

RECORD OF SURVEY MAP No. 14310

SAN DIEGO COUNTY HIGH PRECISION GEODETIC NETWORK

RECORD OF SURVEY

SHEET 1 OF 3 SHEETS

A GEODETIC NETWORK OF CONTROL STATIONS SPANNING THE 4300 SQUARE MILES OF SAN DIEGO COUNTY, STATE OF CALIFORNIA.

BASIS OF BEARINGS

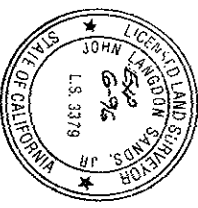
THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM ZONE 6, 1983 DATUM, AS DEFINED BY SECTIONS 8801 TO 8814 OF THE CALIFORNIA PUBLIC RESOURCES CODE.

LEGEND

- HPGN HIGH PRECISION GEODETIC NETWORK.
- NA803 C1983 NORTH AMERICAN DATUM OF 1983, C1983 REFERS TO THE DATE OF THE ORIGINAL NA803 ADJUSTMENT PUBLICATION.
- CC683 CALIFORNIA COORDINATE SYSTEM OF 1983 AS DEFINED BY SECTIONS 8801 TO 8814 OF THE CALIFORNIA PUBLIC RESOURCES CODE.
- NGRS NATIONAL GEODETIC REFERENCE SYSTEM.
- VLBI VERY LONG BASELINE INTERFEROMETRY, A HIGHLY ACCURATE SPACE GEODESY TREATMENT SYSTEM THAT HELPS TO DEFINE THE NA803 C1983 AND NA803 G1983.
- NCRN NATIONAL CRUSTAL MOTION NETWORK.
- NEW SAN DIEGO COUNTY HPGN MONUMENTS.
- EXISTING NGRS MONUMENT, POSITION UPLOADED ON THIS SURVEY.
- U.S. GEOLOGICAL SURVEY BENCHMARK OCCUPIED ON THIS SURVEY.
- NEW CALIFORNIA DEPARTMENT OF TRANSPORTATION HPGN MONUMENTS.
- VLBI STATIONS OCCUPIED BY GPS RECEIVERS ON THIS SURVEY.
- INTER-COUNTY GPS SURVEY (LOS ANGELES, ORANGE AND RIVERSIDE COUNTIES) POINT OCCUPIED ON THIS SURVEY.
- POSITION UPLOADED ON THIS SURVEY.

SURVEYOR'S STATEMENT

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE LAND SURVEYORS' ACT AT THE REQUEST OF THE COUNTY SURVEYOR, COUNTY OF SAN DIEGO IN APRIL, 1991.



John Langdon Sands, Jr.
 JOHN LANGDON SANDS, JR., L.S. 3378
 SENIOR LAND SURVEYOR
 DEPARTMENT OF PUBLIC WORKS
 COUNTY OF SAN DIEGO

COUNTY SURVEYOR'S STATEMENT

THIS MAP HAS BEEN EXAMINED IN ACCORDANCE WITH SECTION 8706 OF THE LAND SURVEYORS' ACT THIS _____ DAY OF _____, 1991.

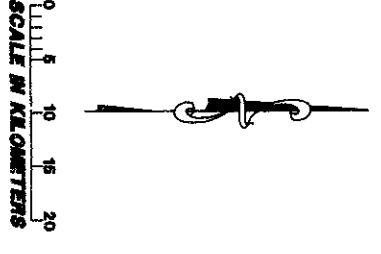
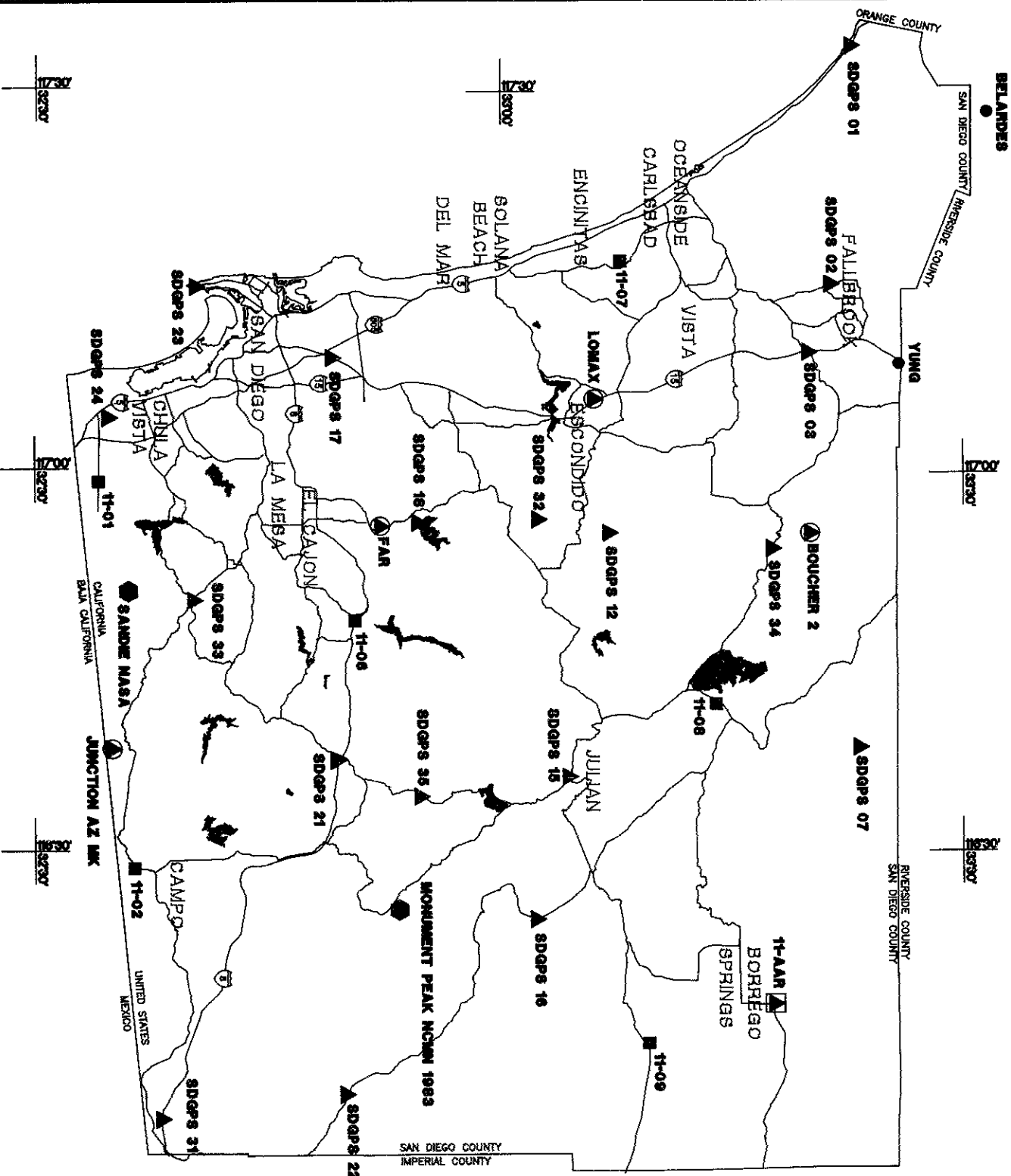
PHILIP J. GARRINO
 COUNTY SURVEYOR
 L.S. 4424

Philip J. Garrino

RECORDER'S STATEMENT

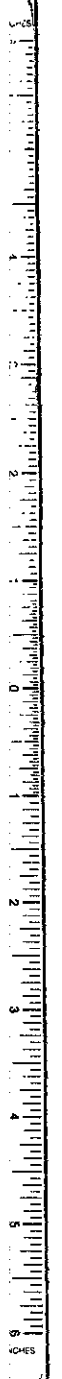
FILE NUMBER 93-161220B DAY OF SEPTEMBER, 1993, AT 3:59 O'CLOCK P.M. IN BOOK OF RECORD OF SURVEY MAPS AT PAGE 14310 AT THE REQUEST OF THE SAN DIEGO COUNTY SURVEYOR.

ANNETTE EVANS
 COUNTY RECORDER
 COUNTY OF SAN DIEGO
 BY: *Annette Evans*
 COUNTY RECORDER



BACKGROUND
 IN AUGUST OF 1984, THE COUNTY OF SAN DIEGO SET A GOAL TO ESTABLISH A PRECISE CONTROL NETWORK USING GPS METHODS THROUGHOUT THE COUNTY IN SUPPORT OF THE REGIONAL URBAN INFORMATION SYSTEM (GRIS) AND EXPANDING USE OF GPS FOR SURVEYING AND MAPPING. AT THE SAME TIME, THE STATE DEPARTMENT OF TRANSPORTATION (CALTRANS) AND THE NATIONAL GEODETIC SURVEY (NGS) WERE CONSIDERING ESTABLISHING A STATEWIDE HIGH PRECISION GEODETIC NETWORK OF 244 STATIONS AT APPROXIMATELY 30 TO 40 KM SPACING THROUGHOUT THE STATE. A JOINT NETWORK WITH A 15 KM NORMAL STATION SPACING WAS AGREED UPON FOR SAN DIEGO COUNTY. SCIENTISTS AT SCOPPE'S INSTITUTION OF OCEANOGRAPHY INTERESTED IN MONITORING CRUSTAL MOTION OFFERED THEIR EXPERTISE ON GPS ORBIT DETERMINATION AND LARGE NETWORK DATA REDUCTION IN ORDER TO ACHIEVE THE HIGHEST POSSIBLE ACCURACY. IT WAS DECIDED THAT ALL STATIONS WOULD BE OCCUPIED SIMULTANEOUSLY FOR SEVEN HOUR SESSIONS ON THREE CONSECUTIVE DAYS. COOPERATION FROM MANY PRIVATE AGENCIES WAS SO GREAT THAT JUST FROM THE PRIVATE AGENCY A TOTAL OF 34 STATIONS IN THE NETWORK.

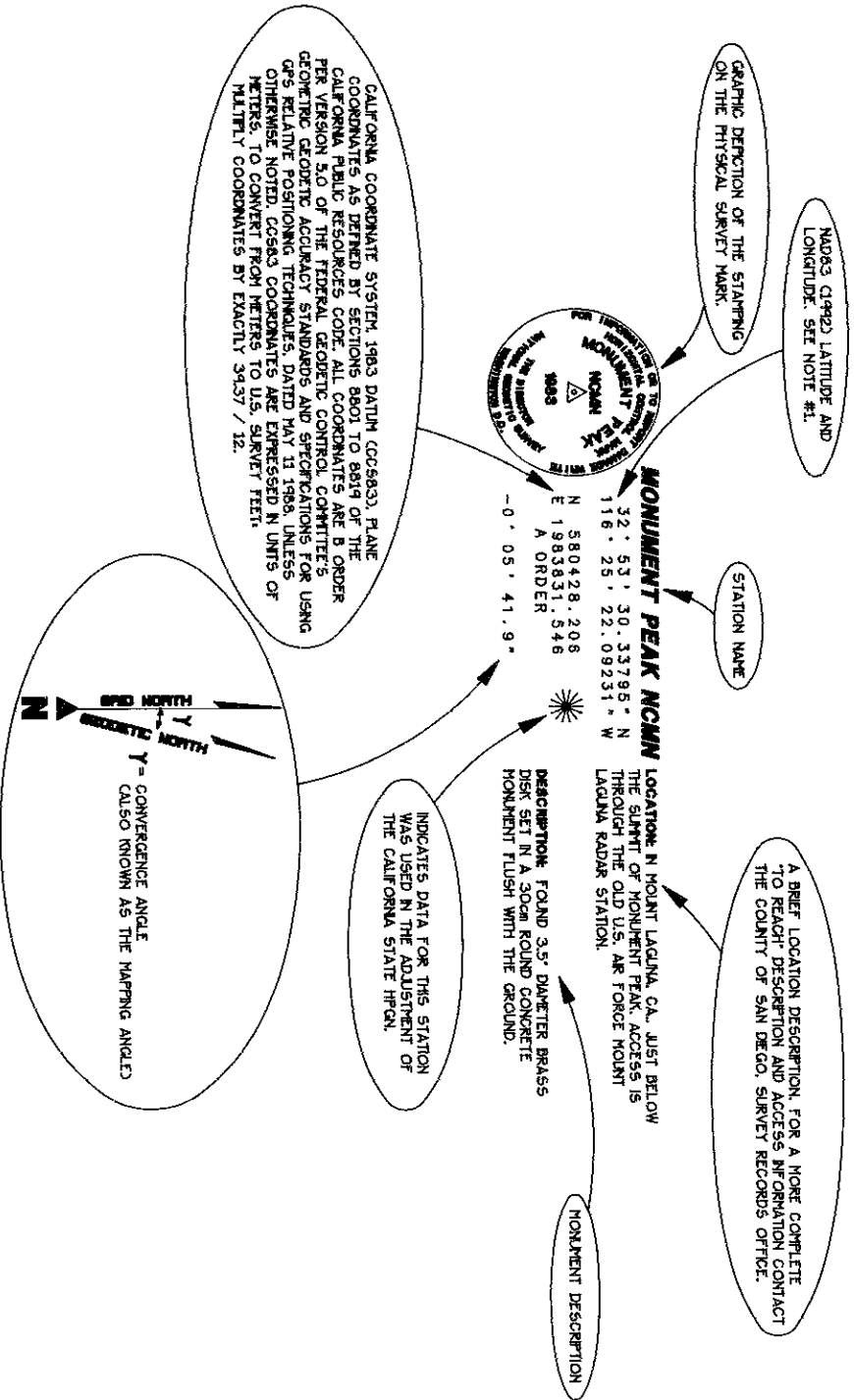
METHODOLOGY
 34 DUAL FREQUENCY GPS RECEIVERS FROM VARIOUS AGENCIES WERE FIELDED ON APRIL 5TH, 6TH AND 7TH, 1991 FOR SEVEN HOURS EACH DAY. DATA WAS DOWNLOADED AND DATED UP EACH NIGHT. DATA PROCESSING TOOK PLACE AT SCOPPE'S INSTITUTION OF OCEANOGRAPHY WHERE THE INDEPENDENT VERIFICATION OF THE ENTIRE CALIFORNIA STATE HPGN WAS BEING PERFORMED. INITIALLY DATA FROM THE 34 GPS RECEIVERS WERE CONVERTED TO A COMMON RINEX FORMAT. THESE DATA WERE PROCESSED WITH THE GANT RELEASE 6.23 SOFTWARE DEVELOPED AT SCOPPE'S AND ILLI. EACH TRACKER OR GPS TRACKING STATION, THE THREE SESSIONS WERE COMBINED INTO A TRAILLIT CONSTRAINED LEAST SQUARES ADJUSTMENT. DATA AND REDUCED VECTORS WERE SENT TO THE NATIONAL GEODETIC SURVEY. THE SAN DIEGO COUNTY NETWORK WAS COMPARSED TO THE CALIFORNIA STATE HPGN VIA THE TEN COMMON STATIONS. THE GPS DATA SET FOR THE TEN COMMON STATIONS FROM THIS SURVEY WAS USED IN BOTH THE SAN DIEGO COUNTY HPGN AND CALIFORNIA STATE HPGN ADJUSTMENTS. THE NGS THEN INCORPORATED THE RESULTS OF THIS SURVEY INTO THE NATIONAL GEODETIC REFERENCE SYSTEM (NGRS).



RECORD OF SURVEY MAP No. 14310

SHEET 2 OF 3 SHEETS

EXPLANATION OF DATA



COMPARISON OF NAD83 (1992) AND NAD83 (1986)

STATION	CGS83 (1992) COORDINATES	CGS83 (1986) COORDINATES	CHANGE
MONUMENT PEAK NCNM	N 580428.208 E 1983831.548 A ORDER	N 580428.059 E 1983831.720 1st ORDER	+0.147 M (0.48FT) -0.174 M (0.57FT)
BEARDES	N 651114.339 E 1885752.493 B ORDER	N 651114.212 E 1885752.472 1st ORDER	+0.127 M (0.41FT) -0.017 M (0.06FT)
BOUCHER 2	N 629739.800 E 1937696.393 B ORDER	N 629739.676 E 1937696.368 1st ORDER	+0.124 M (0.41FT) +0.025 M (0.08FT)
FAR	N 578374.744 E 1936722.427 B ORDER	N 578374.664 E 1936722.469 2nd ORDER	+0.080 M (0.26FT) -0.062 M (0.20FT)
LOMAX	N 603976.986 E 1921161.667 B ORDER	N 603976.941 E 1921161.668 2nd ORDER	+0.045 M (0.15FT) -0.079 M (0.26FT)

NOTE #1
THE HORIZONTAL CONTROL DATUM IS THE NORTH AMERICAN DATUM OF 1983 AS REALIZED AT EPOCH 1983.05 (NAD83(1983)). BY THE NATIONAL GEODETIC SURVEY (NGS), EPOCH 1983.05 IS THE POINT OF THE CALIFORNIA STATE HPGN SURVEY AND WAS THE DATE USED TO DETERMINE THE MAGNITUDE OF CRUSTAL MOTION. 1982 WAS THE DATE CALIFORNIA HPGN COORDINATES WERE ADJUSTED AND PUBLISHED. THE ORIGINAL NAD83 ADJUSTMENT BY THE NGS IS DESIGNATED NAD83(1983) SINCE 1986 WAS THE DATE NAD83 VALUES WERE PUBLISHED.

THE NAD83 VALUES WERE PUBLISHED. THE REFERENCE SYSTEM WHILE BEING NAD83(1983) WITH THIS REFERENCE SYSTEM. THE REFERENCE SYSTEM IS NAD83(1983) WITH THIS REFERENCE SYSTEM. THE REFERENCE SYSTEM IS NAD83(1983) WITH THIS REFERENCE SYSTEM. THE REFERENCE SYSTEM IS NAD83(1983) WITH THIS REFERENCE SYSTEM.


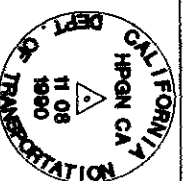
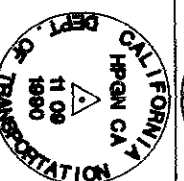
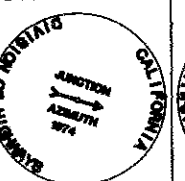
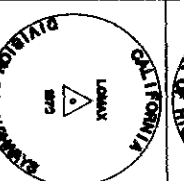
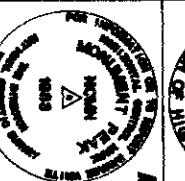
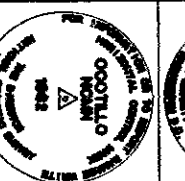
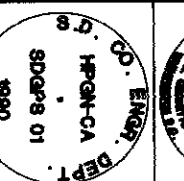

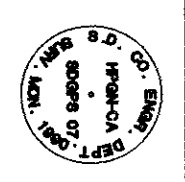
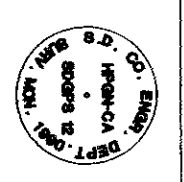
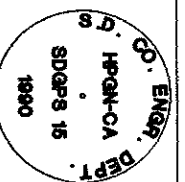
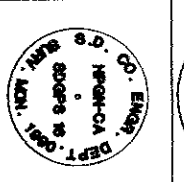
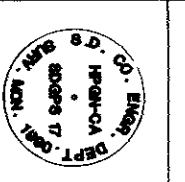
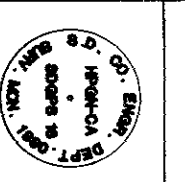
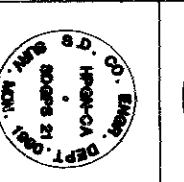
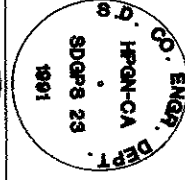
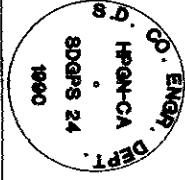

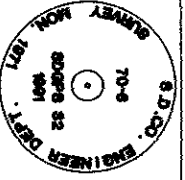
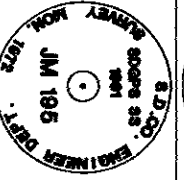
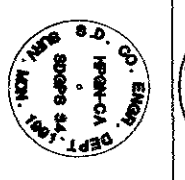
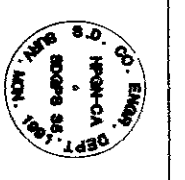
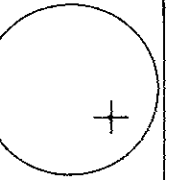
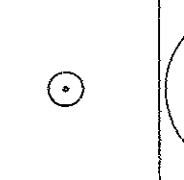
NOTE #2
SOME OF THE STATIONS LISTED HEREON HAVE REFERENCE MARKS AND/OR STATIONING REFERENCE MARKS AND ADJUSTING MARKS NOT INCLUDED HEREON BECAUSE MEASUREMENTS TO THESE SUPPORTING MARKS WERE NOT COMPLETED AT THE TIME THIS MAP WAS RECORDED.

 TIARR ELEVATION 618 FEET N 625212.055 E 1995478.418 -0° 01' 36.0"	 BEARDES 33° 31' 23.41359" N 117° 28' 47.24598" W N 651114.339 E 1885752.493 -0° 40' 32.8"	 BOUCHER 2 33° 20' 04.98332" N 116° 55' 09.32140" W N 629739.800 E 1937696.393 -0° 22' 04.0"	 FAR 32° 52' 17.45433" N 116° 55' 34.10355" W N 578374.744 E 1936722.427 -0° 22' 17.6"	 HPGN CA 11 01 32° 34' 08.43831" N 116° 58' 59.47324" W N 544801.983 E 1931147.351 -0° 24' 10.4"	 HPGN CA 11 02 32° 36' 23.93003" N 116° 28' 36.49875" W N 548818.678 E 1978710.084 -0° 07' 28.7"	 HPGN CA 11 06 32° 50' 39.81941" N 118° 48' 07.42885" W N 5752298.679 E 1948318.299 -0° 18' 12.1"
LOCATION: THE STATION IS 4.8 METERS NORTH-EAST OF BORRERO SPRINGS, NEAR THE FIELDS SOUTH OF HISTORICAL MARKER. THE MARK IS 150' WEST OF SECTION CORNER 13, 18, 24, 15, AND 30' WEST OF A 30" DIAMETER ROCK MOUND. DESCRIPTION: FOUND 3.5" DIAMETER BRASS DISK SET IN EXPOSED ROCK.	LOCATION: THE STATION IS APPROXIMATELY 10 METERS EAST OF SAN JUAN CAPSTRAND AND 1-1/2 METERS NORTH-EAST OF THE CORNER OF SAN DECO, ORANGE AND REVERSE COUNTIES. THE MARK IS ON THE HIGHEST POINT OF A RADAR. DESCRIPTION: FOUND 3.5" DIAMETER BRASS DISK SET IN LARGE ROCK OUTCROP.	LOCATION: THE STATION IS LOCATED ON THE WEST SIDE OF PALOMAR MOUNTAIN, ON BOUCHER HILL, IN PALOMAR MOUNTAIN STATE PARK, NEAR AN AIR COMMUNICATIONS TOWER. DESCRIPTION: FOUND 3.5" DIAMETER BRASS DISK SET IN 30CM ROUND CONCRETE MONUMENT.	LOCATION: THE STATION IS 10 METERS NORTH OF LARGE OAK ATOP A HILL NORTHWEST OF THE BRIDGE OVER THE SAN LEO RIVER ON STATE HIGHWAY 905. THE MARK IS ON THE SOUTHWEST CORNER OF THE FENCE AROUND A WATER TANK. DESCRIPTION: FOUND 2.25" DIAMETER BRASS DISK SET IN A LOW 2' BY 3' ROCK OUTCROP.	LOCATION: THE STATION IS NEAR THE MAIN ENTRANCE TO BROWN FIELD. THE MARK IS 17' NORTH OF THE CL OF HIGHWAY 905 AND 23' EAST OF THE INTERSECTION OF CONTINENTAL ST. AND THE PAVED ROAD LEADING EAST TO THE TOWER. DESCRIPTION: FOUND 3.5" DIAMETER ALUMINUM DISK SET IN A 6' ALUMINUM ACCESS COVER.	LOCATION: THE STATION IS 0.5 METERS WEST OF THE SHED ON THE SHEDWAY 4' FROM THE MARK. THE MARK IS ON THE SOUTH SIDE OF THE HIGHWAY ON TOP OF A 30' HIGH ROCK CUT BANK. DESCRIPTION: FOUND 3.5" DIAMETER ALUMINUM DISK SET IN A 23' HIGH ROCK OUTCROP.	LOCATION: THE STATION IS 22 METERS WEST OF ALPINE ON THE SOUTH SIDE OF EASTBOUND INTERSTATE 8, AT POST MILE 27.2. THE MARK IS ON TOP OF A 32' HIGH CUT BANK AND 96' NORTH OF THE BARBED WIRE RIGHT OF WAY FENCE. DESCRIPTION: FOUND 3.5" DIAMETER ALUMINUM DISK SET IN A 12' X 13' X 6' HIGH ROCK OUTCROP.

RECORD OF SURVEY MAP NO. 14310

SEE SHEET 2 FOR AN EXPLANATION OF DATA

SHEET 3 OF 3 SHEETS

	<p>HPGN CA 11 07</p> <p>33° 07' 46" 17442" N 117° 16' 37" 87774" W E 1904172.501 N 607251.582 -0° 33' 51.6"</p> <p>DESCRIPTION: FOUND 2.5" DIAMETER ALUMINUM DISK SET IN A 6' ALUMINUM ACCESS COVER.</p>		<p>HPGN CA 11 08</p> <p>33° 14' 01" 57873" N 118° 41' 35" 95587" W E 1958681.778 N 618432.349 -0° 14' 37.0"</p> <p>DESCRIPTION: FOUND 2.5" DIAMETER ALUMINUM DISK SET IN A 6' DIAMETER FLUSH BOLLER.</p>		<p>HPGN CA 11 09</p> <p>33° 08' 35" 52858" N 118° 14' 49" 23088" W E 2000279.042 N 610142.293 -0° 00' 05.9"</p> <p>DESCRIPTION: FOUND 2.5" DIAMETER ALUMINUM DISK SET IN A 6' ALUMINUM ACCESS COVER.</p>		<p>HPGN CA 11 10</p> <p>33° 06' 04" 83128" N 117° 05' 40" 83400" W E 1963964.164 N 548218.014 -0° 12' 39.2"</p> <p>DESCRIPTION: FOUND 2.5" DIAMETER BRASS DISK SET IN A 4' X 6' BOLLER OUTCROP.</p>		<p>HPGN CA 11 11</p> <p>33° 53' 30" 33795" N 118° 25' 22" 09231" W E 1983831.546 N 580428.206 -0° 05' 41.9"</p> <p>DESCRIPTION: FOUND 2.5" DIAMETER BRASS DISK SET IN A 30CM ROUND CONCRETE MOUNTAIN FLUSH WITH THE GROUND.</p>		<p>HPGN CA 11 12</p> <p>33° 47' 24" 34709" N 115° 47' 46" 22717" W E 2042311.437 N 589232.709 +0° 14' 57.8"</p> <p>DESCRIPTION: FOUND 2.5" DIAMETER BRASS DISK SET IN A 30CM ROUND CONCRETE MOUNTAIN FLUSH WITH THE GROUND.</p>		<p>HPGN CA 11 13</p> <p>33° 23' 31" 07215" N 117° 33' 54" 83875" W E 1877626.889 N 634812.207 -0° 43' 21.7"</p> <p>DESCRIPTION: FOUND 2.5" DIAMETER ALUMINUM DISK SET IN A 6' DIAMETER ABS ACCESS COVER.</p>		<p>HPGN CA 11 14</p> <p>33° 21' 18" 83878" N 117° 14' 58" 78313" W E 1907012.858 N 632281.827 -0° 32' 56.5"</p> <p>DESCRIPTION: FOUND 2.5" DIAMETER ALUMINUM DISK SET IN A 6' DIAMETER ABS ACCESS COVER.</p>		
	<p>HPGN CA 11 15</p> <p>33° 19' 54" 51129" N 117° 09' 31" 87229" W E 1915394.140 N 628579.792 -0° 29' 57.8"</p> <p>DESCRIPTION: FOUND 2" DIAMETER BRASS DISK SET IN THE SIDEWALK ATOP BRIDGE ADJUTMENT.</p>		<p>HPGN CA 11 16</p> <p>33° 23' 15" 86820" N 118° 38' 13" 99407" W E 1963973.822 N 635486.995 -0° 12' 46.0"</p> <p>DESCRIPTION: FOUND 2" DIAMETER BRASS DISK SET IN THE TOP OF A 16" DIAMETER CONCRETE CASTER.</p>		<p>HPGN CA 11 17</p> <p>33° 07' 03" 37331" N 118° 55' 05" 88927" W E 1937831.331 N 605661.428 -0° 22' 02.1"</p> <p>DESCRIPTION: FOUND 2" DIAMETER BRASS DISK SET IN A 6' X 6' X 3" HIGH GRANITE BOLLER.</p>		<p>HPGN CA 11 18</p> <p>33° 02' 20" 32888" N 116° 24' 32" 10427" W E 1865077.815 N 596761.286 -0° 05' 16.0"</p> <p>DESCRIPTION: FOUND 2" DIAMETER BRASS DISK SET IN A 3' X 5' X 1" HIGH GRANITE BOLLER.</p>		<p>HPGN CA 11 19</p> <p>33° 49' 08" 32889" N 117° 08' 52" 18047" W E 1915925.188 N 572643.738 -0° 29' 36.1"</p> <p>DESCRIPTION: FOUND 2" DIAMETER BRASS DISK SET IN A 4' X 4' X 1" HIGH GRANITE BOLLER.</p>		<p>HPGN CA 11 20</p> <p>32° 54' 42" 57826" N 118° 55' 52" 78378" W E 1936268.488 N 582848.488 -0° 22' 27.8"</p> <p>DESCRIPTION: FOUND 2" DIAMETER BRASS DISK SET IN A 6' X 12' X 1" HIGH GRANITE BOLLER ON TOP OF HILL.</p>		<p>HPGN CA 11 21</p> <p>32° 49' 26" 12887" N 116° 37' 09" 19890" W E 1965426.949 N 572952.984 -0° 12' 10.4"</p> <p>DESCRIPTION: FOUND 2" DIAMETER BRASS DISK SET ON TOP OF A 7' X 4' X 3" HIGH GRANITE BOLLER IN ROCK OUTCROP ON TOP OF HILL.</p>		<p>HPGN CA 11 22</p> <p>32° 49' 56" 53229" N 118° 10' 52" 81811" W E 2006428.706 N 573380.483 +0° 02' 15.8"</p> <p>DESCRIPTION: FOUND 2.5" DIAMETER ALUMINUM DISK SET IN A 6' ABS ACCESS COVER.</p>		
	<p>HPGN CA 11 23</p> <p>32° 40' 18" 87673" N 117° 14' 25" 91782" W E 1907090.275 N 585808.471 -0° 32' 39.5"</p> <p>DESCRIPTION: FOUND 2.5" DIAMETER ALUMINUM DISK SET IN A 6' ABS ACCESS COVER.</p>		<p>HPGN CA 11 24</p> <p>32° 34' 04" 82082" N 117° 04' 04" 07350" W E 1923210.064 N 545920.296 -0° 26' 57.8"</p> <p>DESCRIPTION: FOUND 2.5" DIAMETER ALUMINUM DISK SET IN A 6' ABS ACCESS COVER.</p>		<p>HPGN CA 11 25</p> <p>32° 38' 01" 64407" N 118° 08' 59" 51923" W E 2009401.748 N 551810.823 +0° 03' 18.2"</p> <p>DESCRIPTION: FOUND 2" DIAMETER BRASS DISK SET IN BERROOK.</p>		<p>HPGN CA 11 26</p> <p>33° 02' 27" 47257" N 116° 56' 09" 51159" W E 1935930.788 N 597172.435 -0° 22' 36.9"</p> <p>DESCRIPTION: FOUND 3" DIAMETER BRASS DISK WITH RAISED NUTLE SET IN 5' X 6' X 1" HIGH BOLLER IN OUTCROP.</p>		<p>HPGN CA 11 27</p> <p>32° 40' 13" 51991" N 118° 49' 42" 92150" W E 1945727.895 N 556018.818 -0° 19' 04.6"</p> <p>DESCRIPTION: FOUND 3" DIAMETER BRASS DISK WITH RAISED NUTLE SET IN 6' X 6' X 2" HIGH BOLLER IN GRANITE OUTCROP.</p>		<p>HPGN CA 11 28</p> <p>33° 17' 36" 85866" N 116° 53' 54" 85934" W E 1935998.701 N 625164.420 -0° 21' 22.9"</p> <p>DESCRIPTION: FOUND 2" DIAMETER BRASS DISK SET IN A 4' X 6' X 1" HIGH GRANITE BOLLER.</p>		<p>HPGN CA 11 29</p> <p>32° 54' 52" 09133" N 116° 34' 15" 89253" W E 1968965.631 N 582979.528 -0° 10' 35.2"</p> <p>DESCRIPTION: FOUND 2" DIAMETER BRASS DISK SET IN A 4' X 6' X 1" HIGH GRANITE BOLLER IN OUTCROP.</p>		<p>HPGN CA 11 30</p> <p>32° 36' 02" 65018" N 116° 50' 27" 04467" W E 1944534.347 N 548297.132 -0° 19' 28.8"</p> <p>DESCRIPTION: FOUND 6" DIAMETER COPPER DISK SET IN A 25' X 50' CONCRETE SLAB.</p>		<p>HPGN CA 11 31</p> <p>33° 25' 48" 75296" N 117° 08' 40" 74024" W E 1918804.909 N 640487.385 -0° 29' 29.9"</p> <p>DESCRIPTION: FOUND STAINLESS STEEL ROD IN A 6' DIAMETER WELL STATED POWERLINE COUNTY SURVEY MARKER.</p>