. FF	Instr. shltr. H	70	33.1	100 Up 10	0.06 0.03 0.06	45,135

TABLE 3 - Strong Motion Data - Area 3 (Continued)

					V			
Station		Structure Ep	icenter	Trigger			ration Struct	
Name	No.	•	Dist.	Time#			(g)	
Wood Ranch Reservoir Main Dam and Dikes	24251	Earth dam (12 sensors)	72	33.6	335 . Up 245		0.05 0.02 0.06	167
Lake Hughes #1 Fire Station #78	24271	1-story bldg.	75	35•7	90 Up 360	0.03		50
Lake Hughes #4 Camp Mendenhall (near water tank)	24469	Instr. shltr. A	75	41.4	90 Up 360	0.03 0.03 0.03		50
Lake Hughes #4B Camp Mendenhall	24523	Instr. shltr. A	75.	36.7	113 Up 23	0.03 0.02 0.02		51
Piru	24276	Instr. shltr. H	76	44.1	90 Up 360	0.03 0.02 0.02		51
Lancaster Airport Control To	24474 wer	Control Tower (9 sensors)	77	32.8	60 Up 330	0.03 0.02 0.02	0.08	171
Lancaster Airport FF Fox Airfield	24475	Instr. shltr. H	77	34.6	90 Up 360	0.02 0.02 0.03	5	2,172
Castaic Old Ridge Route	24278	Small 1-story bldg.	77	. ===	90 Up 360	0.07 0.03 0.07		52
Lake Piru Santa Felicia Dam	24280	Earth dam (6 sensors)	77	35.2	Ũр	0.05 0.02 0.04	0.04	170
Moorpark Ventura Co. Fire Dept. Garage	24283	Small Garage	79	35.7	Uр	0.05 0.02 0.04		53
Sawmill Mountain Caltech Seismic St		1-story shed	87	46.3	Up	0.04 0.02 0.04		53
Rosamond Godde Ranch	24274	Instr. shltr. H	87	37.5	Up	0.05 0.02 0.08		54

TABLE 3 - Strong Motion Data - Area 3 (Continued)

Station Name	No.	Structure Type,Size*	Epicenter Dist.**	Trigger _Time#			ration Struct.	Pg.
Rosamond Airport	24092	1-story bldg.	91		90 Up 360	0.04 0.02 0.06		54
Camarillo Fire Dept. Supply Houck St./Willis		1-story bldg.	94	53.2	270 Up 180	0.03 0.02 0.03		55
Point Mugu Naval Air Station	25147	Radar dome	96	49.8	90 Up 360	0.07 0.02 0.06		55
Actis HWY 14/Backus Road	24269 1	Instr. shltr. H	100	50.8	90 Up 360	0.06 0.02 0.04		56
Mojave LADWP Storage Shed	34093 1	1-story bldg.	113	53.9	90 Up 360	0.02 0.02 0.03		56

Footnotes:

* - Instrument shelter types:

Instr. shltr. A - small prefabricated metal building

Instr. shltr. D - small metal box

Instr. shltr. H - small fiberglass shelter

- Distance given (in km) relative to the presently estimated epicenter at 34.058N, 118.075W. The distance to the nearest point on the fault is not given for this earthquake because the causative fault associated with this event is not clearly known at this time.
 - # Accelerograph trigger time, when present, in seconds after 14:42 GMT on 1 October 1987.

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Station	Раде	Station	Раде	Station	Раке
Area 1 Stations		Area 2 Stations		Leona Valley #3	1 17
Tarzana -	25	Pomona -	36	Leona Valley #4	1 17
Cedar H111 Nursery	!	4th & Locust FF	ì		
Albambra - Francot School	52	Featherly Park - Park Maint: Blde	36	Leona Valley #5 - Ritter Rench	₹
San Marino -	56	Huntington Beach ~	37	Leona Valley #6	817
Southwestern Academy	1	Lake St. Fire Sta.	į		!
Los Angeles -	56	Rancho Cucamonga -	37	Malibu -	49
Obregon Park		Law & Justice Center FF	1	Point Dume School	
Altadena -	2.1	Newport Beach -	38	Castaic -	6#
Eaton Canyon Park	ş	_	o c	Hasley Canyon	í
Downey -	12	KIVerbide -	30		20
County Maint. Bidg.	860	Airport San Remardino -	30	Lake Hughes #1 -	50
file MIIBOU -	3	2nd & Arrowhead	`	Camp Mandanhall	3
Calteen Seismic Sta. Los Angeles -	28	Hesperia -	39	Lake Hughes #4B	51
116th St. School		•		Camp Mendenhall	
	59	Murrieta Hot Springs -	0#	Piru -	51
Hollywood Storage Bldg. FF	;	Collins Ranch			í
Inglewood -	53	Winchester -	40	Lancaster -	25
Union Oil Yard	;	_		Alrport FF	:
Long Beach -	30	Winohester -	4	Castale -	25
Rancho Los Cerritos			<u>.</u>	_	S
Los Angeles -	30	Temecula -	7	MOOFPARK -	20
Baldwin Hills	•	CUF FIFE STREION	<u>:</u>	Ventura co. Fire Dept. Gar	oarage E2
Century City -		Stateon Ave Pine Ste	Ž,	Caltach Setamto Sta	20
Continu City -	21	San Jacinto -	42	Rosamond -	5
	rth	Valley Cemetery		Godde Ranoh	•
Long Beach -	32	San Jacinto -	1 3	Rosamond ~	24
Recreation Park		Soboba		Airport	
	32				22
Harbor Admin. Bldg. FF	(Area 3 Stationas			U
Pacotina -	33	Veed avoid Bonne	ии	Foint Augu Nevel Aim Station	C
Asset cauyou	23		;	Actis -	26
Arreta = Nordhoff Ave Fire Sta.	3	Newhall -	77	HWY 14/Backus Road	3
Rolling Hills Estates -	34	LA County Fire Sta.		Mojave -	26
Rancho Vista School		Palmdale -	45	LADWP Storage Shed	
San Pedro	3#	Holiday Inn FF			
25th St. Fire Station			45		
Sylmar -	35	Medical Office Bldg. FF	91		
Olive View Medical Center FF		Leona Valley #1	40		
Rancho Palos Verdes -	çç	Leona Vallev #2	917		
2000					

Max. Accel.	0.62 9	0.46 9		Max. Accel.	0.40 g	0.30 g	
Record 24436-S1614-87275.01.1			20 Sec.	Record 24461-53498-87274.01.1			20 Sec.
			15				15
	My Monday Manderson	My harmony	10 10				10
rzana – Cedar Hill Nursery (CSMIP Station No. 24436)	MMM MANAMANAMANAMANAMANAMANAMANAMANAMANA	MMMM	3 4 5	— Fremont School tation No. 24461)	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		3 4 5
• • • • • • • • • • • • • • • • • • • •			2	hambra — Fremon (CSMIP Station No.	for fill had broaded to	Marranan	2
Tarzana (CSMIP	 		1.	Aihambra (CSMIP S	A Japan	1 1	0
	90°-	360°.			270°-	180°-	

Max. Acel.		- 0.20 g	- 0.14 g	- 0.15 g			Max.		~ 0.44 g	- 0.15 g	- 0.45 g	1,
Record 24401-50760-87274.01.1						20 Sec.	Record 24400-S1606-87274.01.1					20 Sec.
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Long Beach — Recreation Park (CSMIP Station No. 14241)	14:42:29 GMT	180° — — — — — — — — — — — — — — — — — — —	U)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		4	Long Beach — Harbor Admin. (CSMIP Station No. 14395)	14:42:31 GMT	90, ————————————	Up	360° — ——————————————————————————————————	0 1 2 3 4 5

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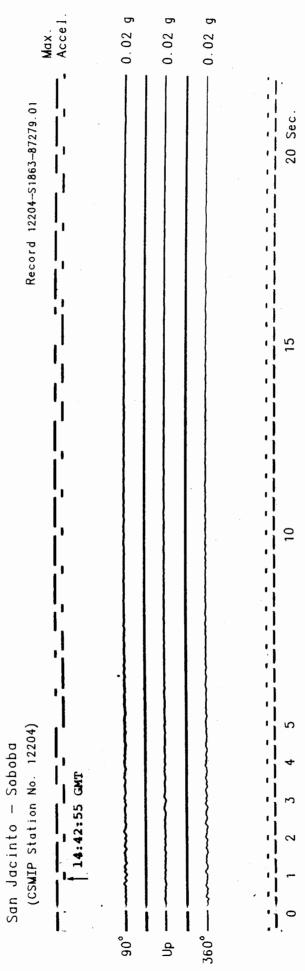
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Winchester - Page Bros. Ranch (CSMIP Station No. 13201)	90° — — — — — — — — — — — — — — — — — — —	0 1 2 3 4 5	Temecula - CDF Fire Station (CSMIP Station No. 13172)	90°Up	360°

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Hemet - Stetson Ave Fire Sta. (CSMIP Station No. 12331)	14:42:40 GMT	Jabu	270° ————————————————————————————————————	0 1 2 3 4 5	San Jacinto — Valley Cemetery (CSMIP Station No. 12202)	14:42:43 GMT	360° ————————————————————————————————————	270° —	0 1 2 3 4 5



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Vasquez Rocks Park (CSMIP Station No. 24047)		0 1 2 3 4 5	Newhall — LA County Fire Sta. (CSMIP Station No. 24279)	14:42:32 GMT		0 1 2 3 4 5
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Palmdale — Holiday Inn FF (CSMIP Station No. 24521)	2° — — — — — — — — — — — — — — — — — — —		0 1 2 3 4 5 Lancaster — Medical Office Bldg. FF (CSMIP Station No. 24526)	14:42:34 GMT	dr	0,0	1 2
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Lancaster - Airport FF (CSMIP Station No. 24475) 14:42:35 GMT 90°	

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Dept. Garage						10	eismic Sta.						10
Moorpark — Ventura Co. Fire Dept. (CSMIP Station No. 24283)	14:42:36 GMT		Up			0 1 2 3 4 5	Sawmill Mountain — Caltech Seismic (CSMIP Station No. 24082)	14:42:47 GMT		Up	360°		0 1 2 3 4 5

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Camarillo — Fire Dept. Supply Bldg. (CSMIP Station No. 25282)	14:42:54 GMT	270° — — — — — — — — — — — — — — — — 270°	dD	180° — — — — — — — — — — — — — — — — — — —		0 1 2 3 4 5	Point Mugu — Naval Air Station (CSMIP Station No. 25147)	14:42:50 GMT	90° — — — ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ .	Up	360° — vunnammanavavavammana		0 1 2 3 4 5

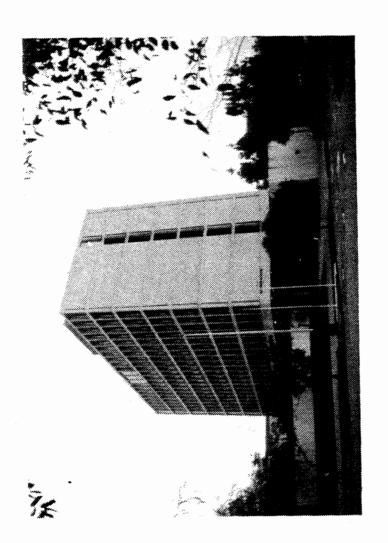
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Actis — HWY 14/Backus Road (CSMIP Station No. 24269)	↑ 14:42151 GMT		du	360° — ~~~~~~	0 1 2 3 4 5	Mojave — LADWP Storage Shed (CSMIP Station No. 34093)				360° —	0 1 2 3 4 5

INDEX TO STRUCTURAL RESPONSE RECORDS

BUILDINGS

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	1 a Se	SCALLOII	rage	Scarton	rage
Area 1 Stations		Long Beach -	26	San Bernardino -	126
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UCLA Math-Science Bldg.		CSULB Library			
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City Hall		Vanir Towers			

Los Angeles - CSULA Administration Bldg.



Address: Calif. State University at LA Los Angeles, CA

No. of Stories above/below ground: 8/1

ground: 0/1 Plan Shape: Rectangular

Base Dimensions: Irregular base shape Typical Floor Dimensions: 154' x 63' Design Date: 1967

Construction Date: 1969

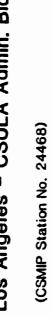
Vertical Load Carrying System:

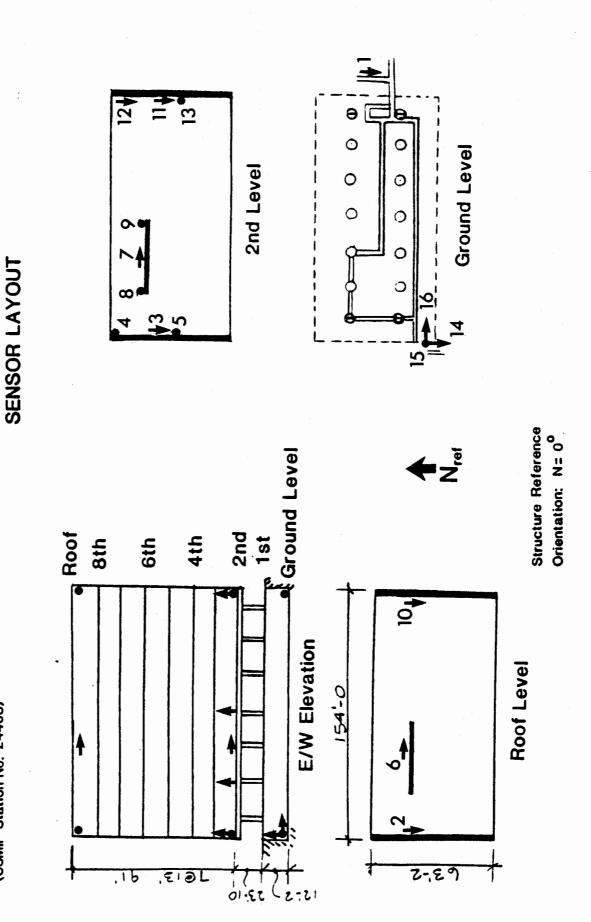
Concrete slabs supported by concrete beams and columns.

Lateral Force Resisting System:
Concrete shear walls except between levels
1 and 2 where composite concrete/steel
columns resist lateral forces.

Foundation Type: Spread footings and concrete caissons.

Los Angeles - CSULA Admin. Bldg.





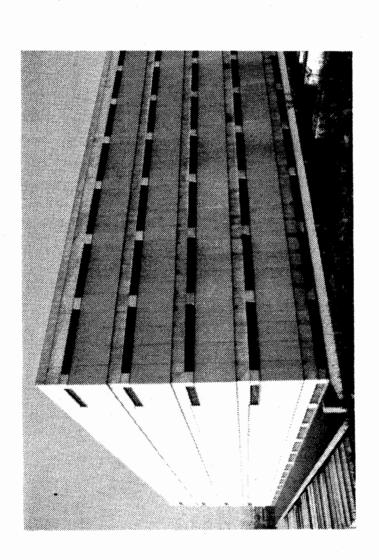
Bldg.	
Los Angeles — CSULA Admin.	(CSMIP Station No. 24468)

(CSMIP Station No. 24468)	Record 24468-C0222-87274.01.1
	1
1 - minumenter of 1/2 /	Ground Elcor: East End - S Max. Accel.= 0.31
2	Roof: West Wall - S (Sensor malfunction)
3	2nd Floor: West Wall - S 0.38
4 women women Will Word by My Women Women women	" N. End of West Wall - Up 0.53
== 5 www.www.ww///////////////////////////	" Center of West Wall - Up 0.35
6	Roof: Central Shear Wall - E 0.27
1	2nd Floor: Central Shear Wall - E 0.18
	" Central Shear Wall - Up 0.13
6	" Central Shear Wall - Up 0.13
$\frac{10}{2}$	Roof: East Wall - S 0.48
$\frac{11}{2}$	2nd Floor: East Wall - S 0.41
12	East Wall - S 0.42
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Los Angeles — CSULA Admin. Bldg.	(CSMTP Station No. 24468)
Los Ange	(CSMTP

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Los Angeles - Sears Warehouse



Address: 2555 East Olympic Blvd. Los Angeles, CA

No. of Stories above/below ground: 5/1

Plan Shape: Rectangular Base Dimensions: 360' x 280' Typical Floor Dimensions: Same

Design Date: 1970

to the 1970 Los Angeles Building Code. Foundation Type: Spread footings.

Ductile reinforced concrete perimeter frame;

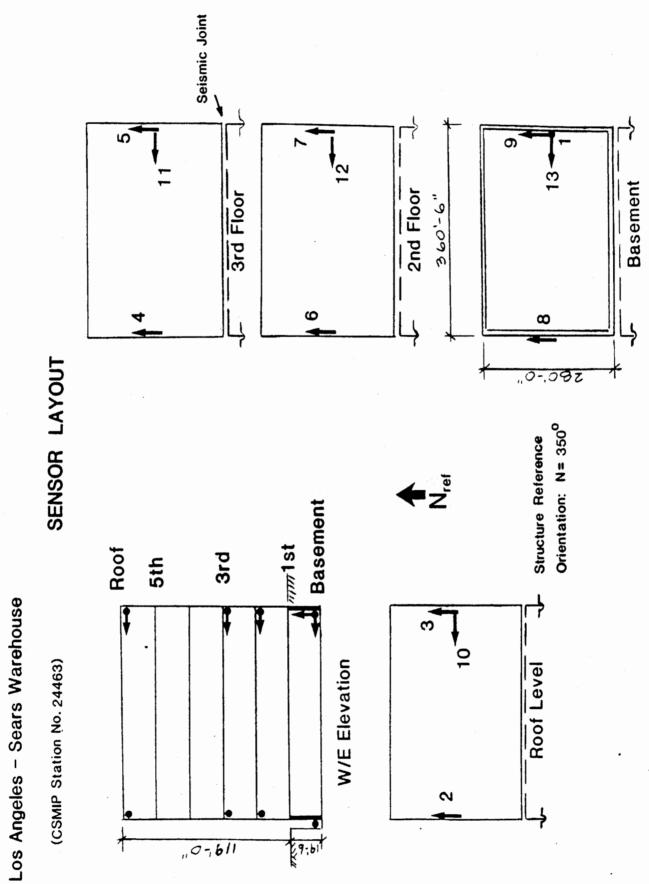
Concrete slabs, beams and columns.

Vertical Load Carrying System:

Lateral Force Resisting System:

basement shear walls; designed according

Note: This building is adjacent to a similar building; the buildings are separated by a seismic joint.

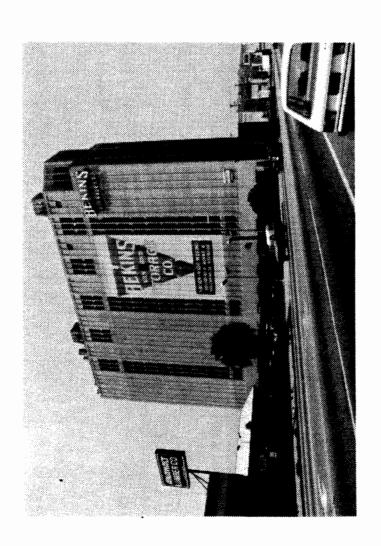


Warehouse	24463)
Los Angeles - Sears	(CSMIP Station No.

Record 24463-C0218-87275.01

WW//ww/www/www.Accel.= 0.09 g	Which wast wall - N 0.18 g	WM East Wall - M 0.16 g	3rd Floor: West Wall - N 0.14 g	"East Wall - N 0.11 g	2nd Floor: West Wall - N 0.13 g	$\mathbb{A}^{\mathbb{A}_{\mathbb{A}}}}}}}}}}$	ANTINON MART Wall - N 0.14 g	WWW.Www.www.www.www.www.www.www.www.www	My Wywwwwwwwwwwwwwwwwwwwwwwwwwwwwwwwwwww	MANA MANAMANANANANANANANANANANANANANANAN	WWW/Y/L/VYVVVVVVVVVVVVVVVVVVVVVVVVVVVVVV	WWW. My NW Numer Numer National - W 0.18 g	Structure Reference Orientation: N=350°	5 10 20 Sec.
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Los Angeles - Hollywood Storage Bldg.



Address: 1025 N. Highland Ave.
Los Angeles, CA

No. of Stories above/below ground: 14/partial basement

Plan Shape: Rectangular Base Dimensions: 217' x 51' Typical Floor Dimensions:

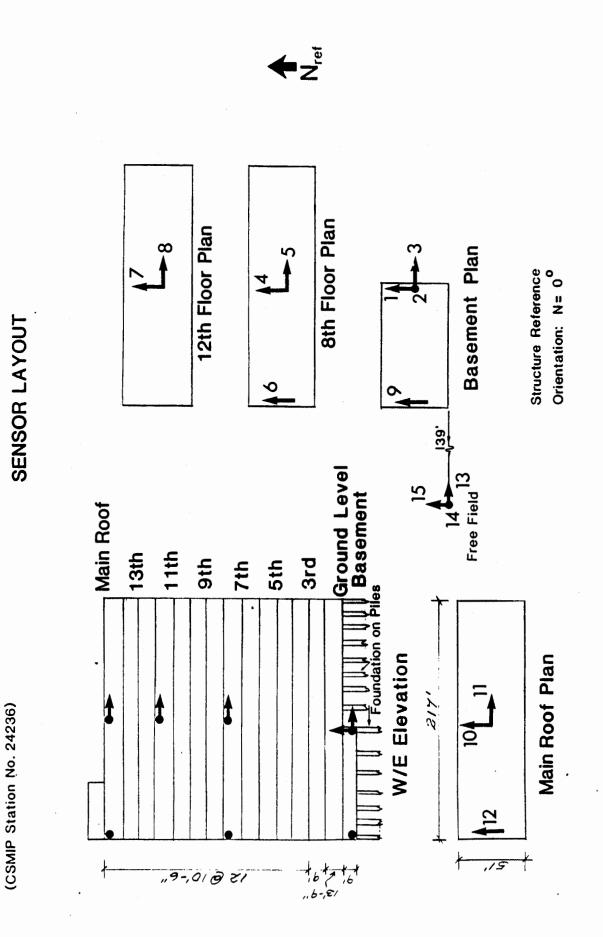
Design Date: 1925

Same

Vertical Load Carrying System:
8" thick concrete slabs supported by concrete frame.
Lateral Force resisting System:
Reinforced concrete frame in both directions.

Foundation Type: Concrete piles.

Los Angeles - Hollywood Storage Bldg.



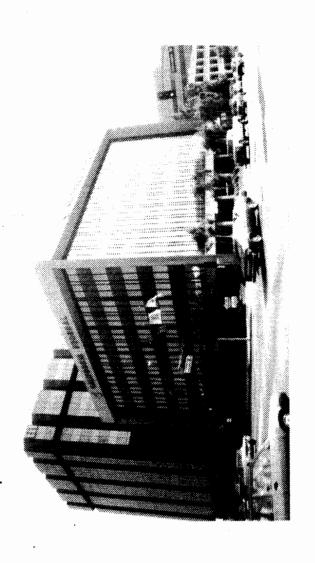
Los Angeles — Hollywood Storage Bldg. (CSMIP Station No. 24236)

>	tion No.	24236)	Record 24236-C012	24236-C0124-87275.01
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3	N-2		(本) (本)	0.06 g
4	Montheman	and My Markenson and a second a	8th Floor: Center - N	0.19 g
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9			" West Wall - N	0.07 g
7	\/~~//~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		12th Floor: Center - N	0.14 g
80	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			0.12 g
6	\}		Basement: West Wall - N	0.10 g
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Bldg. FF	
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Angeles - Holl	ON CHAHOO
Los Ang	DOMIN

(CSN	(CSMIP Station No. 24303)	t ion No	0. 24	4303)		Record 24	Record 24303-S2774-87275.01.1
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Burbank - California Federal Savings Bldg.

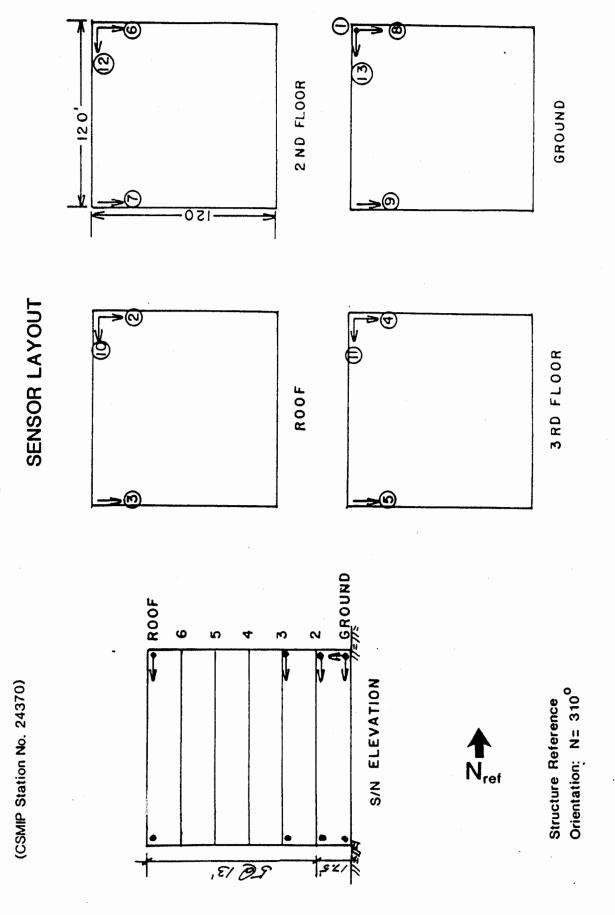


Address: 323 N. Glenoaks Blvd. Vert
Burbank, CA
No. of Stories above/below de
ground: 6/0
Plan Shape: Rectangular Pe

ground: 6/0
Plan Shape: Rectangular
Base Dimensions: 120' x 120'
Typical Floor Dimensions: Same
Design Date: 1976
Construction Date: 1977

Vertical Load Carrying System:
3" thick concrete slab over metal
deck supported by steel frame.
Lateral Force Resisting System:
Perimeter moment resisting steel
frame.
Foundation Type:
Concrete caissons (approx. 32' long).

Burbank - California Federal Savings Bldg.

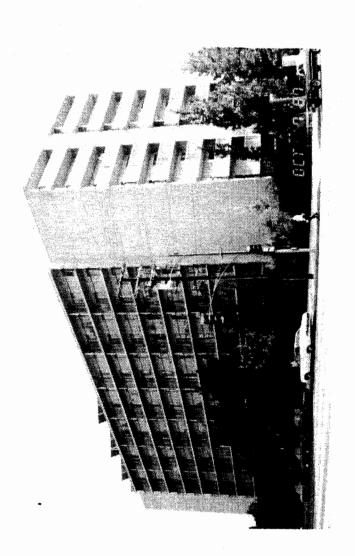


Burbank — Cal. Fed. Savings Bldg. (CSMIP Station No. 24370)

Record 24370-C0196-87274.01.1

Max. Accel.= 0.10 g	0.14 g	0.17 9	0.18 g	0.15 g	0.15 g	0.15 9	0.16 g	0.17 g	0.30 g	0.24 g	0.21 g	0.22 g		20 Sec.
Ground Floor: Up May	Roof: North Wall - E	South Wall - E	3rd Floor: North Wall - E	South Wall - E	2nd Floor: North Wall - E	South Wall - E	Ground Floor: North Wall - E	" South Wall - E	ROOF: West Wall - S	3rd Floor: West Wall - S	2nd Floor: West Wall - S	Ground Floor: West Wall - S	ce Orientation: N=310°	15
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Burbank - Pacific Manor



Address: 609 N. Glenoaks Blvd. Burbank, CA

No. of Stories above/below ground: 10/0

Plan Shape: Rectangular Base Dimensions: 215' x 75' Typical Floor Dimensions:

Same

Design Date: 1974 Construction Date: 1974

Vertical Load Carrying System:

Precast and poured-in-place concrete floor slabs supported by precast concrete bearing walls. Lateral Force Resisting System:

Precast concrete shear walls in both directions. Foundation Type:

Concrete caissons (25' to 35' deep) under all bearing walls.

Shear Walls Shown (Typical Each Floor) 215' 1st Floor 4th Floor 8th Floor **SENSOR LAYOUT** Orientation: N= 40° Structure Reference 36 10+4 25 8 +4 9+1 32 14 6+4 53 44 W/E Elevation Burbank - Pacific Manor Roof Level (CSMIP Station No. 24385) 2 ,54

6

9

Burbank - Pacific Manor (CSMIP Station No. 24385)

Record 24385-C0193-87274.01.1

	Record 24385-53486-87274.01.1		Max. Accel.= 0.18 g	0.06 g	0.22 g		20 Sec.
,	Record 2438		1st Floor: Center - N M	1st Floor: Center - Up	lst Floor: Center - W	Structure Reference Orientation: N=40 Deg.	15
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Burbank - Pacific Manor	(CSMIP Station No. 24385)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	ساراي الهارية المعاري المعارية	manner of the month of the months of the second of the sec		2 3 4 5
Burbank	(CSMI)	1	14	15	16	l l	0 1

North Hollywood - Sheraton-Universal Hotel



Address: 30 Universal City Plaza North Hollywood, CA

No. of Stories above/below

ground: 20/1

Base Dimensions: 199' x 96' Plan Shape: Rectangular

Typical Floor Dimensions: 184' x 58' Design Date: 1967

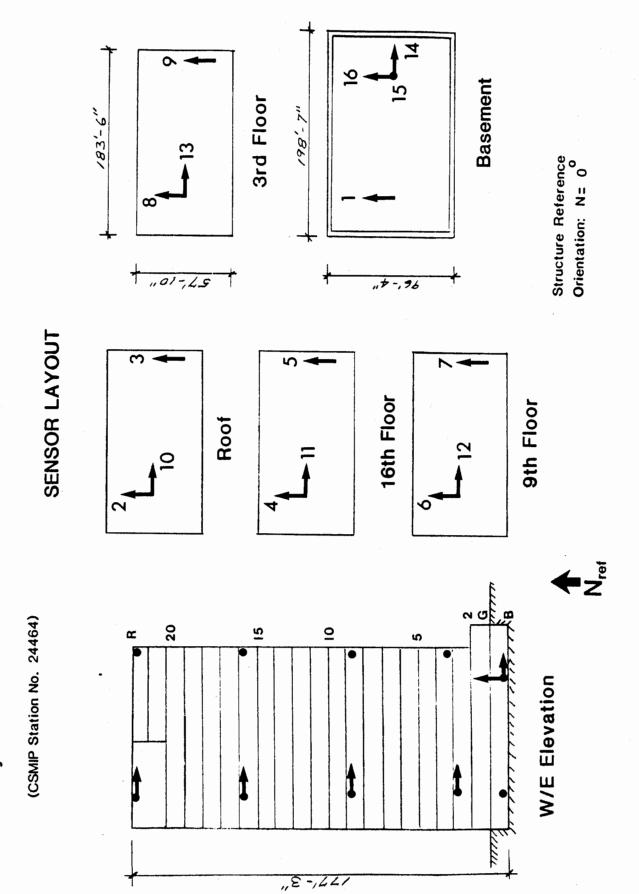
Construction Date: 1968

4-6" thick concrete slabs supported by Lateral Force resisting System: Vertical Load Carrying System: concrete beams and columns.

designed according to the 1966 Los Angeles Ductile moment resisting concrete frame; Building Code.

Spread footings. Foundation Type:

North Hollywood - Sheraton Universal Hotel



North Hollywood - Sheraton-Universal Hotel (CSMIP Station No. 24464)

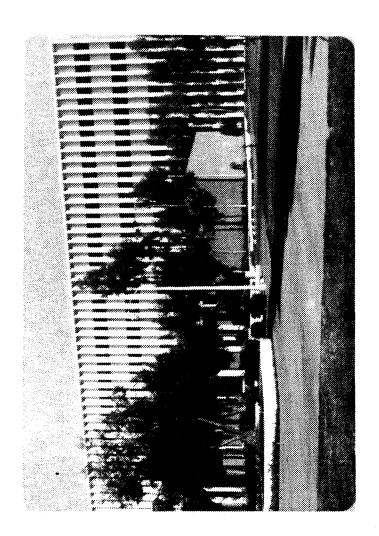
Record 24464-C0219-87274.01

		Basement: West Wall - N	(sensor malfunction)
2		Roof: West Wall - N	Max. Accel.= 0.17 g
3		" East Wall " N	0.16 g
4		16th Floor: West Wall	- N 0.11 g
5		" East Wall -	N 0.09 g
9		9th Floor: West Wall -	N 0.12 g
7	Mynywww.m	"East Wall -	N 0.21 g
8		3rd Floor: West Wall -	N 0.11 g
6	Muranaman	" East Wall -	N 0.19 g
10		Roof: West Wall - E	0.13 g
11		16th Floor: West Wall -	E 0.13 g
12		9th Floor: West Wall -	E 0.11 g
13		3rd Floor: West Wall -	E 0.12 g
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- Sheraton-Universal Hotel	24464)
North Hollywood - S	(CSMTP Station No. 24464)

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Long Beach - CSULB Engineering Building 1



Address: Calif. State University

Long Beach, CA No. of Stories above/below ground: 5/partial basement

Plan Shape: Rectangular Base Dimensions: 205' x 81' Typical Floor Dimensions:

Design Date: 1968 Construction Date: 1970

Vertical Load Carrying System:

6" thick concrete slabs supported by concrete beams, columns and 12" thick concrete bearing walls. Lateral Force Resisting System:

Concrete shear walls in both directions. Foundation Type:

oundation Type: Concrete piles.

Same

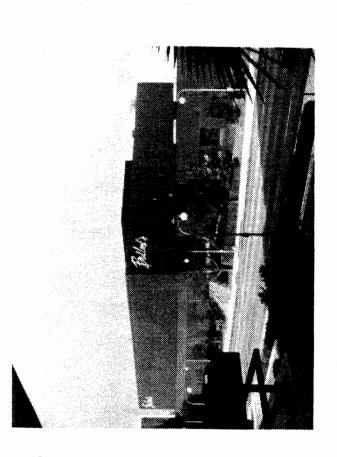
2nd Floor Plan Basement 204'- 10" SENSOR LAYOUT Plan ,,0-,54 Long Beach - CSULB Engineering Bldg. 1 11st Floor Basement Roof 5th 2nd 4th 3rd (CSMIP Station No. 14311) N/S Elevation ,9 E/ @ t

**Roof Plan** 

Structure Reference Orientation: N= 0°

Record 14311-C0159-87275.01	Max. Accel.= 0.13 g	0.11 g	0.10 g	0.36 g	0.27 g	0.10 g	0.12 g	0.10 g	0.05 q	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
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Long Beach — CSULB Eng. f (CSMIP Station No. 14311)	•				}						m
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Los Angeles - Century City Bullock Department Store



Address: 10250 Santa Monica Blvd. Los Angeles, CA

No. of Stories above/below

ground: 3/2

Plan Shape: Rectangular

520'x227' (2-story parking garage) Base Dimensions:

241'x219' (3-story department store) Typical Floor Dimensions:

Construction Date: 1975-76 Design Date: 1974

Vertical Load Carrying System:

lightweight concrete slab supported by steel frame. Lower 2 stories: 18" thick waffle slabs. Upper 3 stories: steel deck with 3 1/4"

Lateral Force Resisting System:

Upper 3 stories: steel braced frame (perimeter only). Lower 2 stories: concrete shear walls.

Foundation Type:

Spread footings and drilled bell caissons.

2nd Floor Plan **Roof Plan** Garage Level B Plan Mall Level Plan SENSOR LAYOUT Los Angeles - Century City Bullock Dept. Store Mail Level Garage Level A 2nd Floor 3rd Floor 142 Braced Frame (1 Bay) |→———| Level B Roof N/S Elevation Orientation: N= 321^o Structure Reference (CSMIP Station No. 24332) .8.910€ R/C Shear Steel Braced

Los Angeles — Century City Bullock Department Store (CSMIP Station No. 24332)

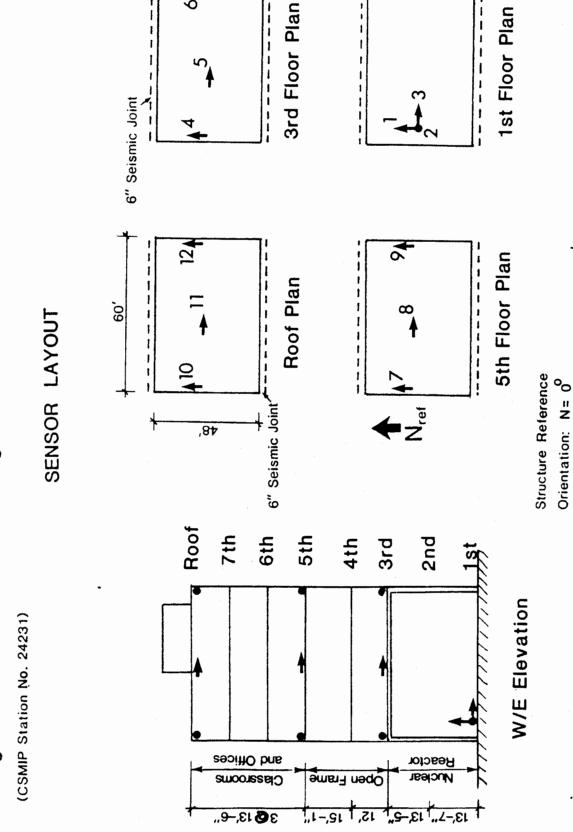
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m		}	}.	}		North Wall -	E	0.16 g
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7			}	{	Mall	Level: South Wall	Wall - N	0.06 g
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6			}	<b>\{</b>		" North Wall	Wall - E	0.08 g
01			}	.   }		" North	Wall - Up	0.04 g
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12		}	{	3	Garin	Garage Level B: No	North Wall - E *	0.24 g
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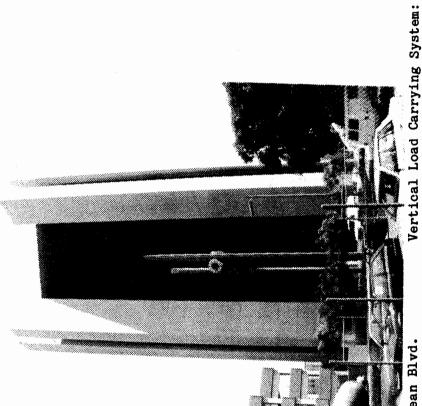
49

Los Angeles - UCLA Math-Science Bldg.



0.04 9 Max. Accel. = 0.05 g 0.04 9 0.06 9 0.04 g 0.05 g 0.07 9 0.04 9 0.08 g 0.14 g 0.059 Record 24231-C0113-87276.01 Z I 1st Floor: West Wall - N ſΞ z 5th Floor: West Wall - N Z H Center - E East Wall 3rd Floor: West Wall East Wall West Wall - N East Wall - N Center Center - E Structure Reference Orientation:  $N=0^{\circ}$ Roof: = = = = Los Angeles - UCLA Math-Science Bldg. (CSMIP Station No. 24231) 2 9  $\infty$ 10 4 δ 디

Long Beach - City Hall



Address: 333 West Ocean Blvd. Long Beach, CA

No. of Stories above/below

ground: 15/1

Typical Floor Dimensions: Same Base Dimensions: 106' x 106' Plan Shape: Square

Design Date: 1973 Construction Date: 1975-76

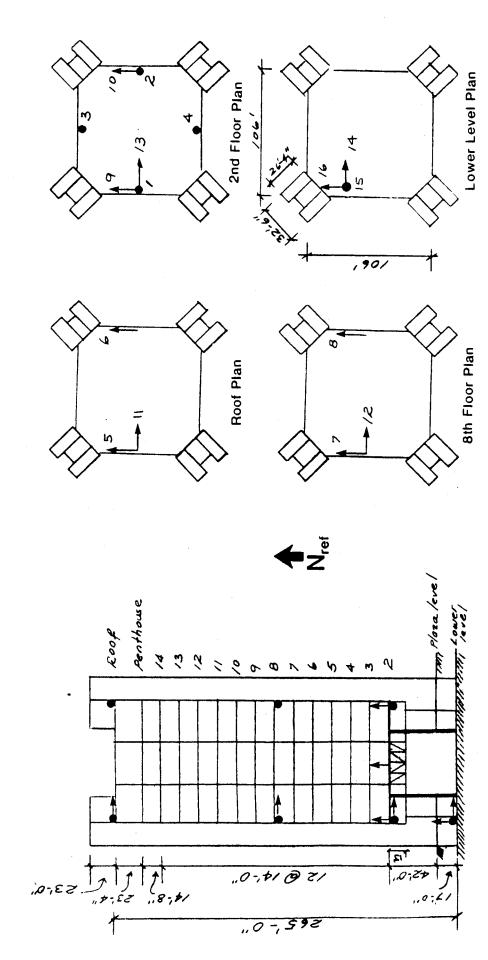
frame; steel frame towers on four corners of the Concrete slab on steel deck supported by steel square with precast concrete exterior panels. Moment resisting steel frame. Lateral Force Resisting System:

Spread footings and drilled bell caissons. Foundation Type:

Long Beach - City Hall

(CSMIP Station No. 14533)

SENSOR LAYOUT



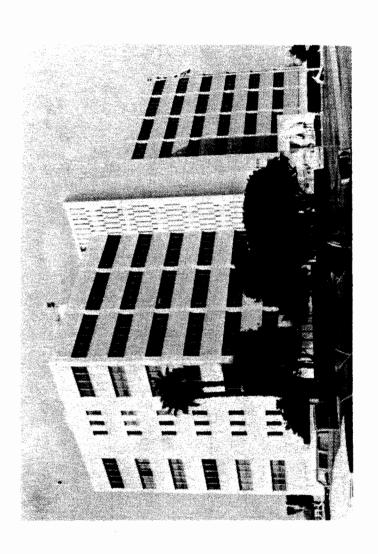
W/E Elevation

Structure Reference Orientation: N=45°

Long Beach - City Hall (CSMIP Station No. 14533)		Record 14533-C0287-87275.01	75.01
14:42:29 GMT			1
1 2nd Floor: West Wall - Up		Max. Accel.=	:1.= 0.04 g
2 " East Wall - Up			0.04 g
3 " North Wall - Up			0.04 g
4 " South Wall - Up			0.04 g
5 Roof: West Wall - N			0.05 g
6 " East Wall - N			0.04 g
7 8th Floor: West Wall - N			0.04 g
8 " East Wall - N			0.05 g
9 2nd Floor: West Wall - N			0.04 g
10 " East wall - N			0.04 g
11 Roof: West Wall - E			0.07 9
12 8th Floor: West Wall - E			0.07 g
13 2nd Floor: West Wall - E			0.06 g
Stru	Structure Reference Orientation:	: N=45°	1 1
0 1 2 3 4 5	10	15 20 Sec	

Record 14533-S2614-87275.01		Max. Accel.= 0.06 g	0.02 g	0.04 g	Structure Reference Orientation: N=45°	
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Long Beach — City Hall (CSMIP Station No. 14533)	1 \$	West			,	   4
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Long Beach - Harbor Administration Building



Address: 925 Harbor Plaza Long Beach, CA

No. of Stories above/below ground: 7/0

Plan Shape: Rectangular

Base Dimensions: 220' x 75' Typical Floor Dimensions:

Same

Construction Date: 1970 Design Date: 1967

7" thick concrete slabs supported by steel frame. Lateral Force Resisting System: Vertical Load Carrying System: Steel frame.

Concrete piles. Foundation Type:

**Ground Level Plan** 2nd Floor Plan N_{ref} 220' SENSOR LAYOUT 94 # Ground Level Structure Reference Orientation: N= 0° Free Field Foundation on Piles Penthouse ♣ Roof 6th ►2nd 5th 3rd 4th 1st Long Beach - Harbor Admin. Bidg. Seismic Joint S/N Elevation (CSMIP Station No. 14323) **Roof Plan** ,8/ O L

Long Beach — Harbor Admin. Bldg. (CSMIP Station No. 14323)

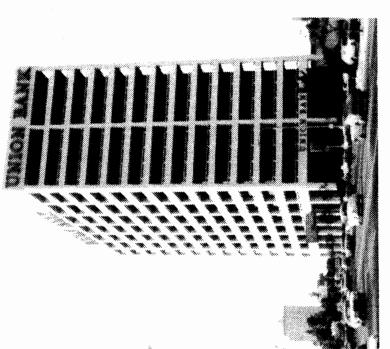
Record 14323-C0154-87275.01

1	S. Structure, Roof:	Center - N Max. Accel.= 0.12	12 g
2	" 2nd Floor:	Center - N 0.05	5 g
3	N. Structure, Roof:	North Wall - N 0.12	2 g
4	" 2nd Floor:	North Wall - N 0.05	)5 g
, e	S. Structure, Roof:	Center - E 0.11	.1 g
9	" 2nd Floor:	Center - E 0.08	8 g
7	N. Structure, Roof:	Seismic Joint - E 0.12	2 g
8		North Wall - E 0.11	$\left \begin{array}{c}1\\g\end{array}\right $
6	S. Structure, Roof:	Seismic Joint - E 0.11	1 g
10	" 2nd Floor:	" E 0.07	7 9
11	N. Structure, 2nd Floor:	E 0.08	8 g
12	=	North Wall - E 0.08	8 9
	nce Orienta		
0 1 2 3 4 5		20 Sec.	.f

Long Beach — Harbor Admin. Bldg. (CSMIP Station No. 14323—52787—87275.01 —	Structure, Ground Floor: Center = E	" " Up	0.05 g	3 4 5 10 15	Long Beach — Harbor Admin. Bldg. (CSMIP Station No. 14323,—52788—87275.01	Structure, Ground Floor: North Wall - E	" " Up	Structure Reference Orientation: N=0°	
j Beach — Ha SMIP Station	S. Structur	=	1 _ {	1	g Beach — Ha CSMIP Station	N. Structure	=	=	

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	Long Beach (CSMIP Sta	14:42:		20 "	21	1	0 1 2

Sherman Oaks - Union Bank Building



Address: 15233 Ventura Blvd
Sherman Oaks, CA
No. of Stories above/below
ground: 13/2
Plan Shape: Rectangular
Base Dimensions: 209' x 125'
Typical Floor Dimensions: 193' x 75'
Design Date: 1964

Vertical Load Carrying System:

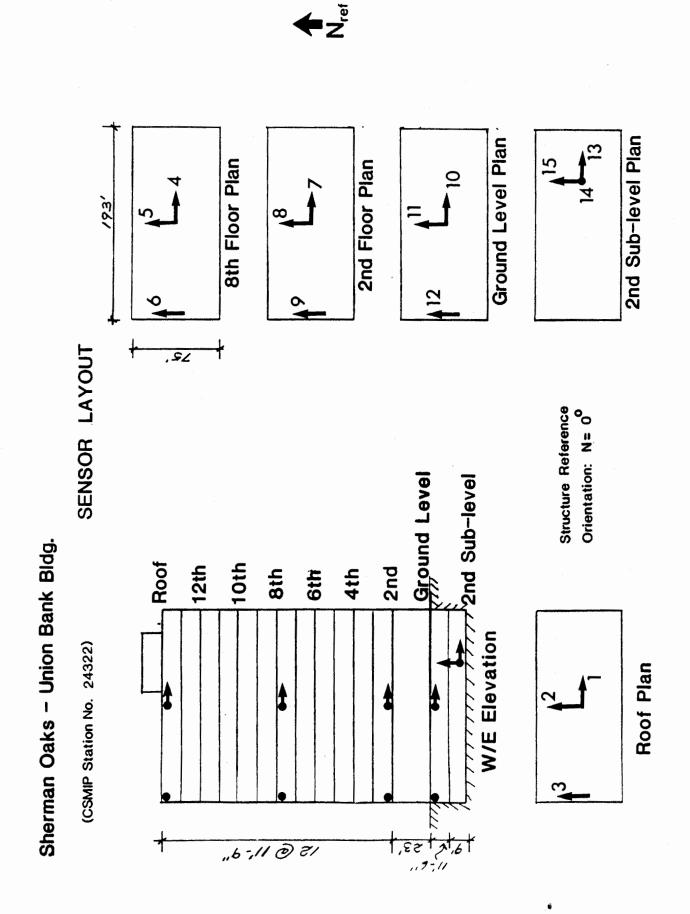
4" thick one-way concrete slabs supported
by concrete beams, girders and columns.

Lateral Force Resisting System:

Moment resisting concrete frame in both
directions; shear walls below first floor.

Foundation Type:

Concrete piles.

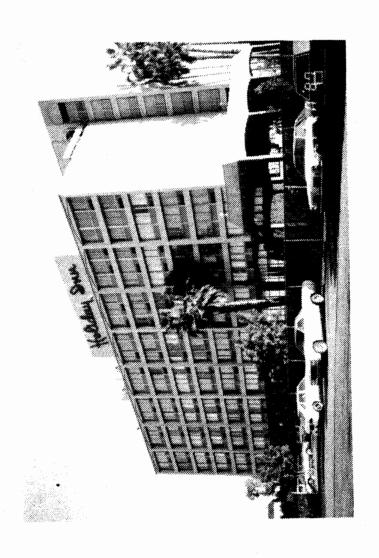


B1dg.	
Sherman Oaks - Union Bank	(CSMIP Station No. 24322)

Vaks — Unior Station No. 2	-                   	Record 24322-C0160-87275.01.1
	Roof: Center - E	Max. Accel.= 0.14 g
2	" Center - N	0.14 g
}	" West Wall - N	0.19 g
4	8th Floor: Center - E	0.10 g
5	" Center - N	0.13 g
<	" West Wall	- N 0.13 g
	2nd Floor: Center - E	0.11 g
, ,	" Center - N	0.18 g
	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	- N 0.22 g
10	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	- E 0.17 g
<b>}</b>	. Center	- N 0.26 g
12 M.	Mest Wall	11 - N 0.28 g
	Structure Reference Orientation: N=0°	
0 1 2 3 4 5	·	20 Sec.

Record 24322-52789-87275.01.1	Max. Accel. = 0.15 q	0.04 g	0.10 g		20 Sec.
ord 243	i i i	ďn	z		
Rec	2nd Sub-level:	=	=	ation: N=0°	15
.6pl				Structure Reference Orientation: N=0°	
Sherman Oaks - Union Bank Bldg. (CSMIP Station No. 24322)		{	{	<b>\</b>	5
on B	}   				4
- Un	1				3
erman Oaks — Union Bank (CSMIP Station No. 24322)	! !		3	Parkerphylogophylogoph	2 3
Mdn (	1    -	{			-
She r (C	l	14	15		

Van Nuys - Holiday Inn



8 - 10" thick concrete slabs supported by Moment resisting concrete frame in both Lateral Force Resisting System: Vertical Load Carrying System: concrete beams and columns.

Foundation Type: directions.

Typical Floor Dimensions: Same Base Dimensions: 151' x 63'

Construction Date: 1966

Design Date: 1965

No. of Stories above/below ground: 7/0

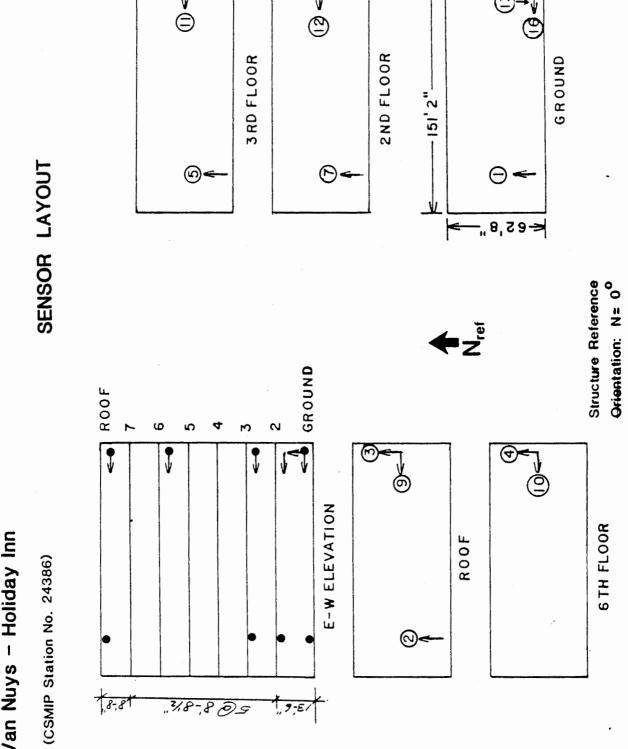
Plan Shape: Rectangular

Address: 8244 Orion Ave.

Van Nuys, CA

Concrete friction piles.

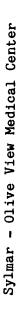
Van Nuys - Holiday Inn

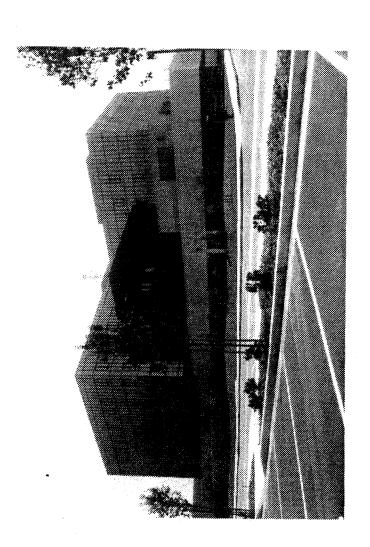


Inn	24386)
Van Nuys - Holiday	(CSMIP Station No.

Record 24386-C0198-87275.01

20 Sec.	15	4 5 10	0 1 2 3
(Sensors 14-16 malfunction)	ation: N=0°	Structure Reference Orientation:	
1 - 5 0.17 g	Ground Floor: East Wall		13
- W 0.15 g	2nd Floor: East Wall	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	12
- W 0.20 g	3rd Floor: East Wall		11
W 0.10 g	6th Floor: East Wall		01
0.17 g	Roof: East Wall - W		6
N 0.15 g	East Wall -		8
N 0.18 g	2nd Floor: West End -		7
N 0.17 g	" East Wall -		9
N 0.20 g	3rd Floor: West End -		5
N 0.08 q	6th Floot: East Wall		4
0.15 g	"East Wall - N		3
0.20 9	Roof: West End - N		2
- N Max. Accel. = 0.16 g	Ground Floor: West End		1





Address: 14445 Olive View Drive

No. of Stories above/below Sylmar, CA

ground: 6/0

Cross-shaped(upper 4 stories) Rectangular(lower 2 stories) Plan Shape:

Typical Floor Dimensions: 101' x 302' Base Dimensions: 452' x 302' Design Date: 1976

Construction Date: 1977-86

Concrete slabs over metal deck supported Vertical Load Carrying System: by steel frame.

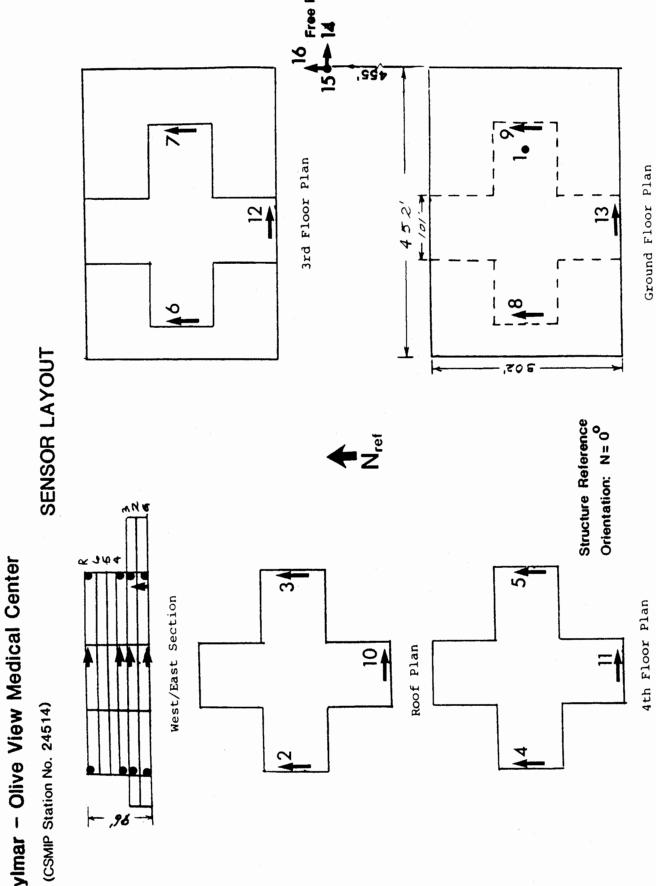
Concrete shear walls on lower 2 stories, Lateral Force Resisting System:

steel shear walls on the perimeter of upper  $\boldsymbol{\mu}$  stories.

Foundation Type:

Spread footings.

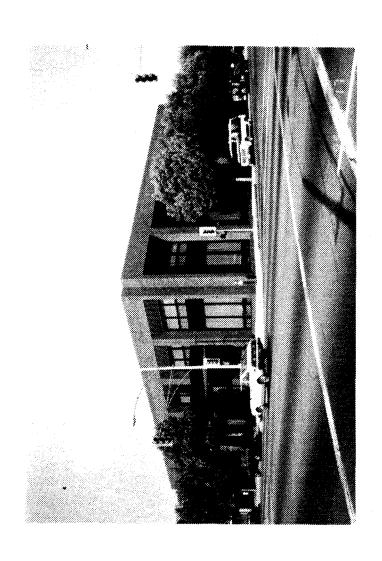
Sylmar - Olive View Medical Center



Sylmar - Olive View Medical (CSMIP Station No. 24514)	Center	Record 2	Record 24514-C0284-87278.01
		'	
	14	14:42:41 GMT	
1	Ground Floor:	loor: Up	Max. Accel.= 0.05 g
C	D. G.	1100 t 11011 N	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	3	*411 -	0.20 g
3		East Wall - N	0.13 g
7	4+h F100Y	West Well -	O Company of the second of the
F		Nesr Nesr	(Sensor mairunction)
5	•	East Wall - N	0.10 g
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
9	3rd Floor:	r: West Wall - N	0.09 g
7		East Wall - N	p 60.0
	}		
8	Ground F1	Floor: West Wall - N	0.05 g
6	=	East Wall - N	6 90.0
10	Roof: Sout	South Wall - E	0.16 g
11	4th Floor:	r: South Wall - E	0.10 g
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
12	3rd Floor	r: South Wall - E	0.10 g
13	Ground Floor:	loor: South Wall - E	6 90.0
	Structure Reference Orientation:	tion: N=0°	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1		15	20 Sec.

			.05 g		0.04 g		0.06 g			,1	
0 87078_N3033 N1380 H2003	314-33234-61216:01		Max. Accel.= 0.05 g)						20 Sec.
70 70 000	record 24		eld: E		ďN		Z				
		14:42:41 GMT	Storage Shed Freefield: E		=		=		cation: N=0°		15
ter			St						Structure Reference Orientation: N=0°		10
Sylmar - Olive View Medical Center	14)		•								5
ew Me	. 245										4
ve Vi	ion No										. 2
- 01 i	Stat									•	2
l ma r	(CSMIP Station No. 24514)										-
Sy	_		14	1	15	Ì	16	ľ		!	i .°

Pomona - First Federal Savings Bldg.



Vertical Load Carrying System:
Concrete slabs supported on concrete beams
and columns.
Lateral Force Resisting System:

Perimeter moment resisting ductile concrete frame.

Base Dimensions: 120' x 100'

Plan Shape: Rectangular

Typical Floor Dimensions:

Construction Date: 1971

Design Date: 1971

Address: 350 S. Garey Ave.

Pomona, CA

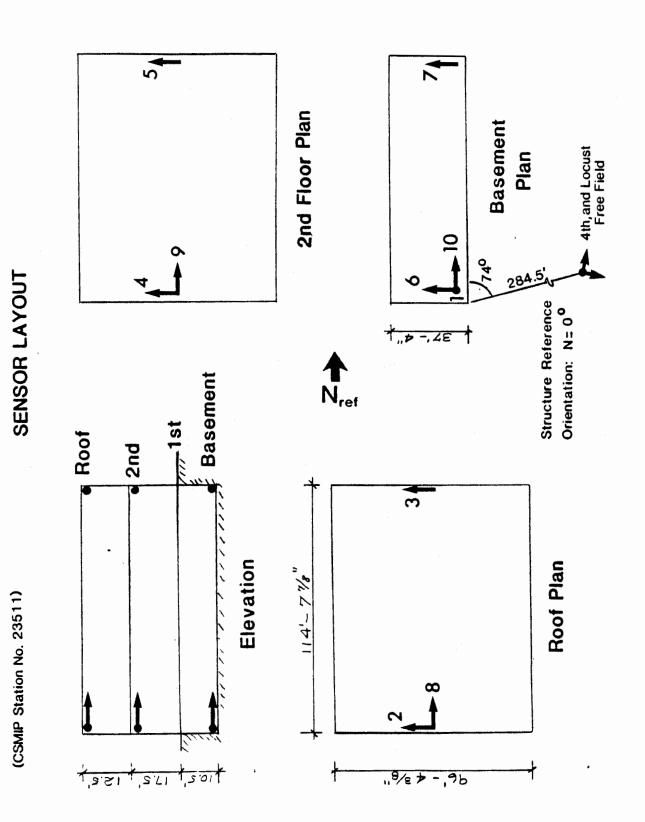
No. of Stories above/below

ground: 2/1

Foundation Type:

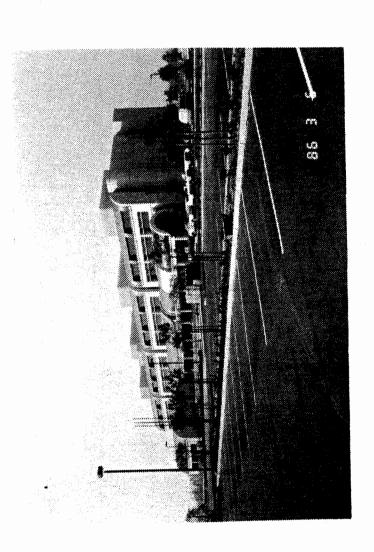
Cast-in-place concrete piles.

Pomona - First Federal Savings Bldg.



Pomona — First Fed. Savings Bldg. (CSMIP Station No. 23511)	Record 23511-C0117-87274.01	117-87274.01
14:42:27 GMT	1	1
	Basement: South Wall - Up Ma	Max Accel.= 0.03 g
2	Roofi South Wall - W	0.11 g
3	" North Wall - W	0.16 g
4	2nd Floor: South Wall - W	р 70.0
5 	" North Wall - W	0.11 g
9	Basement: South Wall - W	0.05 g
7	" North Wall - W	0.05 g
	Roof: South Wall - N	0.15 g
	2nd Floor: South Wall - N	0.10 g
10	Basement: South Wall - N	0.05 g
Structure Reference Orientation:	: N=0	1
10 10	15	20 Sec.

Rancho Cucamonga - San Bernardino County Law and Justice Center



Address: 8202 Aspen Street Rancho Cucamonga, CA No. of Stroies above/below

ground: 4/1

Plane Shape: Rectangular
Base Dimensions: 414' x 110'
Typical Floor Dimensions: Same
Design Date: 1983
Construction Date: 1985

Vertical Load Carrying System: Concrete slabs over steel deck supported by steel beams and columns on elastomeric bearings.

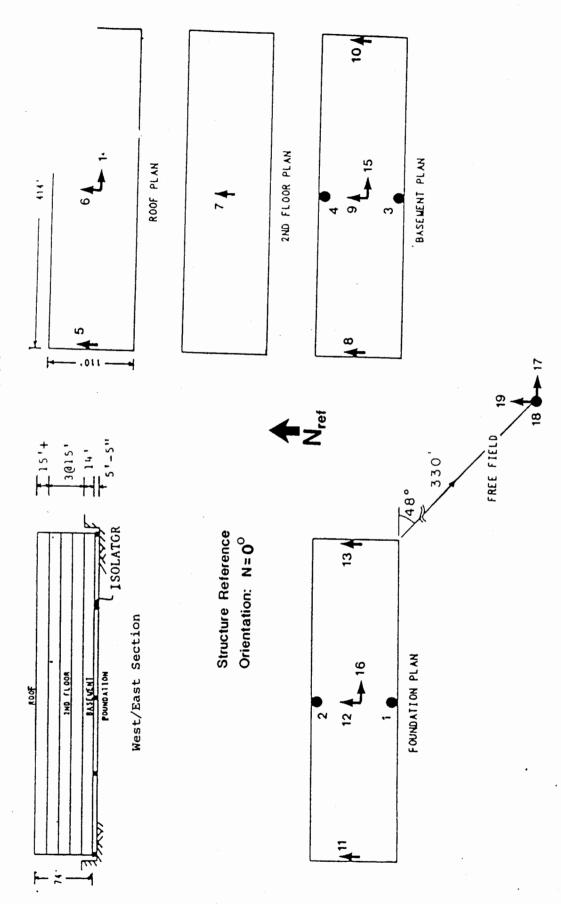
Lateral Force resisting System:
Braced steel frame in upper four stories;
concrete shear walls at basement;
base isolated on elastomeric bearings.

Foundation Type: Spread footings.

Rancho Cucamonga - Law and Justice Center

(CSMIP Station No. 23497)

SENSOR LAYOUT



Rancho Cucamonga — Law & Justice Center (CSMIP Station No. 23497)	Record 23497-C0273-87274.11
14:42:29 GMT	
1 Foundation (Below Isolators): South Wall - Up	Max. Accel.= 0.03 g
2 " North Wall - Up	0.02 9
3 Basement (Above Isolators): South Wall - Up	0.03 g
4 " North Wall - Up	0.03 g
5 Roof: West Wall - N	90.06 g
6 " Center - N	0.05 g
7 2nd Floor: Center - N	0.03 g
8 Basement (Above Isolators): West Wall - N	0.03 g
9 " Center - N	0.03 g
10 " East Wall - N	0.03 9
11 Foundation (Below Isolators): West Wall - N	0.02 g
12 " Center - N	0.02 9
13 " East Wall - N	0.03 g
Structure Reference Orientation: N=0°	
0 1 2 3 4 5 15	20 Sec.

Record 23497-C0118-87274.01		Max. Accel. = 0.05 q	0.02 g	0.03 g	0.06 g	0.04 g	0.05 g		20 Sec.
	1						التواقعة والمستوانية والمتواركة والمتواولة والمتواولة والمتواولة والمتواولة والمتواولة والمتواولة والمتواولة	ientation: N=0 ⁰	15
Rancho Cucamonga — Law & Justice Center (CSMIP Station No. 23497)	14:42:29 GMT	14 Roof: Center - E	15 Basement (Above Isolators): Center - E	16 Foundation (Below Isolators): Center - E	17 Free Field - E	18 Free Field - Up	19 Free Field - N	Structure Reference Orientation:	0 1 2 3 4 5 10

Irvine - UCI Engineering Bldg. (8-story concrete & steel frame bldg.)
 (CSMIP Station No. 13329)

Record 13329-C0137-87276.01

	Roof: Center - S	Max. Accel.= 0.05 g
<u>2</u> ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	6th Floor: Center - S	0.05 g
3	3rd Floor: Center - S	0.05 g
4	Basement: Center - S	0.03 g
5	Roof: Center - E	0.06 g
9	" North Wall E	0.08 g
7	6th Floor: Center - E	0.06 9
8	" North Wall - E	0.07 g
	3rd Floor: Center - E	0.08 9
$\frac{10}{10}$	" North Wall - E	p 60.0
11	Basement: Center - E	0.03 9
12	đ <u>u</u> " "	0.02 g
Structure Reference Orientation:	ientation: N=45°	
0 1 2 3 4 5 10	15	20 Sec.

Record 23285-C0133-87275.01

San Bernardino - CSULB Library (5-story concrete frame & shear wall bldg.) (CSMIP Station No. 23285)

	סמאמווניור: ה	Max, Accel,= 0,01 q
2	ďn "	0.02 9
æ	ς	0.02 9
	Roof: South Wall - E	p 80 0
	{	
	" Center - E	0.05 g
	" North Wall - E	0.07 g
8	3rd Floor: South Wall - E	0.04 g
	" Center - S	0.04 g
10	" Center - E	0.04 g
Structure Reference Orientation:	rientation: N=35°	1
0 1 2 3 4 5 10		20 Sec.

(5)	(CSMIP Station No. 23515)	Record 23515-C0278-87275.01
	14:42:35 GMT	
l l	Ground Floor: West Wall - Up	Max. Accel.= 0.02 g
2	Roof: East Wall - S	0.02 g
8	" West Wall - S	0.02 g
4	7th Floor: East Wall - S	0.02 g
2	" West Wall - S	0.02 g
9	3rd Floor: East Wall - S	0.02 g
7	" West Wall - S	0.03 g
8	Ground Floor: East Wall - S	0.03 g
6	" West Wall - S	0.03 g
10	Roof: West Wall - E	0.02 g
11	7th Floor: West Wall - E	0.02 g
12	3rd Floor: West Wall - E	0.03 g
13	Ground Floor: West Wall - E	0.03 9
	Ctructure Deference Orientation:	0=N
1 2		15 20 50
0	n +	

(9-story steel frame bldg.)

San Bernardino - Vanir Towers

(3-story perimeter steel frame bldg.)

San Bernardino — Sunwest Office Bldg.

	(CSMIP Station No. 23516)	Record	rd 23516-C0277-87275.01
.1	14:42:34 GMT Ground Floor: Center - Up		Max. Accel.= 0.02 g
2	Roof: South Wall - W ,		b 60.0
8	" North Wall - W	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	0.07 g
4	3rd Floor: South Wall - W		9.07 g
5	" Center - W		0.04 g
9	" North Wall - W		0.06 g
7	2nd Floor: South Wall - W		0.04 9
8	" North Wall - W		0.04 g
6	Ground Floor: Center - W		0.03 g
10	Roof: South Wall - N		9.08 g
=	3rd Floor: South Wall - N		g 90.0
12	2nd Floor: South Wall - N		0.03 g
13	Ground Floor: Center - N		0.03 9
i	Structure	Reference Orientation: N=0°	
0	4 5		20 Sec.

San Bernardino - Hilton Inn (CSMIP Station No. 23287) 1 2 3 4	(6-story concrete shear wall bldg.)	Record 23287-C0134-87275.01
5 6	" North Wall	S 0.06 g Wall - E 0.03 g
Z	Roof: Center -	E 0.06 g
9	North Wall	all - E 0.07 g

Redlands (CSMIP	- Sta	- Interstate Van Station No. 23495)	te Van Lines Warehouse 23495)	(1-story concrete tilt-up bldg.)		Record 23495-C0115-87275.01
I , I	14:42	:37 GMT			1	1
	Groun	Ground Floor	- Up			Max. Accel, = 0.01 g
2	Mid-h	Mid-height on	West Wall - E			0.05 g
3	Roof:	Center	of West Wall - E			6 90.0
4	=	Center	. – E			0.05 9
S.	=	1/4 -	length point of West Wall	$1 - E$ $m \sim M \sqrt{N} \sqrt{N} \sqrt{N} \sqrt{N} \sqrt{N} \sqrt{N} \sqrt{N} \sqrt{N}$		0.10 g
9	=	Center	er of South Wall - E			0.02 g
7	=	Cent	Center of North Wall - E			0.03 9
8	Roof:	Center	c of East Wall - N			0.02 g
6	=	Center	of South Wall - N			B 80.0
10	=	Center	r of West Wall - N			0.02 g
77	Ground	nd Floor	N -			0.02 g
12		=	М			0.03 g
•			Structun	Structure Reference Orientation:	0=N	1
0	1 2	7	2	. 	15	20 Sec.

(7-story perimeter steel frame bldg.)

Redlands - Redlands Fed. Savings Bldg.

(CSMIP Station No. 23481)		Record 23481-C024	23481-C0245-87275.01
14:42:37 GMT	1 1 1		
1 Basement: Up		Max.	Accel.= 0.02 g
2 Roof: East Wall - S			0.03 9
3 " West Wall - S			0.02 g
4 4th Floor: East Wall - S			0.03 g
5 " West Wall - S			0.03 g
6 2nd Floor: East Wall - S			0.03 q
7 " West Wall - S			
8 Basement: East Wall - S			0.02 g
9 " West Wall - S			0.02 g
10 Boof - W			
4+k			
1001			0.02 g
12 2nd Floor - W			0.02 g
13 Basement - W			0.02 g
St	Structure Reference Orientation:	n: N=0°	
0 1 2 3 4 5			20 Sec.

et - City Library SSMIP Station No. 12266)	(1-story masonry & concrete shear wall bldg.)	.) Record 12266-C0111-87279.01	.01
	•		
1 Ground Floor: South Wall - W		Max, Accel,=	1.= 0.04 g
2. " Up			0.04 g
3. " " N			0.05 g
·			
4. Roof: Near Center - W			9.09 g
5. " South Wall - W			0.05 9
6. " Near Center - N	S S S S S S S S S S S S S S S S S S S	And Andrew Control of the Control of	p 60.0
•			***************************************
	Structure Reference O	Orientation: $N=0^{\circ}$	
0 1 2 3 4 5	10	15 20 Sec.	

0.04 g Max. Accel.= 0.03 g 0.03 g 0.04 g 0.04 g 0.13 g 0.07 g g 0.04 g 0.03 g 0.08 Record 12267-C0126-87279.01 Z **Z** ďΩ Roof: Center - N z 3 3 z East Wall East Wall 1 East Wall - N Center Center 3 = = N=315° 2nd Floor: Basement: Structure Reference Orientation: = = (CSMIP Station No. 12267) 0 8 10 6

(4-story concrete shear wall bldg.)

Hemet - Valley Hospital

Palmdale (CSMIP	- Holiday Station No.	Inn (4-story masonry shear wall bldg.) 24232)		Record 24232-C0121-87280.01
٠. ا			1st Floor: Center - N	Max. Accel.≈ 0.03 g
2			dn "	0.02 g
m			H H	0.04 g
4		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	3rd Floor: Center - E	р 60.0
2			N =	0.03 g
9			Roof: Center - Up	0.04 g
7			, E	0.17 g
8			N = =	0.05 g
6			" West Wall - N	0.05 g
		Structure Re	불,	
0	1 2 3 4	5	15	20 Sec.

	Record 24521-D0268-87280.03
Palmdale — Holiday Inn FF	(CSMIP Station No. 24521)

20 Sec.	15	10	4	2 3	-	0
1 1 1 1 1 1 1 1 1 1			1	1	1	1
0.02 д					20	
7					1	
Max. Accel.= 0.02 g					272 ⁰	
			•			
			-			į
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ncdster — Medical Office Bldg. (3-story masonry shear wall bldg.) Antelope Valley Hosp. (CSMIP Station No. 24517)	14:42:34 GMT	Ground Floor: Up	Roof: Center Shear Wall - E	" Mid-span - E " " " MM/WM/WM/WM/WM/WM/WM/W/W/W/W/W/W/W/W/W/	" North Shear Wall - E	3rd Floor: Center Shear Wall - E	" Mid-span - E 0.16 g	" North Shear Wall - E	2nd Floor: Central Shear Wall - E	Ground Floor: E	Roof: South Wall - N 0.06 g	3rd Floor: South Wall - N	2nd Floor: South Wall - N	Ground Floor: N		Structure Reference Orientation: N=250	2 3 4 5 20 Sec.
Lancaster Antelop (CSMIP S	14:42	1 Gro	2 Roo	3	4 "	5 3rd	9	7	8 2nd	9 Gro	10 Roc	11 3rd	12 2nd	13 Gre	•	1	

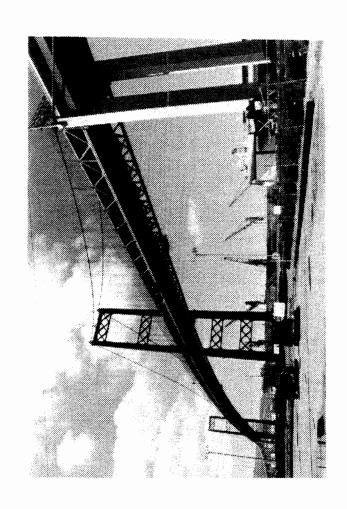
Record 24526-81866-87280.14	0.06	0.03 g	6 90°0		10 15 20 Sec.
Lancaster — Medical Office Bldg. FF (CSMIP Station No. 24526)	1000	đn	100		
ncaster — Medical Offic (CSMIP Station No. 24526)	Free Field - 1000				4 1
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ncaster — Me (CSMIP Station				•	المال الماليات المالي
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INDEX TO STRUCTURAL RESPONSE RECORDS

LIFELINES

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Station	Los Angeles - Vincent Thomas Bridge	Cogswell Reservoir -	Puddingstone Reservoir -	Big Dalton Reservoir -	Pacoima Dam

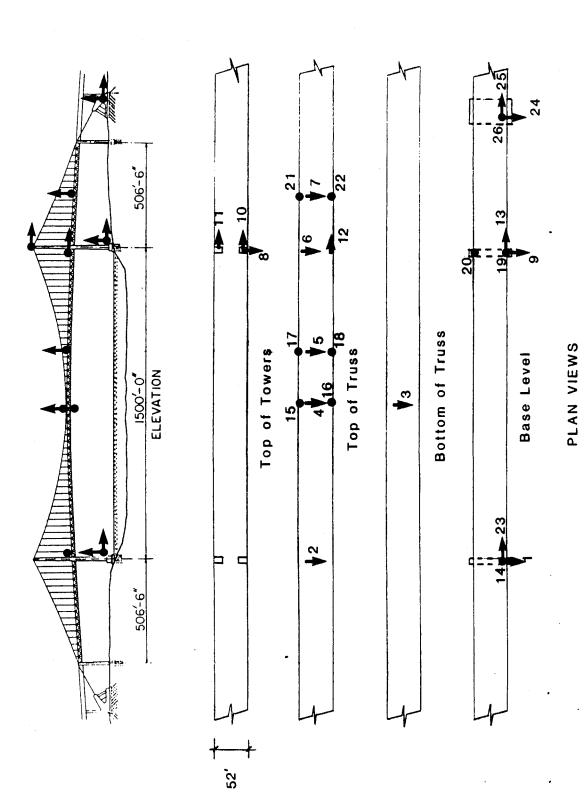




SENSOR LAYOUT

Los Angeles - Vincent Thomas Bridge

(CSMIP Station No. 14406)



Los Angeles - Vincent Thomas Suspension Bridge

Address: San Fedro - Terminal Island	Z Z
Los Angeles, CA	٠,
No. of Spans and Length:	_
1500 ft suspended center span and two	Ŭ
506 ft suspended side spans; 20	••
(150 to 250 pt)	ָרֶ כ

Superstructure Type: Steel suspension for center and side spans; steel girder for approach spans. Lightweight concrete	deck supported by stiffening trusses on suspended spans.	Column Type: Steel columns, two cross-braced legs per bent.	Foundation Type: Piles.
Address: San Pedro - Terminal Island Los Angeles, CA No. of Spans and Length:	1500 ft suspended center span and two 506 ft suspended side spans; 20	approach spans (150 to 230 ft). Width: 52 ft	Design Date: 1959 Construction Date: 1964

Record 14406-C0200-87275.03

	-13, 0-22 secs)
omas Bridge	(Channels 1
- Vincent Th	ation No. 14406)
os Angeles	(CSMIP Sto

		IV
1	West Tower:	Pier - S.
2	=	Deck - 8
3	Middle of	Center Span: Bottom of Deck Truss - S
4		" Top of Deck Truss - S
5	1/3 - leng	length of Center Span: Deck - S
9	East Tower:	= Deck - S
7	Middle of	Side Span: Deck - S
8	East Tower:	E-TOBS
6	r	Pier - S
10	H	Top, South Column - E
11	18	}
12		Deck - E
13	=	Pier - E
1	-	
0	1 2	3 4 5 10 15 20 22 Sec.

Record 14406-C0201-87275.03	₩			The same of the sa					The state of the s						20 22 Sec.
Record 144									The state of the s	The state of the s					15
dge els 14-26, 0-22 secs)			k, North Edge - Up	Deck, South Edge - Up	: Deck, North Edge - Up	Deck, Sout# Edge - Up	lumn - Up	Column - Up	North Edge - Up	South Edge - Up					10
s Angeles — Vincent Thomas Bridge (CSMIP Station No. 14406) (Channels		TOMET: FIET - UP	of Center Span: Deck,	Deck,	length of Center Span:	= =	Tower: Pier, South Column	Pier, North Col	of Side Span: Deck, North	Deck, South	Tower: Pier - E	S	E	Up	3 4 5
Los Angeles - (CSMIP Stati		Aes c	15 Middle o	16	17 1/3 - 1e	18	19 East Tow	20 "	21 Middle o	22	23 West Tow	24 East Anchor:	25 "	26 "	0 1 2

geles — Vinc IP Station No	Record 14406-C0200-87275.03
A I	Ø
2 John Land March Charles Super March March Charles Super Charles Char	
A SAME AND	
4 month month months and months a	
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11 Sobory soboly sobol observed for major in the contraction of the co	
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13	

Los Angeles — Vincent Thomas Bridge (CSMIP Station No. 14406) (Channels	ge Is 1-13, 44-66 secs)	Record 14406-C0200-87275.03	,
18			
1		Max. Accel. 0.06	6 д
		0.30	, 60
		0.12	2 g
4 ************************************		0.11	1 g
5		0.11	1 g
more of the property of the pr	والماري الماري	98.0	5 g
and the second s		0.23	3 9
B S S S S S S S S S S S S S S S S S S S	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	0.23	g 9
6		0.05	g 9
10		0.14	6
		0.14	g .
12		0.21	6
13		90.0	б
45 50	1	99 — — — — — — — — — — — — — — — — — —	Sec

Los Angeles — Vincent Thomas Bridge (CSMIP Station No. 14406) (Channels 14-26, 44-66 secs)

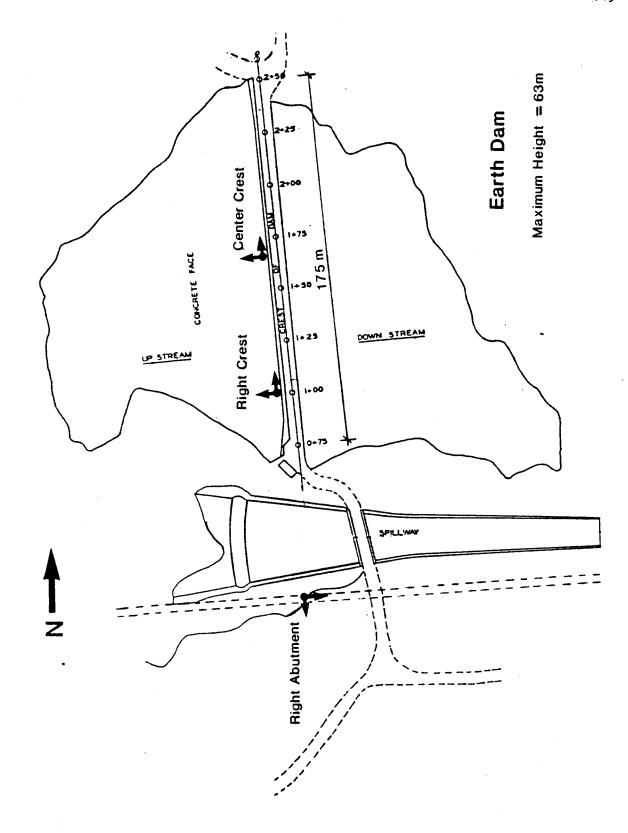
Record 14406-C0201-87275.03

١,			,	Str	ucturo	ıl Re	sponse	- A	rea 1					147	7
	Max. Accel.= 0.02 g	0.13 g	0.15 g	0.08 g	p 60.0	0.02 g	0.02 g	0.28 g	0.27 g	0.08 g	0.06 g	0.06 g	0.03 g		
	Σ														09
									اريون كريبهم والهريمونية المتريمون المريومة						55
															50
81	14		16	17	18	19	20	21	22	23	24	25	. 26		44 45

Cogswell Reservoir - Cogswell Dam

SENSOR LAYOUT

(CSMIP Station No. 23210)



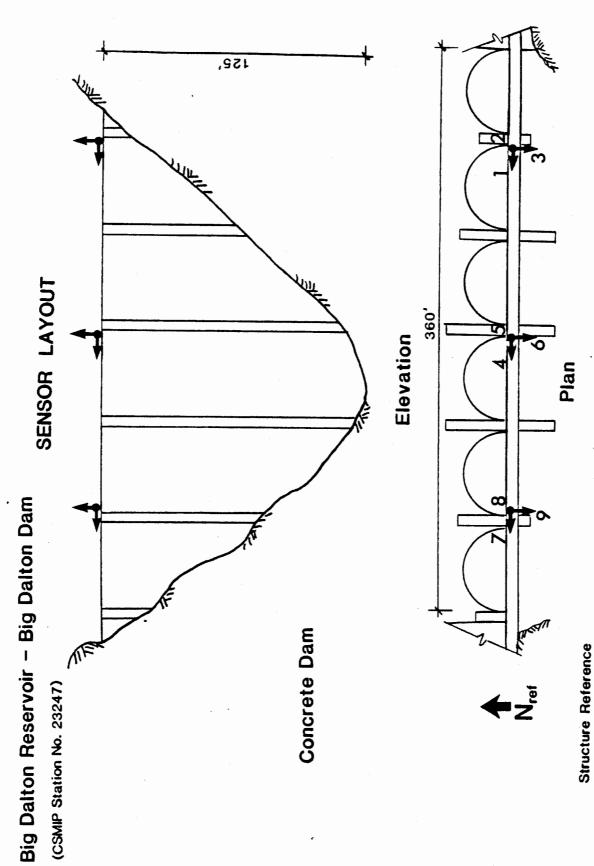
Record 23210-51680-87279.01.1	Max. Accel.= 0.09 g	0.11 g	#Transverse to dam crest	15 20 Sec.	Record 23210-51713-87279.01.1	Max. Accel.= 0.13 g	0.14 g	15 20 Sec.
Cogswell Reservoir — Cogswell Dam (CSMIP Station No. 23210)	14:42:25 GMT Right Crest 340°*	CDD AND AND AND AND AND AND AND AND AND A	2500# **Parallel to dam cres	3 4 5	Cogswell Reservoir — Cogswell Dam (CSMIP Station No. 23210)	14:42:25 GMT Center Crest 340°	TO COMPANY TO THE PROPERTY OF	0 1 2 3 4 5 10

Dam Record 23210-51867-87279.02.1	14:42:25 GMT Right (South) Abutment 150 150 Max. Accel.= 0.06 g	6 90.0	0.08 g	10 15 20 Sec.
Cogswell Reservoir - Cogswell Dam (CSMIP Station No. 23210)	Ric	herlesser Winner	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	.
gswell Reservoir - Cogs (CSMIP Station No. 23210)	a resonation	Worlfbermand	Vm-vande/vm/h	,
rvoir on No	GMT	Astronomy	,	, ~
Rese Stati	14:42:25 GMT 150 ⁰	all outstand	009	2
swell csMIP	14:4	J Wywywina		
Cog	*	\$, 0

Structure Reference Orientation: N= 333⁰ Elev. 885' 650 S/N Section Puddingstone Reservoir - Puddingstone Dam Plan (Top View) ,927 Crest Elev. 982'/ (CSMIP Station No. 23328) SENSOR LAYOUT 145, max Earth Dam

Puddingstone Reservoir — Puddingstone Dam (CSMIP Station No. 23328)	Record 2	Record 23328-C0172-87275.02
14:42:27 GMT	 - 	
1 Left	(West) Abutment: W	Max. Accel.= 0.06 g
2	ďn "	0.07 9
3 	N "	0.07 g
4 Downstream:	ream: W	0.07 g
	dn	0.04 g
9	N	0.07 g
7 Left (Crest: N	0.01 g
		0.10 g
Center	c Crest: W	6 60.0
$\frac{10}{2}$	" Up	0.10 g
11	" " " " " " " " " " " " " " " " " " "	0.19 g
12 DOWNST	Downstream Face: N	0.19 g
Structure Reference Orientation:	Orientation: N=3330	
0 1 2 3 4 5 10	15	20 Sec.

Record 23328-R0444-87275.01	Max. Accel.= 0.07 g	0.04 g	0.05 g	rientation: N-333 ⁰	20 Sec.	Record 23328-52570-87275.01	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Max. Accel.= 0.06 g	0.06 9	0.08 g	ientation: N=333 ⁰	20 Sec.
æ }	it (East) Abutment: N	dn " "	M =	Structure Reference Orientation:	15		1	ht (West) Abutment* - E	dn " "	N " "	tructure Refe	15
Puddingstone Dam	. Right				101	Puddingstone Dam	; ; ;	Right		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1-3.	10
Puddingstone Reservoir - Puddingstone Reservoi	13	14	15	14:42:27 GMT	0 1 2 3 4 5	Puddingstone Reservoir - Pu (CSMIP Station No. 23328)	14:42:27 GMT	16	$\frac{17}{}$	18	sor 16-18 co-locate	0 1 2 3 4 5



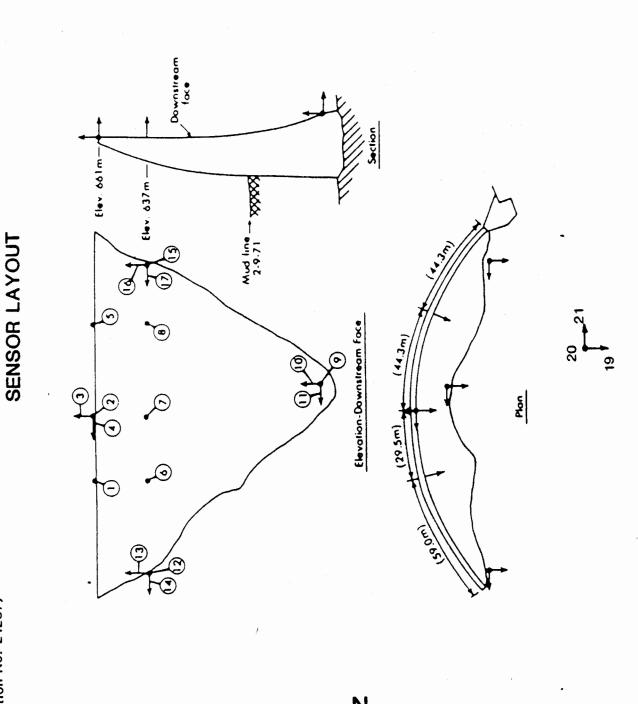
Orientation: N= 23°

Big Dalton Reservoir — Big Dalton Dam (CSMIP Station No. 23247)	Rec	Record 23247-R0443-87278.01
	Left Crest - W	Max. Accel.= 0.14 g
2	ďn "	0.04 9
3	S =	0.08 g
0 1 2 3 4 5	15	20 Sec.
CSMIP Station No. 23247)	Reco	Record 23247-R0482-87278.01
4	Center Crest - W	Max. Accel.= 0.15 g
5	đ <u>n</u>	0.07 g
and the second s	z.	р 90.0
Structure Reference	7. nce Orientation: N∺230	
0 1 2 3 4 5 10	15	20 Sec.

Big Daltor (CSMIP St	g Dalton Reservoir - Bi (CSMIP Station No. 23247)	eservi	ojr -	Big Dalton Reservoir — Big Dalton Dam (CSMIP Station No. 23247)		Record 23247-52488-87278.01	38-87278.01
1 	14:42:27 GMP	7 64	i .	 	 	; ;]
7		. Negative season	White	meneral meneral meneral personal meneral personal personal personal personal personal personal personal personal	Right Crest:	W Max.	Max. Accel.= 0.08 g
8		T-N-National	***************************************	8 companions description of participations of the colonidar operations of the colonida	14	ďn	0.06 g
9	Mengrasadhe	hall-man	Jan Mars	2 - september of the property of the formal property of the pr	11	S	0.10 g
1 1 . 1	1	1	•	Structure Refer	Structure Reference Orientation: N=230	N=23 ⁰	1
	1 2 3	3	4	5 10		15	20 Sec.

Pacoima Dam

(CSMIP Station No. 24207)



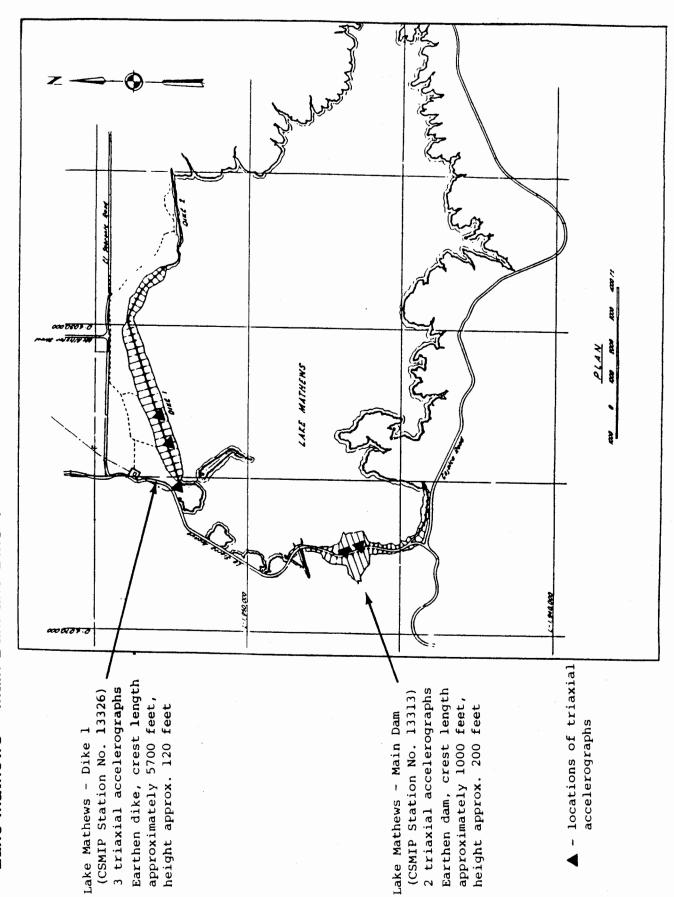
Pacoima Dam (CSMIP Station No. 24207)	Record 242	24207-0157-87278.01
14:42:35 GMT	Crest: Right 1/6 - length Point - T*	Max. Accel.= 0.05 g
2	Crest: Center - T	0.06 g
3	-	0.02 g
4	=	0.02 g
- 5 - N. Y. P. C. CONOMANO CONTRACTOR CONTRA	Crest: Left 1/4 - length Point - T	0.06 9
3 9	80% Height: Right 1/6 - length Point - T	0.02 g
7	" Center - T	(Sensor malfunction)
8	" Left 1/4 - length Point - T	0.02 g
6	Dam Base: T	0.01 g
10	ďΩ "	0.01 q
11	R	0.01 g
* R,T = Radial, Transverse to Dam Crest	t	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
0 1 2 3 4 5	10 15	20 Sec.

(Sensor 18 to be installed; Sensors 19-21 malfunctioned)

15
•
10 15 20 Sec.
0 1 2 3 4 5

Record 24207-52485-87278.01	Max. Accel.= 0.05 g	0.02 g	0.04 g		20 Sec.
				•	15
	14.42:30 GKT Upper Left Abutment				10
207)			\		5
0. 24	. 5		{	•	 →
N uoi	13.00 10.00 10.00			•	۵,
coima Dam (CSMIP Station No. 24207)	14:42:30 GKT			•	2
Pacoima Dam (CSMIP Stat	14:4			•	-
Pac (1.4	B	115		0

Lake Mathews - Main Dam and Dike 1



Lake Mathews - Main Dam (CSMIP Station No. 13313)

.0 sec.	CT .	01	ر بر	7 1 0
	#Transverse to dam crest	am crest	* Parallel to dam crest	* Par
0.05 g				2600
0.03 g				ďn
0.04 g				3500
Record 13313-S2566-87278.01	Rec	Left Crest	Lef	14:42:32 GMT
			. 1	
0.06 g				260 ⁰ #
0.05 g		· · · · · · · · · · · · · · · · · · ·		dn.
Record 13313-51578-87278.01 Max. Accel.= 0.05 g	Rec	Right Crest	Righ	14:42:32 GMT 350°*

20 Sec.

Lake Mathews - Dike l (CSMIP Station No. 13326)	(9
14:42:33 GMT I	Left Crest Max. Accel.= 0.04 g
dn	0.04 g
3450	0.05 g
75°*	Center Crest Record 13326-S2565-87278.02 0.05 g
dn	0.03 q
345 ⁰ #	6 90°0
,	
	Left Abutment Record 13326-R0470-87278.01
750	0.05 g
dil	0.03 g
3450	6 0 0 d
* Parallel to dam cr	to dam crest

Record 24251-S2586-87280.01	Max. Accel.= 0.03 g	0.02 g	0.04 9	15 20 Sec.	Record 24251-52457-87280.01		Max. Accel.= 0.03 g	0.01 g	0.03 9	15 20 Sec.
d Dikes (earth dam)	3350	dn	2450	10	d Dikes	i i i				10
Wood Ranch Reservoir — Main Dam and Dikes (CSMIP Station No. 24251)	 Main Dam: Center Crest -	1		0 1 2 3 4 5	Wood Ranch Reservoir - Main Dam and Di (CSMIP Station No. 24251)	14:42:41 GMT	\$pillway: 335°	dn "	2450	0 1 2 3 4 5

Wood Ranch Reservoir — Main Dam and Dikes (CSMIP Station No. 24251)		Record 242	Record 24251-S2573-87280.01
		e de la companya del la companya de la companya del la companya de	o de la grapa de la composition de la composition de la grapa de la grapa de la grapa de la grapa de la composition de la grapa della grap
Dike 1: Right Crest - 335°	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Max. Accel.= 0.05 g
ďΩ "			0.02 g
" 2450			0.06 9
	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
0 1 2 3 4 5	10 10	15	20 Sec.
Wood Ranch Reservoir - Main Dam and Dikes (CSMIP Station No. 24251)		Record 242	Record 24251-52574-87280.01
14:42:34 GMT	1	1	1 ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! !
Dike 1: Left Crest - 3350			Max. Accel.= 0.05 g
dn "			0.02 g
2450			0.05 g
		1	
0 1 2 3 4 5	10	15	20 Sec.

Record 24280-56224-87279.01	Max. Accel.= 0.07 g	0.04 g	20 Sec.	Record 24280-52510-87279.01	Max. Accel.= 0.05 g	0.02 g	20 Sec.
			15				15
			10				10
Lake Piru — Santa Felicia Dam (earth dam) (CSMIP Station No. 24280)	14:42:37 GMT Center Crest	360 ⁰	0 1 2 3 4 5	Lake Piru — Santa Felicia Dam (CSMIP Station No. 24280)	14:42:36 GWT Right (West) Abutment 2650	Up 175 ⁰	0 1 2 3 4 5

braced steel frame structure) Record 24474-C0116-87280.01	Max. Accel.= 0.02 g	p 80.0	0.08 g	90.0 g	0.05 g	0.02 g	6.80.0	<u>0.05 g</u>	0.03 g	Reference Orientation: N=330° 10 15 20 Sec.
Lancaster — Airport Control Tower (5-story braced (CSMIP Station No. 24474)	14:42:33 GMT Ground Floor: West Wall - Up	Control Room R		4 Control Room Floor: West Wall - N	5 "East Wall - N	6 Ground Floor: West Wall - N	7 Control Room Roof: West Wall - E	8 Control Room Floor: South Wall - E	9 Ground Floor: West Wall - E	Structure Re 0 1 2 3 4 5

Record 24475-54819-87280.01		Max. Accel.= 0.02 g	0.02 g	0.03 g		
	1				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15
		-				
: 175)						5
ort FF 10. 244	1	- 90 ₀	ďn	3600		4
Airp	——	ield -			1	<u>ه</u> ا
ncaster - Airport FF (CSMIP Station No. 24475)	 14:42:35 GMT	Free Field - 900	= }	= }	1	1 2
Lancaster - Airport FF (CSMIP Station No. 2447		10		12	1	0

Record 23466-S3494-87276.02	Max. Accel.= 0.03 g	0.02 g	}		Record 23466-53497-87276.10	Max. Accel.= 0.05 g	0.06 g	0.04 g	
Etiwanda — SCE Power Plant #3 (CSMIP Station No. 23466)	Ground Floor of Control Bldg.	dn		0 1 2 3 4 5 10 10	Etiwanda — SCE Power Plant #3 (CSMIP Station No. 23466)	2nd Floor of Control Bldg.	UD Commenterenterenterenterenterenterenterent	^~~~~~ ₀ 06	0 1 2 3 4 5 10

Record 23466-S3500-87276.06	Max. Accel.= 0.04 g	0.03 q	0.05 g		20 Sec.	
					15	·:
	Frame				10	of Boiler Frames malfunctioned.)
Etiwanda — SCE Power Plant #3 (CSMIP Station No. 23466)	2nd Floor of Boiler Frame				2	(Instrument at top of
iwanda — SCE Power Plant (CSMIP Station No. 23466)	nd Flox			'	 4 	nstru
- SCE Pow	21			,	<u>ه</u>	(1
nda –	90		006	1	- -	
Etiwanda (CSMIP	1800	dn	 	;	 - .	

Appendix

CSMIP Strong Motion Data from the 5.5 ML
Aftershock of 4 October 1987

TABLE A1 - Strong Motion Data - Aftershock of 4 October 1987

Station Name	No.	Structure Type,Size	_	Trigger Time#	(ration Struct. (g)	
		MAP ARE	EA 1					
Alhambra Fremont School	24461	1-story bldg.	5	39.9	Uр	0.22 0.24 0.18		181
San Marino Southwestern Acade 2800 Monterey Rd.	24401 my	1-story bldg.	6	40.0	Up	0.21 0.09 0.18		181
Los Angeles CSULA Admin. Bldg.	24468	8-story bldg. (16 sensors)	7			##	-	
Los Angeles Obregon Park	24400	1-story bldg.	8	41.0	Up	0.33 0.09 0.35		182
Altadena Eaton Canyon Park	24402	1-story bldg.	12	42.2	Up	0.20 0.14 0.30		182
Los Angeles Sears Warehouse	24463	5-story bldg. (13 sensors	12			0.24 0.08 0.12		186
Downey County Maint. Bldg 11283 S. Garfield		1-story bldg.	17		Up	0.06 0.07 0.06		183
Mt. Wilson Caltech Seismic Station	24399	Seismic Vault	18	41.9	-	0.16 0.09 0.15		183
Los Angeles 116th St. School	14403	1-story bldg.	22	43.4	360 Up 270	0.05		184
Los Angeles Hollywood Storage Bldg.	24236	14-story bldg. (12 sensors	22		90 Up 360	0.03	0.08	
Los Angeles Hollywood Storage Bldg. FF	24303	Instr. shltr. H	22		90 Up 360	0.05		

TABLE A1 - Strong Motion Data - Area 1 (Continued)

Station		Structure	Epicenter	Trigger			ration Struct	
Name	No.	Type,Size*	Dist.	Time#			(g)	
Cogswell Reservoir Cogswell Dam	23210	Earth dam (9 sensors)	23	42.5	150 Up 60	0.04 0.03 0.04	0.09 0.07 0.10	
Inglewood Union Oil Yard 13707 S. Broadway	14196	Instr. shltr. A	25	43.9	90 Up 360	0.14 0.07 0.12		184
Burbank Cal. Fed. Savings Bldg.	24370	6-story bldg. (13 sensors)	23		130 Up 40	0.12 0.05 0.09	0.10	
Burbank Pacific Manor	24385	10-story bldg. (16 sensors)	23		40 Up 310	0.12 0.03 0.09	0.31	
Los Angeles Baldwin Hills	24157	Instr. shltr. A	25	43.7	90 Up 360	0.14 0.05 0.07		185
North Hollywood Sheraton-Universal Hotel	24464	20-story bldg. (16 sensors)	25	42.7	90 Up 360	0.04 0.02 0.04	0.07 0.06	
Long Beach Rancho Los Cerrito	14242 s	Instr. shltr. H	27	44.4	90 Up 360	0.06 0.07 0.05		
Los Angeles Century City Bullo Department Store	24332 ck	3-story bldg. (15 sensors)	29		51 Up 321	0.04 0.02 0.04	0.23 0.03 0.12	
Century City Los Angeles Country Club North	24389 y	Instr. shltr. H	30	51.6	90 Up 360	0.02 0.01 0.02		
Long Beach CSULB Eng. Bldg. 1	14311	5-story bldg. (9 sensors)	32		90 Up 360	0.06 0.02 0.05	0.20 0.07	
Los Angeles UCLA Math-Science Bldg.	24231	6-story bldg. (12 sensors)	32		90 Up 360	0.02 0.02 0.02	0.02 0.04	,

TABLE A1 - Strong Motion Data, Area 1 (Continued)

Station Name	No.	Structure Type,Size*		Trigger Time#		Grnd.	ration Struct (g)	•
Long Beach City Hall	14533	15-story bldg. (16 sensors)	35	45.9	Up	0.02 0.01 0.02	0.04	
Pacoima Kagel Canyon LA Co. Fire Sta. #	24088 74	1-story bldg.	35	49.6	Ũр	0.06 0.03 0.04		
Long Beach Harbor Admin. Bldg		7-story bldg. (18 sensors)	36	52.4		0.03 0.01 0.02		
Long Beach Harbor Admin. Bldg		Instr. shltr. H	36	52.0	Up	0.03 0.02 0.02		
Arleta Nordhoff Ave Fire		1-story bldg.	36	 * .	Up	0.02 0.04 0.02		
Van Nuys Holiday Inn	24386	7-story bldg. (16 sensors)	38		-	0.04 0.02 0.05		
Tarzana Cedar Hill Nursery 18320 Tarzana Dr.	24436	Instr. shltr. H	41		-	0.09 0.07 0.08		185
·		MAP ARE	A 2					
Temecula CDF Fire Station	13172	Instr. shltr. H	109	70.9	Up	0.02 0.01 0.02		
Hemet Valley Hospital	12267	4-story bldg. (10 sensors)			Up	0.01 0.01 0.01		
		MAP AREA	3					
Vasquez Rocks Park	24047	Instr. shltr. A	51	53.1	Uр	0.07 0.03 0.07		
Palmdale Holiday Inn FF	24521	Instr. shltr. H	57		Ūр	0.01 0.01 0.01		

TABLE A1 - Strong Motion Data, Area 1 (Continued)

Station Name	No.	Structure Type,Size*	Epicenter Dist.	Trigger Time#		Max. Acceleration Grnd. Struct. Comp. (g) (g) Pg.					
Lake Hughes #4B Camp Mendenhall	24523	Instr. shltr. A	73	59.6	Up	0.02 0.01 0.01					

Footnotes:

- Instrument shelter types: Instr. shltr. A - small prefabricated metal building Instr. shltr. H - small fiberglass shelter
- Distance given (in km) relative to the presently estimated epicenter at 34.070N, 118.098W.
 - # Accelerograph trigger time, when present, seconds after 10:59 GMT on 4 October 1987.
- ## Instrument not triggered, instrument malfunction.

Mdx	. Accel.	0.22 g	0.24 9	0.18 g	•		X X V	. Accel.	0.21 g	0.09 g	0.18 g		
Record 24461-53498-87279.01						20 Sec.	Record 24401-50760-87282.01						20 Sec.
						15							
						 01 	demy					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10
Alhambra — Fremont School (CSMIP Station No. 24461)	10:59:41 GMT	270° — moreonemy phissipheremonement	Up	180° —			San Marino — Southwestern Academy (CSMIP Station No. 24401)	10:59:41 GMT	360° —	Up — Up	270° — — — — — — — — — — — — — — — — — — —		0 1 2 3 4 5

Max.	. Accel.	- 0.33 g	- 0.09 g	- 0.35 g		1.	. Wdx	. Accel.	• 0.20 g	- 0.14 g	0.30 g	
Record 24400-51606-87279.01					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	20 Sec.	Record 24402-50758-87281.01					20 Sec.
1					 	15						15
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		***************************************	1							
				***********	1 1	10						10
		* \^_^\\\		Na/WWwwwwww	1		¥					
– Obregon Park on No. 24400)	IME	www.mannowwww.mannowww.	manner manner Mark My Manner manne	mond of the property of the pr	. 1	4 5	Altadena — Eaton Canyon Park (CSMIP Station No. 24402)		MWWW	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	me Mylowania	4 5
Los Angeles — Obregon (CSMIP Station No. 24400)	10:59:42 GMT	W	Whomen work	Monney	, i	1 2 3	tadena — Eaton Canyo (CSMIP Station No. 24402)	10:59:43 GMT	MMMmm	merchantel (M/M/second	rdy Wha	1 2 3
Los ((	:-	360° —	Up —— ww	270°	!	10	A1 t	i	06	dn	360°	. ! 0

Max.  Max.  Max.  Max.  Accel.	0.16
Record 14368-S1607-87281.01	20 Sec.
15	15
Station	01
Downey — County Maint. Bldg.  (CSMIP Station No. 14368)  270°  Up — Advantage management	360° — — — — — — — — — — — — — — — — — — —

Max	Accel.	- 0.14 g	- 0.05 g	- 0.15 g		X D W	Accel	0.14 g	0.07 g	0.12 g	
Record 14403-53492-87281.01					20 Sec.	Record 14196-51874-87281.01					20 Sec.
					15						15
00 ]					10		1				10 10
Los Angeles — 116th St. School (CSMIP Station No. 14403)	10:59:44 GMT	360° — — — — — — — — — — — — — — — — — — —	Up	270° — — — — — — — — — — — — — — — — — — —	0 1 2 3 4 5	Inglewood — Union Oil Yard * (CSMIP Station No. 14196)	10:59:44 GMT	90°	Up	360°	0 1 2 3 4 5

W	Accel.	0.14 g	- 0.05 g	0.07 9			Max	Accel	0.09 g	0.07 g	0.08 g	102
Record 24157-51687-87281.01						20 Sec.	Record 24436-S1614-87281.01					20 Sec.
					1	15	           	1 1 1 1 1 1				15
				·	1	10 10	           	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				10
Los Angeles — Baldwin Hills (CSMIP Station No. 24157)	10:59:44 GMT			······································		0 1 2 3 4 5	Tarzana — Cedar Hill Nursery (CSMIP Station No. 24436)		~~^^\~\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		······································	0 1 2 3 4 5
		- 06	Up	360°					06	η	360°-	

Los Angeles — Sears Warehouse (CSMIP Station No. 24463)

24463-C0218-87281.01	Max. Accel.= 0.08 g	0.35 g	0.29 g	0.26 g	0.20 g	0.22 g	0.21 g	0.24 g	0.23 g	0.18 g	0.13 g	0.13 g	0.12 g		20 Sec.
Record 24	Basement: East Wall - Up	Roof: West Wall - N	" East Wall - N	3rd Floor: West Wall - N	" East Wall - N	2nd Floor: West Wall - N	" Wast Wall - N	Basement: West Wall - N	" East Wall - N	Roof: East Wall - W	3rd Floor: East Wall - W	2nd Floor: East Wall - W	Basement: East Wall - W	re Reference Orientation: N=350°	15 15
(CSMIP Station No. 24463)	1 	2	and White for the second	4	5			B		10	11	12	13	Structure	0 1 2 3 4 5 10

List of CSMIP Reports and Data Tapes

# LIST OF CSMIP REPORTS AND DATA TAPES

California Department of Conservation
Division of Mines and Geology
Office of Strong Motion Studies
California Strong Motion Instrumentation Program (CSMIP)

# AVAILABLE REPORTS:

	Title	Number
ı.	Earthquake Data Reports:	
	CSMIP Strong-Motion Records from the Chalfant Valley, California Earthquakes of July and August 1986 (in press)	OSMS 86-06
	CSMIP Strong-Motion Records from the Palm Springs, California Earthquake of 8 July 1986	OSMS 86-05
	Selected Accelerograms from the Redlands, California Earthquake of October 2, 1985 (Including first records from a Base-Isolated Building)	OSMS 85-02
	CSMIP Strong-Motion Records from the Bishop, California Earthquake of 23 November 1984	OSMS 84-12
	CDMG Strong-Motion Records from the Morgan Hill, California Earthquake of 24 April 1984	OSMS 84-7
	Preliminary Summary of CDMG Strong-Motion Records from the 2 May 1983 Coalinga, California, Earthquake	OSMS 83-5.2
	Strong-Motion Records from the Mammoth Lakes, California Earthquake of 6 January 1983	OSMS 83-1.1
	Strong-Motion Records Recovered from the Mammoth Lakes, California, Earthquake of 30 September 1981	OSMS 81-10.1
	Strong-Motion Records Recovered from the Westmorland, California, Earthquake of 25 April 1981	OSMS 81-5.1
	Strong-Motion Records Recovered from the Trindad-Offshore, California, Earthquake of 8 November 1980	OSMS 80-11.1
	Strong-Motion Records from the Livermore Earthquakes of 24 and 26 January 1980	PR 28
	Strong-Motion Records from the Mammoth Lakes Earthquakes of May 1980	PR 27
	Compilation of Strong-Motion Records and Preliminary Data from the Imperial Valley Earthquake of 15 October 1979	PR 26
	Compilation of Strong-Motion Records from the Coyote Lake Earthquake of 6 August 1979	PR 25
	Compilation of Strong-Motion Records Recovered from the Bishop, California, Earthquake of 4 October 1978	OSMS 78-7.1

Title	Number
Compilation of Strong-Motion Records Recovered from the Santa Barbara Earthquake of 13 August 1978	PR 22
Catalog of Strong Motion Accelerograph Records Recovered by Office of Strong Motion Studies During 1982	SR 154A
Catalog of Strong Motion Accelerograph Records Recovered by Office of Strong Motion Studies before January 1, 1982	SR 154
II. Processed Data Reports:	
Processed Strong Motion Data from the Palm Springs Earthquake of 8 July 1986; Part I Ground-Response Records	OSMS 87-01
Processed Strong Motion Data from the San Salvador Earthquake of October 10, 1986	OSMS 86-07
Processed Data from the Strong-Motion Record Obtained at a Base-Isolated Building in Rancho Cucamonga, California during the Redlands Earthquake of 2 October 1985	OSMS 86-01
Processed Data from Strong-Motion Records of the Morgan Hill Earthquake of 24 April 1984: Part I Ground-Response Records	OSMS 85-04
Processed Data from Strong-Motion Records of the Morgan Hill Earthquake of 24 April 1984: Part II Structural-Response Records	OSMS 85-05
Processed Data from the Strong-Motion Records of the Imperial Valley Earthquake of 15 October 1979. Final Results	SP 65
Processed Data from the San Juan Bautista 101/156 Separation Bridge and the San Juan Bautista Freefield Records from the Coyote Lake Earthquake 6 August 1979	SP 64
Processed Data from the Gilroy Array and Coyote Creek Records, Coyote Lake, California, Earthquake 6 August 1979 (Note: Does not include San Juan Bautista records)	PR 24
Processed Data from the Strong-Motion Records of the Santa Barbara Earthquake of 13 August 1978. Final Results (in three volumes)	SR 144
III. Other Reports:	
Standard Tape Format of CSMIP Strong-Motion Data Tapes	OSMS 85-03
California Strong-Motion Instrumentation Program: Construction and Installation Notes for a Ground- Response Station.	OSMS 85-01

There is a nominal charge for these reports.

Tape Name	Description
SANTBARB78	Santa Barbara earthquake of 13 August 1978; Vol. 1, 2, and 3 data.
IMPERIAL79	Imperial Valley earthquake of 15 October 1979 (County Services Bldg. and other CSMIP stations); Vol. 1, 2, and 3 data.
COYOTE79A	Coyote Lake earthquake of 6 August 1979, Gilroy Array stations; Vol. 1, 2, and 3 data.
СОУОТЕ79В	Coyote Lake earthquake of 6 August 1979, San Juan Bautista overpass and nearest free-field station; Vol. 1, 2, and 3 data.
COYOTE79C	Coyote Lake earthquake of 6 August 1979, Halls Valley station; Vol. 1, 2, and 3 data.
AO8HTOMMAM	Mammoth Lakes earthquakes of 25 May 1980 at 09:34 and 09:49 PDT; Vol. 1, 2, and 3 data.
MAMMOTH80B	Mammoth Lakes earthquakes of 25 May 1980 at 12:45 and 13:36 PDT; Vol. 1, 2, and 3 data.
MAMMOTH80C	Mammoth Lakes earthquakes of 26 May 1980 at 11:58 PDT and 27 May 1980 at 07:51 PDT, Vol. 1, 2, and 3 data.
WESTMOR81	Westmorland earthquake of 26 April 1981; Vol. 1, 2, and 3 data.
COALINGA83	Coalinga earthquake of 2 May 1983, 16:43 PDT; Vol. 2 and 3 data for 47 records.
COALINGA83-IA	Coalinga earthquake of 2 May 1983, Vol. 1 data for first 22 records.
COALINGA83-IB	Coalinga earthquake of 2 May 1983, Vol. 1 data for remaining 25 records.
COALINGA83AS	Vol. 2 and 3 data for eight aftershocks of the Coalinga 2 May 1983 earthquake. The aftershocks occurred between 8 May and 11 September 1983, and were of magnitude (ML) 4.3 - 6.0.
COALINGA83AS-I-	Uncorrected acceleration data (Vol. 1) for the Coalinga aftershock records included on the tape COALINGA83AS.
RIODEL8083	Processed data from the Highway 101 Overpass at Rio Dell for the earthquakes of: 8 Nov 1980 (6.9ML Trinidad-Offshore); 16 Dec 1982 (4.4ML Rio Dell) and 24 Aug 1983 (5.5ML Cape Mendicino Offshore); Vol. 1, 2, and 3 data.
квитоммам (	Mammoth Lakes earthquakes of 7 Jan 1983 at 01:38 and 03:24 GMT; Vol. 1, 2, and 3 data.

Tape Name	Description
MORGANHILL84-IG	Morgan Hill earthquake of 24 April 1984; Vol. 1 data for 19 ground-response records.
MORGANHILL84-G	Morgan Hill earthquake of 24 April 1984; Vol. 2 and 3 data for 19 ground-response records.
MORGANHILL84-IS	Morgan Hill earthquake of 24 April 1984; Vol. 1 data for 9 structural-response records.
MORGANHILL84-S	Morgan Hill earthquake of 24 April 1984; Vol. 2 and 3 data for 9 structural-response records.
REDLANDS85	Redlands earthquake of 2 October 1985; Vol. 1, 2 and 3 data for the Law & Justice Building at Rancho Cucamonga.
HOLLISTER86	Hollister earthquake of 26 January 1986; Vol. 1, 2 and 3 data.
MTLEWIS86	Mt. Lewis earthquake of 31 March 1986; Vol. 1, 2 and 3 data.
SANSALVADOR86	San Salvador earthquake of October 10, 1986; Vol. 1, 2 and 3 data.
PALMSPRINGS86-IG	Palm Springs earthquake of 8 July 1986; Vol. 1 data for 18 ground-response records.
PALMSPRINGS86-G	Palm Springs earthquake of 8 July 1986; Vol. 2 and 3 data for 18 ground-response records.

## Footnotes:

Vol. 1 data - uncorrected accelerations.

Vol. 2 data - instrument and baseline-corrected acceleration,

velocity, and displacement.

Vol. 3 data - Response and Fourier amplitude spectra.

The magnetic tapes are provided at cost. Included with each tape is a copy of either the processed data report (if available) or the plots of the data.

Requests for the reports and data tapes and/or for additional information should be addressed to:

Office of Strong Motion Studies California Division of Mines and Geology 630 Bercut Drive Sacramento, CA 95814

Phone: (916) 322-3105

## Tape: SANTBARB78

Santa Barbara Earthquake of 13 Aug 1978, 15:54 PDT, ML=5.1(CIT)

UCSB Goleta Free Field, 3 channels Santa Barbara - UCSB North Hall, 9 channels Santa Barbara - Freitas Building, 9 channels Ventura - Holiday Inn, 15 channels

#### Tape: IMPERIAL79

Imperial Valley Earthquake of 15 Oct 1979, 16:17 PDT, ML=6.6(CIT)

Niland, 3 channels

Westmorland, 3 channels

Westmorland, aftershock record, 3 channels

El Centro - Imperial County Services Bldg. Free Field, 3 channels

El Centro - Imperial County Services Building, 13 channels

El Centro - Highway 8/Meloland Road Overpass, 13 channels

#### Tape: COYOTE79A

Coyote Lake Earthquake of 6 Aug 1979, 10:05 PDT, ML=5.9(BRK)

Gilroy #1, 3 channels

Gilroy #2, 3 channels

Gilroy #3, 3 channels

Gilroy #4, 3 channels

Gilroy #6, 3 channels

Coyote Lake Dam (San Martin), 3 channels

#### Tape: COYOTE79B

Coyote Lake Earthquake of 6 Aug 1979, 10:05 PDT, ML=5.9(BRK)

San Juan Bautista - Fire Station, 3 channels

San Juan Bautista - Highway 101/156 Overpass, 12 channels

# Tape: COYOTE79C

Coyote Lake Earthquake of 6 Aug 1979, 10:05 PDT, ML=5.9(BRK)

Halls Valley, 3 channels

## Tape: MAMMOTH80A

Mammoth Lakes Earthquake of 25 May 1980, 09:34 PDT, ML=6.1(BRK),6.4(CIT)

Convict Creek, 3 channels Long Valley Dam, 22 channels Mammoth Lakes - High School Gym, 10 channels

Aftershock at 25 May 1980, 09:36 PDT, ML=unknown

Mammoth Lakes - High School Gym, 10 channels

Mammoth Lakes Earthquake of 25 May 1980, 09:49 PDT, ML=6.0(BRK),5.8(CIT)

Convict Creek, 3 channels Long Valley Dam, 3 channels Mammoth Lakes - High School Gym, 4 channels

#### Tape: MAMMOTH80B

Mammoth Lakes Earthquake of 25 May 1980, 12:45 PDT, ML=6.1(BRK),6.5(CIT)

Convict Creek, 3 channels Long Valley Dam, 19 channels

Mammoth Lakes Earthquake of 25 May 1980, 13:36 PDT, ML=5.7(BRK),5.5(CIT)

Convict Creek, 3 channels Long Valley Dam, 19 channels

Aftershock approx 58 seconds after 25 May 1980, 13:36 Event, ML=unknown Convict Creek, 3 channels

# Tape: MAMMOTH80C

Mammoth Lakes Earthquake of 26 May 1980, 11:58 PDT, ML=5.7(BRK),4.9(CIT)

Convict Creek, 3 channels Long Valley Dam, 9 channels

Mammoth Lakes Earthquake of 27 May 1980, 07:51 PDT, ML=6.2(BRK),6.3(CIT)

Convict Creek, 3 channels Long Valley Dam, 22 channels Bishop - Paradise Lodge, 3 channels Benton, 3 channels

## Tape: WESTMOR81

Westmorland Earthquake of 26 Apr 1981, 05:09 PDT, ML=5.7(CIT),6.3(BRK)

Westmorland, 3 channels Niland, 3 channels Coalinga Earthquake of 2 May 1983, 16:42 PDT, ML=6.5(BRK)

Cantua Creek School, 3 channels Slack Canyon, 3 channels Parkfield - Vineyard Canyon 2E, 3 channels Parkfield - Vineyard Canyon 1E, 3 channels Parkfield - Vineyard Canyon 1W, 3 channels Parkfield - Vineyard Canyon 2W, 3 channels Parkfield - Vineyard Canyon 3W, 3 channels Parkfield - Vineyard Canyon 4W, 3 channels Parkfield - Vineyard Canyon 5W, 3 channels Parkfield - Vineyard Canyon 6W, 3 channels Parkfield - Gold Hill 3E, 3 channels Parkfield - Gold Hill 2E, 3 channels Parkfield - Gold Hill 1W, 3 channels Parkfield - Gold Hill 2W, 3 channels Parkfield - Gold Hill 3W, 3 channels Parkfield - Gold Hill 4W, 3 channels Parkfield - Gold Hill 5W, 3 channels Parkfield - Gold Hill 6W, 3 channels Parkfield - Stone Corral 4E, 3 channels Parkfield - Stone Corral 3E, 3 channels Parkfield - Stone Corral 2E, 3 channels Parkfield - Stone Corral 1E, 3 channels Parkfield - Cholame 3E, 3 channels Parkfield - Cholame 2E, 3 channels Parkfield - Cholame 1E, 3 channels Parkfield - Cholame 2WA, 3 channels Parkfield - Cholame 3W, 3 channels Parkfield - Cholame 4W, 3 channels Parkfield - Cholame 4A W, 3 channels Parkfield - Cholame 5W, 3 channels Parkfield - Cholame 6W, 3 channels Parkfield - Cholame 8W, 3 channels Parkfield - Cholame 12W, 3 channels Parkfield - Fault Zone 16, 3 channels Parkfield - Fault Zone 15, 3 channels Parkfield - Fault Zone 14, 3 channels Parkfield - Fault Zone 12, 3 channels Parkfield - Fault Zone 11, 3 channels Parkfield - Fault Zone 10, 3 channels Parkfield - Fault Zone 9, 3 channels Parkfield - Fault Zone 8, 3 channels Parkfield - Fault Zone 7, 3 channels Parkfield - Fault Zone 6, 3 channels Parkfield - Fault Zone 4, 3 channels Parkfield - Fault Zone 3, 3 channels Parkfield - Fault Zone 2, 3 channels Parkfield - Fault Zone 1, 3 channels

^{*} Tape COALINGA83 contains the Vol. 2 and 3 data for the listed accelerograms; the corresponding Vol. 1 data are on tapes COALINGA83-IA and COALINGA83-IB.

# Tapes: COALINGA83AS, COLINGA83AS-I **

Records from 8 aftershocks of the Coalinga Earthquake of 2 May 1983

Event #2: 8 May 1983, 19:49 PDT, ML=5.1(BRK)

Coalinga - Sulphur Baths, 3 channels Coalinga - CHP, 3 channels Anticline Ridge - Palmer Ave., 3 channels Oil Fields - Skunk Hollow, 3 channels Harris Ranch, 3 channels

Event #3: 10 June 1983, 20:10 PDT, ML=5.1(BRK) Event #4: 9 July 1983, 00:41 PDT, ML=5.3(BRK) Event #5: 21 July 1983, 19:40 PDT, ML=6.0(BRK) Event #6: 21 July 1983, 20:43 PDT, ML=5.0(BRK) Event #7: 25 July 1983, 15:31 PDT, ML=5.1(BRK) Event #8: 9 Sept 1983, 02:16 PDT, ML=5.3(BRK) Event #9: 11 Sept 1983, 04:48 PDT, ML=4.3(BRK)

For each of events #3 through #9:

Coalinga - Sulphur Baths, 3 channels Coalinga - CHP, 3 channels

Vol. 1 data are on tape COALINGA83AS-I; Vol. 2 and 3 data are on tape COALINGA83AS.

#### Tape: RIODEL8083

Trinidad Offshore Earthquake of 8 Nov 1980, 02:27 PST, ML=6.9(BRK)

Rio Dell - Highway 101/Painter Street Overpass, 18 channels

Rio Dell Earthquake of 15 Dec 1982, 22:53 PST, ML=4.4(BRK)

Rio Dell - Highway 101/Painter Street Overpass, 15 channels

Cape Mendocino Offshore Earthquake of 24 Aug 1983, 06:36 PDT, ML=5.5(BRK)

Rio Dell - Highway 101/Painter Street Overpass, 15 channels

## Tape: MAMMOTH83

Mammoth Lakes Earthquake of 6 Jan 1983, 17:38 PST, ML=5.2(BRK)

Convict Creek, 3 channels

Mammoth Lakes Earthquake of 6 Jan 1983, 19:24 PST, ML=5.4(BRK)

Convict Creek, 3 channels

Ground-response records from the Morgan Hill Earthquake of 24 Apr 1984, 13:15 PST, ML=6.2(BRK)

Halls Valley, 3 channels Coyote Lake Dam (San Martin), 3 channels Gilroy #7 - Mantelli Ranch, 3 channels Gilroy #6, 3 channels Gilroy #4, 3 channels Gilroy #3, 3 channels Gilroy #2, 3 channels Gilroy #1, 3 channels Gilroy - Gavilan College, 3 channels Corralitos, 3 channels Capitolas, 3 channels Santa Cruz, 3 channels San Juan Bautista - Fire Station, 3 channels Los Banos, 3 channels Agnews - State Hospital, 3 channels Redwood City - APEEL #1, 3 channels San Francisco - International Airport, 3 channels Fremont - Mission San Jose, 3 channels Hayward - APEEL #1E, 3 channels

# Tapes: MORGANHILL84-S, MORGANHILL84-IS

Structural-response records from the Morgan Hill Earthquake of 24 Apr 1984, 13:15 PST, ML=6.2(BRK)

San Jose - Town Park Apartment Towers, 13 channels
San Jose - Great Western Savings Bldg., 13 channels
San Jose - Santa Clara County Bldg., 22 channels
Saratoga - West Valley College Gym, 11 channels
Watsonville - Telephone Bldg., 13 channels
Hollister - Glorietta Warehouse, 13 channels
South San Francisco - Kaiser Medical Center, 11 channels
San Juan Bautista - Highway 101/156 Overpass, 10 channels

*** Vol. 1 data are on tapes MORGANHILL84-IG and MORGANHILL84-IS; Vol. 2 and 3 data are on tapes MORGANHILL84-G and MORGANHILL84-S.

# Tape: REDLANDS85

Redlands Earthquake of 2 Oct 1985, 16:44 PDT, ML=4.8(CIT)

Rancho Cucamonga - Law & Justice Building (base-isolated), 16 channels plus 3 free field channels

#### Tape: HOLLISTER86

Hollister Earthquake of 26 January 1986, 11:21 PST, ML=5.5(BRK)

SAGO South - Tunnel, 3 channels SAGO South - Surface, 3 channels Hollister - Glorietta Warehouse, 13 channels

# Tape: MTLEWIS86

Mt. Lewis Earthquake of 31 March 1986, 03:56 PST, ML=5.8(BRK)

Halls Valley, 3 channels
San Jose - Santa Clara County Bldg., 22 channels
San Jose - Great Western Savings Bldg., 13 channels
San Jose - Town Park Apartment Towers, 13 channels

## Tape: SANSALVADOR86

San Salvador Earthquake of 10 October 1986, 17:49 GMT, MS=5.4(CIG)

National Geographical Institute (IGN), 3 channels Geotechnical Investigation Center (CIG), 3 channels Institute Urban Construction (IVU), 2 channels Hotel Camino Real (HCR) - Basement, 3 channels Hotel Camino Real (HCR) - 2nd Floor, 3 channels Hotel Camino Real (HCR) - Roof, 1 channel Centro Americana University (UCA), 3 channels Hotel Sheraton (HSH), 3 channels

## Tapes: PALMSPRINGS86-G, PALMSPRINGS86-IG ****

Ground-response records from the Palm Springs Earthquake of 8 July 1986, 02:20 PDT, ML=5.6(CIT)

Desert Hot Springs, 3 channels Palm Springs - Airport, 3 channels Silent Valley - Poppet Flat, 3 channels San Jacinto - Soboba, 3 channels San Jacinto - Valley Cemetery, 3 channels Hemet - Stetson Ave Fire Station, 3 channels Winchester - Page Bros. Ranch, 3 channels Winchester - Hidden Valley Farms, 3 channels Winchester - Bergman Ranch, 3 channels Murrieta Hot Springs - Collins Ranch, 3 channels Landers - Fire Station, 3 channels Joshua Tree - Fire Station, 3 channels Indio - Coachella Canal, 3 channels Temecula - CDF Fire Station, 3 channels Puerta La Cruz, 3 channels Riverside - Airport, 3 channels Hesperia, 3 channels Rancho Cucamonga - Law & Justice Center Free Field, 2 channels

**** Vol. 1 data are on tape PALMSPRINGS86-IG; Vol. 2 and 3 data are on tapes PALMSPRINGS86-G.