EXHIBIT
B

MINIMUM FILING FEE: $100.00
FILE ORIGINAL & ONE COPY
TYPE OR PRINT IN INK

STATE OF CALIFORNIA

Billy - help!

State Water Resources Control Board
DIVISION OF WATER RIGHTS
901 P Street, Sacramento
P. O. Box 2000, Sacramento, CA 95810

APPLICATION to APPROPRIATE WATER

(For explanation of entries required, see booklet "How to File an Application to Appropriate Water in California")

Application No. _____

1. APPLICANT

I, CALIF. DEPT OF PARKS AND RECREATION
(Name of Applicant)

(Telephone Number where you may be reached between 8 a.m. and 5 p.m.—include area code)

(Address) (City or Town) (State) (Zip Code)

do hereby make application for a permit to appropriate the following described waters of the State of California, SUBJECT TO VESTED RIGHTS

2. SOURCE

(well - underground?)

a. The name of the source at the point of diversion is GAVIOTA CREEK
(If unnamed, state nature of source and that it IS unnamed)

tributary to —

b. In a normal year does the stream dry up at any point downstream from your project? YES ☐ NO ☒. If Yes, during what month is it usually dry? _____

3. POINT of DIVERSION and REDIVERSION

SANTA ANITA TRACT
RANCHO NIGUEL
SEGUA DECREE REFERENCE

a. The point of diversion will be in the County of SANTA BARBARA

b.

List all points giving coordinate distances from section corner or other tie as allowed by Board regulations	Point is within (40-acre Subdivision)	Section	Township	Range	Base and Meridian
	¼ of ¼	5	5N	R31 R32W	SBM
	¼ of ¼				
	¼ of ¼				

diversion point - check w/ Billy

c. Does applicant own the land at the point of diversion? YES ☒ NO ☐.

d. If applicant does not own land at point of diversion, state name and address of owner and state what steps have been taken to obtain right of access: _____

4. PURPOSE of USE, AMOUNT and SEASON

a. State the purpose(s) for which water is to be appropriated, the amounts of water for each purpose and dates between which diversions will be made in the table below. Use gallons per day if rate is less than 0.025 cubic feet per second (approximately 16,000 gallons per day).

PURPOSE OF USE	DIRECT DIVERSION				STORAGE		
	AMOUNT		SEASON OF DIVERSION		AMOUNT	COLLECTION SEASON	
	RATE (Cubic feet per second or gallons per day)	Acre-feet per year	Beginning Date (Mo. & Day)	Ending Date (Mo. & Day)	Acre-feet per year	Beginning Date (Mo. & Day)	Ending Date (Mo. & Day)
Irrigation							
Domestic							
CAMPGROUND			1/1	12/31			
	_____ (TOTAL)				_____ (TOTAL)		

up to 30 GAL/DAY/PERSON reasonable

MAX/DAY = 1500
AVERAGE/DAY = 657

b. Total combined amount taken by direct diversion and storage during any one year will be _____ acre-feet.

5. JUSTIFICATION OF AMOUNT

a. IRRIGATION: Maximum acreage to be irrigated in any one year will be _____ acres.

CROP	ACRES	METHOD OF IRRIGATION (Sprinklers, flooding, etc.)	ACRE-FEET (per year)	NORMAL SEASON	
				Beginning Date	Ending Date

b. DOMESTIC: The number of residences to be served 0. Separately owned: YES ☐ NO ☐

The total number of people to be served 2 57/day. Estimated daily use per person 30 (gallons per day)

The total area of domestic lawns and gardens _____ (square feet). (18.5/day/100 sq ft)

Miscellaneous domestic uses _____ (Dust control area. Number and kind of domestic animals, etc.)

c. STOCKWATERING: Kind of Stock _____. Maximum Number _____. Describe type of operation (feed lot, dairy, range, etc.)

d. RECREATIONAL: Type of recreation: Fishing ☐, Swimming ☐, Boating ☐, Other ☐.

(Submit "Supplement to Application", form SWRCB 1-1, for justification of amount for uses not listed above.)

6. DIVERSION WORK

Need engineering help

a. Diversion will be by pumping from _____ (sump, offset well, channel, reservoir, etc.). Pump discharge rate _____ (cfs/gpd). Horsepower _____.

b. Diversion will be by gravity by means of _____ (pipe in unobstructed channel, pipe through dam, siphon, gate, etc.)

c. Estimated total cost of the diversion works proposed is _____ (Give only cost of intake, or headworks, pumps, storage reservoirs, and main conduits.)

d. Main conduit from diversion point to first lateral or offstream storage reservoir:

CONDUIT (Pipe or channel)	MATERIAL (Kind of Pipe or channel lining)	CROSS SECTIONAL DIMENSION (Pipe diameter or ditch depth and top and bottom width	LENGTH (feet)	TOTAL LIFT OR FALL		CAPACITY (estimated)
				(feet)	(+ or −)	
PIPE	PVC	3"		6	—	

e. The following applies to storage reservoirs: (For reservoirs having a capacity of 25 acre-feet or more, complete supplemental form SWRCB 1-1,

Name or number of reservoir, if any	DAM				RESERVOIR		
	Height of dam from streambed to spillway level (ft.)	Material construction	Dam Length (ft.)	Freeboard Dam height above spillway crest (ft.)	Approximate surface area when full (acres)	Approximate capacity (acre-feet)	Max. water depth

f. If water will be stored and the reservoir is not at the diversion point, the maximum rate of diversion to offstream storage will be _____ cfs.

Diversion to offstream storage will be made by pumping ☒; gravity ☐.

7. PLACE OF USE

a. Applicant owns the land where the water will be used: YES ☒ NO ☐. Land is in joint ownership: YES ☐ NO ☐.

All joint owners should include their names as applicants and sign the application. If applicant does not own land where the water will be used, give name and address of owner and state what arrangements have been made with the owner.

_____

_____

Need Sensory Team

USE IS WITHIN (40-acre Subdivision)	SECTION	TOWNSHIP	RANGE	BASE AND MERIDIAN	IF IRRIGATION	
					State Number of Acres	Presently cultivated (Yes or No)
¼ of ¼						
¼ of ¼						
¼ of ¼						
¼ of ¼						
¼ of ¼						
¼ of ¼						

If area is unsurveyed, state the location as if lines of the public land survey were projected. If space does not permit listing all 40-acre tracts, include on another sheet or state sections, townships and ranges, and show detail on map. For public districts or other extremely large areas, see Page 16 of instruction booklet "How to File an Application to Appropriate Water in California".

8. COMPLETION SCHEDULE

a. What year will work start _____? b. What year will work be completed _____?

c. What year will water be used to the full extent intended _____? d. If complete, year of completion _____?

(ATTACH SUPPLEMENTAL SHEETS HERE)

9. GENERAL

a. What is the name of the post office most used by those living near the proposed point of diversion? Goleta

b. Does any part of the place of use comprise a subdivision on file with the State Department of Real Estate? YES ☐ NO ☒. If Yes, state name of subdivision _____ If No, is subdivision of these lands contemplated? YES ☐ NO ☒.
Is it planned to individually meter each service connection? YES ☐ NO ☒. If Yes, when? _____

c. Have you consulted the California Department of Fish and Game concerning this proposed project? YES ☐ NO ☒. If Yes, state the Department's opinion concerning the potential effects of your proposed project on fish and other wildlife and state measures required for mitigation _____

If No, state the effects on fish and other wildlife you foresee as potentially arising from your proposed project. NONE

d. Please name other public agencies, if any, from which you have obtained or are required to obtain approvals regarding this project:

e. What are the names and addresses of diverters of water from the source of supply downstream from the proposed point of diversion?
NONE

f. Is the source used for navigation, including use by pleasure boats, for a significant part of each year at the point of diversion, or does the source substantially contribute to a waterway which is used for navigation, including use by pleasure boats? NO

10. EXISTING WATER RIGHT

Do you claim an existing right for the use of all or part of the water sought by this application? YES ☒ NO ☐

If yes, complete table below

Nature of Right (riparian, appropriative, groundwater)	Year of First Use	Purpose of use made in recent years including amount, if known	Season of Use	Source	Location of Point of Diversion

11. AUTHORIZED AGENT (Optional)

With respect to: ☐ All matters concerning this water right application, ☐ those matters designated as follows: _____

Name _____ Address _____

_____ Zip Code: _____
(Telephone No. of agent between 8 a.m. and 5 p.m.)

is authorized to act on my behalf as my agent.

12. SIGNATURE of APPLICANT

I (we) declare under penalty of perjury that the above is true and correct to the best of my (our) knowledge and belief.

Dated _____ 19 ____ , at _____, California

Ms. Mr.
Miss, Mrs. _____
(Signature of applicant) (Refer to Section 671 of the Board's regulations)

If applicants are members of the same family (i.e., husband, wife, mother, father, son, brother, sister, etc.) or reside at the same address, please indicate their relationship:

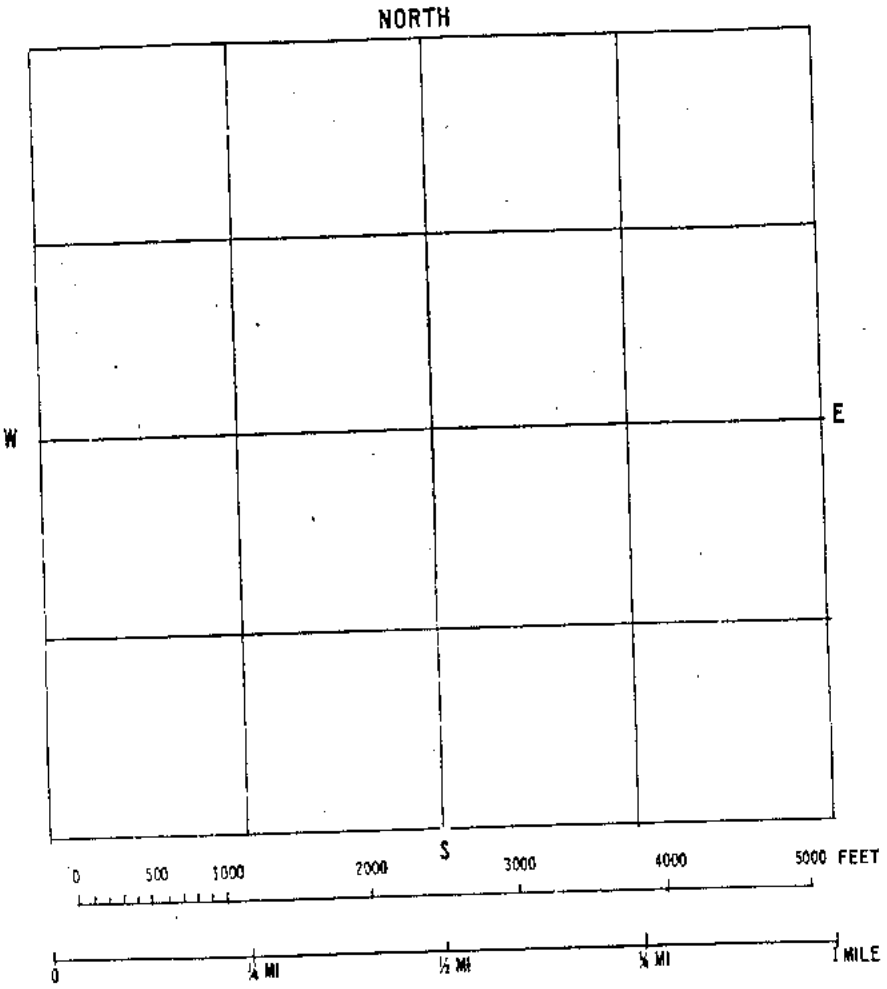
Ms. Mr.
Miss, Mrs. _____
(Signature of applicant) (Refer to Section 671 of the Board's regulations)

Additional information needed for preparation of this application may be found in the leaflet entitled "HOW TO FILE AN APPLICATION TO APPROPRIATE WATER IN CALIFORNIA". If there is insufficient space for answers in this form, attach extra sheets. Please cross reference all remarks to the numbered item to which they may refer. Send application in duplicate to the STATE WATER RESOURCES CONTROL BOARD, DIVISION OF WATER RIGHTS, P. O. Box 2000, Sacramento, CA 95810, with $100 minimum filing fee.

13. Application Map

(Please complete legibly, with as much detail as possible)
(See example in instruction booklet)

SECTION(S) _____ TOWNSHIP _____; RANGE _____; _____ B&M



(1) Show location of the spring or stream, and give name,

(2) Show location of the main ditch or pipe line.

(3) Indicate clearly the proposed place of use of the water.

(4) Locate and describe the point of diversion (i.e., the point at which water is to be taken from the stream or spring) in the following way: Begin at the most convenient known corner of the public land survey, such as a section or quarter section corner (if on unsurveyed land more than two miles from a section corner, begin at a mark or some natural object or permanent monument that can be readily found and recognized) and measure directly north or south until opposite the point which it is desired to locate; then measure directly east or west to the desired point. Show these distances in figures on the map as shown in the instructions.

14. Environmental Information

An Environmental Information form provided by the State Water Resources Control Board should be completed and attached to this application.

WATER TESTING
AND
CONSULTING LABORATORY

4237 CARPINTERIA AVE., UNIT 3
CARPINTERIA, CA 93013
(805) 684-3301

DECEMBER 18, 1990

DEPARTMENT OF PARKS & RECREATION
GAVIOTA DISTRICT
10 REFUGIO BEACH ROAD
GOLETA, CA 93117

WATER ANALYSIS
RE: TUNNEL SPRING WATER
GAVIOTA STATE PARK

ATTENTION: MR. JESS OSBORN

Enclosed are the analytical results of a water sample received from you on December 12, 1990.

This spring water did not pass the standard for general physical analysis due to high concentration of threshold odor number(at 60°C) exceeding the Maximum Contaminant Level(MCL) allowed by the State of California Department of Health in drinking waters. Its general mineral and inorganic chemical analyses including aluminum, passed the MCL. The high odor number was caused by the presence of high concentration of hydrogen sulfide gas(47.8 ppm H_2S).

To meet the State Health standard for general physical analysis, it is recommended that the water be treated by chlorination and then filtration using a Granular Activated Carbon filter to remove the sulfur gas which caused the high odor number. An alternative to chlorination is to use a hydrogen peroxide to neutralize the sulfide. The advantage of using the hydrogen peroxide is the fact, it does not form trihalomethane by-products like those of the chlorine.

If there are any questions regarding this report, please feel free to call or write. Thank you.

SINCERELY,

RAY G. ORQUIOLA, CHEMIST

WATER TESTING AND CONSULTING LABORATORY

4237 CARPINTERIA AVE., UNIT 3 • CARPINTERIA, CA 93013 • (805) 684-3301
CALIFORNIA STATE HEALTH APPROVED LABORATORY

ANALYSIS

REPORT TO: DEPARTMENT OF PARKS & RECREATION
GAVIOTA DISTRICT, 10 REFUGIO BEACH ROAD
GOLETA, CA 93117

ATTENTION: JESS OSBORN
SOURCE: TUNNEL SPRING, GAVIOTA STATE PARK
SAMPLE DESCRIPTION: RAW UNTREATED SPRING WATER
DATE COLLECTED: 12/12/90
SAMPLE COLLECTOR: JESS OSBORN
SAMPLE BOTTLE USED: WTCL 1-L plastic; 1/2 L plastic + 2 ml ZnAc-NaOH(for H_2S): LAB SPLIT, 1/4 L + 0.3 ml HNO_3(for metals); 100 ml + 0.3 ml HNO_3(for nitrate & fluoride).

LAB NO. 901667
DATE 12/18/90
PAGE 1 **OF** 1
TESTS REQUESTED: GENERAL MINERAL, GENERAL PHYSICAL AND INORGANIC CHEMICAL ANALYSES INCLUDING ALUMINUM AND TOTAL SULFIDE GAS.

TIME: 11:05 AM
DATE RECEIVED: 12/12/90
DATE COMPLETED: 12/18/90

GENERAL MINERAL ANALYSES	RESULTS
Bicarbonate Alkalinity, mg/1 $CaCO_3$	60
Carbonate Alkalinity, mg/1 $CaCO_3$	<1
Hydroxide Alkalinity, mg/1 $CaCO_3$	<1
Calcium, mg/1 Ca	77
Chloride, mg/1 Cl (500)	180
Copper, mg/1 Cu (1.0)	<0.02
Surfactant, mg/1 MBAS (0.5)	<0.02
Iron, mg/1 Fe (0.3)	<0.05
Magnesium, mg/1 Mg	12
Manganese, mg/1 (0.05)	<0.02
pH factor, unit	7.2
Sodium, mg/1 Na	133
Sulfate, mg/1 SO_4 (500)	229
Conductance, electrical, 25° C (1600)MMH/CM	1150
Total Dissolved Solids, mg/1 TDS(at 180° C)(1000)	644
Total Hardness, mg/1 $CaCO_3$	240
Calcium Hardness, mg/1 $CaCO_3$	192
Magnesium Hardness, mg/1 $CaCO_3$	48
Zinc, mg/1 Zn (5)	<0.02
GENERAL PHYSICAL ANALYSES	
Color, Unit (15)	15
Turbidity, NTU (5)	1.5
Threshold Odor Number at 60 C (3)	200
OTHERS: Theoretical TDS(Summation of Solids)	703
Total Anions, Milligram Equivalent/liter	10.9
Total Cations, Milligram Equivalent/liter	11.0
Standard Deviation, Anion-Cation Balance	± 0.4

INORGANIC CHEMICAL ANALYSES	RESULTS
Arsenic, mg/1 As (0.05)	<0.005
Barium, mg/1 Ba (1.0)	<0.050
Cadmium, mg/1 (0.01)	<0.001
Chromium, mg/1 Cr (0.05)	<0.005
Lead, mg/1 Pb (0.05)	<0.005
Mercury, mg/1 Hg (0.002)	<0.0002
Nitrate as Nitrogen, mg/1 NO_3N (10)	<0.1
Nitrate as NO_3, mg/1 NO_3 (45.0)	<0.4
Fluoride, mg/1 F (2.0)	2.0
Selenium, mg/1 Se (0.01)	<0.002
Silver, mg/1 Ag (0.05)	<0.002
ORGANIC CHEMICAL ANALYSES	
Chlorinated Hydrocarbons:	
Endrin mg/1 (0.0002)	
Lindane, mg/1 (0.004)	
Methoxychlor, mg/1 (0.1)	
Toxaphene, mg/1 (0.005)	
Chlorophenols:	
2,4-D, mg/1 (0.1)	
2,4,5-TP Silvex, mg/1 (0.01)	
MISCELLANEOUS	
Boron, mg/1 B	
Potassium, mg/1 K	13.4
Sodium Adsorption Ratio (SAR)	3.7
Per Cent Sodium	52.7
Aluminum(1.0), ppm Al	<0.1
TOTAL SULFIDES, ppm as H_2S	47.8

LEGEND: Mg/ℓ means milligrams per liter and is also equivalent to parts per million (ppm). "Less than" (<) means less than the detectable limits by the instruments or methods used in testing. Numbers in parenthesis are the Maximum Contaminant Levels (MCL) established by the State of California Department Health Services in drinking waters.

All data presented here were obtained by following the EPA or State of California standard laboratory procedures. The liability of this laboratory shall not exceed the amount paid for in this report.

REMARKS: This spring water did not pass the standard for general physical analyses due to high concentration of threshold odor number(at 60°C) exceeding the Maximum Contaminant Level(MCL) allowed by the State Health in drinking waters. Its general physical and inorganic chemical analyses including aluminum, passed the MCL.

If there are any questions, please call or write me personally. Thank you. Sincerely,

WATER TESTING
AND
CONSULTING LABORATORY

4237 CARPINTERIA AVE. UNIT # 3
CARPINTERIA, CA 93013
Telephone (805) 684-3301

REFERENCE METHODS OF ANALYSIS USED BY THE WATER TESTING & CONSULTING LABORATORY
(BASED FROM EPA 1983 METHODS FOR CHEMICAL ANALYSIS OF WATER & WASTES, AND 1985 STANDARD METHODS FOR THE EXAMINATION OF WATER & WASTEWATER, 16th EDITION).

PARAMETER & UNIT	METHODS	REFERENCE
A. PHYSICAL PROPERTIES		
[X] Color, Unit	Colorimetric, Platinum-Cobalt	EPA Method 110.2
[X] Conductance, Micromhos/Cm 25°C	Specific Conductance, Wheatstone Bridge	EPA Method 120.1
[X] Hardness, Total(mg/l as $CaCO_3$	Titrimetric, EDTA	EPA Method 130.1
[X] Odor, Theshold Odor	Comparison with odor-free water at 60°C	" " 140.1
[X] pH, Unit	Electrometric Measurement	" " 150.1
[ ] RESIDUE: mg/l		
[X] Total Dissolved (Filterable)	Gravimetric dried at 180°C	" " 160.1
[ ] Total Suspended(Non-filterable)	Gravimetric dried at 103°C-105°C	" " 160.2
[ ] Total Solids	Gravimetric dried at 103°-105°C	" " 160.3
[ ] Volatile	Gravimetric, Ignited at 550°C	" " 160.4
[ ] Settleable Matter	Volumetric, IMHOFF Cone	" " 160.5
[ ] Temperature, °C	Thermometric	" " 170.1
[X] Turbidity,NTU	Nephelometric	" " 180.1
B. METALS: All Units in mg/l		
[X] Aluminum, Al	AA Furnace	" " 202.2
[X] Arsenic, as As	AA Furance	" " 206.2
[X] Barium, as Ba	AA Furnace	" " 208.2
[ ] Beryllium, as Be	AA Furnace	" " 210.2
[ ] Boron, as B	Colorimetric, Curcumin	" " 212.3
[X] Cadmium, as Cd	AA Furnace	" " 213.2
[X] Calcium, as Ca	Titrimetric, EDTA	" " 215.2
[ ] Calcium, as Ca	AA, Direct Aspiration	" " 215.1
[X] Chromium, as Cr	AA Furance	" " 218.2
[ ] Hexavalent Chromium(Cr+ 6)	Chelation Extraction	" " 218.4
[ ] Chromium(Dissolved)	AA Furnace	" " 218.3
[ ] Cobalt, as Co	AA Furnace	" " 219.2
[ ] Gold, as Au	AA Furnace	" " 231.2
[ ] Iridium, as Ir	AA Furnace	" " 235.2
[X] Iron, as Fe	AA Direct Aspiration	" " 236.1
[X] Lead, as Pb	AA Furnace	" " 239.2
[X] Magnesium, as Mg	AA Direct Aspiration	" " 242.1
[X] Manganese, as Mn	AA Direct Aspiration	" " 243.1
[X] Mercury, as Hg	Cold Vapor, Manual	" " 245.1
[ ] Mercury, as Hg (in sediments)	Cold Vapor, Sediments	" " 245.5
[ ] Molybdenum, as Mo	AA Furnace	" " 246.2
[ ] Nickel, as Ni	AA Furnace	" " 249.1
[ ] Osmium as Os	AA Furnace	" " 252.2
[ ] Palladium, as Pd	AA Furnace	" " 253.2
[ ] Platinum, as Pt	AA Furnace	" " 255.2
[ ] Rhodium, as Rh	AA Furnace	" " 265.2
[X] Selenium, as Se	AA Furnace	" " 270.2
[X] Silver, as Ag	AA Furnace	" " 272.2
[X] Sodium, as Na	AA Direct Aspiration	" " 273.1
[ ] Thallium, as Tl	AA Furnace	" " 279.2
[ ] Tin, as Sn	AA Furnace	" " 282.2
[X] Copper as Cu	AA Direct Aspiration	" " 220.1

CALIFORNIA STATE HEALTH APPROVED LABORATORY

Cont. on back page

PARAMETERS & UNIT	METHODS	REFERENCE
METALS [X] Potassium	AA Direct Aspiration	EPA Method 258.1
[ ] Titanium, as Ti	AA Furance	EPA Method 283.2
[X] Zinc, as Zn	AA Direct Aspiration	" " 289.1
C. INORGANIC, NON-METALLICS (All Units in mg/l)		
[ ] Acidity as $CaCO_3$	Titrimetric	" " 305.1
[X] Alkalinity as $CaCO_3$	Titrimetric, pH 4.5	" " 310.1
[ ] Bromide as Br	Titrimetric	" " 320.1
[ ] Chloride as Cl	Titrimetric, Mercuric Nitrate	" " 325.3
[X] Chloride as Cl	Argentometric Method	1985 Std. Method 407 A
[ ] Chlorine as Cl_2	DPD-Spectrophotometric	EPA Method 330.5
[ ] Cyanide as CN (Total)	Colorimetric, Spectrophotometric	" " 335.2
[X] Fluoride as F	Colorimetric, SPDNS with Distillation	" " 340.1
[ ] Iodide as I	Titrimetric	" " 345.1
[ ] Nitrogen- Ammonia	Colorimetric; Titrimetric Distillation	" " 350.1
[ ] Nitrogen-Kjeldahl (Total)	Colorimetric; Titrimetric(Distillation)	" " 351.3
[X] Nitrate-N	Colorimetric, Brucine	" " 352.1
[ ] Nitrate-N	Colorimetric-Chromotropic Acid	1985 Std. Method 418 D
[ ] Nitrate-N	Cadmium Reduction	1985 Std. Method 418 C
[ ] Nitrate-Nitrite	Colorimetric, Cadmium REduction	EPA Method 353.3
[ ] Nitrite	Spectrophotometric	" " 354.1
[ ] Oxygen, Dissolved	Modified Winkler(Full Bottle Technique)	" " 360.2
[ ] Phosphorous(All Forms)	Colorimetric, Ascorbic Acid(Single Reagent)	" " 365.3
[ ] Silica as SiO_2(Dissolved)	Colorimetric	" " 370.1
[X] Sulfate as SO_4	Turbidimetric	" " 375.4
[X] Sulfide as $S^=$ (high H_2S)	Titrimetric, Iodine	" " 376.1
[ ] Sulfide as $S^=$(Low H_2S)	Colorimetric, Methylene Blue	" " 376.2
[ ] Sulfite as SO_3	Titrimetric	" " 377.1
D. ORGANICS(All units in mg/l)		
[ ] BOD 5 day, 20°C)	Winkler Azide	" " 405.1
[ ] Chemical Oxygen Demand(COD)	Titrimetric, Mid-Level	" " 410.1
[ ] Chemical Oxygen Demand(COD)	Titrimetric, Low Level	" " 410.2
[ ] Chemical Oxygen Demand(COD)	Titrimetric, High Level for Saline Waters	" " 410.3
[ ] Oil and Grease(Total Recoverable)	Gravimetric, Separatory Funnel Extraction	" " 413.1
[ ] Organic Carbon(Total) - TOC	Combustion-Infrared	" " 414.1
[ ] Petroleum Hydrocarbons, Total	Freon Extraction- Silica Gel	1985 Std. Methods 503 E
[ ] Phenolics, Total Recoverable	Spectrophometric, Manual 4-AAP-Distillation	EPA Method 420.1
[X] Methylene Blue Active Substances(MBAS)	Colorimetric, Methylene Blue	" " 425.1
[ ] Pesticides	Gas Chromatographic	1985 Std. Method p.538
[ ] Herbicides	" "	" " " p.550
E. RADIOLOGICAL:		
[ ] Gross Alpha, pCi/l	Proportional Counter	" " " p. 640
[ ] Gross Beta, pCi/l	" "	" " " p. 640
F. TOXICITY BIOASSAY		
[ ] Lethal Concentration LC50	96-Hr. Static Bioassay	" " " p. 690

OTHERS:

WATER TESTING AND CONSULTING LABORATORY

4237 CARPINTERIA AVE. UNIT # 3
CARPINTERIA, CA 93013
Telephone (805) 684-3301

MAXIMUM CONTAMINANT LEVELS(MCL)

The Maximum Contaminant Levels(MCL) presented here are in accordance with the State of California Health and Safety Code, Title 22. When your water contains constituents exceeding Maximum Contaminant Levels as indicated below, local or state health authorities should be notified.

I. GENERAL MINERAL ANALYSIS

Bicarbonate Alkalinity	None
Carbonate Alkalinity	None
Hydroxide Alkalinity	None
Calcium	None
Chloride, mg/1 Cl	500
Copper, mg/1 Cu	1.0
MBAS(Foaming Agent)	0.5
Iron, mg/1 Fe	0.3
Magnesium, mg/1 Mg	None
Manganese, mg/1 Mn	0.05
pH value, Unit	None
Sulfate, mg/1	500
Conductance, micromhos/cm 25°C	1600
Total Dissolved Solids(180°C), mg/1	1000
Total Hardness, mg/1	None
Zinc, mg/1 Zn	5

II. GENERAL PHYSICAL ANALYSIS

Color, Unit	15
Turbidity, NTU	5
Odor Number, (Threshold), 60°C	3

III. INORGANIC CHEMICAL ANALYSIS

Arsenic, mg/1 As	0.05
Barium, mg/1 Ba	1.0
Cadmium, mg/1 Cd	0.010
Chromium, mg/1 Cr	0.05
Lead, mg/1 Pb	0.05
Mercury, mg/1 Hg	0.002
Nitrate as N, mg/1 NO_3N	10.0
Nitrate as NO_3, mg/1 NO_3	45.0
Selenium, mg/1 Se	0.01
Silver, mg/1 Ag	0.05
*Fluoride, mg/1 F	1.4 - 2.4

*(For Santa Barbara County, MCL for Fluoride is 2.0 ppm)

IV. ORGANIC CHEMICAL ANALYSIS

Chlorinated Hydrocarbons(Pesticides) - $120.	
Endrin, mg/1	0.0002
Lindane, mg/1	0.004
Methoxychlor, mg/1	0.1
Toxaphene, mg/1	0.005
Chlorophenoxys (Herbicides) - $120.	
2,4-D, mg/1	0.1
2,4,5,-TP (Silvex), mg/1	0.01

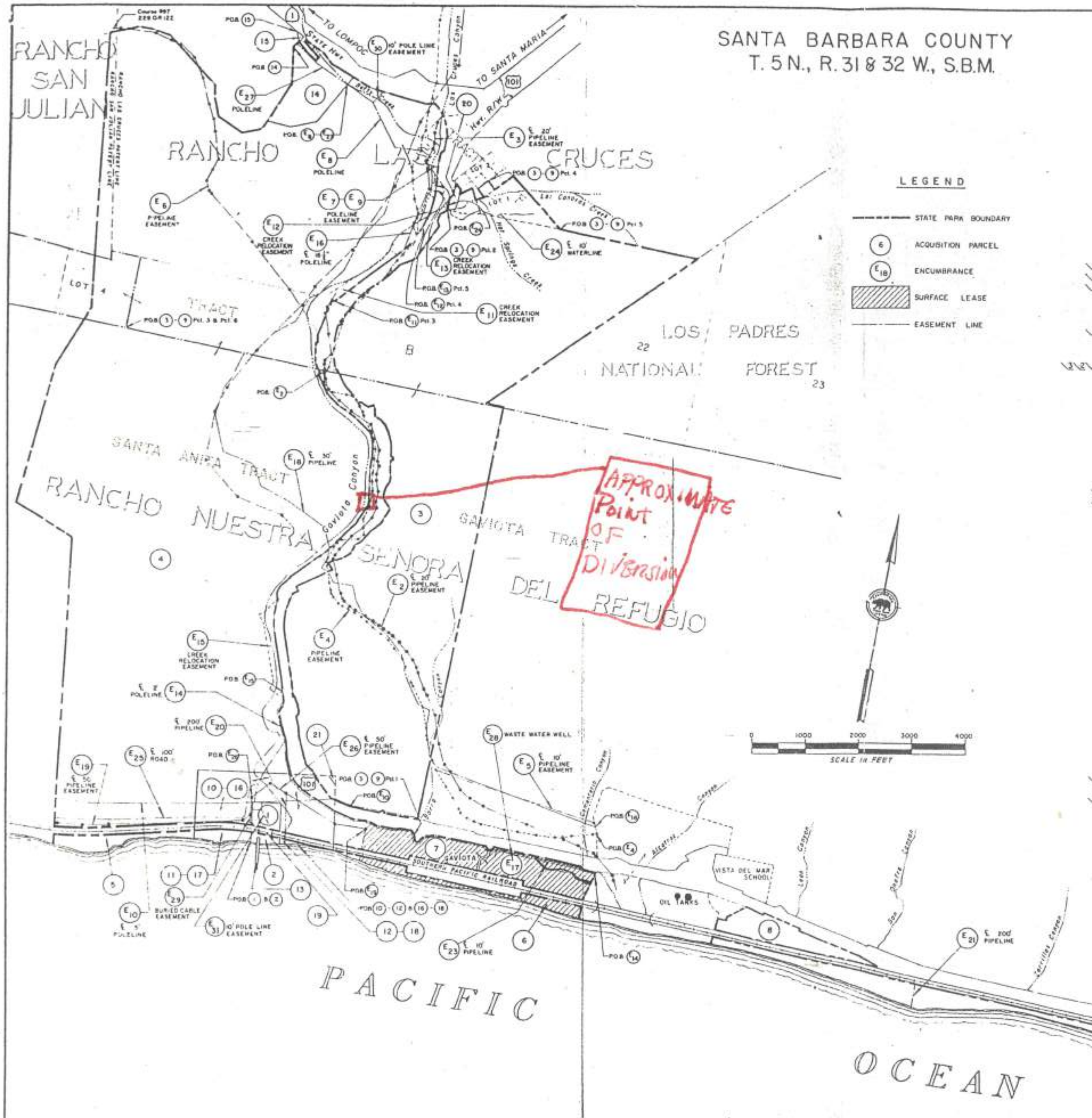
**V. NATURAL RADIOACTIVITY

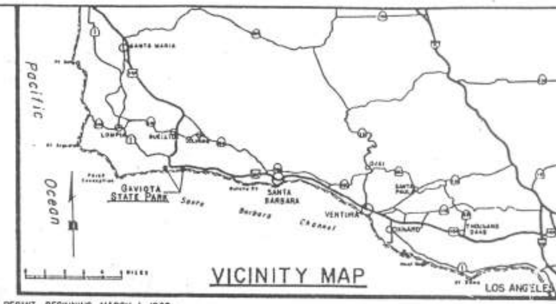
GROSS ALPHA, pCi/1	5.0
GROSS BETA, pCi/1	50.0

* Note Dependent on the annual average of maximum daily air temperature: 1.4 mg/1 for 79.3 - 79.5°F; 1.6 mg/1 for 70.7 - 79.2°F; 1.8 mg/1 for 63.9 - 70.6°F; 2.0 mg/1 for 58.4 - 63.8°F; 2.2 mg/1 for 53.8 - 58.3°F and 2.4 mg/1 for 53.7°F and below.

** Note: Gross Alpha for combine Radium 226 and Radium 228; Gross Beta for Gross Alpha particle activity including Radium 226 but excluding Radon and Uranium.

SANTA BARBARA COUNTY
T. 5 N., R. 31 & 32 W., S.B.M.





3 (49) YEAR PERMIT BEGINNING MARCH 1, 1969.
2 RIGHT TO GRANT EASEMENTS RESERVED BY GRANTOR.
1 MINERAL RIGHTS RESERVED BY GRANTOR AND / OR OTHERS.

SCHEDULE OF ACQUISITION

PARCEL NO.	GRANTOR	TYPE OF DOCUMENT	RECORDING DATE	BOOK & PAGE	PARCEL ACREAGE	TOTAL ACREAGE
1 & 2	COUNTY OF SANTA BARBARA	GRANT DEED	7-16-1953	1167 OR 124	8.82	
3 - 9	HOLLISTER COMPANY	"	10-10-1967	2207 OR 1050	2633.67	
10 - 12	HOLLISTER COMPANY (1/2 INT.)	"	"	2207 OR 1058	62.54	
13	STATE LANDS COMMISSION	PERMIT	UNRECORDED	P. & R. file 419.8	0.69	
14	HELEN L. PEDOTTI	GRANT DEED	6-24-1969	2275 OR 695	30.82	
15	HELEN L. PEDOTTI (SCENIC EASEMENT)	GIFT DEED	"	2275 OR 698	0.15	
16 - 18	DIBBLEE ESTATE CO., et al (1/2 INT)	F.O.C.	6-25-1969	2275 OR 1095	Incl. in Pcls. 10-12	
19	SOUTHERN PACIFIC TRANSPORTATION CO.	LEASE	AUDIT #164467 DATED 3-3-1970	P. & R. file 419.8	0.53	
20	STATE OF CALIF DIVISION OF HIGHWAYS	T.O.C.	3-22-74	2507 OR 698	1.37	
21	" " " " " "	"	"	" " "	.16	2738.75

2 PERMIT EXPIRES CONCURRENTLY WITH E_{17}
1 ALSO PART OF E_{19}

SCHEDULE OF ENCUMBRANCES

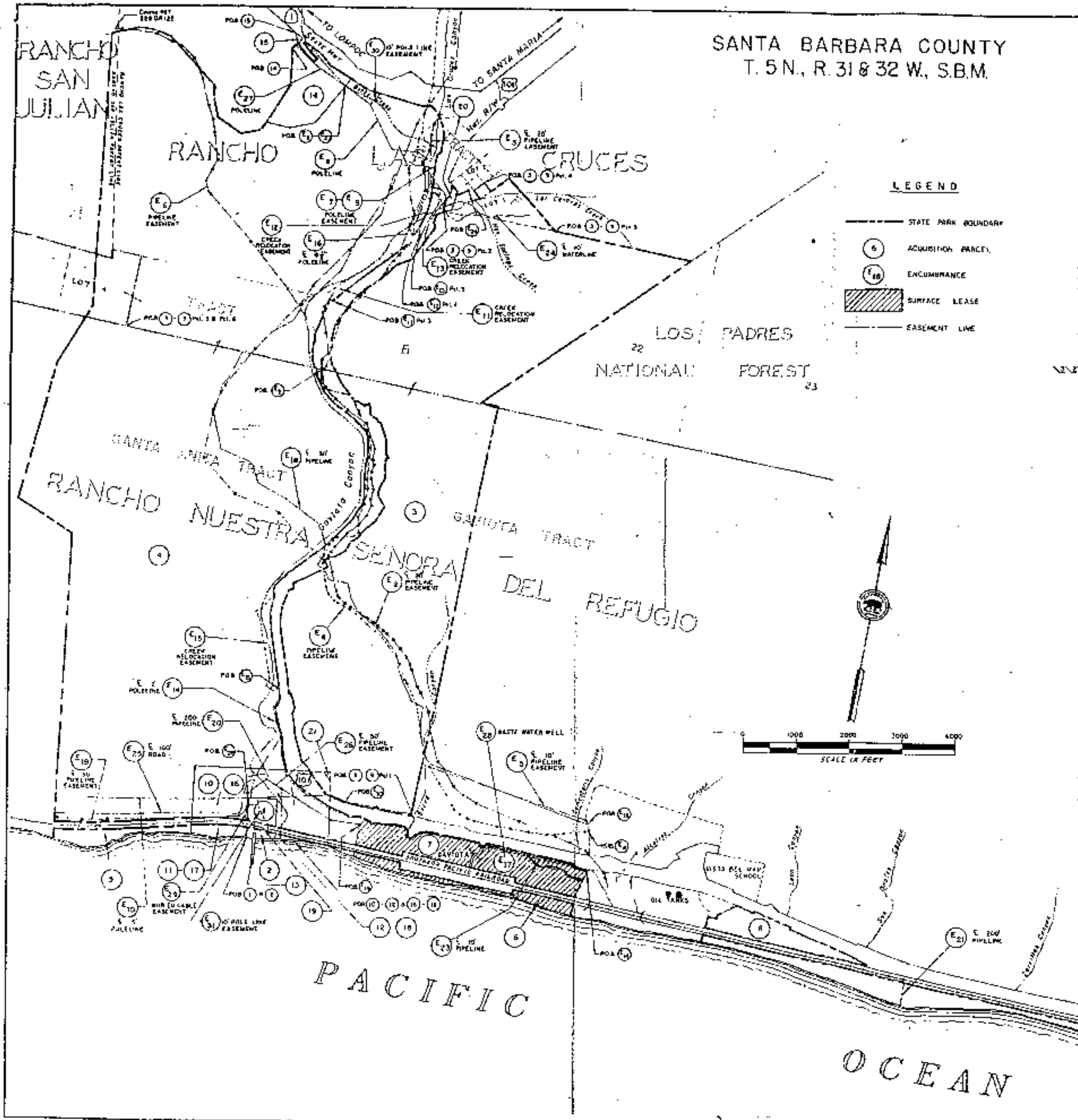
ENCUMBRANCE	GRANTEE	TYPE OF DOCUMENT	TERMINATION DATE	DOCUMENT DATE	RECORDING DATE	BOOK & PAGE
E_1	SOUTHERN PACIFIC RAILROAD CO.	GRANT DEED	PERPETUAL	3-10-1891	6-11-1921	30 D. 344
E_2	THE ALCATRAZ COMPANY	INDENTURE	"	6-13-1903	6-30-1903	92 D. 227
E_3	W. H. CROCKER (THE ALCATRAZ CO.)	G.P.D.	"	11-21-1903	11-25-1903	93 D. 160
E_4	ASSOCIATED OIL COMPANY	INDENTURE	"	9-30-1913	2-02-1914	142 D. 451
E_5	SANTA MARIA GAS COMPANY	GRANT DEED	"	8-06-1930	9-05-1930	223 OR 17
E_6	" " " "	"	"	10-27-1930	12-02-1930	229 OR 122
E_7	PACIFIC GAS & ELECTRIC COMPANY	"	"	2-21-1945	3-20-1945	634 OR 486
E_8	" " " " "	"	"	7-02-1946	8-14-1946	695 OR 338
E_9	" " " " "	"	"	7-02-1946	8-14-1946	704 OR 125
E_{10}	SOUTHERN CALIFORNIA EDISON CO.	"	"	10-05-1948	2-23-1950	901 OR 318
$E_{11,12,13}$	STATE OF CALIFORNIA (DIV. OF HWYS.)	"	"	11-21-1950	1-04-1951	961 OR 152
E_{14}	ASSOCIATED TELEPHONE COMPANY, LTD.	"	"	3-23-1952	5-05-1952	1066 OR 454
E_{15}	STATE OF CALIFORNIA (DIV. OF HWYS.)	"	"	———	6-12-1952	1073 OR 490
E_{16}	TIDE WATER ASSOCIATED OIL CO.	"	"	7-11-1952	9-04-1952	1092 OR 247
E_{17}	TEXACO, INCORPORATED	LEASE	INDEFINITE	6-01-1960	6-14-1960	1753 OR 263
E_{18}	SOUTHERN COUNTIES GAS CO. OF CALIF.	GRANT DEED	PERPETUAL	1-02-1963	2-13-1963	1976 OR 721
$E_{19,20,21,22}$	TEXACO, INCORPORATED	LEASE AMEND.	INDEFINITE	5-08-1963	6-17-1963	1997 OR 132
E_{23}	PACIFIC LIGHTING & GAS SUPPLY CO.	MEMO of R/W	PERPETUAL	2-19-1965	2-25-1965	2093 OR 78
E_{24}	STATE OF CALIFORNIA (DIV. OF HWYS.)	GRANT DEED	"	———	2-08-1967	2180 OR 246
E_{25}	SOUTHERN CALIFORNIA EDISON CO.	"	"	4-07-1967	4-19-1967	2187 OR 1364
1 E_{26}	TEXACO, INCORPORATED	"	"	10-18-1960	4-02-1961	1842 OR 479
E_{27}	PACIFIC GAS & ELECTRIC COMPANY	"	"	7-03-1946	8-14-1946	707 OR 21
2 E_{28}	TEXACO, INCORPORATED	USE PERMIT	INDEFINITE	4-23-1973	UNRECORDED	
E_{29}	GENERAL TELEPHONE CO.	EASEMENT	"	11-16-1971	"	
E_{30}	PACIFIC GAS & ELECTRIC CO.	"	"	6-10-1968	"	
E_{31}	SOUTHERN CALIFORNIA EDISON CO.	AGREEMENT	"	10-18-1957	"	

DESIGNED	DRAWN	CHECKED	DATE	REVISIONS
	Larson & Lyman 1972-73	1973	11-5-75	Added Pcls 20 & 21, also added $E_{28}, E_{29}, E_{30}, E_{31}$

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION
APPROVED ______ DATE ______

GAVIOTA STATE PARK
LAND OWNERSHIP RECORD

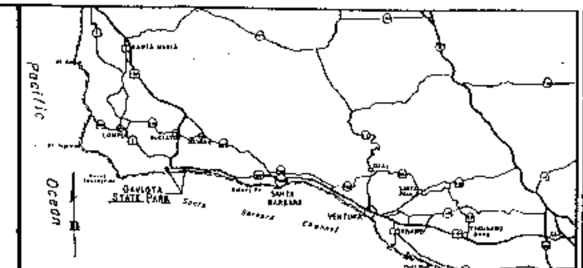
DRAWING NO 13166
SHEET NO 1 OF 1



SANTA BARBARA COUNTY
T. 5 N., R. 31 & 32 W., S.B.M.

LEGEND

- STATE PARK BOUNDARY
- (6) ACQUISITION PARCEL
- (E18) ENCUMBRANCE
- SURFACE LEASE
- EASEMENT LINE



VICINITY MAP

√3 1491 YEAR PERMIT BEGINNING MARCH 1, 1969.
√2 RIGHT TO GRANT EASEMENTS RESERVED BY GRANTOR.
√1 MINERAL RIGHTS RESERVED BY GRANTOR AND/OR OTHERS.

SCHEDULE OF ACQUISITION

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√3√2√1 13	STATE LANDS COMMISSION	PERMIT	UNRECORDED	P.& R. No 419.8	0.69	
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19	SOUTHERN PACIFIC TRANSPORTATION CO.	LEASE	[illegible]	P.& R. No 419.8	0.53	
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E_5	SANTA MARIA GAS COMPANY	GRANT DEED	"	8-06-1930	9-05-1930	223 OR 17
E_6	" " " "	"	"	10-27-1930	12-09-1930	229 OR 122
E_7	PACIFIC GAS & ELECTRIC COMPANY	"	"	2-21-1945	3-20-1945	634 OR 486
E_8	" " " " "	"	"	7-02-1946	8-14-1946	695 OR 338
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$E_{19,20,21,22}$	TEXACO, INCORPORATED	LEASE AMEND.	INDEFINITE	5-08-1963	6-17-1963	1997 OR. 132
E_{23}	PACIFIC LIGHTING & GAS SUPPLY CO.	MEMO of R/W	PERPETUAL	2-19-1965	2-25-1965	2093 OR 78
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E_{27}	PACIFIC GAS & ELECTRIC COMPANY	"	"	7-03-1946	8-14-1946	707 OR 21
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E_{31}	SOUTHERN CALIFORNIA EDISON CO.	AGREEMENT	"	10-18-1957	"	

DESIGNED	DATE	REVISIONS
DRAWN Lorcer & Lutwen 1972-73	9-5-75	Added Pcls. 20 & 21, also added E_{28}, E_{29}, E_{30}, E_{31}
CHECKED		

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

APPROVED ________ DATE ________

GAVIOTA STATE PARK
LAND OWNERSHIP RECORD

DRAWING NO. 13166

SHEET NO. 1 OF 1

7.0 WATER RESOURCES TECHNICAL REPORT

Regional Hydrologic Setting

The site is situated within the Central Coast Hydrologic Study Area (CCHSA) as defined by the California Department of Water Resources (CDWR, 1981). The CCHSA encompasses approximately 56 groundwater basins and areas of groundwater storage in the central coast portion of California from Santa Cruz on the north to Carpinteria on the south. In general, the CCHSA has a Mediterranean type climate characterized by a mild to moderate rainy season during winter months followed by a dry season with prevailing mild to very hot temperatures during spring, summer and fall. Drainage in the area is generally southward and westward toward the Pacific Ocean.

The project site is located in the west Santa Barbara coastal hydrologic area, a subdivision of the CCHSA. This area extends from Point Arguello to Ellwood and from the crest of the Santa Ynez Range south and southwest to the sea. The area includes the watershed of Gaviota Creek, one of a few streams in the area that extends north of the crest of the range. The west Santa Barbara coastal hydrologic area is characterized by south and southwest flowing streams which drain the southern flank of the east-west-trending Santa Ynez Range. Groundwater in the area is typically present in Tertiary sandstone bedrock and shallow alluvial aquifers along the valley floors (Miller and Rapp, 1968). No major unconsolidated groundwater reservoirs are present in the area.

The climate in the west Santa Barbara coastal hydrologic area is semi-arid, Mediterranean-type. Summers are generally cool and dry, and winters are mild. Precipitation occurs as rainfall and is variable in the area, averaging about 16 inches per year near the coast to over 30 inches per year on the high mountain slopes of the Santa Ynez Range (Santa Barbara County Flood Control District, 1986). The wettest months are usually December through March. Other forms of precipitation in the area include snow which falls occasionally on the highest slopes and coastal fog which is especially common in the summer months.

Site Hydrologic Conditions

Climate

The climate at the site is similar to that described for the west Santa Barbara coastal hydrologic area (see Regional Hydrologic Setting). Rainfall at the site averages approximately 20 inches per year based on data from rain gauges at Gaviota State Park and Nojoqui Falls County Park (Santa Barbara County Flood Control District, 1986). Although specific records are not available regarding wind at the site, residents and visitors to the area report that strong westerly and northerly winds are common in the area. The Gaviota Gorge area is noted for its down canyon winds which are especially strong in the morning hours. Fog is also common in the area, although the coastal fog typical of the summer months often does not reach the site or burns off earlier than along the coast.

Surface Water

Springs

This section presents a discussion of several springs in the vicinity of the site. These springs include the roadcut springs north of Highway 1, the Pedotti spring, Gaviota hot and cold springs, and Tunnel spring. The locations of these springs are shown on **Figure 7-1.**

Roadcut Springs

Several springs are present along roadcuts on the north side of Highway 1 about 1/4 mile west of the San Julian Road turnoff. These springs apparently emanate from the Matilija Formation along a splay off the North Branch Santa Ynez fault (see Geology Technical Report for discussion of faults). Flow from at least three of the larger springs is captured by 2-inch diameter pipes driven into the slope and routed to the base of the slope. Here, the flow discharges into an open channel and eventually flows through a culvert under the highway to the West Fork Gaviota Creek. This collection system was probably installed by Caltrans at the time of road construction to reduce the potential for bank erosion and landslides. Inspection of the discharge pipe in August 1986 indicated a total flow of about 1 gallon per minute (gpm). The water quality is unknown, but is likely high in mineral content as evidenced by the accumulation of white powdery precipitate near most of the springs. The location of most of the springs is marked by the presence of willow trees.

Pedotti Spring

A spring located 1/4 mile west of the Pedotti ranch house (**Figure 7-1**) formerly supplied water for domestic and agricultural use, although the spring is no longer used for such purposes (Mr. A. Pedotti, personal communication, 1986). The spring apparently emanates from the Matilija Formation and may represent the location of a trace of the North Branch Santa Ynez fault. The yield of the spring is reported to be several gpm of highly mineralized water.

Gaviota Hot Spring

Gaviota Hot Spring, also called Las Cruces Hot Spring, is located about 1/2 mile east of the site. The spring is located on State Park property and attracts many visitors annually (California Department of Parks and Recreation, 1973). About 25 gpm of 85 degrees (F) water flows from the spring into two pools (Terres, 1984). The spring emanates from landslide or alluvial fan debris which covers the South Branch Santa Ynez fault (Terres, 1984; Dibblee, 1950).

Gaviota Cold Spring

About 600 feet northwest of Gaviota Hot Spring is another spring which supplies water for the State Park residences at Las Cruces. Yield from the spring is reported to be variable (Bill Howard, State Department of Parks and Recreation, Personal Communication, 1986). About 10 gpm is used from the spring with any overflow going to Hot Spring Creek. Water from the spring reportedly contains about 18 to 20 parts per million (ppm) hydrogen sulfide (H2S) and requires aeration prior to domestic use.

Tunnel Spring

Tunnel Spring is located within the walls (east side) of the tunnel on the east side of Highway 101 (Department of Parks and Recreation, 1973). A pipe reportedly carries the spring flow westward to Gaviota Creek.

Streams

Several streams are present in the vicinity of the site as shown on Figure 7-1. These are the West Fork Gaviota Creek, Gaviota Creek, Las Cruces Creek, Hot Spring Creek and Las Canovas Creek. The site is located just upstream from the confluence of the West Fork Gaviota Creek and Las Cruces Creek. The only stram gauge in the area is operated by the U.S. Geological Survey and is located on Gaviota Creek about 1 mile south of the site.

The West Fork Gaviota Creek (also called Las Nutrias Creek) generally flows east and south. Stream flow in some parts of the creek is perennial, although no flow was observed in the vicinity of the site during August, 1986. It is likely that surface flow during the summer months is present only where bedrock underlying alluvium is shallow which would tend to cause surface discharge of underflow through the alluvium.

Las Cruces Creek drains the Canada de Las Cruces watershed and flows southerly to its confluence with upper Gaviota Creek just north of the Highway 1 crossing. The confluence of these two creek was originally farther south but was modified to its present location during construction of the highway interchange. Flowing water was observed in the streambed at the Highway 1 crossing during August, 1986.

Las Canovas and Hot Spring creeks are minor drainages on the west flank of Gaviota Peak which converge just east of Highway 101 and empty into Gaviota Creek. Flow near Gaviota Creek is probably perennial due to the presence of Gaviota hot and cold springs.

Flow from all the above mentioned creeks eventually empties into Gaviota Creek which flows southward through Gaviota Gorge to the sea. Gaviota Creek is one of the major streams on the Santa Barbara coast and has an estimated average annual baseflow in the vicinity of the tunnel of about 2.3 cfs (Miller and Rapp, 1968) although stream gauge records indicate that periods of no flow may occur during dry years (U.S. Geological Survey, 1985). The highest recorded flow at the gauge was about 5,270 cfs which occurred in January, 1983.

Ground Water

Hydrogeologic Units

Hydrogeologic units in the site vicinity can be broadly divided into two groups having dissimilar water-bearing characteristics: (1) Tertiary age bedrock units, particularly sandstones; and, (2) Quaternary age unconsolidated units. The bedrock units generally form the hills and mountains in the area and underlie the unconsolidated units at

depth. Unconsolidated units generally consist of alluvium which is present to variable depths in the site vicinity and in the nearby valley floors.

Bedrock units in the area that yield or are suspected of yielding water to wells are the Matilija, Gaviota, Alegria and Vaqueros formations (Hoffman and Associates, 1986a; Hoover & Associates, 1986a). These units are composed of primarily sandstone or siltstone and are described in detail in the Geology Technical Report. The distribution of these units in the area is depicted on **Figure 10-3** of the Geology Technical Report.

Unconsolidated water-bearing deposits in the area are limited to alluvium along major creek bottoms. Alluvial deposits consist of various mixtures of clay, silt, sand and gravel of varying thickness. Several wells are present in the area which penetrate alluvial deposits.

Hydraulic Properties

Little information exists regarding the hydraulic properties of hydrogeologic units in the area because of the small number of wells penetrating the units and limited availability of data. **Figure 7-1** shows the location of known wells in the site vicinity. The pertinent well characteristics and hydraulic properties of water bearing units are summarized on **Table 7-1.** A discussion of the characteristics of each formation is provided below.

Matilija Formation

The Matilija Formation is penetrated by the Las Cruces Well #3 and possibly to a very limited extent by the Pedotti Well (Hoover & Associates, 1986b). The Las Cruces Well #3 penetrated 170 feet of blue-gray, fine to coarse grained water bearing sandstone (Hoover & Associates, 1986b). The presence of dense, well cemented sandstone in outcrops of the formation suggests that groundwater is contained in fractures rather than in interstitial pores. A 24-hour aquifer test was performed on the Las Cruces Well #3 at a rate of 30 gpm for 24 hours which produced about 80 feet of drawdown in the well. The transmissivity of the Matilija Formation was calculated to be about 220 gallons per day per foot of aquifer (gpd/ft).

Periodic monitoring of the Pedotti Well (which may or may not penetrate the Matilija Formation) during the 24-hour aquifer test showed no change in water levels within the well (Paul Sorenson, Hoover & Associates, personal communication, 1986). The Pedotti Well is located about 1,000 feet northwest of the Las Cruces Well #3 and is reported to be 132 feet deep (Hoover & Associates, 1986a). The lack of response in the Pedotti Well may indicate that the well is either not completed in the Matilija Formation, the Matilija Formation has an extremely low storage coefficient or that a barrier (fault) separates the wells. It is suspected that the Pedotti Well is bottomed in shale rather than Matilija Formation because of the presence of abundant clay in the well when it was bailed during pump overhaul (Rick Hoffman, Hoffman and Associates, personal communication, 1986). This clay may represent decomposed shale (Anita Formation) bedrock.

A 72-hour aquifer test was also conducted on the Las Cruces Well #3 (Hoover and Associates, 1986c). The well was initially pumped at a rate of 20 gpm which apparently produced excessive drawdown at the end of 2.83 days of testing. The flow

depth. Unconsolidated units generally consist of alluvium which is present to variable depths in the site vicinity and in the nearby valley floors.

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A 72-hour aquifer test was also conducted on the Las Cruces Well #3 (Hoover and Associates, 1986c). The well was initially pumped at a rate of 20 gpm which apparently produced excessive drawdown at the end of 2.83 days of testing. The flow

rate was then reduced to 10 gpm for the remainder of the test. Hoover and Associates (1986c) calculated the transmissivity of the Matilija Formation from recovery data gathered during the aquifer test. They estimated the transmissivity of the aquifer to be 2,574 gpd/ft and 11 gpd/ft respectively for the deeper and shallower parts of the aquifer. This extremely wide range in transmissivity values may reflect varied flow rates during the test.

Gaviota Formation

The Gaviota Formation is apparently penetrated by two wells and a test hole in the area. Both the Caltrans Well and the Las Cruces Well #1 (Figure 7-1) are completed in both the alluvium and Gaviota Formation. A 24-hour aquifer test was performed on the Las Cruces Well #1 by Hoffman and Associates (1986b) at a flow rate of 10 gpm resulting in about 38 feet of drawdown. The aquifer transmissivity was calculated at 660 gpd/ft. Hoffman and Associates (1986b) indicated that the transmissivity value was relatively high for bedrock aquifers in the area and suggested that all or nearly all the water entering the well emanated from the alluvium rather than the Gaviota Formation. Review of records regarding the Caltrans Well (Hoffman and Associates, 1986a) indicated that it probably produced little or no water from the Gaviota Formation.

A test hole drilled through alluvium into the Gaviota Formation at a location south of the site penetrated 550 feet of claystone, siltstone and sandstone of the Gaviota Formation (Hoffman and Associates, 1986c). Although the overlying alluvium was water bearing, the Gaviota Formation was judged to be non or very slightly water bearing on the basis of cuttings analysis and electric log interpretation. The Gaviota Formation portion of the test hole was, therefore, abandoned.

On the basis of the information presented above, it is inferred that the Gaviota Formation in the site vicinity has a very low potential to yield water. Results of aquifer tests on wells partially completed in the Gaviota Formation apparently do not reflect the hydraulic properties of the unit.

Alegria Formation

The State Park and Chevron-Alegria Well penetrate the Alegria Formation south of the site (Hoover & Associates, 1986a; Bill Howard, State Department Parks and Recreation, personal communication; Westec, 1985). Production from the State Park Well is about 30 gpm; production from the Chevron-Alegria Well is reported to be 60 gpm. An aquifer test conducted on the Chevron-Alegria well indicates an aquifer transmissivity of 592 gpd/ft Westec, 1985).

Vaqueros Formation

No wells are known to penetrate the Vaqueros Formation in the site vicinity. A test hole drilled on the Hanson property about 1/2 mile north of the site encountered about 430 feet of clay and sandstone assigned to the Vaqueros Formation (Hoover & Associates, 1986d). Water production during drilling was extremely low (1-2 gpm) and the test hole was subsequently abandoned. Consequently, the hydraulic properties of the aquifer in this area are unknown.

Alluvium

Several wells penetrate alluvium in the site vicinity including the Las Cruces Wells #1 and #2, Caltrans Well and Pedotti Well (**Figure 7-1, Table 7-1**). Most alluvial wells in the area are reported to yield about 10 gpm (Hoover & Associates, 1986a). Aquifer tests (24-hour) were performed on the Las Cruces Wells #1 and #2 which yielded transsmissivity values of 660 and 2200 gpd/ft (Hoffman and Associates, 1986c and 1986b). Although these values suggest a wide range of aquifer characteristics, it is possible that the age and poor condition of the Las Cruces Well #1 may have affected the test results. A 72-hour aquifer test was also performed on the Las Cruces Well #2 (Hoover & Associates, 1986c). The flow rate during the test was initially 10 gpm, but was reduced to 5 gpm after 7 hours due to excessive drawdown. Transmissivity of the aquifer, calculated from recovery data from the 72-hour test, is 181 and 907 gpd/ft respectively for deep and shallow parts of the aquifer (Hoover and Associates, 1986c). Therefore, it appears that the transmissivity of the alluvial aquifer is high variable.

Ground Water Quality

Selected analyses of ground water from wells in the site vicinity are summarized on **Table 7-2**. Water quality data are available for alluvium, and the Matilija and Alegria formations. In general, groundwater in the area is of moderate to poor quality with alluvial groundwater characterized by slightly better quality with alluvial groundwater characterized by slightly better quality than groundwater in the bedrock aquifers. The concentration of total dissolved solids (TDS) in groundwater from alluvial or suspected alluvial wells range from 912 to 1703 parts per million (ppm). The high range in values may be due to partial mixing with poorer quality bedrock groundwater which may be entering some of the wells. The Las Cruces Well #2 reportedly penetrates only alluvium and produces water with a TDS of 1057 ppm (Hoffman and Associates, 1986c). Alluvial water collected from the Las Cruces Well #2 during 24 and 72 hour aquifer tests showed approximately the same quality. The water exceeds the State Health drinking water standards for manganese and turbidity. Hydrogen sulfide (H_2S) analysis is available only for the Las Cruces Well #2 and indicates that H_2S is present in low concentration in the alluvium.

Groundwater in the Matilija Formation was analyzed after 24 and 72 hour aquifer tests (**Table 7-2**). Analyses showed an overall decline in water quality from the 24 to the 72 hour test. The water has a TDS of 1280 ppm with a relatively high H_2S content (31.6 ppm). The water exceeds State Health drinking water standards for sulfate, electrical conductance and TDS.

Groundwater in the Alegria Formation is of poor quality with TDS concentrations ranging from 1674 to 2898 ppm (**Table 7-2**). Alegria Formation groundwater also has a relatively high H_2S and iron content.

Groundwater Use

Two wells currently extract groundwater in the area. These are the Pedotti and State Park wells (**Figure 7-1**). Water from these wells is used primarily for domestic purposes. The Pedotti Well extracts water from the alluvial aquifer (See Hydraulic Properties) for use at the ranch house and surrounding buildings. Annual yield of the well is unknown but likely does exceed several acre feet per year (AFY).

The State Park well extracts water from the Alegria Formation for use at Gaviota State Park campground. Annual yield of this well is unknown.

In addition a third well, Chevron-Alegria, which has been drilled and tested but is not presently operating is located in the area, This well will extract water from the Alegria Formation, to be used for the Chevron Gaviota processing facility.

Groundwater Recharge and Discharge

Groundwater within the bedrock aquifers in the site area is recharged primarily by direct infiltration of rainfall and runoff, and possibly by seepage from overlying alluvial aquifers (Miller and Rapp, 1968). Additional recharge may occur through underflow of groundwater from adjacent bedrock aquifers. Groundwater in alluvium is recharged primarily through direct infiltration of rainfall and runoff, by discharge of bedrock aquifers and springs, and possibly to a minor extent by percolation of irrigation/septic water. Because of the general lack of well and aquifer data in the area including history of use information, quantitative estimates of the amount of annual recharge to the aquifer systems can not be made.

The majority of groundwater discharge from bedrock aquifers in the site area is through base flow or low flow in streams and underflow in alluvium, and possibly by underflow into adjacent bedrock aquifers. Bedrock aquifers in the area may also discharge groundwater through springs, evapotranspiration and by well pumpage (Miller and Rapp, 1968). Groundwater in alluvium is discharged by streamflow, evapotranspiration, infiltration into underlying bedrock aquifers and well pumpage. Quantitative estimates of discharge from aquifers in the site are not available.

Existing Flood Hazards

The West Fork Gaviota Creek has experienced several moderate floods in recent years. The United States Geological Survey (USGS) stream gauge located on Gaviota Creek about 1 mile downstream of the site has recorded the peak flows shown in Table 7-3. These floods have not caused any significant damage near the site except for stream bank erosion that has partially underminded San Julian Road in several locations.

Peak flows for the 100-year flood at the project site were determined based on measured stream flows at the USGS stream gauge on Gaviota Creek. Table 7-4 shows the peak flow and recurrence interval for floods at the Gaviota Creek stream gauge calculated using Log-Pearson Type III frequency analysis. The 100-year peak flow calculated for the gauge site was then transferred to the project site using the peak flow relationship:

$$Q_1 = Q2\ (A_1/A_2)^{0.70}$$

Where: Q_1 = peak flow at the project site;
$Q2$ = peak flow at the gate site;
A_1 = drainage basin area at the project site; and
A_2 = drainage basin area at the gauge site.

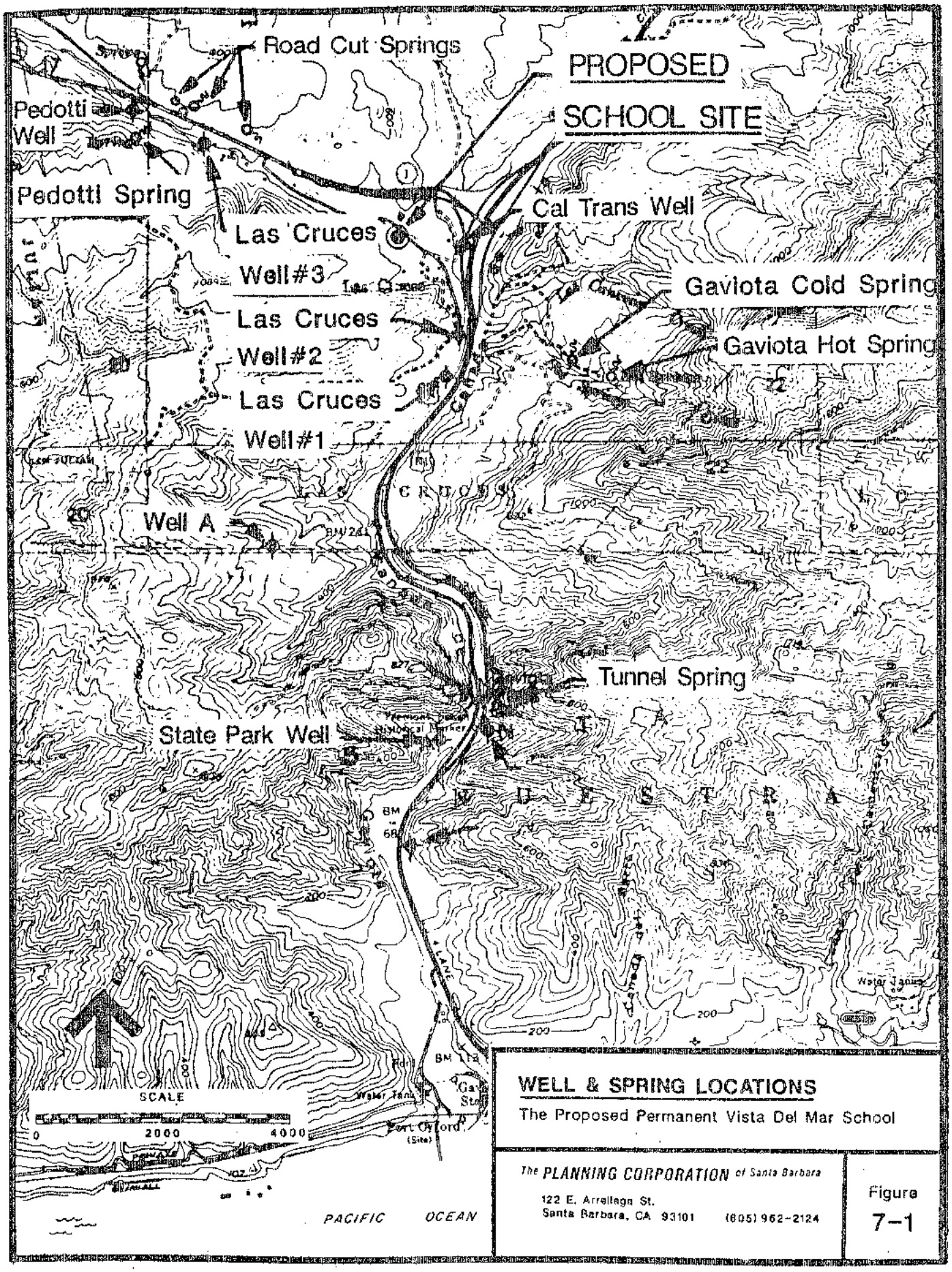
The exponent value (0.70) was obtained from regional investigations completed by Santa Barbara County Flood Control District (personal communication, Will Copeland, SBCFCD). Estimated peak flows at various points near the project site are reported in Table 7-5.

The computer program HEC-2 was used to calculate the 100 year flood profile for Gaviota Creek and the West Fork Gaviota Creek in the vicinity of the project. The program uses a standard step backwater procedure that applies Bernoulli's Theorem at cross sections along the stream and Manning's equation for headloss between cross sections.

Cross sections were compiled from a combination of topographic maps made using aerial photography and field surveys where heavy brush prevented accurate mapping from photographs. Mapping was done at a scale of 1"=40' with 2 foot contour intervals. Field surveying was done to 1/2 foot elevation precision.

Manning's n values were estimated from field inspections and published guides. Channel n values ranged from 0.06 to 0.07. Overbank n values ranged from 0.09 to 0.10. The time of concentration is nearly the same for both the West Fork Gaviota Creek and Gaviota Creek at the project site. Therefore it was assumed that the peak flow in both creeks occurs at the same time. Starting water surface elevations for the computer modeling were based on peak flows.

Figure 7-2 shows the location of the 100 year flood plain along the West Fork Gaviota Creek in the site vicinity calculated using the HEC-2 computer program. Table 7-6 presents the elevation of the water surface at various locations along the creek. All project facilities are outside the 100 year plain. The only existing structures within the 100 year flood plain are the easterly of the two adobe buildings north of the creek, portions of San Julian Road and several bridges in the site vicinity.



WELL & SPRING LOCATIONS

The Proposed Permanent Vista Del Mar School

The PLANNING CORPORATION of Santa Barbara

122 E. Arrellaga St.
Santa Barbara, CA 93101 (805) 962-2124

Figure 7-1

100 YEAR FLOOD PLAIN

The Proposed Permanent Vista Del Mar School

The PLANNING CORPORATION of Santa Barbara
122 E. Arrellaga St.
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Figure 7-2

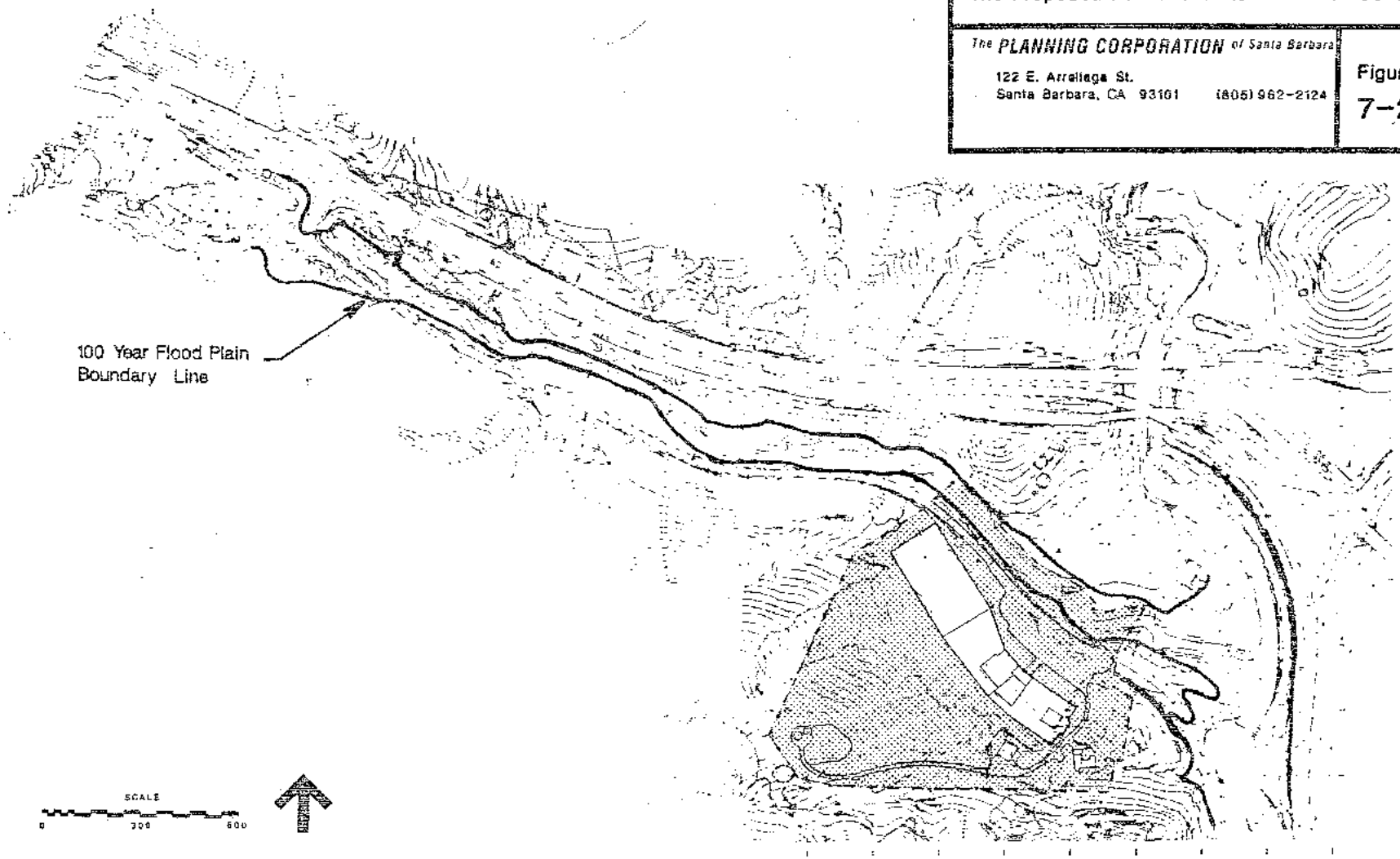


TABLE 7-1

WATER WELL AND AQUIFER CHARACTERISTICS
LAS CRUCES AREA

Well Name	Depth of Completed Well (feet)	Producing Aquifer	Casing Diameter (inches)	Perforated Interval	Yield (GPM)	Aquifer Transmissivity (GPD/ft)
Las Cruces Well #1	260	Alluvium	-	-	10	660
Las Cruces Well #2	60	Alluvium	8	30 - 50	10	2200 (24-hour) 181-907 (72-hou
Las Cruces Well #3	230	Matilija	8	100 - 220	22	220 (24-hour) 11-2574 (72-hou
Pedotti Well	132	Alluvium	-	-	10	-
CalTrans Well	148	Alluvium/ Gaviota?	8	40 - 148	9	-
State Park Well	485	Alegria	8	-	30	-
Chevron Alegria Well	650	Alegria	8	-	60	592
Well A	-	Gaviota?	-	-	<3	-
Well B	-	Alegria?	-	-	-	-

.1/3-T4:1

TABLE 7-2

WATER QUALITY INFORMATION

Aquifer	Well Name	Total Dissolved Solids (ppm)	H_2S (ppm)	Iron (mg/l)	Sulfate (mg/l)	Chloride (mg/l)	Bicarbonate (mg/l)	Carbonate (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Magnesium (mg/l)	Calcium (mg/l)	Fluoride (mg/l)	Manganese (mg/l)	Other
Alluvium/Anits[1],[2]	Pedoni Well	1703	-	0.4	696	82	451	None detected	5	100	55	314	0.6	<0.03	-
Alluvium[3]	Las Cruces Well #2 (24-hour test)	1057	slight odor (not analyzed)	0.2	247	68	439	None detected	3	226	16	56	1.0	0.18	High Turbidity
Alluvium[4]	Las Cruces Well #2 (72-hour test)	912	0.8	0.13	266	81	330	<1	2.3	170	48	57	0.08	0.09	Boron 0.4
Alluvium/Gaviota(?)[1],[5]	Las Cruces Well #1	952	slight to no odor (not analyzed)	1.7	198	46	433	None detected	5	210	12	48	0.7	0.04	High Turbidity
Alluvium/Gaviota[1],[6]	Cal Trans Well	1302	-	1.8 ppm	403	130	397	None detected	-	114	34	216	0.6 ppm	0.18 ppm	Very high Turbidity Boron 1.5ppm
Mesilla Formation[7]	Las Cruces Well #3 (24-hour test)	1280	31.6 (strong odor)	0.02	102	290	560	<1	3.8	324	26	12	1.65	.02	High color, odor and turbidity
Mesilla Formation[4]	Las Cruces Well #3 (72-hour test)	1692	Not analyzed	0.08	547	170	500	<1	2.6	490	29	23	0.88	.01	Boron 0.38m/l Boron 0.7
Alegria Formation[8]	State Park Well	2898	22 (strong odor)	-	-	-	-	-	-	-	-	-	-	-	-

98.1/3-TA.2

TABLE 7-2 (concluded)

Aquifer	Well Name	Total Dissolved Solids (ppm)	H_2S (ppm)	Iron (mg/l)	Sulfate (mg/l)	Chloride (mg/l)	Bicarbonate (mg/l)	Carbonate (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Magnesium (mg/l)	Calcium (mg/l)	Fluoride (mg/l)	Manganese (mg/l)	Other
Alegria Formation[9]	Chevron-Alegria Well	1674	(strong odor)	14	52	664	317	None detected	10.79	258	39.0	147	-	0.33	Noxious odor, very hard

1. Well probably derives all or most of yield from alluvium.
2. Hoffman and Associates, 1986d.
3. Hoffman and Associates, 1986c.
4. Hoover and Associates, 1986b.
5. Hoffman and Associates, 1986b.
6. Floyd V. Wells, Inc., 1985.
7. Hoover and Associates, 1986c.
8. Bill Howard, State Department of Parks and Recreation, Personal Communication.
9. Westec, 1985.

TABLE 7-3

HISTORIC PEAK FLOOD FLOWS
GAVIOTA CREEK NEAR GAVIOTA, CALIFORNIA
USGS GAUGE NO. 11120550

Date	Peak Flow (cfs)	Recurrance Interval (years)
1/23/83	5220	17
1/24/67	4000	10
1/18/73	3940	6

Notes: 1. Period of Record 1967-1985
2. Recurrance interval based on a Log-Pearson type III analysis.

TABLE 7-4

CALCULATED PEAK FLOOD FLOWS
GAVIOTA CREEK NEAR GAVIOTA, CALIFORNIA
USGS GAUGE NO. 11120550

Annual Exceedance Probability	Recurrance Interval (years)	Peak Flow (cfs)
0.50	2	1,005
0.20	5	3,034
0.10	10	5,130
0.02	50	11,868
0.01	100	15,571

Notes:
1. Period of Record 1967-1985
2. Generalized skew (-0.30) and systematic record skew (-0.538) used to develop a weighted skew (-0.413). Peak flows are based on the weighted skew.
3. Annual exceedance probability based on Log-Pearson Type III analysis.

TABLE 7-5

100-YEAR PEAK FLOOD FLOWS

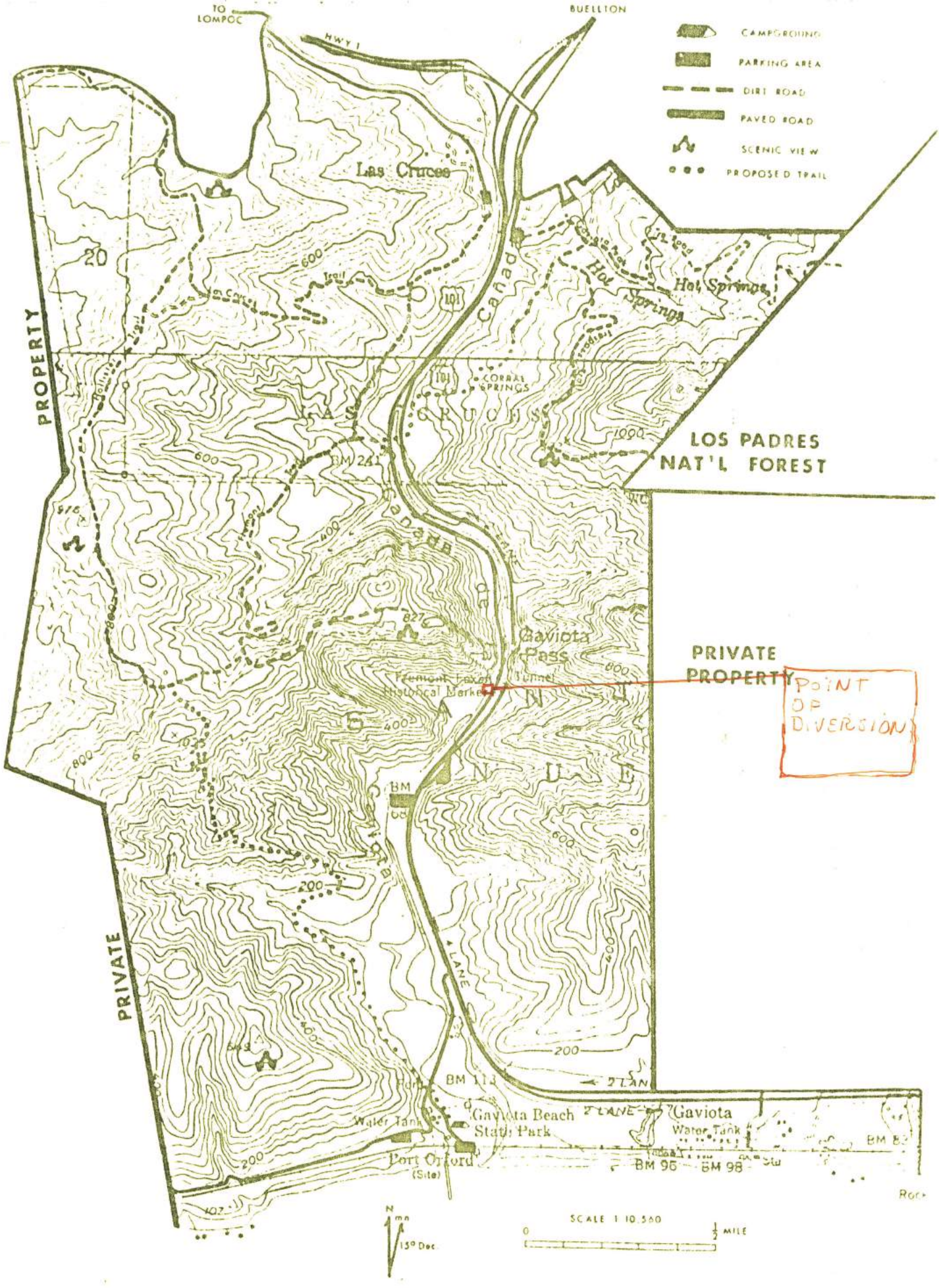
Stream	Location	100-Year Peak Flow (cfs)
Gaviota Creek	USGS Gauge No. 11120550	15,571
	Below confluence with West Fork Gaviota Creek	13,449
	Above confluence with West Fork Gaviota Creek	10,809
	Below confluence with East Fork Gaviota Creek	10,788
West Fork Gaviota Creek	Mouth	5,353
	San Julian Road Crossing	5,094

TABLE 7-6

100-YEAR FLOOD PROFILE
WEST FORK GAVIOTA CREEK

Cross-Section	100-Year Flood Elevation Existing Conditions (feet NGVD)
46+50	308.0
45+00	312.2
43+95	312.3
43+75	312.4
43+55	311.9
43+00	314.6
42+00	314.9
41+00	316.0
20+75	317.4
40+50	317.4
38+00	319.3
37+00	320.5
36+00	323.4
34+00	326.8
32+00	330.9
30+00	333.7
28+00	339.1
27+00	340.9
26+00	342.3
23+50	346.9
22+00	351.8
20+00	357.2
19+00	360.1
17+00	365.9
15+00	371.7
12+50	375.4

Note: Elevations referenced to National Geodedic Vertical Datum (NGVD).



GAVIOTA STATE PARK

m-/81

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FROM: Don Beauchamp — ROOM/STA. NO.:

REPRESENTING: G & S

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